

Joint venture companies



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Amendment Assessment for Amendment #3 to Environmental Assessment Certificate #E15-01

Document Number	L001-09800-AA-5753-2200
Purchase Order	L9GC-92-K163-L9GC27872C
Document Revision	C
Document Status	Issued for Review
Discipline Document Type	AA5573 – PERMIT PLAN
Author Organization	Stantec Consulting Ltd.
Revision Date	November 30, 2020
Export Control	Not Controlled – No Disclosure of Technology
Security Classification	Restricted
Approving Organization	LNG Canada Development Inc.

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REVISION CONTROL PAGE

Revision Status				Approving Organization		
Rev	Date	Document Status	Author	Reviewer	Approver	Review Code
A	13/Nov/2020	Issued for Review	Stantec Consulting Ltd.	JGC Fluor BC LNG Joint Venture	LNG Canada Development Inc.	
B	27/Nov/2020	Issued for Review	Stantec Consulting Ltd.	JGC Fluor BC LNG Joint Venture	LNG Canada Development Inc.	
C	30/Nov/2020	Issued for Review	Stantec Consulting Ltd.	JGC Fluor BC LNG Joint Venture	LNG Canada Development Inc.	

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Abbreviations

AIA	archaeological impact assessment
AQMP	Air Quality Management Plan
BC	British Columbia
BCEAA 2002	BC <i>Environmental Assessment Act</i> [SBC 2002] c.43 [Repealed]
BCEAA 2018	BC <i>Environmental Assessment Act</i> [SBC 2018] c.51
Bvd	Boulevard
BMP	Best Management Practice
CAC	criteria air contaminant
CLISMP	Community Infrastructure and Services Management Plan
CMT	culturally modified tree
CO	carbon monoxide
CWHvm1	Coastal Western Hemlock Very Wet Maritime
DFO	Fisheries and Oceans Canada
EAC	Environmental Assessment Certificate
EAO	Environmental Assessment Office
FLNRORD	Ministry of Forests, Lands, Natural Resource Operations and Rural Development
GHG	Greenhouse Gas
H ₂ S	hydrogen sulfide
ha	hectare
HCA	<i>Heritage Conservation Act</i>
HHRA	human health risk assessment
Indigenous Interest	Aboriginal rights, including title, or treaty rights
km	kilometre
LNG	liquefied natural gas
LNG Canada	LNG Canada Development Inc.
m	metre
NO	nitrogen oxide

NO ₂	nitrogen dioxide
O ₃	ozone
OCP	Official Community Plan
OGC	Oil and Gas commission
PM	particulate matter
SO ₂	sulfur dioxide
TAC	Technical Advisory Committee
VC	valued component

1. Introduction

LNG Canada Development Inc. (LNG Canada) is constructing a liquefied natural gas (LNG) export facility (the Project) in Kitimat, British Columbia (BC). The Project includes an LNG facility and supporting infrastructure, temporary construction-related infrastructure and facilities, and shipping. The Project received an environmental assessment certificate (EAC) under the BC *Environmental Assessment Act* 2002 (BCEAA 2002) issued by the Minister of Environment and the Minister of Natural Gas Development on June 17, 2015 (#E15-01) (EAO 2015a). Since EAC #E15-01 was issued by the Environment Assessment Office (EAO), the Project has received the following positive decisions:

- Amendment #1 was issued by the EAO on August 5, 2016 for changes to the Certified Project Description.
- Amendment #2 was issued by the EAO on October 18, 2019 to change the maximum total combined production of LNG referenced in the Certified Project Description to a volumetric measurement (as natural gas equivalent) per year.
- The EAO determined on June 17, 2020 that the Project is being constructed in accordance with the EAC and has been substantially started.

The purpose of this assessment is to support a third amendment (Amendment #3) to EAC #E15-01 to include in the Certified Project Description:

- i. An area for temporary access trails, between the module haul road and the central and southern sections of the loading line corridor, and
- ii. The upgrade and use of existing roads as a supplementary haulage route for delivery of construction materials to the LNG facility site

These are referred to collectively as the “proposed changes”. This amendment assessment considers the matters outlined in section 25 of the BC *Environmental Assessment Act* 2018 (BCEAA 2018). It provides a description of the proposed changes and an assessment of potential effects of the proposed changes on valued components (VCs) and Indigenous Interests (i.e., asserted Aboriginal rights, including title, or such determined Aboriginal or treaty rights).

2. Proposed Changes and Rationale

The proposed changes and rationale for the amendment are further detailed below. Section 12 provides a summary of requested changes to the Certified Project Description.

2.1. Temporary Access Trails

LNG Canada proposes to construct and use two 10-metre (m) wide temporary access trails within an access trail area located between the module haul road (within the Certified Haul Road Corridor) and the LNG loading line corridor (within the Certified Marine Terminal Area) (Figure 1). The purpose of the proposed access trails is to allow heavy construction equipment to access the loading line corridor at ground level. This is required to enable construction of the loading line trestle beneath an existing high voltage transmission line using a low-headroom, land-based crane, and to facilitate the 10-degree change in the loading line alignment. The cantilever bridge machine that will be used to construct the loading line trestle would not have enough clearance to be used in transmission line work area and can only proceed along straight alignments, so an alternative construction approach is required.

The proposed northern access trail would enable construction equipment to access the central section of the loading line corridor from the west and avoid the need for construction of a bridge across Anderson or Moore creeks. The route proposed for the northern access trail includes upgrading an existing trail that was constructed in late 2019 to support fish habitat offsetting activities as part of one of the Project's *Fisheries Act* authorizations. The existing trail represents approximately 50% of the required northern access trail route and consists of a temporary gravel road from the southern haul road and a temporary clear span bridge across the side connector between Moore Creek and Anderson Creek. No further watercourse crossings are required to support the northern access trail. The existing access trail will be extended by approximately 240 m in an unforested area east of the existing trail to the loading line corridor.

The proposed southern access trail would enable temporary construction access to establish a work area at the central-section of the loading line corridor to enable turning of the cantilever bridge machine where there is a 10-degree change in the loading line alignment. The proposed southern access trail would reduce disturbance to an area of eminent bluegrass (*Arctopoa eminens*, a red-listed plant species) and avoid part of the lower Kitimat River estuary that is inundated during high tides. The southern access trail will extend approximately 200 m from the southern haul road to the loading line trestle corridor, then turn and extend north for approximately 70 m to a work area within the Certified Project Area. Some tree clearing is required prior to construction of the new access trail.

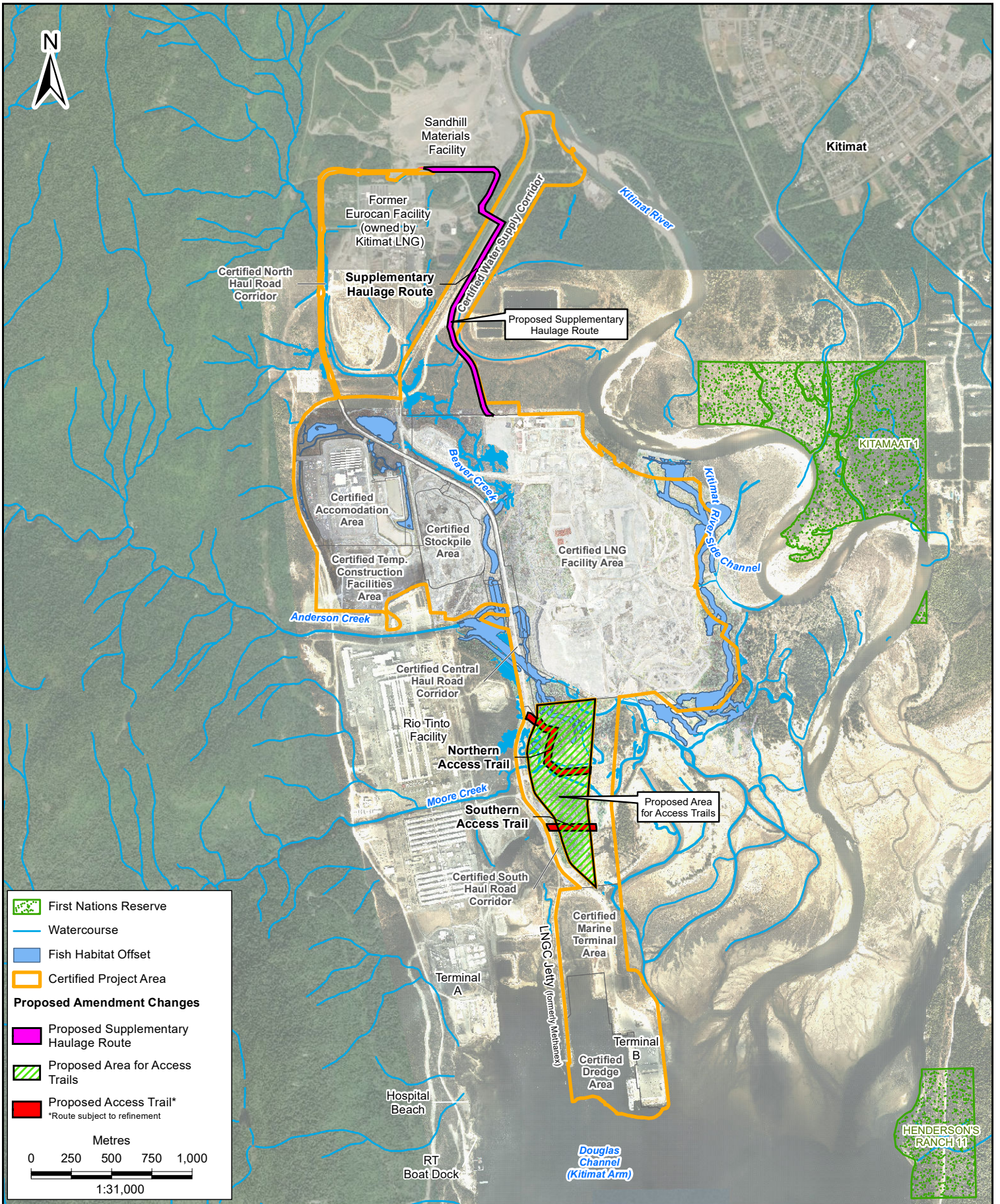
Both access trails will be 10 m wide (total width including fill slopes, 8 m running surface) and constructed using temporary forestry road building techniques in line with Chapter 5 of the Engineering Manual (BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development [FLNRORD] 2019). The northern access trail construction will require vegetation clearing and grubbing, from Moore Creek to the loading line trestle corridor and along the entire length of the southern access trail. Gravel and timber mats will be placed along both access trails to support the movement of equipment.

Once construction of the LNG loading lines is complete, both temporary access trails will be reclaimed using established techniques and best practices in line with Chapter 7 of the Engineering Manual (FLNRORD 2019) including removal of timber mats, removal of imported gravel, stabilization (if needed), scarification/decompaction, re-use of local topsoil, and revegetation. It is anticipated that the temporary access trails will be in place for six to nine months.

2.2. Supplementary Haulage Route

LNG Canada proposes to upgrade and use existing roads as a supplementary haulage route (Figure 1). The proposed route would be used for trucking construction materials to the facility site, including materials staged at a temporary laydown area at the Sandhill Materials quarry property and/or ready-mix concrete from the neighbouring batching facility known as Kentron Construction. The proposed route includes Sandhill Way, Eurocan Way, an intersection with Haisla Boulevard (Blvd), Frontage Road and Harbour Road.

The purpose of the supplementary haulage route is to alleviate traffic congestion on the existing haul road known as the North Haul Road and municipal roads used by the public, such as Haisla Blvd. The North Haul Road, located within the Certified Haul Road Corridor, will continue to be used as the primary route to truck aggregate from the Sandhill Materials quarry to the facility site. The extent of upgrades will be determined in discussions with the District of Kitimat, however, upgrades to support two-way construction traffic are expected to include some vegetation clearing (up to 10 m wide), road widening, and grading. No culverts will be installed. The localized road widening would be permanent and remain after construction of the Project. It is anticipated that up to 90 concrete truck round trips per day would be made using the supplementary haulage route at peak times.



2.3. Summary of Physical Works and Activities

A summary of proposed physical works and activities, including anticipated timing and duration, is presented in Table 1. The activities and physical works are proposed to occur from Q1 2021 to Q3 2022. Construction of the temporary access trails and upgrades to existing roads will be completed prior to the start of the 2021 migratory bird nest season at the end of March 2021.

Table 1 Proposed Activities, Physical Works, and Schedule

Proposed Activities and Physical Works	Anticipated Timing and Duration
Temporary Access Trails	
Establish temporary access trails, including vegetation clearing	Q1 2021 (Northern Access Trail) Q1 2021 (Southern Access Trail)
Use of temporary access trails by heavy construction vehicles	Q1 2021 to Q3 2021 (Northern Access Trail) Q3 2021 to Q4 2021 (Southern Access Trail)
Decommissioning and reclamation of temporary access trails	Q3 2021 (Northern Access Trail) Q4 2021 (Southern Access Trail)
Supplementary Haulage Route	
Upgrade of existing roads as haulage route	Q1 2021
Use of upgraded roads as a supplementary haulage route	Q1 2021 to Q3 2022

2.4. Land Use

The proposed area for the access trails is located on private land and the proposed supplementary haulage route uses public roads; both are within the District of Kitimat Zone M1—manufacturing, with permitted uses detailed under Part—9, Division 6 (Industrial Zoning) of the Kitimat Municipal Code (District of Kitimat 2020). According to Kitimat’s Official Community Plan (OCP), industrial areas are “intended for medium or heavy industrial uses and port development” (District of Kitimat 2020). The proposed changes are consistent with the OCP as they relate to construction activities for the overall Project.

2.5. Alternative Means

LNG Canada has considered and evaluated several alternative means for supporting construction of the loading line and options for haulage of materials to the site. An evaluation summary of alternative means is provided in Table 2.

The following criteria have been used to evaluate these alternatives:

- technical feasibility
- potential effects on the biophysical or human environment
- project schedule

The alternative to using the proposed northern access trail to allow heavy construction equipment to access the work area at the high voltage transmission line would be to construct a 5-metre high granular-fill off-ramp south of Anderson Creek for heavy construction equipment to travel along the trestle, across Anderson Creek, and drive down to a new access trail within the loading line corridor to the work area.

The alternative to using the proposed southern access trail to allow heavy construction equipment to access the work area at the 10-degree change in the loading line alignment would be to construct an access trail from the marine terminal area within the loading line corridor and north across a low-lying area of the Kitimat River estuary.

The alternative to upgrading and using the proposed supplementary haulage road for the delivery of construction materials to the LNG facility site would be to continue to limit Project truck movements to the existing haul road (North Haul Road) and Haisla Blvd.

Table 2 Evaluation Summary—Alternative Means

Evaluation Criteria	Proposed Change	Alternative Means
		Northern Access Trail
Technical feasibility	Feasible	Feasible, but constructing off-ramp from elevated trestle represents a technical challenge
Potential effects on the biophysical environment	Removal of vegetation and riparian habitats. Effects to VCs as assessed in Section 7. No changes anticipated relative to EAO's previous conclusions	Ground disturbance caused by off-ramp and new access trail, within Certified Project Area
Project schedule	No delay	Delay to complete trestle across Anderson Creek prior to constructing off-ramp
Selection	Preferred	Not preferred
	Southern Access Trail	Access Trail from the Marine Terminal
Technical feasibility	Feasible, with good ground conditions and limited flooding risk	Feasible, though ground conditions are poor—southern portion of access trail is flooded during high tides
Potential effects on the biophysical environment	Limited risk of fish mortality during installation/removal, none during use	Risk of fish mortality from access trail across lower Kitimat River estuary, which may cause fish stranding events following high tides
	No impacts to red-listed eminent bluegrass	Impacts to area of red-listed eminent bluegrass
Selection	Preferred	Not preferred
	Supplementary Haulage Route	Limit Truck Movements to North Haul Road and Haisla Blvd
Potential effects to human environment (infrastructure)	Alleviates potential traffic congestion on public roads (Haisla Blvd)	Potential traffic congestion on public roads (Haisla Blvd)
Selection	Preferred	Not preferred

3. Anticipated Permits and Approvals

Anticipated permits and approvals relevant to this amendment assessment are identified in Table 3.

Table 3 Anticipated Permits and Approvals

Permit/Authorization	Background	Requirement
<i>Fisheries Act</i> —Authorization	Four <i>Fisheries Act</i> authorizations have been issued by Fisheries and Oceans Canada (DFO) to LNG Canada, two of which pertain to this amendment (16-HPAC-00220, and 16-HPAC-01079). The application associated with 16-HPAC-01079 for supporting infrastructure included construction of a 10-metre wide temporary access trail between the southern haul road and the loading line corridor and along the loading line corridor. DFO did not find any serious harm to fish associated with construction of this temporary access trail as described in that application. The proposed temporary access trails interact with a habitat offset associated with 16-HPAC-00220.	The <i>Fisheries Act</i> authorization application associated with 16-HPAC-01079 for supporting infrastructure noted that the final routing of the temporary construction road would be finalized during detailed design. LNG Canada will discuss the final alignment with DFO.
<i>Forest and Range Practices Act</i> —Registered Timber Mark Certificates	Registered Timber Mark Certificates (Nos. 175879 and 175896) were issued by FLNRORD on December 21, 2015 and amended on May 2, 2019. These certificates currently expire May 1, 2024.	It is anticipated that no merchantable timber felling will be required for the northern access trail. Timber felling may be required to construct the proposed southern access trail. Timber felling along the alignment for the temporary access trails will be limited to the extent possible.
Kitimat Municipal Code—Extraordinary Traffic Permit	The proposed supplementary haulage route includes the use of existing municipal roads vested in the District of Kitimat under Division 5 of the Community Charter.	An Extraordinary Traffic Permit may be required from the District under Part 3, Division 5, Subdivision 16 of the Kitimat Municipal Code—Extraordinary Traffic to use municipal roads if the District is of the opinion that vehicle use is liable to cause excessive damage to the roads.

4. Required Assessment Matters under BCEAA 2018

Amending an EAC under BCEAA 2018 requires consideration of the assessment matters presented in section 25 of BCEAA 2018 as they relate to the proposed changes. A summary of how these required assessment matters have been considered in this assessment is presented in Table 4.

Table 4 Assessment Matters

Assessment Matters ¹	Sections in EAO's Assessment Report (EAO 2015b) and Amendment Assessment Reports (EAO 2016b and 2019)	Consideration in the Amendment Assessment
25 (1) The following will be assessed in the assessment		
The effects of a project on Indigenous nations and rights recognized and affirmed by section 35 of the <i>Constitution Act, 1982</i>	Assessment Report, Section 14 (EAO 2015b) No requirement under 2016 and 2019 amendment assessments (EAO 2016b and 2019)	The proposed changes have the potential to interact with the ability of Indigenous nations to exercise their Indigenous rights as recognized and affirmed by section 35 of the <i>Constitution Act, 1982</i> and Indigenous Interests. An assessment of potential changes to effects to Indigenous interests as a result of the proposed changes is provided in Section 8.
25 (2) The following matters will be considered in the assessment		
Positive and negative direct and indirect effects, including environmental, economic, social, cultural and health effects and adverse cumulative effects	Assessment Report, Sections 5-9 (EAO 2015b) Amendment Assessment Report, Section 3 (EAO 2016b) Not included in the 2019 Amendment Assessment Report (EAO 2019) as the application was administrative in nature	Potential positive and negative direct and indirect effects are considered following the approach outlined in Section 6. An assessment is provided for each of the VCs carried forward, including air quality (Section 7.1) vegetation resources (Section 7.2), wildlife resources (Section 7.3), freshwater and estuarine fish and fish habitat (Section 7.4), infrastructure and services (Section 7.5) and archaeological and heritage resources (Section 7.6).
Risks and uncertainties associated with those effects, including the results of any interaction between effects	Assessment Report, Section 5-9 (EAO 2015b) Amendment Assessment Report, Section 3 (EAO 2016b) Not included in the 2019 Amendment Assessment Report (EAO 2019) as the application was administrative in nature	Risks and uncertainties of potential effects, including any interactions identified between effects, are considered as part of the assessment of the VCs carried forward, including air quality (Section 7.1), vegetation resources (Section 7.2), wildlife resources (Section 7.3), freshwater and estuarine fish and fish habitat (Section 7.4), infrastructure and services (Section 7.5) archaeological and heritage resources (Section 7.6).
Risks of malfunctions or accidents	Assessment Report, Section 10 (EAO 2015b) No requirement under 2016 and 2019 amendment assessments (EAO 2016b and 2019)	The risks of malfunctions or accidents from the Project was included in the EAO Assessment Report in 2015. As the proposed changes will not lead to additional risks of malfunctions or accidents from those previously assessed, these matters will not be considered further in this amendment assessment.
Disproportionate effects on distinct human populations, including populations identified by gender	Not applicable/new requirement	Given the limited nature of the proposed changes, disproportionate effects on distinct human populations, including populations identified by gender, are indistinguishable from other effects and will therefore not be considered further in this amendment assessment.
Effects on biophysical factors that support ecosystem function	Not applicable/new requirement	A summary of how the proposed changes could affect biophysical factors that support ecosystem function is provided in Section 8. If the proposed changes are predicted to adversely alter the characterization of residual effects for one or more of vegetation resources (Section 7.2), wildlife resources (Section 7.3), or freshwater and estuarine fish and fish habitat (Section 7.4), relative to the EAO's previous characterizations (EAO 2015b, 2016b), then the amendment assessment will present a summary of how changes in residual effects may result in changes to biophysical factors that support ecosystem function.
Effects on current and future generations	Not applicable/new requirement	A summary of how the proposed changes could affect current and future generations is provided in Section 9. If the proposed changes are predicted to adversely alter the characterization of residual effects for one or both of infrastructure and services or archaeological and heritage resources, relative to the EAO's previous characterizations (EAO 2015b, 2016b), then the amendment assessment will present a summary of how changes may affect current and future generations.
Consistency with any land-use plan of the government or an Indigenous nation if the plan is relevant to the assessment and to any assessment conducted under section 35 or 73	Assessment Report, Section 2.3 (EAO 2015b) No requirement under 2016 and 2019 amendment assessments (EAO 2016b and 2019)	As outlined in Section 2.4, the proposed changes are located on industrial land as designated in the District of Kitimat Official Community Plan 2008 (amended May 2020). The amendment assessment is not being conducted under Section 35 (Regional assessments) or 73 (Strategic assessments).
Greenhouse gas emissions, including the potential effects on the province being able to meet its targets under the <i>Greenhouse Gas Reduction Targets Act</i>	Assessment Report, Section 5.2 (EAO 2015b) Amendment Assessment Report, Section 3.7 (EAO 2016b)	The changes in construction greenhouse gas (GHG) emissions will be negligible from what was included in the EAO Assessment Report in 2015. There is no change in the volumes of material to be moved relative to what was considered in the EAO Assessment Report in 2015 and therefore no material change in the overall trucking activity. The proposed changes will not alter GHG emissions during the operation of the LNG facility.

Table 4 Assessment Matters

Assessment Matters ¹	Sections in EAO's Assessment Report (EAO 2015b) and Amendment Assessment Reports (EAO 2016b and 2019)	Consideration in the Amendment Assessment
Alternative means of carrying out the projects that are technically and economically feasible, including through the use of best available technologies, and the potential effects, risks and uncertainties of those alternatives	Assessment Report, Section 2.2.4 (EAO 2015b) No requirement under 2016 and 2019 amendment assessments (EAO 2016b and 2019)	The alternative means of carrying out the proposed changes that are technically and economically feasible are described in Section 2.5.
Potential changes to the project that may be caused by the environment	Assessment Report, Section 11 (EAO 2015b) No requirement under 2016 and 2019 amendment assessments (EAO 2016b and 2019)	Potential changes caused to the Project by the environment were included in the EAO Assessment Report in 2015 and the proposed changes will not alter that assessment.
Other prescribed matters	Not applicable/new requirement	No other prescribed matters have been identified.

NOTE:

^{1.} Assessment matters as presented in Section 25 of BCEAA 2018

5. Valued Component Assessment Methods

The amendment assessment will identify the VCs previously assessed in LNG Canada's Application for an EAC (LNG Canada 2014a) that have the potential to interact with the proposed changes (Section 6). For those VCs carried forward, the assessment will evaluate residual effects of the proposed changes and whether the proposed changes will change the characterization of residual or cumulative effects and conclusions presented in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment reports (EAO 2016b and 2019) (Section 7). Any applicable new mitigation measures as well as a description of risks and uncertainties associated with the amendment assessment will be included under each VC. The overall approach focuses on negative potential effects as the proposed changes are unlikely to result in positive effects. The assessment will evaluate the following:

- **Mechanism:** a description of how the proposed changes could result in interactions with the VCs addressed in the EAO's Assessment Report (EAO 2015b) and the previous amendment assessment reports (EAO 2016b and 2019).
- **Mitigation:** identification of mitigation measures to reduce or eliminate potential negative effects of the proposed changes and identify any new mitigation measures applicable to this amendment.
- **Assessment of residual effects (project and cumulative):** a description of the residual effects of the proposed changes and a description of if and how the proposed changes alter the characterization of project residual effects set out in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment reports (EAO 2016b and 2019). For each VC, a cumulative effects assessment will be conducted if the proposed changes result in residual effects that have the potential to interact with residual effects from other past, present and reasonably foreseeable future projects and activities.

6. Potential Interactions of Proposed Changes on Valued Components

The potential interactions with the VCs previously assessed in LNG Canada's EAC Application (LNG Canada 2014a) are identified in Table 5. A rationale for inclusion/exclusion of the VCs is provided in Table 6. Based on this rationale, the amendment assessment will include the following VCs:

1. Air Quality
2. Vegetation Resources
3. Wildlife Resources
4. Freshwater and Estuarine Fish and Fish Habitat
5. Infrastructure and Services
6. Archaeological and Heritage Resources

Table 5 Potential Interactions with Valued Components

Proposed Changes	VCs Assessed in LNG Canada's EAC Application (LNG Canada 2014b)														
	Air Quality	Greenhouse Gas Management	Acoustic Environment	Vegetation Resources	Wildlife Resources	Freshwater and Estuarine Fish and Fish Habitat	Marine Resources ^a	Surface Water Quality ^a	Economic Conditions	Infrastructure and Services	Visual Quality	Marine Transportation & Use	Community Health and Wellbeing	Archaeological and Heritage Resources	Human Health
Construction and use of up to two 10-metre wide temporary access trails to be located in the access trail area	1	1	1	2	2	2	0	0	1	1	1	0	1	2	1
Upgrade and use of existing roads as a supplementary haulage route for trucking construction materials from Sandhill Materials to the LNG facility site	2	1	1	1	2	0	0	0	1	2	1	0	1	1	1

NOTES:

0 No effect expected; excluded from further consideration and not carried forward to Table 6.

1 Negligible change relative to the potential effects previously assessed in the EAC application. Potential effects can be appropriately managed via existing mitigation measures and commitments. Rationale for exclusion from further assessment discussed in Table 6.

2 Potential to be affected by proposed changes with potential to result in changes to previously assessed effects or require implementation of new mitigation measures. Warrants further consideration and carried forward in the amendment application, as outlined in Table 6.

^a Marine resources and surface water quality is considered as part of the assessment under the freshwater and estuarine fish and fish habitat VC (Section 7.4).

Table 6 Valued Components to be Included/Excluded in the Amendment Assessment

Valued Component	Initial Interaction Identified	Assessment Approach	Rationale for Inclusion or Exclusion
Air Quality	Yes	Carried Forward for Further Assessment	The change in criteria air contaminant (CAC) emissions from the proposed changes to construction activities will be carried forward and assessed in the amendment assessment. This will focus on emissions of coarse particulate matter associated with the supplementary haulage route. Emissions from the construction of the access trails are negligible, therefore, not carried forward and assessed in the amendment assessment.
Greenhouse Gas Management	Yes	Excluded from Further Assessment— Negligible Change	The change in construction GHG emissions as a result of the proposed changes (including construction and use of access trails and upgrades and use of supplementary haulage route) will be negligible from what was previously assessed and will not result in a meaningful change to GHG emissions as a result of construction and operation of the LNG facility. There is no change in the volumes of material to be moved relative to what was considered in the EAC Application and therefore no material change in the overall trucking activity. The proposed changes will not alter GHG emissions during Project operation.
Acoustic Environment	Yes	Excluded from Further Assessment— Negligible Change	The change in potential effects on the acoustic environment from the proposed changes are considered negligible relative to the previously assessed effects and can be managed using Best Management Practices (BMPs) and mitigation measures identified in the existing management plans. The Traffic Management Plan outlines measures to manage speed limits and shift changes which will mitigate noise effects from construction-related traffic. The proposed changes will be negligible as they relate to the acoustic environment and will not result in a meaningful change to the acoustic environment because of construction and operation of the LNG facility.
Vegetation Resources	Yes	Carried Forward for Further Assessment	The proposed changes to the Project footprint from construction of the access trails will require additional clearing/removal of vegetation, which may affect plant species of interest or the abundance or condition of ecological communities of interest; therefore the additional effects will be carried forward and assessed in the amendment assessment.
Wildlife Resources	Yes	Carried Forward for Further Assessment	The proposed changes, including clearing of vegetation and associated disturbance of plant communities, associated with the temporary access trails and new vegetation clearing associated with upgrading the supplementary haulage route, will alter wildlife habitat and may affect mortality risk; potential effects will therefore be carried forward in the amendment assessment. The proposed changes will alter wildlife habitat and may affect wildlife mortality risk and movement patterns; potential effects will therefore be carried forward in the amendment assessment.
Freshwater and Estuarine Fish and Fish Habitat	Yes	Carried Forward for Further Assessment	The proposed changes in the Project footprint may interact with freshwater and estuarine fish and fish habitat through riparian disturbance associated with the new access trails. The additional effects will be carried forward and assessed in the amendment assessment. The construction and operation of the supplementary haulage route will not interact with estuarine fish and fish habitat and is therefore excluded from further assessment.
Economic Conditions	Yes	Excluded from Further Assessment— Negligible Change	Expenditures and workforce changes required as result of the proposed changes are expected to be negligible in comparison to overall Project expenditures; the materials required to construct the Project have not changed. As a result, the evaluation provided in the EAO's Assessment Report will not change.
Infrastructure and Services	Yes	Carried Forward for Further Assessment	The proposed upgrades and use of supplementary haulage route have the potential to affect traffic and put pressure on transportation infrastructure. Potential effects resulting from this change will be assessed in the amendment application. The proposed change in relation to construction of access trails will not affect traffic outside of the Certified Project Area and will not be included in the amendment assessment.
Visual Quality	Yes	Excluded from Further Assessment— Negligible Change	The proposed construction of the access trails will require additional vegetation clearing; however, trees will be retained on either side of the trails and the access trails will be restored upon completion of construction. Therefore, the changes are not expected to alter visual quality from terrestrial- and marine-based viewpoints. Any effects will be negligible, and the visual quality evaluation provided in the EAO's Assessment Report will not change.
Community Health and Wellbeing	Yes	Excluded from Further Assessment— Negligible Change	The proposed changes will lead to a negligible change on community health and wellbeing. The additional work will not alter the number of workers, the location of workforce accommodations, demands on healthcare services or access to country foods. Therefore, the proposed changes will not alter the community health and well-being evaluation provided in the EAO's Assessment Report

Table 6 Valued Components to be Included/Excluded in the Amendment Assessment

Valued Component	Initial Interaction Identified	Assessment Approach	Rationale for Inclusion or Exclusion
Archaeological and Heritage Resources	Yes	Carried Forward for Further Assessment	The proposed changes, including construction of additional access trails and upgrade and use of the supplementary haulage route, has the potential to interact with archaeological or historical resources through ground disturbance and/or vegetation clearing, and the effects will be assessed in the amendment assessment.
Human Health	Yes	Excluded from Further Assessment—Negligible Change	Potential effects on human health related to the proposed changes including, construction and use of two access trails, and upgrades and use of supplementary haulage route, have been assessed qualitatively. As the proposed changes will not result in a meaningful increase in air emissions or another chemical conditions of the environment (water, soil, sediment and country foods), effects on human health will also be negligible and will not lead to a change in the evaluation provided in the EAO's Assessment Report (EAO 2015b).

7. Changes to the Effects Assessment on Valued Components

The following sections present the assessment of the potential effects of the proposed changes for those VCs carried forward in the amendment assessment.

7.1. Air Quality

7.1.1. Existing Conditions

The EAC Application (LNG Canada 2014b) concluded that data from monitoring stations in both the industrial and residential neighbourhoods of Kitimat indicate that air quality is generally good, with very few instances of observed concentrations exceeding the most stringent BC and federal objectives. Additionally, the EAO's Assessment Report (EAO 2015b) states that the monitoring data (nitrogen oxide [NO], nitrogen dioxide [NO₂], particulate matter [PM₁₀, PM_{2.5}], sulfur dioxide [SO₂], carbon monoxide [CO], ozone [O₃] and hydrogen sulfide [H₂S]) suggest that air quality in the Kitimat airshed is generally "good" (i.e., clean, clear, unpolluted air, as defined by the Ministry of Environment). There has been no material change in emissions in Kitimat since this conclusion was reached and therefore no new information has been collected to support this amendment assessment.

7.1.2. Mechanisms of Potential Effects

Construction activities have the potential to change the ambient air quality in the Kitimat airshed. No changes in acidic deposition patterns in the Kitimat Valley will occur from the proposed changes, as no change in operational air emissions are proposed. Construction of the access trails would result in negligible amounts of CAC and fugitive particulate matter (PM) emissions from what was previously assessed for the construction of the Project, therefore the assessment of the construction of the access trails is not carried forward in this amendment assessment. Potential changes to previously characterized effects are likely from the supplementary haulage route. The supplementary haulage route would be used for trucking construction materials to the facility site resulting in direct emissions of CACs and fugitive PM emissions. Of these, fugitive emissions of 'dust' or coarse fraction PM (those which have an aerodynamic diameter ranging from 2.5 to 10 microns) have the greatest potential for changes to previously characterized residual effects. Other CACs (NO₂, SO₂, and diesel PM) are not carried forward in this assessment.

7.1.3. Mitigation

Condition 1 of the EAC (EAO 2015c) requires LNG Canada to implement the following measures to mitigate the Project's air quality effects during construction; these measures remain applicable to the proposed changes:

- Manage vehicle and equipment emissions by conducting regular maintenance on all machinery and equipment (Mitigation 5.2-1)
- Control fugitive road dust, through measures such as speed limits on Project-controlled gravel roads and road watering on an as needed basis (Mitigation 5.2-2)

EAC Condition 1 (EAO 2015c) requires the development of an Air Quality Management Plan (AQMP) for construction including mitigation, monitoring and adaptive management. The AQMP (LNGC 2015) was developed in consultation with the Ministry of Environment and Climate Change Strategy, the Ministry of Health and the Oil and Gas commission (OGC). The AQMP contains mitigation measures sufficient to manage air quality concerns related to usage of the supplementary haulage route; no additional mitigation measures are needed to address the potential effects.

Regular maintenance of the concrete haul trucks will help manage CACs emissions along the supplementary haulage route. Fugitive road dust emissions along the supplementary haulage route will be managed with the application of chemical dust suppressants and/or water. These mitigations measures will reduce the potential for changes in ambient air quality in the Kitimat airshed.

7.1.4. Assessment of Residual Effects

The anticipated residual effects to air quality are summarized in Table 7 and include an overall increase of CAC emissions, particularly coarse fraction PM emissions. The effects from the proposed changes would be localized, in the vicinity of the supplementary haulage route and well within the facility Local Study Area (LSA) for air quality (EAO 2015b) (40 km by 40 km centered on the LNG facility), and would be limited to the Project's construction phase. Along the supplementary haulage route, limited increases of coarse fraction PM ('dust') emissions are expected but will not be materially different from those assessed in the EAC Application. Along the existing haul road small decreases of 'dust' emissions are expected (as some traffic from this route is displaced to the proposed haulage route), but not materially different from those previously assessed (EAO 2015b; EAO 2016b).

Table 7 Residual Effects on Air Quality

Potential Effects	Mitigation Measures	Residual Effects from Proposed Changes	Potential Changes to Assessment Report and Amendment Assessment Report
Overall increase in ground level concentrations of coarse fraction PM ('dust') adjacent to the supplementary haulage route	AQMP developed as part of EAC Certificate Condition 1	<ul style="list-style-type: none"> Limited increases of coarse fraction PM ('dust') emissions along the supplementary haulage route and limited decreases in dust along the existing haul road (as some traffic is displaced to the supplementary haulage route) during Project construction 	The proposed changes are unlikely to change the characterization of residual effects to air quality presented in Section 5.1.6 of the EAO's Assessment Report (EAO 2015b) or Section 3.1.2 of the Amendment Assessment Report (EAO 2016b).

To support the human health risk assessment (HHRA) associated with EAC Condition 19 emissions of coarse fraction PM from the North Haul Road associated with construction for Phase 1 were estimated to be approximately 280.4 tonnes per year (Stantec 2019). This includes fugitive dust emissions from seven classes of vehicles from aggregate haul trucks, concrete trucks, down to pickup trucks. At its closest point, the 7-kilometre (km) long haul road (within the Certified Haul Road Corridor) passes 90 m from the northwest corner of Cedar Valley Lodge (within the Certified Accommodation Area) and is some 800 m distant at the southwest corner of Cedar Valley Lodge.

Using this same emissions estimation methodology, the 2.4 km long supplementary haulage route will produce coarse fraction PM emissions of approximately 67.9 tonnes per year. Where the supplementary haulage route parallels Haisla Blvd for approximately 600 m, it will result in coarse fraction PM emissions of approximately 17.0 tonnes per year.

These emission calculations assume that 90 concrete trucks will operate 12 hours per day, and all will travel on the supplementary haulage road and none will travel on Haisla Blvd. These assumptions are conservative in that it is anticipated that the majority of concrete trucks will continue to use Haisla Blvd.

Use of the proposed supplementary haulage route will redirect 10 concrete trucks from the North Haul Road. The estimated coarse fraction emissions (Phase 1) are reduced by 22 tonnes per annum to 258.4 tonnes per annum.

The net result is an 8% reduction in coarse fraction PM emissions along the North Haul Road (leading to an improvement in air quality proximate to the northeast corner of Cedar Valley Lodge), and an increase in coarse fraction PM emissions where the supplementary haulage road parallels Haisla Blvd for approximately 600 m.

This section of Haisla Blvd is in an industrial park in the District of Kitimat, well away from residential areas. At its closest point, the supplementary haulage route lies approximately 800 m from the northeast corner of Cedar Valley Lodge. It lies some 1.8 km from the nearest residential dwelling in Kitimat, and 1.7 km from Radley Park Campground.

Local ambient air quality monitoring data was analyzed to understand the link between construction emissions and air quality. Inhalable PM (PM₁₀—particle size <10 microns in diameter) and respirable PM (PM_{2.5}—particle size <2.5 microns in diameter) were analyzed. Three ambient air quality monitoring stations are located near the LNG Canada site: the Haul Road monitor (on Rio Tinto site), the Cedar Valley Lodge monitor (south of the Cedar Valley Lodge dorms), and Kitimat Riverlodge monitor (3 km north of the LNG Canada site).

The interval between June 30 and November 1, 2020 was examined because PM₁₀ monitoring was initiated on June 29, 2020 at Haul Road, and therefore a continuous record of both PM₁₀ and PM_{2.5} data is available at all three monitors for 125 days.

In the HHRA associated with Condition 19 (LNG Canada 2019b) PM_{2.5} was the only size of particulate matter assessed because the fine fraction (<2.5 microns) is strongly linked to potential effects on human health. PM₁₀ were not included in HHRA as they are not strongly linked to potential effects on human health (as is PM_{2.5}).

PM_{2.5} has not exceeded the daily BC Ambient Air Quality Objective (25 µg/m³ averaged over 24 hours) at any of the three stations. PM₁₀ has frequently exceeded the daily BC Ambient Air Quality Objective (50 µg/m³ averaged over 24 hours) at the Haul Road monitor (54 times or 43%). It has been exceeded 16 times at the Cedar Valley Lodge station (13%) and has not been exceeded at Kitimat Riverlodge monitor.

The Haul Road monitor is on the shoulder of a frequently travelled unpaved road, and 30 m from an active heavy haul road (also unpaved). The Haul Road monitor does not meet the Provincial site selection criteria with regard to particulate measurements (PM_{2.5} and PM₁₀) due to its proximity to roadways (Province of BC 2020). These measurements are characteristic of on-road particulate loadings and are not representative of general or widespread air quality. The Cedar Valley Lodge monitor is a representative monitor with respect to PM measurements, and shows the effect of heavy equipment exhaust and windblown dust and fugitive dust from general construction activities (hauling, dozing, dumping and grading of aggregate material and soil).

Four months of particulate measurements representative of construction activities show that despite sometimes excessive dust (the coarse fraction of PM₁₀, or PM₁₀ minus PM_{2.5}) in close proximity to the haul road, air quality remains acceptable with respect to PM_{2.5}—the parameter of most concern with respect to human health. Coarse fraction PM is generally considered a nuisance.

The coarse fraction PM exposures along the supplementary haulage route where it parallels Haisla Blvd for approximately 600 m are not material. The only potential receptors are people travelling inside motor vehicles on Haisla Blvd. At the posted speed limit (60 km/h) a person in a vehicle will cover this stretch of road in 36 seconds. Potential exposures are temporary, intermittent, and brief. If dust were present, additional mitigation, in the form of closing windows, would limit exposure.

With the implementation of existing mitigation measures, potential effects to air quality due to proposed works and activities associated with the proposed changes will be limited to coarse fraction PM emissions along the supplementary haulage route; these are negligible compared to the overall Project. Therefore, the proposed changes do not result in changes to the characterization of residual effects as set out in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment reports (EAO 2016b and 2019).

The residual effects associated with the proposed changes will not change the cumulative effects assessment conclusions provided in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment reports (EAO 2016b and 2019), which focused on emissions during operations because they are greater and of longer duration than any other phase. Measures to mitigate potential effects (i.e., controlling fugitive road dust by installing speed limits on Project-controlled gravel roads, using water for dust suppression as needed, and regular vehicle and equipment maintenance) will be in place. Past and present effects of the development of the Project were considered as part of the Existing Conditions (see Section 7.2.1). The risks and uncertainties related to this assessment are negligible because the proposed changes are temporary, intermittent, and brief.

7.2. Vegetation Resources

7.2.1. Existing Conditions

The Project lies within the Coastal Western Hemlock Very Wet Maritime (CWHvm1) biogeoclimatic variant. The total area of clearing outside of the Certified Project Area associated with the proposed changes (including the northern access trail, southern access trail, and supplementary haulage route) is 3.4 hectares (ha). Vegetation resources in this area were characterized based on the terrestrial ecosystem mapping (TEM) and field work conducted in support of the EAC Application (LNG Canada 2014a; Stantec 2014). Of this area, approximately 1.4 ha (59%) are vegetated ecological communities and 2.0 ha (41%) are anthropogenic, sparsely vegetated, or non-vegetated. The ecological communities of interest that occur in this area are approximately:

- 0.3 ha of red-listed communities
- 0.2 ha of blue-listed communities
- 0.1 ha of old forest
- 1.0 ha of floodplain units
- 0.3 ha of wetland, 0.1 ha of which are ecologically important (i.e., are red- or blue-listed and/or estuarine)

No rare plant species were identified in the clearing area associated with the proposed changes (Stantec 2014). Additional rare plant surveys were conducted in 2015 to confirm the extent of the red-listed plant eminent bluegrass (*Arctopoa eminens*) at the southern end of the proposed area for access trails, near the junction of the southern haulage road and loading line corridor, immediately north of the marine terminal area (Stantec 2015a). No unique traditional use plant species occur in this area, and no invasive plant species were identified in this area.

7.2.2. Mechanisms of Potential Effects

Vegetation clearing to support construction of the temporary access trails and supplementary haulage route may result in changes to ecological communities and plant species of interest, through the removal of approximately 1.4 ha of vegetated ecological communities and the potential introduction or spread of invasive species through construction clearing activities. No changes in native vegetation health and diversity due to air emissions effects of sulphur dioxide fumigation, nitrogen deposition and acid deposition will occur from the proposed changes, as no change in operational air emissions are proposed.

It is anticipated that the proposed changes will reduce the potential effects to an area known to support a red-listed plant species, eminent bluegrass, relative to those identified in the original EAC Application and Amendment #1. By constructing the southern access trail instead of a construction access road within the loading line corridor, the potential disturbance to this species will be limited to the direct footprint of piles installed using the cantilever bridge machine, rather than also including the footprint of the construction access road, thereby reducing the extent of potential effects to plant species of interest.

7.2.3. Mitigation

Design mitigation and existing EAC conditions will mitigate potential effects to vegetation resources associated with the proposed changes. Design mitigation was implemented in the routing of the southern access trail, in that its alignment was selected to avoid the known location of red-listed eminent bluegrass.

Existing EAC Condition 8 (EAO 2015c) requires a vegetation management and monitoring plan for construction within the Certified Project Area that must specify the mitigation measures to avoid or limit impacts to red-listed and blue-listed plants and communities, specify the pre-construction salvage and translocation program for red- and blue-listed plants, and include a contingency plan to mitigate effects to red- and blue-listed plants and communities if there are plants or communities discovered in addition to those identified in the habitat assessment surveys. Application of the vegetation management and monitoring plan will avoid and reduce impacts to red and blue-listed plants and communities and will address potential changes in abundance of plant species or ecological communities of interest.

Existing EAC Condition 9 requires development of an invasive plant management plan that sets out measures to prevent, monitor and control the establishment and spread of invasive plant species in the Certified Project Area during Construction and Operations. No invasive plants have been identified in the clearing area associated with the proposed changes (Stantec 2014), however, there is potential for invasive plant species to be introduced or spread. The invasive plant management plan will address the effects of changes in abundance of plant species of interest by avoiding and/or limiting the introduction and/or spread of invasive plants.

Existing Condition 10 requires a wetland compensation plan that is consistent with the Federal Policy on Wetland Conservation and compensates any permanent loss of wetland function for ecologically important wetlands (i.e., red-listed or blue-listed wetlands and estuarine wetland communities). The wetland compensation plan will address changes in abundance or condition of ecological communities of interest so that there is no net loss of wetland function to ecologically important wetlands. The wetland compensation plan includes reclaiming areas with traditional use plant species. The reclamation of these trails will be completed within one year of construction, incorporating traditional use plants, as applicable, which will reduce the duration of potential effects to plants and ecological communities of interest.

7.2.4. Assessment of Residual Effects

The anticipated residual effects to vegetation are summarized in Table 8. Changes in abundance of plant species of interest from the proposed changes are as follows:

- Temporary loss of traditional use plants through vegetation clearing, although no unique species were identified within these areas in the EAC application (LNG Canada 2014). This loss will be temporary because reclamation of these trails will be completed within one year of construction, incorporating traditional use plants, as applicable.
- Potential introduction or spread of invasive plants. This will be managed through implementation of the Invasive Plant Management Plan.

There is no change to the overall characterization of residual effects of changes in abundance of plant species of interest as presented in Section 19, Table 19.0-1 of the EAC Application (LNG Canada 2014a), as a result of the proposed changes.

Changes in the abundance or condition of ecological communities of interest through the removal of approximately 1.4 ha of vegetated ecological communities include the incremental loss of the following:

- 0.5 ha of provincially-listed ecological communities
- 0.1 ha of old forest
- 1.0 ha of floodplain associations
- 0.3 ha of wetland

The proposed changes will not result in a meaningful change in the distribution of vegetated ecological communities within the LSA or RSA. The changes associated with the temporary access trails are anticipated to be temporary, as the trails are expected to be in use for six to nine months prior to the areas being reclaimed. There will be no net loss of wetland functions associated with ecologically important wetlands due to the implementation of EAC Condition 10 (wetland compensation plan). No changes in native vegetation health and diversity due to air emissions effects of sulphur dioxide fumigation, nitrogen deposition and acid deposition will occur from the proposed changes, as no changes in operational air emissions are proposed.

Residual effects to vegetation from the proposed changes would be localized within the vegetation LSA, a 120 m buffer on the Project footprint (EAO 2015b). Approximately 350 m of the proposed supplementary haulage route is outside of the vegetation LSA presented in the original EAC application but is an existing road. Potential for introduction or spread of invasive plants in this area would be managed through implementation of the invasive plant management plan.

The EAO's Assessment Report (2015b) evaluated residual effects to vegetation resources associated with a Project footprint of approximately 412 ha, while their Amendment Assessment Report (EAO 2016b) evaluated residual effects from a Project footprint of approximately 406 ha and concluded the proposed changes were unlikely to change the original characterization of residual effects to vegetation resources and no additional mitigation measures were proposed for inclusion in the EAC. The additional clearing of approximately 1.4 ha of vegetated ecological communities associated with the proposed changes is similarly unlikely to change these conclusions or require additional mitigation measures. With existing mitigations from EAC Conditions (EAO 2015c) in place, the effects to vegetation resources due to the proposed changes (clearing of 1.4 ha of vegetation) are considered negligible.

The residual effects will not change the cumulative effects assessment conclusions provided in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment report (EAO 2016b). The proposed changes will result in a small temporary increase (1.4 ha of vegetation) to the total area of clearing in the RSA that will be reversible through reclamation activities.

The risks and uncertainties related to this assessment are negligible because the proposed changes are temporary and the mitigations that are in place are considered reliable and accepted in their implementation as successful in mitigating effects from the Project activities to vegetation resources.

Table 8 Residual Effects on Vegetation Resources

Potential Effects	Mitigation Measures	Residual Effects from Proposed Changes	Potential Changes to Assessment Report and Amendment Assessment Report
Change in abundance of plant species of interest: <ul style="list-style-type: none"> • Federally- or provincially-listed plant species • Traditional use plants Invasive plant species: <ul style="list-style-type: none"> • Potential introduction or spread of invasive plant species 	Vegetation—red- and blue- listed plants (EAC Condition 8) Invasive Plant Management (Condition 9) Incorporate traditional use plants in reclamation of temporary construction areas, as per the Wetland Compensation Plan (EAC Condition 10)	<ul style="list-style-type: none"> • Temporary loss of traditional use plants. No unique species have been identified in these areas. • Potential introduction of invasive plants 	The proposed changes are unlikely to change the characterization of residual effects to plant species of interest presented in Section 5.7.4 of the EAO Assessment Report (EAO 2015b) or Section 3.6 of the Amendment Assessment Report (EAO 2016b).

Table 8 Residual Effects on Vegetation Resources

Potential Effects	Mitigation Measures	Residual Effects from Proposed Changes	Potential Changes to Assessment Report and Amendment Assessment Report
<p>Change in abundance of or condition of ecological communities of interest:</p> <ul style="list-style-type: none"> • Provincially-listed ecological communities • Old forest • Floodplain associations • Wetland ecosystems (by class) • Wetland functions (biogeochemical, hydrological and habitat functions), qualitatively assessed and related to wetland area 	<p>Implement the Wetland Compensation Plan (EAC Condition 10) and associated wetland monitoring.</p>	<p>Incremental loss of the following ecological communities of interest:</p> <ul style="list-style-type: none"> • 0.5 ha of provincially-listed ecological communities • 0.1 ha of old forest • 1.0 ha of floodplain associations • 0.3 ha of wetland 	<p>The proposed changes are unlikely to change the characterization of residual effects to ecological communities of interest presented in Section 5.7.4 of the EAO Assessment Report (EAO 2015b) or Section 3.6 of the Amendment Assessment Report (EAO 2016b).</p>

7.3. Wildlife Resources

7.3.1. Existing Conditions

The Project is located near the Kitimat River estuary. This area supports a diverse faunal group that includes large and small mammals, songbirds, raptors, waterfowl, shorebirds, and amphibians. Aside from ongoing construction activities within the Certified Project Area, the existing conditions for wildlife resources as they pertain to the proposed changes are consistent with what is described in Section 5.6.3 of the EAC Application (LNG Canada 2014a), the Wildlife Resources Technical Data Report (LNG Canada 2014b), the Response to IR 787 on Marbled Murrelet Critical Habitat (LNG Canada 2015c), and the Marbled Murrelet Presence and Habitat Surveys (Stantec 2015b).

The footprint of the northern access trail is 0.65 ha. The northern access trail overlaps vegetated ecological communities (Section 7.2) that provide habitat for wildlife and crosses a tidally-influenced channel between Moore Creek and Anderson Creek (Section 7.4.1). Although the northern access trail overlaps 0.18 ha of a Geographic Location Polygon for marbled murrelet suitable nesting habitat (Figure 3-3 in Stantec 2018), wildlife habitat suitability mapping did not rate this area as High or Moderate marbled murrelet breeding habitat (Figure 5.6-7 in Section 5.6 of LNG Canada 2014a).

The footprint of the southern access trail is 0.21 ha. The southern access trail overlaps vegetated ecological communities (Section 7.2) that provide habitat for wildlife, but it does not cross any watercourses (Section 7.4.1).

New vegetation clearing associated with the supplementary haulage route overlaps 0.54 ha vegetated ecological communities that provide habitat for wildlife. The supplementary haulage route will be in an area that has an average annual traffic level estimated at 5,800 vehicles per day (Stantec 2020b).

No raptor nests are known to occur within 200 m of the proposed changes.

7.3.2. Mechanisms of Potential Effects

Potential effects to terrestrial wildlife resources, including loss or change in habitat, risk of injury or mortality, and sensory disturbance, are likely from construction of the access trails and use of existing roads as the supplementary haulage route. Marine birds will not be affected as the proposed changes are entirely terrestrial. The proposed changes have potential to interact with wildlife habitat through clearing of vegetation for construction of the access trails and the widening of existing roads associated with the supplementary haulage route. The proposed changes also have potential to interact with wildlife mortality risk and movement patterns through:

- Changes in traffic volume associated with the supplementary haulage route
- Direct mortality associated with clearing of vegetation
- Sensory disturbance leading to avoidance of established habitats and changes in movement patterns.

7.3.3. Mitigation

In accordance with Condition 12 of the EAC, LNG Canada has developed a wildlife management plan that sets out the means by which wildlife mitigation measures from the EAC Application (LNG Canada 2014a) will be implemented. The following mitigation measures enabled by Condition 12 of the EAC are applicable to mitigating the potential effects of the proposed changes on wildlife habitat and mortality risk from vegetation clearing and associated disturbance:

- Implementation of the Wildlife Management Plan (LNG Canada 2015b; Mitigation 5.6-3).
- To address potential impacts to bat roosting sites, following vegetation clearing bat boxes will be installed in suitable habitat on the periphery of the Project site and will be monitored for use for a minimum of three years (Wildlife Management Plan, LNG Canada 2015b; Mitigation 5.6-3).
- Clearing activities that need to occur during bird breeding periods will incorporate measures to protect birds and their eggs as per federal and provincial regulations; the applicable bird breeding periods are end of March to mid-August for migratory birds, and January 1 through September 5 for raptors (Mitigation 5.6-5)ⁱ.
- Implementation of the Wetland Compensation Plan (LNG Canada 2015a) to address loss of wetland habitat function for breeding and foraging terrestrial mammals, amphibians, and birds (Mitigation 5.5-10).
- Clearly delineate (flag) vegetation clearing limits to avoid damage to important wildlife habitat features (e.g., large boulders, nurse logs, raptor nests, mammal dens, ungulate mineral licks) in the facility Local Study Area, but outside of the Project footprint or areas of temporary construction disturbance. Major game trails will be cleared of equipment, brush piles, and felled trees to maintain their use as movement corridors for wildlife, where practicable (Mitigation 5.6-1).
- If clearing of open water wetland habitats within the Project footprint occurs during the amphibian breeding period (March 1 to August 15) an amphibian salvage program will be implemented (Mitigation 5.6-7).
- If clearing of vegetation occurs during the bear denning period (October to March), preclearing bear den surveys will be required. Identified bear dens will be protected by a 200 m no-disturbance buffer during the denning period (Mitigation 5.6-11).

In addition, the existing temporary bridge and trail established to perform fish habitat offsetting activities (Moore Creek Dyke Breach) will be used to limit ground disturbance for the northern access trail (see Section 2.1).

ⁱ Construction of the temporary access trails and upgrades to existing roads to establish the supplementary haulage route will be completed prior to the start of the 2021 migratory bird nest season at the end of March 2021 (see Section 2.3).

The following mitigation measures enabled by Condition 12 of the EAC are applicable to mitigating the potential effects of the proposed changes on wildlife mortality risk and movement associated with using existing roads as a supplementary haulage route:

- Implementation of the Traffic Management Plan (Mitigation 5.4-6).
- Implementation of industry best practices for mobile construction equipment (i.e., regular maintenance, speed restrictions, correct sizing of equipment, modernizing of fleet, reduce idling, driver behavior) (Mitigation 5.3-1).
- During construction, operation, and decommissioning, drivers will maintain slow (specified) speeds on all roads in the Project footprint and be extra diligent during amphibian migration periods, especially when adjacent to wetlands, in order to reduce the potential for collisions with wildlife (Mitigation 5.6-13).
- Report wildlife sightings, including animal collisions. Reporting will include information such as species, location, and weather conditions (Mitigation 5.6-3).

No additional mitigation measures are needed to address the potential effects of the proposed changes on wildlife resources.

7.3.4. Assessment of Residual Effects

The anticipated residual effects of the proposed changes on wildlife resources are summarized in Table 9 and include changes in wildlife habitat associated with construction of the access trails and the supplementary haulage route, and changes in the risk of injury or mortality and movement patterns associated with use of the supplementary haulage route and the temporary access trails.

Residual effects from the construction of the temporary access trails and supplementary haulage route would be localized within the terrestrial wildlife LSA (EAO 2015b).

Construction of the northern and southern access trails will result in a loss of approximately 0.9 ha of wildlife habitat. New vegetation clearing associated with construction of the supplementary haulage route will result in the loss of approximately 0.5 ha wildlife habitat. In total, vegetation clearing associated with the proposed changes has the potential to result in a small increase in loss of wildlife habitat (1.4 ha). The total loss of wildlife habitat (1.4 ha) associated with the proposed changes is minor. The EAO's Assessment Report (2015b) evaluated residual effects to wildlife resources associated with a Project footprint of approximately 412 ha, while their Amendment Assessment Report (EAO 2016b) evaluated potential effects from a Project footprint of approximately 406 ha and concluded the proposed changes were unlikely to change the original characterization of residual effects to wildlife resources and no additional mitigation measures were proposed for inclusion in the EAC. The loss of approximately 1.4 ha of wildlife habitat associated with the proposed changes is not anticipated to change the overall characterization of residual effects to wildlife through loss or change in habitat.

Project activities such as clearing of vegetation, upgrading of roads and increased road traffic, and human-wildlife interactions, might increase the risk of injury or mortality for wildlife resources. Changes in traffic patterns associated with upgrading and using existing roads as the supplementary haulage route could affect terrestrial wildlife mortality risk and movement patterns (i.e., through sensory disturbance). However, given the existing disturbance and that the increase in traffic associated with the supplementary haulage route is predicted to be minor (Stantec 2020b), the effect is predicted to be negligible. The proposed changes are not anticipated to change the overall characterization of residual effects to wildlife through risk of injury or mortality.

Human and equipment activities might cause sensory disturbance to wildlife, primarily during the construction phase. Loud noise from vegetation clearing, tree felling, vehicle traffic and human activity might result in avoidance of established habitats by wildlife, or changes in movement patterns. Sensory disturbance effects are predicted to be negligible and temporary and the proposed changes are not anticipated to change the overall characterization of residual effects to wildlife resources through sensory disturbance.

Table 9 Residual Effects on Wildlife Resources

Potential Effects	Mitigation Measures	Residual Effects from Proposed Changes	Potential Changes to Assessment Report and Amendment Assessment Report
Loss or change in habitat	Mitigations remain unchanged from those enabled by Condition 12 of the EAC	Small increase in loss of wildlife habitat (1.4 ha).	The proposed changes are unlikely to change the characterization of residual effects to terrestrial wildlife habitat presented in Section 5.8.4 of the EAO Assessment Report (EAO 2015b) or Section 3.4 of the Amendment Assessment Report (EAO 2016b).
Risk of injury or mortality	Mitigations remain unchanged from those enabled by Condition 12 of the EAC	Negligible and temporary increase in the risk of injury or mortality to wildlife	The proposed changes are unlikely to change the characterization of residual effects to terrestrial wildlife risk of injury or mortality presented in Section 5.8.4 of the EAO Assessment Report (EAO 2015b) or Section 3.4 of the Amendment Assessment Report (EAO 2016b).
Sensory disturbance	Mitigations remain unchanged from those enabled by Condition 12 of the EAC	Negligible and temporary increase in sensory disturbance to wildlife	The proposed changes are unlikely to change the characterization of residual effects to sensory disturbance of terrestrial wildlife habitat presented in Section 5.8.4 of the EAO Assessment Report (EAO 2015b) or Section 3.4 of the Amendment Assessment Report (EAO 2016b).

With the implementation of existing mitigation measures, potential effects to wildlife associated with the additional clearing of 1.4 ha of wildlife habitat and use of the supplementary haulage route is negligible compared to the overall effects assessed for the Project. Therefore, the proposed changes are unlikely to alter the EAO characterization of residual effects set out in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment report (EAO 2016b).

The residual effects will not change the cumulative effects assessment conclusions provided in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment report (EAO 2016b). The changes will result in a small increase (approximately 1.4 ha of wildlife habitat) to the total area of clearing in the RSA and will be temporary and reclaimed. The increase in traffic associated with the supplementary haulage route is predicted to be minor, the residual effect of traffic increases on sensory disturbance and wildlife mortality is predicted to be negligible and temporary. The EAO's Assessment Report (2015b) evaluated cumulative effects on wildlife resources associated with the Project, and the Amendment Assessment Report (EAO 2016b) concluded the proposed changes were unlikely to change the original characterization of cumulative effects on wildlife resources and no additional mitigation measures were proposed for inclusion in the EAC.

Measures to mitigate potential effects (e.g., the Wildlife Management Plan (LNG Canada 2015b)) will be in place. Past and present effects of Project development were considered as part of the existing baseline conditions (see Section 7.3.1). The risks and uncertainties related to this assessment are negligible because the proposed changes are temporary and the magnitude of effects on wildlife are limited compared to the overall Project, and the mitigations that are in place are considered reliable and accepted in their implementation as successful in mitigating effects from Project activities on wildlife resources.

Specifically, with mitigation, the residual and cumulative effects of a loss or change in wildlife habitat, change in the risk of injury or mortality, change in movement, or change in sensory disturbance are anticipated to be the same as that presented in the EAO Assessment Report (EAO 2015b) and previous amendment assessment report (EAO 2016b).

7.4. Freshwater and Estuarine Fish and Fish Habitat

7.4.1. Existing Conditions

No fish habitat has been identified in the area of proposed changes associated with the supplementary haulage route or southern access trail. The northern access trail intersects a cross-channel between Moore Creek and Anderson Creek. This cross-channel, called "M1-4", was enhanced (the "enhancement work") in 2018 and 2019 as part of the habitat offsetting associated with *Fisheries Act* authorization 16-HPAC-002200 issued for the LNG facility portion of the Project. This enhancement work included removal of a dyke preventing water flow and fish movement between Anderson and Moore creeks and placement of large woody debris to provide cover for rearing fish. The following description of conditions is based on data collected for the effectiveness monitoring program for this offset habitat (Stantec 2020a). M1-4 is a tidally-influenced channel connecting the estuarine reaches of Moore Creek and Anderson Creek. It flows from Moore Creek to Anderson Creek. M1-4 is inhabited by coho salmon (*Oncorhynchus kisutch*), threespine stickleback (*Gasterosteus aculeatus*), prickly sculpin (*Cottus asper*), and starry flounder (*Platichthys stellatus*). Near Moore Creek, wide cattail beds provide abundant cover for rearing fish. M1-4 provides rearing habitat in summer and winter, but the soft substrates would not provide spawning habitat for coho salmon. Coho salmon and threespine stickleback, the two most abundant species, have been captured throughout M1-4.

Riparian habitat was delineated as part of the application for a *Fisheries Act* authorization for the supporting infrastructure (16-HPAC-01079). The riparian vegetation around M1-4 primarily consists of low growing shrubs and grasses, with some patches of larger trees on the north side.

A temporary access road was constructed to complete the enhancement work, including an elevated bridge crossing of M1-4 near the confluence with Moore Creek. This road and the crossing have not been decommissioned. The channel banks at the M1-4 crossing are armoured with small rip rap (approximately 0.2 m to 0.3 m nominal diameter), raising the bridge well above the high tide and high flow water levels. The rip rap extends down the banks to below the high tide water elevation.

The southern access trail does not cross any watercourses or their riparian areas. Neither access trail is in marine habitat nor the riparian area of marine habitat.

7.4.2. Mechanisms of Potential Effects

The existing temporary bridge across M1-4 approved under the *Fisheries Act* authorization was initially intended to be used only for the enhancement work and was subsequently identified as a potential access route for construction of the loading line corridor. It was therefore retained during planning for the northern access trail and incorporated into the proposed trail.

The northern access trail follows the existing access route to the M1-4 bridge, branching off from the module haul road north of Moore Creek and following high ground to M1-4 and the bridge. From the bridge across M1-4, the northern access trail will parallel M1-4 for approximately 300 m within the riparian area of M1-4. It will then continue east to the loading line corridor.

The footprint of the existing portion of the northern access trail has resulted in disturbance to approximately 11 m² of instream habitat and 1,829 m² of riparian habitat between the southern haul road and M1-4; expansion of the northern access trail and will disturb an additional 947 m² of riparian habitat between M1-4 and the loading line corridor. Based on this understanding of the proposed changes, mechanisms for adverse effects to fish and fish habitat are riparian vegetation clearing and instream works. Riparian vegetation clearing has potential to result in changes to fish habitat through changes in erosion and sedimentation. Instream work below the high-water mark has potential to result in changes in fish habitat, risk of physical injury or mortality to fish, or change in fish health through direct habitat changes, sedimentation, and risk to fish from equipment.

7.4.3. Mitigation

The following measures and standards will mitigate the adverse effects of the northern access trail on fish and fish habitat. Condition 4 of the EAC requires that LNG Canada develop a fish management and monitoring plan in consultation with DFO and the OGC. The following measures and standards are listed in Condition 2 of the *Fisheries Act* authorization for supporting infrastructure (including the southern haul road and loading line corridor) (16-HPAC-01079):

- *Sediment and erosion control measures must be in place, maintained, and upgraded as necessary, such that release of sediment is avoided at the location of the authorized work, undertaking, or activity (Condition 2.1).*
- *The Proponent shall implement the measures and standards detailed in Appendix 5 Measures to Avoid and Mitigate Serious Harm to Fish of LNG Canada's Application for Paragraph 35(2)(b)_Fisheries Act Authorization for Supporting Infrastructure, September 12, 2017 (Condition 2.2). These include but are not limited to:*
 - *Methods to be applied for fish salvages, including fish capture and handling methods, water quality requirements, salvage completion criteria, and release protocols.*
 - *Sediment and erosion control practices, including lists of proven erosion and sediment control products and approaches, phasing approaches including vegetation clearing, and monitoring requirements.*
 - *Surface water management methods for directing surface flow and creating storage areas, including water quality requirements for discharges, methods for maintaining water quality, and monitoring requirements.*
 - *Fish habitat management methods, including stream bed and bank stabilization, bridge and culvert design requirements, flow maintenance requirements, migration route maintenance requirements, timing windows for instream works, and water quality protection measures.*
 - *Spill response planning requirements.*
 - *Mitigation measure monitoring by environmental monitor(s) under supervision of a qualified environmental professional, for all instream works, with authority to stop work that does not comply with the mitigation measures described in the construction environmental management plan.*
 - *Contingency measures in case of elevated water quality parameters or unanticipated fish mortalities, including reporting requirements to DFO.*
 - *Annual reporting requirements to DFO.*
- *Applicable measures and standards to avoid and mitigate serious harm to fish shall be implemented prior to the initiation of works, undertakings or activities associated with the project (Condition 2.7).*

Although not anticipated, if instream works are required to alter the bridge across M1-4, the following two conditions will also apply:

- *Fish shall be excluded from the project areas and fish salvage conducted within the isolation area by an appropriately qualified professional prior to works, such that death of fish is avoided (Condition 2.3).*
- *In water work activities shall be ceased if, after fish salvage, dewatering and isolation of the construction area, fish gain access to areas subjected to construction impacts e.g., sediment laden waters. In water work activities may not resume until, the area has been salvaged and fish isolations have been reinstated (Condition 2.4).*

Fisheries Act authorization 16-HPAC-01079 also lists conditions relating to monitoring and reporting of the measures and standards to avoid and mitigate serious harm to fish (Condition 3), and requires that contingency measures be put in place if the monitoring and reporting indicate that these measures and standards are not successful (Condition 2.5).

The temporary road and bridge will be removed following construction of the loading line and the riparian habitat will be reclaimed. No additional mitigation measures are needed to address the potential effects of the proposed changes on freshwater and estuarine fish and fish habitat.

7.4.4. Assessment of Residual Effects

Construction of the northern access trail would involve clearing of riparian vegetation and potential disturbance of instream habitat, which could affect fish habitat, the risk of physical injury or mortality to fish, or fish health. These changes are not likely to change the characterization of residual effects in the EAO Assessment Report (Table 8) (EAO 2015b). No changes are expected to marine resources because the access trails are in freshwater habitat, and potential surface water quality changes are captured in consideration of potential changes to the risk of physical injury or mortality to fish and potential changes to fish health.

The effects from the construction of the temporary access trails would be localized within the freshwater and estuarine fish and fish habitat LSA (EAO 2015b).

The EAO Assessment Report (EAO 2015b) discussed the conceptual habitat changes to fish habitat known at the time of the EAC Application, indicated that DFO was “comfortable with the completeness of the conceptual information”, and proposed a condition “requiring the Proponent to offset any serious harm to fish and to develop a fish habitat offsetting plan or plans to the satisfaction of DFO.” The effect of the northern access trail on fish habitat is therefore compared with the expected changes described in LNG Canada’s *Application for Paragraph 35(2)(b) Fisheries Act Authorization for Supporting Infrastructure*, September 12, 2017, which included consideration of temporary access trails to support construction of the loading line.

The proposed approach to constructing the loading line corridor has been refined since the *Fisheries Act* application and subsequent authorization (16-HPAC-01079) for supporting infrastructure. The instream and riparian habitat impact areas for the supporting infrastructure were presented to DFO during regulatory review through the *Fisheries Act* authorization application, which identified instream and riparian habitat loss or disturbance associated with the supporting infrastructure, including the footprint of a temporary construction access road paralleling the loading line corridor. The two access trails described in this amendment assessment will replace the temporary construction access road as described in the *Fisheries Act* authorization application, resulting in a marginally larger instream and riparian footprint than the temporary construction access road included in the *Fisheries Act* authorization application: 2,787 m² for the two access trails (2,776 m² of riparian habitat and 11 m² of instream habitat) compared with 2,321 m² of riparian habitat for the temporary construction access road. Therefore, the northern access trail would result in a negligible change to fish habitat from that proposed in the *Fisheries Act* authorization application.

With application of the mitigation measures listed in Section 7.4.3, such as those relating to fish salvage and sediment and erosion control, the risk of physical injury or mortality to fish and potential change in fish health are unchanged from the EAO’s Assessment Report (EAO 2015b). Instream works are limited and located in a channelized area of M1-4 that can be effectively salvaged to remove fish, if additional instream works are necessary.

Erosion and sediment control measures are expected to effectively prevent sediment from reaching M1-4 or Moore Creek. The riparian area on the south side of M1-4 does not provide substantial shade to M1-4, because it consists primarily of shrub species, so the temporary loss of riparian vegetation is not expected to alter the temperature in M1-4, and the function of the riparian vegetation will be restored rapidly following road decommissioning due to the growth rate of the shrub species present.

Table 10 Residual Effects on Freshwater and Estuarine Fish

Potential Effects	Mitigation Measures	Residual Effects from Proposed Changes	Potential Changes to Assessment Report and Amendment Assessment Report
Changes in fish habitat	As described in Appendix 5 <i>Measures to Avoid and Mitigate Serious Harm to Fish of LNG Canada's Application for Paragraph 35(2)(b) Fisheries Act Authorization for Supporting Infrastructure</i> , September 12, 2017. Removal of the bridge and reclamation of the disturbed riparian habitat.	Negligible and temporary increase in loss of fish habitat (455 m ² of riparian habitat) and disturbance of fish habitat (11 m ² of instream habitat).	The proposed changes will result in an additional loss or disturbance of fish habitat compared to the EAC Application. However, with the application of mitigation measures and in the context of the habitat balance approved through the four <i>Fisheries Act</i> authorizations for the Project (two of which pertain to this amendment: 16-HPAC-00220, and 16-HPAC-01079), the proposed changes are unlikely to change the characterization of residual effects to fish habitat presented in Section 5.5.4 of the EAO's Assessment Report (EAO 2015b) or Section 3.5 of the Amendment Assessment Report (EAO 2016b).
Change in risk of physical injury or mortality to fish	As described in Appendix 5 <i>Measures to Avoid and Mitigate Serious Harm to Fish of LNG Canada's Application for Paragraph 35(2)(b) Fisheries Act Authorization for Supporting Infrastructure</i> , September 12, 2017.	No change in risk of physical injury or mortality to fish.	The proposed changes would not change the characterization of residual effects to risk of physical injury or mortality of fish presented in Section 5.5.4 of the EAO Assessment Report (EAO 2015b) or Section 3.5 of the Amendment Assessment Report (EAO 2016b).
Change in fish health	As described in Appendix 5 <i>Measures to Avoid and Mitigate Serious Harm to Fish of LNG Canada's Application for Paragraph 35(2)(b) Fisheries Act Authorization for Supporting Infrastructure</i> , September 12, 2017.	No change in fish health.	The proposed changes would not change the characterization of residual effects to fish health presented in Section 5.5.4 of the EAO's Assessment Report (EAO 2015b) or Section 3.5 of the Amendment Assessment Report (EAO 2016b).

With the implementation of existing mitigation measures, residual effects to freshwater and estuarine fish and fish habitat resources due to proposed changes will be limited to clearing of 2,776 m² of riparian vegetation and temporary disturbance of 11 m² of instream habitat. These changes represent an additional 11 m² of instream habitat and 455 m² of riparian habitat compared to the impact of the temporary construction access road presented in the *Fisheries Act* application. These changes will be reversed through removal of the bridge and reclamation of the disturbed riparian habitat. Therefore, the proposed changes do not alter the characterization of residual effects set out in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment reports (EAO 2016b and 2019).

The residual effects will not change the cumulative effects assessment conclusions provided in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment report (EAO 2016b). Following removal of the temporary bridge and replanting; there will be no net change in functional fish habitat area following growth of planted shrub species. The risks and uncertainties related to this assessment are negligible because the proposed changes are temporary and existing riparian vegetation primarily consists of shrub species, so temporary loss and subsequent replanting of riparian vegetation is expected to have little impact on riparian function.

7.5. Infrastructure and Services

The proposed upgrades and use of the supplementary haulage road have the potential to affect commuter and industrial traffic and put pressure on transportation infrastructure, primarily along Haisla Blvd between the Eurocan Way and Harbour Road intersections. The effect on transportation infrastructure is measured by changes in travel time (seconds of delay) and operation of the roadway which is indicated by the Level of Service (LOS)ⁱⁱ. Delays in traffic movement at an intersection will affect traffic congestion and result in an increase in travel time for road users. The proposed construction of access trails will not affect traffic on public roads and will not be considered in the amendment assessment.

7.5.1. Existing Conditions

A Traffic Impact Assessment (Stantec 2020b) was undertaken to provide updated information on baseline traffic conditions west of the Haisla Bridge from those provided in Section 7.2.2 of the EAC application (LNG Canada 2014a). Projected baseline 2021 traffic volumes for the Haisla Blvd and Eurocan Way intersection include 380 trips southbound and 105 trips northbound during AM peak hour, and 150 trips southbound and 370 trips northbound during PM peak hour (Stantec 2020b). Roadway intersection operation along the supplementary haulage route is expected to be within operational thresholds in 2021 with LOS between A (very good operation) and C (acceptable operation) (Stantec 2020b). Results of the Synchro Traffic Modelling analysis show that under projected 2021 baseline conditions, the Haisla Blvd and Eurocan Way intersection will typically operate within acceptable operational thresholds for LOS (Table 11, Stantec 2020b).

ⁱⁱ The LOS is an indicator of operation status of a roadway or intersection. For an unsignalized or signalized intersection, it relates to the average control delay that vehicles will experience. These are LOS A (very good operation), LOS B (good operation), LOS C (acceptable operation), LOS D (congestion), LOS E (significant congestion), and LOS F (failing operations). LOS C and higher is considered acceptable.

Table 11 Projected 2021 Baseline Approach Delay for Haisla Boulevard at Eurocan Way

Haisla Blvd and Eurocan Way ¹	AM Peak		PM Peak	
	Delay (seconds)	Level of Service ²	Delay (seconds)	Level of Service ²
Northbound left turn lane	0	A	0	A
Eastbound through/left turn shared lane	12.9	B	14.1	B
Eastbound right turn lane	0	A	9.1	A
West bound left turn/through/right turn shared lane	0	A	0	A
Southbound through/left turn lane	0	A	0	A

NOTES:

- Northbound and southbound trips are along Haisla Blvd, crossing Eurocan Way. Westbound trips make a right turn from traveling south along Haisla Blvd onto Eurocan Way, while eastbound trips turn left onto Haisla Blvd from traveling east along Eurocan Way.
SOURCE: Stantec 2020b
- A=very good operation; B=good operation

7.5.2. Mechanisms of Potential Effects

The proposed changes have the potential to result in effects on traffic and pressure on transportation infrastructure. The upgrade and use of existing roads as a supplementary haulage route will result in higher volumes of construction traffic at the Haisla Blvd and Eurocan Way intersection. This increased traffic volume could affect the operation of the roadway (LOS) of the Haisla Blvd and Eurocan Way intersection, resulting in delays in traffic movement for other users of these roadways, as well as along Frontage Road. Higher volumes of traffic could also increase the potential for collisions at the Haisla Blvd and Eurocan Way intersection.

7.5.3. Mitigation

Existing EAC conditions will mitigate potential effects to traffic and transportation infrastructure associated with the proposed changes. To address EAC Condition 14 (EAO 2015c), LNG Canada prepared the Community Level Infrastructure and Services Management Plan (CLISMP) which describes measures that the Project will undertake to manage direct effects on community infrastructure in Kitimat, Terrace, and neighbouring Indigenous nations. The CLISMP was approved by the EAO in June 2016 and was revised and implemented in April 2019 (LNG Canada 2019). The CLISMP specifies reporting metrics to be provided by LNG Canada to limit impacts on community infrastructure and services, including transportation infrastructure. EAC Condition 16 requires LNG Canada to prepare a traffic impact assessment and traffic management plan in consultation with Ministry of Transportation and Infrastructure and the District of Kitimat. To address this requirement LNG Canada has prepared a Traffic Management Plan and Traffic Impact Assessment (Stantec 2020b).

To limit road traffic and interaction with local traffic and along Haisla Blvd, the Project has implemented several mitigation measures including the transport of workers via shuttles, workers residing onsite at Cedar Valley Lodge, and in-vehicle monitoring systems to promote safe driving behaviour. Additional traffic planning, forecasting and registration is coordinated with the Ministry of Transportation and Infrastructure and District of Kitimat, and actual Project traffic volumes are being monitored and assessed against forecast and impact models. Results of monitoring under the CLISMP are documented in quarterly reports, as well as an annual report, submitted to the EAO and Ministry of Municipal Affairs and Housing. Potential effects of the proposed changes on transportation infrastructure will be included within the Project management activities and monitoring undertaken as part of the CLISMP program. No additional mitigation measures are proposed to manage potential effects of the proposed changes on traffic and transportation infrastructure.

7.5.4. Assessment Residual Effects

While Haisla Blvd serves as the primary access to the site from Kitimat and the surrounding area, the proposed supplementary haulage route will mainly affect traffic accessing industrial operations along Eurocan Way. Project shuttles and personal vehicles also access the Civeo Sitka Annex 2 camp, south of the Sandhill Materials quarry site, through Eurocan Way.

Projected traffic volumes in 2021 estimated for the Haisla Blvd and Eurocan Way intersection, inclusive of construction volumes, include 469 trips southbound and 123 trips northbound during AM peak hour, and 197 trips southbound and 473 trips northbound during PM peak hour (Table 12). While the additional construction traffic would result in slightly increased delay times at the Haisla Blvd and Eurocan Way intersection, roadway operations are predicted to be at LOS C (acceptable operation) or better and within acceptable operational thresholds.

The effects from the upgrade and use of existing roads as a supplementary haulage route will be localized within the infrastructure and services LSA (EAO 2015b).

Table 12 Projected 2021 Approach Delay for Haisla Blvd at Eurocan Way including General Construction Traffic

Haisla Blvd and Eurocan Way	AM Peak		PM Peak	
	Delay (seconds)	Level of Service ¹	Delay (seconds)	Level of Service ¹
Northbound left turn lane	8.4	A	7.6	A
Eastbound through/left turn shared lane	18.3	C	20.1	C
Eastbound right turn lane	11.4	B	9.4	A
West bound left turn/through/right turn shared lane	18.1	C	23.4	C
Southbound through/left turn lane	0	A	0	A
SOURCE: Stantec 2020b				
NOTE:				
1. A= very good operation; B=good operation; C=acceptable operation				

Up to 180 concrete truck trips per day are projected to transport concrete between the concrete supplier, located north of Eurocan Way and the site via the supplementary haulage route. This will be in addition to other volumes of construction traffic travelling between the construction site and Kitimat, and locations outside of Kitimat. Project vehicles using the supplementary haulage route will not impact traffic volumes in residential and commercial areas north and east of Eurocan Way.

Concrete trucks using the supplementary haulage route will have a negligible effect on the operation of Haisla Blvd, which will remain at LOS A, since these vehicles will be crossing Haisla Blvd onto Frontage Road (Stantec 2020b). The anticipated increase in delay on Eurocan Way is in the order of five to six seconds with the LOS remaining at C or better. A delay of up to 25 seconds is predicted for the concrete trucks transiting along Frontage Road, corresponding to a LOS C (Stantec 2020b). No other capacity or intersection performance issues are anticipated (Stantec 2020b). By using the supplementary haulage route there will be a beneficial effect of reduced heavy truck traffic along Haisla Blvd, compared to concrete truck routing options that involve travel along Haisla Blvd.

The Haisla Blvd corridor is not considered statistically collision prone, and there are no sightline issues for the intersections of Haisla Blvd and Eurocan Way/Frontage Road.

In summary, with the implementation of existing mitigation measures, potential effects to infrastructure and services due to the supplementary haulage road would be a five second increase in delay on Eurocan Way during peak use period, and up to 25 seconds of delay on Frontage Road. These effects are anticipated to occur during the construction period only. Roadways, including the primary arterial route of Haisla Blvd, are expected to operate adequately with no capacity issues. Therefore, the proposed changes do not result in changes to the characterization of residual effects set out in the EAO Assessment Report (EAO 2015b) (Table 13). The residual effects assessment is based on projected traffic volumes in 2021 and includes consideration of traffic from other sources (i.e., cumulative effects) that could interact with traffic using the supplementary haulage route.

The residual effects to traffic and pressure on transportation infrastructure will not change the cumulative effects assessment conclusions provided in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment report (EAO 2016b). The risks and uncertainties related to this assessment are negligible because the proposed changes are temporary, and no capacity issues were identified with the proposed routing.

Table 13 Residual Effects to Infrastructure and Services

Potential Effects	Mitigation Measures	Residual Effects from Proposed Changes	Potential Changes to Assessment Report and Amendment Assessment Report
Effects on traffic and pressure on transportation infrastructure	Community Level Infrastructure and Services Management Plan (EAC Condition 16) Traffic impact assessment and traffic management plan (EAC Condition 16)	Measurable changes in traffic delays along Eurocan Way and Frontage Road, but roadways expected to operate adequately. Negligible effect on main roadway in area (Haisla Blvd).	The proposed supplementary haulage road would not change the characterization of residual effects in Section 7.1.6 of the EAO Assessment Report (2016b).

7.6. Archaeological and Heritage Resources

7.6.1. Existing Conditions

An archaeological impact assessment (AIA) was undertaken for the Project in 2013 and 2015 under the authority of *Heritage Conservation Act (HCA)* Heritage Inspection Permit 2013-0149, inclusive of the Proposed Area for Access Trails and the majority of the supplementary haulage route, with the exception of a small portion of the east-west leg of the proposed route planned immediately south of, and adjacent to, the Sandhill Materials Facility (Varsakis et al. 2015; Weathers and Spady 2015). The AIA resulted in the identification of one previously unrecorded archaeological site (GaTe-5) and one previously unrecorded historical site (GaTe-4), the latter located within the proposed area for access trails, approximately 100 m southwest of the southern temporary access trail. GaTe-5 was initially recorded approximately 180 m northeast of the proposed area for the access trails and, because Project plans could not be revised to avoid GaTe-5, archaeological monitoring of vegetation clearing and soil stripping was conducted in 2019 and 2020 under the authority of *HCA* Alteration Permit 2015-9012 and *HCA* Heritage Inspection Permit 2015-0185 to mitigate Project-related impacts (Gauvreau 2020). During the site alteration work, all deposits associated with GaTe-5 were excavated, inspected archaeologically, and permanently stockpiled approximately 2.4 km to the northwest, immediately north of the Project's Workforce Accommodation Centre.

7.6.2. Mechanisms of Potential Effects

Based on the results of previous AIA work and current Project plans, and in consideration of Provincial requirements for avoidance or mitigation of any impacts to *HCA*-protected heritage sites, potential effects to heritage resources are not anticipated from development of the supplementary haulage route or temporary access trails.

7.6.3. Mitigation

The objective of mitigation is to reduce or eliminate adverse effects to sites or site context caused by Project activities. Heritage resource mitigation through avoidance of known sites, construction monitoring or controlled excavation of sites, or portions of sites, may contribute to the scientific knowledge base for the provincial archaeological and paleontological record. If plans are revised to intersect previously recorded heritage resource sites, the provincial regulator will review the assessment of heritage resource sites and determine appropriate mitigation measures.

If any previously unknown heritage resource sites of value are identified during construction activities for the supplementary haulage route or temporary access trails, the Project's Chance Find Procedure for heritage resources (LNG Canada 2016) will be implemented, and standard mitigations will be applied, as required by the provincial regulators. Standard mitigation may include detailed site recording, collection of artifacts or fossils, controlled mitigative excavation, or monitoring during construction activities.

7.6.4. Assessment of Residual Effects

No residual effects to known archaeological or heritage resources are anticipated in association with the proposed changes. Should the proposed supplementary haulage route or temporary access trail plans be revised to intersect any heritage resource sites previously recorded within the Certified Project Area, and/or if any previously unknown heritage resource sites are identified as a result of chance finds during construction, provincial regulators may issue requirements for site avoidance or mitigation. For chance finds, the Project's Chance Find Procedure for heritage resources will be implemented. Thus, for heritage resources, effects are mitigated prior to or during construction, therefore no additional effects are anticipated during the construction or operation of the supplementary haulage route or temporary access trails.

The effects from the upgrade and use of existing roads as a supplementary haulage route will be localized within the archaeological and heritage resources LSA (EAO 2015b).

LNG Canada commits to fulfilling the requirements for field assessment and mitigation issued relative to the Project under the *HCA* and *Land Act*. With this commitment, and with Project-specific avoidance or mitigation of any sites having high heritage value, as specified by the provincial heritage regulator, and with the implementation of the Project's Chance Find Procedure for heritage resources, the Project is not anticipated to have residual effects on heritage resources. Therefore, the proposed changes do not result in changes to the characterization of residual effects set out in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment reports (EAO 2016b and 2019).

With no additional residual effects to archaeological and heritage resources anticipated as a result of the proposed changes, there are no changes to the cumulative effects assessment provided in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment reports (EAO 2016b and 2019). Measures to mitigate potential effects (i.e., avoidance, monitoring during construction, and/or controlled excavation to facilitate data recovery) will be in place. The risks and uncertainties related to this assessment are negligible because the proposed changes are not anticipated to interact with known archaeological or heritage resources and a Chance Find Procedure will be implemented.

Table 14 Residual Effects on Archaeological and Heritage Resources

Potential Effects	Mitigation Measures	Residual Effects from Proposed Changes	Potential Changes to Assessment Report and Amendment Assessment Report
Effects to culturally modified trees (CMTs)	Mitigations remain unchanged from those presented in Section 8.1 of the Application and during Application Review.	None anticipated. Potential for damage to or removal of CMTs identified and managed through Chance Find Procedure	The proposed changes would not change the characterization of residual effects in Section 3.8 of the EAO's Assessment Report (2016b) and Amendment Assessment reports (EAO 2016b and 2019).
Effects to terrestrial archaeological or heritage sites	Any new archaeological sites identified will be addressed as required through the Project Chance Find Procedure, permitting and consultation with the Archeological Branch, Haisla First Nation, and other interested parties.	None anticipated. Potential for alteration or removal of terrestrial archaeological or heritage sites identified and managed through Chance Find Procedure	

8. Biophysical Factors That Support Ecosystem Function

The Project is located on the western side of the Kitimat River estuary. The estuary is a nutrient-rich and dynamic tidal and riverine area that supports numerous ecological communities, rare plants, and mammal, bird, fish, and invertebrate species. Biophysical factors that support ecosystem function in the vicinity of the proposed Project changes include vegetated ecological communities that provide habitat for native plant and wildlife species (Sections 7.2 and 7.3, respectively) and a tidally-influenced channel (M1-4) that provides habitat for several species of fish (Section 7.4). These biophysical factors are connected to and support the ecological functions of the estuary.

The proposed Project changes were designed to largely avoid effects to these biophysical factors. The two proposed 10-m wide temporary access trails are located between the module haul road and the LNG loading line corridor, such that they will not further influence landscape or watershed connectivity. A small area of forest and riparian vegetation will be cleared to accommodate the temporary access roads which will be used for six to nine months, then reclaimed using established techniques and best practices. The proposed changes will maintain water flow through M1-4 and erosion and sediment control measures will be implemented to avoid sediment releases into nearby freshwater habitats. Riparian vegetation is expected to recover rapidly following the short-term use of the temporary access trails, which will reverse the effects of vegetation and wildlife habitat removal. Following removal of the temporary trails and bridge and replanting there will be no net change in functional fish habitat area. The supplementary haulage route will use existing roads, will involve minor vegetation clearing on roadsides, and will not result in changes to water flow.

Based on the small area of disturbance (approximately 1.4 ha of vegetation clearing), short-term use of the access trails and supplementary haulage route, and mitigation measures that will be implemented, residual effects of the proposed changes are not predicted to result in changes to biophysical factors that support ecosystem function in the vicinity of the Project, nor are they expected to alter water and nutrient flow that provide connectivity to the Kitimat River estuary.

9. Effects on Current and Future Generations

The proposed changes have limited potential to result in effects to current and future generations. The temporary access trails will be used solely by the Project workforce for six to nine months in support of Project construction activities and will then be reclaimed. As presented in Sections 7.5 and 7.6, no residual effects to infrastructure and services or archaeological and heritage resources are anticipated as a result of the temporary access trails. Any unforeseen effects to archaeological and heritage resources would be addressed as required through the Project Chance Find Procedure, permitting and consultation with the Archeological Branch, Haisla First Nation, and other interested parties. As described in Section 10 the proposed access trails will result in no changes of concern to Indigenous Interests.

The supplementary haulage route involves permanent upgrades to existing public roads, and temporary use of those roads in support of Project construction activities. As presented in section 7.6, no residual effects to archaeological and heritage resources are anticipated as a result of the supplementary haulage route, and unforeseen effects would be addressed as required through the Project Chance Find Procedure, permitting and consultation with the Archeological Branch, Haisla First Nation, and other interested parties. As described in Section 10 the proposed supplementary haulage route will result in no changes of concern to Indigenous Interests. As presented in Section 7.5, potential adverse effects to infrastructure and services are anticipated to occur during the construction period only, limiting the potential for negative effects to future generations. Road upgrades will be left in place which may provide minor longer-term benefits to the community. Roadways, including the primary arterial route of Haisla Blvd, are expected to operate adequately with no capacity issues, limiting the potential for effects to current generations.

Table 15 addresses key questions from the EAO's Effects Assessment Policy related to current and future generations.

Table 15 Potential for Changes to Effects on Current and Future Generations

Criteria ¹	Description of Change
<p>1. How are existing conditions being protected, maintained, enhanced and/or degraded as a result of the proposed changes?</p>	<p>Proposed changes are limited to temporary access trails to allow heavy construction equipment to access the loading line corridor at ground level, and haulage route upgrades to alleviate traffic congestion on the existing haul road known as the North Haul Road and municipal roads used by the public, such as Haisla Blvd.</p> <p>Proposed changes are expected to result in minor changes to exiting conditions. Access trails are expected to be in use for six to nine months prior to the areas being reclaimed. There will be minor changes to traffic volumes along Haisla Blvd with limited effects on the level of service of that roadway. With the implementation of existing management and monitoring plans the proposed changes are unlikely to alter the characterization of residual effects for the VCs identified as set out in the EAO’s Assessment Report (EAO 2015b). No changes to the characterization of effects from proposed changes on Indigenous Interests are anticipated.</p>
<p>2. How are the positive and negative project effects distributed temporally (i.e., across generations)? And are there differences in distribution within the population (for example is there one distinct population that will benefit while another will be adversely affected)?</p>	<p>Changes in effects will occur only during the limited part of the construction period when the temporary access trails and the supplementary haulage route will be required. Effects are temporary and may be felt by current residents and visitors to the Project area, but they will not be felt by future generations. The limited effects of the proposed changes on the operation of Haisla Blvd and other public roadways would affect individuals accessing locations south of Eurocan Way, such as workers and visitors to the Rio Tinto aluminum smelter.</p>
<p>3. What type(s) of economic growth does the project create and how is this growth distributed?</p>	<p>The proposed changes would result in a negligible change in economic growth, in comparison to that already achieved by the Project through its investment in the Kitimat region, and employment of individuals who are resident to the Project’s economic conditions LSA.</p>
<p>4. How is the project aligned or not with any relevant regional or provincial growth strategies?</p>	<p>The proposed changes align with the District of Kitimat’s official community plan, which identifies the area to the west of the Kitimat River for “Industrial” land use (District of Kitimat 2020).</p>
<p>NOTE: 1—EAO 2020d</p>	

10. Changes to Indigenous Interests Assessment

Indigenous Interests, as defined by the EAO, refer to “interests related to an Indigenous nation and their rights recognized and affirmed by Section 35 of the *Constitution Act*, 1982, including Treaty rights and Aboriginal rights and title, that may be impacted by a proposed project” (EAO 2020d).

The following Indigenous nations are participating Indigenous nations in the amendment assessment process:

- Haisla Nation

In addition, the following Indigenous nations were notified of the amendment assessment process:

- Gitga’at First Nation
- Gitxaala Nation
- Kitselas First Nation
- Kitsumkalum First Nation
- Lax Kw’alaams First Nation
- Metlakatla First Nation
- Métis Nation BC

Given the localized nature of the potential interactions presented in this amendment assessment, and the fact that the proposed changes are limited to occurring solely in the traditional territory of the Haisla Nation, it is anticipated that the proposed changes only have potential to interact with interests and rights related to Haisla Nation recognized and affirmed by section 35 of the *Constitution Act*, 1982, including Treaty rights and Aboriginal rights and title (LNG Canada 2020).

Potential effects from the proposed changes, mitigation measures and changes to the characterization of residual effects on Haisla Nation’s Indigenous Interests are summarized in Table 16 and reflect best available information, including the outcomes of engagement with Haisla Nation to date.

Table 16 Potential Effects, Mitigation or Enhancement and Changes to the Characterization of Residual Effects on Haisla Nation’s Indigenous Interests

Potential Effects on Indigenous Interest	Mitigation Measures	Residual Effects	Changes to the Characterization of Residual Effects
<p>Potential changes to harvesting-related Indigenous interests (hunting, fishing, trapping, and plant gathering)</p>	<ul style="list-style-type: none"> Mitigation measures will be implemented as outlined in respective VC Sections (7.1, 7.2, 7.3, 7.4) 	<ul style="list-style-type: none"> Proposed amendment activities may result in limited increases of coarse fraction PM ('dust') which may in turn affect the experience of traditional harvesting activities Vegetation clearing has the potential to result in the temporary loss of traditional use plants, and incremental loss of ecological communities of interest as described in Section 7.2 (Vegetation Resources) Vegetation clearing may result in a small increase in loss of wildlife habitat (1.4 ha) Proposed amendment activities may increase the risk of injury or mortality for wildlife resources, and potential avoidance of established habitats by wildlife, or changes in movement patterns as described in Section 7.3 (Wildlife Resources) Proposed amendment activities may result in negligible and temporary increase in loss of fish habitat (455 m² of riparian habitat) and disturbance of fish habitat (11 m² of instream habitat) as described in Section 7.4 (Freshwater and Estuarine Fish and Fish Habitat) Potential adverse effects on use or access to potential valued traditional use (TU) locations 	<p><u>Change to Harvesting-related Indigenous interests:</u> With the implementation of mitigation measures, residual effects including vegetation loss and potential temporary loss of traditional use plants are expected to be minor given the limited scale of the proposed changes. As such, the proposed changes are not expected to change the conclusions in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment report (EAO 2016b). Given the limited change expected to road use described in Section 7.5.4, the residual effects on access to potential valued TU locations are expected to be minor and, therefore are not expected to change the effects assessment conclusions provided in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment report (EAO 2016b).</p>

Table 16 Potential Effects, Mitigation or Enhancement and Changes to the Characterization of Residual Effects on Haisla Nation’s Indigenous Interests

Potential Effects on Indigenous Interest	Mitigation Measures	Residual Effects	Changes to the Characterization of Residual Effects
<p>Potential changes to cultural identity and traditional governance systems</p>	<ul style="list-style-type: none"> Mitigation measures will be implemented as outlined in respective VC Sections (7.1, 7.2, 7.3, 7.4) 	<ul style="list-style-type: none"> The proposed changes may result in a change in quantity of traditional foods (especially highly valued foods used for governance related events and ceremonies) Amendment activities may have potential adverse effects on culturally important species (wildlife, vegetation, and fish), including harvested species used for feasting activities 	<p>Residual effects on the VCs, as described in Section 7 may affect cultural identity and traditional governance systems. Quantitative changes in the availability of high-value foods harvested for governance-related events and ceremonies are expected to be minor as the effects will be limited to the area of the proposed changes (i.e., local) and the temporary access trails will be reclaimed within one year.</p> <p>With the implementation of mitigation measures, residual effects on cultural identity and traditional governance systems are expected to be negligible and are not expected to change the effects assessment conclusions provided in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment report (EAO 2016b).</p>
<p>Potential changes to use of sacred or culturally important sites and landscape features and/or spiritual places</p>	<ul style="list-style-type: none"> Mitigation measures will be implemented as outlined in respective VC Sections (7.1, 7.2, 7.3, 7.4 and 7.6) 	<ul style="list-style-type: none"> Ground disturbance may result in loss or alteration of use or access to cultural and spiritual sites and reduce the quality of experience as a result of sensory disturbance Alteration or removal of terrestrial archaeological or heritage sites and/or damage to or removal of CMTs are not anticipated as a result of the proposed changes, as described in Section 7.6.4 (Archaeological and Heritage Resources) 	<p>Several locations within the area for the proposed changes may have a particular cultural or spiritual importance and may be used for culturally important rituals, ceremonies or practices by Haisla Nation members. However, with the implementation of mitigation measures, residual effects are expected to be limited in nature, temporary, and localized. Therefore, residual effects from proposed changes will not change the assessment conclusions provided in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment report (EAO 2016b).</p>

There are no changes anticipated to the characterization of residual effects in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment reports (EAO 2016b and 2019) as they pertain to the VCs assessed in Section 7. In addition, given the limited extent of the proposed changes, mitigation measures enabled, and feedback received by Haisla Nation, the proposed changes would not alter the analysis in Section 19 of the EAO's Assessment Report (EAO 2015b) and the previous amendment assessment reports (EAO 2016b and 2019) on Haisla Nation's Indigenous Interests.

No additional potential or residual effects have been identified since the EAO's Assessment Report (EAO 2015b). Given the small amount of vegetation clearing and temporary and localized nature of the proposed changes, the residual effects are not anticipated to interact cumulatively with residual effects of other past, present and reasonably foreseeable future projects and activities in a way that would change conclusion as provided in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment report (EAO 2016b).

LNG Canada nonetheless understands and recognizes that the dynamic nature of Indigenous Interests may change over time and location and LNG Canada will continue to respond to questions and concerns from Haisla Nation and other interested Indigenous nations through ongoing consultation efforts.

11. Summary of Engagement on the Amendment

LNG Canada conducted the following engagement to support this proposed amendment:

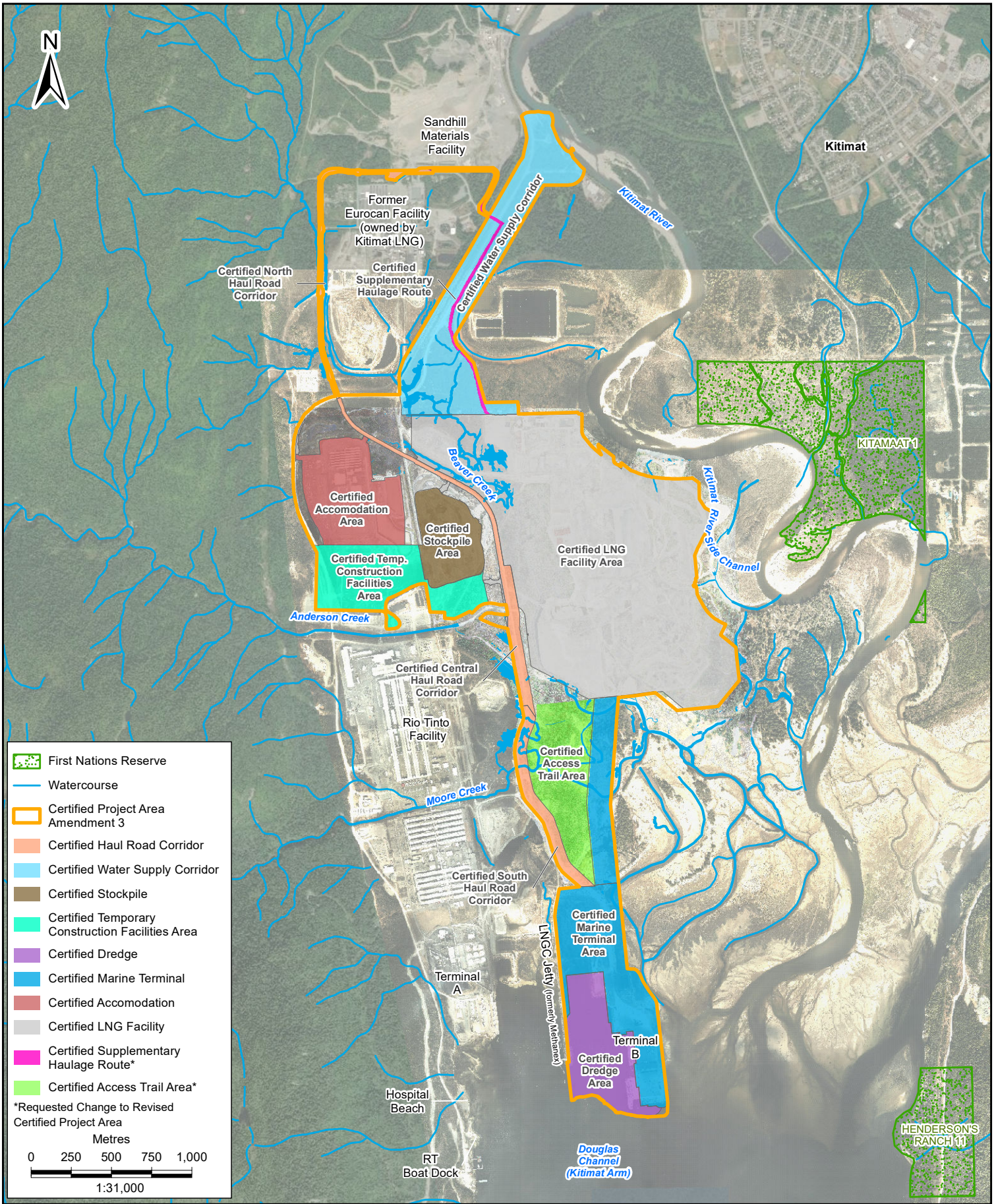
- Draft copy of the Initial Amendment Application (LNG Canada 2020) was shared with Haisla Nation for review and comment on August 6, 2020.
- Email notification has been sent to Gitga'at, Gitxaala, Kitselas, Kitsumkalum, Lax Kw'alaams, Metlakatla and Métis Nation BC to inform of the pending Amendment assessment and provide an overview of the proposed changes. These Indigenous nations were engaged as part of the EAC Application on July 23, 2020.
- Email notification has been sent to the District of Kitimat, OGC, Ministry of Forests, Lands, Natural Resource Operations and Rural Development, Environment and Climate Change Canada and DFO to provide an overview of the proposed changes.
- Consultation with the District of Kitimat and BC Ministry of Transportation and Infrastructure regarding the traffic impact assessment being developed to address Condition 16 of the EAC and possible mitigation measures to reduce the Project's potential effects on vehicular traffic and infrastructure, including use of the supplementary haulage route.
- Email notification has been sent to local industry neighbours (Sandhill Materials, Rio Tinto, Kitimat LNG, CN Rail, BC Hydro and Coastal GasLink) who were identified as potentially being affected by the proposed changes.
- Local environmental non-profit organizations (Kitimat Valley Naturalists, Kitimat-Terrace Clean Air Coalition, Kitimat Understanding the Environment and Douglas Channel Watch) were informed of the pending Amendment application at LNG Canada's quarterly Environmental Forum call, in addition to receiving an e-mail notification.

As part of the TAC review of the *Initial Amendment Application: Request to amend EAC #E15-01* Ministry of Environment and Climate Change Strategy commented that air quality should be added as a VC to assess localized effects of fugitive dust emissions along the supplementary haulage route, as originally the air quality VC was scoped out of further consideration. To address this concern the air quality VC has been carried forward for further consideration. To date, no other concerns or objections have been raised by Indigenous nations, government agencies, or stakeholders in response to these initial engagement activities. LNG Canada will continue with engagement throughout the amendment assessment review process.

12. Summary of Requested Changes

LNG Canada is requesting the following changes to the Revised Certified Project Description (EAO 2016c):

- Figure (Current Certified Project Area) to be replaced with Figure 2 in this amendment assessment (Revised Certified Project Area).
- Section 3 (Construction Infrastructure and Facilities) to include the following text “The Project includes two 10-metre wide temporary access trails to be located in the Certified Access Trail Area located between the module haul road and the LNG loading line corridor as shown on Figure 1”.
- Section 3 (Construction Infrastructure and Facilities) to include the following text “Upgrade and temporary use of existing roads as a supplementary haulage route, including Sandhill Way, Haisla Blvd intersection, Frontage Road and Harbour Road on Figure 1”.



REQUESTED CHANGE TO THE CERTIFIED PROJECT AREA

LNG CANADA EXPORT TERMINAL
KITIMAT, BRITISH COLUMBIA

PROJECTION	UTM9	DRAWN BY	LT
DATUM	NAD 83	CHECKED BY	MD
DATE	13-NOV-20	FIGURE NO.	2

11/13/2020 - 12:41:16 PM I:\CA0183-PBAGF01\Workgroup\1232\151\figures\reports\Amendment3\fig_123221216_Amendment3_002_Requested_changes_to_the_Certified_Project_Area.mxd

13. Conclusion

A summary of the residual environmental effects from the proposed changes relative to those presented in the EAO Assessment Report (EAO 2015b) and the previous amendment assessment reports (EAO 2016b and 2019) is presented in Table 17. The assessment has identified that the proposed changes would not alter the characterization of residual effects of any of the VCs assessed in Section 7. Residual effects of the proposed changes are not predicted to result in changes to biophysical factors that support ecosystem function, and changes would have limited potential to result in effects to current and future generations. Further, changes to Indigenous Interests are not anticipated relative to the VCs assessed, and the limited nature of the proposed changes. The amendment assessment has not identified any additional mitigation measures from those already enabled through the Project's EAC.

Table 17 Summary of Changes to the Residual Effects from the Changes in this Amendment

Valued Component	Section of EAO's Assessment Report (EAO 2015b) and the Previous Amendment Assessment Reports (EAO 2016b and 2019)	Change to Characterization of Residual Effects	Change to Characterization of Cumulative Effects	Potential Changes to Assessment Report and Amendment Assessment Report
Air Quality	<ul style="list-style-type: none"> Section 5.1 Air Quality (EAO 2015b) Section 3.1 Air Quality and Human Health (EAO 2016b) 	No	No	None
Vegetation Resources	<ul style="list-style-type: none"> Section 5.7 Vegetation and Wetland Resources (EAO 2015b) Section 3.6 Vegetation Resources (EAO 2016b) 	No	No	None
Wildlife Resources	<ul style="list-style-type: none"> Section 5.8 Terrestrial Wildlife and Marine Birds (EAO 2015b) Section 3.4 Wildlife Resources (EAO 2016b) 	No	No	None

Table 17 Summary of Changes to the Residual Effects from the Changes in this Amendment

Valued Component	Section of EAO’s Assessment Report (EAO 2015b) and the Previous Amendment Assessment Reports (EAO 2016b and 2019)	Change to Characterization of Residual Effects	Change to Characterization of Cumulative Effects	Potential Changes to Assessment Report and Amendment Assessment Report
Freshwater and Estuarine Fish and Fish Habitat	<ul style="list-style-type: none"> • Section 5.5 Freshwater and Estuarine Fish and Fish Habitat (EAO 2015b) • Section 3.5 Freshwater and Estuarine Fish and Fish habitat (EAO 2016b) 	No	No	None
Infrastructure and Services	<ul style="list-style-type: none"> • Section 7.1 Infrastructure and Services (EAO 2015b) 	No	No	None
Archaeological and Heritage Resources	<ul style="list-style-type: none"> • Section 8.1 Archaeological and Heritage Resources (EAO 2015b) • Section 3.8 Archaeological and Heritage Resources (EAO 2016b) 	No	No	None

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