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February 1, 2016 File No. 15-1736-008

Manitoba Conservation and Water Stewardship
Environmental Approvals Branch
Suite 160 -123 Main Street
Winnipeg, Manitoba
R3C 1A5

ATTENTION: Bruce Webb
Water Development and Control Assessment Officer

RE: Churchill Marine Observatory, Environment Act Proposal
File number: 5803.00
Response to Request for Additional Information

Dear Mr. Webb:

On behalf of the University of Manitoba, KGS Group has prepared this response to your request for additional information and to update you on proposed project changes from the Environment Act Proposal (EAP) submitted November 9, 2015 for licencing approval to construct and operate the Churchill Marine Observatory (CMO). Proposed changes from the EAP and responses to the two (2) items identified in your email dated January 13, 2016 are provided in the paragraphs below. This information is being provided for inclusion in the project file and so that you can continue processing the proposal. Supporting information is enclosed with this letter, when necessary, as identified in the following paragraphs.

Proposed Changes

Since the EAP was submitted the project design has been further advanced with access to the water and the site layout optimized to reduce construction costs and decrease the already limited potential adverse effects. Additionally since the EAP was submitted an alternative route for the utilidor and water intake pipe (with pump house) is being investigated in the event an agreement cannot be reached with Omni Trax to cross their land as originally proposed. This route has not been detailed yet or shown in the enclosed figures but it would run across the Parks Canada land north adjacent the CMO site and down to the shoreline north of the Omni Trax property.

Access to the water in the original EAP consisted of a boat ramp and a seasonal dock to be installed west of the main development site on the cobble beach shore of the Churchill River. The permanent concrete boat ramp was proposed to be approximately 4 m wide and long enough to allow launching of the 9 m research boat during high tide and potentially the upper range of the tide cycle. As noted in the EAP alternative non-permanent ramp options were still being investigated and that is what is now being proposed. A custom designed trailer with large radius and wider wheels, and multiple axles that would reduce the load on the river and beach

bottom, is being investigated. The trailer will be pushed into or pulled out of the water using a four wheel drive truck. If, however, slippage on the wet and smooth rocks proves to be problematic to generate enough force to overcome the unevenness of the shore and any sinking of the trailer wheels into the beach gravel a winch system can be anchored to the bedrock above the high tide. The winch could also be used to launch the trailer using a pulley fastened to one of the two buoys off shore.

The dock was proposed to be installed seasonally at the shore and consist of a structural gangplank approximately 40 m long anchored on the shore and connected to a floating section extending approximately 12 m into the estuary at low tide in order to accommodate the research boat. In place of the seasonal dock boats are now proposed to be moored at the buoys located off shore, with a water depth of 5 m at low tide, as shown in the revised Figure 1. When personnel or material are to be transferred to and from shore, a smaller boat would be taken from shore to resupply the boat docked at the buoy. The boat launch system described above would also be used to launch this smaller boat. The buoys will be designed according to Transport Canada's "An Owner's Guide to Private Buoys" and the Canadian Coast Guard "Canadian Aids to Navigation CANS 2011" to ensure compliance with the *Canada Shipping Act*. Approval for these buoys is currently in process with the Navigation Protection Program.

The proposed changes to the water access reduces the potential project effects as there is no permanent alteration of fish habitat on the shoreline associated with the boat ramp. Additionally there are less maintenance requirements in the shore zone associated with repairing ice damage to permanent infrastructure and the seasonal installation and removal of the dock.

The site layout, as shown in Figure 2, has been revised slightly from the original layout provided in the EAP. The garages, labs and OSIM tanks have been relocated approximately 15 m north and 20 m east with the long axis of the facility rotated slightly to be parallel to the main road. To accommodate this facility relocation the parking area is now proposed to be west of the facility and the outside boat storage is now proposed to be south of the facility. The proposed new layout has been optimized to reduce the amount of rock blasting required at the site. Reducing the rock blasting both reduces the project cost but more importantly reduces potential adverse effects to the environment associated with the blasting.

<u>Comment Response</u>

The additional information requested in response to the Technical Advisory Committee comments is as follows;

1. As noted in the EAP lighting and fencing will be the primary measures to limit exposure of the buildings and workers to polar bears. The proposed location of the site fence has been added to the revised site layout plan (Figure 2). The fence will be constructed of 2.134 m (7ft) of commercial grade chain link fencing complete with 3 strands of barbed wire at the top for a total height of 2.438m (8ft). Chain link mesh would be 9-gauge hot dipped galvanized fabric. Vehicular access to the site through the perimeter fence will be controlled by horizontally sliding, powered cantilevered gates with mesh panels and banding as generally described above. Pedestrian access / egress gates will be provided at all road access points, as a minimum, and at additional locations along the perimeter to be determined during the detailed design stage. As a last resort, short barrelled 12 gauge shotguns will be kept inside the buildings with both rubber bullets and slugs.

2. The University of Manitoba currently does not have plans to test any other types of contaminants in the OSIM pools other than crude oil, liquefied natural gas and associated herding agents as already described in the EAP.

Should you require any additional information or have any questions regarding the proposed changes, please contact the undersigned at 204-896-1209.

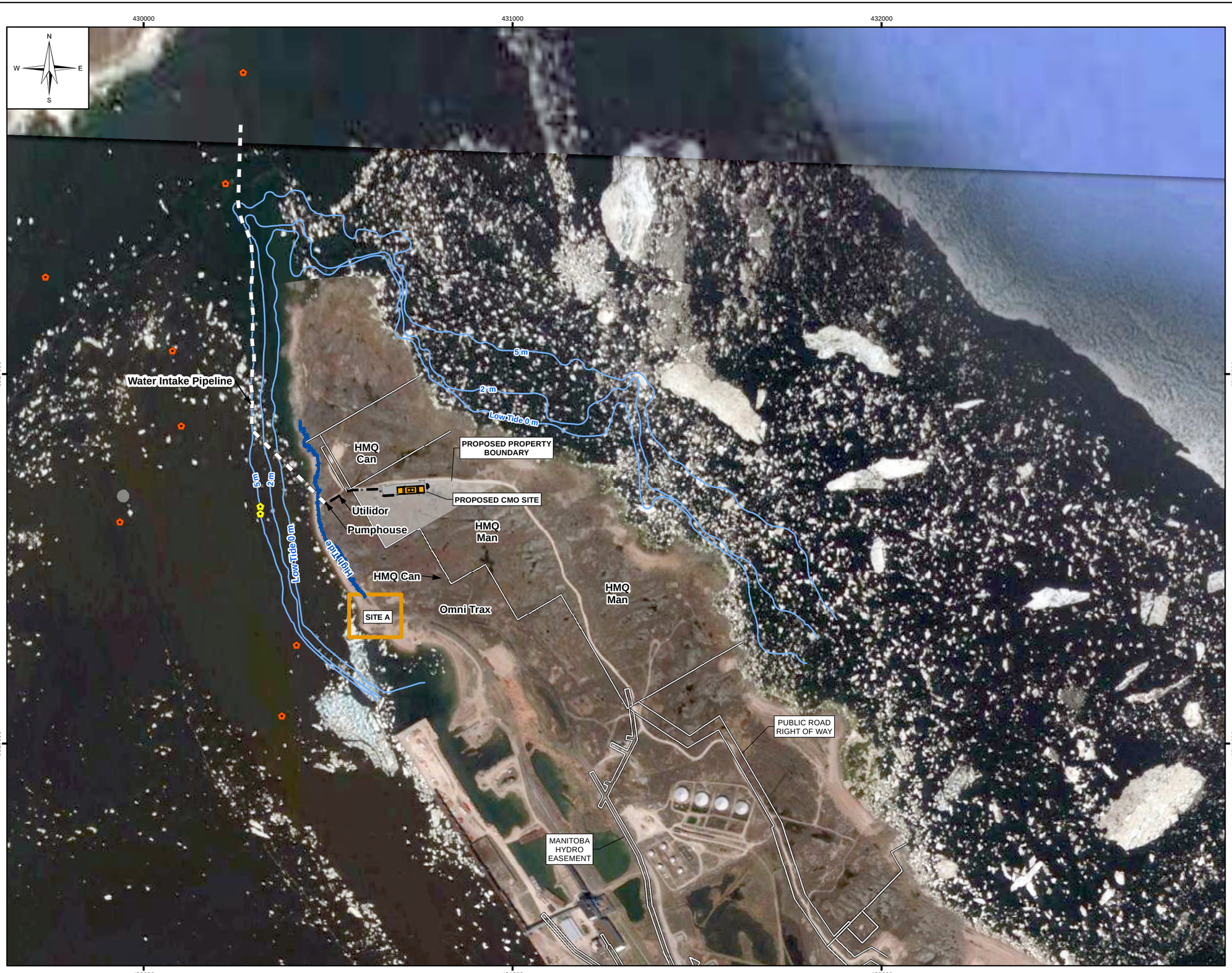
Yours truly,

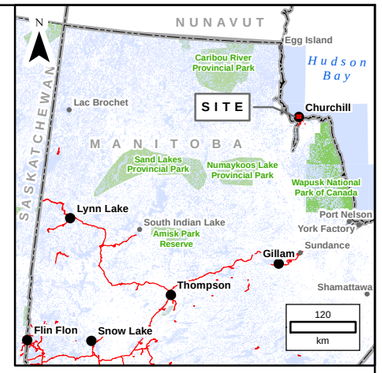
Shaun Moffatt, M.Sc.
Senior Environmental Scientist

SM/jr

cc: David Barber, University of Manitoba
Melissa McAlister, Prairie Architects
Rudy Derksen, KGS Group

FIGURES





LEGEND:

- Existing Buoy
- Proposed Buoy
- Proposed Water Intake Pipeline
- Utilidor (Proposed)
- High Tide Level (Estimated)
- Bathymetry Contour
- Limits of Crown Land (approximate)
- CMO Building (Proposed)
- Access Roadways (Proposed)
- Pumphouse (Proposed)
- Property Boundary (Proposed)

Notes:
1. Imagery as shown supplied by Google Earth.
2. Bathymetry shown obtained from Fisheries and Oceans chart 5640 dated May 10, 2013.
3. Linework displayed is approximate only.
4. Limits of Her Majesty the Queen (HMQ) at this time are approximate based on information received from the Province of Manitoba.
5. All units are metric and in metres unless otherwise specified. Transverse Mercator Projection, NAD 1983, Zone 15. Elevations are in metres above sea level (MSL).

100 0 100 200 300 400
Metres

SCALE: 1:10,000 METRIC 11"x17"

NO.	YY/MM/DD	DESCRIPTION	ISSUED BY	CHECK BY
1	16/01/29	RE-ISSUED FOR ENVIRONMENTAL REPORT	RED	SFM
0	15/11/06	ISSUED FOR ENVIRONMENTAL REPORT	RED	MSW

REVISIONS / ISSUE

KGS GROUP CONSULTING ENGINEERS

UNIVERSITY OF MANITOBA

CHURCHILL MARINE OBSERVATORY ENVIRONMENT ACT PROPOSAL

SITE LOCATION PLAN

JANUARY 2016 | FIGURE 01 | REV: 1

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11"x17" PLOT SCALE 1:1