Appendix E
Letters of Support

Carroll's Corner
Community Centre

October 10, 2014

I am writing this letter on behalf of the board of directors of the Carrolls Corner Community Center to express our sincere appreciation and gratitude for the support which we have received from the National Gypsum Company over the years. The National Gypsum Company was very generous in their support of our Carrolls Corner Mastodon Trail project which is being constructed to provide a recreational feature for residents of Carrolls Corner and the surrounding communities. They have also been very supportive of our regularly annual events such as the Mastodon Days and the Christmas tree lighting event. We consider the National Gypsum Company to be a very good corporate citizen and we feel fortunate to have their activities located in our community providing support to local groups like ours as well as jobs and revenue for local residents and businesses.

Regards

Kathy Reid – Chairperson

Carrolls Corner Community Center
9 Milford Road, Carrolls Corner,
Nova Scotia. B0N 1Y0

East Hants & Districts Chamber of Commerce

October 27, 2014

To Whom It May Concern;

The Easts Hants & Districts Chamber of Commerce is pleased to support the continued success of National Gypsum.

National Gypsum is a longstanding member of the East Hants & Districts Chamber of Commerce. They have supported the Chamber on multiple projects, including the recent development of Commerce Park- an old construction pit that was transformed into a beautiful green space. National Gypsum has also been a great supporter of the East Hants Sportsplex and local recreation associations.

In addition, they have been a long time employer & active member of the business community.

Sincerely,

Linda Wood
President
East Hants & Districts Chamber of Commerce

8 Old Enfield Road, Upper Level, Parker Place Mall, Enfield, NS B2T 1C9
Phone (902) 883-1010 ▪ **Fax** (902) 883-7862 ▪ **Email** info@ehcc.ca ▪ **Web** www.ehcc.ca

EAST HANTS

Municipality of East Hants
230-15 Commerce Court Elmsdale, NS B2S 3K5
Tel (902) 883-2299 Toll Free 1-866-758-2299

Jeff Newton
National Gypsum
Highway 2
Milford, NS B0N 1Y0

November 7, 2014

Dear Mr. Newton,

On behalf of the Municipality of East Hants Council, I would like to thank you for your contributions to the development of Commerce Park.

Please accept this letter as a token of Council's appreciation and respect for your contributions. I commend you for your service to the Municipality and thank you for making East Hants an exceptional place to live.

I am proud to belong to a community where businesses like yours make great things happen.

Sincerely,

Warden Jim Smith

RECEIVED DEC 0 2 2014

MILFORD & DISTRICT LIONS CLUB
2288B Hwy #2, MILFORD STATION, NOVA SCOTIA, B0N 1Y0

Oct. 7, 2014

RE: National Gypsum (Canada) Ltd, Milford Station, NS

To whom it may concern,

On behalf of the Milford & District Lions club, I am writing this letter in regards to the exemplary support the National Gypsum in Milford has provided to us for decades. The Milford & District Lions club has been serving our community for 40 years and without the substantial support of our local businesses, like the National Gypsum, we would not have been able to do provide the service we have.

The National Gypsum, without question, has been maintaining our Community Centre service road, which is also used by our Fire Department, for many years. This is just one of the ways that they provide more than just a financial contribution to the community; they stay aware of what our community is needs and acts on it. The National Gypsum is a vital part of maintaining our community support and has contributed to our Lions club in keeping with our motto "We Serve".

Respectfully Yours,

King Lion Debbie McGinley
President
Milford & District Lions Club

Milford & District Emergency Services
2286 Hwy 2
Milford, NS
B0N 1Y0

Phone: (902)758-3800 **Fax: (902)758-2896**

September 26, 2014

To whom it may concern:

The Milford & District Emergency Services supports the endeavors of National Gypsum (Canada) Ltd. in their environmental assessment.

National Gypsum has been and still is a strong supporter of the emergency services system here in East Hants and HRM as well.

Sincerely,

Brad Munro
Deputy Fire Chief

Milford Recreation Association
A Registered Charitable Organization
2288 Highway #2, Milford Stn.,
Hants Co., N.S. B0N 1Y0

National Gypsum Canada Ltd.
1707 Highway #2, Milford
Hants County, Nova Scotia
B0N 170

October 17, 2014

Attn: To whom it may concern

National Gypsum Canada has been a valued and ongoing supporter of the Milford Recreation Association.

Throughout the years National Gypsum has provided support to The Milford Recreation Association support by assisting with maintenance of the grounds and financial aid for projects. National Gypsum has also supported us through rentals of our hall as well.

Milford Recreation Association maintains a property of 70 plus acres located along Highway #2 in Milford, Hants County, Nova Scotia. As a recreation association we provide recreational facilities for the community of Milford and the larger surrounding corridor area. The East Hants corridor consists of the communities of Enfield, Elmsdale, Lantz, Milford, Shubenacadie, Hardwoodlands, Nine Mile River and further outlying surrounding areas.

Our grounds provide a soccer pitch, softball field, tennis courts, fenced playground, paddocks for horse shows, walking trails, skateboard park, stocked fishing pond with picnic grounds, and a recreation hall that is able to accommodate functions for up to 300 individuals. Milford Recreation Association has been identified as a potential site for functions for a branch of a new endeavour, the development for a boys and girls club in East Hants. The Milford Recreation Association is run by volunteers and relies on the assistance of local businesses to help maintain and make our organization a continued success, providing recreational opportunities for the corridor communities.

Other groups that use our facilities on a regular basis are the two local schools, Riverside Education Centre (our local middle school) and Hants East Rural High School. Over 1500 students travel to Milford from the other East Hants Corridor communities on a daily basis to attend classes at these two schools. Milford Recreation Association's trail system is used for cross-country training and running, and the recreation facilities have been used hand-in-hand for physical education classes because of the many venues offered on our grounds. The local 4-H chapter

uses our grounds, CHAPS (Corridor Horse and Pony Society), the Milford and District Lions Club, local churches for fundraiser suppers and events, and many other individuals through hall rentals, use of the walking trails, etc.

Community businesses such as National Gypsum have been a major contributor to our success and we rely on them for continued support of projects in the future.

National Gypsum has been a great asset to the community of Milford as an employer and as a good citizen helping local associations such as the Milford Recreation Association be successful within our own community.

Best regards,

Sandra Watson
President – 1-902-758-2802

THE UNITED CHURCH OF CANADA

Milford Lantz United Church
2134 Highway # 2, Milford Station, Nova Scotia, B0N 1Y0

RECEIVED OCT 17 2014

October 3, 2014

National Gypsum Company
PO Box 57,
Milford, NS B0N 1Y0

To the Attention of Ralph Wardrope;

The members and committees of the Milford-Lantz United Church would like to extend our sincere thanks to National Gypsum for the outstanding support over past years, both recent and historically.

This community has a long history of rural community roots that also lend to community spirit and support. Over the years, a good number of our church members have also been employees of National Gypsum. Our church and National Gypsum share a long history in this community.

Again, we wish to convey our sincere appreciation for the support and look forward to a continued relationship into the future.

Sincerely,

Mary L. McMullen
Chair – Committee of Stewards

SHAW RESOURCES

Administration
Post Office Box 60
Shubenacadie, Nova Scotia
Canada B0N 2H0

Tel (902) 758-2095
(902) 883-2220 *Halifax*
Fax (902) 758-3622

A MEMBER OF THE SHAW GROUP LIMITED

October 27, 2014

Mr. Jeff Newton
General Manager
National Gypsum.
Milford Station,
Hants County.
Nova Scotia
B0N 1Y0

Dear Mr. Newton

This letter is intended to confirm National Gypsum's the long-standing position with the local community as well as the business relationship Shaw Resources has enjoyed with National Gypsum.

National has been a key employer and important financial fixture in the community for approx.. 60 years. I have a significant personal attachment to your company as my father carried out most of the pre-development exploration work on the deposit starting in the early 1950's and went on to spend his entire career working at the mine.

Over the past 25+ years, Shaw has marketed National's gypsum fines as an agricultural soil amendment within Atlantic Canada. These product movements have assisted Shaw Resources' ability to meet market demands for industrial minerals in the region and in turn, been a welcome addition to our financial well-being. Our relationship has also been a direct benefit to the Atlantic Canadian agricultural community and truckers in the region. We have worked cooperatively on this joint venture and have appreciated the professional manner in which National Gypsum has conducted its affairs. We look forward to many more years of our companies working together.

Yours Truly

Scott Smith
Operations Manager
Nova Scotia Sand & Gravel
Shaw Resources

CC: Bridget Tutty – Nova Scotia Environment

Appendix F
Mi'kmaq Ecological Knowledge Study (Membertou Geomatics 2014)

National Gypsum Mine Extension

Mi'kmaq Ecological Knowledge Study

Prepared for: Stantec

Membertou
GEOMATICS SOLUTIONS

October 2014
Version 1

M.E.K.S. Project Team

Jason Googoo, Project Manager

Dave Moore, Author and Research

Craig Hodder, Author and GIS Technician

Katy McEwan, MEKS Interviewer

Mary Ellen Googoo, MEKS Interviewer

John Sylliboy, MEKS Traditionalist

Prepared by:

_____

Craig Hodder, Author

Reviewed by:

_____

Jason Googoo, Manager

Executive Summary

This Mi'kmaq Ecological Knowledge Study, also commonly referred to as an MEKS or a Traditional Ecological Knowledge Study (TEKS), was developed by Membertou Geomatics Solutions (MGS) for Stantec, on behalf of National Gypsum, for the proposed National Gypsum Mine Extension Project.

This MEKS mandate is to consider land and water areas which the proposed project will utilize, and to identify what Mi'kmaq traditional use activities have occurred, or are currently occurring within, and what Mi'kmaq ecological knowledge presently exists in regards to the area. In order to ensure accountability and ethic responsibility of this MEKS, the MEKS development has adhered to the "Mi'kmaq Ecological Knowledge Protocol". This protocol is a document that has been established by the Assembly of Nova Scotia Mi'kmaq Chiefs, which speaks to the process, procedures and results that are expected of a MEKS.

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

- **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 Mi'kmaq Traditional Land and Resource Use Activities component utilized interviews as the key source of information regarding Mi'kmaq use in the Project Site and Study Area. The Project Site covers an area located adjacent to an existing quarry located between Milford Rd and Route 277, near Carrolls Corner, east of Milford, Halifax County, Nova Scotia. The Study Area will consist of areas within 5 km of the proposed project's property boundary, and encompasses the communities of Carrolls Corner, Dutch Settlement, East Milford, Milford Station, Pine Grove, and Gays River, in Nova Scotia.

Interviews were undertaken by the MEKS Team with Mi'kmaq hunters, fishers, and plant gatherers, who shared with the team the details of their knowledge of traditional use activities. The interviews took place in September 2014.

Informants were shown topographical maps of the Project Site and Study Area and then asked to identify where they undertake their activities as well as to identify where and what activities were undertaken by other Mi'kmaq. A total of twenty six informants agreed to provide any fishing, hunting, gathering information, or details of any other cultural activity in the area. Permission was requested of the interviewee(s) to have their information incorporated into the GIS data. These interviews allowed the team to develop a collection of data that reflected the most recent Mi'kmaq traditional use in this area, as well as historic accounts. **All interviewee's names are kept confidential and will not be released by MGS as part of a consent agreement between MGS and the interviewee to ensure confidentiality.**

The data gathered was also considered in regards to Mi'kmaq Significance. Each species identified was analyzed by considering their use as food/sustenance resources, medicinal/ceremonial plant resources and art/tools resources. These resources were also considered for their availability or abundance in the areas listed above, and their availability in areas adjacent or in other areas outside of these areas, their use, and their importance, with regards to the Mi'kmaq.

Project Site

Based on the data documented and analyzed, it was concluded that the Mi'kmaq have historically undertaken traditional use activities in the Study Area, and that this practice continues to occur today. Activities undertaken on the Project Site were trout, bass, salmon, eel, and shad fishing, as well as one deer hunting area.

These areas were found to be located on the eastern portion of the proposed expansion area, as well as an area that intersected approximately the southwest to south portion of the proposed expansion area.

Study Area

Based on the data documentation and analysis, it was concluded that the Mi'kmaq have historically undertaken traditional use activities in the Study Area, and that this practice continues to occur today. These activities primarily involve harvesting of fish, but also include harvesting of animal, plant, and tree species; all of which occurs in varying locations throughout the Study Area and at varying times of the year.

Bass, eel, shad, and trout were found to be the most fished species in the Study Area. Deer, partridge, rabbit, and pheasant were found to be hunted in the Study Area. With the small number of gathering areas identified, it is difficult to categorize the area as a particular gathering area type as there was a variety of species harvested in the area for different purposes.

Analysis of data collected in a previous study, the Alton Gas Storage MEKS, revealed only a handful of new traditional use area in a northern portion of the National Gypsum MEKS Study Area. Interviewees in the Alton report had identified areas for blueberry, goldenthread, mayflower, strawberry, raspberry, and fur bough gathering, as well as trout, salmon, and smelt fishing in or near the Shubenacadie River, north of McLennan Brook and Gays River (town), and east of Sipekne'katik (Shubenacadie) First Nation.

This MEKS <u>should not</u> be used for Consultation purposes by government and/or companies, nor should this report replace any Consultation process that may be required or established in regards to Aboriginal people. As well, this report cannot be used for the justification of the Infringement of S.35 Aboriginal Rights that may arise from the project.

Table of Contents

1.0 INTRODUCTION

1.1 Membertou Geomatics Solutions

Membertou Geomatics Solutions (MGS) is a Membertou First Nation company that was developed as a result of the 2002 Supreme Court Marshall Decision. MGS was established as a commercially viable company that could provide expertise in the field of GIS Services, Database Development, Land Use Planning Services and Mi'kmaq Ecological Knowledge Studies (MEKS). MGS is one of many companies established by the Membertou First Nation – Membertou Corporate Division and these companies provide employment opportunities for aboriginal persons and contribute to Membertou's efforts of growth and development. As well, Membertou's excellent management and accountability of their operations is further enhanced by their ISO 9001:2008 certification.

For the development of this MEKS, MGS brings to the table a team whose expertise and skills with land documentation have developed a sound MEKS. The team skills include expertise within the area of historical Mi'kmaq research, GIS data analysis, Mi'kmaq environmental knowledge, and Mi'kmaq community connections.

1.2 National Gypsum Mine Extension Project

National Gypsum (NG) owns and operates a mine in Milford Station, Halifax County, Nova Scotia. The existing mine is 301 ha in size and currently supplies gypsum rock for three wallboard plants in the Maritimes.

NG wishes to expand the existing operation by continuing to mine gypsum, and the possibility of mining anhydrite rock (used mainly in the production of cement) in the future. The expansion would be situated on land adjacent to the existing operation. In addition to the properties already acquired, NG is trying to purchase additional land (approximately 36 ha or 90 acres). The proposed expansion of its existing mine

operation by approximately 165 hectares (Project Site) will allow continued production (blasting and crushing) and additional stockpiling.

Stantec, on behalf of NG, has contracted Membertou Geomatics Solutions (MGS) to undertake the required Mi'kmaq Ecological Knowledge Study (MEKS) for the proposed National Gypsum Mine Extension project.

2.0 MI'KMAQ ECOLOGOCAL 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 the harvesting of resources, the conservation of resources and spiritual ideologies. 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 generations of ecological information and this knowledge is maintained by the Mi'kmaq people and has been passed on from generation to generation, youth to elder, ***kisaku kinutemuatel mijuijij***.

The assortment of Mi'kmaq Ecological Information which is held by various Mi'kmaq individuals is the focus of Mi'kmaq Ecological Knowledge Studies (MEKS), also commonly referred to as Traditional Ecological Knowledge Studies (TEKS). When conducting a MEKS, ecological information regarding Mi'kmaq/Aboriginal use of specific lands, waters, and their resources are identified and documented by the project team.

Characteristically, MEKS have some similar components to that of an Environmental Assessment; yet differ in many ways as well. Among its purpose, Environmental

Assessments seek to measure the impact of developmental activity on the environment and its resources. This is often done by prioritizing significant effects of project activities in accordance with resource legislation, such as the federal *Species at Risk* and the Nova Scotia Endangered Species Act.

Mi'kmaq Ecological Knowledge Studies are also concerned with the impacts of developmental activities on the land and its resources, but MEKS do so in context of the land and resource practices and knowledge of the Mi'kmaq people. This is extremely important to be identified when developing an environmental presentation of the Study Area as Mi'kmaq use of the land, waters and their resources differs from that of non-Mi'kmaq. Thus, the MEKS provides ecological data which is significant to Mi'kmaq society and adds to the ecological understandings of the Study Area.

2.2 Mi'kmaq Ecological Knowledge Study Mandate

Membertou Geomatics Solutions was awarded the contract to undertake a Mi'kmaq Ecological Knowledge Study for Stantec, on behalf of National Gypsum, with regards to the proposed National Gypsum Mine Extension Project. This project will require the documentation of key environmental information in regards to the project activities and its possible impacts on the water, land and the resources located here. The MEKS must be prepared as per the **Mi'kmaq Ecological Knowledge Study Protocol** ratified by the Assembly of Nova Scotia Mi'kmaq Chiefs on November 22, 2007.

MGS proposed to assist with the gathering of necessary data by developing a MEKS which will identify Mi'kmaq traditional land use activity within the proposed project site and in surrounding areas within a 5 kilometer radius of the project site. The proposed MEKS would identify, gather, and document the collective body of ecological knowledge which is held by individual Mi'kmaq people. The information gathered by the MEKS team is documented within this report and presents a thorough and accurate understanding of the Mi'kmaq's use of the land and resources within the Project Site/Study Area.

MGS understands that this study could be included in the Environmental Assessment under the Nova Scotia Environmental Assessment Act that will be submitted to the Nova Scotia Department of Environment by Stantec, and will be used as an indicator identifying Mi'kmaq traditional land and resource use within the Study Area.

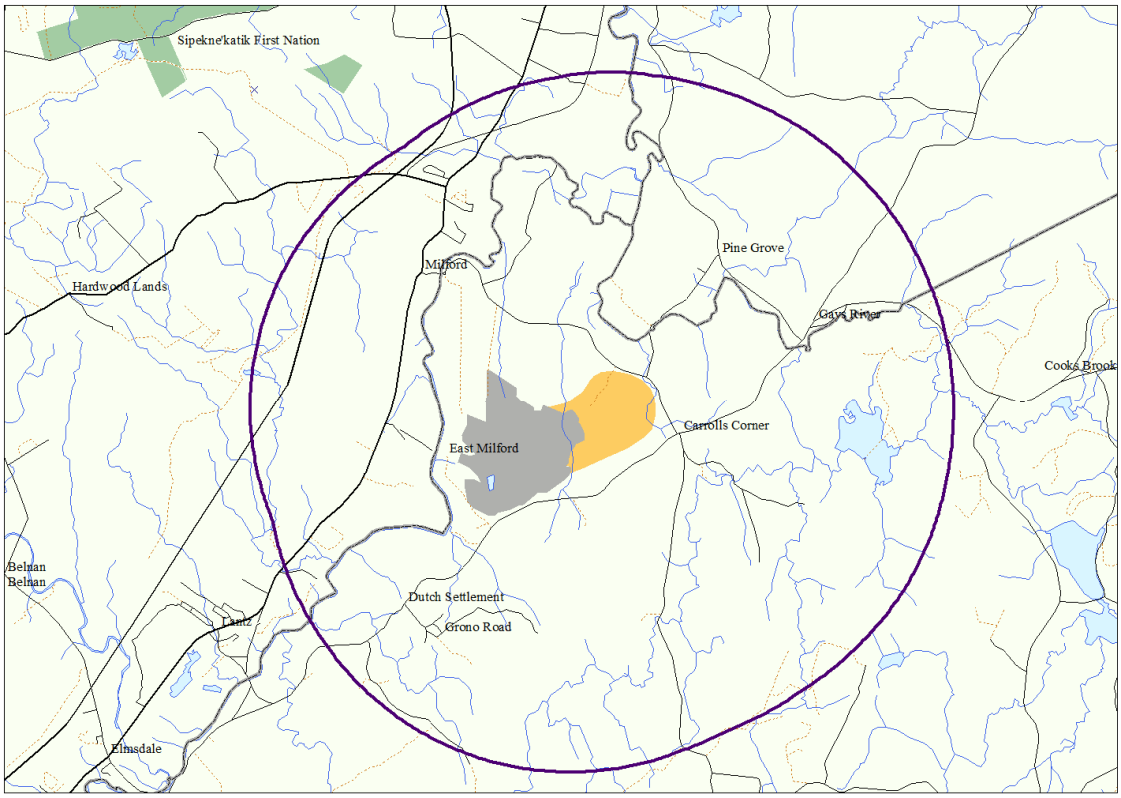
It must be stated, however, that this MEKS <u>should not</u> be used for Consultation purposes by government and/or companies, nor should this report replace any Consultation process that may be required or established in regards to Aboriginal people. As well, this report cannot be used for the justification of the Infringement of S.35 Aboriginal Rights that may arise from the project.

2.3 Mi'kmaq Ecological Knowledge Study Scope & Objective

This MEKS will identify Mi'kmaq ecological information regarding Mi'kmaq traditional land, water and resource use within the Project Site/Study Area. The data that the study will gather and document will include use from both the past and present time frame. The final MEKS report will also provide information that will identify where the proposed project activities may impact the traditional land and resource of the Mi'kmaq. If such possible impact occurrences are identified by the MEKS then the study will also provide recommendations that should be undertaken by the proponent. As well, if the MEKS identifies any possible infringements with respect to Mi'kmaq constitutional rights, the MEKS will provide recommendations on necessary steps to initiate formal consultation with the Mi'kmaq. Finally, through the development of this MEKS, Mi'kmaq ecological knowledge and traditional land, water and resource use will be identified for those parties that are considering the National Gypsum Mine Extension Project.

2.4 MEKS Study Area

This MEKS will focus on the an area located adjacent to an existing quarry located between Milford Rd and Route 277, near Carrolls Corner, east of Milford, Halifax County, Nova Scotia, this is known as the Project Site. The Study Area will consist of areas within a 5 kilometer radius of the Project Site.



Existing Quarry (gray shading), Project Site (orange highlight) and Study Area (purple line)

3.0 METHODOLOGY

3.1 Interviews

As a first step to gathering traditional use data, the MEKS team initiated dialogue and correspondence with Mi'kmaq communities in close proximity of the Project Site: Sipekne'katik (Shubenacadie), Millbrook, and Pictou Landing. Discussions occurred to identify individuals who undertake traditional land use activities or those who are knowledgeable of the land and resources. An initial list of key people is then developed by the team. These individuals were then contacted by the MEKS team members and interviews were scheduled.

For this MEKS, twenty six (26) individuals provided information in regards to past and present traditional use activities. Interviewees resided within or were from the communities of Sipekne'katik (Shubenacadie), Millbrook, and Pictou Landing. All of the interviews that were completed following the procedures identified within the Mi'kmaq Ecological Knowledge Protocol (MEKP) document. Prior to each interview, interviewees were provided information about the MEKS, including the purpose and use of the MEKS, the non-disclosure of their personal information in any reports, and the future use of the traditional use information they provided.

Interviewees were asked to sign a consent form, providing permission for MGS to utilize their interview information within this MEKS. During each interview, individuals were provided maps of the Project Site/Study Area and asked various questions regarding Mi'kmaq use activities, including where they undertook their activities or where they knew of activities by others, when such activities were undertaken, and how that type of resource was utilized. When required, interviews were conducted in the Mi'kmaq language.

3.2 Literature and Archival Research

With regards to this MEKS, various archival documents, maps, oral histories and published works were reviewed in order to obtain accurate information regarding the past or present Mi'kmaq use or occupation relevant to the Project Site and Study Area. A complete listing of the documents that were referenced is outlined within the *Sources* section.

3.3 Field Sampling

Site visits to the Project Site took place in September, 2014 by MGS staff members, guided by a Mi'kmaq ecological knowledge holder over a period of three days.

The site visits consisted of a site recon, and walkthroughs of the Project Site, noting and identifying any particular species in the area, plant and animal habitats, or other land/water features or areas that would be of importance to the Mi'kmaq. MGS staff and the Mi'kmaq ecological knowledge holder would either take note of observation points at set, and at irregular intervals, or whenever a species or observation was worth noting.

Site Visit Observations

Throughout the entire site visit, thirty seven (37) various species of plants, trees, and animal were observed and recorded in one hundred and forty two (142) observation points. The most common observations recorded during the site visit were birch trees (with 21 observation points—12 white birch and 9 yellow birch), maple trees (including 2 red maple observations and 3 stripped maple), deer signs (13 observation points, including tracks and droppings), balsam trees (10 observation points), ferns (10 observation points), and white ash trees (10 observation points).

Other plant species and/or animal signs observed were spruce trees, hemlock trees, beech trees, golden thread, rabbits, raspberry, coyotes, goldenrod, moss, partridges, alders, aspens, blackberries, fox tracks, jack pine trees, poplar trees, bear track, a bird nest,

dogwood, mushroom, oak trees, partridge berries, pin cherry tree, raccoon track, red willow trees, sage, and wood sorrel.

Deer, raccoon, and coyote tracks found in the mud.

4.0 MI'KMAQ LAND, WATER AND RESOURCE USE

4.1 Overview

The Mi'kmaq Land, Water and Resource Use Activities component of the MEKS provides relevant data and analysis in regards to Mi'kmaq traditional use activities that are occurring or have occurred within the Study Area. It identifies what type of traditional use activities are occurring, it provides the general areas where activities are taking place and it presents an analysis regarding the significance of the resource and the activity as well.

The Mi'kmaq traditional use activities information that is provided by interviewees is considered both in terms of "Time Periods" and in regards to the "Type of Use" that the resource is being utilized. The Time Periods that the MEKS team differentiates traditional use activities by are as follows:

"Present" – a time period within the last 10 years
"Recent Past" – a time period from the last 11 – 25 years ago
"Historic Past" – a time period previous to 25 years past

The "Type of Use" categories include spiritual use, and sustenance use, such as fishing, hunting or medicinal gathering activities.

Finally, the study analyzes the traditional use data in consideration of the type of land and resource use activities and the resource that is being accessed. This is the Mi'kmaq Significant Species Analysis, an analysis which ascertains whether a species may be extremely significant to Mi'kmaq use alone and if a loss of the resource was to occur through project activities, would the loss be unrecoverable and prevent Mi'kmaq use in the future. This component is significant to the study as it provides details as to Mi'kmaq use activities that must be considered within the environmental understanding of the Project Site and Study Area.

By analyzing the traditional use data with these variables, the MEKS thoroughly documents Mi'kmaq traditional use of the land and resources in a manner that allows a detailed understanding of potential effects of project activities on Mi'kmaq traditional use activities and resources.

4.2 Limitations

By undertaking a desktop background review and interviews with Mi'kmaq participants in traditional activities, this study has identified Mi'kmaq Traditional Use activities that have occurred or continue to occur in the Study, and no uses within the Project Site. This has allowed the study to identify traditional use activities in a manner that the MEKS team believes is complete and thorough, as required by the MEKP. Historical documents within public institutions were accessed and reviewed and individuals from nearby Mi'kmaq communities were interviewed. The interviews were undertaken with key Mi'kmaq community people, identified initially by the MEKS team, who are involved and are knowledgeable regarding traditional use activities. Through the historical documentation review and the interview process, the MEKS team is confident that this MEKS has identified an accurate and sufficient amount of data to properly reflect the traditional use activities that are occurring in the Study Area.

The MEKS process is highly dependent on the information that is provided to the team. Because only some of the Mi'kmaq traditional activity users and not all Mi'kmaq traditional activity users are interviewed, there is always the possibility that some traditional use activities may not have been identified by the MEKS.

4.3 Historical Review Findings

Historic Review

The Project Site is located immediately east of the community of Carrolls Corner and roughly bound by the intersection of Highway 277to the southeast and Milford Road to the northeast.

Elevation of the project site ranges from 25 to 50m and the Shubenacadie Rivers passes south to north approximately 2 km to the east.

The Rock

The Project Site is predominantly underlain with Lower Windsor Group, (ECWI), Carrolls Corner Formation (ECcc) bedrock with deposits of anhydrite, gypsum, salt, marine dolostone and limestone with mudstone and shale of the Carboniferous, Mississippian age some 338 Ma ago. The Windsor Group bedrock is almost level and layered formations that have been brought to the subsurface as exposed edges of a syncline dip in the bedrock layers. The younger overlying Middle Windsor Group (ECWM), MacDonald Road Formation (ECMR) of approximately 334 Ma is exposed to the subsurface northwest of Carrolls Corner as a narrow band in a southwest to northeast orientation. The narrow band of the exposed MacDonald Road Formation consists of gypsum, anhydrite, and halite with dark red siltstone. Adjacent and further northwest from the MacDonald Road Formation is the exposed younger Upper Windsor Group (ECWM), Green Oaks Formation (ECGO) aged at 330 Ma. The Green Oaks Formation layer exposed within the syncline edge consists of dark red to reddish brown siltstone and fine grained sandstone with minor gypsum and shallow marine limestone. Adjacent and east of the exposed layer of the Carrolls Corner Formation, the Meguma Group (EOM), Halifax and Goldenville Formation (EOMG) is exposed to the subsurface as a finger into the Windsor Group paralleling Highway 277 and is much older bedrock at +510 Ma. The Halifax and Goldenville Formation consists of slate, sandstone, meta-siltstone and meta-

greyacke and the exposed meguma group bedrock is shouldered by younger Lower Windsor Group, Gays River Formation (ECGR) exposed to the subsurface as thin strips along the edges of the Halifax and Goldenville Formation. The Gays River Formation is closely related to the Carrolls Corner Formation although more fossilized. (1)(2)

During the time the local Windsor Group sediments were deposited some 340 to 330 Ma ago, the earth was a wet and tropical landscape. This period is known as the Carboniferous Period referencing the coal that originated from the vast vegetation produced during this period. Globally, the Carboniferous Period is approximately 359 to 299 Ma (3)

Surficial geology mapping shows exposed bedrock approximating the location of the finger of the Halifax and Goldenville Formation of metamorphosed rock with an extent to midway between the communities of Carrolls Corner and Gays River. The rock of The Halifax and Goldenville formation is of suitable hardness for tools and weapons. Any areas of naturally exposed bedrock suitable for tools and weapons would have been of interest to early peoples. (4)

Covering the exposed layers of the Windsor Group bedrock are the thick tills left behind by successive decaying ice sheets. The Project Area has a cover of up to 30m thick of Silty Till and Silty Till Drumlins described as a compact silty material with a high percentage of distant source material including red clay. The ice sheets left behind a flat to rolling landscape where the till and drumlin material were released from the bottom of the decaying ice. (4)

The Ice

Evidence from deep-ocean sediments indicate that there have been at least 16 glacial periods that lasted approximately 100 thousand years each. The last glacial period was the Wisconsin Glaciation which began 75 thousand years ago and ended between 12 and 10 thousand years ago. During this period, early glaciers from outside the region crossed

over the Atlantic Region while later glaciers were formed locally within the region while being fed by the high amounts of precipitation. By 13 thousand years ago the ice sheets had receded to the approximate coastline of today and then only residual ice caps remained in highland areas at approximately 12 thousand years ago. *(5)*

Since the 1800's glacial theory for the Atlantic region consisted of two hypothesis with one being a large continental sheet centered near Hudson Bay and Quebec and the other being local confined ice sheets. Recently after extensive sampling in Nova Scotia, evidence indicates that successive glaciation had four distinct phases with different and shifting ice centers. *(5)*

The Phase 1 ice flows moved eastward across the region including Prince Edward Island and Cape Breton Island before shifting flow direction southeastward across the present-day Bay of Fundy, Mainland Nova Scotia and Cape Breton Island. The Ice flowed across the Project Site during this phase in a slight southeastward direction and then at some time shifted to a more southward flow direction. *(5)*

The Phase 2 ice center was located north of present day Prince Edward Island with flow direction south over mainland Nova Scotia and southeast over lower southeast portions of Cape Breton Island. The Phase 2 ice flow direction was southward over the Project Site and Study Area. *(5)*

The Phase 3 ice center was parallel to the present day Nova Scotia Atlantic Coast and extended on land from Cape Sable, through Cape Canso to offshore and approximately south of present day Louisbourg, Cape Breton Island. From this ice divide, ice flows moved northeast across eastern portions of Cape Breton Island, northwest across western portions of Cape Breton Island, northeast across northern portions of the mainland from Cape George to Minas Basin west to northwest across the present day Annapolis Valley. On the Atlantic side of the ice divide, all flow directions were in a southeast direction over the Scotia Shelf. The Ice sheet center during this phase was located approximately over the Project Site or just to the south. Flow direction over the project site was most

likely in a northeast direction as the ice flowed from the northeast-southwest province wide ice divide. *(5)*

Phase 4 was a period when several remnant ice sheets were located throughout the province and advanced and receded in a radial direction from the ice centers. Cape Breton had two glaciers that were centered on the Highlands and another centered on the Bas d'Or Lakes. The Chedabucto Glacier filled the present day Chedabucto Bay and St. Georges Bay with a westward ice flow direction across the central portion the province into the Northumberland Strait, Minas Basin and the Atlantic. The Chignecto Glacier was centered near Baie Verte and Cape Tormentine and the South Mountain Ice Cap was centered between the Bay of Fundy and Atlantic Coast near present day Kejimkujik National Park. The radial ice sheet flow direction of the Chedabucto Bay Glacier and Georges Bay Glacier was a west to southwest flow direction across the mainland and flowed over the Project Site in a southwest direction. (5)

Surficial geology mapping indicates that drumlins present within the Project Site and surrounding Study Area have a north to south orientation while just north of the community of Shubenacadie, the orientation of drumlins are in an east to west orientation. This may indicate a local division between two flows or are traces of different phases. Eskers are also present east and west of the community of Shubenacadie and are also orientated in an east to west direction. Eskers are raised ridges of sand and gravel deposited along under-ice watercourses and usually flowing in the same direction as the ice flow. (5)

Between 11 and 10 thousand years ago there was an abrupt climate change with a cold period lasting approximately 200 years known as the Younger Dryas. During the Younger Dryas Period previously colonized plants that followed the receding glaciers were covered in permanent snowfields and some large mammals became extinct. *(6)*

As the last remnant glaciers receded and the climate warmed again. The landscape was gradually colonized by tundra vegetation of willow shrubs and herbaceous plants

between 10 and 7.5 thousand years ago and were replaced by boreal vegetation such as fir, spruce and birch until 6 thousand years ago when pine and oak was prominent. *(7)*

Temperatures were 2 degree Celsius warmer than today for period until 4 thousand years ago and forests of hemlock mixed with beech and maple was the dominant vegetation. Gradual cooling to present day temperatures and increased moisture favoured spruce forests. *(8)*

It is also theorized that a terrestrial refuge for plants and animals existed near the edge of the continental shelf where arctic and boreal species survived the last ice age and eventually repopulated the newly exposed mainland landscape as the ice sheets receded and before the sea level rise. However, since the end of the last ice age the Chignecto Isthmus provided the land corridor for plants and animals to migrate into Nova Scotia as well as assisted airborne species migrations. *(9)*

The Land

The landscape that developed on the deposited material over the Project Site is described as Carboniferous Lowlands (500), Till Plain (510), Windsor Lowlands (511), Shubenacadie River (511a), by the Natural History of Nova Scotia Theme Regions. (10) The Shubenacadie River (511a) landscape is described as a mantle of Glacial Till reaching thickness of 75m near Stewiacke. 18,000 year old branches recovered from the till at Dutch Settlement and a mastodon estimated at 70,000 years old at publication, was recovered at East Milford. (10)

The Shubenacadie River is tidal influenced with fluctuating water levels and occasional flooding as it cuts across bedrock folds and varying hard and soft bedrock while flowing to Cobequid Bay. The topography is typically of low elevations and little relief. Slow moving tributaries have rectangular drainage patterns that follow fold axis in the bedrock. (10)

The soils that developed from the till are typically imperfectly drained Queens soil described as Sandy Clay Loam Till. Imperfectly drained soils and low relief along with human disturbance support a forest cover of spruce, fir, white birch, red maple, eastern hemlock and white pine. Ridges with better drainage support sugar maple, beech and yellow birch. Abandoned farms are usually taken-over with white spruce, red spruce and balsam fir. (10)

The low relief topography, imperfect drainage, forest cover, as well as human disturbance, creates a variety of habitat to support wildlife such as deer, raccoon, muskrat, mink and waterfowl. The tidal waters of the Shubenacadie River support spawning fish such as Striped Bass, Tomcod. The Stewiacke River supports Striped Bass and American Shad. The Stewiacke River tributaries support Salmon and Trout. Black Duck and Common Mergansers overwinter in the area. (10) The landscape offers multi-season spawning, a variety of wildlife habitat that attracts other wildlife as well as people.

The People

At the foot of the south slopes of the Cobequid Mountains at present day Debert is found the earliest evidence of peoples populating Mainland Nova Scotia. The Debert Site is located on top of a sandy knoll south of the Cobequid Mountains and was occupied approximately 11,000 years ago by Paleo-Indian peoples. The campsite overlooked a caribou migration route through the Cobequid Mountains to what would have been tundra plain leading into present day Cobequid Bay. At 11,000 years B.P., there were remnant ice sheets centered on the Cobequid Mountains, another on South Mountain of the Annapolis Valley and an ice sheet centered in the highlands of Cape Breton Island. At 10,500 years B.P., the ice sheets advanced again during the 200 year cold Younger Dryas period. A corridor between the Cobequid Bay and the Gulf of St Lawrence may have existed during the cold period and a sandy knoll on a tundra landscape made a good campsite. *(11)* The cold period of the Younger Dryas may have pushed the Paleo-Indian people south with advancing ice sheets and permanent snowfields or they may have abandoned the region. *(12)*

Archaeological evidence is scarce for a period of 10 to 5 thousand years ago which is thought to be due to the rise in sea levels that since submerged former coastal sites. *(12)* Sea level rise on the Atlantic Coast was a combination of land rebound after ice sheets receded, rising ocean temperatures and water released by melting glaciers. *(13)* As heavily weighted ice sheet centers, located in the Gulf of St Lawrence, depressed the earth's mantle, the areas of the mantel at ice sheet margins rose slightly. As the weight of the ice sheets diminished with melting the depressed center areas rebounded and rose in elevation while the mantel of the margin areas lowered in elevation. *(14)*

The Archaic Period covers a time of 9 to 2.5 thousand years BP and is further sub divided into a periods of 5 to 3.5 thousand years BP referred to as the Maritime Archaic Period and 3.5 to 2.5 thousand years BP which was a period of Susquehanna cultural influence indicated by the artifacts found within archaeological sites. *(12)(15)* Tool manufacture techniques and materials indicate a connection between Archaic Period peoples within western Nova Scotia to the Susquehanna Tradition Culture (3500-2500 BP) which was centered in present day Mid-Atlantic States. *(12)*

The Period of 2.5 to 0.5 thousand years BP is referred to as the Ceramic Period or Maritime Woodland Period that saw the introduction of pottery and burial mounds in Nova Scotia. *(12)(15)* Coastal Maritime Woodland Period sites were not as impacted by rising sea levels as earlier periods but are currently impacted by coastal erosion of the glacial tills by successive storms and constant wave action.

The Shubenacadie River System with its wildlife habitats and transportation routes, attracted early peoples. A 1970 Archaeological Survey of the Shubenacadie River System identified 3 areas of Prehistoric finds and sites being the area of the Shubenacadie River between Grand Lake and Enfield, the area surrounding where the Nine Mile River and the Shubenacadie River Meet and the area surrounding where the Stewiacke River meets the Shubenacadie River. The sites are determined to be fishing stations at strategic fishing

locations that are also intersections of travel routes from the Atlantic Coast, Cobequid Bay and interior portions of the mainland. *(16)*

Sites that span Archaic and Ceramic periods are located at the south end of Shubenacadie Grand Lake and grouped east of Wellington Station. The sites are heavily disturbed by canal construction and an 81 piece private collection consisted of ground stone tools, adzes, gouges, 2 grooved axes and 2 plummets. A mix of Archaic and Ceramic period artifacts were found during investigation of the site. The Archaic Period artifacts were found west of the outlet to Lake Fletcher. *(16)*

In the northern portion of Shubenacadie Grand Lake, along the east shore and the western shore have yielded grooved axes each and are estimated to be Archaic or Late Archaic Period. Sites located at Indian Point produced scrapers, chips and an adze during an archaeological investigation into local oral history of skeletal remains at Indian Point. The investigation was unable to confirm the skeletal remains finds. *(16)*

A heavily disturbed site produced heavy ground tools such as gouges and adzes estimated to be Archaic Period. Cultivation of a field near and at a shallow depth of 300mm destroyed a site located on the east bank after the first bend in the Shubenacadie River as it flows from Shubenacadie Grand Lake. *(16)*

Further downriver is located a complex site on the north and west bank of an east to north bend in the river. Site locations cover an area that stretches along the bank and around the bend for a distance of 730m. The sites were mostly undisturbed and archaeological finds include points, scrapers, potsherds, quartz chips, flake knife, native copper gouge and beaten native copper piece. The large site is a favored location as the site is potentially a Ceramic Period site overlying a Late Archaic site. *(16)*

Sites are located at the intersection of the Shubenacadie River and Highway No. 2. The sites are heavily disturbed by canal and bridge construction but produced numerous artifacts including stemmed points, side notched points, convex adze, scrapers, knives,

potsherds and a pendant. The location also produced a collection of leaf shaped and triangular points-knives of both side-notched and side-notched points as well as a plummet. This location was also favored as it also has potential to be a Ceramic Period Site over an Archaic or Late Archaic Site. *(16)*

Where the Nine Mile River flows into the Shubenacadie River is another grouping of sites that are heavily disturbed by cultivation but have produced artifacts of ground slate semicircular knife, a number of plano-convex adzes, scrapers and a gouge. *(16)*

There are potential archaeological sites surrounding where the Stewiacke River meets the Shubenacadie River may have been destroyed over many years of cultivation. The archaeological finds are isolated and include an adze found in a plowed field and unconfirmed collections by farmers that have since been lost. The Stewiacke River has 5 potential archaeological sites between the Shubenacadie River and East Stewiacke and, like the sites where the rivers meet, these sites are heavily disturbed by cultivation. The artifacts produced by the East Stewiacke sites are estimated to be Late Archaic to Early Ceramic and include a grooved axe, stemmed points, leaf shaped knife and a lanceolate biface fragment. *(16)*

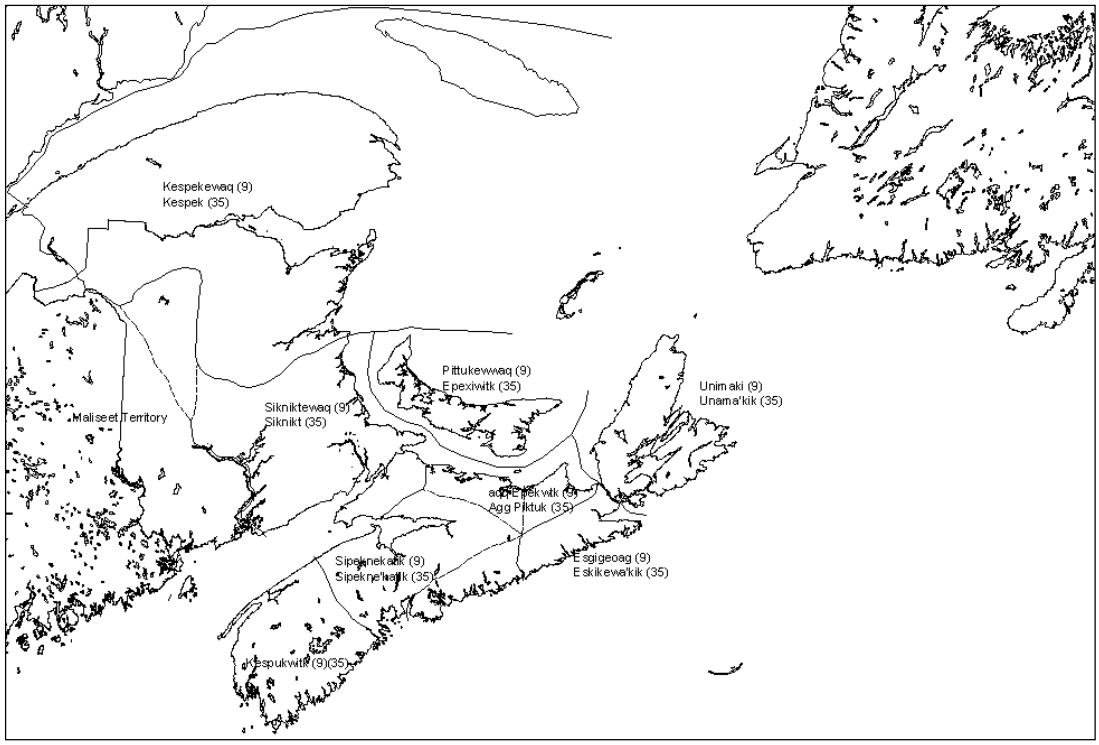
There are few if any archaeological finds down river from where the Stewiacke River meets the Shubenacadie River. The river widens and the banks are steep sandstone cliffs and local oral history places Mi'kmaq spearing salmon where at the mouth of Five Mile River in the early 1900's. *(16)*

The Mi'kmaq were here to meet the first Europeans to arrive in North America. The Mi'kmaq had already had a political system and political districts within their territory.

Traditional Mi'kmaq Territory

Traditional Mi'kmaq territory is called *Mi'kma'ki* and covered an area that extended from the St. John River east to include Cape Breton Island, southern Newfoundland and from the Gaspe' Peninsula, south to the south shore of Nova Scotia.

Mainland peninsular Nova Scotia is named *Kmitkinag* by Mi'kmaq and Cape Breton Island is named *Unimaki*. *Mi'kma'ki* is further divided into seven political districts: *(17)*



Mi'kma'ki Political Districts Circa 1600 *(17)(18)(19)(20)*

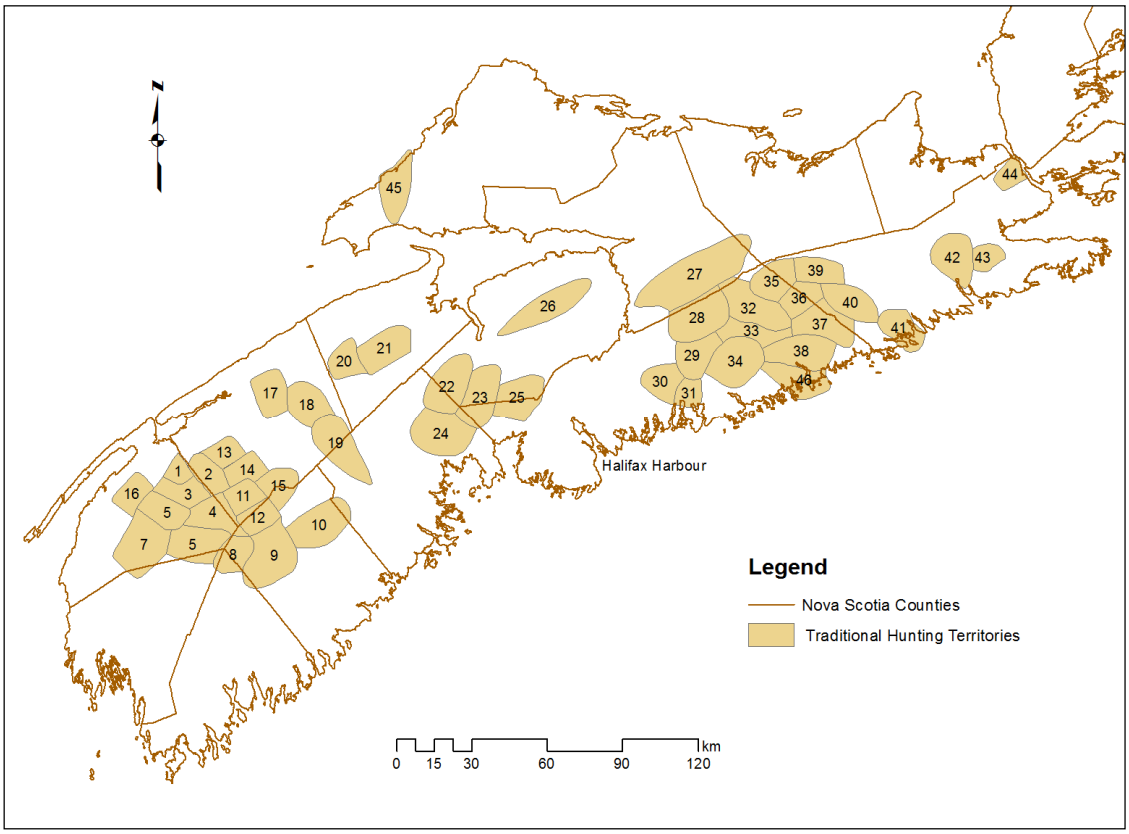
District (Various Spellings)	***Geographic Territory***
Unimaki (17) (Unama'kik) (18)(19)(20)	Cape Breton Island Southern Newfoundland
Esgigeoag (17) (Eskikewa'kik) (18)	Canso-Sheet Harbour
(Eski'kewag) (19) Sipeknekatik (17) (Sipekne'katik) (18) (Sikepne'katik) (19)	Sheet Harbour-LaHave including Minas Basin and Cobequid Bay
Kespukwitk (17)(18)(19)	Southern Nova Scotia, LaHave-Middleton

Pittukewwaq (17) (Epexiwitk) (18) (Epekwitk) (19)	Prince Edward Island
aqq Epekwtk (17) (Agg Piktuk) (18) (Piktuk) (19)	Shediac to Canso Strait
Kespekewaq (17) (Kespek) (18) (Kespe'kewag) (19)	Chaleur Bay to Gaspe Peninsula
Sikniktewaq(17) (Siknikt) (18) (Sikniktewag) (19)	Chaleur Bay to Shediac

Three of these political districts are close proximity to each other and converge to share a portion of the Bay of Fundy and Minas Basin. *Pittukewwaq agg Epekwtk* (P.E.I and Northumberland Strait from Shediac to Canso Strait) territory is only the distance of the width of the Chignecto Isthmus to access the Bay of Fundy. *(17)* Other sources indicate different interpretation of the bounds of Pittukewwaq agg Epekwtk as being separate districts with Pittukewwaq being only PEI and agg Epekwtk being an area between approximately Merigomish Harbour and Canso Strait. *(18)(19)* The same sources interpret Esgigeoag district as extending from Canso through to St. Margarets Bay and Sipeknekatik as extending northwest through to the Northumberland Strait as shown on above Map. *(18)(19)* The Study Area is within the *Sipekne'katik* Political District.

Mi'kmaq had an intimate knowledge of the ecology of their territory and fit their lives to seasonal cycles of the vegetation and animals and fish. Due to climate conditions, agriculture for food was a risk for Mi'kmaq. *(21)* Highly mobile Bands consisting of several related families would assemble at favorite camp sites. In the fall and winter the camps would disperse into small groups of 10-15 people for winter hunting. *(21)*

It was the duty and responsibility of the chief of each political district to assign the hunting territories to families and any changes were made in the presence of the Council of Elders which met in the spring and fall of every year. *(22)* Hunting districts of approximately 200-300 square miles were assigned to families. *(21)*



Mainland Nova Scotia Traditional Hunting Territories *(23)*

The districts were usually surrounded lakes and rivers and were passed on to sons unless there were no sons where the district was then assigned to another family. *(23)* The Mi'kmaq respected the boundaries of the assigned territories and only took from the land what they needed for the family to survive thereby preserving game and fish for the family's future survival. *(22)*

The hunting territories of the mainland Nova Scotia were numerous compact interior territories that encompassed the watersheds of interior lakes and rivers as Mi'kmaq did most their game hunting during colder months of the year when they moved inland from the summer coastal camps. *(23)(22)* Cape Breton Island Mi'kmaq hunting territories are larger and more regional encompassing shorelines and interior river systems indicating a more sparse population. *(23)*

The Project Site does not appear to be within any last known traditional hunting territories. *(23)* The territorial reference numbers pertain to the source's original reference system and it is unknown if territorial numbers were assigned by Chiefs. A table lists the surrounding territories:

Map Reference	Name of Family	Geographic Territory
25	Joe Brooks	Uniack lake below Mt. Uniack
26	John Ferris	Kennetcook River Valley
27	Frank Paul	Stewiacke River Valley
28	John Newell Cope	Musquodoboit River between Middle Musquodoboit and Musquodoboit
29	Andrew Francis	North of Ship Harbour Lake, Gould lake
30	Joe Cope	North of Jeddore
31	Young Joe Cope (son of No. 30)	Northeast of Jeddore

Mainland Nova Scotia Traditional Hunting Territories Recorded Circa 1919 *(23)*

The warmer months were times of abundance with surrounding areas of coastal camps providing fish, shellfish, fowl and eggs. Offerings were made to spirits but the Mi'kmaq rarely stockpiled enough food for the entire winter. They brought with them from the coast smoked and sun-dried seafood, dried and powdered hard boiled eggs. Berries were boiled and formed into cakes were sun-dried. Grease and oils from boiled marrow and fat were stored and transported in animal bladders. Root vegetables such as *segubun* (wild potato) which was similar to today's sweet potatoes and wild nuts were also part of the winter food supply. *(22)*

Month	Seasonal Locations	Seasonal Groupings	Food Resource
Jan.	Sea Coast	Bands	Smelt, Tomcod, Seals & Walrus Beaver, Moose, Bear, Caribou
Feb. (Period of Winter Famine Begins)	Inland	Bands & Family Units	Smelt, Tomcod (ending) Seals & Walrus, Beaver, Moose, Bear, Caribou
Mar. (Period of Winter Famine)	Inland	Bands & Family Units	Smelt, Seals & Walrus (ending) Scallops, Crab, Urchins, Winter Flounder, Beaver, Moose, Bear, Caribou

April (Period of Winter Famine ends)	Sea Coast	Villages	Smelt, Winter Flounder, Scallops, Crab, Urchins, Sturgeon, Brook Trout, Alewife, Herring, Spring Bird Migrations, Beaver, Moose, Bear, Caribou
May	Sea Coast	Villages	Smelt, Scallops, Crab, Urchins, Sturgeon, Salmon, Brook Trout Alewife, Codfish, Capelin, Shad, Mackerel, Skates, Herring, Spring Bird Migrations, Beaver, Moose, Bear, Caribou
Jun.	Sea Coast	Villages	Scallops, Crab, Urchins, Sturgeon, Salmon, Brook Trout Alewife, Codfish, Capelin, Shad, Mackerel, Skates Lobsters, Spring Bird Migrations, Beaver, Moose, Bear, Caribou
Jul.	Sea Coast	Villages	Scallops, Crab, Urchins, Codfish, Capelin, Shad, Mackerel, Skates Lobsters, Spring Bird Migrations, Beaver, Moose, Bear, Caribou, Strawberries, Raspberries
Aug.	Sea Coast	Villages	Scallops, Crab, Urchins, Codfish, Skates Lobsters, Beaver, Moose, Bear, Caribou, Strawberries, Raspberries, Blueberries, Ground Nuts
Sept.	Sea Coast	Villages	Scallops, Crab, Urchins, Codfish, Skates, Salmon, Herring, Eels, Fall Bird Migrations, Beaver, Moose, Bear, Raspberries, Blueberries, Ground Nuts, Cranberries
Oct.	Small Rivers	Villages	Scallops, Crab, Urchins, Smelt Codfish, Skates, Salmon, Herring, Eels, Brook Trout, Fall Bird Migrations, Beaver, Moose, Bear, Blueberries, Ground Nuts, Cranberries
Nov.	Inland	Bands	Smelt, Tomcod, Turtles, Seals, Beaver, Moose, Bear, Ground Nuts, Cranberries
Dec.	Rivers	Bands	Smelt, Tomcod, Turtles, Seals, Beaver, Moose, Bear, Ground Nuts,

Mi'kmaq Annual Subsistence *(24)*

Local History

Much of the source history of the Mi'kmaq in the area after contact with Europeans revolves around the French mission established near present day Shubenacadie and the hostilities between The Mi'kmaq and the English in the new town established at Halifax and within Shubenacadie traditional territory.

In 1749, the Honorable Edward Cornwallis, Captain General, Governor-in-Chief, set out from the home port for Annapolis Royal ahead of transports carrying the foreign Protestant settlers. The plan was that after unloading the settlers at Annapolis Royal he was then to proceed to Louisbourg with the empty transports to evacuate the English troops and transport them to Chebucto. However, he was wind blown into Chebucto with the transports full of settlers and decided to stay and begin the settlement of Halifax. Cornwallis found some French families on both sides of the harbour upon his arrival but no Mi'kmaq. *(25)*

Cornwallis was quick to call Chiefs to meet with the Governor and Council aboard the Beaufort to reaffirm the 1726 Treaty. *(25)* Of the 13 Indians present from various tribes, none appear to be of the Mi'kmaq of Shubenacadie whose territory Cornwallis has settled within. *(26)* The crucial tribes to Cornwallis and the Council were the St. John River (Maliseet) tribes due to some members of Council having business interests in Maine and the New England area. These areas were a war zone for the previous 5 years as settlers encroached into Indian lands. A treaty with the Cape Sable tribes (Mi'kmaq) would end hostilities at Annapolis Royal. There had been a Scalp Bounty placed on both these tribes the by the Governor of Massachusetts in 1744. Representatives of these tribes signed a treaty with Cornwallis on August 15, 1749. *(27)* Although Jean Baptist Cope would eventually sign a treaty, which he would break shortly afterward, Cornwallis never offered to negotiate with the Mi'kmaq the terms to which Halifax could be settled within Mi'kmaq Territory. *(26)(28)*

The French Mission Sainte Anne was located deep within Mi'kmaq territory on the west bank of Shubenacadie River. It was here where Father Abbe' Jean-Louis LeLoutre provided spiritual services to the Mi'kmaq between 1738 and 1749 and where he incited the Mi'kmaq to fight the English and continued to use the mission as a staging area for Mi'kmaq attacks on Halifax. *(29)* A letter written by LeLoutre in July, 1749 stated that "we cannot do better than to incite the Indians to continue warring on the English". Not completely without a purpose of their own, the Mi'kmaq attacks that followed were a message to Cornwallis that they had the rights to their own territory as well as to hunt and fish freely within. *(28)*

In 1749, LeLoutre moved the Mission to the Isthmus of Chignecto where he and French soldiers, officers and French settlers established a new settlement. His announcement divided the Shubenacadie Mi'kmaq as some wanted to be close to their religious services and some did not want to abandon their traditional territory. Jean Baptist Cope chose to stay at Shubenacadie and became the prominent elder and leader. *(30)* Cope would break the treaty he signed and launch a long campaign of skirmish attacks on English settlements and troops. His actions may have been in retaliation for the killing of Mi'kmaq women and children in a skirmish between English sailors and Mi'kmaq on the Atlantic Coast. *(30)*

The Mi'kmaq returned Chebucto to begin a series of attacks on the settlement lasting 10 years. In response to the attacks, Cornwallis extended the 1744 Massachusetts Scalp Bounty to include all Mi'kmaq. *(27)*

Since the founding of Halifax, the French have incited the Mi'kmaq to maintain a campaign of hostilities against the new English town and French could be seen with the Mi'kmaq scouting the town prior to Mi'kmaq attacks. Similar continuous attacks on the English network of Block Houses throughout the province confined the English to garrison towns and unable explore or clear land for settlements and cultivation. *(31)*

The Mi'kmaq were occupied in helping to build French fortifications at Beausejour and other locations in the Spring of 1754. The French had 3 Mi'kmaq tribes assisting them in their fortifications and committed to side with the French against the English. *(31)* The English took the opportunity during the lull in hostilities to settle some English outports for the fishery. Captain Floyer and a detachment explored the Shubenacadie lakes and river system and found good land and timber. *(31)* Captain Floyer also mapped the location of the Mission Sainte Ann on the west bank of Shubenacadie River midway between upriver Gays River confluence and The Stewiacke River confluence. *(31)* A 1755 map of known Indian paths by Captain Lewis shows the Shubenacadie Mass house further north in the area of a present day campground while Floyer's map shows the mission location near the former Residential School and Snides Lake.*(41)*

Jean Baptist Cope was killed in the spring of 1758 at Point Pleasant Park during a meeting of Mi'kmaq Leaders trying to come to a consensus among themselves on negotiating a peace with the English. An argument and skirmish broke out among the group leaving 17 Mi'kmaq dead. *(32)* Jean Baptist Cope was buried at the same location thought to be Father Abbe Thury's burial site at Point Pleasant Park. *(33)*

News of the fall of Quebec on September 18, 1759 reached the town of Halifax. After 10 years of inciting the Mi'kmaq to hostilities against the English in the province, the French Priest LeLoutre was disowned by the Quebec Bishop and later captured by the English aboard a ship leaving for France. *(31)* Father Maillard, who had spent 25 years with the Mi'kmaq, convinced the Chiefs to go to Halifax and bury the hatchet with the English which finally allowed the English to leave their fortified towns and explore the rest of the province and bring more settlers into the province. There was still some residual apprehension on the English side as to if the Mi'kmaq would hold the peace. *(31)*

Although the Mi'kmaq were beginning to suffer as early as 1758 from years of warfare and diseases, the English remained fearful of the Mi'kmaq, particularly with growing tensions in the New England Colonies. Both the English and the Mi'kmaq were eager to negotiate a peace treaty and the Mi'kmaq were still able to negotiate from a position of

strength. The treaties of 1760 did not resolve territorial limits but assured Mi'kmaq access to the natural resources the land had always provided them. *(30)* However, the land provided less over time as they were displaced from traditional territories and the amount of game available declined. *(30)*

The 1760 series of treaty signings with various chiefs of the Mi'kmaq was for the purpose of negotiating peace and trade. The English decided to build Truck Houses at each of the existing forts for the exclusive trade with the Mi'kmaq and the first Truck house was built at Fort Clearance in Dartmouth. Fort Ellis was built in 1761 on the north bank of the confluence if the Stewiacke and Shubenacadie River and was eventually abandoned in 1767. *(34)* The Shubenacadie Lakes and River System was opened up as a transportation route from Halifax to the Bay of Fundy. *(31)*

As early as 1699, Shubenacadie has been a part of the early Mi'kmaq and European history. Twice the location was part of a Mi'kmaq resettlement scheme with the first being when missionary Father Louis-Pierre Thury attempted to attract all Acadia Mi'kmaq to one central location at Shubenacadie.*(40)* The other resettlement involved the Federal Government's centralization policy in the early 1940's involved moving all Nova Scotia Mi'kmaq to 2 reserves located at Shubenacadie and Eskasoni.

The present Sipekne'katik Band (Indian Brook) reserve lands, Indian Brook IR 14 is located approximately 5 km east of Mission location shown on Floyer's 1754 map. Indian Brook 14 is the largest at 1234 hectares and most populated of the 5 reserve parcels that the Sipekne'katik Band possess located in Hants, HRM and Lunenburg Counties. The Sipekne'katik Band has a total registered population of 2538 Band Members with 1225 band members living within reserve parcels. *(36)*

The Shubenacadie Residential School was prominent in local and regional history. The school was located on the west bank of the Shubenacadie River and was established in 1930 and operated until 1966 with over 1000 Mi'kmaq children from Atlantic Canada attending the school throughout its operational history. The school was a means of

religious conversion and assimilation of the Mi'kmaq supported by official government policy. Over the school's operational history the institution gradually eroded Mi'kmaq language, culture, traditional knowledge and some students returned to their communities emotionally and physically scarred. *(37)*

A review of Aboriginal Affairs and Northern Development, Status Report on Specific Claims shows there are no active land claims within the Project Site filed at this time. The Sipekne'katik Band along with the Millbrook Band have active claims concerning unlawful surrender of former reserve parcels along the Atlantic Coast in 1919. The Sipekne'katik Band is involved with the other 12 Bands of Nova Scotia in an active claim concerning mismanagement of the Kejimkujik I.R. *(39)*

A recent ceremony was performed along the banks where the Stewiacke River and Shubenacadie rivers meet and the proposed site of water intake and discharge pipes for a Natural Gas Storage Facility. The purpose was to reclaim the traditional fishing district of the Mi'kmaq Nation. The Sipekne'katik Band has threatened legal action if the proposed intake and discharge adversely affect fishing. *(35)*

In an official press release from the Band on Oct. 07, 2014, the Sipekne'katik Chief and Council expressed their opposition to the proposed Natural Gas Storage Facility brine water discharge into the Shubenacadie River. The Band expressed their treaty rights to fish and protect the river for future generations and the need for consultation and further study. *(38)*

Place Names
Some surviving Mi'kmaq place names in the area *(39)*:

Nine Mile River	*Nenadoogweboogwek Wokumeak*	*"the trail route"*
Shubenacadie	*Segubunakade*	*"place where ground nuts grow"*
		"Indian Potatoes"

Middle Musquodoboit	*Natkamkik*	*"the river extends uphill"*
Upper Musquodoboit	*Kesokwedek*	*"the road runs over the hill"*
Stewiacke	*Esiktaweak*	*"it oozed slowly from still water"*
Gays River	*Wisunawon*	*"beaver castor"*

Historical Review Summary

The Shubenacadie River System provides an almost continuous water travel route with minor elevation change from the Atlantic Coast at Halifax Harbour to Cobequid Bay at Maitland.

Possible exposed bedrock east and adjacent the Project Site may be a source of tool and weapon stone that would have interested early peoples.

Archaeological evidence indicates early peoples used the Shubenacadie River System during the Archaic and Late Archaic periods with some of these sites overlain by Ceramic Period sites. Three areas of concentrated Prehistoric finds are the area of the Shubenacadie River between Grand Lake and Enfield, the area surrounding where the Nine Mile River and the Shubenacadie River Meet and the area surrounding where the Stewiacke River meets the Shubenacadie River. The sites are strategic locations for fishing stations as well as intersections of travel routes from the Atlantic Coast, Cobequid Bay and interior portions of the mainland.

The French Mission Sainte Anne was located deep within Mi'kmaq territory on the west bank of Shubenacadie River. It was here where Father Abbe' Jean-Louis LeLoutre provided spiritual services to the Mi'kmaq between 1738 and 1749 and where he incited the Mi'kmaq to fight the English and continued to use the mission as a staging area for Mi'kmaq attacks on Halifax.

The Study Area is within the Political District *Sipekne'katik (18)* which has an Atlantic shoreline from Sheet Harbour to Lahave as well as a shoreline on the Bay of Fundy, Minas Basin and Cobequid Bay.

The Project Site is not part of any of the last known Mi'kmaq traditional hunting territories.

There are no active land claims within the Project Site filed at this time.

In response to a proposed Natural Gas Storage Facility, Mi'kmaq held a recent ceremony along the banks where the Stewiacke River and Shubenacadie rivers meet to reclaim the traditional fishing district of the Mi'kmaq Nation.

The Sipekne'katik Chief and Council expressed their opposition to the proposed discharge into the Shubenacadie River by a Natural Gas Storage Facility and the need for consultation and further study.

4.4 Mi'kmaq Traditional Use Findings

The traditional use data gathered for this MEKS was drawn from one primary source: the Mi'kmaq individuals who reside in the surrounding Mi'kmaq communities and those who are familiar with or undertake these types of activities. This data was acquired through interviews with informants that allowed the study team to identify the various traditional use activities, resources and areas that are currently or have been used by the Mi'kmaq, and any information that was gathered in previous MEKS in the area. Interviewees were asked to identify areas within the Study Area and Project Site where they knew of traditional use that had taken place, or currently in use. These interviews took place in September, 2014.

To easily identify the traditional use data findings of this study, the analysis has been categorized into two (2) geographic areas. The first is the Project Site area – an area

located adjacent to an existing quarry located between Milford Rd and Route 277, near Carrolls Corner, east of Milford, Halifax County, Nova Scotia.

The second is the Study Area which includes areas that fall within a 5 km radius of the Project Site.

Based on the data that was gathered by the study team, it appears there are some Mi'kmaq traditional use activities that have occurred, or are occurring, within the Project Site.

Project Site

The Project Site, as well as locations in the *immediate* vicinity (<50 meters) of the Project Site, will be considered when analyzing traditional use activities.

Fishing

Fishing areas identified seem to be focused in the eastern portion of the proposed expansion area. Trout, bass, salmon, eel and shad were identified as species harvested in this area.

Hunting

One deer hunting area was identified in areas surrounding Carrolls Corner that intersected approximately the southwest to south portion of the proposed expansion area.

Gathering

There were no gathering areas identified by informants on the Project Site.

Study Area

As mentioned previously, the MEKS data is also drawn from the Study Area which encompasses areas within a five (5) kilometer radius from the Project Site boundaries. The purpose of this portion of the study is to portray other land use activities that may have been missed in the Project Site data analysis.

Fishing

From the data gathered, the study found that bass (stripped and small mouth), eel, shad, and trout were the species reportedly caught in the highest frequency in the Study Area.

Bass was identified by informants in forty three (43) areas. These areas were found to be located:

- Shubenacadie River from Keys Brook through to St. Andrews River
- Gays River
- South Branch Gays River
- Annand Lake
- Streams and brooks surrounding Carrolls Corner

Twenty eight (28) eel fishing areas were identified:

- In the Shubenacadie River from Keys Brook to past Milford Station
- In the Shubenacadie River from McLennan Brook to St. Andrews River
- Gays River through to South Branch Gays River
- Annand Lake
- Surrounding Carrolls Corner

Twenty two (22) shad fishing areas were identified by informants in:

- Shubenacadie River from Keys Brook through to St. Andrews River
- Gays River
- South Branch Gays River near Gays River (town)

- South Branch Gays River south of Carrolls Corner
- Brooks and streams surrounding Carrolls Corner

Trout fishing areas were identified in nineteen (19) areas found to be:

- In the Shubenacadie River from Keys Brook to East Milford
- In the Shubenacadie River from south of Milford Station to St. Andrews River
- In the Gays River near Gays River (town)
- Annand Lake and bog
- South Branch Gays River south of Carrolls Corner
- Brooks and streams surrounding Carrolls Corner

Other species reportedly fished in the Study Area were salmon (11 areas), gaspereau (9 areas), smelt (4 areas), catfish (1 area), perch (1 area), pickerel (1 area), and sucker (1 area).

When broken into timeline categories, Current Use activities were reported in approximately thirty nine percent (39%) of the data gathered. Recent past use was reflected in thirty four percent (34%) of the data, and Historic Past use areas occupied twenty seven (27) percent of the information. Much of the information gathered found itself placed in multiple timeline categories, if not all three, suggesting a continuous use of the area spanning 25+ years with a focus on the Shubenacadie River.

Nearly all fishing areas were identified as fishing areas for harvesting purposes. The remaining areas were commercial species for the specific use as bait.

Hunting

Deer, partridge, rabbit, and pheasant were found to the most hunted species within the Study Area.

Twelve (12) deer hunting areas were found to be located:

- Near Dutch Settlement through to Carrolls Corner to Annand Bog, and surrounding areas
- From areas surrounding Milford Station to Pine Grove, Gays River (town), and Meadow Brook

Nine (9) partridge hunting areas were identified in:

- Areas surrounding Milford Station and MacPhee Pond
- Areas surrounding Pine Grove and Gays River (town)
- From Dutch Settlement to Far Brook near Annand Brook

Rabbit was reported by informants in eight (8) areas:

- surrounding Milford Station and MacPhee Pond
- surrounding Pine Grove and Gays River (town)
- From Dutch Settlement to Far Brook near Annand Brook

Pheasant was reported by informants in seven (7) areas:

- surrounding Milford Station and MacPhee Pond
- surrounding Pine Grove and Gays River (town)
- From Dutch Settlement to Far Brook near Annand Brook

Other species reportedly hunted in the Study Area are beaver (1 area), goose (1 area), and porcupine (1 area).

In terms of timelines of when the hunting took place, areas were labeled historic use areas in forty seven percent (47%) of the data gathered. Recent use was reflected in thirty percent (30%) of the areas, and current use was found in approximately twenty two percent (22%) of the information.

Gathering

Gathering areas were found to be located around Milford Station through to MacPhee Pond, McLennans Brook, through to Gays River. In these areas, apples (2 areas), flag root (2 areas), golden thread (2 areas), alders (1 area), blueberries (1 area), fiddleheads (1 area), juniper (1 area), mayflower (1 area), mushrooms (1 area), and sweetgrass (1 area), were reported to be harvested.

4.5 Mi'kmaq Significant Species Process

In order to identify possible project activities which may be of significance to the Mi'kmaq with regards to traditional use of the Study Area, the project team undertakes a number of steps in order to properly consider the MEK data. This involves three main components: Type of Use, Availability, and Importance.

Type of Use

The first component of analysis is the "Type of Use" of the resource which involves the categorization of the resource. All resources are placed into various general categories regarding the Type of Use**.** The category headings are Medicinal/Ceremonial, Food/Sustenance, and Tool/Art. These general headings are used so as to ensure further confidentiality with respect to the resources and the area where they are harvested. As well, the total number of instances where a resource harvest has been documented by the study is quantified here as well.

Availability

After the data is considered by the Type of Use, it is considered in accordance with its availability: this involves considering whether the resource is abundant in the Study Area or whether it is rare or scarce. Based on the information that is provided to the team from the ecological knowledge holders and/or written literature sources, the availability of the

resource is then measured in regards to other water or land areas that are outside of the Study Area. This measuring is primarily done in the context of the areas adjacent to the Study Area, and if required, other areas throughout the province. By proceeding in this manner, the study can provide an opinion on whether that resource may be **Rare, Scarce** or **Abundant**.

The data is classified in accordance with following:

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; and
Abundant – easily found throughout the Study Area or in other areas in the vicinity.
This allows the study team to identify the potential impact of a resource being destroyed, by the proposed project activities, will affect the traditional use activity being undertaken.

Importance

The final factor the MEKS team considers when attempting to identify the significance of a resource to Mi'kmaq use is whether the resource is of major importance to Mi'kmaq traditional use activities. This can be a somewhat subjective process, as any traditional resource use will be of importance to the individual who is acquiring it, regardless of whether its use is for food or art, and regardless if the resource is scarce or abundant. However, to further identify the importance, the MEKS team also considers the frequency of its use by the Mi'kmaq; whether the resource is commonly used by more than one individual, the perceived importance to the Mi'kmaq in the area, and finally the actual use itself. These factors support the broad analysis of many issues in formulating an opinion on significance and supports identifying whether the loss of a resource will be a significant issue to future Mi'kmaq traditional use, if it is impacted by the project activities.

4.6 Mi'kmaq Significance Species Findings

This MEKS identified resource and land/water use areas within the Project Site and Study Area that continue to be utilized by the Mi'kmaq people, to varying degrees.

Type of Use

The study identified the following:

TYPE OF USE	NUMBER OF AREAS	NUMBER OF SPECIES
Food/Sustenance	186	24
Medicinal/Ceremonial	10	8
Tools/Art	3	3

Availability

During the information gathering for the Study Area, informants had mentioned the fishing for salmon. The Atlantic Salmon is considered an endangered species in Canada. (42)

No other rare or endangered species were identified by informants.

Importance

While stated above, it is worth noting again that assigning an importance designation for any activity done by Mi'kmaq can be a subjective process, and that all activities are considered ways of preserving the Mi'kmaq way of life, in some shape or form.

As noted previously, Atlantic Salmon is considered an endangered species in Canada and the Mi'kmaq still rely on this species for sustenance and cultural ceremonies and disturbances to their habitats could have an impact on Mi'kmaq use.

Bass fishing is noted to be an activity occurring in high frequency in the area, particularly in the Shubenacadie River, as occurring historically, through to present use. Based on the number of areas reported by informants, bass fishing is an important activity undertaken by the Mi'kmaq within the area that could be impacted by any effects to bass habitats.

5.0 CONCLUSIONS AND RECOMMENDATIONS

This Mi'kmaq Ecological Knowledge Study has gathered, documented and analyzed the traditional use activities that have been occurring in the Project Site and Study Area by undertaking interviews with individuals who practice traditional use, or know of traditional use activities within these areas and reside in the nearby Mi'kmaq communities.

The information gathered was then considered in regards to species, location, use, availability and frequency of use to further understand the traditional use relationship that the Mi'kmaq maintain within the Project Site and Study Area.

Project Site

Based on the data documented and analyzed, it was concluded that the Mi'kmaq have historically undertaken traditional use activities in the Study Area, and that this practice continues to occur today. Activities undertaken on the Project Site were trout, bass, salmon, eel, and shad fishing, as well as one deer hunting area.

These areas were found to be located on the eastern portion of the proposed expansion area, as well as an area that intersected approximately the southwest to south portion of the proposed expansion area.

Study Area

Based on the data documentation and analysis, it was concluded that the Mi'kmaq have historically undertaken traditional use activities in the Study Area, and that this practice continues to occur today. These activities primarily involve harvesting of fish, but also include harvesting of animal, plant, and tree species; all of which occurs in varying locations throughout the Study Area and at varying times of the year.

Bass, eel, shad, and trout were found to be the most fished species in the Study Area. Deer, partridge, rabbit, and pheasant were found to be hunted in the Study Area. With the small number of gathering areas identified, it is difficult to categorize the area as a particular gathering area type as there was a variety of species harvested in the area for different purposes.

Analysis of data collected in a previous study, the Alton Gas Storage MEKS, revealed only a handful of new traditional use area in a northern portion of the National Gypsum MEKS Study Area. Interviewees in the Alton report had identified areas for blueberry, goldenthread, mayflower, strawberry, raspberry, and fur bough gathering, as well as trout, salmon, and smelt fishing in or near the Shubenacadie River, north of McLennan Brook and Gays River (town), and east of Sipekne'katik (Shubenacadie) First Nation.

RECOMMENDATION # 1

The National Gypsum Mine Extension MEKS has identified some Mi'kmaq Traditional Use Activities occurring in the Project Site as well as activities that have occurred in the past, as well as the present, in the Study Area. Based on the information gathered and presented in this report, there is some potential this project could affect some Mi'kmaq traditional use, specifically bass fishing, deer hunting, and many other fishing activities identified in the Study Area, as well as any effects to the Shubenacadie River. Although the possible effects of the project could be minimal, based on the size of the project, the existence of development in the area already, the amount of traditional use information gathered, it is recommended that the proponent communicate with the Assembly of Nova Scotia Mi'kmaq Chiefs and Sipekne'katik (Shubenacadie) to discuss future steps, if required, with regards to Mi'kmaq use in the area.

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APPENDICES

Map A

Mi’kmaq Traditional and Current Use Areas

National Gypsum Quarry Expansion MEKS

Mi'kmaq Traditional and Current Use Areas

Legend

- Traditional Use Areas
- Reserve Land
- Study Area
- Project Site
- Existing Quarry
- County Border
- Highway
- Trunk Road
- Collector Road
- Local Road
- Loose Surface/Cart Track
- Rivers

Disclaimer

This map is a graphical representation of Mi'kmaq ecological knowledge gathered throughout the study, and should not be used for navigation purposes. Features presented may not accurately representaactual topographical or proposed features.

The Mi'kmaq ecological knowledge data presented is a sampling of knowledge held by those interviewed and should not be interpreted as an absolute measure of Mi'kmaq ecological knowledge and land use.

N

Datum: UTM NAD83
Zone 20
Scale: 1:50,000

Version: 1
5 November 2014

0 1 2 4 6
Kilometers

Membertou GEOMATICS SOLUTIONS

Map B

Mi’kmaq Traditional and Current Fishing Areas

National Gypsum Quarry Expansion MEKS

Mi'kmaq Traditional and Current Fishing Areas

Legend

- Fishing Areas
- Reserve Land
- Study Area
- Project Site
- Existing Quarry
- County Border
- Highway
- Trunk Road
- Collector Road
- Local Road
- Loose Surface/Cart Track
- Rivers

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N

Datum: UTM NAD83
Zone 20
Scale: 1:50,000

Version: 1
5 November 2014

Membertou GEOMATICS SOLUTIONS

0 1 2 4 6
Kilometers

Sipekne'katik First Nation
Barneys Brook
Hardwood Lands
St. Andrews River
McLean Brook
McLean Brook
McLean Brook
Milford
Gays River
Big Pond Brook
Pine Grove
McLean Brook
McLean Brook
Meadow Brook
Black Brook
Wilson Brook
Gays River
Cooks Brook
East Milford
Carrolls Corner
South Branch Gays River
Fat Brook
Annand Brook
Shubenacadie River
Big Pond Brook
Barneys Brook
Belnan
Nine Mile River
Dutch Settlement
Grono Road
Lantz
Shubenacadie River
Keys Brook
Elmsdale
Grono Brook
Moore Lake
Pond Brook
Nuttall Brook

Map C

Mi’kmaq Traditional and Current Hunting Areas

National Gypsum Quarry Expansion MEKS

Mi'kmaq Traditional and Current Hunting Areas

Sipekne'katik First Nation
Barneys Brook
St. Andrews River
McLean Brook
McLean Brook
McLean Brook
McLean Brook
Meadow Brook
Gays River
Big Pond Brook
Milford
Pine Grove
McLean Brook
Hardwood Lands
Gays River
Black Brook
Wilson Brook
Cooks Brook
Gays River
East Milford
Carrolls Corner
South Branch Gays River
Far Brook
Annand Brook
Big Pond Brook
Shubenacadie River
Barneys Brook
Belnan
Nine Mile River
Dutch Settlement
Grono Road
Lantz
Moore Lake
Pond Brook
Nuttall Brook
Shubenacadie River
Keys Brook
Grono Brook
Elmsdale
0 1 2 4 6
Kilometers

Legend

- Hunting Areas
- Reserve Land
- Study Area
- Project Site
- Existing Quarry
- County Border
- Highway
- Trunk Road
- Collector Road
- Local Road
- Loose Surface/Cart Track
- Rivers

Disclaimer

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The Mi'kmaq ecological knowledge data presented is a sampling of knowledge held by those interviewed and should not be interpreted as an absolute measure of Mi'kmaq ecological knowledge and land use.

N

Datum: UTM NAD83
Zone 20
Scale: 1:50,000

Version: 1
5 November 2014

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GEOMATICS SOLUTIONS

Map D
Mi’kmaq Traditional and Current Gathering Areas

National Gypsum Quarry Expansion MEKS

Mi'kmaq Traditional and Current Gathering Areas

Sipekne'katik First Nation
Barneys Brook
St. Andrews River
McLean Brook
McLean Brook
McLean Brook
Gays River
McLean Brook
Meadow Brook
Pine Grove
McLean Brook
Milford
Big Pond Brook
Hardwood Lands
Black Brook
Wilson Brook
Gays River
Cooks Brook
East Milford
Carrolls Corner
South Branch Gays River
Fal Brook
Annand Brook
Big Pond Brook
Shubenacadie River
Barneys Brook
Belnan
Nine Mile River
Dutch Settlement
Grono Road
Lantz
Moore Lake
Pond Brook
Nuttall Brook
Shubenacadie River
Keys Brook
Elmsdale
Grono Brook
0 1 2 4 6
Kilometers

Legend

- Gathering Areas
- Reserve Land
- Study Area
- Project Site
- Existing Quarry
- County Border
- Highway
- Trunk Road
- Collector Road
- Local Road
- Loose Surface/Cart Track
- Rivers

Disclaimer

This map is a graphical representation of Mi'kmaq ecological knowledge gathered throughout the study, and should not be used for navigation purposes. Features presented may not accurately representaactual topographical or proposed features.

The Mi'kmaq ecological knowledge data presented is a sampling of knowledge held by those interviewed and should not be interpreted as an absolute measure of Mi'kmaq ecological knowledge and land use.

N
S

Datum: UTM NAD83
Zone 20
Scale: 1:50,000

Version: 1
5 November 2014

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GEOMATICS SOLUTIONS

Appendix G
Plant and Wildlife Species of Conservation Interest Identified during Modelling Exercise as being Potentially Present in Proposed Extension Area

Appendix G, Table G1: Vascular Plant Species of Conservation Interest Recorded Within 20 km of the National Gypsum Proposed Extension Area

Scientific Name	Common Name	Habitat	Season	Likely to occur on site?	ACCDC Rank	NSDNR Rank New	COSEWIC	SARA	Prov Legal Protection	Distance Recorded From Site (km)	# Records by ACCDC
Rhamnus alnifolia	Alder-leaved Buckthorn	Calcareous bogs , swamps, swampy woods and meadows, marl bogs in rich aluvial soils.	Flowers mid -May to June. Identifiable from May to October and potentially year round.	Possible	S3	3 Sensitive	-	-	-	2	22
Goodyera pubescens	Downy Rattlesnake-Plantain	Woodland and thickets. Usually found in dry or moist coniferous or mixed woods, often in a sandy substrate with oak or white pine.	July and August	Possible	S2	2 May Be At Risk	-	-	-	3	9
Sisyrinchium angustifolium	Narrow-leaved Blue-eyed-grass	Fields, meadows, open woods and roadside.	Late May to June	Possible	S3S4	4 Secure	-	-	-	3	51
Spiranthes lucida	Shining Ladies'-Tresses	Alluvial soils and rocky shores. Thickets and meadows.	Flowers early July	Unlikely	S2	2 May Be At Risk	-	-	-	3	28
Scirpus pedicellatus	Stalked Bulrush	Lowland marshes in stream valleys, edges of bogs, boggy meadows, and wet sandy shorelines.	Mid or late July	Unlikely	S1	5 Undetermined	-	-	-	4	5
Proserpinaca intermedia	Intermediate Mermaidweed			Unlikely	S1	2 May Be At Risk	-	-	-	8	2
Dirca palustris	Eastern Leatherwood	Rich deciduous or mixed woods.	On or about May 20, appearing before the leaves	Possible	S1	2 May Be At Risk	-	-	-	10	47
Caulophyllum thalictroides	Blue Cohosh	Deciduous and intervale forest.	April to early June, can be identified when not in flower	Unlikely	S2	2 May Be At Risk	-	-	-	10	56
Lilium canadense	Canada Lily	Rich river or stream intervale meadows and forest.	Flowers in July but identifiable from May to October	Unlikely	S2S3	3 Sensitive	-	-	-	10	96
Equisetum variegatum	Variegated Horsetail	Streambanks, bogs, and wet thickets.	Not provided	Possible	S3	4 Secure	-	-	-	10	24
Cystopteris bulbifera	Bulblet Bladder Fern	Fertile or calcareous soils. May be locally abundant in dense beds, on moist grounds or on slopes in gypsum areas.	Spores from June to September	Unlikely	S3S4	4 Secure	-	-	-	11	51
Tiarella cordifolia	Heart-leaved Foamflower	Rich deciduous and mixed woodsa.	Flowers mid -May to mid-June. Identifiable year round	Possible	S2	3 Sensitive	-	-	-	11	218
Fraxinus nigra	Black Ash	Low ground, damp woods and swamps.	May and June. Can be identified without flowers.	Possible	S2S3	3 Sensitive	-	-	Threatened	11	103
Anemone quinquefolia	Wood Anemone	Wooded riverbanks and shaded intervales.	Late May to early June.	Unlikely	S2	3 Sensitive	-	-	-	11	14
Equisetum scirpoides	Dwarf Scouring-Rush	Rich wooded banks, and mossy slopes. Typical of alkaline soils, but inconspicuous among the surrounding vegetation.	Not provided	Possible	S3S4	4 Secure	-	-	-	11	54
Myriophyllum farwellii	Farwell's Water Milfoil	Ponds and slow-moving streams.	Flowers June to September	Possible	S2	3 Sensitive	-	-	-	12	9
Elymus hystrix var. bigeloviana	Spreading Wild Rye	Wooded bottomlands.	June to August	Unlikely	S1	2 May Be At Risk	-	-	-	12	10
Hepatica nobilis var. obtusa	Round-lobed Hepatica	Dry, usually mixed deciduous forest.	Early May	Unlikely	S1S2	2 May Be At Risk	-	-	-	12	45
Symphyotrichum ciliolatum	Fringed Blue Aster	Open fields, lawns and the edges of woods.	August and September	Possible	S2S3	3 Sensitive	-	-	-	13	10
Crataegus submollis	Quebec Hawthorn	Hedgerows, rarely in waste places.	June	Unlikely	S1?	5 Undetermined	-	-	-	14	6

Appendix G, Table G1: Vascular Plant Species of Conservation Interest Recorded Within 20 km of the National Gypsum Proposed Extension Area

Scientific Name	Common Name	Habitat	Season	Likely to occur on site?	ACCDC Rank	NSDNR Rank New	COSEWIC	SARA	Prov Legal Protection	Distance Recorded From Site (km)	# Records by ACCDC
Polygonum pensylvanicum	Pennsylvania Smartweed	Roadside ditches, dyked marshes, grain fields.	Flowers July to September	Possible	S3	4 Secure	-	-	-	14	28
Carex atlantica ssp. capillacea	Atlantic Sedge	Swamps, bogs, and peaty barrens.	Flowers May to early August	Unlikely	S2	5 Undetermined	-	-	-	15	9
Ranunculus gmelinii	Gmelin's Water Buttercup	Semi-aquatic, in bogs and cold streams.	July to September.	Possible	S3	4 Secure	-	-	-	15	23
Proserpinaca palustris var. crebra	Marsh Mermaidweed	Wet savannas, spagnous swales, and the sandy, gravelly, or muddy borders of lakes or ponds.	June to October	Unlikely	S3	4 Secure	-	-	-	15	20
Verbena hastata	Blue Vervain	Damp thickets, shores, roadsides.	Summer	Possible	S3	4 Secure	-	-	-	15	104
Cypripedium reginae	Showy Lady's-Slipper	Alkaline swamps and bogs.	Flowers June through August., Can be identified some weeks prior to bloom and at least to early October.	Possible	S2	2 May Be At Risk	-	-	-	16	14
Salix pellita	Satiny Willow	Streambanks and fertile thickets	May and June. Can be identified without flowers.	Possible	S2S3	5 Undetermined	-	-	-	17	8
Salix sericea	Silky Willow	Low thickets and stream banks.	Late March to early May	Possible	S2	2 May Be At Risk	-	-	-	17	1
Bartonia virginica	Yellow Bartonia	Lakeshores, sandy and peaty bogs, even dry barrens.		Unlikely	S3	4 Secure	-	-	-	17	24
Asclepias incarnata ssp. pulchra	Swamp Milkweed	Swamps, thickets and on shores.	Flowers in early August	Possible	S2S3	5 Undetermined	-	-	-	17	10
Agrimonia gryposepala	Hooked Agrimony	Thickets, the margins of rich woods, intervales, and slopes.	July andAugust	Possible	S3	4 Secure	-	-	-	17	85
Betula michauxii	Michaux's Dwarf Birch	Peat and sphagnous bogs.	June and July, can be identified when not in flower.	Unlikely	S2	3 Sensitive	-	-	-	17	16
Carex rosea	Rosy Sedge	Dry, deciduous woods and thickets.	Flowers May to early July	Unlikely	S3	4 Secure	-	-	-	18	32
Carex wiegandii	Wiegand's Sedge	Boggy and peaty soils, conifer and alder swamps.	Matures in summer	Unlikely	S1	2 May Be At Risk	-	-	-	18	2
Isoetes acadiensis	Acadian Quillwort	Water up to 1 m deep, bordering lakes or ponds, and occassionally along rivers.	Megaspores required for identification.	Unlikely	S3	3 Sensitive	-	-	-	18	7
Botrychium lanceolatum var. angustisegmentum	Lance-Leaf Grape-Fern	Rich, wooded hillsides.	July and August. Can be identified until early October if sporophore is present.	Possible	S2S3	3 Sensitive	-	-	-	19	8
Minuartia groenlandica	Greenland Stitchwort	Granitic ledges and gravel, on coasts at higher elevations.	June to August	Unlikely	S2	3 Sensitive	-	-	-	19	33
Vallisneria americana	Wild Celery	Quiet waters.	Flowers July to October	Possible	S2	2 May Be At Risk	-	-	-	19	5
Carex lupulina	Hop Sedge	Mucky meadows along intervales, swales, and wet, deciduous, or treed swamps.	Flowers in June	Possible	S3	4 Secure	-	-	-	19	31

Appendix G, Table G1: Vascular Plant Species of Conservation Interest Recorded Within 20 km of the National Gypsum Proposed Extension Area

Scientific Name	Common Name	Habitat	Season	Likely to occur on site?	ACCDC Rank	NSDNR Rank New	COSEWIC	SARA	Prov Legal Protection	Distance Recorded From Site (km)	# Records by ACCDC
Stellaria longifolia	Long-leaved Starwort	Damp or wet grassy places, in sandy or mucky soils.	May to June	Possible	S3	3 Sensitive	-	-	-	19	13
Carex cryptolepis	Hidden-scaled Sedge	Associated with calcareous soils in meadows and along shores.	Not provided	Possible	S3?	4 Secure	-	-	-	19	9
Lycopodiella appressa	Southern Bog Clubmoss	Beaches, boggy savannas and wet depressions.		Unlikely	S3S4	4 Secure	-	-	-	19	3
Utricularia gibba	Humped Bladderwort	Shallow lake margins, small pools and small ponds in quagmires or peaty situations.	Late June to September. Can be identified without flowers, but is very cryptic.	Unlikely	S3S4	4 Secure	-	-	-	19	3
Carex pensylvanica	Pennsylvania Sedge	Dry, rocky or gravelly soil, and dry, open woodlands.	Mid-May	Unlikely	S1S2	5 Undetermined	-	-	-	20	2
Hedeoma pulegioides	American False Pennyroyal	Stony till and upland pastures, throughout northern part of NS. Near seashores occasionally.	August	Possible	S2S3	3 Sensitive	-	-	-	20	17
Asclepias incarnata	Swamp Milkweed	Wet or rocky thickets, usually near a stream or lakeshore.	Flowers in early August	Possible	S3	4 Secure	-	-	-	20	39
Sanguinaria canadensis	Bloodroot	Low ground in rich intervales, or along streams, usually in shade. Often growing just above high-water level.	Flowers in early May	Unlikely	S3S4	4 Secure	-	-	-	20	78
Listera australis	Southern Twayblade	Among the shaded sphagnum moss of bogs or damp woods.	June. Quickly senesces after flowering.	Unlikely	S2	2 May Be At Risk	-	-	-	20	96
Alopecurus aequalis	Short-awned Foxtail	Muddy margins of rivers and shallow ponds, and gravel margins where competitor species are few.	Summer	Possible	S2S3	3 Sensitive	-	-	-	20	20
Carex foenea	Fernald's Hay Sedge	Dry barrens and sandy areas.	Flowers May to August	Unlikely	S3?	4 Secure	-	-	-	20	16
Carex houghtoniana	Houghton's Sedge	Sandy soils and roadside banks.	Seeds (perigynia) required for identification. Can be identified from May through September.	Unlikely	S2?	3 Sensitive	-	-	-	20	4
Symphyotrichum boreale	Boreal Aster	Gravelly soil of lake beaches, along streams and the edges of bogs.	August and September	Unlikely	S2?	3 Sensitive	-	-	-	20	5
Pilea pumila	Dwarf Clearweed	Moist rich deciduous or mised woods along streams to often intermittant water courses, seepage slopes rich calcareous basin marsh/swaps with summer draw down.	Flowers July to October. Identifiable from June onward to October	Possible	S1	2 May Be At Risk	-	-	-	20	4
Epilobium strictum	Downy Willowherb	Wet meadows, boggy swales and marshes.	July to September	Unlikely	S3	3 Sensitive	-	-	-	20	6
Sparganium natans	Small Burreed	The shallow waters of pools, the edges of ponds, and alkaline sink holes.		Possible	S3	4 Secure	-	-	-	20	12

Appendix G, Table G2: Wildlife (Bird, Fish, Herpertile and Mammal) Species of Conservation Interest Recorded Within 20 km of the National Gypsum Proposed Extension Area*

Scientific Name	Common Name	Likely to occur on site?	ACCDC Rank	NSDNR Rank New	COSEWIC	SARA	NS ESA	Distance Recorded From Site (km)	# Records by ACCDC
Birds									
Contopus cooperi	Olive-sided Flycatcher	Unlikely	S3B	1 At Risk	Threatened	Threatened	Threatened	1	693
Dumetella carolinensis	Gray Catbird	Possible	S3B	2 May Be At Risk	-	-	-	1	422
Passerella iliaca	Fox Sparrow	Unlikely	S3S4B	4 Secure	-	-	-	4	83
Colinus virginianus	Northern Bobwhite	Unlikely			Endangered	Endangered	-	6	2
Passerina cyanea	Indigo Bunting	Possible	S1S2B	5 Undetermined	-	-	-	10	18
Anas acuta	Northern Pintail	Unlikely	S2B	2 May Be At Risk	-	-	-	10	21
Rallus limicola	Virginia Rail	Unlikely	S2B	5 Undetermined	-	-	-	10	31
Chaetura pelagica	Chimney Swift	Unlikely	S2S3B	1 At Risk	Threatened	Threatened	Endangered	10	180
Euphagus carolinus	Rusty Blackbird	Unlikely	S2S3B	2 May Be At Risk	Special Concern	Special Concern	Endangered	10	221
Icterus galbula	Baltimore Oriole	Possible	S2S3B	2 May Be At Risk	-	-	-	10	64
Molothrus ater	Brown-headed Cowbird	Possible	S2S3B	4 Secure	-	-	-	10	128
Poecile hudsonica	Boreal Chickadee	Possible	S3	3 Sensitive	-	-	-	10	519
Pinicola enucleator	Pine Grosbeak	Possible	S3?B,S5N	2 May Be At Risk	-	-	-	10	124
Anas discors	Blue-winged Teal	Unlikely	S3B	2 May Be At Risk	-	-	-	10	99
Chordeiles minor	Common Nighthawk	Possible	S3B	1 At Risk	Threatened	Threatened	Threatened	10	382
Hirundo rustica	Barn Swallow	Possible	S3B	1 At Risk	Threatened	-	Endangered	10	844
Petrochelidon pyrrhonota	Cliff Swallow	Unlikely	S3B	2 May Be At Risk	-	-	-	10	270
Podilymbus podiceps	Pied-billed Grebe	Unlikely	S3B	3 Sensitive	-	-	-	10	114
Riparia riparia	Bank Swallow	Unlikely	S3B	2 May Be At Risk	-	-	-	10	342
Wilsonia canadensis	Canada Warbler	Possible	S3B	1 At Risk	Threatened	Threatened	Endangered	10	651
Gavia immer	Common Loon	Unlikely	S3B,S4N	2 May Be At Risk	Not At Risk	-	-	10	672
Accipiter gentilis	Northern Goshawk	Possible	S3S4	4 Secure	Not At Risk	-	-	10	119
Perisoreus canadensis	Gray Jay	Possible	S3S4	3 Sensitive	-	-	-	10	455
Actitis macularius	Spotted Sandpiper	Unlikely	S3S4B	3 Sensitive	-	-	-	10	539
Botaurus lentiginosus	American Bittern	Unlikely	S3S4B	3 Sensitive	-	-	-	10	195
Charadrius vociferus	Killdeer	Possible	S3S4B	3 Sensitive	-	-	-	10	461
Contopus virens	Eastern Wood-Pewee	Possible	S3S4B	3 Sensitive	Special Concern	-	Vulnerable	10	586
Dendroica castanea	Bay-breasted Warbler	Possible	S3S4B	3 Sensitive	-	-	-	10	416
Dolichonyx oryzivorus	Bobolink	Possible	S3S4B	3 Sensitive	Threatened	-	Vulnerable	10	476
Empidonax flaviventris	Yellow-bellied Flycatcher	Possible	S3S4B	3 Sensitive	-	-	-	10	548
Gallinago delicata	Wilson's Snipe	Possible	S3S4B	3 Sensitive	-	-	-	10	399
Pheucticus ludovicianus	Rose-breasted Grosbeak	Possible	S3S4B	3 Sensitive	-	-	-	10	348
Tyrannus tyrannus	Eastern Kingbird	Possible	S3S4B	3 Sensitive	-	-	-	10	237
Vermivora peregrina	Tennessee Warbler	Possible	S3S4B	3 Sensitive	-	-	-	10	306
Wilsonia pusilla	Wilson's Warbler	Possible	S3S4B	3 Sensitive	-	-	-	10	73
Carduelis pinus	Pine Siskin	Possible	S3S4B,S5N	3 Sensitive	-	-	-	10	356
Eremophila alpestris	Horned Lark	Unlikely	S1S2B,S4N	4 Secure	-	-	-	11	6
Picoides arcticus	Black-backed Woodpecker	Unlikely	S3S4	3 Sensitive	-	-	-	12	162
Hylocichla mustelina	Wood Thrush	Possible	S1B	5 Undetermined	Threatened	-	-	12	33
Anas clypeata	Northern Shoveler	Unlikely	S2B	2 May Be At Risk	-	-	-	12	11
Empidonax traillii	Willow Flycatcher	Possible	S2B	3 Sensitive	-	-	-	12	24
Tringa semipalmata	Willet	Unlikely	S2S3B	2 May Be At Risk	-	-	-	12	504

Appendix G, Table G2: Wildlife (Bird, Fish, Herpertile and Mammal) Species of Conservation Interest Recorded Within 20 km of the National Gypsum Proposed Extension Area*

Scientific Name	Common Name	Likely to occur on site?	ACCDC Rank	NSDNR Rank New	COSEWIC	SARA	NS ESA	Distance Recorded From Site (km)	# Records by ACCDC
Coccyzus erythropthalmus	Black-billed Cuckoo	Possible	S3?B	2 May Be At Risk	-	-	-	12	77
Sterna hirundo	Common Tern	Unlikely	S3B	3 Sensitive	Not At Risk	-	-	12	260
Dendroica striata	Blackpoll Warbler	Unlikely	S3S4B	3 Sensitive	-	-	-	12	105
Pooecetes gramineus	Vesper Sparrow	Possible	S2S3B	2 May Be At Risk	-	-	-	14	44
Sayornis phoebe	Eastern Phoebe	Possible	S3S4B	3 Sensitive	-	-	-	14	166
Caprimulgus vociferus	Whip-Poor-Will	Possible	S1?B	1 At Risk	Threatened	Threatened	Threatened	16	12
Sialia sialis	Eastern Bluebird	Possible	S3B	3 Sensitive	Not At Risk	-	-	16	64
Dendroica tigrina	Cape May Warbler	Possible	S3?B	3 Sensitive	-	-	-	17	136
Aegolius funereus	Boreal Owl	Unlikely	S1B	5 Undetermined	Not At Risk	-	-	19	8
Myiarchus crinitus	Great Crested Flycatcher	Possible	S2B	2 May Be At Risk	-	-	-	20	26
Tringa melanoleuca	Greater Yellowlegs	Unlikely	S3B,S5M	3 Sensitive	-	-	-	20	491
Herpetiles									
Hemidactylium scutatum	Four-toed Salamander		S3	4 Secure	Not At Risk			18	27
Chelydra serpentina	Snapping Turtle		S5	4 Secure	Special Concern	Special Concern	Vulnerable	12	75
Fish									
Morone saxatilis pop. 2	Striped Bass- Bay of Fundy pop.		S1	2 May Be At Risk	Endangered	-	-	17	2
Acipenser oxyrinchus	Atlantic Sturgeon		S1?	2 May Be At Risk	Threatened	-	-	12	5
Salmo salar pop. 1	Atlantic Salmon - Inner Bay of Fundy pop.		S2	2 May Be At Risk	Endangered	-	-	12	32
Anguilla rostrata	American Eel		S5	4 Secure	Threatened	-	-	12	5
Mammals									
Puma concolor pop. 1	Cougar - Eastern pop.	Possible	SH	5 Undetermined	Data Deficient	-	-	1	77
Lasiurus cinereus	Hoary Bat	Unlikely	S1	2 May Be At Risk	-	-	-	24	2
Myotis lucifugus	Little Brown Myotis	Unlikely	S1	1 At Risk	Endangered	-	-	26	39
Myotis septentrionalis	Northern Long-eared Myotis	Unlikely	S1	1 At Risk	Endangered	-	-	26	5
Perimyotis subflavus	Eastern Pipistrelle	Unlikely	S1	1 At Risk	Endangered	-	-	26	7
Alces americanus	Moose	Possible	S1	1 At Risk		-	-	50	18

Appendix H
Fish Habitat Survey and Surface Water Monitoring Data

Photograph 1 – WC-1: Facing Upstream

Photograph 2 – WC-1: Facing Downstream

Photograph 3 – WC-1: Substrate

Photograph 4 - DC-2 : Facing Upstream

Photograph 5- DC-2: Facing Downstream

Photograph 6 - DC-3: Facing Upstream

Photograph 7 - DC-3: Facing Upstream

Photograph 8- DC-4: Facing Upstream

Photograph 9 - DC-4: Facing Downstream

Photograph 10 - DC-5: Facing Upstream

Photograph 11 - DC-5: Facing Downstream

Table 1. Stream Survey forms Project #: 121511228 - National Gypsum Date: August 27, 2014

Watercourse	Reach No	Stream Type	Channel Type	Avg Width (m)		Depth (m)				Substrate (%)									%	% Site		Slope		Comments
				Wet	Bank Channel	1/4 Wet	1/2 Wet	1/4 Wet	Avg. Depth Wet Width (cm)	Bedrock	Boulder	Lg. Cobble	Sm. Cobble	Lg. Pebble	Sm Pebble	Gravel	Sand	Fines/ Organics	Embeddedness	Riffle / Run	Pools	Left Bank (°/ Length)	Right Bank (°/ Length)	
WC-1	1	8	Main	3.19	3.62	0.3	0.33	0.3	0.31	-	-	15	-	-	-	5	10	70	40	100	0	7/30	7/30	Out of Project Bounds
WC-1	2	BD	Main	6.6	7.62	0.43	0.43	0.38	0.413	-	-	-	-	-	-	-	-	100	-	100	0	5/30	5/30	Out of Project Bounds
WC-1	3	24	Main	1.75	1.86	0.228	0.33	0.33	0.296	-	-	-	-	-	-	-	-	100	-	100	0	5/30	5/30	Out of Project Bounds
WC-1	4	24	Main	3.24	3.5	0.27	0.39	0.32	0.327	-	-	-	-	-	-	-	-	100	-	100	0	3/30	3/30	Out of Project Bounds
WC-1	5	24	Main	1.34	1.19	0.28	0.23	0.25	0.253	-	-	-	-	-	-	-	-	100	-	100	0	3/30	3/30	
WC-1	6	8	Main	1.98	2.38	0.26	0.49	0.27	0.34	-	-	-	-	-	15	-	5	80	60	100	0	5/30	5/30	
WC-1	7	BD	Main	4.2	4.85	0.39	0.4	0.3	0.363	-	-	-	-	-	-	-	-	100	-	100	0	3/30	3/30	
WC-1	8	8	Main	1.52	3.26	0.09	0.14	0.11	0.113	-	-	10	-	-	-	10	-	80	40	100	0	5/30	5/30	
WC-1	9	BD	Main	3.64	3.89	0.48	0.5	0.36	0.447	-	-	-	-	-	-	-	-	100	-	100	0	3/30	3/30	

Stream Type:				Pools:	
1	Fall	10	Midchannel	18	Eddy
2	Cascade	11	Convergence	19	Gabion
3	Riffle GR/Rb)	12	Lateral	20	Log Structures
4	Riffle (R/B)	13	Beaver	21	Road Crossing
5	Riffle (Sand)	14	Trench	22	Wood Debris
6	Sheet (Ledge)	15	Plunge	23	Man-made Dam
7	Chute	17	Bogan	24	Natural Deadwater
8	Run				
9	Rapid				

Substrate	
Bedrock	
Boulder	>250mm
Rock	100-250mm
Cobble	50-100mm
Rubble	25-50mm

Substrate	
Pebble	10-25mm
Gravel	5-10mm
Sand	2-5mm
Fines	1-2mm
Organic	

Embeddedness	
1	<20%
2	20-35%
3	35-50%
4	>50%

Table 1. Stream Survey forms Project #: 121511228 - National Gypsum Date: August 27, 2014

Watercourse	Reach No	Stream Banks																														
		Bank Erosion Left Bank 0-50%			Bank Erosion Right Bank 0-50%			% Undercut Bank		Vegetation %				% Overhanging Bank Vegetation		% Shade (Canopy + Riparian Veg.)	Riparian Vegetation Left Bank (0-30/30-100m)	Rip. Vegetation Right Bank (0-30/30-100m)	Large Woody Debris	Macrophytes	Algae	Pool rating Criteria		Pool Tail Embeddedness	Temperature (° C)	Specific Conductivity (uS/cm)	TDS (mg/L)	Salinity (ppm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	pH	Flow State (water quality sample)
		Stable	Bare Stable	Eroding	Stable	Bare Stable	Eroding	L	R	Bare Ground	Grasses	Shrubs	Trees	L	R							No.	Letter									
WC-1	1	40	10	-	40	10	-	0	0		80	20	-	10	10	10	7/7	7/7	P	S/E/F	S	-	-	-	-	-	-	-	-	-	-	
WC-1	2	40	10	-	40	10	-	0	0	5	70	25	-	5	5	5	7/7	3/3	A	S/E/F	S	-	-	-	18.87	472	-	0.23	92.9	8.63	6.74	Flat
WC-1	3	50	-	-	50	-	-	0	0	0	90	10	-	10	10	10	7/7	7/7	A	S/E/F	S	-	-	-	-	-	-	-	-	-	-	
WC-1	4	50	-	-	50	-	-	0	0	-	100	-	-	20	20	40	7/7	7/7	P	S/E/F	S	-	-	-	-	-	-	-	-	-	-	
WC-1	5	50	-	-	50	-	-	10	10	-	100	-	-	30	30	60	7/7	7/7	P	S/E/F	S	-	-	-	-	-	-	-	-	-	-	
WC-1	6	50	-	-	50	-	-	10	10	-	80	20	-	20	20	50	7/7	7/7	P	S/E/F	S	-	-	-	-	-	-	-	-	-	-	
WC-1	7	50	-	-	50	-	-	0	0	-	20	40	40	10	10	50	7/7	7/7	P	E	S	-	-	-	-	-	-	-	-	-	-	
WC-1	8	50	-	-	50	-	-	0	0	-	20	40	40	10	10	50	3/3	3/3	P	E	S	-	-	-	-	-	-	-	-	-	-	
WC-1	9	50	-	-	50	-	-	0	0	-	40	40	20	10	10	10	7/7	7/7	P	S/E/F	S/FL	-	-	-	-	-	-	-	-	-	-	

Stream Type:		
1	Riparian Vegetation	
2	1	Mainly Coniferous
3	2	Mainly Deciduous
4	3	Mixed
5	4	Farmland
6	5	Residential
7	6	Commercial
8	7	Wetland
9		

Macrophytes	Algae
S= Submergent	S= Slimes
E= Emergent	A= Attached
F= Floating	FI= Filamentous
RF=Rooted Floating	FL=Floating

Pool Rating		
Number		etter (% pools in Site
Pool Depth >1.5m		a- >30%
1 Instream Cover	>30%	b- 10-30%
2 Instream Cover	<30%	c- <10%
Pool Depth 0.5-1.5 m		
3 Instream Cover	>30%	a->50%
4 Instream Cover	<30%	b-<50%
* Denotes Pool Depth < 0.50 m		

Table 1. Stream Survey forms Project #: 121511228 - National Gypsum Date: Sept 12, 2014

Watercourse	Reach No	Stream Type	Channel Type	Avg Width (m)		Depth (m)					Substrate (%)									%	% Site		Slope		Comments
						1/4	1/2	1/4																	
				Wet	Bank Channel	Wet	Wet	Wet	Avg. Depth	Avg. Bankfull Depth	Bedrock	Boulder	Lg. Cobble	Sm. Cobble	Lg. Pebble	Sm Pebble	Gravel	Sand	Fines/ Organics	Embeddedness	Riffle / Run	Pools	Left Bank (°/ Length)	Right Bank (°/ Length)	
DC-2	1	Dry	Main	-	0.8	-	-	-	-	0.35	-	-	-	-	10	20	30	40	-	20	-	-	7/30	10/30	
DC-2a	1	Dry	Side	-	0.6	-	-	-	-	0.1	-	-	-	5	5	20	30	40	-	20	-	-	10/30	10/30	
DC-3	1	Ponded	Main	0.79	1.222	0.17	0.19	0.11	0.157	0.35	-	-	-	-	-	-	5	25	70	20	100	-	2/10	2/10	
DC-3	2	Dry	Main	-	1	-	-	-	-	0.25	-	-	-	-	5	5	10	25	55	20	-	-	1/20	1/20	
DC-4	1	Dry	Main	-	0.7	-	-	-	-	0.15	-	-	-	-	-	-	-	40	60	-	-	-	5/30	5/30	
DC-5	1	Dry	Main	-	0.8	-	-	-	-	0.45	-	-	10	10	-	5	-	-	75	40	-	-	5/30	5/30	
DC-5	2	Dry	Main	-	1.2	-	-	-	-	0.4	-	-	10	40	40	5	5	-	-	10	-	-	10/30	10/30	

Stream Type:				Pools:	
1	Fall	10	Midchannel	18	Eddy
2	Cascade	11	Convergence	19	Gabion
3	Riffle GR/Rb)	12	Lateral	20	Log Structures
4	Riffle (R/B)	13	Beaver	21	Road Crossing
5	Riffle (Sand)	14	Trench	22	Wood Debris
6	Sheet (Ledge)	15	Plunge	23	Man-made Dam
7	Chute	17	Bogan	24	Natural Deadwater
8	Run				
9	Rapid				

Substrate	
Bedrock	
Boulder	>250mm
Rock	100-250mm
Cobble	50-100mm
Rubble	25-50mm

Substrate	
Pebble	10-25mm
Gravel	5-10mm
Sand	2-5mm
Fines	1-2mm
Organic	

Table 1. Stream Survey forms Project #: 121511228 - National Gypsum Date: Sept 12, 2014

Watercourse	Reach No	Stream Banks																														
		Bank Erosion Left Bank 0-50%			Bank Erosion Right Bank 0-50%			% Undercut Bank		Vegetation %				% Overhanging Bank Vegetation		% Shade (Canopy + Riparian Veg.)	Riparian Vegetation Left Bank (0-30/30-100m)	Rip. Vegetation Right Bank (0-30/30-100m)	Large Woody Debris	Macrophytes	Algae	Pool rating Criteria		Pool Tail Embeddedness	Temperature (° C)	Specific Conductivity (uS/cm)	TDS (mg/L)	Salinity (ppm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	pH	Flow State (water quality sample)
		Stable	Bare Stable	Eroding	Stable	Bare Stable	Eroding	L	R	Bare Ground	Grasses	Shrubs	Trees	L	R							No.	Letter									
DC-2	1	20	10	20	20	10	20	0	0	30	20	40	10	0	0	60	3/3	3/3	A	A	A	-	-	-	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
DC-2a	1	10	20	20	10	20	20	0	0	30	20	40	10	0	0	60	3/3	3/3	A	A	A	-	-	-	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
DC-3	1	45	5	-	45	5	-	5	5	30	30	35	35	10	10	20	3/3	3/3	P	A	S	-	-	-	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
DC-3	2	40	5	5	40	5	5	10	15	5	25	30	40	5	5	30	3/3	3/3	A	A	A	-	-	-	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
DC-4	1	50	-	-	50	-	-	0	0	-	10	80	10	0	0	30	3/3	3/3	P	A	A	-	-	-	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
DC-5	1	50	-	-	50	-	-	0	0	10	20	25	45	10	10	10	3/3	3/3	P	A	A	-	-	-	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
DC-5	2	40	10	-	40	10	-	0	0	1-	20	20	50	0	0	40	1/1	1/1	P	A	A				Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry

1	Riparian Vegetation	
2	1	Mainly Coniferous
3	2	Mainly Deciduous
4	3	Mixed
5	4	Farmland
6	5	Residential
7	6	Commercial
8	7	Wetland
9		

Macrophytes	Algae
S= Submergent	S= Slimes
E= Emergent	A= Attached
F= Floating	Fl= Filamentous
RF=Rooted Floating	FL=Floating

	Pool Rating		
	Number		etter (% pools in Site
	Pool Depth >1.5m		a- >30%
1	Instream Cover	>30%	b- 10-30%
2	Instream Cover	<30%	c- <10%
	Pool Depth 0.5-1.5 m		
3	Instream Cover	>30%	a->50%
4	Instream Cover	<30%	b-<50%
	* Denotes Pool Depth < 0.50 m		

Figure 1. Location of monitoring wells (NG-1, NG-2, NG-3 and NG-4).

2014 NGC Monthly Surface Water Quality Monitoring Results

NG-1	AMMONIA (mg/L as N)	OIL AND GREASE (mg/L)	pH	TSS (mg/L)
21-Jan-14	0.24	<0.50	7.59	7.1
11-Feb-14	0.062	<0.50	7.62	2.9
25-Mar-14	0.11	<0.50	7.56	3.3
21-Apr-14	<0.050	<0.50	7.65	4.6
27-May-14	0.11	<0.50	7.63	3.5
25-Jun-14	0.13	<0.50	7.87	43
31-Jul-14	0.08	<0.50	7.93	97
28-Aug-14	0.24	<0.50	7.88	< 1.0
2-Sep-14	-	-	-	3.4
12-Sep-14	-	-	-	1.4
19-Sep-14	0.17	<0.50	8.05	4.8
24-Sep-14	-	-	-	58
2-Oct-14	-	-	-	22
8-Oct-14	-	-	-	1.5
27-Oct-14	0.15	<0.50	8.13	1.2
25-Nov-14	0.1	<0.50	7.88	<1.0
16-Dec-14	0.77	<0.50	7.62	9.6
NG-2 (Big Brook)				
21-Apr-14	<0.050	<0.50	7.63	<1.0
27-Oct-14	0.26	<0.50	7.15	5.4
NG-3 (McLellan Brook)				
21-Apr-14	0.12	<0.50	7.76	1.6
27-Oct-14	0.18	<0.50	7.77	3.6
NG-4				
21-Apr-14	0.058	2.7	7.33	11.0
27-Oct-14	0.7	<0.50	7.88	3.0

2013 NGC Monthly Surface Water Quality Monitoring Results

NG-1	AMMONIA (mg/L as N)	OIL AND GREASE (mg/L)	pH	TSS (mg/L)
16-Jan-13	1.2	<0.50	7.93	4.8
5-Feb-13	0.12	<0.50	7.89	3.4
7-Mar-13	0.097	0.9	7.82	13
16-Apr-13	<0.050	<0.50	7.79	35
22-May-13	0.32	<0.50	7.84	45
11-Jun-13	0.20	<0.50	7.8	8.9
24-Jun-13	-	-	-	3.6
9-Jul-13	0.06	<0.50	8.07	<2.0
26-Aug-13	0.21	<0.50	7.99	<5.0
26-Sep-13	0.10	<0.50	8.01	<2.0
10-Oct-13	<0.050	<0.50	8.01	<2.0
22-Nov-13	0.23	<0.50	7.83	2.8
19-Dec-13	0.067	<050	7.59	2.7
NG-2 (Big Brook)				
16-Apr-13	<0.050	<0.50	7.45	3.0
10-Oct-13	<0.050	<0.50	7.3	<2.0
NG-3 (McLellan Brook)				
16-Apr-13	0.058	<0.50	7.92	1.8
10-Oct-13	0.10	<0.50	7.77	2.6
NG-4				
16-Apr-13	<0.050	<0.50	7.83	2.0
10-Oct-13	<0.050	<0.50	7.63	<2.0

2012 NGC Monthly Surface Water Quality Monitoring Results

NG-1	AMMONIA (mg/L as N)	OIL AND GREASE (mg/L)	pH	TSS (mg/L)
26-Jan-12	0.11	<1	7.99	<2
3-Feb-12	-	-	-	11
10-Feb-12	-	-	-	3.4
17-Feb-12	0.13	<0.5	7.69	11
3-Mar-12	<0.05	0.6	7.73	<2
26-Apr-12	0.23	<0.5	7.88	3.5
29-May-12	0.086	<0.5	7.93	2
25-Jun-12	1.9	<0.5	8.01	6.4
18-Jul-12	0.19	<0.5	7.93	<2
23-Aug-12	0.08	<1	7.96	2.6
25-Sep-12	0.18	<1	7.93	870
10-Oct-12	-	-	-	12
17-Oct-12	-	-	-	1.4
24-Oct-12	<0.05	<0.5	8.08	<1
31-Oct-12	-	-	-	8.2
7-Nov-12	-	-	-	3.2
13-Nov-12	-	-	-	8.6
23-Nov-12	<0.05	0.6	7.82	1.4
28-Nov-12	-	-	-	<1
4-Dec-12	-	-	-	<1
13-Dec-12	<0.05	<0.5	7.93	23
18-Dec-12	-	-	-	6
NG-2 (Big Brook)				
26-Apr-12	0.086	<0.5	7.40	12
24-Oct-12	<0.05	<0.50	7.62	1.6
NG-3 (McLellan Brook)				
26-Apr-12	0.17	<0.5	7.95	6.0
24-Oct-12	0.077	0.6	8.06	3.4
NG-4				
26-Apr-12	0.17	<0.5	7.89	<2.0
24-Oct-12	<0.05	<0.50	7.91	1.2

2011 NGC Monthly Surface Water Quality Monitoring Results

NG-1	AMMONIA (mg/L as N)	OIL AND GREASE (mg/L)	pH	TSS (mg/L)
20-Jan-11	0.13	<1	7.79	7
16-Feb-11	0.18	<1	7.69	4
2-Mar-11	<0.05	<1	7.50	16
26-Apr-11	<0.05	<1	7.84	5
17-May-11	0.08	<1	7.76	28
27-Jun-11	0.05	<1	7.78	9
27-Jul-11	0.16	<1	7.86	5
12-Aug-11	0.2	<1	7.97	17
30-Sep-11	<0.05	<1	7.93	3
28-Oct-11	0.09	<1	7.92	18
29-Nov-11	<0.05	<1	7.9	24
22-Dec-11	<0.05	<1	7.72	84
NG-2 (Big Brook)				
26-Apr-11	<0.05	<1	7.83	1
28-Oct-11	0.05	<1	7.12	3
NG-3 (McLellan Brook)				
26-Apr-11	0.11	<1	7.92	3
28-Oct-11	0.11	<1	7.79	9
NG-4				
26-Apr-11	<0.05	<1	7.56	18
28-Oct-11	0.06	<1	7.9	3

2010 NGC Monthly Surface Water Quality Monitoring Results

NG-1	AMMONIA (mg/L as N)	OIL AND GREASE (mg/L)	pH	TSS (mg/L)
11-Jan-10	0.17	<1	7.60	9
18-Feb-10	0.79	<1	7.49	4
30-Mar-10	<0.05	<1	7.77	13
13-Apr-10	0.05	<1	7.65	5
27-May-10	0.08	<1	7.94	<1
30-Jun-10	0.41	<1	7.69	4
15-Jul-10	0.08	1	7.51	34
23-Aug-10	0.12	<1	7.93	<1
16-Sep-10	0.21	<1	7,86	2
20-Oct-10	0.09	<1	8.06	1
16-Nov-10	<0.05	<1	7.81	6
17-Dec-10	0.09	<1	7.73	14
NG-2 (Big Brook)				
13-Apr-10	-	-	-	-
20-Oct-10	0.07	<1	7.51	3
NG-3 (McLellan Brook)				
13-Apr-10	0.12	<1	-	2
20-Oct-10	0.32	<1	7.80	2
NG-4				
13-Apr-10	<0.05	<1	-	2
20-Oct-10	0.08	<1	7.87	<1

2009 NGC Monthly Surface Water Quality Monitoring Results

NG-1	AMMONIA (mg/L as N)	OIL AND GREASE (mg/L)	pH	TSS (mg/L)
12-Jan-09	0.06	<1	7.69	3
27-Feb-09	<0.05	<1	7.79	54
10-Mar-09	-	-	-	22
18-Mar-09	0.13	<1	7.67	11
29-Apr-09	<0.05	<1	7.91	7
28-May-09	0.06	<1	7.87	<2
22-Jun-09	<0.05	<1	7.47	200
8-Jul-09	-	-	-	2
15-Jul-09	-	-	-	7
24-Jul-09	-	-	-	2
28-Jul-09	<0.05	<1	7.36	<2
7-Aug-09	-	-	-	2
13-Aug-09	-	-	-	6
19-Aug-09	-	-	-	<2
28-Aug-09	<0.05	<1	7.91	1
29-Sep-09	0.12	<1	7.53	<2
27-Oct-09	0.14	<1	7.71	7
24-Nov-09	<0.05	<1	7.67!	5
17-Dec-09	0.28	<1	7.78	33
NG-2 (Big Brook)				
29-Apr-08	<0.05	<1	7.33	20
27-Oct-08	No Flow			
NG-3 (McLellan Brook)				
29-Apr-08	0.18	<1	7.61	6
27-Oct-08	0.25	<1	7.7	3
NG-4				
29-Apr-08	<0.05	<1	7.66	8
27-Oct-08	0.07	<1	7.84	3

2008 NGC Monthly Surface Water Quality Monitoring Results

NG-1	AMMONIA (mg/L as N)	OIL AND GREASE (mg/L)	pH	TSS (mg/L)
16-Jan-08	0.08	<1	7.82	5
20-Feb-08	0.15	<1	7.83	1
25-Mar-08	0.15	<1	7.73	7
29-Apr-08	0.55	<1	7.90	10
20-May-08	0.19	<1	7.78	19
25-Jun-08	0.25	<1	8.00	3
21-Jul-08	<0.05	<1	7.45	77
15-Aug-08	--	--	7.96	4
20-Aug-08	<0.05	<1	7.95	3
19-Sep-08	0.08	<1	7.52	3
14-Oct-08	0.18	<1	7.67	<1
20-Nov-08	<0.05	<1	6.19	6
15-Dec-08	0.05	<1	7.13	29
NG-2 (Big Brook)				
29-Apr-08	0.11	<1	7.75	17
14-Oct-08	0.05	<1	7.67	24
NG-3 (McLellan Brook)				
29-Apr-08	0.29	<1	7.8	9
14-Oct-08	0.17	<1	7.37	2
NG-4				
29-Apr-08	0.3	<1	7.96	2
14-Oct-08	<0.05	<1	7.78	2

2007 NGC Monthly Surface Water Quality Monitoring Results

NG-1	AMMONIA (mg/L as N)	OIL AND GREASE (mg/L)	pH	TSS (mg/L)
31-Jan-07	<0.05	<5	7.7	5
22-Feb-07	0.05	<5	7.85	1
29-Mar-07	<0.05	<5	7.8	2
30-Apr-07	<0.05	<5	7.75	44
23-May-07	0.06	<5	7.78	12
28-Jun-07	<0.05	<5	7.85	3
31-Jul-07	<0.05	<5	7.91	<2
31-Aug-07	<0.05	<5	7.83	9
27-Sep-07	0.12	<5	7.82	7
30-Oct-07	0.06	<5	7.97	3
29-Nov-07	0.11	<5	8.73	25
21-Dec-07	<0.05	<1	7.02	<2
NG-2 (Big Brook)				
29-Mar-07	Could not access stream			
28-Jun-07	Could not access stream			
27-Sep-07	<0.05	<5	7.67	32
21-Dec-07	<0.05	<1	7.16	38
NG-3 (McLellan Brook)				
29-Mar-07	0.36	<5	7.81	8
28-Jun-07	<0.54	<5	7.85	4
27-Sep-07	0.12	<5	7.8	<2
21-Dec-07	0.23	<1	7.06	9
NG-4				
29-Mar-07	0.25	<5	7.68	9
28-Jun-07	<0.05	<5	7.57	2
27-Sep-07	<0.05	<5	7.7	<2
21-Dec-07	Low flow under cobble no sample taken			

Appendix I
Terrestrial Survey Data

Appendix I, Table I1: Total Habitat Areas Summary

Row Labels	Total Area	Area in Proposed Extension Area	Area in Ecological Protection Zone
WD7: Balsam fir - White ash / Cinnamon fern - New York fern / Sphagnum	3.5	2.3	2.8
WD6: Red maple - Balsam fir / Wood aster / Sphagnum	9.5	5.2	7.4
FM: Freshwater Marsh	1.7	0.0	1.7
TSS: Tall shrub dominated swamp	0.3	0.3	0.0
WD1: White ash / Sensitive fern - Christmas fern	2.0	2.0	0.0
WD5: Trembling aspen / Beaked hazelnut / Interupted fern / Sphagnum	3.5	0.7	3.5
MW4: Balsam fir - Red maple / Wood sorrel - Goldthread	7.2	4.2	3.5
MW3: Hemlock - Yellow birch / Evergreen wood fern	47.0	46.7	1.3
IH5: Trembling aspen - White ash / Beaked hazelnut / Christmas fern	29.4	28.4	0.4
MW2: Red spruce - Red maple - White birch / Goldthread	1.1	0.0	1.0
OK1: Tamarack / Speckled alder / Rough goldenrod / Shaggy moss	1.3	0.5	1.2
SH5: Red spruce - Balsam fir / Schreber's moss	0.7	0.1	0.0
SH4: Red spruce - White pine / lambkill / Bracken	0.0	0.0	0.0
SP4: White pine / Blueberry / Bracken	0.6	0.0	0.6
OF1: White spruce / Aster-Goldenrod / Shaggy moss	4.3	4.3	0.1
CC: Clear-cut	23.4	22.8	0.6
U: Urban	1.6	1.6	0.0
AL: Agricultural Land	14.0	11.2	1.1
DA: Disturbed Area	9.1	9.1	0.0
IH6: White birch - Red maple / Sarsaparilla - Bracken	4.7	4.7	0.0
WB: Waterbody	0.0	0.0	0.0
Grand Total	**164.9**	**143.9**	**25.1**

Appendix I, Table I2: Locations of Plant Species of Conservation Interest Encountered within the Proposed Extension Area during the 2013-2014 Field Surveys

Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Abies balsamea	Balsam Fir	S5	Secure	469199.8071	4985821.727
Abies balsamea	Balsam Fir	S5	Secure	468808.6586	4984547.581
Abies balsamea	Balsam Fir	S5	Secure	468668.3195	4984772.485
Abies balsamea	Balsam Fir	S5	Secure	468410.0175	4984935.025
Abies balsamea	Balsam Fir	S5	Secure	468295.5931	4985164.439
Abies balsamea	Balsam Fir	S5	Secure	468745.6388	4985114.635
Abies balsamea	Balsam Fir	S5	Secure	469143.1863	4985829.974
Abies balsamea	Balsam Fir	S5	Secure	469103.7865	4985801.096
Abies balsamea	Balsam Fir	S5	Secure	469142.53	4985694.262
Abies balsamea	Balsam Fir	S5	Secure	469173.3716	4985745.399
Abies balsamea	Balsam Fir	S5	Secure	468832.669	4985564.681
Abies balsamea	Balsam Fir	S5	Secure	468828.8765	4985567.847
Abies balsamea	Balsam Fir	S5	Secure	468849.3835	4985411.109
Abies balsamea	Balsam Fir	S5	Secure	468769.213	4985396.874
Acer pensylvanicum	Striped Maple	S5	Secure	468804.1193	4985127.366
Acer pensylvanicum	Striped Maple	S5	Secure	468645.8525	4984823.883
Acer pensylvanicum	Striped Maple	S5	Secure	468408.2294	4984945.217
Acer pensylvanicum	Striped Maple	S5	Secure	468742.3496	4985113.355
Acer rubrum	Red Maple	S5	Secure	469193.2668	4985821.796
Acer rubrum	Red Maple	S5	Secure	468805.0965	4984544.266
Acer rubrum	Red Maple	S5	Secure	468670.8519	4984780.064
Acer rubrum	Red Maple	S5	Secure	468413.2205	4984945.377
Acer rubrum	Red Maple	S5	Secure	468286.8336	4985172.258
Acer rubrum	Red Maple	S5	Secure	468743.6664	4985114.089
Acer rubrum	Red Maple	S5	Secure	468797.9007	4985114.009
Acer rubrum	Red Maple	S5	Secure	468799.1143	4985120.483
Acer rubrum	Red Maple	S5	Secure	469147.6335	4985826.434
Acer rubrum	Red Maple	S5	Secure	469102.0903	4985803.326
Acer rubrum	Red Maple	S5	Secure	469141.3438	4985693.342
Acer rubrum	Red Maple	S5	Secure	469183.6204	4985746.831
Acer rubrum	Red Maple	S5	Secure	468828.7479	4985568.403
Acer rubrum	Red Maple	S5	Secure	468848.7207	4985409.816
Acer rubrum	Red Maple	S5	Secure	468774.1684	4985416.661
Acer saccharum	Sugar Maple	S5	Secure	468875.5957	4985150.672
Acer saccharum	Sugar Maple	S5	Secure	468641.7306	4984813.534
Acer saccharum	Sugar Maple	S5	Secure	468460.3512	4985048.829
Acer saccharum	Sugar Maple	S5	Secure	468853.1228	4985397.02
Acer saccharum var. saccharum	Sugar Maple	S5	Secure	468291.6959	4985172.975
Acer spicatum	Mountain Maple	S5	Secure	468682.0207	4984781.305
Acer spicatum	Mountain Maple	S5	Secure	468410.5968	4984945.946
Agrimonia striata	Woodland Agrimony	S5	Secure	468763.6305	4984578.166
Agrostis gigantea	Redtop	SNA	Exotic	468580.8496	4984957.881
Agrostis perennans	Upland Bent Grass	S4S5	Secure	468874.7478	4985173.067
Agrostis perennans	Upland Bent Grass	S4S5	Secure	469131.8654	4985796.887
Agrostis perennans	Upland Bent Grass	S4S5	Secure	469100.9996	4985794.999
Agrostis perennans	Upland Bent Grass	S4S5	Secure	469107.0377	4985794.6
Agrostis perennans	Upland Bent Grass	S4S5	Secure	469145.8198	4985695.727
Agrostis perennans	Upland Bent Grass	S4S5	Secure	469177.4563	4985748.342
Agrostis perennans	Upland Bent Grass	S4S5	Secure	468778.9626	4985403.492
Agrostis hyemalis	Rough Bent Grass	S5	Secure	468680.7192	4984783.719
Agrostis hyemalis	Rough Bent Grass	S5	Secure	468446.2326	4985035.197
Agrostis hyemalis	Rough Bent Grass	S5	Secure	468680.9819	4984783.718
Agrostis hyemalis	Rough Bent Grass	S5	Secure	468466.28	4984893.273
Agrostis hyemalis	Rough Bent Grass	S5	Secure	468299.5343	4985164.789
Agrostis hyemalis	Rough Bent Grass	S5	Secure	468742.1142	4985118.911
Agrostis hyemalis	Rough Bent Grass	S5	Secure	468798.0773	4985123.266
Agrostis hyemalis	Rough Bent Grass	S5	Secure	468814.9418	4985134.662
Agrostis hyemalis	Rough Bent Grass	S5	Secure	468812.5673	4985132.452
Agrostis hyemalis	Rough Bent Grass	S5	Secure	468855.3723	4985400.526
Agrostis stolonifera	Creeping Bent Grass	S5	Secure	469005.035	4985798.983
Alnus incana	Speckled Alder	S5	Secure	469194.2323	4985821.031
Alnus incana	Speckled Alder	S5	Secure	468807.3481	4984548.143

Appendix I, Table I2: Locations of Plant Species of Conservation Interest Encountered within the Proposed Extension Area during the 2013-2014 Field Surveys

Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Alnus incana	Speckled Alder	S5	Secure	468669.37	4984772.48
Alnus incana	Speckled Alder	S5	Secure	468457.2957	4985068.285
Alnus incana	Speckled Alder	S5	Secure	468736.1054	4985125.42
Alnus incana	Speckled Alder	S5	Secure	469145.0138	4985827.743
Alnus incana	Speckled Alder	S5	Secure	469017.3981	4985803.181
Alnus incana	Speckled Alder	S5	Secure	469140.3059	4985695.939
Alnus incana	Speckled Alder	S5	Secure	469173.3528	4985741.511
Alnus incana	Speckled Alder	S5	Secure	468837.1108	4985560.03
Alnus viridis	Green Alder	S5	Secure	468760.9563	4985517.799
Alopecurus aequalis	Short-awned Foxtail	S2S3	Sensitive	469013.5546	4985812.896
Amelanchier sp.	a Serviceberry			469193.4931	4985821.692
Amelanchier sp.	a Serviceberry			468598.0842	4984830.783
Amelanchier sp.	a Serviceberry			469192.8666	4985649.397
Anaphalis margaritacea	Pearly Everlasting	S5	Secure	468995.0169	4985385.59
Antennaria neglecta var. neodioica	Howell's Pussytoes	S5	Secure	468420.2666	4984694.018
Antennaria neglecta var. neodioica	Howell's Pussytoes	S5	Secure	468562.766	4984565.821
Anthoxanthum odoratum	Large Sweet Vernal Grass	SNA	Exotic	469355.308	4985032.139
Anthoxanthum odoratum	Large Sweet Vernal Grass	SNA	Exotic	468451.3361	4985058.131
Aralia hispida	Bristly Sarsaparilla	S5	Secure	468798.5908	4985120.856
Aralia nudicaulis	Wild Sarsaparilla	S5	Secure	469339.7157	4985032.917
Aralia nudicaulis	Wild Sarsaparilla	S5	Secure	468643.5655	4984812.785
Aralia nudicaulis	Wild Sarsaparilla	S5	Secure	468428.2272	4984979.186
Aralia nudicaulis	Wild Sarsaparilla	S5	Secure	469136.7875	4985701.51
Arisaema triphyllum	Jack-in-the-pulpit	S4S5	Secure	469252.8196	4985551.588
Arisaema triphyllum	Jack-in-the-pulpit	S4S5	Secure	469132.8286	4985615.99
Athyrium filix-femina	Common Lady Fern	S5	Secure	468745.7692	4985114.449
Athyrium filix-femina	Common Lady Fern	S5	Secure	469120.3646	4985808.051
Athyrium filix-femina	Common Lady Fern	S5	Secure	469103.3567	4985793.692
Athyrium filix-femina	Common Lady Fern	S5	Secure	469161.3832	4985682.876
Athyrium filix-femina	Common Lady Fern	S5	Secure	468801.3519	4985605.012
Betula alleghaniensis	Yellow Birch	S5	Secure	468567.3453	4984955.739
Betula alleghaniensis	Yellow Birch	S5	Secure	468672.156	4984778.206
Betula alleghaniensis	Yellow Birch	S5	Secure	468406.4719	4984935.042
Betula alleghaniensis	Yellow Birch	S5	Secure	468299.1643	4985169.605
Betula alleghaniensis	Yellow Birch	S5	Secure	468287.7565	4985172.994
Betula alleghaniensis	Yellow Birch	S5	Secure	468749.5729	4985113.505
Betula alleghaniensis	Yellow Birch	S5	Secure	468848.4599	4985410.188
Betula alleghaniensis	Yellow Birch	S5	Secure	468774.5334	4985410.734
Betula papyrifera	Paper Birch	S5	Secure	468784.0741	4984569.179
Betula papyrifera	Paper Birch	S5	Secure	469175.7297	4985744.277
Betula papyrifera	Paper Birch	S5	Secure	468851.9998	4985409.06
Betula populifolia	Gray Birch	S5	Secure	468556.0907	4984508.433
Betula populifolia	Gray Birch	S5	Secure	468642.1692	4984822.605
Betula populifolia	Gray Birch	S5	Secure	468619.1757	4984846.972
Betula populifolia	Gray Birch	S5	Secure	468798.4532	4985119.561
Betula populifolia	Gray Birch	S5	Secure	469145.5279	4985716.835
Betula populifolia	Gray Birch	S5	Secure	469174.4032	4985741.506
Betula populifolia	Gray Birch	S5	Secure	468833.8508	4985564.675
Betula populifolia	Gray Birch	S5	Secure	468859.058	4985402.36
Bidens cernua	Nodding Beggarticks	S5	Secure	469017.7749	4985799.661
Brachyelytrum septentrionale	Northern Shorthusk	S5	Secure	468869.3832	4985150.134
Brachyelytrum septentrionale	Northern Shorthusk	S5	Secure	469086.0853	4985779.149
Brachyelytrum septentrionale	Northern Shorthusk	S5	Secure	469235.2591	4985699.739
Calamagrostis canadensis	Bluejoint Reed Grass	S5	Secure	469237.9977	4985707.644
Calamagrostis canadensis	Bluejoint Reed Grass	S5	Secure	468739.4788	4984688.078
Calamagrostis canadensis	Bluejoint Reed Grass	S5	Secure	469262.2617	4985635.546
Callitriche palustris	Marsh Water-starwort	S5	Secure	469192.8926	4985821.354
Cardamine pensylvanica	Pennsylvania Bittercress	S5	Secure	469177.596	4985814.209
Cardamine pratensis var. pratensis	Cuckoo Flower	SNA	Exotic	469143.2621	4985818.494
Cardamine pratensis var. pratensis	Cuckoo Flower	SNA	Exotic	468888.7939	4985225.952
Carduus crispus	Curled Plumeless Thistle	SNA	Exotic	468478.2174	4984890.622
Carex arctata	Drooping Woodland Sedge	S5	Secure	468556.3003	4984507.332
Carex arctata	Drooping Woodland Sedge	S5	Secure	468699.4153	4985088.015
Carex arctata	Drooping Woodland Sedge	S5	Secure	469075.7968	4985796.603
Carex arctata	Drooping Woodland Sedge	S5	Secure	469185.0172	4985709.794
Carex aurea	Golden Sedge	S4	Secure	468420.2666	4984694.018
Carex brunnescens	Brownish Sedge	S5	Secure	468739.4153	4985069.18
Carex brunnescens	Brownish Sedge	S5	Secure	468662.5976	4984783.993

Appendix I, Table I2: Locations of Plant Species of Conservation Interest Encountered within the Proposed Extension Area during the 2013-2014 Field Surveys

Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Carex brunnescens	Brownish Sedge	S5	Secure	468809.2699	4985129.506
Carex canescens	Silvery Sedge	S5	Secure	469202.3818	4985701.079
Carex communis	Fibrous-Root Sedge	S5	Secure	468509.3301	4984861.77
Carex communis	Fibrous-Root Sedge	S5	Secure	468297.6932	4985164.243
Carex communis	Fibrous-Root Sedge	S5	Secure	468801.7759	4985127.691
Carex communis	Fibrous-Root Sedge	S5	Secure	468865.7313	4985397.514
Carex crinita	Fringed Sedge	S5	Secure	469187.6166	4985831.095
Carex gynandra	Nodding Sedge	S5	Secure	469098.2629	4985799.271
Carex gynandra	Nodding Sedge	S5	Secure	469138.8714	4985697.982
Carex gynandra	Nodding Sedge	S5	Secure	469175.6975	4985737.612
Carex gynandra	Nodding Sedge	S5	Secure	468674.1622	4984785.602
Carex gynandra	Nodding Sedge	S5	Secure	468794.3647	4984551.909
Carex debilis	White-edged Sedge	S5	Secure	468504.3572	4984865.312
Carex debilis	White-edged Sedge	S5	Secure	469197.8787	4985817.078
Carex debilis	White-edged Sedge	S5	Secure	469253.4907	4985695.577
Carex disperma	Two-seeded Sedge	S5	Secure	468452.4003	4985007.765
Carex echinata	Star Sedge	S5	Secure	469253.7734	4985107.364
Carex echinata	Star Sedge	S5	Secure	468685.9903	4984787.396
Carex echinata	Star Sedge	S5	Secure	469141.7708	4985700.19
Carex echinata	Star Sedge	S5	Secure	469215.9619	4985646.323
Carex flava	Yellow Sedge	S5	Secure	469178.0299	4985815.34
Carex flava	Yellow Sedge	S5	Secure	468820.0273	4985584.183
Carex gracillima	Graceful Sedge	S4S5	Secure	469206.7807	4985714.254
Carex gracillima	Graceful Sedge	S4S5	Secure	468333.5771	4985197.577
Carex gracillima	Graceful Sedge	S4S5	Secure	468806.2506	4985129.706
Carex gracillima	Graceful Sedge	S4S5	Secure	469086.2247	4985780.814
Carex gracillima	Graceful Sedge	S4S5	Secure	469176.471	4985734.645
Carex gynandra	Nodding Sedge	S5	Secure	469174.9925	4985811.247
Carex crinita	Fringed Sedge	S5	Secure	469124.2315	4985820.253
Carex crinita	Fringed Sedge	S5	Secure	468285.7868	4985173.004
Carex crinita	Fringed Sedge	S5	Secure	468750.4658	4985108.131
Carex intumescens	Bladder Sedge	S5	Secure	469176.1649	4985808.827
Carex intumescens	Bladder Sedge	S5	Secure	468782.346	4984564.929
Carex intumescens	Bladder Sedge	S5	Secure	468667.3975	4984771.935
Carex intumescens	Bladder Sedge	S5	Secure	468419.7275	4984959.972
Carex intumescens	Bladder Sedge	S5	Secure	468295.5977	4985165.364
Carex intumescens	Bladder Sedge	S5	Secure	468754.9432	4985110.701
Carex intumescens	Bladder Sedge	S5	Secure	469145.7998	4985827.369
Carex intumescens	Bladder Sedge	S5	Secure	469099.6919	4985796.117
Carex intumescens	Bladder Sedge	S5	Secure	469152.3184	4985736.243
Carex intumescens	Bladder Sedge	S5	Secure	469172.1872	4985744.849
Carex intumescens	Bladder Sedge	S5	Secure	468848.2262	4985604.412
Carex intumescens	Bladder Sedge	S5	Secure	468849.2423	4985409.073
Carex leptalea	Bristly-stalked Sedge	S5	Secure	469213.075	4985716.288
Carex leptonervia	Finely-Nerved Sedge	S5	Secure	468773.2646	4985406.312
Carex leptonervia	Finely-Nerved Sedge	S5	Secure	468568.749	4985273.993
Carex lurida	Sallow Sedge	S5	Secure	468159.133	4985332.042
Carex lurida	Sallow Sedge	S5	Secure	468737.605	4985109.86
Carex lurida	Sallow Sedge	S5	Secure	468797.1174	4985114.938
Carex lurida	Sallow Sedge	S5	Secure	468795.476	4984564.309
Carex lurida	Sallow Sedge	S5	Secure	468615.6904	4984832.548
Carex lurida	Sallow Sedge	S5	Secure	469146.3142	4985825.145
Carex lurida	Sallow Sedge	S5	Secure	469100.6164	4985797.223
Carex lurida	Sallow Sedge	S5	Secure	469017.4062	4985804.847
Carex lurida	Sallow Sedge	S5	Secure	469142.6622	4985694.446
Carex lurida	Sallow Sedge	S5	Secure	469212.9473	4985647.449
Carex lurida	Sallow Sedge	S5	Secure	468815.4723	4985592.537
Carex lurida	Sallow Sedge	S5	Secure	468847.0826	4985397.049
Carex lurida	Sallow Sedge	S5	Secure	468776.7502	4985407.576
Carex nigra	Smooth Black Sedge	S5	Secure	468867.6897	4985609.965
Carex nigra	Smooth Black Sedge	S5	Secure	468867.6897	4985609.965
Carex novae-angliae	New England Sedge	S5	Secure	469251.58	4985545.768
Carex pallescens	Pale Sedge	S5	Secure	468460.1972	4985561.444
Carex leptalea	Bristly-stalked Sedge	S5	Secure	468650.8186	4984792.197
Carex leptalea	Bristly-stalked Sedge	S5	Secure	468430.0409	4984974.178
Carex leptalea	Bristly-stalked Sedge	S5	Secure	469141.5369	4985706.116
Carex leptalea	Bristly-stalked Sedge	S5	Secure	469176.5139	4985743.532
Carex leptalea	Bristly-stalked Sedge	S5	Secure	468846.9484	4985611.639

Appendix I, Table I2: Locations of Plant Species of Conservation Interest Encountered within the Proposed Extension Area during the 2013-2014 Field Surveys

Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Carex leptalea	Bristly-stalked Sedge	S5	Secure	468781.0961	4985410.147
Carex projecta	Necklace Sedge	S5	Secure	468781.7111	4984569.375
Carex projecta	Necklace Sedge	S5	Secure	468669.7027	4984786.735
Carex projecta	Necklace Sedge	S5	Secure	468749.6997	4985112.578
Carex projecta	Necklace Sedge	S5	Secure	469055.4253	4985792.628
Carex retrorsa	Retrorse Sedge	S4	Secure	468485.5649	4984889.289
Carex retrorsa	Retrorse Sedge	S4	Secure	468433.8383	4985025.075
Carex retrorsa	Retrorse Sedge	S4	Secure	468303.5014	4985170.324
Carex scoparia	Broom Sedge	S5	Secure	468812.1761	4985133.01
Carex scoparia	Broom Sedge	S5	Secure	468482.8328	4984894.487
Carex scoparia	Broom Sedge	S5	Secure	468298.0862	4985164.056
Carex scoparia	Broom Sedge	S5	Secure	469132.3816	4985795.033
Carex scoparia	Broom Sedge	S5	Secure	469018.6841	4985797.62
Carex scoparia	Broom Sedge	S5	Secure	469143.191	4985695.184
Carex scoparia	Broom Sedge	S5	Secure	469141.5261	4985703.894
Carex scoparia	Broom Sedge	S5	Secure	469167.5704	4985658.962
Carex scoparia	Broom Sedge	S5	Secure	468817.0226	4985587.346
Carex scoparia	Broom Sedge	S5	Secure	468849.9678	4985396.294
Carex sp.	a Sedge			469196.5477	4985822.153
Carex stipata	Awl-fruited Sedge	S5	Secure	469177.4057	4985814.543
Carex stipata	Awl-fruited Sedge	S5	Secure	468791.4474	4984573.031
Carex stipata	Awl-fruited Sedge	S5	Secure	468681.4926	4984780.753
Carex stipata	Awl-fruited Sedge	S5	Secure	468742.3741	4985118.354
Carex stipata	Awl-fruited Sedge	S5	Secure	468798.5673	4985116.042
Carex stipata	Awl-fruited Sedge	S5	Secure	468810.7162	4985129.869
Carex stipata	Awl-fruited Sedge	S5	Secure	469120.3287	4985800.645
Carex stipata	Awl-fruited Sedge	S5	Secure	469187.9849	4985617.39
Carex stipata	Awl-fruited Sedge	S5	Secure	468851.0833	4985409.62
Carex stricta	Tussock Sedge	S5	Secure	469172.8634	4985815.184
Carex stricta	Tussock Sedge	S5	Secure	469227.8401	4985658.856
Carex trisperma	Three-seeded Sedge	S5	Secure	468790.3416	4984561.742
Carex trisperma	Three-seeded Sedge	S5	Secure	468668.2018	4984775.263
Carex trisperma	Three-seeded Sedge	S5	Secure	468442.6471	4985000.592
Carex trisperma	Three-seeded Sedge	S5	Secure	469180.7564	4985697.595
Carex vesicaria	Inflated Sedge	S4S5	Secure	469191.3605	4985805.59
Carex vulpinoidea	Fox Sedge	S4?	Secure	469017.3882	4985801.144
Centaurea nigra	Black Knapweed	SNA	Exotic	469277.7656	4985032.306
Centaurea nigra	Black Knapweed	SNA	Exotic	468460.5791	4985041.792
Centaurea nigra	Black Knapweed	SNA	Exotic	468297.1744	4985165.542
Centaurea nigra	Black Knapweed	SNA	Exotic	469018.7421	4985593.214
Cerastium fontanum ssp. vulgare	Common Chickweed	SNA	Exotic	468867.6897	4985609.965
Epilobium angustifolium	Fireweed	S5	Secure	468791.6175	4985118.113
Chelone glabra	White Turtlehead	S5	Secure	469286.2178	4985221.084
Chelone glabra	White Turtlehead	S5	Secure	468743.3773	4985081.874
Chimaphila umbellata	Common Pipsissewa	S4	Secure	468806.3641	4985287.268
Chrysosplenium americanum	American Golden Saxifrage	S5	Secure	468438.4317	4985024.497
Cicuta bulbifera	Bulbous Water-hemlock	S5	Secure	469312.309	4985720.125
Cinna latifolia	Drooping Wood Reed Grass	S5	Secure	469238.1886	4985707.27
Cinna latifolia	Drooping Wood Reed Grass	S5	Secure	468381.0564	4985106.433
Circaea alpina	Small Enchanter's Nightshade	S5	Secure	468736.0217	4984679.393
Circaea alpina	Small Enchanter's Nightshade	S5	Secure	468641.0376	4984806.132
Circaea alpina	Small Enchanter's Nightshade	S5	Secure	468429.6653	4984977.883
Cirsium arvense	Canada Thistle	SNA	Exotic	469006.7303	4985796.567
Cirsium muticum	Swamp Thistle	S5	Secure	468772.9867	4985407.046
Cirsium muticum	Swamp Thistle	S5	Secure	469143.0183	4985822.383
Cirsium muticum	Swamp Thistle	S5	Secure	468864.9615	4985401.22
Cirsium muticum	Swamp Thistle	S5	Secure	468778.6221	4985414.418
Cirsium sp.	Thistle			469276.45	4985097.005
Cirsium sp.	Thistle			469013.9004	4985813.652
Clematis virginiana	Virginia Clematis	S5	Secure	469125.2666	4985817.1
Clematis virginiana	Virginia Clematis	S5	Secure	469063.3684	4985562.262
Clintonia borealis	Yellow Bluebead Lily	S5	Secure	469365.4182	4985032.691
Comptonia peregrina	Sweet-fern	S5	Secure	469015.2121	4985596.378
Conyza canadensis	Canada Horseweed	S5	Secure	468614.1749	4984924.945
Coptis trifolia	Goldthread	S5	Secure	469242.3301	4985710.497
Coptis trifolia	Goldthread	S5	Secure	468433.6506	4984987.12
Coptis trifolia	Goldthread	S5	Secure	469175.2349	4985750.574
Coptis trifolia	Goldthread	S5	Secure	468778.738	4985411.269

Appendix I, Table I2: Locations of Plant Species of Conservation Interest Encountered within the Proposed Extension Area during the 2013-2014 Field Surveys

Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Corallorhiza maculata	Spotted Coralroot	S4	Secure	468865.288	4985145.155
Corallorhiza maculata	Spotted Coralroot	S4	Secure	468879.3528	4985174.896
Corallorhiza maculata	Spotted Coralroot	S4	Secure	468870.0791	4985185.125
Cornus alternifolia	Alternate-leaved Dogwood	S5	Secure	468418.563	4984963.496
Cornus alternifolia	Alternate-leaved Dogwood	S5	Secure	468458.8674	4985040.875
Cornus alternifolia	Alternate-leaved Dogwood	S5	Secure	469218.8524	4985619.462
Cornus alternifolia	Alternate-leaved Dogwood	S5	Secure	468808.6733	4985598.495
Cornus canadensis	Bunchberry	S5	Secure	469199.8784	4985821.692
Cornus canadensis	Bunchberry	S5	Secure	468646.1224	4984825.362
Cornus canadensis	Bunchberry	S5	Secure	469078.6406	4985787.331
Cornus sericea	Red Osier Dogwood	S5	Secure	469252.7145	4985502.911
Cornus sericea	Red Osier Dogwood	S5	Secure	469125.5749	4985826.541
Cornus sericea	Red Osier Dogwood	S5	Secure	469150.9507	4985724.956
Cornus sericea	Red Osier Dogwood	S5	Secure	468811.7033	4985600.517
Corylus cornuta	Beaked Hazel	S5	Secure	469250.8128	4985526.724
Corylus cornuta	Beaked Hazel	S5	Secure	468668.0541	4984771.931
Corylus cornuta	Beaked Hazel	S5	Secure	469040.6704	4985566.075
Crataegus sp.	a Hawthorn			469174.5174	4985821.763
Cypripedium acaule	Pink Lady's-Slipper	S5	Secure	469350.1517	4985030.769
Cypripedium acaule	Pink Lady's-Slipper	S5	Secure	469267.0128	4985640.523
Dalibarda repens	Dewdrop	S5	Secure	469218.3281	4985716.93
Dalibarda repens	Dewdrop	S5	Secure	469022.5063	4985773.532
Dalibarda repens	Dewdrop	S5	Secure	469172.7204	4985746.513
Danthonia compressa	Flattened Oat Grass	S5	Secure	468457.0775	4984891.282
Danthonia compressa	Flattened Oat Grass	S5	Secure	468870.8371	4985394.341
Danthonia spicata	Poverty Oat Grass	S5	Secure	468644.2776	4984824.075
Danthonia spicata	Poverty Oat Grass	S5	Secure	469088.1368	4985768.955
Danthonia spicata	Poverty Oat Grass	S5	Secure	469168.6509	4985746.718
Daphne mezereum	Mezer's Daphne	SNA	Exotic	469060.9689	4985473.586
Daucus carota	Queen Anne's Lace	SNA	Exotic	468420.2666	4984694.018
Daucus carota	Queen Anne's Lace	SNA	Exotic	468471.0478	4984901.396
Dennstaedtia punctilobula	Eastern Hay-Scented Fern	S5	Secure	468459.9384	4985560.483
Dennstaedtia punctilobula	Eastern Hay-Scented Fern	S5	Secure	468582.9612	4985120.062
Dichanthelium villosissimum	White-Hair Witchgrass	SNA		468607.8657	4985110.682
Diervilla lonicera	Northern Bush Honeysuckle	S5	Secure	469198.07	4985822.032
Diervilla lonicera	Northern Bush Honeysuckle	S5	Secure	468451.6321	4985038.318
Diervilla lonicera	Northern Bush Honeysuckle	S5	Secure	469271.5079	4985701.415
Aster umbellatus	Hairy Flat-top White Aster	S5	Secure	469224.3568	4985716.142
Aster umbellatus	Hairy Flat-top White Aster	S5	Secure	468768.7314	4984573.882
Aster umbellatus	Hairy Flat-top White Aster	S5	Secure	468410.9422	4984936.131
Aster umbellatus	Hairy Flat-top White Aster	S5	Secure	468296.7905	4985167.58
Aster umbellatus	Hairy Flat-top White Aster	S5	Secure	469138.144	4985819.074
Aster umbellatus	Hairy Flat-top White Aster	S5	Secure	469106.5403	4985800.342
Aster umbellatus	Hairy Flat-top White Aster	S5	Secure	469135.7013	4985694.109
Aster umbellatus	Hairy Flat-top White Aster	S5	Secure	469176.3996	4985747.051
Aster umbellatus	Hairy Flat-top White Aster	S5	Secure	468836.601	4985563.18
Aster umbellatus	Hairy Flat-top White Aster	S5	Secure	468775.5612	4985406.101
Dryopteris carthusiana	Spinulose Wood Fern	S5	Secure	469243.4893	4985581.653
Dryopteris carthusiana	Spinulose Wood Fern	S5	Secure	468873.0313	4985134.38
Dryopteris carthusiana	Spinulose Wood Fern	S5	Secure	468778.0276	4984568.097
Dryopteris carthusiana	Spinulose Wood Fern	S5	Secure	468667.2571	4984770.084
Dryopteris carthusiana	Spinulose Wood Fern	S5	Secure	468411.0745	4984936.316
Dryopteris carthusiana	Spinulose Wood Fern	S5	Secure	469144.9869	4985822.189
Dryopteris carthusiana	Spinulose Wood Fern	S5	Secure	469098.9077	4985796.861
Dryopteris carthusiana	Spinulose Wood Fern	S5	Secure	468826.1254	4985569.156
Dryopteris carthusiana	Spinulose Wood Fern	S5	Secure	468789.509	4985599.885
Dryopteris cristata	Crested Wood Fern	S5	Secure	469220.0969	4985717.948
Dryopteris cristata	Crested Wood Fern	S5	Secure	468812.0532	4984543.491
Dryopteris cristata	Crested Wood Fern	S5	Secure	468409.7594	4984935.952
Dryopteris cristata	Crested Wood Fern	S5	Secure	468732.8252	4985125.992
Dryopteris cristata	Crested Wood Fern	S5	Secure	469120.1898	4985826.197
Dryopteris cristata	Crested Wood Fern	S5	Secure	469103.4916	4985794.432
Dryopteris cristata	Crested Wood Fern	S5	Secure	469136.4828	4985692.81
Dryopteris cristata	Crested Wood Fern	S5	Secure	469172.0809	4985750.034
Dryopteris cristata	Crested Wood Fern	S5	Secure	469168.2696	4985749.312
Dryopteris intermedia	Evergreen Wood Fern	S5	Secure	469253.754	4985544.477
Dryopteris intermedia	Evergreen Wood Fern	S5	Secure	468455.3479	4984913.323
Dryopteris intermedia	Evergreen Wood Fern	S5	Secure	468411.2085	4984936.87

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Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Dryopteris marginalis	Marginal Wood Fern	S5	Secure	468274.2175	4984546.029
Dryopteris x boottii	a Hybrid Wood-fern	SNA	Not Assessed	469248.0116	4985107.747
Echinochloa crus-galli	Large Barnyard Grass	SNA	Exotic	468723.7153	4984901.634
Eleocharis acicularis	Needle Spikerush	S5	Secure	468818.7509	4985134.829
Eleocharis acicularis	Needle Spikerush	S5	Secure	469131.0713	4985795.594
Eleocharis acicularis	Needle Spikerush	S5	Secure	469162.3092	4985657.136
Eleocharis ovata (turbicle broad as ache	Blunt Spikerush	S5	Secure	468816.5312	4985137.432
Eleocharis ovata (turbicle broad as ache	Blunt Spikerush	S5	Secure	469163.0989	4985657.502
Eleocharis sp.	a Spikerush			468992.2992	4985562.523
Epigaea repens	Trailing Arbutus	S5	Secure	469162.38	4985780.446
Epilobium ciliatum	Northern Willowherb	S5	Secure	469191.5036	4985808.277
Epilobium ciliatum	Northern Willowherb	S5	Secure	468731.6962	4984681.081
Epilobium ciliatum	Northern Willowherb	S5	Secure	468681.4945	4984781.123
Epilobium ciliatum	Northern Willowherb	S5	Secure	468415.6936	4984940.922
Epilobium ciliatum	Northern Willowherb	S5	Secure	469139.0515	4985816.663
Epilobium ciliatum	Northern Willowherb	S5	Secure	469018.8118	4985796.879
Epilobium ciliatum	Northern Willowherb	S5	Secure	469093.6102	4985570.633
Epilobium ciliatum	Northern Willowherb	S5	Secure	468839.8692	4985560.202
Epilobium ciliatum ssp. glandulosum	Northern Willowherb	S4S5	Secure	468801.3086	4985112.696
Epilobium ciliatum ssp. glandulosum	Northern Willowherb	S4S5	Secure	468641.3012	4984806.316
Epilobium ciliatum ssp. glandulosum	Northern Willowherb	S4S5	Secure	468748.1347	4985114.808
Epilobium ciliatum ssp. glandulosum	Northern Willowherb	S4S5	Secure	469136.9596	4985818.525
Epilobium ciliatum ssp. glandulosum	Northern Willowherb	S4S5	Secure	469137.8957	4985822.038
Epilobium ciliatum ssp. glandulosum	Northern Willowherb	S4S5	Secure	468854.6016	4985404.048
Epilobium palustre	Marsh Willowherb	S5	Secure	468736.2173	4984665.691
Epilobium palustre	Marsh Willowherb	S5	Secure	468668.065	4984774.153
Epilobium palustre	Marsh Willowherb	S5	Secure	468296.2533	4985165.176
Epilobium palustre	Marsh Willowherb	S5	Secure	468757.5614	4985109.022
Epilobium palustre	Marsh Willowherb	S5	Secure	468798.4323	4985115.302
Epilobium palustre	Marsh Willowherb	S5	Secure	468776.81	4985419.796
Epipactis helleborine	Helleborine	SNA	Exotic	468916.823	4985324.121
Epipactis helleborine	Helleborine	SNA	Exotic	468900.6862	4985241.076
Epipactis helleborine	Helleborine	SNA	Exotic	468864.5658	4985400.852
Equisetum arvense	Field Horsetail	S5	Secure	469173.6715	4985813.729
Equisetum arvense	Field Horsetail	S5	Secure	468443.6794	4985050.022
Equisetum arvense	Field Horsetail	S5	Secure	469149.21	4985826.612
Equisetum arvense	Field Horsetail	S5	Secure	469269.9135	4985697.535
Equisetum arvense	Field Horsetail	S5	Secure	468829.533	4985567.844
Equisetum arvense	Field Horsetail	S5	Secure	468811.8138	4985596.258
Equisetum sylvaticum	Woodland Horsetail	S5	Secure	469222.3921	4985719.551
Equisetum sylvaticum	Woodland Horsetail	S5	Secure	468806.6797	4984545.739
Equisetum sylvaticum	Woodland Horsetail	S5	Secure	468667.258	4984770.269
Equisetum sylvaticum	Woodland Horsetail	S5	Secure	469143.5712	4985828.12
Equisetum sylvaticum	Woodland Horsetail	S5	Secure	469101.5616	4985802.588
Equisetum sylvaticum	Woodland Horsetail	S5	Secure	469146.8517	4985719.051
Equisetum sylvaticum	Woodland Horsetail	S5	Secure	469175.0642	4985742.429
Equisetum sylvaticum	Woodland Horsetail	S5	Secure	468845.9669	4985598.869
Erechtites hieraciifolia	Eastern Burnweed	S5	Secure	468677.2901	4985101.824
Erechtites hieraciifolia	Eastern Burnweed	S5	Secure	468850.6379	4985399.068
Erigeron anuus	Annual Fleabane	S4S5	Secure	468420.2666	4984694.018
Eriophorum virginicum	Tawny Cottongrass	S5	Secure	468984.7639	4985410.45
Eupatorium maculatum	Spotted Joe-pye-weed	S5	Secure	469120.888	4985807.678
Eupatorium maculatum	Spotted Joe-pye-weed	S5	Secure	469273.2418	4985679.744
Eupatorium perfoliatum	Common Boneset	S5	Secure	468538.4319	4984984.381
Eupatorium perfoliatum	Common Boneset	S5	Secure	469165.3614	4985663.786
Eupatorium perfoliatum	Common Boneset	S5	Secure	468819.8244	4985596.404
Euphrasia officinalis	Stiff Eyebright	SNA	Exotic	468463.1183	4984891.252
Aster macrophyllus	Large-leaved Aster	S5	Secure	468572.8968	4984836.276
Aster macrophyllus	Large-leaved Aster	S5	Secure	469069.6514	4985558.158
Euthamia graminifolia	Grass-leaved Goldenrod	S5	Secure	469251.8808	4985265.714
Euthamia graminifolia	Grass-leaved Goldenrod	S5	Secure	468622.7396	4984850.658
Euthamia graminifolia	Grass-leaved Goldenrod	S5	Secure	468459.0307	4985047.354
Euthamia graminifolia	Grass-leaved Goldenrod	S5	Secure	468297.8594	4985171.278
Euthamia graminifolia	Grass-leaved Goldenrod	S5	Secure	468737.6095	4985110.786
Euthamia graminifolia	Grass-leaved Goldenrod	S5	Secure	468811.6481	4985132.457
Euthamia graminifolia	Grass-leaved Goldenrod	S5	Secure	469130.0218	4985795.785
Euthamia graminifolia	Grass-leaved Goldenrod	S5	Secure	469019.8784	4985800.207
Euthamia graminifolia	Grass-leaved Goldenrod	S5	Secure	469270.1289	4985687.721

Appendix I, Table I2: Locations of Plant Species of Conservation Interest Encountered within the Proposed Extension Area during the 2013-2014 Field Surveys

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Euthamia graminifolia	Grass-leaved Goldenrod	S5	Secure	468847.7943	4985408.34
Fagus grandifolia	American Beech	S5	Secure	468906.353	4985248.618
Fagus grandifolia	American Beech	S5	Secure	468458.4511	4984903.495
Fagus grandifolia	American Beech	S5	Secure	468754.1581	4985111.26
Fagus grandifolia	American Beech	S5	Secure	468868.0994	4985398.428
Festuca filiformis	Hair Fescue	SNA	Exotic	468326.2469	4985357.021
Festuca filiformis	Hair Fescue	SNA	Exotic	468451.0726	4985057.947
Fragaria vesca	Woodland Strawberry	S4	Secure	469215.2482	4985718.953
Fragaria virginiana	Wild Strawberry	S5	Secure	469044.3229	4985814.3
Fragaria virginiana	Wild Strawberry	S5	Secure	468776.0595	4984568.477
Fragaria virginiana	Wild Strawberry	S5	Secure	468666.7736	4984778.603
Fragaria virginiana	Wild Strawberry	S5	Secure	469106.0168	4985800.715
Fragaria virginiana	Wild Strawberry	S5	Secure	469146.8953	4985700.906
Fragaria virginiana	Wild Strawberry	S5	Secure	469176.1254	4985744.645
Fragaria virginiana	Wild Strawberry	S5	Secure	468831.4701	4985561.169
Fragaria virginiana	Wild Strawberry	S5	Secure	468865.3365	4985397.33
Fraxinus americana	White Ash	S5	Secure	469269.214	4985185.305
Fraxinus americana	White Ash	S5	Secure	468809.4068	4984539.431
Fraxinus americana	White Ash	S5	Secure	468666.346	4984771.755
Fraxinus americana	White Ash	S5	Secure	468682.2851	4984781.674
Fraxinus americana	White Ash	S5	Secure	468408.3296	4984938.921
Fraxinus americana	White Ash	S5	Secure	468427.005	4984971.045
Fraxinus americana	White Ash	S5	Secure	468298.7419	4985163.867
Fraxinus americana	White Ash	S5	Secure	468290.7795	4985173.535
Fraxinus americana	White Ash	S5	Secure	468752.1874	4985111.085
Fraxinus americana	White Ash	S5	Secure	469175.1892	4985741.132
Fraxinus americana	White Ash	S5	Secure	468805.7828	4985598.139
Fraxinus americana	White Ash	S5	Secure	468857.36	4985404.22
Fraxinus americana	White Ash	S5	Secure	468784.1199	4985410.873
Fraxinus americana	White Ash	S5	Secure	468784.3834	4985411.057
Fraxinus nigra	Black Ash	S2S3	Sensitive	469137.4754	4985707.987
Fraxinus nigra	Black Ash	S2S3	Sensitive	469146.5219	4985705.166
Galeopsis tetrahit	Common Hemp-nettle	SNA	Exotic	469138.3896	4985815.555
Galeopsis tetrahit	Common Hemp-nettle	SNA	Exotic	468791.9576	4985590.431
Galium asprellum	Rough Bedstraw	S5	Secure	469142.092	4985820.907
Galium asprellum	Rough Bedstraw	S5	Secure	469246.1418	4985583.916
Galium asprellum	Rough Bedstraw	S5	Secure	469180.7968	4985733.143
Galium asprellum	Rough Bedstraw	S5	Secure	469177.8849	4985728.344
Galium palustre	Common Marsh Bedstraw	S5	Secure	469021.2981	4985796.692
Galium palustre	Common Marsh Bedstraw	S5	Secure	469017.9125	4985800.957
Galium sp.	a Bedstraw			469198.7249	4985819.491
Galium tinctorium	Dyer's Bedstraw	S5	Secure	468679.6514	4984780.206
Galium tinctorium	Dyer's Bedstraw	S5	Secure	469145.4933	4985818.298
Galium tinctorium	Dyer's Bedstraw	S5	Secure	469054.2274	4985789.301
Galium tinctorium	Dyer's Bedstraw	S5	Secure	469010.1216	4985791.922
Galium tinctorium	Dyer's Bedstraw	S5	Secure	469139.3742	4985693.351
Galium tinctorium	Dyer's Bedstraw	S5	Secure	469183.5245	4985699.803
Galium tinctorium	Dyer's Bedstraw	S5	Secure	468833.9848	4985565.23
Galium trifidum	Three-petaled Bedstraw	S5	Secure	468769.1182	4984572.399
Galium trifidum	Three-petaled Bedstraw	S5	Secure	468409.4489	4984952.802
Galium trifidum	Three-petaled Bedstraw	S5	Secure	468299.2965	4985169.789
Gaultheria procumbens	Eastern Teaberry	S5	Secure	469199.9065	4985821.292
Gaultheria procumbens	Eastern Teaberry	S5	Secure	468640.5314	4984810.022
Geranium robertianum	Herb Robert	S4	Secure	469023.5037	4985820.921
Geum canadense	White Avens	S4S5	Secure	468738.715	4985068.381
Geum canadense	White Avens	S4S5	Secure	469141.1613	4985818.504
Geum canadense	White Avens	S4S5	Secure	469068.3099	4985796.083
Geum canadense	White Avens	S4S5	Secure	469146.3566	4985616.665
Geum canadense	White Avens	S4S5	Secure	468829.8953	4985561.362
Geum macrophyllum	Large-Leaved Avens	S5	Secure	468723.5143	4984699.821
Geum rivale	Water Avens	S5	Secure	469230.8478	4985031.8
Glyceria canadensis	Canada Manna Grass	S5	Secure	468453.7286	4985037.382
Glyceria canadensis	Canada Manna Grass	S5	Secure	469128.5846	4985797.273
Glyceria canadensis	Canada Manna Grass	S5	Secure	469247.4922	4985622.472
Glyceria striata	Fowl Manna Grass	S5	Secure	469178.5588	4985812.598
Glyceria striata	Fowl Manna Grass	S5	Secure	468810.0752	4984541.834
Glyceria striata	Fowl Manna Grass	S5	Secure	468675.4	4984770.229
Glyceria striata	Fowl Manna Grass	S5	Secure	468411.0745	4984936.316

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Glyceria striata	Fowl Manna Grass	S5	Secure	468299.5233	4985162.567
Glyceria striata	Fowl Manna Grass	S5	Secure	468795.3985	4985112.54
Glyceria striata	Fowl Manna Grass	S5	Secure	469143.5739	4985828.676
Glyceria striata	Fowl Manna Grass	S5	Secure	469101.4294	4985802.403
Glyceria striata	Fowl Manna Grass	S5	Secure	469003.1527	4985789.919
Glyceria striata	Fowl Manna Grass	S5	Secure	469143.4446	4985693.331
Glyceria striata	Fowl Manna Grass	S5	Secure	469168.8288	4985756.345
Glyceria striata	Fowl Manna Grass	S5	Secure	468839.103	4985564.649
Glyceria striata	Fowl Manna Grass	S5	Secure	468868.1166	4985401.945
Glyceria striata	Fowl Manna Grass	S5	Secure	468773.2329	4985386.486
Gnaphalium uliginosum	Marsh Cudweed	SNA	Exotic	468619.8134	4984923.251
Gymnocarpium dryopteris	Common Oak Fern	S5	Secure	469256.5356	4985101.332
Gymnocarpium dryopteris	Common Oak Fern	S5	Secure	468702.7412	4984748.617
Gymnocarpium dryopteris	Common Oak Fern	S5	Secure	468408.0926	4984944.107
Gymnocarpium dryopteris	Common Oak Fern	S5	Secure	468425.4539	4984976.052
Hamamelis virginiana	American Witch-Hazel	S5	Secure	468872.234	4985156.364
Hamamelis virginiana	American Witch-Hazel	S5	Secure	468632.2031	4985092.788
Hamamelis virginiana	American Witch-Hazel	S5	Secure	468853.5231	4985398.314
Hieracium caespitosum	Field Hawkweed	SNA	Exotic	468858.4069	4985403.474
Hieracium lachenalii	Common Hawkweed	SNA	Exotic	469175.8103	4985485.485
Hieracium pilosella	Mouse-ear Hawkweed	SNA	Exotic	468116.9151	4985475.647
Hieracium pilosella	Mouse-ear Hawkweed	SNA	Exotic	469011.3363	4985312.006
Hieracium piloselloides	Tall Hawkweed	SNA	Exotic	468461.5378	4984890.334
Hieracium scabrum	Rough Hawkweed	S5	Secure	469023.9953	4985566.341
Hieracium x floribundum	Smoothish Hawkweed	SNA	Exotic	468572.3672	4984479.208
Hydrocotyle americana	American Marsh Pennywort	S5	Secure	469102.145	4985814.62
Hypericum boreale	Northern St. John's-Wort	S5	Secure	468807.8146	4985127.291
Hypericum boreale	Northern St. John's-Wort	S5	Secure	469162.7058	4985657.689
Hypericum boreale	Northern St. John's-Wort	S5	Secure	468854.1833	4985399.051
Hypericum canadense	Canada St. John's-wort	S5	Secure	468463.6381	4984890.138
Hypericum canadense	Canada St. John's-wort	S5	Secure	468834.897	4985402.478
Hypericum canadense	Canada St. John's-wort	S5	Secure	468776.2331	4985409.245
Hypericum mutilum	Dwarf St. John's-wort	S4S5	Secure	468467.7373	4984895.858
Hypericum mutilum	Dwarf St. John's-wort	S4S5	Secure	468754.9378	4985109.59
Ilex verticillata	Common Winterberry	S5	Secure	469199.7719	4985712.539
Ilex verticillata	Common Winterberry	S5	Secure	468810.7219	4984539.795
Ilex verticillata	Common Winterberry	S5	Secure	468671.4712	4984772.47
Ilex verticillata	Common Winterberry	S5	Secure	468453.8499	4985035.345
Ilex verticillata	Common Winterberry	S5	Secure	469140.5079	4985710.565
Ilex verticillata	Common Winterberry	S5	Secure	469183.6855	4985733.129
Impatiens capensis	Spotted Jewelweed	S5	Secure	469191.936	4985824.99
Impatiens capensis	Spotted Jewelweed	S5	Secure	469012.0246	4985805.439
Impatiens capensis	Spotted Jewelweed	S5	Secure	469144.8878	4985828.855
Impatiens capensis	Spotted Jewelweed	S5	Secure	469104.5268	4985791.279
Impatiens capensis	Spotted Jewelweed	S5	Secure	469002.364	4985789.738
Impatiens capensis	Spotted Jewelweed	S5	Secure	469136.0916	4985693.367
Impatiens capensis	Spotted Jewelweed	S5	Secure	469183.9363	4985703.504
Iris versicolor	Harlequin Blue Flag	S5	Secure	469237.2824	4985709.62
Iris versicolor	Harlequin Blue Flag	S5	Secure	468447.6606	4985031.858
Iris versicolor	Harlequin Blue Flag	S5	Secure	469275.3543	4985682.141
Juncus brevicaudatus	Short-tailed Rush	S5	Secure	468779.4796	4985401.823
Juncus brevicaudatus	Short-tailed Rush	S5	Secure	468735.6947	4985068.396
Juncus brevicaudatus	Short-tailed Rush	S5	Secure	469192.876	4985824.321
Juncus brevicaudatus	Short-tailed Rush	S5	Secure	468468.0549	4984906.965
Juncus brevicaudatus	Short-tailed Rush	S5	Secure	469129.5091	4985798.379
Juncus brevicaudatus	Short-tailed Rush	S5	Secure	469023.848	4985806.482
Juncus brevicaudatus	Short-tailed Rush	S5	Secure	469159.1508	4985655.67
Juncus brevicaudatus	Short-tailed Rush	S5	Secure	468770.4165	4985401.312
Juncus bufonius	Toad Rush	S5	Secure	468856.4083	4985397.559
Juncus canadensis	Canada Rush	S5	Secure	468742.0587	4985080.77
Juncus canadensis	Canada Rush	S5	Secure	468810.3223	4985129.871
Juncus effusus	Soft Rush	S5	Secure	469249.6713	4985574.174
Juncus effusus	Soft Rush	S5	Secure	468787.3781	4984546.574
Juncus effusus	Soft Rush	S5	Secure	468686.5165	4984787.579
Juncus effusus	Soft Rush	S5	Secure	468461.8667	4985036.601
Juncus effusus	Soft Rush	S5	Secure	468296.38	4985164.249
Juncus effusus	Soft Rush	S5	Secure	468741.9638	4985115.023
Juncus effusus	Soft Rush	S5	Secure	468807.1435	4985124.332

Appendix I, Table I2: Locations of Plant Species of Conservation Interest Encountered within the Proposed Extension Area during the 2013-2014 Field Surveys

Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Juncus effusus	Soft Rush	S5	Secure	469094.6783	4985791.142
Juncus effusus	Soft Rush	S5	Secure	469010.6855	4985799.881
Juncus effusus	Soft Rush	S5	Secure	469249.736	4985624.868
Juncus effusus	Soft Rush	S5	Secure	468817.3006	4985590.492
Juncus effusus	Soft Rush	S5	Secure	468848.3267	4985409.818
Juncus tenuis	Path Rush	S5	Secure	468464.8209	4984890.318
Kalmia angustifolia	Sheep Laurel	S5	Secure	469200.3955	4985707.494
Kalmia angustifolia	Sheep Laurel	S5	Secure	468787.3872	4984548.426
Kalmia angustifolia	Sheep Laurel	S5	Secure	468668.0586	4984772.857
Kalmia angustifolia	Sheep Laurel	S5	Secure	469167.5799	4985742.465
Lactuca canadensis	Canada Lettuce	S5	Secure	468758.8936	4985112.904
Lactuca canadensis	Canada Lettuce	S5	Secure	469050.1561	4985789.136
Larix laricina	Tamarack	S5	Secure	469341.1827	4985510.104
Larix laricina	Tamarack	S5	Secure	468714.7447	4985507.853
Ledum groenlandicum	Common Labrador Tea	S5	Secure	469272.0214	4985073.968
Ledum groenlandicum	Common Labrador Tea	S5	Secure	469254.1936	4985705.202
Leersia oryzoides	Rice Cut Grass	S5	Secure	469018.7138	4985803.73
Lemna minor	Lesser Duckweed	SNA		469021.2981	4985796.692
Lemna turionifera	Turion Duckweed	S5	Secure	469022.544	4985808.34
Lemna turionifera	Turion Duckweed	S5	Secure	469017.9431	4985807.252
Leontodon autumnalis	Fall Dandelion	SNA	Exotic	468718.9144	4984899.742
Leontodon autumnalis	Fall Dandelion	SNA	Exotic	468456.4163	4984890.359
Leontodon autumnalis	Fall Dandelion	SNA	Exotic	468298.4847	4985164.98
Chrysanthemum leucanthemum	Oxeye Daisy	SNA	Exotic	468420.2666	4984694.018
Chrysanthemum leucanthemum	Oxeye Daisy	SNA	Exotic	468468.3186	4985040.087
Lindernia dubia	Yellow-seeded False Pimperel	S3S4	Secure	469310.26	4985725.288
Linnaea borealis	Twinflower	S5	Secure	469258.9139	4985567.29
Linnaea borealis	Twinflower	S5	Secure	468614.8012	4984838.662
Linnaea borealis	Twinflower	S5	Secure	468845.1664	4985596.281
Lobelia inflata	Indian Tobacco	S5	Secure	468456.1464	4984888.879
Lobelia inflata	Indian Tobacco	S5	Secure	468799.7582	4985117.888
Festuca pratensis	Meadow Fescue	SNA	Exotic	468633.3421	4984923.74
Lonicera canadensis	Canada Fly Honeysuckle	S5	Secure	469273.4091	4985152.444
Lonicera canadensis	Canada Fly Honeysuckle	S5	Secure	468699.0641	4984748.635
Lonicera canadensis	Canada Fly Honeysuckle	S5	Secure	468617.2854	4984836.428
Lonicera canadensis	Canada Fly Honeysuckle	S5	Secure	468431.9233	4984983.056
Lonicera villosa	Mountain Fly Honeysuckle	S4S5	Secure	469267.7641	4985091.351
Lonicera villosa	Mountain Fly Honeysuckle	S4S5	Secure	469147.2378	4985744.6
Lotus corniculatus	Garden Bird's-foot Trefoil	SNA	Exotic	468584.0606	4984943.238
Ludwigia palustris	Marsh Seedbox	S5	Secure	469021.4675	4985802.976
Luzula acuminata	Hairy Woodrush	S5	Secure	469175.8103	4985485.485
Luzula acuminata	Hairy Woodrush	S5	Secure	469057.8491	4985561.363
Luzula multiflora	Common Woodrush	S5	Secure	469254.8605	4985034.849
Luzula multiflora	Common Woodrush	S5	Secure	468982.1886	4985258.824
Lycopodium annotinum	Stiff Clubmoss	S5	Secure	469309.9445	4985667.593
Lycopodium annotinum	Stiff Clubmoss	S5	Secure	468587.291	4985119.301
Lycopodium dendroideum	Round-branched Tree-clubmoss	S5	Secure	468883.5656	4985501.301
Lycopodium hickeyi	Hickey's Tree-clubmoss	S4?	Secure	468314.6803	4985120.833
Lycopodium hickeyi	Hickey's Tree-clubmoss	S4?	Secure	469199.6584	4985822.064
Lycopodium hickeyi	Hickey's Tree-clubmoss	S4?	Secure	468773.357	4985411.851
Lycopodium obscurum	Flat-branched Tree-clubmoss	S4S5	Secure	468300.3524	4985144.419
Lycopodium obscurum	Flat-branched Tree-clubmoss	S4S5	Secure	468552.5858	4985298.327
Lycopus americanus	American Water Horehound	S5	Secure	469256.3402	4985283.945
Lycopus uniflorus	Northern Water Horehound	S5	Secure	468746.4267	4985114.631
Lycopus uniflorus	Northern Water Horehound	S5	Secure	469010.422	4985799.697
Lycopus uniflorus	Northern Water Horehound	S5	Secure	469175.8028	4985732.242
Lycopus uniflorus	Northern Water Horehound	S5	Secure	468790.113	4985589.144
Lysimachia ciliata	Fringed Yellow Loosestrife	S4	Secure	469246.6767	4985263.413
Lysimachia ciliata	Fringed Yellow Loosestrife	S4	Secure	469290.168	4985226.203
Lysimachia ciliata	Fringed Yellow Loosestrife	S4	Secure	469272.7848	4985154.728
Lysimachia ciliata	Fringed Yellow Loosestrife	S4	Secure	469196.784	4985820.579
Lysimachia ciliata	Fringed Yellow Loosestrife	S4	Secure	469276.7819	4985097.493
Lysimachia ciliata	Fringed Yellow Loosestrife	S4	Secure	469176.9945	4985819.484
Lysimachia ciliata	Fringed Yellow Loosestrife	S4	Secure	468766.4835	4984570.746
Lysimachia terrestris	Swamp Yellow Loosestrife	S5	Secure	469191.6811	4985825.392
Lysimachia terrestris	Swamp Yellow Loosestrife	S5	Secure	468741.8444	4984688.437
Lysimachia terrestris	Swamp Yellow Loosestrife	S5	Secure	469128.858	4985799.493
Lysimachia terrestris	Swamp Yellow Loosestrife	S5	Secure	469198.5262	4985679.364

Appendix I, Table I2: Locations of Plant Species of Conservation Interest Encountered within the Proposed Extension Area during the 2013-2014 Field Surveys

Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Maianthemum canadense	Wild Lily-of-The-Valley	S5	Secure	469199.7364	4985820.474
Maianthemum canadense	Wild Lily-of-The-Valley	S5	Secure	468644.348	4984811.67
Maianthemum canadense	Wild Lily-of-The-Valley	S5	Secure	468425.4447	4984974.2
Maianthemum canadense	Wild Lily-of-The-Valley	S5	Secure	468739.4561	4985112.443
Maianthemum canadense	Wild Lily-of-The-Valley	S5	Secure	469130.5918	4985805.039
Maianthemum canadense	Wild Lily-of-The-Valley	S5	Secure	469086.3452	4985778.592
Maianthemum canadense	Wild Lily-of-The-Valley	S5	Secure	469139.5503	4985702.608
Maianthemum canadense	Wild Lily-of-The-Valley	S5	Secure	469165.7088	4985762.84
Maianthemum canadense	Wild Lily-of-The-Valley	S5	Secure	468777.4358	4985413.498
Smilacina trifolia	Three-leaved False Soloman's Seal	S5	Secure	469208.8992	4985652.097
Pyrus malus	Common Apple	SNA	Exotic	468573.5594	4984476.856
Pyrus malus	Common Apple	SNA	Exotic	468721.4195	4984701.127
Pyrus malus	Common Apple	SNA	Exotic	468854.2584	4985575.87
Matricaria matricarioides	Pineapple Weed	SNA	Exotic	468420.2666	4984694.018
Matricaria matricarioides	Pineapple Weed	SNA	Exotic	468510.3808	4984994.888
Medeola virginiana	Indian Cucumber Root	S5	Secure	468580.7658	4985340.958
Medicago lupulina	Black Medick	SNA	Exotic	468141.5646	4985379.985
Melilotus albus	White Sweet-clover	SNA	Exotic	468463.0952	4985046.038
Mitchella repens	Partridgeberry	S5	Secure	469363.8019	4985039.725
Mitchella repens	Partridgeberry	S5	Secure	468661.8106	4984784.182
Mitchella repens	Partridgeberry	S5	Secure	468424.0451	4984983.28
Mitchella repens	Partridgeberry	S5	Secure	469129.2788	4985805.046
Mitchella repens	Partridgeberry	S5	Secure	469100.0446	4985787.598
Mitella nuda	Naked Bishop's-Cap	S5	Secure	469313.4814	4985038.574
Mitella nuda	Naked Bishop's-Cap	S5	Secure	468428.2079	4984975.298
Monotropa hypopithys	Pinesap	S4	Secure	469175.9458	4985485.609
Monotropa uniflora	Indian Pipe	S5	Secure	468513.6041	4985169.099
Myosotis laxa	Small Forget-Me-Not	S5	Secure	468904.5471	4985224.949
Myosotis laxa	Small Forget-Me-Not	S5	Secure	469192.9703	4985806.024
Myosotis laxa	Small Forget-Me-Not	S5	Secure	469139.7187	4985818.882
Myosotis laxa	Small Forget-Me-Not	S5	Secure	468869.9134	4985393.42
Nuphar variegata	Variegated Pond-lily	S5	Secure	469194.1656	4985823.135
Nuphar microphylla	Small Yellow Pond-lily	S4	Secure	469028.4499	4985807.756
Aster acuminatus	Whorled Wood Aster	S5	Secure	468166.9751	4984476.017
Aster acuminatus	Whorled Wood Aster	S5	Secure	468619.9609	4984846.413
Aster acuminatus	Whorled Wood Aster	S5	Secure	468769.2529	4985405.021
Odontites serotina	Red Bartsia	SNA	Exotic	468568.9343	4984964.975
Oenothera biennis	Common Evening Primrose	S5	Secure	468420.2666	4984694.018
Oenothera biennis	Common Evening Primrose	S5	Secure	468569.1905	4984963.678
Oenothera parviflora	Small-flowered Evening Primrose	S4?	Secure	468420.2666	4984694.018
Onoclea sensibilis	Sensitive Fern	S5	Secure	469177.2161	4985814.478
Onoclea sensibilis	Sensitive Fern	S5	Secure	468771.6098	4984571.646
Onoclea sensibilis	Sensitive Fern	S5	Secure	468676.3165	4984769.669
Onoclea sensibilis	Sensitive Fern	S5	Secure	468410.1598	4984937.246
Onoclea sensibilis	Sensitive Fern	S5	Secure	468289.6059	4985175.207
Onoclea sensibilis	Sensitive Fern	S5	Secure	468811.9044	4985131.159
Onoclea sensibilis	Sensitive Fern	S5	Secure	469144.3546	4985827.191
Onoclea sensibilis	Sensitive Fern	S5	Secure	469101.4392	4985804.44
Onoclea sensibilis	Sensitive Fern	S5	Secure	469014.495	4985800.233
Onoclea sensibilis	Sensitive Fern	S5	Secure	469142.6568	4985693.335
Onoclea sensibilis	Sensitive Fern	S5	Secure	469174.046	4985749.099
Onoclea sensibilis	Sensitive Fern	S5	Secure	468836.9877	4985561.697
Osmorhiza claytonii	Hairy Sweet Cicely	S4	Secure	469143.3002	4985717.772
Osmunda cinnamomea	Cinnamon Fern	S5	Secure	468788.9966	4984555.268
Osmunda cinnamomea	Cinnamon Fern	S5	Secure	468674.6084	4984769.492
Osmunda cinnamomea	Cinnamon Fern	S5	Secure	468668.3458	4984777.855
Osmunda cinnamomea	Cinnamon Fern	S5	Secure	469136.2731	4985703.734
Osmunda cinnamomea	Cinnamon Fern	S5	Secure	469217.718	4985656.498
Osmunda cinnamomea	Cinnamon Fern	S5	Secure	468774.7851	4985408.511
Osmunda claytoniana	Interrupted Fern	S5	Secure	469172.4543	4985813.666
Osmunda claytoniana	Interrupted Fern	S5	Secure	468668.9952	4984776.37
Osmunda claytoniana	Interrupted Fern	S5	Secure	468410.8329	4984940.575
Osmunda claytoniana	Interrupted Fern	S5	Secure	468741.9783	4985117.986
Osmunda claytoniana	Interrupted Fern	S5	Secure	469099.2971	4985795.933
Osmunda claytoniana	Interrupted Fern	S5	Secure	469180.5771	4985742.032
Osmunda claytoniana	Interrupted Fern	S5	Secure	468847.9636	4985604.414
Osmunda claytoniana	Interrupted Fern	S5	Secure	468772.1589	4985408.524
Osmunda claytoniana	Interrupted Fern	S5	Secure	468780.7013	4985409.964

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Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Osmunda regalis	Royal Fern	S5	Secure	469335.3505	4985538.517
Osmunda regalis	Royal Fern	S5	Secure	468738.3058	4984663.089
Ostrya virginiana	Ironwood	S5	Secure	468669.1512	4985102.42
Ostrya virginiana	Ironwood	S5	Secure	468855.7807	4985403.487
Oxalis acetosella	Common Wood Sorrel	S5	Secure	468851.7941	4985153.2
Oxalis acetosella	Common Wood Sorrel	S5	Secure	468484.001	4984891.704
Oxalis acetosella	Common Wood Sorrel	S5	Secure	468443.7572	4985012.621
Oxalis stricta	European Wood Sorrel	S5	Secure	468857.4922	4985404.404
Oxalis stricta	European Wood Sorrel	S5	Secure	469253.9563	4985550.887
Oxalis stricta	European Wood Sorrel	S5	Secure	468303.6693	4985151.253
Oxalis stricta	European Wood Sorrel	S5	Secure	468741.1677	4985113.361
Oxalis stricta	European Wood Sorrel	S5	Secure	469125.967	4985826.169
Oxalis stricta	European Wood Sorrel	S5	Secure	469000.8037	4985792.893
Oxalis stricta	European Wood Sorrel	S5	Secure	468809.0184	4985588.496
Oxalis stricta	European Wood Sorrel	S5	Secure	468858.3933	4985400.697
Oxalis stricta	European Wood Sorrel	S5	Secure	468777.0264	4985410.352
Senecio aureus	Golden Groundsel	S4	Secure	469193.0067	4985708.472
Senecio robbinsii	Schweinitz's Groundsel	S4	Secure	469251.5493	4985265.634
Senecio robbinsii	Schweinitz's Groundsel	S4	Secure	468771.252	4984579.054
Senecio robbinsii	Schweinitz's Groundsel	S4	Secure	469139.9738	4985708.716
Senecio robbinsii	Schweinitz's Groundsel	S4	Secure	469172.9804	4985745.957
Parthenocissus quinquefolia	Virginia Creeper	SNA	Exotic	469247.2033	4985263.578
Phalaris arundinacea	Reed Canary Grass	S5	Secure	469187.9377	4985828.13
Phalaris arundinacea	Reed Canary Grass	S5	Secure	468634.5267	4984924.29
Phalaris arundinacea	Reed Canary Grass	S5	Secure	469152.062	4985819.007
Phalaris arundinacea	Reed Canary Grass	S5	Secure	469101.29	4985800.738
Phalaris arundinacea	Reed Canary Grass	S5	Secure	469016.7083	4985796.334
Phalaris arundinacea	Reed Canary Grass	S5	Secure	469142.6864	4985699.445
Phalaris arundinacea	Reed Canary Grass	S5	Secure	469146.0797	4985613.704
Phegopteris connectilis	Northern Beech Fern	S5	Secure	469274.0867	4985090.887
Phegopteris connectilis	Northern Beech Fern	S5	Secure	468440.4166	4985054.111
Phegopteris connectilis	Northern Beech Fern	S5	Secure	468875.7145	4985398.205
Phleum pratense	Common Timothy	SNA	Exotic	468467.2871	4984911.042
Aronia arbutifolia	Red Chokeberry	S5	Secure	469177.3765	4985704.647
Picea glauca	White Spruce	S5	Secure	468867.6897	4985609.965
Picea glauca	White Spruce	S5	Secure	468752.8364	4984599.881
Picea glauca	White Spruce	S5	Secure	468674.7706	4984775.787
Picea glauca	White Spruce	S5	Secure	469086.7042	4985771.369
Picea glauca	White Spruce	S5	Secure	469173.6333	4985745.213
Picea glauca	White Spruce	S5	Secure	468836.4697	4985563.181
Picea mariana	Black Spruce	S5	Secure	469193.0465	4985821.476
Picea mariana	Black Spruce	S5	Secure	469168.676	4985751.902
Picea rubens	Red Spruce	S5	Secure	469193.3716	4985821.637
Picea rubens	Red Spruce	S5	Secure	468643.6777	4984808.896
Picea rubens	Red Spruce	S5	Secure	469178.746	4985743.522
Pinus strobus	Eastern White Pine	S5	Secure	469193.2467	4985822.114
Pinus strobus	Eastern White Pine	S5	Secure	468643.5618	4984812.044
Pinus strobus	Eastern White Pine	S5	Secure	469103.4603	4985787.952
Pinus strobus	Eastern White Pine	S5	Secure	469180.0689	4985745.552
Plantago major	Common Plantain	SNA	Exotic	468553.8389	4984513.27
Plantago major	Common Plantain	SNA	Exotic	468462.7335	4984893.105
Plantago major	Common Plantain	SNA	Exotic	469139.2043	4985821.106
Platanthera lacera	Ragged Fringed Orchid	S4S5	Secure	469215.4644	4985652.065
Platanthera sp.	an Orchid			469209.2504	4985693.532
Poa compressa	Canada Blue Grass	SNA	Exotic	468559.3474	4984966.927
Poa compressa	Canada Blue Grass	SNA	Exotic	468466.2855	4984894.384
Poa nemoralis	Wood Blue Grass	SNA	Exotic	468706.2972	4985501.304
Poa palustris	Fowl Blue Grass	S5	Secure	468812.6995	4985589.403
Poa pratensis	Kentucky Blue Grass	S5	Secure	469227.4982	4985029.18
Poa pratensis	Kentucky Blue Grass	S5	Secure	469014.6003	4985794.863
Poa trivialis	Rough Blue Grass	SNA	Exotic	469248.1116	4985543.287
Polygonum cilinode	Fringed Black Bindweed	S5	Secure	468895.4681	4984978.743
Polygonum hydropiper	Marshpepper Smartweed	SNA	Exotic	468790.6328	4985588.03
Polygonum punctatum	Dotted Smartweed	S5	Secure	469017.9314	4985804.845
Polygonum sagittatum	Arrow-leaved Smartweed	S5	Secure	469193.2285	4985824.351
Polygonum sagittatum	Arrow-leaved Smartweed	S5	Secure	468786.9017	4984556.575
Polygonum sagittatum	Arrow-leaved Smartweed	S5	Secure	468421.6625	4984952.927
Polygonum sagittatum	Arrow-leaved Smartweed	S5	Secure	468291.4351	4985173.346

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Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Polygonum sagittatum	Arrow-leaved Smartweed	S5	Secure	468747.1911	4985109.813
Polygonum sagittatum	Arrow-leaved Smartweed	S5	Secure	469136.5603	4985817.416
Polygonum sagittatum	Arrow-leaved Smartweed	S5	Secure	469050.9439	4985789.132
Polygonum sagittatum	Arrow-leaved Smartweed	S5	Secure	469008.0298	4985793.784
Polygonum sagittatum	Arrow-leaved Smartweed	S5	Secure	469141.7252	4985690.748
Polygonum sagittatum	Arrow-leaved Smartweed	S5	Secure	469269.3303	4985685.503
Polygonum sagittatum	Arrow-leaved Smartweed	S5	Secure	468812.9413	4985585.144
Polygonum sagittatum	Arrow-leaved Smartweed	S5	Secure	468856.574	4985404.594
Polygonum sagittatum	Arrow-leaved Smartweed	S5	Secure	468774.6474	4985407.216
Polystichum acrostichoides	Christmas Fern	S5	Secure	468870.9954	4985140.124
Polystichum acrostichoides	Christmas Fern	S5	Secure	468577.3371	4984831.255
Polystichum acrostichoides	Christmas Fern	S5	Secure	468453.8499	4985035.345
Polystichum acrostichoides	Christmas Fern	S5	Secure	468853.3972	4985399.425
Populus grandidentata	Large-toothed Aspen	S5	Secure	468906.1242	4985252.014
Populus grandidentata	Large-toothed Aspen	S5	Secure	468297.4407	4985166.281
Populus tremuloides	Trembling Aspen	S5	Secure	469210.8754	4985715.562
Populus tremuloides	Trembling Aspen	S5	Secure	468669.2605	4984776.924
Populus tremuloides	Trembling Aspen	S5	Secure	468460.144	4985033.462
Populus tremuloides	Trembling Aspen	S5	Secure	468798.5772	4985118.079
Populus tremuloides	Trembling Aspen	S5	Secure	469100.0921	4985797.411
Populus tremuloides	Trembling Aspen	S5	Secure	469025.9596	4985835.726
Populus tremuloides	Trembling Aspen	S5	Secure	468850.1642	4985597.923
Potamogeton epihydrus	Ribbon-leaved Pondweed	S5	Secure	469021.1213	4985812.791
Potamogeton natans	Floating-leaved Pondweed	S5	Secure	469021.2981	4985796.692
Potamogeton natans	Floating-leaved Pondweed	S5	Secure	469019.3721	4985804.097
Potamogeton natans	Floating-leaved Pondweed	S5	Secure	469268.6955	4985716.971
Potamogeton robbinsii	Robbins' Pondweed	S4	Secure	469022.1456	4985807.416
Potentilla norvegica	Rough Cinquefoil	S5	Secure	468593.7337	4985120.935
Potentilla norvegica	Rough Cinquefoil	S5	Secure	469269.051	4985138.433
Potentilla recta	Sulphur Cinquefoil	SNA	Exotic	468799.1967	4985110.485
Potentilla simplex	Old Field Cinquefoil	S5	Secure	469180.2854	4985815.003
Potentilla simplex	Old Field Cinquefoil	S5	Secure	468784.8575	4984568.249
Potentilla simplex	Old Field Cinquefoil	S5	Secure	468748.3693	4985109.067
Potentilla simplex	Old Field Cinquefoil	S5	Secure	468810.5858	4985130.055
Potentilla simplex	Old Field Cinquefoil	S5	Secure	469122.266	4985793.971
Potentilla simplex	Old Field Cinquefoil	S5	Secure	469108.1204	4985801.26
Potentilla simplex	Old Field Cinquefoil	S5	Secure	469139.9335	4985700.384
Potentilla simplex	Old Field Cinquefoil	S5	Secure	469173.9004	4985746.137
Potentilla simplex	Old Field Cinquefoil	S5	Secure	468831.2246	4985564.688
Potentilla simplex	Old Field Cinquefoil	S5	Secure	468774.5234	4985408.698
Prenanthes trifoliolata	Three-leaved Rattlesnakeroot	S5	Secure	469103.6615	4985802.392
Prenanthes trifoliolata	Three-leaved Rattlesnakeroot	S5	Secure	469215.1873	4985717.624
Prenanthes trifoliolata	Three-leaved Rattlesnakeroot	S5	Secure	468932.6025	4985242.402
Prenanthes trifoliolata	Three-leaved Rattlesnakeroot	S5	Secure	469139.3957	4985697.795
Prenanthes trifoliolata	Three-leaved Rattlesnakeroot	S5	Secure	469193.3999	4985678.278
Prunella vulgaris	Common Self-heal	S5	Secure	468556.0907	4984508.433
Prunella vulgaris	Common Self-heal	S5	Secure	468483.2149	4984892.078
Prunella vulgaris	Common Self-heal	S5	Secure	468411.6785	4984952.236
Prunella vulgaris	Common Self-heal	S5	Secure	469138.7978	4985818.516
Prunella vulgaris	Common Self-heal	S5	Secure	469105.2255	4985799.978
Prunella vulgaris	Common Self-heal	S5	Secure	469149.4939	4985722.371
Prunella vulgaris	Common Self-heal	S5	Secure	469178.7565	4985691.309
Prunella vulgaris	Common Self-heal	S5	Secure	468826.5139	4985568.044
Prunus pensylvanica	Pin Cherry	S5	Secure	468374.767	4985109.241
Prunus pensylvanica	Pin Cherry	S5	Secure	468856.5577	4985401.261
Prunus serotina	Black Cherry	S5	Secure	468642.9307	4984817.231
Prunus serotina	Black Cherry	S5	Secure	469024.0602	4985823.145
Prunus serotina	Black Cherry	S5	Secure	469239.3894	4985684.907
Prunus serotina	Black Cherry	S5	Secure	468811.7152	4985576.077
Prunus virginiana	Chokecherry	S5	Secure	469174.7061	4985821.738
Prunus virginiana	Chokecherry	S5	Secure	469148.8519	4985834.02
Prunus virginiana	Chokecherry	S5	Secure	469078.3618	4985784
Prunus virginiana	Chokecherry	S5	Secure	469149.9021	4985725.331
Pteridium aquilinum	Bracken Fern	S5	Secure	469175.9876	4985814.011
Pteridium aquilinum	Bracken Fern	S5	Secure	468644.273	4984823.15
Pteridium aquilinum	Bracken Fern	S5	Secure	469142.4435	4985703.519
Pteridium aquilinum	Bracken Fern	S5	Secure	469171.9263	4985745.221
Quercus rubra	Northern Red Oak	S5	Secure	469307.1556	4985667.302

Appendix I, Table I2: Locations of Plant Species of Conservation Interest Encountered within the Proposed Extension Area during the 2013-2014 Field Surveys

Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Quercus rubra	Northern Red Oak	S5	Secure	468690.8462	4984759.97
Quercus rubra	Northern Red Oak	S5	Secure	468665.7085	4984775.646
Quercus rubra	Northern Red Oak	S5	Secure	468418.0469	4984965.35
Quercus rubra	Northern Red Oak	S5	Secure	468798.4658	4985122.153
Quercus rubra	Northern Red Oak	S5	Secure	469240.2988	4985682.866
Quercus rubra	Northern Red Oak	S5	Secure	468845.6998	4985597.944
Ranunculus acris	Common Buttercup	SNA	Exotic	469363.9096	4985038.818
Ranunculus acris	Common Buttercup	SNA	Exotic	468878.1128	4985132.648
Ranunculus acris	Common Buttercup	SNA	Exotic	468887.2015	4985195.595
Ranunculus acris	Common Buttercup	SNA	Exotic	469011.5588	4985790.434
Ranunculus acris	Common Buttercup	SNA	Exotic	469141.7779	4985620.205
Ranunculus acris	Common Buttercup	SNA	Exotic	468828.4735	4985565.997
Ranunculus gmelinii	Gmelin's Water Buttercup	S3	Secure	469194.1826	4985821.681
Ranunculus recurvatus	Hooked Buttercup	S4	Secure	469140.6387	4985819.062
Ranunculus repens	Creeping Buttercup	SNA	Exotic	468886.3324	4985232.814
Ranunculus repens	Creeping Buttercup	SNA	Exotic	469178.9709	4985814.179
Ranunculus repens	Creeping Buttercup	SNA	Exotic	468698.7824	4984744.749
Ranunculus repens	Creeping Buttercup	SNA	Exotic	468421.6606	4984952.557
Ranunculus repens	Creeping Buttercup	SNA	Exotic	469153.1312	4985822.89
Ranunculus repens	Creeping Buttercup	SNA	Exotic	469102.9817	4985797.582
Ranunculus repens	Creeping Buttercup	SNA	Exotic	469235.83	4985654.744
Ranunculus repens	Creeping Buttercup	SNA	Exotic	469093.6138	4985571.373
Ranunculus repens	Creeping Buttercup	SNA	Exotic	468836.7115	4985558.921
Ranunculus repens	Creeping Buttercup	SNA	Exotic	468781.2854	4985421.996
Rhamnus alnifolia	Alder-leaved Buckthorn	S3	Sensitive	469265.6833	4985691.63
Rhamnus alnifolia	Alder-leaved Buckthorn	S3	Sensitive	469165.187	4985627.683
Rhamnus alnifolia	Alder-leaved Buckthorn	S3	Sensitive	469266.3337	4985663.114
Rhamnus alnifolia	Alder-leaved Buckthorn	S3	Sensitive	469165.627	4985582.874
Rhamnus alnifolia	Alder-leaved Buckthorn	S3	Sensitive	469271.8403	4985688.638
Rhamnus alnifolia	Alder-leaved Buckthorn	S3	Sensitive	469181.8965	4985580.204
Rhamnus alnifolia	Alder-leaved Buckthorn	S3	Sensitive	469266.4972	4985669.779
Rhamnus alnifolia	Alder-leaved Buckthorn	S3	Sensitive	469267.9406	4985669.587
Rhamnus alnifolia	Alder-leaved Buckthorn	S3	Sensitive	469153.0738	4985620.891
Rhamnus alnifolia	Alder-leaved Buckthorn	S3	Sensitive	469145.2877	4985721.465
Rhamnus alnifolia	Alder-leaved Buckthorn	S3	Sensitive	469231.9337	4985663.65
Rhamnus alnifolia	Alder-leaved Buckthorn	S3	Sensitive	469155.9956	4985627.727
Rhamnus alnifolia	Alder-leaved Buckthorn	S3	Sensitive	469191.9662	4985653.29
Rhamnus alnifolia	Alder-leaved Buckthorn	S3	Sensitive	469273.1063	4985651.602
Rhododendron canadense	Rhodora	S5	Secure	469239.2048	4985704.645
Rhododendron canadense	Rhodora	S5	Secure	469247.4739	4985700.42
Ribes glandulosum	Skunk Currant	S5	Secure	468447.5768	4985057.657
Ribes glandulosum	Skunk Currant	S5	Secure	468456.8546	4985032.182
Ribes lacustre	Bristly Black Currant	S5	Secure	469249.3449	4985267.671
Ribes lacustre	Bristly Black Currant	S5	Secure	468763.3824	4984581.129
Ribes lacustre	Bristly Black Currant	S5	Secure	469177.7901	4985708.718
Ribes sp.	Currant			469253.8224	4985547.353
Rorippa nasturtium-aquaticum	Watercress	SNA	Exotic	468442.7775	4985000.406
Rosa nitida	Shining Rose	S4	Secure	469209.0802	4985688.25
Rosa nitida	Shining Rose	S4	Secure	468755.1125	4984608.757
Rosa nitida	Shining Rose	S4	Secure	469130.331	4985805.411
Rosa nitida	Shining Rose	S4	Secure	469105.0574	4985792.388
Rosa nitida	Shining Rose	S4	Secure	469045.8232	4985789.157
Rosa nitida	Shining Rose	S4	Secure	469146.1101	4985701.465
Rosa nitida	Shining Rose	S4	Secure	469163.631	4985740.447
Rosa nitida	Shining Rose	S4	Secure	468834.2284	4985561.34
Rosa palustris	Swamp Rose	S3	Secure	469234.5553	4985689.929
Rosa sp.	a Rose			469289.8886	4985086.002
Rosa sp.	a Rose			468770.1245	4985528.591
Rubus alleghaniensis	Glandulose Dewberry	SNR	Undetermined	468558.0216	4984517.949
Rubus allegheniensis	Allegheny Blackberry	S5	Secure	468470.4607	4984915.47
Rubus allegheniensis	Allegheny Blackberry	S5	Secure	468856.2162	4985412.002
Rubus canadensis	Smooth Blackberry	S5	Secure	468623.8057	4984853.8
Rubus canadensis	Smooth Blackberry	S5	Secure	468787.6734	4985600.45
Rubus flagellaris	Northern Dewberry	S1?	Undetermined	469175.1707	4985813.263
Rubus hispidus	Bristly Dewberry	S5	Secure	468808.9276	4984548.876
Rubus hispidus	Bristly Dewberry	S5	Secure	468742.7508	4985114.834
Rubus hispidus	Bristly Dewberry	S5	Secure	469126.0711	4985793.397
Rubus hispidus	Bristly Dewberry	S5	Secure	469106.2194	4985788.309

Appendix I, Table I2: Locations of Plant Species of Conservation Interest Encountered within the Proposed Extension Area during the 2013-2014 Field Surveys

Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Rubus hispidus	Bristly Dewberry	S5	Secure	469145.5921	4985702.949
Rubus hispidus	Bristly Dewberry	S5	Secure	468837.1307	4985564.104
Rubus idaeus	Red Raspberry	S5	Secure	469175.503	4985813.879
Rubus idaeus	Red Raspberry	S5	Secure	468757.3188	4984603.377
Rubus idaeus	Red Raspberry	S5	Secure	468679.7854	4984780.761
Rubus idaeus	Red Raspberry	S5	Secure	468296.7721	4985163.877
Rubus idaeus	Red Raspberry	S5	Secure	468794.9973	4985111.061
Rubus idaeus	Red Raspberry	S5	Secure	469178.1545	4985702.606
Rubus idaeus	Red Raspberry	S5	Secure	468814.2824	4985590.877
Rubus idaeus	Red Raspberry	S5	Secure	468847.8903	4985401.118
Rubus idaeus	Red Raspberry	S5	Secure	468775.0504	4985409.066
Rubus pubescens	Dwarf Red Raspberry	S5	Secure	469177.052	4985819.569
Rubus pubescens	Dwarf Red Raspberry	S5	Secure	468807.1769	4984539.997
Rubus pubescens	Dwarf Red Raspberry	S5	Secure	468673.9618	4984771.532
Rubus pubescens	Dwarf Red Raspberry	S5	Secure	468419.0251	4984950.718
Rubus pubescens	Dwarf Red Raspberry	S5	Secure	469123.5749	4985820.256
Rubus pubescens	Dwarf Red Raspberry	S5	Secure	469101.959	4985803.326
Rubus pubescens	Dwarf Red Raspberry	S5	Secure	469141.4885	4985696.118
Rubus pubescens	Dwarf Red Raspberry	S5	Secure	469170.8562	4985741.153
Rubus pubescens	Dwarf Red Raspberry	S5	Secure	468835.5361	4985560.223
Rubus recurvicaulis	Arching Dewberry	SNR	Secure	469040.4069	4985565.891
Rubus recurvicaulis	Arching Dewberry	SNR	Secure	468459.3208	4985052.907
Rubus sp.	a Blackberry			468641.7443	4984816.312
Rumex crispus	Curled Dock	SNA	Exotic	469023.7329	4985809.816
Rumex crispus	Curled Dock	SNA	Exotic	469311.0989	4985722.746
Salix bebbiana	Bebb's Willow	S5	Secure	468708.8063	4984726.74
Salix bebbiana	Bebb's Willow	S5	Secure	468458.645	4985049.022
Salix bebbiana	Bebb's Willow	S5	Secure	468736.2294	4985123.939
Salix discolor	Pussy Willow	S5	Secure	468761.427	4984584.101
Salix discolor	Pussy Willow	S5	Secure	468615.7204	4984838.658
Salix discolor	Pussy Willow	S5	Secure	468458.1806	4985034.768
Salix fragilis	Crack Willow	SNA	Exotic	469033.3673	4985819.952
Salix fragilis	Crack Willow	SNA		469026.7457	4985808.32
Salix humilis	Upland Willow	S5	Secure	468643.0575	4984816.305
Salix humilis	Upland Willow	S5	Secure	469123.7251	4985824.143
Salix humilis	Upland Willow	S5	Secure	468832.3985	4985401.75
Salix lucida	Shining Willow	S5	Secure	469019.6554	4985808.354
Salix pyrifolia	Balsam Willow	S5	Secure	468465.8499	4984912.531
Salix pyrifolia	Balsam Willow	S5	Secure	468465.9009	4985029.175
Salix sp.	a Willow			469177.1816	4985818.583
Scirpus validus	Soft-stemmed Bulrush	S5	Secure	469019.9595	4985799.048
Scirpus validus	Soft-stemmed Bulrush	S5	Secure	469019.7588	4985802.614
Scirpus validus	Soft-stemmed Bulrush	S5	Secure	469022.7671	4985800.193
Scirpus cyperinus	Common Woolly Bulrush	S5	Secure	468767.4028	4984570.741
Scirpus cyperinus	Common Woolly Bulrush	S5	Secure	468680.3171	4984782.054
Scirpus cyperinus	Common Woolly Bulrush	S5	Secure	468677.5966	4984789.659
Scirpus cyperinus	Common Woolly Bulrush	S5	Secure	468459.1401	4985042.91
Scirpus cyperinus	Common Woolly Bulrush	S5	Secure	468299.2634	4985163.124
Scirpus cyperinus	Common Woolly Bulrush	S5	Secure	468747.8649	4985113.328
Scirpus cyperinus	Common Woolly Bulrush	S5	Secure	469166.9192	4985660.076
Scirpus cyperinus	Common Woolly Bulrush	S5	Secure	468846.4812	4985408.346
Scirpus hattorianus	Mosquito Bulrush	S5	Secure	468482.0321	4984891.899
Scirpus hattorianus	Mosquito Bulrush	S5	Secure	468297.8374	4985166.834
Scirpus hattorianus	Mosquito Bulrush	S5	Secure	469127.6628	4985796.722
Scirpus hattorianus	Mosquito Bulrush	S5	Secure	469020.9738	4985809.459
Scirpus hattorianus	Mosquito Bulrush	S5	Secure	469149.3417	4985609.43
Scirpus hattorianus	Mosquito Bulrush	S5	Secure	468850.5283	4985403.513
Scirpus microcarpus	Small-fruited Bulrush	S5	Secure	469244.9922	4985580.604
Scutellaria galericulata	Marsh Skullcap	S5	Secure	469179.3253	4985813.855
Scutellaria galericulata	Marsh Skullcap	S5	Secure	469178.3028	4985706.123
Scutellaria lateriflora	Mad-dog Skullcap	S5	Secure	468559.3474	4984966.927
Scutellaria lateriflora	Mad-dog Skullcap	S5	Secure	468640.7513	4984801.319
Scutellaria lateriflora	Mad-dog Skullcap	S5	Secure	468410.4985	4984952.612
Scutellaria lateriflora	Mad-dog Skullcap	S5	Secure	468299.5509	4985168.122
Scutellaria lateriflora	Mad-dog Skullcap	S5	Secure	469140.6441	4985820.173
Scutellaria lateriflora	Mad-dog Skullcap	S5	Secure	469075.393	4985794.568
Senecio sylvaticus	Woodland Ragwort	SNA	Exotic	468856.0162	4985397.931
Senecio viscosus	Sticky Ragwort	SNA	Exotic	468694.2731	4985083.781

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Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Senecio viscosus	Sticky Ragwort	SNA	Exotic	468760.9856	4985111.042
Senecio viscosus	Sticky Ragwort	SNA	Exotic	468799.2094	4985113.077
Senecio viscosus	Sticky Ragwort	SNA	Exotic	468851.0707	4985407.028
Senecio viscosus	Sticky Ragwort	SNA	Exotic	468859.9627	4985399.393
Setaria glauca	Yellow Foxtail	SNA	Exotic	468612.7203	4984922.916
Sisyrinchium montanum	Mountain Blue-eyed-grass	S5	Secure	468592.2412	4984939.049
Sisyrinchium montanum	Mountain Blue-eyed-grass	S5	Secure	468977.8253	4985171.639
Sium suave	Common Water Parsnip	S5	Secure	469193.9494	4985824.045
Solanum dulcamara	Bittersweet Nightshade	SNA	Exotic	469175.4302	4985810.124
Solanum dulcamara	Bittersweet Nightshade	SNA	Exotic	469176.8651	4985814.195
Solanum dulcamara	Bittersweet Nightshade	SNA	Exotic	469148.5598	4985827.911
Solanum dulcamara	Bittersweet Nightshade	SNA	Exotic	469101.424	4985801.292
Solanum dulcamara	Bittersweet Nightshade	SNA	Exotic	468854.311	4985398.31
Solidago canadensis	Canada Goldenrod	S5	Secure	469192.3808	4985823.92
Solidago canadensis	Canada Goldenrod	S5	Secure	468807.3092	4984540.182
Solidago canadensis	Canada Goldenrod	S5	Secure	468668.5785	4984771.744
Solidago canadensis	Canada Goldenrod	S5	Secure	468299.6555	4985162.752
Solidago canadensis	Canada Goldenrod	S5	Secure	468757.8512	4985114.575
Solidago canadensis	Canada Goldenrod	S5	Secure	468798.5628	4985115.117
Solidago canadensis	Canada Goldenrod	S5	Secure	469140.6414	4985819.618
Solidago canadensis	Canada Goldenrod	S5	Secure	469103.1094	4985796.841
Solidago canadensis	Canada Goldenrod	S5	Secure	469130.9851	4985696.354
Solidago canadensis	Canada Goldenrod	S5	Secure	469173.7789	4985748.174
Solidago canadensis	Canada Goldenrod	S5	Secure	468821.5469	4985572.697
Solidago canadensis	Canada Goldenrod	S5	Secure	468847.9283	4985408.895
Solidago flexicaulis	Zigzag Goldenrod	S5	Secure	469262.9848	4985093.199
Solidago flexicaulis	Zigzag Goldenrod	S5	Secure	468788.9693	4985274.763
Solidago gigantea	Giant Goldenrod	S5	Secure	468763.4793	4984574.093
Solidago gigantea	Giant Goldenrod	S5	Secure	468665.4267	4984771.759
Solidago gigantea	Giant Goldenrod	S5	Secure	468409.324	4984954.099
Solidago gigantea	Giant Goldenrod	S5	Secure	469059.2258	4985791.128
Solidago gigantea	Giant Goldenrod	S5	Secure	469006.6988	4985790.087
Solidago juncea	Early Goldenrod	S5	Secure	468460.0535	4984908.856
Solidago puberula	Downy Goldenrod	S5	Secure	468871.392	4985166.653
Solidago puberula	Downy Goldenrod	S5	Secure	468566.6046	4984571.912
Solidago puberula	Downy Goldenrod	S5	Secure	469156.5758	4985774.919
Solidago rugosa	Rough-stemmed Goldenrod	S5	Secure	469193.6448	4985823.96
Solidago rugosa	Rough-stemmed Goldenrod	S5	Secure	468810.6168	4984545.164
Solidago rugosa	Rough-stemmed Goldenrod	S5	Secure	468640.731	4984823.908
Solidago rugosa	Rough-stemmed Goldenrod	S5	Secure	468410.0193	4984935.395
Solidago rugosa	Rough-stemmed Goldenrod	S5	Secure	468298.3525	4985164.795
Solidago rugosa	Rough-stemmed Goldenrod	S5	Secure	468742.8876	4985115.944
Solidago rugosa	Rough-stemmed Goldenrod	S5	Secure	468746.0273	4985113.522
Solidago rugosa	Rough-stemmed Goldenrod	S5	Secure	468798.2983	4985114.748
Solidago rugosa	Rough-stemmed Goldenrod	S5	Secure	469151.1796	4985826.602
Solidago rugosa	Rough-stemmed Goldenrod	S5	Secure	469101.8286	4985803.512
Solidago rugosa	Rough-stemmed Goldenrod	S5	Secure	469004.6258	4985795.837
Solidago rugosa	Rough-stemmed Goldenrod	S5	Secure	469265.5609	4985693.483
Solidago rugosa	Rough-stemmed Goldenrod	S5	Secure	468835.5361	4985560.223
Solidago uliginosa	Northern Bog Goldenrod	S5	Secure	468637.0567	4984824.481
Solidago uliginosa	Northern Bog Goldenrod	S5	Secure	469254.1838	4985703.165
Sonchus asper	Prickly Sow Thistle	SNA	Exotic	468856.2933	4985400.892
Sorbus americana	American Mountain Ash	S5	Secure	469159.9476	4985766.201
Spiraea alba	White Meadowsweet	S5	Secure	469188.5566	4985827.72
Spiraea alba	White Meadowsweet	S5	Secure	468807.0619	4984543.33
Spiraea alba	White Meadowsweet	S5	Secure	468408.7969	4984953.731
Spiraea alba	White Meadowsweet	S5	Secure	469130.447	4985802.263
Spiraea alba	White Meadowsweet	S5	Secure	469102.1804	4985794.808
Spiraea alba	White Meadowsweet	S5	Secure	469140.815	4985692.603
Spiraea alba	White Meadowsweet	S5	Secure	469174.1343	4985740.211
Spiraea tomentosa	Steeplebush	S5	Secure	468556.0907	4984508.433
Spiraea tomentosa	Steeplebush	S5	Secure	468474.1675	4984894.9
Spiraea tomentosa	Steeplebush	S5	Secure	468456.856	4985059.029
Spiraea tomentosa	Steeplebush	S5	Secure	468296.2708	4985168.694
Spiraea tomentosa	Steeplebush	S5	Secure	468729.7895	4985122.859
Spiraea tomentosa	Steeplebush	S5	Secure	469124.6751	4985803.402
Spiraea tomentosa	Steeplebush	S5	Secure	468848.372	4985607.374
Spiraea tomentosa	Steeplebush	S5	Secure	468849.3854	4985411.48

Appendix I, Table I2: Locations of Plant Species of Conservation Interest Encountered within the Proposed Extension Area during the 2013-2014 Field Surveys

Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Aster cordifolius	Heart-leaved Aster	S4S5	Secure	469153.3122	4985615.891
Aster lanceolatus	Lance-leaved Aster	S4S5	Secure	468867.6897	4985609.965
Aster lateriflorus	Calico Aster	S5	Secure	468766.9581	4984587.222
Aster lateriflorus	Calico Aster	S5	Secure	468668.9761	4984772.482
Aster lateriflorus	Calico Aster	S5	Secure	468408.7914	4984952.62
Aster lateriflorus	Calico Aster	S5	Secure	468299.1321	4985163.125
Aster lateriflorus	Calico Aster	S5	Secure	469145.9338	4985827.924
Aster lateriflorus	Calico Aster	S5	Secure	469102.6057	4985801.287
Aster lateriflorus	Calico Aster	S5	Secure	469139.1322	4985697.611
Aster lateriflorus	Calico Aster	S5	Secure	469142.5246	4985693.151
Aster lateriflorus	Calico Aster	S5	Secure	469181.7428	4985738.693
Aster lateriflorus	Calico Aster	S5	Secure	468836.8663	4985563.735
Aster lateriflorus	Calico Aster	S5	Secure	468842.7882	4985405.032
Aster novi-belgii	New York Aster	S5	Secure	469192.7481	4985823.831
Aster novi-belgii	New York Aster	S5	Secure	468784.2027	4984568.622
Aster novi-belgii	New York Aster	S5	Secure	468295.47	4985166.105
Aster puniceus	Purple-stemmed Aster	S5	Secure	469252.3447	4985500.035
Aster puniceus	Purple-stemmed Aster	S5	Secure	468756.6078	4984619.118
Aster puniceus	Purple-stemmed Aster	S5	Secure	468671.11	4984779.137
Aster puniceus	Purple-stemmed Aster	S5	Secure	468625.2314	4984823.243
Aster puniceus	Purple-stemmed Aster	S5	Secure	468456.9086	4985043.106
Aster puniceus	Purple-stemmed Aster	S5	Secure	469267.3878	4985663.85
Taraxacum officinale	Common Dandelion	SNA	Exotic	469280.6902	4985091.322
Taraxacum officinale	Common Dandelion	SNA	Exotic	468298.7345	4985162.386
Taraxacum officinale	Common Dandelion	SNA	Exotic	468844.2608	4985599.062
Taxus canadensis	Canada Yew	S5	Secure	468720.2868	4985300.65
Thalictrum pubescens	Tall Meadow-Rue	S5	Secure	469171.6253	4985814.115
Thalictrum pubescens	Tall Meadow-Rue	S5	Secure	469262.1675	4985697.757
Thelypteris noveboracensis	New York Fern	S5	Secure	469175.1681	4985810.869
Thelypteris noveboracensis	New York Fern	S5	Secure	468735.4023	4984686.987
Thelypteris noveboracensis	New York Fern	S5	Secure	468669.1156	4984774.148
Thelypteris noveboracensis	New York Fern	S5	Secure	468406.2065	4984934.488
Thelypteris noveboracensis	New York Fern	S5	Secure	468744.3157	4985112.605
Thelypteris noveboracensis	New York Fern	S5	Secure	468797.1192	4985115.309
Thelypteris noveboracensis	New York Fern	S5	Secure	469122.0545	4985804.525
Thelypteris noveboracensis	New York Fern	S5	Secure	469102.6787	4985789.252
Thelypteris noveboracensis	New York Fern	S5	Secure	469140.8266	4985695.01
Thelypteris noveboracensis	New York Fern	S5	Secure	469185.9956	4985586.109
Thelypteris noveboracensis	New York Fern	S5	Secure	468790.9244	4985593.954
Thelypteris noveboracensis	New York Fern	S5	Secure	468849.3763	4985409.628
Thelypteris noveboracensis	New York Fern	S5	Secure	468856.7089	4985405.334
Thelypteris noveboracensis	New York Fern	S5	Secure	468774.6502	4985407.772
Thelypteris palustris	Eastern Marsh Fern	S5	Secure	469259.3017	4985568.593
Trientalis borealis	Northern Starflower	S5	Secure	469172.834	4985815.736
Trientalis borealis	Northern Starflower	S5	Secure	468456.4076	4984915.169
Trientalis borealis	Northern Starflower	S5	Secure	468445.4231	4985004.281
Trientalis borealis	Northern Starflower	S5	Secure	468742.1223	4985120.577
Trientalis borealis	Northern Starflower	S5	Secure	469079.0492	4985763.26
Trientalis borealis	Northern Starflower	S5	Secure	469169.8264	4985745.416
Trientalis borealis	Northern Starflower	S5	Secure	468770.5243	4985396.498
Trifolium pratense	Red Clover	SNA	Exotic	469352.7404	4985034.249
Trifolium repens	White Clover	SNA	Exotic	468567.3453	4984955.739
Trifolium repens	White Clover	SNA	Exotic	468468.5015	4984891.04
Trillium cernuum	Nodding Trillium	S4	Secure	469275.9658	4985098.298
Trillium undulatum	Painted Trillium	S5	Secure	468656.1165	4985282.635
Tsuga canadensis	Eastern Hemlock	S4S5	Secure	469335.8665	4985461.994
Tsuga canadensis	Eastern Hemlock	S4S5	Secure	468668.5785	4984771.744
Tsuga canadensis	Eastern Hemlock	S4S5	Secure	468842.447	4985604.07
Tsuga canadensis	Eastern Hemlock	S4S5	Secure	468862.5799	4985397.529
Tsuga canadensis	Eastern Hemlock	S4S5	Secure	468774.3993	4985410.18
Tussilago farfara	Coltsfoot	SNA	Exotic	469274.5676	4985155.298
Tussilago farfara	Coltsfoot	SNA	Exotic	468484.8026	4984894.477
Tussilago farfara	Coltsfoot	SNA	Exotic	468459.0051	4985042.17
Tussilago farfara	Coltsfoot	SNA	Exotic	468299.2662	4985163.68
Tussilago farfara	Coltsfoot	SNA	Exotic	469131.2563	4985806.703
Tussilago farfara	Coltsfoot	SNA	Exotic	468841.3757	4985599.817
Tussilago farfara	Coltsfoot	SNA	Exotic	468841.9913	4985403.184
Typha latifolia	Broad-leaved Cattail	S5	Secure	469310.9747	4985416.412

Appendix I, Table I2: Locations of Plant Species of Conservation Interest Encountered within the Proposed Extension Area during the 2013-2014 Field Surveys

Scientific Name	Common Name	ACCDC Rank	NSDNR Rank	Northing	Easting
Typha latifolia	Broad-leaved Cattail	S5	Secure	468642.1482	4984818.346
Typha latifolia	Broad-leaved Cattail	S5	Secure	468297.8576	4985170.908
Typha latifolia	Broad-leaved Cattail	S5	Secure	468754.5574	4985112.369
Typha latifolia	Broad-leaved Cattail	S5	Secure	468795.2681	4985112.726
Typha latifolia	Broad-leaved Cattail	S5	Secure	469163.8903	4985658.239
Typha latifolia	Broad-leaved Cattail	S5	Secure	468848.8493	4985409.26
Typha latifolia	Broad-leaved Cattail	S5	Secure	468776.3518	4985406.652
Uvularia sessilifolia	Sessile-leaved Bellwort	S4S5	Secure	468689.4201	4985406.152
Vaccinium angustifolium	Late Lowbush Blueberry	S5	Secure	469199.1048	4985817.54
Vaccinium angustifolium	Late Lowbush Blueberry	S5	Secure	468751.9904	4985505.119
Vaccinium angustifolium	Late Lowbush Blueberry	S5	Secure	469128.1889	4985796.904
Vaccinium angustifolium	Late Lowbush Blueberry	S5	Secure	468783.9686	4985406.8
Vaccinium myrtilloides	Velvet-leaved Blueberry	S5	Secure	469199.7998	4985820.784
Vaccinium myrtilloides	Velvet-leaved Blueberry	S5	Secure	468709.4453	4985507.967
Vaccinium myrtilloides	Velvet-leaved Blueberry	S5	Secure	469158.2881	4985776.022
Veronica agrestis	Field Speedwell	SNA	Exotic	468867.4333	4985154.217
Veronica officinalis	Common Speedwell	S5	Exotic	468730.3769	4984901.351
Veronica officinalis	Common Speedwell	S5	Exotic	468661.0181	4984783.26
Veronica officinalis	Common Speedwell	S5	Exotic	468810.7162	4985129.869
Veronica officinalis	Common Speedwell	S5	Exotic	468856.5496	4985399.595
Viburnum nudum	Northern Wild Raisin	S5	Secure	469200.8601	4985821.303
Viburnum nudum	Northern Wild Raisin	S5	Secure	468807.5917	4984544.253
Viburnum nudum	Northern Wild Raisin	S5	Secure	469141.3715	4985699.081
Viburnum opulus	Highbush Cranberry	S5	Secure	469263.5704	4985131.419
Vicia cracca	Tufted Vetch	SNA	Exotic	469177.9518	4985819.3
Vicia cracca	Tufted Vetch	SNA	Exotic	469166.2537	4985658.228
Viola cucullata	Marsh Blue Violet	S5	Secure	468734.4115	4985074.512
Viola cucullata	Marsh Blue Violet	S5	Secure	468808.1941	4985124.327
Viola cucullata	Marsh Blue Violet	S5	Secure	469261.7231	4985632.772
Viola cucullata	Marsh Blue Violet	S5	Secure	468788.6804	4985591.558
Viola macloskeyi	Small White Violet	S5	Secure	468423.9398	4984961.988

Appendix I, Table I3: Plants recorded within the Study Area during the 2013-2014 surveys (including specific wetlands)

Plants in Wetlands		Count of Plants											
Plants (common name)	*Plants (ACCDC Binom)*	In Project	In Any Wetland	WL1	WL2	WL3	WL4	WL5	WL6	WL7	WL8	WL9	WL10
Balsam Fir	*Abies balsamea*	14	8	1	1	1	2	0	0	0	1	1	1
Striped Maple	*Acer pensylvanicum*	4	2	1	1	0	0	0	0	0	0	0	0
Red Maple	*Acer rubrum*	15	8	1	1	1	1	0	0	0	1	1	2
Sugar Maple	*Acer saccharum*	5	2	1	1	0	0	0	0	0	0	0	0
Sugar Maple	*Acer saccharum var. saccharum*	5	2	1	1	0	0	0	0	0	0	0	0
Mountain Maple	*Acer spicatum*	2	2	1	1	0	0	0	0	0	0	0	0
Woodland Agrimony	*Agrimonia striata*	1	1	0	0	1	0	0	0	0	0	0	0
Redtop	*Agrostis gigantea*	1	0	0	0	0	0	0	0	0	0	0	0
Upland Bent Grass	*Agrostis perennans*	7	3	0	0	0	0	0	0	0	1	1	1
Rough Bent Grass	*Agrostis scabra*	10	3	1	2	0	0	0	0	0	0	0	0
Creeping Bent Grass	*Agrostis stolonifera*	1	1	0	0	0	0	1	0	0	0	0	0
Speckled Alder	*Alnus incana*	10	9	1	1	1	1	1	0	0	1	1	2
Green Alder	*Alnus viridis*	1	0	0	0	0	0	0	0	0	0	0	0
Short-awned Foxtail	*Alopecurus aequalis*	1	1	0	0	0	0	1	0	0	0	0	0
a Serviceberry	*Amelanchier sp.*	3	2	0	0	0	0	0	0	0	0	0	2
Pearly Everlasting	*Anaphalis margaritacea*	1	0	0	0	0	0	0	0	0	0	0	0
Howell's Pussytoes	*Antennaria howellii ssp. neodioica*	2	0	0	0	0	0	0	0	0	0	0	0
Large Sweet Vernal Grass	*Anthoxanthum odoratum*	2	0	0	0	0	0	0	0	0	0	0	0
Bristly Sarsaparilla	*Aralia hispida*	1	0	0	0	0	0	0	0	0	0	0	0
Wild Sarsaparilla	*Aralia nudicaulis*	4	3	1	1	0	0	0	0	0	0	1	0
Jack-in-the-pulpit	*Arisaema triphyllum*	2	2	0	0	0	0	0	0	0	0	0	2
Common Lady Fern	*Athyrium filix-femina*	5	3	0	0	0	1	0	0	0	1	0	1
Yellow Birch	*Betula alleghaniensis*	8	2	1	1	0	0	0	0	0	0	0	0
Paper Birch	*Betula papyrifera*	3	2	0	0	1	0	0	0	0	0	0	1
Gray Birch	*Betula populifolia*	8	5	0	2	0	1	0	0	0	0	1	1
Nodding Beggarticks	*Bidens cernua*	1	1	0	0	0	0	1	0	0	0	0	0
Northern Shorthusk	*Brachyelytrum septentrionale*	3	1	0	0	0	0	0	0	0	0	0	1
Bluejoint Reed Grass	*Calamagrostis canadensis*	3	3	0	0	1	0	0	0	0	0	0	2
Marsh Water-starwort	*Callitriche palustris*	1	1	0	0	0	0	0	0	0	0	0	1
Pennsylvania Bittercress	*Cardamine pensylvanica*	1	1	0	0	0	0	0	0	0	0	0	1
Cuckoo Flower	*Cardamine pratensis var. pratensis*	2	1	0	0	0	0	0	0	0	1	0	0
Curled Plumeless Thistle	*Carduus crispus*	1	0	0	0	0	0	0	0	0	0	0	0
Drooping Woodland Sedge	*Carex arctata*	4	1	0	0	0	0	0	0	0	0	0	1
Golden Sedge	*Carex aurea*	1	0	0	0	0	0	0	0	0	0	0	0
Brownish Sedge	*Carex brunnescens*	3	1	0	1	0	0	0	0	0	0	0	0
Silvery Sedge	*Carex canescens*	1	1	0	0	0	0	0	0	0	0	0	1
Fibrous-Root Sedge	*Carex communis*	4	0	0	0	0	0	0	0	0	0	0	0
Fringed Sedge	*Carex crinita*	4	2	0	0	0	0	0	0	0	1	0	1
White-edged Sedge	*Carex debilis*	3	2	0	0	0	0	0	0	0	0	0	2
Two-seeded Sedge	*Carex disperma*	1	1	1	0	0	0	0	0	0	0	0	0
Star Sedge	*Carex echinata*	4	4	0	1	0	0	0	0	0	0	1	2
Yellow Sedge	*Carex flava*	2	2	0	0	0	1	0	0	0	0	0	1
Graceful Sedge	*Carex gracillima*	5	2	0	0	0	0	0	0	0	0	0	2
Nodding Sedge	*Carex gynandra*	6	5	0	1	1	0	0	0	0	0	1	2
Bladder Sedge	*Carex intumescens*	12	8	1	1	1	1	0	0	0	1	1	2
Bristly-stalked Sedge	*Carex leptalea*	7	6	1	1	0	1	0	0	0	0	1	2
Finely-Nerved Sedge	*Carex leptonervia*	2	0	0	0	0	0	0	0	0	0	0	0
Sallow Sedge	*Carex lurida*	13	7	0	1	1	1	1	0	0	1	1	1
Smooth Black Sedge	*Carex nigra*	2	0	0	0	0	0	0	0	0	0	0	0
New England Sedge	*Carex novae-angliae*	1	1	0	0	0	0	0	0	0	0	0	1
Pale Sedge	*Carex pallescens*	1	0	0	0	0	0	0	0	0	0	0	0

Appendix I, Table I3: Plants recorded within the Study Area during the 2013-2014 surveys (including specific wetlands)

Plants in Wetlands		Count of Plants											
Plants (common name)	*Plants (ACCDC Binom)*	In Project	In Any Wetland	WL1	WL2	WL3	WL4	WL5	WL6	WL7	WL8	WL9	WL10
Necklace Sedge	*Carex projecta*	4	2	0	1	1	0	0	0	0	0	0	0
Retrorse Sedge	*Carex retrorsa*	3	1	1	0	0	0	0	0	0	0	0	0
Broom Sedge	*Carex scoparia*	10	6	0	0	0	1	1	0	0	1	2	1
a Sedge	*Carex sp.*	1	1	0	0	0	0	0	0	0	0	0	1
Awl-fruited Sedge	*Carex stipata*	9	5	0	1	1	0	0	0	0	1	0	2
Tussock Sedge	*Carex stricta*	2	2	0	0	0	0	0	0	0	0	0	2
Three-seeded Sedge	*Carex trisperma*	4	4	1	1	1	0	0	0	0	0	0	1
Inflated Sedge	*Carex vesicaria*	1	1	0	0	0	0	0	0	0	0	0	1
Fox Sedge	*Carex vulpinoidea*	1	1	0	0	0	0	1	0	0	0	0	0
Black Knapweed	*Centaurea nigra*	4	1	1	0	0	0	0	0	0	0	0	0
Common Chickweed	*Cerastium fontanum ssp. vulgare*	1	0	0	0	0	0	0	0	0	0	0	0
Fireweed	*Chamerion angustifolium*	1	0	0	0	0	0	0	0	0	0	0	0
White Turtlehead	*Chelone glabra*	2	1	0	0	0	0	0	0	0	0	0	1
Common Pipsissewa	*Chimaphila umbellata*	1	0	0	0	0	0	0	0	0	0	0	0
American Golden Saxifrage	*Chrysosplenium americanum*	1	1	1	0	0	0	0	0	0	0	0	0
Bulbous Water-hemlock	*Cicuta bulbifera*	1	1	0	0	0	0	0	0	0	0	0	1
Drooping Wood Reed Grass	*Cinna latifolia*	2	1	0	0	0	0	0	0	0	0	0	1
Small Enchanter's Nightshade	*Circaea alpina*	3	3	1	1	1	0	0	0	0	0	0	0
Canada Thistle	*Cirsium arvense*	1	1	0	0	0	0	1	0	0	0	0	0
Swamp Thistle	*Cirsium muticum*	4	1	0	0	0	0	0	0	0	1	0	0
Thistle	*Cirsium sp.*	2	1	0	0	0	0	0	0	0	0	0	1
Virginia Clematis	*Clematis virginiana*	2	2	0	0	0	0	0	0	0	1	0	1
Yellow Bluebead Lily	*Clintonia borealis*	1	0	0	0	0	0	0	0	0	0	0	0
Sweet-fern	*Comptonia peregrina*	1	0	0	0	0	0	0	0	0	0	0	0
Canada Horseweed	*Conyza canadensis*	1	0	0	0	0	0	0	0	0	0	0	0
Goldthread	*Coptis trifolia*	4	3	1	0	0	0	0	0	0	0	0	2
Spotted Coralroot	*Corallorhiza maculata*	3	0	0	0	0	0	0	0	0	0	0	0
Alternate-leaved Dogwood	*Cornus alternifolia*	4	4	2	0	0	1	0	0	0	0	0	1
Bunchberry	*Cornus canadensis*	3	1	0	1	0	0	0	0	0	0	0	0
Red Osier Dogwood	*Cornus sericea*	4	4	0	0	0	1	0	0	0	1	1	1
Beaked Hazel	*Corylus cornuta*	3	3	0	1	0	0	0	0	0	0	0	2
a Hawthorn	*Crataegus sp.*	1	1	0	0	0	0	0	0	0	0	0	1
Pink Lady's-Slipper	*Cypripedium acaule*	2	1	0	0	0	0	0	0	0	0	0	1
Dewdrop	*Dalibarda repens*	3	2	0	0	0	0	0	0	0	0	0	2
Flattened Oat Grass	*Danthonia compressa*	2	0	0	0	0	0	0	0	0	0	0	0
Poverty Oat Grass	*Danthonia spicata*	3	2	0	1	0	0	0	0	0	0	0	1
Mezer's Daphne	*Daphne mezereum*	1	0	0	0	0	0	0	0	0	0	0	0
Queen Anne's Lace	*Daucus carota*	2	0	0	0	0	0	0	0	0	0	0	0
Eastern Hay-Scented Fern	*Dennstaedtia punctilobula*	2	0	0	0	0	0	0	0	0	0	0	0
White-Hair Witchgrass	*Dichanthelium villosissimum*	1	0	0	0	0	0	0	0	0	0	0	0
Northern Bush Honeysuckle	*Diervilla lonicera*	3	2	1	0	0	0	0	0	0	0	0	1
Hairy Flat-top White Aster	*Doellingeria umbellata*	10	7	1	0	1	1	0	0	0	1	1	2
Spinulose Wood Fern	*Dryopteris carthusiana*	9	7	1	1	1	2	0	0	0	1	0	1
Crested Wood Fern	*Dryopteris cristata*	9	7	1	0	1	0	0	0	0	1	1	3
Evergreen Wood Fern	*Dryopteris intermedia*	3	2	1	0	0	0	0	0	0	0	0	1
Marginal Wood Fern	*Dryopteris marginalis*	1	0	0	0	0	0	0	0	0	0	0	0
a Hybrid Wood-fern	*Dryopteris x boottii*	1	1	0	0	0	0	0	0	0	0	0	1
Large Barnyard Grass	*Echinochloa crus-galli*	1	0	0	0	0	0	0	0	0	0	0	0
Needle Spikerush	*Eleocharis acicularis*	3	2	0	0	0	0	0	0	0	1	0	1
Blunt Spikerush	*Eleocharis obtusa*	2	1	0	0	0	0	0	0	0	0	0	1
a Spikerush	*Eleocharis sp.*	1	0	0	0	0	0	0	0	0	0	0	0

Appendix I, Table I3: Plants recorded within the Study Area during the 2013-2014 surveys (including specific wetlands)

Plants in Wetlands		Count of Plants											
Plants (common name)	*Plants (ACCDC Binom)*	In Project	In Any Wetland	WL1	WL2	WL3	WL4	WL5	WL6	WL7	WL8	WL9	WL10
Trailing Arbutus	*Epigaea repens*	1	0	0	0	0	0	0	0	0	0	0	0
Northern Willowherb	*Epilobium ciliatum*	14	11	1	2	1	1	1	0	0	3	0	2
Northern Willowherb	*Epilobium ciliatum ssp. glandulosum*	14	11	1	2	1	1	1	0	0	3	0	2
Marsh Willowherb	*Epilobium palustre*	6	2	0	1	1	0	0	0	0	0	0	0
Helleborine	*Epipactis helleborine*	3	0	0	0	0	0	0	0	0	0	0	0
Field Horsetail	*Equisetum arvense*	6	5	0	0	0	2	0	0	0	1	0	2
Woodland Horsetail	*Equisetum sylvaticum*	8	7	0	1	1	1	0	0	0	1	1	2
Eastern Burnweed	*Erechtites hieraciifolia*	2	0	0	0	0	0	0	0	0	0	0	0
Annual Fleabane	*Erigeron annuus*	1	0	0	0	0	0	0	0	0	0	0	0
Tawny Cottongrass	*Eriophorum virginicum*	1	0	0	0	0	0	0	0	0	0	0	0
Spotted Joe-pye-weed	*Eupatorium maculatum*	2	2	0	0	0	0	0	0	0	1	0	1
Common Boneset	*Eupatorium perfoliatum*	3	2	0	0	0	1	0	0	0	0	0	1
Stiff Eyebright	*Euphrasia stricta*	1	0	0	0	0	0	0	0	0	0	0	0
Large-leaved Aster	*Eurybia macrophylla*	2	1	0	0	0	0	0	0	0	0	0	1
Grass-leaved Goldenrod	*Euthamia graminifolia*	10	6	1	1	0	0	1	0	0	1	0	2
American Beech	*Fagus grandifolia*	4	0	0	0	0	0	0	0	0	0	0	0
Hair Fescue	*Festuca filiformis*	2	0	0	0	0	0	0	0	0	0	0	0
Woodland Strawberry	*Fragaria vesca*	1	1	0	0	0	0	0	0	0	0	0	1
Wild Strawberry	*Fragaria virginiana*	8	5	0	1	1	1	0	0	0	0	1	1
White Ash	*Fraxinus americana*	14	8	2	2	1	1	0	0	0	0	0	2
Black Ash	*Fraxinus nigra*	2	2	0	0	0	0	0	0	0	0	2	0
Common Hemp-nettle	*Galeopsis tetrahit*	2	2	0	0	0	1	0	0	0	1	0	0
Rough Bedstraw	*Galium asprellum*	4	4	0	0	0	0	0	0	0	1	0	3
Common Marsh Bedstraw	*Galium palustre*	2	1	0	0	0	0	1	0	0	0	0	0
a Bedstraw	*Galium sp.*	1	1	0	0	0	0	0	0	0	0	0	1
Dyer's Bedstraw	*Galium tinctorium*	7	6	0	1	0	1	1	0	0	1	1	1
Three-petaled Bedstraw	*Galium trifidum*	3	2	1	0	1	0	0	0	0	0	0	0
Eastern Teaberry	*Gaultheria procumbens*	2	1	0	1	0	0	0	0	0	0	0	0
Herb Robert	*Geranium robertianum*	1	0	0	0	0	0	0	0	0	0	0	0
White Avens	*Geum canadense*	5	3	0	0	0	1	0	0	0	1	0	1
Large-Leaved Avens	*Geum macrophyllum*	1	1	0	0	1	0	0	0	0	0	0	0
Water Avens	*Geum rivale*	1	0	0	0	0	0	0	0	0	0	0	0
Canada Manna Grass	*Glyceria canadensis*	3	3	1	0	0	0	0	0	0	1	0	1
Fowl Manna Grass	*Glyceria striata*	14	9	1	1	1	1	1	0	0	1	1	2
Marsh Cudweed	*Gnaphalium uliginosum*	1	0	0	0	0	0	0	0	0	0	0	0
Common Oak Fern	*Gymnocarpium dryopteris*	4	4	2	0	1	0	0	0	0	0	0	1
American Witch-Hazel	*Hamamelis virginiana*	3	0	0	0	0	0	0	0	0	0	0	0
Field Hawkweed	*Hieracium caespitosum*	1	0	0	0	0	0	0	0	0	0	0	0
Common Hawkweed	*Hieracium lachenalii*	1	0	0	0	0	0	0	0	0	0	0	0
Mouse-ear Hawkweed	*Hieracium pilosella*	2	0	0	0	0	0	0	0	0	0	0	0
Tall Hawkweed	*Hieracium piloselloides*	1	0	0	0	0	0	0	0	0	0	0	0
Rough Hawkweed	*Hieracium scabrum*	1	0	0	0	0	0	0	0	0	0	0	0
Smoothish Hawkweed	*Hieracium x floribundum*	1	0	0	0	0	0	0	0	0	0	0	0
American Marsh Pennywort	*Hydrocotyle americana*	1	1	0	0	0	0	0	0	0	1	0	0
Northern St. John's-Wort	*Hypericum boreale*	3	1	0	0	0	0	0	0	0	0	0	1
Canada St. John's-wort	*Hypericum canadense*	3	0	0	0	0	0	0	0	0	0	0	0
Dwarf St. John's-wort	*Hypericum mutilum*	2	0	0	0	0	0	0	0	0	0	0	0
Common Winterberry	*Ilex verticillata*	6	6	1	1	1	0	0	0	0	0	1	2
Spotted Jewelweed	*Impatiens capensis*	7	5	0	0	0	0	1	0	0	1	1	2
Harlequin Blue Flag	*Iris versicolor*	3	3	1	0	0	0	0	0	0	0	0	2
Short-tailed Rush	*Juncus brevicaudatus*	8	4	0	0	0	0	1	0	0	1	0	2

Appendix I, Table I3: Plants recorded within the Study Area during the 2013-2014 surveys (including specific wetlands)

Plants in Wetlands		Count of Plants											
Plants (common name)	*Plants (ACCDC Binom)*	In Project	In Any Wetland	WL1	WL2	WL3	WL4	WL5	WL6	WL7	WL8	WL9	WL10
Toad Rush	*Juncus bufonius*	1	0	0	0	0	0	0	0	0	0	0	0
Canada Rush	*Juncus canadensis*	2	0	0	0	0	0	0	0	0	0	0	0
Soft Rush	*Juncus effusus*	12	7	1	1	1	1	1	0	0	0	0	2
Path Rush	*Juncus tenuis*	1	0	0	0	0	0	0	0	0	0	0	0
Sheep Laurel	*Kalmia angustifolia*	4	4	0	1	1	0	0	0	0	0	0	2
Canada Lettuce	*Lactuca canadensis*	2	0	0	0	0	0	0	0	0	0	0	0
Tamarack	*Larix laricina*	2	1	0	0	0	0	0	0	0	0	0	1
Common Labrador Tea	*Ledum groenlandicum*	2	1	0	0	0	0	0	0	0	0	0	1
Rice Cut Grass	*Leersia oryzoides*	1	1	0	0	0	0	1	0	0	0	0	0
Lesser Duckweed	*Lemna minor*	1	0	0	0	0	0	0	0	0	0	0	0
Turion Duckweed	*Lemna turionifera*	2	2	0	0	0	0	2	0	0	0	0	0
Fall Dandelion	*Leontodon autumnalis*	3	0	0	0	0	0	0	0	0	0	0	0
Oxeye Daisy	*Leucanthemum vulgare*	2	0	0	0	0	0	0	0	0	0	0	0
Yellow-seeded False Pimperel	*Lindernia dubia*	1	1	0	0	0	0	0	0	0	0	0	1
Twinflower	*Linnaea borealis*	3	3	0	1	0	1	0	0	0	0	0	1
Indian Tobacco	*Lobelia inflata*	2	0	0	0	0	0	0	0	0	0	0	0
Meadow Fescue	*Lolium pratense*	1	0	0	0	0	0	0	0	0	0	0	0
Canada Fly Honeysuckle	*Lonicera canadensis*	4	4	1	1	1	0	0	0	0	0	0	1
Mountain Fly Honeysuckle	*Lonicera villosa*	2	1	0	0	0	0	0	0	0	0	0	1
Garden Bird's-foot Trefoil	*Lotus corniculatus*	1	0	0	0	0	0	0	0	0	0	0	0
Marsh Seedbox	*Ludwigia palustris*	1	1	0	0	0	0	1	0	0	0	0	0
Hairy Woodrush	*Luzula acuminata*	2	1	0	0	0	0	0	0	0	0	0	1
Common Woodrush	*Luzula multiflora*	2	0	0	0	0	0	0	0	0	0	0	0
Stiff Clubmoss	*Lycopodium annotinum*	2	0	0	0	0	0	0	0	0	0	0	0
Round-branched Tree-clubmoss	*Lycopodium dendroideum*	1	0	0	0	0	0	0	0	0	0	0	0
Hickey's Tree-clubmoss	*Lycopodium hickeyi*	3	0	0	0	0	0	0	0	0	0	0	0
Flat-branched Tree-clubmoss	*Lycopodium obscurum*	2	0	0	0	0	0	0	0	0	0	0	0
American Water Horehound	*Lycopus americanus*	1	1	0	0	0	0	0	0	0	0	0	1
Northern Water Horehound	*Lycopus uniflorus*	4	3	0	0	0	1	1	0	0	0	0	1
Fringed Yellow Loosestrife	*Lysimachia ciliata*	7	7	0	0	1	0	0	0	0	0	0	6
Swamp Yellow Loosestrife	*Lysimachia terrestris*	4	4	0	0	1	0	0	0	0	1	0	2
Wild Lily-of-The-Valley	*Maianthemum canadense*	9	5	1	1	0	0	0	0	0	1	1	1
Three-leaved False Soloman's Seal	*Maianthemum trifolium*	1	1	0	0	0	0	0	0	0	0	0	1
Common Apple	*Malus pumila*	3	1	0	0	1	0	0	0	0	0	0	0
Pineapple Weed	*Matricaria discoidea*	2	0	0	0	0	0	0	0	0	0	0	0
Indian Cucumber Root	*Medeola virginiana*	1	0	0	0	0	0	0	0	0	0	0	0
Black Medick	*Medicago lupulina*	1	0	0	0	0	0	0	0	0	0	0	0
White Sweet-clover	*Melilotus albus*	1	0	0	0	0	0	0	0	0	0	0	0
Partridgeberry	*Mitchella repens*	5	3	1	1	0	0	0	0	0	1	0	0
Naked Bishop's-Cap	*Mitella nuda*	2	2	1	0	0	0	0	0	0	0	0	1
Pinesap	*Monotropa hypopithys*	1	0	0	0	0	0	0	0	0	0	0	0
Indian Pipe	*Monotropa uniflora*	1	0	0	0	0	0	0	0	0	0	0	0
Small Forget-Me-Not	*Myosotis laxa*	4	2	0	0	0	0	0	0	0	1	0	1
Variegated Pond-lily	*Nuphar lutea*	1	1	0	0	0	0	0	0	0	0	0	1
Small Yellow Pond-lily	*Nuphar lutea ssp. pumila*	1	1	0	0	0	0	1	0	0	0	0	0
Whorled Wood Aster	*Oclemena acuminata*	3	1	0	1	0	0	0	0	0	0	0	0
Red Bartsia	*Odontites vernus*	1	0	0	0	0	0	0	0	0	0	0	0
Common Evening Primrose	*Oenothera biennis*	2	0	0	0	0	0	0	0	0	0	0	0
Small-flowered Evening Primrose	*Oenothera parviflora*	1	0	0	0	0	0	0	0	0	0	0	0
Sensitive Fern	*Onoclea sensibilis*	12	9	1	1	1	1	1	0	0	1	1	2
Hairy Sweet Cicely	*Osmorhiza claytonii*	1	1	0	0	0	0	0	0	0	0	1	0

Appendix I, Table I3: Plants recorded within the Study Area during the 2013-2014 surveys (including specific wetlands)

Plants in Wetlands		Count of Plants											
Plants (common name)	*Plants (ACCDC Binom)*	In Project	In Any Wetland	WL1	WL2	WL3	WL4	WL5	WL6	WL7	WL8	WL9	WL10
Cinnamon Fern	*Osmunda cinnamomea*	6	5	0	2	1	0	0	0	0	0	1	1
Interrupted Fern	*Osmunda claytoniana*	9	5	1	1	0	1	0	0	0	0	0	2
Royal Fern	*Osmunda regalis*	2	2	0	0	1	0	0	0	0	0	0	1
Ironwood	*Ostrya virginiana*	2	0	0	0	0	0	0	0	0	0	0	0
Common Wood Sorrel	*Oxalis montana*	3	1	1	0	0	0	0	0	0	0	0	0
European Wood Sorrel	*Oxalis stricta*	9	4	0	0	0	1	1	0	0	1	0	1
Golden Groundsel	*Packera aurea*	1	1	0	0	0	0	0	0	0	0	0	1
Schweinitz's Groundsel	*Packera schweinitziana*	4	4	0	0	1	0	0	0	0	0	1	2
Virginia Creeper	*Parthenocissus quinquefolia*	1	1	0	0	0	0	0	0	0	0	0	1
Reed Canary Grass	*Phalaris arundinacea*	7	5	0	0	0	0	1	0	0	1	1	2
Northern Beech Fern	*Phegopteris connectilis*	3	1	0	0	0	0	0	0	0	0	0	1
Common Timothy	*Phleum pratense*	1	0	0	0	0	0	0	0	0	0	0	0
Red Chokeberry	*Photinia arbutifolia*	1	1	0	0	0	0	0	0	0	0	0	1
White Spruce	*Picea glauca*	6	4	0	1	1	1	0	0	0	0	0	1
Black Spruce	*Picea mariana*	2	2	0	0	0	0	0	0	0	0	0	2
Red Spruce	*Picea rubens*	3	3	0	1	0	0	0	0	0	0	0	2
Eastern White Pine	*Pinus strobus*	4	3	0	1	0	0	0	0	0	0	0	2
Common Plantain	*Plantago major*	3	1	0	0	0	0	0	0	0	1	0	0
Ragged Fringed Orchid	*Platanthera lacera*	1	1	0	0	0	0	0	0	0	0	0	1
an Orchid	*Platanthera sp.*	1	1	0	0	0	0	0	0	0	0	0	1
Canada Blue Grass	*Poa compressa*	2	0	0	0	0	0	0	0	0	0	0	0
Wood Blue Grass	*Poa nemoralis*	1	0	0	0	0	0	0	0	0	0	0	0
Fowl Blue Grass	*Poa palustris*	1	1	0	0	0	1	0	0	0	0	0	0
Kentucky Blue Grass	*Poa pratensis*	2	1	0	0	0	0	1	0	0	0	0	0
Rough Blue Grass	*Poa trivialis*	1	1	0	0	0	0	0	0	0	0	0	1
Fringed Black Bindweed	*Polygonum cilinode*	1	0	0	0	0	0	0	0	0	0	0	0
Marshpepper Smartweed	*Polygonum hydropiper*	1	1	0	0	0	1	0	0	0	0	0	0
Dotted Smartweed	*Polygonum punctatum*	1	1	0	0	0	0	1	0	0	0	0	0
Arrow-leaved Smartweed	*Polygonum sagittatum*	13	8	1	0	1	1	1	0	0	1	1	2
Christmas Fern	*Polystichum acrostichoides*	4	1	1	0	0	0	0	0	0	0	0	0
Large-toothed Aspen	*Populus grandidentata*	2	0	0	0	0	0	0	0	0	0	0	0
Trembling Aspen	*Populus tremuloides*	7	5	1	1	0	1	1	0	0	0	0	1
Ribbon-leaved Pondweed	*Potamogeton epihydrus*	1	1	0	0	0	0	1	0	0	0	0	0
Floating-leaved Pondweed	*Potamogeton natans*	3	2	0	0	0	0	1	0	0	0	0	1
Robbins' Pondweed	*Potamogeton robbinsii*	1	1	0	0	0	0	1	0	0	0	0	0
Rough Cinquefoil	*Potentilla norvegica*	2	1	0	0	0	0	0	0	0	0	0	1
Sulphur Cinquefoil	*Potentilla recta*	1	0	0	0	0	0	0	0	0	0	0	0
Old Field Cinquefoil	*Potentilla simplex*	10	6	0	0	1	1	0	0	0	1	1	2
Three-leaved Rattlesnakeroot	*Prenanthes trifoliolata*	5	3	0	0	0	0	0	0	0	0	1	2
Common Self-heal	*Prunella vulgaris*	8	5	1	0	0	1	0	0	0	1	1	1
Pin Cherry	*Prunus pensylvanica*	2	0	0	0	0	0	0	0	0	0	0	0
Black Cherry	*Prunus serotina*	4	3	0	1	0	1	0	0	0	0	0	1
Chokecherry	*Prunus virginiana*	4	3	0	0	0	0	0	0	0	1	1	1
Bracken Fern	*Pteridium aquilinum*	4	4	0	1	0	0	0	0	0	0	1	2
Northern Red Oak	*Quercus rubra*	7	4	1	1	0	1	0	0	0	0	0	1
Common Buttercup	*Ranunculus acris*	6	3	0	0	0	1	1	0	0	0	0	1
Gmelin's Water Buttercup	*Ranunculus gmelinii*	1	1	0	0	0	0	0	0	0	0	0	1
Hooked Buttercup	*Ranunculus recurvatus*	1	1	0	0	0	0	0	0	0	1	0	0
Creeping Buttercup	*Ranunculus repens*	10	7	1	0	1	1	0	0	0	1	0	3
Alder-leaved Buckthorn	*Rhamnus alnifolia*	14	14	0	0	0	0	0	0	0	0	1	13
Rhodora	*Rhododendron canadense*	2	2	0	0	0	0	0	0	0	0	0	2

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Plants in Wetlands		Count of Plants											
Plants (common name)	*Plants (ACCDC Binom)*	In Project	In Any Wetland	WL1	WL2	WL3	WL4	WL5	WL6	WL7	WL8	WL9	WL10
Skunk Currant	*Ribes glandulosum*	2	1	1	0	0	0	0	0	0	0	0	0
Bristly Black Currant	*Ribes lacustre*	3	3	0	0	1	0	0	0	0	0	0	2
Currant	*Ribes sp.*	1	1	0	0	0	0	0	0	0	0	0	1
Watercress	*Rorippa nasturtium-aquaticum*	1	1	1	0	0	0	0	0	0	0	0	0
Shining Rose	*Rosa nitida*	8	6	0	0	1	1	0	0	0	1	1	2
Swamp Rose	*Rosa palustris*	1	1	0	0	0	0	0	0	0	0	0	1
a Rose	*Rosa sp.*	2	1	0	0	0	0	0	0	0	0	0	1
Glandulose Dewberry	*Rubus adenocaulis*	1	0	0	0	0	0	0	0	0	0	0	0
Allegheny Blackberry	*Rubus allegheniensis*	2	0	0	0	0	0	0	0	0	0	0	0
Smooth Blackberry	*Rubus canadensis*	2	2	0	1	0	1	0	0	0	0	0	0
Northern Dewberry	*Rubus flagellaris*	1	1	0	0	0	0	0	0	0	0	0	1
Bristly Dewberry	*Rubus hispidus*	6	4	0	0	1	1	0	0	0	1	1	0
Red Raspberry	*Rubus idaeus*	9	5	0	1	1	1	0	0	0	0	0	2
Dwarf Red Raspberry	*Rubus pubescens*	9	8	1	1	1	1	0	0	0	1	1	2
Arching Dewberry	*Rubus recurvicaulis*	2	2	1	0	0	0	0	0	0	0	0	1
a Blackberry	*Rubus sp.*	1	1	0	1	0	0	0	0	0	0	0	0
Curled Dock	*Rumex crispus*	2	2	0	0	0	0	1	0	0	0	0	1
Bebb's Willow	*Salix bebbiana*	3	2	1	0	1	0	0	0	0	0	0	0
Pussy Willow	*Salix discolor*	3	3	1	1	1	0	0	0	0	0	0	0
Crack Willow	*Salix fragilis*	2	2	0	0	0	0	2	0	0	0	0	0
Upland Willow	*Salix humilis*	3	2	0	1	0	0	0	0	0	1	0	0
Shining Willow	*Salix lucida*	1	1	0	0	0	0	1	0	0	0	0	0
Balsam Willow	*Salix pyrifolia*	2	1	1	0	0	0	0	0	0	0	0	0
a Willow	*Salix sp.*	1	1	0	0	0	0	0	0	0	0	0	1
Soft-stemmed Bulrush	*Schoenoplectus tabernaemontani*	3	2	0	0	0	0	2	0	0	0	0	0
Common Woolly Bulrush	*Scirpus cyperinus*	8	5	1	2	1	0	0	0	0	0	0	1
Mosquito Bulrush	*Scirpus hattorianus*	6	3	0	0	0	0	1	0	0	1	0	1
Small-fruited Bulrush	*Scirpus microcarpus*	1	1	0	0	0	0	0	0	0	0	0	1
Marsh Skullcap	*Scutellaria galericulata*	2	2	0	0	0	0	0	0	0	0	0	2
Mad-dog Skullcap	*Scutellaria lateriflora*	6	3	1	1	0	0	0	0	0	1	0	0
Woodland Ragwort	*Senecio sylvaticus*	1	0	0	0	0	0	0	0	0	0	0	0
Sticky Ragwort	*Senecio viscosus*	5	0	0	0	0	0	0	0	0	0	0	0
Yellow Foxtail	*Setaria glauca*	1	0	0	0	0	0	0	0	0	0	0	0
Mountain Blue-eyed-grass	*Sisyrinchium montanum*	2	0	0	0	0	0	0	0	0	0	0	0
Common Water Parsnip	*Sium suave*	1	1	0	0	0	0	0	0	0	0	0	1
Bittersweet Nightshade	*Solanum dulcamara*	5	3	0	0	0	0	0	0	0	1	0	2
Canada Goldenrod	*Solidago canadensis*	12	7	0	1	1	1	0	0	0	1	1	2
Zigzag Goldenrod	*Solidago flexicaulis*	2	1	0	0	0	0	0	0	0	0	0	1
Giant Goldenrod	*Solidago gigantea*	5	4	1	1	1	0	1	0	0	0	0	0
Early Goldenrod	*Solidago juncea*	1	0	0	0	0	0	0	0	0	0	0	0
Downy Goldenrod	*Solidago puberula*	3	0	0	0	0	0	0	0	0	0	0	0
Rough-stemmed Goldenrod	*Solidago rugosa*	13	8	1	1	1	1	1	0	0	1	0	2
Northern Bog Goldenrod	*Solidago uliginosa*	2	2	0	1	0	0	0	0	0	0	0	1
Prickly Sow Thistle	*Sonchus asper*	1	0	0	0	0	0	0	0	0	0	0	0
American Mountain Ash	*Sorbus americana*	1	0	0	0	0	0	0	0	0	0	0	0
White Meadowsweet	*Spiraea alba*	7	6	1	0	1	0	0	0	0	1	1	2
Steeplebush	*Spiraea tomentosa*	8	3	1	0	0	1	0	0	0	1	0	0
Heart-leaved Aster	*Symphyotrichum cordifolium*	1	1	0	0	0	0	0	0	0	0	0	1
Lance-leaved Aster	*Symphyotrichum lanceolatum*	1	0	0	0	0	0	0	0	0	0	0	0
Calico Aster	*Symphyotrichum lateriflorum*	11	8	1	1	1	1	0	0	0	1	2	1
New York Aster	*Symphyotrichum novi-belgii*	3	2	0	0	1	0	0	0	0	0	0	1

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Plants in Wetlands		Count of Plants											
Plants (common name)	*Plants (ACCDC Binom)*	In Project	In Any Wetland	WL1	WL2	WL3	WL4	WL5	WL6	WL7	WL8	WL9	WL10
Purple-stemmed Aster	*Symphyotrichum puniceum*	6	6	1	2	1	0	0	0	0	0	0	2
Common Dandelion	*Taraxacum officinale*	3	2	0	0	0	1	0	0	0	0	0	1
Canada Yew	*Taxus canadensis*	1	0	0	0	0	0	0	0	0	0	0	0
Tall Meadow-Rue	*Thalictrum pubescens*	2	2	0	0	0	0	0	0	0	0	0	2
New York Fern	*Thelypteris noveboracensis*	14	8	1	1	1	1	0	0	0	1	1	2
Eastern Marsh Fern	*Thelypteris palustris*	1	1	0	0	0	0	0	0	0	0	0	1
Northern Starflower	*Trientalis borealis*	7	3	1	0	0	0	0	0	0	0	0	2
Red Clover	*Trifolium pratense*	1	0	0	0	0	0	0	0	0	0	0	0
White Clover	*Trifolium repens*	2	0	0	0	0	0	0	0	0	0	0	0
Nodding Trillium	*Trillium cernuum*	1	1	0	0	0	0	0	0	0	0	0	1
Painted Trillium	*Trillium undulatum*	1	0	0	0	0	0	0	0	0	0	0	0
Eastern Hemlock	*Tsuga canadensis*	5	2	0	1	0	1	0	0	0	0	0	0
Coltsfoot	*Tussilago farfara*	7	4	1	0	0	1	0	0	0	1	0	1
Broad-leaved Cattail	*Typha latifolia*	8	3	0	1	0	0	0	0	0	0	0	2
Sessile-leaved Bellwort	*Uvularia sessilifolia*	1	0	0	0	0	0	0	0	0	0	0	0
Late Lowbush Blueberry	*Vaccinium angustifolium*	4	1	0	0	0	0	0	0	0	1	0	0
Velvet-leaved Blueberry	*Vaccinium myrtilloides*	3	0	0	0	0	0	0	0	0	0	0	0
Field Speedwell	*Veronica agrestis*	1	0	0	0	0	0	0	0	0	0	0	0
Common Speedwell	*Veronica officinalis*	4	1	0	1	0	0	0	0	0	0	0	0
Northern Wild Raisin	*Viburnum nudum*	3	2	0	0	1	0	0	0	0	0	1	0
Highbush Cranberry	*Viburnum opulus*	1	1	0	0	0	0	0	0	0	0	0	1
Tufted Vetch	*Vicia cracca*	2	2	0	0	0	0	0	0	0	0	0	2
Marsh Blue Violet	*Viola cucullata*	4	2	0	0	0	1	0	0	0	0	0	1
Small White Violet	*Viola macloskeyi*	1	1	1	0	0	0	0	0	0	0	0	0

Appendix I, Table I4: Bird species identified within the vicinity of the Study Area by the ACCDC and MBBA

Common Name	Scientific Name	SARA	COSEWIC	NS ESA	General Status Rank NS	ACCDC S-RANK	ACCDC (<20 km)	MBBA Breeding Status
House Sparrow	*Passer domesticus*	-	-	-	Exotic	SNA		Confirmed
Evening Grosbeak	*Coccothraustes vespertinus*	-	-	-	Secure	S4B,S5N		Confirmed
American Goldfinch	*Carduelis tristis*	-	-	-	Secure	S5		Confirmed
Pine Siskin	*Carduelis pinus*	-	-	-	Sensitive	S3S4B,S5N	✓	Confirmed
White-winged Crossbill	*Loxia leucoptera*	-	-	-	Secure	S4S5		Possible
Red Crossbill	*Loxia curvirostra*	-	-	-	Secure	S4?		Possible
Purple Finch	*Carpodacus purpureus*	-	-	-	Secure	S4S5		Confirmed
Pine Grosbeak	*Pinicola enucleator*	-	-	-	May Be At Risk	S3?B,S5N	✓	Possible
Baltimore Oriole	*Icterus galbula*	-	-	-	May Be At Risk	S2S3B	✓	Possible
Brown-headed Cowbird	*Molothrus ater*	-	-	-	Secure	S2S3B	✓	Confirmed
Common Grackle	*Quiscalus quiscula*	-	-	-	Secure	S5B		Confirmed
Rusty Blackbird	*Euphagus carolinus*	Special Concern	Special Concern	Endangered	May Be At Risk	S2S3B	✓	Confirmed
Red-winged Blackbird	*Agelaius phoeniceus*	-	-	-	Secure	S4S5B		Confirmed
Bobolink	*Dolichonyx oryzivorus*	-	Threatened	Vulnerable	Sensitive	S3S4B	✓	Confirmed
Dark-eyed Junco	*Junco hyemalis*	-	-	-	Secure	S4S5		Confirmed
White-throated Sparrow	*Zonotrichia albicollis*	-	-	-	Secure	S5B		Confirmed
Swamp Sparrow	*Melospiza georgiana*	-	-	-	Secure	S5B		Confirmed
Lincoln's Sparrow	*Melospiza lincolnii*	-	-	-	Secure	S4B		Probable
Song Sparrow	*Melospiza melodia*	-	-	-	Secure	S5B		Confirmed
Fox Sparrow	*Passerella iliaca*	-	-	-	Secure	S3S4B	✓	Possible
Nelson's Sharp-tailed Sparrow	*Ammodramus nelsoni*	-	-	-	Secure	S4B		Confirmed
Savannah Sparrow	*Passerculus sandwichensis*	-	-	-	Secure	S4B		Confirmed
Vesper Sparrow	*Pooecetes gramineus*	-	-	-	May Be At Risk	S2S3B	✓	

Appendix I, Table I4: Bird species identified within the vicinity of the Study Area by the ACCDC and MBBA

Common Name	Scientific Name	SARA	COSEWIC	NS ESA	General Status Rank NS	ACCDC S-RANK	ACCDC (<20 km)	MBBA Breeding Status
Chipping Sparrow	*Spizella passerina*	-	-	-	Secure	S4S5B		Confirmed
Indigo Bunting	*Passerina cyanea*	-	-	-	Undetermined	S1S2B	✓	
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	-	-	-	Sensitive	S3S4B	✓	Confirmed
Canada Warbler	*Wilsonia canadensis*	Threatened	Threatened	Endangered	At Risk	S3B	✓	Probable
Wilson's Warbler	*Wilsonia pusilla*	-	-	-	Sensitive	S3S4B	✓	
Common Yellowthroat	*Geothlypis trichas*	-	-	-	Secure	S5B		Confirmed
Mourning Warbler	*Oporornis philadelphia*	-	-	-	Secure	S4B		Probable
Northern Waterthrush	*Seiurus noveboracensis*	-	-	-	Secure	S4B		Probable
Ovenbird	*Seiurus aurocapillus*	-	-	-	Secure	S5B		Confirmed
American Redstart	*Setophaga ruticilla*	-	-	-	Secure	S5B		Confirmed
Black-and-white Warbler	*Mniotilta varia*	-	-	-	Secure	S4S5B		Confirmed
Blackpoll Warbler	*Dendroica striata*	-	-	-	Sensitive	S3S4B	✓	Possible
Bay-breasted Warbler	*Dendroica castanea*	-	-	-	Sensitive	S3S4B	✓	Probable
Palm Warbler	*Dendroica palmarum*	-	-	-	Secure	S5B		Confirmed
Blackburnian Warbler	*Dendroica fusca*	-	-	-	Secure	S4B		Possible
Black-throated Green Warbler	*Dendroica virens*	-	-	-	Secure	S4S5B		Confirmed
Yellow-rumped Warbler	*Dendroica coronata*	-	-	-	Secure	S5B		Confirmed
Black-throated Blue Warbler	*Dendroica caerulescens*	-	-	-	Secure	S5B		Possible
Cape May Warbler	*Dendroica tigrina*	-	-	-	Sensitive	S3?B	✓	
Magnolia Warbler	*Dendroica magnolia*	-	-	-	Secure	S5B		Confirmed
Chestnut-sided Warbler	*Dendroica pensylvanica*	-	-	-	Secure	S5B		Confirmed
Yellow Warbler	*Dendroica petechia*	-	-	-	Secure	S5B		Confirmed
Northern Parula	*Parula americana*	-	-	-	Secure	S5B		Confirmed

Appendix I, Table I4: Bird species identified within the vicinity of the Study Area by the ACCDC and MBBA

Common Name	Scientific Name	SARA	COSEWIC	NS ESA	General Status Rank NS	ACCDC S-RANK	ACCDC (<20 km)	MBBA Breeding Status
Nashville Warbler	*Vermivora ruficapilla*	-	-	-	Secure	S5B		Confirmed
Tennessee Warbler	*Vermivora peregrina*	-	-	-	Sensitive	S3S4B	✓	Confirmed
Red-eyed Vireo	*Vireo olivaceus*	-	-	-	Secure	S5B		Confirmed
Blue-headed Vireo	*Vireo solitarius*	-	-	-	Secure	S5B		Confirmed
European Starling	*Sturnus vulgaris*	-	-	-	Exotic	SNA		Confirmed
Cedar Waxwing	*Bombycilla cedrorum*	-	-	-	Secure	S5B		Confirmed
Gray Catbird	*Dumetella carolinensis*	-	-	-	May Be At Risk	S3B	✓	Confirmed
American Robin	*Turdus migratorius*	-	-	-	Secure	S5B		Confirmed
Wood Thrush	*Hylocichla mustelina*	-	-	-	Undetermined	S1B	✓	
Hermit Thrush	*Catharus guttatus*	-	-	-	Secure	S5B		Confirmed
Swainson's Thrush	*Catharus ustulatus*	-	-	-	Secure	S4S5B		Probable
Veery	*Catharus fuscescens*	-	-	-	Secure	S4B		Probable
Eastern Bluebird	*Sialia sialis*	-	Not At Risk	-	Sensitive	S3B	✓	Confirmed
Ruby-crowned Kinglet	*Regulus calendula*	-	-	-	Sensitive	S4B		Confirmed
Golden-crowned Kinglet	*Regulus satrapa*	-	-	-	Sensitive	S4		Confirmed
Winter Wren	*Troglodytes troglodytes*	-	-	-	Secure	S5B		Confirmed
Brown Creeper	*Certhia americana*	-	-	-	Secure	S5		Probable
White-breasted Nuthatch	*Sitta carolinensis*	-	-	-	Secure	S4		Possible
Red-breasted Nuthatch	*Sitta canadensis*	-	-	-	Secure	S4S5		Confirmed
Boreal Chickadee	*Poecile hudsonica*	-	-	-	Sensitive	S3	✓	Confirmed
Black-capped Chickadee	*Poecile atricapilla*	-	-	-	Secure	S5		Confirmed
Common Raven	*Corvus corax*	-	-	-	Secure	S5		Confirmed
American Crow	*Corvus brachyrhynchos*	-	-	-	Secure	S5		Confirmed
Blue Jay	*Cyanocitta cristata*	-	-	-	Secure	S5		Confirmed

Appendix I, Table I4: Bird species identified within the vicinity of the Study Area by the ACCDC and MBBA

Common Name	Scientific Name	SARA	COSEWIC	NS ESA	General Status Rank NS	ACCDC S-RANK	ACCDC (<20 km)	MBBA Breeding Status
Gray Jay,	*Perisoreus canadensis*	-	-	-	Sensitive	S3S4	✓	Confirmed
Barn Swallow	*Hirundo rustica*	-	Threatened	Endangered	At Risk	S3B	✓	Confirmed
Cliff Swallow	*Petrochelidon pyrrhonota*	-	-	-	May Be At Risk	S3B	✓	Confirmed
Bank Swallow	*Riparia riparia*	-	-	-	May Be At Risk	S3B	✓	Confirmed
Tree Swallow	*Tachycineta bicolor*	-	-	-	Sensitive	S4B		Confirmed
Horned Lark	*Eremophila alpestris*	-	-	-	Secure	S1S2B,S4N	✓	
Eastern Kingbird	*Tyrannus tyrannus*	-	-	-	Sensitive	S3S4B	✓	Confirmed
Great Crested Flycatcher	*Myiarchus crinitus*	-	-	-	May Be At Risk	S2B	✓	
Eastern Phoebe	*Sayornis phoebe*	-	-	-	Sensitive	S3S4B	✓	Probable
Least Flycatcher	*Empidonax minimus*	-	-	-	Secure	S4B		Confirmed
Willow Flycatcher	*Empidonax traillii*	-	-	-	Sensitive	S2B	✓	
Alder Flycatcher	*Empidonax alnorum*	-	-	-	Secure	S5B		Confirmed
Yellow-bellied Flycatcher	*Empidonax flaviventris*	-	-	-	Sensitive	S3S4B	✓	Possible
Eastern Wood-Pewee	*Contopus virens*	-	Special Concern	Vulnerable	Sensitive	S3S4B	✓	Confirmed
Olive-sided Flycatcher	*Contopus cooperi*	Threatened	Threatened	Threatened	At Risk	S3B	✓	Probable
Pileated Woodpecker	*Dryocopus pileatus*	-	-	-	Secure	S5		Confirmed
Northern Flicker	*Colaptes auratus*	-	-	-	Secure	S5B		Confirmed
Black-backed Woodpecker	*Picoides arcticus*	-	-	-	Sensitive	S3S4	✓	Probable
Hairy Woodpecker	*Picoides villosus*	-	-	-	Secure	S5		Confirmed
Downy Woodpecker	*Picoides pubescens*	-	-	-	Secure	S5		Confirmed
Yellow-bellied Sapsucker	*Sphyrapicus varius*	-	-	-	Secure	S4S5B		Confirmed
Belted Kingfisher	*Megaceryle alcyon*	-	-	-	Secure	S5B		Confirmed
Ruby-throated Hummingbird	*Archilochus colubris*	-	-	-	Secure	S5B		Confirmed

Appendix I, Table I4: Bird species identified within the vicinity of the Study Area by the ACCDC and MBBA

Common Name	Scientific Name	SARA	COSEWIC	NS ESA	General Status Rank NS	ACCDC S-RANK	ACCDC (<20 km)	MBBA Breeding Status
Chimney Swift	*Chaetura pelagica*	Threatened	Threatened	Endangered	At Risk	S2S3B	✓	Possible
Whip-Poor-Will	*Caprimulgus vociferus*	Threatened	-	Threatened	At Risk	S1?B	✓	
Common Nighthawk	*Chordeiles minor*	Threatened	Threatened	Threatened	At Risk	S3B	✓	Confirmed
Northern Saw-whet Owl	*Aegolius acadicus*	-	-	-	Secure	S4		Possible
Boreal Owl	*Aegolius funereus*	-	-	-	Undetermined	S1B	✓	
Long-eared Owl	*Asio otus*	-	-	-	May Be At Risk	S2		Possible
Barred Owl	*Strix varia*	-	-	-	Secure	S5		Confirmed
Great Horned Owl	*Bubo virginianus*	-	-	-	Secure	S5		Probable
Black-billed Cuckoo	*Coccyzus erythropthalmus*	-	-	-	May Be At Risk	S3?B	✓	Possible
Mourning Dove	*Zenaida macroura*	-	-	-	Secure	S5		Confirmed
Rock Pigeon	*Columba livia*	-	-	-	Exotic	SNA	✓	Confirmed
Common Tern	*Sterna hirundo*	-	-	-	Sensitive	S3B	✓	
American Woodcock	*Scolopax minor*	-	-	-	Secure	S4S5B		Confirmed
Wilson's Snipe	*Gallinago delicata*	-	-	-	Sensitive	S3S4B	✓	Confirmed
Spotted Sandpiper	*Actitis macularius*	-	-	-	Sensitive	S3S4B	✓	Confirmed
Willet	*Tringa semipalmata*	-	-	-	May Be At Risk	S2S3B	✓	
Greater Yellowlegs	*Tringa melanoleuca*	-	-	-	Sensitive	S3B,S5M	✓	
Killdeer	*Charadrius vociferus*	-	-	-	Sensitive	S3S4B	✓	Confirmed
Sora	*Porzana carolina*	-	-	-	Secure	S4S5B		Probable
Virginia Rail	*Rallus limicola*	-	-	-	Undetermined	S2B	✓	
Northern Bobwhite	*Colinus virginianus*	Endangered	-	-			✓	
Ruffed Grouse	*Bonasa umbellus*	-	-	-	Secure	S4S5		Confirmed
Ring-necked Pheasant	*Phasianus colchicus*	-	-	-	Exotic	SNA		Confirmed
Merlin	*Falco columbarius*	-	-	-	Secure	S5B		Probable
American Kestrel	*Falco sparverius*	-	-	-	Secure	S5B		Confirmed
Red-tailed Hawk	*Buteo jamaicensis*	-	-	-	Secure	S5		Confirmed
Broad-winged Hawk	*Buteo platypterus*	-	-	-	Secure	S4S5B		Confirmed

Appendix I, Table I4: Bird species identified within the vicinity of the Study Area by the ACCDC and MBBA

Common Name	Scientific Name	SARA	COSEWIC	NS ESA	General Status Rank NS	ACCDC S-RANK	ACCDC (<20 km)	MBBA Breeding Status
Northern Goshawk	*Accipiter gentilis*	-	Not At Risk	-	Secure	S3S4	✓	Confirmed
Sharp-shinned Hawk	*Accipiter striatus*	-	-	-	Secure	S4S5B		Confirmed
Northern Harrier	*Circus cyaneus*	-	-	-	Secure	S5B		Confirmed
Bald Eagle	*Haliaeetus leucocephalus*	-	-	-	Secure	S4		Confirmed
Osprey	*Pandion haliaetus*	-	-	-	Secure	S5B		Confirmed
Red-breasted Merganser	*Mergus serrator*	-	-	-	Secure	S3B,S5N		Confirmed
Common Merganser	*Mergus merganser*	-	-	-	Secure	S5		Confirmed
Ring-necked Duck	*Aythya collaris*	-	-	-	Secure	S5B		Confirmed
Northern Shoveler	*Anas clypeata*	-	-	-	May Be At Risk	S2B	✓	
Blue-winged Teal	*Anas discors*	-	-	-	May Be At Risk	S3B	✓	Confirmed
Northern Pintail	*Anas acuta*	-	-	-	May Be At Risk	S2B	✓	
Mallard	*Anas platyrhynchos*	-	-	-	Secure	S5		Confirmed
American Black Duck	*Anas rubripes*	-	-	-	Secure	S5		Confirmed
American Green-winged Teal	*Anas crecca*	-	-	-	Secure	S4S5B		Confirmed
Wood Duck	*Aix sponsa*	-	-	-	Secure	S4S5B		Confirmed
Canada Goose	*Branta canadensis*	-	-	-	Secure	SNAB,S4N	✓	Confirmed
Great Blue Heron	*Ardea herodias*	-	-	-	Secure	S4B		Possible
American Bittern	*Botaurus lentiginosus*	-	-	-	Sensitive	S3S4B	✓	Probable
Pied-billed Grebe	*Podilymbus podiceps*	-	-	-	Sensitive	S3B	✓	Confirmed
Common Loon	*Gavia immer*	-	Not At Risk	-	May Be At Risk	S3B,S4N	✓	Confirmed

Appendix I, Table I5: Birds recorded within the Study Area during the 2014 surveys (including specific wetlands) and their population statuses

ID	Species	Scientific Name	SARA	COSEWIC	NS ESA	General Status Rank (NS)	ACCDC Rank	WL1	WL2	WL3	WL4	WL5	WL6	WL7	WL8	WL9	WL10
1	Alder Flycatcher	*Empidonax alnorum*	-	-	-	Secure	S5B										Present
2	American Bittern	*Botaurus lentiginosus*	-	-	-	Sensitive	S3S4B										
3	American Black Duck	*Anas rubripes*	-	-	-	Secure	S5										Present
4	American Crow	*Corvus brachyrhynchos*	-	-	-	Secure	S5										Present
5	American Goldfinch	*Carduelis tristis*	-	-	-	Secure	S5										Present
6	American Kestrel	*Falco sparverius*	-	-	-	Secure	S5B										
7	American Redstart	*Setophaga ruticilla*	-	-	-	Secure	S5B										
8	American Robin	*Turdus migratorius*	-	-	-	Secure	S5B		Present	Present				Present	Present		Present
9	American Woodcock	*Scolopax minor*	-	-	-	Secure	S4S5B										
10	Bald Eagle	*Haliaeetus leucocephalus*	-	Not At Risk	-	Secure	S4										
11	Baltimore Oriole	*Icterus galbula*	-	-	-	May Be At Risk	S2S3B										
12	Bank Swallow	*Riparia riparia*	-	-	-	May Be At Risk	S3B										
13	Barn Swallow	*Hirundo rustica*	-	-	Endangered	Sensitive	S3B										
14	Barred Owl	*Strix varia*	-	-	-	Secure	S5										
15	Bay-breasted Warbler	*Dendroica castanea*	-	-	-	Sensitive	S3S4B										
16	Belted Kingfisher	*Megaceryle alcyon*	-	-	-	Secure	S5B										
17	Black-and-white Warbler	*Mniotilta varia*	-	-	-	Secure	S4S5B		Present	Present	Present		Present	Present	Present		Present
18	Black-backed Woodpecker	*Picoides arcticus*	-	-	-	Sensitive	S3S4										
19	Black-billed Cuckoo	*Coccyzus erythropthalmus*	-	-	-	May Be At Risk	S3?B										
20	Blackburnian Warbler	*Dendroica fusca*	-	-	-	Secure	S4B										
21	Black-capped Chickadee	*Poecile atricapilla*	-	-	-	Secure	S5										Present
22	Blackpoll Warbler	*Dendroica striata*	-	-	-	Sensitive	S3S4B										
23	Black-throated Blue Warbler	*Dendroica caerulescens*	-	-	-	Secure	S5B										
24	Black-throated Green Warbler	*Dendroica virens*	-	-	-	Secure	S4S5B	Present					Present	Present	Present		Present
25	Blue Jay	*Cyanocitta cristata*	-	-	-	Secure	S5	Present									Present
26	Blue-headed Vireo	*Vireo solitarius*	-	-	-	Secure	S5B			Present							Present
27	Blue-winged Teal	*Anas discors*	-	-	-	May Be At Risk	S3B										
28	Bobolink	*Dolichonyx oryzivorus*	-	Threatened	Vulnerable	Sensitive	S3S4B										
29	Boreal Chickadee	*Poecile hudsonica*	-	-	-	Sensitive	S3										
30	Broad-winged Hawk	*Buteo platypterus*	-	-	-	Secure	S4S5B										
31	Brown Creeper	*Certhia americana*	-	-	-	Secure	S5										
32	Brown-headed Cowbird	*Molothrus ater*	-	-	-	May Be At Risk	S2S3B										
33	Canada Goose	*Branta canadensis*	-	-	-	Secure	SNAB,S4N										
34	Canada Warbler	*Wilsonia canadensis*	Threatened	Threatened	Endangered	At Risk	S3B										Present
35	Cedar Waxwing	*Bombycilla cedrorum*	-	-	-	Secure	S5B					Present		Present	Present	Present	Present
36	Chestnut-sided Warbler	*Dendroica pensylvanica*	-	-	-	Secure	S5B										
37	Chipping Sparrow	*Spizella passerina*	-	-	-	Secure	S4S5B										
38	Cliff Swallow	*Petrochelidon pyrrhonota*	-	-	-	May Be At Risk	S3B										
39	Common Grackle	*Quiscalus quiscula*	-	-	-	Secure	S5B										
40	Common Loon	*Gavia immer*	-	Not At Risk	-	May Be At Risk	S3B,S4N										
41	Common Merganser	*Mergus merganser*	-	-	-	Secure	S5										
42	Common Nighthawk	*Chordeiles minor*	Threatened	Threatened	Threatened	At Risk	S3B										
43	Common Raven	*Corvus corax*	-	-	-	Secure	S5										
44	Common Yellowthroat	*Geothlypis trichas*	-	-	-	Secure	S5B		Present								Present
45	Dark-eyed Junco	*Junco hyemalis*	-	-	-	Secure	S4S5										
46	Downy Woodpecker	*Picoides pubescens*	-	-	-	Secure	S5										
47	Eastern Bluebird	*Sialia sialis*	-	Not At Risk	-	Sensitive	S3B										
48	Eastern Kingbird	*Tyrannus tyrannus*	-	-	-	Sensitive	S3S4B										
49	Eastern Phoebe	*Sayornis phoebe*	-	-	-	Sensitive	S3S4B										
50	Eastern Wood-Pewee	*Contopus virens*	-	Special Concern	Vulnerable	Sensitive	S3S4B										
51	European Starling	*Sturnus vulgaris*	-	-	-	Exotic	SNA										
52	Evening Grosbeak	*Coccothraustes vespertinus*	-	-	-	Secure	S4B,S5N										
53	Fox Sparrow	*Passerella iliaca*	-	-	-	Secure	S3S4B										
54	Golden-crowned Kinglet	*Regulus satrapa*	-	-	-	Sensitive	S4										
55	Gray Catbird	*Dumetella carolinensis*	-	-	-	May Be At Risk	S3B										
56	Gray Jay	*Perisoreus canadensis*	-	-	-	Sensitive	S3S4										
57	Great Blue Heron	*Ardea herodias*	-	-	-	Secure	S4B										
58	Great Horned Owl	*Bubo virginianus*	-	-	-	Secure	S5										
59	Hairy Woodpecker	*Picoides villosus*	-	-	-	Secure	S5										
60	Hermit Thrush	*Catharus guttatus*	-	-	-	Secure	S5B	Present	Present								
61	House Sparrow	*Passer domesticus*	-	-	-	Exotic	SNA										
62	Killdeer	*Charadrius vociferus*	-	-	-	Sensitive	S3S4B										
63	Least Flycatcher	*Empidonax minimus*	-	-	-	Secure	S4B			Present							

Appendix I, Table I5: Birds recorded within the Study Area during the 2014 surveys (including specific wetlands) and their population statuses

ID	Species	Scientific Name	SARA	COSEWIC	NS ESA	General Status Rank (NS)	ACCDC Rank	WL1	WL2	WL3	WL4	WL5	WL6	WL7	WL8	WL9	WL10
64	Lincoln's Sparrow	*Melospiza lincolnii*	-	-	-	Secure	S4B										
65	Long-eared Owl	*Asio otus*	-	-	-	May Be At Risk	S2										
66	Magnolia Warbler	*Dendroica magnolia*	-	-	-	Secure	S5B										
67	Mallard	*Anas platyrhynchos*	-	-	-	Secure	S5										
68	Merlin	*Falco columbarius*	-	Not At Risk	-	Secure	S5B										
69	Mourning Dove	*Zenaida macroura*	-	-	-	Secure	S5										
70	Nashville Warbler	*Vermivora ruficapilla*	-	-	-	Secure	S5B										
71	Northern Flicker	*Colaptes auratus*	-	-	-	Secure	S5B										Present
72	Northern Goshawk	*Accipiter gentilis*	-	Not At Risk	-	Secure	S3S4										
73	Northern Harrier	*Circus cyaneus*	-	Not At Risk	-	Secure	S5B										
74	Northern Parula	*Parula americana*	-	-	-	Secure	S5B	Present									Present
75	Northern Saw-whet Owl	*Aegolius acadicus*	-	-	-	Secure	S4										
76	Northern Waterthrush	*Seiurus noveboracensis*	-	-	-	Secure	S4B										
77	Olive-sided Flycatcher	*Contopus cooperi*	Threatened	Threatened	Threatened	At Risk	S3B										
78	Osprey	*Pandion haliaetus*	-	-	-	Secure	S5B										
79	Ovenbird	*Seiurus aurocapillus*	-	-	-	Secure	S5B	Present	Present	Present				Present		Present	Present
80	Palm Warbler	*Dendroica palmarum*	-	-	-	Secure	S5B										
81	Pied-billed Grebe	*Podilymbus podiceps*	-	-	-	Sensitive	S3B										
82	Pileated Woodpecker	*Dryocopus pileatus*	-	-	-	Secure	S5										Present
83	Pine Siskin	*Carduelis pinus*	-	-	-	Sensitive	S3S4B,S5N										
84	Purple Finch	*Carpodacus purpureus*	-	-	-	Secure	S4S5		Present								
85	Red-breasted Merganser	*Mergus serrator*	-	-	-	Secure	S3B,S5N										
86	Red-breasted Nuthatch	*Sitta canadensis*	-	-	-	Secure	S4S5										
87	Red-eyed Vireo	*Vireo olivaceus*	-	-	-	Secure	S5B		Present	Present	Present					Present	Present
88	Red-tailed Hawk	*Buteo jamaicensis*	-	Not At Risk	-	Secure	S5										
89	Red-winged Blackbird	*Agelaius phoeniceus*	-	-	-	Secure	S4S5B					Present					
90	Ring-necked Duck	*Aythya collaris*	-	-	-	Secure	S5B										
91	Ring-necked Pheasant	*Phasianus colchicus*	-	-	-	Exotic	SNA										
92	Rock Pigeon	*Columba livia*	-	-	-	Exotic	SNA										
93	Rose-breasted Grosbeak	*Pheucticus ludovicianus*	-	-	-	Sensitive	S3S4B										
94	Ruby-crowned Kinglet	*Regulus calendula*	-	-	-	Sensitive	S4B										
95	Ruby-throated Hummingbird	*Archilochus colubris*	-	-	-	Secure	S5B										
96	Ruffed Grouse	*Bonasa umbellus*	-	-	-	Secure	S4S5			Present				Present	Present		
97	Rusty Blackbird	*Euphagus carolinus*	Special Concern	Special Concern	Endangered	May Be At Risk	S2S3B										
98	Savannah Sparrow	*Passerculus sandwichensis*	-	-	-	Secure	S4B										
99	Sharp-shinned Hawk	*Accipiter striatus*	-	Not At Risk	-	Secure	S4S5B										
100	Song Sparrow	*Melospiza melodia*	-	-	-	Secure	S5B				Present						Present
101	Sora	*Porzana carolina*	-	-	-	Secure	S4S5B										
102	Spotted Sandpiper	*Actitis macularius*	-	-	-	Sensitive	S3S4B										
103	Swainson's Thrush	*Catharus ustulatus*	-	-	-	Secure	S4S5B										
104	Swamp Sparrow	*Melospiza georgiana*	-	-	-	Secure	S5B										Present
105	Tennessee Warbler	*Vermivora peregrina*	-	-	-	Sensitive	S3S4B										
106	Tree Swallow	*Tachycineta bicolor*	-	-	-	Sensitive	S4B										
107	Veery	*Catharus fuscescens*	-	-	-	Secure	S4B										
108	White-breasted Nuthatch	*Sitta carolinensis*	-	-	-	Secure	S4										
109	White-throated Sparrow	*Zonotrichia albicollis*	-	-	-	Secure	S5B				Present						
110	Wilson's Snipe	*Gallinago delicata*	-	-	-	Sensitive	S3S4B										
111	Winter Wren	*Troglodytes troglodytes*	-	-	-	Secure	S5B										
112	Wood Duck	*Aix sponsa*	-	-	-	Secure	S4S5B										
113	Yellow Warbler	*Dendroica petechia*	-	-	-	Secure	S5B			Present							
114	Yellow-bellied Sapsucker	*Sphyrapicus varius*	-	-	-	Secure	S4S5B										
115	Yellow-rumped Warbler	*Dendroica coronata*	-	-	-	Secure	S5B										Present
116	Yellow Warbler	*Dendroica petechia*	-	-	-	Secure	S5B										
117	Northern Mockingbird	*Mimus polyglottos*	-	-	-	Secure	S3B										
Playback for CAWA?								Present (no detection)	Present (no detection	Present (no detection)			Present (no detection)	Present (no detection)	Present (no detection)	Present (no detection)	

Appendix I, Table I6: Herpetiles recorded within the Study Area during the 2014 surveys (including specific wetlands)

Species	**WL5**	**WL5**	**WL10**
Green Frog		Present	Present
Maritime Garter Snake			
Pickerel Frog			
Wood Frog			
American Toad			
Wood Frog			
Maritime Garter Snake			
Pickerel Frog			
Spring Peeper			
Green Frog			
Snapping Turtle	Present		
Fish-bearing			Yes

Appendix J
Wetland Survey Data Sheets

Wetland 1: Nova Scotia Wetland Evaluation Technique Field Data Sheet

Project Name: National Gypsum Mine Expansion		Evaluator: E. Kennedy & A. Fancey		GPS Coordinates: WL1						
PID:		Site Address:								
Sources and Dates of Mapping/Images:										
Evaluation Date:		Site Visit Date: September 11, 2014								
Weather Conditions (past 48 hours):										
Seasonal Weather Conditions:										
SECTION ONE: WATERSHED CHARACTERISTICS										
1	Watershed name (tertiary): **1DG-1-WW**	**Size: 203.79 km^2**								
2	% Watershed land cover	**For: 84%**	Nat: 0	Past/Hay: 0	**Crop: 6%**	**Ur/Co: 1%**	**Road: 1%**	**Other Dev: 6%**		
3	% Watershed WL cover and by class	**Total: 4.6%**	SM: 0	**BO/FE: 6%**	**FE: 9%**	**FM: 34%**	**Swamp: 49%**		CP: 0	VP: 0
SF1	***Watershed condition***	H	**M X**	L						
SF2	***Proportion of WL area in watershed & opportunity for floodwater detention***	**H X**	M	L						
SECTION TWO: SITE DESCRIPTION AND WETLAND CHARACTER										
Wetland type: Forested wetland		**WL size: 0.243 ha**			**Landform: Basin**			**Landscape Position: Terrene**		
Water flow path: inflow		**Wetland Origin: Natural**								
1	Water regime	PF	SF	TF	**SS X**	PS	RfT	IfT	AF	
2	# WL's within 30m project area	Total # =	SM:	BO:	FE:	FM:	FS:	SS:	CP:	VP:
3	Is WL part of complex	Yes	**No X**							
4	% each wetland type in complex	SM:	BO:	FE:	FM:	FS:	SS:	CP:	VP:	
5	Is WL bordering or associated with a lake or pond?	bordering		within 100m		**N/A X**		Specify:		
6	Standing water?	Yes	Avg Dep:		Inundated:			**No X**		
7	Inlet or Outlet (circle all that apply)?	Inlet	Outlet							
8	Adjacent upland land use within 100m (%)	**For: 100%**	Nat:	PasHay:	Crop:	Urban/Com:		Road:	Other Dev:	
9	Are there stressors in WL or WL buffer area?	DD__, CW__, WcS__, O/C__, EB__, DP__, F__, M__, ES__, NE__, DwP__, M__, GC__, ATV__, DG__, EA__, **R_X_**, Rr__,								
		U/CD__, F__, FA__, Other (specify):								
10	Hydrology altered (circle all that apply)?	Ditching	Dams	Tiles	Culvert	Well	Diver.	Other:		
SF3	***Rate the general wetland condition/ecological integrity***	**H X**	M	L						
SECTION THREE: CONDITION AND INTEGRITY OF ADJACENT LAND										
1	Average width of adjacent naturalized buffer	**> 100 meters**								
2	Widths for water quality	**H >15**	M 8-15	L <8						
3	Widths for wildlife habitat	**H >100**	M 15-100	L <15						
4	Adjacent area vegetation condition (list % in each category)	**H: 90%**	M	**L: 10%**						
5	Adjacent area diversity and structure (list % in each category)	**H: 90%**	M	**L: 10%**						
6	Adjacent upland slope (list % in each category)	Steep:	Mod	**Gentle: 100%**						
7	Adjacent land supports water quality functions	**Yes X**	No	Specify:						
8	Adjacent land supports wildlife habitat	**Yes X**	No	Specify:						
SF4	***Rate the overall condition and integrity of land adjacent to wetland***	**H X**	M	L	is buffer required to maintain red flag functions of WL?				Yes	No
SECTION FOUR: IDENTIFICATION OF EXCEPTIONAL FEATURES										
SF5	***Is the WL a WSS?***	Yes	**No X**							
SF6	***Does the WL support commercial/recreational fish/shellfish?***	Yes	**No X**							
SF7	***Species of concern (Fed/Prov)? Specify.***	End	Thr	SpC	Red	Yellow	S1	S2	S3	N/A
SF8	***Wetland has conservation/compensation agreements/activity?***	Yes	**No X**	Specify:						
SF9	***Wetland is calcareous fen, black ash or cedar swamp?***	Yes	**No X**							

Wetland 1: Nova Scotia Wetland Evaluation Technique Field Data Sheet

SF10	***Within Drinking Water Protected Area (designated watershed/wellfield)***	Yes	**No X**	Specify:						
SF11	***WL within a floodplain and upstream of or within a populated area?***	Yes	**No X**							
SF12	***Fed/Prov/Municipal area of interest?***	Yes	**No X**	Specify:						
SECTION FIVE: HYDROLOGIC CONDITION AND INTEGRITY										
1	Is WL source of stream or headwater (wc order 1 or 2)	Yes	**No X**	Specify:						
2	Is WL geographically isolated?	**Yes**	No	Specify:						
3	WL ability to maintain characteristic hydrologic regime	High		**Med X**		Low				
4	Water storage depth (list % in each class)	>30cm		15-30cm		**up to 15cm**	**60%**	**No ponding**	**40%**	
5	Signs of surface water retention observed?	SW__m , **WSL_X_, WCD_X_, WM_5_cm**, SM__cm, SD__, AD__, ID__, **PMT_X_**, AI__, **BT_X_**, AR__, Other:								
6	Describe observable/historical anthropogenic sediment delivery	**Low X**		Med		High				
7	Disturbance of WL soils	**Low X**		Med		High				
8	Predominant soils adjacent to WL	Sand		Silt/loam		**Clay/bedrock**				
9	Capacity of WL to alter/retard flows	**High X**		Med		Low				
10	Roughness coefficient for surface water flow path	**High X**		Med		Low				
11	Stormwater/wastewater/agricultural runoff detention	High		Med		**Low X**				
12	Water source	**Natural X**		Mostly natural		Partly altered/Controlled		Controlled		
13	Hydrology of tidal wetlands	Unrestricted		Reduced		Restricted		N/A		
14	Coastal storm surge	Yes	**No X**							
SF13	***WL hydrologic condition***	**Natural X**		Modified		Significantly Modified				
SF14	***WL important for maintaining stream flow?***	Yes	**No X**							
SF15	***WL ability to detain surface water***	**High X**		Med		Low				
SECTION SIX: WATER QUALITY										
1	Amount of stormwater/wastewater/agricultural runoff as water source	High		Med		**Low X**				
2	Potential for nutrients/sediments from surrounding land	High		Med		**Low X**				
3	Significant flood/stormwater attenuation?	Yes	**No X**							
4	Vegetation capacity to settle suspended sediments	**High X**		Med		Low				
5	WL type/landscape position holds/filters runoff?	Yes	**No X**							
SF16	***Does the wetland have characteristics that improve water quality?***	**Yes X**	No							
SF17	***Evidence of excess nutrient loading/contamination inputs?***	**Low X**		Med		High				
SF18	***WL contributes to water quality in downstream fish/water supply***	High		Med		**Low X**				
SECTION SEVEN: GROUNDWATER INTERACTIONS										
1	Describe soils within wetland	**Recharge X**		Discharge						
2	Land use/run off in subwatershed upstream	Recharge		**Discharge X**						
3	Conditions of upland soils within 200m of wetland	**Recharge X**		Discharge						
4	Hydroperiod of wetland	**Recharge X**		Discharge						
5	Describe inlet/outlet configuration	**Recharge X**		Discharge						
6	Characterize topographic relief surrounding wetland	Recharge		Discharge						
SF19	***WL serves as a recharge site***	**Yes X**	No							
SF20	***WL serves as a discharge site***	Yes	**No X**							
SECTION EIGHT: SHORELINE STABILIZATION AND INTEGRITY										
1	Wetland fringing ocean/estuary/lake/pond/river/stream?	Yes	**No X**	streamwidth >4m		streamwidth<4m		WB Exposed		WB Sheltered
2	% cover of rooted vegetation in shallow water zone	H >50%	M 10-50	L <10%	**N/A X**					

Wetland 1: Nova Scotia Wetland Evaluation Technique Field Data Sheet

3	Avg veg WL width b/w shoreline/streambank & 2 m depth contour	H >10m	M 3-10	L <3m	**N/A X**					
4	Prevalence of strong-stemmed emerg. veg (shoreline marshes and fens only)	High	Med	Low	**N/A X**					
5	Describe shoreline erosion potential	High	Med	Low	**N/A X**					
6	Shoreline/streambank veg condition upslope of water level	Low	Med	High	Artificial	**N/A X**				
SF21	***WL ability to stabilize shoreline***	H	M	L	**N/A X**					
SECTION NINE: PLANT COMMUNITY										
1	Vegetation diversity	High	**Med X**	Low						
1b	3 most dominant plant species and % cover in the WL	**Tree: yellow birch (60%), red maple (10%), white ash (5%)** **G.Veg: fowl manna-grass (20%), moss spp. (10%), New York fern (5%), sensitive fern (5%)** **Shrub: balsam fir (15%), striped maple (10%)**								
2	WL plant community regionally scarce or rare?	Yes	**No X**	Rare types:						
3	Dominant non-native or invasive species and % cover	Yes	**No X**	Specify: %						
4	Vegetation disturbance	H	M	**L X**	specify type(s) below					
5	Disturbance types	H__, ATV__, G__, M__, In__, D/D__, Im__, OAH__, Ii__, Sd__, E__, other:								
6	Current vegetative integrity of plant community	E	**H X**	M	L					
SF22	***Is the plant community unique or rare regionally or provincially?***	Yes	**No X**	Specify:						
SF23	***Does the WL contain a diversity of plant communities***	H	**M X**	L						
SF24	***Rate the overall integrity/quality of plant community?***	H	**M X**	L						
SF25	***Are there any observed rare or endangered plant species? Specify.***	End	Thr	SpC	Red	Yellow	S1	S2	S3	**N/A**
SECTION TEN: FISH AND WILDLIFE HABITAT AND HABITAT INTEGRITY										
1	Interspersion of open water and vegetation (open water types only)	H	M	L	**N/A X**					
1b	% cover in vegetation versus open water	%								
2	Interspersion that best fits entire wetland	H	M	**L X**	N/A					
3	Wetland condition related to detritus	H	**M X**	L	N/A					
4	Interspersion of other wetlands in vicinity	H	M	L	N/A					
5	Barriers/restriction between wetland and other habitat	**L X**	M	H	N/A					
6	Noteworthy wildlife or evidence (birds, mammals, amphibians,etc)	Yes	**No X**	List:						
7	Connected to permanent water (accessible to fish)?	E	H	M	L	**N/A X**				
8	Fish species observed or evidence seen (list)	Yes	**No X**	List:						
9	Wetland part of contiguous upland or wetland:	>50ha	**25-50ha**	10-25ha	<10ha					
10	WL provides habitat for:	Amphibians	Reptiles	Waterfowl	Waterbirds	**Mammals**	Fish	R/E species		
SF26	***Does wetland support fish/fish habitat?***	Yes	**No X**	Specify:						
SF27	***Rare or endangered fish/wildlife species found in the wetland?***	End	Thr	SpC	Red	Yellow	S1	S2	S3	N/A
SF28	***Overall fish and wildlife habitat quality***	H	M	L						
SECTION ELEVEN: COMMUNITY USE/VALUE										
1	Describe community use	VV__, CP__, CO__, PO__, PA__, AV__, GB__, E__, HI__, WV__, BO__, HU__, PG__, BP__, F__, E__, R__, Other:								
SF29	***Rate the wetland's community use/value***	H	M	**L X**						

SF ratings highlighted in red indicate critical wetland functions or watershed conditions that are highly degraded. Whenever a wetland is found to have red-highlighted**SFs** the proponent is encouraged to contact NSE for advice about the approval because NSE is unlikely to approve alterations to wetlands that would affect these red-rated functions.

Wetland 2: Nova Scotia Wetland Evaluation Technique Field Data Sheet

Project Name: National Gypsum Mine Expansion		Evaluator: E. Kennedy & A. Fancey		GPS Coordinates: WL2						
PID:		Site Address:								
Sources and Dates of Mapping/Images:										
Evaluation Date:		Site Visit Date: September 11, 2014								
Weather Conditions (past 48 hours): Mix of sun and cloud, humid										
Seasonal Weather Conditions:										
SECTION ONE: WATERSHED CHARACTERISTICS										
1	Watershed name (tertiary): **1DG-1-WW**	**Size: 203.79 km^2**								
2	% Watershed land cover	**For: 84%**	Nat: 0	Past/Hay: 0	**Crop: 6%**	**Ur/Co: 1%**	**Road: 1%**	**Other Dev: 6%**		
3	% Watershed WL cover and by class	**Total: 4.6%**	SM: 0	**BO/FE: 6%**	**FE: 9%**	**FM: 34%**	**Swamp: 49%**		CP: 0	VP: 0
SF1	***Watershed condition***	H	**M X**	L						
SF2	***Proportion of WL area in watershed & opportunity for floodwater detention***	**H X**	M	L						
SECTION TWO: SITE DESCRIPTION AND WETLAND CHARACTER										
Wetland Type: Tall shrub swamp		**WL size: 0.388ha**			**Landform: Basin**			**Landscape Position: Terrene**		
Water flow path:		**Wetland Origin: Created through disturbance during tree cutting**								
1	Water regime	PF	SF	TF	**SS X**	PS	RfT	IfT	AF	
2	# WL's within 30m project area	Total # =	SM:	BO:	FE:	FM:	FS:	SS:	CP:	VP:
3	Is WL part of complex	Yes	**No X**							
4	% each wetland type in complex	SM:	BO:	FE:	FM:	FS:	SS:	CP:	VP:	
5	Is WL bordering or associated with a lake or pond?	bordering		within 100m		**N/A X**		Specify:		
6	Standing water?	Yes	Avg Dep:		Inundated:			No		
7	Inlet or Outlet (circle all that apply)?	Inlet	Outlet	**None**						
8	Adjacent upland land use within 100m (%)	**For: 100%**	Nat:	PasHay:	Crop:	Urban/Com:		Road:	Other Dev:	
9	Are there stressors in WL or WL buffer area?	DD__, CW__, WcS__, O/C__, EB__, DP__, F__, M__, ES__, NE__, **DwP_X_**, M__, GC__, ATV__, DG__, EA__, R__, Rr__,								
		U/CD__, F__, **FA_X_**, Other (specify): Tree removal may influence rate of evapotranspiration								
10	Hydrology altered (circle all that apply)?	Ditching	Dams	Tiles	Culvert	Well	Diver.	Other:		
SF3	***Rate the general wetland condition/ecological integrity***	H	**M X**	L						
SECTION THREE: CONDITION AND INTEGRITY OF ADJACENT LAND										
1	Average width of adjacent naturalized buffer	**> 100 meters**								
2	Widths for water quality	**H >15**	M 8-15	L <8						
3	Widths for wildlife habitat	**H >100**	M 15-100	L <15						
4	Adjacent area vegetation condition (list % in each category)	**H: 100%**	M	L						
5	Adjacent area diversity and structure (list % in each category)	**H: 100%**	M	L						
6	Adjacent upland slope (list % in each category)	Steep:	**Mod: 5%**	**Gentle: 95%**						
7	Adjacent land supports water quality functions	**Yes X**	No	Specify:						
8	Adjacent land supports wildlife habitat	**Yes X**	No	Specify:						
SF4	***Rate the overall condition and integrity of land adjacent to wetland***	**H X**	M	L	is buffer required to maintain red flag functions of WL?				Yes	No
SECTION FOUR: IDENTIFICATION OF EXCEPTIONAL FEATURES										
SF5	***Is the WL a WSS?***	Yes	**No X**							
SF6	***Does the WL support commercial/recreational fish/shellfish?***	Yes	**No X**							
SF7	***Species of concern (Fed/Prov)? Specify.***	End	Thr	SpC	Red	Yellow	S1	S2	S3	N/A
SF8	***Wetland has conservation/compensation agreements/activity?***	Yes	**No X**	Specify:						
SF9	***Wetland is calcareous fen, black ash or cedar swamp?***	Yes	**No X**							

Wetland 2: Nova Scotia Wetland Evaluation Technique Field Data Sheet

SF10	***Within Drinking Water Protected Area (designated watershed/wellfield)***	Yes	**No X**	Specify:						
SF11	***WL within a floodplain and upstream of or within a populated area?***	Yes	**No X**							
SF12	***Fed/Prov/Municipal area of interest?***	Yes	**No X**	Specify:						
SECTION FIVE: HYDROLOGIC CONDITION AND INTEGRITY										
1	Is WL source of stream or headwater (wc order 1 or 2)	Yes	**No**	Specify:						
2	Is WL geographically isolated?	**Yes X**	No	Specify:						
3	WL ability to maintain characteristic hydrologic regime	**High X**		Med		Low				
4	Water storage depth (list % in each class)	>30cm		15-30cm		**up to 15cm**		No ponding		
5	Signs of surface water retention observed?	SW__m , **WSL_X_**, WCD__, WM__cm, SM__cm, SD__, AD__, ID__, **PMT_X_**, AI__, BT__, AR__, Other:								
6	Describe observable/historical anthropogenic sediment delivery	**Low X**		Med		High				
7	Disturbance of WL soils	Low		**Med X**		High				
8	Predominant soils adjacent to WL	Sand		**Silt/loam X**		Clay/bedrock				
9	Capacity of WL to alter/retard flows	**High X**		Med		Low				
10	Roughness coefficient for surface water flow path	**High X**		Med		Low				
11	Stormwater/wastewater/agricultural runoff detention	High		Med		**Low X**				
12	Water source	**Natural X**		Mostly natural		Partly altered/Controlled		Controlled		
13	Hydrology of tidal wetlands	Unrestricted		Reduced		Restricted		**N/A X**		
14	Coastal storm surge	Yes	**No X**							
SF13	***WL hydrologic condition***	Natural	**Modified X**		Significantly Modified					
SF14	***WL important for maintaining stream flow?***	Yes	**No X**							
SF15	***WL ability to detain surface water***	High	**Med X**	Low						
SECTION SIX: WATER QUALITY										
1	Amount of stormwater/wastewater/agricultural runoff as water source	High		Med		**Low X**				
2	Potential for nutrients/sediments from surrounding land	High		Med		**Low X**				
3	Significant flood/stormwater attenuation?	Yes	**No X**							
4	Vegetation capacity to settle suspended sediments	High		**Med X**		Low				
5	WL type/landscape position holds/filters runoff?	Yes	**No X**							
SF16	***Does the wetland have characteristics that improve water quality?***	**Yes X**	No							
SF17	***Evidence of excess nutrient loading/contamination inputs?***	**Low X**		Med		High				
SF18	***WL contributes to water quality in downstream fish/water supply***	High		Med		**Low X**				
SECTION SEVEN: GROUNDWATER INTERACTIONS										
1	Describe soils within wetland	**Recharge X**		Discharge						
2	Land use/run off in subwatershed upstream	Recharge		**Discharge X**						
3	Conditions of upland soils within 200m of wetland	**Recharge X**		Discharge						
4	Hydroperiod of wetland	**Recharge X**		Discharge						
5	Describe inlet/outlet configuration	**Recharge X**		Discharge						
6	Characterize topographic relief surrounding wetland	Recharge		**Discharge X**						
SF19	***WL serves as a recharge site***	**Yes**	No							
SF20	***WL serves as a discharge site***	Yes	**No X**							
SECTION EIGHT: SHORELINE STABILIZATION AND INTEGRITY										
1	Wetland fringing ocean/estuary/lake/pond/river/stream?	Yes	**No X**	streamwidth >4m		streamwidth<4m		WB Exposed		WB Sheltered
2	% cover of rooted vegetation in shallow water zone	H >50%	M 10-50	L <10%	**N/A X**					

Wetland 2: Nova Scotia Wetland Evaluation Technique Field Data Sheet

3	Avg veg WL width b/w shoreline/streambank & 2 m depth contour	H >10m	M 3-10	L <3m	**N/A X**					
4	Prevalence of strong-stemmed emerg. veg (shoreline marshes and fens only)	High	Med	Low	**N/A X**					
5	Describe shoreline erosion potential	High	Med	Low	**N/A X**					
6	Shoreline/streambank veg condition upslope of water level	Low	Med	High	Artificial	**N/A X**				
SF21	***WL ability to stabilize shoreline***	H	M	L	**N/A X**					
SECTION NINE: PLANT COMMUNITY										
1	Vegetation diversity	High	**Med X**	Low						
1b	3 most dominant plant species and % cover in the WL	**Tree: red maple (40%), balsam fir (15%), yellow birch (10%) G.Veg: interrupted fern (20%), fowl manna-grass (15%), New York fern (15%) Shrub: common winterberry (15%), speckled alder (10%), balsam fir (5%), beaked hazelnut (5%)**								
2	WL plant community regionally scarce or rare?	Yes	**No X**	Rare types:						
3	Dominant non-native or invasive species and % cover	Yes	**No X**	Specify: %						
4	Vegetation disturbance	H	**M X**	L	specify type(s) below					
5	Disturbance types	**H_X_**, ATV__, G__, M__, In__, D/D__, Im__, OAH__, Ii__, Sd__, E__, other:								
6	Current vegetative integrity of plant community	E	**H X**	M	L					
SF22	***Is the plant community unique or rare regionally or provincially?***	Yes	**No X**	Specify:						
SF23	***Does the WL contain a diversity of plant communities***	H	**M X**	L						
SF24	***Rate the overall integrity/quality of plant community?***	H	**M X**	L						
SF25	***Are there any observed rare or endangered plant species? Specify.***	End	Thr	SpC	Red	Yellow	S1	S2	S3	**N/A**
SECTION TEN: FISH AND WILDLIFE HABITAT AND HABITAT INTEGRITY										
1	Interspersion of open water and vegetation (open water types only)	H	M	L	**N/A X**					
1b	% cover in vegetation versus open water	%	**N/A X**							
2	Interspersion that best fits entire wetland	H	M	L	**N/A X**					
3	Wetland condition related to detritus	**H X**	M	L	N/A					
4	Interspersion of other wetlands in vicinity	H	M	L	N/A					
5	Barriers/restriction between wetland and other habitat	**L X**	M	H	N/A					
6	Noteworthy wildlife or evidence (birds, mammals, amphibians,etc)	**Yes X**	No	**List: Deer tracks noted**						
7	Connected to permanent water (accessible to fish)?	E	H	M	L	**N/A X**				
8	Fish species observed or evidence seen (list)	Yes	**No X**	List:						
9	Wetland part of contiguous upland or wetland:	>50ha	**25-50ha**	10-25ha	<10ha					
10	WL provides habitat for:	Amphibians	Reptiles	Waterfowl	Waterbirds	**Mammals**	Fish	R/E species		
SF26	***Does wetland support fish/fish habitat?***	Yes	**No**	Specify:						
SF27	***Rare or endangered fish/wildlife species found in the wetland?***	End	Thr	SpC	Red	Yellow	S1	S2	S3	N/A
SF28	***Overall fish and wildlife habitat quality***	H	**M X**	L						
SECTION ELEVEN: COMMUNITY USE/VALUE										
1	Describe community use	VV__, CP__, CO__, PO__, PA__, AV__, GB__, E__, HI__, WV__, BO__, HU__, PG__, BP__, F__, E__, R__, Other:								
SF29	***Rate the wetland's community use/value***	H	M	**L X**						

SF ratings highlighted in red indicate critical wetland functions or watershed conditions that are highly degraded. Whenever a wetland is found to have red-highlighted**SFs** the proponent is encouraged to contact NSE for advice about the approval because NSE is unlikely to approve alterations to wetlands that would affect these red-rated functions.

Wetland 3: Nova Scotia Wetland Evaluation Technique Field Data Sheet

Project Name: National Gypsum Mine Expansion		Evaluator: E. Kennedy & A. Fancey		GPS Coordinates: WL3						
PID:		Site Address:								
Sources and Dates of Mapping/Images:										
Evaluation Date:		Site Visit Date: September 11, 2014								
Weather Conditions (past 48 hours): Mix of sun and cloud										
Seasonal Weather Conditions:										
SECTION ONE: WATERSHED CHARACTERISTICS										
1	Watershed name (tertiary): **1DG-1-WW**	**Size: 203.79 km^2**								
2	% Watershed land cover	**For: 84%**	Nat: 0	Past/Hay: 0	**Crop: 6%**	**Ur/Co: 1%**	**Road: 1%**	**Other Dev: 6%**		
3	% Watershed WL cover and by class	**Total: 4.6%**	SM: 0	**BO/FE: 6%**	**FE: 9%**	**FM: 34%**	**Swamp: 49%**		CP: 0	VP: 0
SF1	***Watershed condition***	H	**M X**	L						
SF2	***Proportion of WL area in watershed & opportunity for floodwater detention***	**H X**	M	L						
SECTION TWO: SITE DESCRIPTION AND WETLAND CHARACTER										
Wetland Type: SW and FW Swamp (alder thicket)		**WL size: 0.800 ha**			**Landform: Basin**			**Landscape Position: Terrene**		
Water flow path: throughflow		**Wetland Origin: Natural**								
1	Water regime	PF	SF	TF	**SS X**	PS	RfT	IfT	AF	
2	# WL's within 30m project area	Total # =	SM:	BO:	FE:	FM:	FS:	SS:	CP:	VP:
3	Is WL part of complex	**Yes X**	No							
4	% each wetland type in complex	SM:	BO:	FE:	FM:	**FS: 10%**	**SS: 90%**	CP:	VP:	
5	Is WL bordering or associated with a lake or pond?	bordering		within 100m		**N/A**		Specify:		
6	Standing water?	Yes	Avg Dep:		Inundated:			**No**		
7	Inlet or Outlet (circle all that apply)?	Inlet	Outlet	**None**						
8	Adjacent upland land use within 100m (%)	**For: 100%**	Nat:	PasHay:	Crop:	Urban/Com:		Road:	Other Dev:	
9	Are there stressors in WL or WL buffer area?	DD__, CW__, WcS__, O/C__, EB__, DP__, F__, M__, ES__, NE__, DwP__, M__, GC__, ATV__, DG__, EA__, R__, Rr__,								
		U/CD__, F__, FA__, Other (specify):								
10	Hydrology altered (circle all that apply)?	Ditching	Dams	Tiles	Culvert	Well	Diver.	Other:		
SF3	***Rate the general wetland condition/ecological integrity***	**H X**	M	L						
SECTION THREE: CONDITION AND INTEGRITY OF ADJACENT LAND										
1	Average width of adjacent naturalized buffer	**>100 meters**								
2	Widths for water quality	**H >15**	M 8-15	L <8						
3	Widths for wildlife habitat	**H >100**	M 15-100	L <15						
4	Adjacent area vegetation condition (list % in each category)	**H: 100%**	M	L						
5	Adjacent area diversity and structure (list % in each category)	**H: 100%**	M	L						
6	Adjacent upland slope (list % in each category)	Steep:	Mod	**Gentle: 100%**						
7	Adjacent land supports water quality functions	**Yes X**	No	Specify:						
8	Adjacent land supports wildlife habitat	**Yes X**	No	Specify:						
SF4	***Rate the overall condition and integrity of land adjacent to wetland***	**H X**	M	L	is buffer required to maintain red flag functions of WL?				Yes	No
SECTION FOUR: IDENTIFICATION OF EXCEPTIONAL FEATURES										
SF5	***Is the WL a WSS?***	Yes	**No X**							
SF6	***Does the WL support commercial/recreational fish/shellfish?***	Yes	**No X**							
SF7	***Species of concern (Fed/Prov)? Specify.***	End	Thr	SpC	Red	Yellow	S1	S2	S3	N/A
SF8	***Wetland has conservation/compensation agreements/activity?***	Yes	**No X**	Specify:						
SF9	***Wetland is calcareous fen, black ash or cedar swamp?***	Yes	**No X**							

Wetland 3: Nova Scotia Wetland Evaluation Technique Field Data Sheet

SF10	***Within Drinking Water Protected Area (designated watershed/wellfield)***	Yes	**No X**	Specify:						
SF11	***WL within a floodplain and upstream of or within a populated area?***	Yes	**No X**							
SF12	***Fed/Prov/Municipal area of interest?***	Yes	**No X**	Specify:						
SECTION FIVE: HYDROLOGIC CONDITION AND INTEGRITY										
1	Is WL source of stream or headwater(wc order 1 or 2)	Yes	**No X**	Specify:						
2	Is WL geographically isolated?	**Yes X**	No	Specify:						
3	WL ability to maintain characteristic hydrologic regime	**High X**		Med		Low				
4	Water storage depth (list % in each class)	>30cm		15-30cm		**up to 15cm**	**5%**	**No ponding**	**95%**	
5	Signs of surface water retention observed?	SW__m , **WSL_X_**, WCD__, WM__cm, SM__cm, SD__, AD__, ID__, **PMT_X_**, AI__, BT__, AR__, Other:								
6	Describe observable/historical anthropogenic sediment delivery	**Low X**		Med		High				
7	Disturbance of WL soils	**Low X**		Med		High				
8	Predominant soils adjacent to WL	**Sand X**		Silt/loam		Clay/bedrock				
9	Capacity of WL to alter/retard flows	**High X**		Med		Low				
10	Roughness coefficient for surface water flow path	**High X**		Med		Low				
11	Strormwater/wastewater/agricultural runoff detention	High		Med		**Low X**				
12	Water source	**Natural X**		Mostly natural		Partly altered/Controlled		Controlled		
13	Hydrology of tidal wetlands	Unrestricted		Reduced		Restricted		**N/A X**		
14	Coastal storm surge	Yes	**No X**							
SF13	***WL hydrologic condition***	**Natural**	Modified		Significantly Modified					
SF14	***WL important for maintaining stream flow?***	Yes	**No X**							
SF15	***WL ability to detain surface water***	High	**Med X**	Low						
SECTION SIX: WATER QUALITY										
1	Amount of stormwater/wastewater/agricultural runoff as water source	High		Med		**Low X**				
2	Potential for nutrients/sediments from surrounding land	High		Med		**Low X**				
3	Significant flood/stormwater attenuation?	Yes	**No X**							
4	Vegetation capacity to settle suspended sediments	**High X**		Med		Low				
5	WL type/landscape position holds/filters runoff?	Yes	**No X**							
SF16	***Does the wetland have characteristics that improve water quality?***	**Yes X**	No							
SF17	***Evidence of excess nutrient loading/contamination inputs?***	**Low X**		Med		High				
SF18	***WL contributes to water quality in downstream fish/water supply***	High		Med		**Low X**				
SECTION SEVEN: GROUNDWATER INTERACTIONS										
1	Describe soils within wetland	**Recharge X**		Discharge						
2	Land use/run off in subwatershed upstream	Recharge		**Discharge X**						
3	Conditions of upland soils within 200m of wetland	**Recharge X**		Discharge						
4	Hydroperiod of wetland	**Recharge X**		Discharge						
5	Describe inlet/outlet configuration	**Recharge X**		Discharge						
6	Characterize topographic relief surrounding wetland	Recharge		**Discharge X**						
SF19	***WL serves as a recharge site***	**Yes X**	No							
SF20	***WL serves as a discharge site***	Yes	**No X**							
SECTION EIGHT: SHORELINE STABILIZATION AND INTEGRITY										
1	Wetland fringing ocean/estuary/lake/pond/river/stream?	Yes	**No X**	streamwidth >4m		streamwidth<4m		WB Exposed		WB Sheltered
2	% cover of rooted vegetation in shallow water zone	H >50%	M 10-50	L <10%	**N/A X**					
3	Avg veg WL width b/w shoreline/streambank & 2 m depth contour	H >10m	M 3-10	L <3m	**N/A X**					

Wetland 3: Nova Scotia Wetland Evaluation Technique Field Data Sheet

4	Prevalence of strong-stemmed emerg. veg (shoreline marshes and fens only)	High	Med	Low	**N/A X**					
5	Describe shoreline erosion potential	High	Med	Low	**N/A X**					
6	Shoreline/streambank veg condition upslope of water level	Low	Med	High	Artificial	**N/A X**				
SF21	***WL ability to stabilize shoreline***	H	M	L	**N/A X**					
SECTION NINE: PLANT COMMUNITY										
1	Vegetation diversity	High	Med	**Low X**						
1b	3 most dominant plant species and % cover in the WL	**Tree: red maple (30%), white ash (15%)** **G.Veg: fowl manna-grass (50%), dwarf red raspberry (20%), moss spp. (15%)** **Shrub: speckled alder (30%), common winterberry (10%), red maple (5%), white ash (5%)**								
2	WL plant community regionally scarce or rare?	Yes	**No X**	Rare types:						
3	Dominant non-native or invasive species and % cover	Yes	**No X**	Specify: %						
4	Vegetation disturbance	H	M	**L X**	specify type(s) below					
5	Disturbance types	H__, ATV__, G__, M__, In__, D/D__, Im__, OAH__, Ii__, Sd__, E__, other:								
6	Current vegetative integrity of plant community	**E X**	H	M	L					
SF22	***Is the plant community unique or rare regionally or provincially?***	Yes	**No X**	Specify:						
SF23	***Does the WL contain a diversity of plant communities***	H	M	**L X**						
SF24	***Rate the overall integrity/quality of plant community?***	**H X**	M	L						
SF25	***Are there any observed rare or endangered plant species? Specify.***	End	Thr	SpC	Red	Yellow	S1	S2	S3	**N/A X**
SECTION TEN: FISH AND WILDLIFE HABITAT AND HABITAT INTEGRITY										
1	Interspersion of open water and vegetation (open water types only)	H	M	L	**N/A X**					
1b	% cover in vegetation versus open water	%								
2	Interspersion that best fits entire wetland	H	M	**L X**	N/A					
3	Wetland condition related to detritus	**H X**	M	L	N/A					
4	Interspersion of other wetlands in vicinity	H	M	L	**N/A X**					
5	Barriers/restriction between wetland and other habitat	**L X**	M	H	N/A					
6	Noteworthy wildlife or evidence (birds, mammals, amphibians,etc)	Yes	No	List: Grouse, deer						
7	Connected to permanent water (accessible to fish)?	E	H	M	L	**N/A X**				
8	Fish species observed or evidence seen (list)	Yes	**No X**	List:						
9	Wetland part of contiguous upland or wetland:	>50ha	**25-50ha**	10-25ha	<10ha					
10	WL provides habitat for:	**Amphibians**	Reptiles	Waterfowl	Waterbirds	**Mammals**	Fish	R/E species		
SF26	***Does wetland support fish/fish habitat?***	Yes	**No X**	Specify:						
SF27	***Rare or endangered fish/wildlife species found in the wetland?***	End	Thr	SpC	Red	Yellow	S1	S2	S3	N/A
SF28	***Overall fish and wildlife habitat quality***	H	M	**L X**						
SECTION ELEVEN: COMMUNITY USE/VALUE										
1	Describe community use	VV__, CP__, CO__, PO__, PA__, AV__, GB__, E__, HI__, WV__, BO__, HU__, PG__, BP__, F__, E__, R__, Other:								
SF29	***Rate the wetland's community use/value***	H	M	**L X**						

SF ratings highlighted in red indicate critical wetland functions or watershed conditions that are highly degraded. Whenever a wetland is found to have red-highlighted**SFs** the proponent is encouraged to contact NSE for advice about the approval because NSE is unlikely to approve alterations to wetlands that would affect these red-rated functions.

Wetland 4: Nova Scotia Wetland Evaluation Technique Field Data Sheet

Project Name: National Gypsum Mine Expansion		Evaluator: Elizabeth Kennedy		GPS Coordinates: WL4						
PID:		Site Address: Highway 2								
Sources and Dates of Mapping/Images:										
Evaluation Date:		Site Visit Date: June 16, 2014								
Weather Conditions (past 48 hours): Rain, drizzle, wind, cloud cover										
Seasonal Weather Conditions: Colder and drier than typical										
SECTION ONE: WATERSHED CHARACTERISTICS										
1	Watershed name (tertiary): **1DG-1-WW**	**Size: 203.79 km^2**								
2	% Watershed land cover	**For: 84%**	Nat: 0	Past/Hay: 0	**Crop: 6%**	**Ur/Co: 1%**	**Road: 1%**	**Other Dev: 6%**		
3	% Watershed WL cover and by class	**Total: 4.6%**	SM: 0	**BO/FE: 6%**	**FE: 9%**	**FM: 34%**	**Swamp: 49%**		CP: 0	VP: 0
SF1	***Watershed condition***	H	**M X**	L						
SF2	***Proportion of WL area in watershed & opportunity for floodwater detention***	**H X**	M	L						
SECTION TWO: SITE DESCRIPTION AND WETLAND CHARACTER										
Wetland Type: **Swamp complex (dry alder thicket-tall shrub swamp/forested swamp)**		**WL size: 0.306ha**			**Landform: Slope**			Landscape Position:		
Water flow path: **throughflow**		Wetland Origin:								
1	Water regime	PF	SF	TF	**SS X**	PS	RfT	IfT	AF	
2	# WL's within 30m project area	**Total # = 0**	SM:	BO:	FE:	FM:	FS:	SS:	CP:	VP:
3	Is WL part of complex	Yes	**No X**							
4	% each wetland type in complex	SM:	BO:	FE:	FM:	FS:	SS:	CP:	VP:	
5	Is WL bordering or associated with a lake or pond?	bordering		within 100m		**N/A**		Specify:		
6	Standing water?	**Yes**	**Avg Dep: 5m**		Inundated:			No		
7	Inlet or Outlet (circle all that apply)?	Inlet	Outlet	**None**						
8	Adjacent upland land use within 100m (%)	**For: 100%**	Nat:	PasHay:	Crop:	Urban/Com:		Road:	Other Dev:	
9	Are there stressors in WL or WL buffer area?	DD__, CW__, WcS__, O/C__, EB__, DP__, F__, M__, ES__, NE__, DwP__, M__, GC__, ATV__, DG__, EA__, R__, Rr__,								
		U/CD__, F__, FA__, Other (specify):								
10	Hydrology altered (circle all that apply)?	Ditching	Dams	Tiles	Culvert	Well	Diver.	Other:		
SF3	***Rate the general wetland condition/ecological integrity***	**H X**	M	L						
SECTION THREE: CONDITION AND INTEGRITY OF ADJACENT LAND										
1	Average width of adjacent naturalized buffer	**>15 meters**								
2	Widths for water quality	**H >15**	M 8-15	L <8						
3	Widths for wildlife habitat	**H >100**	M 15-100	L <15						
4	Adjacent area vegetation condition (list % in each category)	**H X**	M	L						
5	Adjacent area diversity and structure (list % in each category)	**H X**	M	L						
6	Adjacent upland slope (list % in each category)	Steep	**Mod**	Gentle						
7	Adjacent land supports water quality functions	**Yes X**	No	Specify:						
8	Adjacent land supports wildlife habitat	**Yes X**	No	Specify:						
SF4	***Rate the overall condition and integrity of land adjacent to wetland***	**H X**	M	L	is buffer required to maintain red flag functions of WL?				Yes	No
SECTION FOUR: IDENTIFICATION OF EXCEPTIONAL FEATURES										
SF5	***Is the WL a WSS?***	Yes	**No X**							
SF6	***Does the WL support commercial/recreational fish/shellfish?***	Yes	**No X**							
SF7	***Species of concern (Fed/Prov)? Specify.***	End	Thr	SpC	Red	Yellow	S1	S2	S3	N/A
SF8	***Wetland has conservation/compensation agreements/activity?***	Yes	**No X**	Specify:						
SF9	***Wetland is calcareous fen, black ash or cedar swamp?***	Yes	**No X**							

Wetland 4: Nova Scotia Wetland Evaluation Technique Field Data Sheet

SF10	***Within Drinking Water Protected Area (designated watershed/wellfield)***	Yes	**No X**	Specify:						
SF11	***WL within a floodplain and upstream of or within a populated area?***	Yes	**No X**							
SF12	***Fed/Prov/Municipal area of interest?***	Yes	**No X**	Specify:						
SECTION FIVE: HYDROLOGIC CONDITION AND INTEGRITY										
1	Is WL source of stream or headwater (wc order 1 or 2)	Yes	**No X**	Specify:						
2	Is WL geographically isolated?	**Yes X**	No	Specify:						
3	WL ability to maintain characteristic hydrologic regime	**High X**		Med		Low				
4	Water storage depth (list % in each class)	>30cm		15-30cm		**up to 15cm**	**10%**	**No ponding**	**90%**	
5	Signs of surface water retention observed?	**SW: 5m , WSL_X_**, WCD__, WM__cm, SM__cm, SD__, AD__, ID__, **PMT_X_**, AI__, **BT_X_**, AR__, Other:								
6	Describe observable/historical anthropogenic sediment delivery	**Low X**		Med		High				
7	Disturbance of WL soils	**Low X**		Med		High				
8	Predominant soils adjacent to WL	Sand		**Silt/loam X**		Clay/bedrock				
9	Capacity of WL to alter/retard flows	High		**Med X**		Low				
10	Roughness coefficient for surface water flow path	**High X**		Med		Low				
11	Stormwater/wastewater/agricultural runoff detention	High		Med		**Low X**				
12	Water source	**Natural X**		Mostly natural		Partly altered/Controlled		Controlled		
13	Hydrology of tidal wetlands	Unrestricted		Reduced		Restricted		**N/A**		
14	Coastal storm surge	Yes	No							
SF13	***WL hydrologic condition***	**Natural X**	Modified		Significantly Modified					
SF14	***WL important for maintaining stream flow?***	Yes	**No X**							
SF15	***WL ability to detain surface water***	High	**Med X**	Low						
SECTION SIX: WATER QUALITY										
1	Amount of stormwater/wastewater/agricultural runoff as water source	High		Med		**Low X**				
2	Potential for nutrients/sediments from surrounding land	High		Med		**Low X**				
3	Significant flood/stormwater attenuation?	Yes	**No X**							
4	Vegetation capacity to settle suspended sediments	High		**Med X**		Low				
5	WL type /landscape position holds/filters runoff?	Yes	**No X**							
SF16	***Does the wetland have characteristics that improve water quality?***	Yes	**No X**							
SF17	***Evidence of excess nutrient loading/contamination inputs?***	**Low X**		Med		High				
SF18	***WL contributes to water quality in downstream fish/water supply***	High		Med		**Low X**				
SECTION SEVEN: GROUNDWATER INTERACTIONS										
1	Describe soils within wetland	Recharge		**Discharge X**						
2	Land use/run off in subwatershed upstream	Recharge		**Discharge X**						
3	Conditions of upland soils within 200m of wetland	Recharge		**Discharge X**						
4	Hydroperiod of wetland	Recharge		**Discharge X**						
5	Describe inlet/outlet configuration	Recharge		**Discharge X**						
6	Characterize topographic relief surrounding wetland	Recharge		**Discharge X**						
SF19	***WL serves as a recharge site***	Yes	**No X**							
SF20	***WL serves as a discharge site***	**Yes X**	No							
SECTION EIGHT: SHORELINE STABILIZATION AND INTEGRITY										
1	Wetland fringing ocean/estuary/lake/pond/river/stream?	Yes	**No X**	streamwidth >4m		streamwidth<4m		WB Exposed	WB Sheltered	
2	% cover of rooted vegetation in shallow water zone	H >50%	M 10-50%	L <10%	**N/A**					
3	Avg veg WL width b/w shoreline/streambank & 2 m depth contour	H >10m	M 3-10	L <3m	**N/A**					

Wetland 4: Nova Scotia Wetland Evaluation Technique Field Data Sheet

4	Prevalence of strong-stemmed emerg. veg (shoreline marshes and fens only)	High	Med	Low	**N/A**					
5	Describe shoreline erosion potential	High	Med	Low	**N/A**					
6	Shoreline/streambank veg condition upslope of water level	Low	Med	High	Artificial	**N/A**				
SF21	***WL ability to stabilize shoreline***	H	M	L	**N/A**					
SECTION NINE: PLANT COMMUNITY										
1	Vegetation diversity	High	Med	**Low X**						
1b	3 most dominant plant species and % cover in the WL		Tall shrub swamp				Forested swamp			
		Tree:	**red maple (2%), gray birch (2%), white spruce (2%)**				**trembling aspen (4%), balsam fir (2%), red spruce (1%)**			
		G.Veg:	**moss spp. (50%), dwarf red raspberry (20%)**				**bristly-stalk sedge (30%0, common lady-fern (15%)**			
		Shrub:	**speckled alder (70%), balsam fir (5%)**				**balsam fir (20%), paper birch (10%), gray birch (10%)**			
2	WL plant community regionally scarce or rare?	Yes	**No X**	Rare types:						
3	Dominant non-native or invasive species and % cover	Yes	**No X**	Specify: %						
4	Vegetation disturbance	H	M	**L X**	specify type(s) below					
5	Disturbance types	H__, ATV__, G__, M__, In__, D/D__, Im__, OAH__, Ii__, Sd__, E__, other:								
6	Current vegetative integrity of plant community	E	H	**M X**	L					
SF22	***Is the plant community unique or rare regionally or provincially?***	Yes	**No X**	Specify:						
SF23	***Does the WL contain a diversity of plant communities***	H	M	**L X**						
SF24	***Rate the overall integrity/quality of plant community?***	H	**M X**	L						
SF25	***Are there any observed rare or endangered plant species? Specify.***	End	Thr	SpC	Red	Yellow	S1	S2	S3	**N/A X**
SECTION TEN: FISH AND WILDLIFE HABITAT AND HABITAT INTEGRITY										
1	Interspersion of open water and vegetation (open water types only)	H	M	**L X**						
1b	% cover in vegetation versus open water	**100%**								
2	Interspersion that best fits entire wetland	H	M	**L X**	N/A					
3	Wetland condition related to detritus	H	**M X**	L	N/A					
4	Interspersion of other wetlands in vicinity	H	**M X**	L						
5	Barriers/restriction between wetland and other habitat	**L X**	M	H						
6	Noteworthy wildlife or evidence (birds, mammals, amphibians,etc)	Yes	No	**List: Deer, hare, ruffed grouse, crow**						
7	Connected to permanent water (accessible to fish)?	E	H	M	L	**N/A**				
8	Fish species observed or evidence seen (list)	Yes	**No X**	List:						
9	Wetland part of contiguous upland or wetland:	>50ha	**25-50ha**	10-25ha	<10ha					
10	WL provides habitat for:	**Amphib.**	**Reptiles**	Waterfowl	Waterbirds	**Mammals**	Fish	R/E species		
SF26	***Does wetland support fish/fish habitat?***	Yes	**No X**	Specify:						
SF27	***Rare or endangered fish/wildlife species found in the wetland?***	End	Thr	SpC	Red	Yellow	S1	S2	S3	N/A
SF28	***Overall fish and wildlife habitat quality***	H	M	**L X**						
SECTION ELEVEN: COMMUNITY USE/VALUE										
1	Describe community use	VV__, CP__, CO__, PO__, PA__, AV__, GB__, E__, HI__, WV__, BO__, HU__, PG__, BP__, F__, E__, R__, Other:								
SF29	***Rate the wetland's community use/value***	H	M	**L X**						

SF ratings highlighted in red indicate critical wetland functions or watershed conditions that are highly degraded. Whenever a wetland is found to have red-highlighted **SFs** the proponent is encouraged to contact NSE for advice about the approval because NSE is unlikely to approve alterations to wetlands that would affect these red-rated functions.

Wetland 5: Nova Scotia Wetland Evaluation Technique Field Data Sheet

Project Name: National Gypsum Mine Expansion		Evaluator: E. Kennedy		GPS Coordinates: WL5						
PID:		Site Address:								
Sources and Dates of Mapping/Images:										
Evaluation Date:		Site Visit Date: June 16, 2014								
Weather Conditions (past 48 hours): Rain, drizzle and wind										
Seasonal Weather Conditions: Colder/drier than typical										
SECTION ONE: WATERSHED CHARACTERISTICS										
1	Watershed name (tertiary): **1DG-1-WW**	**Size: 203.79 km^2**								
2	% Watershed land cover	**For: 84%**	Nat: 0	Past/Hay: 0	**Crop: 6%**	**Ur/Co: 1%**	**Road: 1%**	**Other Dev: 6%**		
3	% Watershed WL cover and by class	**Total: 4.6%**	SM: 0	**BO/FE: 6%**	**FE: 9%**	**FM: 34%**	**Swamp: 49%**		CP: 0	VP: 0
SF1	***Watershed condition***	H	**M X**	L						
SF2	***Proportion of WL area in watershed & opportunity for floodwater detention***	**H X**	M	L						
SECTION TWO: SITE DESCRIPTION AND WETLAND CHARACTER										
Wetland Type: **Freshwater marsh (with some shrubs)**		**WL size: 0.077ha**			**Landform: Basin**			**Landscape Position: Terrene Pond**		
Water flow path:		**Wetland Origin: Constructed pond**								
1	Water regime	**PF X**	SF	TF	SS	PS	RfT	IfT	AF	
2	# WL's within 30m project area	Total # =	SM:	BO:	FE:	FM:	FS:	SS:	CP:	VP:
3	Is WL part of complex	**Yes X**	No							
4	% each wetland type in complex	SM:	BO:	FE:	**FM: 70%**	FS:	SS:	CP:	VP:	**SWW: 30%**
5	Is WL bordering or associated with a lake or pond?	**bordering X**		within 100m		N/A		Specify:		
6	Standing water?	**Yes X**	**Avg Dep: 1.5 m**		**Inundated: 30%**			No		
7	Inlet or Outlet (circle all that apply)?	Inlet	Outlet	**None**						
8	Adjacent upland land use within 100m (%)	**For: 60**	Nat:	**PasHay: 40**	Crop:	Urban/Com:		Road:	Other Dev:	
9	Are there stressors in WL or WL buffer area?	DD__, CW__, WcS__, O/C__, EB__, DP__, **F_X_, M_X_**, ES__, **NE_X_**, DwP__, M__, GC__, ATV__, DG__, EA__, R__, Rr__, U/CD__,								
		F__, FA__, Other (specify):								
10	Hydrology Altered (circle all that apply)?	Ditching	Dams	Tiles	Culvert	Well	Diver.	**Other: Excavation**		
SF3	***Rate the general wetland condition/ecological integrity***	H	**M X**	L	Note: Newly created but doing well					
SECTION THREE: CONDITION AND INTEGRITY OF ADJACENT LAND										
1	Average width of adjacent naturalized buffer	**>20 meters**								
2	Widths for water quality	**H >15**	M 8-15	L <8						
3	Widths for wildlife habitat	H >100	**M 15-100**	L <15						
4	Adjacent area vegetation condition (list % in each category)	**H: 98%**	**M: 2%**	L						
5	Adjacent area diversity and structure (list % in each category)	**H: 100%**	M	L						
6	Adjacent upland slope (list % in each category)	Steep:	**Mod: 5%**	**Gentle: 95%**						
7	Adjacent land supports water quality functions	**Yes X**	No	Specify:						
8	Adjacent land supports wildlife habitat	**Yes X**	No	Specify:						
SF4	***Rate the overall condition and integrity of land adjacent to wetland***	**H X**	M	L	is buffer required to maintain red flag functions of WL?				Yes	**No X**
SECTION FOUR: IDENTIFICATION OF EXCEPTIONAL FEATURES										
SF5	***Is the WL a WSS?***	Yes	**No X**							
SF6	***Does the WL support commercial/recreational fish/shellfish?***	Yes	**No X**							
SF7	***Species of concern (Fed/Prov)? Specify.***	End	Thr	SpC	Red	**Yellow X**	S1	S2	S3	**short-awned foxtail**
SF8	***Wetland has conservation/compensation agreements/activity?***	Yes	**No X**	Specify:						
SF9	***Wetland is calcareous fen, black ash or cedar swamp?***	Yes	**No X**							
SF10	***Within Drinking Water Protected Area (designated watershed/wellfield)***	Yes	**No X**	Specify:						

Wetland 5: Nova Scotia Wetland Evaluation Technique Field Data Sheet

SF11	***WL within a floodplain and upstream of or within a populated area?***	Yes	**No X**								
SF12	***Fed/Prov/Municipal area of interest?***	Yes	**No X**	Specify:							
SECTION FIVE: HYDROLOGIC CONDITION AND INTEGRITY											
1	Is WL source of stream or headwater (wc order 1 or 2)	Yes	No	Specify:							
2	Is WL geographically isolated?	**Yes X**	No	Specify:							
3	WL ability to maintain characteristic hydrologic regime	High		Med		**Low X**					
4	Water storage depth (list % in each class)	**>30cm**	**40%**	**15-30cm**	**0%**	**up to 15cm**	**40%**	**No ponding**	**20%**		
5	Signs of surface water retention observed?	**SW_X_**, WSL__, **WCD_X_**, WM__cm, SM__cm, SD__, AD__, ID__, PMT__, AI__, BT__, AR__, Other:									
6	Describe observable/historical anthropogenic sediment delivery	**Low X**		Med		High					
7	Disturbance of WL soils	Low		Med		**High X**					
8	Predominant soils adjacent to WL	Sand		**Silt/loam X**		Clay/bedrock					
9	Capacity of WL to alter/retard flows	High		Med		**Low X**					
10	Roughness coefficient for surface water flow path	High		Med		**Low X**					
11	Stormwater/wastewater/agricultural runoff detention	High		**Med X**		**Low X**					
12	Water source	Natural		**Mostly natural X**		Partly altered/Controlled		Controlled			
13	Hydrology of tidal wetlands	Unrestricted		Reduced		Restricted		**N/A X**			
14	Coastal storm surge	Yes	**No X**								
SF13	***WL hydrologic condition***	Natural	Modified	**Significantly Modified**							
SF14	***WL important for maintaining stream flow?***	Yes	**No X**								
SF15	***WL ability to detain surface water***	High	**Med X**	Low							
SECTION SIX: WATER QUALITY											
1	Amount of stormwater/wastewater/agricultural runoff as water source	High		**Med X**		Low					
2	Potential for nutrients/sediments from surrounding land	High		Med		**Low X**					
3	Significant flood/stormwater attenuation?	Yes	**No X**								
4	Vegetation capacity to settle suspended sediments	High		**Med X**		Low					
5	WL type/landscape position holds/filters runoff?	Yes	**No X**								
SF16	***Does the wetland have characteristics that improve water quality?***	Yes	**No X**								
SF17	***Evidence of excess nutrient loading/contamination inputs?***	**Low X**		Med		High					
SF18	***WL contributes to water quality in downstream fish/water supply***	High		Med		**Low X**					
SECTION SEVEN: GROUNDWATER INTERACTIONS											
1	Describe soils within wetland	**Recharge X**		Discharge							
2	Land use/run off in subwatershed upstream	Recharge		**Discharge X**							
3	Conditions of upland soils within 200m of wetland	**Recharge X**		Discharge							
4	Hydroperiod of wetland	Recharge		**Discharge X**							
5	Describe inlet/outlet configuration	Recharge		**Discharge X**							
6	Characterize topographic relief surrounding wetland	**Recharge X**		Discharge							
SF19	***WL serves as a recharge site***	Yes	**No X**	**Note: excavated to intersect groundwater table so kind of a flow-through system**							
SF20	***WL serves as a discharge site***	Yes	**No X**								
SECTION EIGHT: SHORELINE STABILIZATION AND INTEGRITY											
1	Wetland fringing ocean/estuary/lake/pond/river/stream?	**Yes X**	No	streamwidth >4m		streamwidth<4m		WB Exposed	**WB Sheltered X**		
2	% cover of rooted vegetation in shallow water zone	**H >50%**	M 10-50%	L <10%	100% cover						
3	Avg veg WL width b/w shoreline/streambank & 2 m depth contour	H >10m	**M 3-10**	L <3m	__meters						
4	Prevalence of strong-stemmed emerg. veg (shoreline marshes and fens only)	**High X**	Med	Low	N/A						
5	Describe shoreline erosion potential	High	Med	**Low X**	N/A						

Wetland 5: Nova Scotia Wetland Evaluation Technique Field Data Sheet

6	Shoreline/streambank veg condition upslope of water level	Low	**Med X**	High	Artificial						
SF21	***WL ability to stabilize shoreline***	H	M	**L X**	N/A						
SECTION NINE: PLANT COMMUNITY											
1	Vegetation diversity	**High X**	Med	Low							
		Basin marsh								Shallow water wetland	
1b	3 most dominant plant species and % cover in the WL	**Tree:**	**none**					**none**			
		G.Veg:	**broom sedge (30%), mosquito bulrush (20%), soft rush (15%)**					**ribbon-leaved pondweed (35%), rice cutgrass (25%), small yellow pond-lily (20%)**			
		Shrub:	**speckled alder (2%), young crack willow (0.5%)**					**young crack willow (1%)**			
2	WL plant community regionally scarce or rare?	Yes	**No X**	Rare types:							
3	Dominant non-native or invasive species and % cover	Yes	**No X**	Specify: %							
4	Vegetation disturbance	H	M	**L X**	specify type(s) below						
5	Disturbance types	H__, ATV__, G__, **M_X_**, **In_X_**, D/D__, Im__, OAH__, Ii__, Sd__, E__, other:									
6	Current vegetative integrity of plant community	E	**H X**	M	L						
SF22	***Is the plant community unique or rare regionally or provincially?***	Yes	**No X**	Specify:							
SF23	***Does the WL contain a diversity of plant communities***	**H X**	M	L							
SF24	***Rate the overall integrity/quality of plant community?***	H	**M X**	L							
SF25	***Are there any observed rare or endangered plant species? Specify.***	End	Thr	SpC	Red	**Yellow X**	S1	S2	S3	**short-awned foxtail**	
SECTION TEN: FISH AND WILDLIFE HABITAT AND HABITAT INTEGRITY											
1	Interspersion of open water and vegetation (open water types only)	H	M	**L X**							
1b	% cover in vegetation versus open water	**60%**									
2	Interspersion that best fits entire wetland	H	M	**L X**	N/A						
3	Wetland condition related to detritus	H	**M X**	L	N/A						
4	Interspersion of other wetlands in vicinity	**H X**	M	L	N/A						
5	Barriers/restriction between wetland and other habitat	**L X**	M	H	N/A						
6	Noteworthy wildlife or evidence (birds, mammals, amphibians,etc)	Yes	**No X**	List:							
7	Connected to permanent water (accessible to fish)?	E	H	M	**L X**	N/A					
8	Fish species observed or evidence seen (list)	Yes	**No X**	List:							
9	Wetland part of contiguous upland or wetland:	>50ha	**25-50ha**	10-25ha	<10ha						
10	WL provides habitat for:	**Amphibians**	**Reptiles**	**Waterfowl**	Waterbirds	**Mammals**	Fish	R/E species			
SF26	***Does wetland support fish/fish habitat?***	Yes	**No X**	Specify:							
SF27	***Rare or endangered fish/wildlife species found in the wetland?***	End	Thr	**SpC X**	Red	Yellow	S1	S2	S3	N/A	**snapping turtle**
SF28	***Overall fish and wildlife habitat quality***	H	**M X**	L							
SECTION ELEVEN: COMMUNITY USE/VALUE											
1	Describe community use	**VV_X_**, CP__, CO__, PO__, PA__, **AV_X_**, GB__, E__, HI__, WV__, BO__, HU__, PG__, BP__, F__, E__, R__, **Other: Agriculture**									
SF29	***Rate the wetland's community use/value***	H	**M X**	L							

SF ratings highlighted in red indicate critical wetland functions or watershed conditions that are highly degraded. Whenever a wetland is found to have red-highlighted **SFs** the proponent is encouraged to contact NSE for advice about the approval because NSE is unlikely to approve alterations to wetlands that would affect these red-rated functions.

Wetlands 6 and 7: Nova Scotia Wetland Evaluation Technique Field Data Sheet

Project Name: National Gypsum Mine Expansion		Evaluator: Elizabeth Kennedy		GPS Coordinates: WL 6 and 7						
PID:		Site Address: Highway 2								
Sources and Dates of Mapping/Images:										
Evaluation Date:		Site Visit Date: June 16, 2014								
Weather Conditions (past 48 hours): Rain, drizzle, wine										
Seasonal Weather Conditions: Colder and drier than typical spring										
SECTION ONE: WATERSHED CHARACTERISTICS										
1	Watershed name (tertiary): **1DG-1-WW**	**Size: 203.79 km^2**								
2	% Watershed land cover	**For: 84%**	Nat: 0	Past/Hay: 0	**Crop: 6%**	**Ur/Co: 1%**	**Road: 1%**	**Other Dev: 6%**		
3	% Watershed WL cover and by class	**Total: 4.6%**	SM: 0	**BO/FE: 6%**	**FE: 9%**	**FM: 34%**	**Swamp: 49%**		CP: 0	VP: 0
SF1	***Watershed condition***	H	**M X**	L						
SF2	***Proportion of WL area in watershed & opportunity for floodwater detention***	**H X**	M	L						
SECTION TWO: SITE DESCRIPTION AND WETLAND CHARACTER										
Wetland type: **Treed swamp**		**WL size: WL6: 0.068ha WL7: 0.035ha**			**Landform: Basin**			**Landscape Position: Terrene**		
Water flow path: **Isolated**		**Wetland Origin: Natural**								
1	Water regime	PF	SF	**TF X**	**SS X**	PS	RfT	IfT	AF	
2	# WL's within 30m project area	**Total # = 4**	SM:	BO:	FE:	FM:	**FS: 4**	SS:	CP:	VP:
3	Is WL part of complex	Yes	**No X**							
4	% each wetland type in complex	SM:	BO:	FE:	FM:	FS:	SS:	CP:	VP:	
5	Is WL bordering or associated with a lake or pond?	bordering		within 100m		**N/A X**		Specify:		
6	Standing water?	Yes	Avg Dep:		% Inundated:			**No X**		
7	Inlet or Outlet (circle all that apply)?	Inlet	Outlet	**None**						
8	Adjacent upland land use within 100m (%)	**For: 100%**	Nat:	PasHay:	Crop:	Urban/Com:		Road:	Other Dev:	
9	Are there stressors in WL or WL buffer area?	DD__, CW__, WcS__, O/C__, EB__, DP__, F__, M__, ES__, NE__, DwP__, M__, GC__, ATV__, DG__, EA__, R__, Rr__, U/CD__,								
		F__, **FA_X_, other (specify): small logging road, old evidence of channelization**								
10	Hydrology altered (circle all that apply)?	Ditching	Dams	Tiles	Culvert	Well	Diversion	Other:	**none obvious**	
SF3	***Rate the general wetland condition/ecological integrity***	**H X**	M	L						
SECTION THREE: CONDITION AND INTEGRITY OF ADJACENT LAND										
1	Average width of adjacent naturalized buffer	**>20 meters**								
2	Widths for water quality	**H >15**	M 8-15	L <8						
3	Widths for wildlife habitat	H >100	**M 15-100**	L <15						
4	Adjacent area vegetation condition (list % in each category)	**H: 98%**	**M: 2%**	L:						
5	Adjacent area diversity and structure (list % in each category)	**H: 100%**	M:	L:						
6	Adjacent upland slope (list % in each category)	Steep:	**Mod: 5%**	**Gentle: 95%**						
7	Adjacent land supports water quality functions	**Yes X**	No	Specify:						
8	Adjacent land supports wildlife habitat	**Yes X**	No	Specify:						
SF4	***Rate the overall condition and integrity of land adjacent to wetland***	**H X**	M	L	buffer required to maintain red flag functions of W			Yes	**No X**	
SECTION FOUR: IDENTIFICATION OF EXCEPTIONAL FEATURES										
SF5	***Is the WL a WSS?***	Yes	**No X**							
SF6	***Does the WL support commercial/recreational fish/shellfish?***	Yes	**No X**							
SF7	***Species of concern (Fed/Prov)? Specify.***	End	Thr	SpC	Red	Yellow	S1	S2	S3	N/A
SF8	***Wetland has conservation/compensation agreements/activity?***	Yes	**No X**	Specify:						
SF9	***Wetland is calcareous fen, black ash or cedar swamp?***	Yes	**No X**							
SF10	***Within Drinking Water Protected Area (designated watershed/wellfield)***	Yes	**No X**	Specify:						
SF11	***WL within a floodplain and upstream of or within a populated area?***	Yes	**No X**							

Wetlands 6 and 7: Nova Scotia Wetland Evaluation Technique Field Data Sheet													
SF12	***Fed/Prov/Municipal area of interest?***	Yes	**No X**	Specify:									
SECTION FIVE: HYDROLOGIC CONDITION AND INTEGRITY													
1	Is WL source of stream or headwater (wc order 1 or 2)	Yes	**No X**	Specify:									
2	Is WL geographically isolated?	**Yes X**	No	Specify:									
3	WL ability to maintain characteristic hydrologic regime	**High X (unaltered)**		Med		Low							
4	Water storage depth (list % in each class)	**>30cm**	**0%**	**15-30cm**	**0%**	**up to 15cm**	**10%**	**No ponding**	**10%**				
5	Signs of surface water retention observed?	**SW_5m_, WSL_X_**, WCD__, WM__cm, SM__cm, SD__, AD__, ID__, **PMT_X_**, AI__, BT_X_, AR__, Other:											
6	Describe observable/historical anthropogenic sediment delivery	**Low X**		Med		High							
7	Disturbance of WL soils	**Low X**		Med		High							
8	Predominant soils adjacent to WL	Sand		**Silt/loam X**		Clay/bedrock							
9	Capacity of WL to alter/retard flows	High		**Med X**		Low		**Captures runoff and direct precipitation**					
10	Roughness coefficient for surface water flow path	**High X**		Med		Low							
11	Stormwater/wastewater/agricultural runoff detention	High		Med		**Low X**							
12	Water source	**Natural X**		Mostly natural		Partly altered/Controlled		Controlled					
13	Hydrology of tidal wetlands	Unrestricted		Reduced		Restricted		**N/A X**					
14	Coastal storm surge	Yes	**No X**										
SF13	***WL hydrologic condition***	**Natural X**	Modified		Significantly Modified								
SF14	***WL important for maintaining stream flow?***	Yes	**No X**										
SF15	***WL ability to detain surface water***	High	**Med X**	Low									
SECTION SIX: WATER QUALITY													
1	Amount of stormwater/wastewater/agricultural runoff as water source	High		Med		**Low X**							
2	Potential for nutrients/sediments from surrounding land	High		Med		**Low X**							
3	Significant flood/stormwater attenuation?	Yes	**No X**										
4	Vegetation capacity to settle suspended sediments	High		**Med X**		Low							
5	WL type/landscape position holds/filters runoff?	**Yes X**	No										
SF16	***Does the wetland have characteristics that improve water quality?***	**Yes X**	No										
SF17	***Evidence of excess nutrient loading/contamination inputs?***	**Low X**		Med		High							
SF18	***WL contributes to water quality in downstream fish/water supply***	High		Med		**Low X**							
SECTION SEVEN: GROUNDWATER INTERACTIONS													
1	Describe soils within wetland	**Recharge X**		Discharge									
2	Land use/run off in subwatershed upstream	Recharge		**Discharge X**									
3	Conditions of upland soils within 200m of wetland	**Recharge X**		Discharge									
4	Hydroperiod of wetland	**Recharge X**		Discharge									
5	Describe inlet/outlet configuration	**Recharge X**		Discharge									
6	Characterize topographic relief surrounding wetland	Recharge		**Discharge X**									
SF19	***WL serves as a recharge site***	**Yes X**	No	Likely collects runoff and holds it on surface long enough for infiltration									
SF20	***WL serves as a discharge site***	Yes	**No X**										
SECTION EIGHT: SHORELINE STABILIZATION AND INTEGRITY													
1	Wetland fringing ocean/estuary/lake/pond/river/stream?	Yes	**No X**	streamwidth >4m		streamwidth<4m		WB Exposed		WB Sheltered			
2	% cover of rooted vegetation in shallow water zone	H >50%	M 10-50	L <10%	**N/A X**								
3	Avg veg WL width b/w shoreline/streambank & 2 m depth contour	H >10m	M 3-10	L <3m	**N/A X**								
4	Prevalence of strong-stemmed emerg. veg (shoreline marshes and fens only)	High	Med	Low	**N/A X**								
5	Describe shoreline erosion potential	High	Med	Low	**N/A X**								
6	Shoreline/streambank veg condition upslope of water level	Low	Med	High	Artificial	**N/A X**							
SF21	***WL ability to stabilize shoreline***	H	M	L	**N/A X**								
SECTION NINE: PLANT COMMUNITY													

Wetlands 6 and 7: Nova Scotia Wetland Evaluation Technique Field Data Sheet

1	Vegetation diversity	High	**Med X**	Low						
1b	3 most dominant plant species and % cover in the WL	**Tree: red maple (25%), balsam fir (20%), white spruce (15%) G.Veg: sphagnum spp. (40%), fowl manna-grass (30%), hairy flat-top white aster (20%) Shrub: speckled alder (10%), white meadowsweet (2%), balsam fir (2%)**								
2	WL plant community regionally scarce or rare?	Yes	**No X**	Rare types:						
3	Dominant non-native or invasive species and % cover	Yes	**No X**	Specify: %						
4	Vegetation disturbance	H	M	**L X**	specify type(s) below					
5	Disturbance types	H__, ATV__, G__, M__, In__, D/D__, Im__, OAH__, Ii__, Sd__,E__, **Other: old evidence of forestry activities/channelization**								
6	Current vegetative integrity of plant community	E	**H X**	M	L					
SF22	***Is the plant community unique or rare regionally or provincially?***	Yes	**No X**	Specify:						
SF23	***Does the WL contain a diversity of plant communities***	H	**M X**	L						
SF24	***Rate the overall integrity/quality of plant community?***	**H X**	M	L						
SF25	***Are there any observed rare or endangered plant species? Specify.***	End	Thr	SpC	Red	Yellow	S1	S2	S3	**N/A**
SECTION TEN: FISH AND WILDLIFE HABITAT AND HABITAT INTEGRITY										
1	Interspersion of open water and vegetation (open water types only)	H	M	**L X**	**No open water areas, ponding only in hollows**					
1b	% cover in vegetation versus open water	**99%**								
2	Interspersion that best fits entire wetland	H	M	L	**N/A**	**Not complex-uniformly treed swamp**				
3	Wetland condition related to detritus	**H X**	M	L	N/A					
4	Interspersion of other wetlands in vicinity	H	**M X**	L	**Other similar wetlands present <1 km away**					
5	Barriers/restriction between wetland and other habitat	**L X**	M	H						
6	Noteworthy wildlife or evidence (birds, mammals, amphibians,etc)	**Yes X**	No	**List: Deer tracks, grouse, leopard frogs**						
7	Connected to permanent water (accessible to fish)?	E	H	M	L	N/A				
8	Fish species observed or evidence seen (list)	Yes	**No X**	List:						
9	Wetland part of contiguous upland or wetland:	>50ha	**25-50ha**	10-25ha	<10ha					
10	WL provides habitat for:	**Amphibians**	Reptiles	Waterfowl	Waterbirds	**Mammals**	Fish	R/E species		
SF26	***Does wetland support fish/fish habitat?***	Yes	**No X**	Specify:						
SF27	***Rare or endangered fish/wildlife species found in the wetland?***	End	Thr	SpC	Red	Yellow	S1	S2	S3	N/A
SF28	***Overall fish and wildlife habitat quality***	H	M	**L X**	**Very small and not easy to distinguish from adjacent upland**					
SECTION ELEVEN: COMMUNITY USE/VALUE										
1	Describe community use	VV__, CP__, CO__, PO__, PA__, AV__, GB__, E__, HI__, WV__, BO__, HU__, PG__, BP__, F__, E__, R__, Other:								
SF29	***Rate the wetland's community use/value***	**H**	M	**L X**	**Note: very small and not easy to distinguish from adjacent land**					

SF ratings highlighted in red indicate critical wetland functions or watershed conditions that are highly degraded. Whenever a wetland is found to have red-highlighted **SFs** the proponent is encouraged to contact NSE for advice about the approval because NSE is unlikely to approve alterations to wetlands that would affect these red-rated functions.

Wetland 8: Nova Scotia Wetland Evaluation Technique Field Data Sheet

Project Name: National Gypsum Mine Expansion		Evaluator: Elizabeth Kennedy			GPS Coordinates: WL8					
PID:		Site Address: Highway 2								
Sources and Dates of Mapping/Images:										
Evaluation Date:		Site Visit Date: June 16, 2014								
Weather Conditions (past 48 hours): Rain, drizzle, wind, cloud cover										
Seasonal Weather Conditions: Colder and drier than normal										
SECTION ONE: WATERSHED CHARACTERISTICS										
1	Watershed name (tertiary): **1DG-1-WW**	**Size: 203.79 km^2**								
2	% Watershed land cover	**For: 84%**	Nat: 0	Past/Hay: 0	**Crop: 6%**	**Ur/Co: 1%**	**Road: 1%**	**Other Dev: 6%**		
3	% Watershed WL cover and by class	**Total: 4.6%**	SM: 0	**BO/FE: 6%**	**FE: 9%**	**FM: 34%**	**Swamp: 49%**		CP: 0	VP: 0
SF1	***Watershed condition***	H	**M X**	L						
SF2	***Proportion of WL area in watershed & opportunity for floodwater detention***	**H X**	M	L						
SECTION TWO: SITE DESCRIPTION AND WETLAND CHARACTER										
Wetland type: **Treed swamp**		**WL size: 0.040ha**			Landform:			Landscape Position:		
Water flow path**: throughflow**		Wetland Origin:								
1	Water regime	PF	SF	**TF X**	**SS X**	PS	RfT	IfT	AF	
2	# WL's within 30m project area	Total # =	SM:	BO:	FE:	FM:	FS:	**SS:**	CP:	VP:
3	Is WL part of complex	Yes	**No X**							
4	% each wetland type in complex	SM:	BO:	FE:	FM:	FS:	SS:	CP:	VP:	
5	Is WL bordering or associated with a lake or pond?	bordering		within 100m		**N/A**		Specify:		
6	Standing water?	Yes	Avg Dep:		Inundated:			**No**		
7	Inlet or Outlet (circle all that apply)?	**Inlet X**	**Outlet X**							
8	Adjacent upland land use within 100m (%)	**For: 98%**	Nat:	PasHay:	Crop:	Urban/Com:		**Road: 2%**	Other Dev:	
9	Are there stressors in WL or WL buffer area?	DD__, CW__, WcS__, O/C__, EB__, DP__, F__, M__, ES__, NE__, DwP__, M__, GC__, ATV__, DG__, EA__, **R_X__**,								
		Rr__, U/CD__, F__, FA__, Other (specify):								
10	Hydrology altered (circle all that apply)?	**Ditching**	Dams	Tiles	Culvert	Well	Diver.	Other:		
SF3	***Rate the general wetland condition/ecological integrity***	**H X**	M	L						
SECTION THREE: CONDITION AND INTEGRITY OF ADJACENT LAND										
1	Average width of adjacent naturalized buffer	**>20 meters**								
2	Widths for water quality	H >15	**M 8-15**	L <8						
3	Widths for wildlife habitat	H >100	M 15-100	**L <15**						
4	Adjacent area vegetation condition (list % in each category)	**H: 75%**	**M: 25%**	L						
5	Adjacent area diversity and structure (list % in each category)	**H: 85%**	**M: 15%**	L						
6	Adjacent upland slope (list % in each category)	Steep	**Mod: 25%**	**Gentle:75%**						
7	Adjacent land supports water quality functions	**Yes X**	No	Specify:						
8	Adjacent land supports wildlife habitat	**Yes X**	No	Specify:						
SF4	***Rate the overall condition and integrity of land adjacent to wetland***	**H X**	M	L	is buffer required to maintain red flag functions of WL?				Yes	No
SECTION FOUR: IDENTIFICATION OF EXCEPTIONAL FEATURES										
SF5	***Is the WL a WSS?***	Yes	**No X**							
SF6	***Does the WL support commercial/recreational fish/shellfish?***	Yes	**No X**							
SF7	***Species of concern (Fed/Prov)? Specify.***	End	Thr	SpC	Red	Yellow	S1	S2	S3	N/A
SF8	***Wetland has conservation/compensation agreements/activity?***	Yes	**No X**	Specify:						
SF9	***Wetland is calcareous fen, black ash or cedar swamp?***	Yes	**No X**							

Wetland 8: Nova Scotia Wetland Evaluation Technique Field Data Sheet

SF10	***Within Drinking Water Protected Area (designated watershed/wellfield)***	Yes	No	Specify:						
SF11	***WL within a floodplain and upstream of or within a populated area?***	Yes	No							
SF12	***Fed/Prov/Municipal area of interest?***	Yes	No	Specify:						
SECTION FIVE: HYDROLOGIC CONDITION AND INTEGRITY										
1	Is WL source of stream or headwater (wc order 1 or 2)	Yes	**No X**	Specify:						
2	Is WL geographically isolated?	Yes	**No X**	Specify:						
3	WL ability to maintain characteristic hydrologic regime	**High X**		Med		Low				
4	Water storage depth (list % in each class)	>30cm		**15-30cm**	**100%**	up to 15cm		No ponding		
5	Signs of surface water retention observed?	**SW:10m , WSL_X_, WCD_X_, WM:15cm,** SM__cm, SD__, AD__, ID__, **PMT_X_**, AI__, **BT_X_**, AR__, Other:								
6	Describe observable/historical anthropogenic sediment delivery	**Low X**		Med		High		**None observed**		
7	Disturbance of WL soils	**Low X**		Med		High				
8	Predominant soils adjacent to WL	Sand		**Silt/loam X**		Clay/bedrock				
9	Capacity of WL to alter/retard flows	High		**Med X**		Low		**Meandering channel**		
10	Roughness coefficient for surface water flow path	High		**Med X**		**Low X**		**In channel**		
11	Stormwater/wastewater/agricultural runoff detention	High		Med		**Low X**				
12	Water source	Natural		**Mostly natural X**		Partly altered		Controlled		
13	Hydrology of tidal wetlands	Unrestricted		Reduced		Restricted		**N/A**		
14	Coastal storm surge	Yes	No							
SF13	***WL hydrologic condition***	**Natural X**	Modified		Significantly Modified					
SF14	***WL important for maintaining stream flow?***	Yes	**No X**							
SF15	***WL ability to detain surface water***	High	**Med X**	Low						
SECTION SIX: WATER QUALITY										
1	Amount of stormwater/wastewater/agricultural runoff as water source	High		Med		**Low X**				
2	Potential for nutrients/sediments from surrounding land	High		Med		**Low X**				
3	Significant flood/stormwater attenuation?	Yes	**No X**							
4	Vegetation capacity to settle suspended sediments	High		**Med X**		Low				
5	WL type/landscape position holds/filters runoff?	Yes	**No X**							
SF16	***Does the wetland have characteristics that improve water quality?***	**Yes X**	No							
SF17	***Evidence of excess nutrient loading/contamination inputs?***	High		Med		**Low X**				
SF18	***WL contributes to water quality in downstream fish/water supply***	High		**Med X**		Low				
SECTION SEVEN: GROUNDWATER INTERACTIONS										
1	Describe soils within wetland	Recharge		**Discharge X**						
2	Land use/run off in subwatershed upstream	Recharge		**Discharge X**						
3	Conditions of upland soils within 200m of wetland	**Recharge X**		Discharge						
4	Hydroperiod of wetland	**Recharge X**		Discharge						
5	Describe inlet/outlet configuration	Recharge		**Discharge X**						
6	Characterize topographic relief surrounding wetland	**Recharge X**		Discharge						
SF19	***WL serves as a recharge site***	Yes	**No X**							
SF20	***WL serves as a discharge site***	**Yes X**	No	Small perhaps-mostly throughflow						
SECTION EIGHT: SHORELINE STABILIZATION AND INTEGRITY										
1	Wetland fringing ocean/estuary/lake/pond/river/stream?	**Yes X**	No	streamwidth >4m		**streamwidth<4m**		WB Exposed	WB Sheltered	
2	% cover of rooted vegetation in shallow water zone	H >50%	M 10-50%	**L <10%**	100% cover					
3	Avg veg WL width b/w shoreline/streambank & 2 m depth contour	H >10m	M 3-10	**L <3m**	__meters					

Wetland 8: Nova Scotia Wetland Evaluation Technique Field Data Sheet

4	Prevalence of strong-stemmed emerg. veg (shoreline marshes and fens only)	High	Med	**Low X**	N/A					
5	Describe shoreline erosion potential	High	Med	**Low X**	N/A					
6	Shoreline/streambank veg condition upslope of water level	Low	**Med X**	High	Artificial					
SF21	***WL ability to stabilize shoreline***	H	M	**L X**	N/A	**Eroding-undercut bank on watercourse**				
SECTION NINE: PLANT COMMUNITY										
1	Vegetation diversity	**High X**	Med	Low						
1b	3 most dominant plant species and % cover in the WL	**Tree: balsam fir (35%), red maple (25%)** **G.Veg: fowl manna-grass (40%), sensitive fern (30%), spotted jewelweed (15%)** **Shrub: speckled alder (20%), balsam fir (5%)**								
2	WL plant community regionally scarce or rare?	Yes	**No X**	Rare types:						
3	Dominant non-native or invasive species and % cover	Yes	**No X**	Specify: %						
4	Vegetation disturbance	H	M	**L X**	specify type(s) below					
5	Disturbance types	H__, ATV__, G__, M__, In__, **D/D_X_**, Im__, OAH__, Ii__, Sd__, E__, other:								
6	Current vegetative integrity of plant community	E	**H X**	M	L					
SF22	***Is the plant community unique or rare regionally or provincially?***	Yes	**No X**	Specify:						
SF23	***Does the WL contain a diversity of plant communities***	**H X**	M	L						
SF24	***Rate the overall integrity/quality of plant community?***	**H X**	M	L						
SF25	***Are there any observed rare or endangered plant species? Specify.***	End	Thr	SpC	Red	Yellow	S1	S2	S3	**N/A**
SECTION TEN: FISH AND WILDLIFE HABITAT AND HABITAT INTEGRITY										
1	Interspersion of open water and vegetation (open water types only)	H	**M X**	L						
1b	% cover in vegetation versus open water	**95%**								
2	Interspersion that best fits entire wetland	H	M	**L X**	N/A					
3	Wetland condition related to detritus	**H X**	M	L	N/A					
4	Interspersion of other wetlands in vicinity	H	**M X**	L						
5	Barriers/restriction between wetland and other habitat	L	**M X**	H						
6	Noteworthy wildlife or evidence (birds, mammals, amphibians,etc)	Yes	No	**List: Deer**						
7	Connected to permanent water (accessible to fish)?	E	H	M	**L X**	N/A				
8	Fish species observed or evidence seen (list)	Yes	**No X**	List:						
9	Wetland part of contiguous upland or wetland:	>50ha	**25-50ha**	10-25ha	<10ha					
10	WL provides habitat for:	**Amphibians**	Reptiles	Waterfowl	Waterbirds	**Mammals**	Fish	R/E species		
SF26	***Does wetland support fish/fish habitat?***	**Yes X**	No	Specify:						
SF27	***Rare or endangered fish/wildlife species found in the wetland?***	End	Thr	SpC	Red	Yellow	S1	S2	S3	N/A
SF28	***Overall fish and wildlife habitat quality***	H	**M X**	L						
SECTION ELEVEN: COMMUNITY USE/VALUE										
1	Describe community use	VV__, CP__, CO__, PO__, PA__, AV__, GB__, E__, HI__, WV__, BO__, HU__, PG__, BP__, F__, E__, R__, Other:								
SF29	***Rate the wetland's community use/value***	H	M	L						

SF ratings highlighted in red indicate critical wetland functions or watershed conditions that are highly degraded. Whenever a wetland is found to have red-highlighted **SFs** the proponent is encouraged to contact NSE for advice about the approval because NSE is unlikely to approve alterations to wetlands that would affect these red-rated functions.

Wetland 9: Nova Scotia Wetland Evaluation Technique Field Data Sheet

Project Name: National Gypsum Mine Expansion		Evaluator: Elizabeth Kennedy			GPS Coordinates: WL9					
PID:		Site Address: Highway 2								
Sources and Dates of Mapping/Images:										
Evaluation Date:		Site Visit Date: June 16, 2014								
Weather Conditions (past 48 hours): Rain, drizzle										
Seasonal Weather Conditions: Colder and drier than typical										
SECTION ONE: WATERSHED CHARACTERISTICS										
1	Watershed name (tertiary): **1DG-1-WW**	**Size: 203.79 km^2**								
2	% Watershed land cover	**For: 84%**	Nat: 0	Past/Hay: 0	**Crop: 6%**	**Ur/Co: 1%**	**Road: 1%**	**Other Dev: 6%**		
3	% Watershed WL cover and by class	**Total: 4.6%**	SM: 0	**BO/FE: 6%**	**FE: 9%**	**FM: 34%**	**Swamp: 49%**	CP: 0	VP: 0	
SF1	***Watershed condition***	H	**M X**	L						
SF2	***Proportion of WL area in watershed & opportunity for floodwater detention***	**H X**	M	L						
SECTION TWO: SITE DESCRIPTION AND WETLAND CHARACTER										
Wetland type: **Shrub swamp**		**WL size: 0.067ha**			**Landform: Basin**			**Landscape Position: Terrene**		
Water flow path: **isolated**		**Wetland Origin: Natural**								
1	Water regime	PF	SF	**TF X**	**SS X**	PS	RfT	IfT	AF	
2	# WL's within 30m project area	**Total # = 2**	SM:	BO:	FE:	FM:	**FS: 1**	**SS: 1**	CP:	VP:
3	Is WL part of complex	Yes	**No X**							
4	% each wetland type in complex	SM:	BO:	FE:	FM:	FS:	SS:	CP:	VP:	
5	Is WL bordering or associated with a lake or pond?	bordering		within 100m		**N/A X**	Specify:			
6	Standing water?	Yes	Avg Dep:		Inundated:			**No X**		
7	Inlet or Outlet (circle all that apply)?	Inlet	Outlet	**None**						
8	Adjacent upland land use within 100m (%)	**For: 100%**	Nat:	PasHay:	Crop:	Urban/Com:		Road:	Other Dev:	
9	Are there stressors in WL or WL buffer area?	DD__, CW__, WcS__, O/C__, EB__, DP__,F__, M__, ES__, NE__, DwP__, M__, GC__, ATV__, DG__, EA__, R__, Rr__, U/CD__, F__,**FA_X_**, Other								
		(specify): **Small logging road adjacent to the wetland**								
10	Hydrology altered (circle all that apply)?	Ditching	Dams	Tiles	Culvert	Well	Diver.	Other:		
SF3	***Rate the general wetland condition/ecological integrity***	**H X**	M	L						
SECTION THREE: CONDITION AND INTEGRITY OF ADJACENT LAND										
1	Average width of adjacent naturalized buffer	**>20 meters**								
2	Widths for water quality	**H >15**	M 8-15	L <8						
3	Widths for wildlife habitat	**H >100**	M 15-100	L <15						
4	Adjacent area vegetation condition (list % in each category)	**H: 90%**	**M: 10%**	L	Small logging road adjacent					
5	Adjacent area diversity and structure (list % in each category)	**H: 100%**	M	L						
6	Adjacent upland slope (list % in each category)	Steep	Mod	**Gentle: 100%**						
7	Adjacent land supports water quality functions	**Yes X**	No	Specify:						
8	Adjacent land supports wildlife habitat	**Yes X**	No	Specify:						
SF4	***Rate the overall condition and integrity of land adjacent to wetland***	**H X**	M	L	is buffer required to maintain red flag functions of WL?			Yes	**No X**	
SECTION FOUR: IDENTIFICATION OF EXCEPTIONAL FEATURES										
SF5	***Is the WL a WSS?***	Yes	**No X**							
SF6	***Does the WL support commercial/recreational fish/shellfish?***	Yes	**No X**							
SF7	***Species of concern (Fed/Prov)? Specify.***	End	Thr	SpC	Red	**Yellow X**	S1	S2	S3	**alder-leaved buckthorn**
SF8	***Wetland has conservation/compensation agreements/activity?***	Yes	**No X**	Specify:						
SF9	***Wetland is calcareous fen, black ash or cedar swamp?***	Yes	**No X**							
SF10	***Within Drinking Water Protected Area (designated watershed/wellfield)***	Yes	**No X**	Specify:						
SF11	***WL within a floodplain and upstream of or within a populated area?***	Yes	**No X**							
SF12	***Fed/Prov/Municipal area of interest?***	Yes	**No X**	Specify:						
SECTION FIVE: HYDROLOGIC CONDITION AND INTEGRITY										
1	Is WL source of stream or headwater(wc order 1 or 2)	Yes	**No X**	Specify:						
2	Is WL geographically isolated?	**Yes X**	No	Specify:						
3	WL ability to maintain characteristic hydrologic regime	**High X**		Med		Low				

Wetland 9: Nova Scotia Wetland Evaluation Technique Field Data Sheet

4	Water storage depth (list % in each class)	>30cm		15-30cm		**up to 15cm**	**15%**	**No ponding**	**85%**		
5	Signs of surface water retention observed?	**SW 5m , WSL_X_**, WCD__, WM__cm, SM__cm, SD__, AD__, ID__,**PMT_X_**, AI__, **BT_X_**, AR__, Other:									
6	Describe observable/historical anthropogenic sediment delivery	**Low X**		Med		High					
7	Disturbance of WL soils	**Low X**		Med		High					
8	Predominant soils adjacent to WL	Sand		**Silt/loam X**		Clay/bedrock					
9	Capacity of WL to alter/retard flows	High		Med		**Low X**					
10	Roughness coefficient for surface water flow path	High		Med		**Low X**					
11	Stormwater/wastewater/agricultural runoff detention	High		Med		**Low X**					
12	Water source	**Natural X**		Mostly natural		Partly altered/Controlled		Controlled			
13	Hydrology of tidal wetlands	Unrestricted		Reduced		Restricted		**N/A X**			
14	Coastal storm surge	Yes	**No X**								
SF13	***WL hydrologic condition***	**Natural X**	Modified		Significantly Modified						
SF14	***WL important for maintaining stream flow?***	Yes	**No X**								
SF15	***WL ability to detain surface water***	High	**Med X**	Low							
SECTION SIX: WATER QUALITY											
1	Amount of stormwater/wastewater/agricultural runoff as water source	High		Med		**Low X**					
2	Potential for nutrients/sediments from surrounding land	High		Med		**Low X**					
3	Significant flood/stormwater attenuation?	Yes	**No X**								
4	Vegetation capacity to settle suspended sediments	**High X**		Med		Low					
5	WL type/landscape position holds/filters runoff?	**Yes X**	No								
SF16	***Does the wetland have characteristics that improve water quality?***	**Yes X**	No								
SF17	***Evidence of excess nutrient loading/contamination inputs?***	**Low X**		Med		High					
SF18	***WL contributes to water quality in downstream fish/water supply***	High		Med		**Low X**					
SECTION SEVEN: GROUNDWATER INTERACTIONS											
1	Describe soils within wetland	**Recharge X**		Discharge							
2	Land use/run off in subwatershed upstream	Recharge		**Discharge X**							
3	Conditions of upland soils within 200m of wetland	Recharge		**Discharge X**							
4	Hydroperiod of wetland	Recharge		**Discharge X**							
5	Describe inlet/outlet configuration	**Recharge X**		Discharge							
6	Characterize topographic relief surrounding wetland	Recharge		**Discharge X**							
SF19	***WL serves as a recharge site***	Yes	**No X**								
SF20	***WL serves as a discharge site***	**Yes X**	No	**Likely small discharges or water table at surface**							
SECTION EIGHT: SHORELINE STABILIZATION AND INTEGRITY											
1	Wetland fringing ocean/estuary/lake/pond/river/stream?	Yes	**No X**	streamwidth >4m		streamwidth<4m		WB Exposed		WB Sheltered	
2	% cover of rooted vegetation in shallow water zone	H >50%	M 10-50	L <10%	**N/A X**						
3	Avg veg WL width b/w shoreline/streambank & 2 m depth contour	H >10m	M 3-10	L <3m	**N/A X**						
4	Prevalence of strong-stemmed emerg. veg (shoreline marshes and fens only)	High	Med	Low	**N/A X**						
5	Describe shoreline erosion potential	High	Med	Low	**N/A X**						
6	Shoreline/streambank veg condition upslope of water level	Low	Med	High	Artificial	**N/A X**					
SF21	***WL ability to stabilize shoreline***	H	M	L	**N/A X**						
SECTION NINE: PLANT COMMUNITY											
1	Vegetation diversity	High	**Med X**	Low							
1b	3 most dominant plant species and % cover in the WL	**Tree: trembling aspen (35%), red maple (30%)** **G.Veg: fowl manna-grass (30%), dwarf red raspberry (15%), sensitive fern (10%)** **Shrub: speckled alder (30%), white meadowsweet (10%), balsam fir (2%)**									
2	WL plant community regionally scarce or rare?	**Yes X**	No	**Rare types: WD5 (FEC vegetation type); presence of black ash**							
3	Dominant non-native or invasive species and % cover	Yes	**No X**	Specify: %							
4	Vegetation disturbance	H	M	**L X**	specify type(s) below						
5	Disturbance types	H__, ATV__, G__, M__, In__, D/D__, Im__, OAH__, Ii__, Sd__, E__, **other: old evidence of logging activities**									
6	Current vegetative integrity of plant community	E	**H X**	M	L						

Wetland 9: Nova Scotia Wetland Evaluation Technique Field Data Sheet

SF22	***Is the plant community unique or rare regionally or provincially?***	**Yes X**	No	**Specify: Vegetation type WD5 (FEC vegetation type)**						
SF23	***Does the WL contain a diversity of plant communities***	H	**M X**	L						
SF24	***Rate the overall integrity/quality of plant community?***	**H X**	M	L						
SF25	***Are there any observed rare or endangered plant species? Specify.***	End	**Thr X**	SpC	Red	**Yellow X**	S1	S2	S3	**black ash and alder-leaved buckthorn**
SECTION TEN: FISH AND WILDLIFE HABITAT AND HABITAT INTEGRITY										
1	Interspersion of open water and vegetation (open water types only)	H	M	**L X**						
1b	% cover in vegetation versus open water	**100%**								
2	Interspersion that best fits entire wetland	H	M	L	**N/A X**	No complex				
3	Wetland condition related to detritus	**H X**	M	L	N/A					
4	Interspersion of other wetlands in vicinity	H	**M X**	L						
5	Barriers/restriction between wetland and other habitat	**L X**	M	H						
6	Noteworthy wildlife or evidence (birds, mammals, amphibians,etc)	Yes	**No X**	List:						
7	Connected to permanent water (accessible to fish)?	E	H	M	L	**N/A X**				
8	Fish species observed or evidence seen (list)	Yes	**No X**	List:						
9	Wetland part of contiguous upland or wetland:	>50ha	**25-50ha**	10-25ha	<10ha					
10	WL provides habitat for:	**Amphibians**	Reptiles	Waterfowl	Waterbirds	**Mammals**	Fish	**R/E species**		
SF26	***Does wetland support fish/fish habitat?***	Yes	**No X**	Specify:						
SF27	***Rare or endangered fish/wildlife species found in the wetland?***	End	Thr	SpC	Red	Yellow	S1	S2	S3	N/A
SF28	***Overall fish and wildlife habitat quality***	H	M	**L X**						
SECTION ELEVEN: COMMUNITY USE/VALUE										
1	Describe community use	VV__, CP__, CO__, PO__, PA__, AV__, GB__, E__, HI__, WV__, BO__, HU__, PG__, BP__, F__, E__, R__, Other:								
SF29	***Rate the wetland's community use/value***	H	M	**L X**						

SF ratings highlighted in red indicate critical wetland functions or watershed conditions that are highly degraded. Whenever a wetland is found to have red-highlighted **SFs** the proponent is encouraged to contact NSE for advice about the approval because NSE is unlikely to approve alterations to wetlands that would affect these red-rated functions.

Wetland 10: Nova Scotia Wetland Evaluation Technique Field Data Sheet

Project Name: National Gypsum Mine Expansion		Evaluator: E. Kennedy			GPS Coordinates: WL10					
PID:		Site Address: Highway 2, Carol's Corner								
Sources and Dates of Mapping/Images:										
Evaluation Date:		Site Visit Date: June 16, 2014								
Weather Conditions (past 48 hours): Rain, drizzle, wind, cloud cover										
Seasonal Weather Conditions: Colder and drier than typical										
SECTION ONE: WATERSHED CHARACTERISTICS										
1	Watershed name (tertiary): **1DG-1-WW**	**Size: 203.79 km^2**								
2	% Watershed land cover	**For: 84%**	Nat: 0	Past/Hay: 0	**Crop: 6%**	**Ur/Co: 1%**	**Road: 1%**	**Other Dev: 6%**		
3	% Watershed WL cover and by class	**Total: 4.6%**	SM: 0	**BO/FE: 6%**	**FE: 9%**	**FM: 34%**	**Swamp: 49%**		CP: 0	VP: 0
SF1	***Watershed condition***	H	**M X**	L						
SF2	***Proportion of WL area in watershed & opportunity for floodwater detention***	**H X**	M	L						
SECTION TWO: SITE DESCRIPTION AND WETLAND CHARACTER										
Wetland type: **Mixed wood swamp, channel, seepage**		**WL size: 6.974ha**			Landform:			Landscape Position:		
Water flow path:		Wetland Origin:								
1	Water regime	**PF: 10%**	**SF: 20%**	TF	**SS: 60%**	**PS: 10%**	RfT	IfT	AF	
2	# WL's within 30m project area	Total # =	SM:	BO:	FE:	FM:	FS:	SS:	CP:	VP:
3	Is WL part of complex	**Yes X**	No							
4	% each wetland type in complex	SM:	BO:	FE:	FM:	**FS: 85%**	**SS: 15%**	CP:	VP:	
5	Is WL bordering or associated with a lake or pond?	bordering		within 100m		N/A		Specify:		
6	Standing water?	Yes	Avg Dep:		Inundated:			No		
7	Inlet or Outlet (circle all that apply)?	**Inlet X**	**Outlet X**							
8	Adjacent upland land use within 100m (%)	**For: 90%**	Nat:	PasHay:	Crop:	Urban/Com:		**Road: 10%**	Other Dev:	
9	Are there stressors in WL or WL buffer area?	DD__, CW__, WcS__, O/C__, EB__, DP__, F__, M__, ES__, NE__, DwP__, M__, GC__, ATV__, DG__, EA__, **R_X_**, Rr__, U/CD__, F__,								
		FA__, Other (specify):								
10	Hydrology altered (circle all that apply)?	Ditching	Dams	Tiles	**Culverts**	Well	Diver.	Other:		
SF3	***Rate the general wetland condition/ecological integrity***	H	**M X**	L						
SECTION THREE: CONDITION AND INTEGRITY OF ADJACENT LAND										
1	Average width of adjacent naturalized buffer	**50 meters**	**25% is adjacent to road, while rest of the wetland has naturalized buffer**							
2	Widths for water quality	**H >15**	M 8-15	**L <8**	**Large wetland with varied upland characteristics**					
3	Widths for wildlife habitat	**H >100**	M 15-100	**L <15**						
4	Adjacent area vegetation condition (list % in each category)	**H: 75%**	M	**L: 25%**						
5	Adjacent area diversity and structure (list % in each category)	**H: 75%**	M	**L: 25%**						
6	Adjacent upland slope (list % in each category)	**Steep: 25%**	**Mod: 25%**	**Gentle: 50%**						
7	Adjacent land supports water quality functions	**Yes**	No	Specify:						
8	Adjacent land supports wildlife habitat	**Yes**	No	Specify:						
SF4	***Rate the overall condition and integrity of land adjacent to wetland***	H	**M**	L	is buffer required to maintain red flag functions of WL?			**Yes X**	No	
SECTION FOUR: IDENTIFICATION OF EXCEPTIONAL FEATURES										
SF5	***Is the WL a WSS?***	Yes	**No X**							
SF6	***Does the WL support commercial/recreational fish/shellfish?***	Yes	**No X**							
SF7	***Species of concern (Fed/Prov)? Specify.***	**End X**	**Thr X**	SpC	Red	**Yellow X**	S1	S2	S3	
		Canada Warbler is listed as *threatened* by SARA and COSEWIC and *endangered* by NS ESA; **alder-leaved bukthorn** is listed as *yellow* by NSDNR								
SF8	***Wetland has conservation/compensation agreements/activity?***	Yes	**No X**	Specify:						

Wetland 10: Nova Scotia Wetland Evaluation Technique Field Data Sheet

SF9	***Wetland is calcareous fen, black ash or cedar swamp?***	Yes	**No X**								
SF10	***Within Drinking Water Protected Area (designated watershed/wellfield)***	Yes	**No X**	Specify:							
SF11	***WL within a floodplain and upstream of or within a populated area?***	Yes	**No X**								
SF12	***Fed/Prov/Municipal area of interest?***	Yes	**No X**	Specify:							
SECTION FIVE: HYDROLOGIC CONDITION AND INTEGRITY											
1	Is WL source of stream or headwater (wc order 1 or 2)	Yes	**No X**	**Specify: Riparian**							
2	Is WL geographically isolated?	Yes	**No X**	**Specify: Channel input and output**							
3	WL ability to maintain characteristic hydrologic regime	**High X**		Med		Low		**Oversized box culvert at outlet**			
4	Water storage depth (list % in each class)	**>30cm**	**10%**	**15-30cm**	**5%**	**up to 15cm**	**30%**	**No ponding**	**55%**		
5	Signs of surface water retention observed?	**SW:100m , WSL_X_, WCD_X_, WM: 20cm, SM: 30cm, SD_X_, AD_X_**, ID__, **PMT_X_, AI_X_, BT_X_, AR_X_, Other:Watermark at culvert inflow 20cm**									
6	Describe observable/historical anthropogenic sediment delivery	**Low X**		Med		High		**Nothing really observed at culverts or inflow**			
7	Disturbance of WL soils	**Low X**		Med		High					
8	Predominant soils adjacent to WL	Sand		Silt/loam		**Clay/bedrock X**					
9	Capacity of WL to alter/retard flows	High		**Med X**		Low		**dams on watercourse**			
10	Roughness coefficient for surface water flow path	High		Med		**Low X**					
11	Stormwater/wastewater/agricultural runoff detention	High		**Med X**		Low					
12	Water source	Natural		**Mostly natural X**		Partly altered/Controlled		Controlled			
13	Hydrology of tidal wetlands	Unrestricted		Reduced		Restricted		**N/A**			
14	Coastal storm surge	Yes	No								
SF13	***WL hydrologic condition***	**Natural X**	Modified		Significantly Modified						
SF14	***WL important for maintaining stream flow?***	Yes	**No X**								
SF15	***WL ability to detain surface water***	High	**Med X**	Low							
SECTION SIX: WATER QUALITY											
1	Amount of stormwater/wastewater/agricultural runoff as water source	High		**Med X**		Low		**Some roads and residential**			
2	Potential for nutrients/sediments from surrounding land	High		**Med X**		Low					
3	Significant flood/stormwater attenuation?	**Yes X**	No	**Damming on watercourse creates flow restrictions and floods upper wetland areas**							
4	Vegetation capacity to settle suspended sediments	High		**Med X**		Low		**Very little instream vegetation except at high water**			
5	WL type/landscape position holds/filters runoff?	**Yes X**	No	**Water entering from within wetland is filtered through dense hummocks of grass and shrubs**							
SF16	***Does the wetland have characteristics that improve water quality?***	**Yes X**	No								
SF17	***Evidence of excess nutrient loading/contamination inputs?***	Low		**Med X**		High		**Algae; not much TDS at inflow**			
SF18	***WL contributes to water quality in downstream fish/water supply***	High		**Med X**		Low		**Fish observed**			
SECTION SEVEN: GROUNDWATER INTERACTIONS											
1	Describe soils within wetland	Recharge		**Discharge X**							
2	Land use/run off in subwatershed upstream	Recharge		**Discharge X**		**Low proportion of impervious soils**					
3	Conditions of upland soils within 200m of wetland	**Recharge X**		Discharge		**Tight soils in upland**					
4	Hydroperiod of wetland	**Recharge X**		Discharge							
5	Describe inlet/outlet configuration	**Recharge X**		Discharge							
6	Characterize topographic relief surrounding wetland	Recharge		**Discharge X**							
SF19	***WL serves as a recharge site***	Yes	**No X**								
SF20	***WL serves as a discharge site***	**Yes X**	No	**More likely a flow through site; recharge at low end and discharge at high end**							
SECTION EIGHT: SHORELINE STABILIZATION AND INTEGRITY											
1	Wetland fringing ocean/estuary/lake/pond/river/stream?	**Yes X**	No	streamwidth >4m		streamwidth<4m		WB Exposed		WB Sheltered	

Wetland 10: Nova Scotia Wetland Evaluation Technique Field Data Sheet

2	% cover of rooted vegetation in shallow water zone	H >50%	**M 10-50%**	L <10%	100% cover					
3	Avg veg WL width b/w shoreline/streambank & 2 m depth contour	H >10m	M 3-10	**L <3m**	__meters					
4	Prevalence of strong-stemmed emerg. veg (shoreline marshes & fens only)	High	**Med X**	Low	N/A					
5	Describe shoreline erosion potential	High	Med	**Low X**	N/A					
6	Shoreline/streambank veg condition upslope of water level	Low	Med	**High X**	Artificial					
SF21	***WL ability to stabilize shoreline***	H	**M X**	L	N/A					
SECTION NINE: PLANT COMMUNITY										
1	Vegetation diversity	**High X**	Med	Low						
1b	3 most dominant plant species and % cover in the WL	**Tree: trembling aspen (25%), red maple (20%), white spruce (15%)** **G.Veg: sphagnum spp. (35%), dwarf red raspberry (20%), sensitive fern (15%)** **Shrub: common winterberry (30%), speckled alder (20%)**								
2	WL plant community regionally scarce or rare?	**Yes X**	No	**Rare types: WD5 (FEC vegetation type)**						
3	Dominant non-native or invasive species and % cover	Yes	**No X**	Specify: %						
4	Vegetation disturbance	H	M	**L X**	specify type(s) below					
5	Disturbance types	H__, ATV__, G__, M__, In__, D/D__, Im__, OAH__, Ii__, Sd__, E__, other:								
6	Current vegetative integrity of plant community	E	**H X**	M	L					
SF22	***Is the plant community unique or rare regionally or provincially?***	**Yes X**	No	**Specify: Vegetation type WD5 (FEC vegetation type)**						
SF23	***Does the WL contain a diversity of plant communities***	**H X**	M	L						
SF24	***Rate the overall integrity/quality of plant community?***	**H X**	M	L						
SF25	***Are there any observed rare or endangered plant species? Specify.***	End	Thr	SpC	Red	**Yellow X**	S1	S2	S3	**alder-leaved buckthorn**
SECTION TEN: FISH AND WILDLIFE HABITAT AND HABITAT INTEGRITY										
1	Interspersion of open water and vegetation (open water types only)	H	**M X**	L						
1b	% cover in vegetation versus open water	**90%**								
2	Interspersion that best fits entire wetland	H	**M X**	L	N/A					
3	Wetland condition related to detritus	**H X**	M	L	N/A					
4	Interspersion of other wetlands in vicinity	**H X**	M	L						
5	Barriers/restriction between wetland and other habitat	**L X**	M	H						
6	Noteworthy wildlife or evidence (birds, mammals, amphibians,etc)	**Yes X**	No	**List: Deer, raccoons, muskrat, snake, leopard frog, green frog, pheasant, grouse, porcupine**						
7	Connected to permanent water (accessible to fish)?	E	**H X**	M	L	N/A				
8	Fish species observed or evidence seen (list)	**Yes X**	No	List:						
9	Wetland part of contiguous upland or wetland:	>50ha	25-50ha	10-25ha	<10ha					
10	WL provides habitat for:	**Amphibians**	**Reptiles**	**Waterfowl**	**Waterbirds**	**Mammals**	**Fish**	**R/E species: Canada Warbler**		
SF26	***Does wetland support fish/fish habitat?***	**Yes X**	No	Specify:						
SF27	***Rare or endangered fish/wildlife species found in the wetland?***	**End X**	**Thr X**	SpC	Red	Yellow	S1	S2	S3	**Canada Warbler**
SF28	***Overall fish and wildlife habitat quality***	H	**M X**	L						
SECTION ELEVEN: COMMUNITY USE/VALUE										
1	Describe community use	**VV_X_**, CP__, CO__, PO__, **PA_X_, AV_X_, GB_X_**, E__, HI__, **WV_X_**, BO__, HU__, PG__, BP__, F__, **E_X_**, R__, Other:								
SF29	***Rate the wetland's community use/value***	H	**M X**	L						

SF ratings highlighted in red indicate critical wetland functions or watershed conditions that are highly degraded. Whenever a wetland is found to have red-highlighted **SFs** the proponent is encouraged to contact NSE for advice about the approval because NSE is unlikely to approve alterations to wetlands that would affect these red-rated functions.

Appendix K
Archaeological and Heritage Resources Figures and Plates

Figures and Plates

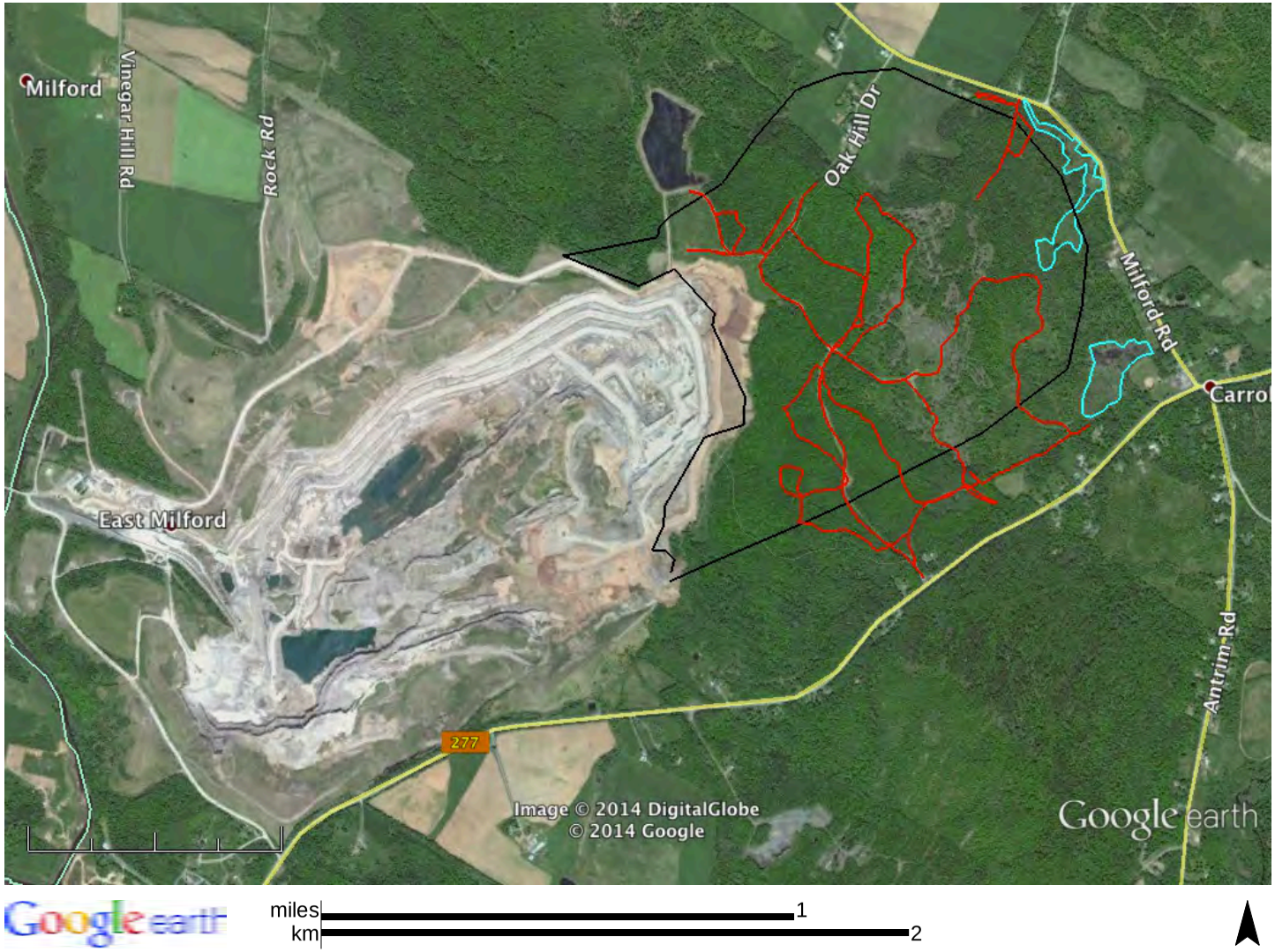

Figure 1: Study area map with GPS tracks (in red).

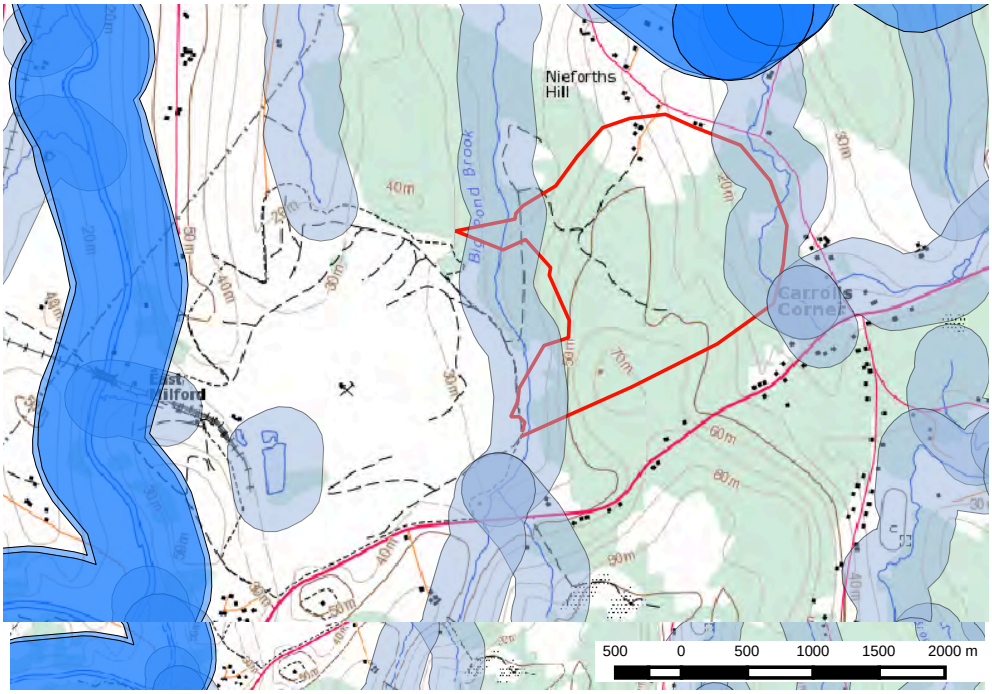

Figure 2: Buffered major watercourses: blue, 300m from centre; light blue, 200m from centre.

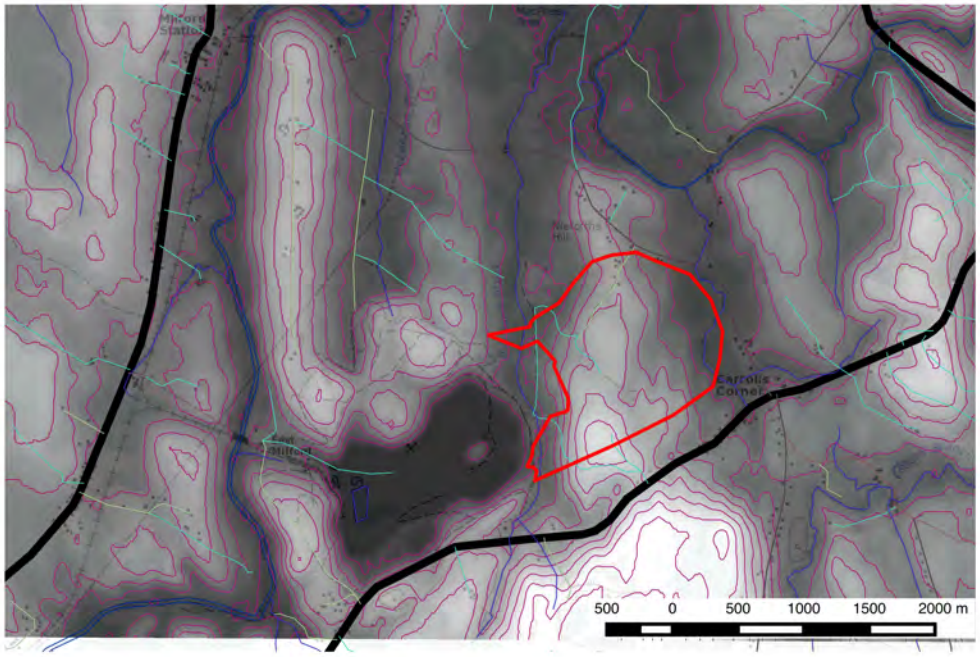

Figure 3: DEM - lighter areas are higher elevations.

Figure 4: McKinley map (detail), 1865.

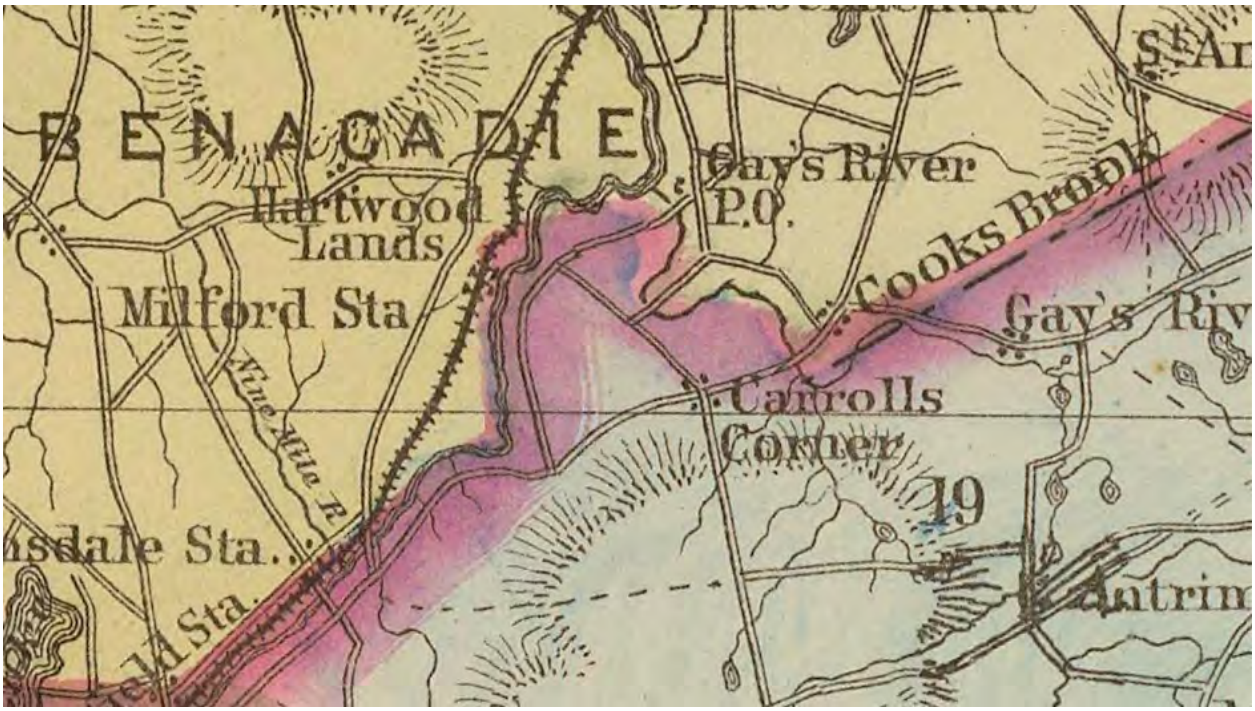

Figure 5: Roe Brother's map (detail), 1878.

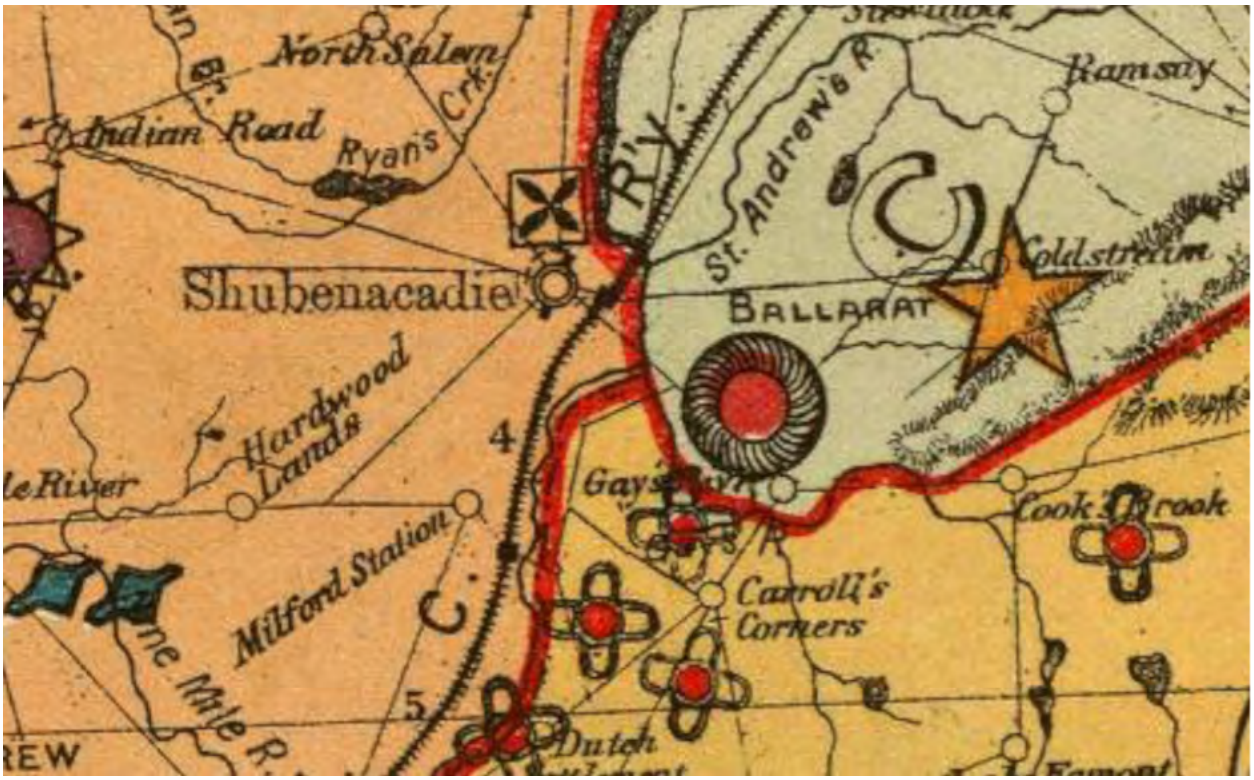

Figure 6: A.F. Church map (detail), 1889.

Figure 7: Geological Survey of Canada map (detail), 1908.

Plate 1: Mine, looking southwest from the west edge of the study

Plate 2: Study area, NW quadrant, looking N to the pond.

Plate 3: NW quadrant, looking E upslope.

Plate 4: NW quadrant, looking N to pond.

Plate 5: NW quadrant, pond, looking NW.

Plate 6: NW quadrant, looking SW upslope from the pond.

Plate 7: NW quadrant clear-cut, looking S.

Plate 8: NW quadrant clear-cut, looking N.

Plate 9: Community trail, looking NE.

Plate 10: SE quadrant, old road in clear-cut, looking SW.

Plate 11: East side, logging road, looking NW.

Plate 12: East side, looking S to the wetland.

National Gypsum

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Prehistoric mastodons called Halifax home

From *Writings on the Wall*, Fall 1993

Our Halifax, Nova Scotia, quarry has yielded yet another historic find: the bones of a juvenile mastodon. The juvenile is the first ever found in Canada and one of only six or seven found in the world.

This is the second mastodon found in the quarry; the bones of an adult mastodon were discovered two years ago. Both were unearthed by quarry worker Stanley McMullin who also participated in excavation of the finds.

Construction of Halifax tunnel and stockpile tower.

"This has been one of the best things that every happened to me," Stanley said. "It's been very rewarding."Stanley found a tusk and part of the jawbone of the adult mastodon in October 1991. Last July (1993), he found the left half of the juvenile's jawbone about 400 feet northeast of the first discovery.

Bob Grantham, curator of geology at the Nova Scotia Museum of Natural History in Halifax, believes the area is an old riverbed that was blocked and turned into a series of sinkholes. Glaciers later covered the sinkholes, in effect creating a time capsule. The site is about 40-50 feet below surface level.

Stanley and scientists spent three weeks on a salvage discover of the juvenile mastodon – nicknamed "Baby Stanley" by the curator – with Stanley digging out the bones with his backhoe while museum employees supervised.

The juvenile's bones are partially petrified and much stronger than the adult mastodon, whose bones Bob describes as being "like bran muffins – very soft and brittle."

Mastodons first appeared in Africa some 40 million years ago and first came to the North American continent 14 million years ago. They became extinct 10,000 years ago.

Comments or suggestions? (optional). Please use this area to comment on the articles shown on this page. If you would like to share a new story, please use the "Share Your Story" link in the black navigation bar at the top of the page. If you would like to receive a response, please include your

Appendix L
Dust and Noise Monitoring Data

Jacques Whitford Environment Limited

Jacques Whitford Building, 3 Spectacle Lake Drive, Dartmouth, NS Canada B3B 1W8
Tel 902 468 7777 Fax 902 468 9009

Consulting Engineers
Environmental Scientists
Risk Consultants

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Project No. NSD15095-2

August 22, 2000

Mr. Lee Goodick
National Gypsum Company Limited
P.O. Box 57
Milford Station, NS B0N 1Y0

Dear Mr. Goodick:

Re: Dust Monitoring for Milford Gypsum Mine

Jacques Whitford Environment Limited is pleased to present the results of the air quality sampling carried out in July 2000 for the Milford Site. The monitoring program was conducted at the request of National Gypsum.

Air quality samples were taken on National Gypsum property near the DS access gate and at the Turner residence on Vinegar Hill, near the NW side of the site. Samples were taken using Graesby High Volume air samplers according to Environment Canada and NSDOE approved methods. Samples for total suspended particulates (TSP) were collected between July 15 and 22, 2000 and are outlined in the attached table.

The results are all well below the NSDOE regulated limits with the highest TSP measurements occurring on July 20th and 21st at the DS gate location. The TSP levels those days were 72.01 and 67.41 $\mu g/m^3$, respectively. The sample location was partly downwind during sampling, with winds ranging from W to NW over the two day period.

The maximum levels observed are sightly elevated over average levels, but are not considered unusually high. The DS gate values were likely affected by the proximity of the access road combined with low average wind speeds. Field notes also showed there were a large number of small insects trapped on the filters. Insects were noted on July 20th through 22nd and may have influenced the measurements.

If you have any questions, please do not hesitate to contact our office.

Yours truly,

JACQUES WHITFORD ENVIRONMENT LIMITED

Teresa A. Drew, B.Sc., CET
Environmental Scientist

TD/hm
Enclosures
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Dust Monitoring, National Gypsum, July, 2000 TSP Values (all units are $\mu g/m^3$)				
Date	**Wind Direction/ Speed**	**DS Gate**	**Vinegar Hill**	**NSDOE Limit**
July 15	E/8.2	11.51	23.84	120
July 18	S/8.6	15.07	30.80	120
July 19	WSW/16.7	No sample	7.28	120
July 20	W/10.5	72.01	26.16	120
July 21	NW/10.2	67.41	18.56	120
July 22	S/9.0	30.70	No sample	120

Note: DS Gate sample location is approx. 100 feet from entrance to the overburden storage area, across the site road from the working area.

Vinegar Hill sample location is on the tailings dump side of Vinegar Hill Road, at the beginning of the Turner's driveway.

Jacques Whitford Environment Limited

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Project No. NSD16952-002

July 23, 2002

Mr. Lee Goodick
National Gypsum Company Limited
P.O. Box 57
Milford Station, NS B0N 1Y0

Dear Mr. Goodick:

Re: Dust Monitoring for Milford Gypsum Mine

Jacques Whitford Environment Limited is pleased to present the results of the air quality sampling carried out in June 2002 for the Milford Site. The monitoring program was conducted at the request of National Gypsum.

Air quality samples were taken on National Gypsum property near the Hiltz residence at the south side of the site, and at the Turner residence on Vinegar Hill, near the northwest side of the site. Samples were taken using Graesby High Volume air samplers according to Environment Canada and Nova Scotia Department of Environment and Labour (NSDEL) approved methods. Samples for total suspended particulates (TSP) were collected between June 20 and 27, 2002 and results are presented in the attached table.

The results are all below the NSDEL regulated limits with the highest TSP measurements occurring on June 24th at the Hiltz residence location and June 25th at the Turner residence location. The TSP levels those days were 91.0 and 112.2 $\mu g/m^3$, respectively. The sample locations were partly downwind during sampling.

The maximum levels observed are slightly elevated over average levels (approximately 40 to 60 $\mu g/m^3$), but are not considered unusually high. The Hiltz residence values were likely affected by the proximity of the access road combined with low average wind speeds. The low traffic level at the Turner residence, combined with the lower TSP levels measured when the Turner residence was upwind of the mine site indicate there may be some influence from the tailings placement activity, however no measurements exceeded the NSDEL standards.

If you have any questions, please do not hesitate to contact our office.

Yours truly,

JACQUES WHITFORD ENVIRONMENT LIMITED

KMDonald

for Teresa A. Drew, B.Sc., CET
Environmental Scientist

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Ambient Air Quality – National Gypsum, June 2002			
Location	Date	Avg.Wind Dir./Speed (kph)	TSP ($\mu g/m^3$)
Hiltz Residence	June 20	calm	45.7
	June 21	calm	46.6
	June 24	NE/20	91.0
	June 25	NW/35	51.6
	June 27	SW/25	31.7
Turner Residence	June 20	calm	54.3
	June 21	calm	54.8
	June 24	NE/20	77.2
	June 25	NW/35	112.2
	June 27	SW/25	53.1
NSDEL Regulated Limit			120

Note: Hiltz Residence sample location is approximately 100 metres from the Hiltz residence.

Turner Residence sample location is on the tailings dump side of Vinegar Hill Road, at the beginning of the Turner's driveway.

Jacques Whitford

Engineering, Scientific, Planning and Management Consultants

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Canada B3B 1W8

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Project No. NSD18935

December 21, 2004

Mr. Lee Goodick
National Gypsum Company Limited
P.O. Box 57
Milford Station, NS B0N 1Y0

Dear Mr. Goodick:

Re: Dust Monitoring for Milford Gypsum Mine

Jacques Whitford Environment Limited is pleased to present the results of the air quality sampling carried out in June and July 2004 for the Milford Site.

Air quality samples were taken on National Gypsum property near the Hiltz residence at the south side of the site, and at the Turner residence on Vinegar Hill, near the northwest side of the site. Samples were taken using Graesby High Volume air samplers according to Environment Canada and Nova Scotia Department of Environment and Labour (NSDEL) approved methods. Samples for total suspended particulates (TSP) were collected between June 24 and July 2, 2003. Results are presented in the attached table.

The results are all well below the NSDEL regulated limit of 120 µg/m3 on all but one occasion, June 30, at the Turner residence. On that day, the wind direction was consistent with a contribution from the quarry, but the wind was not particularly strong. No evidence is available of activities at the quarry, or in the immediate vicinity of the sampler, that might explain this exceedance. National Gypsum should continue to place a high priority on the control of dust generation at the site. The remainder of the dataset shows no adverse impact of the quarry operations.

If you have any questions or require further information, please do not hesitate to contact our office.

Yours truly,

JACQUES WHITFORD ENVIRONMENT LIMITED

KMDonald.

Kari MacDonald
Environmental Technologist

John I. Walker, Ph.D
Project Manager

jw/hm
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Ambient Air Quality – National Gypsum, June - July 2004			
Location	**Date**	**Avg.Wind Dir./Speed (kph)**	**TSP ($\mu g/m^3$)**
Hiltz Residence	June 24, 2004	SSE/11	33.4
	June 28, 2004	SSW/8	65.0
	June 29, 2004	SSW/8	46.0
	June 30, 2004	SSE/8	46.0
	July 2, 2004	E/11	29.5
Turner Residence	June 24, 2004	SSE/11	62.5
	June 28. 2004	SSW/8	67.4
	June 29, 2004	SSW/8	60.1
	June 30, 2004	SSE/8	**201.9**
	July 2, 2004	E/11	35.2
NSDEL Regulated Limit			120.0

Note: Hiltz Residence sample location is approximately 100 metres from the Hiltz residence.

Turner Residence sample location is on the tailings dump side of Vinegar Hill Road, at the beginning of the Turner's driveway.

Jacques Whitford

Jacques Whitford Environment Limited

Consulting Engineers
Environmental Scientists
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December 3, 1999

File No. 14295

Mr. Lee Goodick
National Gypsum Company Limited
P.O. Box 57
Milford Station,
NS, B0N 1Y0

Dear Mr Goodick,

Re: Extended Noise Survey, Milford Mine

We are pleased to report the results of noise monitoring done at your facility performed September 24 to October 1, 1999. The survey was to detail the noise environment at your south property line, and to show the extent of National Gypsum's influence on the local ambient sound levels.

One station was monitored for one week using a data logging Bruel&Kaejer Integrating Noise Level meter. The meter recorded 1-minute Leq (equivalent level of energy), L10 and L90 (10^{th} and 90^{th} percentiles). The data was downloaded to computer and activity notes made by National Gypsum employees working in the area were annotated at the appropriate time intervals. The data was then graphed and annotated according to activities noted. All units reported are A-weighted decibels (dBA).

The noise meter was placed within 10 ft (3 m) of the National Gypsum south entrance fence, in a small clearing on the Wallace property (approximately 200ft from the gate). The mine activity sheets recorded which equipment was in operation within approximately 1500 ft (500 m) of the noise berm, or 1550 ft (515 m) from the fence line.

The purpose of monitoring noise for one full week, was to record ambient noise levels when the site was not in operation, under normal summer operations and to show the effects of varying weather conditions. This provides a truly representative sample of typical noise from the mine site. Annotations on the graphs show when the overburden operation was active, and if any equipment outside the normal overburden operation was working in the area. Normal operation was assumed to be two or three haulage/dump trucks and an excavator active. Key weather events and normal variations due to weather are also identified.

In general, the overburden placement activity has approximately 2 to 5 dBA affect on the local noise environment, depending on wind conditions. This was determined by comparing levels monitored while working to the ambient levels measured when not operating. The natural background level will increase with increased winds, reducing the affect of mine site activity to nil. On average wind days (10 to 15 km/h), mine activity is not distinguishable in the measurements, however, when winds are calm (<10 km/h), activity can be distinguished on the graphs. The activity may still be distinguishable from wind or other background noises, depending on the source frequency. There are a few spikes, or one-minute events, which occur throughout the survey, including when the mine is not operating. These may be due

to activity on the Wallace or neighboring properties, small animals or even insects on the meter itself. These are random events which generally do not affect the overall noise levels.

Some key notes are:

Graph 1: On Saturday, September 25 a short duration squall/thunderstorm was noted passing through the area. Weather conditions that day were unsettled with winds varying between 5 and 40 km/h.

Graph 2: The weather for Sunday September 26, was clear with WNW winds averaging 16.5 km/h. The mine was not in operation on this day. The noise registered over this period can be considered the normal ambient for the area.

Graph 3: Winds on Monday, September 27 were relatively calm, averaging 7.4 km/h from the North. This graph shows distinct variations in noise during the coffee/lunch breaks at the quarry.

Graph 4: Winds on this date averaged 17 km/h, demonstrating the 'noise' or masking effect of wind. Noise levels and variations are fairly consistent throughout the 24 hour period, even late night when sound levels normally drop.

Graph 5: Winds were again calm, averaging 8.6 km/h increasing to between 17 and 25 km/h by noon on September 30. The steadily increasing noise level on the morning of September 30 is attributed to the increasing winds. The readings were stopped on this date due to the deteriorating weather conditions.

All data has been provided electronically for your use, as well as the electronic version of the graphs. The original activity sheets recorded by your employees have also been returned for your records.

If you have any questions or concerns regarding the above, please do not hesitate to call. We would like to thank you for the opportunity to provide this service for you, and look forward to working with you again.

Yours very truly,
JACQUES WHITFORD ENVIRONMENT LIMITED

Teresa Drew, B.Sc., CET
Environmental Scientist

att.

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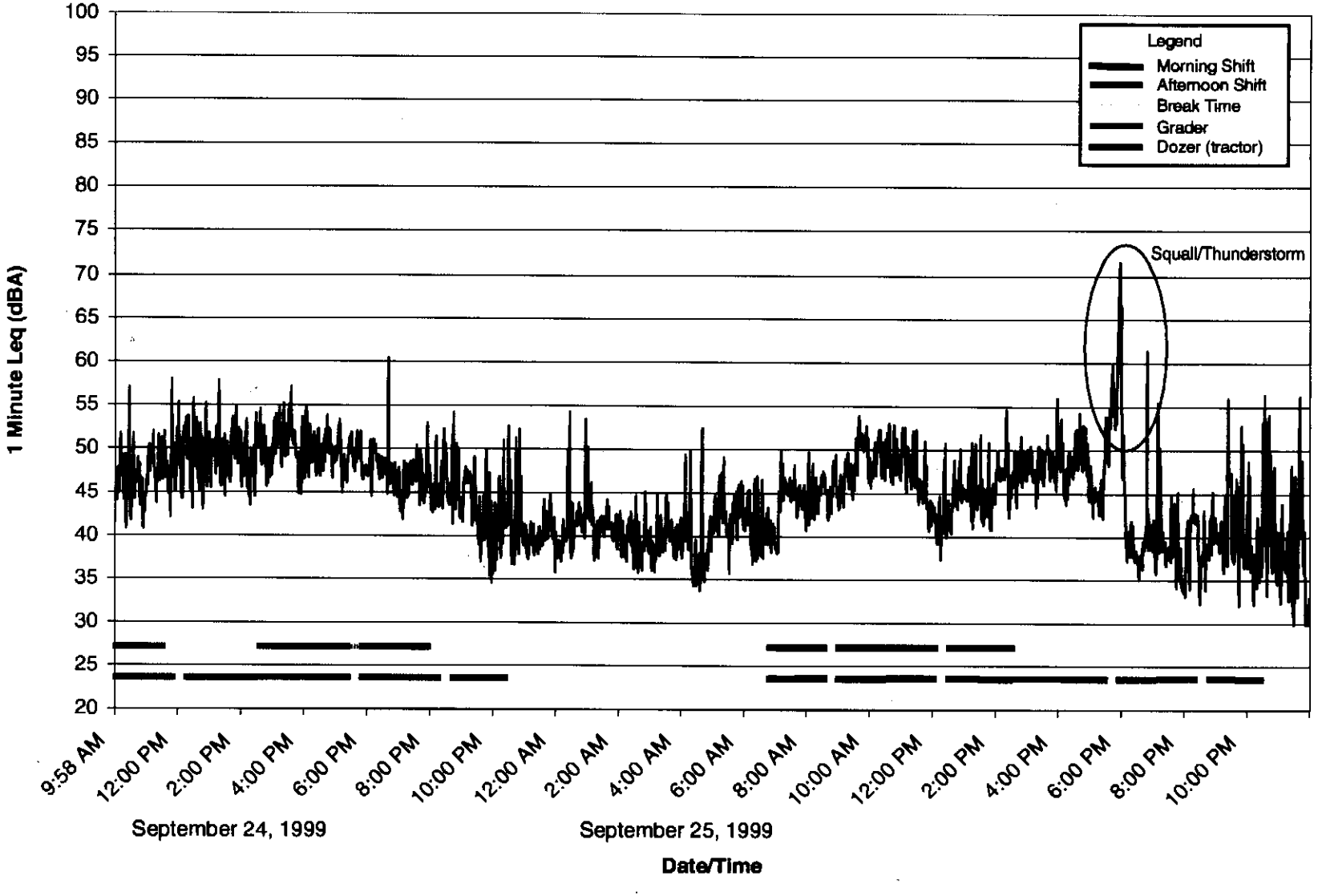
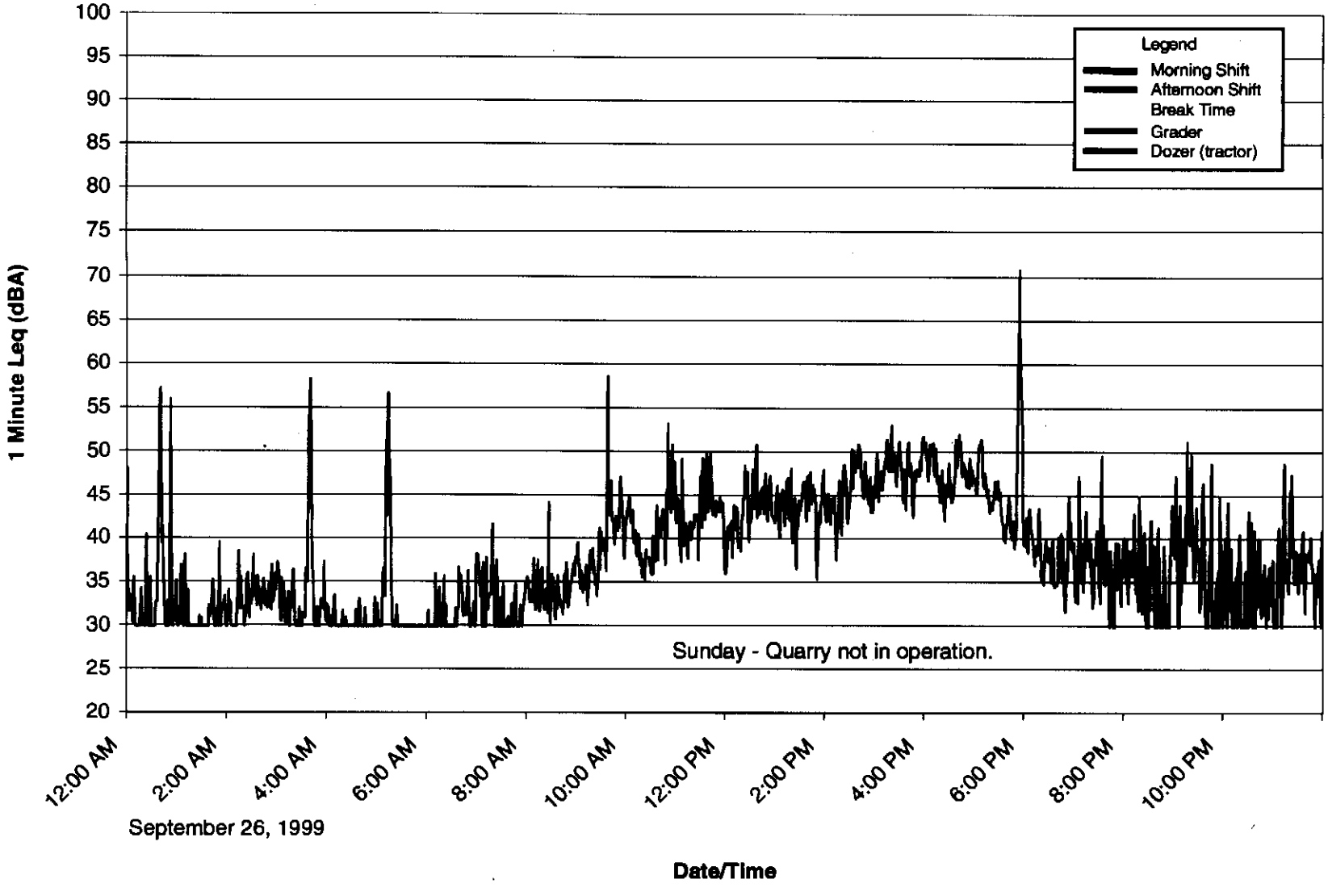
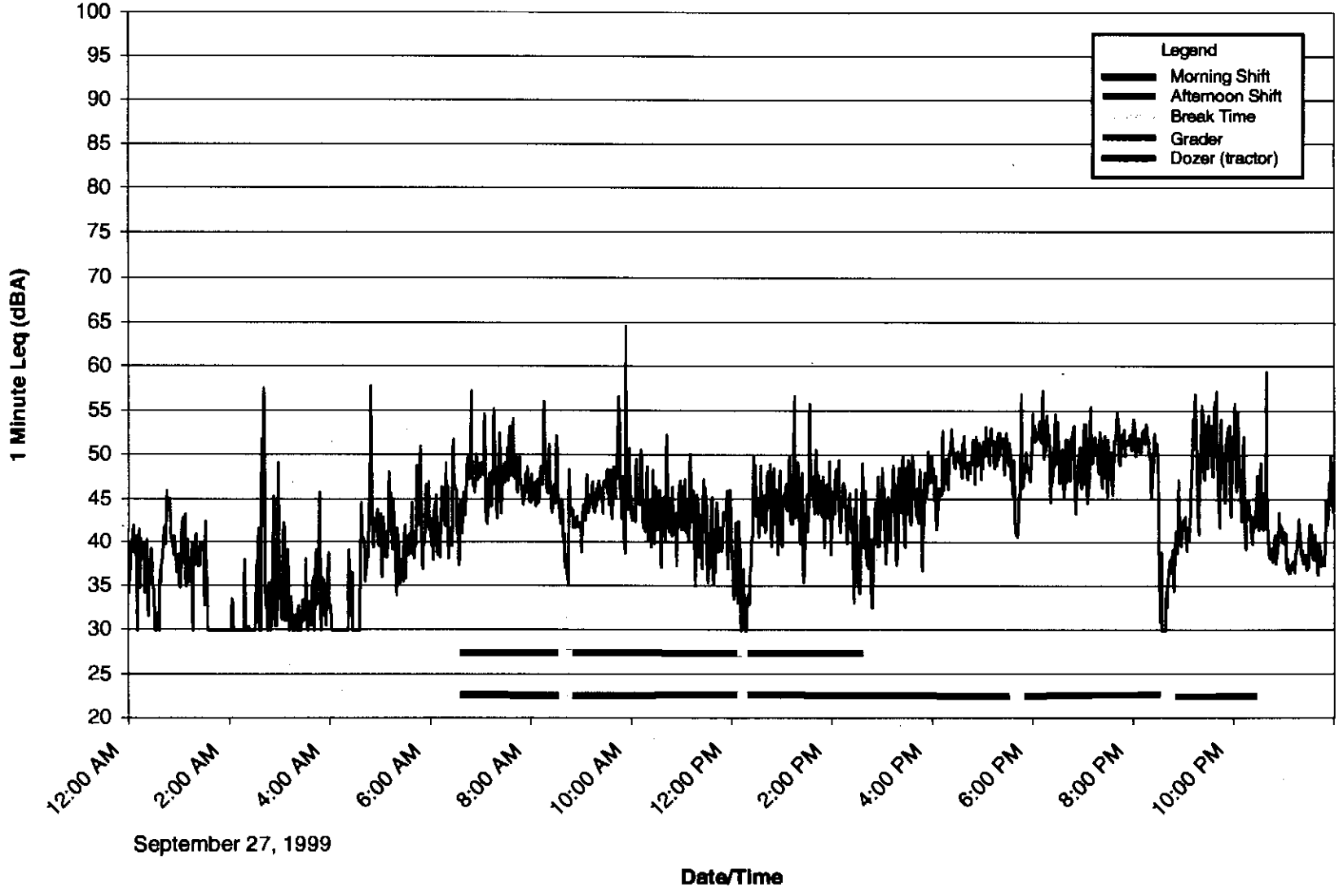
Extended Noise Survey, National Gypsum Mine
Chart 1 of 5



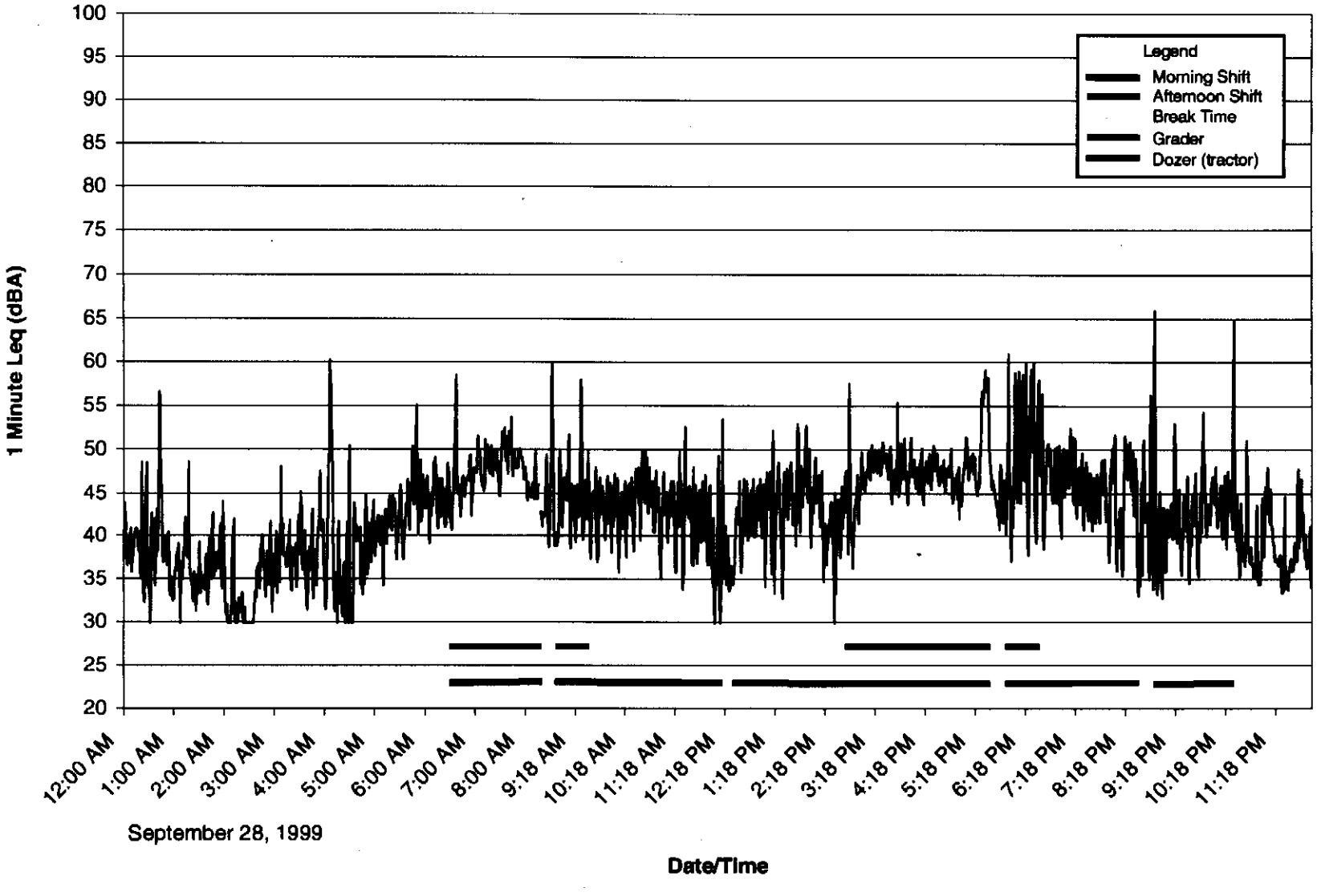
Extended Noise Survey, National Gypsum Mine
Chart 2 of 5



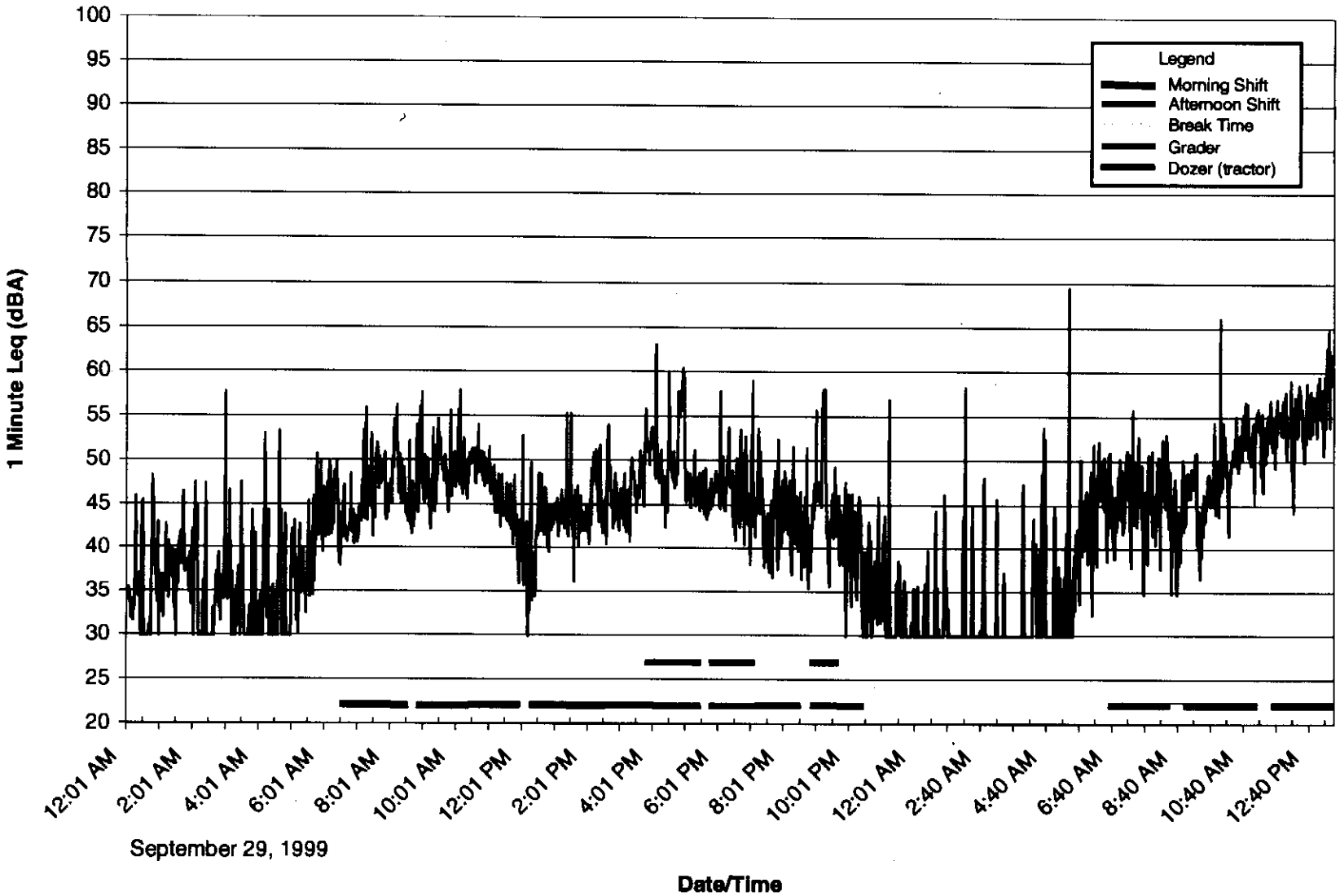
Extended Noise Survey, National Gypsum Mine
Chart 3 of 5



Extended Noise Survey, National Gypsum Mine
Chart 4 of 5



Extended Noise Survey, National Gypsum Mine
Chart 5 of 5



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July 27, 2000

File No. 15095 -0001

Mr. Lee Goodick
National Gypsum Company Limited
P.O. Box 57
Milford Station,
NS, B0N 1Y0

Dear Mr Goodick,

Re: Noise Survey, Milford Mine

We are pleased to report the results of noise monitoring done at your facility performed in June and July, 2000. The survey was to detail the noise environment due to overburden placement activity at your south property line, and due to tailings placement at the north side of your site.

Both locations were monitored for three days each, using a data logging Bruel&Kaejer Integrating Noise Level meter. The meter recorded 1-minute Leq (equivalent level of energy), L10 and L90 (10^{th} and 90^{th} percentiles). The data was downloaded to computer and activity notes provided by National Gypsum were annotated to the files. The data were then graphed and annotated according to activities noted. All units reported are A-weighted decibels (dBA). Hourly Leq values were then calculated for each data set for comparison with the NSDOE *Guideline for Noise Measurement and Assessment (1989).*

To conduct the overburden placement monitoring, the noise meter was placed in a small clearing on the Wallace property near the National Gypsum south entrance fence, approximately 200ft from the gate. Figure 1 shows the results of the 1-minute monitoring over the three day period. Annotations on the graph show when the overburden operation was active, and if any equipment outside the normal overburden operation was working in the area. Table 1 shows that none of the calculated hourly Leq values exceeded to the NSDOE Guideline limits.

To conduct the tailings placement monitoring on Vinegar Hill, the noise meter was placed in a hayfield on the East side of the Vermullen Farm, in direct line and view of the dumping activity. Figure 2 shows the results of the 1-minute monitoring over the three day period. Annotations on the graph show when tailings placement was active, and if any equipment outside the normal overburden operation was working in the area. Table 2 shows that none of the calculated hourly Leq values exceeded to the NSDOE Guideline limits.

At both locations, the activity may still be distinguishable from wind or other background noises, depending on the source frequency, however the overall levels measured can be considered low. There are a few spikes, or one-minute events >10 dBA over the average, which occur throughout the surveys

including when the mine is not operating. These may be due to activity on the Wallace or Vermullen properties, small animals or even insects on the meter itself. These are random events which generally do not affect the overall noise levels.

If you have any questions or concerns regarding the above, please do not hesitate to call. We would like to thank you for the opportunity to provide this service for you, and look forward to working with you again.

Yours very truly,
JACQUES WHITFORD ENVIRONMENT LIMITED

Teresa Drew, B.Sc., CET
Environmental Scientist

att.

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Table 1: Overburden Placement Monitoring, Wallace Property
Hourly Noise Levels in dBA

June 26 through 29, 2000

Date/Time	Leq	Guideline	L10 (Highest)	L90 (Lowest)
6/26/00 11:00	43.5	65.00	50.5	36
6/26/00 12:00	44.6	65.00	50.2	37
6/26/00 13:00	45.7	65.00	52	41.5
6/26/00 14:00	46.4	65.00	54.6	34
6/26/00 15:00	45.7	65.00	58.6	40
6/26/00 16:00	46.0	65.00	60.5	39
6/26/00 17:00	45.3	65.00	55.6	< 30
6/26/00 18:00	44.2	65.00	48.4	< 30
6/26/00 19:00	45.3	60.00	51.5	< 30
6/26/00 20:00	45.3	60.00	58.2	< 30
6/26/00 21:00	50.8	60.00	58.5	< 30
6/26/00 22:00	42.2	60.00	55.7	< 30
6/26/00 23:00	34.9	55.00	45.6	< 30
6/27/00 0:00	35.2	55.00	49.7	< 30
6/27/00 1:00	32.5	55.00	36.5	29.9
6/27/00 2:00	35.9	55.00	51	29.9
6/27/00 3:00	35.8	55.00	47.5	29.9
6/27/00 4:00	47.5	55.00	54.4	32.5
6/27/00 5:00	45.8	55.00	53.4	31.5
6/27/00 6:00	46.9	55.00	53.3	34.5
6/27/00 7:00	46.3	65.00	52.5	38
6/27/00 8:00	46.1	65.00	54.1	38
6/27/00 9:00	47.4	65.00	56.5	41
6/27/00 10:00	43.4	65.00	48.9	39.5
6/27/00 11:00	43.7	65.00	49.4	< 30
6/27/00 12:00	46.8	65.00	53.4	< 30
6/27/00 13:00	48.8	65.00	56.4	< 30
6/27/00 14:00	45.9	65.00	54.8	< 30
6/27/00 15:00	46.9	65.00	58.6	< 30
6/27/00 16:00	45.8	65.00	52	< 30
6/27/00 17:00	47.9	65.00	53.7	< 30
6/27/00 18:00	45.7	65.00	51.5	< 30
6/27/00 19:00	49.5	60.00	55.2	42.5
6/27/00 20:00	44.3	60.00	53.2	39
6/27/00 21:00	44.3	60.00	50.7	35
6/27/00 22:00	41.6	60.00	52	31.5
6/27/00 23:00	38.9	55.00	50	29.9
6/28/00 0:00	41.8	55.00	49.7	37
6/28/00 1:00	35.8	55.00	48.6	29.9
6/28/00 2:00	40.4	55.00	48.8	29.9
6/28/00 3:00	39.8	55.00	51.4	29.9
6/28/00 4:00	48.5	55.00	54.6	29.9
6/28/00 5:00	47.1	55.00	56.3	< 30
6/28/00 6:00	44.8	55.00	51.9	< 30
6/28/00 7:00	43.8	65.00	48.3	< 30
6/28/00 8:00	41.7	65.00	46.1	< 30
6/28/00 9:00	45.9	65.00	58.5	< 30

Table 1: Overburden Placement Monitoring, Wallace Property
Hourly Noise Levels in dBA

June 26 through 29, 2000

Date/Time	Leq	Guideline	L10 (Highest)	L90 (Lowest)
6/28/00 10:00	44.0	65.00	50.5	< 30
6/28/00 11:00	45.4	65.00	54.7	< 30
6/28/00 12:00	45.7	65.00	50.5	< 30
6/28/00 13:00	46.8	65.00	51.6	41.5
6/28/00 14:00	46.1	65.00	52	40
6/28/00 15:00	46.0	65.00	50.4	43
6/28/00 16:00	47.3	65.00	58.6	39.5
6/28/00 17:00	43.9	65.00	50.1	38.5
6/28/00 18:00	52.3	65.00	69.3	41
6/28/00 19:00	45.1	60.00	50.3	42.5
6/28/00 20:00	47.3	60.00	54.4	43.5
6/28/00 21:00	50.0	60.00	57.4	40
6/28/00 22:00	43.9	60.00	56.9	29.9
6/28/00 23:00	45.7	55.00	60.2	< 30
6/29/00 0:00	42.2	55.00	54.3	< 30
6/29/00 1:00	42.6	55.00	58.3	< 30
6/29/00 2:00	47.0	55.00	60.4	< 30
6/29/00 3:00	40.1	55.00	53.7	< 30
6/29/00 4:00	50.0	55.00	59.3	< 30
6/29/00 5:00	47.0	55.00	53.4	< 30
6/29/00 6:00	48.5	55.00	57.4	< 30
6/29/00 7:00	45.8	65.00	51.6	42
6/29/00 8:00	44.0	65.00	49.9	36

Notes:

1) The monitoring station was located along the fencline with the Wallace Property, approximately 200 ft from the gate.

2) Any hourly Leq exceeding the NSDOE guideline has been highlighted in **Bold**.

Table 2: Tailings Placement Monitoring, Vermullen Farm
Hourly Noise Levels in dBA

July 12 to 15, 2000

Date/Time	Leq	Guideline	L10 (Highest)	L90 (Lowest)
7/12/00 8:00	39.2	65.00	52.7	36.5
7/12/00 9:00	44.3	65.00	53.8	37
7/12/00 10:00	49.4	65.00	59.5	40.5
7/12/00 11:00	48.2	65.00	58.5	41
7/12/00 12:00	48.0	65.00	57.5	37.5
7/12/00 13:00	50.9	65.00	62.9	38
7/12/00 14:00	50.3	65.00	55.3	< 30
7/12/00 15:00	53.8	65.00	59.7	< 30
7/12/00 16:00	52.6	65.00	61.5	< 30
7/12/00 17:00	50.1	65.00	58.3	< 30
7/12/00 18:00	46.3	65.00	54	< 30
7/12/00 19:00	46.4	60.00	60.6	< 30
7/12/00 20:00	40.2	60.00	48	< 30
7/12/00 21:00	38.8	60.00	53.4	< 30
7/12/00 22:00	36.1	60.00	46.5	29.9
7/12/00 23:00	33.9	55.00	44.2	29.9
7/13/00 0:00	32.0	55.00	36	29.9
7/13/00 1:00	51.4	55.00	67.3	30
7/13/00 2:00	33.5	55.00	38.1	29.9
7/13/00 3:00	49.7	55.00	65.8	30
7/13/00 4:00	38.7	55.00	44.1	32.5
7/13/00 5:00	40.6	55.00	47.5	35
7/13/00 6:00	50.7	55.00	62	40
7/13/00 7:00	45.4	65.00	52.5	42
7/13/00 8:00	39.4	65.00	46.2	< 30
7/13/00 9:00	41.9	65.00	51.3	< 30
7/13/00 10:00	46.0	65.00	59.2	< 30
7/13/00 11:00	47.3	65.00	58.6	< 30
7/13/00 12:00	46.0	65.00	55.9	< 30
7/13/00 13:00	45.3	65.00	60.8	< 30
7/13/00 14:00	41.2	65.00	50.4	< 30
7/13/00 15:00	41.2	65.00	47.5	< 30
7/13/00 16:00	44.8	65.00	58.3	32.5
7/13/00 17:00	42.7	65.00	52.2	32.5
7/13/00 18:00	46.0	65.00	59.9	36.5
7/13/00 19:00	55.1	60.00	67	36
7/13/00 20:00	54.8	60.00	68.9	36.5
7/13/00 21:00	47.9	60.00	62.2	34.5
7/13/00 22:00	41.3	60.00	50.2	36
7/13/00 23:00	38.2	55.00	50.1	29.9
7/14/00 0:00	50.4	55.00	66.1	29.9
7/14/00 1:00	36.4	55.00	41.9	33.5
7/14/00 2:00	36.3	55.00	45.4	< 30
7/14/00 3:00	35.4	55.00	43.7	< 30

Table 2: Tailings Placement Monitoring, Vermullen Farm
Hourly Noise Levels in dBA

July 12 to 15, 2000

Date/Time	Leq	Guideline	L10 (Highest)	L90 (Lowest)
7/14/00 4:00	37.8	55.00	44.1	< 30
7/14/00 5:00	43.8	55.00	54.4	< 30
7/14/00 6:00	42.9	55.00	55.8	< 30
7/14/00 7:00	44.3	65.00	56.9	< 30
7/14/00 8:00	43.9	65.00	55.6	< 30
7/14/00 9:00	44.5	65.00	59.3	< 30
7/14/00 10:00	45.1	65.00	61.5	32.5
7/14/00 11:00	42.7	65.00	52	32.5
7/14/00 12:00	50.7	65.00	66	37
7/14/00 13:00	40.5	65.00	47.9	31
7/14/00 14:00	43.2	65.00	50.6	37.5
7/14/00 15:00	41.2	65.00	49.6	33.5
7/14/00 16:00	40.9	65.00	48.1	32.5
7/14/00 17:00	39.4	65.00	48.5	33.5
7/14/00 18:00	39.0	65.00	52.2	30
7/14/00 19:00	40.9	60.00	46.8	30
7/14/00 20:00	42.3	60.00	55	< 30
7/14/00 21:00	39.1	60.00	43.8	< 30
7/14/00 22:00	36.1	60.00	44	< 30
7/14/00 23:00	41.9	55.00	56.9	< 30
7/15/00 0:00	35.3	55.00	40.3	< 30
7/15/00 1:00	50.2	55.00	67.2	< 30
7/15/00 2:00	35.2	55.00	43.1	< 30
7/15/00 3:00	32.5	55.00	38.4	< 30
7/15/00 4:00	31.6	55.00	36.8	29.9
7/15/00 5:00	35.1	55.00	43.1	30.5
7/15/00 6:00	38.4	55.00	49.5	33.5
7/15/00 7:00	47.0	65.00	58.5	32
7/15/00 8:00	38.6	65.00	46.3	31.5
7/15/00 9:00	39.7	65.00	53.1	32.5

Notes:

1) Noise meter was stationed at the second power pole into the hayfield across from the main barn.

2) Any hourly Leq exceeding the NSDOE guideline has been highlighted in **Bold**.

Figure 1: Overburden Placement Monitoring, Wallace Property
June 26 to 29, 2000

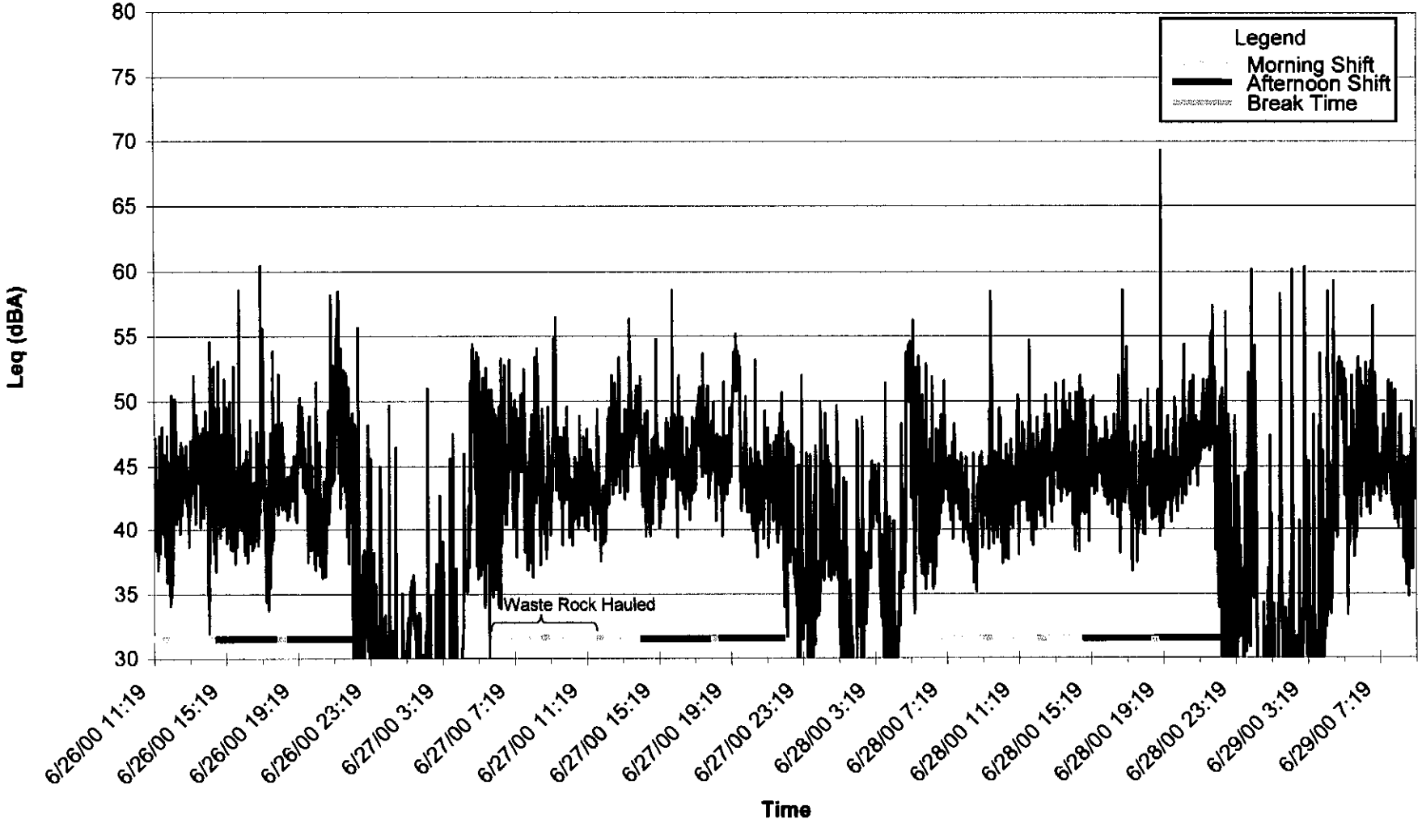
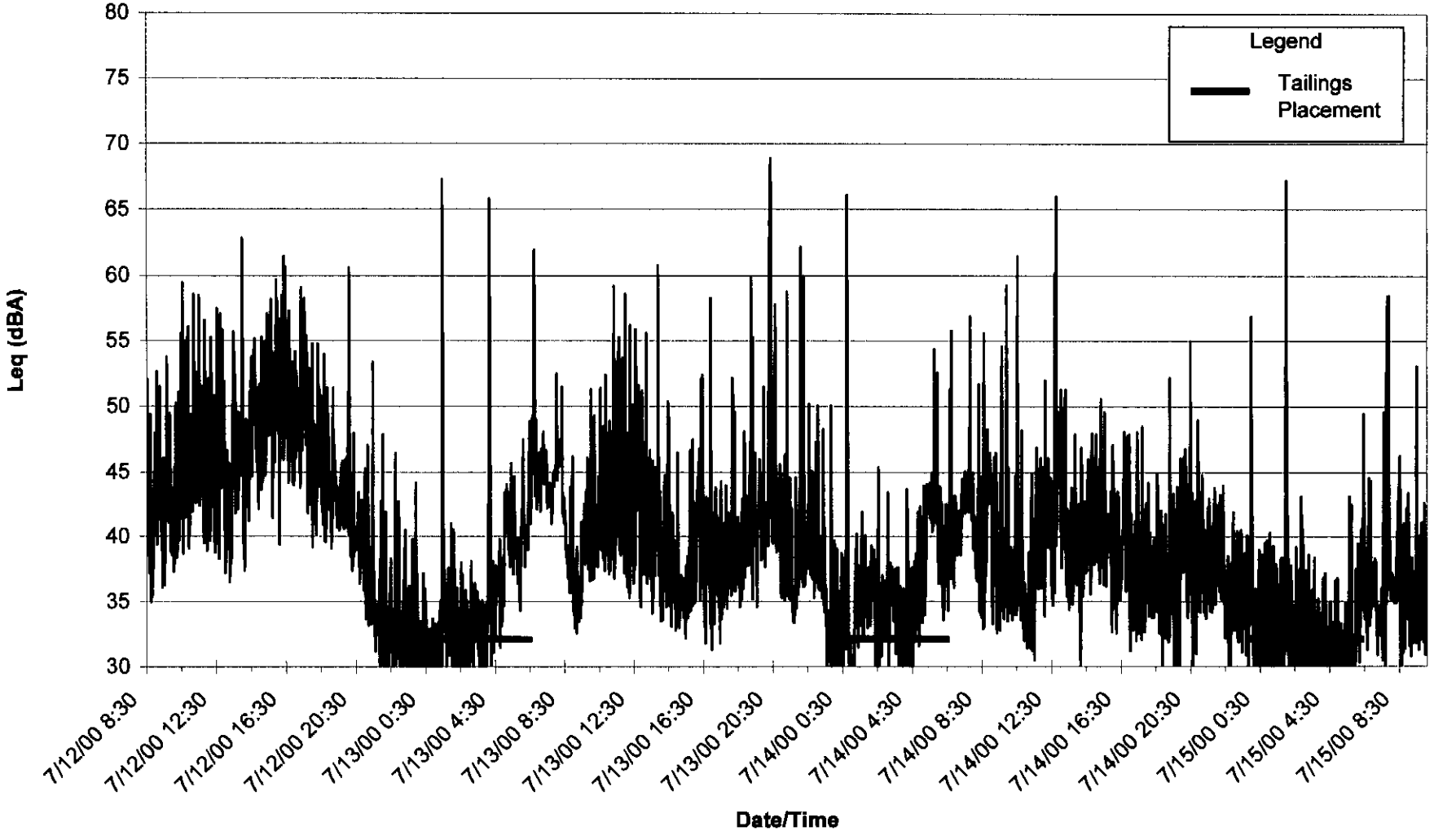


Figure 2: Tailings Placement Monitoring, Vermullen Farm
July 12 to 15, 2000



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File No. 16952-001

July 23, 2002

Mr. Lee Goodick
National Gypsum Company Limited
P.O. Box 57
Milford Station,
NS, B0N 1Y0

Dear Mr Goodick,

Re: Noise Survey, Milford Mine

We are pleased to report the results of noise monitoring conducted at your facility in June 2002. The objective of the survey was to monitor the noise levels from normal mine site activity detectable from the south property line and the north side of the Milford Mine Site.

Both locations were monitored for three days each using a data logging Bruel&Kaejer Integrating Noise Level meter and a LD-824 Precision Sound Level Meter. The data was downloaded to computer and graphed. All units reported are A-weighted decibels (dBA). Hourly Leq values were then calculated and/or reported for each data set for comparison with the Nova Scotia Department of Environment and Labour (NSDEL) Guideline for Noise Measurement and Assessment (1989).

To conduct the south property line monitoring, the noise meter was placed in a small clearing on the National Gypsum property near the fence approximately 100 metres from the Hiltz residence. Figure 1 shows the results of the 1-minute monitoring over the three-day period. Table 1 shows that none of the calculated hourly Leq values exceeded to the NSDEL Guideline limits.

To conduct the monitoring on Vinegar Hill, the noise meter was placed near the start of the driveway to the Turner residence, in direct line and view of the dumping activity. Figure 2 shows the results of the 1-minute monitoring over the three day period. Table 2 shows that none of the calculated hourly Leq values exceeded to the NSDEL Guideline limits.

At both locations, site activity may still be distinguishable from wind or other background noises by the human ear, depending on the source frequency, however the overall levels measured can be considered low. There are a few spikes, or one-minute events >10 dBA over the average, which occur throughout the surveys, including at night when the mine is not operating. These may be due to activity on the Hiltz or Turner residence properties, small animals, or even insects on the meter itself. These are random events which generally do not affect the overall noise levels.

If you have any questions or concerns regarding the above, please do not hesitate to contact our office. We would like to thank you for the opportunity to provide this service for you, and look forward to working with you again.

Yours truly,

JACQUES WHITFORD ENVIRONMENT LIMITED

KMDonald

for Teresa Drew, B.Sc., CET
Environmental Scientist

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Table 1: Noise Monitoring, Hiltz Residence Hourly Noise levels in dBA June 17 - 20, 2002				
Date / Time	**Leq**	**Guideline**	**L10 (Highest)[a]**	**L90 (Lowest)[b]**
6/17/02 14:57	51.2	65	65.5	37.5
6/17/02 15:57	46.6	65	59.5	38.0
6/17/02 16:57	50.6	65	66.7	37.5
6/17/02 17:57	49.3	65	58.0	39.5
6/17/02 18:57	44.5	65	54.1	36.5
6/17/02 19:57	47.0	60	56.2	36.0
6/17/02 20:57	48.5	60	58.0	37.5
6/17/02 21:57	49.7	60	60.9	34.5
6/17/02 22:57	38.6	60	50.3	34.0
6/17/02 23:57	47.2	60	60.3	29.9
6/18/02 0:57	35.3	55	45.5	29.9
6/18/02 1:57	33.9	55	49.0	29.9
6/18/02 2:57	39.6	55	55.2	29.9
6/18/02 3:57	42.1	55	58.5	29.9
6/18/02 4:57	47.9	55	58.8	32.0
6/18/02 5:57	51.5	55	62.9	38.0
6/18/02 6:57	46.4	55	54.5	36.5
6/18/02 7:57	47.4	65	60.0	39.0
6/18/02 8:57	47.1	65	59.6	35.5
6/18/02 9:57	51.8	65	66.0	38.0
6/18/02 10:57	48.7	65	59.4	41.5
6/18/02 11:57	47.3	65	57.5	40.5
6/18/02 12:57	47.9	65	58.0	37.5
6/18/02 13:57	52.9	65	63.5	36.0
6/18/02 14:57	50.1	65	61.4	38.0
6/18/02 15:57	48.0	65	57.9	41.0
6/18/02 16:57	50.2	65	61.3	42.0
6/18/02 17:57	45.9	65	53.9	41.0
6/18/02 18:57	47.1	65	59.9	37.0
6/18/02 19:57	46.8	60	57.3	36.5
6/18/02 20:57	47.8	60	61.3	36.0
6/18/02 21:57	47.6	60	58.1	34.0
6/18/02 22:57	40.8	60	56.5	32.0
6/18/02 23:57	47.3	60	64.9	29.9
6/19/02 0:57	32.3	55	46.0	29.9
6/19/02 1:57	32.4	55	43.6	29.9
6/19/02 2:57	32.8	55	43.3	29.9
6/19/02 3:57	36.4	55	45.9	29.9
6/19/02 4:57	47.7	55	60.2	33.5
6/19/02 5:57	52.0	55	64.5	34.5
6/19/02 6:57	47.7	55	56.4	39.5
6/19/02 7:57	49.6	65	59.9	36.5
6/19/02 8:57	47.9	65	60.0	39.5
6/19/02 9:57	47.9	65	56.1	41.5
6/19/02 10:57	48.8	65	63.6	40.5

Table 1: Noise Monitoring, Hiltz Residence Hourly Noise levels in dBA June 17 - 20, 2002				
Date / Time	**Leq**	**Guideline**	**L10 (Highest)[a]**	**L90 (Lowest)[b]**
6/19/02 11:57	47.3	65	57.7	41.0
6/19/02 12:57	44.8	65	54.5	39.5
6/19/02 13:57	52.6	65	62.6	36.5
6/19/02 14:57	43.6	65	56.2	33.5
6/19/02 15:57	48.7	65	57.1	38.0
6/19/02 16:57	49.9	65	57.6	42.0
6/19/02 17:57	46.3	65	55.0	39.5
6/19/02 18:57	48.4	65	62.0	35.5
6/19/02 19:57	48.1	60	61.6	34.5
6/19/02 20:57	46.3	60	59.4	35.0
6/19/02 21:57	50.2	60	59.2	29.9
6/19/02 22:57	45.6	60	60.0	29.9
6/19/02 23:57	39.6	55	53.5	29.9
6/20/02 0:57	33.5	55	47.7	29.9
6/20/02 1:57	40.9	55	53.2	29.9
6/20/02 2:57	35.6	55	49.4	29.9
6/20/02 3:57	40.0	55	51.4	29.9
6/20/02 4:57	46.7	55	57.2	34.0
6/20/02 5:57	52.4	55	62.9	41.5
6/20/02 6:57	47.2	55	59.2	40.0
6/20/02 7:57	47.4	65	60.7	36.0
6/20/02 8:57	45.7	65	56.8	36.5
6/20/02 9:57	48.5	65	59.0	38.0
6/20/02 10:57	48.2	65	60.1	38.0
6/20/02 11:57	42.7	65	54.5	35.0

Note: [a] L10 refers to the level which is exceeded 10% of the measurement time (L10=10th percentile level)

[b] L90 refers to the level which is exceeded 90% of the measurement time (L90) =90th percentile level)

Figure 1: National Gypsum Noise Monitoring
Hiltz Residence, June 17 to 20, 2002

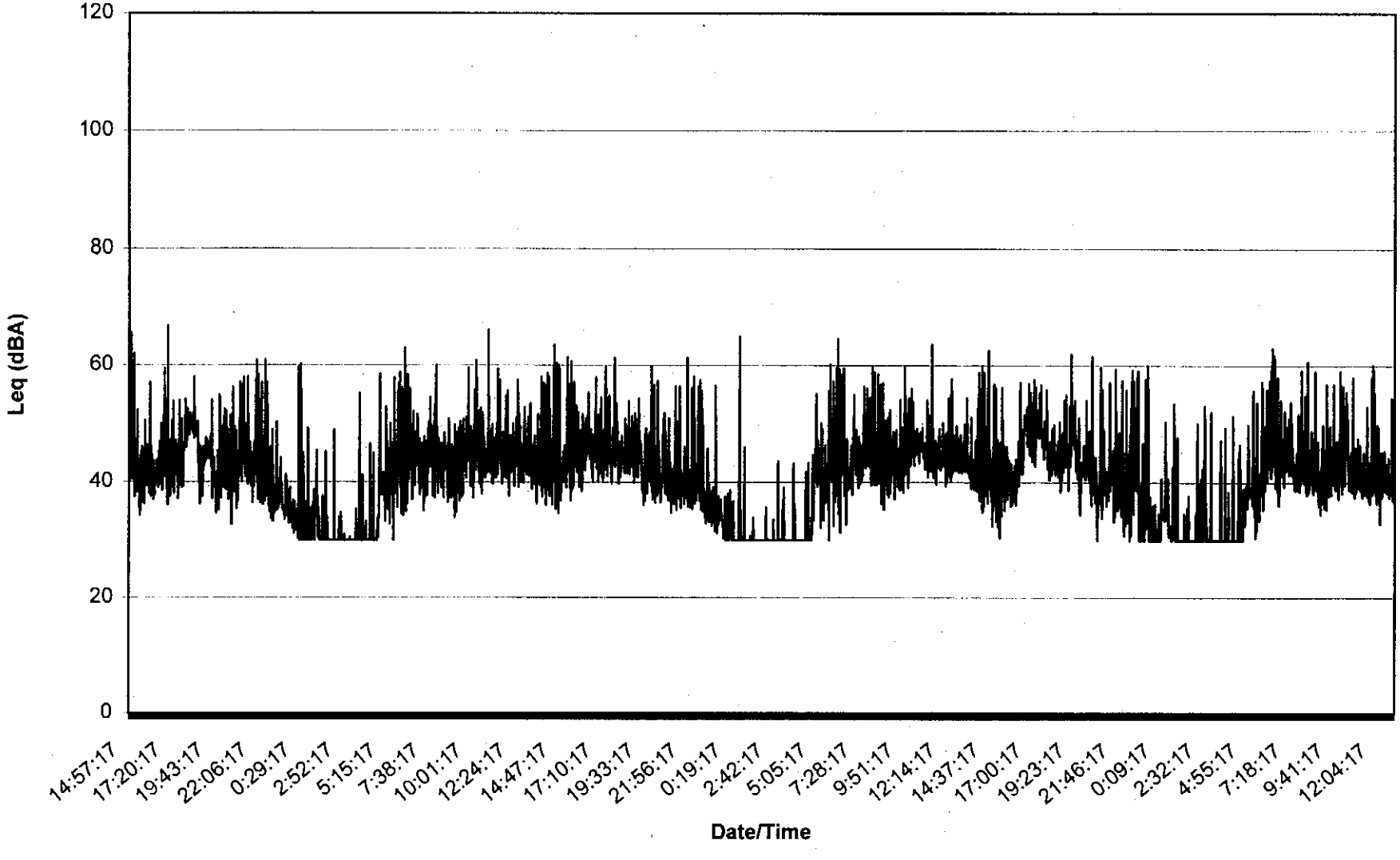


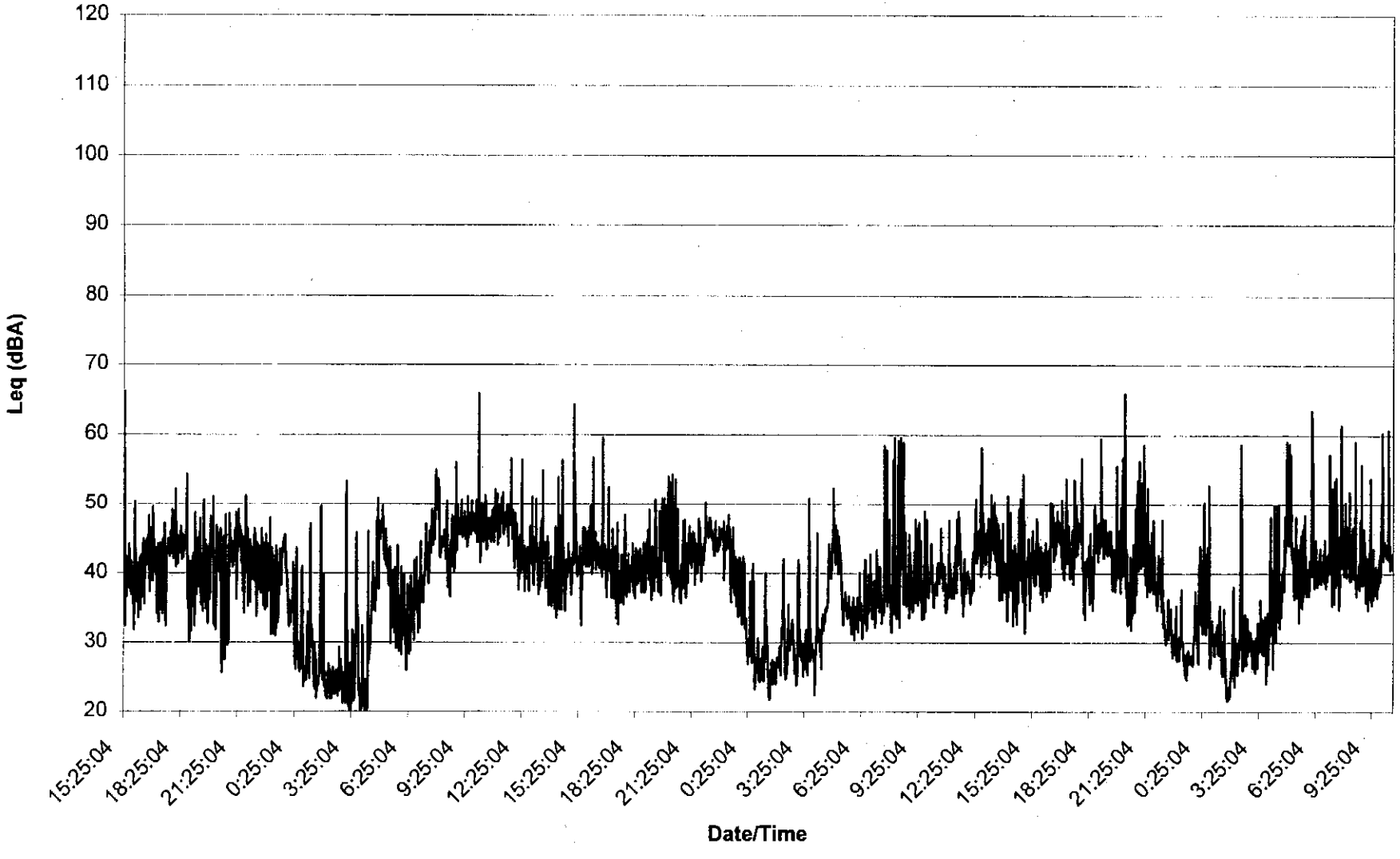
Table 2: Noise Monitoring, Turner Residence Hourly Noise Levels in dBA June 17 - 20, 2002				
Date / Time	**Leq**	**Guideline**	**L10 (Highest)[a]**	**L90 (Lowest)[b]**
6/17/02 15:25	52.2	65	48.9	32.6
6/17/02 16:00	43.0	65	46.0	33.7
6/17/02 17:00	42.9	65	45.9	32.3
6/17/02 18:00	44.9	65	47.2	33.8
6/17/02 19:00	42.0	60	45.0	32.1
6/17/02 20:00	42.6	60	46.2	27.0
6/17/02 21:00	44.6	60	47.6	36.6
6/17/02 22:00	41.9	60	45.3	34.4
6/17/02 23:00	41.5	60	45.1	31.8
6/18/02 0:00	35.6	55	39.6	25.2
6/18/02 1:00	37.2	55	34.7	23.3
6/18/02 2:00	24.4	55	26.7	21.5
6/18/02 3:00	38.4	55	33.8	20.2
6/18/02 4:00	41.0	55	42.0	19.9
6/18/02 5:00	42.2	55	46.4	27.7
6/18/02 6:00	35.8	55	38.9	26.6
6/18/02 7:00	46.2	55	50.6	35.1
6/18/02 8:00	46.4	65	48.5	37.4
6/18/02 9:00	47.2	65	49.4	42.8
6/18/02 10:00	50.7	65	50.1	42.4
6/18/02 11:00	48.7	65	50.6	43.6
6/18/02 12:00	44.9	65	47.2	37.5
6/18/02 13:00	43.7	65	45.8	35.5
6/18/02 14:00	43.9	65	44.0	32.4
6/18/02 15:00	48.4	65	46.2	36.8
6/18/02 16:00	46.5	65	46.4	38.0
6/18/02 17:00	42.6	65	44.0	34.1
6/18/02 18:00	40.7	65	43.4	36.0
6/18/02 19:00	44.0	65	46.9	36.3
6/18/02 20:00	45.9	60	47.4	35.4
6/18/02 21:00	43.4	60	45.7	37.9
6/18/02 22:00	45.3	60	47.8	41.5
6/18/02 23:00	43.5	60	46.7	35.5
6/19/02 0:00	35.6	55	38.9	25.7
6/19/02 1:00	28.9	55	30.0	23.1
6/19/02 2:00	31.2	55	32.7	25.2
6/19/02 3:00	36.1	55	36.9	24.5
6/19/02 4:00	40.2	55	44.2	28.4
6/19/02 5:00	40.2	55	44.3	31.0
6/19/02 6:00	36.1	55	39.0	29.0
6/19/02 7:00	45.3	55	43.3	31.7
6/19/02 8:00	48.8	65	46.8	31.4
6/19/02 9:00	41.0	65	41.8	32.5
6/19/02 10:00	39.6	65	41.8	35.1
6/19/02 11:00	41.7	65	43.6	34.6

Table 2: Noise Monitoring, Turner Residence Hourly Noise Levels in dBA June 17 - 20, 2002				
Date / Time	**Leq**	**Guideline**	**L10 (Highest)[a]**	**L90 (Lowest)[b]**
6/19/02 12:00	46.0	65	47.1	36.0
6/19/02 13:00	44.7	65	47.9	36.8
6/19/02 14:00	43.7	65	45.4	32.4
6/19/02 15:00	42.2	65	44.7	35.0
6/19/02 16:00	45.2	65	48.7	37.0
6/19/02 17:00	46.0	65	47.7	38.1
6/19/02 18:00	44.8	65	47.1	33.4
6/19/02 19:00	46.9	65	47.9	38.3
6/19/02 20:00	50.0	60	45.7	32.4
6/19/02 21:00	47.4	60	46.5	36.5
6/19/02 22:00	37.0	60	40.3	29.2
6/19/02 23:00	29.5	60	30.9	25.6
6/20/02 0:00	41.5	55	43.6	27.8
6/20/02 1:00	29.3	55	32.7	22.1
6/20/02 2:00	43.7	55	35.5	25.6
6/20/02 3:00	30.5	55	33.3	26.3
6/20/02 4:00	47.8	55	45.6	30.2
6/20/02 5:00	47.2	55	47.2	33.7
6/20/02 6:00	49.2	55	43.9	37.3
6/20/02 7:00	47.7	55	44.9	36.8
6/20/02 8:00	45.8	65	44.1	37.0
6/20/02 9:00	45.3	65	44.0	34.7
6/20/02 10:00	47.5	65	45.9	40.0

Note: [a] L10 refers to the level which is exceeded 10% of the measurement time (L10=10th percentile level)

[b] L90 refers to the level which is exceeded 90% of the measurement time (L90) =90th percentile level)

Figure 2: National Gypsum Noise Monitoring
Turner Residence, June 17 to 20, 2002



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Nova Scotia • New Brunswick • Prince Edward Island • Newfoundland & Labrador • Quebec • Ontario • Saskatchewan • Alberta • British Columbia
Maine • New Hampshire • Vermont • New York • Trinidad • Russia • Argentina

File No. NSD17804

September 18, 2003

Mr. Lee Goodick
National Gypsum Company Limited
P.O. Box 57
Milford Station, NS B0N 1Y0

Dear Mr Goodick:

Re: Noise Survey, Milford Mine

We are pleased to report the results of noise monitoring conducted at your facility in July 2003. The objective of the survey was to monitor the noise levels from normal mine site activity detectable from the south property line and the north side of the Milford Mine Site.

Both locations were monitored for three days each using a LD-824 Precision Sound Level Meter. The data was downloaded to computer and graphed. All units reported are A-weighted decibels (dBA). Hourly Leq values were then calculated and/or reported for each data set for comparison with the Nova Scotia Department of Environment and Labour (NSDEL) Guideline for Noise Measurement and Assessment (1989).

To conduct the south property line monitoring, the noise meter was placed in a small clearing on the National Gypsum property near the fence approximately 100 metres from the Hiltz residence. Figure 1 shows the results of the 1-minute monitoring over the three-day period. Table 1 shows that none of the calculated hourly Leq values exceeded to the NSDEL Guideline limits.

To conduct the monitoring on Vinegar Hill, the noise meter was placed near the start of the driveway to the Turner residence, in direct line and view of the dumping activity. Figure 2 shows the results of the 1-minute monitoring over the three day period. Table 2 shows that none of the calculated hourly Leq values exceeded to the NSDEL Guideline limits.

At both locations, site activity may still be distinguishable from wind or other background noises by the human ear, depending on the source frequency, however the overall levels measured can be considered low. There are a few spikes, or one-minute events >10 dBA over the average, which occur throughout the surveys, including at night when the mine is not operating. These may be due to activity on the Hiltz or Turner residence properties, small animals, or even insects near the meter. These are random events which generally do not affect the overall noise levels.

If you have any questions or concerns regarding the above, please do not hesitate to contact our office. We would like to thank you for the opportunity to provide this service for you, and look forward to working with you again.

Yours truly,

JACQUES WHITFORD ENVIRONMENT LIMITED

Teresa Drew, B.Sc., CET
Environmental Scientist

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Figure 1: National Gypsum Noise Monitoring
Hiltz Residence
July 14 - 17, 2003

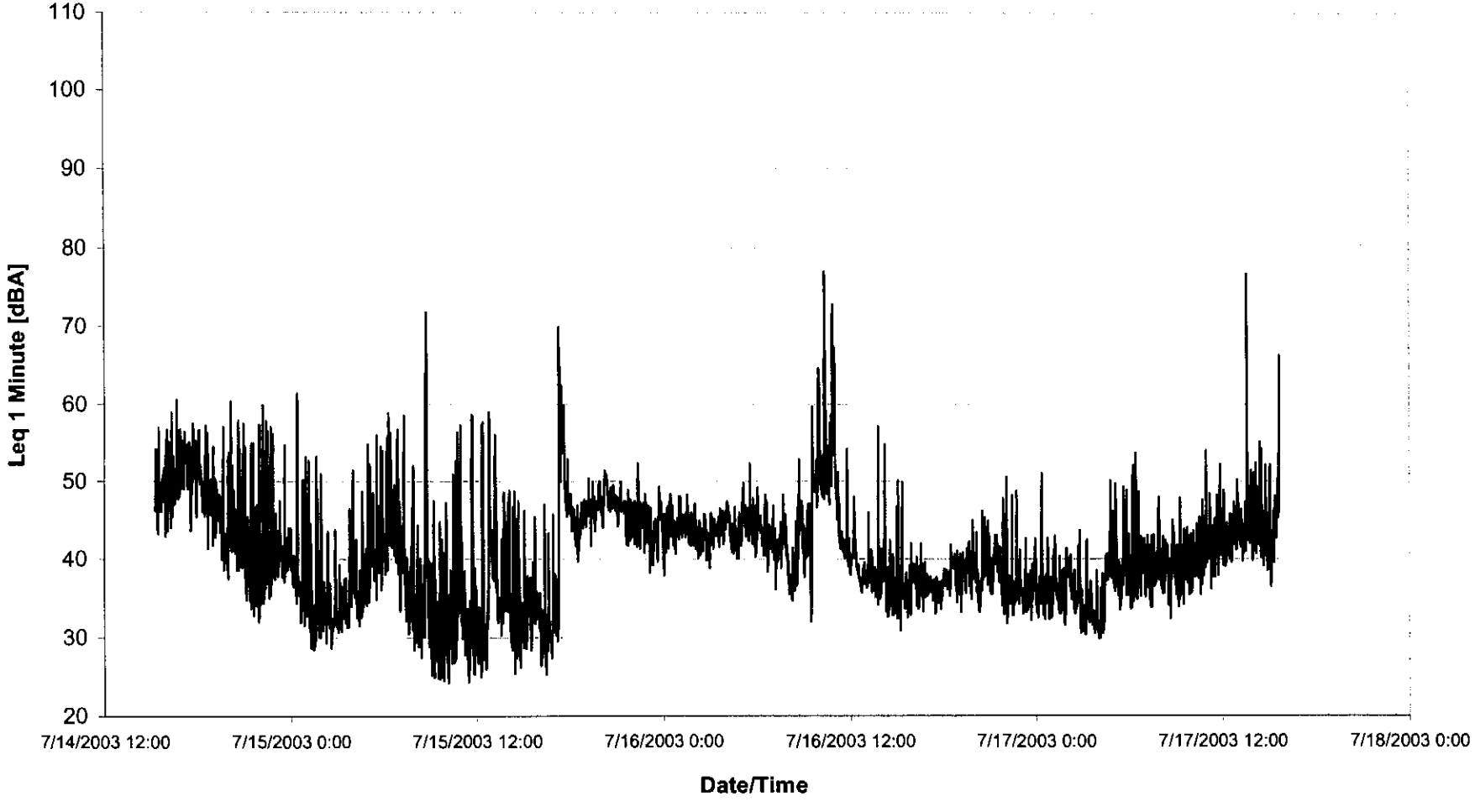

Figure 2: National Gypsum Noise Monitoring
Turner residence
July 17 - 23, 2003

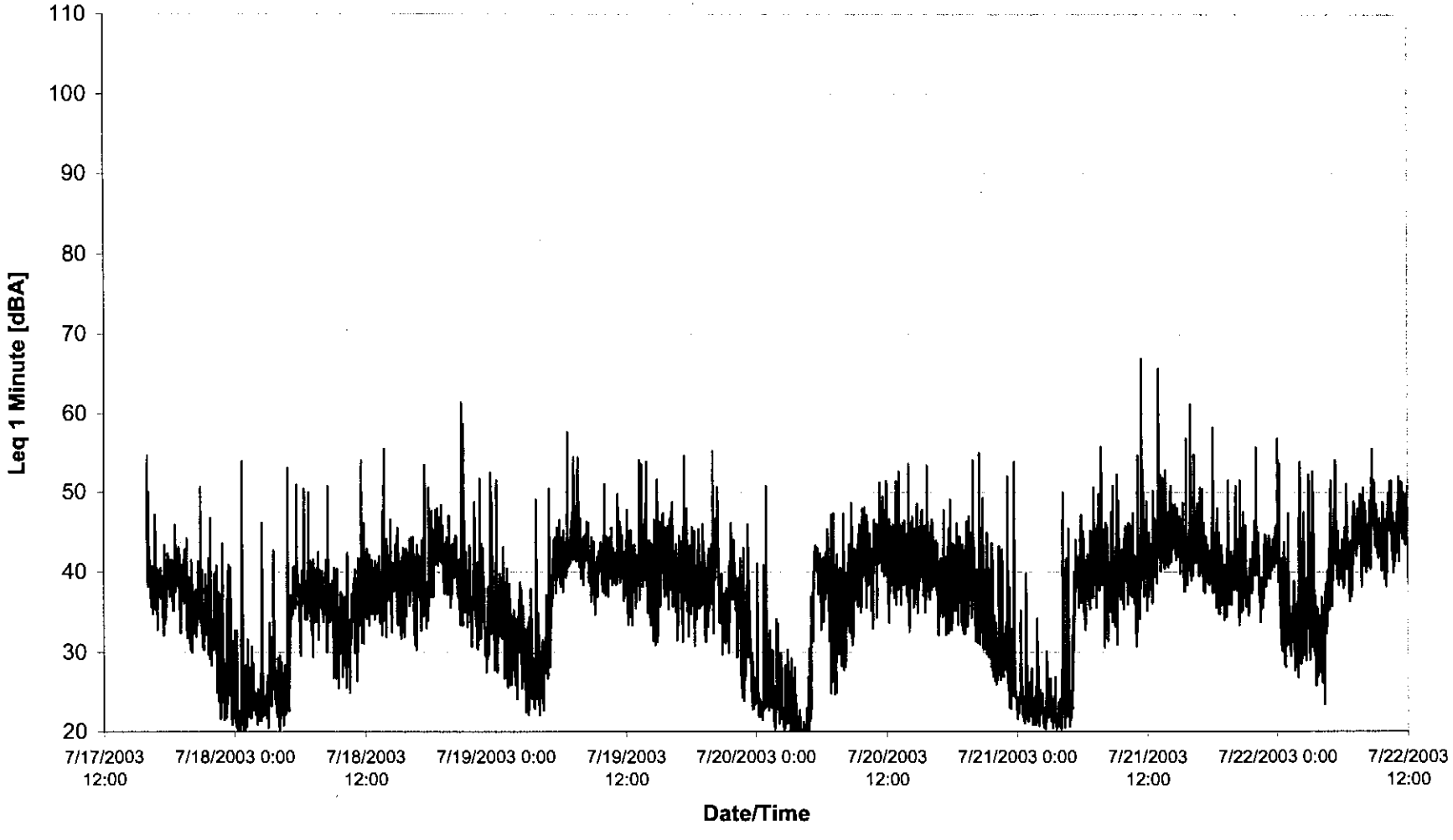

Table 1: Noise Monitoring, Hiltz Residence
Hourly Noise levels in dBA
July 14 - 17 , 2003

Date / Time	Leq	Guideline	L10 (Highest)[a]	L90 (Lowest)[b]
7/14/2003 16:00	51.8	65	53.8	45.1
7/14/2003 17:00	52.7	65	55.7	46.9
7/14/2003 18:00	51.1	65	53.3	43.9
7/14/2003 19:00	47.0	60	48.6	38.2
7/14/2003 20:00	49.2	60	48.2	37.4
7/14/2003 21:00	45.3	60	43.6	32.4
7/14/2003 22:00	47.9	60	43.2	34.3
7/14/2003 23:00	42.6	55	43.6	37.1
7/15/2003 0:00	48.2	55	42.7	33.0
7/15/2003 1:00	42.2	55	43.9	28.6
7/15/2003 2:00	34.9	55	36.4	29.9
7/15/2003 3:00	36.1	55	37.5	30.8
7/15/2003 4:00	39.5	55	40.0	32.1
7/15/2003 5:00	45.8	55	44.2	35.1
7/15/2003 6:00	49.7	55	48.7	37.5
7/15/2003 7:00	44.1	65	42.7	30.2
7/15/2003 8:00	35.6	65	38.4	27.5
7/15/2003 9:00	35.9	65	37.2	23.7
7/15/2003 10:00	44.5	65	39.9	25.1
7/15/2003 11:00	45.2	65	39.5	25.5
7/15/2003 12:00	47.0	65	44.0	25.4
7/15/2003 13:00	43.2	65	41.0	31.1
7/15/2003 14:00	40.2	65	37.5	26.3
7/15/2003 15:00	36.1	65	37.9	28.5
7/15/2003 16:00	35.1	65	34.2	26.3
7/15/2003 17:00	57.8	65	59.6	30.7
7/15/2003 18:00	45.2	65	47.6	40.4
7/15/2003 19:00	47.0	60	49.5	43.0
7/15/2003 20:00	48.4	60	50.8	44.6
7/15/2003 21:00	46.5	60	48.8	42.3
7/15/2003 22:00	45.9	60	48.2	41.3
7/15/2003 23:00	44.2	55	46.8	38.2
7/16/2003 0:00	44.5	55	47.2	38.4
7/16/2003 1:00	44.7	55	47.4	40.2
7/16/2003 2:00	43.0	55	45.4	38.5
7/16/2003 3:00	43.9	55	46.3	39.2
7/16/2003 4:00	44.0	55	46.7	38.9
7/16/2003 5:00	45.4	55	47.9	40.1
7/16/2003 6:00	43.9	55	46.6	38.3
7/16/2003 7:00	42.7	65	45.3	37.0
7/16/2003 8:00	42.8	65	46.1	33.4
7/16/2003 9:00	51.1	65	51.3	33.0
7/16/2003 10:00	64.2	65	62.8	45.3
7/16/2003 11:00	53.1	65	50.7	39.0
7/16/2003 12:00	39.9	65	41.5	35.9
7/16/2003 13:00	42.6	65	40.0	34.0
7/16/2003 14:00	41.1	65	39.5	32.0
7/16/2003 15:00	39.4	65	38.8	31.1
7/16/2003 16:00	37.5	65	39.6	33.1
7/16/2003 17:00	36.2	65	38.1	33.2
7/16/2003 18:00	38.3	65	40.3	34.6
7/16/2003 19:00	39.1	65	41.5	33.8
7/16/2003 20:00	39.4	65	40.9	33.0
7/16/2003 21:00	39.5	60	42.0	33.8
7/16/2003 22:00	39.2	60	37.9	32.1
7/16/2003 23:00	37.3	60	40.2	32.1
7/17/2003 0:00	39.5	60	39.4	31.4
7/17/2003 1:00	37.2	55	40.6	31.6

Table 1: Noise Monitoring, Hiltz Residence
Hourly Noise levels in dBA
July 14 - 17 , 2003

Date / Time	Leq	Guideline	L10 (Highest)[a]	L90 (Lowest)[b]
7/17/2003 2:00	37.4	55	40.3	31.0
7/17/2003 3:00	34.1	55	35.6	30.0
7/17/2003 4:00	40.5	55	43.9	29.6
7/17/2003 5:00	41.9	55	44.6	33.5
7/17/2003 6:00	43.6	55	42.6	33.0
7/17/2003 7:00	39.8	55	42.0	33.2
7/17/2003 8:00	39.8	55	42.8	32.7
7/17/2003 9:00	39.6	65	42.5	33.5
7/17/2003 10:00	42.3	65	44.3	35.0
7/17/2003 11:00	44.0	65	46.9	36.8
7/17/2003 12:00	43.7	65	46.2	37.4
7/17/2003 13:00	59.0	65	47.9	39.1

Figure 2: Turner Residence
Hourly Noise levels in dBA
July 14 - 17 , 2003

Date / Time	Leq	Guideline	L10 (Highest)[a]	L90 (Lowest)[b]
7/17/2003 16:00	40.6	65	43.0	33.3
7/17/2003 17:00	38.5	65	41.2	33.4
7/17/2003 18:00	40.1	65	42.8	35.6
7/17/2003 19:00	38.3	60	41.5	31.5
7/17/2003 20:00	38.2	60	40.0	30.3
7/17/2003 21:00	35.8	60	37.5	29.1
7/17/2003 22:00	34.7	60	37.5	23.7
7/17/2003 23:00	31.5	55	35.1	21.5
7/18/2003 0:00	37.8	55	33.1	19.4
7/18/2003 1:00	24.7	55	26.7	21.2
7/18/2003 2:00	31.9	55	27.2	21.2
7/18/2003 3:00	29.3	55	30.2	22.2
7/18/2003 4:00	36.4	55	32.9	21.3
7/18/2003 5:00	39.1	55	42.7	26.0
7/18/2003 6:00	40.2	55	43.3	27.6
7/18/2003 7:00	37.7	65	41.8	28.4
7/18/2003 8:00	38.3	65	41.7	25.2
7/18/2003 9:00	35.2	65	39.0	24.4
7/18/2003 10:00	34.8	65	37.9	24.7
7/18/2003 11:00	40.2	65	41.9	30.2
7/18/2003 12:00	38.5	65	42.2	31.6
7/18/2003 13:00	41.9	65	43.5	32.8
7/18/2003 14:00	40.4	65	43.8	32.1
7/18/2003 15:00	39.2	65	42.7	31.7
7/18/2003 16:00	40.2	65	43.8	32.5
7/18/2003 17:00	41.9	65	43.3	37.8
7/18/2003 18:00	43.8	65	46.8	36.0
7/18/2003 19:00	41.8	60	44.4	33.5
7/18/2003 20:00	45.9	60	43.8	32.8
7/18/2003 21:00	44.0	60	40.0	31.5
7/18/2003 22:00	40.2	60	42.3	29.0
7/18/2003 23:00	40.1	55	41.6	28.8
7/19/2003 0:00	38.6	55	40.0	26.4
7/19/2003 1:00	33.1	55	36.1	25.0
7/19/2003 2:00	32.4	55	36.0	22.9
7/19/2003 3:00	35.7	55	36.7	24.2
7/19/2003 4:00	35.7	55	34.9	29.4
7/19/2003 5:00	40.5	55	45.1	35.3
7/19/2003 6:00	44.8	55	45.9	37.5
7/19/2003 7:00	45.8	65	47.8	36.1
7/19/2003 8:00	41.8	65	44.9	33.5
7/19/2003 9:00	40.6	65	44.3	34.7
7/19/2003 10:00	42.3	65	45.4	34.3
7/19/2003 11:00	42.1	65	45.3	32.9
7/19/2003 12:00	40.7	65	44.1	35.7
7/19/2003 13:00	45.3	65	46.1	30.7
7/19/2003 14:00	40.4	65	43.1	33.4
7/19/2003 15:00	42.7	65	46.8	32.4
7/19/2003 16:00	42.1	65	45.8	31.6
7/19/2003 17:00	42.3	65	45.2	32.6
7/19/2003 18:00	39.8	65	42.9	31.2
7/19/2003 19:00	39.1	60	42.6	31.2
7/19/2003 20:00	42.7	60	45.0	31.2
7/19/2003 21:00	38.1	60	41.7	24.6
7/19/2003 22:00	36.5	60	40.2	23.3
7/19/2003 23:00	34.3	55	36.5	21.8
7/20/2003 0:00	34.8	55	31.2	21.2
7/20/2003 1:00	27.2	55	30.6	20.5

7/20/2003 2:00	25.7	55	29.0	19.5
7/20/2003 3:00	22.9	55	26.0	19.5
7/20/2003 4:00	21.4	55	21.9	23.3
7/20/2003 5:00	39.5	55	44.5	24.3
7/20/2003 6:00	35.9	55	44.0	24.4
7/20/2003 7:00	39.6	65	41.3	26.8
7/20/2003 8:00	37.9	65	43.7	31.7
7/20/2003 9:00	40.1	65	44.8	33.3
7/20/2003 10:00	41.6	65	45.7	39.2
7/20/2003 11:00	42.2	65	49.0	34.1
7/20/2003 12:00	45.4	65	45.4	35.7
7/20/2003 13:00	42.6	65	46.4	33.7
7/20/2003 14:00	43.5	65	46.2	35.8
7/20/2003 15:00	42.9	65	47.6	32.3
7/20/2003 16:00	44.2	65	44.1	32.3
7/20/2003 17:00	41.0	60	44.8	31.5
7/20/2003 18:00	40.9	60	43.5	30.8
7/20/2003 19:00	40.0	60	44.1	28.0
7/20/2003 20:00	42.1	60	42.7	26.8
7/20/2003 21:00	42.7	60	38.3	23.3
7/20/2003 22:00	35.7	60	35.6	21.4
7/20/2003 23:00	40.3	55	36.6	21.0
7/21/2003 0:00	28.1	55	30.2	20.4
7/21/2003 1:00	24.5	55	26.6	20.4
7/21/2003 2:00	23.5	55	25.5	20.7
7/21/2003 3:00	22.5	55	24.4	23.2
7/21/2003 4:00	36.9	55	36.6	29.0
7/21/2003 5:00	39.3	55	44.2	32.4
7/21/2003 6:00	40.4	55	44.6	31.8
7/21/2003 7:00	46.3	65	47.8	31.4
7/21/2003 8:00	41.5	65	44.9	32.8
7/21/2003 9:00	42.1	65	45.1	31.1
7/21/2003 10:00	41.2	65	44.8	34.5
7/21/2003 11:00	51.2	65	46.2	38.6
7/21/2003 12:00	42.2	65	45.1	40.0
7/21/2003 13:00	51.1	65	48.3	39.1
7/21/2003 14:00	45.4	65	48.4	39.1
7/21/2003 15:00	44.6	65	45.7	36.7
7/21/2003 16:00	47.6	65	48.0	35.1
7/21/2003 17:00	41.7	65	43.9	34.4
7/21/2003 18:00	44.1	65	44.9	33.7
7/21/2003 19:00	40.5	60	42.6	35.8
7/21/2003 20:00	42.3	60	44.3	35.2
7/21/2003 21:00	40.9	60	43.8	39.1
7/21/2003 22:00	42.8	60	43.8	29.8
7/21/2003 23:00	42.3	55	44.5	27.9
7/22/2003 0:00	43.4	55	43.7	28.9
7/22/2003 1:00	35.9	55	37.1	27.1
7/22/2003 2:00	42.4	55	43.9	27.5
7/22/2003 3:00	39.0	55	41.6	34.7
7/22/2003 4:00	39.4	55	41.3	34.2
7/22/2003 5:00	44.5	55	47.1	39.9
7/22/2003 6:00	42.7	55	46.2	39.9
7/22/2003 7:00	45.6	65	48.4	39.0
7/22/2003 8:00	47.0	65	49.9	39.2
7/22/2003 9:00	44.4	65	47.0	42.3
7/22/2003 10:00	46.3	65	50.2	42.5
7/22/2003 11:00	47.9	65	50.9	45.3
7/22/2003 12:00	50.1	65	53.3	37.6