

Final:
ENVIRONMENTAL PROTECTION PLAN
TIMBERLAND GOLF RESORT - Phase 1
PASADENA,
NEWFOUNDLAND LABRADOR
Prepared for: Timberland Golf Resort Incorporated

ADI LIMITED
FILE: 26-5841-001.1
DATE: November 2006

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PASADENA,
NEWFOUNDLAND LABRADOR

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(File No. 26-5841-001.1)

November 2006



ADI LIMITED

Engineering, Consulting, Procurement
and Project Management

November 7, 2006

File No. 26-5841-001.1

Timberland Golf Resort Incorporated
18 Carroll Avenue
Pasadena, Newfoundland & Labrador
A0L 1K0

Attention: Mr. Brian Pike

Dear Sirs:

RE: **Environmental Protection Plan**
Timberland Golf Resort - Phase 1
Pasadena, Newfoundland & Labrador

We are pleased to provide two copies of our Final Environmental Protection Plan (EPP) re the above-noted project. This EPP is required as a condition to the release of the project from the Provincial Environmental Assessment process.

We trust this submission meets your present requirements.

Yours very truly,

ADI Limited

Cyril J. Pumphrey, B.Sc., B.E.S., P.Geo.
Environmental Geoscientist

William G. Melendy, M. A.Sc. P.Eng.
Project Manager

CJP:dgn

Enclosure: EPP in duplicate

Copy: Dept. of Environment and Conservation
Attn. Mr. Mike Cahill



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ADI Quality System Checks		
Project No.: 26-5841-001.1	Date: 2006 11 07	<i>[yr/mo/da]</i>
Issue Status: Final	Revision No.: 1	
Prepared by: Cyril J. Pumphrey, B.Sc., B.E.S., P.Geo.		<i>[Signature]</i>
Reviewed by: William G. Melendy, M.A.Sc., P.Eng.		<i>[Signature]</i>

1.0 INTRODUCTION

This Environmental Protection Plan (EPP) has been prepared for *Timberland Golf Resort Incorporated* as a condition of the project release from the Newfoundland and Labrador Environmental Assessment (EA) process. The purpose of the EPP is to ensure that environmental impacts from project activities are minimised by providing written guidance on control/mitigative measures and procedures, emergency spill response, and permitting requirements. Ministerial approval of the EPP is required prior to the start of project construction. This EPP is intended to be a flexible document allowing for incorporation for unanticipated changing conditions as the project proceeds.

2.0 PROJECT DESCRIPTION

2.1 Nature of the Undertaking

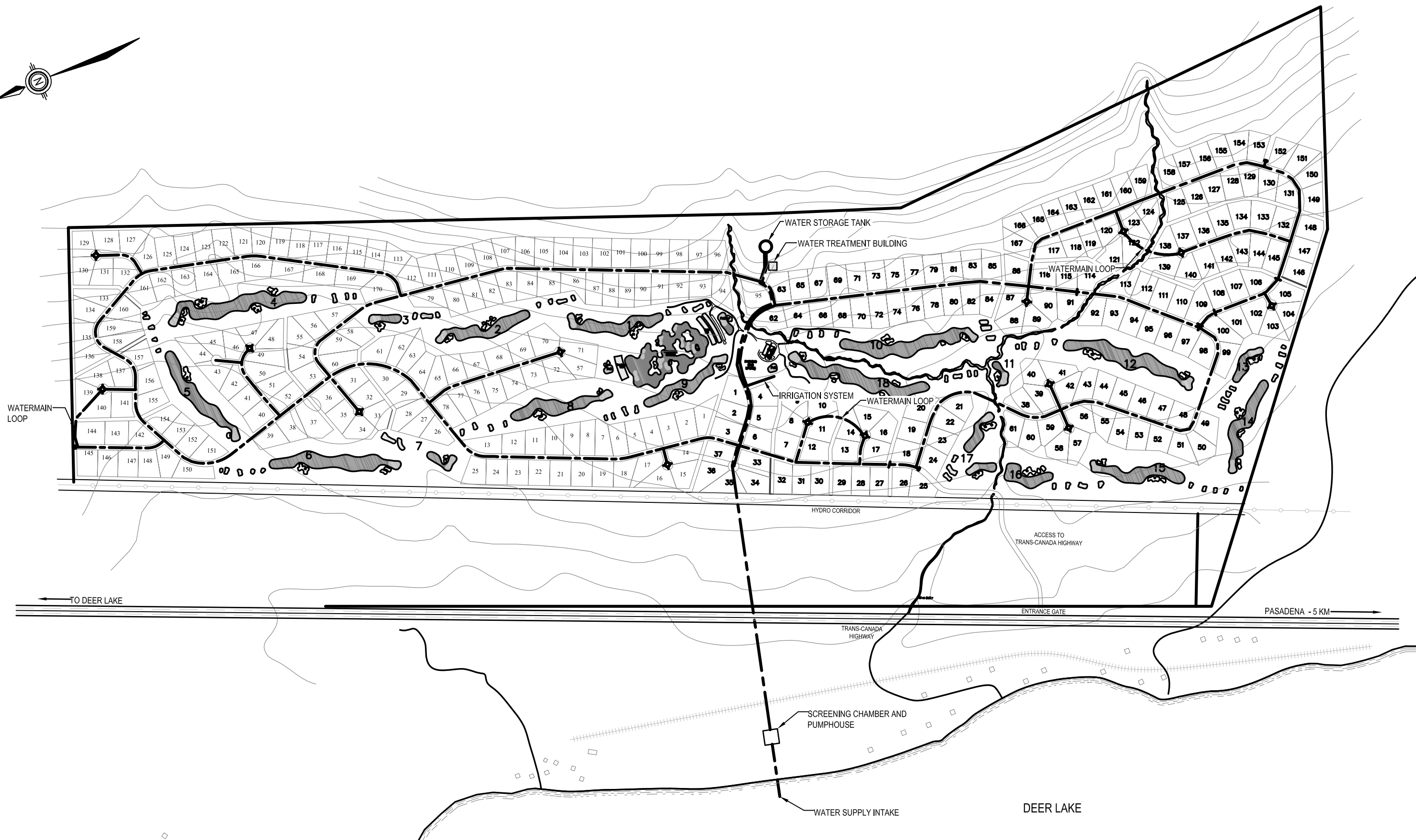
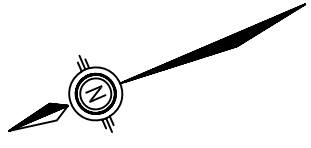
The project is formally known as the *Timberland Golf Resort* and it involves the development of approximately 297.5 hectares of land for the purpose of establishing an 18-hole championship golf course, a driving range, an integrated residential component, walking/ski trails, and access to the present system of snowmobile trails. The project site is located on the south side of the Trans-Canada Highway (TCH), just east of the Town of Pasadena. While the project is located outside the Town of Pasadena Municipal Boundary, it is located within the Town's Municipal Planning area. The proponent for this project is *Timberland Golf Resort Incorporated (TGRI)*. The Chief Executive Officer (CEO) for *TGRI* is Mr. Brian Pike, a resident of Pasadena.

2.1.1 Construction

The project will consist of construction of a golf course, roads, utilities, a clubhouse/pro shop, walking trails, and residential building lots. A brief description of these physical features, along with the environmental concerns associated with each, is described below in further detail:

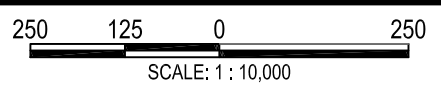
Golf Course

The Golf Course will consist of 18 holes, with tees, fairways, bunkers and greens, practice driving range/putting green, and a clubhouse/pro shop. The conceptual lay-out for the golf course and related features is presented on *Figure 1: Preliminary Concept Plan*.



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TIMBERLAND GOLF RESORT
 PRELIMINARY CONCEPT PLAN



DATE:
 JANUARY 2005

DWN. BY: R.J.B.
 CHK. BY:

DWG. NO.
 FIGURE 1

Roads

A network of roads and parking lots will be required to access the development, including access to/within the residential areas, as well as service roads. Roadways and parking areas will be designed and constructed to Parks Canada standards, with a 100 mm thick layer of Class "A" material, and a 50 mm hot-mix surface course asphalt. A network of smaller roads and paths (paved and unpaved) will be required within the golf course itself.

Utilities

Electricity/telephone

Power supply to and within the site will be provided by *Newfoundland Power*. The power distribution to the site will be by way of overhead pole line. Individual services within the development will be overhead via wooden utility poles. *Aliant* will provide telephone services to the site. The resort will reserve utility easements to accommodate these services.

Water

Domestic and irrigation water will be sourced from Deer Lake, which is located approximately 200 m west of the Trans-Canada Highway/Site Access Road intersection. The water supply/distribution system will consist of:

- intake structure consisting of polyethylene piping submerged to provide protection against ice cover and low water levels
- pump house structure located near the shores of Deer Lake
- water transmission and distribution lines
- water treatment will be completed either at the lake pumphouse or on-site, with proposed treatment consisting of primary screening, disinfection and necessary treatment to meet Canadian Drinking Water Quality Guidelines
- water storage on site may be necessary to accommodate peak demand.

A "Water Use Permit" issued by the Department of Environment and Conservation - Water Resources Division, is a requirement for the development to proceed. A *Water Use Baseline Study* of down-gradient water users will be completed as part of this development. The baseline study will include the following:

- completion of visit to the area to identify all water users in the area down-gradient of the proposed development
-

- document the nature of the water supply, type, and volume of usage, and the source location of each user
- collect representative water samples from each user and deliver samples to a recognized laboratory for subsequent general chemistry and bacterial analysis (total and faecal coliform)
- prepare a report outlining study results, including a plan showing the location of all down-gradient water users.
- report of findings to be included in the application for a “Water Use Permit” .

There are approximately twenty users of water as a potable source down-gradient of the proposed development. Water use is by both residential and commercial property owners. Water sources include brooks exiting the proposed development area, private dug and drilled wells, and the waters of Deer Lake. In addition, *Gordon’s Farms* also uses water pumped from *Beavertown Brook* for irrigation purposes. Note that the watershed for Beavertown Brook is located entirely within Phase 2 of the proposed development. Refer to *Figure 2: Beavertown Brook - Water Shed Area*.

As outlined above, the proposed *Water Use Baseline Study* will provide details of water use in the area. This EPP will also provide mitigation measures to be followed to ensure down-gradient impacts to water sources does not occur. Measures will include procedures to be taken to control sedimentation/erosion and handling of petroleum products, both during construction activities and during the operation of the completed facility. It is intended that the water supply to down-gradient users will be monitored during the construction phase of the development, and during the resort operations.

In the event a water source is impacted, the developer will make the appropriate arrangements to provide water from another source. This may include connecting to the developments proposed new water supply infrastructure, pumping from other water sources in the area, or relocating existing wells. Should impacts occur, mitigation measures will be investigated on an individual residential/commercial property basis to determine the best means to replace the impacted water source (i.e. the replacement solution to a water loss may vary for different sources).

Sanitary Sewer and Storm Water

The resort will be serviced with separate lot disposal systems. Options for sanitary sewer disposal include:

- traditional septic tanks with distribution and disposal fields
-

- engineered wetlands
- biogreen technology, or
- other engineered systems.

Storm water control will be managed by planned site grading, ditching, culverts, bridges, French drains, and settling ponds.

Walking Trails/Cross-Country Skiing

A network of walking trails/paths will be developed within the resort. These trails will be constructed and accessible for use of people of all ages/abilities.

Residential Building Lots

The residential component of this development will be integrated within the golf course. Lots will be 4000 m² in size and will utilise individually designed, approved, wastewater disposal systems, and metered potable water.

Club-house/Pro Shop

A two-storey Club-house/Pro Shop, with a footprint measuring approximately 800 m², is envisioned for the site. The structure will contain the pro shop, locker rooms, shower room, washrooms, offices, lounge, and dining area.

2.1.2 Operation

The *Timberland Golf Resort* will be a permanent facility, with operation of some activities on a seasonal basis. The golf course itself will be an 18-hole championship golf course that is open to the general public. It will operate on a seasonal basis from approximately mid-May to late-October. The club-house will operate on a year-round basis in support of other seasonal activities, such as cross-country skiing, hiking, and snowmobiling.

Timberland Golf Resort Incorporated will be responsible for maintenance, up-keep, and operation of the facilities.

2.1.3 Proposed Development Schedule

The following section outlines the proposed schedule and required permits to develop the property. The project will be developed in two phases, with Phase 1 located to the southeast of the hydro line on property presently owned by *Island Forms Inc.*, and a portion of Crown land. Phase 2 will be on Crown land extending northeast from the Phase 1 development.

The proposed Phase 1 schedule for development is as follows:

Phase One Development

Phase 1-1 (September 2006 to June 2007)

Clearing and grubbing of the road rights-of-way for the first 60 building lots and holes 11 to 17. Work in 2006 will be restricted to clearing, with grubbing to begin after spring thaw in 2007. During the winter of 2007, survey work and development of the construction drawing for the water system and grading of this section of road work and the construction drawing for the back nine holes will be done. Refer to *Drawing No. G1: Phase 1 - Clearing and Grubbing Plan* attached.

Permits/Authorizations required: Department of Environment and Conservation *Water Use Permit*
Town of Pasadena *Development Approval*.
(Note that *Development Approvals* will be required from the Town of Pasadena at different phases of the project.)

Phase 1-2 (November 2006)

Construction of two stream crossings on the road reserve cleared in Phase 1-1 to facilitate access to the site. Note that additional stream crossings will be completed thorough out completion of the development. Permits/authorizations will also be required for these crossings.

Permits/Authorizations required: Department of Fisheries and Oceans *Stream Crossing*
Department of Environment and Conservation *Stream Crossing.*

Phase 1-3 (March 2007 to July 2007)

Clearing and grubbing of the road right of ways for the remaining building lots in Phase 1 and holes 10 to 18.

Permits/Authorizations required: Department of Natural Resources *Operating Permit/Permit to Burn/Commercial Cutting Permit*

Phase 1-4 (May 2007 to September 2008)

Construction of the back nine holes.

Phase 1-5 (June 2007 to August 2007)

Installation of the water distribution system and grading of the roads servicing the first 60 lots noted in Phase 1-1. This sub-phase includes all associated drainage work and reinstatement, including seeding of all areas outside of the carriageway. Carriageway will be graded to sub-base standard ready to receive base material. Carriageway will then be topped with maintenance grade crushed gravel.

Phase 1-6 (June 2007 to August 2008)

Installation of the water intake, treatment, and storage system

Permits/Authorizations required: Department of Environment and Conservation *Water Use Permit*
Town of Pasadena *Development Approval and Building Permits*
Department of Transportation and Works - *Street Excavation Permit/Road Crossing*; and authorization to cross Trans-Canada Trailways, private lands (Harvey & Company, Salvation Army)

Phase 1-7 (July 2007)

Rough grading of the remaining roads in Phase 1, including stream crossings and drainage construction, will be done. Approaches to stream crossings will be graded to sub-base standard ready to receive base material and reinstatement, including seeding or sodding of all areas outside of the carriageway to insure no silt run-off into the streams.

Phase 1-8 (September 2007 to October 2008)

Construction of the club-house and pro shop.

Permits/Authorizations required: Town of Pasadena *Building Permits*
Department Government Services Centre *Refer to Page 21*

Phase 1-9 (May 2008 to July 2008)

Installation of the water distribution system and grading of the roads servicing the remaining lots in Phase 1. This sub-phase includes all associated drainage work and reinstatement including seeding of all areas outside of the carriageway. Carriageway will be graded to sub-base standard ready to receive base material. Carriageway will then be topped with maintenance grade crushed gravel.

Permits/Authorizations required: Previous Permits/Authorizations.

Phase 1-10 (June 2009 to August 2009)

General clean-up and reinstatement of the entire phase one, placing of base material, and paving of all roads in phase one.

Phase Two Development

Phase 2 is scheduled to begin in the spring of 2008 with completion slated for 2010. This phase will commence with the instillation of an alternate source of water being developed for Gordon Farms and then following along on a similar sub-phasing schedule as Phase 1, with the exception that the club-house and water intake, treatment, and storage system that will already be in place.

A detailed schedule for Phase 2 development will be finalized prior to commencing Phase 2 of the project.

2.2 Existing Environment

2.2.1 Location

The area encompassing the proposed *Timberland Golf Resort* comprises approximately 717 acres of land located east of the Town of Pasadena. Approximately 104.5 hectares of this land is presently owned by *Timberland Golf Resort Incorporated*, and another 193 hectares are Crown land. The land is located east of the Trans-Canada Highway (TCH) and is within the planning area of the Town of Pasadena. The west portion of the site is located in an area zoned as Tourism/Recreation-Comprehensive Development Area (TR-CDA). The east portion of the site is zoned as Rural ®. The site is currently vacant, with the exception of an abandoned sawmill near the area of the proposed golf course (towards the south end of the property)

2.2.2 Vegetation

The site is predominantly boreal forest, primarily balsam fir (*Abies balsamea*), and black spruce (*Picea mariana*), with some small areas of bogs and marsh. The area was previously clear cut in the 1960s and 1970s, though natural forest regeneration appears to be occurring throughout the property.

2.2.3 Geology/Topography

Ground surface elevations over the site range from approximately 130 m above sea level (asl) at the southeast corner of the property, to approximately 30 m asl along the northwest side of the property.

The overall topography slopes gently to the northwest with a maximum gradient of < 10 %. The site subsurface was not investigated, however, the area is reported to be underlain by a sandy loam glacial till (Agriculture Canada - Soils of the Pasadena-Deer Lake Area, Newfoundland, 1988). Bedrock in the area is reported to consist of mainly red to gray, pebble to boulder conglomerate and inter-bedded red to gray sandstone, as well as red to gray sandstone/siltstone, and gray and pink limestone of the North Brook Formation. Some ultramafic rocks (including gabbro) may occur near the northeast corner of the subject property. The Deer Lake Fault (a northeast-southwest oriented fault) is interpreted near the southeast side of the property (Hyde, R.S., 1982).

2.2.4 Fish and Fish Habitat

A small, west-flowing stream is present on the south side of the property. Small brook trout have been observed within this stream.

2.2.5 Wildlife

The proposed development occurs within Moose/Bear Hunting Area # 7. Moose, Black Bear, and Snowshoe Hare have been observed in and around the property from time to time. The area has also been utilized as habitat to the endangered Newfoundland Pine Marten. The development area, however, is not considered to be critical habitat for the Pine Marten.

3.0 LEGISLATION

The legislation and regulations which pertains or may pertain to the proposed development are outlined in *Table 3.1: Legislation*:

Table 3.1: Legislation	
Major Legislation	Regulations/Policies
Municipal	
Pasadena Town Plan	Development Regulations
Provincial	
Buildings Accessibility Act	
Dangerous Goods Transportation Act	
Forestry Act	
Water Resources Act	
Human Rights Act	
Historic Resources Act	
Labour Standards Act	
Lands Act	
Municipalities Act	
Newfoundland Environmental Protection Act	Storage & Handling of Gasoline & Associated Products Regulations
	Environmental Assessment Regulations
	Pesticides Control Regulations
	Heating Oil Storage Tank Systems Regulations
	Waste Material Disposal Areas Regulations
Occupational Health & Safety Act	
Quarry Materials Act	
Urban & Rural Planning Act	
Works Services & Transportation Act	
Federal	
Canadian Environmental Protection Act	
Fisheries Act	

4.0 ENVIRONMENTAL CONCERNS/PROTECTION PROCEDURES

4.1 Construction

Potential environmental concerns and associated protection procedures relative to the construction phase of this project are described below:

4.1.1 Clearing and Grubbing

Clearing and grubbing can potentially result in erosion of denuded ground and subsequent discharge of sediment to surrounding watercourses, which in turn can result in degradation of any aquatic habitat or a valued drinking water source. There is potential for land use conflicts as the timber rights on the Crown Land portion of the site are held by Corner Brook Pulp & Paper Company (CBPPC).

Environmental Protection Measures

The following procedures shall be implemented to protect the environment from impacts associated with clearing and grubbing:

- where possible, diversion swales/ditches shall be constructed up-grade of areas to be cleared/grubbed, to divert surface run-off around disturbed areas
 - the project is proposed to proceed in phases so that the amount of area to be cleared/grubbed at any one time will be kept at a minimum, thereby limiting the potential for erosion
 - clearing and grubbing activities will be scheduled to avoid periods of high precipitation
 - clearing and grubbing will be prohibited within 50 m of any surface watercourses, creating a natural buffer zone
 - topsoil and organics removed from developed areas will be stockpiled and re-used to re-vegetate/rehabilitate exposed areas after construction
 - an agreement will be implemented regarding timber (suitable for pulp and paper production) that has to be removed to facilitate the undertaking, including fibre from land held by *Timberland Golf Resort Incorporated*, to make up for any shortfall in fibre removed from *CBPPC* timber holdings as a result of selective cutting, thereby having no negative effect on the available fibre resource of the mill.
-

4.1.2 Sedimentation and Erosion Control

Soil erosion and subsequent sedimentation of surface water bodies can adversely impact aquatic life, degrade the aesthetic quality of the environment and potentially degrade water quality.

Environmental Protection Measures

The primary mitigative measure for erosion/sedimentation control is construction of diversion swales/ditches up-grade of areas to be disturbed. Other mitigative measures which may be employed include:

- sedimentation ponds will be constructed in association with the diversion ditches; further, all run-off from cleared areas of the site will be directed to the sedimentation pond prior to discharge to existing drainage courses
- for any exposed areas for which surface water run-off can't be diverted to the sedimentation pond, diversion and collection trenches will be constructed to control the run-off; sediment traps constructed of hay bales or geo-synthetics will be placed at strategic locations along the ditching network
- ground slope is one of the main factors controlling soil erosion; ground slopes with less than 7 percent slope have only a low to moderate potential for erosion, while ground slopes in excess of 15 percent have a high to very high potential for erosion; therefore, the slopes of all drainage and diversion ditches will be kept at a minimum
- the sedimentation pond and any sediment traps will be properly inspected/maintained throughout the construction phase of the project
- following construction, any remaining exposed areas will be re-vegetated.

4.1.3 Stream Crossings

Culvert installations may cause direct disturbance or mortality to fish, and potential loss of fish habitat, resulting from sedimentation and removal of fish habitat and stream bank vegetation.

Environmental Protection Measures

Development of this project will result in several culvert installations associated with site access roads. All culvert installations will be constructed in compliance with the required permits from the Department of Environment and Conservation (DEC), Water Resources Management Division, and any approvals required from DEC and Department of Fisheries and Oceans (DFO). The following measures shall be implemented to mitigate against potential impacts:

- all work will be performed in such a way as to prevent the introduction of deleterious substances into waterways
- the development layout shall be designed to minimise the number of stream crossings required
- all culvert installations shall be sized to handle a 1:25 year return period flood
- culverts shall be installed in accordance with DEC/DFO guidelines.

4.1.4 Handling of Petroleum, Oils, and Lubricants (POLs)

Petroleum, oils, and lubricants (POLs) represent a potential source of soil, groundwater, and surface water contamination. An accidental release of POL may also adversely affect terrestrial habitat, flora, and fauna.

Environmental Protection Measures

- all transportation of POLs to and from the site will adhere to the Transportation of Dangerous Goods Act
- all and any storage of POLs will adhere to the Newfoundland Environmental Protection Act, Storage & Handling of Gasoline & Associated Products Regulations; storage or fuelling areas will be located in areas where a spill would have the least possible impact
- smoking will be prohibited within 15 m from any POL storage facility
- regular inspections of hydraulic and fuels systems of all on-site heavy equipment are required; any deficiencies or leaks shall be repaired immediately
- in the event of a spill/leak, the appropriate procedures as outlined in the Spill Contingency Plan (See Section 8) will be implemented.

4.1.5 Solid Waste

Environmental concerns relative to solid waste management include contamination of watercourses and groundwater resources, impacts upon flora and fauna and overall degradation of the aesthetics of the area.

Environmental Protection Measures

- all refuse and waste will be collected on a regular basis and disposed of at an approved Newfoundland Labrador Department of Environment and Conservation municipal solid waste disposal site
 - burying or burning of waste will not be permitted during construction
 - good housekeeping practices will be employed during the construction phase; waste will not be permitted to accumulate
-

- temporary, self-contained sanitation facilities will be kept on-site during the construction phase; these units will be pumped, cleaned on a frequent and regular basis.

4.1.6 Noise and Dust

Noise and dust related to construction activities can impact negatively on flora and fauna, as well as wildlife and area residents.

Environmental Protection Measures

Noises and dust issues associated with construction of this project will generally be short term and temporary in nature. Where possible, impacts associated with noise and dust will be minimised.

- all equipment and vehicles will be maintained with noise-control features kept in good working order
- dust-control measures (application of water or calcium chloride) will be employed as required during the construction phase, on roads and parking areas.

4.1.7 Archaeological Resources

There is potential for damage, disturbance, or destruction of historic artifacts during the construction phase of the project.

Environmental Protection Measures

The development area is not known to have a high potential for archeological importance, however:

- all requirements of the Historic Resources Act will be met
- discovery of any items of suspected archaeological importance shall result in a work stoppage; the Provincial Archaeologist (Martha Drake) will be contacted immediately at 709.729.2462; further details are provided in the Contingency Planning section (Section 8).

4.1.8 Forest Fires

Forest fires may result in the destruction of terrestrial habitat, increase risk of erosion, and threaten area residents and property.

Environmental Protection Measures

Timberland Golf Resort Incorporated, and /or the site contractors, shall take all necessary precautions to prevent fire hazards when working at the site:

- all flammable waste shall be disposed of on a regular basis
- sufficient fire-fighting equipment to suit the actual labour force and equipment on site shall be maintained at all times during the construction phase of the project
- personnel shall be trained in the use of all on-site fire fighting equipment
- in the case of a fire, site personnel shall take all reasonable steps to contain or extinguish the fire
- fire should be reported immediately to the RCMP (709.637.4433) and the Forest Management Unit Office in Corner Brook (709.637.2408 or 800.898.4528) (see Contingency Planning Section 8.0).

4.1.9 Concrete Placement

Contamination of waterways with fresh concrete can result in increased pH and subsequent fish kill.

Environmental Protection Measures

- Cement or fresh concrete will not be placed in streams or waterways. Dumping of concrete or washing of tools and equipment in any water body is prohibited

4.2 Operation

Potential environmental concerns and associated protection procedures relative to the operational phase of this project are described below:

4.2.1 Site Access/Traffic

Access to and from the site will be at the interchange with the Trans-Canada Highway (TCH).

Environmental Protection Measures

- access to the site will be via the existing service road (Exist 13); this road was constructed by, and conforms to, the Newfoundland Labrador Department of Transportation and Works Specifications. Traffic issues should not be of concern in this area.

4.2.2 Golf Course Maintenance

Environmental concerns regarding golf course maintenance relate to the use, handling, and storage of potentially hazardous materials such as pesticides, fertilizers, and fuels.

Environmental Protection Measures

- The golf course will be designed to minimise the need for post-construction fertilisers, pesticides, and other treatments. Installation of properly-draining sub-grade soil layer and sufficient topsoil will insure the healthiest possible course.
- Fertilizer application rate, where required, will be determined by an analysis of soil nutrient levels on an on-going basis.
- Strict control over the type and application of materials used to maintain the golf course will be an integral part of development, maintenance, and operation. This will ensure that only the permissible substances are used for course maintenance.
- Any storage and application of pesticides will be in strict conformance with the Pesticides Control Regulations, under the Newfoundland & Labrador Environmental Protection Act.
- Any staff engaged in the use of pesticides/fertilisers will receive required training.
- Any fuel storage on site for power of maintenance equipment will conform to the Storage and Handling of Gasoline and Associated Products Regulations (under the Newfoundland Labrador Environmental Protection Act).
- In the event of a spill/leak, the appropriate procedures as outlined in the Spill Contingency Plan (Appendix A) will be implemented.

4.2.3 Sedimentation and Erosion Control

Soil erosion and sedimentation of surface water bodies, and run-off from the golf course and residential areas can adversely impact aquatic habitat and degrade the aesthetic quality of the environment.

Environmental Protection Measures

The following sedimentation and erosion control procedures will be employed to eliminate or minimise potential impacts:

- surface water drainage from the golf course will be diverted to the sedimentation pond(s)
 - for any exposed areas for which surface water run-off cannot be diverted to the sedimentation pond, diversion and collection trenches will be constructed to control the run-off; sediment traps constructed of hay bales or geo-synthetics will be placed at strategic locations along the ditching network
 - sediment will be removed from the sedimentation pond and sediment control structures as required, and will be addressed through general maintenance of the development
 - as part of the development maintenance programme, ditches and culverts will be inspected on a regular basis; repairs, if necessary, will be completed to allow the uninterrupted flow
-

of water to the sedimentation pond; on-site ditches and berms will be seeded, sodded, or otherwise lined with an approved material.

4.2.4 Petroleum Oils and Lubricants (POLs) Storage and Handling

Petroleum, oils, and lubricants (POLs) represent a potential source of groundwater and surface water contamination. An accidental release of POL may also adversely affect terrestrial habitat, flora, and fauna.

Environmental Protection Measures

- oils and lubricants for on-site equipment shall be purchased in small quantities and stored on permanent or temporary pads to contain materials in the event of leakage or spillage
- smoking will be prohibited within 10 m of any fuel storage facility
- regular inspections of the hydraulic and fuel systems of all on-site heavy equipment shall be made; any leaks will be repaired immediately
- in the event of a spill or leak, the procedures outlined in the Spill Contingency Plan (Section 8) will be implemented.

4.2.5 Storm Water Management

Environmental concerns relating to storm water management include potential siltation of streams and potential downstream flooding, resulting from the increased run-off coefficients associated with development.

Environmental Protection Measures

- Clearing and construction of roads and parking lots/driveways will result in an increase in the run-off coefficient in those areas. This development will be designed to minimise the use of such hard surfaces. The introduction of extensive grasses at the golf course and over other landscaped areas of the site will result in a decrease in run-off coefficients in those areas, having an overall tempering effect on run-off. The goal is to have no net increase in run-off from the site.
 - Sediment control basins will act as retention ponds allowing for the gradual release of storm water during periods of intense precipitation.
 - Provision has been made for re-evaluation of storm water management requirements on an on-going basis.
-

4.2.6 Solid/Sanitary Waste Management

Environmental concerns related to on-site solid waste generation include contamination of watercourses/groundwater, impacts on flora/fauna, and degradation of the overall aesthetics of the development area.

Environmental Protection Measures

- all refuse and waste will be collected on a regular basis and disposed of at an approved (Newfoundland Labrador Department of Environment and Conservation) municipal solid waste disposal site
- a recycling programme will be implemented for all materials (pop bottles, metals, paper, etc.) at public facilities
- burying or burning of waste will not be permitted during construction
- the resort will be serviced with decentralised sewage treatment and disposal systems in accordance with legislation and policy guidelines; either traditional septic tanks with a distribution and disposal fields or units utilizing engineered wetlands or other technologies will be installed.

5.0 ENVIRONMENTAL INSPECTION

Environmental monitoring will be an integral part of the proposed development and will be the responsibility of the proponent through his site inspector (during construction). The site inspector will perform regular monitoring of site features and ensure that areas of potential concern and associated mitigative measures are being implemented, and are effective. The site inspector will ensure that other project personnel are aware of the potential issues identified in this document, and will revise and update the EPP as required. Any unforeseen or unusual circumstances, impacts, or concerns will be promptly reported to the Environmental Assessment (EA) Division. Other inspections may be completed by government agencies as required. During the operational phase of the project, monitoring will be completed by the Facility Manager. The Facility Manager will ensure compliance with mitigative procedures outlined within this document and revisions that may occur from time to time. Effectiveness of mitigative measures will be ranked and re-evaluated through the operational life of the project. Unforeseen circumstances or ineffective mitigation measures will result in a EPP update and notification of the EA Division.

6.0 PERMITS, APPROVALS AND AUTHORIZATIONS

A list of the potential approvals and permits which may be required by the proponent for this project are provided below:

Department	Approval/Permit
Municipal	
Town of Pasadena	<ul style="list-style-type: none"> • <i>Zoning Amendments</i> • <i>Development and Building Permits</i>
Provincial	
Department of Environment & Conservation	<ul style="list-style-type: none"> • <i>Approval of the Undertaking</i> • <i>Certificate of Approval for Small Brook Crossings</i> • <i>Construction Site Drainage</i> • <i>Permit for Culvert Installation</i> • <i>Environmental Approval for Water Supply and Distribution</i> • <i>Water Course Alteration</i> • <i>Permit to occupy Crown Land</i> • <i>Easement Rights for Pole Line</i> • <i>Water Use Licence</i>
Government Service Centre	<ul style="list-style-type: none"> • <i>National Building Code Approval</i> • <i>National Fire Code Approval</i> • <i>Building Accessibility Design Registration</i> • <i>Protected Road Zoning and Development and Control Regulations</i> • <i>Certificate of Approval for a Water Supply System</i> • <i>Certificate of Approval for Septic System</i> • <i>Fuel Storage Tank System Regulations</i> • <i>Approval for Storage and Handling of Gasoline and Associated Products Regulations</i> • <i>Approval to Occupy Crown Lands</i> • <i>Approval for Food Establishment License</i>
Department of Natural Resources - Forest Resources	<ul style="list-style-type: none"> • <i>Operating Permit</i> • <i>Permit to Burn</i> • <i>Commercial Cutting Permit</i>
Federal	
Department of Fisheries & Oceans	<ul style="list-style-type: none"> • <i>Approval for Works and Undertakings Affecting Fish Habitat</i>

7.0 CONTACT LIST

The table below includes a list of key personnel who may be associated with the undertaking:

Contact List			
Name	Firm	Affiliation	Telephone No.
Proponent			
Mr. Brian Pike-President and CEO	Timberland Golf Resort Inc.	Proponent	709.686.5375
Mr. Rick Noseworthy, P.Eng.	Newfoundland & Labrador Consulting Engineers Ltd	Project Consultant	709.579.2886
Hazardous Materials Spills			
Duty Officer	Canadian Coast Guard	Spill Response	800.563.9089
Graham Thomas	Environment Canada	Environmental Emergencies Coordinator	709.772.4285.
Forest Fires			
24-hr Forest Fire Emergency Line	Department of Forestry		800.898.4528
Emergency Contacts			
Fire/Medical Emergency			911
Western Memorial Hospital			709.637.5000
RCMP	Deer Lake		709.635.2173
Town of Pasadena			
Mr. Jim Merrigan	Town of Pasadena	Town Manager	709.686.2075 (Bus)

8.0 CONTINGENCY PLANNING

Contingency plans have been prepared for the effective management/control of unplanned events such as spills/leaks, forest fires, wildlife encounters, and unearthing of archeological resources which may occur during the life of the project. Details are provided below:

8.1 Leaks and Spills

This Spill Contingency Plan has been prepared to address the safety and well-being of employees, contractors, the community, and the environment, in the event of an accidental release of petroleum hydrocarbons or other substance.

8.1.1 Purpose of the Plan

The purpose of this plan is to provide guidance to site personnel in responding to a pollution incident involving the loss of petroleum hydrocarbon or other product during project operations on the site. The document also provides guidance in conducting such operations so as to minimize the risk of incurring a spill and its potential environmental impact.

Timberland Golf Resort Incorporated is committed to meeting all compliance requirements and will ensure all personnel identified within this document, whether by name or position, are fully conversant with the requirements of this plan.

The three primary functions of the document are:

- to define appropriate actions in responding to specific incidents
- to provide comprehensive lists of those agencies or personnel with whom site personnel may need or choose to communicate
- to define the content of pollution incident reports which are required to be delivered by *Timberland Golf Resort Incorporated* after experiencing a pollution incident.

The format and content of this document are designed to comply in intent and in fact with relevant Newfoundland Labrador laws as these pertain to pollution incident preparedness. The relevant statutes and guidelines, which have been consulted in detail in the development of this document, are:

- *Storage and Handling of Gasoline and Associated Products Regulations, 2003*
- *Occupational Health and Safety Act, 1996.*
- *Fisheries Act.*

8.1.1.1 Emergency Action Priorities

In the case that a pollution incident includes some combination of fire, life-threatening injuries, and an environmental incident, the priority applied during response must be:

- health and safety (save lives/minimize injuries)
- fire (protect plant and equipment)
- environmental incident (protect the environment).

The safety of all personnel is of overriding importance under all conditions. This is particularly so when operating equipment or conducting containment and clean-up operations. Therefore, the precautions and procedures detailed in this plan must be observed by all personnel at all times. This includes all personnel named in the plan.

8.1.1.2 Contact Information for Persons Authorized to Enact this Plan

Authorized persons:

Brian Pike - CEO, *Timberland Golf Resort Incorporated*

709.686.5375

8.1.1.3 When to Report an Oil Pollution Incident

Spills greater than 70 litres on land must be reported to Canada Coast Guard in accordance with provincial legislation under the *Storage and Handling of Gasoline and Associated Products* regulations.

Spills in the marine environment must be reported to Canada Coast Guard in accordance with the *Pollutant Discharge Reporting Regulations* in the event of an actual discharge or a probable discharge of oil to the marine environment.

A probable discharge is deemed to occur when there is no evidence of an actual discharge but, under the circumstances, there is a high probability that a discharge has occurred or will occur.

8.1.2 Timing of Reports

An initial regulatory report should be sent as soon as possible after the occurrence of an incident. As a general guideline, it is recommended that the initial report be transmitted within one-half hour of the incident, and follow-up reports should be sent at least each hour thereafter.

8.1.3 Basis of Spill Contingency Plan

In the event of a spill, all work (hot and cold) will be shut down immediately and shall not re-start if there is any possibility that the work will interfere with the response to the spill or the immediate safety of site personnel, contractors, or members of the public.

8.1.4 Distribution

Copies of this plan shall be distributed to all contractors and project personnel to allow all employees to be familiar with emergency response procedures. In addition, all personnel named in this plan shall receive training and be required to read the contents of this plan and, in addition, sign a notice of understanding.

8.1.5 Detailed Guidance

The following sections provide detailed guidance to all personnel involved with project operations or the response to a pollution incident and with the containment and clean-up of such a release.

The section titled “Action Lists” provides detailed lists of the actions and responsibilities for personnel when responding to a pollution incident:

- first person on scene
- Project Field Supervisor
- spill response team
- on-scene commander (OSC).

Always, it is the prerogative of the OSC to modify the recommended actions, based upon his/her on-site assessment of best practice. In all cases, the priority considerations which direct the actions of the OSC, relative to these recommended action lists, are:

- preservation of life, health, and human safety
 - protection of plant and equipment
 - protection and preservation of the environment.
-

In each of the action lists which follow, the recommended actions are presented in a logical priority sequence. The sequence normally involves determining and responding to any source of the problem, assessing the immediate damage and spill circumstances (if any), and initiating notification/reporting, and, lastly, taking long-term mitigative action.

8.1.5.1 Response Personnel

It is a basic premise of this plan that all aspects of any pollution incident will be specifically directed by the On-Scene Commander (OSC). The site manager (or Construction Project Manager during construction) will provide initial response to an incident assuming the duties of the OSC. Members of the Spill Response Team will be drawn from on-site personnel on duty at the time of the incident (if present) or from outside agencies as determined in consultation with applicable authorities. The specific duties of the Spill Response Team members will be performed under the direction of and at the discretion of the OSC.

8.1.6 Action Lists

8.1.6.1 First Person On-Scene

In all situations the First Person On-Scene will:

1. If a fire is present, notify all other team members by sounding a verbal command such as “Fire-Fire-Fire” and, in addition, the emergency response or forest fire emergency numbers via cellular telephone.
 2. Immediately stop operations and notify the Site Manager (or Construction Project Manager).
 3. If the spill involves gasoline, or in circumstances where the product is unknown, immediately isolate the spill or leak area immediately for at least 25 to 50 m (80 to 160 feet) in all directions, keep unauthorized personnel away, stay up-wind, and keep out of low areas.
 4. In the case of a spill, notify the Canada Coast Guard Spill Response Line and provide the following information:
 - location of spill
 - size of spill
 - time of spill
 - spill status (secured/unsecured)
 - details of any injuries.
-

5. If possible and safe to do so, stop the leak.
6. Prevent access of spilled material to enter water and contain the spill using sorbent boom (subject to 3. above).

8.1.6.2 The On-Scene Commander (OSC)

The Site Manager (or Construction Project Manager) is responsible to provide initial response to a spill/leak and assume the role of OSC.

The Site Manager, acting as OSC, will:

1. Notify, via cellular telephone, the on-duty Spill Response Team and have them assemble up-wind at a distance not less than 80 m from the spill source.
 2. Ensure that all safety measures are taken for the protection and preservation of human life.
 3. Restrict further field operations that may interfere with the safe and sustained response.
 4. Evaluate the size of the organization to be activated and make assessments relating to the necessity to call our response contractors.
 5. Implement protective measures and containment procedures to minimize environmental damage.
 6. Supervise, when safe, the response crew to:
 - isolate and eliminate all ignition sources
 - stop or reduce the spill if safe to do so
 - ensure safety and security of all personnel and equipment at the spill site.
 7. Activate regular notification procedures.
 8. Oversee field operations during clean-up.
 9. Follow guidelines and regulations for disposal of oil and debris, in consultation with Provincial and Federal government agencies.
-

10. Direct spill containment, clean-up, and disposal activities.
11. If required, supervise contractors performing containment, clean-up, and disposal operations.
12. Provide reports to the Project Manager as information becomes available.
13. Ensure that response crew members are regularly briefed.
14. Document all events.

The Response Team, under direction of the OSC, will:

1. Stop or reduce the spill, if safe to do so.
2. Deploy additional spill response equipment, as directed.

8.1.7 Introduction to Land-Based Oil Response Techniques

Quick containment of oil on land is necessary to ensure that spilled oil does not spread over a large surface area, thus increasing the potential for greater surface coverage and subsurface contamination. This is particularly so when spills occur in loosely-packed materials such as sand, soil, and rock (pebbles, cobbles, boulders). The potential for penetration and spreading increases with light products such as diesel, oil, and gasoline.

It should be remembered that surface spills will spread outwards and downwards in a conical shape until such time as the spill reaches the water table. At this point the spill will move horizontally in the direction of the water table.

Spills occurring underground, within soils, are more difficult to deal with and should be approached with extreme caution.

8.1.7.1 Containment Strategy and Considerations

All oil-based products are heavier than air and will flow, either as a liquid or gas, to low points downhill, underground, and away from the initial spill source. However, the first priority must always be for the protection and preservation of life. Some considerations when assessing a spill are:

- a) What product has been spilled?
-

If it is a volatile product (i.e. gasoline) there must be an immediate consideration of the potential for fire and explosion from a nearby source of ignition. Main actions must include:

1. Removal of ignition sources.
2. Notification and evacuation of personnel at risk.
3. Completion of an assessment, based upon your observations to determine if it is safe to commence any spill countermeasures operations. If it is not safe, do not respond.

b) What is the appropriate response technique?

In most cases, a simple trench or sorbent boom can be placed ahead of the spill on the downhill side. Spilled oil will then flow into the trench and can be removed with sorbent boom, pads, and buckets, or pumps. Once removed, contaminated oil/soil can be placed into drums or containers for later disposal. The Newfoundland Labrador Department of Environment and Conservation will be consulted prior to disposal.

c) What equipment is required?

If the quantity of oil contaminated soil is minor, one or two personnel may be suitable for the task. However, if quantities rise above 100 litres, the use of additional personnel and heavy equipment to assist the response operation may need to be considered. An important consideration when using heavy equipment is that the use of heavy equipment should not worsen the environment (eg. by continuously driving across virgin soil). Under these circumstances, advice from the Department of Environment and Conservation would be appropriate.

The following personal protective equipment should be available to all response personnel:

- hard hat
 - goggles
 - canister respirator suitable for organic vapours
 - coveralls
 - petroleum-resistant gloves
 - safety boots
 - eye wash
 - barrier cream
 - soap and clean water.
-

8.2 Forest Fires

The following measures will be taken to prevent the occurrence and spread of forest fires:

- all flammable waste shall be disposed of on a regular basis
- fire fighting equipment suited to the size of the work force and associated equipment shall be maintained on site at all times
- all personnel will be made aware of this equipment and trained in its usage
- in the event of a fire all reasonable means will be used to immediately extinguish it
- the OSC shall assume the initial role of supervising the response actions in the vent of a forest fire
- fires will be immediately reported to the RCMP at 709.635.2173 and to the Department of Forestry using the forest fire 24-hour emergency telephone line at 800.898.4528, indicating such information as:
 - ▶ name and telephone number of the reporter
 - ▶ time of the fire
 - ▶ approximate size of fire (m², acres, etc.)
 - ▶ exact location of the fire.

8.3 Wildlife Encounters

The following measures will be implemented to minimize the occurrence of negative wildlife encounters during the life of the project:

- hunting/trapping will not be permitted within the proposed development area
 - feeding of wild animals will not be permitted during construction and operation of the facility
 - regular waste disposal and careful handling of food during construction will minimize the attraction of the project site to area wildlife
 - all construction and other site traffic will yield right-of-way to any wildlife encountered
 - personnel at the development site shall not chase, catch, divert, follow, or otherwise harass, wildlife by vehicle or on foot
 - yield the right-of-way to wildlife
 - all personnel should be aware of the potential for encounters with wildlife and instructed to immediately report all sightings to the project manager; if required, the Wildlife Division will be notified
-

- this area is known habitat to the Newfoundland Pine Marten; however, the development itself is not located within the critical habitat area for the Marten; the development will be completed with the minimum amount of clearing/cutting, in an effort to maintain as much natural habitat as possible
- note that the displacement and release of any animal, if required, is the sole jurisdiction of the Wildlife Division and is to be undertaken only under Wildlife supervision.

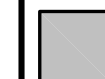
8.4 Historic Resources

The discovery of significant historic resources are not anticipated during the life of this project, however, the following procedures have been put in place to protect the integrity of any potential artifacts or other archaeological attributes associated with the site:

- all project personnel must realize that under the *Historic Resources Act* all artifacts and archaeological sites are protected and **must not** be disturbed. The discovery of any suspect items of archaeological relevance must be reported immediately to the Site Manager. The Site Manager will then immediately cease any further work in the area of the discovery and report the suspect find (with details) to the Provincial Archaeologist (Ms. Martha Drake) at 709.729.2462. or fax 709.729.0870
- any further site work will then require approval of the Provincial Department of Tourism Culture and Recreation (Culture and Heritage Division).

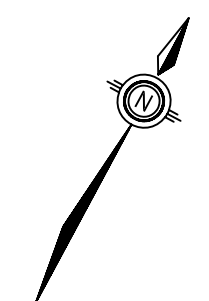
NOTES

1. DO NOT SCALE FROM DRAWINGS.

 AREA OF PHASE 1 CLEARING AND GRUBBING.



Newfoundland & Labrador Consulting Engineers Ltd.
Consulting Engineers and Project Managers
St. John's & Marystown, Newfoundland and Labrador

GRID NORTH	STAMP
	

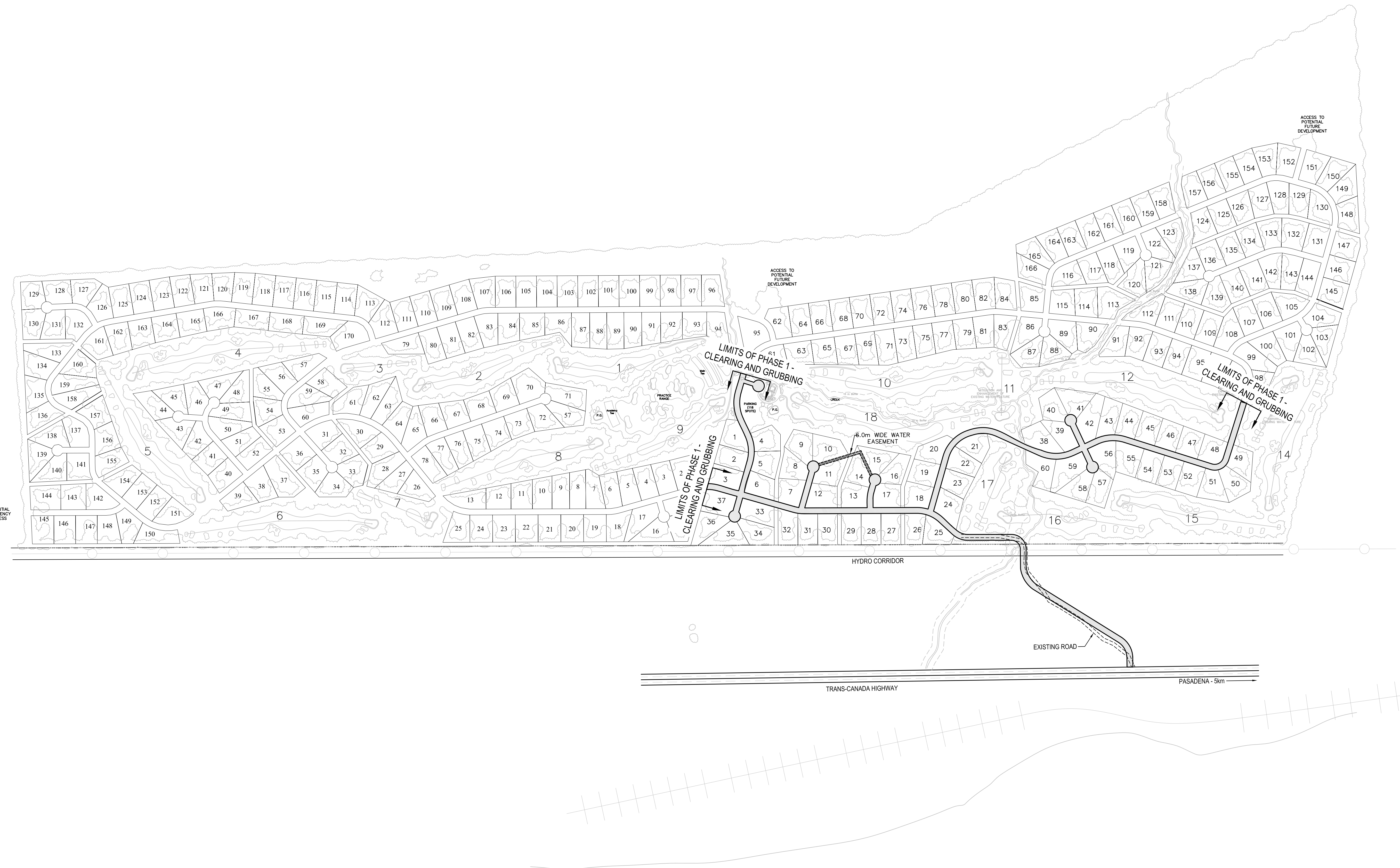
NO.	REVISIONS	BY	DATE

CLIENT
TIMBERLAND GOLF RESORT INC.
PASADENA
NEWFOUNDLAND & LABRADOR

PROJECT
TIMBERLAND GOLF RESORT

TITLE
**PHASE 1-
CLEARING AND GRUBBING PLAN**

DESIGNED	R.N.	APPROVED	R.N.
DRAWN	R.J.B.	CHECKED	R.N.
SCALE	1:5000	DATED	JUNE 2006
PROJECT NO.	4031	DRAWING NO.	G1



REFERENCE ONLY