DILLON CONSULTING

GENERAL LIQUIDS CANADA, THE MUNICIPAL GROUP OF COMPANIES

Environmental Assessment Registration Document

Liquid Asphalt Storage Facility, Dartmouth, Nova Scotia

April 2020 – 19-1742

April 24, 2020

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Attention: Renata Mageste da Silva
Environmental Assessment Officer

Liquid Asphalt Storage Facility
Environmental Assessment Registration Document

We respectfully submit the following Registration Document, in accordance to requirements for the Nova Scotia Environmental Assessment Regulations for a Class 1 project, regarding the proposed Liquid Asphalt Storage Facility for General Liquids Canada, located at Pleasant Street, Dartmouth, Nova Scotia.

The Registration Document describes the project and identifies a proposed approach for construction and operation activities. It presents a balanced approach to achieving a defensible environmental assessment while considering environmental sustainability, community values, legislative requirements, business operations, and economic impact.

We look forward to your timely review of the documentation. Please contact the undersigned if you have any questions or require additional information.

Sincerely,

DILLON CONSULTING LIMITED

Paul Koke, M.A.
Project Manager

PEK:jes
Enclosure(s): Two (2) copies of EA Registration Document

Our file: 19-1742-1000

Dillon Consulting
Limited

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1.0 Introduction

This document is an environmental assessment (EA) registration for the proposed Liquid Asphalt Storage Facility (the project) proposed by General Liquids Canada (GLC), located at 750 Pleasant Street in Dartmouth, Nova Scotia (NS). The project consists of the construction and operation of a facility that will be used for receiving, storing and preparing for the transport of asphalt cement (AC). The project location is shown in Figure 1 (provided in Section 5.1).

It is anticipated that construction will commence pending EA and subsequent/concurrent permitting and approvals. Construction of project components is estimated to be completed within four months, with the facility fully operational within four months of the construction start (assumed in summer of 2020). The facility is anticipated to be in operation for at least 25 years.

The undertaking is on a previously disturbed industrial site. The vast majority of the project will be sited on Parcel Identification Number (PID) 00260703, with the authorized use of additional properties (see Figure 2 in Section 5):

- Cherubini Metal Works Ltd.: PID #40268849
- Canadian National Railway: PID #00643238
- GLC property: PID #41464280

1.1 Proponent Information

Company Description:

General Liquids Canada (GLC) is a division within the Municipal Group of Companies based in Halifax, Nova Scotia. GLC is a private Canadian company. It is incorporated under the laws of Nova Scotia and registered to do business in Nova Scotia under the Nova Scotia Corporations Registration Act. The company is ISO certified and AASHTO accredited.

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Proponent Signature:

Patrick Rooney **April 24, 2020**
Director of Manufacturing, Municipal Group of Companies

1.2 Principal Contact for Purpose of Environmental Assessment

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1.3 Corporate Leadership and Experience

General Liquids Canada is a member of Municipal Group of Companies which was established in 1992. Municipal Group has more than 40 years of management and construction experience and has a large fleet of construction and project equipment. This allows GLC to assemble project teams with the highest qualifications and skills to successfully complete tasks. GLC has experience with the type of operations proposed by this project and currently operates a Liquid Asphalt Cement Storage Terminal in Waverley, Nova Scotia. With considerable success in this operation since 2010, the company is proposing to construct and operate a Liquid Asphalt Storage Facility at 750 Pleasant Street in Dartmouth, NS.

General Liquids Canada understands that key aspects to successfully storing and handling liquid asphalt includes the proper heating systems, permitting, safety, transportation, tank construction, tank management, environment control, and quality control.

1.4 General Liquid Canada's Commitment to Quality

General Liquids Canada is a company committed to asphalt distribution and other asphalt related services. The value of these materials are realized in the successful reuse of the treated materials for fill, roadbed construction materials, and aggregate for asphalt or concrete production.

GLC's policy is to provide a quality asphalt distribution process with excellent customer service at a reasonable cost. The company aims for continuous improvement in all aspects of its business that will result in benefits to the environment, customers, regulators, the community, and their employees. To achieve this goal, GLC is committed to maintaining a quality management system that incorporates all the required elements of International Standardization Organization (ISO) 9001. Personnel at all levels have the required training, resources and necessary empowerment to allow them to carry out their responsibilities in support of the quality policy. This ensures that each phase of its activities has well-defined controls, checks and associated responsibilities that are known, available and understood by all employees.

1.5 General Liquid Canada's Commitment to Environmental Protection

GLC is committed to the environment management standards of ISO 9001 and ISO 14001. As a company, its goal is to work with the environment in a progressive way, and be an industry leader through all aspects of production.

GLC is committed to reduce waste, protect water bodies and prevent pollution. They strive to continuously improve their performance and environmental practices based on their ISO 14001 continual improvement program. GLC strives to inform the public and communicate appropriately with those who have interest in their various business operations. Adhering to environmental regulations, they strictly monitor of the natural environment components around the areas of operations and manage activities to prevent environmental impacts.

2.0 The Undertaking

2.1 Nature of the Undertaking

General Liquids Canada is proposing to construct a Liquid Asphalt Storage Facility ("the project" or "the facility") on a previously disturbed industrial site, located at 750 Pleasant Street in Dartmouth, Nova Scotia ("the site"). The facility will be used for receiving, storing and preparing for the transport of asphalt cement.

The design, construction and operation of the facility will be based on proven technology and methods used by other operations. As described in Section 5.0, the construction phase of the project will generally consist of earthworks (primarily grading), and construction of a new facility and ancillary components. There is an existing storage tank at the site that will be inspected and repaired in order to be repurposed as an asphalt storage tank. The completed facility will generally consist of a large storage tank (existing), two new storage tanks (21 and 30 m diameter), a series of indoor asphalt storage tanks, a hot oil heating unit (to keep the asphalt cement in liquid form), two boilers and loading racks to load tanker trucks, an AC pipeline (aboveground), a building, loading area and access road with parking area. General operational activities will include AC being piped from a barge to a main storage tank at the facility, where it is then held in a heated storage tank, kept heated and finally prepared for transport off site by truck. Storage and transfer of product is conducted through the use of tanks, pipes and pumps which does not allow for uncontrolled emission of gas, vapours or objectionable odour.

The proposed undertaking is a transfer and storage facility only and there will be no production of AC or other products at the site. Decommissioning will occur according to regulations at the time but the site and project is anticipated and designed to be in operation for at least 25 years.

What is Asphalt Cement?

For the purposes of this Environmental Assessment Registration Document (EARD), the definition of asphalt is a sticky, black and highly viscous liquid or semi-solid form of petroleum. Asphalt is also often referred to as liquid asphalt, asphalt cement or asphalt binder. Asphalt cement is a complex mixture of heavy hydrocarbon compounds, and while it contains poly aromatic hydrocarbons (PAHs), the low solubility and high partition coefficients of the compounds means that they strongly tend to stay in the asphalt mixture rather than mobilize into the environment.

AC is a by-product of the oil refining process, and although it is derived from petroleum, its characteristics mean that it is not classified as a petroleum product under the *Environment Act* and its regulations (i.e. Petroleum Management Regulations). For this particular undertaking and for consistency with GLC's current operations, the terms asphalt or asphalt cement will be used. It is anticipated that the AC will be used in the Nova Scotia road construction industry. Most roadways in

Nova Scotia are made with asphalt cement and many are located adjacent to watercourses and other sensitive natural environments.

2.2 Purpose/Rationale/Need for the Project

The primary supply of asphalt cement for the Atlantic Canadian region is from Irving Oil's refinery, located in Saint John, New Brunswick (NB). Alternate suppliers are located in the Central Canadian region. The supply of AC has been under pressure in North America as refineries continue to modify their operations to extract more fuel derivatives from the refining process, resulting in less AC being produced. General Liquids Canada is planning to establish its own AC storage facility at the Pleasant Street site to provide the Halifax metropolitan area with additional storage capacity and secure supply for key customers. There are numerous existing customers in Nova Scotia, and many have been expanding their businesses in the road construction industry.

Road construction requires hot mix asphalt (HMA), which is dependent on asphalt cement as the key ingredient and binding agent. Due to the complexity of supplying a significant number of asphalt plants operating in Atlantic Canada and the importance of delivering AC in a "just in time" manner to these plants, an improved delivery and storage system is required at the present time. GLC's proposed liquid asphalt storage facility will provide over 8 million litres of capacity when operations commence, and potential additional capacity at later stages of the project, through the construction of two new asphalt storage tanks (30 m and 21 m diameter). The project provides further additional benefits to the area by adding additional AC storage tanks resulting in improved competitiveness in the construction industry and the establishment of a team of highly skilled technical professionals who will be required for the handling and storage of AC. This will present strong economic benefits to the Halifax Regional Municipality and to the Province of Nova Scotia as a whole.

Ancillary Project Benefits

The project will strategically use an existing industrial wharf located on the adjacent property to allow for supply of AC by barge rather than by truck or rail. At the present time in Nova Scotia, AC has been transported primarily from a Saint John's, NB oil refinery by truck to Waverley, N.S., culminating in over 500 trucks per year doing 10-hour round trips. By shifting the mode of transportation to a marine barge, it will result in an important reduction in greenhouse gas emissions (by approximately 60% to 80% based on standard industry emissions rates for both, including loading/unloading) and overall road safety and reduced congestion, by reducing trucks on the road. This carbon footprint reduction will be realized by replacing the holding capacity of 500 trucks with one barge. It is expected that 2-4 barge trips will be required annually when the project is fully operational.

It is noted that GLC has been implementing the Guidelines for Measuring and Managing CO_2 Emissions from Freight Transport Operations, Issue 1/March 2011 written for the European Union (EU). To meet carbon reduction targets for 2020 and beyond, the reduction of carbon dioxide (CO_2) emissions from transport is already receiving attention. Industry sectors need to develop decarbonisation strategies for their logistics operations over the next few years and GLC is building this into their program.

3.0 Environmental Assessment Approach

The general approach to the assessment of the project is discussed in this section, including:

- A brief introduction;
- A general overview of the approach taken for the project assessment; and
- A brief description of the environmental planning and management considerations that will be employed throughout the project.

3.1 What is an Environmental Assessment?

Environmental Assessment (EA) is a planning and decision-making process to predict environmental effects of proposed initiatives before they are carried out. The objectives of an EA are to:

- Promote better project planning by identifying potential effects before they occur, at the earliest stages of project development; and
- Incorporate environmental factors into decision making.

An EA identifies potential adverse environmental effects, proposes measures to mitigate adverse environmental effects, predicts whether there will be significant adverse environmental effects after mitigation measures are implemented, and includes a follow-up program to verify the accuracy of the EA and/or the effectiveness of the mitigation measures.

3.2 The Role of the EA Registration Document

As described in Section 7.0 of this document, the physical environment is a key factor for planning and implementing the project in an environmentally-compatible manner. Preparation of the EARD has involved a variety of analyses of potential environmental effects, the development of measures for avoiding or mitigating potentially significant adverse environmental effects, requests to identify concerns of First Nations, and the preparation of this EARD for public review and government review and approval.

Follow-up work is an integral part of the engineering design and corporate planning for the project so that the assessment is both a project planning tool and a government review and decision-making tool. As such, the EARD is a key mechanism for implementing sustainable development for the project.

In completing the EARD, potential environmental effects of the project have been considered for all phases of the project, including those potentially arising from credible accidents, malfunctions and unplanned events. Potential interactions and overlapping environmental effects with other past, present, or reasonably foreseeable future projects or activities have also been considered (refer to Section 10.0 in relation to accidents etc., and Section 12.0).

The EARD is the first milestone in working to obtain project approvals and permitting. The EARD describes the project and identifies a proposed approach for construction and operation activities and associated mitigation and follow-up. It presents a balanced approach to assessing potential environmental effects while also considering community values, legislative requirements, business operation, and economic impact.

3.3 Overview: Environmental Planning and Management Considerations

GLC is committed to developing the project in an environmentally responsible manner consistent with its environmental policy. GLC will implement project planning and management strategies that:

- Avoid or minimize the adverse environmental effects of the project, and enhance positive ones;
- Comply with the applicable laws and regulations; and
- Consider the presence of the project and compatibility with the way of life of the surrounding environment.

Environmental considerations include:

- Developing an AC storage facility which:
  - Includes standard mitigation and best practices for similar projects while considering the local requirements for site-specific mitigation as required; and
  - Evaluates the environmental effects of the project during all phases (including cumulative environmental effects) as well as for accidents, malfunctions and unplanned events.
- Implementing technically and economically feasible components and technologies that are proven; and
- Implementing progressive environmental protection, mitigation and management strategies and concepts that avoid or minimize adverse environmental effects, and enhance positive ones.

3.3.1 Design Standards and Codes

The project will be constructed to meet applicable environmental, industrial, building, and safety codes and standards. At a minimum, the project components will be designed to meet the National Building Code of Canada, the Canadian Standards Association, Transport Canada requirements, best practices, design codes and standards for asphalt handling and storage. These standards and codes provide factors of safety regarding environmental loading (e.g., snow load, high winds, seismic events), and project specific activities and events. Compliance with these standards and codes reduces the potential for adverse environmental effects including those as a result of an accident, malfunction or unplanned event. Operation will be conducted under a provincial Industrial Approval for the Liquid Asphalt Storage Facility.

3.3.2 Environmental Protection Measures

A variety of environmental protection and management measures have been adopted through the development of the project to date in order to guide the planning, design, construction, operation and maintenance. These include, but are not limited to, the following measures:

- Siting the project components to avoid sensitive areas such as watercourses and important habitat types, where possible, and to reduce the size and number of natural drainages that may be affected;
- Employing good planning, design and management practices to comply with regulated standards for air emissions, water releases (stormwater), storage or disposal of waste products, and handling and disposal of other materials; and
- Constructing and operating the project in a manner consistent with GLC's existing Environmental Management System (EMS) which incorporates operational policies and practices for monitoring and management of, for example, land and soil resources, air and water, noise and vibration, other materials and waste, community health and safety, and cultural heritage.

4.0 Regulatory Environment

4.1 Regulatory Context

The EA process in Nova Scotia is stipulated by Part IV of the Environment Act, 1995 and is set out in the Environmental Assessment Regulations. The Regulations list the activities that are included in Schedule A, which are classified as either Class I or Class II Undertakings.

Through project-related discussions between GLC and Nova Scotia Environment, NSE determined that the proposed Liquid Asphalt Storage Facility is a Class I undertaking, in accordance with the Schedule A (1) of the Environmental Assessment Regulations:

A. Industrial Facilities
    1. A storage facility that has a total storage capacity of over 5000 m^3 and is intended to hold liquid or gaseous substances, such as hydrocarbons or chemicals other than water.

The proposed facility is not expected to be a designated project under the federal Impact Assessment Act.

This EARD fulfills regulatory requirements to initiate the EA process for a Class I undertaking. Should the undertaking be approved by the Minister of Environment, an application for an Industrial Approval will be initiated for this project as per Division V of the Activities Designation Regulations and pursuant to Part V of the Environment Act. General Liquids Canada, the proponent who will operate the Liquid Asphalt Storage Facility on Pleasant Street in Dartmouth Nova Scotia, will address the regulatory requirements identified in the following subsections.

4.1.1 Provincial Legislation

Legislation	Summary of Applicability	Potential Need for Approval/Permit
PROVINCIAL		
Environment Act and Regulations, Environmental Assessment Regulation	Project requires Ministerial Approval.	Yes
Environment Act and Regulations, Activities Designation Regulations	Section V permits– construction of asphalt facility and offloading asphalt by barge Industrial Approval (IA) – the asphalt facility will be	Yes Facility requirement.

Legislation	Summary of Applicability	Potential Need for Approval/Permit
	operated following the IA for GLC's operation.	
	Wetland or Watercourse Alteration not anticipated	No
	Construction related for on-site fuel storage; sewage disposal.	To be determined and obtained if required by Contractor.
Environment Act and Regulations, Contaminated Sites Regulations	Requirements for contaminated sites on provincial land (no contaminated sites identified). Applicable regulations will be adhered to if contaminated sites are identified during construction.	No
Environment Act and Regulations, Petroleum Management Regulations	AC is a by-product of the oil refining process, and although it is derived from petroleum, its characteristics mean that it is not classified as a petroleum product under the *Environment Act* and its regulations (i.e. Petroleum Management Regulations)	No
Environment Act and Regulations, Environmental Emergency Regulations	To meet requirements if environmental emergency occurs.	No
Endangered Species Act (NS ESA)	Protection of listed species (impacts to listed species not identified for project, however contingency planning in place).	No
Wildlife Act (NSWA)	Among other wildlife management requirements; prohibits killing of raptors, or disturbance of bird and turtle nests (disturbance of nests to be avoided; turtle nests not identified for property, however contingency planning in place).	No
Special Places Protection Act	Heritage Research Permits are required for archaeological assessment work. Not anticipated based on scope of work (fill material only) and industrial land use, however contingency planning in place.	No
Forests Act – Forest Fire Protection Regulations	Requirements for fire suppression equipment for operations in forests to be met.	No
Sulphide Bearing Material Regulations	If within an area of sulfide-bearing material notification and approval required.	Not currently anticipated
Dangerous Goods Transportation Act and	Requirements for safe transport of dangerous goods to be met.	No permits required. All carriers will be in compliance

Legislation	Summary of Applicability	Potential Need for Approval/Permit
Regulations		with the Act and Regulations regarding placards and training

4.1.2 Canadian Federal Legislation

Legislation	Summary of Applicability	Potential Need for Approval/Permit
FEDERAL		
Impact Assessment Act	Project is not listed under the *Regulations Designating Physical Activities*, however for any project occurring on federal lands, the federal authority responsible for administering those lands or for exercising any power to enable the project to proceed must make a determination regarding the significance of environmental effects of the project. It is the responsibility of the federal authority to make and document this determination.	The requirement for Federal IAA review is not anticipated.
Canada Shipping Act	The Act applies to all Canadian waters, which includes all inland waters and waters out to 200 nautical miles. It applies to vessels in those waters, oil handling facilities (OHF) engaged in or proposing to engage in the loading and unloading of oil to or from prescribed vessels. Asphalt cement is included under OHF.	Transport Canada approved Oil Pollution Prevention Plan (OPPP) is required (refer to Appendix H)
Canadian Environmental Protection Act - Disposal at Sea (DAS) Regulations	Pollution prevention requirements and direction on priority substances and deleterious substances to be met where applicable. Disposal at Sea not proposed for the project.	No
Fisheries Act	Section 35 – Prohibition against "Harmful alteration, disruption or destruction" of fish habitat.	No No in-water work required.
Fisheries Act – Marine Mammal Regulations	Protection of marine mammals.	No Prohibitions on killing/disturbance to be met.
Migratory Birds Convention Act (MCBA) and regulation (MBR)	Protection of migratory birds, nests, eggs and young. Prohibition related to deposit of substances harmful to migratory birds. Authorizations or permits are required to destroy or take a migratory bird nest or to be in possession of a live bird/nest/egg or a carcass.	No Any vegetation clearing to occur outside of breeding bird window.

Legislation	Summary of Applicability	Potential Need for Approval/Permit
Canadian Navigable Waters Act (NWA)	Disturbance of nests to be avoided. Environmental Management Plan to address accidents in place. Potential triggers are activities that may interfere with navigation – e.g. construction activities in the marine environment. Not anticipated as part of the project. The Atlantic Ocean is a Scheduled Water under NWA.	No
Transportation of Dangerous Goods Act and Regulations	Documented handling, storage, emergency response requirements for transportation of dangerous goods, if to be used on-site either for construction or operation, to be met.	No permits required. All carriers will be in compliance with the Act and Regulations.

4.1.3 Other Requirements

Legislation	Summary of Applicability	Potential Need for Approval/Permit
Other Permitting/Approvals		
Various non-environmental permits/approvals may be applicable including those noted below.		
Labour Standards Codes, Building Code	Applicable labour requirements and building codes to be met.	No
Nova Scotia *Crown Lands Act* and Regulations (Beaches Act)	Crown land easements, leases and licences are not identified as required.	No
Nova Scotia *Public Highways Act*	Any work within the public road would require a Work Within Highway Right-of-Way from the Nova Scotia Department of Transportation and Infrastructure Renewal and approval from the Minister.	No
Occupational Health and Safety Act and Regulations	Workplace health and safety requirements to be met.	Activity specific
Special Move Permit	Required to move a vehicle exceeding weight or dimension limits on a public road.	If required will be obtained by Contractor
Industrial Approval		
Permits to Construct and Operate	Permit to construct under IA. IA to allow for the operation. Part V Approval Anticipated.	Yes
Pesticide use or storage	Permitting for pesticide use and/or storage (if required)	No

Legislation	Summary of Applicability	Potential Need for Approval/Permit
permits Municipal	would be an amendment to the IA.	
Land Use By-law Municipality of Halifax Regional	Development/Building permit, as required, from Halifax Regional Municipality. HRM by-laws, including noise, will be complied with.	Yes (acquired in 2019/2020)

5.0 Description of Undertaking

5.1 Geographical Location and Setting

The project location is in Dartmouth, NS, located at 750 Pleasant Street and approximately 6 kilometres (km) from the central urban waterfront area of Alderney Landing Ferry Terminal in Dartmouth, NS. The approximate centre of the EARD study area is at Universal Transverse Mercator (UTM, NAD83) 20 T 458189 4942535. The facility will be operated on properties (as identified by PID in Section 1.0) with past industrial land uses, and will be bordered by industrial properties on each side. These include Cherubini Metal Works Ltd. to the east (PID# 40268849), and the now decommissioned Imperial Oil Refinery (PID# 41463985) to the west. To the north of the main Facility, the property is owned by the Canadian National Railway (PID#00643238) which will be crossed by an access road to Pleasant Street, and to the south is the Halifax Harbour. Use of a portion of the existing wharf structure at Cherubini Metal Works Ltd. will be incorporated into the project. The site location and subject adjacent properties are presented in Figures 1, 2 and 3 below.

5.1.1 Existing On-site Structures, Access, and Land Use

There is currently a large storage tank located at the subject property, a chain link fence, a gravel road onto the site and a rock wall bordering the adjacent Cherubini Metal Work's property located immediately to the east.

GLC has been provided conditional approval from the owners of Cherubini Metal Work's to use a portion of their existing wharf for GLC operations and installation of the piping within the southwest corner of their property (refer to letter in Appendix I).

5.1.2 Adjoining and Nearby Properties

Adjacent land use is a mix of undeveloped land, and commercial/light industrial properties:

- East: PID #40268849; Cherubini Metal Works Ltd.
  - Metal Fabricator – In Operation
- West: PID 41463985; Imperial Oil Ltd.
  - Vacant land
- West: PID 41463977; Imperial Oil Ltd.
  - Imperial Oil Refinery - Decommissioned
- North: PID 00339648; Canadian National Railway Company
  - Railroad – In Operation
- North: PID 41464280; Nova Scotia Ltd.
  - Vacant Land
- South: Halifax Harbour- Water lot
- North-East: Residential Properties on Carleton Street and Belmont Avenue, located approximately 150 metres from northeastern boundary of the site.

Figure 1: Subject Property Location

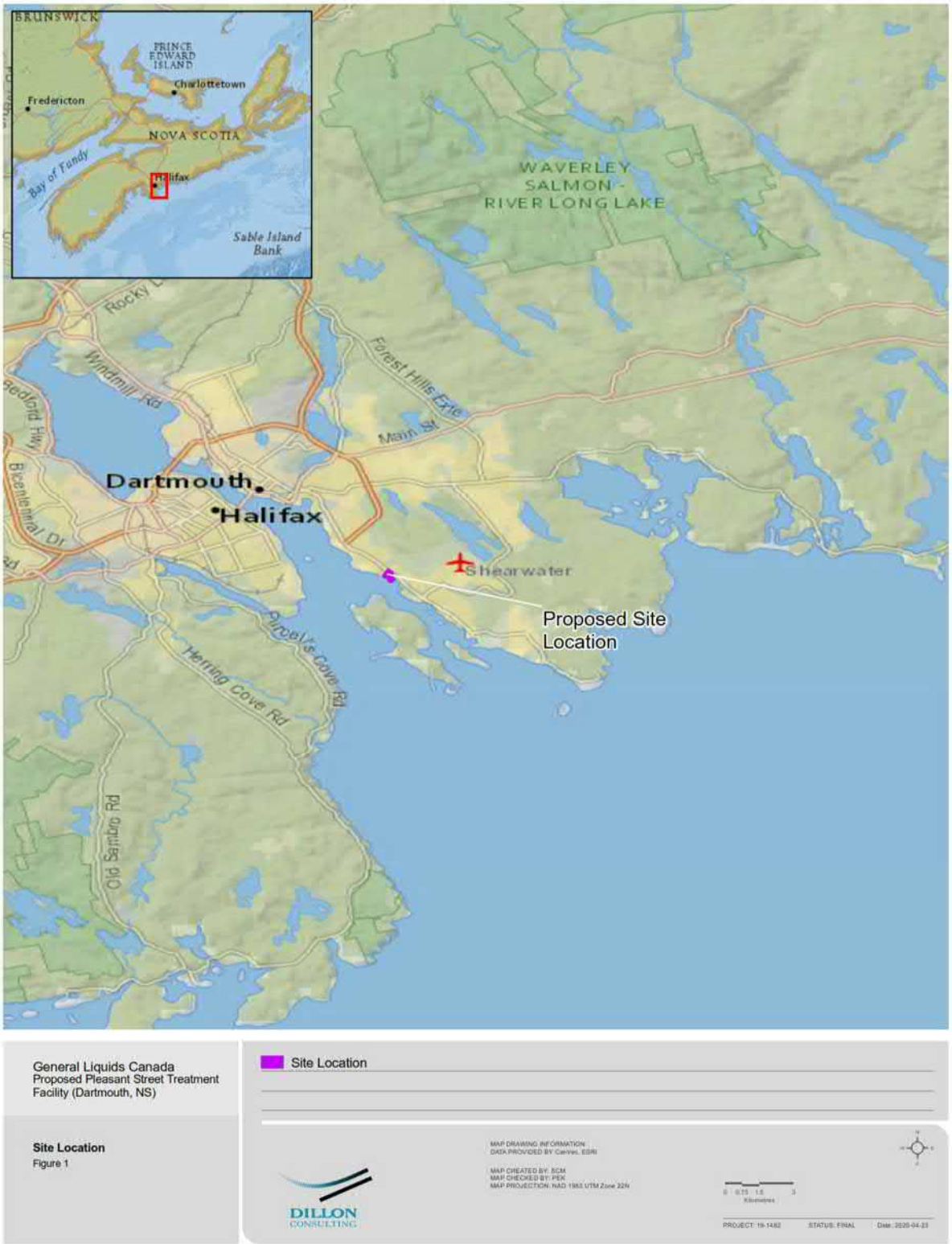
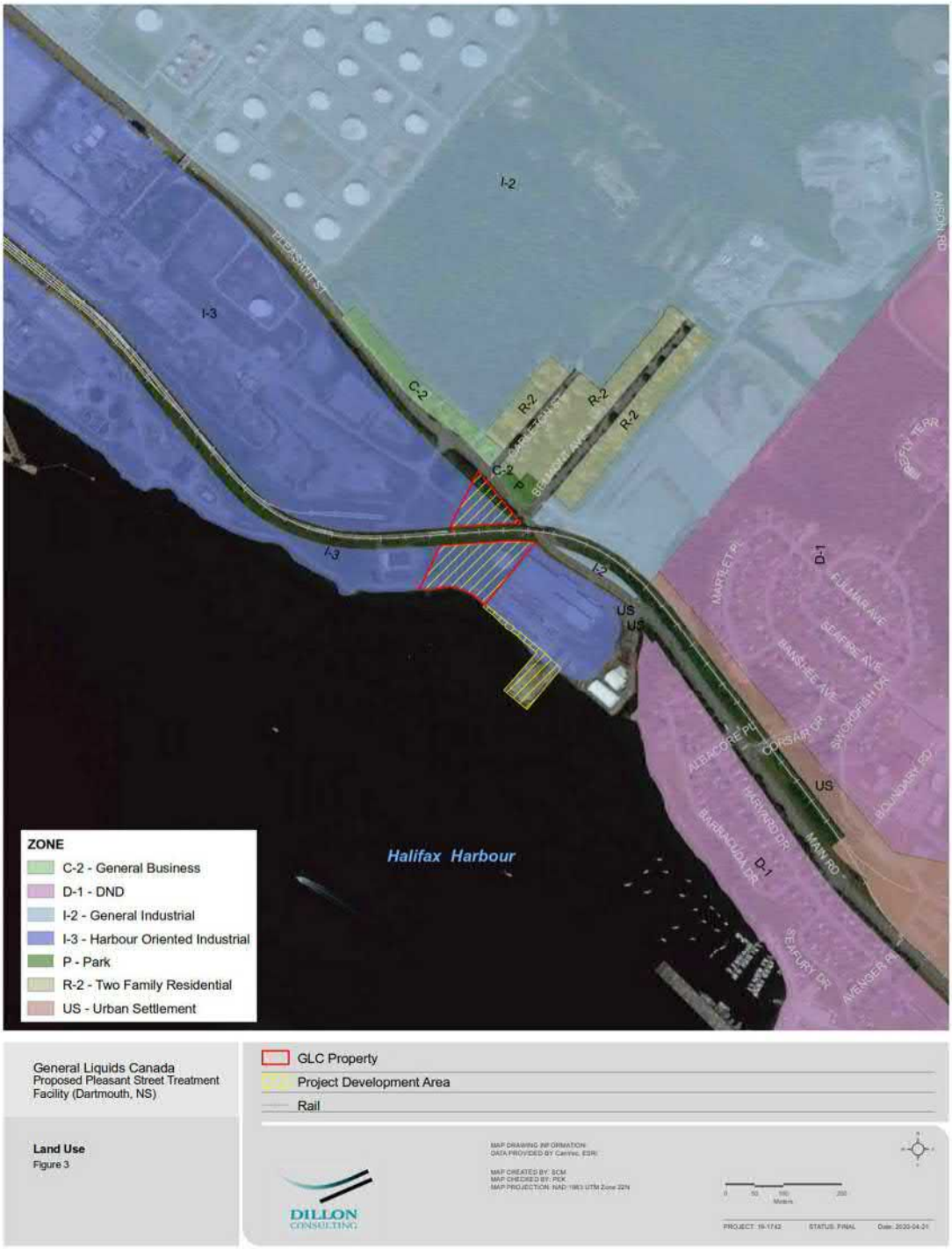


Figure 2: Google Map Aerial Site Image with PIDs Attached

Figure 3: Land Use Map



5.2 Project Overview

5.2.1 Asphalt Process Description

The proposed Liquid Asphalt Storage Facility project consists of handling (receiving and dispatching) and storage of AC. Operations are initiated with the AC being offloaded from a marine barge and piped to the storage tank and are completed when the AC has been loaded onto the trucks and they have left the facility.

The typical lifecycle associated with asphalt production is presented as an overview below in Figure 4 with specific project components generalized in Figure 5 (note: yellow box = the project).

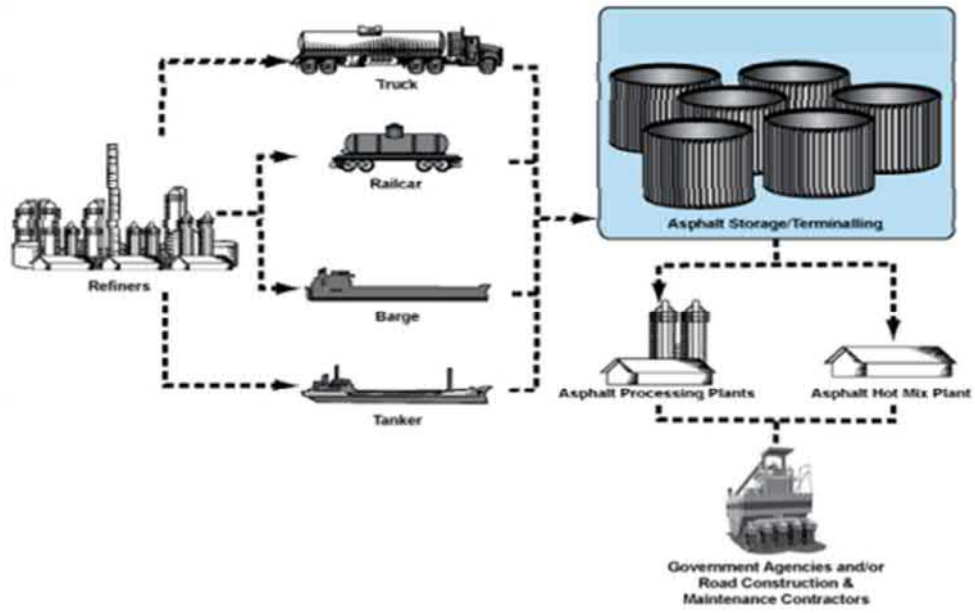


Figure 4: Process Diagram for Typical Full Scale Asphalt Lifecycle

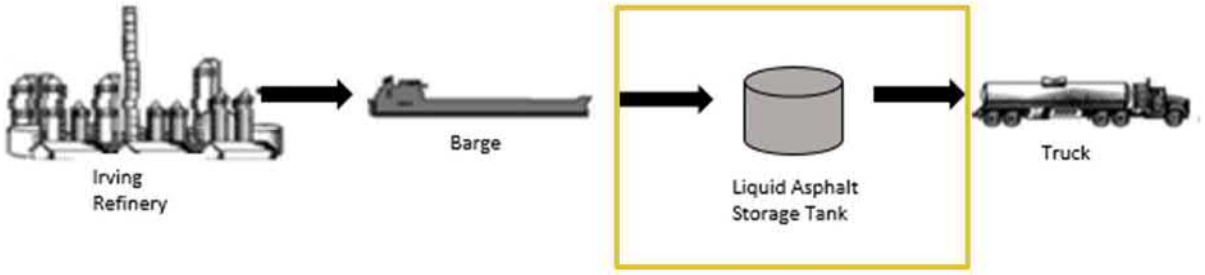


Figure 5: Process Components in GLC's Proposed Project

5.2.2 Physical Features of the Project

The main physical features of the Liquid Asphalt Storage Facility will consist of:

- Berm construction around project perimeter;
- Surface water drainage design and construction;
- Building construction (office space, washrooms, electrical room, boiler room, AC storage room);
- Concrete foundation construction;
- Steel construction (tank and loading racks);
- Access road, truck turning area, weigh station, and parking spaces;
- Electrical and control system installation;
- 8" diameter rigid steel pipeline and pumps (AC, hot oil);
- Hot oil boilers;
- Connection to Halifax Water infrastructure (water and sewer), power and natural gas;
- Fencing, and
- Environmental controls (e.g. erosion and sediment controls).

The proposed plan/layout for the project is presented in Appendix A.

5.2.3 Project Infrastructure

The site, which was previously owned by Imperial Oil Ltd., currently has a large above ground storage tank with a storage capacity of 8 million litres. This tank will be inspected, repaired and reconfigured in accordance with API 653 – Tank Inspection, Repair, Alteration and Reconstruction standard. GLC's proposed liquid asphalt storage facility will provide over 8 million litres of capacity when operations commence. The construction of new 30 m and 21 m diameter asphalt storage tanks is also planned for operational purposes in the future. The integration of these storage tanks would allow for an additional approximately 13 million litres of storage capacity. To augment the capabilities of the site for new operations, construction of ancillary facilities will be required. As noted above, these will include a new building to be used for general office purposes, washroom facilities, an electrical room, boiler room, and indoor asphalt storage.

The building housing the operations onsite (beyond the large asphalt storage tank(s) and piping/loading areas) is expected to be a structural steel braced-frame construction design; complete with insulated metal wall panels and galvanized steel roof deck. A reinforced concrete ground floor will have in-floor heating to heat eight new above ground storage tanks inside the building, each with a capacity of 55 000 litres each. The storage tanks will be used for future AC storage and will have mechanical installations for heating the AC (refer to Appendix B for Building General Arrangement).

The site will include a pipeline, 343 m in length that will extend from the storage tank to Cherubini Metal Work's wharf. No in-water work will be required. The pipeline will be used for transporting incoming shipments of AC from a docked barge to the large AC storage tank. The pipeline will be supported

aboveground with a new custom fabricated pipe support. All portions (rigid and flexible parts) of the pipeline will be insulated by weatherproof insulating blankets.

The site will be accessed via a new road connecting the facility to Pleasant Street. The onsite road will allow for full turning radius for asphalt trucks, and will be constructed of compacted asphalt. There will be employee and customer parking onsite, including an area for bicycle storage to encourage sustainable transportation.

Construction of a load rack area and weigh in station for trucks will facilitate the loading of the AC to trucks for road construction purposes (refer to figure in Appendix B).

5.3 Operation and Maintenance

Project operations can be generally grouped under the following activities:

- Supply Receipt: Barge Supply System (GLC's operation commences when pipe connects to barge and AC is offloaded);
- Heating: Hot Oil Heating System;
- Storage: Tanks, Piping & Valves System;
- Delivery: Truck Loading System (GLC's operation ends when trucks leave the site); and
- Preventative Maintenance and Inspections.

The product storage, loading, transfer and handling will be contained fully at the site. GLC staff will ensure that whenever products are being transferred, from barge through pipeline and ultimately into trucks, they will be supervised by trained personnel at all times and in such a manner that the flow of products can be immediately shut off, if necessary. The plant operator controls the storage, receiving and delivering process using various flow meters, level indicators and valves based on the AC demand of the facility. All storage and piping will meet the applicable standards and codes.

Each general operational activity is described in the following subsections.

5.3.1 Supply Receipt

It is anticipated that an ocean barge will be employed to deliver AC to the facility. The AC will be sourced from a refinery located in Atlantic Canada. The barge will arrive at Cherubini Metal Work's existing industrial wharf, located immediately adjacent GLC's facility and will offload AC to a pipe that extends along the wharf and directly to one of the asphalt storage tanks at the site. The transfer rate of AC from the barge to pipeline will be greater than >150 m^3/hour but less than 750 m^3/hour. Barge operations and associated activities at the facility are regulated federally by Transport Canada. Project design and operational activities as outlined in this EARD are in accordance with Transport Canada regulations, specifically *Environmental Response Standards* under the *Canada Shipping Act, 2001*. The objective of the Transport Canada regulations is to prevent discharges into the marine environment when unloading

product from a vessel and into land based storage tanks. No operations will be initiated until Transport Canada approval is granted to GLC for the proposed undertaking.

To support asphalt transfer to the pipeline, a vessel supplies a marine discharge hose of various lengths and associated fittings, gaskets and fasteners to reduce the risk of spills during transfer. GLC will ensure that the transfer hose used in transfer operation will have the following:

- Bursting pressure of not less than four times its maximum design pressure;
- Clearly marked with its maximum design pressure; and
- Has successfully passed, during the year before its use, a hydrostatic test to a pressure equal to one and one-half times its maximum design pressure.

All transfer systems will also ensure that the following Transport Canada guidelines are met:

- All cargo hoses will be tested and certified annually with certifications provided during the completion of the ship-to-shore checklist;
- Cargo hoses will be suitable for the product being handled, be properly supported and free of any defects;
- All fittings associated with the transfer conduit will be of the appropriate rated working pressure and material of construction;
- All connections will be made using the correct size bolts in every hole and proper flange gaskets. All cargo hoses connected will be tested to verify that there is no leakage around flanges once discharge begins; and
- Cargo hoses will be blanked as soon as they are disconnected from the manifold.

The fully aboveground 8" rigid steel pipeline connecting the marine manifold at the wharf face at Cherubini Metal Work's to the asphalt storage tank is designed/constructed standards to ASME B31.3 (Pressure Piping). The piping is electric traced and is approximately 343 m in length. It will carry the AC from the barge to the storage tank for storage. The pipeline runs along the full length of the wharf to land where it is connected to a manual valve. The pipeline will be supported aboveground with a new custom fabricated pipe support. Flexible parts of the pipeline will be insulated by weatherproof insulating blankets. During any transfers of AC, the pipeline will be inspected every hour by trained personnel. Refer to Appendix B for detailed specifications, alignment, and connection details for the pipeline.

5.3.2 Heating

A closed-loop hot oil system will be used to heat the stand alone AC storage tanks. Paratherm NF Heat Transfer Fluid will be used. It is a food grade, mineral-oil based heat transfer fluid designed for extended service in closed-loop liquid-phase systems. The fluid is circulated through the tank's hot oil distribution system and is heated by the boiler. A total of 4.2 m^3 of Paratherm NF is proposed to be used in this system. Heating oil data sheets are presented in Appendix D.

The proposed undertaking will use HC and HCS bro 8-90 (HC 300-3 million BTU) boilers made by Heatec (specifications provided in Appendix E). There will be two boilers, natural gas fired, with one acting as a backup or for heating of additional tanks (1 or 2) potentially to be added to the undertaking in the future. The heaters are 3 MMBTU/hour. The boiler will increase the temperature of the heating fluid to approximately 200°C. The heating system will be used to maintain the temperature of the asphalt from 135°C to 165°C. The natural gas for the boilers will be supplied to the site by Heritage Gas.

The building's electrical room will house the electrical components required to operate the building and facility. There will be electrical teck cables routed throughout facility for plant lighting, heat trace, tank level radar, etc. that will connect to the AC storage tank, the pipeline, the weigh-in station and all loading equipment. The main power line is located on Pleasant Street and power is supplied by Nova Scotia Power. The facility will meet all requirements of the Canadian Electrical Code (CE Code or CSA C22).

Eight new storage tanks that have a total capacity of 55 000 litres each will be added in the building for future AC storage. Heat will be generated from the boiler and delivered to each tank through an in-floor heating system in the concrete floor (refer to Appendix B).

5.3.3 Storage

The existing stand-alone AC storage tank will have a volume of 8.5 million litres and a working capacity of 8 million litres. The eight new above ground storage tanks to be located inside the building will each have a capacity of 55 000 litres.

Construction of new 30 m and 21 m diameter asphalt storage tanks on the western portion of the site is also planned for operational purposes at a later date, based on future AC demand in Nova Scotia. The integration of these storage tanks would allow for an additional approximately 13 million litres of storage capacity.

The site will be surrounded by a berm that will provide additional containment in the unlikely event of a spill and to support surface water run-off containment. It is also important to note that AC, once exposed to ambient air, will quickly solidify (within several metres) and would not penetrate the underlying soil. Therefore, it is highly unlikely for the AC to reach environmental receptors, such as the Halifax Harbour.

Venting of the storage tank is connected with a series of pipes and conveyed to an activated carbon filter to remove VOCs and odours. The activated carbon filters will be managed with a regular maintenance program. Activated carbon filters are designed for odour management and typically remove 90% of odours. All applicable emissions standards will be met.

5.3.4 Delivery

Trucks entering the site will typically be asphalt tanker trucks that meet the provincial capacity regulations which can range by province from 35 000 to 48 000 litres. They will enter the site from Pleasant Street through a controlled gate and drive down to the weigh in scale. An industry standard vehicle and operator tracking system will be in place to ensure only trained drivers are allowed onsite and that the trucks are properly loaded and documented. Loading is carried out at the loading rack (refer to drawings in Appendix B) where the volume of AC loaded onto the truck is controlled through the use of a flow meter. The truck loading rack is designed to provide positive and effective protection against discharge of contaminants to storm water and underlying soil, and it is equipped with overfill protection. Products are loaded onto trucks for deliveries to customers at the loading rack, which has 1 loading bay. Trucks are required to be grounded and have the wheels chocked during loading. In addition, there are emergency shut-off switches at the loading rack.

A weigh scale is used to weigh the tanker trucks before product is supplied and after to ensure compliance with road restrictions. Standard Operating Procedures (SOPs) will be complied with by staff and drivers when on site. Adherence to SOPs has been ongoing at GLC's primary operating site in Waverley, NS, for over 10 years and there is a proven track record of successful execution. Personnel will be required to wear appropriate PPE while at the site and when loading the AC into their trucks. For personnel new to the site and operations, a safety briefing will be required prior to working at the site.

5.3.5 Preventative Maintenance and Inspections

5.3.5.1 Preventative Maintenance

The project's preventative maintenance program will be performed in an effort to prevent breakdowns and failures by adjustment, repair or replacement of equipment and parts. Equipment and systems preventative maintenance includes:

- Maintaining, calibrating and servicing high level alarms on product storage tank;
- Verification of operation of all process control elements including pressure, temperature, flow rate, liquid level and emergency shutdown valves;
- Asset integrity inspections of all product transfer pipelines and storage tanks. Asset integrity program follows API standards and utilizes a variety of best practice inspection methods. Tank supports, and foundations are included within asset integrity inspections;
- Operations personnel conduct multiple daily rounds of the project area; and
- Safety and Emergency Response assets are inspected regularly.

5.3.5.2 Daily Inspections

Inspections of all AC storage tanks, piping and associated equipment and secondary containment areas are completed by personnel on their rounds daily and documented on a checklist.

5.3.5.3 Monthly Inspections

Once per month, a more thorough and detailed tank inspection is performed at the facility. Completed inspection checklists are retained at the facility for a minimum of five years. The monthly inspections are also conducted to satisfy the requirements of API 653, requiring monthly inspections of all above ground storage tanks constructed to the API 650 standard.

Emergency response equipment is also inspected monthly for deterioration and operability and records are maintained on site.

5.3.5.4 Five-year Inspections

Every five years, tanks shall be externally inspected as per API Standard 653.

5.3.5.5 Ten-year Inspections

Every ten years, tanks shall be internally inspected as per API Standard 653.

5.4 Commissioning

Commissioning is the process of a series of tests and verifications to confirm all systems and components have been installed to specification, and operation can begin. Commissioning will be completed by the contractor and main equipment supplier in conjunction with General Liquids Canada. Commissioning will first involve confirming installation, controls and operation between the contractor and the manufacturer. This includes items such as pressure testing of tanks and pipes. Any water discharges from pressure testing will be controlled and not directed to the Harbour.

5.5 Project Schedule

With receipt of an EA Approval and Industrial Approval to construct and operate, construction of the Liquid Asphalt Storage facility will commence and take approximately two months to complete. The anticipated schedule is shown in Table 1 below. Operation of the proposed facility is anticipated to commence in July 2020.

Table 1: Anticipated Schedule (2020)

	June	July	August	September	October
EA Approval	X				
Industrial Application Approval		X			
Construction			X		
Commissioning				X	
Initiation of Operation				X	X

The anticipated timelines reflect information known at this time and are subject to change.

5.5.1 Labour Requirements

Development of the project will provide direct and indirect benefits for the local and provincial economy. During construction, activities will be carried out largely by a third party heavy equipment and technical contractor who will implement land surveying, surface earth moving activities, leveling, contouring, temporary workspace preparation, and ultimately complete construction of the facility, including all operational components. The contractor(s) will work under the supervision of a GLC representative (or designate).

During operations, the proposed project would employ five technical personnel, 24 hours per day, seven days per week during the road construction season (spring to fall). During the off season (winter), the operation will employ five people, five days per week, and 12 hours per day.

Decommissioning requirements are unknown at this time. However, it is assumed that a third party heavy equipment contractor(s) would be required to undertake these activities.

5.6 Emissions and Waste Discharges

The anticipated emissions and wastes associated with the project are discussed in this section. GLC, through the conditions of the permits and approvals it will receive to enable construction and operation of the project, will meet or exceed the compliance standards outlined in applicable regulations and guidelines. Where no such standards exist, industry best practices will be adopted, where applicable. Volumes of wastes and concentrations of contaminants will be reduced through best management practices, following applicable legislation, and mitigation planning.

5.6.1 Air Contaminant and GHG Emissions

Air contaminant emissions from the project will occur during the construction and operation phases. The potential air contaminant emissions of concern will be limited to primarily particulate matter (PM, including its common size fractions PM10 and PM2.5) from fugitive sources (e.g., excavation and earthworks) as well as combustion gas emissions such as carbon monoxide (CO), nitrogen oxides (NOX), and sulphur dioxide (SO_2) from the combustion of fossil fuel by construction equipment and AC transport trucks. Measurable emissions of other air contaminants (other than greenhouse gases (GHGs)) are not expected.

There will be two boilers in the building to facilitate heating requirements for the tanks. Boiler emissions for the boiler system, using the power flame emissions details are identified in Table 2. Boiler specifications are provided in Appendix E.

Table 2: Power Flame Emissions Details

	Natural Gas	L.P Gas	#2 Fuel Oil
Carbon Monoxide-CO	.037lb CO 10^6 BTU input (50 PPM)	.037lb CO 10^6 BTU input (50 PPM)	.037lb CO 10^6 BTU input (50 PPM)
Sulfur Dioxide- SO_2	(1.05) x (% Sulfur by weight in fuel) = lb SO_2 per 10^6 BTU input		
Particulate Matter	.0048 lb PM per 10^6 BTU input	.0048 lb PM per 10^6 BTU input	.0143 lb PM per 10^6 BTU input
Hydrocarbons	.025 lb HC's per 10^6 BTU input	.025 lb HC's per 10^6 BTU input	.038 lb HC's per 10^6 BTU input
CO_2	9 % to 10 %	10 % to 12 %	10 % to 13 %
Standard C ® Burners	.088 lb NO_x per 10^6 BTU input (75 PPM)	.092 lb NO_x per 10^6 BTU input (75 PPM)	.12 lb NO_x per 10^6 BTU input (75 PPM)

GHG emissions from the project will mostly occur during both construction and operation phases during operations. The primary sources of GHGs are CO_2, methane (CH_4), and nitrous oxide (N_2O), as carbon dioxide equivalents (CO_2e), from fossil fuel combustion in heavy construction equipment, trucks, boilers and other mobile equipment. All Emission control equipment will be maintained and operated to the specifications and recommendations of the manufacturer.

5.6.2 Odour

For land-based consideration such as local residents, industries, and recreation no interaction is anticipated. Odour potential is often an area of interest identified during community and stakeholder engagement associated with new commercial/industrial developments. Odour reduction was a priority for GLC, and prevention was a basic design criteria used in the development of the project. Storage and transfer of product is conducted through the use of tanks, pipes and pumps which does not allow for uncontrolled emission of gas, vapours or objectionable odour.

As identified in Section 5.3.3, venting of the storage units will be connected with a series of pipes and conveyed to an activated carbon filter to remove VOCs and odours. The activated carbon filters will be managed with a regular maintenance program. Activated carbon filters are designed for odour management and typically remove 90% of odours.

No off-site odour impacts are anticipated as a result of the project, and on-site odours will be very limited.

5.6.3 Acoustic Environment

The acoustic environment focuses on ambient noise within the study area, both natural and man-made. Noise levels can be of concern in relation to human health, socioeconomic values, and in relation to potential disturbance of ecological functions. During construction, noise is expected to be primarily related to the operation of heavy equipment and related construction activities.

The site is situated in a developed industrial area that is separated from residential areas and sensitive land uses. Both the site and adjacent properties have been used for light to heavy industrial purposes since before the 1960s. Pleasant Street is the main commercial and truck route connecting Dartmouth to Eastern Passage, in the area east of its intersection with Nova Scotia Highway 111. In addition to noise associated with typical commercial and trucking activities along Pleasant Street, other notable noise sources in the area include Royal Canadian Air Force 12 Wing Shearwater (plane and helicopter activities), located approximately 500 m to the east of the site, and routine marine vessel activity on Halifax harbour. Based on the types of activities proposed as part of GLC's construction and operations, it is not anticipated that noise levels will be increased in surrounding areas above existing levels in the area. A busy four-lane road corridor (Pleasant Street), mature tree buffer, large berm (native soils), and a Canadian National Railway corridor separate residential receptors from the site. It is also noted that the operations will be occurring down gradient of Pleasant Street and residential land uses in the area.

Noise during operations will be primarily from vehicles entering and exiting the property. Noise levels are expected to be very short term in nature, and localized. Predicted noise levels are not expected to exceed the NSE Noise Guideline, and local noise by-laws will be adhered to.

5.6.4 Liquid and Hazardous Wastes

Liquid wastes generated during construction include oils, grease and fuels from the construction equipment, plus any inadvertent fuel spills (refer to Section 10.0). These wastes will be collected and disposed of in accordance with applicable local and provincial regulations. Liquid wastes from construction crews, including sewage and domestic waste water, will also be collected and disposed of consistent with local and provincial standards.

Liquid wastes typically produced during operations and maintenance will be primarily from domestic water use which will be directed to the municipal sewer system. Lube oil for the pumps and other mechanical equipment will be changed regularly, brought into the equipment locations and removed in barrels; the waste product will be taken to an approved disposal and/or recycling facility.

5.6.5 Solid Wastes

Solid wastes generated during construction may include extra subsoil, temporary fencing, signs, metal containers, canisters as well as welding rods, and domestic wastes. Scrap paper and other office wastes will also be generated. During operation and maintenance, a limited amount of solid wastes may be generated in addition to other solid wastes that are produced during daily operation of a typical small office environment and industrial facility.

Similar to existing operations, GLC will continue to actively cooperate with municipal waste reduction and recycling programs and will encourage conservation throughout its facilities. Solid wastes will be collected and disposed of in a manner consistent with local and provincial standards. Non-hazardous wastes will be separated as recyclable and non-recyclable, with recyclable material collected and

transported to a licensed recycling facility. Non-recyclable wastes will be disposed of according to GLC's existing waste management procedures.

5.7 Funding

No public or government funding is involved in the execution of this undertaking. All costs will be borne by General Liquids Canada.

5.8 Standard Mitigation Measures

Standard mitigation measures will be employed, as applicable, to reduce or eliminate adverse effects associated with project activities. These measures are outlined in this section.

It is also noted that an Oil Pollution Prevention Plan (Transport Canada naming convention) has also been developed specifically for the project, in accordance with Transport Canada regulations. The objective of the Plan is to prevent discharges into the marine environment when unloading product from a vessel and into land based storage tanks. It describes procedures for properly training employees, exercising and maintaining equipment and details standard operating procedures. The Oil Pollution Prevention Plan is included in full in Appendix H, and key mitigation items included in the Plan are presented throughout the EARD in applicable sections.

5.8.1 General Construction and Operations

- All components will be constructed according to applicable regulations, safety codes, and standards;
- All necessary approvals, licences and permits required for a particular activity or construction site are obtained prior to the commencement of the applicable activity or construction at the site;
- Material will be sourced from existing, approved pits or quarries, if required to establish grades at the site;
- All deliveries to the site and transportation of construction and waste materials will be managed within the legal loading requirements and according to spring weight restrictions (as necessary);
- The site will be appropriately graded to manage surface water runoff and be diverted to the onsite oil/water separator;
- Provision of gas, sewer, water and power utilities will be conducted by the supplier (HRM, Heritage Gas) following standard methodologies and meeting regulatory requirements, and
- The loading and unloading areas include impermeable collection areas that drain to an oil/water separator.

5.8.2 Vegetation Clearing and Disposal and Restoration

As noted previously, due to the disturbed nature of the site, the vegetation is relatively limited and consists of relatively sparse vegetation, including shrubs, grasses, and immature deciduous and coniferous trees. No salvageable timber exists at the site. Where limited vegetation clearing is required, the following environmental mitigation measures will be implemented:

- Trees will be felled towards disturbed areas. Trees that inadvertently fall into adjacent undisturbed vegetation will be recovered;
- Boundaries of construction, staging, stockpile areas and temporary workspace will be staked prior to work. Brushing or grading beyond the stakes will not be permitted;
- Clearing/grubbing or earth moving activities will be scheduled to avoid periods of heavy precipitation and high winds;
- Clearing/grubbing or earth moving activities shall be minimized to the extent possible, will be limited to areas where soil removal is necessary (e.g. areas to be graded), and shall not extend beyond the limits of the project footprint area without development of appropriate mitigation; and
- Grubbings (if any) and wood debris stockpiles will be placed in a manner that does not create or enhance a fire hazard.

5.8.3 Protection of Wildlife and Wildlife Habitat

The following mitigation measures are planned to reduce environmental effects on birds and bird habitat:

- Activities that may harm or harass migratory birds will be scheduled to the extent possible outside of the normal breeding bird and migratory bird season (April 15 to August 31) to ensure that eggs and flightless young are not inadvertently harassed or destroyed. At a minimum, if complete avoidance of these activities during the specified timeframe is not feasible, nest searches will be undertaken by a qualified biologist and avoidance setbacks will be established around active nests. Nest searches will only be completed following consultation with Environment and Climate Change Canada (Canadian Wildlife Service), and/or provincial authorities and conducted by a qualified biologist;
- Existing infrastructure and previously disturbed areas (e.g., roads, mowed areas, parking areas, etc.) will be preferentially used where feasible to reduce ground disturbance;
- All machinery and equipment will be maintained in good working order to limit emissions, including noise generation;
- All machinery and equipment will be cleaned prior to entering the site to limit the potential spread of exotic or invasive plant species;
- All food and food waste will be stored and disposed of properly to avoid attracting wildlife;
- If workers encounter birds that they suspect may be nesting within the project area, a biologist will be contacted to determine whether nesting is occurring and to locate the nest. Note: nests should not be flagged since this increases the probability of predation;
- If a nest is found within project area, an appropriate setback developed in consultation with the Canadian Wildlife Service (CWS) will be established around the nest in which humans activities will be restricted until the young fledge and leave the area or until the nest naturally fails; and
- If a species at risk is encountered, contact will be made to a Species at Risk Biologist at Nova Scotia Department of Lands and Forestry to discuss immediate actions and future mitigation.

5.8.4 Erosion and Sedimentation Control

- The area of exposed soil will be limited, and the length of time soil is exposed without mitigation (e.g., mulching, seeding, rock cover) will be reduced through scheduled work progression;
- Reduction of the width of grading in order to limit the potential for erosion and subsoil compaction;
- Erosion and sedimentation control structures will be used and maintained throughout construction activities;
- Sediment and Erosion Control measures will be installed and maintained according to provincial standards and will be inspected regularly (including pre/post predicted heavy rainfall events) to ensure proper operation;
- Exposed soil surfaces will be stabilized and revegetated to limit erosion. Seeding the disturbed areas of the construction area will be conducted as soon as practical after final clean-up and as weather and soil conditions permit. The goal is to reclaim all disturbed lands within one growing season following construction; and
- Stabilization Methods: Stabilization methods will be used to minimize the potential for erosion. These include hydroseeding, application of tackified straw mulch, erosion control blankets, and gravel (including clear stone, surge rock or riprap).

5.8.5 Dust and Air Emissions Control

- Idling of vehicles will be limited. Vehicles and equipment will be turned off when not in use, unless required for effective or safe operation;
- Burning of brush or slash will not be permitted;
- Natural vegetation will be preserved where possible;
- When dust is a concern, dust suppressants (e.g., water) will be applied to exposed surfaces; and
- Petroleum products will not be applied as a dust suppressant; and
- All emission control equipment will be maintained and operated to the specifications and recommendations of the manufacturer, and will meet provincial and Halifax Regional Municipality noise by-laws.

5.8.6 Waste Management

Construction related materials such as survey staking, pallets, construction signage and erosion and sediment control structures will be removed on completion. Waste storage will be minimized by prompt removal of waste following equipment servicing, and the site will be kept free of loose waste material and debris. However, if liquid waste storage is required, the storage areas will be located following regulatory requirements for fuel and lubrication storage and will not be located within 30 m of a watercourse or wetland. Portable toilet rentals will be used for construction sites; these will be serviced by the company and disposal in accordance with regulations. Solid waste produced will include materials such as strapping, temporary fencing, signs, and containers.

Construction specifications will also include requirements for litter control and management of construction wastes. Non-hazardous solid waste will be collected and disposed of at an approved facility

by a licensed contractor. Food and food waste will be stored and disposed of properly to avoid attracting wildlife.

5.8.7 Dangerous Goods Management

- Basic petroleum spill clean-up equipment must be on-site and all spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system: 1-800-565-1633;
- Spills will be reported as required under Nova Scotia Environmental Regulations – Sections 74, 136 and 171 of the Environmental Act;
- All fuels and lubricants used during construction will be stored in designated areas. Storage areas will be located at least 100 m from Halifax Harbour, where possible, except where secondary containment is provided;
- Equipment used will be well-maintained and free of fluid leaks (checks to be conducted);
- Refuelling of machinery will not occur within 30 m of Halifax Harbour, and where possible will be done on an impermeable surface;
- Storage of all dangerous goods will comply with the Workplace Hazardous Materials Information System (WHMIS) requirements and applicable federal and provincial regulations;
- Transportation of dangerous goods will comply with the federal and provincial regulations Transportation of Dangerous Goods Acts;
- Emergency response procedures will be in place for spill response, with trained personnel present on-site at all times; and
- Training will include proper spill response equipment to trained personnel. A formal training plan will be put in place as part of the facility management system which will be ISO 9001 and ISO 14001 certified.

5.8.8 Fire Prevention

- Proper disposal methods for welding rods, cigarette butts and other hot or burning material will be used;
- Smoking will only occur in designated areas;
- Appropriate fire-fighting equipment will be kept on site; and
- Burning of slash (fine or coarse wood debris) will not be permitted.

5.8.9 Site Access Control

- The facility is enclosed with security fencing and access is limited to authorized personnel;
- Facility operators inspect the entire facility at least once during each shift;
- All visitors and deliveries must check in at the facility office; and
- Product valves are closed and secured with a chain and lock when they are in non-operating status. Authorized facility operators have the keys for these locks and are responsible for opening and closing all valves.

5.9 Emergency Response and Contingency Plan (ERCP)

A project-specific ERCP for unplanned events will be prepared. This will include spill management and response procedures to prevent and respond to spills. In the case of an accidental release of materials, reporting and clean-up procedures will follow provincial emergency spill regulations as required. Lubricants and other petroleum products will be stored and waste oils will be disposed of in accordance with provincial regulations. Small spills will be contained by onsite personnel using spill kits kept at the site.

It is anticipated that elements of the ERCP will include:

- purpose and scope of plan coverage;
- general facility identification information (e.g., name, owner, address, key contacts, phone number);
- component and infrastructure locality information (e.g., maps, drawings, description, layout);
- discovery/initial response;
- termination and follow-up actions/prevention of recurrence;
- notification protocols (internal, external, and agencies);
- response management system (e.g., incident commander, safety, liaison, evacuation plan);
- assessment/monitoring, discharge or release control;
- containment, recovery, and decontamination;
- logistics – medical needs, site security, communications, transportation, personnel support, equipment maintenance and support, emergency response equipment (e.g., Personal Protective Equipment (PPE), respiratory, fire extinguishers, first aid);
- incident documentation (accident investigation and history);
- a description of biological and human-use resources that could be impacted;
- an inventory of oil and chemical products and associated storage locations for both construction and operation phases;
- the identification of spill response equipment that will be onsite or available in case of emergency events;
- procedures for responding to operational spills and releases;
- an incident reporting system, including notification and alerting procedures;
- a list of responsible organizations and clarification of the roles of each organization;
- clean-up and disposal procedures;
- training and exercises/drills;
- plan review and modification; prevention;
- regulatory compliance; and
- a log of all maintenance activities of critical emission control devises will be maintained. The log will record the following:
    - Identification of the unit
    - Time/date of log entry
    - Nature of event

- Time and duration of event
- Action taken

The ERCP will also reference relevant and appropriate standards to supplement code requirements as applicable. GLC commits to submitting the ERCP to appropriate regulatory agencies for review. For activities associated with the barge, wharf, and transfer/unloading of AC to the pipeline, the ERCP will require the approval of Transport Canada.

For additional emergency response support, GLC intends to work with industry partners including ECRC (Dartmouth), Terrapure Environmental (Dartmouth), and CleanEarth Technologies (Goffs, NS). The Municipal Group of Companies (parent company to GLC) also maintains an emergency response team locally that is available to respond to incidents during the project. The capacity of local fire and ambulance services to respond to incidents will also be evaluated during preparation of the ERCP. GLC will continue to work closely with related agencies on the issue of public safety during all phases of the project.

6.0 Indigenous and Stakeholder Engagement

6.1 Indigenous Engagement

In late February 2020, GLC consulted with the Nova Scotia Office of Aboriginal Affairs to help identify the appropriate Indigenous groups to engage regarding the proposed undertaking. In early March 2020, project notification letters were sent by email to the following Mi'kmaq communities and organizations:

- Millbrook First Nation;
- Sipeknakatik (Shubenacadie) First Nation; and
- Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO).

The project notification letters described the purpose and need for the undertaking and the proposed facility and operations, including the typical types of materials that will be handled at site (refer to Appendix F). Follow up correspondence by phone and email to representatives of the above noted communities and organization was carried out over the course of the next month.

To date, no First Nations have responded to the project notification letters, or demonstrated interest in the proposed undertaking. However, GLC has attempted to design the project in a manner that mitigates typical issues of concern to the public and Indigenous groups, including components such as noise, and surface water quality.

6.2 Additional Public and Stakeholder Engagement

In April 2020, GLC provided project notification to both the Pleasant Woodside Neighbourhood Association (PWNA) and the South Woodside Community Association, as potential local stakeholder organizations (refer to Appendix F). The PWNA is a membership-based organization that aims to enhance the local community in the immediate Project area, bringing together residents and businesses to work on local improvement projects and to communicate with local government bodies, including Halifax Regional Municipality. The South Woodside Community Association is a volunteer run group that aims to serve the recreation and social needs of the residents of the South Woodside community. No questions have been received from these organizations to date, and no issues of concern with the respect to the project have been identified.

Due to the current COVID-19 crisis in Nova Scotia and the provincial State of Emergency, in-person public consultation initiatives were not to be carried out prior to this project Registration document being submitted. As noted above, GLC has considered typical issues of public and stakeholder concern with respect to undertakings of this nature, and incorporated these considerations into the design of the project.

Additional consultation will be conducted as per the requirements for a Class 1 Undertaking outlined in Section 9(1) of Nova Scotia's Guideline for Environmental Assessments.

A notice of registration will be published in two newspapers to notify the public of the Registration and where they can review the EA Registration Document. The notice will invite the public to submit comments in writing to Nova Scotia Environment's Environmental Assessment Branch.

As a Class 1 project, the EA Registration document will be publically available on NSE's website for Environmental Assessments and the NSE review will follow the typical timeline of approximately 50 calendar days.

Copies of the EA Registration Document will be provided to government agencies and Mi'kmaq for review.

7.0 Summary of Environmental Setting

7.1 Site Background

In April 2018, as part of the due diligence in buying land for industrial usage, the Municipal Group of Companies had a Phase I Environmental Site Assessment (ESA) completed by OCL Services Ltd. The Phase I ESA focused on two vacant lots previously owned by Imperial Oil Ltd., which form the area of GLC's proposed project. The lots were being subdivided for land parcels to be sold. Lot 1 (Subdivision of 600 Pleasant Street, PID 00260711) and Lot 2 (Subdivision of 700 Pleasant Street, PID 00249490) (refer to Legal Survey Plan in Appendix C).

The Phase I ESA included a review of historical information and a site review. No further sampling was completed during this Phase I by OCL Services Ltd, which complied with the Canadian Standards Association standard CAN/CSA Z768-01. In this review, referenced surveys and investigations included:

- WSP Canada Inc. 26 October 2017. Plan of Survey, Lot 1, being a subdivision of PID 00260711, lands conveyed to Imperial Oil Limited and a survey of Lot 2, being a subdivision of PID 00249490, lands conveyed to Imperial Oil Ltd., Pleasant Street, Dartmouth, County of Halifax, Province of Nova Scotia.
- Golder Associates Ltd. 29 March 2018. Phase II Environmental Site Assessment, South End Surplus Property, 600 Pleasant Street, Dartmouth, Nova Scotia. Submitted to Imperial Oil Limited, Dartmouth, NS.
- Stantec Consulting Ltd. 13 February 2010. Test Pit Investigation- General Chemical Canada Ltd. – 750 Pleasant St. Dartmouth, Nova Scotia. Prepared for Municipal Enterprises, Bedford, NS.

There were no other available ESAs pertaining to the subject property. Recommendations provided in the Phase I ESA report suggested that the site was compatible for Industrial usage and confirmed site conditions met the Tier 1 Environmental Quality Standards for a commercial/industrial property. The proposed undertaking will connect to municipal water and sewer services, and will not be using groundwater on the property.

The Subject Property is zoned "I-3" which is Harbour Oriented Industrial Usage pursuant to the Halifax Regional Municipality Land-Use By-Law for Dartmouth (3 June 2017).

7.1.1 Physical Environment

7.1.1.1 Topography and Boundary Properties

The northern or upper lot (PID 41464280) is triangular in shape, and is bordered by Pleasant Street, Imperial Oil Ltd. and the CN railway corridor. The southern or lower lot (PID 00260703) is bordered by the CN railway corridor, Cherubini Metal Works Ltd., Halifax Harbour and Imperial Oil Ltd.

The upper lot has some gravelled sections and some naturally vegetated sections. Most of the lot is 14 to 15 m above sea level (asl) with a gradient down to the northeast at Pleasant Street and down to the south to 12 m asl at the CN railway right-of-way.

The lower part of the property is an irregularly shaped land parcel and the southern boundary is defined by the Ordinary High-Water Mark (OHWM) of Halifax Harbour. The topography is relatively uneven ranging from approximately 11 to 12 m asl at the CN railway right-of way and at the eastern end of the property, before grading down to 8 to 9 m in the area of the existing storage tank. From the storage tank to the harbour, the elevation drops from approximately 8 m to sea level (refer to Appendix A).

7.1.1.2 Vegetation and Wildlife

Due to decades of industrial activities at and adjacent the site, onsite vegetation is limited and consists of relatively sparse vegetation, including shrubs, grasses, and immature deciduous and coniferous trees. Priority flora (plant) species that have formal regulatory protection (under provincial and/or federal legislation) are not anticipated at the site based on reconnaissance in the fall of 2019. No Salvageable timber exists at the site.

The provincial viewer (https://nsgi.novascotia.ca/plv/) does not identify significant habitat within the proposed project properties. The nearest identified significant habitats are over 1 km to the south on McNabs Island and species at risk habitat for birds over 3 km to the south on McNabs Island (see Birds section below). Wildlife present in the area are anticipated to be typical of the industrial/urban and harbour front nature (e.g. Norway rat – *Rattus norvegicus*), and there is limited potential for priority species. If species at risk wildlife are encountered, contact will be made to a Species at Risk Biologist at Nova Scotia Department of Lands and Forestry to discuss immediate actions and future mitigations. Birds are discussed separately below.

7.1.1.3 Geology

The underlying bedrock is Meguma Group/Halifax Formation, a group of iron sulphide minerals, the excavation and management of which is regulated pursuant to the Sulphide Bearing Materials Disposal Regulations. There are no outcrops or exposed bedrock and in all the borehole logs, as reported in the 2018 Phase II Environmental Site Assessment, indicated a mixture of silty sand and clay horizons to 8 m below grade with no bedrock. With the addition of the building onsite, there will be no excavation of material deeper than 8 m which poses a negligible environmental liability.

The area of Dartmouth that the site is located has a low risk for potential radon inside buildings as it sits on the Meguma Group/Halifax Formation. The facility building will have a flat concrete pad for foundation with no basement. The building will be vented well lowering any effects of radon gas buildup from the natural setting.

7.1.1.4 Soils

Previous environmental investigations at the site indicated alternating horizons of silty clays, clays and silty sands to a depth of 8m below the surface. These conditions were quite consistent across the property.

There was no indication of bedrock, boulder or other inert materials in previous environmental investigations at the site, or during recent fall 2019 reconnaissance visits. Fill is present overlying native materials, generally exceeding depths of project related excavation, throughout the property.

7.1.1.5 Groundwater

Groundwater is the water found in the cracks and spaces in soil and rocks, generally at depth but can also be found at surface under flowing artesian conditions (e.g., springs). There are no artesian springs evident at the site. Ground water direction was reported in the 2017 Phase II Assessment (OCL, 2018) as being south, towards Halifax Harbour. Previous excavation activities at the property did not encounter groundwater.

The proposed undertaking will connect to municipal water and sewer services, and will not be using groundwater on the property. There are no known groundwater users (for potable or non-potable purposes) in the vicinity of the project.

7.1.1.6 Surface Water Features

The Halifax Harbour (Atlantic Ocean marine environment) borders the site to the south. There are no defined freshwater waterbodies, watercourses, wetlands or other surface water features located at the subject property. The nearest freshwater features include Morris Lake and Russell Lake, located approximately 2.6 km to the north and northwest. There is an undefined surface drainage system along the east side of the site that conveys storm water into the Halifax Harbour.

7.1.1.7 Birds

The vast majority of bird species found in Nova Scotia are migratory and either breed in the province during the summer months, or pass through it during the spring and fall migratory periods. Relevant information regarding bird species in the area of the project was derived from several secondary sources, including existing online databases and previous local reports, as well as existing knowledge of the subject area by a Dillon avian species specialist.

To provide information on potential occurrences of rare and endangered bird species, and unique or sensitive bird habitats potentially existing within and/or near the project, a review of the following existing data and information sources was conducted:

- Listed species by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC);
- Listed species under the federal *Species at Risk Act* (SARA);

- Listed species under the Nova Scotia *Endangered Species Act* (NS ESA); and
- Species ranked as 'S3' or rarer by the Atlantic Canada Conservation Data Centre (ACCDC).

Other available background information sources and mapping reviewed to identify and assess wildlife and wildlife habitat presence at the Project location included:

- Ecological Reserves in the Maritimes;
- Environmentally Sensitive Areas database;
- Important Bird Areas of Canada;
- Federally-designated Migratory Bird Sanctuaries; and
- The Second Atlas of Breeding Birds of the Maritime Provinces.

The nearest Important Bird Areas (IBAs) are the Musquodoboit Region (NS014) and the Grassy Island Complex (NS026). The Musquodoboit Region IBA is located approximately 30 km to the east. It is described as a tidal inlet, largely enclosed by a barrier sand beach and many wooded islands. The area is important for large congregations of migrating Canada geese (*Branta Canadensis*) and American black ducks (*Anas rubripes*). The Grassy Island Complex IBA, as the name suggests, represents three islands within Mahone Bay and St. Margaret's Bay, the closest of which is located approximately 33 km to the northwest of the project. These three islands, Grassy Island, Big Tancook and Flat Island, are important because they have regularly supported nesting Roseate Terns (*Sterna dougallii*), which are listed as Endangered both federally under the *Species-at Risk Act* (SARA) and provincially under the Nova Scotia *Endangered Species Act* (NSESA).

A list of species identified within the region and potentially present in the vicinity of the project, as well as an assessment of potential to occur at the site and potential interactions and mitigation is provided in Appendix G. Although unlikely given the predominantly cleared, graded, and developed nature of the subject property, if species at risk birds are encountered, contact will be made to a Species at Risk Biologist at Nova Scotia Department of Lands and Forestry to discuss immediate actions and future mitigations.

7.1.1.8 Marine Habitat Species

The Halifax Harbour is immediately adjacent the project area. Marine species present in the Halifax Harbour reflect the industrial nature of the harbour and presence of mobile species from surrounding environments. Phytoplankton (small algae/plants within the water column) and zooplankton (small animals within the water column) provide a source of food for other organisms and vary naturally in concentrations based on seasonal conditions. Benthic (bottom dwelling) organisms typically reflect the bottom type (substrate). Bottom animals typical of soft sediments such as within the Halifax Harbour include; worms (marine polychaetes), small shellfish (bivalves) and amphipods. In areas consisting of harder substrate, starfish, crabs, sea urchins, mussels and lobsters are more likely.

Marine fish known to occur in the Halifax Harbour include cod (*Gadus morhua*), herring (*Clupea harengus*), haddock (*Melanogrammus aeglefinus*), pollock (*Pollachius virens*), sculpin (various species), flounder (various species) and mackerel (*Scomber scombrus*). Several marine mammals are also occasionally present in the harbour including porpoises, seals, and occasional whale species. Additional Species at Risk potentially occurring within 20 km of the project site in adjacent marine habitat (https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html) include fin whale (*Balaenoptera physalus*), blue whale (*Balaenoptera musculus*), northern wolffish (*Anarhichas denticulatus*), North Atlantic right whale (*Eubalaena glacialis*), leatherback sea turtle (*Dermochelys coriacea*) and white shark (*Carcharodon carcharias*). No critical habitat for these species is identified within this 20 km^2 area.

A variety of seabirds may use the harbour waters. The most likely users are gulls, cormorants and waterfowl (for additional information on birds see Birds section (7.1.1.) above).

There are no marine discharges anticipated as part of the project.

7.1.1.9 Cultural/Historical Features

The subject property is not a Registered Heritage Property (municipal or provincial) and is not located in a Heritage District or Streetscape (OCL, 2018). Project foundation work involving excavation is anticipated to be within areas of historical fill and not anticipated to encounter cultural resources. In the event resources are encountered a contingency will be in place to meet regulatory requirements.

8.0 Environmental Assessment Methods and Scope

8.1 Scope of the Environmental Assessment

The proposed undertaking qualifies as a Class I undertaking in Schedule A of the Environmental Assessment Regulations under the Nova Scotia Environment Act. This EARD fulfills regulatory requirements of the EA registration process.

Consistent with the project components discussed in Section 5.0, the scope of the assessment covers:

- Construction and Commissioning; and
- Maintenance and Operation.

Decommissioning is anticipated to occur at least 25 years or more from commissioning and will be conducted in accordance with requirements at that time. Remediation of the site during the closure or decommissioning phase of the facility would include the removal of the storage tanks, piping, building and any other remaining structures allowing for the natural regrowth of the local flora.

8.1.1 Impact Evaluation/Effects Assessment Methods

During the environmental effects assessment, project-VEC (Valued Environmental Components) interactions are identified through an internal review process. The identification of potential interactions between the project and the VECs is undertaken in consideration of the nature of the project and its planned activities. Following an identification of project interactions with the environment, potential environmental effects in the absence of mitigation were reviewed to determine if an interaction between the project and the VEC could occur. Additionally, accidents and malfunctions were considered separately in Section 10.0.

Following the identification of Project-VEC interactions, effects that may occur as a result of the interactions are predicted and proposed mitigation is outlined. Effects were assessed assuming that standard industry design/mitigation practices will be implemented (as outlined throughout this EARD). A summary of the assessment for the VEC is provided, leading to an overall conclusion in respect of the effects of the project on the VEC. The significance of residual environmental effects is then determined.

8.1.2 Selection of Valued Components

The selection of Valued Environmental Components (VECs) was based on input from the Proponent, and regulatory agencies, the professional judgment of Dillon, and the potential interactions between the proposed project and the surrounding physical and ecological environment. Although specific concerns have not been identified by the public or aboriginal peoples at the time of registration, the assessment addresses those items typically considered for a project of this nature. Identification and scoping of each applicable VECs is detailed in Table 3 in Section 9.2 below.

9.0 Assessment of the Environmental Interactions with the Project

This section covers identification of the project VECs and assesses potential interactions, potential effects, proposed mitigation and net effects for each identified interaction.

9.1 Project VECS

Table 3 below provides a screening of VECs to identify for the project.

9.2 Project Interactions with the Environment

This initial screening (i.e., project interaction matrix) assists in determining if an interaction occurs between the activities being carried out in each phase of the proposed project and the VEC. A qualitative rating system was used to evaluate the potential for interactions between the project and the environment. One of the following two ratings was prescribed for each individual VEC:

- An interaction between the project and the environment could occur (which is identified with a checkmark in the matrix below); or
- No interaction occurs between the project and the environment.

Based on the description of project phases (refer to Section 5.0), the general environmental setting of the area, and the scope of the EA (refer to Section 8.0), the potential interactions between the project and the environment are summarized in Table 3 below. Note that this table does not include potential interactions that may occur as a result of accidents, malfunctions or unplanned events (refer to Section 10.0).

Table 3: Project VEC Scoping

Component	Scoping	Valued Environmental Component (VEC)		
		Yes	No	Rational
Physical Environment				
Geology	The proposed project is not anticipated to have interactions with or effects on the site's current geology. Disturbance to the substrate (fill) is surficial with an approximate depth of 4 feet (1.2 m). Bedrock will not be disturbed.		X	Not a VEC; no anticipated potential interactions with or effects on geology.
Surface Water Resources	The proposed project could potentially interact with surface water resources (marine) in the event of accidental leakage or spill during loading/unloading or temporary storage. Primary and secondary containment measures of the proposed storage facility are highlighted throughout Section 5.0.	X		VEC due to potential interaction with surface water through storm drainage system, as well as relative location to Halifax Harbour; potential effects on surface water quality.
Groundwater Resources	The proposed project is not anticipated to have interactions with or effects on groundwater resources. In the unlikely event of leakage or spill during loading/unloading or temporary storage, primary and secondary containment areas inside and the storage facility and as part of the loading/unloading apron would contain the spill to a minimum 10% of the total storage volume. Potential for impacts are considered under surface water resources. The project is located within an area serviced by HRM and groundwater users are not present.		X	Not a VEC; no anticipated potential interactions or effects between the Project and groundwater resources.
Atmospheric and Air Quality	GLC's site is situated in a Harbour Oriented Industrial Usage zone (I-3) under the Dartmouth Municipal Strategy and Land Use By-law. The closest residential development is approximately 150 m to the northeast on Carleton Street and Belmont Avenue. A significant reduction in GHG emissions will also result from the project, since approximately 500 truck trips will be replaced by one to four barge trips. The proposed project is not anticipated to interact with or cause potential effects to the atmosphere or air quality.		X	Not a VEC; no anticipated potential interactions with or effects on the atmospheric environment or air quality.
Biological Environment				
Flora and Fauna, including Birds	The site is located in a developed industrial area, which is comprised of gravel and paved areas, existing buildings, and is surrounded by a chain link fence. As the proposed project will occur on the existing site, the majority of which is enclosed, and in an area that does not contain natural habitat environments or associated wildlife/priority species; there are no potential anticipated interactions or effects between the project and flora or fauna VEC. Any vegetation clearing will be completed outside of the annual breeding bird window. Therefore, no disturbances		X	Not a VEC; no anticipated potential interactions with or effects on flora or fauna VEC.

Component	Scoping	Valued Environmental Component (VEC)		
	to flora or fauna are anticipated.			
Terrestrial and Aquatic Habitat (including wetlands)	The existing site is located in a developed industrial area, which is comprised of gravel and paved areas, and existing buildings. As the proposed project will occur on an existing site where there is a void of natural terrestrial and aquatic habitat there are no potential anticipated interactions or effects between the project and terrestrial and aquatic habitats. Therefore, no disturbance to or loss of natural terrestrial and aquatic habitat is anticipated. Potential impacts to downgradient habitat is considered under surface water resources.		X	Not a VEC; no anticipated potential interactions with or effects on terrestrial or aquatic habitat.
Socioeconomic Environment				
Archaeological and Cultural Resources	The existing site is located in a highly disturbed and developed industrial area. The site is comprised of gravel and paved areas and existing buildings. Due to past disturbance at the site and extent of fill, the potential for interactions with Archaeological and Cultural Resources is not anticipated (OCL, 2018).		X	Not a VEC; no anticipated potential interactions with or effects on archaeological or cultural resources are anticipated.
Transportation	The addition of this AC Liquid Storage Facility would improve transport efficiency of General Liquids Canada Operations. As such, no significant increase in truck traffic is expected regionally. Pleasant Street is located in a General Industrial Zone in Dartmouth where a minimal increase in truck traffic to this specific site through addition of the asphalt facility would have negligible impact.		X	Not a VEC; no significant increase in truck traffic is expected, and based on the industrial setting potential impacts are considered negligible.
Noise	The existing Pleasant Street site is situated in a developed industrial area that is separated from the residential areas and sensitive land uses. However, the new facility will generate increased noise levels or differing sounds from existing activities at this location. Noise is commonly identified by the public as a concern with respect to proposed nearby undertakings.	X		VEC due to variation of noise levels during construction and operation compared to current operation noise levels. The nearest sensitive receptor is within 1km from the site. As such, potential impacts should be assessed.

Table 4: Project Interactions with Valued Components of the Environment

Valued Environmental Component (VEC)	Project Phases		
	Construction	Commissioning	Maintenance & Operation
Surface Water Resources (Marine)	✓	✓	✓
Noise	✓	✓	✓

Legend: ✓ = Potential

Due to the limited scope of the project and its proposed location in an urban environment on and surrounding by existing industrial sites (past and present), surface water resources (marine) and noise were the only VEC's identified to have potential interaction with the proposed project activities. Surface water is considered from the perspective of water quality. The potential effects to surface water resources, described below, were determined and considered using knowledge of the site, the specific proposed project activities, its interface with Halifax Harbour, and Dillon's professional judgment. Noise focuses on both natural and man-made sources. It is identified as a VEC as specific noise levels are regulated, and potential noise levels may be of concern to nearby residential receptors.

9.2.1 Key Environmental Effects

9.2.1.1 Surface Water Resources (Marine)

Key interactions between the project and surface water with the potential to result in both direct and indirect adverse effects to surface water include:

- Construction activities such as clearing, grubbing and potentially grading may result in sediment or other contaminant, if encountered, entering the drainage ditch along the eastern boundary of the property and entering the Harbour;
- Surface drainage patterns may be altered during construction and by increasing impermeable surfaces at the site;
- Degradation of surface water quality;
- AC spills to the marine environment during transfer from barge to pipeline;
- AC spills or leakage during transfer to trucks from the storage tanks could be conveyed to the existing storm drainage system which outfalls to Halifax Harbour; and
- AC leakage from the aboveground pipeline between Cherubini Metal Work's and the storage facilities.

9.2.1.2 Noise

Without mitigation, the project could produce changes in the acoustic environment at nearby residential receptors as follows:

- Noise emissions from the site due to onsite construction (short-term), specifically from heavy equipment use; and

- Noise emissions from transportation of employee vehicles, commercial trucks and materials being transported to and from the site during typical operations.

9.2.2 Mitigation

9.2.2.1 Surface Water Resources (Marine)

Key mitigation to be implemented during construction and operations include:

- Construction of a containment berm (soil) around the property perimeter;
- Maintain existing/native vegetative buffer between project components and surface water features, allowing for appropriate setback;
- Maintain drainage across the site during all phases of construction and not cause ponding of water or unintentional channelization of surface water flows;
- Work will follow environmental management planning as outlined in Section 3.3;
- Utilization of erosion and sediment control procedures as noted in Section 5.8.3;
- DFO's Measures to Avoid Causing Harm to Fish and Fish Habitat (DFO 2014) will be implemented, as applicable, including relevant measures pertaining to contaminant and spill management, erosion and sediment control, and operation of machinery;
- Work during the construction phase will be scheduled to the extent practicable to avoid periods of adverse weather (e.g., heavy winds or rain) and increase the transport of sediment at the site;
- Machinery used on site will arrive in a clean condition free of fluid leaks;
- All construction materials will be removed from site upon completion of project components;
- Mitigation measures to be implemented if there is an unlikely occurrence of an accident, malfunction and unplanned event are presented in Section. 10.0;
- The storm water system will include a valve that will isolate flow from the storm system during loading and unloading activities. During loading and unloading the valve will always be closed in case of a leakage or spill to prevent contaminated water from flowing into the storm drainage system. If a spill were to occur, it would be cleaned up before the valve was opened again and water was allowed to flow into the drainage system;
- The facility will assign trained personnel to dock watch and the barge/tanker Crew Member assigned to offloading are responsible for monitoring transfer conduit integrity. If a transfer conduit or a connection leaks during a transfer operation, the responsible person will ensure all discharging operations are to be shut down immediately. Discharging operations will not to be resumed if doing so will interfere with the immediate, effective, and sustained response to the spill incident; and
- Over 300 m of 18" fence boom (as well as all the necessary support equipment) will be located at the site and will be immediately available during transfers. The pre-planned and expedient deployment of this boom would minimize the effects of any spills to the marine environment.

The Oil Pollution Prevention Plan (Transport Canada) has also been developed specifically for the project, in accordance with Transport Canada regulations. As noted in Section 5.8, the objective of the Plan is to prevent discharges into the marine environment when unloading product from a vessel and

into land based storage tanks. It describes procedures for properly training employees, exercising and maintaining equipment and details standard operating procedures (refer to Plan in Appendix H).

9.2.2.2 Noise

Key mitigation to be implemented during construction and operations include:

- Utilization of construction scheduling restrictions, where possible (or alternative mitigation implemented), to ensure construction activities with elevated noise emissions occur only during the day;
- Vehicles and equipment shall be maintained in good working order with quality mufflers;
- Regular discussions will be conducted with workers and contractors on noise minimization practices; and,
- GLC will ensure drivers know the designated vehicle routes, parking locations, idling policy, normal working hours and use of engine brakes policy.

9.3 Summary

9.3.1 Surface Water Resources (Marine)

No in-water work is proposed as part of this undertaking, and there are no situations where there is a high probability of occurrences of long or extended-term residual environmental effects on surface water quality of high magnitude, or high probability of occurrences of an irreversible residual environmental effect of high magnitude. With the implementation of the identified mitigation measures (in addition to those outlined in Section 10.0 - Accidents, Malfunctions and Unplanned Events) , the residual environmental effects of the project on surface water during all phases of the project are rated not significant, with a high level of confidence.

Given the lack of substantive interaction of the project with surface water, the high level of confidence of the significance prediction, and the implementation of known mitigation that is effective at preventing environmental effects to surface water, no follow-up measures are proposed nor required to verify the environmental effects predictions or the effectiveness of mitigation, beyond compliance monitoring.

9.3.2 Noise

During project construction, sources of noise are expected to be primarily related to operation of heavy equipment and related construction activities. Construction related activities have the potential to result in changes in local noise levels due to the operation of construction equipment. Noise levels associated with construction activities are expected to be fairly localized, short-term, and reversible. During project operations, sources of noise are expected to be limited to transport trucks coming and going from the site.

Noise levels are not expected to exceed the NSE Noise Guidelines during the day, evening, or night at any offsite location, and will not impact residential receptors.

10.0 Accidents, Malfunctions and Unplanned Events

This section identifies accidents, malfunctions, or unplanned events that could occur during any phase of the proposed project. The assessment focuses on events that are considered credible based on the project description and the experience of the assessment team in evaluating similar projects.

Contingency planning is a key component of GLC's approach to its existing operations. GLC has developed detailed operational procedures to guide its everyday operations, and has developed contingency and emergency response procedures to quickly process upsets or abnormal operating conditions while limiting environmental effects. Various emergency scenarios will be incorporated in planning for operation of the Project, including potential for failure and repair.

A key consideration is the physical design of the pipeline from the storage tank to Cherubini Metal Work's wharf. It is designed to not be susceptible to corrosion or decay, does not experience thermal expansion or contraction in the same manner as other materials, and has some flexibility. It will be located above ground and will be protected from accidental interaction by physical barriers.

GLC will also develop an ERCP to address malfunctions or accidents that may occur during operation and maintenance activities.

The operation will have robust emergency response and contingency plans with respect to accidents and malfunctions. Spill containment measures and experienced staff with thorough training will significantly reduce the likelihood of accidents and malfunctions at this site. Spill containment measures will be implemented on areas where spills or leakages are likely to occur, specifically in the loading/unloading areas and AC transfer areas. Fire, spill, and medical response plans will be in place to address potential accidents or malfunctions that may arise from operations, and will be amended during NSE's Industrial Approval application process to include any specifics necessary for effective management of the proposed storage and operations.

10.1 Approach

The general approach to assessing the potential environment effects of the selected potential accident, malfunction, or unplanned event scenarios involves the following:

- describing the potential accident, malfunction, or unplanned event;

- considering if the potential accident, malfunction, or unplanned event could occur during the life of the project, and during which phase(s) or activity(ies);
- describing the project planning and safeguards established to minimize the potential for such occurrences to happen;
- considering of the contingency or emergency response procedures applicable to the event; and
- in consideration of the above, assessing the residual environmental effects of accidents, malfunctions, and unplanned events on surface water or other features, and determining the significance of the potential residual environmental effects of these accidents, malfunctions, or unplanned events (and their likelihood of occurrence, as applicable).

10.2 Description of Potential Credible Accidents, Malfunctions, and Unplanned Events

Based on the nature of the project, the study team's knowledge of the environment within which the project is located, as well as the experience of the Proponent, the following credible accidents, malfunctions, and unplanned events have been selected for this assessment, and are described in greater detail in the following sections.

10.2.1 Accidental Release of a Hazardous Material

An accidental release of fuel or other liquid hazardous materials (e.g., petroleum, oil, lubricants -POL) used in vehicles or heavy equipment on-site may occur during refuelling of machinery or trucks as a result of human error or equipment malfunction during construction activities. During operation of the facility, there is potential for release of chemicals used in operations as well. Such a spill may contaminate soils and groundwater and, through runoff, contaminate surface water resources. Contaminants may adversely affect fish and fish habitat and waterfowl.

10.2.2 Failure of Erosion and Sediment Control Measures

Erosion and sediment control measures during construction prevent exposed soil from mobilizing and entering undisturbed areas as a result of rainfall or runoff. A failure of an erosion and sediment control measure could result in mass wasting of soil or siltation of receiving surface water resources (Halifax Harbour).

The discharge of sediment to surface water resources during precipitation events or runoff following the failure of an erosion and sediment control measure would be limited to the construction phase of the project.

10.2.3 Accidental Release of Asphalt Cement and Petroleum Hydrocarbons

An accidental release of AC and/or petroleum hydrocarbons could occur at the storage area, transfer locations or along the length of pipeline during the operation and maintenance phase of the project. An accidental release of AC and/or petroleum hydrocarbons may be the result of equipment failure, human

error, or material failure. A release of AC from the transfer areas or pipeline length could affect soil or water quality (surface water).

An accident or malfunction of this nature would be limited to the operation and maintenance phase of the project.

10.2.4 Vehicle Accident

A vehicle accident is possible during all phases of the project. A vehicle accident includes a potential collision with other vehicles, pedestrians, wildlife, or structures/objects, and potentially poses a risk to the health and safety of workers, the public, or wildlife and potential for damage to infrastructure. A fire or fuel spill could also occur as a consequence of a vehicle collision, compounding the initial effects by potentially threatening surface water, groundwater, soils and other environmental features.

A vehicle accident would be most likely to occur during the construction phase of the project, as transportation is limited to employees going to/from the facility, and trucks loading AC at the site.

10.2.5 Discovery of a Heritage Resource

Previously undiscovered archaeological resources (i.e., artifacts) could be uncovered during excavation of topsoil and overburden as well as from other earth moving activities on the site during the construction phase.

10.3 Potential Environmental Effects from Accidents, Malfunctions, and Unplanned Events

This section assesses the environmental effects of each of the credible accidents, malfunctions, and any unplanned event identified in the above section, and identifies mitigation measures to address the potential residual environmental effects. The significance of potential residual environmental effects following the implementation of mitigation or consideration of emergency or contingency response procedures is also discussed.

10.3.1 Accidental Release of Hazardous Materials

The accidental release of a hazardous material through a spill could affect primarily surface water resources, groundwater, soils and air quality on a temporary and localized basis. Chemical or fuel spills may enter a waterbody directly during transfer from the barge, potentially affecting water quality and fish and their habitat, with the extent of effects depending upon the quantity released.

10.3.1.1 Mitigation

- Key mitigation to prevent an accidental release of a hazardous material is described in Section 5.8 – Standard Mitigation Measures.

10.3.1.2 Potential Residual Environmental Effects

With spill containment provided during operation and maintenance, and careful implementation of best practices, the risk of spills resulting during both construction and operation and maintenance phases of the project is expected to be low. The risk of contamination from spills and leaks during the operation and maintenance phase will be reduced further by preventive measures, contingency planning and spill response and mitigation. Based on the project's design, and with the implementation of mitigation measures, contingency and emergency response procedures, and best practices, the potential residual environmental effects of an accidental release of a hazardous material during all phases of the project are not significant, with a high level of confidence.

10.3.2 Failure of Erosion and Sediment Control Measures

Erosion and sediment control measures during construction prevent exposed soil from mobilizing and entering undisturbed areas as a result of rainfall or runoff. A failure of an erosion and sediment control measure could result in mass wasting of soil or siltation of receiving surface water resources (Halifax Harbour).

The discharge of sediment to surface water resources during precipitation events or runoff following the failure of an erosion and sediment control measure would be limited to the construction phase of the project.

10.3.2.1 Mitigation

Key mitigation to prevent a failure of erosion and sedimentation control measures is described in Section 5.8 – Standard Mitigation Measures.

10.3.2.2 Potential Residual Environmental Effects

The installation, maintenance, and monitoring of erosion and sedimentation control structures is a routine activity on construction sites and industrial operations, and is well understood by environmental managers and construction personnel. With daily visual monitoring of erosion and sedimentation control devices, conducting maintenance of them as necessary, periodically removing accumulated sediment, and active water management on-site, the risk of a failure of erosion and sediment control measures occurring is expected to be very low. With the implementation of mitigation measures, contingency and emergency response procedures, and best practices, the potential residual environmental effects of a failure of erosion and sedimentation control measures on environmental features present at the site are not significant, with a high level of confidence.

10.3.3 Accidental Release of Asphalt Cement and Petroleum Hydrocarbons

An accidental release of AC and/or petroleum hydrocarbons could occur at the storage area, transfer locations or along the length pipeline during the operation and maintenance phase of the project. An accidental release of AC and/or petroleum hydrocarbons may be the result of equipment failure, human

error, or material failure. A release of AC and/or petroleum hydrocarbons from the storage area, transfer areas or pipeline length could affect soil or water quality (groundwater or surface water).

An accident or malfunction of this nature could occur during construction or operation and maintenance phases of the project.

10.3.3.1 Mitigation

Key mitigation to prevent an accidental release of asphalt cement from the AC transfer pipeline includes:

- Flange bolt connections will be on the barge to avoid spills and breakaway couplings will be installed on the loading rack for the trucks to avoid spills if an accident occurred;
- The pipe will be supported aboveground with a new custom fabricated pipe support. Flexible parts of the pipeline will be insulated by weatherproof insulating blankets;
- The pipe will be constructed of rigid steel, combining strength with flexibility to withstand stresses as well as being resistant to corrosion;
- The pipe will be aboveground and easily visible to site personnel;
- Operation of the facility will include regular inspection of all piping, hoses and tanks for leaks or potential points where a leak could occur, such as fractures and breaks;
- Storage tanks will be inspected, repaired and reconfigured in accordance with API 653 – Tank Inspection, Repair, Alteration and Reconstruction;
- The project area is fully secured by fencing reducing the risk of intentional vandalism to the pipeline and its components; and
- Over 300 m of 18" fence boom (as well as all the necessary support equipment) will be located at the site and will be immediately available during transfers. The pre-planned and expedient deployment of this boom would minimize the effects of any spills to the marine environment.

Facility operations personnel will be given adequate training and orientation to allow them to perform their jobs safely and to respond to minor spills and leaks. Employees will be informed of potential hazards and safe operating procedures and will be familiar with the facility's Site Safety Plan and Safety Data Sheets (SDSs) for products used and stored at the site.

It is also noted that the berm surrounding the site is designed to contain releases from tanks and piping. If released to the environment, the asphalt cement hardens in a very short period of time; therefore it is not possible for AC to reach the Halifax Harbour. It will be contained on site, and the AC will be reheated, recovered and placed back in the tank.

Other key mitigation to prevent an accidental release of asphalt cement and/or petroleum hydrocarbons described in Section 5.8 – Standard Mitigation Measures.

10.3.3.2 Potential Residual Environmental Effects

Regular inspection of all components in industrial facilities and pipelines is a standard component of a management system (e.g., SOPs) to prevent costly and potentially damaging leaks. Identifying potential issues early though an inspection plan allows for repairs or replacement of problem sections before a release occurs. Through the implementation of an inspection plan, the potential residual environmental effects of an accidental release of AC and/or petroleum hydrocarbons to the environment during all phases of the project are not significant, with a high level of confidence.

10.3.4 Vehicle Accident

A vehicle accident is possible during all phases of the project. A vehicle accident includes a potential collision with other vehicles, pedestrians, wildlife, or structures/objects, and potentially poses a risk to the health and safety of workers, the public, or wildlife and potential for damage to infrastructure. A fire or fuel spill could also occur as a consequence of a vehicle collision, compounding the initial effects by potentially threatening surface water, groundwater, soils and other environmental features.

A vehicle accident would be most likely to occur during the construction phase of the project, as transportation is limited to employees going to/from the facility, and trucks loading AC at the site.

10.3.4.1 Mitigation

Key mitigation to prevent vehicle accidents is described in Section 5.8 – Standard Mitigation Measures.

10.3.4.2 Potential Residual Environmental Effects

Though vehicle accidents may occur with any project, particular attention will be paid to conducting project operations in a careful and safe manner so as to reduce the risk of a serious vehicle accident. With the implementation of mitigation measures, contingency and emergency response procedures, and best practices, the potential residual environmental effects of a vehicle accident on the environment during all phases of the project are not significant, with a high level of confidence.

10.3.5 Discovery of a Heritage Resource

Previously undiscovered heritage resources (i.e., artifacts) could be uncovered during excavation of topsoil and overburden as well as from other earth moving activities on the site during the construction phase.

10.3.5.1 Mitigation

In the unlikely event that an archaeological, paleontological, or cultural resource or artifact is discovered during the construction or operation and maintenance phases of the project, the following procedure will be followed:

- If cultural resources are encountered, work will be immediately stopped, and the area will be marked to prevent further disturbance. An exclusion zone of 100 m surrounding the find will be established;

- The Site Manager will immediately contact the Special Places Branch of the Nova Scotia Department of Communities, Culture and Heritage to notify them of the discovery and establish a mitigation plan;
- No additional work will be permitted at the site until approval has been received from the appropriate regulatory agency to resume the work;
- If bones or human remains are found, work in the area must cease, and the Royal Canadian Mounted Police (RCMP) shall be immediately notified; and
- No one shall disturb, move or rebury any uncovered human remains.

If the resources are related to Indigenous culture, the AOO and Special Places Branch will be contacted to determine how best to proceed with respect to repatriation of the resources.

10.3.5.2 Potential Residual Environmental Effects

Given the history of development and industrial use of the site, as well as the nature of the project activities (e.g., minimal excavation activities), the potential to encounter previously undiscovered heritage resource during construction and operation and maintenance of the project is believed to be low. With the implementation of mitigation measures, contingency and emergency response procedures, and best practices, the potential residual environmental effects of a discovery of a heritage resource on historical, archaeological, and paleontological resources as well as Indigenous peoples during all phases of the project are not significant, with a high level of confidence.

10.4 Summary

The potential occurrence of accidents, malfunctions, or unplanned events has been considered as part of the project design. The potential for accidents, malfunctions, or unplanned events to occur will be carefully considered during planning for the project, and measures will be developed and implemented such that their potential is reduced. Safeguards will be implemented throughout the construction, operation and maintenance, and decommissioning phases. Contingency and emergency response plans will be developed before any work is initiated on the proposed project so that incidents can be managed effectively. By ensuring that all aspects of the project adheres to applicable codes and standards and implementing the mitigative measures outlined above, the potential for adverse environmental effects arising from accidents, malfunctions, or unplanned events is greatly reduced.

Given the nature of the project and the credible accident and malfunction scenarios, their low likelihood of occurrence, and proposed mitigation and contingency response planning, the potential residual environmental effects of all identified project-related accidents, malfunctions, and unplanned events on the all affected VECs (surface water resources) as well as other environmental features assessed above during all phases of the project are rated not significant, with a moderate to high degree of confidence.

11.0 Effects of the Environment on the Project

The project could be exposed to extremes in temperature which will be taken into consideration in the design of facilities. Allowances will be made for build-up of snow around tanks and associated facilities, and for areas to dispose of snow ploughed from the access road and parking lot. Heavy rains can lead to erosion particularly on access roads to the storage tanks, and design will include measures to minimize erosion and control water movement and sedimentation. Project components are also located well above the high water mark, and will not be impacted by sea level rise as a result of climate change.

12.0 Cumulative Impacts

No significant cumulative impacts (i.e., impacts arising from the project in combination with ongoing or foreseen activities) are envisioned for the project. The project itself occupies a small footprint in an area previously disturbed by industrial activity and surrounded by industrial land uses. The land adjacent to the site is unlikely to be further developed for other uses. The small increase in vehicle/truck traffic levels along Pleasant Street that may result from the project will have a very minimal impact the socio-economic environment. Since it is anticipated that only two to four barges will import asphalt cement to the facility annually, there will be minimal impact to activity levels in Halifax Harbour.

13.0 References

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Stantec Consulting Ltd. 2010. Test Pit Investigation- General Chemical Canada Ltd. – 750 Pleasant St. Dartmouth, Nova Scotia. Prepared for Municipal Enterprises, Bedford, NS.

WSP Canada Inc. 26 October 2017. Plan of Survey, Lot 1, being a subdivision of PID 00260711, lands conveyed to Imperial Oil Limited and a survey of Lot 2, being a subdivision of PID 00249490, lands conveyed to Imperial Oil Ltd., Pleasant Street, Dartmouth, County of Halifax, Province of Nova Scotia.

Appendix A

Site Plans

PID# 41463985
IMPERIAL OIL LIMITED

PID# 00643238
CANADIAN NATIONAL RAILWAY COMPANY

APPROXIMATE LOCATION OF EXISTING NSPI POLE
UTILITY POLE ANCHORS
NEW MASTER WATER METER INSULATED CHAMBER SEE ENGLOBE DRAWINGS FOR DETAILS
RETAINING WALL
RETAINING WALL
SWALE
ASPHALT STORAGE TANK
SWALE
NATURAL GAS PIPELINE ROUTING BY HERITAGE GAS.
MAIN POWER SUPPLY TO SITE.
150mm Ø VALVE RISER
PRIVATE HYDRANT
CONCRETE BOLLARD
EXISTING CB
150mmØ PVC DR35 SANITARY DISCHARGE PIPE FROM BUILDING TO DUPLEX SUBMERSIBLE PUMP STATION (LIFT STATION)
50MMØ TYPE K COPPER WATER SUPPLY PIPING TO BUILDING VIA CUSTODY CHAMBER (BACKFLOW PREVENTION, ETC)
FUTURE 100'Ø ASPHALT TANK
FUTURE 70'Ø ASPHALT TANK
NEW TRUCK LOADING RACK
OUTLINE OF NEW CANOPY
80' LONG WEIGH TRONIX TRUCK SCALE
ENVIRONMENTAL APRON CATCH BASIN
ROCK WALL
3'-0" PROPERTY LINE TO GAS LINE
1'-0" GAS LINE TO TRANSFORMER PAD
TOE SLOPE
O.H.W.M.
EDGE OF WATER
10" PVC PIPE (DISCHARGE) - TO REMAIN

ISSUE

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☐ – FOR TENDER		
☐ – FOR CONSTRUCTION		
☐ – FOR AS BUILT		

NOTES:

- INSTALLER TO VERIFY LOCATION OF BUILDING AND PROPERTY LINES BEFORE BEGINNING WORK
- INSTALLER TO CHECK SITE FOR EXISTING SITE SERVICES SUCH AS: WATER AND SEWER LINES, ELECTRICAL LINES, ETC... PRIOR TO ANY EXCAVATION.
- ALL EQUIPMENT TO BE INSTALLED AND TESTED AS PER MANUFACTURES RECOMMENDATIONS
- INSTALLATION WORK TO BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE CODES.
- THIS PETROLEUM STORAGE SYSTEM CONFORMS TO ALL APPLICABLE ULC REQUIREMENTS AND STANDARDS INCLUDING ULC-S601, "SHOP FABRICATED STEEL ABOVEGROUND VERTICAL TANKS FOR PETROLEUM PRODUCTS," AND API 650 "WELDED STEEL TANKS FOR OIL STORAGE", LATEST EDITION.
- THIS DESIGN HAS ADDRESSED THE ISSUE OF POSSIBLE COLLECTION OF FLAMMABLE VAPOUR AND/OR LIQUID IN UNDERGROUND SUMPS.
- ALL WORK TO BE COMPLETED BY A PETROLEUM INSTALLER LICENSED BY THE PROVINCE OF NOVA SCOTIA.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO COMMENCING WORK.
- ALL TANKS TO BE INSTALLED LEVEL

CONCRETE SPEC:
32MPa
5%-8% AIR
400MPa REBAR YIELD STRENGTH
80mm SLUMP

No.	DESCRIPTION	BY	DATE

REVISIONS

Logo:

Client:
DEXTER CONSTRUCTION

Address:
PLEASANT STREET
DARTMOUTH, NS

Project:
NEW ASPHALT STORAGE FACILITY

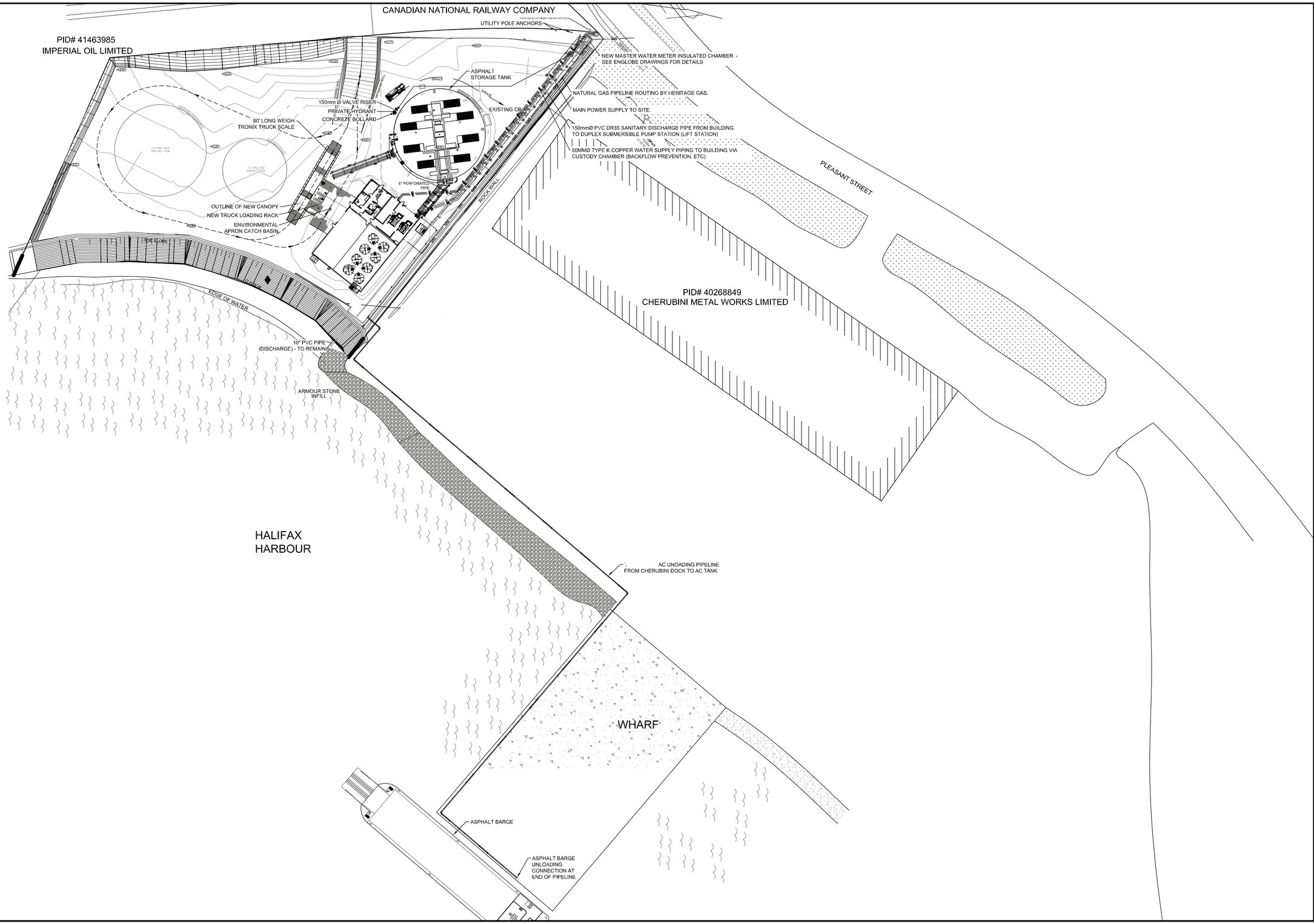
Title:
1"=20' SITE PLAN
ENTIRE SITE

GALLAGHER TECHNICAL SERVICES LIMITED
22 DOUGLAS DRIVE
QUISPAMSIS, NB
E2G 1Y3
PHONE: 506 849 4116
FAX: 506 847 1070

Stamp:

DESIGN:
DRAWN:
CHECKED:
DATE: MAR 24, 2020
SCALE: 1" = 20'-0"
REV.: △

PROJECT NUMBER: GTS-1645
SHEET No. 2



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☐	– FOR TENDER		
☐	– FOR CONSTRUCTION		
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CONCRETE SPEC:

32MPa
5%-8% AIR
400MPa REBAR YIELD STRENGTH
80mm SLUMP

No.	DESCRIPTION	BY	DATE

REVISIONS

Logo:

Client:

DEXTER CONSTRUCTION

Address:

PLEASANT STREET
DARTMOUTH, NS

Project:

NEW ASPHALT STORAGE FACILITY

Title:

1"=50' SITE PLAN
ENTIRE SITE

GALLAGHER TECHNICAL SERVICES LIMITED
22 DOUGLAS DRIVE
QUISPAMSIS, NB
E2G 1Y3
PHONE: 506 849 4116
FAX: 506 847 1070

Stamp:

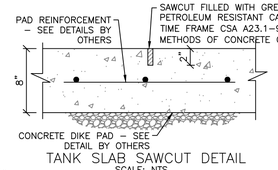
DESIGN:
DRAWN:
CHECKED:
DATE: MAR 19, 2020
SCALE: 1" = 50'-0"
REV.: △

PROJECT NUMBER: GTS-1645

SHEET No. 1

Appendix B

Building and Facility Drawings



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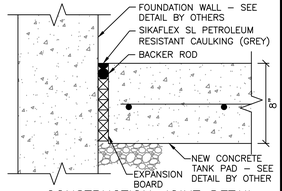

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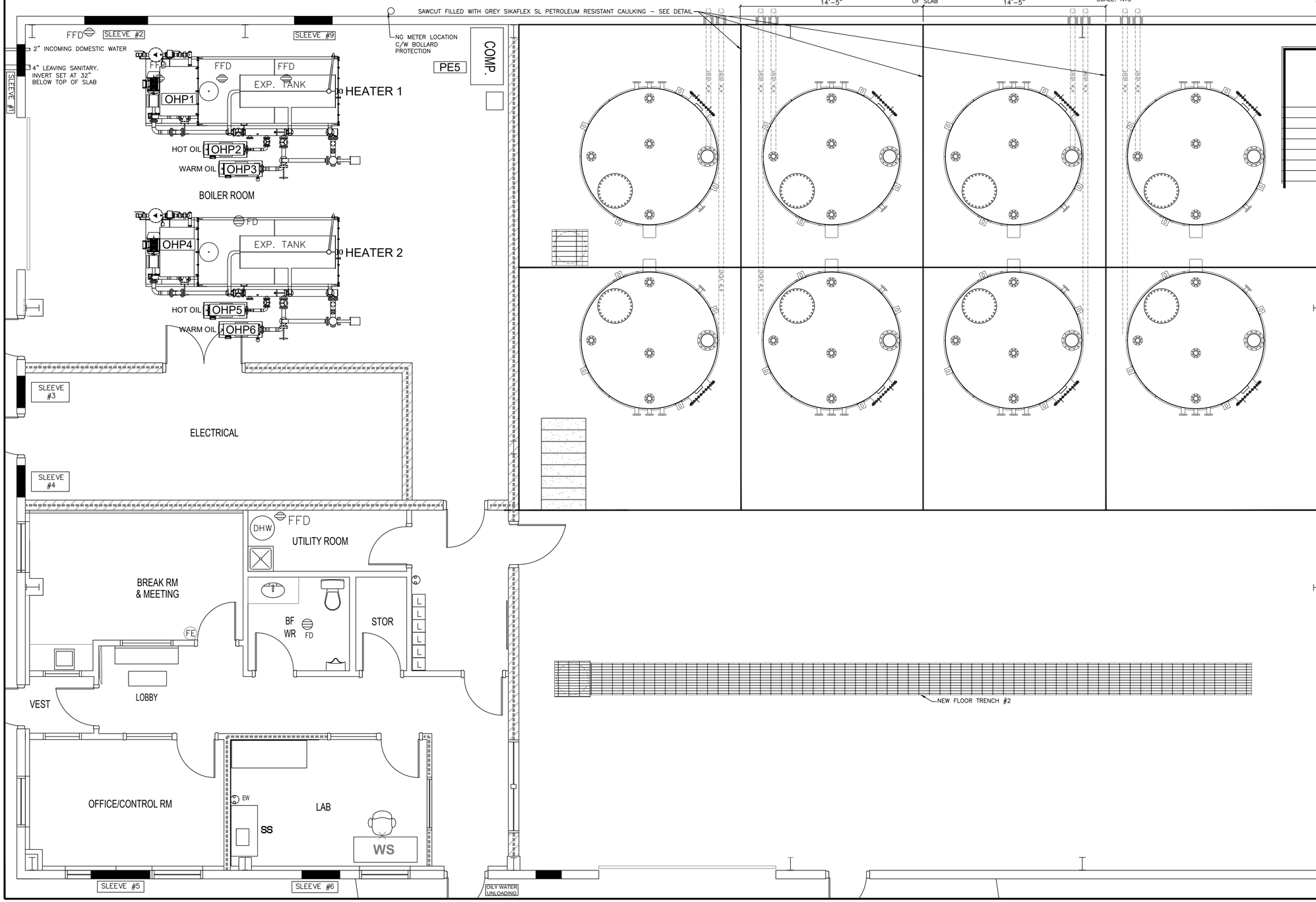

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□ – FOR TENDER		
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□ – FOR AS BUILT		

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CONCRETE SPEC:

32MPa
5%–8% AIR
400MPa REBAR YIELD STRENGTH
80mm SLUMP

No.	DESCRIPTION	BY	DATE

REVISIONS

Logo:

Client:

DEXTER CONSTRUCTION

Address:

PLEASANT STREET
DARTMOUTH, NS

Project:

NEW ASPHALT STORAGE FACILITY

Title:

BUILDING – GENERAL ARRANGEMENT

GALLAGHER TECHNICAL SERVICES LIMITED
22 DOUGLAS DRIVE
QUISPAMSIS, NB
E2G 1Y3
PHONE: 506 849 4116
FAX: 506 847 1070

Stamp:

DESIGN:
DRAWN:
CHECKED:
DATE: MAR 19, 2020
SCALE: 1/4" = 1'–0"
REV.: △

PROJECT NUMBER: GTS–1645

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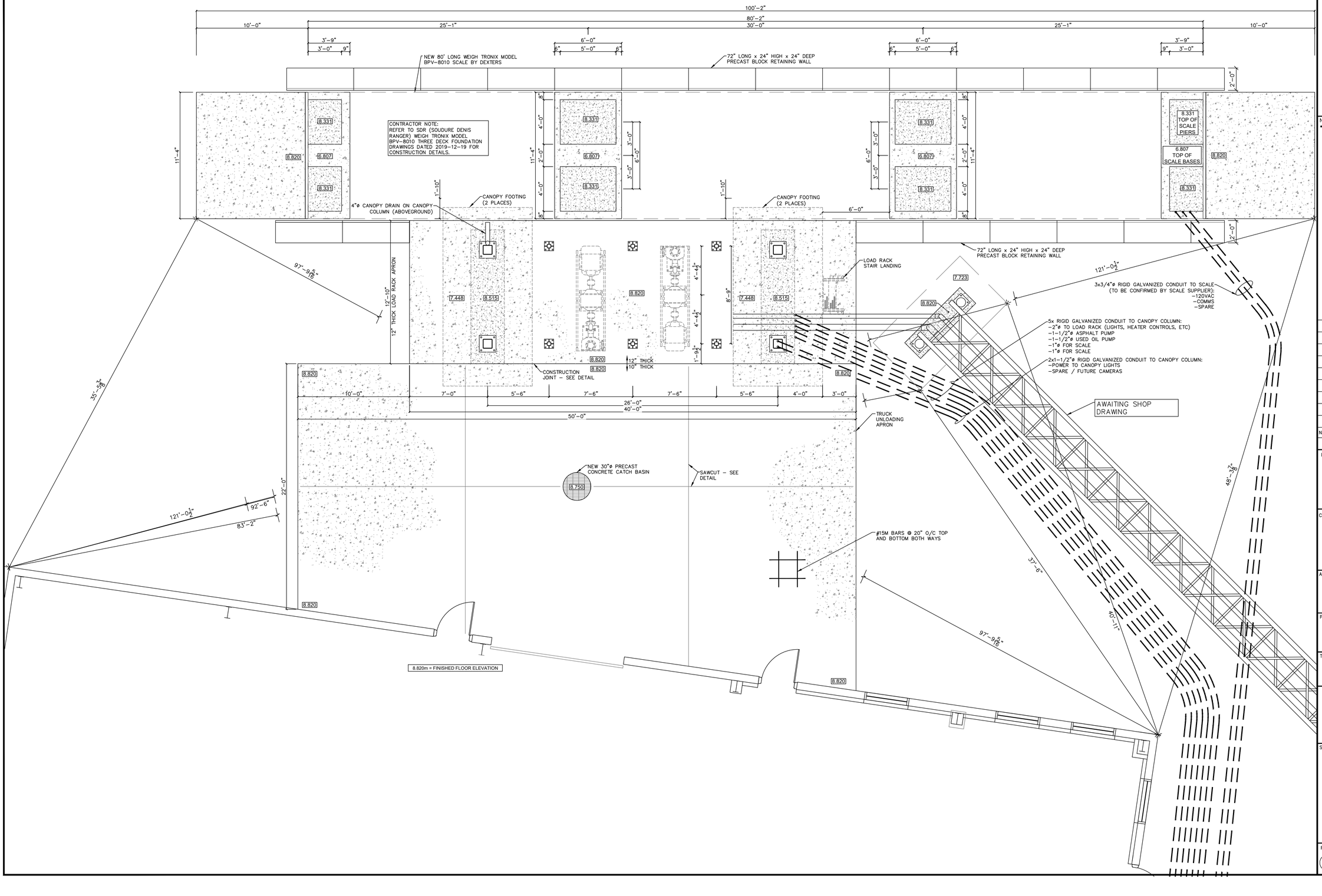

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☐ – FOR CONSTRUCTION		
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No.	DESCRIPTION	BY	DATE

REVISIONS

Logo:

Client:
DEXTER CONSTRUCTION

Address:
PLEASANT STREET
DARTMOUTH, NS

Project:
NEW ASPHALT STORAGE FACILITY

Title:
LOAD RACK FOOTING PLACEMENT

GALLAGHER TECHNICAL SERVICES LIMITED
22 DOUGLAS DRIVE
QUISPAMSIS, NB
E2G 1Y3
PHONE: 506 849 4116
FAX: 506 847 1070

Stamp:

DESIGN:
DRAWN:
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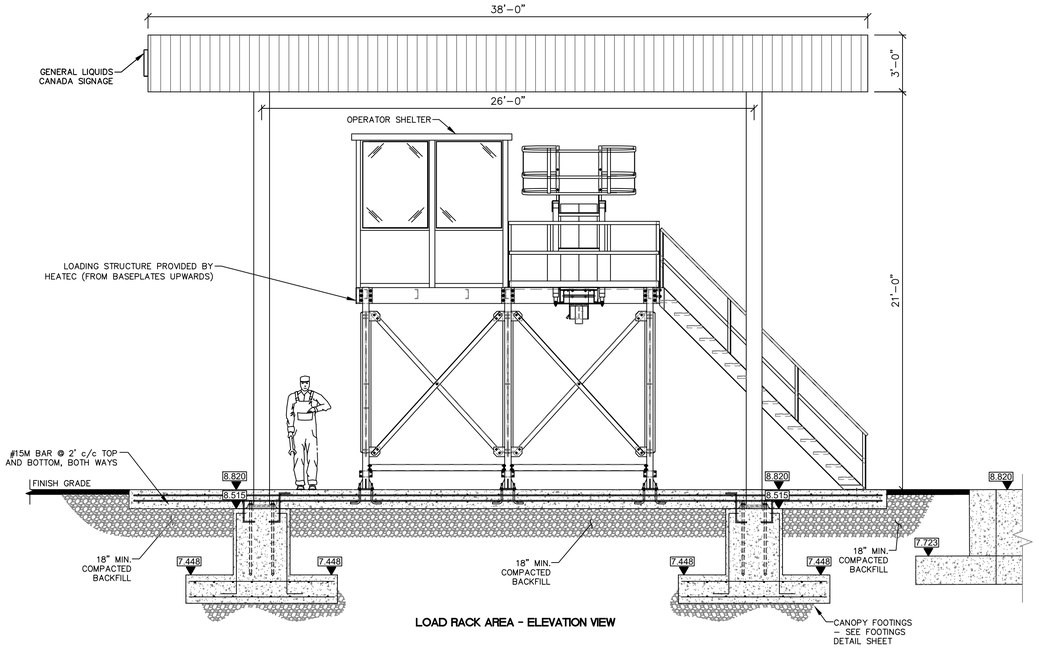
DATE: MAR 19, 2020
SCALE: 1/4" = 1'-0"
REV.: 0

PROJECT NUMBER: GTS-1645
SHEET No. 4



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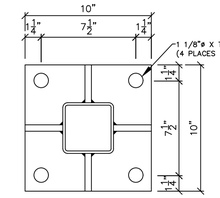

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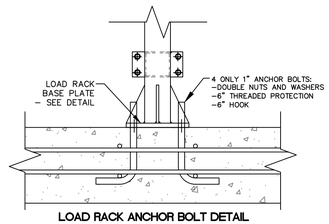

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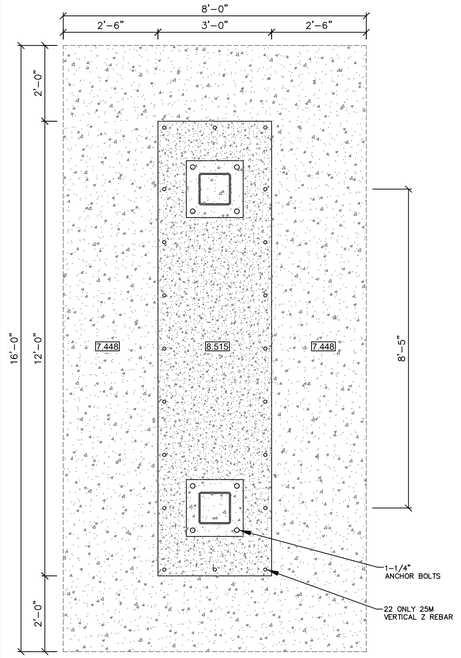

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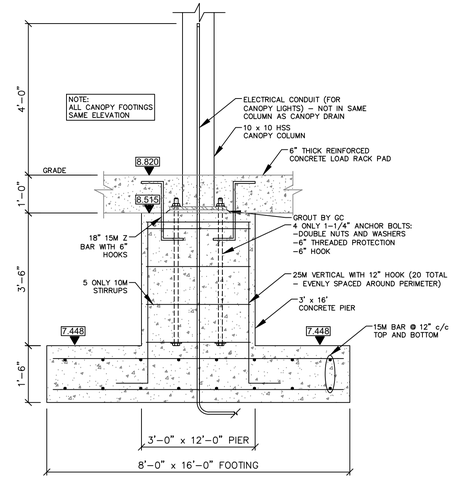

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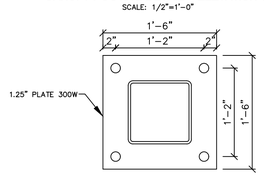

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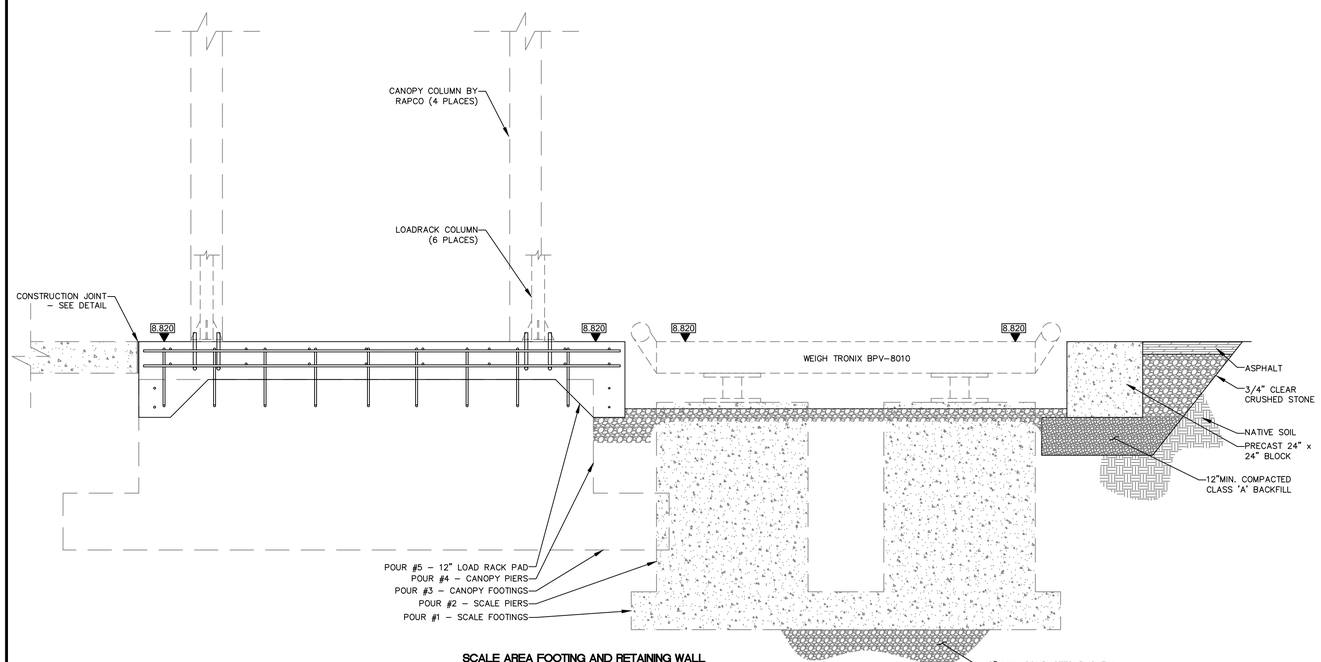

SCALE AREA FOOTING AND RETAINING WALL

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☐ – FOR TENDER		
☐ – FOR CONSTRUCTION		
☐ – FOR AS BUILT		

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No.	DESCRIPTION	BY	DATE

REVISIONS

Logo:

Client:
DEXTER
CONSTRUCTION

Address:
PLEASANT STREET
DARTMOUTH, NS

Project:
NEW ASPHALT STORAGE
FACILITY

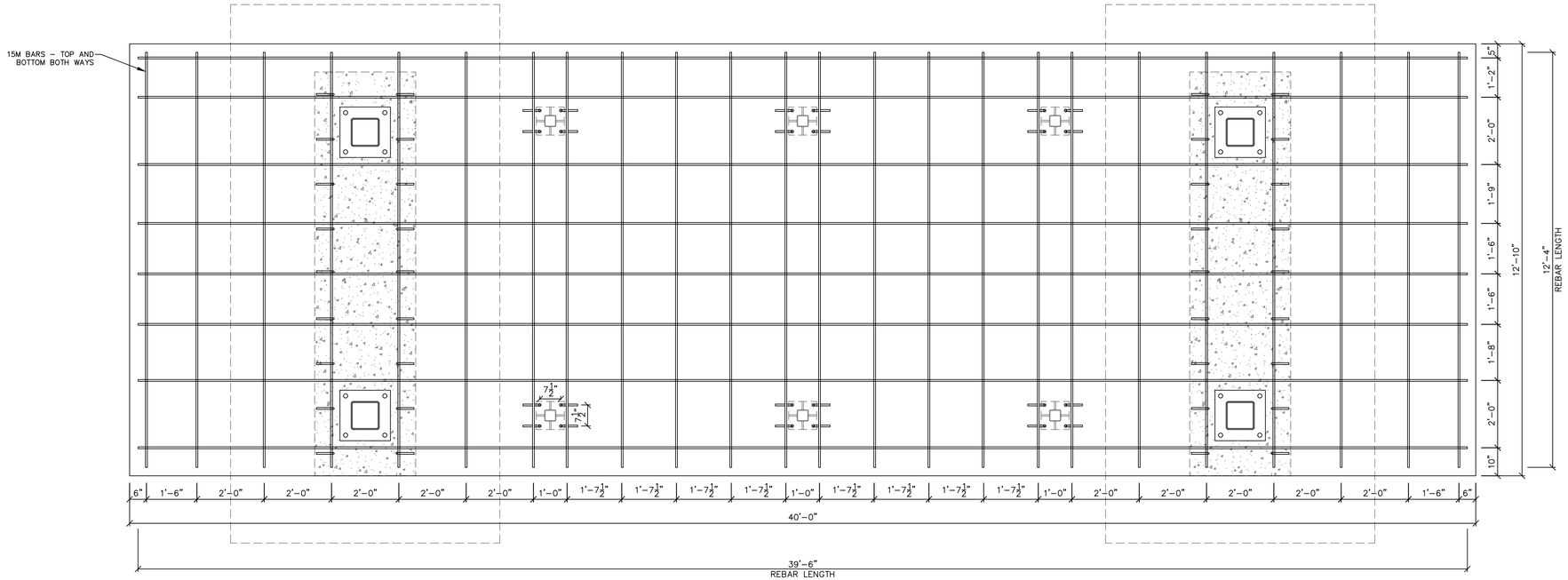
Title:
LOAD RACK FOOTING
DETAILS

GALLAGHER TECHNICAL SERVICES LIMITED
22 DOUGLAS DRIVE
QUISPAMSIS, NB
E2G 1Y3
PHONE: 506 849 4116
FAX: 506 847 1070

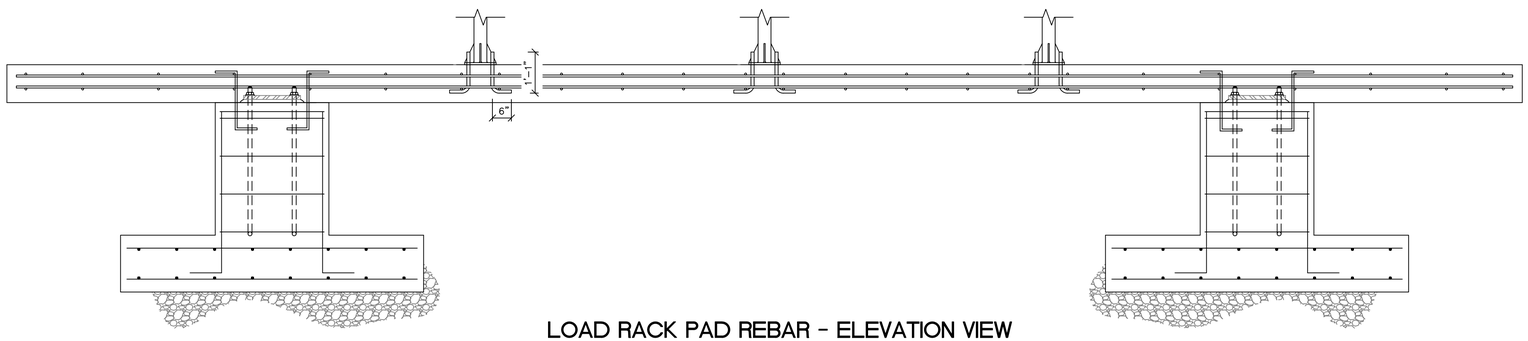
Stamp:

DESIGN:
DRAWN:
CHECKED:
DATE: MAR 19, 2020
SCALE: 1/4" = 1'–0"
REV.: 0

PROJECT NUMBER: GTS–1645
SHEET No. 5



LOAD RACK PAD REBAR – PLAN VIEW



LOAD RACK PAD REBAR – ELEVATION VIEW

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☐ – FOR TENDER		
☐ – FOR CONSTRUCTION		
☐ – FOR AS BUILT		

NOTES:
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No.	DESCRIPTION	BY	DATE

REVISIONS

Logo:

Client:
DEXTER CONSTRUCTION

Address:
PLEASANT STREET
DARTMOUTH, NS

Project:
NEW ASPHALT STORAGE FACILITY

Title:
LOAD RACK APRON
REBAR DETAILS

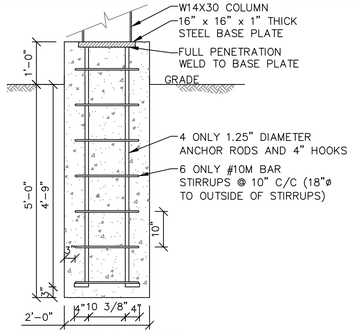
GALLAGHER TECHNICAL SERVICES LIMITED
22 DOUGLAS DRIVE
QUISPAMSIS, NB
E2G 1Y3
PHONE: 506 849 4116
FAX: 506 847 1070

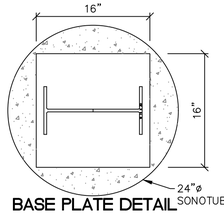
Stamp:

DESIGN:
DRAWN:
CHECKED:
DATE: MAR 19, 2020
SCALE: 1/2" = 1'–0"
REV.: 0

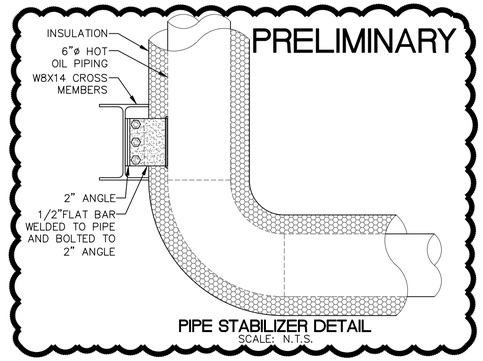
PROJECT NUMBER: GTS–1645

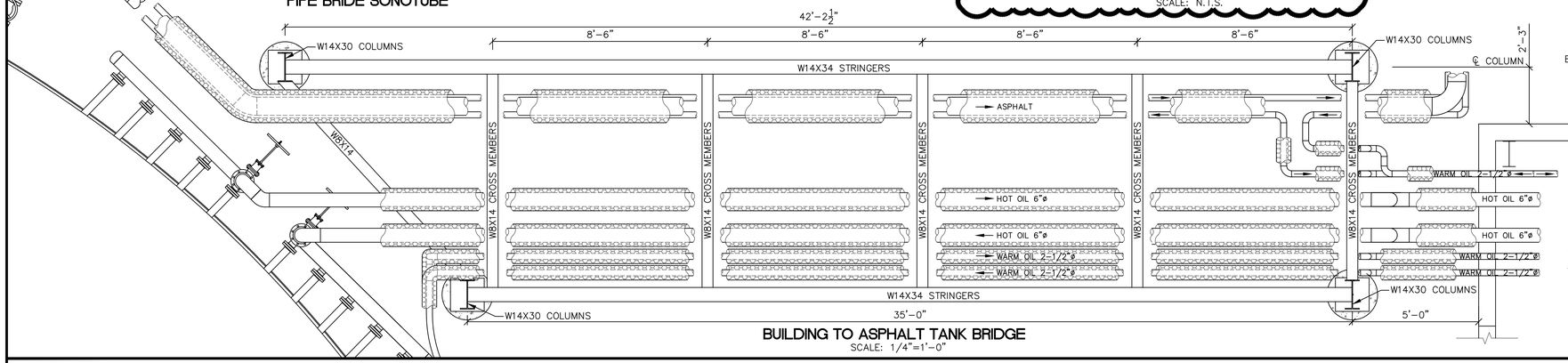
SHEET No. 6

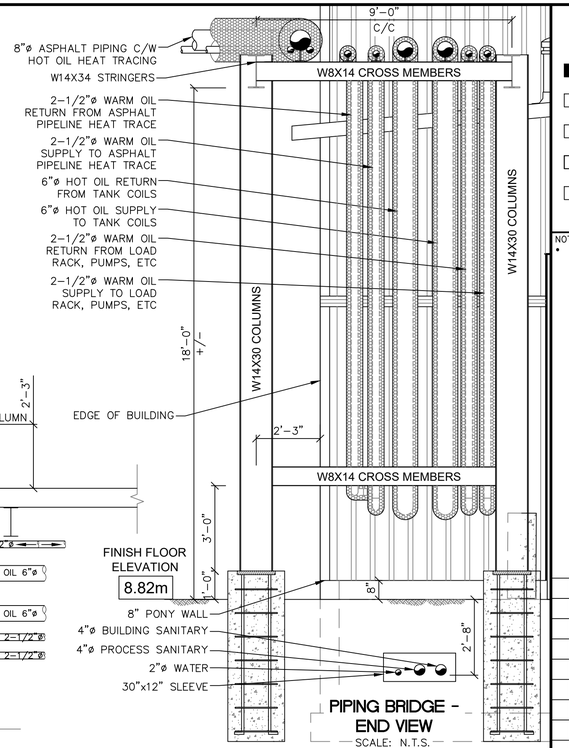




PRELIMINARY







ISSUE

FOR	BY	DATE
■ – FOR REVIEW ONLY	TJC	MAR 19, 2020
□ – FOR APPROVAL		
□ – FOR TENDER		
□ – FOR CONSTRUCTION		
□ – FOR AS BUILT		

NOTES:
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No.	DESCRIPTION	BY	DATE

REVISIONS

Logo:

Client:
DEXTER CONSTRUCTION

Address:
PLEASANT STREET
DARTMOUTH, NS

Project:
NEW ASPHALT STORAGE FACILITY

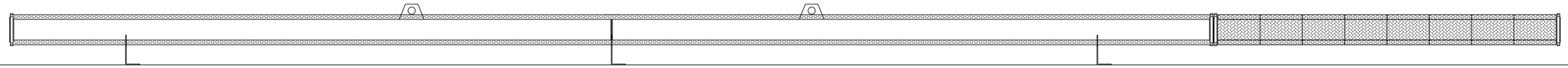
Title:
PIPING BRIDGE DETAILS

GALLAGHER TECHNICAL SERVICES LIMITED
22 DOUGLAS DRIVE
QUISPAMSIS, NB
E2G 1Y3
PHONE: 506 849 4116
FAX: 506 847 1070

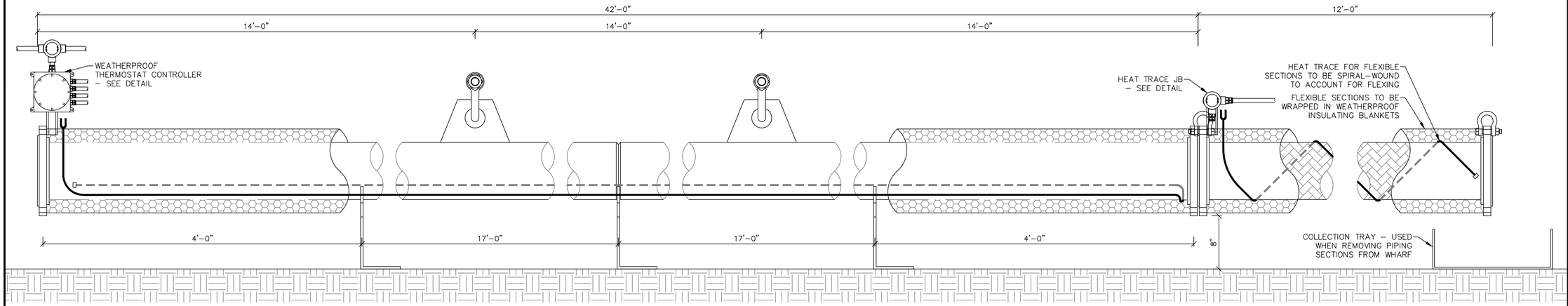
Stamp:

DESIGN:
DRAWN:
CHECKED:
DATE: MAR 19, 2020
SCALE: 3/8" = 1'-0"
REV.: 0

PROJECT NUMBER: GTS-1645
SHEET No. 7



PIPELINE SECTION



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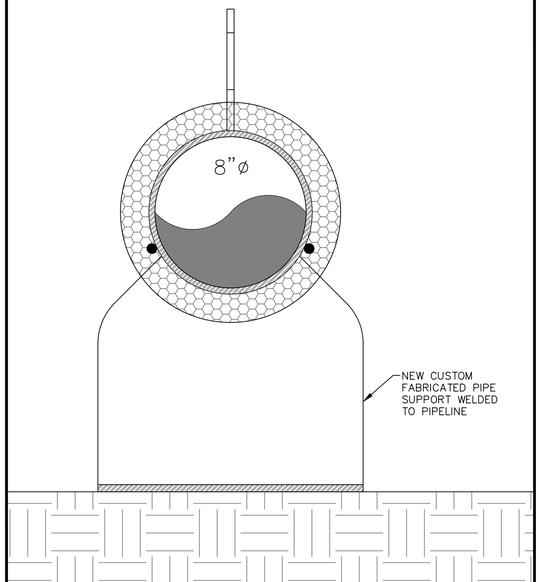
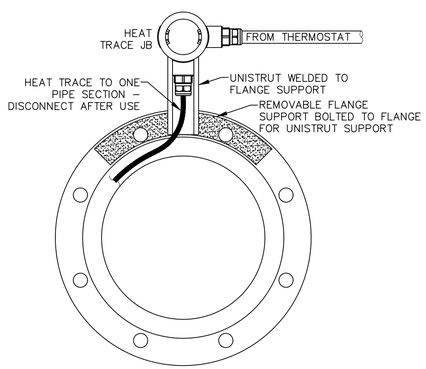
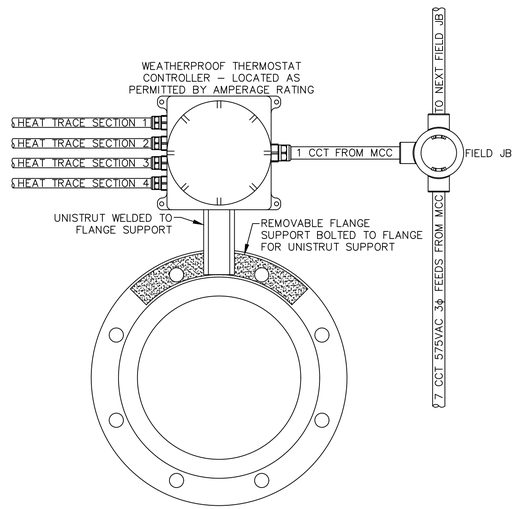


PIPE SUPPORT DETAIL



HEAT TRACE JB
MOUNTING DETAIL



HEAT TRACE CONTROLLER
MOUNTING DETAIL

NOTES:
1. EACH SECTION (FLANGE TO FLANGE) OF PIPING TO BE EQUIPPED WITH STAND-ALONE HEAT TRACING C/W CONNECTION WIRING EXTENDING UP THROUGH INSULATION.
2. EACH SECTION OF RIGID PIPING TO BE EQUIPPED WITH INTEGRAL PIPE SUPPORTS AND LIFTING LUGS.
3. FLEXIBLE SECTIONS TO BE LIFTED USING SHACKLES THROUGH FLANGES AND SPREADER BAR.
4. ENTIRE PIPELINE CAN BE DISASSEMBLED AND REASSEMBLED, IF REQUIRED.

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No.	DESCRIPTION	BY	DATE

REVISIONS

Logo:

Client:
DEXTER CONSTRUCTION

Address:
PLEASANT STREET
DARTMOUTH, NS

Project:
NEW ASPHALT STORAGE FACILITY

Title:
ASPHALT BARGE UNLOADING PIPELINE DETAILS

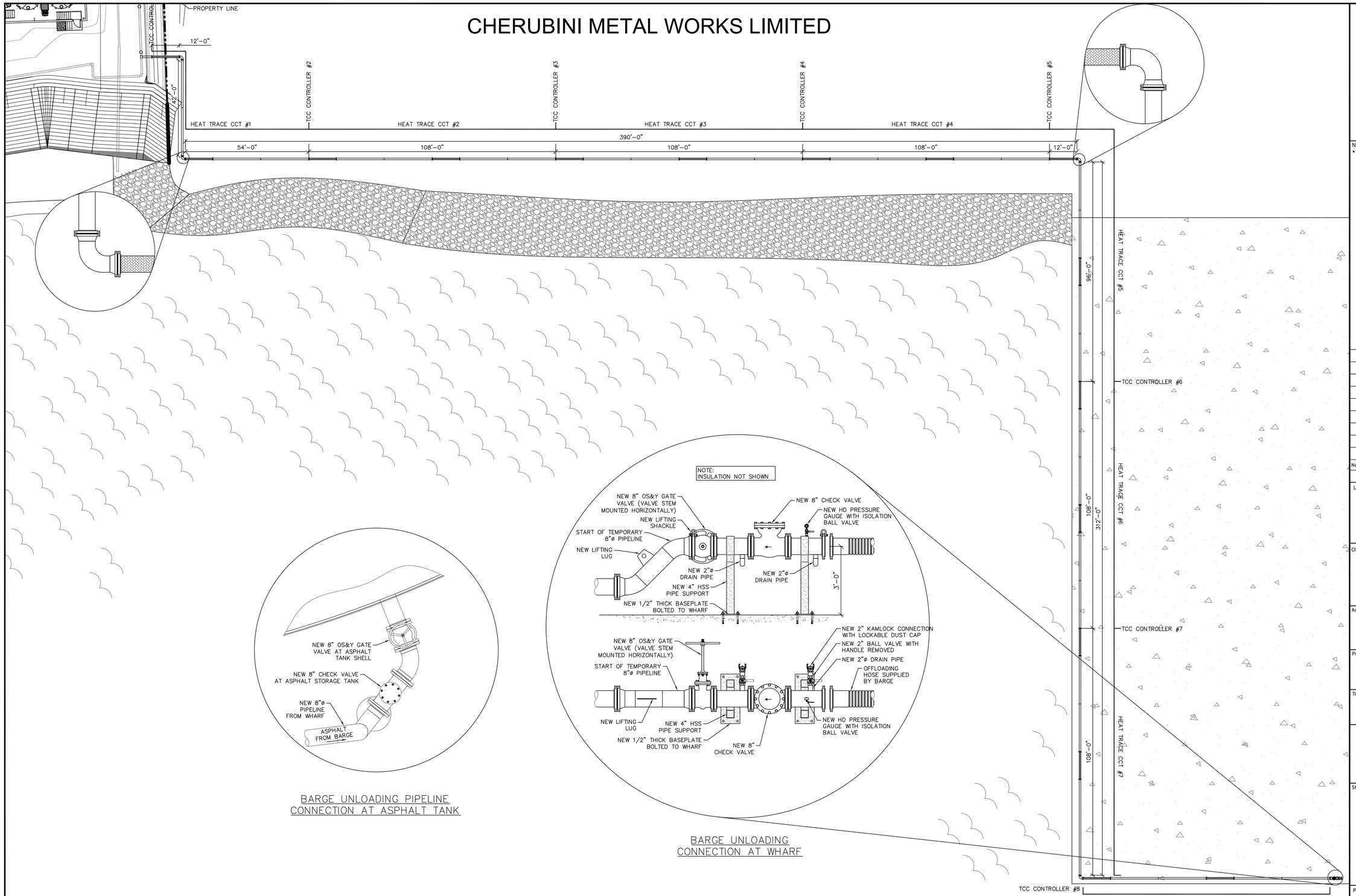
GALLAGHER TECHNICAL SERVICES LIMITED
22 DOUGLAS DRIVE
QUISPAMSIS, NB
E2G 1Y3
PHONE: 506 849 4116
FAX: 506 847 1070

Stamp:

DESIGN:
DRAWN:
CHECKED:
DATE: MAR 19, 2020
SCALE: AS NOTED
REV.: 0

PROJECT NUMBER: GTS–1645
SHEET No. 8

CHERUBINI METAL WORKS LIMITED



BARGE UNLOADING PIPELINE CONNECTION AT ASPHALT TANK

BARGE UNLOADING CONNECTION AT WHARF

ISSUE

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☐ – FOR APPROVAL		
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Address:
PLEASANT STREET
DARTMOUTH, NS

Project:
NEW ASPHALT STORAGE FACILITY

Title:
ASPHALT BARGE UNLOADING PIPELINE LAYOUT

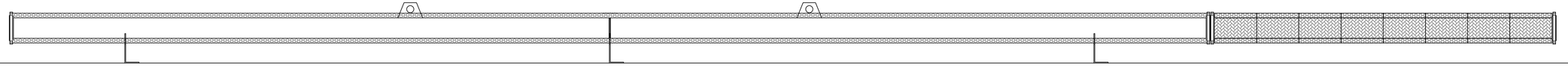
GALLAGHER TECHNICAL SERVICES LIMITED
22 DOUGLAS DRIVE
QUISPAMSIS, NB
E2G 1Y3
PHONE: 506 849 4116
FAX: 506 847 1070

Stamp:

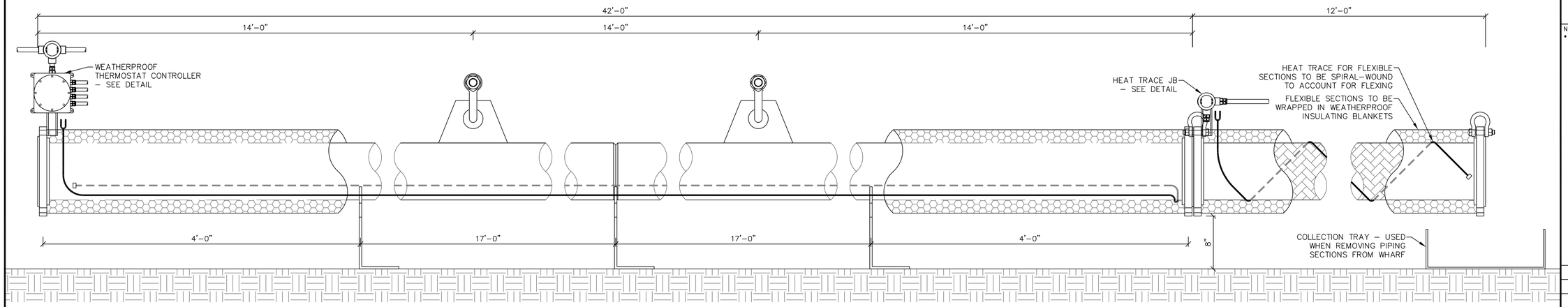
DESIGN:	
DRAWN:	
CHECKED:	
DATE:	MAR 30, 2020
SCALE:	AS NOTED
REV.:	0

PROJECT NUMBER: GTS–1645

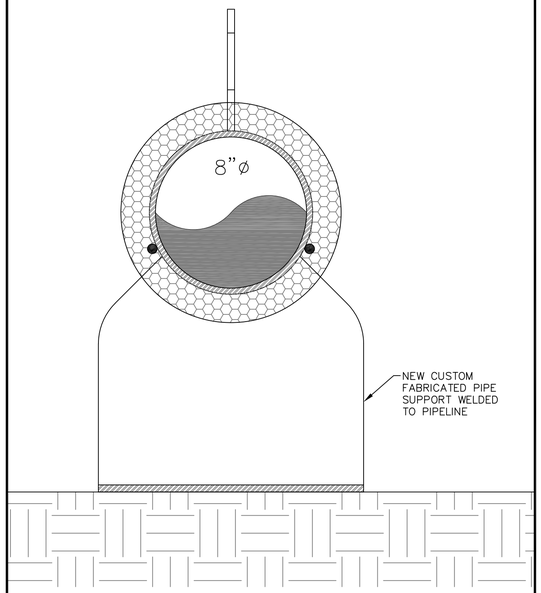
SHEET No. 2



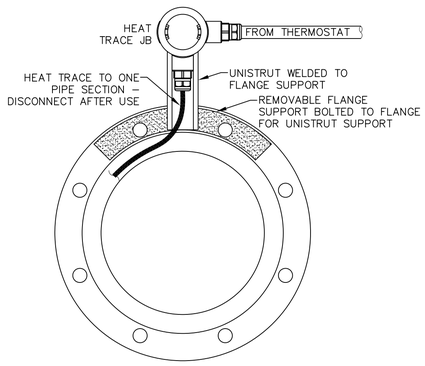
PIPELINE SECTION



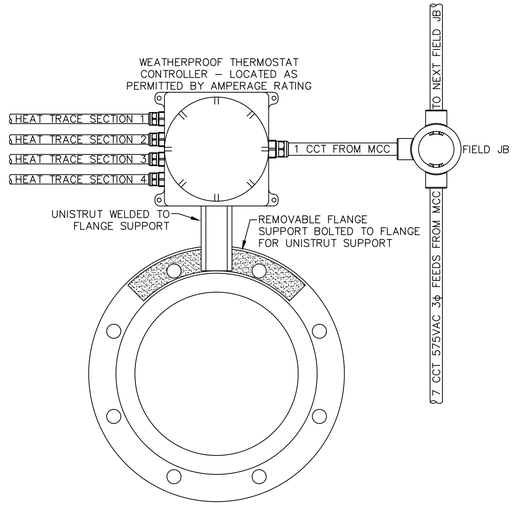
PIPELINE SECTION DETAIL



PIPE SUPPORT DETAIL



HEAT TRACE JB
MOUNTING DETAIL



HEAT TRACE CONTROLLER
MOUNTING DETAIL

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NOTES:
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No.	DESCRIPTION	BY	DATE

REVISIONS

Logo:

Client:
DEXTER CONSTRUCTION

Address:
PLEASANT STREET
DARTMOUTH, NS

Project:
NEW ASPHALT STORAGE FACILITY

Title:
ASPHALT BARGE UNLOADING PIPELINE DETAILS

GALLAGHER TECHNICAL SERVICES LIMITED
22 DOUGLAS DRIVE
QUISPAMSIS, NB
E2G 1Y3
PHONE: 506 849 4116
FAX: 506 847 1070

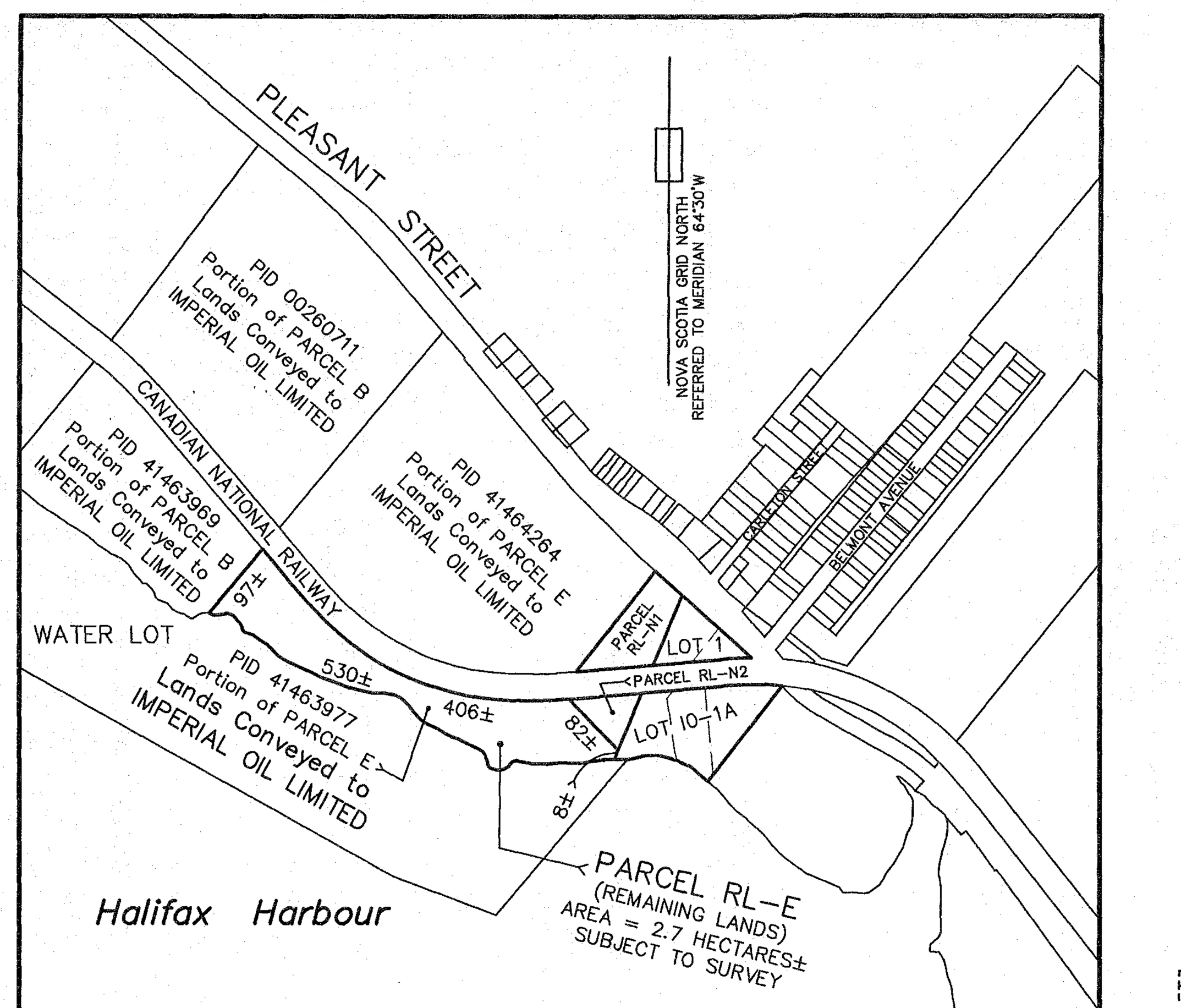
Stamp:

DESIGN:
DRAWN:
CHECKED:
DATE: MAR 30, 2020
SCALE: AS NOTED
REV.: 0

PROJECT NUMBER: GTS–1645
SHEET No. 3

Appendix C

Legal Survey Plan



INSET SHOWING REMAINING LANDS

SCALE : 1/7,500 (METRIC)

GNSS BLOCK

GNSS SURVEY TYPE	NRTK
NRTK SOURCE	CANNET

DATUM BLOCK

HORIZONTAL DATUM:	NAD83 (CSRS)
EPOCH:	2010.0
VERTICAL DATUM:	CGVD2013
OFFSET TO CGVD28:	H_CGVD2013 = H_CGVD28-0.634
PROJECTION:	3° MTM, ZONE 5

CONTROL MONUMENTS

TYPE	POINT NO.	NORTHING	EASTING	ELEVATION	C.S.F. (COMBINED SCALE FACTOR)
N.S.H.P.N.	228251	4,944,385.158	25,577,240.499	12.745	0.999975
N.S.H.P.N.	205336	4,945,409.021	25,575,995.326	10.097	0.999973

HALIFAX REGIONAL MUNICIPALITY
THIS FINAL PLAN OF SUBDIVISION
IS APPROVED FOR

LOT(S) 1, Parcel A as an addition to Parcel 10-1A to create Lot 10-1A (Sect. 41)

DATE: NOV 19 2018

endorsed by Development Officer
Janice MacEwen

WATERCOURSE ALTERATION & PROVINCIAL PERMITS

In the interest of water quality preservation, it is advised that there is a legal requirement under the NS Environment Act and the Activities Designation Regulations to obtain approval from the Dept. of Environment and Labour prior to commencing any work in or around the immediate vicinity of any watercourse, including the bed and shore of every river, stream, lake, creek, pond, spring, lagoon, swamp, marsh, wetland, ravine, gulch or other natural body of water, whether it contains water or not.

HRM WATERCOURSE BUFFERS & DEVELOPMENT

HRM by-laws contain requirements for watercourse buffers relative to adjacent development. Buffers vary in width from a minimum of 20 metres increasing to a maximum of 60 metres, depending on slopes. Activity within buffers is limited and may affect the development of the lots shown on this plan. For specific information concerning watercourse buffer requirements, please contact HRM before applying for construction permits.

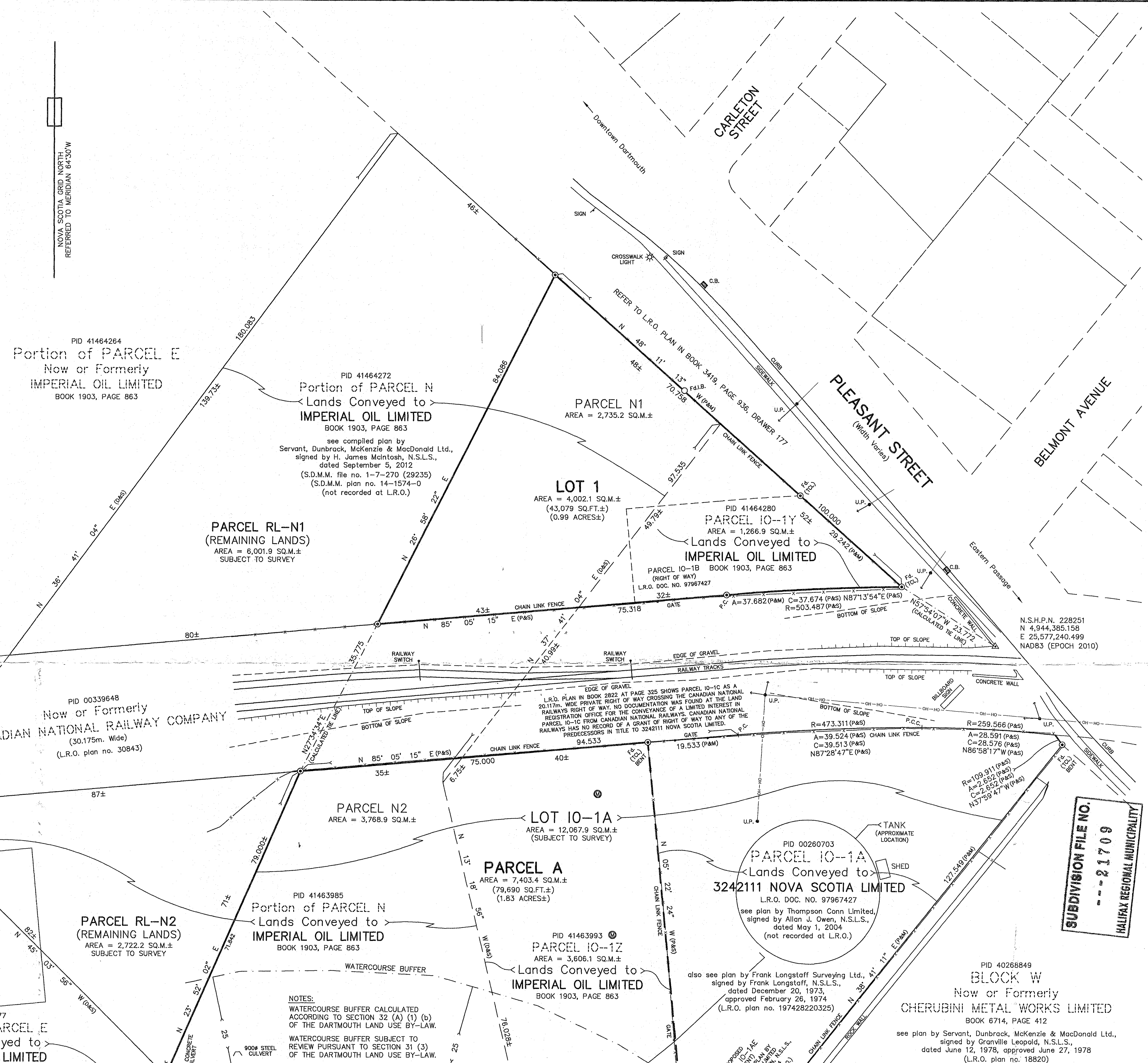
CENTRAL SERVICES

LOT(S) 1
IS CAPABLE OF BEING SERVICED WITH MUNICIPAL WATER AND SEWER.
SERVICE LATERALS FROM THE MAINS TO THE BUILDING SHALL BE THE RESPONSIBILITY OF THE OWNER

Lot 10-1A does not appear to have sufficient frontage on Pleasant Street to access the HRWC water, wastewater and stormwater systems contained within Pleasant Street. Private easements and/or a private crossing of the CN Railway maybe required.

PUBLIC STREETS
THE FOLLOWING STREETS ARE OWNED AND MAINTAINED BY HALIFAX REGIONAL MUNICIPALITY:
Pleasant Street.
(Lot 10-1A does not meet the streets by-law S300 as it pertains to access)

HALIFAX COUNTY LAND REGISTRATION OFFICE
I certify that this plan was registered or recorded as shown here.
Kim MacKay, Registrar



NOTES:

FIELD SURVEYS WERE CARRIED OUT DURING THE PERIOD OCTOBER 12, 2017 TO FEBRUARY 20, 2018.

BEARINGS ARE GRID DERIVED FROM GNSS OBSERVATION REFERENCED TO THE NOVA SCOTIA COORDINATE SURVEY SYSTEM (N.S.H.P.N. 228251) AND ARE REFERRED TO MERIDIAN 64° 30' W, ZONE 5, NAD83 (EPOCH 2010).

FIELD MEASUREMENTS HAVE NOT BEEN ADJUSTED AND SCALE FACTOR HAS NOT BEEN APPLIED.

LOT DESIGNATORS 1 AND 10-1A AND PARCEL DESIGNATORS A, E1, N1, N2, 10-1Y, 10-1Z, RL-N1, RL-N2 AND RL-E ORIGINATE WITH THIS PLAN.

PORTION OF PARCEL N (PID 41463985) TO BE SUBDIVIDED TO FORM PARCEL N2 AND PARCEL RL-N2.

PORTION OF PARCEL N (PID 41464272) TO BE SUBDIVIDED TO FORM PARCEL N1 AND PARCEL RL-N1.

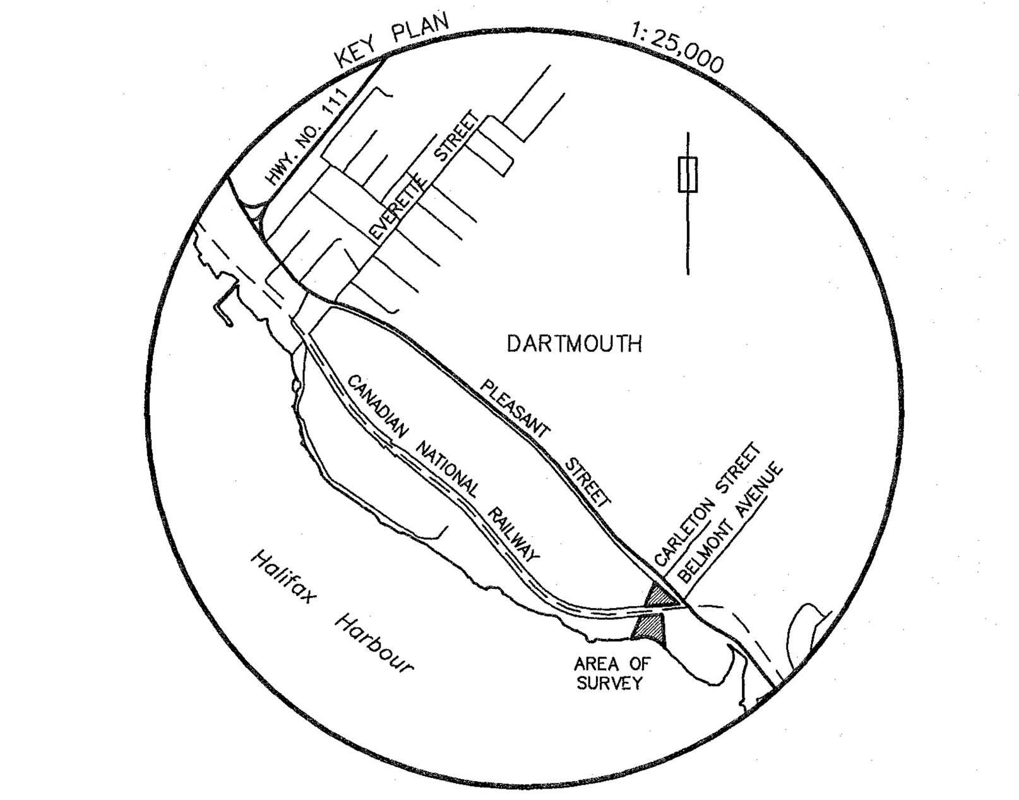
PORTION OF PARCEL E (PID 41463977) TO BE SUBDIVIDED TO FORM PARCEL E1 AND PARCEL RL-E.

PARCEL E1 TO BE CONSOLIDATED WITH PARCEL N2 AND PARCEL 10-1Z TO FORM PARCEL A.

PARCEL A TO BE CONSOLIDATED WITH PARCEL 10-10A TO FORM LOT 10-1A.

PARCEL N1 TO BE CONSOLIDATED WITH PARCEL 10-1Y TO FORM LOT 1.

FINAL APPROVAL IS REQUESTED FOR LOT 1 AND LOT 10-1A.



LEGEND:

- PLACED SURVEY MARKER
- FOUND SURVEY MARKER ... Fd.
- IRON BAR ... I.B.
- NOVA SCOTIA HIGH PRECISION NETWORK MONUMENT ... N.S.H.P.N.
- PLACED ... PL.
- FOUND ... Fd.
- WITNESS ... WIT.
- RADIUS ; ARC ; CHORD ... R ; A ; C
- POINT OF CURVATURE ... P.C.
- POINT OF COMPOUND CURVATURE ... P.C.C.
- CALCULATED ; MEASURED ; SET ... (C) ; (M) ; (S)
- PLAN OF PREVIOUS SURVEY ; DEED ... (P) ; (D)
- LANDS DEALT WITH BY THIS PLAN
- LAND REGISTRATION OFFICE ... L.R.O.
- PROPERTY IDENTIFICATION NUMBER ... PID
- SQUARE METRES ... SQ.M.
- ORDINARY HIGH WATER MARK ... O.H.W.M.
- LIGHT STANDARD ... L.S.
- UTILITY POLE ... U.P.
- GUY WIRE
- OVERHEAD WIRES ... OH
- FENCE ... x
- CATCH BASIN ... C.B.
- MONITORING WELL ... M
- SIGN
- THOMPSON CONN LIMITED ... (TCL)

REF. NO. 171-14462

DWG. NO. 171-14462-620

NOTES RE: LOT 10-1A:

THE ONLY BOUNDARIES SHOWN ON THIS PLAN WHICH HAVE BEEN SURVEYED ARE THE BOUNDARIES OF PARCEL A. THE COMMON BOUNDARY BETWEEN EXISTING PARCEL 10-1A AND PARCEL A WHICH IS SHOWN BY A HEAVY BROKEN LINE IS HEREBY CERTIFIED AS HAVING BEEN THE COMMON BOUNDARY.

THE REMAINING BOUNDARIES OF THE RESULTING LOT 10-1A SHOWN ON THIS PLAN ARE A GRAPHIC REPRESENTATION ONLY AND DO NOT REPRESENT THE ACCURATE SHAPE OR POSITION OF THE LOT BOUNDARIES WHICH ARE SUBJECT TO A FIELD SURVEY.

ADAM STEPHEN, N.S.L.S.

SURVEYOR'S CERTIFICATE:

I, ADAM STEPHEN, NOVA SCOTIA LAND SURVEYOR, HEREBY CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAN WAS CONDUCTED UNDER MY SUPERVISION AND THAT THE SURVEY AND PLAN WERE MADE IN ACCORDANCE WITH THE LAND SURVEYORS ACT, REGULATIONS AND STANDARDS MADE THERE UNDER.

DATED THIS 4TH DAY OF JUNE, 2018.

ADAM STEPHEN, N.S.L.S.

THE ASSOCIATION OF NOVA SCOTIA LAND SURVEYORS
Nº 55659

ASSOCIATION OF NOVA SCOTIA LAND SURVEYORS
FOUNDED 1951
ADAM STEPHEN N.S.L.S.
653
MEMBER

WSP Canada Inc.
1 Spectacle Lake Drive
Dartmouth, Nova Scotia
Canada, B3B 1X7
T 902-835-9955
F 902-835-1645
www.wsp.com

Plan of Survey of **LOT 1** being a Subdivision and Consolidation of a Portion of **PARCEL N** and **PARCEL 10-1Y**, Lands Conveyed to **IMPERIAL OIL LIMITED** and Survey of **PARCEL A**, being a Subdivision and Consolidation of a Portion of **PARCEL E**, a Portion of **PARCEL N** and **PARCEL 10-1Z**, Lands Conveyed to **IMPERIAL OIL LIMITED** and Showing **LOT 10-1A**

PLEASANT STREET
DARTMOUTH
COUNTY OF HALIFAX
PROVINCE OF NOVA SCOTIA

10 8 6 4 2 0 10 20 30 40 50

SCALE : 1/500 (METRIC)
JUNE 4, 2018

Form 28

Purpose: to record a non-enabling document in a parcel register

For Office Use

Registration District: HALIFAX COUNTY

Submitter's User Number: 2757

Submitter's Name: HFX REGIONAL MUN - DARTMOUTH

Take notice that the attached plan/document relates to the following parcels registered under the Land Registration Act

PID: 260703	PID: 41463977	PID: 41463985	PID: 41463993
PID: 41464272	PID: 41464280		

Municipal file number or land registration file number (insert file number used when PIDs were originally assigned during pre approval): MF21709Revised

In the matter of the recording of the following non-enabling instrument (select one) :

- [x] plan
- [ ] boundary line agreement
- [ ] instrument of subdivision
- [ ] statutory declaration regarding de facto consolidation
- [ ] condominium declaration
- [ ] initial condominium bylaws
- [ ] condominium plan
- [ ] repeal of subdivision
- [ ] termination of condominium
- [ ] other (specify)

And in the matter of registered owner (insert name): **IMPERIAL OIL LIMITED**

Note: An amending Parcel Description Certification Application may be required.

Dated at **HALIFAX,** in the County of **HALIFAX ,** Province of Nova Scotia, **Nov 19, 2018.**

Signature of applicant/municipal official/owner/agent

Name: HFX REGIONAL MUN - DARTMOUTH

Address: 40 ALDERNEY DR PO BOX 1749 HALIFAX NS CA B3J 3A5

Phone: 902-490-3993

Email: EASTREG@HALIFAX.CA

Fax: 902-490-4645

Appendix D

Heating Oil Data Sheets

SAFETY DATA SHEET

1. Identification

Identification

Product name: **PARATHERM™ NF**

Additional identification

Chemical name: Mineral oil

Recommended use and restriction on use

Recommended use: Heat Transfer Fluid
Restrictions on use: None identified.

Details of the supplier of the safety data sheet

Supplier

Company Name: PARATHERM
A DIV. OF THE LUBRIZOL CORPORATION

Address: 2009 Renaissance Boulevard
King of Prussia, PA 19406
US

Telephone: 610-941-4900

Emergency telephone number:
FOR TRANSPORT EMERGENCY CALL CHEMTREC (+1)703 527 3887, OR WITHIN USA 800 424 9300

2. Hazard(s) identification

Hazard Classification

Health Hazards

Aspiration Hazard	Category 1

Unknown toxicity

Acute toxicity, oral	0.0 %
Acute toxicity, dermal	0.0 %
Acute toxicity, inhalation, vapor	100.0 %
Acute toxicity, inhalation, dust or mist	0.2 %

Label Elements:

Hazard Symbol:

Signal Word: Danger

Hazard Statement: May be fatal if swallowed and enters airways.

Precautionary Statements:

Response: IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting.

Storage: Store locked up.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification: None identified.

3. Composition/information on ingredients

General information:

Chemical name	CAS number	Percent by Weight
Mineral oil	8042-47-5	90 - 100%

4. First-aid measures

Ingestion: Do NOT induce vomiting. Aspiration of material due to vomiting can cause chemical pneumonitis which can be fatal. If vomiting occurs naturally, the casualty should lean forward to reduce the risk of aspiration. Immediately call a POISON CENTER/doctor.

Inhalation: Remove exposed person to fresh air if adverse effects are observed.

Skin Contact: Wash with soap and water. Get medical attention if symptoms occur. Launder contaminated clothing before reuse.

Eye contact: Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses.

Most important symptoms/effects, acute and delayed

Symptoms: See section 11.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically.

5. Fire-fighting measures

General Fire Hazards: No unusual fire or explosion hazards noted.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: CO2, Dry chemical or Foam. Water can be used to cool and protect exposed material.

Unsuitable extinguishing media:	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical:	A solid stream of water will spread the burning material. Material creates a special hazard because it floats on water. See section 10 for additional information.

Special protective equipment and precautions for firefighters

Special fire fighting procedures:	No data available.
Special protective equipment for fire-fighters:	Recommend wearing self-contained breathing apparatus.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Personal Protective Equipment must be worn, see Personal Protection Section for PPE recommendations.
Methods and material for containment and cleaning up:	Dike far ahead of larger spill for later recovery and disposal. Pick up free liquid for recycle and/or disposal. Residual liquid can be absorbed on inert material.
Environmental Precautions:	Avoid release to the environment. Do not contaminate water sources or sewer. Environmental manager must be informed of all major spillages. Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling:	Avoid contact with eyes and prolonged or repeated contact with skin. Open container in a well ventilated area. Avoid breathing vapors. Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or grounding procedures. Use grounding and bonding connection when transferring material. In case of spills, beware of slippery floors and surfaces. Observe good industrial hygiene practices. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid contact with eyes and prolonged or repeated contact with skin. Open container in a well ventilated area. Avoid breathing vapors. Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or grounding procedures. Use grounding and bonding connection when transferring material. In case of spills, beware of slippery floors and surfaces.
Maximum Handling Temperature:	Not determined.
Conditions for safe storage, including any incompatibilities:	Store away from incompatible materials. See section 10 for incompatible materials.
Maximum Storage Temperature:	Not determined.

8. Exposure controls/personal protection

Control Parameters:

Occupational Exposure Limits

Chemical name	Type	Exposure Limit Values	Source
Mineral oil - Inhalable fraction.	TWA	5 mg/m3	US. ACGIH Threshold Limit Values (02 2012)
Mineral oil - Mist.	REL	5 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
Mineral oil - Mist.	STEL	10 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
Mineral oil - Mist.	PEL	5 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)

Appropriate engineering controls: Adequate ventilation should be provided so that exposure limits are not exceeded.

Individual protection measures, such as personal protective equipment

General information: Use personal protective equipment as required.

Eye/face protection: If contact is likely, safety glasses with side shields are recommended.

Skin Protection

Hand Protection: Nitrile. Gloves should always be inspected before each use and discarded if they show tears, pinholes, or signs of wear. Consult clothing/glove manufacturer to determine appropriate type of glove for given situation.

Other: No data available.

Respiratory Protection: Use disposable dust/mist mask if the recommended exposure limit is exceeded. Consult with an industrial hygienist to determine the appropriate respiratory protection for your specific use of this material. A respiratory protection program compliant with all applicable regulations must be followed whenever workplace conditions require the use of a respirator. Use disposable dust/mist mask if the recommended exposure limit is exceeded.

Hygiene measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

9. Physical and chemical properties

Appearance

Physical state: liquid

Form: liquid

Color: Clear, Colorless

Odor: Mild petroleum/solvent

Odor threshold: No data available.

pH: No data available.

Freezing point:	No data available.
Boiling Point:	> 649 °F (343 °C)
Flash Point:	> 300 °F (149 °C) (ASTM D93 (Pensky-Martens (A and B Closed Cup)))
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	0.1 kPa (20 °C 68 °F)
Vapor density:	No data available.
Relative density:	0.883 68 °F (20 °C)
Solubility(ies)	
Solubility in water:	Insoluble in water
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	18.9 mm2/s (104 °F (40 °C))

Other information

10. Stability and reactivity

Reactivity:	No data available.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Will not occur.
Conditions to avoid:	Do not expose to excessive heat, ignition sources, or oxidizing materials.
Incompatible Materials:	Strong oxidizing agents.
Hazardous Decomposition Products:	Thermal decomposition or combustion may generate smoke, carbon monoxide, carbon dioxide, and other products of incomplete combustion.

11. Toxicological information

Information on likely routes of exposure

Inhalation:	No data available.
Ingestion:	No data available.
Skin Contact:	No data available.
Eye contact:	No data available.

Information on toxicological effects

Acute toxicity

Oral
Product: Not classified for acute toxicity based on available data.

Dermal
Product: Not classified for acute toxicity based on available data.

Inhalation
Product: Not classified for acute toxicity based on available data.

Skin Corrosion/Irritation:
Product: Not classified as a primary skin irritant.
Remarks: Prolonged or repeated skin contact as from clothing wet with material may cause dermatitis. Symptoms may include redness, edema, drying, and cracking of the skin.

Serious Eye Damage/Eye Irritation:
Product: Remarks: Not classified as a primary eye irritant.

Respiratory sensitization:
No data available

Skin sensitization:
Mineral oil Classification: Not a skin sensitizer. (Literature)

Specific Target Organ Toxicity - Single Exposure:
Mineral oil If material is misted or if vapors are generated from heating, exposure may cause irritation of mucous membranes and the upper respiratory tract.

Aspiration Hazard:
Product: May be fatal if swallowed and enters airways.

Chronic Effects

Carcinogenicity:
Product: This mineral oil has been severely refined and is not considered carcinogenic.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):
No carcinogenic components identified

Germ Cell Mutagenicity:

No data available

Reproductive toxicity:

No data available

Specific Target Organ Toxicity - Repeated Exposure:

No data available

12. Ecological information

Ecotoxicity

Fish

Mineral oil

LC 50 (Not reported, 96 h): > 10,000 mg/l
NOEC (Not reported, 96 h): > 10,000 mg/l

Aquatic Invertebrates

Mineral oil

EC 50 (Water flea (Daphnia magna), 2 d): > 100 mg/l
NOEC (Water flea (Daphnia magna), 2 d): >= 100 mg/l
EC 50 (Water flea (Daphnia magna), 21 d): > 10 mg/l
NOEC (Water flea (Daphnia magna), 21 d): 10 mg/l

Toxicity to Aquatic Plants

Mineral oil

LC 50 (Algae (Pseudokirchneriella subcapitata), 3 d): > 100 mg/l
NOEC (Algae (Pseudokirchneriella subcapitata), 3 d): > 100 mg/l

Toxicity to soil dwelling organisms

No data available

Sediment Toxicity

No data available

Toxicity to Terrestrial Plants

No data available

Toxicity to Above-Ground Organisms

No data available

Toxicity to microorganisms

No data available

Persistence and Degradability

Biodegradation

Mineral oil

OECD TG 301 F, 31.13 %, 28 d, Not readily degradable.

Bioaccumulative Potential

Bioconcentration Factor (BCF)

No data available

Partition Coefficient n-octanol / water (log Kow)

No data available

Mobility:

No data available

Other Adverse Effects: No data available.

13. Disposal considerations

Disposal instructions: Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.
Since emptied containers retain product residue, follow label warnings even after container is emptied.

Contaminated Packaging: Container packaging may exhibit hazards.

14. Transport information

DOT
Not regulated.

IMDG
Not regulated.

IATA
Not regulated.

Transport in bulk according to Annex II of MARPOL and the IBC Code
None known.

The DOT shipping information in this section is based on a bulk container. Please review the accompanying shipping papers for the correct shipping descriptions based the size of the package. Shipping descriptions may vary based on mode of transport, quantities, temperature of the material, package size, and/or origin and destination. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material. During transportation, steps must be taken to prevent load shifting or materials falling, and all relating legal statutes should be obeyed. Review classification requirements before shipping materials at elevated temperatures.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4)
None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 311 Classifications
Aspiration Hazard

SARA 302 Extremely Hazardous Substance
None present or none present in regulated quantities.

SARA 304 Emergency Release Notification
None present or none present in regulated quantities.

SARA 313 (TRI Reporting)
None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65
No ingredient regulated by CA Prop 65 present.

Inventory Status

Australia (AICS)
All components are in compliance with chemical notification requirements in Australia.

Canada (DSL/NDSL)
All substances contained in this product are in compliance with the Canadian Environmental Protection Act and are present on the Domestic Substances List (DSL) or are exempt.

China (IECSC)
All components of this product are listed on the Inventory of Existing Chemical Substances in China.

European Union (REACh)
To obtain information on the REACH compliance status of this product, please e-mail REACH@SDSInquiries.com.

Japan (ENCS)
All components are in compliance with the Chemical Substances Control Law of Japan.

Korea (ECL)
All components are in compliance in Korea.

New Zealand (NZIoC)
All components are in compliance with chemical notification requirements in New Zealand.

Philippines (PICCS)
All components are in compliance with the Philippines Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 (R.A. 6969).

Switzerland (SWISS)
All components are in compliance with the Environmentally Hazardous Substances Ordinance in Switzerland.

Taiwan (TCSCA)
All components of this product are listed on the Taiwan inventory.

United States (TSCA)
All substances contained in this product are listed on the TSCA inventory or are exempt.

The information that was used to confirm the compliance status of this product may deviate from the chemical information shown in Section 3.

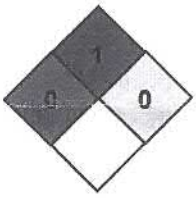
16.Other information, including date of preparation or last revision

HMIS Hazard ID

Health	0
Flammability	1
Physical Hazards	0

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible; *Chronic health effect

NFPA Hazard ID



Flammability
Health
Reactivity
Special hazard.

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Issue Date:	02/19/2018
Version #:	3.0
Source of information:	Internal company data and other publically available resources.
Further Information:	Contact supplier (see Section 1)
Disclaimer:	As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this product. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state, and local regulations remains the responsibility of the user.

Paratherm™ NF

Heat Transfer Fluid

Food Grade • *Low Viscosity for Easy Start Up*

ENGINEERING BULLETIN NF 817

The Paratherm™ NF Heat Transfer Fluid is a food grade, mineral-oil based heat transfer fluid designed for extended trouble-free service in closed-loop liquid-phase systems up to 600°F (316ºC) in fuel-fired heaters and 630°F (232ºC) in electric immersion heaters.

Applications include:

- Chemical reactors
- Food processing
- Portable electric temperature control units
- Electric heaters

Food Grade Means Less Maintenance

The food grade level of quality is not only important for food processing, it also makes Paratherm NF Heat Transfer Fluid one of the lowest maintenance fluids on the market. Impurities that naturally occur in crude oil (such as asphaltenes and sulfur compounds) tend to break down first in the heater and, if severely overheated, can form coke deposits on the heater surfaces. The extensive refining process that makes Paratherm NF food grade removes these impurities so degradation-induced maintenance is reduced.

Low Viscosity Promotes Fast Startups

Minimum startup temperature is a realistic Liquid-phase systems should be brought up to temperature slowly until the fluid is in fully turbulent flow. This prevents localized fluid overheating. Once viscosity decreases enough that turbulent flow is achieved, the outlet temperature can be increased as fast as the equipment can handle. The lower the temperature when that transition occurs, the faster the system will reach operating temperature. Paratherm NF has the lowest viscosity range of any mineral-oil based fluid.

Typical Properties*

Chemical Name		Hydrotreated Naphthenic
Appearance		Water White Liquid
Odor		Odorless
Maximum Recommended Film Temperature		650˚F/343˚C
Maximum Recommended Operating Temperature - Fired Heaters		600˚F/316˚C
Maximum Recommended Operating Temperature - All Others		630˚F/332˚C
Minimum Operating Temperature 20 cPs (20 mPa-s)		97°F/36°C
Minimum Start-up Temperature 300 cPs (300 mPa-s)		24°F/-4°C
Viscosity cSt:	40˚C (104˚F)	18.1
	100˚C (212˚F)	3.8
	288˚C (550˚F)	0.53
Density at 60˚F/15.5˚C lb/gal (kg/m³)		7.4 (880)
Flash Point Pensky-Martens Closed Cup (D93)		>300˚F/149˚C
Boiling Point (14.7 psia/101 kPa)		>649˚F/343˚C
Vapor Pressure @ maximum operating temperature psia (kPa)		2.5 (17)
% Volume expansion over recommended operating temperature per 100˚F (˚C)		6.0 (10.8)
Average Molecular Weight		330
Dielectric Breakdown Voltage D1816-04 (kV, 0.1" gap)		34.37
Dielectric Constant (1 KHz) D924-04		2.183
Dissipation Factor (1 KHz) D924-04		0.000003
Volume Resistivity at 100V (Ω-cm) D257-07		$3.40X10^{14}$
Heat of Combustion (approximate) BTU/lb (kJ/kg)		20,000 (46,300)
Heat of Vaporization (approximate) BTU/lb (kJ/kg)		91 (210)

** These are typical laboratory values, and are not guaranteed for all samples*

High Heat Transfer Coefficients Extend Fluid Life

In heat transfer fluids, the most important advantage of a high heat transfer coefficient is that it reduces the heater surface temperature required to achieve set-point temperature. Lower temperature means less thermal degradation which means longer life. Paratherm NF has the highest heat transfer coefficient of any mineral oil based fluid.

Fluid Storage

Drums should be stored inside to prevent water from getting into the heat transfer fluid. If sealed drums must be left outdoors, they should be stored on their sides. While unopened totes are weatherproof, they should not be stacked if left outdoors. If the fluid is to be stored outside below its minimum pumpable temperature, the containers should be moved indoors to warm up before charging the fluid into the system.

Visit http://paracalc.paratherm.com for detailed properties in a choice of temperature increments.

Replacing Existing Fluid

In many cases, changing fluid involves a straightforward drain and fill. There are very few fluids that are so incompatible that 10-15% residue will affect the new Paratherm. If you have any questions, contact us.

Charging New Systems

Unless required for product quality reasons, new systems do not need to be cleaned before Paratherm is charged. The amount of chemical coatings, oils, and other manufacturing residues are usually not enough to affect the fluid life. All that is necessary is to install a Y-strainer with a minimum 60 mesh screen up stream of the pump to catch any metal or welding residue. The screen can be removed once the system has been cycled twice through its operating temperature.

Fluid Analysis

The fluid in new systems should be tested within 9 to 12 months of start-up. New fluid in existing systems should be tested within the first month of operation to establish a base line for future testing.

Paratherm™
HEAT TRANSFER FLUIDS

A Division of Lubrizol

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+1 800-222-3611
E-mail: info@paratherm.com
Web: www.paratherm.com

Visit http://thermalprops.paratherm.com for detailed properties in a choice of temperature increments.

Appendix E

Boiler Specifications and Emissions

HELICAL COIL HEATERS

FOR HOT MIX ASPHALT

HC-120 with side pumps and Stackpack heat exchanger

HEATEC THERMAL FLUID (hot oil) heaters for the hot mix asphalt (HMA) industry are designed around a helical coil. Our coil meets ASME code.

Although we make several other types of heaters for other industries, our helical coil heaters are the most popular heater in the HMA industry. Their popularity comes from their simplicity, efficiency, low maintenance and relatively low cost.

MODELS AND OUTPUTS

Nine standard models are available. Rated thermal outputs range from 0.7 to 4 million Btu per hour. All can be customized to meet your specific needs.

TWO BASIC CONFIGURATIONS

Heatec helical coil heaters are available in two basic configurations: HC and HCS. The HC configuration (above) has a manifold that enables the heater to operate with multiple thermal fluid circuits.

HEATEC

Heatec HCS helical coil heater for single thermal fluid circuit

LH side of Heatec HCS helical coil heater

The HCS configuration is virtually identical to the HC except that it is intended to operate with a single circuit. It has no manifold.

HCS heater can be upgraded

However, the HCS heater can be upgraded to the HC configuration by adding an optional manifold. The upgrade can be done at any time as needed.

High efficiency reduces costs

A hallmark of our helical coil heater is high thermal efficiency. Thermal efficiencies of our standard heaters range up to 85 percent LHV, depending upon fluid outlet temperature and fuel.

Thermal efficiency is the total amount of heat produced by the burner versus the portion actually transferred to thermal fluid flowing through the coil. Thus, in our heaters, up to 85 percent of the total heat is transferred to the thermal fluid. Increasing efficiency reduces fuel usage.

Achieving super-efficiency

Adding a **STACKPACK**™ heat exchanger boosts thermal efficiency another 5 percent. It makes our current heater super-efficient. That extra percentage reduces monthly fuel usage by 261 gallons of No. 2 fuel oil or 345 therms of natural gas. The Stackpack heat exchanger usually pays for itself in a year or less.

Controls

Heater controls automatically maintain the operating temperature set by the operator. Accuracy is within a half percent of set temperature. The temperature of thermal fluid at the heater's outlet can be maintained up to 450 degrees F (depending on variables).

Numerous safety features ensure heater operation is always within prescribed limits. Heaters shut down automatically if an abnormal operating condition occurs.

Switches and sensors in a ***limit*** circuit ensure normal operation. They monitor burner flame, thermal fluid temperature, exhaust gas temperature, flow of thermal fluid, and combustion air pressure.

Burner controls

Fireye™ burner management controls known as BurnerLogix™ provide proper and safe operation of the burner. They include a display, burner control, programmer, annunciator and flame scanner.

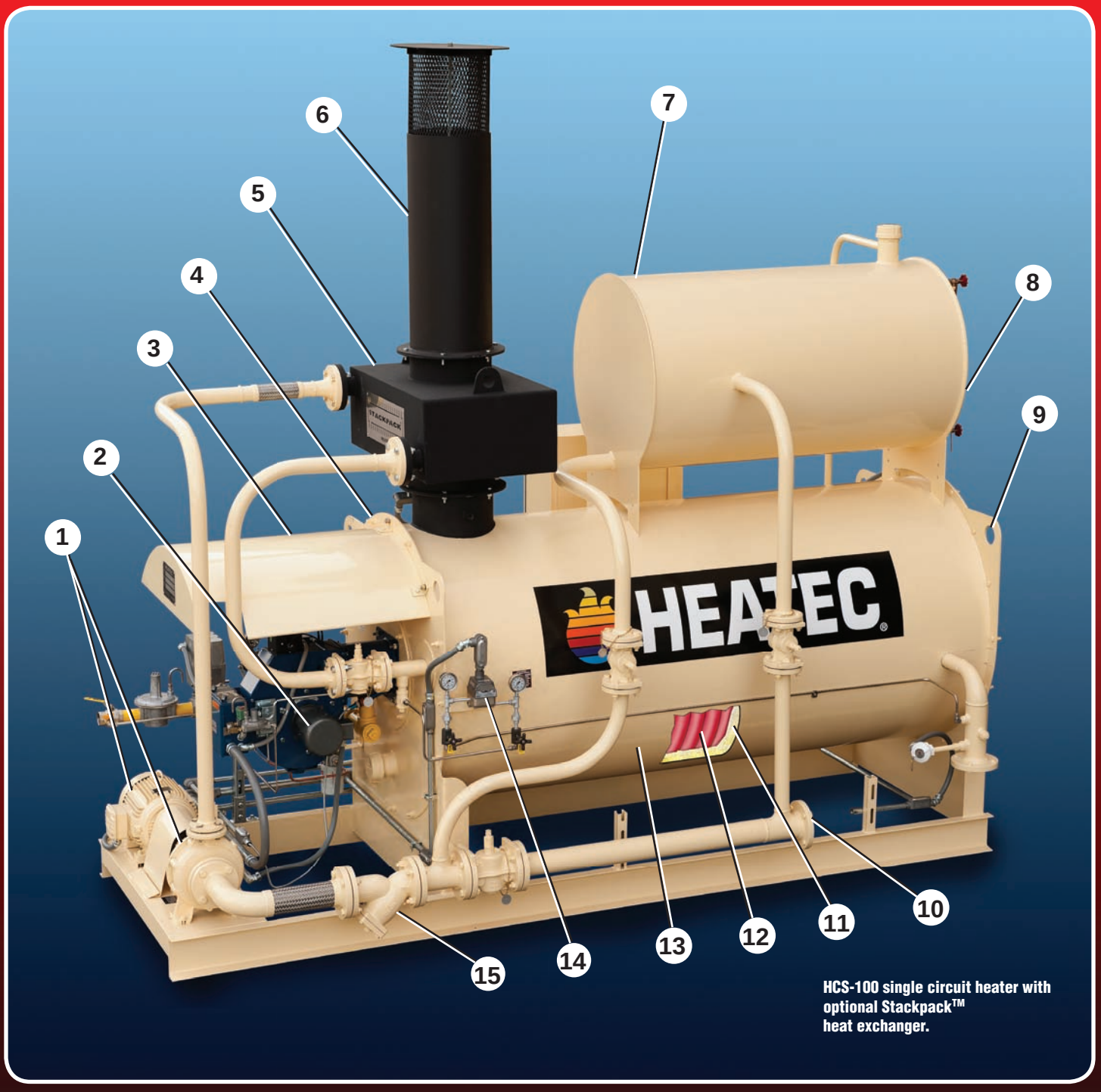
The burner control uses a microprocessor for its management functions. The processor provides the proper burner sequencing, ignition and flame monitoring protection.

The controls provide important messages about the operating status of the heater. If there is an alarm condition, a message will appear on the display. The message identifies the cause of the alarm, including which safety device in the *limit* circuit may have caused the shuddown.

Control panel

Main controls are in a UL approved NEMA-4 panel, which protects against windblown dust and rain, splashing water and hose-directed water. Wiring workmanship is meticulous and meets strict standards. All wires and terminals are labeled for easy identification of circuits. A laminated circuit diagram is furnished.

NOTE: Fireye and BurnerLogix are trademarks of Fireye, Inc.



HCS-100 single circuit heater with optional Stackpack™ heat exchanger.

1. Hot oil (thermal fluid) recirculation pump and motor.
2. Fully modulating burner.
3. Rain shield.
4. End plates bolt on and have lifting eyes.
5. Stackpack™ heat exchanger (optional).
6. Exhaust stack.
7. Thermal fluid expansion tank.
8. Low media level switch (not visible).
9. One of four lifting eyes.
10. Single circuit configuration shown can be upgraded to multiple circuit by adding manifold.
11. 3" ceramic fiberglass insulation.
12. Helical coil. Built to ASME code.
13. Heater shell. Welded A-36 steel plate.
14. Pressure differential switch.
15. Thermal fluid Y-strainer.

SPECIFICATIONS

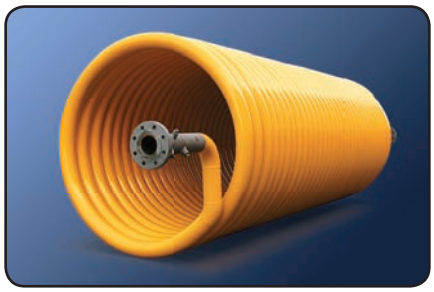
BASIC MODEL	MAXIMUM OUTPUT	FUEL USED PER HOUR		RECIRCULATION PUMP		EXPANSION TANK	APPROXIMATE OVERALL SIZE			NET WEIGHT
	Btu/Hour	No. 2 Fuel Oil Gallons	Natural Gas Cubic feet/hour	Hp	GPM	Gallons	Length	Width	Height	Pounds
SINGLE CIRCUIT HEATERS										
HCS-70	700,000	6	910	10	100	100	10'-5"	5'-7"	8'-10"	3,700
HCS-100	1,200,000	11	1,560	10	100	175	12'-1"	5'-9"	9"-0"	5,000
HCS-175	2,000,000	18	2,600	15	150	280	14'-5"	6'-3"	9'-7"	6,500
HCS-250	3,000,000	27	3,900	15	150	280	15'-9"	7'-4"	10'-6"	9,300
HCS-350	4,000,000	36	5,200	15	200	400	18'-1"	7'-4"	11'-5"	10,700
MULTI-CIRCUIT HEATERS										
HC-120	1,200,000	11	1560	10	100	175	12'-1"	5'-11"	9"-0"	5,100
HC-200	2,000,000	18	2600	15	150	280	14'-5"	6'-5"	9'-7"	6,600
HC-300	3,000,000	27	3,900	15	150	280	15'-9"	7'-6"	10'-6"	9,500
HC-400	4,000,000	36	5,200	15	200	400	18'-1"	7'-6"	11'-5"	10,900

The amount of fuel used is for a thermal efficiency of 85% and one hour of operation at maximum output. A properly sized heater normally runs for intermittent periods at lower outputs. No. 2 fuel usage is based on 132,000 Btu per gallon, its LHV (low heating value). Natural gas usage is based on 905 Btu per cubic foot, its LHV. Heights include the exhaust stack without a Stackpack heat exchanger. The Stackpack exchanger for the HCS-350 and HC-400 weighs 800 pounds and adds 2'-7" to their height. For all other models it weighs 460 pounds and adds 1'-9" to their height.

NOTE: Specifications are subject to change without prior notice or obligation.

Burner modulation

The heater has a fully modulating burner with appropriate turndown ratios. Modulation allows its firing rate to closely match the heat demand. This conserves fuel, reduces temperature overshooting and eliminates constant on-off recycling.



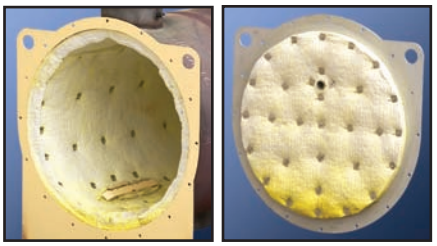
Helical coils

Helical coils in our heaters set us apart from others that produce helical coil heaters for the HMA industry. We are the only heater manufacturer that builds *all* coils to ASME code. Certification is optional.

Coils in HCS heaters have a three year warranty. Coils in HC heaters have a five year warranty.

Insulation

The shell of our heater is fully insulated with 3 inches of ceramic fiberglass insulation. The end plates are also insulated. All insulation is treated to retard errosion.



Options

Options include: Stackpack heat exchanger, seven-day time clock, sock filter, automated monitor (dialer), burners for various fuels, and steel valves. A variety of electrical power options are available.

Factory testing and startup

All HC and HCS heaters are factory-tested. We provide startup services with fees based on time at site plus travel time and expenses.

Warranty and factory support

Our heaters have a one-year limited warranty. Additionally, the coils have an extended warranty as noted earlier. Round-the-clock support is available from our in-house parts and service departments.

HEATEC

Publication 8-09-229

HEATEC, INC. an Astec Industries Company

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Power Flame Incorporated

9/28/2006
Rev. 02/28/2012

Typical Flue Product Emissions
Data for Power Flame Burners

	Natural Gas	L.P. Gas	# 2 Fuel Oil [1]
Carbon Monoxide - CO	.037 lb CO 10^6 BTU input (50 PPM)	.037 lb CO 10^6 BTU input (50 PPM)	.037 lb per 10^6 BTU INPUT (50 PPM)
Sulfur Dioxide - SO_2	(1.05) x (% Sulfur by weight in fuel) = lb SO_2 per 10^6 BTU Input		
Particulate Matter	.0048 lb PM per 10^6 BTU input	.0048 lb PM per 10^6 BTU input	.0143 lb PM per 10^6 BTU input
Hydrocarbons	.025 lb HC's per 10^6 BTU input	.025 lb HC's per 10^6 BTU input	.038 lb HC's per 10^6 BTU input
CO_2	9 % to 10%	10% to 12%	10% to 13%
Nitrogen Oxides - NO_x			
Standard J, FDM & X4 Gas Burners	.088 lb NO_x per 10^6 BTU input (75 PPM)	.092 lb NO_x per 10^6 BTU input (75 PPM)	N/A N/A
Standard C(R) Burners	.088 lb NO_x per 10^6 BTU input (75 PPM)	.092 lb NO_x per 10^6 BTU input (75 PPM)	.12 lb NO_x per 10^6 BTU Input (90) PPM[2]
LNIC(R) Burners Fire box/Cast Iron boilers	.029 lb NO_x per 10^6 BTU input (25 PPM)	.031 lb NO_x per 10^6 BTU input (25 PPM)	.12 lb NO_x per 10^6 BTU Input (90) PPM[2]
LNIC(R) Burners Water tube boilers	.024 lb NO_x per 10^6 BTU input (20 PPM)	.031 lb NO_x per 10^6 BTU input (25 PPM)	.12 lb NO_x per 10^6 BTU Input (90) PPM[2]
LNIAC Burners	.029 lb NO_x per 10^6 BTU input (25 PPM)	.031 lb NO_x per 10^6 BTU input (25 PPM)	.12 lb NO_x per 10^6 BTU Input (90) PPM
CM Burners	.070 lb NO_x per 10^6 BTU input (60 PPM)[4]	.074 lb NO_x per 10^6 BTU input (60 PPM)[4]	.146 lb NO_x per 10^6 BTU Input (110) PPM
LNICM Burners Scotch Boiler	.033 lb NO_x per 10^6 BTU input (30) PPM	.033 lb NO_x per 10^6 BTU input (30) PPM	.12 lb NO_x per 10^6 BTU Input (90) PPM
LNICM Burners Fire box/Cast Iron boilers	.029 lb NO_x per 10^6 BTU input (25) PPM	.031 lb NO_x per 10^6 BTU input (25) PPM	.12 lb NO_x per 10^6 BTU Input (90) PPM
LNICM Burners Water tube boilers	.029 lb NO_x per 10^6 BTU input (20) PPM	.031 lb NO_x per 10^6 BTU input (20) PPM	.12 lb NO_x per 10^6 BTU Input (90) PPM
NPM Premix Burners	.029 lb NO_x per 10^6 BTU input (25) PPM	.031 lb NO_x per 10^6 BTU input (25) PPM	N/A N/A
Nova Plus Burners NVC AND NP2	.010 lb NO_x per 10^6 BTU input (9) PPM	.015 lb NO_x per 10^6 BTU input (12) PPM	N/A N/A

(1) NOx emissions at 3 % 02 will vary based on the percent of fuel bound nitrogen (these are based on .02%) and boiler or heat exchanger configurations

(2) 90 PPM NOx on cast iron sectional, fire box and water tube boiler, 120 PPM on fire tube boilers. (.159 lb NOx per 10^6 BTU Input)

(3) Burning natural gas the VOC are estimated at 0.003 # per million BTU and SO_x are 0.0005 # per million BTU.

(4) In some applications the CMAX will achieve less than 60 PPM without flue gas recirculation - consult factory.

These emission rates are general estimates and do not constitute guarantees by Power Flame Inc.
In instances where guarantees are required, please consult the factory with the specific application information.
All NOx numbers stated are corrected to 3% O_2

Appendix F

Indigenous and Stakeholder Engagement Notification

GLC | GENERAL LIQUIDS CANADA

March 5, 2020

Chief and Council
Sipeknekatik (Shubenacadie) First Nation
522 Church Street
Indian Brook, Nova Scotia
B0N 1W0

Dear Chief and Council,

General Liquids Canada Ltd.'s Pleasant Street Liquid Asphalt Storage Facility – Environmental Registration Document for a Class 1 Undertaking Under Section 9 (1) of the NS Environment Assessment Regulations

General Liquids Canada (GLC), represented by Dillon Consulting Limited, is in the process of preparing an Environmental Assessment (EA) Registration document for a proposed Liquid Asphalt Storage Facility on Pleasant Street in Dartmouth, Nova Scotia (see attached Figures).

The Project consists of the development of an asphalt storage facility on private property which is accessed from Pleasant St. The approximate center of the study area is at Universal Transverse Mercator (UTM) 20 T 458189 4942535. The facility will be constructed and operated on existing commercial/industrial land. Industrial land uses border on each side of the property proposed for the development, specifically Cherubini Metal Works to the east and the now decommissioned Imperial Oil Refinery to the west. There will be no discharge to the Halifax Harbour from the proposed Liquid Asphalt Storage Facility.

The purpose of the Project is to provide local road construction contracting companies with an alternative source of liquid asphalt to be used in the road construction industry.

It is anticipated that the EA Registration document will be submitted to Nova Scotia Environment (NSE) on March 20, 2020. If possible, we would appreciate any pre-submission comments you may have prior to March 13, 2020. Comments can be sent via email or in writing to the project contacts listed below.

GLC | GENERAL LIQUIDS CANADA

As a Class 1 project, the EA Registration document will be publically available on NSE's website for Environmental Assessments and the NSE review will follow the typical timeline of approximately 50 calendar days.

We extend the offer to provide the EA Registration document directly at your request.

If you have any questions or comments during the interim, or wish to meet to discuss the project, please contact either:

Paul Koke, Project Manager
Dillon Consulting Limited
137 Chain Lake Drive, Suite 100
Halifax, NS, B3S 1B3
Ph: 902.450.5015 ext. 5065
Email: pkoke@dillon.ca

Patrick Rooney, Director of Manufacturing
Municipal Group of Companies
927 Rocky Lake Dr.
Bedford, NS, B4A 3Z2
Ph: 902.835.3381
Email: prooney@dexter.ca

Sincerely,

GENERAL LIQUIDS CANADA

Patrick Rooney, Director of Manufacturing

PEK:cmc
Attachment(s): Site Figures
cc: Office of Aboriginal Affairs

Our file: 19-1742-1000

DILLON CONSULTING

Koke, Paul <pkoke@dillon.ca>

Nova Scotia Environmental Assessment | 750 Pleasant Street | Asphalt Storage

1 message

Koke, Paul <PKoke@dillon.ca> Mon, Apr 6, 2020 at 3:13 PM
To: pleasantwoodside@gmail.com
Bcc: 191742 <191742@dillon.ca>

Good afternoon,

Re: 750 Pleasant Street - Asphalt Storage Project

I am reaching out to the Pleasant Woodside Neighbourhood Association (PWNA) as a potential local stakeholder organization for the subject project.

The proposed Project consists of the development of an asphalt storage and transfer facility on private property which is accessed from Pleasant St. The facility will be constructed and operated on existing commercial/industrial land. Industrial land uses border on each side of the property proposed for the development, specifically Cherubini Metal Works to the east and the now decommissioned Imperial Oil Refinery to the west. The storage tanks will be fully enclosed, and there will be no chemical processing, or discharge to the Halifax Harbour from the proposed asphalt storage facility. The purpose of the Project is to provide local road construction contracting companies with an alternative source of liquid asphalt to be used in the road construction industry.

General Liquids Canada, represented by Dillon Consulting Limited, is in the process of preparing an Environmental Assessment (EA) Registration Document for the proposed undertaking. It is expected that this EA Registration document will be available for public review and comments in mid to late April on Nova Scotia Environment's EA website at: https://novascotia.ca/nse/ea/projects.asp.

Hard copy versions of the EA Registration document are typically made available for public viewing at local and public spaces during the 30 day public review period. As an alternative, and due to current COVID-19 concerns and social distancing requirements mandated by the Province, if PWNA would like hard copies sent to you for review, please contact me.

If you have any questions or comments regarding the proposed project prior to the availability of the EA Registration Document or would like to discuss any elements of the project, please do not hesitate to reach out to me.

Best Regards,

Paul

--

DILLON CONSULTING

CANADA BEST MANAGED COMPANIES
Platinum member

Paul Koke
Associate
Dillon Consulting Limited
137 Chain Lake Drive Suite 100
Halifax, Nova Scotia, B3S 1B3
T - 902.450.5015 ext. 5065
F - 902.450.2008
M - 902.499.9505
PKoke@dillon.ca
www.dillon.ca

DILLON CONSULTING

Koke, Paul <pkoke@dillon.ca>

Nova Scotia Environmental Assessment | 750 Pleasant Street | Asphalt Storage

Pleasant Woodside <pleasantwoodside@gmail.com> Tue, Apr 14, 2020 at 11:41 AM
To: "Koke, Paul" <PKoke@dillon.ca>

Paul

Thank you for sharing the information on your project at 750 Pleasant Street with our Association. I trust you have also shared it with the Councillor for District 3 (Dartmouth South Eastern Passage) Bill Karsten.

Your project will not likely impact our immediate area which, on the south ends, at the Circumferential Highway. We are concerned with traffic volumes on Pleasant Street from the Circumferential to Downtown Dartmouth. There is a South Woodside Community Centre that may have an interest.

Stay well

Grant MacDonald
Chair
Pleasant-Woodside Neighbourhood Association.

[Quoted text hidden]

> [Quoted text hidden]
> This message is directed in confidence solely to the person(s) named above and may contain privileged, confidential or private information which is not to be disclosed. If you are not the addressee or an authorized representative thereof, please contact the undersigned and then destroy this message.
>
> Ce message est destiné uniquement aux personnes indiquées dans l'entête et peut contenir une information privilégiée, confidentielle ou privée et ne pouvant être divulguée. Si vous n'êtes pas le destinataire de ce message ou une personne autorisée à le recevoir, veuillez communiquer avec le soussigné et ensuite détruire ce message.

--
Pleasant-Woodside Neighbourhood Association
Dartmouth, Nova Scotia

DILLON CONSULTING

Koke, Paul <pkoke@dillon.ca>

Nova Scotia Environmental Assessment | 750 Pleasant Street | Asphalt Storage

Koke, Paul <PKoke@dillon.ca> Tue, Apr 21, 2020 at 5:20 PM
To: bernadettecranford@gmail.com
Bcc: 191742 <191742@dillon.ca>

Good afternoon,

Re: 750 Pleasant Street - Asphalt Storage Project

I am reaching out to the South Woodside Community Association as a potential local stakeholder organization for the subject project.

The proposed Project consists of the development of an asphalt storage and transfer facility on private property which is accessed from Pleasant St. The facility will be constructed and operated on existing commercial/industrial land. Industrial land uses border on each side of the property proposed for the development, specifically Cherubini Metal Works to the east and the now decommissioned Imperial Oil Refinery to the west. The storage tanks will be fully enclosed, and there will be no chemical processing, or discharge to the Halifax Harbour from the proposed asphalt storage facility. The purpose of the Project is to provide local road construction contracting companies with an alternative source of liquid asphalt to be used in the road construction industry.

General Liquids Canada, represented by Dillon Consulting Limited, is in the process of preparing an Environmental Assessment (EA) Registration Document for the proposed undertaking. It is expected that this EA Registration document will be available for public review and comments in late April/early May on Nova Scotia Environment's EA website at: https://novascotia.ca/nse/ea/projects.asp.

Hard copy versions of the EA Registration document are typically made available for public viewing at local and public spaces during the 30 day public review period. As an alternative, and due to current COVID-19 concerns and social distancing requirements mandated by the Province, if PWNA would like a hard copy sent to you for review, please contact me.

If you have any questions or comments regarding the proposed project prior to the availability of the EA Registration Document or would like to discuss any elements of the project, please do not hesitate to reach out to me.

Best Regards,

Paul

--

DILLON CONSULTING

CANADA BEST MANAGED COMPANIES
Platinum member

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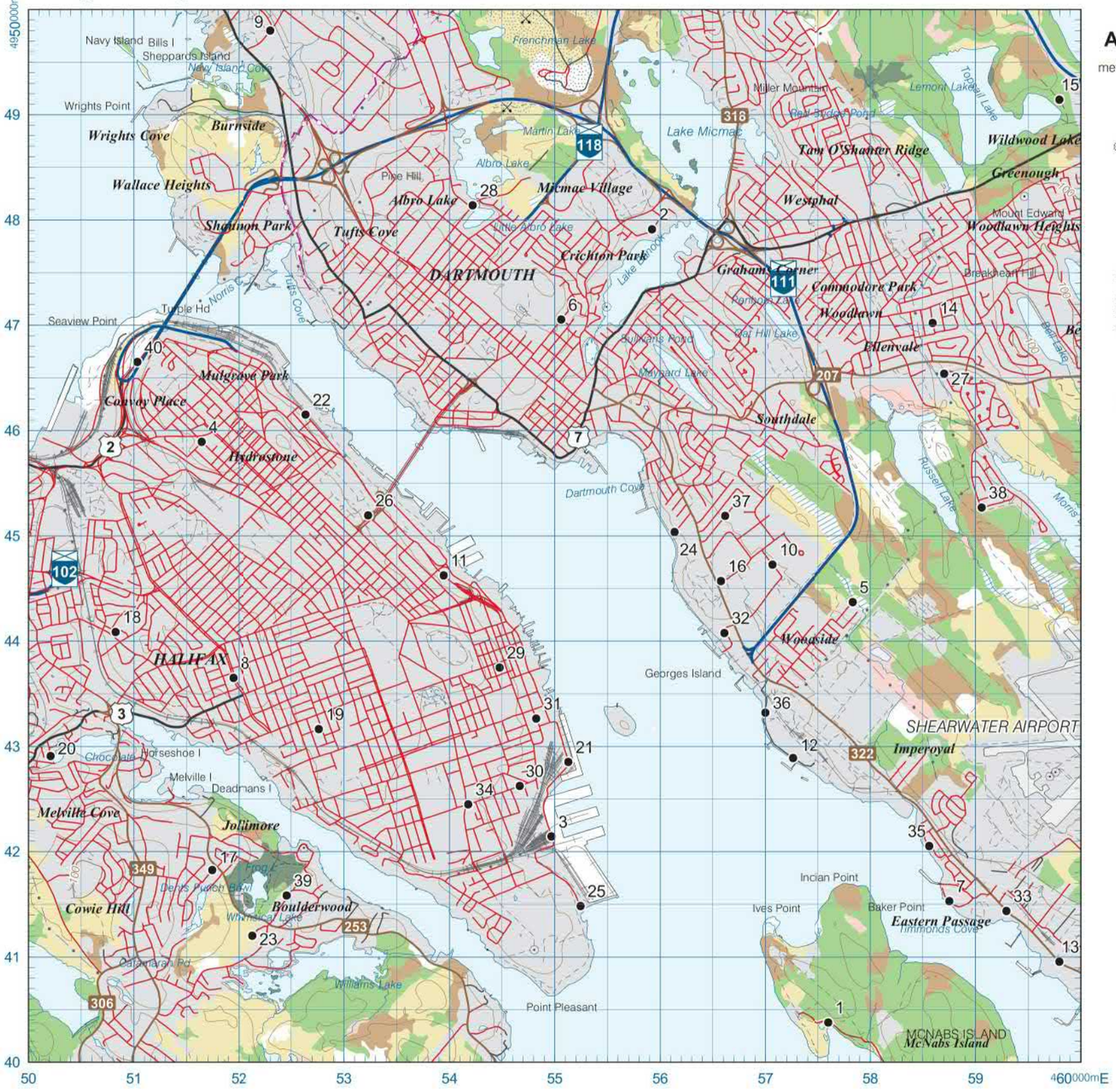
Appendix G

Memo: Avian Species Review, Assessment and Mitigation (750 Pleasant Street, Dartmouth, Nova Scotia)

Region 20 Région *Nova Scotia* **Halifax** *Nouvelle-Écosse* **20MQ54**



Maritime Breeding Bird Atlas 2006 - 2010
Atlas des oiseaux nicheurs des Maritimes

metres 1000 0 1000 2000 mètres

6° Universal Transverse Mercator (UTM) Projection, Zone 20, North American Datum (NAD) 1983.

6° Projection universel transverse de Mercator (UTM), Zone 20, Système de référence nord-américain de 1983.

Disclaimer

The Province of Nova Scotia accepts no liability for any errors, deficiencies, or faults on this map.

Avis

La Province de la Nouvelle-Écosse ne peut être tenu responsable pour des erreurs, défectuosités,ou anomalies dans la présente carte.

Cartographic production by the Nova Scotia Department of Natural Resources, 2006.

Production cartographique de la Province de la Nouvelle-Écosse, Ministère des Ressources naturelles, 2006.

Roadside Point Count Coordinates
Coordonnées de points d'écoute de bordure de route

#	Easting Abscisse	Northing Ordonnée	#	Easting Abscisse	Northing Ordonnée
01	457,603	4,940,377	21	455,131	4,942,851
02	455,925	4,947,913	22	452,636	4,946,150
03	454,970	4,942,143	23	452,130	4,941,201
04	451,646	4,945,893	24	456,138	4,945,036
05	457,835	4,944,370	25	455,246	4,941,482
06	455,062	4,947,054	26	453,231	4,945,195
07	458,753	4,941,529	27	458,705	4,946,541
08	451,947	4,943,650	28	454,223	4,948,140
09	452,301	4,949,800	29	454,478	4,943,748
10	457,067	4,944,727	30	454,669	4,942,624
11	453,948	4,944,624	31	454,825	4,943,264
12	457,263	4,942,890	32	456,611	4,944,076
13	459,800	4,940,954	33	459,296	4,941,437
14	458,596	4,947,022	34	454,181	4,942,450
15	459,800	4,949,144	35	458,563	4,942,053
16	456,579	4,944,570	36	457,001	4,943,319
17	451,746	4,941,825	37	456,619	4,945,189
18	450,828	4,944,087	38	459,062	4,945,269
19	452,763	4,943,164	39	452,457	4,941,583
20	450,211	4,942,907	40	451,033	4,946,652

Map is for Maritime Breeding Atlas work only.

L'usage de cette carte est limité aux activités de l'Atlas des oiseaux nicheurs des Maritimes seulement.

ATLAS DES OISEAUX NICHEURS DES MARITIMES
BREEDING BIRD ATLAS

NOVA SCOTIA
NOUVELLE-ÉCOSSE

BIRD STUDIES CANADA
ÉTUDES D'OISEAUX CANADA

Apr 13, 2006

Legend • Légende

- Trans-Canada highway / Route transcanadienne (104)
- Arterial highway / Route artétielle (102)
- Trunk highway / Route principale (2)
- Collector highway / Artère collectrice (224)
- Road, hard surface / Route, revêtement dur
- Road, loose surface / Route de gravier
- Resource access road / Route de ressource
- Vehicle track / Chemin de terre
- Trail / Sentier
- Power transmission line / Ligne de transport d'énergie
- Railway / Chemin de fer
- Railway, abandoned / Chemin de fer, abandonné
- Pipeline underground / Pipeline souterrain
- Contour 20 m / Courbes de niveau 20 m
- Contour 100 m (index) / Courbes de niveau 100 m (Index) (100)
- Watercourse or shoreline / Cours d'eau ou rive
- Lake, river, ocean / Lac, rivère, océan
- Tower / Tour
- Pit, quarry, mine / Carrière de cailloux, carrière, mine
- Indian Reserve / Réserve indienne

Habitat • Habitat

- Mature coniferous forest / Forêt de conifères mature
- Mature deciduous forest / Forêt de feuillus mature
- Mature pine forest / Forêt de pins mature
- Young forest / Jeune forêt
- Shrubby wetland / Marécage arbustif
- Open wetland / Marécage
- Upland open country / Terrain ouvert: agricole, non-boisé
- Occupied, urban, other / Terrain occupé, zone urbaine, autre

20MQ54

Nouvelle-Écosse

Halifax

Nova Scotia

Region 20 Région

ATLAS DES OISEAUX NICHEURS DES MARITIMES
BREEDING BIRD ATLAS

Square Summary (20MQ54)

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
19	21	74	114	20	32	68	120	105	129.6	15	1

Region summary (#20: Chebucto - Musquodoboit)

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
103	93	98	146	177	944	386

Target number of point counts in this square: 13 road side, 2 off road (2 in Mature coniferous). Please try to ensure that each off-road station is located such that the entire 100m radius circle is within the prescribed habitat.

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Canada Goose		P	15	61	Great Blue Heron §		H	26	40	Common Tern §	ON	NY	17	30
Wood Duck		FY	17	46	Green Heron †			0	0	Arctic Tern ‡§			9	11
Gadwall ‡		D	0	4	Turkey Vulture ‡¤			0	4	Black Guillemot ‡§			1	12
Eurasian Wigeon ‡			0	0	Osprey	AY	NY	56	72	Rock Pigeon	AY	NY	49	67
American Wigeon ‡		FY	0	7	Bald Eagle ¤		AE	24	69	Mourning Dove	ON	NY	24	81
American Black Duck	FL	FY	68	84	Northern Harrier	H	H	41	53	Black-billed Cuckoo			4	17
Mallard	FL	FY	17	38	Sharp-shinned Hawk	FL	T	20	43	Great Horned Owl	T	T	24	47
Mallard x Am. Black Duck ‡		D	0	4	Northern Goshawk			17	33	Barred Owl	H	A	37	67
Blue-winged Teal	FL		8	6	Red-should Hawk †			1	0	Long-eared Owl †			1	7
Northern Pintail			3	3	Broad-winged Hawk	H	H	22	45	Short-eared Owl †		FY	1	2
Green-winged Teal	T	H	21	24	Red-tailed Hawk	H	P	37	63	North Saw-whet Owl	H		16	45
Ring-necked Duck	T	FY	40	50	Virginia Rail †			2	3	Common Nighthawk †	NE	D	49	56
Greater Scaup †			0	0	Sora	T	T	15	10	Chuck-will's-widow †		P	0	1
Common Eider §			7	20	American Coot †			0	1	Whip-poor-will ‡	H	H	5	1
Harlequin Duck †			0	0	Semipalmated Plover †			2	0	Chimney Swift †	ON	AE	35	14
Common Goldeneye ‡		D	0	7	Piping Plover †			3	6	Ruby-thr Hummingbird	NE	FY	52	86
Hooded Merganser	H	FY	6	28	Killdeer	NE	T	51	36	Belted Kingfisher	T	FY	49	82
Common Merganser		P	33	55	Spotted Sandpiper	NE	FY	54	66	Red-bell Woodpecker †		FY	0	1
Red-breast Merganser			6	15	Greater Yellowlegs †			3	23	Yellow-bellied Sapsucker		N	36	41
Ring-necked Pheasant	FL	FY	29	70	Willet			16	24	Downy Woodpecker	NY	NY	51	81
Ruffed Grouse	T	T	49	78	Lesser Yellowlegs ‡			0	0	Hairy Woodpecker	NY	NY	54	86
Spruce Grouse	FL		25	27	Least Sandpiper †			4	2	Black-back Woodpecker	T	A	22	47
Common Loon	NE	T	61	72	Wilson's Snipe	T	T	45	43	Northern Flicker	ON	NY	82	92
Pied-billed Grebe		H	10	13	American Woodcock			20	53	Pileated Woodpecker		H	41	72
Leach's Storm-Petrel ‡§			1	5	Black-headed Gull ‡			0	0	American Kestrel	H	A	39	50
Northern Gannet ‡			0	0	Ring-billed Gull ‡§			0	3	Merlin	ON	NY	18	52
Double-crest Cormorant §		P	13	31	Herring Gull §	NY	FY	31	40	Olive-sided Flycatcher †	H		44	60
Great Cormorant ‡§			2	5	Great Black-backed Gull §	NY	NY	31	31	Eastern Wood-Pewee	T	H	55	55
American Bittern	T	H	19	26	Roseate Tern ‡§			3	2	Yellow-bellied Flycatcher	H	S	58	73

Maritimes Breeding Bird Atlas - Summary Sheet for Square 20MQ54 (page 2 of 3)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Alder Flycatcher	FL	NY	77	89	Eastern Bluebird †			3	5	Pine Warbler †		S	0	1
Willow Flycatcher †		S	0	1	Veery	T		44	30	Yellow-rumped Warbler	AY	FY	82	92
Least Flycatcher	H	FY	36	68	Swainson's Thrush	AY	T	74	85	Black-thr Green Warbler	AY	CF	82	89
Eastern Phoebe		S	4	15	Hermit Thrush	AY	A	80	91	Canada Warbler †	T	S	66	52
Gr Crested Flycatcher	NY		6	2	Wood Thrush †			1	4	Wilson's Warbler	T		15	20
Eastern Kingbird	FL		22	25	American Robin	AY	NY	87	91	Chipping Sparrow	AY	FY	51	54
Blue-headed Vireo	UN	CF	69	89	Gray Catbird	AY	FY	51	57	Vesper Sparrow †			0	3
Warbling Vireo †			0	4	Northern Mockingbird †	NY	H	9	2	Savannah Sparrow	AY	A	58	58
Philadelphia Vireo ‡			2	9	Brown Thrasher †	T	P	1	2	Ipswich Sparrow †			0	2
Red-eyed Vireo	AY	NY	81	88	European Starling	NY	NY	75	75	Nelson's Sh.-tail Sparrow			13	15
Gray Jay	FL		62	68	Cedar Waxwing	AY	FY	68	88	Fox Sparrow			10	16
Blue Jay	NY	NY	77	85	Ovenbird	FL	T	66	74	Song Sparrow	NY	NY	84	92
American Crow	NY	NY	83	91	North Waterthrush			40	34	Lincoln's Sparrow		FY	41	57
Common Raven	ON	NY	74	91	Black-white Warbler	FL	NY	81	87	Swamp Sparrow	FL	NY	58	85
Horned Lark †	H		3	1	Tennessee Warbler	AY	T	78	48	White-throat Sparrow	AY	NY	87	90
Tree Swallow	ON	FY	80	87	Nashville Warbler	FL	A	65	83	Dark-eyed Junco	AY	NY	86	91
Bank Swallow §	H		49	22	Mourning Warbler			32	32	Scarlet Tanager †	P	S	4	4
Cliff Swallow §	H		34	18	Common Yellowthroat	AY	CF	86	91	Northern Cardinal ‡		NY	0	7
Barn Swallow	ON	FY	83	75	American Redstart	AY	CF	87	88	Rose-breast Grosbeak	H		32	30
Black-capp Chickadee	AY	NY	79	91	Cape May Warbler		T	19	29	Indigo Bunting ‡			1	1
Boreal Chickadee	FL	A	72	78	Northern Parula	H	FY	72	85	Bobolink			38	24
Red-breast Nuthatch	ON	FY	73	89	Magnolia Warbler	FL	CF	77	91	Red-wing Blackbird	AY	NY	61	71
White-breast Nuthatch	T	FY	17	24	Bay-breasted Warbler	T		52	54	Rusty Blackbird †	T		49	24
Brown Creeper	FL	FY	27	65	Blackburnian Warbler	AY		56	68	Common Grackle	AY	NY	76	88
House Wren †			0	0	Yellow Warbler	NY	NY	69	81	Brown-head Cowbird	FL	H	39	14
Winter Wren	H	T	60	82	Chestn-sided Warbler	AY	FY	51	72	Baltimore Oriole	AY		5	5
Carolina Wren †		T	0	1	Blackpoll Warbler	T	T	10	27	Pine Grosbeak	H		54	30
Golden-crown Kinglet	FL	FY	70	90	Black-thr Blue Warbler		S	32	39	Purple Finch	FL	CF	74	87
Ruby-crown Kinglet	FL	CF	81	88	Palm Warbler	FL	FY	62	87	House Finch †	H	NY	3	1

Maritimes Breeding Bird Atlas - Summary Sheet for Square 20MQ54 (page 3 of 3)

SPECIES	Code		%	
	1st	2nd	1st	2nd
Red Crossbill †	T	FY	21	32
White-winged Crossbill	FL	H	53	38
Pine Siskin	FL	FY	65	68
American Goldfinch	NB	CF	82	88
Evening Grosbeak	T	H	58	48
House Sparrow	NY	NY	63	46

This list includes all species found during the Maritimes Breeding Bird Atlas (1st atlas: 1986-1990, 2nd atlas: 2006-2010) in the region #20 (Chebucto - Musquodoboit). Underlined species are those that you should try to add to this square (20MQ54). They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. "Code" is the code for the highest breeding evidence for that species in square 20MQ54 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #20). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), † (rare in the Maritimes) or ¤ (rare in the Maritimes, documentation only required for confirmed records). Current as of 26/03/2020. An up-to-date version of this sheet is available from http://www.mba-aom.ca/jsp/summaryform.jsp?squareID=20MQ54?lang=en

Memo

To: General Liquids Canada

From: Christopher Kennedy, M.Sc.

Date: March 26, 2020

Subject: Avian Species Review, Assessment and Mitigation (750 Pleasant Street, Dartmouth, Nova Scotia)

Our File: 19-1742

To provide information on potential occurrences of rare and endangered bird species, and unique or sensitive bird habitats potentially existing within and/or near the proposed project by General Liquids Canada at 750 Pleasant Street, a review of the following existing data and information sources was conducted by Dillon Consulting:

- Listed species by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC);
- Listed species under the federal *Species at Risk Act* (SARA);
- Listed species under the Nova Scotia *Endangered Species Act* (NS ESA); and
- Species ranked as 'S3' or rarer by the Atlantic Canada Conservation Data Centre (ACCDC).

Other available background information sources and mapping reviewed to identify and assess wildlife and wildlife habitat presence at the project location included:

- Ecological Reserves in the Maritimes;
- Environmentally Sensitive Areas database;
- Important Bird Areas of Canada;
- Federally-designated Migratory Bird Sanctuaries; and
- The Second Atlas of Breeding Birds of the Maritime Provinces.

Resident and Migratory Birds

The vast majority of bird species found in Nova Scotia are migratory and either breed in the province during the summer months, or pass through it during the spring and fall migratory periods. Jurisdiction for many migratory birds is federal, since migratory birds cross both provincial and international boundaries. The *Migratory Birds Convention Act* (MBCA) is the federal law which protects migratory birds in both Canada and the United States. The Act prohibits killing, injuring or harassing migratory birds, their nests, or their young. Most species of bird that occur in Canada, including the Maritime Provinces, are protected under the MBCA.

Furthermore, species listed pursuant the federal *Species at Risk Act* (SARA) or the Nova Scotia *Endangered Species Act* (NS ESA) are afforded further protection as harm, the destruction of their nest, eggs or young is prohibited.

Birds not addressed under federal jurisdiction include grouse, quail, pheasants, ptarmigan, hawks, owls, eagles, falcons, cormorants, pelicans, crows, jays, and kingfishers. Most birds not included in this list, however, are afforded protected under provincial laws, most notably the Nova Scotia *Wildlife Act*.

The Nova Scotia *Wildlife Act* protects all wildlife species (including all vertebrate animals, including birds) from angling, hunting, trapping and other forms of intentional take, except under the authority of permits or licences. The Act also specifically prohibits the disturbance, gathering or collection of the nests or eggs of any bird species, except under the authority of a permit.

Environment and Climate Change Canada (ECCC) through its Canadian Wildlife Service (CWS) provides general avoidance information for migratory birds, including regional nesting periods during which most migratory bird species covered under the MBCA are likely to breed. The project area is located in Breeding Zone C3, where most migratory birds breed from mid-April to late August each year (ECCC 2020). However, it is noted that some avian species nest outside of this period, including corvids, crossbills, owls and waxwings.

Atlas of Breeding Birds of the Maritime Provinces – 2nd Edition

The Maritime Breeding Bird Atlas (MBBA) database (Stewart et al. 2015) provides information on the presence of breeding bird species in counts conducted between 2006 and 2010 (see attachments). Within the MBBA Second Atlas, the project area lies within Region #20 (Chebucto – Musquodoboit) in Square #20MQ54 (Halifax). During the MBBA period of 2006-2010, a total of 120 species of birds were recorded within this square. Of these species, six (6) species listed on either the federal SARA,the NS ESA, or both. These species are summarized in Table 1 (below) and included: eastern wood-pewee, chimney swift, barn swallow, common nighthawk, eastern whip-poor-will and Canada warbler.

Table 1. Bird Species At Risk Observed during the 2nd Ed. MBBA

Species	Status[1]	Breeding Habitat	Potential to Occur in Project Area
Eastern Wood-pewee	**COSEWIC:** Special Concern **SARA:** Special Concern **NSESA**: Vulnerable **S-Rank:** S2B,S2M	This species prefers mature deciduous forests, but will nest in nearly any type of wooded habitat in the southeastern Canada including mixed woodlands, urban parkland and even roadside trees. They are usually found in clearings and forest edges.	This species may nest in the vicinity of the project area, but it is considered unlikely.
Chimney Swift (*Chaetura pelagica*)	**COSEWIC:** Threatened **SARA:** Threatened **NSESA:** Endangered **S-Rank:** S2S3B,S2M	Historically, the Chimney Swift used mainly large hollow trees for nesting sites, but have adopted chimneys as preferred nesting sites. They are generally associated	This species may forage in the vicinity of the project area, but interactions are considered unlikely.

Table 1. Bird Species At Risk Observed during the 2nd Ed. MBBA

		with urban and rural areas where chimneys are available for nesting and roosting. Chimney swifts are aerial foragers and tend to concentrate near water where insects are abundant (COSEWIC 2007a).	
Barn Swallow (*Hirundo rustica*)	**COSEWIC:** Threatened **SARA:** Threatened **NSESA:** Endangered **S-Rank:** S2B,S2M	Barn swallows typically nest on human-made structures such as abandoned buildings or barns and forages in open areas (COSEWIC 2011).	This species may forage in the vicinity of the project area. Additionally, nesting habitat for this species does exist within the LAA (i.e. many human-made structures nearby).
Common Nighthawk (*Chordeiles minor*)	**COSEWIC:** Special Concern **SARA:** Threatened **NSESA:** Threatened **S-Rank:** S3B,S4M	Common nighthawk typically breeds throughout the Maritimes and nests on the ground in open vegetation free habitats (COSEWIC 2007b).	This species may forage in the vicinity of the project area. Additionally, nesting habitat for this species does exist within the project area (i.e. disturbed, graveled areas).
Eastern Whip-Poor-Will (*Antrostomus vociferous*)	**COSEWIC:** Threatened **SARA:** Threatened **NSESA:** Threatened **S-Rank:** S2B,S2M	Eastern whip-poor-will (a SAR) breeds in mature deciduous and mixedwood forest types, typically with no little or no understory (Cornell 2019).	This species may nest in the vicinity of the project area, but it is considered unlikely.
Canada Warbler (*Cardellina Canadensis*)	**COSEWIC:** Threatened **SARA:** Threatened **NSESA:** Endangered **S-Rank:** S3B, S3M	Canada warbler typically breeds throughout Maritimes and southeastern Canada. Typical habitat includes a variety of forest types (COSEWIC 2008). They prefer wet mixed forest with well-developed shrub layer as well as regenerating areas.	This species is not anticipated to occur in the vicinity of the project area as no appropriate habitat exists nearby

Notes: [1] AC CDC S-Ranks as follows: S1: extremely rare in province; S2: rare in province; S3: uncommon in province; S4: widespread, common and apparently secure in province; S5: widespread, abundant and demonstrably secure in province S#S#

= a numeric range rank used to indicate any range of uncertainty about the status of the species or community. B= Breeding, N = Nonbreeding, M = Migrant, U = Unrankable. (AC CDC 2020)

Important Bird Areas and Significant Habitat

The nearest Important Bird Areas (IBAs) are the Musquodoboit Region (NS014) and the Grassy Island Complex (NS026). The Musquodoboit Region IBA is located approximately 30 km to the east. It is described as tidal inlet, largely enclosed by a barrier sand beach and many wooded islands. The area is important for large congregations of migrating Canada geese (*Branta canadensis*) and American black ducks (*Anas rubripes*). The Grassy Island Complex IBA, as the name suggests, represents three islands within Mahone Bay and St. Margarets Bay, the closest of which is located approximetly 33 km to the west. These three islands, Grassy Island. Big Tancook and Flat Island, are important because they have regularly supported nesting Roseate Terns (*Sterna dougallii*), which are listed as *Endangered* both federally (SARA) and provincially (NSESA).

Potential Interactions

The primary possible interactions with birds due to the project include habitat loss, destruction of nests, direct mortality due to collision, and noise disturbance. The purpose of the desktop review is to refine constraints mapping by identifying protected species, habitats or features (such as a colony tree or raptor nest) to ensure effective mitigation in order to be compliant with federal and provincial legislation.

The project may interact with birds and bird habitat in the following ways:

- Direct mortality via collision with equipment and materials during the demolition activities;
- Clearing activities may alter or destroy migratory bird habitat;
- Clearing activities may destroy or alter habitat for bird SAR or SOCC;
- Noise from project construction activities may deter birds from migrating into and using the project area;
- Noise from project construction activities may result in the abandonment of nests or increased rates of predation and exposure of hatchlings and eggs during temporary abandonment; and,
- There is the potential for some ground nesting species to occupy, inhabit and possibly nest within the construction area, such as killdeer (*Charadrius vociferus*), common nighthawk (*Chordeiles minor*) and be directly disturbed by construction activities.

In addition, the project may result in sensory disturbance to and avoidance by birds due to noise and human activity, and incidental bird collisions with vehicles travelling around the project area.

Mitigation

The following mitigation measures are planned to reduce environmental effects on birds and bird habitat.

- The size of the project area will be limited to that necessary to accomplish the project purpose;
- Activities that may harm or harass migratory birds will be scheduled to the extent possible outside of the normal breeding bird and migratory bird season (April 15 to August 31) to ensure that eggs and flightless young are not inadvertently harassed or destroyed. At a minimum, if complete avoidance of these activities during the specified timeframe is not feasible, nest searches will be undertaken by a qualified biologist and avoidance setbacks will be established around active nests. Nest searches will only be completed following consultation with Environment and Climate Change Canada (Canadian Wildlife Service) and by a qualified biologist;
- Existing infrastructure and previously disturbed areas (e.g., roads, mowed areas, parking areas, etc.) will be preferentially used where feasible to reduce ground disturbance;
- All machinery and equipment will be maintained in good working order to limit emissions, including noise generation;
- All machinery and equipment will be cleaned prior to entering the site to limit the potential spread of exotic or invasive plant species;
- All food and food waste will be stored and disposed of properly to avoid attracting wildlife;
- On-site workers will receive training and reference material that will help them identify bird species that could be attracted to habitats created by project operations (e.g., killdeer and common nighthawk). If workers encounter birds that they suspect may be nesting within the project area, a biologist will be contacted to determine whether nesting is occurring and to locate the nest. Note: nests should not be flagged since this increases the probability of predation;
- If a nest is found within project area, an appropriate setback developed in consultation with the Canadian Wildlife Service (CWS) will be established around the nest in which humans activities will be restricted until the young fledge and leave the area or until the nest naturally fails; and,

If a species at risk is encountered, contact will be made to a Species at Risk Biologist at Nova Scotia Dept. of Lands and Forestry to discuss immediate actions and future mitigation.

P

Appendix H

Oil Pollution Prevention Plan (Transport Canada Requirement)

General Liquids Canada Inc.

Dartmouth Liquid Asphalt Oil Handling Facility

Oil Pollution Prevention & Emergency Plan

Table of Contents

1.0 Executive Summary

This Oil Pollution Prevention Plan (OPPP) / Oil Pollution Emergency Plan (OPEP) was developed for the General Liquids Canada INC. - Dartmouth Oil Handling Facility Terminal (the terminal) located in Dartmouth, Nova Scotia, pursuant to section 168. (1)(c) of the Canada Shipping Act, 2001 (CSA, 2001).

This plan was developed based primarily on the requirements for procedures, equipment and resources as set out in the legislation Section 168.1(e) and in regulations for Response Organizations and Oil Handling Facilities [made pursuant to Section 168. (1)(a)(b)].

2.0 Purpose and Scope of Plan Coverage

This OPPP / OPEP plan describes actions and procedures to prevent, prepare, respond and recover from an environmental emergency at the above-mentioned location.

The Dartmouth Asphalt Terminal facility consists of 1 wharf, owned by Cherubini Group of Companies 760 Pleasant St., Dartmouth, Nova Scotia B2W 1A7 which is utilized for discharging operations.

This plan has been developed in accordance with Canada Shipping Act, 2001 guidance along with all associated regulations. Specifically, the following regulations are addressed:

- Environmental Response Standards (TP 14909)
- Environmental Response Regulations
- Vessel Pollution and Dangerous Chemical Regulations

3.0 Controlled Document Procedure

DOCUMENT NAME: General Liquids Canada Inc – Dartmouth Liquid Asphalt Oil Handling Facility OPPP/OPEP

THIS COPY: DIGITAL

This document contains information that must be kept accurate and up-to-date. To ensure accuracy, this document is issued as a controlled document. Each copy distributed has a unique code and is assigned to a specific location (when applicable, a specific individual).

All changes to this document must be processed through Sutherland Excavating Ltd. as they will administer the plan. Please contact Sutherland Excavating Ltd. when changes are needed.

When changes are entered into this document, the Record of Changes Log will be filled out indicating the date, change (or revision number) and the signature of the individual entering the change.

If there are any questions pertaining to this document, please contact the Terminal Manager at the numbers listed below.

DOCUMENT DISTRIBUTION			
COPY	**DOCUMENT HOLDER**	**LOCATION**	**NOTIFICATION NUMBERS**
A			
Digital			
Digital			
Digital			

4.0 Amendment of OPPP / OPEP

Sutherland Excavating Ltd (herein after referred to as “Sutherland”) has been tasked as the Oil Handling Facility Oil - Spill Response Provider and as such Sutherland will update this OPPP/OPEP at a minimum annually to reflect any changes in applicable legislation, environmental factors and facility characteristics. This section presents the review and update procedures and documents changes made to the OPPP/OPEP.

RESPONSE CRITIQUE

After a spill or other emergency, Sutherland will evaluate the response effectiveness. In addition, response procedures may be evaluated after training exercises and drills. Response critiques from Federal and Provincial agencies, contractors, and others may be solicited, depending on the size of the incident or their participation in the exercise. As appropriate, deficiencies in response actions will be identified and this OPEP/OPPP will be revised in accordance with the procedures described in the following section.

PLAN REVIEW AND UPDATE PROCEDURE

This OPPP/OPEP shall be reviewed a minimum annually by the terminal's Management Team in conjunction with Sutherland. Additionally, select internal personnel shall be included in the review process whenever OPPP/OPEP changes are contemplated or made which include contractor personnel and/or equipment.

This OPPP/OPEP shall be reviewed by Sutherland and terminal management when changes or modifications are made at the terminal, which include, but are not limited to the following:

- Terminal-specific information;
- Categories and volumes of oils for discharge scenarios;
- Contracts with certified hazardous waste contractors
- Terminal and/or contractor personnel;
- Contact names and/or telephone numbers;
- Terminal, Eastern Canada Response Corporation (ECRC), and/or Response Organization (RO) spill response equipment lists and records;
- Spill response, spill mitigation, communications, training, and drill procedures;
- Environmentally sensitive and economically important areas; and
- Terminal's site safety plan.

Updates are also made to reflect changes in legislation, change of personnel involved with unloading vessels, operational procedures at the terminal, or if there are any findings after an oil pollution incident or exercise

Upon completion of review, written revisions of the applicable OPPP/OPEP section(s) will be made by the terminal manager, as appropriate. Each time a revision to the plan is completed, the facility shall:

- Remove the affected sections from all its copies of the plan and replace them with the revision(s). The NUMBER, DATE OF CHANGE, PAGE NUMBER(S) CHANGED, DESCRIPTION OF THE CHANGE and NAME OF PERSON MAKING REVISION are noted on the "PLAN RECORD OF CHANGES".

- Transmit copies of the revision(s), as required, to the Document holders listed on the Controlled Document Procedure at the beginning of this plan.

- Update training of terminal response personnel, terminal Response Management Team members, and Terminal Managers (Terminal Managers and Assistant Terminal Managers) in connection with the revision(s).

  - **Submit the up-to-date plan to the Minister no later than 1 year after the update**.

Each plan is considered a controlled document, and as such, is given a letter and assigned to a specific individual or organization. The document control page found below lists the authorized and controlled copies of this plan. Record will be maintained for a minimum of 3 yrs from date created.

DARTMOUTH ASPHALT TERMINAL OPPP AND OPEP- RECORD OF CHANGES				
CHANGE NUMBER	**DATE OF CHANGE**	**PAGE NUMBERS CHANGED**	**DESCRIPTION OF CHANGE**	**CHANGED AUTHORIZED BY**

5.0 Oil Handling Facility Declaration

Transport Canada Transports Canada

PROTECTED A (WHEN COMPLETED)

SCHEDULE 2
OIL HANDLING FACILITY DECLARATION
SOUTH OF 60 DEGREES NORTH LATITUDE

Pursuant to subsection 168(1) of the ***Canada Shipping Act, 2001 (CSA 2001)***, I **Patrick Rooney**
Name of the operator of the oil handling facility
declare to comply:

i) with the ***Environmental Response Regulations***, on the detection of an oil pollution that arises out of the loading or unloading of oil to or from a vessel (declare the manner in which the operator will comply with the regulations);
ii) with the ***Vessel Pollution and Dangerous Chemicals Regulations***, respecting the circumstances in which operators of oil handling facilities shall report discharges or anticipated discharges of oil, the manner of making the reports and the persons to whom the reports shall be made;
iii) with ***CSA 2001***, Part 8 subpar. 168(1)(b)(ii) and (iii) in which

I have an arrangement with the response organization known as **Eastern Canada Response Canada**
Name of response organization

The arrangement is with respect to **10,000** tonnes of oil and in respect of **Dartmouth / Halifax Harbor**
Number of tonnes — Geographic location of the oil handling facility

The persons listed below are authorized to implement the arrangement (if required, attach additional pages):

Name: **Pat Rooney**
Address: **927 Rocky Lake Road, Bedford NS**
Telephone number: **902-222-7839** Fax number: _____ E-mail address: **prooney@dexter.ca**

Name: **Jerry Scott**
Address: **927 Rocky Lake Road, Bedford, NS**
Telephone number: **902 478 2732** Fax number: _____ E-mail address: **jscott@dexter.ca**

The persons listed below are authorized to implement the oil pollution emergency plan (if required, attach additional pages):

Name: **Blake Sutherland**
Address: **5224 Rt 108 Lower Derby, NB E1V 5H7**
Telephone number: **506 627 9690** Fax number: _____ E-mail address: **blake@sutherlandenv.com**

Name: **Mike Trask**
Address: **5224 Rt 108 Lower Derby, NB E1V 5H7**
Telephone number: **506 627 9409** Fax number: _____ E-mail address: **Mike@sutherlandexcavating.com**

Signed by the operator of the oil handling facility or its representative

April 7, 2020
Date (dd-mm-yyyy)

81-0031E (1905-02)

Canada

6.0 Description of the Facility

General Liquids Canada Inc – Dartmouth Liquid Asphalt Oil Handling Facility located in Dartmouth, N.S. is a Class 2 Oil Handling Facility as defined in "Environmental Response Regulations, SOR/2019-2152"

MAXIMUM TRANSFER RATE	CLASS	SCENARIO SPILL SIZE
>150 m3/hour but <750 m3/hour	2	$5m^3$

The terminal consists of a wharf which is utilized for discharging operations is owned by Cherubini Group of Companies 760 Pleasant St., Dartmouth, Nova Scotia B2W 1A7. Product (Liquid Asphalt) is received at the terminal via tanker or barge approximately 2-4 times per year or when necessary based on demand.

A 8" pipeline will run along the full length of the wharf to the land where it is connected to a manual valve. The 8" pipeline continues for approximately 1125 feet towards the asphalt storage tank. The facility is operational from early Spring to late Fall (May-November) annually.

GENERAL FACILITY INFORMATION	
Facility Name/Operator	General Liquids Canada Limited
Facility Latitude	N 44' 38' 05
Facility Longitude	W 63' 31' 37'
Facility Location	50 L T T., RM T , C T 1
Facility Owner	General Liquids Canada Limited
Pollution Control Supervisor/Terminal Manager	atrick Rooney(90) 39 prooney@dexter.ca
Alternate Person in Charge:	Megan utchinson (90) 1 19 mhutchinson@dexter.ca
Facility distance to Navigable Water	0 to 1 km
Largest Above Ground Oil Storage Tank	100 dia x 3 h
Maximum Transfer Rate	>150 m^3/hour but <750 m^3/hour (Class 2 Oil Handling Facility)
Scenario Spill Size	5 m^3

PART I – OIL POLLUTION PREVENTION PLAN

7.0 Purpose and Objective

The objective of the Oil Pollution Prevention Plan for the Dartmouth Asphalt Facility is to "***prevent discharges into the marine environment when unloading oil from a vessel***". This Plan describes procedures for properly training employees, exercising and maintaining equipment and details standard operating procedures.

Pollution prevention is managed through several different methods:

- Employee Training
- Unit Operating Procedures
- EHS: Standards, Job Safety Analysis, Initial Health and Safety Plan
- Alarm and Detection Systems
- Maintenance of Equipment

7.1 Vessel Unloading Operations

7.1.1 Roles and Responsibilities

The ***Designated Terminal Operator*** is responsible for supervising transfer operations. The Terminal Operating Procedure for "Vessel Discharge" is kept at the terminal and is accessible to all operators. This transfer operation procedure describes the steps necessary to discharge from a vessel into the terminal asphalt shore tank in a safe and efficient manner.

1. Transfer procedures,
2. Actions to be followed by operators to prevent a discharge of product to land or water,
3. Equipment involved
4. Operator actions/duties during a transfer, and
5. Communications, including communications between the Dartmouth Asphalt Terminal and ship personnel.

In adverse weather conditions, vessel docking and transfer operations may involve a consultation with the Pilot, Captain and Terminal Staff to determine necessary actions going forward

7.1.2 Unit Operating Procedures

The Dartmouth Asphalt Terminal has Unit Operating Procedures which are step by step instructions for terminal operators to safely execute daily operations and to respond to emergency events.

Unit Operating Procedures that are most applicable to **Pollution Prevention** include:

DOCUMENT NAME	DESCRIPTION
Vessel Discharge Procedure	**Vessel Discharge.** Procedure describes the steps necessary to discharge from a vessel into the terminal Liquid Asphalt shore tank(s) in a safe and efficient manner.
Severe Weather Readiness procedure	**Severe Weather Readiness, General.** Procedure is the clarification of Severe Weather Readiness as it applies to this Liquid Asphalt terminal.
Preparations for Hurricane & Severe Weather	**Preparations for Severe Weather, High Winds and Hurricane.** Severe Weather checklist as it applies to this Liquid Asphalt terminal.

7.1.2.1 Duties of Supervisors of Transfer Operations - Facilities

Upon arrival at the dock, the Designated Terminal Operator in charge of offloading operations are required to confirm:

- Vessel has been adequately moored to the wharf to facilitate safe transfer of product
- The terminal operator in charge of transfer operations at the Terminal and the Master or Chief Officer on the vessel will hold a pre-transfer conference. During this meeting the details of the cargo transfer will be discussed. All required documentation pertaining to discharge will be reviewed including expectations pertaining to:
    - Ship/Shore Communications, including
        - Approval to initiate product transfer
        - Communication pertaining to increasing/decreasing flow rate (low-high; high-low)
    - Valve Alignment and
    - Emergency Shutdown Communication and
    - Procedure(s) to be followed in the event of an emergency situation

If either party has any questions pertaining to the transfer operation, they should be discussed at this time.

7.1.3 Terminal Facility Cargo System

Dartmouth Asphalt Terminal utilizes a rigid steel discharge piping (8” diameter) which runs from the marine manifold at the wharf face to the terminal yard. Vessel supplies a Marine Discharge Hose of various lengths and associated fittings/gaskets and fasteners.

Terminal and Vessel will ensure that the vessel tranfer hose used in a transfer operation;

- has a bursting pressure of not less than four times its maximum design pressure;
- is clearly marked with its maximum design pressure; and
- has successfully passed, during the year before its use, a hydrostatic test to a pressure equal to one and one-half times its maximum design pressure.

All cargo transfer systems must conform to the flange connection available on the vessel as well as the following guidelines must be met:

- All cargo hoses must be tested and certified annually with certifications provided during the completion of the ship-to-shore checklist.
- Cargo hoses must be suitable for the product being handled, be properly supported and free of any defects.
- All fittings associated with the transfer conduit will be of the appropriate rated working pressure and material of construction
- All connections will be made using the correct size bolts in every hole and proper flange gaskets. Ensure cargo hoses connected are tested to verify that there is no leakage around flanges once discharge begins.
- Cargo hoses are to be blanked as soon as they are disconnected from the manifold.

7.1.3.1 Transfer Conduit/Connection – Mitigate Procedure during Transfer Operations (Leaks)

The Dartmouth Asphalt Terminal Operator assigned to dock watch and the barge/tanker Crew Member assigned to offloading are responsible for monitoring transfer conduit integrity. If a transfer conduit or a connection leaks during a transfer operation, the responsible person as identified above shall ensure all discharging operations are to be shut down immediately. Discharging operations are not to be resumed if doing so will interfere with the immediate, effective, and sustained response to the oil pollution incident.

If there is a Barge/Tanker discharge activity ongoing, immediately initiate shutdown of such activities using the appropriate Emergency Response Unit Operating Procedures as listed below:

DOCUMENT NAME	DESCRIPTION
Hose Failure	This procedure describes the steps necessary for a loss of containment due to a hose failure.
Tank overfill	This procedure describes the steps necessary for a loss of containment due to a tank overfill.

7.2 Preventative Maintenance

The facility's preventative maintenance program will be performed in an effort to prevent breakdowns and failures by adjustment, repair or replacement of equipment and parts. Equipment and systems preventative maintenance includes:

- Maintaining, calibrating and servicing high level alarms on product storage tank. (if eqquip)
- Verification of operation of all process control elements including pressure, temperature, flow rate, liquid level and ESDs.
- Asset integrity inspections of all product transfer pipelines and storage tanks. Asset integrity program follows API standards and utilizes a variety of best practice inspection methods. Tank supports, and foundations are included within asset integrity inspections.
- Operations personnel conduct multiple daily rounds of the terminal area.
- Safety and Emergency Response assets are inspected regularly

7.2.1 Daily Inspections

Inspections of all oil storage tanks, piping and associated equipment and secondary containment areas are completed by personnel on their rounds and documented on a checklist.

7.2.2 Monthly Inspections

Once per month, a more thorough and detailed tank inspection is performed at the facility. Completed inspection checklists are retained at the facility for a minimum of 5 years. The monthly inspections are also conducted to satisfy the requirements of API 653, requiring monthly inspections of all ASTs constructed to the API 650 standard.

7.2.3 Five-Year Inspections

Every five years, tanks shall be externally inspected as per API Standard 653.

7.2.4 Ten-Year Inspections

Every ten years, tanks shall be internally inspected as per API Standard 653.

7.2.5 Response Equipment

The emergency response equipment identified in this Plan is inspected monthly for deterioration and operability and records maintained on site.

7.3 Alarm and Detection Systems

7.3.1 Tanks

Tank will be monitored visually while loading.

7.3.2 Vessel Unloading

The unloading of vessels is managed as per Operating Procedure “Vessel Discharge”.

7.3.3 Tank Truck Loading

The truck loading rack is designed to provide positive and effective protection against discharge of contaminants to the surrounding waters and underlying soil and is equipped with overfill protection. Products are loaded onto trucks for deliveries to customers at the loading rack, which has 1 loading bay. Trucks are required to be grounded and have the wheels chocked during loading. In addition, there are emergency shut-off switches at the loading rack.

7.3.4 Oil Transfer Piping

Piping within the facility is above ground. Terminal piping is not equipped with automated discharge detection and relies on loading procedures. Aboveground piping is inspected every hour while any transfers are ongoing.

7.4 Communications

Communication is primarily maintained between the vessel and terminal personnel through the use of UHF radios supplied by the terminal. Secondary communication is available through the use of cellular telephone which operators have access to while on duty.

The official language of the Terminal is English. Throughout the time that the ship is secured to the Terminal dock, one person who speaks and fully understands English aboard the ship and is able to communicate in a common language with the crew, shall be on duty and in contact with the Terminal by radio.

During the Ship/Shore safety meeting, representatives shall establish a communication system, which will cover all requirements of information exchange for cargo start-up, flow rates, quantities and shutdown.

7.5 Lighting

Lighting provided at the wharf transfer site meets or exceeds the requirements of *Section 34 of the Vessel Pollution and dangerous Chemical Regulations*. Lighting will be provided during all transfers, portable light towers will be used and checked to ensure they meet or exceed regulations (54 lux min @1m)

7.6 Pollution Prevention Training

The Terminal personell will use Sutherland's training program. Sutherland's training program addresses the three fundamental functions of spill response: management, operations and health and safety. The Sutherland training program is developed as a continuing education series of instruction. Response personnel are trained in various aspects of Land Based and Marine Oil Spill response to provide overlap in areas of expertise.

Sutherland uses a combination of its own training programs and training programs at other educational institutions as deemed necessary and appropriate. All employees offloading product at the Dartmouth Asphalt Terminal are certified through an internal training program which ensures employees are competent with the Procedures of the Terminal, including the safe transfer of product between ship and shore and pollution response if there was a loss of containment. Training is identified, and records managed by the HSE department. All of our training requirements are captured in the company's system. A copy of the Training Matrix for The Dartmouth Asphalt Terminal Personnel is contained in (Appendix C - Staff HSE Training Matrix).

7.6.1 New Hire Training

Sutherland's new hire training is conducted while on-the-job under the direct supervision of the terminal manager or designated representative. Newly hired personnel are employed on a probationary basis during which the new employee is scheduled to work a shift that will enable the terminal manager to direct the training of day to day operations. Personnel that transfer from other terminals also receive this training. New Hire Training includes the following:

- Job Specific Training Program
- Safety Data Sheet instructions
- Site Safety Plan Instructions
- Valve and transfer piping familiarization. New employees will be taught the proper sequence of handling the cargo transfer. This includes the proper valve manipulation and tracing cargo lines.
- Location and proper use of firefighting equipment.
- Familiarization with the terminal documentation relating to facility operations
- Familiarization with various pollution abatement equipment (e.g. absorbents, boom, etc.) and the

use of available containment equipment.

Facility personnel are trained that care and good judgment are the best means of preventing an oil spill. Training includes the proper way to conduct daily inspections, identify leaks, and respond to a leak or spill if observed. Facility personnel will be instructed to:

- Never leave a fuel transfer operation unattended.
- Closely observe product levels in storage tanks during transfers.
- Perform preventative maintenance on fuel handling equipment.
- As a rule, do not wait for problems to occur.
- Anticipate problems and take precautionary measures to prevent them.
- When in doubt, call supervisor or manager.

7.6.2 Response Training

Terminal operations personnel at this facility are given adequate training and orientation to allow them to perform their jobs safely and to respond to minor spills and leaks. Employees are informed of potential hazards and safe operating procedures and are familiar with the facility's Site Safety Plan and Safety Data Sheets (SDSs) for products used and stored at the Dartmouth Liquid Asphalt Terminal. Terminal assignments are delegated to individuals and written instructions for specific processes are posted. Formal training received by terminal employees is documented, and training records are maintained in the employees' personnel files

7.7 Site Security

7.7.1 Site Access Control

The facility is enclosed with security fencing and access is limited to authorized personell.

7.7.2 Additional Security Measures

- Terminal operators inspect the entire facility at least once during each shift.
- All visitors and deliveries must check in at the terminal office.
- Product valves are closed and secured with a chain and lock when they are in non-operating status. Authorized terminal operators have the keys for these locks and are responsible for opening and closing all valves.

PART II – OIL POLLUTION EMERGENCY PLAN

8.0 Purpose and Objective

This plan describes procedures for reporting oil spills to regulatory agencies and General Liquids management. The Plan also describes mobilization procedures for personnel, equipment and materials needed for the containment and recovery of an Oil Handling Facility spill.

The response scenarios and strategies outlined in this plan are for the fuel products that are stored and handled at the facility including;

- Liquid Asphalt PG 58-28

The spill response scenarios as outlined within this document address spill volumes up to 5000 L.

Detailed Emergency Response Scenario for 5,000-liter release of Asphalt 58-28 has been developed and is located in (Appendix E – Dartmouth Asphalt Terminal Emergency Response Scenario). This detailed response scenario indicate actions, responsible persons and the estimated time for recovery of product.

8.1 Plan Review

This Plan will be updated annually and/or will be updated as part of a post-spill critique following response to an actual spill or exercise as required. Maintenance and review of this plan is the responsibility of the Terminal Manager. All revisions will be evaluated and distributed to all plan holders by the Terminal Manager.

8.2 Roles and Responsibilities

The Pollution Control Supervisor (i.e. Terminal Manager) or designate is authorized and responsible for implementation of this plan. All contractors and response organizations hired will be the under the PCS's command.

8.2.1 Person in Charge (PIC)

The PIC will assume the responsibility of initiating the Emergency Response Plan and directing spill response efforts until relieved by the **Pollution Control Supervisor (PCS)**. The PIC is responsible for the following:

- If safe to do so, take immediate action to stop the leak and minimize the impact of the spill
- A rapid survey should be done to determine the source of the spill. This is necessary to most effectively isolate the leak from the rest of the discharge system.

- Assess health and safety hazards. Ensure the safety of all personnel at the site and take immediate and appropriate Emergency Response actions to prevent further harm
- Deploy absorbents such as sock boom, pads for initial containment and to track the spill
- Provide preliminary notification to Pollution Control Supervisor
- Gather incident information.
- Initiate or delegate additional response actions as per guidance of the PCS. This may include notification to potentially affected parties (i.e. spill response boat operator)
- Other duties as per the direction of the PCS

8.2.2 Pollution Control Supervisor (PCS)

The PCS will be briefed by the PIC on the current situational status and assume the responsibility of directing spill response efforts. The Pollution Control Supervisor has the authority to provide financial support for equipment and personnel required to provide a safe, effective, and sustained response to the oil pollution incident. He / She is to keep company officials informed of the progress of the response as well as provide a liaison between company and government officials. Additional responsibilities the PCS will perform, or delegate will include:

- Reaffirm that all health and safety hazards, including those pertaining to all personnel on site, have been identified and appropriately addressed. Ensure that appropriate Emergency Response actions have been taken to prevent further harm
- Review all pertinent incident information.
- Assess current response actions and modify as needed. If the area is safe, order containment to begin.
- Inform local officials if spill has the potential to adversely impact surrounding residents.
- Report oil pollution incident to Federal Environmental Emergencies Line (i.e. 911, Federal Environmental Emergencies Line).
- Notify company officials of situation
- Request assistance of external contractors/agencies (ECRC) as required

8.2.3 Coast Guard

The Coast Guard may send an official to the scene. They will consult with the OHF and monitor the situation for the duration of the response effort. The Coast Guard will act as lead agency, if at any time they decide that the effort on the part of the OHF is not effective or sufficient.

Once the Coast Guard has been notified of a spill, Terminal will have at least one of the terminal staff available to them at all times to coordinate response and reporting activities.

The Canadian Coast Guard has overall responsibility to ensure that there is an appropriate response to any oil pollution incident and will decide when the operation is complete

8.2.4 Environment Canada Science Table

The Environment Canada Emergency Team or Science Table, is responsible for providing consolidated environmental and scientific advice on effective response and recovery actions to the lead agency. They may also provide similar advice to the PCS. The advice is provided on matters such as; spill fate and effects, sensitivity maps, environmental protection and clean-up, priorities on spill monitoring and countermeasures, shoreline clean-up assessment techniques, wildlife protection and rehabilitation, weather conditions and forecasts, contaminated waste storage, and disposal.

8.2.5 Response Organization (RO)- ECRC

The Response Organization is responsible for providing, to the operators of the oil handling facilities, the equipment and resources specified in their arrangement. The Response Organization for The Dartmouth Asphalt Terminal facility is Eastern Canada Response Corporation (ECRC).

8.3 Pollution Response Training

As with Pollution Prevention Training (see Section 7.6), Sutherland uses a combination of internal and external training resources. All emergency response training is also captured in the company's HSE system. A copy of the Training Matrix for The Dartmouth Asphalt Terminal Personnel is contained in (Appendix C- Dartmouth Asphalt Terminal Staff HSE Training Matrix). This emergency response training includes but not limited to:

- Gas Detection/ Atmospheric Monitoring
- Land based Oil Spill Response
- On water Oil Spill Response
- Boom deployment and collection stratigies
- OPEP / OPPP Awareness Training
- Spill Prevention, Control & Countermeasure
- I-100: Introduction to Incident Command System

8.4 Health and Safety

8.4.1 Introduction

The first response action taken at the scene of a spill is to assess the health and safety hazards for

Oil Handling Facility employees and other personnel in the area. Under certain circumstances spilled product may present a fire or explosion hazard (i.e. gasoline from another source, etc.).

Under no circumstances will personnel health and safety be compromised for response purposes.

8.4.2 HSE Standards & Instructions

Terminal provides employees with Health and Safety Instructions, and Safety Management (Standards that are governing documents that establish safe practices for working in and operating within our Terminals). A list of these HSIs and Standards are contained in Tables 1 and 2 located in the Appendix B – Terminal Health and Safety Instructions/ Process Safety Management Standards.

8.4.3 Safe Working Practices

Safety and health of response personnel, contractors, and the general public are the most important considerations in any operation. Terminal will comply with all applicable Federal and Provincial regulations to protect the health and safety of its workers.

8.4.3.1 When operating a response vessel:

- All vessel operators must possess a valid Pleasure Craft Operators License.
- Minimum of two (2) crew members must be on board the response vessel at all times

8.4.3.2 Personal Protective Equipment:

- All workers are required to adhere to Terminal's minimum PPE standard for terminal operations
- Personal floatation devices are to be worn when working within 10 feet of a shoreline, the dock face without protective railing or in the response vessel

8.4.4 Site Control – Security During a Spill

Access to the facilty will be restricted to authorized person only.

8.4.4.1 Additional Security Measures

- Dedicated security staff are on site during marine transfers
- Terminal operators inspect the entire facility at least once during each shift, hourly during a transfer.
- All visitors and deliveries must check in with terminal operator.

- Product valves are closed and secured with a chain and lock when they are in non- operating status. Authorized terminal operators have the keys for these locks and are responsible for opening and closing all valves.

8.5 Facility Drills and Exercises

Spill response exercises allow Terminal response personnel to practice specific actions assigned to them in the Oil Pollution Emergency Plan. Terminal will schedule regular exercises and notify all involved including the Minister at least 90 days prior.

TYPES OF EXERCISE	DESCRIPTION	FREQUENCY
Internal Notification: **Objective:** Verify the ability to contact, in a reasonable time, OHF response staff identified in the OHF's OPEP.	• Notification of emergency call out • Activation of the OHF response/management team	Once a year
External Notification: **Objective:** Verify the ability to contact OHF authorities, company management, governments and other organizations identified in the OHF's OPEP within a reasonable time.	• External notification systems – emergency call out to OHF neighbors • Mobilization of the OHF response/ Management team • Activation of ROs and contractors • Notification of government and non-government agencies • Notification of the federal emergency number found in the OPEP	Once a year
Deployment: **Objective:** Evaluate the effectiveness of the OHF response team in following the procedures established to contain/recover a spill, using response equipment described in the OPEP within time standards.	• Shut down procedures • Source control • Deployment of equipment • Containment and recovery activities • Site Safety Plan development	Once a year

Table Top - Management: **Objective:** Evaluate all aspects of the OHF's response management system by simulating an incident using a scenario with inputs. Simulation of deployment of equipment and activation of personnel. Test the communication, briefing, reporting and data and records collection and management techniques.	• Identification of the On-Scene Commander • Establishment of the management team • Understanding roles and responsibilities of mandated agencies • Situational analysis • Spill Trajectory • Environmental assessment • Site Security • Financial record management • Equipment tracking • Waste management (disposal) • Preparation of Incident Action Plan • Public Awareness/notification • Post incident de-briefing	Once every three (3) years

8.6 Emergency Response Equipment

The Dartmouth Asphalt Terminal maintains a minimum on-site supply of response equipment sufficient for initial response to most situations. An overview of such equipment is provided below for reference.

QUANTITY (*minimum*)	ITEM DESCRIPTION
4	Portable UHF 2-way radios
1000'	18" Containment Boom
1	Response Boat
5	45lb Anchors
2	Towing Vanes
2	Marker Buoy's
2	Fender Buoy's
250'	1/2" Rope
1	18' Trailer
10 Bales	Sorbent Pads
10 Bales	Sorbent Boom (40' per bale)

8.6.1 Contractor Equipment

The Pollution Control Supervisor has the authority to obtain 3rd party contractor assistance as required to provide a safe, effective, and sustained response to the oil pollution incident.

8.6.1.1 East Coast Response Corporation (ECRC)

Additionally, the facility maintains a valid contract with East Coast Response Corporation (ECRC) who in turn is responsible for providing, to the operators of the oil handling facilities, the equipment and resources specified in their arrangement up to the prescribed maximum quantity of oil of 10,000 tonnes as outlined in Section 7 of the Environmental Response Regulations.

8.6.1.2 Response Equipment List and Location

NAME	LOCATION	TELEPHONE NUMBER
SPILL RESPONSE EQUIPMENT		
Eastern Canada Response Corporation (ECRC)	Dartmouth	(613) 930-9690 – 24 hrs.
GENERAL CONTRACTOR		
Dominion Diving	Dartmouth	902-434-5120
VACUUM TRUCKS AND TANK TRUCKS		
Clean Harbours	Dartmouth	1-800-645-8265
Clean Earth	Dartmouth	902-835-9095

8.8 Emergency Response Actions

The Dartmouth Asphalt Terminal ensures personnel are trained and equipment is available for initial response to a spill within **one (1) hour** and for clean-up and recovery response to a spill within **six (6) hours** as per Environmental Response Regulations Section 13(2)(b)(ii). The terminal personnel will initiate, when deemed safe, clean-up response measures until the arrival of the RO (Eastern Canada Response Corporation (ECRC))

8.8.1 Action Plan Priorities

The following priorities shall be taken into account for the purpose of establishing the order of measures to be taken during a response to an oil pollution incident:

1. The safety of the facility's personnel
2. The safety of the facility
3. The safety of the communities living adjacent to the facility
4. The prevention of fire and explosion
5. The minimization of the oil pollution incident
6. The notification and reporting of the oil pollution incident
7. The environmental impact of the oil pollution incident
8. The requirements for cleaning up the oil pollution incident

8.8.2 Initial Response Actions

In the event of an oil release to the marine environment, chemical spill, or other emergency (regardless of size), the Person in Charge (PIC) or Pollution Control Supervisor (PCS) at the time of incident will ensure that the following actions are completed:

INITIAL ACTION PLAN (IAP) FOR MARINE SPILLS

In the event of a spill into the marine environment, this Initial Action Plan is provided for reference to terminal staff in effort to guide actions pertaining to an effective initial response

1. **Stop Transfer of Product -** Activate emergency shut down / stop flow of product (if safe to do so). Use UHF radio to summon help. All active work at the terminal to cease immediately.

2. **Determine Source of Spill -** A rapid survey should be done to determine the source of the leak. This is necessary to most effectively isolate the leak from the rest of the discharge system.

3. **Assess Situation** to determine:
    - If product flow has been stopped
    - Product type
    - Size, location and estimated quantity of product release (liters)

4. **Deploy Absorbents** such as sock boom, pads for initial containment and to track the spill

5. **Notify Terminal Manager (PCS)** or designate to provide details of the incident as well as obtain approval to deploy the containment boom. If unable to reach the PCS, the PIC (person in charge / senior operator on site) will assess the scene and determine the necessity to deploy the containment boom.

- Notify Response Boat Operator (Contractor - Sutherland)

- **Ready Boom Deployment Equipment** if deemed safe to do so.

- **Begin to Record the Sequence of Events** (*actions taken and time*) as they are performed to respond to the spill and continue to use the report form until the spill response is terminated.

8.9 Regulatory Reporting

This section describes the follow-up reporting requirements for the reportable release of any hazardous substance in accordance with the Federal regulations. The reporting requirements specified below are a summary of Federal and Provincial regulatory requirements.

8.9.1 Transport Canada – Reporting (30-day Follow-up)

Terminal staff will report in writing any discharge or anticipated discharge of oil to Transport Canada. As per Transport Canada's regional procedure, reports may be forwarded to the Regional Response Program via email to: *TC.ERATL-IEATL.TC@tc.gc.ca*. Reference Appendix K – Dartmouth Asphalt Terminal Critical Incident Report Template – Transport Canada

8.9.2 Provincial Follow-Up Reporting Requirements

Following an environmental emergency or occurrence, such as an oil or chemical spill, federal and provincial/territorial authorities need to be notified to coordinate an adequate oversight of the response. Since environmental emergencies or occurrences are often local in nature and in order to reduce notification burden, the federal environmental emergencies notification system serves as the focal point for all environmental release events (potential & actual) and will forward appropriate notifications to all affected parties based upon the information collected during the initial notification call by the OHF.

8.9.3 Incident Reporting & Investigation

Terminal will continue the investigation to collect all necessary information on the cause of the spill and how to prevent future occurrences. All and any findings will be sent to all parties involves including TC.

9.0 Specific Procedures for Potential Discharge Scenarios

Mitigation procedures for several potential discharge scenarios that may occur are described in the following Sections.

9.0.1 Mitigation of Asphalt Release during a Tanker/Barge Discharge Operation

Causal factor(s): Failure of the Cargo Transfer Hose, Dock Manifold Valve, Flange Gasket, Check Valve, Pressure Gauge Fitting or Relief Valve

- **The PIC or designate shall initiate terminal-specific emergency procedures including:**

DOCUMENT NAME	DESCRIPTION
Line Rupture	**Loss of Containment Line Rupture.** This procedure describes the steps necessary for a loss of containment due to a line rupture.

9.1 Response Strategies to a Marine Discharge

9.1.1 Introduction

The following chapter describes sensitive areas in the region, as well as the response techniques which may be employed to protect them. It is very important for response personnel to be knowledgeable about their geographic area and be able to identify and protect sensitivities.

The situations faced by the staff of the Dartmouth Asphalt facility during a spill response will be influenced by the meteorological conditions at the time of the incident. High seas or strong currents may endanger personnel, or potentially decrease the effectiveness of booming operations.

The Health and Safety of Personnel is the First Priority!

Containment efforts shall not be initiated without the approval of the Pollution Control Supervisor (PCS) or designate

9.1.2 Communications

Terminal recognizes the importance of proper communications between its operational personnel and the crews of vessels calling at the dock. The Dartmouth Asphalt Terminal maintains an inventory of intrinsically safe UHF two-way radios which are supplied to all vessels while alongside. Telephone and VHF radios are also available as a means of backup communication.

9.1.3 Containment

There is 1000’ of 18” fence boom (as well as all the necessary support equipment) located on the property of the DartmouthTerminal during transfers. The pre-planned and expedient deployment of this boom is perhaps the most formidable tool available, to minimize the effects of an oil pollution incident. Various methods of boom deployment are described later on in this chapter.

In the event of a spill, personnel are trained and equipment is available for initial response within one hour and available for clean-up and recovery response within six hours. The terminal personnel will initiate, when deemed safe, clean-up response measures until such time as the arrival of the RO (Eastern

Canada Response Corporation (ECRC))

9.1.4 Sensitive Resources

Halifax harbor is an industrialized area with shipping traffic, ships supporting government agencies, other oil terminals, and general cargo shipping. The shoreline is a mixture of wharfs, piers and beach areas. There are no known areas or structures that would suffer to a greater degree than others from a discharge of oil into the waters of the harbor.

Generally, since there are no areas that can be pre-identified as being more sensitive than others, response efforts should be directed at the most concentrated area of contamination.

9.1.5 Basic Boom Deployment Strategies

Deploying boom is the most common containment method of protecting the marine environment from oil spills. There are numerous techniques and strategies for deploying boom, the proper technique to use is often dictated by the type of geographical location to be protected, the weather patterns present at the time of the spill and the available equipment.

The most common types of deployment strategies are as follows:

9.1.5.1 Diversion / Deflection Booming:

Diversion booming is used to redirect oil away from a sensitive location towards another area, where recovery may be more easily achieved with less damage to the environment. An advantage of diversion patterns is that they are less affected by high currents than are many other types of booming patterns. The deployment of shorter sections of booming enhances control, making the task easier.

9.1.5.2 Exclusion Booming:

Exclusion booming is used to completely protect an area from contamination by completely isolating it from the rest of the body of water. Often this is the case in calm waters where small surface currents are present and shift at the slightest change in wind direction. Exclusion booms can consist of different types of materials, such as even sand bags and gravel.

9.1.5.3 Containment Booming:

A containment boom is a temporary floating barrier used to contain an oil spill. Booms are used to reduce the possibility of polluting shorelines and other resources, and to help make recovery easier. Booms help

to concentrate oil in thicker surface layers so that skimmers, vacuums, or other collection methods can be used more effectively

9.1.6 Shoreline Clean Up Strategies

The harbour area where vessel's offload is comprised of wharf structures and beach area. As such the only sections of the Shoreline Clean-up and Assessment Techniques Manual (SCAT) included here are bedrock, man made solid, boulder and pebble/cobble beaches. There are two general categories of shoreline, permeable and impermeable.

Impermeable shorelines characteristically do not allow penetration of oil below the surface layer. These shorelines are typically solid, stable and contain very little sediments. Permeable surfaces on the other hand are composed of organic and inorganic sediments which are often mobile. Oil will most likely penetrate and get buried below the surface layer if it remains for any significant length of time.

Based on the solidity of the asphalt once cooled, the only technique to be utilized for shoreline cleanup is mechanical or manual removal. In evaluating the situation, factors to consider are the extent of contamination, the type of shoreline, type of habitat, biological presence, safety considerations and impact the cleanup operation will have on the environment.

9.1.6.1 Mechanical removal:

Mechanical removal can be used on all but bedrock or man-made shoreline types. The bearing capacity of the sediments and the slope of the shore zone as well as the performance characteristics of the individual equipment control the applicability of different types of machine.

Typical equipment includes: scrapers, front end loaders, backhoes, draglines, bulldozers and vacuum trucks. These methods are extremely intrusive. Sometimes access is the only limitation, especially on shores that can only be reached by boat.

9.1.7 Sea Floor Clean Up Strategies

Mitigation of asphalt which has settled to the sea floor involves accurate and reliable detection of submerged asphalt. Based on results as determined through this step, the decision will be made in consulation with federal regulatory agencies, whether recovery of the spilled asphalt product will be attempted.

Accurate and reliable detection of submerged asphalt is an important first step to recovery. Although there are many potential methods to detect sunken asphalt, most involved: remote detection, or direct detection.

Remote detection generally uses conductivity, SONAR, or satellite imaging, the latter only being useful when the asphalt is still on the surface. Direct methods use Automated Underwater Vehicles (AUV) or Remotely Operated Vehicles (ROV), anchors or sorbents dragged or towed through the water column or along the bottom to identify areas containing sunken asphalt.

Due to its viscosity when cooled, pumping asphalt is not an option and as such effective recovery of the solidified asphalt from the sea floor may require the utilization of such techniques as manual removal through the use of divers.

9.1.8 Surface Asphalt Clean Up Strategies

Mitigation of liquid asphalt releases can occur in the brief window after the spill has occurred, but before recovery begins, and is meant to reduce the impact of the release. The majority of mitigation should occur before the asphalt sinks and hardens, and primarily is accomplished through recovery of floating or neutrally buoyant liquid or hardening asphalt. One important aspect to consider for mitigation planning is the physical characteristics of the receiving waters. The temperature and salinity of the water will affect the rate of hardening, entrainment of air, and buoyancy of the spilled asphalt. Two basic strategies were identified for mitigation: (1) corralling or redirecting floating asphalt with booms, barges, and/or boats; and (2) manual removal of floating product utilizing hand held tools (i.e. dip net, etc.)

Both strategies would prevent the asphalt from sinking and smothering the benthic zone or being lost to the current.

9.1.9 Various Shoreline Characteristics

Although there are many different shorelines described in the Shoreline Clean-up and Assessment Techniques Manual (SCAT) the following are the most probable shorelines an incident at this terminal would impact;

9.1.9.1 Man-made solid shorelines:

Man-made shorelines typically consist of structures made of concrete, metal and wood. Each of these materials has a different surface texture and roughness. The stranding of the oil depends on the surface texture; on smooth metallic faces it may not strand at all, while on rougher concrete type surfaces it may. Again, the persistency of the oil will depend greatly on whether the coast is sheltered or not. High energy wave action tends to flush away lighter oils.

9.1.9.2 Boulder Beaches:

Boulder beaches are permeable, and generally have a stable surface layer. Boulders are usually greater than 256 mm in diameter and are moved only by ice and extreme wave conditions. These types include boulder barricades and breakwaters. Oil persistence is usually dependent on viscosity and wave energy.

9.1.9.3 Pebble-cobble beaches:

Pebble cobble beaches are permeable to all but the semi-solid oils and have dynamic, mobile and unstable surface layers. They include man-made structures such as riprap or sand bag walls, with material between 2-256mm. Pebble cobble beaches are distinguished from sand-gravel beaches as the interstitial or pore spaces between the individual pebbles or cobbles are open, rather than filled with sand.

Stranded oil can easily penetrate the subsurface sediments. Oil viscosity and wave energy play an important role in influencing the depth in which the oil will penetrate.

APPENDIX

APPENDIX A –Dartmouth Asphalt Terminal Unit Operating Procedures ***(at submission date)***

Vessel Discharge Procedure:

1 - Complete pre-birthing paperwork

-Develop discharge plan for intended products.
-Gather MSDS info for cargos.
-Complete tank space report.
-Complete ship/shore safety checklist.
-Prepare and submit nomination paperwork.
-Complete port security paperwork.

2 - Prepare the terminal to receive the product

-Ensure the tanks and pipelines have been prepared in accordance with Quality Control requirements.
-Ensure all valves are correctly positioned to follow the discharge plan.
-Visually inspect the tanks, dyke area, valves and pipelines for damage, leaks or any unsafe conditions.
-Gauge the tank to confirm the expected level matches the discharge plan.

-Inspect all emergency spill response equipment and confirm the appropriate quantities are available.

-Inspect all firefighting equipment and ensure appropriate quantities are available.

-Close the main gate and street side building access.

-Open and secure the lower gate allowing access to the dock.

-Drain any standing water from the dyke and close and secure the dyke water drain valve.

3 - Secure the vessel

-Receive and secure the ships mooring lines at the pilot/captain's direction.
- Ensure the ships gangway is secured safely prior to boarding.

4 - Complete the pre-discharge paperwork

-Review and sign the ship/shore safety sheet with the chief officer.
-Review and sign the discharge plan with the chief officer ensuring he/she is aware of restrictions for pressure and flow rates.

-Provide the ship with a terminal UHF radio and test communications to ensure all forms of communications are functional and compatible.

- VHF
- UHF
- Cellular Phone
- Air Horn
- Ship's Horn

-Establish the appropriate communications related to the discharge.

- Standby to start transfer
- Start transfer
- Confirm receiving product ashore
- Slow down transfer
- Standby to stop transfer
- Stop transfer
- Emergency stop of transfer
- Emergency shutdown of transfer

-Begin the discharge log

5 - Hook up and prepare for the discharge

-Ensure the shore manifold valves are closed and secured
-Remove the blind(s) from the "Receiving Manifold/Pipe"
-Inspect the flange faces for damage and ensure the gaskets are new, not previously used.
-Direct the ship's crew in lowering and positioning the hoses for connection to the manifolds.
-Secure the hose to the manifold using the gasket and studs with isolation kits, ensuring the connection is electrically non-continuous.
-Tighten the connection and ensure the gap between the flanges at the gasket is consistent around the joint.
-Ensure gauging has been completed and volumes have been recorded.
-Ensure all required sampling and or testing has been completed.

6 - Begin discharge

-Confirm all valves are correctly positioned to receive the product as per the discharge plan.
-Position operators at the shore manifold and the receiving tank and prepare to check the entire length of the pipeline.
-Inform the chief officer the terminal is ready to receive.
-Confirm with the deck crew and chief officer that the ship's manifolds are opened.
-Request the chief begins to pump at the initial flow and pressure restrictions
-Open the shore manifolds and confirm the flow of product into the correct tank.
-Check all connections, valves, pipelines and tanks for leaks.
-Ensure the ship does not exceed the maximum initial flow rate.

7 - Receive cargo as per discharge plan

-Inspect the pipeline, manifolds, valves and tanks including liquid levels in active tanks at least every hour during the entire discharge.
-Contact the ship and confirm the discharge rate, pressure and total ashore every hour during the entire discharge.
-Increase the flow rate up to the maximum operational flow rate in the discharge plan to fill the tank.
-Pay special attention to tanks being filled to within 1 meter of max fill height during the last hour of filling to ensure discharge is stopped without exceeding max safe fill height.
-Manually gauge tank continuously during this last hour if the tank is not equipped with automatic gauging equipment and independent overfill alarms.
-Inform the chief officer of the approaching max fill level, Ship is to reduce flow rate when the tank is within 500 barrels of max safe fill height.
-Instruct ship to stop when max safe fill level is reached.
-Ensure operators are in position to close the dock manifold valve and the tank valve.
-Close and secure the manifold and tank valves on the full tank.

Complete discharge and secure the terminal

-Ensure the ship has shut down and closed its manifold valves.
-Close and secure all tank valves.
-Close and secure all manifold valves.
-Ensure all volumes in the tanks is calculated and recorded.
-Ensure gauging onboard is completed.
-Ensure all sampling and or testing is completed.
-Drain and disconnect the hose.
-Replace the manifold blind using new gasket, then direct the ship’s crew in hoisting the hoses onboard.
-Complete, review and sign with the chief officer all relevant paperwork including the discharge log.

Release the vessel

-Retrieve any radios provided to the ship.
-Gather and sign off ship’s paperwork/log/letters.
-Release the ship’s mooring lines at the direction of the pilot/captain

Severe Weather Readiness

Introduction

Severe weather, such as winter storms, extreme cold, heavy rain events and extreme winds (such as tropical storms or hurricanes), are for the most part predictable. This usually will allow 12 to 36 hours to prepare, whether performing simple tasks such as securing loose materials or extreme tasks such as shutting down and safe parking operating facilities.

Purpose

This procedure states the minimum safety precautions to be followed for a severe weather advisory. It describes the roles the Site / Terminal Manager, and Operations Manager play in the event of severe weather impacting facility.

Roles and Responsibilities

The Site / Terminal Manager of the facility is responsible for reviewing the weather advisories throughout their shift.

Fast-Developing Unexpected Storm

In the event of a fast-developing unexpected storm, the Terminal Manager will be responsible for:

- Announcing over the radio channel to evacuate all non-essential personnel from operating areas to a safe location.
- Calling in support to assist operations with snow removal, etc, as the storm develops. The priorities of the efforts will be set by the Site / Terminal Manager / Shift Lead who will also provide off hours direction.

Approaching Storms: Winter, Extreme Cold, Heavy Rain and Tropical Storms

In the event of an approaching storm, the Site / Terminal Manager will be responsible for:

-Reporting the potential likelihood and consequence of forecast storms.

-In conjunction with the Senior Operations Manager, setting the direction for Operations for the duration of the storm. The severity of the storm will determine immediate actions. These directions will focus on personnel safety, environmental safety and operational stability.

Approaching Severe Weather: Severe Weather, and Hurricanes

-In the event of approaching severe weather, the Shift Manager will be responsible for reporting on the potential likelihood and consequence of forecast storms. The Shift Manager will inform the Operations Manager of developing severe storm conditions.

The Site / Terminal Manager / Shift Lead is responsible for determining when it is safe for Emergency

Personnel to enter affected operating areas for assessment of damage during/after a storm.
The Site / Terminal Manager / Shift Lead shall:
---Once a severe weather watch is issued,
-Develop and communicate a preparedness plan depending on the severity of the storm
-Reference the Severe Weather Checklist which will provide information used for the duration of the storm threat and recovery period.

Storm Definitions

The following are definitions of storm types referred to in this procedure:
Hurricane – An intense tropical weather system of strong thunderstorms and a well-defined surface circulation and maximum sustained winds of 74 mph (120 km/h) or higher.
Tropical Depression – An organized system of clouds and thunderstorms with a defined surface circulation and maximum sustained winds of 38 mph (61 km/h).
Tropical Storm – An organized system of strong thunderstorms with a defined surface circulation and maximum sustained winds of 39-73 mph (62-117 km/h) or less

Seasonal Preparedness

In preparation for severe storms, the following critical tasks need to be either planned early or part of the Facility's day-to-day business model:
-Training in Emergency Procedures
-Planning for business and supply interruptions
-Housekeeping
Utilities are vital during emergency situations and operational recovery. Pre-hurricane season checks should be done every year to ensure structural integrity is guaranteed in the event of severe weather.
Tank fields typically can be a source of flying debris such as cladding and insulation. Pre-hurricane season inspections should be done and loose materials secured. Drainage ditches and berms should be cleaned and re-enforced, where needed.

A preparedness plan shall be developed by the Site / Terminal Manager and communicated based on the severity of the storm. The intention of the plan is to:
-Protect employees.
-Protect facilities.
-Protect the environment.
-Ensure that all required preparations are developed once the hurricane watch is issued.

Hurricane & Severe Weather Checklist

To be reviewed with all involved and terminal management 24-48 hours before severe weather arrives

High Wind & Hurricane Checklist	Checked	Initials
Assess current preparations, potential risks, impacts of power failures and structural damage, and ways to mitigate damage		
A decision to continue operations, slow down, or shutdown will need to be made early in the storm's path (12-48 hours).		
Evaluate what personnel are needed on-site during the storm and how many. Evaluate staffing plans pre-storm and designate/define recovery crews		
Plan for a minimum three-day contingency of peoplepower, food, and essential supplies such as batteries, fuel for generators, back-up communication and accommodations.		
Expect business and supply interruptions; consider a three-day minimum inventory for critical services.		
Establish an EHS and medical response plan for up to three days post storm.		
Establish a site security plan; anticipate perimeter breaches and radio/telephone communication loss.		
Coordinate and share Emergency Response Plan with contracted responders and local Fire & Police departments		
Relocate records and critical equipment to a safe location		
Consider covering windows in the control room and other critical buildings.		
Consider that electrical power, water, gas and other utility services in buildings may be best turned off.		
Identify buildings and facilities that appear to be unsafe for occupancy during high winds. May need to completely evacuate those buildings.		
Establish a communication plan assuming loss of radios and computers.		
Consider accommodations for essential personnel.		

APPENDIX B – Dartmouth Asphalt Terminal Health and Safety Policy

GLC | **Safety Policy**
GLC-SAF-POL-013_5

1.0 Safety Policy

This policy applies to General Liquids Canada (GLC) and all of its locations.

GLC is committed to providing a healthy and safe work environment for its employees and preventing occupational illness and injury. To express that commitment, we issue the following policy on occupational health and safety.

As the employer, GLC is responsible for the health and safety of its' employees. GLC will make every effort to provide a healthy and safe work environment. We are dedicated to the objective of eliminating the possibility of injury and illness.

Senior Management commits to take all reasonable precautions to prevent harm to workers.

Managers and supervisors will be trained and held responsible for ensuring that the employees, under their supervision, follow this policy. They are held accountable for ensuring that employees use safe work practices and receive training to protect their health and safety.

Managers and supervisors also have a general responsibility for ensuring the safety of equipment, facilities and the work site.

GLC through all levels of management, will co-operate with the Joint Occupational Health and Safety Committee and employees to create a healthy and safe work environment. Co-operation should also be extended to others such as contractors, owners, officers, etc.

The employees of GLC will be required to support this Organization's health and safety initiative and to co-operate with the Joint Occupational Health and Safety Committee or representative and with others exercising authority under the applicable laws.

It is the duty of each employee to report to the supervisor or manager, as soon as possible, any hazardous conditions, injury, accident or illness related to the workplace. Also, employees must protect their health and safety by complying with applicable Acts and Regulations and to follow policies, procedures, rules and instructions as prescribed by GLC.

GLC will, where possible, eliminate hazards and, thus, the need for personal protective equipment. If that is not possible, and where there is a requirement, employees will be required to use safety equipment, clothing, devices and materials for personal protection.

GLC recognizes the employees' duty to identify hazards and supports and encourages employees to play an active role in identifying hazards and to offer suggestions or ideas to improve the health and safety program.

NOTE: This policy statement has been developed in co-operation with the Joint Occupational Health and Safety Committee.

Joey Montgomery
General Manager
Date (d/m/y): 02-Dec-19

APPENDIX C – Asphalt Terminal Staff HSE Training Matrix

Responder Training 2014 up to Apr 2020	
Adam Esson	**2014**
ECRC Marine Spill Training - Miramichi	26-Feb
ECRC Marine Spill Training - Dartmouth, NS	Apr 9 & 10
Ultramar Chatham - Oil spill Exercise	16-Sep
Belledune- Oil spill exercise	17-Sep
ECRC- Marine Training, Millerton	18-Sep
	2015
ECRC - Land Training - Dartmouth	Feb 18-20
ECRC - Responding to Hydrocarbon Spills	Apr 14-15
ECRC - Marine 1st aid training Dartmouth	Dec 7 & 8
	2016
ERAC Online Training	May-16
Propane Response Training	July 26-27
ECRC Training - Shoreline worker safety/oil boom placement	16-Aug
ECRC Training- Set up shoreline boom, coastal study	17-Aug
ECRC Belledune-- Oil spill exercise	18-Aug
Belledune Oil spill Training	28-Sep
	2017
ECRC Training- Season opener	28-Feb
ECRC Training-Landspill & Marine, Dartmouth	May 1-5
ERAC Training	June 13-17
	2018
ECRC Season Opener	20-Feb
ECRC Exercise	July 17-20
ERAC online training	Mar-18
ERAC Training - Irving	Apr 4-5
Belledune Exercises- Oil spill exercise	July 24-25
	2019
ECRC Season Opener & Spill exercise in Belledune	Apr 9, 10 & 11
ERAC Training - Irving	Aug14-15
First Aid	Apr 12

Billy Sherrard	**2014**
ECRC Marine Spill Training - Miramichi	26-Feb
ECRC Marine & Land Spill Training	Apr 22-25
Ultramar Oil Spill Training - Chatham	16-Jul
	2015
ECRC Training - Dartmouth	18-Feb
Responding to Hydrocarbons	14-Apr
Ultramar OHF Training- Miramichi	22-Sep
Refinery Orientaion- Irving	Jul-19
	2016
ECRC Training - Shoreline worker safety/oil boom placement	16-Aug
ECRC Training- Set up shoreline boom, coastal study	17-Aug
ECRC Belledune-Oil spill exercise	18-Aug
	2017
ECRC Training- Season Opener	28-Feb
Imperial Oil LPS Training	28-Apr
ECRC Training- Marine Training	Dec 14 & 15
	2018
ECRC Season Opener	20-Feb
ECRC Training- Dartmouth	Apr 9-13
	2019
ECRC Season Opener & Spill exercise in Belledune	Apr 9, 10 & 11
First Aid	Apr 12

Blake Sutherland	**2014**
ECRC Marine Spill Training -Miramichi	26-Feb
ECRC Marine Spill Training - Dartmouth, NS	Apr 9 & 10
Imperial Oil LPS Training	14-Jul
Ultramar Oil Spill Training -Chatham	16-Sep
Belledune- Oil spill exercise	17-Sep
ECRC- Marine Training, Millerton	18-Sep
	2015
ECRC Training - Dartmouth	Feb 18-20
Ultramar OHF Training- Miramichi/Belledune	Sept 22-23
	2016
ECRC Landspill Training	Apr 4-6
Petroleum System Training	Apr 14 ,15
Oil Spill Training - Irving Oil	Apr-22
Propane Response Training	July 26-27

Valero Oil Spill Training	27-Sep
Belledune Oil spill Training	28-Sep
	2017
ECRC Training Season Opener	28-Feb
Imperial Oil LPS Training	28-Apr
Irving P & T EHS Standards Training	May-19
ERAC Training	13-Jun
Valero- Emergency Response Exercise	Aug 29-30
	2018
ECRC Season Opener	20-Feb
ECRC Navagation training	May 8-10
ERAC Training - Irving	Apr 4-5
	2019
Belledune Terminal Op- Training for Irving	12-Feb
ECRC Season Opener & Spill exercise in Belledune	Apr 9, 10 & 11
ERAC Online Training & WHMIS	18-Apr
First Aid	Apr 12

Derrick Silliker	**2019**
ECRC Season Opener & Spill exercise in Belledune	Apr 9, 10 & 11
Landspill Training - Dartmouth	Apr 23 & 24
ECRC Training Dartmouth	Apr 29-May3
ERAC Online Training & WHMIS	18-Apr
First Aid	Apr 12

Devin Mullin	**2016**
ECRC Training - Shoreline worker safety/oil boom placement	16-Aug
	2017
Imperial Oil LPS Training	28-Apr
Valero- Emergency Response Exercise	Aug 29 & 30
	2018
ECRC Season Opener	20-Feb
ECRC Training- Dartmouth	Apr 9-13
	2019
ECRC Season Opener & Spill exercise in Belledune	Apr 9, 10 & 11

ECRC - Med training Dartmouth	01-May
ERAC Online Training & WHMIS	18-Apr
First Aid	Apr 12

Greg Pickard	**2014**
Imperial Oil LPS Training	14-Jul
Belledune- Oil spill exercise	17-Sep
ECRC- Marine Training, Millerton	18-Sep
ECRC Training Dartmouth (Marine)	Nov 3-7
	2015
ECRC Training - Dartmouth	Feb 18-20
ECRC- Dartmouth, Documentation Training	25-Nov
	2016
ECRC Landspill Training	Apr 4-6
ERAC online training	16-May
Propane Response Training	July 26-27
ECRC Marine Training- Dartmouth	Dec 7-9
(Boat Operations & boom deployment)	
	2017
ECRC Training- Season Opener	28-Feb
Imperial Oil LPS Training	28-Apr
ECRC Training-Landspill & Marine, Dartmouth	May 1-5
Irving P & T EHS Standards Training	May 11/17
ERAC Training	June 13-17
Valero -Emergency Response Exercise	Aug 29-30
	2018
ECRC Navagation Training	May 8-10
ERAC Online Training	18-May
ERAC Training - Irving	Apr 4-5
ECRC Belledune Exercises	July 24-25
	2019
Belledune Terminal Op- Training for Irving	12-Feb
ECRC Season Opener & Spill exercise in Belledune	Apr 9, 10 & 11
ECRC Landspill Training - Dartmouth	Apr 23 & 24
ERAC Online Training & WHMIS	18-Apr

First Aid	Apr 12

Robin Stewart	**2014**
Imperial Oil LPS Training	14-Jul
Ultramar Oil Spill Training - Chatham	16-Sep
Belledune- Oil spill exercise	17-Sep
ECRC- Marine Training, Millerton	18-Sep
	2015
ECRC Training - Dartmouth	Feb 18-20
Ultramar OHF Training- Miramichi/Belledune	Sept 22-23
	2016
ERAC Online Training	May-16
Propane Response Training	July 26-27
Valero Oil Spill Training	27-Sep
Belledune Oil spill training	28-Sep
	2017
ERAC Training	29-May
ERAC Training	June 13-17
	2018
ERAC Online Training	May-18
ERAC Training - Irving	Apr 4-5
	2019
ECRC Training Dartmouth	Apr 29-May3
ERAC Online Training & WHMIS	19-Apr
First Aid	Apr 12

Mike Trask	**2014**
Marine Facility Security Officer	Feb 24-25
Imperial Oil LPS Training	14-Jul
	2015
ECRC Training Dartmouth	Feb 18-20
	2016
ECRC Landspill Training	Apr 4-6
ERAC Online Training	May-16
Propane Response Training	July 26-27

ECRC Training - Shoreline worker safety/oil boom placement	16-Aug
ECRC Training- Set up shoreline boom, coastal study	17-Aug
ECRC Belledune-	18-Aug
Valero Oil Spill Training	27-Sep
Belledune oil Spill Training	28-Sep
Security Awareness Certificate- Irving	28-Nov
	2017
ERAC Online	13-Feb
ECRC Training- Season Opener	Feb-19
Imperial Oil LPS Training	28-Apr
Irving P & T EHS Standards Training	11-May
ECRC- on Water Training- deployed boom and anchors	June 8 & 9
	2018
ECRC Season Opener	20-Feb
ECRC Training- Dartmouth	Apr 9-13
ERAC online training	May-18
ERAC Training - Irving	Apr 4-5
Belledune Exercises	July 24-25
	2019
Belledune Terminal Op- Training for Irving	12-Feb
ECRC Season Opener & Spill exercise in Belledune	Apr 9, 10 & 11
Landspill Training - Dartmouth	Apr 23 & 24
ERAC Online Training & WHMIS	19-Apr
First Aid	Apr 12

APPENDIX D – Dartmouth Asphalt Terminal Emergency Response Training Exercise

1. Regulatory Basics;
2. Spill Reporting;
3. Size Required to Report;
4. Discharge v. Anticipated Discharge;
5. What to Report;
6. Safety (Loading / Unloading to Cease);
7. Safety Priorities;
8. Roles and Responsibilities;
9. Operational Deployment Exercise; and
10. Tabletop Alert Notification.

Participants:

(check as applicable)

Exercise Objectives:

- Verify the ability to contact, in a reasonable time, OHF response staff identified in the OHF's OPEP.
- Verify the ability to contact OHF authorities, company management, governments and other organizations identified in the OHF's OPEP within a reasonable time.
- Evaluate the effectiveness of the OHF response team in following the procedures established to contain/recover a spill, using response equipment described in the OPEP within time standards.

Scenario for Exercises

Description:

- Terminal personnel are unloading Liquid Asphalt from the barge and Tug;
- Failure of 8" Dock Manifold Flange;
- 5 m3 was lost (2.5 m3 on the Jetty and 2.5 m3 in the water)
- Source is secure;

- Wind,12 km/h SW;
- Sea State, <30 cm;
- Temperature, 20°;
- No casualties; and
- Time, as is.

APPENDIX E – Dartmouth Asphalt Terminal Emergency Response Scenario

In considering the potential worst case scenarios, the most probable to occur is while Asphalt product is being unloaded at the dock. The potential environmental emergency scenarios that could be considered at this facility can be grouped into the following five distinct areas:

- Tanks and associated piping in the terminal yard;
- Truck loading rack
- Piping systems between the dock and tank located in the terminal yard;
- Marine cargo pipe system at the waterfront area; and,
- Vessel and berthing areas.

Potential Emergency Response Scenario – Liquid Asphalt Spill

The terminal is unloading Liquid Asphalt from the Barge and Tug, when catastrophic failure of the hose over water is identified causing approximately 5,000 liters of Liquid Asphalt to be released into the Halifax harbor. The shoreline is a mixture of bedrock, man made solid, boulder and pebble/cobble beaches. There are no known areas or structures that would suffer to a greater degree than others from a discharge of oil into the waters of the harbor.

Generally, since there are no areas that can be pre-identified as being more sensitive than others, response efforts should be directed at the most concentrated area of contamination.

Assumptions:

- The Barge and Tug are secure and have no onboard emergency;
- All personnel are safe;
- Field Operators, Person in Command and Terminal Manager are to respond in accordance with the procedures in the OPEP;

Relevant Scenario Information:

- Time: 14:00 pm
- Temperature: 20 degrees Celsius
- Weather Conditions: Sunny
- Sea Conditions (i.e. approx. sea swell & wave height): seas calm
- Wind (speed and direction): 10 km/hr. S gusting to 15 km/hr.
- Visibility: Unlimited

Discharge Data:

- High flow rate 2500 bbls per hour

Spill Data:

- Product: Liquid Asphalt
- Estimated Quantity Spilled (L): 5,000L
- Spill From: Cargo Transfer Hose
- Spilled To: Halifax Harbor
- Cause of Spill (including status): Catastrophic Failure of the Cargo Hose

Potential Impact Area:

- Shoreline in vicinity of wharf, to be determined based on tide and wind

Time log:

ESTIMATED TIME (*MINS*)	RESPONSIBLE PERSON/S	ACTION
0-60 mins	Terminal Operator	Working on the wharf, operator notices the cargo hose suffer a catastrophic failure over water causing product to flow into the harbor at "high-flow" discharge rates
	Terminal Operator	Terminal Operator immediately announces "SHUTDOWN, SHUTDOWN, SHUTDOWN" via the 2-way radio which is heard by the vessel's cargo control room operator
	Vessel CCR Operator	Initiates immediate shutdown of transfer of asphalt. Vessel CCR operator radios confirmation to the PIC that shutdown has been completed.
	Terminal Operator	Initiates closure of the dock manifold valve
	Terminal Operator	Conducts a preliminary classification and determines: • No personnel are in the affected area. • Approximately 5000 liters (est.) of Liquid Asphalt is in the water The source is determined to be catastrophic failure of the cargo hose
	Terminal Operator	Briefs the Person in Charge on the findings from the incident "preliminary classification" should the PCS not be on site. PIC assumes control of the emergency situation
	Person in Charge (PIC)	Assess situation to determine what immediate hazards exist which could impact the safety of the facilities personnel as well as the facility.
	Person in Charge (PIC)	Requests terminal operators to ready the response equipment for deployment and notify the response boat operator
	Person in Charge (PIC)	PIC requests assistance from a terminal operator to initiate collection of pertinent data as per the OHF Oil Spill Situation Report
	Person in Charge (PIC)	PIC relays pertinent incident information to the PCS as outlined in the OHF Spill Situation Report
	Pollution Control	Instructs the response contractor to deploy the containment boom

	Supervisor (PCS)	around the tanker
	Person in Charge (PIC)	Confirms to the PCS that the boom has been deployed and the tanker has been encircled. No additional product has been observed on the surface outside the containment area
	Pollution Control Supervisor (PCS)	Initiate the notification process to: • Federal Environmental Emergencies Line • N.S Environment
	Pollution Control Supervisor (PCS)	Notifies ECRC of the spill and requests assistance
	Sutherland / Terminal	Deploy boom and containment when safe to do so.
Within 2 hours	Pollution Control Supervisor (PCS)	Establishes Incident Command Center at the Terminal
Within 6 hours	Canadian Coast Guard (CCG); Eastern Canadian Response Corporation (ECRC)	Arrive at the terminal and establishes communications with Terminal Pollution Control Supervisor (PCS).
	Sutherland / Canadian Coast Guard (CCG); Eastern Canadian Response Corporation (ECRC)	Work under the command of the PCS to determine appropriate containment and corresponding clean-up measures based on atmospheric testing data, guidance and modeling data as provided by ECRC.
	Eastern Canadian Response Corporation (ECRC)	Mobilizes response personnel/equipment.
	Eastern Canadian Response Corporation (ECRC)/Terminal Operations	Deploy equipment and initiates cleanup measures
Within 1 week	Sutherland /Eastern Canadian Response Corporation (ECRC)	Manage cleanup measures to completion
Within 1 week	Canadian Coast Guard (CCG)	Provides confirmation that cleanup measures are adequate
<30 days	Pollution Control Supervisor (PCS)	Ensure written follow-up report submitted to Transport Canada

APPENDIX F - Dartmouth Asphalt Terminal Emergency Response Contact List

POLICE – FIRE – AMBULANCE 911

POLICE – FIRE – AMBULANCE 911			
TERMINAL PERSONNEL			
NAME	**OFFICE**	**CELL**	**HOME**
Blake Sutherland	506-622-5437	506-627-0960	
Mike Trask	506-622-5437	506-627-9409	
MANAGEMENT / EHS			
NAME	**OFFICE**	**CELL**	**HOME**
Patrick Rooney – Director of Manufacturing prooney@dexter.ca		902-222-7839	
Jerry Scott – General Manager jscott@dexter.ca		902-478-2732	
Tyler Pettipas – Project Coordinator tpettipas@dexter.ca		902-237-8615	
Ken MacLean Legal/Media kmaclean@municipalgroup.ca		902-835-3381	
ENVIRONMENTAL EMERGENCIES			
Canadian Coast Guard Spill #	1-800-563-9089	Land/Marine Spill Reporting Line	
CANUTEC	1-613-996-6666	TDG Emergency Center	
ECRC response	1 613 930 9690		
CRIMINAL ACTIVITY / SECURITY THREAT			
RCMP	911		
Fire Department	911		
PUBLIC AFFAIRS / GOVERNMENT RELATIONS			
Ken MacLean Legal/Media kmaclean@municipalgroup.ca	902-835-3381		

General Liquids to verify the names and numbers below

APPENDIX G – Dartmouth Asphalt Terminal OHF Oil Spill Situation Report

A	Report Date: MM DD YY	Report Time:	☐ Original Spill Report **OR** ☐ Update #_____to the Original Spill Report	**Report Number:**	
B	Occurrence Date: MM DD YY	Occurrence Time:			
C	Land Use Permit Number (if applicable):		Water Licence Number (if applicable):		
D	Geographic Place Name or Distance and Direction from the Named Location:		Region:		
E	Latitude: _____ Degrees _____Minutes _____Seconds		Longitude: _____ Degrees _____Minutes _____Seconds		
F	Responsible Party or Vessel Name:		Responsible Party Address or Office Location:		
G	Any Contractor Involved:		Contractor Address or Office Location:		
H	Product Spilled: ☐ Potential Spill	Quantity in Litres, Kilograms or Cubic Metres:	U.N. Number:		
I	Spill Source:	Spill Cause:	Area of Contamination in Square Metres:		
J	Factors Affecting Spill or Recovery:	Describe Any Assistance Required:	Hazards to Persons, Property or Environment:		
K	Additional Information, Comments, Actions Proposed or Taken to Contain, Recover or Dispose of Spilled Product and Contaminated Materials:				
L	Reported to Spill Line by:	Position:	Employer:	Location Calling From:	Telephone:
M	Any Alternate Contact:	Position:	Employer:	Alternate Contact Location:	Alternate Telephone:

REPORT LINE USE ONLY

N	Received at Spill Line by:	Position:	Employer:	Location Called:	Report Line Number:
Lead Agency:			Significance: ☐ Minor ☐ Major ☐ Unknown		File Status: ☐ Open ☐ Closed

Agency:	**Contact Name:**	**Contact Time:**	**Remarks:**
Lead Agency:			
First Support Agency:			
Second Support Agency:			
Third Support Agency:			

APPENDIX H – Dartmouth Asphalt Terminal Response Organization Contract (ECRC)

ECRC~SIMEC
1201-275 Slater Street Ottawa ON K1P 5H9 CANADA
GST/HST # 86821 9130RT, QST # 1022954187

TEMPORARY COVERAGE

Date:	April 8, 2020		
To:	Ladies and Gentlemen General Liquids Canada c/o Sutherland Excavating Ltd.	***Fax:***	blake@sutherlandnv.com
From:	Anisa Ali Senussi	***Phone:*** ***Fax:***	613-230-7369 Ext. 0 613-230-7344
Vessel(s):	**DARTMOUTH LIQUID ASPHALT TERMINAL 750 PLEASANT ST., DARMOUTH, NOVA SCOTIA B2W 1A7**	***Contract:***	**E003-00062**

Thank you for your completed Designated Oil Handling Facility Membership Agreement. A copy of the executed agreement along with the confirmation of arrangement form is enclosed for your file. We are awaiting your payment of $517.50. It is important to note that the 24-hour emergency number to call for marine oil spill response services is **(613) 930-9690**. Please note that this number is to be used for emergencies only and our administration number **(613) 230-7369** for all other inquiries.

PLEASE NOTE: If you choose to make payment via bank wire transfer, you must add an additional **$17.50 CDN** for bank charges to the amount being transferred.

The effective date of the contract is June 1, 2020 to May 31, 2021.

The agreement shall be automatically renewed for successive one-year terms unless:

(a) One party gives notice to the other at least 60 days prior to the date on which either the initial one-year term is due to expire or any subsequent one-year term is due to expire, that such party does not wish to renew the agreement; or

(b) Member has failed to pay any fees when due.

Please note that the Agreement provides for the following reporting requirements with respect to quantities of bulk oil associated with the payment of bulk oil cargo fees:

(a) Member to provide to ECRC within ten (10) days following the end of each month, a report containing the total quantity (on a facility by facility basis) of bulk oil unloaded or (in the case of bulk oil intended for international destinations) loaded at each of Member's oil handling facilities during the

ECRC~SIMEC
1201-275 Slater Street Ottawa ON K1P 5H9 CANADA
GST/HST # 86821 9130RT, QST # 1022954187

preceding month. A copy of a report form (Form 1) is attached for your convenience. (This report will not be required by Members who are subject to advance payment of bulk oil cargo fees except as noted below).

(b) Advance payment provisions of bulk oil cargo fees will apply to those Members whose aggregate quantity of bulk oil unloaded or (in the case of bulk oil intended for international destinations) loaded at all of Member's oil handling facilities in the preceding calendar year exceeds 300,000 tonnes. In order to calculate the amount of the advance payments, applicable Members are to provide to ECRC on or before February 15th of each year the total quantities (on a facility by facility basis) of bulk oil unloaded or (in the case of bulk oil intended for international destinations) loaded at Member's oil handling facilities in the preceding calendar year. A copy of report forms (Form 2 & 2A) are attached for your convenience.

In summary Members whose applicable quantity of bulk oil is less than 300,000 tonnes per year are to report and pay for the applicable bulk oil cargo fees on a monthly basis. Members whose applicable quantity of bulk oil is 300,000 tonnes and above per year are to report on an annual basis and pay their estimated bulk oil cargo fee in advance. Specific details with respect to the reporting and paying of bulk oil cargo fees are contained in Article IV and V of the Membership Agreement. If you would like to have direct discussions on the reporting and payment provisions please contact Paul Pouliotte at (613) 230-7369 ext.204.

Sincerely,

Anisa Ali Senussi
Contracts Administrator
contracts@ecrc-simec.ca

APPENDIX I – Incident Reporting and Investigation Standard

Accident / Investigation Report

Accident File # _____

I. Background Data

Employee Name: _____ Accident Location: _____

JOB **#:** _____ DATE of Accident: _____ / _____ / _____ Time of Accident: _____

Day Month Year AM/PM

Day of Week: _____ Company Employee(s) Injured? _____ YES _____ NO

INJURED EMPLOYEE: (1) _____ (2) _____

Witness (es): (1) _____ (2) _____

Employee's experience level performing this type of task: _____ / _____ / _____

Years Months N/A

Did this accident involve property damage? _____ YES _____ NO

Was a motor vehicle or mobile equipment involved? _____ YES _____ NO

Employee's Drivers Licence Master # _____ Vehicle or

Equipment Type: _____ Company # _____ Damage:

_____

WAS THERE 3RD PARTY INVOLVEMENT? _____ YES _____ NO

Name of 3rd Party Driver: _____ 3rd Party Master #: _____

3rd Party Vehicle Type: _____ Year: _____ Licence Plate # _____ Province: ____

3rd Party Insurance Co: _____ Policy #: _____

Damage to 3rd Party Vehicle: _____

_____Estimate Cost $_____

Name(s) of Injured 3rd Party Person: (1) _____ Phone #: _____

(2)Type of Injury _____ Phone #: _____

*** IF additional information is required put on separate sheet and attach to this form.**

3rd PARTY STATEMENT

Please describe below the sequence of events leading up to the accident:

_____

_____

_____

_____

_____

II. EMPLOYEE'S STATEMENT

Please describe below the sequence of events leading up to the accident: _____

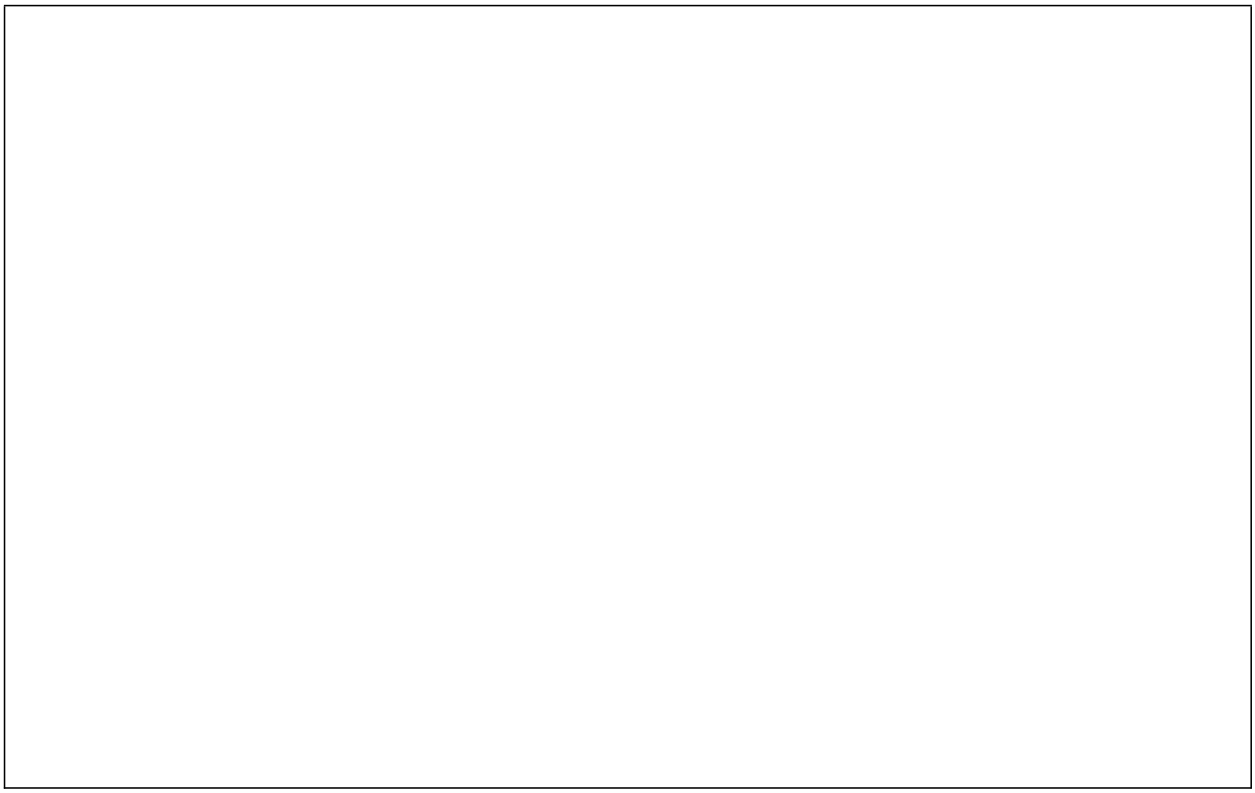
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

_____
_____
_____
_____
_____

Employee: _____ _____ Date: _____

Signature :_____

Diagram



III. FOREMAN/WITNESS STATEMENT
Description of Events:

_____
_____
_____
_____
_____
_____
_____
_____

Foreman/Witness: _____ Signature:_____ Date: _____

IV. SAFETY DEPARTMENT

Is this a Personal Injury to Company Employee(s)? YES _____ NO _____
Is this a WCB Claim? YES _____ NO _____ (***Form 67 required if employee goes to a Doctor)***
Classification: ***LTA*** (Loss Time Accident) _____ ***ANI*** (Accident No Injury) _____
MA (Medical Aid) _____ ***FA*** (First Aid) _____ ***N*-M** (Near Miss) _____
TYPE OF INJURY
Head/Neck ___
Back ___
Hand/Wrist ___
Toes ___
Eyes ___
Legs ___
Fingers ___
Shoulders ___
Trunk/Chest ___
Arms ___
Foot/Ankle ___
Ears ___
Contusion ___ Strain ___ Fracture ___ Foreign Body ___
Burns ___ Sprain ___ Heart Attack ___ Wounds ___
Other (describe): _____
Describe nature and extent of injuries / illness. Give as many details possible; attach any medical information ;

_____
_____
_____

Other
INSURANCE ADJUSTERS CONTACTED (3RD PARTY INJURIES AND/OR $2,500.00 DAMAGE) ____YES ____ NO
Was the effected employee(s) performing a routine task? ____YES ____ NO
Was this employee trained for this task? ____YES ____ NO
What was this accident preventable by the employee performing the task? ____YES ____ NO

Safety Department's accident analysis and recommendations:

_____
_____
_____
_____
_____

Total Company Veh/Equip Damage Cost $_____ Total 3rd Party Damage Costs $_____

Safety Manager: _____ _____ Date: _____
Print Signature

President

Comments & Recommendations: _____

_____

_____

_____

_____

_____

President: _____ Date: _____

APPENDIX J – Dartmouth Asphalt Terminal Critical Incident Report Template - Internal

CRITICAL INCIDENT REPORT TEMPLATE – INTERNAL

GENERAL INCIDENT INFORMATION

Name and title of person calling in emergency: _____

Telephone Number: _____ Date/Time of Call: _____

Location of Incident: _____

Description of Incident: _____

Damage at the Scene: _____

Number of Injuries: _____ Extent of Injury: _____

EMERGENCY NOTIFICATIONS

Persons/Departments Notified:	Name (where known)	Approx. time of call
• Terminal Manager		
•		
• Senior Manager Terminal Operations		
• HSE Specialist		
•		

Emergency Numbers:

• Canadian Coast Guard		
• NS Dept of Environment		
• Environment Canada		
• Police/Fire/Ambulance		
• Worksafe NS		
• Corporate Security		
• Communications Person		
• Priority Customers		
• Others		

Description of other actions taken: _____

Name/Title of person completing report: _____

Take Digital Photographs if Safe to do so - gas test should be performed to ensure atmosphere safe

Date of Completion:

APPENDIX K –Dartmouth Asphalt Terminal Critical Incident Report Template – Transport Canada

CRITICAL INCIDENT REPORT TEMPLATE – TRANSPORT CANADA

GENERAL INCIDENT INFORMATION

Name of Oil Handling Facility: _____ Address: _____

Identity of any vessel(s) involved: _____

Name/position of person implementing/ coordinating the OPEP: _____

DISCHARGE INFORMATION

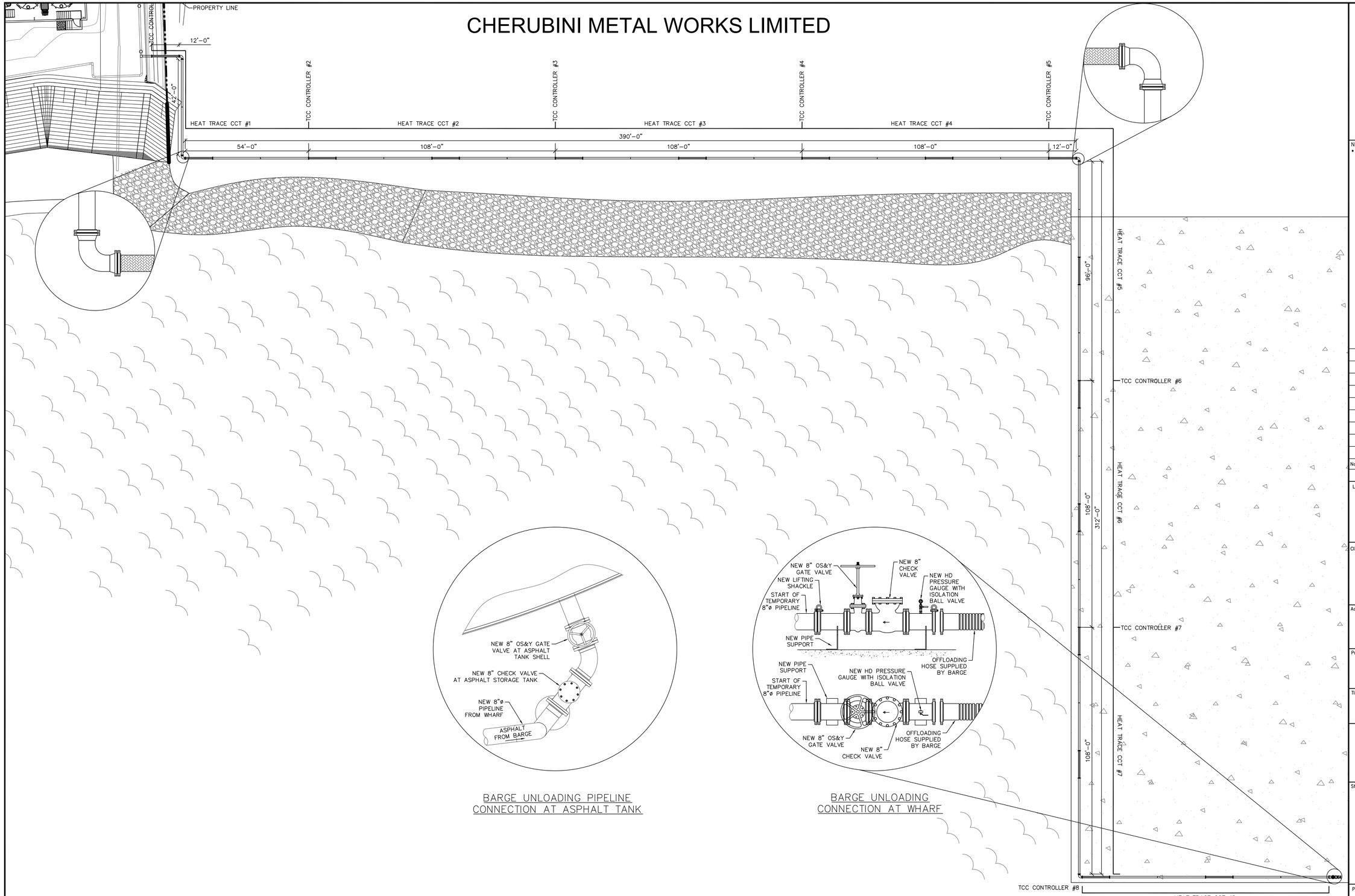
	Actual		Anticipated
Date:		Date:	
Time:		Time:	
Location:		Location:	
Type:		Type:	
Quantity:		Quantity:	

Description of response actions to be taken: _____

On Scene Conditions: _____

Any Other Relevant Information: _____

CHERUBINI METAL WORKS LIMITED



BARGE UNLOADING PIPELINE CONNECTION AT ASPHALT TANK

BARGE UNLOADING CONNECTION AT WHARF

ISSUE

FOR	BY	DATE
■ – FOR REVIEW ONLY	TJG	MAR 30, 2020
☐ – FOR APPROVAL		
☐ – FOR TENDER		
☐ – FOR CONSTRUCTION		
☐ – FOR AS BUILT		

NOTES:
•

No.	DESCRIPTION	BY	DATE

REVISIONS

Logo:

Client:

DEXTER CONSTRUCTION

Address:

PLEASANT STREET
DARTMOUTH, NS

Project:

NEW ASPHALT STORAGE FACILITY

Title:

ASPHALT BARGE UNLOADING PIPELINE LAYOUT

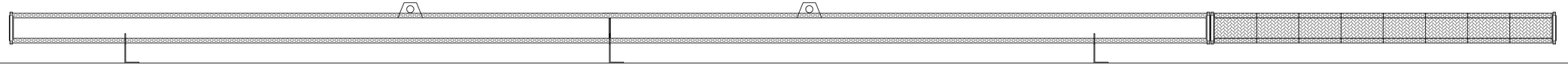
GALLAGHER TECHNICAL SERVICES LIMITED
22 DOUGLAS DRIVE
QUISPAMSIS, NB
E2G 1Y3
PHONE: 506 849 4116
FAX: 506 847 1070

Stamp:

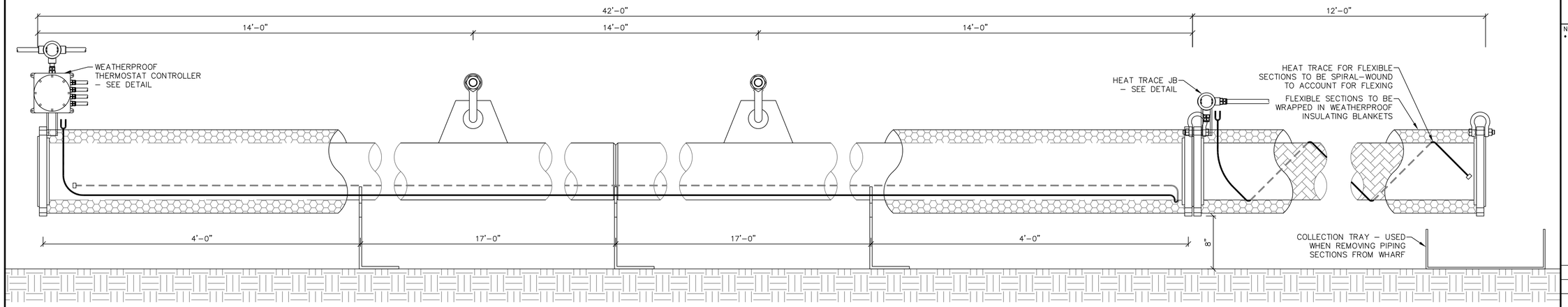
DESIGN:
DRAWN:
CHECKED:
DATE: MAR 30, 2020
SCALE: AS NOTED
REV.: 0

PROJECT NUMBER: GTS–1645

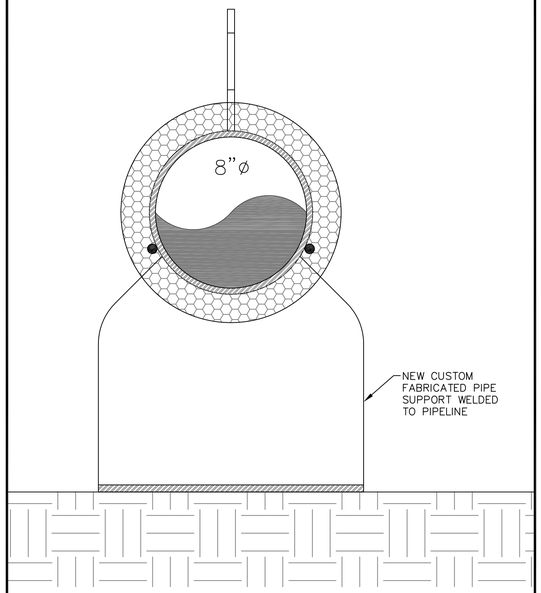
SHEET No. 2



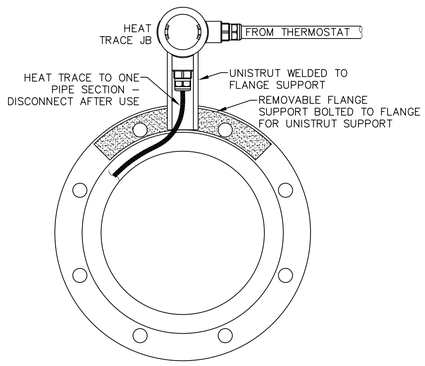
PIPELINE SECTION



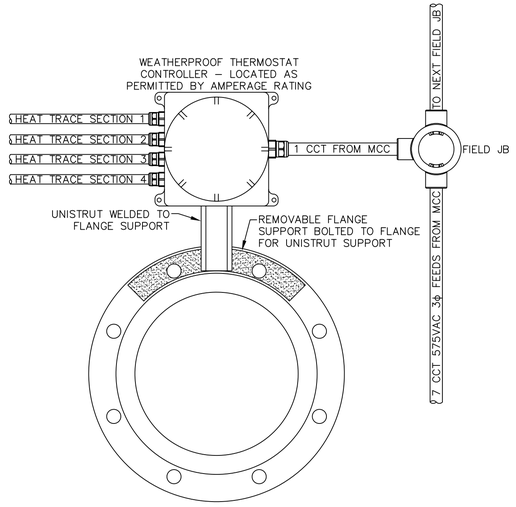
PIPELINE SECTION DETAIL



PIPE SUPPORT DETAIL



HEAT TRACE JB
MOUNTING DETAIL



HEAT TRACE CONTROLLER
MOUNTING DETAIL

NOTES:
1. EACH SECTION (FLANGE TO FLANGE) OF PIPING TO BE EQUIPPED WITH STAND-ALONE HEAT TRACING C/W CONNECTION WIRING EXTENDING UP THROUGH INSULATION.
2. EACH SECTION OF RIGID PIPING TO BE EQUIPPED WITH INTEGRAL PIPE SUPPORTS AND LIFTING LUGS.
3. FLEXIBLE SECTIONS TO BE LIFTED USING SHACKLES THROUGH FLANGES AND SPREADER BAR.
4. ENTIRE PIPELINE CAN BE DISASSEMBLED AND REASSEMBLED, IF REQUIRED.

ISSUE

FOR	BY	DATE
■ – FOR REVIEW ONLY	TJG	MAR 30, 2020
☐ – FOR APPROVAL		
☐ – FOR TENDER		
☐ – FOR CONSTRUCTION		
☐ – FOR AS BUILT		

NOTES:
•

No.	DESCRIPTION	BY	DATE

REVISIONS

Logo:

Client:
DEXTER CONSTRUCTION

Address:
PLEASANT STREET
DARTMOUTH, NS

Project:
NEW ASPHALT STORAGE FACILITY

Title:
ASPHALT BARGE UNLOADING PIPELINE DETAILS

GALLAGHER TECHNICAL SERVICES LIMITED
22 DOUGLAS DRIVE
QUISPAMSIS, NB
E2G 1Y3
PHONE: 506 849 4116
FAX: 506 847 1070

Stamp:

DESIGN:
DRAWN:
CHECKED:
DATE: MAR 30, 2020
SCALE: AS NOTED
REV.: 0

PROJECT NUMBER: GTS–1645
SHEET No. 3

Procedure for the Mitigation of Oil Discharge Caused by Failure of Dock Manifold Valve, Flange Gasket, Check Valve, Pressure Gauge Fitting, or Relief Valve

1. The PIC and/or terminal operator shall notify the vessel that the transfer operation will be shut down immediately and instruct the vessel to execute its planned vessel transfer shutdown procedures in close coordination with the PIC and terminal operator.

2. In the event of dock manifold valve failure, the PIC and/or terminal operator shall immediately close the nearest line valve that can be safely accessed in the transfer system.

3. In the event of failure of flange gasket, fittings, check valve or relief valve, the terminal operator shall immediately close the dock manifold valve, if safely accessible.

4. The terminal operator shall instruct the vessel to close the vessel manifold valve, if safely accessible.

5. If either the dock manifold valve, vessel manifold valve, or both, cannot be safely accessed for closure, the nearest line valve in the facility's and/or vessel's transfer system shall be closed. The terminal operator and vessel shall close any appropriate valves necessary in order to isolate the failed component and confine its liquid contents.

6. The terminal operator shall make every effort to direct, into fixed or portable catchments, the flow of oil from the failed component. Collected oil from fixed or portable catchments shall be transferred to temporary storage of adequate capacity.

7. The PIC and terminal operator shall undertake any REASONABLE FIRST RESPONSE actions to safely confine, contain, and collect spilled oil (i.e., placement of sorbent booms and materials, pumping with portable equipment, etc.). Collected oil shall be transferred to temporary storage of adequate capacity.

8. In accordance with the appropriate response plans presented in this plan, the PIC and/or terminal operator shall notify terminal response personnel and the Terminal Manager, Assistant Terminal Manager, or designated representative, as well as the spill management team and designated ROs, as appropriate.

9. In accordance with the appropriate response plans, the Terminal Manager, Assistant Terminal Manager, or designated representative shall notify Federal, Provincial and/or local agencies, as required, and be available as needed.

10. With the consent and approval of General Liquids Canada Ltd management and Federal, Provincial and/or local agencies as required, transfer operations may resume after corrective actions have been taken and the affected component has been tested and inspected.

Procedure for the Mitigation of Oil Discharge Caused by Failure of the Cargo Transfer Hose

1. General Liquids Canada Ltd's PIC shall notify the vessel that the transfer operation will be shut down immediately and instruct the vessel to execute its planned vessel transfer shutdown procedures in close coordination with the terminal operator.

2. After vessel has the pump shutdown and confirmed, the PIC and/or terminal operator shall immediately close the dock manifold valve, if safely accessible.

3. The PIC shall instruct the vessel to close the vessel manifold valve, if safely accessible. With both the dock manifold valve and vessel manifold valve closed, the transfer hose, and its liquid contents, will be isolated between valves.

4. If either the dock manifold valve, vessel manifold valve, or both, cannot be safely accessed for closure, the nearest line valve in the facility's system shall be closed.

5. Depending upon elevation differences between vessel deck and dock manifold at the time of incident, the terminal operator and vessel shall make every effort to position the hose such that the flow of spillage is directed toward a fixed or portable catchment either aboard the vessel or on the dock. Collected oil from fixed or portable catchments shall be transferred to temporary storage of adequate capacity.

6. The terminal operator shall undertake any REASONABLE FIRST RESPONSE actions to safely confine, contain, and collect any spilled oil (i.e., placement of absorbent materials, pumping with portable equipment, etc.). Collected oil shall be transferred to temporary storage of adequate capacity.

7. In accordance with the appropriate response plan presented in this section, the PIC and/or terminal operator shall notify terminal response personnel and the Terminal Manager, Assistant Terminal Manager, or designated representative, as well as the spill management team and designated ROs, as appropriate.

8. In accordance with the appropriate response plans, the Terminal Manager, Assistant Terminal Manager, or designated representative shall notify Federal, Provincial and/or local agencies, as required,and be available as needed.

With the consent and approval of Federal, Provincial and/or local agencies, and General Liquids Canada Limited's management team, transfer operations may resume after corrective actions have been taken and the affected component has been repaired, tested and inspected.

Procedure for the Mitigation of Oil Discharge Caused by Tank Overfill

1. Prior to commencement of transfer operations, the ullage in the facility's receiving tank(s) shall be determined and a transfer plan, including the tanks' SAFE FILL LEVEL, shall be developed.

2. The liquid level in the terminal's receiving tank(s) shall be monitored periodically by the terminal operator(s), when the level is within 1 meter of the safe fill height, the terminal operator will instruct the vessel to slow the flowrate, and advise that the tank is almost full.

3. In the event that any indication of tank overfill is observed by the PIC or terminal operator, the terminal operator shall notify the vessel that the transfer operation will be shut down immediately.

4. The PIC shall instruct the vessel to execute its planned vessel transfer shutdown procedures in close coordination with the PIC and terminal operator.

5. The PIC shall instruct the vessel to close the vessel manifold valve and shut down the vessel pump(s).

6. The PIC and/or terminal operator shall immediately close the dock manifold valve

7. The PIC and/or terminal operator shall close the tank's inlet valve.

8. The PIC and/or terminal operator shall confirm that the tank farm's secondary containment drain valve is closed and secured.

9. The PIC and/or terminal operator shall undertake any REASONABLE FIRST RESPONSE actions to safely, under the conditions encountered, confine and contain the spilled oil to a minimal area (i.e., berm construction, trench and collection sump excavation, diversionary booming, absorbent material placement, etc.).

10. In accordance with the appropriate RESPONSE PLANS the PIC and/or terminal operator shall notify terminal response personnel as well as the spill management team and designated ROs, as appropriate.

11. In accordance with the appropriate response plans, the Terminal Manager, Assistant Terminal Manager, or designated representative shall notify Federal, Provincial and/or local agencies, as required,and be available as needed.

12. With the consent and approval of General Liquids Canada Ltd management and Federal, Provincial and/or local agencies as required, transfer operations may resume after corrective actions have been taken and the affected component has been tested and inspected.

Appendix I

Wharf Access Letter

April 14th, 2020

Nova Scotia Environment
30 Damascus Road, Suite 115
Bedford, NS B4A 0C1

To Whom it May Concern:

Re: Wharf Access by General Liquids Canada Limited
Environmental Approval for Liquid Asphalt Storage Facility
750 Pleasant Street, Dartmouth, NS (PID 00260703)

This letter is to confirm recent discussions between Cherubini Metal Works Limited ("Cherubini") and General Liquids Canada Limited ("GLC").

It is understood that GLC intends to apply for approval to operate a liquid asphalt storage facility at 750 Pleasant Street in Dartmouth, Nova Scotia, which property is more particularly identified by PID 00260703 (the "Proposed Site"). Cherubini owns the land immediately adjacent to the Proposed Site and has existing wharf facilities suitable for berthing barges and other vessels.

GLC and Cherubini are in the process of finalizing discussions whereby:

- GLC will be permitted occasional access to a portion of Cherubini's wharf facilities on a case by case basis for receiving liquid asphalt from barges and other vessels.
- Access will be granted at approved times and will be restricted to the minimum portion of wharf space required, so as to minimize any disruption to Cherubini's wharf operations.
- It is anticipated that the unloading of liquid asphalt will be done by hose and coupling, and that no storage will take place on Cherubini's property.
- GLC will be solely responsible for safety, security, product handling, securing the necessary regulatory approvals and maintaining appropriate liability insurance for both parties.

The parties anticipate formalizing this arrangement in due course.

Trusting this is satisfactory,

Cherubini Metal Works Limited
Earl D. Cormier, Esq.
General Counsel/CSO
Cc: General Liquids Canada Limited

EARL D. CORMIER
A Barrister of the Supreme
Court of Nova Scotia

CHERUBINI METAL WORKS LIMITED INCORPORATED 1967