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2.0 PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND

World container traffic is currently growing at a compound rate of over 6-7 percent per year and is expected to double in the next two decades. The majority of this increase will be in the Trans-Pacific trade lanes where 15 percent compound annual growth is expected through the year 2015. Under these circumstances, ports on the east coast of North America now receive a growing share of cargo from China, India and Southeast Asia. The Panama Canal is presently operating at 93 percent capacity and cannot absorb the predicted rise in Asian traffic. Therefore, shippers and beneficial cargo owners continue to seek stable and reliable supply chain routes and are increasingly having goods sent directly to east coast ports via the Suez Canal. As the first North American landfall on the Trans-Suez route from Asia, Canada has an opportunity to develop a port at Melford, Nova Scotia to serve the growing U.S. markets. Canada's east coast offers an ideal terminus for large container ships by providing deep water, wide channels, highly productive labour, and good intermodal connections to inland destinations.

The challenge facing North American east coast ports is in responding to this growing demand without duplicating the problems of congestion and landside constraint found today on the west coast of North America. Halifax, Montreal, and the U.S. north eastern ports are located in highly urbanized harbours that offer little, if any, additional expansion potential.

To address these challenges, MITI is proposing the creation of a new deepwater port and state-of-the-art intermodal rail container logistics terminal on the Strait of Canso at Melford Point, Nova Scotia. MITI is a consortium that holds the property and development rights to an ideal portion of the Melford Industrial Reserve including the right to develop rail facilities on-site for eventual interconnection with the CN main line via the Cape Breton and Central Nova Scotia railway (CBCNS). The property includes a port site along the water, plus hinterlands for intermodal rail and road linkages, and allows for possible future expansion and enhancement of the proposed facilities to accommodate predicted traffic growth.

2.2 PROJECT LOCATION AND SITE

The future location of the MIT is in Nova Scotia approximately 242 km northeast of Halifax and about 10 km southeast of Port Hawkesbury (Section 1.0, Figure 1.1-1). The site is situated on the southeast shore of the Strait of Canso and offers a deep-water, ice-free harbour with an average channel depth of 36.5 m, exceeding the needs of the largest current and forecasted container ships. The site is part of a larger package of land zoned as industrial by the Municipality of the District of Guysborough; it is classified as "Industrial Resource M-3 Zone" which specifically encompasses "a marine/container terminal, including wharfs and storage facilities" (refer to Northeastern Guysborough Planning Area, Municipality of the District of Guysborough, Land Use Bylaw, and Northeastern Guysborough Planning Area, Municipality of the District of Guysborough: Municipal Planning Strategy).

The proposed MIT will be situated within the 5,665 hectare (ha) Melford Industrial Reserve and east of Melford Point. The MIT site, encompassing an initial total area of approximately 217 ha, will consist of 10.7 ha to be acquired from the Municipality of the District of Guysborough with the remaining area of crown lands to be acquired from the Province of Nova Scotia. This space will readily accommodate the initial build-out of the proposed MIT project as well as allow for future expansion and enhancements for a site of up to about 700 ha.

The principal railway connection leading towards the Melford Industrial Reserve is the now decommissioned Mulgrave Spur off of the CBCNS railway owned by RA. The CBCNS railway extends from its connection with the CN system at Truro, Nova Scotia across the Canso Causeway to Port Hawkesbury and beyond to other areas of Cape Breton Island. The Mulgrave Spur is the remaining rail bed section of the former Mulgrave Branch, from Linwood Station on the mainland side of the causeway to Mulgrave. The track on the spur has been removed. The intersection of MITI's proposed new rail link and the existing rail bed of the Mulgrave spur is located approximately 24 km to the northwest of the proposed MIT. The length of the existing rail bed to be re-activated and used by MITI is approximately 10 km and joins the existing active rail line near Linwood Station, Antigonish County. The construction and operation of both the new rail bed and rail line, as well as the re-activation of the required section of the Mulgrave spur to Linwood Station, are part of the proposed Project. The proposed rail line will be operated by RA (Section 1.0, Figure 1.1-1).

The principal road nearest to the Melford Industrial Reserve is Highway 344, a two-lane unlimited access highway that maintains an alignment roughly parallel to the Strait of Canso throughout the Project area. Highway 344 connects to Highway 104, a major arterial in Nova Scotia and a portion of the Trans-Canada Highway, at the Canso Causeway approximately 18.7 km northwest of the site.

2.3 PROJECT SCHEDULE

A proposed Project schedule summary is shown below (Table 2.3-1). Subject to MITI receiving all required regulatory approvals and permits it is anticipated that construction will begin in late 2008 and will be completed in December 2010, with commissioning to be carried out in order to meet an operational opening date of mid-March 2011.

Table 2.3-1: Project Schedule

Project Tasks	2006				2007				2008				2009				2010				2011			
	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
Project Design																								
Feasibility Study and Concept Acceptance																								
Container Terminal Design																								
Intermodal Rail Yard Design																								
Security, Custom, Cargo Services																								
Melford Rail Access																								
Permitting																								
Project Description																								
Scoping																								
Field and Desktop Studies																								
Assessment Preparation and Review, Other Permits																								
Equipment and IT																								
Equipment and IT																								
Construction and Start-Up																								
Container Terminal																								
Intermodal Rail Yard																								
Security, Custom, Cargo Services																								
Melford Rail Access																								
MIT Transmission Line																								
Operation																								
***Decommissioning*/Abandonment**																								

2.4 PROJECT COMPONENTS

The proposed Project will occupy 217.4 hectares and will include all components necessary for operation of a state-of-the-art marine and intermodal container logistics terminal (Figure 2.4-1).

For the sake of completeness, both the Project to be implemented, as well as the potential future logistics park expansion in response to anticipated load growth, are both described below. However, it is to be noted that the future logistics park expansion potential is **not** considered within this EIS.

The components of the Project, including the future expansion potential, and subject to the limitation noted above, are as follows:

- *Container Terminal* – a new marginal wharf for berthing of two or three container ships, full build-out capacity for large container volumes to meet projected demand, covering an area of about 77 ha. This will be designed to feature the largest container gantry cranes with dense container storage in the storage yard, and the latest operations technology and management practices;
- *Intermodal Rail Yard* – the primary landside distribution mode for MIT containers. This would include a switching yard designed to accommodate heavy cars and high volumes to serve the MIT facility, as well as a series of rail working tracks extending towards the wharf;
- *Logistics Park* – a multi-use logistics park to allow for integration of rail, truck, transload and intermodal services with distribution and warehousing, including container laydown and handling areas, warehouse facilities, and cargo storage and segregation facilities. This will encompass an initial park development of about 140 ha, with a further 484 ha reserved in the backlands for future expansion of the park.
- *Running Track (Rail Access)* – a new single line rail connection to the existing CBCNS railbed along the Mulgrave spur. The track includes a Staging Yard (Rail Assembly Yard) (Section 1.0, Figure 1.1-2), situated, about 4 km away from the terminal for the purpose of assembling train segments into full trains;
- *Security, Customs and Cargo Services* – to provide a one-stop security and customs check in the port zone that will enable containers to be pre-cleared for direct transit to destinations in the U.S. and Canada; and
- *Power Transmission Line* - Electric power will be delivered to the facility by a dedicated 138 kV transmission line from the Nova Scotia Power Incorporated (NSPI) grid, a distance of 20.36 km. MITI will clear the RoW but construction, operation and maintenance will be the responsibility of NSPI.

2.4.1 Container Terminal

The container terminal will include a marginal wharf and a terminal container storage area. The marginal wharf will be 950 m in length, large enough to berth and service three post-Panamax container ships or two super post-Panamax ships at one time. The wharf will be designed for two 475-metre berths or three 317-metre berths. The wharf face is located along a line that approximately follows a 17-metre depth contour to accommodate 16.5 m of vessel draft with a minimum of dredging.

The top of the wharf will be a cast-in place concrete deck, 5 m above mean sea level and approximately 3.7 m above normal high tide. The wharf will be fitted with an unloading system, crane electrical power, bollards, bull rail, and ship's utilities.

2.4.2 Intermodal Rail Yard

At the eastern terminus of the Melford running track, an arrival/departure yard will be constructed to receive and break down arriving trains and to dispatch fully built departing trains.

Container operations at MIT are directly coupled with the on-dock intermodal rail transfer operation. Therefore, containers will be stored, processed, cleared, and dispatched in an integrated system that includes scheduling car movements in the intermodal yard to coincide with vessel arrivals and vessel manifests. This integration of the port and intermodal activity will result in the fewest non-productive moves, the highest cargo velocity, and the best customer service possible.

2.4.3 Logistics Park

MITI intends to develop a portion of the lands located to the west of the marine terminal into a multi-use Logistics Park. As a vital adjunct to the MIT, the Logistics Park integrates direct rail, truck, transload and intermodal services with distribution and warehousing, all in one location. The park would offer cargo owners and shippers additional services such as trans-loading, re-packaging and storage of container cargo handled through the MIT. These services could include tagging, pricing, stencilling and labelling in various languages, sub-assembly of components, as well as testing and quantity checking of cargo.

The Logistics Park would generally be comprised of container laydown and handling areas, warehouse facilities and cargo storage facilities. The cargo may be segregated by cargo type or by cargo owner, and will be under strict security at all times.

An opportunity to load export cargo into empty containers on the terminal will also be available to local and regional producers. The facility is expected to offer all amenities necessary to accommodate both the import and export trade. The Logistics Park will be designed to offer customers a wide variety of services which translate into considerable advantages and transportation efficiencies, while making a positive economic impact on the surrounding area through new jobs, economic development and future revenues.

The initial phase of development of the Logistics Park will cover about 140 ha, in the preferred footprint and conceptual layout, and will form part of the Project considered herein (Figure 2.4-1). MITI has also optioned an additional 484 ha of crown land to allow for future expansion of the Logistics Park.

As noted above, this expansion is not part of the proposed Project and not assessed in this EIS.

2.4.4 Running Track (Rail Access)

The MIT Project site is currently without mainline rail access. The nearest mainline rail in the vicinity of the Project site is operated by CBCNS, a short line owned by RA. This rail line crosses the Strait of Canso at Port Hawkesbury via the Canso Causeway providing access to Cape Breton Island from mainland Nova Scotia. An interchange yard provides access to the CN line at Truro. There are no height or rail operational restrictions on the CBCNS to Truro, Nova Scotia

Rail operations are an integral part of the overall port function at MIT, providing the primary inland access mode for international containers. Therefore, it is crucial that the daily train movement complement the port operation regardless of inland train delays, equipment problems, or main line traffic constraints.

A new rail line will be constructed for a length of approximately 10 km from the Project site, and will connect with an existing railbed that will then be utilized for new rail track that will extend the rest of way to Linwood Station (Figure 1.1-1). Open bottom structures will be used for all stream crossings along both RoWs, so as not to affect those streams or fish habitat in any way. Re-activating and upgrading the existing railbed of the Mulgrave spur is expected to be realized without any disruption or alteration of fish habitat. Some watercourse crossings along this portion of the railway will be strengthened.

A Staging Yard (Rail Assembly Yard) situated about 4 km away from the terminal will be associated with the new track. The yard will consist of approximately three additional tracks, each 1830 m long (Section 1.0, Figure 1.1-2). Train segments will be hauled from the terminal to the Staging Yard (Rail Assembly Yard) for assembly into complete trains.

The track and yard will be designed and constructed to comply with the TC Track Safety Rules. Box culverts will be employed for all watercourse crossings along the Right of Ways (RoWs), bank to bank with open bottoms, so as not to affect freshwater habitat (refer to Section 6.0).

2.4.5 Security, Customs and Cargo Services

A significant number of containers will be destined for the U.S. Therefore, it will be desirable to perform all security checks and to obtain customs clearance for direct entry from Canada. On-dock facilities will be dedicated to continuously inspect containers as vessels arrive.

On-terminal inspection facilities will be a designed-in feature of this terminal operation. Secondary inspection and interdiction can take place at a designated “holding” area.

A fully automated gate with paperless optical character recognition (OCR), radio frequency interference (RFI) or other scanning technologies will be operated at the northwest end of the terminal.

“Over the road traffic” will generally be pre-cleared prior to arrival at the terminal, allowing this gate to operate as part of an integrated terminal security and documentation system. Site access, however, will be limited.

Most cargo bound for the U.S. can be customs cleared on the terminal for “green lane” service at the border.

2.4.6 Road Access and Realigned Highway 344

A transportation study (Appendix 2.0-A) was conducted on behalf of MITI (March 2008). The conclusion of the study was that the existing infrastructure was sufficient for the predicted traffic volume associated with the proposed Project. As such, there is no need for the construction of a new roadway to the Project site. The Construction of the MIT requires that a 2.7 km portion of the existing coastal road (Hwy. 344) will be realigned.

2.4.7 Utilities and Water Supply

Water supply sources will be determined as part of the detailed design stage. It is anticipated that sources will include groundwater and surface water. Individual businesses in the logistics park, the terminal and rail yard will establish groundwater wells. No estimates on required quantities have been established at this point.

Utilities such as potable water supply, electricity, sewage treatment and storm sewers will be required for a maximum load of 350 people on the terminal. Electrical power needs will be:

- 25 kva for buildings and offices;
- 35 kva maximum load for each crane (wharf cranes and rail-mounted gantry (RMG) cranes);
- 15 kva per terminal hectare maximum load; and
- 5 kva per refrigerated container outlet (at 50 percent duty cycle).

Electric power will be delivered to the facility by a dedicated 138 kV transmission line from the Nova Scotia Power Incorporated (NSPI) grid, a distance of 20.36 km. The line will connect to the grid via a tapping station from the existing 138 kV line, about mid-way between Mulgrave and Frankville. From this 80x120 m station located under the existing line, the new line will travel west and south of Grant Lake where it will meet the rail RoW. From there it will parallel the rail RoW to just outside the logistics park footprint, where it will turn to the northeast to terminate at a sub-station, 120x120 m, at the terminal/intermodal rail yard facility. The transmission line RoW is shown on Figure 1.1-1 (Section 1.0).

The RoW for the transmission line will be 51 m wide. The 138 kV line will run on NSPI's standard H-frame wooden towers, with details and specifications still to be determined by the utility. To guard against failure of the line for any reason, and in order to maintain service to this critical facility, a second line will run alongside the first line.

The line will be operated and maintained by NSPI. The utility has indicated that essential vegetation control in the vicinity of Grant Lake will be carried out by mechanical means only.

2.5 CONSTRUCTION PHASE

The construction activities will be performed under an Engineering Procurement and Construction (EPC) contract, where one large engineering/construction firm would engineer, procure and construct the works. The project would be sub-divided into various work packages which would be awarded to several smaller sub-contractors to perform. It is expected that while the EPC contractor will be from outside of the local area, many of the work packages will be bid by locally based contractors. Therefore the bulk of the labour force will be local to the area. Given the strong industrial nature of the surrounding area, it is expected that there will not be a need to look outside of the area for tradesmen or operations personnel.

2.5.1 Construction Envelope

Within the development envelope of the container terminal and Logistics Park, designated temporary material storage and lay-down areas will be established. The active portions of the construction site and associated laydown areas will be fenced. Security guards will be employed to prevent public access.

For the rail and transmission corridors, lay down areas will be established at the nearest road access. Access to the rail construction corridor will be from the end points of the corridor or existing road ways. No new road access to the rail corridor will need to be built.

2.5.2 Site Preparation, Clearing, Grubbing

Prior to grubbing, grading and construction, samples of rock from rock excavation areas will be tested for acid generating potential. If acid generating rock is determined to exceed the 500 m^3 regulatory volume, a management plan for the rock will be developed for approval by NSE. Additional information regarding this potential issue is provided below in Section 2.5.10.

One of the first activities at the Project site will be site clearing and grading. This will take place within the demarcated development envelope. Top soils will be removed and retained on site for use in berms and landscaping. Underlying rock will be levelled to working grade. This will require some blasting (refer to Section 2.5.3), the use of heavy excavation equipment, crushing, and screening. It is anticipated that the site will provide rock suitable for crushing for concrete and foundation backfill. On-site rock is also expected to become the principle source of granular material for on-site roads and fill, including the container terminal.

Site clearing will also involve the demolition of the un-inhabited houses situated within the Project site boundaries. Demolition materials will be transported off-site to a licensed landfill facility unless these materials can be used as clean fill for site contouring.

It is assumed that the clearing for the rail corridor and the site will provide the access required for geotechnical investigations.

The RoW for the transmission line will be surveyed, easement rights obtained, and cleared by MITI, and it will then be turned over to NSPI to construct the line as per the company's standard procedures.

2.5.3 On-shore Cut and Fill, Blasting

Cut and fill work, including blasting, is likely required for levelling the site. Blasting will also likely be required in the rail route coming down slope into the terminal. There will be no explosives magazine on site and thus explosives will not be stored on site, but rather will be transported to site on the day of the blast. Blast monitoring will be carried out where required.

The on-shore cut and fill operations will be carried out in accordance with the *Nova Scotia Occupational Health and Safety Act* (NSOHSA), S.N.S. 1996, c. 7 and in compliance with the Project's EMP (refer to Section 6.0) and site development plan. Further, to ensure the protection of the environment including personnel safety and security, the site preparation will be completed in accordance with NSE guidelines, policies, and requirements and in compliance with the respective divisions of the NSOHSA and 'Company' Environmental Health Safety and Security (EHSS) policy requirements.

Near fish habitat, blasting activities will be conducted in compliance with the Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters (Wright, D.G., and G.E. Hopky.1998.)

Any structures such as wells, buildings, and foundations that are located outside of the facility boundaries and within a designated radius of the blasting site and that may experience damage or impact due to seismic vibrations or air concussion will be surveyed prior to any blasting activities (pre-blast survey).

To minimize the potential for increased erosion and siltation of the nearby streams and the waterfront from site runoff while soils are exposed and un-stabilized and from movement of construction vehicles, erosion and sediment control measures will be implemented. These requirements will be established in the EMP and measures will be specified in site-specific erosion and sediment control plans. Any shoreline areas that do need protection will have typical armour stone protection designed and placed using conventional methods.

2.5.4 Foundations

Geotechnical investigations will be undertaken during the Front End Engineering and Design (FEED) phase. Results of these investigations will determine foundation options and construction methods.

Following the site grading, excavations and leveling, the foundations of buildings and major equipment will be constructed. All underground services such as sewers will be installed. A storm-water management system will be constructed to meet provincial standards. On-site roads will be established within the complex.

2.5.5 Container Terminal, In-water Works (dredging, pipe/sheet-pile driving, fill)

The wharf face will be located along a line that approximately follows a 17-metre contour to accommodate 16.5 m of vessel draft with a minimum of dredging. Variations in this contour will result in a greater depth in some places and the possible requirement for minor dredging in others. Dredging of a limited amount of area at the wharf face will require ensuring a constant draft of 17 meters. The area likely subject to dredging is approximately 4 ha in size (Figure 2.4-1). Dredging is expected to extend to a depth of about 1 metre and the overall volume of dredged materials is estimated to amount to about 60,000m^3.

Disposal of all dredged material will be on land, either as part of the wharf in-filling or elsewhere on the site. Should testing indicate that the dredged spoil is contaminated, it will be maintained in on-site containment cells or disposed of at an approved facility. Based on the experience of other port operators in the region, there will be no requirement for subsequent maintenance dredging.

The wharf structure will likely be a rock-filled cribbing system, pre-cast and floated in place onto a rock mattress. The top of the wharf will be a cast-in place concrete deck, 5 m above mean sea level and approximately 3.7 m above normal high tide. Rock will likely come from the cut areas of the site, and will be derived as appropriate for this purpose from the geological structures as described in Section 5.1.

2.5.6 Buildings, Utilities, Equipment

All buildings associated with the container terminal and intermodal rail yard will be built as per the detailed engineering designs. This will include buildings for administration, services (customs and monitoring equipment), maintenance, and security. Utilities such as water supply, wastewater treatment units and power supply will be constructed. Cranes will be erected and rail tracks, switches, and signaling systems established.

2.5.7 Transportation of Construction Material

During the construction period, equipment and materials will be delivered by road, rail, and ship. Initially, materials and equipment will be transported to the site by truck via Hwy 344. If completed before the terminal and logistics park, the new rail line could also be utilized for the transport of construction materials and / or equipment**.** Once the marine terminal is completed, it will be used to unload equipment and materials.

The bulk of building material for the project will be generated on the site itself through earth moving and rock removal. Concrete for the wharf elements will come from the concrete plants in Aulds Cove or Point Tupper unless a mobile plant for crushing rock and production of concrete is established on-site. Similarly, a mobile asphalt plant may be temporarily set up and operated on-site.

Work will be planned and conducted to ensure that sediments, debris, concrete, and concrete fines are not deposited, either directly or indirectly into the aquatic environment and any potentially contaminated water (e.g. exposed aggregate wash-off, wet curing, equipment and truck washing), will also be prevented from entering the aquatic environment. Containment facilities will be provided at the site as required.

Cranes and possibly some other mobile equipment for the wharf will come by ship. Concrete, if not generated on-site, will be transported by truck, as will the local heavy equipment used for earth moving.

It is anticipated that some 80 – 100 truck trips will be required to bring the heavy equipment onto the site. An estimate of concrete truck trips would be in the range of 700 – 800. Various other materials such as rebar, steel stud, drywall, etc. will also be transported by truck, with an estimated trip number of 150 – 200. This results in approximately 930-1100 truck trips over the approximately two year construction period. This number could be reduced if a mobile concrete plant is used.

2.5.8 Management of Surface Water (incl. stream diversions, stream crossings)

The Project site will undergo extensive contouring (see on-shore cut and fill). All water courses currently flowing through the Logistics Park will be re-routed around the site (Figure 2.5-1). To the extent possible, existing on-site wetlands will be integrated into the storm water management system for the (Logistics Park) site, thereby minimizing losses. Wetlands which are unavoidably lost will be compensated for as per Provincial policy. However, for impact assessment purposes, it is assumed that all wetlands within the Project footprint will be removed as part of the site development activities.

The new rail ROW within the boundaries of the proposed future Logistics Park will be aligned at a grade level lower than the water courses that will be crossed by the track. Consequently, waters intercepted by the rail line will be directed in an open drainage channel alongside the rail bed for discharge near the marginal wharf (Figure 2.5-1). This is expected to cut off water courses and associated wetlands north of the rail track and the area of the future Logistics Park expansion from upstream water supply.

For all changes/impacts to existing water courses and wetlands, appropriate compensation plans or mitigative measures will be implemented as part of the Project realization (refer to Section 6.0).

2.5.9 Management of Waste Water

A variety of liquid wastes will be generated during construction, including oils and lubricants from equipment, and wastewater (i.e., site runoff, sewage).

Mobile sanitary wastewater treatment units approved under relevant regulations and guidelines will be used to treat sanitary wastewater on-site. Initially for the construction activities it may only need special holding tanks for sanitary waste management. This will be determined following the detailed engineering.

Erosion and sediment control plans will be developed to manage surface water run off during construction.

As part of the EMP provisions, a Spill Prevention and ERP will be developed and implemented to avoid spills and minimize impacts should a spill occur. All staff will be appropriately trained in the handling, storage, and disposal of hazardous materials (i.e. Workplace Hazardous Materials Information System (WHMIS), and Transportation of Dangerous Goods (TDG)). Storage of chemicals and other hazardous substances will be in designated locations and in accordance with the manufacturers' recommendations and federal and provincial regulations, where applicable (see also Sections 2.8.2 and 8.0).

2.5.10 Management of Acid Generating Rock

In general, there is a low probability of encountering rock formations with the potential to generate acid rock drainage. As a precautionary measure, prior to construction, rock samples from rock excavation areas will be tested for its acid generating potential. If acid generating rock is determined to exceed the 500 m^3 regulatory volume, and where avoidance is not possible, a management plan for the rock will be developed for approval by NSE.

2.5.11 Site Rehabilitation at Temporarily Used Sites

Upon termination of the use of temporary sites (e.g., lay down areas, construction camp) all surface structures will be dismantled and removed from the site. Where applicable, disturbed areas will be landscaped and re-vegetated. All solid waste will be disposed of in an approved manner, and hazardous waste will be collected for disposal in accordance with the established waste management plan.

2.5.12 Construction Schedule and Sequencing

The construction of the MIT is expected to require some 24- 30 months to complete. It is anticipated that construction will commence late in 2008 and will include geotechnical investigation for detailed design, surveying for land acquisition, clearing and site development.

Following these activities, marine work to construct the terminal proper, site development of the rail corridor and site development of the initial phase of the Logistics Park will commence. Work will continue uninterrupted on all elements throughout 2010 with an anticipated completion date of Spring 2011.

First priority will be placed on establishing site access and site services (power, water supply, sanitary system).

2.5.13 Construction Cost, Labour Requirements, Work Camps

The cost for pre-construction activities is estimated at $10.3 million and includes such tasks as project development, administration, permitting and engineering, marketing and public relations, as well as legal and consulting services. The total costs for all construction work are estimated at $435.0 million: The Terminal ($275 million) requires construction of two main components: the terminal itself ($245 million), and the rail extension ($30 million). The logistics park ($160 million) requires construction of eight large warehouse facilities at $20 million each. (Gardner Pinfold Consulting Economists Ltd. February 2008.)

It is anticipated that about 100 personnel would be employed at the site beginning in late 2008 to perform site development work. This number is expected to rise to 150 people in the spring of 2009 and increase steadily until a peak level of 250-300 people are employed in the various elements of the project, from summer 2009 to fall 2010.

In total the Project is expected to generate 1,500-1,600 PY of work. Logistics park construction would be phased as required by demand, and is expected to generate 1,300-1,400 PY of work (Gardner Pinfold Consulting Economists Ltd., February 2008).

It is expected that there will be no need for temporary on-site accommodation. Instead, all personnel involved in the construction will commute to the site on a daily basis from near-by communities.

2.6 OPERATION PHASE

The MIT is expected to start operation during 2011. As a new development, the terminal can be made “future ready”, integrating state-of-the-art equipment, technological advancement and highly-efficient vessel to rail transfer. The terminal is designed to have 16.5 m of draft between the channel and the berthing area to accommodate the world’s largest current and forecasted container ships. This combination of assets will provide faster port turnaround and increase productivity considerably.

The terminal includes berthing for three post-Panamax container vessels or two super post-Panamax container ships. Further information on design specifics and operations for each area is provided in the following sections.

2.6.1 Vessel Navigation, Maneuvering, Berthing, Marginal Wharf

In full operation, MIT is expecting about 5 vessel calls per week or about 260 vessels per year. It is anticipated that of these vessels 40 % will be panamax-size, 40 % post-panamax-size, and 20% super-size container vessels.

All vessels approaching and/or leaving MIT will adhere to the Canso Vessel Traffic system set out for the Strait of Canso by the Canadian Coast Guard. The general courses navigated during approach and departures are presented in Figure 2.6-1. Vessel courses will follow the prescribed traffic separation system and from there will generally take the shortest route to and from the terminal. Since MIT is situated in a compulsory pilotage zone, all vessels will be utilizing a pilot when approaching/departing from MIT. Specific courses followed will depend on such factors as weather, marine conditions and other vessel traffic in the area, and will be determined by ship master and pilot. Vessels will also employ tugs when berthing/departing. The number of tugs required will depend on ship size and weather conditions.

Key equipment at the Marginal wharf for unloading and moving containers to and from the intermodal yard (see section 2.7.1) will include:

- Up to 9 ship-to-shore (STS) gantry cranes;
- up to 16 rail-mounted-gantry (RMG) cranes;
- up to 14 reach stackers/ top pickers;
- a maximum of 100 hustlers/bcarts; and
- approximately 4 sidekicks.

2.6.2 Intermodal Rail Yard and Staging Yard

At the eastern terminus of the Melford running track, the arrival/departure yard will receive and break down arriving trains and dispatch fully built departing trains. A minimum of two switching locomotives will be employed for shunting purposes. It is expected that per day approximately 2 to 6 trains will be arriving and departing. The trains will be about 2500 feet (750 m) long leaving the terminal and will go to the Staging Yard (Rail Assembly Yard) about 4 km away, where they will be assembled into 5-6,000 foot trains for carriage to Truro and the CN mainline.

Container operations at MIT are directly coupled with the on-dock intermodal rail transfer operation. Therefore, containers will be stored, processed, cleared and dispatched in an integrated system that includes scheduling car movements on the intermodal yard to coincide with vessel arrivals and vessel manifests. This integration of the port and intermodal functions will result in the fewest non-productive moves, the highest cargo velocity, and the best customer service possible.

Railway car repair will be available at both locations via mobile equipment.

2.6.3 Logistics Park

The 140 ha multi-use logistics park will allow for integration of rail, truck, transload and intermodal services with distribution and warehousing, including container laydown and handling areas, warehouse facilities, and cargo storage and segregation facilities. A further approximate 480 ha area has been reserved in the backlands for future expansion of the park.

2.6.4 Transportation

As mentioned above, during operation, it is anticipated that there will be approximately 2 to 6 trains per day arriving and leaving the terminal.

In addition to the rail transport the following transportation activities and volumes are anticipated

- 58 containers per week out and 58 in, so assuming two containers per truck, 29 truck round trips per week or four per day, growing to 168 containers or 84 truck round trips per week or 12 per day at full build-out capacity;
- 106 passenger vehicles round-trips per day for terminal and logistics park personnel at start-up, rising to 210 at full capacity; and
- Incidental delivery traffic for materials, supplies, equipment.(Atlantic Road & Traffic Management, March 2008)

2.6.5 Management of Waste Water

There are several types of wastewater streams at the MIT. These streams can be categorized as storm-water, potentially contaminated storm-water, oily water, and domestic wastewater. For a discussion of storm-water and potentially contaminated storm-water refer to Section 2.6.6.

Sanitary sewage generated from the various locations within the Project site will be collected by a sanitary sewer system and conveyed to a central wastewater treatment plant. The plant will treat wastewater from washrooms, showers, canteen, and other facilities. This treatment system will be provided as part of the common user facilities. If warranted, the logistics park will be equipped with its own sanitary waste water treatment facility. It is also foreseeable that some individual properties may be serviced by on-site sewage systems.

Oily water will be collected in the oily water system and treated on-site. Recovered oil is collected and pumped to the recovered oil tank. This oil will be disposed of off site. Solids removed by the separator will collect in the bottom of the separator and will be removed periodically via vacuum truck for disposal at an approved facility.

A biological treatment unit will be utilized for further treatment of wastewater. The effluent from the wastewater treatment plant will be of sufficient quality to be discharged to the Strait of Canso. Arrangements will be made with a licensed waste hauler to remove excess sludge from the site to licensed disposal sites. Sludge from sanitary waste treatment can also be utilized on farmland in lieu of fertilizer addition.

All wastewater treatment facilities will be designed to meet Nova Scotia Guidelines for the Collection, Treatment, and Disposal of Sanitary Wastewater.

2.6.6 Stormwater Management

Storm-water runoff from the developed areas of the site (i.e. covered with pavement or buildings and other facilities) will be collected in a system of drains and discharged to the Strait through a storm-water outfall. The drains will be equipped with oil/water separators to prevent fugitive oil from on-site equipment, should such occur from time to time, from being discharged to the marine environment. For those areas of the logistics park which are not yet developed, stormwater will flow to existing on-site wetlands and on to the re-routed streams which will carry it to the Strait, in effect maintaining and duplicating natural conditions.

A Spill Management Plan and Emergency Response and Contingency Plan (see Section 2.8.2) will be developed and implemented to minimize the chances of a spill reaching any water body including groundwater, and also include mitigation measures to minimize impact if a spill does occur and reach a water body. In order to minimize, contain, and control any potential releases of hazardous materials, a site-specific Spill Management Plan will be developed (see Section

2.8.2). All staff will be appropriately trained in the handling, storage, and disposal of hazardous materials (i.e. WHMIS, TDG). Chemical storage and handling will be done in accordance with the manufacturers' recommendations and federal and provincial regulations, where applicable.

2.6.7 Operation Costs and Labour Requirements

The Melford Terminal is expected to generate initial annual expenditures in Nova Scotia and the rest of Canada of about $1.1 billion. This estimate can be broken down by category as follows:

- Terminal operations: $62.0 million;
- General services: $82.0 million;
- Bunkering: $420.0 million;
- Rail shipping: $470 million; and
- Logistics: $64.0 million.

The estimates are based on projected levels of operation and expected activities during the first year of operation, which is expected to see approximately 150 ship visits with an average of 5,000 TEU per ship and a total of 750,000 TEUs for the year. At full operation, the Terminal is expected to handle 260 ships annually.

Based on the calculations of the Economic Impact Study (Gardner Pinfold Consulting Economists Ltd., February 2008), about 1,750 direct PY (annual) are created in Nova Scotia during operation, with 2,000 spin-off jobs created elsewhere in the economy for a total of 3,800 PY. These numbers will rise as the Terminal reaches full capacity.

2.6.8 Malfunction and Accident Scenarios

Accidents and malfunctions are considered unplanned events. In contrast to regular Project operations and procedures, accidents and malfunctions can involve temporary non-compliance with applicable criteria.

As part of the environmental assessment, the following potential accident and malfunction scenarios have been identified involving the land and marine environments (refer to Section 8.0):

On-shore environment:

- On-site release or spill of fuel, lubricants, chemicals or hazardous materials;
- Facility fire; and
- Off-site rail / road accident with spillage of fuel, chemicals or hazardous materials.

Marine environment:

- Spill at marine terminal involving release into the marine environment of fuel, oil, chemicals or hazardous materials;
- Fire on board;
- Failure to properly exchange ballast water;
- Damage to fishing gear; and

- Vessel collision/grounding involving spill of fuel, chemicals and hazardous material.

To address and properly manage these events, environmental management and emergency response plans will be developed specifically for the MIT site and its operations. Further, as part of the Project design, on-site emergency response equipment and trained personnel will be available for immediate response. Malfunctions and accidents are further discussed in Section 8.0).

2.7 DECOMMISSIONING AND ABANDONMENT PHASE

MITI is committed to an orderly and comprehensive decommissioning of the facilities once it reaches its design life of 50 years and when necessary upgrades are no longer economical. An earlier decommissioning may be considered should the markets no longer support an economic operation of the plant. If no opportunity for utilization of the facility or parts thereof is identified, complete decommissioning will be undertaken, including the removal of all buildings, on-site roads, storage facilities, and site services. Upon removal of all infrastructures, the site will be rehabilitated. A decommissioning plan will specify decommissioning objectives, approach, activities, schedules, and the site rehabilitation. The plan will be developed in consultation with the municipality and regulatory agencies.

2.7.1 Decommissioning Plan

Prior to the decommissioning and abandoning of the MIT facilities, MITI will develop a decommissioning plan. The plan will specify decommissioning objectives, approach, activities, schedules, and site rehabilitation and will be developed in consultation with the municipality and regulatory agencies.

In particular, objectives of the decommissioning plan will be to:

- Identify applicable municipal, provincial, and federal regulations and standards;
- Identify and consider objectives of local municipality and adjacent landowners;
- Define the decommissioning objective;
- Protect public health and safety;
- Rehabilitate the plant site in accordance with regulatory standards;
- Reduce or eliminate potential adverse environmental effects beyond decommissioning; and
- Develop a material management strategy to maximize reuse/recycling options on and off-site or via a material processing facility, and to avoid/minimize disposal in approved landfills.

As a minimum, the plan objectives will define the removal of all hazardous substances, equipment and storage tanks. Should the plan objective be the complete decommissioning of the site, activities will include the removal of all buildings, roads, rail tracks, storage facilities, and site services. Upon removal of all infrastructures, the site will be rehabilitated.

2.7.2 Removal of Buildings, Equipment and Infrastructure

Prior to removal of the buildings and facilities, all remaining stored materials will be removed from the site in accordance with provincial and federal regulations and guidelines pertaining to handling of hazardous and non- hazardous materials. Materials will be sold to markets or properly disposed of through licensed waste operators.

If no suitable after use is identified, removal of all buildings and infrastructure will be undertaken in full compliance with existing regulatory standards. A demolition permit will be obtained from the municipality. Contractors will be required to follow applicable regulations for material separation, disposal at licensed waste sites, and sales to recycling markets.

The removal of products and storage materials, the demolition of the buildings and removal of infrastructure will be subject to environmental supervision and inspection for compliance with decommissioning plan and regulatory standards.

2.7.3 Site Rehabilitation

Site rehabilitation objectives depend on the intended after use of the property, which could be for example another commercial use or the return to a forestry use or a natural state. MITI is committed to rehabilitate the site in accordance with regulatory standards and in consultation with the municipality and neighbouring landowners.

Following the removal of buildings, infrastructure and products a qualified environmental expert will assess the site with respect to contamination that may have occurred as a result of the container storage, container handling or decommissioning activities. Should any site contamination be identified, site remediation will be undertaken in order to meet all NSE standards for the intended after use. The site remediation, if required, will be supervised and documented by a qualified environmental expert.

The MIT will be designed with spill containment and protective measures to prevent contamination of the site. The operations will therefore not result in long term effects that will preclude rehabilitation and re-use of the site.

2.8 ENVIRONMENTAL MANAGEMENT FEATURES

The Project design includes a series of design features and implementation protocols to avoid, minimize and remediate adverse effects. These environmental management features are planned, pre-emptive measures developed from experience and based on good design practice. Together, with the EMP and the Project Description (Components, Construction Phase, and Operation Phase), this information will serve as the basis for the effects assessment. Where required and applicable, the effects assessment supplements the environmental management features with more detailed or additional mitigation and management measures. These additional measures are identified in the context of the effects assessment for individual VECs and Valued Socioeconomic Components (VSCs) (Sections 6.0 and 7.0). An overview of all mitigation, and environmental management measures are presented in Section 11.0.

To adequately address national and international security concerns, on-terminal facilities for radiological and biological inspection will be designed–in-features of MIT. Primary scanning for imported cargo will occur immediately behind the wharf apron. Secondary inspection and interdiction by Border Services officials will take place at a designated “containment” area.

In general MITI will work pro-actively towards the prevention of complaints and conflicts through the implementation of the above mentioned environmental management features and possibly through communication with a Community Liaison Committee (CLC) (see Section 3.3). Nevertheless, should any complaints emerge, MITI is committed to addressing these in a timely and effective manner in accordance with good management practice. Therefore, as part of the Project implementation a complaint process will be defined that established the contact information, a complaint record and follow up procedures and documentation.

Key environmental management features that have been included in the conceptual Project design are presented in Table 2.8-1. It is of note, that the environmental management features will be refined and expanded during the ongoing Project design stages.

Table 2.8-1: Environmental Management Features

Environmental Feature	Description	Objective
Surface water management systems; site drainage	• On-site storm water management system • If required, controlled outlet structures with monitoring point(s)	• To limit post development site-run off to pre-development levels • Monitoring of effluent quality • To provide shut down mechanisms in case of emergency (spill containment)
On-site waste water treatment facility	• On-site treatment facility for waste water stream • Controlled outlet structures with compliance monitoring point(s)	• To prevent discharge of untreated waste waters to receiving water bodies • Monitoring of effluent quality • To provide shut down mechanisms in case of emergency (spill containment)
Dedicated rail track	• Single track rail spur between MIT and the existing rail line	• To minimize use of road infrastructure for container haulage
On-site emergency response unit	• On-site emergency response unit equipped and trained to address fires, spills, and hazardous material management	• Immediate response in case of emergencies
Monitoring and maintenance programs	• Environmental Effects Monitoring (EEM) • Environmental Compliance Monitoring (ECM) • Environmental inspections • Environmental audits • Routine maintenance and repair (in accordance with maintenance plan)	• To review the accuracy of effects predictions, the effectiveness of environmental controls and compliance with applicable Project objectives, standards, guidelines and policies; • To provide a trigger for adaptive management actions; • Maintenance to ensure the ongoing performance of the environmental management features of MIT and associated infrastructure with prescribed performance standards.
Project-specific Environmental Management Plan (EMP)	• EMP for construction phase (incl. erosion and sediment control plan; dust control) • EMP for operation phase • Contingency and Emergency Response Plan (ERP) including spill prevention and clean-up protocols • Training and education plans • Communication and reporting protocols	• To document all environmental management measures, procedures and protocols relevant for the construction and operation phases of the Project • To ensure proper plan implementation, and plan updates • To ensure on-going communication with stakeholders and availability of monitoring results
Health and Safety Plan (HASP)	• 100 percent Radiological and Biological Inspection • Project-specific occupational HASP for	• To address national and international security • To minimize work related risks for human

Table 2.8-1: Environmental Management Features

Environmental Feature	Description	Objective
	construction and operation phases • HASP related training, education and emergency preparedness	health and accidents

2.8.1 Health, Safety and Environmental Protection

2.8.1.1 Public and Worker Health and Safety Management

A HASP will be developed for the Project site that will cover all phases and elements of the Project. The objectives of the plan will be to:

- define activities which are likely to represent risks to worker safety and health, requiring planning, design, inspection or supervision by a qualified professional;
- identify worker and public protection measures;
- establish supervisor and employee training requirements according to the project plan including recognition, reporting and avoidance of hazards, and knowledge of applicable Standards and the Project-specific HASP;
- provide general guidelines for controlling the most commonly identified hazardous operations, such as: cranes, scaffolding, trenches, confined spaces, hot work, explosives, hazardous materials, leading edges, etc.;
- identify hazards and preventive measures that are implemented in a timely manner;
- provide a process for reporting near-misses and accidents;
- establish Project-specific emergency response plans;
- define the requirement for a designated competent person responsible for and capable of implementing the program/plan; and
- establish a communications plan to provide preventative and emergency information to the general public.

Each contractor and consultant retained for the Project will be required to submit for review, a Project-specific HASP for its workforce, and will be responsible for its implementation. Further Health and Safety related planning will be conducted as part of the EMP development.

2.8.1.2 Environmental Management Plans

To ensure that the protection of the environment is managed effectively, a comprehensive EMP will be developed to communicate to all Project participants and stakeholders the commitment and efforts to be undertaken to prevent, manage, and minimize any potential environmental impacts related to the Project.

The EMP will be developed for the Construction and the Operation Phases and will be the principle vehicle for ensuring that mitigation is implemented as directed by all applicable regulatory requirements with a particular purpose to:

- support the Project's commitments to minimize environmental effects;
- document environmental concerns and appropriate protection measures; and
- provide instructions to relevant Project personnel regarding procedures for protecting the environment and minimizing environmental effects.

The Project will involve a wide range of activities necessitating the implementation of mitigation measures that will be developed as the Project proceeds. All mitigation recommended in the EIS, as well as any regulatory requirements, or conditions of permits/approvals, will be implemented via the mechanisms outlined in the EMP. It will also provide implementation guidelines to help ensure compliance with the monitoring and follow-up commitments and requirements identified through the environmental assessment process.

The EMP represents Project-inherent features and procedures and, together with the Environmental Management Features and Project Works and Activities, served as the basis for the effects assessment. Where required and applicable, the effects assessment supplemented the EMP with more detailed or new mitigation and environmental management measures. These additional measures are identified in the Sections 6.0 and 7.0. An overview of all mitigation and environmental management measures is presented in Section 11.0. Key components and minimum content and subjects of the EMP are summarized in Table 2.9-2. The proponent is committed to elaborate on and detail the EMP prior to commencement of the construction phase based on the outcome of the regulatory review and approval process and the final Project design.

It is of note that the EMP is considered a dynamic “living” document that will continuously require revision due to site activities, adjustments to the approach, changes in legislation, monitoring results, etc. It will be incumbent on the Proponents to ensure that routine reviews of the document are completed and that the contents remain current over the entire length of the Project.

As stated in Table 2.8-1, emergency response planning is included with the EMP. This will be integrated with planning for security and safety. The approach to these subjects includes:

- MITI has engaged a consultant to prepare security, safety and ERP. This will include everything from the setup of an emergency command post to the trunk radio system to communicate with province-wide emergency workers. This plan will specify the number and type of equipment to be supplied.
- MITI will have a Joint Occupational Health and Safety committee which will assure under NS statute that a sufficient number of MITI employees are trained in Emergency First Aid and CPR. This will allow the sick and injured to be treated until the 911 Emergency Health Services ambulance arrives.
- MITI will have available portable pumps which will allow seawater to be pumped onto any fire on the terminal. This will control the fire until the local fire department and mutual aid partners, if necessary, arrive.
- The local fire departments will respond to any hazardous material spill, as they have developed experience since the early 1960's in the area with MITI's industrial neighbours such as Stora chemical pulp mill, Statia Oil storage facility and Sable energy natural gas fractionation plant.

Table 2.9-1: Environmental Management Plan

EMP Components	Key Content and Subjects(Minimum)
Definition of Roles and Responsibilities	• Overall Project management structure • Safety Health and Environmental Coordinator • Contractors • Other Staff
General and site-specific EMP components	General EMP • Clearing and grubbing • Stormwater management • Work in/near watercourses • Work in/near marine environment • Dredging • Blasting activities • Equipment maintenance and fuelling • Material storage and handling • Erosion and sediment control (as per Erosion and Sedimentation Control Handbook (NSEL 1988)) • Dust control • Noise Control • Work yard development Site-Specific EMPs • Rail corridor; transmission corridor; marine terminal site; upland locations with site specific provisions particularly for o Watercourses (crossings & diversions) o Wetlands • Erosion and sediment control (as per Erosion and Sedimentation Control Handbook (NSEL 1988)) • Water Treatment Facility
EEM	• Groundwater resources (incl. wells) • Plant species of special status • Surface water quality • Marine water quality • Air quality • Noise • Watercourses • Wetlands • Facility lighting • Monitoring of fish habitat compensation measures
Environmental Compliance Monitoring/Inspections	• Effluent quality and quantity • Noise levels
Environmental Inspections and QA/QC, including Environmental Audits as appropriate	• Government and proponent inspection • Inspector training • Evaluation of Project against environmental policies (internal) • Documentation • Employee awareness of environmental issue
Contingency and Emergency Response Planning (Operational Emergencies and Natural Events)	• Hazard analysis and risk determination • Project-specific policies and procedures for events such as fires, explosions, spills, transport accidents, equipment malfunctions, severe weather; • Minimum plan requirements (prevention, preparedness, response, recovery/clean up) • Impacts on private water supply wells

Table 2.9-1: Environmental Management Plan

EMP Components	Key Content and Subjects(Minimum)
Training and Education	• Inspection staff training • Health and safety training • Emergency response training • Transport of Dangerous Goods training • Handling of hazardous materials
Communications and Reporting	• Document control (distribution and updating of EMP) • Public information and communication • Reporting (environmental reporting as required in consultation with the regulatory authorities with summary of monitoring results and compliance audits report)

2.8.2 Project Modifications, Adaptive Management

An adaptive management process will be followed to ensure a continuously safe, environmentally sound, and economically efficient terminal operation. Adaptive management is typically applied to manage uncertainty and to provide a mechanism for learning and adaptation in Projects dealing with complex natural systems.

As described in Sections 6 and 7, selected monitoring, inspection, and auditing mechanisms will be in place to review the accuracy of the effects predictions, the effectiveness of the environmental controls and the compliance with applicable Project objectives, standards, guidelines, and policies. The adaptive management process guarantees that corrective action will be taken when deficiencies in the Project implementation are identified. It also ensures that the Project benefits as knowledge of the site advances.

Adaptive management will be applied throughout all phases of the Project and in particular with regard to the mitigation measures. As soon as monitoring identifies that mitigation measures are not performing satisfactorily, the adaptive management process will guide its improvement or replacement in conjunction with adaptive management practices in the Project Operations Plan. Key steps in the process encompass:

- identification of non compliance/ underperforming mitigation measure;
- evaluation of significance;
- analysis of cause;
- identification and evaluation of possible corrective actions;
- implementation of corrective action; and
- monitoring of effectiveness of corrective action.

Criteria and parameters applied in the identification of non-compliance are discussed in the individual effects assessments and associated discussion of monitoring and follow-up measures (Sections 6 and 7).

2.9 REFERENCES

NSEL (Nova Scotia Department of Environment and Labour). 1988. Erosion and Sedimentation Control Handbook for Construction Sites. NS Department of the Environment. Environmental Assessment Division.