

**DAWN GATEWAY PIPELINE
PROJECT – BICKFORD TO DAWN
PIPELINE
ENVIRONMENTAL AND SOCIO-
ECONOMIC ASSESSMENT
REPORT**

File No. 160960438



Prepared for:
Dawn Gateway LP
50 Keil Drive
Chatham, ON
N7M 5M1

Prepared by:
Stantec Consulting Ltd.
70 Southgate Drive, Suite 1
Guelph, ON
N1G 4P5

March 2009

Executive Summary

Dawn Gateway LP (Dawn Gateway) is the proponent of the Dawn Gateway Pipeline Project, which in Canada consists of the purchase of two existing natural gas transmission pipelines and the construction of a new natural gas transmission pipeline in the County of Lambton, Ontario.

The new pipeline proposed for construction is a 24-inch outside diameter (610 mm) steel natural gas pipeline starting from the Bickford Compressor Station in St. Clair Township (Lot 6, Concession XII) and ending at the Dawn Compressor Station in Dawn-Euphemia Township (Lot 25, Concession I). The target in-service date for the proposed pipeline is November 1, 2010. The pipeline is hereafter referred to as the Bickford to Dawn pipeline.

Dawn Gateway retained Stantec Consulting Ltd. (Stantec) to prepare an Environmental and Socio-Economic Report (ESA) for construction and operation of the proposed Bickford to Dawn pipeline to meet the intent of the National Energy Board's (NEBs) *Filing Manual (February 2008)* and the *Canadian Environmental Assessment Act (1992)*. This ESA document forms part of the Section 58 application by Dawn Gateway to the National Energy Board (NEB) to construct and operate the pipeline.

The ESA for the purchase of the two existing pipelines has been prepared as a separate report.

The Bickford to Dawn ESA report describes the process used to identify and evaluate corridor alternatives for the proposed pipeline, in order to select a Preferred Corridor. The Report also considers the environmental and socio-economic setting, and the potential environmental and socio-economic effects associated with the proposed construction and operation of the pipeline. Based on these potential impacts, mitigation and protective measures are recommended to minimize these effects.

In preparing the ESA report, input was received from interested parties and stakeholders through a consultation program, including federal, provincial and municipal agencies and authorities, First Nations, landowners and member of the general public. The information gathered during the consultation program provided important data concerning local environmental and socio-economic features. Stantec has considered this information during corridor selection to address the potential environmental and socio-economic effects of the construction and operation of the proposed pipeline and recommended appropriate mitigation and protective measures.

A Study Area was established based on a review of the area and preliminary assessment of corridor opportunities and constraints between the Project endpoints. The principal objective in defining the Preferred Corridor was to select an acceptable corridor in consideration of environmental, socio-economic, technical, and economic factors.

**DAWN GATEWAY PIPELINE PROJECT – BICKFORD TO DAWN PIPELINE
ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENT REPORT**

Executive Summary

March 2009

The Preferred and Alternative Corridors for the proposed pipeline were identified and analyzed by Stantec and Dawn Gateway using published information, field reconnaissance, aerial photo interpretation, and through information provided by stakeholders, First Nations, and members of the public through the consultation program.

The Preferred Corridor (approximately 17 km in length) extends from the Bickford Compressor Station eastward to the Dawn Compressor Station, bounded by Bentpath Line to the north and Smith Line to the south (see **Appendix A, Figure No. A-6**). A preliminary preferred route within the corridor is being determined by Dawn Gateway in consultation with Stantec.

Physical, biophysical, and socio-economic features were identified within the Preferred Corridor for the proposed pipeline. A detailed review of the potential effects of the Project on these features and proposed mitigation measures is provided in the ESA Report. An analysis of the cumulative effects relating to construction and operation of the proposed pipeline along the Preferred Corridor are also summarized within the report. To ensure that the proposed mitigative measures are properly implemented, inspection, monitoring and follow-up recommendations are provided, as are recommendations for supplemental studies.

In the opinion of Stantec, the recommended program of contingency measures, mitigation and protection, restoration, inspection, monitoring and follow-up, and supplemental studies addresses the concerns raised during the consultation program, as well as potential impacts arising from construction and operation of the pipeline, including potential cumulative effects. With the implementation of the mitigation measures detailed in the ESA Report during the construction and operation phases of the Project, in conjunction with related programs and plans, Stantec is of the opinion that no significant adverse residual environmental or socio-economic effects will occur as a result of the Project.

Acronyms and Abbreviations

ANSI	Area of Natural and Scientific Interest
AQI	Air Quality Index
CEA	Cumulative Effects Assessment
CEAA	Canadian Environmental Assessment Act
CFU	Colony Forming Units
CLI	Canada Land Inventory
COSSARO	Committee on the Status of Species at Risk in Ontario
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CSA	Canadian Standards Association
DFO	Fisheries and Oceans Canada
EHS	Environment, Health and Safety
EMS	Emergency Medical Services
EPP	Environmental Protection Plan
ESA	Environmental and Socio-Economic Assessment
FBI	Family Biotic Index
LS	Life Science Site
MNR	Ministry of Natural Resources
MOE	Ministry of the Environment
NEB	National Energy Board
NHIC	Natural Heritage Information Centre
NPRI	National Pollutant Release Inventory
OD	Outside Diameter
OP	Official Plan
SCN	Soybean Cyst Nematode
SCRCA	St. Clair Region Conservation Authority
SNA	Significant Natural Area
WSSD	Wet Soil Shutdown

**DAWN GATEWAY PIPELINE PROJECT – BICKFORD TO DAWN PIPELINE
ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENT REPORT**

Acronyms and Abbreviations
March, 2009

This page left blank intentionally.

Table of Contents

EXECUTIVE SUMMARY	E.1
ACRONYMS AND ABBREVIATIONS.....	A.1
1.0 INTRODUCTION.....	1.1
1.1 OVERVIEW	1.1
1.2 APPROVAL PROCESS AND REGULATORY FRAMEWORK	1.1
1.3 ENVIRONMENTAL ASSESSMENT	1.2
1.3.1 Process	1.2
1.3.2 Project Study Area	1.3
1.3.3 Purpose and Organization of the Report	1.3
1.3.4 Contact.....	1.4
1.4 CONCORDANCE WITH THE NEB <i>FILING MANUAL</i>	1.4
2.0 PROJECT DESCRIPTION AND ACTIVITIES	2.1
2.1 PROJECT DESCRIPTION	2.1
2.2 PROJECT ACTIVITIES	2.1
2.2.1 Construction.....	2.1
2.2.2 Operation and Maintenance.....	2.2
2.2.3 Decommissioning and Abandonment	2.3
2.2.4 Accidents, Malfunctions and Unplanned Events.....	2.3
3.0 CONSULTATION.....	3.1
3.1 CONSULTATION GOALS.....	3.1
3.2 DESIGN OF THE CONSULTATION PROGRAM.....	3.1
3.2.1 Stakeholder and First Nation Identification	3.1
3.2.2 Consultation Methods	3.2
3.3 IMPLEMENTATION OF THE CONSULTATION PROGRAM	3.3
3.3.1 Consultation Activities.....	3.3
3.3.2 Ongoing Consultation	3.5
3.3.3 Consultation Findings	3.5
4.0 ENVIRONMENTAL AND SOCIO-ECONOMIC SETTING	4.1
4.1 PHYSICAL ENVIRONMENT	4.1
4.1.1 Geology.....	4.1
4.1.2 Physiography	4.1
4.1.3 Surficial Geology.....	4.1
4.1.4 Natural Hazards.....	4.2
4.1.5 Climate.....	4.2
4.2 SOIL AND SOIL PRODUCTIVITY	4.3
4.2.1 Soil Characteristics	4.3
4.2.2 Canada Land Inventory.....	4.4

DAWN GATEWAY PIPELINE PROJECT – BICKFORD TO DAWN PIPELINE ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENT REPORT

Table of Contents

4.2.3	Artificial Drainage.....	4.5
4.2.4	Contaminated Soils and Sediments.....	4.5
4.3	VEGETATION.....	4.6
4.4	WATER QUALITY AND QUANTITY.....	4.7
4.4.1	Surface Water Quality and Quantity.....	4.7
4.4.2	Groundwater Quality and Quantity.....	4.9
4.5	FISH AND FISH HABITAT.....	4.9
4.6	WETLANDS.....	4.10
4.7	WILDLIFE AND WILDLIFE HABITAT.....	4.10
4.8	SPECIES AT RISK OR SPECIES OF SPECIAL STATUS.....	4.13
4.8.1	Terrestrial.....	4.14
4.8.2	Aquatic.....	4.16
4.9	AIR QUALITY.....	4.17
4.10	ACOUSTIC ENVIRONMENT.....	4.18
4.11	HUMAN OCCUPANCY AND RESOURCE USE.....	4.18
4.11.1	Municipal Structure.....	4.18
4.11.2	Land Use.....	4.19
4.11.3	Designated Natural Areas.....	4.19
4.11.4	Natural Resource Use.....	4.20
4.12	HERITAGE RESOURCES.....	4.20
4.12.1	Archaeological Overview.....	4.20
4.12.2	Heritage Overview.....	4.20
4.13	TRADITIONAL LAND AND RESOURCE USE.....	4.21
4.14	SOCIAL AND CULTURAL WELL-BEING.....	4.21
4.15	HUMAN HEALTH AND AESTHETICS.....	4.22
4.16	INFRASTRUCTURE AND SERVICES.....	4.22
4.16.1	Infrastructure.....	4.22
4.16.2	Services.....	4.23
4.17	EMPLOYMENT AND ECONOMY.....	4.24
5.0	CORRIDOR SELECTION.....	5.1
5.1	CORRIDOR OBJECTIVES, CONSTRAINTS AND OPPORTUNITIES.....	5.2
5.1.1	Objectives.....	5.2
5.1.2	Constraints and Opportunities.....	5.2
5.2	GENERATION OF ALTERNATIVE CORRIDORS.....	5.3
5.3	INPUT ON ALTERNATIVE CORRIDORS.....	5.3
5.4	ALTERNATIVE CORRIDOR ANALYSIS AND SELECTION OF A PRELIMINARY PREFERRED CORRIDOR AND PRELIMINARY ROUTES.....	5.4
5.4.1	Analysis of Alternative Corridors.....	5.4
5.4.2	Selection of a Preliminary Preferred Corridor.....	5.5
5.4.3	Selection of Preliminary Routes.....	5.5

**DAWN GATEWAY PIPELINE PROJECT – BICKFORD TO DAWN PIPELINE
ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENT REPORT**

Table of Contents

5.5	INPUT ON THE PRELIMINARY PREFERRED CORRIDOR AND PRELIMINARY ROUTES	5.5
5.6	SELECTION AND CONFIRMATION OF A PREFERRED CORRIDOR AND PREFERRED ROUTE.....	5.6
6.0	ENVIRONMENTAL AND SOCIO-ECONOMIC EFFECTS ASSESSMENT	6.1
6.1	METHODOLOGY	6.1
6.1.1	Spatial and Temporal Boundaries.....	6.1
6.1.2	Scope of the Assessment	6.2
6.1.3	Effects Assessment	6.2
6.2	CONSTRUCTION AND OPERATION	6.4
6.2.1	Physical Environment	6.4
6.2.2	Soil and Soil Productivity	6.4
6.2.3	Vegetation.....	6.8
6.2.4	Water Quality and Quantity.....	6.9
6.2.5	Fish and Fish Habitat	6.12
6.2.6	Wetlands.....	6.12
6.2.7	Wildlife and Wildlife Habitat	6.13
6.2.8	Species at Risk or Species of Special Status	6.14
6.2.9	Air Quality	6.15
6.2.10	Acoustic Environment	6.16
6.2.11	Human Occupancy and Resource Use.....	6.17
6.2.12	Heritage Resources	6.19
6.2.13	Traditional Land and Resource Use	6.19
6.2.14	Social and Cultural Well-Being	6.20
6.2.15	Human Health and Aesthetics	6.21
6.2.16	Infrastructure and Services	6.22
6.2.17	Employment and Economy	6.23
6.2.18	Accidents, Malfunctions and Unplanned Events.....	6.23
6.3	EFFECTS OF THE ENVIRONMENT ON THE PROJECT	6.27
6.3.1	Seismic Activity	6.27
6.3.2	Flooding	6.28
6.3.3	Severe Weather	6.28
6.4	SUMMARY OF EFFECTS ASSESSMENT	6.31
7.0	CUMULATIVE EFFECTS ASSESSMENT	7.1
7.1	METHODOLOGY	7.1
7.2	STUDY BOUNDARIES	7.2
7.2.1	Spatial.....	7.2
7.2.2	Temporal.....	7.2
7.3	ANALYSIS OF CUMULATIVE EFFECTS	7.3
7.3.1	Year 2009: Baseline Conditions.....	7.3
7.3.2	Year 2010-2011: Construction	7.3

**DAWN GATEWAY PIPELINE PROJECT – BICKFORD TO DAWN PIPELINE
ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENT REPORT**

Table of Contents

7.3.3	Year 2016: Operation and Maintenance	7.4
7.4	SUMMARY OF CUMULATIVE EFFECTS ASSESSMENT	7.6
8.0	INSPECTION, MONITORING AND FOLLOW-UP	8.1
8.1	COMPANY POLICIES AND PROGRAMS	8.1
8.2	INSPECTION AND MONITORING	8.3
8.3	FOLLOW-UP	8.4
9.0	RECOMMENDED SUPPLEMENTAL STUDIES	9.1
9.1	ENVIRONMENTAL STUDIES.....	9.1
9.1.1	Water Wells.....	9.1
9.1.2	Watercourse Crossings.....	9.1
9.1.3	Geotechnical	9.1
9.1.4	Vascular Plants and Ecological Communities.....	9.2
9.1.5	Wildlife Habitat and Species	9.2
9.2	SOCIO-ECONOMIC STUDIES	9.2
9.2.1	Archaeology and Heritage	9.2
9.2.2	Agriculture.....	9.2
10.0	CONCLUSION	10.1
11.0	REFERENCES.....	11.1

Table of Contents

List of Tables

Table 1-1	Legislation for which Permits/Approvals may be Applicable to the Project	1.2
Table 1-2	Concordance with the NEB <i>Filing Manual</i>	1.5
Table 2-1	Pipeline Construction Activities	2.1
Table 2-2	Pipeline Operation and Maintenance Activities	2.3
Table 3-1	Summary of Interests and Project Resolution	3.6
Table 4-1	Average (1971-2000) Weather Statistics for Sarnia, Ontario	4.3
Table 4-2	Classification of Active Landfills	4.5
Table 4-3	Classification of Closed Landfills	4.6
Table 4-4	Municipal Drain Classifications	4.8
Table 4-5	Watershed Report Card Water Quality Information	4.8
Table 4-6	Common Wildlife Species Found in the Vicinity of the Study Area	4.10
Table 4-7	Terrestrial Species at Risk or Species of Special Status	4.14
Table 4-8	Aquatic Species at Risk or Species of Special Status	4.16
Table 4-9	St. Clair Township NPRI Reporting Facilities (2007) *	4.17
Table 5-1	Non-Relevant Evaluation Criteria	5.4
Table 5-2	Relevant Evaluation Criteria	5.5
Table 6-1	Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects	6.33

List of Figures

Figure 4-1	St. Clair Township Labour Force by Industry	4.25
Figure 4-2	Dawn-Euphemia Township Labour Force by Industry	4.26
Figure 5-1	Corridor Evaluation Process	5.1

Table of Contents

List of Appendices

Appendix A	Report Figures
	Figure No. A-1: Location of the Project
	Figure No. A-2: Study Area
	Figure No. A-3: Alternative Corridors
	Figure No. A-4: Preliminary Preferred Corridor
	Figure No. A-5: Preliminary Potential Routes
	Figure No. A-6: Preferred Corridor
Appendix B	Project Consultation
	Appendix B1: Stakeholder and First Nation Contact List
	Appendix B2: Notice of Project Commencement
	Appendix B3: PIS #1 Consultation and Communication Materials
	Appendix B4: PIS #2 Consultation and Communication Materials
	Appendix B5: Summary of Correspondence
	Appendix B6: Agency Correspondence
	Appendix B7: Public Correspondence
Appendix C	Features Mapping
	Figure No. C-1: Soil Types
	Figure No. C-2: Canada Land Inventory Classification
	Figure No. C-3: Artificial Tile Drainage
	Figure No. C-4: Socio-Economic Features
	Figure No. C-5: Environmental Features
	Figure No. C-6: Water Wells
	Figure No. C-7: Hydrocarbon Features
Appendix D	Photomosaics
Appendix E	Archaeological Assessment Report
Appendix F	Traditional Ecological Knowledge Report

1.0 Introduction

1.1 OVERVIEW

Dawn Gateway LP (Dawn Gateway) is the proponent of the Dawn Gateway Pipeline Project, which in Canada consists of the purchase of two existing natural gas transmission pipelines and the construction of a new natural gas transmission pipeline in the County of Lambton, Ontario.

The new pipeline proposed for construction is a 24-inch outside diameter (O.D.) (610 mm) steel natural gas pipeline starting from the Bickford Compressor Station in St. Clair Township (Lot 6, Concession XII) and ending at the Dawn Compressor Station in Dawn-Euphemia Township (Lot 25, Concession I). The targeted in-service date for the proposed pipeline is November 1, 2010. The pipeline would be approximately 17.0 km long, and is hereafter referred to as the Bickford to Dawn pipeline.

Stantec Consulting Ltd. (Stantec) was retained by Dawn Gateway to prepare this Environmental and Socio-Economic Assessment (ESA) for the proposed Bickford to Dawn pipeline. This ESA document forms part of the Section 58 application by Dawn Gateway to the National Energy Board (NEB) to construct and operate the pipeline.

The ESA for the purchase of the existing pipelines has been prepared as a separate report.

1.2 APPROVAL PROCESS AND REGULATORY FRAMEWORK

This ESA has been prepared to fulfill reporting requirements under Section 58 of the *National Energy Board Act (NEB Act)* and has been undertaken in accordance with the *NEB Filing Manual (February 2008)*. Pursuant to Section A.2 of the *Filing Manual*, the level of detail provided in the ESA corresponds to the nature and magnitude of the Project, its anticipated effects, and the level of public interest in the Project.

Approval under Section 58 of the *NEB Act* constitutes a *Canadian Environmental Assessment Act (1992) (CEAA)* trigger. The ESA has been prepared to meet the requirements of Section 16(1) of the *CEAA (1992)*, including applicable regulations and guidelines. The ESA will also form the foundation for future Project-related environmental compliance activities.

The Bickford to Dawn pipeline may require additional permits and/or approvals from various federal agencies, provincial agencies and municipalities, including but not limited to those listed in **Table 1-1**.

Table 1-1 Legislation for which Permits/Approvals may be Applicable to the Project

Legislation/Regulation	Agency	Activity
Federal		
Fisheries Act	Fisheries and Oceans Canada	Works potentially impacting fish and fish habitat
Navigable Waters Protection Act	Transport Canada	Works potentially impacting navigable watercourses
Species at Risk Act	Environment Canada	Works potentially impacting species at risk and their habitat
Provincial		
Conservation Authorities Act	St. Clair Region Conservation Authority	Works potentially impacting watercourses and municipal drains
Endangered Species Act	Ministry of Natural Resources	Works potentially impacting endangered species and their habitat
Heritage Act	Ministry of Culture	Works potentially impacting archaeological resources
Ontario Water Resources Act	Ministry of the Environment	Works taking more than 50,000 L of water/day
Technical Standards and Safety Act	Technical Standards and Safety Authority	Pipeline operation and safety
Municipal		
Excess Load Permit	Lambton County – Public Works	Transportation of goods not conforming to the standards detailed in the Highways Traffic Act
Pipeline Agreement	Lambton County – Public Works	Pipeline works under, along, or across county roads
Woodlands Conservation By-Law	Lambton County – Planning and Development	Works potentially impacting woodlots

1.3 ENVIRONMENTAL ASSESSMENT

1.3.1 Process

This ESA was initiated and prepared in 2008/2009 by a multidisciplinary team of environmental planners and scientists. Dawn Gateway provided environmental support and engineering expertise throughout the study as required. The various steps in the ESA have been divided into three phases.

Phase I: Inventory and Mapping of Existing Conditions

The study commenced with the identification and delineation of the Project Study Area and notification to relevant federal, provincial, and municipal agencies, as well as First Nations and public interest groups, of the formal commencement of the ESA process for the Dawn Gateway Pipeline. Environmental and socio-economic features and conditions in the Study Area were mapped and characterized using relevant and current published and unpublished literature, maps and digital data. Discussions with regulatory agencies provided information essential for compiling the environmental inventory. Geographically based environmental features and conditions were incorporated onto a series of digital base maps (see **Appendix C**). This phase also included the identification of Alternative Corridors. The Alternative Corridors were identified based on the criteria outlined in **Section 5.1.1**.

Phase II: Pipeline Corridor Selection Process

Phase II involved the evaluation of the Alternative Corridors, identification of a Preliminary Preferred Corridor, and confirmation of the Preliminary Preferred Corridor. The Alternative Corridors were assessed through an evaluation of the environmental and socio-economic features potentially affected by pipeline construction and/or operation. The identification of the Preliminary Preferred Corridor followed discussions with agencies, Dawn Gateway, field surveys and Phase I activities, and comments received at the first Public Information Session. Comments received at the second Public Information Session aided in the confirmation of the Preferred Corridor and selection of a Preliminary Preferred Route.

Phase III: Recommended Mitigation Measures

Phase III included identification of features and site-specific mitigation and protective measures, and a description of the residual environmental effects of the Project.

1.3.2 Project Study Area

The Study Area for the ESA was determined through professional judgment, experience with the well-known and generally predictable environmental and socio-economic effects of natural gas pipeline construction, operation and maintenance activities, and a preliminary assessment of routing opportunities and constraints. The location of the Project is shown in **Appendix A, Figure No. A-1**, and the Study Area is shown in **Appendix A, Figure No. A-2**.

1.3.3 Purpose and Organization of the Report

The ESA report has been prepared to fulfill the requirements of the NEB *Filing Manual* (February 2008) and the CEAA (1992). The contents of the ESA report, including mitigative measures, inspection and monitoring plans, will form the foundation for future environmental management activities related to the Project. The ESA has relied on technically sound and consistently applied procedures that are replicable and transparent. The report provides documentation of the ESA activities undertaken to assess the effects of constructing and operating the proposed pipeline. The ESA report is organized into the following sections:

- 1.0 Introduction:** provides a description of the Project, the regulatory framework, the environmental assessment process, and concordance with the NEB *Filing Manual* (February 2008);
- 2.0 Project Description:** details the Project components and activities;
- 3.0 Consultation:** describes the consultation program undertaken for the ESA;
- 4.0 Corridor Selection:** provides a detailed description of the pipeline corridor selection process;
- 5.0 Environmental and Socio-Economic Setting:** describes existing environmental and socio-economic conditions;

-
- 6.0 Environmental and Socio-Economic Effects Assessment:** describes the potential impacts of constructing and operating the proposed pipeline, recommends mitigation and protective measures, and assess the significance of predicted adverse residual effects;
- 7.0 Cumulative Effects Assessment:** provides a description of the potential cumulative effects as well as an assessment of their significance;
- 8.0 Inspection, Monitoring and Follow-Up:** describes the inspection and monitoring plans to address potential impacts of the Project, as well as the proposed follow-up program;
- 9.0 Recommended Supplemental Studies:** describes recommended additional studies to be undertaken for the Project; and,
- 10.0 Conclusions:** provides conclusions related to the significance of potential adverse residual environmental, socio-economic and cumulative effects associated with the Project.

The ESA report also includes a list of appendices for referenced documentation.

1.3.4 Contact

David Wesenger
Senior Environmental Planner
Stantec Consulting Ltd.
70 Southgate Drive, Suite 1
Guelph, Ontario, N1G 4P5
Phone: 1-866-842-7559
Email: david.wesenger@stantec.com

1.4 CONCORDANCE WITH THE NEB *FILING MANUAL*

This report complies with the ESA requirements outlined in Section A.2 of the NEB *Filing Manual (February 2008)*. The specific filing requirements, and the sections of the ESA report in which filing requirements are fulfilled, are provided in **Table 1-2**.

**DAWN GATEWAY PIPELINE PROJECT – BICKFORD TO DAWN PIPELINE
ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENT REPORT**

Introduction
March 2009

Table 1-2 Concordance with the NEB Filing Manual

Filing #	Filing Requirement	Reference
A.2.4 Description of the Environmental and Socio-Economic Setting		
1.	Identify and describe the current biophysical and socio-economic setting. Include a map.	Section 4.0
2.	Describe and quantify the biophysical and socio-economic elements in the study area that are of ecological, economic or human importance. Determine which biophysical or socio-economic elements require more detailed analysis. Where circumstances trigger a requirement for more detailed information to complete an ESA, see Table A-4 or Table A-5.	Section 4.0 Section 6.0
3.	Provide supporting evidence for information and data collected, analysis completed, conclusions reached, and professional judgement or experience provided in meeting these information requirements.	Section 4.0
4.	Identify, describe and justify the methodology used for any surveys. Justify or plan for further surveys if season for a survey conducted was not optimal.	Section 9.0
A.2.5 Effects Assessment		
Identification and Analysis of Effects		
1.	Identify potential effects associated with the proposed project, including construction, operation, decommissioning, abandonment, accidents and malfunctions, and effects that the environment could have on the project. Describe the methods used to predict the potential effects of the project on the biophysical and socio-economic setting, and the effects of the environment on the project - Identify and justify the elements for which effects are predicted.	Sections 6.2 and 6.3 Section 6.1
2.	For those biophysical and socio-economic elements that require further analysis, describe, quantify, and justify appropriate: - Spatial and temporal boundaries for the effects analysis of the biophysical or socio-economic element, or valued component with the project, including how this element could change from baseline over the life of the project; - Local and regional conditions of the biophysical or socio-economic element, or valued component; and, - Key receptors that could potentially be affected by the project and a change in the element of concern.	Sections 6.2 and 6.3
3.	Provide an effects analysis of the project for each biophysical or socio-economic elements, or valued component: - Describe the methods used for the effects analysis, including assumptions, rationale for the selected approach and conclusions, and an indication of the level of uncertainty associated with the analysis; - Describe the location, abundance, status, sensitivity to the project, ability to recover, and natural variation of affected elements, or valued components; - Describe the factors influencing change, the limiting factors, and the natural variation for each biophysical or socio-economic element, or valued component, if known; - Describe the magnitude and the reversibility of any potential change from baseline conditions; and, - Identify the biological-based thresholds, management objectives, land use plans and recovery plans, where available.	Sections 6.1, 6.2 and 6.3
4.	For each biophysical or socio-economic element, or valued component, provide or reference any supporting information that was used in the project effects analysis. Describe the methods used for any modelling, and where professional knowledge or experience is cited, justify how the resulting conclusions or decisions were reached.	Sections 6.1, 6.2 and 6.3
5.	Provide detailed information outlined in Tables A-4 and A-5 for elements identified in Table A-3.	Sections 6.2 and 6.3
Mitigation Measures		
1.	Describe the general and specific mitigation measures and their effectiveness to address the project-specific effects, or clearly reference sections of company manuals that provide mitigation measures.	Sections 6.2 and 6.3

Table 1-2 Concordance with the NEB Filing Manual

Filing #	Filing Requirement	Reference
	- Identify and describe any alternative routes or sites considered to be mitigation; - Provide any alternative mitigation considered to the proposed mitigation measures and provide a comparative analysis or the considered mitigation measures; - If more than one mitigation option is proposed, provide the criteria that will be applied to select the mitigation to be used; - If new mitigation measures are to be used, provide a rationale for their use and how their effectiveness will be evaluated; - Where a third party prepares the ESA, provide a statement to adopt and implement all mitigation recommendations included in the application. Explain any mitigation recommendations not adapted and provide alternative approaches, as appropriate; - Identify any federal, provincial, territorial or other conditions of approval related to the mitigation of environmental or socio-economic effects.	
2.	Describe how commitments regarding mitigative measures will be communicated to field staff for implementation. If communication will be through the development of a document such as an Environmental Protection Plan (EPP), identify when this document will be submitted to the NEB.	Section 6.1.3
3.	Describe any plans or programs that may be used to mitigate potential effects (e.g. emergency plans, waste management plans and EPPs).	Sections 6.1, 6.2 and 6.3
Evaluation of Significance		
1.	Evaluate the likelihood and significance of residual adverse effects.	Sections 6.2 and 6.3
2.	Define the 'significant effect' for each biophysical or socio-economic element or valued component.	Sections 6.2 and 6.3
3.	Describe the methodology for determining whether the project is likely to cause significant adverse effects and justify conclusions.	Sections 6.1, 6.2 and 6.3
A.2.6 Cumulative Effects Assessment		
Scoping and Analysis of Cumulative Effects		
1.	Identify potential effects for which residual effects are predicted in the ESA	Sections 6.2 and 6.3
2.	For each biophysical or socio-economic element or valued component where residual effects have been identified, provide a description of the spatial and temporal boundaries used to assess the potential cumulative effects. - Identify other projects and activities that have occurred or are likely to occur within the residual effects boundaries; - Identify whether those projects and activities will produce effects on the biophysical or socio-economic element, valued components within the identified boundaries; - Consider whether these effects act in combination with the project's residual effects and if so, include those projects or activities in the cumulative effects assessment; and, - Provide a rationale if not including any other identified projects or activities.	Sections 7.2 and 7.3
3.	Provide a cumulative effects analysis of the proposed project in combination with other projects and activities for each biophysical or socio-economic element, or valued component. - Include the various components, phases and activities associated with the project that could interact with other projects or activities; - Consider the residual effects of the proposed project in combination with the effects of other projects and activities; - Consider whether the proposed project is incrementally responsible for adversely affecting a biophysical or socio-economic element or valued component beyond an acceptable point (i.e. threshold) using a transparent approach supported by a rationale or scientific evidence; - Provide a description of the nature of the cumulative effects acting on the biophysical or socio-economic element, valued components; - Clarify the project's contribution to the total cumulative effect on a biophysical or socio-economic element, or valued component; - Reference information, such as federal, provincial or territorial databases, scientific literature, status reports, recovery plans, or follow-up studies as appropriate; and, - Where professional knowledge and experience is cited, provide justification as to how the resulting conclusions or decisions were reached.	Section 7.3

Table 1-2 Concordance with the NEB Filing Manual

Filing #	Filing Requirement	Reference
Evaluation of Significance		
1.	Evaluate the likelihood and significance of adverse residual cumulative effects.	Section 7.3
2.	Define the 'significant cumulative effect' for each biophysical or socio-economic element or valued component that was part of the cumulative effects assessment.	Section 7.3
3.	Describe the methodology for determining whether the project is likely to cause significant cumulative effects and justify any conclusions.	Sections 7.1 and 7.3
A.2.7 Inspection, Monitoring and Follow-up		
1.	Describe, in sufficient detail to demonstrate adequacy and effectiveness, plans to ensure compliance with biophysical and socio-economic commitments – to identify positions accountable and responsible for monitoring and ensuring compliance, describe inspection procedures including the authority of environment inspectors, and indicate required qualifications including training and experience of individuals who will be undertaking inspection and monitoring responsibilities.	Sections 8.1 and 8.2
2.	Evaluate the need to monitor the elements potentially affected by the project and if needed describe, in sufficient detail to demonstrate adequacy and effectiveness, the environmental monitoring plan to be implemented during construction, reclamation, and operation of the project. The plan should include: - Procedures for identifying and tracking environmental issues, resolving any environmental issues specific to the project including sampling programs or site-specific investigations as appropriate, and monitoring the effectiveness of mitigation and reclamation based on established reclamation criteria; - A description of the frequency or schedule for implementing the procedures listed above; and, - The criteria for assigning specific monitoring procedures to certain environmental issues.	Sections 8.1, 8.2 and 8.3
3.	Where a project triggers the CEA Act, evaluate the need for element-specific follow-up programs to verify the accuracy of the ESA and to determine the effectiveness of any mitigation measures that were implemented, particularly those mitigation measures that are new or unproven.	Section 8.3

This page left blank intentionally.

2.0 Project Description and Activities

2.1 PROJECT DESCRIPTION

The Bickford to Dawn Pipeline will involve the following components:

- Construction and operation of approximately 17 km of 24-inch O.D. (610 mm) pipeline from the Bickford Compressor Station (Lot 6, Concession XII) to the Dawn Compressor Station (Lot 25, Concession 1). The new Bickford to Dawn pipeline will be located in Lambton County, Ontario in the Townships of St. Clair and Dawn-Euphemia.
- Disconnection of attachments to the Union Gas system at the Bickford Compressor Station, and installation of a valve site with provision for pig launcher/receiver facilities outside the Dawn Compressor Station.
- Various temporary facilities during the construction of the Bickford to Dawn pipeline, including temporary construction workspace, equipment storage sites, and construction office sites.
- Target in-service for the Bickford to Dawn pipeline is November 1, 2010. Clearing is planned for the winter of 2010 followed by pipeline construction in the summer and fall of 2010.

2.2 PROJECT ACTIVITIES

2.2.1 Construction

The activities required to prepare the right-of-way, construct and install the pipeline, and undertake post-construction rehabilitation are summarized in **Table 2-1** below.

Table 2-1 Pipeline Construction Activities	
Construction Phase	Associated Activities
Surveying	Boundaries of the right-of-way, temporary workspaces, facility sites and avoidance areas (existing utilities, protected habitats, etc.) will be surveyed and staked.
Clearing	All fences crossing the right-of-way will be braced and cut, and temporary gates will be installed as required. Trees, brush and other vegetation will be cleared from the right-of-way, temporary workspaces, and temporary access roads (as required).
Topsoil Salvage	Topsoil will be salvaged to ensure that soil capability is maintained. Equipment used may include graders, bulldozers and/or backhoes.
Grading	Grading will be conducted on slopes and irregular ground surfaces to provide a safe and clean work surface.
Stringing	Pipes will be laid on wooden skids adjacent to the trench area. Whenever possible, the stringing trucks will travel down the centre of the proposed trench to minimize compaction.
Trenching	The trench will be excavated using a trenching machine or hydraulic hoe to a depth sufficient to provide the specified minimum depth of cover. Laneways and driveways will be left over the trench as long as possible where requested by the landowner. All tiles that are cut during trench excavation will be flagged and

Table 2-1 Pipeline Construction Activities

Construction Phase	Associated Activities
	repaired as quickly as possible.
Watercourse and Road Crossings	Pipelines will be constructed to cross watercourses and roads, based on the construction technique chosen.
Pipe Preparation, Welding, and Lowering-In	The pipe will be bent, lined-up, welded, coated and inspected prior to being lowered into the trench. Given the nature of the landscape, sand-padding or swamp-weights are not anticipated.
Backfilling	The trench will be backfilled with the originally excavated subsoil. Any disturbed or broken tiles will be repaired, and may be inspected by landowners. Surplus spoil will be removed from the right-of-way.
Hydrostatic Testing	The pipeline will be hydrostatically tested, using water from either a municipal or natural source (following appropriate legislation and regulations).
Purge and Packing	The new pipeline will be purged and packed with natural gas.
Station Work	There will be disconnection of attachments to the Union Gas system at the Bickford Compressor Station, and installation of a valve site outside the Dawn Compressor Station.
Clean-up and Restoration	On farmland, restoration may entail subsoiling or deep chisel ploughing and stone picking. The trench line will be crowned to allow for soil settlement over the trench. The right-of-way will be recontoured and ditch banks will be restored. Final restoration will involve repairs to fences, picking up debris, seeding, and installing pipeline markers.

2.2.2 Operation and Maintenance

The Bickford to Dawn pipeline will be operated and maintained in accordance with Dawn Gateway's Pipeline Maintenance and Integrity Program, which will be designed to detect, prevent, avoid and mitigate any potential environmental effects. Detailed procedures and programs will be developed to ensure operation and maintenance activities comply with applicable provincial and federal legislation, regulations and guidelines including the NEB *Onshore Pipeline Regulations (1999)* and the Canadian Standards Association (CSA) *CSA Z662-07: Oil and Gas Pipeline Systems*.

Pipeline operation consists of monitoring and regulating the natural gas flowing through or being stored in the pipeline. The initial gas pressure in the pipeline will be generated at the compressor stations. Mainline valves located along the Dawn Gateway Pipeline will serve to shut off and isolate the pipeline for maintenance and security purposes. Above-ground facilities along the pipeline will include post-mounted signs at roads, property lines, drains and watercourses identifying the location of the pipeline, and small test boxes located along fence lines at roads to test the corrosion protection.

Operation and maintenance activities will be communicated as appropriate through a Landowner and Community Relations Program, and will be outlined in a Pipeline Maintenance and Integrity Program (**Section 8.1**). Once in operation, the following activities will be undertaken to patrol and maintain the pipeline.

Table 2-2 Pipeline Operation and Maintenance Activities

Operation/Maintenance Phase	Associated Activities
Right-of-Way Inspection	Inspection of the right-of-way will be conducted from land and air. Land-based inspections will consist of 'line walks' of the entire pipeline twice yearly (spring and fall). Air-based inspections will consist of visual assessment from an airplane or helicopter monthly during the winter and weekly for the remainder of the year. The inspections will search for problems that may affect the integrity and safe operation of the pipeline and pipeline facilities (such as erosion, environmental issues, and damage to pipeline markers and signs).
Vegetation Maintenance	Vegetation control, if warranted, will be conducted in accordance with applicable legislation and regulations.
Pipeline Cleaning and Testing	The pipeline will be cathodically protected to prevent or minimize external corrosion. Pipeline inspections will include use of in-line inspection tools and cathodic protection readings. In the event that an actual or suspected pipeline integrity problem is identified, the pipeline will be exposed, inspected, and repaired as required. Such maintenance digs will be conducted in a similar manner to the pipeline construction activities. The pipeline will be cleaned at regular intervals by a 'cleaning pig' to remove any accumulated water and waste. Venting of natural gas may be required for the above activities.

2.2.3 Decommissioning and Abandonment

It is difficult at this time to predict when or how the Bickford to Dawn pipeline will be decommissioned and abandoned at the end of its useful life. The NEB is also undertaking a Land Matters Consultation Initiative which is examining, among other matters, the financial and physical issues related to pipeline abandonment. Any decommissioning and abandonment will need to be considered in light of conditions and regulations/legislation that exists at the time that such activities occur. Decommissioning or abandonment activities will require prior approval by the NEB, and compliance with any other relevant regulatory requirements at that time. Presently, pursuant to paragraph 74(1)(d) of the *NEB Act*, an application would be required to abandon the facility, at which time the environmental effects would be assessed by the NEB. Dawn Gateway will commit to complying with the legislation, regulations, codes and guidelines in place at such future time.

2.2.4 Accidents, Malfunctions and Unplanned Events

Certain accidents, malfunctions and/or unplanned events may occur during construction and operation of the pipeline. Those that were considered for the purpose of this ESA include:

- Accidental spills;
- Vehicle accidents and equipment malfunctions;
- Pipeline leak or rupture;
- Unauthorized access to the right-of-way;
- Construction delays; and,
- Unexpected finds (archaeological, paleontological or historical resources; contaminated soils).

These events are discussed in more detail in **Section 6.2.18**.

This page left blank intentionally.

3.0 Consultation

3.1 CONSULTATION GOALS

Dawn Gateway, in conjunction with its environmental consultant Stantec, developed a consultation program for the Dawn Gateway Pipeline. The goals of the consultation program are:

- Identify early in the process any stakeholders and First Nations who could potentially be affected by the Project.
- Inform potential stakeholders and First Nations throughout the various phases of the Project by sharing information in a clear, concise, relevant, and timely manner.
- Create appropriate opportunities for meaningful input and advise stakeholders and First Nations of their opportunities to communicate with the NEB.
- Understand and respond to issues or concerns in an effort to ensure they are resolved or mitigated.
- Document how stakeholder and First Nations input has been responded to and influenced the Project.
- Revise the consultation program to meet the needs of the Project, stakeholders and First Nations, as appropriate.
- Maintain ongoing communication with stakeholders and First Nations throughout the construction and operation phase of the Project.

3.2 DESIGN OF THE CONSULTATION PROGRAM

3.2.1 Stakeholder and First Nation Identification

The identification of stakeholders and First Nations was undertaken using a variety of methods. Agency stakeholders were identified through the Ontario Ministry of the Environment's *Environmental Assessment Government Review Team Master Distribution List*, and recommendations from Dawn Gateway, Stantec, and agencies. The identification of public stakeholders was accomplished through a search of landowner registries, sign-in sheets for two Public Information Sessions, and correspondence received throughout the consultation program. First Nations were identified through the 'Chiefs of Ontario' website, the *Historical Indian Treaties Atlas of Canada*, and guidance from Indian and Northern Affairs Canada and the Ministry of Aboriginal Affairs. The stakeholders and First Nations identified through the consultation program included:

Federal Agencies: Canadian Environmental Assessment Agency, Environment Canada, Fisheries and Oceans Canada, Health Canada, Indian and Northern Affairs Canada, International Boundary Commission, International Joint Commission, Natural Resources Canada, Transport Canada

Provincial Agencies and Authorities: Ministry of Aboriginal Affairs, Ministry of Agriculture Food and Rural Affairs, Ministry of Culture, Ministry of Energy, Ministry of the Environment, Ministry of Municipal Affairs and Housing, Ministry of Natural Resources, Ministry of Transportation, Ontario Realty Corporation, St. Clair Region Conservation Authority, Technical Standards and Safety Authority

Municipal and Local Stakeholders: Elected Officials, Hydro One Networks Inc., Lambton Christian Farmers Association, Lambton County, Lambton County Woodlot Owners Association, Lambton Federation of Agriculture, Lambton Wildlife Inc., Landowners, Local Residents, Rural Lambton Stewardship Network, Township of Dawn-Euphemia, Township of St. Clair

First Nations: Aamjiwnaang First Nation, Chippewas of Kettle and Stony Point, Walpole Island First Nation

A complete list of identified stakeholders and First Nations is located in **Appendix B1**.

3.2.2 Consultation Methods

Consultation methods were designed to present information, gather stakeholder and First Nations input, and fulfill the goals of the consultation program. Consultation methods employed were:

- Notices and Letters: Notification of Project commencement and two Public Information Sessions were published in local newspapers, and mailed directly to stakeholders and First Nations. While each notification served a different purpose, they all described the current status of the Project, provided proponent contact information, and requested feedback in order to understand stakeholder and First Nations needs.
- Public Information Sessions: Public Information Sessions were held to provide information on the Project status, and to gather stakeholder and First Nations input. Project information was provided through display boards and newsletters.
- Meetings: In-person meetings with stakeholders and First Nations were held upon request. The opportunity for such meetings was advertised throughout the consultation program.
- Discussions: Discussions occurred with stakeholders through telephone and e-mail correspondence, as well as at the two Public Information Sessions.
- Tracking and Responding to Input: Project input was gathered through requests in notices and letters, and conversations and exit questionnaires at the Public Information Sessions. Contact information, including toll-free telephone numbers, for Dawn Gateway and Stantec project staff was also provided.
- Future Consultation and Follow-up: Opportunities for stakeholder and First Nations input during the regulatory, construction, and operational phases of the Project will be managed through the Landowner and Community Relations Program. Information on this program is provided in **Section 8**.

3.3 IMPLEMENTATION OF THE CONSULTATION PROGRAM

3.3.1 Consultation Activities

Notice of Commencement

Dawn Gateway began formal consultation in September 2008. A Notice of Commencement described the Project, provided a Study Area map for the Bickford to Dawn pipeline, introduced the intention to hold a Public Information Session, noted Dawn Gateway's intention to complete an ESA as per NEB requirements, and provided proponent contact information.

The Notice of Commencement appeared October 1st, 2008 in the Sarnia Observer, Sarnia and Lambton County This Week, and the Wallaceburg Courier Press. The Notice was also circulated to relevant federal and provincial agencies, municipal contacts, elected officials, local stakeholder organizations, and First Nations in a letter-format. In addition to the above content, the letter requested information on existing environmental conditions and policies, and other developments within the Bickford to Dawn pipeline Study Area.

Copies of the notification advertisement and letters can be found in **Appendix B2**.

Stakeholder and First Nations Meetings

On September 23rd, 2008 a meeting occurred between Dawn Gateway, Dr. Dean Jacobs – Executive Director of the Walpole Island Heritage Centre, and Chief Joseph Gilbert of the Walpole Island First Nation. The purpose of the meeting was to present the Project, Project need, the Study Area and to determine what type of engagement Walpole Island First Nation would consider appropriate. Walpole Island First Nation, who acted as the lead First Nation and having specific interests and/or land claims in the area, requested a traditional ecological knowledge study for the area involved with construction for the Bickford to Dawn pipeline.

Public Information Session #1

Public Information Session #1 was held on Thursday, December 11th, 2008 from 6:30 p.m. to 9:00 p.m. at the Wilkesport Community Centre.

A Notice of Public Information Session described the Project, provided a map, stated Dawn Gateway's intention to apply to the NEB for necessary approvals, introduced the purpose of the upcoming Public Information Session, and listed proponent contact information. The Notice appeared December 3rd, 2008 in the Sarnia Observer, Sarnia and Lambton County This Week, and the Wallaceburg Courier Press. The Notice was circulated to the stakeholders and First Nations contact list, as well as landowners along the existing pipelines and within the Bickford to Dawn pipeline Study Area. A separate Notice describing the Project, soliciting feedback and providing an invitation to the Public Information Session was also mailed to municipal contacts.

A copy of the notification advertisement and letters can be found in **Appendix B3**.

The Public Information Session, designed for informal drop-in, presented the components of the Project, and alternative corridors and existing conditions for the Bickford to Dawn pipeline.

Representatives from Stantec and Dawn Gateway were present to provide Project information and answer inquiries. Copies of the NEB brochures *A Proposed Pipeline or Powerline Project: What You Need to Know*, and *Living and Working near Pipelines: Landowner Guide 2005*, as well as a newsletter summarizing the Project, were available. All attendees who registered their attendance had their contact information added to the Project contact list to ensure they received future Project notices. An exit questionnaire was provided for attendees to submit questions and comments. Exit questionnaires were received at the Session, and later via mail (pre-addressed, pre-stamped envelopes were provided). Where requested in their exit questionnaire, attendees were contacted by telephone to discuss the Project and any questions or comments they had.

Copies of the display boards, newsletter, exit questionnaire, and exit questionnaire results can be found in **Appendix B3**.

Stakeholder and First Nations Meetings

On December 12th and 13th, 2008, interviews were held at the Walpole Island Heritage Centre with ten members of Walpole Island First Nation. The purpose of the interviews was to obtain traditional ecological knowledge for the proposed Bickford to Dawn pipeline. Results of the meeting are outlined in a Traditional Ecological Knowledge Report, located in **Appendix F**, which is summarized in **Section 4.13**.

On January 29th, 2009 a meeting occurred between Dawn Gateway and staff from the Township of Dawn-Euphemia and Lambton County to discuss the Dawn Gateway Pipeline. The construction activities for the Bickford to Dawn pipeline were discussed as a component of the Project.

Public Information Session #2

Public Information Session #2 was held on Tuesday, February 10th, 2009 from 6:30 p.m. to 9:00 p.m. at the Wilkesport Community Centre.

A Notice of Public Information Session described the Project, provided a map, stated Dawn Gateway's intention to apply to the NEB for necessary approvals, introduced the purpose of the upcoming Public Information Session, and listed proponent contact information. The Notice appeared January 28th, 2009, in the Sarnia Observer, Sarnia and Lambton County This Week, and the Wallaceburg Courier Press. The Notice was circulated to the stakeholder and First Nations contact list, as well as landowners along the existing pipelines and within the Bickford to Dawn pipeline Study Area. A separate Notice describing the Project, soliciting feedback and providing an invitation to the Public Information Session was also mailed to municipal contacts.

A copy of the notification advertisement and letters can be found in **Appendix B4**.

The Public Information Session, designed for informal drop-in, presented the components of the Project, and the preliminary preferred corridor and preliminary potential routes for the Bickford to Dawn pipeline. Representatives from Stantec and Dawn Gateway were present to provide

Project information and answer inquiries. Copies of the NEB brochures *A Proposed Pipeline or Powerline Project: What You Need to Know*, and *Living and Working near Pipelines: Landowner Guide 2005*, as well as a newsletter summarizing the Project, were available. All attendees who registered their attendance had their contact information added to the Project contact list to ensure they received future Project notices. An exit questionnaire was provided for attendees to submit questions and comments. Exit questionnaires were received at the Session, and later via mail (pre-addressed, pre-stamped envelopes were provided). Where requested in their exit questionnaire, attendees were contacted by telephone to discuss the Project and any questions or comments they had.

Copies of the display boards, newsletter, exit questionnaire, and exit questionnaire results can be found in **Appendix B4**.

Notice of Study Completion

Following submission of the Section 58 application by Dawn Gateway to the NEB, a Notice of Study Completion will be mailed to the stakeholder and First Nations contact list, as well as landowners along the existing pipelines and within Corridor A and Corridor B of the Bickford to Dawn pipeline. The Notice will describe the Project, provide a map, outline that Dawn Gateway has submitted an application to the NEB, and list proponent contact information.

3.3.2 Ongoing Consultation

Dawn Gateway is committed to additional consultation activities, as necessary and appropriate. Such activities may include face-to-face meetings, on-site meetings, and direct communications (telephone calls/conferences, emails, etc.). The nature of additional consultation activities will be based upon need, and will be consistent with the goals of the consultation program.

Opportunities for stakeholder input during the regulatory, construction, and operational phases of the Project will be managed through the Landowner and Community Relations Program. Details of this program are outlined in **Section 8.1**.

3.3.3 Consultation Findings

Through implementation of the consultation program, Dawn Gateway has been able to solicit and respond to input. Extensive effort has been made to evaluate and integrate, where reasonable and feasible, this input into the planning and design of the Project. A summary of agency and public correspondence is provided in **Appendix B5**, complete copies of agency correspondence are located in **Appendix B6**, and complete copies of public correspondence are located in **Appendix B7**. No correspondence was received from First Nations outside of the meetings noted in **Section 3.3.1**.

An overview of the key interests raised by agencies and the public is provided below. This section concludes with a summary of how key interests have been addressed.

Agencies

Federal, provincial and municipal government officials were consulted to ascertain the specific technical, environmental, and social interests that would need to be addressed by the Project. In general, the key interests raised by agencies are the identification of existing conditions and First Nations, the construction process and associated mitigation measures, and required regulations, legislation and/or permits.

Public

Landowners, stakeholder organizations and members of the public were consulted to confirm information regarding the Study Area, and to gain their input on the Project. In general, the key interests raised by the public are the identification of existing conditions, the final pipeline route, the construction process and associated mitigation measures, regulations and compensation related to the easement and safety zone, and environmental concerns related to watercourses and woodlots.

Consultation Findings

A summary of the interests expressed by agencies and member of the public, and a reference to the relevant section(s) of the ESA Report where the Project's response to the interest is discussed, is contained in **Table 3-1**.

Table 3-1 Summary of Interests and Project Resolution

Interests	Project Resolution
Identification of Existing Conditions and First Nations	Sections 4.0 and 3.2.1
Final Pipeline Route	Section 5.0
Construction Process and associated Mitigation Measures	Section 6.0
Regulations and Compensation related to the Easement and Safety Zone	Section 6.2.14
Environmental Concerns related to Watercourses and Woodlots	Sections 6.2.2, 6.2.3 and 6.2.4
Required Regulations, Legislation and/or Permits.	Section 1.2

4.0 Environmental and Socio-Economic Setting

The following section outlines the baseline environmental and socio-economic conditions located within the Study Area, based upon categories from the NEB *Filing Manual (February 2008)*. The analysis, integration, and synthesis of the data collected is an iterative process since information becomes available at various stages of the study and at different mapping scales. The level of detail of data and mapping increases as the study moves from analysis of the Study Area, to analysis of Alternative Corridors, and finally, to a site specific survey of features along the Preferred Corridor. The environmental and socio-economic information presented in this ESA Report is based on data provided by individuals and agencies through the public consultation program, and data from published reports cited throughout the ESA Report. Where agencies requested that information be kept confidential, such as the precise location of rare, threatened, vulnerable or endangered species and archaeological sites, such information has been withheld from the report or mapped in such a way that specific site locations cannot be determined.

4.1 PHYSICAL ENVIRONMENT

4.1.1 Geology

The Study Area overlies Paleozoic bedrock of the Kettle Point Formation (Chapman and Putnam, 1984). The Kettle Point Formation is composed predominantly of thin-bedded, organic-rich, grey to black shale (Hewitt, 1972). This formation is disconformably overlain by the Port Lambton Group, a group of clastic rocks mainly of grey and black shales and sandstones.

4.1.2 Physiography

The Study Area is located within the St. Clair Clay Plain physiographic region. This region has little topographic relief, generally lying between 175 m and 210 m above sea level; there is a deep overburden of clay till often in excess of 40 m. Within the St. Clair Clay Plain, the Study Area lies within the Lambton Clay Plain, which is underlain by black shale. The Lambton Clay Plain is a bevelled till plain featuring a shallow veneer of lacustrine clay over the underlying till (Chapman and Putnam, 1984).

4.1.3 Surficial Geology

The glacial history of the area has resulted in a topography that is generally flat, with the Sydenham River Valley featuring the only significant variation. Quaternary features in the Study Area are till, lacustrine deposits, and alluvium (Fitzgerald and Hradsky, 1980). The majority of the area is composed of either black shale till, or glaciolacustrine deep water silt and clay deposits. Modern alluvial sand, silt and clay are associated with a few municipal drains, as well as the North Sydenham River Valley which also contains older alluvial deposits.

4.1.4 Natural Hazards

Natural hazards are elements of the physical environment which have the potential to affect a Project in an adverse manner. Potential natural hazards in the Study Area are limited, given the agricultural land use and the flat topography. The Study Area is not located in a permafrost area (Natural Resources Canada, 2009a), and no recorded landslides (Natural Resources Canada, 2009b) or avalanches (Natural Resources Canada, 2009c) have occurred in the surrounding area. There are also no active volcanoes in the vicinity of the Study Area (Natural Resources Canada, 2009d). Natural hazards which may occur in the Study Area are seismic activity, the potential for flooding, and extreme weather events (e.g. high winds, severe precipitation, etc.).

Seismic Activity

Although earthquakes occur in all regions of Canada, certain areas have a higher probability of experiencing the damaging ground motions caused by earthquakes (known as seismic hazard). The probability of seismic hazard in the Study Area is rated a medium-low risk, which is typical for the majority of South-western Ontario (Natural Resources Canada, 2005).

Flooding

All watercourses in the Study Area (discussed in **Section 4.4.1**) have the potential for fluctuations in water levels. Due to the flat topography of the Study Area, and the location of the Study Area in the headwaters of the North Sydenham River, high water levels and/or flooding are possible during the freshet and periods of heavy precipitation for the North Sydenham River and several municipal drains.

Extreme Weather Events

Climate information for the Study Area is presented in **Section 4.1.5**.

4.1.5 Climate

The Study Area is located within the Lake Erie Counties Climatic Region (Brown et al., 1968). The climate of this region is moderated by the proximity of the Great Lakes and differs from location to location and from one year to another. There are several large bodies of water that moderate the climate of this region and result in relatively mild winters with moderate precipitation.

Table 4-1 presents weather statistics (values rounded) taken from the Sarnia Airport from 1971-2000 (Environment Canada, 2002).

Table 4-1 Average (1971-2000) Weather Statistics for Sarnia, Ontario

Weather Statistic	J	F	M	A	M	J	J	A	S	O	N	D
Mean Temperature (°C)	-5	-4	1	7	13	18	21	20	16	10	4	-2
Snowfall (cm)	32	26	19	5	0	0	0	0	0	2	10	30
Rain (mm)	22	24	44	70	70	86	74	77	94	64	67	41

Environment Canada, 2002

At the Sarnia Airport weather station, mean temperature from 1971 to 2000 has fluctuated from a high of 21°C to a low of -5°C. The warmest day within this time period occurred on June 25th, 1988 at 39.1°C, and the coldest day on January 18th, 1976 at -28.9°C. Throughout the year an average of 227.6 days occur without the temperature dropping below 0°C. The Study Area has, on average, 158 frost free days and a 213 day growing season (Brown et al., 1968). Snowfall largely occurs from December to March while rainfall can be expected throughout the year. The largest day of snowfall within this time period occurred on December 11th, 2000 with 38 cm, and the largest day of rainfall on September 7th, 1996 with 95.8 cm (Environment Canada, 2002).

4.2 SOIL AND SOIL PRODUCTIVITY

4.2.1 Soil Characteristics

Soils in the general area are quite uniform, as a result of their glaciolacustrine origin. Parent materials in the area are clay tills. Clay loam is the most common soil texture encountered. Four soil types occur within the Study Area: Brookston Clay, Caistor Clay, Bottom Land and Brisbane Loam (Matthews and Richards, 1957). The location of the soils are illustrated in **Appendix C, Figure No. C-1**.

Brookston Clay

The majority of the Study Area (87.17%) is comprised of Brookston Clay soil. This soil type has developed on a level to slightly sloping landscape that displays poor internal and external drainage properties. Brookston Clay soils are generally high in organic content; however, in St. Clair Township the organic content is lower than in most other parts of Lambton County. Due to the level topography of the Study Area, erosion is negligible. Agricultural yields on Brookston Clay soils without artificial drainage are limited. Crops are generally restricted to pasture, hay, and some cereal grains. With the addition of artificial drainage, crop productivity is increased and good yields of fall wheat, cereal grains, alfalfa, corn, sugar beets and soybeans can be achieved.

Caistor Clay

The second largest class of soils within the Study Area (9.53%) is Caistor Clay soil. This soil occurs on slightly undulating topography and exhibits hindered internal drainage characteristics due to compact subsoil, while external drainage is imperfect. The B₂ horizon tends to be fine textured and very compact therefore limiting water infiltration and root development. The soil is

moderately acidic and is naturally low in organic content. Caistor Clay soils are best utilized for livestock farming, legume crops (which improve aeration and drainage) and rotations that include some row crops.

Bottom Land

Bottom Land is located immediately adjacent to the North Sydenham River (3.29%); these lands are subject to seasonal flooding. The soil materials which have been deposited on these lands are a result of recent flooding and consist of layers of silt, sand, and clay intermixed with organic material. Generally, Bottom Land is moist all year. This excess moisture tends to exclude the use of Bottom Land for many farming practices. However, grass is able to grow in abundance on these lands, which makes them quite valuable for use as pasture. If serious flooding does not occur over the course of a growing season good crop yields can be obtained from Bottom Land.

Brisbane Loam

A small portion of land in the Study Area is classified as Brisbane Loam soil (0.01%). This soil is imperfectly drained, and occurs on level to slightly undulating topography. Brisbane Loam soil is a highly valued soil in this area and few farms are devoted solely to general farm crops, producing fair yields of wheat, corn, and cereal grains. The natural drainage is unsatisfactory for alfalfa. The soil responds well to applications of complete fertilizer even without improved drainage.

4.2.2 Canada Land Inventory

The Canada Land Inventory (CLI) is a multi-disciplinary land inventory of rural Canada, classifying land according to its capability to sustain agriculture, forestry, recreation, wildlife-ungulates, wildlife-waterfowl, and land use. In regards to agriculture there are seven classes and thirteen subclasses which reflect the soil's potential to produce field and forage crops. Lands classified as Class 1 have no significant limitations that restrict the productivity or range of crops grown, while those classified as Class 7 have no capability for arable culture or permanent pasture. Class 1 to 4 agricultural lands are generally considered capable of being farmed productively while lands with Class 1, 2 and 3 designations are considered prime for general field crop production. The classification system reflects limitations such as slope, shallow soils, climate, drainage and fertility. Organic soils are not rated in the classification system due to their inability to produce crops of any type.

Class 2 soils comprise 87.18% of the Study Area. Soils in this class have moderate limitations that restrict the range of crops or require moderate conservation practices. Under good management these soils are moderately high to high in productivity for a fairly wide range of crops. Class 3 soils comprise 9.53% of the Study Area. Soils in this class have moderately severe limitations that restrict the range of crops or require moderate conservation practices. Under good management these soils are fair to moderately high in productivity for a fair range of crops. Class 5 lands comprise 3.29% of the Study Area, having severe limitations that restrict their capability of producing perennial forage crops (Ministry of Natural Resources, 2008).

CLI categorization of lands within the Study Area is illustrated on **Appendix C, Figure No. C-2**.

4.2.3 Artificial Drainage

Artificial drainage in Ontario is mapped and categorized by the Ontario Ministry of Agriculture, Food and Rural Affairs into two types: random and systematic. Random drains are used to drain isolated wet areas of a field to improve the productivity of specific poorly drained areas; they have no uniform order or direction. Systematic drains are installed to improve the agricultural productivity of a larger area. Sub-surface tile drainage systems consist of piping placed under the soil including drainage lines, collector lines, outlets, and possibly a junction box (to check flows or inspect drains).

A large amount of the agricultural land within the Study Area (86.70%) has been improved with artificial drainage systems; approximately 85.98% being systematically drained, and the remaining 14.02% being randomly drained (Ministry of Natural Resources, 2008). **Appendix C, Figure No. C-3** illustrates the location and type of artificially drained lands within the Study Area.

4.2.4 Contaminated Soils and Sediments

Historical land use in the Study Area has been agricultural, and thus it is not expected that contaminated lands would be encountered. An assessment of contaminated lands was conducted by reviewing the Ministry of the Environment (MOE) Waste Disposal Site Inventory (MOE, 1991), Coal Gasification Plant Inventory (MOE, 1991), Coal Tar and Related Tars Inventory (MOE, 1991), and Brownfields Environmental Site Registry (MOE, 2008a), and the Federal Contaminated Sites and Solid Waste Landfills Inventory (Treasury Board of Canada Secretariat, 2008). The only inventoried sites located in the Study Area come from the MOE Waste Disposal Site Inventory.

MOE Waste Disposal Site Inventory

Landfills are classified by the MOE based on their potential to impact human health or the environment. Class 'A' sites are within 1 km of a dwelling, well, or watercourse used for domestic water. A site may also be categorized as Class 'A' if it is in an area that is likely to be developed in the future, if there is a significant aquifer within 10 m of the surface, or if there have been past problems at the site. Landfills that do not meet these criteria are categorized as Class 'B' **Tables 4-2 and 4-3** list classification types for active and closed landfills.

Table 4-2 Classification of Active Landfills

	Industrial Liquid or Hazardous Waste		Municipal or Domestic Waste	
	Urban	Rural	Urban	Rural
Class 'A'	A1	A2	A3	A4
Class 'B'	B1	B2	B3	B4

MOE, 1991

Table 4-3 Classification of Closed Landfills

	Industrial Liquid or Hazardous Waste		Municipal or Domestic Waste (Years Closed)					
	Urban	Rural	Urban			Rural		
			<10	10-20	>20	<10	10-20	>20
Class 'A'	A1	A2	A3	A5	A7	A4	A6	A8
Class 'B'	B1	B2	B3	B5	B7	B4	B6	B8
NP	No potential for impact on humans or the environment							

MOE, 1991

There is one registered closed waste disposal site in the Study Area. The Sombra Landfill Site is located at 1552 Indian Creek Road in the Township of St. Clair, was operated from 1964 to 1996, and is classified as A4. The landfill operated and subsequently closed under conditions outlined in Certificate of Approval No. A032103 issued by the MOE. The 14 acre site, encompassing a landfill area of approximately 11 acres, accepted 80% domestic waste, 10% commercial waste and 10% other waste. The location of the site can be seen in **Appendix C, Figure No. C-4**.

4.3 VEGETATION

The Study Area is located in the Niagara section of the Deciduous Forest Region (Rowe, 1972). This Region lies along the northern shores of Lake Erie and Lake Ontario, and the southeastern shore of Lake Huron. The Deciduous Region is a mixed forest influenced by a mild, lake moderated climate (Ministry of Natural Resources, 2002a). This area is also known as the Carolinian Forest. The extreme southern tip of Ontario represents the maximum northern limit of Carolinian Forest.

Forests in this region are dominated by broadleaved trees including sugar maple, American beech, basswood, red maple, red oak, white oak, bur oak, butternut, bitternut hickory, rock elm, silver maple and blue beech. Species such as black cherry, black walnut, sycamore, swamp white oak and shagbark hickory are also occasionally present. Species considered rare to the province, such as pignut hickory, tulip-tree, chinquapin oak, pin oak, black oak, black gum, blue ash, cucumber-tree, paw paw, Kentucky coffee-tree, red mulberry and sassafras are sporadically present. Coniferous trees such as hemlock, white pine, tamarack, eastern white cedar, eastern red cedar and black spruce may be found in isolated patches where soil conditions are favourable (Rowe, 1972).

Natural cover in the Study Area has been significantly altered due to clearing and draining for agriculture. Less than 8% of the Study Area contains wooded lands. Remnant natural and semi-natural cover is generally concentrated along back lot lines and adjacent to watercourses (**Appendix C, Figure No. C-5**).

4.4 WATER QUALITY AND QUANTITY

4.4.1 Surface Water Quality and Quantity

Portions of four sub-watersheds are located within the Study Area, these include: St. Clair River Tributaries, Lower Bear Creek, Black Creek and Lower North Sydenham River. Sections of the North Sydenham River, Bear Creek and Black Creek are all located in the Study Area. Each of these watercourses is considered to be warm, permanently flowing natural systems (St. Clair Region Conservation Authority (SCRCA), 2007).

In addition to the major watercourses there are numerous channelized municipal drains within the Study Area. Drains are classified according to the following characteristics: flow (i.e., permanent, intermittent), fish community, and temperature regime according to the *Class Authorization System for Agricultural Drains in the Southern Ontario Region* (Fisheries and Oceans Canada (DFO), 1999):

- Type 'A' Drains: permanent flowing, coldwater habitat that supports a baitfish community and contains no salmonids or sensitive species;
- Type 'B' Drains: permanent flowing, warm water habitat that supports baitfish in addition to top predators/ecosystem indicator fish species or other sensitive species, and which have been maintained (i.e., bottom clean-out) within the last ten years;
- Type 'C' Drains: permanent flowing, warm water habitat that supports a baitfish community and contains sensitive species;
- Type 'D' Drains: permanent cold/cool/unknown watercourses that could contain trout, other salmonid species or other sensitive species. Type D drains are sensitive to maintenance activities and projects associated with these drains are evaluated on a project-by-project basis to determine if the effects can be mitigated. In some cases a project specific authorization may be required under the *Fisheries Act (1985)*;
- Type 'E' Drains: permanent warm water habitat that supports top predators or sensitive species. Type E drains are sensitive to maintenance activities and projects associated with these drains are evaluated on a project-by-project basis to determine if the effects can be mitigated. In some cases a project specific authorization may be required under the *Fisheries Act (1985)*;
- Type 'F' Drains: intermittent drain (dry channel/no flow for three consecutive months of the year) that may support fish habitat when flow is present; and,
- Natural: not designated as a municipal drain and therefore not managed under the *Drainage Act (1990)*.

Based on information provided by the SCRCA, **Table 4-4** identifies the classification of municipal drains within the Study Area.

Table 4-4 Municipal Drain Classifications

Natural	A	B	C	D	E	F	Unclassified
3	0	0	8	0	0	33	12

Watercourses and municipal drains within the Study Area are illustrated in **Appendix C, Figure No. C-5**.

General water quality information has been obtained from SCRCA Watershed Report Cards for the watersheds included in the Study Area. The water quality information provided by the Watershed Report Cards includes: total phosphorus, e. coli and benthic invertebrates (SCRCA, 2007). The Watershed Report Cards assign a grade to watercourses for each of the three water quality parameters. Conservation Ontario developed a set of grades in conjunction with the 36 Conservation Authorities in Ontario. The grades are defined as (Ausable Bayfield Conservation Authority, 2007):

- A Indicates excellent ecosystem conditions and protection may be required. Some areas may require enhancement.*
- B Indicates good ecosystem conditions. Some areas may require enhancement.*
- C Indicates ecosystem conditions that need to be enhanced.*
- D Indicates poor ecosystem conditions that need to be improved.*
- F Indicates degraded ecosystem conditions that need considerable improvement.*

The water quality information provided by the 2007 Watershed Report Cards for the four sub-watersheds in the Study Area is presented in **Table 4-5** (SCRCA, 2007).

Table 4-5 Watershed Report Card Water Quality Information

Surface Water Parameter	North Sydenham River		Lower Bear Creek		Black Creek		St. Clair River Tributaries	
	Grade	Result	Grade	Result	Grade	Result	Grade	Result
Total Phosphorous (mg/L)	C	0.15	D	0.23	D	0.21	D	0.18
E.coli (cfu)	No Data	No Data	C	216	C	219	No Data	No Data
Benthic Invertebrates (FBI)	C	6.4	B	5.5	C	6.1	D	7.0

- Total Phosphorus is an element that enhances plant growth and contributes to excess algae and low oxygen in streams and lakes. The Ministry of the Environment has established an environmental health objective concentration of 0.03 mg/L.

- E. coli (Escherichia coli) are bacteria found in human and animal waste. Their presence in water indicates the potential for water to have other disease-causing organisms. The Ministry of Health has established a guideline of 100 colony forming units (cfu)/ 100 mL in recreational waters.

- Benthic Invertebrates are small animals without backbones that live in stream or lake sediments. The Family Biotic Index (FBI) summarizes the information about the numbers and types of these animals in a sediment sample. FBI values provide stream health information and values range from 1 (healthy) to 10 (degraded).

4.4.2 Groundwater Quality and Quantity

Groundwater in Lambton County is highly influenced by the presence of thick layers of clay soils. Groundwater flow is influenced locally by topography and the surface water drainage system, but regional flow is generally from east to west towards Lake Huron and the St. Clair River. Areas of potential groundwater recharge have been identified over much of the County; however, the low permeability of the clay till soils severely restricts the volume of water recharging deeper aquifers (MOE, 2005).

Groundwater quality analysis of the major aquifer in Lambton County indicated that chloride concentrations were often elevated, with approximately 55% of the samples containing chloride at a concentration higher than the Ontario Drinking Water Standards aesthetic objective of 250 mg/L. Chloride concentrations in the aquifer generally increased from east to west, with the highest levels in the County recorded in the City of Sarnia and Township of St. Clair. Some overburden wells in Lambton County have poor natural quality, being salty, sulphurous, or containing gas (Singer et al., 2003).

Water wells generally produce only enough water for limited residential and agricultural uses. Most potable well water is derived from the interface between the weathered and fractured upper bedrock and overburden consisting of a relatively thin layer of sand and gravel. However, a comprehensive surface water supply system services much of the County. The majority of the residents of Lambton County (88%) obtain their domestic water supplies from municipal water systems. Groundwater use accounts for less than 1% of total water use across the County; the portion of total water usage in the Township of St. Clair is less than 0.15%, while the portion of total water usage in the Township of Dawn-Euphemia is 73% (MOE, 2005). Water well records obtained from the MOE (2008b) indicate that 230 water wells have been drilled in the Study Area. **Appendix C, Figure No. C-6** illustrates the location of water wells within the Study Area. Average well depth is approximately 34 m. The well water supply is predominantly fresh and potable, and is generally used for domestic or livestock purposes. Average depth to bedrock is approximately 37 m.

4.5 FISH AND FISH HABITAT

As discussed in **Section 4.4.1**, portions of four sub-watersheds are located within the Study Area: St. Clair River Tributaries, Lower Bear Creek, Black Creek and Lower North Sydenham River. Watercourses in the Study Area are heavily channelized and impacted from surrounding land uses such as agriculture. SCRCA Watershed Report Cards indicate that the St. Clair River Tributaries contain 24 fish species, the Lower Bear Creek watercourses contain 45 fish species, the Black Creek watercourses contain 33 fish species, and the Lower North Sydenham River watercourses contain 13 species. Fish species present include northern pike (*Esox lucius*), walleye (*Sander vitreus*), largemouth bass (*Micropterus salmoides*), rock bass (*Ambloplites rupestris*), sunfish (*Lepomis* sp.) and many small-bodied fish species (SCRCA, 2007).

Reaches of the watercourses within the Study Area have been designated under the *Drainage Act (1990)*. As part of the DFO initiative, municipal drains have been classified according to

flow, temperature, fish species, and stability (length of time since the last cleanout). Although the purpose of the classification system is to allow for drain maintenance (carried out under the *Drainage Act (1990)*) without a full DFO review, the drain classification system is a good indicator of fish habitat, watercourse characteristics, and the types of fish that may be present. The classification system for watercourses within the Study Area is presented in **Section 4.4.1**.

4.6 WETLANDS

Two wetlands are located in the Study Area: Charlie Grant's Wetland and Bray's Swamp (Natural Heritage Information Centre (NHIC), 2008a). Neither of these wetlands has been evaluated as provincially significant. Charlie Grant's Wetland is 15.2 ha and is composed of two individual wetlands, which consist of two wetland types: 65% swamp and 35% marsh. The dominant vegetation forms are 81% deciduous trees, 17% robust emergents, and 2% narrow-leaved emergents. Bray's Swamp is one individual wetland that is 4.3 ha and composed of 100% swamp. The dominant vegetation forms are 89% deciduous trees, and 11% tall shrubs.

The locations of wetlands are shown on **Appendix C, Figure No. C-5**.

4.7 WILDLIFE AND WILDLIFE HABITAT

Wildlife depends on specific habitat types for survival, although some species are more sensitive to disturbance than others. Usually, habitat type is indicative of the types of species that occur in an area.

Herpetofauna, breeding bird and mammal species that have the potential to be found in the Study Area or within the vicinity are listed in **Table 4-6**. Common wildlife species were determined through the use of the *Ontario Herpetofaunal Summary Atlas* in conjunction with *Amphibians and Reptiles of Ontario*, *Atlas of the Breeding Birds of Ontario*, and *Atlas of the Mammals of Ontario* (Ministry of Natural Resources, 2002b; MacCulloch, 2002; *Atlas of the Breeding Birds of Ontario*, 2001-2005; and Dobbyn, 1994).

Due to the relatively small size of the fragmented woodlots in the Study Area, the avifauna is likely dominated by edge species that are relatively tolerant of disturbance. Species requiring larger forest tracks (forest interior and area sensitive species) will tend to concentrate in more extensive forests, natural areas and river valleys; however, these natural features are not common to the Study Area.

Table 4-6 Common Wildlife Species Found in the Vicinity of the Study Area

Common Name	Scientific Name
Amphibians	
Mudpuppy	<i>Necturus maculosus</i>
Red-spotted Newt	<i>Notophthalmus viridescens</i>
Blue-spotted Salamander	<i>Ambystoma laterale</i>
Spotted Salamander	<i>Ambystoma maculatum</i>
Northern Redback Salamander	<i>Plethodon cinereus</i>
American Toad	<i>Bufo americanus</i>
Tetraploid Gray Treefrog	<i>Hyla versicolor</i>

Table 4-6 Common Wildlife Species Found in the Vicinity of the Study Area

Common Name	Scientific Name
Western Chorus Frog	<i>Pseudacris triseriata</i>
Spring Peeper	<i>Pseudacris crucifer</i>
Bullfrog	<i>Rana catesbeiana</i>
Northern Green Frog	<i>Rana clamitans</i>
Wood Frog	<i>Rana sylvatica</i>
Northern Leopard Frog	<i>Rana pipiens</i>
Reptiles	
Snapping Turtle	<i>Chelydra serpentina</i>
Common Musk Turtle	<i>Sternotherus odoratus</i>
Midland Painted Turtle	<i>Chrysemys picta marginata</i>
Northern Map Turtle	<i>Graptemys geographica</i>
Blanding's Turtle	<i>Emydoidea blandingi</i>
Spotted Turtle	<i>Clemmys guttata</i>
Five-lined Skink	<i>Eumeces fasciatus</i>
Eastern Gartersnake	<i>Thamnophis sirtalis</i>
Butler's Gartersnake	<i>Thamnophis butleri</i>
Eastern Ribbon Snake	<i>Thamnophis sauritus</i>
Northern Watersnake	<i>Nerodia sipedon sipedon</i>
Queen Snake	<i>Regina septemvittata</i>
Redbelly Snake	<i>Storeria occipitomaculata</i>
Brown Snake	<i>Storeria dekayi</i>
Smooth Greensnake	<i>Opheodrys vernalis</i>
Ringneck Snake	<i>Diadophis punctatus</i>
Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>
Eastern Foxsnake	<i>Elaphe gloydi</i>
Eastern Milksnake	<i>Lampropeltis triangulum</i>
Birds	
Canada Goose	<i>Branta canadensis</i>
Wood Duck	<i>Aix sponsa</i>
Mallard	<i>Anas platyrhynchos</i>
Wild Turkey	<i>Meleagris gallopavo</i>
Great Blue Heron	<i>Ardea herodias</i>
Green Heron	<i>Butorides virescens</i>
Turkey Vulture	<i>Cathartes aura</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
American Kestrel	<i>Falco sparverius</i>
Killdeer	<i>Charadrius vociferus</i>
Spotted Sandpiper	<i>Actitis macularia</i>
Upland Sandpiper	<i>Bartramia longicauda</i>
American Woodcock	<i>Scolopax minor</i>
Ring-billed Gull	<i>Larus delawarensis</i>
Herring Gull	<i>Larus argentatus</i>
Caspian Tern	<i>Hydroprogne caspia</i>
Forster's Tern	<i>Sterna forsteri</i>
Rock Pigeon	<i>Columba livia</i>
Mourning Dove	<i>Zenaida macroura</i>
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>
Eastern Screech-Owl	<i>Megascops asio</i>
Great Horned Owl	<i>Bubo virginianus</i>
Ruby-throated Hummingbird	<i>Archilochus colubris</i>
Belted Kingfisher	<i>Ceryle alcyon</i>
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>

Table 4-6 Common Wildlife Species Found in the Vicinity of the Study Area

Common Name	Scientific Name
Downy Woodpecker	<i>Picoides pubescens</i>
Hairy Woodpecker	<i>Picoides villosus</i>
Northern Flicker	<i>Colaptes auratus</i>
Pileated Woodpecker	<i>Dryocopus pileatus</i>
Eastern Wood-Pewee	<i>Contopus virens</i>
Acadian Flycatcher	<i>Empidonax virens</i>
Alder Flycatcher	<i>Empidonax alnorum</i>
Willow Flycatcher	<i>Empidonax traillii</i>
Least Flycatcher	<i>Empidonax minimus</i>
Eastern Phoebe	<i>Sayornis phoebe</i>
Great Crested Flycatcher	<i>Myiarchus crinitus</i>
Eastern Kingbird	<i>Tyrannus tyrannus</i>
Yellow-throated Vireo	<i>Vireo flavifrons</i>
Warbling Vireo	<i>Vireo gilvus</i>
Red-eyed Vireo	<i>Vireo olivaceus</i>
Blue Jay	<i>Cyanocitta cristata</i>
American Crow	<i>Corvus brachyrhynchos</i>
Horned Lark	<i>Eremophila alpestris</i>
Purple Martin	<i>Progne subis</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
Bank Swallow	<i>Riparia riparia</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Barn Swallow	<i>Hirundo rustica</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>
Tufted Titmouse	<i>Baeolophus bicolor</i>
White-breasted Nuthatch	<i>Sitta carolinensis</i>
Brown Creeper	<i>Certhia americana</i>
Carolina Wren	<i>Thryothorus ludovicianus</i>
House Wren	<i>Troglodytes aedon</i>
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>
Eastern Bluebird	<i>Sialia sialis</i>
Veery	<i>Catharus fuscescens</i>
Wood Thrush	<i>Hylocichla mustelina</i>
American Robin	<i>Turdus migratorius</i>
Gray Catbird	<i>Dumetella carolinensis</i>
Brown Thrasher	<i>Toxostoma rufum</i>
European Starling	<i>Sturnus vulgaris</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>
Blue-winged Warbler	<i>Vermivora pinus</i>
Golden-winged Warbler	<i>Vermivora chrysoptera</i>
Yellow Warbler	<i>Dendroica petechia</i>
Cerulean Warbler	<i>Dendroica cerulea</i>
American Redstart	<i>Setophaga ruticilla</i>
Ovenbird	<i>Seiurus aurocapilla</i>
Northern Waterthrush	<i>Seiurus noveboracensis</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Scarlet Tanager	<i>Piranga olivacea</i>
Eastern Towhee	<i>Pipilo erythrophthalmus</i>
Chipping Sparrow	<i>Spizella passerina</i>
Field Sparrow	<i>Spizella pusilla</i>
Vesper Sparrow	<i>Poocetes gramineus</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Grasshopper Sparrow	<i>Ammodramus savannarum</i>
Song Sparrow	<i>Melospiza melodia</i>

Table 4-6 Common Wildlife Species Found in the Vicinity of the Study Area

Common Name	Scientific Name
Swamp Sparrow	<i>Melospiza georgiana</i>
Northern Cardinal	<i>Cardinalis cardinalis</i>
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>
Indigo Bunting	<i>Passerina cyanea</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Eastern Meadowlark	<i>Sturnella magna</i>
Common Grackle	<i>Quiscalus quiscula</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Orchard Oriole	<i>Icterus spurius</i>
Baltimore Oriole	<i>Icterus galbula</i>
House Finch	<i>Carpodacus mexicanus</i>
American Goldfinch	<i>Carduelis tristis</i>
House Sparrow	<i>Passer domesticus</i>
Mammals	
Virginia Opossum	<i>Didelphis virginiana</i>
Masked Shrew	<i>Sorex cinereus</i>
Northern Short-tailed Shrew	<i>Blarina brevicauda</i>
Little Brown Bat	<i>Myotis lucifugus</i>
Silver-haired Bat	<i>Lasionycteris noctivagans</i>
Red Bat	<i>Lasiurus borealis</i>
Big Brown Bat	<i>Eptesicus fuscus</i>
Hoary Bat	<i>Lasiurus cinereus</i>
Eastern Cottontail	<i>Sylvilagus floridanus</i>
European Hare	<i>Lepus europaeus</i>
Eastern Chipmunk	<i>Tamias striatus</i>
Woodchuck	<i>Marmota monax</i>
Grey Squirrel	<i>Sciurus carolinensis</i>
Red Squirrel	<i>Tamiasciurus hudsonicus</i>
Southern Flying Squirrel	<i>Glaucomys volans</i>
Beaver	<i>Castor canadensis</i>
White-footed Mouse	<i>Peromyscus leucopus</i>
Deer Mouse	<i>Peromyscus maniculatus</i>
Muskrat	<i>Ondatra zibethicus</i>
Meadow Vole	<i>Microtus pennsylvanicus</i>
Norway Rat	<i>Rattus norvegicus</i>
House Mouse	<i>Mus musculus</i>
Meadow Jumping Mouse	<i>Zapus hudsonicus</i>
Coyote	<i>Canis latrans</i>
Red Fox	<i>Vulpes vulpes</i>
Raccoon	<i>Procyon lotor</i>
Mink	<i>Mustela vison</i>
Striped Skunk	<i>Mephitis mephitis</i>
White-tailed Deer	<i>Odocoileus virginianus</i>

Ministry of Natural Resources, 2002b; MacCulloch, 2002; Atlas of the Breeding Birds of Ontario, 2001-2005; and Dobbyn, 1994

4.8 SPECIES AT RISK OR SPECIES OF SPECIAL STATUS

Provincially rare and at-risk species are determined at national, provincial, and municipal levels. Species that have been determined to be at risk by the federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC) are rare or threatened throughout Canada. COSEWIC ranks species as endangered, threatened or special concern. Species can

subsequently be given status under the federal *Species at Risk Act (2002)* and protected under provisions in the Act. The provincial Committee on the Status of Species at Risk in Ontario (COSSARO) identifies endangered, threatened or special concern species in Ontario. These species are protected under the provincial *Endangered Species Act (2007)*. Additionally, the Ministry of Natural Resources (MNR) assigns 'S-Ranks' to terrestrial species based on rarity, from critically imperilled (S1) to secure (S5).

The tracking of species at risk occurs through federal species at risk mapping, and the provincial NHIC database. It should be noted that the NHIC database contains records which may be 'historic' (i.e., older than 20-years) and may not reflect current conditions. Also, the database uses Element Occurrences to show locations of species. An Element Occurrence is defined as an area of land and/or water on/in which an element (e.g., species or ecological community) is or was present. For protection purposes exact locations of species are not provided.

4.8.1 Terrestrial

According to federal species at risk mapping (Environment Canada, 2006) and the NHIC (2008b), there is potential for 32 terrestrial species at risk and/or provincially rare species to be present in the Study Area (see **Table 4-7**).

Table 4-7 Terrestrial Species at Risk or Species of Special Status

Common Name	Scientific Name	National Status	Provincial Status	Provincial S-rank
Butterflies				
Monarch	<i>Danaus plexippus</i>	Special concern	Special concern	S4
Dragonflies				
Royal River Cruiser	<i>Macromia taeniolata</i>			S1
Flag-tailed Spinyleg	<i>Dromogomphus spoliatus</i>			S1
Eastern Amberwing	<i>Perithemis tenera</i>			S3
Reptiles				
Northern Map Turtle	<i>Graptemys geographica</i>	Special concern	Special concern	S3
Blanding's Turtle	<i>Emydoidea blandingi</i>	Threatened	Threatened	S3?
Spiny Softshell	<i>Apalone spinifera spinifera</i>	Threatened	Threatened	S3
Spotted Turtle	<i>Clemmys guttata</i>	Endangered	Endangered	S3
Butler's Gartersnake	<i>Thamnophis butleri</i>	Threatened	Threatened	S2
Milksnake	<i>Lampropeltis triangulum</i>	Special concern	Special concern	S3
Eastern Foxsnake	<i>Elaphe gloydi</i>	Endangered	Threatened	S3
Birds				
Acadian Flycatcher	<i>Empidonax vireescens</i>	Endangered	Endangered	S2
Barn Owl (Eastern population)	<i>Tyto alba</i>	Endangered	Endangered	S1
Cerulean Warbler	<i>Dendroica cerulean</i>	Special concern	Special concern	S3

DAWN GATEWAY PIPELINE PROJECT – BICKFORD TO DAWN PIPELINE
ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENT REPORT
Environmental and Socio-Economic Setting
March 2009

Table 4-7 Terrestrial Species at Risk or Species of Special Status

Common Name	Scientific Name	National Status	Provincial Status	Provincial S-rank
King Rail	<i>Rallus elegans</i>	Endangered	Endangered	S2
Least Bittern	<i>Ixobrychus exilis</i>	Threatened	Threatened	S3
Northern Bobwhite	<i>Colinus virginianus</i>	Endangered	Endangered	S1/S2
Yellow-breasted Chat (virens subspecies)	<i>Icteria virens virens</i>	Special concern	Special concern	S2/S3
Mammals				
American Badger	<i>Taxidea taxus jacksoni</i>	Endangered	Endangered	S2
Grey Fox	<i>Urocyon cinereoargenteus</i>	Threatened	Threatened	SZB?
Plants				
Butternut	<i>Juglans cinerea</i>	Endangered	Endangered	S3?
Goldenseal	<i>Hydrastis canadensis</i>	Threatened	Threatened	S2
Sullivant's Milkweed	<i>Asclepias sullivantii</i>	--	--	S2
Virginia Bugleweed	<i>Lycopus virginicus</i>	--		S2
Blue Ash	<i>Fraxinus quadrangulata</i>	Special concern	Special concern	S2
Fog Fruit	<i>Phyla lanceolata</i>	--		S2
Kentucky Coffee-tree	<i>Gymnocladus dioica</i>	Threatened	Threatened	S2
Big Shellbark Hickory	<i>Carya laciniosa</i>	--	--	S3
Shumard Oak	<i>Quercus shumardii</i>	Special concern	Special concern	S3
Pawpaw	<i>Asimina triloba</i>	--	--	S3
Riddell's Goldenrod	<i>Solidago riddellii</i>	Special concern	Special concern	S2/S3
Sensitive Species				
Sensitive species		Threatened	Threatened	S3

Endangered - a wildlife species that is facing imminent extirpation or extinction

Threatened - a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction

Special Concern - a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats

S4 - Apparently secure. Uncommon but not rare: some cause for long-term concern due to declines or other factors.

S3 - Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation

S2 - Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation⁸⁵ on from the nation or state/province.

S1 - Critically Imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province

S? - Rank Uncertain

SZB - Breeding migrants/vagrants

Sensitive Species - A species whose name is not publicly released.

Environment Canada, 2006, NHIC, 2008b

4.8.2 Aquatic

According to the DFO species at risk mapping (2008) and the NHIC (2008b), 26 aquatic species at risk are potentially present within the Study Area.

Table 4-8 Aquatic Species at Risk or Species of Special Status

Common Name	Scientific Name	National Status	Provincial Status
Unionid (Mussel)			
Northern Riffleshell	<i>Epioblasma torulosa rangiana</i>	Endangered	Endangered
Rayed Bean	<i>Villosa fabalis</i>	Endangered	Endangered
Snuffbox	<i>Epioblasma triquetra</i>	Endangered	Endangered
Kidneyshell	<i>Ptychobranhus fasciolaris</i>	Endangered	Endangered
Round Hickorynut	<i>Obovaria subrotunda</i>	Endangered	Endangered
Round Pigtoe	<i>Pleurobema sintoxia</i>	Endangered	Endangered
Salamander (or mudpuppy) Mussel	<i>Simpsonia ambigua</i>	Endangered	Endangered
Eastern Pondmussel	<i>Ligumia nasuta</i>	Endangered	No Status
Mapleleaf	<i>Quadrula quadrula</i>	Threatened	Threatened
Rainbow	<i>Villosa iris</i>	Endangered	Threatened
Fish			
Northern madtom	<i>Noturus stigmosus</i>	Endangered	Endangered
Pugnose shiner	<i>Notropis anogenus</i>	Endangered	Endangered
Channel darter	<i>Percina copelandi</i>	Threatened	Threatened
Eastern sand darter	<i>Ammocrypta pellucida</i>	Threatened	Threatened
Lake chubsucker	<i>Erimyzon sucetta</i>	Threatened	Threatened
Spotted gar	<i>Lepisosteus oculatus</i>	Threatened	Threatened
American eel	<i>Anguilla rostrata</i>	Special Concern	Endangered
Blackstripe topminnow	<i>Fundulus notatus</i>	Special Concern	Special Concern
Orangespotted sunfish	<i>Lepomis humilis</i>	Special Concern	Special Concern
Pugnose minnow	<i>Opsopoeodus emiliae</i>	Special Concern	Special Concern
Silver Chub	<i>Macrhybopsis storeriana</i>	Special Concern	Special Concern
Silver Shiner	<i>Notropis photogenis</i>	Special Concern	Special Concern
Spotted sucker	<i>Minytrema melanops</i>	Special Concern	Special Concern
Bigmouth buffalo	<i>Ictiobus cyprinellus</i>	--	Special Concern
Grass pickerel	<i>Esox americanus vermiculatus</i>	Special Concern	Special Concern
River redhorse	<i>Moxostoma carinatum</i>	Special Concern	Special Concern

Endangered - a wildlife species that is facing imminent extirpation or extinction

Threatened - a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction

Special Concern - a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats

DFO, 2008, NHIC, 2008b

4.9 AIR QUALITY

In Southern Ontario cities, poor air quality is most often the result of high levels of ground-level ozone and airborne particulate matter, which when combined with other air pollutants form smog. The air pollutant life cycle is largely influenced by synoptic (i.e. large) scale weather systems (MOE, 1999). Ground-level ozone, its precursors and fine particulate matter can travel via these large-scale weather systems up to thousands of kilometres from their source. It is because of the long-range transport of air-borne pollutants that transboundary flow from the United States plays a significant role in air quality considerations throughout Southern Ontario. The remaining portion is largely due to fossil fuel combustion in Canada.

The Air Quality Index (AQI) is an indicator of air quality based on hourly pollutant measurements of some or all of the six most common air pollutants: sulphur dioxide, ozone, nitrogen dioxide, total reduced sulphur compounds, carbon monoxide and fine particulate matter. At the end of each hour, the concentration of each pollutant that an AQI station monitors is converted into a number ranging from zero upwards, using a common index; the pollutant with the highest number at a given hour becomes the AQI reading. As air quality changes, the AQI reading increases or decreases. A lower AQI reading indicates less air pollutants. During 2008, Sarnia experienced no days of very poor air quality and only five days of poor air quality; the majority of days had good to moderate air quality (MOE, 2009).

Emissions data for the Study Area were also obtained from Environment Canada's National Pollutant Release Inventory (Environment Canada, 2007). There are 18 industrial sources located in St. Clair Township and zero industrial sources located in Dawn-Euphemia Township that reported to the National Pollutant Release Inventory (NPRI) in 2007 (**Table 4-9**). None of the facilities are located in the Study Area.

Table 4-9 St. Clair Township NPRI Reporting Facilities (2007) *

Facility Name	City	PM	PM _{2.5}	PM ₁₀	VOC	NO ₂	CO	S ₂
Agris Co-operative Limited - Brigden Facility	Brigden			1.5				
Air Products Canada, Ltd. - Corunna Hydrogen Facility	Corunna		9.6	9.6	27	98	121	
Canada Commercial Services L.P. - St. Clair River Site - Modified Polymers	Corunna		.544	.635				
Clean Harbors - Lambton Facility	Corunna		3.5	3.5	23	515	20	
Enbridge Gas Distribution Inc - Seckerton Compressor Station	Moore Township					40	68	
Enbridge Gas Distribution Inc - Sombra Compressor Station	Sombra Township					13	13	
Enbridge Gas Distribution Inc - Tecumseh Gas Storage	Moore Township				17	109	91	
Ethyl Canada Inc. - Corunna Site	Corunna				1.9	.031		
Greenfield Energy Centre LP - Greenfield Energy Centre	Courtright					.019	.005	
Nova Chemicals - Nova Chemicals (Canada) Ltd. - Corunna Site	Corunna	208	137	186	340	2746	425	3653
Nova Chemicals - Moore Site	Mooretown	16	12	15	262	103	80	101

Table 4-9 St. Clair Township NPRI Reporting Facilities (2007) *

Facility Name	City	PM	PM _{2.5}	PM ₁₀	VOC	NO ₂	CO	S ₂
Nova Chemicals - Nova Chemicals Corp-St. Clair River Site	Corunna	7.6	5.4	7.6	417	119	80	50
Ontario Power Generation - Lambton Generating Station	Courtright	3445	904	2355	97	9205	3395	30796
Shell Canada - Sarnia Manufacturing Centre	Corunna	699	366	574	519	1307	453	10420
Shell Chemicals Canada - Sarnia IPA Plant	Corunna				118			
Terra International Canada Inc - Terra Nitrogen	Courtright	20	20	20	77	379	547	
Union Gas Limited - Waubuno Compressor Station	Moore Township				26			
Woodbridge Foam - Sarnia Enerflex	Corunna				45			

PM – Particulate Matter

VOC – Volatile Organic Compounds

NO₂ – Nitrogen Dioxide

CO – Carbon Monoxide

S₂ – Sulfur Dioxide

* - Releases noted in Tonnes

Environment Canada, 2007

4.10 ACOUSTIC ENVIRONMENT

The main sources of ambient sound that exist within the Study Area include:

- The Bickford Compressor Station and Dawn Compressor Station;
- Vehicular traffic noise from provincial Highway 40 and county road Bentpath Line;
- Sounds due to human activity as well as agricultural and rural activities;
- Sounds due to human domestic activities such as property maintenance and recreation; and,
- Natural sounds from wind, insects, wildlife, atmospheric effects, etc.

4.11 HUMAN OCCUPANCY AND RESOURCE USE

4.11.1 Municipal Structure

The Study Area is located in the Township of St. Clair and Township of Dawn-Euphemia, in the County of Lambton. The Township of St. Clair was formed when Moore and Sombra Townships amalgamated in 2001, and the Township of Dawn-Euphemia was formed when Dawn and Euphemia Townships amalgamated in 1998. There is one community within the Study Area, the village of Wilkesport.

4.11.2 Land Use

According to the Lambton County Official Plan, lands within the Study Area are designated as 'Rural/Agricultural'. The designation of natural areas and natural heritage corridors is outlined in **Section 4.11.3** of this Report. A windshield survey of the Study Area and review of aerial photography revealed that the majority of the land is agricultural, with woodlots generally along the back-lot line, and rural residential properties found throughout.

4.11.3 Designated Natural Areas

A search of the NHIC database determined that there are three Life Science Sites (LS) and two regionally significant life science Areas of Natural and Scientific Interest (ANSI) in the Study Area (NHIC, 2008a). A LS is an area recognized as having ecological features; environmentally sensitive areas are areas identified by a municipality as having ecological values for that municipality and are therefore tracked by the NHIC as a LS. An ANSI is a Ministry of Natural Resources-identified area that has provincially or regionally significant ecological features.

The three LS sites are Wilkesport Woodlot #3, Duthill Woodlot and Duthill Woodlot #1.

1. Wilkesport Woodlot #3 is a 32 ha site that is generally flat with some vernal pooling. Vegetation communities include a silver maple swamp with some maple-beech and oak-hickory representation. The Lambton County Official Plan (OP) (Lambton County, 1997) recognizes this woodlot as a Significant Natural Area (SNA).
2. Duthill Woodlot is composed of Duthill Woodlot #1 and Duthill Woodlot #3. Duthill Woodlot #1 is described below, as it is also identified as a separate LS. Duthill Woodlot #3 is also an ANSI, and is thus described below.
3. Duthill Woodlot #1 is a 20 ha site on bevelled till plain that contains oak-hickory upland deciduous forest, cultural meadows, creek bank communities, early successional ash-maple forests and juniper savannah

The two regionally significant ANSIs are Duthill Woodlot #1 and Duthill Woodlot #3.

1. Information on Duthill Woodlot #1, which is also a LS, is described above.
2. Duthill Woodlot #3 is a 80 ha site on bevelled till plain that contains creek communities, cultural meadows, and oak-hickory upland deciduous forest.

According to the Lambton County OP (1997) two other SNAs are found in the Study Area: the W. Darcy McKeough Floodway, and the McKeough Lands. The Floodway is found north of Holt Line, between the North Sydenham River and Highway 40. The McKeough Lands are composed of the North Sydenham River and its floodplain. The Lambton County OP (1997) also states that a Prime Corridor and several Secondary Corridors are located within the Study Area. Based on aerial photo interpretation, the Prime Corridor is found along the North

Sydenham River, and the Secondary Corridors are generally found north of Wilkesport/Burman Line, and north of Holt Line.

The location of all designated natural areas can be seen in **Appendix C, Figure No. C-5**.

4.11.4 Natural Resource Use

There is no Aggregate Resource Inventory Paper for the Study Area due to the low aggregate potential as a result of the physiography of the area. Mapping of local mineral and aggregate resources in the County shows no sand or gravel deposits in the Study Area (Lambton County, 1997).

Data from Natural Resources Canada (2008) indicates that there are no major producers of base metals, coal, ferrous or precious metals in the Study Area. There are also no exploration projects for these resources in the Study Area.

Petroleum production, storage and distribution infrastructure occur in Lambton County. Within the Study Area, these consist of oil pools and wells, and natural gas transmission pipelines, pools, wells, storage pools and compressor stations. The location of hydrocarbon features can be seen in **Appendix C, Figure No. C-7**.

4.12 HERITAGE RESOURCES

4.12.1 Archaeological Overview

D.R. Poulton & Associates Inc. conducted a Stage 1 archaeological assessment for the Alternative Corridors within the Study Area (**Section 5.2**). The Stage 1 assessment consisted of a background study to identify known or potential archaeological planning constraints. A variety of sources were consulted for the study, including a thorough review of published and unpublished reports on past archaeological surveys and excavations, a review of the history of land-use in the area, and an examination of archaeological site inventories and archival materials. The background study determined that 10 archaeological sites have been registered in the Study Area containing the two Alternative Corridors, and that a further two unregistered sites have also been documented. The report concluded that certain lands within the Study Area have a moderate to high potential for as-yet undiscovered prehistoric and historic archaeological remains. Prior to construction, a Stage 2 survey will be conducted at those areas of the Preferred Corridor that have moderate or high archaeological potential. The archaeological report is provided in **Appendix E**.

4.12.2 Heritage Overview

To identify potential heritage properties within the Study Area the Ontario Heritage Properties Database was consulted (Ministry of Culture, 2005). To be included in the database, a property must be recognized or protected under the following criteria:

- Designated by municipal by-law under Part IV or Part V of the *Ontario Heritage Act (1990)*;
- Protected by a municipal heritage conservation easement;
- Owned by the Ontario Heritage Trust (formerly Ontario Heritage Foundation);
- Protected by a Ontario Heritage Trust conservation easement;
- Listed on the Ontario Heritage Bridge List;
- Protected by the federal *Heritage Railway Stations Protection Act (1985)*;
- Designated a National Historic Site; and/or,
- Listed in the Canadian Register of Heritage Properties.

No inventoried heritage properties were found to exist within the Study Area.

To identify less tangible aspects of heritage, landscape-scale heritage is identified through the designation of heritage conservation districts under the *Ontario Heritage Act (1990)*, or cultural heritage landscapes under Section 2.6 of the *Provincial Policy Statement (2005)*. No designated heritage conservation districts or cultural heritage landscapes have been identified within the Study Area (Lambton County, 2007).

4.13 TRADITIONAL LAND AND RESOURCE USE

The Study Area is located on lands traditionally used by First Nations groups. First Nations were identified through the *Chiefs of Ontario* website, the *Historical Indian Treaties Atlas of Canada*, and guidance from Indian and Northern Affairs Canada and the Ministry of Aboriginal Affairs. A Traditional Ecological Knowledge study was undertaken by Dr. Victor P. Lytwyn for the Walpole Island First Nation on behalf of the Dawn Gateway Pipeline Project. The study findings note hunting, fishing and harvesting within the Study Area. The area has the potential to contain spiritual sites, burials and settlements. The Study Area is within the Chenail Ecarté Reserve (lands comprising the former Sombra Township), for which a claim by the Walpole Island First Nation has been made against the government of Canada.

The Traditional Ecological Knowledge report is provided in **Appendix F**.

4.14 SOCIAL AND CULTURAL WELL-BEING

Statistics from the 2006 census show that the population of Lambton County was 128,204, up 1.0% from 2001 although far lower than the provincial population growth of 6.6% (Statistics Canada, 2006a). Approximately 31% of the population was between 40 and 59 years of age, which represented the largest age demographic. The median age of the County population was also older than the provincial average, at 42.8 and 39.0 years of age, respectively. Lambton County had a workforce of 67,450 people. The main industries included business services, other services, and manufacturing. The main occupations included sales and service, trade,

transport and equipment operators and related occupations, and business, finance and administration.

Statistics for the Township of St. Clair show a population of 14,649, down 0.1% from 2001 (Statistics Canada, 2006b). Approximately 33% of the population was between 40 and 59 years of age, which represented the largest age demographic. The median age of the population was older than the provincial average, at 41.0 years of age. The Township of St. Clair had a workforce of 8,405 people. The main industries included business services, other services, and manufacturing. The main occupations included sales and service, trade, transport and equipment operators and related occupations, and business, finance and administration.

Statistics for the Township of Dawn-Euphemia show a population of 2,190, down 7.6% from 2001 (Statistics Canada, 2006c). Approximately 26% of the population was between 40 and 59 years of age, which represents the largest age demographic. The median age of the population was older than the provincial average, at 40.9 years of age. The Township of Dawn-Euphemia had a workforce of 1,275 people. The main industries included agriculture and other resource-based industries, manufacturing and business services. The main occupations included the primary industry, trade, transport and equipment operators and related occupations, and sales and service.

4.15 HUMAN HEALTH AND AESTHETICS

Environmental elements that may be related to human health include water quality, air quality and the acoustic environment. Information related to these environmental elements is presented in **Sections 4.4, 4.9, and 4.10**, respectively.

4.16 INFRASTRUCTURE AND SERVICES

4.16.1 Infrastructure

There are no railways, water and wastewater treatment facilities or solid waste management facilities within the Study Area. Hydroelectric transmission lines, and overhead hydroelectric distribution lines, are located within the Study Area. Buried watermains are located throughout the Study Area, as are buried telephone and fibre optic lines. To the east of Kimball Road, south of Smith Line is the Thornton Lee airport.

The Study Area is traversed by a number of roads oriented north-south and east-west. Oriented north-south, Highway 40 is a provincial highway west of the Bickford Compressor Station, and Kimball Road and Mandaumin Road are county roads. Calahan Road, Indian Creek Road, Duthill Road, Shepley Road, Pretty Road and Bridgen Road are township roads. Oriented east-west, Bentpath Line (County Road 2) is a county road, and Holt Line, Smith Line, Wilkesport Line, Burman Line, White Line, Black Creek Line and MacCallum Line are township roads.

4.16.2 Services

Municipal Services

The County government is responsible for upper-tier services such as Provincial Offences Court administration, land use planning, long-term care facilities, community health protection, social services, housing services, landfills, libraries and museums. The Townships are responsible for lower-tier services such as tax collection, recreation (arenas, parks, etc.), fire protection, policing, animal control, garbage and recycling collection, water, sewers, municipal drains and parking enforcement. Both the County and Townships share responsibilities for the care and maintenance of roads, bridges and building inspection/zoning administration (Lambton County, 2009).

Institutional Services

Institutional services (e.g. health care, emergency services, etc.) are an important part of a community's social fabric. The only institutional facilities in the Study Area are found in the community of Wilkesport. Such facilities include the Wilkesport Fire Hall, Wilkesport United Church, Wilkesport Cemetery, Wilkesport Public Library, Wilkesport Community Centre and Community Centre Park.

Schools in Lambton County are administered by the Lambton-Kent District School Board, the St. Clair Catholic District School Board, the Conseil scolaire de district des écoles catholiques du Sud-Ouest and the Conseil scolaire de district du Centre-Sud-Ouest. There are no schools in the Study Area; the two closest elementary schools are located south of Sombra (Riverview Central Public School and Sacred Heart Catholic School) or in Mooretown (Mooretown Courtright Public School). The nearest secondary school is Lambton C.C.V.I, located in Petrolia. French schools in the County are all located in the City of Sarnia. Post-secondary institutions in the area include Lambton College in Sarnia.

The Lambton County Library provides services to the public through 27 branch libraries, one bookmobile, the Lambton Room in Library Headquarters and deposit collections in the Long-Term Care Facilities (Lambton County, 2009). The Wilkesport Public Library is located within the Study Area.

Police services in Lambton County for areas outside the City of Sarnia are provided by the Ontario Provincial Police, who have a satellite detachment located in Corunna (Lambton County, 2009).

The County of Lambton's Emergency Medical Services (EMS) Department offers land ambulance services to the residents of Lambton County. Nine different EMS stations are located at Brigden, Corunna, Forest, Grand Bend, Petrolia, Sarnia (2), Thedford, and Watford. The Department has ten front line ambulances operating 24 hours a day, seven days a week and employs approximately 150 full and part-time paramedics (Lambton County, 2009).

The Township of St. Clair Fire Department administers six fire stations, one of which is located in the community of Wilkesport. The Township of Dawn-Euphemia Fire Department administers one fire station.

The Erie St. Clair Local Health Integration Network coordinates healthcare services in Essex County, Chatham-Kent County, and Lambton County. The Network provides funding for Community Care Access Centre, Community Health Centres, Community Support Services, Hospitals, Long Term Care Homes, and Mental Health and Addiction Facilities (Erie St. Clair Local Health Integration Network, 2009). Hospital services are provided by Bluewater Health, a 320-bed community hospital with sites in Sarnia and Petrolia (Bluewater Health, 2009).

In 1991, the County of Lambton assumed responsibility for waste disposal within the County. As such, the County assumed the ownership of six existing waste disposal facilities that were previously operated by the lower tier municipalities of Brooke, Dawn, Grand Bend, Moore, Sarnia and Sombra (Lambton County, 2009). The Dawn Landfill continues to accept waste and the remaining five facilities (Brooke, Grand Bend, Moore, Sarnia, and Sombra) have been closed by the County. The County utilizes the Dawn Landfill and the privately owned Petrolia and Warwick Landfills (Lambton County, 2009). Information on the Sombra Landfill Site is located in **Section 4.2.4** of this report.

Cultural, Recreation and Tourism Services

One recreational facility is found in the Study Area, the McKeough Conservation Area managed by the SCRCA. The McKeough floodway, the largest flood diversion project in Ontario, manages flooding from the Sydenham River drainage basin and stretches seven kilometres west to the St. Clair River (SCRCA, 2008a). The corridor has experienced extensive plantings, and a Carolinian forest and related trails can be found south of the dam (SCRCA, 2008b).

There are eight museums in Lambton County. The Sombra Museum, located in a turn-of-the-century Victorian home, presents information on the marine, agriculture and lifestyle heritage of settlers in the area (Lambton County, 2009). This museum is also recognized as a Historic Landmark within the County (Lambton County, 2009).

Accommodation for tourists includes hotels, bed and breakfasts, cottages, and campgrounds in surrounding Lambton County (Tourism Sarnia-Lambton, 2009). A hotel and a bed & breakfast are located in Sombra, and rental cottages and campgrounds are found along the shoreline of the St. Clair River (Tourism Sarnia-Lambton, 2009).

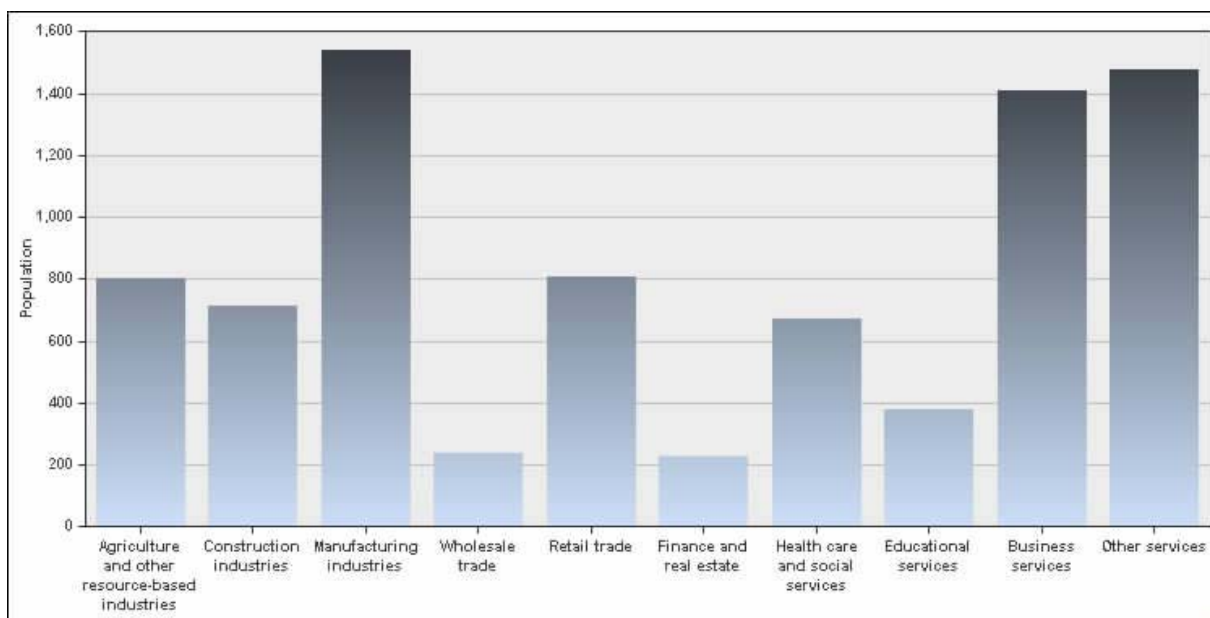
The location of socio-economic features within the Study Area can be seen in **Appendix C, Figure No. C-4**.

4.17 EMPLOYMENT AND ECONOMY

St. Clair Township has a diverse economic makeup consisting of primary, secondary and tertiary sectors (Statistics Canada, 2006b). The composition of economic sectors and industries in this region is similar to Ontario's, with the majority of the labour force being employed in the

service industry (tertiary) and manufacturing industry (secondary). However, on a percentage basis the employment within the agricultural (9.7% vs. 2.9%), construction (8.6% vs. 5.9%) and manufacturing (18.6% vs. 13.9%) sectors are much higher than the provincial average. **Figure 4.1** shows the distribution of the labour force by industry for St. Clair Township.

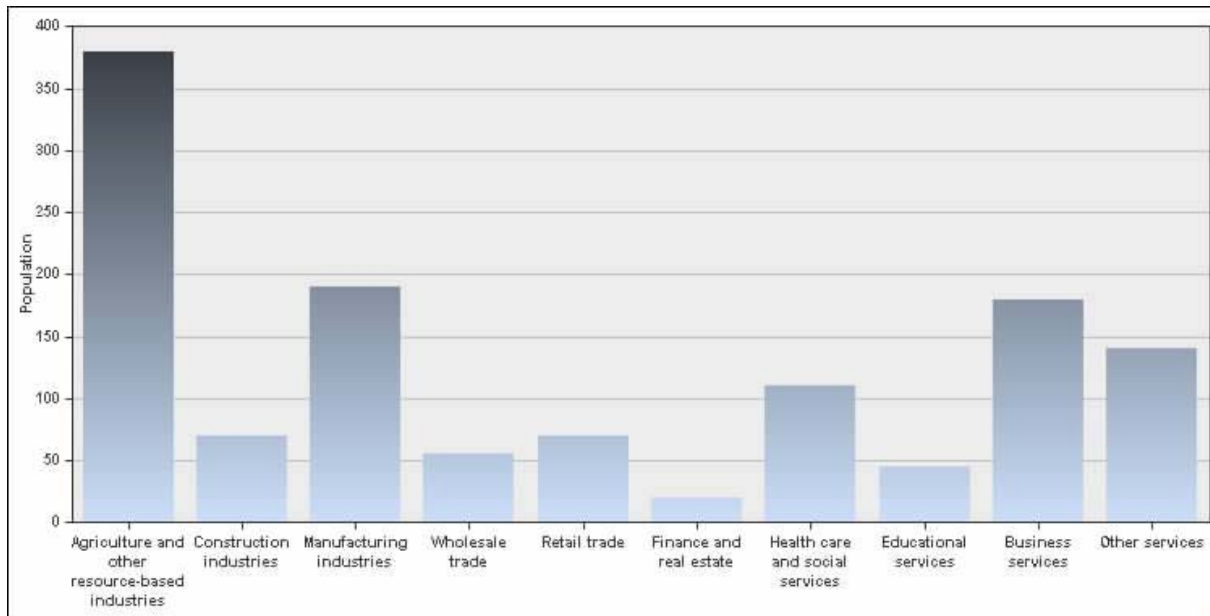
Figure 4-1 St. Clair Township Labour Force by Industry



Statistics Canada, 2006b

In 2006, St. Clair Township had an unemployment rate of 5.6%, lower than the provincial unemployment rate of 6.4%. The percentage of those aged 15 years and older who participated in the labour force was 70.8%, higher than the provincial rate of 67.1%. The Township's working population had a median income of \$30,899, which is above Ontario's median of \$27,258.

Figure 4-2 Dawn-Euphemia Township Labour Force by Industry



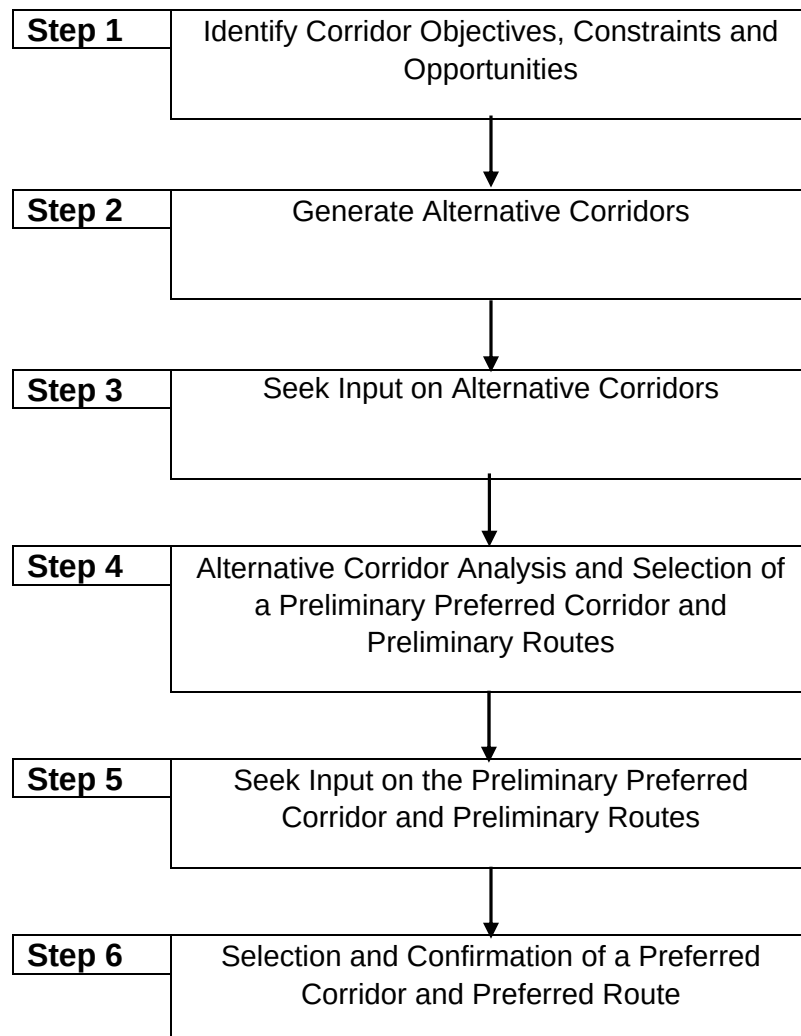
Statistics Canada, 2006c

Within Dawn-Euphemia Township, despite the low labour force population, a diverse economic makeup is present whose sector composition is similar to that of the Ontario average (Statistics Canada, 2006c). The most prominent exception is the agricultural sector which employs 29.0% of the labour force, compared to the provincial average of 2.9%. **Figure 4.2** shows the distribution of the labour force by industry for Dawn-Euphemia Township. In 2006, Dawn-Euphemia Township had an unemployment rate of 5.8%, lower than the unemployment rate of 6.4%. The labour force participation rate was 72.6%. The Township's median income for the working population was below the provincial average, at \$23,023.

5.0 Corridor Selection

The following section outlines the six-step process by which the Preferred Corridor for the proposed Bickford to Dawn pipeline was determined (**Figure 5-1**). The Preferred Corridor represents a general area within which a preferred or 'detailed' route for the pipeline will be defined.

Figure 5-1 Corridor Evaluation Process



5.1 CORRIDOR OBJECTIVES, CONSTRAINTS AND OPPORTUNITIES

5.1.1 Objectives

The process of developing alternative corridors commenced with the identification of corridor objectives for creating reasonable and/or feasible alternative corridors. These include:

1. Corridors should follow a reasonably direct path between end-points, thus minimizing length and associated environmental and socio-economic impacts;
2. Corridors should be wide enough to provide opportunities to avoid sensitive environmental and socio-economic features to the extent possible; where sensitive features cannot be avoided, alternative corridors should be modified as required to minimize impacts; and,
3. Corridors should contain existing linear features that provide opportunities to be utilized or paralleled to the extent possible.

Consideration was also given to planning policies, guidelines, and regulations in the province of Ontario.

5.1.2 Constraints and Opportunities

Environmental constraints are features that would be adversely affected by pipeline construction or operation, or features that possess unique attributes. Environmental opportunities are existing features, such as a linear corridor or physical boundary, which provide a suitable location for the alignment of a pipeline. The environmental inventory, undertaken in Phase I of the ESA, identified many of the features considered either as constraints or opportunities.

The identification of sensitive environmental and socio-economic features (*i.e.* constraints) was based on the following criteria:

- Site-specific mitigation measures would be required to minimize potential impacts;
- The feature has been selected or designated for protection; and/or,
- The feature has been recognized through local, regional, provincial, or federal policy, plan, or statute, or is otherwise valued as an environmental or socio-economic resource.

Considering the criteria listed above, examples of significant environmental and socio-economic features in the Study Area include:

- Designated natural areas and natural heritage corridors;
- Woodlots;

- Watercourses;
- Residential homes;
- Institutional features (libraries, cemeteries, etc.);
- Communities/Built areas; and,
- Contaminated sites.

Sensitive environmental and socio-economic features were avoided to the extent possible during the generation of alternative corridors.

5.2 GENERATION OF ALTERNATIVE CORRIDORS

Generation of the alternative corridors was based on the corridor objectives and environmental and socio-economic constraints and opportunities identified in Step 1. Corridor generation was assisted through site visits, aerial photography, and features mapping. Two corridors were identified and carried forward for further evaluation:

- Alternative Corridor A: Between Bentpath Line and Wilkesport/Burman Line.
- Alternative Corridor B: Between Smith Line and Bentpath Line.

Both of these corridors provide a reasonable and logical interconnection of the endpoints that potentially result in fewer impacts to environmental and socio-economic features compared to potential corridors further north or south. The location of Alternative Corridors A and B are shown in **Appendix A, Figure No. A-3**.

5.3 INPUT ON ALTERNATIVE CORRIDORS

The alternative corridors were presented to agencies, First Nations, landowners, and the public through written correspondence and public consultation, including a Public Information Session held on December 11th, 2008.

Verbal comments received at the Public Information Session indicated a split preference between the two corridors. Written comments received from the Public Information Session also indicated a split preference, with three exit questionnaires expressing no preference between alternatives, four preferring Alternative Corridor A, and four preferring Alternative Corridor B. Support for Alternative Corridor A was based upon perceived fewer environmental impacts, while support for Alternative Corridor B was largely due to the presence of an existing right-of-way and existing natural gas pipeline.

Complete exit questionnaire results are provided in **Appendix B4**.

5.4 ALTERNATIVE CORRIDOR ANALYSIS AND SELECTION OF A PRELIMINARY PREFERRED CORRIDOR AND PRELIMINARY ROUTES

5.4.1 Analysis of Alternative Corridors

Evaluation of the two alternative corridors was based on the presence of features present within each corridor that could potentially be impacted by construction and operation of a natural gas pipeline. These included:

- 1) Prime Agricultural Land;
- 2) Watercourses;
- 3) Designated Natural Areas;
- 4) Natural Heritage Corridors (Primary and Secondary); and,
- 5) Woodlots.

In addition, relative corridor length and the presence of existing linear features were assessed.

Stationary features were not included in the evaluation; it was assumed they could largely be avoided at the route selection phase of the assessment process. These features included water wells, oil and gas wells, buildings and residential homes, and contaminated sites.

Certain evaluation criteria resulted in negligible differences between the two alternative corridors, as shown in **Table 5-1**.

Table 5-1 Non-Relevant Evaluation Criteria			
Factor	Criteria	Corridor A	Corridor B
Agriculture			
Land	Area of Prime Agricultural Land (Canada Land Inventory Class 1, 2, 3) (ha)	2271.34	2283.45
Natural			
Aquatic	Number of Unavoidable Crossings of the N. Sydenham River	1	1
Terrestrial	Area of Woodlot (ha)	301.30	298.39
Socio-Economic			
Land	Corridor Length (km)	16.90	16.90

Evaluation criteria that resulted in relevant differences between the two alternative corridors are shown in **Table 5-2***.

Table 5-2 Relevant Evaluation Criteria			
Factor	Criteria	Corridor A	Corridor B
Natural			
Aquatic	Number of Unavoidable Crossings of Indian Creek	1	0
	Number of Unavoidable Municipal Drain Crossings	4	8
Terrestrial	Area of Designated Natural Areas (ha)	281.77	134.76
	Area of Primary Natural Heritage Corridor (ha)	281.77	101.32
	Area of Secondary Natural Heritage Corridor (ha)	353.00	236.71
Socio-Economic			
Land	Number of Existing Linear Features	3	4

* The preferred corridor for each criterion is highlighted.

Alternative Corridor A crosses fewer watercourses classified by the St. Clair Region Conservation Authority as municipal drains. Alternative Corridor B contains more existing linear features (Bentpath Line, an existing natural gas pipeline, the back-lot line, and Smith Line), and has the potential to avoid crossing Indian Creek and traverse less designated natural area and natural heritage corridors.

5.4.2 Selection of a Preliminary Preferred Corridor

Based on the evaluation results presented in **Section 5.4.1**, and considering comments submitted by attendees of the first Public Information Session, Alternative Corridor B was determined as preferable from an overall environmental and socio-economic perspective and was identified by Stantec as the Preliminary Preferred Corridor.

The location of the Preliminary Preferred Corridor is illustrated in **Appendix A, Figure No. A-4**.

5.4.3 Selection of Preliminary Routes

Preliminary Routes were identified by Dawn Gateway as: Route 1) either north or south of the existing natural gas pipeline, or Route 2) north or south of the back-lot line. The location of the Preliminary Routes is illustrated in **Appendix A, Figure No. A-5**.

5.5 INPUT ON THE PRELIMINARY PREFERRED CORRIDOR AND PRELIMINARY ROUTES

The Preliminary Preferred Corridor and Preliminary Routes were presented to agencies, First Nations, landowners, and the public through written correspondence and public consultation, including a Public Information Session held on February 10th, 2009.

Verbal and written comments received at the Public Information Session indicated a preference for the Preliminary Preferred Corridor, and for Preliminary Route #1. Complete exit questionnaire results are provided in **Appendix B4**.

5.6 SELECTION AND CONFIRMATION OF A PREFERRED CORRIDOR AND PREFERRED ROUTE

Based on the evaluation results presented in **Section 5.4.1**, and considering comments submitted by attendees of the second Public Information Session, the Preliminary Preferred Corridor was determined as preferable from an overall environmental and socio-economic perspective and was confirmed as the Preferred Corridor.

The location of the Preferred Corridor is illustrated in **Appendix A, Figure No. A-6**.

The selection and confirmation of the Preferred Route will be undertaken by Dawn Gateway throughout 2009, in consultation with Dawn Gateway's staff and their consultants.

6.0 Environmental and Socio-Economic Effects Assessment

6.1 METHODOLOGY

The potential environmental and socio-economic effects of the Project have been assessed by comparing the description of the environmental and socio-economic setting against the Project activities, including: construction, operation, accidents, malfunctions and unplanned events, and effects that the environment could have on the Project. The spatial and temporal boundaries of the effects considered are outlined below. The scope of the assessment identifies the physical works and activities to be considered, and outlines environmental and socio-economic elements to be evaluated. The effects assessment outlines the methodology used for assessing effects and their significance.

6.1.1 Spatial and Temporal Boundaries

Spatial Boundaries

The spatial boundaries for effects considered one or more of the following three areas:

1. *The Project Area:* The Project Area consists of the lands disturbed by the Project through direct construction activities (i.e. the right-of-way), and through its associated temporary facilities (i.e. temporary construction workspace, equipment storage sites, and construction office sites).
2. *The Study Area:* The Study Area is the area in which pipeline corridors were considered. The Study Area is beyond the zone of influence of pipeline construction and operation (e.g. dust and noise), and consequently identified effects will have diminished background levels. The Study Area is considered conservative in terms of managing effects.
3. *The Regional Area:* The Regional Area is the area beyond the Study Area boundary. The limit of the Regional Area varies depending upon which environmental or socio-economic element is under consideration. For example, woodlots may have a defined ecological boundary, whereas effects on economy and employment may occur in a regional context.

Temporal Boundaries

Temporal boundaries considered for Project effects are related to the specific activity causing the effect, including construction, operation, accidents, malfunctions and unplanned events, and effects that the environment could have on the Project. Construction activities are anticipated to occur in the Winter, Summer and Fall of 2010, with post-construction site reclamation occurring through 2011. The operation phase of the pipeline will commence immediately following completion of construction in the Fall of 2010, and extend an estimated 50+ years.

6.1.2 Scope of the Assessment

The scope of this ESA is prepared pursuant to the NEB's *Filing Manual (February 2008)* and the *CEAA (1992)*. Under *CEAA (1992)*, the scope of the ESA includes the scope of the Project, and the scope of the factors to be assessed.

The scope of the Project will be determined by the NEB pursuant to its authority under Section 15 of *CEAA (1992)*, case law, and guidance documents pertaining to Section 15. It is proposed that the scope be limited to the physical works and activities related to the Project as described in **Sections 2.2.1 and 2.2.2**, including:

- All construction activities associated with the pipeline;
- Operation and maintenance of the pipeline; and,
- Accidents, malfunctions and unplanned events during pipeline construction, operation and/or maintenance.

As noted in **Section 2.2.3**, any decommissioning or abandonment activities would be subject to future approval by the NEB. Therefore, at this time, environmental effects resulting from decommissioning or abandonment are not considered in the environmental and socio-economic effects assessment.

The scope of the factors to be considered in relation to the Project will be determined by the NEB pursuant to its authority under Section 16(3) *CEAA (1992)*. Information on various environmental and socio-economic elements that may be affected by Project activities and/or that may have an effect on the Project, as categorized in Table A-3 of the NEB *Filing Manual (February 2008)*, are considered in the ESA.

Wetlands do not interact with the Project, as justified in **Section 6.2.6**. Identification of this element was based on the existing conditions of the Study Area, the nature, temporal and spatial scope of Project activities, anticipated Project-environment interactions, and input received through Project consultation. As per Section A.2.5 of the NEB *Filing Manual (February 2008)*, if there are no predicted interactions between Project activities and environmental or socio-economic elements, then no further analyses is necessary for the element.

6.1.3 Effects Assessment

The effects assessment involved predicting and evaluating changes to environmental and socio-economic elements arising directly from the Project, as well as effects arising from the Project in combination with past, present, and reasonably foreseeable projects and human activities in the area (i.e. cumulative effects, discussed in **Section 7.0**). The effects assessment also involved consideration of any change to the Project that may be caused by accidents, malfunctions, unplanned events (discussed in **Section 6.2.18**), or the environment (discussed in **Section 6.3**).

An issued-based approach was used in the effects assessment, where the initial step was to characterize the nature of the interaction between an environmental or socio-economic element and a Project activity. This characterization was undertaken through input received through the consultation program, experience gained during construction and operation activities for other natural gas pipeline facilities, and through the professional judgement of Dawn Gateway environmental staff and their consultants.

Mitigation measures were identified for each effect, including:

- Environmental protection measures;
- Site-specific mitigation measures;
- Compensation measures; and,
- Contingency measures.

Mitigation measures were identified through industry-accepted standards, input received from the consultation program, and the professional judgement of environmental staff with Dawn Gateway and their consultants. Mitigation measures in Westcoast's *Environmental Manual for Construction Projects in Canada (June 2006)* will be adopted for the Project. Mitigation measures outlined in this Report will be communicated to construction contractors and field staff through an Environmental Protection Plan to be prepared prior to the initiation of clearing and construction. Various guidelines from government agencies and industry associations (such as the Canadian Association of Petroleum Producers, and Environment Canada) have also been taken into consideration in developing mitigation measures.

The subsequent step in the effects assessment is to determine whether, after implementation of mitigation measures, residual effects remained. For some environmental and socio-economic elements, mitigation measures obviate any potential impact, whereas for other elements mitigation measures lessen the effects. Where no residual effects are predicted, no further analysis is required. To determine whether residual effects were significant, they were initially characterized as either positive or adverse. Positive residual effects were not assessed for their significance. Adverse residual effects were assessed for their significance utilizing the following nine descriptors, as applicable:

- **Direction:** the degree to which an effect may be positive or negative;
- **Duration:** the period of time until the element returns to baseline conditions;
- **Ecological Context:** the nature of the area in which the effect may occur;
- **Frequency:** the number of times that an effect may occur;
- **Magnitude:** the degree to which an effect may occur;
- **Permanence:** the degree to which an effect will not return to baseline conditions;
- **Probability:** the likelihood that an effect may occur;

- **Reversibility:** the likelihood that an element will recover from an effect; and,
- **Spatial Extent:** the area within which an effect may occur.

Only after such characterization occurred was it determined whether adverse residual effects were significant or not significant.

Guidance for the determination of effects as positive or adverse, and the significance of adverse effects, was provided by the NEB *Filing Manual (February 2008)*, the Federal Environmental Assessment Review Office Reference Guide *Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects* (1994), and the Canadian Environmental Assessment Agency's *Cumulative Effects Assessment Practitioners Guide* (1999).

6.2 CONSTRUCTION AND OPERATION

6.2.1 Physical Environment

Potential Effects

Topography within the Preferred Corridor is relatively flat, and thus potential impacts to physiographic features involve erosion and sedimentation on slopes adjacent to watercourses. The Project may itself be impacted by flooding, seismic activity and climatic events. Potential effects are outlined in **Section 6.2.4** for erosion and sediment control, **Section 6.3.1** for seismic activity, **Section 6.3.2** for flooding, and **Section 6.3.3** for climate.

Given the depth to bedrock and the nature of Project activities, there are no anticipated effects to the bedrock of the Study Area during construction, operation and maintenance of the pipeline.

Mitigation and Protective Measures

Mitigation and protective measures are outlined in **Sections 6.2.4, 6.3.1, 6.3.2, and 6.3.3**. During pipeline operation, regular monitoring, the timing and methodology which is described in Dawn Gateway's Pipeline Maintenance and Integrity Program (see **Section 8.1**), is designed to protect against erosion and mass-movement events. If such an event occurs, and depending on the issues involved, regulatory authorities would be consulted.

Residual Effects

Provided that the mitigation and protective measures identified above are implemented, residual effects are expected to be localized and temporary. Therefore any potential residual effects are not anticipated to be significant.

6.2.2 Soil and Soil Productivity

The Preferred Corridor traverses agricultural land, and as such construction may have impacts on soil, artificial drainage, and soybean cyst nematode. Operational activities may also require the disturbance of soil for pipeline monitoring and maintenance. The potential effects and

mitigation measures for construction activities will also apply for such operational activities. No contaminated soils are known to exist in the Preferred Corridor; mitigation measures to be implemented upon the discovery of contaminated soils are outlined in **Section 6.2.18**.

Soil

Potential Effects

Soils

The disturbance of agricultural soils is anticipated to occur as a result of pipeline construction, maintenance and monitoring activities. Activities during wet months or extended periods of heavy rainfall could have negative impacts on agricultural lands. The movement of heavy machinery on wet soil may cause rutting, compaction, and mixing of topsoil and subsoil. These potential impacts may break down soil structure and affect soil fertility thereby reducing soil productivity. When exposed, soils are more prone to erosion due to the loss of vegetative cover. The degree of erosion is also affected by the intensity and duration of rainfall and/or wind events (see **Section 6.3.3** for potential effects and mitigation measures related to severe weather), soil moisture, surface soil cover, slope, soil texture, structure, and organic matter content. Improperly salvaged topsoil can result in topsoil and subsoil mixing, compaction, rutting, and erosion. This can affect re-vegetation of the construction area and potentially decrease crop yields.

Artificial Drainage

The construction and operation of the pipeline on agricultural lands could result in negative effects to artificial drainage, including tiles being crushed or cut by machinery. Temporary or permanent disruption to water flow could result in soil erosion or crop loss due to flooding.

Soybean Cyst Nematode

While its presence has not been confirmed in agricultural lands traversed by the Preferred Corridor, the soybean cyst nematode (SCN) is known to have infested several agricultural fields in the Regional Area. Once a field has been infested, there is significant potential for soybean crop loss, and there is no effective method of eradicating SCN. During pipeline construction and maintenance activities requiring soil disturbance, equipment will be transported from field to field, and thus there is potential for transportation of SCN-contaminated soil to non-infested fields.

Mitigation and Protective Measures

Soils

All ground disturbance activities associated with planned construction and operation activities are screened to ensure all environmental issues (e.g. topsoil conservation, reclamation, and schedule of activities) have been identified and mitigation is in place to avoid, prevent, and minimize any adverse effect. Any activity that has the potential to affect environmental resources has mitigation developed before initiating work.

Construction and maintenance activities should occur during drier times of the year, as possible. If final clean-up is not possible during the construction year, it should be completed in the year following construction once the soils have dried. Interim soil protection measures should be installed in sensitive areas to stabilize the right-of-way for over-wintering.

Where agriculturally productive lands are impacted by heavy rainfall events and wet soil conditions, Dawn Gateway will implement a wet soil shutdown practice (WSSD). The WSSD practice involves constant assessment of soil conditions during a precipitation event. If in the opinion of Dawn Gateway, conditions deteriorate to a situation where ruts under vehicles become deep enough to cause topsoil/subsoil mixing or create excessive compaction or make topsoil/subsoil separation too difficult then those operations would cease. When WSSD has been implemented, heavy tracked and rubber-tired vehicles should be restricted from movement on the right-of-way. Operations would continue when conditions improve and those soil qualities are protected.

On agricultural lands, where topsoil stripping is undertaken, topsoil and subsoil should be stripped and stockpiled separately to avoid mixing. Topsoil stripping methods should ensure adequate separation of topsoil and subsoil stockpiles. Stone picking should occur before and after topsoil replacement, and during cleanup. Prior to construction, Dawn Gateway should discuss with each landowner the proposed method of handling topsoil on their property. Landowner requests, preferences for additional stripping, or no stripping should be respected where practicable. In forested areas, the upper surface material should be stripped and stored along the right-of-way, physically separated from any excavated subsoil.

Where feasible, stringing trucks hauling the pipe should travel along the centre of the proposed trench line to help minimize the extent of soil compaction along the right-of-way. Where subsoil has been compacted by heavy equipment or construction traffic, appropriate compaction relief may be necessary. The option of sub-soiling with an agricultural subsoiler, followed by discing, chisel ploughing or cultivating, to smooth the surface, should be considered on a site-specific basis. In areas where extreme compaction persists, additional deep tillage or subsoiling may be required on a site-specific basis. Soil density and/or penetrometer measurements on and off the right-of-way may be used as a means of assessing the relative degree of soil compaction and to determine if additional compaction relief is required.

Where there is potential for erosion or where erosion has already developed, silt fence and straw bales (or appropriate substitutes) should be installed to reduce soil transport. Topsoil salvage and/or replacement should be avoided during heavy precipitation or extremely windy conditions. Reseeding should occur as soon as possible following installation of the pipeline when climatic conditions permit. Seed should be protected under a layer of erosion control matting or other appropriate stabilizing technique, which will assist in maintaining the slope and propagation of the seed mixture. In the event that broadcast seeding is not feasible due to climatic restrictions, hydroseeding should be considered. As an additional measure, silt control

fencing should be installed and maintained throughout construction, restoration, and rehabilitation of the slopes until vegetative cover is fully established.

Artificial Drainage

In the event that artificial drainage is encountered along the pipeline route, a drainage contractor or specialist should be contacted prior to construction to advise on any issues related to potential impacts to the drains (more details outlined in **Section 9.2.2**). Landowners should be contacted to determine the precise location of the tile system prior to construction. Future plans for improvements to farm drainage should also be identified and discussed.

Tile drains severed or crushed during construction and/or maintenance activities should be recorded and flagged. If a main drain, header tile, or large diameter tile is severed, a temporary repair should be made to maintain field drainage and prevent flooding of the work area and adjacent lands. Severed tile drains that are not immediately repaired should be capped to prevent the entry of soil, debris, or rodents. After the repair of each severed tile, and prior to backfilling, landowners should be invited to inspect and approve the repair. If flooding of fields occurs as a result of a severed tile and subsequently soils are damaged or crops are lost, the impacted area should be rehabilitated as soon as possible.

Soybean Cyst Nematode

A pre-construction soil sampling program should be implemented to identify fields traversed by the Preferred Route that are infested with SCN (more details outlined in **Section 9.2.2**). The pre-construction program should include soil analysis for each agricultural row crop field to determine the extent of SCN infestation along the Preferred Route alignment.

Any field identified to contain SCN should be recorded and the location provided to the Construction Contractor. Landowners whose properties are infested with SCN should be advised of the infestation and provided with information from the Ministry of Agriculture, Food and Rural Affairs. Additionally, any imported topsoil should have a composite sample analyzed for SCN before it is placed on the right-of-way. If SCN fields are identified along the Preferred Route, appropriate mitigation measures should be developed. Examples of mitigation measures may include washing stations for equipment, and/or restricted access to fields.

Union Gas, contracted to construct the Bickford to Dawn pipeline, has successfully employed construction strategies in SCN infested fields on a number of other projects; most recently the Strathroy Station to Lobo Compressor station pipeline project in which an SCN mitigation strategy was developed that met the approval of Ministry of Agriculture, Food and Rural Affairs. Should SCN be found along the preferred route a similar site-specific construction approach will be developed.

With proper implementation of the above recommendations, the spread of SCN from one field to another is not anticipated, thus no analysis of residual effects is required.

Residual Effects

Provided that the mitigation measures outlined above are implemented as required, construction and operational soil and artificial drainage disturbances are anticipated to be site-specific and infrequent, therefore adverse residual effects on soil and soil productivity are not anticipated to be significant.

6.2.3 Vegetation

Potential Effects

Construction along the Preferred Route may involve the clearing of woodlot trees, riparian vegetation, and hedgerows and tree clusters paralleling roads and watercourses. Vegetation management activities may affect vegetation, and interfere with natural succession in small natural areas.

Mitigation and Protection Measures

When designing and planning the right-of-way for the Preferred Route, consideration should be given to the minimum width required to facilitate construction. Specifically, clearing should be minimized to the extent possible, and the limits of clearing should be surveyed and staked in the field. The Environmental Inspector will ensure that no construction disturbance occurs beyond these limits. Clearing should be restricted to frozen soil conditions, where feasible, to minimize disturbance to vegetation and terrain.

Selected mature trees susceptible to windthrow and located close to the limits of clearing should be culled under the supervision of the Environmental Inspector. Trees removed should be felled into the easement and not into a woodlot. If requested, cut trees should be made available to the landowner. Dawn Gateway will also implement their Tree Replacement Program to replace two times the area removed with seedlings native to Ontario. Specific details on revegetation monitoring are outlined in **Section 8.2**. Tree replacement should focus on expanding or enhancing existing woodlot habitat features wherever possible. Enhancing riparian or local linkages should also be encouraged where a landowner is not interested in tree replacement contiguous to the affected woodlot.

During pipeline operation and maintenance, vegetation management plans are designed to minimize effects on desirable vegetation. Vegetation management plans are targeted at specific areas, therefore disturbance is minimized.

Residual Effects

With the implementation of the recommended mitigation and protection measures, including pre-construction surveys, construction monitoring, replacement plantings, and vegetation management plans, the spatial extent and magnitude of impacts will be minimized, and therefore adverse residual effects will not be significant.

6.2.4 Water Quality and Quantity

Potential Effects

Surficial Hydrology

As outlined in **Section 4.4.1**, the Preferred Corridor is traversed by the North Sydenham River and numerous municipal drains, and contains portions of four sub-watersheds. There is the potential for water quality to be affected during construction and/or operation of the pipeline through the following means:

- Accidental spills, from vehicles working in or adjacent to the watercourses and due to inappropriate handling or storage of fuel, dust suppressants, lubricants, or other potential contaminants;
- Erosion and sedimentation resulting from hydrostatic testing;
- Erosion and sedimentation resulting from unavoidable removal of stabilizing vegetative cover; and,
- Erosion and sedimentation resulting from watercourse crossings.

Potential effects and mitigation and protective measures for accidental spills are outlined in **Section 6.2.18**.

Groundwater

Water wells within the Study Area may be susceptible to contamination or dewatering from construction or maintenance activities.

Mitigation and Protective Measures

Surficial Hydrology

Hydrostatic Test

A hydrostatic test will be completed for the entire length of the proposed pipeline. The required volume of water may be obtained from either a municipal source or from a natural source. Prior to the withdrawal of water from a municipal source, the municipality should be contacted to confirm the maximum rate of withdrawal. Withdrawal of test water from a natural source will require a Permit to Take Water from the Ministry of Environment should volumes exceed 50,000 litres per day.

When the hydrostatic test is complete, discharge water is released. To reduce the potential for erosion and scouring at dewatering points, appropriate energy dissipation techniques should be utilized. At all dewatering points, discharge piping should be free of leaks and should be properly anchored to prevent bouncing or snaking during surging. The rate of discharge should be monitored to ensure no erosion or flooding occurs. If energy dissipation measures are found

to be inadequate, the rate of dewatering should be reduced or ceased until satisfactory mitigation measures are in place. Discharge should be completed in a manner that prevents erosion and downstream flooding. The Environmental Inspector will be onsite to monitor the occurrence of erosion and to require adjustments be made to the dewatering as required.

Nearby residents may experience temporary inconveniences related to noise associated with the operation of pumps utilized to fill the pipeline with test water, as well, lighting may inconvenience residents if pumping and testing continues into the night. Noise mitigation and protective measures are outlined in **Section 6.2.10**. Temporary lighting should be turned on at dusk and extinguished at dawn. Lighting should be directed towards the work site but away from the direction of any nearby residences.

Erosion and Sedimentation

The implementation of standard mitigation and sediment control plans should protect the water quality of each watercourse from significant effects during and after construction. The contractor must obtain adequate quantities of materials in order to control erosion and sediment deposition. Additional supplies should be maintained onsite in a readily accessible location for maintenance and contingency purposes. Required supplies may include:

- Silt fencing;
- Straw bales;
- Wooden stakes;
- Sand bags;
- Water energy dissipater;
- Filter cloth;
- Water pumps (including stand-by pumps and sufficient lengths of hose); and,
- Snow fencing with sufficient quantities of t-bars.

Erosion and sediment control measures should be properly installed, and additional measures may be installed at the discretion of the Environmental Inspector. Barriers should be inspected regularly to ensure proper functioning and maintenance. Vegetation removal on the slopes of watercourses should be minimized to the extent possible, to minimize the risk of slope failure and siltation.

Materials removed or stockpiled (e.g. excavated soil, backfill material, etc.) should be deposited and contained in a manner to ensure sediment does not enter a watercourse. The section of the watercourse bank immediately adjacent to the watercourse (i.e. between the erosion control fences) should not be disturbed until it is part of the location requiring activity.

As soon as possible following completion of the construction or maintenance activity, the slopes of the watercourse should be restored to their original grade. Seeding should be completed

during favourable climatic conditions. Once sown, seed should be protected with a layer of erosion control matting that will assist in stabilizing the slope and propagation of the seed mixture. In the event that broadcast seeding is not feasible due to climatic season restrictions, hydroseeding should be considered. Erosion and sediment control measures should remain securely installed until permanent vegetation measures are successful and areas are stabilized.

Even with properly installed erosion and siltation control measures, extreme runoff events could result in collapse of silt fencing, slope or trench failures and other problems which could lead to siltation of watercourses. If siltation to a watercourse occurs, activities should cease immediately until the situation is rectified. Immediate action should be taken to install temporary measures (e.g. silt fencing, rip rap, sand bags etc.) to contain the extent of erosion and siltation as quickly as possible. Personnel should be fully prepared to respond quickly to siltation events. Mitigation measures related to the effects on soils during extreme precipitation is discussed in **Section 6.3.3**.

Watercourse Crossings

The goal of Dawn Gateway will be to cross the North Sydenham River via horizontal directional drill, subject to the findings of the watercourse crossing assessment and geotechnical investigations (**Section 9.1.2**). Should a horizontal directional drill crossing prove not feasible or prove unsuccessful, a contingency wet crossing method will be utilized. A wet crossing would be undertaken during the appropriate fisheries timing window. The need for site-specific mitigation and supplemental fish and fish habitat assessment work should be completed as required, and all permit requirements should be implemented. For the horizontal directional drill, crossing and mud release contingency measures will follow those outlined in Westcoast's *Environmental Manual for Construction Projects in Canada (June 2006)*.

The goal of Dawn Gateway will be to cross all other watercourses using a dry crossing, subject to the findings of the watercourse crossing assessment (**Section 9.1.2**). Should a dry crossing prove not to be feasible or prove unsuccessful, a contingency wet crossing dam and pump or flumed style trench crossing will be utilized. Both crossing types should be undertaken during the appropriate fisheries timing window. Prior consultation and approval will be required from relevant agencies, and all permit requirements should be implemented. Crossings will follow the environmental management practices outlined in Westcoast's *Environmental Manual for Construction Projects in Canada (June 2006)*.

Groundwater

The presence of recently drilled or non-documented water wells will be investigated with landowners and corridor tenants prior to construction. A Water Well Monitoring Program will be implemented, which involves retaining the services of an independent hydrogeologist to identify wells that may require monitoring. The hydrogeologist will develop a well monitoring program to address potentially affected wells. Although not anticipated, if a high water table is encountered in isolated areas during trench excavation, dewatering may be required. Associated dewatering

should be discharged in a manner to minimize soil erosion. An MOE Permit to Take Water is required if more than 50,000 litres per day is withdrawn as a result of dewatering activities.

Residual Effects

Provided the above mitigation, monitoring and contingency measures are properly implemented, adverse residual effects will be of low frequency and magnitude and of short-term duration. Therefore, any adverse residual effects are not anticipated to be significant.

6.2.5 Fish and Fish Habitat

Potential Effects

The Preferred Corridor is traversed by the North Sydenham River and numerous municipal drains. Potential impacts on fish and fish habitat within these watercourses are reduced water quality through sedimentation and/or spills, alteration of riparian vegetation, and interference with fish spawning.

Mitigation and Protective Measures

Mitigation and protective measures, including an assessment of residual effects and significance, is outlined in **Section 6.2.3** for riparian vegetation, **Section 6.2.4** for erosion and sedimentation, and in **Section 6.2.18** for spills.

Construction activities, and operational activities for pipeline maintenance and integrity which may require in-stream work, should be conducted in accordance with permit regulations. To minimize interference with fish spawning during pipeline construction, the timing window for instream activities will be consistent with those outlined by the MNR. In-stream activities should be completed in as short a time as possible to ensure minimal disturbance to fish and fish habitat. A water intake/fish screening device should be used in waters containing fish habitat. Downstream water flow should be maintained during watercourse crossings. Fish salvage (and mussel salvage, as applicable) should be conducted in relevant watercourses prior to and during the isolation of flow, and in accordance with permit regulations.

Residual Effects

Provided that the mitigation and protective measures identified above are implemented, residual effects are expected to be temporary and localized. The adverse residual effects on fish and fish habitat are not considered significant.

6.2.6 Wetlands

The Preferred Corridor for the proposed pipeline does not traverse any provincially significant or locally designated wetland areas, and is not adjacent to such wetland areas; therefore, no mitigation or protective measures are necessary.

6.2.7 Wildlife and Wildlife Habitat

Potential Effects

Due to the presence of woodlots along the back-lot line between Smith Line and Bentpath Line, and the presence of the North Sydenham River and several municipal drains, opportunities for amphibian, avian, mammal or reptile habitat exists, and respective species may be encountered. Natural cover in the Study Area has been significantly altered and reduced, due to clearing and draining for agriculture. Informal conversations with landowners within the Preferred Corridor indicate that at least one naturalization project is being conducted on retired agricultural land, and thus the availability of wildlife habitat within the corridor will likely increase over time.

A survey for wildlife and wildlife habitat will be conducted prior to pipeline construction, as outlined in **Section 9**. Project-specific effects and associated mitigation measures will be determined after such surveys have been completed, and will be reflected in the Environmental Protection Plan. Potential construction and operation effects include habitat loss or alterations, habitat degradation through accidents, malfunctions and unplanned events (such as spills), temporary disturbance of wildlife during construction activities.

Mitigation and Protective Measures

Environmental mitigation measures for the protection of wildlife and wildlife habitat during construction include the following:

- Implement all mitigation measures related to vegetation, as outlined in **Section 6.2.3**, and watercourses, as outlined in **Section 6.2.4**;
- Implement all contingency measures as outlined in **Section 6.2.18** regarding accidents, malfunctions and unplanned events;
- Flag or fence environmentally sensitive wildlife habitat, as identified through field surveys, prior to commencement of clearing and construction;
- Clearing activities should be avoided during the migratory bird nesting period, if clearing is necessary during this period, daily clearance should be obtained from a licensed ornithologist;
- Follow trenching operations as closely as practical with backfill operations, to facilitate the movement of wildlife;
- Create gaps at wildlife trails identified through field surveys, to allow for the potential movement of wildlife across the right-of-way;
- Erect fencing around excavations to protect wildlife;

-
- Construction, clean-up and restoration activities should be conducted expeditiously to minimize potential barriers and hazards to wildlife;
 - In areas where public access to the right-of-way may be an issue, access should be discouraged using signs and gates where appropriate;
 - Prohibit construction and operation personnel from harming, harassing or feeding wildlife. Do not allow pets, firearm or recreational use of all-terrain vehicles or snowmobiles on the construction site. Maintain a maximum speed limit of 40 km/hr on the right-of-way;
 - Any previously unidentified potentially sensitive wildlife habitat should be reported to the Environmental Inspector during construction or the Dawn Gateway Environmental Planner during operation; and,
 - Project-related wildlife deaths and nuisance animals should be reported to the Environmental Inspector during construction or the Dawn Gateway Environmental Planner during operation.

Residual Effects

Any clearing activities for construction of the pipeline will alter wildlife habitat. In addition, operation of the pipeline will require ongoing vegetation management. Provided that the mitigation and protective measures identified above are implemented, adverse residual effects are not anticipated to be significant.

Contingency measures for accidents, malfunctions and unplanned events are expected to reduce the likelihood of impacts on wildlife habitat. Displacement of wildlife is anticipated to be temporary and related to pipeline construction and maintenance activities. Provided that the mitigation and protective measures identified above are implemented, no residual effects are anticipated. Consequently, no evaluation of significance is required.

6.2.8 Species at Risk or Species of Special Status

Potential Effects

Thirty-two terrestrial and twenty-six aquatic species-at-risk could potentially inhabit the Preferred Corridor. The exact number of species-at-risk within the Preferred Corridor may be substantially less as the exact location of such species is kept confidential, and certain records are older than 20-years and may not reflect current habitat conditions. Potential effects on vegetation, fish and fish habitat, and wildlife and wildlife habitat are discussed in **Sections 6.2.3, 6.2.5, and 6.2.7**. Potential impacts include habitat degradation through accidents, malfunctions and unplanned events (such as spills), temporary disturbance during construction activities.

Mitigation and Protective Measures

A survey for wildlife and wildlife habitat (including terrestrial species-at-risk), vascular plants and ecological communities (including flora species-at-risk), and watercourse crossings (including potential impacts to aquatic species-at-risk) will be conducted prior to pipeline construction as outlined in **Section 9**. Project-specific effects and associated mitigation measures will be determined after such surveys have been completed, and will be reflected in the Environmental Protection Plan. Potential construction and operation mitigation and protective measures are listed in **Section 6.2.3** for vegetation, **Section 6.2.5** for fish and fish habitat, and **Section 6.2.7** for wildlife and wildlife habitat.

Any species-at-risk that are encountered or suspected of being encountered should be reported to the Environmental Inspector during construction or the Dawn Gateway Environmental Planner during operation. Consultation will then occur with the relevant government ministry regarding appropriate protective measures.

Residual Effects

Provided that the mitigation and protective measures identified above are implemented, residual effects are expected to be low in magnitude, site-specific to localized, and very unlikely. Adverse residual effects on species-at-risk are therefore not anticipated to be significant.

6.2.9 Air Quality

Potential Effects

Potential effects on air quality associated with construction and maintenance of the proposed pipeline relate to an increase in criteria air contaminants and greenhouse gas emissions from fuel combustion during operation of heavy equipment and vehicles, an increase in dust from construction activities, and gas venting during pipeline construction and operation.

Mitigation and Protective Measures

To reduce emissions from heavy equipment and vehicles, multi-passenger vehicles should be utilized to the extent practical. Company and construction personnel should avoid excessive idling of vehicles; vehicles or equipment should be turned off when not in use unless required for effective operation of the vehicle or equipment. Company and construction equipment and vehicles should be maintained in good working order to reduce exhaust emissions and reduce fuel consumption. All vehicles and other equipment (e.g. excavators) will meet the emissions requirements of the MOE and/or MTO.

During construction, dust suppressants should be applied (water, calcium chloride or tree lignin based dust suppressant) on the right-of-way, access roads or soil piles, as required (calcium chloride should not be used on agricultural fields). Local road authorities should be informed prior to application of dust suppressants on roads. Watering for dust control must not result in

the formation of puddles, rutting by equipment or vehicles, the tracking of mud onto roads or the siltation of watercourses.

In situations where a release of natural gas is planned, a Gas Release Management Plan should be developed by Dawn Gateway with the intent of minimizing the quantity of gas released to the atmosphere. The plan should outline the methods available for the planned release of the natural gas, the benefits or negatives of each viable method and the rationale for the preferred method of natural gas release.

Residual Effects

Even with the use of the above construction and operation mitigation measures, temporary adverse residual effects will remain for air quality as a result of the Project. However, given the relatively small spatial extent of the anticipated construction area, and the low duration, frequency and magnitude of the construction and operation activities effecting air quality, adverse residual effects are not anticipated to be significant.

6.2.10 Acoustic Environment

Potential Effects

During pipeline construction noise will be generated by the operation of heavy equipment and associated vehicular traffic, and gas venting when connecting the pipeline. During operation there is potential for noise from necessary maintenance activities and infrequent gas venting.

Mitigation and Protective Measures

All engines associated with construction and maintenance equipment should be equipped with mufflers and/or silencers as available. Company and construction personnel should avoid excessive idling of vehicles; vehicles or equipment should be turned off when not in use unless required for effective operation of the vehicle or equipment. To the greatest extent possible activities that could create excessive noise should be restricted to daylight hours and adhere to any local noise by-laws. If activities that cause excessive noise must be carried out outside of these time frames, adjacent residents should be notified in advance and by-law conformity occur, as required. Noise abatement measures such as fabricated structures or barriers should be erected as necessary in proximity to residential or other sensitive areas. In situations where a release of natural gas is planned, a Gas Release Management Plan should be developed by Dawn Gateway with the intent of minimizing the amount of noise generated during the gas release.

Residual Effects

Provided that the above mitigation and protective measures are implemented, and noise abatement measures outlined in the Certificate of Approval are implemented, noise associated with the pipeline will be infrequent, immediately reversible and of low magnitude, and therefore the adverse residual effects resulting from pipeline operation and maintenance are not anticipated to be significant.

6.2.11 Human Occupancy and Resource Use

Potential Effects

Potential impacts and mitigation and protective measures for municipal structure, land use, designated natural areas, and natural resources use are described below. Water quality and quantity is described in **Section 6.2.4**, and potential aesthetic impacts in **Section 6.2.15**.

Municipal Structure

The Preferred Corridor travels through the County of Lambton, including St. Clair Township and Dawn-Euphemia Township. After short-term disruption and use of local roads during the construction phase, it is expected that the overall impact to this area will be positive. The anticipated municipal taxes paid by Dawn Gateway on an annual basis will be a long-term economic benefit of the pipeline (see **Section 6.2.17**). While the increased number of personnel present in the area during pipeline construction and maintenance will demand some services from the local municipality (see **Section 6.2.14**), the demand is expected to be minimal in magnitude and short-term.

Land Use

The Preferred Corridor for the proposed pipeline will not require any changes to municipal planning documents regarding land-use designations. Pipeline construction and maintenance activities (e.g. integrity digs) will temporarily interrupt certain land-use activities, such as outdoor recreation and agricultural activities. The present use of lands affected by the Preferred Corridor is not expected to change once clean-up activities are completed and the pipeline is operational.

Designated Natural Areas

The Preferred Corridor traverses natural areas designated by Lambton County, including Wilkesport Woodlot #3, the McKeough Lands, and natural heritage corridors (shown in **Appendix C, Figure No. C-5**), and thus may result in clearing of vegetation and/or disturbance of wildlife during construction and maintenance activities.

Natural Resource Use

The Preferred Corridor will not traverse or sterilize mineral, aggregate, or hydrocarbon resources. Aggregate resources which may be required during construction of the proposed pipeline are available from many local sand and gravel operators that provide aggregate in Lambton and surrounding counties.

Mitigation and Protective Measures

Municipal Structure

As part of the ESA process, Dawn Gateway has consulted with municipalities to discuss the Project (see **Section 3.3.1**). Concerns expressed during construction and operation of the

proposed pipeline by the affected municipalities should be addressed in an expeditious and courteous manner.

Land Use

No impacts are anticipated to occur upon land-use designations, therefore mitigation and protective measures have not been developed and no evaluation of residual effects is required.

People who participate in outdoor recreation will choose an alternate location for their recreation during times when construction and maintenance activities take place. Dawn Gateway will follow any permit conditions and/or regulatory recommendations for any watercourses crossed by the proposed pipeline that are deemed navigable by Transport Canada.

Prior to initiating work, Dawn Gateway should consult with directly affected landowners to ensure that schedules are discussed regarding the timing of cultivating, planting, harvesting and/or spraying to make sure that access to fields is not unduly impaired. If needed, temporary access should be provided. Temporary crossings of the easement for livestock may be required to ensure access to grazing areas, and/or temporary fencing may be required to ensure that livestock do not enter the work area.

Designated Natural Areas

Implementation of mitigation and protective measures regarding vegetation (**Section 6.2.3**) and wildlife and wildlife habitat (**Section 6.2.7**) should protect the key features of the designated natural areas.

Natural Resource Use

As no impacts will occur to natural resource use, no mitigation or protective measures, or evaluation of residual effects, are necessary.

Residual Effects

Municipal Structure

Provided that the above mitigation and protective measures are properly implemented, residual effects are expected to be negligible in magnitude, permanency and frequency. Therefore, any adverse residual effects are not anticipated to be significant.

Land Use

Provided that the above mitigation measures are properly implemented, and permit and/or regulatory obligations are followed, adverse residual effects on land-use activities will be low in magnitude, site-specific and infrequent. Therefore any adverse residual effects are not expected to be significant.

Designated Natural Areas

Provided that the above mitigation and protective measures are properly implemented, adverse residual effects are anticipated to be of low magnitude and site-specific, but for the duration of the operational life of the pipeline. Adverse residual effects are not anticipated to be significant.

6.2.12 Heritage Resources

Potential Effects

A Stage I archaeological assessment undertaken for lands within the Study Area determined that pipeline construction has at least a moderate potential for as-yet undiscovered prehistoric and historic archaeological resources.

Mitigation and Protective Measures

Once a Preferred Route has been confirmed, a Stage II archaeological assessment should be undertaken (as outlined in **Section 9**) in areas identified to have a moderate to high potential for archaeological potential as identified in the Stage I assessment. The survey will be undertaken by a licensed archaeologist in accordance with Ministry of Culture guidelines. The survey will serve to confirm the presence of significant archaeological resources subject to potential impact from the proposed pipeline, and determine the extent to which the inherent archaeological potential for the alignment has been degraded by previous disturbances. Recommendations for mitigation, outlined in the Stage II report, should be implemented during construction. Contingency measures should remain to be discovered during construction are outlined in **Section 6.2.18**.

Residual Effects

Provided that all mitigation and protective measures are properly implemented, adverse residual effects are anticipated to be of low magnitude (if remains are documented as per appropriate regulations, the addition of information to the archaeological record is viewed as generally compensating for their loss), and therefore will not be significant.

6.2.13 Traditional Land and Resource Use

Potential Effects

The Study Area is located on lands traditionally used by First Nations groups. The Study Area is within the Chenail Ecarté Reserve (lands comprising the former Sombra Township), for which a claim by the Walpole Island First Nation has been made against the government of Canada. The construction and operation of the pipeline has the potential to affect land claimed by First Nations, and land currently used by First Nation peoples.

Mitigation and Protective Measures

Mitigation measures for items identified in the traditional ecological knowledge study have been addressed through applicable sections of this ESA report, including woodlots (**Section 6.2.3**), fisheries (**Section 6.2.5**), wildlife and wildlife habitat (**Section 6.2.7**), and heritage resources

(Section 6.2.12). Where appropriate, measures to address the issues in the traditional ecological knowledge study will be outlined in the Environmental Protection Plan to be completed prior to construction. Dawn Gateway should continue to work closely with the Walpole Island First Nation.

Residual Effects

Provided that the mitigation and protective measures are implemented, and that continued engagement occurs with the Walpole Island First Nation and other First Nations, adverse residual effects from the construction and operation of the pipeline are expected to be of low magnitude and site-specific for the operational life of the pipeline, and therefore are not anticipated to be significant.

6.2.14 Social and Cultural Well-Being

Potential Effects

The Study Area for the Project contains the community of Wilkesport, and the Preferred Corridor for the Project consists of numerous rural residents. The well-being of these areas may relate to a variety of factors influenced by construction and operation activities, including disruptions to community life, and nuisance and safety concerns.

NEB regulations include a Safety Zone extending 30 metres on either side of the pipeline right-of-way. Excavation using mechanical equipment or explosives within this zone will require approval from Dawn Gateway. A landowner or tenant will need to contact Dawn Gateway to get written approval for a number of different activities on the pipeline right-of-way, including:

- Operating vehicles or mobile equipment over the right-of-way where a roadway does not exist;
- Ploughing below 30 cm; and,
- Installing drainage systems, auguring, and/or fencing.

The above approvals required from Dawn Gateway related to land management practices may cause some inconvenience to landowners.

Mitigation and Protective Measures

The potential inconvenience to landowners related to land management practices are related to specific activities and not the general rural lifestyle of the area. Dawn Gateway plans to seek blanket approvals for all standard agricultural activities within the Safety Zone, on a landowner-specific basis.

Nuisance and safety mitigation measures are outlined in **Sections 6.2.15 and 6.2.18**, respectively.

Residual Effects

Given that the inconvenience to landowners related to land management practices will be long-term (for the operating life of the Bickford to Dawn pipeline), but will be site-specific and related only to specific activities, and given the expedited approval process proposed by Dawn Gateway, adverse residual effects on social and cultural well-being related to disruptions to rural lifestyle are not anticipated to be significant.

6.2.15 Human Health and Aesthetics

Potential Effects

Environmental elements that may be related to human health include water quality, air quality, the generation of waste materials, and the acoustic environment. The effects assessments of these elements, including those related to potential human health, are presented in **Sections 6.2.4, 6.2.9, 6.2.16, and 6.2.10**, respectively. The effects assessment for safety is presented in **Section 6.2.18**. Human health may also be impacted through nuisance effects. Pipeline construction and operational activities may also temporarily affect the aesthetics of the local landscape.

Mitigation and Protective Measures

Construction and operation effects will be mitigated to the extent possible through mitigation measures outlined for water quality (**Section 6.2.4**), air quality (**Section 6.2.9**), generation of waste (**Section 6.2.16**) and the acoustic environment (**Section 6.2.10**).

There is variability in the level of construction and operation activities which landowners may consider a nuisance. Activities are anticipated to be largely non-intrusive and of short duration. Financial compensation provided to landowners is based, in part, on compensation for nuisance effects. In addition, any nuisance concerns relating to pipeline construction and/or operation may be brought to the attention of Dawn Gateway through their Landowner and Community Relations Program (**Section 8**). Under this program, Dawn Gateway will have an obligation to address complaints regarding activities perceived as nuisance.

Similar to nuisance effects, aesthetic effects are subjective. While pipeline construction activities and machinery has the potential to temporarily affect the local viewscape, restoration of the site will leave few visible indicators that a natural gas pipeline exists, aside from post-mounted signs identifying the pipeline at roadways traversed by the right-of-way. To minimize aesthetic impacts during construction and maintenance, activities should be confined to specified workspace areas. The construction and maintenance schedule should also be conducted as expeditiously as possible, to minimize length of activities. Vegetative buffers at watercourse and road crossings should be restored to reduce visual impacts and discourage access to the right-of-way. Provided that the measures outlined above are implemented, no residual effects are anticipated, and consequently no evaluation of significance is required.

Residual Effects

Provided that the mitigation and protective measures outlined above are implemented, residual effects are expected to be temporary, of low magnitude, and localized. Therefore, adverse residual effects are not anticipated to be significant.

6.2.16 Infrastructure and Services

Potential Effects

Potential effects to infrastructure involve the increased use of roads and general impedance to traffic, and potential damage to utilities and pipelines. Potential effects to services are the increased use of accommodation, food and waste services, and the capacity of emergency response services.

Mitigation and Protective Measures

Infrastructure

Mitigation measures regarding the increased use of local roads should involve the use of multi-passenger vehicles to reduce traffic volume, where appropriate, and obeying all traffic, road-use and safety laws. The control of dust is outlined in **Section 6.2.9**. Where required, approvals will be obtained from the appropriate authority regarding road crossings. The duration of construction at road crossings should be minimized. A traffic management plan should be developed to control traffic at road crossings when required.

If construction is to occur in the vicinity of overhead power lines, all machine operators should be informed that power lines are present overhead. Lines that may interfere with the operation of construction equipment should be identified with warning poles strung together with rope and suspended red flags. Signs should be posted stating 'Danger - Overhead Power Lines'. Dawn Gateway should locate and flag all existing buried utility lines, cables and pipelines to be crossed by the pipeline prior to construction activities. Heavy machinery should minimize the frequency of crossing any underground pipelines to the extent possible; all heavy machinery operators should be advised of the location of any natural gas pipelines and the concerns associated with construction in vicinity of such pipelines.

Services

Waste generated by the Project will be minimized to the extent possible, and will be hauled to an appropriate, registered waste disposal facility. Receptacles for recycling various products will be available at the construction office, and will be hauled to an appropriate recycling facility. The capacity of emergency services provided by the township, county and provincial government, including fire, police, EMS and health care, are expected to be capable of responding to any safety incidents which may arise. No adverse residual effects are anticipated to accommodation, food or waste services, and no evaluation of significance is required.

Residual Effects

Adverse residual effects on existing emergency services, given the low probability of their use, are not considered significant. Adverse residual effects on roads, given the above mitigation and protective measures, are expected to be localized and of low magnitude and are therefore not anticipated to be significant.

6.2.17 Employment and Economy

Potential Effects

The construction and operation of the proposed Project will result in direct and indirect business income, direct and indirect employment income, and an increase in tax revenues. Informal conversations with landowners, and a search of local business directories, indicate that contractors and workers are available and seeking such employment within the Study Area and surrounding communities.

Mitigation and Protective Measures

Dawn Gateway will make all reasonable efforts to source required services and materials from local suppliers. Preference will be given to local construction contracting companies to the extent possible where products or services are available in sufficient quantity and at competitive prices. Operational activities will require numerous staff, and thus local employment and the direct and indirect economic effects such employment creates will be supported. The Project will also contribute to government levees from approval permits and tax levees. Dawn Gateway will pay \$235,000 per annum in incremental property taxes on the new pipeline. Although not yet quantified, the effects of the Project on employment and labour income are all expected to be positive.

Residual Effects

As residual effects of construction and operation on employment and economy will be positive, no evaluation of significance is required.

6.2.18 Accidents, Malfunctions and Unplanned Events

Accidents, malfunctions and/or unplanned events may occur during construction and/or operation of the pipeline. These include:

- Accidental spills;
- Vehicle accidents and construction equipment malfunctions;
- Pipeline leak or rupture;
- Unauthorized access to the right-of-way;
- Construction delays; and,
- Unexpected finds.

Accidental spills

During construction, operation and maintenance, it is possible that an accidental spill of fuel, oil or other nonhazardous or hazardous material may occur, with the potential to affect a number of environmental elements, including:

- Water quality (**Section 6.2.4**)
- Fish and fish habitat (**Section 6.2.5**)
- Wildlife and wildlife habitat (**Section 6.2.7**)
- Species at risk or Species of special concern (**Section 6.2.8**)
- Designated natural areas (**Section 6.2.11**)
- Traditional land (**Section 6.2.13**)
- Human health (**Section 6.2.15**)

Fuelling and lubrication of equipment should be carried out in a manner that minimizes the possibility of spills. On-site fuel tanks and generators should be situated in a designated area that has been bermed and lined with an impermeable barrier. Refuelling of mobile construction equipment should occur a minimum of 30m from any watercourse. Refuelling activities should be monitored at all times; vehicles should never be left unattended while being refuelled. All containers, hoses and nozzles on the right-of-way should be free of leaks. All fuel nozzles should be equipped with functional automatic shut-off devices. If a hazardous substance is spilled, the following safety precautions must be observed:

- Refer to container labels and material safety data sheets to identify any potential health or flammability hazards;
- Wear appropriate personal protective equipment when handling or working near hazardous substances; and,
- If the substance is flammable, eliminate ignition sources and secure the area.

Upon release of a hydrocarbon-based fluid, Dawn Gateway should immediately determine the magnitude and extent of the spill and take immediate measures to contain it. Release of sediment should also be treated as a potential spill depending on the magnitude and extent. All spills should be immediately reported to the Environmental Inspector. As necessary, the MOE Spill Action Center should be notified at 1-800-268-6060. A Spills Response Plan should be developed by the Contractor. Appropriate spill containment apparatus and absorbent materials should be available on-site. All spill plan, response, notification, and containment and remediation measures outlined in Westcoast's *Environmental Manual* should be conveyed to the Environmental Planner and Contractor, and implemented as appropriate.

Depending on the severity and location of a spill, residual effects may be reversible in the short-term, or in the long-term. Although spill contingency, clean-up measures and sediment and erosion control measures (**Section 6.2.4**) would reduce the magnitude and improve reversibility of the residual effect, such an incident could be considered significant. As such significant spills

rarely occur, and even more rarely occur in-stream or where sensitive habitats exist, there is a very small probability of a significant adverse residual effect. Therefore adverse residual effects are not anticipated to be significant.

Vehicle Accidents and Construction Equipment Malfunctions

A transportation accident arising from increased traffic on roads utilized for construction or operation activities, or construction equipment malfunctions, may result in serious injury to humans, property, wildlife, or wildlife habitat. In cases of severe injury, the vehicle accident or construction equipment malfunction would be considered a significant adverse residual effect. Given the safety measures for transportation outlined in **Section 6.2.16**, adverse residual effects are not anticipated to be significant.

Pipeline Leak or Rupture

The main causes of pipeline leak or rupture include corrosion and third-party damage. When a pipeline carrying high-pressure natural gas fails, the contents may leak or, if the pipeline ruptures, an enormous amount of energy can be released as the compressed gas expands. The escaping gas may ignite and cause extensive damage, resulting in serious consequences for people living and working close by and for the environment. In general, the environmental effects of a release are determined by site specific conditions. The major component of natural gas, methane, would be rapidly displaced in the atmosphere, and therefore, is not directly toxic to plant or animal life. Because natural gas is combustible, the principle danger from an uncontrolled escape of natural gas is ignition. Should this occur, any equipment or individuals at the site of rupture would be at serious risk of damage or injury. Typically, for a large diameter high pressure pipeline, the force of the expanding gas would blow the backfill and topsoil away from a section of the pipeline, creating a trench scar.

Union Gas Limited has been contracted to design and construct the proposed pipeline. Union Gas has close to 100 years of pipeline design and construction experience, and will be applying all of this expertise and experience towards the Project. The primary mitigative measure for pipeline leak or rupture is the safe design, construction, operation and maintenance of the pipeline. The proposed pipeline will be in compliance with all requirements of *CSA Z662-07: Oil and Gas Pipeline Systems*, which is the main industry governing document.

Once constructed, Dawn Gateway will develop a Pipeline Maintenance and Integrity Program, to ensure the pipeline remains in safe operating condition. Pipeline inspection and maintenance activities will include those outlined in **Section 2.2.2**. The combination of coatings and the use of cathodic protection on the Pipelines, along with an effective monitoring system to ensure that the cathodic protection system is working, will be the basis of Dawn Gateway's management plan for the prevention of pipeline deterioration. The use of in-line inspection devices or external corrosion direct assessment practices will provide another method of condition monitoring to ensure the continued integrity of the pipeline. In addition to corrosion prevention practices, Dawn Gateway, when necessary, will repair or replace pipelines to ensure system integrity. Dawn Gateway will have the ability to monitor and control valves at the Dawn Compressor

Station, which will automatically isolate the pipeline upon detection of any depressurization events.

Dawn Gateway will also develop an Emergency Response Plan to protect the safety of the public and Dawn Gateway staff, and provide greater protection of the environment. The Plan will outline: criteria for assessing emergency situations, emergency planning zones, the responsibilities of company personnel, and action plans. Copies of the Plan will be distributed both internally to appropriate staff of Dawn Gateway and externally to appropriate first responder organizations and municipalities. While significant adverse effects could occur as the result of a pipeline leak or rupture, Dawn Gateway will implement the best available technology and safety measures to minimize the probability of such accidents occurring. Therefore, the likelihood for a pipeline leak or rupture to occur that would have adverse residual effects is not considered significant.

Unauthorized Access to the Right-of-Way

Access to the right-of-way by unauthorized personnel has the potential for property theft, personnel injury and safety concerns. Unauthorized access during construction should be mitigated through the use of restricted access areas, gated/manned access areas, and/or fencing, as appropriate. During operation, unauthorized vehicle access should be discouraged through the restoration of vegetative buffers at watercourse and road crossings. Provided the above-noted recommendations are implemented, the likelihood of adverse residual effects caused by unauthorized access to the rights-of-way is not significant.

Construction Delays

Delays in the construction schedule may be necessary due to field conditions generated by adverse weather, work progress or land acquisition issues. If a change in the construction schedule is necessary, appropriate landowners and regulatory agencies should be notified immediately. To minimize the impact of a construction delay, and if field conditions permit, equipment should be moved and construction should be resumed in a new location. Once field conditions permit, construction should commence or resume at the original location. Given the above recommendations, the experience of Union Gas in overseeing the construction of natural gas pipelines, and the experience of any contractors that Dawn Gateway may hire to construct the new pipeline, no adverse residual effects are anticipated and no evaluation of significance is required.

Unexpected Finds

In the event that previously unknown archaeological, paleontological or historical resources are uncovered or suspected of being uncovered during construction, work activity in the area should be suspended and the Environmental Inspector contacted. The Environmental Inspector will notify the Ontario Ministry of Culture, and an archaeologist licensed in the Province of Ontario. An appropriate site-specific response plan should then be employed following further investigation of the specific find. The response plan will indicate under which conditions the construction activity may resume. In the event that human remains are uncovered or suspected

of being uncovered during construction, the above measures should be implemented along with contact to the Registrar of the Cemeteries Regulation Unit of the Ontario Ministry of Small Business and Consumer Services (416-326-8404), Shari Prowse, Archaeological Review Officer, Ministry of Culture (519-675-6898), and appropriate police services. Given the response plan that would be developed in the event of an unexpected find, no residual effects are anticipated, and no evaluation of significance is required.

In the event previously unknown contaminated soils, such as buried tanks, drums, oil residue or gaseous odour, are uncovered or suspected of being uncovered, construction should cease until the source of the contamination is further investigated. Dawn Gateway will retain expert advice on assessing and developing a soil sampling, handling and remediation plan. Given the above, no residual effects are anticipated, and no evaluation of significance is required.

6.3 EFFECTS OF THE ENVIRONMENT ON THE PROJECT

Under *CEAA (1992)*, the definition of 'environmental effect' includes any changes to the Project that may be caused by the environment. Consideration of potential effects on the environment included:

- Seismic activity;
- Flooding; and,
- Severe weather.

The potential effects and measures to be implemented to obviate or mitigate the effects are discussed below. Several planning and design tools intended to avoid or minimize the potential for effects of the environment on the Project will be utilized, such as geotechnical investigations, pipeline design standards, protective coatings, corrosion prevention systems, and environmental compliance and maintenance activities (discussed in greater detail throughout the ESA Report).

6.3.1 Seismic Activity

Seismic activity has a potential to impact the integrity of the proposed pipeline during the construction and/or operation phase of the Project. The probability of seismic hazard in the Study Area is rated a medium-low risk. The pipeline will be designed to comply with *CSA Z662-07: Oil and Gas Pipeline Systems*, and Dawn Gateway's Pipeline Maintenance and Integrity Program will provide for constant assessments of the integrity of the pipeline (outlined in **Section 8.1**). Given the medium-low risk of the Study Area, and the implementation of appropriate design standards and operation procedures, the likelihood of significant adverse environmental effects resulting from seismic activity is not anticipated to be significant.

6.3.2 Flooding

A flooding event during pipeline construction or operation could result in construction delays, loss of cover over the pipeline, sedimentation, and construction equipment entering the watercourse. The nature of these effects would depend on the spatial extent, duration and magnitude of the event. If a change in the construction schedule is necessary, landowners and regulatory agencies should be notified as appropriate. To minimize the impact of construction delay, equipment should be moved and construction should resume in an appropriate location.

The pipeline will be buried to a depth that minimizes the potential effects of flooding as well as associated erosion and scouring. In such an event, and depending on the issues involved, regulatory authorities would be consulted. Temporary workspaces for all watercourse crossings should be located above the floodplain to the extent possible, as designated by the St. Clair Region Conservation Authority. Specific watercourse crossing techniques will be determined by a watercourse crossing assessment (**Section 9.1.2**). Where watercourses are crossed using instream construction, the risk of a flood occurring will be low as crossings will generally take only a few days, and will only occur during low flow periods. With the proper implementation of the above construction practices, any residual effects will be short-term in nature and no significant adverse residual environmental effects are anticipated.

6.3.3 Severe Weather

Climate Change

Changes in climatic conditions during operation of the Project may result in altered patterns of precipitation and temperatures, and resultant effects could include flooding, changes to spring freshet, and general landscape erosion. Given the nature and schedule of maintenance activities for the proposed pipeline described in **Table 2.2, Section 2.2.2**, an adaptive approach to pipeline maintenance will be possible to minimize the potential environment effect. By utilizing adaptive pipeline maintenance, no adverse environmental effects are anticipated, and consequently no evaluation of residual effects is required.

High Winds

During construction or maintenance activities requiring soil disturbance, high winds can result in the loss of topsoil through erosion, and the suspension of some activities. Soil erosion by wind can occur anytime during construction and maintenance activities after clearing and stripping operations have commenced.

To reduce the potential for soil erosion by wind, the time interval between topsoil stripping and final clean-up should be minimized. During construction and maintenance activities, weather should be monitored in order to identify the potential onset of excessive wind conditions. In the event that high winds do occur, the following protective measures should be implemented as appropriate on erosion prone soils:

- Suspend earth moving operations such as topsoil stripping and backfilling;

- Apply straw mulch with a tackifier to topsoil piles, spoil piles, and the stripped right-of-way;
- Create a windbreak by installing temporary construction fencing; and,
- Reduce easement traffic.

In conjunction with the above measures, all related equipment should be stored on-site and available for use as required.

If a change in the construction schedule is necessary due to the suspension of certain activities, landowners and regulatory agencies should be notified as necessary. To minimize the impact of construction delay, equipment should be moved and construction should resume in an appropriate location sheltered from the high winds.

With the proper implementation of these preventative and mitigation measures, no significant adverse residual environmental effects are anticipated.

Lightning

Lightning has the potential to affect power supply to the area, and damage above-ground equipment and facilities. If a change in the construction schedule is necessary due to interruptions to power supply or damage to equipment, landowners and regulatory agencies should be notified as necessary. Above-ground facilities will be grounded in accordance with applicable building codes to minimize the risk of damage due to lightning. Cathodic protection systems will be monitored on a monthly basis to inspect for downtime due to lightning strike, and more frequently if lightning or lightning activity is suspected. Due to these standards, the risk of damage from lightning is considered to be low, no adverse environmental effects are anticipated, and consequently no evaluation of significance is required.

Extreme Precipitation

Heavy or persistent precipitation could result in delays if topsoil salvage activities have not been completed, or if wet soil conditions exist.

If a change in the construction schedule is necessary due to the suspension of certain activities, landowners and regulatory agencies should be notified as necessary. To minimize the impact of construction delay, equipment should be moved and construction should resume in an appropriate location sheltered from the extreme precipitation. In the event that activities must continue during wet soil conditions, special protective measures should be implemented to reduce the impacts of soil erosion, soil compaction, watercourse siltation and vegetation damage.

Soil Erosion

Under wet soil conditions, the potential for topsoil erosion from disturbed agricultural land increases. Where the risk of significant soil erosion exists, temporary erosion control measures such as silt fence, straw bales or temporary berms should be employed on slopes or other

erosion prone areas. Depending on the intensity of the precipitation event and the associated runoff and soil erosion, more permanent measures may be required during and/or post construction, such as:

- Prohibiting the operation of construction equipment close to watercourse banks;
- Installing erosion control measures such as straw matting, geotextile fabrics, hydroseeding, sod installation, or native plantings; and,
- Installation of drains or cross ditches to divert runoff away from watercourses.

Other preventative and mitigation measures related to soil erosion are discussed in **Section 6.2.4**.

Soil Compaction

Activities during wet soil conditions may continue, if ceasing operations is not feasible, by skipping over localized wet areas or by implementing alternative construction methods such as corduroy roads, geotextile roads or swamp mats. Easement access should also be limited to specialized equipment, such as wide tracked machinery and vehicles equipped with low ground pressure tires. If compaction to soils is apparent, a soil rehabilitation plan should be developed and implemented when soils have sufficiently dried. Other preventative and mitigation measures related to soil compaction are discussed in **Section 6.2.2**.

Watercourse Siltation

Even with appropriately installed erosion and siltation control measures, extreme precipitation events could result in collapse of silt fencing, overflow or bypass of barriers, slope or trench failures, and other situations which could lead to siltation of watercourses. If siltation to a watercourse occurs, immediate action should be taken to install temporary measures to contain the extent of erosion and siltation as quickly as possible. When site conditions permit, permanent protection measures should be installed on eroding surfaces. If the siltation is due to a construction or maintenance-related activity, the activity should be halted immediately until the situation is rectified and relevant agencies should be notified. A supply of appropriate emergency materials (i.e. silt fencing, etc.) should be available on-site. Other preventative and mitigation measures related to watercourse siltation are discussed in **Section 6.2.4**.

Vegetation Damage

Potential for damage to crops and woodlots situated adjacent to the easement increases during wet soil conditions. In the event of flooding and/or siltation of lands adjacent to the right-of-way, small swales should be hand dug to direct water to a suitable location. In soils where topography will not allow natural drainage, it may be necessary to use pumps to prevent prolonged standing water. Where damage caused by flooding of agricultural land or a woodlot occurs due to construction or maintenance activity, an assessment to determine the extent of damages should be undertaken by Dawn Gateway. The assessment should include compensation and rehabilitation recommendations as appropriate.

With the proper implementation of the above-noted construction practices and mitigation measures, and the sediment and erosion control measures outlined in **Section 6.2.4**, no significant adverse residual environmental effects are anticipated from extreme precipitation.

6.4 SUMMARY OF EFFECTS ASSESSMENT

Table 6-1 provides a summary of the potential impacts, mitigation and protective measures, and residual effects, and the significance of those residual effects for the Project-specific issues identified in **Sections 6.2** and **6.3**. **Appendix D** provides a photomosaic illustrating the location of recommended mitigation and protective measures along the Preferred Corridor.

This page left blank intentionally.

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
Construction Phase				
Physical Environment	Erosion and sedimentation on slopes adjacent to watercourses	- Regular monitoring and integrity assessments as per Dawn Gateway's Pipeline Maintenance and Integrity Program. - Erosion and sedimentation mitigation measures outlined in 'Water Quality and Quantity'. - Seismic activity, flooding, and climatic effects mitigation measures outlined in 'Effects of the Environment on the Project'.	With the implementation of the mitigation and protective measures specified, residual effects are expected to be localized and temporary.	Not Significant
Soil and Soil Productivity	- Disturbance to soil during construction activities: - Rutting, compaction and mixing of topsoil and subsoil in wet weather - Breakdown of soil structure, effects to soil fertility, and reduction of productivity - Erosion due to loss of vegetative cover	- Pre-screening of all planned construction activities to develop mitigation before initiating - Activities should occur during dry seasons, and soil protection measures installed in sensitive areas in the case of over-wintering. - Wet soil shut down practice should be implemented when activities occur in agriculturally productive lands during wet weather. - When wet soil conditions occur, heavy tracked and rubber-tired vehicles should be restricted from movement on the right-of-way. - When topsoil stripping is undertaken, topsoil and subsoil should be stripped and stockpiled separately, with adequate separation between piles to avoid mixing. - Stones should be picked both before and after topsoil replacement, and during cleanup - Topsoil stripping should be discussed with landowners. - In forested areas, the upper surface material should be stripped and stored along the right-of-way, physically separated from any excavated subsoil. - Where feasible, stringing trucks hauling the pipe should travel along the centre of the proposed trench line to help minimize the extent of soil compaction along the right-of-way. - Subsoil compacted should be relieved by means of appropriate compaction relief methods. - The option of sub-soiling with an agricultural subsoiler, followed by discing, chisel ploughing or cultivating, to smooth the surface, should be considered on a site-specific basis. - Where extreme compaction persists, additional deep tillage or subsoiling may be required on a site-specific basis. - Soil density and/or penetrometer measurements on and off the right-of way may be used as a means of assessing the relative degree of soil compaction to determine if additional compaction relief is required. - If erosion is evident, silt fence and straw bales (or appropriate substitutes) should be installed. - Topsoil salvage and/or replacement should be avoided during heavy precipitation or extremely windy conditions. - If necessary, reseedling should occur as soon as possible when climatic conditions permit. - Seed should be protected under a layer of erosion control matting or other appropriate stabilizing technique. - In the event that broadcast seeding is not feasible due to climatic restrictions, hydroseeding should be considered. - As an additional measure, silt control fencing should be installed and maintained throughout construction, restoration, and rehabilitation of the slopes until vegetative cover is fully established.	With the implementation of the protection and mitigation measures specified, residual effects will be site-specific, infrequent.	Not Significant
	Disruption or damage to artificial drainage systems as a result of construction activities, resulting in soil erosion and/or crop loss	- In the event that artificial drainage is encountered along the pipeline route, a drainage contractor or specialist should be contacted prior to construction to advise on any issues related to potential impacts to the drains. - Landowners should be contacted to determine the precise location of the tile system prior to construction. Future plans for improvements to farm drainage should also be identified and discussed. - Any tile drains damaged will be recorded and flagged. - If a main drain, header tile, or large diameter tile is severed, a temporary repair should be made.	With the implementation of the protection and mitigation measures specified, residual effects will be site-specific.	Not Significant

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
		- Tile drains that are not immediately repaired should be capped. - Landowners should be invited to approve the repair prior to backfilling. - If the flooding of fields occurs, the affected area should be rehabilitated as soon as possible.		
	Transportation of soils contaminated with Soybean Cyst Nematode to non-infested fields as a result of construction activities, resulting in soybean crop loss	- Soil sampling should be conducted prior to initiating work to determine if the field is infested with Soybean Cyst Nematode (SCN). - Appropriate SCN sampling procedures should be undertaken. - Any field impacted with SCN should be recorded, location provided to the Construction Contractor, and landowners notified (and provided with appropriate information). - Any imported topsoil should be analyzed for SCN prior to placement on the right-of-way. - If construction activities are required in SCN-infested fields, appropriate mitigation measures should be developed. - Examples of mitigation measures may include washing stations for equipment, and/or restricted access to fields.	No residual effects anticipated	N/A
Vegetation	- Clearing of woodlot trees, riparian vegetation, and hedgerows and tree clusters paralleling roads and watercourses - Vegetation management activities may affect vegetation, and interfere with natural succession in small natural areas	- Clearing should be minimized to the extent possible, and the limits of clearing should be surveyed and staked in the field. - Environmental Inspector will ensure that no construction disturbance occurs beyond these limits. - Clearing should be restricted to frozen soil conditions, where feasible, to minimize disturbance to vegetation and terrain. - Selected mature trees susceptible to windthrow and located close to the limits of clearing should be culled under the supervision of the Environmental Inspector. - Trees removed should be felled into the easement and not into a woodlot, and made available to the landowner, if requested. - Dawn Gateway will also implement their Tree Replacement Program to replace two times the area removed with seedlings native to Ontario. - Enhancing riparian or local linkages should also be encouraged where a landowner is not interested in tree replacement contiguous to the affected woodlot.	With the implementation of the protective and mitigation measures specified, the spatial extent and magnitude of impacts will be minimized.	Not Significant
Water Quality and Quantity	- Accidental spills - Noise associated with the operation of pumps utilized to fill the pipeline with test water, as well, lighting may inconvenience residents if pumping and testing continues into the night - Erosion and sedimentation	- Accidental spills mitigation measures outlined in 'Accidents, Malfunctions and Unplanned Events'. <i>Hydrostatic Test</i> - Hydrostatic test will be completed for the entire length of the proposed pipeline. - Withdrawal of test water from a natural source will require a Permit to Take Water from the Ministry of Environment should volumes exceed 50,000 litres per day. - To reduce the potential for erosion and scouring at dewatering points, appropriate energy dissipation techniques should be utilized. - Discharge piping should be free of leaks and should be properly anchored to prevent bouncing or snaking during surging. - Rate of discharge should be monitored to ensure no erosion or flooding occurs. - If energy dissipation measures are found to be inadequate, rate of dewatering should be reduced or ceased until satisfactory mitigation measures are in place. Discharge should be completed in a manner that prevents erosion and downstream flooding. - Noise mitigation and protective measures are outlined in Acoustic Environment. - Temporary lighting should be turned on at dusk and extinguished at dawn, directed towards the work site but away from the direction of any nearby residences. <i>Erosion and Sedimentation</i> - Implementation of standard mitigation and sediment control plans to protect the water quality of each watercourse from significant effects during and after construction.	Provided the above mitigation, monitoring and contingency measures are properly implemented, adverse residual effects will be of low frequency and magnitude and of short-term duration.	Not significant

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
		- Contractor must obtain adequate quantities of materials in order to control erosion and sediment deposition. Additional supplies should be maintained onsite in a readily accessible location for maintenance and contingency purposes. - Erosion and sediment control measures should be properly installed, and additional measures may be installed at the discretion of the Environmental Inspector. - Barriers should be inspected regularly to ensure proper functioning and maintenance. Vegetation removal on the slopes of watercourses should be minimized to the extent possible, to minimize the risk of slope failure and siltation. - Materials removed or stockpiled (e.g. excavated soil, backfill material, etc.) should be deposited and contained in a manner to ensure sediment does not enter a watercourse. The section of the watercourse bank immediately adjacent to the watercourse (i.e. between the erosion control fences) should not be disturbed until it is part of the location requiring activity. - As soon as possible following completion of the construction or maintenance activity, the slopes of the watercourse should be restored to their original grade. - Erosion and sediment control measures should remain securely installed until permanent vegetation measures are successful and areas are stabilized. - If siltation to a watercourse occurs, activities should cease immediately until the situation is rectified. Immediate action should be taken to install temporary measures (e.g. silt fencing, rip rap, sand bags etc.) to contain the extent of erosion and siltation as quickly as possible. Personnel should be fully prepared to respond quickly to siltation events. <i>Watercourse Crossings</i> - The goal of Dawn Gateway will be to cross the North Sydenham River via horizontal directional drill. - Should a horizontal directional drill crossing prove not feasible or prove unsuccessful, a contingency wet crossing method will be utilized. - A wet crossing should be undertaken during the appropriate fisheries timing window. - The need for site-specific mitigation and supplemental fish and fish habitat assessment work should be completed as required, and all permit requirements should be implemented. - Crossing and mud release contingency measures will follow those outlined in Westcoast's Environmental Manual for Construction Projects in Canada (June 2006). - The goal of Dawn Gateway will be to cross all other watercourses using a dry crossing. - Should a dry crossing prove not to be feasible or prove unsuccessful, a contingency wet crossing dam and pump or flumed style trench crossing will be utilized. Both crossing types should be undertaken during the appropriate fisheries timing window. - Prior consultation and approval will be required from relevant agencies, and all permit requirements should be implemented. - Crossings will follow the environmental management practices outlined in Westcoast's Environmental Manual for Construction Projects in Canada (June 2006).		
	Water wells may be susceptible to contamination or dewatering from construction activities.	- Presence of recently drilled or non-documented water wells will be investigated with landowners and corridor tenants prior to construction. - Water Well Monitoring Program will be implemented. - If a high water table is encountered in isolated areas during trench excavation, dewatering may be required. - Associated dewatering should be discharged in a manner to minimize soil erosion. An MOE Permit to Take Water is required if more than 50,000 L per day is withdrawn as a result of dewatering activities.	Provided the above mitigation, monitoring and contingency measures are properly implemented, adverse residual effects will be of low frequency and magnitude and of short-term duration.	Not significant
Fish and Fish Habitat	Interference with fish spawning as a result of construction activities	- Sedimentation mitigation measures outlined in 'Water Quality and Quantity' and 'Vegetation'. - Accidental spills contingency measures outlined in 'Accidents, Malfunctions and Unplanned Events'.	Provided that the mitigation and protective measures identified above are implemented, residual effects are expected to be temporary	Not Significant

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
	- Degradation of water quality resulting from accidental spills - Alteration of riparian vegetation	- Construction activities, and operational activities for pipeline maintenance and integrity which may require in-stream work, should be conducted in accordance with permit regulations. - To minimize interference with fish spawning during pipeline construction, the timing window for instream activities will be consistent with those outlined by the MNR. - In-stream activities should be completed in as short a time as possible to ensure minimal disturbance to fish and fish habitat. - A water intake/fish screening device should be used in waters containing fish habitat. - Downstream water flow should be maintained during work conducted in watercourses. - Fish salvage (and mussel salvage, as applicable) should be conducted prior to and during the isolation of flow, and in accordance with permit regulations.	and localized.	
Wildlife and Wildlife Habitat	- Habitat loss or alterations, degradation through accidents, malfunctions and unplanned events - Temporary disturbance of wildlife during construction activities	- Implement all mitigation measures related to ‘Vegetation’, ‘Water Quantity and Quality’, and ‘Accidents, Malfunctions and Unplanned Events’. - Flag or fence environmentally sensitive wildlife habitat, as identified through field surveys, prior to commencement of clearing and construction. - Clearing activities should be avoided during the migratory bird nesting period. - Follow trenching operations as closely as practical with backfill operations, to facilitate the movement of wildlife. - Create gaps at wildlife trails identified through field surveys, to allow for the potential movement of wildlife across the right-of-way. - Erect fencing around excavations to protect wildlife. - Construction, clean-up and restoration activities should be conducted expeditiously to minimize potential barriers and hazards to wildlife. - In areas where public access to the right-of-way may be an issue, access should be discouraged using signs and gates where appropriate. - Prohibit construction and operation personnel from harming, harassing or feeding wildlife. Do not allow pets, firearm or recreational use of all-terrain vehicles or snowmobiles on the construction site. Maintain a maximum speed limit of 40 km/hr on the right-of-way. - Any previously unidentified potentially sensitive wildlife habitat should be reported to the Environmental Inspector during construction. - Project-related wildlife deaths and nuisance animals should be reported to the Environmental Inspector during construction.	Provided that the mitigation and protective measures identified above are implemented, no residual effects are anticipated.	N/A
Species at Risk or Species of Special Status	- Habitat degradation through accidents, malfunctions and unplanned events - Temporary disturbance during construction activities	- A survey for wildlife and wildlife habitat (including terrestrial species-at-risk), vascular plants and ecological communities (including flora species-at-risk), and watercourse crossings (including potential impacts to aquatic species-at-risk) will be conducted prior to pipeline construction. - Implement all mitigation measures related to ‘Vegetation’, ‘Fish and Fish Habitat’, and ‘Wildlife and Wildlife Habitat’. - Any species-at-risk that are encountered or suspected of being encountered should be reported to the Environmental Inspector during construction. - Consultation with relevant government agencies will be undertaken regarding appropriate protective measures.	With the implementation of the protective and mitigation measures specified, residual effects are expected to be low in magnitude, site-specific to localized, and very unlikely	Not Significant
Air Quality	- Increase in criteria air contaminants and greenhouse gas emissions from fuel combustion during operation of heavy equipment and vehicles - Increase in dust from construction activities, and potential for gas venting	- Multi-passenger vehicles should be used to the extent practical. - Personnel should avoid idling of vehicles. - Vehicles and equipment should be turned off when not in use, as appropriate. - Company and construction equipment and vehicles should be maintained in good working order to reduce exhaust emissions and reduce fuel consumption.	Given the relatively small spatial extent of the anticipated construction area, and the low duration, frequency and magnitude of the construction and operation activities effecting air quality, adverse residual effects are not anticipated to be significant.	Not Significant

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
		- All equipment and vehicles should be maintained in good working order and will meet emissions requirements of the MOE and/or MTO. - Dust suppressants may be used as required. - Local road authorities should be informed prior to application of dust suppressants on roads. - Watering for dust control must not result in the formation of puddles, rutting by equipment or vehicles, the tracking of mud onto roads or siltation of watercourses. - In situations where a release of natural gas is planned, a Gas Release Management Plan should be developed by Dawn Gateway with the intent of minimizing the quantity of gas released to the atmosphere		
Acoustic Environment	Noise generated by the operation of heavy equipment and associated vehicular traffic, and gas venting when connecting the pipeline.	- All engines associated with construction activities and minor modifications will be equipped with mufflers and/or silencers. - Personnel should avoid idling of vehicles. - Vehicles and equipment should be turned off when not in use, as appropriate. - To the greatest extent possible, activities that could create noise should be restricted to daylight hours and adhere to any local noise by-laws. - If activities that cause excessive noise must be carried out outside of these time frames, adjacent residents should be notified in advance and by-law conformity occur, as required. - Noise abatement measures should be erected as necessary in proximity to residential or other sensitive areas. - A Gas Release Plan should be developed to minimize the amount of noise generated during the gas release.	Noise associated with the pipeline will be infrequent, immediately reversible and of low magnitude.	Not Significant
Human Occupancy and Resource Use	- Temporary increase in demand of some services from municipality and local communities as a result of construction activities - Short-term disruption and use of local roads during the construction phase	- Dawn Gateway has consulted with municipalities to discuss the Project. - Concerns expressed by the municipalities during pipeline construction should be addressed in an expeditious and courteous manner. - Increased demand for services will be minimal and short-term, reflecting a small increase in the number of personnel present in the area performing construction activities.	With the implementation of the protective and mitigation measures specified, residual effects will be negligible in magnitude, short-term, and infrequent.	Not Significant
	- No anticipated effects on municipal planning documents / land-use designations - Temporary interruption to certain land uses, such as outdoor recreation and agriculture - No anticipated change of present use of lands	- No mitigation or protective measures necessary for land-use designations. - People who participate in outdoor recreation will choose an alternate location for their recreation during times when construction activities take place. - Dawn Gateway will follow any permit conditions and/or regulatory recommendations for any watercourses crossed by the proposed pipeline that are deemed navigable by Transport Canada. - Prior to initiating work, Dawn Gateway should consult with directly affected landowners to ensure that schedules are discussed regarding the timing of cultivating, planting, harvesting and/or spraying to make sure that access to fields is not unduly impaired. - If needed, temporary access should be provided. - Temporary crossings of the easement for livestock may be required to ensure access to grazing areas, and/or temporary fencing may be required to ensure that livestock do not enter the work area.	With the implementation of the protective and mitigation measures specified, residual effects will be low in magnitude, site-specific, and infrequent.	Not Significant
	Clearing of vegetation and/or disturbance of wildlife during construction	Mitigation measures outlined in 'Vegetation' and 'Wildlife and Wildlife Habitat'.	With the implementation of the protective and mitigation measures specified, residual effects will be low in magnitude, site-specific, but for the duration of the operation of the pipeline.	Not Significant
	- Preferred Corridor will not traverse or sterilize mineral, aggregate, or hydrocarbon resources - Aggregate resources which may be required during construction of the proposed	N/A	N/A	N/A

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
	pipeline are available from many local sand and gravel operators that provide aggregate in Lambton and surrounding counties			
Heritage Resources	• Pipeline construction has at least a moderate potential for as-yet undiscovered prehistoric and historic archaeological resources	• Stage II Archaeological Assessment should be undertaken in areas identified to have a moderate to high potential for archaeological potential as identified in the Stage I assessment • Recommendations for mitigation, outlined in the Stage II report, should be implemented during construction. • Contingency measure should human remains be discovered are outlined in "Accidents, Malfunctions, and Unplanned Events".	Provided that all mitigation and protective measures are properly implemented, adverse residual effects are anticipated to be of low magnitude.	Not Significant
Traditional Land and Resource Use	• Construction of the pipeline has the potential to affect land claimed by First Nations and currently used by First Nations	• Mitigation measures for items identified in the traditional ecological knowledge study have been addressed through applicable sections of this ESA report, including woodlots (Section 6.2.3), fisheries (Section 6.2.5), wildlife and wildlife habitat (Section 6.2.7), and heritage resources (Section 6.2.12). • Where appropriate, measures to address the issues in the traditional ecological knowledge study will be outlined in the Environmental Protection Plan to be completed prior to construction. • Dawn Gateway should continue to work closely with the Walpole Island First Nation.	With the implementation of the protective and mitigation measures specified, residual effects will be of low magnitude and site-specific for the operational life of the pipeline.	Not Significant
Social and Cultural Well-Being	• Disruption to rural lifestyle from NEB Safety Zone regulations • Nuisance and safety concerns throughout pipeline construction	• Dawn Gateway has committed to seek blanket approvals for all standard agricultural activities within the Safety Zone, on a landowner-specific basis. • Nuisance mitigation measures outlined in 'Human Health and Aesthetics'. • Safety mitigation measures outlined in 'Accidents, Malfunctions and Unplanned Events'.	With the implementation of the protective and mitigation measures specified, residual effects will be site-specific and activity-specific for the operational life of the pipeline.	Not Significant
Human Health and Aesthetics	• Health effects from degradation to water quality • Health effects from degradation of air quality • Health effects from the generation of waste materials • Health effects from Project-related noise • Health effects from safety • Nuisance effects • Change in aesthetics of the local landscape	• Water quality mitigation measures outlined in 'Water Quality and Quantity'. • Air quality mitigation measures outlined in 'Air Quality'. • Waste materials and traffic mitigation measures outlined in 'Infrastructure and Services'. • Noise mitigation measures outlined in 'Acoustic Environment'. • Safety mitigation measures outlined in 'Accidents, Malfunctions and Unplanned Events'. • There is variability in the level of construction activities which landowners may consider a nuisance. • Activities are anticipated to be largely non-intrusive and of short duration. • Financial compensation provided to landowners is based, in part, on compensation for nuisance effects. • Concerns will be addressed through Dawn Gateways Landowner and Community Relations Program. • Aesthetic effects are subjective in nature. • Vegetative buffers at watercourse and road crossings will be maintained to reduce visual effects. • During construction activities, work should be confined to specified workspace areas. • Construction activities should be conducted as expeditiously as possible.	With the implementation of the protective and mitigation measures specified, adverse residual effects are anticipated to be localized, temporary, and of low magnitude.	Not Significant

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
Infrastructure and Services	Increased use of roads and general impedance to traffic, and potential damage to utilities and pipelines	- Use of multipassenger vehicles to reduce traffic volume, where appropriate, and obeying all traffic, road-use and safety laws - Dust control measures as outlined in 'Air Quality'. - Where required, approvals will be obtained from the appropriate authority regarding road crossings. The duration of construction at road crossings should be minimized. A traffic management plan should be developed. - If construction is to occur in the vicinity of overhead power lines, all machine operators should be informed that power lines are present overhead. Lines that may interfere with the operation of construction equipment should be identified with warning poles strung together with rope and suspended red flags. Signs should be posted stating 'Danger - Overhead Power Lines'. - Dawn Gateway should locate and flag all existing buried utility lines, cables and pipelines to be crossed by the pipeline prior to construction activities. Heavy machinery should minimize the frequency of crossing any underground pipelines to the extent possible; all heavy machinery operators should be advised of the location of any natural gas pipelines and the concerns associated with construction in vicinity of such pipelines.	Provided the above mitigation and protective measures are properly implemented, adverse residual effects anticipated from increased use of roads and increased traffic is anticipated to be localized and of low magnitude.	Not Significant
	- Continued demand for accommodation, food, and municipal waste services - Continued potential for use of emergency services	- Mitigation measures relevant to accommodation and food services are outlined in 'Social and Cultural Well-being'. - Waste generated by activities will be minimized to the extent possible. - Waste will be hauled to an appropriate registered waste disposal facility. - Receptacles for recycling will be available, and will be hauled to an appropriate recycling facility. - The capacity of emergency services is expected to be capable of responding to any safety incidents which may arise. - There is a low probability of need for emergency services.	With the implementation of the protective and mitigation measures specified, residual effects will be of low magnitude and infrequent.	Not Significant
Employment and Economy	Positive effects as a result of employment, procurement of materials, and tax revenues	N/A	Positive	N/A
Accidents, Malfunctions, and Unplanned Events	- Accidental spills, affecting: - Water quality - Fish and fish habitat - Wildlife and wildlife habitat - Species at risk or species of special concern - Designated natural areas - Traditional land - Human health	- On-site fuel tanks and generators should be situated in a designated area that has been berms and lined with an impermeable barrier. Refuelling of mobile construction equipment should occur a minimum of 30m from any body of water. - Refuelling activities should be monitored at all times; vehicles should never be left unattended while being refuelled. All containers, hoses and nozzles on the right-of-way should be free of leaks. All fuel nozzles should be equipped with functional automatic shut-off devices. - If a hazardous substance is spilled, the following safety precautions must be observed: Refer to container labels and material safety data sheets to identify any potential health or flammability hazards; Wear appropriate personal protective equipment when handling or working near hazardous substances; If the substance is flammable, eliminate ignition sources and secure the area. - Upon release of a hydrocarbon-based fluid, Dawn Gateway should immediately determine the magnitude and extent of the spill and take immediate measures to contain it. - Release of sediment should be treated a potential spill depending on the magnitude and extent. - All spills should be immediately reported to the Environmental Inspector. - If necessary, the MOE Spill Action Center should be notified. - A Spills Response Plan should be developed by the contractor. - Appropriate spill containment apparatus and absorbent materials should be available on-site. - All spill plan, response, notification, and containment and remediation measures outlined in Westcoast's <i>Environmental Manual</i> should be implemented as appropriate.	With the implementation of the protective and mitigation measures specified, there is a very low probability of significant residual effects.	Not Significant

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
	Vehicle Accidents and Construction Equipment Malfunctions	Follow safety measures outlined for transportation outlined in 'Infrastructure and Services'.	With the implementation of the protective and mitigation measures specified adverse residual effects are not anticipated to be significant.	Not Significant
	Pipeline leak or rupture	- Dawn Gateway will develop an Emergency Response Plan. - The Plan will outline: criteria for assessing emergency situations, emergency planning zones, the responsibilities of company personnel, and action plans. - Copies of the Plan will be distributed both internally to appropriate staff of Dawn Gateway and externally to appropriate first responder organizations and municipalities. - Dawn Gateway will implement the best available technology and safety measures to minimize the probability of such accidents occurring.	With the implementation of the protective and mitigation measures specified, there is a very low probability of significant residual effects.	Not Significant
	Unauthorized access to the rights-of-way	Unauthorized access during construction should be mitigated through the use of restricted access areas, gated/manned access areas, and/or fencing, as appropriate.	With the implementation of the protective and mitigation measures specified, there is a very low probability of significant residual effects.	Not Significant
	Construction Delays	- If a change in the construction schedule is necessary, appropriate landowners and regulatory agencies should be notified immediately. - Equipment should be moved and construction should be resumed in a new location. - Once field conditions permit, construction should commence or resume at the original location.	No adverse residual effects anticipated.	N/A
	Unexpected Finds	- Work activity in the area should be suspended and the Environmental Inspector contacted. - Environmental Inspector will notify the Ontario Ministry of Culture, and an archaeologist licensed in the Province of Ontario. - An appropriate site-specific response plan should then be employed following further investigation of the specific find. - In the event that human remains are uncovered or suspected or being uncovered during construction, the	No adverse residual effects anticipated.	N/A

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
		above measures should be implemented along with contact to the Registrar of the Cemeteries Regulation Unit of the Ontario Ministry of Small Business and Consumer Services, Ministry of Culture (and appropriate police services). - In the event previously unknown contaminated soils, such as buried tanks, drums, oil residue or gaseous odour, are uncovered or suspected of being uncovered, construction should cease until the source of the contamination is further investigated. - Dawn Gateway will retain expert advice on assessing and developing a soil sampling, handling and remediation plan.		
Effects of the Environment on the Project	Seismic activity causing soil erosion and/or sedimentation during pipeline operation	- Regular monitoring and integrity assessments as per Dawn Gateway's Pipeline Maintenance and Integrity Program. - The pipeline will be designed to comply with <i>CSA Z662-07: Oil and Gas Pipeline Systems</i> - Medium-low risk of seismic activity in the Study Area.	With the implementation of the protective and mitigation measures specified, there is a very low probability of significant residual effects.	Not Significant
	Flooding resulting in loss of cover of the pipeline and/or sedimentation throughout pipeline operation	- If a change in the construction schedule is necessary, landowners and regulatory agencies should be notified as appropriate. To minimize the impact of delay, equipment should be moved and construction should resume in an appropriate location. - The pipeline is buried to a depth that minimizes the potential effects of flooding as well as associated erosion and scouring. - Temporary workspaces for all watercourse crossings should be located above the floodplain to the extent possible, as designated by the St. Clair Region Conservation Authority.	With the implementation of the protective and mitigation measures specified, residual effects would be short-term in nature.	Not Significant
	Severe weather from climate change, high winds, lightning or extreme precipitation causing effects on disturbed soil during construction activities	<u>Climate Change</u> An adaptive approach to pipeline maintenance will be used to account for changes in climatic conditions. <u>High Winds</u> - The time interval between topsoil stripping and final clean-up should be minimized. - During construction activities, weather should be monitored in order to identify the potential onset of excessive wind conditions. - In the event that high winds do occur during construction activities, suspend earth moving operations such as topsoil stripping and backfilling; apply straw mulch with a tackifier to topsoil piles, spoil piles, and the stripped right-of-way; create a windbreak by installing temporary construction fencing; and, reduce easement traffic. - All related equipment and materials should be stored on-site and available for use as required. <u>Lightening</u> - Above-ground facilities have been grounded in accordance with applicable building codes to minimize the risk of damage due to lightning. - Cathodic protection systems will be monitored on a monthly basis to inspect for downtime due to lightning strike, and more frequently if lightning or lightning activity is suspected <u>Extreme Precipitation.</u> - In the event that construction activities must continue during wet soil conditions, special protective measures should be implemented to reduce the impacts of soil erosion, soil compaction, watercourse siltation and vegetation damage. <u>Soil Erosion</u> - Temporary erosion control measures such as silt fence, straw bales or temporary berms should be	With the implementation of the protective and mitigation measures specified, there is a very low probability of significant residual effects.	Not Significant

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
		employed on slopes or other erosion prone areas. - More permanent measures may be required during and/or following completion of the work, such as: prohibiting the operation of equipment close to watercourse banks; installing erosion control measures such as straw matting, geotextile fabrics, hydroseeding, sod installation, or native plantings; and, installation of drains or cross ditches to divert runoff away from watercourses. <i>Soil Compaction</i> - Activities during wet soil conditions may continue, if ceasing operations is not feasible, by skipping over localized wet areas or by implementing alternative methods such as corduroy roads or swamp mats. - Easement access should also be limited to specialized equipment, such as wide tracked machinery and vehicles equipped with low ground pressure tires. - If compaction to soils is apparent, a soil rehabilitation plan will be implemented when soils have sufficiently dried. <i>Watercourse Siltation</i> - If siltation to a watercourse occurs, immediate action should be taken to install temporary measures to contain the extent of erosion and siltation as quickly as possible. - When site conditions permit, permanent protection measures should be installed on eroding surfaces. - If the siltation is due to a Project-related activity, the activity should be halted immediately until the situation is rectified and relevant agencies should be notified. - A supply of appropriate emergency materials (i.e. silt fencing, etc.) should be available on-site. <i>Vegetation Damage</i> - In the event of flooding and/or siltation of lands adjacent to the right-of-way, small swales should be hand dug to direct water to a suitable location. - In soils where topography will not allow natural drainage, it may be necessary to use pumps to prevent prolonged standing water. - Where damage caused by flooding of agricultural land or a woodlot occurs due to construction activities, an assessment to determine the extent of damages should be undertaken by Dawn Gateway. The assessment should include compensation and rehabilitation recommendations as appropriate.		
Operation Phase				
Physical Environment	Erosion and sedimentation on slopes adjacent to watercourses throughout pipeline operation, and as a result of maintenance activities	- Regular monitoring and integrity assessments as per Dawn Gateway's Pipeline Maintenance and Integrity Program. - Erosion and sedimentation mitigation measures outlined in 'Water Quality and Quantity'. - Seismic activity, flooding, and climatic effects mitigation measures outlined in 'Effects of the Environment on the Project'.	With the implementation of the mitigation and protective measures specified, residual effects are expected to be localized and temporary.	Not Significant
Soil and Soil Productivity	- Disturbance to soil during monitoring and maintenance activities: - Rutting, compaction and mixing of topsoil and subsoil in wet weather - Breakdown of soil structure, effects to soil fertility, and reduction of productivity - Erosion due to loss of vegetative cover	- Pre-screening of all planned maintenance activities to develop mitigation before initiating work - Activities should occur during dry seasons, and soil protection measures installed in sensitive areas in the case of over-wintering. - Wet soil shut down practice should be implemented when maintenance activities occur in agriculturally productive lands during wet weather. - When wet soil conditions occur, heavy tracked and rubber-tired vehicles should be restricted from movement on the right-of-way. - When topsoil stripping is undertaken, topsoil and subsoil should be stripped and stockpiled separately, with adequate separation between piles to avoid mixing. - Topsoil stripping should be discussed with landowners. - In forested areas, the upper surface material should be stripped and stored along the right-of-way, physically separated from any excavated subsoil.	With the implementation of the protection and mitigation measures specified, residual effects will be site-specific, infrequent, and of low magnitude with reversibility in the short term.	Not Significant

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
		- Subsoil compacted by maintenance activities should be relieved by appropriate compaction relief methods. - Where extreme compaction persists, additional deep tillage or subsoiling may be required on a site-specific basis. - Soil density and/or penetrometer measurements on and off the right-of way may be used as a means of assessing the relative degree of soil compaction to determine if additional compaction relief is required. - If erosion is evident, silt fence and straw bales (or appropriate substitutes) should be installed. - Topsoil salvage and/or replacement should be avoided during heavy precipitation or extremely windy conditions. - If necessary, reseeding should occur as soon as possible when climatic conditions permit. - Seed should be protected under a layer of erosion control matting or other appropriate stabilizing technique. - In the event that broadcast seeding is not feasible due to climatic restrictions, hydroseeding should be considered.		
	Disruption or damage to artificial drainage systems as a result of maintenance activities, resulting in soil erosion and/or crop loss	- Any tile drains damaged during maintenance activities will be recorded and flagged. - If a main drain, header tile, or large diameter tile is severed, a temporary repair should be made. - Tile drains that are not immediately repaired should be capped. - Landowners should be invited to approve the repair prior to backfilling. - If the flooding of fields occurs, the affected area should be rehabilitated as soon as possible.	With the implementation of the protection and mitigation measures specified, residual effects will be site-specific, infrequent, and of low magnitude with reversibility in the short term.	Not Significant
	Transportation of soils contaminated with Soybean Cyst Nematode to non-infested fields as a result of maintenance activities, resulting in soybean crop loss	- Soil sampling should be conducted prior to initiating work to determine if the field is infested with Soybean Cyst Nematode (SCN). - Appropriate SCN sampling procedures should be undertaken. - Any field impacted with SCN should be recorded, location provided to the on-site authority, and landowners notified (and provided with appropriate information). - Any imported topsoil should be analyzed for SCN prior to placement on the right-of-way. - If maintenance activities are required in SCN-infested fields, appropriate mitigation measures should be developed. - Examples of mitigation measures may include washing stations for equipment, and/or restricted access to fields.	No residual effects anticipated	N/A
Vegetation	- Clearing of woodlot trees, riparian vegetation, and hedgerows and tree clusters paralleling roads and woodlots - Interference with natural succession in small natural areas through vegetation management	- Vegetation management plans are designed to minimize effects on desirable vegetation. - Vegetation management plans are targeted at specific areas, therefore disturbance is minimized	With the implementation of the protective and mitigation measures specified, the spatial extent and magnitude of impacts will be minimized.	Not Significant
Water Quality and Quantity	- Accidental spills - Erosion and sedimentation	Accidental spills mitigation measures outlined in 'Accidents, Malfunctions and Unplanned Events'. <i>Erosion and Sedimentation</i> - Implementation of standard mitigation and sediment control plans to protect the water quality of each watercourse from significant effects during and after construction. - Contractor must obtain adequate quantities of materials in order to control erosion and sediment deposition. Additional supplies should be maintained onsite in a readily accessible location for maintenance and contingency purposes. - Erosion and sediment control measures should be properly installed, and additional measures may be installed at the discretion of the Environmental Inspector. - Barriers should be inspected regularly to ensure proper functioning and maintenance. Vegetation removal on the slopes of watercourses should be minimized to the extent possible, to minimize the risk of slope	Provided the above mitigation, monitoring and contingency measures are properly implemented, adverse residual effects will be of low frequency and magnitude and of short-term duration.	Not significant

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
		failure and siltation. - Materials removed or stockpiled (e.g. excavated soil, backfill material, etc.) should be deposited and contained in a manner to ensure sediment does not enter a watercourse. The section of the watercourse bank immediately adjacent to the watercourse (i.e. between the erosion control fences) should not be disturbed until it is part of the location requiring activity. - As soon as possible following completion of the construction or maintenance activity, the slopes of the watercourse should be restored to their original grade. - Erosion and sediment control measures should remain securely installed until permanent vegetation measures are successful and areas are stabilized. - If siltation to a watercourse occurs, activities should cease immediately until the situation is rectified. Immediate action should be taken to install temporary measures (e.g. silt fencing, rip rap, sand bags etc.) to contain the extent of erosion and siltation as quickly as possible. Personnel should be fully prepared to respond quickly to siltation events.		
	Water wells may be susceptible to contamination or dewatering from maintenance activities.	- Presence of recently drilled or non-documented water wells will be investigated with landowners and corridor tenants prior to construction. - Water Well Monitoring Program will be implemented. - If a high water table is encountered in isolated areas during trench excavation, dewatering may be required. - Associated dewatering should be discharged in a manner to minimize soil erosion. An MOE Permit to Take Water is required if more than 50,000 L per day is withdrawn as a result of dewatering activities.	Provided the above mitigation, monitoring and contingency measures are properly implemented, adverse residual effects will be of low frequency and magnitude and of short-term duration.	Not significant
Fish and Fish Habitat	- Interference with fish spawning as a result of maintenance activities - Degradation of water quality resulting from accidental spills - Alteration of riparian vegetation	- Sedimentation mitigation measures outlined in 'Water Quality and Quantity and 'Vegetation'. - Accidental spills contingency measures outlined in 'Accidents, Malfunctions and Unplanned Events'. - Construction activities, and operational activities for pipeline maintenance and integrity which may require in-stream work, should be conducted in accordance with permit regulations. - Activities which may require in-stream work should be conducted in accordance with permit regulations. - To minimize interference with fish spawning during scheduled maintenance activities requiring in-stream work, the timing window for instream activities will be consistent with those outlined by the MNR. - In-stream activities should be completed in as short a time as possible. - A water intake/fish screening device should be used in waters containing fish habitat. - Downstream water flow should be maintained during work conducted in watercourses. - Fish salvage (and mussel salvage, as applicable) should be conducted prior to and during the isolation of flow, and in accordance with permit regulations.	Provided that the mitigation and protective measures identified above are implemented, residual effects are expected to be temporary and localized.	Not Significant
Wildlife and Wildlife Habitat	Habitat loss or alterations, degradation through accidents, malfunctions and unplanned events	- Habitat mitigation measures outlined in 'Vegetation. - Contingency measures outlined in 'Accidents, Malfunctions and Unplanned Events'. - Erect fencing around excavations to protect wildlife. - Prohibit operation personnel from harming, harassing or feeding wildlife. Maintain a maximum speed limit of 40 km/hr on the right-of-way. - Any previously unidentified potentially sensitive wildlife habitat should be reported to the Dawn Gateway Environmental Planner. - Project-related wildlife deaths and nuisance animals should be reported to the Dawn Gateway Environmental Planner.	Provided that the mitigation and protective measures identified above are implemented, no residual effects are anticipated.	N/A
Species At Risk or Species of Special Status	Habitat degradation through accidents, malfunctions and unplanned events	- Any Species at Risk encountered should be reported to the Dawn Gateway Environmental Planner. - Consultation with relevant government agencies will be undertaken regarding appropriate protective measures. - Habitat mitigation measures outlined in 'Vegetation', 'Fish and Fish Habitat' and 'Wildlife and Wildlife	With the implementation of the protective and mitigation measures specified, residual effects are expected to be low in magnitude, site-specific to localized, and very unlikely	Not Significant

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
		Habitat'.		
Air Quality	Temporary increase in nuisance dust and vehicle emissions as a result of maintenance activities, and gas venting	- Multi-passenger vehicles should be used to the extent practical. - Personnel should avoid idling of vehicles. - Vehicles and equipment should be turned off when not in use, as appropriate. - All equipment and vehicles should be maintained in good working order and will meet emissions requirements of the MOE and/or MTO. - Dust suppressants may be used as required. - Local road authorities should be informed prior to application of dust suppressants on roads. - Watering for dust control must not result in the formation of puddles, rutting by equipment or vehicles, the tracking of mud onto roads or siltation of watercourses.	Given the low duration, frequency and magnitude of the operation activities effecting air quality, adverse residual effects are not anticipated to be significant.	Not Significant
Acoustic Environment	Temporary noise emissions as a result of maintenance activities and infrequent gas venting	- All engines associated with maintenance activities and minor modifications will be equipped with mufflers and/or silencers. - Personnel should avoid idling of vehicles. - Vehicles and equipment should be turned off when not in use, as appropriate. - To the greatest extent possible, maintenance activities that could create noise should be restricted to daylight hours and adhere to any local noise by-laws. - Noise abatement measures should be erected as necessary in proximity to residential or other sensitive areas. - A Gas Release Management Plan should be developed to minimize the amount of noise generated during the gas release.	Noise associated with the pipeline will be infrequent, immediately reversible and of low magnitude.	Not Significant
Human Occupancy and Resource Use	- Positive anticipated effects to municipality as a result of annual taxes paid by Dawn Gateway throughout pipeline operation - Temporary increase in demand of some services from municipality and local communities as a result of maintenance activities	- Dawn Gateway has consulted with municipalities to discuss the Project. - Concerns expressed by the municipalities during pipeline operation should be addressed in an expeditious and courteous manner. - Increased demand for services will be minimal and short-term, reflecting a small increase in the number of personnel present in the area performing maintenance activities.	With the implementation of the protective and mitigation measures specified, residual effects will be negligible in magnitude, short-term, and infrequent.	Not Significant
	- No anticipated effects on municipal planning documents / land-use designations - Temporary interruption to certain land uses, such as outdoor recreation and agriculture - No anticipated change of present use of lands	- No mitigation or protective measures necessary for land-use designations. - People who participate in outdoor recreation will choose an alternate location for their recreation during times when maintenance activities take place. - Prior to initiating work, Dawn Gateway should consult with directly affected landowners to ensure that schedules are discussed regarding the timing of cultivating, planting, harvesting and/or spraying to make sure that access to fields is not unduly impaired. - If needed, temporary access should be provided. - Temporary crossings of the easement for livestock may be required to ensure access to grazing areas, and/or temporary fencing may be required to ensure that livestock do not enter the work area.	With the implementation of the protective and mitigation measures specified, residual effects will be low in magnitude, site-specific, and infrequent.	Not Significant
	Temporary disturbance to designated natural areas throughout pipeline operation, and as a result of maintenance activities	Mitigation measures outlined in 'Vegetation' and 'Wildlife and Wildlife Habitat'.	With the implementation of the protective and mitigation measures specified, residual effects will be low in magnitude, site-specific, but for the duration of the operation of the pipeline.	Not Significant
	No anticipated effects on natural resource use	N/A	N/A	N/A
Traditional Land and Resource Use	Effects to lands claimed by First Nations throughout pipeline operation and currently used by First Nations	Dawn Gateway should continue to work closely with the Walpole Island First Nation.	With the implementation of the protective and mitigation measures specified, residual effects will be of low magnitude and site-specific for the operational life of the pipeline.	Not Significant

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
Social and Cultural Well-Being	• Disruption to rural lifestyle from NEB Safety Zone regulations • Nuisance and safety concerns throughout pipeline operation and as a result of maintenance activities	• Dawn Gateway has committed to seek blanket approvals for all standard agricultural activities within the Safety Zone, on a landowner-specific basis. • Nuisance mitigation measures outlined in 'Human Health and Aesthetics'. • Safety mitigation measures outlined in 'Accidents, Malfunctions and Unplanned Events'.	With the implementation of the protective and mitigation measures specified, residual effects will be site-specific and activity-specific for the operational life of the pipeline.	Not Significant
Human Health and Aesthetics	• Health effects from degradation to water quality • Health effects from degradation of air quality • Health effects from the generation of waste materials • Health effects from Project-related noise • Health effects from safety • Nuisance effects • Change in aesthetics of the local landscape	• Water quality mitigation measures outlined in 'Water Quality and Quantity'. • Air quality mitigation measures outlined in 'Air Quality'. • Waste materials mitigation measures outlined in 'Infrastructure and Services'. • Noise mitigation measures outlined in 'Acoustic Environment'. • Safety mitigation measures outlined in 'Accidents, Malfunctions and Unplanned Events'. • There is variability in the level of operation and maintenance activities which landowners may consider a nuisance. • Operational activities are anticipated to be largely non-intrusive and of short duration. • Financial compensation provided to landowners is based, in part, on compensation for nuisance effects. • Concerns will be addressed through Dawn Gateways Landowner and Community Relations Program. • Aesthetic effects are subjective in nature. • There are few visible indicators during regular operation of the pipeline. • Vegetative buffers at watercourse and road crossings will be maintained to reduce visual effects. • During maintenance activities, work should be confined to specified workspace areas. • Maintenance activities should be conducted as expeditiously as possible.	With the implementation of the protective and mitigation measures specified, adverse residual effects are anticipated to be localized, temporary, and of low magnitude.	Not Significant
Infrastructure and Services	• No anticipated effects on local infrastructure • Continued demand for municipal waste services • Continued potential for use of emergency services	• Waste generated by operation and maintenance activities will be minimized to the extent possible. • Waste will be hauled to an appropriate registered waste disposal facility. • Receptacles for recycling will be available, and will be hauled to an appropriate recycling facility. • The capacity of emergency services is expected to be capable of responding to any safety incidents which may arise. • There is a low probability of need for emergency services.	With the implementation of the protective and mitigation measures specified, residual effects will be of low magnitude and infrequent.	Not Significant
Employment and Economy	• Positive effects as a result of employment, procurement of materials, and tax revenues	• N/A	Positive	N/A
Accidents, Malfunctions, and Unplanned Events	• Accidental spills, affecting: - Water quality - Fish and fish habitat - Wildlife and wildlife habitat - Species at risk or species of special concern - Designated natural areas - Traditional land - Human health	• Upon release of a hydrocarbon-based fluid, Dawn Gateway should immediately determine the magnitude and extent of the spill and take immediate measures to contain it. • Release of sediment should be treated a potential spill depending on the magnitude and extent. • All spills should be immediately reported to Environmental Inspector. • If necessary, the MOE Spill Action Center should be notified. • A Spills Response Plan should be developed by the contractor. • Appropriate spill containment apparatus and absorbent materials should be available on-site. • All spill plan, response, notification, and containment and remediation measures outlined in Westcoast's <i>Environmental Manual</i> should be implemented as appropriate.	With the implementation of the protective and mitigation measures specified, there is a very low probability of significant residual effects.	Not Significant
	• Pipeline leak or rupture	• Dawn Gateway's Pipeline Maintenance and Integrity Program will ensure pipeline remain in safe operating condition. • The combination of coatings and the use of cathodic protection on the Pipelines, along with an effective monitoring system to ensure that the cathodic protection system is working, will be the basis of Dawn Gateway's management plan for the prevention of pipeline deterioration. • The use of in-line inspection devices or external corrosion direct assessment practices will provide another	With the implementation of the protective and mitigation measures specified, there is a very low probability of significant residual effects.	Not Significant

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
		method of condition monitoring to ensure the continued integrity of the pipeline. • Dawn Gateway, when necessary, will repair or replace pipelines to ensure system integrity. • Dawn Gateway will have the ability to monitor and control valves in the case of a depressurization event. • Dawn Gateway will develop an Emergency Response Plan. • The Plan will outline: criteria for assessing emergency situations, emergency planning zones, the responsibilities of company personnel, and action plans. • Copies of the Plan will be distributed both internally to appropriate staff of Dawn Gateway and externally to appropriate first responder organizations and municipalities. • Dawn Gateway will implement the best available technology and safety measures to minimize the probability of such accidents occurring.		
	• Unauthorized access to the rights-of-way	• Unauthorized vehicle access should be discouraged through the maintenance of vegetative buffers at watercourse and road crossings.	With the implementation of the protective and mitigation measures specified, there is a very low probability of significant residual effects.	Not Significant
Effects of the Environment on the Project	• Seismic activity causing soil erosion and/or sedimentation during pipeline operation	• Regular monitoring and integrity assessments as per Dawn Gateway's Pipeline Maintenance and Integrity Program. • Medium-low risk of seismic activity in the Study Area.	With the implementation of the protective and mitigation measures specified, there is a very low probability of significant residual effects.	Not Significant
	• Flooding resulting in loss of cover of the pipeline and/or sedimentation throughout pipeline operation	• If a change in the maintenance schedule is necessary, landowners and regulatory agencies should be notified as appropriate. To minimize the impact of delay, equipment should be moved and construction should resume in an appropriate location. • The pipeline is buried to a depth that minimizes the potential effects of flooding as well as associated erosion and scouring. • Temporary workspaces for all watercourse crossings should be located above the floodplain to the extent possible, as designated by the St. Clair Region Conservation Authority.	With the implementation of the protective and mitigation measures specified, residual effects would be short-term in nature.	Not Significant
	• Severe weather from climate change, high winds, lightning or extreme precipitation causing effects on disturbed soil during construction activities	<u>Climate Change</u> An adaptive approach to pipeline maintenance will be used to account for changes in climatic conditions. <u>High Winds</u> • The time interval between topsoil stripping and final clean-up should be minimized. • During maintenance activities, weather should be monitored in order to identify the potential onset of excessive wind conditions. • In the event that high winds do occur during maintenance activities, suspend earth moving operations such as topsoil stripping and backfilling; apply straw mulch with a tackifier to topsoil piles, spoil piles, and the stripped right-of-way; create a windbreak by installing temporary construction fencing; and, reduce easement traffic. • All related equipment and materials should be stored on-site and available for use as required. <u>Lightening</u> • Above-ground facilities have been grounded in accordance with applicable building codes to minimize the risk of damage due to lightning. • Cathodic protection systems will be monitored on a monthly basis to inspect for downtime due to lightning strike, and more frequently if lightning or lightning activity is suspected <u>Extreme Precipitation.</u> • In the event that maintenance activities must continue during wet soil conditions, special protective measures should be implemented to reduce the impacts of soil erosion, soil compaction, watercourse siltation and vegetation damage. <u>Soil Erosion</u> • Temporary erosion control measures such as silt fence, straw bales or temporary berms should be	With the implementation of the protective and mitigation measures specified, there is a very low probability of significant residual effects.	Not Significant

Table 6-1 Summary of Potential Effects of Project, Mitigation Measures, and Significance of Residual Effects

Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Residual Effect(s)	Significance of Residual Effects
		employed on slopes or other erosion prone areas. • More permanent measures may be required during and/or following completion of the work, such as: prohibiting the operation of equipment close to watercourse banks; installing erosion control measures such as straw matting, geotextile fabrics, hydroseeding, sod installation, or native plantings; and, installation of drains or cross ditches to divert runoff away from watercourses. <i>Soil Compaction</i> • Activities during wet soil conditions may continue, if ceasing operations is not feasible, by skipping over localized wet areas or by implementing alternative methods such as corduroy roads or swamp mats. • Easement access should also be limited to specialized equipment, such as wide tracked machinery and vehicles equipped with low ground pressure tires. • If compaction to soils is apparent, a soil rehabilitation plan will be implemented when soils have sufficiently dried. <i>Watercourse Siltation</i> • If siltation to a watercourse occurs, immediate action should be taken to install temporary measures to contain the extent of erosion and siltation as quickly as possible. • When site conditions permit, permanent protection measures should be installed on eroding surfaces. • If the siltation is due to a Project-related activity, the activity should be halted immediately until the situation is rectified and relevant agencies should be notified. • A supply of appropriate emergency materials (i.e. silt fencing, etc.) should be available on-site. <i>Vegetation Damage</i> • In the event of flooding and/or siltation of lands adjacent to the right-of-way, small swales should be hand dug to direct water to a suitable location. • In soils where topography will not allow natural drainage, it may be necessary to use pumps to prevent prolonged standing water. • Where damage caused by flooding of agricultural land or a woodlot occurs due to maintenance activities, an assessment to determine the extent of damages should be undertaken by Dawn Gateway. The assessment should include compensation and rehabilitation recommendations as appropriate.		

7.0 Cumulative Effects Assessment

This cumulative effects assessment (CEA) has been prepared pursuant to the NEB's *Filing Manual (February 2008)* and the *Canadian Environmental Assessment Act (1992)*, and with guidance from the Federal Environmental Assessment Review Office's *A Reference Guide for the Canadian Environmental Assessment Act: Addressing Cumulative Environmental Effects (November 1994)*, the Canadian Environmental Assessment Agency's *Cumulative Effects Assessment Practitioners Guide (1999)*, and CEA Operational Policy Statement 3-1999, *Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act (March 1999)*.

7.1 METHODOLOGY

This CEA describes the potential cumulative effects resulting from the interaction of residual effects of pipeline construction and operation (identified in **Section 6.2**) with the effects of other unrelated projects (identified in **Section 7.3**). The other projects assessed are those that are either certain or reasonably foreseeable and that have a high likelihood of proceeding.

Cumulative effects include the temporal and spatial accumulations of change that occur within an area or system due to past, present, and future activities. Change can accumulate within systems in either an additive (*i.e.* cumulative) or interactive (*i.e.* synergistic) manner. By applying the principles of avoidance, minimization, and compensation to limit Project-specific effects, potential adverse residual effects on environmental and socio-economic features have been greatly minimized prior to accounting for the effects of other unrelated projects. Positive residual effects, such as an increase in employment and the \$235,000 per annum in incremental property taxes, have not been assessed in the CEA.

Specifically, this CEA methodology is designed to evaluate and manage the additive and interactive effects from the following sources:

- Existing infrastructure, facilities, and activities as determined from available data sets;
- The proposed pipeline and associated infrastructure, and construction and operational activities, as described in **Section 2** of this ESA report; and,
- Future activities where the undertaking will proceed, or has a high probability of proceeding.

Where additive or interactive effects are found to exist the methodology used to determine mitigation measures, whether there are adverse residual cumulative effects, and to determine the significance of such effects will follow the methodology used for the effects assessment (outlined in **Section 6.1.3**).

Although rare in occurrence, it is plausible that accidents, malfunctions or unplanned events (**Section 6.2.18**) may arise due to an unforeseen chain of events during the pipeline's

construction or operational life. As a result of the rarity and magnitude of such events, they have not been assessed here, as they are extreme in nature when compared to the effects of normal construction and operation activities, and require separate response plans. Pipeline decommissioning and abandonment (**Section 2.2.3**) is another event that is beyond the temporal boundaries of this CEA and therefore has not been assessed.

7.2 STUDY BOUNDARIES

7.2.1 Spatial

To make conservative assumptions about the magnitude and probability of possible effects, the Study Area boundary used for the effects assessment (**Section 6.1.1**) was also used for the CEA. The Study Area boundary is beyond the *zone of influence* of pipeline construction and operation activities (e.g. dust and noise), and consequently, the identified effects will have diminished to background levels. The Study Area is also considered conservative in terms of managing both effects and risks.

7.2.2 Temporal

The temporal boundaries for this CEA reflect the nature and timing of pipeline activities, and the availability of information surrounding future projects that are certain or reasonably foreseeable. The Project schedule identifies three key milestone activities, including

1. ESA and technical design - 2009;
2. Construction - 2010; and,
3. Operation - 2011 through 2060.

Fifty years of pipeline operation is used as an assumption for the purpose of this CEA, although the pipeline may be operational beyond fifty years.

Based upon these milestone activities, three time periods were selected for evaluation in the CEA: 2009, 2010-2011, and 2016. Existing conditions were considered to be those that were identified during the ESA process (*i.e.* 2009). In some cases, published data were not current to 2009 and thus the assessment relied on a combination of best available information, public input, and field investigations. The years 2010-2011, covering post construction clean-up activities, were selected to represent the construction and reclamation period, and the year 2016 was selected to represent the operation and maintenance period. Forecasting beyond 2016 increases the uncertainty in predicting whether projects will proceed, and the effects associated with these projects.

7.3 ANALYSIS OF CUMULATIVE EFFECTS

A number of federal agencies, provincial agencies and authorities, and municipal stakeholders (outlined in **Section 3.2.1**) were contacted to determine the nature of any unrelated projects planned or scheduled in the Study Area.

Activities associated with the development of the proposed pipeline, and its associated facilities, between 2009 and 2011 will include:

- Field investigations as required along the Preferred Corridor (2009);
- Construction (2010); and,
- Post construction clean-up activities (2011).

There are no existing or ongoing developments in the Study Area. The only highly probable development in the Study Area is:

- Reinforcement of a bridge on Kimball Road, north of Wilkesport/Burman Line – proposed by Lambton County in the next three to four years.

7.3.1 Year 2009: Baseline Conditions

Baseline conditions in the Study Area are impacted by agricultural, municipal, and hydrocarbon activities. Land use in the Study Area is dominantly agricultural, which creates potential impacts common to the agricultural industry, such as farm vehicles traveling on roadways and soil sensitivity to compaction and erosion. From a municipal perspective, roads within the Study Area are not scheduled for upgrading but they are anticipated to be regularly maintained as required. Hydrocarbon activities within the Study Area include the existing Bickford Compressor Station and Dawn Compressor Station. The effects from the activities listed above are all expected to continue to be produced during the construction period of the Project and further into the future.

As baseline conditions are from the pre-construction timeline, impacts occurring within the Study Area cannot be related to the Project. Therefore no cumulative effects will occur, and no evaluation of significance is required.

7.3.2 Year 2010-2011: Construction

Information provided by agencies, authorities, and stakeholders indicate that there are no unrelated project in the Study Area which will proceed concurrently with the construction of the proposed pipeline. As such, no cumulative effects will occur and no evaluation of significance is required.

7.3.3 Year 2016: Operation and Maintenance

Information provided by Lambton County indicates that maintenance work may be needed to reinforce the eastern slope at a bridge on Kimball Road, north of Wilkesport/Burman Line. No timeframe for this work has been set, although an estimate of the next three to four years has been provided by County staff. It is assumed that standard construction equipment and activities will be required for this work.

Residual project effects which may occur during pipeline operation and maintenance were outlined in **Section 6.2**. To consider the additive and interactive effects at their maximum intensity, this CEA assumes that operational and maintenance activities and their potential effects will occur concurrently with activities and effects associated with the bridge maintenance.

Soil and Soil Productivity

The residual Project effect on soil and soil productivity during pipeline operation will be pipeline maintenance and integrity activities requiring soil disturbance. As the spatial extent of any disturbance will be outside the area disturbed for bridge maintenance, no cumulative effects will occur, and no evaluation of significance is necessary.

Water Quality and Quantity

Removal of vegetation cover for maintenance and integrity activities may lead to erosion and/or sedimentation; a potential cumulative effect may occur should bridge maintenance activities lead to sedimentation of the North Sydenham River. Mitigation measures have been recommended to reduce the risk of erosion and sedimentation associated with the Project (**Section 6.2.4**). Provided that bridge maintenance activities will implement appropriate erosion and sedimentation measures, the probability of sedimentation is minimal and the magnitude of such an event would be low. As such, adverse residual cumulative effects on water quality are not expected to be significant.

Fish and Fish Habitat

While pipeline operation may affect fish and fish habitat in the event that in-stream work is required, it is not anticipated that bridge maintenance work will require in-stream work; therefore no cumulative effects will occur and no evaluation of significance is required.

Air Quality

Potential residual effects on air quality associated with operation of the Project are an increase in pollutants from operation of vehicles and equipment, and an increase in dust from vehicle use and maintenance and integrity activities. It is expected that bridge maintenance activities will also lead to a temporary increase in pollutants and dust.

Provided that mitigation measures proposed for pipeline operational activities are properly implemented (**Section 6.2.9**), and that bridge maintenance activities follow Environment Canada's *Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities* (March 2005), cumulative effects will be of short duration, low magnitude, and

reversible. Therefore adverse residual cumulative effects on air quality are not expected to be significant.

Acoustic Environment

Maintenance associated with the Bickford to Dawn pipeline will cause environmental noise. As bridge maintenance activities will cause temporary noise, cumulative effects may occur.

Provided that maintenance activities follow noise reduction standard practices outlined in **Section 6.2.10**, cumulative effects will be of short duration, low magnitude, and reversible. As such, adverse residual cumulative effects on the acoustic environment are not anticipated to be significant.

Traditional Land and Resource Use

The Project Study Area is located on lands traditionally used by First Nations groups, and within the Chenail Ecarté Reserve (lands comprising the former Sombra Township), for which a claim by the Walpole Island First Nation has been made against the government of Canada. Bridge maintenance activities would also occur within the former Township of Sombra, and therefore a cumulative effect will occur.

It is recommended that continued engagement occurs with the Walpole Island First Nation and other First Nations (**Section 6.2.13**). It is also assumed that, regardless of the outcome of the land claim, a safely operating bridge will be desired. Therefore, any adverse residual cumulative effects are not anticipated to be significant.

Human Health and Aesthetics

Pipeline operation and maintenance activities may impact human health (through nuisance effects) and the aesthetics of the local landscape. As bridge maintenance activities may be perceived as a nuisance, and will temporarily impact the aesthetics of the local landscape, cumulative effects will occur.

There is variability in the level of activities which landowners may consider a nuisance or impactful on the aesthetic landscape. Provided that mitigation measures outlined in **Section 6.2.15** are implemented, and that bridge maintenance activities undertake the mitigation noted above for air quality and the acoustic environment, cumulative effects will be of short duration, low magnitude, and reversible. As such, adverse residual cumulative effects on the acoustic environment are not anticipated to be significant.

Infrastructure and Services

Pipeline operation and maintenance activities, and the works associated with the bridge maintenance, have the potential to lead to safety incidents which may require the use of existing emergency services. The probability of such incidents occurring, and occurring to the point where emergency services would be adversely impacted, is low. Therefore no additional mitigation measures are warranted, and adverse residual cumulative effects on emergency services are not anticipated to be significant.

7.4 SUMMARY OF CUMULATIVE EFFECTS ASSESSMENT

The potential cumulative effects of construction and maintenance of the Project were assessed by considering other projects that have a high probability of commencing during construction of the proposed Project, or that may commence sometime in the future. The Study Area boundary was used to assess the potential for additive and interactive effects of the proposed pipeline and the other projects on environmental and socio-economic features. While cumulative effects may occur during pipeline operation in conjunction with one other project, any effects are not anticipated to be significant.

8.0 Inspection, Monitoring and Follow-up

8.1 COMPANY POLICIES AND PROGRAMS

Dawn Gateway will employ contractors to carry out the various operational and maintenance activities associated with the existing pipelines. Those contractors will be required to adhere to the policies and practices outlined in specifications, manual and other project management documents familiar to the NEB or in use in the locale for many years. The following programs and plans have been, or will be, developed to ensure that the recommended mitigation and protective measures made in this ESA Report are implemented throughout the construction and operation phases of the Project.

Environmental Manual

In addition to committing to implementation of the mitigation and protective measures outlined in this ESA Report, Dawn Gateway will follow the applicable environmental management practices outlined in Westcoast's *Environmental Manual for Construction Projects in Canada (June 2006)*. The Manual provides guidance with regard to the responsibilities of project personnel, pre-construction environmental planning, the construction process and environmental considerations, environmental management practices, and post-construction environmental management.

Environmental Training

As outlined in Westcoast's *Environmental Manual for Construction Projects in Canada (June 2006)*, an environmental training and awareness program will be developed for Project construction personnel. The program will focus on specific environmental features in the construction area, safety training, and the required measures to protect and minimize environmental impacts. The program will consist of three levels of training specific to Project personnel and their level of responsibility: site personnel and visitors, supervisory personnel, and on-site environmental supervisory personnel. The specific content of each level of training is outlined in the Manual. All supervisory personnel will receive copies of this ESA Report, the *Environmental Manual*, the Environmental Protection Plan, all permits and approvals obtained for the Project, and any other applicable environmental requirements or plans. Refresher training will occur as necessary throughout Project construction, such as prior to instream work.

Environmental Protection Plan

Mitigation measures outlined in this Report will be communicated to construction contractors and field staff through an Environmental Protection Plan (EPP) to be prepared prior to clearing and construction. The EPP will also include details to aid the contractor in the implementation of construction activities and mitigation measures, and plans to address a variety of conditions which may arise during construction (i.e. emergency response, traffic management, waste management, etc.). Each plan will outline the conditions under which the plan will be implemented, and the regulatory authorities to be notified and/or consulted. In addition, six

contingency plans can be found in Section 6.11 of the *Environmental Manual*: fire contingency plan, spills, horizontal directional drill mud release, extreme weather, resource discovery, and contaminated soils. **Section 9** of this ESA also outlines supplemental studies to inform the EPP.

Landowner and Community Relations Program

Social effects of the Project will be monitored through a Landowner and Community Relations Program. As part of this program, all residents, adjacent landowners, absentee landowners and the community at large affected by construction will be notified in advance of construction activities in their area, as appropriate. The notification will indicate the contact number of Dawn Gateway and will invite the resident or landowner to contact them should concerns arise.

A key element of the Program is a Complaint Tracking system, and the assignment of a full-time Landowner Relations Agent to ensure that commitments made to landowners are fulfilled, to address questions and concerns of the landowners, and to act as a liaison between landowners and the contractor and company engineering personnel. Dawn Gateway will keep records detailing time and date of any call, the nature of the concern, the corrective action taken where appropriate, and the time and date of follow-up contact. Dawn Gateway will also establish contact with the local municipalities indicating the nature of the work to be undertaken, traffic management plans, and the size and origins of the workforce. In this manner, any traffic and security concerns will be brought directly to the attention of Dawn Gateway for corrective action.

Emergency Response Plan

Following completion of construction, Dawn Gateway will contact all residents along the easement to continue ongoing communications where necessary. Such contact will include communicating details of the Emergency Response Plan (**Section 6.2.18**). The Plan will outline: criteria for assessing emergency situations, emergency planning zones, the responsibilities of company personnel, and action plans. Copies of the Plan will be distributed both internally to appropriate staff of Dawn Gateway and externally to appropriate first responder organizations and municipalities. In the event of an emergency, contact to all residents who could potentially be affected by the emergency will occur, to advise of the actions or precautions to take. Notification to the community may include telephone notification, emergency information carried by local media, or door-to-door notification. During the first two years, particular attention will be paid to monitoring and documenting any effects associated with construction and operation of the pipeline.

Pipeline Maintenance and Integrity Program

As outlined in **Section 2.2.2**, Dawn Gateway has procedures in place to inspect and maintain the pipeline, including right-of-way inspection, vegetation management, and pipeline cleaning and in-line testing. Dawn Gateway will develop a Pipeline Maintenance and Integrity Program to outline the responsible personnel, the specific inspection and maintenance requirements, and the schedule of activities. Key elements of the Program include:

- Management System
- Working Records Management System
- Fitness for Use Assessment
- Condition Monitoring
- Mitigation

Dawn Gateway's integrity management team has extensive technical, operational, and industry knowledge, and continually participate in technical training courses to remain current with industry practices.

8.2 INSPECTION AND MONITORING

The primary objective of compliance and effects monitoring is to ensure mitigation measures are effectively implemented and to measure the effects of activities associated with development on environmental and socio-economic features. Ultimately, the knowledge gained from monitoring is used to avoid or minimize effects during subsequent construction projects.

Previous pipeline construction experience, and review of post-construction monitoring reports from other projects, indicates that effects from pipeline construction are for the most part temporary. The mitigation measures to reduce and avoid effects are well known and have been shown to be effective. With this in mind, Dawn Gateway should retain an Environmental Inspector to enforce compliance with this ESA Report and all permits/approvals, environmental laws and guidelines, and other environmental commitments. Environmental Inspector qualifications and duties are outlined in the *Environmental Manual*. The Inspector will report to and make recommendations to the Chief Inspector with regard to environmental shutdown, and will have crew shutdown authority for environmental reasons. The Environmental Inspector will be responsible for daily reports outlining environmental issues and measures undertaken to ensure environmental compliance. The Environmental Inspector will also be responsible for a follow-up report on site conditions and rehabilitation measures one year after construction (outlined in **Section 8.3**).

Specific environmental issues which require monitoring during pipeline construction include soils, vegetation, water quality, and infrastructure.

Soils

Prior to topsoil stripping the Soil Inspector should determine topsoil survey depths across the affected lands. The Soil Inspector should monitor topsoil stripping to ensure that the correct depth of topsoil is removed and stockpiled in a manner that avoids mixing with subsoil material.

To determine the success of the mitigative measures implemented to protect agricultural soils during construction, soil characteristics should be monitored. The Soil Inspector should record relative soil compaction measurements to identify any areas that might require chisel ploughing and/or subsoiling during final clean-up operations. In the event that implementation of an SCN

construction protocol is required a Soil Inspector should monitor the implementation of this on the specific properties involved.

Vegetation

During pre-construction clearing and construction, the Environmental Inspector should ensure that the contractor respects the limit of clearing and does not damage adjacent vegetation. The Inspector should identify, for removal, any trees that pose a potential hazard. Establishment of vegetative cover should be monitored. Silt fencing and other protective measures should be retained in place until cover is fully established.

Water Quality

An Environmental Inspector should be on-site during the watercourse crossings to ensure adherence to specifications and site plans. In particular, the Environmental Inspector should ensure that pre-construction preparation is complete prior to commencement of in-stream work and that the floodplain conditions are restored to preconstruction conditions. The Environmental Inspector should be responsible for monitoring weather forecasts prior to each crossing. The Environmental Inspector should be responsible for determining whether contingency measures for watercourse crossings should be implemented.

Infrastructure

Roads crossed by the pipeline construction should be restored to their pre-construction condition to the satisfaction of the municipality. Road Superintendents should be given an opportunity to inspect any repairs or modifications.

8.3 FOLLOW-UP

The need for a follow-up program has been determined with guidance from the NEB *Filing Manual (February 2008)*, Westcoast's *Environmental Manual for Construction Projects (June 2006)* and the Canadian Environmental Assessment Agency's *Operational Policy Statement: Follow-up Programs under the Canadian Environmental Assessment Act (November 2007)*. Using these guidance documents, it has been determined that a follow-up report for the Project should be completed one year after construction following the freshet, to verify that mitigation measures were effective.

The follow-up report should be conducted by a qualified Environmental Inspector as outlined in **Section 8.2**, and should include an assessment of reclamation, revegetation, and erosion control along the pipeline right-of-way and temporary staging areas.

For reclamation monitoring, potential soil problem areas including trench subsidence, soil erosion and stoniness should be noted. If soil mixing is known to have occurred during construction, soil characteristics should be randomly analyzed so the relative degree of topsoil/subsoil mixing can be identified, assessed and corrective measures developed. The crossing location of roads should be inspected to ensure no road subsidence or major rutting has occurred and that the drainage system is functioning properly. A review should also occur

of the establishment and health of revegetation. For erosion control, bank and slope stability should be assessed to ensure sedimentation has not occurred, and that drainage has been maintained.

If negative impacts are noted during the assessment, appropriate remediation measures should be completed as necessary, and additional follow-up monitoring should be conducted. Following the second year after construction, routine monitoring by Dawn Gateway personnel will be continuous for the life of the pipeline.

This page left blank intentionally.

9.0 Recommended Supplemental Studies

No in-season field surveys were completed as part of the ESA. The environmental and socio-economic setting data compiled from secondary source maps, reports and data sources, agency and public consultation, roadside reconnaissance, and aerial photograph interpretation was considered adequate for selecting a Preferred Corridor, identifying effects and developing mitigation measures. There are instances where field work and/or specific contact with landowners along the Preferred Corridor prior to construction is recommended. These supplemental studies are not expected to change the significance conclusions identified in **Sections 6.0 and 7.0** of the ESA Report since mitigation and inspection, monitoring and follow-up plans have been developed to address potential findings from the supplemental studies. Information obtained during the supplemental studies will be used to inform the Environmental Protection Plan.

Supplemental studies will be conducted for water wells, watercourse crossings, vascular plants and ecological communities, wildlife habitat and species, archaeology and heritage, and agriculture.

9.1 ENVIRONMENTAL STUDIES

9.1.1 Water Wells

Prior to construction, an independent hydrogeologist should review local hydrological conditions, and should determine the need for water wells that require monitoring.

9.1.2 Watercourse Crossings

All watercourses traversed by the Preferred Route should undergo a watercourse crossing assessment to determine the aquatic and riparian habitat, flow regime, construction window (as determined by the Ministry of Natural Resources), and appropriate watercourse-crossing technique. The results of this assessment should be communicated with the SCRC and DFO, as appropriate, to gain support for its findings and recommendations and to obtain necessary permits. Any resultant surveys, compensation plans and/or reclamation plans should be developed in consultation with appropriate regulatory authorities.

9.1.3 Geotechnical

Field drilling investigations should be conducted at watercourse crossings where trenchless crossing methods are being considered; the objective will be to provide information on substrate soils, bedrock, and groundwater conditions along the crossing alignment. The study results will be used to confirm the preliminary assessments of crossing feasibility and provide a basis for detailed design of the directionally drilled crossings.

9.1.4 Vascular Plants and Ecological Communities

Prior to construction, field surveys of vascular plants and ecological vegetation communities should be completed to identify any significant plant species or habitats. The timing of the surveys should occur in appropriate seasons to capture the phenology of plant species which occur during those seasons. Field surveys should focus on woodlots and natural vegetation features that could be impacted by the Preferred Route including right-of-way and temporary workspaces. Field surveys should follow the filing requirements and guidance of Table A-4, Vegetation of the NEB *Filing Manual (February 2008)*. In the event that rare vascular plants or ecological communities are discovered, mitigation should be developed in consultation with appropriate regulatory authorities.

In conjunction with the above-noted field surveys, a butternut survey should be completed. If butternut are found along the Preferred Route, and could be impacted, separate surveys will be required including a butternut health assessment and confirmation by the Ministry of Natural Resources District biologist.

9.1.5 Wildlife Habitat and Species

Surveys for wildlife species and habitats, including species at risk, should be completed prior to construction along the Preferred Route. The timing of the surveys should be conducted under suitable weather conditions and during the appropriate time of day. Field surveys should follow the filing requirements and guidance of Table A-4, Wildlife and Wildlife Habitat, and Species at Risk or Species of Special Status, as outlined in the NEB *Filing Manual (February 2008)*.

9.2 SOCIO-ECONOMIC STUDIES

9.2.1 Archaeology and Heritage

Prior to construction, a Stage 2 archaeological assessment survey should be conducted at areas of the Preferred Route that are confirmed to have moderate to high potential for archaeological or heritage finds based on the Stage 1 survey. To minimize interference with crop production, the field survey should take place in April to May, or October to November. If any significant resources are found, appropriate measures, including avoidance or completion of a Stage 3 assessment, should be implemented to the satisfaction of Ministry of Culture guidelines.

9.2.2 Agriculture

Prior to construction, soil sampling should be completed for each agricultural row crop field crossed by the preferred route, to determine the extent of occurrence of soybean cyst nematode (SCN). Field surveys should be conducted when field conditions are dry. If SCN impacted areas are discovered, a SCN Report should be completed which will outline mitigation measures such as the use of machine washing stations and a topsoil preservation plan.

Prior to construction, surveys should occur for each agricultural row crop field crossed by the Preferred Route, to verify the type and location of drainage tiles. Future plans for improvements to agricultural drainage should also be identified. The results of this survey should be used to avoid impact to tiles where feasible, and allow quick repairs to tiles where impacts do occur.

This page left blank intentionally.

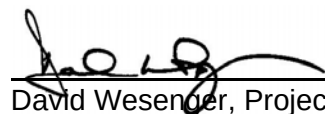
10.0 Conclusion

This ESA Report describes the process to select an appropriate corridor for the proposed Bickford to Dawn pipeline, and identifies and addresses potential impacts associated with the construction and operation of the proposed pipeline and associated minor modifications. The Alternative Corridors were selected based on qualitative and quantitative evaluations and were presented at the first Public Information Session. Further analysis lead to the selection of a Preliminary Preferred Corridor and this was presented at the second Public Information Session. Input from stakeholders, First Nations, landowners, and the public was received and used to confirm the Preferred Corridor selection and develop mitigation measures. A Preliminary Preferred Route is being determined by Dawn Gateway in consultation with Stantec.

The recommended comprehensive program of contingency measures, mitigation and protection, restoration, inspection, monitoring and follow-up, and supplemental studies addresses the concerns raised during the consultation program, as well as potential impacts arising from construction and operation of the pipeline, including potential cumulative effects. No significant adverse residual effects on environmental and socio-economic features are likely to occur as a result of this Project, with the implementation of the recommended mitigation and protective measures, and related programs and plans. Furthermore, the mitigation measures presented are consistent with the construction of a 24-inch (610 mm) diameter pipeline.

Inspection, monitoring and follow-up measures are important components of the mitigation program to ensure mitigation measures have been effective in both the short and long term. In addition, knowledge gained throughout this process can be used to better identify and prevent and/or rectify problems in the future. The contingency measures, mitigation, inspection, monitoring and follow-up, recommended supplemental studies outlined in **Sections 6, 8, and 9**, supported by Dawn Gateway's construction specifications, practices and policies, should inform the Environmental Protection Plan. Pre-construction meetings and liaison between Dawn Gateway staff and the contractor, Environmental Inspector(s), landowners, stakeholders, First Nations and agencies, and/or their representatives, should be conducted to ensure full understanding of responsibilities, importance of the various environmental issues and details regarding the measures proposed to address them. With the implementation of the recommendations contained in the ESA Report, in conjunction with related programs and plans, any residual adverse environmental effects of the Dawn Gateway Pipeline – Bickford to Dawn pipeline are not anticipated to be significant.

STANTEC CONSULTING LTD


David Wesinger, Project Manager

This page left blank intentionally.

11.0 References

- Atlas of the Breeding Birds of Ontario. 2001-2005. Atlas of the Breeding Birds of Ontario (On-line). Accessed September 2008. Available: <http://www.birdsontario.org/atlas/index.jsp>
- Ausable Bayfield Conservation Authority. 2007. 'Watershed Report Card'. Accessed March 2007. Available: <http://www.abca.websmart.ca/reportcard.php>
- Bluewater Health. 2009. Accessed January 2009. Available: <http://www.bluewaterhealth.ca/>
- Brown, D.M., G.A. McKay and L.J. Chapman 1968. The Climate of Southern Ontario. Environment Canada, Climatological Studies No. 5: 50 p.
- Chapman, L.J. and D.F. Putnum. 1984. The Physiography of Southern Ontario: Third Edition. Ontario Geological Survey, Special Volume 2.
- Department of Fisheries and Oceans. 1999. *Class Authorization System for Agricultural Drains in the Southern Ontario Region*.
- Department of Fisheries and Oceans. 2008. Species at Risk. Accessed September 2008. Available: http://www.dfo-mpo.gc.ca/species-especes/species/species_e.asp.
- Dobbyn, J. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists, Don Mills, Ontario. 118 p.
- Environment Canada. 2002. Canadian Climate Normals 1971-2000: Sarnia, Ontario. Accessed September 2008. Available: http://www.climate.weatheroffice.ec.gc.ca/climate_normals/results_e.html?Province=ALL&StationName=sarnia&SearchType=BeginsWith&LocateBy=Province&Proximity=25&ProximityFrom=City&StationNumber=&IDType=MSC&CityName=&ParkName=&LatitudeDegrees=&LatitudeMinutes=&LongitudeDegrees=&LongitudeMinutes=&NormalsClass=A&SelNormals=&StnId=4589&&autofwd=1
- Environment Canada. 2006. Geographic Query. Accessed May 2008. Available: http://www.speciesatrisk.gc.ca/map/default_e.cfm.
- Environment Canada. 2007. NPRI On-line Data Search. Accessed January 2009. Available: http://www.ec.gc.ca/pdb/queriesite/results_e.cfm?opt_report_year=2007&opt_facility=ALL&opt_facility_name=&opt_npri_id=&opt_chemical_type=ALL&opt_cas_name=&opt_cas_num=&opt_province=&opt_postal_code=&opt_urban_center=&opt_location_type=COMMUNITY&community1=ON&opt_province_comm=ON&opt_community=St.+Clair&opt_industry=ALL&opt_naics4=&opt_csi2=&opt_csic=&opt_asic=

-
- Fitzgerald, W.D. and Milan Hradsky. 1980. Quaternary Geology of the Wallaceburg – St. Clair Flats Area, Lambton and Kent Counties, Southern Ontario. Ontario Geological Survey. Preliminary Map P 2368, Quaternary Geology Series. Scale 1:50,000.
- Hewitt, D.F. 1972. Paleozoic Geology of Southern Ontario. Ontario Division of Mines Geological Report 105. Ministry of Natural Resources.
- Lambton County. 2009. Accessed January 2009. Available: http://www.lambtononline.com/local_municipalities
- Lambton County Official Plan. 1997. 66 p. + Appendices and Maps.
- Erie St. Clair Local Health Integration Network. 2009. Accessed January 2009. Available: <http://www.eriestclairhin.on.ca/>
- MacCulloch, R.D. 2002. The ROM Field Guide to Amphibians and Reptiles of Ontario. Royal Ontario Museum: Toronto, ON. 168 p.
- Matthews, B.C. and N.R. Richards. 1957. Soil Survey of Lambton County. Report No. 22 of the Ontario Soil Survey.
- Ministry of Culture. 2005. Ontario Heritage Properties Database. Accessed September 2008. Available: <http://www.hpd.mcl.gov.on.ca/scripts/hpdsearch/english/default.asp>
- Ministry of the Environment. 1991. Waste Disposal Site Inventory. Queen's Printer for Ontario: Toronto.
- Ministry of the Environment. 1999. Air Quality in Ontario 1997.
- Ministry of the Environment. 2005. Lambton County Groundwater Management Study.
- Ministry of the Environment. 2008b. Water Well Request, October 2008.
- Ministry of the Environment. 2008a. Brownfields Environmental Site Registry. Accessed September 2008. Available at: <http://www.environet.ene.gov.on.ca/besr-public/generalSearch.do?action=display&>
- Ministry of the Environment. 2009. Sarnia Air Quality. Available: http://www.airqualityontario.com/reports/aqisearch.cfm?stationid=14064&startmonth=all&this_date=2008-12-31. Accessed: January 2009.
- Ministry of Natural Resources. 2002a. Overview of Ontario's Forests. Accessed May 2008. Available: <http://ontariosforests.mnr.gov.on.ca/forestoverview.cfm#regions>.

-
- Ministry of Natural Resources. 2002b. Ontario Herpetofaunal Summary Atlas (On-line). Accessed September 2008. Available: <http://nhic.mnr.gov.on.ca/MNR/nhic/herps/ohs.html>
- Ministry of Natural Resources. 2008. Land Information Ontario. Accessed: November, 2008. Available: <http://lioapp.lrc.gov.on.ca/lioib/ui/en/lioibselectview.asp>
- Natural Heritage Information Centre. 2008a. Natural Areas Database (On-line). Accessed September 2008. Available: <http://nhic.mnr.gov.on.ca/MNR/nhic/areas.cfm>
- Natural Heritage Information Centre. 2008b. Species Database (On-line). Accessed September 2008. Available: <http://nhic.mnr.gov.on.ca/MNR/nhic/species.cfm>
- Natural Resources Canada. 2005. Website: http://earthquakescanada.nrcan.gc.ca/historic_eq/index_e.php. Accessed September 2008.
- Natural Resources Canada. 2008. Mapping Federal-Provincial-Territorial Minerals, Mining and Exploration. Accessed September 2008. Available: http://mmsd1.mms.nrcan.gc.ca/maps/miningMap_e.asp?browser=Microsoft%20Internet%20Explorer&res=1024
- Natural Resources Canada. 2009a. Map of Permafrost in Canada. Website: <http://atlas.nrcan.gc.ca/site/english/maps/environment/land/permafrost>. Accessed: January 2009.
- Natural Resources Canada. 2009b. Map of Major Landslides in Canada. Website: <http://tsdmaps.gsc.nrcan.gc.ca/ms/landslides/index.phtml?language=en-CA>. Accessed: January 2009.
- Natural Resources Canada. 2009c. Map of Major Avalanches in Canada. Website: <http://atlas.nrcan.gc.ca/site/english/maps/environment/naturalhazards/naturalhazards1999/majoravalanches>. Accessed: January 2009.
- Natural Resources Canada. 2009d. Major Volcanoes. Website: <http://atlas.nrcan.gc.ca/site/english/maps/environment/naturalhazards/volcanoes/majorvolcano>. Accessed: January 2009.
- Rowe, J.S. 1972. Forest Regions of Canada. Canadian Forestry Service Publication No. 1300: 172 p.
- Singer, S.N., Cheng, C.K., and M.G. Scafe. 2003. The Hydrology of Southern Ontario, Second Edition. Ministry of the Environment.
- Statistics Canada. 2006a. Community Profile – Lambton County. Accessed September 2008. Available: <http://www12.statcan.ca/english/census06/data/profiles/community/Details/>

Page.cfm?Lang=E&Geo1=CD&Code1=3538&Geo2=PR&Code2=35&Data=Count&SearchText=lambton&SearchType=Begins&SearchPR=35&B1=All&Custom=

Statistics Canada. 2006b. Community Profile – St. Clair Township. Accessed September 2008. Available: <http://www12.statcan.ca/english/census06/data/profiles/community/Details/Page.cfm?Lang=E&Geo1=CSD&Code1=3538003&Geo2=PR&Code2=35&Data=Count&SearchText=st.%20clair&SearchType=Begins&SearchPR=35&B1=All&Custom=>

Statistics Canada. 2006c. Community Profile – Dawn-Euphemie Township. Accessed September 2008. Available: <http://www12.statcan.ca/english/census06/data/profiles/community/Details/Page.cfm?Lang=E&Geo1=CSD&Code1=3538007&Geo2=PR&Code2=35&Data=Count&SearchText=dawn&SearchType=Begins&SearchPR=35&B1=All&Custom=>

St. Clair Region Conservation Authority. 2007. 'Watershed Report Cards'. Accessed September 2008. Available: <http://www.scrca.on.ca/Reportcards.htm>

St. Clair Region Conservation Authority. 2008a. 'McKeough Floodway'. Accessed September 2008. Available: http://www.scrca.on.ca/SW_McKeough.htm

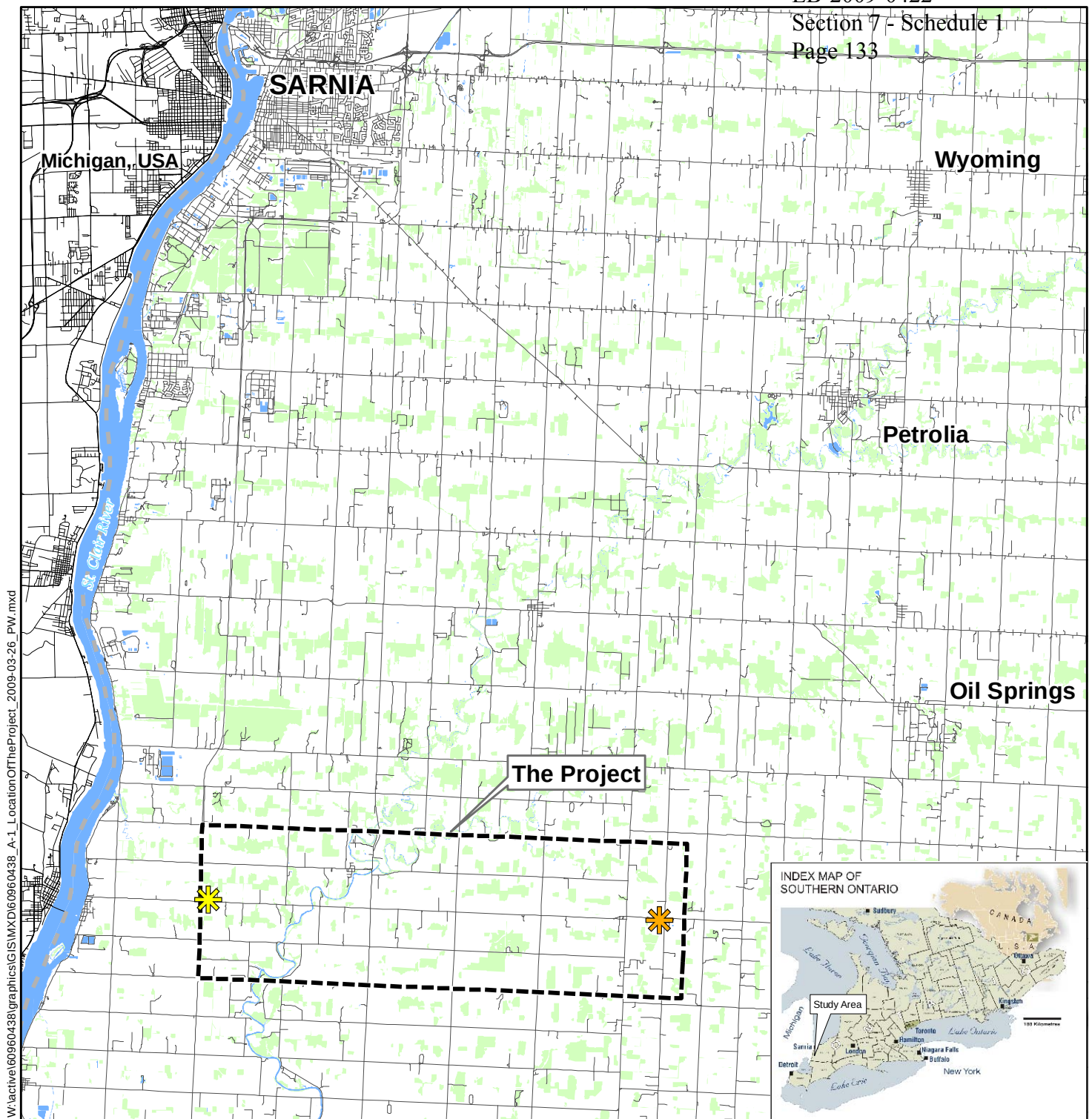
St. Clair Region Conservation Authority. 2008b. 'Nature Trails'. Accessed September 2008. Available: http://www.scrca.on.ca/CA_Trails.htm

Tourism Sarnia Lambton. 2009. Accessed January 2009. Available: <http://www.tourismsarnialambton.com/>

Treasury Board of Canada Secretariat. 2008. Accessed September 2008. Available: <http://www.tbs-sct.gc.ca/fcsi-rscf/home-accueil.aspx?Language=EN&sid=wu1149366117>

Appendix A

Report Figures



PREPARED FOR:

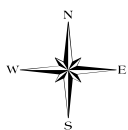
DAWN GATEWAY LP
BICKFORD TO DAWN PIPELINE

FIGURE NO. A-1

LOCATION OF THE PROJECT

Initiated: January 13, 2009

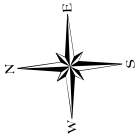
Revised: March 26, 2009



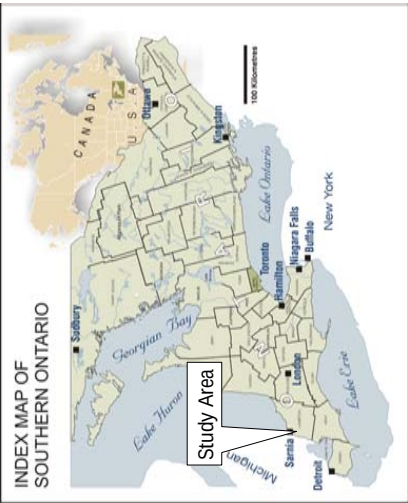
Stantec



- Bickford Compressor Station
- Dawn Compressor Station
- Study Area
- Roads
- Wooded Areas
- Waterbodies



- Bickford Compressor Station
- Dawn Compressor Station
- Study Area
- Road
- Watercourse
- Waterbody



Source: LIDS 2006, First Base Solutions 2008

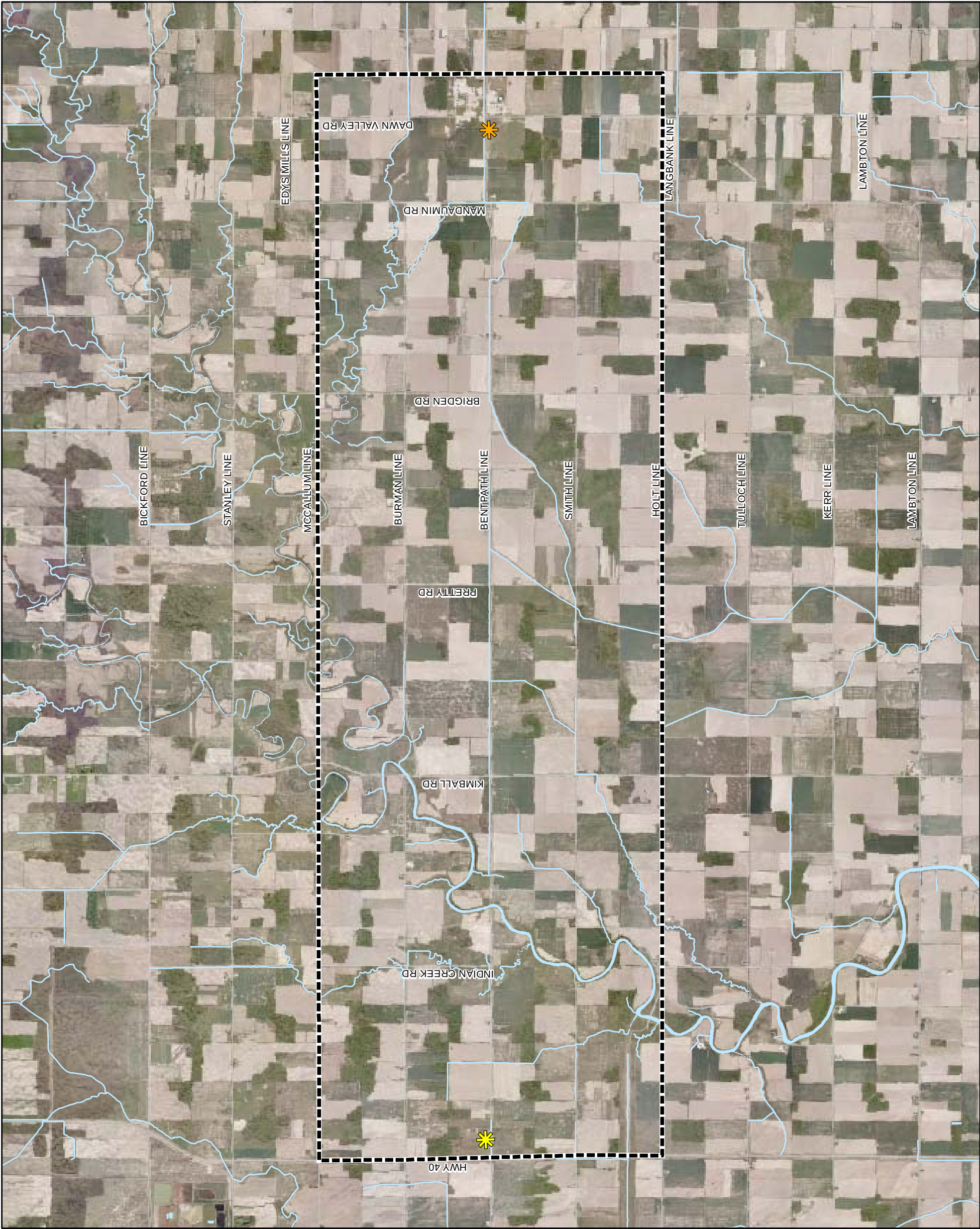
PREPARED FOR:

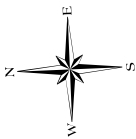
DAWN GATEWAY LP
BICKFORD TO DAWN PIPELINE

FIGURE NO. A-2

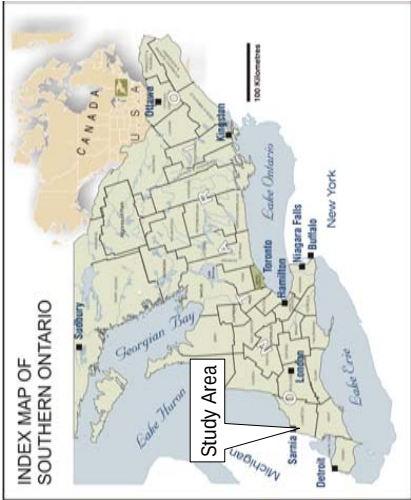
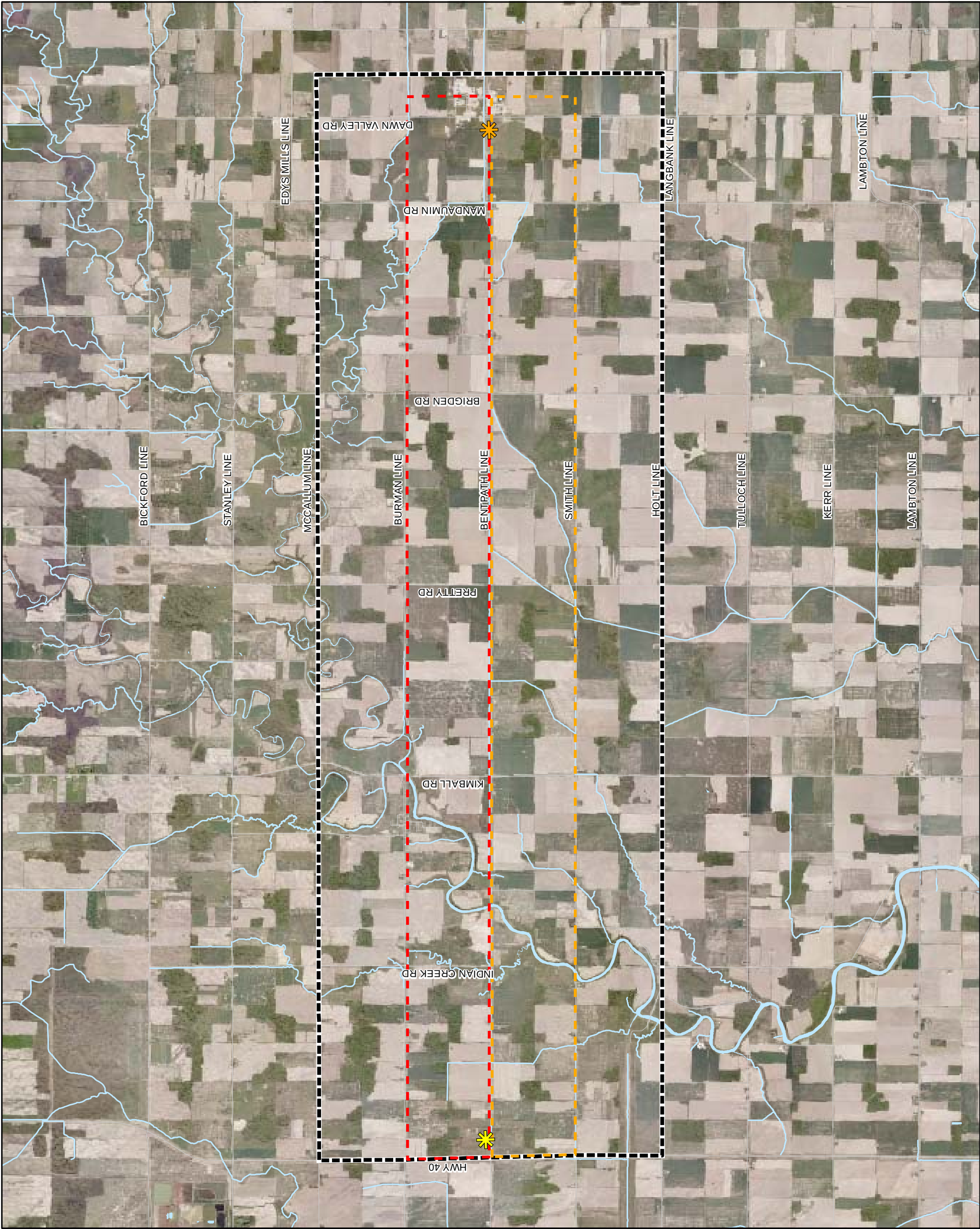
STUDY AREA

Initiated: February 25, 2008
Revised: March 13, 2009





- Bickford Compressor Station (yellow star symbol)
- Dawn Compressor Station (orange star symbol)
- Study Area (black dashed line)
- Alternative Corridor A (red dashed line)
- Alternative Corridor B (orange dashed line)
- Road (thin grey line)
- Watercourse (light blue line)
- Waterbody (solid blue area)



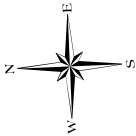
Source: LIDS 2006, First Base Solutions 2008

PREPARED FOR:

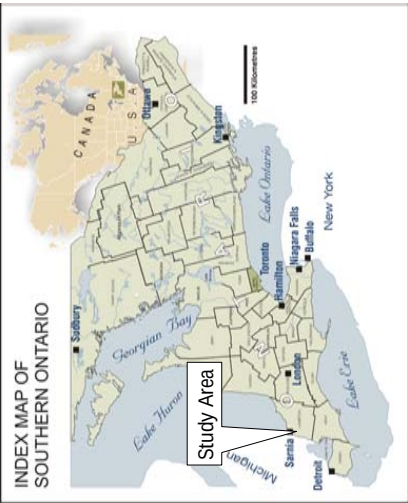
DAWN GATEWAY LP
BICKFORD TO DAWN PIPELINE

FIGURE NO. A-3

ALTERNATIVE CORRIDORS



- Bickford Compressor Station (yellow star symbol)
- Dawn Compressor Station (orange star symbol)
- Study Area (black dashed line)
- Alternative Corridor A (red dashed line)
- Preliminary Preferred Corridor (yellow dashed line)
- Road (thin grey line)
- Watercourse (light blue line)
- Waterbody (solid blue area)



Source: LIDS 2006, First Base Solutions 2008

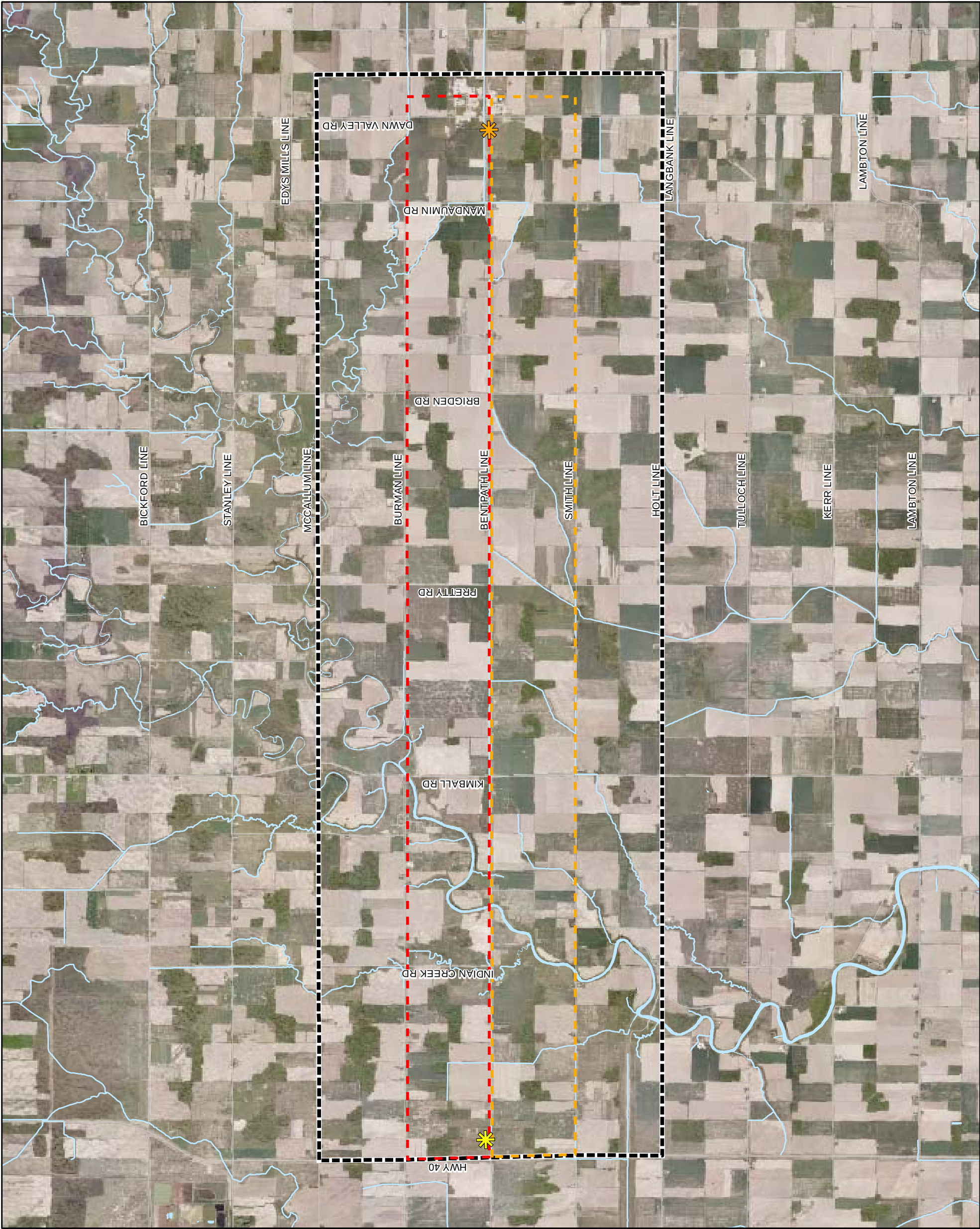
PREPARED FOR:

DAWN GATEWAY LP
BICKFORD TO DAWN PIPELINE

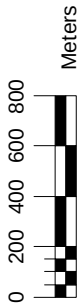
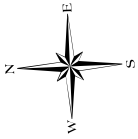
FIGURE NO. A-4

PRELIMINARY PREFERRED CORRIDOR

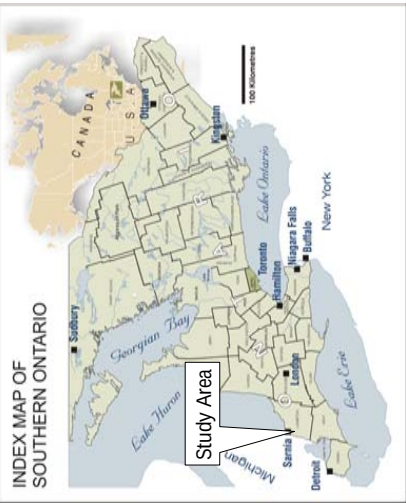
Initiated: February 25, 2008
Revised: March 13, 2009



W:\active\60960438\graphics\GIS\MXD\60960438_A-4_PreliminaryPreferredCorridor_2009-03-13_ED.mxd



- Bickford Compressor Station
- Dawn Compressor Station
- Study Area
- Alternative Corridor A
- Preliminary Preferred Corridor
- Existing Pipeline
- Preliminary Route 1
- Preliminary Route 2
- Road
- Watercourse
- Waterbody



Source: LIDS 2006, First Base Solutions 2008

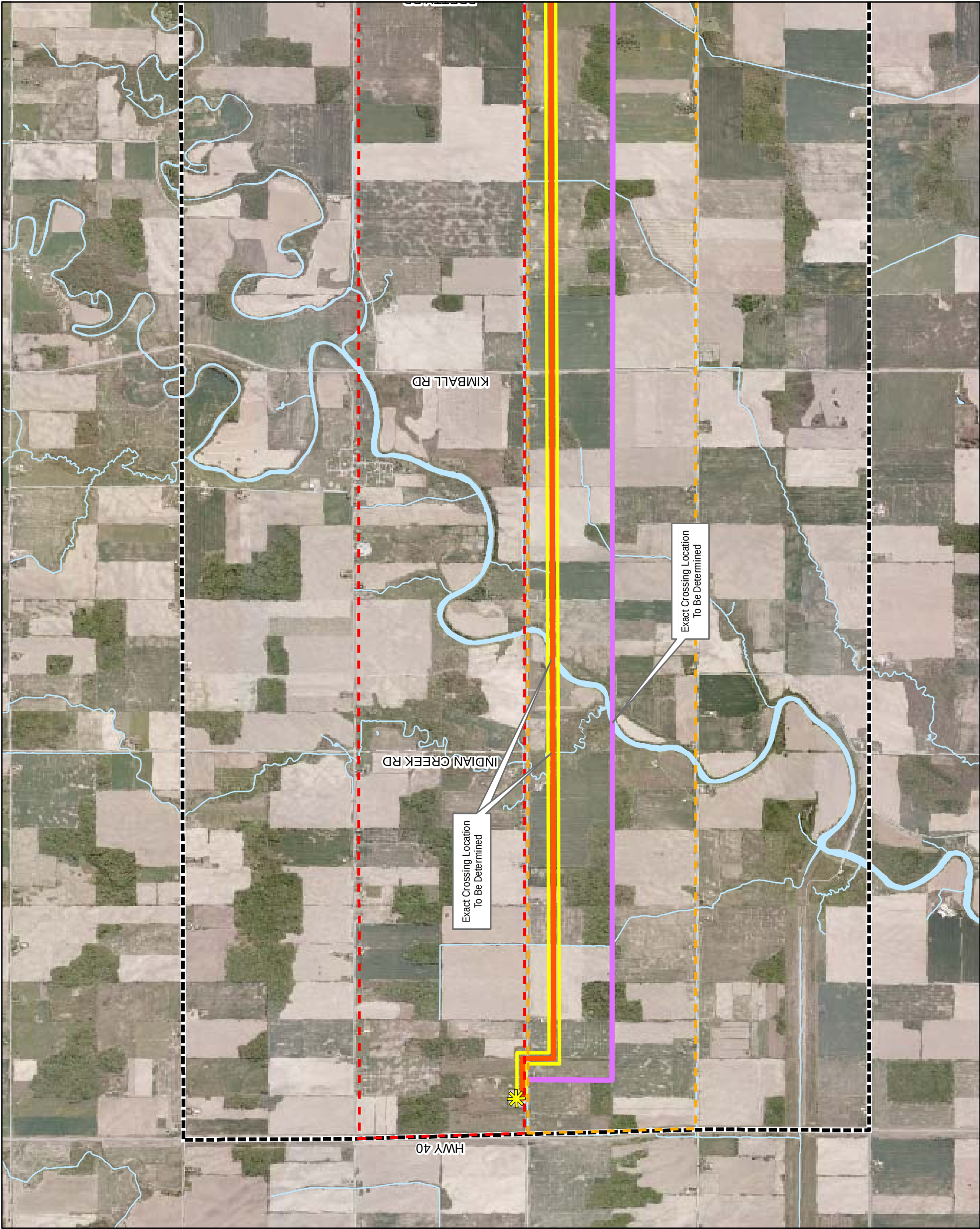
PREPARED FOR:

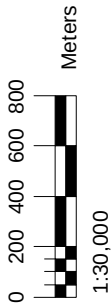
DAWN GATEWAY LP
BICKFORD TO DAWN PIPELINE

FIGURE NO. A-5a

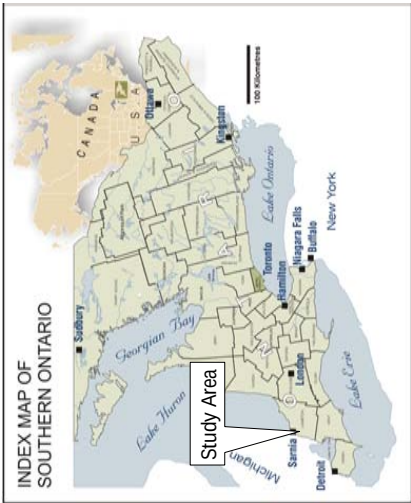
PRELIMINARY ROUTES

Initiated: February 25, 2008
Revised: March 13, 2009





- Bickford Compressor Station
- Dawn Compressor Station
- Study Area
- Alternative Corridor A
- Preliminary Preferred Corridor
- Existing Pipeline
- Preliminary Route 1
- Preliminary Route 2
- Road
- Watercourse
- Waterbody



Source: LIDS 2006, First Base Solutions 2008

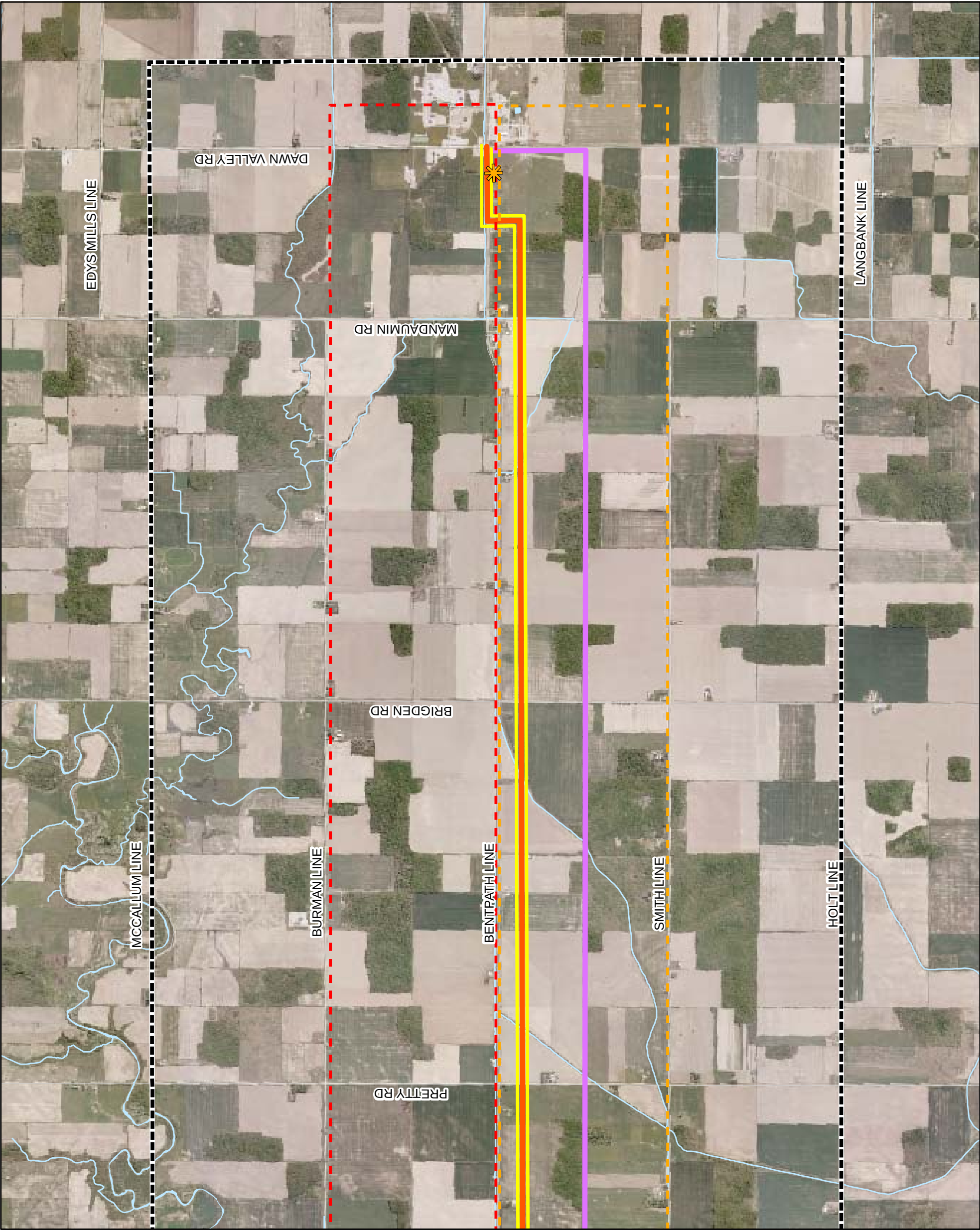
PREPARED FOR:

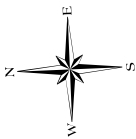
DAWN GATEWAY LP
BICKFORD TO DAWN PIPELINE

FIGURE NO. A-5b

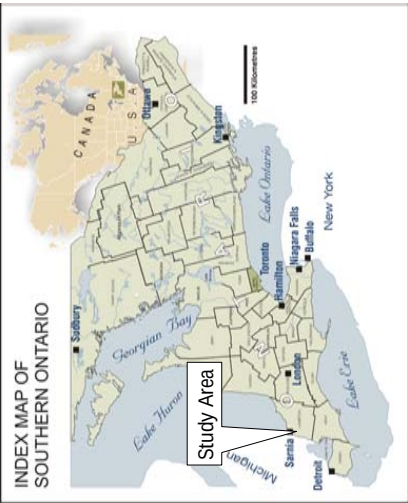
PRELIMINARY ROUTES

Initiated: February 25, 2008
Revised: March 13, 2009





- Bickford Compressor Station
- Dawn Compressor Station
- Study Area
- Preferred Corridor
- Road
- Watercourse
- Waterbody



Source: LIDS 2006, First Base Solutions 2008

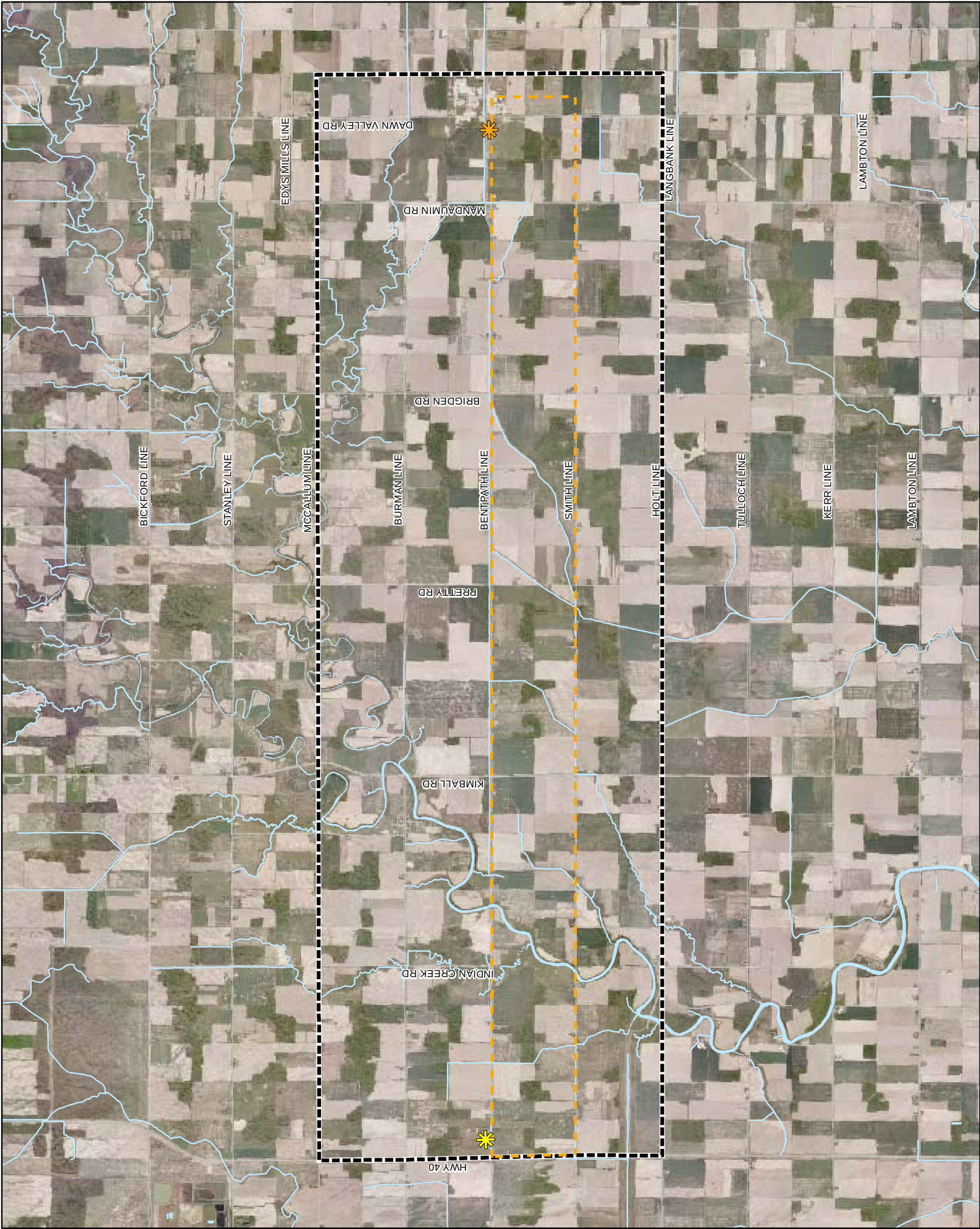
PREPARED FOR:

DAWN GATEWAY LP
BICKFORD TO DAWN PIPELINE

FIGURE NO. A-6

PREFERRED CORRIDOR

Initiated: February 25, 2008
Revised: March 13, 2009



Appendix B

Public Consultation

Appendix B1

Stakeholder and First Nations Contact List

Dawn Gateway Project: Stakeholder and First Nations Contact List

Title	First Name	Last Name	Agency	Title	Address1	City	Prov.	Postal	Phone	Fax
Federal Agencies										
Ms.	Louise	Knox	Canadian Environmental Assessment Agency	Director, Ontario Region	55 St. Clair Avenue East, 9 th Floor	Toronto	ON	M4T 1M2	416-952-1575	416-952-1573
Ms.	Sheila	Allan	Environment Canada	Head, EA Section	867 Lakeshore Road, P.O. Box 5050	Burlington	ON	L7R 4A6	905-336-4948	905-336-8901
Mr.	Dan	Thompson	Fisheries and Oceans Canada	Habitat Team Leader	73 Meg Drive	London	ON	N6E 2V2	519-668-3897	519-668-1772
Mr.	Brian	LeBlanc	Fisheries and Oceans Canada, Canadian Coast Guard	Director, Operational Services	520 Exmouth Street	Sarnia	ON	N7T 8B1	519-383-1880	519-383-1995
Ms.	Kitty	Ma	Health Canada	Regional Environmental Assessment Coordinator	180 Queen St. W.	Toronto	ON	M5V 3L7	416-954-2206	416-952-0102
Ms.	Louise	Trepanier	Indian and Northern Affairs Canada	Director, Claims East of Manitoba, Comprehensive Claims Branch	10 Wellington Street	Gatineau	QC	K1A 0H4	819-994-1211	819-953-3109
Mr.	Marc-Andre	Millaire	Indian and Northern Affairs Canada	Litigation Team Leader, Litigation Management and Resolution Branch	10 Wellington Street	Gatineau	QC	K1A 0H4		
	Environmental Unit	Re: EA Coordination	Indian and Northern Affairs Canada	Ontario Research Team	25 St. Clair Avenue East, 8 th Floor	Toronto	ON	M4T 1M2		
Mr.	Ralph	Brant	Indian and Northern Affairs Canada	Director General, Specific Claims Branch	10 Wellington Street	Gatineau	QC	K1A 0H4	819-994-2323	819-94-4123
Mr.	Fred	Hosking	Indian and Northern Affairs Canada	Senior Claims Analyst, Specific Claims Branch	10 Wellington Street	Gatineau	QC	K1A 0H4	819-953-1940	819-997-9873

Dawn Gateway Project: Stakeholder and First Nations Contact List

Title	First Name	Last Name	Agency	Title	Address1	City	Prov.	Postal	Phone	Fax
Mr.	Doug	Culham	International Boundary Commission		575-615 Booth Street	Ottawa	ON	K1A 0E9	n/a	n/a
Mr.	Douglas	Bondy	International Joint Commission, Great Lakes Regional Office	Regional Assistant	100 Ouellette Ave., 8 th Floor	Windsor	ON	N9A 6T3	n/a	n/a
Ms.	Micheline	Turpin	Natural Resources Canada	Environmental Assessment Information Manager	580 Booth Street, 3 rd Floor, Rm A5-2	Ottawa	ON	K1A 0E4	613-996-3086	613-995-5719
Mr.	Doug	Culham	Natural Resources Canada	International Boundary Commission	575-615 Booth Street	Ottawa	ON	K1A 0E9	613-995-2604	613-947-1337
Ms.	Haya	Finan	Transport Canada	Environmental Officer, Environment and Engineering	4900 Yonge Street, Suite 300	Toronto	ON	M2N 6A5	416-952-0475	416-952-0514
Provincial Agencies and Authorities										
Mr.	Alan	Kary	Ministry of Aboriginal Affairs	Deputy Director, Policy and Relationships	720 Bay Street, 4th Floor	Toronto	ON	M5G 2K1	416-326-4762	416-326-4017
Mr.	David	Cooper	Ministry of Agriculture, Food and Rural Affairs	Manager, Environmental and Land Use Policy	1 Stone Road West, 3rd Floor	Guelph	ON	N1G 4Y2	519-826-3117	519-826-3109
Mr.	Joe	Iacobellis	Ministry of Agriculture, Food, and Rural Affairs	Area Manager, Guelph	1 Stone Road West 5th Floor	Guelph	ON	N1G 4Y2	519-826-4368	
Mr.	John	Turvey	Ministry of Agriculture, Food, and Rural Affairs	Land Use Policy Specialist	1 Stone Road West 3rd Floor	Guelph	ON	N1G 4Y2	519-826-3555	519-826-3109
Ms.	Donna	Mundie	Ministry of Agriculture, Food and Rural Affairs	Land Use Policy Specialist	1 Stone Road West	Guelph	ON	N1G 4Y2	519-826-3120	519-826-3109

Dawn Gateway Project: Stakeholder and First Nations Contact List

Title	First Name	Last Name	Agency	Title	Address1	City	Prov.	Postal	Phone	Fax
Ms.	Penny	Young	Ministry of Culture	Heritage Planner, Southern Region	400 University Ave., 4th Floor	Toronto	ON	M7A 2R9		
Mr.	Michael	Johnson	Ministry of Culture	Manager, Heritage Unit	400 University Avenue 4th Floor	Toronto	ON	M7A 2R9	416-314-7144	416-314-7175
Sir/Madam			Ministry of Energy	Advisor, Natural Gas Distribution	880 Bay Street 3rd Floor	Toronto	ON	M7A 2C1	416- 325-6836	416-325-6981
Mr.	Jim	Richardson	Ministry of the Environment	Director, London Region Office	733 Exeter Road, 2nd Floor	London	ON	N6E 1L3	519-873-5001	519-873-5020
Mr.	Mike	Moroney	Ministry of the Environment	District Officer, Sarnia District Office	1094 London Rd.	Sarnia	ON	N7S 1P1	519-383-3780	519-383-4280
Mr.	Mike	Parker	Ministry of the Environment	Supervisor APEP, South western Region	733 Exeter Road, 2nd Floor	London	ON	N6E 1L3	519-873-5041	519-873-5020
Mr.	Usman	Ahmed	Ministry of Municipal Affairs and Housing	Senior Planner	777 Bay Street 14th Floor	Toronto	ON	M5G 2E5	416-585-7181	416-585-4245
Mr.	Mitch	Wilson	Ministry of Natural Resources	Aylmer District Manager	615 John St. N.	Aylmer	ON	N5H 2S8	519-773-4710	519-773-9014
Mr.	Ken	Yaraskavitch	Ministry of Natural Resources	Area Supervisor, Chatham Division	870 Richmond St. W., P.O. Box 1168	Chatham	ON	N7M 5J5	519-354-1779	
Mr.	Brian	Messerschmidt	Ministry of Natural Resources	Manager, Aggregate and Petroleum Resources Section	300 Water St., 4th Floor, P.O. Box 7000	Peterborough	ON	K9J 8M5	705-755-1949	705-755-1206
Ms.	Sharon	Rew	Ministry of Natural Resources	Environmental Planning Team Leader	300 Water Street 5th Floor North Tower PO Box 7000	Peterborough	ON	K9J 8M5	705-755-5870	705-755-1971
Mr.	Doug	Peeling	Ministry of Transportation	Senior Policy Advisor	301 St. Paul Street, 2nd Floor	St. Catharines	ON	L2R 7R4	905-704-2916	905-704-2481
Ms.	Jennifer	Graham-	Ministry of	Head,	659 Exeter Road,	London	ON	N6E 1L3	519-873-4373	519-873-4388

Dawn Gateway Project: Stakeholder and First Nations Contact List

Title	First Name	Last Name	Agency	Title	Address1	City	Prov.	Postal	Phone	Fax
		Harkness	Transportation	Engineering Office	4th Floor					
Mr.	Ian	Smyth	Ministry of Transportation	Corridor Management Planner	659 Exeter Road, 4th Floor	London	ON	N6E 1L3		519-873-4388
Ms.	Zora	Crnojacki	Ontario Energy Board		2300 Yonge St. Suite 2601, P.O. Box 2319	Toronto	ON	M4P 1E4	416-440-8104	416-440-7656
Mr.	Graham	Martin	Ontario Realty Corporation	Director, Real Estate Appraisal	77 Wesley St. W., 11th Floor, Ferguson Block	Toronto	ON	M7A 1N3	416-326-9792	n/a
Ms.	Heather	MacKenzie	St. Clair Region Conservation Authority	Aquatic Systems Biologist	205 Mill Pond Crescent	Strathroy	ON	N7G 3P9	519-245-3710, ext. 23	519-245-3348
Mr.	Oscar	Alonso	Technical Standards and Safety Authority	Fuels Safety Engineer	3300 Bloor St. W., 4th Floor	Etobicoke	ON	M8X 2X4	416-325-1650	416-326-8248
Elected Officials										
Mr.	Bev	Shipley	Constituency Office	Federal M.P. Lambton-Kent-Middlesex	21 Arnold Street, Suite 5	Wallaceburg	ON	N8A 3P3	519-627-4899	519-627-4635
Ms.	Patricia	Davidson	Constituency Office	Federal M.P. Sarnia-Lambton	1000 Finch Drive, Unit 2	Sarnia	ON	N7S 6G5	519-383-6600	519-383-0609
Ms.	Maria	Van Bommel	Constituency Office	Provincial M.P.P. Lambton-Kent-Middlesex	6-208 Margaret Ave.	Wallaceburg	ON	N8A 2A1	519-627-1015	519-627-7174
Mr.	Robert	Bailey	Constituency Office	Provincial M.P.P. Sarnia-Lambton	836 Upper Canada Drive	Sarnia	ON	N7W 1A4	519-337-0051	519-337-3246
Municipal Stakeholders										
Ms.	Linda	Creaghe	Lambton County	Clerks Department, General Manager of Corporate Services	789 Broadway St., P.O. Box 3000	Wyoming	ON	N0N 1T0	519-845-0801	
Mr.	Dave	Poslif	Lambton County	Director of Planning	789 Broadway St., P.O. Box 3000	Wyoming	ON	N0N 1T0	519-845-0801	
Mr.	Glen	Millar	Lambton County	Manager of Public Works	789 Broadway St., P.O. Box 3000	Wyoming	ON	N0N 1T0	519-845-0801, ext. 5311	

Dawn Gateway Project: Stakeholder and First Nations Contact List

Title	First Name	Last Name	Agency	Title	Address1	City	Prov.	Postal	Phone	Fax
Mr.	Gary	DePooter	Township of St. Clair	Coordinator of Operations	1155 Emily St.	Mooretown	ON	N0N 1M0	519-867-2112 (Cell 383-2350)	519-867-3886
Mr.	John	DeMars	Township of St. Clair	Clerk	1155 Emily St.	Mooretown	ON	N0N 1M0	519-867-2021	
Ms.	Sandra	Brennan	Township of St. Clair	Director, Planning	1155 Emily St.	Mooretown	ON	N0N 1M0	519-867-2021	
Mr.	Larry	Burnham	Township of St. Clair	Director, Public Works	1155 Emily St.	Mooretown	ON	N0N 1M0	519-867-2021	
Mr.	Michael	Schnare	Township of Dawn-Euphemia	Administrative Clerk	RR#4, 4591 Lambton Line	Dresden	ON	N0P 1M0	519-692-5148	519-692-5511
Special Interest Groups										
Mr.	Dave	Core	CAPLA		3122 Douglas Street, RR#1	Camlachie	ON	N0N 1E0		
Ms.	Jenny	Denhartog	Lambton Christian Farmers Association	District Support	jenny@christianfarmers.org					
Sir/Madam			Lambton County Woodlot Owners Association	President	info@ont-woodlot-assoc.org					
Mr.	Ken	Dunlop	Lambton Federation of Agriculture	President	4832 Petrolia Line	Petrolia	ON	N0N 1R0	519-882-0573	
Mr.	Malcolm	Boyd	Lambton Wildlife Inc.	President	info@lambtonwildlife.com					
Mr.	John	Crawford	Ontario Federation of Agriculture, Ontario AgriCentre	Manager, Member Services and Systems Group	100 Stone Road West, Suite 206	Guelph	ON	N1G 5L3	519-821-8883	519-821-8810
Mr.	Ron	Ludolph	Rural Lambton Stewardship Network/Ministry of Natural Resources	Stewardship Coordinator	870 Richmond St. W., P.O. Box 1168	Chatham	ON	N7M 5L8	519-354-5013	
First Nations										
Chief	Christopher	Plain	Aamjiwnaang First Nation		978 Tashmoo Ave.	Sarnia	ON	N7T 7H5	519-336-8410	519-336-0382
Ms.	Shelley	Raymond	Aamjiwnaang	Band Clerk	978 Tashmoo	Sarnia	ON	N7T 7H5	519-336-8410,	519-336-0382

Dawn Gateway Project: Stakeholder and First Nations Contact List

Title	First Name	Last Name	Agency	Title	Address1	City	Prov.	Postal	Phone	Fax
			First Nation		Ave.				ext. 221	
Chief	Elizabeth	Cloud	Chippewas of Kettle and Stony Point		6247 Indian Lane, RR#2	Forest	ON	N0N 1J0	519-786-2125	519-786-2108
Chief	Joseph	Gilbert	Walpole Island First Nation, Bkwejwanong		RR#3	Wallaceburg	ON	N8A 4K9	519-627-1481	519-627-0440
Mr.	Dean	Jacobs	Walpole Island First Nation, Bkwejwanong	Executive Director, Heritage Centre	RR#3	Wallaceburg	ON	N8A 4K9	519-627-1475	519-627-1530

Appendix B2

Notice of Project Commencement

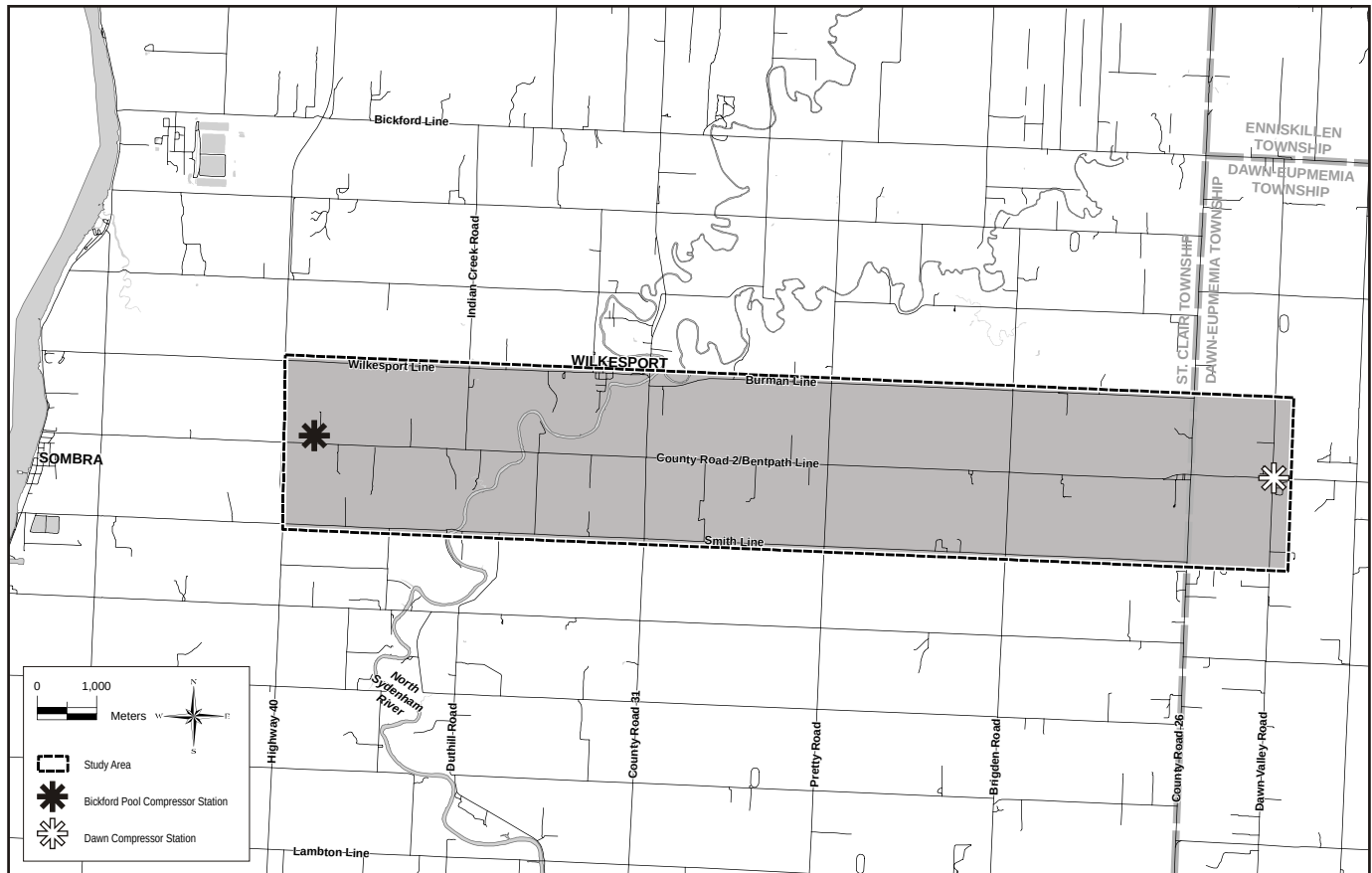
PROJECT ANNOUNCEMENT AND NOTICE OF STUDY COMMENCEMENT

Natural Gas Pipeline Project

Dawn Gateway, LP, a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, are currently working on preliminary plans to construct a new pipeline.

The proposed Project involves the construction of a 24-inch (610 mm) diameter steel natural gas pipeline. The route for this pipeline has not yet been chosen. The pipeline would be approximately 17 km in length. The Study Area is located in the County of Lambton, Ontario, from the Bickford Pool Compressor Station in St. Clair Township (Lot 6, Concession XII) to the Dawn Compressor Station in Dawn-Euphemia Township (Lot 25, Concession I).

Please refer to the attached map which identifies the location of the Study Area and the start and end point of the pipeline.



To assist with the environmental and planning aspects of the Project, an independent environmental consultant, Stantec Consulting Ltd. ("Stantec") has been retained to conduct an Environmental and Socio-Economic Assessment ("ESA"). The ESA will be completed as required under the National Energy Board's "Filing Manual (February 2008)", and will meet the requirements of the *Canadian Environmental Assessment Act*.

Public consultation will be an integral component of the ESA and a Public Information Session regarding the pipeline Project is planned to be held in the fall of 2008. Notice of the session will be mailed to those on the project mailing list, and advertised in the following local newspapers: Sarnia Observer, Sarnia & Lambton County This Week, and Wallaceburg Courier Press.

At this Public Information Session, representatives from Stantec and Dawn Gateway, LP, will be available to explain the Project and answer questions regarding routing, design and scheduling. Public and agency input received will be used to confirm the existing environmental conditions and will assist in identifying a preliminary preferred pipeline corridor.

Anyone having interest in this Project is encouraged to submit questions or comments to:

David Wesenger
Project Manager
Stantec Consulting Ltd.
381 Southgate Dr.
Guelph, Ontario, N1G 3M5
519-836-6050, Collect
david.wesenger@stantec.com

Doug Schmidt
Principal Environmental Planner
Spectra Energy
50 Keil Drive North
Chatham, Ontario, N7M 5M1
1-800-265-5230
DSchmidt@spectraenergy.com



Stantec

Stantec Consulting Ltd.
361 Southgate Drive
Guelph ON N1G 3M5
Tel: (519) 836-6050
Fax: (519) 836-2493

September 26, 2008
File: 160960438

«Agency»
«Address1»
«City» «Prov» «Postal»

Attention: «First_Name»«Last_Name», «Position»

Dear «Title» «Last_Name»:

**Reference: Environmental and Socio-Economic Assessment Commencement
Dawn Gateway LP Pipeline Project**

Dawn Gateway, LP, a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, is currently working on preliminary plans to construct a new pipeline.

The proposed Project involves the construction of a 24-inch (610 mm) diameter steel natural gas pipeline. The route for this pipeline has not yet been chosen. The pipeline would be approximately 17 km in length. The Study Area is located in the County of Lambton, Ontario, from the Bickford Pool Compressor Station in St. Clair Township (Lot 6, Concession XII) to the Dawn Compressor Station in Dawn-Euphemia Township (Lot 25, Concession I).

Please refer to the attached map which identifies the location of the Study Area and the start and end point of the pipeline.

To assist with the environmental and planning aspects of the Project, an independent environmental consultant, Stantec Consulting Ltd. ("Stantec") has been retained to conduct an Environmental and Socio-Economic Assessment ("ESA"). The ESA will be completed as required under the National Energy Board's ("NEB") "Filing Manual (February 2008)", and meet the requirements of the *Canadian Environmental Assessment Act*. The application will be filed with the NEB in 2009, and if approved, construction for the pipeline would begin in 2010.

Stantec is presently compiling an environmental, socio-economic and archaeological inventory of the Study Area. As an agency with jurisdiction or an interest in developments in the Study Area, you are invited to provide or co-ordinate comments regarding the proposed pipeline. Specifically, Stantec is seeking information regarding planning principles or guidelines implemented by your agency that may affect routing, construction, and/or operation of the proposed pipeline. Stantec is also seeking background environmental and socio-economic information that may be useful in compiling an inventory of the Study Area.

Information regarding other developments in the Study Area that are proposed for development, for incorporation into the ESA study as a component of a cumulative effects assessment, is also requested to be provided. Please contact us to discuss the most efficient way to obtain this information.

Your agency's response by October 10, 2008 would be appreciated.

September 26, 2008

**Reference: Environmental & Socio-Economic Assessment Commencement
Dawn Gateway LP Pipeline Project**

A Public Information Session regarding the pipeline Project is planned to be held in the fall of 2008. Notice of the session will be mailed to all affected agencies and advertised in the following local newspapers: Sarnia Observer, Sarnia & Lambton County This Week, and Wallaceburg Courier Press.

If you have any questions regarding the ESA for this Project please do not hesitate to contact me collect at the number listed below.

Sincerely,

STANTEC CONSULTING LTD.

A handwritten signature in black ink, appearing to read 'David P. Wesenger', with a long horizontal flourish extending to the right.

David P. Wesenger, B.E.S.
Senior Project Manager
Tel: (519) 836-6050
Fax: (519) 836-2493
david.wesenger@stantec.com

Attachment: Study Area Map



Stantec

Stantec Consulting Ltd.
361 Southgate Drive
Guelph ON N1G 3M5
Tel: (519) 836-6050
Fax: (519) 836-2493

September 26, 2008
File: 160960438

«Agency»
«Address1»
«City» «Prov» «Postal»

Attention: «First_Name» «Last_Name», «Position»

Dear «Title» «Last_Name»

**Reference: Environmental and Socio-Economic Assessment Commencement
Dawn Gateway LP Pipeline Project**

Dawn Gateway, LP, a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, is currently working on preliminary plans to construct a new pipeline.

The proposed Project involves the construction of a 24-inch (610 mm) diameter steel natural gas pipeline. The route for this pipeline has not yet been chosen. The pipeline would be approximately 17 km in length. The Study Area is located in the County of Lambton, Ontario, from the Bickford Pool Compressor Station in St. Clair Township (Lot 6, Concession XII) to the Dawn Compressor Station in Dawn-Euphemia Township (Lot 25, Concession I).

Please refer to the attached map which identifies the location of the Study Area and the start and end point of the pipeline.

To assist with the environmental and planning aspects of the Project, an independent environmental consultant, Stantec Consulting Ltd. ("Stantec") has been retained to conduct an Environmental and Socio-Economic Assessment ("ESA"). The ESA will be completed as required under the National Energy Board's ("NEB") "Filing Manual (February 2008)", and meet the requirements of the *Canadian Environmental Assessment Act*. The application will be filed with the NEB in 2009, and if approved, construction for the pipeline would begin 2010.

At this time, we invite you to provide or coordinate comments on behalf of your respective agency to assist us in the preparation of the ESA. This includes providing any information that would assist in the collection of environmental and socio-economic data for the Project Study Area. Your response by October 10, 2008 would be appreciated.

September 26, 2008

**Reference: Environmental & Socio-Economic Assessment Commencement
Dawn Gateway LP Pipeline Project**

Stantec is in the process of contacting the following agencies:

- Indian and Northern Affairs Canada – Environmental Unit
- Indian and Northern Affairs Canada – Specific Claims Branch
- Indian and Northern Affairs Canada – Comprehensive Claims Branch
- Indian and Northern Affairs Canada – Litigation Management and Resolution Branch
- Ministry of Aboriginal Affairs – Policy and Relationships

Stantec and representatives from Dawn Gateway, LP will also be initiating contact with the Chiefs of the following First Nations with a potential interest in the Project, including:

- Aamjiwnaang First Nation; and,
- Walpole Island First Nation, Bkwejwanong.

A Public Information Session regarding the pipeline Project is planned to be held in the fall of 2008. Notice of the session will be mailed to all affected agencies and advertised in the following local newspapers: Sarnia Observer, Sarnia & Lambton County This Week, and Wallaceburg Courier Press.

If you have any questions regarding the ESA for this Project please do not hesitate to contact me collect at the number listed below.

Sincerely,

STANTEC CONSULTING LTD.



David P. Wesenger, B.E.S.
Senior Project Manager
Tel: (519) 836-6050
Fax: (519) 836-2493
david.wesenger@stantec.com

Attachment: Study Area Map



Stantec

Stantec Consulting Ltd.
361 Southgate Drive
Guelph ON N1G 3M5
Tel: (519) 836-6050
Fax: (519) 836-2493

September 23, 2008
File: 160960438

Aamjiwnaang First Nation
978 Tashmoo Ave.
Sarnia ON N7T 7H5

Attention: Chief Christopher Plain & Ms. Shelley Raymond (Band Clerk)

Dear Chief Plain & Ms. Raymond:

**Reference: Environmental and Socio-Economic Assessment Commencement
Dawn Gateway LP Pipeline Project**

Dawn Gateway, LP, a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, is currently working on preliminary plans to construct a new pipeline.

The proposed Project involves the construction of a 24-inch (610 mm) diameter steel natural gas pipeline. The route for this pipeline has not yet been chosen. The pipeline would be approximately 17 km in length. The Study Area is located in the County of Lambton, Ontario, from the Bickford Pool Compressor Station in St. Clair Township (Lot 6, Concession XII) to the Dawn Compressor Station in Dawn-Euphemia Township (Lot 25, Concession I).

Please refer to the attached map which identifies the location of the Study Area and the start and end point of the pipeline.

To assist with the environmental and planning aspects of the Project, an independent environmental consultant, Stantec Consulting Ltd. ("Stantec") has been retained to conduct an Environmental and Socio-Economic Assessment ("ESA"). The ESA will be completed as required under the National Energy Board's ("NEB") "Filing Manual (February 2008)", and will meet the requirements of the *Canadian Environmental Assessment Act*. The application will be filed with the NEB in 2009, and if approved, construction for the pipeline would begin 2010.

At this time, we invite you to provide or coordinate comments to assist us in the preparation of the ESA. This includes providing any information that would assist in the collection of environmental and socio-economic data for the Project Study Area. Your response by October 10, 2008 would be appreciated.

As part of the ESA, Stantec is in the process of contacting the following agencies:

- Indian and Northern Affairs Canada – Environmental Unit
- Indian and Northern Affairs Canada – Specific Claims Branch
- Indian and Northern Affairs Canada – Comprehensive Claims Branch
- Indian and Northern Affairs Canada – Litigation Management and Resolution Branch
- Ministry of Aboriginal Affairs – Policy and Relationships

September 23, 2008

**Reference: Environmental & Socio-Economic Assessment Commencement
Dawn Gateway LP Pipeline Project**

Stantec and representatives from Dawn Gateway, LP will also be initiating contact with the Chiefs of the following First Nations with a potential interest in the Project, including:

- Aamjiwnaang First Nation; and,
- Walpole Island First Nation, Bkwejwanong.

A Public Information Session regarding the pipeline Project is planned to be held in the fall of 2008. Notice of the session will be mailed to all affected agencies and First Nations, and advertised in the following local newspapers: Sarnia Observer, Sarnia & Lambton County This Week, and Wallaceburg Courier Press.

If you have any questions regarding the ESA for this Project please do not hesitate to contact me collect at the number listed below.

Sincerely,

STANTEC CONSULTING LTD.



David P. Wesenger, B.E.S.
Senior Project Manager
Tel: (519) 836-6050
Fax: (519) 836-2493
david.wesenger@stantec.com

Attachment: Study Area Map



Stantec

Stantec Consulting Ltd.
361 Southgate Drive
Guelph ON N1G 3M5
Tel: (519) 836-6050
Fax: (519) 836-2493

September 23, 2008
File: 160960438

Walpole Island First Nation, Bkwejwanong
RR#3
Wallaceburg ON N8A 4K9

Attention: Chief Joseph Gilbert & Mr. Dean Jacobs (Heritage Centre Executive Director)

Dear Chief Gilbert & Mr. Jacobs:

**Reference: Environmental and Socio-Economic Assessment Commencement
Dawn Gateway LP Pipeline Project**

Dawn Gateway, LP, a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, is currently working on preliminary plans to construct a new pipeline.

The proposed Project involves the construction of a 24-inch (610 mm) diameter steel natural gas pipeline. The route for this pipeline has not yet been chosen. The pipeline would be approximately 17 km in length. The Study Area is located in the County of Lambton, Ontario, from the Bickford Pool Compressor Station in St. Clair Township (Lot 6, Concession XII) to the Dawn Compressor Station in Dawn-Euphemia Township (Lot 25, Concession I).

Please refer to the attached map which identifies the location of the Study Area and the start and end point of the pipeline.

To assist with the environmental and planning aspects of the Project, an independent environmental consultant, Stantec Consulting Ltd. ("Stantec") has been retained to conduct an Environmental and Socio-Economic Assessment ("ESA"). The ESA will be completed as required under the National Energy Board's ("NEB") "Filing Manual (February 2008)", and will meet the requirements of the *Canadian Environmental Assessment Act*. The application will be filed with the NEB in 2009, and if approved, construction for the pipeline would begin 2010.

At this time, we invite you to provide or coordinate comments to assist us in the preparation of the ESA. This includes providing any information that would assist in the collection of environmental and socio-economic data for the Project Study Area. Your response by October 10, 2008 would be appreciated.

As part of the ESA, Stantec is in the process of contacting the following agencies:

- Indian and Northern Affairs Canada – Environmental Unit
- Indian and Northern Affairs Canada – Specific Claims Branch
- Indian and Northern Affairs Canada – Comprehensive Claims Branch
- Indian and Northern Affairs Canada – Litigation Management and Resolution Branch
- Ministry of Aboriginal Affairs – Policy and Relationships

September 23, 2008

**Reference: Environmental & Socio-Economic Assessment Commencement
Dawn Gateway LP Pipeline Project**

Stantec and representatives from Dawn Gateway, LP will also be initiating contact with the Chiefs of the following First Nations with a potential interest in the Project, including:

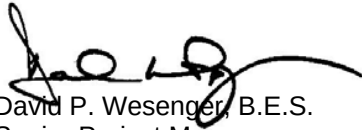
- Aamjiwnaang First Nation; and,
- Walpole Island First Nation, Bkwejwanong.

A Public Information Session regarding the pipeline Project is planned to be held in the fall of 2008. Notice of the session will be mailed to all affected agencies and First Nations, and advertised in the following local newspapers: Sarnia Observer, Sarnia & Lambton County This Week, and Wallaceburg Courier Press.

If you have any questions regarding the ESA for this Project please do not hesitate to contact me collect at the number listed below.

Sincerely,

STANTEC CONSULTING LTD.



David P. Wesenger, B.E.S.
Senior Project Manager
Tel: (519) 836-6050
Fax: (519) 836-2493
david.wesenger@stantec.com

Attachment: Study Area Map

Appendix B3

PIS #1 Consultation and Communication Materials

NOTICE OF PUBLIC INFORMATION SESSION

Dawn Gateway Pipeline Project

Dawn Gateway LP, a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, is currently working on a project which consists of the purchase of two existing natural gas transmission pipelines, and the construction of a new natural gas transmission pipeline ("Project").

The first component involves Dawn Gateway LP purchasing an existing pipeline known as the St. Clair River Crossing Line. This pipeline is a 24-inch (610 mm) diameter steel natural gas pipeline starting at the international border between Michigan and Ontario, under the St. Clair River, and ending at the St. Clair Station (Lot 13, Front Concession). This pipeline is currently owned by St. Clair Pipelines Ltd and as an international pipeline is under the jurisdiction of the National Energy Board ("NEB").

The second component involves Dawn Gateway LP purchasing an existing pipeline known as the St. Clair Line. This pipeline is also a 24-inch (610 mm) diameter steel natural gas pipeline located in St. Clair Township extending from the St. Clair Station (Lot 13, Front Concession) to the Bickford Pool Compressor Station (Lot 6, Concession XII). This pipeline is currently owned by Union Gas Limited ("Union") and is under the jurisdiction of the Ontario Energy Board ("OEB"). It is the intention of Union to make an application to the OEB for approval to sell the pipeline to Dawn Gateway LP.

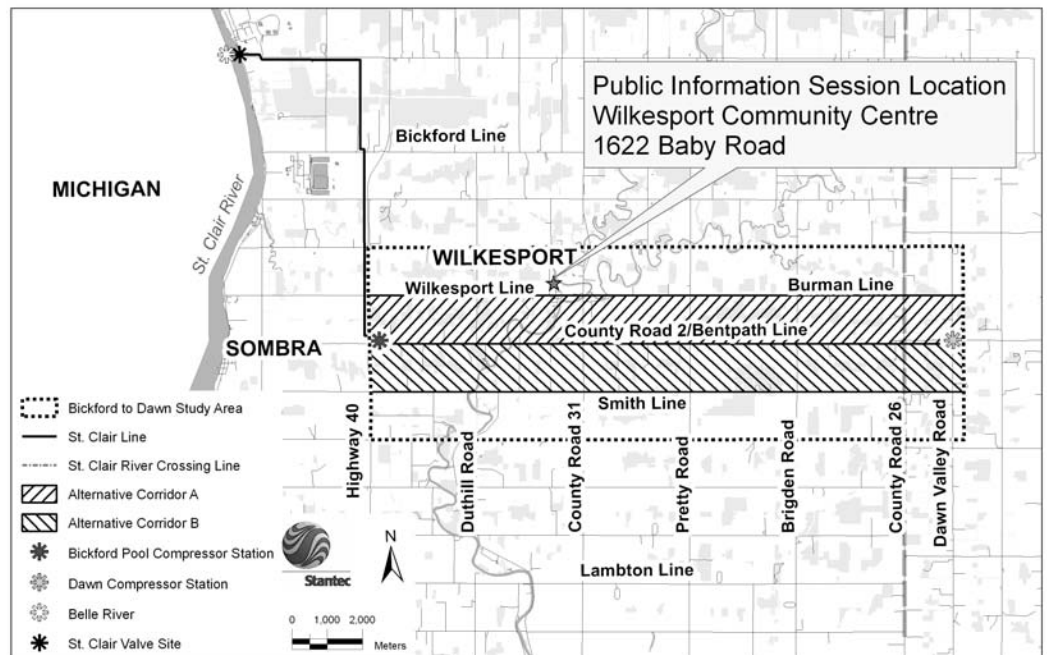
The third component involves the construction, by Dawn Gateway LP, of a new 24-inch (610 mm) diameter steel natural gas pipeline in the County of Lambton, starting from the Bickford Pool Compressor Station in St. Clair Township (Lot 6, Concession XII) and ending at the Dawn Compressor Station in Dawn-Euphemia Township (Lot 25, Concession I) ("Bickford to Dawn Line").

Dawn Gateway LP will be making applications to the NEB for the required approvals.

To assist with the environmental and planning aspects of this Project an independent environmental consultant, Stantec Consulting Ltd. ("Stantec"), has been retained by Dawn Gateway LP to conduct an Environmental and Socio-Economic Assessment ("ESA") of the proposed corridor for the Bickford to Dawn Line. The ESA will be completed as required under the NEB's Filing Manual (February 2008), and will meet the requirements of the Canadian Environmental Assessment Act. Stantec has also been retained to conduct a CEEA Screening Assessment of the existing pipeline facilities. It is the intention of Dawn Gateway LP to file applications with the NEB in 2009. Construction for the Bickford to Dawn Line would begin as early as 2010.

A Public Information Session is being held for the public to review the Project and provide input into the planning process. The Public Information Session is scheduled as follows:

Wilkesport Community Centre
1622 Baby Road
Wilkesport, Ontario
December 11, 2008
6:30 pm - 9:00 pm



The Public Information Session will be conducted as a drop-in centre, with members of Stantec and Dawn Gateway LP available to discuss the Project and respond to questions or concerns. Input received from public and agency consultation will play a key role throughout the Project. Anyone having an interest in this Project is encouraged to attend the Public Information Session, and/or submit questions or comments to:

David Wesenger
Project Manager
Stantec Consulting Ltd.
70 Southgate Drive, Suite 1
Guelph, Ontario, N1G 4P5
1-866-842-7559
david.wesenger@stantec.com

Glen Priestley
Manager
Spectra Energy
50 Keil Drive North
Chatham, Ontario, N7M 5M1
1-800-265-5230
gpriestley@spectraenergy.com

Stantec Consulting Ltd.
70 Southgate Drive, Suite 1
Guelph ON N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493



Stantec

November 28, 2008
File: 160960438

Agency
Address1
City Province
Postal Code

Dear: Title, First Name, Last Name
Position

**Reference: Invitation to Public Information Session
Dawn Gateway Pipeline Project**

Dawn Gateway LP, a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, is currently working on a project which consists of the purchase of two existing natural gas transmission pipelines, and the construction of a new natural gas transmission pipeline ("Project").

The first component involves Dawn Gateway LP purchasing an existing pipeline known as the St. Clair River Crossing Line. This pipeline is a 24-inch (610 mm) diameter steel natural gas pipeline starting at the international border between Michigan and Ontario, under the St. Clair River, and ending at the St. Clair Station (Lot 13, Front Concession). This pipeline is currently owned by St. Clair Pipelines Ltd and as an international pipeline is under the jurisdiction of the National Energy Board ("NEB").

The second component involves Dawn Gateway LP purchasing an existing pipeline known as the St. Clair Line. This pipeline is also a 24-inch (610 mm) diameter steel natural gas pipeline located in St. Clair Township extending from the St. Clair Station (Lot 13, Front Concession) to the Bickford Pool Compressor Station (Lot 6, Concession XII). This pipeline is currently owned by Union Gas Limited ("Union") and is under the jurisdiction of the Ontario Energy Board ("OEB"). It is the intention of Union to make an application to the OEB for approval to sell the pipeline to Dawn Gateway LP.

The third component involves the construction, by Dawn Gateway LP, of a new 24-inch (610 mm) diameter steel natural gas pipeline in the County of Lambton, starting from the Bickford Pool Compressor Station in St. Clair Township (Lot 6, Concession XII) and ending at the Dawn Compressor Station in Dawn-Euphemia Township (Lot 25, Concession I) ("Bickford to Dawn Line").

Dawn Gateway LP will be making applications to the NEB for the required approvals.

To assist with the environmental and planning aspects of this Project an independent environmental consultant, Stantec Consulting Ltd. ("Stantec"), has been retained by Dawn Gateway LP to conduct an Environmental and Socio-Economic Assessment ("ESA") of the proposed corridor for the Bickford to Dawn Line. The ESA will be completed as required under the NEB's *Filing Manual (February 2008)*, and will meet the requirements of the *Canadian Environmental Assessment Act*. Stantec has also been retained to conduct a CEAA Screening Assessment for the existing pipeline facilities. It is the intention of Dawn Gateway LP to file applications with the NEB in 2009. Construction for the Bickford to Dawn Line could begin as early as 2010.

November 28, 2008

**Reference: Invitation to Public Information Session
Dawn Gateway Pipeline Project**

To learn more about the Project and to provide input into the planning process, we invite you to attend an upcoming Public Information Session. Input received at the Public Information Session will be used to help confirm alternative corridor selection, select a preliminary preferred corridor, and develop site specific protection or mitigation measures. Representatives from Dawn Gateway LP and Stantec will be available at the Public Information Session to discuss the Project.

Please refer to the attached map which identifies the location of the existing St. Clair pipelines and the Study Area for the Bickford to Dawn Line.

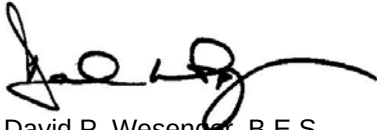
Details regarding the Public Information Session are as follows:

**Wilkesport Community Centre
1622 Baby Road
Wilkesport, Ontario
December 11, 2008
6:30pm – 9:00pm**

We hope that you will attend the Public Information Session. If you or a representative are not able to join us, or if you have any questions regarding the Project, please do not hesitate to contact me.

Sincerely,

STANTEC CONSULTING LTD.



David P. Wesenger, B.E.S.
Senior Project Manager
Tel: (519) 836-6050
Fax: (519) 836-2493
david.wesenger@stantec.com

Attachment: Map



Stantec

Stantec Consulting Ltd.
70 Southgate Drive, Suite 1
Guelph ON N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

EB-2009-0422
Section 7 - Schedule 1
Page 162

November 28, 2008
File: 160960438

Title First Name Last Name
Address1
City Province
Postal Code

Dear: Title Last Name

**Reference: Invitation to Public Information Session
Dawn Gateway Pipeline Project**

Dawn Gateway LP, a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, is currently working on a project which consists of the purchase of two existing natural gas transmission pipelines, and the construction of a new natural gas transmission pipeline ("Project").

The first component involves Dawn Gateway LP purchasing an existing pipeline known as the St. Clair River Crossing Line. This pipeline is a 24-inch (610 mm) diameter steel natural gas pipeline starting at the international border between Michigan and Ontario, under the St. Clair River, and ending at the St. Clair Station (Lot 13, Front Concession). This pipeline is currently owned by St. Clair Pipelines Ltd and as an international pipeline is under the jurisdiction of the National Energy Board ("NEB").

The second component involves Dawn Gateway LP purchasing an existing pipeline known as the St. Clair Line. This pipeline is also a 24-inch (610 mm) diameter steel natural gas pipeline located in St. Clair Township extending from the St. Clair Station (Lot 13, Front Concession) to the Bickford Pool Compressor Station (Lot 6, Concession XII). This pipeline is currently owned by Union Gas Limited ("Union") and is under the jurisdiction of the Ontario Energy Board ("OEB"). It is the intention of Union to make an application to the OEB for approval to sell the pipeline to Dawn Gateway LP.

The third component involves the construction, by Dawn Gateway LP, of a new 24-inch (610 mm) diameter steel natural gas pipeline in the County of Lambton, starting from the Bickford Pool Compressor Station in St. Clair Township (Lot 6, Concession XII) and ending at the Dawn Compressor Station in Dawn-Euphemia Township (Lot 25, Concession I) ("Bickford to Dawn Line").

Dawn Gateway LP will be making applications to the NEB for the required approvals.

To assist with the environmental and planning aspects of this Project an independent environmental consultant, Stantec Consulting Ltd. ("Stantec"), has been retained by Dawn Gateway LP to conduct an Environmental and Socio-Economic Assessment ("ESA") of the proposed corridor for the Bickford to Dawn Line. The ESA will be completed as required under the NEB's *Filing Manual (February 2008)*, and will meet the requirements of the *Canadian Environmental Assessment Act*. Stantec has also been retained to conduct a CEEA Screening Assessment for the existing pipeline facilities. It is the intention of Dawn Gateway LP to file applications with the NEB in 2009. Construction for the Bickford to Dawn Line could begin as early as 2010.

November 28, 2008

**Reference: Invitation to Public Information Session
Dawn Gateway Pipeline Project**

Property owned or rented by you may be located either on or adjacent to the existing St. Clair Line, or one of the Alternative Corridors under consideration for the Bickford to Dawn Line. To learn more about the Project and to provide input into the planning process, we invite you to attend an upcoming Public Information Session. Input received at the Public Information Session will be used to help confirm alternative corridor selection, select a preliminary preferred corridor, and develop site specific protection or mitigation measures. Representatives from Dawn Gateway LP and Stantec will be available at the Public Information Session to discuss the Project.

Please refer to the attached map which identifies the location of the existing St. Clair pipelines and the Study Area for the Bickford to Dawn Line.

Details regarding the Public Information Session are as follows:

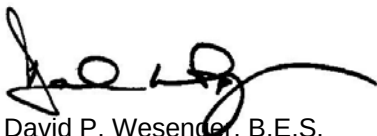
**Wilkesport Community Centre
1622 Baby Road
Wilkesport, Ontario
December 11, 2008
6:30pm – 9:00pm**

We hope that you will attend the Public Information Session as public input is an integral part of the Project. If you or a representative are not able to join us, or if you have any questions regarding the Project, please do not hesitate to contact me.

If you are a tenant of this property it would also be appreciated if this correspondence could be shared with the landowner.

Sincerely,

STANTEC CONSULTING LTD.



David P. Wesenger, B.E.S.
Senior Project Manager
Tel: (519) 836-6050
Toll Free: 1-866-842-7559
Fax: (519) 836-2493
david.wesenger@stantec.com

Attachment: Map

December __, 2008

Dear _____:

I would like to brief you on a pipeline project southwest of Sarnia that is being undertaken by a new joint venture between Spectra Energy (the parent company of Union Gas), and DTE Energy based in Detroit, know as Dawn Gateway LP. Union Gas has been contracted to design and build the proposed pipeline thus bringing close to 100 years of pipeline construction and experience to the project.

In response to the growing demand for natural gas, Dawn Gateway LP is proposing to purchase two existing pipelines totalling approximately 13 kilometres, and to construct an additional 17 kilometres of new pipeline. Linked together, this system will be known as the Dawn Gateway Pipeline as it will bring natural gas from Michigan to the large natural gas transmission and storage hub at Dawn. While a specific route for this pipeline has yet to be selected, two alternative pipeline corridors have been identified which are outlined on the attached map.

The project must first be reviewed and approved by the National Energy Board (NEB) before any construction activity could begin. If approved, construction is proposed for 2010. An integral part of the NEB review is completion of all required Environmental Reports for the existing pipelines and an Environmental and Socio-Economic Assessment for the proposed corridor of the new 17 km natural gas pipeline as well as an extensive consultation process.

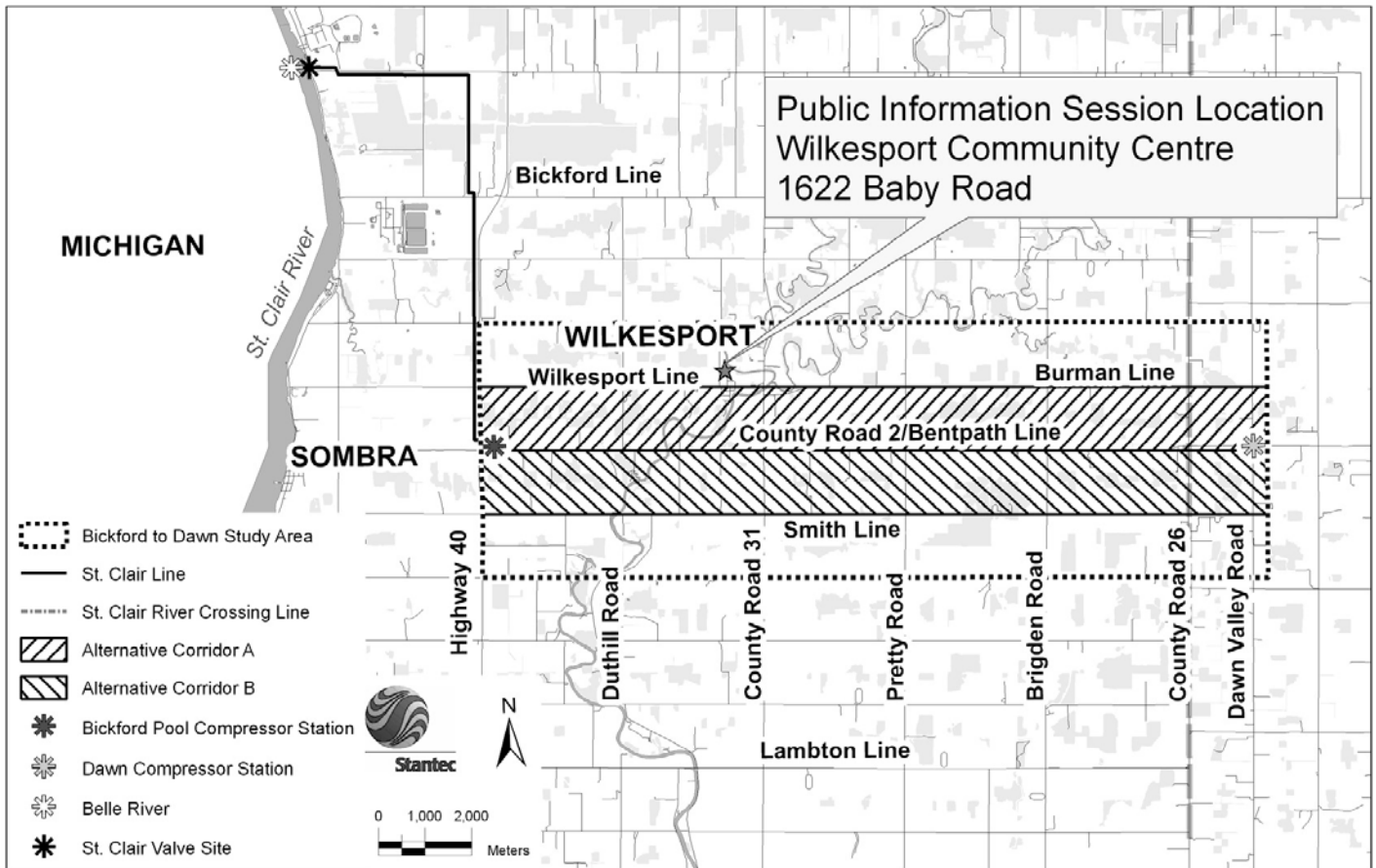
To provide an opportunity for the public to learn more about the proposed project, an information session will be held on December 11, from 6:30 to 9 p.m. at the Wilkesport Community Hall located at 1622 Baby Road, Wilkesport.

This will give any interested members of the public an opportunity to provide comments or ask questions regarding the proposed pipeline, the corridor selection process, construction procedures and mitigation measures. We will be advertising information about the public session in local newspapers and sending letters to those living along the proposed route. Anyone who might be unable to attend the information session may call or send letters to our representatives at any time.

Should you or your staff have any questions or require any further information about this project, please do not hesitate to contact me. You can always be assured of our enthusiasm and co-operation.

Sincerely,

"X"
Union Gas Limited



WELCOME

to the
Dawn Gateway
Natural Gas Pipeline Project

PUBLIC INFORMATION SESSION

Dawn Gateway Pipeline Project



Dawn Gateway LP

Dawn Gateway LP is a new joint venture owned equally by subsidiaries of Spectra Energy and DTE Energy

Spectra Energy

For close to a century, Spectra Energy and its predecessor companies have developed critically important pipelines, storage and related energy infrastructure that connects natural gas sources to premium markets and customers.

50%

50%

DAWN GATEWAY LP

DTE Pipeline Company

DTE Pipeline Co. is a wholly-owned subsidiary of DTE Energy, a Detroit-based diversified energy company involved in the development and management of energy-related businesses and services nationwide.

Dawn Gateway Pipeline Project



Project Overview

The proposed project involves the purchase of two existing natural gas pipelines totalling approximately 13 kilometres in length, and construction of a new natural gas pipeline approximately 17 kilometres in length. Linked together, this pipeline will be known as the Dawn Gateway Pipeline:

- Dawn Gateway LP will purchase the existing St. Clair River Crossing natural gas pipeline that runs between Michigan and Ontario, under the St. Clair River
- Dawn Gateway LP will purchase the existing St. Clair natural gas transmission pipeline from the St. Clair Station to the Bickford Pool Compressor Station
- Dawn Gateway LP will construct approximately 17 kilometres of new 24 inch diameter natural gas transmission pipeline which will run from the Bickford Pool Compressor Station to the Dawn Compressor Station
- Linked together these 3 pipelines will form one continuous pipeline from the international border between Michigan and Ontario to Dawn, and as such will be regulated by the National Energy Board
- Construction is proposed for 2010

Union Gas Limited has been contracted to design and construct the proposed pipeline. Union Gas has close to 100 years of experience in pipeline design and construction and will be applying all of this expertise and experience towards the project.

Dawn Gateway Pipeline Project



Project Need

THE DAWN GATEWAY PIPELINE WILL SERVE THE GROWING DEMAND FOR NATURAL GAS

- This pipeline is being built to link Natural Gas storage in Michigan to Dawn, in Ontario.
- A non-binding Open Season held this fall resulted in quality, long-term bids in excess of Dawn Gateway's proposed pipeline capacity, reflecting strong demand.
- Access to clean, reliable and affordable energy is essential to the success of business and industry.
- Natural Gas is environmentally preferred and is extremely reliable. Natural Gas is a key contributor to economic growth and also helps fuel new electricity power plants to produce electricity for Ontario Homes and businesses.

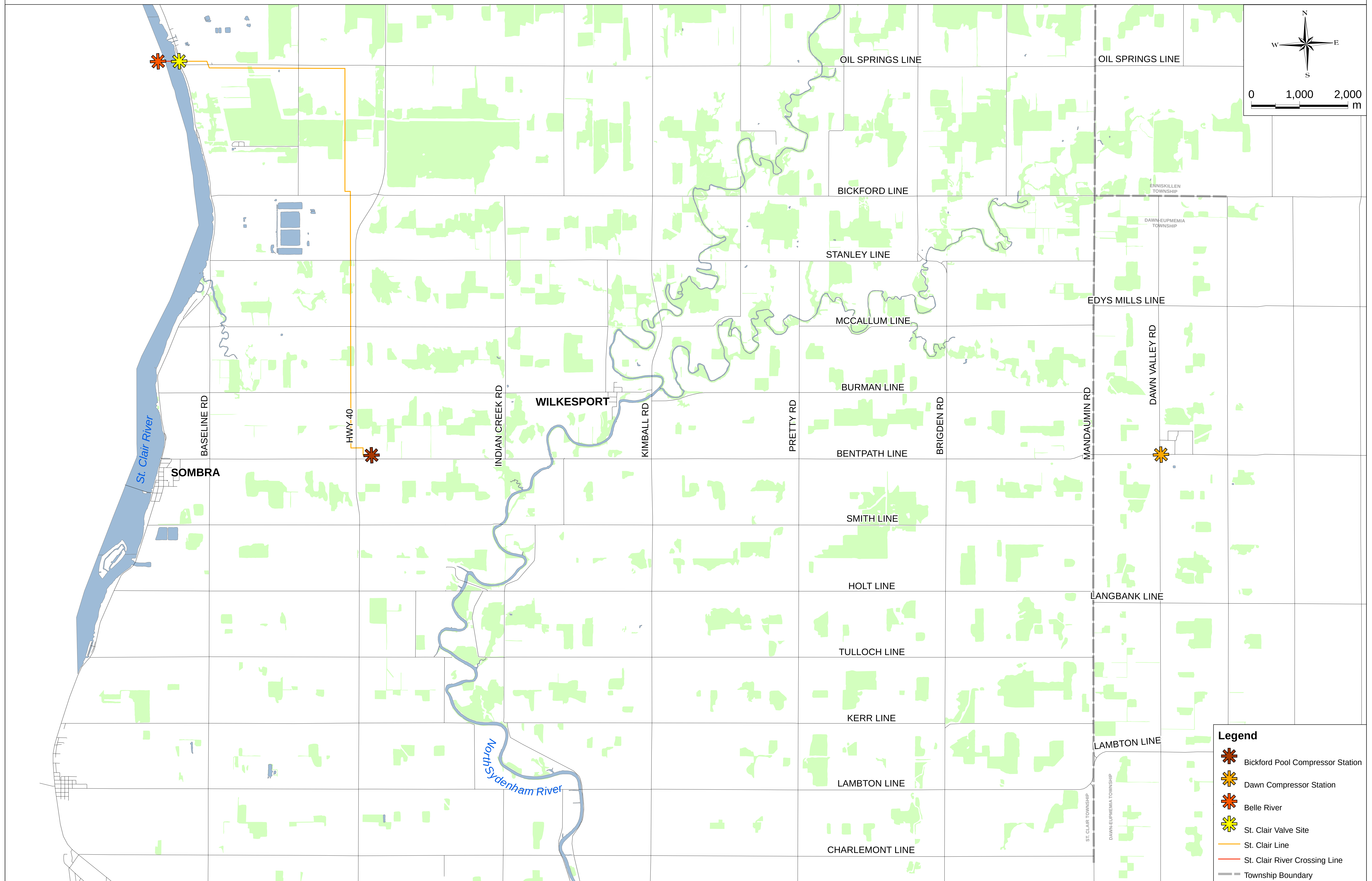
INVESTMENTS IN ENERGY INFRASTRUCTURE MAKE AN IMPORTANT CONTRIBUTION TO THE LOCAL AND PROVINCIAL ECONOMY

- Experienced pipeline contractors will use as many local resources as practical to build the new section of pipeline.
- In addition to approximately \$100,000 in property taxes paid each year on the existing St. Clair pipelines, the local community will benefit from approximately \$235,000 in incremental property taxes that Dawn Gateway LP will pay annually on this new pipeline.

Dawn Gateway Pipeline Project



Project Map



Dawn Gateway Pipeline Project



Consultation

WE ARE COMMITTED TO BROAD, OPEN AND INCLUSIVE TWO-WAY COMMUNICATION

Broad, open and inclusive communication that is two-way is vital. Dawn Gateway LP has begun consultation with Agencies and First Nations communities and welcomes any input from the public, impacted landowners and all stakeholders which would assist us in the evaluation of the proposed project. For Dawn Gateway LP, consulting is about building better pipelines, facilities, and relationships.

Consultation Goals

- **Broad** – ensure all stakeholders are aware of the project through venues such as newspaper notices and landowner letters, and maintain communications through to project completion
- **Open** – share pertinent information on project specifics in a clear and timely manner, and where required or when requested, continue this information sharing throughout the project life, up to and including operations
- **Inclusive** – create opportunities for meaningful input from all stakeholders through venues such as this Public Information Session
- **Two-Way** – understand and answer questions or concerns with an eye to ensuring that those issues or concerns are resolved, mitigated or minimized

Dawn Gateway Pipeline Project

Construction

WE ARE COMMITTED TO SOUND CONSTRUCTION PRACTICES THAT MINIMIZE ENVIRONMENTAL IMPACTS



Installation of a 20" diameter pipeline before and after pipeline installation

- We will complete all required Environmental Reports on the existing pipelines, and an Environmental and Socio-Economic Assessment (ESA) of the proposed corridors for the new section of pipeline.
- We will monitor the effects during and following construction to ensure the requirements outlined in the ESA are carried out.
- Construction will be scheduled during daylight hours from Mon. – Sat. where practical. Construction equipment will be equipped with appropriate mufflers.
- Access to homes and business will be maintained at all times.

- Security fences and signage will be erected around any open trenches near road crossings.
- Dust control measures will be implemented which include monitoring for dust, and the application of water when necessary.
- Proven soil management practices and wet soil shutdown will be employed to minimize impacts to agricultural lands.
- Every effort will be made to avoid disturbing or removing landowner's trees where possible. If tree clearing is required we will work with the landowner to replace the trees.

Dawn Gateway Pipeline Project

Safety

SAFETY IS OUR TOP PRIORITY

- Public safety is our highest priority and a core company value.
- This pipeline will be designed, manufactured and installed according to strict safety standards and regulations.
- Employees are highly trained and daily safety briefings are an integral part of the construction process.
- During construction working hours, all workers and inspectors are vigilant in ensuring unauthorized people are kept out of the work area. Security fences and signage are erected around open trenches near road crossings.
- The new pipeline will be pressure tested prior to being placed in-service.
- Once construction is complete a comprehensive pipeline maintenance and integrity program will ensure the pipeline remains in safe operating condition.
- Routine aerial patrols will monitor the right-of-way.
- Landowners in closest proximity to the pipeline will be contacted regarding pipeline safety and emergency preparedness through our ongoing public awareness program.
- Union Gas has been contracted to design and construct the proposed pipeline.
- Union Gas has almost a century of experience in pipeline design and construction, and an enviable safety record.



Dawn Gateway Pipeline Project



Stantec Consulting Ltd.

An independent environmental consultant, Stantec Consulting Ltd. ("Stantec"), has been retained to prepare two environmental reports:

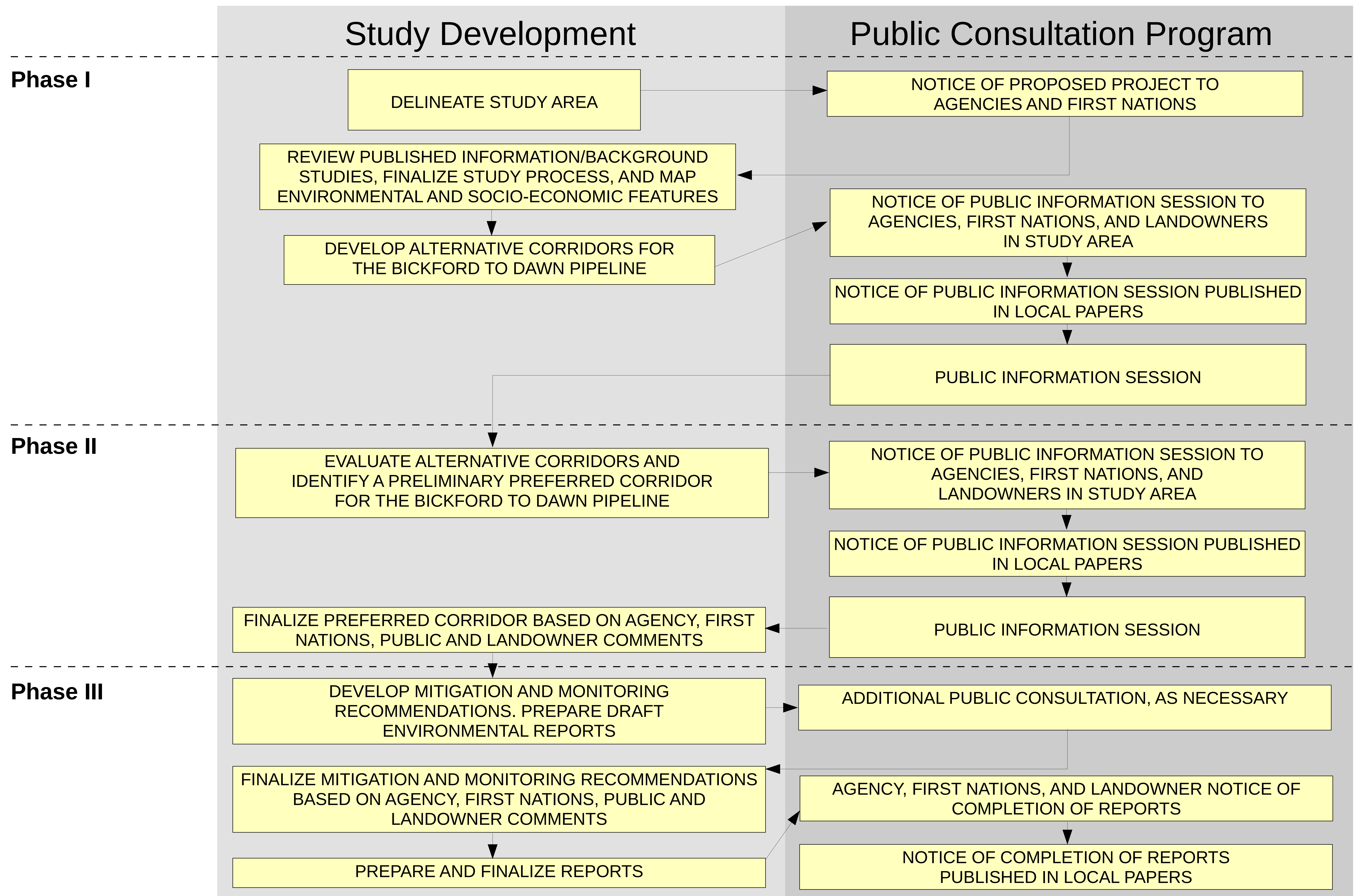
- An Environmental Report for the existing St. Clair pipelines; and,
- The Environmental and Socio-Economic Assessment ("ESA") of the proposed Bickford to Dawn pipeline.

A Canadian Environmental Assessment Act ("CEAA") Screening Report will be prepared by the NEB following the certificate hearing.

Dawn Gateway Pipeline Project



Environmental Assessment Process



Dawn Gateway Pipeline Project



Public Consultation

The purpose of this Public Information Session is to:

- Provide an opportunity for stakeholders and First Nations to discuss any of the components of the Project with representatives of Dawn Gateway LP and their environmental consultant, Stantec.
 - Existing St. Clair River Crossing Line
 - Existing St. Clair Line
 - Proposed Bickford to Dawn Pipeline
- Consult with stakeholders and First Nations regarding the purchase of the existing St. Clair River Crossing Line and St. Clair Line.
- Consult with stakeholders and First Nations regarding the existing conditions and Alternative Corridors for the Bickford to Dawn pipeline.
- Use input received at the Public Information Session in determining the Preliminary Preferred Corridor for the Bickford to Dawn pipeline, and in developing site specific protection and mitigation measures.
- Solicit input from stakeholders and First Nations regarding any issues to be addressed for the Project.

If you wish to discuss the Project privately, a Dawn Gateway LP or Stantec representative will be happy to meet with you at a convenient time.

Please fill out the EXIT QUESTIONNAIRE before you leave.

Dawn Gateway Pipeline Project



Schedule

The following is the anticipated schedule for this project:

Fall 2008/Winter 2009
Public Information Sessions

Winter 2009
Completion of Environmental Reports by Stantec

Winter/Spring 2009
File application, including Environmental Reports, with the NEB for Certificate of Public Convenience

2009/2010
NEB regulatory process

Winter 2010
Clearing activities

Spring/Summer 2010
Contingent on NEB approval, construction of Bickford to Dawn pipeline begins

Dawn Gateway Pipeline Project



Existing Pipelines

The St. Clair River Crossing pipeline extends under the St. Clair River from Michigan to the St. Clair Station near the corner of Oil Springs Line and the St. Clair Parkway.

The St. Clair pipeline extends from the St. Clair Station to the Bickford Pool Compressor Station near the corner of Highway 40 and Bentpath Line.

The current Project involves the sale of the St. Clair River Crossing Line and the St. Clair Line to Dawn Gateway LP.

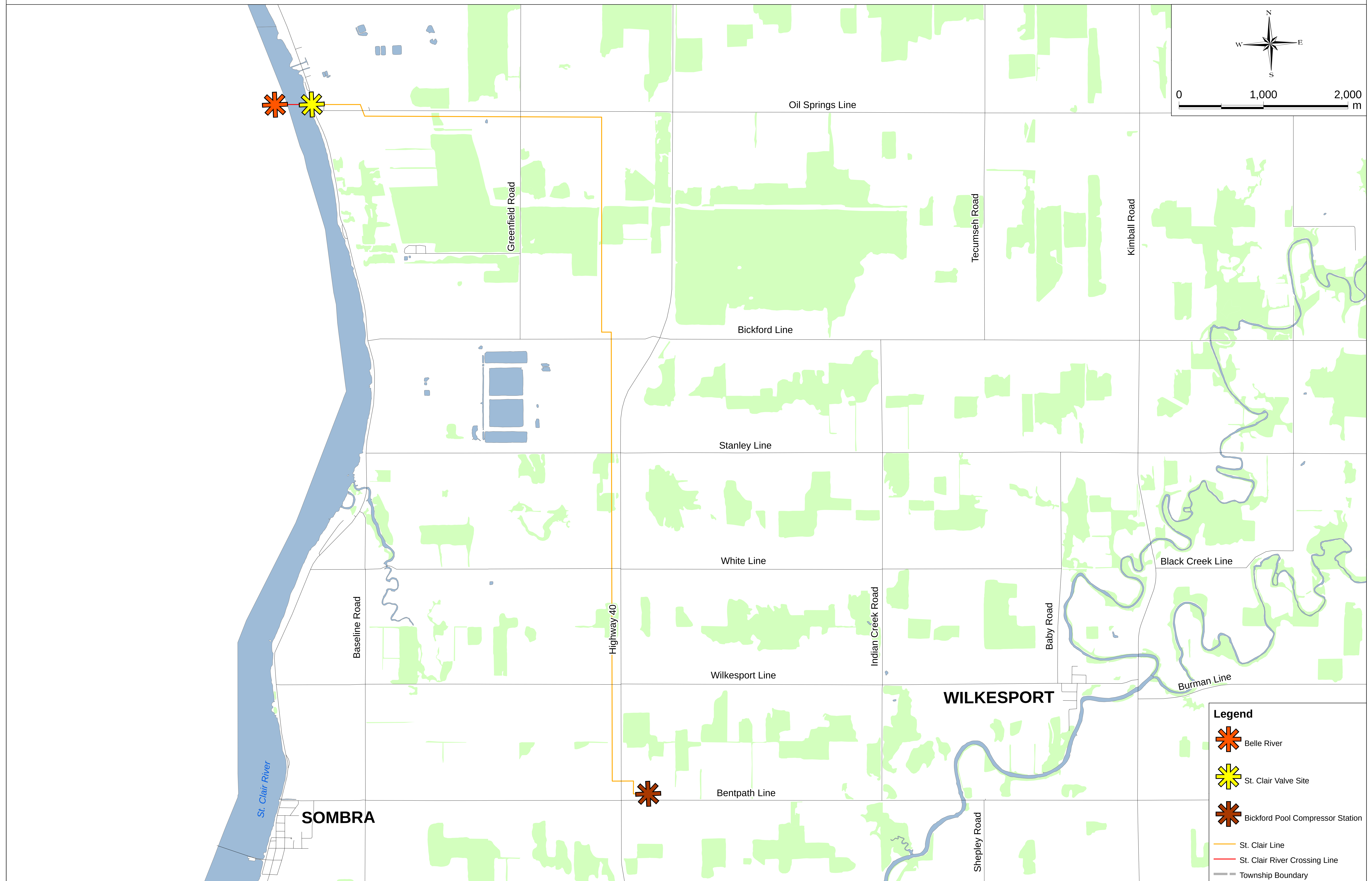
Dawn Gateway LP will be making an application to the NEB to own and operate both the St. Clair River Crossing Line and the St. Clair Line.

The following display board provides a map showing the location of the existing pipelines.

Dawn Gateway Pipeline Project



St. Clair Pipelines



Dawn Gateway Pipeline Project



Bickford to Dawn Pipeline Alternative Corridors

As this Project will be filed with and regulated by the NEB, their process first identifies a preferred corridor, and then a specific route is selected within the preferred corridor.

Alternative Corridors within the Bickford to Dawn study area were generated by Stantec based on three objectives:

- 1) Corridors should follow a reasonably direct path between end-points;
- 2) Existing linear features should be utilized or paralleled to the greatest extent possible; and,
- 3) Corridors should avoid sensitive environmental and socio-economic features to the extent possible.

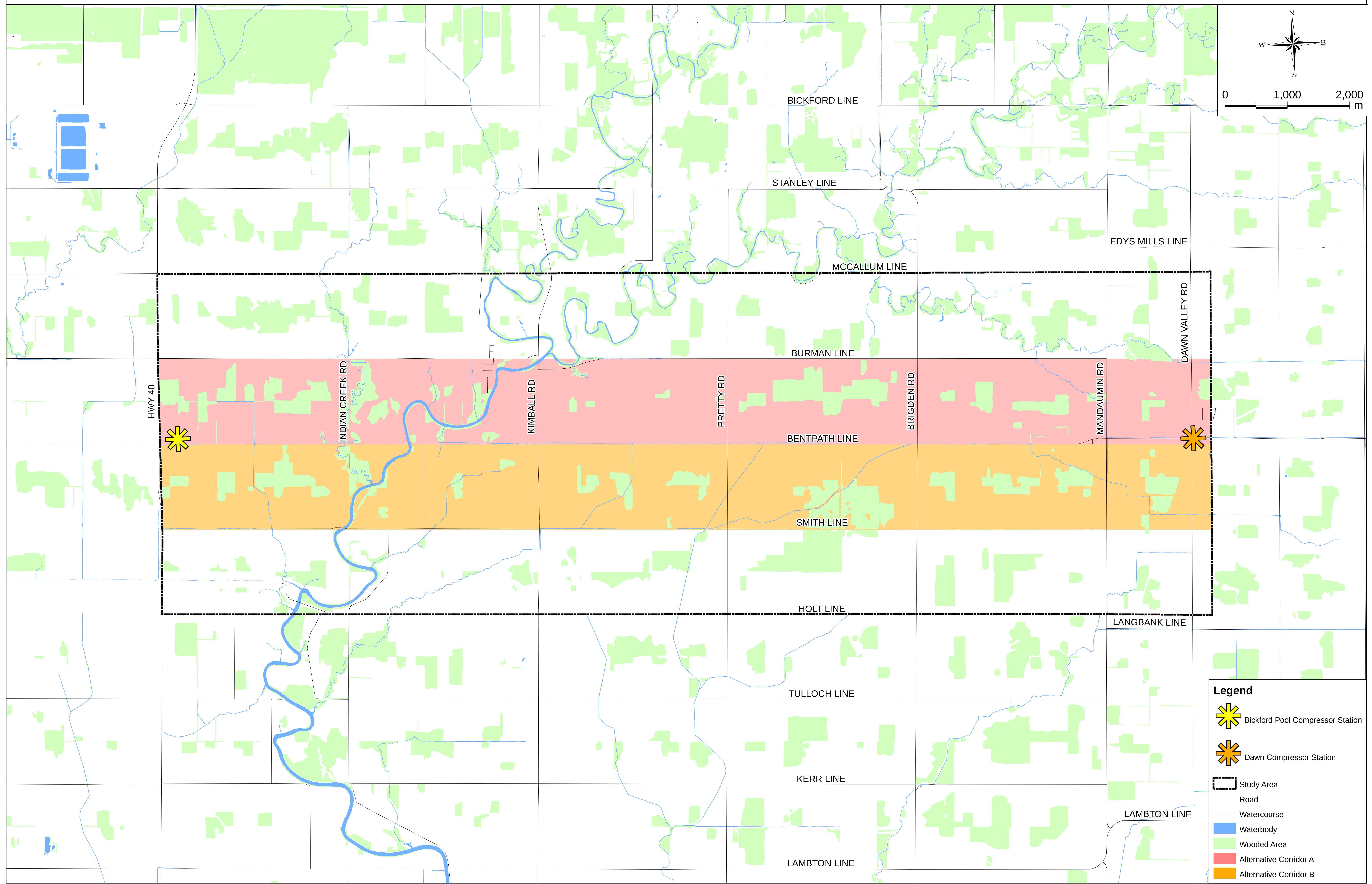
The following map outlines the location of the Alternative Corridors carried forward for further evaluation.

The assessment of the potential advantages and disadvantages of each Alternative Corridor will be based on quantitative factors and criteria (impacts to agricultural, cultural, natural, and socio-economic features), as well as qualitative factors such as stakeholder input, the professional opinion of Stantec, and constructability and economic factors identified by Dawn Gateway LP.

Dawn Gateway Pipeline Project



Alternative Corridors



Dawn Gateway Pipeline Project



Bickford to Dawn Pipeline Existing Conditions

Data on existing conditions for the Bickford to Dawn study area has been collected from a number of external sources including agencies, aerial photography and features mapping.

This information has been used to evaluate potential pipeline corridors and to generate Alternative Corridors.

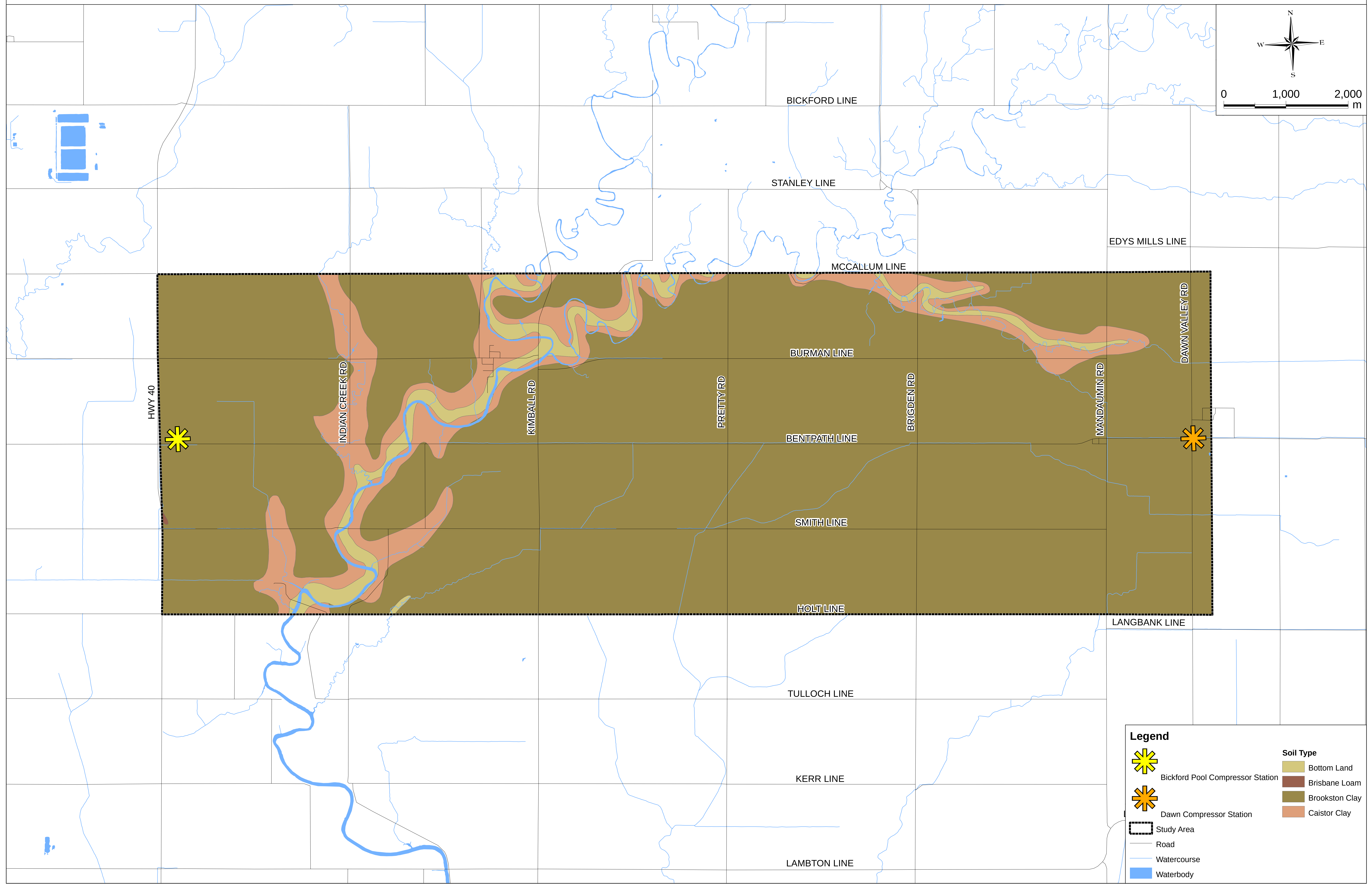
Additional data collection and agency consultation will continue after this Public Information Session to evaluate the Alternative Corridors and to develop a Preliminary Preferred Corridor.

The following maps outline environmental and socio-economic features within the Bickford to Dawn study area.

Dawn Gateway Pipeline Project



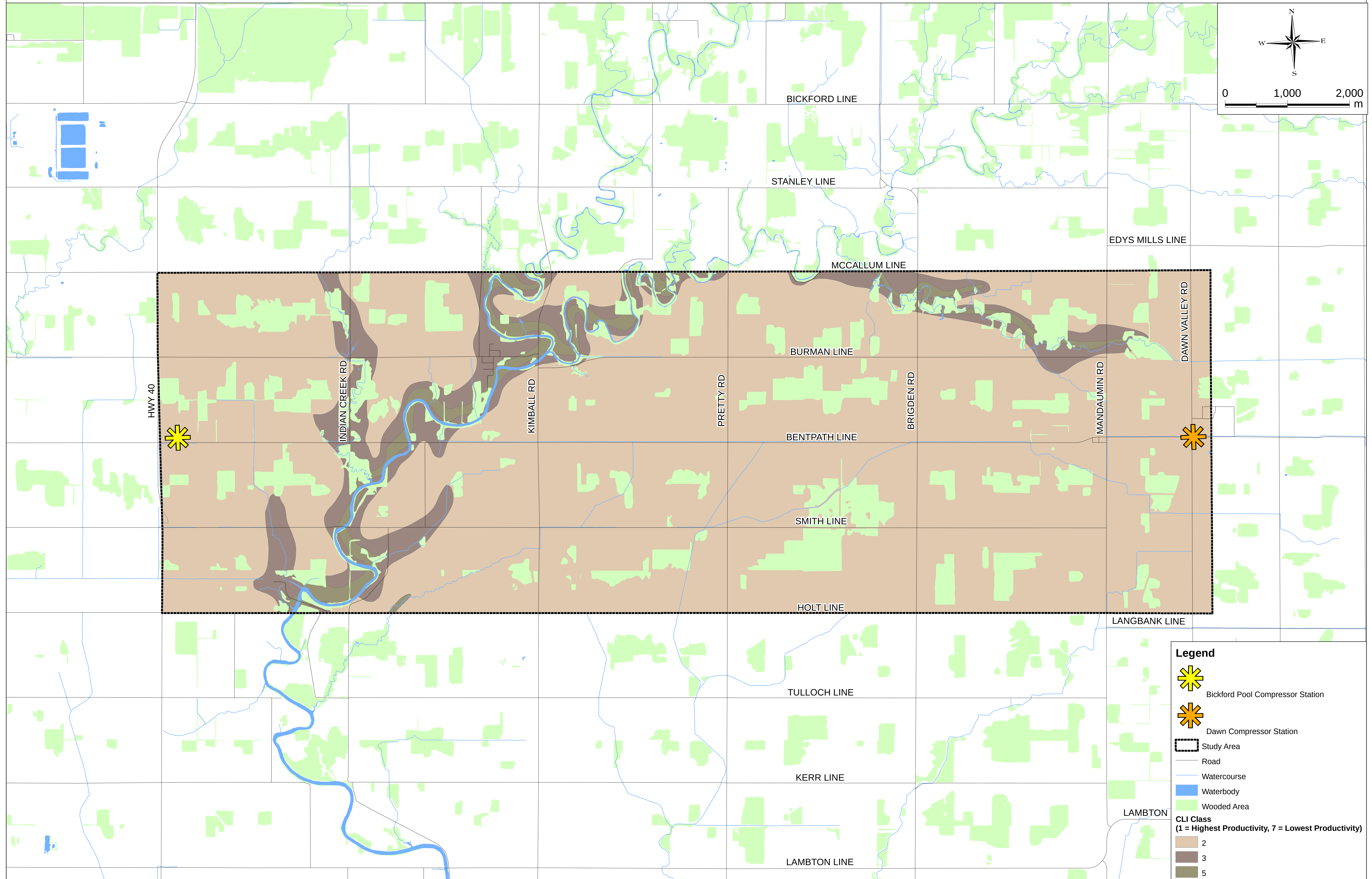
Soil Types



Dawn Gateway Pipeline Project



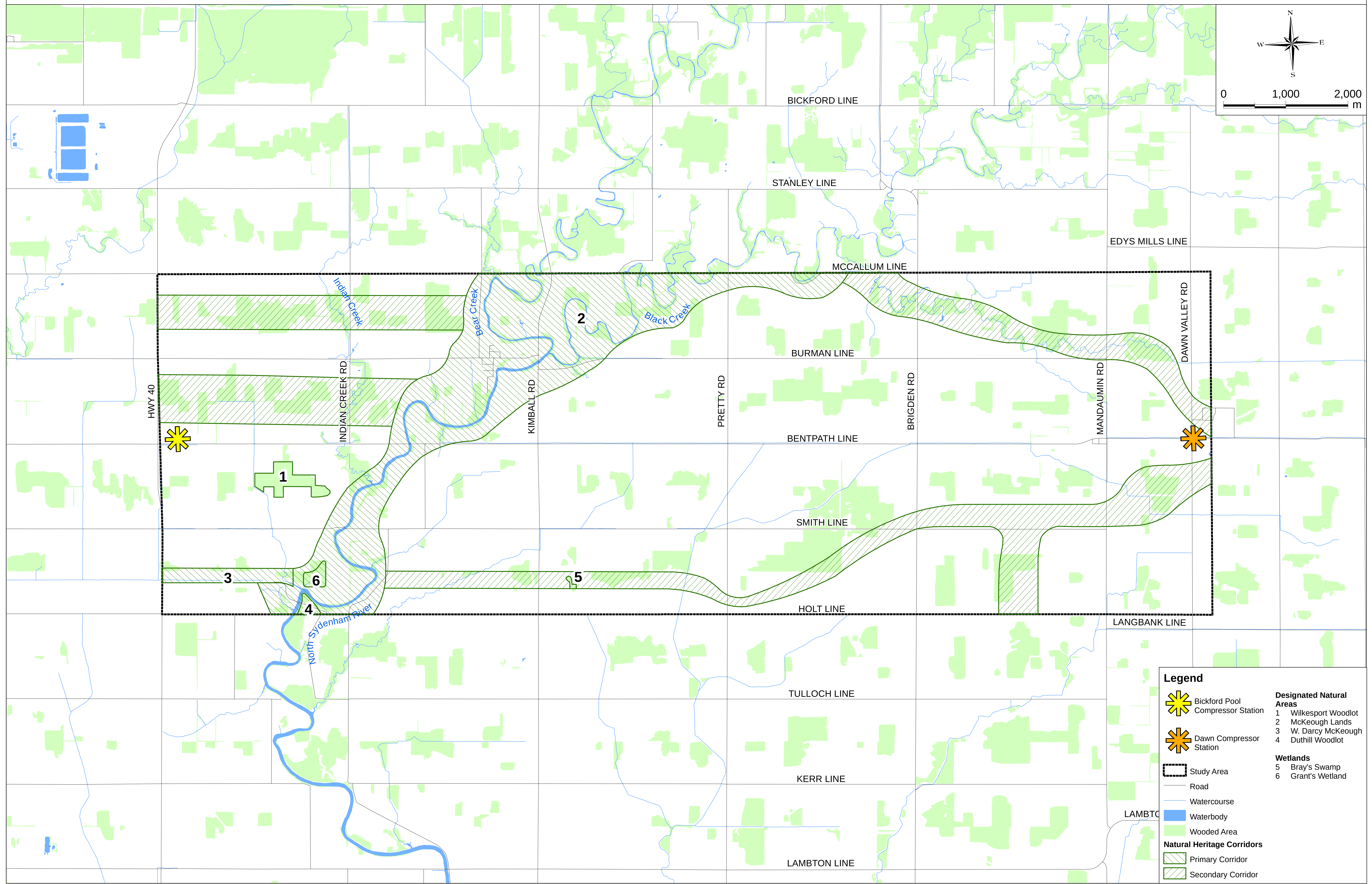
Canada Land Inventory (CLI) Classification



Dawn Gateway Pipeline Project



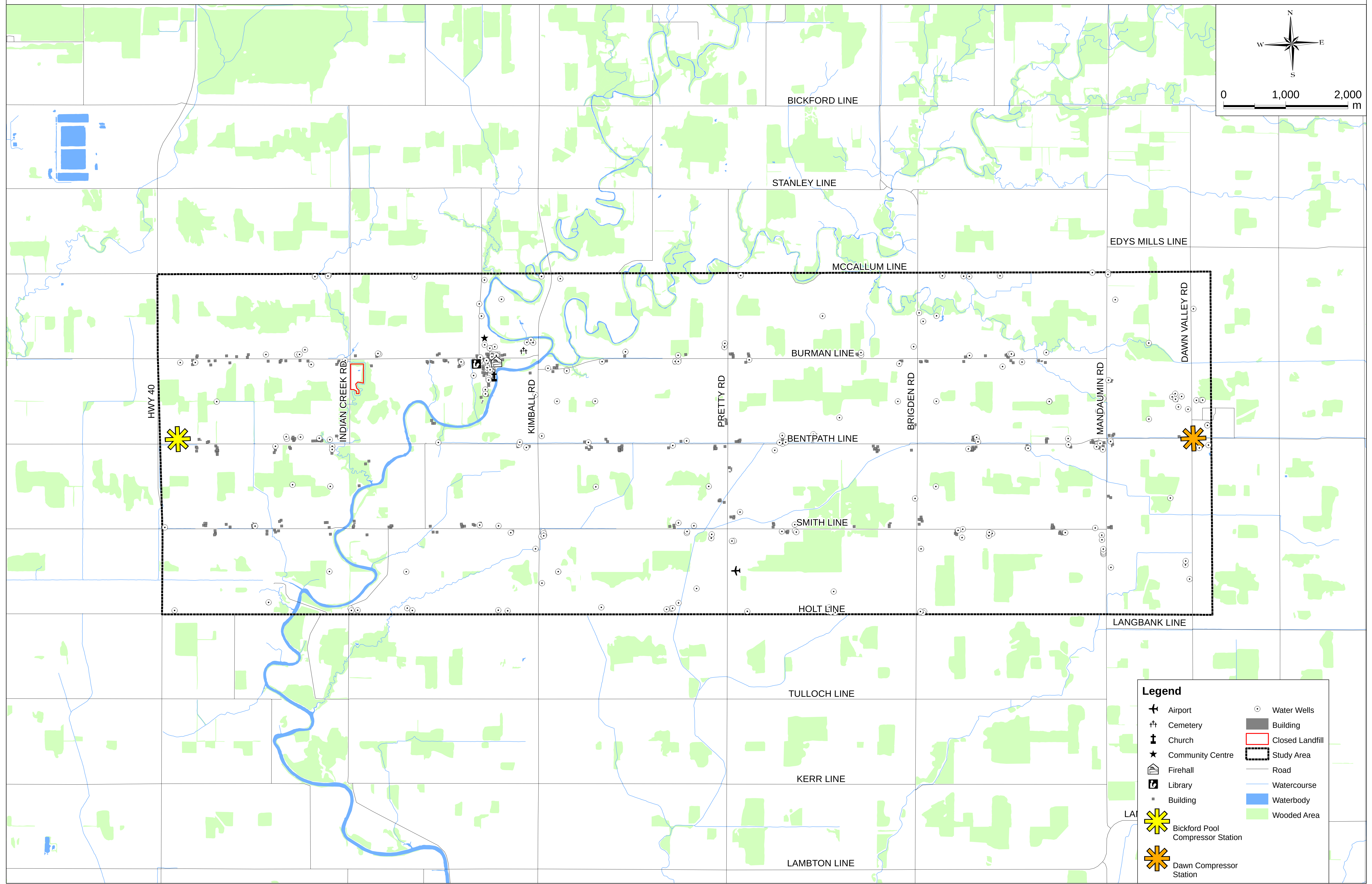
Environmental Features



Dawn Gateway Pipeline Project



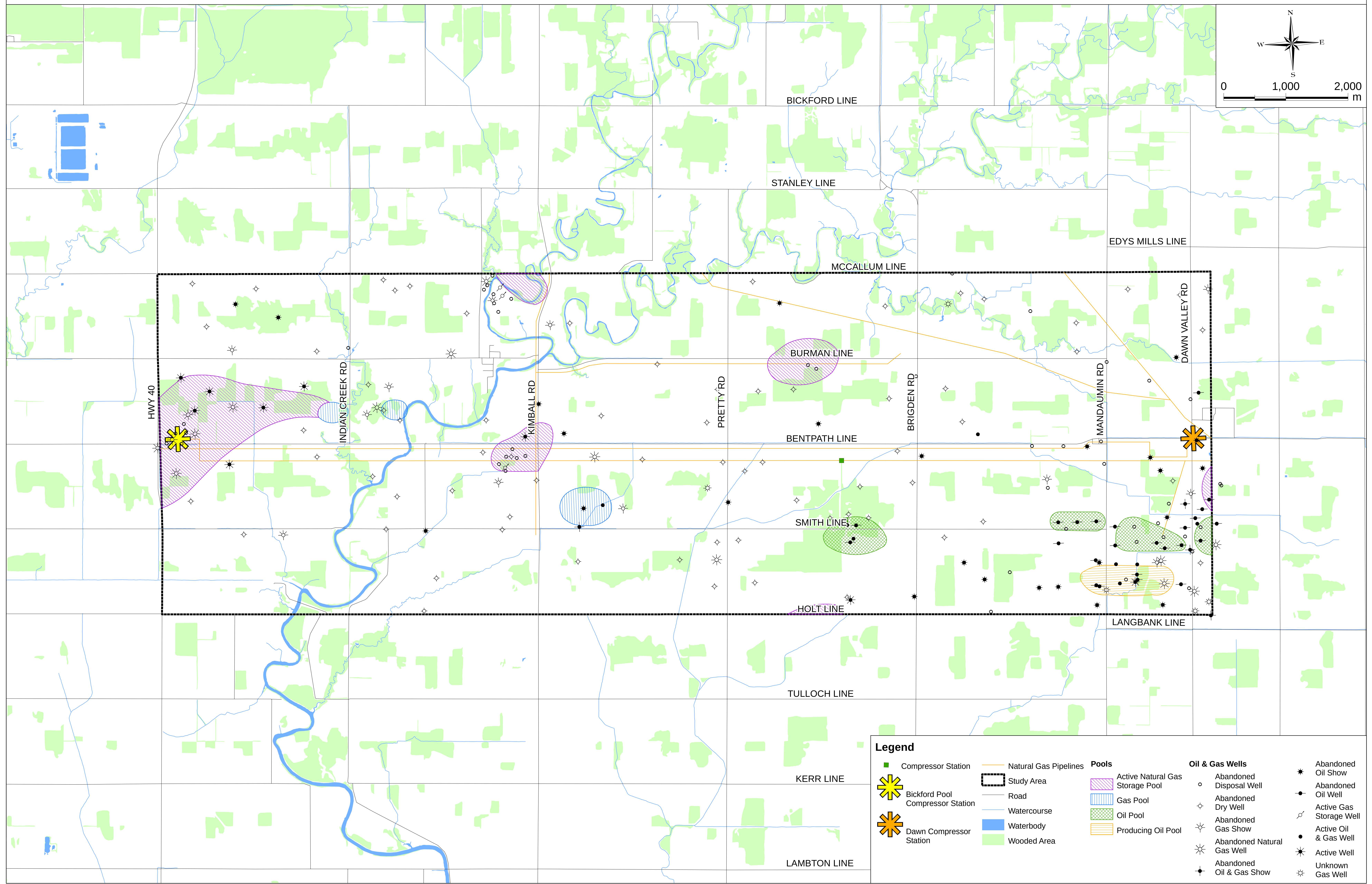
Socio-Economic Features and Water Wells



Dawn Gateway Pipeline Project



Hydrocarbon Features



Dawn Gateway Pipeline Project



Next Steps

After this Public Information Session, the following will be carried out:

1. Respond to comments/questions received.
2. Confirm study findings to-date based on comments received.
3. Continue data collection.
4. Analyze the Alternative Corridors for the Bickford to Dawn Pipeline and select a Preliminary Preferred Corridor.
5. Prepare for the next Public Information Session (expected Winter 2009).



LET US KNOW WHAT YOU'RE THINKING

We are interested in hearing your comments, addressing questions, and working with the communities and residents along the St. Clair River Crossing Line, St. Clair Line, and Bickford to Dawn Line Alternative Corridors to ensure smooth and orderly development of the project.

Our ongoing approach to public communications and consultation includes a mix of providing information on the project plans and receiving input from interested people through the Public Information Sessions, exit questionnaires provided at the Public Information Sessions, and newsletters. One-on-one meetings can be arranged with individual property-owners or groups who may be directly affected by the proposed project to discuss project related details or concerns.

At this Public Information Session, we particularly want your input on the existing environmental conditions, Alternative Corridors and any other interests you might have regarding this Project. You may provide comments at any point in the process.

WHAT HAPPENS AFTER THE PUBLIC INFORMATION SESSION?

After the Public Information Session, Stantec will evaluate the exit questionnaires and other input, and use this information to:

- Respond to input received;
- Confirm study findings to-date based on comments received;
- Continue data collection;
- Analyze the Alternative Corridors for the Bickford to Dawn pipeline and select a Preliminary Preferred Corridor; and,
- Prepare for the next Public Information Session.

WHAT'S NEXT?

- Analysis of public input (December 2008/January 2009)
- Development of Preferred Corridor (December 2008/January 2009)
- Second Public Information Session (Winter 2009)
- Analysis of public input, and confirmation of Preferred Corridor (Winter 2009)
- Completion of Environmental Reports by Stantec (Winter 2009)
- Application to the NEB (Winter/Spring 2009)



CONTACT THE PROJECT TEAM

Please contact one of the individuals below:

David Wesenger
Senior Project Manager
Stantec Consulting Ltd.
70 Southgate Drive, Suite 1
Guelph, Ontario, N1G 4P5
Ph.: 1-866-842-7559
Email: david.wesenger@stantec.com

Glen Priestley
Manager, Business Development
Spectra Energy
50 Keil Drive North
Chatham, Ontario N7M 5M1
Ph.: 1-800-265-5230
Email: gpriestley@spectraenergy.com

For more information on the NEB process, please visit:

www.neb.gc.ca

Click on the “Involving the Public” link on the left hand side of the web page.

THE PROJECT

Dawn Gateway LP is a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, companies that operate a number of natural gas pipelines in the United States and Ontario.

As our population grows, natural gas continues to provide a safe and reliable source of energy for our homes. Businesses also rely on natural gas as an economic and reliable fuel for their operation. In order to help meet a growing demand for natural gas transmission services, Dawn Gateway LP is currently working on a Project which consists of the purchase of two existing natural gas transmission pipelines, and the construction of a new natural gas transmission pipeline.

The first component involves Dawn Gateway LP purchasing an existing pipeline known as the St. Clair River Crossing Line. This pipeline is a natural gas pipeline starting at the international border between Michigan and Ontario, under the St. Clair River, and ending at the St. Clair Station.



THE PUBLIC INFORMATION SESSION

The purpose of the Public Information Session is to solicit input from stakeholders and First Nations on the Dawn Gateway Pipeline Project, including the existing St. Clair River Crossing Line, existing St. Clair Line and proposed Bickford to Dawn Line. Input received at the Public Information Session will be used in completing an Environmental Report for the existing St. Clair Pipelines, and it will also be used in determining the Preliminary Preferred Corridor for the Bickford to Dawn Line. Stantec's Reports will be part of an application by Dawn Gateway LP to the NEB expected in 2009. The NEB is the body that regulates the energy sector in Canada and whose review and approval is required before this Project can proceed.

THE EA PROCESS

Stantec has been retained by Dawn Gateway LP to prepare an Environmental Report for the existing St. Clair pipelines and an Environmental Report for the Bickford to Dawn Line. The subsequent reports will be completed as required under the Canadian Environmental Assessment Act, and the NEB Filing Manual (February 2008), respectively.

This pipeline is currently owned by St. Clair Pipelines Ltd and as an international pipeline is under the jurisdiction of the National Energy Board (“NEB”).

The second component involves Dawn Gateway LP purchasing an existing pipeline known as the St. Clair Line. This pipeline is a natural gas pipeline located in St. Clair Township extending from the St. Clair Station to the Bickford Pool Compressor Station. This pipeline is currently owned by Union Gas Limited (“Union”) and is under the jurisdiction of the Ontario Energy Board (“OEB”). It is the intention of Union to make an application to the OEB for approval to sell the pipeline to Dawn Gateway LP.

The third component involves the construction, by Dawn Gateway LP, of a new natural gas pipeline in the County of Lambton, starting from the Bickford Pool Compressor Station in St. Clair Township and ending at the Dawn Compressor Station in Dawn-Euphemia Township (“Bickford to Dawn Line”).

Dawn Gateway LP will be making an application to the NEB to own, operate and construct the Dawn Gateway Pipeline Project.

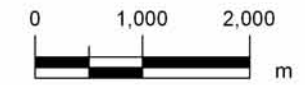
Under CEAA, these requirements are the consideration of the:

- Environmental effects and potential cumulative effects of the project;
- Significance of effects and mitigation measures for effects; and,
- Project consultation and any other matters as identified by the NEB.

Under the NEB, these requirements are:

- Description of the environmental and socio-economic setting;
- Effects assessment, evaluating the significance of effects after mitigation;
- Cumulative effects assessment, evaluating the significance of cumulative effects after mitigation; and,
- Inspection, monitoring and follow-up.

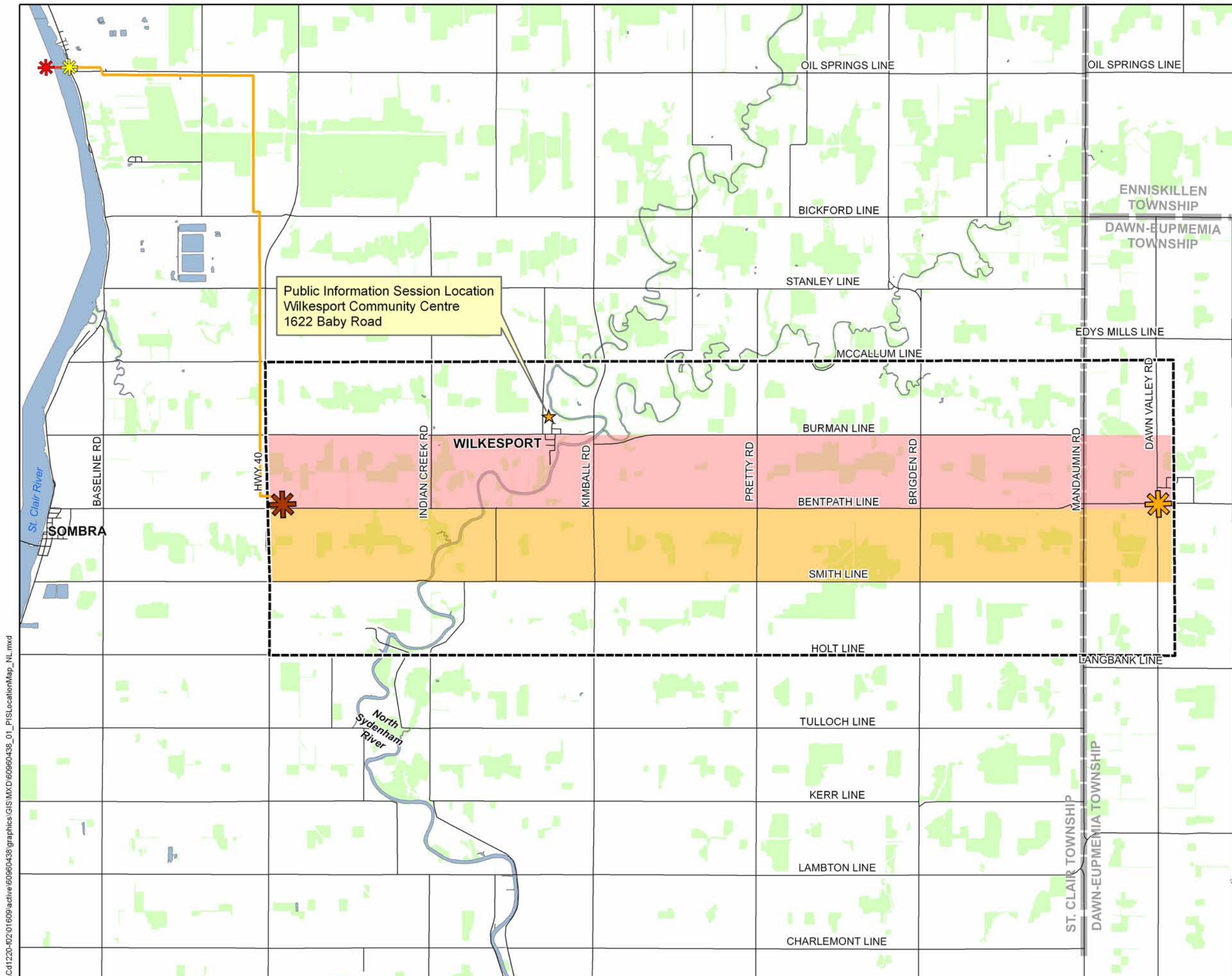
The Reports will provide an overview of the Project, summarize the consultation program, identify the Project components, and recommended additional studies. The Bickford to Dawn Environmental Report will also summarize the corridor selection process.



- Bickford to Dawn Study Area
- St. Clair Line
- St. Clair River Crossing Line
- Alternative Corridor A
- Alternative Corridor B
- Bickford Pool Compressor Station
- Dawn Compressor Station
- Belle River
- St. Clair Valve Site



LOCATION MAP





Dawn Gateway Pipeline Project

Public Information Session Exit Questionnaire

Please complete this questionnaire and return it to a Stantec representative or mail it to Stantec Consulting Ltd. by **January 8, 2009**. Postage paid, self-addressed envelopes are available at the sign-in table. Thank you for your assistance.

Please read the newsletter and look over the displays before completing this questionnaire. If you require any assistance or clarification while completing the questionnaire please contact a Stantec or Dawn Gateway LP representative.

1. Please describe your interest in this project. (please check one)

Property Owner	_____	Member of Special Interest Group	_____
Interested Citizen	_____	Government Official	_____

Other (please specify) _____

2. How did you find out about tonight's meeting? (please check one)

Letter of Invitation	_____	Newspaper	_____
----------------------	-------	-----------	-------

Other (please specify) _____

3. Do you have any questions/concerns regarding the St. Clair River Crossing Line and/or St. Clair Line that you would like to bring to our attention?

St. Clair River Crossing Line _____

St. Clair Line _____

What are your questions/concerns? _____



4. Do you have any questions/concerns regarding the Bickford to Dawn Line that you would like to bring to our attention?

5. Please identify any features in the Bickford to Dawn Line study area which are either incorrectly mapped, omitted, or that you feel are important to consider during the study (please state your reasons).

6. Which factors do you feel are most important to compare and evaluate alternative corridors for the proposed Bickford to Dawn Line (i.e., agricultural operations, residential properties, trees, etc.)?

7. Which of the Bickford to Dawn Line alternative corridors do you feel will have the least environmental and socio-economic impact?

Alternative Corridor A _____

Alternative Corridor B _____



Why? _____

8. Do you have any other questions/concerns regarding this project (the St. Clair River Crossing Line, St. Clair Line, and/or Bickford to Dawn Line) that you would like to bring to our attention?

9. Would you like to meet or be contacted to discuss any questions or concerns regarding this project? (please check one) Yes ☐ No ☐

If you answered yes to Question 9, please provide us with your contact information:

Name: _____

Address: _____

Phone: (home) _____ (work) _____

Email: _____

Convenient time you can be reached: _____

Thank you for completing this questionnaire.

Do you consent to these comments being included in the public record?

Yes ☐ Yes, but anonymously ☐ No ☐

Signature: _____

Date: _____



Dawn Gateway Pipeline Project

Public Information Session Exit Questionnaire

Please complete this questionnaire and return it to a Stantec representative or mail it to Stantec Consulting Ltd. by **January 8, 2009**. Postage paid, self-addressed envelopes are available at the sign-in table. Thank you for your assistance.

Please read the newsletter and look over the displays before completing this questionnaire. If you require any assistance or clarification while completing the questionnaire please contact a Stantec or Dawn Gateway LP representative.

1. Please describe your interest in this project. (please check one)

Property Owner	<u>8</u>	Member of Special Interest Group	<u>1</u>
Interested Citizen	<u>1</u>	Government Official	<u>2</u>

Other (please specify) _____

2. How did you find out about tonight's meeting? (please check one)

Letter of Invitation	<u>9</u>	Newspaper	<u>2</u>
----------------------	----------	-----------	----------

Other (please specify) _____ Friend _____

3. Do you have any questions/concerns regarding the St. Clair River Crossing Line and/or St. Clair Line that you would like to bring to our attention?

St. Clair River Crossing Line 1

St. Clair Line 2

What are your questions/concerns?

- Could I have a copy of the presentation made to the NEB previous to this meeting. That is if there was one?
- Confirm prior agreements in place as it pertains to the County Road Network. Obtain approvals as per County By-Law.



4. Do you have any questions/concerns regarding the Bickford to Dawn Line that you would like to bring to our attention?
- None (2).
 - Are existing ROW's being considered?
 - Concern that the line go on the lot line on each farm.
 - Land crossing.
 - Landowners should have 1 representative on wet weather shutdown committee.
 - Proponent obtain approvals/agreement with County of Lambton given County Roads affected.
5. Please identify any features in the Bickford to Dawn Line study area which are either incorrectly mapped, omitted, or that you feel are important to consider during the study (please state your reasons).
- Some water wells are incorrectly marked (2).
 - Noted missing new home and expanded woodlot.
6. Which factors do you feel are most important to compare and evaluate alternative corridors for the proposed Bickford to Dawn Line (i.e., agricultural operations, residential properties, trees, etc.)?
- Safety Zone impact on buildings near it.
 - Agricultural properties.
 - I would think close to the existing pipeline would be the most practical and least disruptive when you look at the river crossing, trees, and residential properties.
 - Would it be more feasible to put a second pipeline beside the first one, or is it safer to have them apart?
 - Woodlots (2).
 - Municipal drains, impacts on agricultural operations and impacts on rural residential properties.
 - Noted a maple syrup operation.
 - Follow property lines.
7. Which of the Bickford to Dawn Line alternative corridors do you feel will have the least environmental and socio-economic impact?

Alternative Corridor A __4__

Alternative Corridor B __4__



Why?

- A: Does not have to cross Bentpath Line two times; Less impacts on woodlots, residences, environmental protection areas; Least environmental impacts, few rivers, wetland crossings.
- B: Existing pipeline (2); Existing tile drainage modifications, easements could be overlapped, soil already disturbed; Corridor A too close to Wilkesport.

8. Do you have any other questions/concerns regarding this project (the St. Clair River Crossing Line, St. Clair Line, and/or Bickford to Dawn Line) that you would like to bring to our attention?

- I would expect there would be a landowner committee to negotiate reasonable compensation for landowners and conditions.

Appendix B4

PIS #2 Consultation and Communication Materials

NOTICE OF SECOND PUBLIC INFORMATION SESSION

Dawn Gateway Pipeline Project

Dawn Gateway LP, a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, is currently working on a project which consists of the purchase of two existing natural gas transmission pipelines (known as the St. Clair River Crossing Line and St. Clair Line), and the construction of a new 24-inch (610 mm) diameter natural gas transmission pipeline (known as the Bickford to Dawn Line). The Project is located in St. Clair and Dawn-Euphemia Townships, Lambton County, Ontario.

Linked together, these three pipelines will form one continuous pipeline from the international border between Michigan and Ontario to Dawn, and as such will be regulated by the National Energy Board. Dawn Gateway LP will be filing applications with the National Energy Board ("NEB") for the required Project approvals.

Stantec Consulting Ltd. ("Stantec") has been retained by Dawn Gateway LP to prepare all environmental reports for the existing St. Clair pipelines and the proposed Bickford to Dawn Line. The reports will be completed as required under the NEB's *Filing Manual (February 2008)*, and will meet the requirements of the *Canadian Environmental Assessment Act*.

Stantec has reviewed the information obtained at the first Public Information Session (held December 11, 2008) and analyzed the Alternative Corridors for the Bickford to Dawn Line. Using this information, Stantec has identified Alternative Corridor B as the Preliminary Preferred Corridor; Corridor B is bordered by Bentpath Line, Smith Line, the Dawn Compressor Station (Lot 25, Concession I, Dawn-Euphemia Township) and the Bickford Pool Compressor Station (Lot 6, Concession XII, St. Clair Township). Please see inserted map.

A Public Information Session is being held to provide interested parties an opportunity to review the Project, and to provide comments on the planning process, the sale and purchase of the two existing St. Clair pipelines, and the Preliminary Preferred Corridor for the Bickford to Dawn Line. The Public Information Session is scheduled as follows:

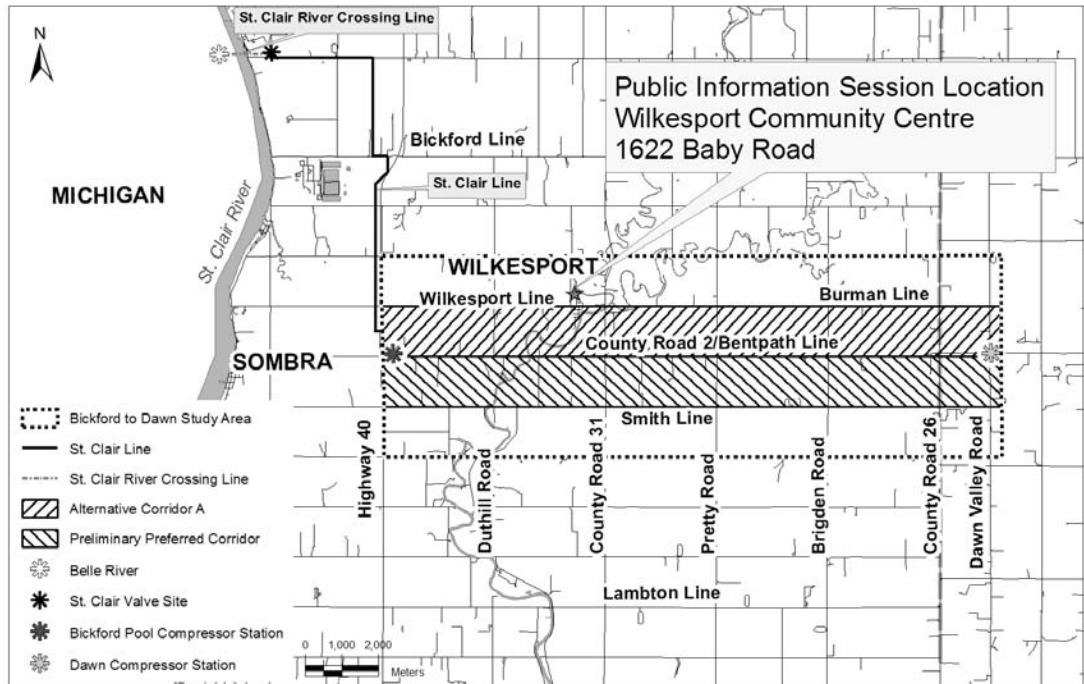
Wilkesport Community Centre
1622 Baby Road
Wilkesport, Ontario
February 10, 2009
6:30 pm - 9:00 pm

The Public Information Session will be conducted in a drop-in format, with members of Stantec and Dawn Gateway LP available to discuss the Project and respond to questions or comments.

Also, input received at the Session will be used to confirm the selection of a Preferred Corridor for the Bickford to Dawn Line and to develop site-specific protection and mitigation measures. Anyone with an interest in the Project is encouraged to attend the Public Information Session, and/or submit questions or comments to:

David Wesenger
Project Manager
Stantec Consulting Ltd.
70 Southgate Drive, Suite 1
Guelph, Ontario, N1G 4P5
1-866-842-7559
David.wesenger@stantec.com

Glen Priestley
Manager
Spectra Energy
50 Keil Drive North
Chatham, Ontario, N7M 5M1
1-800-265-5230
gpriestley@spectraenergy.com





Stantec

Stantec Consulting Ltd.
Suite 1 - 70 Southgate Drive
Guelph ON N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

January 23, 2009
File: 160960438

«Agency»
«Address1»
«City» «Prov» «Postal»

Attention: «First_Name» «Last_Name», «Title1»

Dear: «Title» «Last_Name»

**Reference: Invitation to Second Public Information Session
Dawn Gateway Pipeline Project**

Dawn Gateway LP, a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, is currently working on a project which consists of the purchase of two existing natural gas transmission pipelines (known as the St. Clair River Crossing Line and St. Clair Line), and the construction of a new 24-inch (610 mm) diameter natural gas transmission pipeline (known as the Bickford to Dawn Line). The Project is located in St. Clair and Dawn-Euphemia Townships, Lambton County, Ontario.

Stantec Consulting Ltd. ("Stantec") has been retained by Dawn Gateway LP to prepare all environmental reports for the existing St. Clair pipelines and the proposed Bickford to Dawn Line. The reports will be completed as required under the NEB's *Filing Manual (February 2008)*, and will meet the requirements of the *Canadian Environmental Assessment Act*.

It is the intention of Dawn Gateway LP to file applications with the NEB in 2009. Construction for the Bickford to Dawn Line could begin as early as 2010.

Since our previous correspondence, dated November 28, 2008, Stantec has reviewed the information received from the First Public Information Session, held on December 11, 2008, and analyzed the Alternative Corridors for the Bickford to Dawn Line. Using this information, Stantec has identified Alternative Corridor B as the Preliminary Preferred Corridor; Corridor B is bordered by Bentpath Line, Smith Line, the Dawn Compressor Station (Lot 25, Concession I, Dawn-Euphemia Township) and the Bickford Pool Compressor Station (Lot 6, Concession XII, St. Clair Township).

Please refer to the attached map which identifies the location of the existing St. Clair pipelines, and the Bickford to Dawn Line Study Area, Preliminary Preferred Corridor and Alternative Corridor.

Stantec is presently compiling an environmental and socio-economic inventory of the Study Area, in addition to a cumulative effects assessment. As an agency with jurisdiction or an interest in developments in the Study Area, you are invited to provide comments, or co-ordinate comments, regarding the Preliminary Preferred Corridor and the Project. Your agency's response by February 17, 2009 would be appreciated.

January 23, 2009

**Reference: Invitation to Second Public Information Session
Dawn Gateway Pipeline Project**

To learn more about the Project and to provide input into the planning process, we invite you to attend an upcoming Public Information Session. Input received at the Second Public Information Session will be used to help confirm the selection of a Preferred Corridor for the Bickford to Dawn Line and to develop site-specific protection and mitigation measures. The Public Information Session will be conducted in a drop-in format with representatives from Dawn Gateway LP and Stantec available to discuss the Project and respond to questions and comments.

Details regarding the Public Information Session are as follows:

**Wilkesport Community Centre
1622 Baby Road
Wilkesport, Ontario
February 10, 2009
6:30pm – 9:00pm**

We hope that you will attend the Second Public Information Session. If you or a representative are not able to join us, or if you have any questions regarding the Project, please do not hesitate to contact me.

Sincerely,

STANTEC CONSULTING LTD.



David Wesenger, BES
Managing Principal, Environmental Management
Tel: (519) 836-6050
Fax: (519) 836-2493
david.wesenger@stantec.com

Attachment: Map



Stantec

Stantec Consulting Ltd.
Suite 1 - 70 Southgate Drive
Guelph ON N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

January 23, 2009
File: 160960438

«Title» «First_Name» «Last_Name»
«Address1»
«City» «Prov» «Postal»

Attention: «Title» «Last_Name»

Dear: «Title» «First_Name» «Last_Name»

**Reference: Invitation to Second Public Information Session
Dawn Gateway Pipeline Project**

Dawn Gateway LP, a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, is currently working on a project which consists of the purchase of two existing natural gas transmission pipelines (known as the St. Clair River Crossing Line and St. Clair Line), and the construction of a new 24-inch (610 mm) diameter natural gas transmission pipeline (known as the Bickford to Dawn Line). The Project is located in St. Clair and Dawn-Euphemia Townships, Lambton County, Ontario.

Stantec Consulting Ltd. ("Stantec") has been retained by Dawn Gateway LP to prepare all environmental reports for the existing St. Clair pipelines and the proposed Bickford to Dawn Line. The reports will be completed as required under the NEB's *Filing Manual (February 2008)*, and will meet the requirements of the *Canadian Environmental Assessment Act*.

It is the intention of Dawn Gateway LP to file applications with the NEB in 2009. Construction for the Bickford to Dawn Line could begin as early as 2010.

Since Stantec's previous correspondence, dated November 28, 2008, we have reviewed the information received from the First Public Information Session, held on December 11, 2008, and analyzed the Alternative Corridors for the Bickford to Dawn Line. Using this information, Stantec has identified Alternative Corridor B as the Preliminary Preferred Corridor; Corridor B is bordered by Bentpath Line, Smith Line, the Dawn Compressor Station (Lot 25, Concession I, Dawn-Euphemia Township) and the Bickford Pool Compressor Station (Lot 6, Concession XII, St. Clair Township).

Please refer to the attached map which identifies the location of the existing St. Clair pipelines, and the Bickford to Dawn Line Study Area, Preliminary Preferred Corridor and Alternative Corridor.

To learn more about the Project and to provide input into the planning process, we invite you to attend an upcoming Public Information Session. Input received at the Second Public Information Session will be used to help confirm the selection of a Preferred Corridor for the Bickford to Dawn Line and to develop site-specific protection and mitigation measures. The Public Information Session will be conducted in a drop-in format with representatives from Dawn Gateway LP and Stantec available to discuss the Project and to respond to questions and comments.

January 23, 2009
«Title» «Last_Name»

**Reference: Invitation to Second Public Information Session
Dawn Gateway Pipeline Project**

Details regarding the Public Information Session are as follows:

**Wilkesport Community Centre
1622 Baby Road
Wilkesport, Ontario
February 10, 2009
6:30pm – 9:00pm**

We hope that you will attend the Second Public Information Session. If you or a representative are not able to join us, or if you have any questions regarding the Project, please do not hesitate to contact me.

Sincerely,

STANTEC CONSULTING LTD.

A handwritten signature in black ink, appearing to read 'David Wesenger', with a long, sweeping horizontal line extending to the right.

David Wesenger, B.Sc.
Managing Principal, Environmental Management
Tel: (519) 836-6050
Fax: (519) 836-2493
david.wesenger@stantec.com

Attachment: Map



Stantec

Stantec Consulting Ltd.
Suite 1 - 70 Southgate Drive
Guelph ON N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

January 23, 2009
File: 160960438

First Name Last Name
Address
City, Province
Postal Code

Attention: **Title First Name Last Name**

Dear: First Name Last Name

Reference: **Invitation to Second Public Information Session
Dawn Gateway Pipeline Project**

Dawn Gateway LP, a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, is currently working on a project which consists of the purchase of two existing natural gas transmission pipelines, and the construction of a new natural gas transmission pipeline ("Project").

The first component involves Dawn Gateway LP purchasing an existing pipeline known as the St. Clair River Crossing Line. This pipeline is a 24-inch (610 mm) diameter steel natural gas pipeline starting at the international border between Michigan and Ontario, running under the St. Clair River, and ending at the St. Clair Station (Lot 13, Front Concession, St. Clair Township). This pipeline is currently owned by St. Clair Pipelines Ltd. and as an international pipeline is under the jurisdiction of the National Energy Board ("NEB").

The second component involves Dawn Gateway LP purchasing an existing pipeline known as the St. Clair Line. This pipeline is a 24-inch (610 mm) diameter steel natural gas pipeline located in St. Clair Township extending from the St. Clair Station (Lot 13, Front Concession) to the Bickford Pool Compressor Station (Lot 6, Concession XII). This pipeline is currently owned by Union Gas Limited ("Union") and is under the jurisdiction of the Ontario Energy Board ("OEB"). Union has filed an application with the OEB for approval to sell the pipeline to Dawn Gateway LP and operate it under NEB jurisdiction.

The third component involves the construction, by Dawn Gateway LP, of a new 24-inch (610 mm) diameter steel natural gas pipeline in the County of Lambton, starting from the Bickford Pool Compressor Station in St. Clair Township (Lot 6, Concession XII) and ending at the Dawn Compressor Station in Dawn-Euphemia Township (Lot 25, Concession I) ("Bickford to Dawn Line"). Dawn Gateway LP will be filing applications with the NEB for the required Project approvals.

Linked together, these three pipelines will form one continuous pipeline from the international border between Michigan and Ontario to the Dawn Compressor Station, and as such will be regulated by the National Energy Board.

Stantec Consulting Ltd. ("Stantec") has been retained by Dawn Gateway LP to prepare all environmental reports for the existing St. Clair pipelines and the proposed Bickford to Dawn Line. The reports will be completed as required under the NEB's *Filing Manual (February 2008)*, and will meet the requirements of the *Canadian Environmental Assessment Act*.

January 23, 2009

**Reference: Invitation to Second Public Information Session
Dawn Gateway Pipeline Project**

Stantec has reviewed the information obtained at the First Public Information Session (held December 11, 2008) and analyzed the Alternative Corridors for the Bickford to Dawn Line. Using this information, Stantec has identified Alternative Corridor B as the Preliminary Preferred Corridor; Corridor B is bordered by Bentpath Line, Smith Line, the Dawn Compressor Station (Lot 25, Concession I, Dawn-Euphemia Township) and the Bickford Pool Compressor Station (Lot 6, Concession XII, St. Clair Township).

Please refer to the attached map which identifies the location of the existing St. Clair pipelines, and the Bickford to Dawn Line Study Area, Preliminary Preferred Corridor and Alternative Corridor.

Property owned or rented by you may be located either on or adjacent to the existing St. Clair pipelines or one of the Alternative Corridors considered for the Bickford to Dawn Line. To learn more about the sale and purchase of the existing St. Clair pipelines, the Preferred Corridor for the Bickford to Dawn Line, and the Project in general, we invite you to attend an upcoming Public Information Session.

Input received at the Second Public Information Session will also be used to help confirm the selection of a Preferred Corridor for the Bickford to Dawn Line and to develop site-specific protection and mitigation measures. The Public Information Session will be conducted in a drop-in format with representatives from Dawn Gateway LP and Stantec available to discuss the Project and respond to questions and comments.

Details regarding the Second Public Information Session are as follows:

Wilkesport Community Centre
1622 Baby Road
Wilkesport, Ontario
February 10, 2009
6:30pm – 9:00pm

We hope that you will attend the Public Information Session as public input is an integral part of the Project. If you or a representative are not able to join us, or if you have any questions regarding the Project, please do not hesitate to contact me.

If you are a tenant of this property it would also be appreciated if this correspondence could be shared with the landowner.

Sincerely,

STANTEC CONSULTING LTD.



David Wesenger, B.Sc.
Managing Principal, Environmental Management
Tel: (519) 836-6050
Fax: (519) 836-2493
david.wesenger@stantec.com

Attachment: Map

January 22, 2009

Dear:

I would like to share with you an update on a proposed pipeline project southwest of Sarnia that is being undertaken by Dawn Gateway LP, a new joint venture between Spectra Energy (the parent company of Union Gas), and DTE Energy.

As you may be aware, this project consists of the purchase of two existing natural gas transmission pipelines (known as the St. Clair River Crossing Line and the St. Clair Line), and the construction of a new 17 km natural gas transmission pipeline (known as the Bickford to Dawn Line). Linked together, this pipeline system will be known as the Dawn Gateway Pipeline.

Dawn Gateway LP has retained an independent third party, Stantec Consulting Ltd. to conduct an environmental report for the proposed project. Consultations with landowners, First Nations, stakeholders, and feedback obtained at a Public Information Session held on December 11, 2008, have assisted in identifying a Preliminary Preferred Corridor for the new Bickford to Dawn Line. This corridor is bordered by Bentpath Line, Smith Line, the Dawn Compressor Station (Lot 25, Concession I) and the Bickford Pool Compressor Station (Lot 6, Concession XII). Please see attached map.

To provide an opportunity for the public to learn more about the proposed project, and to confirm the selection of a Preferred Corridor for the Bickford to Dawn Line, a second Public Information Session will be held on February 10, from 6:30 to 9 p.m. at the Wilkesport Community Hall located at 1622 Baby Road, Wilkesport.

The Session will be conducted in a drop-in format and members of both Dawn Gateway LP and Stantec Consulting Ltd. will be available to respond to questions regarding the proposed pipeline, construction procedures and mitigation measures.

Information about the Public Information Session will be advertised in local newspapers and letters will be sent to all landowners along the existing St. Clair pipelines and those who own land within the Alternative Corridors under consideration for the Bickford to Dawn Line. Anyone who might be unable to attend the information session may call or send letters to our representatives at any time.

Dawn Gateway LP has contracted Union Gas Limited to design and construct the proposed pipeline. Union Gas has been bringing safe, reliable and clean burning natural gas to homes and businesses throughout Ontario for almost 100 years, and will be applying all of this expertise and experience towards this project.

Should you or your staff have any questions or require any further information about this project, please do not hesitate to contact me.

Sincerely,

Dave Simpson
Director Storage and Transmission Operations
Union Gas Limited

WELCOME

to the
Dawn Gateway
Natural Gas Pipeline Project

PUBLIC INFORMATION SESSION



Dawn Gateway Pipeline Project

Dawn Gateway Pipeline LP

Dawn Gateway Pipeline LP is a new joint venture owned equally by subsidiaries of Spectra Energy and DTE Energy

Spectra Energy

For close to a century, Spectra Energy and its predecessor companies have developed critically important pipelines, storage and related energy infrastructure that connects natural gas sources to premium markets and customers.

50%

50%

DAWN GATEWAY PIPELINE LP

DTE Pipeline Company

DTE Pipeline Co. is a wholly-owned subsidiary of DTE Energy, a Detroit-based diversified energy company involved in the development and management of energy-related businesses and services nationwide.

Dawn Gateway Pipeline Project



Project Overview

The proposed project involves the purchase of two existing natural gas pipelines totalling approximately 13 kilometres in length, and construction of a new natural gas pipeline approximately 17 kilometres in length. Linked together, this pipeline will be known as the Dawn Gateway Pipeline:

- Dawn Gateway LP will purchase the existing St. Clair River Crossing natural gas pipeline that runs between Michigan and Ontario, under the St. Clair River
- Dawn Gateway LP will purchase the existing St. Clair natural gas transmission pipeline from the St. Clair Station to the Bickford Pool Compressor Station
- Dawn Gateway LP will construct approximately 17 kilometres of new 24 inch diameter natural gas transmission pipeline which will run from the Bickford Pool Compressor Station to the Dawn Compressor Station
- Linked together these 3 pipelines will form one continuous pipeline from the international border between Michigan and Ontario to Dawn, and as such will be regulated by the National Energy Board
- Construction is proposed for 2010

Union Gas Limited has been contracted to design and construct the proposed pipeline. Union Gas has close to 100 years of experience in pipeline design and construction and will be applying all of this expertise and experience towards the project.

Dawn Gateway Pipeline Project



Project Need

THE DAWN GATEWAY PIPELINE WILL SERVE THE GROWING DEMAND FOR NATURAL GAS

- This pipeline is being built to link Natural Gas storage in Michigan to Dawn, in Ontario.
- A non-binding Open Season held this fall resulted in quality, long-term bids in excess of Dawn Gateway's proposed pipeline capacity, reflecting strong demand.
- Access to clean, reliable and affordable energy is essential to the success of business and industry.
- Natural Gas is environmentally preferred and is extremely reliable. Natural Gas is a key contributor to economic growth and also helps fuel new electricity power plants to produce electricity for Ontario Homes and businesses.

INVESTMENTS IN ENERGY INFRASTRUCTURE MAKE AN IMPORTANT CONTRIBUTION TO THE LOCAL AND PROVINCIAL ECONOMY

- Experienced pipeline contractors will use as many local resources as practical to build the new section of pipeline.
- In addition to approximately \$100,000 in property taxes paid each year on the existing St. Clair pipelines, the local community will benefit from approximately \$235,000 in incremental property taxes that Dawn Gateway LP will pay annually on this new pipeline.



Dawn Gateway Pipeline Project

NEB Regulations

The Dawn Gateway Pipeline (the existing St Clair River Crossing Line, the existing St Clair Line, and the proposed Bickford to Dawn Line) will be regulated by the NEB. The intent of NEB Regulations is to ensure the pipeline is protected from accidental damage and ensure the safety of all persons living or working near the pipeline.

NEB Regulations regarding the pipeline Right of Way require the landowner or tenant to contact Dawn Gateway LP to get written approval for a number of different activities on the right of way including:

- Operating vehicles or mobile equipment over the right of way where a roadway does not exist;
- Reducing the depth of soil covering the pipeline or ground levelling;
- Ploughing below 30 cm (1 foot); and,
- Installing drainage systems, auguring or fencing.

NEB Regulations also include a Safety Zone extending 30 metres (100 feet) on either side of the pipeline right of way. Excavation using mechanical equipment or explosives within this zone will require approval from Dawn Gateway LP.

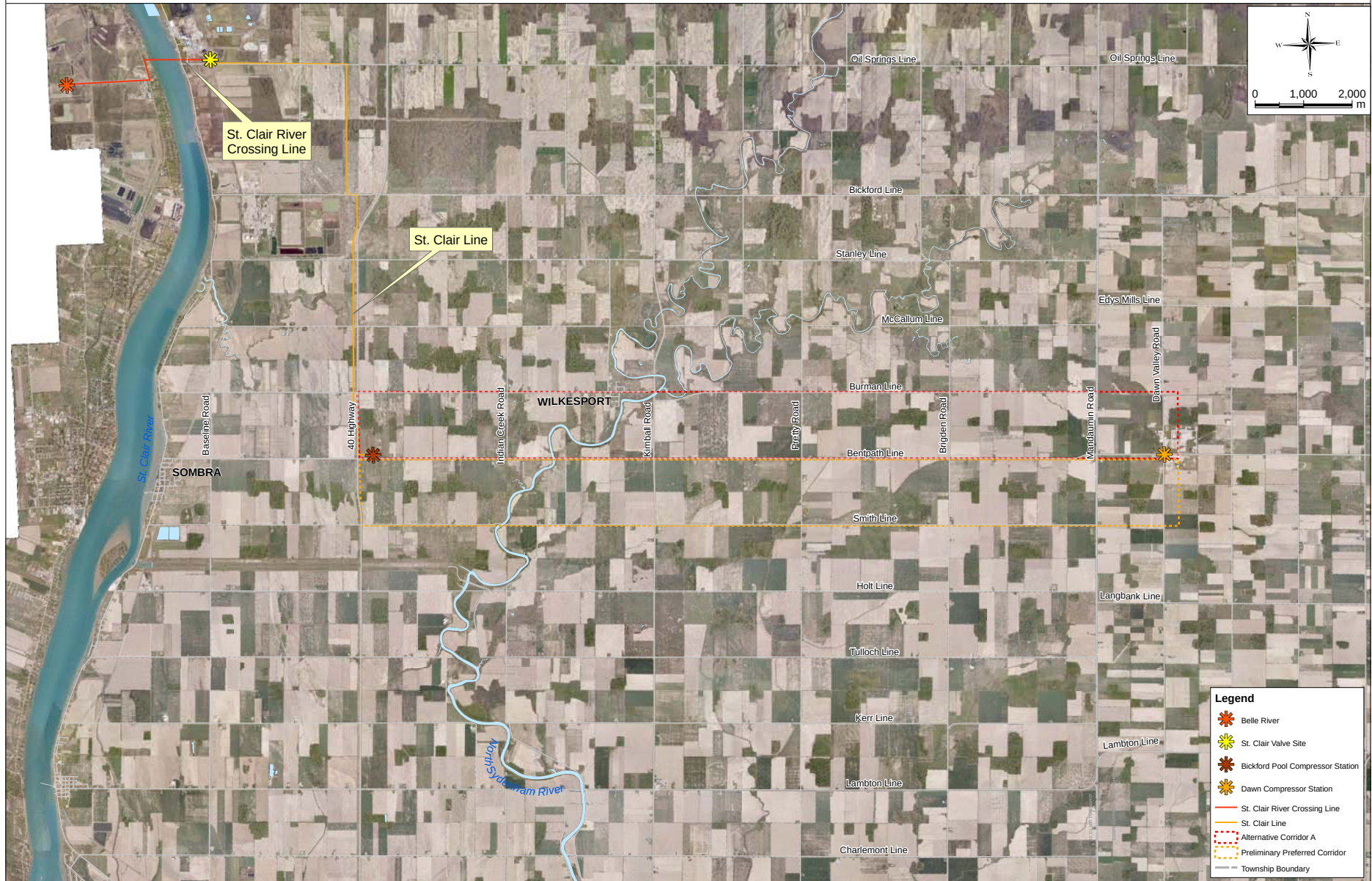
To mitigate any inconvenience, Dawn Gateway LP is proposing to get blanket approvals in place for routine farming activities.

The NEB is currently undertaking a Land Matters Consultation Initiative which is exploring issues that have been identified by landowners regarding NEB Regulations. A report will be released by the NEB in the first quarter of 2009. Please see the NEB website at www.neb.gc.ca for additional information.



Dawn Gateway Pipeline Project

Dawn Gateway Pipeline Project



Dawn Gateway Pipeline Project



Consultation

WE ARE COMMITTED TO BROAD, OPEN AND INCLUSIVE TWO-WAY COMMUNICATION

Broad, open and inclusive communication that is two-way is vital. Dawn Gateway LP has begun consultation with Agencies and First Nations communities and welcomes any input from the public, impacted landowners and all stakeholders which would assist us in the evaluation of the proposed project. For Dawn Gateway LP, consulting is about building better pipelines, facilities, and relationships.

Consultation Goals

- **Broad** – ensure all stakeholders are aware of the project through venues such as newspaper notices and landowner letters, and maintain communications through to project completion
- **Open** – share pertinent information on project specifics in a clear and timely manner, and where required or when requested, continue this information sharing throughout the project life, up to and including operations
- **Inclusive** – create opportunities for meaningful input from all stakeholders through venues such as this Public Information Session
- **Two-Way** – understand and answer questions or concerns with an eye to ensuring that those issues or concerns are resolved, mitigated or minimized

Dawn Gateway Pipeline Project

Construction

WE ARE COMMITTED TO SOUND CONSTRUCTION PRACTICES THAT MINIMIZE ENVIRONMENTAL IMPACTS



Installation of a 20" diameter pipeline before and after pipeline installation

- We will complete all required environmental reports on the existing St. Clair pipelines and the proposed Bickford to Dawn Line.
- We will monitor the effects during and following construction to ensure the requirements outlined in the ESA are carried out.
- Construction will be scheduled during daylight hours from Mon. – Sat. where practical. Construction equipment will be equipped with appropriate mufflers.
- Access to homes and business will be maintained at all times.

- Security fences and signage will be erected around any open trenches near road crossings.
- Dust control measures will be implemented which include monitoring for dust, and the application of water when necessary.
- Proven soil management practices and wet soil shutdown will be employed to minimize impacts to agricultural lands.
- Every effort will be made to avoid disturbing or removing landowner's trees where possible. If tree clearing is required we will work with the landowner to replace the trees.

Dawn Gateway Pipeline Project

Safety

SAFETY IS OUR TOP PRIORITY

- Public safety is our highest priority and a core company value.
- This pipeline will be designed, manufactured and installed according to strict safety standards and regulations.
- Employees are highly trained and daily safety briefings are an integral part of the construction process.
- During construction working hours, all workers and inspectors are vigilant in ensuring unauthorized people are kept out of the work area. Security fences and signage are erected around open trenches near road crossings.
- The new pipeline will be pressure tested prior to being placed in-service.
- Once construction is complete a comprehensive pipeline maintenance and integrity program will ensure the pipeline remains in safe operating condition.
- Routine aerial patrols will monitor the right-of-way.
- Landowners in closest proximity to the pipeline will be contacted regarding pipeline safety and emergency preparedness through our ongoing public awareness program.
- Union Gas has been contracted to design and construct the proposed pipeline.
- Union Gas has almost a century of experience in pipeline design and construction, and an enviable safety record.





Dawn Gateway Pipeline Project

Stantec Consulting Ltd.

An independent environmental consultant, Stantec Consulting Ltd. ("Stantec"), has been retained to prepare two environmental reports:

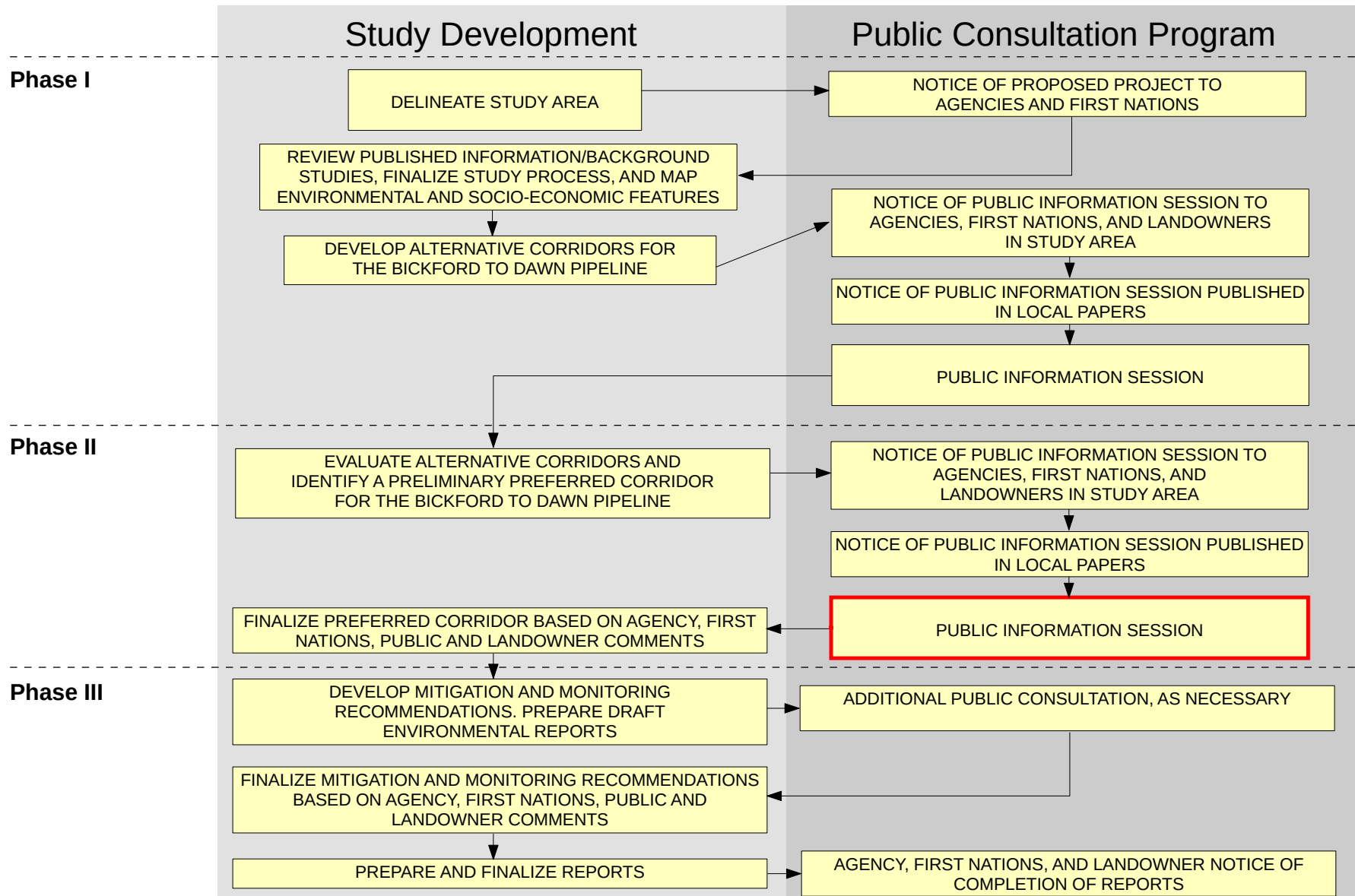
- An Environmental Report of the existing St. Clair pipelines; and,
- An Environmental Report of the proposed Bickford to Dawn Line.

A Canadian Environmental Assessment Act ("CEAA") Screening Report will be prepared by the NEB following the certificate hearing.



Dawn Gateway Pipeline Project

Environmental Assessment Process



Dawn Gateway Pipeline Project



Public Consultation

The purpose of this Public Information Session is to:

- Provide an opportunity for stakeholders and First Nations to discuss any of the components of the Project with representatives of Dawn Gateway LP and their environmental consultant, Stantec.
 - Existing St. Clair River Crossing Line
 - Existing St. Clair Line
 - Proposed Bickford to Dawn Pipeline
- Consult with stakeholders and First Nations regarding the purchase of the existing St. Clair River Crossing Line and St. Clair Line.
- Consult with stakeholders and First Nations regarding the Preliminary Preferred Corridor for the Bickford to Dawn pipeline.
- Use input received at the Public Information Session in confirming the Preliminary Preferred Corridor for the Bickford to Dawn pipeline, and in developing site specific protection and mitigation measures.
- Solicit input from stakeholders and First Nations regarding any issues to be addressed for the Project.

If you wish to discuss the Project privately, a Dawn Gateway LP or Stantec representative will be happy to meet with you at a convenient time.

Please fill out the EXIT QUESTIONNAIRE before you leave.

Dawn Gateway Pipeline Project



Schedule

The following is the anticipated schedule for this project:

Fall 2008/Winter 2009

Public Information Sessions

Winter/Spring 2009

Completion of Environmental Reports by Stantec and filing of application with the NEB for Certificate of Public Convenience

Spring/Summer/Fall 2009

NEB regulatory process

Fall 2009/Spring 2010

Pre-construction activities

Summer 2010

Contingent on NEB approval, construction of Bickford to Dawn pipeline begins

Dawn Gateway Pipeline Project



Existing Pipelines

The St. Clair River Crossing pipeline extends under the St. Clair River from Michigan to the St. Clair Station near the corner of Oil Springs Line and the St. Clair Parkway.

The St. Clair pipeline extends from the St. Clair Station to the Bickford Pool Compressor Station near the corner of Highway 40 and Bentpath Line.

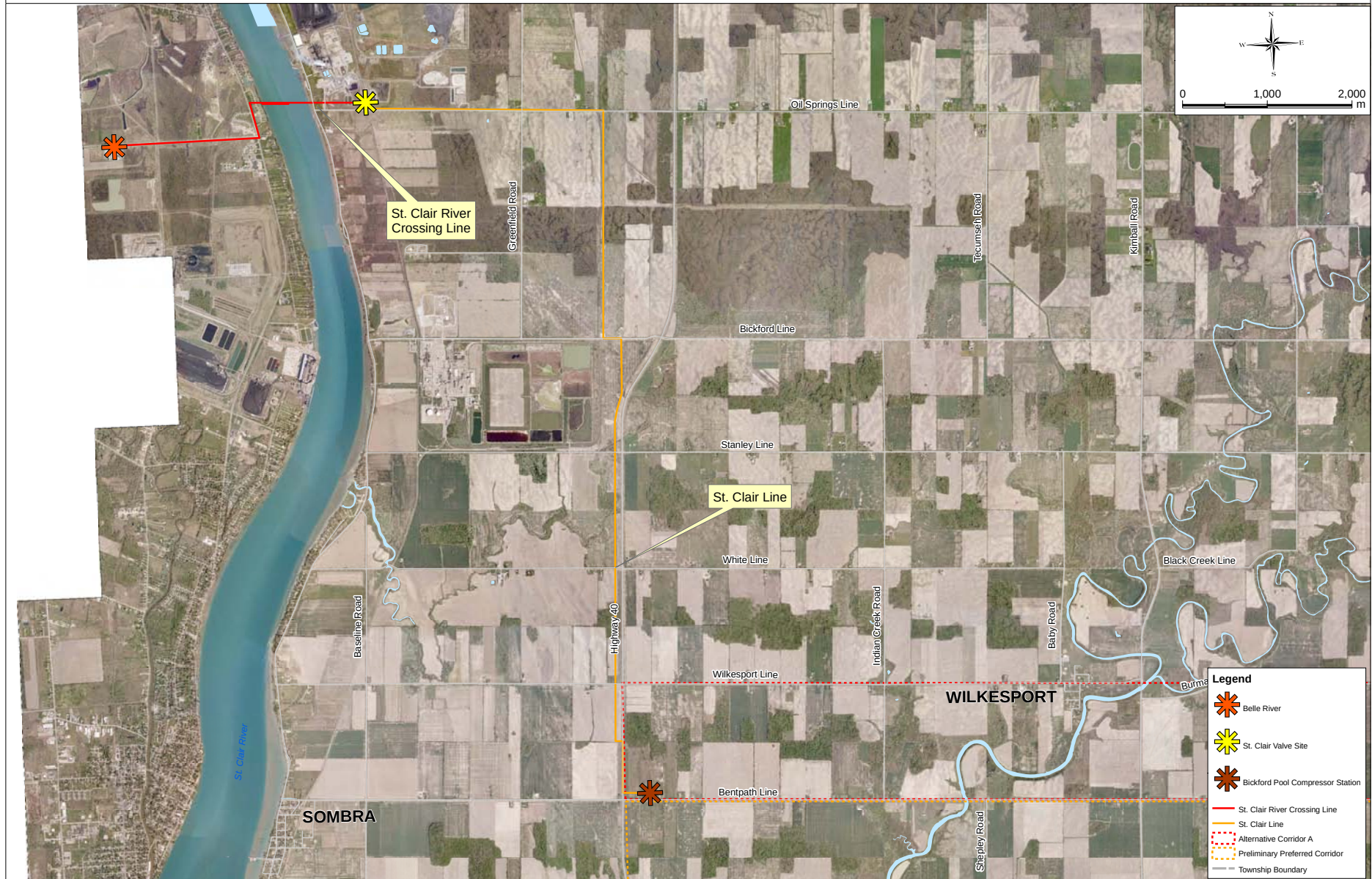
The current Project involves the sale of the St. Clair River Crossing Line and the St. Clair Line to Dawn Gateway LP.

Dawn Gateway LP will be making an application to the NEB to own and operate both the St. Clair River Crossing Line and the St. Clair Line.

The following display board provides a map showing the location of the existing pipelines.

Dawn Gateway Pipeline Project

St. Clair Pipelines





Dawn Gateway Pipeline Project

Corridor Evaluation Process

The assessment of the potential advantages and disadvantages of Alternative Corridor A and Alternative Corridor B was based on qualitative and quantitative factors.

Qualitative factors included stakeholder input, the opinion of Stantec, and constructability and economic factors identified by Dawn Gateway LP.

Quantitative factors included features that traverse each corridor, such as:

- Prime Agricultural Land;
- Watercourses;
- Designated Natural Areas;
- Natural Heritage Corridors;
- Woodlots;
- Corridor Length; and,
- Existing Linear Routes.

Stationary features were not included in the evaluation; it was assumed that they could largely be avoided at the route selection phase. These included water wells, oil and gas wells, buildings, and contaminated sites.



Dawn Gateway Pipeline Project

Corridor Evaluation Results

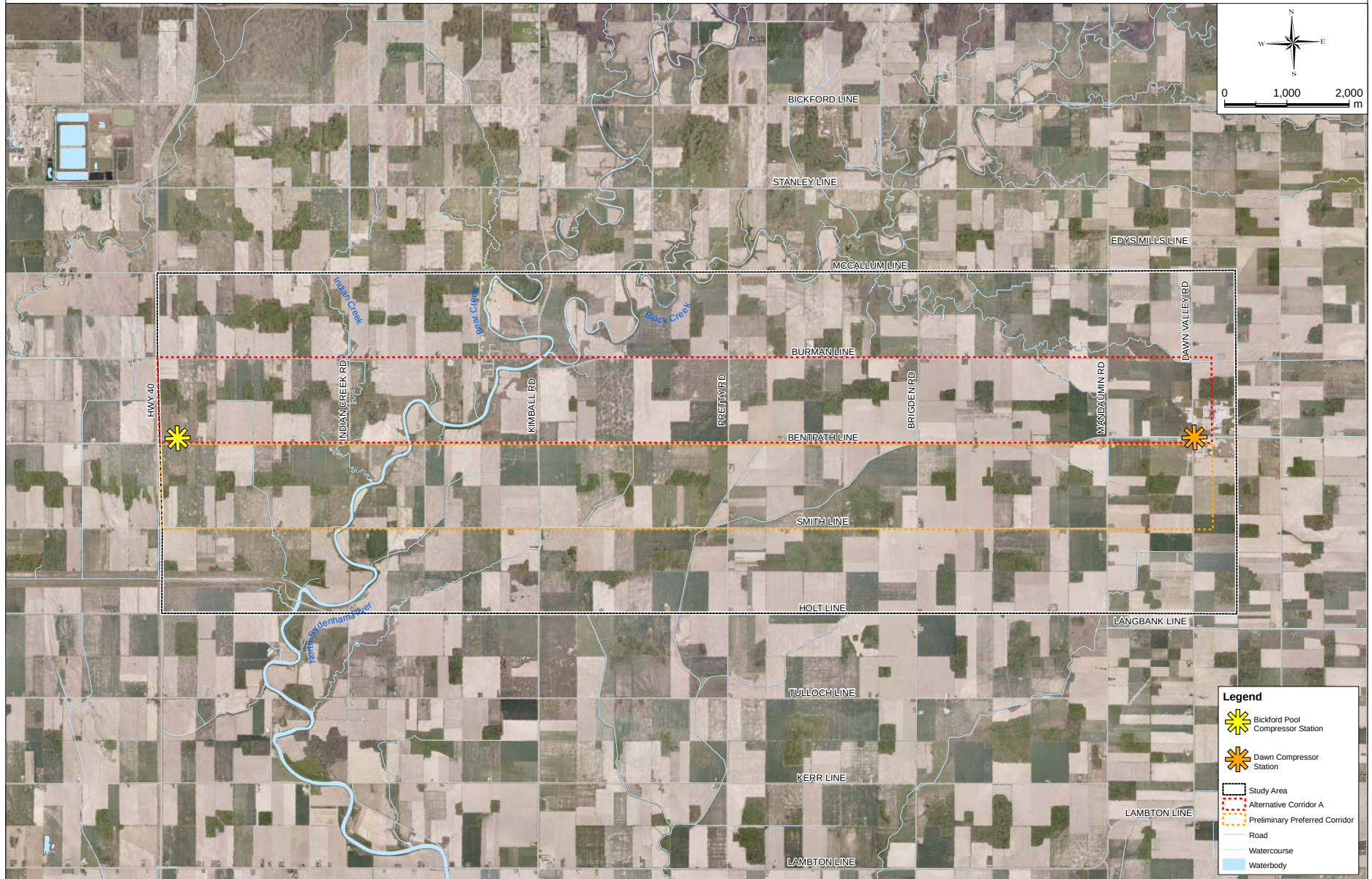
Alternative Corridor B is the Preliminary Preferred Corridor.

Alternative Corridor B:

- Has the potential to avoid crossing Indian Creek;
- Contains less designated natural areas and natural heritage corridors; and,
- Provides more linear routing opportunities adjacent to existing right-of-ways.

Dawn Gateway Pipeline Project

Preliminary Preferred Corridor



Dawn Gateway Pipeline Project



Preliminary Potential Routes

Dawn Gateway LP will determine the detailed pipeline route for the pipeline.

At this point in the project, Dawn Gateway LP has identified two Preliminary Potential Routes:

- Adjacent to the existing pipeline corridor; and,
- Adjacent to the half lot line.

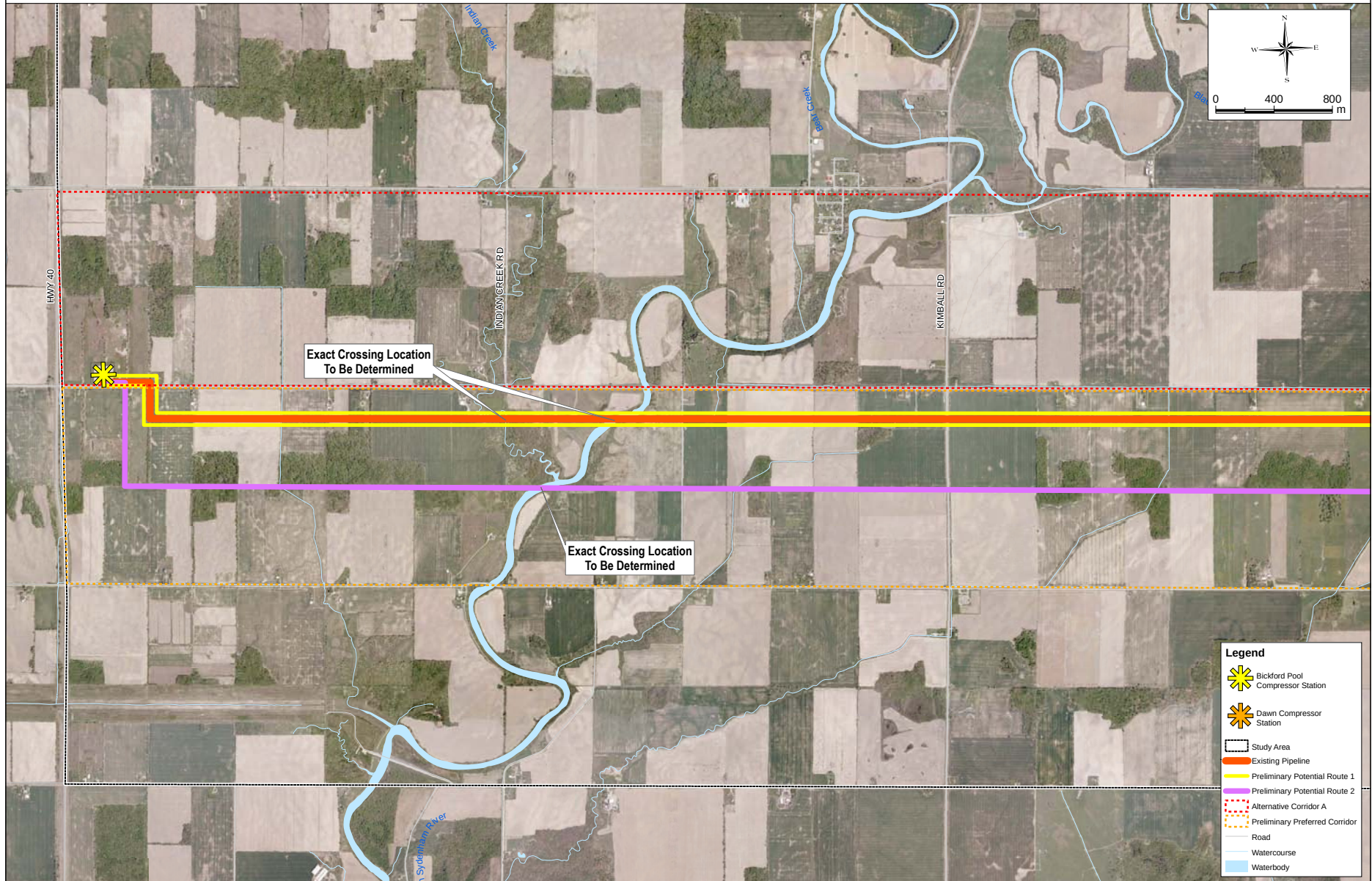
These routes are shown on the following display boards.

The Preferred Route will be subject to environmental field surveys through the Spring, Summer and Fall of 2009.

Discussions with landowners will begin in the next few weeks.

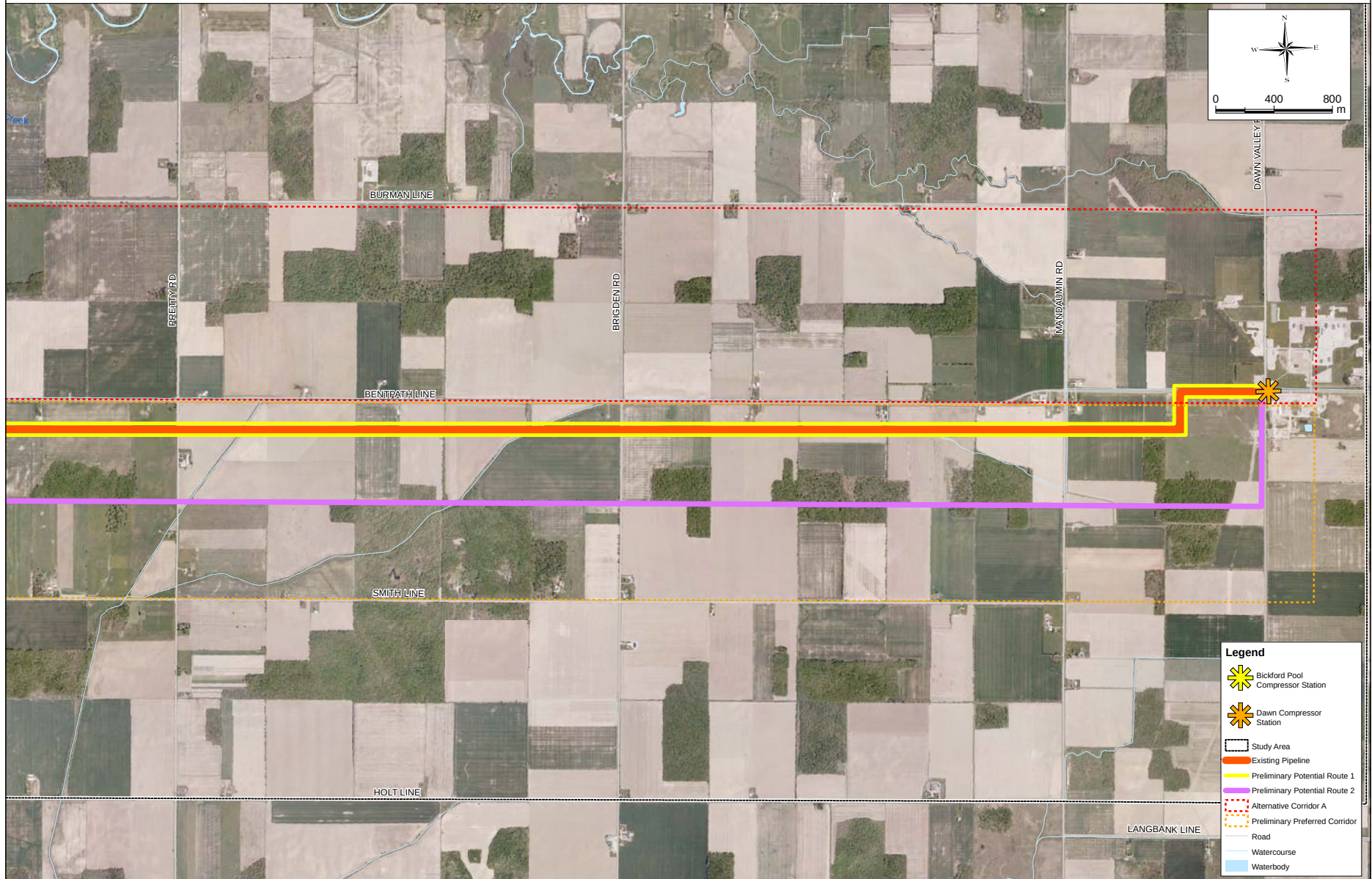
Dawn Gateway Pipeline Project

Preliminary Potential Routes



Dawn Gateway Pipeline Project

Preliminary Potential Routes





Dawn Gateway Pipeline Project

Bickford to Dawn Pipeline Existing Conditions

Data on existing conditions for the Bickford to Dawn study area has been collected from a number of external sources including agencies, aerial photography and features mapping.

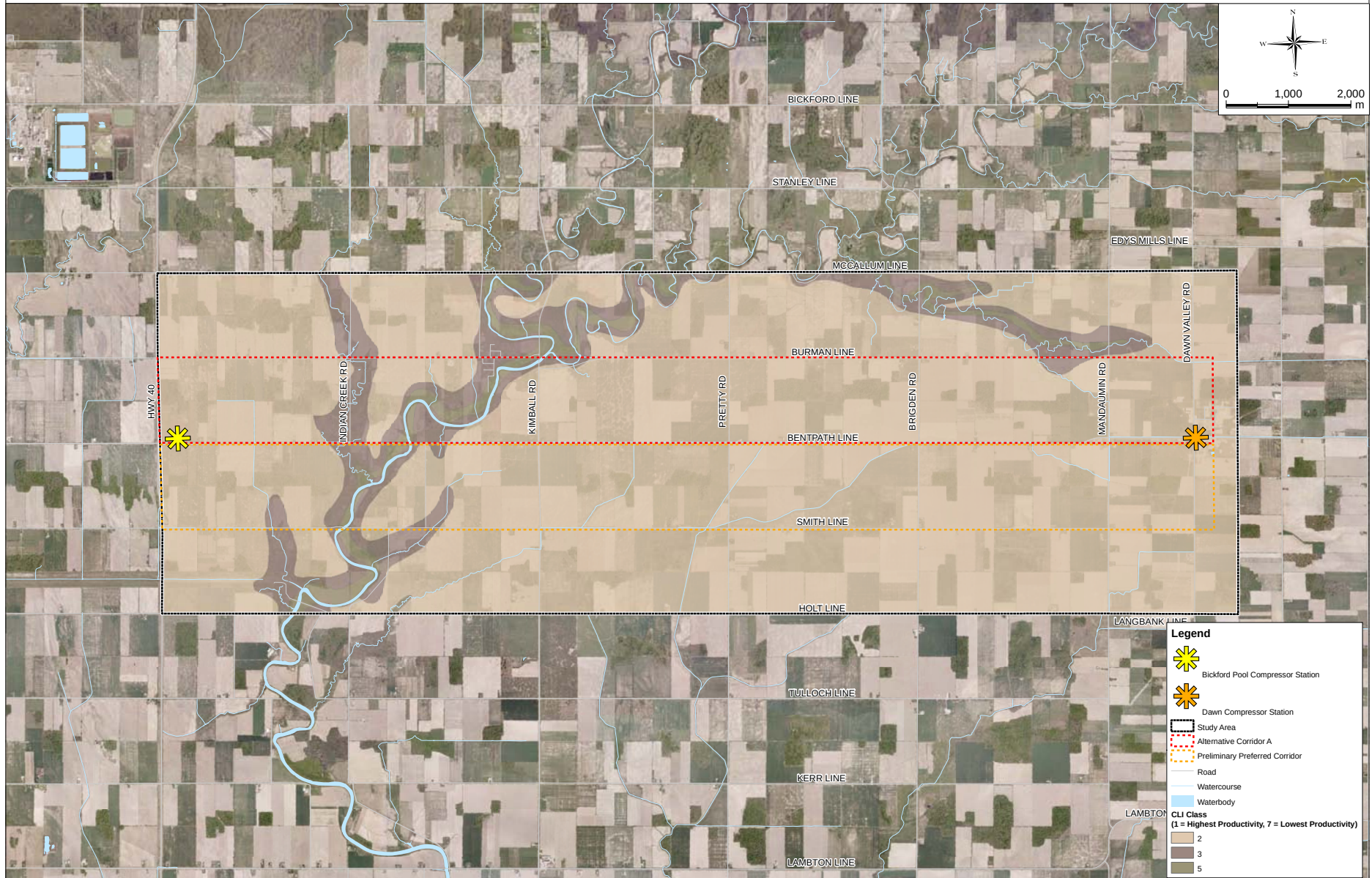
This information has been used to evaluate potential pipeline corridors and to generate the Preliminary Preferred Corridor.

The following maps outline environmental and socio-economic features within the Bickford to Dawn study area.



Dawn Gateway Pipeline Project

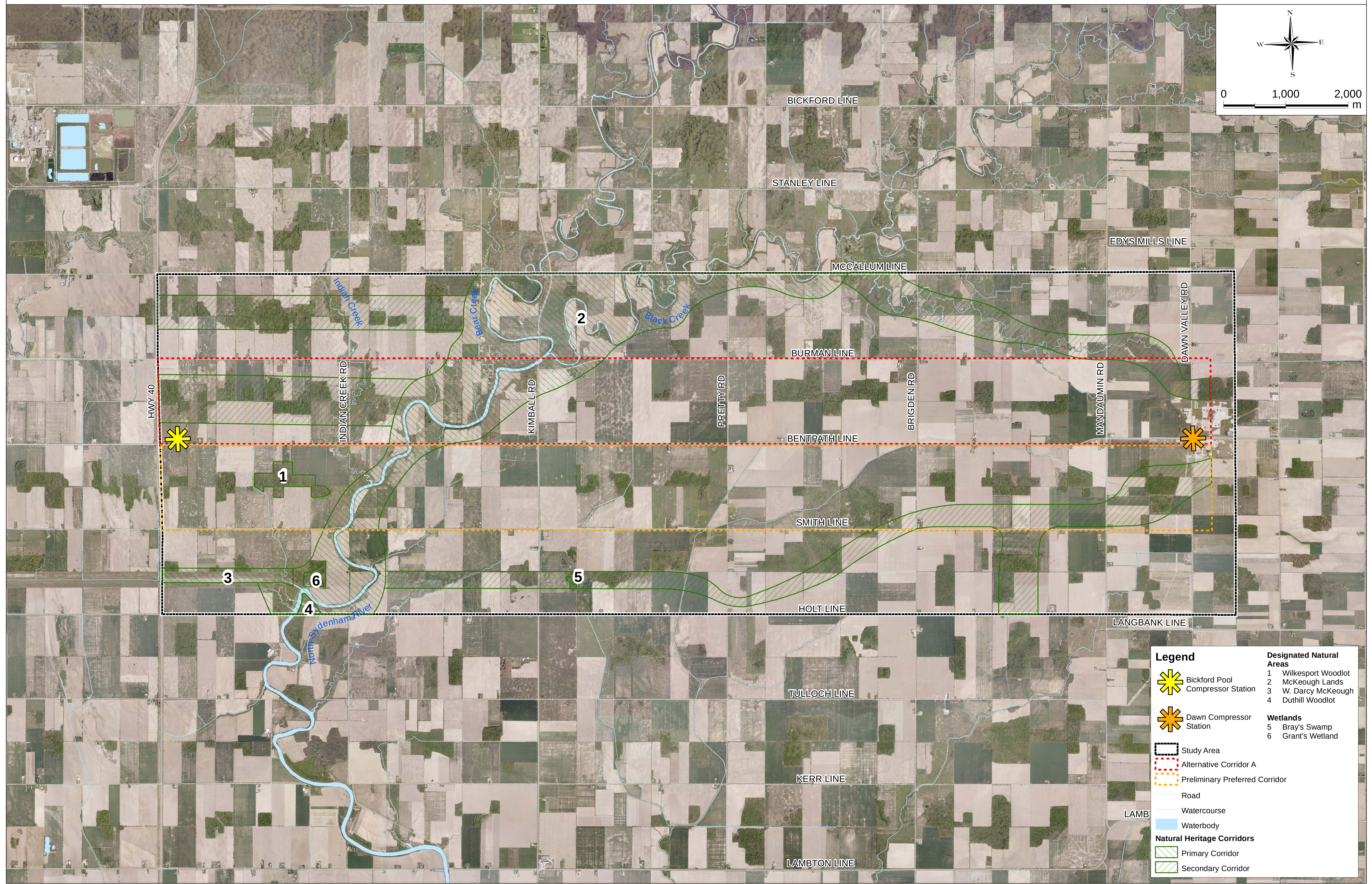
Canada Land Inventory (CLI) Classification



Dawn Gateway Pipeline Project



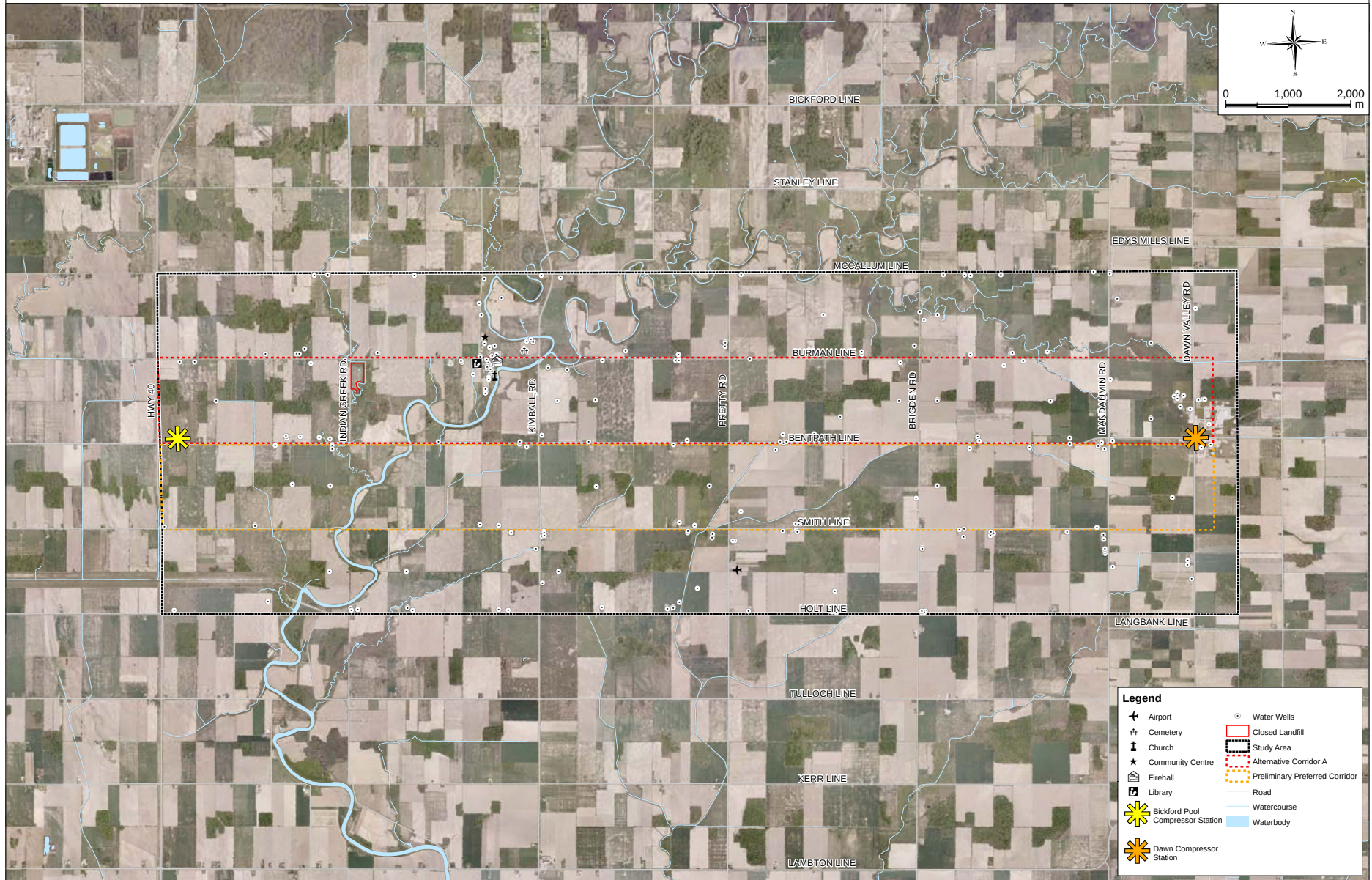
Environmental Features





Dawn Gateway Pipeline Project

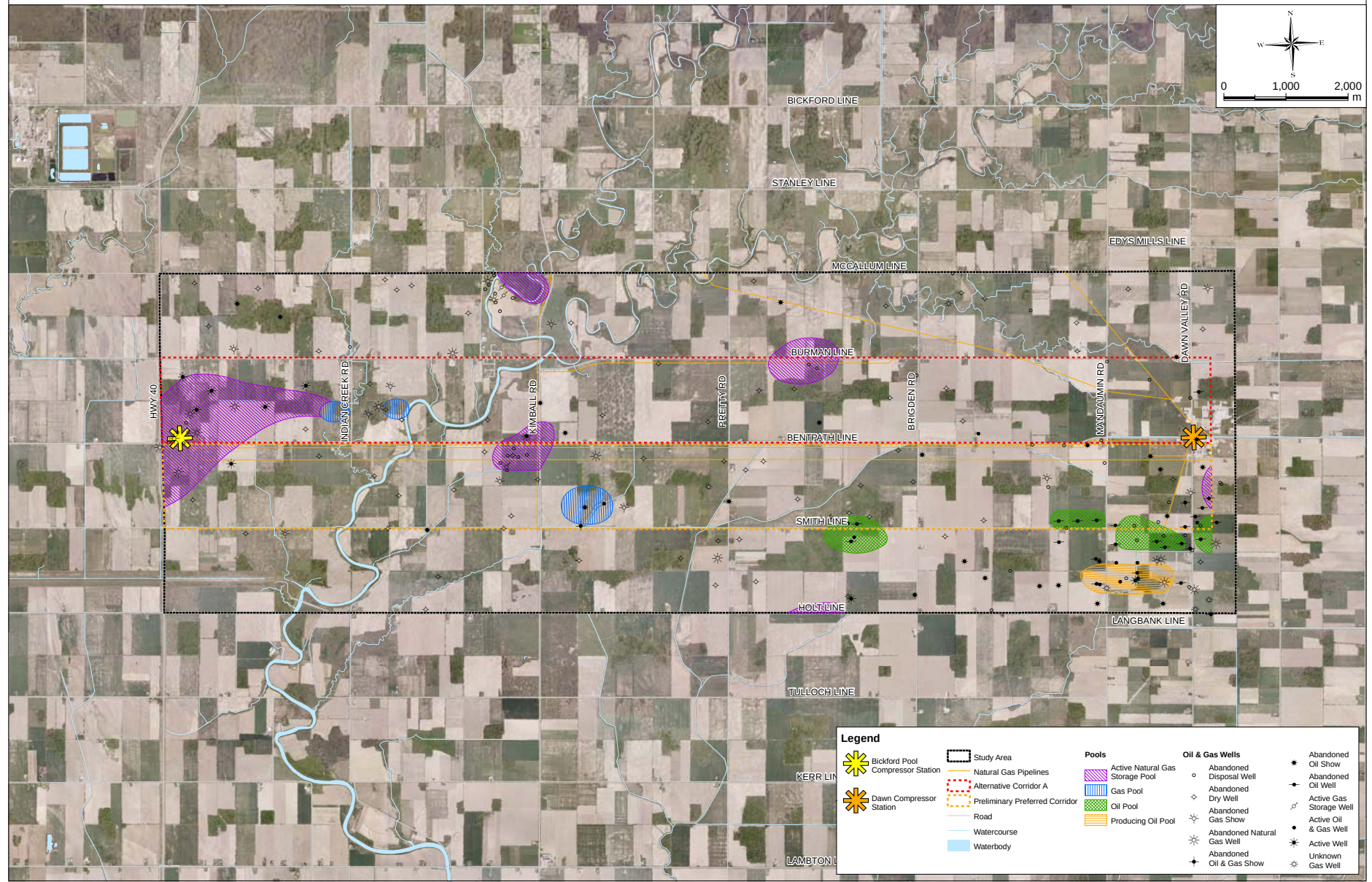
Socio-Economic Features and Water Wells





Dawn Gateway Pipeline Project

Hydrocarbon Features





Dawn Gateway Pipeline Project

Next Steps

After this Public Information Session, the following will be carried out:

1. Analyze public input and confirm the Preferred Corridor for the Bickford to Dawn Line (February 2009)
2. Determine preliminary preferred route (Spring 2009)
3. Complete environmental reports and application to the NEB (Winter/Spring 2009)
4. NEB regulatory process (Spring/Summer/Fall 2009)
5. Environmental field surveys (Spring/Summer/Fall 2009)
6. Pre-construction activities (Spring 2009 – Spring 2010)
 - Obtain necessary land rights (Spring 2009)
 - Pre-construction clearing (Winter 2010)
 - Pre-construction tiling (Winter 2010)
 - Complete NEB post-certificate activities (Spring 2010)
7. Construction (Summer 2010 – Fall 2010)
8. Post-construction activities (2011)



LET US KNOW WHAT YOU'RE THINKING

We are interested in hearing your comments, addressing questions, and working with the communities and residents along the St. Clair River Crossing Line, St. Clair Line, and Bickford to Dawn Line Preliminary Preferred Corridor to ensure smooth and orderly development of the project.

Our ongoing approach to public communications and consultation includes a mix of providing information on the project plans and receiving input from interested people through the Public Information Sessions, exit questionnaires provided at the Public Information Sessions, and newsletters. One-on-one meetings can be arranged with individual property-owners or groups who may be directly affected by the proposed project to discuss project related details or concerns.

At this Public Information Session, we particularly want your input on the existing St. Clair Pipelines, and the Bickford to Dawn Line Preliminary Preferred Corridor and Preliminary Potential Routes, along with any other interests you might have regarding this Project. You may provide comments at any point in the process.

WHAT HAPPENS AFTER THE PUBLIC INFORMATION SESSION?

After the Public Information Session, Stantec will evaluate the exit questionnaires and other input, and use this information to confirm a Preferred Corridor for the Bickford to Dawn Line; this information will be incorporated into the environmental report. Also, the environmental reports for the St. Clair pipelines and Bickford to Dawn Line will outline the plans to reduce and control the effects at the pipeline on the environment, identify plans to monitor the project, and any other contingencies.

WHAT'S NEXT?

- 1. Analyze public input and confirm the Preferred Corridor for the Bickford to Dawn Line (February 2009)
- 2. Determine Preliminary Preferred Route (Spring 2009)
- 3. Complete environmental reports and application to the NEB (Winter/Spring 2009)
- 4. NEB regulatory process (Spring/Summer/Fall 2009)
- 5. Environmental field surveys (Spring/Summer/Fall 2009)
- 6. Pre-construction activities (Spring 2009 – Spring 2010)
- 7. Construction (Summer 2010 – Fall 2010)
- 8. Post-construction activities (2011)



NEB REGULATIONS

The Dawn Gateway Pipeline (the existing St Clair River Crossing Line, the existing St Clair Line, and the proposed Bickford to Dawn Line) will be regulated by the NEB. The intent of NEB Regulations is to ensure the pipeline is protected from accidental damage and ensure the safety of all persons living or working near the pipeline.

NEB Regulations regarding the pipeline Right of Way require the landowner or tenant to contact Dawn Gateway Pipeline LP to get written approval for a number of different activities on the right of way including:

- Operating vehicles or mobile equipment over the right of way where a roadway does not exist;
- Reducing the depth of soil covering the pipeline or ground leveling;
- Ploughing below 30 cm (1 foot); and,
- Installing drainage systems, auguring or fencing.

NEB Regulations also include a Safety Zone extending 30 metres (100 feet) on either side of the pipeline right of way. Excavation using mechanical equipment or explosives within this zone will require approval from Dawn Gateway Pipeline LP.

To mitigate any inconvenience, Dawn Gateway Pipeline LP is proposing to get blanket approvals in place for routine farming activities.

The NEB is currently undertaking a Land Matters Consultation Initiative which is exploring issues that have been identified by landowners regarding NEB Regulations. A report will be released by the NEB in the first quarter of 2009.

CONTACT THE PROJECT TEAM

Please contact one of the individuals below:

David Wesenger
Senior Project Manager
Stantec Consulting Ltd.
70 Southgate Drive, Suite 1
Guelph, Ontario, N1G 4P5
Ph.: 1-866-842-7559
Email: david.wesenger@stantec.com

Glen Priestley
Manager
Spectra Energy
50 Keil Drive North
Chatham, Ontario N7M 5M1
Ph.: 1-800-265-5230
Email: gpriestley@spectraenergy.com

For more information on the NEB process, please visit: www.neb.gc.ca

THE PROJECT

Dawn Gateway Pipeline LP is a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, companies that operate a number of natural gas pipelines in the United States and Ontario.

As our population grows, natural gas continues to provide a safe and reliable source of energy for our homes. Businesses also rely on natural gas as an economic and reliable fuel for their operation. In order to help meet a growing demand for natural gas transmission services, Dawn Gateway Pipeline LP is currently working on a Project which consists of the purchase of two existing natural gas transmission pipelines, and the construction of a new natural gas transmission pipeline.

The first component involves Dawn Gateway Pipeline LP purchasing an existing pipeline known as the St. Clair River Crossing Line. This pipeline is a natural gas pipeline starting at the international border between Michigan and Ontario, under the St. Clair River, and ending at the St. Clair Station.



This pipeline is currently owned by St. Clair Pipelines Ltd and as an international pipeline is under the jurisdiction of the National Energy Board ("NEB").

The second component involves Dawn Gateway Pipeline LP purchasing an existing pipeline known as the St. Clair Line. This pipeline is a natural gas pipeline located in St. Clair Township extending from the St. Clair Station to the Bickford Pool Compressor Station. This pipeline is currently owned by Union Gas Limited ("Union") and is under the jurisdiction of the Ontario Energy Board ("OEB"). Union has filed an application with the OEB for approval to sell the pipeline to Dawn Gateway Pipeline LP and operate it under NEB jurisdiction.

The third component involves the construction, by Dawn Gateway Pipeline LP, of a new natural gas pipeline in the County of Lambton, starting from the Bickford Pool Compressor Station in St. Clair Township and ending at the Dawn Compressor Station in Dawn-Euphemia Township ("Bickford to Dawn Line").

Dawn Gateway Pipeline LP will be filing applications with the NEB for the required Project approvals.

THE PUBLIC INFORMATION SESSION

The purpose of the Public Information Session is to solicit input from stakeholders and First Nations on the Dawn Gateway Pipeline Project, including the existing St. Clair River Crossing Line, existing St. Clair Line and proposed Bickford to Dawn Line. Input received at the Public Information Session will be used in completing all environmental reports for the existing St. Clair pipelines and the proposed Bickford to Dawn Line, and it will also be used in confirming the Preliminary Preferred Corridor for the Bickford to Dawn Line. The environmental reports will be part of an application by Dawn Gateway Pipeline LP to the NEB expected in 2009. The NEB is the body that regulates the energy sector in Canada and whose review and approval is required before this Project can proceed.

THE EA PROCESS

Stantec has been retained by Dawn Gateway Pipeline LP to prepare environmental reports for the existing St. Clair pipelines and the proposed Bickford to Dawn Line. The subsequent reports will be completed as required under the *Canadian Environmental Assessment Act (CEAA)*, and the *NEB Filing Manual (February 2008)*.

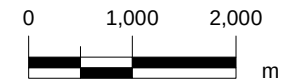
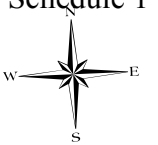
Under CEAA, these requirements are the consideration of the:

- Environmental effects and potential cumulative effects of the project;
- Significance of effects and mitigation measures for effects; and,
- Project consultation and any other matters as identified by the NEB.

Under the NEB, these requirements are:

- Description of the environmental and socio-economic setting;
- Effects assessment, evaluating the significance of effects after mitigation;
- Cumulative effects assessment, evaluating the significance of cumulative effects after mitigation; and,
- Inspection, monitoring and follow-up.

The reports will provide an overview of the Project, summarize the consultation program, identify the Project components, and recommended additional studies. The Bickford to Dawn environmental report will also summarize the corridor selection process.



- Bickford to Dawn Study Area
- St. Clair River Crossing Line
- St. Clair Line
- Alternative Corridor A
- Preliminary Preferred Corridor
- Belle River
- St. Clair Valve Site
- Bickford Pool Compressor Station
- Dawn Compressor Station



LOCATION MAP



Dawn Gateway Pipeline Project

Public Information Session #2 - Exit Questionnaire

Please complete this questionnaire and return it to a Stantec representative or mail it to Stantec Consulting Ltd. by **February 17, 2009**. Postage paid, self-addressed envelopes are available at the sign-in table. Thank you for your assistance.

Please read the newsletter and look over the displays before completing this questionnaire. If you require any assistance or clarification while completing the questionnaire please contact a Dawn Gateway LP or Stantec representative.

1. Please describe your interest in this project. (please check one)

Property Owner _____	Member of Special Interest Group _____
Interested Citizen _____	Government Official _____

Other (please specify) _____

2. How did you learn about tonight's meeting? (please check one)

Letter of Invitation _____	Newspaper _____
----------------------------	-----------------

Other (please specify) _____

3. Do you have any questions/concerns regarding the St. Clair River Crossing Line and/or St. Clair Line that you would like to bring to our attention?

St. Clair River Crossing Line _____

St. Clair Line _____

What are your questions/concerns? _____



4. Do you have any questions/concerns regarding the Bickford to Dawn Line that you would like to bring to our attention?

5. Please identify any features in the Bickford to Dawn Line study area which are either incorrectly mapped, omitted, or that you feel are important to consider during the study (please state your reasons).

6. Do you feel that the evaluation of the Bickford to Dawn Line Alternative Corridors has missed, underemphasized, or overemphasized any environmental or socio-economic factor? (please state the factor, and explain why)

7. Do you feel that the Bickford to Dawn Line Preliminary Preferred Corridor will have the least environmental and socio-economic impact? Yes ____ No ____

Why? _____



8. Which Bickford to Dawn Line Preliminary Potential Route do you feel will have the least environmental and socio-economic impact? 1 ____ 2 ____

Why? _____

9. Do you have any other questions/concerns regarding this project (the St. Clair River Crossing Line, St. Clair Line, and/or Bickford to Dawn Line) that you would like to bring to our attention?

10. Would you like to meet or be contacted to discuss any questions or concerns regarding this project? (please check one) Yes ____ No ____

If you answered yes to Question 10, please provide us with your contact information:

Name: _____

Address: _____

Phone: (home) _____ (work) _____

Email: _____

Convenient time you can be reached: _____

Preferred method of contact: _____

Thank you for completing this questionnaire.

Do you consent to these comments being included in the public record?

Yes ____ Yes, but anonymously ____ No ____

Signature: _____ Date: _____



Dawn Gateway Pipeline Project

Public Information Session #2 - Exit Questionnaire

Please complete this questionnaire and return it to a Stantec representative or mail it to Stantec Consulting Ltd. by **February 17, 2009**. Postage paid, self-addressed envelopes are available at the sign-in table. Thank you for your assistance.

Please read the newsletter and look over the displays before completing this questionnaire. If you require any assistance or clarification while completing the questionnaire please contact a Dawn Gateway LP or Stantec representative.

1. Please describe your interest in this project. (please check one)

Property Owner	__3__	Member of Special Interest Group	_____
Interested Citizen	_____	Government Official	_____

Other (please specify) _____

2. How did you learn about tonight's meeting? (please check one)

Letter of Invitation	__3__	Newspaper	_____
----------------------	-------	-----------	-------

Other (please specify) _____

3. Do you have any questions/concerns regarding the St. Clair River Crossing Line and/or St. Clair Line that you would like to bring to our attention?

St. Clair River Crossing Line _____

St. Clair Line _____

What are your questions/concerns? _____



4. Do you have any questions/concerns regarding the Bickford to Dawn Line that you would like to bring to our attention?

5. Please identify any features in the Bickford to Dawn Line study area which are either incorrectly mapped, omitted, or that you feel are important to consider during the study (please state your reasons).

6. Do you feel that the evaluation of the Bickford to Dawn Line Alternative Corridors has missed, underemphasized, or overemphasized any environmental or socio-economic factor? (please state the factor, and explain why)

7. Do you feel that the Bickford to Dawn Line Preliminary Preferred Corridor will have the least environmental and socio-economic impact? Yes 3 No

Why?

- Using existing corridor.
- The corridor already exists.



Stantec

8. Which Bickford to Dawn Line Preliminary Potential Route do you feel will have the least environmental and socio-economic impact? 1 __2__ 2 ____

Why? _____

9. Do you have any other questions/concerns regarding this project (the St. Clair River Crossing Line, St. Clair Line, and/or Bickford to Dawn Line) that you would like to bring to our attention?

Appendix B5

Summary of Correspondence

Dawn Gateway Project: Summary of Correspondence

Contact Person	Type of Correspondence	Date	Issue or Concern	Response / Request	Date of Response
Federal Agencies					
Canadian Transportation Agency					
Luc Fortin	Email	09 Oct 08	- Canadian Transportation Agency would only be involved in the EA if it were to cross a federally regulated railway and if no agreement were reached between the proponent and the railway company - In such circumstances, the proponent could apply to the Agency for authorization to cross the railway pursuant to Section 101(3) of the Canadian Transportation Act - This would trigger the CEA Act - Proponents are therefore well advised to discuss their projects with railways companies whose railway they expect to cross early in the planning stages of the Process - No mention is made in your letter of a potential railway crossing. The Agency does not have on file any of the information referred to such as background environmental and socio-economic information - Proponents are therefore well advised to discuss their Projects with railway companies whose railway they expect to cross early in the planning stages of the project	N/A	N/A
Fisheries and Oceans Canada					
Richard Moore	Email	19 Feb 09	The CA/DFO need a final plan that describes the project in its entirety, how wish to proceed, and construction details	N/A	N/A
Indian and Northern Affairs Canada					
Marc-André Millaire	Letter	07 Oct 08	- We can advise that our inventory includes active litigation (cases) in the vicinity of this Project (see associated letter for full list) - Unable to comment with respect to the	N/A	N/A

Contact Person	Type of Correspondence	Date	Issue or Concern	Response / Request	Date of Response
			possible effect of these claims as the cases have not yet been adjudicated and any statement regarding the outcome of the litigation would be speculative - Recommended that you consult legal counsel as to the effect this action could have on the lands you are concerned with - Copies of pleadings can be obtained from the Court for a fee - Cannot make comments regarding claim filed under other departmental policies		
Transport Canada					
Haya Finan	Email	03 Oct 08	- If any of the related project elements or activities may cross or affect a potentially navigable waterway, you are requested to prepare and submit an application in accordance with the requirements as outlined in the attached Application Guide - Certain approvals under the Navigable Waters Protection Act or Railway Safety Act trigger the requirement for a federal EA under the CEA Act	N/A	N/A
Provincial Agencies					
Ministry of the Environment					
Craig Newton	Letter	31 Oct 08	- Letter acknowledges this ministry's Southwestern Region's receipt of your letter of Sept 26, 2008 - Some points of concern that need to be addressed are as follows: - Residual soil management – is this going to be a horizontal bore or a trench? If it's a bore using water pressure, mud will have to be managed and a final resting place will be required - Sydenham River is going to be crossed – proactive measures must be put into place to address soils from entering water	Confirmed mapping shows the Sombra landfill. ESA Report will discuss applicable regulations (PTTW, etc.) and environmental management issues.	N/A

Contact Person	Type of Correspondence	Date	Issue or Concern	Response / Request	Date of Response
			• Is this a hydraulic bore – where is the water coming from – PTTW is required if it is coming from the river which may be a possible choice • Waste water management – if water is to be disposed of as a result of this Project, an OWRA Section 53 approval is required • Locations of buried utilities • Closed Sombra Landfill site – located within the Study Area, Lot 11, Concession 12, Sombra Township. What impact, if any, will the landfill have on the pipeline and vice versa? • Any aspect of this Project which is located on, or in the periphery (minimum 500 metres) of any closed or active waste sites, should take into due consideration MOE Guideline D-4, and Section 46 of the EPA • Recommends the proponent and/or Stantec review the MOE June 1991 Waste Disposal Site Inventory listings, in the context of the information provided in MOE Guideline D-4, and Section 46 of the EPA, and make a determination as to what impact, if any, the existence of closed and active waste disposal sites situated on or within a minimum of 500 metres of the lands or lands covered by water, the subject of this proposal, and any other active or closed waste disposal sites that exist on land or are on lands covered with water within a minimum of 500 metres of the subject property, but are not listed in the June 1991 Waste Disposal Site Inventory, may have on this proposed Project • Findings of such an analysis to be presented in the final assessment report, including a visual identification of the location of the waste disposal sites in relation to the various		

Contact Person	Type of Correspondence	Date	Issue or Concern	Response / Request	Date of Response
			components of the Project - MOE recommends that the MOE June 1991 Waste Disposal Site Inventory Site Numbers for the waste disposal sites be provided; both in the text of the final assessment report, and on any figures that might yet be created - Discussion as to what impact, if any, these active and closed sites will have on this Project should be presented in the final assessment report		
Ministry of Transportation					
Doug Peeling	Letter	02 Oct 08	Please be advised that I have forwarded your letter to our London Office (Ian Smyth) who will review and provide comments to you	N/A	N/A
Ontario Realty Corporation					
Lisa Myslicki	Letter	21 Oct 08	- Preliminary review of your notice and supporting information indicates that ORC managed property is not within your study area - No other concerns with this undertaking - Please remove ORC from your circulation list with respect to this project	Removed from circulation list.	N/A
Technical Standards and Safety Authority					
Oscar Alonso	Email	07 Oct 08	- Dawn Gateway LP is not a licensed company with TSSA to operate natural gas pipelines - In order to proceed any further, need to know what company will be involved with the design and construction of the pipeline and also responsible for the operation and maintenance once the pipeline is constructed	The design, construction, operation and maintenance will be undertaken by Union Gas Ltd.	30 Oct 08
Oscar Alonso	Email	21 Nov 08	- Thanks for the clarification - We have no further comments on this Project at this time	N/A	N/A
Oscar Alonso	Letter	10 Dec 08	- TSSA will require: - Identification of personnel responsible for integrity management program - Approximate time the operating company will	Forwarded to Dawn Gateway	N/A

Contact Person	Type of Correspondence	Date	Issue or Concern	Response / Request	Date of Response
			be in position to have available for review the following documentation: - Operating and maintenance procedures - Emergency response plan - Pipeline Integrity Management Program - Operating company shall obtain a licence to transmit natural gas prior to the commissioning of the pipeline		
Municipal Agencies					
Lambton County					
Glen Miller	Email	08 Oct 08	- All piping along or under County Roads shall require an agreement with the County in accordance with County Pipeline By-Law, may include sections of County Roads 2 (Bentpath), 26 (Mandaumin), and 31 (Kimball) - Open cutting of County Roads prohibited - Traffic on County Roads to be maintained during construction - Minimize impact to County infrastructure (i.e. roads, shoulders, ditching, bridges, culverts, etc.) - Minimize impact to other infrastructure (i.e. watermain, sewers, private utilities, etc.) - All work conducted within the County's road allowance to be completed in accordance with applicable legislation, regulations, etc.	Forwarded to Dawn Gateway.	N/A
St. Clair Region Conservation Authority					
Heather MacKenzie	Email	21 Oct 08	- SCRCA acknowledges your request to proceed with a background natural heritage data search and retrieval as outlined in your letter - After performing a search for evaluated wetlands, ESAs, ANSIs, fish habitat/municipal drain classifications, benthic data and regulations, the following information is provided in this email: Municipal Drain Classification and Thermal Regime	Information included in ESA Report.	N/A

Contact Person	Type of Correspondence	Date	Issue or Concern	Response / Request	Date of Response
			Information, Natural Heritage Areas – Sampling Site Locations, Environmentally Significant Areas, Benthic Data for Study Area from 1999 through to 2006, Fish Species for Study Area from 1999 – 2004, SCRCA Regulations (final new regulatory limits have not yet been defined for this area. In general, any works in or around watercourses/drains would require written permission of this Authority)		
St. Clair Township					
Larry J. Burnham	Email	09 Oct 08	• Burnham Line, Smith Line, Indian Creek Road, Pretty road are gravel township roads which cannot sustain construction traffic • Wilkesport Line and Brigden Road are paved township roads • Highway 40 is a provincial highway • Bentpath Line, Kimball Road, and Mandaumin Road are county roads • We have attached a map showing the location of potable watermain in the Study Area • Lambton Area Water Supply System (LAWSS) owns and operates the potable watermain on Highway 40 and Wilkesport Line • Township of Dawn-Euphemia owns and operates the potable watermain on Mandaumin Road (County Road 26). This watermain also extends along Bentpath Line from Mandaumin Road westerly approximately 4600' • The north half of Lot 11 in Concession XII is a former Landfill site	• Applicable information included in the ESA Report. Contact list updated.	• N/A
Gary DePooter	Email	10 Feb 09	• We will need to meet at a future date to verify the final route with regard to road and drain crossings. • A 'crossing agreement' will need to be	• Forwarded to Dawn Gateway.	• N/A

Contact Person	Type of Correspondence	Date	Issue or Concern	Response / Request	Date of Response
			implemented addressing route, road and drain crossings, and detailing applicable fees. Please keep our Drainage Superintendent - David Neely- or myself informed of your schedule.		
Public					
Joyce Wildes	Phone Call	05 Dec 08	- Inquired about pipeline connecting to her home, and whether her property would be affected - Ms. Wildes' address is also within Alternative Corridor A	- Was discussed that pressure of the pipeline precludes direct home connections - As her property is the residence fronting Wilkesport Line, and not the larger farmland to the south, it was discussed that the only route which would affect her property would be one running along the road - Also discussed that while no final routes can be discounted, a route running along the road would also need to pass through the community of Wilkesport, and a closed landfill	05 Dec 08
Joe Fournie	Phone Call	08 Dec 08	- Corrected the name on the letter he received - Inquired if his two properties would be affected [REDACTED]	Was noted that his properties are within Alternative Corridor A; however, a preliminary preferred corridor had not been chosen at this point	05 Dec 08
Robert Mell	Phone Call	08 Dec 08	- Owns mineral rights to a property [REDACTED] between [REDACTED] - Inquired if it would be impacted by the Project	- Was indicated that Dawn Gateway LP staff would be consulted and that Mr. Mell would receive a phone call - Mark Murray (Manager, Regulatory Projects and Lands Acquisition) was contacted, Mr Murray then forwarded the request to Tom Edwards (Senior Lands Agent) who will contact Mr Mell.	08 Dec 08
Bruce Langstaff	Phone Call	18 Dec 08	Bruce indicated he would like to be contacted regarding the Project on his exit questionnaire from the Public Information Session	Was indicated that a preferred corridor would be presented at an upcoming Public Information Session	18 Dec 08

Contact Person	Type of Correspondence	Date	Issue or Concern	Response / Request	Date of Response
			- A message was left at his voicemail inquiring if he would like to discuss the Project, be kept on the mailing list, or discuss the Project over the telephone or meet in person - Bruce called back to discuss the corridors		
John Hyland	Phone Call	18 Dec 08	- John indicated he would like to be contacted regarding the Project on his exit questionnaire from the Public Information Session - Indicated he was new to the area and the process was new to him - Inquired if agricultural crops would be impacted - Inquired about a neighbour who was approached and offered \$300 if he signed on the spot	- It was explained that top soil would be stripped, and that compensation may occur if reduced yield is experienced - It was indicated that an offer to "sign on the spot" would not have been part of this Project	18 Dec 08
Ronny D'Haene	Phone Call	02 Feb 09	- Ronny explained that he is undertaking a wildlife project on his property [REDACTED] - He suspects his property will not be affected	A message was left for Ronny indicating that his property was in the Preliminary Preferred Corridor; however, not within the Preliminary Detailed Route (given that Stantec's understanding of his property is limited)	02 Feb 09
Joyce Wildes	Phone Call	09 Feb 09	- Inquired about the location and purpose of the pipeline - Noted that the construction would be useful for local employment	- Noted the Preliminary Preferred Corridor, and Preliminary Potential Routes. - Discussed the need for additional pipeline capacity.	05 Dec 08

Appendix B6

Agency Correspondence

From: Wesenger, David
Sent: Thursday, October 09, 2008 5:21 PM
To: Knight, Mark
Subject: Fw: Dawn Gateway LP Pipeline Project

David Wesenger
Managing Leader, Environmental Management Stantec Consulting Ltd.

(519)836-6050

----- Original Message -----
From: Luc Fortin <Luc.Fortin@cta-otc.gc.ca>
To: Wesenger, David
Sent: Thu Oct 09 15:19:34 2008
Subject: Dawn Gateway LP Pipeline Project

Mr. Wesenger,

The Canadian Transportation Agency would only be involved in the environmental assessment of the above-mentioned projet if it were to cross a federally regulated railway and if no agreement were reached between the project proponent and the railway company with regard to the crossing.

In such circumstances, the project proponent could apply to the Agency for the authorization to cross the railway pursuant to Section 101(3) of the Canada Transportation Act. This in turn would trigger the Canadian Environmental Assessment Act.

Project proponents are therefore well advised to discuss their projects with railway companies whose railway they expect to cross early in the planning stages of the project.

No mention is made in your letter of a potential railway crossing. Also, the Agency does not have on file any of the information referred to such as background environmental and socio-economic information.

Project proponents are therefore well advised to discuss their projects with railway companies whose railway they expect to cross early in the planning stages of the project.

Sincerely,

Luc Fortin
Senior Environmental Officer
Canadian Transportation Agency
819-953-2238

From: Wesenger, David
Sent: Thursday, February 19, 2009 10:04 AM
To: Knight, Mark
Subject: Fw: Dawn Gateway - Environmental and Socio-Economic assessment commencement, Dated September 26, 2008 and Invitation to Public Info Session - Dated November 28, 2008

David Wesenger
Managing Leader, Environmental Management
Stantec Consulting Ltd.

(519)836-6050

From: Moore, Richard G (C&A)
To: Wesenger, David
Sent: Thu Feb 19 07:58:05 2009
Subject: Dawn Gateway - Environmental and Socio-Economic assessment commencement, Dated September 26, 2008 and Invitation to Public Info Session - Dated November 28, 2008

Dave
I received a notice on this project from SCRCa, so I was wondering if there are final plans or still in the planning stages.

The first contact will still be the CA, as the plans have not been sent to my knowledge.

What the CA/DFO need:

A final plan(s) that describes the project in its entirety and how they wish to proceed with the project, plus any intricate details of the construction. For example, dewatering methods, contingency plans, etc

Thanks
Richard

RICHARD MOORE

COMPLIANCE MONITORING TECHNICIAN/ TECHNICIEN, SURVEILLANCE DE L'HABITAT

Ontario Great Lakes Area/Secteur de l'Ontario et des Grands Lacs
Central & Arctic Region/Région Centrale et de l'Arctique

Fisheries and Oceans Canada/Pêches et Océans Canada

73 Meg Drive, London, Ontario N6E 2V2

73, promenade Meg, London, Ontario N6E 2V2

Government of Canada/Gouvernement du Canada

(519) 668-3682/ (519) 668-1772

richard.moore@dfo-mpo.gc.ca

2/25/2009



Votre référence - Your file

Notre référence - Our file

07 OCT. 2008

David P. Wessenger
Senior Project Manager
Stantec Consulting Ltd.
361 Southgate Drive
GUELPH, ONTARIO N1G 3M5

Dear Mr. Wessenger,

**Re: Environmental and Socio-Economic Assessment Commencement
Dawn Gateway LP Pipeline Project**

I am writing in response to your letter of September 26, 2008 addressed to Franklin Roy inquiring about any claims that may affect the subject property.

We can advise that our inventory includes active litigation (cases) in the vicinity of this property. They are entitled *Chippewas of Kettle and Stoney Point v. Her Majesty the Queen in Right of Canada as represented by Attorney General of Canada and Minister for Department of Indian Affairs and Northern Development, Corporation of Township of Bosonquet, Paul Hendrick Wilmink, Joanne Cecilia Wilmink, Joyce Van Geel, Martha Jean Morrison, Paul L. Winger, Agnes J. Winger, Leon Edward, St. John, Margaret J. St. John, Daniel Albert Vincent Rusciolelli, Rachel Emma Rusciolelli, Domenico Abrogio, Maurina Ambrogio, William Walter Ellison, Gail Ann Ellison, National Trust Company, Joseph John Huybers, Joanne Maria Huybers, Karl Huetter, Inge Huetter, Annie Jeanette Dunston, Grace Marie Lasenby, Jack Harold Lasenby, Amin Mussani (in Trust), Donald Bruce Gray, Juliaan Alfons D'Hanyyns, Simonne Clara D'Hanyyns, Brian Bernard McGowan, Margaret Ann McGowan, Mary Lou LaPratte, Christopher Thomas Allan King, William John Harkness, Frances Curry Harkness, Barbara L. St. Louis, Eugene M. Sorin, Bank of Montreal, Frank Thoren, Cynthia Marie Thoren, The Toronto-Dominion Bank, Daniel Leo Bosnak, Ellen J. Bosnak, Edward G. Paschalidis, Veronika E. Paschalidis, Jack Malcolm Galbraith, Margaret Irene Galbraith, John Archibald Pedden, Dorothy Harriet Pedden, Gloria Ann Redmond, Carolyn Jane Sheprak, Diana Mary Susan Sheprak, Lotte Nachtnebel, Josef Szela, Erika Szela, Roy Francis Giroux, Madonna Giroux,*

.../2

-2-

Derek Leslie Barker, Nan Francis Barker, George C. Wallis, Janet Wallis, Bernardus Josephus Veel, Hendrika Petronella Veel, St. Willibrord Community Credit Union Limited, David A. Voll, Diane M. Voll, CIBC Mortgage Corporation, Pierre Conrad Morisset, 876709 Ontario Ltd., Ontario Superior Court of Justice, filed in London, Ontario, court file #C22725 and Walpole Island First Nation, Bkejwanong Territory v. Attorney General of Canada, Her Majesty the Queen in Right of Ontario, Ontario Superior Court of Justice, filed in Toronto, court file #00-CV-189329.

I am unable to comment with respect to the possible effect of these claims as the cases have not yet been adjudicated and any statement regarding the outcome of the litigation would be speculative at this point. It is recommended that you consult legal counsel as to the effect this action could have on the lands you are concerned with.

If you are interested in further details about the claims, copies of the pleadings can be obtained from the Court for a fee; please contact the appropriate Court Registry Office and make reference to the court file number listed above.

We cannot make any comments regarding claims filed under other departmental policies. For information on any claims you should also contact Fred Hosking of the Specific Claims Branch at (819) 953-1940 to inquire about any Specific Claims, and Guy Morin of the Comprehensive Claims Branch at (819) 956-0325 to inquire about any current Comprehensive Claims.

-3-

If you have any further questions please do not hesitate to contact me at (819) 994-1947.

Sincerely,



Marc-André Millaire
Litigation Team Leader
Litigation Portfolio Operations East
Litigation Management and Resolution Branch

DISCLAIMER: In this Disclaimer, "Canada" means Her Majesty the Queen in right of Canada and the Minister of Indian Affairs and Northern Development and their servants and agents. Canada does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any data or information disclosed with this correspondence or for any actions in reliance upon such data or information or on any statement contained in this correspondence. Data and information is based on information in departmental records and is disclosed for convenience of reference only. Canada does not act as a representative for any Aboriginal group for the purpose of any claim. Information from other government sources and private sources (including Aboriginal groups) should be sought, to ensure that the information you have is accurate and complete.

From: Wesenger, David
Sent: Friday, October 03, 2008 11:45 AM
To: Knight, Mark
Subject: Fw: Dawn Gateway LP Pipeline Project TC NEATS 14326

Attachments: Annex A Navigable Waters Protection Act Application Addresses.doc; TC Application Form.pdf; TC Application Guide.pdf



Annex A Navigable
Waters Prote...



TC Application
Form.pdf



TC Application
Guide.pdf

David Wesenger
Managing Leader, Environmental Management Stantec Consulting Ltd.

(519)836-6050

----- Original Message -----

From: Finan, Haya <FINANHA@tc.gc.ca>
To: Wesenger, David
Sent: Fri Oct 03 09:32:12 2008
Subject: Dawn Gateway LP Pipeline Project TC NEATS 14326

Thank you for your letter regarding the above referenced environmental assessment.

We have reviewed the information, and note the following:

Transport Canada is responsible for the administration of the Navigable Waters Protection Act, which prohibits the construction or placement of any "works" in navigable waters without first obtaining approval. If any of the related project elements or activities may cross or affect a potentially navigable waterway, you are requested to prepare and submit an application in accordance with the requirements as outlined in the attached Application Guide. Any questions about the NWP application process should be directed to Suzanne Shea, NWP Officer at (519) 383-1866.

Please note that certain approvals under the Navigable Waters Protection Act or Railway Safety Act trigger the requirement for a federal environmental assessment under the Canadian Environmental Assessment Act.

<<Annex A Navigable Waters Protection Act Application Addresses.doc>> <<TC Application Form.pdf>> <<TC Application Guide.pdf>> Please contact me should you wish to discuss this further.

Regards,
Haya Finan
Environmental Officer
Environment and Engineering
Transport Canada - Ontario Region (PHE)
4900 Yonge Street, North York, ON M2N 6A5
p: 416-952-0475
f: 416-952-0514
e: finanha@tc.gc.ca
P Please consider the environment before printing this email.

RECEIVED

October 31st, 2008Stantec Consulting Ltd.
361 Southgate Drive
Guelph, Ontario
N1G 3M5

Attention: Mr. David Wesenger, Sr. Project Manager

Re: Environmental and Socio-Economic Assessment Commencement
Dawn Gateway LP Pipeline Project

Dear Mr. Wesenger:

This letter acknowledges this ministry's Southwestern Region's receipt of your letter of September 26th, 2008. I apologize for the delay in responding to your request for comments.

In response, some points of concern that need to be addressed with respect to this project are as follows:

1. Residual soil management. Is this going to be a horizontal bore or a trench? If it is a bore using a water pressure, the mud will have to be managed and a final resting place will be required.
2. The Sydenham River is going to be crossed. Protective measures must be put into place to address soils from entering the water.
3. If this is a hydraulic bore? Where is the water coming from? PTTW is required if it is coming from the river which maybe a possible choice.
4. Waste water management. If water is to be disposed of as a result of this project, an OWRA Section 53 approval is required.
5. Locates of buried utilities.
6. The closed Sombra Landfill Site. It is located within the study area. Lot 11, Concession 12, Sombra Township. What impact if any will the landfill have on the pipeline and vice versa?

The MOE's interests regarding the development on or in the periphery of active and closed waste sites is based on Section 46 of the Environmental Protection Act and MOE Guideline D-4.. The MOE's "Guideline D-4 Land Use On or Near Landfills and Dumps" dated April 1994, speaks to both land use within 500 metres of a fill area, and land use beyond 500 metres of a fill area. MOE Guideline D-4 (Publication No. 2158) is available on the MOE internet site at <http://www.ene.gov.on.ca> under "Publications" and

“Forms, Manuals and Guidelines” tabs. Any aspect of this project which is either located on, or in the periphery (minimum 500 metres) of any closed or active waste sites, should take into due consideration MOE Guideline D-4, and Section 46 of the Environmental Protection Act as applicable.

Section 46 of the *Environmental Protection Act* states:

“46. No use shall be made of land or land covered by water which has been used for the disposal of waste within a period of twenty-five years from the year in which such land ceased to be so used unless the approval of the Minister for the proposed use has been given.”

The MOE published a Waste Disposal Site Inventory Report in June of 1991. A CD copy of the Ministry's June 1991 Waste Disposal Site Inventory can be obtained from this Ministry's Public Information Centre and can be reached by phoning 1-800-565-4923 or (416) 325-4000.

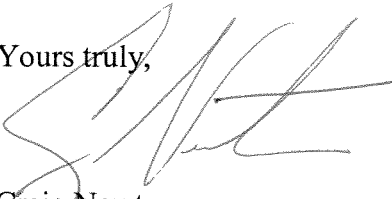
The June 1991 Waste Disposal Site Inventory lists the UTM Coordinates of each waste site. There could conceivably be more active and former waste disposal sites listed in the MOE's June 1991 Waste Disposal Site Inventory than that which is currently presented in the MOE June 1991 Waste Disposal Site Inventory itself. It is important to note that the MOE 1991 Waste Disposal Site Inventory Report is current to 1991. The proponent and/or Stantec Consultants on behalf of the proponent may want to consider confirming the information contained in the MOE June 1991 Waste Disposal Site Inventory report, in the field, through on-site investigations using qualified consultant(s). In addition, the local municipality(s) may be aware of other active or closed waste disposal sites not listed therein, or the proponent, and you as the proponent's consultant might also be aware of additional waste disposal sites as a consequence of site reconnaissance(s) and/or negotiations with private landowners arising from this proposed project.

In short, the MOE recommends that the proponent and/or Stantec Consultants on behalf of the proponent review the MOE June 1991 Waste Disposal Site Inventory listings, in the context of the information provided in MOE Guideline D-4, and Section 46 of the Environmental Protection Act, and make a determination as to what impact, if any, the existence of closed and active waste disposal sites situated on or within a minimum of 500 metres of the lands or lands covered by water the subject of this proposal, and any other active or closed waste disposal sites that exist on land or are on lands covered by water within a minimum of 500 metres of the subject property, but are not listed in the June 1991 Waste Disposal Site Inventory, may have on this proposed project.

The findings of such an analysis to be presented in the final assessment report, including a visual identification of the location of the waste disposal sites in relation to the various components of the project. MOE's June 1991 Waste Disposal Site Inventory lists waste disposal sites with a specific Site Number. MOE recommends that the MOE June 1991 Waste Disposal Site Inventory Site Numbers for the waste disposal sites be provided; both in the text of the final assessment report; and on any figures that might yet be created.. Furthermore, a discussion as to what impact, if any, these active and closed waste disposal sites will have on this project should be presented in the final assessment report.

If you have any questions, please feel free to give me a phone call at your convenience at (519) 873-5014.

Yours truly,

A handwritten signature in black ink, appearing to read 'C. Newton', written over a horizontal line.

Craig Newton
Regional Environmental Planner / EA
Ministry of the Environment
Southwestern Region
(519) 873-5014

Cc – Mr. C. Hutt, MOE Sarnia District

Ministry of
Transportation

Ministère des
Transports

Operations Office
Corridor Management and Property Section
301 St. Paul St, 2nd Floor
St. Catharines, Ontario L2R 7R4
Phone - (905) 704-2916; Fax - (905) 704-2777



October 2, 2008

Stantec Consulting Ltd.
361 Southgate Drive
Guelph, Ontario
N1G 3M5

Att: David P. Wesenger, B.E.S.
Senior Project Manager

**RE: Environmental and Socio-Economic Assessment Commencement Dawn Gateway LP
Pipeline Project**

Thank you for your letter of September 26, 2008 regarding the above noted subject.

Please be advised that I have forwarded your letter to our London Office (Ian Smyth, Corridor Management Planner). Ian will review the proposed work and provide any comments to you.

If you required further information, please do not to hesitate to contact me.

Thank you.

Yours truly

A handwritten signature in black ink, appearing to read "D. Peeling".

Doug Peeling
Senior Policy Adviser

c:- I. Smyth



1 Dundas Street West
Suite 2000
Toronto, Ontario
Tel: 416-327-3937

1, rue Dundas Ouest
Bureau 2000
Toronto, Ontario
Fax: 416-212-1131

October 21, 2008

To Whom It May Concern,

RE: Environmental and Socio-economic Assessment Commencement – Dawn Gateway Pipeline Project – Public Information Session

Thank you for circulating Ontario Realty Corporation (ORC) on your Public Information Session. The ORC is the strategic manager of the government's real property with a mandate of maintaining and optimizing value of the portfolio, while ensuring real estate decisions reflect public policy objectives of the government.

Our preliminary review of your notice and supporting information indicates that ORC-managed property is not within your study area. We have no other concerns with this undertaking. Please remove ORC from your circulation list with respect to this project.

Thank you for the opportunity to provide initial comments on this undertaking. If you have any questions I can be reached at the contacts below.

Sincerely,

A handwritten signature in black ink that reads 'L. Myslicki'.

Lisa Myslicki
Environmental Coordinator
Ontario Realty Corporation - Professional Services
1 Dundas Street West,
Suite 2000, Toronto, Ontario
M5G 2L5
(416) 212-3768
lisa.myslicki@ontariorealty.ca

From: Wesenger, David
Sent: Monday, October 27, 2008 9:02 AM
To: Knight, Mark
Subject: FW: Dawn Gateway LP Pipeline Project

From: oalonso@tssa.org [mailto:oonso@tssa.org]
Sent: Tuesday, October 07, 2008 2:22 PM
To: Wesenger, David
Subject: Dawn Gateway LP Pipeline Project

Hi David,

Dawn Gateway LP is not a licensed company with TSSA to operate natural gas pipelines. In order to proceed any further, we need to know what company will be involved with the design and construction of the pipeline and also responsible for the operation and maintenance once the pipeline is constructed.

Regards,

Oscar Alonso
Fuels Safety Engineer
Tel.: 416 734 3353
e-mail: oalonso@tssa.org

Technical Standards & Safety Authority -- "Putting Public Safety First"
website: www.tssa.org
toll-free: 1-877-682-8772

This electronic message and any attached documents are intended only for the named addressee(s). This communication from the Technical Standards and Safety Authority may contain information that is copied, forwarded or distributed without authorization. If you have received this message in error, please Thank you.

From: oalonso@tssa.org
Sent: Friday, November 21, 2008 11:42 AM
To: Knight, Mark
Subject: RE: Dawn Gateway LP Pipeline Project

Thanks Mark for the clarification. We don't have further comments on this project at this time.

Regards,

Oscar Alonso
Fuels Safety Engineer
Tel.: 416 734 3353
e-mail: oalonso@tssa.org

Technical Standards & Safety Authority -- "Putting Public Safety First"
website: www.tssa.org
toll-free: 1-877-682-8772

"Knight, Mark" <Mark.Knight@stantec.com>

To <oalonso@tssa.org>

cc

10/30/2008 02:08 PM

Subject RE: Dawn Gateway LP Pipeline Project

Hi Oscar,

I've been assisting David Wesenger with the Dawn Gateway LP Pipeline Project.
The design and construction, and the operation and maintenance, will be undertaken by Union Gas Limited.

Best Regards,

Mark Knight

Mark Knight, M.A. (Geog.)
Environmental Planner
Stantec
70 Southgate Drive, Suite 1
Guelph ON N1G 4P5
Ph: (519) 836-6050 Ext. 218
Fx: (519) 836-2493
mark.knight@stantec.com
stantec.com

The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately.



Please consider the environment before printing this email.

2/25/2009

From: oalonso@tssa.org [mailto:oonso@tssa.org]
Sent: Tuesday, October 07, 2008 2:22 PM
To: Wesenger, David
Subject: Dawn Gateway LP Pipeline Project

Hi David,

Dawn Gateway LP is not a licensed company with TSSA to operate natural gas pipelines. In order to proceed any further, we need to know what company will be involved with the design and construction of the pipeline and also responsible for the operation and maintenance once the pipeline is constructed.

Regards,

Oscar Alonso
Fuels Safety Engineer
Tel.: 416 734 3353
e-mail: oalonso@tssa.org

Technical Standards & Safety Authority -- "Putting Public Safety First"
website: www.tssa.org
toll-free: 1-877-682-8772

This electronic message and any attached documents are intended only for the named addressee(s). This communication from the Technical Standards and Safety Authority may contain information that is privileged, confidential or otherwise protected from disclosure and it must not be disclosed, copied, forwarded or distributed without authorization. If you have received this message in error, please notify the sender immediately and delete the original message.
Thank you.

This electronic message and any attached documents are intended only for the named addressee(s). This communication from the Technical Standards and Safety Authority may contain information that is copied, forwarded or distributed without authorization. If you have received this message in error, please
Thank you.



FUELS SAFETY DIVISION

Tel: (416) 734-3353
Fax: (416) 231-7525

December 10, 2008

File: CF

Mr. David P. Wesenger, B.E.S.
Senior Project Manager
Stantec Consulting Ltd.
70 Southgate Drive, Suite 1
Guelph, ON N1G 4P5

Dear Mr. Wesenger:

Re: Dawn Gateway LP – Bickford Pool Compression Station to Dawn Compressor Station Pipeline Project.

This is in response to your letter of November 28, 2008, about the proposed construction of referenced pipeline.

As Dawn Gateway LP is a new company, we will need to assess the expertise of the technical people that will be involved in the design of the NPS 24 transmission pipeline, as well as the experience of the operation and maintenance team to deal with the operation of the existing pipeline to be purchased from Union Gas Limited.

For this purpose, and as an initial submission, we will need:

- Identification of the personnel responsible for the integrity management program as outlined in clause N5.3, Annex N of CSA Z662-07;
- The approximate time the operating company will be in position to have available for review the following documentation:
 - a) The operating and maintenance procedures required in clause 10.3.1.2 of CSA Z662-07;
 - b) The emergency response plan as required in clause 10.3.2.3 of CSA Z662-07, and
 - c) The Pipeline Integrity Management Program as required in the Amendment to the Code Adoption Document issued under the O. Reg. 210/01, Ref. No. FS-121-08.

The operating company shall obtain a licence to transmit natural gas prior to the commissioning of the pipeline.

Should you have any questions, please call me.

Yours truly,

A handwritten signature in dark ink, appearing to read "Oscar Alonso", is written over a large, faint, oval-shaped stamp or watermark.

Oscar Alonso, P. Eng.
Fuels Safety Engineer

c: Ms. Zora Crnojacki, Chairperson, OPCC, Ontario Energy Board, 2300 Yonge St., 26th
Floor, Suite 2601, Toronto, ON M4P 1E4

\\users\fsesb\oa\wesenger 15.

From: Wesenger, David
Sent: Wednesday, October 08, 2008 11:23 AM
To: Knight, Mark
Subject: FW: Dawn Gateway LP Pipeline Project

From: Glen Millar [mailto:glen.millar@county-lambton.on.ca]
Sent: Wednesday, October 08, 2008 11:10 AM
To: Wesenger, David
Subject: Dawn Gateway LP Pipeline Project

David,

Please find the following comments from the County of Lambton Public Works Department:

- All piping along or under County Roads shall require an agreement with the County in accordance with County Pipeline By-Law, may include sections of County Roads 2 (Bentpath), 26 (Mandaumin), and 31 (Kimball);
- Open cutting of County Roads prohibited;
- Traffic on County Roads to be maintained during construction;
- Minimize impact to County infrastructure (i.e. roads, shoulders, ditching, bridges, culverts, etc.);
- Minimize impact to other infrastructure (i.e. watermain, sewers, private utilities, etc.);
- All work conducted within the County's road allowance to be completed in accordance with applicable legislation, regulations, etc.

Please keep me posted on the proposed pipeline alignments and upcoming fall PIC.

Thanks,

Glen Millar, P.Eng.
Manager, Public Works
County of Lambton
(519) 845-0801 Ext. 5311



please don't print this e-mail unless you really need to.

DISCLAIMER:

If you are not the intended recipient of this transmission, you are hereby notified that any disclosure or other action taken in reliance on its contents is strictly prohibited. Please delete the information from your system and notify the sender immediately. If you receive this email in error contact the County of Lambton at 519 845 0801 extension 405 or email itsupport@county-lambton.on.ca.



St. Clair Region Conservation Authority

205 Mill Pond Cr., Strathroy, ON, N7G 3P9
(519) 245-3710 (519) 245-3348 FAX
E-Mail stclair@scrca.on.ca
Website www.scrca.on.ca

Member Municipalities

Township of
Adelaide-Metcalfe

Township of
Brooke-Alvington

Municipality of
Chatham-Kent

Township of
Dawn-Euphemia

Township of
Enniskillen

Municipality of
Lambton Shores

Township of
Middlesex Centre

Village of
Newbury

Village of
Oil Springs

Town of
Petrolia

Town of
Plympton-Wyoming

Village of
Point Edward

City of
Sarnia

Municipality of
Southwest Middlesex

Township of
St. Clair

Township of
Strathroy-Caradoc

Township of
Warwick

member of



October 21, 2008

Stantec Consulting Ltd.
361 Southgate Drive
Guelph, Ontario
N2L 2R5

Attention: David P. Wesenger, B. E. S.

Dear Mr. Wesenger:

**Re: Level 1 & 2 Information Request
Env. & Socio-Economic Assessment Commencement Dawn
Gateway LP Pipeline**

The SCRCA (St. Clair Region Conservation Authority) acknowledges your request to proceed with a background natural heritage data search and retrieval as outlined in your letter. After performing a search for evaluated wetlands, ESA's, ANSI's, fish habitat/municipal drain classification data, benthic data and regulations - as they apply to the *Conservation Authorities Act*, the following information is provide in this email:

Municipal Drain Classification and Thermal Regime Information for Study Area

- Map entitled: EA_24_2008_DFO.pdf

Natural Heritage Areas - Sampling Site Locations

- Map entitled: EA_24_2008_Nat Heritage and sampling sites.pdf

Environmentally Significant Areas

- Lambton County Preliminary Environmentally Sensitive Area Survey -Wilkesport Woodlot - Files entitled: Wilkesport Woodlot_page_1.tif, Wilkesport_Woodlot_page_2.tif

Benthic Data for Study Area from 1999 through to 2006 - Site Names BLC S04, LNS A01, and LNS S21 - (when sampled)

- Files entitled: Benthic_1999.xls, Benthic_2000.xls, Benthic_2001.xls, Benthic_2002.xls, Benthic_2003.xls, Benthic_2004.xls, Benthic_2005.xls, and Benthic_2006.xls
- Benthic_Site_Location_Table.xls

Fish Species for Study Area from 1999 to 2004 - Site Names: SOM 010

- File entitled: Fish_Species_List.xls

"working together for a better environment"

SCRCA Regulations

- In terms of areas within the jurisdiction of this Authority's *Development, Interference with Wetlands & Alterations to Shorelines and Watercourses Regulation*, the final new regulatory limits have not yet been defined for this area. In general, any works in or around watercourses/drains would require written permission of this Authority.

Please do not hesitate to contact the undersigned, if you have any questions or if you require further information.

Sincerely,

A handwritten signature in black ink, reading "Heather MacKenzie". The signature is written in a cursive, flowing style.

Heather MacKenzie
Aquatic Systems Biologist

RECEIVED
OCT 16 2008



COMMENTS

DATE: Thursday, October 09, 2008
TO: Stantec Consulting Ltd.
FROM: Larry J. Burnham, P.Eng.
RE: Dawn Gateway LP Pipeline Project

We have reviewed your map of the Study Area and offer the following comments:

- Burman Line, Smith Line, Indian Creek Road and Pretty Road are gravel township roads which cannot sustain construction traffic.
- Wilkesport Line and Brigden Road are paved township roads.
- Highway 40 is a provincial highway.
- Bentpath Line, Kimball Road and Mandaumin Road are county roads.
- We have attached a map showing the location of potable watermain in the Study Area.
- The Lambton Area Water Supply System (LAWSS) owns and operates the potable watermain on Highway 40 and Wilkesport Line.
- The Township of Dawn-Euphemia owns and operates the potable watermain on Mandaumin Road (County Road 26). This watermain also extends along Bentpath Line from Mandaumin Road westerly approximately 4600'.
- The north half of Lot 11 in Concession XII is a former landfill site.

Respectfully Submitted,

Larry J. Burnham, P.Eng.
Director of Public Works

From: Wesenger, David
Sent: Tuesday, February 10, 2009 2:00 PM
To: Knight, Mark
Subject: Fw: Dawn Gateway Pipeline Project

David Wesenger
Managing Leader, Environmental Management Stantec Consulting Ltd.

(519)836-6050

----- Original Message -----

From: Gary DePooter <gdepooter@twp.stclair.on.ca>
To: Wesenger, David
Cc: Larry Burnham <lburnham@twp.stclair.on.ca>; David Neely <dneely@twp.stclair.on.ca>
Sent: Tue Feb 10 11:47:26 2009
Subject: Dawn Gateway Pipeline Project

David,

Regarding the proposed Dawn Gateway Pipeline Project in St. Clair Township we have the following comments:

- 1/ We will need to meet at a future date to verify the final route with regard to road and drain crossings.
- 2/ A 'crossing agreement' will need to be implemented addressing route, road and drain crossings, and detailing applicable fees.
- 3/ Please keep our Drainage Superintendent - David Neely- or myself informed of your schedule.

Gary DePooter, C.E.T.
St. Clair Township,
Coordinator of Operations (Roads/Drainage) gdepooter@twp.stclair.on.ca
867 2112 office
867 3886 fax
383 2350 cell

Appendix B7

Public Correspondence

Memo



Stantec

To:	File	From:	Mark Knight
File:	160960438	Date:	December 5, 2008

Reference: Dawn Gateway Project

On December 5th, 2008, in the late afternoon, Ms. Joyce Wildes [REDACTED] telephoned the Stantec Guelph office.

Ms. Wildes wondered about the pipeline connecting to her home, and whether her property would be affected.

It was discussed that the pressure of the pipeline precludes direct home connections.

It was also discovered that the address of Ms. Wildes, [REDACTED] falls within Alternative Corridor A. As her property is the residence fronting Wilkesport Line, and not the larger farmland to the south, it was discussed that the only route which would affect her property would be one running along the road. It was also discussed that, while no final routes can be discounted, a route running along the road would also need to pass through the community of Wilkesport, and a closed landfill.

Ms. Wiles was pleased with the responses and, while not able to attend the upcoming Public Information Session, would like to be kept on the study contact list.

STANTEC CONSULTING LTD.

Mark Knight, M.A. (Geog.)
Environmental Planner
mark.knight@stantec.com

One Team. Infinite Solutions.

Memo



Stantec

To: File

From: Mark Knight

File: 160960438

Date: December 8, 2008

Reference: Dawn Gateway Project

On December 8th, 2008, in the early morning, Joe Fournie telephoned the Stantec Guelph office.

Mr. Fournie corrected the name of the letter he received.

Mr. Fournie also wondered if his two properties would be affected – [REDACTED]
[REDACTED] It was noted that his properties are within Alternative Corridor A, but at this point a preliminary preferred corridor had not been chosen.

Mr. Fournie indicated that he would likely attend the Public Information Session.

STANTEC CONSULTING LTD.

Mark Knight, M.A. (Geog.)
Environmental Planner
mark.knight@stantec.com

Memo



Stantec

To: File

From: Mark Knight

File: 160960438

Date: December 8, 2008

Reference: Dawn Gateway Project

On December 8th, 2008, Mr. Robert Mell telephoned the Stantec Guelph Office. Mr. Mell owns mineral rights to a property in the Study Area. He wondered if he will be impacted by the Project.

It was indicated that Dawn Gateway LP staff would be consulted, and that Mr. Mell would receive a telephone call.

Mark Murray (Manager, Regulatory Projects and Lands Acquisition) was contacted on December 11th and December 15th regarding this inquiry. Mr. Murray forwarded the request to Tom Edwards (Senior Lands Agent), who will contact Mr. Mell.

STANTEC CONSULTING LTD.

Mark Knight, M.A. (Geog.)
Environmental Planner
mark.knight@stantec.com

Memo



Stantec

To: File

From: Mark Knight

File: 160960438

Date: December 18, 2008

Reference: Dawn Gateway Project

On December 18th, 2008, Stantec telephoned Mr. Bruce Langstaff.

Mr. Langstaff attended the December 11th, 2008 Public Information Session, and on his completed exit questionnaire checked off that he would like to be contacted regarding the project.

A message was left for Mr. Langstaff, inquiring if he would simply wish to be kept on the contact list, or whether he would like to discuss the project over the telephone or in-person with Stantec and/or Dawn Gateway staff.

Mr. Langstaff phoned back to discuss the corridors. It was indicated that a preferred corridor would be presented at an upcoming Public Information Centre.

STANTEC CONSULTING LTD.

Mark Knight, M.A. (Geog.)
Environmental Planner
mark.knight@stantec.com

Memo



Stantec

To: File

From: Mark Knight

File: 160960438

Date: December 18, 2008

Reference: Dawn Gateway Project

On December 18th, 2008, Stantec telephoned Mr. John Hyland.

Mr. Hyland attended the December 11th, 2008 Public Information Session, and on his completed exit questionnaire checked off that he would like to be contacted regarding the project.

Mr. Hyland indicated that he was new to the area, and that the process was new to him. Mr. Hyland inquired regarding if agricultural crops would be impacted. It was explained that top soil will be stripped, and that compensation may occur if reduced yield is experienced.

Mr. Hyland also inquired about a neighbour who was approached and offered \$300 if he signed a contract on the spot. It was indicated that this would not have been part of the Dawn Gateway Pipeline Project, and that perhaps it was a wind developer.

STANTEC CONSULTING LTD.

Mark Knight, M.A. (Geog.)
Environmental Planner
mark.knight@stantec.com

Memo



Stantec

To: File

From: Mark Knight

File: 160960438

Date: February 2, 2009

Reference: Dawn Gateway Project

On February 2nd, 2009, Mr. Ronny D'Haene telephoned the Stantec Guelph office.

Mr. D'Haene commented that he is undertaking a wildlife project on his [REDACTED] and he suspects that his property will not be impacted.

A message was left for Mr. D'Haene indicating that his property was in the Preliminary Preferred Corridor, but not within the Preliminary Detailed Route (given Stantec's understanding of his property limit).

STANTEC CONSULTING LTD.

Mark Knight, M.A. (Geog.)
Environmental Planner
mark.knight@stantec.com

One Team. Infinite Solutions.

Memo



Stantec

To: File

From: Mark Knight

File: 160960438

Date: February 9, 2009

Reference: Dawn Gateway Project

On February 9th, 2009 Ms. Joyce Wildes telephoned the Stantec Guelph office.

Ms. Wildes wondered about where the pipeline would be located, and what it would be for. She commented that the construction would be useful for local employment.

Ms. Wiles was pleased with the responses and, while not able to attend the upcoming Public Information Session, would like to be kept on the study contact list.

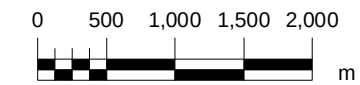
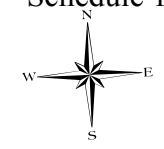
STANTEC CONSULTING LTD.

Mark Knight, M.A. (Geog.)
Environmental Planner
mark.knight@stantec.com

One Team. Infinite Solutions.

Appendix C

Features Mapping



- Stations**
- Bickford Compressor Station
 - Dawn Compressor Station
 - Study Area
 - Preferred Corridor
 - Road
 - Watercourse
 - Waterbody
- Soil Type**
- Bottom Land
 - Brisbane Loam
 - Brookston Clay
 - Caistor Clay



Source: LIDS 2006, First Base Solutions 2006

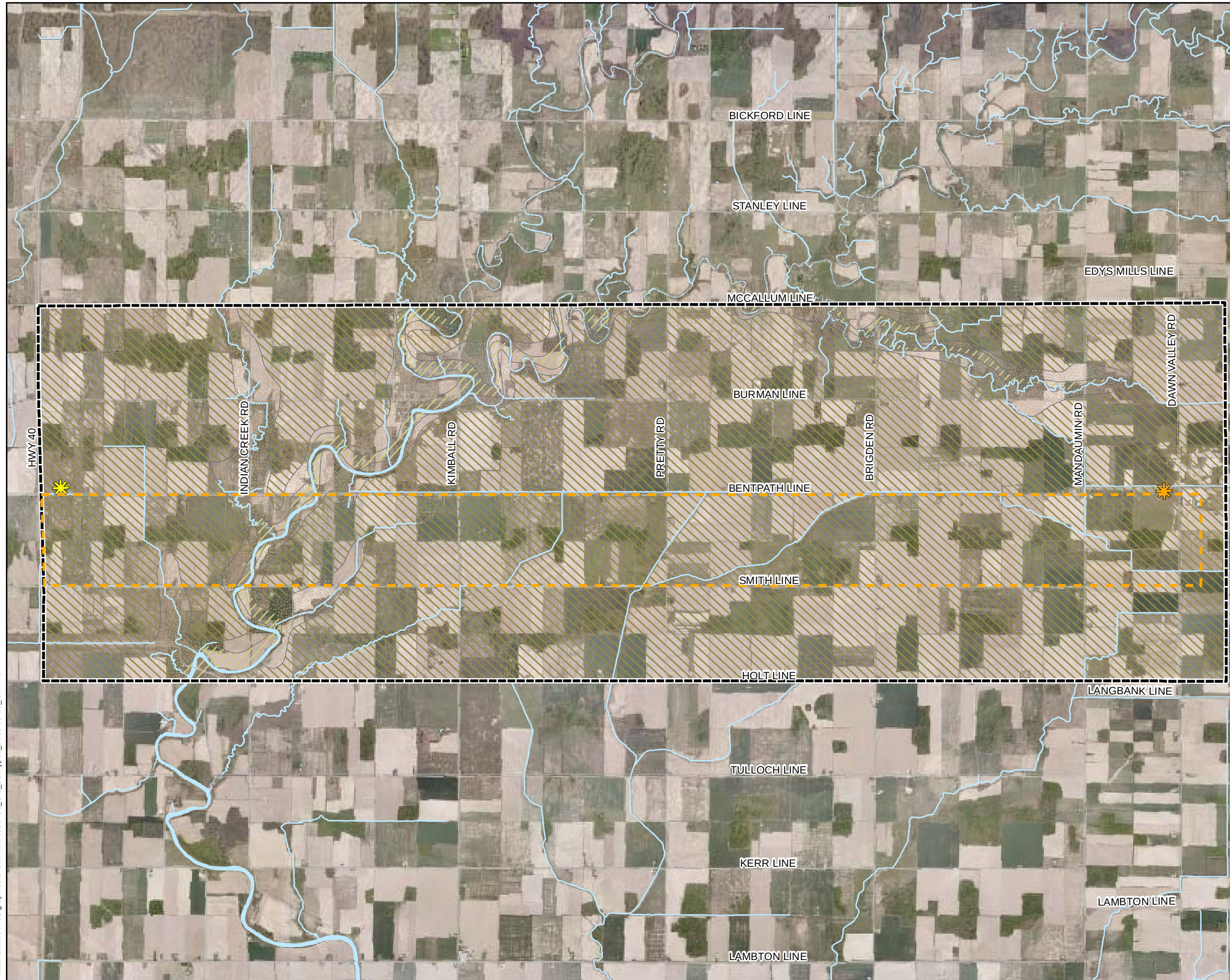
PREPARED FOR:
DAWN GATEWAY LP
BICKFORD TO DAWN PIPELINE

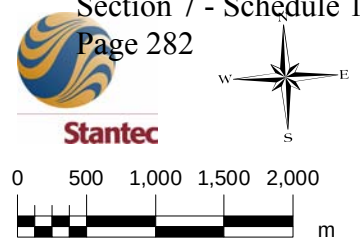
FIGURE NO. C-1

SOIL TYPES

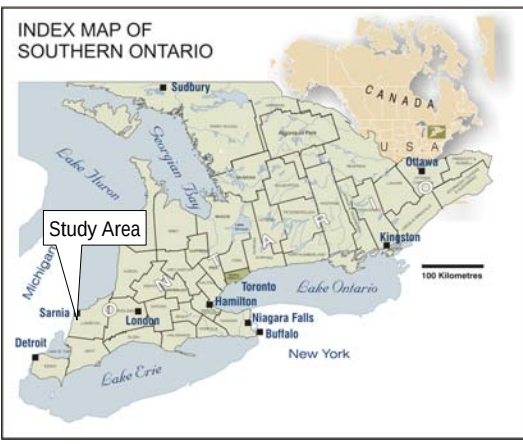
Initiated: October 15, 2008
Revised: March 13, 2009

W:\active\60960438\graphics\GIS\WXDI60960438_C-1_SoilTypes_2009-03-13_ED.mxd





- Stations**
- Bickford Compressor Station
 - Dawn Compressor Station
- Study Area
- Preferred Corridor
- Road
- Watercourse
- Waterbody
- CLI Class**
(1 = Highest Productivity, 7 = Lowest Productivity)
- 2
 - 3
 - 5



Source: LIDS 2006, First Base Solutions 2006, Agriculture and Agri-Food Canada.

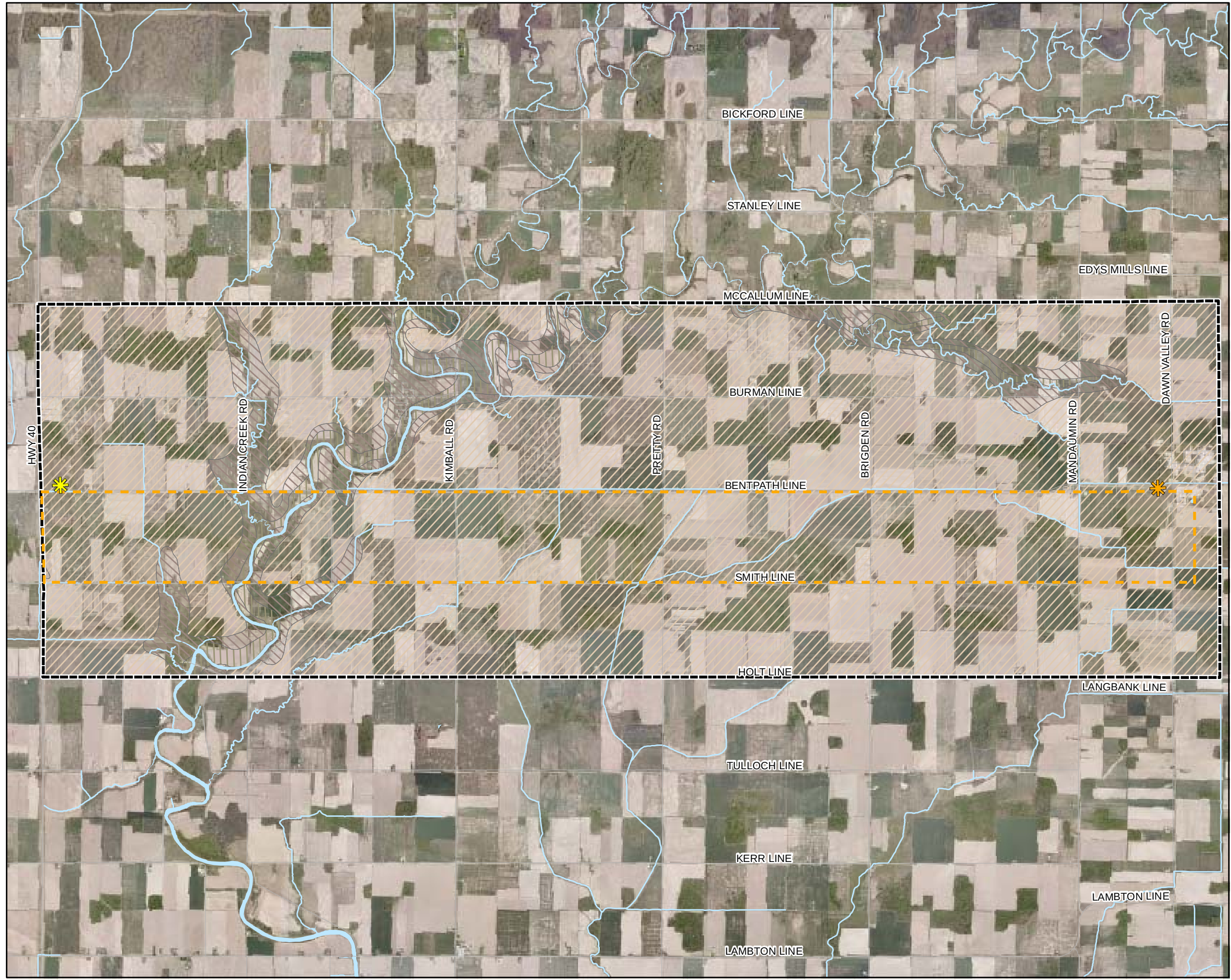
PREPARED FOR:
DAWN GATEWAY LP
BICKFORD TO DAWN PIPELINE

FIGURE NO. C-2

Canada Land Inventory Classification

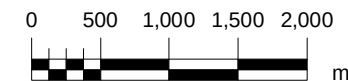
Initiated: October 15, 2008
Revised: March 13, 2009

W:\active\60960438\graphics\GIS\MXD\60960438_C-2_CLI\classification_2009-03-13_ED.mxd





Stantec



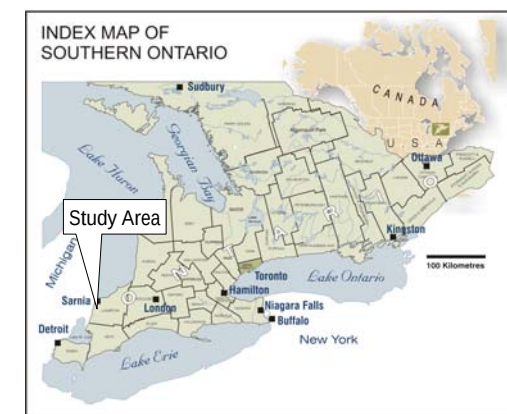
Stations

- Bickford Compressor Station
- Dawn Compressor Station

- Study Area
- Preferred Corridor

- Random
- Systematic

- Road
- Watercourse
- Waterbody



Source: LIDS 2006, First Base Solutions 2006, Agriculture and Agri-Food Canada.

PREPARED FOR:

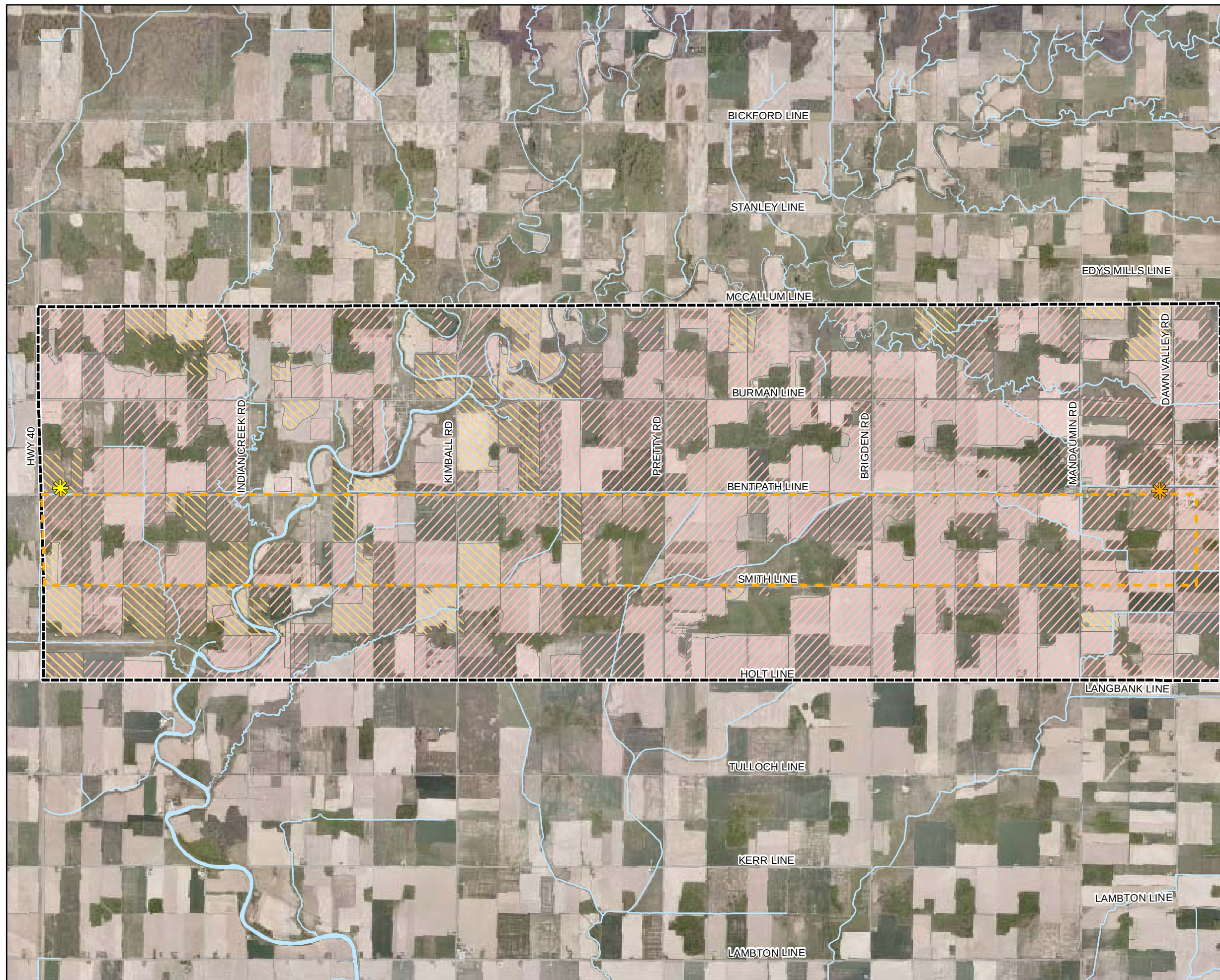
DAWN GATEWAY LP
BICKFORD TO DAWN PIPELINE

FIGURE NO. C-3

ARTIFICIAL TILE DRAINAGE

Initiated: November 21, 2008
Revised: March 13, 2009

W:\active\60960438\graphics\GIS\MXD\60960438_C-3_ArtificialTileDrainage_2009-03-13_ED.mxd



- Airport

Cemetery

Church

Community Centre

Firehall

Library

Closed Landfill

Study Area

Preferred Corridor

Road

Watercourse

Waterbody
- Stations

Bickford Compressor Station

Dawn Compressor Station



Source: LIDS 2006, First Base Solutions 2006, Ontario Base Map © Queen's Printer for Ontario 2008.

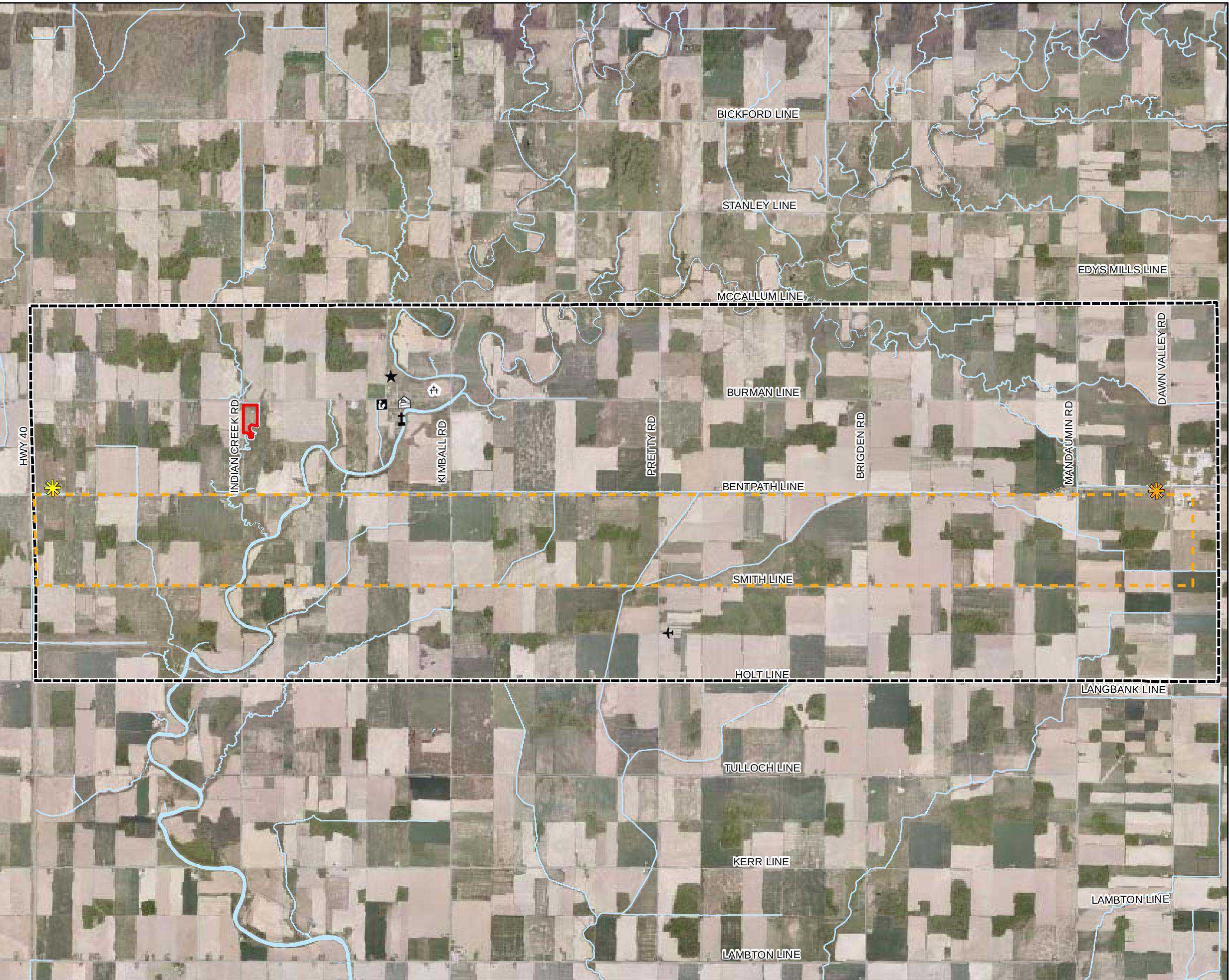
PREPARED FOR:
DAWN GATEWAY LP
BICKFORD TO DAWN PIPELINE

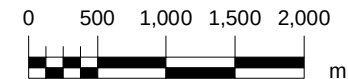
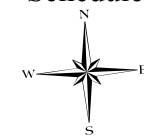
FIGURE NO. C-4

SOCIO-ECONOMIC
FEATURES

Initiated: October 15, 2008
Revised: March 13, 2009

W:\active\60960438\graphics\GIS\MXD\60960438_C-4_SocioEconomic_2009-03-13_ED.mxd





- Stations**

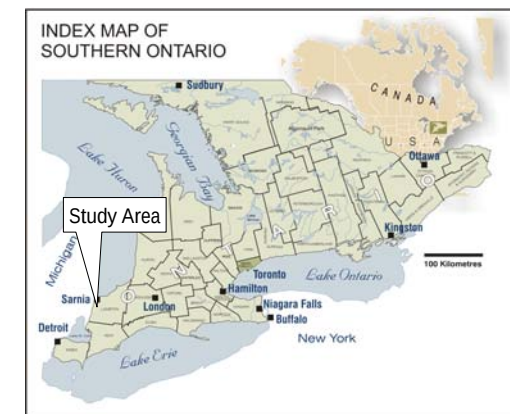
 - Bickford Compressor Station
 - Dawn Compressor Station
 - Study Area
 - Preferred Corridor
 - Road
 - Watercourse
 - Waterbody
- Designated Natural Areas**

 - 1 Wilkesport Woodlot
 - 2 McKeough Lands
 - 3 W. Darcy McKeough
 - 4 Duthill Woodlot

Wetlands

 - 5 Bray's Swamp
 - 6 Grant's Wetland
- Natural Heritage Corridors**

 - Primary Corridor
 - Secondary Corridor



Source: LIDS 2006, First Base Solutions 2006

PREPARED FOR:

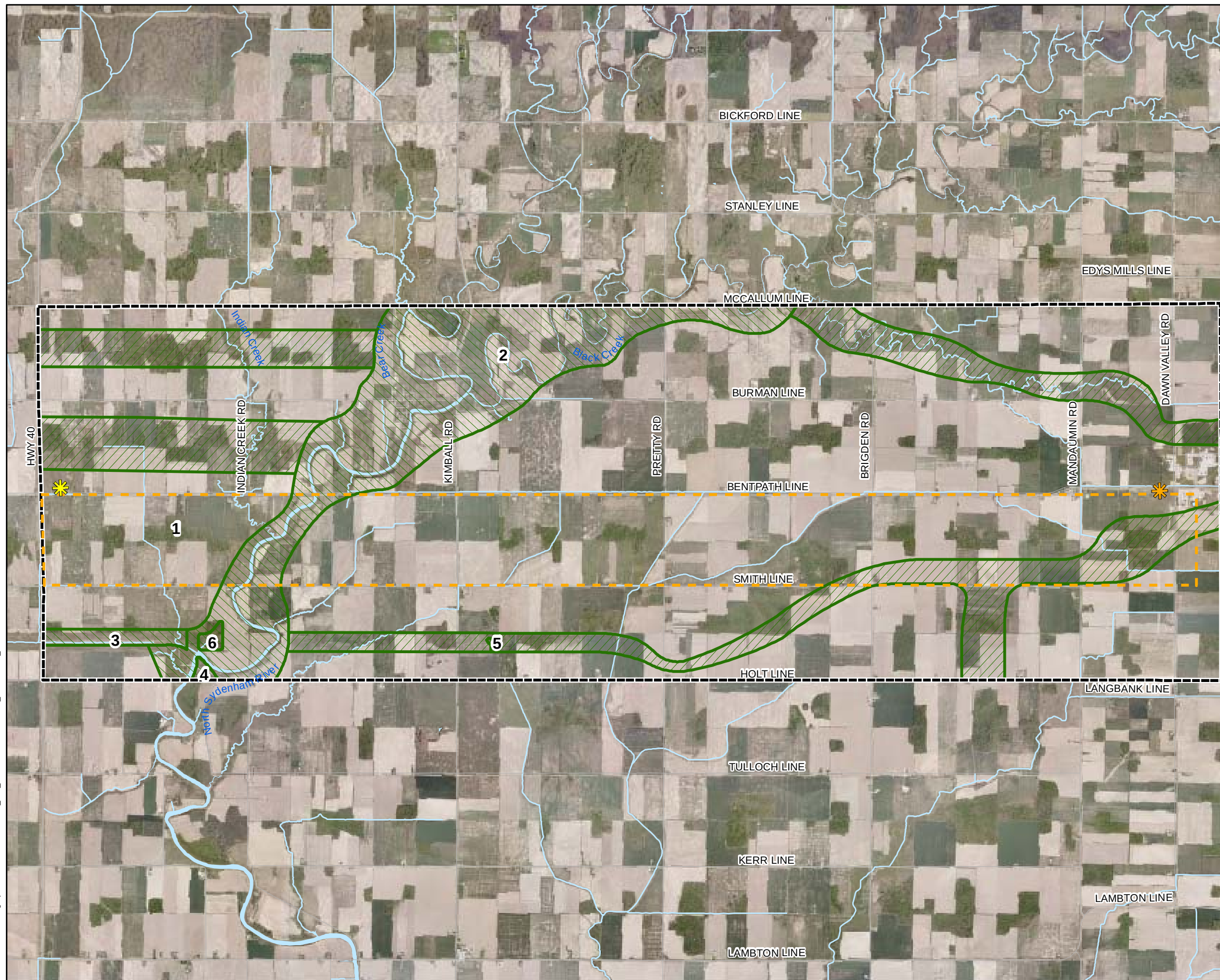
DAWN GATEWAY LP
BICKFORD TO DAWN PIPELINE

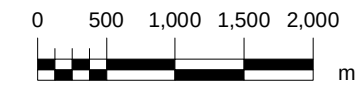
FIGURE NO. C-5

ENVIRONMENTAL FEATURES

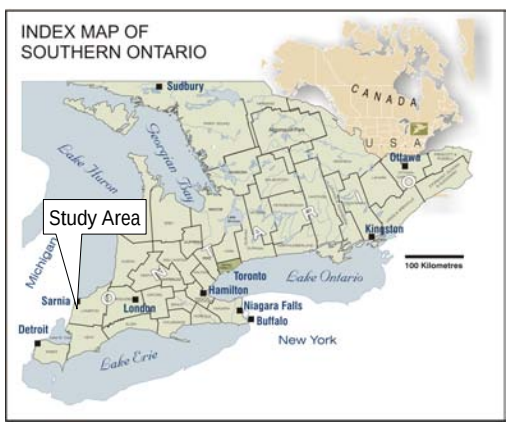
Initiated: October 15, 2008
Revised: March 13, 2009

W:\active\60960438\graphics\GIS\MXD\60960438_C-5_EnvironmentalFeatures_2009-03-13_ED.mxd





-  MOE Water Well Records
-  Study Area
-  Preferred Corridor
- Stations**
-  Bickford Compressor Station
-  Dawn Compressor Station
-  Road
-  Watercourse
-  Waterbody



Source: LIDS 2006, First Base Solutions 2006, MOE Water Well Records.

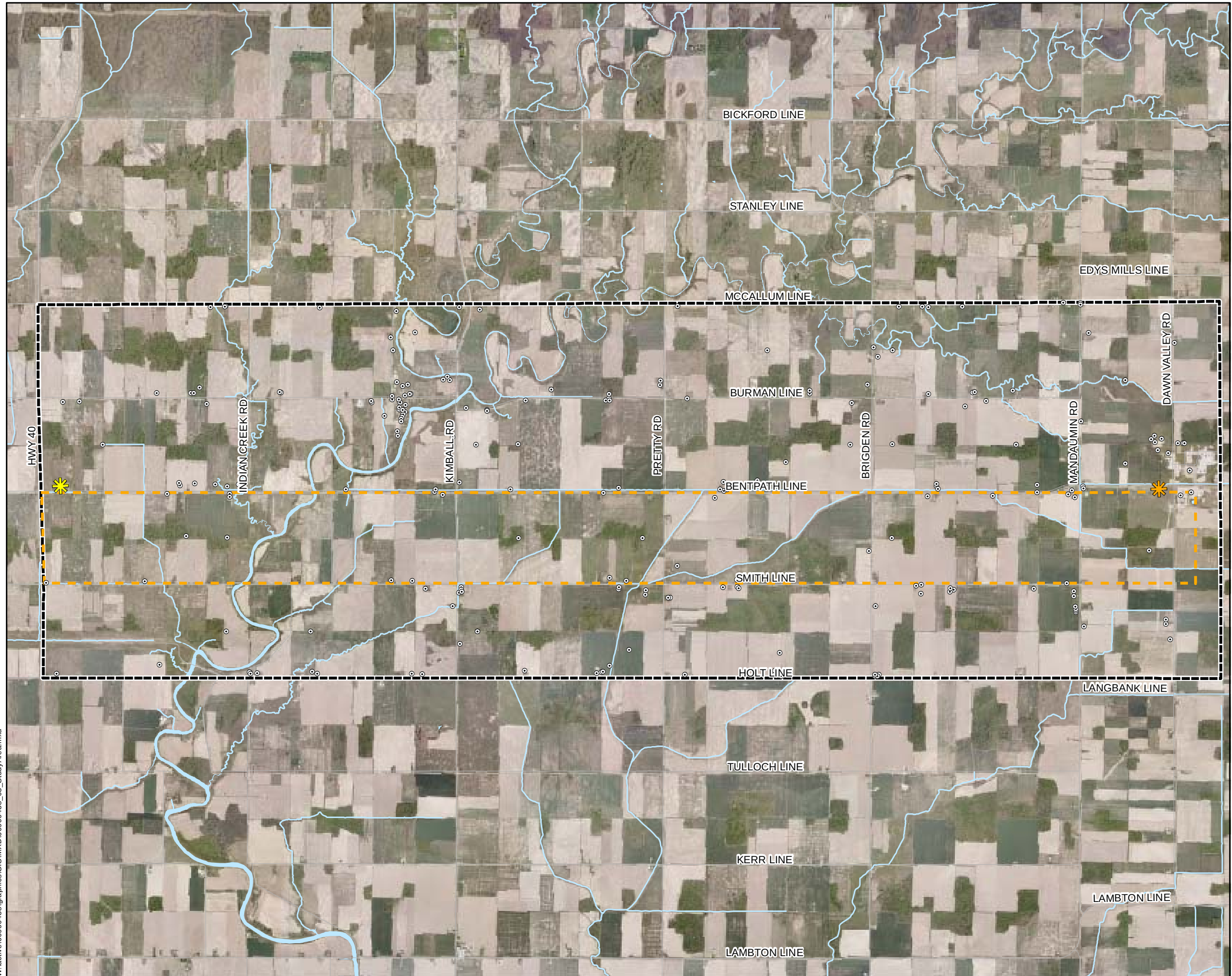
PREPARED FOR:
DAWN GATEWAY LP
BICKFORD TO DAWN PIPELINE

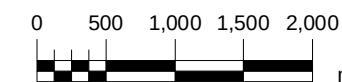
FIGURE NO. C-6

WATER WELLS

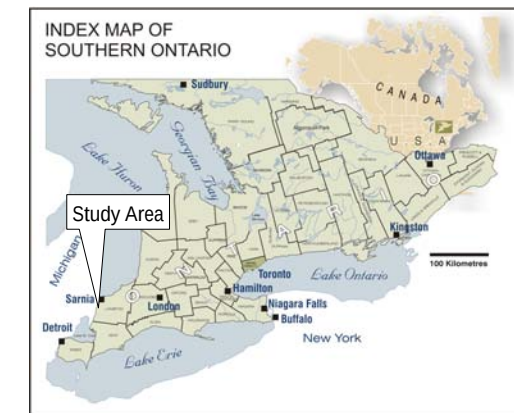
Initiated: October 15, 2008
Revised: March 13, 2009

W:\active\60960438\graphics\GIS\MXD\60960438_03_StudyArea.mxd





- | | |
|---------------------------------|----------------------------|
| Study Area | Abandoned Disposal Well |
| Preferred Corridor | Abandoned Dry Well |
| Natural Gas Pipelines | Abandoned Gas Show |
| Road | Abandoned Natural Gas Well |
| Watercourse | Abandoned Oil & Gas Show |
| Waterbody | Abandoned Oil Show |
| Active Natural Gas Storage Pool | Abandoned Oil Well |
| Gas Pool | Active Gas Storage Well |
| Oil Pool | Active Oil & Gas Well |
| Producing Oil Pool | Active Well |
| Stations | Unknown Gas Well |
| Bickford Compressor Station | |
| Dawn Compressor Station | |



Source: LIDS 2006, OGSR 2001 Map,
OGSR 2008 Petroleum Well Map.

PREPARED FOR:

DAWN GATEWAY LP
BICKFORD TO DAWN PIPELINE

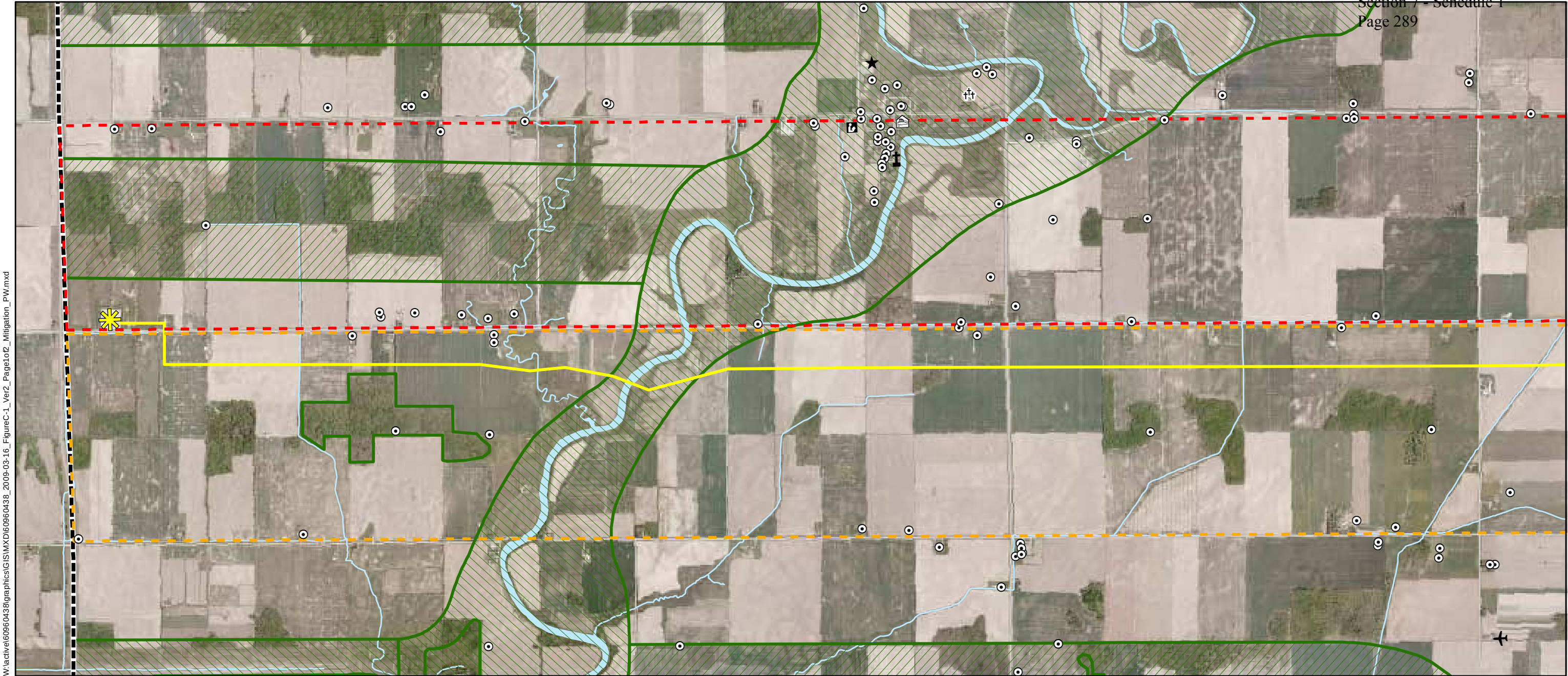
FIGURE NO. C-7

HYDROCARBON FEATURES

Initiated: October 15, 2008
Revised: March 13, 2009

Appendix D

Photomosaics



W:\active\60960438\graphics\GIS\MXD\60960438_2009-03-16_FigureC-1_Ver2_Page1of2_Mitigation_PW.mxd

1. Construction within 100 m of a residence at various points along the alignment. Potential nuisance and aesthetic disturbance to residents. Refer to ESA Report Section 6.2.9 Air Quality, 6.2.10 Acoustic Environment, Section 6.2.14 Social and Cultural Well-Being and Section 6.2.15 Human Health and Aesthetics.
2. Construction within agricultural lands at various points along the alignment. Potential disturbance to agricultural features and activities. Refer to ESA Report Section 6.2.2 Soil and Soil Productivity and Section 6.2.11 Human Occupancy and Resource Use.
3. Crossing near water wells at various points along the alignment. Potential disturbance to water wells. Refer to ESA Report Section 6.2.4 Water Quality and Quantity.
4. Crossing of Bentpath Line. Consult with Lambton County to discuss crossing method and timing of crossing. Refer to ESA Report Section 6.2.11 Human Occupancy and Resource Use.
5. Crossing of municipal drain. Potential disturbance to water quality and aquatic species and habitat. Consult with SCRCA and DFO regarding crossing method and timing. Refer to ESA Report Section 6.2.4 Water Quality and Quantity, Section 6.2.5 Fish and Fish Habitat, and Section 6.2.8 Species at Risk and Species of Special Status.
6. Crossing near designated natural area. Potential disturbance to vegetation, wildlife and wildlife habitat. Refer to ESA Report Section 6.2.3 Vegetation, Section 6.2.7 Wildlife and Wildlife Habitat, and Section 6.2.8 Species at Risk and Species of Special Status.
7. Crossing of Indian Creek. Potential disturbance to water quality and aquatic species and habitat. Consult with SCRCA and DFO regarding crossing method and timing. Refer to ESA Report Section 6.2.4 Water Quality and Quantity, Section 6.2.5 Fish and Fish Habitat, and Section 6.2.8 Species at Risk and Species of Special Status.
8. Crossing of the North Sydenham River. Potential disturbance to water quality and aquatic species and habitat. Consult with SCRCA and DFO regarding crossing method and timing. Refer to ESA Report Section 6.2.4 Water Quality and Quantity, Section 6.2.5 Fish and Fish Habitat, and Section 6.2.8 Species at Risk and Species of Special Status.
9. Crossing of hydroelectric transmission easement. Consult with Hydro One to determine safety and distance requirements. Refer to ESA Report Section 6.2.16 Infrastructure and Services.
10. Crossing of Shepley Road. Consult with St. Clair Township to discuss crossing method and timing of crossing. Refer to ESA Report Section 6.2.11 Human Occupancy and Resource Use.
11. Crossing of Kimball Road. Consult with Lambton County to discuss crossing method and timing of crossing. Refer to ESA Report Section 6.2.11 Human Occupancy and Resource Use.
12. Crossing near woodlot. Potential disturbance to vegetation, wildlife and wildlife habitat. Refer to ESA Report Section 6.2.3 Vegetation, Section 6.2.7 Wildlife and Wildlife Habitat, and Section 6.2.8 Species at Risk and Species of Special Status.
13. Crossing of municipal drain. Potential disturbance to water quality and aquatic species and habitat. Consult with SCRCA and DFO regarding crossing method and timing. Refer to ESA Report Section 6.2.4 Water Quality and Quantity, Section 6.2.5 Fish and Fish Habitat, and Section 6.2.8 Species at Risk and Species of Special Status.
14. Crossing of Pretty Road. Consult with St. Clair Township to discuss crossing method and timing of crossing. Refer to ESA Report Section 6.2.11 Human Occupancy and Resource Use.
15. Crossing of municipal drain. Potential disturbance to water quality and aquatic species and habitat. Consult with SCRCA and DFO regarding crossing method and timing. Refer to ESA Report Section 6.2.4 Water Quality and Quantity, Section 6.2.5 Fish and Fish Habitat, and Section 6.2.8 Species at Risk and Species of Special Status.

- | | | | | | |
|--|----------------------------------|--|------------------------|--|-------------------------|
| | Bickford Pool Compressor Station | | MOE Water Well Records | | Road |
| | Study Area | | Airport | | Watercourse |
| | Alternative Corridor A | | Cemetery | | Waterbody |
| | Preferred Corridor | | Church | | Designated Natural Area |
| | Preliminary Preferred Route | | Community Centre | | Primary Corridor |
| | | | Firehall | | Secondary Corridor |
| | | | Library | | |

Notes

1. Orthoimagery source: First Base Solutions, 2008
2. Base mapping source: LIDS, 2006
3. Pipeline route information source: Dawn Gateway Pipeline LP, 2008
4. Water well information was obtained from Ministry of Environment data (2008). There may be other water wells within the study area.



Stantec

March 2009
160960438

PREPARED FOR:

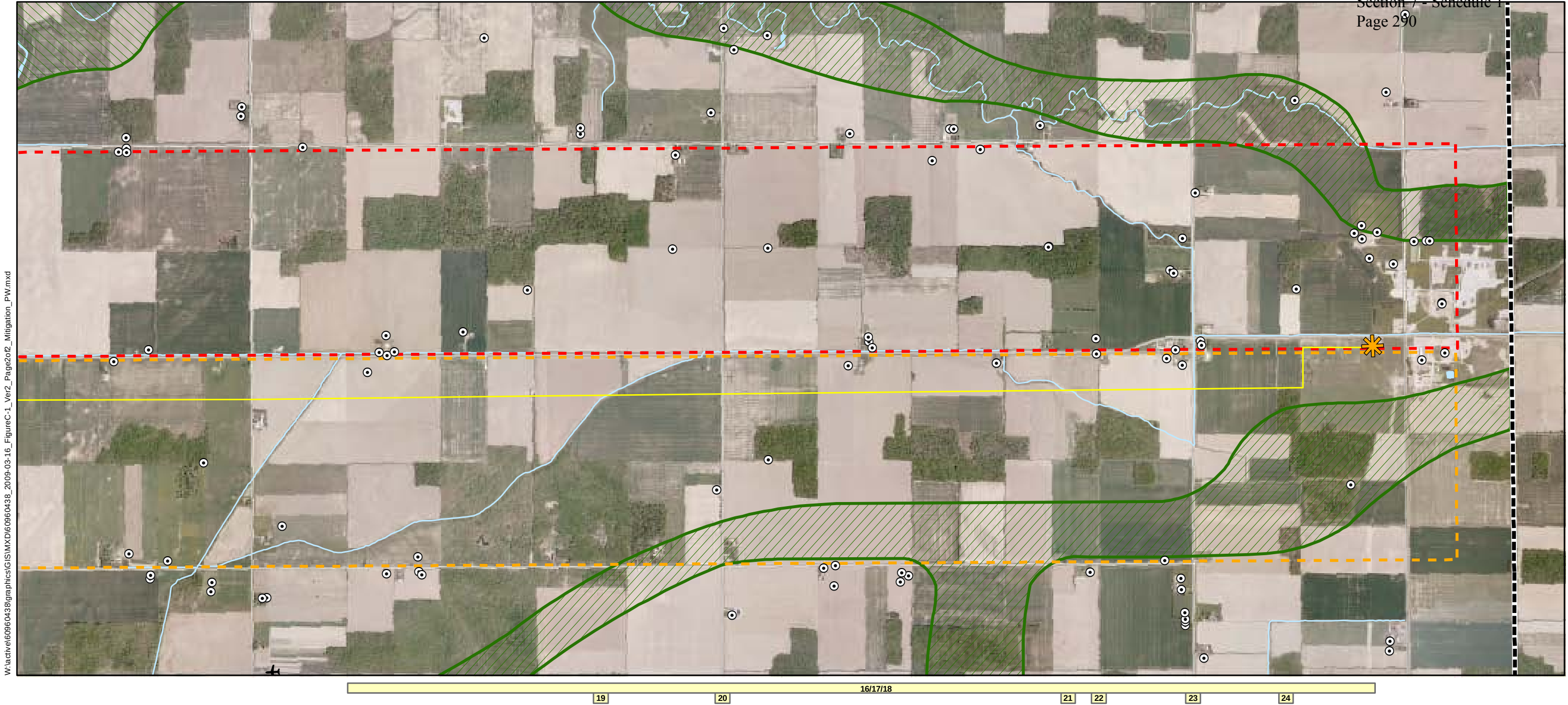
DAWN GATEWAY LP
DAWN GATEWAY PIPELINE PROJECT

FIGURE NO. C-1
Page 1 of 2

MITIGATION

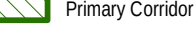
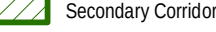


0 125 250 500 750 1,000
1:25,000 Meters



W:\active\60960438\graphics\GIS\MXD\60960438_2009-03-16_FigureC-1_Ver2_Page2of2_Mitigation_PW.mxd

16. Construction within approximately 100 m of a residence at various points along the alignment. Potential nuisance and aesthetic disturbance to residents. Refer to ESA Report Section 6.2.9 Air Quality, 6.2.10 Acoustic Environment, Section 6.2.14 Social and Cultural Well-Being and Section 6.2.15 Human Health and Aesthetics.
17. Construction within agricultural lands at various points along the alignment. Potential disturbance to agricultural features and activities. Refer to ESA Report Section 6.2.2 Soil and Soil Productivity and Section 6.2.11 Human Occupancy and Resource Use.
18. Crossing near water wells at various points along the alignment. Potential disturbance to water wells. Refer to ESA Report Section 6.2.4 Water Quality and Quantity.
19. Crossing of municipal drain. Potential disturbance to water quality and aquatic species and habitat. Consult with SCRC and DFO regarding crossing method and timing. Refer to ESA Report Section 6.2.4 Water Quality and Quantity, Section 6.2.5 Fish and Fish Habitat, and Section 6.2.8 Species at Risk and Species of Special Status.
20. Crossing of Brigden Road. Consult with St. Clair Township to discuss crossing method and timing of crossing. Refer to ESA Report Section 6.2.11 Human Occupancy and Resource Use.
21. Crossing of municipal drain. Potential disturbance to water quality and aquatic species and habitat. Consult with SCRC and DFO regarding crossing method and timing. Refer to ESA Report Section 6.2.4 Water Quality and Quantity, Section 6.2.5 Fish and Fish Habitat, and Section 6.2.8 Species at Risk and Species of Special Status.
22. Crossing near woodlot. Potential disturbance to vegetation, wildlife and wildlife habitat. Refer to ESA Report Section 6.2.3 Vegetation, Section 6.2.7 Wildlife and Wildlife Habitat, and Section 6.2.8 Species at Risk and Species of Special Status.
23. Crossing of municipal drain. Potential disturbance to water quality and aquatic species and habitat. Consult with SCRC and DFO regarding crossing method and timing. Refer to ESA Report Section 6.2.4 Water Quality and Quantity, Section 6.2.5 Fish and Fish Habitat, and Section 6.2.8 Species at Risk and Species of Special Status.
24. Crossing near woodlot. Potential disturbance to vegetation, wildlife and wildlife habitat. Refer to ESA Report Section 6.2.3 Vegetation, Section 6.2.7 Wildlife and Wildlife Habitat, and Section 6.2.8 Species at Risk and Species of Special Status.

- | | | | |
|---|-----------------------------|---|------------------------|
|  | Dawn Valve Site |  | MOE Water Well Records |
|  | Study Area |  | Airport |
|  | Alternative Corridor A |  | Road |
|  | Preferred Corridor |  | Watercourse |
|  | Preliminary Preferred Route |  | Waterbody |
| | |  | Primary Corridor |
| | |  | Secondary Corridor |

Notes

1. Orthoimagery source: First Base Solutions, 2008
2. Base mapping source: LIDS, 2006
3. Pipeline route information source: Dawn Gateway Pipeline LP, 2008
4. Water well information was obtained from Ministry of Environment data (2008). There may be other water wells within the study area.



0 120 240 480 720 960
Meters
1:25,000



March 2009
160960438

PREPARED FOR:

DAWN GATEWAY LP
DAWN GATEWAY PIPELINE PROJECT

FIGURE NO. C-1
Page 2 of 2

MITIGATION

Appendix E

Archaeological Assessment Report

**The 2008-2009 Stage 1 Archaeological Assessment
of the Proposed NPS 24 Bickford to Dawn Line,
Dawn Gateway Pipeline Project,
Townships of St. Clair
& Dawn-Euphemia,
Lambton County, Ontario**

Submitted to

Stantec Consulting Ltd.
70 Southgate Drive, Suite 1,
Guelph, Ontario
N1G 4P5
Telephone – 519 836-6050
Fax – 519 836-2493

and

The Ontario Ministry of Culture

Prepared by

D.R. Poulton & Associates Inc.
69 Langarth Street West, London, Ontario, N6J 1P5
Telephone – 519 434-0319 Facsimile – 519 434-0517
E-mail - drpoulton@rogers.com

CIF #P053-143-2008; Corporate Project Number 08-103

February 2009

TABLE OF CONTENTS

<i>Project Personnel</i>	<i>iv</i>
<i>Acknowledgments</i>	<i>iv</i>
<i>Executive Summary</i>	<i>v</i>
1.0 INTRODUCTION	1
2.0 LOCATION AND DESCRIPTION	3
2.1 Alternative Corridor A	4
2.2 Alternative Corridor B: Preliminary Preferred Corridor	4
3.0 STAGE 1 BACKGROUND RESEARCH	5
3.1 Methods	5
3.2 Results	5
4.0 EVALUATION OF ARCHAEOLOGICAL RESOURCES	12
4.1 Known Sites of Demonstrable or Potential Significance	12
4.2 Potential for as-yet Undiscovered Sites	14
5.0 RECOMMENDATIONS	18
6.0 REFERENCES CITED	20

List of Tables

Table 1	Cultural Chronology for Southwestern Ontario	6
Table 2	Registered Archaeological Sites in the Study Area	8
Table 3	Summary Data on Registered Archaeological Sites in the Study Area	9

List of Figures

Figure 1	Location of the Study Area and Alternative Pipeline Corridors	23
Figure 2	Composite Historical Atlas Map of the Study Area and Vicinity	24

Project Personnel

Consulting Archaeologists

Dana R. Poulton
Christine F. Dodd

Report Preparation

Dana R. Poulton

Draughting

Christine F. Dodd

Acknowledgments

This assessment was facilitated by the following individuals and their agencies:

- **Mark Knight**, Environmental Planner, Stantec Consulting Ltd.;
- **Wai Kok**, Archaeological Database Administrator, Culture Services Unit, Ontario Ministry of Culture;
- **Shari Prowse**, Archaeological Review Officer, Culture Programs Unit, Ontario Ministry of Culture; and
- **Robert von Bitter**, Archaeological Data Coordinator, Culture Services Unit, Ontario Ministry of Culture.

EXECUTIVE SUMMARY

Dawn Gateway Pipeline LP, a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, is currently working on a project that consists of the purchase of two existing St. Clair natural gas transmission pipelines and the construction of a new natural gas transmission pipeline. The latter is designated the proposed NPS 24 Bickford to Dawn Line. The overall project is designated the Dawn Gateway Pipeline Project.

Stantec Consulting Ltd. ("Stantec") has been retained by Dawn Gateway Pipeline LP to prepare all environmental reports for the existing St. Clair pipelines and for the proposed Bickford to Dawn Line. The reports will be completed as required under the NEB's Filing Manual (February 2008), and will meet the requirements of the Canadian Environmental Assessment Act. As part of the overall assessment, Stantec contracted D.R. Poulton & Associates Inc. to carry out an archaeological assessment of the NPS 24 Bickford to Dawn Line. The proposed pipeline will have an approximate length of 17 kilometres. It will extend from the Bickford Pool Compressor Station in the Township of St. Clair to the Dawn Compressor Station in the Township of Dawn-Euphemia.

Two concession-wide alternative pipeline corridors have been identified for the purposes of the environmental assessment, both contained within a study area. They have been designated Alternative Corridor A and Alternative Corridor B. The latter is the Preliminary Preferred Corridor. It follows an existing natural gas pipeline and the alignment under consideration for the Preliminary Preferred Alignment follows the south side of the existing natural gas pipeline. Figure 1 illustrates the location of the study area and the two alternative pipeline corridors. Union Gas Limited has been contracted to design, and construct the proposed pipeline. The construction of the proposed pipeline is scheduled for 2010. This report details the rationale, methods and results of the archaeological assessment of the proposed Bickford to Dawn Line.

The present archaeological assessment consists of a background study. This is a Stage 1 level of assessment as defined in the 1993 technical archaeological guidelines formulated by the Ontario Ministry of Culture, Tourism and Recreation (MCTR). There were two objectives to the archaeological assessment. The first was to determine the presence and nature of known archaeological sites in the study area. The second was to evaluate known and potential archaeological planning concerns for the two alternative pipeline corridors.

The background study determined that 10 archaeological sites have been registered within the study area containing the two alternative corridors; a further two unregistered sites have also been documented. The study also indicated that most of the lands in question had at least a moderate potential for as-yet undiscovered prehistoric and historic archaeological resources.

In order to address the potential for archaeological remains, it is recommended that a Stage 2 archaeological survey be carried out once the preferred route has been confirmed. It is further recommended that the Ministry issue a letter accepting the present report into the Provincial archaeological report registry. Finally, it is also recommended that the letter include a statement that the Ministry concurs with the recommendations presented in this report.

1.0 INTRODUCTION

Dawn Gateway Pipeline LP, a new venture owned equally by subsidiaries of Spectra Energy and DTE Energy, is currently working on a project that consists of the purchase of two existing St. Clair natural gas transmission pipelines and the construction of a new natural gas transmission pipeline. The latter is designated the proposed NPS 24 Bickford to Dawn Line. The overall project is designated the Dawn Gateway Pipeline Project.

Stantec Consulting Ltd. (“Stantec”) has been retained by Dawn Gateway Pipeline LP to prepare all environmental reports for the existing St. Clair pipelines and for the proposed Bickford to Dawn Line. The reports will be completed as required under the NEB’s Filing Manual (February 2008), and will meet the requirements of the Canadian Environmental Assessment Act.

As part of the overall assessment, Stantec contracted D.R. Poulton & Associates Inc. to carry out an archaeological assessment of the proposed NPS 24 Bickford to Dawn Line. Union Gas Limited has been contracted to design, and construct the proposed pipeline. The construction of the proposed pipeline is scheduled for 2010. This report details the rationale, methods and results of the archaeological assessment of the proposed Bickford to Dawn Line. For purposes of context, a more detailed description of the Dawn Gateway Pipeline Project is presented below.

The first component involves Dawn Gateway Pipeline LP purchasing an existing pipeline known as the St. Clair River Crossing Line. It is a 24-inch (610 mm) diameter steel natural gas pipeline starting at the international border between Michigan and Ontario, running under the St. Clair River, and ending at the St. Clair Station in Lot 13, Front Concession, St. Clair Township, Lambton County, Ontario. This pipeline is currently owned by St. Clair Pipelines Ltd.; as an international pipeline, it is under the jurisdiction of the National Energy Board (“NEB”).

The second component of the project involves Dawn Gateway Pipeline LP purchasing an existing pipeline known as the St. Clair Line. It is an existing 24-inch (610 mm) diameter steel natural gas pipeline located in St. Clair Township that extends from the St. Clair Station (Lot 13, Front Concession) to the Bickford Pool Compressor Station (Lot 6, Concession XII). This pipeline is currently owned by Union Gas Limited (“Union”) and is under the jurisdiction of the Ontario Energy Board (“OEB”). Union has filed an application with the OEB for approval to sell the pipeline to Dawn Gateway Pipeline LP and operate it under NEB jurisdiction. The two existing St. Clair pipelines have a combined length of 13 kilometres.

The third component of the Dawn Gateway Pipeline Project involves the construction of a new 24-inch (610 mm) diameter steel natural gas pipeline in the County of Lambton: the Bickford to Dawn Line. It will extend from the Bickford Pool Compressor Station in St. Clair Township (Lot 6, Concession XII) to the Dawn Compressor Station in Dawn-Euphemia Township (Lot 25, Concession I).

Linked together, these three pipelines will form one continuous pipeline from the international border between Michigan and Ontario to the Dawn Compressor Station, and as such will be regulated by the National Energy Board. The linked pipeline will be known as the Dawn Gateway Pipeline.

The archaeological assessment of the proposed NPS 24 Bickford to Dawn Line consisted of a background study. It is defined as a Stage 1 level of assessment in the 1993 technical archaeological guidelines formulated by the Ontario Ministry of Culture, Tourism and Recreation (MCTR).

There were two objectives to the archaeological assessment of the proposed pipeline. The first was to determine the presence and nature of known archaeological sites in the study area. The second was to evaluate known and potential archaeological planning concerns for the study area and the two alternative routes.

The report is divided into six sequential sections. The present section provides an introduction to the assessment. The location and description of the study area and the alternative pipeline corridors are detailed in Section 2.0 of the report. Section 3.0 describes the methods and results of the background study. Section 4.0 presents an evaluation of known and potential archaeological resources within the study area and in the two alternative pipeline corridors. Section 5.0 details the recommendations that arose from the assessment. Finally, Section 6.0 presents the references cited in this report.

The archaeological assessment of the proposed NPS 24 Bickford to Dawn Line was carried out under Archaeological Consulting Licence # P053, issued by the Ontario Ministry of Culture to Christine Dodd of D.R. Poulton & Associates. The Ministry of Culture designated the project as CIF # P053-143-2008.

The assessment was conducted in accordance with the provisions of the Ontario Heritage Act (Government of Ontario 1990), and with the technical guidelines for archaeological assessments formulated by the Ontario Ministry of Culture, Tourism, and Recreation (now Ministry of Culture) (MCTR 1993).

The records pertaining to this project are currently housed in the corporate offices of D.R. Poulton & Associates Inc. However, in the event the opportunity arises, the project archive will be transferred to a suitable long-term repository.

2.0 LOCATION AND DESCRIPTION

As described in Section 1.0 of this report, the subject of the present assessment is the proposed NPS 24 Bickford to Dawn Line. The proposed natural gas transmission pipeline will run from the Bickford Pool Compressor Station to the Dawn Compressor Station. It will have a length of approximately 17 kilometres.

For purposes of the environmental assessment of the proposed pipeline, Stantec has defined a study area that contains the two alternative corridors for the pipeline. The same study area has been used by the present archaeological assessment. It is bounded to the north by McCallum Line, to the south by Holt Line and Langbank Line, to the west by Highway 40, and to the east by a point about 500 metres east of Dawn Valley Road. The eastern 10% of the study area is located in Dawn-Euphemia Township, Dawn Geographic Township. The western 90% of the study area is located in St. Clair Township, in Sombra Geographic Township. Mandaumin Road is the town line that separates the two municipalities.

Further to the above, two alternative corridors, each the width of a concession, have been identified for the proposed pipeline. Figure 1 shows the location of the study area and of the alternative corridors.

The study area is drained by the North Sydenham River and tributaries thereof and by municipal drains. The North Sydenham is formed by the confluence of Bear Creek and Black Creek at Wilkesport, in the north-central part of the study area. The St. Clair River is by far the most significant stream course in the area; it is located 3.8 kilometres west of the west end of the study area. Other comments on the drainage systems of the study area are offered in the individual descriptions of the two alternative corridors (see Sections 2.1 and 2.2, below).

The study area is located in the St. Clair Clay Plains physiographic region, on the Lambton Clay Plain, a bevelled till plain (Chapman and Putnam, 1984:147-150). This area was submerged during Glacial lakes Whittlesey and Warren, which had the effect of flattening the topography of the underlying till and depositing a thin veneer of lacustrine clay.

The major soils in the study area are Brookston clay and Caistor clay. Brookston clay is a dark grey Gleisolic till high in lime and with poor drainage. It is characterised by very gentle slopes and is virtually stone free (Ontario Agricultural College 1956). Caistor clay is a grey-brown Podzolic clay till, shaley and of medium lime content with imperfect drainage. It is generally gently sloping with a slight stony surface (Ibid). The areas of Caistor clay are confined to the immediate environs of the North Sydenham River and its tributaries. Bottomland of variable composition is also directly associated with the main branch of the North Sydenham River.

Current land use within both of the alternative corridors is predominantly agricultural. The village of Wilkesport is located in the north-central part of the study area, within Alternative Corridor A. Another named community in the immediate area is Beaver Meadow; it is situated on the east edge of the study area. A third named community in the area is Duthill; it is situated on the south edge of the study area, just south of a major bend in the North Sydenham River. Descriptions of the individual alternative corridors follow.

2.1 Alternative Corridor A

Alternative Corridor A is bordered to the north by Wilkesport Line and Burman Line, to the south by Bentpath Line (County Road 2), to the west by the start point for the proposed pipeline at the Bickford Pool Compressor Station in Lot 6, Concession XII, St. Clair Township, and to the east by the end point of the pipeline at the Dawn Compressor Station in Lot 25, Concession I, Dawn-Euphemia Township.

As stated previously, the confluence of Bear Creek and Black Creek is located at Wilkesport, in the north-central part of the study area, on the northern edge of Alternative Corridor A. This confluence forms the North Sydenham River.

If this alternative corridor were to be selected for the proposed Bickford to Dawn Line, potential stream crossings would depend on the specifics of the alignment selected. For the present, it may be stated that the stream courses and drains within Alternative Corridor A are as follows from east to west: the upper reaches of Annette Drain and Dawson Drain (which flow into Otter Creek); the upper reaches of Highland Drain (which flows into Ryans Creek); the North Sydenham River itself; Indian Creek; and an unnamed drain that empties into the North Sydenham River. The aforementioned Otter Creek, Ryans Creek and Indian Creek are all tributaries of the North Sydenham River. Booth Creek, a tributary of Black Creek, is located just outside the northeast part of Alternative Corridor A.

2.2 Alternative Corridor B

Alternative Corridor B is located directly south of Alternative Corridor A. It has been identified as the Preliminary Preferred Corridor. Alternative Corridor B is bordered to the north by Bentpath Line (County Road 2), to the south by Smith Line, to the west by the start point for the proposed pipeline at the Bickford Pool Compressor Station in Lot 6, Concession XII, St. Clair Township, and to the east by the end point of the pipeline at the Dawn Compressor Station in Lot 25, Concession I, Dawn-Euphemia Township.

The confluence of Indian Creek and the North Sydenham River is located within the Preliminary Preferred Corridor. As with the alternative corridor, potential stream crossings for the Preliminary Preferred Corridor would depend on the specifics of the route selected. For the present, it may be stated that the stream courses and drains within this alternative corridor are as follows from east to west: Annette Drain and Dawson Drain (which flow into Otter Creek); Highland Drain (which flows into Ryans Creek); an unnamed tributary east of the North Sydenham; the North Sydenham River itself; Indian Creek; and an unnamed drain west of the North Sydenham that empties into the North Sydenham River. The aforementioned Otter Creek, Ryans Creek and Indian Creek are all tributaries of the North Sydenham River.

Further to the above, the alignment under consideration for the Preliminary Preferred Alignment follows the south side of the existing natural gas pipeline. As such, it differs from the proposed alignment of the NPS 30/36 Bickford to Dawn Loop, which was assessed as part of a previous proposed pipeline in 1991-1992 (Doug Schmidt, personal communication to Dana Poulton, February 23, 2009) (see Section 3.2).

3.0 STAGE 1: BACKGROUND RESEARCH

3.1 Methods

The initial element of an archaeological assessment of a proposed development undertaking consists of background research. This is defined as a Stage 1 level of assessment in the archaeological guidelines formulated by the Province of Ontario (MCTR 1993). Background research is carried out in order to amass all of the readily available information on previous archaeological surveys in the area;

- determine the location of any registered and unregistered sites within and adjacent to the property;
- identify areas of archaeological potential which represent concerns for Stage 2 field survey; and
- develop an historical framework for assigning levels of potential significance to any new sites discovered during fieldwork.

For purposes of context, the Stage 1 background study examined data for the study area containing the two alternative corridors for the proposed pipeline. Two collective sources were examined in the course of the background research. One was the Archaeological Sites Database of the Ministry of Culture; it houses site record forms for registered sites as well as published and unpublished reports on past surveys, assessments, and excavations. At the request of the consultant, data on registered sites within the study area and a 500-metre buffer surrounding it were provided by Robert von Bitter, Archaeological Data Coordinator for that Ministry.

The second collective source for the Stage 1 study was the library/archives of D.R. Poulton & Associates Inc. It includes an extensive inventory of published and unpublished reports, as well as inventories of both registered and unregistered archaeological sites in the area. Data on file with the firm include reports on several past archaeological assessments within the present study area that Dana Poulton managed as a principal of Mayer, Pihl, Poulton and Associates Incorporated, Mayer, Poulton and Associates Incorporated and D.R. Poulton & Associates Inc. (see below). All involved proposed pipelines assessed between 1985 and 1991.

The above sources were supplemented by reprints of the 1880 Historic Atlas of Lambton County (Phelps 1973). They include the history of Lambton County by Elford (1982). For reference purposes a facsimile of the composite of the Historic Atlas maps of Sombra and Dawn Geographic Townships is reproduced here as Figure 2. For reference purposes, a cultural chronology of the region is presented in Table 1.

3.2 Results

The results of the Stage 1 study may be divided into two separate but related categories: information on past archaeological investigations and known sites in the study area and vicinity;

and information on the history of 19th century land use in the area. They will be discussed in turn.

Table 1 Cultural Chronology for Southwestern Ontario

PERIOD	GROUP	TIME RANGE	COMMENTS
PALEO-INDIAN			
	Fluted Point Hi-Lo	9500 - 8500 B.C. 8300 - 7900 B.C.	Big game hunters; small nomadic groups
ARCHAIC			
Early	Nettling	7700-6900 B.C.	Nomadic hunters and gatherers.
	Bifurcate Based	6800 - 6000 B.C.	
Middle	Laurentian	3500 - 2500 B.C.	Transition to territorial settlements.
Late	Lamoka	2500 - 1800 B.C.	Polished/ground stone tools
	Broad Point	1800 - 1400 B.C.	
	Crawford Knoll	1500 - 500 B.C.	
	Glacial Kame	ca. 1000 B.C.	Burial ceremonialism
WOODLAND			
Early	Meadowood Red Ochre	1000 - 400 B.C. 1000 - 500 B.C.	Introduction of pottery
Middle	Saugeen Princess Point	400 B.C. - 500 A.D. 500 - 800 A.D.	Long distance trade networks. Incipient horticulture
Late	Glen Meyer	800 - 1280 A.D.	Transition to village life and agriculture
	Uren	1280 - 1330 A.D.	Large village sites
	Middleport	1330 - 1400 A.D.	Widespread stylistic horizon
	Neutral	1400 - 1650 A.D.	Tribal differentiation and warfare
HISTORIC			
Early	Odawa, Ojibwa, Mississauga	1700 - 1875 A.D.	Social displacement
Late	Euro-Canadian	1800 A.D. - present	European settlement

Past Archaeological Investigations and Known Sites

Archaeological assessments that do not result in the registration of archaeological sites will not be captured in a standard archaeological sites data request to the Ontario Ministry of Culture.

With that proviso, the background research confirmed that a minimum of six archaeological assessments have been carried out within the study area in the past. They span the 15-year period from 1985 to 2000. None involved pure research. All involved assessments in advance of proposed developments.

The earliest involved the 1985 Stage 1-2 assessment of the proposed NPS 10 Union Gas Limited pipeline to link the Enniskillen Pool Station with the Dawn Compressor Station. It was carried out by Mayer, Pihl, Poulton and Associates Incorporated (MPP) and resulted in the discovery of one site: the Booth Creek site (MPP 1985).

The second assessment to be conducted within the study area was carried by Archaeological Research Associates in 1987. The Archaeological Sites Database does not record the title of the pertinent agency report or what the assessment involved. However, it did result in the discovery and registration of a single site: the Sombra 1 site.

The third assessment to be conducted within the study area was initiated in 1991 by Mayer, Pihl, Poulton and Associates Incorporated. (1991). It was conducted on behalf of Union Gas Limited and MacLaren Plansearch and consisted of a Stage 1-2 assessment of the proposed Union Gas Limited NPS 30/36 Bickford-Dawn Loop. The proposed pipeline paralleled an existing Union Gas pipeline throughout its length. It had the same start and end points as the proposed Bickford to Dawn Line but was never built. The latter essentially represents the new version of the original proposed pipeline.

The 1991 survey of the proposed NPS 30/36 Bickford-Dawn Loop resulted in the discovery of three sites: the Mitchell site; the Paul Graham site; and the Bruin site. Of these, only one was considered to represent a significant archaeological planning concern and resource. It was the Late Archaic lithic camp designated the Paul Graham site (AeHo-17). The site in question was located on the west bank of the proposed crossing of the North Sydenham River. The report on the 1991 assessment recommended that a more detailed assessment be carried out at the Paul Graham site.

Following the 1991 survey of the proposed NPS 30/36 Bickford-Dawn Loop, Union Gas Limited considered the feasibility of avoiding the Paul Graham site by diverting the proposed pipeline to the north of it. To that end, a Stage 2 archaeological survey of the proposed diversion was conducted in the spring of 1992. It was carried out by D.R. Poulton & Associates Inc. (1992). The survey of the proposed diversion resulted in the discovery of two other sites: the J. Ward site; and the R. Fish site.

In 1995 Mayer Heritage Consultants Inc. (MHC) conducted a Stage 1-3 assessment of proposed improvements to the Wilkesport and Selman bridges. It resulted in the discovery of two sites: the Richard Coughlin site; and the James Cameron site (MHC 1995).

In 1996 Archaeological Research Associates conducted a Stage 1 background study of the proposed Coveny Pool and Pipeline Project in Sombra Geographic Township (ARA 1996). A Stage 2 survey of the proposed undertaking followed in 1997 (ARA 1997). The survey discovered two sites but they were not registered. Both are 19th century Euro-Canadian sites and both are located on the south side of Burman Line between Kimball Road and Pretty Road. One is located on the R. Rankin property, in the northeast corner of Lot 20, Concession 12. The other

is located on the Basswood Farms J. Armitage property, in the northeast part of Lot 17, Concession 12. A letter of review of the Stage 2 assessment report by Neal Ferris of the Ministry of Culture requested additional information on the age and potential significance of these two sites; it also requested that they be registered (Shari Prowse, Ministry of Culture, personal communication to Dana Poulton of D.R. Poulton & Associates Inc., February 23, 2009).

The most recent assessment to result in the registration of an archaeological site within the present study area was carried out in 1999. It involved the Enbridge Consumers Gas Wilkesport/Coveny Connection Project. A Stage 1-2 assessment of the proposed undertaking was conducted by D.R. Poulton & Associates Inc. (1999). The assessment resulted in the discovery of a single multi-component pre-contact First Nations site; it was designated the Wilkesport site (AeHo-35). Stage 3-4 archaeological test and salvage excavations of the site were subsequently conducted to mitigate the portion of it that was subject to impact from the proposed pipeline construction (D.R. Poulton & Associates Inc. 2000).

The Stage 1 study of the proposed Bickford to Dawn Line determined that 10 archaeological sites have been registered within the study area and the 500-metre buffer that surrounds it. Data on the registered archaeological sites in the inventory are presented in Table 2.

Table 2 Registered Archaeological Sites in the Study Area

Site Name	Borden #	Site Type	Cultural Affiliation & Age
Booth Creek	AeHn-4	Camp	Early or Middle Woodland
Mitchell	AeHn-5	Find spot	indeterminate pre-contact
Paul Graham	AeHo-17	Camp	Late Archaic, Small Point Tradition (ca. 1500-500 B.C.)
Bruin	AeHo-18	Homestead or refuse deposit	Euro-Canadian, 19 th century
J. Ward	AeHo-21	Homestead	Euro-Canadian, 19 th century
R. Fish	AeHo-22	Find spot	indeterminate pre-contact
Richard Coughlin	AeHo-25	Camp	Middle Woodland
James Cameron	AeHo-26	Camp	Middle Woodland
Wilkesport	AeHo-35	Camp	Late Archaic Broad Point (ca. 1800-1400 B.C.)
		Find spot	Small Point (ca. 1500-500 B.C.)
		Camp	early Late Woodland (ca. 800-1280 A.D.)
Sombra 1	AeHo-6	Find spot	Late Paleo-Indian, Hi Lo projectile point (c. 8300-7900 B.C.)

As indicated in Table 2, one of the registered sites has three cultural components. Accordingly, the number of discrete cultural components in the inventory of registered sites totals 12. Summary data on the archaeological inventory are presented in Table 3.

The inventory is dominated by First Nations components (n=10) followed by Euro-Canadian components (n=2). The latter consist of two homestead sites and one site that could represent either a homestead or a refuse scatter. The First Nations sites consist of six camps and four find spots. Two of the First Nations sites are of unknown age and cultural affiliation. The other First Nations sites range in age from the Late Paleo-Indian period (ca. 8300-7900 B.C.) to the early portion of the Late Woodland period (ca. 800-1280 A.D.).

Table 3 Summary Data on Registered Archaeological Sites in the Study Area

Age & Culture	Site Type	Total
Late Paleo-Indian	find spot	1
Late Archaic	camp	2
	find spot	1
Early or Middle Woodland	camp	1
Middle Woodland	camp	2
early Late Woodland	camp	1
Indeterminate Pre-contact First Nations	find spot	2
subtotal - Indeterminate Pre-contact First Nations		10
Euro-Canadian	homestead	1
	homestead or refuse scatter	1
subtotal- Euro-Canadian		2
Total		12

History of Land Use in the Vicinity

At the time of the fall of New France in 1759, what is now the interior of Lambton County formed part of the territory of the Chippewa. Other First Nations tribes were also present in the county, including Pottawatamies, Ottawa and Shawnees.

The success of the American forces in the Revolution of 1775-1781 provided the British Crown with an incentive to settle what came to be called Upper Canada. Although there were some Euro-Canadian settlers in Lambton County prior to the negotiation of treaties with the resident First Nations, concerted Euro-Canadian settlement did not begin until after formal land surrenders were secured by the British Crown. Sombra Township and the Gore of Chatham, which formed what was designated “the Shawanoe Tract” on a contemporary map, were surrendered to the British Crown by the Chippewa in a treaty of September 7, 1796; Dawn Township, Euphemia Township and the southeast portions of Brooke and Enniskillen townships were surrendered by the Chippewa to the Crown in a treaty of March 9, 1819 (Phelps 1972: 63). Despite the relatively early dates of these surrenders, the inception of Euro-Canadian settlement in the study area only began a decade later, in 1830 or 1831. In fact, Wilkesport, which is located

within the present study area, was the first place in the interior of Sombra Township to be settled in the 19th century.

The presence of 19th century Euro-Canadian historic archaeological planning concerns may be inferred from reference to documented features in the 19th century landscape. For reference purposes, a facsimile of the composite map of Sombra and Dawn Townships from the 1880 Historic Atlas by H. Belden and Company is reproduced here as Figure 2.

As illustrated in Figure 2, the only 19th century community that is located within the study area is the village of Wilkesport. It is situated in the west half of the Alternative A Corridor. As of 1880, Wilkesport comprised two discrete areas of settlement. The eastern of the two was located at the southeast corner of the intersection of Burman Line and Kimball Road. The Historic Atlas map also depicts a saw mill and a store at this location. The site of this settlement is a ghost town; it now consists of agricultural lands and none of the buildings of the east village survives. The western of the two discrete villages was located on Wilkesport Line west of Kimball Road; two mills and a hotel are included in the 1880 depiction of the west village.

The 1880 Historic Atlas describes Wilkesport as follows:

It is a straggling village, or rather two distinct villages at some distance apart, scattered along the 12th and 13th concession lines. The Post Office is in the west village, and is kept by Wm. Kimball (a resident since 1844)...who also keeps a large general store. This place is head of river navigation, and in former years has been the centre of an immense trade in forest products. It now contains 3 general stores, 2 groceries and several small shops, 2 steam saw-mills, a grist mill, 1 blacksmith and 2 wagon shops, 2 hotels, 2 telegraph offices, a school, Orange Hall and Baptist and Methodist churches. (Phelps 1973: 17)

The above source also states that Wilkesport was first settled in 1831 and that in the early years there were no other settlers for several miles around. It further states that the “stream” that flows through the village was a significant point of attraction for settlers to this locale, as “it was their only highway of communications for years with the outside world” (Phelps 1973: 17).

According to Elford (1982: 90), Wilkesport was first settled by Paul Sturdevant and Hiram Hales in 1830. About 1836 a grist mill was established by John Wilkes of Brantford with two brothers by the name of Ramsey. By 1847 the settlement was known as Wilkes Mill and by 1852, when the post office was established there, it was called Wilkesburg. The present name, Wilkesport, came into use in 1856. Business in Wilkesport thrived as long as there was timber to be milled, but it declined as the area was gradually cleared of the original forest. The 1877 Lambton Directory states that the village had two general stores, two hotels, an Orange Hall and both Baptist and Methodist churches.

Most of Sombra Geographic Township, within which the vast majority of the study area is located, was poorly drained at the time of the initial pioneer settlement in the 19th century, and the 1880 Historic Atlas states the following with respect to that problem:

...much of the area of the township is and for many years must continue to be a comparative swamp, though much is being done, and with effect too, to redeem

the hitherto useless lands and increase the value of those already occupied by a system of drain which has already begun to bear good fruit, and will someday transform the whole of Sombra into a continuous expanse of valuable and fertile lands. (Phelps 1972: 17)

The extent of municipal drains in Dawn and Sombra Geographic Townships attests to the efforts made to reclaim poorly-drained lands in the 19th century. In addition, there are discrete areas of poorly-drained marshy lands in the eastern part of the study area and to the east of it in Dawn-Euphemia Township that form remnants of the historic swamp.

As illustrated in Figure 2, the 1880 Historic Atlas map does not depict any farmsteads or homesteads in the small portion of Dawn Geographic Township that falls within the study area, and few are depicted in the portion of Sombra Geographic Township that makes up 90% of the surface area of the study area. It should be mentioned, however, that historic atlases only depicted the names and farmsteads of subscribers to the atlas; as such, the township maps are not an accurate depiction of the extent of rural settlement in 1880. For the residential, commercial, institutional and industrial buildings that are depicted, the Historic Atlas shows that they were closely oriented to the historic road network. In addition, there are a few cases where structures were clearly oriented to the North Sydenham River.

4.0 EVALUATION OF ARCHAEOLOGICAL RESOURCES

There are two basic categories of archaeological resources for any given property. The first consists of known sites that are of demonstrable or potential significance as cultural resources and planning concerns. The second consists of the potential for as-yet undiscovered sites. These two categories will be addressed in turn.

4.1 Known Sites of Demonstrable or Potential Significance

The original framework for assigning levels of archaeological significance in Ontario was drawn from Provincial environmental assessment guidelines (Weiler 1980). The information included the identification and evaluation of any site that met one or more of the following criteria:

it has the potential through archaeological exploration, survey, or fieldwork to provide answers to substantive questions (i.e. relate to particular times and places) about events and processes that occurred in the past and therefore add to our knowledge and appreciation of history;

it has the potential through archaeological exploration, survey, and fieldwork to contribute to testing the validity of general anthropological principles, cultural change and ecological adaptation, and therefore to the understanding and appreciation of our man-made heritage; or

it is probable that various technical, methodological, and theoretical advances are likely to occur during archaeological investigation of a feature, alone or in association with other features, and therefore contribute to the development of better scientific means of understanding and appreciating our man-made heritage (Weiler 1980:8).

The document quoted above was prepared a quarter of a century ago and while the principles it was based upon are still current, some of the language is now dated, including phrases such as “man-made”. The issue of archaeological site significance is also covered in a more recent publication entitled *Conserving a Future for Our Past: Archaeology, Land Use & Development in Ontario* (Ministry of Citizenship, Culture and Recreation 1997). As stated in that document, the key factors an archaeologist considers in evaluating the significance of an archaeological site include the following:

1. The Integrity of the site (e.g. is it in pristine or near pristine condition; despite past disturbances; can important data still be recovered from it?).
2. The Rarity or Representativeness of the site (e.g. is it one of a kind, locally, regionally or provincially; is it a good comparison to similar sites from other regions, etc?).
3. The Productivity of the site (e.g. does it have the potential to contain large quantities of artifacts or exceptionally detailed data about what occurred there; etc?).

4. The Age of the site.
5. The Potential for Human Remains within the site.
6. The Geographic or Cultural Association (e.g., does the site have a clear and distinct relationship with the surrounding area or to a particular geographic feature, such as a unique rock formation, historic transportation corridor, etc.; is the site associated with a distinctive cultural event, ceremony or festival, etc.?).
7. The Historic Significance of the site (i.e., is the site associated with a renowned event, person or community?).
8. Community Interest (e.g., is the site important to a particular part of the community; does it represent a significant local event; etc.?).

As described in Section 3.2 of this report, a check of the Ministry of Culture's database determined that 10 sites have been registered within the study area that contains the proposed Bickford to Dawn Line. Following the above criteria, seven of the registered sites are considered to represent archaeological resources of demonstrable or potential significance. They are the Booth Creek site, the Paul Graham site, the Bruin site, the J. Ward site, the Richard Coughlin site, the James Cameron site and the Wilkesport site. The other three registered sites are not considered to represent significant archaeological resources or planning concerns. They are the Mitchell site, the R. Fish site and the Sombra 1 site. Two other archaeological sites have been documented within the study area but have not been registered. No information is available on their significance.

Alternative Corridor A

To date, five archaeological sites have been documented within Alternative Corridor A. From east to west, they are the Booth Creek site (AeHn-4), the unregistered site on the R. Rankin property, the unregistered site on the J. Armitage property, the R. Coughlin site (AeHo-25) and the James Cameron site (AeHo-26). The three registered sites are considered to represent archaeological resources of demonstrable or potential significance. The significance of the two unregistered sites as archaeological resources and potential planning constraints remains to be determined. Whether any of these sites would be threatened by the alignment of the proposed pipeline remains to be determined, but it can be said that it is unlikely, as Alternative Corridor B has been identified as the Preliminary Preferred Corridor.

Alternative Corridor B

Five archaeological sites have been documented within Alternative Corridor B to date. All are registered. From east to west, they are the Mitchell site (AeHn-4), the R. Fish site (AeHo-22), the Paul Graham site (AeHo-17), the J. Ward site (AeHo-21) and the Bruin site (AeHo-18). The latter three sites are considered to represent archaeological resources of demonstrable or potential significance; the Mitchell and R. Fish sites are not.

4.2 Potential for as-yet Undiscovered Sites

The potential for as yet undiscovered pre-contact and historic archaeological resources within a given area or property is generally evaluated on the basis of known sites in the area and on human adaptations to the intrinsic nature of the area itself, including topography and drainage. It should be noted that yet another factor in archaeological potential is the extent to which past construction or other impacts have disturbed or eradicated the inherent potential for archaeological remains. For the most part, the latter is not a major factor in this case, as the vast majority of the study area consists of agricultural lands. However, past disturbance will be a factor in the potential for extant remains for any segments of proposed pipeline alignment that fall within existing road rights-of-way and have been disturbed by past road construction or utilities construction. The same would apply to any segments of the proposed pipeline alignment that coincided with municipal drains and ditches.

Since the mid 1980s several models have been generated in an attempt to quantify archaeological potential in southern Ontario. The results consistently show that distance to water is the most reliable indicator of pre-contact and historic land use and settlement. The degree of inferred archaeological potential varies somewhat with the significance of the water course. Accordingly, the land use primer developed by the Ministry of Citizenship, Culture and Recreation (1997:12-13) identifies a high potential for First Nations sites within 300 metres of a primary water source, including relic shorelines such as post-glacial Lake Iroquois, and within 200 metres of a secondary water source. The primer also includes other site potential criteria, as follows:

- The presence of a known archaeological site within 250 metres of a proposed development;
- The presence of knolls, ridges or other elevated topography within a property;
- The presence of well-drained sandy soils;
- The presence of distinctive or unusual landforms such as waterfalls, rock outcrops, rock faces, caverns, glacial erratics, etc. which often represented special or spiritual places to First Nations peoples;
- The presence of particular resource-specific features that would have attracted past subsistence or extractive land use, such as chert outcrops important to First Nations peoples or white pine stands important to early Euro-Canadian logging;
- The presence of initial non-Aboriginal (primarily but not exclusively Euro-Canadian) military or pioneer settlement;
- The presence of an early transportation route such as a trail, pass, road, rail, portage route or canal;
- The presence of one or more properties designated under the Ontario Heritage Act;

- The association of the property or site with historic events, activities or occupations.

It should be noted that the above mention of well-drained sandy soils as a positive site criterion is potentially misleading, as it would tend to imply that the presence of other types of soils could constitute a negative site criterion. As it happens, in southern Ontario there was a well-documented shift by Iroquoian peoples away from sandy soils and onto heavier clay loam soils during the mid 14th century. This may have been occasioned by the onset of a drought, as heavier soils are more drought-resistant than lighter soils, and the Iroquoian peoples of southern Ontario were heavily dependent on agriculture for their subsistence. In consequence, and contrary to the Ministry's 1997 Primer, the nature of the soils within a given property is not necessarily a reliable indicator in discounting the presence or degree of archaeological potential.

In the present case, 10 archaeological sites have been recorded with the study area and the 500 metre buffer surrounding it. Following the criteria of the land use primer developed by the Ministry of Citizenship, Culture and Recreation (1997: 12-13) (see above), that would indicate a positive potential for any portions of the study area that are located in proximity to those sites. However, it must be added that only a tiny fraction of the study area has ever been covered by archaeological surveys. It should go without saying, therefore, that an absence of known sites does not mean an absence of the potential for sites.

It remains to consider the inherent characteristics of the study area itself. Since the mid 1980s several models have been generated in an attempt to quantify archaeological potential in southern Ontario (e.g., Peters 1986, Pihl 1986). The results consistently show that distance to water is the most reliable indicator of pre-contact and historic land use and settlement. In addition, the presence of or proximity to water sources applies to First Nations sites, Euro-Canadian sites and sites of other cultures, as potable water is a basic requirement of life.

The degree of inferred archaeological potential varies somewhat with the significance of the water course. Accordingly, the land use primer developed by the Ministry (1997) identifies a high potential for First Nations sites within 300 metres of a primary water source, including relic shorelines such as post-glacial Lake Algonquin, and within 200 metres of a secondary water source. The former applies to portions of the study area in proximity to Black Creek, Bear Creek and the North Sydenham River, the three most important stream courses in the interior of Lambton County. Indian Creek would have a slightly lower degree of archaeological potential, as would Booth Creek. The 200 metre site potential increment would apply to the original alignments of any secondary stream courses that were later chanelized, but the original alignments of those stream courses cannot be determined with the data at hand.

Other positive archaeological potential that apply to the study area include the presence of soils suitable to prehistoric and historic agriculture, the presence of well-drained ridges, knolls and other elevated topography suitable for habitation, and the proximity to historic transportation routes. These will be considered in turn.

The study area does have lands suitable for prehistoric and historic agriculture but it is relatively flat. A complicating factor is that much of the area was originally too poorly drained to be habitable or arable until the mid to late 19th century, but that we have no detailed information on the extent of those lands. That said, and granting the limited extent of past archaeological

surveys, the locations of the known sites definitely cluster along stream courses within the study area, most particularly the larger stream courses, and most notably the North Sydenham River. From that, it may be inferred that the tablelands and terraces associated with these locales were habitable in pre-contact and early historic times and that they have a moderate to high potential for archaeological remains.

Further to the above, lands in proximity to historic transportation routes are also inferred to have an enhanced potential for archaeological remains. That comment applies to the historic network of concession roads and sideroads. It also applies to lands in proximity to the larger stream courses, more specifically the North Sydenham River, which was navigable to Euro-Canadians for larger water craft as far upstream as Wilkesport, and Bear Creek and Black Creek, all of which were navigable by canoe or dugout for pre-contact and contact period First Nations peoples.

The known prehistoric archaeological sites in the study area and vicinity indicate that it may have been used on at least an intermittent basis as part of the hunting and gathering territories of a succession of prehistoric peoples from 9500-8300 B.C. onward. Based on past discoveries in the study area and vicinity, the theoretical potential for native sites in the study area primarily applies to camps and isolated find spots rather than larger sites such as Late Woodland villages.

With respect to the potential for First Nations sites, it should be noted that the report on the 1991 archaeological assessment of the proposed NPS 30/36 Bickford-Dawn Loop provided some first hand information on past discoveries of pre-contact First Nations artifacts in the study area. It cited Carl Murphy, a professional archaeologist who once lived in Wilkesport, as stating that he had observed abundant artifacts of the Archaic time period (ca. 8000-1000 B.C.) along the North Sydenham River and the lower reaches of Bear Creek and Black Creek (Mayer, Poulton and Associates 1992: 5).

With respect to Euro-Canadian sites, it should be noted that the potential is highest not only in proximity to the historic road networks but also in the immediate area of Wilkesport, the largest historic Euro-Canadian community in the study area. That inference especially applies to the east village, which is now a ghost town. The potential for Euro-Canadian sites in the study area applies primarily to farmsteads and homesteads from the 1830s onward. However, there is also a potential for commercial sites such as hotels, inns, taverns and stores, for institutional sites such as schools and churches, and for industrial sites such as mills and blacksmith shops. The potential for the latter types of sites is highest not only close to roads but also at crossroads, which tend to be a focus of the sites of commercial and institutional buildings.

The preceding comments apply to the potential for as-yet undiscovered archaeological sites in the study area as a whole. Comments specific to the two alternative pipeline corridors are presented below.

Alternative Corridor A

The two alternative pipeline corridors share many similarities in that both primarily involve arable lands that are intersected at regular intervals by the historic road network. In addition, both involve crossings of the North Sydenham River and Indian Creek as well as lesser (mainly

channelized) water crossings. The comments that follow primarily focus on differences between the two corridors that have implications for the potential archaeological constraints.

As a rule, the potential for as-yet undiscovered archaeological remains within most of Alternative Corridor A is moderate. The exception is the corridor segment from somewhat east of Kimball Road to a point somewhat west of the Indian Creek crossing, where the inferred potential for as-yet undiscovered archaeological resources is high. This segment includes the North Sydenham River and Indian Creek crossings, the two most significant stream crossings within Alternative Corridor A. Depending on where the alignment would fall on a north-south axis, it could also include transects through both the east and west villages of 19th century Wilkesport. The original limits of that community undoubtedly encompass the single greatest concentration of 19th century Euro-Canadian archaeological resources anywhere within the study area.

Alternative Corridor B

As stated in Section 2.2 of this report, the alignment under consideration for the Preliminary Preferred Alignment follows the south side of the existing natural gas pipeline rather than the north side. As the alignment surveyed for the proposed NPS 30/36 Bickford-Dawn Loop in 1991 and 1992 followed the north side of the existing natural gas pipeline, one implication of this is that the 1991-1992 survey did not include or overlap the alignment of the proposed NPS 24 Bickford to Dawn Loop. That may not apply to the north-south oriented segments of the proposed Bickford to Dawn Line but it certainly applies to the east-west oriented segment that makes up the vast majority of the length of the proposed pipeline.

Subject to a review of more detailed mapping, another implication of the above is that none of the sites discovered in the course of the 1991-1992 archaeological survey of the proposed NPS 30/36 Bickford to Dawn Loop is likely to extend sufficiently far south to overlap any part of the alignment of the proposed NPS 24 Bickford to Dawn Line. If Alternative Corridor B is indeed confirmed as the preferred alignment for the proposed Bickford to Dawn Line, the Stage 2 survey of the alignment will confirm the presence or absence of archaeological resources, whether they are as-yet undiscovered sites or portions of previously documented sites.

5.0 RECOMMENDATIONS

As detailed in Section 3.2 of this report, the Stage 1 background study determined that the lands involved in the Preliminary Preferred Route (Alternative Corridor B) for the proposed Bickford to Dawn Line and in the alternative corridor (Alternative Corridor A) have a moderate to high potential for as-yet undiscovered archaeological remains. In order to address that potential, it is recommended that a Stage 2 archaeological survey be carried out once the preferred route has been confirmed.

The survey will effect a field-based assessment of the archaeological potential of the preferred pipeline route. It will also effect a systematic examination of any lands that are subject to impact from the undertaking and retain a potential for archaeological remains. If the proposed construction would involve directional drilling beneath the North Sydenham River and/or other stream courses, the survey will also include any and all lands that would be subject to impact from related activities, such as land farming.

The purpose of the Stage 2 survey will be to confirm the presence or absence of archaeological resources that could represent potential constraints for the proposed pipeline construction. In the event that any sites are discovered or otherwise confirmed that may represent significant planning concerns, it is also recommended that measures for mitigating the concern be implemented. Options include preservation by avoidance or mitigation by salvage excavation in advance of development.

Beginning in the 1980s, it was standard practice for what is now named the Ontario Ministry of Culture to review archaeological assessment reports and then to issue letters of clearance for proposed developments. That system has changed and the Ministry no longer issues letters of clearance. Rather, Archaeological Review Officers of the Ministry now review reports to ensure that the assessment and the report satisfy consulting licence requirements under the Ontario Heritage Act (R.S.O. 1990) and other legislation and that they conform to existing standards and guidelines. If the report and the assessment do so conform, the pertinent Archaeological Review Officer then issues a letter confirming that, and accepting the report into the Provincial registry of archaeological reports.

Further to the above, it is recommended that the Ministry issue a letter accepting the present report into the Provincial archaeological report registry. It is also recommended that the letter include a statement that the Ministry concurs with the recommendations presented in this report.

The above conclude the property-specific recommendations of this report. Nevertheless, it should be emphasized that no archaeological assessment can be considered to totally negate the potential for deeply buried cultural remains, including human burials. In recognition of that fact, the archaeological assessment technical guidelines formulated by the Province of Ontario require that all reports on archaeological assessments include recommendations to address the possibility that deeply buried remains may be encountered during topsoil stripping and construction (MCTR 1993:12).

In accordance with the above, it is recommended that archaeological staff of the Ontario Ministry of Culture be notified immediately if any deeply buried archaeological remains should be discovered during earthmoving or construction within the subject property. In the event that human remains should be encountered, it is similarly recommended that the proponent immediately contact Shari Prowse, Archaeological Review Officer, Ontario Ministry of Culture (519 675-6898) and Michael D'Mello, the Registrar of the Cemeteries Regulation Unit of the Ontario Ministry of Small Business and Consumer Services (416 326-8404).

6.0 REFERENCES CITED

Archaeological Research Associates

- 1996 Archaeological Assessment Stage 1: Background Study, Coveny Pool and Pipeline Project, Sombra Township, Lambton County. Report on file, Ministry of Culture.
- 1997 Archaeological Assessment Stage 2: Field Work, Coveny Pool and Pipeline Project, Sombra Township, Lambton County. Report on file, Ministry of Culture.

Chapman, L.J. and D.F. Putnam

- 1984 **The Physiography of Southern Ontario.** 3rd Edition, Ministry of Natural Resources, Toronto.

Elford, Jean Turnbull

- 1982 **Canada West's Last Frontier: a History of Lambton.** Lambton County Historical Society.

Government of Ontario

- 1990 **The Ontario Heritage Act, RSO 1990.** Queen's Printer, Toronto.

Mayer Heritage Consultants Ltd.

- 1995 An Archaeological Assessment (Stages 1-3) of the Wilkesport and Selman Bridges, Township of Sombra, Lambton County, Ontario. Report on file, Ministry of Culture.

Mayer, Pihl, Poulton and Associates Incorporated

- 1985 An Archaeological Assessment of the Proposed Union Gas Limited NPS 10 Pipeline to Link the Enniskillen Pool Station and the Dawn Compressor Plant, Lambton County, Ontario. Report on file, Ministry of Culture.

Mayer, Poulton and Associates Incorporated

- 1991 An Archaeological Assessment of the Proposed Union Gas Limited NPS 30/36 Bickford-Dawn Loop, Townships of Sombra and Dawn, Lambton Co., Ontario. December 1991. Report on file, Ministry of Culture.

Ministry of Citizenship, Culture and Recreation (MCzCR)

- 1997 **Conserving a Future for Our Past: Archaeology, Land Use Planning & Development In Ontario. An Educational Primer and Comprehensive Guide for Non-Specialists.** 1997 (Revised March 1998). Ministry of Citizenship, Culture and Recreation, Cultural Programs Branch, Archaeology and Heritage Planning Unit.

Ontario Agricultural College

1956 Soils of Lambton County. **Soil Survey Report No. 22.** Ontario Agricultural College, Guelph.

Ontario Ministry of Culture, Tourism and Recreation (MCTR)

1993 **Archaeological Assessment Technical Guidelines (Stages 1-3 and Reporting Format).** Ministry of Culture, Tourism and Recreation, Cultural Programs Branch, Archaeology and Heritage Planning Unit.

Peters, John

1986 Transmission Line Planning and Archaeological Resources: A Model of Archaeological Potential for Southwestern Ontario. Archaeological Consulting in Ontario: Papers of the London Conference 1985. **Occasional Papers of the London Chapter, Ontario Archaeological Society, Inc.** No. 2.

Phelps, Ed

1973 **Belden's Illustrated Historic Atlas of the County of Lambton, Ontario, 1880.** The Hunter Rose Company, Toronto, Ontario.

Pihl, Robert

1986 Site Potential Modelling in Archaeological Consulting. Archaeological Consulting in Ontario: Papers of the London Conference 1985. **Occasional Papers of the London Chapter, Ontario Archaeological Society Inc.** No. 2.

D.R. Poulton & Associates Inc.

1992 An Archaeological Assessment of the Proposed North Sydenham River Crossing, Union Gas Limited NPS 30/36 Bickford-Dawn Loop, Townships of Sombra and Dawn, Lambton Co., Ontario. Report on file, Ministry of Culture.

1999 The 1999 Stage 1-3 Archaeological Assessment of the Proposed Enbridge Consumers Gas Wilkesport/Coveny Connection Project, Lambton Co., Ontario. Report on file, Ministry of Culture.

2000 Supplementary Report on the 1999 Archaeological Investigations of the Wilkesport Site (AeHo-35), Lambton Co., Ontario. Report on file, Ministry of Culture.

Weiler, John

1980 **Guidelines on the Man-Made Heritage Component of Environmental Assessments.** Historical Planning and Research Branch, Ministry of Culture, Tourism and Recreation, Toronto.

FIGURES

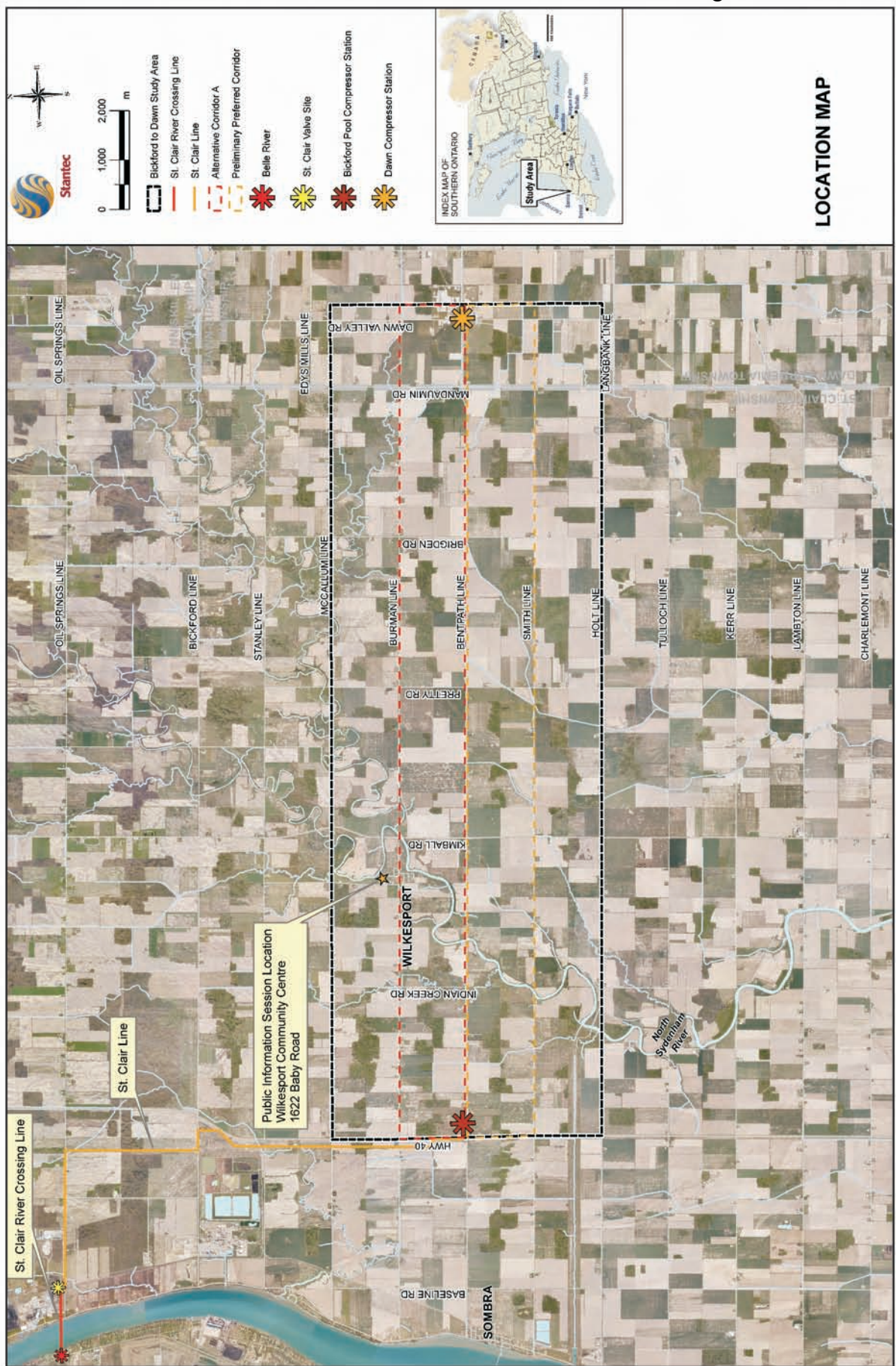


Figure 1 Location of the Study Area and Alternative Pipeline Corridors

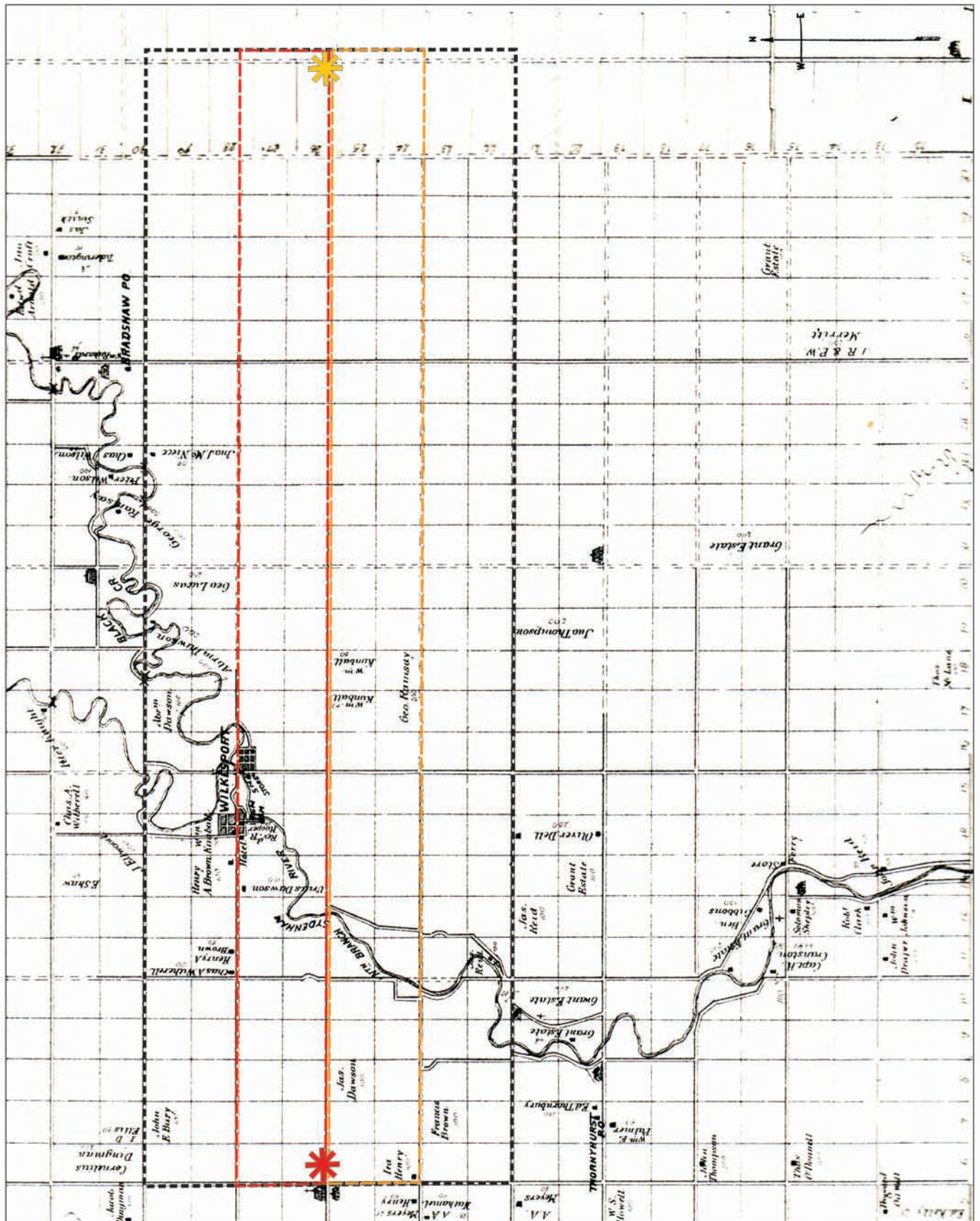


Figure 2 Composite Historical Atlas Map of the Study Area and Vicinity

Appendix F

Traditional Ecological Knowledge Report

WALPOLE ISLAND FIRST NATION

Traditional Ecological Knowledge Study

Dawn Gateway Project

Prepared by: Victor P. Lytwyn, Ph.D.

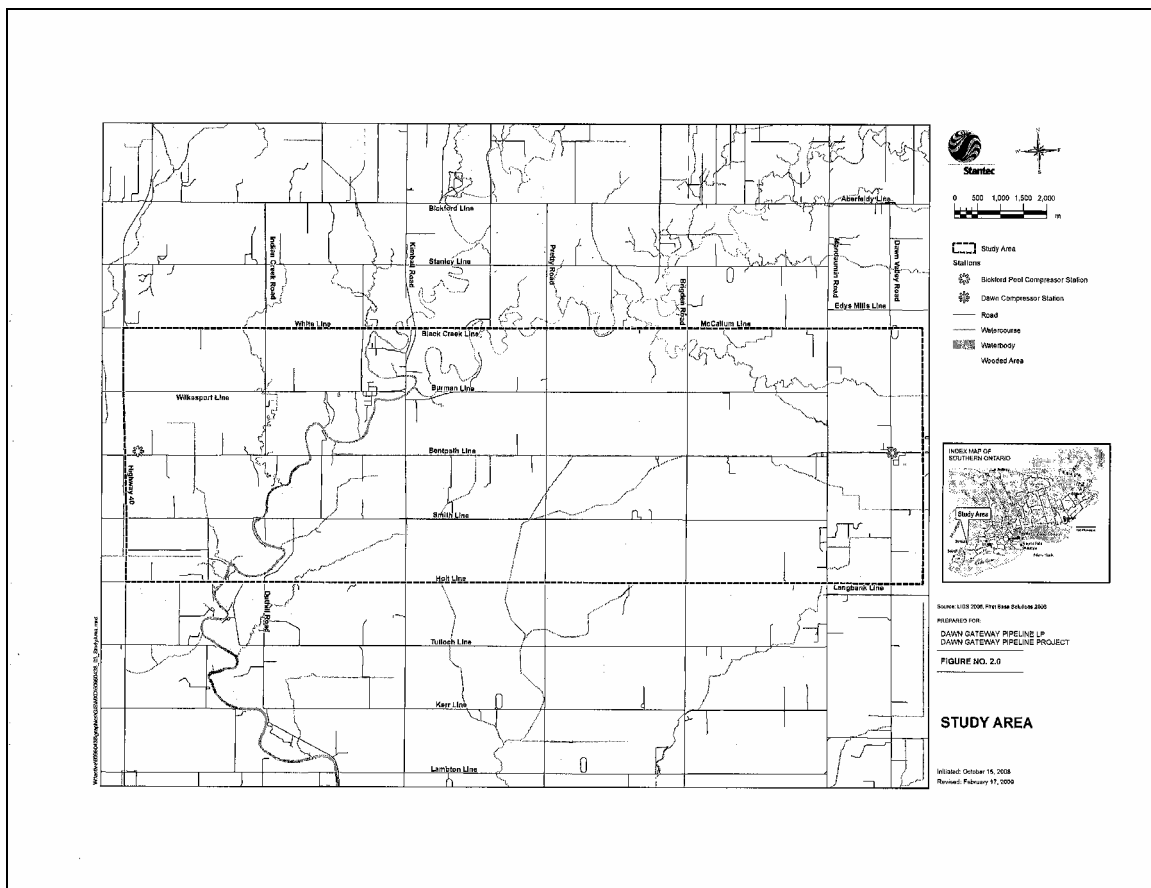
For: Walpole Island First Nation

Date: 20 February 2009

INTRODUCTION:

On December 12 and 13th, 2008, interviews were held at the Walpole Island Heritage Centre with ten members of Walpole Island First Nation. The purpose of the interviews was to obtain traditional ecological knowledge (TEK) for an area that has been designated for a proposed pipeline known as the Dawn Gateway Project. The area under consideration, also known as the “Study Area” is shown in Figure 1.

Figure 1: Dawn Gateway Project Study Area



This report is divided into two parts. Part one provides a brief overview of the history of Walpole Island First Nation. Part two is a compilation of the TEK information taken from the transcripts of interviews with 10 people from Walpole Island. That information is divided into TEK information by categories including hunting, fishing, plant gathering and spiritual sites. A conclusion summarizes the major findings of the TEK study at the end of this report.

PART ONE:

HISTORICAL BACKGROUND:

The People of Walpole Island:

Walpole Island First Nation currently occupies the delta islands on the Canadian side of Lake St. Clair. That area is known in the Anishinabe language as Bkejwanong (where the waters divide), which describes the channels of the St. Clair River that empty into the lake. Although the Canadian government refers to these islands as an “Indian Reserve,” the lands, marshes and beds of waters from Lake Huron to Lake Erie have never been set apart as a reserve. No treaty or other agreement has affected the original ownership of this part of the traditional territory of Walpole Island First Nation.¹

The people of Walpole Island First Nation are Anishinabe, who have also been called by other names such as Ojibwa (or Chippewa), Odawa (or Ottawa) and Potawatomi. When Europeans first arrived in the late 1600s, they found Ojibwa, Odawa and Potawatomi living in the area.² These three nations spoke similar dialects of the same (Algonquian) language and had common cultural and spiritual beliefs. According to traditional history, they were once one nation but subdivisions occurred as people migrated to different areas. They were also known as the Three Fires Confederacy, and acted together in political and military affairs during the 17th, 18th and 19th centuries. Under British colonial administration in the 19th century, the people became divided into separate bands. These bands were located in geographically separate areas known as reserves (or, in the case of Walpole Island, unceded territory). In addition to Walpole Island, “Indian Bands” were created at Aamjiwnaang (Sarnia), Kettle and Stony Point and Thames River.³

The Traditional Territory of Walpole Island First Nation:

The traditional territory of Walpole Island First Nation covered a vast area of present southwestern Ontario and eastern southeastern Michigan. Long before the arrival of Europeans, the ancestors of Walpole Island First Nation occupied the area and used traditional resources such as animals, fish, plants and minerals for subsistence, commerce, social and ceremonial purposes. For most of the year, the people lived in small family groups that occupied traditional family hunting, fishing and gathering

¹ Walpole Island First Nation is currently in litigation against Canada and Ontario over the Aboriginal Title to this part of their traditional territory.

² The Huron, or Wyandot, also lived in the area, but did so as guests of the Ojibwa, Odawa and Potawatomi.

³ The Caldwell Band was recognized by the Canadian government as an Indian Band belonging to the area included in the 1790 Treaty but no land base was set apart for them. Recently, Canada and the Caldwell Band have negotiated an agreement to create a reserve in the area covered by the 1790 Treaty.

places. During certain seasons such as the spring and fall fishery, and maple sugar processing, larger groups came together and occupied seasonal village sites near productive fishing grounds. Traditional foods also included agricultural products such as corn, beans and squash that had been adopted before the Europeans arrived. Anishinabe society was based on complex webs of kinship connections and governed by traditional laws.⁴

European Contacts:

The arrival of Europeans to Walpole Island First Nation territory in the late 17th century did little initially to disrupt the traditional way of life. French fur trade posts and small military garrisons served as commercial outposts that enhanced the traditional economy focused on resources such as fur, game and fish. After the British defeated the French in 1760 changes began to occur in Walpole Island First Nation traditional territory. Unlike the French, the British were interested in acquiring Aboriginal lands and resources. The Three Fires Confederacy and their allies led by Odawa War Chief Pontiac resisted the British encroachments. That resistance was quelled after British assurances that no land would be taken by force. On 4 September 1765, Pontiac and several Ottawa, Chippewa and Pottawatomi Chiefs visited the British military post at Detroit and spoke about their relationship with the British Crown. George Croghan, who acted as Indian Agent at Detroit, summarized their speeches:

Pontiac with several Chiefs of the Ottawas, Chippawas and Potowatomies likewise complained that the French had settled part of their Country, which they never had sold to them, and hoped their Father the English [King George III] would take it into consideration and see that a proper satisfaction was made to them. That their Country was very large and they were willing to give up such part of it as was necessary for their Father the English to carry on trade at, provided they were paid for it and a sufficient part of the Country left them to hunt on.⁵

In 1763, King George III issued a Proclamation that recognized Aboriginal Title and outlined a treaty-making process by which the British Crown could purchase land. In the years to follow, British agents in the Detroit area would negotiate a number of treaties involving the traditional territory of Walpole Island First Nation.

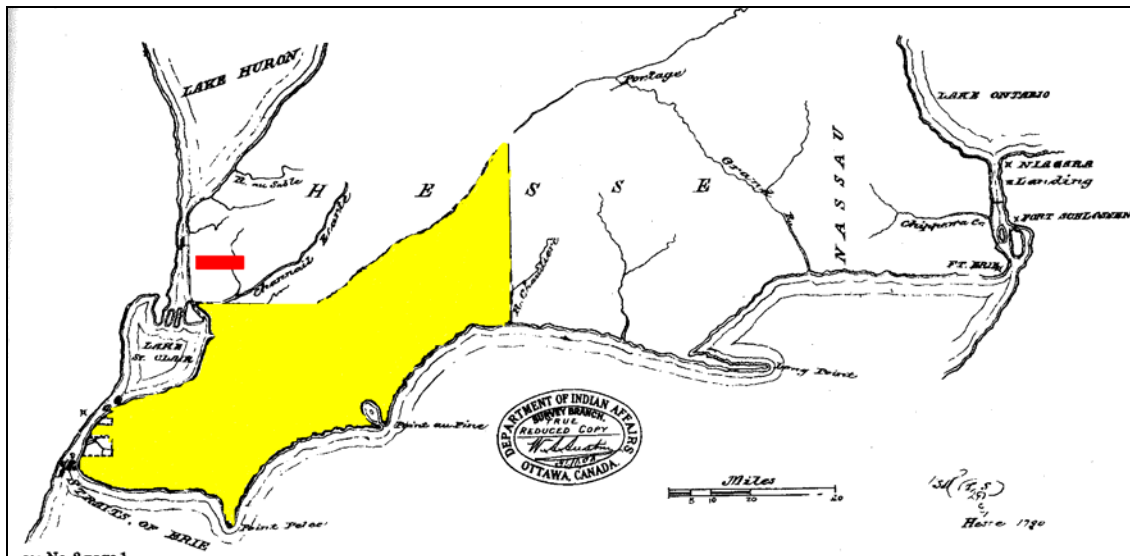
⁴ For more information on Anishinabe history see: Neil Ferris, "In Their Time: Archaeological Histories of Native-Lived Contacts and Colonialisms, Southwestern Ontario A.D. 1400-1900," unpublished Ph.D. Dissertation, Hamilton: McMaster University, 2006.

⁵ DOCUMENT 1865/09/04: Speeches by Pontiac and other Chiefs at Detroit, NAC, MG 11, CO 323, vol. 23: 10.

1790 Detroit Treaty:

The first treaty involving the traditional territory of Walpole Island First Nation was made on 19 May 1790 between the “Chiefs of the Ottawas, Chippawa, Pottowatomy and Huron⁶ Indian Nations of Detroit” and representatives of the British Crown.⁷ That treaty involved a vast tract of land bounded by Lake Erie in the south, the Detroit River and Lake St. Clair in the west (the boundary ran to the first fork on the south side of the Chenail Ecarté then due east until it intersected the Thames River) and the Thames River in the north (the eastern boundary was a straight line running due north from the “mouth of Catfish Creek, commonly called Riviere au Chaudiere” to the Thames River). The territory included in the 1790 Detroit Treaty was south of the Study Area (see Figure 2).

Figure 2: Map of the 1790 Treaty Area (shown in yellow) and the Study area (shown in red)



Although the map drawn to illustrate the boundaries of the 1790 Treaty was not very accurate in its depiction of Lake St. Clair and other geographical features, it is clear that

⁶ The Huron Chiefs were included, but contextual evidence indicates that they acted as witnesses to the treaty.

⁷ DOCUMENT 1790/05/19: Treaty at Detroit, National Archives of Canada (NAC), RG 10, vol. 16 (microfilm reel C-1,224); copies also in: NAC, RG 10, vol. 9: 9,110 (microfilm reel C-11,000); NAC, RG 10, vol. 13: 287-295 (microfilm reel C-1,223); NAC, RG 10, vol. 325: 217,959-217,963; NAC, RG 10, vol. 661: 192-198 (microfilm reel C-13,401); NAC, RG 10, vol. 787: 50-53 (microfilm reel C-13,499); NAC, RG 10, vol. 13 (1832): 287-294 (microfilm reel C-1,223); NAC, RG 10, vol. 1,840: 2 (microfilm reel T-9,938); NAC, MG 19, F35, Series 2, Lot 681, pp. 1-8; Archives of Ontario (AO), RG 1 A-I-1, vol. 50 (old no. 2): 346-49 (microfilm reel no. MS 626/1); AO, RG 1 A-I-1, Surveyor's Letters Received, No. 18: October 1816-December 1850, [MS 626/6], pp. 380-385; AO, Simcoe Papers, F 47-1-1-1, (microfilm reel MS 1797); Public Record Office (PRO), CO 42, vol. 69: 292-295; copy also in: Register of Deeds, Wayne County, Liber C [Typed transcript], 374-377; MS MacDonald Papers, Detroit Public Library, Burton Historical Collection; George Ironside Papers, Box 1, Detroit Public Library, Burton Historical Collection; *Indian Treaties and Surrenders*, vol. 1: 1-3, Ottawa: The Queen's Printer, 1891.

the territory covered by the treaty did not extend to the Study Area that is the focus of this report.

1796 Chenail Ecarté Treaty:

Within days of the signing of the 1790 Treaty, local British settlers and government agents lobbied for more land. They were interested in extinguishing two reserves that had been set apart within the treaty boundaries (the Anderdon Reserve and Huron Church Reserve), and obtaining additional land to the north. The British colonial government, however, was reluctant to proceed with further purchases of Aboriginal territory. They needed Aboriginal people as military allies in case of an expected military aggression by the United States. In the early 1790s, the Three Fires and their allies (also known as the Western Confederacy) had engaged the United States military in a number of battles in the area south of Lake Erie. The British, although officially at peace with the United States, provided logistical support to the Western Confederacy. The British maintained a military post at Detroit despite the 1783 Treaty of Paris that placed Detroit within American territory (The Treaty of Paris had described the international boundary as a line running through the middle of the Great Lakes). The British also established a military post at the Rapids of the Maumee (or Miami) River. That fort was located within close proximity to the battlegrounds fought between the Western Confederacy and the United States. In the early 1790s, Western Confederacy warriors scored major victories in battles against U.S. troops.

Meanwhile, the British imperial government and the United States were involved in negotiations to settle outstanding claims arising from the 1783 Treaty of Paris. These included the international boundary and the removal of British military posts and other settlements within American territory. Known as the Jay Treaty, after American negotiator John Jay, the Treaty of Amity and Commerce was completed on 19 November 1794. The Treaty agreed to the international boundary line that had been established in the 1783 Treaty of Paris, and it set a deadline of two years for the removal of British posts from American territory.

At about the same time that the Jay Treaty was being completed, events south of Lake Erie had significant impacts on the Three Fires and their allies. On 20 August 1794, American troops attacked an Aboriginal encampment at a place called Fallen Timbers and killed many Chiefs and warriors. In their retreat from Fallen timbers, the Aboriginal warriors were denied shelter in the British military post at the Miami Rapids. Disgusted by the lack of military support from the British, they continued north and settled near the south shore of Lake Erie at a place called Swan Creek. Alexander McKee, who was the British Indian Agent for the region, had been near the action at Fallen Timbers and pressed his superiors to offer protection to the people at Swan Creek. In September 1794, Lieutenant-Governor John Graves Simcoe visited the camp at Swan Creek and spoke at a Council Meeting at Brownstown (Detroit River), assuring them that the British would continue to protect them. On 23 October 1794, Simcoe wrote to British Secretary Henry Dundas and advised him that he had instructed Alexander McKee to offer an asylum to

the “Western Indians.” Simcoe explained, “I have directed Colonel McKee to offer to the Western Indians an asylum, should it be necessary, upon the King's lands lying on the River Chanail Ecartie to the northward of the River Thames.”⁸

On 6 November 1794, Alexander McKee reported to Simcoe on his progress regarding the proposed evacuation of the Aboriginal people from Swan Creek, and their re-settlement within British territory. McKee wrote:

Agreeably to your Excellency's desire I have visited the Lands at Channail E'Carte and prepared the Chiefs to meet you in the Spring whenever called upon, tho I find they will be rather tenacious of admitting other Nations among them. The Lands near the mouth of this River are bad and unfit for any Settlement, but a few miles higher up, on one of the Branches, the Land is good and proper for an Indian settlement.⁹

On 29 September 1795, Alexander McKee obtained a preliminary agreement from several Ojibwa Chiefs to set apart land at Chenail Ecarté for the purpose of a general reserve for the “Western Indians.” That agreement was finalized a year later when Alexander McKee met with a delegation of Ojibwa and Odawa Chiefs at Cheneal Ecarté. On 30 August 1796, Alexander McKee explained the terms of the final treaty he wanted them to sign. He assured them that the King had protected their rights in a recent treaty with the United States (the Jay Treaty). McKee also explained that they would have the right to cross the border with the United States freely as they had done in the past. McKee said: “he [King George III] has notwithstanding taken the greatest care of the rights and independance [sic] of all the Indian Nations who by the last Treaty with America [the Jay Treaty of 1794], are to be perfectly free and unmolested in their Trade and hunting grounds and to pass and repass freely and undisturbed to trade with whom they please.” McKee also promised that the treaty would protect a tract of land north and east of the Chenail Ecarté for their allies and their own use. McKee said: “I have been directed by the Commander in Chief to purchase from you a small piece on the North side of this River for that purpose. Four square Leagues is all that is required ... You are not to consider this small strip of Land as bought for the Kings immediate use, but for the use of his Indian Children and you yourselves will be as welcome as any others to come and live thereon.”¹⁰

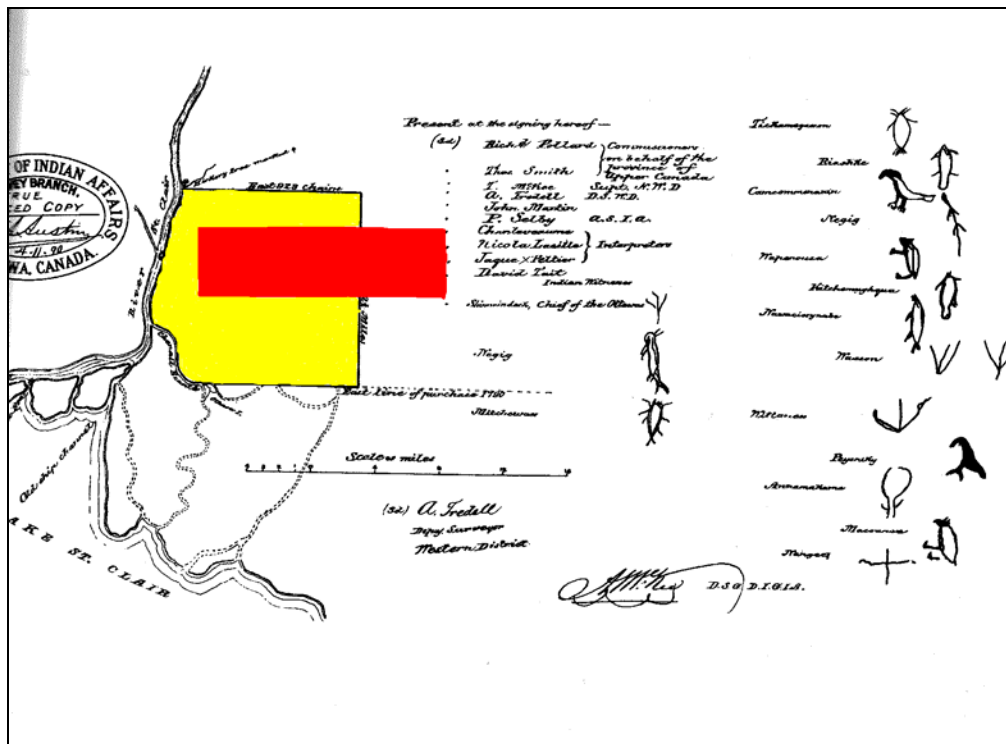
⁸ DOCUMENT 1794/10/23: Letter from Simcoe to Dundas, (Public Record Office, London, CO/42/318: fo. 346)

⁹ DOCUMENT 1794/11/24: Letter from McKee to Simcoe, (Archives of Ontario, Simcoe Papers, F 47-1-2-29: n.p.)

¹⁰ DOCUMENT 1795/08/30: Speech by Alexander McKee to the Chiefs of the Chippewa and Ottawa Nations at Chenail Ecarté, NAC, RG 10, vol. 9: 9,166-9,172 (microfilm reel C-10,999); copy in: NAC, RG 10, vol. 39: 21,652-21,658 (microfilm reel C-11,012); copy also in: Samuel Peters Jarvis Papers, Metropolitan Toronto Public Library, Baldwin Room, Toronto, “Indian Papers, Box 1, B 56-57” (Positive Reel 1).

On 7 September 1796, the treaty was signed by the following “Chippewa” (Ojibwa) Chiefs: “Negig, Wapenousa, Kitchymughqua, Nawacissynabe, Ticomégasson, Kiashke [Kiyoshk], Wasson, Wittaness, Peyshiky, Annamakance, Macounce, Nangee and Camcommenanin and Nangee.” Also signing, as witnesses, were “Shemmendock, Negig and Mitchewas,” who were described as “Chiefs of the Ottawas” (Odawa). Alexander McKee, who represented the British Crown during the treaty negotiations, had earlier explained that he had dealt only with the Ojibwa Chiefs because: “The Chippaways are the only Proprietors of these Lands.”¹¹ The same Chiefs signed two¹² treaties. One involved a tract of land bounded on the south by the 1790 Treaty line at the Chenail Ecarté, on the west by the bank of the St. Clair River, running due north 12 ½ miles to a straight-line northern boundary running 923 Gunter’s Chains¹³ (about 2.88 miles), and then due south along a straight-line eastern boundary (see Figure 3; Treaty area shown in yellow). That tract, sometimes called the Chenail Ecarté Reserve, Shawnee Reserve, or Sombra Reserve, was set aside for the exclusive use of the Ojibwa, Odawa and other Aboriginal Nations. The second treaty involved land along the upper Thames River that would become known as the Township of London.

Figure 3: Map of the Chenail Ecarté Reserve (yellow) and the StudyArea (red)



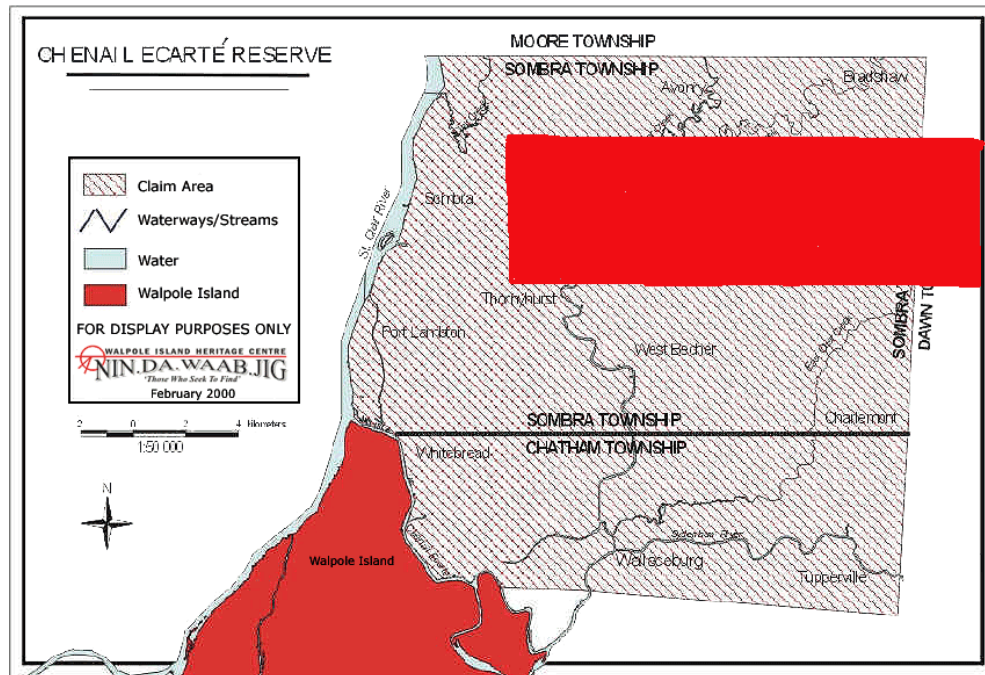
¹¹ DOCUMENT 1795/10/24: Letter from Alexander McKee, Detroit, to Joseph Chew, NAC, RG 10, Vol. 9, C-10999; copy in: *The Simcoe Papers*. vol. 4: 1795-1796, E.A. Cruikshank, ed., Toronto: Ontario Historical Society, 1926: 111).

¹² DOCUMENT 1796/09/06: Chenail Ecarté Treaty, NAC, RG 10, vol. 1840.

¹³ A Gunter’s Chain is equal to one pole, or 5 ½ yards (therefore 923 Gunter’s Chains is equal to 15,229.5 feet).

The 1796 Chenail Ecarté Treaty area is also shown below with some modern features added (see Figure 4):

Figure 4: Map of the Chenail Ecarté Reserve (grey) and Study Area (red)



The Chenail Ecarté treaty document did not mention the specific agreements that McKee had been careful to explain to the Chiefs verbally a week earlier. On its face value, the document appears to be a full and complete release of any right or interest in the land from that point forward by the First Nation. This was, however, contrary to the verbal agreement and understanding of the Chiefs at the time. It should be noted that the document was written in English, but none of the Chiefs signed their names in English. Rather, as customary, they affixed their totem marks in the Aboriginal style of drawing clan emblems. Since the Chiefs could not read or write English, the written document could not have been understood by them.

Historian Allan K. McDougall and anthropologist Lisa P. Valentine explained that: “McKee’s vision was to create an area reserved for Britain’s allies on the Great Lakes waterway with easy access to other First Nations on the Grand River or as far west as Lake Michigan.”¹⁴ Historian Timothy D. Willig noted that Chenail Ecarté was a “Native Reserve”

¹⁴ DOCUMENT 2002/01/01: Allan K. McDougall and Lisa P. Valentine, “Treaty 29: Why Moore Became Less,” pp. 241-260, in: Papers of the Thirty-Fourth Algonquian Conference, H.C. Wolfart, ed., Winnipeg: University of Manitoba Press, p. 246.

established by the British government in Upper Canada.¹⁵ He explained that: “by offering its defeated allies a refuge at Chenail Ecarte, Great Britain attempted to demonstrate its good faith.”¹⁶ Willig noted that the Chenail Ecarté Reserve did not attract as many people as expected in the first few years of its operation, but observed, “the predominantly Ojibwa reserve at Chenail Ecarte showed no signs of a diminishing populace.”¹⁷ By the fall of 1797, it was estimated that there were upwards of 500 Aboriginal people residing at the Reserve at Chenail Ecarté.¹⁸ However, when Abraham Iredell came to survey the area in 1800, he found the deserted remains of a “large Indian village.”¹⁹

Although the large village at Chenail Ecarté was abandoned by 1800, people from Walpole Island continued to use the area and considered it to be their land. In 1804, Moravian Missionary, Christian Frederick Denke, visited Walpole Island. He observed that the Walpole Island people continued to use the Chenail Ecarté Reserve, and expressed concern that a proposed settlement of Scottish immigrants under a plan by Lord Selkirk would encroach on that Reserve.²⁰ The people of Walpole Island continued to object to the encroachments on their Reserve at Chenail Ecarté. For example, on May 24, 1804, Chief Wetawwinse wrote to Thomas McKee (Alexander McKee's son, and newly appointed Indian Agent) and complained about squatters on their land. Chief Wetawwinse said: “I went yesterday with Captain Harrow to Chenail Ecarté to see those people that are now settling there, and to observe whether they were encroaching on our Grant, which if you remember, you told me that it was allotted for us and our children, and to remain so. I found they had not encroached any as yet, but Captain Harrow then and there told me that we had not one inch of land in these parts, and that which belongs to us lies a great ways to the westward of this. Such language as that, held forth, is not very agreeable to us, and hope my Brother will take it into consideration and if possible put a stop to such proceedings.”²¹

After the War of 1812, British military officers recommended that the Chenail Ecarté area be used as a settlement of Aboriginal warriors who had fought for the Crown. On 21 May 1815, Daniel Claus, Assistant Secretary of Indian Affairs, wrote to Colonel Caldwell, and recommended that the Chenail Ecarté be used as such, explaining: “I am directed by the DY Supt Gen [Deputy Superintendent General] to say that it is Lt General

¹⁵ DOCUMENT 2008/01/01: Timothy D. Willig, *Restoring the Chain of Friendship: British Policy and the Indians of the Great Lakes, 1783-1815*. Lincoln: University of Nebraska Press, p. 6.

¹⁶ DOCUMENT 2008/01/01: Timothy D. Willig, *Restoring the Chain of Friendship: British Policy and the Indians of the Great Lakes, 1783-1815*. Lincoln: University of Nebraska Press, p. 64.

¹⁷ DOCUMENT 2008/01/01: Timothy D. Willig, *Restoring the Chain of Friendship: British Policy and the Indians of the Great Lakes, 1783-1815*. Lincoln: University of Nebraska Press, p. 76.

¹⁸ DOCUMENT 1797/09/14: Letter from Frederick Fisher to Col McKee, River Thames, NAC, RG 10, vol. 26, microfilm reel C-11,006.

¹⁹ Document 1800/07/09: Map, “Sombra, formerly Shawanese W.D.” [Western District], A. Iredell, 9 July 1800, Archives of Ontario, RG 1-470-0-0-324 Shawanese (Sombra Tp) [N-2290]

²⁰ DOCUMENT 1804/01/01: “A Short Report on the Scouting Trip to the River Jonquakamik in January 1804 as it has Been Submitted to the Mission Conference in Fairfield, by Brothers Schnall and Denke, translated by Irmgard Jamnik, Kewa, 90-5: 3-7.

²¹ DOCUMENT 1804/05/24: Letter from Wetawwinse, a Chief of the Chippawa's, River St. Clair, to “Brother.” [Thomas McKee], NAC, MG 19, F1, Claus Papers, vol. 9: 25-26 (microfilm reel C-1,480).

Sir Geo: Murrays wish that the Western Indians should not immediately proceed towards Detroit- He thinks they will be much better situated about the Chenaille Ecarte or that neighbourhood where they may plant, and benefit by Hunting and Fishing during the Summer - It is Colonel Clauses request therefore that you will use your influence to that effect.”²² However, Lieutenant General Murray’s plan failed to materialize, and instead local Crown officials soon surveyed, sub-divided the lands in the Chenail Ecarté Reserve. Thereafter, they were sold to settlers and speculators, or given away to non-Aboriginal soldiers as a reward for their service to the Crown in the War of 1812.

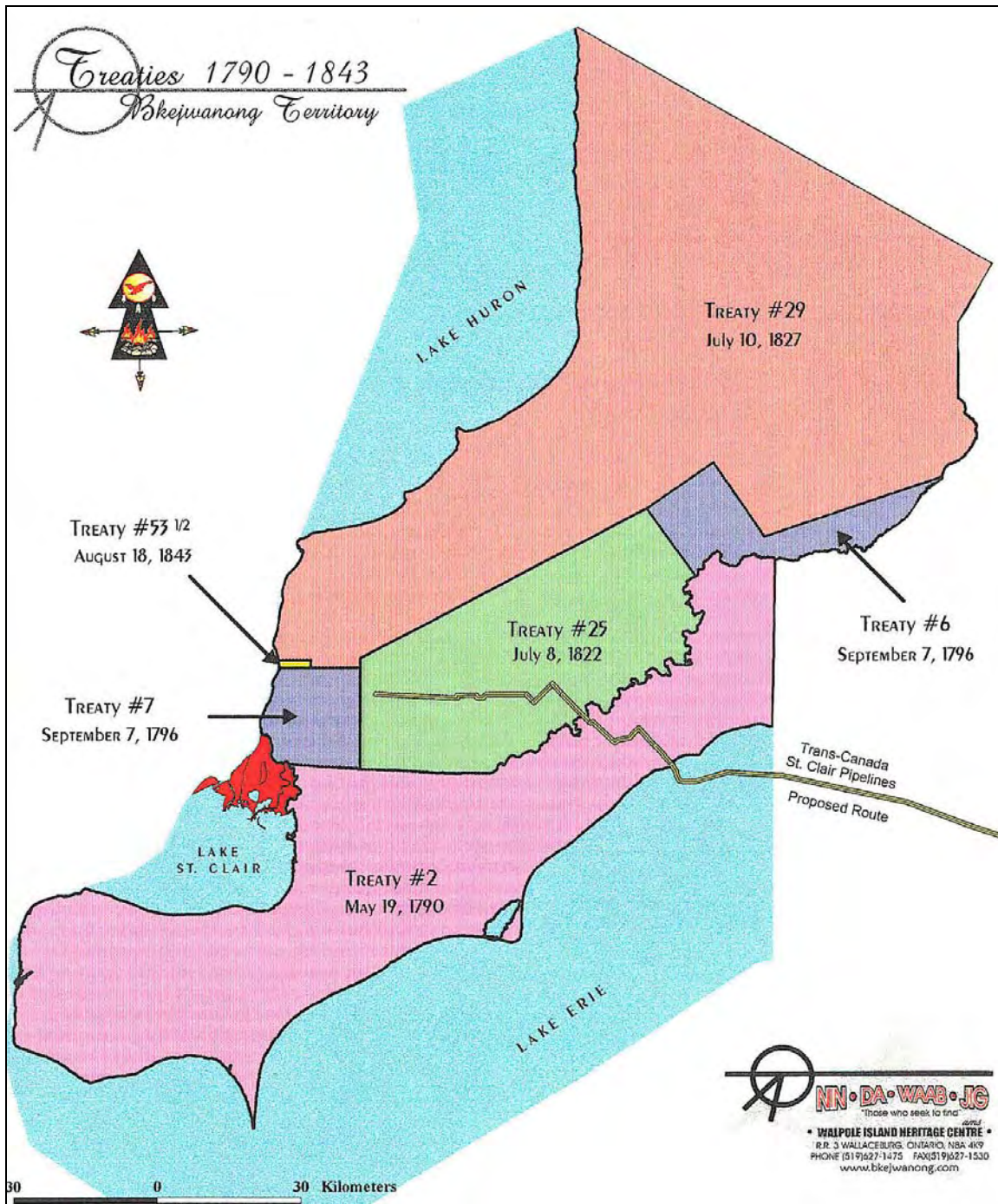
The dismantling of the Chenail Ecarté Reserve occurred without the knowledge or consent of the people of Walpole Island. No other treaty or agreement was made by Walpole Island First Nation to give permission to Crown officials to sell or give away their land. No financial or other consideration was given to the people of Walpole Island as payment for their reserve. The Chenail Ecarté Reserve was erased from the map, but it has remained in the hearts and minds of the people of Walpole Island.²³

Walpole Island First Nation was involved in a number of other treaties with the British Crown in the 19th century. These treaty areas are shown in Figure 5.

²² DOCUMENT 1815/05/21: Letter from DC [Daniel Claus] Ass Secy IA to Colonel Caldwell, NAC, RG 10, vol. 30, C-11,009, p. 18,000.

²³ Walpole Island First Nation filed a claim to Chenail Ecarté Reserve with the government of Canada in 1978.

Figure 5: Map of Treaty Areas



Most of the treaties signed by Walpole Island First Nation were silent about the rights of Aboriginal people to use the territory that had been surrendered to the Crown. However, British colonial government officials and land administrators encouraged access to the territory for traditional resource harvesting activities. This is evident by examining the goods that were supplied to Aboriginal people in the form of gifts and annuity payments.

For example the list of goods paid to the “Chippewas of River St. Clair and Chenail Ecarte” included hunting equipment such as ball, shot and guns and gunpowder.²⁴

In the summer of 1827, William Dunlop described a journey of 72 miles through the woods of the Huron Tract. He noted that it was a hunting ground and met a number of Aboriginal families hunting in the area. Dunlop wrote: “On my route I fell in with many Indian winter settlements w. [which] are deserted now the inmates being on hunting excursions & this is the country of all others for game - in sailing along in our canoe three days ago we saw on the banks no less than ten deer & the Indians sold us two haunches for three pints of flour value 2 1/2 d. so that food is not very scarce in these parts as for fish one man with a spear catches as many in two hours as thirty five men can eat in a day.”²⁵

In the winter of 1832, missionary Thomas Farmer visited the Upper Reserve on the St. Clair River (present Aamjiwnaang) and noted the importance of hunting in the area outside of the reserve. He wrote: “most of the Indians are now gone to their hunting grounds for the winter. This I find is their constant practice, and is at present, not only a matter of choice but also of necessity.”²⁶ In 1833, T.W. McGrath published an account of a hunting expedition along the shore of Lake Huron. He described an encounter with a large group of Aboriginal people hunting and fishing in the area. McGrath wrote:

“One night when encamped on the shore of Lake Huron ... [we were] interrupted by the sound of many paddles, and we soon discovered that some new arrival had taken place. On going out, I perceived eleven canoes discharging their crews opposite our encampment. In less than twenty minutes there were fires blazing in all directions and the cooking going on as if they had been there as many weeks. Shortly after, two chiefs came forward, shook hands with me in the free and friendly manner and Indian generally does, and, at my request supped with me. They had come to that part of the lake to take white fish, which is the best fish; and there, most abundant.

Next morning, I had a noble dish sent me as a present, by the Chief Wagna; and on his signifying that they would take to the fishing ground at noon, I purchased one of their bark canoes and paddles, for five dollars and joined the Fleet.

²⁴ DOCUMENT 1828/01/01: List of goods paid to the Chippewas of River St. Clair and Chenail Ecarte. Detroit Public Library, Burton Historical Collection, MS/Ironside, George, Box # 4, file 1828 - July-December.

²⁵ DOCUMENT 1827/06/02: Letter from Dunlop to his sister, AO, MU 2,104, Miscellaneous Collection.

²⁶ DOCUMENT 1832/12/27: Petition from Thomas Farmer, missionary St. Clair to John Colborne, LG (Lieutenant Governor), UC (Upper Canada), NAC, RG 10, vol. 52: 56,993-56,996 (microfilm reel C-11,017).

Would you believe it? I never passed a more agreeable time in my life than when surrounded by this party, at times 150 in number; nearly one hundred miles from any settlement, and I myself the only white man (not very white either) in the entire camp. My tent was pitched on a green bank about twenty yards from the wigwams, with its door to the lake into which I plunged every morning from my bed, and either joined my companions during the day, in hauling the net; or, taking my rifle to a deer pass, never failed of sport, as some obliging Indians were always ready to surround a portion of the Bush, and drive the game in the direction where I stood. ...With what pleasure I look forward to another such excursion! At night the shore was brilliant with the fishing lights in the canoes; and I had to walk but twenty paces into mine, to enjoy as fine sport as the most enthusiastic fisherman could desire.”²⁷

In 1838, Indian Agent William Jones reported on the livelihood of the Chippewas of the Upper St. Clair (St. Clair Rapids), Chenail Ecarté, and River Aux Sables.” He wrote, they “employ their time in cultivating small fields of Indian Corn, Potatoes, and various kinds of Pulse, and at particular periods in summer when their Crops do not require their attendance, they follow hunting and fishing. In winter the greater part of them retire to the most favourable situations for hunting and making sugar and there remain until the season again returns for planting and sowing their Spring Crops. ... The Hunting Grounds of the Upper Reserve are the unsettled parts of the Township of Sarnia and Moore, but they depend much upon fishing. The Hunting Grounds of the Walpole & Chenail Ecarté Indians are the unsettled parts of the Township of Sombra and Dover, and in the marshes of the Islands. The channels of the River at this place abound with fish. The Hunting Grounds of the Indians, settled at the mouth of the River aux Sables, are the unsettled parts of the Canada Company Tract.”²⁸

In 1839, Indian Agent J.W. Keating provided a similar account of the hunting and fishing activities in the traditional territory outside of the reserves. Keating wrote that traditional activities took place in “the vast marshes where he seeks the muskrat or otter, or through the dense woods where he hunts the deer or martin. ...Their patience, perseverance, and endurance, are well known, and they will daily scan the woods, often in vain, rather than submit to an exertion far less in its fatigue, but different in its form. I have heard many an Indian boast of his hunting exploits, of his unerring aim, of the meat and furs which had hung in his lodge.”²⁹

²⁷ DOCUMENT 1833/01/01: T. W. MaGrath, Esq. Authentic Letter from Upper Canada: with an account of Canadian Field Sports Dublin, 1833. Copy in William L. Clements Library, University of Michigan, Ann Arbor, Michigan [Clements Library call no. C2 1833 MaGrath].

²⁸ DOCUMENT 1838/07/20: Memorandum on the Chippewas of the Upper St. Clair (by William Jones), NAC, RG 10, vol. 124: 69,829-69,840.

²⁹ DOCUMENT 1839/11/18: Letter from Keating to S.P. Jarvis, Toronto, NAC, RG 10, vol. 71, C-11,025, pp. 66,443 to 66,445.

In 1848, Indian Agent J.B. Clench complained that the people of Walpole Island were often away on hunting and fishing excursions. He reported, "the Indians of the Island being in a wild state and absent at the issue of Presents on hunting and fishing excursions, sometimes in the American territory in and about Saginaw Bay and in the unsettled part of the country near Lake Huron in this Province."³⁰ In 1850, Clench reported that 62 people from Walpole had "removed to the neighbourhood of Saginaw Bay for the purpose of hunting."³¹

The pattern of moving to traditional hunting, fishing and gathering areas continued throughout the 19th century. In 1865, missionary Andrew Jamieson noted, "At the present time there are but few Indians on the Island, as the most of them have gone away to their hunting grounds, from which they will not return till within a few days before Christmas when they will remain with me for two months and then move off again to their sugar camps. Game indeed is becoming scarcer every year with the influx of emigrants and the clearing up of the forest. But the Indian is willing to go further in search of it. At the present moment some of my people are away to the wilder parts of this part of Canada. Some have gone to the Miami River, Ohio. Others have crossed over into Michigan and are not far away from the shores of Lake Huron. The Indian, as is well known, has become accustomed to a roving life, from childhood, he is therefore at home while wandering in the woods and as he finds for his furs a good and ready market, it would be too much to expect him to change his course of life and remain quiet in one spot."³² On 1 January 1882, Jamieson wrote: "At this season of the year the Absentees return (meaning hunters and others return for Christmas; some have been cutting cordwood, others hunting, others making brooms, baskets, mats and axe handles which they sell in Detroit). This has been the custom for years."³³

On 1 December 1885, Alex McKelvey, Indian Agent on Walpole Island, reported that "many of the Indians are away hunting, and others are away working in the woods, and will not be home before Christmas."³⁴ The increase of settlement in the traditional territory of Walpole Island First Nation made their livelihood from hunting and fishing more precarious. Missionary Andrew Jamieson noted this in 1873 when he wrote, "They are becoming more and more aware that a livelihood and support for their families must be obtained by tilling their land instead of hunting and fishing as in the olden time."³⁵

³⁰ DOCUMENT 1848/06/02: Numerical Return of the Chippewas, Pottawatamies and Ottawas residing at Walpole Island, NAC, RG 10, vol. 647 (microfilm reel C-13,399).

³¹ DOCUMENT 1850/04/20: Numerical Return of the Wyandottes, Chippewas and Ottawas of Amherstburg, NAC, RG 10, vol. 647 (microfilm reel C-13,399).

³² DOCUMENT 1865/11/28: Report by Andrew Jamieson, Walpole Island, to the Society for the Propagation of the Gospel (Anglican Church), copy in the Huron College Archives, University of Western Ontario (copy also in Walpole Island Heritage Centre).

³³ DOCUMENT 1882/01/01: Report by Andrew Jamieson, Walpole Island, to the Society for the Propagation of the Gospel (Anglican Church), copy in the Huron College Archives, University of Western Ontario (copy also in Walpole Island Heritage Centre).

³⁴ DOCUMENT 1885/12/01: Letter from Alex McKelvey, Indian Agent, Walpole Island to SGIA, Ottawa, 1pp, NAC, RG 10, Vol. 2118, File 22,610, pt 1.

³⁵ DOCUMENT 1873/12/09: Letter from Andrew Jamieson, Walpole Island, to the Rev. W. Bullock (Anglican Church), copy in the Huron College Archives, University of Western Ontario (copy also in Walpole Island Heritage Centre).

After the Lower Reserve was taken away in 1843, the people of Walpole Island were limited to the delta islands for their exclusive use. While many people continued to harvest traditional resources in the territories that had been taken away by treaties, the building of fences and clearing of land prevented them from accessing these resources as they had in the past. McDougall and Valentine commented on this process of disenfranchisement: "The politics of the settler world transformed the reserves from home bases from which one could move out to hunt to insecure islands in a settler sea. The source of land tenure changed from personal arrangements with the local First Nation to an instrument of colonial and settler policy. ...The reserve as a home base reinforced by external resources such as sugar bush and deer hunting grounds had been submerged by the magnitude, and inward-looking nature, of the new settler community."³⁶

In the 20th century, provincial game and fish laws criminalized traditional resource harvesting outside of Walpole Island. Harsh penalties were exacted on those caught transgressing these new regulations. For example, in 1936, Ontario government game and fish wardens charged Lazarus and Johnston Peters from Walpole Island for trapping muskrats outside of the "Reserve." They were found guilty and assessed \$10 and costs or one week in jail.³⁷ Two weeks later, Lazarus and Johnston Peters were sentenced to one week in jail because they were unable to pay the fine imposed by the court. Another similar case was tried in 1941, and the results were the same. Joseph Ermatinger (also known as I-wauta-zee) and his brother Kin-aa-pud-deeze were found guilty of "trapping muskrats on the Canadian mainland without licenses." They were each fined \$10 and costs or 10 days in jail, and were warned by the Court "no time would be allowed for the payment of the fines and costs." A newspaper account described the futile efforts of their father, former Chief Fred Ermatinger, to defend them in court. The newspaper article noted:

"...their aged father, Fred Ermatinger, an ex-chief of the Chippewa tribe who also was granted the permission of the magistrate to assume the role of interpreter. The old Indian who announced himself as 'Auhshow,' arrived in court fully prepared to do battle with a well-prepared brief, which he was in hopes of using in an effort to convince the Court, as has been tried on many previous occasions, but to no avail, that under the terms of the British North American Act the Indians still retain the privilege to hunt and fish wherever they wish without interference or license."³⁸

³⁶ Allan K. McDougall and Lisa Philips Valentine, "Treaty 29: Why Moore Became Less," pp. 241-260, in: Papers of the Thirty-Fourth Algonquian Conference, H.C. Wolfart, ed., Winnipeg: University of Manitoba Press (pp. 257-258).

³⁷ Wallaceburg Herald, February 27, 1936.

³⁸ Wallaceburg Herald, April 4, 1941.

Chief Aushow (Fred Ermatinger) was frustrated in his attempt to secure what he believed were the rights of his people to access resources in their traditional territory. As noted above, the treaties between Walpole Island First Nation and the Crown did not intend to alienate the people of Walpole Island from their traditional territory. Despite the promises and assurances of Crown agents who convinced Chiefs to put their totem marks on treaty papers, the people of Walpole Island were treated as criminals in their traditional hunting grounds.

PART TWO: SUMMARY OF WALPOLE ISLAND TEK INFORMATION

INTRODUCTION:

The Walpole Island Heritage Centre, under the leadership of Dr. Dean M. Jacobs, agreed to coordinate the TEK study for the Dawn Gateway Project. A TEK team was assembled that comprised Heritage Centre staff, community members and outside consultants. Dr. Jacobs acted as senior advisor at the Walpole Island Heritage Centre, and Eric Isaac was selected to coordinate the interview process and act as community facilitator. He was responsible for compiling a list of potential candidates for the interview process. Mr. Isaac is a well respected elder in the community and possesses a great depth of experience with people who have traditional knowledge. He knows many people through his extensive experience in the community and through his employment with Public Works and as a volunteer for various community projects.

Dr. Victor Lytwyn and Dr. Rhonda Telford acted as the principal investigators and analysts for the TEK project. Lytwyn and Telford have been involved with Walpole Island First Nation for over a decade doing historical research and conducting interviews for other Traditional Knowledge and Oral History projects. They also have extensive experience with other First Nations in Ontario in the fields of historical research and traditional knowledge studies. Dr. Lytwyn was responsible for the analysis and writing of this report.

In total, 10 people were interviewed at the Walpole Island Heritage Centre from 12-13 December 2008. Each interview was video and audio-recorded with the consent of the participants. At the beginning of each interview an introductory statement was made by the interviewer (Dr. Lytwyn or Dr. Telford) outlining the purpose and intent of the TEK project. Each participant was informed that their personal information would be respected, and that the Walpole Island Heritage Centre would be responsible for keeping the video and audio records as well as the transcripts of the interviews. In addition, each participant was told that they would receive a personal copy of their videos (DVD copy) and typed transcripts of their interviews. After receiving their verbal consent, the interview proceeded with questions relating to the Study Area. At each interview a map of the Study Area was placed on a table for each participant. Coloured markers were available for the participants to mark areas or places on the map as the interview proceeded. Copies of the maps can be viewed at the Walpole Island Heritage Centre, with the consent of Walpole Island First Nation. Copies of the transcripts, audiotapes, digital video discs, and maps are also archived at the Walpole Island Heritage Centre.

TRADITIONAL ECOLOGICAL KNOWLEDGE:

The study of Traditional Ecological Knowledge (TEK) is a fairly recent development for non-Aboriginal scholars. Not too long ago, however, most scholars routinely

dismissed this body of knowledge. These dismissals were based on the lack of confidence in the oral traditions of Aboriginal people. For example, Bruce G. Trigger, a renowned Canadian anthropologist, argued against the intrinsic value of Aboriginal traditional knowledge. He concluded, "it is of interest when oral traditions confirm other sources of information about the past, but, except when they do, they should not be used even to supplement such sources."³⁹ More recently, Alexander von Gernet; also an anthropologist and a student of Trigger provided a similar view about the validity or usefulness of Aboriginal traditional knowledge. Von Gernet commented "many oral traditions do not remain consistent over time and are either inadvertently or deliberately changed to meet new needs."⁴⁰

The standard of proof or validity that measure western scientific findings do not easily apply to traditional knowledge, and this has led many non-Aboriginal people to doubt the value of TEK. A major constraint on the study and use of TEK has been the reluctance of the western scientific community to appreciate that TEK represents a different way of knowing. As Paul Nadasdy has commented, "The widespread recognition that something called 'traditional ecological knowledge' even exists represents, in itself, an important first step toward the full participation of aboriginal communities in the management of land and resources."⁴¹

There are many definitions of TEK in the published literature. This has led to some confusion about what TEK is and how it may be applied. Deborah McGregor explained, "The term originates from western academia, rather than from Aboriginal communities themselves. Many Aboriginal people object to the use of the term TEK to describe their knowledge systems. This is because the term TEK as it is used tends to connote a false homogeneity of knowledge across the diverse nations and cultures of Aboriginal people. As well, the term "traditional" implies that the knowledge is static and confined to information gained in the past. In reality, this form of knowledge is continually evolving and expanding to incorporate new information as part of adapting and responding to current challenges."⁴²

³⁹ Bruce G. Trigger, *The Children of Aataentsic: A history of the Huron People to 1660*. Montreal and Kingston: McGill-Queen's University Press, 1976 (vol. 1): 20.

⁴⁰ Alexander von Gernet, "Oral Narratives and Aboriginal Pasts: An Interdisciplinary Review of the Literature on Oral Traditions and Oral Histories," unpublished report submitted to the Department of Indian Affairs and Northern Development, Research and Analysis Directorate, Ottawa, part 2: 20. Jarvis Brownlie characterized Von Gernet's report as excluding Aboriginal ways of knowing. She wrote: "Von Gernet produced a report that falsifies, oversimplifies, and omits important cultural and historical context in order to discredit Aboriginal oral traditions. He then embarked on a lucrative career as an expert witness for the federal government who has frequently succeeded in defeating oral history advanced by Aboriginal groups as evidence in court." (Jarvis Brownlie: "Abstraction, Decontextualization, Westernization, Generalization: Alexander von Gernet's Dismissal of Aboriginal Oral History," abstract of paper presented at Canadian Indigenous and Native Studies Association Conference, Saskatoon, May 2007.

⁴¹ Paul Nadasdy, "The Politics of TEK: Power and the 'Integration' of Knowledge," *Arctic Anthropology*, (1999) vol. 36 (1-2): 1-2.

⁴² Deborah McGregor, "Linking Traditional Ecological Knowledge and SOLEC," Preliminary Report submitted to Environment Canada and Chiefs of Ontario, September 2000 (copy in Walpole Island Heritage Centre).

According to Douglas Nakashima, TEK is simply, “the knowledge of Native people about their natural environment.”⁴³ Karen Roberts explained, “Capturing a single aspect of traditional knowledge is difficult. Traditional knowledge is holistic and cannot be separated out from the people. It cannot be compartmentalized like western scientific knowledge.”⁴⁴

The literature relating to TEK has expanded rapidly over the past few decades. Today there are many people in academia and other professional fields who study and write about TEK. There are many others who collect TEK in Aboriginal communities for a wide variety of purposes. In 2000, Dean Jacobs and Victor Lytwyn observed: “Aboriginal people have traditionally acquired knowledge orally, through verbal lessons communicated by skilled teachers. That knowledge was passed from one generation to the next, and preserved in oral tradition. Written communication has been a relatively recent development in many Aboriginal communities, and much traditional knowledge is still passed along verbally. Elders figure prominently as keepers of traditional knowledge and they are responsible for passing on their knowledge that comes from countless generations of oral teaching.”⁴⁵ This is the view that has been adopted in this report.

PREVIOUS TEK STUDIES ON WALPOLE ISLAND:

In the past there have been a number of TEK studies conducted on Walpole Island. These have included studies related to the Aboriginal Title claim of Walpole Island First Nation against Canada and Ontario, and various Specific Claims that have been submitted to the government of Canada. There have also been TEK studies in relation to environmental issues on Walpole Island. These include TEK studies relating to species at risk and invasive plant species.⁴⁶

In 2000, Victor P. Lytwyn conducted a TEK study on Walpole Island in association with the Canadian Millennium Pipeline Project Environmental Impact Assessment.⁴⁷ That study was undertaken to determine the nature and extent of the current use of traditional resources by Walpole Island First Nation people within the area of a proposed gas pipeline. The study area included the Local Study area of this TEK study and an

⁴³ Douglas Nakashima, “Astute Observers on the Sea Ice Edge: Inuit Knowledge as a Basis for Arctic Co-Management,” in: J. Inglis, ed., *Traditional Ecological Knowledge: Concepts and Cases*. Ottawa: International Program on Traditional Ecological Knowledge and International Development Research Centre, p. 99.

⁴⁴ Karen Roberts, “Circumpolar Aboriginal People and Co-Management Practice: Current Issues in Co-Management and Environmental Assessment, Inuvik, Northwest Territories, November 20-24, 1995,” Calgary: University of Calgary (1996), p. 115.

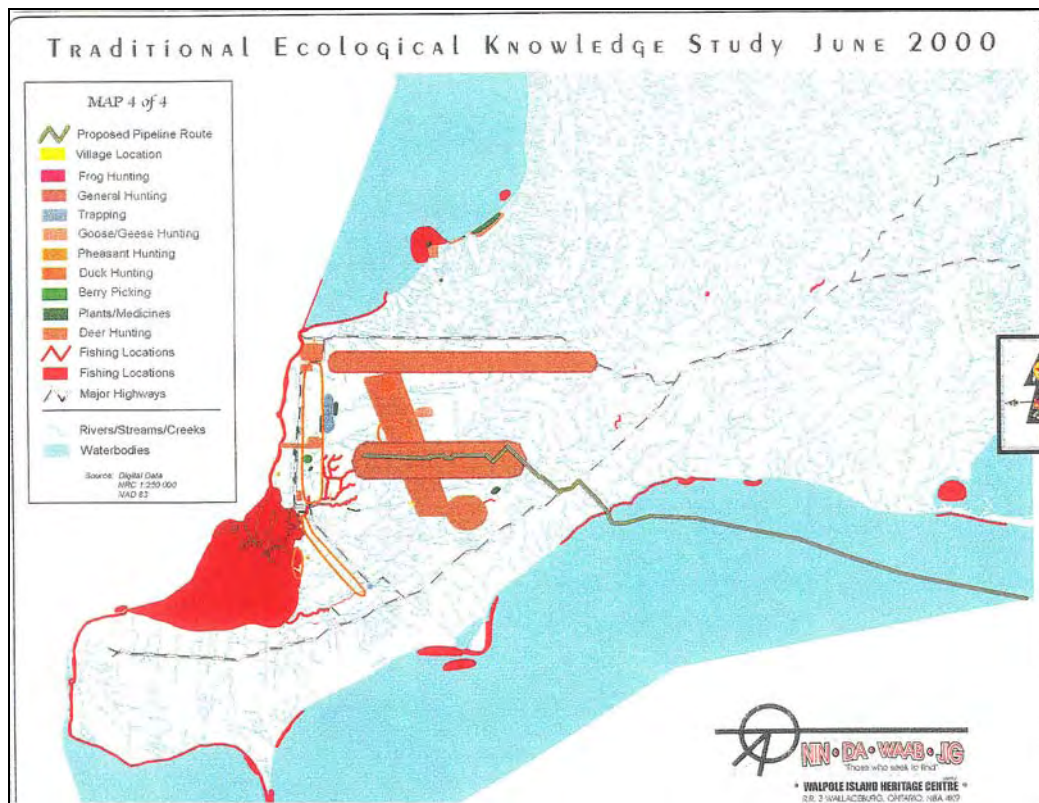
⁴⁵ Dean M. Jacobs and Victor P. Lytwyn, “Traditional Ecological Knowledge: Philosophy, Methodology and Practical Application,” presentation to the State of the Lakes Eco-System Conference 2000, Hamilton, 19 October 2000 (copy in Walpole Island Heritage Centre).

⁴⁶ Walpole Island Heritage Centre files.

⁴⁷ Victor P. Lytwyn, “Walpole Island First Nation Traditional Ecological Knowledge: Canadian Millennium Pipeline Project Impact Assessment, Final Report,” 3 August 2000 (copy in Walpole Island Heritage Centre).

additional area stretching south and east to Lake Erie. The participants in that TEK study contributed information on hunting, trapping, fishing and plant harvesting.⁴⁸ Figure 6 shows a map of the composite results of the TEK pipeline study.

Figure 6: Walpole Island TEK Pipeline Study Map, 2007



The 2000 Walpole Island TEK pipeline study provided information that is relevant to this study. TEK information was collected that applied to the Local Study Area for this project. Some participants in the TEK pipeline study provided information on hunting deer and harvesting medicinal plants along highway 40 and other places within the Study Area.

In 2007, Lytwyn prepared a report on TEK as part of an environmental assessment for a proposed oil refinery within Walpole Island traditional territory. That TEK study involved 25 participants and their information is summarized on the following maps.

⁴⁸ An effort was made to obtain information about spiritual sites, but the participants either did not know of them or were reluctant to divulge information about the specific location of such sites.

Figure 7: Fishing – Walpole Island TEK Study, 2007

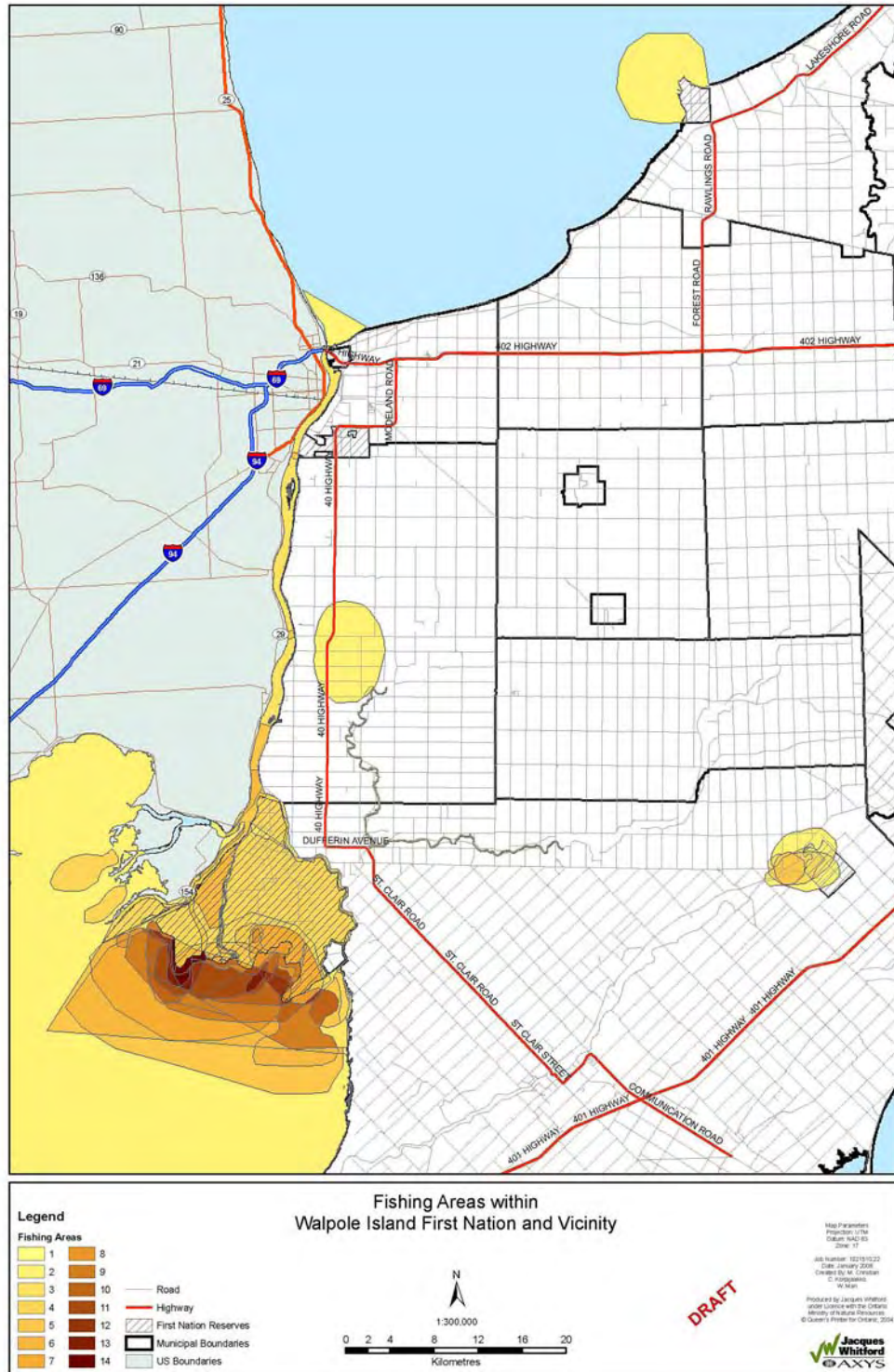


Figure 8: Deer Hunting– Walpole Island TEK Study, 2007

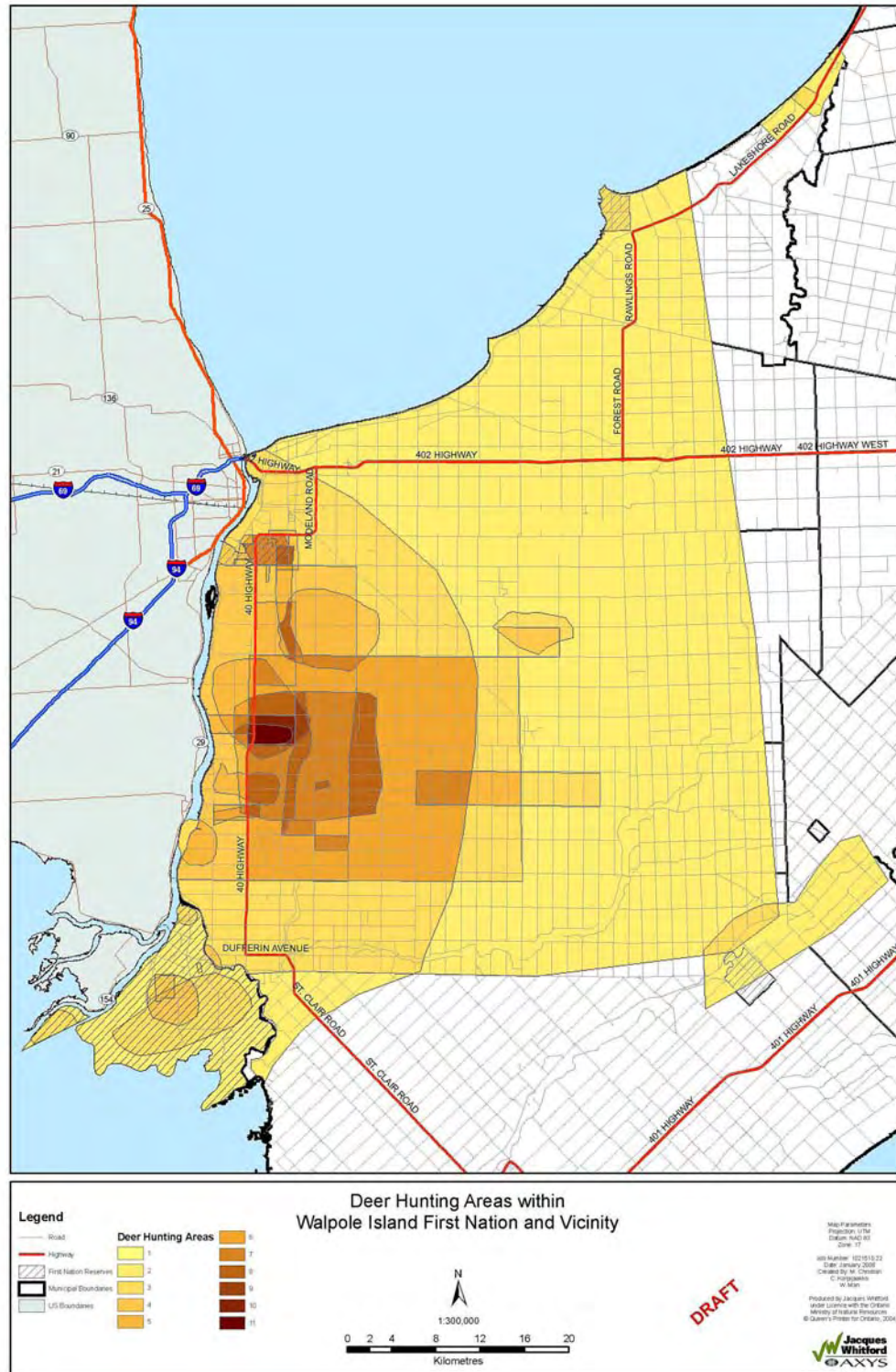


Figure 9: Small Game and Bird Hunting– Walpole Island TEK Study, 2007

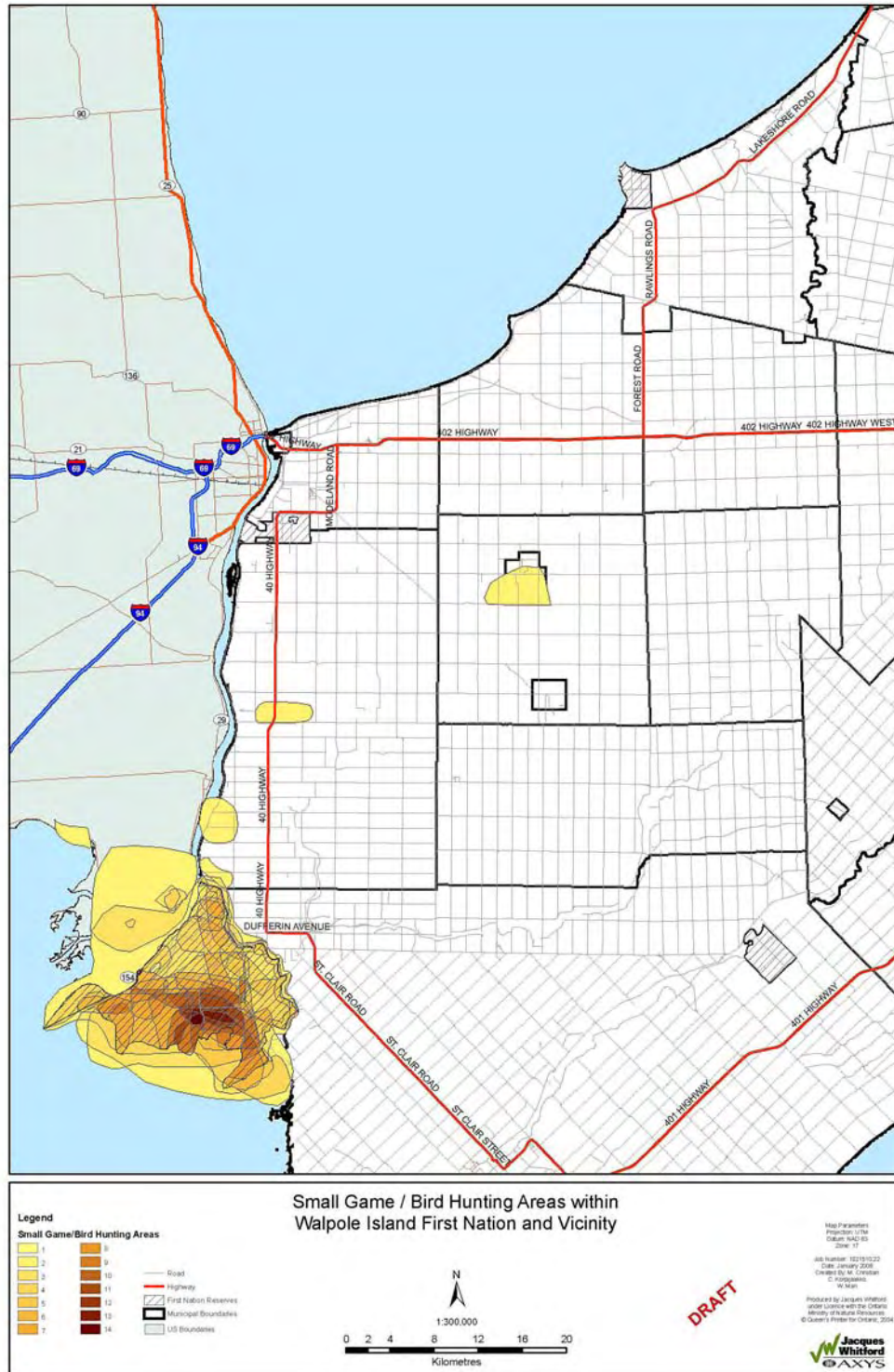


Figure 10: Waterfowl Hunting– Walpole Island TEK Study, 2007

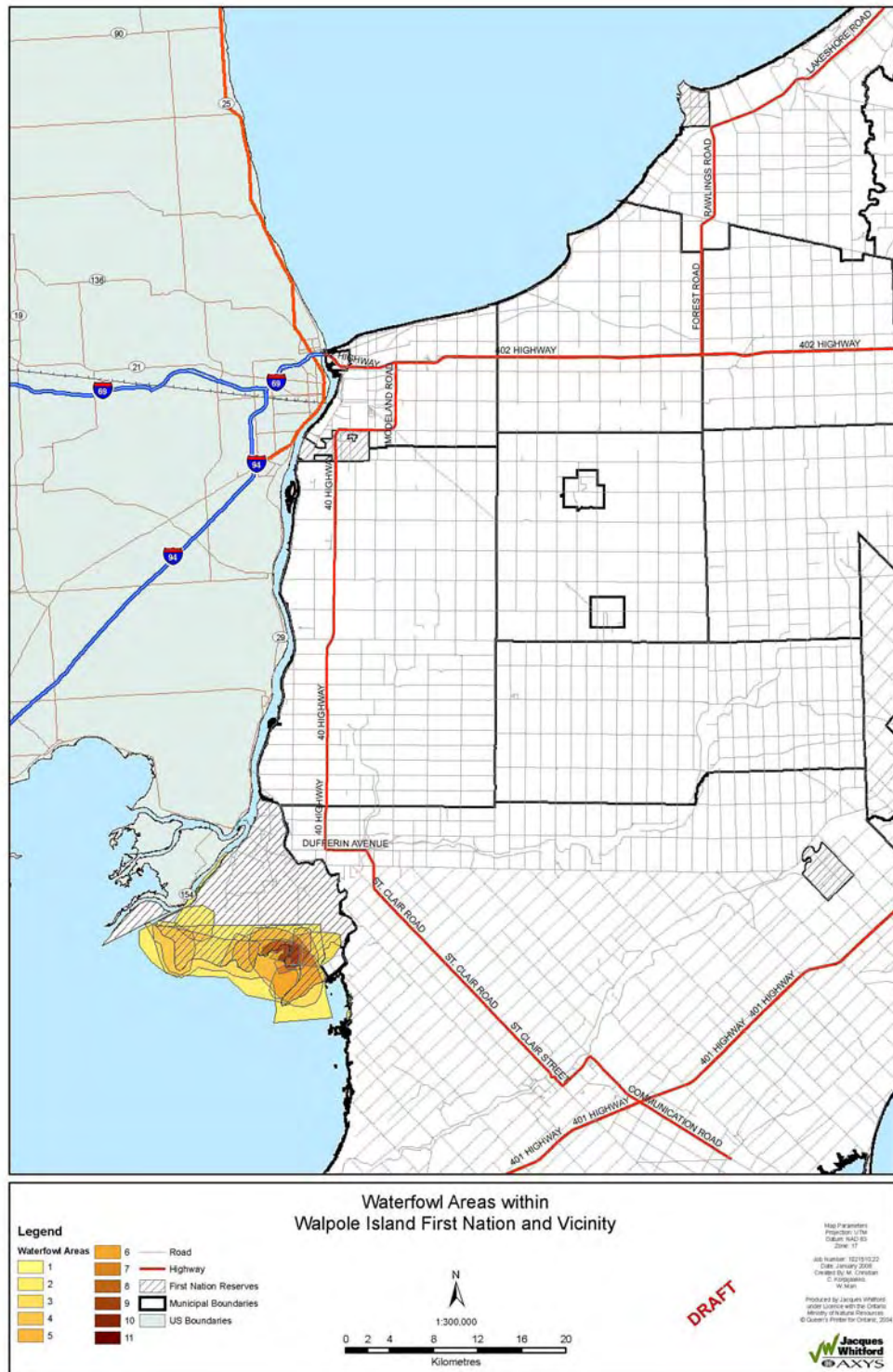


Figure 11: Plant Gathering– Walpole Island TEK Study, 2007

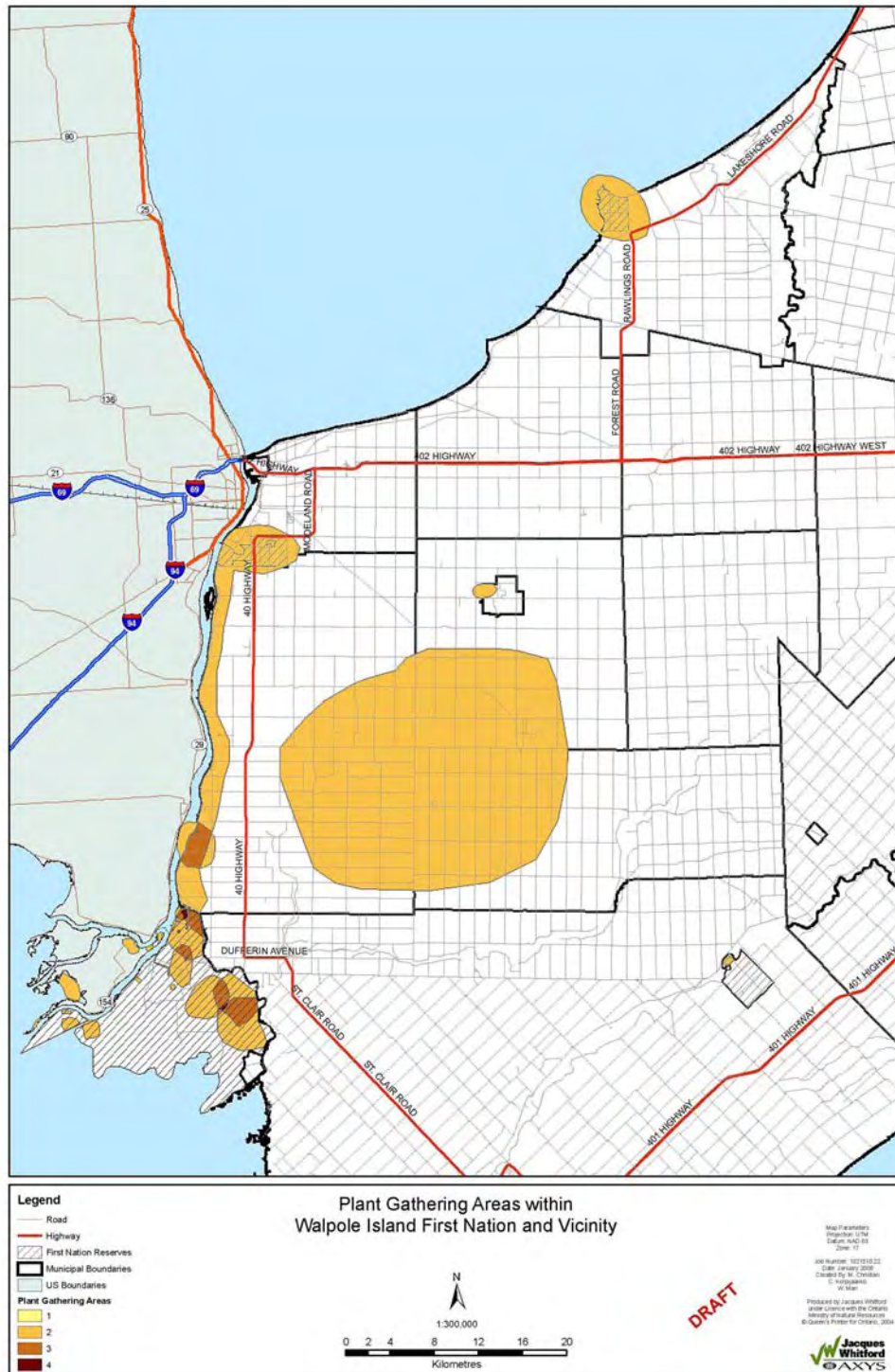
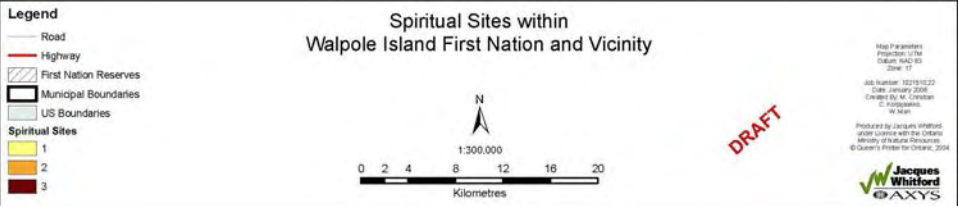


Figure 12: Spiritual Sites– Walpole Island TEK Study, 2007



As illustrated by these maps, the Study Area for the Dawn Gateway Project was covered by Oil Refinery TEK study. The results of that study indicated that people from Walpole Island continued to use parts of the Study Area for traditional purposes. The main traditional activity was deer hunting, and some people harvested medicinal and other plants in the area.

FINDINGS FROM THE DAWN GATEWAY TEK STUDY:

The following section outlines the results of the Dawn Gateway TEK study. As noted above, this study builds upon previous TEK studies in Walpole Island traditional territory. It examines the current and past use of traditional resources within the Study Area. It is divided into hunting, fishing and plant gathering of traditional resources within the Study Area.

TRADITIONAL RESOURCE HARVESTING:

The harvesting of traditional resources has always been important to people on Walpole Island. Although traditional resource harvesting in the area outside of Walpole Island has been curtailed because of increased settlement and development, there are currently many people that still harvest in the Study Area. In addition to the ten participants in the TEK study, there are many others who harvest traditional resources in the Study Area.

Participant 1 noted: "Yeah, there's a lot of people, for example, my cousin [name withheld], a lot of my cousins, [names withheld] a lot of my friends, a lot of friends and family do hunt that area, a lot, a lot of people hunts, everybody that I know that, that hunts, on Walpole has hunted in this general area before."

Hunting is part of a way of life that is central to the culture and identity of Walpole Island people. Participant 1 said that he has hunted almost all his life. He explained: "I hunted a lot, like I grew up, my dad brought me out, I started hunting when I was little, when I was still in diapers, I was hunting with my dad, I remember vaguely him taking me out when I was little, going on the marsh. ...I learned everything from my dad."

Participant 9 noted that hunting was a culturally significant activity for many people on Walpole Island. He explained: "It's real important. There's a lot of younger people now that going back to that hunting, never used to be that many people that hunt, there's a lot of them getting involved with it now, involved in hunting. I don't know if it's just because they like the sport of it, but they eat 'em, they don't waste 'em, yeah, and a lot of people hunt up there now from the Island. I know a lot of them go up there, perfect spot - they go all the way up to Sarnia, and down to Rondeau, Rondeau Park, Grand Bend, they go all over to hunt."

Traditional knowledge relating to hunting has been passed down through the generations on Walpole Island. Participant 1 explained: "I sat down, and had quite a few talks with my grampa. He was telling me about the old times when he used to go hunting and fishing all the time, which I really enjoyed listening to his stories. He told me quite a few stories when he, when he used to go hunting."

Participant 9 recalled talking to elders and learning about the importance of harvesting traditional resources. He said: "I became involved with old people, and knew a lot about them, and they told me a lot of different stuff about hunting. [Names withheld] another old guy that lived here. Guys like [name withheld], I used to be on the lake with him when I was a kid, we talked about hunting. That's all they did, you know, was hunt. That was there survival way of making money and living."

Sharing is an important part of hunting for most people on Walpole Island. Meat and fish from traditional resources is often shared with elders and other family members.

Participant 1 explained: "most of the time when I had, when I had taken, killed something, like a deer or a rabbit, I always dress it out in the field, and lay tobacco down, say my prayers, and say thank you, then I'd bring it home, and then we, we'd you know

prepare it, or if, if I wanted to, I'd just give it to an elder, like my aunt or my uncle or somebody. I do a lot of hunting, and usually what I do is I take what I need for myself, and what, whatever is left over, I give it away to family, that's just the way I was raised."

Participant 10 also talked about the importance of sharing traditional food with elders on Walpole Island. He said: "I give a lot of it away. And what I do, like to do is the seniors are, the seniors don't get what, meat like a lot of people get. I'll take it and have it processed, and I'll just go over to the seniors, and I'll go onto the [inaudible] and I'll say, you know I have some venison and it's already been cut, I don't need nothing, I'll put it down in the thing, if you want it come down and get it. So it's nice for them. ... and my parents, my dad always told me to, you know, you give it away, and even if you don't have enough, you'll always get it back twofold, or whatever, you know."

Participant 9 noted that venison was an important part of the diet for some people on Walpole Island. He said: "there's so many people hunting them now. There's a lot of people that rely on that meat here now, yeah. Feed their family on, on that deer meat around here, here a lot. ... They rely a lot on it, yeah. I know that for a fact. My grandchildren, they eat deer all winter long."

Hunting for food was considered to be an important supplement to their diet, but for many the activity of hunting was an essential part of their cultural identity. Participant 1 explained it this way: "It's really nice to be just out in the bush and walking most of the time, and if I don't get anything, it doesn't matter to me, it's just nice to be out there, you know, just to get out in the open and enjoy the wildlife and the birds, and everything you see out there, and everything else, you know, yeah. I've walked up on a few deer, and they're sitting there eating away under the apple tree. I'll walk right up to them, and they generally don't even know I'm there cause I'm so quiet, and I make a little noise, and they look at me, and they keep right on eating, they don't mind. Lot of them don't run away, some of them do, but a lot of them don't, they just, as long as you don't bother them, they're not bothering them, they just, they go on their own business."

Traditional resource harvesting is an activity that most of the participants felt was an important part of their way of life. Some expressed their desire to pass on traditional knowledge to the next generation. Participant 1 explained it this way: "I'd like to bring my two sons with me too, because they're avid hunters too. Like when they were little, I, I got them right into hunting, the same way my dad did. When I was still in diapers, my dad had me out, out hunting and fishing everyday. And, every change I got when I got off of work, I got my boys and got in a boat and we were out fishing, or we were always doing something, you know, I wanted to bring them up in that environment, you know. I taught them how to respect the water, and respect the land, and that's the same thing my father taught me. Yeah, and traditions, and they're pretty strong believer too, like they're avid hunters too, both of them. They love their hunting and fishing, and, and if anybody was going to try and take that away from them, they'd do the same thing I'd do, I'd stand my ground, you know. There's no way nobody's talking that away from me. That's my inherited right, and I strongly believe in that."

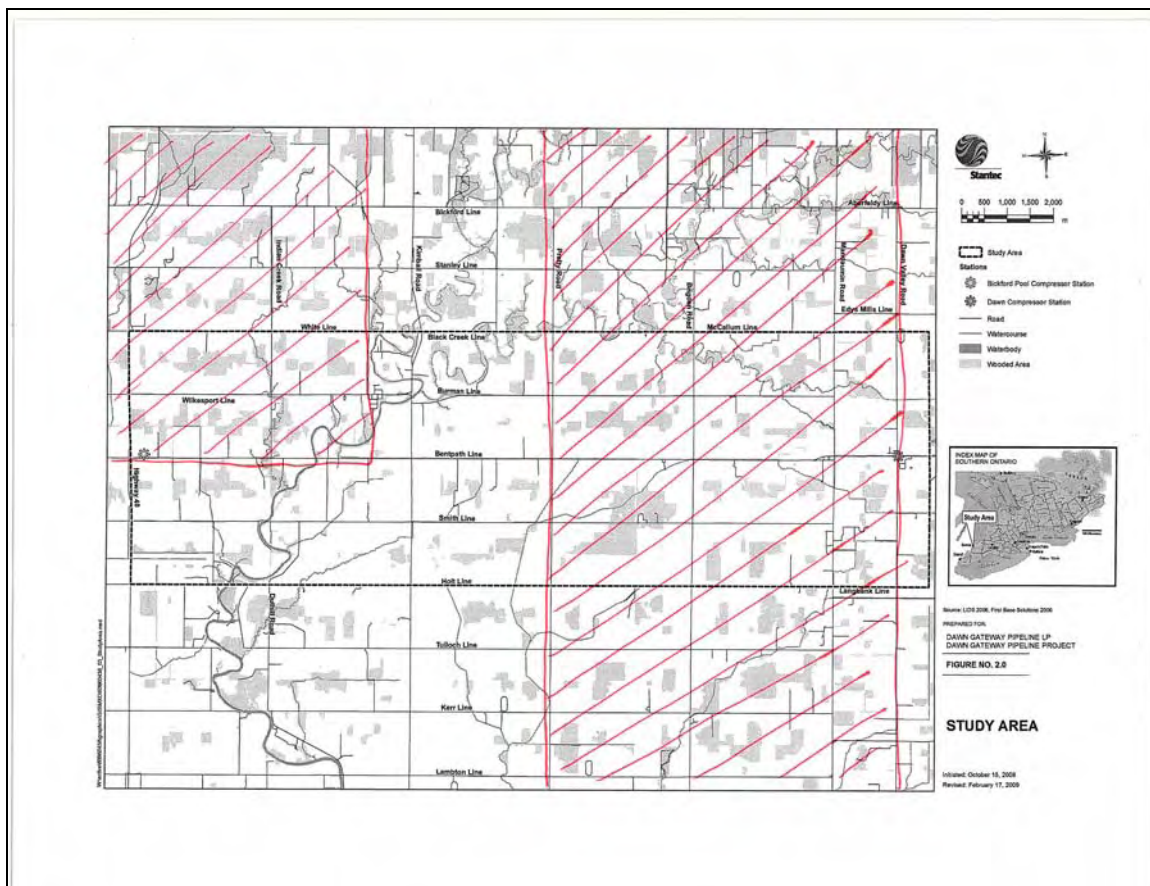
While hunting is generally considered to be good in and around the “Study Area” some participants noted changes to the natural environment have produced negative impacts on traditional resources. Participant 1 explained: “I’ve noticed a lot of bush is being depleted, being cut down, and making way for farmland, a lot of prime hunting area. Off the Wilksport Line, Bentpath Line we mostly hunted Kimball Sideroad between Pretty Line and the Kimball Sideroad in this general area here, and over by Wilksport now where they got the, the old land fill site back in there, they, they, they had cleared that out, and that was a prime place for bunny hunting, we really enjoyed going back in there.” Participant 2 noted that tree cutting had been extensive in the 1930s and 1940s, and that had negatively impacted traditional resource harvesting activities.

DEER HUNTING:

Hunting whitetail deer within the Study Area was the focus of much of the discussion in the Dawn Gateway TEK study. Participant 3 talked about the importance of deer hunting to people of Walpole Island. He noted that the deer population on the Island was minimal, so that people needed to hunt on the mainland. He was aware of the magnitude of the mainland deer hunt by talking with a local butcher. He explained: “Well, the story that I got from [name withheld] butchers, he said he processed somewhere like 180 to 200 deer carcasses a year for Walpole Island Band residents, and I know that, that there wasn’t that many deer on Walpole could be harvested, so the deer obviously would have had to come from elsewhere off Reserve, and from my understanding of the hunting that was done, was in this area here. I don’t know how far to the extent that they went, but I think it’s conservative up to the north end of Lambton County and even east of Lambton County, and it’s because they had access to vehicles that they could get out to those particular areas, but they, the actual amount or extent of hunting activity was given some substance by [name withheld] butcher shop, the amount of deer that he had been asked to butcher.”

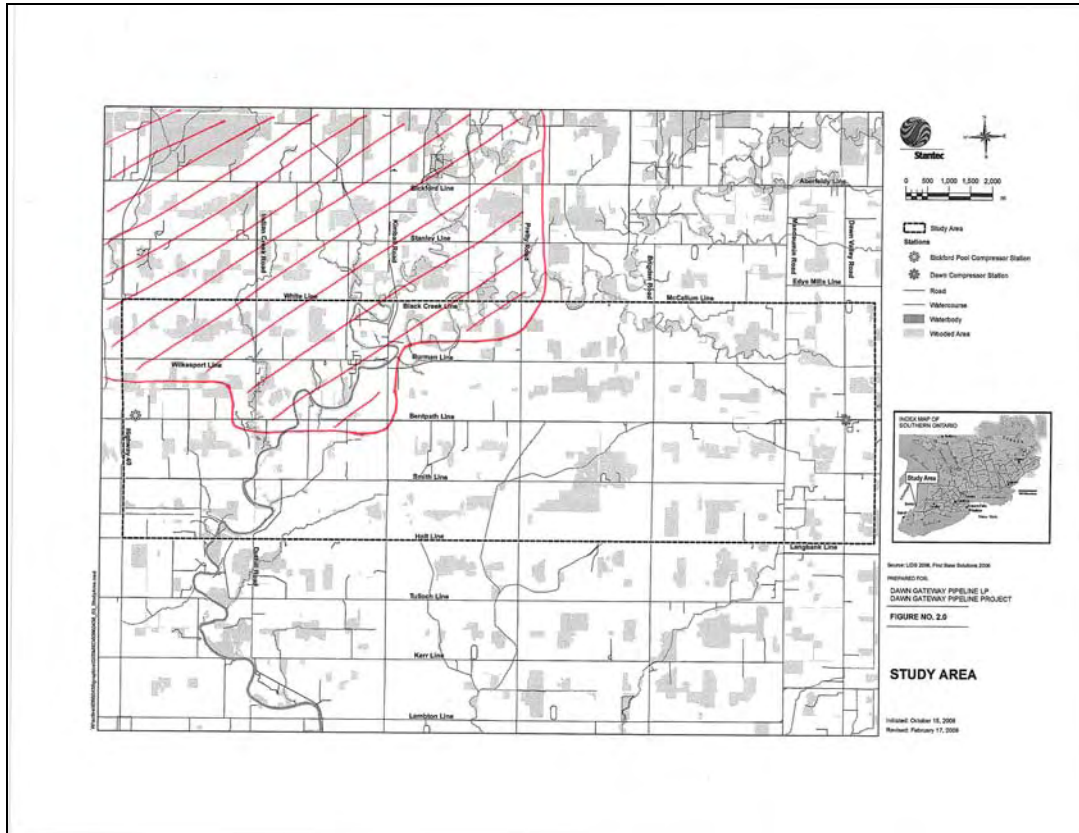
Participant 2 explained that he hunted deer along the North Sydenham River and through cornfields on either side of the river (see Figure 13).

Figure 13: Deer Hunting - Participant 2



Participant 9 has hunted deer in and around the Study Area for a long time, and still actively hunts in that area. Recently he hunted with a party just north of the Study Area and harvested 14 deer. Participant 9 marked out the area that he hunts deer and it is shown on Figure 14.

Figure 14: Deer Hunting - Participant 9



Participant 9 noted that deer hunting was done mostly off Walpole Island because historically deer were not abundant on the island. He explained: "There wasn't many deer here, at that time. I remember, it was very rare if you ever seen one. I think it might have had a big play on the wild horses that were here. They didn't enjoy living with each other." Participant 10 had done a lot of deer hunting throughout the Study Area, and in the Bickford Woods or 1800 Block.

The "Study Area" is within a larger area that is used as a hunting ground. To the north is an area known as the "1800 Block" or "Bickford Woods" that is a favourite hunting ground. Participant 1 noted that he hunted "pretty much the general area what you got mapped out, we were off of mostly, if I look at the map, it would be the round Kimball Sideroad area, Bentpath Line, where else would we go - the 1800 Bush. That's, that's a really noted bush where a lot of people going into." Participant 1 said that the area was rich in traditional resources. He said: "Deer hunting, turkey hunting, pretty much all, all the local game, rabbit hunting, raccoon, squirrel, pretty much everything that I can think

of would go back in there.”

There are at least two pipelines in the area around the Study Area. Some participants made note of the existing pipelines, but noted that they had not impacted traditional harvesting to any large degree. Participant 1 remembered when one of the pipelines was built. He was between 10-12 years of age, and remembered that it was put in about the same time as Highway #40 was constructed. He noted that it cut an area of bush in half, and that it had an initial impact on the natural environment and disrupted hunting. However, over time the plants had regenerated and animals returned to the area. He explained: “When it first came in they cleared the land, yeah, that, that’s a big section that’s approximately 150 yards wide going the whole length of the bush, and they cleared that all out, but it’s all grown back in now, with low brush and the weeds and stuff, so lot, lot of the vegetation and habitat came back, for the birds and the deer and everything, yeah.” The pipeline runs through important bush areas that are used by deer as yarding areas, especially in winter. Participant 1 described his hunting activities in that area: “We come off of Highway 40, and then we walk in along the pipeline, we cross this creek here, and then there’s a little marshy swamp right in here, and right before that there’s where they cleared the land, there’s old trees back here, we made our own deer blind right back in here, that’s where we hunt pretty much every year we go back in there together.”

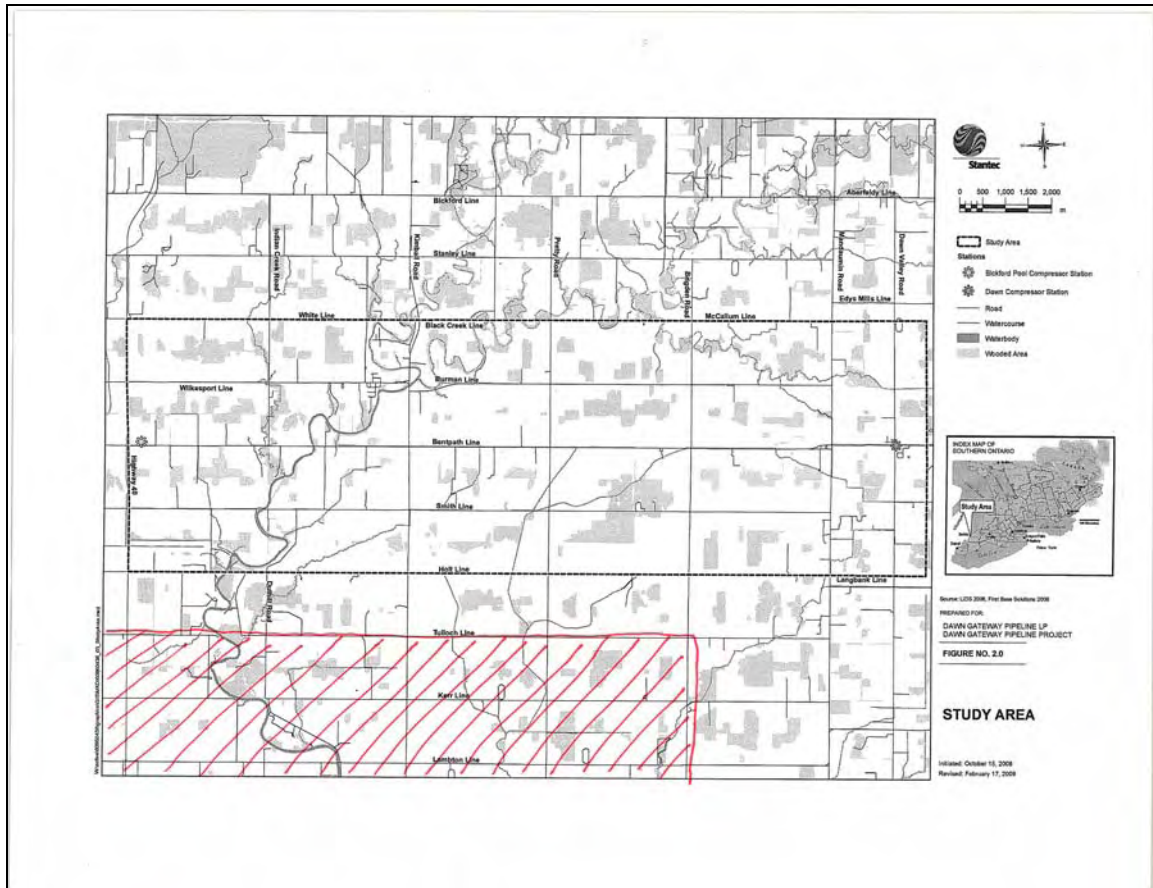
Participant 5 observed that an existing pipeline did not affect traditional resource harvesting. He noted that people from Walpole Island hunted deer in that area.

SMALL GAME HUNTING:

Whitetail deer is the animal that is hunted most often in and around the “Study Area,” but other animals are also taken. Participant 1 noted that he also hunted raccoons in the area. He said: “I basically, just for the pelts, for fur, for, for the fur trade. I’ve done that every year, and I, ever since I was a kid I hunted raccoon. Like as far as I know there’s, this year, I haven’t seen anybody out at all on Walpole hunting. I’m the only one that still does it as far as I know.” He generally harvested 20-30 raccoon every year. Participant 2 said that he had hunted raccoon in the Study Area when the price of pelts was high. He noted that there was a bounty on raccoon in the 1960s, and the government paid \$5 per pelt.

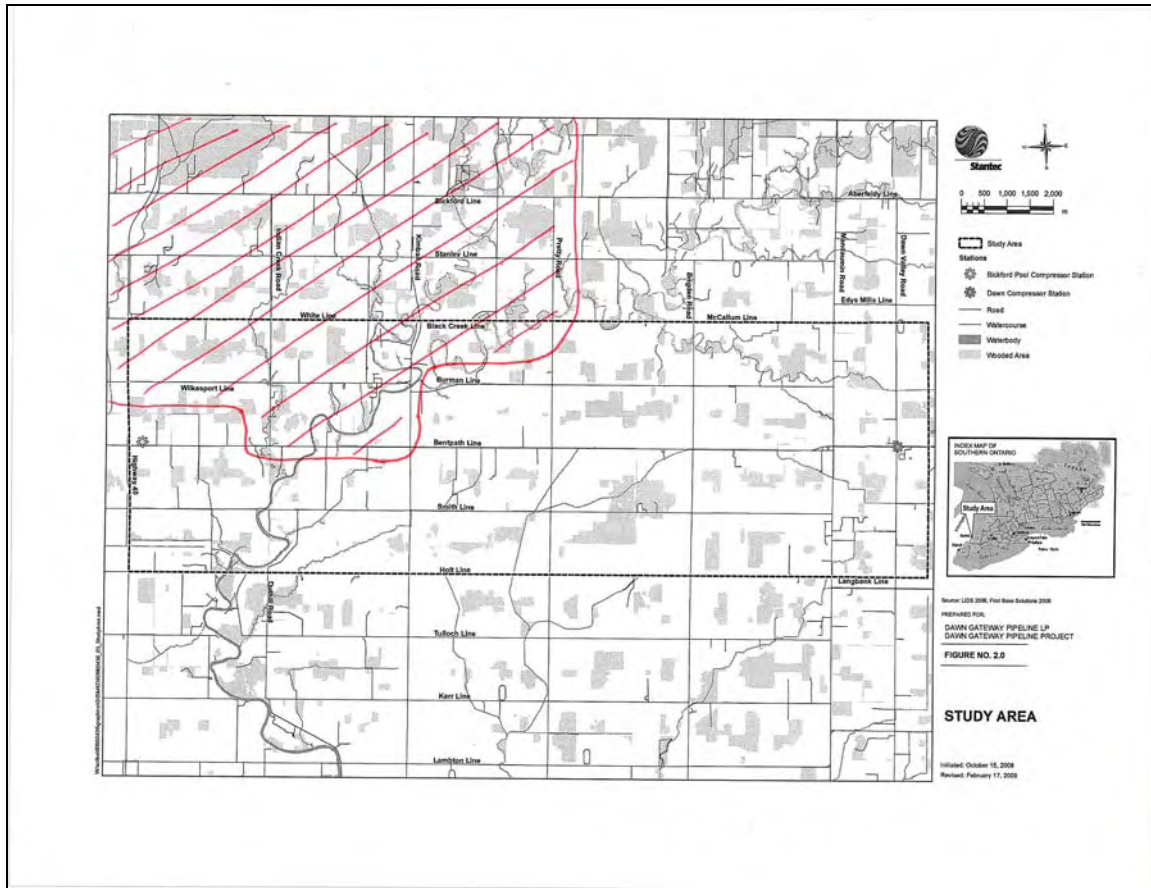
Participant 5 pointed out places that he used to hunt fox and jackrabbits near the Study Area (see Figure 15). He described the technique that was used. He noted that 25-30 people were usually involved in the hunt, and explained: “we’d spread out across this concession in a moon shape, like go, when you’re driving, everything goes to the centre [showing with his hands how the game would be driven into the trap] the guys we were meeting were quite a ways up, and these guys in the centre, they were quite a ways back, so everything just pushed one way.” Participant 5 remembered that jackrabbits were plentiful but began to decline in the 1940s and 1950s.

Figure 15: Fox and Jackrabbit - Participant 5



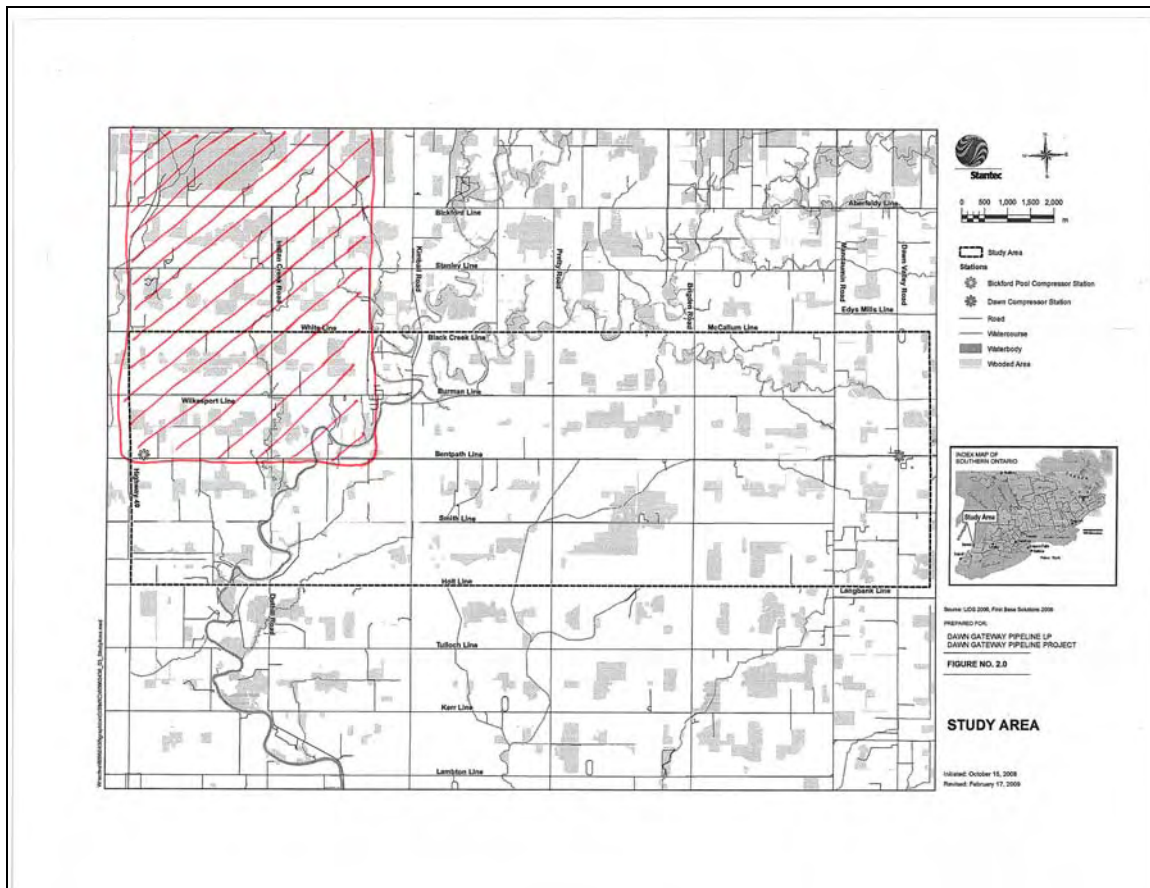
Wild turkey has been recently re-introduced, and some of the participants have hunted them in and around the Study Area. Participant 9 pointed out an area that he hunted wild turkey and it is shown in Figure 16.

Figure 16: Wild Turkey Hunting - Participant 9



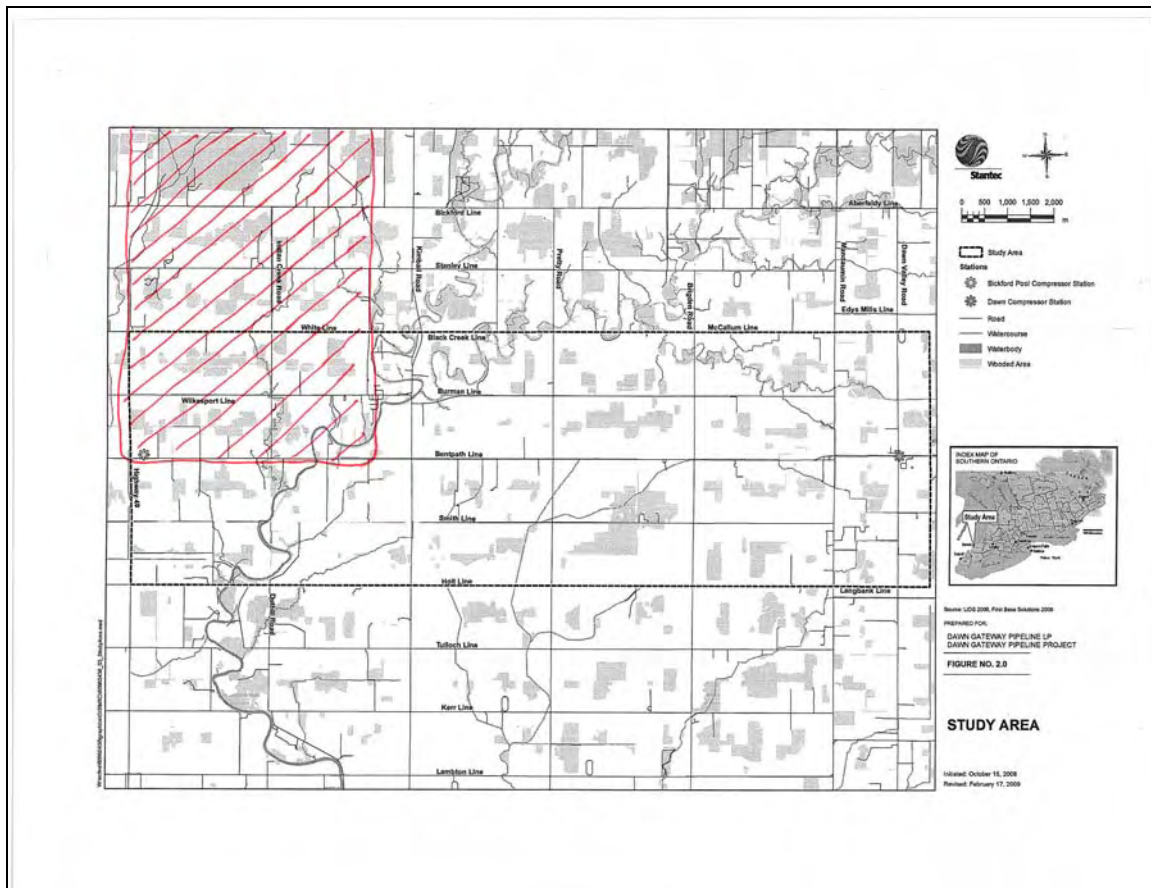
Participant 10 had also hunted turkey in part of the Study Area. He pointed out the area, and it is shown in Figure 17.

Figure 17: Wild Turkey Hunting - Participant 10



Participant 10 said that he had hunted ducks in part of the Study Area. He explained that ducks were hunted in an area where beaver ponds had created suitable habitat. He said: “If you go down the Bickford Line, and in the Bickford ...Inside that bush there’s beaver ponds in there. ... There’s some big ponds in there. ... Even if you come off the 40 Highway into the, into the bush, on that first ditch that you come, you can see it from the highway, there’s beaver in that ditch right there. If you walk through the ditch on the left hand side, there’s a, there’s a beaver dam right there.” (see Figure 18)

Figure 18: Duck Hunting - Participant 10



In the 1920s and 1930s, people from Walpole Island used to hunt muskrat in the Study Area. Participant 2 remembered hearing stories about that, and recalled: “I heard stories all the time of where they used to trap these waters, the old timers, that would be the ‘20s or the ‘30s - when they were trapping these rivers. But, I couldn’t remember their names. I heard ‘em talking about it, for muskrats.”

FISHING:

Most of the participants fished in the waters running through and around Walpole Island. The rich aquatic environment provided sufficient fish for home consumption and trade. Some participants had fished in and around the "Study Area." There were spawning grounds on some of the creeks running through the "Study Area" such as Indian Creek and Bear Creek. Participant 1 noted: "I know of lot of the tributaries. I've talked to my boss, and when he was a kid, he used to go off the tributaries in the spring time for the pike season to come in, and they were always looking forward to that because they'd run off the ditches, and they'd spawn in, in the ditches and the small tributaries, like the creeks."

Participant 2 noted that he had "fished all over," including the "Study Area." He pointed specifically to an area along the North Sydenham River, where he had caught pike and pickerel (walleye). He had fished for pickerel in late winter through the ice, and speared pike in the spring as they swam up the little creeks to spawn. One of the creeks mentioned was Dingman Creek. He took the fish home and shared them with family members on Walpole Island.

Participant 9 said that the creeks feeding the North Sydenham area were pickerel spawning areas. He pointed out these areas on the map, and they are shown in Figure 19. He noted that people long ago had fished for pickerel there with big dip nets; taking 20-30 fish in one dip of the net. He said: "Oh, it was before my lifetime, but I heard people talk about it. That they used to fish. People used to fish up there, Indian people, and they, and the white people knew that they used to fish up there, they must have heard about it, cause different ones that lived around on farms told me, eh your, your ancestors used, used to fish here for pickerel, we heard, you know."



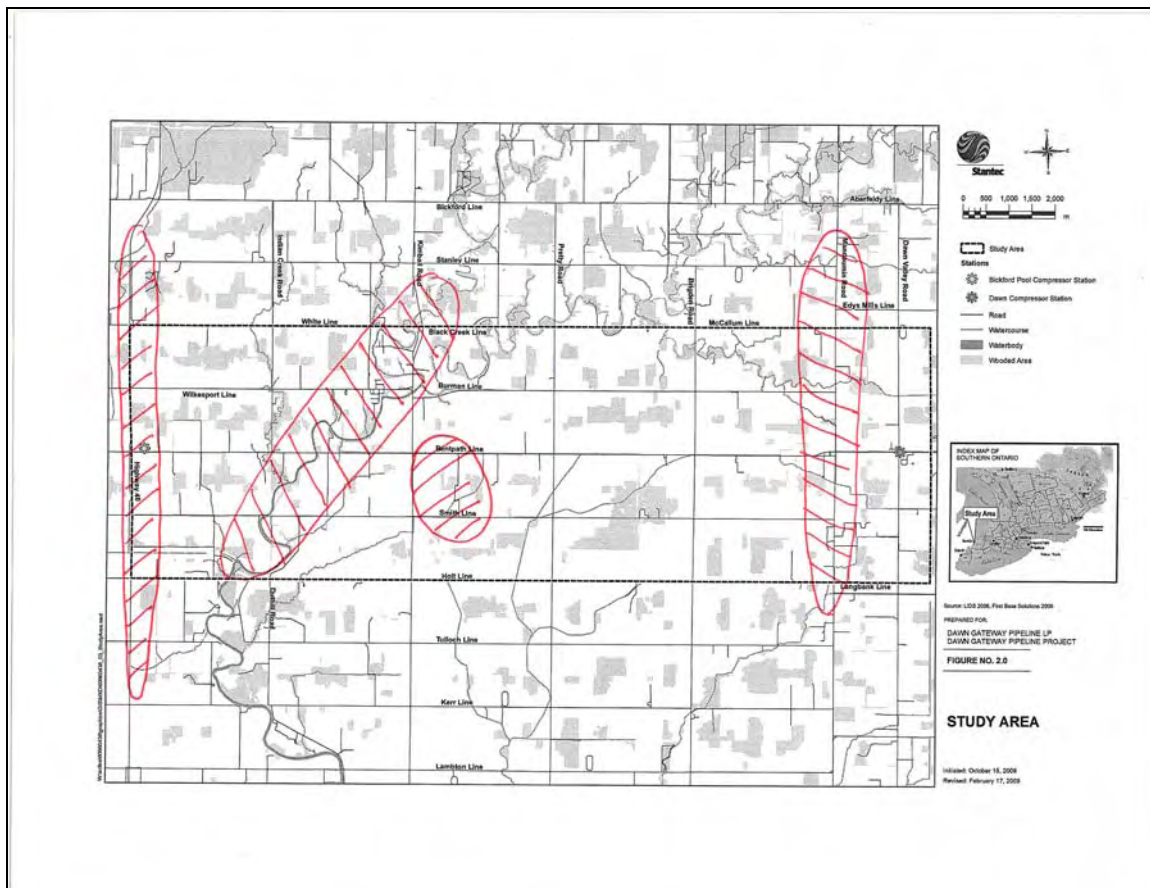
MEDICINAL PLANTS:

Participants noted that Walpole Island contained abundance of plants that were used for traditional medicine. There was little need to go off the island to harvest medicinal plants. Participant 1 noted: “Most of the medicines I know, we, we gather right here on Walpole. I haven’t really known of anybody to leave the Island because we’ve got such a resource on Walpole for our natural medicine.”

Participant 2 did not gather medicinal plants, but had heard of others from Walpole going to the Study Area for that purpose. He said: “The only thing I’ve heard about is gathering berries and stuff and mixing for medicines.”

Participant 6 pointed out several places that she had picked medicinal plants. These included mullen, golden seal, thistle, valerian and wild ginger (see Figure 20).

Figure 20: Medicinal Plants - Participant 6



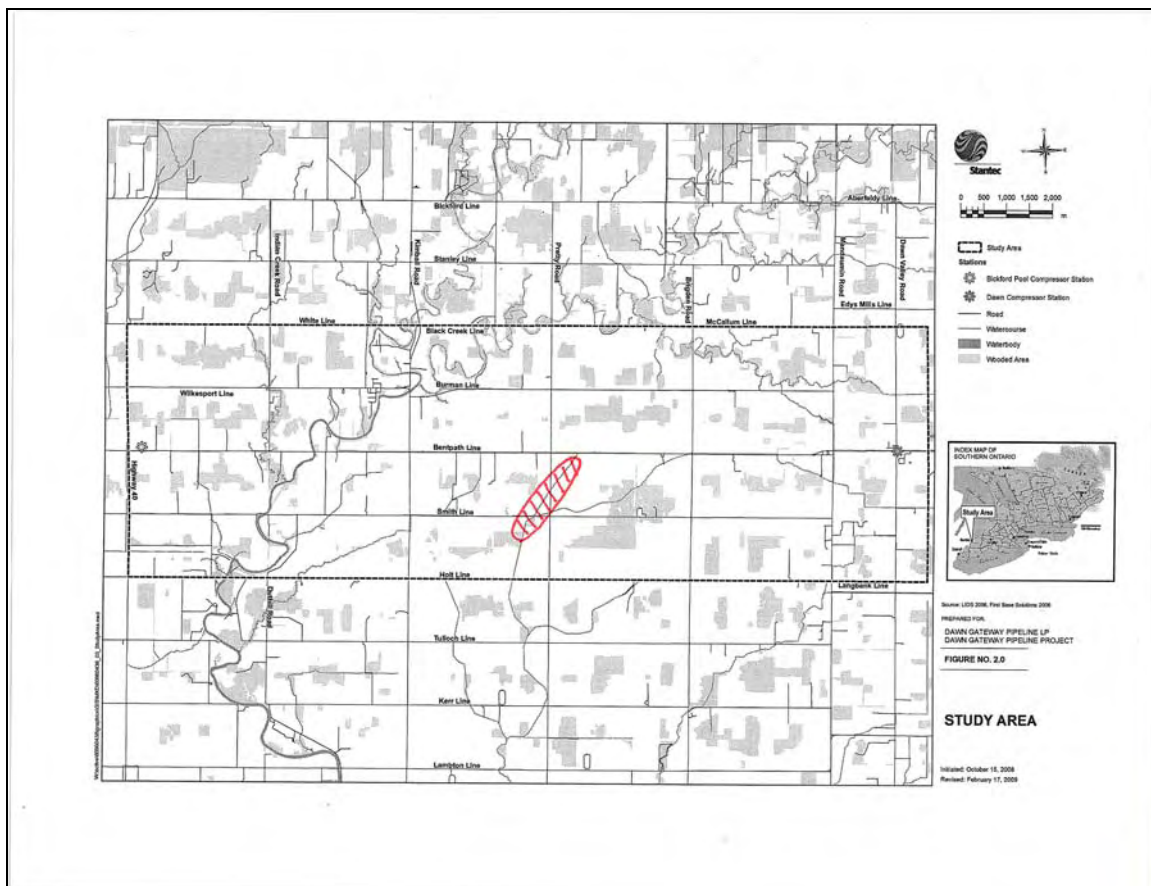
Participant 7 said that she had gone to the Study Area to find medicinal plants, but could find none. She had been there with her mother when she was a child (about 70 years ago).

Participant 10 did not pick medicinal plants in the Study Area, but noted that some rare plants were to be found there. He mentioned Blue Gentians and Yellow Lady Slippers.

EDIBLE PLANTS:

Some of the participants had harvested mushrooms in and around the Study Area. Participants 5 and 6 noted that they had picked wild mushrooms along Clay Creek, located north of the Study Area. Participant 6 remembered picking blackberries in the 1970s along a creek within the Study Area (see Figure 21). She said: "I used to go pick berries, back in there, back in this area some place. I'm look to see where those two, might have been right here, I, I remember two little, things that have I'd have to [inaudible]. Remember that year honey when I took off, and I was gone all day, and I went to pick berries back in the back some place, remember I think it was right in this road, right here. It was past Kimball, I know. But, it was here, cause I remember those trees, that fork, fork in the thing, yeah, and then I went this way and I picked a lot of berries. ... The place I went into was just loaded with berries, and it only took me like maybe a couple of hours to get what I needed, and then I went back the next day and they were gone, there was nothing there."

Figure 21: Blackberries - Participant 6



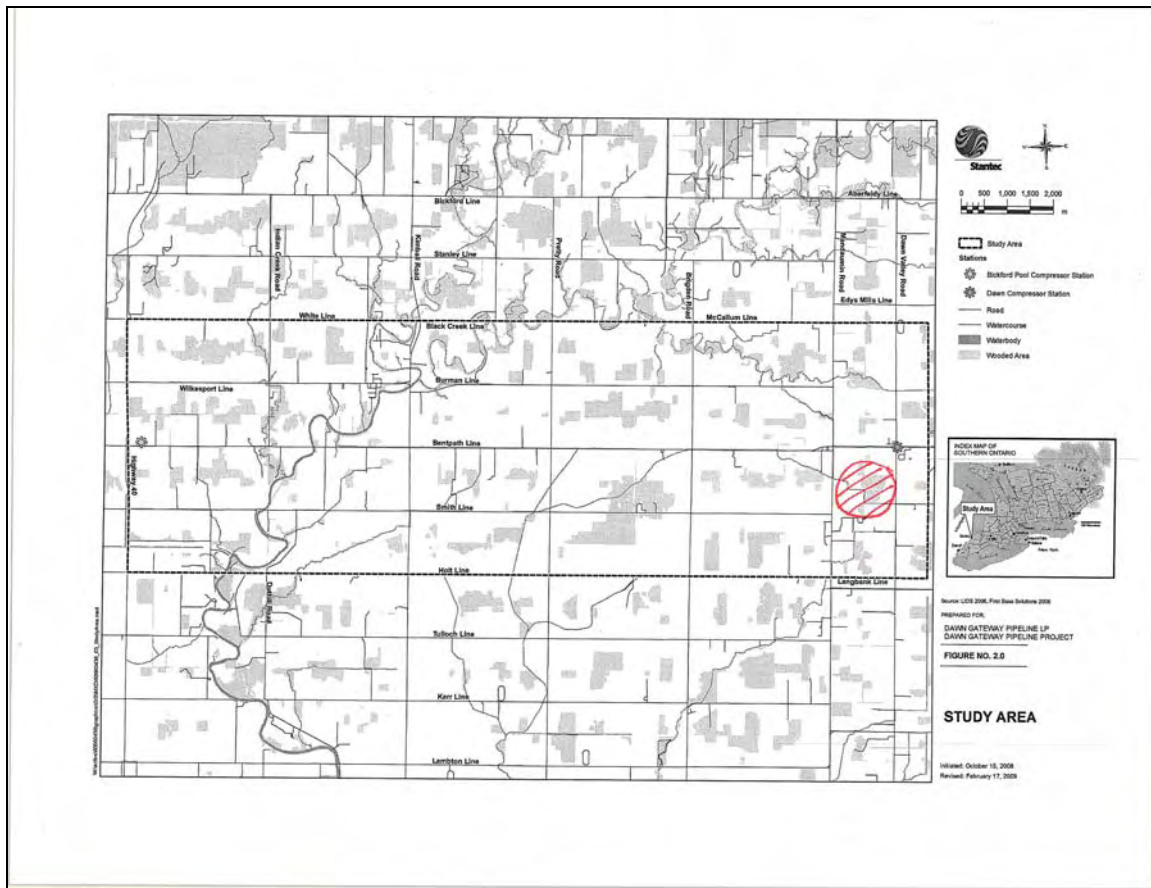
Participant 5 said that hickory nuts, walnuts, and hazelnuts used to be gathered from trees along highway 40. However, chemical spraying along the roadway caused the trees to die off.

Participant 9 did not gather traditional plants, but noted that his parents had done so within the Study Area. He said: “Well, I used to hear them [parents] talk about gathering in there, in the, in those areas. ... I was always understanding like gathering, they meant game and, and berries, and I think they used those hazelnuts up in that area, and those, what do you call them, beech, beechnuts?”

WOOD USED FOR OTHER PURPOSES:

Some of the participants remembered that people used to go to the Study Area to harvest ash for making baskets. Participant 6 remembered accompanying her mother on such trips. She said: “I remember when I was a, a, a young, when my mum was still doing black ash she’d go up in this area some place, she’d set down, right, right about in here some place there used to be a bush of black ash, bush that they went.” (see Figure 22) Participant 5 noted that people from Walpole formerly camped on Clay Creek and cut hardwood (white ash and hickory) for making axe and hammer handles.

Figure 22: Black Ash - Participant 6



MAPLE SUGAR BUSHES:

Some participants were knowledgeable about maple sugar bushes in and around the “Study Area.” Although people from Walpole Island do not tap maple sugar trees in the “Study Area” any longer, they had heard of people doing it in the past. Participant 1 was asked about maple sugar in the “Study Area.” And he responded: “In this area? In this general area? The only, there’s a, a lot of maple, maple trees in all the bushes that I, that I do hunt, and I’ve seen trees tapped, but I can’t remember which ones were, and where the bushes were. But, yeah, I’ve, I’ve known people that, that, they still do maple syrup in that general area. Not very many though.” Participant 1 had found the remains of old log cabins that had been used to process maple sugar. Whether they had been used by people from Walpole Island is uncertain, but participant 1 said: There’s, when I hunted the area I’ve seen some, seen some log cabins back in there, and I was asking my friends, what are these log cabins here, and they said, oh, that’s where they used to do maple, maple syrup. And, I happened to walk up to one, and you can see the cast iron vat that they had there set up. It was still sitting there, but it was all, it was all rusted out. But, it was still there. You could tell it was there for a lot of years.” Participant 5 noted that people from Walpole Island used to camp along Clay Creek and maple trees were tapped to make sugar.

Participant 9 had heard stories of people from Walpole Island going through the Study Area on route to sugar bushes near Petrolia. He said: “Yeah, I heard that too. Yeah, I heard a lot of that, too, ‘bout people, Indians would go in there and tap a sugarbush, years ago, that was years ago before my time, but I heard a lot of talk about that. My grandfather used to talk about them, people on, going up there on those sleds, go up there and make sugar, made some syrup.”

LOSS OF HABITAT:

Most participants talked about the loss of habitat for traditional resources in and around the study area. Clearing the land and converting it to agricultural or other purposes was identified as a negative impact with respect to traditional resource harvesting. Participant 1 explained: "Well there's, for example I used to hunt quail on, on the mainland, in this general area, and they're no longer there because all the hedgerows are gone, the grass land that, that was out there is no longer there because they used it for farmland, they ploughed it up, and there's no, no habitat for, for those kind of birds. Like there used to a lot of pheasants in this area, right in here. I used to hunt pheasants out here too, and I haven't seen one pheasant in that area in the last 20 years because of the cleaning, the depleted habitat. You know, there's no marshland there. The only place where there's some grass land is along the Sydenham River, and on the bends on that, some of the creeks, but there's no place for the birds to nest, or to breed, because of habitat - mostly due to farming." Participant 1 described further what had happened to the quail habitat. He added: "The only place I know of where quail and pheasants are on Walpole. I know out by Mitchell's Bay area, there's a lot of grassland, and like grass prairie where they can breed, and you know, they got a place to hide. There's, there's no habitat in this area for them any more. It's all depleted; it's gone. There is some hedgerow out there, but the, all the hedgerows around here are disappearing, so there's no habitat for them to nest."

Participant 2 had the following to say about habitat loss: "Oh, back in the '40s and '50s there was pheasants all over the place, but then they used those chemicals for planting crops, and they all disappeared, the pheasants. Cause used to go down the road on a rainy day, they'd be all over the place. It was lousy with them around here. But, they're coming back now. Monsanto and CIL are - got the word about these chemicals, and the eagles are coming back now."

Participant 3 had heard of habitat loss and the negative impact on traditional resources. He observed: "I think maybe it had to do - something with the - all the farmland and the trees and the area being taken down and just no place for them to hide anymore. Nothing to call home I guess."

Participant 5 noted that changes in animal populations had been impacted especially by farming and the use of pesticides, herbicides and fertilizers. He explained: "Oh in the late '40s, or late '50s, and the jack rabbits start disappearing, I don't know what happened, too much herbicide or whatever they, they use. Frogs and everything, but the government finally put their foot down on the farmers about using that stuff ... most of the creatures are coming back now, the frogs are starting to ... there are not very many that I see ... quail are gone now, of course they, they're not as hardy as a pheasant."

Participant 5 explained that trees and bushes were routinely cut down in the past with no regard to the impact on the environment. He said: "Years ago, they cut every thing down, they get, they get a bush properly, and then they take everything out, they just leave the tops there and take the bottoms out."

SPIRITUAL SITES:

Most participants were unaware of any specific spiritual sites within the “Study Area.” Participant 1 noted a site close to the study area where he had found old stone spear points. It was reputed to be the location of an old village near Clay Creek. Participant 1 explained: “I don’t know of any burial grounds either on this map. Although, I found last year. No, not last year, the year before. I was deer hunting, and I had found a couple of spear heads, in that general area where [name withheld] lives. Let’s see. [looking at map]. Again, this is Highway 40, and White Line would be two lines up, Stanley Line, White Line, yeah this, this one’s McCallum and it turns into White Line, and you go in this way, and there’s a creek there, that happens – a creek, but it goes through here, and there’s a little grass area through here, and up in here is a ploughed field, and that’s where I found the spear heads, right here. And I talked to the, the land owner, my good buddy [name withheld]. And he, he said that his father was telling him that, that there used to be a settlement there years ago, but I never really spoke to his father about it. We’re just hunting at the time, and he said, yeah, we found spear heads and arrow heads on that area, he said, that, that there used to be a settlement right in here somewhere. ...When I found those spear heads, I just happened, I shot two deer, and I went, I bent over and start, started field dressing them, and what happened to be laying there was a spear head. So, I picked it up, I laid tobacco down, I picked it up and I brought it home with me. I still have it at home. I, I put it away somewhere. I put it away so I wouldn’t lose it, so, I did lose it, it’s in the house somewhere. ... It’s, there’s a lot of, it’s a good little valley, and it’s not very big, but there’s a lot, lot of hills in there, and it’s, it looked to be, the size of the creek the way it is right now, it used to be a river at one time, when the water was really high. I mean just the banks of the water, and I found it on the low part of the, the, the creek. The bank came up, and the deer came out over here, and when I, when I dropped him, and that’s when I went over to field dress him, and I, like I said, I was bending over and the spear head happened to be laying there right in front of me, so I picked it up. ... I talked to [name withheld], he said he found a few things in that area too. What he found, some arrow heads and basically just arrow heads in that area, so, either it was a traditional hunting grounds, or like the settlement, but he said that his dad was telling him that there was a settlement there one, at one time, years ago - a Native settlement.”

Participant 3 had been told of spiritual sites within the Study Area, but was unaware of their exact location. He explained: “I’m not sure where they are at - other than just being out there - where their, where ever their little settlements were.” Participant 4 was aware of archaeological sites in the area outside of the Study Area. He was able to point out several sites where artefacts had been found in the area north of the Study Area.

CHENAIL ECARTÉ RESERVE:

Most participants had heard of the Chenail Ecarté Reserve, mainly through recent developments connected with the land claim. Participant 4 noted that he was concerned about the overlap between the proposed pipeline and Walpole Island First Nation's claim to the Chenail Ecarté Reserve. He said: "areas that I consider important, which are Treaty areas, this would be the 1796 surrender area, commonly called Chenail Ecarté in Sombra Township, or Shawnees Township previous to that." He explained that he had obtained traditional knowledge about the Chenail Ecarté Reserve from [name withheld]. He said: "Well, I was talking to a former Chief, who has now passed away, [name withheld], and the query was about the knowledge of, of us having use, use of this area and it still would sort of belong to the, the First Nation, and you know where were, where were these particular areas specifically, and he related that he was aware that there were areas up there that we still had rights to, but we couldn't define exactly what they were. You know were they Treaty Rights, Aboriginal Rights or whether we still owned property in Lambton County. So it's a real sort of a quest of mine, since that time to try and find out more about that area, then other research has brought other things to light, and resulted in actual land claims, and, I guess, somewhat of an assertion of our rights out there, because fellows and myself would hunt in some of these areas, particularly in this area around here. ...discussed briefly with [name withheld], at one time, and just that they'd, mentioned that there was knowledge of us having some rights or property out here that belonged particularly to Walpole, and that, but we couldn't identify exactly where it was, so old stories that no one identified with a, a particular piece of property."

Participant 8 said the following about the Chenail Ecarté Reserve: "it was set aside for, I don't remember the exact group of people, but it was part of Walpole Island. It was set aside for them, and for some reason nobody, nobody wanted to go and live there, I don't know why, even now I don't have any idea why didn't want to go there, but it was a piece of land, I don't know if it's on this map or not [looking on this map] – it would be somewhere in there. I'm, I'm more familiar with the little villages and towns, I think it's right in the, is that Sombra? ... Yeah, right up here someplace. It would be, I don't know, I don't know if it touched down to the, to the water line, river, river line right here, I think it did."

Participant 9 remembered talking with an elder who told him that the people of Walpole Island owned the land in and around the Study Area. He explained: "No. I was told we used to have old land up this way, right up here. We owned lots of land, he said, tell us all the stuff ... I didn't know what he was talking about, I never really paid much attention, and in fact, I didn't believe some of them, but you know but, it's coming to light now that he must have knew something about something, yeah."

TREATY HARVESTING RIGHTS:

Some of the participants talked about their Treaty rights to harvest game, fish and plants in and around the Study Area. For example, participant 8 said: “We’ve always talked about Treaty rights. We’ve always maintained that we had the right to hunt and that you know, take our sustenance from the land, because you know, the original signers understood that that’s how we lived, so when, when they surrendered land, they tried to entrench the rights for us to go and hunt on those lands that they surrendered, and of course, the rule that, the surren – the people we surrendered it to are different from the rules that we went by, you know, so we, we always, we still maintain that we have the right to go and hunt out there. In spite of the rules that they’ve made since, you know hunting, hunt in the fall, and so on, but those are things that, well you take you sustenance from the land, you got to hunt when you’re hungry.”

Some participants talked about their understanding of the geographical extent of Walpole Island traditional territory. The “Study Area” was considered to be within that territory. Participant 1 explained: “I talked to a few people that are stating that, like our, our hunting grounds, our traditional hunting grounds reach all the way up past Sarnia – even further than that. When I talked to, for example again, going back up north, I told them you’re, you’re out of your, your Treaty area, your hunting area, I said no I’m not. I said all Turtle Island, Turtle Island is my hunting area – all of North America.”

While most participants obtained hunting licenses at one time or the other, many felt that they had an Aboriginal right to hunt in their traditional territory. Participant 1 noted: “I had one problem there years ago, and there’s two, two officers that, that stopped me and they asked me, he got, they asked me for your hunting license, and I said, no, no I wasn’t, wasn’t giving them a hard time, you know and I said no I don’t have a hunting license, I’m, I’m exercising my aboriginal right to hunt and fish.” Participant 1 explained that he had been taught about Aboriginal rights by his parents. He said: “Well, they, they, they, they, they stood very strongly too on Aboriginal Rights, you know like, it, it was our inherited right to hunt and fish, and there’s no way, I’m, I’m not about to let anybody take that away from me.”

Participant 2 said that other Aboriginal people from Sarnia and other reserves hunted in the “Study Area,” but were afraid of being caught by game wardens. He explained: “I heard people from other Reserves, Kettle Point, Sarnia, down the road shining in here, but they were kind of, kind of hiding, you know. They didn’t know whether, car come along, they, they [inaudible] come back again and, some other night, if they knew they were being watched by game wardens. ... Yeah, being on the lookout, but they got - argued the point that it was their hunting ground, but they didn’t want any cops, didn’t want any trouble, you know. But, some of the ... they just take off, they didn’t want to be - start a big ruckus.”

Participant 9 said that asserting Aboriginal and Treaty rights was a fairly recent development because in the past people were afraid to venture off Walpole Island to harvest traditional resources. He Explained: “Well, we never used to go away from the

Island a few years back, we had to stay in, but when we, when some kind of a hunting rights, that we could hunt anywhere from Amherstburg to Lake Huron, and past up to Lake Erie now. We have that right to hunt there, and fish anywhere we want to, if, if something is private, if it's private land they got to get permission, but we can hunt it."

Hunting was done in different areas in and around the "Study Area." Participant 1 noted, "There's a lot, lot of area, this is a big area, and we pretty much covered it all. Like we, we, every time we went hunting, we always went hunting in different areas, we just didn't pick one specific area."

Participants in the TEK study noted that they obtained permission from landowners before hunting on private property. They were taught by their families to respect other families in the area outside of Walpole Island. Participant 1 explained: "Like in my family, you always ask first before you walk on somebody's property, you know, you know just to show that, the respect, and I always took what I needed, and I just left. You know, take what you need and the leave the land as you found it, so that's the way we left it, you know like we always respected that." Participant 2 said: "One guy told me, you can even shoot deer in my barn if you want."

Participant 9 noted that permission from land owners in and around the Study Area was sought and obtained before entering their land. He explained: "No, I never. I never ever heard anything about it. But, I know people used to go, but lots of people were friends of people that lived around there, you could go hunt on their farms, and got permission to hunt. That's what I used to do before they opened that up. Like up to here, Kimball, all over, the farms there, and all the lands, right by the Sydenham here, I used to hunt in these bush all the time. I've been doing it, I don' know, 20 years or longer. ... forget when that opened up, but I been doing, doing that hunting there for before a lot of people on the Island knew what was going on."

Participant 10 noted that deer were becoming a nuisance for farmers with the Study Area, and that crop loss from deer browsing was in the order of one or two acres per year. He noted: "So, they're more than happy to let you, as long as you ask them, you do what they want. It's fine, they, they'll give you permission." Participant 10 added: "And the people are very nice, you know, people make it what it is. You can go in there and say, well I'm going to hunt here and see if you're booted out of there. You be nice to the people and you ask them politely, they're more than happy to let you in there."

CONCERNS ABOUT NEGATIVE IMPACTS OF PIPELINE DEVELOPMENT:

All participants had some concerns about potential negative impacts of a pipeline being built within the "Study Area." Participant 1 made the following observations: "Yeah, actually, it just, I know they got to clear the land to make that pipeline go through. For example, when they did it up north, when they put the big pipeline in, transcontinental, where I used to go moose hunting at, at one time, there was all bush and, the next year I'm back in there, and it was cleared, it was cleared as far as the eye can see, it was about a good half mile wide, it was just cleared, and I couldn't believe it. It's prime moose hunting territory, and I don't know if that's going to be another kind of impact here. It was like, I know, they more likely do the research too, and you know what is, what's going to happen in that general area. For example, for the, for the Sydenham River now through too, that, that's going to be another concern, you know like for the pipeline, what if it breaks and it, whatever it is that they got in the pipeline gets into the, gets into the water? That's one of my concerns. And, how much, how much hunting land, would for example, if they go through a bush, how much are they going to destroy, if this is all going to be cleared farm land, right across here, where they're going across, you can see farm land here where it's open."

Participant 1 had experience the negative impacts of clear-cutting in northern Ontario, and was concerned that the pipeline construction would have similar consequences. He explained: "The thing that really concerns me the most is, you know, what kind of habitat they're going to destroy when they put that pipeline in. Are they going to be real careful about it, or are they just going to be cut and burn, and go in, make a mess of the land, put their pipeline in, and disappear? Or, are they going to stay, and you know like, whatever land or trees that they take out, are they going to, you know, plant more trees in there, you know if they got to cut trees down why not, you know, plant, put back what you take away? Just that, for example again, like up north, when they, when they put that pipeline in, I was really sad when I seen that because it was all prime moose hunting territory, plus I do a lot of bird hunting up there for example, partridge and grouse, and they destroyed that habitat, and it's not all grass in there, there's no trees in there whatsoever, it's, it's about, oh a good, at least a 3/4 stretch mile wide, and as far as the eye can see going through the hills and everything, and it just devastated me. That one year was really nice, and when I went back it was gone, and I, I was really sad when it, it disappeared. And they never made an effort to go in there and plant trees where they had taken the trees off. The land is still bare. All there is in there is grass in there now, there's no trees in there, they never planted trees in there, and I was pretty say too, you know. If you take something away for example, you take trees away when you're doing something like this; you cut trees down you know, go back and plant them. Put back what you took away from that area. It's not just going to benefit, you know, it's going to benefit more of the animals than anything else cause that's there home, you're taking that away from them, you know, you don't want to, I, I, I strongly feel that that's what they should do. If there's any grassland that gets destroyed when they do it, you know, they got to do their research and why not have somebody come in and, you know, pick the seeds of the natural grassland, instead of replacing it with something that doesn't belong there. For example, like out here on Walpole we, we got an infestation of fragmites.

Fragmites never used to be here 10 years ago. We used to have nothing but marshland as far as you can see, cattails as far as you can see. You get out of the truck for example, you go for a ride out in the marshland, you get out of the truck, all you see if fragmites, you don't see marsh any more, and that's pretty sad. That's, you don't want to bring a species in that's going to destroy the land, you want to keep it the way it was."

Participant 2 had the following concerns about the impact of a pipeline: "It will disrupt the plant and animal flora and fauna. Unless it's environmentally friendly. I know they take great care putting everything back the way it was. It's just a clear cut path, cause they got to go along there and detect leaks, and the forest is all cut down and everything." When informed that the pipeline was a 24-inch natural gas pipeline, participant 2 felt that the negative impact would be minimal. He said: "Natural gas, 24 inch. I don't see a problem with that."

Participant 3 was concerned that a pipeline might interfere with land claims. He said: "Yeah, it would be a concern of mine. Like I say, with I guess it would be the land claims. Whether they are doing it because they are not settled, and they are doing it that way, or, or if they were to try and include Walpole, I guess in the [inaudible] giving them an OK, to let that go, go - avenue - but it would be a concern of mine." He continued: "I guess the only other one would be with the land claim itself. I guess, is - with it being unsettled, or - would it have to be something that we have to live with because it's been there, or is it something that's being put there with our knowledge that we never agreed to have, I guess put in place or something."

Participant 3 was also concerned about possible negative environmental impacts, and noted that he would like to know more about any studies that may have been done on that subject. He said: "That I can't answer. I don't know what kind of - I guess environmental assessment was done, as to what was in that area - whether it be digging, and probably whom they would have contacted as far as any rare plants, or plants that are being used for medicinal purposes, and that. I don't know of anyone else who does the assessments on those stuff - like that I guess."

Participant 4 noted that a pipeline development could have negative impacts on fish spawning beds in creeks within the Study Area. He explained: "Well, there, there may be particular species of trees that might be of value, but I can't think of, of having, driven along that lane, and, and spoken to people, I, I don't recall them mentioning anything specific about that. Those part resources that, as, it's been my experience in driving around that there's just a few areas of woodland, and that may, or may not hold culture-important species, but, I, I don't know. But, I am aware of, is though that the Sydenham River branches are significant spawning areas for the, particularly the walleye fish, and they come up and spawn, in this general area. With the collapse of the, the spawning run up the Thames River, makes these much more important as, maintaining that fish resource for those that pursue fishing in, in our area."

Participant 9 was concerned about the loss of trees and other habitat for traditional resources such as deer. He explained: "Well reducing the tree cover, where the deer hide

and everything. They lost enough already, without losing more. That's my main concern." He noted that farmers in the area had already cleared away too much tree cover, and said: "Pipeline will even make it worse, and that's legal there. They'll cut a big swath through there."

Participant 10 noted that there were already two pipelines near the Study Area, and he was concerned about the cumulative impacts of the pipelines. He explained: "There's one that's been there for years – which is in an open area that you can see. And then 8, 9 years ago maybe they put the other pipeline which runs right down the middle of that field. ...Well, it's underground, but you don't know what they disturb when they, when they dig. You know, they're putting a pipeline in, it's going underground, and they got the OK for it, they're just going to go through anyway. What, what I'm saying is, I guess what I'm trying to say is: whatever's there, they're going to go through it." Participant 10 was also concerned about the timing of the pipeline construction and feared that it would disrupt the fall deer hunt. He said: "Like if they did it in the fall – and which is our, the time of year that, like right now when we go deer hunting in there, it would certainly have an impact, cause nothing will be on this side of the bush. Everything will go over, cross the pipeline into another bush that we don't hunt, which are private families." He noted that there were deer yarding areas that might be negatively impacted by the pipeline. He explained: "And, and the deer come from all the little bushes, like say that there's bushes here and here, and there and there, they all come to that one bush. That, that's what they call a yarding area. They, they go there for the winter." Although the deer yarding areas were mainly in the Bickford Woods, Participant 10 was concerned that the proposed pipeline development would disrupt the deer travel routes to that area.

Participant 10 also expressed concern about the impact on water quality if effluent from the pipeline or pipeline construction ran into the drainage ditches and carried it into the St. Clair River. He explained: "Everybody's concerned about it - environmental impact. It affects not only myself, it affects everybody, and being, us being down stream [laughs] – who knows what comes down all our rivers run off the St. Clair River, so whatever runs from there is going to go into there because all through this here, are these little ditches."

Participant 10 was also concerned about the potential negative impact on owl populations. He said: "If you're sitting here in the morning, there's a lot of little wee tiny little tawny owls in there. And they come in there, and sit right there, and they just, kind of sit there and look at you [laughs] They don't bother nobody, but there's a lot in there. And, if this pipeline were to come through they would probably destroy all that. They, they seem to be a lot of them in there. Those tag alders, or that's what I call them: tag alders."

POSITIVE IMPACTS OF A PIPELINE DEVELOPMENT:

Some participants felt that a pipeline development could produce positive benefits for the people of Walpole Island. Participant 4 explained it this way: "I do think it's an opportunity for us to engage the company, and say that we'd still like to retain the rights in that area to hunt and fish and pursue, do traditional pursuits, so, I don't think it would hinder, but provide the opportunity for us to reassert those particular rights. ...The private land ownership, trespass, the laws, those kinds of things, which could be problematic for us trying to utilize this area here. So, it could open discussions with all the land owners here, and say we'd like to remind them that we still have Aboriginal and Treaty Rights in these particular areas, and would like to exercise them. So, that might provide the, the key for engagement of that particular nature."

PART THREE: SUMMARY OF THE DAWN GATEWAY TEK PROJECT:

The Dawn Gateway TEK project obtained a wealth of information from a selected sample of 10 participants from Walpole Island First Nation. Building on previous TEK studies, the Dawn Gateway project confirmed that people from Walpole Island continue to use traditional resources in the Study Area. The focus of traditional harvesting activities within the Study Area is deer hunting. The deer hunt is perceived as an activity that is integral to the culture of Walpole Island people. Other traditional resource harvesting activities include small game hunting and the picking of medicinal and edible plants. The participants were unable to identify specific spiritual sites within the Study Area, but some expressed concern that unknown burials or settlement areas may yet be found in the area.

The participants expressed concerns about the potential negative impacts of a pipeline in the Study Area. They noted that there had already been significant clearing of traditional resource habitat, and felt that more cutting of trees and bush would be detrimental to various species of animals and plants. One participant was especially concerned about habitat loss for owls that preferred tag elder habitat. Of course, deer hunting habitat was seen as very important, and participants were concerned about negative impacts on deer populations. While many felt that long-term impacts would likely be minimal, they were concerned about short-term disruptions during the construction phase. Some participants expressed concerns over possible environmental damages resulting from the construction phase, or in case of an accident during operation of the pipeline. They were especially concerned about potential impacts on water quality. One participant felt that there might be a positive impact because of an opportunity for Walpole Island to secure additional access rights to the pipeline corridor for traditional activities.

Most participants were aware of the land claim involving the Chenail Ecarté Reserve. The aspect of Treaty and Aboriginal rights to the Study Area came up during many of the interviews, and participants had strong opinions about the land still belonging to Walpole Island First Nation. While many participants respected the rights of current property owners in the Study Area, they also felt that they had Treaty and Aboriginal rights that had not yet been resolved.