Draft List of Commitments

Technical Meeting (TM) September 17, 2020 Held in Relation to

An Application to Amend Water Licence No. 3AM-IQA1626

Commitment #	Document/Topic Category	Party Responsible for Commitment	Party(s) who raise item	Comment # in Letter	Recommendations	City of Iqaluit Response	Intervener Reply and Follow-Up Questions	Suggested Form of Submission	Timeline for Submission
ECCC									
1	Baseline Monitoring	City of Iqaluit	ECCC	1	ECCC recommends that the proponent: Provide raw and summarized data (including field results, laboratory reports, a tabulated summary, and a comparison of monitored parameters to relevant guidelines) for the baseline conditions assessment of the Waste Transfer Station and landfill conducted by Dillon Consulting in 2019; and Show how the baseline information has been used and incorporated into design/mitigation as needed.	The City of Iqaluit's response indicates that information will be included in the 100 % submission.	ECCC requests that the City provide the outstanding information (see column 1) for review.	Updated Facility Monitoring Plan Document	Provide updated documents by October 2
2	Unbaled Waste	City of Iqaluit	ECCC	2	ECCC recommends that: The proponent identify measures to ensure the containment of unbaled C&D debris and any unbaled MSW within the landfill cell. Contingency measures, such as potential cover sources, should be available to ensure containment of unbaled waste in the event of any extended or recurring operational issues at the Waste Transfer Station. The proponent conduct an evaluation of the durability of the baled wastes' plastic cover, which should include a discussion of alternative cover methods.	The City of Iqaluit's response document indicates that text reflecting this comment has been added to Sections 8.3.1 and 9.1 of the Operations & Maintenance Manual.	ECCC requests that the City provide the updated Sections 8.3.1 and 9.1 of the Operations and Maintenance Manual for review.	Provide updated Sections 8.3.1 and 9.1 of the Operations and Maintenance Manual	Provide updated documents by October 2
3	Acid Rock Drainage/Metal Leaching (ARD/ML)	City of Iqaluit	ECCC	3	ECCC recommends that the proponent sample project borrow source locations in order to identify any Acid Rock Drainage/Metal Leaching potential that	N/A	ECCC suggests this recommendation could be resolved by a license condition, or by	City of Iqaluit to request license condition	City to outsource this mandate by October 12th – testing times may vary.

					could affect water quality. Testing should be completed using static and kinetic methods to characterize representative units. ECCC recommends that the proponent should avoid quarry/units that are determined to have ARD/ML potential.		inclusion of this item in a quarry plan.		
4	Leachate treatment – Landfill	City of Iqaluit	ECCC	4	ECCC recommends that the proponent identify treatment options beyond the existing system, and determine the lead-time needed to install and commission the treatment system.	N/A	ECCC suggests this recommendation could be resolved by inclusion of a licence condition that requires the City of Iqaluit to (1) characterize the leachate and (2) submit a treatment plan for Board approval.	City of Iqaluit to request license condition	City to request design engineers to look into this request and provide an update by October 2nd.
5	Leachate retention ponds	City of Iqaluit	ECCC	5	ECCC requests that the City describe how volumes of effluent and precipitation would be managed under a potential high precipitation scenario (i.e., annual increase of 9 percent over baseline climate) during the first 2 years of operations.	The City of Iqaluit's response document states that to account for a 9% increase over baseline conditions [i.e., the upper range precipitation projection scenario], storage volume of the [leachate retention] lagoons will have to be increased from 11,000m3 to 14,000m3.	ECCC requests that the City provide the outstanding information (see column 1) for review.	Provide updated lagoon detail drawing	Provide updated drawing by October 2
6	Groundwater	City of Iqaluit	ECCC	6	ECCC recommends that the proponent revise the Environmental Protection Plans [i.e., EPP-Construction Phase; and EPP-Operations, Closure and Post-Closure Phases] to include groundwater as an environmental consideration for this project.	The City of Iqaluit's response indicates that this information will be included in the 100 % submission.	ECCC requests that the City provide the outstanding information (see column 1) for review.	Provide updated EPP-Construction Phase, EPP-Operations, Closure, and Post-Closure Documents	Provide updated documents by October 2
7	Environmental Protection Plans, Section 4.0 – Mitigation measures tables	City of Iqaluit	ECCC	7	ECCC recommends that the mitigation measures tables located in Section 4.0 of both Environmental Protection Plans (EPPs) each include a measure specifying that erosion and sediment control activities be conducted in accordance with the Erosion and Sediment Control Plan.	The City of Iqaluit's response document indicates that Section 4.0 of both Environmental Protection Plans (EPP-C, EPP-O) have been updated as requested.	ECCC requests that the City provide the updated Section 4.0 for both Environmental Protection Plans (i.e., EPP-Construction Phase; and EPP-Operations, Closure and Post-Closure Phases) for review.	Provide updated Section 4.0 of EPP-C and Section 4.0 of EPP-O documents	Provide updated documents by October 2
8	Environmental Protection Plans, Section 5.0 (Monitoring and Inspection)	City of Iqaluit	ECCC	8	ECCC recommends that the proponent submit the monitoring and inspection sections of the Environmental Protection Plans [i.e., EPP-Construction Phase; and EPP-Operations, Closure and Post-Closure Phases] prior to commencement of construction.	The City of Iqaluit's response document indicates that the Monitoring and Inspection section of the Construction Phase EPP document has been updated accordingly. The intent of Recommendation 8 is that the monitoring and inspection sections (i.e., Section 5.0) of both Environmental	ECCC requests that the City: Submit the updated monitoring and inspection section (i.e., Section 5.0) of the Environmental Protection Plan – Construction Phase document for review; and	Provide updated Section 5.0 of the EPP-C and Section 5.0 of the EPP-O documents	Provide updated documents by October 2

						Protection Plans (i.e., EPP-Construction Phase; and EPP-Operations, Closure and Post-Closure Phases) be submitted prior to commencement of construction. The City's response indicates that only the Construction Phase EPP document has been updated.	Update and submit the monitoring and inspection section (i.e., Section 5.0) of the Environmental Protection Plan – Operations, Closure and Post-Closure Phases document for review.		
9	Total Suspended Solids	City of Iqaluit	ECCC	9	ECCC recommends that the proponent: Conduct sediment monitoring in relation to any project disturbances in or near water (e.g., in-stream construction); and Conduct TSS/turbidity monitoring routinely during in-stream works, and identify thresholds and accompanying management actions in advance of such in-stream works.	The City of Iqaluit's response document indicates that Section 4.3 of the Erosion and Sediment Control Plan document has been updated accordingly.	ECCC requests that the City provide the updated Section 4.3 of the Erosion and Sediment Control Plan for review.	Provide updated Section 4.3 of the Erosion and Sediment Control	Provide updated documents by October 2
10	Visual Monitoring	City of Iqaluit	ECCC	10	ECCC recommends that the proponent increase the frequency of visual monitoring during and following freshet and major rainfall events, particularly with respect to monitoring for signs of erosion and	The City of Iqaluit's response document indicates that this will be included in the 100 % submission.	ECCC requests that the City provide the outstanding information (see column 1) for review.	Provide updated Facility Monitoring Plan	Provide updated documents by October 2
11	Landfill surface monitoring	City of Iqaluit	ECCC	11	ECCC recommends that the proponent add TSS and phenols to the surface water monitoring parameters listed in Section 3.5.1 (Surface Water Monitoring Plan) of the Facility Monitoring Plan.	The City of Iqaluit's response document indicates that this will be included in the 100 % submission	ECCC requests that the City provide the outstanding information (see column 1) for review.	add TSS and phenols to the surface water monitoring parameters listed in Section 3.5.1 of the Facility Monitoring Plan	Provide updated document by October 2
12	Groundwater Monitoring	City of Iqaluit	ECCC	12	ECCC recommends that the proponent: Include the monitoring of dissolved metals, in addition to total metals, for groundwater samples; and Incorporate a description of how the groundwater monitoring results will be assessed (for example, compare results to baseline sample concentrations, applicable license requirements and recognized groundwater guidelines) into Section 3.7 (Active Layer Groundwater	The City of Iqaluit's response document indicates that this will be included in the 100 % submission.	ECCC requests that the City provide the outstanding information (see column 1) for review.	Provide updated Section 3.7 of the Facility Monitoring Plan	Provide updated documents by October 2

					Monitoring) of the Facility Monitoring Plan.				
13	Effluent discharge	City of Iqaluit	ECCC	13	ECCC recommends that the proponent characterize the effluent to determine compatibility with the wastewater treatment process prior to transporting effluent to the City's Waste Water Treatment Plant (WWTP). The proponent may need to implement alternative small-scale treatment if effluent quality would render the options discussed unacceptable.	The City of Iqaluit's response document indicates that Section 12.2 of the Operations and Maintenance Manual and Section 3.9 of the Facility Monitoring Plan have been updated accordingly.	ECCC requests that the City provide the updated Section 12.2 of the Operations and Maintenance Manual and the updated Section 3.9 of the Facility Monitoring Plan for review.	provide updated Section 12.2 of the Operations and Maintenance Manual and updated Section 3.9 of the Facility Monitoring Plan	Provide updated documents by October 2
14	Leachate Management – Landfill	City of Iqaluit	ECCC	14	ECCC recommends that the proponent: Provide details for assessing landfill leachate/effluent characteristics; and Include a summary in the annual report of the landfill leachate management system, including leachate generation rates, leachate/effluent characteristics, holding pond capacity, and an update on leachate management/treatment.	The City of Iqaluit's response document indicates that Section 12.2 of the Operations and Maintenance Manual has been updated accordingly.	ECCC requests that the City provide the updated Section 12.2 of the Operations and Maintenance Manual for review.	provide updated Section 12.2 of the Operations and Maintenance Manual	Provide updated document by October 2
15	Leachate Management – Waste Transfer Station	City of Iqaluit	ECCC	15	ECCC recommends that the proponent: Provide secondary containment for the leachate holding tank; Characterise the WTS leachate to determine compatibility with the wastewater treatment process prior to transporting leachate to the City's WWTP; Track the WTS leachate generation rates/volumes and treatment/disposal details; and Report the WTS leachate generation rates/volumes, treatment/disposal details, and characterization results in the annual report.	The City of Iqaluit's response document indicates that Section 12.1 and Section 14.0, item 10 of the Operations and Maintenance Manual have been updated accordingly.	ECCC requests that the City provide the updated Sections 12.1 and 14.0 of the Operations and Maintenance Manual for review.	Provide updated Section 12.1 and Section 14.0 of the Operations and Maintenance Manual	Provide updated document by October 2
16	Liner installation timing and planning	City of Iqaluit	ECCC	16	ECCC recommends that the proponent provide in the Annual Report: An update on the capacity of the landfill cell currently in use, including the	The City of Iqaluit's response to this recommendation states "Refer to Section 14.0, item 7 of the Operations and Maintenance Manual".	ECCC suggests that the licence include a condition under the annual reporting requirements for (1) an update as outlined in the first bullet of the recommendation	City of Iqaluit to request license condition	To be provided by the City by October 30th.

					installation timing calculation (inputs and result); and Discuss the required actions/schedule for the design and installation of the next lined disposal area in the sequence.	ECCC notes that, although Section 14.0, item 7 of the O&M manual discusses the landfill cell liner installation, it does not indicate whether the items listed in this recommendation will be included in the annual report.	[i.e., an update on the capacity of the landfill cell currently in use, including the installation timing calculation (inputs and result)], and (2) a brief status report on the requirements for the next disposal area in the sequence.		
17	New Technology/ Lessons Learned	City of Iqaluit	ECCC	17	ECCC recommends that the proponent: Identify and describe measures to prevent/mitigate the challenges described (i.e., substantial volumes of poor quality leachate, and down time during mechanical breakdowns and for maintenance), and discuss their anticipated effectiveness; Describe how the effectiveness of these prevention/mitigation measures will be monitored; and Document lessons-learned to inform subsequent stages of construction and operation.	As baling of municipal solid waste is not a proven technology for Canada's arctic environment, it is important to proactively identify and address potential new challenges/ issues at the outset of the project, to the extent possible. ECCC notes that the baling facility located in Yellowknife has been experiencing ongoing challenges, including generation of substantial quantities of poor quality leachate, management and disposal of leachate, and challenges with operation of the machinery including down time for repairs and maintenance. It would be prudent to consider whether such issues could occur at the City of Iqaluit's planned baling operations.	ECCC requests that the City provide the outstanding information (see column 1) for review. ECCC suggests that the Proponent contact the City of Yellowknife to see if there are common elements in the proposed system that may lead to problems. ECCC can provide the City of Iqaluit with contact information for the City of Yellowknife's Manager of Sustainability and Solid Waste.	Provide updated Operations and Maintenance Manual Provide notes from City of Yellowknife to be provided by the City of Iqaluit	Provide updated OMM by October 2
CIRNA									
18	Reclamation of the West 40 Landfill	City of Iqaluit	CIRNAC	1	CIRNAC recommends the City provide an update on plans for reclaiming the West 40 landfill including: An estimated schedule for reclamation work; and details on site drainage, including where all the ditches would be on the decommissioned site, their drainage directions and how they connect with the offsite retention pond	This is outside the scope of the detailed design process and will be addressed by the City of Iqaluit and/or AECOM. AECOM Response: The date of closure of the West 40 Landfill is dependent on the schedule for the new landfill. The West 40 Landfill will not be closed until the new landfill and transfer Station are commissioned and fully operational. The landfill is currently filling to a proposed final design elevation that has been developed to provide the City with disposal capacity until the new facilities are operational. As of the 2019 projections it appears that the landfill has capacity until sometime in 2022/23. The landfill has just completed a 2020 survey and is in the process of evaluating the remaining airspace and therefore determining site life. As is the normal practice, a final closure design and closure report will not be developed until the landfill is in fact closed. A final design	OK – Resolved. CIRNAC recommends that an amended licence include a condition for the applicant to provide the final closure design report one year prior to reclamation work being undertaken. Additionally, we suggest the plan be provided within one year of closure of the West 40 landfill.	City of Iqaluit to request license condition	Design Engineer to provide a response by October 2nd.

						cannot be developed until the final fill elevations and contours are realized. The final closure report and design will address final landform shape, final slopes, final cover design, surface water drainage and controls, and long term monitoring and maintenance requirements.			
19	OMM	City of Iqaluit	CIRNAC	2	CIRNAC recommends the applicant provide rationale for not controlling leachate and contact water from the bale storage area at the waste transfer station.	Drawings will be revised to include asphalt pad, asphalt curbing to control runon and runoff, and the sump.	CIRNAC to confirm this is included in 100% drawings – request timeline for submission.	Provide updated drawings of proposed bale storage area changes	Provide updated drawings by October 2
20	OMM	City of Iqaluit	CIRNAC	2	Additionally, they should explain how they will ensure proper drainage at the waste transfer treatment site with such small grades.	See comment 45.		Provide updated drawings of site drainage changes	Provide updated drawings by October 2
21	Landfill Leachate Treatment	City of Iqaluit	CIRNAC	3	CIRNAC recommends the applicant clarify what the current position is for treating landfill leachate, their plan for collecting the necessary data for an informed decision, and the factors that will control their decision.	As outlined in the Operations and Maintenance Manual, the approach to leachate management will be to hold it for up to two years in new engineered lagoons. Routine samples will be taken by the City and the data reviewed by Dillon. If untreated leachate at the outlet of the second holding pond is found to exceed discharge limits set by the NWB, then additional treatment will be designed and installed. The nature of additional treatment technology will depend on the parameters in exceedance, but are expected to be met with the addition of aeration to the lagoons, metal precipitation and filtration.	Three options are discussed for discharging the ponds: · Transporting effluent to the West 40 landfill; · Transporting effluent to the City's wastewater treatment plant; and · Controlled release of effluent to a gravel bed diffuser or treatment in a wetland. Based on the response and discussions in the Technical Meeting, it is still not clear: **Which leachate treatment option was chosen? Will leachate be discharged to the environment?** CIRNAC recommends the applicant monitor and report on the leachate, before the ponds become full. This could be included in a management plan or as a licence condition. Monitoring of both quantity and quality should be done throughout the open water season, with results reported and analyzed every year for at least the first 5 years. If results indicate the need for water treatment, choice of methodologies and their	The practice of baling and wrapping MSW in northern climates is, to our knowledge, relatively novel and is not explicitly practiced anywhere else in North America (Yellowknife balefills, but does not wrap). Dillon prepared a risk assessment and options report for the City, which identified several options previously mentioned. The current planned approach as selected by the City/Colliers in November 2019 is to collect and monitor leachate quality in two new lined holding ponds for a period up to two years, or sooner if the leachate quality can be consistently characterized. During these two years, if effluent at the outlet of the second pond (sampled via the new	City to request the Design Engineer provide a response by October 2nd.

							implementation should occur within one year.	manhole) meets NWB surface water discharge requirements, it will be released to the level spreader downstream of the lagoons. If the quality does not meet land discharge limits (as defined in Table 1, Non-Point Source Discharge, Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities, Government of Nunavut 2011), but is lower than the allowable influent strength at the City's municipal WWTP (as defined in the Iqaluit WWTP Upgrade Redesign Development Report, Stantec, 2017), it may be hauled there instead. Hauling to the City's municipal WWTP or existing West 40 treatment system will also be an emergency backup in the event the ponds begin to fill faster than anticipated due to increased rainfall. This will be monitored through a staff gauge indicating depth and associated volume in each pond. It is important that throughout the life of the landfill, leachate is monitored each year to identify if the quality	

								and quantity is changing. If the leachate quality is not suitable for disposal on land or at the municipal WWTP, two options are available: potential reuse of the West 40 leachate treatment system, which is largely portable and could be relocated; or, construct a new treatment system at the landfill based on the sampled leachate parameters. It is estimated that it would take three months to design a system, and one construction season to build (after the lagoons are constructed). The proposed leachate sampling program should consist of weekly sampling of the raw leachate, the outlet of pond 1 and the outlet of pond 2. If the quality appears to stablize after one treatment season, the monitoring may be reviewed and reduced.	
22	Landfill leachate collection, Design Drawings (90%)	City of Iqaluit	CIRNAC	4.1	provide more detail on leachate collection pipes including: Showing leachate piping intended for Cell 1 in detail and providing conceptual layout for piping for the remaining cells; Providing details in the drawings for piping diameter, perforation and clean out/inspection access (if any); Providing details on whether leachate piping would be placed on cell floor orwithin leachate collection trenches; and	The leachate collection piping in the cells has been removed due to the assumption that the waste mass and underlying granulars will freeze along with any piping in the granulars. An 8 m wide strip, reduced to 4 m for the 100% submission will allow leachate to run off of or percolate through the baled material and exist into the 4 m strip. The leachate can then flow to the	The explanation is hard to interpret without a drawing showing new concept of leachate collection. The responses seem to indicate leachate will still flow to sumps from cells far away from those sumps, and it is unclear: **How will this work once landfill is closed?**	Provide updated drawings of leachate system	Updated drawings to be provided by October 2

					Providing evidence to demonstrate how the leachate pipe will not be deformed under waste loading	leachate collection sump for pumping out to the leachate lagoons.	CIRNAC to confirm this is included in 100% drawings – request timeline for submission.		
23	Landfill leachate collection, Design Drawings (90%)	City of Iqaluit	CIRNAC	4.2	provide information on the leachate sumps including: More detail on design intent for leachate sump in each cell once the cells are at capacity; and An explanation on the choice of manholes to lower pumps into the sump.	The sump in Cell 1 will be removed and the berm between Cell 1 and 4 removed so leachate from Cells 1 to 6 will flow to the Cell 4 sump. When a cell that has a sump is closed the manhole in the sump will be extended through the cap allowing for leachate to be removed via pumping from the sumps in subsequent cells.	The key concern is a low point in which leachate can accumulate remaining after sump or manhole removal. The concept of Cell 1 connection into Cell 4 is clear from the answer provided, but it is unclear: **How will the sump be "removed"?** CIRNAC to confirm this is included in 100% drawings – request timeline for submission.	Provide updated drawings of the leachate sumps	Provide updated drawings by October 2
24	Landfill leachate collection, Design Drawings (90%)	City of Iqaluit	CIRNAC	4.3	provide more information on the liner system including: Thermal or settlement slack in the geomembrane placement requirements; and Details on the proposed geotextile.	Technical Specifications Section 33 47 14 Geomembranes, Clause 3.4 requires the Contractor to prepare and submit a thermal compensation plan. Technical Specifications Section 31 32 21 provides minimum requirement details for proposed geotextiles Type A, Type B, and Type C.	The Technical Specifications referred to in the response are not available for review. The response for thermal slack is satisfactory, but without the specifications, the department cannot comment on the geotextile. The department recommends that the thermal compensation plan be submitted for approval prior to construction.	Provide updated Technical Specifications Section 33 47 14 and Section 31 32 21	Provide updated documents by October 2
25	Landfill leachate collection, Design Drawings (90%)	City of Iqaluit	CIRNAC	4.4	CIRNAC recommends the applicant provide clarification in design intent for Cell 10 leachate collection to ensure all leachate from Cells 10, 11 and 12 can be removed.	Grades have been reviewed.	The grades been reviewed. **Have they been revised? If so, how?** CIRNAC to confirm this is included in 100% drawings – request timeline for submission.	Provide updated grading drawings	Provide updated drawings by October 2
26	Surface water management at landfill, Design Drawings (90%)	City of Iqaluit	CIRNAC	5.1	CIRNAC recommends the applicant provide details on surface water ditching on north side of Cell 1 to convey drainage around the bermed area.	A profile section of this ditch has been added to drawing C08.	CIRNAC to confirm this is included in 100% drawings – request timeline for submission.	Provide updated detail drawings of the Cell 1 drainage around the bermed area	Provide updated drawings by October 2

27	Surface water management at landfill, Design Drawings (90%)	City of Iqaluit	CIRNAC	5.2	CIRNAC recommends the applicant provide information on the stormwater berm in Cell 1. Specifically, if the berm is temporary, information should be provided in the drawings on the design intent for removal of the berm. If the berm is permanent, then information should be provided on how filling of bales should occur at the berm location.	A note has been added to the relevant drawings indicating the berm is temporary and to be removed by the Owner prior to waste being placed in that location.	OK – Resolved.	Resolved.	Resolved.
28	Surface water management at landfill, Design Drawings (90%)	City of Iqaluit	CIRNAC	5.3	CIRNAC recommends the applicant provide rationale for why erosion control features were not deemed necessary in the following areas: Sediment traps along west side of west access road and along south side of south access road; and Fibre rolls and silt fence on both sides of Leachate lagoon road.	On the west side of the west road the grade slopes to the west, and the northern most sediment trap on the east side would capture that flow. The area to the south of the south road is higher than the ground to the north. Two sediment traps will be added to the south side of the road.	The applicant provided sufficient rationale regarding the sediment traps. Please clarify: **Rationale for why erosion control features were not deemed necessary in the fibre rolls and silt fence on both sides of Leachate lagoon road.** **Whether flow from west ditch on west access road is designed to flow into northernmost sediment trap.**	Provide updated surface water management drawing	Provide updated drawings by October 2
29	Fencing, Design Drawings (90%)	City of Iqaluit	CIRNAC	6	CIRNAC recommends the applicant provide clarification on where fencing and gates are to be installed and, if no fencing is planned around the landfill site, provide details on how wildlife and general public will be restricted from access.	Fencing is to be installed at the toe of the leachate lagoons berms. Fencing is to be installed initially around Cell 1, and will be moved and extended as the landfill expands. A gate is located on the western side connecting to the berm that separates the two lagoons.	The response provided by the applicant indicates where fencing will be installed, but does not fully address the question of site security and wildlife deterrents. CIRNAC recommends that site access be addressed in the Operation and Maintenance Plan or Manual, specifically: **What are the procedures for gate closures?** **How will wildlife and general public be restricted from access?** **What will be the response procedures if public/wildlife accesses the site?**	Provide updated Operation and Maintenance Manual	Provide updated documents by October 2
30	Permafrost, MSC, FMP, OMM	City of Iqaluit	CIRNAC	7.1	CIRNAC recommends the applicant describe what construction methodologies will be used to minimize impact on permafrost of construction activities. Additionally,	This is documented in the Wood Geothermal Modelling and Geotechnical	CIRNAC to confirm this is included in 100% drawings – request timeline for submission.	*Wood*	Provide updated documents by October 19

					they should provide a basis for the design approach recognizing the geotechnical and permafrost conditions that exist at the landfill site.	Recommendations report dated May 2019 and is included in the 100% package.	The Wood report does not describe the construction methodologies that will be used to minimize impact on permafrost (mitigate permafrost degradation) due to proposed construction activities at the WTS, Landfill and Access Road. The Wood report is entirely silent on the design, construction, and approach for mitigating permafrost degradation along the Access Road. So, the reviewer referred to The Method Statement of Construction Report which 31also does not address design basis, co32nstruction methodology and activities to mitig33ate permafrost degradation. The entire Method34 Statement of Construction Report only refers to P35ermafrost 3 times in 2 sections – Section 4.2.536 referring to CSA Standard S500 - Thermosyphon 37foundations for buildings in permafrost regions and a thermal analysis, and Section 5.2.15 proposing a monitoring network. **What construction methodologies will be used to minimize impact on permafrost of construction activities?**		
31	Permafrost, MSC, FMP, OMM	City of Iqaluit	CIRNAC	7.2	CIRNAC recommends the applicant describe permafrost conditions at the proposed leachate pond location and explain how permafrost conditions have been addressed in the design, construction and operation of the ponds.	This is documented in the Wood Geothermal Modelling and Geotechnical Recommendations report dated May 2019 and is included in the 100% package.	The requested information was not found in the Wood Report, and the 100% submission is still unavailable for review. It is unclear : **How have permafrost conditions at the proposed leachate pond location been addressed in the design, construction and operation of the ponds?**	*Wood*	Provide updated documents by October 19
32	Permafrost, MSC, FMP, OMM	City of Iqaluit	CIRNAC	7.3	CIRNAC recommends the applicant describe the rationale for thermistor locations and how they will monitor	Grading has been revisited and approved by Wood (project geotechnical consultant). No changes to the current grading plan design are proposed.	The requested information was not found in the Wood Report, and the 100% submission is still	*Wood*	Provide updated documents by October 19

					ground temperature changes within and below the facilities.		unavailable for review. It is unclear : **What is the rationale for thermistor locations?** **How will the thermistors monitor ground temperature changes within and below the facilities, including the WTS, Landfill and Access Road?**		
33	Permafrost, MSC, FMP, OMM	City of Iqaluit	CIRNAC	7.4	CIRNAC recommends the applicant explain why it was not deemed necessary to consider heat generation from decomposing municipal waste in the thermal modelling of the landfill.	This is documented in the Wood Geothermal Modelling and Geotechnical Recommendations report dated May 2019 and is included in the 100% package.	The requested information was not found in the Wood Report, and the 100% submission is still unavailable for review. It is unclear : **Why was heat generation from decomposing municipal waste not considered in the thermal modeling of the landfill?**	*Wood*	Provide updated documents by October 19
34	Waste transfer station geotechnical report	City of Iqaluit	CIRNAC	8	CIRNAC recommends the applicant identify where this report can be found.	This is outside the scope of the detailed design process and will be addressed by the City of Iqaluit and/or EXP. EXP Response: EXP completed the geotechnical report for the TS in 2018 I believe and provided Colliers with a copy of the report for the 2019 Landfill Site and TS Design RFP.	CIRNAC to confirm this is included in this Geotechnical Report – request timeline for submission. **When will this be available for review/reference?**	City of Iqaluit to Provide Geotechnical Report	City to find the report and have it submitted by October 2nd.
35	Design Drawings (90%)	City of Iqaluit	CIRNAC	9	CIRNAC recommends the applicant clarify the construction methodology for cuts and ditches at the landfill.	Specific construction methods are determined by the contractor, not the designer. This is outside the scope of the detailed design process.	The Designer is obliged to provide construction direction to the Contractor regarding what will be permitted and what will not be permitted construction practices specific to mitigation permafrost degradation and environmental impacts. **What is the proposed strategy to protect permafrost during cutting and digging?** CIRNAC is seeking a commitment from the applicant to provide this methodology for review at least 60 days prior to work being undertaken.	*Wood*	Provide updated documents by October 19

36	OMM	City of Iqaluit	CIRNAC	10.1	CIRNAC recommends the applicant describe if non-baled waste in the landfill will be compacted, and how solid waste will be handled at the landfill in event of a mechanical breakdown of the baling or shredding equipment.	Text has been added to Section 8.3.1 of the Operations and Maintenance Manual.	CIRNAC to confirm this is included in revised O&M manual – request timeline for submission.	Provide updated Operations and Maintenance Manual	Provide updated documents by October 2
37	OMM	City of Iqaluit	CIRNAC	10.2	CIRNAC recommends the applicant clarify what household hazardous wastes will be accepted and if the hazardous waste storage area includes secondary containment.	Household Hazardous Wastes will be collected according to the regulatory environment in the City of Iqaluit and the Government of Nunavut, and are therefore subject to change. Hazardous waste storage does include secondary containment (Loraday Building Model No: LEP/L73-4012 Built in Accordance to FM 6049 Standard/Non-Combustible/40ft. Storage Building or equivalent). Section 4.1.5 and Section 4.1.6 of the Operations and Maintenance Manual have been updated accordingly.	Please clarify: **What are the acceptable and non-acceptable household hazardous wastes?** CIRNAC recommends that the Operation and Maintenance Manual include the list of acceptable and non-acceptable wastes upon commissioning of the facility to provide guidance to the operating staff, and that the Manual be updated as required as the regulatory environment changes. CIRNAC to confirm this is included in revised O&M manual – request timeline for submission.	Provide recommended HHW list for Operations and Maintenance Manual	Provide updated documents by October 2
38	OMM	City of Iqaluit	CIRNAC	10.3	CIRNAC recommends the applicant provide additional detail on leachate pumping including: objective criteria for when pumping is required (e.g. maximum allowable leachate head); method to be used to measure the leachate head and the level in the sump; and requirements for monitoring of pond levels and hoses for leaks during pumping operations.	The leachate head in the landfill sumps will be measured by a staff gauge bolted to the interior of the manhole. Hoses would not be used for leachate pumping - flanged and bolted solid wall HDPE piping would be installed at the start of the season and removed and stored at the end of the pumping season. Given the slope and the HDPE lining of the lagoons a HDPE staff gauge will be welded to the lagoon liner. The pump will be controlled by floats in the cell sumps, with the allowable head equal to the depth of the sump of 1.0 m or approximately 300 mm over the floor of the cell.	The applicant provided additional details which generated more questions: **- How will the bolts be protected from corrosion?** **- How will personnel respond if the staff gauge is dislodged by ice?** **- The extraction pipe will be removed for winter. Will the float system also be removed?** **- The response seems to indicate an automated system, while the Operation and Maintenance Manual indicates a manual operation - which is correct?** CIRNAC to confirm details included in revised O&M manual	Provide updated Operations and Maintenance Manual	Provide Updated documents by October 2

							and 100% submission – request timeline for submission.		
39	OMM	City of Iqaluit	CIRNAC	10.4	CIRNAC recommends a water license condition be developed to require additional cover if nuisances occur.	Ok.	OK – Resolved.	Resolved	Resolved
NWB									
40	Regulatory Advice	ECCC	NWB				Provide regulatory advice on the applicable regulation or guideline, including limits/parameters that could be included within the licence with respect to the potential discharge of treated effluent (treated leachate) into the environment. Provide regulatory advice on the applicable regulation or guideline including limits/parameters that could be included within the licence and/or used to compare groundwater monitoring results to (referred to in ECCC Comment 12).	Written Memorandum.	October 2, 2020
41	Operational Costs	City of Iqaluit	NWB				Provide operational cost for hydraulic bailer and annual operational cost of landfill, including WTS. Cost difference between feasibility stage and estimated now.		Design Engineer will be consulted based on their O&M manual, and provide a response by October 19th.