Technical Summary for the Rehabilitation of the Sewage Lagoon Cell -1 of the Hamlet of Hall Beach

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Hall Beach is one of the smallest Community of Baffin Region with the population of 759 in 2015. This Community is located at latitude $68^0$46'N and Longitude $81^0$13'W. It is situated on the East shore of the Mellville Peninsula, on the west side of Foxe Basin. It is in a zone of continuous permafrost and is located on sand and gravel raised beaches, with flat to gently rolling terrain surrounded by numerous lakes and ponds.

The Hamlet of Hall Beach provides trucked services for the Community's residents, businesses and institutions. The wastewater produced in the Community is being treated by two exfiltration lagoons situated side by side. The sewage lagoon cell closet to the community is called cell-1. The existing capacity of cell -1 is 15,295 cubic meters and cell-2 is 15,462 cubic meters. During summer, the cell -1 exfiltrates sewage into cell -2 and cell-2 exfiltrates into the wetlands. Syphoning system is adopted for additional decanting of these lagoons as required.

The cell-1 started leaking in 2008 through its south berm and after two times repairing, still it has been leaking.

Exp Services Inc. has been hired for conducting a feasibility study, geotechnical investigation and finally design for optimization of wastewater treatment for the Community.

Following the geotechnical investigation, the sewage lagoon cell-1 has been recommended to expand and rehabilitate with fully lined impervious concept for the capacity of 26,284 cubic meters, whereas cell -2 remains as exfiltration process. The future capacity of these two lagoons will be 41,746 cubic meters. To accommodate this design, the existing berm height must be raised from 8.0m to 8.9m, and the footprint of the existing lagoon will require expansion. The existing access road to Hall Beach Community must also be raised in the area as it acts as the Western berm wall.

The life time of this facility is considered for 20 years. The future rehabilitated cell-1 is expected to provide better sewage treatment process.

Garbage will be removed from the proposed footprint and disposed of in the solid waste site.