

DATE October 4, 2017

PROJECT No. 1780495

TO Darren Stokes, P.Geo
Repsol Oil & Gas Canada Inc.

CC Toivo Pallop, P.Geo.

FROM Paul Dewaele, P.Eng.

EMAIL paul_dewaele@golder.com

**DETAILED DESIGN CHANGE TO CONTAINMENT CELL LINER ANCHOR TRENCH – SATELLITE BAY
PANARCTIC F-68 REMEDIATION PROJECT**

This technical memo is provided to describe a recommended change for the detailed design of the anchor trench for the liner overlying the containment cell at the Satellite Bay Panarctic F-68 Remediation Project site (Site). This change was implemented for the portion of the cell constructed in 2017 and was reported to the Inuvialuit Water Board. The change was developed in order to address the method of excavation of the anchor trench, based on observations of the method of operation and ground conditions at the Site observed by Golder on the week of August 14th, 2017.

The existing anchor trench layout contained in the detailed design drawings consists of a 0.5 m deep, 0.5 m wide slot, located 1.0 m outside of the toe of the contaminated soil cell limits. It was recommended that, in the alternative, the anchor trench be constructed immediately adjacent to the contaminated soil cell limits and extend as a continuation of the 2:1 slope of the waste fill to a depth of 0.5 m (or to local permafrost), with a base width of 1.0 m. The changed design is on Drawing C5 (appended).

This alternative design can be constructed with the equipment at the Site, consisting of “bobcat” bucket excavators. The resulting design change removes one inflection point of the installation of the liner in the anchor trench, and is therefore an advantage with respect to reduction of stress points on the liner. We consider that this design change is in keeping with the intent of that submitted earlier for approvals in 2016. A copy of this design change should be provided to the Inuvialuit Water Board.

We trust that the above is sufficient for your purposes at this time. Should you have any questions, please contact the undersigned.

GOLDER ASSOCIATES LTD.



Paul Dewaele, P.Eng.
Principal, Geo-Environmental Engineer

FSB/PJD/pjd/plc

1780495satellitebayanchor trench design change

cc: Aaron Jacobson, P.Geo., Repsol Oil and Gas Limited

Attachments: Drawing C5 – Typical Section – Containment Structure



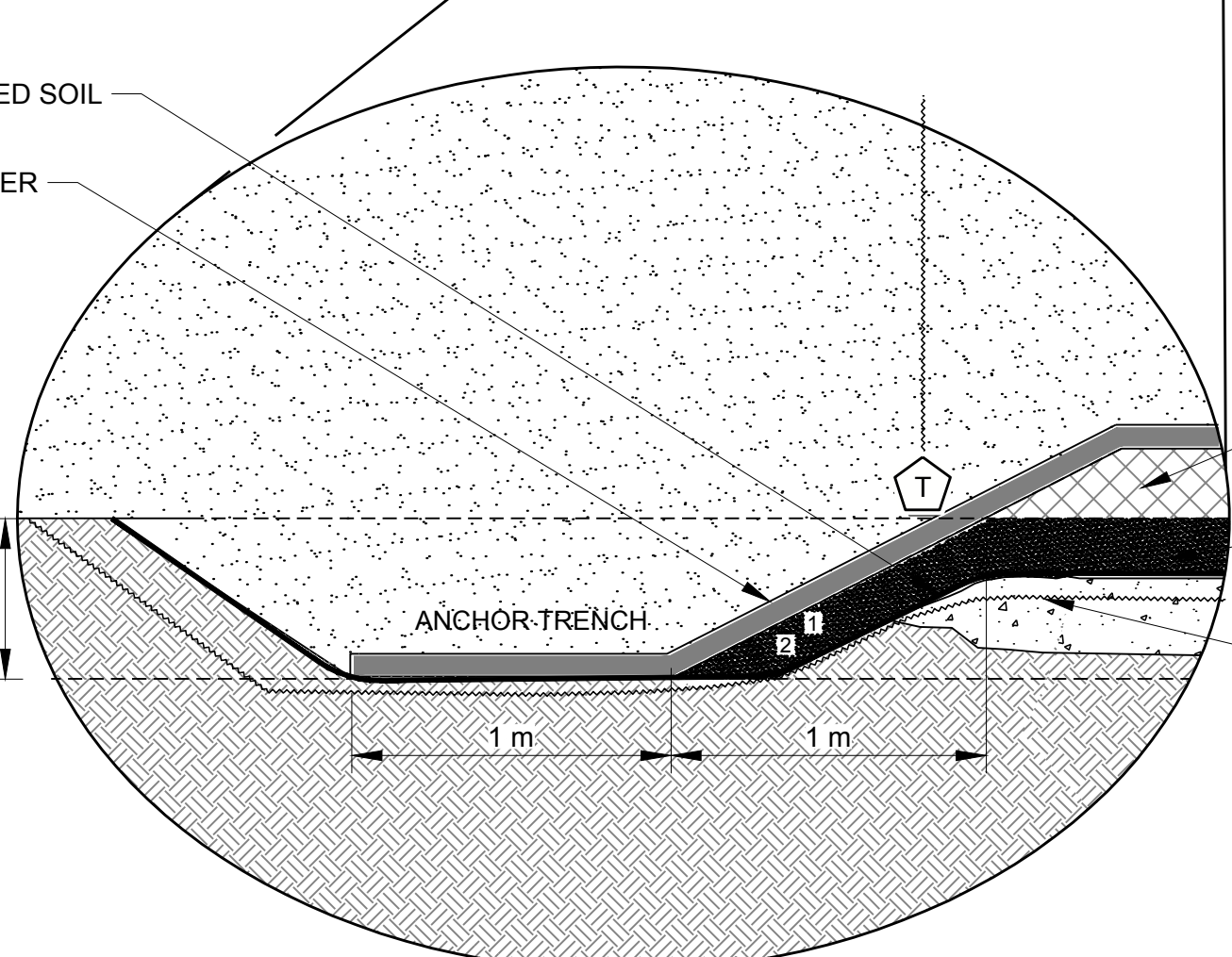
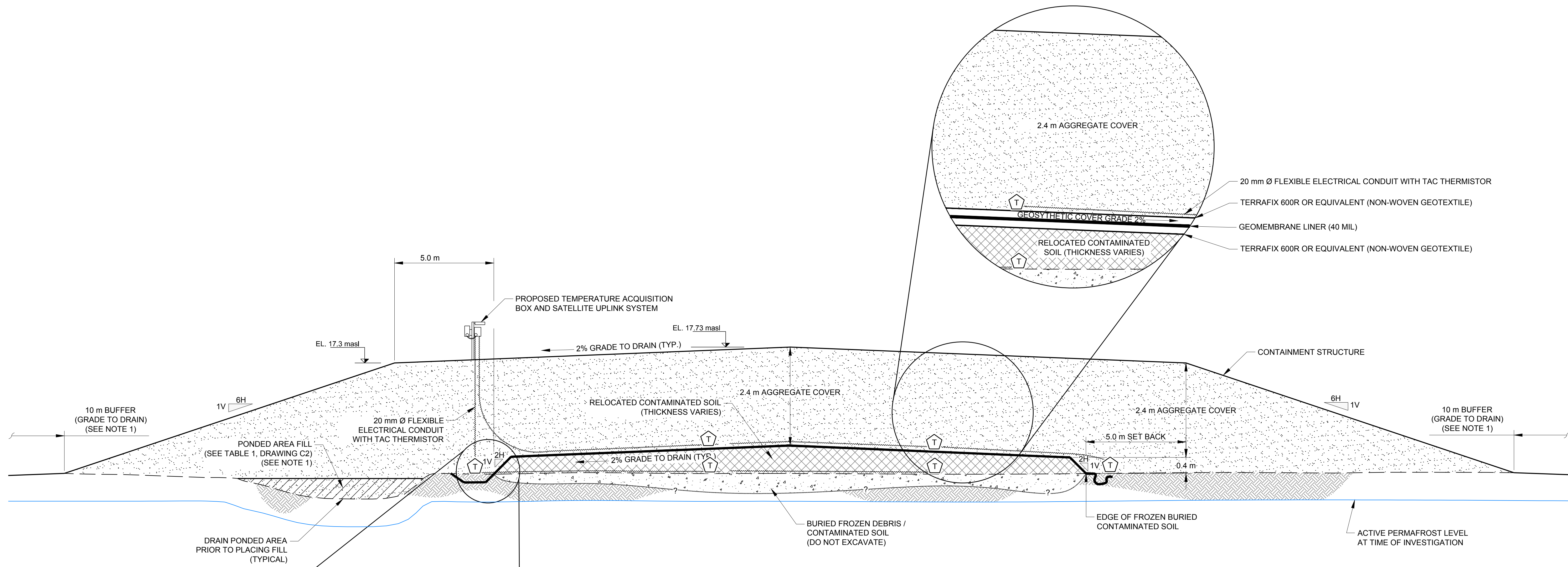
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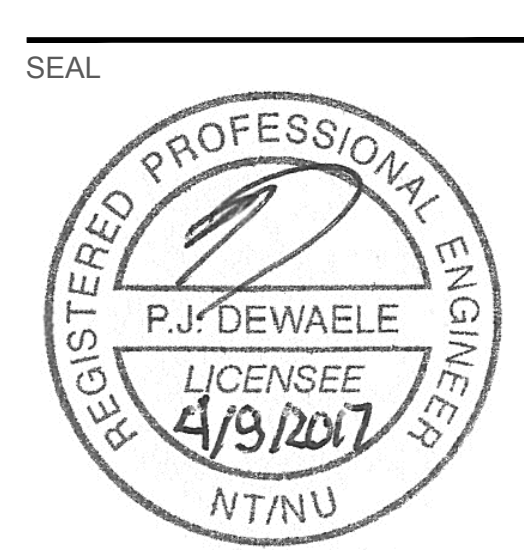
SCALE: 1:100m
2X VERTICAL EXAGGERATION
1
C3 C4
TYPICAL SECTION - CONTAINMENT STRUCTURE

- NOTES**
- ALL BACKFILL WITHIN THE 10 m BUFFER AREA SHALL BE COMPACTED AND GRADED TO DRAIN AWAY FROM THE CONTAINMENT STRUCTURE, TYING TO EXISTING GRADE.
 - TAC - THERMAL ELECTRICAL CABLE

**REGULATORY
APPROVAL**

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Rev.	YYYY-MM-DD	DESCRIPTION	PREPARED	DESIGN	REVIEW	APPROVED
D	2017-10-02	MODIFIED KEY TRENCH DESIGN	JPR	PJD	TP	
C	2016-11-11	REGULATORY APPROVAL FINAL	JPR	LR	PJD	TP
B	2016-02-03	REGULATORY APPROVAL	CV	LR	PZ	TP
A	2015-10-30	ISSUED FOR 30% DESIGN	CV	LR	LR	



CLIENT
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PROJECT
SATELLITE F-68 NWT
ARCTIC CONTAMINATED SOIL AND WASTE CONTAINMENT STRUCTURE
SATELLITE BAY, PRINCE PATRICK ISLAND, NWT

TITLE
TYPICAL SECTION - CONTAINMENT STRUCTURE

PROJECT No. 1531921 CONTROL Rev. B 8 of 8 DRAWING C5

25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D