

January 5, 2017

Via Email: laurie.hurst@esquimalt.ca

File: 0220-20 General Correspondence
Township of Esquimalt

Township of Esquimalt
Ms. Laurie Hurst, CAO
1229 Esquimalt Rd
Esquimalt, BC V9A 3P1

Dear Ms. Hurst:

**RE: CORE AREA WASTEWATER TREATMENT PROJECT – WORK RELATED TO
GEOTECHNICAL INFORMATION**

As discussed during our meeting on December 15, 2016, the Core Area Wastewater Treatment Project will begin to gather additional information about the subsurface conditions at McLoughlin Point for the Wastewater Treatment Plant.

This geotechnical information is used to locate the top of the bedrock, understand the soils and rock that will be encountered during construction, and to design supporting foundations which will withstand the settlement and seismic forces that may be present.

As the Project has sufficient information about the subsurface conditions and suitability of McLoughlin Point to host the Wastewater Treatment Plant, the geotechnical work does not impact the plans provided in support of the development permit application but will assist in finalizing the designs. Construction of the Wastewater Treatment Plant will not commence until the Township of Esquimalt issues a development permit.

The Wastewater Treatment Plant will provide tertiary treatment to the Core Area's wastewater. As you know the facility consists of three major components: the treatment facility at McLoughlin Point, a forcemain under Victoria Harbour, and an outfall pipe from the facility to a discharge point off shore.

The geology at McLoughlin Point varies from exposed bedrock to natural and artificial fill. A series of boreholes will be used to determine soil characteristics at key points at McLoughlin Point, along the harbour crossing alignment, and along the outfall pipe alignment. This work builds upon previous geotechnical investigations at McLoughlin Point by locating boreholes in different locations and by conducting different laboratory tests of the core samples.

The geotechnical investigation will take place in three phases:

Phase 1 - Land based drilling at McLoughlin Point

- Consists of the first 8 boreholes (BH17-01 through BH17-08) shown on drawing C-008 (attached) and the Borehole Location Plan (attached).

- Schedule start date is January 10, 2017 and the expected duration is 5 days.
- The work hours for this phase are 7:00AM – 7:00PM Monday to Friday and 9:00AM to 7:00 PM on Saturday.

Phase 2 – Harbour crossing alignment

- Consists of the 4 offshore marine bore holes for the cross harbor force main (MBH17-14 through MBH17-17) as well as one on the shore line (BH17-09.) shown on drawing C-009 (attached).
- Scheduled to take place within the first two weeks of February (pending permit approval from Transport Canada) and the expected duration is 10 days.
- The work hours for this phase will be 24 hours with a shift change at 7:00 AM and 7:00 PM.

Phase 3 - Outfall pipe alignment

- Consists of 13 holes off the South shoreline of McLaughlin Point (MBH17-01 through MBH17-13) shown on drawing C-010 (attached).
- The work hours for this phase will be 24 hours with a shift change at 7:00 AM and 7:00 PM.
- This phase is scheduled to take place between February and June (pending further design developments) and the expected duration is 12 days.

The Core Area Wastewater Treatment Project has and is continuing to communicate with the Department of National Defense, Greater Victoria Harbour Authority, Songhees First Nation, Esquimalt First Nation and communities regarding the geotechnical works. The Project will also advertise the scheduled geotechnical works in the Time Colonist and on the CRD website.

For more information about this work please contact me at 250.580.2438 or by email at dclancy@crd.bc.ca.

Sincerely,



Dave Clancy, Project Director
Core Area Wastewater Treatment Project

Attachments: 4

1. McLoughlin Point – Test hole Locations
2. ML-B0-C-010 11-11-16 CHK 1
3. ML-B0-C-008 11-10-16 CHK 1
4. ML-B0-C-009 11-10-16CHK 2

cc: Jane Bird, Chair, Core Area Wastewater Treatment Project Board

DC:dd



LEGEND

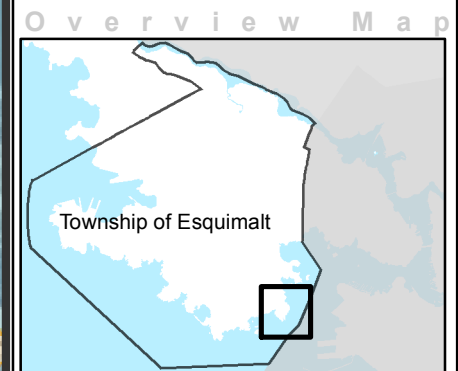
◆ Proposed Borehole Location

Alternate Testhole Locations

◆ BH17-07A

◆ BH17-08A

◆ BH17-09A



Base Mapping from...

Aerial Photography from VICMAP.

Parcels from City of Victoria Open Data Catalog.



NAD 1983 CSRS UTM Zone 10N

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Greater Victoria Harbour Authority

Location: Ogden Point Victoria

Borehole Location Plan

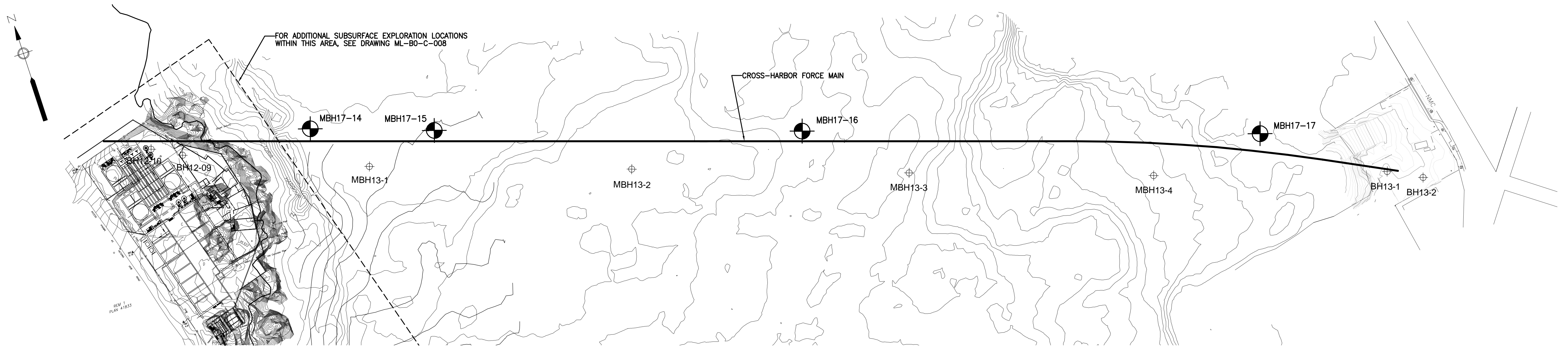
McLaughlin Point

2017

December 2016

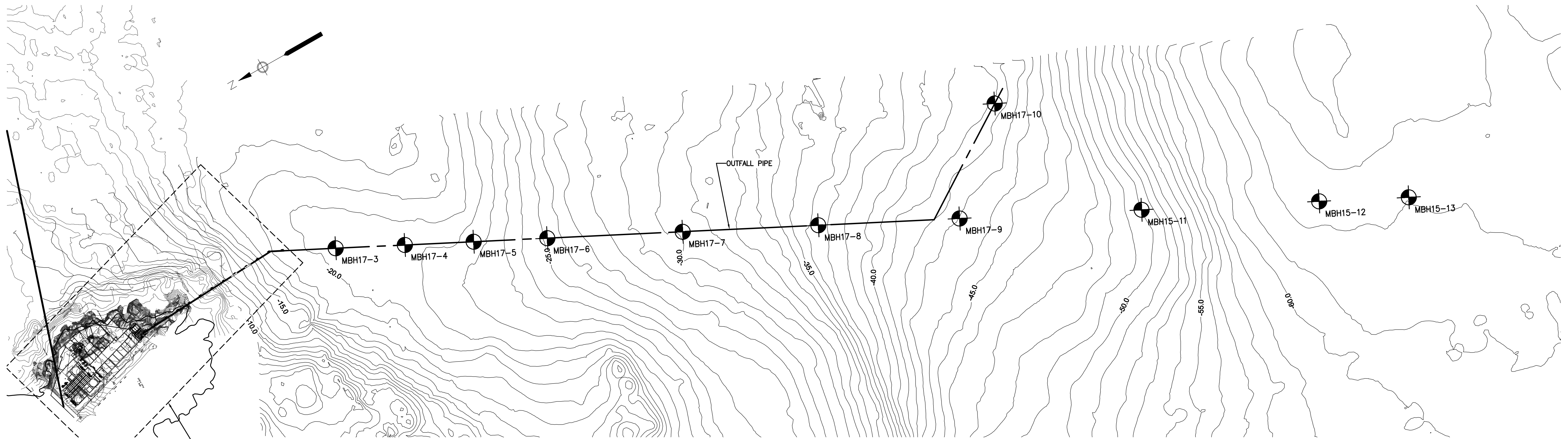
Project: 60337998

AECOM FIGURE X



PLAN – CROSS-HARBOR FORCE MAIN

SCALE: 1:1500

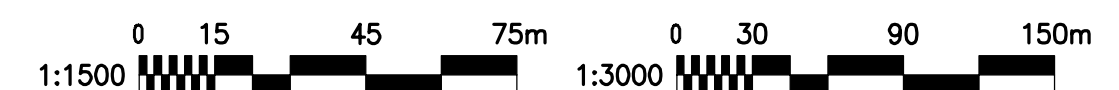


PLAN – OUTFALL

SCALE: 1:3000

LEGEND

- MBH13-3  EXISTING BORING
- MBH17-9  PROPOSED TEST BORING



PROGRESS DRAWING

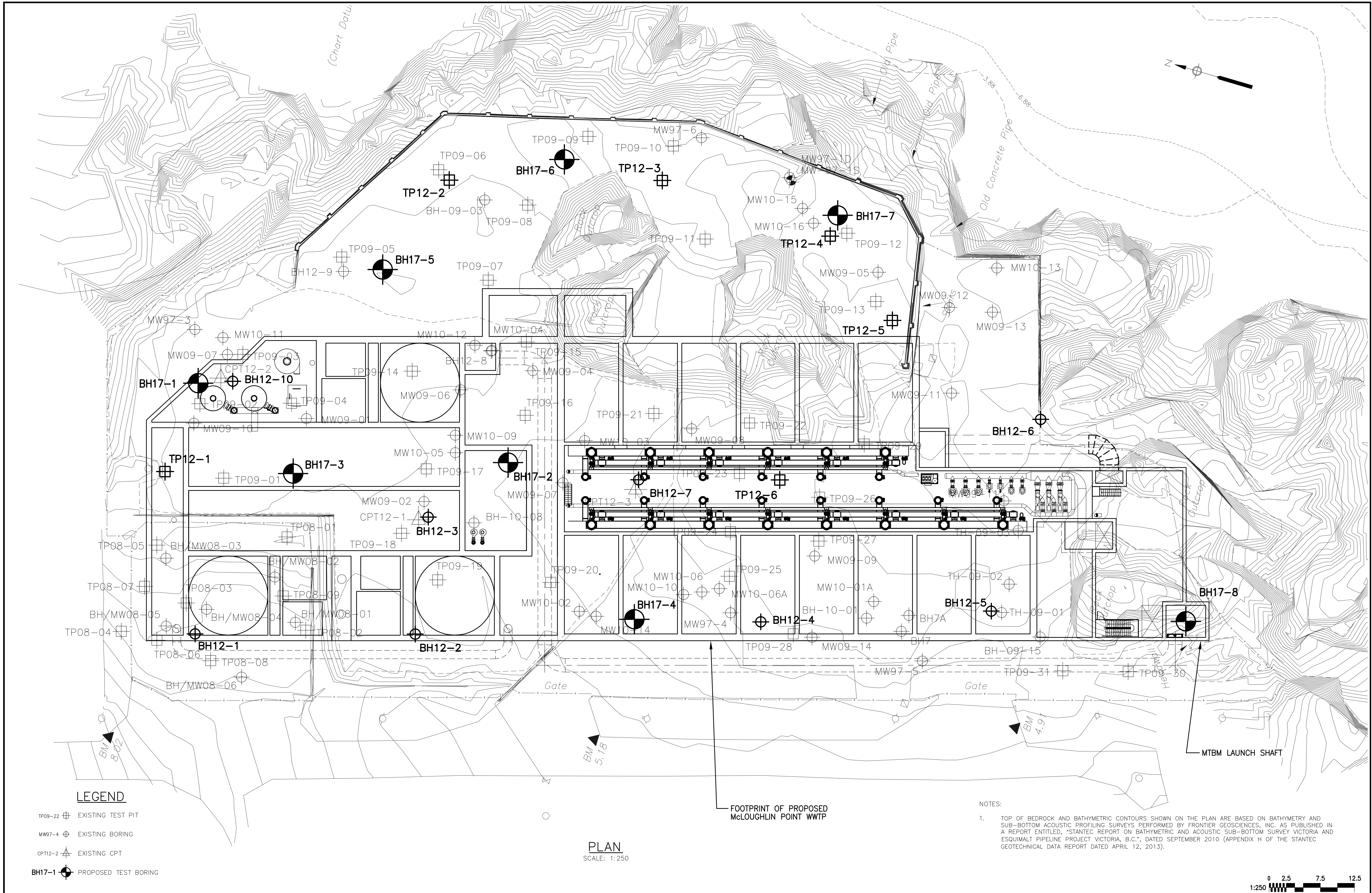
NOVEMBER 2016



| Capital Regional District | | SeaTerra Program | |
|---------------------------|-------|------------------|----------|
| DESIGNED | RD | SURVEYED | — |
| DRAWN | CB | DATE | NOV 2016 |
| SCALE HORIZONTAL | NOTED | CHECKED | RD |
| SCALE VERTICAL | — | APPROVED | DB |

| McLOUGHLIN POINT WWTP | | | |
|---|--------|----------------|-------------|
| SUBSURFACE EXPLORATION LOCATION PLAN CROSS-HARBOR FORCE MAIN AND OUTFALL | | | |
| CONTRACT NUMBER | MC-300 | DRAWING NUMBER | ML-B0-C-010 |
| ISSUE | 1 | SHT No. OF | — |

DISCLAIMER: THESE INDICATIVE DESIGN DRAWINGS ARE PRELIMINARY AND ARE NOT FOR CONSTRUCTION. AECOM MAKES NO WARRANTY AS TO THEIR ACCURACY.



LEGEND

- TP09-22 [Symbol] EXISTING TEST PIT
- MW97-4 [Symbol] EXISTING BORING
- CPT12-2 [Symbol] EXISTING CPT
- BH17-1 [Symbol] PROPOSED TEST BORING

PLAN
SCALE: 1:250

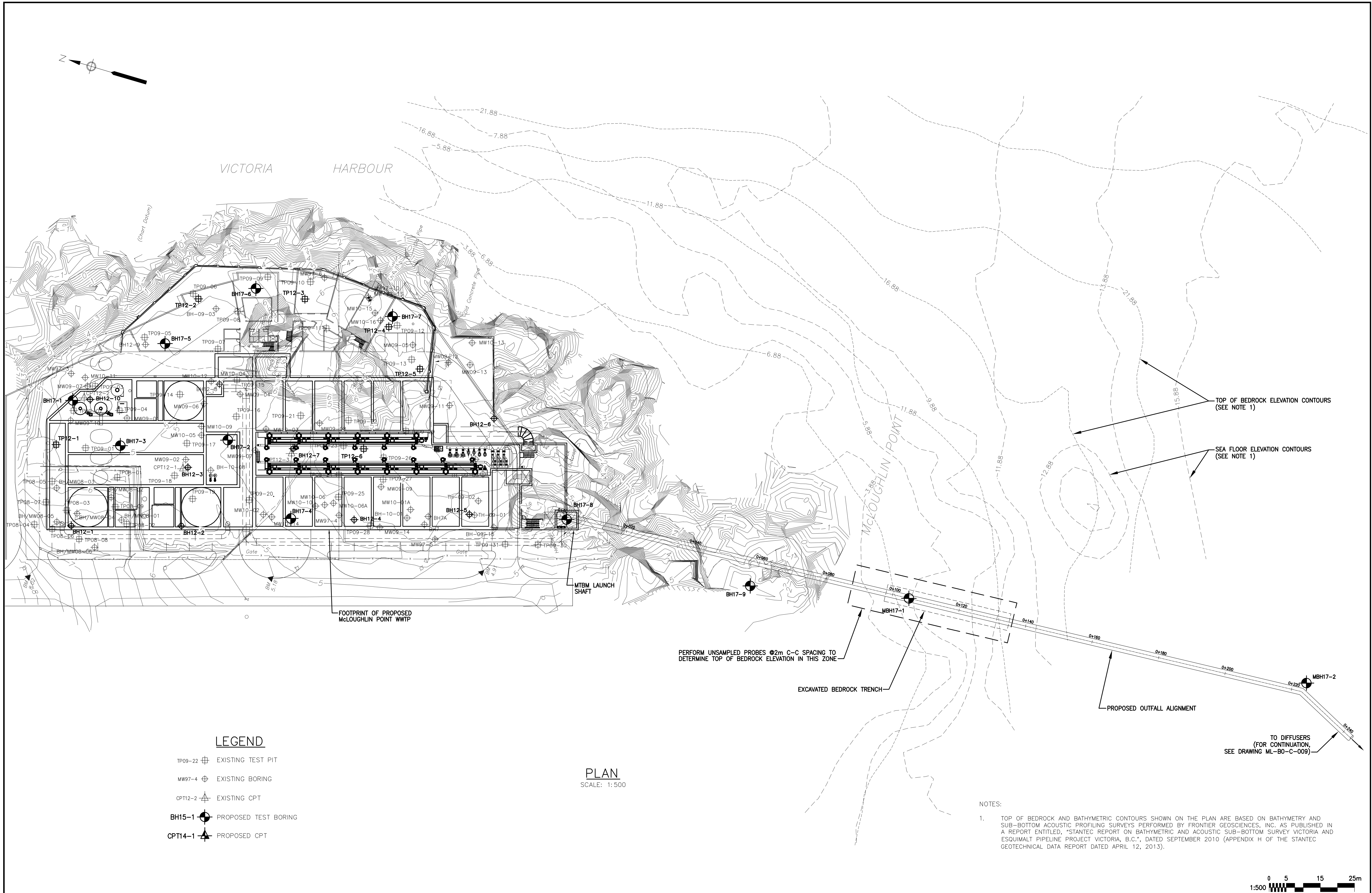
NOTES:

- TOP OF BEDROCK AND BATHYMETRIC CONTOURS SHOWN ON THE PLAN ARE BASED ON BATHYMETRY AND SUB-BOTTOM ACOUSTIC PROFILING SURVEYS PERFORMED BY FRONTIER GEOSCIENCES, INC. AS PUBLISHED IN A REPORT ENTITLED, "STANTEC REPORT ON BATHYMETRIC AND ACOUSTIC SUB-BOTTOM SURVEY VICTORIA AND ESQUIMALT PIPELINE PROJECT VICTORIA, B.C.", DATED SEPTEMBER 2010 (APPENDIX H OF THE STANTEC GEOTECHNICAL DATA REPORT DATED APRIL 12, 2013).



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|--|-------|-------------------------|----------|---|--|---|--------|------------------------------|-------------|
|  AECOM GRAHAM | | PROGRESS DRAWING | | NOVEMBER 2016 | |  | | McLOUGHLIN POINT WWTP | |
| DESIGNED | RD | SURVEYED | — | SUBSURFACE EXPLORATION LOCATION PLAN | | CONTRACT NUMBER | MC-300 | DRAWING NUMBER | ML-B0-C-008 |
| DRAWN | CB | DATE | NOV 2016 | WWTP SITE | | ISSUE | 1 | SHT No. OF | — |
| SCALE HORIZONTAL | NOTED | CHECKED | RD | | | | | | |
| SCALE VERTICAL | — | APPROVED | BD | | | | | | |

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LEGEND

- TP09-22 EXISTING TEST PIT
- MW97-4 EXISTING BORING
- CPT12-2 EXISTING CPT
- BH15-1 PROPOSED TEST BORING
- CPT14-1 PROPOSED CPT

PLAN
SCALE: 1:500

NOTES:

1. TOP OF BEDROCK AND BATHYMETRIC CONTOURS SHOWN ON THE PLAN ARE BASED ON BATHYMETRY AND SUB-BOTTOM ACOUSTIC PROFILING SURVEYS PERFORMED BY FRONTIER GEOSCIENCES, INC. AS PUBLISHED IN A REPORT ENTITLED, "STANTEC REPORT ON BATHYMETRIC AND ACOUSTIC SUB-BOTTOM SURVEY VICTORIA AND ESQUIMALT PIPELINE PROJECT VICTORIA, B.C.", DATED SEPTEMBER 2010 (APPENDIX H OF THE STANTEC GEOTECHNICAL DATA REPORT DATED APRIL 12, 2013).



Harbour Resource Partners

| PROGRESS DRAWING | | | | NOVEMBER 2016 | | | |
|------------------|----|------|-----|---------------|------|-----|-------|
| SEAL | BY | DATE | No. | REVISION | ENG. | No. | DATE |
| | | | | | | | ISSUE |



| Capital Regional District | | SeaTerra Program | | McLOUGHLIN POINT WWTP | | | |
|---------------------------|-------|------------------|----------|---|--------|----------------|-------------|
| DESIGNED | RD | SURVEYED | — | SUBSURFACE EXPLORATION LOCATION PLAN WWTP AND OUTFALL TRENCHLESS SEGMENT | | | |
| DRAWN | CB | DATE | NOV 2016 | | | | |
| SCALE HORIZONTAL | NOTED | CHECKED | RD | | | | |
| SCALE VERTICAL | — | APPROVED | BD | CONTRACT NUMBER | MC-300 | DRAWING NUMBER | ML-B0-C-009 |
| | | | | ISSUE | 1 | SHT No. OF | — |

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