

Keltic Petrochemical Mi'kmaq Ecological Knowledge Study



Membertou Geomatics Consultants
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Executive Summary

This Mi'kmaq Ecological Knowledge Study, also commonly referred to as T.E.K., was developed by Membertou Geomatics Consultants for Keltic Petrochemical Inc. The purpose of the study was to identify Mi'kmaq land and resource use activities that have or continue to be pursued by Mi'kmaq in the geographical areas being considered for development activities with regards to the Keltic Petrochemical Plant and LNG facilities. Keltic proposes to build a Petrochemical Plant and LNG Facility at the Goldboro Industrial Park and a two-lane, 58 kilometre highway from Goldboro to Antigonish. This study considered the areas of land where the highway will be constructed, the plant facilities will be built and the inshore area proposed for the marginal wharf and LNG Terminal. As well, the study considered surrounding lands within a 10 kilometre radius.

The Mi'kmaq Ecological Knowledge Study consisted of three major components:

- A **Historical Review** regarding past Mi'kmaq occupation and use of the area in question,
- **Mi'kmaq Traditional Land and Resource Use Activities**, both past and present,
- A **Mi'kmaq Significance Species Analysis**, considering the resources that are important to Mi'kmaq use.

The Historical Review undertook archival research regarding the Antigonish and Guysborough Counties. From the information gathered, it was found that the Mi'kmaq people have occupied various lands located throughout the two counties since contact. One of the most significant historical Mi'kmaq communities appeared to be at St. Mary's, which for the purpose of this study, is outside of the study area, and located about 30 kilometres southeast of Goldboro. However, it is clearly and important historical area, as there are reported to be Mi'kmaq burial sites here, and a St. Anne's chapel was constructed here in the early 19th century. The town of Guysborough was also found to be a significant historical area to the Mi'kmaq, with various archival references to Mi'kmaq petitions and grants during the 19th century. As well, the study also found various references to a burial ground at Isaac's Harbour and as well at Upper Country Harbour.

The Mi'kmaq Traditional Land and Resource Use component utilized interviews as the key source of information regarding Mi'kmaq use in the study area. Numerous interviews were undertaken by the MEK Team with Mi'kmaq hunters, fishers and plant gatherers, who shared with us the details of their traditional use activities. The interviews were undertaken during the month of August, whereby Mi'kmaq were shown maps of the Antigonish and Guysborough Counties and asked to identify where they undertake their activities. All interviews were recorded, if permitted by the interviewee, and their information was incorporated into our GIS data. These interviews allowed us to develop data that reflects the most recent Mi'kmaq

traditional use in this area. As well, interviews regarding Mi'kmaq traditional use activities had also been previously undertaken by the Aboriginal Title Project. The data that they generated as result of their interviews was also utilized by the Membertou Geomatics Team. These interviews also allowed us to identify the key Mi'kmaq people that currently pursue traditional use activities in the communities, and to ensure that we re-interviewed them for the most current data.

The data collected allowed us to identify various hunting areas for small game, deer, and areas where these animals have been harvested previously. Medicinal plant gathering sites and areas were identified through our interviews and Mi'kmaq food plant gathering sites as well. The most significant data however appeared to be fishing activities that are pursued on many of the key rivers and waterways which are found throughout the counties. This included many species, such as trout, eels, salmon, tuna and urchins.

The Mi'kmaq Significance analysis allowed us to consider fishing species, medicinal plants, food plants, spiritual plants, small game, and deer. These resources were considered for their availability or abundance in the study area, their use and importance with regards to the Mi'kmaq and their availability in areas adjacent or in other areas outside of the study area.

The study found that Mi'kmaq continue to undertake traditional activities throughout the study area and some of the reported hunting and fishing areas will be impacted by the construction of the highway and the LNG Terminal. However, most of the areas that will be affected are smaller hunting areas that either encompass large areas of land, or are located throughout areas of the various waterways. The construction activities will only take place on portions of the identified hunting areas, or on crossings over the various waterways, and both of these activities should result in impacts to the land and resources in a minimal way. As well, the data gathered regarding the various resources which are harvested by Mi'kmaq found that although these resources play an important role to Mi'kmaq, the high majority of them are found in other areas either within the study area, or in other areas of Nova Scotia.

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- A. Mi'kmaq Traditional Sites and Areas
- B. Mi'kmaq Fishing Sites and Areas
- C. Mi'kmaq Hunting Sites and Areas
- D. Mi'kmaq Plants/Tools/Arts Resource Sites and Areas
- E. Mi'kmaq Land Occupation Sites and Areas

1.0 INTRODUCTION

1.1 Membertou Geomatics Consultants

Membertou Geomatics Consultants (MGC), a Membertou First Nation company that was developed as a result of the 2002 Supreme Court Marshall Decision, whereby Geomatics was established as a commercially viable company for the community of Membertou. Membertou Geomatics Consultants is one of several companies established by the Membertou First Nation – Membertou Corporate Division. These companies provide employment opportunities for aboriginal persons and contribute to Membertou's efforts to provide high quality social programs and services to its community members. As well, Membertou's excellent management and accountability of their operations is further enhanced by their ISO 9001:2000 certification. Most recently, Membertou has undergone an ISO audit, and have been successfully recertified as ISO 9001:2000 for another three years.

MGC brings to the front table a team of five individuals who have brought their expertise and skills with land documentation to the development of this Mi'kmaq Ecological Knowledge Study. Our team skills include expertise within the area of historical Mi'kmaq research, GIS data analysis, Mi'kmaq environmental knowledge and sound Mi'kmaq community connections.

1.2 Keltic Petrochemical Complex

Keltic Petrochemicals is proposing to develop, construct and operate a Petrochemical Complex at Goldboro, Guysborough County, within the Goldboro Industrial Park. This initiative will primarily be dealing with LNG, Liquefied Natural Gas, whereby the facility developed will import and vaporize natural gas.

There are primarily four (4) major components to this initiative, which will include an LNG Facility to be built at the Goldboro Industrial Park. This facility will consist of a marine terminal for use by ships that will be transporting the LNG, and as well storage and vaporization facilities for the LNG.

The complex will also contain Petrochemical Facilities, which is where the production of olefins from the natural gas will occur. These activities will also include wastewater management and plant water supply for the processing activities.

A Co-generation Plant will also form part of the complex and will provide the necessary power required to operate the petrochemical complex.

Finally, a Two-Lane All-Weather Highway will be built, which will run a distance of 58 km from the Goldboro Petrochemical Complex to the Beech Hill Road intersection at Antigonish. The highway will be approximately fifty (50) meters wide. The lands that the highway will be utilizing involve 57% privately owned lands and 43% Crown Lands.

As well the highway will cross seven (7) main river systems:

- South River,
- West Pomquet River
- Pomquet River
- Salmon River
- Costley River
- Isaac Harbour River
- Gold Brook

It is estimated that the entire project will be developed and completed within a time span of three (3) years.

2.0 MI'KMAQ ECOLOGICAL KNOWLEDGE STUDY SCOPE & OBJECTIVES

2.1 Mi'kmaq Ecological Knowledge

The Mi'kmaq people have a long-existing, unique and special relationship with the land and its' resources which involves exploitation, conservation of resources and spiritual ideologies as well. This relationship is intimate in its' overall character, as it has involved collective and individual harvesting of the resources for various purposes, be it sustenance, medicinal, ceremonial and/or conservation. This endearing relationship has allowed the Mi'kmaq to accumulate years and years of ecological information and this knowledge is maintained by the Mi'kmaq people and has been passed on from generation to generation, elder to youth, *kisaku kinutemuatel mijuijij*.



It is this wealth of Mi'kmaq Ecological Information which is held by the Mi'kmaq that Mi'kmaq Ecological Knowledge Studies, also referred to as Traditional Ecological Knowledge Studies, focus on gathering and identifying. Specific ecological information regarding Mi'kmaq/Aboriginal use of specific lands, waters, and their resources are documented, and in this manner, MEKS's are somewhat similar to environmental impact assessments, as EIA's also seek to measure the impact of human activity on the environment and its' resources, often by prioritizing significant effects of project activities in accordance with specific legislation, such as Species at Risk. However, Mi'kmaq Ecological Knowledge Studies uniqueness from environmental impact assessments derives from the fact that although MEKS are also concerned with the impacts of developmental activities on the land and its'

resources, they seek to do such in accordance with the land and resource practices and knowledge of the Mi'kmaq people. This is extremely important to be identified, if indeed a thorough environmental study is to be achieved, as Mi'kmaq use of the land, waters and their resources differs from that of dominant society. Thus, in order to identify the ecological impacts of developmental activities on Mi'kmaq, we must first evaluate such in accordance with Mi'kmaq understandings of land and resource significance. At the end of the day, although such effects identified may indeed correlate with the findings of EIA's, MEKS ensure that Mi'kmaq concerns are identified in accordance with their ecological knowledge and use of the land.

2.2 Mi'kmaq Ecological Knowledge Study Mandate

As a manner in which to incorporate Mi'kmaq environmental concerns and Mi'kmaq ecological knowledge, Keltic proposes to undertake a Mi'kmaq Ecological Knowledge Study. The MEKS will propose to gather and document the collective body of ecological knowledge which is held by the Mi'kmaq people. This study will accompany the Environmental Assessment that is submitted by the Company to the regulators and will ensure that Mi'kmaq use of the site area and its' resources are considered within the overall environmental presentation. **The mandate of this MEKS is to identify and gather Mi'kmaq ecological information with respect to land and resource use within the study area of Guysborough County, Nova Scotia. This information will be documented within this report and will allow the reader a more thorough understanding of the Mi'kmaq land and resource activities that have and continue to occur throughout the study area. This study is not for Consultation for justification of the Infringement of S.35 Aboriginal Rights.**

2.3 Mi'kmaq Ecological Knowledge Study Scope & Objective

The MEKS objective is to identify Mi'kmaq Ecological information regarding Mi'kmaq land and resource use within the study area and to ensure that the Keltic LNG Petrochemical Project does not have a significant effect on the land and resources that are important to Mi'kmaq use. In this manner, the information provided will identify where the project activities may effect Mi'kmaq ecological land and resource use and as well recommend possible steps that can be taken to mitigate such effects. As well, this report will ensure that Mi'kmaq Ecological Knowledge is incorporated and considered by all interested parties. If the report results identify any possible infringements that the project may undertake, with respect to Mi'kmaq constitutional rights, the MEKS will provide recommendations on necessary steps for formal consultation with the Mi'kmaq.

2.4 MEKS Study Area

The proposed project will be located in two areas. The Petrochemical Complex will be developed within the Goldboro Industrial Park, specifically on the north shore of Isaacs Harbour. The park is 240 hectares in size and the complex will require 125 hectares. The marine berthing facility, one component of the complex, will involve the building of a terminal and a Marginal Wharf within the Betty's Cove Area.

The two-lane all-weather highway will run from the Keltic Petrochemical Complex at Goldboro Industrial Park to Antigonish, connecting to the Trans Canada highway at the Beech Hill Road Intersection. The highway area will be approximately 50 meters wide.

This Mi'kmaq Ecological Knowledge Study considered the areas above, and as well, the lands closely adjacent to the highway area.

3.0 METHODOLOGY

3.1 Interviews

An initial list of Mi'kmaq individuals who may be holders of Mi'kmaq Ecological Knowledge was developed by the team as the target group to be interviewed. Numerous interviews were undertaken with Mi'kmaq individuals from the surrounding Mi'kmaq communities of Paq'tnkek and Pictou Landing and Millbrook. The interviews followed basic procedures whereby individuals were provided maps of the study area and asked various questions regarding their Mi'kmaq use activities, including where they undertook their activities, when they did such, and what type of resource they utilized. As well, when permission was granted, interviews were audio recorded. This assisted with the data accuracy checks and allowed for a comparison of audio data with the information documented on the maps, providing further assurance to accuracy of the information gathered.

3.2 Literature and Archival Research

For the purposes of this Mi'kmaq Ecological Knowledge Study, various archival documents and published works, were reviewed for information regarding the past or present Mi'kmaq occupation of the study area. Such documents included Census Records, Nova Scotia Legislative Council records and published books. For a complete listing please refer to *Sources Cited*.

3.3 Field Sampling

Site visits were undertaken by the MEKS coordinator, along with a Mi'kmaq Ecological Knowledge holder from the Mi'kmaq community of Paq'tnkek. These visits were undertaken so as to familiarize the ecological knowledge holder with areas within the study area that would be developed. As well, this provided an opportunity for further identification of specific plant resources key to Mi'kmaq Traditional Use activities that may be located within the study area. The site area is too large to provide a complete walk through of every part of the study area, encompassing an area of over 58 kilometres in length and 50 meters in width. However, various areas within the study area were identified by the team member and a local Mi'kmaq ecological knowledge holder as key areas in which a site visit would be beneficial to the study. They undertook two visits to the highway corridor area, specifically at Beechill Road and Drumhead. The entrance area to Beechill Road was visited on September 11th whereby the primary resources identified here were Black Spruce and White Spruce. On September 14th a walk through was undertaken at the Drumhead entrance to

Goldboro. At this location the ecological knowledge holder further identified Black Spruce and White Spruce as Mi'kmaq traditional use resources found here and also Fiddleheads, Labrador Tea (*Ledum groenlandicum Oeder*) and Pitcher Plant (*Sarracenia purpurea L.*)

4.0 MI'KMAQ LAND, WATER AND RESOURCE, USE

4.1 Overview

The Mi'kmaq Land, Water and Resource information is a component of the MEKS which identifies several crucial components to Mi'kmaq interaction with the study area.

First, within the Historical Review, information is provided regarding Mi'kmaq land occupation of the area in question. This provides the project with an understanding of how or when Mi'kmaq would have been occupying the land. This also can provide information which may flag the company as to whether there are areas that may be more prone for burial sites, based on past occupations.

Secondly, we focus on Mi'kmaq resource use of the area, both from the recent past and presently, recent past being defined as that within living memory. The type of use defined includes spiritual use, and sustenance use, such as fishing, hunting or medicinal gathering activities. This information is significant to all involved as it allows a thorough understanding of Mi'kmaq use of the land and resources and will allow a further understanding of the potential effects of the project on the Mi'kmaq people.

The third component we focus on is what we call Mi'kmaq Significant Species. This section also focuses on Mi'kmaq land and resource use, however, an analysis is undertaken of the resource to ascertain whether it is a species that may be extremely significant to Mi'kmaq use alone and whether or not its' loss would be unrecoverable and would prevent Mi'kmaq use in the future. This component is significant to the study as it provides further ecological information, which is held by the Mi'kmaq, which provides a more complete and thorough ecological and environmental understanding of the project on the study area.

For further details regarding Mi'kmaq traditional use land and resource activities, see the attached schedule of maps.

4.2 Limitations

Although it is the intention of this study to be as complete and thorough as possible, because of the dependence of the project on numerous factors, there is always the possibility that some information may be overlooked. This may include further information being made available from Mi'kmaq individuals, as some individuals who were contacted were unavailable for an interview.

With regards to archival information, although the written resources utilized for this study were significant, there still exists the fact that further information may be located regarding the Mi'kmaq people within the study area.

Due to the size of the Study Area; a 58 kilometre, 50 meter wide highway and the Goldboro Industrial Park encompassing an area of 240 hectares, it would be extremely difficult for the study team to undertake site visits to the entirety of the Study Area. Therefore, this study only undertook site visits to two areas along the proposed highway route where Mi'kmaq traditional use and Mi'kmaq traditional resources were thought to be likely.

4.3 Historical Review Findings

A historical review of the study area was undertaken by Membertou's research department, so as to identify the past relationship that Mi'kmaq may have had with the land and resources located here. Literature sources that were reviewed included both primary and secondary sources.

Presently, there are no established Mi'kmaq First Nation reserves located in the study area, reserves being defined as lands that have been set aside for the use and benefit of Indians under the Federal Legislation of the *Indian Act*. However, it should be mentioned that the Mi'kmaq people have lived and traveled throughout the study area in various places for hundreds, if not thousands of years. This will be discussed further below.

There are two Mi'kmaq Reserves that are located within seventy five (75) and twenty four (24) kilometres of the study area.

The **Paq'tnkek First Nation (Afton)** is located 24 km east of the town of Antigonish. It is approximately 191.5 hectares in size and has a total band population of 491 people. This community was designated as a reserve in 1820, however, the Mi'kmaq people of this community and their ancestors have occupied this area since time immemorial. Paq'tnkek also maintains 43.4 hectares of reserve lands in Summerside, located approximately 18 km east of Antigonish.



The **Pictou Landing Band** is located approximately eight (8) kilometres north of New Glasgow and about seventy (70) kilometres west of the study area. Pictou Landing is sixty (60) hectares in size and has a total population of 560 people. Pictou also has other reserve lands, specifically located at Franklin Manor, thirty two (32) kilometres east of Amherst, Fisher's Grant,

nine (9) kilometres north of New Glasgow, and Merigomish Harbour, thirteen (13) kilometres east of New Glasgow. The main community of Pictou Landing was designated as a reserve in the 19th century, but like Paq'tnkek, the Mi'kmaq people of Pictou and their ancestors have occupied this area for generations.

With regards to the study area, there has been occupation and land and resource use by the Mi'kmaq throughout this area, as documented within various archival sources. The Mi'kmaq people had their own Mi'kmaw names for much of the lands found throughout present day Atlantic Canada. In fact, the Mi'kmaq called the lands in Atlantic Canada Mi'kma'ki and divided them into seven geographical districts. The study area is located within the district of *Eskegawaage*, which translates in English to the *skin drying place*. This district was also seen as a very favorable district as it was so plentiful with game and fish.

Mi'kmaq also had Mi'kmaq names for several places within the study area. Indian Harbour was known as *Utkogunaakade*, meaning autumn fishery. St. Mary's was known as *Nabsoosakunuk*, and Country Harbor was known as *Anukwakade*, meaning flounder ground. Historically, the St. Mary's River was always known as an excellent river for salmon fishing, and Mi'kmaq continue to utilize the salmon fishery here through to today.

With regards to Mi'kmaq occupation of the study area in question, we know that in 1722, an early census undertaken by Antoine Gaulin, identifies a Mi'kmaq community here. Gaulin identifies **Ste. Marie (St. Mary's)** as a Mi'kmaq community and states that it has an estimated population of approximately 50 people or so. As well, the Chief of this community appears to be an individual by the name of Etienne Nabdouis.

We also know that in the nineteenth century there is still Mi'kmaq occupation of the study area, as in a census undertaken in 1871, Mi'kmaq are identified as living in **Guysborough County**, specifically **St. Andrews**. The community appears to consist of several families, such as Lewis's, Lafford's, Joe's and Peter's. Not surprisingly, these are the same last names that are now commonly held by many of the Mi'kmaq that live on the Paq'tnkek Indian reserve located twenty or so kilometres from the study area.



Archival research has also identified that on the **St. Mary's River** there are at least two (2) old Mi'kmaq burial grounds located here. The exact location is difficult to ascertain, but we do know that one is located at **Sherbrooke** and the other is located on an island in lower **Glenelg Lake**. Jerry Lonecloud, a Mi'kmaq medicine man that lived in the nineteenth and twentieth century, also referenced Mi'kmaq occupation in this area during the 1700's when Maillard, a French

Priest traveled through the area, christened the Mi'kmaq. Lonecloud states that that Mi'kmaq lived at the forks in **Melrose**, about nine miles from **Sherbrooke**. There was an island here called *Nimnoqinuk*, which means big, grey birch. Here the Mi'kmaq built a chapel for St. Anne's gatherings.

In the nineteenth century there is again a reference to a Mi'kmaq burial ground located on an island in the river between **Upper Country Harbour** and **Cross Roads**. In 1867 it appears that Isabel, an old Mi'kmaq doctress, was buried here and that her family was from the St. Mary's area.

During the late eighteenth century and into the nineteenth century there were at least two Mi'kmaq encampments located at **Isaac's Harbour**. There was a Mi'kmaq encampment located at **School House Brook** and a larger encampment located at the head of the harbour. It was thought that the School House Brook encampment may have also been a burial ground. The Mi'kmaq from these communities traveled throughout the interior rivers and lakes of the Guysborough County, such as Country Harbour, Sinclair Lake, Pringle Lake and Eight Island

In 1801 and 1802 the public record identifies two Mi'kmaq widows and their families living at **Country Harbour** who have been provided supplies of food and sundries by the Nova Scotia Government¹.

Archival research also found that **Guysborough** itself appeared to be a central Mi'kmaq occupation, as in the time period of the early 19th century Mi'kmaq are provide relief on numerous occasions, primarily in the form of potatoes, food supplies and blankets. It appears that their encampment was at the head of the Guysborough River and in 1860 a report sent to then Indian Affairs Agent Joe Howe specifies that there are 66 Micmac men, women and children living here.² As well, in 1845 a petition is sent to Lord Falkland from three Mi'kmaq men; John Battis, Joseph Battis and Francis Cope, asking for a land grant to an area adjoining the town of Guysborough³ (see Schedule E - Mi'kmaq Land Occupation Sites and Areas).

4.4 Mi'kmaq Traditional Use Findings

The Study Area; that being the 58 kilometre highway area and the Golboro Industrial Park, were the areas that were considered for Mi'kmaq Traditional Use. As well, the study also included Mi'kmaq land and resource use within a 10 kilometre radius

¹ NSARM, 1801, RG1, vol. 430, no.112, Commissioner of Public Records, Indian Series, "Account of Blankets sent to Guysborough for the Mi'kmaq under the charge of William Nixon".

² NSARM, 1860, RG1, vol. 431, no.111, , Commissioner of Public Records, Indian Series, "Letter from Chearnley to Howe reporting the number of Mi'kmaq resident in Guysborough".

³ N.S.A.R.M., 1845, MG 15, vol. 3, no.81, Commissioner of Indian Affairs, "Petition to Lord Falkland from Joseph Battis, et al".

surrounding the corridor area and the Goldboro Industrial Park. In this manner, Mi'kmaq Use that covers a broad area, such as hunting areas, or trapping areas, could be more than a specific location and may include a large area. By providing a 10 kilometre radius beyond the study area, large Mi'kmaq use areas documented by the study would be captured in their entirety, allowing for a more accurate reflection of Mi'kmaq Traditional Use.

Two primary sources of data were utilized by our team in identifying the traditional use activities and areas that are undertaken by the Mi'kmaq people. The first set of data that was utilized for the Mi'kmaq Traditional Use Findings were numerous interviews that were undertaken by our team members with Mi'kmaq ecological knowledge holders from the surrounding Mi'kmaq communities and, as well, traditional use interviews that had been undertaken previously regarding Mi'kmaq Traditional Use were also referenced and included in the study. This data not only provided further information regarding Mi'kmaq Use in the study area, but when combined with our most recent interviews, the interviews also provided further consistency to the primary areas identified where Mi'kmaq undertake their traditional land and resource use activities.

From the data gathered, it is evident that Mi'kmaq traditional use activities are undertaken throughout the study area and the surrounding vicinity, both currently and in the past.

The primary traditional use activity that occurs within the study area is that which involves food resources, be it gathering, hunting or fishing. There are also noted areas within the study area that Mi'kmaq frequent when gathering medicinal and/or spiritual plant resources. As well, Mi'kmaq burial and spiritual places have been documented within the study findings and include areas where resources are harvested for Mi'kmaq tool making or art (see Schedule A - Mi'kmaq Traditional Sites and Areas).

Food/Sustenance – Fishing



With regards to fishing, one of the most important traditional fishing resources that is harvested by the Mi'kmaq people is the **American Eel (*Anguilla rostrata*)**,⁴ or what the Mi'kmaq people refer to as *Kat*. It is therefore not surprising that there are four major eel fishing areas that are found within waterways within the study area,

⁴ St. Francis Xavier University and Paq'tnkek Fish and Wildlife Society, 2002, The Paq'tnkek Mi'kmaq and Kat, Antigonish, N.S.

whereby each large area consists of numerous eel fishing sites. **South Rights River** is a primary area that is used for eel fishing, and this occurs primarily in the area of **North Grant & Clydesdale**. As well, **Antigonish Harbour** is another key area, with eel fishing occurring from the **Black Point area through to South River**, at **Antigonish Landing**, and as well as **Pomquet Harbour**, with Pomquet Harbour having the highest number of harvest sites located there. **South River Station** is also a noted eel fishing site, particularly on the north side of the railway tracks. **Salmon River** is another key waterway that is utilized for eel fishing, and Mi'kmaq undertake eel fishing beginning in the area of **Cooks Cove** through to **North Ogden**. **Drum Head Harbour** and the **Seal Harbour** area are also both noted for eel fishing areas as well.

Salmon Fishing is also a significant activity that the Mi'kmaq continues to undertake historically, and currently within waterways found throughout the study area. There are at least **eleven (11)** areas that the study found are frequented by Mi'kmaq for this purpose, extending throughout Guysborough and Antigonish counties. The most significant areas appear to be around **Antigonish Harbour**, specifically at **Harbour Centre** located near the northern entrance to the harbour, **Dunns Cove**, and **William Point**. The **South River** is also a main waterway where salmon fishing occurs, and it is found that salmon fishing is undertaken all the way from **Lower South River** to **Fraser Mills** and through to **Loch Katrine**. This river is one of the major waterways in which the proposed highway will cross. The **Black Avon River** and the **Pomquet River** are also noted for Mi'kmaq salmon harvesting, primarily in the area **South of Heatherton**. As well, the **Salmon River** itself, located in Guysborough County is a major salmon fishing area, and like eel fishing, salmon fishing occurs here all the way from **Cooks Cove** to **Roachvale** and to **North Ogden**. Finally, the study also noted that the **Country Harbour River** is noted for the salmon harvest, primarily in the area of **Country Harbour Mines** through to **Stormont**.

Mi'kmaq also frequent many of these same waterways for other types of fish resources; such as trout, gaspereau, bass, smelt, and chad. As well, many of the lakes found throughout the study area, such as **Whites Lake, Island Lake, Gillis Lake, Cameron Lake, McLean's Lake, South River Lake, Kennedy Lake, John Browns Lake, Giants Lake, Cross Lake** and **Gaspereau Lake** are frequented by Mi'kmaq for sustenance fishing. Mi'kmaq currently fish for bass, trout and salmon beginning at the **Plasters Cove** area extending all the way through the waterways to **Lower South River**. The **Afton River, Tracadie River** and **Monastery Brook** are also significant use areas for the harvesting of smelt, trout and salmon.

Mi'kmaq also access tuna, herring, flounder and mackerel in the areas of **Seal Harbour, Drumhead Harbour** and **Cottles Harbour**, all located near the Goldboro Industrial Park. As well, **Goldboro** is utilized as an area for the harvesting of sea urchins and **Port Bickerton** is an area frequented for scallop diving (see schedule B - Mi'kmaq Fishing Sites and Areas).

Food Sustenance – Game; Deer, Moose, Small Game

With regards to Moose, the area west of **Country Harbour** near the Saint Mary's and Guysborough county boundary line has been identified as an area that was utilized for moose hunting.

Deer hunting areas are more common within the study areas, with at least 25 place areas being identified where deer hunting has occurred in the recent past and continues to be undertaken by the Mi'kmaq. Some of the areas identified included **Fairmont, Pomquet, Brierly Brook, Stormont, Stuart Lake, and East Roman Valley**. The **Meadow Green** area was also identified as a significant hunting area, primarily in **Marydale and Lower Springfiled, Addington Forks, Ohio, Croft and Southeast of St. Andrews**. **Country Harbour** and **Goldboro** were also identified as deer hunting areas, primarily in the area of **Quinces Lake, Country Harbour Head, Goldboro Lake and Goldboro/Drumhead** area.

Small game, particularly rabbit, porcupine, partridge, and pheasant were also identified within our MEK data, showing these activities being undertaken in many of the same areas as previously identified as fishing areas. This included the Antigonish area, from



Greenwold through to **Williams Point, South River** area, extending from **South River Station** through to **Dagger Woods**. **Pomquet** area was also identified as an area for small game, as well as **Plaster Cove, James River area, Brierly Brook Back Road, West River, Dunmore,** and the **Glenroy** area. **Glencoe** is a key area for rabbit snaring and the most significant areas where Mi'kmaq noted harvesting small game appeared to be from the **Paq'tnkek First Nation** through to

East of Saint Andrews, and as well in **Bayfield**, north of Paq'tnkek. The **Heatherton** area through to **Meadow Green, Black Avon, Beauty and Glasboro** appeared as well to be key area for small game with at least 5 instances of hunting of small game noted here (see schedule C - Mi'kmaq Hunting Sites and Areas).

Medicinal/Spiritual

With regards to medicinal and spiritual plant resources, the study found that Mi'kmaq continue to undertake plant resource acquisition in at least thirteen large land areas. The Mi'kmaq have in the past, and continue to today, harvest plant resources for

medicinal, food or spiritual purposes. Resources that were documented include **apples, blackberries, fiddleheads, gooseberries, blueberries, sweetgrass (Switte), flagroot (ki'kwes'skl), and cow parsnip (pako'si)**. Antigonish is one such area where many of these plant species are harvested, specifically in **Antigonish Landing, West River**, just south of Antigonish, **South of Greenwold** and the **Southside of Antigonish Harbour**.

The Paq'tnekek First Nation area is also another primary area for medicinal/spiritual plant harvesting and this area included surrounding areas, such as **Dagger Woods, Plaster Cove** and **South River Station** and Northeast of the Paq'tnekek community in **Summerside**. **Pomquet Harbour** at Church Cove and the **Upper Pomquet** area were also noted for current Mi'kmaq plant harvesting, specifically to the west side of the harbour. This also included plant harvesting in the **Bayfield** area and **Pomquet Intervale**. **Caledonia Mills** and **Glasburn** were also noted for plant harvesting and as well as the **Lower South River**. The most southern area identified by the study was Goldboro as medicinal plants are gathered here at the **Goldboro/Drumhead area, Country Harbour Head**, and to the **north and south of Salmon River from Cooks Cove to North Ogden** (see Schedule D for Mi'kmaq Plants/Tools/Arts Resource Sites and Areas).

Tools/Art

Mi'kmaq have always utilized the land for not only food and medicine, but have also harvested resources for aesthetic purposes and/or tool making. This is obvious in the data that was acquired within the MEK study, as numerous areas for harvesting resources for both of these purposes were identified.

With respect to gathering resources for the purpose of tool making, at least 3 key areas were identified by Mi'kmaq. This included the **Upper Pomquet** area, which is where specialty wood is gathered, **Antigonish Landing**, also a place where wood is gathered and **West River**, just South of Antigonish.



With regards to aesthetic purposes, we know that Mi'kmaq have, and continue to gather decorative plants and quills, both of which are used in art work. Quills are gathered from **Paq'tnekek to Antigonish**, adjacent to the 104 Trans Canada Highway, and as well in **Pomquet Cove, Monks Head**. Decorative plants are gathered in the **Dagger Woods area, South River**, just west of Dagger Woods, **West River**, just south of Antigonish, **Antigonish Landing to Lanark, Marydale, Black Avon** area, and **Pomquet Cove**. As well, the area from **Paq'tnekek to North of Meadow Green** is used for gathering decorative plants, and **Upper South River area**,

Roman Valley, Country Harbour Head and Salmon River, extending from **Cooks Cove to North Ogden**. (see Schedule D - Mi'kmaq Plants/Tools/Arts Resource Sites and Areas).

Burials/Occupation

The Mi'kmaq people have occupied present day Nova Scotia for hundreds, if not thousands of years, prior to European arrival. Because of such, it is no surprise that when gathering Mi'kmaq ecological knowledge for this study, testimonials regarding Mi'kmaq burial sites, trapping sites, overnight camping sites and sacred areas were brought forward.

The most significant areas that were referenced were areas that Mi'kmaq utilized for overnight camping areas, either while hunting, fishing, trapping or traveling from one community to another. The areas noted were **North of James River, Antigonish Harbour Interior, South River Station – west of St. Andrews, Marydale and east of Marydale, Glasburn, East of McNaughton, Upper Springfield, Alden River, the south area of Island Lake, Godboro/Drumhead area, Country Harbour area, and Harpellville to Cape Mocodome**. As well, a burial site was referenced in the area of **Country Harbour Mines** and as well near **West River**, just south of Antigonish (see Schedule E – Mi'kmaq Land Occupation Sites and Areas).

4.5 Mi'kmaq Significant Species Process

In order to identify environmental effects of the project which may be of significance to Mi'kmaq land, water and/or resource use, two primary factors were considered in relation to the findings of the Mi'kmaq Ecological Knowledge gathered.

The primary factor that was considered is the **Availability** of the resource identified. If a resource is identified as resource that is harvested within the study area, a consideration is then taken as to whether the resource is abundant in the study area or whether it is scarce. As well, based on information made available from the ecological knowledge holder or written literature sources, the availability of the resource is also considered for other areas outside of the study area. In this manner, we can identify whether this is a resource that is so rare or scarce that it may be irrevocably harmed if it is destroyed by the development activities being proposed.

The second factor we also consider is whether the resource is of major **Importance** to Mi'kmaq use. This can be somewhat subjective, as any resource use will be important to the individual who is acquiring it. However, we also consider the frequency of the use, whether it is commonly used by more than one individual, and the use itself. Again, this allows us to identify whether the loss of a resource will cause irrevocable harm to Mi'kmaq use, if destroyed by the project activities.

The resources documented by the Mi'kmaq Ecological Knowledge Study are also categorized in two manners:

First, all findings are identified into various general categories regarding the Type of Use. General headings are used, instead of specific resource heading, so as to ensure further confidentiality with respect to each specific resource and the area where it is harvested. As well, the total number of instances where a resource harvest has been documented by the study is quantified here as well.

**Medicinal/Ceremonial,
Sustenance,
Tool/Art,**

Secondly, findings are then categorized in accordance with their Availability:

Rare – only known to be found in a minimum of areas, may also be on the species at risk or endangered plants list

Common – known to be available in a number of areas

Abundant – easily found throughout the study area or in other areas in the vicinity.

4.6 Mi'kmaq Significance Species Findings

The M.E.K. Study identified a number of traditional resource and land use sites, activities and areas that are located throughout the study area. The data findings encompass an area within a 10 kilometre range of the proposed highway route and the Goldboro Industrial Park. The study results found the following number of sites where Mi'kmaq have undertaken traditional land and resource activities.

1147 Food/Sustenance Kill Sites – 40 Distinct Species (includes animal resources and plants)

54 Medicinal/Ceremonial Sites – 7 Distinct Species

68 Tool/Art Sites - 8 Distinct Species

After a thorough analysis of the data gathered with respect to Mi'kmaq Significant Species, it is obvious that Mi'kmaq continue to undertake resource harvesting activities in a significant manner throughout the study area. As well, many of the resources which they harvest are important natural resources with respect to Mi'kmaq use, as in most cases they are an important food resource, such as **eel (*kat*)** and **salmon (*plamu*)**, or they are important for spiritual or medicinal reasons, such as **sweetgrass, (*switte*?)** or **flagroot (*Ki'kwes'skl*)**. Most of the resources that the study documented are resources that we can categorize as abundant or common, with respect to their availability, although their availability may be limited to certain areas within the study area.

However, for the majority, we do know that these resources can still be found commonly throughout many areas of Nova Scotia, such as Sweetgrass, (*Hierochloa odorata L.*), or Cow Parsnip, (*Nymphaea odorata*). We know that Sweetgrass is utilized for spiritual purposes, as well as decorative, and it is commonly found throughout Nova Scotia. As well, deer is harvested by the Mi'kmaq as an important food resource and it is an abundant species that is found throughout many areas of Nova Scotia and areas within the study area.

One particular resource that has been noted by this MEKS is the eel (*kat*), which is a very important food resource for the Mi'kmaq people. The scientific information available on the current status of the American eel identifies that in the time period of the late 1990's eel availability became quite limited as a food resource in the Atlantic areas, due to over harvesting and high market prices. As a result of this, an area within Pomquet Harbour was designated as a specific harvesting area for the eel food fishery.⁵

As well, **salmon** (*plamu*) is another key food resource for the Mi'kmaq which has been noted by this study primarily due to its' precarious history regarding its' stability as a productive natural fish resource. Atlantic Salmon that are located in the Nova Scotia rivers have suffered decreased populations over the years due to the affects of acid rain. Many of the rivers that are utilized by the Mi'kmaq for salmon harvesting are not exempt from such facts and the river systems in southern Guysborough County, such as Salmon River, have been characterized as those affected by acid rain⁶. The Keltic Highway project proposes to cross at least 5 of the primary rivers that the study has identified as places where Mi'kmaq currently undertake traditional use activities, such



as salmon or trout fishing. Because of the importance of the resource to Mi'kmaq and because of the limited availability of this resource, the company need to ensure that its' activities have minimal impact on the river systems when they are constructing their river crossings.

⁵ Ibid, p.46.

⁶ <http://www.asf.ca/rivers/nsintro/.html>

5.0 POTENTIAL PROJECT IMPACT ANALYSIS

5.1 Potential Project Effects

The MEK study assessed the potential effects of the Keltic Petrochemical project activities on the Mi'kmaq traditional use activities that are presently undertaken in areas located throughout the study area. In order to assess the potential effects, the team first considered the significance of traditional use activities was identifying the type of Mi'kmaq traditional use activities that are carried out in the area, both historically and presently. This included the documentation of the type of activity, the location where the activity was occurring and as well as the type of resource that was being harvested by Mi'kmaq. This information was then documented within a Geographical Information System (GIS) and the data was analyzed in a number of ways. This included a consideration of the type of resource that is being utilized by Mi'kmaq within their traditional use activities, and a consideration of the role that these resources hold within Mi'kmaq traditional use activities. The resources were then cross referenced with other available resource information so as to consider the overall availability of the resource and its' general status within other areas located throughout Nova Scotia. In this manner, we were able to identify whether a resource and its' activity were significant to the Mi'kmaq and to also identify whether the resource availability was limited to the study area or if it is classified as endangered, rare, etc.

As well, the team considered the possible changes to the land that will occur as a result of the development activities, in relation to their impact on future Mi'kmaq traditional use activities.

It is the findings of this MEK Study, that the project activities will effect Mi'kmaq through the destruction of various hunting, fishing and plant gathering sites or areas. Sites can be characterized where Mi'kmaq have harvested resources in a specific location. Areas can be characterized as parcels of land or water that encompass a larger mass and where traditional use activities occur throughout the area. These sites and area are located within 30 meters of each side of the proposed highway and as well, surrounding the immediate vicinity of the Goldboro Industrial Park. The fishing sites and or areas are located in various waterways either adjacent to the highway or those which the highway proposes to cross. Due to the location of the fishing site or area, the proposed highway activities could mean a possible loss to the traditional use site and as well as access to the specific area. The site and area descriptions are as follows:

- The loss of 5 fishing sites and the loss of 1 food/plant gathering area located at Salmon River Lake,
- The loss of 1 hunting area located South of Gold Brook,
- The loss of 1 small game hunting area and 3 fishing areas located in Dunmore,
- The loss of 14 small game hunting sites located along 6 kilometres of the corridor from Beech Hill to Dunmore,

- The loss of 2 fishing areas, 1 hunting area and 1 plant gathering area located from East Erinville to Salmon River Lake,
- The loss of 1 fishing area in Lower Springfield,
- The loss of 4 fishing areas located in Dunmore,
- The loss of 1 fishing site located in Gold Brook,
- The loss of 12 fishing sites, 1 fishing area, 1 medicinal plant gathering area, 2 food plant areas, and 5 decorative/art resource areas located in the Antigonish/Greenwold area.,
- The loss of 3 fishing site areas located off-shore at Betty's Cove and Red Head.

5.2 Mitigation Measures

In order to ensure that the proposed highway activities and infrastructure building activities at Goldboro are minimal, with regards to Mi'kmaq traditional use activities, it is suggested mitigation activities be implemented.

There are at least 25 fishing sites, 17 hunting areas/sites, and other plant gathering sites that will be impacted by the project activities, primarily through the loss of a specific site, the loss of plant resources or the loss of access to a particular area utilized for Mi'kmaq traditional use activities.

With respect to the loss of specific fishing sites or areas, many of these sites are located on waterways that the company proposes to cross.

It is recommended that the company take every measure to ensure minimal disturbance to the waterways during the construction period and to ensure that the activities proposed regarding the river crossings are done in an expedient manner. This will ensure that the fish resource habitats are kept intact and only disturbed for a minimal amount of time.

The construction period, will at times, limit Mi'kmaq access to the fishing areas located on the highway route. In order to minimize such affects, construction workers need to be made aware that these are areas where Mi'kmaq harvest resources and to ensure that when and if Mi'kmaq are near the areas, that they are not limited from accessing the waterways.

As well, there are 3 sea urchin diving areas located at Betty's Cove and Red Cove that the proposed marginal wharf and LNG terminal will likely limit Mi'kmaq harvesting in this area. No mitigation is suggested for these sites, as there are adjacent sea urchin areas documented by this study that should allow the continued harvesting of this resource by the Mi'kmaq.

With regards to the hunting areas, many hunting sites will be destroyed by the highway construction and many hunting areas will be affected as well.

The hunting resources documented as those harvested by Mi'kmaq are species that are not considered rare and are quite commonly found throughout Nova Scotia – white tailed deer, rabbit, porcupine, partridge, etc. The loss of these sites should not cause permanent harm to the species and the effects on Mi'kmaq hunting areas should be minimal, allowing adjacent areas to be utilized for continued resource harvesting.

The hunting areas that have been documented can at times be quite large, as the areas that these species maintain for habitat encompass areas that can be up to kilometres in size, specifically for deer

The highway may affect the migration patterns and habitat of some of the resources, primarily during the construction period. The effect on the hunting resources should be minimal, once construction is completed.

Mi'kmaq hunting and fishing and plant resource gathering, in some areas, will possibly be limited during the construction of the highway.

In order to ensure that Mi'kmaq are aware of construction activities in a proposed area, the company should ensure that their construction activity time-frame is communicated to the local Mi'kmaq communities, prior to being undertaken. This will assist with ensuring Mi'kmaq consider the construction activities, prior to undertaken their traditional resource activities in these areas.

At least 10 known plant gathering resource areas will be affected by the construction of the highway.

The plant resources identified within the MEK consist of significant resources that are important to Mi'kmaq traditional use activities, such as sweet grass and flagroot . However, all of the resources identified are common plants and should be available for resource harvesting in other areas identified within the MEK study that will not be destroyed by the construction activities.

6.0 CONCLUSION AND RECOMMENDATIONS

The Mi'kmaq Ecological Knowledge Study has clearly demonstrated that the Mi'kmaq people continue to undertake Mi'kmaq traditional use activities throughout the study area. Because of such, their dependence on many of the natural resources in the study area is significant. After considering the data that was gathered by the study regarding the Mi'kmaq's relationship with the land, it is probable that the activities proposed by the project will impact on some of the lands and resources that Mi'kmaq utilize but that such impacts should be minimal. Some hunting areas will be crossed by the proposed highway, but these areas are primarily for small game animals and other species that are commonly found in adjacent areas. As well, construction activities will also take place on areas which are considered to be fishing sites, but if the river crossings are implemented properly in accordance with environmental regulations and assessment guidelines, then the overall effects on such fishing areas should be minimal. Some plant resources that Mi'kmaq harvest and which are located along the highway route may be destroyed, but these are minimal and none of these resources are considered rare.

The historical review of the project also demonstrated that there are key areas within the study area that have at one time, seen significant Mi'kmaq occupation. This points to the probability that Mi'kmaq artifacts could be found during construction, and in such cases, construction workers should be made aware that this is a possibility. In the event that artifacts are found during construction activities, these must be reported to the Nova Scotia Museum immediately.

7.0 REFERENCES CITED

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“SCHEDULE A”

Mi’kmaq Traditional Sites and Areas

“SCHEDULE B”

Mi’kmaq Fishing Sites and Areas

“SCHEDULE C”

Mi’kmaq Hunting Sites and Areas

“SCHEDULE D”

Mi’kmaq Plants/Tools/Arts Resource Sites and Areas

“SCHEDULE E”

Mi’kmaq Land Occupation Sites and Areas