



EA 1617-01

# **DRAFT** Adequacy Statement

Outstanding information needs to  
satisfy the *Terms of Reference*

Tłıchǫ All-season Road

Government of Northwest Territories

September 2016

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## 1 OVERVIEW

The Mackenzie Valley Environmental Impact Review Board (Review Board) has conducted an adequacy review of the Project Description Report (PR#7) and evidence on the public record submitted by the Government of Northwest Territories – Department of Transportation (the Developer or GNWT-DOT) in support of its proposed Tłıchǫ All-season Road Project (TASR or “the Project”). This *Adequacy Statement* was written to accompany the Review Board’s *Terms of Reference* (ToR) and outlines the additional information required by the Review Board at this time. As described in the Review Board’s *Notice of Proceeding - TASR Terms of Reference Process* (PR#44), the purpose of the *Adequacy Statement* is to:

- acknowledge the information and evidence on the public record, including the developer’s Project Description Report;
- avoid duplication, where possible, and focus further investigation on those effects that have the potential for significant adverse impacts on the environment; and
- provide detailed guidance to the developer regarding what further investigation is needed at this time.

This document is divided into the following sections:

**Section 2** describes the EA process to date, and the Review Board’s approach to the *Terms of Reference* development process.

**Section 3** describes the **general adequacy items** required to satisfy the *Terms of Reference*.

**Section 3** describes the assessment **methodology** the developer will use to respond to the detailed adequacy items in section 5.

**Section 5** provides a list of **detailed adequacy items** for each valued component.

## 2 BACKGROUND

On July 21, 2016, the Review Board referred the Tłıchǫ All-season Road Project to environmental assessment on its own motion (PR#1, PR#2). The Developer submitted a comprehensive Project Description Report (PDR) in support of its application to the Wek’èezhìi Land and Water Board (WLWB) for a Type A land use permit and Type B water licence. As part of the initial review process by the WLWB, the PDR was reviewed by parties and a substantial amount of evidence was submitted through the WLWB’s Online Review System (ORS). This evidence, combined with scoping sessions held by the Review Board after the project’s referral, has allowed the Review Board to identify the issues of primary concern to be investigated in the EA, including those potential project-related impacts that may result in significant adverse impacts to a number of valued components.

### *The Terms of Reference*

The Review Board's approach to the *Terms of Reference* for this Project is unique because of the amount and quality of material available to the Review Board upon referral, which included the developer's Project Description Report and information submitted to the Wek'èezhìi Land and Water Board during the preliminary screening. The Project Description Report (PDR) provides the Review Board with: (1) a good understanding of the project; (2) an indication of issues related to the project that have the potential to result in a significant adverse environmental impacts; and (3) a preliminary consideration of mitigation techniques proposed to minimize project impacts on the environment.

Typically, the Review Board requires a Developer's Assessment Report (DAR). For the TASR EA, the Review Board has determined that the GNWT-DOTs PDR will serve as a partial impact assessment, to be combined with the developer's submission in response to this *Adequacy Statement*: together these two documents will replace the typical DAR requirement. The *Terms of Reference* therefore only provides the scope of assessment for the EA (including the valued components to be assessed), and describes the standard information and methodology typically required by the Review Board in an environmental assessment, as outlined in the Environmental Impact Assessment Guidelines.

### *The Adequacy Statement*

The purpose of the *Adequacy Statement* is described in the Overview, above. The *Adequacy Statement* supplements the *Terms of Reference* and builds on the Review Board's *Reasons for Decision for Referral to Environmental Assessment (PR#2)* to focus the further investigation needed for this EA. After reviewing the available evidence on the public record, the Review Board has identified where additional information is needed to understand the nature of impacts, their effect on valued components, and the residual impacts likely to remain after mitigation measures are applied.

The *Adequacy Statement* defines what specific information is required to satisfy the Review Board's information requirements. In other words, the *Adequacy Statement* will ensure that the developer has fulfilled the purpose and intent of the requirements set out in the *Terms of Reference*, with sufficient information for the Review Board and parties to produce meaningful information requests (IRs) and proceed with the EA process as efficiently as possible.

The *Adequacy Statement* will not require further information for issues where, in the Review Board's view, there is sufficient information on the record to assess potential impacts from the Project, inform IRs, and proceed the next phase of the EA. In accordance with the Review Board's Rules of Procedure, the Board and parties can use information requests to pursue specific questions related to any topic within the scope of the environmental assessment (including topics that are not covered in the *Adequacy Statement*).

### 3 TERMS OF REFERENCE GENERAL ADEQUACY ITEMS

The Review Board recognizes that the GNWT-DOT did not have the benefit of referring to the *Terms of Reference* when it was developing its PDR. As such, some standard elements typically required by a terms of reference are not included in the PDR. These standard items are outlined in Table 3-1. **In order to satisfy the information requirements set out in the ToR, the GNWT-DOT must address the adequacy items in Table 3-1.**

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**Table 3-1 General adequacy items**

| ToR section                                  | Information Adequate? (Yes/No/Partial) | Adequacy notes  |
|--|--|---|
| <b>3. General Requirements</b>               |  |   |
| 3.1 Presentation of Material                 | N/A                                    | Refer to specific requirements in this document.  |
| 3.2 Incorporation of TK                      | Partial                                | Provide a TK summary report, based on the instructions in the ToR   |
| 3.3 Public Engagement                        | Partial                                | Reporting on ongoing engagement will follow the instructions in the ToR   |
| 3.4 Developer Commitments                    | N                                      | Provide a table of commitments, based on the instructions in the ToR  |
| 3.5 Summary Materials                        | N                                      | Based on the instructions in the ToR, provide: <ul style="list-style-type: none"> <li>• a plain language summary of the response to the adequacy statement</li> <li>• concordance table (against requirements in adequacy statement)</li> </ul>   |
| 3.6 Development description                  | Partial                                | Based on the instructions in the ToR, provide: <ul style="list-style-type: none"> <li>• detailed schedule for project activities (including estimated start time and duration for each activity and any seasonal timing constraints and contingency planning)</li> <li>• updated description of activities during the operations phase</li> </ul> |
| 3.7 Land Use Plans                           | Partial                                | GNWT-DOT needs to state if accessing the borrow sources within the cultural heritage zone will alter the project and list any ensuing impacts that might result to valued components.   |
| 3.8 Developer                                | Partial                                | Provide information required under item b of section 3.8 of ToR.  |
| <b>4 Assessment Methodology</b>              | Partial                                | Refer to sections 4 and 5 of this document for elaboration.   |
| <b>5 Baseline Info</b>                       | Partial                                | Refer to sections 4 and 5 of this document for elaboration.   |
| <b>6 Detailed Requirements of Assessment</b> | N/A                                    | Refer to section 5 of this document for elaboration   |
| <b>7 Cumulative Effects Summary</b>          | Partial                                | Provide a summary, based on the instructions in the ToR.  |
| <b>8 Follow-up &amp; Monitoring</b>          | Partial                                | Provide a summary, based on the instructions in the ToR.  |

## 4 ADEQUACY ASSESSMENT METHODOLOGY

The Review Board has evaluated the PDR and evidence on the public record in terms of the assessment methodology outlined in section 4 of the *Terms of Reference* (also attached as Appendix A of this document). Overall, the Review Board is satisfied with the baseline information and the identification of potential impacts by the developer in their submissions. The Board also acknowledges the mitigation measures that have been proposed. However, in order to adequately fulfill the assessment methodology set out in Section 4 of the *Terms of Reference*, additional information is needed to adequately assess the identified impacts. In an environmental assessment, the developer's assessment of potential impacts generally consists of:

- describing the pathways of effect that link the development to valued components of the environment;
- forming and refining impact predictions with the help of consultation and expert knowledge (including traditional knowledge);
- identifying mitigation measures to reduce or avoid adverse impacts; and,
- predicting and characterizing residual impacts.

Using the assessment framework outlined in the *Terms of Reference*, the Review Board has identified the information needed to adequately assess the potential impacts to valued components. These information requirements correspond to specific steps from the assessment methodology in the *Terms of Reference* (also shown in Appendix A) and are critical to the EA process<sup>1</sup>.

The specific additional information requirements are set out in section 5 of this document. Sections 4.1, 4.2, and 4.3 describe the methodology the developer will follow when addressing the information requirements set out in section 5.

### 4.1 Potential impacts and mitigation measures

The assessment of each Project-related environmental impact begins with a description of the mechanisms, or pathways of effect, whereby specific Project components and activities could result in an impact to a valued component. For each valued component topic identified in section 2.2.2 of the *Terms of Reference*, the developer will clearly describe for all phases of the project:

- the potential impacts that may occur;
- the project component(s) and/or activities to which the impact is linked; and
- how the proposed mitigations will reduce or avoid the potential impact.

The developer will provide a thorough description of the potential impacts and proposed mitigations associated with the adequacy items identified in section 5 of this document. The results should be summarized in a table (see example Table 4-1 below).

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<sup>1</sup> Not all of the impact assessment steps are required for every valued component. See Section 5 of the *Adequacy Statement* for the specific items required to satisfy the assessment for each valued component.



**Table 4-1 Example table summarizing potential impacts and mitigation measures for a valued component**

| Project component                             | Potential impact                 | Mitigation measure(s)      |
|---|----------------------------------|----------------------------|
| <i>Describe project component or activity</i> | <i>Describe potential impact</i> | <i>Describe mitigation</i> |
|   |                                  |                            |

## 4.2 Residual impacts

Building on the description required under section 4.1, above, the developer will predict and characterize residual environmental impacts (i.e., the environmental impacts that remain after mitigation has been applied) for all Project phases. Thorough characterization of residual impacts is critical for the Review Board to make a final determination on significance at the end of the environmental assessment.

The characteristics of residual environmental impacts are described below. The developer will provide these characteristics for each residual impact.

**Mechanism** – the project component or activity and pathway of effect that causes the predicted impact;

**Geographic range** – the area where an environmental effect of a defined magnitude occurs, defined for each impact;

**Duration** – the duration of the impact; corresponds to the length of time after which the environmental impact can no longer be measured or otherwise perceived (e.g., short-term, midterm, long-term, or in some cases permanent);

**Frequency** – the frequency of the impact; corresponds to how often the impact occurs (e.g. once, at regular intervals, or continuous)

**Magnitude** – the amount of change in a measurable parameter or variable relative to existing (baseline) conditions, categorized for each VC as low, medium, high, or other qualifier as deemed appropriate;

**Reversibility** – the likelihood that a measurable parameter will recover from an environmental impact, including through active management techniques (e.g., habitat restoration);

**Uncertainty** – the uncertainty in impact predictions, based on scientific information and statistical analysis, identified technical boundaries, professional judgement and known effectiveness of mitigation;

**Likelihood** – the likelihood of that environmental impact occurring is determined;

**Overall Implication** – a qualitative description of the overall impact on the valued component taking into consideration the impact steps characterized above; and

The developer will use this methodology to respond to the detailed adequacy items in section 5. In addition to a thorough description in the text, the results should be summarized in a table (see example Table 4-2 below).

*Adequacy Statement – Tłı̨chǫ All-season Road*

Table 4-2 Example: Summary of residual impacts for (Name of VC)

| Description of Residual Impact (after Mitigation)   | Evaluation of Residual Impact |  |           |           |   |               |             |   |             |                    |  |
|---|-------------------------------|--|-----------|-----------|---|---------------|-------------|---|-------------|--------------------|--|
|   | Mechanism                     | Geographic Range   | Duration  | Frequency | Magnitude   | Reversibility | Uncertainty | Likelihood  | Implication | Cumulative Impacts |  |
| (e.g. loss of habitat)  | <b>Q</b>                      | <b>S</b>   | <b>ST</b> | <b>O</b>  | <b>L</b>  | <b>I</b>      | <b>L</b>    | <b>L</b>  | <b>Q</b>    | <b>Y</b>           |  |
| <b>KEY</b><br><b>Mechanism</b><br>Q see Qualitative description in text<br><b>Geographic Range</b><br>S Site-specific: (define).<br>L Local: (define).<br>R Regional: (define). |                               | <b>Duration</b><br>ST Short-term: (define).<br>MT Medium-term: (define).<br>LT Long-term: (define).<br>P Permanent: (define).<br><b>Frequency</b><br>O Occurs once.<br>S Occurs at irregular intervals.<br>R Occurs at regular intervals.<br>C Continuous. |           |           | <b>Magnitude</b><br>L Low: (define).<br>M Medium: (define).<br>H High: (define).<br><b>Reversibility</b><br>R Reversible.<br>I Irreversible.<br><b>Uncertainty</b><br>L Low level of uncertainty.<br>M Moderate level of uncertainty.<br>H High level of uncertainty. |               |             | <b>Likelihood</b><br>L Low probability of occurrence.<br>M Medium probability of occurrence.<br>H High probability of occurrence.<br><b>Implication</b><br>Q see Qualitative description in text<br><b>Cumulative Impacts?</b><br>Y Potential for environmental impact to interact with the environmental impacts of other past, present or foreseeable future projects or activities.<br>N Environmental impact will not or is not likely to interact with the environmental impacts of other future projects or activities. |             |                    |  |

### 4.3 Cumulative impacts

The *Terms of Reference* requires the developer to conduct a cumulative effects assessment for any valued component: (a) that is susceptible to cumulative effects, and (b) for which project-related residual impacts are predicted. The Review Board is satisfied with the developer’s approach to the first step in assessing cumulative impacts: determining which past, present or reasonably foreseeable future developments and human activities to consider in the cumulative effects assessment (PR#7, PDR Section 9). The Review Board also acknowledges the proposed mitigation measures provided in the PDR (PR#7).

In order to fully assess potential cumulative impacts, the developer will complete the following for valued components identified in section 5:

- Combine the project-related residual impacts predicted (see section 4.2 of this document) with the impacts from the developments and human activities identified in the PDR:
  - identify and discuss the way in which a cumulative impact may occur;
  - predict the potential direct and indirect cumulative impacts according to the same methodology applied for assessing project-specific impacts;
  - describe techniques and assumptions utilized in impact prediction (e.g. models,); and,
  - discuss the contribution of the project to the overall cumulative impact
- Characterize the cumulative impact according to steps 4 – 6 in Appendix A.

## 5 ADEQUACY ITEMS FOR ASSESSING SPECIFIC VALUED COMPONENTS

The valued components to be assessed in this EA are set out in the scope of assessment and are listed in Table 1 of section 2.2.2 of the *Terms of Reference*. The adequacy items below identify where additional information is needed in relation to the assessment of potential impacts on valued components. The specific type of additional information needed for each valued component (or topic within a valued component) is summarized in Tables 5-1 to 5-6, below. **The Developer will follow the assessment methodology steps (from section 4, above) referenced in the tables to fulfill these information requirements.**<sup>2</sup> For further description and context, the Developer may also wish to refer to Appendix A of this document where there is a copy of the impact assessment methodology text from the *Terms of Reference*.

### *Information held by the Community Government of Whatì and the Tłıchǵ Government*

The Review Board acknowledges the primary authority of the Community Government of Whatì and the Tłıchǵ Government in overseeing the management of socio-economic impacts to Whatì and

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<sup>2</sup> If any new impacts are identified during this process, the Developer must characterize the impacts using assessment methodology steps 4 to 7 from the *Terms of Reference*.

Tłıchǵ residents. Both levels of Government have provided documented support for the Project and assisted the developer with baseline data collection and analysis<sup>3</sup>. This includes an analysis of likely induced impacts to Tłıchǵ citizens and some mitigation measures to manage the effects of certain impacts. The Review Board has identified some information gaps associated with the identified induced impacts and mitigation measures; these gaps correspond to information that is necessary to understand the potential for significant adverse impacts to socio-economic valued components. The Review Board intends to obtain the necessary additional information through information requests directed to the Community Government of Whatì and the Tłıchǵ Government for this additional assessment information.

## 5.1 Valued Component: Fish and fish habitat

Scoping sessions identified that fish and fish habitat have high priority and cultural and economic value. Community scoping sessions in Whatì revealed concerns regarding effects from changes in access, pollution and harvesting pressures on fish, fish habitat and fish harvesting (PR# 19 p6). Comments by the Department of Fisheries and Oceans raised concerns regarding the potential for adverse impacts to fish and fish habitat (PR#24, Fisheries and Oceans Canada, ID#1 and 2).

### *Topic: Fish Habitat*

The developer’s PDR lists potential fish species living within the scope of development. The PDR also includes a habitat assessment of streams affected by the scope of development. Potential environmental impacts were considered and mitigations proposed. Specific concerns related to construction and operational impacts on water crossings and to water quality have not been addressed. The Review Board requires more information to characterize the impacts of the Project on fish habitat or its proposed mitigation measures than what is currently available on the public record.

Table 5-1 outlines the additional assessment required for this topic.

### *Topic: Fish Harvesting*

The Review Board requires more information regarding how the Project may impact existing fish populations and the harvesters that rely on them. The *Traditional Knowledge Study Report* (PR#28) provides information on traditional fish harvesting locations within the Project area, particularly along the river Tsołıdeè (Lac La Martre River). However, more information is required on the potential impacts to fish harvesting. This is in relation to both fish-bearing watercourses along the TASR corridor, as well as Lac La Martre and any areas of potential increased fish harvest along the TASR corridor. Traditional fish harvest could be affected by the potential environmental impacts identified above.

Table 5-1 outlines the additional assessment required for this topic.

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<sup>3</sup> E.g. PR#7 – PDR Appendixes A, D, F, and O; Traditional Knowledge Study Report (PR# 28)

Table 5-1. Additional information requirements to assess potential impacts to fish and fish habitat.

| Topic                  | Adequacy item                  | Assessment Step(s)  | Additional requirement  |
|------------------------|--------------------------------|---------------------|---|
| <b>Fish Habitat</b>    | <b>Water quality</b>           | <b>Adequacy 4.1</b> | Describe the potential impacts and mitigation measures to water quality related to fish and fish habitat from the use of explosives.  |
|                        |                                | <b>Adequacy 4.2</b> | Conduct a residual impact assessment to address potential project effects to water quality from the use of explosives.  |
|                        | <b>Accidents and spills</b>    | <b>Adequacy 4.1</b> | Describe the potential impacts and mitigation measures to fish habitat resulting from accidents or spills during construction and operation phases.   |
|                        |                                | <b>Adequacy 4.2</b> | Conduct a residual impact assessment to address potential project effects to fish habitat and water quality resulting from accidents or spills. Where appropriate, distinguish between construction and operation phases of the Project   |
| <b>Fish Harvesting</b> | <b>Harvesting pressure</b>     | <b>Adequacy 4.1</b> | Describe the potential impacts and mitigation measures related to fish harvesting due to increased access and pressure from road users  |
|                        |                                | <b>Adequacy 4.2</b> | Conduct a residual impact assessment to address project effects on fish harvesting due to increased access and pressure from road users. Include an estimate of the likely number of additional users by category: <ul style="list-style-type: none"> <li>• Aboriginal, non-Tł̨chq̨ harvesters</li> <li>• NWT resident fishers, and</li> <li>• non-NWT fishers</li> </ul> |
|                        | <b>Important fishing areas</b> | <b>Adequacy 4.1</b> | Describe the potential impacts and mitigation measures from increased access to the areas identified in the <i>Traditional Knowledge Study Report</i> (PR#28)   |
|                        |                                | <b>Adequacy 4.2</b> | Conduct a residual impact assessment on the ability of the areas identified in the <i>Traditional Knowledge Study Report</i> (PR#28) to sustain increased use and fishery pressure.   |

### 5.3 Valued Component: Caribou

The GNWT-DOT has provided extensive information regarding caribou and potential impacts from the project (e.g. PR#7 pp6-24 to 6-27; pp8-17 to 8-19). Some additional information is required to assess the potential project-related impacts to caribou and to gauge the effectiveness of proposed mitigation measures.

**Topic: Barren-ground caribou**

Baseline range information (including seasonal variation) for barren-ground caribou, Bathurst and Bluenose east herds, was not discussed in relation to project impacts during construction and operations phases. Although the range of barren-ground caribou is north of the project, the project will extend the winter road season north of Whatì by one month each year (2 weeks each at the beginning and end of the season). The potential impact on barren-ground caribou populations from extending access to the herds by harvesters by one month each year must be discussed.

Table 5-2 outlines the additional assessment required for this topic.

**Topic: Boreal caribou**

The caribou information provided in the PDR is relevant for assessing impacts to boreal caribou which may be present in the vicinity of the project; however, potential impacts to boreal caribou resulting from changes to harvesting pressure, changes to habitat, and changes to population trends were not assessed. These information gaps must be addressed in order to assess the potential impacts of the Project on boreal caribou.

Additional information is required to characterize proposed mitigation measures applicable to barren-ground and boreal caribou. In the PDR, the developer proposed a number of mitigations that would address potential impacts to wildlife (e.g. PR#7 p5-2, p8-15, pp8-22 to 8-25). The effectiveness of some of these mitigation measures was challenged during the preliminary screening process (see PR#24 NSMA#1- Attachment letter p8) and was a supporting rationale in the Review Board’s Reasons for Decision document to refer the TASR to EA (PR#2 p1). A discussion of how effective these mitigation measures are likely to be in reducing or eliminating potential impacts to caribou has not presented. Neither has a description been provided of any residual effects following implementation of the mitigation measures. Both steps are required to assess potential impacts of the project to caribou.

Table 5-2 outlines the additional assessment required for this topic.

**Table 5-2. Additional information requirements to assess potential impacts to caribou.**

| Topic                        | Adequacy item    | Assessment Step(s)  | Additional requirement  |
|------------------------------|------------------|---------------------|---|
| <b>Barren-ground Caribou</b> | <b>Mortality</b> | <b>Adequacy 4.1</b> | Describe the potential impacts and mitigation measures related to barren-ground caribou as a result of increased harvesting pressure along the roads north of Whatì. Include consideration of the longer winter road season and a potential for increased road users. |

|                       |                          |  |   |
|-----------------------|--------------------------|--|---|
|                       | <b>Adequacy 4.2</b>      | Conduct a residual impact assessment for barren-ground caribou from increased harvesting pressure related to the longer winter road season, including consideration of: <ul style="list-style-type: none"> <li>• potential impacts and mitigations that may affect population recovery; and</li> <li>• overall effects on abundance, distribution and population trends of barren-ground caribou.</li> </ul> |   |
| <b>Boreal Caribou</b> | <b>Mortality risk</b>    | <b>Adequacy 4.1</b>  | Describe potential impacts and mitigation measures related to boreal caribou as a result of construction, operations and use of the public road, including: <ul style="list-style-type: none"> <li>• increased harvesting pressure from increased access into region</li> <li>• increased harvesting pressure north of Whati due to extended season winter road</li> <li>• vehicle collisions</li> <li>• Changes in predator-prey relationships</li> </ul>  |
|                       |                          | <b>Adequacy 4.2</b>  | Conduct a residual impact assessment on boreal caribou from project-related activities, including the above identified effects.   |
|                       |                          | <b>ToR 4.1 step 1</b>  | Discuss the baseline range for boreal caribou in relation to the project and its effects, including: <ul style="list-style-type: none"> <li>• seasonal variation</li> <li>• location of key habitat along the road corridor</li> </ul>  |
|                       | <b>Habitat</b>           | <b>Adequacy 4.1</b>  | Describe potential impacts and mitigations from direct and indirect alteration of boreal caribou habitat, inclusive of disturbance, displacement, and barrier effects. Include potential impacts: <ul style="list-style-type: none"> <li>• from the road disturbance footprint</li> <li>• from visual, smell, noise, light, and other sensory disturbances (including potential habitat avoidance or loss of effective habitat)</li> <li>• on key habitat areas for various life stages and movement corridors</li> <li>• from dusting to boreal caribou and habitat</li> <li>• to loss of functional habitat due to competition with other wildlife species (in particular bison)</li> <li>• to movement patterns, including any changes in interactions with other caribou herds</li> <li>• to habitat availability and distribution, due to any increases in fires resulting from use of the road</li> </ul> |
|                       |                          | <b>Adequacy 4.2</b>  | Conduct a residual impact assessment on boreal caribou habitat from project-related activities, including the above identified impacts.   |
|                       | <b>Population health</b> | <b>ToR 4.1 step 1</b>  | Describe the abundance, distribution, and population of boreal caribou populations  |

|                         |  |
|-------------------------|--|
| <b>Adequacy<br/>4.1</b> | Describe the potential impacts and mitigations related to boreal caribou populations and population trends, including: <ul style="list-style-type: none"> <li>• potential effects on sensitive life stages or sensitive or important habitat</li> <li>• potential effects on habitat use by boreal caribou</li> <li>• potential changes to the ability of boreal caribou habitat or populations to recover</li> <li>• overall effects on abundance, distribution, and population trends of boreal caribou</li> </ul> |
| <b>Adequacy<br/>4.2</b> | Conduct a residual impact assessment on boreal caribou population health from project-related activities, including the above identified impacts.  |

#### 5.4 Valued Component: Wildlife, including Species at risk

*Topic: Mammals (moose, bison and wolverine) & Mammals (bats), birds, fish, plants, amphibians, insects*

Concern about potential impacts on wildlife and species at risk was raised by several organizations, including Environment and Climate Change Canada (PR#24 ECCC #13-#16), the Wek'èezhì Renewable Resource Board (PR#24 WRRB#1 -#3) and the NSMA (PR#24 NSMA#1- Attachment letter pp7-10). Comments from the Preliminary Screening (e.g. PR#24 TG#49), and during the technical scoping session mentioned particular concern to local wildlife populations in the project area, including moose, as a result of increased access.

This section is relevant to mammals (except caribou), birds, plants, amphibians, and insects that have special conservation status. Caribou and fish are considered in the preceding sections.

The PDR provides information in sections 6.6.3, 6.5.3, and 6.8.3 regarding which wildlife (including birds, amphibians, and insects), vegetation, and fish species at risk may occur in the project area. However, additional information is required regarding the habitat ranges of wildlife and species at risk and the likelihood of them being present in the immediate vicinity of the project area.

In their Project Description Report, the developer proposed a number of mitigations that would address project-related effects to wildlife (e.g. PR#7 p5-2, p8-15, p22-25). As mentioned for caribou, above, the effectiveness of some of these mitigation measures was challenged during the Preliminary screening process (see PR#24 NSMA#1- Attachment letter p8) and was a supporting rationale in the Review Board's Reasons for Decision document to refer the TASR to EA (PR#2 p1). A discussion of how likely these mitigation measures are to reduce or eliminate concerns to wildlife and species at risk has not occurred. Neither has a description of any residual effects following implementation of the mitigation measures occurred. Both steps are required to assess potential impacts of the project to wildlife and other species at risk.

Table 5-3 outlines the additional assessment required for this topic.



Table 5-3. Additional information requirements to assess potential impacts to other wildlife and species at risk.

| Topic   | Adequacy item            | Assessment Step(s)  | Additional requirement  |
|---|--------------------------|---------------------|---|
| <b>Mammals (moose, bison and wolverine)</b>                     | <b>Competition</b>       | <b>Adequacy 4.1</b> | Describe the potential impacts and mitigations related to moose and mammal species at risk from loss of functional habitat due to competition with other species. Include the potential impact of bison moving into the project area on moose.  |
|   |                          | <b>Adequacy 4.2</b> | Conduct a residual impact assessment on moose and mammal species at risk from project-related activities, including the above identified impacts.   |
|   | <b>Mortality risk</b>    | <b>Adequacy 4.1</b> | Describe potential impacts and mitigation measures related to moose and mammal species at risk as a result of project-related effects, including: <ul style="list-style-type: none"> <li>• increased harvesting pressure from increased access into region</li> <li>• vehicle collisions</li> <li>• Changes in predator-prey relationships</li> </ul> |
|   |                          | <b>Adequacy 4.2</b> | Conduct a residual impact assessment on moose and mammal species at risk from project-related activities, including the above identified impacts.   |
| <b>Mammals (bats), Birds, Fish, Plants, Amphibians, Insects</b> | <b>Population health</b> | <b>Adequacy 4.1</b> | Describe the potential impacts to any bird, fish, plant, amphibian, and insect species at risk that have the potential to occur in the vicinity of the project  |
|   |                          | <b>Adequacy 4.2</b> | Conduct a residual impact assessment on any bird, fish, plant, amphibian, and insect species at risk from project-related activities.   |

### 5.5 Valued Component: Traditional use, culture, and heritage resources

The developer’s Project Description Report and project scoping activities conducted by the Review Board identified a number of concerns and potential impacts to traditional land and resource use in the project area (e.g. PR#7 p5-1 and PR#19 pp5-6). These concerns and impacts focused on hunting and fishing pressure on traditionally used fisheries (e.g. Lac La Martre) and wildlife (including furbearers), general damage to the land and related impacts on heritage resources and culture. Harvesting impacts to valued species are discussed in their respective valued components above; how project-related impacts affect harvesters is a focus topic for this valued component.

Potential impacts to areas used for traditional activities (e.g. hunting), including culturally-significant areas, are related to direct effects from the road (e.g. wildlife mortality and barrier effects) as well as to indirect effects from the road through increased public access to the project area. The potential project-related impacts from overfishing, increased wildlife harvesting and mortality, disturbances to the land and changes in the perception of the land in the project area

need further discussion to assess the likelihood of a significant adverse impact on traditional use, culture, and heritage resources.

**Topic: Traditional Use and Way of Life**

Concern was identified in the PDR (e.g. PR#7 p8-33; PR# 7-Appendix B p72) and during the Whatı scoping session (PR#19 p6) that increased access would result in more time away from the community and less time spent engaged in traditional activities. The impact assessment for potential impacts to traditional use and way of life was not complete. Understanding how an all-season road might influence these issues is important in assessing the potential impact on traditional use and way of life.

Table 5-4 outlines the additional assessment required for this topic.

**Topic: Harvesting**

Residents of Whatı also identified concerns about increased wildlife harvesting in the project area due to increased public access (PR#7 p8-30). In their Project Description Report, the developer proposed a number of mitigations that would address project-related effects to harvested species (e.g. PR#7 p5-2, p8-15. Pp8-22-25). The effectiveness of some of these mitigation measures was challenged during the preliminary screening process (see PR#24 NSMA#1- Attachment letter p8) and was a supporting rationale in the Review Board’s Reasons for Decision document to refer the TASR to EA (PR#2 p1). A discussion of how likely these mitigation measures are to reduce or eliminate concerns on harvesters has not occurred. In order to understand how the project will affect harvesting, a description of potential impacts to harvesters resulting from project-related effects is required, accompanied by a discussion of the proposed mitigation measures and characterization of residual impacts.

Table 5-4 outlines the additional assessment required for this topic.

**Topic: Heritage and Cultural resources**

In their Project Description Report, the developer identified concerns among community members in Whatı about landscape disturbances reducing their connection to a cultural landscape (PR#7 p8-31). In order to address this concern, the GNWT has proposed a number of mitigations. Specifically, the Tłıchǵ Government and/or Community Government of Whatı will erect signage to prevent damage to culturally-significant areas (such as the La Martre Falls), and that road construction (routing) will avoid cultural sites identified in the Traditional Knowledge study (PR#7 p5-2, 7-2, 8-31, and 8-34). However, there are no references to any potential or known important cultural sites from the Yellowknives Dene First Nation (YKDFN) and North Slave Métis Alliance (NSMA) in the PDR. This was a concern raised during the Preliminary screening and technical scoping session (e.g. PR#24 NSMA#1- Attachment letter p7; PR#23 p8).

In addition, the Review Board acknowledges that archaeological work has been completed (AOA and AIA) for the road corridor, but requires further clarification on assessing the archaeological potential of borrow sources and access to these locations.

Table 5-4 outlines the additional assessment required for this topic.

Table 5-4 Additional information requirements to assess potential impacts to Traditional Use and Way of Life.

| Topic                                  | Adequacy item              | Assessment Step(s)    | Additional requirement  |
|--|----------------------------|-----------------------|---|
| <b>Traditional Use and Way of Life</b> | <b>Traditional use</b>     | <b>Adequacy 4.1</b>   | Describe any potential impacts and mitigations to traditional use and way of life from project-related activities, including from: <ul style="list-style-type: none"> <li>• anticipated disturbances to wildlife and wildlife movement associated with the operation of an all-season road affecting the perception of the land by traditional users</li> <li>• a change in perception of the land resulting in changes to traditional use or value of the area</li> <li>• from increased mobility and time spent away from the community, including youth</li> </ul> |
|  |                            | <b>Adequacy 4.2</b>   | Conduct a residual impact assessment on traditional use and way of life affected by project-related activities, including the above-identified impacts.   |
| <b>Harvesting</b>                      | <b>Wildlife harvesting</b> | <b>Adequacy 4.1</b>   | Describe any potential impacts and mitigations to traditional use and way of life of Whatl residents from increased competition for harvest resources resulting from increased access and use of region by outside harvesters   |
|  |                            | <b>Adequacy 4.2</b>   | Conduct a residual impact assessment on harvesting affected by project-related activities, including the above identified impacts.  |
| <b>Heritage and Cultural Resources</b> | <b>Heritage sites</b>      | <b>ToR 4.1 step 1</b> | Describe important heritage sites for YKDFN and NSMA that may be affected by the project and its related activities   |
|  |                            | <b>Adequacy 4.1</b>   | Describe any potential impacts and mitigations to YKDFN and NSMA heritage sites for any areas identified as valued heritage sites.  |
|  |                            | <b>Adequacy 4.2</b>   | Conduct a residual impact assessment on heritage sites for any additional YKDFN or NSMA sites identified above.   |

## 5.6 Valued Component: Economic Well-being

### Topic: Equity and vulnerability

The Developer has provided documents from the Tłı̨chǫ Government and Community Government of Whatl that describe their support for the Project and initiatives undertaken to prepare for the

challenges and opportunities that an all-season road might bring<sup>4</sup>. Some outstanding challenges and issues are identified in these documents related to direct and indirect Project effects on residents of Whatı̄. Additionally, the community of Whatı̄ has acknowledged a low level of resilience in some dimensions that could be exacerbated by Project effects<sup>5</sup>. These challenges mostly affect vulnerable groups in the community, and to community social and physical infrastructures that can be affected directly from the Project or indirectly through community population changes or increased demand from other economic sectors resulting from an all-season road. Understanding how an all-season road might influence these issues is important in assessing the potential impact on equity and vulnerability.

Table 5-5 outlines the additional assessment required for this topic.

**Topic: Traditional and Non-Wage Economy**

Impacts to harvesting and the traditional economy were identified as a public concern in the community and technical scoping sessions (e.g. PR#19 p6; PR#26 pp5-6) as well as in the PDR (e.g. PR#7 p5-1; PR#7 – PDR-Appendix B p57). It is not evident from the PDR that an assessment of project-related effects on the traditional and non-wage economy has occurred. Understanding how an all-season road might impact the traditional and non-wage economy is important to understand the Project’s overall effect to economic well-being.

Table 5-5 outlines the additional assessment required for this topic.

**Table 5-5. Additional information requirements to assess potential impacts to Economic well-being.**

| Topic                           | Adequacy item        | Assessment Step(s)    | Additional requirement  |
|---------------------------------|----------------------|-----------------------|---|
| <b>Equity and vulnerability</b> |                      | <b>ToR 4.1 step 1</b> | Identify the most vulnerable groups in the community least likely to benefit from the Project or from reasonably foreseeable future economic activities   |
|                                 | <b>Vulnerability</b> | <b>Adequacy 4.1</b>   | Describe any potential impacts and mitigation measures related to vulnerable groups as a result of anticipated economic benefits associated with the Project, including any corresponding impact on community cohesion. |
|                                 |                      | <b>Adequacy 4.2</b>   | Conduct a residual impact assessment on vulnerable groups affected by project-related activities, including the above identified impacts.   |
| <b>Traditional</b>              | <b>Non-wage</b>      | <b>ToR 4.1</b>        | Describe the non-wage economy in Whatı̄ and the   |

<sup>4</sup> For example, see the Tlı̄chǝ Government and Whatı̄ Community Government Commitments (PR#7 – PDR-AppendixD), the Community Government of Whatı̄ Disaster Resilience Plan (PR#29), the Community Government of Whatı̄’s 2015-2016 Strategic Planning Details (PR#31), the Whatı̄ Micro-Economic Analysis of the All-Season Road (PR#7 – PDR-Appendix v), and the 2016-05-04 Inter-agency Meeting Summary (PR#27)

<sup>5</sup> Refer to the [Community Government of Whatı̄ Disaster Resilience Plan](#), PR#29,

|                             |                |                     |  |
|-----------------------------|----------------|---------------------|--|
| <b>and Non-wage economy</b> | <b>economy</b> | <b>step 1</b>       | degree of local reliance on it to offset cost of living  |
|                             |                | <b>Adequacy 4.1</b> | Describe any potential impacts and mitigation measures related to the non-wage economy from an anticipated increase in harvesting pressure and competition associated with increased access to the region. |
|                             |                | <b>Adequacy 4.2</b> | Conduct a residual impact assessment on aspects of the non-wage economy affected by project-related activities, including the above identified impacts.  |

### 5.7 Valued Component: Stable and healthy communities

The Developer identified public safety, increased illegal substances, changes in the amount of time spent in the community, and population increases as issues of concern related to the Project (PR#7 p8-33). Potential impacts to community infrastructure from project-related effects were also identified as a cause for public concern (e.g. PR#7 – PDR-Appendix B p4-43). The impacts were not characterized for these issues in a manner that allows the Review Board to assess their effect on stable and healthy communities. Understanding how an all-season road might influence these issues is important in assessing the potential impact on of stable and healthy communities.

#### *Topic: Use and maintenance of infrastructure*

The PDR describes the intent to use the solid waste facilities of Behchoko and Whatì as well as Behchoko’s sewage treatment facilities (P#7 pp4-42 – 4-43). Understanding the anticipated demand that the project and project-related effects will have on community infrastructure is necessary to determine the potential impacts on local populations. While letters of support are provided by the respective communities (see PDR-Appendix O), there is no description of the capacity of the community infrastructure to meet project demands. There are additional concerns related to community infrastructure in Whatì (e.g. housing, sewage lagoon, water treatment plant) and the capacity to adjust to future growth scenarios presented by the project (e.g. PR#7 – PDR-Appendix B pp 28). In order to assess the potential impacts to community infrastructure, the Board requires the developer to describe the potential impacts and mitigations, and characterize any residual impacts following the methodology in section 4, above. Table 5-6 outlines the additional assessment required for this topic.

#### *Topics: Public Safety and Community Cohesion*

The developer has estimated a traffic volume of 20-40 vehicles per day, inclusive of traffic volumes from the foreseeable mining developments north of Whatì (PR#7 p4-3). It is not clear how this number was derived. Understanding the effect of the project on the mobility of Whatì residents is critical to characterizing risks to public safety and related impacts stemming from year round road access. Relevant details on the existing mobility patterns for the community are lacking. This baseline information is important in understanding how frequently an all-season road will be used and assist with impact predictions to public safety.

The Socio-economic Issues Scoping Study (e.g. PR#7 – PDR – Appendix B p 46-66) discussed various adverse impacts to the community of Whatì during the winter road season. Many of these concerns were also raised by residents of Whatì during the community scoping session (e.g. PR#19 p5). These impacts were not adequately described by the developer, neither was the extent to which the project might influence the ‘winter road’ impacts, nor how the impacts might influence public safety and community cohesion. The developer is required to either (a) provide thorough information as described in section 4, above, or provide clear rationale to explain why a particular impact is not relevant to the all-season road. Table 5-6 outlines the additional assessment required for this topic.

**Topic: Population sustainability**

The developer anticipates that an all-season road will serve as a catalyst for population growth and economic development and cites a need for planning community growth in advance to “manage pressure on existing physical and social infrastructure” (PR#7 p8-32). However, there is no elaboration provided in the PDR to characterize the amount or rate of population change anticipated. Understanding how an all-season road might influence changes in population is important in assessing the potential impact to population sustainability in the region. Table 5-6 outlines the additional assessment required for this topic.

**Table 5-6. Additional information requirements to assess potential impacts to Economic well-being.**

| Topic  | Adequacy item  | Assessment Step(s)    | Additional requirement  |
|--|--|-----------------------|---|
| <b>Use and maintenance of infrastructure</b> | <b>Solid waste &amp; sewage treatment facilities</b> | <b>Adequacy 4.1</b>   | Describe any potential impacts and mitigations to community solid waste facilities and sewage treatment facilities used by the Project during construction and maintenance activities, including consideration of: <ul style="list-style-type: none"> <li>the anticipated incremental demand on the infrastructure from construction and maintenance (e.g. tonnes of waste or volume of sewage)</li> <li>the existing capacity of the infrastructure to accommodate the increased demand</li> </ul> |
|  |  | <b>Adequacy 4.2</b>   | Conduct a residual impact assessment on community solid waste facilities and sewage treatment facilities used by the Project during construction and maintenance activities, including the above identified impacts.  |
| <b>Public safety</b>                         | <b>Traffic safety</b>                                | <b>ToR 4.1 step 1</b> | Describe the current levels of mobility for Whatì residents (i.e. movement in and out of), including: <ul style="list-style-type: none"> <li>as a percentage of the community population</li> <li>by age and gender</li> <li>frequency during winter road season</li> <li>frequency outside of winter road season,</li> </ul>   |

|   |  |   |
|---|--|---|
|   |  | and   |
|   |  | <ul style="list-style-type: none"> <li>• by mode of transport</li> </ul>  |
|   | <b>ToR 4.1<br/>step 3a, 3b,<br/>3d</b> | <p>Elaborate on how the vehicle traffic number of 20-40 vehicles per day was derived, including:</p> <ul style="list-style-type: none"> <li>• proportion of public vs private traffic</li> <li>• seasonal variations</li> <li>• anticipated rate of increase corresponding to anticipated population change and economic opportunities</li> </ul>   |
|   | <b>ToR 4.1<br/>step 3d</b>             | <p>Provide an estimate on the likelihood, number and severity of motor vehicle accidents affecting Whatì and/or NWT residents on the all-season road using data from other NWT communities with road access as a reference point. Include any statistics from vehicle accidents on the annual winter road to Whatì.</p>   |
| <b>Public Safety<br/>and<br/>Community<br/>Cohesion</b> | <b>Well-being<br/>indicators</b>       | <p><b>Adequacy<br/>4.1</b></p> <p>Describe potential impacts to public safety and community cohesion from construction camps, including:</p> <ul style="list-style-type: none"> <li>• pregnancy</li> <li>• sexually transmitted infections</li> <li>• drug and alcohol use</li> <li>• crime – violent and property</li> </ul>   |
|   |  | <p><b>Adequacy<br/>4.2</b></p> <p>Conduct a residual impact assessment for the above noted indicators and their overall effect on community cohesion.</p>   |
| <b>Population<br/>sustainability</b>                    | <b>Population<br/>growth</b>           | <p><b>ToR 4.1<br/>step 3</b></p> <p>Describe the anticipated population level change resulting from the operation of an all-season road, including:</p> <ul style="list-style-type: none"> <li>• estimate the rate of population change from the time the road is constructed and projected through to include reasonable foreseeable economic activities</li> <li>• list the likely source populations for people moving to Whatì. For smaller communities, provide an estimate of the migrants as a percentage of the community of origin (e.g. 10% of Gametì)</li> </ul> |
|   |  | <p><b>Adequacy<br/>4.1</b></p> <p>Describe any potential impacts and mitigation measures of the anticipated population change, including:</p> <ul style="list-style-type: none"> <li>• to community stability for affected communities</li> <li>• to community of Whatì infrastructure (i.e. housing, sewage treatment, solid waste facility, law enforcement and health and social services)</li> </ul>  |

**Adequacy  
4.2**

Conduct a residual impact assessment for the anticipated population change and its effect on affected communities (e.g. community stability & infrastructure).



## APPENDIX A

# TASR Assessment Methodology: EA1617-01 Terms of Reference, section 4

### 4. Assessment methodology

The purpose of the DAR is to assess the potential impacts on the environment from the Project.

The major steps in impact assessment are:

- describing the pathways of effect that link the development to valued components of the environment;
- forming and refining impact predictions with the help of consultation and expert knowledge (including traditional knowledge);
- identifying mitigation measures to reduce or avoid adverse impacts; and
- predicting and characterizing residual impacts.

The sections below describe the standard steps to follow in assessing potential impacts to any valued component or topic of interest. The developer has some flexibility in determining the precise methodology for the assessment of impacts, but should generally adhere to these steps. When assessing impacts, the developer must also follow the detailed guidance for each valued component provided in the *Adequacy Statement*.

#### 4.1 Impact assessment steps

**For each valued component** identified in section 2.2.2, the developer will complete an effects assessment, considering scientific and traditional knowledge as applicable, using the following methodology:

1. identify the natural range of the baseline conditions without the project, considering variability and trends over time;
2. identify the potential effect pathways, or interactions, between the project and the valued component;
3. predict potential direct and indirect impacts:
  - a. describe the techniques used in the impact predictions (e.g. models,);
  - b. describe all assumptions and the level of uncertainty associated with each prediction;

- c. consider likely climate change scenarios and how scenarios affect predicted effects of the Project on valued components; and
  - d. consider and predict how accidents and malfunctions may contribute to predicted impacts. Provide a brief risk assessment for identified accidents or malfunctions on the valued component that includes any residual effects affecting that valued component.
4. Describe the impacts in terms of:
- a. the mechanism that causes the predicted impact;
  - b. geographical extent of the impact and rationale for its selection;
  - c. the duration and frequency of the impact;
  - d. magnitude of the impact (what degree of change is expected);
  - e. reversibility of the impact;
  - f. uncertainty associated with prediction;
  - g. likelihood of the impact;
  - h. the overall implication of the impact to the valued component<sup>6</sup>; and
  - i. its contribution, or additive effect, on another valued component
5. identify and describe any proposed mitigation measures:
- a. describe the link between the mitigation measure and the project component responsible for the impact, and demonstrate **how** the proposed mitigation measures will reduce or avoid the predicted impacts. Include predictions that will help evaluate the effectiveness of the mitigation measures; and
  - b. evaluate the technical and economic feasibility of the mitigation measures, discussing constraints, uncertainties and implementation challenges.
6. predict the residual impacts by updating the impact predictions in step 4 to include the proposed mitigation measures. Describe any residual impacts according to step 3.
7. describe any monitoring, evaluation, and adaptive management plans that will be used to:
- a. detect unexpected changes;
  - b. determine whether impact predictions are accurate;
  - c. evaluate the effectiveness of mitigations; and
  - d. adjust management actions to minimize adverse impacts .

Demonstrate how the plans adhere to adaptive management<sup>7</sup> best practices, such as those described in guidelines listed in Appendix A.<sup>8</sup>

<sup>6</sup> Using boreal caribou as an example, the Developer would describe the net-impact of all project-related direct and indirect effects on the health of the herd.

<sup>7</sup> Adaptive management is a decision process that uses the results of monitoring programs to systematically adjust management actions in order to minimize adverse impacts on the environment. For adaptive management to be effective, it needs: 1) an overall framework of

#### 4.2 Cumulative effects assessment steps

A cumulative effect is an impact that results from the proposed development in combination with other past, present, or reasonably foreseeable future developments. In the DAR, the developer will conduct a cumulative effects assessment<sup>9</sup> for any valued component that is susceptible to cumulative effects.

In conducting a cumulative effects assessment for each applicable valued component, the developer will use the steps below:

- Describe and provide rationale for which past, present or reasonably foreseeable future developments and human activities are being considered in the cumulative effects assessment.
- Combine the project-related residual impact predicted under step 6 in section 4.1 with the impacts from the developments and human activities identified above:
  - identify and discuss the way in which a cumulative impact may occur;
  - predict the potential direct and indirect cumulative impacts;
  - describe techniques utilized in impact prediction (e.g. models,) assumptions, and the level of uncertainty; and
  - discuss the contribution of the project to the overall cumulative impact.
- Characterize the cumulative impact according to steps 4 – 7 in section 4.1.

Consideration should also be given to identifying ways in which the developer, either on its own or cooperatively with others, can reduce or avoid any predicted cumulative impacts. Current efforts towards cumulative effects assessment and management should be described, including (if applicable) the developer's efforts to coordinate its monitoring and management to contribute towards a regional approach. Lessons learned from previous or current relevant cumulative effects initiatives should be discussed.

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action levels or thresholds (which identify when to act); and 2) proposed mitigation options, policies, and practices linked to the action levels (which describe what actions to take)."

<sup>8</sup> In particular: WLWB Draft Response Framework for Aquatic Effects Monitoring; and U.S. Department of the Interior Technical Guide to Adaptive Management (particularly the Problem–Scoping Key on page 15).

<sup>9</sup> Please see Appendix H of the Review Board's *EIA Guidelines* for additional requirements of the cumulative effects assessment.