Developer Response to Aboriginal Affairs and Northern Development Canada

The Developer (Hamlet of Tuktoyaktuk, Town of Inuvik and GNWT Department of Transportation) is pleased to provide the following responses to the conformity review comments provided in Aboriginal Affairs and Northern Development Canada's (AANDC, formerly INAC) letter dated June 27, 2011.

This document is provided in addition to the Addendum to the Environmental Impact Statement submitted to the Environmental Impact Review Board (EIRB) in response to the EIRB's letter dated July 15, 2011: *Conformity Statement and Board Direction Regarding the Draft Environmental Impact Statement for the Hamlet of Tuktoyaktuk, Town of Inuvik and GNWT – Construction of the Inuvik to Tuktoyaktuk Highway, Northwest Territories* [02/10-05].

The Developer has attempted to respond where it was clear that specific information was requested. Where no specific comments were made by AANDC or the comments were "it is unclear if…" the Developer did not respond.

1. GENERAL COMMENTS

Reviewer's Comments:

AANDC wishes to emphasize the importance of the proponents identifying their preferred alignment as soon as possible, in order that all parties and the EIRB may fully understand and consider the potential significant adverse impacts of the project during the environmental assessment phase. From reviewing the May 31 EIS, AANDC is unclear as to which alignment will ultimately be the preferred option. Moreover, AANDC understands that the proponents intend to gather additional baseline data this summer, which may lead to revisions to the preferred alignment. In order for AANDC to provide the Board with its best technical advice, the proponents must make the new baseline data and their analysis of the new data available to all parties well before the conclusion of the technical review phase of the assessment.

Developer's Response:

The Developer acknowledges that the preferred alignment of the Primary 2009 route warrants clarification. As discussed in the EIS, in the vicinity of the Husky Lakes area, the Project Team has identified that the 2010 Minor Realignment recommended by Inuvialuit interests (Alternative 3) is a promising route option that will likely be adopted in the detailed design stage based on additional information to be gathered in future survey, geotechnical and other investigations. Thus for the Technical Review, the Developer would recommend that the Primary 2009 route, with incorporation of the Alternative 3 minor realignment, as shown in Figure 1, be considered as the preferred route for the proposed Highway.

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Tuktoyaktuk

Tuktoyaktuk Peninsula

Kittigazuit Bay

135km

130km

120km

110km

100km

90km

80km

70km

60km

50km

40km

30km

20km

10km

0km

177

27

27A

27B

26

170

171

304

172

24A

173

174/306

35a

305

23

23A

176

175

308

307

309

31

Parsons Lake

30a

29a

Hans Creek

Hans Bay

325

314

23a

Swimming Point

Reindeer Station

18

Jimmy Lake

2.44

2.43

2.45

13a

2.46

Noell Lake

Husky Lakes

Zed Creek

Sitidgi Lake

I401A

Inuvialuit Settlement Region

Gwich'in Settlement Area

Inuvik

N

S

E

W

LEGEND

- Stream Crossing
- Stream Crossing - Potential Bridge
- Regional Study Area (15 km buffer)
- Preferred Route
- Alternative 3 (2010 Minor Realignment)
- PWC 1977
- Navy Road
- Inuvialuit 7(1)(a) Lands
- Inuvialuit 7(1)(b) Lands
- Gwich'in / Inuvialuit Boundary
- Borrow Sources
- Husky Lakes 1000m Setback
- Trail
- Contour
- Watercourse
- Waterbody
- Wetland
- Sand

NOTES

Base data source: NTS 1:250,000

Borrow Sources, ILA Lands, Husky Lakes 1000m Setback: Inuvialuit Land Administration

ISSUED FOR USE

PROPOSED INUVIK-TUKTOYAKTUK HIGHWAY

2009 Route with Alternative 3 (2010 Minor Realignment)

PROJECTION: UTM Zone 8	DATUM: NAD83		
Scale: 1:400,000 (5 2.5 0 5 10 Kilometres)			
FILE NO.: V23201322_EIRB_Map001_Alignment.mxd			
PROJECT NO.: V23201322	DWN: KW	CKD: TS	REV: 2
OFFICE: EBA-VANC	DATE: August 19, 2011		

Town of Inuvik

Northwest Territories

KIGGIAK - EBA

Figure 1

As stated in the EIS, the Developer has committed to conducting further necessary field studies along the proposed Highway alignment and at proposed borrow sites.

The Developer has provided a revised Section 2.7.7 (Recent Studies Completed and Additional Field Studies Required) in the Addendum to the EIS submitted to the EIRB in response to Category 3 Conformity Request #5.

2. TERMS OF REFERENCE - SECTION 5.2

Reviewer's Comments:

Appears to meet TOR requirements, although unclear which alignment will ultimately be the preferred option.

Developer's Response:

As indicated in the previous response, for the Technical Review, the Developer would recommend that the Primary 2009 route, with incorporation of the Alternative 3 minor realignment, be considered as the preferred route for the proposed Highway.

3. TERMS OF REFERENCE - SECTION 5.5

Reviewer's Comments:

Does not appear to meet TOR requirements - Discussion of CEAA process appears to be missing, discussion of AANDC land tenure process appears to be missing, borrow sites require both land use and quarry permits.

Developer's Response:

The Developer has provided a revised Section 1.5 (Regulatory Approvals and Non-Regulatory Requirements) in the Addendum to the EIS submitted to the EIRB in response to Category 3 Conformity Request #1.

4. TERMS OF REFERENCE - SECTION 5.6

Reviewer's Comments:

Unclear from s 1.6 which guidance documents or BMPs were used and if modifications are proposed.

Developer's Response:

The Developer has provided a response on this topic in the Addendum to the EIS submitted to the EIRB, in response to Category 3 Conformity Request #2.

5. TERMS OF REFERENCE - SECTION 5.6.5

Reviewer's Comments:

Does not appear to meet TOR requirements – unclear if any project components were explicitly identified as warranting a precautionary approach.

Developer's Response:

The Developer has provided a response on this topic in the Addendum to the EIS submitted to the EIRB, in response to Category 3 Conformity Request #3.

6. TERMS OF REFERENCE - SECTION 6.0

Reviewer's Comments:

Does not appear to meet TOR requirements – for example, management plans for the entire project do not appear to have been provided.

Developer's Response:

The Developer acknowledges that specific management plans were not provided in conjunction with the EIS. The specific wording in the Terms of Reference was "The Developer shall submit environmental management plans for specific areas of concern it feels are appropriate to ensure the environmental goals set out in Table 1 are being achieved as well as possible over the life of the project." In the EIS the Developer focused on identifying potential Project impacts and mitigations. However, the Developer provided commitments to develop the necessary management plans prior to the commencement of construction. These will be developed based on the discussions during the Environmental Review, and detailed engineering. Some of these plans will be required by regulators, either as submissions with applications or at a time specified by the regulator. These plans will be updated to include regulatory terms and conditions and reviewed from time to time.

The Developer's commitment includes the development of an overall "umbrella" Environmental Management Plan (EMP) to be prepared prior to construction and a number of supporting plans to cover specific environmental management issues including:

- Erosion and sediment control;
- Dust management;
- Pit development for borrow sources;
- Fish and fish habitat protection;
- Wildlife management;
- Archaeological site protection;
- Health and safety;
- Waste management;
- Fuel storage guidelines;

- Hazardous waste management;
- Transportation of hazardous materials;
- Emergency response and spill contingency planning; and
- Adaptive management.

Further information on management plans is provided in Appendix E of the EIS, including INAC's (AANDC) guidelines for contingency planning and several examples of previous plans developed for construction of the Tuktoyaktuk to Source 177 Access Road.

These plans will be prepared upon approval of the Project, prior to construction, and will be submitted for regulatory approval prior to use. The EMP will clearly define expectations for compliance monitoring, responsibilities, requirements for training, and reporting.

7. TERMS OF REFERENCE - SECTION 6.1

Reviewer's Comments:

Does not appear to meet TOR requirements – unclear from 2.1.2 which alignment will ultimately be the preferred option.

Developer's Response:

Section 2.1.2 (Alignments Considered in the Current Stage of Project Development) of the EIS discusses the Primary Alignment and the various minor re-alignments proposed in the Husky Lakes area. Included in that section is a description of Alternative 3, the 2010 Minor Realignment, recommended by Inuvialuit interests to modify Alternative 1 (2009 Minor Realignment) and to provide a more direct route. This information was presented to the Developer just prior to submission of the Project Description Report, and is identified as an option in this EIS.

As stated, the Developer considers Alternative 3 in the Husky Lakes area to be a promising route option, but the engineering considerations related to this option in the field have yet to be assessed. However, the Developer feels that subject to Project approval and additional field study data, Alternative 3 would be further considered and likely adopted in the detailed design stage.

Based on this information provided in the EIS, the Developer acknowledges that the preferred alignment of the Primary 2009 route warrants clarification. Thus as previously indicated, for the Technical Review, the Developer would recommend that the Primary 2009 route, with incorporation of the Alternative 3 minor realignment, be considered as the preferred route for the proposed Highway.

8. TERMS OF REFERENCE - SECTION 6.3-A

Reviewer's Comments:

CEAA decision is not noted in schedule in Table 2.7.2-1 (p.92).

Developer's Response:

The Developer acknowledges that the need for a CEAA decision was not specifically identified in Table 2.7.2.1. The Developer has provided a revised Section 1.5 (Regulatory Approvals and Non-Regulatory Requirements) in the Addendum to the EIS submitted to the EIRB in response to Category 3 Conformity Request #1 that will apply to Table 2.7.2-1.

9. TERMS OF REFERENCE - SECTION 6.3-B

Reviewer's Comments:

Does not appear to include discussion of the field work scheduled to be conducted in summer 2011.

Developer's Response:

The Developer has provided a revised Section 2.7.7 (Recent Studies Completed and Additional Field Studies Required) in the Addendum to the EIS submitted to the EIRB in response to Category 3 Conformity Request #5 that addresses this comment.

10. TERMS OF REFERENCE - SECTION 6.4.1

Reviewer's Comments:

Section 2.7.5 of the EIS does not appear to include a discussion of long-term management responsibilities, if any, of the Town and Hamlet.

Developers Response:

As indicated in Section 2.7.5 (Roles and Responsibilities) of the EIS, the Developers or Project Team for the proposed Inuvik to Tuktoyaktuk Highway are the Hamlet of Tuktoyaktuk, the Town of Inuvik and the GNWT Department of Transportation. The Hamlet of Tuktoyaktuk and Town of Inuvik provide political and administrative support for the Project, particularly during the permitting process. During the construction phase, GNWT DOT will coordinate with these communities regarding matters such as water supply and waste management.

Section 1.3 (Development Purpose and Justification) of the EIS summarizes the range of local, regional and national benefits achieved through construction of the Highway. These benefits translate into the ultimate goals and objectives of the territorial and federal government of increasing employment, improving the nation's infrastructure, and developing capacity. This is reflected in the Government of Canada and Government of the Northwest Territories' continued interest in the Project (since the 1970s) and current funding commitments.

11. TERMS OF REFERENCE - SECTION 7.1 - A

Reviewer's Comments:

With respect to the discussion and analysis of alternative technical and economical options, their feasibility, environmental effects, and how they contribute to sustainable development in the ISR, it is unclear if these sections include discussion of alternative means as well as alternative methods.

Developers Response:

Alternative means and methods for carrying out the construction of the proposed Highway are not specifically discussed in a particular section of the EIS. However, alternative means and methods considered are discussed in various sections of the EIS, including the Executive Summary, Section 1.2 (Development Overview), Section 2.2.5 (Technical Factors), Section 2.6.2 (Winter Season Construction), throughout Section 4.2 (Biophysical Components) and Section 4.5 (Effects of the Environment on the Project).

Important construction considerations are:

Placement of Frozen Fill over the Frozen Tundra versus Use of Cut and Fill Techniques

To protect the permafrost terrain along the proposed Highway alignment, typical 'cut and fill' techniques commonly employed in southern areas of the Northwest Territories and elsewhere will NOT be used for this Project. Such traditional construction methods cut into protective layers of surface vegetation and organics, with the possible result of significant damage to the terrain and thawing of the permafrost. Therefore, the current design involves the placement of frozen fill materials directly onto the frozen surface of the tundra along the Highway alignment.

Winter Construction versus Summer Construction

Another fundamental tenet of the Highway construction method is to complete most of the construction activities during the winter months rather than more typical summer construction, as used in southern Canada.

The advantages of winter construction are:

- Allows the use of temporary ice/winter access to borrow sources, without the need to construct all-weather access roads.
- Allows the placement of construction material directly onto frozen ground. This approach enables the establishment of a frozen core for the Highway and helps protect sensitive and ice-rich terrain.
- Minimizes potential effects on vegetation and soil from construction equipment that might occur if working in snow-free, thawed, or wet conditions.
- Promotes initial Highway stability through the placement of frozen borrow material directly onto frozen ground (with geotextile separation layer).

Following each year of winter construction, it is anticipated that most embankment settlement will occur in the top layers of the emplaced borrow material as it thaws, dries and consolidates. Little to no thaw is expected in the lower layers of the embankment, leading to greater Highway stability. This is also expected to reduce potential longer term maintenance problems.

Important elements of the Highway design are:

Embankment Design

The embankment design specifies fill thicknesses (heights) based on terrain type. A minimum embankment (or fill) height of 1.4 m will be required to construct the Highway using ice-poor granular materials. Granular materials which are low in fine particles, less than 0.02 mm, will be used to reduce the potential for frost heave or seasonal thaw settlement. This will be sufficient to protect the permafrost layer below the Highway surface.

Employing a standard fill thickness, particularly fill thicknesses lower than those specified for the construction of highways in permafrost areas would likely result in significant negative effects on the integrity of the permafrost layer below the Highway surface.

Application of Geotextile Fabric

Geotextiles typically perform two functions – separation and reinforcement (TAC 2010). The use of non-woven geotextile fabric between the existing ground and placed construction material (separation) serves to assist in maintaining the integrity of the Highway embankment. The reinforcement function assists in restricting embankment spreading over the softer surface terrain that will occur annually along the toe of the Highway embankment, which will be subject to annual freeze and thaw cycles within the active layer.

Culvert Design

Culverts will be sized generously (two to three times the size that would be used in non-permafrost areas) to compensate for design uncertainties, ice, snow and sediment blockage, and subsequent settlement. Alternatively, the use of frequent small culverts will be considered, where appropriate, instead of accumulating large flows by using large-diameter culverts.

Culvert wall thickness in permafrost regions is typically greater than the wall thickness of culverts in non-permafrost regions to account for loss of lateral restraint due to thawing permafrost foundation in soils and winter icing or frost heave. These factors can impose secondary loads. For example, the GNWT DOT specifies a 2.8 mm wall thickness for all culverts up to 1,200 mm diameter, regardless of fill height.

Reference:

Transportation Association of Canada (TAC). June 2010. Guidelines for Development and Management of Transportation Infrastructure in Permafrost Regions.

12. TERMS OF REFERENCE - SECTION 8.2.2

Reviewer's Comments:

With respect to the discussion of seasonal and annual variations of environmental components, as applicable, in relation to each phase of the development, does not appear to meet TOR requirements; information may be elsewhere in Section 4?

Developer's Response:

Available information on the seasonal and annual variations of environmental components is provided for all VCs in Section 3.1 (Biophysical Environment) and was generally used in the assessment section of the EIS (Section 4.2, Biophysical Components) as applicable in relation to the main phases of development of the Highway.

13. TERMS OF REFERENCE - SECTION 9.1

Reviewer's Comments:

The water quality and quantity section does not appear to meet TOR requirements.

Developer's Response:

The available information on water quality is provided in Section 3.1.5 (Water Quality) and available water quantity information is provided in Section 3.1.6 (Hydrology).

Additional information will be collected during baseline fisheries and fisheries habitat studies in 2011 and additional field studies will occur in 2012.

14. TERMS OF REFERENCE - SECTION 9.2

Reviewer's Comments:

With respect to the demonstration of the Developer's understanding of the Human environment of the proposed development area, through the presentation of appropriate and current data on Land Use, it is unclear to what extent this section incorporates information from AANDC and other government sources. p.438, 3.2.9.5 Past and Present Non-Traditional Land Uses - does not include past or present granular material extraction (borrow) sites (pits and quarries), but some of previous granular resource extraction activity (177, Parsons, 168) in study area is mentioned in 1.5.1 Previous Regulatory Approvals (p.15).

Developer's Response:

Section 3.2.9 (Granular Resources) acknowledges the use of granular activities in the region and advises the reader that additional information is contained in Section 2.6 (Project Components and Activities). In particular, Section 2.6.8.1 (General Information on Borrow Sources in the Area) describes the investigation and evaluation of granular material resources carried out since the 1950s, including investigations carried out for INAC. A comprehensive inventory of granular materials for the Inuvialuit Settlement Region was provided to the Developer by the ILA.

As discussed in Section 2.6.8.2 (Available Information on Borrow Sources in the Area), Figure 2.6.8-1 shows all known borrow sources in the general area between Inuvik and Tuktoyaktuk based on information from the ILA, INAC, Geological Survey of Canada, and Public Works Canada. The Highway borrow sources are also identified on Figure 2.6.8-1, with additional information being identified in Tables 2.6.8-1 and 2.6.8-2.

The ISR Granular Management Plan (2010), prepared by the ILA and INAC, includes a discussion on supply and demand of granular resources, which are based on several demand forecast reports (EBA Engineering Consultants Ltd. 1987; Hardy BBT Limited 1991; North of 60 Engineering Ltd. 1995 and 2001). Gravel demands for each community in the ISR are based on community maintenance and development, including operation and maintenance, road resurfacing and protection, Community Capital Plan Projects, housing construction and maintenance, and runway expansion and maintenance projects, on both Crown and Inuvialuit Lands. Demands for individual, private use are also calculated. A summary of the relevant portions of the report are provided below.

In addition to the above approach for forecasting future demand, the *Inuvialuit Final Agreement* has stipulated priorities for access to granular resources within the ISR on private lands. First priority is given to public community needs, second priority for private and corporate needs of the Inuvialuit, and third priority for any project approved by an appropriate government agency.

The 2009 Community Demand Forecasts for Inuvik and Tuktoyaktuk are identified in the ISR Granular Management Plan. It is estimated that the 20 year demand, including contingency for Inuvik is approximately 3,700,000 m^3, including public community use and personal allotments. According to the ILA and INAC (2010), the Town of Inuvik is actively quarrying three sources of granular materials (Navy Road Pit, Old Baldy Pit (I400) and Airport Pit (I402) within the town's boundaries (see the updated Figure 3.2.9-1a Existing Land Uses, attached). The nearest source of granular materials on Inuvialuit Private Lands is Source I401A, but due to the poor quality of granular materials (Class 4), this source has been described as unsuitable for development. Additional suitable sources are located in Sources 323A, 234A, and I407 (see the updated Figure 3.2.9-6a Proposed Future Land Uses, attached).

It is estimated that the 20 year demand, including contingency for Tuktoyaktuk is approximately 1,100,000 m^3, including public community use and personal allotments. Source 177, now accessible via the Tuktoyaktuk to Source 177 Access Road, is estimated to contain approximately 19,000,000 m^3 of prospective Class 2 ("good") material (see the updated Figure 3.2.9-1a Existing Land Uses, attached). According to the ILA and INAC (2010), Source 159 has been designated for Tuktoyaktuk in the event that the quality or quantity of gravel in Source 177 is not adequate (see the updated Figure 3.2.9-6a Proposed Future Land Uses, attached). Records do not indicate that Source 159 has been used or developed previously. Other prospective sources near Tuktoyaktuk include Sources 157, 160A, 160B, 160D, 161C, 161E, and 161F. Sources 177, 160A, 160B and 160D have been developed in the past.

Under the *Inuvialuit Final Agreement*, the ILA is required to reserve an appropriate volume of quality granular materials from reasonably accessible sites.

Source I401A, the nearest source of granular materials on Inuvialuit Private Lands to Inuvik, has been identified as a potential borrow source for the Highway. Due to the quality of material present (Class 4) in this source, it was deemed unsuitable for development and alternate borrow sources were identified for community use.

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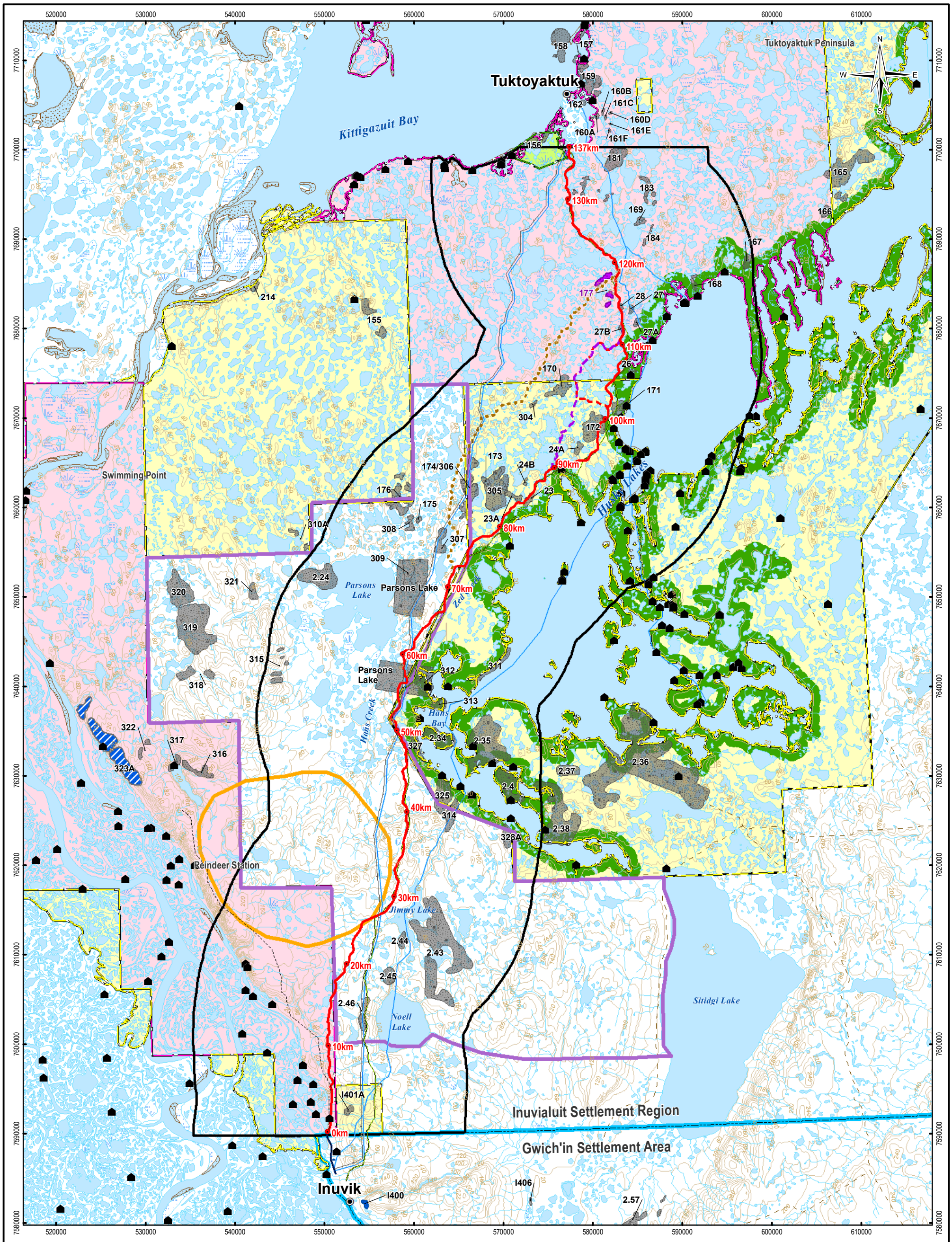

LEGEND

- Residential Leases
- Regional Study Area (15 km buffer)
- Primary 2009 Route
- Alternative 1 (2009 Minor Realignment)
- Alternative 2 (Upland Route)
- Alternative 3 (2010 Minor Realignment)
- PWC 1977
- Navy Road
- Snowmobile Trails
- Inuvialuit 7(1)(a) Lands
- Inuvialuit 7(1)(b) Lands
- Pingo Park
- Gwich'in / Inuvialuit Boundary

Borrow Sources Designated for Tuktoyaktuk Use

- currently used

Borrow Sources Designated for Inuvik Use

- currently used
- reserved for future use

- Approximate Winter Reindeer Range
- Approximate Allotment B
- Borrow Sources
- Husky Lakes 1000m Setback
- Former Powerline
- Ikhil Gas Pipeline
- Trail
- Contour
- Watercourse
- Waterbody
- Wetland
- Sand

NOTES

Base data source: NTS 1:250,000
Borrow Sources, ILA Lands, Husky Lakes 1000m Setback: Inuvialuit Land Administration Mackenzie Gas Project 2004
Due to poor quality of granular materials, Source I401A has been described as unsuitable for development, despite its close proximity to Inuvik (ILA and INAC 2010).

ISSUED FOR USE

PROPOSED INUVIK-TUKTOYAKTUK HIGHWAY ENVIRONMENTAL IMPACT STATEMENT

Existing Land Uses (Updated)

PROJECTION: UTM Zone 8	DATUM: NAD83
Scale: 1:400,000 (5 2.5 0 5 10 Kilometres)	
FILE NO.: V23201322_EIS_Map058_Dev_ExistLanduse.mxd	
PROJECT NO.: V23201322	DWN: KMW / CKD: TS / REV: 0
OFFICE: EBA-VANC	DATE: July 18, 2011

Figure 3.2.9-1a

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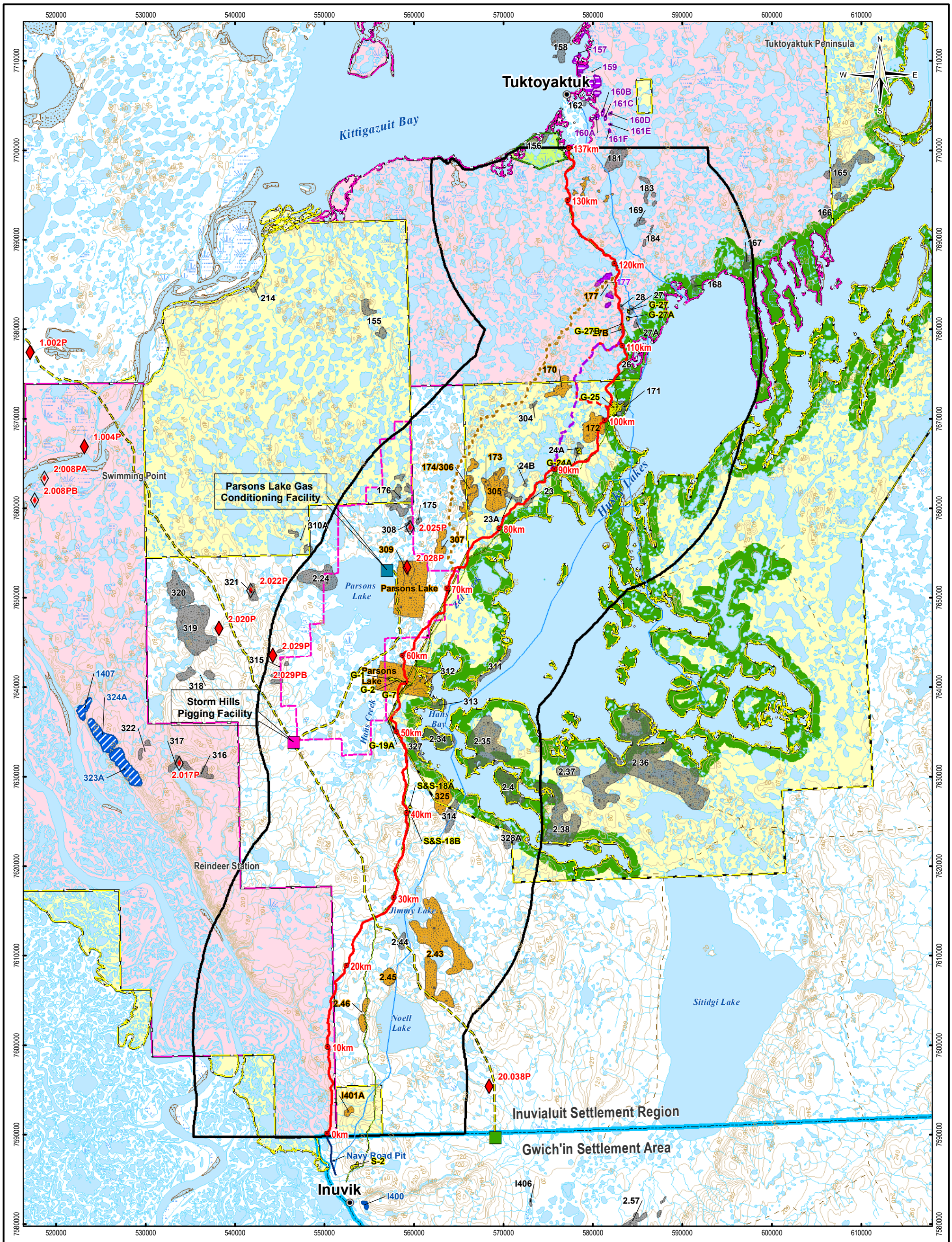

LEGEND

- Facility Site
- Gas Conditioning Facility
- Pigging Facility Site
- Trail
- Contour
- Watercourse
- Waterbody
- Wetland
- Sand
- Route of Gathering Pipelines
- Significant Discovery Licence Area
- Regional Study Area (15 km buffer)
- Primary 2009 Route
- Alternative 1 (2009 Minor Realignment)
- Alternative 2 (Upland Route)
- Alternative 3 (2010 Minor Realignment)
- PWC 1977
- Navy Road
- Snowmobile Trails
- Inuvialuit 7(1)(a) Lands
- Inuvialuit 7(1)(b) Lands
- Pingo Park
- Gwich'in / Inuvialuit Boundary
- HighwayBorrow Sources
- Potential Highway Borrow Sources
- Borrow Sources
- Husky Lakes 1000m Setback

Mackenzie Gas Project

- Borrow Site - Primary
- Borrow Site - Secondary

Borrow Sources Designated for Tuktoyaktuk Use

- currently used
- potential future source

Borrow Sources Designated for Inuvik Use

- currently used
- reserved for future use

NOTES

Base data source: NTS 1:250,000
Borrow Sources, ILA Lands, Husky Lakes 1000m Setback: Inuvialuit Land Administration Mackenzie Gas Project 2004
Due to poor quality of granular materials, Source I401A has been described as unsuitable for development, despite its close proximity to Inuvik (ILA and INAC 2010).

ISSUED FOR USE

PROPOSED INUVIK-TUKTOYAKTUK HIGHWAY ENVIRONMENTAL IMPACT STATEMENT

Proposed Future Land Uses (Updated)

PROJECTION: UTM Zone 8	DATUM: NAD83		
Scale: 1:400,000 (5 2.5 0 5 10 Kilometres)			
FILE NO.: V23201322_EIS_Map057_CE_PropLanduse.mxd			
PROJECT NO.: V23201322	DWN: KW	CKD: TS	REV: 0
OFFICE: EBA-VANC	DATE: July 18, 2011		

Figure 3.2.9-6a

15. TERMS OF REFERENCE - SECTION 10.1.1-A

Reviewer's Comments:

With respect to assessing the effects of the Project on terrain, geology, soils and permafrost, as it relates to granular resource extraction areas, it does not appear to meet TOR requirements.

- p.76, 2.6.8.2 Available Info, appears to partially address 10.1.1- background information covering study area is described and locations of potential sites shown on map (Fig. 2.6.8-2) and other info requested in Appendix A is shown for most, but not all, potential borrow sites in close proximity to proposed alignments;
- p.105, 3.1.1.3 - Borrow Materials - refers to 2.6.8 and indicates some information (depth, permafrost, ice) not yet provided.

Developer's Response:

Subsection 4.2.1.1(Potential Effects Due to Highway Construction Activities) of the Terrain, Geology, Soils and Permafrost Effects section (Section 4.2.1) considers borrow source activities in its discussion of potential effects. Mitigation measures are described in Table 4.2.1-1 and potential residual effects are described in Section 4.2.1.4.

Table 2.6.8-2 describes the borrow sources identified for potential use, the estimated quantity of materials needed from each borrow source, and the quality of granular materials available. As stated in Section 2.2.5 (Technical Factor), further geotechnical investigations in potential borrow sources is required to support detailed design and construction.

The Developer has provided a revised Section 2.7.7 (Recent Studies Completed and Additional Field Studies Required) in the Addendum to the EIS submitted to the EIRB in response to Category 3 Conformity Request #5, which provides an update on borrow site geotechnical activity schedules. The Developer will provide detailed information during quarry applications and Pit Management Plans.

16. TERMS OF REFERENCE - SECTION 10.1.1-B

Reviewer's Comments:

Does not appear to meet TOR requirements with respect to potential impacts of the Project on permafrost, including consideration of:

- Permafrost as a design feature in the road bed; failure modes analysis and associated
- Contingency plans;
- Thermal condition, active layer thickness, thaw depth, distribution and
- Stability;
- Ice rich soils (thaw settlement, thermokarst), permafrost thaw and related settlement;
- Frost heave of frost susceptible soils in thin permafrost as well as seasonally frozen soils;
- Thaw or settlement-related impacts on drainage and surface hydrology; and
- Shorelines, channels, taliks.

Developer's Response:

The existing terrain conditions along the preferred route alignment are discussed in Section 2.3 (Terrain Conditions along Preferred Alignment) of the EIS. Key Highway geotechnical issues, including information related to permafrost and permafrost-related features, sensitive terrain, thermokarst, thaw flow slides and pingos is presented in Section 2.4 of the EIS. Additional information on the terrain, geology soils and permafrost of the general area, including the Primary 2009 Route and alternative alignments considered, is provided in Section 3.1.1.

The assessment of possible effects of Highway construction and operation on the terrain, geology, soils and permafrost of the Project area is provided in Section 4.2.1 of the EIS and Project design and mitigation measures are outlined in Section 4.2.1.3. The potential effects of the environment on the Project, including the possible effects of climate change, and proposed mitigation measures to adapt to climate change were discussed in Sections 4.5 and 4.5.1.

As discussed in Section 4.2.4 (Water Quality and Quantity) of the EIS, it was recognized that potential alterations of surface drainage patterns due to stream constriction at stream crossing sites or through obstruction of overland drainage were of concern but would be mitigated through the design and use of appropriate stream crossing structures and the installation of appropriately-sized cross culverts to divert and manage highway and surface drainage flows. The application of such mitigation measures would also serve to prevent or minimize the formation of ponds or other effects on soil moisture, and thus prevent localized thermal changes such as thaw subsidence, ground surface heave or the formation of frost bulbs.

Although it was acknowledged that further terrain and geotechnical investigation would need to be undertaken as part of the detailed design steps, the Project Team is of the view that the potential effects of Highway construction and future operation have been adequately identified and can be effectively mitigated.

In particular, as noted in Section 4.2.1.3 (Project Design and Mitigation Measures), the current approach to Highway design and construction in permafrost regions is documented in the national guidelines entitled *Development and Management of Transportation Infrastructure in Permafrost Regions*, published by the Transportation Association of Canada (TAC 2010). The design parameters and construction techniques presented in Table 4.2.1.1 of the EIS as mitigation measures are based on experience in the Project area and the case studies and lessons learned presented in the TAC guidelines.

17. TERMS OF REFERENCE - SECTION 10.1.4-A

Reviewer's Comments:

Does not appear to meet TOR requirements for the following:

- Drinking water quality for humans and wildlife
- Recreational water quality;
- Discharge or seepage of wastewater effluent, contaminants, chemical additives;
- Changes to water quality at water crossings (bridges, culverts and other wetted areas);
- Changes to water quality due to thaw slumps;
- Dust and dust suppression;
- Slope stability; and
- Flow or water levels including the formation of frost bulbs and related icings at watercourse crossings.

Developer's Response:

Section 3.1.5 (Water Quality) presents available information on water quality, including discussion on how natural background values compare to Canadian Council of Ministers of Environment (CCME) *Water Quality Guidelines for the Protection of Freshwater Aquatic Life* (CCME 2002, 2007) values for the protection of freshwater aquatic life. The most recent available stream water quality data collected by INAC (now AANDC) in 2010 are also reported in this section. The results of the INAC water quality sampling program are shown in Table 3.1.5-1. The results show that very few exceedances of CCME guideline values were recorded in the stream water samples collected by AANDC.

Although specific references to drinking water for humans, wildlife and recreation were not made in this section, it is generally understood that the CCME values for the protection of freshwater aquatic life are consistently more stringent than those specified for these other uses of water.

The assessment of potential effects of Highway construction on Water Quality and Quantity is discussed in Section 4.2.4 of the EIS. Discussion is provided on Highway Design, Clear-span Bridge Construction, Culvert installation and Maintenance, Use of Heavy Equipment, Water Extraction, Road Drainage, Dust Generation, Highway Maintenance (during the long-term operations phase) and Project design and mitigation measures available to minimize possible effects on water quality and quantity as well as surface flow patterns.

Discussion on the management of wastes including wastewater (sewage), contaminants and chemical additives (fuels, waste oil, solvents, glycol, etc.) is provided in Section 4.4.3 (Waste Management) of the EIS. As discussed in this section, the Project will have waste management procedures in place that will ensure wastes are handled, stored, transported, and disposed of in a manner that will prevent the unauthorized discharge of contaminants, mitigate impacts to air, land, water, and minimize risks of animal attraction, while maintaining health and safety of personnel and wildlife.

To effectively manage wastes generated by the highway construction project, the Developer will develop a Project-specific waste management plan for all wastes associated with pre-construction and construction activities. The waste management plan will apply to the Developer and all its Project contractors involved in the generation, treatment, transferring, receiving, and disposal of waste materials for the Project.

The existing terrain conditions along the preferred route alignment are discussed in Section 2.3 of the EIS. Key highway geotechnical issues, including information related to permafrost and permafrost-related features, sensitive terrain, thermokarst, thaw flow slides and pingos was presented in Section 2.4 of the EIS. Additional information on the terrain, geology, soils and permafrost of the general area including the Primary 2009 Route and Alternative alignments considered is provided in Section 3.1.1.

The assessment of possible effects of highway construction and operation on the terrain, geology, soils and permafrost of the Project area is provided in Section 4.2.1 of the EIS and Project design and mitigation measures were outlined in Section 4.2.1.3.

The potential effects of the environment on the Project, including the possible effects of climate change, and proposed mitigation measures to adapt to climate change are discussed in Sections 4.5 and 4.5.1.

Specific discussion of icings was not addressed in the EIS because this phenomenon is not known or anticipated to occur in the generally low energy streams crossed by the proposed Highway Project. Such icings, or aufeis fields, have been known to more commonly occur in the considerably more active floodplains of the Malcolm, Firth and other rivers on the Yukon Coastal Plain (Dome et al. 1982).

Aufeis fields typically consist of ice developed on the ground surface, followed by the progressive build-up of ice upon itself. These icings are typically fed by a combination of sources, including stream water, subsurface flow and groundwater stored in deep aquifers and discharged from bedrock through faults and joints (Kotlyakov 1984). In areas of continuous permafrost, such as within the proposed Highway corridor, the relatively impermeable permafrost acts as a barrier to vertical groundwater flow (Kane and Yang 2004).

However, as reported by TAC (2010), poor drainage conditions along a road over permafrost terrain may cause surface water ponding, thermal erosion, thermokarst and/or the formation of icings. Drainage and erosion control structures should be inspected regularly and repaired when necessary. Culverts are susceptible to ice build-up, particularly if water flows are continuous but low during the late winter months. Ice build-up can occur as the low water flow is forced to the surface of the stream channel. As indicated, such conditions are not typically expected to occur along the Highway because none of the smaller streams will have flows in the winter months and the larger streams will be crossed with bridges.

TAC (2010) advises that an efficient technique to control ice build-up in culverts is to install secondary culverts, or staggered (multi-level) culverts placed above the invert level of the main culvert The staggered culverts, being higher and slightly offset from the main culvert, remain ice-free and can be used during the peak spring flows.

Many potential drainage problems associated with the Highway will be avoided or minimized by careful refinement of the Highway alignment, based on the LiDAR information being obtained in September 2011, and further field reconnaissance that will be conducted as necessary to assist with the final design of the Highway.

As discussed in Section 4.2.4 of the EIS, it is recognized that potential alterations of surface drainage patterns due to stream constriction at stream crossing sites or through obstruction of overland drainage are of concern but will be mitigated through the design and use of appropriate stream crossing structures and the installation of appropriately-sized cross culverts to divert and manage highway and surface drainage flows.

The application of such mitigation measures will also serve to prevent or minimize the formation of ponds or other effects on soil moisture, which in turn could lead to localized thermal changes such as thaw subsidence, ground surface heave or the formation of frost bulbs.

References

Canadian Council of Ministers of the Environment (CCME). 2002. Canadian Water Quality Guidelines for the Protection of Aquatic Life: Summary Table, Updated 2002. Retrieved from http://www.ccme.ca/assets/pdf/aql_summary_7.1_en.pdf

Canadian Council of Ministers of the Environment (CCME). 2007. Canadian Water Quality Guidelines for the Protection of Aquatic Life: Summary table. Updated December 2007. Retrieved from http://ceqg-rcqe.ccme.ca/

Dome Petroleum Limited, Esso Resources Canada Limited and Gulf Canada Resources Inc. (Dome et al). 1983. Hydrocarbon Development in the Beaufort Sea – Mackenzie Delta Region.

Kane, D.L. and Yang, D. 2004. Overview of Water Balance Determinations for High Latitude Watersheds, Northern Research Basins Water Balance, D.L. Kane and D.Yang (eds.), Proc. Workshop, Victoria, Canada, March, IAKS Pres, Wallington, UK, 2004.

Kotlyakov, V. M. (ed.). 1984. Glyatsiologicheskiy Slovar (Glossary of Glaciology). Leningrad, USSR: Gidrometeoizdat, 1984, 528 pp.

Transportation Association of Canada (TAC). 2010. Guidelines for the Development and Management of Transportation Infrastructure in Permafrost Regions.

18. TERMS OF REFERENCE - SECTION 10.2.9-A

Reviewer's Comments:

With respect to land use and changes in these patterns, does not appear to meet TOR requirements. p.438, 3.2.9.5 Past and Present Non-Traditional Land Uses - does not include past or present granular material extraction (borrow) sites (pits and quarries).

Developer's Response:

Section 3.2.9 (Granular Resources) acknowledges the use of granular activities in the region and advises the reader that additional information is contained in Section 2.6 (Project Components and Activities). In particular, Section 2.6.8.1 (General Information on Borrow Sources in the Area)

describes the investigation and evaluation of granular material resources carried out since the 1950s, including investigations carried out for INAC. A comprehensive inventory of granular materials for the Inuvialuit Settlement Region was provided to the Developer by the ILA.

As discussed in Section 2.6.8.2 (Available Information on Borrow Sources in the Area), Figure 2.6.8-1 shows all known borrow sources in the general area between Inuvik and Tuktoyaktuk based on information from the ILA, INAC, Geological Survey of Canada, and Public Works Canada. The Highway borrow sources are also identified on Figure 2.6.8-1, with additional information identified in Tables 2.6.8-1 and 2.6.8-2.

The ISR Granular Management Plan (2010), prepared by the ILA and INAC, includes a discussion on supply and demand of granular resources, which are based on several demand forecast reports (EBA Engineering Consultants Ltd. 1987; Hardy BBT Limited 1991; North of 60 Engineering Ltd. 1995 and 2001). Gravel demands for each community in the ISR are based on community maintenance and development, including operation and maintenance, road resurfacing and protection, Community Capital Plan Projects, housing construction and maintenance, and runway expansion and maintenance projects, on both Crown and Inuvialuit Lands. Demands for individual, private use are also calculated. A summary of the relevant portions of the report are provided below.

In addition to the above form of forecasting demand the *Inuvialuit Final Agreement* has stipulated priorities of access to granular resources within the ISR on private lands. First priority is given to public community needs, second priority for private and corporate needs of the Inuvialuit, and third priority for any project approved by an appropriate government agency.

The 2009 Community Demand Forecasts for Inuvik and Tuktoyaktuk are identified in the ISR Granular Management Plan. It is estimated that the 20 year demand, including contingency for Inuvik is approximately 3,700,000 m^3, including public community use and personal allotments. According to the ILA and INAC (2010), the Town of Inuvik is actively quarrying three sources of granular materials (Navy Road Pit, Old Baldy Pit (I400) and Airport Pit (I402) within the town's boundaries (see the updated Figure 3.2.9-1a Existing Land Uses, attached). The nearest source of granular materials on Inuvialuit Private Lands is Source I401A, but due to the poor quality of granular materials (Class 4), this source has been described as unsuitable for development. Additional suitable sources are located in Sources 323A, 234A, and I407 (see the updated Figure 3.2.9-6a Proposed Future Land Uses, attached).

It is estimated that the 20 year demand, including contingency for Tuktoyaktuk is approximately 1,100,000 m^3, including public community use and personal allotments. Source 177, now accessible via the Tuktoyaktuk to Source 177 Access Road, is estimated to contain approximately 19,000,000 m^3 of prospective Class 2 ("good") material (see the updated Figure 3.2.9-1a Existing Land Uses, attached). According to the ILA and INAC (2010), Source 159 has been designated for Tuktoyaktuk in the event that the quality or quantity of gravel in Source 177 is not adequate (see the updated Figure 3.2.9-6a Proposed Future Land Uses, attached). Records do not indicate that Source 159 has been used or developed previously. Other prospective sources near Tuktoyaktuk include Source 157, 160A, 160B, 160D, 161C, 161E, and 161F. Sources 177, 160A, 160B and 160D have been developed in the past.

Under the *Inuvialuit Final Agreement*, ILA is required to reserve an appropriate volume of quality granular materials from reasonably accessible sites.

Source I401A, the nearest source of granular materials on Inuvialuit Private Lands to Inuvik, has been identified as a potential borrow source for the Highway. Due to the quality of material present (Class 4) in this source, it was deemed unsuitable for development and alternate borrow sources were identified for community use.

Additional materials have been identified for potential use by the MGP (see updated Figure 3.2.9-6a, attached). The borrow source at Parsons Lake (2.028P) is identified for use by the MGP and the Highway.

Please see the attached, updated Existing Land Use (Figure 3.2.9-1a) and Proposed Land Use (Figure 3.2.9-6a) figures. The Existing Land Use figure identifies:

- Borrow sources currently used by communities in the area; and
- Borrow sources reserved for future community use, under the IFA.

The Proposed Future Land Use figure identifies:

- Borrow sources currently used by communities in the area;
- Borrow sources reserved for future community use, under the IFA;
- Borrow sources identified as potential future sources for community use; and
- Borrow sources identified for potential MGP use.

Based on the supply of granular materials, as identified in previous studies, and the demand forecasted for community and individual use, as identified in the ISR Granular Management Plan, the amount of materials required for the Highway and the borrow sources selected for use will not conflict with the forecasted demand.

As stated in the EIS, the Highway will provide access to the borrow sources for future development in the region.

19. TERMS OF REFERENCE - SECTION 10.2.9-B

Reviewer's Comments:

With respect to the conformity of proposed Project-related land uses with designated land use management areas as described in approved and draft management plans, community conservation plan, and proposed land use designations and identification of discrepancies, it does not appear to meet TOR requirements. 3.2.9.6 Proposed Future Land Uses – borrow sites proposed for use by MGP and related facilities (Parsons Lake) are available and should be shown on Fig. 3.2.9-6, as well as any other sites designated in ISR Granular Management Plan.

Developer's Response:

Please see the attached, updated Existing Land Use (Figure 3.2.9-1a) and Proposed Land Use (Figure 3.2.9-6a) figures. The Existing Land Use figure identifies:

- Borrow sources currently used by communities in the area; and
- Borrow sources reserved for future community use, under the IFA.

The Proposed Future Land Use figure identifies:

- Borrow sources currently used by communities in the area;
- Borrow sources reserved for future community use, under the IFA;
- Borrow sources identified as potential future sources for community use; and
- Borrow sources identified for potential MGP use.

20. TERMS OF REFERENCE - SECTION 10.3-A

Reviewer's Comments:

It is unclear if the EIS meets TOR requirements to discuss social, economic and cultural impacts related to possible accidents or malfunctions.

Developer's Response:

The Developer acknowledges that Section 4.4 (Accidents and Malfunctions) of the EIS concentrated primarily on potential environmental effects associated with the range of possible accidents and malfunctions that could occur in relation to the construction and operation of the Highway.

However, Section 4.4.4 (Vehicle Crashes) of the EIS provides a discussion on vehicle accidents. The Developer believes that traffic accidents related to the road represent the most likely type of incident that would involve the general public and which could have social implications.

As indicated in Section 4.4.4, safety measures to prevent vehicle accidents on the proposed Highway have been and will continue to be incorporated into the Highway design. According to the GNWT DOT, there were 861 vehicle collisions in 2008, 179 or 21% of which occurred on highways in the NWT; the remaining accidents were in urban centres or involved all-terrain vehicles (GNWT DOT 2009a, 2009b).

Measures to avoid or minimize accidents will include posted speed limits, adequate signage alerting drivers to Highway curves and upcoming bridges. Bridge design will incorporate guardrails to prevent a vehicle from going off the Highway and into a watercourse in the event of an accident.

While it is recognized that a year-round Highway will increase overall traffic volume, which correspondingly may increase the number of emergency incidents, Corporal Doorinbos did not anticipate many fatal collisions on the Highway as there have been very few on the winter road (S. Doorinbos, Corporal, Inuvik RCMP, pers. comm., January 26, 2011).

As indicated in Section 2.8 (Life of the Project) of the EIS, the Highway users are anticipated to fall into one of the following categories: residents of Inuvik and Tuktoyaktuk; regional residents; tourists; and hauling companies.

The winter road currently experiences annual daily traffic of 139 vehicles (GNWT DOT 2009b). It is anticipated that with increased shipping of goods and increased tourism, that short-term use of the Highway will range between 150 to 200 vehicles per day. This is considered to be a low traffic Highway. It is projected that without major development in the region, that this may increase slightly over time. However, if major development occurs in the region, such as the Mackenzie Gas Project, the amount of traffic may increase.

Assuming that the Mackenzie Gas Project proceeds, GNWT DOT, the Inuvialuit Regional Corporation, and other interested parties will need to work with the Mackenzie Gas proponents to ensure that increasing traffic usage of the Highway is effectively managed.

Economic and cultural impacts are also considered in the Worst Case Scenario presented in Section 4.4.5 of the EIS. Consistent with Section 13(1)(a) of the *Inuvialuit Final Agreement* (IFA) the Developer is required to evaluate a worst case scenario to provide an "estimate of the potential liability of the developer, determined on a worst case scenario, taking into consideration the balance between economic factors, including the ability of the developer to pay, and environmental factors."

One of the objectives of the *Inuvialuit Final Agreement* (IFA) is to prevent damage to wildlife and its habitat and to avoid disruption of Inuvialuit harvesting activities by reason of development (IFA Section 13(1)(a)). As such, when a development is proposed, the EIRB must establish limits of liability for a project proponent or developer. The proposed Highway from Inuvik to Tuktoyaktuk is subject to these terms.

References:

Government of the Northwest Territories, Department of Transportation (GNWT DOT). 2009a. 2009 NWT Traffic Collision Facts – Department of Transportation Road Licensing and Safety Division. Retrieved from http://vancouver.projects.eba.ca/sites/projects/V23201322/004/Traffic%20Info/2008%20NWT%20Traffic%20Collision%20Facts%20Report.pdf

Government of the Northwest Territories, Department of Transportation (GNWT DOT). 2009b. Traffic Counts from NWT Highway Traffic 2008. Retrieved from http://www.dot.gov.nt.ca/_live/documents/content/HighwayTrafficStats_2008.pdf

21. TERMS OF REFERENCE - SECTION 10.3-B

Reviewer's Comments:

It is unclear if the EIS meets TOR requirements to describe the process for the implementation of any mitigation measures or contingency plans. More details could be useful.

Developer's Response:

Section 4.4 (Accidents and Malfunctions) of the EIS identifies potential accidents and malfunctions and the preventative and mitigation measures. Section 6.0 (Mitigation and Remediation Summary) of the EIS, and in particular Table 6-1 in this section, provides a summary of mitigation strategies, implementation methods, applicable guidelines/BMPs and responsible parties.

Included in the Commitments Table is the development of an overall "umbrella" Environmental Management Plan (EMP) to be prepared prior to construction. The EMP will provide the methods for the implementation of mitigation measures, the methods for monitoring mitigation effectiveness, and reporting processes. In addition, the EMP will clearly define compliance monitoring requirements, responsible parties, and requirements for training. The EMP will be prepared upon approval of the Project, prior to construction, and will be submitted for regulatory approval prior to use. Contractors will be required to comply with the EMP.

22. TERMS OF REFERENCE - SECTION 10.5-A

Reviewer's Comments:

With respect to the approaches used to determine the significance of effects for each biophysical or socioeconomic element assessed, it appears to meet TOR requirements, although the discussion of level of consequence and magnitude should include an explicit discussion of significance.

Developer's Response:

The significance determination of residual effects generated from the effects assessment has relied, in part, on identified biophysical and human environmental consequences, ecological or socio-economic context, likelihood of the residual effect occurring, and best professional judgement.

For each residual effect, the level of significance was evaluated according to the expected change in overall condition of the VC being assessed. When evaluating significance the precautionary principle was adhered to, such that where there was uncertainty about how a VC would be affected, the final evaluation was based on the greater of the possible effects.

23. TERMS OF REFERENCE - SECTION 12.1

Reviewer's Comments:

With respect to the summary table of detailed mitigation commitments of the Developer, including: measures, implementation methods, identified impacts and VCs, need to know if this table has been cross-referenced with Table F, Developer's Commitments before commenting on conformity.

Developers Response:

The Developer can confirm that Table 6.1 in Section 6.0 (Mitigation and Remediation Summary) was reflected as appropriate in Table F, Developer's Commitments.

24. TERMS OF REFERENCE - SECTION 12.3.4

Reviewer's Comments:

With respect to wildlife habitat restoration, the EIS does not appear to meet TOR requirements – unable to locate discussion of restoration after a worst case scenario.

Developer's Response:

Reference to the reclamation (restoration) of borrow sites, bridge and culvert crossings, and other areas of disturbance is made in numerous locations in the EIS. Commitments to the reclamation of such areas are presented in the Commitments Table (Table F) of the EIS. Examples include:

- Borrow pits will be closed as soon as they are no longer required and reclaimed in a progressive manner, as described in the Pit Development Plan
- Pit Development Plans will include mitigation measures to address potential environmental concerns, and operational and reclamation plans
- Minimizing vegetation removal and conducting progressive reclamation at the clear-span abutments, culvert installations and borrow sources

Section 2.6.8.6 (Pit Development Plans) of the EIS states that pit development plans, also referred to as pit management plans, will be developed and will conform to the approving authority's regulations and permitting requirements. For borrow sources on Inuvialuit-owned land, the pit development plan will conform to the ILA's *Granular Management Plan* and requirements for a Quarry Permit. For borrow sources on Crown-lands, the pit development plan will conform to INAC's (2010d) *Northern Land Use Guidelines Access: Pits and Quarries,* TAC's (2010) guide for *Development and Management of Transportation Infrastructure in Permafrost Regions,* and the pit/quarry development plan requirements.

Each of these guidelines provide direction on the expectations of reclamation planning, which will need to be outlined in each of the pit development plans produced for construction of the Highway.

25. TERMS OF REFERENCE - SECTION 13.0

Reviewer's Comments:

With respect to follow up and monitoring, the EIS does not appear to meet TOR requirements. For example, regional monitoring programs are mentioned but there does not appear to be a discussion of integration with project specific monitoring. The TOR describes the "Follow-up" program for verifying the accuracy of the environmental assessment of the Project, and determining the effectiveness of any measures taken to mitigate the adverse environmental effects of the Project, including:

- Regulatory and non-regulatory monitoring requirements for the life of the Project;
- Purpose of each program, responsibilities for data collection, analysis and dissemination, and how results will be used in an adaptive management process; and
- How Project-specific monitoring will be compatible with the NWT CIMP or other regional monitoring programs.

Developer's Response:

Section 7.0 (Follow-up and Monitoring) of the EIS provides a summary of the anticipated biophysical and socio-economic compliance and effects monitoring programs associated with the short-term construction and long-term operation of the proposed Highway.

The Developer has provided a draft effects monitoring table in the Addendum to the EIS submitted to the EIRB in response to Category 3 Conformity Request #13.

The Developer has provided a draft compliance monitoring table in the Addendum to the EIS submitted to the EIRB in response to Category 3 Conformity Request #14.

This section also introduces the NWT Cumulative Impact Monitoring Program (CIMP) and Table 7.3-1 identifies valued environmental components (VCs) that are of interest to CIMP, and which will also be the focus of monitoring, primarily during the Highway construction phase. The Developer is aware that the NWT CIMP is managed by AANDC under a Memorandum of Understanding with the Inuvialuit Regional Corporation (IRC). The Developer would appreciate the assistance of AANDC in determining the relevance of the NWT CIMP and, similar to other developers in the Northwest Territories, will provide project specific information collected to NWT CIMP or other federal or territorial departments as appropriate.

Regarding socio-economic parameters, as stated in the EIS, the Developer is committed to requiring its Highway construction contractors to report on employment, income, and training parameters and to provide this information to the appropriate social development agencies. The Developer has no plans to monitor the possible socio-economic and cultural effects of the project, as these are within the mandate of territorial, Inuvialuit and federal responsibilities and programs.

26. TERMS OF REFERENCE - SECTION 13.1

Reviewer's Comments:

The EIS does not appear to meet TOR requirements – no table in Section 7.0 - with respect to an environmental and socio-economic effects monitoring table with effects monitoring requirements, including: effects, indicators and parameters for each effect or concern; and the target or management goal.

Developer's Response:

The Developer has provided a draft effects monitoring table in the Addendum to the EIS submitted to the EIRB in response to Category 3 Conformity Request #13.

27. TERMS OF REFERENCE - SECTION 13.2

Reviewer's Comments:

The EIS does not appear to meet TOR requirements for Environmental Monitoring Inspection Requirements Table, that includes:

- Current conditions of any applicable permits, licenses and approvals;
- The frequency, nature, and period of time of inspections; and
- Demonstrates how the terms and conditions set out in regulatory approvals, licenses and permits, and in the commitments submitted by the Developer will be adhered to and met and will be used by the environmental monitoring to verify and report the work being done.

Developer's Response:

The Developer has provided a draft compliance monitoring table in the Addendum to the EIS submitted to the EIRB in response to Category 3 Conformity Request #14.

28. TERMS OF REFERENCE - SECTION 13.3

Reviewer's Comments:

The EIS does not appear to meet TOR requirements for environmental management plans. For example, environmental management plans for the entire project do not appear to have been provided.

Developer's Response:

See response to Question #6 above.