LNG CANADA

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Joint venture companies

LNG Canada Export Terminal Project

Impact Assessment Agency of Canada 2020 – 2021 Annual Report

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Executive Summary

LNG Canada Development Inc. (LNG Canada) is building a liquefied natural gas (LNG) export facility (the LNG Canada Project) located in northwest British Columbia, in the District of Kitimat and in the traditional territory of the Haisla Nation. The LNG Canada Project is comprised of a LNG facility and supporting infrastructure, including LNG storage and marine loading facilities, and temporary construction-related infrastructure and facilities.

The LNG Canada Project represents a unique opportunity for British Columbia and Canada. The LNG Canada Project will convert Canada's abundant supply of natural gas to LNG for export to global markets. The LNG Canada Project has adopted best-in-class technologies, is using state-of-the art design and engineering practices that exceed legislative requirements, and is working with the most credible and advanced suppliers of LNG industry technical solutions.

On June 17, 2015, LNG Canada received the Decision Statement from the Canadian Environmental Assessment Agency (now known as the Impact Assessment Agency of Canada (IAAC)) that established conditions that the LNG Canada Project must comply with. This Annual Report provides information and updates related to those conditions, for the period April 1, 2020 to March 31, 2021 (known as the reporting year).

The LNG Canada Project is being executed by LNG Canada, JGC Fluor BC LNG Joint Venture (JFJV) and various subcontractors. LNG Canada's Engineering, Procurement and Construction (EPC) Contractor, JFJV, is responsible for implementation of environmental programs and controls identified in permits, approvals, authorizations and associated management plans during construction. LNG Canada is also overseeing select portions of work, outside of JFJV scope.

1. Management Systems

The LNG Canada Project is committed to executing a high standard of environmental management and compliance in all its activities. The LNG Canada Project Health, Safety, Security and Environmental Management System (HSSE MS) provides a systematic structure composed of a framework, policies, standards, guidelines, premises, specific plans, procedures and processes. The LNG Canada Project Compliance Management System, a component of the LNG Canada HSSE MS, details processes that are in place to ensure the conditions of the IAAC Decision Statement are documented, tracked and actioned.

The LNG Canada Project continually re-evaluates mitigation and monitoring measures throughout construction to verify that construction activities remain in compliance with regulatory requirements and conform to LNG Canada Project commitments.

JFJV oversees the implementation of its Environmental Monitor (EM) Program; JFJV Environmental Specialists perform EM activities for the majority of the Project, including retaining

the services of a Qualified Environmental Professional (QEP) to monitor construction activities and assessing the effectiveness of mitigations on an ongoing basis. EMs have the authority to stop work in cases where mitigations are not sufficient and in cases of non-compliance. EM activities are also undertaken by qualified LNG Canada Project environmental professionals and contractors.

2. Construction Activities within the Reporting Year

Construction activities during the reporting year include (but not limited to) extensive site preparation (e.g., bulk earth works, installation of the bund wall, bridge/culvert construction and haul road construction), development of the Cedar Valley Lodge (CVL), habitat offset construction, LNG facility piling and undergrounds, development of the River Water Intake (RWI), construction of the LNG Storage Tank, construction of the Material Offloading Facility (MOF), and dredging activities.

No decommissioning activities took place during the reporting year.

3. Community and Indigenous Groups Communications and Consultation

The LNG Canada Project has committed to transparent, frequent communications and consultation with Indigenous Groups and local communities (Kitimat and Terrace). Input and feedback received has been a vital component of the LNG Canada Project. The LNG Canada Project communications and engagement program is premised on an adaptive management approach, where comments, concerns and questions can be received and responded to. Information is shared and input sought through a range of initiatives – project website, InFocus newsletter, social media (Facebook, Twitter, and LinkedIn), telephone and email, and open houses. The above information sharing initiatives have been designed with input from Indigenous Groups, stakeholders, and residents.

The LNG Canada Project continues to adhere to the Community Feedback Process to provide an ongoing and transparent means for the community to raise questions, concerns, and grievances, and have them addressed in a timely and consistent manner.

The LNG Canada Project is committed to ensuring Indigenous Groups that may be impacted by the Project are engaged and consulted on applicable processes, activities, permits and conditions. LNG Canada's Senior Indigenous Relationship Leads for each Indigenous Group provides a single point-of-contact. During the reporting year, Indigenous Groups were consulted during the updates to several LNG Canada Project plans and processes.

4. Conditions Performance

The landscape surrounding the LNG Canada Project contains a range of terrestrial, aquatic and wetland habitats that support populations of wildlife and fish. These ecosystems are important not only to the health of the natural landscape, but also to residents and Indigenous Groups who rely on the environment for recreation and traditional use.

A) Fish and Amphibian Habitat and Salvage

The LNG Canada Project holds four authorizations under the Fisheries Act; three for freshwater (known as “FAA1”, “FAA2”, and “FAA3”); and one for the marine environment.

No works or modifications to the fish habitat offsets related to Fisheries Act Authorization 15-HPAC-00918 for the Workforce Accommodation Centre (“FAA1”) occurred during the reporting year. The performance of the FAA1 offset habitats improved for all components of the effectiveness monitoring program in 2020 compared to 2019.

Fish and amphibian salvage associated with FAA 16-HPAC-00220 (“FAA2”) occurred in Kitimat River Side Channel (KRSC) South, Beaver Creek, Moore Creek and Anderson Creek. During the reporting year, the re-alignment of Anderson Creek and Beaver Creek was completed; and the Anderson Creek Side Channel (ACSC) offset habitat was substantially completed with minor works planned for the 2021 instream work window. Effectiveness monitoring for the reporting year focused on Moore Creek Dyke Breach, Anderson Creek Fishway, WAC (CVL) Pond 2 and KRSC North.

Activities associated with FAA 16-HPAC-01079 (“FAA3”) within the reporting year included salvage works in Moore Creek Side Channel (MCSC) and Beaver Creek tributaries; and completion of offsetting habitats for MCSC and WAC (CVL) Pond 2. No effectiveness monitoring associated with FAA 3 occurred within the reporting year.

Mitigation measures outlined in the marine FAA 15-HPAC-00585 (“FAA Marine”) and related application were adhered to during the dredge season, including the application of the September 1 – February 28 extended dredge window. A qualified EM was present during all in-water construction activities and dredging. Both in-water vibratory and impact-hammer piling were undertaken during the reporting year; vibro-hammers were typically used for approximately the first 14 meters, then impact piling is utilized due to geotechnical reasons. Effectiveness monitoring was undertaken for underwater noise through the field environmental monitoring program. Water quality was monitored during dredge and marine construction related activities, as well as implementation of the marine mammal observers (MMO) program.

During the reporting year, fish salvage and relocation occurred during the isolation of various waterways to support diversions (including Anderson Creek, Moore Creek, Beaver Creek) and site preparation activities. During the reporting year, an approximate total of 541,561 fish were salvaged. Fish species varied depending on the habitat types salvaged, and included salmonids, Stickleback and Lamprey. During the reporting year, amphibian salvage and relocation also occurred; approximately 379,127 amphibians were salvaged, including Western Toad and Northwestern Salamander. All salvaged fish and amphibians were released into habitat of a similar type and quality, with consideration of future construction and salvage efforts to minimize double handling of species.

During the reporting year, there were nine reportable incidents associated with the Fisheries Act and the Project Fisheries Act Authorisations that occurred between May and November 2020.

B) Wetlands

Within the reporting year, LNG Canada completed the annual adjacent wetland assessment, and no adverse effects to adjacent wetlands resulting from construction were identified.

Wetland compensation habitats associated with KRSC North, Anderson Creek, Beaver Creek, MCSC, ACSC, Minette Bay, Hospital Beach and CVL ponds were completed in 2020; and year 1 effectiveness monitoring is underway on CVL Pond 3 and KRSC North.

In June 2020, the revised Wetland Compensation Plan was shared with regulatory agencies and Indigenous Groups in accordance with EAC requirements.

C) Migratory Birds

During the reporting year, land clearing activities occurred as much as possible outside of the breeding bird window to alleviate disturbance to nesting migratory birds. When clearing took place during bird breeding windows, pre-disturbance bird surveys were completed to ensure that no potentially active nests were present within the active construction area, and any identified nests were subsequently protected by implementing buffer zones. Active nests were monitored from a distance to confirm and track the status and ensure that construction activities in the vicinity did not impact nesting or fledging. Buffers are only removed once the QEP has determined that the nest is no longer active, and no other nests exist.

During the reporting year, 290 pre-disturbance bird nest surveys were completed for the LNG Canada Project, and 139 active nests were identified. There was no removal of potential high or moderate marbled murrelet habitat during the reporting year. There were three self-disclosures to Environment and Climate Change Canada/Canadian Wildlife Service between May and June 2020 related to migratory birds; with two events associated with unauthorized vegetation clearance and the third event being a potential incident take (unable to confirm if the construction activities caused or contributed to a nest abandonment).

D) Human Health

The LNG Canada Project is committed to managing noise and air emissions during activities, and has taken steps to implement mitigations as appropriate through the development and implementation of Environmental Management Plans. There were six noise complaints within the reporting year; related to bird deterrents and piling; which were all resolved quickly.

E) Archaeological and Heritage Resources

The LNG Canada Project identified one area of archaeological or cultural significance. Alterations at the GaTe-5 area occurred within the reporting year, which involved sediment stripping and

stockpiling of inspected site deposits at a temporary holding location, followed by transportation of the inspected deposits to a permanent holding location (within the Project area). These activities were overseen by the qualified archaeologists per the site alteration permit requirements (issued by the British Columbia Oil and Gas Commission (OGC); and a final report submitted to the OGC and British Columbia Archaeology Branch in November 2020. There was one chance find related to a small piece of plate manufactured in 1955 that was determined to be of no heritage value.

F) Accidents or Malfunctions

There were no accidents or malfunctions at the LNG Canada Project during the reporting year.

Acronyms/Abbreviations

ACSC	Anderson Creek Side Channel
AIA	Archaeological Impact Assessment
AIS	Automatic Identification System
BAT	Best Available Technology
BC	British Columbia
CCME	Canadian Council of Ministers of the Environment
CEAA	Canadian Environmental Assessment Act, 2012
CAP	Cultural Awareness Program
CEMP	Construction Environmental Management Plan
CLISMP	Community Level Infrastructure and Services Management Plan
CMS	Compliance Management System
CVL	Cedar Valley Lodge
CWS	Canada Wildlife Service
DAS	Disposal at Sea
DDS	Dredgeate Disposal Site
DEMP	Dredge Environmental Management Plan
DFO	Fisheries and Oceans Canada
DMR	Dual Mixed Refrigerant
EAC	Environmental Assessment Certificate (BC)
EAO	Environmental Assessment Office (BC)
ECCC	Environment and Climate Change Canada
EM	Environmental Monitor
EMP	Environmental Management Plan
EPC	Engineering, Procurement and Construction
ERP	Emergency Response Plan
ESC	Erosion and Sediment Control
EWP	Environmental Work Plan
FAA	Fisheries Act Authorization
FAA1	Fisheries Act Authorization – LNG Canada Workforce Accommodation Centre (15-HPAC-00918)
FAA2	Fisheries Act Authorization – LNG Processing Facility (16-HPAC-00220)

FAA3	Fisheries Act Authorization – Supporting Infrastructure (16-HPAC-01079)
FAA Marine	Fisheries Act Authorization – LNG Canada (15-HPAC-00585)
FID	Final Investment Decision
FLNR	Forests, Lands, Natural Resource Operations and Rural Development (BC)
Ha	Hectare
HCA	Heritage Conservation Act (BC)
HIP	Heritage Inspection Permit
HSSE	Health, Safety, Security and Environment
HSSE MS	HSSE Management System
HSSE & SP	HSSE and Social Performance
IAAC	Impact Assessment Agency of Canada (formerly Canada Environmental Assessment Agency)
ICS	Incident Command System
IEE	Integrated Engineering Environment
IFC	Issued for Construction
IL-	Below Industrial Land Use Criteria (in context of dredgeate handling)
IL+	Above Industrial Land Use Criteria (in context of dredgeate handling)
JFJV	JGC Fluor BC LNG Joint Venture (LNG Canada EPC Contractor)
KRSC	Kitimat River Side Channel
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
MAP	Marine Activities Plan
MATMP	Marine Access Traffic Management Plan
MCSC	Moore Creek Side Channel
MMEZ	Marine Mammal Exclusion Zone
MMO	Marine Mammal Observer / Marine Mammal Observation
MMP	Marine Monitoring Plan
MOF	Material Offloading Facility
OGC	Oil and Gas Commission (BC)
OPP	Oceans Protection Plan
PRC	Project Resources Centre
Project	LNG Canada Export Terminal Project

QEP	Qualified Environmental Professional
RWI	River Water Intake
SHHR	South Heavy Haul Road
SMR	Social Management Roundtable
STL	Shovel Test Location
TSS	Total Suspended Solids
WAC	Workforce Accommodation Centre

Concordance Table

Section Topic	Description	Clause	Sub clause	Report Section
Decision on environmental effects referred to in subsection 5(1) of CEAA 2012	In accordance with paragraph 52(1)(b) of CEAA 2012, after considering the report of the EAO on the Designated Project and the implementation of mitigation measures that I consider appropriate, I determined that the Designated Project is not likely to cause significant adverse environmental effects referred to in subsection 5(2) of CEAA 2012. In accordance with subsection 53(2) of CEAA 2012, I have established the conditions below in relation to the environmental effects referred to in subsection 5(2) of CEAA 2012, with which LNG Canada Development Inc. must comply.	NA	NA	1.0
Decision on environmental effects referred to in subsection 5(1) of CEAA 2012	These conditions are established for the sole purpose of the Decision Statement issued under the Canadian Environmental Assessment Act, 2012. They do not relieve the Proponent from any obligation to comply with other legislative or other legal requirements by the federal, provincial or local governments. Nothing in this Decision Statement shall be construed as reducing, increasing, or otherwise affecting what may be required to comply with all applicable legislative or other legal requirements.	NA	NA	1.0 3.1
General Conditions	The Proponent shall, throughout all phases of the Designated Project, ensure that its actions in meeting the conditions set out in this Decision Statement are informed by the best available information and knowledge, are based on validated methods and models, are undertaken by qualified individuals, and have applied the best available economically and technologically feasible strategies.	2.1	2.1	1.1 1.2 2.0 2.1
General Conditions	The Proponent shall, where consultation is a requirement of a condition set out in this Statement: • provide written notice of the opportunity for the party or parties to present their views on the subject of the consultation; • provide sufficient information and a reasonable period of time to permit the party or parties to prepare their views; • provide a full and impartial consideration of any views presented; • and advise the party or parties that have provided comments on how the views and information received have been considered.	2.2	2.2.1	4.2
General Conditions	The Proponent shall, where consultation with Aboriginal groups is a requirement of a condition set out in this Decision Statement, and prior to the initiation of consultation, communicate with each Aboriginal group on the most appropriate manner in which to satisfy the consultation requirements referred to in condition 2.2.	2.3	2.3	4.3

Section Topic	Description	Clause	Sub clause	Report Section
General Conditions	The Proponent shall, where a follow-up program is a requirement of a condition set out in this Decision Statement: • undertake monitoring and analysis to verify the accuracy of the environmental assessment as it pertains to the condition and/or to determine the effectiveness of any mitigation measure(s); • where the results of the monitoring and analysis indicate issues with respect to the accuracy of the environmental assessment or the effectiveness of any mitigation measures that may lead to adverse environmental effects, identify the means by which it will determine whether additional mitigation measures are required, including the need for consultation with other parties in reaching that determination; and • implement additional mitigation measures, as appropriate	2.4	2.4.1 2.4.2 2.4.3 2.4.4	3.4
General Conditions	The Proponent shall, from the reporting year where construction starts, submit to the Agency an annual report, including an executive summary of the annual report in both official languages. The annual report is to be submitted by the Proponent no later than June 30 following the reporting year. The Proponent shall document in the report: • implementation activities undertaken in the reporting year for each of the conditions; • how it has considered and incorporated the factors set out in condition 2.1 in the implementation of the conditions set out in this Decision Statement; • for conditions set out in this Decision Statement for which consultation is a requirement, how it has considered any views and information received during or as a result of the consultation; • the results of the follow-up program requirements identified in conditions 3.14 , 4.2.4, 2.5.4,4.5, 5.3, 6.3.6 and 7.2; and • any additional mitigation measures implemented or proposed to be implemented, as determined under condition 2.4	2.5	2.5.1 2.5.2 2.5.3 2.5.4 2.5.5	1.4
General Conditions	The Proponent shall publish on the Internet, or any similar medium, the annual report, the executive summary referred to in condition 2.5, the Wetland Compensation Plan referred to in condition 4.3, the plan to offset the loss of fish and fish habitat referred to in condition 3.11, the Archaeological and Heritage Resources Management Plan referred to in condition 8.1, the Decommissioning Plan referred to in condition 9.1, and the implementation schedule referred to in condition 11, following submission of these documents to the parties referenced in the respective conditions. The Proponent shall keep these documents publicly available for twenty-five years following the end of operation or until the end of decommissioning of the Designated Project, whichever comes first.	2.6	2.6	1.4 4.2.1
General Conditions	The Proponent shall notify the Agency in writing no later than 60 days after the day on which there is a transfer of ownership, care, control or management of the Designated Project in whole or in part.	2.7	2.7	1.5

Section Topic	Description	Clause	Sub clause	Report Section
General Conditions	In the event that there is a transfer of ownership, care, control or management of the Designated Project from LNG Canada Development Inc. to another party, that party becomes the Proponent of the Designated Project and is bound by the conditions found in this Decision Statement.	2.8	2.8	1.5
Fish and Fish Habitat	The Proponent shall implement erosion control measures and sediment control measures during all phases of the Designated Project.	3.1	3.1	5.0 5.4.4.1
Fish and Fish Habitat	The Proponent shall revegetate disturbed riparian areas, using native vegetation, as soon as practicable after construction.	3.2	3.2	5.0 5.4.4.2
Fish and Fish Habitat	The Proponent shall isolate construction activities from adjacent freshwater fish habitat.	3.3	3.3	5.0 5.4.1
Fish and Fish Habitat	The Proponent shall salvage and relocate fish during in-water work requiring isolation of freshwater fish habitat.	3.4	3.4	5.0 5.4.2
Fish and Fish Habitat	The Proponent shall design the water intake for the Designated Project to avoid or reduce injury to and mortality of fish, including the risk of entrainment of eulachon larvae. The Proponent shall install the water intake that is so designed and shall monitor the operation of that intake to determine whether or not injury to and mortality of fish is avoided or reduced. Based on the monitoring results, the Proponent shall, as appropriate, modify the water intake or implement other measures to avoid or reduce injury to and mortality of fish.	3.5	3.5	5.0
Fish and Fish Habitat	The Proponent shall apply low-noise methods or sound dampening technologies to reduce adverse effects to fish from exposure to underwater noise during pile installation. In doing so, the Proponent shall: • minimize impulsive noise emitted by construction activities, including by giving preference to the use of vibratory pile-driving over impact pile-driving unless not technically feasible; • report annually the occurrence(s) when impact pile-driving was implemented including a description of why vibratory pile driving was not technically-feasible; and • use sound attenuation device(s) when impact pile-driving underwater.	3.6	3.6	5.3
Fish and Fish Habitat	The Proponent shall, prior to the start of in-water construction activities; establish the location and timing of sensitive life stages and habitat occupancy for fish (including marine mammals) in consultation with Fisheries and Oceans Canada and Aboriginal groups; advise the Agency of that information; and shall conduct in-water construction activities during the timing windows of least risk to those life stages and habitat occupancy, unless otherwise authorized by Fisheries and Oceans Canada.	3.7	3.7	5.3

Section Topic	Description	Clause	Sub clause	Report Section
Fish and Fish Habitat	When conducting in-water construction activities outside the timing windows of least risk referred to in condition 3.7, the Proponent shall implement additional mitigation measures following consultation with Fisheries and Oceans Canada, including sediment containment when dredging and using sediment disposal methods and equipment that will limit re-suspension of sediments.	3.8	3.8	5.3
Fish and Fish Habitat	To avoid detrimental behavioral change in or injury to marine mammals, the Proponent shall implement a marine mammal detection and response plan during all construction activities that pose a risk to marine mammals. In doing so, the Proponent shall: • identify the construction activities that generate underwater noise levels greater than 160 and 180 decibels at a reference pressure of one micropascal and the periods of time when those activities will occur; • for cetaceans, establish the boundary of the exclusion zone for each construction activity identified in condition 3.9.1 at the distance from the activity that the underwater noise level reaches 160 decibels; • for all other marine mammals, including pinnipeds, establish the boundary of the exclusion zone for each construction activity identified in condition 3.9.1 at the distance from the activity that the underwater noise level reaches 180 decibels or at a distance of 150 meters, whichever is the greatest distance; • employ a marine mammal observer and specify the role of that person in observing and reporting marine mammals in the exclusion zone during construction activities identified in conditions 3.9.2 and 3.9.3 during construction activities identified in condition 3.9.1; • stop construction activities identified in condition 3.9.1 if marine mammals are observed within the exclusion zone(s) or reasonably appear to be about to enter the exclusion zone(s) identified in condition 3.9.2 and 3.9.3; • start or restart activities only once it has been visually confirmed that the marine mammal(s) are not within the exclusion zone of if a minimum of 30 minutes has elapsed since the marine mammal was last sighted within the exclusion zone(s); and • specify mitigation measures, such as sound dampening technology and soft-start procedures to reduce construction noise levels in the exclusion zone.	3.9	3.9.1 3.9.2 3.9.3 3.9.4 3.9.5	5.3
Fish and Fish Habitat	LNG carriers associated with the Designated Project shall respect speed profiles applicable to the operation of the Designated Project, subject to navigational safety, to prevent or reduce the risks of collisions between LNG carriers and marine mammals and shall report any collision with marine mammals to Fisheries and Oceans Canada, and notify Aboriginal groups.	3.10	3.10	5.3

Section Topic	Description	Clause	Sub clause	Report Section
Fish and Fish Habitat	The Proponent shall mitigate impacts to fish and fish habitat and, in consultation with Fisheries and Oceans Canada, develop and implement a plan to offset the loss of fish and fish habitat associated with the carrying out of the Designated Project.	3.11	3.11	5.1
Fish and Fish Habitat	For any fish habitat offsets area proposed in any offsetting plan under condition 3.11, and prior to submitting the offsetting plan to Fisheries and Oceans Canada, the Proponent shall determine whether there are adverse effects: • on migratory birds and their habitats; • on terrestrial species, including amphibians and reptiles, and their habitats; • on species at risk and their habitat; • on the current use of lands and resources for traditional purposes by Aboriginal peoples; • on navigation; • from potential sources of contamination including polycyclic aromatic hydrocarbons, dioxins, furans, copper and zinc on the receiving environment.	3.12	3.12.1 3.12.2 3.12.3 3.12.4 3.12.5 3.12.6	5.1
Fish and Fish Habitat	The Proponent shall, if there are adverse effects on any of the elements of condition 3.12, avoid or lessen those adverse effects.	3.13	3.13	5.1
Fish and Fish Habitat	In consultation with Fisheries and Oceans Canada and Aboriginal groups, the Proponent shall develop and implement a follow-up program to verify the accuracy of the environmental assessment and to determine the effectiveness of mitigation measures identified under conditions 3.1 to 3.11 and 3.13.	3.14	3.14	5.1 5.3 5.4
Fish and Fish Habitat	The Proponent shall participate in regional initiatives relating to cumulative effects monitoring and the management of marine shipping, should there be any such initiatives during the construction and operation phases of the Designated Project.	3.15	3.15	4.5
Wetlands	The Proponent shall mitigate the adverse environmental effects of the Designated Project on wetland functions that support migratory birds, species at risk or the current use of lands and resources for traditional purposes by Aboriginal people. The Proponent shall give preference to avoiding the loss of wetlands over minimizing the adverse effects on wetlands and for managing the effects on wetlands over compensating for lost or adversely affected wetlands.	4.1	4.1	6.0 7.0

Section Topic	Description	Clause	Sub clause	Report Section
Wetlands	To avoid loss of wetlands or to manage adverse effects on wetlands impacted by the Designated Project footprint and adverse effects on wetland function on and for those wetlands adjacent to the Designated Project footprint, the Proponent shall: • delineate clearing boundaries prior to the commencement of construction and respect those boundaries during construction; • maintain, where practicable, tidal flow and wildlife passage in the LNG loading line corridor between the LNG processing and storage site and the marine terminal; • manage surface water and avoid erosion or sedimentation to maintain hydrology of adjacent wetlands and protect water quality; and • conduct follow-up monitoring prior to and during construction to detect potential unanticipated loss of wetland functions and implement adjustments to mitigate loss of those wetland functions.	4.2	4.2.1 4.2.2 4.2.3 4.2.4	6.1
Wetlands	For effects on ecologically important wetlands that cannot be avoided or minimized, mitigation measures shall be set out in a Wetland Compensation Plan that shall be prepared by the Proponent in consultation with Aboriginal groups. The mitigation measures to be set out in the Wetland Compensation Plan shall include: • implementing a 2:1 ratio of compensation area to the loss of ecologically important wetland area; • identifying sites to compensate for the lost wetlands referred to in 4.3.1, that are as close to Kitimat as possible and that reflect similar wetland types and functions to those that are lost; • a preference for wetland restoration over enhancement, and wetland enhancement over creation; and • whenever possible, using traditional plants in the enhancement or creation of the compensation sites referred to in 4.3.2 and providing access to those sites to Aboriginal people for the purposes of gathering traditional use plants.	4.3	4.3.1 4.3.2 4.3.3 4.3.4	6.2
Wetlands	The Proponent shall implement the wetland compensation plan within five years of the date of the start of construction	4.4	4.4	6.2
Wetlands	The Proponent shall implement a follow-up program to verify that the compensation wetland sites are fulfilling the functions of the wetlands they are replacing and shall implement corrective actions in respect of the compensation wetlands if the latter do not fulfill those functions. The follow-up program shall include monitoring of the compensatory wetland sites to verify that lost habitat is being restored at or on those sites, in year one, and in years three, five, and ten following the enhancement or creation of the compensating wetlands.	4.5	4.5	6.2

Section Topic	Description	Clause	Sub clause	Report Section
Migratory Birds	The Proponent shall carry out all phases of the Designated Project in a manner that protects and avoids harming, killing or disturbing migratory birds or destroying or taking their nests or eggs. In this regard, the Proponent shall take into account Environment Canada's Avoidance Guidelines. The Proponent's actions in applying the Avoidance Guidelines shall be in compliance with the Migratory Birds Convention Act, 1994 and with the Species at Risk Act.	5.1	5.1	7.0
Migratory Birds	The Proponent shall: • restrict flaring of vented emissions to the minimum required for maintenance activities or to manage emergencies; • minimize flaring during night time and during periods of bird vulnerability; and • adjust operational lighting to avoid attracting migratory birds.	5.2	5.2.1 5.2.2 5.2.3	7.0
Migratory Birds	The Proponent shall develop and implement a follow-up program to determine the effectiveness of the mitigation measures used to avoid harm to migratory birds, their eggs and nests during all phases of the Designated Project.	5.3	5.3	7.0
Migratory Birds	The Proponent shall avoid or lessen, and monitor effects on the habitat of the Marbled Murrelet (Brachyramphus marmoratus), a species that appears on Schedule 1 of the Species at Risk Act. The Proponent shall compensate for the loss of habitat of the Marbled Murrelet as a result of the Designated Project, taking into account Environment Canada's Operational Framework for Use of Conservation Allowances.	5.4	5.4	7.2
Human Health	The Proponent shall incorporate noise and air emission reduction measures in the design of the Designated Project, and implement noise and air emission reduction measures during all phases of the Designated Project to avoid or reduce potential effects on human health, including: • complying with the Waste Discharge Regulation under British Columbia's Environmental Management Act for operational air emissions; • applying best management practices and guidance for construction noise from the British Columbia Oil and Gas Commission's Noise Control Best Practices Guidelines; and • complying with the operational noise requirement of the British Columbia Oil and Gas Commission's Liquefied Natural Gas Facility Regulation.	6.1	6.1.1 6.1.2 6.1.3	8.0
Human Health	The Proponent shall develop and implement a mechanism for receiving noise complaints, in consultation with Aboriginal groups and other parties who may be adversely affected by the noise caused by the Designated Project and during all phases of the Designated Project, and respond in a timely manner to any noise complaint received.	6.2	6.2	8.1

Section Topic	Description	Clause	Sub clause	Report Section
Human Health	The Proponent shall implement measures related to marine water quality and sediment quality, including: • prior to the commencement of dredging, establishing a shellfish and groundfish tissue baseline and using it to complete a human health risk assessment for the consumption of fish; • conducting an assessment of the risks and potential duration of any exceedances of Canadian Council of Ministers of the Environment's Water Quality and Interim Sediment Quality Guidelines, and British Columbia's Water Quality Guidelines and Working Sediment Quality Guidelines that could occur during dredging and other in-water construction activities, and identify mitigation measures to avoid such exceedances; • implementing mitigation measures to minimize sediment dispersion during in-water construction activities, including isolation methods; • conducting onsite sediment and water quality monitoring in relation to the re-suspension and bioavailability of polycyclic aromatic hydrocarbons, dioxins and furans during in-water construction activities; • communicating any exceedances of the Canadian Council of Ministers of the Environment's Water Quality and Interim Sediment Quality Guidelines, and British Columbia's Water Quality Guidelines and Working Sediment Quality Guidelines to regulatory authorities in accordance with legislative requirements and to Aboriginal groups, and implementing mitigation measures identified in condition 6.3.2 to remedy those exceedances or to reduce associated risks to human health; • developing and implementing a post-dredging follow-up program, in consultation with Aboriginal groups, to confirm the human health risk assessment predictions, including additional sampling of the shellfish and groundfish tissue to confirm the assessment predictions regarding the bioavailability and bioaccumulation of contaminants in fish consumed by humans. The Proponent shall communicate the results of the follow-up program to Aboriginal groups.	6.3	6.3.1 6.3.2 6.3.3 6.3.4 6.3.5 6.3.6	8.2
Human Health	The Proponent shall, during operation, treat any effluent discharge from the facility marine outfall pipe to meet subsection 36(3) of the Fisheries Act and British Columbia's Water Quality Guidelines for the protection of marine life measured at the edge of the initial dilution zone.	6.4	6.4	8.2

Section Topic	Description	Clause	Sub clause	Report Section
Current use of lands and resources for traditional purposes	The Proponent shall develop and implement, in consultation with Aboriginal groups, a communication protocol for all phases of the Designated Project. The communication protocol shall include procedures and practices for sharing information and facilitating communication between the Proponent and the Aboriginal groups and other local marine users on the following: • location and timing of Designated Project-related construction activities; • location and timing of traditional activities by Aboriginal groups; • safety procedures, such as navigation aids and updated navigational charts; • location of areas where navigation is restricted for safety reasons; • operational speed requirements under the Canada Shipping Act, 2001 or its regulations, and general schedules of the operation of LNG carriers associated with the Designated Project; • ways in which to provide feedback to the Proponent on adverse effects related to navigation experienced by Aboriginal groups and other local marine users.	7.1	7.1.1 7.1.2 7.1.3 7.1.4 7.1.5 7.1.6	9.0 9.1 9.2
Current use of lands and resources for traditional purposes	The Proponent shall develop and implement, in consultation with Aboriginal groups, a follow-up program to verify the accuracy of the predictions made during the environmental assessment in relation to the effects of the wake generated by the Designated Project on the current use of lands and resources for traditional purposes by Aboriginal groups. The follow-up program shall include: • monitoring during the first two years of operation of the degree of wake generation by Designated Project-related vessels and of any adverse effects on harvesters caused by vessel wake attributable to Designated Project-related vessels at key harvest sites and during key harvest periods identified in consultation with Aboriginal groups; and • providing the results of the follow-up program and any corrective actions taken to Aboriginal groups.	7.2	7.2.1 7.2.2	9.0
Current use of lands and resources for traditional purposes	The Proponent shall provide Aboriginal groups with the implementation schedule, updates or revisions to the implementation schedule pursuant to condition 11 at the same time these documents are provided to the Agency.	7.3	7.3	2.2

Section Topic	Description	Clause	Sub clause	Report Section
Physical and cultural heritage and structure, site or thing of historical, archaeological, paleontological or architectural significance	The Proponent shall, in consultation with Aboriginal groups and local historical societies, develop and implement an Archaeological and Heritage Resources Management Plan for the Designated Project prior to construction. The Archaeological and Heritage Resources Management Plan shall take into account British Columbia's Handbook for the Identification and Recording of Culturally Modified Trees. The Archaeological and Heritage Resources Management Plan shall include: • a description of structures, sites or things of historical, archaeological, paleontological or architectural significance (including Culturally Modified Trees) that may be encountered by the Proponent during construction; • a description of structures, sites or things of historical, archaeological, paleontological or procedures and practices for on-site monitoring of construction activities that may affect a structure, site or thing of historical, archaeological, paleontological or architectural significance (including Culturally Modified Trees) and for the identification and removal of these resources; and • a Chance Find Protocol if a previously unidentified structure, site or thing of historical, archaeological, paleontological or architectural significance (including Culturally Modified Trees) is discovered by the Proponent or brought to the attention of the Proponent by an Aboriginal group or another party during construction.	8.1	8.1.1 8.1.2 8.1.3	9.0

Section Topic	Description	Clause	Sub clause	Report Section
Decommissioning	The Proponent shall develop and submit to the Agency a Decommissioning Plan at least one year prior to the end of operation, consistent with any statutory or regulatory requirements in effect at that time. The Decommissioning Plan shall include a description of: • any consultation undertaken during the development of the Decommissioning Plan, including any issues raised by Aboriginal groups and other parties and how they were resolved by the Proponent; • the components of the Designated Project that will be decommissioned by the Proponent; • the desired end-state objectives of the areas that will be decommissioned by the Proponent and those that will not be decommissioned; • the components of the environment that may be adversely affected by decommissioning activities or by components of the Designated Project that continue in their state at the end of operation; • how the Proponent will monitor and mitigate adverse environmental effects from decommissioning activities; • how the Proponent will conduct in-water and land-based decommissioning activities (including the location, the scheduling and sequencing of activities); • a strategy for progressive reclamation, if appropriate; and • an approach to consulting Aboriginal groups and federal and provincial authorities throughout the decommissioning phase.	9.1	9.1.1 9.1.2 9.1.3 9.1.4 9.1.5 9.1.6 9.1.7 9.1.8	2.3
Decommissioning	The Proponent shall from the reporting year in which decommissioning begins until the end of decommissioning, submit to the Agency a written report no later than June 30 of the following reporting year. The written report shall include a description of: • the decommissioning activities that took place during the reporting year; • any adverse environmental effects identified by the proponent with respect to those decommissioning activities; • a description of the mitigation measures that were implemented by the Proponent to mitigate or reduce those adverse effects, and consultation activities.	9.2	9.2.1 9.2.2 9.2.3 9.2.4	2.3
Accidents or Malfunctions	The Proponent shall take all reasonable measures to prevent accidents and malfunctions that may result in adverse environmental effects and shall implement the emergency response procedures and contingencies developed in relation to the Designated Project.	10.1	10.1	5.0

Section Topic	Description	Clause	Sub clause	Report Section

Accidents or Malfunctions	In the event of an accident or malfunction with the potential to cause adverse environmental effects, the Proponent shall:
	• notify relevant federal and provincial authorities, including the Agency of the occurrence as soon as possible;
	• implement measures to minimize any adverse environmental effects associated with the occurrence as soon as possible;
	• submit a written report to the Agency as soon as possible in the circumstances, but at the latest 30 days after the day on which the accident or malfunction took place. The written report must include:
	  ○ the measures that were taken to mitigate the effects of the occurrence;
	  ○ a description of any residual environmental effects, and any additional measures required to address residual environmental effects; and
	  ○ if an emergency response plan was implemented, details concerning its implementation.
	• as soon as possible, but no later than 90 days after the day on which the accident or malfunction took place, submit a written report to the Agency on the changes made to avoid a subsequent occurrence of the accident or malfunction.
		10.2	10.2.1
			10.2.2
			10.2.3
			10.2.4
				10.1

Accidents or Malfunctions	The Proponent shall prepare and implement a communication strategy in consultation with Aboriginal groups that shall include: • the types of accident or malfunction requiring a notification to the respective Aboriginal groups; • the manner by which Aboriginal groups shall be notified of an accident or malfunction and of any opportunities to assist in the response; and • points of contact for the Proponent and for the respective Aboriginal groups.	10.3	10.3.1 10.3.2 10.3.3	10.2
Implementation Schedule	The Proponent shall submit an implementation schedule for conditions contained in this Decision Statement to the Agency, or anyone designated pursuant to section 89 of the Canadian Environmental Assessment Act, 2012, at least 30 days prior to construction. The implementation schedule shall indicate the commencement and completion dates for each activity relating to conditions set out in this Decision Statement.	11.1	11.1	2.2
Implementation Schedule	The Proponent shall submit an update to this implementation schedule in writing to the Agency, or anyone designated pursuant to section 89 of the Canadian Environmental Assessment Act, 2012, every two years on or before June 30, until completion of the activities.	11.2	11.2	2.2

Section Topic	Description	Clause	Sub clause	Report Section
Implementation Schedule	The Proponent shall provide the Agency, or anyone designated pursuant to section 89 of the Canadian Environmental Assessment Act, 2012, with a revised implementation schedule if any change occurs from the initial schedule or any subsequent updates. The Proponent shall provide the revised implementation schedule at least 30 days prior to the implementation of the change.	11.3	11.3	2.2
Record Keeping	The Proponent shall maintain a written record, or a record in an electronic format compatible with that used by the Agency, and retain and make available that record to the Agency, or anyone designated pursuant to section 89 of the Canadian Environmental Assessment Act, 2012, at a facility close to the Designated Project (local facility). The record shall include information related to the implementation of the conditions set out in this Decision Statement, and the results of all monitoring, including: • the place, date and time of any sampling, as well as techniques, methods or procedures used; • the dates and the analyses that were performed; • the analytical techniques, methods or procedures used in the analyses; • the names of the persons who collected and analyzed each sample and documentation of any professional certifications relevant to the work performed that they might possess; and • the results of the analyses.	12.1	12.1.1 12.1.2 12.1.3 12.1.4 12.1.5	3.5
Record Keeping	The Proponent shall retain and make available upon demand to the Agency, or anyone designated pursuant to section 89 of the Canadian Environmental Assessment Act, 2012, the information contained in condition 12.1 at a facility close to the Designated Project (or at a location within Canada and agreed upon by the Agency, should the local facility no longer be maintained). The information shall be retained and made available throughout construction and operation, and for twenty-five years following the end of operation or until the end of decommissioning of the Designated Project, whichever comes first.	12.2	12.2	3.5

1. Introduction

LNG Canada Development Inc. (LNG Canada) is building a liquefied natural gas (LNG) export facility (the LNG Canada Project) located in northwest British Columbia (BC), in the District of Kitimat and on the traditional territory of the Haisla Nation. The LNG Canada Project is comprised of a LNG facility and supporting infrastructure, including LNG storage and marine loading facilities, and temporary construction-related infrastructure and facilities. The LNG Canada Project is committed to planning, constructing and operating the Project in a manner that respects surrounding communities and the environment.

On June 17, 2015, LNG Canada received the Decision Statement under Section 52(1)(b) of the Canadian Environmental Assessment Act, 2012 ("IAAC Decision Statement") from the Canadian Environmental Assessment Agency (now known as the Impact Assessment Agency of Canada (IAAC)). The IAAC Decision Statement established conditions to which the LNG Canada Project must comply. This annual report serves to provide information and updates related to those conditions.

LNG Canada applied for an amendment to its IAAC Decision Statement on August 19, 2020 to amend the language of Condition 3.9 to reflect Project-specific and taxonomy-specific (cetaceans and pinnipeds) environmental protection measures for marine mammals during approved marine construction activities. LNG Canada shared the Draft Amendment with all Indigenous Groups for review and feedback in July 2020. The amendment application was approved by IAAC on April 6, 2021 after completion of a public and Indigenous consultation period. LNG Canada advised all Indigenous Groups in April 2021 that the IAAC Decision Statement Amendment had been received.

1.1. Project Overview

The LNG Canada Project is located on approximately 400 hectares of land within the District of Kitimat, on land zoned for industrial use. The LNG Canada facility will be comprised of a variety of buildings and equipment used to process and store LNG. Supporting infrastructure will also be in place, including power supply, water supply, and waste collection and treatment facilities.

The LNG Canada Project is located in the traditional territory of the Haisla Nation and the associated Operational shipping route passes through the traditional territories of Haisla Nation, Gitga'at First Nation, Gitxaala Nation, Kitselas First Nation, Kitsumkalum First Nation, Lax Kw'alaams First Nation and Metlakatla First Nation.

Initially, the LNG Canada Project will consist of two LNG processing units referred to as "trains", with an option to expand to four trains in the future. The LNG Canada Project is expected to have a life of at least 40 years.

To facilitate construction, existing and temporary facilities will be utilized. Cedar Valley Lodge (CVL), the LNG Canada Project temporary workforce accommodation centre (WAC), houses construction staff on approximately 64 hectares of land immediately adjacent to the LNG processing and storage site.

On July 11, 2016, LNG Canada announced a delay in Final Investment Decision (FID) with the hope of achieving FID in late 2018. Throughout 2018, LNG Canada was focused on completing necessary works in the event of a positive FID, which occurred in October 2018.

In early 2019, LNG Canada's Engineering, Procurement and Construction (EPC) Contractor, JGC Fluor BC LNG Joint Venture (JFJV), took over primary responsibility for implementation of environmental programs and controls identified in permits, approvals, authorizations and associated management plans during construction. LNG Canada is also overseeing select portions of work, outside of the JFJV scope.

Therefore, the LNG Canada Project is being executed by LNG Canada, JFJV and various subcontractors. This Annual Report provides further information on the processes and mitigations put in place by the LNG Canada Project to ensure that Project activities are carried out in accordance with regulatory conditions.

1.2. Best Available Technology

The LNG Canada Project is committed to ensuring that processes in place to meet conditions of the IAAC Decision Statement are informed by the best available technology (BAT) and based on validated methods and models. Commitments to BAT are demonstrated in several ways through design and execution of the LNG Canada Project. Examples include:

- Use of existing infrastructure, such as BC Hydro supplied grid with hydroelectric power output for auxiliary power requirements to ensure the lowest feasible greenhouse gas footprint;
- Shell's Dual-Mixed Refrigerant (DMR) technology process in combination with high efficiency General Electric aero derivative gas turbines (LMS 100) and recovery of waste heat;
- Use of existing industrial development area for the LNG Plant site and refurbishing existing harbour infrastructure where feasible during marine construction;
- Adoption of best-in-class LNG Plant simplicity, utilizing the lowest equipment count per LNG capacity;
- Implementation of mitigations and associated sampling programs that prescribe to the most up-to-date standards and methods recognized by government and industry;

- Implementation of an Integrated Engineering Environment (IEE) for plant design to minimize process safety risks throughout the life of the Project;
- Implementation of a Flawless Project Delivery program, focused on a pro-active approach to mitigate flaws, and help ensure a flawless startup of the plant; and
- Adoption of state-of-the-art design and engineering practices that exceed requirements laid out in legislation.

1.3. HSSE, Social Performance and Compliance Principles

Environmental responsibilities for the LNG Canada Project are led under the Health, Safety, Security and Environment (HSSE) program. The LNG Canada Project is committed to a high standard of environmental management and compliance through all phases of the Project. The Environmental Philosophy is to protect the environment by minimizing potential impacts. The LNG Canada Project commits to compliance with existing regulations, permits, approvals, authorizations and related management plan requirements, and to align environmental, community and social performance commitments with engineering design and construction decisions.

The LNG Canada Project has implemented a Project-specific environmental management program that includes a series of environmental management plans (EMPs) to protect the environment, personnel and the public. LNG Canada commits to publicly reporting on environmental and safety performance. Further information on this program is provided in Section 3.

1.4. Report Requirements

This IAAC Annual Report demonstrates the commitment that the LNG Canada Project has made to responsible health, safety, environment and social performance throughout the life of the Project. It provides an overview of the progress on meeting conditions outlined in the IAAC Decision Statement.

As per the IAAC Decision Statement, for the purposes of this report, the reporting year is defined as April 1, 2020 to March 31, 2021.

The LNG Canada IAAC Annual Report can be accessed at the LNG Canada Project website (www.lngcanada.ca).

1.5. Transfer of Ownership

No transfer of ownership took place during the reporting year.

LNG Canada will notify IAAC no later than 60 days after a transfer of ownership, care, control or management of the Designated Project as per *IAAC Decision Statement Condition 2.7* and *IAAC Decision Statement Condition 2.8*.

2. Project Activities Update

2.1. Activities within the Reporting Year

Restrictions were in place throughout the reporting year related to the COVID-19 health pandemic, which limited the construction activities and onsite engagement with regulators. BC's public health officer ordered five major industrial projects, including the LNG Canada Project, to reduce the size of their workforce, in the "Industrial Projects Restart" order issued on December 29, 2020 (subsequently updated on January 12, 2021) subject to an approved Restart Plan outlining plans to mitigate transmission and adequately ensure the health of the workforce. The LNG Canada Restart Plan was approved in February 2021, which allowed a controlled ramp up of the workforce on site.

There was a significant amount of effort spent to ensure the safety of the workforce during the health pandemic, including primary rapid antigen testing for all employees travelling on charter flights, commercial planes and locals; plus secondary rapid antigen testing for persons coming to the workplace through charter flights, three days after arrival. Within the reporting year, the first dose of COVID-19 vaccines were made available to eligible persons on the project site (March 2021), with formalized roll out tracked and communicated through Northern Health. Focus COVID-19 audits occurred daily during COVID outbreaks, in addition to weekly for site contractors re-enforcing controls and social distancing requirements (e.g., wearing face coverings, limiting the number of people in vehicles, and office buildings). CVL activities were mostly cancelled due to COVID-19 restrictions and to adhere to the Public Health Orders; visits to the local community were also restricted to emergency trips only to reduce community interaction and potential COVID-19 impacts.

A significant amount of precipitation occurred during the reporting year, which created additional challenges during the execution of construction activities (i.e. bulk earthworks, offset construction and transportation of material). With few dry periods, elevated ground water levels and above normal river flows, surface and ground water management was challenging and as a result there was an increase in reported events. In early December 2020 some work activities were completely shut down due to flooding and unsafe conditions in the work areas.

The Project facilitated 16 formal environmental regulatory inspections and tours by various agencies, often in conjunction with Haisla Nation, including but not limited to the BC Environmental Assessment Office (EAO), BC Oil and Gas Commission (OGC), Fisheries and Oceans Canada (DFO) and IAAC. The LNG Canada Project also commenced providing monthly project construction updates to various federal and provincial regulatory agencies, and the District of Kitimat.

The following sections provide highlights of LNG Canada Project activities undertaken as part of the extensive site preparation program, marine works, LNG Facility, temporary facilities and general environmental activities during the reporting year.

2.1.1. Site preparation

- Tree clearing within the facility and supporting infrastructure was completed with approximately 162 hectares (ha) cleared to date. There was no open burning undertaken within the reporting year. Mulching, and re-use of logs and wood waste was implemented for riparian habitat creation and road stabilization.
- Execution of bulk earthworks, with surface soil stripping, bulk infilling and site grading (refer to Photo 1).
- Widened sections of the Haul Road, completed construction of bridges at the Anderson Creek and Moore Creek crossings; and culverts (refer to Photo 2).
- Sheet pile installation around the circumference of the main plant site.
- Widespread fish and amphibian salvage and dewatering.
- Fisheries and wetland habitat development for Beaver Creek, Anderson Creek, Kitimat River Side Channel (KRSC) North, Moore Creek Side Channel (MCSC), Anderson Creek Side Channel (ACSC), WAC (CVL) Pond 3 and Minette Bay offsets.
- Ongoing development of the soil stockpile area.
- Management of groundwater, stormwater and construction affected water.

PHOTO 1: SITE PREPARATION ACTIVITIES (JUNE 2020)

PHOTO 2: MOORE CREEK BRIDGE (OCTOBER 2020)

2.1.2. Marine

- Commenced the third dredge season in October 2020 and completed on February 4, 2021 (refer to Photo 3). The total dredging volume for the third dredge season was 497,137 m^3.
- Continued construction of the Material Offloading Facility (MOF) which included installation of the north and west combi-wall, and associated earthworks and infrastructure (refer to Photo 4). Commenced obtaining the marine security (MARSEC) certification.
- Commenced construction of Berth 2 which included demolition of existing terminal infrastructure and installation of the quay wall.

Further information on the marine program is provided in Section 5.3.1.

PHOTO 3: CUTTER SUCTION DREDGE (CSD) VESSEL (WINTER 2020/21) DREDGE VESSEL

PHOTO 4: COMPLETED MOF (APRIL 2021)

2.1.3. LNG Facility

- Continued driving piles throughout the LNG Facility plant site and installation of undergrounds (refer to Photo 5).
- Installation of the LNG Storage Tank foundation, commencement of wall pouring (refer to Photo 6).
- Installation of the cofferdam at the river water intake (RWI) to support construction activities for the intake infrastructure.

PHOTO 5: LNG FACILITY – DRONE SHOT (MARCH 2021)

PHOTO 6: COMPLETED LNG STORAGE TANK CONCRETE GROUND SLAB (DECEMBER 2020)

2.1.4. Temporary Facilities

- Continued construction of CVL (refer to Photo 7). Construction activities included installation of utilities, foundations, stick build common buildings and placement of module living quarters. “First” beds were occupied in CVL in July 2020.
- Ongoing construction in the Temporary Construction Facilities area.

PHOTO 7: CEDAR VALLEY LODGE (SEPTEMBER 2020)

2.1.5. General environment activities

- Water management throughout the LNG Canada Project site, including installation and management of erosion and sediment controls (ESCs), construction of water conveyance pipelines and ditches along with the addition of additional storm water treatment units.
- Wildlife management activities, including wildlife monitoring and assessments; den surveys prior to tree clearing activities; wildlife observation tracking; and installation and effectiveness monitoring of bat boxes (refer to Photo 8).
- Implementation of best management practices for migratory birds including; avoidance, work scheduling, bird nest surveys prior to tree clearing activities, and established buffers.
- Management of fish and fish habitat, including fish habitat risk assessments, and fish and amphibian salvage.
- Baseline monitoring of adjacent wetland habitats, spawning surveys and fish habitat.
- Fish habitat effectiveness monitoring.
- Wetland effectiveness monitoring.
- Continue to progress Marbled Murrelet compensation via conservation.
- Wetland compensation via fisheries offsets and conservation.

PHOTO 8: GRIZZLY BEAR PHOTOGRAPH FROM ON-SITE WILDLIFE CAMERA (MAY 2020)

2.2. Implementation Schedule

The Project Implementation Schedule outlines commencement and completion dates for each condition in the IAAC Decision Statement. The Implementation Schedule is publicly available on the LNG Canada Project website (www.lngcanada.ca). All updates to the IAAC Implementation Schedule are provided to IAAC and Indigenous Groups as required by the Decision Statement.

The following LNG Canada Project Implementation Schedule submissions have been completed to date:

- September 15, 2015: first IAAC Implementation Schedule submission more than 30 days prior to construction activities commencing.
- December 2, 2016: updates to the marine activities schedule.
- June 30, 2017: first biennial IAAC Implementation Schedule update as per the Decision Statement.
- July 4, 2018: updated IAAC Implementation Schedule in preparation for marine construction commencement (September 2018).

- June 28, 2019: second biennial IAAC Implementation Schedule update as per the Decision Statement.
- June 14, 2021: Third biennial IAAC Implementation Schedule update as per the Decision Statement.

2.3. Decommissioning

No decommissioning activities for the LNG Facility took place during the reporting year. LNG Canada will develop a Decommissioning Plan in consultation with Indigenous Groups that will be submitted to IAAC at least one year prior to the end of operation and at designated intervals during the decommissioning process. Contents of the Decommissioning Plan will include, but are not limited to the following:

- Project components that will be decommissioned, desired end-state objectives of the areas that will be decommissioned and description of activities to be undertaken;
- Potential adverse environmental impact from decommissioning activities or by components that continue in their state at the end of operation and how adverse environmental effects will be monitored and mitigated; and
- An approach to consulting Indigenous Groups and federal and provincial authorities throughout the decommissioning phase.

3. Environmental Management Program

This section contains further details on how the environmental management program is structured and executed on the LNG Canada Project.

The IAAC Decision Statement has specific sections of conditions associated with the following environmental aspects:

- Fish and Fish Habitat (Condition 3), including ESC and vegetation;
- Wetlands (Condition 4);
- Migratory Birds (Condition 5);
- Human Health (Condition 6);
- Current Use of Lands and Resources for Traditional Purposes (Condition 7);
- Physical and Cultural Heritage and Structure, Site or Thing of Historical, Archaeological, Paleontological or Archaeological Significant (Condition 8); and
- Accidents and Malfunctions (Condition 10).

Sections 5 to 10 herein provide further detail on each aspect, including associated activities during the reporting year and effectiveness of the mitigations measures and/or follow-up programs.

3.1. HSSE Management System

The LNG Canada Project Health, Safety, Security and Environmental Management System (HSSE MS) provides a systematic structure composed of a framework, policies, standards, guidelines, premises, specific plans, procedures and processes. The HSSE MS:

- describes the Organization, Activities, Processes, Controls and Procedures for identifying and managing Health, Safety, Security and Environmental and Social Performance (HSSE & SP) risks for the Project;
- demonstrates how HSSE & SP will be managed, reviewed and continuously improved;
- demonstrates how the Federal, Provincial and Local regulatory, contractual and LNG Canada Project HSSE & SP requirements are being met and incorporated into systems, plans and procedures; and
- identifies the necessary actions to set up and implement the HSSE MS.

The LNG Canada Project Compliance Management System (CMS), a component of the HSSE MS, details processes in place at LNG Canada to ensure that conditions of the LNG Canada IAAC Decision Statement, as well as requirements in LNG Canada Project permits and approvals, are documented, tracked and actioned.

3.2. Environmental Management Plans

3.2.1. Terrestrial

The LNG Canada Project *Construction Environmental Management Plan* (CEMP) is the overarching framework that encompasses the LNG Canada Project's terrestrial environmental management program and includes all mitigation measures, best management practices, monitoring and reporting requirements associated with each EMP developed for the Project. The LNG Canada Project CEMP has been developed in consideration of community commitments and environmental best practices, and with input from regulators, Indigenous Groups and stakeholders.

The CEMP includes environmental aspects and impacts related to terrestrial and freshwater Project construction, including but not limited to topics such as air quality, light and noise management, vegetation and invasive plant management, surface water and wastewater management, wildlife, and fish habitat resources, management of archeological and heritage resources, waste management and erosion and sediment control (ESC).

EMPs developed specifically to manage the above environmental aspects and impacts related to terrestrial and freshwater include:

- Air Quality Management Plan
- Noise Management Plan
- Vegetation Management Plan
- Surface Water Management Plan
- Wildlife Management Plan
- Fish Habitat Management Plan
- Archaeological and Heritage Resources Management Plan

The CEMP and EMPs are written to ensure compliance with relevant statutes and regulations and also include an adaptive management approach based on continual improvement principles.

An internal LNG Canada Project review of the CEMP and related EMPs occurred in this reporting year; consultation activities with Indigenous Groups and named regulators commenced in late February 2021. The plans will be updated (where required) later in 2021 and submitted to EAO as

required by EAC Condition 20. Additional information will be provided on the CEMP updates, related consultation and outcomes of management plan submission to EAO, in the next reporting year.

3.2.2. Marine

The Marine Activities Plan (MAP) is the overarching framework that encompasses the LNG Canada Project's marine environmental management program, and includes general marine mitigation measures, best management practices, marine environmental monitoring and reporting requirements. The LNG Canada Project's MAP has been developed in consideration of community commitments and environmental best practices, and with input from regulators, Indigenous Groups and stakeholders.

The MAP also includes supporting marine EMPs to manage environmental aspects and impacts related to marine construction for the LNG Canada Project, including:

- the Marine Access Traffic Management Plan (MATMP), which, among other things, outlines the processes in place for the Project to inform marine users of vessel movements in the Kitimat Harbour;
- the Marine Monitoring Plan (MMP), which includes the marine monitoring programs associated with construction including those related to marine water quality and contaminants, monitoring for underwater acoustics and marine mammal monitoring; and
- the Dredge Environmental Management Plan (DEMP), which outlines the execution strategy for dredging and disposal of dredgeate.

The MAP and supporting marine EMPs are implemented using an adaptive management approach based on continual improvement principles.

3.3. Environmental Work Plans

To support implementation of EMP requirements in the field, contractors are required to prepare Environmental Work Plans (EWPs) for defined scopes of work, especially for scopes of work related to environmentally sensitive areas. EWPs are used to formalize the details around a specific scope of work, providing an overview of the work being conducted, environmental risks, mitigations and monitoring requirements.

Extensive planning with involvement from JFJV, LNG Canada and subcontractors environmental and construction teams occurs ahead of work scopes with environmental risks. During this reporting year, the Hazard and Effects Management Program was implemented. JFJV Environment with involvement from its subcontractors and LNG Canada, held Environmental Risk Assessments and Structured Risk Assessments for work scopes with critical environmental risks. These assessments allowed for a

higher-level identification of environmental risks and mitigations required to execute the work. This information was then used to develop the applicable EWPs.

Each EWP includes, but is not limited to:

- Activity location, including site boundaries or external property considerations;
- Detailed description of scope of work addressed by the EWP, including schedule and duration of construction activities, as well as equipment utilization;
- Baseline environmental sensitivities adjacent to the defined activity location (e.g. fish habitat, riparian habitat, rare plants or plant communities, wildlife values, known or potential archaeological values, sensitive receptors, water quality sensitivities, areas of suspected contamination, etc.);
- Permits, approvals and consents relevant to proposed work, and key terms and conditions and timing constraints;
- Mitigation measures required to minimize or eliminate environmental impacts; and
- Monitoring requirements required to verify compliance.

These plans are communicated at the crew level to provide personnel performing the work with the details required to perform it while maintaining compliance to the mitigations and commitments.

3.4. Mitigation Monitoring and Follow-Up Programs

The LNG Canada Project continually re-evaluates mitigation and monitoring measures during the construction phase to ensure that activities comply with regulatory requirements and Project commitments. Several tools are used to ensure implementation of the mitigation measures outlined in the EMPs, and subsequent EWPs, as outlined herein.

The outcomes from the mitigation monitoring and follow up programs during the reporting year are provided within each relevant environmental aspect section of this report.

3.4.1. Environmental Monitoring Program

JFJV oversees the implementation of its Environmental Monitor (EM) Program and regularly shares information with LNG Canada. JFJV Environmental Specialists perform EM activities for the majority of the Project, including retaining the services of a Qualified Environmental Professional (QEP) to monitor construction activities and assess the effectiveness of mitigations on an ongoing basis.

EMs inspect environmentally sensitive areas within the Project boundary on a daily basis. Visual observations are conducted using the environmental observation report or focus assessments

developed for specific environmental aspects. Specific Focus Assessments that have been developed for monitoring of mitigations include:

- Wildlife Focus Assessment
- Wastewater Focus Assessment
- Waste Storage Focus Assessment
- Surface Water Focus Assessment
- Soil, Vegetation, and Invasive Plant Focus Assessment
- Sediment and Erosion Control Focus Assessment
- Secondary Containment Focus Assessment
- Fuel and Chemical Focus Assessment
- Fish Habitat Focus Assessment
- Fisheries Act Authorization (FAA) Focus Assessment
- Air Quality, Noise and Light Focus Assessment
- Aboveground Fuel Tank Focus Assessment

The observations of both positive findings and deficiencies are entered into a database using forms that can be completed in the field through a phone application (app). Digital imagery is taken where needed and included in the database with the associated observation / report or saved in the general “Photos” folder. If deficiencies, or opportunities for improvement are found, the EM’s communicate this information to the subcontractors for action. For example, if waste has not been properly segregated on waste bins, the EM will request that this be rectified. An action log is generated by extracting the deficiencies and opportunities for improvement from the database. These items are then tracked to closure and status updated on the action log.

EMs have been given the authority to stop work in cases where mitigations are not sufficient and in cases of non-compliance. EM activities are also undertaken by qualified LNG Canada Project environmental professionals and contractors.

Monthly EM reports are developed, which summarize the key work activities and observations made during monitoring activities as discussed above.

3.4.2. Contractors Environmental Inspections

The LNG Canada Project contractors are required to complete weekly regular worksite inspections and assess effectiveness of the mitigations associated with their scopes of work. Sections in the

environmental inspection report include air quality, archeological and heritage resources, light, noise, vegetation, waste, ESC, fuel and chemicals, and housekeeping. Contractors conduct regular inspections and note any deficiencies identified. These items are tracked to closure by the contractors. JFJV and LNG Canada follow-up on these actions if they remain open during regular inspections.

3.4.3. EWP Assurance Reviews

JFJV conducts EWP assurance reviews to verify conformance to the approved EWPs. The findings are documented in the database and actions tracked on the action log to closure.

3.4.4. Incident Investigation Program

The LNG Canada Project follows the HSSE Incident Investigation and Reporting Programs for LNG Canada and JFJV. LNG Canada Project contractors are required to communicate all incidents with actual or potential environmental impacts to either the JFJV or LNG Canada Environment Team and HSSE Incident Investigation Team (depending on scope owner).

Incident response steps and the level of investigation is based on the actual and potential risk ranking of the event. In all instances, when an incident is discovered, the first priority and response is focused on ensuring that any immediate risk to people, environment or property (e.g. spills, releases, discharges, etc.) is managed and/or eliminated. This may include containing any spills or releases using on site spill kits, mobilizing QEPs to inspect and/or observe any potential impacts to the environment, and/or stopping any active discharges where feasible.

Once immediate response is complete, and any impact is minimized, all required regulatory and Project reporting and notifications take place. This may include required notifications to applicable regulator(s), courtesy notifications to stakeholders or Indigenous Groups or updates to regular field environmental reporting such as water quality reports.

All incidents are investigated, and the approach and methodology of that investigation is based on the risk of the incident. Incident investigations within the JFJV scope of work are carried out using the JFJV Incident Investigation Form following standard investigation techniques or a root cause analysis process (e.g. tap root, Five Whys, SCAT). The investigation may identify if corrective actions or adaptive management of existing mitigation measures is required. Incident investigations involving scopes executed by LNG Canada also follow standard Incident Investigation Procedures and processes.

Corrective actions and opportunities for improvement identified during incident investigations are assessed and implemented as appropriate. The success of any corrective actions or adaptive

management is assessed using a corrective action follow up program, designed to verify the actions are effectively implemented and working.

3.4.5. Program Development and Improvements

Program improvements and corrective or preventative actions may be identified through the above mitigation monitoring processes, EWP Audits or incident investigations, resulting in amendments to individual EMPs or EWPs and implementation of additional mitigations as required.

Examples of program improvements made during the reporting year include:

- Environmental Risk Assessments / Structured Risk Assessments.
- Development of Environmental Minimum Site Standards
- Development and update of Standard Operating Procedures (e.g. avian, water quality, surface water management)
- Updates to general environmental awareness program to include an interactive booth
- Dewatering authorization program
- Development of additional Environmental Focus Assessments (e.g. Fish Habitat) and update to existing Focus Assessments

Where substantial updates to mitigation measures, above and beyond adaptive management, are required, EMPs may be amended, in which case the consultation process outlined in the EMPs would be enacted (refer to Section 4.4 for further information).

3.5. Records Management

Records related to the implementation of the Conditions outlined in the LNG Canada *IAAC Decision Statement* are maintained electronically as part of the LNG Canada CMS. Records are readily available, and include, but are not limited to the following:

- Records of mitigation and environmental program monitoring (e.g. surface water sampling results, site inspection results, waste disposal, etc.).
- Records of fish and amphibian salvage activities, processes and results.
- Records of all consultation and notification to regulatory agencies, Indigenous Groups and external stakeholders.
- Incident reporting and investigation documentation.

4. Social Performance Program

This section contains further details on the social performance management program structured and execution during the reporting year on the LNG Canada Project.

The LNG Canada Project undertakes a range of initiatives to ensure the local communities and Indigenous Groups receive up-to-date information about the Project and have an opportunity to ask questions and provide feedback. These initiatives include stakeholder notifications, advertising, web postings, social media (Facebook, Twitter, and LinkedIn), the community feedback process and in-person meetings (where possible and aligned with COVID-19 safety measures).

The LNG Canada Project Community Level Infrastructure and Services Management Plan (CLISMP) was resubmitted and approved by BC EAO on April 10, 2019. A copy of the CLISMP was also shared with all Indigenous Groups the Project engages with. The CLISMP outlines key social performance mitigation measures related to potential direct impacts on the LNG Canada Project. This includes the establishment of the LNG Canada Social Management Roundtable (SMRs) with key provincial ministries and agencies as well as other local key stakeholder groups, including Indigenous Groups.

4.1. Workforce Programs

The LNG Canada Project has a Code of Conduct that every individual on the LNG Canada Project signs through the site orientation process. It states that everyone who works on site is personally committed to safety, quality, acceptable behaviours and attitudes, as well as respecting the community. Everyone is expected to be a project ambassador and violations of the Code of Conduct carry consequences, up to being barred from site.

Participation in the Cultural Awareness Program (CAP) is required for all workers on the LNG Canada Project site. During the reporting year, LNG Canada finalized its redesigned CAP for the LNG Canada Project. The program is led by Haisla Nation and includes a participation manual, which covers a wide range of topics including common terms, Indigenous peoples in Canada, a historical timeline, governance structures, First Nations involved in the Project, understanding local indigenous culture and spirituality, traditional knowledge, stereotypes and cultural appropriation. The redesigned Program was shared with all Indigenous Groups in December 2020 and materials included hard copies of the revised Participant Manual, the presentation that is given during CAP orientation, and where applicable, each Nation’s raw footage of the video that was shot for the CAP. In the revised CAP materials, LNG Canada reiterated its commitment to an adaptive management process for the LNG Canada Project and reminded Indigenous Groups that feedback on the Program was always welcome.

4.2. Public and Stakeholder Communications and Consultation Programs

LNG Canada and JFJV consult with public audiences on a range of topics, including Project management plans and permits. Consultation with local governments, agencies, interested residents, and other stakeholders was undertaken, as was the continuation of the LNG Canada SMR meetings.

Notification of consultation and public comment periods associated with permit and approval applications, are generally provided through local newspaper advertisements, on the LNG Canada and JFJV websites and Facebook pages, required Gazette advertisements, emails and face-to-face communications with key stakeholders, and through other forms of notification, to maximize participation and input. Online tools such as the LNG Canada and JFJV websites and social media platforms are used to communicate project information in a timely manner related to construction and news updates to stakeholders and the local community. Further information on the various types of public consultation activities undertaken during the reporting year is outlined in the following sections.

Due to COVID-19 and related provincial health orders, engagements with the public and Indigenous groups were less than in the previous reporting year; however, JFJV's Project Resource Centre (PRC) in Kitimat was open to the public from July 2020 to the end of December 2020, and then reopened in March 2021.

Public consultation, engagement, and construction communication topics in the reporting year include, but are not limited to:

- COVID-19 response.
- Business and employment opportunities.
- General LNG Canada Project information.
- Construction updates.
- Construction notifications:
    - Piling: April 14, and May 5, 2020.
    - Marine/waterways: April 20, April 29, May 5, and May 20, 2020; and March 31, 2021.
- Community Impacts:
    - Direct impacts were tracked through the CLIMSP's seven social management plans and discussed at the LNG Canada SMR meetings. The main community impact due to construction activities continued to be traffic related. These included driving behaviours, such as driving too fast or too slowly, and parking related issues. These were resolved through discussions with contractors and the District of Kitimat.

- COVID-19 concerns were addressed by LNG Canada and JFJV through updates on both websites, and by direct engagement with key stakeholders like the Haisla Nation, District of Kitimat, and the City of Terrace.

4.2.1. LNG Canada and JFJV Websites

LNG Canada and JFJV have websites (www.lngcanada.ca; www.jfjvkitimat.com).

Both websites provide information on the LNG Canada Project and the LNG industry. The websites allow LNG Canada and JFJV to communicate significant project events and milestones to the public and to keep them informed on Project progress and issues of relevance to the local community. Launched in October 2018, information on the JFJV website includes construction notifications, current employment opportunities with JFJV, its subcontractors and sub-subcontractors, as well as information on contract awards and upcoming contracting and procurement opportunities

LNG Canada and JFJV have links to their Facebook pages on the websites, which makes enables the public to follow LNG Canada and JFJV on social media. The LNG Canada website includes information on LNG Canada's environmental programs, including but not limited to, the IAAC Implementation Schedule. Wetland Compensation Plan, Fish Habitat Management Plan, and the Archeological and Heritage Resources Management Plan. The IAAC Annual Report and any supporting documentation is also accessible on the LNG Canada website.

During the reporting year, information was shared through 60 website posts on the LNG Canada and JFJV websites.

4.2.2. Social Media

In early 2016, LNG Canada launched its official Facebook community page and followed with Twitter and LinkedIn social media accounts. The purpose of the LNG Canada digital platforms is to engage with communities and share information on LNG Canada operations, events, and to provide the public with project updates and notifications. Currently there are 32,389 Facebook followers, 13,892 Twitter followers and 44,766 LinkedIn followers. The channels are monitored during regular business hours Monday to Friday in the Pacific Standard Time Zone.

In March 2019, the official JFJV Facebook community page was launched. The objective of the JFJV Facebook page is to keep local stakeholders and surrounding communities aware of LNG Canada Project and community related activities. Currently there are over 3,600 followers. The page is monitored Monday to Friday during regular business hours in the Pacific Standard Time Zone.

During the reporting year, information was shared through 163 posts on the LNG Canada and JFJV facebook pages.

4.2.3. InFocus Magazine

LNG Canada distributes the InFocus newsletter, via Canada Post once pear year to all residents in the Kitimat, Thornhill and Terrace communities as well as First Nations adjacent to the Project. The most recent issue of InFocus was distributed the week of May 3, 2021. InFocus provides information about LNG Canada's activities, upcoming events and opportunities to provide feedback. In addition to LNG Canada's InFocus newsletter, LNG Canada regularly places advertisements in local newspapers to provide project updates, including site activities and permitting processes, and to advertise opportunities for feedback. Currently, LNG Canada also advertises on local First Nations radio, CFRN, to ensure there is an understanding of the Project and local communities are aware of Project commitments.

4.2.4. Newspapers and Radio

Publications are made in print in local newspapers (i.e. Kitimat Northern Sentinel and Terrace Standard newspapers), the BC Gazette, and broadcasted on CFTK on a variety of different topics including, but not limited to:

- Permit amendment applications (i.e. OGC waste discharge authorisations, environmental protection notices).
- Notice of works
- Local holidays
- Project updates

4.2.5. Social Management Roundtables

In late 2018, LNG Canada paused the Community Advisory Group for the remainder of construction and began implementation of its CLISMP; which was approved by EAO on June 13, 2016.

The 2019 Annual CLISMP report was submitted to the BC EAO at the end of May 2020; the 2020 Annual CLISMP report will be submitted in the next reporting year.

On April 30, 2019, LNG Canada and JFJV held the kick of meeting for the SMR, which serves as the primary engagement platform to support CLISMP implementation. The SMR's focus is to provide LNG Canada Project updates and address community impacts, discuss mitigations, and share information. A wide range of service providers, multiple government agencies, municipalities and Indigenous Groups are invited to participate in the SMR alongside LNG Canada Project subject matter experts. A terms of reference was developed for the SMR and participants were given the opportunity to provide comments and input. Meetings continue to take place on a quarterly basis; summary reports

capturing monitoring trends and feedback are published quarterly online and shared with SMR participants after each roundtable.

Participants include community and provincial stakeholders as well as Indigenous Groups. The working groups share information on the seven social management plans in the CLISMP:

- Community Health
- Housing
- Emergency Response
- Traffic
- Education, Amenities and Utilities (every second quarter)

The SMR continued to meet virtually due to the COVID-19 pandemic as outlined below:

- The Q1 2020 SMR was held May 5, 2020 virtually. Three working group sessions were attended by 70 community and provincial stakeholders and Indigenous Group participants. Annual review and update of the SMR Terms of Reference was discussed during the session. A summary report capturing socio-economic monitoring trends and feedback from Q1 2020 SMR working groups was published online June 15, 2020 and shared with SMR participants.
- The Q2 2020 SMR was held September 15-16, 2020 virtually. Four working group sessions were attended by 85 community and provincial stakeholders, Project team representatives, and Indigenous Group participants. Highlights from the 2019 CLISMP Annual Report were shared with participants. A summary report capturing socio-economic monitoring trends and feedback from Q2 2020 SMR working groups was published online October 26, 2020 and shared with SMR participants.
- The Q3 2020 SMR was held December 8, 2020 virtually. Working group sessions were attended by 70 community and provincial stakeholders, Project team representatives, and Indigenous Group participants. A summary report capturing socio-economic monitoring trends and feedback from Q3 2020 SMR working groups was published online January 8, 2021 and shared with SMR participants.
- The Q4 2020 SMR took place February 23-24, 2021. Four working groups sessions were attended by 76 community and provincial stakeholders, Project team representatives, and Indigenous Group participants. A summary report capturing socio-economic monitoring trends and feedback from Q4 2020 SMR working groups was published online March 26, 2021 and shared with SMR participants.

4.2.6. Other Forums

In addition to the aforementioned, LNG Canada and JFJV provide LNG Canada Project updates through a variety of engagements with the public and relevant stakeholders through the following forums:

- Environmental forum meetings in May, August, and November 2020, and February 2021.
- Meetings, updates and site tours with the District of Kitimat staff and council:
    - Project update was given to the Mayor and Council of Kitimat on March 11, 2021.
    - Project update was given to the Mayor and Council of the City of Terrace on March 16, 2021.
- Bi-weekly calls continued through 2020 with the Mayor and Chief Administrative Officer of the District of Kitimat
- Regular engagements through monthly emails and discussions with local employment and education agencies.

4.2.7. Community Feedback Process

JFJV developed its Community Feedback Process to provide an open and transparent means for the community to raise questions and have them addressed in a timely and consistent manner. All feedback is tracked and responded to via the Community Feedback Mechanism managed by JFJV. During the reporting year, there were 2,875 public inquires submitted through the Community Feedback Mechanism in the format of calls, emails and visits to JFJV's PRC.

A breakdown of topics covered amongst the 2,875 public inquires include:

- 52% employment inquires
- 26% contract and procurement inquiries
- 2% complaints and concerns
- 20% general inquiries

The Community Feedback Process channels are staffed by JFJV and monitored during regular business hours (Monday to Friday), and all incoming community engagements are acknowledged within 48 to 72 hours.

Community feedback and grievances can be communicated to the Project via:

- Telephone: 1 250 632 5358 or 1 888 499 5358

- Email: info@jfjvkitimat.com
- In person: PRC, located at 234 City Centre Mall in Kitimat, with hours of operation from 8:30 a.m. to 4:00 p.m.

The Community Feedback Mechanism has been communicated to key stakeholders, including the District of Kitimat, the City of Terrace, Haisla Nation and other Indigenous Groups through various meetings, and is conveyed to all contractors through the pre-and-post contract award process. The Community Feedback Mechanism also tracks all noise complaints received. JFJV documents all grievances in StakeTracker, which is the database used to record engagements and communications.

4.3. Indigenous Group Consultation Programs

The LNG Canada Project continues to engage in consultation with Indigenous Groups regarding Project activities that may potentially impact Indigenous Rights and interests. In addition, the LNG Canada Project continues to undertake a range of initiatives to ensure that Indigenous Groups receive up-to-date information about the Project and have an opportunity to ask questions and provide feedback.

4.3.1. Aboriginal Consultation Plan

The LNG Canada Project continues to implement the BC EAO approved Aboriginal Consultation Plan (August 2013), which describes the processes and various methods used to engage and consult with Indigenous Groups throughout the environmental assessment, including ongoing engagement post Environmental Assessment Certificate (EAC). Underpinning the various consultation tools that are described in the Aboriginal Consultation Plan are the Senior Indigenous Relationship Leads for each Indigenous Group, who provide continuity of communications and a focal contact for all consultation that is related to the LNG Canada Project for all methods of communication (e.g. letter, email, phone, face to face, etc.).

Methods of engagement used to-date include, but are not limited to, face-to-face meetings, e-mails, phone calls, letters, community meetings, site-visits, quarterly project update meetings, and other methods that may be preferred or requested by individual Indigenous Groups through the consultation process. Each of these engagement tools provides an opportunity for ongoing information sharing and feedback regarding the Project. Engagements related to specific conditions are described under those sections of the report.

The LNG Canada Project will continue to implement the EAO Approved LNG Canada Aboriginal Consultation Plan (dated August 2013) for all phases of the Project. The next Aboriginal Consultation Summary Report is due one year after the commencement of Operations.

4.3.2. Participation Opportunities

In addition to formal Indigenous Group consultation as outlined in the Aboriginal Consultation Plan, the LNG Canada Project also offers numerous opportunities for Indigenous Groups to participate in the implementation of field environmental monitoring programs by participating in monitoring activities at site. Throughout the reporting year, members of the Haisla Nation participated in various monitoring activities at site, including fish and crab salvage, water quality sampling, and marine mammal observation.

The LNG Canada Project will continue to identify and provide opportunities for Indigenous Group members to participate in various monitoring activities (outlined in the environmental management plans) occurring in their respective traditional territory.

4.3.3. Regular Project Updates

During the reporting year, LNG Canada and JFJV conducted ongoing formal and informal engagements with Indigenous Groups. These included, but are not limited to the ongoing meetings with Haisla Nation and other Indigenous Groups related to permitting, business opportunities, and employment:

- LNG Canada and JFJV had bi-weekly permitting and compliance update meetings with Haisla Nation. Topics discussed in these meetings include upcoming permit applications that will require specific engagement with Haisla Nation (i.e. Water Sustainability Act Section 11 approvals); feedback on permit applications submitted to Haisla Nation for review; and discussion of compliance events that have been self-disclosed to Haisla Nation. Joint meetings with Haisla Nation and the regulators are also held as required as part of the permitting process (i.e. Facility Permit – Leave to Construct).
- LNG Canada developed and shared a Disposal at Sea (DAS) Fact Sheet 2020 and IL+ Fact Sheet with Haisla Nation and Gitga'at and had multiple discussions on dredging and DAS with both Indigenous Groups.
- Permitting updates with other local Indigenous Groups in April, May, October and November 2020; and April 2021.
- JFJV met with Indigenous Groups to provide quarterly updates on contracting and procurement opportunities in July and October 2020; and January and April 2021.
- JFJV met with Indigenous Groups to provide updates on employment in July and October 2020; and February 2021.
- LNG Canada met with Gitga'at monthly to provide marine related environmental and permitting updates.

- During regular project update meetings, LNG Canada provided Project construction and health and safety updates

4.4. Environmental Management Plan Consultation

The LNG Canada Project continues to engage with regulatory agencies and Indigenous Groups and provide updates on the development and implementation of management plans, through information sharing and formal reporting processes. The CEMP, MAP and supporting EMPs will be continually reviewed and revised as appropriate as part of LNG Canada and JFJV's approach to adaptive management.

In May 2015, LNG Canada began engagement with Indigenous Groups on the development of the CEMP and associated topic specific EMPs for construction, including:

- CEMP
- Air Quality Management Plan
- Noise Management Plan
- Fish Management and Monitoring Plan
- Vegetation Management Plan
- Invasive Plant Management Plan
- Wetland Compensation Plan
- Surface Water Management Plan (Construction)
- Wildlife Management Plan

During the reporting year, proposed changes in the CEMP, and supporting EMPs were offered for review to all Indigenous Groups, as well as named regulatory agencies under the EAC. This was the first major update to the EMPs since JFJV became the EPC, therefore there were changes proposed throughout the documentation to reflect how the environmental management program is implemented; as well as proposed updates to mitigation measures and monitoring program based on the lessons learnt during the past two years of execution.

All Indigenous Groups received a red-line (proposed changes) and "clean" version of the CEMP and Air Quality Management Plan (Construction) with an explanation memorandum and a "summary of

changes" spreadsheet that identified the proposed changes to the plans; with changes grouped into three categories:

- Administrative: Changes to grammar, spelling, formatting etc. that do not change the intent of the statement.
- Management System: Changes to the overall environmental management system, based on how JFJV executes major construction projects.
- Environment: Changes to an environmental aspect with regard to an avoidance, management or mitigation measure; or associated monitoring and reporting program. Changes to mitigation measures are categorized by: Regulatory Requirement; Project Requirement; or Recommended Approach.

Comments received from Indigenous Groups and named regulators will be included in a Consultation Comment Tracker (CCT), with each item responded to by the Project; then the CCT will be submitted to the EAO as part of the submission package (to be completed in the next reporting year).

A key proposed addition to each EMP is a new section that outlines the engagement and consultation process that will be used for all future changes to the EMPs, to provide greater transparency on the process used and consultation required for management plan changes. The LNG Canada Project incorporates adaptive management processes into the EMPs, which allows for mitigations to be modified in the field to ensure most effective environmental protections are in place.

There were no updates to marine EMPs during the reporting year.

4.5. Regional Participation and Cooperation

LNG Canada is committed to participating in regional initiatives related to a number of topics, as opportunities become available. During the reporting year, initiatives have included:

- LNG Canada continues to participate in the "Gitga'at-Gitxaala-Transport Canada Waterway Management Forum" under the umbrella of the Oceans Protection Plan (OPP) and sat on the Navigation Sub-Committee where they assisted in the development of the Draft Waterway Management Guidelines for the North Coast. The purpose of the forum is to create a space in which representatives from Gitga'at, Gitxaala, and potentially other First Nations in the area of interest, federal agencies and other levels of government, industry and marine stakeholders can share information, explore issues and develop recommendations for:
    - Minimizing vessel traffic impacts and conflicts with local Indigenous and public marine use and small vessel traffic activities (via enhanced marine traffic communications, etc.).

- Minimizing vessel traffic impacts and conflicts with marine mammals (via enhancing environmental monitoring and operational measures such as noise reduction, vessel speeds and routes).

- LNG Canada has committed to participating in the Kitimat Airshed Group and took part in discussions with working group members throughout 2020 to develop the Terms of Reference for the group. Now that the organization has been established, LNG Canada is actively participating on both the Governance Circle and Data & Network Review Committee.
- LNG Canada and Ocean Wise entered into a three-year agreement to support the expansion of Ocean Wise killer whale and humpback whale research programs on British Columbia's north coast. Through this collaboration, Ocean Wise researchers can carry out key conservation research projects and deliver science education programs to Kitimat and Terrace-area schools. Several meetings were held in 2020 and early 2021 to discuss the impacts of COVID-19 on the initial plans for the program's kick-off and how LNG Canada and Ocean Wise can continue the course to provide opportunities for communities to engage safely.

5. Fish and Fish Habitat

The landscape surrounding the Project contains a range of terrestrial, aquatic and wetland habitats that support populations of wildlife and fish. These ecosystems are important not only to the health of the natural landscape, but also to residents who rely on the environment for recreation and traditional use.

Several plans have been developed in consultation with regulatory agencies and potentially affected Indigenous Groups to mitigate any impacts to fish and fish habitat.

The LNG Canada *Surface Water Quality Management Plan* outlines mitigation measures pertaining to water quality and aquatic habitat that are implemented during construction. At a minimum, LNG Canada will:

- Minimize disturbed areas and stripping of vegetation and soils, where practicable, and maintain as much of the natural vegetation cover as possible
- Install erosion controls to prevent erosion and install detention ponds and other runoff management controls to prevent sediment migration to surface water bodies
- Ensure all discharges from the construction site meet regulatory requirements, including the *Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines for the Protection of Aquatic Life* and the *BC Approved Water Quality Guidelines*
- Ensure all construction equipment is mechanically sound to avoid leaks of oil, gasoline, hydraulic fluids, grease and other substances
- Ensure all diversions of water from excavations are controlled, and that they do not enter watercourses unless testing is completed, and all surface water criteria are met

Associated EMPs exist to support the *Surface Water Quality Management Plan*, including but not limited to the *Sediment and Erosion Control Plan* (refer to Section 5.4.4.1 for more information) and the *Fish Habitat Management Plan*.

Mitigation of impacts to fish and fish habitat are routinely considered during the design and construction of the LNG Canada Project. The effectiveness and use of mitigation measures to address these potential impacts are reviewed during both the planning and execution phase. In Q1 2021, a review of the mitigations in the EAC took place to ensure an adequate level of protection of fish and fish habitat is in place.

The RWI structure has incorporated several design features to ensure the protection of fish, including but not limited to the use of screens meeting DFO requirements. To reduce potential impact to the

Kitimat River, existing infrastructure is being upgraded / retrofitted to meet the needs of the LNG Canada Project.

The following section outlines further details related to the mitigation of impacts to fish and fish habitat:

- Fisheries Act Authorization Overview – Section 5.1
- Reportable Incidents – Section 5.2
- Marine Programs – Section 5.3
- Freshwater Fish and Amphibians Programs – Section 5.4

5.1. Fisheries Act Authorization Overview

The LNG Canada Project holds four authorizations under the Fisheries Act; three for freshwater (known as “FAA1”, “FAA2”, and “FAA3”); and one for the marine environment (refer to Figure 1). Each section below provides information on the approval, habitat creation (offsets) and current status of the effectiveness monitoring programs.

In consultation with DFO, BC Forests, Lands and Natural Resource Operations and Rural Development (FLNR), and affected Indigenous Groups, Habitat Offsetting Plans have been developed and implemented where applicable, as outlined in the associated FAAs. Key considerations when developing the Habitat Offsetting Plans included the habitat restoration priorities identified by Haisla Nation and other stakeholders via the Lower Kitimat Watershed Planning initiative, as well as fisheries management objectives identified in DFO’s Integrated Fisheries Management Plans. The LNG Canada Project has applied the following priorities in developing the Habitat Offsetting Plans:

1. In-kind habitat in the immediate vicinity of affected habitats, benefiting the affected fish species and life stages.
2. Out-of-kind habitat in the immediate vicinity of affected habitats, benefiting the affected fish species and life stages.
3. In-kind habitat in the same region as affected habitats (i.e. Kitimat River system, Kitimat Arm), benefiting the affected fish species and life stages.

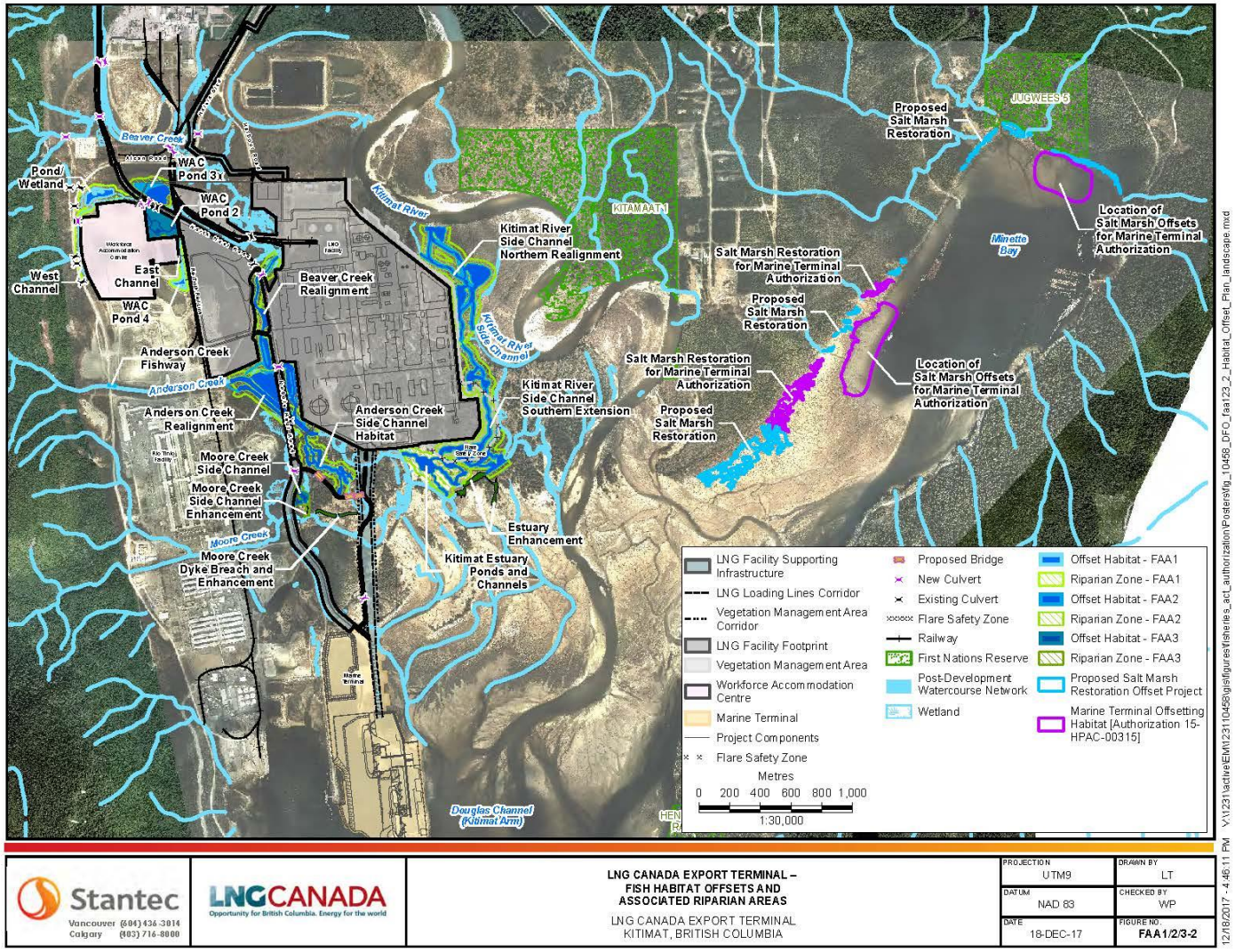

FIGURE 1: FISH HABITAT OFFSETS AND ASSOCIATED RIPARIAN AREAS

To facilitate the design and implementation of effective and supported offsets for the LNG Canada Project, LNG Canada has been consulting extensively with Haisla Nation regarding the habitat offsetting plans since 2013. Consultation with Haisla Nation has been (and continues to be) conducted through in-person meetings, workshops, conference calls, official memos and letters and email. Members of Haisla Nation have also participated in the field work to collect fish and fish habitat data on the Project site and at offsetting sites within their traditional territory.

LNG Canada's engagement with Haisla Nation has included discussions about potential effects to fish and fish habitat, avoidance and mitigation measures, as well as input on fish habitat offsetting measures. These discussions began in September 2013 on conceptual fish habitat offsetting measures and continued through development of current designs and submission of LNG Canada's FAA applications. Feedback from Haisla Nation was incorporated into the offsetting strategy for the LNG facility, including the development and refinement of offset designs.

5.1.1. FAA1 – Workforce Accommodation Centre

Fisheries Act Authorization 15-HPAC-00918 for the Workforce Accommodation Centre ("FAA1") provides the LNG Canada Project with authorization to construct CVL, which includes infilling of Beaver Creek wetland and off-channel watercourse habitats and clearing of riparian vegetation in and around said habitats. Specifically, the authorization allows for destruction of 27,082 m^2 of Beaver Creek wetland and off channel aquatic habitat and associated riparian vegetation from grubbing, clearing, excavation and infilling. The majority of the habitat created for FAA1 has been, and will continue to be, in the effectiveness monitoring period.

5.1.1.1. Construction Activities

Construction of offset habitats for FAA1 began in summer 2016 and was completed in December of the same year (refer to Figure 2). In 2017, it was determined that additional offsetting was required to meet habitat requirements under FAA1, resulting in the construction of WAC Pond 4 and Channel 3 Extension. A further assessment has determined that additional offsetting habitat construction is required; LNG Canada is continuing to work with required stakeholders to determine potential offset projects. No further works or modifications to the offsets has occurred in 2020.

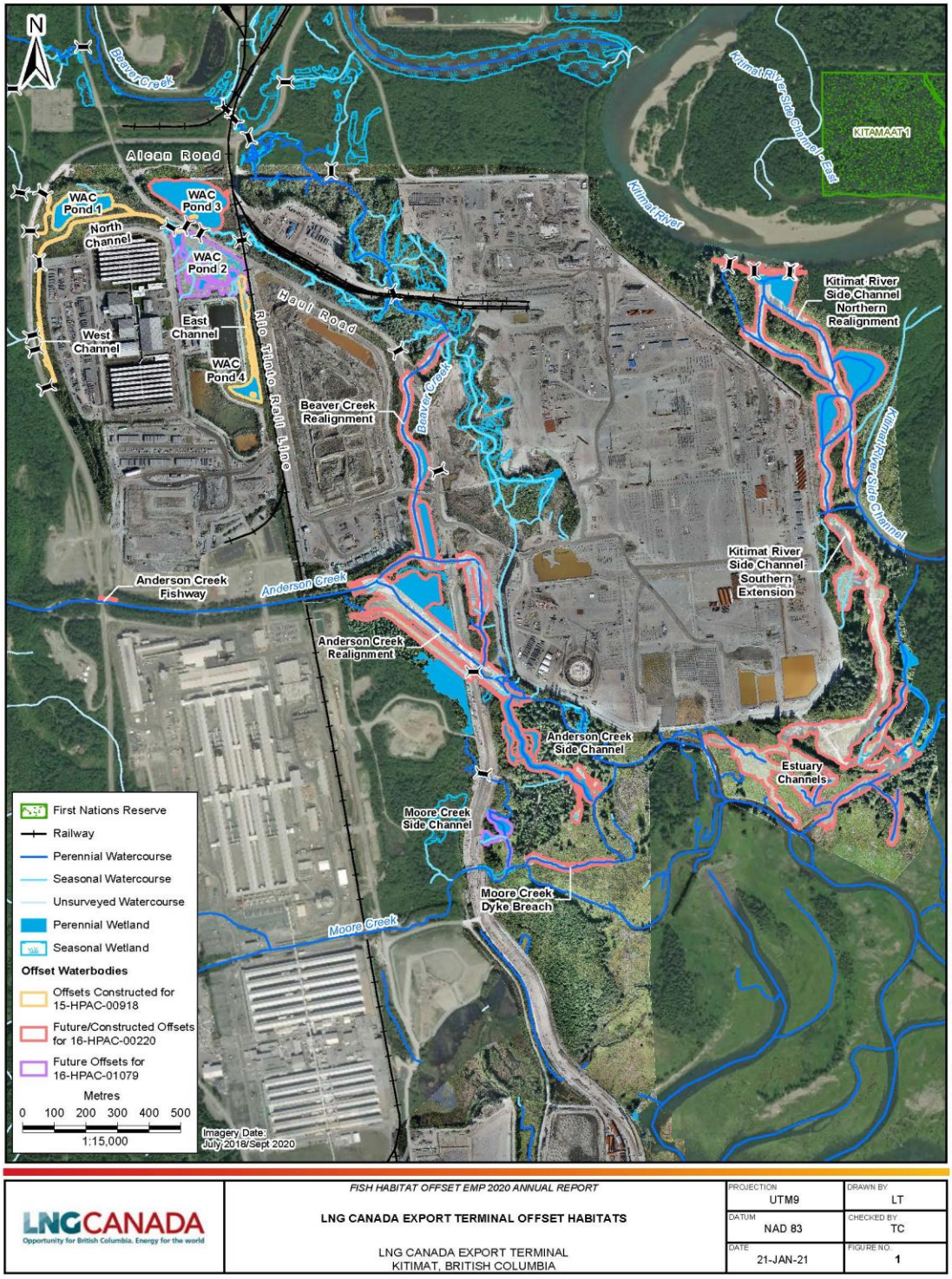

FIGURE 2: FISH HABITAT OFFSET HABITATS

5.1.1.2. Habitat Effectiveness Monitoring

The performance of the offset habitats improved for all components of the effectiveness monitoring program in 2020 compared to 2019 (Table 1). Improved fish access is anticipated in WAC Pond 4 and East Channel with the completion of WAC Pond 3 (a component of FAA 3 offsets). Effectiveness monitoring of the WAC fish habitat offsets will continue in 2022.

TABLE 1: SUMMARY OF 2020 FAA1 OFFSET HABITAT SUCCESS CRITERIA

Component	Measurable Parameter	Pond 1	Pond 4	East Channel	North Channel	West Channel
Physical Stability and Hydraulic Connectivity	Bank Stability	✓	✓	✓	✓	✓
	LWD – % functional	✓	✓	✓	✓	×
	Connectivity to mainstem habitats	✓	✓	✓	✓	✓
	Water depth	✓	✓	✓	✓	✓[1]
Water Quality	pH and DO	✓	✓	✓	✓	✓
	Temperature[2]	×	✓	×	✓	✓
Fish Utilization	Density (summer)	×	×	✓	✓	✓
	Relative abundance (summer)	×	×	✓	✓	✓
	Fish presence (winter)	✓	×	×	N/A	N/A
	Length frequency (summer)	×	×	×	✓	✓
Vegetation Monitoring	Riparian vegetation establishment: herbaceous	×	✓	✓	✓	✓
	Riparian vegetation establishment: shrubs and trees	✓	✓	✓	✓	✓
	Riparian vegetation function	N/A	N/A	N/A	✓	✓

NOTES:
[1] The HM station location in West Channel did not capture conditions in the upper half of West Channel. An additional station will be added in 2021.
[2] Temperatures were compared to the BC Water Quality Guideline for coho rearing temperature (BC MECCS 2019).

5.1.2. FAA2 – LNG Facility

Fisheries Act Authorization 16-HPAC-00220 for the LNG Facility ("FAA2") provides the LNG Canada Project authorization to construct the LNG Canada production facility, which includes the diversion of Beaver Creek, Anderson Creek and KRSC. Specifically, the authorization allows for:

- Clearing, grubbing, infilling and excavation of 216,580 m^2 fish habitat within and adjacent to Anderson Creek, Beaver Creek, Moore Creek, Kitimat River estuary and the KRSC; and
- Dewatering of 2,403 m^2 channel (K3) connecting the KRSC to the Kitimat River.

5.1.2.1. Construction Activities

Within the reporting year, authorized works associated with FAA2 occurred in KRSC south, Beaver Creek, Moore Creek and Anderson Creek. The re-alignment of Anderson Creek and re-alignment of Beaver Creek Phase 2 channel were competed (refer to Figure 2). The Anderson Creek Side Channel offset habitat was substantially competed with some minor works planned for the 2021 instream work window.

The Anderson Creek realignment footprint was comprised of a large beaver wetland and braided channels being fed from Anderson Creek and discharged via a culvert at the downstream end. With fish salvage completed in 2019, the focus in the first half of 2020 was completing the construction of the Anderson Creek main re-alignment channel and new module haul road bridge in anticipation of the least risk window. The least risk window for instream work in Anderson Creek is June 1 to August 15. In June 2020 a temporary diversion was installed to direct Anderson Creek into Beaver Creek phase 1, allowing the downstream modifications to Anderson Creek to be completed in isolation.

In August 2020 the realignment channel isolations were removed, and Anderson Creek was diverted down the new re-alignment channel. At that time Anderson Creek Pond 2 was also completed and connected to the main channel, while Anderson Creek Pond 1 continued to be constructed. In late August 2020, a large rain event caused high flows in Anderson Creek resulting in the inlet of Anderson Creek Pond 1 eroding and a large percentage of Anderson Creek flow diverted into the partially excavated Anderson Creek Pond 1. This diverted water flowed back into the main Anderson Channel at the construction outlet structure located in the southeast corner of Anderson Creek Pond 1. This increase in flow volume out of Anderson Creek Pond 1 resulted in substantial erosion of the main channel berm adjacent to the outlet structure. Equipment was quickly mobilized to repair the inlet to Anderson Creek Pond 1 and to ensure flows remained within the mainstem channel; the Anderson Creek Pond 1 outlet was repaired at a later date. During August and September 2020, various species of salmon were observed migrating upstream through the new Anderson Creek re-alignment channel.

The construction and monitoring of Anderson Creek Realignment Channel highlighted some successes and areas for improvement as summarized below (Table 2).

At the end of 2020, 100% of the authorized impact to existing fish and fish habitat under FAA2 associated with the Anderson Creek area was taken and 100% of the Anderson Creek habitat offset was complete and functional (Table 3).

TABLE 2: SUMMARY OF 2020 ANDERSON CREEK CONSTRUCTION -SUCCESSES AND CHALLENGES

Successes	Improvement & Challenges
• The tie-in / diversion of flows went smoothly and during the least risk window • Salmon migration through the realignment channel observed for multiple species • Interaction with adjacent wetland habitats proving effective in water balance • A very complex bridge construction was completed in time to meet diversion timelines • Field fitting of downstream lower channel to	• Bedload movement and accumulation within the constructed channels • Inlet / outlet of Pond 1 have eroded due to high flow events requiring rework • Culvert entering Pond 2 to be monitored for maintenance requirements and future flow adjustment if required • 2020 was an above average year for precipitation resulting in challenges with

maximize complexity and fish habitat	water management and construction

TABLE 3: 2020 ANDERSON CREEK CONSTRUCTION -AUTHORIZED IMPACT TO FISH AND FISH HABITAT AND OFFSET CONSTRUCTED VALUES

Area	Authorized Impact (m^2)	Authorized Impacts Taken (m^2)	Constructed (m^2)	Completion Status (%)
Anderson Creek	80,112	80,112	39,080	100

The ACSC tree clearing and access construction commenced in September 2020. An isolation berm was installed at the downstream extent of the offset area to isolate channel construction from high tides. Channel construction began in early October focusing on the downstream main and off channel habitats. As sections of the offset were completed, the isolation berm was moved further upstream, resulting in a staggered approach to connecting the habitat once built. At the end of 2020 approximately 75% of the offset was completed (Table 4).

TABLE 4: 2020 ANDERSON CREEK SIDE CHANNEL CONSTRUCTION - AUTHORIZED IMPACT TO FISH AND FISH HABITAT AND OFFSET CONSTRUCTED VALUES

Area	Authorized Impact (m^2)	Authorized Impacts Taken (m^2)	Constructed (m^2)	Completion Status (%)
Anderson Creek Side Channel	300	300	11,700	75

The construction of the new Beaver Creek re-alignment channel, culverts and subsequent diversion were of primary focus for the LNG Canada Project in 2020, with construction starting in March 2020 focusing on the middle section and Culvert 2. By late June construction had started on the upstream inlet, Culvert 1 construction and habitat complexing within completed sections of channel. The diversion of Anderson Creek in mid-August allowed construction to progress in the lower section channel (the lower section of the new Beaver Creek channel was constructed in the Anderson Creek channel) and to begin work on Culvert 3. To accelerate the diversion of Beaver Creek and allow salvage of the original channel prior to winter, a temporary diversion was constructed around Culvert 3. This diversion directed flows above Culvert 3, into Anderson Creek Pond 1 and was completed on October 4, 2020 (refer to Photo 9).

With Beaver Creek flows diverted down the re-alignment channel, salvaging commenced on the old Beaver Creek. A pump was instituted at the north end, enabling flows to be slowly reduced and assisting in salvage activities while ensuring water quality was maintained. As salvage was completed, areas were isolated, dewatered and infilled, with the final habitat area salvaged and infilled by early December. With the completion of Culvert 3 on November 24, 2020, the temporary diversion into Anderson Creek Pond 1 was removed and the Beaver Creek flow was diverted into the final constructed re-alignment channel.

The construction and monitoring of Beaver Creek highlighted some successes and areas for improvement as summarized below (Table 5).

At the end of 2020, approximately 100% of the authorized impact to existing fish and fish habitat associated with the Beaver Creek area was taken (Table 6).

TABLE 5: SUMMARY OF 2020 BEAVER CREEK CONSTRUCTION -SUCCESSES AND CHALLENGES

Successes	Improvement & Challenges
• The tie-in / diversion of flows went smoothly and during the least risk window • Salmon migration through the realignment channel observed • The temporary diversion around Culvert 3 functioned well, allowing salvage to occur prior to winter. • Field fit of inlet resulted in reduced impact to natural channel.	• Diversion into Anderson Creek Pond 1 caused increased backwatering which increased challenge with final flow tie-in • Fish salvage was very complex with groundwater quality constraints and difficult and unsafe ground conditions; including danger trees. • ESC along haul road and soil stockpile into new offset challenging to prevent / restrict sediment delivery to creek • 2020 was an above average year for precipitation resulting in challenges with water management and construction.

TABLE 6: 2020 BEAVER CREEK CONSTRUCTION - AUTHORIZED IMPACT TO FISH AND FISH HABITAT AND OFFSET CONSTRUCTED VALUES

Area	Authorized Impact (m^2)	Authorized Impacts Taken (m^2)	Constructed (m^2)	Completion Status (%)
Beaver Creek	77,045	77,045	48,087	100

PHOTO 9 – ANDERSON CREEK RE-ALIGNMENT (SEPTEMBER 2020)

In 2020 the salt marsh restoration offsetting efforts in Minette Bay (off-lease) were completed. The work consisted of restoring 50,000m^2 of existing salt marsh by removing an excessive level of large woody debris from the habitat. The removal of this material is anticipated to improve fish access and utilization of the natural salt marsh habitat.

An additional component of the FAA2 offsetting requirements was the completion of a complementary measure consisting of an Oolichan research study. In 2020 a small component of this program was initiated, while the larger scientific study was being developed and contracted to the responsible parties. Although not all aspects of the 2020 scope could be completed due to Covid considerations, the Oolichan Traditional Ecological Knowledge and Oolichan habitat mapping was initiated and advanced.

In June of 2020, the Anderson Creek Fishway had the annual maintenance completed to ensure the fishway was ready for migrating salmon species. A large rain event in August rendered the fishway ineffective during low flow periods. To improve the success of this offset a design review was initiated in 2020, with planned modifications scheduled for the 2021 work window.

5.1.2.2. Effectiveness Monitoring

Effectiveness monitoring for the reporting year consisted of Moore Creek Dyke Breach, Anderson Creek Fishway, WAC (CVL) Pond 2 and KRSC North. A summary of the 2020 effectiveness monitoring for the FAA2 offsets can be found in Table 7. The remaining offsets constructed in 2020 will enter their associated effectiveness monitoring periods in 2021.

TABLE 7: SUMMARY OF 2020 FAA2 OFFSET HABITAT SUCCESS CRITERIA

Component	Measurable Parameter	ACFW	MCDB	KRSCNR	WACP3
Physical Stability and Hydraulic Connectivity	Bank Stability	N/A	✓	✓	✓
	LWD – % functional	N/A	✓	✓	✓
	Connectivity to mainstem habitats	N/A	✓	✓	✓
	Water depth	N/A	✓	✓	✓
	Spawning habitat	N/A	N/A	×	N/A
	Pool depth	N/A	N/A	✓	N/A
Water Quality	DO	✓	✓	×	×
	pH	✓	✓	✓	✓
	Temperature[2]	✓	✓	✓	×
Fish Utilization	Density (summer)	N/A	✓	×	×
	Relative abundance (summer)	✓	✓	×	×
	Fish presence (winter)	N/A	N/A	✓	N/A
	Length frequency (summer)	✓	✓	✓, × [1]	✓
	Spawner escapement	×	N/A	N/A[2]	N/A

NOTES:
[1] KRSCNR length frequency was successful in mainstem habitats but not in wetland habitats
[2] Spawner escapement trends in KRSCNR will be evaluated in 2021

5.1.3. FAA3 – Supporting Infrastructure

Fisheries Act Authorization 16-HPAC-01079 for Supporting Infrastructure ("FAA3") provides LNG Canada with authorization to construct supporting infrastructure for the LNG Facility such as the loading line. FAA3 includes the diversion of off channel habitat of Moore Creek and destruction of off channel habitat. Specifically, the authorization allows for

- Destruction of 4357 m^2 instream fish habitat in tributary to Moore Creek; and
- Destruction of 1324 m^2 of wetland and off-channel habitat in a tributary to Beaver Creek.

5.1.3.1. Construction Activities

FAA3 work activities in 2020/21 included the South Heavy Haul Road (SHHR) and RWI. The SHHR was widened to facilitate future transportation of modules from the off-loading facility to the main LNG facility site. In the summer of 2020, a sheet pile cofferdam was installed around an existing intake structure in the Kitimat River during the least risk window. Once the area was isolated, works to upgrade the structure commenced and will continue in 2021. The offsetting habitats associated with

FAA3 (WAC Pond 2 and MCSC) were fully constructed in 2020 and available for fish use (refer to Figure 2).

Construction of WAC Pond 2 began in late September 2020, with initial efforts consisting of fish salvage crews assessing the area and planning their salvage methodology. In order to increase the efficacy of the salvage, a reduction in water levels in the existing wetland was required. A sandbag dam was removed at the inlet of the existing outlet culvert. As water levels were lowered, fish salvage commenced and crews worked to ensure fish were not stranded in the margins. A pump around was established to control water inputs from upstream sources, maintain downstream flows, and allow for more effective instream construction. Reducing riparian clearing was a priority for the offset construction and was achieved by constructing the heavy equipment access trails along the future offset channel alignments and then excavating channels on way out. When the offset development was completed in late November, the isolation fencing and pump around were removed. The new habitat was allowed to naturally fill with water and flow through a constructed outflow channel into an offset channel completed another authorization. A steel flow control plate was installed on the existing outlet culvert ensuring water levels in the WAC Pond 2 were maintained while still allowing water to flow through the culvert during floods. At the end of 2020, 100% of the authorized impact to existing fish and fish habitat associated with WAC Pond 2 construction was taken and 100% of the Pond 2 habitat offset was active (Table 8).

TABLE 8: 2020 CVL POND 2 CONSTRUCTION - AUTHORIZED IMPACT TO FISH AND FISH HABITAT AND OFFSET CONSTRUCTED VALUES

Area	Authorized Impact (m^2)	Authorized Impacts Taken (m^2)	Constructed (m^2)	Completion Status (%)
Beaver Creek WAC (CVL) Pond 2	1,324	1,324	15,118 (High flow)	100

In mid-September 2020, a downstream earthen berm was constructed to isolate the offset area from high tide and a clean water pump around installed. This was immediately followed by dewatering of the work area and a complete fish salvage. In mid-October 2020, most of the habitat construction was completed with the downstream isolation berm removed. An upstream berm remained in place until late November when a flow tie-in could be completed with confidence that upstream habitats would not dewater due to ongoing works upstream of the area. At the end of 2020, 100% of the authorized impact to existing fish and fish habitat associated with the area was taken and 100% of the MCSC habitat offset was active (Table 9).

TABLE 9: 2020 MOORE CREEK SIDE CHANNEL CONSTRUCTION - AUTHORIZED IMPACT TO FISH AND FISH HABITAT AND OFFSET CONSTRUCTED VALUES

Area	Authorized Impact (m^2)	Authorized Impacts Taken (m^2)	Constructed (m^2)	Completion Status (%)
Moore Creek Side Channel	5,061	5,061	3,529 (High Flow)	100

5.1.3.2. Effectiveness Monitoring

Within the reporting year, no effectiveness monitoring associated with FAA3 occurred. With the completion of the required offsets in late 2020, it is anticipated that effectiveness monitoring will commence in 2021.

5.1.4. FAA – Marine

Fisheries Act Authorization 15-HPAC-00585 for Marine ("FAA Marine") provides LNG Canada with authorization to construct the LNG carrier berths, early offloading facility and MOF which includes the infilling of intertidal and subtidal habitat, dredging of intertidal and subtidal habitats, clearing of riparian vegetation and installation of sheet and pipe piles. Specifically, the authorization allows for:

- Destruction of intertidal habitats including 67,455 m^2 of salt marsh, 250 m^2 of eelgrass and 26,615 m^2 of mudflat; and
- Permanent alteration of intertidal habitats including 46,279 m^2 of mudflat and 12,864 m^2 of vegetated rocky intertidal.

5.1.4.1. Construction Activities

Mitigation measures outlined in the FAA and related application were adhered to during the dredge season, including the application of the September 1 – February 28 extended dredge window and construction of the MOF and Berth combi-wall. A qualified EM was present during all in-water construction activities and dredging. Overall, the in-water work activities went well, with challenges being encountered during the removal of the old degraded sheet pile wall and subsequent replacement installation. Temporary isolations were installed; however, with the large changes in tidal elevations and storm surges, adjustments were made to prevent further incidents. Further information on the marine program is provided in Section 5.2.

In early 2020 the bulk earth works and rock apron associated with the construction of the Minette Bay North salt marsh was completed. In the later part of 2020, works began on the Minette Bay South salt marsh with anticipation of work carrying over to 2021. Concurrently to the construction of the salt

marshes, large woody debris that was built up on the surrounding salt marshes was removed. Planting of the two marsh habitats will commence in 2021.

5.1.4.2. Effectiveness Monitoring

Within the reporting year no effectiveness monitoring associated with the Marine FAA occurred. With the completion of the required offsets in 2021, it is anticipated that effectiveness monitoring period will commence in 2021/2022.

5.2. Reportable Incidents

During the reporting year, there were nine reportable incidents associated with the Fisheries Act and the Project Fisheries Act Authorisations between May and November 2020 (refer to Table 10). All incidents were reported in line with the regulatory reporting requirements. The events occurred in both the marine environment and fresh water (including the temporary tank pad pond and Moore Creek).

As noted in Section 3.4.4, incidents are investigated to identify corrective actions and potential changes to mitigation measures. Several key findings from these events include, but are not limited to:

- Each of the incidents typically had different causes (rather than reoccurring events); therefore, the identification and implementation of adaptive management is key to manage the changing site conditions.
- Mitigation measures for one environmental aspect can have an unintentional impact to another environment aspect. For example, the placement of ESC measures (i.e. a silt fence to limit sediment entering the waterway) can become a risk for fish stranding when the water levels rise. From this, the LNG Canada Project now removes ESC measures where it has the potential to harm or kill fish ahead of high waters etc. and is re-installed when suitable.
- JFJV began conducting focused Environmental Risk Assessments for work scopes that posed potential risks to fish and fish habitat. For example, risk assessments were conducted during the planning of the RWI Pipeline, KRSC South and Kitimat Estuary offset scopes. EWPs were developed based on the risk assessments.
- JFJV also developed a Fish Habitat Focus Assessment and the FAA Focus Assessment to monitor compliance with mitigations during work affecting freshwater fish habitat. The FAA Focus Assessment is conducted weekly. The Environmental Specialists communicate any deficiencies to the subcontractor and track the deficiencies to closure on the action log.

TABLE 10: SUMMARY OF REPORTABLE EVENTS ASSOCIATED WITH FISHERIES ACT AND FAAS

Line #	Date	Area	Event Summary
1	13-May-2020	Marine Berth	While conducting a routine inspection of the job site, the silt curtain was observed to have become entangled on rip rap after a day of high winds. Upon further investigation, four (4) deceased salmon smolts (2 coho and 2 chinook) were observed; and four (4) live salmon smolts were released to water.
2	6-Jun-2020	Marine Berth	Four (4) deceased fish were found behind pre-existing sheet pile wall at Berth 2 (two dolly varden, 1 shiner perch and 1 sculpin). Presume that the fish entered through the holes in existing sheet pile quay wall and were stranded.
3	10-Aug-2020	Beaver Creek (Former Tank Pad Pond)	Up to ten (10) deceased threespine stickleback were observed in an isolated pool within the remnant B2 watercourse (associated with Beaver Creek, near the LNG Storage Tank pad).
4	20-Sep-2020	Moore Creek Side Channel	Six (6) fish were stranded in Moore Creek which resulted in the mortality of (3) three three-spine stickleback (the other three live fish were released to water). Presume that the fish got stranded due to the ESC measures (poly, geofabric) during the high tide (plus concurring rainfall event).
5	20-Sep-2020	Marine Berth	Seven (7) deceased shiner perch were found behind the pre-existing sheet pile wall; presume fish accessed the area during king tide through sand bag berm and holes in existing sheet pile wall, and were stranded.
6	30-Sep-2020	Beaver Creek oxbow	Historic oxbow of Beaver Creek was isolated for fish salvage to facilitate earth works activities. Approximately 250 to 500 deceased smolts/fry observed in the isolated water body. In situ water quality monitoring indicated low levels of dissolved oxygen. The area had been recently mulched and large storm event deposited significant quantity of fine organic matter into water.
7	11-Oct-2020	Moore Creek Side Channel	Eight (8) deceased Coho were observed in a tributary to Moore Creek. Fish were observed struggling in the waters; therefore an aerator was installed to improve dissolved oxygen levels and prevent additional fish mortalities.

Line #	Date	Area	Event Summary
8	29-Oct-2020	Moore Creek Side Channel	Ten (10) deceased juvenile Coho were observed in a constructed fish habitat pond in the tributary of Moore Creek. An overnight high tide had resulted in fish moving upstream to the base of a recently installed plug in the Moore Creek side channel, and being stranded as the tide receded.
9	15-Nov-2020	Former Tank Pad Pond	Approximately 6,000 to 7,000 deceased threespine stickleback were observed. It is not known how the threespine stickleback came to be in the former tank pad pond, given the pond had been isolated from Beaver Creek and fish salvaged, and was then completely dry in the summer of 2019; this is unique to this species, as other fish species have not been found in the pond. After reviewing various potential causes, it remains unknown what caused this mortality event. The pond was subsequently salvaged of fish (threespine stickleback), dewatered and in-filled.

5.3. Marine Program

5.3.1. In-Water Construction Activities

The Marine EMPs address environmental mitigations and monitoring requirements for marine in-water construction, including but not limited to mitigations related to water quality, sediment quality, underwater acoustics, marine mammal observation and management, and management of dredgeate for disposal onshore and at sea (refer to Section 3.2.2).

Prior to the start of in-water construction activities, LNG Canada established the location and timing of sensitive life stages and habitat occupancy for fish, including marine mammals, in consultation with DFO and Indigenous Groups through the Fisheries Act Authorization permitting processes. As per FAA 15-HPAC-00585 for the marine construction scope, the timing window of least risk for dredging activities during the reporting year was from September 1 – February 28 extended dredge window.

Prior to and during marine in-water construction, a robust field environmental monitoring program was implemented to ensure compliance with water quality guidelines and to prevent incidents related to marine mammals. The monitoring programs implemented during the reporting year are outlined in the approved MMP, and are summarized below.

Effectiveness of timing window implementation is undertaken as part of the LNG Canada EM program and related assurance activities, in particular support of qualified professionals during in-water works to ensure that species present are predicted and risk is managed. LNG Canada Project priority is to make all reasonable efforts to complete the works in the specified timing windows established. If in-water works must occur outside such timing windows, the Proponent works with DFO and Indigenous Groups to determine any additional mitigation measures required to complete such works.

5.3.1.1. Dredging

On September 1, 2020, LNG Canada's third marine construction season opened and dredging related activities in the LNG Canada dredge pocket commenced, including.

- Crab salvage
- In water works to remove obstacles and debris from the LNG Canada dredge pocket, including removal of existing dolphins and buried woody debris.
- Dredging of IL+ material (which is material above the Contaminated Site Regulation Industrial Land Use criteria) and disposal in an authorized off-site facility. This activity was completed November 20, 2020.

- Dredging of IL- material (which is material below the Contaminated Sites Regulation Industrial Land Use criteria) and disposal in the Dredge Disposal Site (DDS). This activity was completed November 20, 2020.
- Dredging of DAS material and disposal at the permitted DAS site. This activity commenced December 18, 2020 and was completed February 4, 2021.
- Associated activities related to personnel transport, barge transport, and management of vessel movements.

PHOTO 10 - MARINE WATER QUALITY SAMPLING – DP1 SITE, JANUARY 22, 2021

5.3.1.2. Marine Construction Activities

In water construction works for the MOF continued with piling for the North and west MOF, as well as the quay wall for Berth 2. Construction of the MOF and Berth 2 involved impact pile driving. Wherever possible, the use of the vibratory hammer was used, as it was identified as a mitigation in the Environmental Assessment process for piling. Vibratory hammer piling typically generates Sound Exposure Levels of approximately 10dB to 15 dB less, and does not produce the high impulse signatures of impact hammer piling.

The LNG Canada Project used the impact hammer on all 165 piles that were driven in water in order to achieve the required depth. Vibro-hammers were typically used for approximately the first 14 meters and then impact piling was utilized due to geotechnical reasons and when rejection of the vibro-hammers was encountered. In instances where the use of the vibro-hammer is not feasible, the use of bubble curtains and double soft starts were utilized to minimize or eliminate adverse effects to

cetaceans and fish. Soft starts consisted of gradually increasing the hammer power over time, this allowed fish or mammals to vacate the area prior to conducting full-power piling activities.

The Marine FAA does not have a restricted work window for piling activities. Mitigation measures focused on isolation of work areas with a physical barrier (e.g., silt curtain) with the objective to reduce fish mortality by preventing or deterring fish from entering the work area. For the in-water piling program, bubble curtains and silt curtains were used as a mitigation measures to reduce fish mortality. In addition, the MMO and environmental specialists actively assessed bird feeding activities and possible fish surfacing/spawning.

5.3.2. Water Quality

Water quality is monitored during dredge and marine construction related activities to ensure compliance with BC Approved Water Quality Guidelines as outlined in the MMP.

5.3.2.1. Dredge Season

Numerical modelling indicated that at a distance of 300 m from the edge of the dredging pocket, Total Suspended Solids (TSS) will meet marine water quality guidelines (i.e. a change from background of 25 mg/L TSS at any one time for a duration of 24 hours in all waters during clear flows or in clear waters). Therefore, 300 m is the initial compliance point for TSS during dredging activity. Similarly, numerical modelling indicated that at a distance of 500 m from the edge of the DAS site, TSS will meet marine water quality guidelines. The compliance line for DAS activities is therefore 500 m.

A tiered monitoring approach was implemented during dredging to evaluate potential impacts to water quality, and subsequent disposal of the dredged material at sea. Tier 1 monitoring characterized plume behavior, in both space and time, at both the dredging and disposal at sea locations using acoustic (i.e. sound-based) tracking technology. Plume tracking measured the movement of the suspended sediment plumes, in terms of both where they go and how long it takes for them to dissipate to background levels. Water samples taken from within the plume as it moves away from its source were used to measure concentrations of any contaminants associated with the suspended sediment and to characterize how these concentrations change with time or distance. Plume tracking and confirmation of plume movement was completed in Season 2, and the results were used to determine the location of Tier 2 monitoring buoys for dredge Season 3. These buoys are equipped with a suite of sensors to provide continuous (e.g., hourly or less) automated measurements of turbidity and other parameters at a distance of 300 m from the edge of the dredging pocket.

There were seven exceedances of water quality guidelines at the compliance lines during dredging or disposal at sea activities within the reporting year. Three were total cadmium, total copper, and total suspended solids exceedances at DP2 bottom on December 21, 2020 due to inadvertently allowing the rosette sampler to touch bottom (thereby disturbing sediments) during sample collection.

Three were total copper, total suspended solids, and turbidity exceedances at DP2 bottom on January 10 and January 15, 2021. These exceedances were caused by dredging at the southern extent of the dredge pocket, where the final cut caused suspended material to migrate down a steep slope towards the DP2 monitoring station. One exceedance for turbidity occurred at DP1, which was confirmed by increased in situ monitoring to be due to natural weather conditions. Due to the short nature and limited extent of these events, it was determined that there was no adverse environmental impact.

5.3.2.2. Marine Construction Activities

There is a waste discharge authorization associated with discharges from MOF and Berth 2 construction activities (as referenced in the MMP), issued by the BC OGC. There were three self-disclosures of exceedances of water quality guidelines and/or the permit conditions within the reporting year, between November and December 2020. The incidents were related to elevated discharges of TSS. All incidents had short duration periods as discharge to the environment was discontinued upon discovery.

5.3.3. Marine Mammals

The LNG Canada Project employs low sound methodologies such as vibratory piling wherever feasible. In instances where the use of low sound vibratory piling is not feasible, use of bubble curtains is implemented. A key mitigation to manage this risk is the establishment of the Marine Mammal Monitoring Program to observe marine mammals' location, movement patterns, and behaviors and communicate requirements to stop work in the event that a marine mammal enters the exclusion zone.

The LNG Canada MMP defines the monitoring and mitigation measures related to marine mammal protection and establishes a monitoring program, overseen by a QEP, that includes the deployment of qualified Marine Mammal Observers (MMO) at strategic locations within the Project site.

Experienced QEPs are employed as full-time MMOs to monitor during in water activities, both during the day and at night. Qualified MMOs have the ability to identify marine mammal species possibly encountered in the Project area, accurately describe relevant behaviour of marine mammals and accurately estimate the location of the individual in relation to any marine mammal exclusion zone (MMEZ) boundaries.

The MMP defines the required MMEZ for activities where underwater noise levels are anticipated to exceed 160 dB at a reference pressure of one micropascal; however this requirement was updated in the IAAC Amendment.

The number and location of MMOs, as well as the applied mitigative measures to be taken, is dependent on the activity being undertaken (i.e. pile driving, MOF construction, dredging, etc.).

If a marine mammal is observed within the MMEZ, the MMO assesses the behaviour, location, and direction of travel of the animal. The MMO also notifies operators to limit non-essential movement of auxiliary vessels, reduce speed to no-wake speed, and avoid the path of the sighted animal(s). Work only resumes once the animal is observed leaving the immediate area or is not re-sighted for 30 minutes.

MMOs monitor the project boundaries as defined in the MMP, as well as in water works adjacent to the Project site. Marine mammal observations are conducted with the naked eye, with the assistance of binoculars during daytime observations, and with Forward-Looking Infrared (Radar) technology for nighttime observations.

Effectiveness monitoring is undertaken for underwater noise through the field environmental monitoring program as outlined in the MMP, including collection and analysis of noise and pressure readings during piling activities at the monitoring and exclusion zones. For pile-driving, a near-field over-pressurization hydrophone is placed within 10 meters of the activity to ensure pressures do not exceed 30 kilopascals. Additionally, far field instruments monitor underwater levels prior to, during and after pile driving activities. That information is tabulated and reported monthly to regulatory agencies and identified Indigenous Groups. The MMO program supports effectiveness monitoring by documenting all marine mammal sightings and related stop work orders. Any change in behavior is also noted by qualified MMOs.

5.3.3.1. Dredge Season

During dredging, vessel-based MMOs were present on dredge and disposal related vessels (transporting material to the permitted DAS location) to ensure that dredging activities were visible and identified exclusion zones were visible.

MMEZ boundaries for dredging during the reporting year were defined as 300m for all mammals except harbor seals and immediate vicinity for harbor seals.

During the third dredge season, observations of marine mammals in and around the LNG Canada Project included:

- 658 observations of one or more marine mammals in the MMEZs.
- Mitigation measures included three (3) shutdowns and 28 notifications to barge master or vessel captain, which may be for awareness, to reduce speed, or to practice avoidance.
- Observations consisted of 21 stellar sea lions and 637 harbor seals, one (1) unidentified pinniped and five (5) unidentified cetaceans (observations included one or more individuals).

In-water activities, including dredging, disposal or vessel movement activities, were stopped once during the third dredge season due to Stellar sea lion presence in the vicinity of a dredge barge. No marine mammal incidents occurred within the reporting year.

5.3.3.2. Marine Construction Activities

The MMEZ boundaries for the reporting year were defined as 1.9 km for activities that produce underwater noise exceeding 160 dB. Delayed starts or stop work orders occurred 71 times due to marine mammal presence within the MMEZ. These stoppages occurred between June and December 2020, with a peak of 40 stoppages in September 2020. No marine mammal incidents occurred within the reporting year.

Effectiveness monitoring is undertaken for underwater noise through the field environmental monitoring program as outlined in the MMP, including collection and analysis of noise and pressure readings during piling activities. Observations related to impacts on fish are also made through the LNG Canada EM program and related assurance activities.

5.4. Freshwater Fish and Amphibian Program

During construction activities, the LNG Canada Project is committed to avoiding and mitigating impacts to fish and fish habitat. The LNG Canada Project *Sediment and Erosion Control Plan*, *Fish Habitat Management Plan* and Fisheries Act Authorizations outline requirements to protect freshwater fish habitat at the Project site during construction. Refer to Section 5.1 for further details in FAA1, FAA2, and FAA3.

5.4.1. Isolation of Construction Activities

Planning for isolation of construction activities from the adjacent freshwater fish habitat is done during construction sequencing and related schedule planning. Often, this isolation is driven by requirements around erosion control and/or fish salvage activities. Isolation techniques include use of appropriate fish fences, sand bags, earthen berms or sheet pile installation.

Isolation structures ranged in size from netting fences and sandbag dam construction by hand (sandbags) to sheet pile coffer dams constructed with large cranes and hydraulic piledrivers. Earthen berms were also used to isolate areas such as fisheries offsetting habitat development sites that had the potential to flood during high river flows and/or extreme high tides.

Whenever isolation structures were overtopped, or otherwise failed, it was assumed that fish could be present in the flooded work areas. Consequently, flooded areas were re-sampled for fish and a complete fish salvage was conducted if fish were found. Once the isolation structures were re-established and the flooded areas re-salvaged of fish, construction work re-commenced.

Effectiveness of isolation measures is assessed as part of the LNG Canada Project EM program and related assurance activities. In addition to the EM program, the effectiveness of isolation of fish habitat is also assessed while undertaking associated fish salvage activities.

5.4.2. Fish Salvage and Relocation

During the reporting year, fish salvage and relocation occurred during the isolation of various waterways to support diversions (Anderson Creek, Beaver Creek, KRSC and Moore Creek) and site preparation activities. During the reporting year an approximate total of 541,561 fish were salvaged from the salvage areas. Fish species varied depending on the habitat types salvaged, and included salmonids, Stickleback and Lamprey. Under the direction of fisheries QEP, all salvaged fish were released into habitat of a similar type and quality, with consideration of future construction and salvage efforts to minimize double handling of fish species.

The majority of the project fish salvage efforts occurred during the summer and fall of 2020 with extensive salvage supporting Anderson Creek and Bever Creek work activities. Site based fish salvage staff peaked in the fall with 10 salvage crews and four foreman/supervision staff (approximately 34 staff) per rotation. To successfully complete the salvage activities crews had to work in very challenging conditions (e.g. wet, mud, heavy rains) for long hours to support the work (refer to Photo 11).

PHOTO 11 – FISH SALVAGE ACTIVITIES

The fish salvage efforts are expected to decrease substantially in the next reporting year, as site preparation, creek diversions and habitat off setting were mostly completed in 2020. Areas where

there is a potential for fish salvage in the next reporting year include the RWI Pipeline, KRSC South, Kitimat Estuary and Trestle. Due to construction planning and sequencing it is expected that planed fish salvage in 2021 will be a small fraction of that in 2020.

To reduce impacts to crab during dredging, crab species were salvaged from the dredge pocket prior to commencing work. All salvaged crab were released to areas not impacted by marine construction. A total of 155 crabs were salvaged and relocated prior to dredging.

PHOTO 12 – FISH SALVAGE ACTIVITIES

5.4.3. Amphibian Salvage and Relocation

During the reporting year, amphibian salvage and relocation occurred during the isolation of various waterways to support diversions, and site preparation activities. Approximately 379,127 amphibians were salvaged, which included Western Toad and Northwestern Salamander. All salvaged amphibians were released into habitat of a similar type and quality, with consideration of future construction and salvage efforts to minimize double handling of species.

Amphibian salvage frequently occurred with fish salvage activities; it is expected that amphibian salvage in 2021 will be a small fraction of that in 2020.

PHOTO 12 – AMPHIBIAN SALVAGE ACTIVITIES

5.4.4. Supporting Activities

5.4.4.1. Erosion and Sediment Control

ESCs are installed to isolate construction activities from adjacent freshwater fish habitat and protect surrounding vegetation, as well as to reduce soil erosion from raindrop impact and surface runoff of stormwater. A variety of ESC techniques are implemented as needed, including but not limited to silt fencing, straw wattles, riprap, geosynthetics, seeding, ditching and contouring. Effectiveness of the implementation of ESC measures are regularly monitored and adjusted in the field as needed.

The LNG Canada *Sediment and Erosion Control* EMP outlines the environmental management requirements related to ESC during early works, construction and pre-commissioning. Among other things, the Sediment and Erosion Control EMP:

- Identifies regulatory requirements, stakeholder and project commitments related to erosion and sediment control and protection of surface water;
- Identifies project activities and potential environmental effects associated with ESC; and
- Identifies mitigations required to prevent erosion and control sediment during construction activities.

The Sediment and Erosion Control EMP provides information on the best practise and standard methods for ESC.

The Project has implemented several ESC controls during early works and construction, including sediment fencing, straw wattles, sediment booms, berms armoured with rip rap, sediment bags on discharge hoses, and geosynthetic blankets. The LNG Canada Project has also utilized settling ponds, where appropriate. Seeding of slopes and disturbed areas is undertaken as soon as practicable after construction and contouring the ground to minimize surface water flow is undertaken as required.

To verify the ESC mitigations are effective and in working order, the following assurance activities are undertaken as part of the EM Program (refer to Section 3.4):

- Daily water quality monitoring by Environmental Specialists downstream of the construction activities to ensure that turbid water is not impacting aquatic habitat;
- Daily ESC inspections conducted by applicable subcontractors;
- Regular focus inspections conducted by JFJV Environmental Specialists; and
- Weekly joint assurance walks conducted with LNG Canada, JFJV and contractors.

If issues are detected downstream of the construction site, construction activities upstream are suspended or reduced until the situation is properly assessed and additional ESC mitigations measures are installed as necessary.

ESC was a primary focus in 2020, and particularly challenging due to the amount of earth moving activities associated with site development, offset construction, road traffic, combined with the level of precipitation experienced. Each season brought different weather and challenges associated with the success of ESC; although most work scopes and areas experienced success and positive results, lessons were learned both from incidents and environmental inspections in 2020 (refer to Table 11).

A general area of concern during the reporting year was along the South Haul Road. As part of the adaptive management approach, a temporary Haul Road Committee (including engineering, construction, and environment) was formed to trouble shoot and identify improvements to ESC along the Road, given the proximity to several waterways. During the Fall of 2020 and Spring 2021, ongoing improvements were made to support construction activities. In addition, during and following heavy rainfall events, ESC was inspected by JFJV Environmental Specialists and Construction; and observed issues actioned by the Project.

The LNG Canada Project continues to implement ESC best practise and standard methods during all phases of the project. Lessons learned and adaptive management is applied as required to ensure effective functioning of controls.

TABLE 11: SUMMARY OF 2020 EROSION AND SEDIMENTATION SUCCESSES AND OPPORTUNITIES FOR IMPROVEMENT

Successes	Opportunities for Improvement
• Installation of sheet pile bund wall around plant site minimizing exposure to plant site erosion and sedimentation • Utilizing pre-existing natural channels and wetlands within the isolated site footprint for water management • Although several areas around offset construction required tree clearing, topsoil and root structure were maintained • Sequencing and timing of the various scopes maximized least risk windows and reduced risk to surrounding habitats • Armouring and geotextiles were utilized in many areas as new construction fronts were opened to reduce erosion potential • Revegetation from natural soils and seed placement reduced erosion risks along reclamation areas and offset construction • Timing of seeding and riparian planting proved effective in establishing growth • Through adequate survey and construction methods, was able to minimize exposed slopes • Proactive water segregation, direct discharge of non-turbid water while directing construction impacted water to the site water management network. • Pump discharges rarely had issues and were generally in good condition.	• Prioritization of proactive planning versus reactive action. • Maintaining and cleaning both roadways and bridges of accumulated sediment. • Responsiveness to improving and maintaining mitigations; shorten time from observation to action being completed • Utilizing passive water management (ditches) that helps drop sediment out of suspension versus active pumping. • Planning future works and controls around a wet year, as seen in 2020, versus an optimistic dry year. • Snow storage management, site selection and spring runoff considerations.

5.4.4.2. Vegetation Management

The LNG Canada *Vegetation Management Plan* outlines mitigation measures pertaining to red and blue-listed plants and communities. Construction activities undertaken in the reporting year did not impact red and blue-listed plants and communities.

Clearing was limited to areas within the project footprint and no non-compliance events occurred related to freshwater fish and fish habitat in association with vegetation removal (refer to Section 7

for clearing self-disclosures related to migratory birds). Vegetation waste was mulched and no opening burning occurred during the reporting year. Vegetation adjacent to creeks was stockpiled for reuse in the planting season to support vegetation growth.

LNG Canada revegetates disturbed riparian areas as soon as practicable after construction, with consideration to a number of factors including weather, Project construction schedule and activity sequencing. The timing and location of riparian planting is dictated by fisheries offset completion, as authorized under the various FAAs (refer to Section 5.1). Riparian re-vegetation success associated with Fisheries Authorizations offsetting measures is monitored and reported within the respective authorizations' effectiveness monitoring reports. Within the reporting year effectiveness monitoring was completed associated with both Fisheries Act Authorizations 15-HPAC-00918 (FAA1 for the WAC) and 16-HPAC-00220 (FAA2).

6. Wetlands

The LNG Canada Project is committed to mitigating adverse effects on wetland functions that support migratory birds, species at risk, and the current use of lands and resources for traditional purposes by Indigenous Groups. In BC, wetlands designated as ecologically important to a region are defined by Environment and Climate Change Canada as the following:

- Provincially red – (threatened or endangered) and blue-listed (of special concern) wetland ecological communities
- Estuaries, as identified by the Pacific Estuary Conservation Program
- Areas of continental or regional significance to waterfowl within the Habitat Joint Venture planning boundaries of BC (e.g., estuaries in the Pacific Coast Joint Venture delivery area)
- All eelgrass (Zostera subspecies) beds

Approximately 49 hectares of ecologically important wetlands occur within the Project footprint. Five wetland classes (estuarine, fen, marsh, swamp and open shallow water) are represented, including red-listed and blue-listed wetlands (eelgrass beds are addressed within the DFO Marine FAA for intertidal habitats).

Compensation is considered the third element of the mitigation hierarchy, following avoidance and minimization of adverse effects. Complete avoidance of wetlands is the preferred alternative when wetlands are designated as ecologically or socio-economically important to a region. Due to the extent of wetlands in the Project footprint, feasible alternatives to completely avoid wetlands were not be identified.

6.1. Wetland Protection Mitigations

The LNG Canada Project commits to mitigation measures to minimize and manage adverse effects on wetlands with the Project footprint and adjacent to it. These mitigations are included in project EMPs, and include, but are not limited to the following:

- Maintenance of hydrology during construction activities to the extent practicable
- Maintenance of wildlife passage during construction activities by limiting fencing, phasing construction activities and maintaining riparian vegetation where practicable
- Installation of collector ditches to divert surface water from the construction area to sedimentation ponds prior to release

- Design to maintain tidal flow-through the LNG loading line using raised infrastructure and breaks, which also allow stream and surface flow to continue
- Delineation of clearing boundaries prior to site preparation to keep clearing activities within the designated Project footprint
- Reclamation of temporary workspace as soon as practicable
- Implementation of the LNG Canada *Sediment and Erosion Control Plan* to manage surface water and avoid sedimentation to adjacent vegetated areas or wetlands
- Implementation of the LNG Canada *Invasive Plant Management Plan* to ensure eradication of invasive plants
- Implementation of the LNG Canada *Surface Water Management Plan* to address stormwater collection, treatment and disposal during construction
- Development and implementation of the LNG Canada *Wetland Compensation Plan* to address loss of wetland habitat function

Construction activities undertaken in the reporting year adhered to the applicable mitigations listed above.

Prior to undertaking any clearing activities, clearing boundaries are delineated based on Issued for Construction (IFC) drawings. All boundaries are flagged, and verification of clearing boundaries is completed by walking the perimeter of the flagged area prior to commencement of work. During clearing activities, construction crews are actively monitoring to ensure that delineated boundaries are adhered to and that any vegetated buffer zones are maintained.

All areas disturbed to create temporary workspace are reclaimed as soon as practicable. ESCs are installed prior to construction activities that could result in migration of sediment to adjacent vegetation or surface water bodies. Detailed information on mitigations related to ESC is available in Section 5.4.4.1 of this report.

Within the reporting year, LNG Canada completed the annual adjacent wetland assessment, and no adverse effects to adjacent wetlands resulting from construction were identified.

6.2. Wetland Compensation Plan

The LNG Canada Wetland Compensation Plan, developed in accordance with the EAC and the IAAC Decision Statement, defines the actions LNG Canada will take to provide compensatory wetlands at a minimum 2:1 ratio (refer to Figure 3).

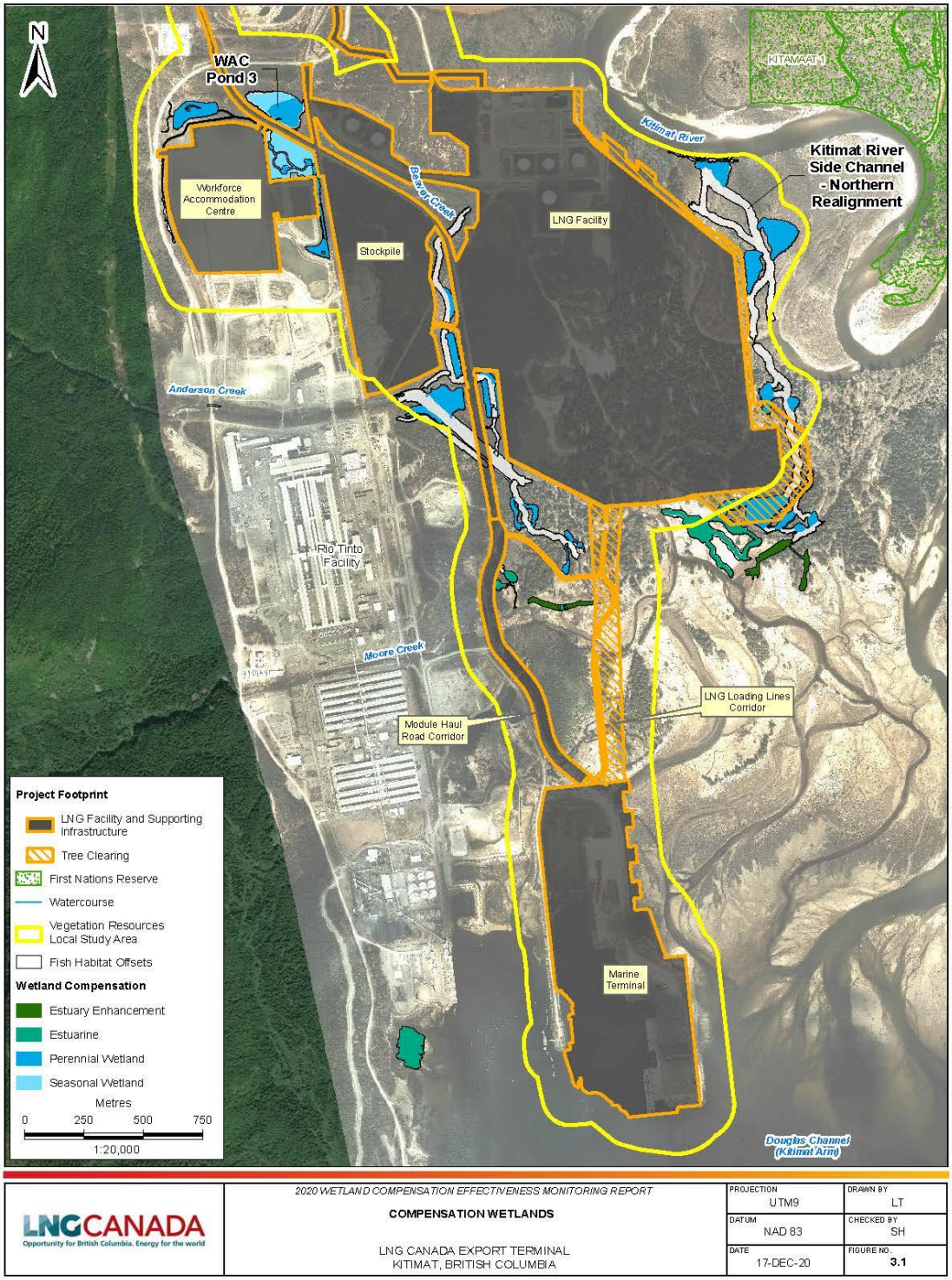

FIGURE 3: COMPENSATION WETLANDS

The objective of the Wetland Compensation Plan is to implement wetland compensation measures as close to Kitimat as possible with wetlands that reflect a similar wetland type and functions to those that are lost. If reasonable and practical options for restoration, enhancement and/or creation of wetlands are not available locally within the Kitimat Valley area, then localized land conservation opportunities will be planned.

The Wetland Compensation Plan was submitted to the EAO in July 2015, following consultation with Environment and Climate Change Canada/Canadian Wildlife Service (ECCC/CWS), FLNR, and Indigenous Groups and prior to the commencement of construction. As LNG Canada continued consultation with these groups and continued to refine the implementation approach for the Wetland Compensation Plan, it was subsequently revised in May 2018 and August 2019, and the updated plan was shared with Indigenous Groups and pertinent regulatory agencies in June 2020.

No additional updates took place during the reporting year. The LNG Canada Wetland Compensation Plan is available on the LNG Canada external webpage.

6.2.1. Implementation and Effectiveness Monitoring

The Wetland Compensation Plan will be implemented iteratively per the surveyed areas of wetlands identified for compensation within five years of the start of construction (November 15, 2020). Monitoring will be conducted prior to and during construction to detect potential unanticipated loss of wetland functions on site and adjacent to the project footprint. Where any unanticipated loss of function occurs, additional mitigation measures will be developed and applied. Where unanticipated residual losses occur in ecologically important wetlands, these areas will be compensated for in a similar manner as the compensation for the lost wetland functions outlined in the Wetland Compensation Plan.

In 2020 a large percentage of the compensation wetlands were constructed and operational by years end (refer to Figure 3). These habitats are components of the fisheries offsetting program around the project site and off lease; WAC (CVL) Pond 2 & 3, Anderson Creek off-channel ponds, ACSC ponds, KRSC North ponds, Minette Bay and Hospital Beach salt marshes, MCSC and Beaver Creek off-channel ponds.

Approximately 30 ha of additional offsetting will be completed through wetland protection. In 2020 significant efforts occurred in selecting, baselining and starting required agreements to secure the additional offset area. It is anticipated that this will continue in 2021.

LNG Canada has developed an effectiveness monitoring program to ensure that wetland compensation measures are fulfilling the functions of the wetlands they are replacing, which includes the following:

- Compliance monitoring to ensure compensatory habitats are constructed or protected in accordance with the Wetland Compensation Plan
- Effectiveness monitoring to ensure that restored, enhanced and/or created wetlands are functioning as intended after construction and/or all protected wetland habitats and conservation buffers continue to function as predicted
- Adaptive management actions to promote long term performance of habitat

Monitoring will occur in year one, and in years three, five, and ten after compensation at the sites is completed.

Within the reporting year, two wetland habitats, WAC (CVL) Pond 3 and KRSC North, underwent effectiveness monitoring. No major management issues were observed during the Year 1 (2020) surveys. None of the wetlands were lacking in wetland hydrology or hydrophytic vegetation and all appeared to be physically stable. Water quality at all wetlands was within the CCME guidelines for aquatic life. Vegetation establishment and cover was as expected within the first year of implementation. Subsequent years' monitoring will continue to assess the wetlands' hydrologic, biogeochemical, and habitat functions, and associated reporting will include observable trends in the results.

7. Migratory Birds

The LNG Canada Project is committed to implementing the Project in a manner that protects wildlife, including migratory birds and their habitat. Mitigations to support this commitment are outlined in the LNG Canada *Wildlife Management Plan* and the LNG Canada *Raptor Management Plan*. The *Environment Canada Avoidance Guidelines* to reduce the risk of incidental take of migratory birds, nests and eggs, was considered in the development of these plans and continues to be considered during execution of construction activities.

QEPs, including an Avian Biologist as required, are on site or available during construction activities to support the LNG Canada Project and provide guidance on avoiding harm. Mitigations to avoid impact to migratory birds include, but are not limited to the following:

- Reduction of light and noise pollution where feasible
- Adherence to timing and restricted activity window requirements, including bird breeding periods and species at risk periods
- Adherence to provincial and federal setback distances for migratory bird and raptor nests

Annually between March 25th through August 17th, the LNG Canada Project implements mitigations to reduce impact to migratory bird breeding and nesting habits. From January 1st through September 5th annually, mitigations to avoid impact to breeding and nesting raptors are implemented.

Under the guidance of a qualified QEP, the following mitigation hierarchy is implemented:

1. Where possible, tree clearing and ground disturbance activities take place outside of identified bird breeding periods
2. Where tree clearing and disturbance activities must take place within bird breeding periods, areas for clearance will be prioritized based on habitat risk evaluation
3. Bird surveys are conducted where timing restrictions cannot be met
4. If nesting is determined, required setbacks and mitigations will be implemented under the direction of a qualified avian biologist

A mitigation matrix (refer to Figure 4) is followed to determine appropriate mitigation efforts that consider the disturbance level and nesting potential.

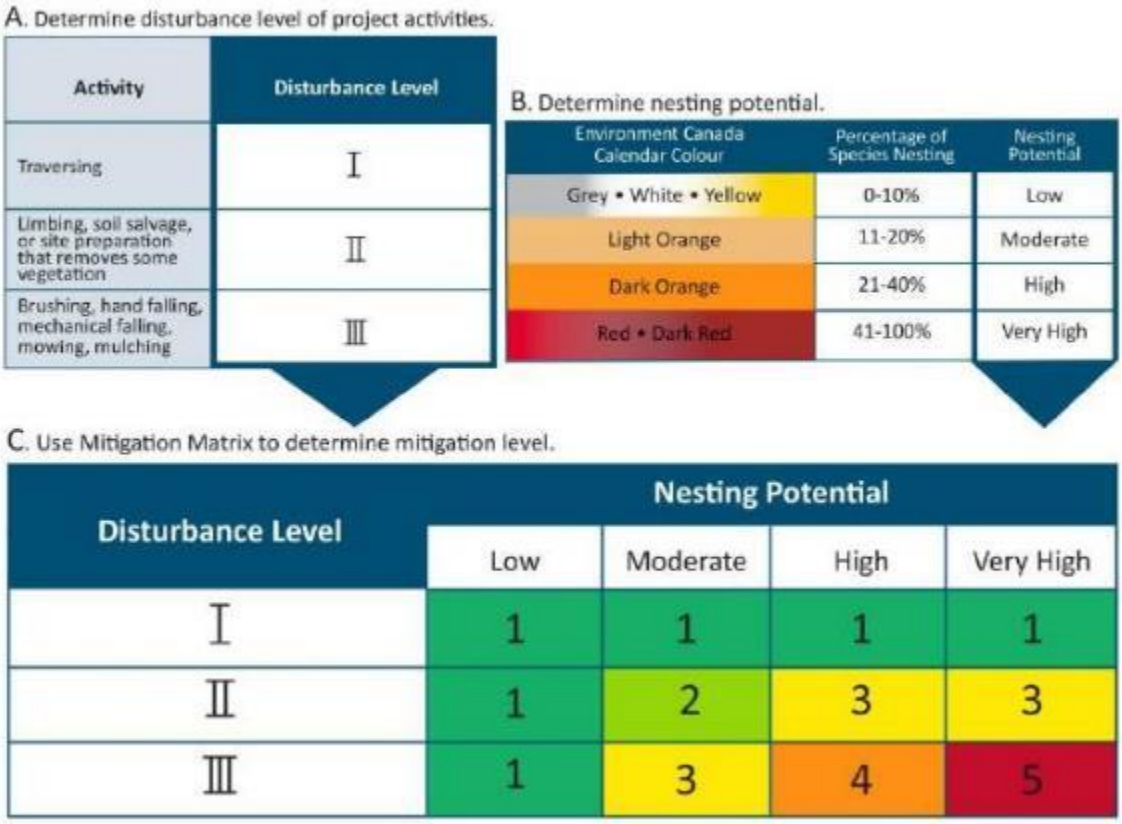

FIGURE 4: MIGRATORY BIRDS MITIGATION MATRIX

The LNG Canada Project made efforts to clear as much land as possible outside of the breeding bird window to alleviate disturbance to migratory birds. Some associated vegetation removal was necessary to be conducted in the breeding bird nesting period. LNG Canada completed pre-disturbance bird surveys to ensure that no potentially active nests were present within the active construction area. Bird surveys were conducted by an QEP based on site maps and survey information related to the active construction area. When an active nest is identified, barrier tape is installed to indicate a buffer area (“no-go” zone). The QEP determines appropriate buffer distances following accepted practice.

The QEP prepared a report on bird survey results daily for LNG Canada, which included a map of identified buffer zones. Construction progress and related active nests and buffer zones were also tracked daily. Regular inspections were undertaken to identify potential active nests on idle construction equipment. If active nests are found on equipment or infrastructure, buffer zones are identified as described above.

After tree clearing activities, the QEP conducted regular checks to assess whether mitigations are working. This includes inspection to ensure no broken eggs or destroyed nests are evident. Active nests are monitored from a distance to confirm and track the status and ensure that construction activities in the vicinity do not impact nesting or fledging. The buffer can only be removed once the QEP has determined that the nest is no longer active and no other nests exist.

During the reporting year, 290 pre-disturbance bird nest surveys were completed for the LNG Canada Project, and 139 active nests were identified. No confirmed incidental take of migratory birds or their active nests took place during the reporting year; however, three self-disclosures occurred as described in Section 7.3.

7.1. Osprey

In the first quarter of 2021, a bald eagle was observed adding building material to the nesting platform constructed by LNG Canada in 2017. Minimal eagle activity was noted in or near the platform following the initial observation and it is not believed that eggs or young were present in 2021. No raptor activity was noted on either of the two nesting platforms constructed on Terminal B in 2019.

7.2. Marbled Murrelet

Marbled murrelet surveys were completed for the LNG Canada Project site in 2014 and 2015. Surveys were completed in late May, early June, early July and late July to obtain an accurate picture of habitat use and associated marbled murrelet nesting activity.

If vegetation clearance was required during the nesting season in marbled murrelet habitat identified as being ‘potential marbled murrelet critical habitat’ or ‘high and moderate suitability marbled murrelet habitat’, a pre-disturbance nest survey was undertaken as described in Section 7 of this report.

During the reporting year, no potential high and moderate marbled murrelet habitat was removed, as this was completed in the previous reporting year, outside of the marbled murrelet breeding period. LNG Canada does not anticipate any further clearing of old growth forest within the potential marbled murrelet habitat.

Minor clearing of vegetative re-growth in previously logged areas is expected within the mapped boundary of the murrelet habitat. All reasonable efforts were made to complete the clearing outside of the migratory bird window. Migratory bird surveys were completed for any areas of vegetative re-growth that required clearing within the migratory bird breeding window.

7.3. Reportable Events

There were three self-disclosures to ECCC/CWS between May and June 2020 related to migratory birds:

- Two events were associated with unauthorized vegetation clearance, with one event due to stripping vegetation in an area not covered by a valid bird survey (noting previous survey had not found any bird nests present), and the second event due to clearing an area where only a partial survey had been performed (follow-up monitoring by the avian specialist confirmed that there was no incidental take of a bird or bird nest, however there was the potential).
- One event was associated with a potential incident take. A nest was identified, the hen showed signs of distress and work ceased, additional monitoring of the nest occurred during which the EM noted the nest was abandoned and no longer active.

The Project discussed the events with CWS. As a result of these incidents a number of improvements were made to the avian program including:

- Standard Operating Procedure updates
- Development of a pre-clearing checklist
- Update to including accurate maps and GPS locations for survey requests
- Holding kick off meetings with crews to communicate activities, and mitigations
- Updated JHA for the work scope

Ongoing monitoring continues using Avian QEPs to protect birds and bird nests while supporting construction activities.

8. Human Health

The LNG Canada Project is committed to reduction of noise and air emissions during Project activities, and takes steps to implement mitigations as appropriate.

The LNG Canada Project applies best management practices for construction noise from the *British Columbia Oil and Gas Commission's Noise Control Best Practices Guidelines*. Best management practices are documented in the LNG Canada Project *Noise Management Plan*, which was developed in consultation with DFO, District of Kitimat and Haisla Nation. For activities taking place during the reporting year, the following mitigations were implemented:

- Traffic routing to avoid residential areas where possible;
- In-vehicle-monitoring-systems in project vehicles to monitor driving behaviours;
- Adherence to municipal noise requirements and restrictions, including use of engine brakes;
- Proper management of construction vehicles and equipment, including consideration of maintenance requirements, noise mufflers and use of rubber tires where practical and available;
- Undertaking construction activities, including pile installation, between the hours of 0700 and 2200, where practical;
- Implementation of a notification protocol to provide advance notice to residents of any planned substantial noise-causing activities at the LNG Canada site (refer to Section 4 of this report); and
- Use of dust control measures on site including road watering, sweeping, speed control mitigations, and seeding of stockpiles.

Notifications specific to noise included piling activities.

8.1. Noise Complaints

As outlined in Section 4.2.7 of this report, the LNG Canada Community Feedback Process was developed in consultation with Indigenous Groups and key stakeholders to track inquiries and complaints related to community concerns, including noise; and was transitioned to JFJV in the previous reporting year. The Community Feedback Process acknowledges all complaints within 48 to 72 hours.

There were six complaints received related to noise within the reporting year; three related to the bird deterrents being unintentionally deployed during night hours, and three related to potential piling noise from the RWI and the main plant areas.

All complaints were responded to quickly; the bird deterrents were evaluated and timing adjusted accordingly, and no additional mitigations were necessary related to the piling program.

8.2. Marine Water and Sediment Quality

The LNG Canada Project marine EMPs define minimum requirements and mitigations for marine work, including management and monitoring of marine water and sediment quality.

The MMP includes an assessment of risks and potential duration of any exceedances of the CCME Water Quality and Interim Sediment Quality Guidelines, and BC Approved Water Quality Guidelines and Working Sediment Quality Guidelines that could occur during dredging and other in-water construction activities. The marine EMPs identify mitigation measures to avoid such exceedances and reference notification protocols for any exceedances that do take place.

The marine EMPs identify mitigation measures to minimize sediment dispersion during in-water construction activities, such as project construction sequencing, consideration of metocean conditions and use of physical barriers as appropriate. Sediment and water quality monitoring were implemented in accordance with the MMP during in-water construction activities.

Haisla Nation received monthly water quality reports as defined in the MMP throughout the third season. The MMP also includes a program to confirm the human health risk assessment predictions from the baseline shellfish and groundfish tissue study that was conducted in 2015. During the reporting year, post-dredge season two sampling took place in the LNG Canada dredge pocket for shellfish and groundfish tissue.

9. Current Use of Lands and Resources for Traditional Purposes

The LNG Canada Project is committed to protecting archaeological and heritage resources that could be impacted by the Project.

An Archaeological Impact Assessment (AIA) was conducted as per the BC *Heritage Conservation Act* (HCA) *Heritage Inspection Permit (HIP) 2013-0149* to identify potential areas of archaeological or cultural significance prior to construction activities commencing.

Fieldwork was conducted from June to November 2013 and in April and May 2014 by a team of professional archaeologists and Haisla First Nation representatives. Within the Project site, 23 areas were identified with moderate to high potential for buried archaeological sites. Subsurface testing was undertaken at all of these shovel test locations (STLs). A total of 510 STLs and seven evaluative units were excavated. One archaeological site was identified in the course of the AIA fieldwork for the Project (GaTe5).

Alterations at the GaTe-5 area occurred within the reporting year, which involved sediment stripping and stockpiling of inspected site deposits at a temporary holding location, and then transportation of the inspected deposits to a permanent holding location (within the Project area). These activities were overseen by the qualified archaeologists per the site alteration permit requirements (issued by the BC OGC); and a final report submitted to the OGC and BC Archaeology Branch in November 2020.

9.1. Archaeological and Heritage Resources Management Plan

The LNG Canada Project has developed an *Archaeological and Heritage Resources Management Plan* in consultation with Indigenous Groups. The *Archaeological and Heritage Resources Management Plan* considers the BC Handbook for the Identification and Recording of Culturally Modified Trees and defines processes to follow to protect and preserve archaeological and heritage resources, and the procedure to follow in the event of a chance find of archaeological, cultural or heritage resources during construction. This plan was one of the EMPs that was revised during the reporting year and included in the engagement and consultation activities outlined in Section 4.3.

The *Archaeological and Heritage Resources Management Plan* outlines the following hierarchy of mitigations for archaeological or heritage resources that require protection, preservation or recovery:

1. Avoidance through partial redesign or redirection of construction activities, including implementation of setbacks, etc.
2. Protection and preservation of the site on a temporary or ongoing basis (e.g. concealment, access limitations, etc.)

3. Salvage or emergency excavation as a mitigating measure to recover and repatriate any materials or human remains as defined in a Site Alteration Permit

The *Chance Find Procedure* provides a summary of the types of historical, archaeological, paleontological, or architectural resources potentially present in the project area that may be encountered during construction, including rock art (e.g. pictographs), Culturally Modified Trees and Tree Art (e.g. bark stripping), surface features from former habitations (e.g. burned rock, fish traps), and artefacts (e.g. stone, bone).

If a chance find is discovered on the LNG Canada Project site during construction, work is stopped, and the area is delineated with barriers to prevent access and protect the resource. LNG Canada or JFJV will consult a professional archaeologist for guidance on further action. Further action may include confirmation that work can continue as planned, confirmation that work can continue under specific conditions, or confirmation that further assessment is required by a professional consulting archaeologist. All regulatory and Indigenous Groups will be notified as directed by the professional archaeologist.

One chance find event occurred in March 2021; a fragment of a plate that contained the manufacturer and date was discovered (Duraline Hotelware, manufactured in May 1955). It is likely associated with the historical Anderson Ranch, which was in the area the plate was found. The Project offered Haisla Nation and the local Museum the artifact but there was no interest from either party.

9.2. Marine Resources

To define procedures and practices for sharing information and facilitating communication with Indigenous Groups and other local marine users, a communication protocol was developed by LNG Canada and incorporated into the MATMP. The communication protocol was developed in consultation with regulatory agencies and Indigenous Groups and approved by EAO in February of 2018. The protocol includes processes for communicating the following:

- Location and timing of construction activities in the marine environment and location and timing of traditional activities by Indigenous Groups
- Safety procedures related to marine construction and operation, including navigation aids and updated navigational charts
- Locations of restricted navigation due to safety reasons
- Operational speed requirements
- Methods of providing feedback to LNG Canada on adverse effects related to navigation

During the reporting year, LNG Canada communicated marine traffic information to Indigenous Groups and marine users as per the MATMP. Key marine communications shared included:

- Weekly shipping schedules shared with all Indigenous Groups. Updated schedules are shared with Indigenous Groups during shipping period if information changes. A weekly schedule is also posted on the LNG Canada website.
- Vessels' AIS (Automatic Identification System) details provided for real time monitoring of vessels' positions and movements online.
- Communications to Indigenous Groups in advance of milestone shipping activities, such as the arrival of heavy lift vessels to site, the commencement dredging or piling activities, and the transport of IL+/- materials.
- Dedicated monthly marine activities meeting with Gitga'at throughout the year.

10. Emergency Preparedness and Response

Unplanned events can arise from accidents or malfunctions associated with Project activities, resulting in impacts to environmental, social, health, heritage or economic values.

The LNG Canada Project developed the LNG Canada Strategy for Communicating Accidents or Malfunctions (Construction) (C000-000-HX-6180-0005) in support of IAAC Decision Statement Condition 10.3. This document describes the types of accidents or malfunctions scenarios that require notification and the manner in which Indigenous Groups would be notified in the event of an accident or malfunction, as well as details of the points of contact for the LNG Canada Project and the respective Indigenous Groups.

Scenarios for potential accidents or malfunctions were identified in the Environmental Assessment. The Environmental Assessment considered the likelihood and consequence of the occurrence, and considered scenarios for each of the potential accidents or malfunctions, according to the likelihood of the scenario arising and the potential consequence or severity of the scenario arising. Credible scenarios applicable to construction are summarized in Table 12.

LNG Canada demonstrated emergency preparedness through the Marine Traffic Coordination Communication Protocol, a requirement under the MATMP. During the 2020-2021 dredging season LNG Canada maintained roles and responsibilities for marine traffic coordination, emergency and incident response and provided an overview for vessel scheduling, traffic reporting cycles, and communications during in water construction and vessel movements.

TABLE 12: ACCIDENTS AND MALFUNCTIONS

Accident of Malfunction Scenario	Applicability to Reporting Year
Spills of hazardous materials (not including LNG)	Applicable to construction
Explosion and Fire	Applicable to construction
Marine vessel grounding and collisions, including collisions with marine mammals and loss of cargo	Applicable to construction

Of the analyzed scenarios, a potential spilling of hazardous materials (not including LNG), fire or explosion, and vessel-related incidents as described apply during the current project construction scope. Incidents relating to loss of containment of LNG, LNG vessel incidents, and emergency facility shutdown cannot credibly occur during construction activities and are applicable to the operations phase of the Project.

No accidents or malfunctions took place during the reporting year.

10.1. Emergency Response and Notification

The LNG Canada Project emergency procedures are in place to ensure timely and effective decision making in the critical period during and following an emergency. The LNG Canada Project Emergency response framework contains a series of inter-related documents and manuals that outline the tools (plans, procedures and processes) and reference materials required to facilitate a prompt, safe, efficient and effectively managed response to all incidents resulting from LNG Canada construction regardless of size or complexity.

These incident management procedures are detailed in the Project's Emergency Response Plans (ERPs). The LNG Canada Project subscribes to the principles and processes outlined in the Incident Command System (ICS) structure.

The Core ERP is the foundation document of the LNG Canada Project emergency response process. The Core ERP sets the standards for emergency response and includes, but is not limited to, details for communication and planning of emergency response activities; description of ICS; roles, responsibilities; requirements and frequency of training and exercises; initial response actions and notification requirements; and general hazard and response procedures.

A site-specific ERP for construction activities has been developed that contains detailed information related to emergency response resources, notification requirements and modes of emergency communication. It contains plans for the most probable emergency scenarios including detailed information to support incident response, information on emergency response resources, notification requirements and modes of emergency communication.

The LNG Canada Project staff and contractors are trained to immediately respond to all spills by controlling and containing the release. Adequate spill response equipment is available on site to respond to *Most Likely* spill scenarios, and contractors are required to have adequate spill capabilities related to their scope of work and risk. The LNG Canada Project ensures that spill supplies are available in proximity to work being done.

The LNG Canada Project staff and contractors are required to report all incidents, including spills, to their supervisor as soon as reasonably practicable. Incident notification is escalated through the LNG Canada Project organization, and external stakeholder and regulatory notifications are completed.

All spill and incident reporting is conducted according to requirements under the Emergency Management Act, the Oil and Gas Activities Act and Impact Assessment Act. If an incident is deemed an *Accident or Malfunction* (as per Table 12), the LNG Canada Project will notify relevant federal and provincial authorities, and Indigenous Groups, as soon as possible.

All regulatory reportable spills and environmental incidents are documented. High-risk incidents will be investigated to determine root and contributing causes and identify corrective actions to prevent recurrence.

10.2. Communication Strategy

In early 2018, the LNG Canada Project developed the *LNG Canada Strategy for Communicating Accidents or Malfunctions (Construction)*, in consultation with Indigenous Groups, as required by IAAC Decision Statement Condition 10.3. The Strategy outlines the process for notifying Indigenous Groups, as well as contact information for reporting. Reportable scenarios and criteria are outlined in the Strategy for spills, explosion, fire and vessel collisions.

For spills of hazardous materials (not including LNG), IAAC and Indigenous Groups will be jointly notified of any spills that:

1. Are not contained within the Project footprint; or

2. Have potential to migrate off site (e.g. releases to waterbodies); or

3. Are not readily cleaned up or contained (i.e. incidents that trigger a larger response such as Incident Command System mobilization).

Any fire and explosion scenarios for the construction phase would, in all likelihood, be related to fuel storage on vessels and barges. For fires and explosions related to marine construction as outlined in the *LNG Canada Strategy for Communicating Accidents or Malfunctions*, IAAC will be notified and the affected Indigenous Group, based on location of the incident and traditional territory considerations, will be notified.

Collisions between vessels, or collisions between a vessel and a stationary object, within the Port of Kitimat that result in environmental damage will be jointly reported to IAAC and Haisla Nation.