

TERMS OF REFERENCE

REMEDIATION CONSULTANT SERVICES

For

**GREAT BEAR LAKE SITES REMEDIATION PROJECT,
NORTHWEST TERRITORIES**



**Prepared by: Northern Contaminated Sites Group
Public Works and Government Services Canada (PWGSC)
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**Prepared for: Contaminated Sites Program, NWT Region
Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)**



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1 GENERAL INFORMATION

As the custodian of most federal lands in the North, Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) has responsibility, through the Contaminated Sites Program (CSP), to manage a number of contaminated properties that are no longer maintained by the original occupant. CIRNAC's portfolio of contaminated sites in the North originated from private sector mining, oil and gas activities and government military activity dating back over half a century, many years before the environmental impacts of such activities were adequately understood. The Great Bear Lake (GBL) Sites project in the Northwest Territories (NWT) is one such example.

Works and Government Services Canada (PWGSC), on behalf of CIRNAC is inviting a proposal from your firm to provide technical consulting services in support of the final stages of remedial planning, as well as to manage, administer, and provide expert review of the work carried out by a remediation Contractor.

The successful firm will be the Prime Consultant for this work and will be responsible to coordinate any Sub-Consultant or Specialty Consultant that may be required. The services outlined in this Terms of Reference (TOR) therefore also apply to the Consultant and any Sub-Consultant and Specialty Consultant that may be required. Work is to be delivered through a Task Authorization Contract as detailed in the Request for Proposal.

1.1 Great Bear Lake Mine Remediation Governance Agreement

In February 2021, CIRNAC and the D  l  n   Got   n   Government (DGG) signed a Governance Agreement in support of the GBL Remediation Project. The agreement establishes the vision, principles and objectives to move the project forward under a co-management model. The agreement also establishes the framework and structure for decision making as it relates to advancing the project through planning, design, remediation and post remediation stages of the project. The specific objectives, as stipulated in the agreement, are to enable D  l  n   residents and businesses to benefit from the work through training, preferential business contracting for local businesses, and education opportunities in reclamation science and project management for qualified D  l  n   students. These objectives are further promoted within the Indigenous Opportunities Considerations (Section SRE 3.4). The Governance Agreement is provided in appendix E of the RFP.

1.2 The Northern Abandoned Mines Reclamation Program (NAMR)

The NAMR Program, approved through Budget 2019, is a 15-year program to address the risks related to CIRNAC's largest abandoned mine remediation projects. These eight projects are the Faro, United Keno Hill, Mount Nansen, Ketza River, and Clinton Creek mines in the Yukon; and in the Northwest Territories, the Giant, Cantung, and GBL former mine Sites.

These large, abandoned mines, managed by CIRNAC, operated for many years before modern environmental regulatory regimes were in place. The legacies left by these sites include toxic mine tailings, contaminant leaching waste rock, hazardous waste, unstable and degrading infrastructure such as tailings dams, and physical dangers such as mine openings, which require



continuous care to ensure regulatory compliance and the protection of human health and safety and the environment.

As the “owner of last resort” for these sites, CIRNAC is also responsible for compliance with all applicable environmental legislation and regulations, and the conditions of authorizations issued by northern regulatory boards – much as a private operator would be, if the site had not been abandoned.

CIRNAC is also legally obligated to manage its large, abandoned mines in accordance with commitments to territorial and Indigenous governments under Devolution Agreements in the Yukon and Northwest Territories. Based on the principle that the contamination occurred when the Government of Canada was responsible for regulating land and resource development, Canada retains the responsibility to ensure that the sites are managed and remediated in accordance with contemporary environmental standards.

Under the Northwest Territories Devolution Agreement, Canada generally retained administration and control of the lands associated with contaminated sites known at the time of devolution to facilitate their long-term management but is similarly responsible for the remediation of contamination that occurred when the federal government was responsible for the regulation of lands and resources. This principle is replicated in Comprehensive Land Claim Agreements with Indigenous governments across the North.

CIRNAC has retained the Northern Contaminated Sites (NCS) division of PWGSC to assist in the compilation and contracting requirements for the project.

1.3 Definitions

Project Lead: Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC).

Project Authority: PWGSC – Environmental Services and Contaminated Sites Management (ESCSM).

Contract Authority: PWGSC – Indigenous Opportunities Procurement Team (IOPT).

Consultant: The Prime Consultant, Departmental Representative Approved Personnel, Site Supervisor, full-time representative on-site and Engineer of Record for consultant services at the Great Bear Lake Sites.

Déljñę Got’jñę Government (DGG): Co-Management Partner and Signatory to the Great Bear Lake Remediation Project Governance Agreement. Members of the Remediation Management Committee and Operations Committee.



1.4 Project Site History

The GBL Sites refer collectively to the abandoned historic industrial properties of Silver Bear Mines (made up of the larger Terra Mine and smaller satellite sites of Northrim, Norex, Graham Vein and Smallwood), El Bonanza/Bonanza Mine, Contact Lake Mine and the Sawmill Bay site. The GBL Sites are located on or in the vicinity of the eastern shore of Great Bear Lake, within the Sahtu Region of the Northwest Territories. The properties lie within the boundaries of the Sahtu Dene and Métis Comprehensive Land Claim Agreement and a portion of the Silver Bear Mines also overlap with the Tłıchǵ Mǫwhì Gogha Dè Nìlèè Boundary. The GBL Sites are 400-440 km north-northwest of Yellowknife, 175-220 km north of Gamètì and 215-275 km east of Délıne (the nearest community within the Sahtu Land Claim). The sites are within 60 km of one another and have therefore been consolidated for the purposes of monitoring and remediation. While not included within the NAMR Program, three small satellite mine openings (Bear Portal, Mystery Island Portal and Contact Lake Portal) are found within close proximity to the GBL Sites and are to be included in remedial efforts. Maps are available in the information repository referenced in section 1.4.7.

1.4.1 Silver Bear Mines

The Silver Bear Mines are five former mining sites located on or adjacent to the Camsell River, near Great Bear Lake in the Northwest Territories, approximately 380 km northwest of Yellowknife. These include the larger scale Terra Mine, with the smaller sites of Northrim Mine, Norex Mine, Graham Vein and Smallwood Mine within approximately 10 km.

Terra Mine is situated on a peninsula between the south shore of the Camsell River and the north shore of Ho-Hum Tailings Containment Area (TCA). Mining at the Terra site commenced in the late 1960s with the discovery of high-grade silver and rich copper veins and ceased in 1985. The Terra Mine is an underground mine extending to 400 m below surface. Surface facilities include an ore processing plant, assay lab, power, heating and compressor plants, fuel storage tanks, maintenance shops, warehouses, offices, and a camp. A dock is located on the Camsell River and a smaller second dock on the shore of Moose Bay. Also adjacent to Moose Bay is a 1,500 m long unmaintained airstrip, which is currently only useable on the north end (approximately 315 m) and south end (approximately 230 m).

There are 13 openings into the underground mine, divided into three categories: vertical or sub-vertical openings, horizontally oriented openings, and stopes that have been mined through to the surface and left open. Several of the adits and portals produce small flows of water, particularly early in the open water season, but the discharge of mine waters from the mine openings is limited by the terrain.

Terra Mine milled ore for other mines in the Silver Bear Mine area. In addition to the 460,000 tons (t) of ore produced from the Terra Mine, 63,000 t of ore from Norex Mine and Smallwood Mine were also processed in the mill at the Terra Mine site. Approximately 500,000 t of tailings were produced from ore processing at the Terra Mine mill during its operations. These tailings are located along the shore and submerged in Ho-Hum Lake. Ho-Hum Lake tailings containment area (TCA) has a surface area of 213,000 m² and an estimated volume of 1,561,000 m³. Tailings are exposed in two locations: the triangle shaped West Beach on the edge of Ho-Hum Lake TCA just below the mill, and the East Beach tailings. The area of exposed tailings is about 2,200 m². The



waste rock stored on site came from the underground mine and has been placed on the shore of Ho Hum Lake TCA and levelled to create storage yards for mining equipment and supplies. Based on assessments conducted, approximately 10,000 m³ of petroleum hydrocarbon (PHC) contaminated soil requires remedial activity.

The Northrim Mine is located on the north shore of the Camsell River, approximately 7 km upstream of Terra Mine, and operated as an underground mill in the production of silver and bismuth. The initial underground exploration was completed from 1933 to 1935, and intermittent work continued until 1978 with underground workings reaching a depth of approximately 100 m below surface. An estimated 10,800 t of ore was milled on-site and produced approximately 10,000 t of tailings during the operational period. Most of these tailings were deposited in the north shore of Hermandy Lake TCA, but a small quantity was also deposited around the Leachate Pond and the Camsell River near the dock (i.e., the mill entrance). The waste rock was placed along the edge of the Camsell River and in a small pile immediately above the river. In addition, there is approximately 5,500 m³ of PHC contaminated soil requiring further remedial activity at the site.

Norex Mine is located approximately 7 km upstream from Terra Mine and 600 m south of the Camsell River. Norex was a silver mine that operated in conjunction with the facilities at Terra Mine and was in development and operation between the 1970s and 1983. Ore was first mined using open pit methodology from Graham Vein in 1970 to 1971. During these time periods, approximately 1,000 t of ore was milled on site and an additional 45,000 t of ore was hauled to Terra Mine for processing. Tailings are not present at the Norex Mine site because the ore was processed at Terra Mine, except for a small volume of tailings produced near Graham Vein. Underground workings reached a depth of 180 m. There is a waste rock pile of approximately 40,000 m³ (approximately 80,000 t) located just below the main adit entrance. Waste oil may have been deposited in the waste rock as non-volatile total extractable hydrocarbons have in some years been detected at waste rock seep locations at the Norex Mine.

Graham Vein is classified as an open pit/trench, measuring approximately 50 m long and appears to be about 15 m deep at the deepest section. There is a flat, low pile of waste rock (about 3,500 m³) located at the entrance to the Graham Vein trench. Xeron Pond is found down-gradient of the Graham Vein trench and workings. Historical records suggest approximately 1,000 t of tailings were deposited in (or adjacent to) the pond during early milling activities.

The current surface features at Norex include two portals, one of which leads to an underground maintenance shop, and three ventilation raises. Additional features remaining on site include a maintenance garage, a ventilation and compressor plant and fuel tanks. At Graham Vein, the features include an open mining trench, an old wooden ore bin and the remains of a crushing plant. The primary area of hydrocarbon contamination is the fuel tank farm and the main drum storage area. The total quantity of F1/F2 contaminated material targeted for remediation is estimated to be 360 m³.

The Smallwood Mine was a silver mine that operated in the 1970s and 1980s and is located approximately 9 km southeast of Terra Mine. Underground workings reached a total depth of approximately 120 m. From 1979 to 1983 approximately 18,000 t of ore was hauled from Smallwood Mine to Terra Mine for processing. An estimated 35,000 m³ of waste rock is located downslope of the main mine portal and immediately upgradient of Smallwood Lake. A secondary, long and narrow pile extends northeast from the mine entrance. Of this volume, about 1,600 m³



appears to be several small piles of low-grade ore, left lying on top of the waste rock. The surface features include several mine openings, a ventilation and compressor plant, shacks and trailers, one large fuel storage tank, and a waste rock pile at the mine entrance. None of the mine openings at Smallwood produce any water.

Between 1978 and 1985 the Silver Bear Mines were abandoned by their developers. The mine sites became a Government of Canada environmental liability because they are located on Crown land and the former land holders declared bankruptcy.

Issues relating to remediation of the sites include chemical and physical concerns. The chemical concerns include discrete areas of contamination (e.g., soil, water, sediment) and contaminant sources such as waste rock and tailings, spills of hydrocarbon products, and several types of hazardous materials (e.g., lead paint applications, asbestos containing materials). The physical hazards include mine openings (e.g., adits, shafts, vents, stopes to surface, and open cuts), deteriorating buildings, waste materials and site infrastructure (docks and airstrips). A Remedial Action Plan (RAP) was completed in 2008 to effectively mitigate potential impacts associated with these chemical and physical concerns.

In 2016 a program was implemented to remove all drums with residual product for off-site management, though no other site remediation has yet occurred. Completion of remediation will be conducted in the coming years and per the approaches detailed within the RAP.

1.4.2 Contact Lake Mine

The Contact Lake Mine is found on Contact Lake, approximately 45 km northeast of Terra Mine, and operated intermittently from 1930 to 1980 after which the mine was finally abandoned. The property was first explored and mined for silver and a short adit developed underground. Milling activities began in 1935 and in 1938 the recovery of pitchblende, a uranium-rich mineral, became another focus of the operation. The site changed ownership multiple times, with exploration and underground development continuing intermittently. Milling of the silver and uranium ore was conducted both on site and in later years, was transported by barge and all-weather haul road to the Echo Bay Mines milling plant at Port Radium. During on-site milling activities, the tailings were contained within a pond immediately downgradient of the mine openings (i.e., the Tailings Pond), though in some areas were also left on ground surface. Waste rock was used to construct pads, roads and working areas throughout the site. Upon abandonment, the large majority of site infrastructure remained standing though reached a dilapidated state.

In 2010, the GBL Phase I Remediation Project was implemented and focused on work activities which could be successfully completed without the use of heavy equipment. This included destruction of most buildings; burning of combustible building materials and debris; and consolidation of non-combustible materials. In 2016 a drum removal program consolidated product from drums, crushed drums that were emptied, and removed all drums with consolidated residual product for off-site management. As with the other GBL Sites, completion of remediation will be conducted in the coming years and per the approaches detailed within the Contact Lake Mine RAP.

The Contact Lake Mine is distributed over three discrete areas: the Camp Area on the east shore of Contact Lake, the Mine Area on the bedrock ridge east of the lake and the Fuel Storage Area



at Echo Bay (part of the East Arm of Great Bear Lake). These areas are connected by roadways which are now largely overgrown. In addition to the main adit, an open stope and raise/ventilation shaft are also observed in the Mine Area, as well as a small number of remaining buildings and debris piles. All other building structures were demolished as part of the 2010 work activities. The total estimated volume of waste rock at the site is 29,000 m³ and approximately 1,000 m³ of gravity mill tailings are found as a thin layer (up to 20 cm) on ground surface between the mill and Tailings Pond, with additional tailings in the pond itself. At the Echo Bay East Arm Fuel Storage Area, a single above ground fuel storage tank and dock wall are the only significant items remaining.

1.4.3 El Bonanza/Bonanza Mine

El Bonanza Mine is located on Mile Lake, approximately 45 km north of Terra Mine. Both surface and underground work commenced in 1934 at El Bonanza, with ore handpicked through vein systems and transported to British Columbia for processing. Additional ore was stockpiled for shipment to Eldorado Mine for milling; however, due to declining silver prices, operations were suspended. Exploration for uranium was conducted at the El Bonanza property in the 1940s by the federal government; however, there was no record of uranium mining having been conducted at the property. Silver exploration/mining activities recommenced intermittently in 1956 and again in 1965, including ongoing underground development and sinking of the shaft. By 1972 approximately 2,500 t of ore was reportedly stockpiled. Additional exploration was conducted at the property, though no economic silver encountered.

A similar operational history is documented at the Bonanza Mine (approximately 1.5 km northwest of El Bonanza Mine), with work commencing in 1937 to explore for silver potential. A short shaft was developed with lateral extensions and a small volume of ore extracted which was shipped to the Eldorado Mill at Labine Point (i.e., Port Radium Mine). The property changed hands multiple times over the following decades and work included exploration, trenching, drilling and bulk sampling (680 kg of ore) before abandonment.

Access roads were constructed to connect Mile Lake and Great Bear Lake to the El Bonanza Mine. Access to the Bonanza Mine likely occurred across the ice on the small lakes between Great Bear Lake and the mine site, though a former trail is also present.

As part of the 2010 Phase I Remediation Program, remediation work at El Bonanza/Bonanza Mine included destruction of most buildings; burning of combustible building materials and debris; and consolidation of non-combustible materials. In 2016, a drum removal program continued these efforts by removing all drums with residual product for off-site management. There is limited infrastructure remaining at the small operation. This includes a small number of buildings which require heavy equipment for demolition (e.g., headframes), empty drums, debris, four above-ground storage tanks, mine openings (four at El Bonanza and one at Bonanza) and waste rock (3,000 m³ at El Bonanza Mine and 600 m³ at Bonanza Mine).

1.4.4 Sawmill Bay

The Sawmill Bay Site is located approximately 37 km northwest of Terra Mine, along the northern section of the Leith Peninsula of Great Bear Lake. The first reported industrial use of the Sawmill Bay site was as a sawmill from the 1930s to 1940s. In the 1940s to 1960s, the site was used for



barge and air transportation of uranium ore from the Port Radium Mine. From 1947 to 1950, an airfield and basecamp were established at Sawmill Bay for the Loran Navigation System (a hyperbolic radio system developed during World War II). Sawmill Bay was also used from the late 1940s to early 1950s to support refueling and supply for Royal Canadian Air Force photographic operations and aerial mapping. From 1944 to 1947 the site airstrip and lodge provided support for construction of the Distant Early Warning (DEW) Line stations. In the late 1950s, Sawmill Bay became the site of a commercial fishing camp. Unlike the other GBL Sites, Sawmill Bay did not host any mining or milling activities. Sawmill Bay is of known importance from a traditional land use perspective and is frequented by local Indigenous people.

Due to the diverse range of site uses, some areas of infrastructure served distinct purposes while others had overlapping uses. The site is broken into six principal areas as follows:

1. Two intersecting airstrips
2. Former Great Bear Lake Lodge (i.e., fishing lodge between airstrip and Sawmill Bay)
3. Former fishing dock area (at shoreline of Great Bear Lake, apex of Sawmill Bay)
4. Main Barrel Cache with approximately 8,000 drums (south shore of Sawmill Bay)
5. Beach Landing and former Arctic Enterprises Lease Area (south shore of sawmill Bay)
6. Former Sawmill Site (south shore of Sawmill Bay).

The principal site infrastructure in support of these operations was building structures, totaling 1,800 m² of floor area. In addition, a substantial volume of drums, debris and vehicles were found discarded throughout the site and in consolidated piles. Assessment activities documented areas of PHC contaminated soils, though metal impacts and low-level radiological impacts (from uranium ore transport) were also reported in discrete areas.

Comprehensive site remediation has not yet been conducted; however, discrete work programs have been implemented to address specific concerns. While a 1996 investigation concluded that under the current land use at Sawmill Bay no remedial action was required, a clean-up was completed at the site in September 1998 by the Low Level Radioactive Waste Management Office (LLRWMO) to remove approximately 22 m³ of soil containing more than 500 ppm of uranium. Cleanup of uranium contaminated soil was conducted at the Beach Landing, Great Bear Lodge and Airstrip areas, with soil removed for offsite management. In 2010/2011, the GBL Phase I Remediation Project was implemented and at Sawmill Bay included consolidation of debris and the management of drums and residual product. Drums with residual product were consolidated, fuel product transported off-site, and the emptied drums washed and crushed.

The Airstrip and the Lodge area are located on Crown land and the rest of the site is located on Sahtu Private Lands. There is a shared responsibility to remediate the sites by Atomic Energy Canada Ltd. since the site was part of the former Transportation Route from Port Radium, and CIRNAC since the site was used for Crown run operations (e.g., Staging Site for the DEW Line).

1.4.5 Assessment and Remedial Planning History

The GBL Sites have been the subject of numerous assessments and studies to characterize the nature of environmental contamination and physical hazards. CIRNAC's efforts to date have included Site Assessments, Hazardous Material Surveys, Risk Assessments and focused geochemical studies, to name a few. Efforts culminated in the production of Remedial Action Plans (RAPs) for each of the project sites, which summarized site conditions, interpreted results



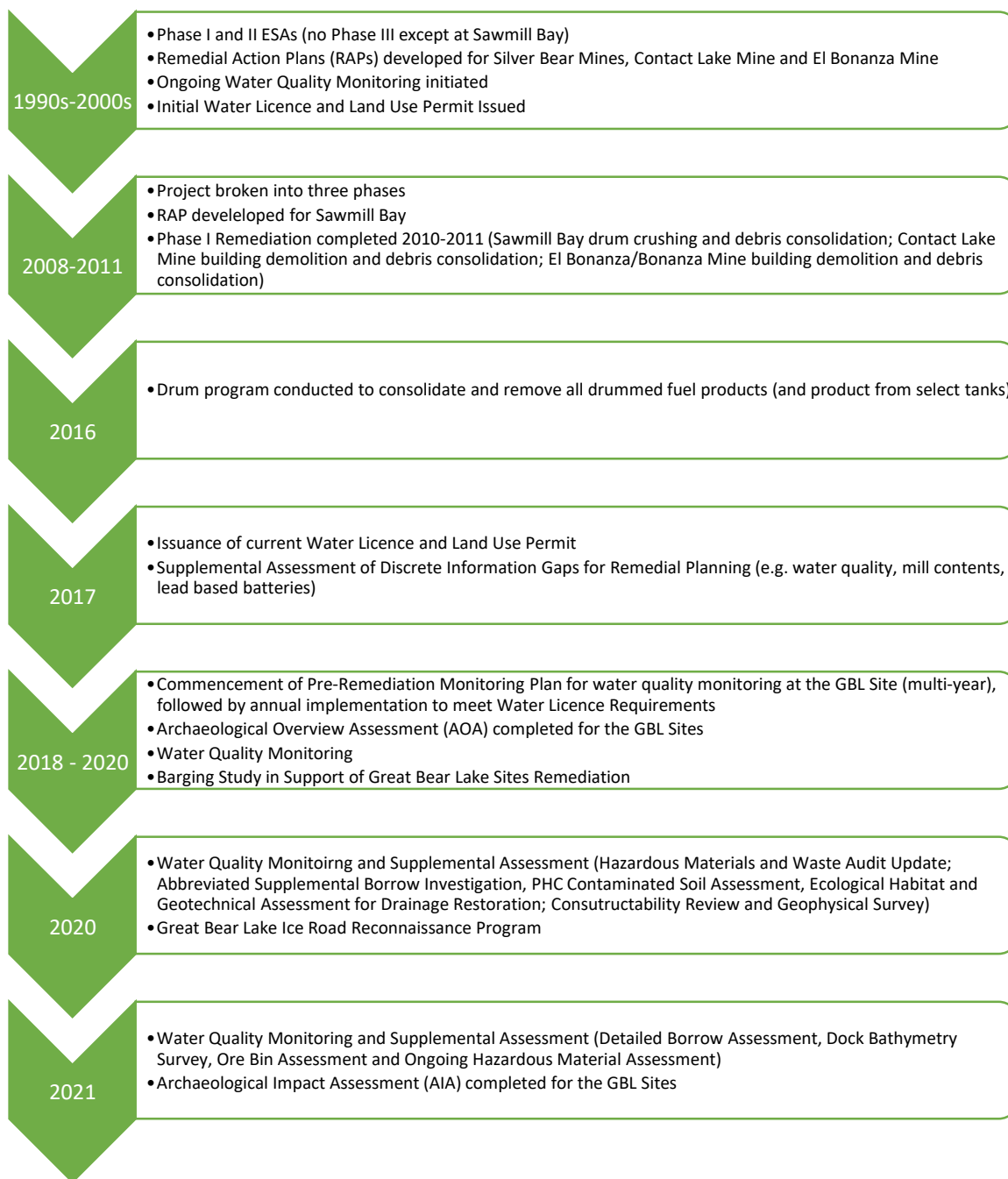
of sampling/assessment, evaluated remedial options and presented the selected remedial approach based on technical input and community consultations.

Remediation of the GBL Sites was first initiated as the Phase I Remediation Project completed in 2010 and 2011. Efforts focussed on work activities which could be completed without mobilization of heavy equipment at Contact Lake Mine, El Bonanza/Bonanza Mine and Sawmill Bay. This included drum consolidation, product consolidation/removal, drum washing/crushing, building destruction (Contact Lake and El Bonanza/Bonanza mines only) and debris consolidation. This was followed with the ongoing consolidation and removal of drums with residual fuel/product in 2016, including at the Silver Bear Mines.

A summary of the assessment and remedial planning of the GBL sites is presented in Figure 1 below.



Figure 1 GBL Sites Assessment and Remediation Timeline





1.4.6 Site Remediation

In support of earlier planning phases, Remediation Specifications were first developed in 2008 to support initial planning. In the intervening years these were revised to include refinements to remedial approaches or additional information obtained through gap assessments. Current remediation assumptions are listed below; however, design decision updates are ongoing based on consultation and growing project knowledge.

- Closure of horizontal and vertical mine openings (~45 openings), including engineered concrete caps, backfilling or fencing/foam plugs (as necessary).
- Management of waste rock (~500,000 m³), including diversion of surface runoff/mine drainage, relocating for use as cover material or backfill (where appropriate), and covering where gamma radiation values exceed threshold (Contact Lake Mine only). Most waste rock will remain in place.
- Management of tailings (~500,000 tonnes), by placing covers in discrete areas, diverting surface water runoff and leaving in-situ with downstream water quality monitoring.
- Demolition of buildings (~50 buildings) including a mill, equipment, infrastructure and surface debris. Includes removal of hazardous materials to an off-site licenced facility. Non-hazardous debris and asbestos containing materials from all sites will be managed in a new Terra Mine landfill to be constructed on-site.
- Drums and tanks will be drained of residual fuels and placed in the Terra Mine landfill if meeting regulations (e.g., lead paint concentrations) or shipped off site as necessary.
- PHC impacted soil will be excavated to meet the site-specific criteria developed for the site. Soil impacted with F1 and F2 fractions will be treated on-site in windrow treatment areas (i.e., land farmed). Soil impacted with F3 and F4 fractions will be either covered in place or transported to the Terra Mine landfill as intermediate fill. Discrete soils impacted with metals and other contaminants will be excavated for off-site disposal at a licenced facility.
- The four dock and crib structures will be removed, and debris/contaminated soil managed per above.

Remaining work activities to complete the remediation as outlined in the RAPs will be completed as the GBL Sites Phase II Remediation Project, tentatively scheduled to require approximately five years. This will include completion of earthworks at Contact Lake Mine, El Bonanza/Bonanza Mine and Sawmill Bay, as well as the comprehensive remediation of the Silver Bear Mines

Details of the Great Bear Lake Sites remediation project were provided to the Sahtu Land and Water Board during 2017 regulatory applications. This repository of information (see section 1.4.7) includes relevant project documents from previous planning and design stages. It should be emphasized that gathering of site information, design updates and engagement activities have been ongoing since.

1.4.7 Regulatory Issuances

In 2010 a Land Use Permit (LUP) and Water Licence (WL) were obtained by CIRNAC for the GBL Sites Remediation Project from the Sahtu Land and Water Board (SLWB). In 2017



applications were submitted to the SLWB for a renewed LUP and WL. These were successfully issued to CIRNAC in May 2017, with the LUP valid until July 2022 (after which a two-year extension is available) and the WL valid until July 2024. The issuances and associated documentation may be found on the SLWB Public Registry as follows:

Water Licence: [CIRNAC-CARD - S17L8-002 | Sahtu Land and Water Board \(slwb.com\)](#)

Land Use Permit: [CIRNAC-CARD - S17D-003 | Sahtu Land and Water Board \(slwb.com\)](#)

The remaining timeframe within the current WL and LUP will be insufficient to complete the GBL Sites Remediation Project, and as such CIRNAC will be required to seek renewals for these issuances.

The current WL and LUP list the required monitoring and management measures, as well as ancillary plans to be submitted to the SLWB. Examples include Construction Monitoring Plans, Long-Term Monitoring Plans and the Geochemical Verification Plan. It is predicted that the updated WL and LUP will contain similar requirements and require development of these plans for remediation work to proceed.

The WL and LUP serve as the two principal regulatory issuances; however, numerous other regulatory authorizations will be required in support of the project. Examples include Hazardous Waste Storage/Transport authorizations, Quarry Permits, Permits to Burn and Fisheries Act Authorizations. A full identification of these requirements will be conducted in early phases of project planning.

1.5 Objective

The remediation work will be done in accordance with the Remediation Contract and the project goals that are to be addressed while implementing the remediation work for the GBL Sites encompass the following general objectives:

1. Honor the commitments of the Sahtu Dene and Métis Comprehensive Land Claim Agreement, the Délı̨nę Final Self-Government Agreement, and the Tłı̨chǫ Land Claims and Self-Government Agreement;
2. Recognize the joint responsibilities of Canada and DGG through the Co-Management Agreement that is structured in the Great Bear Lake Remediation Governance Agreement;
3. Minimize human health and safety risks;
4. Protect fish, wildlife and vegetation;
5. Protect water quality;
6. Minimize environmental impacts during remediation;
7. Ensure the site is in a stable condition for the short and long-term;
8. Minimize long term care and maintenance;
9. Apply overall cost-effectiveness considerations;
10. Ensure remediation work is in accordance with remediation contract;
11. Ensure the remediation is compliant with all Federal, Territorial, and Municipal regulations, acts, codes, policies, and applicable permits, authorizations and approvals.

To achieve these objectives the Project Authority requires, on behalf of the Project Lead, Consultant services to support final stages of remedial planning, as well as manage, administer,



and provide expert review of the work carried out by the remediation Contractor. As such the Objectives of the Consultant for this scope of work includes the following:

- Conduct monitoring as necessary to meet current regulatory obligations, outstanding questions or concerns, and future obligations;
- Provide support in the finalization of the remediation plan and initiation of site remediation;
- Provide broad technical expertise including but not limited to contaminated site assessment, Northern abandoned mine sites, Northern transport, remedial approaches/implementation, long-term management, environmental monitoring, and contractual considerations;
- Provide the necessary support to achieve the regulatory issuances and maintain compliance with applicable legislation and issuances;
- Provide technical support during Engagement with Regulatory Agencies, Indigenous Groups and other project stakeholders;
- Serve as the Departmental Representative Approved Personnel (DRAP) to manage, administer, and provide expert review of the work carried out by the remediation Contractor.

2 SCOPE & SERVICES

2.1 Scope Overview

The scope and services aims to describe, in general terms, work that is planned for completion during the term of the contract, so the Consultant can understand the type of work that will or may occur. The specific scope of work to be undertaken for each individual project will be described in detail in each specific Terms of Reference (ToR) that will form the basis of the Task Authorizations (TAs) that will be put in place to conduct work.

It is important to acknowledge that the scope and services outlined herein represent projections of likely or possible services to be required under TAs and is not a confirmed scope of work.

The current TOR outlines the high-level objectives of each task with associated deliverables; however, it is expected that the Consultant's proposal clearly identifies assumptions, outlines the specific approach and outcomes for each task. Project deliverables are assumed part of the respective tasks.

Based on the project approach and projected schedule, tasks have been categorized into Projected Scope and Possible Scope within a 13-year timeframe. Projected Scope items are predicted to occur based on current project status and planning; Possible Scope items could be required to address specific information gaps or needs but are not currently included in the project plan (many of these items were completed in earlier project phases). The tasks within these categories include the following:

Projected Scope Items

1. Project Management, Northern Remediation Support, and Technical Services
2. Regulatory Support
3. Engagement Support



4. Pre-Remediation Monitoring
5. Design, Specifications and Cost Estimates
6. Construction Documents and Tendering Assistance
7. Engineer of Record
8. Contractor Oversight, Quality Assurance and Contract Administration
9. Construction Monitoring
10. Project Close-out Documentation
11. Post-Construction and Long-Term Monitoring

Possible Scope Items

1. Environmental Site Assessments (and similar investigations of soil, water, air, etc.)
2. Risk Assessment
3. Remedial Options Review and Remedial Options Analyses
4. Demolition Assessment and Waste Surveying
5. Mould Abatement
6. Hazardous Materials/Waste Audits and Abatement Monitoring
7. Environmental Auditing
8. Storage Tank System Audits
9. Focussed Studies and Investigations
10. Status of Environment Report / Performance Assessment Report

A high-level tentative schedule of work activities and estimated TA values is provided as Figure 2 below, this information is presented for illustrative purposes only and is subject to revision as planning progresses.



Figure 2 GBL Sites Illustrative Work Breakdown Structure

Fiscal Year	FY 2022/23				FY 2023/24				FY 2024/25				FY 2025/26				FY 2026/27				FY 2027/28				FY 2028/29				FY 2029/30				FY 2030/31				FY 2031/32 to 2034/2035			
Year	Contract Year 1				Contract Year 2				Contract Year 3				Option Year 1				Option Year 2				Option Year 3				Option Year 4				Option Year 5				Option Year 6				Option Year 7 to 10			
Consultant Estimated TA Amount (fees and disb.)*	\$300,000				\$900,000				\$900,000				\$1,400,000				\$1,500,000				\$1,500,000				\$1,600,000				\$1,600,000				\$1,000,000				\$2,800,000			
Activity Phase	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
Ongoing Pre-Remediation Monitoring/ Gap Assessment																																								
Project Pre-Remediation Engagement																																								
Supplemental Regulatory Submissions/ Permitting																																								
Project Tendering/ Procurement																																								
Contractor Mobilization																																								
Site Remediation																																								
Construction Admin and Oversight																																								
Contractor De-Mobilization																																								
Post-Construction and Long-Term Monitoring																																								

* Schedule/values are illustrative only and subject to amendment as planning progresses



2.2 Projected Scope Items

2.2.1 Project Management, Northern Remediation Support, and Technical Services

- .1 In anticipation of the GBL Sites Remediation, the Consultant will be required to provide technical expertise to the project specific to Northern remediation. This includes but is not limited to expertise in logistics, transport, scheduling, remote sites, cold climate considerations, permafrost, climate change, contaminated sites assessment/remediation, mining, Northern contracting and the Northern regulatory regime.
2. Specific deliverables may include Logistics Plans, Transport Plans, Project Schedules, technical assessments, etc. Expertise in these fields will be essential to ensuring the sound planning and delivery of the various deliverables.
3. See section 4.0 Administrative Service for project management and technical services requirements

2.2.2 Regulatory Support

- .1 Delivery of the GBL Sites Remediation Project will require adherence to applicable regulatory legislation and issuances for the site. The current WL and LUP issued in 2017 include requirements for additional plans and documentation necessary at various project stages, including before work commences, during active remediation and upon completion of active remediation. Examples include a Geochemical Verification Program, Baseline Monitoring Report, Construction Monitoring Plan, Post-Construction Monitoring Plan and Long-Term Monitoring Plan. The Consultant will work with the Project Lead and Project Authority to prepare the necessary documentation.
- .2 Numerous ancillary permits/authorizations will also be required for the GBL Sites Remediation Project. While many will be the responsibility of the Remediation Contractor, the Consultant may be required to work with the Project Lead and Project Authority to procure, maintain compliance with and complete associated regulatory reporting. Based on current planning, this may require efforts for Quarry Permits, Fisheries Act Authorizations and Permits to Burn, to name a few.
- .3 In keeping with the objectives of the GBL Sites Remediation Project, the Project Lead and Project Authority will take active measures to ensure best practices are met in regulatory management and engagement. The Consultant will be required to provide regulatory technical expertise and support during planning and implementation.

2.2.3 Engagement Support

- .1 In keeping with the objectives and requirements of the Great Bear Lake Remediation Project Governance Agreement, advice and guidance will be sought from the Remediation Management and Operations committees to inform consultant deliverables and knowledge. In tandem, the Consultant will provide technical information and analysis to support decision making.
- .2 In keeping with the policies and mandates of CIRNAC and PWGSC, sharing of information through open and collaborative engagement will be conducted during all stages of the GBL Sites Remediation Project. Groups may include Indigenous



Communities, Local/Regional/Territorial departments or leadership, Working Groups, regulatory agencies, and various stakeholder groups. The Consultant will provide technical expertise and guidance, participate in meetings, and prepare associated documentation to support engagement activities.

- .3 Examples of engagement activities requiring Consultant support include Water Licence/Land Use Permit application meetings, town halls, project update meetings, and meetings with Authorities Having Jurisdiction. CIRNAC leads and directs engagement activities, with the Consultant to provide technical support.

2.2.4 Pre-Remediation Monitoring

- .1 Further to the requirements of the 2017 Water Licence for the GBL Sites, a Pre-Remediation Monitoring Plan was developed to identify water quality monitoring necessary to meet the Surveillance Network Program (SNP) outlined in the Water Licence, and to address any new or evolving water quality concerns. This program has been implemented since 2018 and builds upon an extensive water quality database since monitoring began in 2003.
- .2 Prior to the commencement of active site remediation, the Consultant will be required to implement the Pre-Remediation Monitoring Plan annually and produce an associated report for inclusion in the Annual Water Licence Report, as well as provide all data in raw form (PDF, Excel and CIRNAC EDD formats) to meet the submission requirements provided in Section 3 and to be further described in associated TAs.
- .3 The Consultant is required to incorporate the data into the long-term Excel water quality dataset, to maintain the dataset and to provide to the Project Authority and Project Lead.
- .4 Should additional data gaps be identified during project planning and require monitoring or assessment, the Consultant is to incorporate into the timeframe of the Pre-Remediation Monitoring program.
- .5 Implementation of the Pre-Remediation Monitoring Program will require the Consultant to design and implement the field program to best utilize available resources (e.g., operation of existing camp facilities), procure any necessary sub-contractors (e.g., camp services), and to procure aircraft charters to access the sites.

2.2.5 Design, Specifications, and Cost Estimates

- .1 Implementation/contracting strategy for the project is currently undefined and may include a single all-inclusive remediation contract or a series of work packages.
- .2 Existing design documents include 2014 Issued for Tender Specifications and drawing package, are considered works in progress, and will require further modifications leading to implementation phase., These products, and other project supporting documents will form the building blocks of the Consultant's remediation design package(s) and will be made available in raw working format upon contract award.
- .3 Cost estimates (Class B) for the project were last updated in 2022/23 and will be made available upon contract award.
- .4 Preparation and Review: The Consultant shall provide, and co-ordinate full professional consulting services required during all phases of project delivery as outlined below but not limited to:
 - .1 Provide engineering design services.
 - .2 Visit the site to be familiar with all conditions of the site that may impact the project.



- .3 Review Environmental Audits/Baseline Studies (for all issues related to real property) and Environmental Site Investigations/Assessments and ensure that the project design captures issues presented here.
- .4 Review Risk Assessments to determine potential environmental and health implications of identified contaminant impacts may be conducted.
- .5 Review Contaminated Sites Remediation and other Remediation Action Plans and ensure that project design meets the requirements and objectives of these documents.
- .6 Review all phases of Environmental Assessments including Infrastructure and Demolition Assessment.
- .7 Review Hazardous Materials Listing and Identification, Asbestos Sampling and Listing, Environment Sampling and Waste Surveys.
- .8 Review Geotechnical and Geophysical Investigations.
- .9 Review Contaminant Characterization and Water Quality, Aquatic and Terrestrial Biota and Wildlife Assessment.
- .10 Interpretation and/or adherence to all applicable codes, Environmental, Fire, Health and Safety Requirements, other specific codes or standards.
- .11 Interpretation and/or adherence to Land and Water Use Licenses.
- .5 Design and Specifications
 - .1 Prepare/advance tender ready drawings and specifications package or packages as directed, setting forth in detail all the requirements for the construction of the project along with final Class "A" (Substantive, +/- 5-10%) cost estimate(s).
 - .2 All specifications are to be completed in accordance with the most recent version of the Canadian National Construction Master Specifications (NMS).
 - .3 Provide specification and drawing submissions at completion intervals as requested by the Project Authority. These may include 60%, 75%, 90%, and/or 99% definition intervals.
 - .4 Drawings may include, but not be limited to, Aerial Photographs, Site Plan, Demolition Plan, Impacted Areas Plan, Sections and Details, General Notes, Design codes used, Strength and grades of materials used, Special construction requirements.
 - .5 Cost estimate to be prepared by certified professional estimator such as a Designated Professional Quantity Surveyors (PQS) or Construction Estimator Certified (CEC), or by an estimator with equivalent credentials or extensive experience providing estimating services in the north. Cost estimates are to be accompanied by a cost estimate report which is intended to document the details, assumptions and decisions that were used to create the estimate.
 - .6 Consultant is to prepare and provide regular updates to a project schedule. Project schedule is to align with the work breakdown structure included in the specifications and cost estimate and be completed in a GANTT format.
 - .7 Submissions, Review and Approval Process
 - .1 The Consultant will provide all required submissions, either to, as directed by the Project Authority.
 - .2 The Project Authority will respond to questions from the Consultant as required, review and accept the final Construction Document progress at various intervals and formally accept documents ready for Tender.



- .3 The Consultant will provide required sets of Construction Drawings and Specifications to the Project Authority for review at the various definition interval submission stages.
- .4 The Consultant will provide deliverables as per Documentation Standards.
- .5 The purpose of review and approval process is to ensure compliance with the project program, adherence to good design practice and technical quality assurance.

2.2.6 Construction Documents and Tendering Assistance

- .1 Tendering and construction documents
 - .1 The Consultant will provide tender and construction submission deliverables as follows but not limited to:
 - .2 Issued For Tender submissions are to include tender ready specifications and fully coordinated drawings. Drawings and specifications are to be marked as "Issued for Tender".
 - .1 Incorporate PWGSC comments made at the 99% stage
 - .2 Submit all drawings and specifications "Issued for Tender" reviewed and coordinated for Tender call.
 - .3 Submit all specification sections and an index of specifications. The specifications will consist of typed and edited NMS sections.
 - .4 Submit final project schedule.
 - .5 Submit Revised Class "A" (Substantive, +/- 5%) level cost estimate
 - .6 The Consultant will provide deliverables as per Documentation Standards.
 - .7 The Consultant will provide submit and obtain formal acceptance on plans and specifications required by Inspection Authorities before Tender call.
 - .8 The Consultant will provide assistance during the tendering process including preparation of addenda and review of tender results.
 - .3 Issued For Construction submissions are to include construction ready specifications and fully coordinated drawings.
 - .1 Incorporate addenda and other design changes from tender period.
 - .2 Provision of final, fully executed "Issued for Construction" specification and drawing package.
 - .3 All Drawings and Specifications to be signed and sealed by the Consultant and annotated "Issued for Construction".
- .2 Bidder's Conference
 - .1 The Consultant will attend and prepare necessary addenda for issue by the Consultant. Questions arising in such meetings will be answered by written addenda only.
 - .2 The Consultant will provide all information required by tenderers to fully interpret the Tender Documents. Keep full notes of all inquiries during the bidding period, including briefing meetings and submit a copy for project records.
- .3 Addenda
 - .1 The Consultant will prepare addenda to Tender Documents when necessary and assemble and issue. Amendments to Tender Documents are prepared by the Consultant. Normally, addenda are issued no later than five (5) working days before the tenders close. No addendum is to be issued orally. The Consultant



may issue an addendum by facsimile (or as outlined in the Consultant's procurement process document).

.4 Bidder's Site Tour

- .1** The Consultant will participate in planning and implementation of the Bidder's Site Tour, expected to require three days of on-site time.

2.2.7 Engineer of Record

- .1** Review documents associated with the design of the GBL Sites Remediation Project which may include but is not limited to:
- .1** Specifications and Drawings
 - .2** Contractor Bids and Associated Contractor Schedules
 - .3** Approved Change Orders
 - .4** Approved Shop Drawings Submittals
 - .5** Design Information
 - .6** Design Report
 - .7** Any additional survey information available: lidar, maps, Phase III Report
 - .8** drawings and RAP drawings
 - .9** All analytical results in .xls format and any certificates of analysis not appended to other reports
 - .10** Additional tender quantity calculation information (notes, reports, spreadsheets)
 - .11** Provision of fully executed "As built" drawing package post remediation
 - .12** Consultant assumes role and duties of Engineer of Record

2.2.8 Contractor Oversight, Quality Assurance and Contract Administration

2.2.8.1 *General*

- .1** Review and be familiar with the Remediation Contract documents and all supporting documents.
- .2** Provide continuous oversight the entire time Contractor is on site.
- .3** Provide all inspections, testing, specialized testing and confirmation sampling as required by Contractor as to not delay remediation work
- .4** Provide clarification instructions, Contemplated Change Notices, and Change Orders as required.
- .5** Provide Site Instructions.
- .6** Consider and evaluate any suggestions or modifications to the documents advanced by the Contractor and immediately report these to the Project authority with comments.
- .7** Convey instructions regarding the required standards of workmanship to the Contractor.
- .8** Communicate formally with the Contractor via memorandum form only. When this form is issued, the Consultant will immediately file copies with the Project authority.
- .9** Ensure that the Project authority is notified promptly when key pieces of components of materials and equipment are delivered, so that these parties can arrange for the appropriate personnel to have an opportunity to inspect same prior to installation.
- .10** Protect Human Remains, Archaeological Remains and Items of Historical Scientific Interest



2.2.8.2 Oversight

- .1 Provide Oversight, inspect, coordinate, and monitor all aspects of the remediation work during the construction, ensure remediation work is in accordance with Remediation Construction Documents and liaise with the Project Authority.
- .2 Provide oversight of, review and approve contractor survey and measurements.
- .3 Provide Work Measurements.
- .4 Be responsible for the measurement of all work to be done on a unit-cost basis.
- .5 Be responsible for the measurement of percentage completion of lump sum item.
- .6 Oversee and ensure remediation work is in accordance with Remediation Contract documents and regulatory requirements.
- .7 Oversee soil excavation activities, collect confirmation samples, inspect and report of results, confirm compliance to Remediation Contract.

2.2.8.3 Inspections and Testing

- .1 Provide inspection for all aspects of the project, maintaining daily records of all work.
- .2 Inspect the Contractor mobilization and demobilization activities.
- .3 Accompany the Project authority on inspections and record comments or instructions of the Project Authority.
- .4 Assist in the preparation of all deficiency, Substantial Completion, preliminary, and final reports in collaboration with the Project Authority.
- .5 Conduct Substantial Completion Inspection of site.
- .6 Conduct Final Inspection of site.
- .7 Issue Substantial Completion and final deficiency reports.
- .8 Assist (if required) in release of holdback upon satisfactory completion.
- .9 Provide on part-time basis Sub-Consultants or Specialty Consultants required to perform specialized on-site inspections.
- .10 Provide Specialized Inspection and Testing as required.
- .11 Test materials to meet the specifications, compaction testing, oversight of material placements, confirmation of compliance to all permits and assistance to the Consultant.
- .12 Inspect materials and prefabricated assemblies and components at their source or assembly plant, as necessary for the progress of the project.
- .13 Assess quality of work and identify, in writing to the Project Authority, all defects and deficiencies observed at time of such inspections.
- .14 Inspect materials and prefabricated assemblies and components at their source or assembly plant, as necessary for the progress of the project.
- .15 Make on-site observations and spot checks of the work to determine whether the work, materials and equipment conform to the Contract Documents and supplementary documentation.
- .16 Provide specialized services by Environmental, Geotechnical and Demolition as required prior to, during, and after the remediation work and as required.
- .17 Assist the Project Authority in briefing the testing firm on required services, distribution of reports, communication lines, etc.
- .18 Assist the Project Authority in evaluating firm's invoices for services performed.
- .19 Ensure that the tests and inspections required by the Contract Documents are conducted and should observe these tests and report the results in the daily log.



- .20 Provide non-resident inspection services by qualified personnel to ensure compliance with Contract Documents. These personnel will be fully knowledgeable with technical and administrative requirements of project.
- .21 Establish a written understanding with Contractor as to what stages or aspect of the work are to be inspected prior to being covered up.
- .22 Notify the Project Authority if the test results do not meet the specified requirements, or if the Contractor does/do not have tests undertaken as required.

2.2.8.4 Review and Approve

- .1 Review and approve As-Built and Record Drawings.
- .2 Review and approve Contractor's Progress Payments.
- .3 Review and process shop drawings.
- .4 Review testing methods, data of inspection/testing agencies.
- .5 Verify quantities of materials received and record work progress through review and verification of Contractor survey data and measurements.
- .6 Review and approve all test reports and take necessary action with Contractor when work fails to comply with Contract requirements. The Project Authority will be immediately notified when tests fail to meet project requirements and when corrective work will affect the schedule.

2.2.8.5 Site Safety

- .1 The Consultant will adhere to the Contractor's Site-Specific Health and Safety Plan (SSHASP).
- .2 Attend Contractor Worker Orientation Seminar.
- .3 In case of emergencies, the Consultant is empowered to stop the work, or give orders to protect the safety of the workers or property and contact the Project Authority immediately for further instruction.
- .4 The Consultant may be required to participate in a Site Safety Survey of the Contractor. The Consultant will fill out and submit the Site Safety Survey form.
- .5 The Consultant may be required to take on the role of Prime Contractor, and the associated Health and Safety responsibilities/duties, during the contract period should they be the only firm occupying the site (see Section 4.8).

2.2.8.6 Work Measurement

- .1 If work is based on unit prices, The Consultant will measure, review survey measurements and record the quantities for verification of monthly progress claims and the Final Certificate of Completion.
- .2 When Contemplated Change Notice, Change Orders or Task Authorization are to be issued based on Unit Prices, the Consultant will keep accurate account of the work and record dimensions and quantities.



2.2.8.7 Meetings

- .1 The Consultant will arrange, attend and conduct meetings as defined in Remediation Contract, and weekly teleconference meetings throughout the entire construction period. Attendees to include:
 - a. Project Lead
 - b. Project Authority in-house staff, as required
 - c. Consultant.
 - d. Contractors and their Subcontractors.
- .2 The Consultant will attend the meetings, record the issues and decisions and prepare and distribute minutes to all attendees within two (2) working days of the meeting.
- .3 Attend all Community Meetings with Project Authority, Project Lead, Contractor and Community Members. Consultant will record the minutes and distribute them as outlined in the specifications and contractor proposal.
- .4 Attend all other construction meetings implemented by the Contractor and record subjects of interest, as it pertains to the implementation of the remediation work.

2.2.8.8 Records and Reporting

2.2.8.8.1 Daily reporting

- .1 Record and Report daily site activities.
- .2 Finalize project documentation and accounts.
- .3 Gather, verify and report information required for the Water Licence and Land use Permit, and all other applicable regulations and licence requirements.
- .4 Review and Report on Contractor's Project Schedule.
- .5 Assess quality of work and identify, in writing to the Project authority, all defects and deficiencies observed at time of such inspections.
- .6 Monitor the progress of Contractors' work, compliance with all drawings and specifications, time schedules, quality standards and progress reports.
- .7 Report on Contractors maintaining specified quality and schedules, ensuring that Contractors are monitoring delivery of critical materials and equipment.
- .8 Any directions, clarifications or deficiency lists will be issued in writing to the Project authority, with a copy to the Contractor.
- .9 Keep the Project authority informed of the progress and quality of the work and report any defects or deficiencies in the work observed during the course of the site reviews.
- .10 Report if materials and equipment are being incorporated into the project prior to approval of relative shop drawings or samples.
- .11 Advise the Contractor of any deficiencies or unapproved deviations via memorandum and report immediately to the Project authority any of these on which the Contractor is/are tardy or refuses to correct.

The Consultant will submit a Daily Report for duration of field work to the Project Authority which is a recording of but not limited to:

- .1 Weather conditions, particularly unusual weather relative to construction activities in progress
- .2 Major material and equipment deliveries



- .3 Workers On Site (company and number of personnel)
- .4 Daily activities and major work done
- .5 Health and Safety meetings
- .6 Near miss/Incident Reporting
- .7 Safety Observations
- .8 Start, stop or completion of activities
- .9 Presence of inspection and testing firms, tests taken and results
- .10 Unusual site conditions experienced
- .11 Significant developments, remarks
- .12 Special visitors on-site
- .13 Authorities given Contractor to undertake certain or hazardous works
- .14 Environmental incidents
- .15 Tracking of items required under regulatory issuances (e.g., water use by source)
- .16 Reports
- .17 Stop work requests by the Project Authority
- .18 Photo record

Reports are to be provided to the Project Authority the following day. Compiled copies of the Daily Reports are to be provided to the Project authority at the end of the project within the Post Construction Summary Report.

2.2.8.8.2 Post Construction Summary Report

The Consultant will submit a Post Construction Summary Report at the end of each field season and after the remediation work is completed (i.e., a consolidated report integrating information from each of the annual reports). The scope of the report will be tailored to the work completed in each year and aim to provide a consolidated report of activities conducted, health and safety, environmental incidents/tracking, camp operation and other relevant details to the field season. A completed listing of requirements will be included in individual TAs.

2.2.8.8.3 Confirmatory Sample Program Report

At project completion, the Consultant will submit a Confirmatory Sample Program Report, detailing the confirmatory samples collected during cleanup (e.g., soil excavation), center point coordinates of cleanup, samples collected and results, cleanup criteria applied, status (e.g., fully remediated or rationale for deviation) and any associated quality assurance/quality control (QA/QC) samples.

2.2.8.8.4 Quarterly socio-economic reporting

The Consultant will fill out and submit Quarterly Reporting each quarter of the year of the project, see Appendix I.

2.2.8.9 Budget/Cash Flow

Once the Project authority has accepted the Contractor's cost breakdown, the Consultant will:



- .1 Monitor budget/cash flow requirements as required on a site-by-site basis at monthly intervals.
- .2 Review value of progress of work against the approved cost breakdown. When each trade is regularly reviewed against the Project Schedule and the cost breakdown, it quickly becomes apparent whether the Contractor is on budget and is generating the appropriate cash flow for the work.
- .3 Record all discrepancies and agreed remedial measures.

2.2.8.10 Permits Licences and Authorities Having Jurisdiction

The Consultant will gather, verify and report information required for Water Licence, Land use Permit and all other applicable regulations and licence requirements.

2.2.8.11 Contractor's Project Schedule

The Consultant will:

- .1 Obtain a Project Schedule from the Contractor as soon as possible after Contract award and ensure proper distribution.
- .2 Review and advise to ensure that the schedule has detailed components of the work shown separately.
- .3 Use the schedule as the basis for evaluating the progress of the work once the Project authority has reviewed the Contractor's Project schedule.
- .4 Record all discrepancies and agreed remedial measures.
- .5 Keep accurate records of causes of delays.
- .6 Make every effort to assist the Contractor to avoid delays.
- .7 Only the Project Authority may authorize any request for Time Extensions. Authorization will be issued in writing.

2.2.8.12 Shop Drawings

- .1 The Consultant will review, discuss, record problems and identify agreed remedial action. Monitor and record the progress of shop drawing review. Record parties designated for action and follow up.
- .2 On completion of project, The Consultant will include copies of reviewed shop drawings to the Project Authority as part of the Post Construction Report. The Consultant will ensure that shop drawings include the project number and are recorded in sequence.
- .3 The Consultant will verify the number of copies of shop drawings required. Consider additional copies for Project Leads and the Authorities Having Jurisdiction office.
- .4 Shop drawings will be stamped: "Checked and Certified Correct for Construction" by the Contractor and stamped: "reviewed" before returning to the Contractor.

2.2.8.13 Site Instructions

- .1 The Consultant will provide clarifications on Plans and Specifications or site conditions, as required in order that project not be delayed.



- .2 The Consultant will record Contractor's acknowledgement of receipt of all site instructions, ensure and record that required action does not have an impact on cost or schedule.
- .3 The Consultant will provide the Project Authority information with any additional detail drawings as and when required to properly clarify or interpret the Contract Documents, in a timely manner.

2.2.8.14 Change Orders

- .1 The Consultant does not have authority to change the work or the price of the Contract without the Contract or Project Authority approved Change Order or instructions in writing from the Contract or Project Authority.
- .2 Change Orders will cover all changes, including those not affecting the cost of the project
- .3 The Consultant will prepare Contemplated Change Notices (CCN), template for quotations, reviews and unapproved Change Orders (CO). This includes monitoring and recording the progress of CCN and CO. Work in addition to the current contract will not proceed without written approval from the Contract or Project Authority.
- .4 The Project authority will issue the approved CCN and CO to the Contractor, with a copy to the Consultant.

2.2.8.15 Contractor's Progress Payments

- .1 Each month, the Contractor submits a progress claim for work and materials as required in the Contract. The claims are made by completing the following forms where applicable:
 - a. Request for Payment.
 - b. Cost Breakdown for Unit and/or combined Price Contract or Cost Breakdown for Fixed Price Contract.
 - c. Statutory Declaration: Progress Claim.
- .2 The Consultant will determine the amounts owing to the Contractor based on the progress of the work and certify payments to the Contractor.
- .3 The Consultant will review and sign a separate letter recommending payment of the Progress payment (indicating the amount of the approved invoice in dollars) and promptly forward claims to PWGSC for processing.

2.2.8.16 Payment for Materials on Site

- .1 The Contractor may claim for payment of material on site, but not yet incorporated in work.
- .2 A detailed list, checked and verified by the Consultant, of materials with supplier's invoice showing price of each item will accompany each claim.
- .3 Items will be listed separately on the Detail Sheet showing the breakdown list and total.



2.2.8.17 Substantial Completion Inspection

- .1 The Consultant will verify that all items are correctly stated and ensure that completed documents and any supporting documents are given to the Project authority for processing.
- .2 Payment requires completion and signing, by the parties concerned, of the following documents:
 - a. Certificate of Substantial Performance ([Claim for Progress Payment - Acquisitions Forms - Publications and Procurement Documents - Buying and Selling - PWGSC \(tpsgc-pwgsc.gc.ca\)](#)),
 - b. Cost Breakdown for Fixed Price Contract, or Cost Breakdown for Unit or Combined Price Contract,
 - c. Inspection and Acceptance ([Claim for Progress Payment - Acquisitions Forms - Publications and Procurement Documents - Buying and Selling - PWGSC \(tpsgc-pwgsc.gc.ca\)](#)) and,
 - d. Statutory Declaration [Certificate of Substantial Performance](#),
 - e. Worker's Compensation Board Certificate.

2.2.8.18 Final Inspection

- .1 The Consultant will inform the Project Authority when satisfied that all work under the Contract has been completed, including all deficiency items listed during the Substantial Inspection. The Project Authority and the Project Lead will be in attendance for the final inspection.
- .2 The final payment to Contractor requires completion and signing by the parties concerned, of the following documents:
 - a. Certificate of Completion.
 - b. Cost Breakdown for Fixed Price Contract or Cost Breakdown for Unit and/or Combined Price Contract.
 - c. Inspection and Acceptance.
 - d. Statutory Declaration Certificate of Completion.
 - e. Worker's Compensation Clearance Certificate.
 - f. Trades' Certificates as appropriate.
- .2 The Consultant will verify that all items are correctly stated and ensure that completed documents and any supporting documents are given to the Project authority for processing.

2.2.8.19 Post Construction

- .1 The Contractor is responsible for correcting all defects in the work during the warranty period, except for damage caused by misuse, abuse or neglect by others including the building occupants.
- .2 The Project Authority will promptly notify the Consultant in the event that defects, or alleged defects appear in the work of the Contractor.
- .3 The Consultant will investigate all defects and alleged defects in the work promptly and issue appropriate instructions to the Contractor until all work is satisfactorily completed.



2.2.9 Construction Monitoring

- .6 The GBL Sites Remediation Project Water Licence outlines requirements for a Construction/Remediation Monitoring Plan. This Plan will include an outline of sampling locations, methodology, and analytical testing parameters with QA/QC. Based on other similar projects, activities may include routine water quality sampling, activity specific water monitoring (e.g., sampling for suspended solids downstream of shoreline work), visual inspections, geotechnical sampling/monitoring, geochemical sampling, dust monitoring, radiation monitoring, etc.
- .7 Provide specialized services by Environmental, Geotechnical, Geochemical, Biological and other specialized personnel.
- .8 The Consultant will produce the Construction/Remediation Monitoring Plan to meet the Water Licence direction, best practice, and input received from the regulatory review process.
- .9 The Consultant will implement the Construction/Remediation Monitoring Plan throughout the duration of the site remediation, including the procurement of laboratory services from a Canadian Association for Laboratory Accreditation (CALA) certified laboratory. CIRNAC and PWGSC must be copied on all laboratory products (data and reports) and be granted laboratory-client rights to the laboratory produced products (to allow for reissued reports in the future).
- .10 The Consultant is required to incorporate the data into the long-term Excel water quality dataset, to maintain the dataset and to provide to the Project Authority and Project Lead.
- .11 The Consultant will provide a formal report of monitoring activities meeting the requirements as outlined in Annex A of the Water Licence, as well as electronic copies (.xls) of all data tables presented in the annual water quality report; tabular summary (.xls) of all sample reruns, including at minimum the sample control number, parameter name, original results, rerun result, rationale for the rerun and rationale for selecting the reported result; and drawings provided in their original format (GIS, CADD, Excel, etc.).
- .12 Notify the Project Authority if the test results do not meet the specified requirements, or if tests have not been undertaken as required.

2.2.10 Post-Construction and Long-Term Monitoring

- .1 The GBL Sites Remediation Project Water Licence outlines requirements for both a Post-Construction Monitoring Plan (due prior to completion of remediation), and a Long-Term Monitoring Plan (due prior to completion of Post-Construction Monitoring). These Plans will include an outline of sampling locations, methodology, and analytical testing parameters with QA/QC. Based on other similar projects, activities may include routine water quality sampling, visual inspections, geotechnical sampling/monitoring, geochemical sampling, dust monitoring, radiation monitoring, terrestrial/aquatic biota sampling, etc.
- .2 Provide specialized services by Environmental, Geotechnical, Geochemical, Biological and other specialized personnel during the monitoring phase of the project.
- .3 Notify the Project Authority if the test results do not meet the specified requirements, or if tests have not been undertaken as required.



- .4 The Consultant will provide a formal report of monitoring activities in keeping with the Post-Construction and Long-Term Monitoring Plans, as well as all data in raw form (CADD, GIS, Excel and CIRNAC EDD formats)

2.2.11 Project Close-Out Documentation

- .1 Upon completion of the GBL Sites Remediation Project, produce a comprehensive Project Close-Out Report meeting requirements of the NAMR Program and Project Lead requirements.

2.3 Possible Scope Items

The following scope items are not projected to occur, with earlier project phases accomplishing these tasks. However, there remains a potential for additional work to occur and these tasks have been included for completeness. The Consultant will be required to review the existing supporting documents and may be called upon to provide specialized professional services related, but not limited to revision of or continued development of the following tasks.

- Environmental Site Assessments;
- Human Health and Ecological Risk Assessment;
- Remedial Options Reviews and Remedial Action Plans;
- Demolition Assessment and Waste Survey;
- Mould and Abatement Monitoring;
- Hazardous Materials/Waste Audits and Abatement Monitoring;
- Environmental Auditing;
- Storage Tank System Audits;
- Focused Studies and Investigations (e.g., biological investigations, geochemical testing); and
- Status of Environment Report / Performance Assessment Report.

3 DELIVERABLES

- .1 The potential deliverables may include but are not limited to:
 - .1 Meeting Minutes
 - .2 Regulatory Applications, Plans and Reports
 - .3 Technical and Plain Language Materials for Engagement
 - .4 Health and Safety Plans
 - .5 Work Plans
 - .6 Pre-Remediation Monitoring Reports
 - .7 Update and Maintain the Water Quality Dataset
 - .8 Create and Update Environmental Sampling Dataset (water excluded)
 - .9 Drawings and Specifications
 - .10 Cost Estimates
 - .11 Tender Documents
 - .12 Daily Reports
 - .13 Quarterly Reports



- .14 Annual Construction Reports
- .15 Post Construction Summary Reports (Annually and at Completion)
- .16 All documentation and submittals provided by Contractor
- .17 Contractor Progress Claim Approval Letters as required
- .18 Contemplated Change Notices (CCNs), as required
- .19 Site Safety Surveys
- .20 Contractor Indigenous Opportunities Considerations Reporting
 - a) Indigenous Labour Content
 - b) Indigenous Content for Sub-Contracting/Business Content
- .21 Reporting as Required for LUP, WL and any other AHJ requirements
- .22 Construction Monitoring Reports
- .23 Confirmatory Sampling Program Report
- .24 Project Close-Out Report
- .25 Post-Construction Monitoring Reports
- .26 Long-Term Monitoring Reports

The following requirements must be met for all deliverables produced by the Consultant:

- .1 If requested by the Project Authority, the deliverable is to be provided by the Consultant in both official languages (i.e., English for all deliverables and French as requested). This may include reports as well as drawings, specifications, or other technical products;
- .2 Reports will undergo a review by the Project Lead/Project Authority and expert advisors which may include Environment Canada, the Department of Fisheries and Oceans and Health Canada;
- .3 Draft reports are to be submitted in MS Word format for Project Lead/Project Authority review;
- .4 Electronic pdf documents will not be electronically secured, or password protected;
- .5 Electronic pdf documents will contain suitable bookmarks to allow for easy reference to report sections, tables, figures and photographs;
- .6 Appended site photographs shall be presented at a maximum of 2 photos per page;
- .7 All drawings produced by the Consultant shall be compatible with AutoCAD/GIS software;
- .8 Electronic copies of finalized report figures and site plans in an AutoCAD/GIS format are required for all final reports;
- .9 All geomatic data must include metadata to be considered complete and metadata should follow the ISO 19115 NAP standard;
- .10 The Consultant shall use the metric system of measurement for calculation, drawings, and specifications;
- .11 GPS coordinates shall be recorded as decimal degree latitude and longitude, to a minimum of 5 decimal places using WGS84 datum. The location accuracy of GPS coordinates will be documented;
- .12 Hyperlinks to data tables will be provided during the discussion of results; and
- .13 Table, figure, photo and data references will be provided within the text/body of documents; and
- .14 Data used to produce tables and figures will be provided in raw format, including but limited to data in Microsoft Excel, CIRNAC EDD, CADD and Shapefiles.



4 ADMINISTRATIVE SERVICES

4.1 General

The Consultant shall maintain a high standard of professionalism and courtesy. The Consultant will provide the general services that include but are not limited to:

- .1 Attend project meetings as required during all phases of project delivery. Specific meeting intervals and locations will be established on a year-by-year basis.
- .2 Provide full coordination with work of other disciplines including environmental coordination, contracted engineering and specialist Consultants.
- .3 Provide assistance with project scheduling, budget, and cost control.
- .4 Provide assistance with risk management.
- .5 Provide Construction Oversight and Construction Contract Administration Services as required

4.2 Project Consultant Staff, Budget and Cost Controls

Core team members outlined in successful firm's proposal will be expected to fulfill their respective roles on this project as required. If the Consultant wishes to add additional core staff not previously identified as part of the proposal, staff resumes must be forwarded to the Project Authority and subsequently reviewed and accepted prior to commencing work.

The Consultant must provide both on-site and off-site project management support for the duration of the project as required to carry out the work and provide effective interface with PWGSC and other related parties as may be required. The Consultant must clearly establish the project team and organizational structure and must submit the names and responsibilities of each of the members of their staff that will be involved in the project. The Consultant is to designate one individual who will be responsible for overseeing the project and who will liaise with the PWGSC Project Authority throughout the project. The Consultant will not be permitted to make personnel changes working on GBL under this contract without prior review and acceptance by the PWGSC Project Authority.

If a project scope change is anticipated, the Consultant must notify the PWGSC Project Authority in writing immediately. Additional or supplemental work shall not be undertaken or substituted for the work specified unless confirmed in writing by the Project/Contracting Authority through a formal TA Amendment.

The Consultant will be expected to provide all logistical requirements including transportation to and from lodging/staging site, accommodation on route and during site activities, living expenses and other associated costs.

The approved budget for the project must not be exceeded unless otherwise formally amended by the Contract Authority and/or Project Authority followed by written confirmation. Effective cost estimating and cost control is of prime importance.



4.3 Risk Management

The Consultant will assist the Project Authority in:

- .1 Identifying risk elements based on past experience, using proposed checklist or other available lists.
- .2 Qualify/quantify probability of risk event and their impact on project or related work (Low, Medium, High).
- .3 Apply a dollar value to all risk/probability impact events as applicable.
- .4 Prepare contingency plans for possible changes to the work, budget and schedule.
- .5 Prioritize risk events (i.e., concentrate efforts on risk event with High probability and Medium to High impact).
- .6 Develop risk management plan (i.e., evaluate alternatives for mitigation of risks involved).
- .7 Implement risk mitigation on items and approaches approved by the Project Manager.

4.4 Lines of Communication and Coordination

The PWGSC Project Authority is responsible for the project and is the liaison between the Consultant and the CIRNAC Project Lead. The Project Authority administers the project and the Consultant's services under this contract during all phases of project delivery.

The Consultant will:

- .1 Correspond only with the Project Authority and not communicate directly with the Project Lead department, unless authorized in writing by the Project Authority. If so authorized, the Consultant will provide to the Project Manager, a copy of any such correspondence and/or summary of discussions with the Project Lead.
- .2 Ensure that all communications carry Project Authority's Project Title, Project Number, File Number and name of person to whom correspondence is addressed.
- .3 Advise the Project Authority and/or Contracting Authority of any changes that may affect schedule or budget or are inconsistent with instructions or written approvals previously given or decisions previously agreed to.
- .4 Detail the extent and reasons for the changes and obtain confirmation in writing as soon as feasible.
- .5 Coordinate and assume responsibility for the work of any and all Sub-Consultants and Specialists Consultants retained by the Consultant.
- .6 Ensure clear, accurate and ongoing timely and responsive communication of concept, budget, and scheduling issues.
- .7 During Tender Services, the Contract Authority conducts all correspondence with bidders and makes the Contract award.
- .8 During Site Oversight and Construction Contract Administration Services, the Consultant shall provide to the Project Authority the following:
 - .1 A copy of any correspondence and/or summary of discussions with the Contractor.
 - .2 During all phases of project delivery, the Consultant shall:
 - .1 Coordinate and assume responsibility for the work of any and all Sub-Consultants and Specialists Consultants retained by the Consultant.



- .2 Ensure clear, accurate and ongoing timely and responsive communication of concept, budget, and scheduling issues.
- .3 Ensure adequate inspection services and provide answers to all Contractors' questions in a timely and responsive manner.

4.5 Quality Assurance Reviews

The Project Authority will conduct Quality Assurance Reviews on reports, drawings and schedules prepared by the Consultant, in a manner and at stages noted herein. The Remediation Management Committee and Operations Committee may also be included in the review process. The Consultant will respond in writing to all comments, in a timely manner and will be held accountable for delays if proper and timely responses do not occur. Such reviews are not intended as a check against errors or omissions contained within the documents submitted. The Consultant is responsible for any such errors or omissions, regardless of any review.

While PWGSC acknowledges the Consultant's obligations to meet project requirements, the project delivery process entitles the Project Authority to inspect and accept the work. The Project Authority reserves the right to reject undesirable or unsatisfactory work.

The Consultant will obtain the Project Authority acceptances during each of the project stages. Acceptances indicate that, based on a general review of material for specific issues, the material is considered to comply with governmental and departmental objectives and practices and those overall project objectives shall be satisfied. The acceptance does not relieve the Consultant of professional responsibility for the work and compliance with the terms and conditions of the Contract. The Project Authority acceptances do not prohibit rejection of work, which is determined to be unsatisfactory at later stages of review. Acceptances by the Project Lead, Remediation Management Committee and Operations Committee (as well as other agencies and levels of government), will be obtained to supplement the Project Authority acceptances. The Consultant will assist the Project Authority in securing all such acceptances and adjust all documentation as required by such authorities when securing acceptance.

4.6 Project Management and Submission Documentation Standards

The Consultant will provide reports, and associated documentation including all annexes, tables and photographs as per deliverable format outlined earlier. The Consultant will be responsible for the cost of processing the project reports using the Consultant's own or contracted typing/word processing facilities. The Consultant will be responsible for all proof-reading.

The CADD drawing format required for drawings is the AutoCAD native format with the DWG file extension, release 2007 or later. All figures/drawings are to be produced in the metric system of measurement. Figures/drawings are to be provided in AutoCAD drawing format with the final version of the deliverable.

The Consultant shall maintain contact with the PWGSC Project Authority throughout the contract. Draft and Final reports shall be submitted to the Project Authority. Submissions generally include one (1) electronic copy (MS Word) of the Draft Reports and one (1) electronic copy of the Final Reports (Adobe Acrobat pdf) as detailed in Section 3 of this TOR. All report figures and final site survey(s) are to be in AutoCAD format. Provide written response to Project Authority's comments



for each review. Justification for any draft report comments that cannot or will not be addressed by the Consultant in the final reports must be provided to PWGSC in writing prior to submission of the final reports.

4.7 Meetings

If required, the Project Authority will arrange meetings throughout the project. The meetings will be conducted through telephone conference or held in the offices of PWGSC, the Project Lead or the Consultant, at the discretion of Project Authority. Attendees to include representatives from: the Project Authority, Remediation Management Committee, Operations Committee, Consultant, Project Lead and other groups as necessary.

The Consultant shall attend and/or facilitate the meetings, record the issues and decisions and prepare and distribute minutes within 48 hours of the meeting. Standing agenda items will include schedule, cost, risk, quality and safety.

4.8 Health and Safety Requirements

Prior to remediation, Northern Contaminated Sites Program (NCSP) sites are generally in a deteriorating state with ageing infrastructure and site works. In many cases, hazards can be overgrown or buried, and as a result may be difficult to identify.

The Consultant may be required to take on the role of Prime Contractor, and the associated Health and Safety responsibilities/duties, during the contract period should they be the only firm occupying the site (e.g., before and after active site remediation). A summary of these requirements are provided below. More specific Health and Safety requirements will be provided upon issue of individual Task Authorization requests to the Consultant. When the site is under management by a Prime Contractor (remediation contractor, CIRNAC or another), the Consultant will be required to adhere to the Prime Contractor Site Specific Health and Safety Plan (SSHASP).

CIRNAC complies with the applicable provincial/territorial health and safety acts and regulations, in addition to the Canada Labour Code and Canada Occupational Health and Safety Regulations. The Consultant must establish a SSHASP for their staff on the project. The SSHASP will apply to all persons onsite, including Crown representatives and 3rd party contractors. The Consultant will be responsible for familiarizing all persons at site with the SSHASP through orientation seminars and daily safety meetings. The Consultant shall be familiar with the Health and Safety plans of CIRNAC during the development of the SSHASP for the project. Requirements may include but are not limited to, having qualified Wildlife Monitors meeting the CIRNAC requirements for this role (i.e., predator defense, accreditation to carry/operate a firearm). The CIRNAC Environmental Health and Safety Management System Manual, is available for review upon request. The guiding Health and Safety plan shall default to CIRNAC's above referenced document in the event that the site is not occupied by any other party.

The Consultant must provide a SSHASP to the Project Authority and Project Lead for review. The SSHASP shall include sufficient detail to address specific site details and satisfy all requirements of the NWT Workers' Safety and Compensation Commission (WSCC). The Consultant SSHASP shall outline health and safety requirements specific to the hazards identified



at the site and the work they will be completing on the site. The plan shall also identify the Codes/Statutes to be met, rules of behaviour, protective equipment and clothing to be provided, security features to be established, responsible individuals, details on the communication system and emergency response procedures and emergency contacts. The SSHASP must include procedures for reporting accidents and spills.

The Consultant must provide all relevant health and safety material to Consultant staff, sub-consultants, 3rd party contractors and Crown representatives. During on site activities, the Consultant is required to provide appropriate site orientation and daily toolbox meetings to all staff, sub-consultants and site visitors. The Consultant is responsible for following their SSHASP as a minimum standard of precaution. If any unsafe conditions are identified during on site activities, they are to be reported to the Project Authority immediately. If a need for immediate corrective action is identified, it is to be reported immediately with a detailed description of the required action and rationale.

The Consultant shall coordinate efforts with the Project Authority to ensure continued communication for site access and health and safety coordination.

4.9 Special Requirements

Other special requirements applicable to this work include the following:

- The Consultant will procure laboratory services from a Canadian Association For Laboratory Accreditation (CALA) certified laboratory. CIRNAC and PWGSC must be copied on all laboratory products (data and reports) and be granted laboratory-client rights to the laboratory produced products (to allow for reissued reports in the future).
- The Consultant will provide electronic copies (.xls) of all data tables presented report; tabular summary (.xls) of all sample reruns, including at minimum the sample control number, parameter name, original results, rerun result, rationale for the rerun and rationale for selecting the reported result; and drawings provided in their original format (GIS, CADD, Excel, etc.).
- The Consultant will use the metric system of measurement for calculations, drawings, etc.
- The information, data, material, etc. gathered as part of these studies shall be treated as confidential and shall only be discussed with the Project Authority unless otherwise directed by the Project Authority.
- All of the drawing information produced by the Consultant shall be compatible with and capable of input to the CAD and GIS systems in use at the PWGSC/CIRNAC offices. Final reports for each project activity shall be provided in paper and electronic format.
- No acceptance or confirmation by the Project Authority, expressed or implied, will be deemed to relieve the Consultant of their professional or technical responsibility for the calculations, drawings, analytical results, or other material prepared or assembled by the Consultant, or for things required under this Agreement.
- The Consultant will refer queries on the project from the public, news media, etc. to the Project Authority.



5 TECHNICAL SERVICES

5.1 Codes and Standards

The Consultant must adhere to the following codes and standards:

1. All criteria will be in accordance with the current edition of Canadian Codes and Standards, and any other relevant Codes as applicable. If local or municipal codes and bylaws are more stringent, they will take precedence.
2. Regulations, by-laws, and decisions of "Authorities Having Jurisdiction" will be observed. In cases of overlap, the most stringent will apply.
3. The Consultant will identify and communicate with all jurisdictions applicable to the project.
4. For material properties (both physical and chemical), methods of fabrication, tests, etc., reference shall be made to the latest editions of CSA Standards and the Canadian General Standards Board, or to local standards if they are more stringent.

5.2 General Technical Requirements

The Consultant will provide and coordinate full professional consulting services required during all phases of project delivery as outlined below but not limited to:

1. Make all necessary arrangements with the originator or owner of documents use of any copyrighted or owned documents for purposes of the project. On completion of the project all documents provided by the Project Authority are to be returned to the Project Authority.
2. Attend and contribute to Project Meetings throughout the duration of the project.
3. Provide full coordination with work of other disciplines, Sub-Consultant and Specialist Consultants.
4. Site monitoring and assessment activities outlined in this TOR.
5. Preparation and presentation of reports for review and approval.
6. Interpretation and/or adherence to all applicable codes, Environmental, Fire, Health and Safety Requirements, other specific codes or standards.

5.3 Quality Management System

A fulsome Quality Management System must be established by the Consultant to provide an appropriate level of Quality Assurance (QA) to the work of the Consultant's team, ensuring coordination and integration of all required disciplines and specializations in timely design work and meeting design submission timelines and how the Proponent will effectively lead and manage teams that include sub-consultants to achieve this result.

Within individual Task Authorizations, the Consultant will be required to develop specific Quality Assurance and Quality Control (QA/QC) Plans tailored to the scope of work to ensure that data obtained is accurate and representative of actual conditions, and adheres to pre-existing project requirements (e.g., Great Bear Lake Sites QA/QC Plan).