HIBERNIA DRILL CENTRES
CONSTRUCTION AND OPERATIONS PROGRAM

PROJECT DESCRIPTION

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1.0 INTRODUCTION

The Hibernia field is located approximately 320 km east-southeast of St. John's, Newfoundland and Labrador, Canada on the Grand Banks and within the Jeanne d'Arc Basin. The field contains two principal reservoirs that are being developed from the Hibernia gravity base structure (GBS): the Hibernia and Ben Nevis-Avalon (BNA) formations.

The existing production platform has 64 drill slots, many of which have been used for Hibernia and BNA development drilling. Drilling complexities associated with some of the extended reach wells as well as the lack of available drill slots within the GBS negates full resource recovery using wells drilled from the GBS alone. While slot recovery strategies (i.e. casing milling) have been identified and implemented and will alleviate this constraint to some degree, slot recovery strategies alone will not be sufficient to enable timely and efficient development of the resource. There is potential for a number of additional wells to be drilled over the remaining life of the project, therefore, subsea development options must be considered.

As reflected in the original Hibernia Development Project Environmental Impact Statement, five subsea developments were envisioned to enable maximum utilization of the identified and potential resources. The GBS has been equipped with a number of J-tubes to facilitate subsea tie-backs. The subsea developments, however, were originally anticipated to be all located within the Significant Discovery Area (SDA) and did not involve the installation of glory holes. Up to six subsea developments that will include drill centres positioned inside glory holes may now be required through the life of the Hibernia production facility and these may or may not be located within the original SDA.

The Hibernia South Extension (HSE) drill centre is the first planned subsea tie-back to the Hibernia GBS. Glory hole installation is tentatively scheduled for 2011 however, this could vary based on project approval timing and dredging vessel availability. The installation of other drill centres and associated glory holes are not in the planning stages at this time but do have the potential to proceed as resources are developed. The current priority is development of the HSE located just south of the Hibernia field in PL1005.

This document provides a project description intended to assist the Canada-Newfoundland and Labrador Offshore Petroleum Board and other responsible authorities in determining the requirement for and scope of an environmental assessment for the project as prescribed under the *Canadian Environmental Assessment Act* (CEAA).

2.0 PROJECT DESCRIPTION

2.1 Project Overview

Hibernia Management and Development Company Ltd. (HMDC), and associated offshore land licence owners are proposing a project that will consist of, but may not be limited to, the following activities;

1. Construction, installation, operation, maintenance, modification, decommissioning and abandonment of up to six drill centres within glory holes (up to approximately 70 m X 70 m X 10 m in size) that contain the equipment necessary to support the extraction of petroleum resources. Each of the six drill centres could contain up to eleven injection or production wells.

2. Glory hole dredge spoils disposal in one or more approved areas.

3. Construction, installation, operation, maintenance, modification, decommissioning and abandonment of subsea flowlines/umbilicals and associated equipment (inclusive of water and oil flowlines) tied back to the Hibernia GBS. This includes any associated seabed trenching, excavation, covering and/or soil deposition.

4. Topsides equipment located on the Hibernia GBS - master control station, topsides umbilical termination assembly, hydraulic power unit, electrical power unit, chemical injection skid and methanol injection skid.

5. Drilling and workovers of subsea wells.

6. Vertical seismic profiling and/or checkshot profiling.

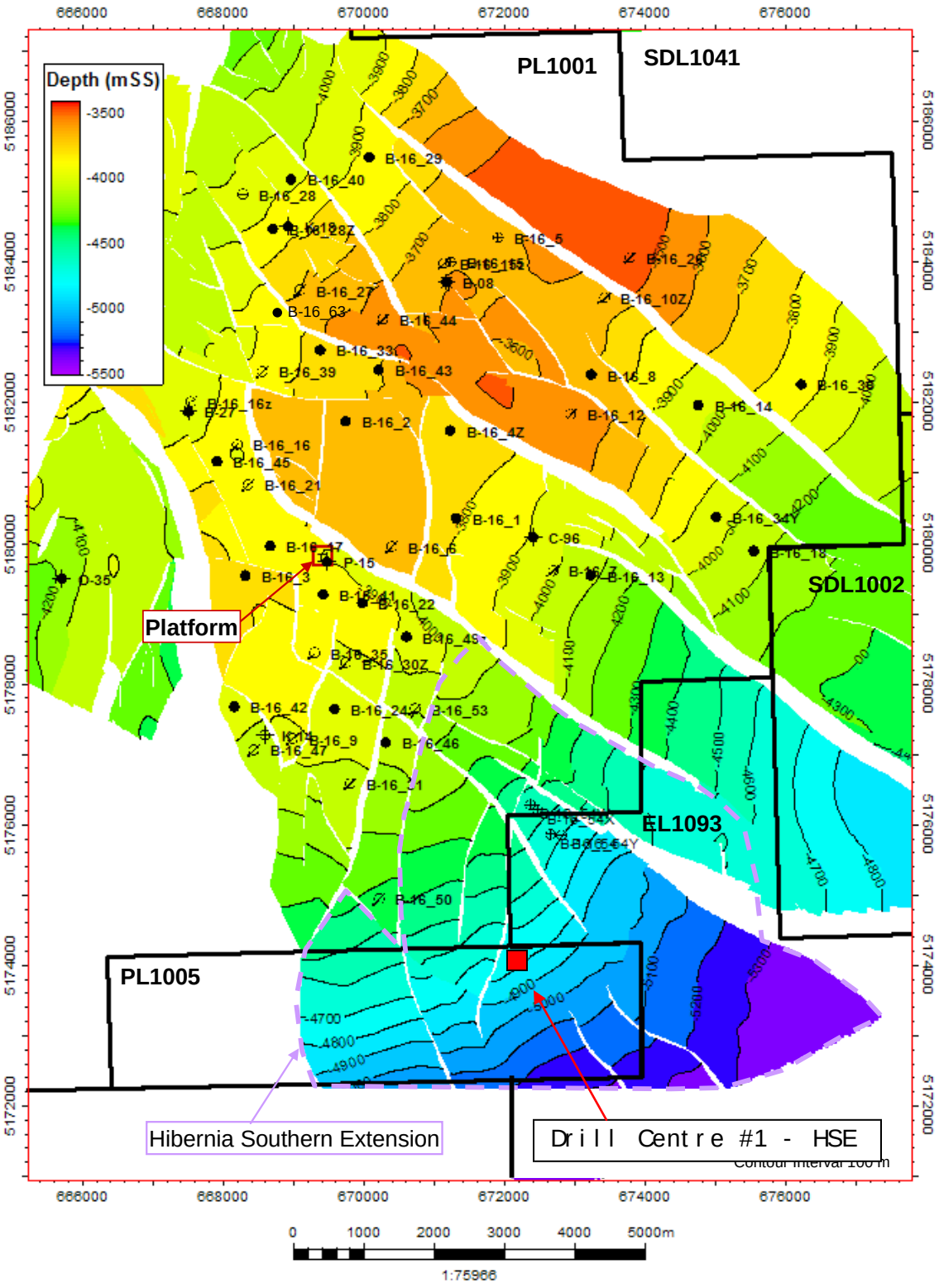
7. Geophysical / geotechnical investigations such as well site geohazard surveys.

8. Operation of support craft associated with the above activities including but not limited to vessels for glory hole excavation, offshore drilling platforms (floating rigs, drill ships, jack-up rigs), supply vessels, standby vessels and helicopters.

The six drill centres conceptual scope includes up to 11 wells originating from one or more subsea templates or manifolds. The drill centres which contain the subsea wellheads will be located in glory holes to protect them from iceberg scour. The location and layout of subsea equipment will provide ease of access for inspection, testing, repair, replacement, or removal. The exact configuration of the wells in each of the six drill centres is not presently known and will likely vary between drill centres. Subsea facilities will include all equipment necessary for the safe, efficient operation and control of subsea wells, and transportation of injection fluids between the GBS and the drill centres.

The six drill centres and associated glory holes may be located at any point within PL's 1001 and 1005, EL's 1092 and 1093, and SDL's 1001, 1002, 1003, 1004, 1005 and 1041 at any point in time over the duration of the project as adjusted over time. However, some project activities described above may occur outside the licence areas indicated. The project area as described in the environmental assessment report will therefore encompass additional areas surrounding these licence areas. The installation of five of the six drill centres remains subject to the identification of economically recoverable reserves, as well as, commercial and contractual agreements between Hibernia's owners and the area license holders. The first planned drill centre is the HSE drill centre, which will be located just south of PL1001 and inside of PL1005 as shown in (Figure 1).

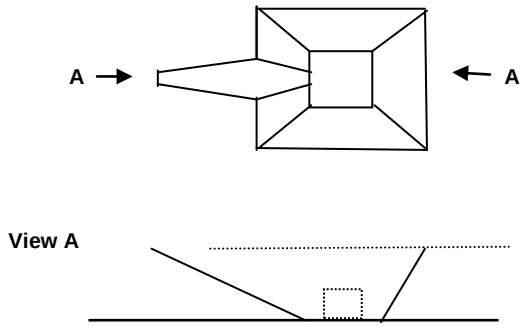
Figure 1 Base Hibernia Reservoir Depth Structure Map Indicating HSE and Drill Centre # 1 - HSE



2.2 Construction and Installation

Glory holes will be excavated using proven construction methods for the Grand Banks. Subject to confirmation of soil conditions by a geotechnical survey, a trailing suction hopper dredge, or acceptable alternate dredging technology (e.g. clam dredge), will be used to excavate the glory hole. The suction hopper vessel lowers the suction pipe to within 10 m of the seabed. A heading parallel to the longest dimension of excavation is maintained, and at the start of the depression the suction head is lowered and the seabed excavated as the vessel moves forward. The suction head is lifted at the far end of the glory hole. The number of passes required to excavate to any specific depth depends on the consistency of seabed material. Subsequent passes overlap to ensure layers are excavated correctly. Slopes at the edge of the depression are achieved by creating consecutive narrower cuts over the layer being removed. A graded feed-in ramp will be constructed to allow the pipelines and umbilical to enter the glory hole. A schematic of the glory hole is illustrated in Figure 2.

Figure 2 Typical Glory Hole (Aerial/Profile View)



Each glory hole will be excavated to a sufficient depth (approximately 10 m) to ensure protection of subsea equipment from iceberg scour. Conceptually, the length and width are nominally 30 m and 30 m, respectively, but may be larger (up to a nominal size of 70 m x 70 m) if two manifolds are required. Soil conditions are expected to include scattered hard layers with potential boulders over the excavation depth. Dredge materials will be loaded into the hopper and discharged by releasing through the bottom doors at one or more approved disposal locations.

The conceptual design for each drill centre may include both water injection and production flowlines running from the platform outlet possibly along with a high pressure stimulation line and umbilical to the drill centres. Both injection and production flowlines may be installed by either reel-lay or S-lay vessel with the high pressure (HP) stimulation line in a piggy-back installation arrangement. The main umbilical will be laid away from the platform in the same manner. Both ends of the flowlines and umbilical will have weak links or break away connectors as a contingency for icebergs or other threats. Flowlines may be rigid or flexible and will be chosen when considering the project installation methodology. The flowlines will be laid on the

seafloor with stitch rock dumping or concrete mattresses for stability. Concrete mattresses will also be positioned over the flowlines near the GBS and will be installed by DSV or another vessel of opportunity for protection against dropped objects. Similar to that which is in place for the offshore loading system, Hibernia's *Ice Management Plan* will be amended as required to reflect operational procedures in the event of an iceberg threat to the new subsea flowlines. Additional flowline protection measures will be evaluated and those deemed necessary will be implemented. Depending on the configuration of drill centres, flowlines may or may not be interconnected between drill centres however existing compatible flowlines will be used whenever possible in subsequent drill centre installations.

A riser will be installed inside an existing J-tube in the GBS. Tie-ins may involve rigid spool pieces installed between the riser and pipeline by a diving support vessel (DSV) and may be connected by divers. Well tie-ins may be performed by either a semisubmersible or DSV (diverless) during the subsea construction program. Trees, templates, and manifolds may be installed by mobile offshore drilling unit (MODU), whereas pipeline-to-manifold tie-ins may be made by divers. Hydraulic/electric flying leads will be connected by remotely operated vehicle (ROV).

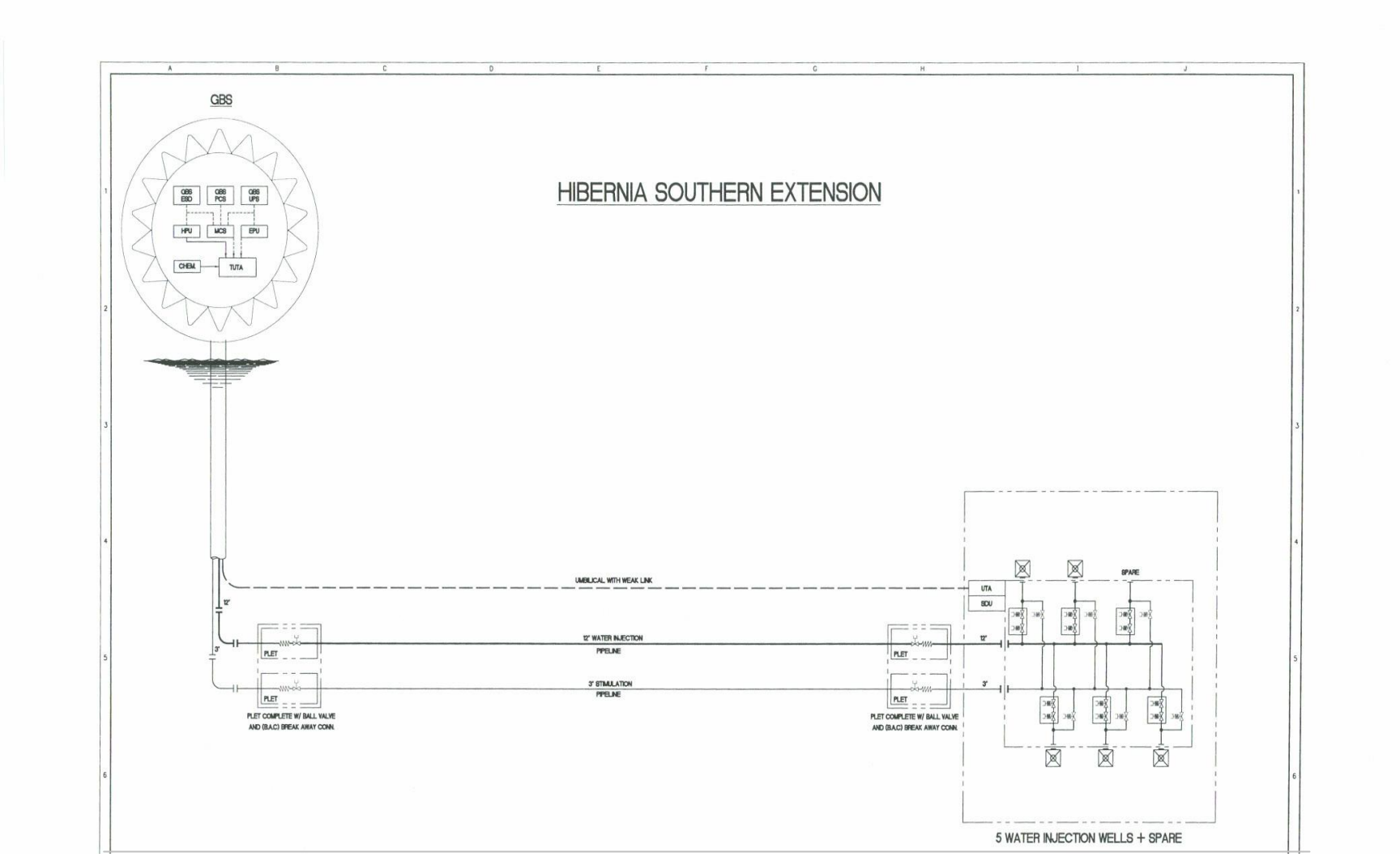
2.3 HSE Development - Drill Centre and Subsea Facilities

A conceptual project design has been developed for drill centre # 1 - HSE (Figure 3). Components of the proposed HSE drill centre include:

1. A glory hole of up to 70 m X 70 m X 10 m in dimension.
2. A water injection flowline of between 12" to 16" for a distance of approximately 8 km (with umbilical and 3" stimulation line) with weak links.
3. A drilling center with up to an 11-well capacity manifold(s), umbilical termination assembly, control pods, jumpers and flying leads. A template or cluster arrangement may be employed.
4. A flowline tie-in to the water injection manifold.
5. Seven oil producers and two water injectors drilled from the platform.

Specifics of the HSE drill centre conceptual design may change as designs are finalized. Well configurations and flowline characteristics for subsequent drill centres may differ from the HSE development described above, but can be generally inferred from the details provided in Sections 2.1 and 2.2. The HSE development will be led by HMDC and the licence holders of PL1001, PL1005, and EL 1093.

Figure 3 HSE Subsea Concept Layout



The approximate location of the HSE drill centre and glory hole (within a 500 m radius) is 5174100 N, 672020 E (UTM Zone 22, NAD 83 datum) and is shown in relation to the GBS in Figure 4. The notional flowline route to the drill centre and glory hole location and the route exiting the GBS respectively are illustrated in Figures 4 and 5. Final locations will be adjusted based on geotechnical and geohazard surveys. Both the well configuration and flowline configuration described for the HSE drill centre can be considered tentative and subject to further engineering review before the final design is determined.

Figure 4 Flowline/Umbilical Routing to Drill Centre # 1- HSE

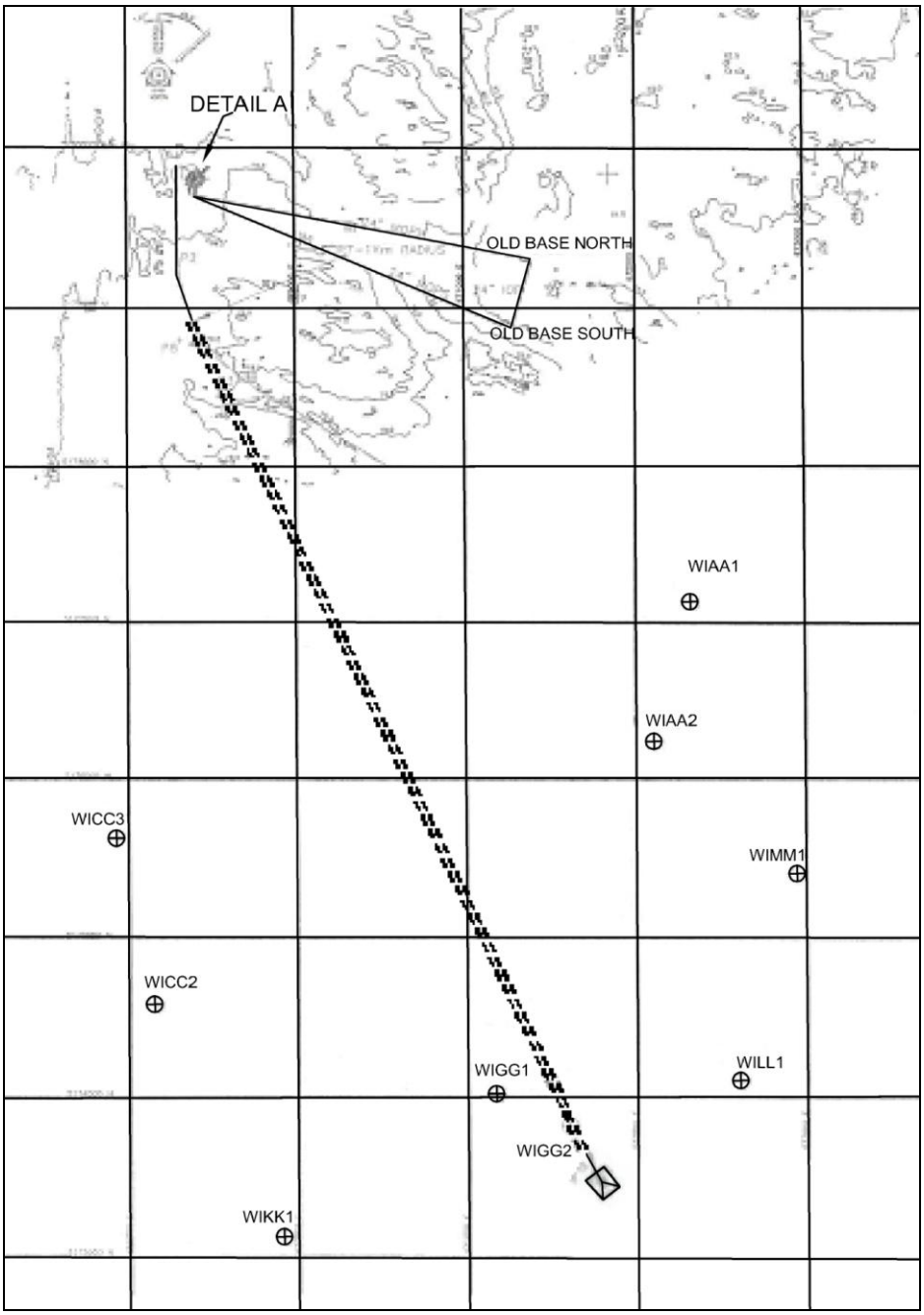
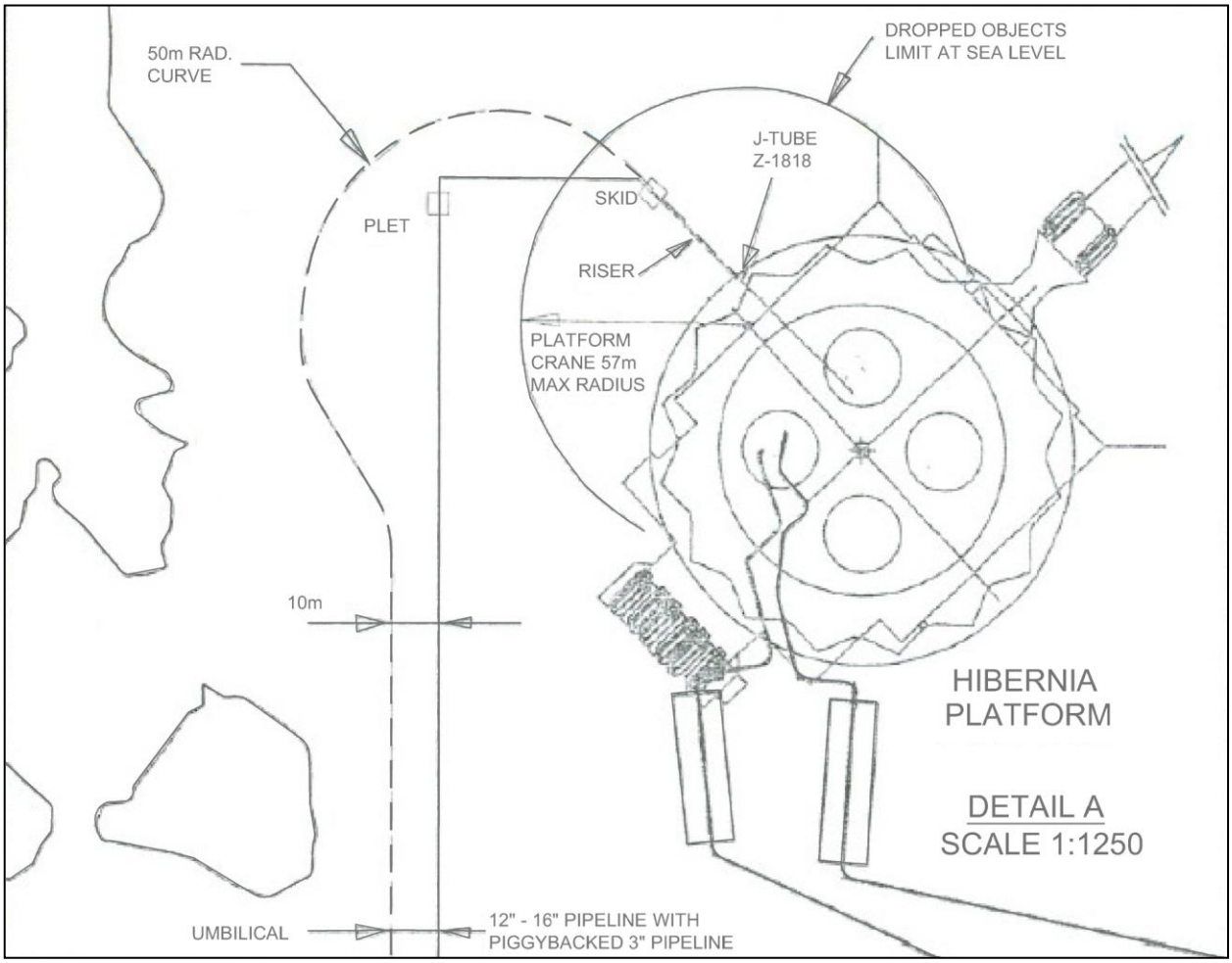


Figure 5 Flowline/Umbilical Exiting GBS (Detail A)



2.4 Operations

2.4.1 Drilling

A drilling contractor will operate a semi-submersible, jack-up or drill ship MODU to drill the subsea wells associated with this project. More than one drill rig may be required to operate simultaneously over the course of the project. All drill rigs to be considered for this project will have been constructed to have capability for drilling in the applicable water depths and environment and the functional specifications of the well design. The rig will have a valid Certificate of Fitness for Canadian waters issued by a Certifying Authority; a Transport Canada Marine Safety Inspection will be conducted as part of the requirements for a Letter of Compliance issued by that agency.

All activities required to support a drilling program will reflected in the associated Canada-Newfoundland Benefits Plan and/or components of the Safety Program update documentation.

2.4.2 Vessel Support

HMDC's existing fleet of Supply/Standby vessels will be used to support the offshore construction and installation operations associated with this project. However, the type of drill rig used and the number and type of vessels required may necessitate identifying external vessel resources.

2.4.3 Helicopter Support

A helicopter contractor will be utilized to provide helicopter support for the proposed development. The contractor will provide all auxiliary flight services including First Response Equipment and technicians; alternate landing site complete with weather station, aviation fuel, and helicopter passenger transportation suits; and an aircraft maintenance and passenger handling facility.

2.4.4 Shorebase Support

The project will be managed and operational decisions will continue to be made from offices in St. John's, Newfoundland and Labrador. A shorebase contractor will provide marine base facilities to support project activity and to the extent necessary it is anticipated that the St. John's Port Authority or other acceptable facility could provide the appropriate wharfage for the dredge vessel. Existing port facilities are capable of servicing multiple operations with the existing infrastructure including office space, crane support, bulk storage and consumable (fuel, water) storage and delivery capability.

Warehouse facilities will be provided by a contracted warehouse provider and project contractors as required and will consist primarily of storage for tubular goods and the rig contractor(s) equipment.

Operations and coordination of voice and data communication services from offshore installations and vessels could be provided from a central communications facility in St. John's. The primary communications link between the offshore installation(s) and the project operations office in St. John's will be via a dedicated C-Band satellite service.

2.5 Decommissioning

At the end of the production life of the project, the operator will decommission and abandon the site according to C-NLOPB requirements and relevant legislation. Subsea infrastructure may be removed as required and wells will be plugged and abandoned.

2.6 Project Phases and Schedule

As previously indicated, among the six drill centres only the drill centre # 1 - HSE is presently in the planning stages. A notional schedule for the HSE development is presented in Table 1 below. While the installation of the five remaining drill centres is subject to a number of factors, the notional schedule for the HSE development can be considered generally applicable to all subsequent subsea developments with respect to sequence of events, duration and time of year.

The construction and installation schedule for the HSE drill centre is tentatively planned for 2010 to 2012; although the start/finish dates can vary by one year (i.e., earlier and later) due to a number of factors such as vessel and equipment availability. Geotechnical and geophysical investigations for site selection is tentatively planned to occur in 2009. Additional drill centres have not been scheduled at this time.

Table 1 Proposed HSE Project Schedule

Project Activity	Timing
Geotechnical & Geophysical Investigations	Summer – Fall 2009 to commence and complete.
Glory Hole Excavation	Summer – Fall 2011 to commence and complete
Subsea Equipment Installation	Summer – Fall 2012 to commence and complete
Drilling	Summer 2012 – Fall 2014 to commence. Drilling to be completed year round over several years.
Production Operations	Fall 2012 to commence. Current depletion of HSE estimated in 2036 but may be extended.
VSP/ Checkshot surveys	May occur any time of the year during drilling and production phases (workovers)
Abandonment	After 2036

3.0 REGULATORY REQUIREMENTS

The C-NLOPB, the lead Responsible Authority, advises that Authorization(s) under the *Canada-Newfoundland Atlantic Accord Implementation Act,* are required for the installation of drill centres and associated glory holes to proceed and therefore an environmental assessment pursuant to *CEAA* will be required.

From preliminary consultations with Fisheries and Oceans Canada and Environment Canada, it is also anticipated that a *Fisheries Act* Subsection 35(2) Authorization for works or undertakings resulting in harmful alteration, destruction or disruption (HADD) of fish habitat and a Disposal at Sea Permit Application under the *Canadian Environmental Protection Act* will also be required.

The proposed project is outside of the scope of the project previously assessed in the original Hibernia Development Project Environmental Impact Statement but is contained within the Study Area previously assessed. Thus, a CEAA compliant screening level environmental assessment will be required. All project activities proposed herein will occur within the defined Study Area described in Hibernia's original Environmental Impact Statement.

Multiple environmental assessments and environmental monitoring programs (EEM) have been conducted within this Study Area. Ample relevant existing information has been collected and numerous environment assessments have evaluated the effects of analogous project activities. No new field data collection is considered necessary at this time. HMDC is aware that the Hibernia EEM program will need to be amended to include an assessment of potential effects from the proposed new drill centres.

During the course of the environmental assessment, HMDC will consult with stakeholders with an interest in the project. Those consulted and the results of those consultations will be reflected in the assessment report.