PRELIMINARY SCREENING REPORT FORM

PRELIMINARY SCREENER: Sahtu Land and Water Board: Aswathy Mary Varghese, Regulatory Specialist **REFERENCE / FILE NUMBER:** S20E-005/S20L8-002 **TITLE: Prohibition Creek Access Road (PCAR) Construction Project** **APPLICANT: GNWT- Dept. of Infrastructure** **BOARD MEETING DATE: October 27, 2020**	**EIRB REFERENCE NUMBER:**

Type of Development: Roads (Public Construction)

Type of Development:	✓	New Development
(CHECK ALL THAT APPLY)	❍	Amend, EIRB Ref. #
	❍	Renew, EIRB Ref. #
	✓	Requires permit, licence or authorization
	❍	Does not require permit, licence or authorization

Project Summary: Government of the Northwest Territories – Department of Infrastructure (GNWT-INF) submitted applications for a Type A land use permit (LUP/Permit) and a Type B Water Licence (WL/Licence) for the Prohibition Creek Access Road (PCAR) Construction Project. GNWT-INF has planned to construct a 13 km all-season access road from the southern end of the Canyon Creek All-Season Access Road (CCASAR) to the Prohibition Creek with a Right of Way (ROW) width of 60 metre (m). The road will consist of a two-lane gravel roadway with an 8.5 m wide driving surface with total footprint of approximately 16.6 m (assuming an average embankment height of 1.5 m with 3H:1V side slopes). The access road will be located within the partially cleared right-of-way (ROW), immediately northeast of the Mackenzie Valley Fibre Line (MVFL) and on the existing Mackenzie Valley Winter Road (MVWR). This project includes the operation of a quarry (Edie Lake Quarry) which was previously developed by GNWT-INF during the CCASAR project. Water sourced (water use estimate: < 250 m3/day) from the Mackenzie River will be used to provide dust suppression, material compaction, and temporary working surfaces during frozen ground conditions. The Land Use Permit (LUP) and Water Licence (WL) are being sought for a term of five years.

Construction of the Access Road is estimated to take eighteen to twenty-four months to complete. A final engineering design and project plan of the Access Road is expected to be completed in January 2021.

The following studies are required to be completed for making the final project plan: Thermal Assessment, Archeological Impact Assessments (AIA): in areas of high archeological potential identified in the previously completed archeology overview assessments (AOAs), Hydrology and Fish Assessments, Topographic Survey and Pre-disturbance Den and Nest Surveys. With the exception of the Pre-Disturbance Den and Nest Surveys (which will not be completed until work commences), the field work for the additional studies have been completed in the summer and/or fall 2020. INF is currently awaiting issuance of the final reports for each of the pieces of work. The field work will be completed in early November 2020, with final report issuance in early January 2021. GNWT-INF will be submitting the Permafrost and Erosion Plan (PEP) and Wildlife Management and Monitoring Plan (WMMP) for public review and SLWB approval prior to the road construction. INF has provided sufficient details in their Environment Protection Plan (EPP) to complete the preliminary screening.

Project exclusions: a) Rehabilitation and/or replacement of bridges along PCAR including Francis Creek, Helava Creek and Christina Creek will be completed under separate regulatory approvals and processes; and b) no camp is required for the project as the personnel will stay in Norman Wells, NWT.

(The project will use two temporary trailers for washroom and shelter during the project, and on-site personnel will be accommodated at Norman Wells, NWT: a) one trailer at the Edie Lake Quarry and b) second trailer at the project site.)

Notes:

- PCAR will be added to the Mackenzie Valley Highway Project which is currently under Environmental Assessment.
- Any outstanding/unforeseen geotechnical work related to this project have to be dealt with under other existing or new authorizations, as applicable.

Scope:

a) Construction of an all-season access road between Prohibition Creek and Canyon Creek within the existing Mackenzie Valley Winter Road (MVWR) ROW. Construction activity will commence at the end of the Canyon Creek All Season Access Road (CCASAR) approximately 450 m southeast of the Canyon Creek bridge and end on the approach to the Prohibition Creek bridge (approximately 300 m northwest of Prohibition Creek);
b) Mobilizing and demobilizing construction equipment to and from Project work site;
c) Clearing, grubbing, and stripping vegetated material from proposed Project alignment Right of Way (ROW) and within proposed work areas at Edie Lake Quarry;
d) Installation of equalization and drainage channel culverts at select locations within the ROW;
e) Sourcing and use of water from the Mackenzie River to provide dust suppression, material compaction, and temporary working surfaces during frozen ground conditions;
f) Operation of one borrow source (the Edie Lake Quarry). Work will include drilling, blasting, excavation, crushing and stockpiling of granular materials. The Edie Lake Quarry and the permanent quarry haul road were previously developed by INF during the CCASAR project. Progressive reclamation will be completed at the Quarry during operations;
g) Construction, operation, and reclamation of temporary support infrastructure areas (laydown and equipment staging areas).
h) Disposal of waste at approved offsite disposal facilities;
i) Storage and transfer of fuel;
j) Use of explosives for quarry operations.

Locations: Prohibition Creek Access Road (PCAR) Construction Project

Project Element	Description	Latitude	Longitude
Alignment	**End of CCASAR**	65º 13'25.5" N	126º 30' 53.4" W
	End of PCAR	65º 9' 18.8" N	126º 18' 23.4" W
Edie Lake Quarry	**Northwest Corner**	65º 17' 7.0" N	126º 32' 17.0" W
	West Corner	65º 16' 58.0" N	126º 32' 29.0" W
	Southwest Corner	65º 16' 50.6" N	126º 32' 23.7" W
	Northeast Corner	65º 16' 57.0" N	126º 31' 25.0" W
	Southeast Corner	65º 16' 43.0" N	126º 31' 41.0" W

Principal Activities (*related to scoping)*
(CHECK ALL THAT APPLY)

✓ Construction	❍ Exploration	❍ Decommissioning
❍ Installation	❍ Industrial	❍ Abandonment
✓ Maintenance	❍ Recreation	❍ Aerial

❍ Expansion	❍ Municipal	❍ Harvesting
✓Operation	✓ Quarry	❍ Camp
❍ Repair	✓ Linear / Corridor	❍ Scientific / Research
✓Water Intake	❍ Sewage	❍ Solid Waste

❍ Other:

(DESCRIBE)

Principal Development Components (*related to scoping*)
(CHECK ALL THAT APPLY)

✓ Access Road
- ✓ construction
- ❍ abandonment/removal
- ❍ modification e.g., widening, straightening

✓ Automobile, Aircraft or Vessel Movement
✓ Blasting
❍ Building
❍ Burning
❍ Burying
✓ Channeling
❍ Cut and Fill
✓ Cutting of Trees or Removal of Vegetation
❍ Dams and Impoundments
- ❍ construction
- ❍ abandonment/removal
- ❍ modification

❍ Ditch Construction
✓ Drainage Alteration
❍ Drilling other than Geoscientific
✓ Ecological Surveys
✓ Excavation
❍ Explosive Storage
❍ Fuel Storage, drilling fluid, and hydraulic fracture fluid storage
✓ Topsoil, Overburden or Soil
- ✓ fill
- ❍ disposal ✓ removal ❍ storage

✓ Waste Management
- ❍ disposal of hazardous waste
- ✓ waste generation
- ❍ drilling wastes and hydraulic flowback fluids

❍ Sewage
- ❍ disposal of sewage

❍Geoscientific Sampling
- ❍ trenching
- ❍ diamond drill
- ❍borehole core sampling

❍ Bulk soil sampling
✓ Gravel
✓Hydrological Testing
✓ Site Restoration
- ❍ fertilization
- ✓ grubbing
- ❍ planting/seeding
- ✓ reforestation
- ❍ scarify
- ❍ spraying
- ❍ recontouring

✓ Slashing and removal of vegetation
❍ Soil Testing

❍ Stream Crossing/Bridging
❍ Tunneling/Underground
✓ Water Intake
❍ Other

NTS Topographic Map Sheet Numbers
(LIST ALL THAT APPLY)

NTS Map Sheet #s: 096E
Latitude/Longitude and UTM System: Maximum Latitude: 65º 13’25.5” N Minimum Latitude: 65º 9’ 18.8” N
Maximum Longitude: 126º 30’ 53.4” W Minimum Longitude: 126º 18’ 23.4” W

(DEGREES, MINUTES, SECONDS, MAP SHEET)

Nearest Community and Water Body:
The Town of Norman Wells, NWT; Mackenzie River

Land Status (*consultation information*)
(CHECK ALL THAT APPLY)

✓ Free Hold / Private ✓ Commissioner's Land ❍ Federal Crown Land ❍ Municipal Land

Transboundary Implications
(CHECK ALL THAT APPLY - IF KNOWN & APPLICABLE)

❍ British Columbia ❍ Alberta ❍ Saskatchewan ❍ Yukon
❍ Nunavut ❍ Wood Buffalo National Park ❍ Inuvialuit Settlement Region

✓ N/A

Type of Transboundary Implication: ❍ Impact / Effect ❍ Development

❍ Public Concern _____
(DESCRIBE)

✓ N/A

PHYSICAL - CHEMICAL EFFECTS

IMPACT	*MITIGATION*

1. Groundwater

❍ Water table alteration

✓ Water quality changes

1. Water will be required for Access Road construction and operation for winter trail construction and dust control. Water for this use will be obtained from the Mackenzie River. The construction of the Access Road and the management of the Edie Lake quarry will be such that water quality, quantity and rate of flow is not altered and surface and groundwater will not be impacted.
2. Potential impacts to groundwater are limited to accidents and spills, and GNWT-INF has developed Emergency Response and Spill Management Plans that will be adhered to in case of emergencies and accidental spills.
3. All fuel trucks and equipment refueling will be done at least 100 meters (m) from Ordinary High-Water Mark of any adjacent water bodies.
4. Fuel will not be stored in project site. Construction equipment working on the Access Road and at the Edie Lake quarry will be fueled by pickups with tidy tanks and a dedicated fuel/lube truck with a fuel tank capacity of 10,000 litres travelling between Norman Wells and the working equipment.

❍ Infiltration changes

❍ Other:

❍ N/A

IMPACT	*MITIGATION*

2. Surface Water

❍ Water flow or level changes

✓ Water quality changes

1. Water will be required for Access Road construction and operation for winter trail construction and dust control. Water for this use will be obtained from the Mackenzie River. The construction of the Access Road the management of Edie Lake quarry will be such that water quality, quantity and rate of flow is not altered and surface and groundwater will not be impacted.
2. Potential impacts to surface water are limited to accidents and spills, and INF has developed Emergency Response and Spill Management Plans that will be adhered to in case of emergencies and accidental spills.
3. Laydown and equipment staging areas will be located at least 100 m from the ordinary high-water mark of any waterbody.
4. GNWT's Dust Suppression Guidelines will be applied to manage dust levels.
5. Vehicle speeds will be enforced to reduce the amount of dust.
6. GNWT's Erosion and Sediment Control Manual and the PEP will be followed during the design and installation of culverts.
7. Culverts will be appropriately sized to avoid backwatering and washouts.
8. Silt fencing will be installed where required to control possible sediment releases during construction and post construction.
9. The SCP will be followed to prevent spills entering the waterways and to manage and clean up a spill, should one occur.

10. Progressive reclamation of the borrow source through re-vegetation and contouring to prevent dust and sediment from entering nearby waterbodies.
11. If work is required within 100 m of the ordinary high-water mark of any waterbody, INF will obtain authorization from Lands prior to the commencement of work. Major construction activities will be delayed during high rainfall events.
12. All sewage generated from the crew break room at the Edie Lake Quarry will be removed via vacuum truck to an approved facility to prevent any discharge onto the land or into the water.
13. Geochemical testing of borrow materials will prevent ARD/ML impacts to waterbodies.
14. Quarry operations will occur a minimum of 100 m from the ordinary high watermark of any waterbody. The quarry will be designed to drain naturally to allow water to flow into the natural environment with the avoidance of distinct run-off channels.
15. Minimize clearing within Project footprint, where possible.
16. Maintain a 30 m vegetated buffer strip between Project footprint and water bodies.
17. Dust will be minimized by enforcing speed and load limits to preserve the roadbed, and regular road maintenance will be completed to reduce dust production.
18. Areas for cleaning equipment will be located a minimum of 100 m from watercourses and will not drain into or toward water bodies.
19. Riparian areas will be maintained whenever possible to minimize erosion and impacts to water quality, with vegetation removal limited to the width of the ROW.
20. Removed vegetation will be removed from within 100 m of the water body, to prevent them from entering the watercourse.
21. Grading of the stream banks at approaches will not occur.
22. Disturbed areas along the stream banks will be stabilized if required upon completion of work to minimize erosion (as per the DOT Erosion and Sediment Control Manual and the PEP).
23. LUP condition prohibiting quarry operations within a 100m from any Watercourse, unless otherwise authorized by Inspector.

✓ Water quantity changes

1. Direct water use for the Access Road construction is estimated to be less that 250 cubic metres per day. Water will be sourced from the Mackenzie River in accordance with the protocol outlined in the DFO Freshwater Intake End-of- Pipe Fish Screen Guideline and the DFO Protocol for Winter Water Withdrawal from ice-covered Waterbodies in the Northwest Territories and Nunavut.

✓ Drainage pattern changes

1. Completion of hydrology assessments to appropriately size culverts to convey flows. Design of culverts to withstand a 1 in 100-year flood flow rate.
2. Equalization culverts will be installed to prevent ponding as outlined in Section 6.10. The locations of the culverts will be outlined in the final design.
3. Design for culverts will include requirements for bedding materials and geotextile to protect surrounding permafrost from thaw. Rip rap will be incorporated into culvert design to avoid erosion around each culvert.
4. Thermal assessment will be completed prior to the completion of the final design to identify areas with permafrost and implement mitigations (e.g. avoidance where possible).
5. Geotextile will be used to minimize permafrost thawing which could impact water quantity.
6. Road design criteria has considered an appropriate slope ratio along the proposed PCAR to protect slopes during rain events.
7. NLUGs: Pits and Quarries (Lands 2015d) guidance will be followed

regarding water management at the Edie Lake Quarry (e.g. not excavating below the water table and water management).
8. LUP condition prohibiting obstruction of natural drainage.

❍ Temperature

❍ Wetland changes / loss

❍ Other:

❍ N/A

IMPACT ***MITIGATION***

3. Noise

✓ Noise increase

Noise level and unfamiliar noise associated with construction (traffic and equipment operation) and quarry development (blasting, traffic, equipment operation, aggregate crushing) will disturb wildlife and land users.

Mitigations:
1. This noise pollution from construction activities is rapidly reversible and the impact will be to the local area within which the specific activity is taking place.
2. Construction and quarry development activities will be limited during sensitive periods to minimize effects on wildlife.
3. Opportunities to minimize vehicle movements will be used.
4. Regular maintenance of equipment.
5. Use of appropriate mufflers for equipment.
6. INF will take all reasonable steps to complete Project activities in accordance with the wildlife setback guidelines outlined in Table 10-9 of the project description report. Where it is not possible to follow these setbacks, GNWT-INF will work with GNWT-ENR to implement additional mitigations.

❍ Noise in/near water

❍ Other:

❍ N/A

IMPACT ***MITIGATION***

4. Land

❍ Geologic structure changes

✓ Soil contamination

1. Potential soil contamination is limited to accidents and spills, and the GNWT-INF has developed Emergency Response and Spill Management Plans that will be adhered to in case of emergencies and accidental spills.
2. LUP conditions to address fuel containment, spill response and cleanup.

✓ Ground disturbance

Potential effects of construction activities on land can be related to surface disturbance during construction that can cause damage to soils, permafrost, cause erosion and alter landforms.

Mitigative efforts associated with the impacts of the construction to sensitive terrain and ground ice in the design and construction stage include:

1. Design the Access Road using a fill only embankment concept rather than a cut and fill method.
2. Use woven geotextile to support weak subgrade soils and reduce differential settlement;
3. Use material from the Edie Lake quarry to construct the embankment rather than adjacent and low quality borrow materials;
4. Design and construct a workable drainage approach to manage surface flow;
5. The conceptual design and construction approach for the Access Road is based on geometric design guidelines for Canadian roads published by Transportation Association of Canada (TAC), 2017.
6. Additional guidance material utilized for project design: Guidelines for Development and Management of Transportation Infrastructure in Permafrost Regions (TAC, 2010); GNWT Department of Transportation Erosion and Sediment Control Manual (GNWT, 2013).
7. LUP conditions requiring restoration and cleanup of the lands used during land-use operations.

❍ Buffer zone loss

❍ Soil compaction & settling

✓ Destabilization / erosion

Permafrost terrain is vulnerable to both physical erosion of soils and thermal erosion of frozen ground.

1. Mitigative efforts are the same as those described for Ground disturbance above.
2. LUP conditions to deal with erosion control and prevention.

✓ Permafrost regime alteration

The Access Road lies entirely within extensive discontinuous permafrost zone. The Access Road will be built on sensitive permafrost terrain which is vulnerable to physical and thermal ground disturbances.

Mitigations:

1. Clearing will be completed by hand, where possible.
2. During susceptible seasons (spring, summer, fall), suitable ground equipment will be used to prevent impact to sensitive terrain.
3. Where possible, windrowed material will be mulched and spread over cleared areas within the Project footprint to protect the soil and permafrost.
4. Construction of new embankment will occur primarily during winter, during frozen conditions. If work will be completed under non-frozen conditions, equipment will be equipped with mushroom shoes to prevent impacts to terrain.
5. Construction equipment will be operated on designated winter roads or constructed embankment.
6. Surface disturbance to undisturbed terrain will be minimized as much as possible. Project work will be confined to the Project footprint located within the pre-existing winter road alignment.
7. A minimum depth of 10 cm of packed snow or ice cover on winter roads and access trails.
8. Geotechnical assessments will identify areas of ice-rich permafrost prior to the start of construction. Data collected will be integrated into the final design, which will vary based on the presence and extent of permafrost.
9. Construct embankment using ‘fill approach’ with minimal disruption to the subgrade rather than a ’cut and fill approach’.
10. Steep grades where subsidence may occur as a result of permafrost thaw

will be avoided, where possible.

11. Construction will be avoided on highly saturated soil (primarily during freshet) where practical or suitable ground equipment will be utilized to prevent unnecessary soil damage through rutting, etc.
12. Thermal regimes of the embankment and the alignment could be monitored using thermistors.
13. Area of ground disturbance will be minimized by following the preexisting winter road alignment
14. Adhere to the DOT Erosion and Sediment Control Manual and the PEP.
15. Use of effective road design, including stabilizing slopes and culvert installation.
16. Limit the area of ground disturbance to the Project footprint, where possible.
17. Providing sufficient cross drains along the roadway to facilitate water movement and maintain drainage patterns.
18. Erosion and drainage patterns will be observed. The number of cross drains and locations will be increased, if required, and will provide remedial erosion protection.
19. Surface disturbance to undisturbed terrain will be minimized as much as possible. Project work will be confined to the Project footprint.
20. Adherence to Standard Operating Procedures for fuel handling, including the use of secondary containment, and follow the SCP.
21. Preventative maintenance will be completed on equipment to reduce the potential for leaks.
22. Disturbance of the active layer during construction and maintenance activities will be minimized.
23. Areas, such as forest fire areas, where permafrost thaw may be accelerated in the future, will be identified and monitored.
24. Installation of culverts as per the findings of the hydrology assessment and observing performance during construction.
25. Surface disturbance to undisturbed terrain will be minimized as much as possible. Project work will be confined to the Project footprint.
26. Areas of ice-rich permafrost will be identified and avoided, where possible.
27. LUP condition to deal with permafrost protection.

❍ Other:

❍ N/A

IMPACT	***MITIGATION***

5. Non-Renewable Natural Resources

✓ Resource depletion	1. The proposed Access Road construction will use non-renewable natural resources (diesel fuel) but are necessary to conduct the project. The proposed activities are localized and have temporary effect.

❍ Other

❍ N/A

IMPACT	***MITIGATION***

6. Air / Climate / Atmosphere

✓ Greenhouse gases	Emissions from diesel engine combustion exhaust during construction and operation will be generated and will negatively impact air quality in the local

area around where the equipment is operating at the particular time. Also, clearing of vegetation will result in loss of available carbon sink.

Mitigations:

1. Equipment will be well maintained and in good operating condition.
2. Unnecessary idling will be minimized
3. Using fuel efficient equipment during construction to lower fuel consumption and cost.
4. Reduce idling by using automatic shut-off mechanisms, where possible.
5. Use multi-passenger vehicles to transport personnel to and from Project sites.
6. Maintain equipment regularly to ensure efficient operation.
7. Minimizing area of disturbance, where possible.
8. Minimizing area of disturbance to within the Project footprint, where possible.
9. Limiting clearing to areas within the ROW and Edie Lake Quarry.

✓Other: Dust and air emissions

Access Road construction and material sources development will generate dust and air emissions. Dust particles of various sizes will be generated by handling of embankment and granular materials in material sources and along the Access Road during construction. Dust will also be generated by vehicles travelling along the Access Road during construction and after the Access Road is in operation.

1. Application of water to the road surface as per the GNWT Guideline for Dust Suppression (2013). Water will be withdrawn from the Mackenzie River.
2. Slow speeds (50 km/h) for haul trucks and other vehicles susceptible to creating excessive dust will be enforced.
3. Blast mats will be utilized when blasting.

✓Other: Climate change

Effects of climate change (warming temperatures, greater precipitation, and extreme and unpredictable weather events) could have an impact on the stability of the Access Road from operations, maintenance and preservation aspects, potentially resulting in negative effects to the surrounding environment.

Mitigations:

Key mitigative measures incorporated into the project design parameters to manage uncertainty related to future climate trends and extremes in the permafrost region that the Access Road will be constructed in, include (Table 10-5 of the PDR):

1. Construct embankment using ‘fill approach’ with minimal disruption to the subgrade rather than a ’cut and fill approach’.
2. Use of woven geotextile to reinforce embankments and reduce differential settlement.
3. Incorporate approaches to minimize the presence of ponded water within the ROW (e.g. appropriate culvert placement and sizing).
4. Use of geo-fabrics, geo-synthetic materials, wattles or other erosion control products in ditches covered by organics to minimize erosion of the existing fine-grained soils.
5. Stage the construction such that the placement of granular surfacing is delayed until any significant differential settlement has occurred.
6. Confine activities to the Project footprint to the extent where possible.
7. Identify areas within ROW that are most vulnerable to climate change, including those areas with ice-rich permafrost.
8. Avoid constructing in ice-rich areas, if possible, and where not possible, deploy methods to minimize thermal disturbance.
9. Minimize area disturbed during construction.
10. Use of woven geotextile to reinforce embankments and reduce

differential settlement.

11. Incorporate approaches to minimize the presence of ponded water within the ROW (e.g., appropriate culvert placement and sizing).
12. Use materials from the Edie Lake Quarry to construct the embankment rather than adjacent and low quality borrow materials.
13. Avoid construction on steep slopes to prevent material slumping and gully erosion.
14. Stage the construction such that the placement of granular surfacing is delayed until significant differential settlement has occurred.
15. Observe Project sites during freshet to identify and mitigate erosion concerns.

BIOLOGICAL ENVIRONMENT

IMPACT	***MITIGATION***
1. Vegetation	
❍ Species composition	
✓ Species introduction	Plant communities may be indirectly affected by the introduction of non-native or invasive plant species during construction and operation of the Access Road. The disturbances associated with development projects can unintentionally create growing conditions that facilitate the successful establishment of invasive plants. Exposed soil resulting from the removal of plant cover is particularly susceptible to colonization. Dirty equipment transported to site from other areas can act as a dispersal mechanism for invasive plant propagules that may have become lodged in tires and mud. Off-road vehicle use (e.g., All-Terrain Vehicles) can also increase the potential for non-native and invasive plant species introduction. 1. Cleaning equipment thoroughly before bringing it to the work site to prevent the introduction of noxious and/or invasive plant species. 2. Prohibiting the use of potentially noxious and/or invasive plant species and using native species where feasible.
❍ Toxin / heavy accumulation	
❍ Loss of timber along seismic lines	
✓ Damage to ground vegetation and permafrost	1. Clearing will be completed by hand, where possible. 2. During susceptible seasons (spring, summer, fall), suitable ground equipment will be used to prevent impact to sensitive terrain. 3. Where possible, windrowed material will be mulched and spread over cleared areas within the Project footprint to protect the soil and permafrost. 4. Construction of new embankment will occur primarily during winter, during frozen conditions. If work will be completed under non-frozen conditions, equipment will be equipped with mushroom shoes to prevent impacts to terrain. 5. Construction equipment will be operated on designated winter roads or constructed embankment. 6. Surface disturbance to undisturbed terrain will be minimized as much as possible. Project work will be confined to the Project footprint located within the pre-existing winter road alignment. 7. A minimum depth of 10 cm of packed snow or ice cover on winter

	roads and access trails. 8. Geotechnical assessments will identify areas of ice-rich permafrost prior to the start of construction. Data collected will be integrated into the final design, which will vary based on the presence and extent of permafrost. 9. Construct embankment using 'fill approach' with minimal disruption to the subgrade rather than a 'cut and fill approach'. 10. Steep grades where subsidence may occur as a result of permafrost thaw will be avoided, where possible. 11. Construction will be avoided on highly saturated soil (primarily during freshet) where practical or suitable ground equipment will be utilized to prevent unnecessary soil damage through rutting, etc. 12. Thermal regimes of the embankment and the alignment could be monitored using thermistors. 13. Area of ground disturbance will be minimized by following the preexisting winter road alignment 14. Adhere to the DOT Erosion and Sediment Control Manual and the PEP. 15. Use of effective road design, including stabilizing slopes and culvert installation. 16. Limit the area of ground disturbance to the Project footprint, where possible. 17. Providing sufficient cross drains along the roadway to facilitate water movement and maintain drainage patterns. 18. Erosion and drainage patterns will be observed. The number of cross drains and locations will be increased, if required, and will provide remedial erosion protection. 19. Surface disturbance to undisturbed terrain will be minimized as much as possible. Project work will be confined to the Project footprint. 20. Adherence to Standard Operating Procedures for fuel handling, including the use of secondary containment, and follow the SCP. 21. Preventative maintenance will be completed on equipment to reduce the potential for leaks. 22. Disturbance of the active layer during construction and maintenance activities will be minimized. 23. Areas, such as forest fire areas, where permafrost thaw may be accelerated in the future, will be identified and monitored. 24. Installation of culverts as per the findings of the hydrology assessment and observing performance during construction. 25. Surface disturbance to undisturbed terrain will be minimized as much as possible. Project work will be confined to the Project footprint. 26. Areas of ice-rich permafrost will be identified and avoided, where possible. 27. LUP conditions to address vegetation and permafrost protection.
✓Other: damage of vegetation due to dust; Destruction of important habitat providing vegetation and culturally important plant species	1. Application of water to the road surface as per the GNWT Guideline for Dust Suppression (2013). 2. Blast mats will be utilized when blasting. 3. Limiting movement of equipment and vehicles to within the Project footprint. 4. Limiting removal of overburden at the Edie Lake Quarry to those parts of the quarry that are being actively developed. 5. Construct embankment using 'fill approach' with minimal disruption to the subgrade rather than a 'cut and fill approach'. 6. Stacking merchantable timber (butt size ≥ 12 cm) along the roadside. INF will post advertisements to notify community members that it is available for use. 7. Avoiding disturbance of the surface organic layer and damage to root structures during winter clearing in non-permanent footprint areas. 8. Completing progressive reclamation activities at the temporary laydown/staging areas and the temporary access roads used to support

	the Project.
❍ Increased fire hazard	
IMPACT	***MITIGATION***

2. Wildlife & Fish

✓ Effects on rare, threatened or endangered species	1. GNWT-INF will maintain natural drainage patterns (including quantity and quality). 2. Pre-disturbance Den and Nest Surveys will be completed before making the start of construction. 3. If there is potential for destruction of den/nests, INF will contact the regional ENR office to determine whether a permit to disturb or destroy the nest/eggs can be obtained. 4. Development of a Project specific WMMP Incorporating the draft best management practices and guidance on boreal caribou from ENR (ENR 2020). 5. Avoidance of sensitive terrain features and waterbodies (where possible). The design attempts to maintain natural watercourses (water quality and quantity) by using appropriately placed and sized culverts. 6. Scheduling of construction activities sequentially to reduce the extent (spatially and temporally) of impacts to species within the Project area. 7. Respect sensitive timing windows and setbacks as defined by the SLUPB, ECCC, and Lands (outlined in Table 10-9 of the PDR) and outlined in the approved WMMP. 8. Integrate additional mitigations outlined in the WMMP including specific mitigations associated with SARA, SARA (NWT), and COSEWIC listed species into the Project. 9. LUP condition pertaining to protection of migratory birds.
✓ Fish population changes	1. The GNWT-INF will employ sediment and erosion control measures, as appropriate, and appropriate sizing of culverts. 2. The INF will regularly provide maintenance of equipment away from waterbodies. 3. INF will provide on-site spill containment equipment and provide staff training. 4. INF will maintain sufficient distance from waterbodies, if possible, and install sediment control in ditches and cross drainage channels. 5. Screens for water withdrawal will be designed and operated in accordance with the DFO Interim Code of Practice: End of Pipe Fish Screens (DFO 2020) and DFO Fish Screen Design Criteria or Flood and Water Truck Pumps (DFO 2011). 6. Public education to prevent over-exploitation due to improved access to remote fishing areas.
❍ Waterfowl population	
❍ Breeding disturbances	
❍ Population reduction	
❍ Species diversity change	
❍ Health changes (identify)	
❍ Behavioral changes (identify)	

✓ Habitat changes / effects	1. Limiting construction activities to within the Project footprint, including clearing activities. Previously disturbed areas will be used, wherever possible. 2. Completion of monitoring as outlined in the approved WMMP including but not limited to pre-disturbance den and nest surveys within 1.5 km of the Project footprint, pre-blasting surveys at the Edie Lake Quarry, and continued wildlife observation within the Project footprint during active construction. Wildlife sightings, incidents, and observations within the Project footprint will be documented. 3. Blasting at the quarry will only proceed if no large mammals (e.g. caribou, moose, and muskox) are located within 500 m blast radius. All blasting will be preceded by air horn blasts. Specific mitigation measures will be applied during the high-risk timing windows for boreal caribou (late winter and calving season). 4. Project-related personnel and contractors will not travel off the Project footprint unless there is a specific requirement. Personnel will be prohibited from harassing wildlife and littering. 5. If a key wildlife feature of a listed species is identified, ENR and/or ECCC will be contacted and construction activities temporarily halted pending consultation with these agencies. 6. Maintain existing drainage patterns by using appropriate sized drainage culverts. 7. Dust suppression techniques will be implemented in accordance with the GNWT Guideline for Dust Suppression to prevent dust from spreading onto vegetation outside of the ROW. Enforcing speed limits on the road and using blast maps at the Edie Lake Quarry will also minimize dust.
✓ Habitat changes / effects Contd’	8. Equipment will be cleaned prior to use to avoid introducing noxious and/or invasive species. If noxious and/or invasive species are identified within the Project footprint, they will be removed. 9. DOT’s Erosion and Sediment Control Manual and the PEP will be used to manage erosion and sediment control issues. 10. The approved SCP will be followed to ensure spills are prevented. If spills occur, the releases will be controlled and remediated to prevent impacts to the environment. Hazardous materials and fuel will be stored in accordance with the SCP. Emergency spill kits will be available wherever hazardous materials and/or fuel is stored and/or transferred. 11. Northern Land Use Guidelines (Lands 2015a through d) will be adhered to during the Project. 12. Wastes will be stored and disposed in accordance with the Waste Management Plan. 13. Follow best management practices for riparian habitat, including a setback of 100 m from the ordinary high-water mark of any water body. Where work within the setback is required, INF will consult with DFO prior to work within the riparian zone. 14. Road construction methods in vicinity of water bodies will limit the amount of habitat lost. 15. Installation of erosion control measures in accordance with DOT Erosion and Sediment Control Manual and the approved PEP. 16. Dust suppression techniques will be utilized to minimize the Quarry operation will occur at least 100 m from any water body. 17. Installation of erosion control measures in accordance with DOT Erosion and Sediment Control Manual and the approved PEP. 18. Borrow source materials will be evaluated for ARD/ML potential prior and during development **amount of dust entering the water.** 19. Culvert installation shall be completed in accordance with DFO

guidance.

20. In-stream work, if required, will be restricted to during no or low flow periods. Work will respect DFO fish timing windows for the NWT.
21. Installation of erosion control measures in accordance with DOT Erosion and Sediment Control Manual and the approved PEP.
22. Keep work areas clean and free of deleterious substances. Best management practices for culvert installation will be followed.
23. Disturbance of watercourse streambed and banks will be minimized as much as possible.
24. Erosion and sediment control measures will be installed and maintained where required.
25. Appropriate sizing, installation, numbers and locations of culverts to avoid backwatering and washouts.
26. Dispose of wastes at the approved disposal facility located in the Norman Wells.
27. Laydown and equipment staging areas will be located at least 100 from the ordinary high-water mark of any water body.
28. Clean up spills in accordance with the SCP.
29. Quarry operation will occur at least 100 m from any water body.
30. Installation of erosion control measures in accordance with DOT Erosion and Sediment Control Manual and the approved PEP.
31. Borrow source materials will be evaluated for ARD/ML potential prior and during development.
32. LUP condition requiring the GNWT-INF to take all reasonable measures to prevent damage to wildlife and fish Habitat during this land-use operation.

✓ Game species effects

Caribou may be disturbed by the land use operations.
Mitigations:

1. LUP condition ("Habitat Damage" Condition) requiring the Permittee to take all reasonable measures to prevent damage to wildlife and fish habitat.
2. Adaptive management of wildlife through Wildlife Management and monitoring Plan (WMMP) (plan anticipated/ to be submitted and approved prior to the commencement of the Project.

❍ Toxins / heavy metals

❍ Forestry changes

❍ Agricultural changes

✓ Other: Sensory and Other Disturbances; Wildlife incidents

1. Construction activities will be limited during sensitive periods to minimize impacts on wildlife outlined in Table 10-9 and the WMMP. Set back limits as outlined in the NLUG and SLUP will be adhered to where possible and reasonable.
   Discussions will be held with appropriate authorities prior to knowingly contravening setbacks.
2. Project activities will be completed to avoid impacts to migratory birds. If construction activities are required to be completed during the nesting period, pre-disturbance surveys will be completed in accordance with the approved WMMP. If nests containing eggs or young are identified, disruptive activities within the nest area will be halted until such time that the young have permanently left the nest.
3. Pre-disturbance surveys will be completed to identify the presence of active den and raptor nests within 1 km of the Project footprint. Pre-construction field surveys of species at risk and

migratory birds will be completed prior to disturbing potential habitat (clearing ROW, quarry development and operation, access road construction, etc.,). Nest surveys will be completed using non-intrusive search methods at the Edie Lake Quarry immediately prior to commencing any disruptive activities during the nesting periods.

4. Avoid disturbance or destruction of bird nests and eggs by clearing land outside of the bird nesting and fledging season (May to mid-August). If vegetation clearing is required, non-intrusive pre-clearing nest surveys will be completed, and buffer zones will be respected where there is evidence of nesting. Through consultation with ENR and ECCC, bird nests will be protected by a buffer that protects the nest while allowing construction to continue and will be monitored.
5. Birds will be deterred from nesting on infrastructure (including granular stockpiles) by placing covers/screens where birds could potentially nest. If necessary, active non-lethal disturbance of birds will be completed to discourage them from establishing a nest on a construction site. Physical deterrents will not be applied during the nesting season. If nesting occurs, the nest will not be disturbed until after the birds have naturally left the nest area.
6. INF, in consultation with ECCC, ENR, NWRRC, and TRRC, will determine and implement species specific buffer zones or setbacks until the young have naturally and permanently left the vicinity of the nest.
7. Disruptive activities will be halted, in consultation with ECCC, in an area if nest or young are discovered. Trained wildlife monitors will be on-site during construction to monitor wildlife and manage risks. This would include monitoring active den and nests identified during the pre-disturbance surveys to confirm they are not impacted by Project activities.
8. Snowbank heights will be managed during winter operations to be a maximum of 1 m in height. 10 m wide breaks will be installed in snow berms and/or windrowed timber every 300 m to allow wildlife passage.
9. The Contractor will follow the wildlife-human interaction procedures outlined in the WMMP, including training for wildlife monitoring.
10. Workers will not feed, harass or approach wildlife. Workers will avoid all interactions with wildlife unless crew safety is at risk.
11. The presence of wildlife features such as nests and dens will be documented. Birds, nests, and eggs will be left intact.
12. Clearing during bird nesting and fledging season in all habitat types will be avoided in accordance with the wildlife setbacks, minimum altitude and sensitive periods outlined in Table 10-9 below.
13. Wildlife sightings, human/wildlife conflicts and incidents will be documented during the Project.
14. Firearms will not be permitted on Project work sites unless for use by a wildlife monitor. No hunting or fishing by field workers will be permitted.
15. Wastes will be stored in accordance with the waste management plan to prevent attracting wildlife.
16. Mortality of SARA, SARA (NWT), and Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listed species will be reported to ENR.
17. Untreated sand and gravel will be utilized during the winter for traction management.
18. Roadside vegetation will be cleared and maintained to provide sufficient line of sight.

❍ N/A

INTERACTING ENVIRONMENT

1. Habitat & Communities

❍ Predator-prey

✓ Wildlife habitat / ecosystem composition changes	Potential direct and indirect effects on wildlife from the construction and operation of the Access Road include localized habitat loss and alteration (for example, noise, visual disturbance), reduction in habitat connectivity and wildlife mortality (direct and indirect). Mitigations: 1. Remain at least 100 m from lakes, ponds, and wetlands; 2. Maintain SLUP recommended horizontal setbacks for all habitat types; 3. Avoid altering natural drainage conditions by using appropriately places and sized culverts; 4. Employment of a wildlife monitor during the construction phase and conduct active den and nest surveys prior to disturbance; 5. Prohibit littering, and provide appropriate food and waste disposal bins; 6. Mitigation measures for protecting wildlife and fish habitat in PDR sections 10.6 and 10.8. 7. LUP condition requiring the GNWT-INF to take all reasonable measures to prevent damage to wildlife and fish Habitat during this land-use operation.
❍ Reduction / removal of keystone or endangered species	
❍ Removal of wildlife corridor or buffer zone	
❍ Other: Canadian Important Bird Areas	

2. Social & Economic

❍ Planning / zoning changes or conflicts	
❍ Rental house	
❍ Airport operations / capacity changes	
✓ Human health hazard	1. The application of water as per the GNWT Guideline for Dust Suppression [Environment and Natural Resources (ENR) 2013], will be effective in controlling dust created by crushing and surfacing operations. Water will be withdrawn from the Mackenzie River. 2. Enforce strict no alcohol and drug policy on Project work sites. 3. Prepare a traffic management plan for the construction of the PCAR. 4. Have trained staff available to deal with accidents and spills. 5. Install clear signage along the alignment (i.e. speed, presence of wildlife corridor). 6. Follow measures laid out in the SCP. 7. Develop a health and safety management plan. 8. Construction of temporary bypass roads or alternate transportation means to avoid disturbing traffic.
❍ Impair the recreational use of water or aesthetic quality	
✓ Affect water use for other purposes	1. Direct water use for the Access Road construction is estimated to be less than 250 cubic meters per day. Water will be sources from the Mackenzie River in accordance with the protocol outlined in the DFO Freshwater Intake End-of-Pipe Fish Screen Guideline and the DFO Protocol for Winter Water Withdrawal from ice-covered Waterbodies in the Northwest

	Territories and Nunavut**.**
✓ Affect other land use operations	The project is located within the Special Management Zone of the SLUP. 1. The activities meet the conformity requirements.
✓ Quality of life changes	1. Increased business opportunities that emerge with the opening of the Access Road including tourism and development.
❍ Public concern	
❍ Other:	
❍ N/A	

3.Cultural & Heritage

❍ Affects to historic property	
❍ Increased economic pressure	
❍ Changes to or loss of historic resources	
❍ Changes to or loss of archeological resources	
✓ Increased pressure on archeological resources	1. Complete AIA's where needed along the ROW and Edie Lake Quarry in advance of construction. 2. Maintain a 30 m setback from any known or suspected archaeological sites. 3. Integrate an Archaeological Site Chance Find Protocol to outline the actions to be completed if a cultural item is encountered during the Project. This would outline the requirement to stop work in the area. 4. Report all previously unknown cultural finds to the GNWT Territorial Archaeologist. 5. LUP conditions requiring protection of historical, archaeological, and burial sites, including the "AIA high-potential" condition.
✓ Effects to aboriginal lifestyle	1. The INF is committed to strictly enforce a no alcohol and drugs policy for employees and contractors, including those involved in the construction and maintenance. 2. Minimize Project footprint and avoid sensitive areas used for traditional and cultural activities. 3. Follow appropriate measures, identified in the management plans, to protect wildlife and vegetation species. 4. Prohibit Project personnel from hunting or fishing during Project. 5. Avoidance of cultural sites and other important land use areas during design.
✓ Other: Benefits for the community	1. Provide training opportunities relevant to the needs of the Project to produce increased community employment. 2. Promote and support business opportunities associated with the Project. 3. Promote training and accreditations that will provide long term employment benefits. 4. Support the training and development of residents (i.e. construction and engineering), so trained people are in place and capable to meet the needs of the required labour force.

PRELIMINARY SCREENER / REFERRING BODY INFORMATION
(CHECK ALL THAT APPLY)

	RA or DRA	ADVISE	PERMIT REQUIRED
Federal			
ATOMIC ENERGY CONTROL BOARD	❍	❍	❍
CANADIAN HERITAGE	❍	❍	❍
CANADIAN TRANSPORTATION AGENCY	❍	❍	❍
ENVIRONMENT CANADA	❍	✓	❍
FISHERIES & OCEANS	❍	✓	❍
ABORIGINAL AFFAIRS AND NORTHERN DEVELOPMENT CANADA	❍	✓	❍
INDUSTRY CANADA	❍	❍	❍
NATIONAL DEFENSE	❍	❍	❍
NATIONAL ENERGY BOARD	❍	❍	❍
NATURAL RESOURCES	❍	❍	❍
PUBLIC WORKS & GOVERNMENT SERVICES	❍	❍	❍
TRANSPORT CANADA	❍	❍	❍
CANADIAN NUCLEAR SAFETY COMMISSION	❍	❍	❍
Territorial			
MUNICIPAL & COMMUNITY AFFAIRS	❍	✓	❍
PUBLIC WORKS & GOVERNMENT SERVICES	❍	❍	❍
ENVIRONMENT & NATURAL RESOURCES	❍	✓	❍
TRANSPORTATION	❍	✓	❍
DEPARTMENT OF HEALTH AND SOCIAL SERVICES	❍	✓	❍
PRINCE OF WALES NORTHERN HERITAGE CENTRE	❍	✓	❍
INDUSTRY, TOURISM AND INVESTMENT	❍	✓	❍
LANDS	❍	✓	❍
Boards			
GWICH'IN LAND & WATER BOARD	❍	❍	❍
SAHTU LAND & WATER BOARD	✓	❍	✓
MACKENZIE VALLEY LAND & WATER BOARD	❍	✓	❍
MACKENZIE VALLEY ENVIR. IMPACT REVIEW BOARD	❍	✓	❍
SAHTU LAND USE PLANNING BOARD	❍	✓	❍
SAHTU RENEWABLE RESOURCES BOARD	❍	✓	❍
SAHTU HEALTH BOARD	❍	❍	❍
Aboriginal / First Nation			
SAHTU SECRETARIAT INCORPORATED	❍	✓	❍
NORMAN WELLS LAND CORPORATION	❍	✓	❍
TULITA RENEWABLE RESOURCES COUNCIL	❍	✓	❍
TULITA DISTRICT LAND CORPORATION	❍	✓	❍
FORT NORMAN METIS LOCAL #60 LAND CORPORATION	❍	✓	❍
TULITA LAND CORPORATION	❍	✓	❍
NORMAN WELLS RENEWABLE RESOURCES COUNCIL	❍	✓	❍
Local Government			
TULITA HAMLET INCORPORATED	❍	✓	❍
TOWN OF NORMAN WELLS	❍	✓	❍

Communities

_____
Norman Wells, Tulita District, NWT

REASONS FOR DECISION
Land Use Permit Application S20E-004 (Type "A")
Water Licence Application S20L8-002 (Type "B")

- The Project conforms to Sahtu Land Use Plan;
- Adequate time has been given to Reviewers to provide potential environmental impacts and mitigation measures on information as requested from the Proponent during the initial review period;
- The effects of the Program on the environment can take place in an environmentally responsible manner *provided that mitigation measures outlined in the Program's Environmental Protection Plan are followed*;
- The Board is satisfied that appropriate consultation has been conducted and that advice has been sought and considered, in accordance with sections 63 and 64 of the MVRMA;
- The construction of the Access Road provides training, employment and economic opportunities for Tulita District beneficiaries;
- The construction of the Access Road provides access to Sahtu lands for recreation, tourism and business development, including easier access for community members to their traditional fishing and hunting areas;
- It is the opinion of the Board that the terms and conditions for S20E-005 and S20L8-002, pursuant to the MVRMA, will ensure that any potential environmental impacts resulting from this development are not significant. The effects of the Project on the environment can take place in an environmentally responsible manner provided that environmental considerations and mitigation measures outlined in the Land Use Permit and Water Licence application documents are followed;
- GNWT-INF will continue comprehensive, meaningful and ongoing engagement efforts with local communities to address concerns and to improve understanding of Project activities and potential effects;
- The use of land proposed by the Proponent is of a nature contemplated by the MVRMA; and
- The Project has widespread support. Also, the benefits of the project clearly exceed the environmental cost.

–	**PRELIMINARY SCREENING DECISION**
✓	**Outside Local Government Boundaries**
❍	The development proposal might have a significant adverse impact on the environment, *refer it to the EIRB.*
✓	*Proceed with regulatory process and/or implementation.*
❍	The development proposal might have public concern, *refer it to the EIRB.*
❍	*Proceed with regulatory process and/or implementation.*
❍	**Wholly within Local Government Boundaries**
❍	The development proposal is likely to have a significant adverse impact on air, water or renewable resources, *refer it to the EIRB.*
❍	*Proceed with regulatory process and/or implementation.*
❍	The development proposal might have public concern, *refer it to the EIRB.*
❍	*Proceed with regulatory process and/or implementation.*

Preliminary Screening Organization

Sahtu Land & Water Board

Signature

Larry Wallace, Chair