



**FINAL REPORT**  
**of the Panel for the**  
**Substituted Environmental Impact Review of the**  
**Hamlet of Tuktoyaktuk, Town of Inuvik and GNWT -**  
**Proposal to Construct the Inuvik to Tuktoyaktuk Highway**

**January 25, 2013**









## EXECUTIVE SUMMARY

### **Final Report of the Panel for the Substituted Environmental Impact Review of the Proposal to Construct the Inuvik to Tuktoyaktuk Highway**

**Developer:** Hamlet of Tuktoyaktuk, Town of Inuvik and Government of the Northwest Territories

This report sets out the decision and recommendations of the Panel established by the Environmental Impact Review Board (EIRB) under the Inuvialuit Final Agreement to complete a review of the proposed Inuvik to Tuktoyaktuk Highway (ITH). The Project includes the activities and infrastructure associated with the construction, operation and maintenance of a 140-kilometre all-weather gravel highway from the Town of Inuvik to the Hamlet of Tuktoyaktuk, located in the Inuvialuit Settlement Region of the Northwest Territories. The Developer for this Project collectively is the Hamlet of Tuktoyaktuk, Town of Inuvik and Government of the Northwest Territories (Developer).

The Project was reviewed in accordance with s.11 of the IFA and subject to a substituted environmental review process under the *Canadian Environmental Assessment Act* (CEAA). In conducting this substituted review, the EIRB was responsible for meeting the requirements of both the IFA and the CEAA. The Project was referred to the EIRB on April 27, 2010 by the Environmental Impact Screening Committee, on the grounds that the proposed development had the potential for significant negative impacts on the environment and on Inuvialuit harvesting due to the potential for cumulative impacts.

During the review, the Developer filed an Environmental Impact Statement and supplementary evidence identifying the impacts that could occur as a result of the Project. This analysis addressed biophysical and socio-economic impacts of importance to the region. Evidence and recommendations were also received from registered Parties, community representatives, Elders, members of the public and intervenors throughout the review. This included hearing from community members in Inuvik and Tuktoyaktuk during the Panel's public hearings.

Having carefully considered the evidence and information before it, the Panel has concluded that this development should proceed, subject to the commitments made by the Developer and the measures recommended by the Panel in this report. These recommended measures are necessary to prevent or mitigate the adverse environmental effects which would otherwise result from the Project.

Upon the review of the record in this proceeding, it is clear to the Panel that the development will generate significant benefits for the Inuvialuit Settlement Region, affected communities and the Northwest Territories. These economic and socio-economic benefits include not only economic stimulus to the local and territorial economies but employment, training and the resulting improvements in the lives of residents of the region. In addition to these tangible benefits, the Project will yield important intangible benefits, both territorially and nationally. This highway Project will result in the construction of a key piece of public infrastructure which will benefit the region over the long term and should eventually be important to the oil and gas



industry. The highway may also be important from the standpoint of national sovereignty, representing the last link in a highway system from sea to sea to sea, connecting the Beaufort Sea and the Arctic by road to the rest of Canada.

Despite the important benefits which will result from the Project, the Panel has determined that it will cause impacts on the environment. They include impacts on habitat and wildlife such as caribou and grizzly bear, species of great importance to Inuvialuit. The Panel has also determined that impacts will result from highway construction and aggregate extraction activities including impacts on the sensitive terrain crossed by the highway. These impacts along with any potential impacts to the Husky Lakes must, in the Panel's view, be carefully mitigated, monitored and managed. The Panel's review of the environmental components of the Developer's Environmental Impact Statement (EIS) unfortunately led to concern about the quality of this assessment and the certainty of the impact predictions made by the Developer.

In order to address these concerns and ensure that all significant impacts are mitigated, the Panel has recommended that an adaptive management approach be adopted to minimize and manage the environmental impacts of the Project. The Panel also recommends the establishment of an Independent Environmental Monitoring and Oversight Committee (IEMOC). This Committee should be established and adequately funded prior to construction to provide oversight on all aspects of environmental management and to provide a vehicle for community involvement in Project monitoring activities. The IEMOC would oversee the Developer's performance in meeting its commitments, and oversee the design and implementation of a comprehensive Environmental Monitoring and Management Plan which would be integrated into an adaptive management framework in order to mitigate Project impacts.

The Panel recognizes that for this ITH Project, the responsibility for ensuring environmental protection in order to prevent damage to wildlife and its habitat and to avoid disruption of Inuvialuit harvesting, rests with the co-management bodies and Inuvialuit organizations. Inuvialuit land claim institutions share these environmental protection responsibilities with the regulatory authorities that will issue authorizations for the Project to proceed. By working together to implement the recommendations set out in this report, and coordinate their Project management activities the Panel is confident that these Inuvialuit and government organizations will ensure that the environment is protected and that regional and local benefits are realized.

The Panel has determined that the potential adverse effects of the Project can be mitigated and properly managed if the Panel's recommendations and the Developer's commitments are implemented.





## RESUME EXECUTIF

Rapport final de la Commission pour l'évaluation en substitut de l'étude des répercussions environnementales de la Proposition de construire une route d'Inuvik à Tuktoyaktuk.

Promoteur: Hameau de Tuktoyaktuk, ville d'Inuvik et Gouvernement des Territoires du Nord-Ouest.

Ce rapport établit la décision et les recommandations de la Commission établie par le Bureau d'Examen des Répercussions Environnementales (BERE) en accord avec la Convention Définitive des Inuvialuit (CDI), de compléter l'étude d'une proposition de Route d'Inuvik à Tuktoyaktuk (RIT). Le projet comprend les activités et infrastructures liées à la construction, à l'exploitation et à l'entretien d'une route de 140 kilomètres, empierrée et praticable en tout temps, reliant la ville d'Inuvik au hameau de Tuktoyaktuk, située en région désignée des Inuvialuit au sens de la convention des Territoires du Nord-Ouest. Le promoteur de ce projet est collectivement le hameau de Tuktoyaktuk, la ville d'Inuvik et le Gouvernement des Territoires du Nord-Ouest (Promoteur).

Le projet a été examiné conformément à l'article s.11 de la Convention Définitive des Inuvialuit (CDI) et soumis à une évaluation en substitut de l'étude des répercussions environnementales selon la Loi Canadienne sur l'Evaluation Environnementale (LCEE). Pour cette évaluation en substitut, le BERE était responsable de satisfaire aux demandes de la CDI et de la LCEE. Le projet a été soumis au BERE le 27 avril 2010 par le Comité d'Etudes des Répercussions Environnementales (EISC) en raison du fait que le développement proposé pourrait causer des répercussions néfastes considérables sur l'environnement et sur les récoltes Inuvialuit, vu la possibilité d'effets cumulés.

Lors de l'évaluation, le Promoteur a déposé un Dossier d'Impact sur l'Environnement (DIE) ainsi qu'une information supplémentaire identifiant les répercussions environnementales possibles causées par le projet. Cette analyse a considéré les impacts biophysiques et socio-économiques d'importance pour la région. Les parties inscrites, les représentants des communautés, les aînés, les membres du public et autres intervenants ont présenté leurs témoignages et recommandations tout au long de cette étude. Les représentants des communautés d'Inuvik et de Tuktoyaktuk ont aussi présenté leurs opinions lors des audiences publiques de la Commission.

Après avoir pris en considération les évidences et informations présentées, la Commission a conclu que ce développement pourrait avancer, selon les engagements pris par le Promoteur et les mesures recommandées par la Commission dans ce rapport. Ces recommandations sont nécessaires pour prévenir ou mitiger les influences négatives qui pourraient autrement résulter de ce projet.

Après considération des procès-verbaux de cette procédure, la Commission a pu conclure que ce développement produira des bénéfices significatifs pour les Inuvialuit de la Région Désignée, les communautés concernées et les Territoires du Nord-Ouest. Les bénéfices économiques et sociaux comprennent non seulement une impulsion pour les économies locales et territoriales



mais encore pour les emplois, la formation et les améliorations résultantes pour la vie des habitants de la région. En plus de ces bénéfices tangibles, le projet apportera des fruits intangibles importants pour les Territoires et la Nation. Ce projet de route aura pour résultats la construction d'une pièce clé de l'infrastructure publique qui profitera à long terme à toute la région et sera éventuellement importante au développement des ressources pétrolières et gazières. Cette route pourrait aussi être importante du point de vue de la souveraineté nationale en représentant le dernier maillon du système routier de mer à mer à mer qui mettra en contact la mer de Beaufort et l'Arctique avec le reste du Canada.

Malgré les bénéfices considérables de ce projet, la Commission a déterminé qu'il causera aussi des répercussions environnementales. L'habitat et la faune, comme le caribou et l'ours grizzly, espèces très importantes pour les Inuvialuit, seront touchées. La Commission a aussi déterminé que la construction et ses activités d'extraction d'agrégat auront des impacts sur les terrains traversés par la route. Ces impacts ainsi que les impacts potentiels sur les lacs de Husky doivent, aux yeux de la Commission, être mitigés, dirigés et surveillés attentivement. L'analyse de la Commission des parties touchant à l'environnement dans le Dossier d'Impacts sur l'Environnement (DIE) soumis par le Promoteur a soulevé des inquiétudes sur la qualité de cette évaluation et la certitude de ses prédictions d'impacts.

Pour aborder ces inquiétudes et s'assurer que tous les impacts significatifs soient mitigés, la Commission recommande l'adoption d'un système de gestion adaptive pour minimiser et gérer les perturbations environnementales de ce projet. La Commission recommande aussi la création d'un Comité Indépendant de Surveillance et de Supervision de l'Environnement (CISSE). Ce comité doit être créé et suffisamment financé avant la construction afin d'assurer la supervision de tous les aspects de la gestion environnementale et de fournir un véhicule pour la participation communautaire à la surveillance des activités du projet. Le CISSE superviserait la performance du Promoteur à honorer ses engagements et superviserait la conception et mise en œuvre d'un Plan détaillé de Surveillance et de Gestion de l'Environnement qui sera incorporé dans le cadre d'une gestion adaptive pour la mitigation des impacts du projet.

La Commission reconnaît que pour ce projet routier RIT, les organisations Inuvialuit et les organismes de co-gestion doivent être responsables d'assurer la protection de l'environnement pour prévenir les atteintes à la faune sauvage, à son habitat et pour éviter les perturbations aux récoltes Inuvialuit. Les institutions Inuvialuit de revendications territoriales partagent ces responsabilités pour la protection de l'environnement avec les autorités de contrôle qui émettront les autorisations pour que le projet puisse avancer. La Commission a confiance qu'en travaillant en commun pour mettre en application les recommandations présentées dans ce rapport et en coordonnant leurs activités de gestion, les organisations Inuvialuit et gouvernementales feront en sorte que l'environnement soit protégé et que les bénéfices locaux et régionaux soient réalisés.

La Commission a déterminé que les effets indésirables potentiels de ce projet peuvent être mitigés et gérés correctement si les recommandations de la Commission et les engagements du Promoteur sont mis en application.





## NAIGLILIQAT UQAUTCHIT

**Sannaiqtaq Isumaliurutingit ukuat Katimavianun iksivamayuut isumaliuqtit ukuatigun Angalatchiyit Silakkunlu Nunakkunlu Munariviksaanun Apiqsuqtuat Apqutuliuruklutik Inuuvingmingaaniin Tuktuuyaqtuumun.**

**Apqutuliuqtit: Hamletkut Tuktuuyaqtuumi, Inuvium Angalatchiyingatlu Kavamatkutlu Nunagiyaptingnun**

Una quliaqsaq nalunairait qanuq isumaliurmata maliyaksaitlu Katimayit iliyaat ukuat Nautchiuqtit Katimayingit Silakkunlu Nunakkunlu aglaksimayuaq Inuvialuit Sannaiqtuaq Angirutiksaanun makpiraanginni nautchiutqublugit apqutuliuruktuanik Inuuvingmin Tuktuuyaqtuumun. Savaangit iluani ilagiyaat qanuqiliurutiksangitlu sanamaakkirumijung, aulaviksaanunlu munariviksaanunlu aktilaanganun apqun 140-kilometre nunaniklu uyaralianiglu sanayaksaq apqun Inuuvingmin Tuktuuyaqtuumun, nunanganiittuaq Inuvialuit Settlement Region Nunatchiami. Apqutuliurviksaanun savaariniaraat ukuat pingasuuyuat Hamletkut Tuktuuyaqtuumi, Inuvium Inuuniarvianun Angalatchiyitlu Kavamatkutlu Nunatchiamun (Apqutuliuqti).

Una savaaksaq nautchiuqsimayaat maliklugu makpiraangit ukuat s.11 iluani IFA aglaksimayuut suli nautchiuvialuksimayaat qanuqiliurutiksangit angiqtinngu nunaktigunlu silaktigunlu maliklugit ukuat *Canadian Environmental Assessment Act* (CEAA). Nautchiurutit ungavausiramigit, ukuat EIRBiitkut savaaruqtuat maliglugit ukuak maliruliangik IFAlu CEAAlu. Savaaksat aglaangit qaitait ukuanun EIRB April 27, 2010ngurman ukuanin Katimayuanin qaimablutik Environmental Impact Screening Committee, isumaaluklutik apqutuliurumik qanurniarman nunamun niryutinunlu sanasaakkirumik nunakkun apqutinin nakuunnginiarman asu Inuvialuit ijusinganun.

Katimatillutik, Apqutuliuqtit aglaktuut makpiraamun Silakkun munariviksaanun quliaqlutik qanuq luuniin suinnalilangayuaq nuna savaakkirumik. Una nautchiurun uqaqtuq qanuq ikayutauniarman nunagiyaptingnun uumayuanunlu inuutchiptingnun-savaaksatigunlu. Allanintauq isumaaluruqtuanin tusaamayuut qanuqiliurutiksainik uqaqlutik, inuuniarvingmiittuaninlu, Innainin, naalagiaqtuaninlu ilausuktuaninlu. Naalaksimayaittauq qanuq isumammata inungit Inuuvingmilu Tuktuuyaqtuumilu Katimayit katimatillugit inuinnun tamainnun.

Naalakqaaqlugit uqaqtuanik isumaliukkiqtuat Katimayit, taima aasiin isumayuut apqutuliurumik nakuuniatuq, Apqutuliuqtit malikkumigit kisian maliyaksat aglaktat isumaliungitlu maliksarait ukuat katimayit aglaktat una makpiraani aglaksimayuut. Ukuat malitquyat puiguruminaittut akturumigu nunakputlu silakputlu suinnalitqunngilugit misimmaariksilugu pigumik iluarniaqtuq savaangit.

Nautchiuramitku ilitchuriyuut Katimayit nalunaivialuklutik qanuq quyallitauniarman Inuvialuuyuanun Nunagiyamingnun, allatlu inuuniarviitlu Nunatchiamiittuatlu tamarmik. Ukuat savaaksaaliuqtuatlu ikayuutiksaitlu inungit inuusianun savaaksaliurniaqtuatlu suli inuuniarviitlu nunangitlu tamaita, savaaksaliurlugit, ilisautilugitlu savaanik, taimannaptaut suli inuusingit



nakuruktilugit nunaptingniittuat tamatkilugit. Suliptauq aasiin pilayuat akturuaqimmata, taimannaptaug sulit puigurnaittuanik pimasuktat ayupsangaaqtut, ukuani nunani territoriallu nunapayaamunlu. Una apqutiryuamik sanasuktat saniqpauniaqtuaq inuinnun tamainnun atuaksanginnun sivituyumun quyallitigiblugit taimaita ilaliutilugitlu uqsuryualiqiyit. Apqutiqpak ikayutauniaqtuarlu nunagiyakput pimaniarupku allat nunat atulairlugu aktulairlugulu, katillugitlu tamaita tariut pingasuuyuat atautchimuglugit apqutigun aulalasiblutik, Tariaupangmin Beaufort Seaminlu Auqisuilaamunlu apqutuliurlutik ataulugit Kanatamiuyuat tamaita.

Sivulliurluni ikayutauniarluaqtuaq apqutiliurumik, Katimayit isumayuat sulit nuna akturmajung qanurliqaa mikiyumik uunniin suinnalivaktuaq allangurlunilu. Niryutitlu iningitlu nunami akturmajung tuktuutlu aklutlu iningit, tamarmik saniqpauvialuktuak Inuvialungnun. Katimayit ilisimayuatli apqutuliukkirumik nuna tamaani aturmajung suinnaliniyaqtuaq ilagiblugit ukuat uyaraliat marrarlut tamaani nunami ilaanni suinnalivaktuaq qilamik aktupqaqtuaqtillugu. Ukuat iqsinauyuat luuniin allatlu akturuaqtuaq sanaakkirumik apqutinik Imaryuum qaningani, isumaaluutigimayait ukuat Katimayit, munarimmaariksaraat, nautchiurlugulu qanuqimmagaanlu angalallugulu qanuqiliurlutik. Katimayit takuuramigit Silakkunlu Nunakkunlu Nautchiurqtit isumaaluutigimayait apqutiliuqtit uqausingit nautchiuramik nunamik tamaani nunakkun savaakkirumiklu apqutuliukkirumiglu suinnaliniarman atungittuaq nutim nuna tamaani.

Mikliniaqlugit aktuqtangit nuna tamaani isumaaluutait miklipkarait, Katimayit uqallautiyait malirulialitqublugit maliyaksainik savangniakkirumik nunakkun apqutiliurumik savaktit. Katimayittauq sulit quliutiyait piliutqublugit katimavingnik allanin qaimayuanin nautchiutqublugit nunamiklu silamiklu tamaani savaakkirumik apqutinik. Ukuanik Katimaviliuqsaqtuaq akiksaniqsaqtutlu iluaqtuanik savaamingnun atuaksanun isagutilutik apqutiliuqtinnaat uunniin taimannaguut inuuniarviit inungitlu ilaulasilayuat nautchiurutaanun nunalu silalu avaliptingni. Ukuat nautchiuqtit naigilugulu atiruaqtuaq IEMOCmik nautchiulagaat taimanna Apqutiliuqtit savaangit maliksimagumik maliyaksat nutim ittuat, suliptauq nautchiurlugit qanuq katimaviliurutingit ikayurlugit isagutiniarmatalu Isummiulirlutik Nautchiurutiksaanik Silamun Nunamunlu tamaunnga sulit taimanna atulagaat iluririlugulu savaamingnun taimanna luuniin nuna aktuqtaq tamaani suinnalilaittuq angiyumik.

Katimayit ilitchuriyuat apqutiliurumik Inuuvigmin Tuktuuyaqtuumun, atautchikun savaksaqtut munariviksaanun nunalu silalu niryutitlu ininganiglu nunami sulit aktulaitkaat Inuvialuit anguniarviat, ukuat katimayit niryutinun munariviksaanunlu ukuatlu Inuvialuit katimavingit. Inuvialuit nunangit sannaiqtaqlu allatlu iluqatik munariyaksat inipta nunaptalu allatlu savagviit ilaumayuat nautchiumayuatlu tamatkilugit munarisaraat nuna tamaani ittuat apqutiliurviksaani. Savaqatigiikkumik taimanna aturlugit maliyaksat aglaksimayuat nutim, sulilu atautchikkuarumik taimanna Katimayit isumayuat pilayuat savaqatigiikkumik Inuvialuitlu kavamatkutlu nautchiummaariksilugu nuna silalu ikayutauniarmanlu inunginnun tamainnun sumiliqaa ittuat.

Katimayit isumayuat isumaliurutingit maligumigit miklipkarumigitlu suinnalilangayuanik nunami savaangit iluarniaqtuaq savaktit maliruliat malikkumigit Apqutuliukkirumik nunakkun.





## RECOMMENDATION TO MINISTER(S)

Having carefully considered the evidence and information before it, the Panel has concluded and recommends that this development should proceed, subject to the measures recommended in this report. These recommended measures are, in the Panel's opinion, necessary to prevent or mitigate the adverse environmental and socio-economic effects which will result from the Project.

The Panel has recommended an adaptive management approach be adopted to minimize the environmental impacts of the Project. This approach requires the implementation of a comprehensive Environmental Monitoring and Management Plan integrated into an adaptive environmental management framework. This framework should be designed and implemented as a priority after Project approval in order to mitigate Project impacts.

The Panel also recommends the establishment of an Independent Environmental Monitoring and Oversight Committee (IEMOC). The operations of the IEMOC should be integrated with the comanagement framework established by the Inuvialuit Final Agreement (IFA). The Panel's conclusions about the need for independent oversight are a result of the problems identified in the Developer's Environmental Impact Statement (EIS) and more specifically with the environmental components of the impact assessment conducted by the Developer. The IEMOC must be established and adequately funded prior to the initiation of major construction activities in order to provide oversight on all aspects of Project development and to provide a vehicle for community involvement in Project monitoring activities.

The IFA also requires that the Panel provide to the "government authority empowered to approve the proposed development", an estimate of the potential liability of the Developer for present or future Inuvialuit wildlife harvesting losses. This liability is 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.

The Panel has determined that an accident based on a fuel truck roll over on the highway, as described in the EIS and modified during the proceeding, is the appropriate worst-case scenario for the ITH Project. The Panel also finds that the total cost or value for this worst-case scenario is \$1.05 Million dollars. The Panel recommends that consideration be given to requiring security from the Developer in this amount in order to protect Inuvialuit harvesters' rights pursuant to section 13 of the IFA.

The Panel reviewed the evidence provided by the Developer and the Parties related to species at risk, and whether the proposed ITH Project would affect any listed wildlife species or their critical habitat, in accordance with s.79 of the *Species At Risk Act*. The Panel finds that with the implementation of the commitments made by the Developer and the recommendations made by the Panel, that potential adverse effects and cumulative effects on species at risk will be mitigated and effectively managed.

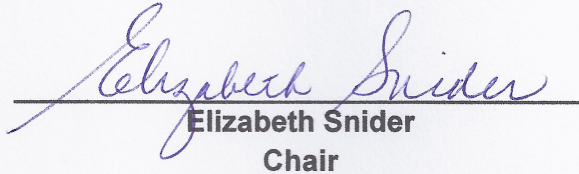
The determinations made and measures recommended by the Panel are found in sections 5, 7, 8, 9, 13 and 14, and are compiled in section 15 of this report.

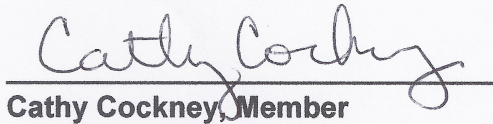
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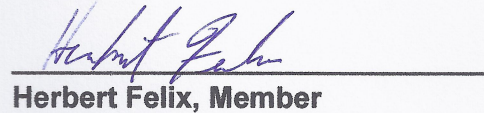
## Environmental Impact Review Board

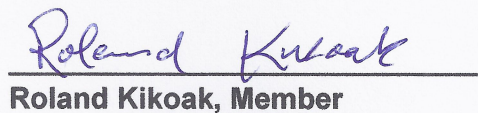
### Review Panel for the Inuvik to Tuktoyaktuk Highway Review

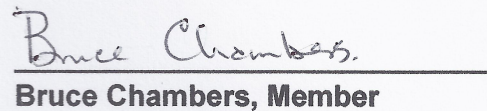
January, 2013

  
Elizabeth Snider  
Chair

  
Cathy Cockney, Member

  
Herbert Felix, Member

  
Roland Kikoak, Member

  
Bruce Chambers, Member





## Acronyms

The following acronyms are used throughout this report.

| Abbreviation      | Definition   |
|-------------------|--|
| <b>AANDC</b>      | Aboriginal Affairs and Northern Development Canada (formerly INAC) |
| <b>ATV</b>        | All-Terrain Vehicle  |
| <b>BMP</b>        | Best Management Practices  |
| <b>° C</b>        | Degrees Celsius  |
| <b>CanNor</b>     | Canadian Northern Economic Development Agency                      |
| <b>CEPA</b>       | <i>Canadian Environmental Protection Act</i>                       |
| <b>CCME</b>       | Canadian Council of Ministers of the Environment                   |
| <b>CCP</b>        | Community Conservation Plan  |
| <b>CE</b>         | Cumulative Effects   |
| <b>CEA</b>        | Cumulative Effects Assessment                                      |
| <b>CEAA</b>       | <i>Canadian Environmental Assessment Act</i>                       |
| <b>CEA Agency</b> | Canadian Environmental Assessment Agency                           |
| <b>Cm</b>         | Centimetre   |
| <b>CWS</b>        | Canadian Wildlife Service, Environment Canada                      |
| <b>DFO</b>        | Department of Fisheries and Oceans                                 |
| <b>DOT</b>        | Department of Transportation                                       |
| <b>EA</b>         | Environmental Assessment   |
| <b>EC</b>         | Environment Canada   |
| <b>EIR</b>        | Environmental Impact Review  |
| <b>EIRB</b>       | Environmental Impact Review Board                                  |
| <b>EIS</b>        | Environmental Impact Statement                                     |
| <b>EISC</b>       | Environmental Impact Screening Committee                           |
| <b>ENR</b>        | Environment and Natural Resources (GNWT)                           |
| <b>FJMC</b>       | Fisheries Joint Management Committee                               |



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**REVIEW PANEL FINAL REPORT: ITH Development Proposal**

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| <b>Abbreviation</b> | <b>Definition</b>                              |
|---------------------|--|
| <b>GNWT</b>         | Government of the Northwest Territories        |
| <b>GPS</b>          | Global Positioning System                      |
| <b>GSA</b>          | Gwich'in Settlement Area                       |
| <b>HC</b>           | Health Canada                                  |
| <b>HSE</b>          | Health, Safety and Environment                 |
| <b>HTC</b>          | Hunters and Trappers Committee(s)              |
| <b>HWMP</b>         | Hazardous Waste Management Plan                |
| <b>IA</b>           | Impact Assessment                              |
| <b>ICC</b>          | Inuvik Community Corporation                   |
| <b>IDC</b>          | Inuvialuit Development Corporation             |
| <b>IFA</b>          | Inuvialuit Final Agreement                     |
| <b>IGC</b>          | Inuvialuit Game Council                        |
| <b>IHS</b>          | Inuvialuit Harvest Study                       |
| <b>IHTC</b>         | Inuvik Hunters and Trappers Committee          |
| <b>ILA</b>          | Inuvialuit Land Administration                 |
| <b>INAC</b>         | Indian and Northern Affairs Canada (now AANDC) |
| <b>INFC</b>         | Infrastructure Canada                          |
| <b>IR</b>           | Information Request                            |
| <b>IRC</b>          | Inuvialuit Regional Corporation                |
| <b>ISR</b>          | Inuvialuit Settlement Region                   |
| <b>ITH</b>          | Inuvik to Tuktoyaktuk Highway                  |
| <b>ITI</b>          | Industry, Tourism and Investment               |
| <b>KM</b>           | Kilometre                                      |
| <b>L</b>            | Litre(s)                                       |
| <b>lb</b>           | Pound  |
| <b>LSA</b>          | Local Study Area                               |





## REVIEW PANEL FINAL REPORT: ITH Development Proposal

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| Abbreviation   | Definition                        |
|----------------|-----------------------------------|
| m <sup>3</sup> | Cubic Metres                      |
| MGP            | Mackenzie Gas Project             |
| MOU            | Memorandum of Understanding       |
| mm             | Millimeters                       |
| N              | North                             |
| NRCan          | Natural Resources Canada          |
| NWT            | Northwest Territories             |
| NWTWB          | Northwest Territories Water Board |
| PC             | Parks Canada                      |
| PHC            | Pre-Hearing Conference            |
| PH             | Public Hearing                    |
| RSA            | Regional Study Area               |
| RV             | Recreational Vehicle              |
| s              | Section                           |
| SAR            | Species at Risk                   |
| SARA           | <i>Species At Risk Act</i>        |
| spp.           | Species                           |
| ss             | Subsection                        |
| TC             | Transport Canada                  |
| TCC            | Tuktoyaktuk Community Corporation |
| TIWG           | Tuktoyaktuk-Inuvik Working Group  |
| TK             | Traditional Knowledge             |
| UTM            | Universal Transverse Mercator     |
| VEC            | Valued Ecosystem Component        |
| vs             | Versus                            |
| VSC            | Valued Socio-Economic Component   |



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## REVIEW PANEL FINAL REPORT: ITH Development Proposal

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| Abbreviation | Definition   |
|--------------|--|
| <b>W</b>     | West   |
| <b>WEMP</b>  | Wildlife Effects Monitoring Program                          |
| <b>WMAC</b>  | Wildlife Management Advisory Council (Northwest Territories) |
| <b>WMIS</b>  | Wildlife Management Information System                       |
| <b>WPP</b>   | Wildlife and Wildlife Habitat Protection Plan                |
| <b>ZOI</b>   | Zone of Influence  |



**Executive Summary**

**Recommendation to Minister(s)**

**Signature Page**

**Acronyms**

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## APPENDICES

Appendix 1 – EISC Referral

Appendix 2 – Agreement to Establish a Substituted Review Panel

Appendix 3 – The ITH Review Process

Appendix 4 – Panel Report Distribution

Appendix 5 – Comprehensive List of Developer's Commitments

Appendix 6 - List of Exhibits





## I.0 INUVIK TO TUKTOYAKTUK HIGHWAY PROJECT REVIEW

### 1.1 EISC Referral

On April 27, 2010 the Environmental Impact Screening Committee (EISC) referred a development proposal entitled, **Hamlet of Tuktoyaktuk, Town of Inuvik and GNWT - Construction of the Inuvik to Tuktoyaktuk Highway, Northwest Territories [02/10-05]** (ITH Project, Project or development), to the Environmental Impact Review Board (EIRB or Review Board)<sup>1</sup> on the basis that, “...the development could have a significant negative impact on the environment and Inuvialuit wildlife harvesting in the Inuvialuit Settlement Region.”<sup>2</sup> The EISC referral is found in Appendix 1.<sup>3</sup> The ITH is located within the Inuvialuit Settlement Region of the Northwest Territories (Figure 1 source: Developer EIS Figure 1.5-1).

A Panel appointed by the Review Board conducted a public environmental assessment and review (the Review) of the Project which includes the construction, operation and maintenance of a 140 km all-weather gravel highway from the Town of Inuvik to the Hamlet of Tuktoyaktuk. In its Review, the Panel considered all the evidence and documentation filed, which included the information contained in the Developer's Environmental Impact Statement (EIS) and subsequent filings, as well as the substantial body of written evidence from information requests and written submissions filed by the Parties. The Panel also carefully considered comments, evidence and advice from community representatives, Elders, member of the public and intervenors heard throughout the Review and during public hearings in Inuvik and Tuktoyaktuk.

### 1.2 The Developer

The Inuvik to Tuktoyaktuk Highway Project is proposed by an unincorporated consortium made up of the Hamlet of Tuktoyaktuk, the Town of Inuvik, and the Government of the Northwest Territories (GNWT) represented by the Department of Transportation (DOT). Representatives of all three governments participated throughout the process, attended technical sessions and hearings, and have promoted this Project. In this report, these governments are referred to collectively as the “Developer”. The Panel was not asked and is not able to distinguish among the roles, responsibilities or legal authorities of these governments for the purpose of identifying which government should respond to specific Panel findings or recommended measures.

Given the fact that the ITH Project is being proposed by a consortium and that the evidence submitted in this proceeding does not support any distinction among these governments, the Panel finds that the entities making up the Developer have joint and several responsibilities for all approved measures and commitments resulting from this Review, irrespective of their jurisdictions or mandates. In the Panel's view, the parties making up the Developer consortium must comply with all approved measures.

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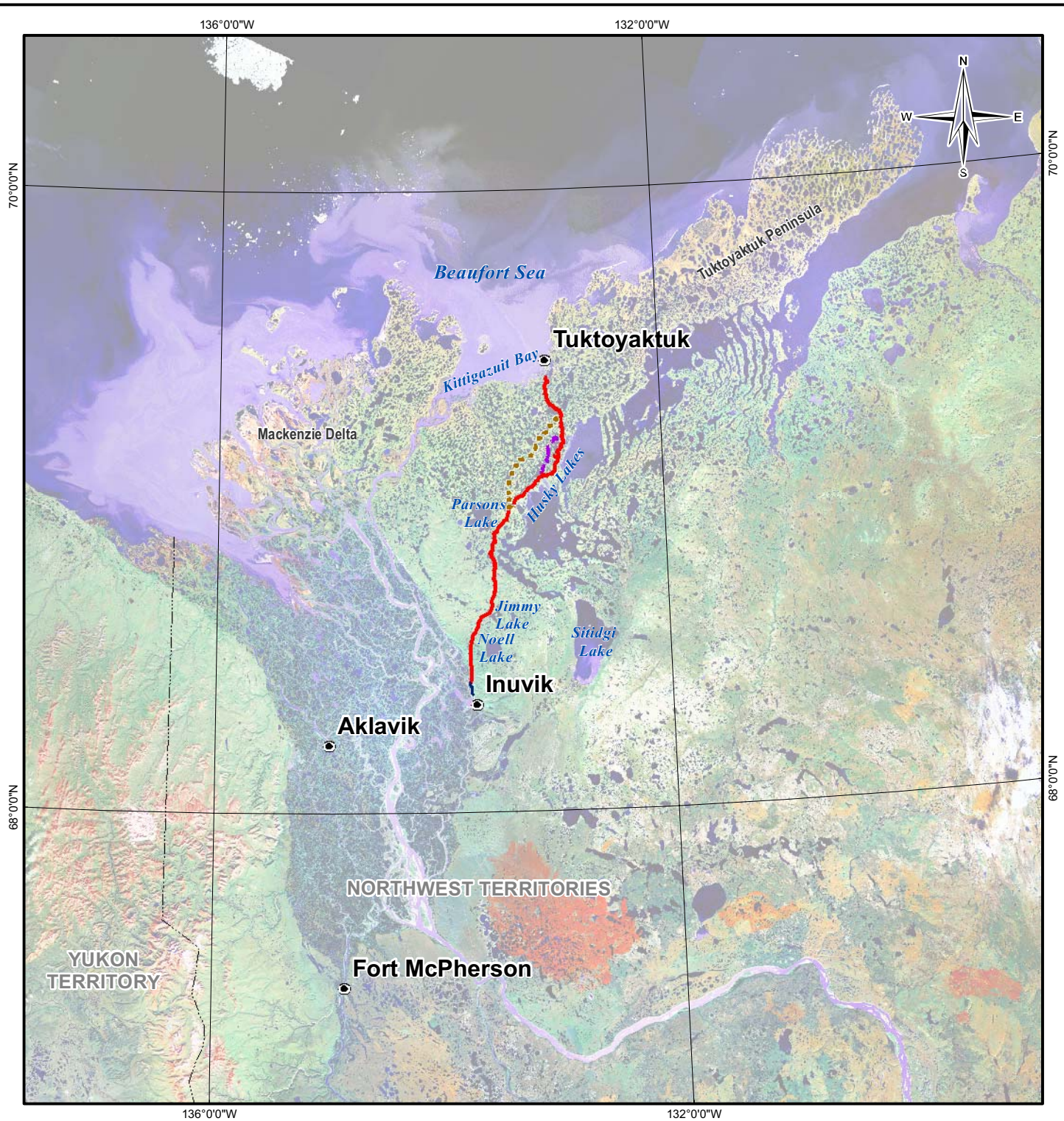
<sup>1</sup> IFA Subsection 11(20)

<sup>2</sup> Screening Decision, IFA Subsection 11(17)(c)

<sup>3</sup> EISC referral, registry item 006-1







## LEGEND

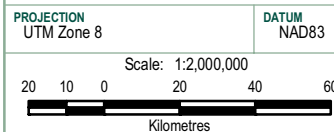
- Communities
- Territorial Boundary
- Primary 2009 Route
- - - Alternative 1 (2009 Minor Realignment)
- - - Alternative 2 (Upland Route)
- - - Alternative 3 (2010 Minor Realignment)
- Navy Road

## NOTES

Base imagery: ESRI Data and Maps

## PROPOSED INUVIK-TUKTOYAKTUK HIGHWAY ENVIRONMENTAL IMPACT STATEMENT

### Proposed Project Location



FILE NO.  
V23201322\_EIS\_Map018\_Intro\_PriLoc.mxd

|                          |           |           |          |
|--------------------------|-----------|-----------|----------|
| PROJECT NO.<br>V23201322 | DWN<br>SL | CKD<br>TS | REV<br>0 |
|--------------------------|-----------|-----------|----------|

|                    |                     |
|--------------------|---------------------|
| OFFICE<br>EBA-VANC | DATE<br>May 2, 2011 |
|--------------------|---------------------|



Figure 1.5-1

ISSUED FOR USE





### 1.3 Developer's Participation in and Approach to the Review

The Developer of the proposed ITH Project reported that the construction of this highway has been a goal of the residents of the ISR since the 1960's and a major objective of the GNWT since 1998, when, *"As part of its Highway Strategy, GNWT Department of Transportation launched a \$2 million initiative in May 1998 under which it conducted various planning, environmental, pre-engineering and related studies for each of the three new highway corridors that the Department had been promoting for federal funding: Slave Geological Province Transportation Corridor; Mackenzie Highway Extension from Wrigley to Inuvik; and the Inuvik to Tuktoyaktuk Highway."*<sup>4</sup> Despite this history, the Developer's draft EIS was deficient of information, particularly baseline environmental information. The Developer received nearly 150 information requests (IRs) from the EIRB and Parties for clarification of statements in the EIS and to provide additional information and analysis during the Review.<sup>5 6 7 8</sup> The EIRB issued a series of Directives to the Developer seeking required information,<sup>9</sup> and a technical session was necessary in August 2012 to bring the draft EIS to a point where the Panel could hold public hearings in September 2012.

During the course of the public hearings, the Developer indicated it had, or would shortly have, additional reports, plans and analyses that were relevant to a variety of Party and Panel concerns and would address a number of outstanding questions raised by the Parties. Based on the Panel's review of the record and the transcripts from the hearings, it was clear that this new information would also assist the Panel to meet its legal requirements under both the IFA and the CEAA. Consequently, the Panel did not close the record after the public hearings, opting instead, at the Developer's request, to allow the filing of additional information, and allowing parties to review and question this evidence before filing their final submissions.

The Panel notes for the record that the Developer stated they had no experience with the environmental assessment process in the NWT: *"As this Project is the first public highway to undergo an environmental assessment in the NWT..."*<sup>10</sup>. This may account for what seems to have been an apparent lack of preparation for and understanding of the requirements of the IFA and CEAA processes. This had an impact on both the quality and the length of the Review process.

### 1.4 The Parties to the Proceedings

Following the referral of the ITH Project proposal by the EISC, the Review Board notified the Developer, the public and government agencies that the referral had been received, and invited

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<sup>4</sup> Developer EIS, section 2.1.1, page 37, registry item 068-1

<sup>5</sup> Information Requests issued to Developer, round 1, January 16, 2012, registry item 104-1

<sup>6</sup> Information Requests issued to Developer, round 2, March 19, 2012, registry item 123-1

<sup>7</sup> Direction to the Developer, 5 IRs, July 31, 2012, registry item 209-1

<sup>8</sup> Information Requests issued to Developer, 18 IRs, October 16, 2012, registry item 331-1

<sup>9</sup> EIRB Directive to the Developer, May 25, 2012, registry item 172-1

<sup>10</sup> ENR Letter to EIRB, September 7, 2012, registry item 347-1





those interested to register as Parties to the Review.<sup>11</sup> In addition to the Developer, the organizations identified in Table 1 were granted status as Parties to the Review proceedings.

**Table 1 – Organizations Granted Party Status**

| <b>Government Parties to the Proceeding</b>   | <b>Inuvialuit Parties to the Proceeding</b>          |
|---|--|
| Aboriginal Affairs and Northern Development Canada (AANDC)  | Aklavik Hunters and Trappers Committee (Aklavik HTC) |
| Canadian Environmental Assessment Agency (CEAA)   | Fisheries Joint Management Committee (FJMC)          |
| Canadian Northern Economic Development Agency (CanNor) - Northern Projects Management Office (NPMO) | Inuvialuit Land Administration (ILA)                 |
| Department of Fisheries and Oceans (DFO)  | Wildlife Management Advisory Committee (NWT) (WMAC)  |
| Environment Canada (EC)   | <b>Other Parties to the Proceeding</b>               |
| Environment and Natural Resources (ENR) – coordinating all GNWT departments                         | Inuvik Community Corporation (ICC)                   |
| Health Canada (HC)  | Tuktoyaktuk Community Corporation (TCC)              |
| Infrastructure Canada (INFC)  | Tuktoyaktuk Inuvik Working Group (TIWG)              |
| Natural Resources Canada (NRCan)  |  |
| Parks Canada (PC)   |  |
| Transport Canada (TC)   |  |

The EIRB followed its *Environmental Impact Review Guidelines*<sup>12</sup> (EIRB Guidelines or Guidelines) and the *Rules of Procedure for the Environmental Impact Screening and Review of the Inuvialuit Final Agreement* (Rules of Procedure) during the Review.<sup>13</sup>

<sup>11</sup> EIRB notices of referral, registry items 008-1 to 013-1

<sup>12</sup> Established and adopted by the EIRB on April 29, 2011.

<sup>13</sup> Jointly established and adopted by the EISC and EIRB on July 7, 2011. These documents are available on the EIRB web site at [www.eirb.ca](http://www.eirb.ca) and they describe the rules and processes the Review Board followed to complete this substituted Review.





## REVIEW PANEL FINAL REPORT: ITH Development Proposal

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**Inuvik Open House, November 2010**





## **1.5 Parties' Participation in and Approach to the Review**

The Panel requested participation and advice from Inuvialuit organizations during the Review through direct contact with Inuvialuit organizations but only FJMC and WMAC participated as Parties to the proceedings. This was a matter of some importance in this proceeding because the 140 km highway will run adjacent to the traditionally significant area of Husky Lakes, an area that has been identified by the Inuvialuit and evidenced in s.8 of the IFA as environmentally sensitive and culturally important.

The Panel requested representation and assistance from government departments in determining the potential environmental impacts as well as mitigative and remedial measures which should be applied if the development were to proceed. Several of the regulators indicated in final technical submissions that they will require additional information before they issue licences and permits. In the Panel's view, deferring these inquiries to the regulatory process weakens the review process. The EIR process set out in sections 11 and 13 of the IFA and the *CEAA* are premised upon careful review of the potential impacts of a project before it goes to the regulators.

## **1.6 Public Participation**

The environmental impact review (EIR) process established by the IFA and further defined by the Review Board in its Guidelines is predicated on public involvement throughout the process. In this substituted Review process, the Review Board instructed the Developer, through the EIS Terms of Reference, to actively involve the public at all stages of the planning and development of the Project, and to demonstrate this in its EIS and throughout the Review process. There is also the *CEAA* requirement<sup>14</sup> for the Panel to consider comments from the public throughout the Review process.

The Review Board, and ultimately the Panel, ensured the public were involved by establishing and maintaining a public registry of the evidence, sending out regular notices when new information was posted to the registry, and announcing meetings where public participation was welcome. The Review Board and the Panel also sought the input and comments of Inuvialuit organizations which represent the affected communities and the public throughout the Review process.

In support of soliciting public involvement in the EIR process, the Review Board provided the following specific opportunities:

- community and public consultation meetings on the draft EIS Terms of Reference, autumn 2010;
- promoted the Participant Funding Program of the Canadian Environmental Assessment Agency (CEA Agency) and encouraged organizations and groups to apply, autumn 2010;
- invited the public to be involved in the conformity Review of the draft EIS, summer 2011;

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<sup>14</sup> *CEAA* Subsection 16(1)(c)



- invited the public to be involved in the Technical Sessions, summer 2012; and,
- announced and invited the public to be involved in the public hearings, autumn 2012.

In the Panel's view, these efforts and the resulting public participation satisfied its obligations to ensure public involvement in this proceeding.

The Panel appreciated the advice and information provided by those organizations and community members that made submissions and/or attended the public hearings. Those representations were essential to the deliberations of the Panel.

#### **1.6.1 Analysis of the Developer's Public Participation Program**

The Developer was directed in the EIS Terms of Reference to involve potentially affected communities and the public in planning the ITH Project and to demonstrate this public participation in the EIS.<sup>15</sup>

Specifically in ss. 5.6.2 of the EIS Terms of Reference it states,

*"The Developer shall provide a summary of the public engagement process in the EIS, including the following details with respect to all consultations associated with the proposed development:*

- *community, competent authority or Party contacted;*
- *contact names;*
- *dates of contact;*
- *communication/consultation format (e.g., email, phone, face-to-face meeting);*
- *reason(s) for communication/consultation, and topic(s) of discussion, including the issues and concerns that were raised, and how the issues and concerns were responded to and/or resolved;*
- *any commitments made by the Developer as a result of the communication and/or consultation; and,*
- *how the planning, design and/or implementation of the proposed development was influenced and/or changed as a result of consultation and by any issues and concerns raised."*

The Developer provided a summary of its community consultations and the meetings it held prior to submitting the EIS.<sup>16</sup> The Developer also advised throughout the Review process that it was engaged in meetings with Inuvialuit organizations and Parties to the proceedings on various issues related to the Review. The results of many of these meetings were not reported to the Panel, except for some meetings held in the late summer and autumn of 2012 around the time of the technical sessions and public hearings. The ones not reported are therefore not included on the Public Record. The Panel encouraged the Developer to seek resolution of any issues and concerns identified by the Parties before the public hearings.

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<sup>15</sup> Final EIS Terms of Reference, ss.2.2 and ss.5.6.2, registry item 046-1

<sup>16</sup> Developer EIS Appendices, Appendix B, registry item 067-1



## 1.7 Traditional Knowledge

The EIRB was committed to ensuring that Traditional Knowledge was secured and given weight equal to other sources of information in this Review. This included giving due regard to the traditions of Inuvialuit and oral communication and decision-making and ensuring that local knowledge is considered.

### 1.7.1 Analysis of the Developer's Traditional Knowledge Program

The Developer was instructed in the EIS Terms of Reference to include and consider Traditional Knowledge (TK) in the draft EIS.<sup>17</sup> Specifically, in ss. 2.1 of the EIS Terms of Reference, the Developer was directed to, “...reflect the inclusion and consideration of traditional knowledge (TK) in the environmental assessment process.” Further, in ss. 5.6.1 of the EIS Terms of Reference it states,

*“The Developer shall:*

- describe TK study methodology and, how TK was gathered and verified;*
- summarize issues, concerns, and recommendations arising from TK studies;*
- indicate whether, and how, issues, concerns, and recommendations were responded to; and,*
- explain how TK was incorporated into the environmental assessment and development planning, and provide examples of how TK influenced assessment results and overall Project design.*

The Developer advised that they had integrated Traditional Knowledge into various sections of the EIS, including study methodology, baseline, the biophysical and human environment impact assessments, and the mitigation and remediation sections.

The Developer presented a summary of historic land use in the EIS. Project specific Traditional Knowledge studies were undertaken after the EIS was filed, and consisted of:

- a summary report of existing Traditional Knowledge in the study area;
- workshops with Traditional Knowledge holders in Inuvik and Tuktoyaktuk to gather information specific to the Project; and,
- a final report of the Traditional Knowledge workshop.

These reports were made available to the Panel in the spring and summer of 2012. Because this additional evidence was not produced until late in the Review process, the Review Board, on May 25, 2012,<sup>18</sup> directed the Developer to, “...re-evaluate the impacts and proposed mitigation for any valued socio-economic component based on the information gathered and provided in the Traditional Knowledge and Traditional Land Use Report...”

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<sup>17</sup> Final EIS Terms of Reference, s.2.1 and ss.5.6.1, registry item 046-1

<sup>18</sup> EIRB Directive to Developer, May 2012, registry item 172-1





The Developer responded to this Directive on July 17, 2012 as follows: “*The Developer has re-evaluated the potential effects and proposed mitigation for the valued socioeconomic components based on the information provided in the Traditional Knowledge (TK) and Traditional Land Use Report. The potential effects and mitigation measures identified in the Environmental Impact Statement (EIS) and subsequently submitted supporting documents address the issues raised in the TK Report.*”<sup>19</sup>

At the technical sessions and hearings, the Developer was requested to demonstrate how the Traditional Knowledge information that was collected was used in the prediction of impacts, the design of mitigation, and the determination of residual impacts. The Developer submitted information during the hearings to respond to this request, and maintained that the conclusions in the assessment were unchanged as a result of the integration of Traditional Knowledge.

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<sup>19</sup> Developer response to May 2012 Directive, page 32, registry item 233-1



## 2.0 ENVIRONMENTAL IMPACT REVIEW IN THE INUVIALUIT SETTLEMENT REGION

### 2.1 The Inuvialuit Final Agreement

On June 5, 1984 Parliament enacted the *Western Arctic Claims (Inuvialuit) Settlement Act*, and through subsection 3(1) gave effect to the Inuvialuit Final Agreement (IFA). The IFA, which emphasizes the importance of wildlife and wildlife harvesting, is a land claims agreement within the meaning of subsection 35(3) of the *Constitution Act 1982*, and takes precedence over other legislation which may conflict with or be inconsistent with it. The environmental impact screening and review process set out in the IFA establishes the Environmental Impact Screening Committee (EISC or Screening Committee) and the Environmental Impact Review Board (EIRB or Review Board), which are responsible for environmental screening and environmental impact review, respectively, in the Inuvialuit Settlement Region.

The goals of the IFA are to:

- preserve Inuvialuit cultural identity and values within a changing northern society;
- enable Inuvialuit to be equal and meaningful participants in the northern and national economy and society; and,
- protect and preserve Arctic wildlife, the environment and biological productivity within the ISR.

Mechanisms to achieve these goals include the creation of Inuvialuit organizations, such as the Inuvialuit Game Council (IGC), Hunters and Trappers Committees (HTC) based in each Inuvialuit Community, a Wildlife Management Advisory Council (WMAC) for the Northwest Territories (NWT) and the Yukon North Slope, and a Fisheries Joint Management Committee (FJMC), to manage and preserve wildlife and habitat on behalf of Inuvialuit. The environmental impact screening and review processes contribute to the evaluation of development proposals in the ISR, and to assessing environmental impacts on wildlife. Together, these mechanisms and other provisions of the IFA result in unique requirements that must be met in the consideration of development proposals in the ISR.

### 2.2 Environmental and Regulatory Approvals Process

The Review of the ITH development proposal is a fundamental step in the integrated environmental and regulatory approvals process that has been established for the Inuvialuit Settlement Region. This process ensures that the terms and conditions of approval are met and implemented by the Developer.

The Review process relies upon the active participation of regulators (Responsible Authorities under *CEAA*), Inuvialuit and co-management bodies established in the ISR, and expert departments (Federal Authorities under *CEAA*) to contribute technical expertise. The public are also important contributors of their views and opinions, and in providing community perspectives and Traditional Knowledge about the Project.



## 2.3 Jurisdiction and Decision Making Powers of the EIRB

Provisions setting out the roles and responsibilities of the Review Board are found in sections 8, 11, 12 and 13 of the IFA. The mandate of the Review Board is to expeditiously complete an impact review of any development proposal referred to it by the EISC.<sup>20</sup> When the EIRB has been referred such a proposal for review, it shall assess the impact of development on wildlife, its habitat and on wildlife harvesting with the objective of avoiding the disruption of harvesting activities and to provide compensation for any wildlife harvest loss by Inuvialuit.<sup>21</sup> The EIRB published its *Environmental Impact Review Guidelines and Rules of Procedure*, dated April 2011 and July 2011 respectively, pursuant to the powers given to it by subsection 11(23) of the IFA to establish and adopt bylaws and rules for its internal management and procedures. Together with the IFA, these documents set out the Rules and Guidelines that constitute the procedures of the EIRB.

### 2.3.1 Legal Requirements of the Inuvialuit Final Agreement

During the conduct of a review, a Panel<sup>22</sup> of the Review Board must be appointed to expeditiously review any projects referred to the EIRB. Based on the evidence presented during such a review, the Panel shall recommend whether the development should proceed, and, if so, the Panel may recommend terms and conditions including mitigative and remedial measures. The Panel could also recommend that the development be subject to further assessment and review and if so, the additional data or information required.<sup>23</sup>

The Panel in this Review is required to determine:

- any mitigative and remedial measures that may be required and which measures are necessary to minimize any negative impact on wildlife harvesting;<sup>24</sup> and,
- an estimate and determination of the Developer's potential liability, in relation to wildlife harvesting loss, on the basis of a worst case scenario.<sup>25</sup>

The EIRB, in the course of its review, must take other legal requirements into consideration. In particular, the EIRB must comply with the requirements of s.79 of the *Species at Risk Act* (SARA) to notify the competent minister in writing of a project which may affect a listed wildlife species or its critical habitat.<sup>26</sup> The EIRB also has responsibility for establishing acceptable environmental standards for any development activities, and for evaluating a developer's standard of performance for any development in the Husky Lakes area.<sup>27</sup>

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<sup>20</sup> IFA Subsection 11(29)

<sup>21</sup> IFA Subsection 13(11)

<sup>22</sup> IFA Subsection 11(23)

<sup>23</sup> IFA Subsection 11(29)

<sup>24</sup> IFA Subsections 11(29) and 13(11)(a)

<sup>25</sup> IFA Subsection 13(11)(b)

<sup>26</sup> *Species at Risk Act*, SC 2002, c-29 section 79

<sup>27</sup> IFA Subsections 8(1) and 8(7)



**Hans Creek**



**Tundra Cranberries**







## 2.4 The EIRB and the Requirements of Fairness

The EIRB is a co-management tribunal charged with the conduct of the ITH Project Review. During the course of this process, a Panel is appointed to complete the hearings and write a report which sets out its finding and recommendations to Ministers and competent government authorities. This is a formal process in which the rights and interests of the participants will be in play. The EIRB, and the Panel, once appointed, must ensure that their process satisfies the requirements of natural justice and that the proceeding is open, transparent and fair. These legal obligations have both procedural and substantive aspects and the EIRB and the Panel have paid close attention to these legal requirements throughout the proceeding.

## 2.5 The Canadian Environmental Assessment Act in the ISR

The *Canadian Environmental Assessment Act (CEAA)*<sup>28</sup> also applies in the Inuvialuit Settlement Region.<sup>29</sup>

### 2.5.1 Legal Requirements of the Canadian Environmental Assessment Act

The Review includes consideration of the factors listed in subsections 16(1) and (2) of the *CEAA*:

**16. (1)** Every screening or comprehensive study of a project and every mediation or assessment by a review panel shall include a consideration of the following factors:

- (a) the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;
- (b) the significance of the effects referred to in paragraph (a);
- (c) comments from the public that are received in accordance with this Act and the regulations;
- (d) measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project; and
- (e) any other matter relevant to the screening, comprehensive study, mediation or assessment by a review panel, such as the need for the project and alternatives to the project, that the responsible authority or, except in the case of a screening, the Minister after consulting with the responsible authority, may require to be considered.

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<sup>28</sup> CEAA (S.C. 1992, c.37 repealed)

<sup>29</sup> IFA Subsection 11(37)



(2) In addition to the factors set out in subsection (1), every comprehensive study of a project and every mediation or assessment by a review panel shall include a consideration of the following factors:

- (a) the purpose of the project;
- (b) alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means;
- (c) the need for, and the requirements of, any follow-up program in respect of the project; and
- (d) the capacity of renewable resources that are likely to be significantly affected by the project to meet the needs of the present and those of the future.

Pursuant to subsection 16.1 of the *CEAA*, the assessment by the Substituted Panel may also include a consideration of the community knowledge and aboriginal Traditional Knowledge received during the review.

In June 2012, the *CEAA* was replaced by the *Canadian Environmental Assessment Act, 2012* (*CEAA, 2012*).<sup>30</sup> Section 127<sup>31</sup> of *CEAA, 2012* is a transitional provision which specifies that the Review of the Project will be governed by *CEAA* as if that Act had not been repealed.

## 2.6 Substituted Review Process

With respect to the proposed ITH Project, provisions of both the IFA and the *CEAA* apply. The ITH Project is subject to a substituted environmental assessment process pursuant to ss. 40(1)(d) and s. 43(1) of the *CEAA*.

The *CEAA* applies to this Project because federal funding is being provided and federal authorizations are needed for the Project to proceed. Further, a comprehensive study level of assessment under *CEAA* was required because the Project proposal involved an all-season public highway that will be more than 50 km in length and will either be located in a new right-of-way or will lead to a community that lacks all season highway access.<sup>32</sup>

The Project requires a public hearing and approvals from the EIRB pursuant to the IFA, and is also subject to an assessment under the *CEAA*. In order to avoid duplication, the Minister of Environment referred the Project to a Review Panel in accordance with s. 29 of the *CEAA*. The Minister also determined the federal Review Panel process would be substituted by the EIRB process in accordance with ss. 40(1)(d) and s. 43(1) of *CEAA*. This substituted process was

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<sup>30</sup> *CEAA, 2012* (S.C. 2012, c. 19, s. 52)

<sup>31</sup> *CEAA, 2012* s.127. *The environmental assessment of a Project commenced under the former Act before the day on which this act comes into force for which the Minister has, before that date, approved the substitution of a process under section 43 of the former Act is continued and completed as if the former Act had not been repealed.*

<sup>32</sup> *CEAA Comprehensive Study List Regulations* SOR/94-638, PC 1994-1687, s.29



established through an “*Agreement to Establish a Substituted Panel for the Inuvik to Tuktoyaktuk Highway Project*” (Agreement) concluded on March 2, 2011 between the Minister of Environment and the EIRB (Appendix 2). Thus, in conducting this substituted Review, the EIRB is responsible for meeting the requirements of the IFA and the *CEAA*. The steps that were followed in the substituted Review process are detailed in Appendix 3. Once the Review was completed, the Panel distributed its report to the distribution list found in Appendix 4, and posted it to the public registry.

## **2.7 The Burden of Proof**

In a review, the burden of proof in persuading a Panel that a project should proceed rests with the Developer. In this case, it was the responsibility of the Developer to prepare an EIS in accordance with the EIRB EIS Terms of Reference<sup>33</sup> and the EIRB Environmental Impact Review Guidelines<sup>34</sup> in order that the Review Board, and ultimately the Panel, could conduct a full Review of the matters relevant to its mandate and the requirements of the IFA and *CEAA*. The Developer had the onus to provide the Panel and other Parties sufficient evidence to convince them that there would be no significant unmitigated residual impacts resulting from their proposed Project.

In addition to the Developer, any Party or member of the public seeking to establish any point or position in a proceeding before the EIRB bears the burden of proof and the responsibility to introduce information or evidence to support their position. Any Party which provides evidence is subject to questioning in that proceeding.

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<sup>33</sup> Final EIS Terms of Reference, issued November 3, 2010, registry item 046-1

<sup>34</sup> EIRB Environmental Impact Review Guidelines, April 15, 2011



### 3.0 MANAGING AND ANALYZING THE RESULTS OF THE REVIEW

#### 3.1 Issues-Based Approach

The Panel relied on an issues-based approach to manage and review the evidence, address public concerns identified during the review process and make its decision. The Review Board, and ultimately the Panel, also relied on the collaborative active participation of the Parties and the public to test the evidence presented in the EIS, in the subsequent filings of the Developer and in filings by the Parties and the public.

The Parties stated in their final technical submissions that they were satisfied that many of the issues they had identified in the Review process could be dealt with by the mitigation measures and commitments proposed by the Developer, and through the regulatory approvals process.

This Panel's Review process thus resulted in many issues being resolved through the dialogue that occurred and with the submission of new or revised evidence. Mitigation measures were proposed and commitments made by the Developer that also addressed outstanding issues. By the end of the Review the Panel was left with only the key issues addressed in this report. Consequently, only those issues of concern which required further detailed analysis have been addressed by the Panel in this report.

The Panel recognizes and accepts many of the recommendations made by the Parties. By implementing the recommendations made in this report, the key concerns of the Panel will be effectively mitigated and managed.

#### 3.2 Mitigation Measures

Mitigation is proposed by the Developer to reduce or prevent potential adverse effects that may occur as a result of the ITH Project. The Panel recognizes there are different types of mitigation that can be applied:

- mitigation by design, which are changes to a structure or a planned activity to reduce or avoid an impact before that structure is constructed or the activity takes place; and,
- mitigation based on a measure or measures applied to a development or activity when an impact cannot be avoided, which reduce that impact.

Guidelines and best practices that the Developer has committed to follow for carrying out an activity and completing the development are also based on the principle of avoiding or minimizing potential direct and indirect impacts.

The Developer was required in the EIS Terms of Reference to list all mitigation measures it would implement as part of the development.<sup>35</sup> The Developer responded by providing Table 6-1 in its EIS that, *"...provides a summary description of the proposed mitigation strategies that*

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<sup>35</sup> Final EIS Terms of Reference, chapter 12, page 45, registry item 046-1



*will be implemented to avoid or minimize potential effects to the Valued Components (VCs) identified for this Project.”<sup>36</sup>*

Over the course of the Review, some of these mitigation measures were identified as a concern. The Developer supplemented these measures in response to questions and concerns raised by the Parties through the Information Request (IR) process in rounds 1<sup>37</sup> and 2,<sup>38</sup> through subsequent Review Board and Panel Directives,<sup>39</sup> at the technical sessions, and during the public hearings.

The Developer asserted that through the development and implementation of plans, for example its proposed Wildlife and Wildlife Habitat Protection (WPP) and Erosion and Sediment Control Plans, mitigation measures would be applied to either reduce or avoid potential impacts from planned activities and developments. The Developer made commitments to implement the mitigation measures it proposed and to ensure that these and other plans it proposed are developed and approved by the appropriate regulators.<sup>40 41</sup>

The Panel recognizes and accepts the Developer’s commitment that mitigation measures will be adopted and implemented throughout the construction and operation of the ITH Project in order to avoid impacts or reduce the effects of unavoidable impacts. The Panel also recognizes and accepts that certain Parties with regulatory responsibility for issuing a licence, permit or authorization to allow the development to proceed will attach conditions to those approvals that may contain additional mitigation measures and other requirements aimed at further reducing or avoiding potential impacts. However, the Panel is not able to factor promises of unspecified future mitigation measures into its evaluation of the impacts of the Project.

### **3.3 Developer Commitments**

Commitments are those promises made by the Developer during the course of the review to undertake a certain activity or to do something requested of it by the Panel or a Party in order to supplement its proposed mitigation measures. In this Review, such commitments were made in the Developer’s EIS, in responses to IRs, during the technical sessions and at the public hearings. As part of its Final Submission<sup>42</sup>, the Developer provided a comprehensive compilation of its commitments in Table F (Appendix 5) which contained 234 commitments.

The Panel appreciates these commitments. They indicate the obvious intention of the Developer to ensure that no significant environmental impacts occur. Having reviewed all these commitments, the Panel notes that they represent a significant portion of the overall mitigation proposed by the Developer. In the Panel’s view, it is essential that all of these commitments be implemented.

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<sup>36</sup> Developer EIS, chapter 6, page 646, registry item 072-1

<sup>37</sup> EIRB round 1 IRs sent to Developer January 16, 2012, registry item 104-1

<sup>38</sup> EIRB round 2 IRs sent to Developer , March 8, 2012, registry item 123-1

<sup>39</sup> EIRB Directives to the Developer, May 25, 2012, registry item 172-1

<sup>40</sup> Developer response to Parties Draft Technical Submissions, registry item 287-1

<sup>41</sup> Developer’s Final Submission, registry item 346-1

<sup>42</sup> Developer’s Final Submission, registry item 346-1



### **3.4 Panel Recommendations**

The Panel has, where necessary to address significant residual impacts, unmitigated impacts and concerns raised by the Parties and public, recommended measures to address those problems. These measures supplement the mitigation measures proposed in the EIS and included in the commitments made by the Developer. The Panel's overall recommendation about the acceptability of the Project is based on the assumption that all commitments and recommended measures will be implemented.

A compilation of the Panel's findings is found in section 15 of this report.





**Review Panel, Inuvik Technical Hearings, September 2012**



**Kaylin Navaluk Day at the Tuktoyaktuk Public Hearings, September 2012**





## 4.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

### 4.1 Introduction

The ITH Project includes the construction, operation and maintenance of a 140 km (approximate) all-weather highway from the Town of Inuvik to the Hamlet of Tuktoyaktuk. The scope of the Project, as broadly defined in the Substitution Agreement,<sup>43</sup> includes the following components:

- an all-weather highway from Inuvik to Tuktoyaktuk;
- watercourse crossing structures;
- borrow and quarry areas to support construction, operations and maintenance requirements;
- construction staging areas;
- maintenance areas;
- temporary construction camp facilities;
- temporary construction access roads; and,
- ongoing operations of the all-weather highway.

The final scope of the development upon which the Review was conducted and the Review Panel Report is based is described more fully below.

### 4.2 Scope of the Development

#### 4.2.1 All-Weather Highway from Inuvik to Tuktoyaktuk

The construction of an all-weather highway from Inuvik to Tuktoyaktuk, with the following route alignment alternatives (Figure 2 source Developer EIS Figure 2.1.2-1):

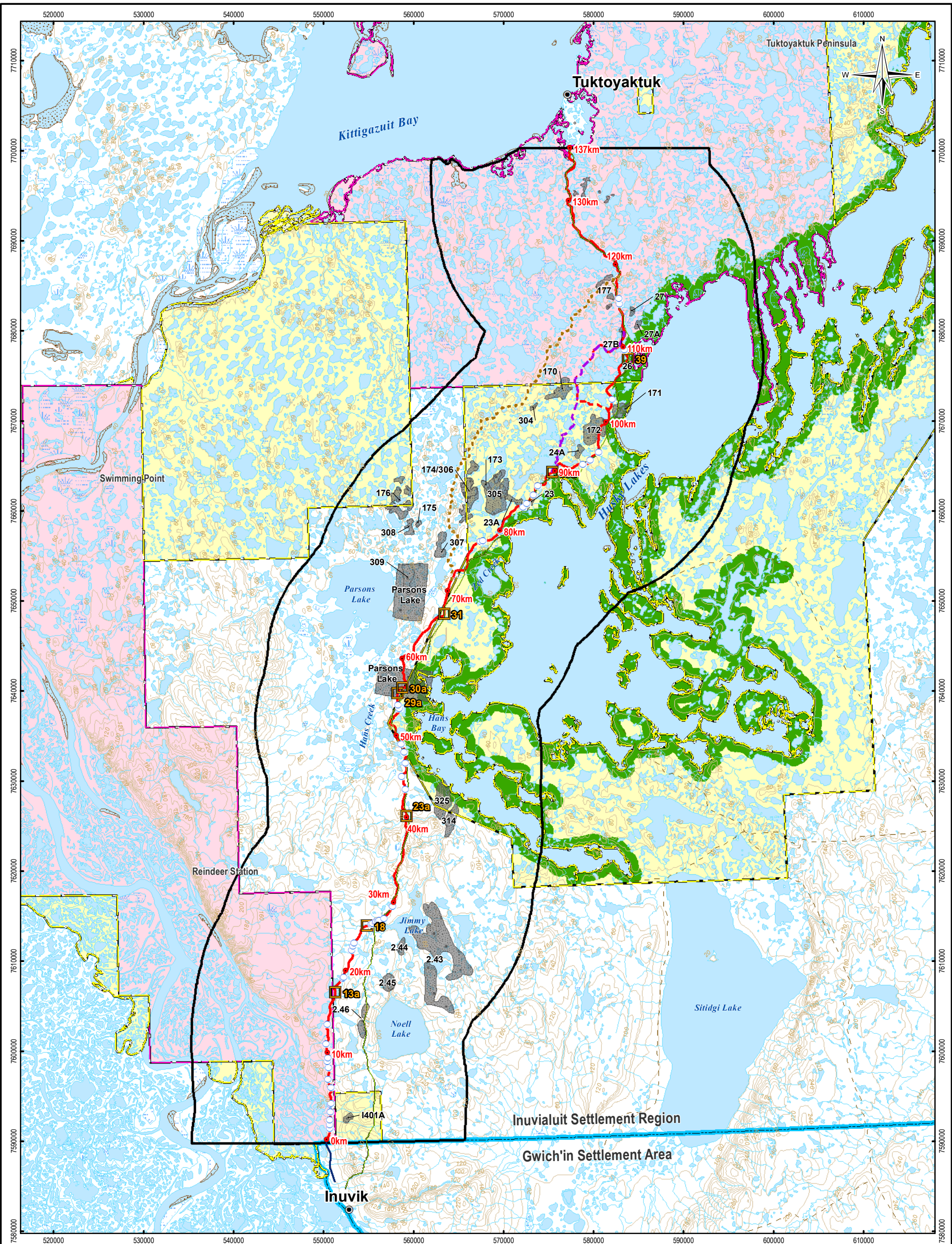
- **Primary alignment** - the Primary 2009 Route, which is an updated and refined version of the 1977 Public Works Canada (PWC) alignment, with a minor encroachment on the Husky Lakes 1 km setback;
- **Alternative 1** - the 2009 Minor Realignment of the Primary 2009 Route to fully achieve the Husky Lakes 1 km setback requirements;
- **Alternative 2** - the Upland Route, which diverts west from the Primary 2009 Route about 70 km north of Inuvik and re-joins the alignment near Source 177. This route has been considered in response to requests in the 2009 consultations to consider a suitable alignment that is substantially further than 1 km away from the Husky Lakes; and,
- **Alternative 3** - the 2010 Minor Realignment, recommended by Inuvialuit interests [specifically the ILA] to modify Alternative 1 (2009 Minor Realignment) and to provide a more direct route.

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<sup>43</sup> Substitution Agreement, registry item 056-1 and Appendix 2







LEGEND

- Stream Crossing
- Stream Crossing - Potential Bridge
- 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
- 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

PROPOSED INUVIK-TUKTOYAKTUK HIGHWAY  
ENVIRONMENTAL IMPACT STATEMENT

Primary 2009 Route and  
Other Alternative Alignments Considered

|  |                      |
|--|----------------------|
| PROJECTION<br>UTM Zone 8                       | DATUM<br>NAD83       |
| Scale: 1:400,000                               |                      |
| 5 2.5 0 5 10<br>Kilometres                     |                      |
| FILE NO.<br>V23201322_EIS_Map054_Alignment.mxd |                      |
| PROJECT NO.<br>V23201322                       | DWN<br>SL            |
| OFFICE<br>EBA-VANC                             | DATE<br>May 19, 2011 |
| CKD<br>TS                                      | REV<br>0             |



Figure 2.1.2-1

ISSUED FOR USE







The information in Alternative 3 was presented to the Developer by the ILA just prior to submission of the Project Description Report, and is identified as an option in the EIS. The Developer said the following about this option: *“The Project Team considers this alternative alignment in the Husky Lakes area to be a promising route realignment, but has not yet assessed the engineering considerations related to this option in the field. However, the Project Team feels that subject to Project approval, Alternative 3 would be further considered and likely adopted in the detailed design stage based on the additional field information that needs to be gathered.”*<sup>44</sup> And, *“When the Project is approved further terrain and geotechnical investigation will be undertaken as part of the detailed design steps. At that time, the specific terrain conditions of Alternative 1 (2009 Minor Realignment) and Alternative 3 (2010 Minor Realignment) will be investigated and documented to support the detailed design. The ultimate alignment will respect the 1 km Husky Lakes setback. In the meantime, there is sufficient preliminary information available to anticipate that the terrain conditions along Alternative 1 (2009 Minor Realignment) and Alternative 3 (2010 Minor Realignment) are similar to those conditions described in Table 2.3-1.”*<sup>45</sup>

In January 2012 the Review Board issued IR 10 to the Developer requesting a comparison of potential environmental and socio-economic impacts of all alignment options being considered and also specific impact information for Alternative 3. The Developer provided general biophysical descriptions for Alternative 3 and indicated that, *“A field overview program and preliminary design for the relatively short length (approximately 21 km) of the Highway that comprises Alternative 3 have not been undertaken at this stage in the Project development.”*, and for environmental information, *“The potential effects related to the incorporation of Alternative 3 are considered to be similar to the potential effects as described in Section 4.2.1 of the EIS.”*<sup>46</sup>

In their response to the draft Technical Submissions of the Parties<sup>47</sup> in September 2012, the Developer stated, in specific response to the Tuktoyaktuk Community Corporation (TCC) submission,<sup>48</sup> that Alternative 3 is now the preferred alignment for that section of the Primary alignment.

The Panel notes that Alternative 2 (Upland Route) was removed from consideration in the Review by the Developer in a letter to the Review Board.<sup>49</sup>

The existing road from Tuktoyaktuk to Source 177 is part of the scope of development. The work associated with this portion involves upgrading the road from a “haul road” to highway standards.

The Panel wishes to emphasize that the proposed highway development alignment addressed in this Review process, consisting of the Primary alignment with the alignment adjustments

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<sup>44</sup> Developer EIS, subsection 2.2.7, page 54, registry item 069-1

<sup>45</sup> Developer EIS, subsection 2.3, page 55, registry item 069-1

<sup>46</sup> Developer responses to round 1 IRs, IR 10, page 9, registry item 108-1

<sup>47</sup> Developer response to Draft Technical Submissions, registry item 287-1

<sup>48</sup> TCC Submission for Public Hearings, registry item 275-1

<sup>49</sup> Developer letter to EIRB, November 9, 2011, registry item 094-1



proposed by Alternatives 1 and 3, ends at the ISR – Gwich'in Settlement Area boundary, in the vicinity of the northern end of Navy Road near Inuvik, situating the assessed Project entirely within the ISR. The Panel further notes that the Developer has indicated in a response to an IR posed by WMAC, *"Subject to receiving a positive Decision Report from the EIRB, the Developer's current plan is to initiate late winter 2012/13 upgrading of the existing Tuktoyaktuk to Source 177 Access Road and the upgrading of the existing Navy Road leading from Inuvik to KM 0 of the Highway at the end of Navy Road."*<sup>50</sup>

The proposed upgrades to Navy Road were not part of the scope of development considered in this Review because Navy Road is in the Gwich'in Settlement Area. To have included that portion of the alignment would have made this a transboundary Project for the purposes of Review. The Panel has no evidence before it addressing this component of the proposed highway.

The Panel accepts that for purposes of this Review, the Developer's preferred alignment is the Primary alignment as amended by Alternative 1 and Alternative 3. The Panel accepts for purposes of this Review the Developer's commitment to complete an engineering assessment of Alternative 3 prior to its development.

#### **4.2.2 Water Course Crossing Structures**

The Project includes the construction and installation of a total of 84 stream crossing structures, consisting of 52 culverts (including 9 culverts already installed on the Tuktoyaktuk to Source 177 access road), 9 bridges, and 23 culverts or short bridges.<sup>51</sup> The UTM locations of these water crossing structures are found in Watercourse Crossing Master Table 1.<sup>52</sup>

The Developer indicated the following in its response to DFO's draft Technical Submission<sup>53</sup> in September 2012,

*"As stated in the EIS, it is anticipated that all water crossings will be completed in the winter period; however, if a summer water crossing installation is required, the Proponent (Developer) will provide DFO with information on the water crossing type, construction methodology and mitigation measures to reduce or eliminate effects to fish or fish habitat during the regulatory approvals phase."*

*Summer works are anticipated to be limited to out of streambed activities, such as bridge girder and deck construction and associated works. All in-stream activities are anticipated to be carried out during winter construction."*

*The Developer can confirm that the DFO's Timing Windows Operational Statement will be used for any summer construction that may occur and that further consultations with DFO and communities will be undertaken as appropriate."*<sup>54</sup>

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<sup>50</sup> Developer responses to October 15, 2012 IRs, registry item 334-1

<sup>51</sup> Watercourse Crossing Master Table 2, August 31, 2012, registry item 251-1

<sup>52</sup> Watercourse Crossing Master Table 1, August 31, 2012, registry item 250-1

<sup>53</sup> DFO Draft Technical Submission, September 10, 2012, registry item 281-1



The Panel notes that in the EIS the Developer stated, *“In addition, based on experience gained with construction of the Tuktoyaktuk to Source 177 access road, certain culverts (to protect fish habitat) may be installed during the summer season.”*<sup>55</sup>

The Panel concludes that summer installation of water course crossing structures may be a source of significant impacts to fish and fish habitat. The Panel further finds that the Developer did not assess the effects of summer water crossing installations or file information in relation thereto; and, therefore defines the scope of development for water crossing installations for purposes of this Review to be:

- **summer works** – limited to out-of-streambed activities, such as bridge girder and deck construction and associated works; and,
- **winter works** – all in-stream activities and associated works.

#### 4.2.3 Aggregate Sources

Aggregate sources (borrow and quarry areas) to support construction, operations and maintenance requirements were identified in the EIS in Table 2.6.8-1 on page 79, which identified 37 borrow sources along the Primary 2009 route alignment.<sup>56</sup> These sources were classified according to granular quality, from class 1 (excellent quality) to class 4 (poor quality) and class 5 (bedrock). The Developer further stated, *“The resources near the communities of Inuvik and Tuktoyaktuk have been ground-truthed and proven to a spatial extent. Many of the resources along the Primary 2009 Route are not proven and are described as probable or prospective (i.e., material resources whose existence and extent have been inferred or speculated). The use of these materials and access to them will need to be proved up through additional site investigation.”*<sup>57</sup>

In response to questions raised at the technical sessions, held in Inuvik on August 22 and 23, 2012, the Developer submitted a document that identified the specific granular sources, and specific volumes to be extracted from each identified source. It informed the Panel that these sources were required for constructing and maintaining the Inuvik to Tuktoyaktuk Highway for a 50-year period.<sup>58</sup> The specific sources identified in Table TS-2-1 on page 6 of the submission were, PW2, 325/314, 309, 174, 170, and 177. This response was received by the Panel in the week prior to the public hearings.

An issue of note was the initial inclusion and subsequent removal from the list of PW2 as a granular source. Under the initial scenario, the ITH Project review would have been a transboundary Project between the ISR and the Gwich'in Settlement Area (GSA) because the PW2 source is in the GSA. Following discussions between Review Board staff and the

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<sup>54</sup> Developer response to Draft Technical Submissions, page 10, registry item 287-1

<sup>55</sup> Developer EIS, subsection 2.6.6, page 72, registry item 069-1

<sup>56</sup> Developer EIS, Table 2.6.8-1, page 79, registry item 069-1

<sup>57</sup> Developer EIS, subsection 2.6.8.4, page 83, registry item 069-1

<sup>58</sup> Developer submission on Granular Sources to EIRB, registry item 255-1



## REVIEW PANEL FINAL REPORT: ITH Development Proposal

Developer's consultants, the Developer decided to restrict the granular sources proposed for use in construction and operation of the highway to those within the ISR.<sup>59</sup>

In a subsequent submission to the Panel dated September 17, 2012, the Developer revised the specific sources, and corresponding extraction volumes, based on the following: sources 325/314, 309, 174, 170, 177, 173/305, and 307.<sup>60</sup> Use of PW2 is thus not part of the scope of development nor is it included in the assessment in this Report.

The Panel accepts for purposes of this Review the Developer's position that only those granular sources identified in its September 17, 2012 letter will be used to supply granular resource needs for the construction and operation of the Inuvik to Tuktoyaktuk Highway for a 50-year period. The Panel also accepts for purposes of this Review that only those estimated volumes of granular material identified to be taken from each source in the time period identified will be required. The Panel therefore accepts the aggregate sources and volumes to be extracted in the indicated timeframes as the scope of development for aggregate sources for the purposes of this Review as proposed by the Developer and set out in Table 2.

**Table 2: Estimated Material Requirements for the 50-year Period<sup>61</sup>**

| Source  | Construction requirement<br>(m <sup>3</sup> ) | Operational requirement<br>Year 1 to 20<br>(m <sup>3</sup> ) | Operational requirement<br>Year 21 to 40 (m <sup>3</sup> ) | Operational requirement<br>Year 41 to 50 (m <sup>3</sup> ) | Estimated total requirement<br>(m <sup>3</sup> ) ±20 % | Estimated amount available in source<br>(m <sup>3</sup> ) | Total mine area<br>(m <sup>2</sup> ) | Deposit type |
|---------|---|--|--|--|--|---|--------------------------------------|--------------|
| 325/314 | 1,177,050                                     | 558,750  | 300,000  | 89,000   | 2,124,800  | 2,124,800   | 314,000                              | Proven       |
| 309     | 1,061,300                                     | 263,700  | 175,000  | -  | 1,500,000  | 1,500,000   | unknown                              | Probable     |
| 174     | 1,223,900                                     | 1,072,350  | 687,250  | 296,500  | 3,280,000  | 3,280,000   | unknown                              | Prospective  |
| 170     | 562,750                                       | 109,790  | -  | -  | 672,540  | 672,540   | 266,900                              | Proven       |
| 177     | 677,000                                       | 238,500  | 100,000  | -  | 1,015,500  | 1,510,000   | unknown                              | Probable     |
| 173/305 | -   | 67,360   | 393,200  | 196,600  | 657,160  | 791,140   | 141,300                              | Proven       |
| 307     | -   | -  | -  | -  | -  | 913,600   | 196,250                              | Proven       |
| Total   | 4,702,000                                     | 2,310,450  | 1,655,450  | 582,100  | 9,250,000  | 10,792,080  |                                      |              |

<sup>59</sup> Personal communication between G. Stewart, EIRB and R. McGregor, EBA, September 11, 2012

<sup>60</sup> Developer erratum submission on Granular Sources, registry item 311-1

<sup>61</sup> Based on Developer erratum submission, Table TS-2-1, registry item 311-1





#### 4.2.4 Construction Staging Areas

The Developer identified its construction staging areas as follows: *“There are likely to be four construction equipment spreads working in any given construction period, two from the north and two from the south, each with sufficient equipment and personnel to haul and place material at a rate of over 400,000 m<sup>3</sup> per season. Equipment would initially be positioned in place at Source 177 and at the end of Navy Road once permitting is in place, and then re-positioned in advance of the next winter season construction phase. The specific locations of construction and equipment staging areas will be submitted following detailed design of this Project.”*<sup>62</sup>

The Panel notes that the Developer did not provide any evidence to enable an assessment of the effects of operations at these construction staging areas, including where they would be located, or how they would be established and operated. The Panel is aware that these staging areas would be used for approximately one year at each location during construction, and would be built, operated and decommissioned in accordance with the necessary regulatory authorizations. Despite the limited information provided by the Developer about construction staging areas and activities, the Panel is satisfied that they will be closely associated with other construction activities and that the impacts related to these activities can be adequately managed through the regulatory process. The Panel has included the construction staging areas as part of the scope of development for this Review.

#### 4.2.5 Maintenance Areas

The Developer has identified in the EIS that, *“Construction maintenance areas, for the storage and maintenance of equipment and fuel, will be located within the [temporary construction] camps.”*<sup>63</sup> The Developer further states, *“Equipment maintenance and refuelling areas will be located a minimum of 100 m from water bodies, following INAC’s (2011b) Northern Land Use Guidelines: Camp and Support Facilities.”*<sup>64</sup>

The Developer further states for equipment storage, *“Excavation and Highway construction equipment will generally be stored at the construction contractor’s yards in Inuvik and Tuktoyaktuk during the summer period. Equipment needed to initiate early borrow development may be pre-positioned in the borrow sites to be used for the next season of construction, if necessary.”*<sup>65</sup>

The Panel accepts the Developer’s evidence on the location of winter and summer season maintenance areas during the construction phase as being associated with the temporary construction camp locations. The Panel is aware that these maintenance areas for construction would be located with the temporary camps, and there would be no maintenance areas along the ITH right-of-way associated with operations. The Panel is also aware that these maintenance areas would be built, operated and decommissioned in accordance with the necessary regulatory authorizations. The Panel is satisfied that the impacts related to these

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<sup>62</sup> Developer EIS, subsection 2.6.10.1, page 89, registry item 069-1

<sup>63</sup> Developer EIS, subsection 2.6.9.1, page 87, registry item 069-1

<sup>64</sup> Developer EIS, subsection 2.6.10.5, page 89, registry item 069-1

<sup>65</sup> Developer EIS, subsection 2.6.10.3, page 89, registry item 069-1



activities can be adequately managed through the regulatory process. The Panel has included the construction staging areas as part of the scope of development for this Review.

#### 4.2.6 Temporary Construction Camp Facilities

The Developer indicated in its EIS the following with respect to temporary construction camp facilities, *"This Project proposes a number of 15-20 person construction camps in the first year, although in the second year, at least one camp of greater than 50 persons may be added...Construction camps will be typically located at the borrow site(s) being used in each year of construction, near the Highway construction area, to minimize the Project footprint. Once a new borrow source is approved and in use, it is anticipated that the construction camp will move to that borrow source, closer to the construction activities...Temporary camps will be installed during each winter construction period and then decommissioned until the following winter construction season, for the duration of the four year construction period...For the more limited construction activities taking place in the snow-free seasons, it is anticipated that workers will be transported to/from the work site daily, along the constructed Highway embankment."*<sup>66</sup> The Developer revised its construction camp requirements in response to IR 14 in the round 1 IR process, stating *"...there will be will four (4) 40 to 50 person camps operating during each of the three main winter construction seasons. Two camps would operate on the north end and two camps on the south end of the Highway. Camps would likely operate from December 1 to April 15 each winter season."*<sup>67</sup> The Developer's response to IR 14 also included camp locations over the three-year construction period. The Developer also confirmed its construction camp requirements at the technical hearings in Inuvik, where the Developer stated, *"...at this time it's estimated that we would have four (4) forty (40) to fifty (50) person camps; so two (2) camps per spread, north spread/south spread."*<sup>68</sup>

The Panel accepts the Developer's evidence on the size (as clarified) and location of temporary construction camp facilities as being at the borrow source(s) closer to the construction activities as part of the scope of development for this Review. The Panel includes as part of the scope of development, the temporary construction camp facilities including water use, wastewater disposal, resupply, power supply, and domestic waste disposal as described by the Developer in its EIS.

#### 4.2.7 Temporary Construction Access Roads

The Developer has identified the requirement for, *"Constructing a temporary winter access road parallel to the permanent alignment."*<sup>69</sup> The Developer further indicates that, *"...the temporary winter road that will parallel the alignment, and the temporary winter roads providing access to borrow sources."* are not part of the planned footprint of the Highway.<sup>70</sup>

The Panel is clear on the location and use of the temporary winter road that parallels the permanent alignment. However, there was no evidence filed by the Developer on where the

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<sup>66</sup> Developer EIS, subsection 2.6.9, page 87, registry item 069-1

<sup>67</sup> Developer response to round 1 IRs, IR 14, February 10, 2012, registry item 108-1

<sup>68</sup> Inuvik Technical Hearing Transcripts, September 19, 2012, page 59, registry item 300-1

<sup>69</sup> Developer EIS, subsection 2.6.1, page 64, registry item 069-1

<sup>70</sup> Developer EIS, subsection 2.6.3, page 65, registry item 069-1



temporary winter access roads to the borrow sources would be located, despite the fact that the Developer was able to provide the exact locations of the borrow sources it would require for the construction and maintenance of the ITH Project for the next 50 years. The Panel is aware that these temporary winter access roads to the borrow sources would only be required for a few seasons during the construction phase. Despite there being minimal information provided by the Developer about these temporary winter access roads, the Panel is satisfied that the construction techniques for such roads are well known and that impacts related to these activities can be adequately managed through the regulatory process. The Panel includes the temporary winter access roads as part of the scope of development for this Review.

#### **4.2.8 Operations Activities**

For operations activities the Developer has stated, *“Once construction of the Highway is completed, it is anticipated that the Highway will continue to operate for the foreseeable future. The GNWT DOT, using local contractors to the extent possible, will be responsible for the ongoing operation, maintenance, and safety of the Highway...Operations and maintenance depots likely would be located in Tuktoyaktuk and Inuvik. These depots would serve as support centres for maintenance contractors and likely would include an office, maintenance building, and laydown area for materials”.*<sup>71</sup>

The Panel accepts the Developer’s evidence that for operations activities, all equipment and associated activities will be staged locally from Inuvik or Tuktoyaktuk, and that no maintenance or operations staging areas will be located at any point along the Inuvik to Tuktoyaktuk Highway.

The Panel notes the record is not clear about the location of water sources to be used for dust suppression along the permanent alignment during the summer / open water seasons. There is also no evidence to suggest that these water sources would be located such that no temporary or permanent (i.e., summer) roads would be required to access them. The Panel is concerned that the potential effects of these summer activities are greater than those associated with winter access. The Panel therefore concludes that temporary or permanent roads to be used to access water supplies for dust suppression in the summer are not part of the scope of development, because they were not assessed.

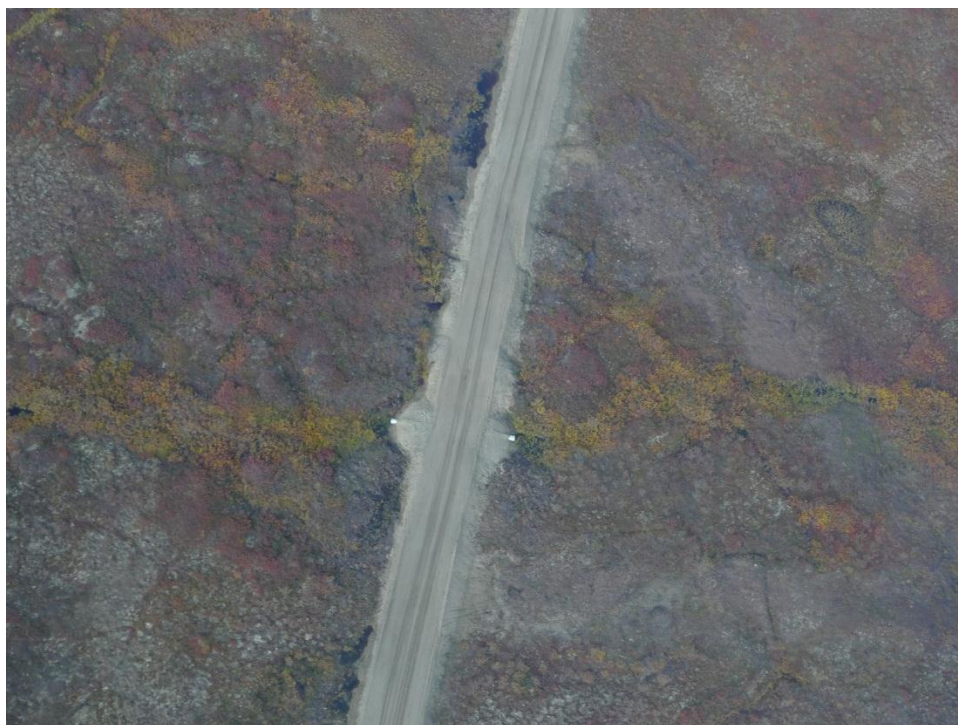
The Panel also notes the record is not clear about the size or the location along the permanent alignment of the stockpile areas for granular material to be used for summer maintenance and re-habilitation purposes over the operational life of the Project. The Panel therefore concludes for the same reasons as set out in relation to summer access roads that these granular stockpile areas are not part of the scope of development, because they were not assessed.

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<sup>71</sup> Developer EIS, subsection 2.6.10.3, page 90-91, registry item 069-1







**Source 177 Road showing a Drainage Culvert**



**Source 177 Road showing a typical fill type construction method**







### 4.3 Summary of Scope of Development

The Panel has concluded that for the purposes of this Review of the ITH Project, the scope of the development is defined as outlined in Table 3.

**Table 3: Summary of Scope of Development**

| Project component  | Included in scope of development   | Not included in scope of development   |
|--|--|--|
| All-weather highway from Inuvik to Tuktoyaktuk   | Primary Alignment as amended by Alternatives 1 and 3   | Alternative 2 (Upland Route), and those portions of the Primary alignment amended by Alternatives 1 and 3  |
| Watercourse crossing structures  | <ul style="list-style-type: none"><li>84 stream crossing structures, consisting of 52 culverts, 9 bridges, 23 culverts or short bridges</li><li><b>Summer works</b> – limited to out-of-streambed activities, such as bridge girder and deck construction and associated works</li><li><b>Winter works</b> – all in-stream activities and associated works</li></ul> | <ul style="list-style-type: none"><li>Any additional stream crossing structures not included in this inventory</li><li><b>Summer works</b> – no in-stream work or associated activities</li></ul>  |
| Aggregate sources (borrow and quarry areas to support construction, operations and maintenance requirements) | The aggregate sources and volumes to be extracted in the indicated timeframes, as identified in Table 1.   | <ul style="list-style-type: none"><li>Any additional aggregate sources not identified in Table 1</li><li>Any additional volumes of aggregate not identified in Table 1</li><li>Any additional volume of aggregate required from any of the identified sources during any of the operational time periods (i.e., construction, years 1-20, 21-40, 41-50) indicated in Table 1</li></ul> |
| Construction staging areas   | Construction staging areas to be used during construction of the ITH.  | None   |



## REVIEW PANEL FINAL REPORT: ITH Development Proposal

| Project component  | Included in scope of development  | Not included in scope of development   |
|--|---|--|
| Maintenance areas  | Winter and summer season maintenance areas associated with the temporary construction camp locations  | Any other maintenance area required during construction but not identified   |
| Temporary construction camp facilities (including water use, wastewater disposal, resupply, power supply, and domestic waste disposal) | Temporary construction camp facilities located at the borrow source closer to the construction activities   | Any other temporary construction camp facilities not located at the closest borrow source  |
| Temporary construction access roads  | <ul style="list-style-type: none"> <li>• Temporary winter access road that is parallel to the permanent alignment during construction.</li> <li>• Temporary winter access roads to the borrow sources during construction.</li> </ul> | None   |
| Ongoing operations of the all-weather highway  | All equipment and associated activities for operations phase will be staged locally from Inuvik and Tuktoyaktuk   | <ul style="list-style-type: none"> <li>• Maintenance or staging areas that may be required for operations that will be located at any point along the Inuvik to Tuktoyaktuk Highway.</li> <li>• Temporary or permanent access roads to water sources to be used for dust suppression during operations phase.</li> <li>• Stockpile areas along the permanent road alignment used to store granular material for summer maintenance and re-habilitation during the operations phase.</li> </ul> |

The Panel notes that any project component or activity not included in the scope of development that may be required during the construction and operation of the Inuvik to Tuktoyaktuk Highway will have to be applied for as if it were a new development and be subject to the environmental impact screening and review process in the ISR.



## 5.0 SCOPE OF THE ASSESSMENT

### 5.1 Introduction

The scope of the Review, as broadly defined in the Agreement<sup>72</sup>, is to include consideration of the factors set out in s.16 of the *CEAA* and the relevant sections of the IFA related to the responsibilities of the Review Board in completing an environmental impact review. The *CEAA* and IFA requirements have been identified and explained in section 2 of this Report.

The ITH Project that was assessed in this Review was limited to only those portions of the Project within the ISR.

### 5.2 Spatial and Temporal Boundaries

#### 5.2.1 Spatial Boundaries

The Developer was directed to define the appropriate spatial boundaries used for the assessment of each biophysical and human environment element assessed, and to provide a justification and rationale for the boundaries chosen.<sup>73</sup>

The Developer set out the following spatial boundaries, as illustrated in Figure 3 source Developer EIS Figure 4.1.3-1).<sup>74</sup>

**Project footprint** – the area directly under the highway alignment and the area used during borrow source activities. The Project footprint, shown on Figure 3, covers approximately 383 ha along the highway (using the Primary 2009 Route) and an estimated 30 ha for the borrow sources.

**Local study area (LSA)** - includes a 0.5 km buffer on either side of the proposed highway alignment (based on the Primary 2009 Route), including the available borrow sites and the proposed all-season highway. The total width of the buffer is 1 km. The LSA, shown in Figure 3, covers approximately 13,650 ha.

**Regional study area (RSA)** – includes a 15 km buffer on either side of the proposed highway (based on the Primary 2009 Route). The total width of the buffer is 30 km. The RSA, shown in Figure 3, covers approximately 376,959 ha. and incorporates the LSA and the Project footprint.

**Human environment study area** – includes the communities of Inuvik and Tuktoyaktuk and the Inuvialuit that may be impacted by the proposed development.

The Panel accepts, for the scope of the assessment, the Developer's spatial boundaries determination.

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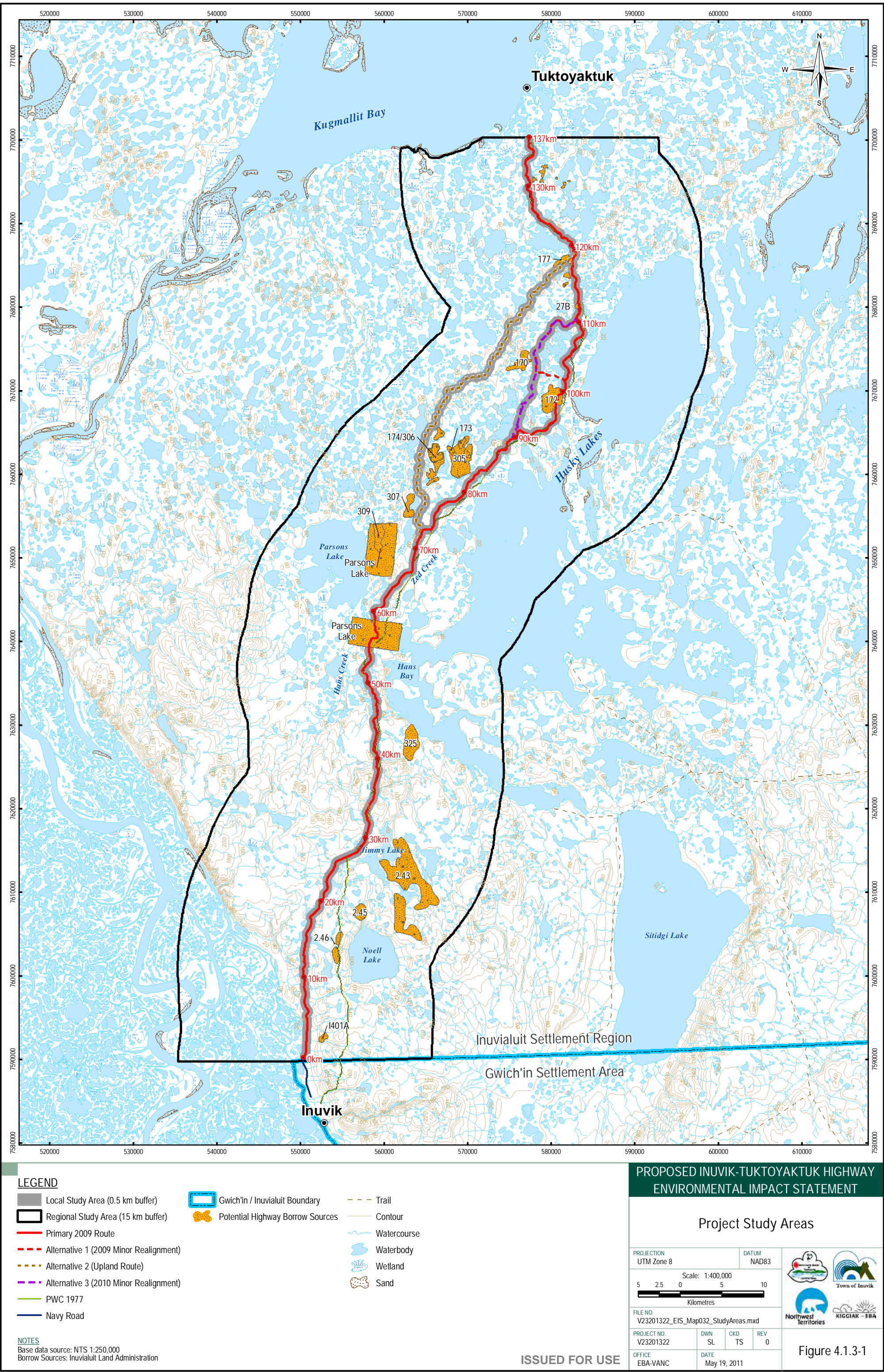
<sup>72</sup> Substitution Agreement, registry item 056-1

<sup>73</sup> Final EIS Terms of Reference, subsection 8.2.1, page 24, registry item 046-1

<sup>74</sup> Developer EIS, subsection 4.1.3.1, page 463, registry item 072-1













### 5.2.2 Temporal Boundaries

The Developer was directed to use temporal boundaries that would cover the construction, operation, maintenance, and where relevant, closure, decommissioning and restoration of sites affected by the development.<sup>75</sup>

The Developer defined and used the following temporal boundaries in its EIS:<sup>76</sup>

*Depending on the activity, the temporal boundaries for the assessment are defined as:*

- *short-term – occurs or lasts for short periods of time (i.e., hours, weeks, or months);*
- *medium-term – occurs or lasts for the life of the Project; and,*
- *long-term – extends or lasts beyond the life of the Project.*

The Panel accepts, for the scope of the assessment, the Developer's temporal boundaries determination.

### 5.3 Cumulative Effects Assessment

The Developer was directed to demonstrate in its EIS that any long-term cumulative effects were adequately considered and could be successfully mitigated. The analysis of the cumulative effects of the project must allow the Panel to understand the incremental contribution of the ITH Project to the impacts of all projects or activities in the delineated study area(s) on the Valued Ecosystem Component (VEC) or Valued Socio-economic Component (VSC) over the life of the project.<sup>77</sup>

The Developer identified the following as the spatial boundary for the cumulative effects assessment, *"For purposes of this cumulative effects assessment (CEA), the spatial boundaries include the portion of the Mackenzie Delta and the Tuktoyaktuk Peninsula in the general vicinity of the proposed Inuvik to Tuktoyaktuk Highway corridor, extending between Inuvik and Tuktoyaktuk, including alternate alignments considered (as shown in Figure 4 source Developer EIS Figure 4.3.8-1). The easterly boundary extends from the westerly shores of the Husky Lakes to the westerly boundary, which extends from the eastern side of the Mackenzie River. This general area encompasses the entire proposed Highway, the range of environments that could be impacted by the Highway, and the past, present and future projects that may have a potential to contribute to potential cumulative effects."*<sup>78</sup>

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<sup>75</sup> Final EIS Terms of Reference, subsection 8.2.2, page 25, registry item 046-1

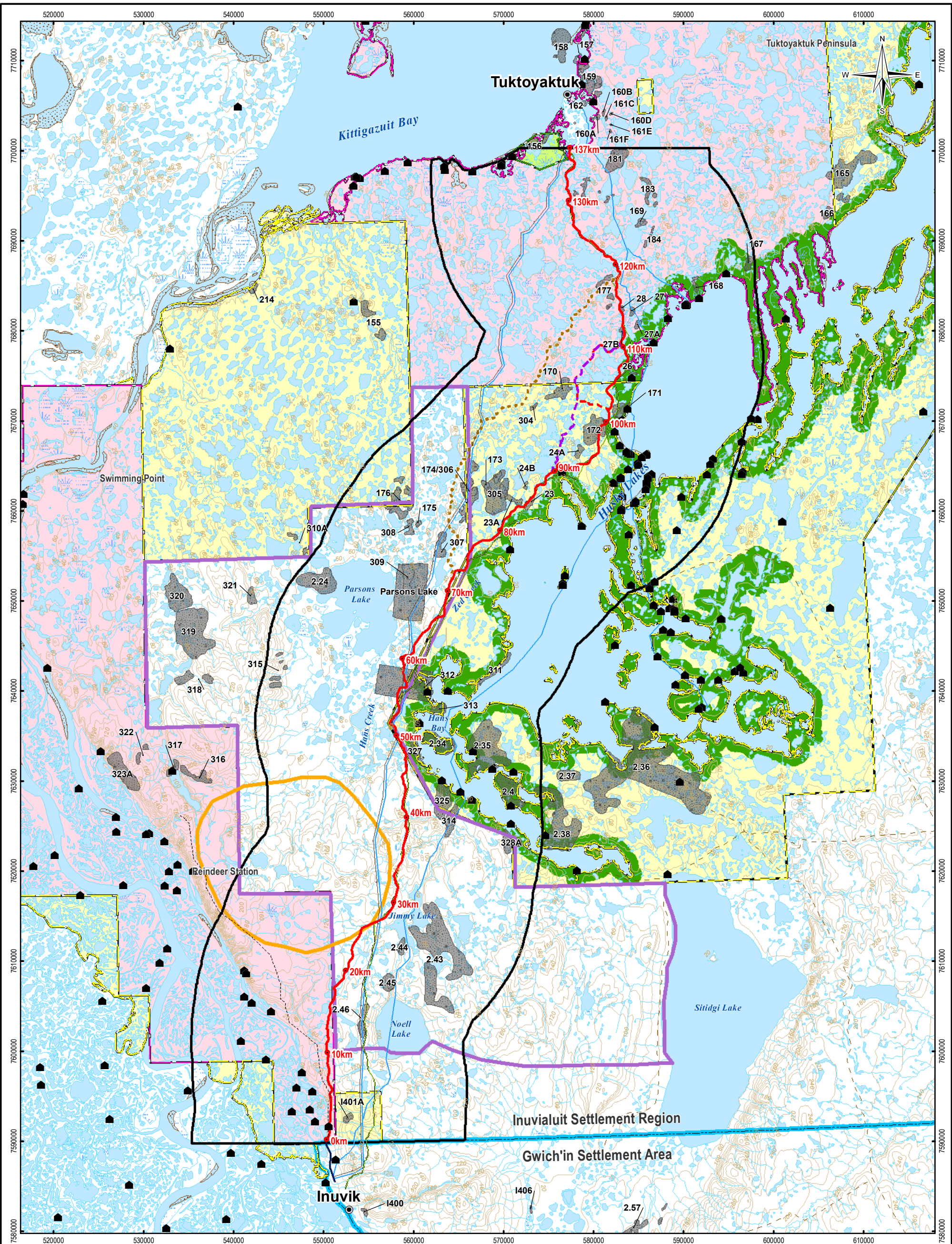
<sup>76</sup> Developer EIS, subsection 4.1.3.2, page 463, registry item 072-1

<sup>77</sup> Final EIS Terms of Reference, chapter 11, page 43, registry item 046-1

<sup>78</sup> Developer EIS, section 5.1, page 627, registry item 072-1







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

NOTES  
Base data source: NTS 1:250,000  
Borrow Sources, Powerline, ILA Lands, Husky Lakes 1000m Setback: Inuvialuit Land Administration

PROPOSED INUVIK-TUKTOYAKTUK HIGHWAY  
ENVIRONMENTAL IMPACT STATEMENT

Existing Land Uses

|   |                      |
|---|----------------------|
| PROJECTION<br>UTM Zone 8                              | DATUM<br>NAD83       |
| Scale: 1:400,000                                      |                      |
| 5 2.5 0 5 10<br>Kilometres                            |                      |
| FILE NO.<br>V23201322_EIS_Map022_CEA_ExistLanduse.mxd |                      |
| PROJECT NO.<br>V23201322                              | DWN<br>SL            |
| OFFICE<br>EBA-VANC                                    | DATE<br>May 19, 2011 |
| CKD<br>RH   | REV<br>0             |



Figure 4.3.8-1

ISSUED FOR USE







The Developer defined the temporal boundaries to be, *“For purposes of this CEA, the temporal (time frame) for the assessment will be the next four (4) to ten (10) years, during which time construction of the proposed Highway is anticipated to be completed and the Highway will have been in operation for up to six (6) years. It remains unknown at this time whether construction of other proposed future projects, in particular, the Mackenzie Gas Project and the Tuktoyaktuk Harbour Project will have commenced or not within this 10 year time-frame.”*<sup>79</sup>

The Panel finds that the CEA temporal boundary chosen by the Developer was problematic, particularly because the Developer stated in its EIS, *“The Highway is intended for permanent, long-term use.”*<sup>80</sup> Several Parties had difficulties with this timeframe for a CEA, as was evidenced in the filings of the Wildlife Management Advisory Council (WMAC). These particular issues are further discussed in section 9 of this report. The Panel questioned the Developer’s cumulative effects assessment boundaries, and in IR 50 in the Round 1 IR process, suggested that a 100-year temporal boundary would have been more realistic for the purposes of the Review.<sup>81</sup> In its response to IR 50, the Developer explained why it did not use a longer temporal boundary, but then also stated the following, *“However, as previously indicated, the Developer is committed to participating with other parties in a future cumulative effects monitoring program as and when such a program may be developed.”*<sup>82</sup> The Developer also assumes that it may be beneficial for this matter to be examined in more detail by all parties during the planned public hearings for the Highway Project.<sup>83</sup>

The Panel notes that after the technical sessions in Inuvik in August 2012, the Developer voluntarily filed a supplemental CEA which included expanded spatial boundaries, but used the same temporal boundary of 10 years.<sup>84</sup> In its final technical submission, Environment Canada (EC) stated, *“EC is of the view that the cumulative effects analysis should have used species-specific zones of influence that were based on available science rather than a generic 1 km zone of influence for all species.”*<sup>85</sup>, suggesting there were further inadequacies in the CEA completed by the Developer.

The Panel appreciated the work that WMAC did with respect to the CEA throughout the Review. The Panel also commends EC for its systematic and helpful review of the deficiencies of the CEA information filed by the Developer, particularly as it related to species at risk. The Panel accepts for purposes of this Review the work that has been done on the CEA during this Review by the Parties and the Developer; however, the deficiencies and limitations identified with the Developer’s CEA filings throughout the Review are still outstanding. Section 9 of this report sets out the details of the Panel’s findings in relation to cumulative effects and monitoring.

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<sup>79</sup> Developer EIS, section 5.2, page 627, registry item 072-1

<sup>80</sup> Developer EIS, section 2.8, page 97, registry item 069-1

<sup>81</sup> EIRB round 1 IRs sent to Developer January 16, 2012, IR 50, registry item 104-1

<sup>82</sup> Developer Commitment 226, Appendix 5

<sup>83</sup> Developer response to Round 1 IRs, IR 50, registry item 108-1

<sup>84</sup> Developer’s Supplemental Cumulative Effects Assessment, registry item 271-1

<sup>85</sup> EC Final Technical Submission, issue 12, page 27, registry item 341-1





**Construction/Maintenance Activities along Source 177 Road**



**Source 177 Road**







## 5.4 Determination of Significance

The Developer was directed to describe how impacts were defined and assessed, and how it determined the significance of residual effects.<sup>86</sup> The Developer provided the following effects assessment and consequence criteria in its EIS (Table 4).<sup>87</sup>

**Table 4 - Effects Assessment and Consequence Criteria**

| Criterion         | Descriptor            | Definition   |
|-------------------|-----------------------|--|
| Magnitude         | Negligible            | Effect will produce no detectable change from baseline conditions  |
|                   | Low                   | Effect is within the range of baseline conditions or natural variation   |
|                   | Moderate              | Effect is at or slightly exceeds baseline conditions or the limits of natural variation  |
|                   | High                  | Effect will produce a notable change beyond baseline conditions or the upper or lower limit of natural variation   |
| Geographic Extent | Local                 | Effect is confined to the LSA  |
|                   | Regional              | Effect is confined to the RSA  |
|                   | Beyond Regional       | Effect extends beyond the RSA  |
| Duration          | Short-Term            | Effect occurs or lasts for short periods of time - hours, weeks, months  |
|                   | Medium-Term           | Effect occurs or lasts for the life of the Highway   |
|                   | Long-Term             | Effect extends or lasts beyond the life of the Highway   |
| Frequency         | Isolated              | Effect is confined to a discrete or specific period of time  |
|                   | Sporadic              | Effect occurs on occasion and at irregular intervals   |
|                   | Periodic              | Effect occurs intermittently but repeatedly during the life of the Project   |
|                   | Continuous            | Effect will occur continually during the life of the Project   |
| Reversibility     | Reversible Short-Term | Effect can be reversed during the life of the Project  |
|                   | Reversible Long-Term  | Effect can be reversed within 100 years  |
|                   | Irreversible          | Effect cannot be reversed  |
| Likelihood        | Low                   | Effect is unlikely but could occur   |
|                   | Moderate              | Effect is likely but may not occur   |
|                   | High                  | Effect will occur  |
| Consequence       | Negligible            | Effect may result in a slight decline in condition of the VC in the study area for a very short duration but the VC should return to baseline conditions   |
|                   | Low                   | Effect may result in a slight decline in condition of the VC in the study area during the life of the Project. Research, monitoring, and/or recovery strategies would not normally be required   |
|                   | Moderate              | Effect could result in a noticeable but stable change in the condition of the VC compared to baseline conditions which persists in the study area after Project closure and into the foreseeable future<br><b>Or</b><br>Effect could result in a noticeable change in the condition of the VC in that established guidelines or thresholds are exceeded but the VC should return to baseline conditions. |
|                   | High                  | Effect results in notable changes to the condition of the VC.  |

The Panel accepts the Developer's effects assessment and consequence criteria.

<sup>86</sup> Final EIS Terms of Reference, subsection 10.5, page 41, registry item 046-1

<sup>87</sup> Developer EIS, subsection 4.1.3.3, page 465, registry item 072-1



## 6.0 DESCRIPTION OF THE ENVIRONMENT

The following are general descriptions of the biophysical and human environments to provide readers some context of the general area of the ITH Project. The biophysical and human environment descriptions were prepared using information provided by the Developer in the EIS.

### 6.1 Biophysical Environment

#### Terrain and Vegetation

The proposed ITH Project is located mainly within the Tundra Plains Level II Ecoregion, with a small portion of the Highway alignment extending into the Taiga Plains Level II Ecoregion, near Inuvik. The Tundra Plains Level II Ecoregion, which includes the Tuktoyaktuk Peninsula, is characterized by fairly level topography that rises from sea level to approximately 100 m in elevation at Granular Source 177. Lakes, ponds, and streams are common across the Peninsula.

Vegetation grows on a veneer of unfrozen organic or granular substrate overlying permafrost. The dominant vegetation along the proposed Highway alignment is characterized by a continuous cover of shrubby tundra species (spp.), consisting of dwarf birch, willow, northern Labrador tea, *Dryas* spp., and sedge tussocks. In wetter areas, sedges, cotton-grasses, and *Sphagnum* moss species dominate high-centered and low-centered polygons. Drier areas support ericaceous shrubs. Riparian communities include wet sedge communities and taller shrubs.

The proposed Highway also traverses approximately 2.8 km of the Taiga Plains Level II Ecoregion near Inuvik. This Ecoregion is dominated by Canada's largest river, the Mackenzie, and its tributaries. Taiga Plains Level II Ecoregions are characterized by open, generally slow growing, conifer-dominated forests of predominantly spruce. The shrub component is often well developed and includes dwarf birch, Labrador tea, and willow. Bearberry, mosses, and sedges are dominant understory species. Upland and foothill areas and southerly locales tend to be better drained, are warmer, and support mixed wood forests characterized by white and black spruce, tamarack, white birch, trembling aspen, and balsam poplar.

#### Permafrost

The ITH corridor is located entirely within the zone of continuous permafrost. Ground temperatures are within the range of minus 2°C to minus 5°C. Permafrost is defined as rock or soil material that has remained below 0°C continuously for two or more years, without consideration of material type, ground ice distribution, or thermal stability.

#### Wildlife

The Tuktoyaktuk Peninsula and Delta area in the vicinity of the proposed Highway supports a wide variety of wildlife. Records identify 34 terrestrial mammal species that may use the proposed Highway corridor. Key mammal species of greatest interest for the communities



include caribou, moose, grizzly bear, wolverine, muskrat, and arctic and red fox. The local and regional abundance and distribution of these species varies considerably depending on habitat availability and access to terrain suitable for various life history phases, such as calving and denning.

Approximately 108 bird species, including geese, ducks, swans, raptors and upland birds, have been recorded in the Regional Study Area. Most are migratory; but a few are year round residents.

Caribou are an important terrestrial mammal species, and have traditionally been harvested by the residents of Tuktoyaktuk and Inuvik. Three caribou herds occur in the Regional Study Area, the Bluenose-West herd, Cape Bathurst herd and Tuktoyaktuk Peninsula herd. All three herds' annual ranges overlap that of the proposed Highway alignment during part of the year, particularly the winter.

The proposed Highway alignment is located south of the traditional summer and fall caribou harvesting areas, but within the spring and winter caribou harvesting areas. As well, the alignment occurs within the Bluenose-west winter range management area. This area provides important winter habitat for the Bluenose-West caribou herd, which is valued for subsistence harvesting year-round by Inuvialuit communities and other Aboriginal communities outside the ISR.

A domestic reindeer herd is also found in the region, utilizing grazing areas on the Tuktoyaktuk Peninsula and Richardson Island.

## **Fish**

The proposed ITH will cross approximately 46 ephemeral and/or permanent streams, and comes near many lakes along its route. The proposed Highway alignment is located in the vicinity of the spring, summer, fall, and winter fish harvesting area near Husky Lakes and the Fish Lakes and Rivers management area, an area which provides important fish habitat and historic and current subsistence harvest areas for the people of Inuvik and Tuktoyaktuk.

Limited fish surveys have been conducted previously in streams along the proposed Highway route. These surveys identified the following fish species in some streams: lake whitefish, round whitefish, inconnu, northern pike, Arctic grayling, lake trout, burbot, least cisco, ninespine stickleback, and sculpin. Actual species presence is dependent on several habitat and watershed characteristics, often including the availability and accessibility of upstream lakes that provide feeding, rearing, and/or overwintering habitats.

## **Climate**

For both locations the climate is characterized by long, cold winters followed by short summers. For Inuvik, July is the warmest month with a daily average temperature of 14.1°C. The lowest average daily winter temperatures occur in February and average -26.5°C. For Tuktoyaktuk, July is the warmest month with a daily average temperature of 11.0°C. The lowest average



normal daily winter temperatures occur in January and average  $-26.7^{\circ}\text{C}$ . In general the temperature data indicate that the Tuktoyaktuk climate is  $2\text{-}3^{\circ}\text{C}$  cooler than Inuvik.

### Precipitation

Rainfall generally occurs from June through September; while snowfall generally occurs from September through May. The mean annual total precipitation measured at Inuvik averages 243.2 mm, the proportion of rainfall to precipitation is about 47.5%, and the mean annual total snowfall averages 163.5 cm. For Tuktoyaktuk, the mean annual total precipitation averages 166 mm, the proportion of rainfall to precipitation is about 45.6%, and the mean annual total snowfall averages 100 cm. On an average annual basis, Inuvik receives 67% more precipitation than Tuktoyaktuk.

### Climate change

There were consistent observations of weather change and its effects from three ISR communities (Inuvik, Tuktoyaktuk, and Aklavik). These changes included warmer and shorter winters, hotter summers, earlier breakup of river ice, later freeze-up, more wind, particularly west wind, and increased erosion due mostly to melting permafrost.

Natural variability, expressed as averages over the last 30 years, shows variations in average annual temperatures of  $3^{\circ}\text{C}$  to  $6^{\circ}\text{C}$  in the Mackenzie Delta. Generally, modeling results predict a warming trend in air temperature of up to  $2.5^{\circ}\text{C}$  and an increase in precipitation of up to 11.8% in the 30 years between 2010 and 2039.<sup>88</sup>

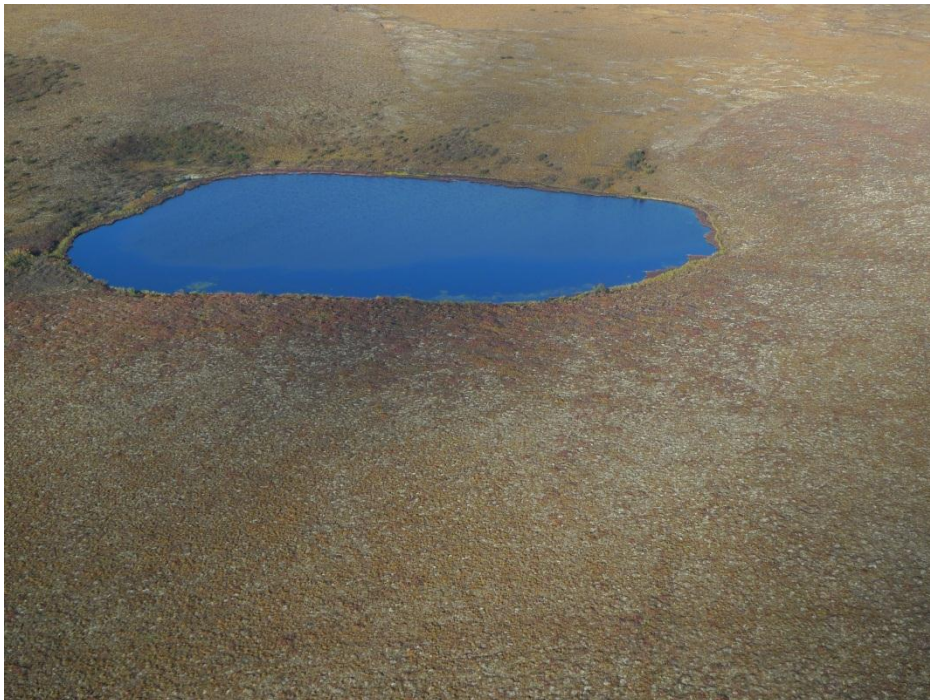
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<sup>88</sup> Imperial Oil Resources Ventures Limited Partnership, ConocoPhillips Canada (North) Limited, ExxonMobil Canada Properties, Shell Canada Limited and Mackenzie Valley Aboriginal Pipeline Limited (IOL et al.). 2004. *Environmental Impact Statement for the Mackenzie Gas Project*. Submitted to the National Energy Board.





**Arctic Tundra Vegetation**



**Tundra Lake**







## **6.2 Human Environment**

The proposed ITH Project is located in the Inuvialuit Settlement Region, and will connect the communities of Tuktoyaktuk and Inuvik.

The Hamlet of Tuktoyaktuk is located on the Tuktoyaktuk Peninsula at 69°27'N and 133°02'W, and the peninsula is located on the shores of Kugmallit Bay (part of the Beaufort Sea). The community is located approximately 126 km northeast of Inuvik and 1,130 km northwest of Yellowknife. Tuktoyaktuk is accessible by air, winter ice road, and water during the ice-free summer months.

The Town of Inuvik is located on the Mackenzie River Delta at 68°21'N and 133°43'W. The community is located approximately 1,086 km northwest of Yellowknife. Inuvik is accessible year-round by air, all-weather road (Dempster Highway), and water (Mackenzie River) during the ice-free summer months. Inuvik is the regional government centre, and transportation and recreation hub for the Canadian Western Arctic. Due to its strategic location, Inuvik is also a center for the oil and gas industry operating in the Beaufort Sea and Mackenzie Delta. The airport, government services, recreational programs, retail outlets and the hospitality industry attract residents from neighbouring communities and tourists to the region.

### **Demographics**

The population of Tuktoyaktuk was 916 in 2010. Eighty-four percent (84%) of the population is Aboriginal, and 71% of the population is 44 years of age or under. The population of Inuvik was 3,522 in 2010. Sixty-four percent (64%) of the population is Aboriginal, and 72% of the population is 44 years of age or under.

### **Economy, Employment, and Income**

The regional economy is comprised of a mixture of traditional resource harvesting, government administrative functions as well as oil and gas exploration and transportation functions.

The total labour force in the Hamlet of Tuktoyaktuk was 345 persons (2006), and the total labour force in the Town of Inuvik was 2,020 persons (2006). In 2009, the employment rates for the male and female residents of the NWT were 68.1% and 66.4%, respectively. In 2009, the employment rates for the male and female residents of Tuktoyaktuk were 44.5% and 44.2%, respectively. The Aboriginal population had an employment rate of 31.5% and the non-Aboriginal population had an employment rate of 86.0%. In 2009, the employment rates for the male and female residents of Inuvik were 74.8% and 67.3%, respectively. The Aboriginal population had an employment rate of 57.3% and the non-Aboriginal population had an employment rate of 90.8%. The majority of the employees working in Tuktoyaktuk and Inuvik are employed full-time. However, there are a larger percentage of people working part-time in Tuktoyaktuk than in Inuvik.

In 2008, average personal income in Tuktoyaktuk was \$32,204, and in Inuvik was \$52,271.

In 2011, there were 133 licensed businesses on the Inuvialuit Business List (IBL) in the ISR.



## Educational Levels and Services

In 2009, 46.1% of Tuktoyaktuk's population, and 68.6% of Inuvik's population had completed high school. Schools in both Tuktoyaktuk and Inuvik offer education from Kindergarten to Grade 12. Aurora College offers Adult Basic Education (ABE) or Adult Literacy and Basic Education (ALBE) programs in Tuktoyaktuk at the Community Learning Center. Aurora College operates a campus and research center in Inuvik.

## Infrastructure and Community Services

- **Health and social services:** Health services are provided in Tuktoyaktuk by the Rosie Owayouk Health Centre. Regional providers work in partnership with health center staff, and travel to Tuktoyaktuk as well to provide additional services. The Inuvik Regional Hospital also services the population of Tuktoyaktuk. Social services and a counselling program are provided and are located in the Government Building in Tuktoyaktuk. There are several regional health care facilities located in Inuvik. Facilities include the Inuvik Regional Hospital, Public Health Services (Semmler Building), Billy Moore and Charlotte Vehus Homes (group homes for disabled adults), assisted living units, and a Family Counselling Centre.
- **Emergency and law enforcement services:** Law enforcement services in Tuktoyaktuk are provided by the five-member detachment of the Royal Canadian Mounted Police (RCMP). The Hamlet of Tuktoyaktuk also has an emergency response plan, a part-time paid Fire Chief, and 10 volunteer firefighters. Law enforcement services in Inuvik are provided by the RCMP's 13-person detachment and two support staff, which also serves outlying communities and the Dempster Highway. The Town of Inuvik has an emergency response plan. Firefighting services are provided by two professional firefighters and 24 volunteer firefighters.
- **Waste, water, and power:** Tuktoyaktuk has a solid waste disposal site, while Inuvik operates a modified landfill site. The Hamlet of Tuktoyaktuk's water source is Kudlak Lake, and sewage is collected and transported to the municipal sewage lagoon. The Town of Inuvik's water source is the Mackenzie River and 3 Mile Lake (during winter), and Hidden Lake (during summer). In Inuvik, water distribution and sewage lines are located in above-ground utilidors. Inuvik's sewage is treated in a multi-cell lagoon system before being discharged into the Mackenzie River. Tuktoyaktuk and Inuvik each have a power plant and facilities to generate electricity, owned and operated by Northwest Territories Power Corporation.
- **Transportation:** Tuktoyaktuk is accessible by winter road from Inuvik. Inuvik has year-round access to the Dempster Highway (Highway 8). Barged cargo delivery is available between June and September to both Inuvik and Tuktoyaktuk. The Tuktoyaktuk airport operates for flights between Tuktoyaktuk and Inuvik, with the frequency increasing during the summer months when the ice road is closed. Inuvik operates a full service airport.
- **Communication:** NorthwesTel provides residential and business phone services in the NWT. Cell phone services are provided in Inuvik and Tuktoyaktuk by NorthwesTel, Ice



Wireless and Bell Canada. In 2009, the percentage of the population with home internet access was over 40% in Tuktoyaktuk, and 70% in Inuvik.

- **Housing:** The average number of people per household in Tuktoyaktuk was 3.2 in 2009. Compared to Inuvik, Tuktoyaktuk has a higher percentage of households with 4-5 persons, and 6 persons or more. In Inuvik, the average number of people per household was 2.7 in 2009.
- **Recreation facilities and services:** Indoor recreational facilities in Tuktoyaktuk include Kitti Hall and an ice arena. Inuvik's Midnight Sun Complex & Conference Centre is a modern, multi-use facility used for community recreational activities.

### Harvesting and Participation in the Traditional Economy

Consuming country foods is important to Inuvialuit identity, and the culmination of a series of cooperative activities - harvesting, processing, distributing, and preparing - that require behaving in ways that emphasize Inuvialuit values of cooperation, sharing, and generosity. Traditional country foods include caribou, muskox, arctic hare, muskrat, seal, duck, goose, beluga and bowhead whale, fish (whitefish, herring, inconnu, arctic char, and trout), and berries (akpiks, blueberries, crowberries, currants, and cranberries).

In Tuktoyaktuk, the level of involvement in traditional economy activities in 2008 was as follows: 63.3% of households obtained half or more of the meat and fish they consumed through hunting and fishing, 54.4% of residents (15 years of age and older) hunted and fished; 5.8% of residents (15 years of age and older) trapped; 11.7% of residents (15 years of age and older) produced arts and crafts.

In Inuvik, participation in the traditional economy activities in 2008 was Reported as follows: 25.2% of households obtained half or more of the meat and fish they consumed through hunting or fishing, 40.8% of residents (15 years of age and older) hunted and fished; 7.9% of residents (15 years of age and older) trapped; 10.6% of residents (15 years of age and older) produced arts and crafts.

### Socio-Cultural Patterns

In the ISR, English is reported as the dominant language spoken at home, although traditional languages are now being taught in public schools<sup>89</sup>. The Inuvialuit Cultural Resource Centre (ICRC) serves the Inuvialuit communities with the mandate to preserve the Inuvialuktun language with the assistance of elders, provide support and a language curriculum for Inuvialuktun teachers, and promote the on-going development of the Inuvialuktun language<sup>90</sup>.

Both the Hamlet of Tuktoyaktuk and the Town of Inuvik are home to traditional dancing and singing groups, and host of several festivals throughout the year. According to the Inuvialuit Communications Society (ICS 2009), young people are encouraged to participate and are mentored in various traditional activities including producing clothing, harvesting and cooking

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<sup>89</sup> Inuit Health Survey 2007-2008: Inuvialuit Settlement Region, p.11.

<http://www.irc.inuvialuit.com/publications/pdf/ihs-Report-final.pdf> (Accessed December 3, 2012).

<sup>90</sup> <http://www.irc.inuvialuit.com/publications/pdf/ihs-Report-final.pdf> (Accessed December 3, 2012).





country foods, drum dancing, participating in Northern Games, sharing through oral tradition, and using traditional languages. Funding from the IRC supports youth mentoring programs related to hunting, fishing, trapping and other cultural activities.

### **Land Use**

The Tuktoyaktuk Peninsula, the Mackenzie Delta, and the Husky Lakes area have been occupied for several thousand years by the Inuvialuit, and contain several areas with traditional land use significance. Due to the rich natural resources in the area, industrial, transportation, and recreational land uses are prevalent and proposed for the future. The Inuvialuit continue to harvest and use many of the available natural resources, such as wildlife, waterfowl, fish, and berries.

According to the Tuktoyaktuk and Inuvik Inuvialuit Community Conservation Plans (CCPs), the proposed Highway alignment passes through lands in Management Categories B, C, and E. The proposed Highway also overlaps with, or is in proximity to, areas of high conservation value and ecological sensitivity or importance, including Critical Grizzly Bear Denning Areas (322C), Caribou Hills (702B), Fish Lakes and Rivers (704C), and Husky Lakes (705E).

The land between Inuvik and Tuktoyaktuk has been, and is currently used by, the Ikhil Gas Development and Pipeline Project, the former Northern Canada Power Commission (NCPC) power line, seismic lines, as well as oil and gas well sites. Proposed projects that may be developed in the region in the future include the Mackenzie Gas Project, the Parsons Lake Gas Field Associated Infrastructure and Gathering Pipeline, and the Tuktoyaktuk Harbour Project.

### **Archaeological Resources**

Within the general study region encompassing the area east of the Mackenzie River and west of the Husky Lakes and from the coast to the southern limits of the Project area, 103 archaeological sites have been documented. Types of sites found in this region include lithic scatters and quarry/workshops; stone features such as tent rings, caches and cairns; hearths and fire cracked rock concentrations; cabin remains and semi-subterranean house remains; cache pits; middens; graves; various types of wood features; and cut/worked wood remains. A number of sites have been confirmed to range from the Northwest Microblade tradition (over 5000 years old) to the Paleoeskimo (as old as 4,300 years ago), through Neoeskimo representations (between 1,000 to 200 years old).

There are 12 previously recorded archaeological sites within 5 km of the proposed Highway route, which typically represent Mackenzie Inuit occupations with some small components ascribed to the Paleoeskimo period. Most of these sites are small camps characterized by lithic, bone and artifact scatters, some with structural features such as tent rings, hearths, semi-subterranean house remains, middens and caches.



## 7.0 OVERVIEW OF PANEL DECISION, FOLLOW-UP AND ADAPTIVE MANAGEMENT

This section provides an overview and discussion of the Panel's decision in this Review. This overview is based on the Panel's findings in relation to specific VECs and VSCs and other matters, as set out in section 8 and elsewhere in this report. More importantly, this section explains the Panel's overarching conclusions about the proposed development's impacts and includes the Panel's recommendations for follow-up programs, monitoring and adaptive management of Project effects. The foundation for these recommendations is summarized below and based on Panel findings explained in other sections of this report.

As set out in the Executive Summary and Panel Decision above, the Panel has decided to recommend that the proposed ITH Project should proceed, subject to the commitments made by the Developer and the measures recommended in this report.

It was clear to the Panel that the ITH Project would generate significant benefits for the ISR, affected communities and the NWT. These economic and socio-economic benefits are detailed in section 8.1 of this report. They include not only economic stimulus to the regional and territorial economies, but employment, training and the resulting improvements in the lives of residents of a region where, unfortunately, current economic conditions are difficult. In addition to these tangible benefits, the Project will yield important intangible benefits, both territorially and nationally. This highway Project will result in the construction of a key piece of public infrastructure. This will benefit the region over the long term and should eventually be important to the oil and gas industry which also has long term interests in the region. The highway could also be important from the standpoint of national sovereignty, representing the last link in a highway system from sea to sea to sea, connecting the Beaufort Sea and the Arctic by road to the rest of Canada. The Mayors of Inuvik and Tuktoyaktuk spoke eloquently to all of these benefits in the hearings held in their communities.<sup>91 92</sup>

The Developers' evidence about economic and socio-economic benefits was almost entirely uncontroverted. No written submissions challenging these analyses in the EIS were received by the Panel. The Panel heard some concerns about the potential distribution of these benefits, but no Party argued that this evidence was incorrect. In addition, it was clear from the hearings in both Inuvik and Tuktoyaktuk that there was and continues to be strong and widespread support for the ITH Project. The Panel could best summarize the messages heard from community residents as being: "Build the highway, but be careful about the environment."

It was in considering the Developers' evidence about the environmental effects of the proposed Project that the Panel's difficulties arose. In the Panel's view, prior to the hearings, a number of government, co-management and other Parties to this proceeding had serious difficulties with the quality of the environmental and biophysical components of the EIS. To mention just a few examples, the Fisheries Joint Management Committee (FJMC) stated in a letter to the Panel before the technical hearings<sup>93</sup> that the EIS, and the Developers' case generally, were simply not ready for a hearing. The Department of Fisheries and Oceans (DFO) indicated, that on the

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<sup>91</sup> Inuvik Technical Hearing Transcripts, September 19, 2012, pages 39-44, registry item 300-1

<sup>92</sup> Tuktoyaktuk Public Hearing Transcripts, September 24, 2012, pages 27-30, registry item 302-1

<sup>93</sup> FJMC letter to Review Panel, September 13, 2012, registry item 290-1



basis of the evidence supplied to that point, it was not able to complete its assessment of the impacts of the Project.<sup>94</sup> Environment Canada (EC) indicated that it did not have the information it required to assess effects on SARA-listed species<sup>95</sup> and the WMAC was highly critical of the Developers' approach to both impact and cumulative effects assessment on wildlife.<sup>96</sup>

The Panel itself must also set out its concerns about the environmental components of the Developers' case. In so doing, the Panel relies on its Review of the Scope of Development, set out in section 5, and on the record which indicates that there are still components of the Development which cannot be included in this assessment because the Developer filed no evidence in relation to their location or their impacts. These are not trivial matters and they may cause difficulties for the Project in the future. But the Panel cannot include in its approval those Project components for which there is no evidence on the record. We also note that the Developer did not appear to realize, until the week before the technical hearings, that completion of the highway's southern reaches would cross into the Gwich'in Settlement Area, resulting in the need for a transboundary review and a possible change in Panel composition. The Developer thus decided not to include the Gwich'in portion of the highway in this assessment. This will result in an additional environmental and regulatory process in the Gwich'in Settlement Area.

There are other areas of significant importance to the analysis of the environmental effects of this development which the Panel finds were not completely or satisfactorily addressed by the Developer. See for example the following sections in this report: 8.8 on Water Use and Winter Roads, 8.9 on the environmental effects of Aggregate Use and 8.10 on Climate Change.

Perhaps the clearest evidence of the state of the Developers' case, their preparation for the hearings and their difficulties in meeting the burden of proof in respect of environmental matters, can be found by reviewing the description of the history of this proceeding set out in section 1 of this report. It is telling, in the Panel's view, that between the September 4<sup>th</sup>, 2012 cut-off date, when the Developers' case should have been complete and its reply to the Parties' draft technical submissions filed, and November 5<sup>th</sup> when the record was closed, the Developer filed in response to the concerns raised by the Parties, no fewer than twenty (20) additional documents and reports, a number of which included important new evidence, additional analysis of impacts and new commitments. The need for this additional evidence to satisfy the Developers' burden of proof extended this proceeding by at least a month and a half.

To address the problems with its case, the Developer had to make some 234 commitments during the course of the proceeding. These commitments, in combination with the additional documents and reports, filed after September 4<sup>th</sup> 2012, eventually persuaded most of the Parties that the impacts of the ITH Project would likely be manageable. The Panel notes that the final arguments of all of the Parties referred to above, FJMC, DFO, EC and WMAC, as well as that of Infrastructure Canada, concluded that the impacts of the Project could be mitigated, subject to the establishment of a mechanism to ensure that the Developer's commitments were

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<sup>94</sup> DFO Draft Technical Submission, September 10, 2012, registry item 281-1

<sup>95</sup> EC Draft Technical Submission, September 10, 2012, registry item 278-1

<sup>96</sup> WMAC Draft Technical Submission, September 7, 2012, registry item 276-1



carried out, and to a series of recommendations made by those Parties. The Panel also notes that those Parties with regulatory authority are in a stronger position to ensure that commitments related to their mandates and their recommendations are carried out before licences and permits are issued. Unfortunately, concerns about terrestrial wildlife, the protection of which is a central focus of Inuvialuit rights under the IFA, will not be addressed in the issuance of a licence or permit.

Despite the apparent last minute satisfaction of the referenced Parties, the problems with the Developer's case in relation to the environmental impacts of the ITH Project, the requirement for last minute filings, additional information requests, and a large number of substantial commitments have resulted in a record which has been very difficult for the Panel to assess. The state of the record and the Panel's finding that it still discloses gaps in the scope of development, and other difficulties such as concerns widely held by the Parties about the quality of the Developers' cumulative effects assessment (see section 9 of this report), have left the Panel with serious uncertainties about the quality of the Developer's environmental impact predictions and their plans for mitigation and monitoring.

In the end, the Panel had to decide whether or not to defer a decision in this Review and to order further assessment of environmental effects pursuant to ss. 11(29) of the IFA. The implications of such a decision had to be considered in relation to the delay that it would have occasioned to project approvals, and, as a result, to the delivery of the obvious and important benefits this development would deliver to the region.

Having given this matter careful thought, the best solution to this problem, in the Panel's opinion, was to recommend that the Developer proceed with the ITH Project, but to ensure that the development is subject to an independently managed follow-up program focussed on environmental monitoring which operates within a rigorous adaptive management framework. This approach to the construction and operation of the ITH is consistent with, and builds on, recommendations made by several of the Parties, including the Developer. It is in the Panel's view, on balance, the most appropriate compromise in these circumstances.

The details of the Panel's analysis and recommendations on oversight, follow-up programs and adaptive management are set out below. They are focussed exclusively on the need to address the shortfalls in the Developer's environmental case. The Panel is satisfied with the Developer's case in relation to economic and socio-economic impacts as set out in section 8. Therefore, subject to the approval and implementation of the recommendations set out below, and elsewhere in this report, the Panel is convinced that the ITH Project can be constructed, operated and maintained without significant impacts on the environment and the wildlife resources of the ISR, which are the focus of the IFA.



## 7.1 What the Developer said about the issue

In its final submission, the Developer said that the highway's "...*detailed design will continue throughout the regulatory phase*".<sup>97</sup> Although the Developer has concluded that there will be no significant environmental effects from the construction and maintenance of the highway, their final submission attaches a 25-page "Summary of Developers Commitments"<sup>98</sup> (November 5, 2012)" stating that "...*many of the Developers commitments relate to additional consultation and provision of additional information before and at the time of regulatory application for authorizations, licences and permits*."<sup>99</sup> This may be accurate in respect of some of those commitments, but not all. It is equally true to point out that a large number of the commitments address work that will be important to identifying, mitigating and managing the impacts of the ITH Project.<sup>100</sup>

In recognition of the challenges related to construction and operation of the highway and the need for the exchange of consistent and up-to-date information about the impacts of highway construction, operation and maintenance activities, the Developer proposed:

*"...to invite interested agencies, organizations, and co-management groups to participate in an Inuvik to Tuktoyaktuk Highway Corridor Working Group facilitated by the Department of Transportation and guided by a collaboratively developed Terms of Reference".*<sup>101</sup>

This proposed working group would meet on a semi-annual basis during the construction and early operations to:<sup>102</sup>

- review construction progress and performance relative to commitments;
- review outcomes of monitoring described in the various management plans (e.g. WEMP and others);
- provide advice to the Developer and other organizations supporting the management plans on remediation or modification to activities; and,
- review new observations and issues that could develop during the operation of the highway.

The Developer stated that it would be putting into effect a number of additional plans, including an Inspection and Monitoring Plan, and that the information available from monitoring and ongoing activities on the highway would be shared with the Parties. The information sharing process envisioned by the Developer would work through the conditions as prescribed in regulatory permits, licences and authorizations as well as through the proposed Inuvik to Tuktoyaktuk Corridor Working Group.<sup>103</sup>

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<sup>97</sup> Developer Final Submission, November 5, 2012, page 2, registry item 346-1

<sup>98</sup> Developer Final Submission, November 5, 2012, registry item 346-1 and Appendix 5

<sup>99</sup> Developer Final Submission, November 5, 2012, page 2, registry item 346-1

<sup>100</sup> Appendix 4, sections on Management Plans, Fish and Fish Habitat, and Wildlife and Wildlife Habitat

<sup>101</sup> Developer commitment 218, registry item 346-1 and Appendix 5

<sup>102</sup> Developer Final Submission, November 5, 2012, pages 6-7, registry item 346-1

<sup>103</sup> Developer Final Submission, November 5, 2012, page 7, registry item 346-1





## 7.2 What the Parties said about the Issue

In its final technical submission, Infrastructure Canada stated that in accordance with CEAA, they, along with other Responsible Authorities, must ensure that the approved mitigation measures are implemented and a follow-up program is designed and implemented.<sup>104</sup>

Infrastructure Canada indicates that the Developer's over-arching Environmental Management Plan and follow-up program for the ITH Project, including the use of adaptive management, is as yet unclear, but notes that all federal parties have indicated that, should their recommendations be followed and should the appropriate mitigation measures be implemented, the environmental impacts of the Project can be effectively managed.<sup>105</sup> (emphasis added)

Infrastructure Canada recommends that the Developer still needs to provide a clear strategy for monitoring and follow-up. They propose that the Developer establish a Monitoring and Follow-up Technical Working Group, in order to report regularly to, and integrate input as required from all relevant Parties during the regulatory, construction and operation phases of the Project, should it be approved.<sup>106</sup>

The WMAC, in their final technical submission, stated:

*"...despite responses and some changes from the Developer ....., WMAC still believes the EIS, as well as subsequent materials submitted to date, to be below standard for what should be acceptable in the Inuvialuit Settlement Region (ISR) and indeed the NWT as a whole."*<sup>107</sup>

Despite its views about these deficiencies, WMAC concluded that through a co-operative effort, long-term damage to wildlife and wildlife habitat could be minimized. They recommend that, given the critical role that monitoring will play,

*"...all environmental effects monitoring of the Project should be overseen by an independent board or body that would review and oversee the monitoring, results, and reporting activities of both the WEMP and the (Wildlife and Wildlife Habitat Protection Plan (WWP))."*<sup>108</sup>

WMAC has offered to participate on such a board.

## 7.3 The Panel's Analysis and Recommendations

The Panel has determined in this report that the ITH Project will contribute to direct and cumulative effects on vegetation, and key wildlife species for Inuvialuit, including barren ground and boreal caribou and grizzly bears. In addition, the ITH Project will contribute to cumulative effects on SARA-listed bird species including the horned grebe and rusty blackbird. It will likely contribute to cumulative effects on fish, fisheries, other wildlife populations and vegetation resources indirectly through increased harvesting resulting from changes in land use activities

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<sup>104</sup> INFC Final Submission, October 29, 2012 page 1, registry item 337-1

<sup>105</sup> INFC Final Technical Submission, October 29, 2012, page 1, registry item 337-1

<sup>106</sup> INFC Final Technical Submission, October 29, 2012, page 2, registry item 337-1

<sup>107</sup> WMAC Final Technical Submission, October 29, 2012, page 2, registry item 338-1

<sup>108</sup> WMAC Final Technical Submission, October 29, 2012, page 3, registry item 338-1



by users of the area enjoying the access provided by the highway. Impacts on the environment from permafrost melting, and altered surface water flows are also likely. It is evident from the issue-specific discussions and conclusions drawn by the Panel in section 8 of this Report that additional specific mitigation is required to address Project effects.

With respect to the overall management of the ITH Project, most Parties also agreed that there is a need for follow-up programs to:

- verify the accuracy of the environmental assessment's impact prediction;
- ensure adequate monitoring and mitigation of the potential Project effects;
- establish an adaptive management program for the Project; and
- link project-specific monitoring and mitigation with regional-scale cumulative effects monitoring, mitigation, and adaptive management programs led by government.

Several Parties specifically requested that a wildlife follow-up program be developed prior to construction, specifically stipulating that a draft WEMP and the WPP be provided for review and comment at least 60 days prior to the initiation of construction. The Developer agreed to do this.

The Canadian Environmental Assessment Agency's Operational Policy Statement (OPS) entitled "*Follow-up Programs under the Canadian Environmental Assessment Act*", updated December 2011, stipulates that design and implementation of a follow-up program should be introduced as early as possible into the environmental assessment process. To date, the Developer has only provided draft plans and committed to the development of a number of follow-up programs in the future (see Commitments Table in Appendix 5).

Section 2 of the *CEAA* defines "follow-up program" as a program for:

- verifying the accuracy of the environmental assessment of a Project; and
- determining the effectiveness of any measures taken to mitigate the adverse environmental effects of the project.

The Panel agrees that a comprehensive follow up program is required. While it is not the role of the Panel to design a federal follow-up program, it can make recommendations for consideration by Responsible Authorities when they do so, pursuant to their *CEAA* responsibilities, as set out by Infrastructure Canada. In addition, the Panel has broad authority under both the IFA and *CEAA* to recommend mitigative and remedial measures.

The recommendations contained in this section are provided for use by Responsible Authorities in guiding the design and implementation of their follow-up programs. They are primarily directed at the Developer, the regulators and co-management authorities established by the IFA, all of whom bear a responsibility to ensure that this Project is constructed, operated and maintained without significant impact on the environment. The Panel expects that the implementation of its recommendations will alleviate potentially significant effects of the ITH Project and address uncertainties identified by Parties about Project design, environmental impact assessment conclusions, and the effectiveness of the mitigation measures proposed by the Developer.



A number of Parties also agreed on the need for a body to play a role in monitoring and adaptive management as part of the follow-up programs, but there was limited discussion of the most appropriate composition, structure and responsibilities of such an oversight body.

The Developer proposed an “Inuvik to Tuktoyaktuk Highway Working Group” with collaboratively developed terms of reference. Infrastructure Canada simply suggested that the Developer establish a “technical working group”. WMAC agreed with the need for a “board or body”, but suggested that it be independent of the Developer. The community of Tuktoyaktuk also agreed that a multi-party monitoring body should be established and listed specific governments and organizations that should be included.<sup>109</sup> There was a consensus that this oversight body should have sufficient time and resources to review and comment on the Developer’s plans and monitoring results. From the Panel’s perspective, it is also essential that any mechanism established to serve these functions be structured and operated in a manner consistent with and which does not conflict with the co-management framework established by the IFA for the management of the environment in the ISR.

### **7.3.1 Panel Recommendations on Follow-up Program and Independent Oversight**

Having considered the evidence and information before it (Appendix 6), the Panel concludes that to address the key issues described in sections 8, 9 and elsewhere in this report, there is a need for ITH environmental follow-up programs that incorporate monitoring, mitigation, and adaptive management. The Responsible Authorities and GNWT should also ensure that follow-up programs implemented for the ITH Project contribute to any government-led regional cumulative effects monitoring, mitigation and adaptive management programs for the ISR.

In light of the concerns with, and the uncertainties shared by the Parties about the quality of the Developers’ environmental case, the Panel also concludes that an oversight body independent of the Developer is necessary to coordinate and manage the monitoring, mitigation and adaptive management of the ITH Project’s construction and operation. This oversight body would be in place of the Developer’s commitment 218 (Appendix 5).

The Panel is not proposing a compliance or enforcement role for this body. Instead, it should be a clearing house where mitigation and monitoring plans developed for the Project can be reviewed, improved and adjusted as required. This body should enhance, not replace or conflict with the roles of regulators and co-management bodies in the ISR. Results of Project monitoring efforts should be reported to this body and any need for adjustment to mitigation measures, and in particular, for adaptive management, should be discussed here before, or in concert with, the Developer’s response to the regulators, co-management authorities and affected communities.

The membership of this body must include the Developer and, specifically from GNWT, ongoing representation from ENR. Representatives of major regulators including AANDC, NWT Water Board, DFO, and for their scientific expertise EC and NRCan, should also participate as required. Infrastructure Canada should also be a participant, given its coordinating role amongst Responsible Authorities. From among Inuvialuit institutions, WMAC, FJMC and the HTC’s of

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<sup>109</sup> ITH TK-TLU Workshops Final Report, registry item 199-1



Inuvik and Tuktoyaktuk as well as the ILA should be involved. This is a large group and so the Panel recommends that the actual development and management of monitoring, mitigation and adaptive management programs be accomplished by smaller working groups or subcommittees focussed around themes of common interest such as wildlife, fisheries, harvesting, monitoring and adaptive management process issues, local consultation and other themes, as decided by this body itself. This body should be co-chaired by the Developer and one of the co-management committees established by the IFA.

The Panel does not see a permanent need for such an institution. The Panel recommends that the body be established as soon as possible, and in any event, in advance of the initiation of major construction activities. It should play a role in monitoring and adaptive management of construction, and a reasonable period of operations for the highway, in order to verify and adaptively manage the direct and cumulative effects of highway operations. In the Panel's view, this operational period should run no longer than 10 years after construction. Further, once operations begin, the activities of the group can be scaled back to reflect the reduced potential for impacts from highway operations. This period is generally commensurate with that chosen by the Developer for the EIS' cumulative effects assessment.

Government departments participating on this institution should pay their own costs for attendance and participation. Funding support for Inuvialuit institutions and local representation should be provided by the Developer. Any necessary studies and analysis of results, to the extent not part of existing government programs, should also be paid for by the Developer. Basic administrative costs for this body including meeting space, communication, telecommunications, minuting meetings and basic secretariat type needs, shall be paid for by the Developer. A budget should be developed to guide the body's activities in advance, before each year's operations.

This institution can, for the interim, and will, for the purposes of this Panel report, be called the Independent Environmental Monitoring and Oversight Committee (IEMOC). It is the Panel's recommendation that the IEMOC should be established by a written and legally enforceable agreement which sets out the purpose, membership, funding and governance arrangements amongst the parties, consistent with the Panel's recommendations. This agreement should be developed collaboratively amongst the potential participants as suggested by the Developer. The development of this agreement should be initiated within 30 days of Ministerial approval of the Panel's Report.

- R01: The Responsible Authorities shall establish a follow-up program for the ITH Project, the results of which can be integrated with both Project oriented and regional, government-led cumulative effects monitoring, mitigation and adaptive management programs for the ISR.**
- R02: An oversight body, the Independent Environmental Monitoring and Oversight Committee (IEMOC), independent of the Developer, shall be established to coordinate the monitoring, mitigation and adaptive management of the ITH Project's construction and operation.**



- R03:** Membership on the IEMOC shall include the Developer (2 members) including a representative from ENR, AANDC, NWT Water Board, DFO, EC, NRCan, INFC, WMAC, FJMC, ILA and the HTC's from Inuvik and Tuktoyaktuk. It should be co-chaired by the Developer and one of the Inuvialuit comanagement committees. The IEMOC may establish subcommittees in order to make its operations more efficient.
- R04:** The IEMOC shall be established as soon as possible and before major construction activities begin and shall operate for the construction period and no more than 10 years of highway operations, unless an extension is agreed to by its parties. The level of IEMOC activity shall be scalable in relation to the level of construction and operational activities and impacts related to the ITH Project.
- R05:** Government participation on the IEMOC shall be paid for by the departments involved. The cost for comanagement bodies and Inuvialuit institutions such as HTC's to participate shall be paid for by the Developer. Any studies and analyses required to monitor, manage and respond to ITH Project effects shall be paid by the Developer. Basic secretariat costs for IEMOC shall be paid for by the Developer. A budget shall be developed in advance of each year's operations.
- R06:** The IEMOC shall be established by its parties, including representatives of the Developer, Canada, the Joint Secretariat (for WMAC and FJMC), the HTC's and ILA by way of a collaboratively developed legal agreement which sets out the purpose, membership, funding and governance arrangements amongst these parties, consistent with the Panel's recommendations.
- R07:** Development of the IEMOC agreement shall begin within 30 days of Ministerial approval of the Panel's report. This agreement must be in place before major construction activities begin. The Developer shall pay the negotiation costs of the Joint Secretariat and HTC's.

### **7.3.2 Panel Recommendations on Monitoring and Adaptive Management**

The Panel has prepared the schematic shown in Figure 5 to illustrate its suggestions for the relationship between the IEMOC's project specific monitoring and other monitoring and resource management programs and activities already in place in the ISR. This example was developed using caribou management concerns which were identified as a key concern by several Parties to this proceeding.

In Figure 5, the activities in the dotted box are project related. Those in the solid, larger box are regional and part of longer term government monitoring and caribou management programs. In the Panel's view, the project-specific and regional monitoring initiatives and outcomes are interconnected and need to be interrelated operationally in order for project monitoring and adaptive management outcomes to contribute to broad herd management outcomes. The box with the coloured sections gives, for illustrative purposes only, examples of possible management actions which might be taken as a result of low, medium or high level effects on caribou being identified by project monitoring activities.





The IEMOC is intended to play a central role in guiding project specific monitoring, mitigation and adaptive management. It can also contribute to regional monitoring and adaptive management by ensuring that its programs are, to the extent possible, integrated with the regional monitoring initiatives. The Panel's recommended membership for this committee reflects that role.

The Panel recommends that IEMOC be responsible for:

- developing and implementing an integrated science and Traditional Knowledge program to monitor ITH Project performance relative to the Developers' impact assessment predictions;
- recommending modifications to this monitoring and mitigation program based on observed VEC responses; and
- providing a communications vehicle to bring community concerns to the attention of the proponent and the government, keep Inuvialuit communities and the public apprised of the environmental management activities related to highway construction and operation, and ensure that ITH monitoring and mitigation is integrated with, and contributes to, regional cumulative effects monitoring, mitigation, and management.

Any follow-up programs developed by Responsible Authorities or GNWT should recognize the role of IEMOC and include provisions for collaboration with this body, including assisting with its project specific adaptive management programs. The need for adaptive management was referred to by several Parties and the level of the Developers' commitment to adaptive management was the subject of IRs from the Panel as early as January 2012. In the Panel's opinion, for the reasons expressed above, an adaptive management framework for managing the impacts of the ITH Project is essential.

The Panel also suggests that the IEMOC review and consider adapting for its use an approach like the "Adaptive Management Response Framework" a draft framework developed by the Wek'e`ezhi'i Land and Water Board (WLWB 2010). In any event, an adaptive management framework, modified to address the specific requirements of the ITH, including monitoring programs on permafrost and granular resources, surface hydrology, vegetation, fish, wildlife, and harvesting must be developed.

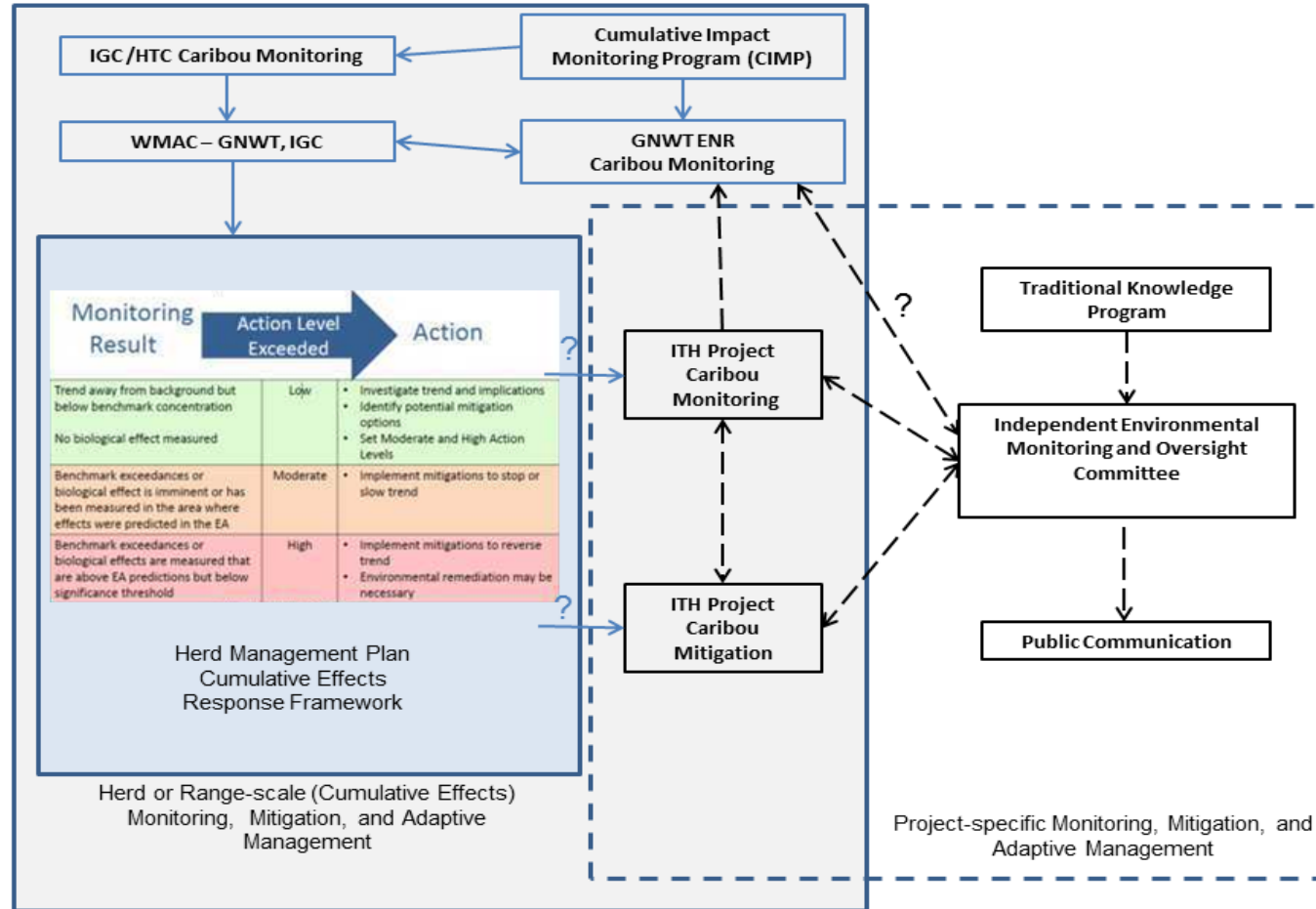


Figure 5 - Graphic representation of links between an ITH follow-up program, the IEMOC, and government-led cumulative effects management using caribou as an example (some portions of this Figure are adapted and used with permission of the Wek'eezhii Land and Water Board).





A number of specific tasks for IEMOC emerge from a review of the recommendations made by various Parties in their final technical submissions, and from the Panel's analysis of the record. The Panel does not intend to prescribe, through recommendations, specific actions for the IEMOC to implement. However, the Panel strongly suggests that the IEMOC should consider undertaking the following activities:

- prepare annual work plans and budgets;
- contribute to statistical power analyses as required during review of project specific monitoring program designs;
- review and approve the ITH WEMP and WPP and other monitoring and mitigation plans proposed by the Developer;
- define low, moderate and high action levels for use in project specific, government, community, and cooperative monitoring and mitigation programs;
- Maintain as-built footprint GIS files for the ITH Project, including all surface disturbances and incorporating status of habitat restoration;
- review project specific annual and other monitoring report(s) and make recommendations for the following year's project-specific monitoring and mitigation program;
- review government regional cumulative effects monitoring report(s) and make recommendations for ongoing government, monitoring, mitigation, and management programs;
- prepare a one year, post-construction review of monitoring results and recommendations for continuing project specific highway operations monitoring, mitigation, and management program;
- prepare a five year, post-construction review of operations monitoring results and recommendations for continuing project specific highway operations monitoring, mitigation, and management program;
- prepare a 10-year post-construction review of operations monitoring results including recommendations on the need for continuing operations monitoring and adaptive management, and whether long-term monitoring and adaptive management requirements can be fulfilled by another mechanism or the IEMOC should be continued; and
- produce annual technical and non-technical summaries of committee activities, monitoring and management results, conclusions, and recommendations for community and regional distribution.

**The Panel recommends that:**

- R08: A Project specific monitoring, mitigation and adaptive management program shall be developed for the ITH Project by the IEMOC (the ITH Adaptive Management Program).**
- R09: The ITH Adaptive Management Program shall be in place before major construction activities are initiated for the Project.**



**R10: The IEMOC shall ensure that its Adaptive Management Program includes:**

- the integration of science and Traditional Knowledge into programs to monitor ITH Project performance relative to the Developers' impact assessment predictions;
- provision for modification of any monitoring and mitigation programs based on observed VEC responses; and
- the publication and periodic distribution of monitoring and adaptive management results to keep Inuvialuit communities and the public apprised of the adaptive management activities related to highway construction and operation, and to ensure that ITH monitoring and mitigation results are integrated with and contribute to regional cumulative effects monitoring programs.

**R11: Any follow-up program established by Responsible Authorities shall recognize the role of the IEMOC and provide for collaboration and cooperation between these groups and their programs.**

**R12: The IEMOC's Adaptive Management Program shall consider the need to address monitoring of permafrost and granular resources, surface hydrology, vegetation, fish, wildlife, and harvesting impacts to address concerns raised in this proceeding. The final scope of this program and any future changes to it shall be an IEMOC decision.**

**R13: The IEMOC shall consider the Panel's Recommended Activities in the development of the agreement referred to in Recommendation R06.**

The Panel has, based on the evidence before it, set out recommendations for an independently managed and comprehensive follow-up program which includes a rigorous monitoring and adaptive management program. The Panel has concluded that such a body and program are necessary to address the difficulties which emerged from its Review of the Developers' environmental impact assessment. If these recommendations are implemented in combination with the Developers' commitments and the other recommendations set out in this report, the Panel is confident that the ITH Project can proceed without significant environmental impacts.





## 8.0 ASSESSMENT OF OUTSTANDING ISSUES

### 8.1 Economic effects

The ISR, and particularly the residents of Tuktoyaktuk and Inuvik, should receive positive socio-economic benefits from the construction and operation of the proposed highway. These positive benefits have to be balanced with concerns about increased access for harvesting, potential adverse effects to the environment, and easier access for negative social influences, such as drugs and alcohol.<sup>110</sup>

#### 8.1.1 What the Developer said about the issue

The Developer predicted that the ITH would provide substantial socio-economic benefits at the local, regional and national levels.<sup>111</sup> The construction and operation of the highway is expected to have a net positive economic impact in the region, with economic effects predicted to be short-term and high magnitude during construction, and longer-term and lower magnitude during the operation of the highway.<sup>112</sup>

Locally, the Project is expected to bring positive economic effects resulting from increased employment in Inuvik and Tuktoyaktuk, as well as a decrease in the cost of living in Tuktoyaktuk.

Currently, prices in Tuktoyaktuk are approximately 10% higher than in Inuvik. After completion of the highway, food could be delivered by truck to Tuktoyaktuk at the cost of \$0.15/lb in comparison to \$3.00/lb for air delivery. Food transportation logistics would transition from air cargo and barge to truck, and result in the loss of indirect expenditures associated with air transport, and lower food prices in Tuktoyaktuk.<sup>113</sup>

#### Training and Employment

The Developer predicted that highway construction would create 1,086 “one-time jobs” (full time equivalents or FTEs) in the NWT over the four-year construction period. Direct employment is estimated at 668 FTEs, indirect employment is estimated at 282 FTEs, and induced employment at 136 FTEs. The direct and indirect employment in the rest of Canada was estimated to be 860 “one-time jobs”. Most positions are likely to be seasonal full-time or on a per-project basis. The number of workers required by occupation or skill would be determined during the detailed design phase of the Project.<sup>114</sup>

The Developer committed to hire workers from Tuktoyaktuk and Inuvik, where possible, and stated that this may provide an incentive for local residents to undertake applicable training

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<sup>110</sup> Tuktoyaktuk Public Hearing Transcript, September 24, 2012, pages 119-132, registry item 302-1

<sup>111</sup> Developer EIS, section 4.3, page 568, registry item 072-1

<sup>112</sup> Developer Response to 2b and 2c, section 9.1.2, p.83-84, registry item 95-1

<sup>113</sup> Developer EIS, section 4.3.2.1, p.576-577, registry item 072-1

<sup>114</sup> Developer EIS, section 4.3.2.1, page 581, registry item 072-1



programs in anticipation of Project employment. Enrolment in training programs would be dependent on the level of interest from community members.<sup>115</sup>

The Developer and on-site Project contractors will be responsible for the implementation of focused socio-economic measures, including recruitment and skills training.<sup>116 117</sup> The Developer, and its contractors, have also committed to work with local academic institutions in the design of short-duration, skill-based courses for Inuvialuit beneficiaries and other northern residents to improve job readiness, expand the available labour pool and enhance local skill capacity.<sup>118</sup> When asked about the necessary timing of implementation of this commitment in order to ensure it is effective, i.e. of maximum benefit, the Developer replied by stating its intent to meet with Aurora College in the near future.<sup>119 120</sup>

The Developer will require contractors to report on training, including the types of training provided and the number of employees trained.<sup>121</sup>

During the construction of the Tuktoyaktuk to Source 177 Access Road, approximately 70% of the workers were from the communities of Inuvik and Tuktoyaktuk. The Developer anticipates that with additional training, a similar hiring percentage may be achieved for the Inuvik to Tuktoyaktuk Highway based on the available labour pool.<sup>122 123</sup>

Highway maintenance is predicted to create 42 long-term jobs in the NWT, and another nine jobs (direct and indirect employment) were predicted in the rest of Canada.<sup>124 125</sup>

## Tourism

The Developer concluded that there would be positive residual economic effects from increased tourism during the operations phase.<sup>126</sup> The Developer predicted an increase in tourist activity, stemming from both an increase in the number of tourists and an increase in the number of

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<sup>115</sup> Developer revised response to 2b and 2c, page 90, registry item 096-1

<sup>116</sup> Developer EIS, Table F, page lxxx, registry item 072-1

<sup>117</sup> Developer commitment 4, in Appendix 5

<sup>118</sup> Developer revised response to 2b and 2c, page 90, registry item 096-1

<sup>119</sup> Inuvik Technical Sessions Transcript, August 23, 2012, page 185 registry item 236-1

<sup>120</sup> Inuvik Public Hearing Transcript, September 18, 2012, page 126 registry item 298-1

<sup>121</sup> Developer revised response to 2b and 2c, page 91, registry item 096-1

<sup>122</sup> Developer EIS, section 4.3.2.1, page 582, registry item 072-1

<sup>123</sup> By contrast, the Developer confirmed that there are significant numbers of individuals already experienced, trained, and available to fill Project positions, and that most positions could be filled with "Less than High School Diploma" levels of education and an appropriate amount of skills and experience. Further, it was noted that contractors in the Region have sponsored training courses for their workforces over the past several years (Developer response to Round 1 IRs, IR41, registry item 108-1).

<sup>124</sup> Developer EIS, section 4.3.2.1, page 581, registry item 072-1

<sup>125</sup> The Economic Analysis conducted for the assessment (Appendix F of the EIS, registry item 67-1) presents different figures than those in the EIS. For maintenance (operations) the Economic Analysis estimates direct employment to be 13.6 FTEs, indirect employment to be 4 FTEs, and induced employment to be 1.6 FTEs.

<sup>126</sup> Developer EIS, section 4.3.2.1, page 581, registry item 072-1



days, on average, each tourist spends in the region.<sup>127</sup> The Developer estimated that the total number of tourists would increase by 10%, to 5,500 tourists per year, and that the length of their stay would increase by 1.5 days, with subsequent positive economic effects.<sup>128</sup> The Developer could not provide seasonal estimates, but confirmed that the increased traffic volumes, predicted to be 150 - 200 vehicles per day, include traffic from tourism.<sup>129</sup> While it is possible that some industries, such as the air charter industry, could be adversely affected, the overall increase will have a direct impact on local employment and incomes, and it will also have spinoff effects on the demand for supplies and other goods and services.<sup>130</sup>

With regard to “Tourism, Commercial and Public Recreational Use” of land (Developer’s VSC), the Developer identified several agencies that have existing responsibilities “...related to administering legislation, providing funds or public services, and/or conducting monitoring.”<sup>131</sup>

### **Territorial and National Economic Effects**

Initial construction of the highway is expected to cost the Federal and Territorial governments about \$230 million. After subtracting the increase in government revenues, calculated to be \$47 million, (as below) resulting from the existence of the highway, the net cost to the Federal and Territorial government is calculated to be \$183 million.<sup>132</sup>

Building the highway is predicted to earn the Federal and Territorial governments almost \$36 million from direct, indirect, and induced activities in the NWT and an additional \$11 million from direct and indirect activities accruing to governments in the rest of Canada.<sup>133 134</sup>

The direct, indirect and induced economic spin-offs over the 45-year life of the highway are expected to generate about \$248 million in net purchases of goods and services (e.g. material inputs) in the NWT and an additional \$97 million in the rest of Canada.<sup>135</sup>

The revenues generated from the highway construction will translate into a net increase in gross domestic product (GDP) in the NWT of approximately \$186 million and an increase in GDP in the rest of Canada of about \$84 million.<sup>136</sup>

Over the 45-year life of the highway, the total GDP contribution to the NWT economy from maintenance activities is calculated to be \$27 million, with revenues of \$4.4 million to the

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<sup>127</sup> Developer EIS, Appendix F, p.15, registry item 067-1

<sup>128</sup> Developer EIS, section 4.3.2.1, page 578, registry item 072-1

<sup>129</sup> Developer response to Round 1 IRs, IR39, registry item 108-1

<sup>130</sup> Developer EIS, Appendix F, p.15, registry item 067-1

<sup>131</sup> Developer revised response to 2b and 2c, page 85, registry item 096-1

<sup>132</sup> Developer EIS, section 4.3.2.1, p.571-572, registry item 072-1

<sup>133</sup> Developer EIS, section 4.3.2.1, p.572, registry item 072-1

<sup>134</sup> By contrast, the Economic Analysis provided in Appendix F (of the EIS, registry item 067-1) states (p.5) that the Highway will earn the Federal and Territorial governments almost \$55 million from economic activities in the NWT and an additional \$11 million to the rest of Canada.

<sup>135</sup> Developer EIS, section 4.3.2.1, p.572, registry item 072-1

<sup>136</sup> Developer EIS, section 4.3.2.1, p.572, registry item 072-1



GNWT. The total GDP contribution to the economy in the rest of Canada will be \$6.5 million, \$827,000 of which accrues to government revenues.<sup>137</sup>

There will be a reduction in annual economic effects associated with construction of the winter road to Tuktoyaktuk. Over the 45-year life of the highway, the net present value<sup>138</sup> losses in the NWT are estimated at \$1.3 million to GDP and \$253,000 in government revenues. The net present value losses for the rest of Canada are estimated to be \$726,000 in GDP and \$90,000 in government revenues.<sup>139</sup>

The increase in the numbers of tourists and the increase in the length of stay would result in an additional \$1,467,500 being spent in the region.<sup>140</sup> Over the 45-year life of the highway, the net present value increase in NWT GDP is estimated at \$21 million, with government revenues increasing by \$3.5 million. In the rest of Canada, GDP increases by another \$7 million and government revenues increase by almost \$1 million.<sup>141</sup>

The highway will enable the oil and gas sector to become more efficient and profitable through reduced exploration and well development expenditures.<sup>142</sup>

The Developer anticipates a number of spin-off economic effects as a result of the highway. Greater transportation efficiency and reduced transportation costs are expected to result in increased regional and territorial economic development. Further, the Developer anticipates that the highway will result in the attraction of new investment from outside the area, for example companies relocating to a given area, as well as retention of existing companies in the area; the improvement of import substitution and export success of companies located in the area by the provision of overland transport links to key markets; and an enhancement of the competitiveness of the regional economy, thereby reducing storage, warehousing and medical travel costs. The Developer also anticipates that the highway will result in increased opportunities for Northern and Aboriginal training, employment, business development and equity investment, as well as improved access to employment opportunities and government services.<sup>143</sup>

## Sovereignty

The Mackenzie Delta region is a territorial and national asset of strategic importance. It provides the only NWT and Canadian port in the Western Arctic. The region is strategically located to assist shipping to and from Alaska, Asia, and the continental U.S. It could receive goods from Asia for transshipment south to the rest of Canada. As well, the development of oil and gas resources in the Beaufort Sea may create additional opportunities. Connecting the rest of

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<sup>137</sup> Developer EIS, section 4.3.2.1, p.575, registry item 072-1

<sup>138</sup> Net Present Value is the comparison of today's value to future value, and for the Highway project, is calculated over a 45-year time period and discounted at 5% (Developer EIS, section 4.3.2.1, p.571, registry item 072-1).

<sup>139</sup> Developer EIS, section 4.3.2.1, p.575-576, registry item 072-1

<sup>140</sup> Developer EIS, section 4.3.2.1, p.578, registry item 072-1

<sup>141</sup> Developer EIS, Appendix F, p.5, registry item 067-1

<sup>142</sup> Developer EIS, Appendix F, p.6-7, registry item 067-1

<sup>143</sup> Developer EIS, section 4.3.2.1, p.573, registry item 072-1



Canada to the Arctic Coast is anticipated to facilitate Canada's development of both Arctic shipping and oil and gas discoveries.<sup>144</sup>

Connecting Canada to the Arctic Coast is also crucial to the socio-economic future of Canada. The benefits are anticipated to extend from coast to coast to coast. The Inuvik to Tuktoyaktuk highway is a crucial step to connecting Canada's three coasts and is critical for the future protection and prosperity of Canadians.<sup>145</sup> Arctic sovereignty concerns related to the Northwest Passage could lead to increased investment in Canadian presence in the north.<sup>146</sup>

### **8.1.2 What the Developer Concluded about the Issue**

During construction, positive economic effects are predicted over the short term, when labour demand, capital expenditure and economic stimulus will be greatest. These effects are limited to the estimated four-year construction phase and will be greatest during the winter construction months. During the operations phase, there will be long term positive economic effects, including continued employment opportunities and labour benefits, as well as maintenance expenditures, though these will be of lesser magnitude than those of the construction phase.<sup>147</sup>

As a result of the Project-related employment opportunities, residual effects were predicted to be greater social stability in the region, new skills, and more construction-related experience, with potential to result in increased incomes and less reliance on income assistance.<sup>148</sup>

### **8.1.3 What the Parties and the Public said about the Issue**

During the public hearings, the Panel heard strong community support for the Project in Inuvik and Tuktoyaktuk. Residents of Tuktoyaktuk cited the anticipated positive effects that would result from a lower cost of living, as well as increased training and employment opportunities.<sup>149</sup>

It is noteworthy that the basis of support for the Project is the perceived economic benefits, including the jobs that the Project will create, and anticipation that the Project will stimulate greater economic opportunities and employment in the communities and the region. Comments were also made referring to the short-term nature of Project employment and the allocation of jobs in the community.<sup>150</sup>

The Tuktoyaktuk Business Corporation expects the Project to provide significant and long-lasting benefits for Tuktoyaktuk, the region, the North, and Canada as a whole. It cited the importance of the Project for the jobs that it will create during construction. The Tuktoyaktuk Business Corporation also anticipates that the economic benefits "*...will continue for many years during maintenance activities and include enhanced tourism activities, potential future development of the Tuktoyaktuk Harbour as an Arctic port, and the potential for oil and gas*

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<sup>144</sup> Developer EIS, Appendix F, p.11-12, registry item 067-1

<sup>145</sup> Developer EIS, Appendix F, p.12, registry item 067-1

<sup>146</sup> Developer EIS, Appendix F, p.12, registry item 067-1

<sup>147</sup> Developer Response to 2b and 2c, section 9.1.2, p.83, registry item 95-1

<sup>148</sup> Developer EIS, section 4.3.2.1, page 583, registry item 072-1

<sup>149</sup> Tuktoyaktuk Public Hearing Transcript, September 24, 2012, page 154, registry item 302-1

<sup>150</sup> Tuktoyaktuk Public Hearing Transcript, September 25, 2012, page 34-37 registry item 303-1





resource developments. *The possibility of these potential developments will be greatly enhanced by the existence of an all-weather, year round road.*<sup>151</sup>

During EIRB consultations on the draft EIS Terms of Reference, concerns were expressed about the increased number of tourists, their access to land and Husky Lakes in particular, and the impacts they would have on the land and the potential for pollution of Husky Lakes, and in the communities where, for example, recreational vehicles (RVs) would be parked in Tuktoyaktuk.<sup>152 153</sup>

Participants in the Tuktoyaktuk public hearings identified harvesting and the long-standing use of the land, by both past and current generations, including youth, as a key component of their culture.<sup>154</sup> The relationships between changes in land use and harvesting, and potential impacts on culture were also identified.

It was noted that respect and responsibility are required, specifically “...respecting our own laws, our own rules that we, as a people, implemented on our land. The only way culture, skills and hunting practices can be lost is if we let it be lost”.<sup>155</sup> “The proposed highway is important. It will become a permanent feature within our traditional lands and region. We have [a] vested interest to make sure of our way of life, traditions, culture, and livelihood continues within our Inuvialuit Settlement Region and our private lands once the highway is completed.”<sup>156</sup>

The need for employment and income as a means by which to continue and increase participation in harvesting, and thus culture, was also noted during the hearings. “In the past when people are working they are much more healthy and happy and proud of themselves when they can purchase material items, buy their own vehicles, houses, snowmobiles that can take us back on the land and back to our culture.”<sup>157</sup>

#### **8.1.4 The Panel's Analysis of the Issue**

The Developer predicted significant positive economic effects during the short-term construction phase, and lower magnitude, but still positive, socio-economic effects over the long-term operation phase. The Developer's predictions of the socio-economic effects of the Project were not challenged by any of the parties to the process.

The benefits predicted are substantial, locally and regionally, and the Panel understands the importance of this Project to the ISR for the economic benefits that it will create during construction and operation. The Panel also acknowledges the widespread community support for the Project, and the anticipation that the Project will stimulate additional economic development and associated socio-economic benefits in the region.

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<sup>151</sup> Tuktoyaktuk Public Hearing Transcript, September 24, 2012, p.134-139

<sup>152</sup> Inuvik Community Scoping Meetings, Draft EIS Terms of Reference, registry item 036-1

<sup>153</sup> Tuktoyaktuk Community Scoping Meetings, Draft EIS Terms of Reference, registry item 037-1

<sup>154</sup> Tuktoyaktuk Public Hearing Transcript, September 24, 2012, page 161, registry item 302-1

<sup>155</sup> Tuktoyaktuk Public Hearing Transcript, September 25, 2012, page 46, registry item 303-1

<sup>156</sup> Tuktoyaktuk Public Hearing Transcript, September 24, 2012, pages 109–110, registry item 302-1

<sup>157</sup> Tuktoyaktuk Public Hearing Transcript, September 24, 2012, page 29, registry item 302-1



The Developer has made commitments regarding hiring, training, and procurement, and has committed to work with local academic institutions such as Aurora College to design appropriate training. However, at the time of the hearings, no meetings had taken place.

It is essential to the Panel that the benefits of the Project such as expenditures, employment, procurement and training, are experienced in the ISR to the extent possible, and that the Developer pursue the Project in a manner that allows the predicted economic effects in the ISR to be realized and, if possible, enhanced.

#### **8.1.5 Panel Recommendations**

Based on this analysis of issues and to ensure that local residents are able to participate in employment opportunities resulting from the ITH Project, in addition to the Panel's recommendations in section 7 of this report, the Panel recommends the following:

**R14: The Developer shall work with local academic institutions in the design of short-duration, skill-based training courses for Inuvialuit beneficiaries and other northern residents to improve job readiness, expand the available labour pool, and enhance local skill capacity. To the extent possible these courses shall be available before the initiation of major construction activities.**

**R15: The Developer shall require its contractors to report on training, including the types of training provided and the number of employees trained, and make the information public.**

**R16: The Developer shall publish updates on the numbers of Inuvialuit and northern businesses that have received Project-related contracts, as well as relevant details regarding the contracts.**

**R17: The Developer and its contractors shall provide updates to the public regarding the numbers of individuals from Tuktoyaktuk and Inuvik who have been hired, the types of positions they have been hired for, and total wages paid.**

**R18: Responsible Parties such as (ITI, IRC, IDC) shall examine changes in tourism as a result of the Project; and**

- **identify potential or additional economic opportunities that could be filled by Inuvialuit businesses; and**
- **assist Inuvialuit businesses, both existing and potential, to take advantage of opportunities related to increased tourism.**

#### **8.2 Community Impacts**

The Developer was directed to assess potential Project effects on, infrastructure and institutional capacity, and health and wellness of individuals, families, and the communities of Inuvik and Tuktoyaktuk.<sup>158</sup> Impacts in the area of socio-cultural patterns often take longer to

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<sup>158</sup> Final EIS Terms of Reference, sections 10.2.2, 10.2.5 and 10.2.6, registry item 046-1



become apparent, at which point they may become more difficult to manage. This, in turn, could have implications for other potential Project-related effects and VSCs such as those related to social and wellness conditions.

### **8.2.1 What the Developer said about the Issue**

The Developer stated that for many socio-economic effects, mitigation measures are the mandate of other GNWT departments, agencies and other service providers to implement, monitor and manage.<sup>159 160</sup>

The Developer stated that their responsibility for monitoring socio-economic effects for major development projects in the NWT is limited to monitoring, and reporting on, matters within its direct control. For major resource developments, the GNWT has entered into socio-economic agreements but the Developer made a distinction between the proposed highway, which is defined as a capital infrastructure project, and a private sector development. The Developer also stated that the GNWT delivers its social programming on a system-wide basis, and not on a development-by-development basis.<sup>161</sup>

The Developer stated that it did not plan to enter into a socio-economic agreement, or access and benefits agreement, with the Inuvialuit because the Project is a capital infrastructure project for a public highway.<sup>162</sup>

### **8.2.2 What the Developer Concluded about the Issue**

For each of infrastructure and institutional capacity and human health and community wellness, the Developer predicted beneficial effects, of moderate magnitude and long-term duration.<sup>163</sup> As described above, the Developer is of the position that existing core programs are sufficient to address impacts.

### **8.2.3 What the Parties and the Public said about the Issue**

In correspondence to the Panel, ENR (acting in this instance as the lead coordinator for all GNWT Departments other than DOT) provided a description of territory-wide programming conducted by other GNWT departments.<sup>164</sup> ENR also made a distinction between baseline and socio-economic effects analysis, which is the responsibility of a developer, and socio-economic follow-up and monitoring, which is part of normal social programming of governments and other parties. ENR's position is that in most jurisdictions, the ongoing responsibilities of governments are accepted as a matter of course and the EA requirements of a developer are limited to matters under their control.

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<sup>159</sup> Developer EIS, section 4.3 and Table 4.3-2, page 569, registry item 072-1

<sup>160</sup> Developer Response to EIRB, November 18, 2011, pages 40-41, registry item 095-1

<sup>161</sup> Developer response to round 1 IRs, IR60, registry item 108-1

<sup>162</sup> Tuktoyaktuk Public Hearing Transcript, September 24, 2012, pages 68-70, registry item 302-1

<sup>163</sup> Developer EIS, Table 4.3-2, page 569, registry item 072-1

<sup>164</sup> Developer response to 2b and 2c, registry item 095-1



**Hamlet of Tuktoyaktuk – The northern end of the ITH**



**Town of Inuvik – The southern end of the ITH**







ENR stated that GNWT departments have indicated that additional “commitments” are not necessary for individual projects, including the Developer’s Project, as the departments are already required to monitor and respond to changing socio-economic conditions under legislation, contractual obligations, and policy.<sup>165</sup>

Other departments were asked whether they were supportive of the Developer’s use and representation of the advice and information that their departments provided. Each of Industry, Tourism, and Investment, the Beaufort-Delta Health and Social Service Authority, the NWT Housing Corporation, and the Department of Justice were supportive of the information presented in the socio-economic assessment. ENR stated that they will continue to work with DOT to ensure that wildlife protection plans will be developed, and that the wildlife effects monitoring plan will be developed to ensure ENR can meet its mandate.<sup>166</sup>

GNWT departments were asked whether the level of information presented in the EIS was sufficient to allow them to adapt their programming, if required, and whether they would require additional resources to adapt their programming.<sup>167</sup> They responded as follows:

- ITI said that they would need additional funding to provide infrastructure;
- NWT Housing Corp said that changes in needs and related service delivery would be identified in their yearly plan;
- Beaufort-Delta Health and Social Services Agency was not anticipating changes in services levels, but that they could adjust programming if needed;
- Justice anticipated that service levels can be handled with existing resources, but would adjust resources as necessary; and
- ENR’s review of the EIS was focussed more on wildlife, that they do undertake patrolling, and if there are aspects of the Project that affect wildlife harvesting, ENR would work with DOT and the partners to develop any mitigations as needed.

#### **8.2.4 The Panel’s Analysis of the Issue**

For many VSCs, but in particular for VSCs pertaining to potential impacts on community services and infrastructure, and the health and wellness of individuals, families, and communities, the assessment conclusions and impact predictions were arrived at without the application of specific mitigation.

During the Review, the Panel was made aware of the Inuvialuit Indicators Project, which the Panel suggests would provide relevant information that the Developer, GNWT departments and other service agencies can use to quantify any community impacts that may be occurring as a result of the ITH Project. Over the past four years, the IRC has developed a data base and website (<http://inuvialuitindicators.com>) to monitor social, cultural and economic conditions

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<sup>165</sup> ENR Letter to EIRB clarifying ENR role, September 7, 2012, registry item 347-1

<sup>166</sup> Inuvik Public Hearing Transcript, September 19, 2012, pages 311-313, registry item 300-1

<sup>167</sup> Inuvik Public Hearing Transcript, September 19, 2012, pages 320-323, registry item 300-1



within the ISR. Indicators currently examined include: population, education, culture, labour force, well-being, income, government, and housing.<sup>168</sup>

### 8.2.5 Panel Recommendations

Based on this analysis of issues and in addition to the Panel's recommendations in section 7 of this report, the Panel recommends the following:

**R19: The Developer, GNWT departments and service agencies shall make use of the Inuvialuit Indicators Project to assist in monitoring the potential impacts of the Project on individuals and the communities of Inuvik and Tuktoyaktuk.**

## 8.3 Land Use, Access and Harvesting Impacts

The Developer relied upon the impact predictions in the biophysical assessment to determine whether harvesting would be affected from construction of the highway and the increased access provided by the highway to areas where wildlife, fish and other harvested resources can be readily found, such as at Husky Lakes.

### 8.3.1 What the Developer said about the Issue

The Developer noted that the Project may result in changes to traditional land use as a result of increased access provided by the highway. During the Developer's consultations, this was seen as a positive effect in terms of increased access to harvesting areas, as well as a negative effect in terms of increased pressure on harvested resources.<sup>169</sup>

In response to direction from the Panel to address impacts of the Project on land use as a result of tourism and increased access by tourists, the Developer stated that winter highway construction is not anticipated to affect tourist activities such as snowmobiling or cross-country skiing, and once constructed, would provide an alternative to air transportation for tourists traveling to or from Tuktoyaktuk.<sup>170</sup> The Developer did not identify any impacts to land use as a result of increased access to Inuvialuit lands by tourists. When asked who would control access to Inuvialuit lands by the public and tourists, the Developer stated that it understands access to, and management of, Inuvialuit lands to be the responsibility of the ILA.<sup>171 172</sup>

The Developer recognizes the need for the involvement of the existing co-management organizations (i.e. IGC, WMAC), together with the HTC and ENR in determining ongoing harvest management options during the long term operations phase of the highway. The legal basis for the establishment of harvest management regulations remains under the *NWT Wildlife Act*.<sup>173</sup>

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<sup>168</sup> Developer Response to 2b and 2c, November 18, 2011, pages 148-150, Attach. 1, registry item 95-1

<sup>169</sup> Developer EIS, section 4.3.8.1, pages 599, registry item 072-1

<sup>170</sup> Developer EIS, section 4.3.2.1, page 599-602, registry item 072-1

<sup>171</sup> Tuktoyaktuk Public Hearing Transcript, September 24, 2012, page 59 registry item 302-1

<sup>172</sup> Inuvik Technical Sessions Transcript, August 22, 2012, page 125 registry item 235-1

<sup>173</sup> Developer response to October 2012 IRs, registry item 334-1



The highway will create year-round access to harvesting areas, and the Developer predicted that:

- increased access to harvesting areas could result in increased participation in harvesting;
- increased harvesting may result in greater consumption of country foods, increased food security, and reduced cost of living through less reliance on store-bought food; and,
- increased access may also result in harvesting competition between communities, particularly with regard to harvesting in the area of Husky Lakes.<sup>174</sup>

The Developer also acknowledged that there is the potential for increased fishing pressure due to the presence of the highway, but asserts that the increased pressure would mostly be from residents of the communities of Inuvik and Tuktoyaktuk. The Developer states that increased fishing pressure can be addressed through education, guidelines, regulations, and enforcement.<sup>175</sup> The Developer concluded that residual indirect effects related to harvesting wildlife and fish populations are expected to be minimal.<sup>176</sup>

The Developer concluded that harvesting patterns may be temporarily disturbed due to highway construction, but that they should return to normal with completion of construction. With effective highway user practices, residual indirect effects related to harvesting were predicted to be minimal.<sup>177</sup>

### 8.3.2 What the Developer Concluded about the Issue

The Developer concluded that the proposed highway is a linear development that will potentially influence land use at a regional level, and assessed the residual effect on land to be the footprint of the highway itself. The Developer stated that access to traditional or special locations will not be restricted by the highway.<sup>178</sup> The Developer confirmed that it is not within their mandate to monitor access to land, nor to manage impacts that result from increased access.<sup>179</sup>

The Developer understands access to, and management of, Inuvialuit lands to be the responsibility of the ILA.<sup>180 181</sup>

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<sup>174</sup> Developer EIS, section 4.3.7, page 595, registry item 072-1

<sup>175</sup> DFO Final Technical Submission, registry item 345-1

<sup>176</sup> Developer EIS, section 4.3.7, page 595, registry item 072-1

<sup>177</sup> Developer EIS, section 4.3.7, page 595, registry item 072-1

<sup>178</sup> Developer EIS, section 4.3.8., pages 605-606, registry item 072-1

<sup>179</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 116-118, registry item 300-1

<sup>180</sup> Tuktoyaktuk Public Hearing Transcript, September 24, 2012, page 59, registry item 302-1

<sup>181</sup> Inuvik Technical Sessions Transcript, August 22, 2012, page 146, registry item 235-1



During construction and operations, the Developer committed to:<sup>182</sup>

- ensuring that construction vehicles stay on access roads or the construction site at all times;
- prohibiting recreational use of the highway by Project staff during construction, including the use of ATVs and snow machines;
- installing educational signage, at appropriate and highly visible locations, related to harvesting, fishing, hunting, and responsible use of the highway;<sup>183</sup>
- developing and implementing a Fish and Fish Habitat Protection Plan in cooperation with DFO, FJMC and the Tuktoyaktuk-Inuvik Working Group;<sup>184</sup>
- working closely with the ILA, the Tuktoyaktuk and Inuvik HTC; WMAC, FJMC, ENR, and selected environmental consultants to monitor environmental conditions and to validate conformance with the mitigation measures contained in the various environmental protection plans, licenses and permits that will be issued for the highway construction Project.<sup>185</sup>
- working with agencies such as the HTCs, WMAC and ENR to develop guidelines and conditions for highway usage and follow up with monitoring of harvesting activities.<sup>186</sup>

The Developer stated that they do not have a role in monitoring harvesting and potential impacts of the highway on harvesting and<sup>187</sup> identified WMAC, FJMC, IGC, the HTCs, and ILA as the organizations responsible for the management of harvested resources during the construction and operation of the Highway.<sup>188 189</sup> If harvesting competition between communities arises, the Developer suggests this could be resolved by HTCs, joint management agencies, ILA and ENR.<sup>190</sup>

The Developer agreed to provide resources to these agencies and organizations to assist them in fulfilling their role(s); however, there are limits on the amount that can be provided. Once DOT is made aware of the resourcing requirements, these would be partially or wholly addressed.<sup>191</sup>

### 8.3.3 What the Parties and the Public said about the Issue

WMAC identified potential negative effects on wildlife populations and harvesting as a result of increased access.<sup>192</sup> Ecological effects of roads and other linear developments increase access to previously undisturbed portions of the landscape and exert ecological influence well beyond their relatively small footprint.<sup>193</sup> WMAC also put forth an alternative to the Developer's Worst

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<sup>182</sup> Developer commitment 201 & 205, Appendix 5

<sup>183</sup> Developer commitment 5, Appendix 5

<sup>184</sup> Developer commitment 127, Appendix 5

<sup>185</sup> Developer commitment 230, Appendix 5

<sup>186</sup> Developer commitment 136, Appendix 5

<sup>187</sup> Inuvik Technical Sessions Transcript, August 23, 2012, page 261, registry item 236-1

<sup>188</sup> Developer EIS, section 4.3.7, pages 595-597, registry item 072-1

<sup>189</sup> Inuvik Technical Sessions Transcript, August 23, 2012, page 261, registry item 236-1

<sup>190</sup> Developer EIS, section 4.3.7, page 595, registry item 072-1

<sup>191</sup> Inuvik Technical Sessions Transcript, August 23, 2012, page 110, registry item 236-1

<sup>192</sup> Inuvik Technical Sessions Transcript, August 22, 2012, pages 209-212, registry item 235-1

<sup>193</sup> Developer response to October 2012 IRs, registry item 334-1



Case Scenario, suggesting that cumulative effects in the region would result in the loss of caribou harvest for an extended period of time, if not forever.<sup>194</sup> The cumulative effects assessment provided by the Developer includes little in the way of data or other information regarding the impacts the highway could have on wildlife in the region.

ENR highlighted that winter access roads to material sources and the associated ZOI should be included in the calculations of functional loss of habitat for caribou, as caribou will be in the highway construction area in winter.

EC agrees with the Developer's conclusion that the level of annual bird mortality due to vehicle collisions during operation of the Highway is unlikely to substantially reduce the abundance of bird species harvested within the regional study area.<sup>195</sup>

Participants in the Developer's Traditional Knowledge study identified potential impacts on harvested resources and harvesting activities during construction and operation of the highway activities.<sup>196</sup>

The FJMC is concerned that improved access provided by the highway will have a significant impact on fisheries currently used by residents of Tuktoyaktuk and Inuvik.<sup>197</sup> The impact assessment approach used by the Developer does not recognize post-construction impacts such as increased access. The FJMC suggested that the conditions of approval should include the consideration of performance bonds for a defined period, post-construction.

The Tuktoyaktuk-Inuvik Working Group (TIWG) stated the Developer has not adequately addressed the fish management issues identified by communities, which include increased access and increased public use of the resource.<sup>198</sup> TIWG strongly recommended the Developer produce a detailed action plan for planning and support of both the short and long-term management of fish resources.<sup>199</sup>

DFO says that, with the implementation of appropriate mitigation measures and an acceptable plan to offset the loss of fish habitat, the Project could be carried out in a manner that is likely to avoid negative impacts to fish and fish habitat.<sup>200</sup> DFO recommended that local community residents be consulted in order to select crossings that are proposed in areas important for subsistence harvesting. TC also supported this recommendation.<sup>201</sup>

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<sup>194</sup> WMAC Final Technical Submission, registry item 276-1

<sup>195</sup> EC Final Technical Submission, registry item 341-1

<sup>196</sup> ITH TK-TLU Workshops Final Report, Appendix A, registry item 199-1

<sup>197</sup> FJMC Follow-up letter to EIRB, registry item 326-1

<sup>198</sup> Developer summary of FJMC-DFO-DOT Meeting, September 28, 2012, registry item 321-1

<sup>199</sup> Inuvik Technical Sessions Transcripts, August 22, 2012, registry item 235-1

<sup>200</sup> DFO Final Technical Submission, registry item 345-1

<sup>201</sup> Inuvik Technical Sessions Transcripts, August 22, 2012, page 124, registry item 235-1





Community participants at a Developer-sponsored Traditional Knowledge Workshop in February 2012 provided the following information on fish.<sup>202</sup>

- fish are fragile and important among the species being discussed. Fish meat is the main source of food now. Along the road, and in the study area, you can catch trout and many other species;
- the road will make access to the lakes very easy and fishing will increase; and
- the Tiktaliktuk Lake fish population is declining with the increased access to the lake from the access road to gravel source 177. With increased access from the highway there is concern there could be long-term impacts on fish populations due to overfishing. Currently there is limited access to many of these lakes during parts of the year.

Inuvik HTC asked how a “no hunting zone” would be monitored and by whom, and how harvesting of fish, caribou and other wildlife would be monitored in the Husky Lakes area.<sup>203</sup> ILA responded that it does not have jurisdiction over hunting activities.<sup>204</sup>

The Inuvik HTC also expressed concerns that the increased number of tourists and hikers would result in more bear encounters and possible defence kills, thus reducing the quota available for harvest.<sup>205</sup>

Based on discussions with the Developer regarding the locations of pull-outs and access points,<sup>206</sup> Parks Canada expressed concerns about the potential effects from tourists walking to the pingos on the tundra.

WMAC defined its role in monitoring and managing impacts on harvesting as an advisory one only, and does not have a role in monitoring or mitigating project-related effects.<sup>207 208</sup>

WMAC commented that in addition to funding for monitoring, funding would be necessary for follow-up research.<sup>209</sup> In its final submission, WMAC recommended an independent body be created to oversee the WPP and WEMP, that WMAC participate on this body, and that it be funded by the Developer.<sup>210</sup>

IGC stated that they will work with ENR, DFO, the Inuvialuit co-management boards and HTCs to determine if there are project-related effects, and if so, to work through the integrated co-management process to recommend appropriate mitigative measures.<sup>211</sup>

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<sup>202</sup> ITH TK-TLU Workshops Final Report, Appendix A, registry item 199-1

<sup>203</sup> Inuvik Technical Sessions Transcripts, August 22, 2012, registry item 235-1

<sup>204</sup> ILA response to IHTC questions, registry item 249-1

<sup>205</sup> Inuvik Technical Sessions Transcript, August 23, 2012, page 127 registry item 236-1

<sup>206</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 101-102 registry item 300-1

<sup>207</sup> FJMC response to IR 72, March 2012, registry item 152-1

<sup>208</sup> Inuvik Technical Sessions Transcripts, August 23, 2012, page 105, registry item 236-1

<sup>209</sup> Inuvik Technical Sessions Transcripts, August 23, 2012, page 119, registry item 236-1

<sup>210</sup> WMAC Final Technical Submission, registry item 338-1

<sup>211</sup> FJMC response to IR 72, March 2012, registry item 152-1



EC agreed with the Developer that implementing waste management practices and infrastructure design at construction camps and other proposed developments will help to limit on the number of wolverine killed at the camps. EC supports the Proponent's commitment to *"Educating users of the Highway that wildlife have the right-of-way at all times"* and *"Posting signage along the Highway, emphasizing areas of high wildlife use"*.<sup>212</sup>

ENR confirmed that it will conduct wildlife monitoring and management through regular programming,<sup>213</sup> and later stated that it would work with the Developer to come up with mitigations for impacts on wildlife harvesting.<sup>214</sup>

FJMC defined their role in monitoring and managing impacts on harvesting of fish as follows:

- FJMC will work with DFO, the Inuvialuit co-management boards and HTC's to determine if there are Project-related effects and, if so, to work through the integrated co-management process to recommend appropriate mitigative measures;<sup>215</sup>
- FJMC, along with DFO and the HTC's, has a responsibility for monitoring and mitigating Project-related effects on harvesting.<sup>216</sup> FJMC also stated the Developer had not provided sufficient information to allow FJMC to determine impacts on harvesting;<sup>217</sup>
- FJMC believes the Developer recognizes its responsibility to assess the impacts from increased access and to facilitate the remediation of identified impacts,<sup>218</sup> and so should assist in remediation and post construction monitoring.
- As a condition of Project approval, FJMC recommends that the EIRB include the Developer's commitment to funding for and developing a fisheries management plan ;,<sup>219</sup>
- As a condition of Project approval, the FJMC recommends that the EIRB should require the Developer to expand the Project's zone of impact to include valued fisheries adjacent to the highway corridor that may be impacted by improved access. The Developer should also develop a remediation and monitoring plan for a prescribed period of three years after initial commissioning of the highway.<sup>220</sup>
- FJMC does not have sufficient capacity or resources to manage Project-related impacts on harvested resources.<sup>221</sup> The Developer should reach an agreement with FJMC to monitor and manage Project impacts and provide the necessary funding.

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<sup>212</sup> EC Final Technical Submission, registry item 341-1

<sup>213</sup> Inuvik Technical Sessions Transcripts, August 22, 2012, pages 177-180, registry item 235-1

<sup>214</sup> Inuvik Technical Hearing Transcripts, September 19, 2012, page 323, registry item 300-1

<sup>215</sup> FJMC response to IR 72, March 2012, registry item 152-1

<sup>216</sup> FJMC response to IR 72, March 2012, registry item 152-1

<sup>217</sup> Inuvik Technical Hearing Transcripts, September 19, 2012, pages 71-72, registry item 300-1

<sup>218</sup> FJMC Follow-up Letter to EIRB, registry item 326-1

<sup>219</sup> FJMC Follow-up Letter to EIRB, registry item 326-1

<sup>220</sup> FJMC Follow-up Letter to EIRB, registry item 326-1

<sup>221</sup> Inuvik Technical Hearing Transcripts, September 19, 2012, page 72, registry item 300-1



DFO handles regional fisheries monitoring, and recommended that the Developer work with the TIWG for monitoring impacts to local fisheries.<sup>222</sup> It is the responsibility of DFO and its co-management partners (FJMC, HTC) to manage fisheries resources along the highway corridor. DFO recommends that the Developer provide support for, and participate in, the development and implementation of a fisheries management plan for the proposed highway corridor.<sup>223</sup>

### 8.3.4 The Panel's Analysis of the Issue

The Panel heard concerns from many Parties and the public about the potential for increased hunting, fishing and other harvesting as a result of easier access to the natural resources of the area that the ITH Project could provide. The Panel heard from specific Parties about their willingness to work with other co-management bodies, ENR and the Developer to address resource management issues along the highway.<sup>224 225 226 227</sup> The Panel is also aware of the Developer's commitments (e.g., Appendix 5 Developer's commitments 5, 91, 92, 127, 128, 136, 137, 203, 218, 233) to work with various Parties, co-management bodies, and others to address resource management issues resulting from development of the ITH Project.<sup>228</sup>

The Panel recognizes that many of these specific issues and concerns regarding increased access to resources are addressed elsewhere in this report. Recommendations specific to these issues will likely be part of overall resource management initiatives for the ITH Project and of broader regional initiatives undertaken by government and co-management bodies.

### 8.3.5 Panel Recommendation

To ensure protection of harvested species from significant Project-related impacts, in addition to the Panel's recommendations in section 7 of this Report, the Panel recommends the following:

**R20: The Developer shall work with the Parties (DFO, EC, ENR) and comanagement bodies (FJMC, WMAC) and HTCs to ensure that the Developer's mitigation, monitoring and management commitments related to wildlife, fish and harvesting are met and reported on annually through IEMOC or through the specific comanagement bodies responsible for resource management in the ISR.**

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<sup>222</sup> Inuvik Technical Hearing Transcripts, September 19, 2012, page 160, registry item 300-1

<sup>223</sup> DFO Final Technical Submission, registry item 345-1

<sup>224</sup> FJMC response to IR 72 & 80, March 2012, registry item 152-1

<sup>225</sup> WMAC Final Technical Submission, October 29, 2012, registry item 338-1

<sup>226</sup> EC Final Technical Submission, October 29, 2012, registry item 341-1

<sup>227</sup> DFO Final Technical Submission, October 29, 2012, registry item 345-1

<sup>228</sup> Developer Final Submission, November 5, 2012, registry item 346-1



**Caribou**



**Hans Creek**







## **8.4 Impacts to Wildlife and Wildlife Habitat**

### **8.4.1 Impacts to Caribou**

Construction of the proposed highway and its associated borrow sources, the physical presence of the proposed highway and vehicular traffic can result in caribou avoiding the vicinity of the ITH. Noise and vehicle movement can cause physical and physiological disturbance, inducing increased activity and energy expenditure by caribou near the highway right-of-way. Caribou may delay crossing or avoid crossing the ITH which may result in altered migration patterns and reduced use of habitats adjacent to the right-of-way. Because the ITH would create easier access to caribou habitat, caribou could experience increased hunting pressure in areas adjacent to the right-of way.

This issue is important to the Panel because of the cultural, historical and ecological importance of caribou to the Inuvialuit and the region.

#### **8.4.1.1 What the Developer said about the Issue**

The EIS was qualitative in the approach to assessing impacts on caribou, and the Developer's supplemental cumulative effects assessment (CEA) used a 1.0 km buffer or zone of influence (ZOI).<sup>229 230</sup> The Developer presented, on maps, the area lost in various seasons for caribou ranges across the region. In responses to IR 73 and IR 74 from EIRB, the Developer refers to studies showing a ZOI of 2-4 km or more from roads.<sup>231</sup>

The Developer confirmed in the hearings that they did not use the wildlife information provided after the EIS was submitted, including caribou mapping, to update their initial impact assessment. The Developer also indicated the 1.0 km ZOI was chosen based on professional judgement and not on scientific information derived from the literature.<sup>232</sup>

The Developer refers to a deployment of radio collars in March 2012 by ENR to document the caribou seasonal range use and migration patterns.<sup>233</sup> More collars will be deployed in subsequent years.

#### **8.4.1.2 What the Developer Concluded about the Issue**

Using the findings from studies on the Dempster Highway, the Developer concludes that there will be no significant adverse effects on caribou resulting from the ITH.<sup>234</sup>

The Developer committed to developing caribou-specific mitigations as part of an overall Wildlife and Wildlife Habitat Protection Plan (WPP).<sup>235</sup> The Developer also submitted a draft Wildlife

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<sup>229</sup> Supplemental Cumulative Effects Documentation, registry item 271-1

<sup>230</sup> WMAC Draft Technical Submission, September 12, 2012, registry item 286-1

<sup>231</sup> Developer response to round 2 IRs, IR 73 and 74, registry item 160-1

<sup>232</sup> Inuvik Technical Hearing Transcripts, September 18, 2012, pages 86-89, registry item 298-1

<sup>233</sup> Draft WEMP ITH, October 4, 2012, registry item 318-1

<sup>234</sup> Developer response to October 2012 IRs, registry item 334-1

<sup>235</sup> Developer Commitment 128, Appendix 4



Effects Monitoring Program (WEMP) in which the intent to monitor caribou using radio collars is outlined to validate the EIS predictions.<sup>236</sup>

#### 8.4.1.3 What the Parties and the Public said about the Issue

WMAC requested justification for the 1.0-km ZOI surrounding the ITH Project, sample sizes based on the number of radio collars deployed, and the effectiveness of monitoring given that pre-construction baseline data are lacking.<sup>237</sup> WMAC states that the temporal boundary of 10 years used for the CEA was not long enough and suggests that the 1.0-km ZOI underestimates caribou movement and the potential effects on caribou. WMAC received responses and clarifications for their information requests and comments from the Developer and ENR on October 23, 2012.<sup>238</sup> WMAC noted in their final submission that most of these responses were helpful, although much of what was provided needs to be included in the final version of the WEMP. WMAC further noted that “*Despite the deficiencies of the EIS, WMAC believes that through a committed cooperative effort, long-term damage to wildlife and wildlife habitats can be minimized*”.<sup>239</sup>

In its final technical submission EC indicated it agreed with the conclusions of WMAC. Both WMAC and EC list several issues and concerns with the poor quality of the environmental assessment, and particularly with the CEA. However, both agree that potential adverse effects of the ITH Project can be mitigated or minimized if their recommendations and the commitments in the Developer’s Final Commitments Table are implemented.<sup>240</sup>

Tuktoyaktuk Community participants, at a Developer-sponsored Traditional Knowledge Workshop in February 2012, provided the following information on Caribou:<sup>241</sup>

- there are more animals now because there is less activity in the area. If activity levels increase, caribou numbers may decrease again;
- more caribou than any other species would be killed by road traffic;
- there could be increased harvesting of caribou if the road is constructed as some persons may use the road to hunt from; and
- to mitigate against over-harvesting of the caribou if a road is constructed, there will need to be more or improved by-laws related to caribou harvesting and that regulatory agencies will have to step-up and enforce these regulations.

During the Inuvik hearings, ENR stated that they will likely be asked “...to assist the Department of Transport to meet their commitments as a Developer with the Project.” ENR also said that “...it would require additional financial support from the government of the Northwest Territories to be able to conduct what we’re suggesting as a project outline right now”.<sup>242</sup> ENR confirmed in

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<sup>236</sup> Draft WEMP ITH, October 4, 2012, registry item 318-1

<sup>237</sup> WMAC October 2012 IRs to Developer, registry item 328-1

<sup>238</sup> Developer responses to October 2012 IRs, registry item 334-1

<sup>239</sup> WMAC Final Technical Submission, registry item 338-1

<sup>240</sup> EC Final Technical Submission, registry item 341-1

<sup>241</sup> ITH TK-TLU Workshops Final Report, registry item 199-1

<sup>242</sup> ENR statements made at Day 2 Inuvik Hearings, p.307&309, registry item 300-1



their submission of Undertaking #3 that ZOIs of 2-4 km should be used to predict impacts, and not the 1.0 km ZOI used by the Developer.

#### 8.4.1.4 The Panel's Analysis of the Issue

The Panel found deficiencies in the Developer's submission regarding impacts to caribou, as follows:

- the selection of a 1.0 km ZOI was based on the Developer's own judgement; information supplied by ENR showed 2-4 km ZOI to be more appropriate, depending on the ecological context and type of disturbance;
- the Developer did not provide a scientifically defensible rationale to support its prediction of potential impacts to caribou habitat use and habitat fragmentation from the ITH Project;
- the Developer did not conduct field surveys for caribou and did not use ENR data to quantify the impacts it predicted;
- the Developer submitted a draft Wildlife Effects Monitoring Program (WEMP)<sup>243</sup>, and a draft Wildlife and Wildlife Habitat Protection Plan (WPP)<sup>244</sup>. Both of these documents are preliminary and require further consultation and refinement to ensure they are developed appropriately. These draft documents do not provide the Panel with any assurances that the Developer's conclusions about impacts to caribou are accurate.

The close involvement of ENR in monitoring both Project-specific and regional effects from the ITH would help to ensure that significant impacts to the caribou population will be avoided. The Panel concurs with the final submission of INFC<sup>245</sup> that an oversight body be created to oversee the implementation of the Developer's follow-up and monitoring programs. Testing the validity of the Developer's predictions can be done using the data from the radio collaring program initiated by ENR and referred to in the Draft WEMP.<sup>246</sup> WMAC's concerns about sample size used in this program are potentially valid; however, the number of collars deployed to date and those that are still be deployed will likely allow for an objective testing of the predictions. Statistical analysis of the data, particularly power analyses, will reveal whether or not more collars will need to be deployed. WMAC recommends that Project environmental effects monitoring should be overseen by an independent body.<sup>247</sup>

It is not clear what the Developer plans to do about developing adaptive management protocols for the ITH Project. In response to IR 16, the Developer stated, "*Adaptive management is a process for applying remedial methods and procedures when there is a failure in the predicted performance of designs and measures intended to protect environmental values. Erosion and sediment control mitigation and remedial measures are routinely applied for road construction projects and are contained in Best Management Practices (BMPs) and aquatic protection guidelines. The EMP will include an adaptive management component, which will reference*

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<sup>243</sup> Draft WEMP ITH October 4, 2012, registry item 318-1

<sup>244</sup> Draft WPP, October 5, 2012, registry item 324-1

<sup>245</sup> INFC Final Submission, registry item 337-1

<sup>246</sup> Draft WEMP ITH October 4, 2012, registry item 318-1

<sup>247</sup> WMAC Final Technical Submission, registry item 338-1



*appropriate BMPs, guidelines, and techniques that are relevant to construction in northern latitudes, and indicate how they are to be applied under specific circumstances (i.e. to deal with the most common types of erosion issues).*"<sup>248</sup>

In response to IR 62, the Developer stated, "For Biophysical effects, the term "adaptive management program" as used by the Developer...includes the concepts of "continual improvement" and "resolving issues that arise" through to more complicated "research and problem resolution"... the Developer is not proposing a stand-alone "adaptive management program".<sup>249</sup> The Developer further stated, "The Developer believes, for most of the management of environmental issues for the construction and maintenance, Adaptive Management as described in the literature is not appropriate for this Project. The Developer's commitment to an Environmental Management System is more appropriate to the intended issue raised throughout the IRs of the EIRB."<sup>250</sup>

While the Panel agrees with the Developer that the purely scientific approach to adaptive management, as described in the literature, is likely not appropriate for this development, the Developer needs to implement an adaptive management program that is more robust than relying on the "...appropriate BMPs, guidelines, and techniques that are relevant to construction in northern latitudes". The questions that need to be addressed in an adaptive management program relate to the development of adaptive measures should the monitoring program indicate that caribou are more heavily impacted by the road than predicted by the Developer.

The Panel notes that INFC, in its final submission, stated that it and all federal parties believe that the effects of the proposed ITH would not be significant after successful implementation of mitigation.<sup>251</sup> INFC recommends that a working group be established to oversee the follow-up programs and to ensure that adaptive management be implemented, and that monitoring programs should be established to ensure the success and effectiveness of mitigations.

#### **8.4.1.5 Panel Recommendations**

Based on this analysis of issues and to ensure that mitigation successfully protects caribou from significant effects, in addition to the Panel's recommendations in section 7 of this Report, the Panel recommends the following:

**R21: The Developer shall monitor Project-specific effects on caribou and work in collaboration with existing or planned regional caribou monitoring programs by government, and include the following:**

- **compare baseline caribou habitat amount to Project construction and operations phase habitat amounts (to verify the prediction for the amount of caribou habitat lost to the highway);**

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<sup>248</sup> Developer response to Round 1 IR 16, page 50, registry item 108-1

<sup>249</sup> Developer response to Round 1 IR 62, page 185, registry item 108-1

<sup>250</sup> Developer response to Round 1 IR 62, page 187, registry item 108-1

<sup>251</sup> INFC Final Submission, registry item 337-1



- complete statistical power analyses to determine appropriate sample size for caribou collaring program;
- compare baseline caribou movement to Project construction and operations phase movements using radio collar data;
- compare baseline caribou distribution to Project construction and operations phase distributions using radio collar data (to verify predicted ZOI of 1 km);
- compare baseline caribou habitat use to Project construction and operations phase habitat use using radio-collar data (to verify prediction for habitat degradation);
- compare baseline caribou harvest rates to Project construction and operations phase harvest rates; and
- compare baseline caribou collision-based mortality rates to pre-defined thresholds.

#### **8.4.2 Grizzly Bear**

Potential effects on grizzly bear from construction activities, associated borrow sources, the physical presence of the highway and vehicular traffic can result in loss of habitat and fragmentation of habitat. Disturbance from vehicle movement and noise can increase a bear's activity and energy expenditure near the highway, and cause bears to avoid habitats adjacent to the highway. Construction can result in disturbance of denning bears as noise can be transmitted underground and cause a hibernating bear to leave its den, potentially leading to mortality.

##### **8.4.2.1 What the Developer said about the Issue**

Fifteen Global Positioning System (GPS)/satellite collars will be deployed on grizzly bears in or near the RSA in May 2013. The frequency of data collected by these collars can be altered as necessary. Additional collars will be deployed to ensure there are 15 bears collared, likely in May 2015, May 2017, and May 2019.<sup>252</sup>

Radio-collar data will be used to determine bear movement and habitat selection, including location of den sites, before highway construction. Mortality from harvest and other factors will be tracked prior to highway construction. The ITH WEMP is designed to evaluate the effect of the proposed highway on the movement, habitat selection, and direct mortality of grizzly bears. Specifically, the WEMP will test if there is a change in bear denning frequency within or near the road corridor during and after construction when the road is in use.<sup>253</sup> The WEMP is a draft document and will undergo further refinement in discussion with co-management partners.<sup>254</sup>

The Developer's primary mitigation for grizzly bears is the avoidance of winter activities at a specific site if a fall pre-construction denning survey indicate grizzly are actively denning in or

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<sup>252</sup> Developer response to October 2012 IRs, registry item 334-1

<sup>253</sup> Draft WEMP ITH October 4, 2012, registry item 318-1

<sup>254</sup> Developer response to October 2012 IRs, registry item 334-1





near an active borrow source. If a bear has been found to be disturbed, larger setback distances will need to be considered.<sup>255</sup>

#### 8.4.2.2 What the Developer Concluded about the Issue

Proposed upgrading work will be conducted during the winter period when grizzly bears are expected to be in hibernation, and based on surveys done to date, no known dens have been recorded in either of the two initial construction areas. The Developer does not anticipate that any grizzly bears will be exposed to construction-related disturbances during this first year of abbreviated construction along existing portions of road. Abbreviated construction plans include late winter 2012/13 upgrading of the existing Tuktoyaktuk to Source 177 Access Road and the upgrading of the existing Navy Road leading from Inuvik to KM 0 of the highway at the end of Navy Road.<sup>256</sup> The Developer expects that bears will habituate or avoid denning near the right-of-way during operations.<sup>257</sup>

The Developer predicts minimal opportunity for cumulative environmental effects to grizzly bears.<sup>258</sup>

The Developer committed to undertaking a grizzly bear den survey in October 2011 for the proposed highway alignment and key potential borrow sources; and the survey was to be repeated in Fall 2012 as a pre-construction denning survey.<sup>259</sup>

#### 8.4.2.3 What the Parties and the Public said about the Issue

ENR agrees that grizzly bears will likely avoid establishing winter dens within 500 m of the ITH alignment during operations.<sup>260</sup> ENR informed the Developer that, with the mitigations included in the commitments table, it does not expect adverse effects given that denning habitat is not a limiting factor in the area adjacent to the right-of-way, granular sources or winter access routes.<sup>261</sup>

WMAC is of the opinion that the WEMP will likely fail to detect an effect of the road on grizzly bears because the collars will be fitted onto the bears too late.<sup>262 263</sup>

EC, in its final technical submission indicated the following:<sup>264</sup>

- setbacks for blasting near bear dens, as provided in the draft WPP, are smaller than those recommended in the seismic guidelines (500m vs. 1.5 km). Setbacks should be consistent with seismic guidelines. The WPP should provide a detailed account of how

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<sup>255</sup> Developer response to October 2012 IRs, registry item 334-1

<sup>256</sup> Developer response to October 2012 IRs, page 24, registry item 334-1

<sup>257</sup> Developer response to October 2012 IRs, registry item 334-1

<sup>258</sup> ITH Supplemental Cumulative Effects Analysis, registry item 313-1

<sup>259</sup> Developer commitment 142, Appendix 5

<sup>260</sup> ENR ITH Undertaking from Hearings, registry item 309-1

<sup>261</sup> Developer response to October 2012 IRs, registry item 334-1

<sup>262</sup> WMAC October 2012 IRs to Developer, registry item 328-1

<sup>263</sup> Developer response to October 2012 IRs, registry item 334-1

<sup>264</sup> EC Final Technical Submission, registry item 341-1



all of the items indicated in the Wildlife and Wildlife Habitat section of the Proponent's November 5, 2012 Commitments Table will be implemented;

- Figure 3 of the draft WEMP indicates observations of grizzly bear dens along the highway corridor in 2011, which contradicts the Developer's statement that "*no bear dens were observed in the 1 km study area during...field surveys*".
- the overlap between the 1 km Project ZOI and grizzly bear denning area is greater than indicated by Developer.

EC supported the WEMP proposed by the Developer as a means to monitor and detect potential direct and cumulative impacts on grizzly bear from construction and operation of the highway. EC recommended that the Panel direct the Developer to "*...provide annual construction monitoring reports for review by EC, other regulators and interested parties. Comments from reviewers should be used to amend the Wildlife and Wildlife Habitat Protection Plan (WPP) as deemed necessary.*" EC also recommended that the Panel direct the Developer to "*...submit wildlife monitoring reports to regulators and other wildlife co-management partners for any monitoring programs that extend into the operational phase of the Project (e.g. those outlined in the draft WEMP).*"

#### **8.4.2.4 The Panel's Analysis of the Issue**

Testing the validity of the Developer's predictions can be done using the data from the radio collaring program. WMAC's concerns about the timing of baseline data collection are potentially valid. However, if pre-construction surveys indicate no bear dens in the initial construction areas, then timing of data collection should not be an issue. This should be confirmed, given the conflicting information from the Developer about den locations versus those identified by EC. Those collars that will still be deployed will likely allow for an objective testing of the predictions. However, the Developer committed to pre-construction den surveys in the fall of 2012. There is no evidence that such surveys have been completed. The Developer should be committed to completing den surveys shortly before construction.

The Developer's adaptive management plans are still unclear. The questions that need to be addressed relate to the development of adaptive measures, in the event that the monitoring program indicates that grizzly bear denning is more heavily impacted by the road than predicted by the Developer.

Blasting setbacks for grizzly bear dens should be consistent with seismic guidelines and agreed upon by the IEMOC, or the setback distances can be determined by the IEMOC on a case-by-case-basis, as suggested and committed to by the Developer.

#### **8.4.2.5 Panel Recommendations**

Based on this analysis, and to ensure that mitigation successfully protects grizzly bears from significant effects, in addition to the Panel's recommendations in section 7 of this Report, the Panel recommends the following:

**R22: The Developer shall complete the development of a WEMP in collaboration with the parties to the IEMOC as part of an adaptive management process.**



**R23: The Developer shall determine presence or absence of bear dens in construction areas with pre-construction surveys.**

**R24: The Developer shall monitor Project-specific effects on grizzly bear and collaborate with existing or planned regional grizzly bear monitoring programs by government including the following:**

- **compare baseline grizzly bear movement to Project construction and operations phase movements using radio collar data;**
- **compare baseline grizzly bear habitat use to Project construction and operations phase habitat use using radio-collar data (to verify prediction for habitat degradation);**
- **compare baseline grizzly bear harvest rates to Project construction and operations phase harvest rates;**
- **compare baseline grizzly bear collision-based mortality rates to pre-defined thresholds; and**
- **compare baseline grizzly bear denning frequency within or near the road corridor to Project construction and operations phase denning frequency (to verify predicted ZOI of 500 m).**

#### **8.4.3 Muskrat**

Potential effects of the Project on muskrat were not addressed in the EIS. The Developer later concluded that the Project is not expected to have any effect on Tuktoyaktuk muskrat populations.<sup>265</sup> Potential effects on muskrat were discussed during the public hearings in Tuktoyaktuk, specifically in relation to impacts on muskrat push-ups resulting from the development of access roads and snow removal on lakes.<sup>266</sup> The effects could include the destruction of muskrat push-ups resulting in mortality of muskrat family groups.

##### **8.4.3.1 What the Developer said about the Issue**

In the EIS, the Developer recognized muskrat as a high-value furbearing species trapped in the region.<sup>267</sup> Annual muskrat harvest information is available in the EIS, but no field surveys were conducted specifically to collect data on muskrat.

The Developer completed bathymetric surveys and related studies linked to water extractions on some lakes; however, these surveys do not include information about muskrats.<sup>268</sup>

The Developer stated in its draft WPP that the Wildlife Act Regulations will be adhered to, including the prohibitions on wildlife disturbance and/or “harassment of wildlife”. This includes Section 38 (1)(c): no person shall break into, destroy or damage any den, beaver dam or lodge

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<sup>265</sup> Developer Response to EIRB May 25, 2012 Directives, registry item 233-1

<sup>266</sup> Tuktoyaktuk Public Hearing Transcript, September 24, 2012, page 90, registry item 302-1

<sup>267</sup> Developer EIS, section 3.2.8, page 395, registry item 071-1

<sup>268</sup> Tuktoyaktuk Public Hearing Transcript, September 24, 2012, page 90, registry item 302-1



or muskrat push-up outside any municipality or prescribed area, unless authorized to do so by the regulations or any other law.<sup>269</sup>

#### 8.4.3.2 What the Developer Concluded about the Issue

The Highway is not expected to have any effect on Tuktoyaktuk muskrat populations.<sup>270</sup>

The Developer committed to completing pre-disturbance surveys for critical habitat features,<sup>271 272</sup> which would include surveys for muskrat push-ups on lakes designated for winter snow removal and/or water withdrawal.

#### 8.4.3.3 What the Parties and the Public said about the Issue

At the public hearings in Tuktoyaktuk, a member of the public, Mr. Roger Gruben noted that regulations are in place to ensure protection of muskrats. The ILA and other government agencies have the responsibility to ensure there are no negative environmental impacts on wildlife. He further suggested that research is completed with input from the TCC, the hunters and trappers committees, and other relevant agencies to determine the best possible approach.<sup>273</sup>

Another member of the public, Mr. Jim Elias, stated that he does not think the highway will directly impact muskrat and accepts that there are organizations that look after the wildlife and the land.<sup>274</sup>

#### 8.4.3.4 The Panel's Analysis of the Issue

The Developer did not complete field surveys for muskrat and did not quantify impacts to muskrat in the EIS. This issue was not assessed in the Review, and remains relatively unexamined.

If pre-disturbance surveys for muskrat push-ups are implemented for lakes that are subject to snow removal and/or water withdrawal, and proposed wildlife mitigation measures are followed (e.g., *Wildlife Act*), it is likely that impacts to muskrat can be avoided.

#### 8.4.3.5 Panel Recommendations

Based on this analysis of issues and to ensure that mitigation successfully protects muskrats from significant effects, in addition to the Panel's recommendations in section 7 of this Report, the Panel recommends the following:

**R25: The Developer shall complete pre-construction surveys for muskrat push-ups on lakes where winter snow removal and/or winter water withdrawal will take place.**

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<sup>269</sup> Preliminary Draft WPP, registry item 324-1

<sup>270</sup> Developer Response to EIRB May 25, 2012 Directives, registry item 233-1

<sup>271</sup> Developer commitment 134, Appendix 5

<sup>272</sup> Tuktoyaktuk Public Hearing Transcript, September 24, 2012, page 92, registry item 302-1

<sup>273</sup> Tuktoyaktuk Public Hearing Transcript, September 25, 2012, page 23, registry item 303-1

<sup>274</sup> Tuktoyaktuk Public Hearing Transcript, September 25, 2012, page 38, registry item 303-1



**R26: The Developer shall follow mitigation measures set out in permits issued under the *Wildlife Act* and monitor mitigation success, if muskrats are present.**

#### **8.4.4 Reindeer**

Potential effects of the Project on the reindeer herd were not addressed in the EIS, but were discussed during the public hearings in Tuktoyaktuk.<sup>275</sup> Potential impacts need to be identified well in advance of Project construction to ensure they are adequately managed.<sup>276</sup>

##### **8.4.4.1 What the Developer said about the Issue**

The Developer expects that reindeer herd issues would be highlighted to them by the ILA if the issues relate to private lands. On Crown lands, the Developer expects that regulators would bring issues to their attention.<sup>277</sup> The Developer committed to discussing any issues and concerns regarding reindeer with the herd owner.<sup>278</sup>

##### **8.4.4.2 What the Developer Concluded about the Issue**

This issue was not discussed in the EIS.

##### **8.4.4.3 What the Parties and the Public said about the Issue**

AANDC acknowledges that the ITH will intersect the allotments used by the reindeer herd during the winter months. AANDC believes that impacts on the herd can be mitigated through dialogue between the herd owner, the Developer and AANDC. AANDC has committed to engaging the herd owner during regulatory consultation.<sup>279</sup>

##### **8.4.4.4 The Panel's Analysis of the Issue**

This issue was not assessed in the Review, and remains relatively unexamined. It may well be that a meaningful dialogue would resolve any issues that may affect the herd owner. However, the herd owner has not been contacted to determine whether there are issues of potential conflict.

Another potential conflict may be that if the reindeer herd is moved to another location, the reindeer may compete with the barren ground caribou herd. However, the reindeer and the caribou co-existed in that area for a long time and neither the community nor ENR raised concerns that there may be a conflict of any significance.

More recently, reindeer have become important as a food source for the Inuvialuit, given the moratorium on harvesting caribou.

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<sup>275</sup> Tuktoyaktuk Public Hearing Transcript September 25, 2012, page 23, registry item 303-1

<sup>276</sup> AANDC Final Technical Submission, registry item 339-1

<sup>277</sup> Tuktoyaktuk Public Hearing Transcript September 24, 2012, page 95, registry item 302-1

<sup>278</sup> Final Technical Submission, Table F, November 5, 2012, registry item 346-1

<sup>279</sup> AANDC Final Technical Submission, registry item 339-1





#### 8.4.4.5 Panel Recommendations

Based on this analysis of issues and to ensure that mitigation successfully protects reindeer from significant effects, in addition to the Panel's recommendations in section 7 of this Report, the Panel recommends the following:

**R27: AANDC shall address and resolve any potential land use conflicts before issuing land tenures for the highway.**

**R28: With respect to private lands, the ILA shall initiate dialogue between the reindeer herd owner and the Developer and assist with conflict resolution as necessary.**

#### 8.5 Fish and Fish Habitat

The construction, operation, and maintenance of the proposed highway can potentially affect fish habitat through direct loss and alteration. Erosion and sedimentation can affect water quality, oxygen levels and fish habitat which, in turn, may affect hatching and rearing success. Dust generation and fine particulate matter settlement into adjacent water bodies may also affect water quality. Flow changes due to stream construction and culvert installation may also alter fish habitat and result in barriers to migration.

##### 8.5.1 What the Developer said about the Issue

The Developer states in its response to IRs, that "*All crossings on this Project will be designed to meet DFO guidelines for providing fish passage*".<sup>280</sup>

The Developer committed to submitting an *Erosion and Sedimentation Control Plan* and a *Fish and Fish Habitat Protection Plan* in accordance with guidelines and best practices by GNWT and DFO. No in-stream work will be done in fish bearing streams.<sup>281</sup> The Developer is committed to undertaking any in-stream work required in consultation with DFO, FJMC and the Tuktoyaktuk-Inuvik Working Group.

##### 8.5.2 What the Developer Concluded about the Issue

In the Developer's response to technical submissions prior to the hearings, the Developer stated that: "*In the current Highway assessment, as previously stated, any potential effects on fish or fish habitat are expected to be minor to negligible...*"<sup>282</sup>

##### 8.5.3 What the Parties and the Public said about the Issue

DFO requested the Developer provide information on general construction techniques, season of construction, and general mitigation, and provide an assessment on the impacts to fish and fish habitat.<sup>283</sup>

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<sup>280</sup> Developer response to October 15, 2012 IRs, registry item 334-1

<sup>281</sup> Developer commitments 90 and 91, in Appendix 5

<sup>282</sup> Developer response to Parties Draft Technical Submissions, registry item 287-1

<sup>283</sup> DFO IR to Developer October 15, 2012, registry item 329-1



The Developer did not provide the requested assessment of the impacts, although the Developer confirmed that *“There is no in stream work during open water anticipated for this Project.”* After taking all information provided into account, DFO in its Final Technical Submission stated that, *“...with the implementation of appropriate mitigation measures and an acceptable plan to offset the loss of fish habitat, the Project could be carried out in a manner that is likely to avoid negative impacts to fish and fish habitat.”* In DFO’s opinion, *“[a]lthough many of the details have not yet been provided by the Developer in their environmental impact statement, measures to mitigate the potential environmental impacts of stream crossings are well developed and employed routinely for road construction projects, and there is little risk that offsets for any residual effects to fish habitat would not be feasible”*.<sup>284</sup>

DFO urged that some of the required information on stream-crossings be submitted “as soon as possible”. However, DFO does not set out any specific requirements regarding the deadlines for submissions.<sup>285</sup>

FJMC looks to DFO as the regulator to identify requirements for stream crossing designs.<sup>286</sup> As with DFO, FJMC was also concerned about the lack of assessment of impacts on fish and stated: *“It is the Developer’s responsibility to assess the fisheries resources and facilitate any remedial measures which might be required to minimize identified impacts to a level that would allow authorization under the Fisheries Act.”*<sup>287</sup> FJMC re-stated their concern about the lack of impact assessment in their letter of October 4, 2012.<sup>288</sup>

However, FJMC stated that they *“...are pleased that the Developer has initiated discussions (October 1, 2012) with the FJMC following the September hearings in Inuvik. .... We believe the proponent has now recognized their responsibility to assess the impacts associated with increased access and facilitate the remediation of identified impacts. They have committed to provide funding and to work with the TIWG to develop a plan for the creation of fishing management plans for lakes of interest along the corridor. This plan should provide resources for the TIWG to hire the expertise for structuring the plan, include a community consultation and information plan, and establish at a minimum a three year monitoring program post construction to evaluate the success of the fishing plans.”*<sup>289</sup>

Tuktoyaktuk Community participants, at a Developer-sponsored Traditional Knowledge Workshop in February 2012, provided the following information on fish:<sup>290</sup>

- there should be studies on some of the lakes and creeks and monitoring after the highway is built to check how the fish are doing, especially during the summer when people are not actively fishing there;

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<sup>284</sup> DFO Final Technical Submission, registry item 345-1

<sup>285</sup> DFO Final Technical Submission, registry item 345-1

<sup>286</sup> FJMC Letter to EIRB on ITH Inuvik Hearings, registry item 306-1

<sup>287</sup> FJMC Letter to EIRB on ITH Inuvik Hearings, registry item 306-1

<sup>288</sup> FJMC Follow-up Letter to EIRB, registry item 326-1

<sup>289</sup> FJMC Follow-up Letter to EIRB, registry item 326-1

<sup>290</sup> ITH TK-TLU Workshops Final Report, registry item 199-1



- ENR and DFO will need to step-up to monitor and enforce regulations etc., they must ensure road is constructed properly (in terms of environment);
- fish are fragile and important among the species being discussed. Fish meat is the main source of food. Along the road, and in the study area, you can catch trout and many other species;
- the road will make access to the lakes very easy and fishing will increase; and
- the Tiktaliktuk Lake fish population is declining with the increased access to the lake from the access road to gravel source 177. With increased access from the highway there is concern there could be long-term impacts on fish populations due to overfishing. Currently there is limited access to many of these lakes during parts of the year.

#### **8.5.4 The Panel's Analysis of the Issue**

In its final technical submission, DFO makes a number of recommendations that should be required of the Developer, such as that mitigation measures and monitoring be included to demonstrate the efficacy of these measures. The full set of mitigations and monitoring should be submitted to the FJMC for review and comment. The Panel concurs with DFO that if mitigation and monitoring will be developed to the satisfaction of the IEMOC, adverse impacts on fish and fish habitat will be effectively managed.

It is apparent that FJMC will require funding to be able to undertake additional responsibilities recommended by this Review. FJMC stated the Developer has committed to provide that funding.<sup>291</sup>

As with the terrestrial mitigation and monitoring programs, adaptive management for fish and fish habitat plans remains an unresolved issue. The questions that need to be addressed relate to the development of adaptive measures to be implemented if the monitoring program indicates that fish and fish habitat are more heavily impacted by the road than predicted by the Developer.

Work to be completed on management and monitoring plans should be completed at least 60 days prior to the start of construction, and be approved by the IEMOC.

#### **8.5.5 Panel Recommendations**

Based on this analysis of issues and to ensure that mitigation successfully protects fish and fish habitat from significant effects, in addition to the Panel's recommendations in section 7 of this Report, the Panel recommends the following:

**R29: The Developer shall consult with both DFO and AANDC to determine appropriate mitigation measures before using a chemical dust suppressant technique on the ITH.**

**R30: The Developer shall, prior to construction, develop management plans for the protection of fish and fish habitat in any areas affected by construction in collaboration with DFO, and the Tuktoyaktuk and Inuvik HTC's and FJMC.**

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<sup>291</sup> Developer commitment 233, Appendix 5



**R31: The Developer shall develop a long-term maintenance plan for the Hans and Zed Creek crossings to protect fish habitat.**

**8.6 Species at Risk**

The construction and operation of the proposed highway, its associated borrow sources, and vehicular traffic could affect species at risk through loss of habitat and fragmentation of habitat. In addition, construction and operation could result in the loss or disturbance of wildlife. Species at risk may avoid habitats adjacent to the highway which could result in delayed crossing or failure to cross the highway. Attempts to avoid the highway could result in increased activity and energy expenditure near the highway, while crossing the highway could result in injury or death from collisions with vehicles.

**8.6.1 What the Developer said about the Issue**

The Developer provided information related to estimates of total potential habitat for three species at risk (SAR); rusty blackbird, horned grebe, and short-eared owl. Information was also provided on waterfowl and grizzly bear den habitat in various locations in relation to the road footprint and at borrow sources.<sup>292 293</sup>

The Developer collaborated with the Canadian Wildlife Service (CWS) and ENR in the design of desktop and field studies related to bird species at risk and waterfowl, and on the discussion of results following the field studies. CWS advised the Developer on appropriate zones of influence for each of these species, within which the availability of habitat for these birds was calculated.

In its final submission, the Developer stated: *“The Developer has not received, nor discussed at any time during the Review process, any specific mitigations, including setbacks, specific to species at risk, songbirds, shorebirds, terns/gulls, ducks, geese and swans/loons/cranes as recommended under Environment Canada’s Issue #9. The Developer considers this to be a new issue and would be pleased to further discuss with CWS and Environment and Natural Resources appropriate mitigation for migratory birds and bird species at risk as they relate to mitigating impacts from isolated activities, which may be conducted during the breeding season, as a part of the ongoing development of the WPP.”*<sup>294</sup>

**8.6.2 What the Developer Concluded about the Issue**

The Developer stated that the information submitted to supplement the original EIS did not alter the conclusions of the EIS and that there would be no significant effects on SAR or waterfowl. The Developer committed to developing a Wildlife and Wildlife Protection Plan (WPP) that would include specific mitigation measures for SAR and waterfowl.

**8.6.3 What the Parties and the Public said about the Issue**

In its final submission, EC agreed with the Developer’s conclusion from their cumulative effects analysis that there was limited potential for significant cumulative effects on horned grebe, rusty

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<sup>292</sup> ITH Wildlife Report Final, registry item 225-1

<sup>293</sup> Supplemental Wildlife Maps and Metrics, registry item 245-1

<sup>294</sup> Developer Final Submission, November 5, 2012, page 5, registry item 346-1



blackbird, short-eared owl, peregrine falcon, and waterfowl. However, EC noted several issues with the Developer's assessment that diminish the level of certainty in their conclusions.<sup>295</sup>

EC did not agree with the Developer's conclusion that there was limited opportunity for cumulative effects on grizzly bear. EC also noted that a number of errors were made in the estimates for direct and indirect cumulative habitat loss for short-eared owl that resulted in an underestimate of potential impacts.<sup>296</sup>

EC recommends the EIRB direct the Developer to provide an updated draft of the WPP for further review by EC, other regulators and interested parties at least 60 days prior to construction, should the Project proceed.<sup>297</sup> EC believes that potential adverse effects of the Project on SAR can be mitigated or minimized if EC's recommendations and the commitments in the Developer's Commitments Table are implemented. As with WMAC and INFC, EC recommends that a number of agencies, including HTC's, be included in the review of the WEMP and the WPP.<sup>298</sup> Monitoring reports should be reviewed annually.

#### **8.6.4 The Panel's Analysis of the Issue**

EC makes a number of detailed recommendations for mitigation, additional to the commitments in the Developer's November 5, 2012 Commitments Table. The Panel concurs with EC that these recommendations be required and adopted by the Developer. Provided that the WEMP and the WPP will be submitted to the IEMOC at least 60 days prior to construction, then the commitments made by the Developer and the recommendations made by the parties will be implemented to avoid significant impacts on SAR and waterfowl.

An adaptive management plan needs to be developed to address monitoring results that may indicate higher than anticipated impacts.

Setbacks for critical habitat such as dens and nests of SAR should be consistent with seismic guidelines and agreed upon by the IEMOC. The setback distances can be determined by the IEMOC on a case by case basis, as suggested and committed to by the Developer.

#### **8.6.5 Panel Recommendations**

Based on this analysis of issues and to ensure that mitigation successfully protects species at risk from significant effects, in addition to the Panel's recommendations in section 7 of this Report, the Panel recommends the following:

**R32: The IEMOC shall determine appropriate setback distances for bear denning areas and critical habitat of SAR, waterfowl and tundra-nesting bird species.**

**R33: The Developer shall monitor Project-specific effects and collaborate in the monitoring of regional effects on all identified SAR, such as boreal woodland**

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<sup>295</sup> EC Final Technical Submission, October 29, 2012, registry item 341-1

<sup>296</sup> EC Final Technical Submission, October 29, 2012, registry item 341-1

<sup>297</sup> EC Final Technical Submission, October 29, 2012, registry item 341-1

<sup>298</sup> EC Final Technical Submission, October 29, 2012, registry item 341-1





caribou, grizzly bears, and wolverines with existing or planned regional monitoring programs by government including:

- compare baseline species habitat amount to Project construction and operations phase habitat amounts (to verify predictions for habitat loss);
- compare baseline species habitat use to Project construction and operations phase habitat use (to verify predictions for habitat degradation);
- compare baseline species distribution to Project construction and operations phase distributions (to verify predictions for disturbance);
- compare baseline species harvest rates to Project construction and operations phase harvest rates (to verify predictions for mortality); and
- compare baseline caribou collision-based mortality rates to pre-defined thresholds (to verify prediction for mortality).

## **8.7 Water Use and Winter Access Roads**

The Panel has concerns about the potential environmental impacts of proposed water withdrawals by the ITH Project. These concerns are more fully described below.

First, the Project requires water for four primary uses: camp construction; domestic use in construction camps; dust suppression during the summer; and construction of winter roads. The winter roads include a one-lane access road to be built alongside the embankment each year during construction and seasonal roads to aggregate sources during both construction and operations. No estimate of the total amount of water required by the Project, either in the construction phase, or during continuing operation of the road, has been provided to the Panel. The Developer has agreed to abide by guidelines issued by DFO regarding water removal from lakes and rivers. As written, these guidelines do not address cumulative, multi-year withdrawals.

Second, the Developer intends to build winter roads from the proposed highway to access aggregate sources for use during construction and throughout the life of the Project. The Developer has also indicated that it would use water or chemicals for dust suppression during the summer in the operations phase, but did not yet know where to take the water from, how much water would be taken, or how the water bodies would be accessed.

Winter access roads to gravel sources require water throughout the life of the Project, because the Developer has not proposed to build all-weather roads to these sources. The Developer informed the Panel that the environmental impact of its winter roads would likely be minimal, but did not point to a similar experience elsewhere to substantiate this position. The potential impact on vegetation and near-surface permafrost of winter roads to be built repeatedly throughout the life of the Project is unknown.

### **8.7.1 What the Developer said about the Issue**

The Developer indicated that from 500 m<sup>3</sup> to over 1000 m<sup>3</sup> of water would be used per day during construction to build access roads to aggregate sources, to construct a temporary access



lane alongside the proposed highway, and for camp purposes.<sup>299</sup> At the public hearing in Inuvik, the Developer stated that, during construction, maximum daily water use would be over 1000 m<sup>3</sup>, but not an order of magnitude greater - that is, not over 10,000 m<sup>3</sup> per day.<sup>300</sup>

The Developer has indicated that aggregate will be required throughout the life of the Project to maintain and rehabilitate the highway. The schedule for extraction from aggregate sources was presented to the Panel in a final erratum document.<sup>301</sup>

In the EIS and during the public hearing in Inuvik, the Developer was unable to estimate with precision the maximum rate of water withdrawal from lakes and rivers in the Project area on a daily basis. Mr. Walter Orr, speaking on behalf of the Developer, when asked to estimate the water withdrawal by the Project stated: *"I would say that the EIS, when it states a thousand cubic metres per day or more at the peak, is probably accurately stating what the requirements are or sufficiently accurately for the Board. They will certainly vary as construction happens and will be -- will have to be appropriately permitted, as Mr. Hoos has said. But, you know, to give you -- to put a number on the record right now, you know, to me the -- without fully going through the implications of -- of what that may or may not mean, I'd be -- I'm hesitant to do it."* Mr. Orr also stated that *"the numbers, ... , they are not grossly different from the thousand or more that we've stated. They're certainly not an order of magnitude greater."*<sup>302</sup>

The Developer agreed to abide by guidelines established by DFO regarding water withdrawals on a seasonal basis.<sup>303</sup> At the Inuvik public hearing, Mr. Rick Hoos, speaking on behalf of the Developer stated: *"...as we've indicated before in the EIS and in subsequent Information Requests, we've indicated the approximate -- the estimated quantities of water that might be used for winter road construction. At the same time, we've also indicated that any winter water withdrawals would be in conformance with the winter water withdrawal guidelines of the Department of Fisheries and Oceans."*<sup>304</sup>

Although the water withdrawals have been estimated for the one-lane access road to be built alongside the embankment during construction, withdrawals associated with access roads to aggregate sources have not been included in estimated Project water needs. In the Inuvik hearings, Mr. Hoos told the Panel that: *"We did not actually extend that assessment to some of the access roads to borrow sites because, frankly, at the time the EIS was prepared we did not know which borrow sites might be used for that purpose. So it was evaluated on a very general basis in the EIS."*<sup>305</sup> In fact, following submission of the EIS, the Developer conducted further work on a number of matters, but in the case of the winter access roads, Mr. Hoos stated: *"The Developer has indicated that all access roads to any of the new borrow sites that will be used for highway construction will be winter roads only. Therefore, they will only exist for a few*

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<sup>299</sup> Inuvik Technical Sessions Transcript, August 22, 2012, page 34, registry item 235-1

<sup>300</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 149, registry item 300-1

<sup>301</sup> Developer Erratum on Material Sources, September 17, 2012, registry item 311-1

<sup>302</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 149, registry item 300-1

<sup>303</sup> Developer commitments 153, 158, Appendix 5

<sup>304</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 80, registry item 300-1

<sup>305</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 84, registry item 300-1



months in the winter period. And we have not included them, at this point in time, in the assessment, per se.”<sup>306</sup>

Earlier, in the Technical Sessions held in Inuvik on August 23, 2012, in response to questions from AANDC, Mr. Orr had clarified that winter access roads to the aggregate sources would be built throughout the life of the Project.

The following exchange occurred:<sup>307</sup>

Speaking on behalf of the Developer, Mr. Orr said: *“The intention of the construction methodology at this time is that all the -- all of these sources would be accessed strictly by winter road in the winter, and that there would be no construction of permanent accesses to these sites associated with this Project.”*

Mr. Conrad Baetz of AANDC immediately followed up this comment to ask: *“Does that include the sites that you're going to continue to access for the maintenance of the highway through the next bunch of years?”* Mr. Orr replied “Yes.”

Mr. Baetz then sought further clarification: *“So the access to those sites would be continuous through the winter months to quarry, to stockpile closer to the right-of-way for summer maintenance, those kinds of things?”* Mr. Orr replied: “Yes, that is correct.”

Winter road construction techniques were described for the Panel by the Developers’ representative Mr. Don Hayley. He also remarked that the winter roads he was speaking about were only to be in use for two years or so. In Inuvik, Mr. Hayley, the engineer-of-record for the Tibbett-Contwoyto winter road (to the Ekati and Diavik diamond mines), pointed out that: *“Winter road development ..... in Northern Canada is ..... very well understood. And the -- the process is -- is pretty straightforward. And a good contractor with appropriate supervision can construct a winter road such that there -- there is absolutely no evidence at the end of the year when the road melts to indicate that the road has ever been there. Of course, these roads we are talking about are short-term. There are only maybe a couple of years at most that they would be in place.”*<sup>308</sup>

Later in the hearing, Mr. Hayley pointed out that the roads he was referring to were the access roads to the aggregate sources, not the road alongside the embankment. In response to a request for clarification regarding his earlier comments, Mr. Hayley stated: *“...what I was thinking when I made my comments was only the access roads off – off right-of-way into the remote borrow pits we had selected. I wasn’t thinking at the time I made it – those comments that ..... we were talking just about the road along ..... the alignment itself.”*<sup>309</sup>

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<sup>306</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 78, registry item 300-1

<sup>307</sup> Inuvik Technical Sessions Transcript, August 23, 2012, page 98, registry item 236-1

<sup>308</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 82, registry item 300-1

<sup>309</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 134, registry item 300-1



### 8.7.2 What the Developer Concluded about the Issue

At the public hearing in Inuvik, Mr. Hoos, speaking on behalf of the Developer, stated: *"I think we can say today with certainty that there will be no significant environmental impacts associated with the withdrawal of limited amounts of water from certain specific lakes in conformity with the DFO water withdrawal guidelines."*<sup>310</sup>

### 8.7.3 What the Parties and the Public said about the Issue

During the public hearing in Inuvik, AANDC advised the Panel that the NWT Water Board requires estimates of the total anticipated water withdrawals by a Project before a licence is issued for water use. Mr. Baetz, when asked whether it is in the interest of the NWT Water Board when they receive an application to know the total quantity of water that is to be removed, replied: *"...in our support to the Water Board in order for us to provide them the appropriate advice that we would need that information ourselves."*<sup>311</sup> Mr. Jan Davies, commenting on the water licencing process mentioned: *"...some ... operations try to give a good conservative estimate about how much water they want to use, and the Board approves them with a good margin of room for the volumes."*<sup>312</sup>

In its Draft Technical Submission, AANDC identified concerns regarding access roads to those borrow sources required for ongoing maintenance of the highway. The report stated, *"It is unclear whether winter roads will be required (almost) every year of operation to ensure that adequate maintenance supplies are maintained."*<sup>313</sup>

In its Final Technical Submission AANDC noted that *"...the proponent has suggested that it has the ability to construct access roads with minimal disturbance or environmental impacts to the tundra."* AANDC then concluded, *"...this as (sic) possible however suggests that minimal disturbance will only be accomplished by ensuring that the appropriate due care, supervision and attention to the construction methodologies and their maintenance are strictly adhered to."*<sup>314</sup>

DFO indicated in its Draft Technical Submission that its concerns regarding water withdrawals have been partly addressed by the Developer's commitment to use *DFO Protocol for Winter Water Withdrawal from Ice-covered Waterbodies in the Northwest Territories and Nunavut (2010)* and other relevant guidelines.<sup>315</sup> DFO will still require specific details for each water source including location and quantities being withdrawn.

With respect to total water withdrawal, the aforementioned DFO protocol states:

*"In order to establish a winter water withdrawal limit for a given waterbody, the following criteria must be adhered to:*

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<sup>310</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 152, registry item 300-1

<sup>311</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 232, registry item 300-1

<sup>312</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 233, registry item 300-1

<sup>313</sup> AANDC Draft Technical Submission, September 10, 2012, page 8, registry item 279-1

<sup>314</sup> AANDC Final Technical Submission, October 26, 2012, page 8, registry item 339-1

<sup>315</sup> DFO Draft Technical Submission, September 10, 2012, page 8, registry item 281-1



- *In one ice-covered season, total water withdrawal from a single waterbody is not to exceed 10% of the available water volume calculated using the appropriate maximum expected ice thickness provided in Table 1.*<sup>316</sup>

In its Final Technical Submission, DFO indicated that, for water withdrawals: “*The Developer and DFO are in agreement.*” The basis for this agreement concerns several matters, including “*...that when extracting water from waterbodies for the construction of winter roads, dust suppression, and other activities, the DFO Protocol for Winter Water Withdrawal from Ice-covered Waterbodies in the Northwest Territories and Nunavut (2010) would be used.*”<sup>317</sup> Further information will also be necessary for the regulatory stage.

Finally, ENR, at the public hearing in Inuvik, was asked if it had a precise knowledge of the physical footprint of the Project. In response, Ms. Marsha Branigan, speaking on behalf of ENR, stated: “*...we do not have an outline of where the access road would go to those .... material sources.*” Further, she indicated that it is “*up to the Developer to decide where the access roads are going to be [and] to provide that footprint information.*”<sup>318</sup>

#### **8.7.4 The Panel’s Analysis of the Issue**

##### **Total Water Requirements**

The Developer has provided no specific evidence addressing the magnitude of the water requirements for the Project. The evidence on the record only indicates daily water requirements in general terms. AANDC noted that the total quantity of water withdrawn for ITH Project purposes will be further addressed in the Developer’s application for a water licence, and so at some point the Developer will need be more precise. The Developer has indicated that the daily requirement during construction will exceed 1000 m<sup>3</sup>. DFO was not concerned by this approach because it had reached an agreement with the Developer to adhere to that Department’s Guidelines on winter water withdrawal.<sup>319</sup>

At the Technical Sessions, the Developer confirmed that winter access roads to aggregate sources will be built during construction and throughout the life of the Project - that is, for at least 50 years. Therefore, the total water requirement must be examined from a long-term perspective, not just with regards to the requirements of the construction phase.

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<sup>316</sup> DFO Draft Technical Submission, September 10, 2012, Appendix II, registry item 281-1

<sup>317</sup> DFO Final Technical Submission, October 29, 2012, page 14, registry item 345-1

<sup>318</sup> Inuvik Public Hearing Transcript, September 20, 2012, page 329-331, registry item 303-1

<sup>319</sup> DFO Final Technical Submission, October 29, 2012, page 14, registry item 345-1





**Source 177 Road close-up of one end of a Culvert**



**Source 177 Road Culvert Inspection by the Review Panel**





The DFO Guidelines to which the Developer has agreed to conform appear to apply to seasonal use of water bodies only. No consideration for multi-year use of water resources is given in the copy of the Guidelines submitted to the Board. *The Panel is concerned that the Guidelines, as written, may not ensure the avoidance of a significant environmental impact over the life of this Project if the same water body is accessed for water withdrawals year after year. The Panel draws this concern to the attention of DFO for its consideration during the regulatory process.*

### **Winter Access Roads**

The Panel notes the Developer's admission that they have not specifically addressed the winter access roads to aggregate sources in the environmental assessment for this Project. Despite the fact that some other Departments of the GNWT were unaware of the proposed locations of access roads, it is clear that AANDC, the land use regulator for Crown Land in the Project area, concluded that with careful management, these winter access road can be operated in a way which will prevent significant impacts.

The Panel recognizes that the access roads to aggregate sources for the operations phase of the Project will require water every year that a pit is operated. Long term annual construction and operation of these roads should continue to be subject to the requirement that withdrawals from individual water source lakes and waterbodies be limited to 10 per cent of their volume.

### **Terrestrial Environmental Impact of Winter Access Roads to Aggregate Sources**

The Panel noted inconsistencies in the Developer's evidence with respect to the access roads to the aggregate sources. At the Technical Sessions, the Developer indicated that these access roads were to be built repeatedly over the life of the Project.<sup>320</sup> However, in the public hearing, Mr. Hayley, speaking on behalf of the Developer, suggested they might only be used for one or two years.<sup>321</sup> Notwithstanding these remarks, it is clear that winter access roads to the aggregate sources will be needed for a long time to come. It is also clear that, at this stage, the Developer has not and cannot identify the specific routes the access roads will take because pit development plans are not yet available.

It is common for winter access roads to be built over tundra to project sites, but these roads are characteristically operated for a limited time. The Panel agrees that for roads that are built over one or two winters, the long-term impact is not likely to be great. In the Panel's view, the Developer must be required, through the regulatory authorizations it needs for construction of these access roads, to ensure that the appropriate due care, supervision and attention to the construction methodologies and their maintenance are strictly observed. The Panel notes, however, that within the Project area numerous straight lines are detectable on the tundra landscape from the air. These surface features indicate that even short-term land use may have a small but lasting effect on vegetation and near-surface soil conditions if it is not properly managed.

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<sup>320</sup> Inuvik Technical Sessions Transcript, August 23, 2012, page 98, registry item 236-1

<sup>321</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 134, registry item 300-1



In this Review, the Panel is considering a proposal to build such roads year after year for up to 50 years. The Panel has not been presented with any specific evidence about the cumulative impacts of such long-term land road construction and use. AANDC has indicated to the Panel that such roads must be built with care and that a high level of attention must be devoted to their construction each and every year in order to reduce long-term impacts.

The Panel notes that access to aggregate sources along the Dempster Highway uses all weather roads. Although not part of this Review, the Developer might usefully consider whether the long term and cumulative impacts of access to their gravel sources would be reduced if they simply built all weather access roads once rather than building seasonal access roads here and there on the tundra as pit development takes place.

### **8.7.5 Panel Recommendations**

Based on this analysis of issues and to ensure that mitigation successfully protects water and terrain features from significant long-term impacts, in addition to the Panel's recommendations in section 7 of this Report, the Panel recommends the following:

#### **Total Water Requirements**

**R34: The 10 per cent water withdrawal limit contained in the *DFO Protocol for Winter Water Withdrawal from Ice-covered Waterbodies in the Northwest Territories and Nunavut (2010)* shall be applied to every lake and water body used as a water source over the lifetime of the Project.**

#### **Winter Access Roads**

The Panel decided in section 5 of this Report to include winter access roads to aggregate sources to be used during the construction and operations phases of the ITH Project in this Review. However, the impacts of these winter access roads and water use for at least 50 years have not been adequately considered in this Review. The Panel recommends that:

**R35: Monitoring of the effects of long term water use for the construction of these roads shall be included in the regulatory approvals granted by DFO, AANDC and the NWT Water Board, as appropriate, and the results of this monitoring shall be integrated into the cumulative effects and adaptive management programs to be established by the IEMOC.**

#### **Terrestrial Impacts of Winter Access Roads**

The Panel notes that the ice built to form a winter road typically has a longer melting period than the surrounding snow cover. Since the access roads to the aggregate sources may be operated for many consecutive seasons. The Panel Recommends that:

**R36: AANDC and the NWT Water Board shall ensure that the same road alignments are not used to access aggregate sources every year in order to avoid the vegetation and terrain damage caused by repeated use.**





**R37: The Developer shall develop a monitoring program with respect to vegetation and terrain that includes active layer and near-surface permafrost impacts from winter road construction to the aggregate sources. Monitoring reports should be filed with the appropriate regulators, including AANDC, on a regular basis and not less than every two years, with particular emphasis on cumulative impacts of the roads on these terrain characteristics. This monitoring program and its results shall be integrated into the cumulative effects and adaptive management programs to be established by the IEMOC.**

## **8.8 Aggregate Resources**

During the three weeks before public hearings, the Developer issued three separate assessments of the quantity of aggregate materials required by the Project and the locations of the proposed borrow pits. Notwithstanding these efforts by the Developer, assessment of the quality and quantity of embankment construction material at three of the proposed borrow sites has not been completed because they have not yet been investigated by the Developer. The total footprint of the borrow pits presented to the Panel clearly underestimates the required area. No borrow pit development or management plans preliminary or otherwise have been presented to the Panel. Since the plans for borrow-pit development are not finalized, the Developer has not been able to identify the locations of winter access roads to be built from the highway to the aggregate sources. The Developer has not identified the locations and footprints of stockpile areas required to hold aggregate for summer maintenance operations, nor the quantity of aggregate to be held at such locations.

### **8.8.1 What the Developer said about the Issue**

The design approach for the highway embankment proposed in this Project is summarized in guidelines issued by the Transportation Association of Canada,<sup>322</sup> and confirmed to the Panel by Mr. Russell Neudorf, Deputy Minister of the Department of Transportation, GNWT, at the opening of the public hearing in Inuvik.<sup>323</sup> The guiding principle in the design is to prevent thaw of ice-rich permafrost beneath the road. The embankment height, which affects the required aggregate volume, is a critical aspect of the design.

In response to IR 147, the Developer estimated that 9.27 million m<sup>3</sup> of aggregate would be required by the Project over the 50 years of initial Project life.<sup>324</sup> The precision of this estimate was given in the same IR response as  $\pm 20\%$ . At the public hearing in Inuvik, a final Erratum provided by the Developer, discussed further below, adjusted this estimate slightly, but not substantially, to 9.25 million m<sup>3</sup>. This total included 4.70 million m<sup>3</sup> for construction.<sup>325</sup>

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<sup>322</sup> McGregor, R. et al. 2010. Guidelines for development and management of transportation infrastructure in permafrost regions. Ottawa: Transportation Association of Canada.

<sup>323</sup> Inuvik Public Hearing Transcript, September 18, 2012, page 33-34, registry item 298-1

<sup>324</sup> Developer response to IR 147, registry item 183-1

<sup>325</sup> Developer Erratum on Material Sources, September 17, 2012, registry item 311-1





In the EIS, the Developer identified 13 locations being considered as targets for borrow-pit development.<sup>326</sup> The same list was reproduced in response to IR 150.<sup>327</sup> During March and April 2012, a drilling program took place at seven of the sites (Kavik-Stantec 2012). The consolidated reports from this program were released a week before the Technical Sessions on August 23, 2012, at which point the Developer presented the locations of the proposed borrow pits to be included in the environmental assessment for the first time.<sup>328</sup> At the Technical Sessions, Ms. Robyn McGregor, speaking on behalf of the Developer, summarized the proposed footprint of the borrow pits by stating that, *"...on page 509 of the EIS we have indicated that -- and I'll read directly from the EIS, .... 'Although not identified spatially, approximately 50 hectares of area will be disturbed as a result of excavation of the borrow sources for construction material.'"*<sup>329</sup> In response to a question whether the 50 ha did not apply to each individual pit, Mr. Rick Hoos, on behalf of the Developer, stated *"That's correct ,..... That was an estimate - an educated estimate that we came up with for how many hectares of borrow pit total that might be developed for the -- the highway route or for the highway itself."*<sup>330</sup>

The six or seven borrow sources proposed for development were identified at the Technical Sessions and confirmed in Table TS-2-1 of the response to IR TS-2, filed on August 31, 2012.<sup>331</sup> These sources are 177, 170, 174, 309, 314/325, and PW2. Ms. McGregor told the Technical Session that *"...the narrowing of the sources to the six or seven, we .... combined 314 and 325, specifically from the thirteen that were first identified in the EIS, and the introduction of PW2, this is the first time the Board has seen it."*<sup>332</sup>

However, on September 10, 2012, the Developer issued an Erratum to the response to TS-2, in which the identification of borrow sources was changed to five primary locations 177, 170, 174, 309, and 325/314.<sup>333</sup> In addition, the Erratum stated: *"Sources 173/305 and 307 are included as secondary sources for construction and operation of the Highway.... It is not anticipated that any material will be extracted from these sources, but they are retained in consideration should one of the primary sources be found .... Not to have the quantity of material currently estimated."*<sup>334</sup>

Then, at the beginning of the Inuvik public hearing on 18 September, the Developer presented the Panel with a further Erratum, dated 17 September, in which Table TS-2-1 specifically included sources 173/305 and 307.<sup>335</sup> The full list of identified sources in this second Erratum is: 325/314, 309, 174, 170, 177, 173/305, 307. In Table TS-2-1 (17 September version) no aggregate is required from source 307 in the schedule of deployment.

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<sup>326</sup> Developer EIS, Table 2.6.8-2, page 82, registry item 069-1

<sup>327</sup> Developer response to IR 150, page 9, registry item 183-1

<sup>328</sup> Kavik-Stantec. 2012. Inuvik-Tuktoyaktuk Highway 2012 Borrow Source investigation. Executive Summary in all summary reports for sources 170, 172, 173/305, 307, 312, 314/325, and 2.45, registry item 212-1

<sup>329</sup> Inuvik Technical Sessions Transcript, August 23, 2012, page 84, registry item 236-1

<sup>330</sup> Inuvik Technical Sessions Transcript, August 23, 2012, page 84, registry item 236-1

<sup>331</sup> Developer response to IR TS-2, registry item 283-1

<sup>332</sup> Inuvik Technical Sessions Transcript, August 23, 2012, page 63, registry item 236-1

<sup>333</sup> Developer Erratum on Material Sources, September 10, 2012, page 6, registry item 283-1

<sup>334</sup> Developer Erratum on Material Sources, September 10, 2012, page 7, registry item 283-1

<sup>335</sup> Developer Erratum on Material Sources, September 17, 2012, registry item 311-1



On Day 2 of the public hearing in Inuvik, the Developer was asked, “...is it the view of the Developer that the environmental impact assessment of this Project should be limited only to the sources which are named in the corrected -- the erratum of September the 17th and listed in Table TS 1-2?” To which Ms. McGregor, speaking on behalf of the Developer, replied “The answer to that is yes.”<sup>336</sup>

The Developer expressed great confidence that these sources contain sufficient resources for construction, rehabilitation, and maintenance of the highway over the next 50 years. At the beginning of the Inuvik public hearing, Mr. Neudorf declared that, “we have identified enough gravel to construct the highway with enough material remaining to provide for the long-term needs of communities and industry.”<sup>337</sup> The next day, Ms. McGregor reiterated that, “...the Developer is confident that in the material sources named, that there is sufficient material to construct and operate the highway in the fifty (50) year period.”<sup>338</sup>

The Developer suggested that the quality of aggregate material may not be suitable for all aspects of embankment construction and surface finishing at all sites, but Ms. McGregor summarized their approach to this problem by stating that it, “...means that we may have to haul that material a greater distance to different parts of the Project for its more specific use, or we may have to process that material in a different or more onerous manner to create surfacing material suitable for the upper layer and driving surface of the highway. Those risks are associated with cost, not a risk associated with not enough material.”<sup>339</sup>

Estimates of aggregate quantities available at identified sources in the region are classified as proven, probable, or prospective. The Developer assured the Panel during the public hearing that the quantities estimated at sources 325/314, 170, 173/305, and 307 are proven, as they are the result of detailed field investigations, as reported by Kavik-Stantec.<sup>340</sup> When asked if these sources had proven quantities, Ms. McGregor replied “Yes, that is correct.”<sup>341</sup>

Three of the sources proposed for development, 177, 174, and 309, have not been investigated by the Developer.<sup>342</sup> As a result, the Developer relies on reports written in the 1970s (listed in the Response to IR TS-2) that estimate the aggregate resources contained in these sources. These reports were based on limited field investigation, and therefore the estimates of aggregate quantities they contain are of varying reliability. Nevertheless, as indicated above, the Developer is confident that they contain sufficient resources, even though Table TS-2-1 indicates that all of the resources identified at sources 174 and 309 are required by the Project.<sup>343</sup>

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<sup>336</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 30, registry item 300-1

<sup>337</sup> Inuvik Public Hearing Transcript, September 18, 2012, page 35, registry item 298-1

<sup>338</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 38, registry item 300-1

<sup>339</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 36, registry item 300-1

<sup>340</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 31, registry item 300-1

<sup>341</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 31, registry item 300-1

<sup>342</sup> Kavik-Stantec. 2012. Inuvik-Tuktoyaktuk Highway 2012 Borrow Source investigation. Executive Summary in all summary reports for sources 170, 172, 173/305, 307, 312, 314/325, and 2.45, registry item 212-1

<sup>343</sup> Developer Erratum on Material Sources, September 17, 2012, registry item 311-1



Ms. McGregor told the Panel *“In the three sources, or remaining sources, where the Developer is committed to doing further investigation, we believe, based on the information that is available to us, our observations on the ground, and the experience and professional judgement, that there is more material in those sources than reported in the available information.”*<sup>344</sup>

The Executive Summary of the Borrow Source report contains a table indicating the estimated proven aggregate quantity in each source.<sup>345</sup> During the public hearing in Inuvik the Developer insisted that the proven aggregate quantities were known precisely, and that there was no identifiable level of precision in the proven quantities, i.e. these quantities were not estimates, they were absolute values. Ms. Erica Bonhomme, speaking for the Developer, told the Panel that *“It is inappropriate .... to assign a precision to what is accepted to be a proven value.”*<sup>346</sup>

The same table in the Borrow Source reports indicates the total mine area required for the volume of aggregate proven in the deposit. The volume of aggregate proven in each deposit and recorded in the Borrow Source reports and the volume of aggregate available from each source as recorded in Table TS-2-1 (17 September 2012) are not exactly the same. The difference is due to the cover required in the Borrow Pits to prevent ice-rich ground from thawing.

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<sup>344</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 38, registry item 300-1

<sup>345</sup> Kavik-Stantec. 2012. Inuvik-Tuktoyaktuk Highway 2012 Borrow Source investigation. Executive Summary in all summary reports for sources 170, 172, 173/305, 307, 312, 314/325, and 2.45, registry item 212-1

<sup>346</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 27, registry item 300-1



Table 5 (same as Table 2 in ss. 4.2.3 of this report) indicates the Developer's requirements and mine area listed in the Borrow Source Reports. The data are taken from the Developer's Table TS-2-1 and the Executive Summary for the Borrow Source reports.<sup>347</sup>

**Table 5 – Estimated Material Requirements for the 50-year Period**

| Source  | Construction requirement<br>(m <sup>3</sup> ) | Operational requirement<br>Year 1 to 20<br>(m <sup>3</sup> ) | Operational requirement<br>Year 21 to 40 (m <sup>3</sup> ) | Operational requirement<br>Year 41 to 50 (m <sup>3</sup> ) | Estimated total requirement<br>(m <sup>3</sup> ) ±20 % | Estimated amount available in source<br>(m <sup>3</sup> ) | Total mine area<br>(m <sup>2</sup> ) | Deposit type |
|---------|---|--|--|--|--|---|--------------------------------------|--------------|
| 325/314 | 1,177,050                                     | 558,750  | 300,000  | 89,000   | 2,124,800  | 2,124,800   | 314,000                              | Proven       |
| 309     | 1,061,300                                     | 263,700  | 175,000  | -  | 1,500,000  | 1,500,000   | unknown                              | Probable     |
| 174     | 1,223,900                                     | 1,072,350  | 687,250  | 296,500  | 3,280,000  | 3,280,000   | unknown                              | Prospective  |
| 170     | 562,750                                       | 109,790  | -  | -  | 672,540  | 672,540   | 266,900                              | Proven       |
| 177     | 677,000                                       | 238,500  | 100,000  | -  | 1,015,500  | 1,510,000   | unknown                              | Probable     |
| 173/305 | -   | 67,360   | 393,200  | 196,600  | 657,160  | 791,140   | 141,300                              | Proven       |
| 307     | -   | -  | -  | -  | -  | 913,600   | 196,250                              | Proven       |
| Total   | 4,702,000                                     | 2,310,450  | 1,655,450  | 582,100  | 9,250,000  | 10,792,080  |                                      |              |

Table 5 presented here shows that some borrow sources (e.g., 325/314) will be required throughout the life of the Project. Others will be needed for parts of the Project life. Source 307 appears to be a reserve source to be made available if the requirements forecast in 2012 for the Project are exceeded in the future. It is not required during construction.

In response to IR 58, the Developer undertook to engage in progressive reclamation of borrow sources, including re-contouring throughout the life of the Project.<sup>348</sup>

In addition, after the Technical Sessions, the Developer presented to the Panel, in IR response TS-2.3, images of the proposed borrow source areas on which the extent of the source was outlined, and the total area of the source was given.<sup>349</sup> For sources 177, 174, and 309, these areas are, respectively, 150, 522, and 217 hectares.

<sup>347</sup> Kavik-Stantec. 2012. Inuvik-Tuktoyaktuk Highway 2012 Borrow Source investigation. Executive Summary in all summary reports for sources 170, 172, 173/305, 307, 312, 314/325, and 2.45, registry item 212-1

<sup>348</sup> Developer response to round 1 IRs, IR 58, February 10, 2012, registry item 108-1

<sup>349</sup> Developer response to IR TS-2, registry item 283-1



### 8.8.2 What the Developer Concluded about the Issue

The Developer did not draw any conclusions about the environmental impact of the Project's aggregate requirements. The Developer undertook to follow all conditions in land use and quarry permits issued by AANDC, and to follow progressive reclamation procedures for management of the borrow sources.<sup>350</sup> The Developer undertook to follow guidelines and regulations issued by DFO in maintaining set back of Borrow Sources from water bodies.<sup>351</sup>

The Developer did not provide any evaluation of the effect of climate change on aggregate requirements for the Project until the Technical Session in August 2012, at which point the schedule for aggregate requirements from various borrow sources was declared. This topic was discussed in the Inuvik public hearing.

### 8.8.3 What the Parties and the Public said about the Issue

In IR 99, AANDC asked the Developer to explain the choice of embankment heights required to keep the permafrost intact beneath the highway. The embankment height is the principal control on the aggregate requirement. The response from the Developer indicated that the maximum height proposed (1.8 m)<sup>352</sup> has been chosen following advice in the TAC Guidelines.<sup>353</sup>

Mr. Bob Gowan of AANDC, the expert on the aggregate resources of the region, commented during the public hearing in Inuvik on the quality of the estimate of aggregate quantity in the borrow sites that have been investigated by the Developer. He said, *"I think I would prefer to see some, you know, some leeway in any of the estimates, like, you know, that you're -- that you're indicating that you've proven out more than what you actually need in any -- you know, in any application. .... what the Developer has -- has attempted to do to date is -- is prove out the amount of material that they need. .... certainly I would like to see some more -- some more leeway in that in that a higher -- a higher percentage proven than what they actually -- actually need at the time that they submit their applications"*.<sup>354</sup>

The next day, Mr. Gowan commented on the estimates used by the Developer regarding sources 309, 174, and 177. He said, *"Starting at the more southerly one, number 309, the 1972 report delineated two (2) areas .... I would certainly classify the estimated volume that -- that they give as probable in this case. ... Moving on to Source 174. It was described in a 1977 report. And it delineates one (1) relatively larger area, three (3) that I'll call medium-sized areas, and then five (5) relatively smaller areas. I would classify this estimate as prospective, based on the very limited subsurface information that they have. ... Moving on to Borrow Site 177, just south of Tuk, it's also documented in the 1977 report. and that report outlined five (5) separate areas, .... having visited that site myself with the ILA land administrator several years ago, .... if*

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<sup>350</sup> Developer commitments 22, 25, 41, 43, 57-61, 71, in Appendix 5

<sup>351</sup> Developer commitments 57, 63, in Appendix 5

<sup>352</sup> Developer response to round 2 IRs, IR 99, registry item 160-1

<sup>353</sup> McGregor, R. et al. 2010. Guidelines for development and management of transportation infrastructure in permafrost regions. Ottawa: Transportation Association of Canada.

<sup>354</sup> Inuvik Public Hearing Transcript, September 18, 2012, page 240, registry item 298-1





*the Developer was to suggest that that is more likely a probable volume, I think I would -- I would not argue with that.*<sup>355</sup>

In the Final Technical Report submitted by AANDC to the Board, the Department concluded that *“AANDC agrees that the Developer has proven sufficient material to meet anticipated requirements from approximately half of the proposed pits. AANDC further agrees that there is sufficient material from the remaining sources to meet the requirements .... AANDC requires, and the Developer has committed – to ensure the estimates provided will be proven prior to submission of Pit Development Plans and application of quarry permits.”*<sup>356</sup>

The Final Technical Submission from DFO indicated that the Department was satisfied with the Developer's commitment to leave a 50 m setback between any borrow pit and a water body, and a 1 km set back from Husky Lakes.<sup>357</sup>

AANDC's draft technical submission also raised the following: *“AANDC has some additional concerns regarding access roads to those borrow sources to be used for ongoing maintenance of the highway. It is unclear whether winter roads will be required (almost) every year of operation to ensure that adequate maintenance supplies are maintained.”*<sup>358</sup>

#### **8.8.4 The Panel's Analysis of the Issue**

Until the Review Board issued IRs regarding the impact of climate change on the Project, the Developer had not presented estimates of the aggregate quantities that would be required for maintenance and rehabilitation of the highway during the first 50 years following construction. At the public hearings, the Developer indicated great confidence in the schedule of aggregate requirements proposed, and in the quantity proven in several of the sources. The Developer was also confident that the three sources that have not yet been investigated, 177, 174, and 309, contain the volumes of aggregate required by the Project.

AANDC's assessment is that the aggregate required is present in the sources identified.

However, the Developer has not fully assessed the specific environmental impacts of its borrow pit operations.

At the Technical Sessions, Ms. McGregor and Mr. Hoos, speaking for the Developer, confirmed that the estimate of the total footprint of the borrow pits was 50 ha, or 500,000 m<sup>2</sup>.<sup>359</sup> This estimate was repeated even though the Developer had submitted a report the previous week which included the information on the area of the borrow sites reproduced in Table 5 above. These data show that at sites 325/314, 170, and 173/305 alone, the mine area is estimated to cover over 72 ha, 22 ha larger than indicated. Furthermore, the remaining three sources, 309, 174, and 177, which are to supply over 60% of the total required aggregate were subsequently indicated, based on aerial photo evidence, to involve the following areas of likely disturbance:

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<sup>355</sup> Inuvik Public Hearing Transcript, September 19, 2012, pages 14-16, registry item 300-1

<sup>356</sup> AANDC Final Technical Submission, October 26, 2012, page 8, registry item 339-1

<sup>357</sup> DFO Final Technical Submission, October 29, 2012, page 16, registry item 345-1

<sup>358</sup> AANDC Draft Technical Submission, September 10, 2012, registry item 279-1

<sup>359</sup> Inuvik Technical Sessions Transcript, August 23, 2012, page 84, registry item 236-1



150 ha at 177, 522 ha at 174, and 217 ha at 309. The Developer requires all of the probable deposit at source 309 and all of the prospective quantity at source 174. In total, these sources occupy 739 ha, or 7,390,000 m<sup>2</sup>.

The Panel is not in a position to assess the environmental impacts of aggregate stockpiles to be used during operations for seasonal highway maintenance because their location and size have not been provided by the Developer. In this case, the Panel had no choice and did not include these areas in the scope of this Review, as determined in ss. 5.2.8 of this report. Therefore, the Developer will have to apply to the EISC and the appropriate regulatory agencies in order to establish and use these areas as they are a new development.

There are a few current locations where aggregate sources have been developed in ice-rich terrain by the Developer. The disturbance resulting from such pits during development is substantial, and permafrost degradation under surfaces from which vegetation has been removed will continue until surface conditions are re-established. There is considerable risk that even well-graded surface slopes in reclaimed pits will continue to thaw at depth for long periods of time after abandonment, and may become unstable as a result. When these slopes are close to water bodies there is risk of sediment discharge in to lakes and streams.

In the EIS, the Developer does not plan and confirmed that it does not plan to construct all-weather access roads to the aggregate sources. Therefore, the location of such roads may only be estimated in general terms until the Developer provides additional information.

#### **8.8.5 Panel Recommendations**

Because of the approach taken by the Developer to assessing the impacts of the disturbance which would result from the extraction of aggregates and the operation of borrow pits, the Panel is left in a difficult situation. The Panel has been advised that standard conditions and best practices are generally sufficient to address the impacts of the construction and operation of borrow sources. It is clear that these operations are closely regulated by AANDC, ILA and the NWT Water Board and that other regulators such as DFO may have an interest in careful management of these borrow operations as well. Nevertheless, the Developer has a burden of proof to meet when it asserts that the impacts of such operations can be mitigated.

The Developer produced only general, regional information about environmental effects of borrow operations and late, partially contradictory, evidence about the total area to be affected by aggregate extraction. The Panel has location information, details about volumes of aggregate to be removed from the seven sources identified in Table 5 and when in the Project life it will be extracted. Information about mine area is also available for all sites, although it seems likely that detailed assessment of the three additional areas to be evaluated in the winter of 2012/13 could reduce the prediction of the surface area to be disturbed at sites 309, 174 and 177. The Panel does have general information about vegetation, wildlife and other VECs in these areas produced for the EIS and it is clear that site 177 has already been disturbed for gravel extraction for the Tuktoyaktuk haul road construction. But the Developer has produced almost no site specific information about the environmental impacts of their proposed activities at the various pits required for the ITH Project.



Despite these uncertainties, the Panel believes that under careful regulatory control, the operation of these borrow sources can proceed. The Panel's decision in this regard is premised on its expectation that AANDC, ILA and the NWT Water Board will impose specific and detailed regulatory requirements on these operations consistent with recommendations made in this Report. The Panel also relies on the scope of the development decision in respect of aggregate sources set out in section 5 of this Report. To be more specific, the recommendations below apply to the operation of the borrow sources and the volumes of aggregate set out in Table 5. No other mining of aggregate is included in this impact assessment.

Based on this analysis of issues and to ensure that mitigation successfully protects aggregate resources from significant long-term impacts, in addition to the Panel's recommendations in section 7 of this Report, the Panel recommends the following:

**R38: AANDC, ILA and the NWT Water Board shall require the filing of draft pit development plans with the Developer's applications for gravel extraction. These plans shall include conceptual closure and reclamation plans. These regulators shall require final pit development plans from the Developer before gravel extraction from the sites listed in Table 5 begins.**

**R39: The pit development plans shall address the effects of quarrying operations on vegetation, surface water, permafrost, wildlife and terrain features, and include specific mitigation measures for consideration by the regulators. The Developer shall consult the HTC's of Inuvik and Tuktoyaktuk about these plans before they are approved by the regulators.**

The Panel is aware that the use of aggregate source 177 was screened by the EISC to allow the Hamlet of Tuktoyaktuk to build an all season haul road to source 177 to access aggregate material for community purposes. The Panel is also aware the Developer wants to upgrade the source 177 access road to highway standards, perhaps starting as soon as early 2013.

AANDC expects to authorize quarry permits for the borrow pits and the access to the pits, therefore:

**R40: Pit development licences or permits shall be based on and limited by the schedule of aggregate requirements provided by the Developer and presented in Table 4 of this report. After construction, further development of the pits should only be permitted once progressive reclamation of the original disturbance has been initiated and the ground surface is shown to be stable.**

The Panel anticipates that in 20 or 30 years the Developer may require more aggregate than it has currently forecasted, therefore:

**R41: Any extra requirement for aggregate over and above the requirements forecast for specific time intervals in Table 5 of this report shall be considered as a new application and be subject to screening by the EISC.**



Given there is considerable risk that well-graded surface slopes will continue to thaw at depth for considerable time after abandonment, and may become unstable as a result:

**R42: AANDC and ILA shall require evidence of permafrost stabilization as part of the conditions for reclamation and closure of borrow pits, and that until it is clear that permafrost has been re-established in the pit floors and slopes, the liability for the pits shall remain the responsibility of the Developer.**

## 8.9 Climate Change

The ITH Project involves construction and maintenance of a safe public highway over ice-rich terrain. The Panel, the Developer, and residents of the region are conscious that the climate of Canada's western Arctic is changing, as Ms. Robyn McGregor, speaking for the Developer, indicated during the Inuvik public hearing for this Project: *"There is no doubt that in Canada's North, climate change is upon us. We see it in the data. We understand it from the forecasting of prediction models. And more importantly, we hear it from the members of the communities, and particularly the observations by the Elders."*<sup>360</sup>

The Panel is also aware that much of the terrain to be crossed by the proposed highway has high ground ice content and that the integrity of this terrain is at risk from the warming climate. The Panel visited the Source 177 road south of Tuktoyaktuk with a representative of the Developer, and saw for itself the effects of melting permafrost on the roadbed, leading to subsidence and an uneven driving surface. The Panel realizes that maintenance of the road surface will be required to correct such problems should they occur on the proposed highway. The Panel assumes that such effects will be more likely if climate change, as observed in the last 40 years, continues in the region.

The Panel recognizes that climate change will not only affect the highway embankment, but also alter the behaviour of the adjacent terrain. The Panel needs to assess the potential effects of climate change on the ITH Project, not simply in terms of highway safety, but also in terms of the potential future requirements for aggregate projected for use in maintenance and rehabilitation of the road. The Panel is of the opinion that consideration of climate change impacts on the Project's long term aggregate needs, and hence on the potential footprint of the development, especially borrow pits, demands a rigorous analysis. The Panel recognizes the Developer's responsibility to maintain a safe driving surface during operation of the road, and therefore requires active and explicit consideration of how continuing climate warming may affect the need for aggregate and the associated development of borrow pits and quarries.

### 8.9.1 What the Developer said about the Issue

In the EIS, the Developer described the climate change that has been observed in the region during the last 30 years. The Developer presented and relied on scenarios for future climate change that were developed nearly 10 years ago for the Mackenzie Gas Project.<sup>361</sup> The Developer indicated that a risk-based approach was taken during the design of the highway to

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<sup>360</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 48, registry item 300-1

<sup>361</sup> Developer EIS, section 3.1.2.9, page 125, registry item 069-1



deal with the implications of climate change for the long-term operation of the project. The key risk to be managed, the Developer suggested, was the potential effect of climate change considerations on the capital cost of the project.<sup>362</sup>

The Developer recognized in the EIS that a key design requirement for the proposed highway was to maintain the air/surface temperature balance so that permafrost beneath the embankment “*does not thaw and settlement does not occur.*” The EIS further recognized that accumulation of snow on the side slope of the highway and beyond the toe of the embankment will occur due to drifting, once the road is built.<sup>363</sup>

The Developer presented three principal mitigations for the effects of climate change on the project: design of thick embankments to prevent thaw penetration into permafrost; use of culverts to deal with seasonal overland surface flow; and, use of construction methods that eliminate cuts to the ground surface, and restricting disturbance to the natural ground surface.

The Developer presented climate change scenarios for the region downloaded from the Environment Canada web site in response to IR 95. The Developer stated that “*The climate change scenario data will be used during the Highway’s detailed design phase.*”<sup>364</sup>

The Developer recognized the impact of recent climate change on active layer thickness (i.e., summer thaw depth) in response to IR 96. The Developer did not present any forecast for future climate change effects on permafrost in the response.<sup>365</sup>

During the Technical Sessions in August 2012, the Developer responded to questioning regarding the impact of climate change on project design for river crossings by indicating that the magnitude and rate of future climate change was unknown. Mr. Walter Orr, speaking for the Developer stated:<sup>366</sup> “*...the short answer is, of course, climate change is unknown, as we’re all aware. The implications of it are not fully understood by anyone.*” He also stated that a probabilistic approach to stream flow would be taken, so that bridges and culverts would be designed to accommodate large events, or what he called “*a reasonable likelihood of effect scenario.*”

During the Inuvik public hearing Mr. Russel Neudorf, Deputy Minister of the Department of Transportation, stated that, “*To protect the permafrost rich terrain along the proposed alignment the department will follow the Transportation Association of Canada’s 2010 publication titled, Guidelines for Development and Management of Transportation Infrastructure in Permafrost Regions, which provides a process and practical examples relative to embankment design for road infrastructure on permafrost.*”<sup>367</sup> As indicated later in the hearing Section 2.7.1 of this document states that, “*Throughout the planning and development stages, and particularly at the*

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<sup>362</sup> Developer EIS, section 3.1.2.9, page 126, registry item 069-1

<sup>363</sup> Developer EIS, section 4.2.1.2, page 468, registry item 072-1

<sup>364</sup> Developer response to round 2 IRs, IR 95, registry item 160-1

<sup>365</sup> Developer response to round 2 IRs, IR 96, registry item 160-1

<sup>366</sup> Inuvik Technical Sessions Transcript, August 23, 2012, page 10, registry item 236-1

<sup>367</sup> Inuvik Public Hearing Transcript, September 18, 2012, page 33-34, registry item 298-1





*functional planning stage, assessing the vulnerability to climate change is an important step in making decisions towards design and construction.*"<sup>368</sup>

When questioned whether the vulnerability of the project to climate change had been assessed, Ms. McGregor, speaking on behalf of the Developer, said,<sup>369</sup>

*"A complete assessment of the vulnerability to climate change has not yet been filed with the Board."*

When asked if the Developer would file such an assessment, Ms. McGregor replied

*"The information relative to our use and knowledge of climate change has already been filed with the Board. There is no further information."*

Ms. McGregor also stated:

*"...in the later stages of development of the project, including preliminary design and detailed design stages, we will undertake specific and more detailed modelling of climate change effects and incorporate that information as we look at thermal analysis to then complete the optimum design of the cross section for construction of the project."*<sup>370</sup>

The Developer was asked whether it had considered *"...the impacts of potential climate change as supported by the evidence that the Developer filed with the Board in its calculation of the potential amount of aggregate that may be required at that stage?"*<sup>371</sup> As part of the response, Ms. McGregor stated: *"...the estimates of that material use are based on historical operation and experience on the Dempster Highway, and an understanding of what potentially the impacts would be due to climate change over the fifty (50) year period."*<sup>372</sup>

Ms. McGregor summarized the Developer's approach to estimating the long-term aggregate requirements as follows: *"Myself and Mr. Gurdev Jagpal, the Regional Superintendent for the Department Transportation in Inuvik, can say we have actively considered the impacts of climate change in the development of our estimates for material requirements for the fifty (50) year operation of the highway. We can also say that at this time we have not done modelling or quantitative analysis relevant to the material requirements and the impacts of climate change. And as I have stated .... we will do that work in the process of the next stages of design of the project."*<sup>373</sup>

### **8.9.2 What the Developer Concluded about the Impacts**

The Developer concluded that the potential effects of climate change on the aggregate requirements of the Project would be incorporated into the design of the highway on a risk-management basis, balancing the effect of incorporating the possible consequences of climate

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<sup>368</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 41, registry item 300-1

<sup>369</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 42, registry item 300-1

<sup>370</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 44, registry item 300-1

<sup>371</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 47, registry item 300-1

<sup>372</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 49, registry item 300-1

<sup>373</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 53, registry item 300-1



change into the initial design (and their associated costs) with the opportunity to deal with these consequences as they arise during long-term maintenance.

The embankment design presented in the EIS (Figure 2.6.5-1, p. 71), based upon data presented in accordance with the Transportation Association of Canada guide,<sup>374</sup> was deemed sufficient for preliminary design.<sup>375</sup>

In the clearest statement that summarizes the Developer's approach to this issue, Ms. McGregor said:

*"When we -- and we will, the Developer will, do the more detailed homework for consideration of the impacts of climate change and the building of the roadway on the permafrost in the fifty (50) years, we don't expect that we will require more material for operation of the highway than we've estimated. What we may find, and we expect, is that we may need to estimate less material in the first twenty (20) years and a greater material volume in the second twenty (20) years and the ongoing years. That will be confirmed in the next stages of development of the highway."*<sup>376</sup>

### 8.9.3 What the Parties and the Public said about the Issue

NRCan requested information on how climate change had been incorporated into the analyses supporting design.<sup>377</sup> In its response, the Developer directed NRCan to responses to other IRs.<sup>378</sup> NRCan posed several questions of clarification regarding the design approach at the Technical Sessions on August 23, 2012. NRCan's final technical submission encouraged the Developer to continue geotechnical investigations as design of the Project proceeds, and recognized the need for thermal modelling as part of the design process.<sup>379</sup>

No other party raised geotechnical concerns associated with climate change.

### 8.9.4 The Panel's Analysis of the Issue

The Panel's interest in this issue is less associated with highway safety, which is clearly the responsibility of the Developer, than with the environmental risk that the estimates of aggregate requirements presented to the Panel are insufficiently reliable. The Panel heard that no "quantitative analysis relevant to material requirements" was conducted.<sup>380</sup> The Panel heard that modelling of climate change effects and their impacts on the required cross-section of the highway embankment would only occur at the detailed design stage.<sup>381</sup> In effect, the impact of climate change on the highway design has been presented to the Board as a matter of professional judgment, shared between Ms. McGregor and Mr. Jagpal.

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<sup>374</sup> McGregor, R. et al. 2010. Guidelines for development and management of transportation infrastructure in permafrost regions. Ottawa: Transportation Association of Canada.

<sup>375</sup> Developer response to Round 2 IRs, IR 99, registry item 160-1

<sup>376</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 49, registry item 300-1

<sup>377</sup> Round 2 IRs sent to Developer, IR 133, registry item 123-1

<sup>378</sup> Developer response to round 2 IRs, IR 133, registry item 160-1

<sup>379</sup> NRCan Final Technical Submission, registry item 342-1

<sup>380</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 53, registry item 300-1

<sup>381</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 53, registry item 300-1



The Panel is reluctant to accept estimates of future aggregate requirements at this stage purely on the basis of professional judgement. The Panel is concerned that the prospect of accelerating climate change is real, as agreed before the Panel by the Developer, and that such change will have important consequences for the environmental impacts of the Project.

Some of these effects would include increases in the disturbance resulting from quarries if their area and depth increases because of unanticipated aggregate needs. Larger quarries mean more vegetation, wildlife habitat and land use by Inuvialuit harvesters will be affected. Larger quarries also mean more disturbance of ice rich ground with consequent effects on surface waters. Finally, larger quarries mean increased pit management challenges including reclamation and re-vegetation and closure problems. The Panel also has concerns about long term community access to aggregate resources. In the Panel's view the evidence presented by the Developer does little to dispel these concerns.

#### **8.9.5 Panel Recommendations**

Based on this analysis of issues and to ensure that mitigation successfully informs the Parties about the significant effects of climate change, in addition to the Panel's recommendations in section 7 of this Report, the Panel recommends the following:

- R43: As part of its applications for pit and quarry licences, the Developer shall provide to AANDC and ILA a rigorous and transparent quantitative assessment of the potential impacts of climate change on the aggregate needs for the Project including estimates of aggregate needs 25 and 50 years after construction.**
- R44: The Developer shall develop preliminary pit management plans, including a preliminary closure and reclamation plan, for all borrow sites and quarries listed in Table 5 and file them with AANDC, ILA and the NWT Water Board at the time applications are made for use of these areas. Approval of final pit management plans by regulators before aggregate extraction begins shall be a condition of any licences or permits when issued.**
- R45: The Developer's estimates of future quarry size (areal extent and volumes), based on its projected need for aggregate, and AANDC's independent opinion on the estimates shall be presented to the NWT Water Board during its water licensing process to enable the development of water management plans and reclamation plans for quarries and borrow pits.**



## 9.0 CUMULATIVE ENVIRONMENTAL EFFECTS

The ITH project will provide year round access to areas along the alignment to which, in the past, and currently, there has been very limited or no access. The Panel is concerned that this increased access will lead to increased harvesting, hunting and fishing pressures by ITH users. Land use and habitat disturbances will increase both as a result of construction activities and increased access by ITH users during the operational period. Potential cumulative effects on harvesting (wildlife, fish, berries and vegetation) are of concern to the Panel, as are the resulting impacts on the consumption of country foods and the traditional economy.

Specific concerns also arise for caribou through increased potential for vehicular collisions and increased behavioral and habitat disturbances. Caribou populations in the region have already experienced significant declines, resulting in curtailed Inuvialuit and other Aboriginal harvesting. In these circumstances, increased disturbance from the ITH could further impact caribou populations. The WMAC made it clear in their submissions to the Panel that any delay in recovery of caribou populations could have significant effects on Inuvialuit.

For grizzly bear, behavioral and habitat disturbances from the highway could occur, particularly in preferred denning areas around potential gravel sources. Concerns for furbearers include increased potential for vehicular impacts and behavioral and habitat disturbances to local populations as well as impacts from water withdrawals for winter road construction. For species at risk, the main concerns resulting from the project arise because of disturbance or removal of critical habitat and preferred denning and nesting areas.

Cumulative effects are changes to the environment that are caused by an action in combination with other past, present or future human actions. Such actions include the physical works, for example, construction and operation of the highway, and activities - actions that may be part of the project. These actions may also not be associated with any particular project, but arise over time due to ongoing human presence in the area. The Panel is thus concerned about the long-term changes that may occur as a result of the ITH project, not only as a result of single actions, but of the combined effects of successive actions on the environment.

The Developer was required to complete a Cumulative Effects Assessment (CEA) addressing valued environmental components (VECs) and valued socio-economic components (VSCs) to ensure that incremental effects resulting from the combined influence of various actions were assessed in relation to the ITH project. These incremental effects may, in sum, be significant even though the effects of each action, when independently assessed, are considered insignificant. The Developer was directed to include all developments in the region including project-related components and activities, such as the road footprint itself, access roads, service roads, borrow sites, staging areas, workers' camps and any other project development features. Already existing or reasonably foreseeable future developments and activities were also to be considered when assessing project effects on any given environmental component (VEC/VSC).



## 9.1 What the Developer said about the Issue

The Developer considered the following key questions in completing its CEA:<sup>382</sup>

- Is the project likely to have negative environmental effects on VECs in the ISR?
- If so, will the residual negative environmental effects that remain after mitigation combine with the effects of other projects, past, present or future?
- What is the significance of the overall cumulative environmental effects, including the effect of the project? and,
- If this project, in combination with other projects in the area, is likely to create a “significant negative cumulative effect”, are there further mitigation measures that could reduce or eliminate the project’s contribution to these effects so that the combined effect does not threaten the VEC?

The Developer defined the spatial boundaries for the CEA as:<sup>383</sup>

- Regional Study Area (RSA) as 30 km total width along the ITH alignment.
- Local Study Area (LSA) as 1 km total width along the ITH alignment.

The Developer defined the temporal boundary for the CEA to be from “...four (4) to ten (10) years, during which time construction of the proposed Highway is anticipated to be completed and the Highway will have been in operation for up to six (6) years.”<sup>384</sup>

The Developer summarized the residual effects identified from the impact assessment completed in the EIS, and identified the VECs/VSCs that would be impacted by these residual effects. They included vegetation, wildlife and land use. For each of these affected components, the Developer considered the appropriate mitigation measures to apply at a local or regional scale and then determined, based on the effects assessment and professional judgement, the possible significance of such an effect. The Developer ranked the significance of cumulative effects as Class 1, 2 or 3, based on the following definitions:<sup>385</sup>

- **Class 1** - The predicted trend in the measurable parameter under projected levels of development could threaten the sustainability of the VEC in the study area, and should be considered of management concern. Research, monitoring and/or recovery initiatives should be considered under an integrated resource management framework. Any negative change in VEC value of greater than 25% from benchmark is considered to be a Class 1 effect, regardless of VEC trend at the time of the assessment;
- **Class 2** - The predicted trend in a measurable parameter under projected levels of development will likely result in a decline in the VEC to lower-than baseline but stable levels in the study area after project closure and into the foreseeable future. Regional management actions such as research, monitoring and/or recovery initiatives may be

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<sup>382</sup> Developer EIS, section 5.0, page 627, registry item 072-1

<sup>383</sup> Developer EIS, subsection 5.1, page 627, registry item 072-1

<sup>384</sup> Developer EIS, subsection 5.2, page 627, registry item 072-1

<sup>385</sup> Developer EIS, Table 5.4.1-1, page 645, registry item 072-1





required if additional land use activities are proposed for the study area before project closure;

- **Class 3** - The predicted trend in the measurable parameter under projected levels of development may result in a decline in the VEC in the study area during the life of the project, but VEC levels should recover to baseline after project closure. No immediate management initiatives, other than requirements for responsible industrial operational practices, are required.

Based on the effects identified for each of the VECs/VSCs in its assessment and its proposed mitigation measures, the Developer determined the class of effects applicable to each identified cumulative impact. Based on this analysis, the Developer concluded that no significant cumulative effects resulting from the project would occur on VECs/VSCs for all but one component – land use.<sup>386</sup> The Developer determined the magnitude of effects for all components to be low, with the exception of vegetation removal for the right-of-way which was low to moderate.<sup>387</sup> For vegetation and wildlife effects at the local scale, and land use at a regional scale, the Developer determined that residual effects were unlikely to result in a significant cumulative effect over the long term.

The Developer was directed in IR 48.3 to explain the process behind its evaluation of synergistic or additive effects in the context of the proposed project and cumulative effects. The Developer responded,

*“In discussing the known current residual environmental effects of the past and existing projects reviewed in the EIS (Section 5.3 of the EIS), it was consistently determined that there were no significant residual effects associated with any of those projects that could potentially operate in a cumulative manner (either additively or synergistically) with the insignificant residual effects predicted to be associated with the proposed Highway Project. The process leading to these conclusions was based on review of the available information, the direct knowledge and experience of the EIA Project Manager who has worked in the Mackenzie Delta area since the 1970s and professional judgement.”<sup>388</sup> (emphasis added)*

In IR 50, the Developer was directed to explain and justify the criteria used in the selection of the temporal boundaries for the cumulative effects assessment in light of increased access and expected ITH lifespan. The Developer responded,

*“...the rationale for selecting the 10-year temporal timeframe for the cumulative effects assessment portion of the EIS was that it included a reasonable number of years that spans both the construction (four years) and initial operation (six years) of the Highway. This timeframe also recognized a basic assumption of cumulative effects assessment that the other projects or activities to be considered should only include those projects or activities that are currently under regulatory review, or are reasonably likely to occur and are not hypothetical.*

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<sup>386</sup> Developer EIS, subsection 5.4.1, page 643, registry item 072-1

<sup>387</sup> Developer EIS, Table 5.4.1-1, pages 644-645, registry item 072-1

<sup>388</sup> Developer response to round 1 IRs, IR 48, page 116, registry item 108-1



*The outer limit of the temporal timeframe selected could conceivably have been extended to 20 years or more, but this was not considered to be necessary or appropriate as the assessment would need to have extended into the realm of hypothetical projects, which are not typically covered in cumulative effects assessments, and baseline environmental parameters (such as future fish and wildlife population cycles) will likely have changed in a currently unpredictable manner.*<sup>389</sup>

The Developer selected a 1.0 km zone of influence (ZOI) to use in its impact assessment and CEA for grizzly bear and caribou. In response to several IRs related to the ZOI, the Developer admitted that some scientific authorities indicated that grizzly bear behaviour might be affected within a 1.5 km zone,<sup>390</sup> and caribou might be affected by a ZOI of 2-4 km from roads.<sup>391</sup>

During the technical sessions held in Inuvik on August 22 – 23, 2012, issues were raised by WMAC, TIWG and DFO relating to the adequacy of the Developer's CEA and whether the new information collected during the summer 2012 field studies would be used by the Developer to re-assess its conclusions on cumulative effects. Environment Canada (EC) raised the issues of cumulative effects in relation to wildlife and species at risk. In response to these cumulative effects-related concerns, the Developer voluntarily completed a supplemental cumulative effects analysis.<sup>392</sup> The supplemental CEA consisted of a series of figures depicting potential disturbance zones (ZOI, conservatively set at 1.0 km around all past and proposed projects assessed), and a complementary series of tables which summarized the estimated area (in hectares) and types of vegetation cover. However, the Developer was unable to provide any explanatory text to accompany the figures, because this new CEA evidence was submitted so late in the proceeding that fairness problems would have resulted had the new text been filed.

Despite challenges in the hearing from other Parties, the Developer remained confident that the 1.0 km ZOI selected for the CEA and also used for the supplementary CEA was appropriate.<sup>393</sup> The Developer also stated there was an appropriate amount of baseline data for this stage of the environmental assessment, and that data collection was continuing in collaboration with ENR. The draft WEMP indicated that additional data was being collected by ENR as a result of an existing caribou collaring programs.<sup>394</sup> The Developer did not explain how this new data might be factored in to or improve its CEA before the Panel made its decision.

## **9.2 What the Developer Concluded about the Issue**

Based on the potential residual effects identified for each of the VECs and assuming the effective application of its proposed mitigation measures, the Developer reported that its cumulative effects assessment resulted in a determination of no significant residual effects for all but one VEC. The magnitude of effects for all components was concluded to be low with the exception of vegetation removal for the right of way, which was deemed to be low to moderate.

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<sup>389</sup> Developer response to round 1 IRs, IR 50, page 118, registry item 108-1

<sup>390</sup> Developer response to round 1 IRs, IR 35.1, registry item 108-1

<sup>391</sup> Developer response to round 2 IRs, IR 74, registry item 160-1

<sup>392</sup> Developer ITH Supplemental Cumulative Effects Analysis, registry item 313-1

<sup>393</sup> Developer response to October 2012 IRs, registry item 334-1

<sup>394</sup> Developer response to October 2012 IRs, registry item 334-1



For vegetation and wildlife effects at the local scale, and land use at a regional scale, the residual effects were determined to be unlikely to result in a potentially significant cumulative effect over the long term.<sup>395</sup>

The physical footprint and ZOI of the proposed highway and other future potential projects assessed in the CEA/Supplemental CEA were not predicted to encroach on the waters of the Husky Lakes. For purposes of the impact assessment, including the CEA, the land portions within the CEA study area were considered to be the areas of primary importance.<sup>396</sup>

The Developer concluded, *“Based on this effects assessment and the mitigation measures proposed, the residual effects identified for Vegetation, Wildlife and Land Use may influence the Project area at a local scale but are not expected to have a significant influence or effect at the regional level. No additive or synergistic relationships between the Project and other existing or proposed projects were found to result in a significant cumulative effect on VECs or VSCs.”*<sup>397</sup>

The Developer committed to participating with other parties in a post-approvals cumulative effects monitoring program.<sup>398</sup>

### 9.3 What the Parties and the Public said about the Issue

The Wildlife Management Advisory Council (WMAC) has, throughout the Review, consistently identified weaknesses and problems with respect to the wildlife portions of the Developer's EIS, and specifically with the CEA.<sup>399</sup> The WMAC asserted that:

*“...a number of critical errors within the assessment, each further compounded by the other. Of fundamental importance is the choice of spatial and temporal boundaries for the CEA, both of which are lacking in scope and detail. By strongly limiting these, the Proponent's assessment of potential impacts on VECs such as caribou, grizzly bear, and the Husky Lakes are grossly underestimated. As a result, the mitigation and/or remediation of these impacts and the proposed Worst Case Scenario (WCS) are erroneous...The errors in the EIS are further compounded by the lack of an integrated, cumulative effects monitoring plan specific to the Project within the context of other past, imminent, and likely future projects within the ISR. Without such a plan, it will not be possible to discern, for example, why caribou numbers are not increasing when they should be. As a result, the future management decisions involving the important natural resources of the Inuvialuit may not be properly served in that the decisions will become more reactive and less proactive over time.”*<sup>400</sup>

Despite these shortcomings, WMAC stated, *“...that there may still be an opportunity to improve the quality and effectiveness of both of these Project elements (CEA & WEMP) through greater*

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<sup>395</sup> Developer ITH Supplemental Cumulative Effects Analysis, registry item 313-1

<sup>396</sup> Developer response to October 2012 IRs, registry item 334-1

<sup>397</sup> Developer EIS, subsection 5.4.1, page 643, registry item 072-1

<sup>398</sup> Developer commitment 226, Appendix 5

<sup>399</sup> WMAC Final Technical Submission, registry item 338-1

<sup>400</sup> WMAC Review of Developer's EIS, March 28, 2012, registry item 151-2



utilization of existing wildlife data in conjunction with dedicated efforts to collect meaningful effects data in the future.”<sup>401</sup> WMAC then made the following recommendations:<sup>402</sup>

- “that sufficient baseline wildlife information and data be collected prior to the construction of any new road mileage to enable an effect of the ITH on wildlife to be detectable, should it occur;
- that WMAC be closely involved with completing the design of the Wildlife and Wildlife Habitat Protection Plan (WWP) for both construction and operations phases, and the final design of the Wildlife Effects Monitoring Program (WEMP).

In its draft technical submission, EC reviewed the issues it had tracked during the Review and indicated whether, in its opinion, the Developer had adequately addressed them. One issue which EC concluded was not adequately addressed was the Developer’s CEA: “The Proponent’s cumulative effects assessment is currently inadequate to satisfy the requirements of CEAA 1992 subsections 16(1)(a), particularly with respect to species at risk.”<sup>403</sup>

In its Final Technical Submission, after considering the twenty additional documents and reports the Developer submitted after the September 4, 2012 cut-off date, attending the public hearings and participating in a final round of information requests (IRs) on the new information, EC identified continuing concerns with the Developer’s CEA. Specifically, EC identified the following:<sup>404</sup>

“EC has noted several issues with the Proponent’s assessment that diminish the level of certainty in their conclusions. EC does not agree with the Proponent’s conclusion that there is limited opportunity for cumulative effects on grizzly bear.”

“Despite the greater focus on the operations phase in the supplemental cumulative effects analysis, there was no clear definition of how long the operations phase would be, and therefore how long residual effects from the Highway Project and other developments might act in a cumulative manner.”

“EC is of the view that the cumulative effects analysis should have used species-specific zones of influence that were based on available science rather than a generic 1 km zone of influence for all species.”

“The Proponent’s approach to determining impact significance...lacked clear and consistent criteria identified at the outset, and instead relied largely on professional judgement.”

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<sup>401</sup> WMAC October 2012 IR to Developer, registry item 328-1

<sup>402</sup> WMAC Final Technical Submission, registry item 338-1

<sup>403</sup> EC Draft Technical Submission, September 10, 2012, page 12, registry item 278-1

<sup>404</sup> EC Final Technical Submission, October 29, 2012, pages 26-28, registry item 341-1



EC concluded, “*EC is of the view that potential adverse effects of the Project can be mitigated or minimized by full implementation of the Developer’s commitments and the recommendations provided in this report [EC’s final technical submission].*”<sup>405</sup>

In its Draft technical submission, DFO indicated that the Developer’s cumulative effects assessment provided in the EIS did not fully assess cumulative effects on fish and fish habitat. In particular, the CEA did not provide a quantitative analysis of the cumulative impacts to fish, fisheries, and fish habitat. And, it only described the potential future projects, but did not quantify their potential impact. DFO recommended, “*...completing the cumulative effects assessment, including a quantitative analysis of the impacts to fisheries, fish, and fish habitat...and [show] how the cumulative effects assessment was completed, what methods were used and what VECs were assessed and how conclusions were arrived at.*”<sup>406</sup>

In its Final Technical Submission, DFO did not further address cumulative effects, or identify any additional outstanding issues with the CEA.<sup>407</sup>

The other Parties did not file evidence identifying cumulative effects concerns.

#### **9.4 The Panel’s Analysis of the Issue**

The Developer has provided a cumulative effects assessment that covers four (4) years of construction and six (6) years of operations, for a Project that the Developer has stated, “*...is intended for permanent long-term use.*”<sup>408</sup> The Developer did not collect or provide baseline work in the EIS, indicating that, “*In general, data were gathered from publicly available sources. Efforts were made to present community level and regional data where possible. In the absence of such data, data are presented at the territorial or federal level.*”<sup>409</sup> (emphasis added). And, the Developer confirmed in the hearings that they did not use the wildlife information generated after the EIS was submitted, including caribou mapping, to update their initial impact assessment. The Developer also indicated that the 1 km ZOI was chosen based on professional judgement and not on scientific information derived from the literature.<sup>410</sup>

The Developer has not provided a systematic and rigorous assessment of cumulative effects in the EIS or in the Supplemental CEA to identify and evaluate the significance of the potential cumulative effects for this project. The CEA provided to the Panel does not follow accepted CEA standards or practices and could not be considered to be scientific. It appears the Developer chose only to consider significant residual effects of other projects, rather than the accepted practice of considering all “residual effects”. Specifically, the Developer stated, “*In discussing the known current residual environmental effects of the past and existing projects reviewed in the EIS (Section 5.3 of the EIS), it was consistently determined that there were no significant residual effects* (emphasis added) associated with any of those projects that could potentially

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<sup>405</sup> EC Final Technical Submission, October 29, 2012, registry item 341-1

<sup>406</sup> DFO Draft Technical Submission, September 10, 2012, registry item 281-1

<sup>407</sup> DFO Final Technical Submission, October 29, 2012, registry item 345-1

<sup>408</sup> Developer EIS, section 2.8, page 97, registry item 69-1

<sup>409</sup> Developer EIS, section 3.0, page 99, registry item 69-1

<sup>410</sup> Inuvik Technical Hearing Transcripts, September 18, 2012, pages 86-89, registry item 298-1





*operate in a cumulative manner (either additively or synergistically) with the insignificant residual effects predicted to be associated with the proposed Highway Project.”<sup>411</sup>*

In the Panel’s view:

- the Developer’s CEA was not systematic, rigorous or scientific. Given the regional and territorial level of information used, and the lack of baseline information provided, the Panel also has concerns about how well the CEA addresses the activities proposed for the ITH project, in the specific context of the affected local environment;
- the integrity of the Developer’s CEA analysis is undermined when it ignores readily available new information and contradicts determinations of appropriate zones of disturbance for caribou and grizzly bears accepted by ENR;
- the tests set out for the classes of effects by the Developer could not be applied using quantitative information because for almost all VECs the Developer did not collect such information before completing its impact assessment and CEA; and
- the Parties clearly had serious problems with the CEA before the hearings and then the Developer took the unusual step of filing an unsolicited supplemental CEA. The supplemental CEA did not offer any systematic or rigorous new analysis either. Several Parties continued to identify important concerns with the CEA in their final technical submissions.

In conclusion, the Panel is not satisfied with the approach taken by the Developer to the conduct of the CEA, or the quality of the assessment. The Panel is particularly concerned about the high degree of “professional judgment” upon which the CEA conclusions are based. The individuals responsible for these judgments were not identified, so the Panel could not be sure they had appropriate expertise in the subject matters being addressed. Consequently, the Panel concludes that there is no objective way to test these conclusions.

The Panel decided that it cannot rely on the Developer’s CEA conclusions with any certainty. These are matters of real concern since completing a proper assessment of cumulative impacts is a legal requirement for the Panel under CEAA. Ensuring a proper CEA is completed is also a key to protecting species of central importance to Inuvialuit and their rights under the IFA.

Given these problems, the Panel accepts and agrees with the evidence of WMAC and EC. Further actions to ensure that cumulative effects are mitigated will be required. As a consequence the Panel makes the following recommendations.

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<sup>411</sup> Developer response to round 1 IRs, IR 48, page 116, registry item 108-1



**ITH Alignment North of Inuvik**



**Thawed Permafrost**





Panel recommendations

- R46: The Developer, in collaboration with ENR, EC and wildlife comanagement organizations, working through the IEMOC, further develop and implement the proposed WEMP to ensure that it addresses both direct and cumulative effects from highway construction and operations on wildlife distribution and abundance within the regional cumulative effects study area resulting.**
- R47: The results of WEMP monitoring of cumulative effects on wildlife, vegetation and land use be integrated into the IEMOC's adaptive management framework, and, to the extent possible, into any government regional cumulative effects monitoring programs.**



## 10.0 PURPOSE AND NEED FOR THE DEVELOPMENT

The information in this chapter is based on material filed by the Developer.<sup>412</sup> <sup>413</sup> No other Party questioned the need for the development or filed evidence on this topic.

The ITH project proposes the construction of a 140 km public all-weather highway between the Western Arctic communities of Inuvik and Tuktoyaktuk that would be under the management and operation of the Department of Transportation. This proposed highway will allow for year round use by haul trucks and passenger vehicles according to the size and weight limitations as defined in the NWT highway regulations. The purpose of the proposed highway is to bolster Northern economic development by enabling future natural resource exploration, development and production. The proposed highway will also reinforce Canadian sovereignty objectives.

The completion of a highway to the Arctic coast, providing year round overland access to Tuktoyaktuk, is intended to improve the economic and social opportunities for the region by providing the following benefits:

- decrease the cost of living in Tuktoyaktuk by enabling goods to be shipped year round;
- provide Tuktoyaktuk residents with cheaper, easier and safer access to regional services such as health care, educational opportunities, and recreational opportunities;
- enhance opportunities for family, social, recreational and sporting interactions;
- provide for enhanced tourism and hospitality industries in Tuktoyaktuk and Inuvik;
- strengthen Inuvik's role as a regional commercial hub;
- provide more opportunities for business development and expansion;
- reduce the cost of onshore oil and gas exploration and development as well as encouraging new activities;
- reduce cost of government services delivered to Tuktoyaktuk and Inuvik;
- support national security and Northern sovereignty objectives; and,
- deliver on current government policies to stimulate the economy in response to the present economic downturn.

The Panel accepts the Developer's evidence on the purpose and need for the development.

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<sup>412</sup> Developer Project Description, registry item 001-1 & 002-1

<sup>413</sup> Developer EIS, Executive Summary, registry item 068-1





## **11.0 CONSIDERATION OF ALTERNATIVES**

The information in this chapter is based on material filed by the Developer.<sup>414</sup> <sup>415</sup> No other Party addressed the question of alternative means to carry out the development or alternatives to the development.

### **11.1 Alternative Means of Carrying Out the Development**

The Developer set out a primary route for the construction of the all-weather highway from Inuvik to Tuktoyaktuk with consideration given to three alternatives that related to concerns with respect to encroachment on the area of Husky Lakes. Alternative 3, also called the Upland Route, represented the greatest deviation from the primary route, diverting west about 70 km north of Inuvik and rejoining the alignment near Source 177. This route had been considered in response to community requests to move the route away from Husky Lakes. In a letter to the EIRB dated November 9, 2011, the Developer removed this route from consideration, citing the high cost of construction and safety issues during the operation of the highway as the reasons for this decision. The other two route alternatives have been incorporated into the primary route.

The Panel accepts the Developer's evidence on alternative means of carrying out the development.

### **11.2 Alternatives to the Development**

Currently the only surface transportation access to Tuktoyaktuk is by a 187 km ice road from Inuvik, built each winter by the Department of Transportation (DOT) on the frozen channels of the Mackenzie River delta and Kugmallit Bay. The ice road is open for 3-4 months, depending upon the weather, from mid to late December to mid to late April. In the ice free season, water access between the communities is provided by the Mackenzie River.

Tuktoyaktuk has year round access by air and barge service from Hay River during the summer. The cost of air transport of goods to the community of Tuktoyaktuk is very high and increases the cost of those goods to the consumer (Table 6). Airfare from Tuktoyaktuk to Inuvik is also high (Table 6), making this kind of travel on a regular basis prohibitive for community members and their families.

The Panel accepts the Developer's evidence on alternatives to the development.

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<sup>414</sup> Developer Project Description, registry item 001-1 and 002-1

<sup>415</sup> Developer EIS, Executive Summary, registry item 068-1



**Table 6 – Air Fares and Air Cargo Rates for Inuvik to Tuktoyaktuk (November 2012)**

| SERVICE   | DESCRIPTION                         | COST                    | NOTES                            |
|-----------|-------------------------------------|-------------------------|----------------------------------|
| Air Fare  | Inuvik to Tuktoyaktuk return, Adult | \$441.00                | Some discount for beneficiaries. |
| Air Fare  | Inuvik to Tuktoyaktuk return, Child | \$354.90                | Some discount for beneficiaries. |
| Air Cargo | Regular                             | \$52.08 / 15 kg Minimum | \$3.47 / kg over Minimum         |
| Air Cargo | Priority                            | \$67.71 / 15 kg Minimum | \$4.51 / kg over Minimum         |



## 12.0 ACCIDENTS AND MALFUNCTIONS

The information in this chapter is based on material filed by the Developer.<sup>416</sup> No other Party filed evidence in relation to accidents and malfunctions.

The potential exists for accidents or malfunctions to occur in association with any human activity, including those proposed for the construction of the ITH. Environmental consequences of potential accidents or malfunctions related to the ITH project and associated aggregate borrow and construction camp activities would be primarily limited to those related to vehicle crashes and fuel storage, transportation and handling system failures.

The Developer has proposed to employ a number of preventative and mitigation measures to minimize environmental effects of malfunctions or accidents that may occur in connection with the project. Their key strategy will be to prevent accidents and malfunctions through education, monitoring, follow-up and enforcement. With the application and implementation of preventative and mitigation measures, the Developer anticipates no significant fuel, chemical or other product spills are expected to occur.

These measures include:

- implementation of best management and industry practices to prevent or minimize the occurrence of accidents or malfunctions;
- ensuring that all on-site contractors have industry-compliant and satisfactory Health, Safety and Environmental (HSE) policies, programs and manuals and that they are successfully implemented throughout the project;
- ensuring that the Developer and its contractors have an environmental management plan and spill contingency plan that will address potential accidents and malfunctions for the life of the project. In particular, the Developer will ensure that a spill contingency plan is in place that conforms to INAC's (2007) *Guidelines for Spill Contingency Planning*. In particular, the plan will include:
  - descriptions of the type and amount of contaminants stored at the project location;
  - site map of the location;
  - steps to be taken to report, contain, clean-up and dispose of contaminants in the case of a spill;
  - a description of the training provided to employees to respond to a spill; and
  - an inventory of and the location of response and clean-up equipment available to implement the spill contingency plan.
- compliance with the terms and conditions of the necessary Inuvialuit Land Administration and AANDC's land use and quarry permits and authorizations that will be issued for the construction project;

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<sup>416</sup> Developer EIS, section 4.4, page 609, registry item 072-1



- conformance with existing applicable GNWT and Workers Compensation Board standards;
- fuel and other hydrocarbons will be stored in accordance with Canadian Council of Ministers of the Environment (CCME's) (2003) *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products*, INAC's (2011b) *Northern Land Use Guidelines: Camp and Support Facilities*, and to the extent applicable, and the *Canadian Environmental Protection Act (CEPA) Storage Tank System for Petroleum Products and Allied Petroleum Products Regulations*.
- all vehicles and equipment will be re-fuelled at least 100 m from water bodies following INAC's (2011b) *Northern Land Use Guidelines: Camp and Support Facilities*; and,
- spills will be reported to the 24-hour Spill Report Line.

The project construction team will work closely with the ILA environmental and wildlife monitors when the proposed ITH is being constructed.

The Developer and its contractors are expected to generate hazardous wastes. DOT is currently a registered generator of hazardous waste and is directly responsible for the hazardous waste generated from their operations. Further, DOT is indirectly responsible for the hazardous waste generated from private contractors on the project. The Developer is aware that hazardous waste must be disposed of at an approved facility, and that it is not appropriate to dispose of hazardous waste in NWT community solid waste facilities.

To mitigate potential adverse environmental effects associated with improper hazardous waste disposal and to further demonstrate that proper hazardous waste management planning is in place, the Developer has committed to the development of a hazardous waste management plan (HWMP) that will encompass all pre-construction and construction phases of the project and will apply to the Developer and all contractors involved in receiving, transferring, and transporting hazardous waste for the Developer's activities on land, water, and air.

The HWMP will include, but not be limited to:

- identifying hazardous waste sources, types, and approximate quantities to be produced, including liquid, solid, dangerous goods and non-dangerous goods;
- describing waste segregation methods;
- describing all on-site treatment and disposal methods; and,
- describing hazardous wastes that will be transported to approved receiving facilities.

Safety measures to prevent vehicle accidents on the proposed ITH have been and will continue to be incorporated into the ITH design by the Developer. Measures to avoid or minimize accidents will include posted speed limits and adequate signage alerting drivers to highway curves and upcoming bridges. Bridge design will incorporate guardrails to prevent a vehicle from going off the bridge and into a watercourse in the event of an accident.



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With respect to environmental effects, a worst case would involve environmental damage to the Husky Lakes and effects to traditional activities and harvesting as a result of a fuel supply truck crash or rollover on the ITH, in a location nearest the Husky Lakes (e.g., km 80) and which causes a fuel spill of greater than 10,000 L into an open watercourse that is a direct tributary to the Husky Lakes. This scenario is discussed under section 13 of this report.

The Panel accepts the Developer's evidence on accidents and malfunctions.





### **13.0 WORST CASE SCENARIO**

#### **13.1 Introduction**

Paragraph 13(11)(b) of the IFA requires the Review Board to recommend to the government authority empowered to approve the proposed development:

(b) an estimate of the potential liability of the development, 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.

This provision is found in the section 13 of the IFA which deals with wildlife compensation. This section of the land claim is intended to ensure that both actual and future harvest losses resulting from development in the ISR are compensated. The purpose of the worst case scenario analysis is to determine a maximum value or cost of damages for purposes of securing these Inuvialuit rights. Under subsection 13(14), the government authority empowered to permit the development has the discretion to require the payment of financial security to ensure that the compensation obligations set out in section 13 will be met. Irrespective of the IFA provisions addressing worst case scenario and security, it should be noted that Inuvialuit harvesting is also protected by a regime of absolute liability set out in subsection 13(15) of the IFA.

Subsection 13(13) clearly indicates that any non-government Developer is required to prove financial responsibility before a development can be authorized in the ISR. Of interest in this case is the fact that the word “Government” is defined in section 1 of the IFA to mean the Government of Canada. Notwithstanding this definition, the word “government” is used in subsection 13(13) of the IFA and is not capitalized. Based on the standard rules of statutory interpretation, the Panel concludes that in this subsection the word “government” is intended to include other governments as well as the Government of Canada. Since the Developer consists of the Government of the Northwest Territories and two municipal governments, the Town of Inuvik and the Hamlet of Tuktoyaktuk, the Panel concludes that the word “government” in subsection 13(13) of the IFA includes the Developer. Thus the Panel was of the view that the Developer was not required to prove financial responsibility during the course of this Review. Consequently, such evidence was not required of the Developer.

Furthermore, the Panel is of the view, consistent with the language found in subsection 13(14), that the requirement for the provision of security by the Developer of the ITH is discretionary and that this discretion is vested in the government authority empowered to permit the development and to set the terms and conditions thereof, as set out in the IFA.

Finally, and notwithstanding the preceding analysis, the Panel notes that the requirements of subsection 13(11) are mandatory and that an analysis of the worst case scenario is required for purposes of its report in any event.



### 13.2 The Development of a Worst Case Scenario

On November 3, 2010 the EIS Terms of Reference were issued to the Developer. Subsection 12.3.2 of the Terms of Reference addressed the topic of "Liability and Worst Case Scenario".<sup>417</sup> The Developer was referred to the relevant portions of the IFA, and was provided, in subsection 12.3.3 of the Terms of Reference, examples of worst case scenarios developed for purposes of previous reviews completed under the IFA. In response to these instructions, the Developer included subsection 4.4.5 in the EIS, entitled "Worst Case Scenario".<sup>418</sup> This analysis addressed the effects and the cost of cleaning up a possible rollover of a fuel tanker on the ITH during spring freshet with fuel contamination being subsequently carried into the Husky Lakes.

This scenario was tested in a series of Board IRs forwarded to the Developer and to AANDC.<sup>419</sup>  
<sup>420</sup> <sup>421</sup> <sup>422</sup> AANDC did not further address this issue in its technical or hearing submissions, other than in its response to Board IRs.

On 28 March, 2012 the WMAC submitted its review of the EIS to the Panel.<sup>423</sup> This analysis was provided in the form of a technical report which, among other things, addressed the Developer's worst case scenario analysis. The WMAC provided an alternative vision of what the worst case impact of the ITH might be. In the WMAC's view, the worst case scenario arising from the development of the ITH would be a permanent loss of caribou harvesting opportunities for Inuvialuit resulting from the cumulative effects of the ITH and other developments in the region, most notably those associated with oil and gas development.

### 13.3 What the Developer said about the Issue

The Developer concluded that there will be no significant adverse effects on caribou resulting from the ITH, under any regional or cumulative effects scenarios. The Developer presented this view on the potential cumulative effects of the ITH in the EIS, confirming it in the supplemental CEA<sup>424</sup> and additional documents filed after the hearings.<sup>425</sup>

After the hearings, the Panel approved the filing of additional evidence by the Developer. The WMAC filed additional IRs in relation to the Developer's supplemental CEA, in particular with respect to impacts on caribou. In response to these questions, the Developer indicated that *"There is an appropriate amount of baseline data for this stage of the environmental assessment and data collection continues in collaboration with GNWT ENR"*.<sup>426</sup>

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<sup>417</sup> Final EIS Terms of Reference, registry item 046-1

<sup>418</sup> Developer EIS, pages 614-622, registry item 072-1

<sup>419</sup> EIRB round 1 IRs issued to Developer, registry item 104-1

<sup>420</sup> Developer response to round 1 IRs, IR 69 and 70, registry item 108-1

<sup>421</sup> EIRB round 2 IRs issued to AANDC, registry item 124-1

<sup>422</sup> AANDC response to round 2 IRs, IR 89, registry item 161-1

<sup>423</sup> WMAC submission to EIRB, registry item 151-2

<sup>424</sup> Developer Supplemental Cumulative Effects Documentation, registry item 271-1

<sup>425</sup> Registry items 312-1, 313-1, 318-1 and responses to WMAC IRs October, 2012, registry item 334-1

<sup>426</sup> Developer response to October 2012 IRs, registry item 334-1



The Developer committed to developing caribou specific mitigations (Commitments Tracking Table, Commitment #97) as part of an overall WPP (Commitments Tracking Table, Commitment #103-104). The Developer also submitted a draft WEMP in which the intent to monitor caribou using radio collars is outlined to validate its EIA predictions.<sup>427</sup>

#### 13.4 What the Parties and the Public said about the Issue

WMAC suggests that a worst case scenario might ensue as a result of cumulative effects on caribou in the region affected by the ITH. From WMAC's point of view the worst case scenario is the loss of the caribou harvest by Inuvialuit for an extended period of time as a result of cumulative effects in the region. WMAC argued that the Developer underestimated the cumulative effects of the ITH on caribou and that the Developer did not use sufficient baseline information to support its "no impact" predictions. In their final submission, WMAC emphasized that *"The collection of sufficient pre-construction wildlife data is fundamental to a CEA and therefore extremely important"*.<sup>428</sup>

The WMAC position was also based on a different view of the potential zone of influence (ZOI) from the road. This is the area where caribou habitat might be rendered unusable and caribou disturbed by construction and eventual traffic on the ITH.

In its presentation during the technical hearings in Inuvik, the WMAC advised that, in their calculation, a complete loss of caribou harvesting opportunities in the area affected by the proposed highway could cost Inuvialuit up to \$750,000.00 per year based on the cost of the replacement of meat purchased at local stores.<sup>429</sup> The WMAC prediction in relation to the worst case scenario was that it would not necessarily be the result of a single identifiable event but rather that the loss of caribou harvesting would be the result of cumulative effects and multiple factors over a long period of time.<sup>430</sup>

ENR confirmed in their post-Inuvik hearing submission of undertaking #3 that the 1 km ZOI used by the Developer to predict caribou impacts was underestimated and impact predictions should have been based on a 2-4 km ZOI. ENR also noted that some project components such as winter access roads should have been part of the Developer's CEA but were not.<sup>431</sup>

#### 13.5 The Panel's Analysis of the Issue

There are two issues for the Panel to address. First, which of the competing worst case scenarios should be accepted for purposes of this Review and second, what is the appropriate valuation of that worst case scenario.

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<sup>427</sup> Developer Draft WEMP ITH October 4, 2012, registry item 318-1

<sup>428</sup> WMAC Final Technical Submission, registry item 338-1

<sup>429</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 252 registry item 300-1

<sup>430</sup> Inuvik Public Hearing Transcript, September 19, 2012, page 253 registry item 300-1

<sup>431</sup> ENR ITH undertaking #3 from Hearings, registry item 309-1



The issue of worst case scenario was explored in the public hearing.<sup>432</sup> Counsel to the Panel asked about the rollover scenario and the valuation presented by the Developer. The Developer's representatives were also provided with the opportunity to comment specifically on the worst case analysis set out in the WMAC technical report. These two scenarios are addressed in turn below.

### **13.5.1 The Permanent Loss of Caribou Harvesting Scenario**

In the Developer's response to the draft technical submissions filed by the interveners, they characterized the WMAC approach to the estimation of the worst case scenario as a "... *valid potential alternative worst case scenario*".<sup>433</sup> Under cross-examination in the hearing, however, the Developer indicated several areas of disagreement with the WMAC caribou and worst case analysis.

The Developer's post-hearing CEA submissions and responses to WMAC IRs continued to assert and reinforce their original conclusions about both direct and cumulative impacts of the ITH on caribou and caribou habitat, but the Developer did not directly address this disagreement by questioning the WMAC presenters during the hearing. In the Panel's view this is both unfortunate and inappropriate. If the Developer disagreed with the WMAC, as their subsequent filings indicate, it should have addressed this disagreement in cross-examination so that the Panel could hear from both parties and evaluate their positions directly, rather than through subsequent filings. The Developer's approach also places the WMAC, which has limited capacity, at a disadvantage as it had fewer resources to participate in a "paper war" after the hearings.

Notwithstanding these procedural matters, the Panel notes that WMAC's concerns were largely based on a critical, theoretical review of the EIS and the Developer's evidence based on available literature and theory for the conduct of CEAs. While the Panel finds no fault with this analysis, the WMAC presented no evidence of comparable barren ground caribou population crashes resulting from cumulative disturbance effects elsewhere. In the Panel's view, there is simply not enough evidence available to single out highway disturbance as the likely overriding factor in WMAC's predicted caribou population decline. It is also noteworthy, in the Panel's view, that ENR advised that there was simply not enough data available to quantitatively assess the effects of a single linear development with low traffic volumes on caribou. Other factors such as climate change, fires, and harvesting, all of which are beyond the Developer's control, could also be important in a caribou population decline of the type described by WMAC. As indicated by the Developer, current levels of development in the region are low and it is difficult to be certain when oil and gas development will proceed.

In light of the purposes of section 13 of the IFA and the considerable liability which may be vested in a Developer in a worst case scenario, the Panel is of the opinion that a clear and predictable causal relationship must exist between the actions of a Developer and the worst case damage resulting from those actions. Subsection 13(15) of the IFA confirms this view.

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<sup>432</sup> Inuvik Public Hearing Transcript, September 18, 2012, pages 162-194, registry item 298-1

<sup>433</sup> Developer response to Draft Technical Submissions, page 41, registry item 287-1



In the Panel's view, the damages which result from the worst case scenario should be directly caused by a Developer.

Considering the information reviewed above, the Panel is not convinced that the cause of the WMAC worst case scenario could be attributed solely to the ITH with sufficient certainty to satisfy the legal requirements of the IFA. In these circumstances, the Panel has concluded that it is more appropriate to focus its attention in terms of worst case scenario on the fuel truck rollover scenario.

Having made this choice, the Panel wishes to underscore its view of the importance of the additional caribou research and monitoring committed to by the Developer in the WPP and the WEMP. The Panel considers it essential that further work on cumulative effects on caribou be completed and that the Developer, WMAC, HTC's and other affected Inuvialuit work collaboratively to ensure an adaptive response to any changes in caribou behaviour and populations resulting from the construction and operation of the ITH.

### 13.5.2 The Fuel Truck Rollover Scenario

The Developer indicated that in its view the worst case scenario for environmental damages would result from the rollover and loss of contents of a fuel tanker on the highway occurring during spring freshet, where the fuel subsequently made its way into the Husky Lakes. The Developer was at pains in its treatment of this scenario in the EIS to explain the fate of diesel fuel spilled into cold water. The Panel does not disagree with this analysis, although AANDC indicated in its response to Panel IRs about the Developer's worst case analysis that it considered the Developer's assumptions to be based on "best case conditions".<sup>434</sup> The point of such an exercise in the Panel's view is, however, to identify a *worst case*, not to make assumptions which will limit the damages resulting from the incident.

The Developer's estimate of replacement costs for lost fish and compensation to Inuvialuit harvesters for lost equipment set out in table 4.4.5.2 of the EIS was in the order of \$486,000.00. As was admitted in the hearings, this estimate did not include the cost of spill cleanup which, depending on the length of time required, would add either an additional \$260,000.00 for a five-day clean-up or \$561,000.00 if the cleanup took ten days.<sup>435 436</sup> Thus the total cost of the worst case scenario based on the Developer's evidence would be in the order of \$1.05 Million dollars.

The worst case scenario was explored with AANDC in IR 89 and their answer indicated that they considered the Developer's worst case scenario to be potentially reasonable. They indicated that they considered it likely that a B-train spill would take at least 10 days to clean up based on their experience with a 15,000 litre spill near Fort Good Hope which took 14 days to clean up at a cost of over \$750,000.00 and did not involve compensation to resource harvesters.

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<sup>434</sup> AANDC response to IR 89, page 2, registry item 161-1

<sup>435</sup> Inuvik Technical Hearing Transcript, September 18, 2012, page 165, registry item 298-1

<sup>436</sup> Developer response to Round 1 IRs, IR69, February 10, 2012, registry item 108-1





Based on this information, the Panel considers the total cost generated by the Developer to be a fair estimate of the worst case scenario.

### **13.6 Panel Conclusion on Worst Case Scenario**

**R48: The Panel finds that a worst case scenario based on a fuel truck rollover on the highway as described in the EIS to be the appropriate scenario for this development. The Panel also finds that a total cost or value for this worst case scenario is \$1.05 Million dollars.**

**R49: The Panel recommends that consideration be given to requiring security from the Developer in this amount in order to protect Inuvialuit harvesters' rights pursuant to section 13 of the IFA.**



## 14.0 HUSKY LAKES

The Panel, by virtue of section 8 of the Inuvialuit Final Agreement (IFA), has been accorded special responsibility to ensure the environmental protection of the Husky Lakes area. This consideration includes a requirement for a Developer to meet acceptable environmental standards and to account for that standard of performance.<sup>437</sup> While the ITH right-of-way does not overlap with Husky Lakes, it runs adjacent to that area, raising concerns for the Panel about increased access, environmental accidents, and potential reduction of peace and enjoyment of the area by traditional Inuvialuit users.

### 14.1 Husky Lakes Overview

This overview of the Husky Lakes area is summarized from a document prepared by the Inuvialuit Land Administration.<sup>438</sup>

Husky Lakes, a series of interconnecting lakes, is one of the most striking features of the ISR, and historically, have been an important resource to the Inuvialuit. These saline lakes are located to the south and southeast of the community of Tuktoyaktuk, and have been used for transport for centuries. The Lakes provide habitat suited for a wide variety of wildlife, both aquatic and terrestrial, which for many centuries, has been harvested for food and fur by the Inuvialuit. As a result, sustaining the environmental integrity of the Husky Lakes area is a crucial aspect of land management strategies designed to preserve Inuvialuit history and identity.

The current generation of Inuvialuit beneficiaries use Husky Lakes for virtually all of the same purposes that past generations did. Spring ice fishing at Husky Lakes, which occurs generally from April until June, is a major event for Inuvialuit from Tuktoyaktuk and Inuvik, and a major source of traditional foods in the Inuvialuit diet. Goose and duck hunting is generally practiced around the same time of year as fishing, as is large game, such as grizzly bear. In the past, caribou were hunted extensively at Husky Lakes but more recently this activity has been banned because of reduced population numbers.

In the summer, fishing and hunting are also practiced, but by fewer beneficiaries than in the spring, since access is more difficult and expensive after the spring thaw.

In the early fall, Inuvialuit hunt ptarmigan and pick berries at Husky Lakes, the most common of which include cloudberries, crowberries, blueberries and cranberries. During the late fall, the winter trapping activities are at their peak at Husky Lakes.

The land and waters that make up Husky Lakes are highly important to the Inuvialuit from a spiritual and cultural perspective. Many Inuvialuit were born or laid to rest at Husky Lakes, and many Inuvialuit learned traditional activities through instruction from their Elders. Presently, Inuvialuit have cabins or set up tents seasonally at Husky Lakes in order to get out on the land.

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<sup>437</sup> Inuvialuit Final Agreement ss. 8(1)

<sup>438</sup> Husky Lakes Special Cultural Area Criteria, Inuvialuit Land Administration, June 2011, available from: <http://www.inuvialuitland.com/resource.html>



#### 14.1.1 The Panel's Analysis of the Issue

The proposed ITH project alignment runs parallel to Husky Lakes, coming within 1 km of the Lakes in some areas. The existence of an all-weather public highway running adjacent to the Husky Lakes will open up access year round to that area, providing improved access in the summer when access was more difficult and expensive. It will also allow access to the Husky Lakes area for tourists travelling along the route.

Much of the land between the ITH and Husky Lakes is Inuvialuit land and will require ongoing management and monitoring by the ILA to ensure that such access does not impair the aesthetic or cultural values that are important to the Inuvialuit or provide opportunity for excessive hunting and fishing.

#### 14.1.2 Panel Recommendation

**R50: The Inuvialuit Land Administration shall work with the Developer, HTC's, FJMC and WMAC (NWT) to ensure proper signage and guidelines are established to monitor access to the Husky Lakes area.**

### 14.2 Land Use and Management - Category E Lands

The Community Conservation Plans (CCPs) developed by the Inuvialuit communities with WMAC and the Joint Secretariat provide guidance to the EISC and the EIRB on the community views with respect to conservation and management of renewable resources and lands within the ISR. The following description of Category E designated lands is from the Tuktoyaktuk Community Conservation Plan.<sup>439</sup>

In designating land management categories, the Inuvialuit community has attempted to recognize priority land uses and activities, as well as areas of special ecological and cultural importance. Land designations may be modified as additional information becomes available and provided the health and biological productivity of the planning area is maintained.

#### Category E

Lands and waters where cultural or renewable resources are of extreme significance and sensitivity. There shall be no development on these areas. These lands and waters shall be managed to eliminate, to the greatest extent possible, potential damage and disruption. This category recommends the highest degree of protection in this document.

Although it is understood that CCPs are not legally binding documents, the Panel considers them as evidence of community concerns and values that must be addressed by the Developer in the process of consultations. Any conflict between the development proposal and the conservation plans should be reconciled with the community that has felt the impact of that development.

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<sup>439</sup> Tuktoyaktuk Community Conservation Plan, April 2008. Found at: [http://www.eirb.ca/pdf/ccp/Tuktoyaktuk\\_CCP.pdf](http://www.eirb.ca/pdf/ccp/Tuktoyaktuk_CCP.pdf) accessed January 19, 2013.



#### 14.2.1 What the Developer said about the Issue

The Developer stated that it would conform to the IFA and the Tuktoyaktuk and Inuvik CCPs, and will integrate the goals of these documents into the ITH project's environmental management.<sup>440</sup> Regarding the project's use of Management Category E lands, the Developer responded that the 1 km setback from Husky Lakes is designed to address use of these lands. The Developer indicated that it had not yet discussed the project's use of Management Category E lands with the agencies and organizations that developed the CCPs, but that it anticipates doing so as the permitting process progresses.<sup>441</sup>

#### 14.2.2 What the Parties and the Public said about the Issue

During the second round of Information Requests, (IR 125), Parties were asked to describe their position with respect to the project's use of Management Category E lands, and the efforts they felt that the Developer must take to reconcile the project's use of these lands. Parties responded as follows:

- IGC said it would not override community values as there is a process for communities to revise a CCP category if desired. The Developer would have to approach the communities to seek amendments to the CCPs, and WMAC must be kept informed of any requests to amend CCPs.
- FJMC responded that development activities should not impact the Husky Lakes watershed or fishery resource and recommended that the project adhere to the 1 km setback from Husky Lakes to address construction-related effects. However, FJMC anticipates a long-term impact as a result of increased harvesting in Husky Lakes. This could be addressed with implementation of a management plan, but FJMC confirmed there are insufficient resources to develop and implement such a plan.
- WMAC said it supports the position of the CCPs and that impacts of development cannot be mitigated in Category E lands. Further, it is not possible for the Developer to reconcile this change in land use.
- IRC responded that they had no comment to make with regard to either of the questions regarding Category E lands.

IRC later stated that there is neither IFA nor legislative authority for prohibition of development on Category E lands, or for any particular status for the CCPs, and that the CCPs and their content represent the product of a consultation exercise. As such, IRC *"cannot and does not acquiesce in the direction taken to include a very broad prohibition against development in a substantial area of the region"*.<sup>442</sup>

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<sup>440</sup> Developer response to round 1 IRs, Table F, page 135, registry item 108-1

<sup>441</sup> Developer response to round 1 IRs, IR46, registry item 108-1

<sup>442</sup> IRC Letter to EIRB, registry item 205-1



### 14.2.3 The Panel's Analysis of the Issue

The Panel considers CCPs important baseline evidence for this project and for future reviews. It is unclear why the Developer did not consult with the community on the issue of Category E lands or why the IRC would take a position that reduced the value of that evidence. It is clear from presentations to the Panel at the public hearings that community members are generally in support of the ITH and would have been willing to discuss the issue of Category E lands with the Developer.

With regard to the use of Category E lands, the Developer committed to conform to the IFA and the Tuktoyaktuk and Inuvik CCPs and will integrate the goals of those documents into the project's environmental management.<sup>443</sup>

### 14.2.4 Panel Recommendation

Based on the analysis, and to ensure the mitigation successfully protects Category E lands, the Panel recommends:

**R51: The Developer shall consult with the communities, HTC's and ISR comanagement boards on the development and content of the project's environmental management plans in relation to Category E lands.**

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<sup>443</sup> Developer EIS, Table F, page lxxx, registry item 072-1





## 15.0 REVIEW PANEL'S FINDINGS

### 15.1 Summary of Scope of Development

The following table is reproduced from subsection 4.3 of this report.

The Panel has concluded that for the purposes of this Review of the ITH project, the scope of the development that was assessed is defined as outlined in Table 3.

**Table 3: Summary of Scope of Development**

| Project Component  | Included in Scope of Development   | Not Included in Scope of Development  |
|--|--|---|
| All-weather highway from Inuvik to Tuktoyaktuk   | Primary Alignment as amended by Alternatives 1 and 3   | Alternative 2 (Upland Route), and those portions of the Primary alignment amended by Alternatives 1 and 3   |
| Watercourse crossing structures  | <ul style="list-style-type: none"><li>84 stream crossing structures, consisting of 52 culverts, 9 bridges, 23 culverts or short bridges</li><li><b>Summer works</b> – limited to out-of-streambed activities, such as bridge girder and deck construction and associated works</li><li><b>Winter works</b> – all in-stream activities and associated works</li></ul> | <ul style="list-style-type: none"><li>Any additional stream crossing structures not included in this inventory</li><li><b>Summer works</b> – no in-stream work or associated activities</li></ul>   |
| Aggregate Sources (borrow and quarry areas to support construction, operations and maintenance requirements) | The aggregate sources and volumes to be extracted in the indicated timeframes, as identified in Table 1.   | <ul style="list-style-type: none"><li>Any additional aggregate sources not identified in Table 1</li><li>Any additional volumes not identified in Table 1</li><li>Any additional volume of aggregate required from any of the identified sources during any of the operational time periods (i.e., construction, years 1-20, 21-40, 41-50) indicated in Table 1</li></ul> |
| Construction staging areas   | Construction staging areas to be used during construction of the   | None  |



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| Project Component  | Included in Scope of Development  | Not Included in Scope of Development   |
|--|---|--|
|  | ITH.  |  |
| Maintenance areas  | Winter and summer season maintenance areas associated with the temporary construction camp locations  | Any other maintenance area required during construction but not identified   |
| Temporary construction camp facilities (including water use, wastewater disposal, resupply, power supply, and domestic waste disposal) | Temporary construction camp facilities located at the borrow source closer to the construction activities   | Any other temporary construction camp facilities not located at the closest borrow source  |
| Temporary construction access roads  | <ul style="list-style-type: none"> <li>• Temporary winter access road that is parallel to the permanent alignment during construction.</li> <li>• Temporary winter access roads to the borrow sources during construction.</li> </ul> | None   |
| Ongoing operations of the all-weather highway  | All equipment and associated activities for operations phase will be staged locally from Inuvik and Tuktoyaktuk   | <ul style="list-style-type: none"> <li>• Maintenance or staging areas that may be required for operations that will be located at any point along the Inuvik to Tuktoyaktuk Highway.</li> <li>• Temporary or permanent access roads to water sources to be used for dust suppression during operations phase.</li> <li>• Stockpile areas along the permanent road alignment used to store granular material for summer maintenance and re-habilitation during the operations phase.</li> </ul> |

The Panel notes that any project component or activity not included in the scope of development that may be required during the construction and operation of the Inuvik to Tuktoyaktuk Highway will have to be applied for as if it were a new development and be subject to the environmental impact screening and review process in the ISR.



## 15.2 Decision of the Review Panel

Having carefully considered the evidence and information before it, the Panel has concluded and recommends that this development should proceed, subject to implementation of the commitments made by the Developer and the measures recommended by the Panel in this report. These recommended measures are, in the Panel's opinion, necessary to prevent or mitigate the adverse environmental and socio-economic effects which will result from the project.

The Panel has recommended an adaptive management approach be adopted to minimize the environmental impacts of the project. This approach requires the implementation of a comprehensive Environmental Monitoring and Management Plan integrated into an adaptive environmental management framework. This framework should be designed and implemented as a priority after project approval in order to mitigate project impacts.

The Panel also recommends the establishment of an Independent Environmental Monitoring and Oversight Committee (IEMOC). The operations of the IEMOC should be integrated with the co-management framework established by the Inuvialuit Final Agreement (IFA). The Panel's conclusions about the need for independent oversight are a result of the problems identified in the EIS, and, more specifically, with the environmental components of the impact assessment conducted by the Developer. The IEMOC must be established and adequately funded prior to the initiation of major construction activities in order to provide oversight on all aspects of project development and to provide a vehicle for community involvement in project monitoring activities.

The IFA also requires that the Panel provide to the "government authority empowered to approve the proposed development", an estimate of the potential liability of the Developer for present or future Inuvialuit wildlife harvesting losses. This liability is 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.

The Panel has determined that an accident based on a fuel truck roll over on the highway, as described in the EIS and modified during the proceeding, is the appropriate worst-case scenario for the ITH project. The Panel also finds that the total cost or value for this worst-case scenario is \$1.05 Million dollars. The Panel recommends that consideration be given to requiring security from the Developer in this amount in order to protect Inuvialuit harvesters' rights pursuant to section 13 of the IFA.

The Panel reviewed the evidence provided by the Developer and the Parties related to species at risk, and whether the proposed ITH project would affect any listed wildlife species or their critical habitat, in accordance with s.79 of the *Species At Risk Act*. The Panel finds that with the implementation of the commitments made by the Developer and the recommendations made by the Panel, that potential adverse effects and cumulative effects on species at risk will be mitigated and effectively managed.



### 15.3 Recommendations of the Review Panel

#### **FOLLOW-UP PROGRAM AND INDEPENDENT OVERSIGHT**

- R01:** The Responsible Authorities shall establish a follow-up program for the ITH project, the results of which can be integrated with both project oriented and regional, government-led cumulative effects monitoring, mitigation and adaptive management programs for the ISR.
- R02:** An oversight body, the Independent Environmental Monitoring and Oversight Committee (IEMOC), independent of the Developer, shall be established to coordinate the monitoring, mitigation and adaptive management of the ITH project's construction and operation.
- R03:** Membership on the IEMOC shall include the Developer (2 members) including a representative from ENR, AANDC, NWT Water Board, DFO, EC, NRCan, INFC, WMAC, FJMC, ILA and the HTC's from Inuvik and Tuktoyaktuk. It should be co-chaired by the Developer and one of the Inuvialuit comanagement committees. The IEMOC may establish subcommittees in order to make its operations more efficient.
- R04:** The IEMOC shall be established as soon as possible and before major construction activities begin and shall operate for the construction period and no more than 10 years of highway operations, unless an extension is agreed to by its parties. The level of IEMOC activity shall be scalable in relation to the level of construction and operational activities and impacts related to the ITH project.
- R05:** Government participation on the IEMOC shall be paid for by the departments involved. The cost for comanagement bodies and Inuvialuit institutions such as HTC's to participate shall be paid for by the Developer. Any studies and analyses required to monitor, manage and respond to ITH project effects shall be paid for by the Developer. Basic secretariat costs for IEMOC shall be paid for by the Developer. A budget shall be developed in advance of each year's operations.
- R06:** The IEMOC shall be established by its Parties, including representatives of the Developer, Canada, the Joint Secretariat (for WMAC and FJMC), the HTC's and ILA by way of a collaboratively developed legal agreement which sets out the purpose, membership, funding and governance arrangements amongst these parties, consistent with the Panel's recommendations.
- R07:** Development of the IEMOC agreement shall begin within 30 days of Ministerial approval of the Panel's report. This agreement must be in place before major construction activities begin. The Developer shall pay the negotiation costs of the Joint Secretariat and HTC's.



## **MONITORING AND ADAPTIVE MANAGEMENT**

- R08:** A project specific monitoring, mitigation and adaptive management program shall be developed for the ITH project by the IEMOC (the ITH Adaptive Management Program).
- R09:** The ITH Adaptive Management Program shall be in place before major construction activities are initiated for the project.
- R10:** The IEMOC shall ensure that its Adaptive Management Program includes:
- the integration of science and Traditional Knowledge into programs to monitor ITH project performance relative to the Developers' impact assessment predictions;
  - provision for modification of any monitoring and mitigation programs based on observed VEC responses; and
  - the publication and periodic distribution of monitoring and adaptive management results to keep Inuvialuit communities and the public apprised of the adaptive management activities related to highway construction and operation, and to ensure that ITH monitoring and mitigation results are integrated with and contribute to regional cumulative effects monitoring programs.
- R11:** Any follow-up program established by Responsible Authorities shall recognize the role of the IEMOC and provide for collaboration and cooperation between these groups and their programs.
- R12:** The IEMOC's Adaptive Management Program shall consider the need to address monitoring of permafrost and granular resources, surface hydrology, vegetation, fish, wildlife, and harvesting impacts to address concerns raised in this proceeding. The final scope of this program and any future changes to it shall be an IEMOC decision.
- R13:** The IEMOC shall consider the Panel's Recommended Activities in the development of the agreement referred to in Recommendation R06.

## **SPECIFIC RECOMMENDATIONS**

### **Economic**

- R14:** The Developer shall work with local academic institutions in the design of short-duration, skill-based training courses for Inuvialuit beneficiaries and other northern residents to improve job readiness, expand the available labour pool, and enhance local skill capacity. To the extent possible these courses shall be available before the initiation of major construction activities.





- R15: The Developer shall require its contractors to report on training, including the types of training provided and the number of employees trained, and make the information public;
- R16: The Developer shall publish updates on the numbers of Inuvialuit and northern businesses that have received project-related contracts, as well as relevant details regarding the contracts;
- R17: The Developer and its contractors shall provide updates to the public regarding the numbers of individuals from Tuktoyaktuk and Inuvik who have been hired, the types of positions they have been hired for, and total wages paid.
- R18: Responsible parties (ITI, IRC, IDC) shall examine changes in tourism as a result of the project, and
- identify potential or additional economic opportunities that could be filled by Inuvialuit businesses; and
  - assist Inuvialuit businesses, both existing and potential, to take advantage of opportunities related to increased tourism.

#### Community

- R19: The Developer, GNWT departments and service agencies shall make use of the Inuvialuit Indicators Project to assist in monitoring the potential impacts of the project on individuals and the communities of Inuvik and Tuktoyaktuk

#### Land Use, Access and Harvesting

- R20: The Developer shall work with the Parties (DFO, EC, ENR) and comanagement bodies (FJMC, WMAC) and HTCs to ensure that the Developer's mitigation, monitoring and management commitments related to wildlife, fish and harvesting are met and reported on annually through IEMOC or through the specific comanagement bodies responsible for resource management in the ISR.

#### Caribou

- R21: The Developer shall monitor project-specific effects on caribou and work in collaboration with existing or planned regional caribou monitoring programs by government including the following:
- compare baseline caribou habitat amount to Project construction and operations phase habitat amounts (verify prediction for amount of caribou habitat lost to Highway);
  - complete statistical power analyses to determine appropriate sample size for caribou collaring program;
  - compare baseline caribou movement to Project construction and operations phase movements using radio collar data;



- compare baseline caribou distribution to Project construction and operations phase distributions using radio collar data (verify predicted ZOI of 1 km);
- compare baseline caribou habitat use to Project construction and operations phase habitat use using radio-collar data (verify prediction for habitat degradation);
- compare baseline caribou harvest rates to Project construction and operations phase harvest rates; and
- compare baseline caribou collision-based mortality rates to pre-defined thresholds.

### **Grizzly Bear**

**R22: The Developer shall complete the development of a WEMP in collaboration with the parties to the IEMOC as part of an adaptive management process.**

**R23: The Developer shall determine presence or absence of bear dens in construction areas with pre-construction surveys.**

**R24: The Developer shall monitor project-specific effects on grizzly bear and collaborate with existing or planned regional grizzly bear monitoring programs by government including the following:**

- compare baseline grizzly bear movement to Project construction and operations phase movements using radio collar data;
- compare baseline grizzly bear habitat use to Project construction and operations phase habitat use using radio-collar data (verify prediction for habitat degradation);
- compare baseline grizzly bear harvest rates to Project construction and operations phase harvest rates;
- compare baseline grizzly bear collision-based mortality rates to pre-defined thresholds; and
- compare baseline grizzly bear denning frequency within or near the road corridor to Project construction and operations phase denning frequency (verify predicted ZOI of 500 m).

### **Muskrat**

**R25: The Developer shall complete pre-construction surveys for muskrat push-ups on lakes where winter snow removal and/or winter water withdrawal will take place.**

**R26: The Developer shall follow mitigation measures set out in permits issued under the *Wildlife Act* and monitor mitigation success, if muskrats are present.**



### **Reindeer**

R27: AANDC shall address and resolve any potential land use conflicts before issuing land tenures for the highway.

R28: With respect to private lands, the ILA shall initiate dialogue between the reindeer herd owner and the Developer and assist with conflict resolution as necessary.

### **Fish and Fish Habitat**

R29: The Developer shall consult with both DFO and AANDC to determine appropriate mitigation measures before using a chemical dust suppressant technique on the ITH.

R30: The Developer shall, prior to construction, develop management plans for the protection of fish and fish habitat in any areas affected by construction in collaboration with DFO, and the Tuktoyaktuk and Inuvik HTC's and FJMC.

R31: The Developer shall develop a long-term maintenance plan for the Hans and Zed Creek crossings to protect fish habitat.

### **Species at Risk**

R32: The IEMOC shall determine appropriate setback distances for bear denning areas and critical habitat of SAR, waterfowl and tundra-nesting bird species.

R33: The Developer shall monitor project-specific effects and collaborate in the monitoring of regional effects on all identified SAR, such as boreal woodland caribou, grizzly bears, and wolverines, with existing or planned regional monitoring programs by government including:

- compare baseline species habitat amount to Project construction and operations phase habitat amounts (verify predictions for habitat loss);
- compare baseline species habitat use to Project construction and operations phase habitat use (verify predictions for habitat degradation);
- compare baseline species distribution to Project construction and operations phase distributions (verify predictions for disturbance);
- compare baseline species harvest rates to Project construction and operations phase harvest rates (verify predictions for mortality); and
- compare baseline caribou collision-based mortality rates to pre-defined thresholds (verify prediction for mortality).

### **Water Use and Winter Access Roads**

#### **Total Water Requirements**

R34: The 10 per cent water withdrawal limit contained in the *DFO Protocol for Winter Water Withdrawal from Ice-covered Waterbodies in the Northwest Territories and*



*Nunavut (2010)* shall be applied to every lake and water body used as a water source over the lifetime of the project.

**Winter Access Roads**

R35: Monitoring of the effects of long term water use for the construction of these roads shall be included in the regulatory approvals granted by DFO, AANDC and the NWT Water Board, as appropriate, and the results of this monitoring shall be integrated into the cumulative effects and adaptive management programs to be established by the IEMOC.

**Terrestrial Impacts of Winter Access Roads**

R36: AANDC and the NWT Water Board shall ensure that the same road alignments are not used to access aggregate sources every year in order to avoid the vegetation and terrain damage caused by repeated use.

R37: The Developer shall develop a monitoring program with respect to vegetation and terrain that includes active layer and near-surface permafrost impacts from winter road construction to the aggregate sources. Monitoring reports should be filed with the appropriate regulators, including AANDC, on a regular basis and not less than every two years, with particular emphasis on cumulative impacts of the roads on these terrain characteristics. This monitoring program and its results shall be integrated into the cumulative effects and adaptive management programs to be established by the IEMOC.

**Aggregate Resources**

R38: AANDC, ILA and the NWT Water Board shall require the filing of draft pit development plans with the Developer's applications for gravel extraction. These plans shall include conceptual closure and reclamation plans. These regulators shall require final pit development plans from the Developer before gravel extraction from the sites listed in Table 5 begins.

R39: The pit development plans shall address the effects of quarrying operations on vegetation, surface water, permafrost, wildlife and terrain features, and include specific mitigation measures for consideration by the regulators. The Developer shall consult the HTC's of Inuvik and Tuktoyaktuk about these plans before they are approved by the regulators.

R40: Pit development licences or permits shall be based on and limited by the schedule of aggregate requirements provided by the Developer and presented in Table 5 of this report. After construction, further development of the pits should only be permitted once progressive reclamation of the original disturbance has been initiated and the ground surface is shown to be stable.



**R41: Any extra requirement for aggregate over and above the requirements forecast for specific time intervals in Table 5 of this report shall be considered as a new application and be subject to screening by the EISC.**

**R42: AANDC and ILA shall require evidence of permafrost stabilization as part of the conditions for reclamation and closure of borrow pits, and until it is clear that permafrost has been re-established in the pit floors and slopes, the liability for the pits shall remain the responsibility of the Developer.**

#### **Climate Change**

**R43: As part of its applications for pit and quarry licences, the Developer shall provide to AANDC and ILA a rigorous and transparent quantitative assessment of the potential impacts of climate change on the aggregate needs for the project including estimates of aggregate needs 25 and 50 years after construction.**

**R44: The Developer shall develop preliminary pit management plans, including a preliminary closure and reclamation plan, for all borrow sites and quarries listed in Table 5 and file them with AANDC, ILA and the NWT Water Board at the time applications are made for use of these areas. Approval of final pit management plans by regulators before aggregate extraction begins shall be a condition of any licences or permits when issued.**

**R45: The Developer's estimates of future quarry size (areal extent and volumes), based on its projected need for aggregate, and AANDC's independent opinion on the estimates shall be presented to the NWT Water Board during its water licensing process to enable the development of water management plans and reclamation plans for quarries and borrow pits.**

#### **Cumulative Effects Assessment**

**R46: The Developer, in collaboration with GNWT-ENR, EC and wildlife comanagement organizations, working through the IEMOC, shall further develop and implement the proposed WEMP to ensure that it addresses both direct and cumulative effects from highway construction and operations on wildlife distribution and abundance within the regional cumulative effects study area.**

**R47: The results of WEMP monitoring of cumulative effects on wildlife, vegetation and land use shall be integrated into the IEMOC's adaptive management framework, and, to the extent possible, into any government regional cumulative effects monitoring programs.**

#### **Worst Case Scenario**

**R48: The Panel finds that a worst-case scenario based on a fuel truck roll over on the highway as described in the EIS to be the appropriate scenario for this**





development. The Panel also finds that a total cost or value for this worst-case scenario is \$1.05 Million dollars.

R49: The Panel recommends that consideration be given to requiring security from the Developer in this amount in order to protect Inuvialuit harvester's rights pursuant to section 13 of the IFA.

#### **Husky Lakes**

R50: The Inuvialuit Land Administration shall work with the Developer, HTC's, FJMC and WMAC (NWT) to ensure proper signage and guidelines are established to monitor access to the Husky Lakes area.

#### **Land Use and Management Category E Lands**

R51: Developer shall consult with the communities, HTC's and ISR comanagement boards on the development and content of the Project's environmental management plans in relation to Category E lands.



## 15.0 CONCLUSIONS DE LA COMMISSION

### 15.1 Sommaire de l'énoncé du développement

La Commission a conclu que pour les besoins de cette étude du projet RIT, l'énoncé du développement examiné est défini en aperçu en table 3.

**Table 3: Sommaire de l'énoncé du développement**

| Éléments du Projet  | Inclus dans le champ d'étude du développement   | Pas inclus dans le champ d'étude du développement  |
|---|---|--|
| Route tous temps d'Inuvik à Tuktoyaktuk   | Alignement initial modifié par les Alternatives 1 et 3  | Alternative 2 (Route hautes terres) et les parties de l'alignement initial modifié par les Alternatives 1 et 3   |
| Structures de traversée des cours d'eau   | <ul style="list-style-type: none"><li>84 structures traversant des ruisseaux, consistant en 52 buses, 9 ponts, 23 buses ou petits ponts</li><li><b>Travaux d'été</b> - limités aux activités hors des cours d'eau comme poutres de pont et construction du tablier et travaux associés</li><li><b>Travaux d'hiver</b> – toutes activités dans les cours d'eau</li></ul> | <ul style="list-style-type: none"><li>Toute traversée de cours d'eau pas inclus dans cet inventaire</li><li><b>Travaux d'été</b> – pas de travaux dans les cours d'eau ou activités associées</li></ul>  |
| Sources d'agrégat (emprunt et location de carrières pour supporter les besoins lors de la construction, des opérations et de l'entretien) | Les sources d'agrégat et les volumes à extraire dans les délais indiqués sont identifiés en Table 1   | <ul style="list-style-type: none"><li>Toute source supplémentaire d'agrégat, non identifiées en Table 1</li><li>Tout volume supplémentaire non identifié en Table 1</li><li>Tout volume supplémentaire d'agrégat requis des sources identifiées pendant les périodes opérationnelles ( ex : années de construction 1-20, 21-40, 41-50) identifiés en Table 1</li></ul> |
| Construction des aires de rassemblement   | Construction des aires de rassemblement pour la période de construction de la RIT.  | Aucun  |



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| Éléments du Projet   | Inclus dans le champ d'étude du développement   | Pas inclus dans le champ d'étude du développement   |
|--|---|---|
| Aires de maintien  | Aires de maintien hiver / été pour la période de construction de camps temporaires  | Toute autre aire de maintien pour la période de construction mais pas identifiée.   |
| Facilités temporaires pour les camps de construction (eau, eaux usées, ravitaillement, alimentation électrique et élimination des déchets domestiques) | Facilités temporaires pour les camps situés sur site d'emprunt, proche des activités de construction.   | Toute autre facilité et camp temporaire lors de la construction pas situé près d'un site d'emprunt.   |
| Route d'accès temporaire pendant la construction   | <ul style="list-style-type: none"><li>• Route d'hiver d'accès temporaire parallèle à l'alignement permanent pendant la construction</li><li>• Route d'hiver temporaire d'accès aux sites d'emprunt.</li></ul> | Aucun   |
| Activités continues sur la route tous temps  | Tous les équipements et les activités associées pour la phase des opérations seront basés localement à Inuvik et Tuktoyaktuk.   | <ul style="list-style-type: none"><li>• Aires de rassemblement et d'entretien qui pourraient être nécessaires aux activités et mises en place au long de la Route Inuvik -Tuktoyaktuk .</li><li>• Routes d'accès temporaires ou permanentes aux sources d'eau pour la suppression de la poussière pour la phase de service.</li><li>• Aires de stockage au bord de l'alignement permanent de la route pour l'entrepôt de gravier pour l'entretien d'été et la remise en état pendant la phase de service.</li></ul> |

La Commission ajoute que tout élément du projet ou activité qui ne fait pas partie du champ d'étude du développement et qui pourrait être requis lors de la construction ou de l'exploitation de la Route Inuvik-Tuktoyaktuk devra faire l'objet d'une nouvelle application comme nouveau développement et être soumis aux procédures et examens des répercussions environnementales dans la Région Désignée des Inuvialuit (RDI).



## 15.2 Décision de la Commission

La Commission, après examen attentif des témoignages et informations présentés, a conclu et recommande que ce développement avance à condition d'appliquer les engagements pris par le Promoteur et les recommandations de la Commission, élaborées dans ce rapport.

La Commission a recommandé l'adoption d'une gestion adaptive pour minimiser les répercussions environnementales de ce projet. Cette approche nécessite l'application d'un plan détaillé de Surveillance et de Gestion de l'Environnement, intégré dans un cadre de gestion adaptive. Ce cadre de gestion devrait être conçu et appliqué en priorité, après l'approbation du projet, afin d'en mitiger les impacts.

La Commission recommande aussi l'établissement d'un Comité Indépendant de Suivi et de Surveillance de l'Environnement (CISSE). Les opérations de ce CISSE devraient être intégrées dans le cadre de co-gestion établis par la Convention Définitive des Inuvialuit (CDI). Les conclusions de la Commission concernant le besoin de supervision indépendante résultent des problèmes identifiés dans le Dossier d'Impact sur l'Environnement (DIS) et plus spécifiquement avec les éléments environnementaux de l'évaluation des répercussions faite par le Promoteur. Le CISSE doit être mis en place et financé convenablement avant le début des activités majeures de la construction pour permettre la supervision sur tous les aspects du développement du projet et de fournir un instrument de surveillance pour les communautés touchées par le projet.

La CDI exige aussi que la Commission fournisse à « l'autorité gouvernementale chargée d'approuver le développement proposé », une évaluation de la responsabilité potentielle du Promoteur pour les pertes présentes ou futures d'exploitation des ressources faunistiques. Cette responsabilité est fixée selon le pire scénario tenant compte d'une balance entre les facteurs économiques, comprenant la capacité de paiement du Promoteur, et les facteurs environnementaux.

La Commission a déterminé qu'un accident comme le renversement d'un camion de fioul sur la route, comme décrit dans le DIE et modifié lors des débats, représente le pire scénario pour le projet RIT. La Commission a aussi évalué que le coût total ou valeur de ce pire scénario s'élèverait à \$1.05 million. La Commission recommande qu'un dépôt de garantie soit considéré pour ce montant pour protéger le droit de récolte des Inuvialuit selon la section 13 de la CDI.

La Commission a étudié les témoignages présentés par le Promoteur et autres parties concernant les espèces en péril pour savoir si le projet RIT pourrait avoir une incidence sur les espèces cataloguées ou sur leur habitat essentiel. La Commission considère qu'avec l'application des engagements pris par le Promoteur et les recommandations de la Commission, l'éventualité d'effets néfastes ou cumulatifs sur les espèces en péril sera mitigée et gérée efficacement.



### 15.3 Recommandations de la Commission

#### **PROGRAMME DE SUIVI ET DE SURVEILLANCE INDEPENDANTE**

- R01:** Les autorités responsables doivent établir un programme de suivi pour le projet RIT dont les résultats pourront être intégrés avec la surveillance et la gestion adaptative de mitigation dirigée par le gouvernement pour la Région Désignée des Inuvialuit (RDI), à l'échelle du projet et à l'échelle régionale.
- R02:** Un organisme de surveillance, le Comité Indépendant de Suivi et de Surveillance de l'Environnement (CISSE), indépendant du Promoteur, sera créé pour coordonner le suivi et la gestion adaptative de mitigation de la construction et de l'exploitation du projet RIT.
- R03:** L'adhésion au CISSE devra inclure le Promoteur (2 représentants) et un représentant chacun pour ENR, AANDC, Office des eaux des TNO, DFO, EC, NRCan, INFC, WMAC, FJMC, ILA et des HTC's d'Inuvik et de Tuktoyaktuk. Cet organisme sera co-présidé par le Promoteur et un représentant d'un comité de co-gestion Inuvialuit. Le CISSE peut créer des sous-comités pour assurer l'efficacité de son opération.
- R04:** Le CISSE sera mis en place dès que possible et avant le début des activités majeures de construction. Il sera en fonction pendant toute la période de construction et pour pas plus de 10 ans durant la période d'exploitation de la route, à moins qu'une prolongation soit autorisée par les parties.
- R05:** La participation du gouvernement au CISSE sera payée par les départements intéressés. Les frais de participation des groupes de co-gestion et des institutions Inuvialuit, comme les HTC's, seront pris en charge par le Promoteur. Toute étude et analyse nécessaires pour le suivi, la gestion et pour répondre aux effets du projet RIT seront payées par le Promoteur. Les coûts fixes de secrétariat du CISSE seront couverts par le Promoteur. Un budget opérationnel annuel sera préparé d'avance.
- R06:** Le CISSE sera créé par les parties, qui comprendront les représentants du Promoteur, Canada, le Joint Secretariat (pour le WMAC et le FJMC), les HTC's et ILA, en élaborant en commun un accord juridique qui établira les buts, la participation, le financement et l'exercice des pouvoirs entre ses parties en accord avec les recommandations de la Commission.
- R07:** L'élaboration de l'accord juridique du CISSE doit commencer dans les 30 jours suivant l'approbation ministérielle du rapport de la Commission. Cet accord doit être en place avant le début des activités majeures de construction. Les frais de négociation du Joint Secretariat et des HTC's seront pris en charge par le Promoteur.





## **SUIVI ET GESTION ADAPTIVE**

- R08:** Un programme spécifique de suivi, de mitigation et de gestion adaptive sera élaboré par le CISSE pour le projet RIT (Programme de Gestion Adaptive RIT).
- R09:** Le Programme de Gestion Adaptive RIT doit être en place avant le début des activités majeures de construction.
- R10:** Le CISSE s'assurera que son Programme de Gestion Adaptive comprendra :
- L'intégration des Sciences et des Connaissances Traditionnelles dans les programmes de suivi de la performance du projet RIT relative aux prédictions de l'étude d'impact du Promoteur.
  - Des dispositions de modification des programmes de suivi et de gestion adaptive selon les réponses observées des VEC (Composantes Valorisées de l'Ecosystème).
  - La publication et la distribution périodique des résultats de suivi et de gestion pour informer les communautés Inuvialuit et le public des activités de la gestion adaptive concernant la construction et l'exploitation de la route et pour assurer que les résultats de suivi et de mitigation sont intégrés et contribuent aux programmes régionaux de surveillance des effets cumulatifs.
- R11:** Tout programme complémentaire établi par les autorités responsables devra reconnaître le rôle du CISSE et assurer la collaboration et la coopération de ces groupes et de leurs programmes.
- R12:** Le programme de gestion adaptive du CISSE prendra en considération le besoin de s'occuper de la surveillance du permafrost, des ressources en gravier, de l'hydrologie de surface, de la végétation, de la pêche, de la faune et des répercussion sur les récoltes en réponse aux préoccupations soulevées dans cette procédure. Le CISSE décidera du champ final de ce programme et de toute altération future.
- R13:** Le CISSE prendra en compte les activités recommandées par la Commission pour l'élaboration de l'Accord mentionné en Recommandation R06.

## **RECOMMANDATIONS SPECIFIQUES**

### **Economique**

- R14:** Le Promoteur collaborera avec les institutions académiques locales pour la conception de cours de formation de courte durée, en fonction des compétences, au bénéfice des Inuvialuit et autres résidents des régions éloignées pour améliorer la préparation à l'emploi, l'expansion du réservoir disponible de main d'œuvre et les connaissances locales. Ces cours devraient être disponibles, autant que possible, avant le début des activités majeures de la construction ;



- R15: Le Promoteur exigera que ses entrepreneurs fassent un compte-rendu de la formation, du genre de formation, du nombre de personnes formées et rendent ces informations publiques ;
- R16: Le Promoteur publiera des mises à jour sur le nombre d'entreprises Inuvialuit et du Nord qui ont reçu des contrats relatifs au projet ainsi que les détails pertinents de ces contrats ;
- R17: Le Promoteur et ses entrepreneurs publieront des mises à jour sur le nombre d'individus d'Inuvik et de Tuktoyaktuk qui ont été engagés, les types de postes pour lesquels ils ont été engagés et le total des salaires versés.
- R18: Les parties responsables (ITI, IRC, IDC) étudieront les changements du tourisme résultants du projet et :
- Identifieront les possibilités économiques additionnelles et potentielles qui pourraient être pourvues par des entreprises Inuvialuit et
  - Assisteront les entreprises Inuvialuit, existantes et futures à profiter des possibilités créées par une augmentation du tourisme.

#### **Communauté**

- R19: Le promoteur, les départements et organismes de service du Gouvernement des Territoires du Nord-Ouest (GTNO) appliqueront le Projet « Inuvialuit Indicators » pour assister le suivi des impacts potentiels du projet sur les individus et les communautés d'Inuvik et de Tuktoyaktuk.

#### **Utilisation des Terres, Accès et Récoltes**

- R20: Le Promoteur travaillera avec les parties (DFO, EC, ENR) et les groupes de co-gestion (FJMC, WMAC) et les HTC's pour assurer que les engagements du Promoteur pour la mitigation, surveillance et gestion de la faune, des pêches et des récoltes soient tenus et rapportés annuellement par le CISSE au travers des groupes de co-gestion responsables de la gestion des ressources dans la Région Désignée des Inuvialuit (RDI).

#### **Caribou**

- R21: Le Promoteur surveillera les effets spécifiques du projet sur les caribous et travaillera en accord avec les programmes de surveillance des caribous, en place ou prévus, par le gouvernement et comprenant ce qui suit :
- Comparer l'étendue de base de l'habitat du caribou avec l'étendue de leur habitat durant les phases de construction et d'exploitation du projet (vérifier la prédiction de l'étendue de l'habitat du caribou perdue à la route)



- Compléter les analyses d'efficacité statistique pour définir la taille d'échantillon appropriée pour un programme de posage de colliers aux caribous.
- Comparer la ligne de base des mouvements du caribou aux mouvements pendant les phases de construction et d'exploitation, à l'aide des données de colliers émetteurs.
- Comparer la ligne de base de la distribution du caribou à leur distribution pendant les phases de construction et d'exploitation au moyen des données de colliers émetteurs (vérifier la zone d'influence prédite de 1 km).
- Comparer la ligne de base d'utilisation de l'habitat du caribou à leur utilisation pendant les phases de construction et d'exploitation, à l'aide des données de colliers émetteurs (vérifier la prédiction pour la dégradation de l'habitat).
- Comparer la ligne de base du taux de récoltes du caribou au taux pendant les phases de construction et d'exploitation.
- Comparer la ligne de base de la mortalité du caribou due à une collision au seuil prédéfini.

#### **Ours Grizzly**

**R22: Le promoteur complétera l'élaboration d' un programme WEMP de suivi des effets sur la faune, de concert avec les parties du CISSE, part du processus de gestion adaptive.**

**R23: Le promoteur déterminera la présence ou l'absence de tanières d'ours dans la zone de construction en comparaison avec les études pré construction.**

**R24: Le Promoteur suivra les effets sur le grizzly, spécifiques au projet, et collaborera avec les programmes gouvernementaux existants ou à venir de surveillance du grizzly:**

- Comparer la ligne de base des mouvements du grizzly aux mouvements pendant les phases de construction et d'exploitation, à l'aide des données de colliers émetteurs
- Comparer la ligne de base d'utilisation de l'habitat du grizzly à leur utilisation pendant les phases de construction et d'exploitation, à l'aide des données de colliers émetteurs (vérifier la prédiction pour la dégradation de l'habitat).
- Comparer la ligne de base du taux de récolte de grizzly au taux pendant les phases de construction et d'exploitation.
- Comparer la ligne de base de la mortalité du grizzly due à une collision au seuil prédéfini.
- Comparer la ligne de base de la fréquence de préparation de tanières dans ou proche du corridor de la route à celle pendant les phases de construction et d'exploitation (vérifier la zone d'influence de 500 m).



### **Rat musqué**

R25: Le Promoteur complètera une étude des monticules de rat musqué sur les lacs où la neige sera déblayée et/ou de l'eau sera prélevée en hiver.

R26: Le Promoteur appliquera, en cas de présence de rat musqué, les mesures de mitigation établies dans les permis issus selon la Loi sur la faune.

### **Rennes**

R27: Le département AANDC adressera et résoudra tout conflit possible concernant l'utilisation du territoire avant d'émettre le mode de tenure pour la route.

R28: Il est prévu qu'en ce qui concerne les terres privées, l'Administrateur des Terres Inuvialuit (ILA) organisera un dialogue entre le propriétaire de troupeau de rennes et le Promoteur et apportera, si nécessaire, son assistance en cas de conflit.

### **Poisson et habitat du poisson**

R29: Le Promoteur prendra contact avec le DFO et les AANDC pour déterminer les mesures appropriées de mitigation avant l'emploi de moyens chimique pour la suppression de poussière sur la RIT.

R30: Le Promoteur développera, avant le début de la construction, un plan de gestion pour la protection du poisson et de son habitat dans toute zone touchée par la construction, ceci en collaboration avec le DFO et les HTC's d'Inuvik et de Tuktoyaktuk ainsi qu'avec le CMGP (FJMC).

R31: Le Promoteur développera un plan pour l'entretien à long terme des traversées des ruisseaux Hans et Zed pour protéger l'habitat du poisson.

### **Espèces en péril**

R32: Le CISSE déterminera les distances de recul appropriées pour les zones de tanières des ours et de l'habitat critique des espèces en péril, du gibier d'eau et des espèces d'oiseaux faisant leurs nids sur la toundra.

R33: Le promoteur surveillera les effets spécifiques au projet, participera au suivi des effets régionaux sur toutes les espèces en péril (population boréale du caribou des bois, de l'ours grizzly et du carcajou) avec les programmes, en existence et à venir, du gouvernement comme :

- Comparer la ligne de base de l'étendue de l'habitat des espèces avec l'étendue de l'habitat durant les phases de construction et d'exploitation (vérifier les prédictions de perte d'habitat).
- Comparer la ligne de base de l'utilisation de l'habitat des espèces avec l'utilisation pendant les phases de construction et d'exploitation (vérifier les prédictions de la dégradation de l'habitat).



- Comparer la ligne de base de la distribution des espèces avec la distribution pendant les phases de construction et d'exploitation (vérifier les prédictions de perturbation).
- Comparer la ligne de base pour les taux de récolte des espèces avec les taux de récolte en phases de construction et d'exploitation (vérifier la prédiction de mortalité).
- Comparer la ligne de base du taux de mortalité du caribou causée par une collision avec le seuil prédéfini (vérifier la prédiction de mortalité).

#### **Usage des eaux et Route d'accès hivernales**

##### **Totalité des besoins d'eau.**

R34: Le retrait d'eau, limité à 10% du débit instantané selon le *Protocole de prélèvement de l'eau en hiver dans les Territoires du Nord-Ouest et Nunavut établi par le MPO(2010)* sera appliqué à chaque lac, masse d'eau utilisés comme source d'eau pour la durée du projet.

##### **Routes d'accès hivernales**

R35: La surveillance des effets d'usages d'eau à long terme pour la construction de ces routes fera part de l'approbation régulatrice émise soit par le MPO, AANDC ou l'Office des eaux des TNO et les résultats de cette surveillance seront intégrés dans les programmes de gestion adaptative sur les effets cumulatifs établis par le CISSE.

##### **Impact des routes hivernales sur le milieu terrestre**

R36: Le département AANDC et l'Office des eaux des TNO s'assurera que les mêmes tracés routiers ne soient pas utilisés chaque année comme accès aux sources d'agrégat pour éviter les dégâts à la végétation et au terrain causés par une utilisation répétée.

R37: Le Promoteur développera un programme de suivi des impacts sur la végétation et le terrain ayant une couche active et un permafrost proche de la surface, causés par la construction de routes d'accès aux sources d'agrégat. Les rapports devront être soumis régulièrement et au moins tous les deux ans aux autorités régulatrices appropriées ainsi qu'à l'AANDC, avec mise en relief des impacts de ces routes sur les caractéristiques du terrain. Ce programme de suivi et ses résultats seront intégrés avec les programmes de gestion adaptative sur les effets cumulatifs, établis par le CISSE.

#### **Ressources d'agrégats**

R38: Le département AANDC, l'Administrateur des Terres Inuvialuit (ILA) et l'Office des eaux des TNO exigera la soumission de plans provisoires de développement de gravières avec la demande d'extraction de gravier par le Promoteur. Ces plans





comprendront une proposition conceptuelle de fermeture et de réclamation. Ces organismes de contrôle demanderont au Promoteur de soumettre des plans finaux de développement de carrières ou gravières avant toute extraction de gravier des sites mentionnés en table 5.

**R39:** Les plans de développement des carrières tiendront compte des effets d'extraction sur la végétation, les eaux de surface, le permafrost, la faune et les particularités physiques du terrain et soumettront des mesures spécifiques de mitigation pour considération par les autorités régulatrices. Le Promoteur s'entretiendra de ces mesures avec les HTC's d'Inuvik et de Tuktoyaktuk avant l'approbation par les autorités régulatrices.

**R40:** Les permis et licences de développement de carrières seront basés et limités par le programme des demandes d'agrégat soumis par le Promoteur et présentés en Table 5 de ce rapport. Après la construction, des développements supplémentaires seront permis seulement après le début de la réclamation progressive des perturbations originales et que la surface du terrain soit stable.

**R41:** Toute demande d'agrégat supplémentaire aux prédictions pour le laps de temps décrit en Table 5 de ce rapport sera considérée comme un nouvelle demande et sera sujette à une évaluation par le Comité d'Etudes des Répercussions Environnementales (EISC).

**R42:** Le département AANDC et ILA demanderont des évidences de stabilisation du permafrost, comme condition à la fermeture et réclamation des carrières et jusqu'à évidence de rétablissement du permafrost, la responsabilité pour les carrières restera avec le Promoteur.

#### Changements climatiques

**R43:** Le Promoteur fournira au départements AANDC et ILA, en partie de son application de permis et licence pour carrières et sablières, une évaluation quantitative rigoureuse et transparente de l'impact potentiel des changements climatiques sur les besoins d'agrégat pour le projet avec une estimation des besoins d'agrégat pour 25 et 50 ans suivant la construction.

**R44:** Le Promoteur développera des plans préliminaires de gestion de carrières comprenant aussi des plans préliminaires de fermeture et de réclamation pour tous les sites d'emprunt et carrières dont la liste se trouve en Table 5 et les soumettra au département AANDC, ILA et l'Office des eaux des TNO lors des applications pour ces sites. L'approbation des plans définitifs de gestion des carrières par les autorités régulatrices, avant le début d'extraction. sera une condition de l'émission des permis et licences.

**R45:** Les estimations du Promoteur de l'étendue des carrières futures (superficies et volumes), basées sur la projection des besoins en agrégat et l'opinion indépendante de ces estimations par le département AANDC, seront présentées à



l'Office des eaux des TNO lors du processus de permission pour l'usage d'eau pour permettre le développement de plans de gestion et plans de réclamation des carrières et sites d'emprunt.

#### **Evaluation des effets cumulatifs**

R46: Le Promoteur en collaboration avec le GTNO, les départements ENR et EC avec les organisations de co-gestion de la faune sous les conseils du CISSE, continuera de développer et d'appliquer les Programmes proposés de Surveillance des Effets sur la Faune (WEMP) pour s'assurer qu'il tienne compte des effets directs et cumulatifs de la construction de l'exploitation de la route sur la distribution et l'abondance de la faune dans le contexte de l'étude régionale des effets cumulatifs.

R47: Les résultats des Programmes de Surveillance de Effets sur la Faune (WEMP) surveillant les effets cumulatifs sur la faune, la végétation et les usages de terrain seront intégrés dans le cadre de gestion adaptative du CISSE et, autant que possible dans toute étude régionale gouvernementale de suivi des effets cumulatifs.

#### **Pire des scenarios**

R48: La Commission a trouvé que le pire scenario d'un camion de fioul se renversant sur la route comme décrit dans DIE est un scenario approprié pour ce développement. La Commission a aussi évalué que le coût total ou valeur de ce pire scenario s'élèverait à \$1.05 million.

R49: La Commission recommande qu'un dépôt de garantie par le Promoteur soit considéré pour ce montant pour protéger le droit de récolte des Inuvialuit selon la section 13 de la CDI.

#### **Les lacs Husky**

R50: L'Administration des Terres Inuvialuit (ILA) collaborera avec le Promoteur, les HTC et la FJMC, WMAC (NWT) pour assurer la mise en place de bonnes signalisations et indications pour contrôler l'accès à la région des lacs Husky.

#### **Usage des Terres et Gestion des Terres de Catégorie E.**

R51: Le Promoteur devra consulter les communautés, les HTC et les commissions de co-gestion en Région Désignée des Inuvialuit (RDI) pour le développement et le contenu des plans de Projet pour la gestion de l'environnement en relation aux terres de catégorie E.





## **APPENDICES**

**Appendix 1 – EISC Referral**

**Appendix 2 – Agreement to Establish a Substituted Review Panel**

**Appendix 3 – The ITH Review Process**

**Appendix 4 – Panel Report Distribution**

**Appendix 5 – Comprehensive List of Developer's Commitments**

**Appendix 6 – List of Exhibits**







## Appendix 1 – EISC Referral



## **ENVIRONMENTAL IMPACT SCREENING COMMITTEE**

April 27, 2010

Submission Number: [02/10-05]

### **Environmental Impact Review Board**

Box 2120  
Inuvik NT X0E 0T0

### **ATTENTION: ELIZABETH SNIDER, CHAIR**

Dear Ms. Snider:

### **RE: HAMLET OF TUKTOYAKTUK, TOWN OF INUVIK AND GNWT - CONSTRUCTION OF THE INUVIK TO TUKTOYAKTUK HIGHWAY, NORTHWEST TERRITORIES [02/10-05]**

The Environmental Impact Screening Committee (EISC) screened the above-noted project description at its April 12-14, 2010 meeting and determined that the development could have a significant negative impact on the environment and Inuvialuit wildlife harvesting in the Inuvialuit Settlement Region [IFA Section 11.(17)(c)] and is subject to further assessment and review.

The EISC held a meeting on April 23, 2010 and determined that the proposed project would be referred to the Environmental Impact Review Board as per IFA Section 11.(20).

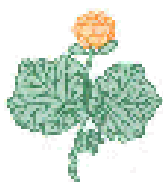
The issues and the reasons for the referral that were identified by the EISC during the screening of this project description are noted in the attached decision letter.

If there are any questions regarding this referral, please do not hesitate to contact the EISC office.

Sincerely,

Barb Chalmers  
Environmental Assessment Coordinator

Attachments: EISC decision letter package April 12-14, 2010



## **ENVIRONMENTAL IMPACT SCREENING COMMITTEE**

April 19, 2010

Submission Number: [02/10-05]

Hamlet of Tuktoyaktuk  
Box 120  
Tuktoyaktuk, NWT X0E 1C0

Town of Inuvik  
Box 1160, #2 Firth Street  
Inuvik, NWT X0E 0T0

GNWT  
Department of Transportation  
Lahm Ridge Tower  
2nd Flr., 4501 - 50 Ave  
P.O. Box 1320  
Yellowknife, NWT X1A 2L9

**ATTENTION: MAYOR MERVEN GRUBEN, MAYOR DENNY RODGERS  
AND MR. JIM STEVENS**

Dear Sirs:

**RE: HAMLET OF TUKTOYAKTUK, TOWN OF INUVIK AND GNWT - CONSTRUCTION OF  
THE INUVIK TO TUKTOYAKTUK HIGHWAY, NORTHWEST TERRITORIES [02/10-05]**

During a meeting held April 12-14, 2010 the Environmental Impact Screening Committee (EISC) screened the above-noted project description to determine if the proposed development could have a significant negative environmental impact or significant negative impact of present or future wildlife harvesting. Based on the information provided, the EISC determined that the development could have a significant negative impact on the environment and Inuvialuit wildlife harvesting in the Inuvialuit Settlement Region [IFA Section 11.(17)(c)] and is subject to further assessment and review. A copy of the decision is attached.

Based on the information presented in the project description and by the reviewers, the EISC concluded that this proposed development has the potential for significant negative impact on the environment and on Inuvialuit harvesting due to the potential cumulative impacts associated with the proposed development. The Screening Committee was not convinced by the information provided by the developer that the longer term cumulative impacts have been adequately considered and can be mitigated. A further assessment and review is considered necessary to better understand and assess the potential cumulative impacts. The EISC determined that there is a potential for cumulative impacts to the proposed development area due to increased tourism, local use and further development within the road corridor or associated with the improved access to the area.

In rendering its decision, the EISC considered the following:

- The information provided by the Developer in the Project Description;
- The information provided by the Developer during its presentation to the Committee on April 13, 2010; and
- Letters of advice provided by reviewers.

The advice received from the Fisheries Joint Management Committee, the Wildlife Management Advisory Council (NWT), Inuvik Hunters and Trappers Committee, Tuktoyaktuk Hunters and

Trappers Committee, Aklavik Hunters and Trappers Committee, Environment Canada, the Department of Environment and Natural Resources (NWT), and Fisheries and Oceans Canada is attached for the information of the developer and the authorizing authorities.

Pursuant to the sub section 11(19) of the IFA the EISC is required to determine if an governmental developmental or environmental impact review process exists or is planned for this proposed development. In this regard the EISC is contacting the Canadian Environmental Assessment Agency to determine whether such a process exists or is planned for this proposed development and if so on what basis this review process is to take place. Once this information is provided to the Screening Committee it will determine whether the governmental review process will adequately encompasses or will encompass the assessment and review function of the IFA.

If you have any questions on the above decision, please do not hesitate to contact the EISC office.

Sincerely,



Barb Chalmers  
Environmental Assessment Coordinator

c.c. Inuvialuit Land Administration (ILA)  
Indian and Northern Affairs Canada (INAC)  
Environmental Impact Review Board (EIRB)  
Canadian Environmental Assessment Agency (CEAA)  
Wildlife Management Advisory Council NWT  
Fisheries Joint Management Committee (FJMC)  
Inuvik Hunters and Trappers Committee (IHTC)  
Aklavik Hunters and Trappers Committee (AHTC)  
Tuktoyaktuk Hunters and Trappers Committee (THTC)  
Parks Canada Agency (PC)  
Environment Canada (EC)  
Inuvialuit Game Council (IGC)  
NWT Water Board (NWTWB)  
Fisheries and Oceans Canada (DFO)  
Environment and Natural Resources (ENR)

Attachments: Wildlife Management Advisory Council NWT  
Inuvik Hunters and Trappers Committee (IHTC)  
Aklavik Hunters and Trappers Committee (AHTC)  
Tuktoyaktuk Hunters and Trappers Committee (THTC)  
Parks Canada Agency (PC)  
Environment Canada (EC)  
Fisheries Joint Management Committee (FJMC)  
Fisheries and Oceans Canada (DFO)  
Environment and Natural Resources (ENR)



## ENVIRONMENTAL IMPACT SCREENING COMMITTEE

**NAME OF PROPONENT:** Hamlet of Tuktoyaktuk, Town of Inuvik and GNWT  
(Gruben/Rogers/Stevens)

**PROJECT DESCRIPTION:** Construction of the Inuvik to Tuktoyaktuk Highway, Northwest Territories [02/10-05]

**DECISION OF THE SCREENING PANEL (circled):**

1. The development will have no such significant negative impact and may proceed without environmental impact assessment and review under the Inuvialuit Final Agreement. [IFA s. 11. (17) (a)]
2. The development if authorized subject to environmental terms and conditions recommended by the screening committee, will have no such significant negative impact and may proceed without environmental assessment and review under the Inuvialuit Final Agreement. [IFA s. 11(17)(b)]
3. The development could have significant negative environmental impact and is subject to assessment and review under the Inuvialuit Final Agreement. [IFA s. 11. (17) ( c)]
4. The development proposal has deficiencies of a nature that warrant a termination of its consideration and the submission of another project description. [IFA s. 11. (17) (d)]

Signed on the 14<sup>th</sup> day of April, 2010.

  
Johnny Lennie, Acting Chair


  
Albert Ruben, Member

  
Patrick Gruben, Member

  
Elizabeth Gordon, Member

  
Johnny Lennie, Member

  
John Ryder, Member

  
Eric Cockney, Member





## **Appendix 2 – Agreement to Establish a Substituted Review Panel**

## **AGREEMENT**

### **To Establish a Substituted Panel for the Inuvik to Tuktoyaktuk Highway Project**

**Between**  
**The Government of Canada as represented by the Minister of the  
Environment, Canada (hereinafter “Canada”)**

**- and -**

**The Environmental Impact Review Board (hereinafter the  
“Board”)**

#### **PREAMBLE**

**WHEREAS** the Environmental Impact Review Board has responsibility for conducting public reviews of proposed Developments pursuant to the Inuvialuit Final Agreement (the IFA) as ratified by the *Western Arctic (Inuvialuit) Claims Settlement Act* (the Act); and

**WHEREAS** the Minister of the Environment, Canada (the Federal Minister of the Environment) has statutory responsibilities pursuant to the *Canadian Environmental Assessment Act*; and

**WHEREAS** the Inuvik to Tuktoyaktuk Highway Project (the Project) has been referred to the Board for environmental assessment and review pursuant to the IFA and is subject to an assessment under the *Canadian Environmental Assessment Act*; and

**WHEREAS** the Board will conduct a public hearing in relation to the Project; and

**WHEREAS** the Federal Minister of the Environment has referred the Project to a review panel in accordance with section 29 of the *Canadian Environmental Assessment Act*; and

**WHEREAS** the Federal Minister of the Environment has determined that the federal review panel process will be substituted by the Board's process, in accordance with the *Canadian Environmental Assessment Act*; and

**WHEREAS** in accordance with section 43 of the CEAA, the Federal Minister of the Environment is of the opinion that the process for assessing the environmental effects of projects that is followed by the Board is an appropriate substitute for an assessment by a review panel; and

**WHEREAS** the Federal Minister of the Environment and the Board established a framework for the substitution of processes through the *Memorandum of Understanding Concerning Approvals for Substitution of Process* signed in 1999; and

**WHEREAS** the Board and the Federal Minister of the Environment have determined that the substituted review process should be conducted in a manner consistent with the provisions of Article 5 of the *Memorandum of Understanding Concerning Approvals for Substitution of Process*:

**NOW THEREFORE**, the Board and the Federal Minister of the Environment hereby establish a substituted process for the Project in accordance with the provisions of this Agreement and the Terms of Reference attached as an Appendix to this Agreement.

## **1. Definitions**

For the purpose of this Agreement and of the Appendix attached to it,

**"Agency"** means the Canadian Environmental Assessment Agency established by the *Canadian Environmental Assessment Act*.

**"Board"** means the Environmental Impact Review Board established by section 11(22) of the IFA.

**"Environment"** means the components of the Earth, and includes

- a. land, water and air, including all layers of the atmosphere;
- b. all organic and inorganic matter and living organisms; and
- c. the interacting natural systems that include components referred to in (a) and (b).

**"Environmental Effect"** means, in respect of the Project,

- a. any change that the Project may cause in the Environment, including any change it may cause to a listed wildlife species, its critical habitat or the residence of individuals of that species, as those terms are defined in subsection 2(1) of the *Species at Risk Act*,
- b. any effect of any change referred to in paragraph (a) on
  - i. health and socio-economic conditions
  - ii. physical and cultural heritage
  - iii. the current use of lands and resources for traditional purposes by aboriginal persons, or
  - iv. any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, or
- c. any change to the Project that may be caused by the environment,

whether any such change or effect occurs within or outside Canada.

**"Follow-up Program"** means a program for

- a. verifying the accuracy of the EA of the Project, and
- b. determining the effectiveness of any measures taken to mitigate the adverse environmental effects of the Project.

**"Mitigation"** means, in respect of the Project, the elimination, reduction or control of the adverse environmental effects of the Project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means.

**"Panel"** means a Review Panel established according to subsection 11(23) of the IFA which has been approved by the Minister to substitute for a Review Panel under the *Canadian Environmental Assessment Act*;

**"Parties"** means the signatories to this Agreement.

**"Public Registry"** means a repository to facilitate public access to the records relating to the EA of the Project in accordance with section 55 of the CEAA and subsection 11(31) of the IFA.

**"Report"** means the document produced by the Panel, which contains decisions required pursuant to the IFA, as well as the Panel's rationale, conclusions and recommendations, including any mitigation measures and follow-up program pursuant to the *Canadian Environmental Assessment Act* with respect to the environmental assessment (EA) of the Project.

## **2. Conduct of Assessment by the Panel**

**2.1.** The Panel shall conduct its review in a manner that discharges the responsibilities of the Board under the IFA and the Board's Operating Procedures.

**2.2.** The Panel shall conduct its review in a manner that discharges the requirements set out in the Terms of Reference attached as an Appendix to this Agreement and that were approved by the Federal Minister of the Environment and the Board.

**2.3.** The Panel hearing shall be public and the review will provide opportunities for timely and meaningful public participation.

## **3. Secretariat**

**3.1.** Administrative, technical, and procedural support requested by the Panel shall be provided by the Board.

## **4. Record of Panel and Report**

**4.1.** A Public Registry will be maintained by the Board during the course of the review in a manner that provides for convenient public access, and for the purposes of compliance

with section 55 and 55.4 of the *Canadian Environmental Assessment Act* and with subsection 11(31) of the IFA.

**4.2.** Subject to subsections 35(4), and 35(4.1) and section 55.5, of the *Canadian Environmental Assessment Act*, the Public Registry will include all submissions, correspondence, hearing transcripts, exhibits and other information received by the Panel and all public information produced by the Panel relating to the review of the Project.

**4.3.** On completion of the assessment of the Project, the Panel will prepare a Report. The Report will be conveyed to the Federal Minister of the Environment within one hundred and twenty (120) days of the close of hearing. The Panel will provide a French translation of the Executive Summary and recommendations. Translation of the full report will be the responsibility of Canada.

**4.4.** Until the submission of the Report, the Board will be responsible for the maintenance of the Public Registry.

**4.5.** Canada will be responsible for the translation of key documents prepared by the Panel, including public notifications and releases and the Report, into both of the official languages of Canada.

## **5. Participant Funding**

**5.1.** The responsibility for providing participant funding will rest with the Agency under the federal Participant Funding Program. The Agency will provide participant funding for participation in the technical review of the Environmental Impact Statement, and in the Public Hearing process of the Panel. The Board and the Panel will provide a reasonable period for the Agency to administer the Participant Funding Program with respect to public notification and the disbursement of funds.

## **6. Costs Associated with the Review**

**6.1.** The Agency will be solely responsible for all costs associated with the federal Participant Funding Program;

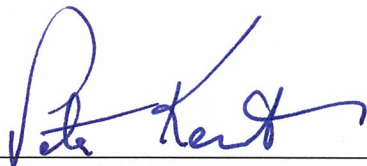
**6.2.** Canada will be responsible for all other costs associated with the administration of the Review Process not anticipated or covered by the funding provided by Canada to the Board for the Review in accordance with section 11(28) of the IFA.

## **7. Amending this Agreement**

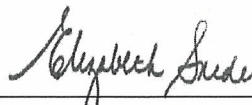
**7.1.** The terms and provisions of this Agreement may be amended in writing by both the Minister of the Environment and the Chair of the Board. Subject to section 27 of the *Canadian Environmental Assessment Act*, this Agreement may be terminated at any time by an exchange of letters signed by both parties.

### 13. Signatures

**WHEREAS** the parties hereto have put their signatures

A handwritten signature in blue ink, appearing to read 'Peter Kent', written over a horizontal line.

The Honourable Peter Kent  
Minister of the Environment

A handwritten signature in blue ink, appearing to read 'Elizabeth Snider', written over a horizontal line.

Elizabeth Snider  
Chair  
Environmental Impact Review Board

MAR 02 2011

Date

18 January 2011

Date



## **Appendix Terms of Reference**

### **Part I - Scope of Project**

The Inuvik to Tuktoyaktuk Highway Project proposed by the Hamlet of Tuktoyaktuk, Town of Inuvik, and the Government of the Northwest Territories includes the construction, operation and maintenance of a 140-kilometre all-weather highway from the Town of Inuvik to the Hamlet of Tuktoyaktuk. The scope of the Project includes the following components:

- an all-weather highway from Inuvik to Tuktoyaktuk;
- watercourse crossing structures;
- borrow and quarry areas to support construction, operations and maintenance requirements;
- construction staging areas;
- maintenance areas;
- temporary construction camp facilities;
- temporary construction access roads; and
- ongoing operations of the all-weather highway.

### **Part II - Scope of the Environmental Assessment**

1. The Substituted Panel will conduct an assessment of the Environmental Effects of the Project based on the Scope of Project (Part I).
2. The assessment will include a consideration of the factors listed in subsection 16(1)(a) to (d) and 16(2) of the *Canadian Environmental Assessment Act*, namely:
  - a. the environmental effects of the Project, including the environmental effects of malfunctions or accidents that may occur in connection with the Project and any cumulative environmental effects that are likely to result from the Project in combination with other projects or activities that have been or will be carried out;
  - b. the significance of the effects referred to in paragraph (a);
  - c. comments from aboriginal persons that are received during the review;
  - d. comments from the public that are received during the review;
  - e. measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project;
  - f. the purpose of the Project;
  - g. alternative means of carrying out the Project that are technically and economically feasible and the environmental effects of any such alternative means;
  - h. the need for, and the requirements of, any follow-up program in respect of the Project; and
  - i. the capacity of renewable resources that are likely to be significantly affected by the Project to meet the needs of the present and those of the future.

3. Pursuant to subsection 16(1)(e) of the *Canadian Environmental Assessment Act*, the assessment by the Substituted Panel will also include a consideration of the additional following matters:
  - a. the need for the Project; and
  - b. alternatives to the Project received during the review.
4. Pursuant to subsection 16.1 of the *Canadian Environmental Assessment Act*, the assessment by the Substituted Panel may also include a consideration of the community knowledge and aboriginal traditional knowledge received during the review.
5. The assessment will also include the following:
  - a. terms and conditions relating to mitigation measures that would be necessary to minimize any negative impact on wildlife harvesting, as referred to in paragraph 13(11)(a) of the IFA, including, as far as is practicable, measures to restore wildlife and its habitat to its original state and to compensate Inuvialuit hunters, trappers and fishermen for the loss of their subsistence or commercial harvesting opportunities.
  - b. an estimate of the potential liability of the Proponent(s), determined on a worst case scenario, taking into consideration the balance between economic factors, including the ability of the Proponent(s) to pay, and environmental factors, as referred to in paragraph 13(11)(b) of the IFA.
  - c. any impacts identified pursuant to the Board's Operating Procedures.

### **Part III – Scope of the factors**

In addition, in accordance with section 16(3) of the *Canadian Environmental Assessment Act*, the Panel in conducting its consideration of the factors outlined in Part II should have regard for the Environmental Impact Statement Terms of Reference finalized on November 3, 2010 by the Board.



## ENTENTE

### visant à établir une commission de substitution pour le Projet routier d'Inuvik à Tuktoyaktuk

entre  
le gouvernement du Canada, représenté par le ministre de  
l'Environnement, Canada (ci-après « le Canada »)

— et —

l'Office d'examen des répercussions environnementales  
(ci-après « l'Office »)

#### PRÉAMBULE

**ATTENDU QUE** l'Office d'examen des répercussions environnementales est responsable d'effectuer des examens publics des projets proposés conformément à la Convention définitive des Inuvialuit (CDI), telle que ratifiée par la *Loi sur le règlement des revendications des Inuvialuit de la région ouest de l'Arctique* (la Loi);

**ATTENDU QUE** le ministre de l'Environnement du Canada (le ministre fédéral de l'Environnement) doit remplir des responsabilités législatives en vertu de la *Loi canadienne sur l'évaluation environnementale*;

**ATTENDU QUE** le Projet routier d'Inuvik à Tuktoyaktuk (le projet) a été renvoyé à l'Office pour évaluation environnementale et examen conformément à la CDI et est assujéti à une évaluation en vertu de la *Loi canadienne sur l'évaluation environnementale*;

**ATTENDU QUE** l'Office tiendra une audience publique relativement au projet;

**ATTENDU QUE** le ministre fédéral de l'Environnement a renvoyé le projet à une commission d'examen conformément à l'article 29 de la *Loi canadienne sur l'évaluation environnementale*;

**ATTENDU QUE** le ministre fédéral de l'Environnement a déterminé que le processus fédéral d'examen par une commission sera remplacé par le processus de l'Office, conformément à la *Loi canadienne sur l'évaluation environnementale*;

**ATTENDU QUE**, conformément à l'article 43 de la LCEE, le ministre fédéral de l'Environnement est d'avis que le processus d'évaluation des effets environnementaux des projets qui est mené par l'Office est un remplacement approprié dans le cadre d'une évaluation par une commission d'examen;

**ATTENDU QUE** le ministre fédéral de l'Environnement et l'Office ont établi un cadre pour la substitution de processus au moyen du *Protocole d'entente relatif à la substitution du processus d'évaluation environnemental* signé en 1999;

**ATTENDU QUE** l'Office et le ministre fédéral de l'Environnement ont déterminé que le processus d'examen de substitution devrait être mené conformément aux dispositions de l'Article 5 du *Protocole d'entente (PE) relatif à la substitution du processus d'évaluation environnemental*;

**PAR CONSÉQUENT**, l'Office et le ministre fédéral de l'Environnement, par les présentes, établissent un processus de remplacement pour le projet, conformément aux dispositions de la présente entente et au cadre de référence joint à titre d'annexe de la présente entente.

## **1. Définitions**

Aux fins de la présente entente et de l'annexe en pièce jointe,

« **Agence** » désigne l'Agence canadienne d'évaluation environnementale établie par la *Loi canadienne sur l'évaluation environnementale*.

« **Office** » désigne l'Office d'examen des répercussions environnementales établi par l'article 11(22) de la CDI.

« **Environnement** » désigne des éléments naturels de la Terre, notamment

- a. le sol, l'eau et l'air, y compris toutes les couches de l'atmosphère;
- b. toutes les matières organiques et inorganiques ainsi que les êtres vivants;
- c. les systèmes naturels en interaction qui comprennent les composantes mentionnées aux paragraphes a) et b).

« **Effet environnemental** » dans le cadre d'un projet désigne

- a. tout changement que la réalisation d'un projet risque de causer à l'environnement, notamment à une espèce sauvage inscrite, à son habitat essentiel ou à la résidence des individus de cette espèce, au sens du paragraphe 2 (1) de la *Loi sur les espèces en péril*;
- b. toutes les répercussions des changements mentionnés au paragraphe a) concernant
  - i. l'état de santé et les conditions socioéconomiques,
  - ii. le patrimoine physique et culturel,
  - iii. l'usage courant de terres et de ressources à des fins traditionnelles par les Autochtones,
  - iv. une construction, un emplacement ou une chose d'importance historique, archéologique, paléontologique ou architecturale,
- c. tout changement susceptible d'être apporté au projet du fait de l'environnement;

que ces changements se produisent à l'échelle nationale ou à l'étranger.

« **Programme de suivi** » désigne un programme visant à permettre de

- a. vérifier l'exactitude de l'EE du projet;
- b. déterminer l'efficacité de toute mesure d'atténuation des effets environnementaux négatifs du projet.

« **Mesure d'atténuation** », dans le cadre du projet, désigne l'élimination, la réduction ou la maîtrise des effets environnementaux négatifs du projet et comprend la réparation de tout dommage causé à l'environnement, soit par le remplacement, la restauration, l'indemnisation ou d'autres moyens.

« **Commission** » désigne une commission d'examen établie conformément au paragraphe 11(23) de la CDI et approuvée par le ministre pour remplacer une commission d'examen en vertu de la *Loi canadienne sur l'évaluation environnementale*;

« **Parties** » désigne les signataires de la présente entente.

« **Registre public** » désigne un répertoire établi pour permettre au public d'avoir accès aux documents concernant l'EE du projet, conformément à l'article 55 de la LCEE et au paragraphe 11(31) de la CDI.

« **Rapport** » désigne le document produit par la commission, contenant les décisions exigées conformément à la CDI, ainsi que la justification, les conclusions et les recommandations de la commission, y compris les mesures d'atténuation et le programme de suivi conformément à la *Loi canadienne sur l'évaluation environnementale* en ce qui concerne l'évaluation environnementale (EE) du projet.

## **2 Réalisation de l'évaluation par la Commission**

**2.1.** La commission effectuera son examen de manière à remplir les obligations de l'Office en vertu de la CDI et les procédures opérationnelles de l'Office.

**2.2.** La commission effectuera son examen de manière à satisfaire aux exigences prévues dans le cadre de référence joint à titre d'annexe de la présente entente et qui ont été approuvées par le ministre fédéral de l'Environnement et l'Office.

**2.3.** Les audiences de la commission seront publiques et l'examen offrira au public des occasions de participer en temps utile et de façon efficace.

## **3. Secrétariat**

**3.1.** Le soutien nécessaire à la commission sur les plans administratif, technique et de la procédure lui sera fourni par l'Office.



#### **4. Documents et rapports de la commission**

4.1. Un registre public sera tenu par l'Office tout au long de l'examen de manière à permettre l'accès facile au public et conformément aux articles 55 et 55.4 de la *Loi canadienne sur l'évaluation environnementale* et au paragraphe 11(31) de la CDI.

4.2. Sous réserve des paragraphes 35(4) et 35(4.1) et de l'article 55.5 de la *Loi canadienne sur l'évaluation environnementale*, le registre public comprendra l'ensemble des soumissions, de la correspondance, des transcriptions des audiences, des pièces et des autres informations reçues par la commission, en plus de toute l'information publique produite par la commission dans le cadre de l'examen du projet.

4.3. Une fois l'examen du projet terminé, la commission préparera un rapport. Le rapport sera présenté au ministre fédéral de l'Environnement dans les cent vingt (120) jours suivant la fin de l'audience. La commission fournira la traduction française du résumé et des recommandations. Le Canada sera responsable de la traduction du rapport complet.

4.4. Jusqu'au moment de présenter le rapport, l'Office sera responsable de tenir à jour le registre public.

4.5. Le Canada sera responsable de la traduction des documents clés rédigés par la commission, y compris les avis publics et les communiqués ainsi que le rapport, dans les deux langues officielles du Canada.

#### **5. Aide financière aux participants**

5.1. La responsabilité de fournir une aide financière aux participants incombera à l'Agence dans le cadre du Programme fédéral d'aide aux participants. L'Agence fournira une aide financière aux participants pour assurer leur participation à l'examen technique de l'étude d'impact environnemental ainsi qu'au processus d'audience publique de la commission. L'Office et la commission accorderont suffisamment de temps à l'Agence pour administrer le Programme d'aide financière aux participants en ce qui concerne l'avis public et l'affectation de fonds.

#### **6. Coûts afférents à l'examen**

6.1. L'Agence sera la seule responsable de tous les coûts liés au Programme fédéral d'aide financière aux participants.


6.2. Le Canada sera responsable de tous les autres coûts liés à l'administration du processus d'examen non prévus ou couverts par l'aide financière offerte par le Canada à l'Office pour l'examen, conformément à l'article 11(28) de la CDI.

#### **7. Modification de l'entente**

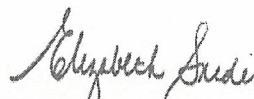
7.1. Les modalités et dispositions de la présente entente peuvent être modifiées par écrit par le Ministre de l'Environnement et le président de l'Office. Sous réserve de l'article 27 de la *Loi canadienne sur l'évaluation environnementale*, il peut être mis fin à la présente entente en tout temps par voie d'un échange de lettres signées par les deux parties.

### 13 Signatures

**ATTENDU QUE** les parties ont signé la présente entente.



L'Honorable Peter Kent  
Ministre de l'Environnement



Elizabeth Snider  
Présidente  
Office d'examen des répercussions  
environnementales

**02 MARS 2011**

Date :

**18 January, 2011**

Date :

## **Annexe Cadre de référence**

### **Partie I — Portée du projet**

Le Projet routier d'Inuvik à Tuktoyaktuk proposé par le Hameau de Tuktoyaktuk, la ville d'Inuvik et le gouvernement des Territoires du Nord-Ouest comprend la construction, l'exploitation et l'entretien d'une route de 140 kilomètres praticable en tout temps de la ville d'Inuvik au Hameau de Tuktoyaktuk. La portée du projet inclut les composantes suivantes :

- Une route praticable en tout temps d'Inuvik à Tuktoyaktuk;
- Des ouvrages de franchissement de cours d'eau;
- Des zones d'emprunt et de carrière afin de soutenir les besoins de construction, d'exploitation et d'entretien;
- Des lieux de préparation des travaux;
- Des zones d'entretien;
- Des installations temporaires de baraquement de chantier;
- Des routes d'accès temporaires au chantier de construction;
- Les activités d'exploitation continues de la route praticable en tout temps.

### **Partie II – Portée de l'évaluation environnementale**

1. La commission de substitution réalisera une évaluation des effets environnementaux du projet en fonction de la portée du projet (partie I).
2. L'évaluation tiendra compte des facteurs énumérés aux paragraphes 16(1)a) à d) et 16(2) de la *Loi canadienne sur l'évaluation environnementale*, à savoir :
  - a. Les effets environnementaux du projet, y compris, les effets environnementaux entraînés par les défaillances ou les accidents susceptibles de se produire dans le cadre du projet et tous les effets environnementaux cumulatifs susceptibles de provenir des activités du projet en combinaison avec d'autres activités ou projets déjà entrepris ou qui seront entrepris;
  - b. L'importance des effets visés à l'alinéa a);
  - c. Les commentaires des Autochtones reçus durant l'examen;
  - d. Les commentaires du public reçus au cours de l'examen;
  - e. Les mesures réalisables sur les plans techniques et économiques qui atténueraient tout effet négatif environnemental important du projet;
  - f. l'objectif du projet;
  - g. Les autres moyens de réaliser le projet qui sont possibles sur les plans techniques et économiques et leurs effets environnementaux;
  - h. Le besoin d'un quelconque programme de suivi lié au projet et les exigences connexes;
  - i. La capacité des ressources renouvelables susceptibles d'être touchées de façon importante par le projet de répondre aux besoins actuels et à venir.

3. Conformément au paragraphe 16(1)e) de la *Loi canadienne sur l'évaluation environnementale*, l'évaluation réalisée par la commission de substitution comprendra également une étude des questions suivantes :
  - a. La nécessité du projet;
  - b. Les solutions de rechange au projet reçues durant l'examen.
4. Conformément au paragraphe 16.1 de la *Loi canadienne sur l'évaluation environnementale*, l'évaluation réalisée par la commission de substitution pourrait également tenir compte du savoir communautaire et du savoir traditionnel autochtone reçus pendant l'examen.
5. Aussi, l'évaluation inclura le suivant:
  - a. Les modalités ayant trait aux mesures d'atténuation qui seraient nécessaires pour réduire le plus possible toute incidence négative sur l'exploitation des ressources fauniques, comme le prévoit l'alinéa 13(11)a) de la CDI, notamment, dans la mesure du possible, les mesures visant à rétablir la faune, et son habitat, dans son état original et à indemniser les chasseurs, les trappeurs et les pêcheurs Inuvialuit pour la perte de leurs moyens de subsistance ou de possibilités de récolte commerciale;
  - b. Une estimation de la responsabilité civile possible des promoteurs, déterminée selon le pire des scénarios, en veillant à concilier les facteurs économiques, notamment la capacité des promoteurs de payer, et les facteurs environnementaux, prévus à l'alinéa 13(11)b) de la CDI;
  - c. Tout effet déterminé conformément aux procédures opérationnelles de l'Office.

### **Partie III – Portée des facteurs**

De plus, conformément à l'article 16(3) de la *Loi canadienne sur l'évaluation environnementale*, la commission, lors de l'étude des facteurs mentionnés à la partie II, devrait tenir compte du cadre de référence de l'étude d'impact environnemental mis au point par l'Office le 3 novembre 2010.





## **Appendix 3 – The ITH Review Process**





### **A3.0 ITH Review Process**

The substituted review (review) process followed a number of procedural steps designed to ensure a fair and open public review process was conducted. These steps, outlined below, generally followed those steps outlined in the Review Board's EIR Guidelines, with such modifications as were required to address technical and procedural issues that arose during the review and any specific CEAA requirements. During the review process, the Review Board and subsequently the Panel, revised and re-issued the review schedule in response to procedural and legal (i.e., related to fairness of process) requirements.

#### **A3.1 Environmental Impact Statement Terms of Reference**

Draft Terms of Reference for the preparation of an EIS were developed by the Review Board to provide direction to the Developer on what to include in the EIS. The EIS Terms of Reference were developed in order to secure the information required to ensure the legal requirements of the IFA and the CEAA would be met in the review.

The draft EIS Terms of Reference were circulated to the Parties and the public for comment.<sup>444</sup> Review Board staff and representatives of the Developer attended public meetings arranged for Tuktoyaktuk on October 12, 2010 and Inuvik on October 13, 2010 to explain the substituted review process, to answer questions about the review and the proposed development, and to receive input on the draft EIS Terms of Reference.

Following consideration of the comments received from the public and the Parties<sup>445</sup>, the Review Board approved and issued the EIS Terms of Reference to the Developer on November 3, 2010.<sup>446</sup>

#### **A3.2 Developer's Environmental Impact Statement**

The Developer was given 90-days, until February 3, 2011, to prepare its draft EIS based on the EIS Terms of Reference. On January 25, 2011 the Developer wrote to the Review Board requesting an extension for the submission of its draft EIS until the end of March 2011.<sup>447</sup> The Review Board granted this extension. On March 23, 2011 the Developer requested a second extension for submitting its draft EIS until the end of May, 2011.<sup>448</sup> The Review Board granted this extension.

The Developer submitted its two volume draft EIS to the Review Board on May 24, 2011.<sup>449</sup>

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<sup>444</sup> Draft EIS Terms of Reference, registry item 033-1

<sup>445</sup> Comments on Draft EIS Terms of Reference, registry items 035-1 to 037-1, and 040-1 to 042-1

<sup>446</sup> Final EIS Terms of Reference, registry item 046-1

<sup>447</sup> Developer letter to EIRB, registry item 051-1

<sup>448</sup> Developer letter to EIRB, registry item 058-1

<sup>449</sup> Developer EIS, registry items 067-1 to 072-1



### A3.3 Conformity Review

The conformity review was simply intended to determine whether the Developer had responded to all items in the EIS Terms of Reference; it did not address the quality or technical adequacy of the information provided by the Developer. The Review Board issues a deficiency statement if any part of a draft EIS is not in conformity with the EIS Terms of Reference.

On June 3, 2011 the Review Board asked the Parties and the public to examine the draft EIS for conformity issues and report back with their findings. The EIRB issued a notice giving the Parties and the public 24-days, until June 27, 2011 to provide their responses.

### A3.4 Conformity and Deficiency Statements

On July 15, 2011, based on the comments received from the Parties and an internal review of the draft EIS, the Review Board concluded there were deficiencies and notified the Developer that the draft EIS did not meet the EIS Terms of Reference requirements.<sup>450</sup> This notification indicated where deficiencies were found and instructed the Developer to supplement the EIS. On August 22, 2011 the Developer submitted responses to the Review Board's Conformity Statement and to the conformity reviews submitted by the Parties.<sup>451</sup> In late September 2011 the Review Board met to consider the additional information provided by the Developer. The Review Board concluded there were still deficiencies with the information filed to date, and issued a second deficiency statement to the Developer.<sup>452</sup> Staff and counsel were also directed by the EIRB to meet with the Developer to explain the major remaining deficiencies and discuss the Developer's response in order to move the review forward.<sup>453</sup>

The results of the meeting suggested that the Developer planned to initiate several biophysical studies to meet some of the outstanding EIS Terms of Reference requirements. The Developer indicated these biophysical studies would be made available to the EIRB for consideration during the course of the review, as they became available, throughout 2012.<sup>454</sup>

On November 9, 2011 the Review Board issued a letter of direction to the Developer to provide additional information about the project.<sup>455</sup> The Developer responded with the following additional information:

- November 9, 2011 – letter explaining that the Upland Route was no longer being considered as a route option<sup>456</sup>

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<sup>450</sup> Letter to Developer, registry item 078-1

<sup>451</sup> Developer responses, registry items 079-1 to 088-2

<sup>452</sup> Letter to Developer, registry item 092-2

<sup>453</sup> Meeting with Developer in Yellowknife, October 14, 2011

<sup>454</sup> Submission to EIRB, registry item 096-1

<sup>455</sup> Letter to Developer, registry item 093-1

<sup>456</sup> Letter to EIRB, registry item 094-1



- November 18, 2011 – letter and various reports (with revisions sent November 23, 2011)<sup>457</sup>

On December 20, 2011 the Review Board informed the Developer that in order to move the review forward, and to allow the participation of the Parties, the Technical Review phase of the review would begin, with a first round of Information Requests (IRs) to be sent to the Developer early in 2012. The letter also explained that the Review Board was reserving its decision on accepting the draft EIS as final for the purposes of the Technical Review.<sup>458</sup>

### A3.5 Technical Review and Information Requests

The IR process is the first opportunity in the review process for the Parties and the Review Board to ask the Developer questions about the EIS, and to try to resolve issues. It begins the process of focussing the review on the substantive issues, heading into the Technical and Public Hearings at the end of the review process. Two rounds of IRs were issued during the Technical Review phase. The first round was issued by the Review Board on January 16, 2012,<sup>459</sup> and covered the following areas:

- Assessment Approach
- Project Description
- Existing Biophysical and Human Environment
- Biophysical and Human Impact Assessment
- Cumulative Effects
- Mitigation and Remediation
- Follow-up and Monitoring
- Worst Case Scenario

The Developer responded with information on February 7, 2012 and on February 10, 2012.<sup>460</sup>

The second round of IRs was developed by the Review Board, the Parties, and the Developer and were issued to the Developer and to several of the Parties on March 8, 2012.<sup>461</sup> The topics covered in this round were:

- Wildlife and Wildlife Habitat
- Fish and Fish Habitat
- Water Crossings
- VEC Process
- Cumulative Effects
- Land Use
- Community Conservation Plans

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<sup>457</sup> Letter with attachments to EIRB, and revisions, registry items 095-1 to 098-1

<sup>458</sup> Letter to Developer, registry item 099-1

<sup>459</sup> Letter to Developer, registry item 104-1

<sup>460</sup> Submissions to EIRB, registry items 108-1 to 112-1

<sup>461</sup> Letters to Developer and Parties, registry items 122-1, and 124-1 to 145-1



- Harvesting
- Human Environment
- Terrain, Geology, Soils and Permafrost
- Climate Change
- Consultation
- Management Plans
- Follow-up and Monitoring
- Husky Lakes
- Regulatory Applications

Responses from the Developer were received on March 30, 2012,<sup>462</sup> with additional responses submitted on April 27, 2012.<sup>463</sup> Responses from the Parties were submitted at various times between March and May, 2012.<sup>464</sup>

### **A3.6 Technical Sessions and Appointment of Review Panel**

The Technical Sessions, led by EIRB staff and Counsel, were held in Inuvik on August 22 and 23, 2012. The Technical Sessions provided the opportunity for the Parties and the Developer to meet in person, to seek a better understanding of the evidence on the record, to refine and/or formulate their positions, and to resolve issues. In preparation for the Technical Sessions, the Review Board requested discussion topics from the Parties, which constituted the agenda for the Technical Sessions.<sup>465</sup> Transcripts of the Technical Sessions were made and posted to the registry.<sup>466</sup> Members of the public were welcome to attend the Technical Sessions, and public notices were posted prior to the sessions.

On August 10, 2012 the Review Board Chair appointed the Review Panel, in accordance with the IFA, to complete the review.<sup>467</sup>

Following the Technical Sessions the Developer continued to submit new information relevant to the review. Given the tight timelines before the Hearings and the need for the Parties to prepare their Technical Submissions, the Panel set September 4, 2012 as the “cut-off date” for the filing of new evidence by the Developer.<sup>468</sup> The rules of fairness require that interveners know the case they have to meet. This was explained to the Parties, including the Developer, and in a September 7, 2012 Pre-Hearing Conference there were no questions or objections raised by any Party, including the Developer. However, the Developer continued to file new evidence after the cut-off date. For fairness reasons these new submissions were not entered onto the registry nor were they reviewed by the Parties before the hearings. Some of this new information, such

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<sup>462</sup> Submission to EIRB, registry item 160-1

<sup>463</sup> Submission to EIRB, registry item 168-1

<sup>464</sup> Submissions to EIRB, registry items 151-2, 152-1 to 159-1, 161-1 to 165-1, 169-1 and 170-1

<sup>465</sup> Submissions to EIRB, registry items 213-1, 218-1 to 220-1, 223-1

<sup>466</sup> Technical Session transcripts, registry items 235-1 and 236-1

<sup>467</sup> IFA Subsection 11(23), and registry item 217-1

<sup>468</sup> Letter to Developer, registry item 239-1



as the Developers Supplemental Cumulative Effects Analysis, was based on comments received during the Technical Sessions.<sup>469</sup>

### A3.7 Parties Draft Technical Submissions and Developer Response

The Parties were asked to prepare draft Technical Submissions of their evaluation of various issues and their respective positions on those issues and the ITH project in light of the results of the IR process, the Technical Sessions and the supplemental information filed by the Developer before September 4, 2012. The draft Technical Submissions outlined, in the opinion of the Parties, any issues that the Party believed to be outstanding and of importance to that Party, and usually linked to the regulatory and/or legal mandate of the Party. For each issue the position of the Party was described by outlining:

- The issue(s) being tracked by the Party
- The Developer's conclusion on the issue
- The Party's conclusion on the issue and the rationale for the conclusion
- The Party's recommendation(s) to the Review Panel

The Parties submitted their draft Technical Submissions on September 10, 2012,<sup>470</sup> and their power point presentations for the Public Hearings on September 14, 2012.<sup>471</sup> The Developer submitted its response on September 13, 2012,<sup>472</sup> and power point presentation on September 14, 2012.<sup>473</sup>

Upon reviewing the draft Technical Submissions of the Parties, the Panel noted that several Parties had indicated they did not believe they had sufficient information to form final conclusions about the impacts of the development. Specifically, Infrastructure Canada (INFC) in its draft Technical Submission stated, *"As of September 4, 2012 INFC is not in a position at this time to conclude on whether the requirements of the CEAA and the IFA have been met. INFC recommends that the Developer be required to address the gaps identified by the federal expert departments in order to ensure that both CEAA and IFA requirements are met."*<sup>474</sup> Environment Canada (EC) in its draft Technical Submission identified several outstanding items, including, *"During Environment Canada's (EC) technical review, a number of issues were identified that required focussed discussion to resolve. One of the more significant issues was the lack of an adequate cumulative effects assessment for Species at Risk. This assessment is required for EC to ensure obligations set out under paragraph 16(1)(a) of the Canadian Environmental Assessment Act, 1992 (CEAA 1992) are met."*<sup>475</sup> EC also identified, *"Outstanding information requests identified by EC and others include the submission of an Explosives Management*

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<sup>469</sup> Submission to Panel October 1, 2012, registry item 313-1

<sup>470</sup> Submissions to EIRB, registry items 274-1 to 281-1, 284-1, 285-1 and 290-1

<sup>471</sup> Submissions to EIRB, registry items 291-1 to 293-1, 297-1

<sup>472</sup> Submission to EIRB, registry item 287-1

<sup>473</sup> Submissions to EIRB, registry items 294-1 to 296-1

<sup>474</sup> INFC Draft Technical Submission, page 2, registry item 274-1

<sup>475</sup> EC Draft Technical Submission, September 10, 2012, page 2, registry item 278-1



*Plan, a Long Term Erosion and Sediment Control Plan, a Spill Contingency Plan, a Waste Management Plan, a Wildlife Management Plan and an updated Cumulative Effects Assessment for Species at Risk.*<sup>476</sup> The Department of Fisheries and Oceans (DFO) identified the following as partially outstanding, *“The proponent has committed to working in cooperation with users to assist in the conservation of fisheries, particularly in terms of signage and ensuring the highway is designed to prevent or discourage overfishing. However it is the proponent’s responsibility within the environmental assessment to assess the impacts of the highway on fisheries within the area. This issue has been partly addressed.”*<sup>477</sup>

The Developer did respond to the draft Technical Submissions of the Parties, and addressed concerns raised by making commitments to provide information or re-stating information already filed with the EIRB.<sup>478</sup>

### **A3.8 Technical and Public Hearings**

Technical Hearings for the ITH Project were held in Inuvik on September 18 and 19, 2012,<sup>479</sup> and Public Hearings were held in Tuktoyaktuk on September 24 and 25, 2012.<sup>480</sup> The public were notified of the Hearings through newspaper ads and public notices on radio, television, and posted in each community. The purpose and goal of the Hearings was to allow the public an opportunity to hear and participate in a discussion of technical issues unresolved during the review process leading up to the Hearings. It provided the opportunity for members of each community to speak to issues they perceived to be of importance, and it allowed the Review Panel to hear directly from members of the public about the proposed project.

### **A3.9 Submission of New Information and Additional Information Request Process**

During the course of the Hearings, the Developer indicated that it had, or would shortly have, additional reports, plans and analyses which were relevant to a variety of matters which must be decided by the Panel and which, if admitted, would address a number of the questions raised by the Parties during the Hearings.

The question which the Panel decided in response to the request from the Developer to allow the evidence, was whether to admit this new evidence and if so, how to ensure that the completion of the proceedings took place in a manner which remained fair for all Parties. The Panel’s decision was made and reasons posted on September 28, 2012.<sup>481</sup>

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<sup>476</sup> EC Draft Technical Submission September 10, 2012, page 2, registry item 278-1

<sup>477</sup> DFO Draft Technical Submission September 10, 2012 page 2, registry item 281-1

<sup>478</sup> Developer response to Parties Draft Technical Submissions, September 13, 2012, registry item 287-1

<sup>479</sup> Inuvik Technical Hearing Transcripts, registry items 298-1 and 300-1

<sup>480</sup> Tuktoyaktuk hearing transcripts, registry items 302-1 and 303-1

<sup>481</sup> Panel decision and reasons, registry items 304-1 and 305-1





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Subsequent to this ruling, the Parties were asked if they required an additional IR process to address the new information. The Parties requested an IR process, and IRs were prepared and sent to the Developer on October 15, 2012.<sup>482</sup>

The Developer provided responses to the IRs on October 22, 2012.<sup>483</sup> As a result of the Developer's late submission of important and relevant evidence and the requested IR process, the projected date for completion of the substituted review was extended into January 2013.

### **A3.10 Final Technical Submissions of the Parties and Developer's Response**

The final Technical Submissions of the Parties were received on October 29, 2012.<sup>484</sup> The final response of the Developer was received on November 5, 2012.

The Public Registry for the review was closed on November 6, 2012.

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<sup>482</sup> IRs to the Developer, registry items 325-1, 328-1, 329-1 and 331-1

<sup>483</sup> Developer responses to IRs, registry item 334-1

<sup>484</sup> Parties final technical submissions, registry items 336-1 to 342-1, 344-1 and 345-1



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## Appendix 4 – Panel Report Distribution



## REVIEW PANEL FINAL REPORT: ITH Development Proposal

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## REVIEW PANEL FINAL REPORT: ITH Development Proposal

**Table A4-1: Panel Report Distribution**

| Party   | Addressee   | Location    |
|---|---|-------------|
| <b>Governmental Authorities Competent to Authorize the Development, and the Developer</b> |   |             |
| Environment Canada  | The Honourable Peter Kent<br>Minister of the Environment                              | Ottawa      |
| Aboriginal Affairs and Northern Development Canada  | The Honourable John Duncan<br>Minister of Aboriginal Affairs and Northern Development | Ottawa      |
| Fisheries and Oceans Canada   | The Honourable Keith Ashfield<br>Minister of Fisheries and Oceans                     | Ottawa      |
| Transport Canada  | The Honourable Denis Lebel<br>Minister of Transport, Infrastructure and Communities   | Ottawa      |
| Developer   | The Honourable David Ramsay<br>Minister of Transportation                             | Yellowknife |
| Developer   | His Worship Mr. Floyd Roland<br>Mayor, Town of Inuvik                                 | Inuvik      |
| Developer   | His Worship Mr. Mervyn Gruben<br>Mayor, Hamlet of Tuktoyaktuk                         | Tuktoyaktuk |
| <b>Registered Parties</b>   |   |             |
| Aboriginal Affairs and Northern Development Canada  | Mr. Conrad Baetz<br>District Manager  | Inuvik      |
| Canadian Environmental Assessment Agency  | Ms. Colette Spagnuolo<br>Panel Manager  | Ottawa      |
| Canadian Northern Economic Development Agency, Northern Projects Management Office        | Mr. Mathew Spence<br>Director General   | Yellowknife |
| Environment Canada  | Ms. Cheryl Baraniecki<br>Regional Director  | Edmonton    |
| Fisheries and Oceans Canada   | Mr. David Burden<br>Acting Regional Director General                                  | Sarnia      |
| Environment and Natural Resources, GNWT   | Mr. Joel Holder<br>Manager<br>Environmental Assessment                                | Yellowknife |
| Health Canada   | Ms. Kathleen Hedley<br>Director   | Ottawa      |



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| Party  | Addressee   | Location    |
|--|---|-------------|
| Infrastructure Canada                        | Ms. Julie-Anne Marcoux<br>Section Leader                  | Ottawa      |
| Natural Resources Canada                     | Mr. John King<br>Senior Policy Analyst                    | Ottawa      |
| Parks Canada                                 | Ms. Diane Wilson<br>Superintendent, Western Arctic        | Inuvik      |
| Transport Canada                             | Mr. Harvey Nikkel<br>Regional Director                    | Winnipeg    |
| Aklavik Hunters and Trappers Committee       | Mr. William Storr<br>President                            | Aklavik     |
| Fisheries Joint Management Committee         | Mr. D. Vic Gillman<br>Chair                               | Inuvik      |
| Inuvialuit Land Administration               | Mr. Joshua Mackintosh<br>Acting Chief Land Administrator  | Tuktoyaktuk |
| Wildlife Management Advisory Committee (NWT) | Mr. Larry Carpenter<br>Chair                              | Inuvik      |
| Inuvik Community Corporation                 | Ms. Beverley Lennie<br>ICC Manager                        | Inuvik      |
| Tuktoyaktuk Community Corporation            | Ms. Noella Cockney<br>Corporate Manager                   | Tuktoyaktuk |
| Tuktoyaktuk Inuvik Working Group             | Mr. James Malone<br>FJMC                                  | Inuvik      |
| <b>Courtesy Distribution</b>                 |   |             |
| Inuvialuit Regional Corporation              | Ms. Nellie Cournoyea<br>Chair and Chief Executive Officer | Inuvik      |
| Inuvialuit Game Council                      | Mr. Frank Pokiak<br>Chair                                 | Inuvik      |





## **Appendix 5 – Comprehensive List of Developer's Commitments**



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## REVIEW PANEL FINAL REPORT: ITH Development Proposal

**Table A5-1: Summary of Developer Commitments (November 5, 2012)**

| No.                        | COMMITMENT  | PROJECT PHASE                    |
|----------------------------|---|----------------------------------|
| <b>Socio-Economic</b>      |   |                                  |
| 1                          | The Developer is committed to observing the relevant economic measures of the Inuvialuit Final Agreement (IFA).   | Design, Construction, Operations |
| 2                          | The Developer is committed to preferential employment opportunities for qualified local residents and contractors.  | Construction, Operations         |
| 3                          | The IFA guidelines for business operation will apply to this Project, giving priority hiring to companies included on the Inuvialuit Business List.   | Construction, Operations         |
| 4                          | The Developer and on-site Project contractors will be responsible for the implementation of focused socio-economic measures, including recruitment and skills training.   | Construction                     |
| 5                          | The Developer will install educational signage related to harvesting, fishing, hunting, and responsible use of the Highway at appropriate and highly visible locations.   | Operations                       |
| 6                          | The Developer will require that its Project contractor(s) ensure that all heavy equipment operators are suitably trained in proper machinery maintenance and operation; that equipment is regularly inspected and serviced; and that contractor staff obey posted Highway rules (e.g., speed limits, hunting/fishing restrictions). | Construction                     |
| 7                          | The Developer will require that its contractor(s) educate their staff on the prevention of accidents and malfunctions. The training received will be outlined for the Developer, including emergency spill response.  | Construction                     |
| 8                          | The Developer commits to ensuring that its contractor(s) have Health, Safety and Environment (HSE) manuals; work procedures documents; and site-specific health and safety plans.   | Design, Construction             |
| 9                          | The Developer is committed to issuing on a regular basis a newsletter on the Project, which will highlight progress and any substantive reports/information provided to public domain parties. A dedicated link to similar information will also be featured on the main Department of Transportation website.                      | Design, Construction, Operations |
| 10                         | The Developer will meet with Kunnek Resource Development Corporation to discuss any questions or concerns regarding the Highway's potential interaction with the reindeer herding operation, prior to permitting.   | Design                           |
| 11                         | The Developer will discuss the issue of compensation at its meetings with the Inuvialuit Game Council, Inuvik and Tuktoyaktuk Hunters and Trappers Committees and Wildlife Management Advisory Council (NWT).   | Design, Construction, Operation  |
| 12                         | At this time, the Developer's policy is to not allow its employees or contractors to fish while engaged in their employment activities.   | Construction                     |
| <b>Planning and Design</b> |   |                                  |



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| No. | COMMITMENT   | PROJECT PHASE                    |
|-----|--|----------------------------------|
| 13  | The Developer is responsible for the design and construction of the Highway, including field studies and data collection during Highway design and construction, and future operations funding, similar to other NWT highways.   | Design, Construction, Operations |
| 14  | The Developer will conform to the IFA and the Tuktoyaktuk and Inuvik Inuvialuit Community Conservation Plans (CCPs) and will integrate the goals of these documents into the Project's environmental management.   | Design, Construction             |
| 15  | The proposed Highway will be sited and designed to avoid or mitigate adverse effects on fish and fish habitat (i.e. HADD) for the various stream crossings. Where a HADD is unavoidable, the Developer will provide sufficient information for the purpose of the authorization and will develop suitable compensation strategies.   | Design                           |
| 16  | Additional engineering studies for the proposed route alignment will be undertaken in 2012 including right of way surveying and bridge design.   | Design                           |
| 17  | The Developer will undertake further engineering, environmental and archaeological studies in areas scheduled for construction during that same year or prior to that year.  | Design                           |
| 18  | Research authorizations will be obtained on an annual basis, as needed, prior to the conduct of seasonal field activities.   | Construction                     |
| 19  | The Developer is committed to addressing the performance criteria and management goals identified in the ILA's draft Husky Lakes Special Cultural Area Criteria, pending approval.   | Design                           |
| 20  | On approval of the Highway, the Developer commits to further consider Alternative 3 (2010 Minor Realignment) as the final alignment for the Highway.   | Design                           |
| 21  | <p>The Developer commits to using, as a guideline, the design parameters and construction techniques in the Transportation Association of Canada (TAC 2010) <i>Development and Management of Transportation Infrastructure in Permafrost Regions</i>.</p> <p>This will include mitigation strategies such as:</p> <ul style="list-style-type: none"> <li>- Applying appropriate erosion and sediment control BMPs for the construction of ditches and cross drainage channels;</li> <li>- Accessing and hauling from borrow sources during the winter months;</li> <li>- Constructing embankments during the winter months;</li> <li>- Conducting summer construction activities (such as grading and compacting the embankment, and placing of surfacing materials) only when the Highway can be accessed over the embankment;</li> <li>- Stockpiling surfacing material along the embankment during the winter for use in the summer;</li> <li>- Minimizing the surface area of open cut;</li> <li>- Grading slopes to minimize slumping;</li> <li>- Grading material storage and working areas to promote drainage;</li> <li>- Reclaiming borrow sources when construction is complete by grading slopes to blend with the natural topography and drainage of the surrounding area;</li> <li>- Designing and constructing thick or high embankments to create an</li> </ul> | Design, Construction             |



## REVIEW PANEL FINAL REPORT: ITH Development Proposal

| No. | COMMITMENT  | PROJECT PHASE        |
|-----|---|----------------------|
|     | <p>insulative layer that promotes the development of a frozen embankment core;</p> <ul style="list-style-type: none"> <li>- Designing the alignment to avoid unfavorable terrain, such as areas with thick organic deposits and ice-rich polygonal or patterned ground;</li> <li>- Installing culverts to manage seasonal overland flows;</li> <li>- Installing sufficient cross drainage during construction to prevent or minimize potential water ponding; and</li> </ul> <p>Inspecting and maintaining culverts, as needed, in the spring and fall.</p>   |                      |
| 22  | The ILA's <i>Pits and Quarries Guidelines</i> will be followed.   | Design, Construction |
| 23  | The list of guidelines and best practices will be maintained to ensure new guidelines and best practices are incorporated throughout the environmental assessment and regulatory phase.   | Design, Construction |
| 24  | As key project or regulatory activities/milestones change, the Developer commits to transmitting any future revised GANTT charts to EIRB.   | Design               |
| 25  | Supplemental geotechnical and biophysical studies will be conducted to fulfill the requirements of the land use and quarry applications.  | Design               |
| 26  | Areas presenting challenging terrain conditions will be investigated in the field in 2012 to better evaluate the necessary design mitigation.   | Design               |
| 27  | Further mapping and geotechnical studies will occur in 2012 to support detailed design of the route alignment and costing and build on the preliminary terrain stability and permafrost information provided in the EIS.  | Design               |
| 28  | <p>Additional analyses will be conducted as detailed engineering and design is undertaken. During the detailed design phase, one-dimensional and two-dimensional thermal design analysis will be carried out as appropriate for the proposed alignment and for selected Highway cross sections to be constructed in areas of particularly sensitive terrain.</p> <p>In addition, further field investigations (subsurface geotechnical investigations including ground temperature monitoring) to delineate transition zones between more and less sensitive terrain types will be carried out to support the detailed design work. In particular locations, specialized geotechnical techniques such as ground penetrating radar may be used to assist in mapping ground ice occurrence.</p> | Design               |
| 29  | Two-dimensional thermal analysis of the embankment on the permafrost foundation will be used as a primary design tool for establishing appropriate cross sections in areas with differing ground conditions.  | Design               |
| 30  | The thicker embankment criteria will be applied when the objective is to ensure that the original active layer soils and the underlying permafrost will be preserved in a permafrost condition (high risk of thaw-subsidence).  | Design               |
| 31  | During the detailed design stage, the embankment will be modelled as a two-dimensional structure placed on a fully frozen permafrost foundation (winter construction). Geothermal analyses will predict the maximum ground temperature within the core of the embankment. At that time, the effect of the embankment sideslopes on localized permafrost thaw will be predicted and  | Design               |



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| No.                 | COMMITMENT   | PROJECT PHASE        |
|---------------------|--|----------------------|
|                     | mitigative measures adopted to minimize long-term performance risks.   |                      |
| 32                  | A number of studies have and will continue to be conducted to assist in delineating ice wedges on hill slopes in upland terrain along the Highway alignment.   | Design               |
| 33                  | Minimizing snow accumulation on the sideslope will be one of the considerations in confirming the Highway cross section in the detailed design stage. The Highway will be designed to be generally self-clearing.  | Design               |
| 34                  | The long-term position of the permafrost table below the core of the embankment and below the sideslopes has not been predicted (modelled) to date; however, it will be predicted (modelled) during the detailed design stage.   | Design               |
| 35                  | Incorporating the appropriate cross section at the detailed design stage, based on the geothermal analyses and the route specific geotechnical data will provide a mitigative measure reducing the risk of shoulder rotation.  | Design               |
| 36                  | <p>Mitigation options that will be considered and employed will include:</p> <ul style="list-style-type: none"> <li>- Installation of geotextile – the geotextile will assist in maintaining the integrity of the Highway embankment by minimizing the loss of material from the embankment into the underlying terrain.</li> <li>- Selection of the appropriate embankment height and side slope ratio for the specific terrain type.</li> <li>- Efficient drainage design - ensuring flow of water, in the spring/summer with defined stream and surface run-off to avoid or minimize standing water (ponding).</li> </ul> <p>Appropriate selection (i.e., type and size) and installation of drainage structures, including proper end treatments for culverts such as erosion control and drainage aprons.</p> | Design, Construction |
| 37                  | Bridges and culverts will be designed in accordance with the current Canadian Highway Bridge Design Code addressing stream hydraulics, design flood, scour, fish passage, vertical clearance, structure design life, climatic conditions, geotechnical design, structural design, protective aprons, and slope stabilization.  | Design               |
| 38                  | A ground temperature cable will be installed at borrow source 312, for the purpose of collecting project specific ground temperature data.   | Design               |
| 39                  | In the detailed design, to the extent practical, the Highway design team will apply a minimum setback of 50 m from known active thaw flow slides. Or where not possible to fully avoid potentially active slide areas, long-term maintenance plan will need to be developed and employed to monitor and remediate possible movements over the life of the project.   | Design, Construction |
| <b>Construction</b> |  |                      |
| 40                  | The Developer and its contractors, including all field operations staff, will adhere to and be made aware of all applicable legislation, regulations, guidelines, and terms and conditions.  | Design, Construction |
| 41                  | The ILA's <i>Pits and Quarries Guidelines</i> will be followed.  | Construction         |





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| No.                   | COMMITMENT  | PROJECT PHASE                    |
|-----------------------|---|----------------------------------|
| 42                    | The Developer and on-site Project contractors, including all field operations staff, will be made aware of and implement the mitigation measures identified in this EIS.  | Construction                     |
| 43                    | DOT will ensure that the Highway construction contractors will take all steps necessary to comply with the terms and conditions of all legislation, permits and licenses.   | Construction                     |
| 44                    | 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.   | Construction                     |
| 45                    | The Developer is committed to constructing the proposed Inuvik to Tuktoyaktuk Highway, borrow sources, and associated winter access roads in a safe and environmentally responsible manner, and to strictly adhering to any mitigation measures as proposed by the Developer.   | Design, Construction             |
| 46                    | The Developers and their contractors will meet the standards required for a safe work environment.  | Construction                     |
| 47                    | The Developer commits to working towards achieving the Environmental Impact Review Board's goal statements for all phases of the proposed development.  | Design, Construction, Operations |
| 48                    | Blasting, if required, will occur only during winter borrow source development.   | Construction                     |
| 49                    | Should the Developer require the use of explosives, any planned activities will be reviewed by DFO during the construction phase to ensure appropriate best practices are followed. Current guidelines will be followed as appropriate.   | Construction                     |
| 50                    | The Developer is committed to building the roadway with 3:1 side slopes.  | Construction                     |
| 51                    | The Developer will use winter roads to access borrow sources; permanent all-weather access roads will not be required.  | Construction                     |
| 52                    | The Developer is committed to performing the majority of the construction activities during the winter months.  | Construction                     |
| 53                    | Highway construction activities during the summer period will be primarily limited to road base compaction and grading, and culvert remediation and maintenance with no work expected to take place on undisturbed land. These activities will be confined to the surface of the previously constructed Highway embankment. | Construction                     |
| 54                    | The developer is committed to controlling dust generated in relation to the construction and operation of the Highway through the application of non-toxic dust suppression techniques (water trucks) that comply with the GNWT's <i>Guideline for Dust Suppression</i> (GNWT 1998).  | Construction                     |
| 55                    | The frozen granular fill will only be placed directly on geotextile on the permafrost after the permafrost has frozen back.   | Construction                     |
| 56                    | The Highway will remain closed to public traffic during the construction phase.   | Construction                     |
| <b>Borrow Sources</b> |   |                                  |



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| No. | COMMITMENT  | PROJECT PHASE                         |
|-----|---|---------------------------------------|
| 57  | The Developer will follow all applicable legislation and guidelines when developing and operating the borrow source.  | Construction, Operations              |
| 58  | The Developer is committed to limiting the footprint of each borrow source and minimizing the number of borrow sources developed.   | Construction.                         |
| 59  | 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.  | Construction, Operations, Reclamation |
| 60  | Pit Development Plans will conform to the approving authority's regulations and permitting requirements.  | Design, Construction, Operations      |
| 61  | The ILA's <i>Pits and Quarries Guidelines</i> will be followed.   | Design, Construction                  |
| 62  | Supplemental geotechnical and biophysical studies will be conducted to fulfill the requirements of the land use and quarry applications.  | Design                                |
| 63  | <p>Pit Development Plans will include mitigation measures to address potential environmental concerns, and operational and reclamation plans. Mitigation measures include:</p> <ul style="list-style-type: none"> <li>- Developing borrow sources only during winter periods;</li> <li>- Maintaining an appropriate amount of undisturbed land between borrow source locations and any waterbody;</li> <li>- Excavation and/or removal of material from the quarry should only take place to within one metre of the high water mark above the groundwater table; and</li> </ul> <p>Applying appropriate erosion and sediment control BMPs for the construction of ditches and cross drainage channels, and ensuring that soil, silt or sediment-laden water does not enter surface waters.</p> | Construction                          |
| 64  | Pit development plans will be developed for each of the borrow sites to be used for construction of the Highway. These plans will conform to the approving authority's regulations and permitting requirements.   | Design                                |
| 65  | The Developer commits to ensuring that borrow source development is monitored by environmental monitors.  | Construction                          |
| 66  | Developer is committed to conformance with the requirements of the <i>Explosives Use Act</i> .  | Construction                          |
| 67  | Borrow sources will not be developed within 50 m of any watercourse or waterbody or within 1 km of the Husky Lakes.   | Construction                          |
| 68  | The development of borrow sites and most activities associated with each of the active borrow sites will typically occur during the winter period when dust is not expected to be a significant concern.  | Construction                          |
| 69  | Winter geotechnical drilling, sampling and lab testing of portions of preferred borrow sites will be undertaken in 2012 to confirm the extent, quantity and quality of materials available at these sites. Follow-up vegetation cover, and rare plant field surveys and sampling will also be conducted at these preferred borrow sites in the summer of 2012.  | Design, Construction                  |



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| No.                 | COMMITMENT   | PROJECT PHASE                    |
|---------------------|--|----------------------------------|
| 70                  | The borrow pits required for construction of the Highway will be developed, operated and decommissioned in full compliance with all regulatory requirements.   | Design, Construction             |
| 71                  | Pit development plans 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) <i>Northern Land Use Guidelines Access: Pits and Quarries</i> . In both cases, the <i>Guidelines for Development and Management of Transportation Infrastructure in Permafrost Regions</i> (TAC 2010) will be used as a reference for preparation of the pit development plans. | Design                           |
| 72                  | Erosion control and plans to control runoff from the borrow sites, including any stockpiles that may be developed, will be addressed in pit development plant plans. Site drainage controls, including localized ditching/swales within the borrow sites and silt fencing will be employed as necessary to ensure that sedimentation contained in meltwater from ground ice in the aggregate, or site runoff in general, are appropriately managed and are not released into the surrounding watershed.  | Design, Construction, Operations |
| 73                  | For stockpiles developed at active borrow sites for use in the following winter, the Highway construction contractor(s) or their environmental consultants will be tasked to carry out inspections of the stockpiles and the active borrow areas in the late summer to determine if a wildlife den has been established in any of the stockpiles or borrow sites.  | Construction                     |
| 74                  | Where it is deemed preferable to install culverts in summer, construction will adhere to appropriate guidelines, such as those identified in Dane (1978) and in the DFO <i>Land Development Guidelines for the Protection of Aquatic Habitats</i> , to avoid or minimize the potential for erosion, sedimentation or channel effects.  | Construction                     |
| 75                  | Summer construction will not take place between April 1 and July 15, in accordance with the DFO timing window for spring spawning fish (respecting grayling and northern pike, which are the only large-bodied fish species likely to use Project area streams for spawning).  | Construction                     |
| <b>Construction</b> |  |                                  |
| 76                  | The Developer, using local contractors, will be responsible for ongoing operation, maintenance, and safety of the Highway.   | Operations                       |
| 77                  | The Developer will construct and operate the Highway to GNWT DOT standards and guidelines for public highways.   | Construction, Operations         |
| 78                  | Should the Mackenzie Gas Project proceed, the Developer will work with the Mackenzie Gas Developers to ensure that increasing traffic on the Highway is effectively managed.   | Operations                       |
| 79                  | For Highway maintenance operations, an annual application of gravel surfacing and spot gravelling will be required.  | Operations                       |



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| No.                     | COMMITMENT  | PROJECT PHASE            |
|-------------------------|---|--------------------------|
| 80                      | To minimize snow accumulation on the sideslope, the maintenance staff are expected to use wing-plows to lower the snow accumulations along the sideslopes of the Highway as far as possible (approximately 2 m) to reduce drifting and snow maintenance activities associated with the Highway.   | Design, Construction     |
| 81                      | The developer is committed to controlling dust generated in relation to the construction and operation of the Highway through the application of non-toxic dust suppression techniques (water trucks) that comply with the GNWT's <i>Guideline for Dust Suppression</i> (GNWT 1998).  | Construction, Operations |
| <b>Management Plans</b> |   |                          |
| 82                      | An Environmental Management Plan (EMP) will be prepared 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.  | Construction             |
| 83                      | An Environmental Management Plan will be developed to provide broad guidance relating to maintaining existing stream channel, fish habitat, and water quality conditions.   | Design, Construction     |
| 84                      | The installation of culverts and the construction of bridges will be guided by an Environmental Management Plan (EMP), which will include construction scheduling restrictions, environmental construction guidelines, methods to prevent spills of deleterious substances, erosion and sediment control plan, and monitoring plan.   | Design, Construction     |
| 85                      | <p>The EMP will contain the following types of plans:</p> <ul style="list-style-type: none"> <li>- Explosives management;</li> <li>- Environmental management;</li> <li>- Spill contingency;</li> <li>- Environmental Emergency Response Plan (if needed);</li> <li>- Erosion and sediment control;</li> <li>- Pit development for borrow sources;</li> <li>- Fish and fish habitat protection;</li> <li>- Wildlife management;</li> <li>- Health and safety;</li> <li>- Waste management;</li> <li>- Hazardous waste management; and</li> <li>- Archaeological site(s) protection.</li> </ul> <p>Where necessary, the Developer and its contractor(s) will seek approval for the plans prior to use.</p> | Design, Construction     |
| 86                      | <b>Spill Contingency Plan</b> - The Developer will require that Project contractors prepare spill contingency plans, outlining spill reporting, containment, and clean-up. These will be completed by contractor(s) at least three months prior to the start of construction.   | Design                   |
| 87                      | <b>Health and Safety Plan</b> - The Developer commits to ensuring that its contractor(s) have Health, Safety and Environment (HSE) manuals; work procedures documents; and site specific health and safety plans. The Developer or its contractor(s) will develop Project- specific Bear Safety Guidelines and will   | Design                   |



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| No. | COMMITMENT  | PROJECT PHASE |
|-----|---|---------------|
|     | educate staff accordingly including the proper use of non-lethal wildlife deterrent materials (e.g., bear spray). These will be completed by contractor(s) at least three months prior to the start of construction.  |               |
| 88  | <b>Hazardous Waste Management Plan</b> - The Developer and/or contractor(s) will develop a hazardous waste management plan (HWMP) as part of land use permitting applications to the ILA and AANDC. The HWMP will encompass all pre-construction and construction phases of the Project and will apply to the Developer and all Project contractors involved in receiving, transferring, and transporting hazardous waste for the Developer's activities.         | Design        |
| 89  | <b>Waste Management Plan</b> - The Developer and/or contractor(s) will develop a waste management plan for all wastes associated with preconstruction and construction activities as part of land use permitting applications to the ILA and AANDC. The waste management plan will apply to the Developer and all associated Project contractors involved in the generation, treatment, transferring, receiving, and disposal of waste materials for the Project. | Design        |
| 90  | <b>Erosion and Sedimentation Control Plan</b> - The Developer and/or contractor(s) will provide an erosion and sedimentation control plan to the ILA and AANDC as part of land use permitting. These plans will also be reviewed by DFO and Environment Canada.   | Design        |
| 91  | <b>Fish and Fish Habitat Protection Plan</b> - The Developer will develop and implement a fish and fish habitat protection plan in cooperation with DFO, FJMC and the Tuktoyaktuk-Inuvik Working Group that will include mitigation measures and adherence to Operational Statements or other direction by DFO.   | Design        |
| 92  | <b>Wildlife and Wildlife Habitat Protection Plan</b> - The Developer will develop and implement a wildlife (i.e. mammals and birds) and wildlife habitat protection plan in consultation with GNWT ENR, Environment Canada, WMAC, and HTC's.  | Design        |
| 93  | <b>Archaeological Site(s) Protection Plan</b> - The Developer will prepare an archaeological site(s) protection plan to facilitate the continued protection and management of archaeological resources during the construction phase of the Project.  | Design        |
| 94  | <b>Pit Development Plan</b> – The Developer will provide pit development plans to the ILA and AANDC as part of the quarry permitting process. Site specific pit developments plans will be phased over three years ahead of each year of construction.  | Design        |
| 95  | The Developer and its contractors will be fully committed to complying with the terms and conditions of all licenses, permits, authorizations and approvals, items of non-compliance or concern will be dealt with immediately on site during project construction or as soon as practical thereafter.  | Construction  |
| 96  | The Developer anticipates developing an Environmental Management Plan for the operations phase of the project. The operations EMP will be completed six months prior to the opening of the Highway to the public. This EMP will be developed in consultation with agencies such as the HTC's, WMAC, Environment Canada and GNWT ENR. The EMP will include guidelines and public education   | Operations    |



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|                               | related to Highway usage and monitoring of highway user activities.   |                      |
| 97                            | The EMP will include an adaptive management component, which will reference appropriate BMPs, guidelines, and techniques that are relevant to construction in northern latitudes, and indicate how they are to be applied under specific circumstances  | Design, Construction |
| 98                            | As part of the adaptive management program, a list of outstanding or new environmental issues that require further action or monitoring will be compiled at the end of each winter construction season and environmental management plans will be updated as needed.  | Construction         |
| <b>Spill Contingency Plan</b> |   |                      |
| 99                            | <p>The Developer will require that Project contractors prepare spill contingency plans, outlining spill reporting, containment, and clean-up, in accordance with INAC's <i>Guidelines for Spill Contingency Planning</i> (2007).</p> <p>A spill contingency plan will be developed which includes prevention, preparedness and response. Copies of the spill plan will be made readily available on site, and all staff will be familiar with operational procedures in the event of a spill. The Spill Contingency Plan will:</p> <ul style="list-style-type: none"> <li>- assign responsibilities to company staff and/or contractors and outline a clear path of response;</li> <li>- provide a list of agencies / persons to be contacted in the event of a spill including their phone numbers, etc.;</li> <li>- provide direction regarding response actions for spills on various types of terrain (e.g. spills on land, water, snow/ice, muskeg, etc.);</li> <li>- create and maintain a list and indicate location(s), both on and off site, of equipment available to be used in the event of a spill;</li> <li>- ensure an appropriate spill kit with absorbent material is located at all sites where fuel storage and transfer occurs;</li> <li>- ensure drip pans are utilized when refueling equipment;</li> <li>- ensure proper handling and disposal of contaminated materials resulting from the containment, clean-up, etc. of any spills; and state that all spills of oil, fuel, or other deleterious materials, regardless of size, are to be reported to the NWT 24-hour Spill Line 1-867-920-8130.</li> </ul> | Construction         |
| 100                           | The Developer will require that Project contractors prepare an Environmental Emergency Response Plan (if required, as per Part 8, Environmental Emergencies Regulations of CEPA 1999).  | Construction         |
| 101                           | The Developer will ensure that the Project contractor has appropriate spill response equipment on-site.   | Construction         |
| 102                           | <p>All spills of oil, fuel, or other deleterious materials, regardless of size, are to be reported to the NWT 24-hour Spill Line (867) 920-8130. All releases of harmful substances, regardless of quantity, are immediately reportable where the release:</p> <ul style="list-style-type: none"> <li>- is near or into a water body;</li> <li>- is near or into a designated sensitive environment or sensitive wildlife habitat;</li> <li>- poses an imminent threat to human health or safety; or</li> <li>- poses an imminent threat to a listed species at risk or its critical habitat.</li> </ul>  | Construction         |





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| 103                          | In the event of a spill, the Developer's contractors will respond according to the site- specific spill contingency plan and the contractor's HSE manual and procedures.  | Construction         |
| 104                          | The Developer commits to ensuring that any exposed areas will be suitably stabilized prior to the spring thaw period.   | Construction         |
| 105                          | The Developer is committed to using heavy equipment during Highway embankment construction through the winter months when all watercourse crossing locations are frozen.  | Construction         |
| 106                          | The Developer will require that Project contractors prepare spill contingency plans, outlining spill reporting, containment, and clean-up. These will be completed by contractor(s) at least three months prior to the start of construction.   | Design               |
| 107                          | <p>The Developer will develop and implement an erosion and sedimentation control plan as part of the EMP. The plan will comply with appropriate erosion and sediment control guidelines, GNWT best management practices (currently being prepared in coordination with DFO), and measures outlined in the DFO (1993) <i>Land Development Guidelines for the Protection of Aquatic Habitat</i>.</p> <p>Some measures that will be followed include:</p> <ul style="list-style-type: none"> <li>- Limiting the use of construction equipment to the immediate footprint of the Highway or borrow source;</li> <li>- Minimizing vegetation removal and conducting progressive reclamation at the clear-span abutments, culvert installations and borrow sources;</li> <li>- Keeping ice bridge and ice road surfaces free from soils and fine gravel that may be tracked out by vehicles;</li> <li>- Avoiding the use of heavy equipment in streams or on stream banks during summer months, and the adherence to the DFO Operational Statement for Temporary Stream Crossings (DFO 2008), where this is deemed necessary;</li> <li>- Installing silt fencing and/or checking dams, and cross drainage culverts as necessary to minimize siltation in runoff near waterbodies; and</li> <li>- Appropriately sizing and installing culverts, based on hydrological assessments and local experience, to avoid backwatering and washouts, and to ensure fish passage.</li> </ul> | Design, Construction |
| <b>Fish and Fish Habitat</b> |   |                      |
| 108                          | The Developer will conform to Section 36(3) of the <i>Fisheries Act</i> , prohibiting the deposit of a deleterious substance through implementation of erosion and sediment control measures.   | Design, Construction |
| 109                          | The proposed Highway will be sited and designed to avoid or mitigate adverse effects on fish and fish habitat (i.e. HADD) for the various stream crossings. Where a HADD is unavoidable, the Developer will provide sufficient information for the purpose of the authorization and will develop suitable compensation strategies.  | Design               |
| 110                          | A Fishery Compensation Plan will be completed for all watercourses where crossings are likely to result in the harmful alteration, disruption or destruction of fish habitat.   | Design               |



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| 111 | Additional fish habitat assessments will be undertaken in 2012 for the proposed Highway alignment selected as required. This will be determined in discussions with DFO during the regulatory phase.   | Design               |
| 112 | No instream work will occur in fish bearing streams during critical time periods.  | Construction         |
| 113 | Where critical fish habitat cannot be avoided, mitigation will be incorporated into the design.  | Construction         |
| 114 | Individual site-specific circumstances might preclude complete adherence to DFO Operational statements. In such cases, DFO will be consulted in advance to discuss and approve of proposed plans, which will include mitigation measures necessary to prevent or minimize effects.   | Construction         |
| 115 | In accordance with DFO (2009a), the installation of culverts in fish bearing streams will not be permitted between April 1 and July 15 for watercourses that provide habitat for spring/summer spawners.   | Construction         |
| 116 | Should the Developer require the use of explosives, any planned activities will be provided to DFO for review during the construction phase to ensure appropriate best practices are followed.   | Construction         |
| 117 | Where Authorizations may not be required, details on the use of Operational Statements and commitment to ensuring that they are being applied correctly will be provided to DFO.   | Design               |
| 118 | The Developer will consider, at a minimum, stream category when determining the type of structure to be placed at stream crossings.  | Construction         |
| 119 | The installation of culverts and the construction of bridges will be guided by an Environmental Management Plan (EMP), which will include construction scheduling restrictions, environmental construction guidelines, methods to prevent spills of deleterious substances, erosion and sediment control plan, and monitoring plan. The implementation of the measures contained in the EMP is intended to avoid or minimize effects to aquatic resources. | Design, Construction |
| 120 | Summer construction will not take place between April 1 and July 15, in accordance with the DFO timing window for spring spawning fish (i.e., grayling and northern pike, which are the only large-bodied fish species likely to use Project area streams for spawning).   | Construction         |
| 121 | Sediment inputs from drainage ditches will involve implementation of sediment controls such as ditch breaks, silt fences, or ditch rerouting, in conjunction with an investigation to determine the source of the sediment. Streambank erosion will require temporary stabilization with mats or longer term armoring.   | Construction         |
| 122 | Training will be provided for environmental monitors to identify sources and causes of erosion and sedimentation, but these individuals will also have access to professional engineers and biologists who can assist in identifying and rectifying potential or actual erosion sources.   | Construction         |
| 123 | The Developer expects its primary construction phase mitigation plan, the Fish and Fish Habitat Action Plan, to be developed six months prior to the   | Design, Construction |



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|     | commencement of construction.  |                                  |
| 124 | At this time, the Developer's policy is to not allow its employees or contractors to fish while engaged in their employment activities.  | Construction                     |
| 125 | Habitat conditions related to highway drainage and stream crossing structures will be monitored for a period of time following Highway completion, as determined in consultation with regulators, and, regular road, culvert, and bridge inspections will be conducted throughout the life of the Highway.   | Construction, operations         |
| 126 | Erosion control and plans to control runoff from the borrow sites, including any stockpiles that may be developed, will be addressed in pit development plans. Site drainage controls, including localized ditching/swales within the borrow sites and silt fencing will be employed as necessary to ensure that sedimentation contained in meltwater from ground ice in the aggregate, or site runoff in general, are appropriately managed and are not released into the surrounding watershed.  | Design, Construction, Operations |
| 127 | <p>The Developer will develop and implement a fish and fish habitat protection plan in cooperation with DFO, FJMC and the Tuktoyaktuk-Inuvik Working Group that will include mitigation measures such as:</p> <ul style="list-style-type: none"> <li>- Designing appropriate crossing structures based on site conditions;</li> <li>- Completing primary construction activities during winter months;</li> <li>- Applying erosion and sediment control measures and best practices;</li> <li>- Minimizing riparian disturbance (footprint);</li> <li>- Placing abutments at a sufficient distance from active stream channels;</li> <li>- Employing best management practices for culvert installation;</li> <li>- Annually monitoring for culvert subsidence or lifting;</li> <li>- Constructing in fish-bearing and non-fish bearing streams during winter;</li> <li>- Sizing culverts appropriately based on hydrological assessments and local experience;</li> <li>- Maintaining equipment away from waterbodies;</li> <li>- Having on-site spill containment equipment and operators trained to handle spills;</li> <li>- Reported spills will be contained by trained maintenance crews;</li> <li>- Maintaining a sufficient buffer of undisturbed land between borrow sources and waterbodies;</li> <li>- Following DFO-recommended <i>Monitoring Explosive-Based Winter Seismic Exploration in Water Bodies NWT 2000-2002</i> (Cott and Hanna 2005), and in particular, that the maximum peak pressure not exceed 50 kPa;</li> <li>- Following DFO-recommended <i>Discussion on Seismic Exploration in the Northwest Territories 2000-2003</i> (Cott, Hanna and Dahl 2003);</li> <li>- Following DFO-recommended <i>Offshore Oil and Gas Environmental Effects Monitoring: Approaches and Technologies</i> (Armsworthy et al. 2005);</li> <li>- Following DFO <i>Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters</i> (Wright and Hopky 1998), where applicable;</li> <li>- Following DFO (2010) <i>Protocol for Winter Water Withdrawal in the Northwest Territories</i>;</li> <li>- Following the DFO <i>Operational Statement for Culvert Maintenance</i> (DFO 2009b) where applicable;</li> <li>- Following the DFO <i>Operational Statement for Clear-span Bridges</i> (DFO 2009b) where appropriate;</li> </ul> | Design, Construction, Operation  |



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|  | <ul style="list-style-type: none"> <li>- Allowing filtration by natural vegetation;</li> <li>- Installing silt fences at each road-stream intersection;</li> <li>- Building regularly spaced cross-drainage culverts;</li> <li>- Applying spill response measures according to an approved spill contingency plan;</li> <li>- Posting signage at regular, visible intervals on Highway;</li> <li>- Constructing or installing stream crossing structures to avoid the impingement of active stream channels;</li> <li>- Effectively suppressing dust (i.e., through the use of water trucks) during the dry season; and</li> <li>- Following the recommendations of the Water License (once approved).</li> </ul>  |                      |
| <b>Wildlife and Wildlife Habitat - General</b> |  |                      |
| 128  | <p>Prior to construction, the Developer will develop and implement species specific Wildlife Management Plans (WMP) that will include:</p> <ul style="list-style-type: none"> <li>- specific mitigation measures for Species at Risk, caribou, grizzly bears, moose, furbearers, and birds;</li> <li>- mitigation measures described in Section 4.2.7 of the EIS;</li> <li>- camp safety design features;</li> <li>- wildlife detection and deterrent strategies;</li> <li>- critical periods for wildlife species;</li> <li>- periods when sensitive wildlife species are likely to be present in the Project area;</li> <li>- recommended setbacks;</li> <li>- structure design features that will reduce or limit their potential use as nesting structures;</li> <li>- triggers for adaptive management;</li> <li>- appropriate linkages to other mitigation plans for weed control, dust management and waste management; and</li> <li>- wildlife monitoring parameters.</li> </ul> | Design, Construction |
| 129  | The Developer will require its construction Contractors to conform with the Wildlife Management Plan (WMP) that will be developed for the Inuvik to Tuktoyaktuk Highway construction project.  | Design, Construction |
| 130  | The Developer or its contractor(s) will develop Bear Safety Guidelines and will educate staff accordingly.   | Design, Construction |
| 131  | The Developer's contractor(s) will be responsible for educating and training staff on applicable practices contained within the Wildlife Management Plans and the Bear Safety Guidelines, including the proper use of non-lethal wildlife deterrent materials (e.g., bear spray).  | Construction         |
| 132  | The Developer's contractor(s) will document the education and training provided to staff and provide evidence of such to regulators and in monitoring reports.   | Construction         |
| 133  | Camps and associated infrastructure will be designed to incorporate features that ensure safety for both personnel and wildlife, including installing adequate lighting, implementing proper waste management, cleaning and maintaining the kitchen and dining area, and implementing appropriate wildlife detection and deterrent strategies.   | Design, Construction |



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| 134 | Pre-disturbance surveys for critical wildlife habitat features (e.g., dens, nests, muskrat push-up) will be conducted prior to construction, in cooperation with GNWT ENR, as required. Survey results will be distributed in monitoring reports and provided to applicable regulators and interested parties, and may include mitigative measures to reduce potential effects.   | Design, Construction             |
| 135 | All wildlife encounters and mortalities will be reported to the environmental monitor, Safety Advisor, and GNWT ENR.  | Design, Construction, Operations |
| 136 | <p>The Developer will implement general wildlife protection measures along the proposed Highway as follows:</p> <ul style="list-style-type: none"> <li>- Minimizing loss of habitat and the reduction of habitat effectiveness through Project design;</li> <li>- Educating users of the Highway that wildlife have the right-of-way at all times;</li> <li>- Posting signage along the Highway, emphasizing areas of high wildlife use;</li> <li>- Implementing a policy whereby Project personnel and contractors will not disturb any wildlife or critical habitat features such as dens or nests;</li> <li>- Implementing a system during the construction phase that serves to notify workers of wildlife presence in or near construction areas;</li> <li>- Hiring environmental monitors during construction to watch for wildlife;</li> <li>- Adhering to spill contingency plans, as required, in a timely manner;</li> <li>- Conducting follow-up monitoring of spill sites to verify effectiveness;</li> <li>- Utilizing clean equipment, particularly when deployed in or near water;</li> <li>- Implementing appropriate dust control measures to minimize effects to habitat and forage quality;</li> <li>- Adhering to waste management plans and procedures to avoid attracting wildlife;</li> <li>- Timing construction activities to avoid critical periods;</li> <li>- Applying and conforming with pre-determined setback distances from key wildlife habitat features;</li> <li>- Implementing a "no hunting" policy for Highway construction and maintenance workers; and</li> <li>- Working with agencies such as the HTC's, WMAC, Environment Canada and GNWT ENR to develop guidelines and conditions for Highway usage and follow-up with monitoring of harvesting activities.</li> </ul> | Design, Construction, Operations |
| 137 | The Developer is committed to working with agencies and other interested stakeholders such as the HTC's to develop appropriate management restrictions and tools to ensure that the environment of the area remains protected. The types of measures that the Developer can implement directly include the provision of educational and informative signage at key points along the Highway.  | Design, Construction, Operations |
| 138 | The construction and/or operations phase Wildlife Mitigation and Monitoring Plan(s) will be reviewed with co-management groups such as the Hunter and Trapper Committees and the Wildlife Management Advisory Committee as the development of the plans proceeds.   | Construction, Operations         |
| 139 | <p>An annual construction monitoring report will be provided to applicable regulators and interested parties that will include:</p> <ul style="list-style-type: none"> <li>- Encounters and mortalities;</li> <li>- Notifications provided to workers regarding wildlife presence;</li> </ul>   | Construction                     |



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|   | <ul style="list-style-type: none"> <li>- Waste management practices;</li> <li>- Measures used to reduce disturbance to any nesting birds;</li> <li>- Dust control effectiveness;</li> <li>- Conformance with the Wildlife Management Plan, Environmental Management Plan, Erosion and Sediment Control Plan, and other plans;</li> <li>- Adaptive management measures that were implemented, if any.</li> </ul>   |                                 |
| 140   | Wildlife data collected will be provided to GNWT ENR for entry into WMIS or to Environment Canada, Yellowknife.   | Design                          |
| <b>Wildlife and Wildlife Habitat – Types of Mitigation for Caribou</b>                      |   |                                 |
| 141   | <p>Types of mitigation measures that the Developer will integrate into the Project design, construction, and anticipated future operational practices to reduce or minimize potential impacts of the proposed Highway on caribou are:</p> <ul style="list-style-type: none"> <li>- Limiting blasting activities, if required, to borrow sites and will only occur when caribou are &gt;500 m from the blast site;</li> <li>- Working with agencies such as the HTC's, WMAC, and GNWT ENR to develop guidelines for periodic Highway closures, if required, as a way of minimizing the disruption of migration patterns to barren-ground caribou;</li> <li>- All sightings of caribou will be reported to environmental staff on-site;</li> <li>- Caribou sightings will be recorded (including a GPS location if possible) and be submitted to the GNWT DOT Planning, Policy and Environmental Division and GNWT ENR upon completion of construction; and</li> <li>- Caribou crossing signs will be placed along the Highway, as needed.</li> </ul>   | Design, Construction, Operation |
| <b>Wildlife and Wildlife Habitat – Types of Mitigation for Grizzly Bears and Furbearers</b> |   |                                 |
| 142   | In October 2011, GWNT ENR and GNWT DOT will undertake a grizzly bear den survey for the proposed Highway alignment and key potential borrow sources. This survey will be repeated in fall 2012 as a pre-construction denning survey.  | Design, Construction            |
| 143   | <p>Types of mitigation measures that the Developer will integrate into the Project design, construction, and anticipated future operational practices to reduce or minimize potential impacts of the proposed Highway on grizzly bears and furbearers include:</p> <ul style="list-style-type: none"> <li>- Freshly dug dens will be mapped such that construction activities will avoid active dens during the hibernation period;</li> <li>- If possible, no activities will occur within 500 m of an active den during the denning period (October 15 to May 25);</li> <li>- No blasting will occur if active bear dens are confirmed within 500 m of a proposed blasting area;</li> <li>- Maintaining a minimum distance of 500 m between identified grizzly bear/wolverine den sites and personnel during construction;</li> <li>- Dens (grizzly bear, wolverine) discovered within 500 m of the Highway after the pre- construction survey will be reported immediately to GNWT ENR to determine the appropriate course of action;</li> <li>- Providing the wildlife monitor and designated, trained staff access to non-lethal deterrent materials (e.g., bear spray). The use of any deterrent method on wildlife will be reported to GNWT ENR;</li> <li>- Minimizing and properly disposing of wildlife attractants such as garbage, food wastes, and other edible and aromatic substances;</li> </ul> | Construction                    |





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|  | <ul style="list-style-type: none"> <li>- Storing all food, grease, oils, fuels, and garbage in bear/wolverine-proof containers and/or areas; and</li> <li>- Transporting waste to Tuktoyaktuk and/or Inuvik municipal solid waste facilities for disposal. Disposal of wastes at these facilities will follow the specified terms and conditions for use.</li> </ul>  |                      |
| <b>Wildlife and Wildlife Habitat – Types of Mitigation Measures for Birds</b>                |   |                      |
| 144  | <p>Types of mitigation measures that the Developer will integrate into the Project design, construction, and anticipated future operational practices to reduce or minimize potential impacts of the proposed Highway on birds include:</p> <ul style="list-style-type: none"> <li>- Conducting pre-disturbance bird nest surveys from May-September to document use by nesting birds;</li> <li>- Avoiding conducting Project activities within 500 m of an active raptor nest during nesting season;</li> <li>- Designing structures in a way that limits or prevents their potential use as nesting structures; and</li> <li>- Allowing nesting birds who have utilized structures to remain in place.</li> </ul> | Design, Construction |
| <b>Wildlife and Wildlife Habitat – Types of Mitigation Measures for Peregrine Falcons</b>    |   |                      |
| 145  | If a peregrine falcon nest is found in the future GNWT ENR will be contacted to determine any appropriate management actions required.  | Design, Construction |
| <b>Wildlife and Wildlife Habitat – Types of Mitigation Measures for Bird Species at Risk</b> |   |                      |
| 146  | <p>The Developer will incorporate additional mitigation measures for bird Species at Risk including:</p> <ul style="list-style-type: none"> <li>- Immediately contacting appropriate federal (CWS) and territorial (GNWT ENR) authorities if a nest of a key bird species is identified within predetermined set-back distances (as determined through consultation with CWS/ENR).</li> <li>- Recording observations of species at risk that occur outside of the predetermined setback, and providing the observations in the annual construction monitoring report.</li> </ul>  | Construction         |
| <b>Waste Management</b>  |   |                      |
| 147  | The Developer will develop a waste management plan for all wastes associated with pre- construction and construction activities. The waste management plan will apply to the Developer and all associated Project contractors involved in the generation, treatment, transferring, receiving, and disposal of waste materials for the Project.  | Design, Construction |
| 148  | <p>The Developer commits to the following steps prior to disposal of waste:</p> <ul style="list-style-type: none"> <li>- Obtaining approval from the Town of Inuvik and Hamlet of Tuktoyaktuk to use their sewage lagoon and solid waste disposal facilities;</li> <li>- Providing an estimate of the amount and type of domestic waste generated by the Project compared to the facility's available capacity;</li> <li>- Following all applicable Licence, Permits, and/or municipal bylaws regarding the use of the facility in Inuvik and Tuktoyaktuk; and</li> <li>- Recording the amount of domestic waste shipped to the landfills.</li> </ul>   | Construction         |
| 149  | The Developer will develop and implement a hazardous waste management plan (HWMP). The HWMP will encompass all pre-construction and construction  | Construction         |



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|                                   | phases of the Project and will apply to the Developer and all Project contractors involved in receiving, transferring, and transporting hazardous waste for the Developer's activities on land, water, and air.  |                          |
| <b>Fuel Management</b>            |  |                          |
| 150                               | The Developer commits to storing fuel used for borrow source and Highway construction activities in double-walled fuel storage tanks and in accordance with CCME guidelines and the CEPA <i>Storage Tank System for Petroleum Products and Allied Petroleum Products Regulations</i> .   | Construction             |
| 151                               | All vehicles and equipment will be refueled at least 100 m from water bodies following INAC (DIAND) fuel storage guidelines.   | Construction             |
| <b>Water Quality and Quantity</b> |  |                          |
| 152                               | The Developer will conform to Section 36(3) of the <i>Fisheries Act</i> , prohibiting the deposit of a deleterious substance through implementation of erosion and sediment control measures.  | Design, Construction     |
| 153                               | The Developer will ensure that the DFO water withdrawal protocol criteria are followed.  | Construction             |
| 154                               | The Developer is committed to carrying out bathymetric surveys on all lakes proposed for water extraction.   | Construction             |
| 155                               | <p>The Developer will minimize effects to water quality and quantity as a result of Highway design:</p> <ul style="list-style-type: none"> <li>- through the design and use of crossing structures that are appropriate for site-specific flow conditions;</li> <li>- by employing erosion and sediment control best management practices and DFO Operational Statements (where possible) as per approved Environmental Management Plans;</li> <li>- installing appropriately sized culverts to divert and manage Highway and surface drainage flows; and</li> <li>- undertaking primary Highway embankment construction activities during the winter months.</li> </ul> | Design, Construction     |
| 156                               | The Developer is committed to completing hydrological assessments prior to bridge design to determine suitable span widths and abutment placement.   | Design, Construction     |
| 157                               | During the bridge design of the Project, should individual site-specific circumstances preclude complete adherence to the DFO Operational Statements, the Developer will consult with DFO in advance to discuss and approve of proposed plans.   | Design                   |
| 158                               | All water withdrawals from designated lakes or waterbodies along the Inuvik to Tuktoyaktuk Highway will be conducted in conformance with the DFO Protocol for Winter Water Withdrawal in the Northwest Territories.  | Construction, Operations |
| 159                               | Surface water flows (overland flows) will be managed through effective drainage designs that include the installation of appropriately sized cross culverts to divert and effectively manage Highway and surface drainage and to minimize possible   | Construction             |



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|                         | ponding of water against the Highway embankment.  |                                  |
| 160                     | The Developer will provide a copy of the Erosion and Sediment Control Plan to Environment Canada for review.  | Design                           |
| 161                     | The Developer is committed to submitting the necessary formal applications to the NWPP, and to inform the NWPP of any related design, construction or operational changes related to such applications.   | Design, Construction, Operations |
| 162                     | <p>Some of the mitigation measures for water quality and quantity effects the Developer will follow include:</p> <ul style="list-style-type: none"> <li>- Limiting the use of construction equipment to the immediate footprint of the Highway or borrow source;</li> <li>- Minimizing vegetation removal and conducting progressive reclamation at the clear-span abutments, culvert installations, and borrow sources;</li> <li>- Keeping ice bridge and ice road surfaces free from soils and fine gravel that may be tracked out by vehicles;</li> <li>- Avoiding the use of heavy equipment in streams or on stream banks during summer months, and the adherence to the DFO <i>Operational Statement for Temporary Stream Crossings</i> (DFO 2008), where this is deemed necessary;</li> <li>- Implementing the erosion and sediment control plan to be developed as part of the overall EMP;</li> <li>- Appropriately sizing and installing culverts based on hydrological assessments and local experience, to avoid backwatering and washouts, and to ensure fish passage;</li> <li>- Completing Highway embankment construction during winter months;</li> <li>- Adhering to the DFO <i>Operational Statement for Clear-Span Bridges</i> for all applicable activities;</li> <li>- Implementing appropriate dust control measures to minimize effects to waterbodies and aquatic habitat;</li> <li>- Following the DFO <i>Operational Statement for Culvert Maintenance</i> (DFO 2010) where necessary;</li> <li>- Maintaining equipment away from waterbodies; and</li> <li>- Adhering to spill contingency plans, as required, in a timely manner.</li> </ul> | Construction                     |
| <b>Stream Crossings</b> |   |                                  |
| 163                     | <p>Commitment by the Developer to conduct consultations (after Public Hearings) with the Inuvik and Tuktoyaktuk Hunter and Trapper Committees, Inuvialuit Game Council, DFO and Transport Canada regarding:</p> <ul style="list-style-type: none"> <li>- Selection criteria for crossings;</li> <li>- Use of waterbodies; and</li> <li>- Types of vessels.</li> </ul> <p>Consultation dates are to be determined.</p>   | Design                           |
| 164                     | The Developer will conform to Section 36(3) of the <i>Fisheries Act</i> , prohibiting the deposit of a deleterious substance through implementation of erosion and sediment control measures.   | Design, Construction             |
| 165                     | The Developer will provide a copy of the Erosion and Sediment Control Plan to Environment Canada for review.  | Design                           |



## REVIEW PANEL FINAL REPORT: ITH Development Proposal

| No. | COMMITMENT  | PROJECT PHASE            |
|-----|---|--------------------------|
| 166 | The Developer (under appropriate seasonal conditions), will conduct further assessments of the proposed water crossing locations and will provide information about watercourse characteristics and proposed crossing structure designs sufficient to meet the requirements of the Northwest Territories Waters Regulations.  | Design, Construction     |
| 167 | The Developer is committed to working closely with DFO to design appropriate crossing structures for each stream and to obtain Fisheries Authorizations, if determined to be required.  | Design, Construction     |
| 168 | The Developer will install culverts according to established guidelines and will follow culvert installation guidelines such as those contained within the DFO <i>Land Development Guidelines</i> (1993), the TAC <i>Development and Management of Transportation Infrastructure in Permafrost Regions</i> (2010), and the INAC <i>Northern Land Use Guidelines for Roads and Trails</i> (INAC 2010). | Construction             |
| 169 | The Developer will install appropriately sized culverts to minimize changes in water flow pattern and timing.   | Construction             |
| 170 | The Developer will not install culverts in critical aquatic habitats.   | Construction             |
| 171 | The Developer will carry out routine monitoring and inspections at watercourse crossings and culverts, including reporting on culvert performance and maintenance requirements.   | Construction, Operations |
| 172 | The Developer will ensure that maintenance requirements for culverts will adhere to the DFO <i>Culvert Maintenance Operational Statement</i> (DFO 2010).  | Operations               |
| 173 | The Developer will ensure that when crossings are completed, disturbed materials will be replaced with similar-sized substrates and the bed and banks of the watercourse are stabilized and restored.   | Construction             |
| 174 | Site specific navigable waters information will be finalized as part of the NWPA applications.  | Design                   |
| 175 | Hydrological assessments will be conducted prior to bridge design to determine suitable span widths and abutment placement, including identification of suitable water withdrawal sources (lakes and streams); bathymetric mapping of proposed water sources; and assessment of allowable withdrawal quantities per source, unique source identification, and water withdrawal volume tracking.       | Design                   |
| 176 | Individual stream crossing structures will be oversized (two to three times the size used in non-permafrost areas) to prevent flow restrictions and to compensate for design uncertainties, such as settlement and ice or snow blockages (TAC 2010).  | Design                   |
| 177 | During the detailed design stage, flow data using regional flow gauge information will be used to model stream flows to permit suitable culvert and bridge sizing.  | Design                   |
| 178 | The majority of the stream crossings will involve the installation of culverts, which will follow appropriate guidelines to prevent the obstruction of fish passage.  | Construction             |
| 179 | Culvert installation during winter will follow procedures that include the  | Construction             |



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| No.               | COMMITMENT  | PROJECT PHASE                                     |
|-------------------|---|---|
|                   | application of bed and bank stabilization prior to snow melt to reduce erosion and downstream sedimentation at the onset of freshet flows.  |   |
| 180               | Where it is deemed preferable to install culverts in summer, construction will adhere to appropriate guidelines, such as those identified in Dane (1978) and in the DFO <i>Land Development Guidelines for the Protection of Aquatic Habitats</i> , to avoid or minimize the potential for erosion, sedimentation or channel effects.   | Construction                                      |
| 181               | Short span bridges will be constructed bank to bank to eliminate instream activities, thus preserving natural stream flows and fish passage. Temporary erosion and sediment control measures will be utilized to protect the streams during construction, and site-specific preventive measures will be employed for each crossing as appropriate.  | Construction                                      |
| 182               | Single span structures will be used where fish habitat has been identified as present. No binwalls will be used for abutments.  | Design, Construction                              |
| 183               | The Developer confirms that the bridges required to cross the larger streams will be designed to span the stream widths (ranging from 10 m to 25 m in width), consistent with the specifications of the DFO <i>Clear-Span Bridge Operational Statement</i> .  | Construction                                      |
| 184               | To minimize ponding along the roadway during melt, equalization culverts will be placed regularly to allow water to run away from the road edge, and not sit trapped against the embankment.  | Construction                                      |
| 185               | All culvert crossings will be regularly inspected for signs of erosion or damage, which would likely result in increased turbidity downstream. In addition, exceedances of turbidity levels at a significant number (>10%) of the monitored streams would trigger the requirement to carry out monitoring at all stream crossings.  | Construction, Operations                          |
| 186               | Culverts installed in fish bearing streams will be assessed annually for three years to verify that they continue to provide free access to fish passage, particularly during migration periods.  | Construction, Operations (up to three years only) |
| 187               | Turbidity sampling will occur at all crossing sites during construction. Sampling will follow the general guidance provided in Birtwell et al. (2008) as follows: <ul style="list-style-type: none"> <li>- Sampling will occur at three locations: upstream (true baseline control) of the crossing structure, at the point of, and immediately downstream of, the structure.</li> <li>- Environmental monitors will visually identify potential inputs of sediment and determine suitable sampling locations accordingly.</li> </ul> | Construction, Operations                          |
| 188               | Turbidity monitoring will occur at the time of highest runoff, which typically occurs during spring freshet.  | Construction, Operations                          |
| 189               | Provide alignment sheets showing stream crossings and structure type to interested parties.   | Design  |
| <b>Vegetation</b> |   |   |
| 190               | The Developer commits to surveying borrow sources prior to construction for the   | Design, Construction                              |



## REVIEW PANEL FINAL REPORT: ITH Development Proposal

| No.                | COMMITMENT   | PROJECT PHASE            |
|--------------------|--|--------------------------|
|                    | presence of Yukon stitchwort and other rare plant species. Should rare plants be identified, they will be avoided where possible. If avoidance is not an option specimens will be collected, transferred to another suitable location, and/or donated to local herbaria for educational purposes.  |                          |
| 191                | The Developer commits to minimize direct effects to vegetation cover by limiting construction activities, to the extent possible, to the planned footprint of the Highway.   | Construction             |
| 192                | Surveys ahead of construction in the vicinity of Holmes Creek and Hans Creek will be carried out to verify the location of the road alignment and stream crossings with respect to the unique Riparian Black Spruce/Shrub vegetation type.   | Construction             |
| 193                | A rare plant survey will be conducted in 2012.   | Design                   |
| 194                | Controlling the effects of dust during construction and operation of the Highway will include applying water as needed, as per the GNWT <i>Guideline for Dust Suppression</i> (GNWT 1998).   | Construction             |
| 195                | The Developer commits to using appropriate northern, native plant species for any deliberate re-vegetation efforts of borrow sources.  | Construction, Operations |
| 196                | <p>The Developer or contractor(s) will apply strategies for mitigating potential effects to the vegetation types in the vicinity of the Highway and associated borrow operations such as:</p> <ul style="list-style-type: none"> <li>- Restricting off-site activities (e.g., ATV use) to the footprint area;</li> <li>- Ensuring machinery and equipment is clean prior to use on site;</li> <li>- Periodically monitoring roadsides for invasive species establishment;</li> <li>- Designing and engineering roadbed and drainage structures appropriately to accommodate unique environmental conditions; and</li> <li>- Containing and cleaning-up spills immediately in accordance with the spill contingency plans.</li> </ul> | Design, Construction     |
| 197                | Surveys ahead of construction in the vicinity of Holmes Creek and Hans Creek will be carried out to verify the location of the road alignment and stream crossings with respect to the unique Riparian Black Spruce/Shrub vegetation type.   | Design                   |
| <b>Air Quality</b> |  |                          |
| 198                | The Developer will conform to applicable ambient air quality objectives by using pollution prevention measures and best management practices.  | Construction             |
| 199                | <p>Mitigation measures for air quality during the construction phase will include:</p> <ul style="list-style-type: none"> <li>- Applying water as per the GNWT's <i>Guideline for Dust Suppression</i> (GNWT 1998) during summer months;</li> <li>- To the extent possible, aggregate stockpiling activities will be conducted well downwind of potentially sensitive receptors (based on prevailing winds);</li> <li>- Closing and progressively reclaiming borrow pits as soon as they are no longer required to reduce potential fugitive dust;</li> <li>- Ensuring proper maintenance of heavy equipment to minimize air emissions;</li> </ul>   | Construction             |





## REVIEW PANEL FINAL REPORT: ITH Development Proposal

| No.             | COMMITMENT   | PROJECT PHASE                    |
|-----------------|--|----------------------------------|
|                 | and<br>- Restricting speed limits along the access roads and Highway during construction to minimize dust production.  |                                  |
| 200             | The Developer will be responsible for the ongoing maintenance of the Highway during the operations phase and will conform to the GNWT's <i>Guideline for Dust Suppression</i> (GNWT 1998).   | Operations                       |
| <b>Land Use</b> |  |                                  |
| 201             | The Developer will implement mitigation measures to minimize potential land use effects such as:<br>- Ensuring that construction vehicles stay on access roads or the construction site at all times; and<br>- Prohibiting the recreational use of the Highway by Project staff during construction, including the use of ATVs and snowmachines.   | Construction                     |
| 202             | During the operations phase, the Developer will work with appropriate parties to install signage and/or develop educational materials to encourage users to stay on the Highway and not adjacent areas.  | Operations                       |
| 203             | The Developer is committed to working with agencies and other interested stakeholders such as the HTC's to develop appropriate management restrictions and tools to ensure that the environment of the area remains protected. The types of measures that the Developer can implement directly include the provision of educational and informative signage at key points along the Highway. | Design, Construction, Operations |
| 204             | Supplemental geotechnical and biophysical studies will be conducted to fulfill the requirements of the land use and quarry applications.   | Design                           |
| 205             | The Developer will implement mitigation measures to minimize potential land use effects such as:<br>- Ensuring that construction vehicles stay on access roads or the construction site at all times; and<br>- Prohibiting the recreational use of the Highway by Project staff during construction, including the use of ATVs and snowmachines.   | Construction                     |
| <b>Noise</b>    |  |                                  |
| 206             | The Developer will consult with experts and appropriate regulatory agencies, as needed, to minimize noise effects on wildlife, migratory birds, and species at risk, particularly during blasting activities.  | Construction                     |
| 207             | The Developer will use appropriate design, scheduling, logistics, and maintenance measures to reduce the effects of noise.   | Design, Construction             |
| 208             | Project contractors will be directed to apply reasonable mitigation measures to reduce possible effects associated with construction noise, including adequate maintenance of construction equipment and provision of appropriate mufflers for all internal combustion engines.  | Construction                     |
| 209             | Blasting activities, if required, will be timed to avoid periods when sensitive wildlife species are in the area.  | Construction                     |



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| No.                | COMMITMENT  | PROJECT PHASE                    |
|--------------------|---|----------------------------------|
| <b>Archaeology</b> |   |                                  |
| 210                | The Developer will hire a qualified archaeologist to perform a final Archaeological Impact Assessment within a 100 m wide corridor along the alignment and all associated components such as borrow sources, work staging areas, and construction camps. All types of terrain will be sampled, including those with limited archaeological potential.   | Design, Construction             |
| 211                | Field work will be conducted in 2011 for areas of high and moderate archaeological potential and extended areas around known and potential archaeological sites along the proposed Highway alignment. Potential borrow sites investigated in 2011 will also be surveyed. Potential impacts to archaeological resources will be identified. An assessment of archaeological sites potentially impacted will be provided to the Prince of Wales Northern Heritage Centre to determine adequacy of mitigation measures.  | Design                           |
| 212                | Additional archaeological assessments will be undertaken as required in 2012. This will be determined in discussion with the Prince of Wales Northern Heritage Centre.  | Design                           |
| 213                | Mitigation measures will be designed on an individual basis, and require prior approval by the Prince of Wales Northern Heritage Centre.  | Construction                     |
| 214                | The Developer will, on recommendation from the contract archaeologist or Prince of Wales Northern Heritage Centre, implement avoidance or mitigation measures to protect archaeological sites or to salvage the information they contain through excavation, analysis, and report writing.  | Construction                     |
| 215                | The Developer will prepare an archaeological site(s) protection plan to facilitate the continued protection and management of archaeological resources during the construction phase of the Project.  | Construction                     |
| 216                | The Developer and its Project contractors will make every effort to avoid and protect recorded and unrecorded archaeological and heritage resources in accordance with the terms and conditions of the Northwest Territories archaeological regulations during the Project.   | Construction                     |
| <b>Monitoring</b>  |   |                                  |
| 217                | An annual construction monitoring report will be provided to applicable regulators and interested parties that will include: <ul style="list-style-type: none"> <li>- Encounters and mortalities;</li> <li>- Notifications provided to workers regarding wildlife presence;</li> <li>- Waste management practices;</li> <li>- Measures used to reduce disturbance to any nesting birds;</li> <li>- Dust control effectiveness;</li> <li>- Conformance with the Wildlife Management Plan, Environmental Management Plan, Erosion and Sediment Control Plan, and other plans;</li> <li>- Adaptive management measures that were implemented, if any.</li> </ul> | Construction                     |
| 218                | The Developer will invite interested agencies, organizations, and co-management groups to participate in an Inuvik to Tuktoyaktuk Highway Corridor Working Group facilitated by the Department of Transportation and guided by a collaboratively developed Terms of Reference. The Group could  | Design, Construction, Operations |



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| No. | COMMITMENT   | PROJECT PHASE            |
|-----|--|--------------------------|
|     | <p>meet on a bi-annual basis during the construction and early operations phases to discuss the following:</p> <ul style="list-style-type: none"> <li>- Review construction progress and performance relative to commitments;</li> <li>- Review outcomes of monitoring described in the various management plans (e.g., WEMP and others);</li> <li>- Provide advice to the Developer and other organizations supporting the management plans on remediation or modification to activities;</li> <li>- New observations and issues that could develop in the operation of the Highway.</li> </ul> |                          |
| 219 | The Developer requires that Project contractors employ an adaptive management approach to ensuring sensitive species/ species at risk are adequately protected during all phases of construction.  | Construction             |
| 220 | The Developer is committed to hiring environmental monitors to ensure the application of prescribed mitigation, identify unforeseen and potential erosion sites that could lead to the discharge of sediment to surface or groundwater, and prevent erosion and subsequent sedimentation.  | Construction             |
| 221 | Compliance and effects monitoring activities will be conducted to ensure the terms and conditions set out in regulatory approvals, licences and permits, the EMP, and in the commitments are met, and to check the effectiveness of mitigation measures in avoiding or minimizing potential effects.   | Construction, Operations |
| 222 | The Developer will prepare an effects monitoring table and an inspection table prior to construction. The effects monitoring table will describe the indicators and parameters to be monitored and the target or management goal. The inspections table will describe the types of inspections required, the frequency of the inspections, and which phase of the Project the inspection will occur.   | Design, Construction     |
| 223 | Environmental and wildlife monitoring will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTC (wildlife monitors), and will be funded by the Developer and/or Developer's contractor(s).  | Construction             |
| 224 | The Developer will conduct post-construction monitoring according to the extent, frequency and duration required by regulators to evaluate the success of mitigation measures and to identify required modifications, repairs, or maintenance.   | Operations               |
| 225 | The Developer will require that Project contractors work closely with the environmental and wildlife monitors during construction.   | Construction             |
| 226 | The Developer is committed to participating with other parties in a cumulative effects monitoring program.   | Construction, Operations |
| 227 | The Developer commits to the development of a compliance monitoring table prior to commencement of construction.   | Design                   |
| 228 | Site specific monitoring and contingency plans will be developed in conjunction with the detailed construction design phase of the Project.  | Design, Construction     |
| 229 | The Developer is committed to ensuring that any "lessons learned" will be effectively communicated to the responsible management agencies to support   | Construction, Operations |



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| No.                                     | COMMITMENT   | PROJECT PHASE        |
|---|--|----------------------|
|   | adaptive management over the longer-term life of the Highway.  |                      |
| 230                                     | The Developer is committed to work closely with the ILA, the Tuktoyaktuk and Inuvik Hunters and Trappers Committees (HTCs); the Wildlife Management Advisory Committee (WMAc), the Fisheries Joint Management Committee (FJMC), the GNWT Department of Environment and Natural Resources (ENR), and selected environmental consultants to monitor environmental conditions and to validate conformance with the mitigation measures contained in the various environmental protection plans, licenses and permits that will be issued for the Highway construction project.  | Design, Construction |
| 231                                     | <p>To monitor the effects of stream crossings:</p> <ul style="list-style-type: none"> <li>- The following parameters will be measured: turbidity (Nephelometric Turbidity Units (NTU); pH; dissolved oxygen; conductivity; temperature.</li> <li>- Sampling will be conducted within 50 metres upstream of each crossing site and 50 and 100 metres downstream of each crossing site (i.e. three measurement sites per stream).</li> <li>- Sampling will occur in spring, following ice-out, which is the time of freshet when there is the greatest risk of erosion and sediment transport.</li> <li>- The threshold turbidity levels that will be followed for the implementation of remediation are based on the BC Ministry of Environment <i>Ambient Water Quality Guidelines</i>, as follows: <ul style="list-style-type: none"> <li>• During clear flow periods: background levels should not be exceeded by more than 8 NTU.</li> <li>• During turbid flow periods: background levels should not be exceeded by more than 5 NTU at any time when background turbidity is between 8 and 50 NTU. When background exceeds 50 NTU, turbidity should not be increased by more than 10% of the measured background level at any one time.</li> </ul> </li> </ul> | Construction         |
| <b>Developer Commitments to Parties</b> |  |                      |
| 232                                     | <p>Developer commitments made at the IGC meeting includes:</p> <ul style="list-style-type: none"> <li>- For culvert design, the Developer will use best lessons learned from the Tuktoyaktuk to Source 177 Access Road, the Dempster Highway, and Russia.</li> <li>- The Developer will follow DFO guidelines for Culvert design.</li> <li>- The Developer will not use reclaimed borrow sources (gravel pits) again.</li> <li>- There will be gravel stockpiles for surfacing.</li> <li>- Climate change is being considered for Highway construction.</li> </ul>   | Design, Construction |
| 233                                     | <p>Developer commitments made at the FJMC meeting includes:</p> <ul style="list-style-type: none"> <li>- The Developer will provide a PDF copy of the final Hydrotechnical Report to FJMC next week, after it is submitted to EIRB on October 5, 2012.</li> <li>- The Developer will set up meetings with TIWG in October-November 2012.</li> <li>- The Developer will be meeting with Tuktoyaktuk and Inuvik HTCs in October or November 2012.</li> <li>- The Developer wants to develop a framework for the fisheries management plan and fill in agency responsibilities.</li> <li>- The Developer can, in principle, give a commitment for funding monitoring, but currently does not have funding. This will be better defined as we go forward.</li> <li>- The Developer will report back to FJMC November 1, 2012 regarding</li> </ul>  | Design, Construction |



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| No. | COMMITMENT  | PROJECT PHASE        |
|-----|---|----------------------|
|     | <p>the status of management plan work.</p> <ul style="list-style-type: none"><li>- The Developer will collect the draft Husky Lakes Management Plan and Modeling Report from DFO.</li><li>- The Developer will send joint minutes (ITH proponent and FJMC) of this meeting to EIRB.</li></ul>   |                      |
| 234 | <p>Developer commitments made at the WMAC (NWT) meeting includes:</p> <ul style="list-style-type: none"><li>- The Developer will submit a Wildlife and Wildlife Habitat Protection Plan before there is a final decision from the EIRB. The plan will not be final until after the EIRB has reached a decision as there may be recommendations for the plan.</li><li>- The Developer will engage the HTC's in Inuvik and Tuktoyaktuk.</li><li>- The Developer will engage the WMAC resource person on an ongoing basis and the WMAC resource person will determine how to engage the WMAC members.</li><li>- The Developer will develop draft plans for review by WMAC.</li><li>- The Developer will present the draft plans to WMAC at their December meeting.</li></ul> | Design, Construction |



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## Appendix 6 – List of Exhibits



## REVIEW PANEL FINAL REPORT: ITH Development Proposal

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## REVIEW PANEL FINAL REPORT: ITH Development Proposal

**Table A6-1: List of Exhibits (November 6, 2012)**

| File #           | Document                   | Description   |
|------------------|----------------------------|---|
| [02/10-05] 000-1 | Project Summary            | Project Summary   |
| notify           | Notice                     | New Project Created [02/10-11] 001-1                                  |
| [02/10-05] 000-1 | Emergency Response Plan    | Project Summary Part 2  |
| [02/10-05] 001-1 | Project Description        | Project Description Part 1  |
| [02/10-05] 002-1 | Project Description        | Project Description Part 2  |
| [02/10-05] 003-1 | Developer Letter           | EISC Decision Letter Package April 2010                               |
| [02/10-05] 004-1 | Other                      | Developer Reply to EISC Decision                                      |
| [02/10-05] 005-1 | Decision Letter            | Decision Letter   |
| notify           | Notice                     | Decision Letter Created [02/10-05] 005-1                              |
| [02/10-05] 006-1 | Other                      | EISC Referral to EIRB   |
| [02/10-05] 007-1 | Duplicate Project for EIRB | Duplicate Project for EIRB  |
| [02/10-05] 008-1 | Comment/Advice Letter      | Notice of referral to Proponent - 2010-05-05                          |
| [02/10-05] 009-1 | Comment/Advice Letter      | Notice of referral to Joint Secretariat - 2010-05-05                  |
| [02/10-05] 010-1 | Comment/Advice Letter      | Notice of Referral to Government Agencies - 2010-05-05                |
| [02/10-05] 011-1 | Comment/Advice Letter      | PUBLIC NOTICE OF REFERRAL - 2010-05-05                                |
| [02/10-05] 012-1 | Comment/Advice Letter      | PUBLIC NOTICE OF REFERRAL - 2010-05-05                                |
| [02/10-05] 013-1 | Comment/Advice Letter      | Notice of Referral to Minister of INAC and EC - 2010-05-07            |
| [02/10-05]-014-2 | Other                      | Inuvik-Tuktoyaktuk Highway Developer Information Request - 2010-05-28 |
| [02/10-05] 015-1 | Other                      | Information request Letter to developer - 2010-06-04                  |



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| File #           | Document              | Description   |
|------------------|-----------------------|---|
| [02/10-05] 016-1 | Other                 | Letter to CEAA - 2010-06-04   |
| [02/10-05] 017-1 | Comment/Advice Letter | Developer Response Letter to EIRB - 2010-06-11                                  |
| [02/10-05] 018-1 | Public Notice         | Notice of Deadline Extension to Register Participants - 2010-06-15              |
| [02/10-05] 019-1 | Other                 | Letter from Minister Chuck Strahl - 2010-06-29                                  |
| [02/10-05] 020-1 | Other                 | Letter from Minister Jim Prentice - 2010-06-29                                  |
| [02/10-05] 021-1 | Other                 | Reply letter from CEAA - 2010-07-05   |
| [02/10-05] 022-1 | Comment/Advice Letter | Letter from DOT to Jim Prentice and Chuck Strahl - 2010-07-13                   |
| [02/10-05] 023-1 | Other                 | Letter to Honourable Ministers Prentice and Strahl - 2010-08-04                 |
| [02/10-05] 025-1 | Public Notice         | Review Schedule - 2010-08-10  |
| [02/10-05] 027-1 | Other                 | EIS outline - 2010-08-23  |
| [02/10-05] 028-1 | Other                 | August 23 Letter from Developer - 2010-08-23                                    |
| [02/10-05] 029-1 | Comment/Advice Letter | Letter to Developer August 24 - 2010-08-24                                      |
| [02/10-05] 030-1 | Other                 | Review Schedule FINAL - 2010-09-13  |
| [02/10-05] 031-1 | Other                 | 14. Notice from CEAA to Gwich'in Tribal Council - June 14 2010 - 2008-06-14     |
| [02/10-05] 032-1 | Other                 | EIS ToR Notice of Release - 2010-09-30  |
| [02/10-05] 033-1 | Other                 | EIS Terms of Reference 30Sept2010 - 2010-09-30                                  |
| [02/10-05] 035-1 | Comment/Advice Letter | ILA Response to EISB TOR - 2010-10-29   |
| [02/10-05] 036-1 | Comment/Advice Letter | Community Scoping Sessions - Draft EIS Terms of Reference - Inuvik - 2010-10-29 |
| [02/10-05] 037-1 | Comment/Advice Letter | Community Scoping Sessions - Draft EIS Terms of Reference TUK - 2010-10-29      |
| [02/10-05] 038-1 | Comment/Advice Letter | ENR GNWT Clarification to EIRB (Oct26'10) (2) - 2010-10-29                      |
| [02/10-05] 040-1 | Comment/Advice Letter | IT HWY Proposed ToR comments GoC - 2010-10-29                                   |



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| File #           | Document              | Description   |
|------------------|-----------------------|---|
| [02/10-05] 041-1 | Comment/Advice Letter | Registered participant comments - 2010-10-29  |
| [02/10-05] 042-1 | Comment/Advice Letter | TOR Registered participant comments - 2010-10-29  |
| [02/10-05] 043-1 | Other                 | Letter from Minister Duncan to EIRB Chair - 2010-11-02  |
| [02/10-05] 044-1 | Comment/Advice Letter | Community Scoping Sessions - Draft EIS Terms of Reference - Inuvik Final (2) - 2010-11-03             |
| [02/10-05] 045-1 | Comment/Advice Letter | Community Scoping Sessions - Draft EIS Terms of Reference (2) - 2010-11-03                            |
| [02/10-05] 046-1 | Public Notice         | FINAL EIS Terms of Reference 03Nov2010 - 2010-11-03   |
| [02/10-05] 048-1 | Comment/Advice Letter | Letter from INAC to EIRB - 2010-11-22   |
| [02/10-05] 049-1 | Other                 | INAC TERRAIN_ASSESSMENT_REPORT - 2010-11-22   |
| [02/10-05] 050-1 | Other                 | INAC TERRAIN_ASSESSMENT_REPORT - 2010-11-22   |
| [02/10-05] 051-1 | Comment/Advice Letter | Request from developer to the EIRB to extend the deadline to the draft EIS - 2011-01-25               |
| [02/10-05] 052-1 | Other                 | EIRB response to the request to extend the deadline to the draft EIS - 2011-01-31                     |
| [02/10-05] 053-1 | Other                 | Developer reasons for request to extend the deadline to the draft EIS - 2011-02-02                    |
| [02/10-05] 054-1 | Public Notice         | Notice of Deadline Extension to the Draft EIS - 2011-03-01  |
| [02/10-05] 055-1 | Public Notice         | News Release - Final Agreement and Availability of Participant Funding - 2011-03-04                   |
| [02/10-05] 056-1 | Public Notice         | Agreement to Establish a Substituted Panel for the Inuvik to Tuktoyaktuk Highway Project - 2011-03-04 |
| [02/10-05] 057-1 | Public Notice         | Public Notice - Availability of Participant Funding - 2011-03-04                                      |
| [02/10-05] 058-1 | Public Notice         | Request from developer to the EIRB to extend the deadline to the draft EIS - 2011-03-23               |
| [02/10-05] 059-1 | Public Notice         | Notice of Deadline Extension - 2011-03-29   |
| [02/10-05] 060-1 | Other                 | Review Schedule FINAL Rev24Mar2011 - 2011-04-12   |
| [02/10-05] 061-1 | Public Notice         | Notice of Release of the Draft EIS - 2011-06-03   |



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| File #           | Document                       | Description   |
|------------------|--------------------------------|---|
| [02/10-05] 067-1 | Appendix                       | Draft EIS - 2011-06-07  |
| [02/10-05] 068-1 | Environmental Impact Statement | Draft EIS 01 - 2011-06-07   |
| [02/10-05] 069-1 | Environmental Impact Statement | Draft EIS 02 - 2011-06-07   |
| [02/10-05] 070-1 | Environmental Impact Statement | Draft EIS 03 - 2011-06-07   |
| [02/10-05] 071-1 | Environmental Impact Statement | Draft EIS 04 - 2011-06-07   |
| [02/10-05] 072-1 | Environmental Impact Statement | Draft EIS 05 - 2011-06-07   |
| [02/10-05] 073-1 | Comment/Advice Letter          | Tuktoyaktuk – Inuvik Working Group comments on Draft EIS - 2011-06-27 |
| [02/10-05] 074-1 | Comment/Advice Letter          | ILA Conformity Review - 2011-06-27                                    |
| [02/10-05] 076-1 | Comment/Advice Letter          | GoC EIS Conformity Review Comments - 2011-06-27                       |
| [02/10-05] 078-1 | Public Notice                  | EIRB Conformity Statement - 2011-07-15                                |
| [02/10-05] 079-1 | Environmental Impact Statement | Cover letter to EIRB on Addendum - 2011-08-29                         |
| [02/10-05] 080-1 | Environmental Impact Statement | Developer Response to EIRB Conformity Review - 2011-08-29             |
| [02/10-05] 081-1 | Environmental Impact Statement | Aboriginal Affairs and Northern Development Canada - 2011-08-29       |
| [02/10-05] 082-1 | Environmental Impact Statement | Environment Canada - 2011-08-29                                       |
| [02/10-05] 083-1 | Environmental Impact Statement | Health Canada - 2011-08-29  |
| [02/10-05] 084-1 | Environmental Impact Statement | Inuvialuit Land Administration - 2011-08-29                           |
| [02/10-05] 085-1 | Environmental Impact Statement | Transport Canada - 2011-08-29   |





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| [02/10-05] 086-1 | Environmental Impact Statement | Tuktoyaktuk-Inuvik Working Group - 2011-08-29   |
| [02/10-05] 087-1 | Environmental Impact Statement | Wildlife Management Advisory Council - 2011-08-29   |
| [02/10-05]-088-2 | Environmental Impact Statement | Fisheries and Oceans Canada - 2011-08-29  |
| [02/10-05] 089-1 | Other                          | Developer response to TOR - 2010-10-22  |
| [02/10-05] 090-1 | Comment/Advice Letter          | ENR draft TOR comments (Oct 22 2010) - 2010-10-22   |
| [02/10-05] 091-1 | Other                          | Appendix A_ GNWT comments Draft EIS ToR - 2010-10-22  |
| [02/10-05]-092-2 | Comment/Advice Letter          | EIRB CONFORMITY STATEMENT AND BOARD DIRECTION REGARDING THE DRAFT ENVIRONMENTAL IMPACT STATEMENT - 2011-10-14 |
| [02/10-05] 093-1 | Comment/Advice Letter          | EIRB Direction to the Developer Nov 2011 - 2011-11-09   |
| [02/10-05] 094-1 | Other                          | Developer Letter to EIRB Nov 2011 Elimination of Alternative 2 (Upland Route) from Consideration - 2011-11-09 |
| [02/10-05] 095-1 | Other                          | Developer Response to EIRB Nov 18 2011 - 2011-11-18   |
| [02/10-05] 096-1 | Other                          | Revision to file 095-1 Developer Response to 2b and 2c - 2011-11-23   |
| [02/10-05] 097-1 | Other                          | Revision to file 095-1 GNWT Social Programming - 2011-11-23   |
| [02/10-05] 098-1 | Other                          | Legislative Assembly Vision and Priorities Nov'23'2011 - 2011-11-23   |
| [02/10-05] 099-1 | Comment/Advice Letter          | 1. Letter to Developer 20 Dec 2011 re Technical Review - 2011-12-20   |
| [02/10-05] 100-1 | Other                          | 2. Information Request Process - 2011-12-20   |
| [02/10-05]-101-2 | Other                          | 3. IR Process Flow Chart - 2011-12-20   |
| [02/10-05] 102-1 | Other                          | 4. Review Steps - 2011-12-20  |
| [02/10-05] 103-1 | Other                          | 5. Review Schedule Revised 20 Dec 2011 - 2011-12-20   |
| [02/10-05]-075-3 | Comment/Advice Letter          | WMAC (NWT) comments on Draft EIS - 2011-06-27   |
| [02/10-05] 104-1 | Public Notice                  | IR Round 1 Issued to Developer - 2012-01-16   |



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| File #           | Document              | Description  |
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| [02/10-05] 105-1 | Comment/Advice Letter | Letter to EIRB Jan 20 2012 - 2012-01-20                              |
| [02/10-05] 106-1 | Comment/Advice Letter | Letter to Developer 24Jan2012 - 2012-01-24                           |
| [02/10-05] 107-1 | Comment/Advice Letter | Letter to all Parties - 2012-02-07                                   |
| [02/10-05] 108-1 | Public Notice         | 1.Response to Information Requests - EIRB - Jan 16 2012 - 2012-02-10 |
| [02/10-05] 109-1 | Public Notice         | 2.Attachment 1 Resumes - 2012-02-10                                  |
| [02/10-05] 110-1 | Public Notice         | 3.Attachment 2 EGT Training Programs - 2012-02-10                    |
| [02/10-05] 111-1 | Public Notice         | 4.Attachment 3 HSE Manuals - 2012-02-10                              |
| [02/10-05] 112-1 | Public Notice         | 5.IR Number 29 33-37 and attachment to 55 2 - 2012-02-10             |
| [02/10-05] 114-1 | Comment/Advice Letter | 10 Feb 2012 EIRB Response Letter to WMAC (NT) - 2012-02-10           |
| [02/10-05] 115-1 | Public Notice         | IR Process Round 2 Notification - 2012-02-10                         |
| [02/10-05] 116-1 | Comment/Advice Letter | 07 Feb 2012 WMAC (NT) Letter to EIRB - 2012-02-07                    |
| [02/10-05] 117-1 | Other                 | 1. ITH Final Fisheries Report - 2012-02-15                           |
| [02/10-05] 118-1 | Other                 | 2. ITH Final Fisheries Report Appendix I - 2012-02-15                |
| [02/10-05] 119-1 | Other                 | 3. ITH Final Fisheries Report Appendix II - 2012-02-15               |
| [02/10-05] 120-1 | Other                 | 4. ITH Final Fisheries Report Appendix III - 2012-02-15              |
| [02/10-05] 121-1 | Comment/Advice Letter | HTC Tuk Letter to EIRB - 2012-02-21                                  |
| [02/10-05] 122-1 | Comment/Advice Letter | EIRB response to Tuk HTC - 2012-02-21                                |
| [02/10-05] 123-1 | Public Notice         | 1.IRs to Developer R2 - 2012-03-19                                   |
| [02/10-05] 124-1 | Public Notice         | 2.AANDC IRs - 2012-03-19   |
| [02/10-05] 125-1 | Public Notice         | 3.BDHSSA IRs - 2012-03-19  |
| [02/10-05] 126-1 | Public Notice         | 4.CanNor IRs - 2012-03-19  |



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| File #           | Document              | Description  |
|------------------|-----------------------|--|
| [02/10-05] 127-1 | Public Notice         | 5.DFO IRs - 2012-03-19   |
| [02/10-05] 128-1 | Public Notice         | 6.DOT IRs - 2012-03-19   |
| [02/10-05] 129-1 | Public Notice         | 7.EC IRs - 2012-03-19  |
| [02/10-05] 130-1 | Public Notice         | 8.ENR IRs - 2012-03-19   |
| [02/10-05] 131-1 | Public Notice         | 9.FJMC IRs - 2012-03-19  |
| [02/10-05] 132-1 | Public Notice         | 10.HC IRs - 2012-03-19   |
| [02/10-05] 133-1 | Public Notice         | 11.HOUSING CORP IRs - 2012-03-19                                       |
| [02/10-05] 134-1 | Public Notice         | 12.HSS IRs - 2012-03-19  |
| [02/10-05] 135-1 | Public Notice         | 13.GNWT Stats IRs - 2012-03-19   |
| [02/10-05] 136-1 | Public Notice         | 14.ITI IRs - 2012-03-19  |
| [02/10-05] 137-1 | Public Notice         | 15.DOJ IRs - 2012-03-19  |
| [02/10-05] 138-1 | Public Notice         | 16.GNWT PWS IRs - 2012-03-19   |
| [02/10-05] 139-1 | Public Notice         | 17.IDC IRs - 2012-03-19  |
| [02/10-05] 140-1 | Public Notice         | 18.IGC IRs - 2012-03-19  |
| [02/10-05] 141-1 | Public Notice         | 19.ILA IRs - 2012-03-19  |
| [02/10-05] 142-1 | Public Notice         | 20.IHTC IRs - 2012-03-19   |
| [02/10-05] 143-1 | Public Notice         | 21.IRC IRs - 2012-03-19  |
| [02/10-05] 144-1 | Public Notice         | 22.THTC IRs - 2012-03-19   |
| [02/10-05] 145-1 | Public Notice         | 23.WMAC NWT IRs - 2012-03-19   |
| [02/10-05] 146-1 | Comment/Advice Letter | 09Mar2012 EC Ltr to EIRB - 2012-03-09                                  |
| [02/10-05] 147-1 | Other                 | KAVIK-Stantec Terrain Evaluation Report 14Mar2012 - 2012-03-19         |
| [02/10-05] 148-1 | Other                 | KAVIK-Stantec Terrain Evaluation Report Surficial Mapbook - 2012-03-19 |
| [02/10-05] 149-1 | Public Notice         | 24.IR TO DEVELOPER - 2012-03-20  |
| [02/10-05] 150-1 | Comment/Advice Letter | 29Mar2012 Response Ltr to EC Ltr of 09Mar2012 - 2012-03-29             |



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| File #           | Document      | Description  |
|------------------|---------------|--|
| [02/10-05]-151-2 | Public Notice | 28 March 2012 WMAC submission to EIRB tech review of Inuvik Tuk hwy proposal - 2012-04-02  |
| [02/10-05] 152-1 | Public Notice | 1. FJMC Response to EIRB IR Round 2 - 2012-04-03   |
| [02/10-05] 153-1 | Public Notice | 2.HC response to IR 86 from EIRB March 2012 - 2012-04-03                                   |
| [02/10-05] 154-1 | Public Notice | 3.30 March 2012 WMAC responses to EIRB's Rd 2 IRs for Inuvik Tuk hwy proposal - 2012-04-03 |
| [02/10-05] 155-1 | Public Notice | 4.EIRB 02 10 05 - Tuk to Inuvik Highway - IR Round 2 - EC Responses - 2012-04-03           |
| [02/10-05] 156-1 | Public Notice | 5.DFOResponses to IRs_March2012 - 2012-04-03   |
| [02/10-05] 157-1 | Public Notice | 6.EIRB Response IRC - IR#81 83 86 125 - 2012-04-03   |
| [02/10-05] 158-1 | Public Notice | 7.EIRB Response IDC - IR#81 - 2012-04-03   |
| [02/10-05] 159-1 | Public Notice | 8.EIRB Response ILA - IR#79 - 2012-04-03   |
| [02/10-05] 160-1 | Public Notice | 9.Response to Information Requests - EIRB - March 8 2012 - 2012-04-03                      |
| [02/10-05] 161-1 | Public Notice | 10.AANDC - response to EIRB IR Mar 27 2012 - 2012-04-03                                    |
| [02/10-05] 162-1 | Public Notice | 11.YELLOWKN-#508418-v1-CANNOR_- _NPMO_- _Inuvik_Tuk_Road_CANNOR_IRs - 2012-04-03           |
| [02/10-05] 163-1 | Public Notice | 12.GNWT Round 2 IR Responses Invk - Tuk EA - Part 1 (2) - 2012-04-05                       |
| [02/10-05] 164-1 | Public Notice | 13.IGC IR RESPONSE ROUND 2 - 2012-04-05  |
| [02/10-05] 165-1 | Public Notice | 14.GNWT Round 2 IR Responses Invk - Tuk EA - Part 2 (2) - 2012-04-11                       |
| [02/10-05] 166-1 | Public Notice | KAVIK-STANTEC Preliminary Vegetation Report 23Apr2012pdf - 2012-04-23                      |
| [02/10-05] 167-1 | Public Notice | ITH_Vegetation_18Apr2012 - 2012-04-23  |
| [02/10-05] 168-1 | Public Notice | Response to Information Requests (114 and 117) - EIRB - March 8 2012 Ir - 2012-04-30       |
| [02/10-05] 169-1 | Public Notice | Round 2 IR Responses ITH - Part 3 Caribou 11May12 (2) - 2012-05-11                         |
| [02/10-05] 170-1 | Public Notice | Round 2 IR Responses ITH - Part 4 Grizzly Bear 11May12 - 2012-05-11                        |



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|------------------|-----------------------|--|
| [02/10-05] 171-1 | Comment/Advice Letter | COSEWIC STATUS ASSESSMENT - Grizzly Bear - 2012-05-23  |
| [02/10-05] 172-1 | Public Notice         | Directive to the Developer - 2012-05-25  |
| [02/10-05] 173-1 | Comment/Advice Letter | 24May2012 Ltr to EC regarding SARA Species Information - 2012-05-25                            |
| [02/10-05] 174-1 | Comment/Advice Letter | 24May2012 Ltr to Inuvik HTC FINAL - 2012-05-25   |
| [02/10-05] 175-1 | Comment/Advice Letter | 24May2012 Ltr to Tuk HTC - 2012-05-25  |
| [02/10-05] 176-1 | Comment/Advice Letter | EIRB letter - 2012-05-29   |
| [02/10-05] 177-1 | Comment/Advice Letter | May 31 EIRB Response to Reasons (2) - 2012-05-31   |
| [02/10-05] 178-1 | Public Notice         | Update to IR 28 1 - 2012-06-05   |
| [02/10-05] 179-1 | Comment/Advice Letter | EIRB June 7 on Census - 2012-06-12   |
| [02/10-05] 180-1 | Comment/Advice Letter | GNWT Letter to DOT RE EIRB Directive - 2012-06-12  |
| [02/10-05] 181-1 | Comment/Advice Letter | June 8 EIRB IRC Response - 2012-06-12  |
| [02/10-05] 182-1 | Comment/Advice Letter | Jim Steven - DOT - Inuvik Tuk Highway EIRB - 2012-06-12  |
| [02/10-05] 183-1 | Public Notice         | Response to Information Requests - EIRB - May 25 2012 - 2012-06-12                             |
| [02/10-05] 184-1 | Public Notice         | James_Gordo_Tech_Paper_TUK_Highway_Final_2012 (2) - 2012-06-13                                 |
| [02/10-05] 185-1 | Public Notice         | 18Jun2012 Note to File - 2012-06-18  |
| [02/10-05] 186-1 | Comment/Advice Letter | EIRB 02 10 05 - Tuk to Inuvik Highway - EC letter Response to EIRB - June 15 2012 - 2012-06-20 |
| [02/10-05] 187-1 | Public Notice         | 1.KAVIK-STANTEC_ITH_Preliminary Wildlife Habitat Report 11Jun2012 - 2012-06-20                 |
| [02/10-05] 188-1 | Public Notice         | 2.123510689_026_50k_PEFA_Atlas_Combined - 2012-06-20   |



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|------------------|-----------------------|---|
| [02/10-05] 189-1 | Public Notice         | 3.123510689_027_50k_RUBL_Atlas_Combined - 2012-06-20  |
| [02/10-05] 190-1 | Public Notice         | 4.123510689_028_50k_SEOW_Atlas_Combined - 2012-06-20  |
| [02/10-05] 191-1 | Public Notice         | 5.123510689_029_50k_HOGR_Atlas_Combined - 2012-06-20  |
| [02/10-05] 192-1 | Public Notice         | 6.123510689_030_50k_Waterbird_Combined - 2012-06-20   |
| [02/10-05] 193-1 | Public Notice         | Environmental Impact Review Board - Developer's Request for Ruling - 2012-06-20                                   |
| [02/10-05] 194-1 | Comment/Advice Letter | 29 June WMAC response to EIRB request for ruling (2) - 2012-06-29   |
| [02/10-05] 195-1 | Comment/Advice Letter | Government of Canada Response to RfR - 2012-06-29   |
| [02/10-05] 196-1 | Comment/Advice Letter | ITH-Response to Request for Ruling-v2 - 2012-07-05  |
| [02/10-05] 197-1 | Public Notice         | letter- EIRB - TK-reports_July2012 - 2012-07-05   |
| [02/10-05] 198-1 | Public Notice         | Summary Existing TK for Inuvik to Tuk Highway - Final_May2012 (2) - 2012-07-05                                    |
| [02/10-05] 199-1 | Public Notice         | ITH - TK-TLU Workshops Final Report_July2012 - 2012-07-05   |
| [02/10-05] 200-1 | Public Notice         | EIRB Staff and Developer June 15 2012 Meeting Minutes - 2012-07-13  |
| [02/10-05] 201-1 | Comment/Advice Letter | EIRB Decision and Reasons in Response to Developer's Request for Ruling - 2012-07-16                              |
| [02/10-05] 202-1 | Comment/Advice Letter | July 17 Thanks to EIRB and Questions - 2012-07-17   |
| [02/10-05] 203-1 | Comment/Advice Letter | YELLOWKN-#525123-v1-CANNOR_-_NPMO_-_inuvik_to_tuk_road_-_letter_to_gwichin_-_FINAL_-_July_2012 - 2012-07-23       |
| [02/10-05] 204-1 | Comment/Advice Letter | YELLOWKN-#525120-v1-CANNOR_-_NPMO_-_INUVIK_TO_TUK_ROAD_-_LETTER_TO_INUVIALUIT_-_FINAL_-_JULY_19__201 - 2012-07-23 |
| [02/10-05] 205-1 | Comment/Advice Letter | Letter From IRC to EIRB - 2012-07-23  |
| [02/10-05] 206-1 | Comment/Advice Letter | EIRB 0210-05 - Note to File - EC DOT Meeting Report June 13 2012 - EC Submission - 2012-07-23                     |
| [02/10-05] 207-1 | Public Notice         | 02 Aug 2012 Technical Teleconference Information (2) - 2012-07-31   |





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| [02/10-05] 208-1 | Public Notice         | Technical Sessions Directive - 2012-07-31   |
| [02/10-05] 209-1 | Public Notice         | Technical Teleconference EIRB Direction to the Developer - 2012-07-31                             |
| [02/10-05] 210-1 | Public Notice         | Inuvik to Tuktoyaktuk Highway Project Review Comments for 02 Aug 2012 Teleconference - 2012-08-01 |
| [02/10-05] 211-1 | Public Notice         | NRCAN IR #141 jk - 2012-08-01   |
| [02/10-05] 212-1 | Public Notice         | KAVIK-STANTEC Reports of Borrow Source Geotechnical Investigations - 2012-08-08                   |
| [02/10-05] 213-1 | Comment/Advice Letter | Technical Session Topics of Interest - EC - Letter to the EIRB Aug 2012 - 2012-08-09              |
| [02/10-05] 214-1 | Comment/Advice Letter | Letter to EIRB re request by developer - 2012-08-03   |
| [02/10-05] 215-1 | Public Notice         | Technical Submissions EIRB Directive - 2012-08-10   |
| [02/10-05] 216-1 | Public Notice         | Public Hearing Directive - 2012-08-10   |
| [02/10-05] 217-1 | Public Notice         | 10Aug2012 Panel Appointment Announcement - 2012-08-10   |
| [02/10-05] 218-1 | Comment/Advice Letter | DFO_techsession_questions_Aug 2012_Final - 2012-08-20   |
| [02/10-05] 219-1 | Comment/Advice Letter | NRCAN QuestionsTUKTechnicalSession 22-23Aug12FV (jk) - 2012-08-20                                 |
| [02/10-05] 220-1 | Comment/Advice Letter | TC Technical Sessions Topic Questions Tuk Highway August 2012 - 2012-08-20                        |
| [02/10-05] 221-1 | Public Notice         | TS Agenda Draft - 2012-08-20  |
| [02/10-05] 222-1 | Public Notice         | EIRB Description of Technical Sessions Process - 2012-08-20                                       |
| [02/10-05] 223-1 | Comment/Advice Letter | WMAC Tech Session Issues - 2012-08-20   |
| [02/10-05] 224-1 | Public Notice         | 1.KAVIK-Stantec Final Wildlife Report - cover - 2012-08-20  |
| [02/10-05] 225-1 | Public Notice         | 2.KAVIK-STANTEC_ITH_Wildlife Report 17Aug2012_final - 2012-08-20                                  |
| [02/10-05] 226-1 | Public Notice         | 3.Wildlife Report Appendix A_HOGR_low_res - 2012-08-20  |
| [02/10-05] 227-1 | Public Notice         | 4.Wildlife Report Appendix B_Waterbird_low_res - 2012-08-20                                       |



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| [02/10-05] 228-1 | Public Notice | 5.Wildlife Report Appendix C_PEFA_low_res - 2012-08-20                            |
| [02/10-05] 229-1 | Public Notice | 6.Wildlife Report Appendix D SEOW_low_res - 2012-08-20                            |
| [02/10-05] 230-1 | Public Notice | 7.Wildlife Report Appendix E_RUBL_low_res - 2012-08-20                            |
| [02/10-05] 231-1 | Public Notice | 8.Wildlife Report Appendix F_Grizzly_Den low_res - 2012-08-20                     |
| [02/10-05] 232-1 | Public Notice | KAVIK-Stantec FINAL Borrow Source Investigations Reports - cover (2) - 2012-08-20 |
| [02/10-05] 233-1 | Public Notice | Response to Directives - EIRB - May 25 2012 - 2012-08-20                          |
| [02/10-05] 234-1 | Public Notice | August 2012 Presentation- Combined Presentation - 2012-08-22                      |
| [02/10-05] 235-1 | Public Notice | TECH SESSION re INUVIK TO TUK HIGHWAY 08-22-2012 - 2012-08-22                     |
| [02/10-05] 236-1 | Public Notice | TECH SESSION re INUIVK TO TUK HIGHWAY 08-23-2012.pdf - 2012-08-27                 |
| [02/10-05] 237-1 | Public Notice | 27Aug2012 Request Developer Experts - 2012-08-27                                  |
| [02/10-05] 238-1 | Public Notice | 27Aug2012 Clarification Ltr to ENR - 2012-08-27                                   |
| [02/10-05] 239-1 | Public Notice | Cut-off Date Directive - 2012-08-27   |
| [02/10-05] 240-1 | Public Notice | Notice of Submission Deadline Extension - 2012-08-27                              |
| [02/10-05] 241-1 | Public Notice | PH Agenda Inuvik - 2012-08-27   |
| [02/10-05] 242-1 | Public Notice | PH Agenda Tuktoyaktuk - 2012-08-27  |
| [02/10-05] 243-1 | Public Notice | PHC Agenda - 2012-08-27   |
| [02/10-05] 244-1 | Public Notice | Additional Information - Harvested Plants - 2012-09-04                            |
| [02/10-05] 245-1 | Public Notice | Supplemental wildlife maps and metrics 28Aug2012 - 2012-07-28                     |
| [02/10-05] 246-1 | Public Notice | 123510689_029_50k_HOGR_SUPPLEMENTAL - 2010-08-28                                  |
| [02/10-05] 247-1 | Public Notice | 123510689_061_50k_Grizzly_SUPPLEMENTAL - 2012-08-28                               |
| [02/10-05] 248-1 | Public Notice | KAVIK-Stantec Hydrotechnical Interim Report 27Aug2012 - cover - 2012-08-24        |
| [02/10-05] 249-1 | Public Notice | Inuviluit Land Administration to IHTC and EIRB - August 30 2012 - 2012-08-30      |
| [02/10-05] 250-1 | Public Notice | IMG Watercourse Crossing Master Table 1 - TechnicalAug31 - 2012-                  |



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|------------------|---------------|---|
|                  |               | 09-04   |
| [02/10-05] 251-1 | Public Notice | IMG Watercourse Crossing Master Table 2Aug. 31 - Biophysical - 2012-09-04   |
| [02/10-05] 252-1 | Public Notice | Developer Response to Tk Workshop Comments - 2012-09-04                     |
| [02/10-05] 253-1 | Public Notice | ITH August 28 2012 Meeting DOT and ILA Commission - aug 31 (2) - 2012-09-04 |
| [02/10-05] 254-1 | Public Notice | Commitments Table - updated August 31, 2012 - 2012-09-04                    |
| [02/10-05] 255-1 | Public Notice | Response to Technical Session IRs - Material Sources - 2012-09-04           |
| [02/10-05] 256-1 | Public Notice | 123510689_027_50k_RUBL_SUPPLEMENTAL - 2012-09-06                            |
| [02/10-05] 257-1 | Public Notice | 123510689_028_50k_SEOW_SUPPLEMENTAL - 2012-09-06                            |
| [02/10-05]-258-2 | Public Notice | GNWT Hearing Attendance ITH - 2012-09-06                                    |
| [02/10-05] 259-1 | Public Notice | 1. KAVIK-Stantec Veg Terrain Report - cover - 2012-09-04                    |
| [02/10-05] 260-1 | Public Notice | 2. KAVIK-STANTEC_ITH_Vegetation_Report_FINAL_31Aug2012 - 2012-09-04         |
| [02/10-05] 261-1 | Public Notice | 123510689_046_10k_Vegetation_Overview_Atlas_COMBINED_1 - 2012-09-04         |
| [02/10-05] 262-1 | Public Notice | Vegetation_Overview_Atlas_COMBINED_2 - 2012-09-04                           |
| [02/10-05] 263-1 | Public Notice | 123510689_046_10k_Vegetation_Overview_Atlas_COMBINED_3 - 2012-09-04         |
| [02/10-05] 264-1 | Public Notice | Surficial_Mapbook_20120830_1 - 2012-09-04                                   |
| [02/10-05] 265-1 | Public Notice | Surficial_Mapbook_20120830_2 - 2012-09-04                                   |
| [02/10-05] 266-1 | Public Notice | Surficial_Mapbook_20120830_3 - 2012-09-04                                   |
| [02/10-05] 267-1 | Public Notice | Surficial_Mapbook_20120830_4 - 2012-09-04                                   |
| [02/10-05]-268-2 | Public Notice | ITH_Terrain_Report_FINAL_August_31_2012 - 2012-09-04                        |
| [02/10-05] 269-1 | Public Notice | Technical Memo Kavik-Stantec Sept 4 2012 - 2012-09-04                       |
| [02/10-05] 270-1 | Public Notice | Response to Directive 6 - EIRB - May 25 2012 - 2012-09-04                   |
| [02/10-05] 271-1 | Public Notice | Supplemental Cumulative Effects Documentation LR - 2012-09-04               |
| [02/10-05] 272-1 | Public Notice | Granular Materials References Aug 24 - 2012-09-04                           |



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| File #           | Document      | Description   |
|------------------|---------------|---|
| [02/10-05] 273-1 | Public Notice | Affected Areas 4sept12_final - 2012-09-04   |
| [02/10-05] 274-1 | Public Notice | 1.INFC Submission Public Hearings - 2012-09-10  |
| [02/10-05] 275-1 | Public Notice | 2.TCC inuvik to tuktoyaktuk highway presentation to the eirb hearings - 2012-09-10                                |
| [02/10-05] 276-1 | Public Notice | 3.WMAC (NWT) Tech Submission - 2012-09-07   |
| [02/10-05] 277-1 | Public Notice | 4.PC Submission to EIRB re Proposed Inuvik-Tuktoyaktuk Highway Sept 6 2012 - 2012-09-06                           |
| [02/10-05] 278-1 | Public Notice | 5.EC - Draft Technical Submission - 2012-09-10  |
| [02/10-05] 279-1 | Public Notice | 6.AANDC Tech Submission - Inuvik tuk Highway final - 2012-09-10   |
| [02/10-05] 280-1 | Public Notice | 7.NRCan draft tech report I-T Highway sept 7 (final) - 2012-09-07   |
| [02/10-05] 281-1 | Public Notice | 8.DFO Draft Technical Submission_ITH_FINAL - 2012-09-10   |
| [02/10-05] 282-1 | Public Notice | 10Sept2012 IRC LETTER_201209101103 (2) - 2012-09-10   |
| [02/10-05] 283-1 | Public Notice | September 2012 Revised Response to Technical Session IRs - Material Sources - 2012-09-11                          |
| [02/10-05] 284-1 | Public Notice | FINAL HC Submission to EIRB on Tuk to Inuvik September 7 2012 - 2012-09-07  |
| [02/10-05] 285-1 | Public Notice | Transport Canada for EIRB 02 10-05 Tuk Road Tech Submission and Power Point for Public Hearings Sept - 2012-09-07 |
| [02/10-05] 286-1 | Public Notice | WMAC ITH Public Meet PP - 2012-09-12  |
| [02/10-05] 287-1 | Public Notice | Developer Response to Technical Submissions - September 13 2012 - 2012-09-13                                      |
| [02/10-05] 288-1 | Public Notice | PH Agenda Inuvik - 2012-09-13   |
| [02/10-05] 289-1 | Public Notice | PH Agenda Tuktoyaktuk - 2012-09-13  |
| [02/10-05] 290-1 | Public Notice | FJMC letter to EIRB - Sept 2012 - 2012-09-13  |
| [02/10-05] 291-1 | Public Notice | PCA Power Point for EIRB hearing Sept 2012 Final - 2012-09-14   |
| [02/10-05] 292-1 | Public Notice | AANDC Inuvik - Tuk EIRB Hearings - Inuvik 2012 - 2012-09-14   |
| [02/10-05] 293-1 | Public Notice | EIRB 02 10 05 - Tuk to Inuvik Highway - Public Hearing Presentation - EC - 2012-09-14                             |
| [02/10-05] 294-1 | Public Notice | Developer Display_Panels - 2012-09-14   |



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| [02/10-05] 295-1 | Public Notice | Developer PPT Review Panel ITH - 12-09-14 part 1-Ir - 2012-09-14                      |
| [02/10-05] 296-1 | Public Notice | Developer PPT Review Panel ITH - 12-09-14 part 2-Ir - 2012-09-14                      |
| [02/10-05] 297-1 | Public Notice | DFO ITH Presentation Public Hearings - 2012-09-16                                     |
| [02/10-05] 298-1 | Public Notice | Day 1 REVIEW - INUVIK TO TUK PUBLIC HEARING 09-18-2012. - 2012-09-18                  |
| [02/10-05] 299-1 | Public Notice | DFO hearing undertaking_Sept 20,2012 - 2012-09-20                                     |
| [02/10-05] 300-1 | Public Notice | EIRB INUVIK TO TUK HEARING 09-19-2012 - 2012-09-20                                    |
| [02/10-05] 301-1 | Public Notice | PH Agenda Tuktoyaktuk v2 - 2012-09-20   |
| [02/10-05] 302-1 | Public Notice | EIRB - INUVIK TO TUK HEARING 09-24-2012 - 2012-09-24                                  |
| [02/10-05] 303-1 | Public Notice | EIRB - INUVIK TO TUK PUBLIC HEARING 09-25-2012 - 2012-09-25                           |
| [02/10-05] 304-1 | Public Notice | Directive - 2012-09-28  |
| [02/10-05] 305-1 | Public Notice | Reasons for Decision - 2012-09-28   |
| [02/10-05] 306-1 | Public Notice | FJMC letter on Tuk-Inuvik Hwy Public Hearing in Inuvik - Sept 2012 - 2012-10-01       |
| [02/10-05] 307-1 | Public Notice | Commitments Table - Updated September 28, 2012 - 2012-10-01                           |
| [02/10-05] 309-1 | Public Notice | ITH undertaking ENR - ZOI final Sept27_12 - 2012-10-01                                |
| [02/10-05] 310-1 | Public Notice | NOTES FROM MEETING IN TUKTOYAKTUK (SEPTEMBER 20, 2012) - 2012-10-01                   |
| [02/10-05] 311-1 | Public Notice | Erratum in Response to Information Requests - 2012-10-01                              |
| [02/10-05] 312-1 | Public Notice | 12Sept2012 Erratum in Supplemental Cumulative Effects Analysis Ir - 2012-10-01        |
| [02/10-05] 313-1 | Public Notice | 28Sept2012 ITH Supplemental Cumulative Effects Analysis - 2012-10-01                  |
| [02/10-05] 314-1 | Public Notice | KAVIK-Stantec archaeological investigations report 11Sept2012 - 2012-10-01            |
| [02/10-05] 315-1 | Public Notice | ITH planprofile on FTP - 2012-10-02   |
| [02/10-05] 316-1 | Public Notice | ITH routing map on FTP - 2012-10-02   |
| [02/10-05] 318-1 | Public Notice | Draft for Discussion - WEMP Inuvik to Tuktoyaktuk Highway October 4 2012 - 2012-10-04 |



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|------------------|-------------------------|---|
| [02/10-05] 319-1 | Public Notice           | KAVIK-Final Stantec hydrotechnical Investigations Report - cover - 2012-10-05                         |
| [02/10-05] 320-1 | Public Notice           | meeting summary - IGC-DOT - 28Sept2012 - 2012-10-05   |
| [02/10-05] 321-1 | Public Notice           | meeting summary - FJMC-DFO-DOT 28Sept2012 - 2012-10-05  |
| [02/10-05] 322-1 | Public Notice           | Inuvik to Tuk Road - GoC response - revised directive - Oct 5 2012 - 2012-10-05                       |
| [02/10-05] 323-1 | Public Notice           | Final Technical Memo Oct4 - ITH 2012 Bathymetry (2) - 2012-10-05                                      |
| [02/10-05] 324-1 | Public Notice           | Developer - PreliminaryDraftWPP_5Oct2012 - 2012-10-05   |
| [02/10-05] 325-1 | Public Notice           | PWNHC Information Request_ITH_Oct 5 - 2012-10-05  |
| [02/10-05] 326-1 | Public Notice           | FJMC follow-up letter to EIRB - Oct 2012 - 2012-10-04   |
| [02/10-05] 327-1 | Public Notice           | meeting record -WMAC-DOT 5Oct2012 - 2012-10-05  |
| [02/10-05] 328-1 | Public Notice           | New IRs WMAC (NWT) - 2012-10-15   |
| [02/10-05] 329-1 | Public Notice           | Fisheries and Oceans Canada Information Request Oct 15 2012 - Inuvik-Tuktoyaktuk Highway - 2012-10-15 |
| [02/10-05] 330-1 | Public Notice           | 4.IR Developer Commitments - 2012-10-16   |
| [02/10-05] 331-1 | Public Notice           | Letter to go with Final Round IRs (2) - 2012-10-16  |
| [02/10-05] 333-1 | Public Notice           | NPMO ltr re Dist of Panel Report (C0279179) (2) - 2012-10-22  |
| [02/10-05] 334-1 | Public Notice           | Response to Information Requests - EIRB -Oct 15, 2012 - 2012-10-22                                    |
| [02/10-05] 335-1 | Public Notice           | EIRB FTP Advisory - 2012-10-23  |
| [02/10-05] 336-1 | Public Notice           | Tuk Highway Final Submission Oct 2012 (2) - 2012-10-29  |
| [02/10-05] 337-1 | Public Notice           | INFC Final Submission - 2012-10-29  |
| [02/10-05] 338-1 | Emergency Response Plan | WMAC Final Technical Submission - 2012-10-29  |
| [02/10-05] 339-1 | Emergency Response Plan | AANDC Final Technical Submission - 2012-10-29   |
| [02/10-05] 340-1 | Comment/Advice Letter   | EC Cover Letter for Final Technical Submission - 2012-10-29   |
| [02/10-05] 341-1 | Comment/Advice Letter   | EC Final Technical Submission - 2012-10-29  |





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| [02/10-05] 342-1 | Comment/Advice Letter | NRCan Final Technical Submission - 2012-10-29       |
| [02/10-05] 343-1 | Public Notice         | EIRB Contact Notification - 2012-10-30              |
| [02/10-05] 344-1 | Comment/Advice Letter | DFO Cvr Ltr Final Technical Submission - 2012-10-29 |
| [02/10-05] 345-1 | Comment/Advice Letter | DFO Final Technical Submission - 2012-10-29         |
| [02/10-05] 346-1 | Public Notice         | Developer Final Technical Submission - 2012-11-05   |
| [02/10-05] 347-1 | Public Notice         | ENR Role in ITH Project - 2012-09-07                |



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