DILLON CONSULTING

NOVA SCOTIA LANDS INC.

Phase I Environmental Site Assessment (Final)

Lake Enon Former Mill Site, Enon, Nova Scotia, PID Nos: 15551369, 15340045, and 15340052

October 2022 – 22-3723

October 7, 2022

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Phase I Environmental Site Assessment
Lake Enon Former Mill Site, 2412 Loch Lomond Road
Parcel Identification Designation Numbers (PID Nos.): 15551369, 15340045, and 15340052

Dillon Consulting Limited (Dillon) is pleased to provide this Phase I Environmental Site Assessment (ESA) of the Lake Enon Former Mill property located at 2412 Loch Lomond Road in the Cape Breton Regional Municipality, Nova Scotia, and idenfied by PID Nos. 15551369, 15340045, and 15340052.

Should you have any questions, please do not hesitate to contact us.

Yours sincerely,

DILLON CONSULTING LIMITED

Nadine Wambolt, B.Tech, CET
Project Manager

Our file: 22-3723

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Executive Summary

Dillon Consulting Limited (Dillon) was commissioned by Nova Scotia Lands Inc. (NSLI) to complete a Phase I Environmental Site Assessment (ESA) of the property located at 2412 Loch Lomond Road, with the objective of assessing whether the site is or may be subject to actual or potential contamination.

The Phase I ESA was conducted in accordance with the Canadian Standard Association (CSA) Standard Z768-01 for Phase I ESAs (CSA, R2022) and included a records review and reporting of the findings.

Subject Property	
Site Identifier	PID Nos.: 15551369, 15340045, and 15340052
Property Owner	Her Majesty the Queen in Right of The Province of Nova Scotia, Nova Scotia Department of Natural Resources and Renewables
Property Lessee	Not Applicable
Site Name	Former Lake Enon Mill Site
Property Area	144 hectares
Property Zoning	Commercial
Current Property Use	Vacant
Former Property Use	Celestite mining; Lead processing; Barite processing; Magnetite processing

Based on the information gathered and observations made during this investigation, the Phase I ESA has identified the following areas of potential environmental concern (APECs) and associated contaminants of potential concern (COCPs):

APEC No.	APEC	COPCs	Media of Concern	Comments
1	Tailings Pile/Pond	Metals, General Chemistry, PHCs, PAHs, VOCs, sVOCs, and TOC	SW, Sed	Waste storage, aerial mapping surficial water present in this area
2	Waste Rock/Dump	Metals, General Chemistry, PHCs, PAHs, VOCs, sVOCs, and TKN	Soil, GW	Waste/tailings soils area
3	Processing Area	Metals, General Chemistry, PHCs, PAHs, PCBs, VOCs, and sVOCs	Soil, GW	Processing of materials, heavy equipment storage, petroleum storage
4	Mill/Plant Area	Metals, General Chemistry, PHCs, PAHs, PCBs, VOCs, and sVOCs	Soil, GW	Processing of materials, heavy equipment storage, petroleum storage
5	Waste Rock/Dump	Metals, General Chemistry, PHCs, PAHs, VOCs, and sVOCs	Soil, GW	Waste/tailings soils area
6	Tailings Pile/Pond	Metals, General Chemistry, PHCs, PAHs, VOCs, sVOCs, TOC , and TKN	SW, Sed, GW	Waste storage, aerial mapping surficial water present in this area
7	Settling Ponds	Metals, General Chemistry, PHCs, PAHs, VOCs, sVOCs, TOC, and TKN	SW, Sed, GW	Waste storage, aerial mapping surficial water present in this area

APEC No.	APEC	COPCs	Media of Concern	Comments
8	Lake Enon (Potential Receptor)	Metals, General Chemistry	SW, Sed	Lake Enon is identified as a potential receptor, given the nature of the site conditions, sediment and surface water quality should be evaluated
9	Waste Rock/Dump	Metals, PAHs, PCBs, VOCs, and sVOCs	Soil	Waste/tailings soils area
10	Tailings Disposal Area	Metals, General Chemistry, PHCs, PAHs, VOCs, and sVOCs	Soil, GW	Waste/tailings storage, historical plans indicate a pond was previously located here
11	Tailings Disposal Area	Metals, General Chemistry, PHCs PAHs, VOCs, and sVOCs	Soil, GW	Waste/tailings soils area
12	Former Pad Area	Metals, PAHs, VOCs, sVOCs, EC, and SAR	Soil	Former pad area used for storage, waste rock pile area

Notes:

1. *SW denotes surface water, Sed denotes sediment, GW denotes groundwater.*
2. *PHCs denotes petroleum hydrocarbons (i.e., BTEX, modified TPH), PAHs denotes polycyclic aromatic hydrocarbons, PCBs denotes polychlorinated biphenyls, VOCs denotes volatile organic compounds, sVOCs denotes semi-volatile organic compounds.*

In addition to the above noted APECs and COPCs, assessment for potential acid rock drainage (ARD) and potential presence of buried reagents from milling processes is recommended in areas where waste rock, waste, and tailings disposal have been identified (i.e., APEC #1, APEC #2, APEC #5, APEC #6, APEC #9, APEC #10, and APEC #11). In locations where surficial water is present, the feasibility of surface soil sample locations should be assessed on-site. In addition to the COPCs identified in these areas, surface soil samples are recommended to be analyzed for electrical conductivity (EC), sodium adsorption ratio (SAR), and chloride.

The statements made in this Executive Summary are subject to the same disclaimer presented in Section 7.0, and are to be read in conjunction with the remainder of this report.

1.0 Introduction

Dillon Consulting Limited (Dillon) was commissioned by Nova Scotia Lands Inc. (NSLI) to complete a Phase I Environmental Site Assessment (ESA) of the Lake Enon Former Mill property (herein referred to as the "site" or the "subject property") located at 2412 Loch Lomond Road, in the Cape Breton Regional Municipality (CBRM), Nova Scotia.

1.1 Objective and Scope of Work

The objective of the Phase I ESA was to assess whether the site is or may be subject to actual or potential contamination. Contamination is defined as "the presence of a substance of concern, or a condition, in concentrations above appropriate pre-established criteria in soil, sediment, surface water, groundwater, air, or structures" (CSA, 2022).

To fulfill the objective of the Phase I ESA, the following scope of work was agreed to:

- Review of historical and current records that were reasonably attainable for the subject property and surrounding area;
- Interviews of persons knowledgeable with respect to past and current uses of the subject property and/or adjoining propereąs; and
- Evaluation of the findings and reporting.

This Phase I ESA was performed following the Phase I ESA guideline document produced by the Canadian Standards Association (CSA Z768-01, R2022). As such, this report is based on review of available historical records, and requests for information filed with government or other regulatory agencies. This ESA did not include sample collection, analysis or measurements, and is not intended to be a definitive investigation of contamination or other environmental concerns at the subject property. Thick vegetation is present on the majority of the site, which may mask site features, such as former areas of spills or staining.

2.0 Background

The Lake Enon Former Mill (i.e., the site) is located in Enon, Nova Scotia along Loch Lomond Road, approximately 50 kilometers (km) southwest of Sydney in the CBRM, and is situated adjacent to Lake Enon. The former mill site (PID Nos. 15551369, 15340045, 15340052) is owned by Nova Scotia Department of Natural Resources and Renewables (NSDNRR). Significant deposits of celestite, the principal source of strontium, were discovered from the Lower Windsor rock group in Enon in the early 1960s. The site was developed in the mid-1960s and was operational from 1969 through 1975 or 1976 by Kaiser Celestite Mining (Kaiser). During this time, ore was sourced from a small pit on-site, as well as a quarry to the north of the site. Concentrated ore was then sent to Kaiser's chemical plant in Point Edward, Nova Scotia to be converted to different strontium compounds.

In 1977 the site was purchased by Yava Mines Ltd. (Yava). Between 1979 and 1981, Yava operated the milling site to process lead ore from a nearby mine. The site was then acquired by Novex Mining and Exploration (Novex). From 1983 to 1984, Novex operated the milling site to process barite ore. In 1988, Lodestone operated the milling site to process a magnetite bulk sample from Bass River.

Buildings and processing equipment associated with the former mill operations were reportedly removed from the site in the mid-1990s.

3.0 Methodology

3.1 Records Review

The applicable search distance for the records review included properties immediately adjoining the subject property, and those identified by aerial photographs, historical records and regulatory requests to represent a potential environmental concern. Records reviewed for the subject property included the following:

- Aerial photographs (1939, 1948, 1953, 1966, and 1978) (noting that aerials were not available (via ERIS) for the 1980s or 1990s) (Appendix A);
- Google Earth satellite imagery (2007, 2012 and 2017) (Appendix A);
- Fire Insurance Mapping (None available);
- City Directories (None available);
- Available historical reports/documents:
  - Dillon. (2018) Flooding Assessment Task 1 - Initial Assessment - Loch Lomond Road, Cape Breton.
  - Nova Scotia Transportation and Infrastructure Renewal. (2018) Lake Enon Drainage Improvement Plan & Profile Proposed Ditch.
  - 1993 Aerial Plan.
  - J.H. Fowler. (1991) Barite, Celeste and` Fluorite in Nova Scotia.
  - Jacques, Whitford, and Associates Limited. (1983) Yava Mines Review, Cape Breton, NS.
  - Keppie, J.D. (compiler) 2000: Geological Map of the Province of Nova Scotia; Nova Scoa` Department of Natural Resources, Minerals and Energy Branch, Map ME 2000-1, scale 1:500,000.
  - Closure Plan for Celestite Mine – Pit 4, Enon, Nova Scotia. (1997).
  - Lura Corporation Limited, Milado Mines (1957) Limited Report. (1963).
- Provincial online property database for information regarding the subject and adjoining properes` (Property Online GeoNova: https://novascotia.ca/sns/access/land/property-online.asp) (accessed March 2022);
- Provincial regulatory requests for property-based environmental information (Nova Scoa` Environment and Climate Change Environmental Registry Request and Freedom of Informaon and` Protecon of Privacy (FOIPOP) *Act*) (Appendix B);

A title search was not completed as part of the assessment. Information gathered during the records review is discussed in subsequent sections of the report.

3.2 Site Visit

A site visit was completed as part of the Phase II ESA. On May 3, 2022, Melanie Smith of Dillon conducted a site visit. Weather conditions at the time of the visit were clear, calm, and sunny. Activities conducted during the site visit included:

- Observation of infrastructure and surrounding land at the subject property (noting no buildings were present on-site); and
- Observaon of the properties adjoining to the subject property (to the extent possible) to assess use, as could be viewed from the subject property and adjoining public lands.

Photographs taken during the site visit are presented in Appendix C.

3.3 Interviews

NSLI identified Ernie Hennick, a planning technician with the NSDNRR, as a person knowledgeable about the site. Dillon reached out to Mr. Hennick for an interview and were subsequently referred to George MacPherson, the Director of Mineral Management with NSDNRR. George MacPherson was interview via phone on April 22, 2022.

4.0 Property Description

4.1 Subject Property Description

The subject property is located at 2412 Loch Lomond Road in CBRM, Nova Scotia, as described in Table 1 and illustrated on Figures 1 and 2 (attached).

Table 1: Summary of Property Information

Property Description	
Site Identifier	PID Nos.: 15551369, 15340045, and 15340052
Property Owner	Her Majesty the Queen in Right of The Province of Nova Scotia, Nova Scotia Department of Natural Resources and Renewables
Property Lessee	Not Applicable
Site Name	Lake Enon Former Mill Site
Property Area	144 hectares
Property Zoning	Commercial
Current Property Use	Vacant
Former Property Use	Celestite mining, lead processing, barite processing, magnetite processing
Power Source	No known current on-site power services
Natural Gas Source	Not Applicable
Water Source	No known on-site water services. Municipal water services are not available in the area (based on discussions with CBRM).
Located in Protected Wellfield or Watershed Area	Not located in a protected wellfield or watershed area based on available mapping.
Wastewater	No known on-site wastewater services. Municipal water services are not available area (based on discussions with CBRM).

4.1.1 Current On-Site Buildings and Structures

No buildings were observed on-site during the Phase I ESA site visit, which was completed on May 3, 2022. Site photographs from 2019 (provided to Dillon by NSLI - discussed further in Section 5.1), show an abandoned trailer at the site. The abandoned trailer was not observed during the site visit. An asphalt pad, measuring approximately 75 meters (m) long and 25 m wide, was observed on-site, east of Lock Lomond Road.

4.1.2 Adjoining and Neighbouring Properties

Based on the desktop review of historical records, current land use for the adjoining and neighbouring properties is presented in Table 2 and Figure 2.

Table 2: Adjoining and Neighbouring Properties – Current Land Use

Boundary of the Site	Distance from Subject Property	Current Land Use	Potential Environmental Concerns
Northwest (PID Nos. 15409436, 15668932, 15635766, and 15340227)	Adjoining	A trail was observed from MacVicar Road cutting through the forested area on the western arm of the site and onto PID No. 15340227.	None found
North-Northeast (PID Nos. 15859051, 15340029, 15339997 and Lake Enon)	Adjoining	The northern portion of PID No. 15859051 appears to be developed with several buildings present (approximately 200 m from the north site boundary). Property PID No. 15339997 appears to be residentially used, with the majority of this property forested and undeveloped. A large clearing and residence was observed from Loch Lomond Road. The property online database denotes PID No. 15340029, an adjoining property to the north of the site, as a cemetery associated with the Loch Lomond United Church. However, based on other available sources of information for this property, it does not appear that this site was ever used as a cemetery, and rather consisted of cairn commemorating the former church. No evidence of a cemetery (i.e., headstones) are visible in aerial photographs. During the Phase I ESA site visit, this property appeared to be a memorial site with one monument near the eastern boundary.	None found
East (PID No. 15536725)	Adjoining	The portion of the property visible from the site was forested and undeveloped.	None found
South (MacVicar Road and PID No. 15573892)	Adjoining	Rural road (McVicar Road) extending from the southwestern subject property boundary to Loch Lomond Road. PID No. 15573892 was observed to be forested and undeveloped.	None found.

Based on the current land use of adjoining properties, the above findings do not represent actual or potential source of environmental concern relative to the site.

4.2 Regional Geology, Hydrogeology and Topography

To describe the regional physiography and expected hydrogeologic conditions beneath the subject property, the following documents were reviewed:

- Stea, R.R., Conley, H., and Brown, Y. (compilers) 1992: Surficial Geology of the Province of Nova Scotia; Nova Scotia Department of Natural Resources, Map 92-3, Scale 1:500,000.
- Keppie, J.D. (compiler) 2000: Geological Map of the Province of Nova Scotia; Nova Scoa` Department of Natural Resources, Minerals and Energy Branch, Map ME 2000-1, Scale 1:500,000.
- S.M. Barr, C.E. White (compilers) 2017: Bedrock Geology Map of the Grand Narrows Area, NTS 11F/15, Cape Breton, Inverness, Richmond and Victoria Counties, Nova Scotia; Nova Scoa` Department of Natural Resources, Map ME 2017-014, Scale 1:50,000.

The surficial geology of the subject area consists of stony till plain and drumlins. Till is stony, sandy and consists of material derived from local bedrock sources, ranging in thickness from 2 m to 20 m. Drumlin facies are siltier due to erosion and incorporation of older till units by glaciers.

The regional bedrock geology of the subject area is mapped as variable. The Uist formation is present at the northwest portion of the site, northwest of the former pond. Between the former pond and tailings pond, the Loch Lomond formation is present. To the southeast of Lake Enon, the Enon formation is present, followed by the Grantmire formation, and then by the Chisholm Brook Plutonic Suite - mozzogranite. A small area of the Chisholm Plutonic Suite - granodiorite is present with the Loch Lomond formation on the southwest portion of the site. Bedrock mapping of the area also identified occurrence of strontium on the subject property, south of Lake Enon and north of the former tailings disposal pond.

The topography of the site is flat to rolling with many surface boulders; drumlins-elongate or oval hills veneered by stony till with underlying multiple till layers. Regional topography suggests the regional shallow groundwater flow is likely west to north/northwest towards Lake Enon.

Historical reports (see Section 5.4) noted that a portion of the site (PID No. 15340052) was leveled and graded between 1995 and 1997. It is noted that historical lagoons and pits have been infilled. The characteristics of the fill material are not known. The local shallow groundwater flow direction may vary from the regional context and be influenced by backfilled areas with coarse-grain materials, which may provide a more permeable conduit for groundwater flow when compared to the lower permeability of the native soils.

5.0 Records Review

5.1 Subject Property

A summary of historical land use information for the subject property is presented in Table 3. The documentation collected to generate Table 3 and Table 4 is listed in Section 3.1.

Table 3: Historical Information for the Subject Property

Period/Date	Land Use/Historical Information
1939 to 1953	Based on available aerial photographs, the site was largely undeveloped during this period. MacVicar Road extends northwesterly adjacent the west portion of the subject property, intersecting Loch Lomond Road (formerly referred to as Enon Road), which extends north to south through the center of the subject property. Lake Enon borders the site to the north. Some residential development was present north of the subject property, east and west of Loch Lomond Road. Apparent agricultural fields were present at the west portion of the subject property, north of MacVicar Road and on the central north portion of the subject property, west of Loch Lomond Road. In 1948, a clearing is visible on-site east of the intersection of MacVicar Road and Loch Lomond Road.
1966	A portion of the subject property, near the northern property boundary and east of Loch Lomond Road, appeared to have been cleared. Tree removal and ground disturbance was apparent in the general area of the former mine site. Tree removal and ground disturbance was also apparent south of the site, across MacVicar Road
1966 to 1977	The site was developed sometime in the late 1960s and was operated by Kaiser from 1969 to 1975 for the purposes of mining and milling celestite (a mineral consisting of strontium sulfate). The mine and milling site operated northwest of Loch Lomond Road. Several open pits (one of which was eventually used for tailings disposal), a process water reclaim pond, settling ponds, a milling facility, a laboratory, and several sheds were present at the site. Map drawings depict infrastructure included a concentrator pump, crusher building, transfer tower, sub-station, fuel oil tank (22,700 liter (L) capacity), thickener tanks, a OW well and pump, water storage tank, sewage treatment plant, and pump house. A seeded dump, was present to the southeast, opposite of Loch Lomond Road.
1977 to 1981	In 1977, Yava purchased the site. The 1978 aerial image shows various ponds at the site, infrastructure, as well as what appeared to be seeded dump and pad in the approximate locations of available map drawings. A prominent trail had been cleared of trees to the east of Loch Lomond Road, extending southeast through the subject property and beyond. Two areas to the southeast, opposite of Loch Lomond Road had been developed and cleared of trees, one of which was in the same location and of the same shape as the seeded dump in the previously mentioned drawing. In 1979, the mine was reactivated by Yava for the purposes of milling lead ore from a nearby mining site. The tailings pond was also utilized by Yava and was modified for a larger storage capacity. Available drawings from this period depict previously mentioned milling infrastructure and ponds, as well as a scrap yard, and

Period/Date	Land Use/Historical Information
1977 to 1981	pad, which are in the approximate locations of the second cleared area in the 1978 aerial photograph. Yava abruptly ceased operations in 1981 after being placed in receivership and did not conduct any stabilization or restoration of the tailings.
1981 to 1984	In 1983 Novex acquired the subject property for the purposes of milling and processing barite ore until 1984.
1984 to 1988	In 1988, the mill facility was used by Lodestrone to process magnetite bulk samples from Bass River.
1988 to 1995	Prior to 1995, Industrial Estates Limited (IEL), a provincial government economic development company, reportedly assumed ownership of the mill site. This did not include the tailings disposal pond or part of the open flooded pit. An aerial image dated 1993 shows historical infrastructure present at the site, including reference to an underground culvert, which intersected the site running from Loch Lomond Road north towards the former on-site settling ponds. A seeded rock dump was located to the southeast of the infrastructure. Opposite Loch Lomond Road, to the southeast of this infrastructure, a cleared area (possible pad) is visible on-site.
1995 to 1997	Between 1995 and 1997, Kelly Rock Limited reportedly removed all on-site buildings, levelling and grading the site.
1997 to 2007	Residual mining development was apparent at the subject property in available images. The previous tailings pond was visible on-site to the west of Loch Lomond Road, south of Lake Enon. The area surrounding this pond remained disturbed. Two distinguishable patches of disturbed ground (one possibly being a pad) remained visible on-site to the east of this area, opposite Loch Lomond Road. The trail on the east portion of the site also remained.
2007 to 2012	An apparent dirt road had been constructed east of Loch Lomond Road, to the north and parallel to the existing trail measuring approximately 715 m in length. Vegetation growth was apparent on-site in the area of the former mill operations, west of Loch Lomond Road.
2012 to 2019	Photographs obtained via drone and through field visits provided by NSLI show the site largely unchanged in comparison to the 2012 aerial image. An abandoned trailer was observed on-site. The trailer appeared to be in poor condition. Inside the trailer, various fuel containers and transmission fluid buckets were notable. It is unclear from the photographs if the containers were empty or contained any volume of fluids. There was a noticeable sheen on the floor of the trailer, along with stained rags and miscellaneous debris scattered throughout. Several pieces of rusted metal debris can be seen in photographs taken at the site, although the exact locations of these items is unclear.

Based on the above, potential or actual environmental concerns were identified, including:

- Potenaàl petroleum hydrocarbon impacts resulting from fuel containers observed in an abandoned trailer at the site (noting that this trailer was not observed during the 2022 Phase I ESA site visit); and

- Former on-site mine operations (e.g., process water reclaim pond, settling ponds, tailing ponds, milling facility, laboratory, former fuel oil tank (22,700 L capacity), thickener tanks, OW well and pump, scrapyard, sewage treatment plant, ore storage).

5.2 History of Adjoining and Neighbouring Properties

A summary of historical land use information for the adjoining and neighbouring properties based on available aerial images is presented in Table 4.

Table 4: Historical Information for the Adjoining Properties

Boundary of the Site	Distance from Subject Property	Land Use/Historical Information
Northwest (PID Nos. 15409436, 15668932, 15635766, and 15340227)	Adjoining	PID Nos 15409436, 15668932, 15635766: Agricultural and residential development since prior to 1939 until at least 1966. In 2007 google earth images, agricultural development is no longer present and has become largely forested, with a small portion remaining residential. PID No 15340227: The southwest corner of the property is agricultural since prior to 1939 until at least 1966, with the remaining area undeveloped forested land. In 2007 google earth images, agricultural development is no longer present and has become largely forested, with a small portion remaining residential. This is consistent with observations in the 2012 image.
Northeast (PID Nos. 15859051, 15340029, and 15339997)	Adjoining	Agricultural and residential development since prior to 1939 until 2017 (most recent google earth image available). A church was present on PID 15340029 from 1929 until 2016, visible in aerial photographs prior to 2017, as well as Yava site drawings.
East (PID No. 15536725)	Adjoining	Undeveloped forested land from prior to 1939 until at least 1978, when a trail or roadway was constructed.
South (MacVicar Road and PID No. 15573892)	Adjoining	MacVicar road adjoins the western portion of the site from at least 1939 to current). Undeveloped forested land from prior to 1939 until at least 2017 (most recent google earth image available).

Based on the above, no potential or actual environmental concerns are identified on adjoining properties.

5.3 Database and Regulatory Review

Information requests were submitted to the regulatory bodies and databases listed in Section 3.1 for the subject property, as well as applicable adjoining and neighbouring properties that may represent an environmental concern to the subject property. The regulatory and database information obtained is discussed in the following subsections and included in Appendix B.

5.3.1 Subject Property

Information obtained from regulatory requests and database searches for the subject property is presented in Table 5.

Table 5: Regulatory Request Results – Subject Property

Subject Property	
Petroleum Storage Information	Based on the information obtained through the Nova Scotia Environment and Climate Change (NSECC) Environmental Registry search, the site is not registered as a petroleum storage site; however, historical documents note former on-site petroleum storage.
Remediation Site Management Program / Environmental Registry Information	Based on the information obtained through the NSECC Environmental Registry search, the site does not have any registered remediation management files.
PCB Storage Site	Based on the information obtained through the NSECC Environmental Registry search, the site is not registered as a PCB storage site; however, records obtained through the FOIPOP *Act* search note a small (unspecified) quantity of PCB material historically in storage at the site.
Former Landfill/Dumpsite	Based on the information obtained through the NSECC, Environmental Registry search, the site is not registered as a former landfill/dumpsite.
Other Provincial Regulatory (if applicable)	An environmental registry search completed by NSECC located contaminated site files with respect to Kaiser Celestite Mine that were subject to the FOIPOP *Act* and a request to access these files was submitted. On April 21, 2022 the FOIPOP search results were received. The full results of the FOIPOP search can be found in Appendix B. • Records from the 1980s note fifty barrels of liquid reagent being stored at the site on an asphalt storage pad west of Loch Lomond Road. Twenty of these barrels were identified as containing Cyanide 845. Remaining barrels were estimated to be a combination of sodium silicate, xenthale, and frother. • Correspondence indicating that in 1993 the site consisted of a processing mill, with a number of ponds of various sizes and two waste rock piles. Approximately 35 buried drums were identified on-site at that time. Twenty drums of reagent, six drums of sample rock, several drums of isopropyl alcohol, one drum of sodium silicate, a half drum of xanthate, and an unidentified amount of loose soda ash were remaining on site at that time. • Included correspondence also discusses the leachability of waste rock that covers a large portion of the site, the uncapped tailings pond with an eroding embankment, high levels of heavy metals in pond sediments, and a dark pile of material that was located in a storage area open to the public.

Based on the above, potential or actual environmental concerns were identified, including:

- Drums buried on-site containing various materials including reagents, sample rock, isopropyl alcohol, sodium silicate, xanthate, and loose soda ash;
- Potenaàl leaching of heavy metals from waste rock; and

- Potenaàl heavy metals in sediments of on-site ponds.

5.3.2 Adjoining and Neighbouring Properties

No information was obtained from the regulatory request for adjoining and neighbouring properties searched; therefore, potential or actual environmental concerns were not identified as a result of the regulatory records review.

5.4 Previous Environmental Site Assessments

The following previous environmental reports were available for review as part of the documents review:

- A.D. Hudgins, Milado Mines (1957) Limited Mine Drilling Report, Loch Lomond Area - Cape Breton, NS.
- Lura Corporation Limited, Milado Mines (1957) Limited Report. (1963).
- J.H. Fowler (1991) Barite, Celeste and` Fluorite in Nova Scotia.
- Jacques, Whitford, and Associates Limited. (1983) Yava Mines Review, Cape Breton, NS.
- Dillon. (2018) Flooding Assessment Task 1 - Initial Assessment - Loch Lomond Road, Cape Breton
- Nova Scotia Transportation and Infrastructure Renewal (2018) Lake Enon Drainage Improvement Plan.
- Geocon, Division of SNC Lavalin Environment Inc. (1997) Closure Plan for Celestite Mine – Pit 4 Report, Enon, Nova Scotia.

Dillon was provided each of the above noted reports for review; however, not all reports contained information relevant to this Phase I ESA. The following is a summary of relevant information from these reports (noting that relevant information was also incorporated into Table 3 above):

- Float (i.e. loose pieces of rock that are not connected to an outcrop) containing mineralizaon's` of galena, phalerite, barite, and celestite were idenfied on` the subject property. Diamond drilling (for Milado Mines (1957)) was completed on-site in 1963 to test the results of geological mapping, and previously completed geophyscical surveys and geochemical testing. Three boreholes were reportedly completed on-site. Findings indicated that it was not considered feasible to undertake additional diamond drilling in the Loch Lomond Area until favorable targets were further delineated by gravity surveys.
- Kaiser operated the site from approximately 1969 to 1975 for the purposes of mining and milling celeste` (a mineral consisting of strontium sulfate). The site contained several open pits, one of which was eventually used for the disposal of tailings, and a facility for milling the ore. Maps provided in this review display infrastructure including a pump, crusher building, transfer toner, concentrator, sub-staon,` fuel oil tank (22,700 L capacity), thickener tank, water storage tank, sewage treatment plant, and pump house. The facility also contained a laboratory and several sheds. Infrastructure was located west of Loch Lomond Road (formerly Enon Road). The former tailings pond and former settling pond are located west of this infrastructure. A process water reclaim pond

was shown located between the tailings disposal pond and the two settling ponds. A seeded dump area to the east of Loch Lomond Road, opposite the former mining pit was displayed.

- In 1979, Yava reactivated the mine until 1981, with the purpose of milling lead ore from a nearby mining site (Salmon River), located approximately 13 km northeast of the subject property. The tailings disposal pond used by Kaiser was utilized by Yava and was altered to accommodate a higher storage capacity. In 1981, Yava was placed in receivership resulting in withdrawal from the site. Yava reportedly did not conduct any stabilizaon` or restoraon of the tailings.
- Disposal of tailings was conducted between 1981 and 1983 by use of a discharge line to the east of the tailings pond. Drainage was facilitated to the northwest corner of the subject property, where slime accumulation had occurred. Soil samples were collected to complete a sieve analysis, and slime samples were collected for geotechnical characteriscs` analysis (i.e., water content, liquid limit, plastic limit, unconfined pressure, and remoulded pressure). The majority of the tailings surface was categorized as sand and silty sand. The northwest corner of the tailings area contained slime deposits from internal drainage. The thickness of tailings from the disposal area was determined to range from 1.52 m to 2.44 m. The water table in the tailings area was encountered at depths ranging from 0.61 m to 0.76 m.
- In 1983 until 1984, Novex Mining Exploration acquired the subject property for the purposes of milling and processing barite ore.
- In 1988, the mill facility was used by Lodestrone to process magnetite bulk samples from Bass River.
- Prior to 1995, Industrial Estates Limited (IEL), a provincial government economic development company, assumed ownership of the mill site. This did not include the tailings disposal pond or part of the open flooded pit.
- Between 1995 and 1997, Kelly Rock Limited removed all on-site buildings and leveled and graded the site.
- A 2018 flooding assessment was completed by Dillon, investigating backups of water onto Loch Lomond Road during significant rainfall events. Since the closure of the site, a poron of underground piping previous used to manage stormwater on-site during mining and process operations had collapsed, contributing to this backup. Surface water samples were collected in the former tailings disposal pond, the tertiary pond, near the shore of Lake Enon, and near a road culvert on Loch Lomond Road. Samples were analyzed for aluminum, ammonia, cadmium, iron, and lead and results were compared to Canadian Water Quality Guidelines (CWQG) and Nova Scoa` Contaminated Sites (NSCS) Table 3 Guidelines. Concentraons of lead in both samples collected from the tailings disposal pond exceeded the CWQG and NSCS guidelines. Concentraons of analyzed parameters in samples collected in the tertiary pond and near the shore of Lake Enon were below CWQG and NSCS. Exceedances of both criteria in all analyzed parameters, with the exception of ammonia, were observed in the surface water sample collected near the road culvert, which were attributed to significant corrosion of the culvert.
- A Phase I ESA, completed by ADI Nolan Davis in 1995, is referenced in the 2018 flooding assessment noted above; however, this report was not able to be provided to Dillon for review. The flooding assessment report (Dillon 2018) noted that the 1995 Phase I ESA had idenfied the` potential for

polychlorinated biphenyls (PCB) related issues, and buried process reagents. Though no further details were provided, it has been assumed that these issues would be in the areas of former pits/lagoons at the site.

Based on the above, the following potential or actual environmental concerns were identified:

- Mining operations with regards to celestite;
- Milling operaons and` associated reagent use (floatation, coagulants, flocculants, etc.) with regards to processing celeste` (selenium), lead, and barium, as well as select organic compounds;
- Potential acid rock drainage;
- Potential PCB related issues; and,
- Potenaàl buried process reagents.

6.0 Site Visit and Evaluation of Findings

6.1 Site Observations

A summary of site observations is presented in Table 6.

Table 6: Subject Property Observations

	Item	Observations	Environmental Concern?
1.	Chemicals Management	Drums, some partially buried, were observed on-site. Contents of the drums at surface appeared to consist of rainwater. Contents associated with partially buried drums are unknown.	Yes
2.	Waste Management	No current waste generation was observed at the subject property. Miscellaneous debris, including abandoned drums and tires, were observed on-site east and west of Loch Lomond Road. Some of the drums were observed to be partially buried. The contents of partially buried drums are unknown.	Yes
3.	Hazardous Waste Management	Abandoned drums were observed on-site east and west of Loch Lomond Road. Some of the drums were observed to be partially buried. The contents of partially buried drums are unknown.	Yes
4.	Fill Material	Fill material, including waste rock piles, was observed on-site east and west of Loch Lomond Road. Further, fill material is expected to have been used at the time of initial site development and during redevelopment activities.	Yes
5.	Spill and Stained Areas	No spills or stained areas were observed.	No
6.	Drains, Sumps and Pits	One aboveground drain was observed on-site north of MacVicar Road and west of Loch Lomond Road. Two culverts were also observed on this portion of the site within an access road leading to an on-site settling pond (the pond is situated approximately 25 m south of Lake Enon). An outfall was observed on the eastern side of this settling pond. An in-ground drain was also observed between this settling pond and an on-site access road to the north. Culverts were observed running west to east, beginning north of the settling pond and travelling northeast to a second smaller settling pond. A culvert was observed on the north end the second smaller settling pond leading to Lake Enon.	Potential
7.	Air Emissions / Quality	No air emissions or air quality concerns were identified.	No
8.	Radon	Based on the available radon mapping, there is a low to medium risk potential for radon at the site.*	Potential
9.	Electromagnetic Fields (EMFs)	No EMF concerns were identified on-site.	No
10.	Noise, Odour and Vibration	No significant sources of noise and vibration were noted associated with the subject property at the time of the site visit.	No
11.	Pesticides/Herbicides	No reported sources of pesticides/herbicides used on the subject property.	No
12.	Pits/Lagoons	No pits or lagoons were observed on-site. Three settling ponds, associated with the former mining operations, are located on site, west of Loch Lomond Road, and south of Lake Enon.	Yes

	Item	Observations	Environmental Concern?
13.	Watercourses, Ditches or Standing Water	Three settling ponds, associated with the former mining operations, and two wet areas, are located on-site, south of Lake Enon and west of Loch Lomond Road. A drainage ditch (dry at the time of the site visit) was observed intersecting the site from north to south. The drainage ditch continues south to Loch Lomond Road where a culvert cuts across the road and leads to a brook on the east side of Loch Lomond Road.	Yes
14.	On-site Wells	No on-site wells were observed, or are reportedly located, on the subject property.	No

*The presence/absence of significant levels of radon can only be determined through testing, and tests for radon were not conducted during this Phase I ESA.

7.0 Conclusions

The identified APECs are illustrated on Figure 2 and presented in Table 7, below:

Table 7: Summary of Identified Relevant APECs and COPCs

APEC No.	APEC	COPCs	Media of Concern	Comments
1	Tailings Pile/Pond	Metals, General Chemistry, PHCs, PAHs, VOCs, sVOCs, and TOC	SW, Sed	Waste storage, aerial mapping surficial water present in this area
2	Waste Rock/Dump	Metals, General Chemistry, PHCs, PAHs, VOCs, sVOCs, and TKN	Soil, GW	Waste/tailings soils area
3	Processing Area	Metals, General Chemistry, PHCs, PAHs, PCBs, VOCs, and sVOCs	Soil, GW	Processing of materials, heavy equipment storage, petroleum storage
4	Mill/Plant Area	Metals, General Chemistry, PHCs, PAHs, PCBs, VOCs, and sVOCs	Soil, GW	Processing of materials, heavy equipment storage, petroleum storage
5	Waste Rock/Dump	Metals, General Chemistry, PHCs, PAHs, VOCs, and sVOCs	Soil, GW	Waste/tailings soils area
6	Tailings Pile/Pond	Metals, General Chemistry, PHCs, PAHs, VOCs, sVOCs, TOC , and TKN	SW, Sed, GW	Waste storage, aerial mapping surficial water present in this area
7	Settling Ponds	Metals, General Chemistry, PHCs, PAHs, VOCs, sVOCs, TOC, and TKN	SW, Sed, GW	Waste storage, aerial mapping surficial water present in this area
8	Lake Enon (Potential Receptor)	Metals, General Chemistry	SW, Sed	Lake Enon is identified as a potential receptor, given the nature of the site conditions, sediment and surface water quality should be evaluated
9	Waste Rock/Dump	Metals, PAHs, PCBs, VOCs, and sVOCs	Soil	Waste/tailings soils area
10	Tailings Disposal Area	Metals, General Chemistry, PHCs, PAHs, VOCs, and sVOCs	Soil, GW	Waste/tailings storage, historical plans indicate a pond was previously located here
11	Tailings Disposal Area	Metals, General Chemistry, PHCs PAHs, VOCs, and sVOCs	Soil, GW	Waste/tailings soils area
12	Former Pad Area	Metals, PAHs, VOCs, sVOCs, EC, and SAR	Soil	Former pad area used for storage, waste rock pile area

Notes:

1. *SW denotes surface water, Sed denotes sediment, GW denotes groundwater.*
2. *PHCs denotes petroleum hydrocarbons (i.e., BTEX, modified TPH), PAHs denotes polycyclic aromatic hydrocarbons, PCBs denotes polychlorinated biphenyls, VOCs denotes volatile organic compounds, sVOCs denotes semi-volatile organic compounds, TOC denotes total organic carbon, TKN denotes total kjeldahl nitrogen, and SAR denotes sodium adsorption ratio.*

In addition to the above noted APECs and COPCs, assessment for potential acid rock drainage (ARD) and potential presence of buried reagents from milling processes is recommended in areas where waste rock, waste, and tailings disposal have been identified (i.e., APEC #1, APEC #2, APEC #5, APEC #6, APEC #9, APEC #10, and APEC #11). In locations where surficial water is present, the feasibility of surface soil sample locations should be assessed on-site. In addition to the COPCs identified in these areas, surface soil samples are recommended to be analyzed for electrical conductivity (EC), sodium adsorption ratio (SAR), and chloride.

7.1 Notification of Contamination Protocol

As per the NS CSRs, the CHK-300 Phase 1 Environmental Site Assessment Checklist has been prepared for the site (Appendix D).

8.0 Disclaimer

This report was prepared exclusively for the purposes, project, and site location(s) outlined in the report. The report is based on information provided to, or obtained by Dillon Consulting Limited ("Dillon") as indicated in the report, and applies solely to site conditions existing at the time of the site investigation(s). Although a reasonable investigation was conducted by Dillon, Dillon's investigation was by no means exhaustive and cannot be construed as a certification of the absence of any contaminants from the site(s). Rather, Dillon's report represents a reasonable review of available information within an agreed work scope, schedule and budget. It is therefore possible that currently unrecognized contamination or potentially hazardous materials may exist at the site(s), and that the levels of contamination or hazardous materials may vary across the site(s). Further review and updating of the report may be required as local and site conditions, and the regulatory and planning frameworks, change over time.

This report was prepared by Dillon for the sole benefit of Nova Scotia Lands Inc. The material in the report reflects Dillon's best judgment in light of the information available to Dillon at the time of preparation. Any use which a third party (i.e., a party other than Nova Scotia Lands Inc.) makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

9.0 Closing Remarks

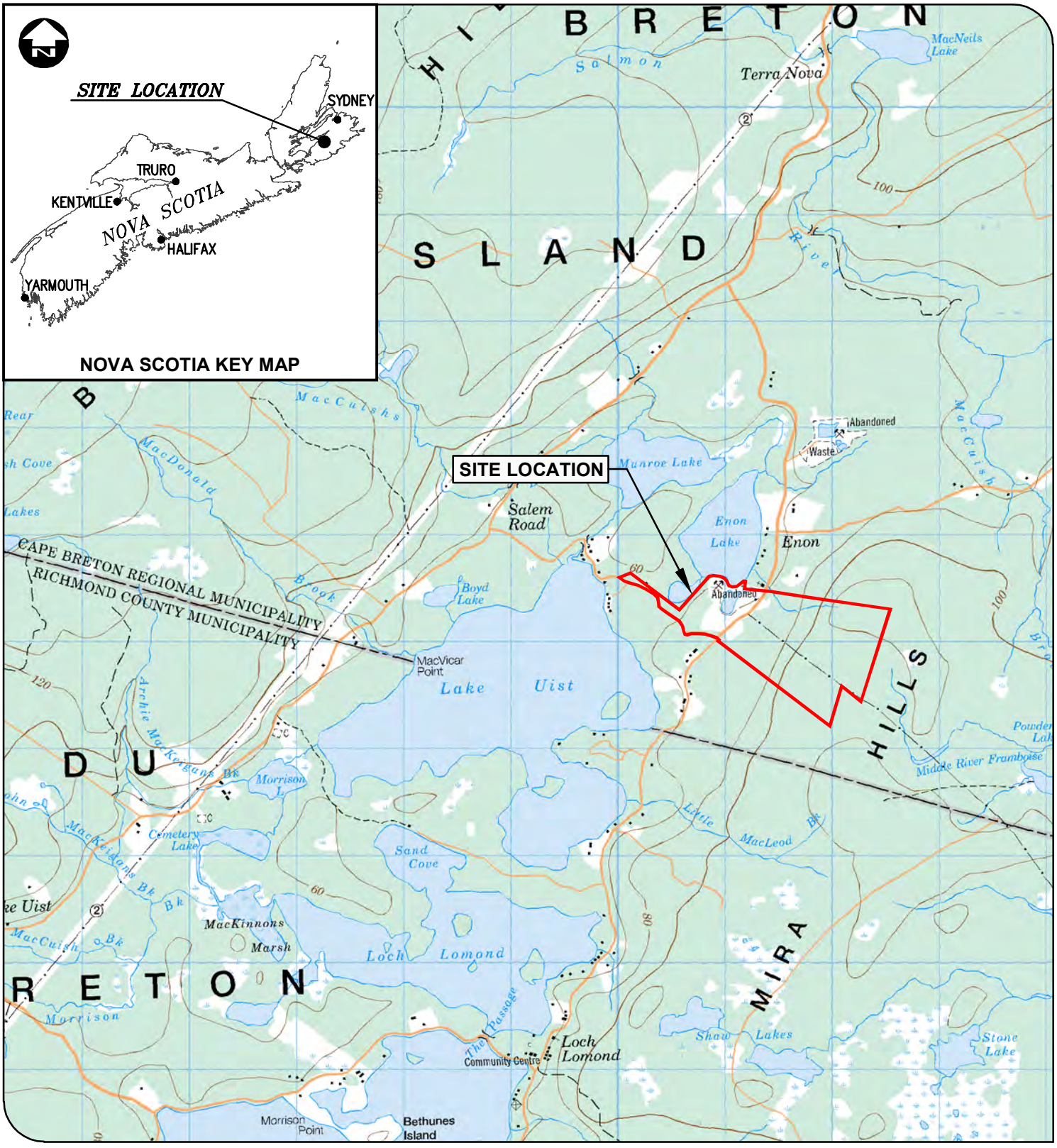
This report was prepared by Breagh Thomas, EIT and reviewed by Nadine Wambolt, CET and Andrew Thalheimer, P.Eng. Dillon has prepared this report for the exclusive use of Nova Scotia Lands Inc. for specific application to the site. The Dillon investigation was conducted in accordance with Dillon's scope of work and accepted environmental assessment practices. Limitations to this report are included in the Disclaimer presented in Section 7.0. No other warranty, expressed or implied, is made.

Sincerely,

DILLON CONSULTING LIMITED

Project Manager
Nadine Wambolt, B.Tech, CET

FIGURES



NOVA SCOTIA LANDS INC.

PHASE I ESA

LAKE ENON FORMER MILL SITE, CBRM, NS

SITE LOCATION MAP

FIGURE 1

DILLON CONSULTING

MAP/DRAWING INFORMATION
National Topographic System Mapsheet 21A/02.

CREATED BY: TLR
CHECKED BY: NJW
DESIGNED BY: BCT

File Location:
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PROJECT: 22-3723

DATE: JULY 2022

NOVA SCOTIA LANDS INC.

PHASE I ESA
LAKE ENON FORMER MILL SITE,
CBRM, NS

ASSESSMENT AREA AND SURROUNDING PROPERTIES
FIGURE 2

- ASSESSMENT BOUNDARY
- ASSESSMENT PROPERTIES
- PROPERTY LINE

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MAP/DRAWING INFORMATION
GeoNOVA Civic Address Finder, Nova Scotia Property Online and Bing Maps. Property lines are approximate only. This is not a legal survey.

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CHECKED BY: NJW
DESIGNED BY: BCT

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DILLON CONSULTING

PROJECT: 22-3723
DATE: JULY 2022

NOVA SCOTIA LANDS INC.
PHASE I ESA
LAKE ENON FORMER MILL SITE,
CBRM, NS

IDENTIFIED APECS AND SAMPLING PLAN
FIGURE 3

- ASSESSMENT BOUNDARY
- ASSESSMENT PROPERTIES
- PROPERTY LINE
- APECs (AREA OF POTENTIAL CONCERN)
- PROPOSED MONITORING WELL
- PROPOSED DEEP MONITORING WELL
- PROPOSED SEDIMENT AND/OR SURFACE WATER SAMPLE LOCATION
- PROPOSED TEST PIT (SOIL SAMPLE LOCATION)

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GeoNOVA Civic Address Finder, Nova Scotia Property Online and Esri Maps. Property lines are approximate only. This is not a legal survey.

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DILLON CONSULTING

PROJECT: 22-3723
DATE: JULY 2022

Contents of Appendix A have been removed due to document upload size limitations, please contact Build Nova Scotia to obtain Appendix A contents

Appendix A

Aerial Photographs and Images

Contents of Appendix B have been removed due to document upload size limitations, please contact Build Nova Scotia to obtain Appendix B contents

Appendix B

Regulatory Information

Appendix C

Site Photographs

Photo 1. Access Road separating APEC 9 from APECs 3 and 4, facing northwest (May 2022).

Photo 2. Settling pond (APEC 6) facing north towards Enon Lake (captures APEC 8), shown in background (May 2022).

Photo 3. View of APEC 1 facing northwest (May 2022).

Photo 4. Miscellaneous debris (i.e., drums, tires) in APEC 1, situated north of pond (May 2022).

Photo 5. Discharge point “A” to Enon Lake (May 2022).

Photo 6. Discharge point “B” to Enon Lake (May 2022).

Photo 7. Ponded water between APEC 10 and APEC 9, south of APEC 6 (May 2022).

Photo 8. Northwest portion of APEC 1 (May 2022).

Photo 9. Northwest corner of APEC 2 showing potential iron staining (May 2022).

Photo 10. Area of a former abandoned trailer in APEC 4, facing Loch Lomond Road (May 2022).

Photo 11. View from the top of APEC 5 overlooking site, facing northwest (May 2022).

Photo 12. View of APEC 5, facing northeast (May 2022).

Photo 13. Culvert situated on the east side of APEC 6 (May 2022).

Photo 14. Western end of a culvert northeast of APEC 6, situated east to west (May 2022).

Photo 15. Culvert situated between APEC 6 and APEC 7 (May 2022).

Photo 16. Culvert situated southeast of APEC 7, potential iron staining near culvert inlet (May 2022).

Photo 17. Culverts located at the northeast end of APEC 7 (May 2022).

Photo 18. Precipitate observed near the northeast corner of APEC 1 (May 2022).

Photo 19. View of APEC 7, facing northwest (May 2022).

Photo 20. View of APEC 6, facing south (May 2022).

Photo 21. View of Enon Lake from the north shore, facing south (May 2022).

Photo 22. View of Enon Lake, facing south (May 2022).

Photo 23. View of the northeastern portion of APEC 9, with discarded culvert on the right, facing south (May 2022).

Photo 24. View of APEC 10, facing southwest (May 2022).

Photo 25. View of APEC 10, facing southeast (May 2022).

Photo 26. View of APEC 10, facing northeast (May 2022).

Photo 27. View of APEC 10 (foreground and right) and APEC 11 (background on left), facing north (May 2022).

Photo 28. View of APEC 11, facing north (May 2022).

Photo 29. Drain located in APEC 11, facing west (May 2022).

Photo 30. View of access road facing southeast towards Loch Lomond Road. APEC 6 visible to the le` (May 2022).

Photo 31. View of APEC 9 from access road, facing northeast (May 2022).

Photo 32. View of APEC 12, facing south (May 2022).

Photo 32. Concrete container situated near the northern boundary of APEC 12 (May 2022).

Photo 32. Drums situated north of APEC 12 (May 2022).

Photo 33. Pathway extending southeast from Loch Lomond Road, south of APEC 12, facing southeast (May 2022).

Photo 32. Pathway extending southeast from Loch Lomond Road, south of APEC 12, facing northwest (May 2022).

Photo 35. In-ground drain located north of APEC 6 and southeast of APEC 2 (May 2022).

Photo 32. Memorial cairn located on PID No. 15340029, located adjacent to the site's northern boundary, and west of Loch Lomond Road (May 2022).

Appendix D

Phase I ESA Checklist

Phase 1 Environmental Site Assessment Checklist

This checklist is for all sites undergoing Full Property Remediation and sites undergoing L3 Limited Remediation.

NOVA SCOTIA

☑ New submission ☐ Updated checklist NSE file number (mandatory) 33000-_____

Instructions for completing this checklist

- All relevant sections of this checklist must be completed and must accompany the Phase 1 Environmental Site Assessment Report.
- The signature required on this checklist is from the managing site professional.
- All regulatory protocols must be followed, and all forms/checklists must be completed separately for each property. This means that a source property and an impacted third-party property must have all documents filed separately. Once the source property or impacted third-party property is identified by the check box below, all subsequent reference on this form/checklist are to that site owner.
- Forms/checklists must be complete before filing.

1 - Site Location and Contact Information

Details provided on this form are applicable to ☑ Source Property **or** ☐ Impacted Third-Party Property

Site Location
Mandatory must be completed.

Site Address 2412 Loch Lomond Road City Enon, NS
Parcel Identification Number (PID) 15551369, 15340045, and 15340052 Postal Code
GPS (NAD83 UTM coordinates, source central point) Easting 691265.71 Northing 5075355.69
Zone (select one) ☐ 19 ☑ 20 ☐ 21
Description (optional) Former Enon Mill Site

Property Owner
Mandatory must be completed.

Name Karen Gatien Deputy Minister Dept Natural Resources & Renewables Phone (902) 424-4450
Email Karen.Gatien@novascotia.ca Fax
Recognized Agent (if applicable) Donnie Burke, Executive Director (donnie.burke@novascotia.ca)
Company Name (if applicable) Nova Scotia Lands Inc. City Sydney, NS
Mailing Address 45 Wabana Court, P.O. Box 430, Station A Postal Code B1P 6H2
Preferred method of correspondence (select one) ☐ Letter **or** ☑ Email

Contact for Correspondence
If different than above.

Name Peter Geddes, Executive Director Phone (902) 424-4988
Email Peter.Geddes@novascotia.ca Fax
Recognized Agent (if applicable)
Company Name (if applicable) Dept of Natural Resources and Renewables City Halifax, NS
Mailing Address 1701 Hollis Street, P.O. Box 698 Postal Code B1P 0B9
Preferred method of correspondence (select one) ☐ Letter **or** ☑ Email

Site Professional
Mandatory must be completed.

Name Andrew Thalheimer, P. Eng. Phone (902) 450-5015
Email athalheimer@dillon.ca Fax (902) 450-2008
Company Name Dillon Consulting Limited City Halifax, NS
Mailing Address 137 Chain Lake Drive Postal Code B3S 1B3
Professional Registration Number 8147
Preferred method of correspondence (select one) ☐ Letter **or** ☑ Email

2 - Site Assessment Requirements

Site Assessment Requirements The following information has been investigated. Where information not available, or not applicable, section and page number must be provided where justification or absence has been documented. The site professional must ensure all work has been completed in accordance with PRO-300, Phase 1 Environmental Site Assessment Protocol.		Supporting Information provided	Reference Document		
		Yes	Report	Section	Page Number
Records Review All available records related to known or possible contamination of the property, must be obtained, reviewed and reported, from the first known developed use to the conclusion of the Phase 1 ESA, including the following					
1	Owner names and dates of ownership for the property based on a search of the property that commences with the date of the first known developed use of the property	☑	001	5.1	8-10
2	Any operators, leases, or tenants of the property owner, and a description of any operations or use of the property	☑	001	5.1	8-10
3	Aerial photographs that illustrate as much as possible the period from the study area's first developed use to the time of the Phase 1 ESA	☑	001	App A	
4	Site and building plans of past and existing property use, including fire insurance records, municipal land use plans, and any other information that may be available from historically archived sources	☑	001	3.1	3
5	Maps and reports that provide regional information concerning geological conditions pertaining to the type of soil and bedrock in the area where the property is located	☑	001	4.2	7
6	Topographic maps	☑	001	4.2	7
7	Environmental site assessment reports, or previously completed Phase 1 ESA reports	☑	001	3.1	3
8	Contaminated site remediation reports, including remedial action plans	☑	001	5.4	12-14
9	Reports prepared in response to an order or directive of an inspector, administrator or the Minister	☑	001	App B	
10	Environmental records obtained from government sources, including municipal, provincial or federal authorities and regulatory agencies	☑	001	App B	
11	Drilled well reports	☑	001	4.1	5
12	Any other reports, including releases and spills relating to the presence of a contaminant on, in or under the property, or the existence of an area of potential environmental concern that may or has caused contamination of the property	☑	001	5.4	12-14
13	Subsurface utility locations	☑	001	4.1	5
14	Hydraulic lift locations	☑	001	4.1	5
15	Any inventories of chemicals, chemical usage and chemical storage areas that have or may have caused contamination, including material safety data sheets	☑	001	5.3.1	11
16	Any records of above ground storage tanks and underground storage tanks	☑	001	5.1	8&9
17	Any details of oil/water separators at the property including for each separator the location, installation date, source of incoming liquid and effluent discharge location	☑	001	5.1	8&9

Phase 1 Environmental Site Assessment Checklist

This checklist is for all sites undergoing Full Property Remediation and sites undergoing L3 Limited Remediation.

NOVA SCOTIA

Site Assessment Requirements continued The following information has been investigated. Where information not available, or not applicable, section and page number must be provided where justification or absence has been documented. The site professional must ensure all work has been completed in accordance with PRO-300, Phase 1 Environmental Site Assessment Protocol.	**Supporting Information provided**	**Reference Document**		
	Yes	Report	Section	Page Number
18 All vehicle and equipment maintenance areas, including the locations of maintenance, fluid storage, and waste storage areas	☑	001	5.1	8&9
19 Details of all spills including the dates, locations, materials involved, and volumes of material spilled	☑	001	5.3.1	11
20 Details of liquid discharge points such as water and French drains, including locations	☑	001	5.4	10-12
21 Any process or property use related documents that may relate to potential or actual contamination, including waste management records, environmental monitoring data and environmental management system records	☑	001	5.4	12-14
22 Available records have been obtained, reviewed and reported for properties immediately adjacent to the subject property, or otherwise as determined and documented. Available records, including: aerial photographs, publicly available municipal land use records and fire insurance plans, current and past ownership information related to property use, environmental records, including drilled water supply (well records), obtained from government sources, including municipal, provincial or federal authorities and regulatory agencies. environmental management system records	☑	001	5.0	10
23 All sources of information obtained and reviewed as part of the records review component must be documented and have been included in the Phase 1 ESA report, including sources checked that provided no relevant information	☑	001	3.1	3
Site Visit A site visit has been conducted as part of a Phase 1 ESA to assess, document, collect and report on the following, as a minimum.				
24 Photographs of the property and surrounding properties in all directions, including a written description of the photographs, with reference to any relevant interior or exterior structures or infrastructure on the property that may relate to potential or actual contamination of the site	☑	001	App C	
25 Confirmation of property land use and immediate surrounding land use, structures present on the property and their general location, and relevant site features, including a description of any drinking water supplies, watercourses present on site, and surface water drainage from the property, including storm water drainage	☑	001	4.1.2	6
26 Topographic conditions on and off the property have been observed and noted, including the site gradient, direction, and the type of vegetation or ground cover on the property	☑	001	4.0	7
27 Confirmation of water supply location and condition	☑	001	4.1	4
28 Confirmation of the location and condition of structures used for any previous environmental activity including monitoring wells, remediation wells, in-situ treatment zones and vapour extraction systems	☑	001	4.1	5
29 Confirmation of the location and condition of any previous remediation excavations and soil removal	☑	001	5.0	8-14
30 Presence of any open subsurface features such as lagoons, pits, trenches and excavations	☑	001	5.1	8-9

Phase 1 Environmental Site Assessment Checklist

This checklist is for all sites undergoing Full Property Remediation and sites undergoing L3 Limited Remediation.

NOVA SCOTIA

Site Assessment Requirements continued The following information has been investigated. Where information not available, or not applicable, section and page number must be provided where justification or absence has been documented. The site professional must ensure all work has been completed in accordance with PRO-300, Phase 1 Environmental Site Assessment Protocol.	**Supporting Information provided**	**Reference Document**		
	Yes	Report	Section	Page Number
31 If known, details of all storage tanks and containers, above and below ground at the property, including the material and method of construction of each, age, contents and volume, and whether the tank or container is in use or not	☑	001	5.1	8&9
32 Confirmation and approximate location of underground utility and service corridors, including sumps and floor drains, sewer, water, electrical or gas lines, and telephone/ fibre optic infrastructure located on, in or under the property	☑	001	4.1	5
33 Areas of stained soil, vegetation or pavement	☑	001	6.1	15&16
34 Stressed vegetation	☑	001	6.1	15&16
35 Areas where fill and debris materials appear to have been placed or graded	☑	001	6.1	15&16
36 Potentially contaminating activity	☑	001	7.0	17&18
37 Details of any unidentified substances found at the property, including container type, volume and physical state (solids or liquids)	☑	001	6.1	15&16
38 Hazardous materials present on the property	☑	001	6.1	15&16
39 Presence of odours detected during the site visit that may be related to the property and potential for contamination	☑	001	6.1	15
40 Any limitations related to visual observations, including obstructions related to buildings, site features, safety issues impeding access, and weather-related conditions affecting visibility and ground cover at the time of the site visit	☑	001	1.1	1
41 Confirmation of other significant information arising from the review of available records	☑	001	7.0	17&18
Interviews				
42 A list of all persons identified to be interviewed and their current status or connection with the property in question	☑	001	3.3	4
43 A list of those persons identified but not interviewed, with reasons why they were not interviewed	☑	001	3.3	4
Reporting Information obtained from the records review, site visit, and interviews has been summarized in a clear organized manner in a final report which provides the following:				
44 A distinguishing of factual information from professional opinion	☑	001	6.1	15&16
45 Conclusion that clearly summarizes all potential or actual contaminants of concern with supporting rationale	☑	001	6.0	15&16
46 All limitations to carrying out and fulfilling the requirements of performing the Phase 1 ESA in accordance with PRO-300, Phase 1 ESA Protocol, including: a description of the limitation related to the requirement, the rationale for not fulfilling the requirement and the significance of the limitation related to the findings	☑	001	1.1	1

Phase 1 Environmental Site Assessment Checklist

This checklist is for all sites undergoing Full Property Remediation and sites undergoing L3 Limited Remediation.

NOVA SCOTIA

3 - Declaration

Site Professional Declaration

I acknowledge it is an offence under Section 158 of the Environment Act to provide false or misleading information and confirm to the best of my knowledge and belief the information provided in this form and supporting documentation is true and accurate and complies with the relevant provisions of the Environment Act and Contaminated Sites Regulations. By signing below, I confirm my qualifications and liability insurance as a site professional as prescribed within the regulations.

☑ Reports and forms/checklists have been provided to the affected property owner.

Name (print) Andrew Thalheimer

Professional Registration Number/Stamp 8147

Signature Andrew H Thalheimer, P.Eng. Digitally signed by Andrew H Thalheimer, P.Eng. Date: 2022.09.12 08:49:42 -03'00'

Site Professional

Date 2022/09/12

YYYY/MM/DD

Reports Applicable to Checklist

Report Title	3 Digit Report ID
Phase I Environmental Site Assessment Lake Enon Former Mill Site, Nova Scotia	001

Return completed form and associated documents to your local Nova Scotia Environment office.

Find office locations online novascotia.ca/nse/dept/regional-office-locations.asp or call 1-877-936-8476.

References

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