

CONSTRUCTION SUMMARY (AS-BUILT) REPORT FOR OPERATION LANDFILL (STAGE 1) MELIADINE PROJECT, NUNAVUT



PRESENTED TO

Agnico Eagle Mines Ltd.

DECEMBER 2017
ISSUED FOR USE
TETRA TECH PROJECT NUMBER: 28920
AGNICO EAGLE DOCUMENT NUMBER: 6515-E-132-007-132-REP-014



EXECUTIVE SUMMARY

Tetra Tech was retained by Agnico Eagle Mines Limited (Agnico Eagle) to prepare a construction summary (asbuilt) report for the Operation Landfill (Stage 1) at the Meliadine Gold Project, Nunavut. Tetra Tech previously prepared the construction drawings and specifications as well as the design report for the Operation Landfill (Stage 1).

Tetra Tech was not involved in the construction of Operation Landfill (Stage1). The information presented in this report was provided by Agnico Eagle.

The construction of Operation Landfill (Stage1) was completed in September 2017. The construction monitoring and quality assurance was managed by Agnico Eagle.

This report summarizes the construction as-built information for the Operation Landfill (Stage 1).



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1.0 INTRODUCTION

Agnico Eagle Mines Limited (Agnico Eagle) retained the services of Tetra Tech to carry out the planning and design works associated with the Water and Environment and the Civil Works components of the Meliadine Project, a gold mine located approximately 25 km north from Rankin Inlet, and 80 km southwest from Chesterfield Inlet in the Kivalliq Region of Nunavut. Tetra Tech previously prepared the design report and drawings for construction of the Operation Landfill (Stage 1). The Operation Landfill (Stage 1) is located around a UTM (NAD83, Zone 15) coordinate of 539,050E and 6,989,520N. As part of the scope of work, Agnico Eagle asked Tetra Tech to:

- Conduct a detailed design for the Operation Landfill (Stage 1), as part of the 2017 civil work construction schedule
- Produce construction drawings and specifications for the Operation Landfill (Stage 1)
- Prepare design and construction summary reports of the Operation Landfill (Stage 1)

As required by the Water Licence A (No. 2AM-MEL1631), this report summarizes the construction work of the Operation Landfill (Stage 1) located south of the industrial site, at the northeast corner of the proposed Waste Rock Storage Facilities 1 (WRSF1). Included in this report is:

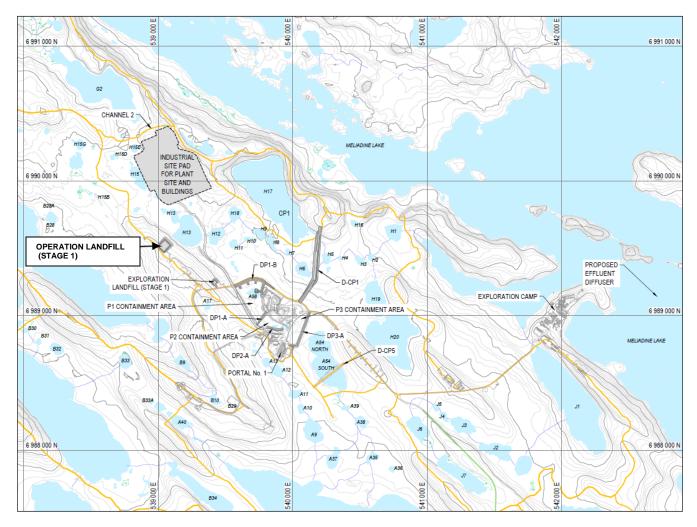
- A summary of the characteristics of the Operation Landfill (Stage 1)
- Documentation on field decisions that deviate from original plans
- As-built drawings
- A survey drawing conducted after the construction of the Operation Landfill (Stage 1)
- Photographs of the Operation Landfill (Stage 1)



2.0 SUMMARY OF THE CONSTRUCTION

2.1 Site location plan

The figure below presents a site location plan for the Operation Landfill (Stage 1).





2.2 Construction schedule

The construction for the Operation Landfill (Stage 1) was completed according to the following milestones:

Item	Date
Site Preparation	August 21st to 23rd
Perimeter Berm Construction	August 23 rd to 30 th
Floor Placement	September 1st to 6th
Completion of Construction	September 6 th

2.3 Operation Landfill (Stage 1) characteristics

The Operation Landfill (Stage 1) characteristics and as-built in-place quantities are presented in the table below.

Characteristics										
Item	Operation Landfill (Stage 1)									
Dimensions of Perimeter Berm Crest Exterior (avg.)	80.23 m x 70.49 m									
Dimensions of Perimeter Berm Crest Interior (avg.)	70.20 m x 61.39 m									
Perimeter Berm Crest Width (avg.)	4.79 m									
Perimeter Berm Crest Elevation (avg.)	76.65 m									
Fill Thickness Above Original Ground	0.55 m									
Interior Floor Slope (avg.)	2.7% (SW to NE)									
Interior Berm Side Slope (avg.)	1V:2H									
Exterior Berm Side Slope (avg.)	1V:2.5H									
Total Storage Volume from Floor Base to Crests of Perimeter Berm	8 760 m ³									

Material Quantities										
Item	Operation Landfill (Stage 1)									
Esker (600mm MINUS) CL. A	9 750 m³									
50mm MINUS	1 649 m³									
TOTAL	11 399 m³									



2.4 Drawings and photographs

As-built drawings are presented in Appendix A.

A survey drawing conducted after the construction of the Operation Landfill (Stage 1) can be found in Appendix B.

Photographs of the Operation Landfill (Stage 1) during construction is shown in Appendix C.

3.0 DOCUMENTATION ON FIELD DECISIONS THAT DEVIATE FROM ORIGINAL PLANS

This section documents variations from original design which were approved by the designer and/or the field engineer on site. The designed intent of the structure was not compromised with any of the changes to the original design.

A construction summary was prepared for the Operation Landfill (Stage 1) by the Agnico Eagle construction team. This summary is available in Appendix D.

The construction of Operation Landfill (Stage 1) is different from the original design on these following points:

- A shortage of available Run of Mine (ROM) material from Underground Operations led to the following material changes, approved by Tetra Tech as per RFI 6515-C-230-009_013:
 - Replacement of Run of Mine material (600mm MINUS) with Class A Esker material (600mm MINUS).
 - Elimination of Transition Rockfill material (150mm MINUS) and granular fill material (20mm MINUS) on the interior slopes of the perimeter berm.
 - Replacement of Transition Rockfill material (150mm MINUS) with Transition Rockfill material (200mm MINUS) granular material for the floor.
- Based on the visual particle size distribution of the Class A Esker material (600mm MINUS) replacing the Run of Mine material (600mm MINUS), the external slopes of the perimeter berms could be prone to future erosion of fines from the material matrix. This should be monitored and managed as necessary, and could be mitigated by placement of a non-erodible surface cover after construction.
- The proximity of the Esker to the Operation Landfill (Stage 1) led to the following material substitutions, approved by Agnico Eagle:
 - Replacement of Transition Rockfill material (200mm MINUS) to 50mm MINUS screened Esker material and Class A granular fill material for the floor.



- The construction work led to slight variations from the original design in the geometry of the Operation Landfill (Stage 1):
 - The exterior dimensions of the berm crest are greater by 0.23 m and 0.49 m.
 - o The interior dimensions of the berm crest are smaller by 1.8 m and 0.61 m.
 - The average elevation of the berm crest was lowered by 0.26 m to an average elevation of 76.49 m.
 - The average width of the berm crest is 4.79 m which is an increase of 0.79 m from the original 4m design.
- These changes in the geometry compounded into a volume capacity of 8 760 m³ calculated from the floor base to the crests of perimeter berms, which is 774 m³ lower than the designed capacity. The reduced overall volume capacity does not impact the volume of waste and intermediate soil/rockfill that can be placed in the landfill. The total storage capacity was designed to accommodate an estimated waste volume of 4 368 m³, an estimated volume of intermediate soil/rockfill cover of 3 021 m³, and a remaining capacity of 2 055 m³ for temporary storage of internal runoff and drainage. The estimated volume of runoff water during a 1 in 100 return wet spring freshet is up to 960 m³ (assuming no seepage through the berms), so the remainder is for freeboard. The reduced volume capacity would result in reducing the remaining capacity for temporary storage of the internal runoff by the same amount, which would affect the freeboard allowance but is still sufficient to store the runoff water as designed.
- An opening in the southwest side of the perimeter berm was left to allow for vehicle access/dumping. Depending on the waste disposal management plan and schedule for the landfill, the perimeter berm may need to be completed in the future to close the opening for vehicle access as the volume of waste is dumped/placed into the waste area. This is to ensure that the remaining capacity to allow for the temporary storage of the internal runoff and drainage is respected, otherwise when reaching a fill volume of 6 250 m³ there will no longer be a capacity to retain the internal runoff within the landfill, as it would flow through the opening kept in the perimeter berm.
- The average floor slope was lowered by 0.8% to a slope of 2.7% going in the designed direction of southwest to northeast, matching the natural ground slope. This slope is still adequate allowing internal runoff to gradually seep through the northeast perimeter berm and naturally flow through a chain of internal water ponds (H13 to H6) and eventually flow in a final internal water collection pond (CP1).
- The average perimeter berm side slopes both interior and exterior remained the same at 1V:2H and 1V:2.5H respectively, thus the stability of the perimeter berm should not be an issue.



The Operation Landfill (Stage 1) geometry and characteristics were adjusted to site conditions. The table below presents the changes between the proposed work and the actual work.

GE	OMETRY AND CHA	RACTERISTICS						
Item	Proposed	Actual	Difference					
Dimensions of Perimeter Berm Crest Exterior (avg.)	80 m x 70 m	80.23 m x 70.49 m	+ 0.23 m / + 0.49 m					
Dimensions of Perimeter Berm Crest Interior (avg.)	72 m x 62 m	70.20 m x 61.39 m	- 1.8 m / - 0.61 m					
Perimeter Berm Crest Width (avg.)	4.0 m	4.79 m	+ 0.79 m					
Perimeter Berm Crest Elevation (avg.)	76.3 m to 77.2 m	76.17 m to 77.13 m	- 0.07 m					
Fill Thickness Above Original Ground	0.5 m	0.55 m	+0.05					
Interior Floor Slope (avg.)	3.5% (SW to NE)	2.7% (SW to NE)	- 0.8%					
Interior Berm Side Slope (avg.)	1V:2.0H (50%)	1V:2.0H (50%)	-					
Exterior Berm Side Slope (avg.)	1V:2.5H (40%)	1V:2.5H (40%)	-					
Landfill footprint area	7 953 m²	8 314 m ²	+ 361 m ³					
Total Storage Volume from Floor Base to Crests of Perimeter Berm	9 444 m³	8 670 m ³	- 774 m³					
Remaining Capacity for Temporary Storage of Internal Runoff and Drainage	2 055 m³	1 281 m³	- 774 m³					

4.0 CONSTRUCTION MONITORING AND INSPECTION TEST PLAN

The construction monitoring was managed by Agnico Eagle. The inspection test plan for the Operation Landfill (Stage 1) signed by the Contractor and Agnico Eagle's resident engineer is presented in Appendix E.



LIMITATIONS OF REPORT 5.0

This report and its contents are intended for the sole use of Agnico Eagle Mines Ltd. and their agents. Tetra Tech does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Agnico Eagle Mines Ltd., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech's Services Agreement.

6.0 **CLOSURE**

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted, Tetra Tech

PERMIT TO PRACTICE TETRA TECH INDUSTRIES, INC. O/A TETRA TECH NT/NU Association of Professional Engineers and Geoscientists

Reviewed by:

Josée Alarie, P.Eng.

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J.M.I.F. ALARIE

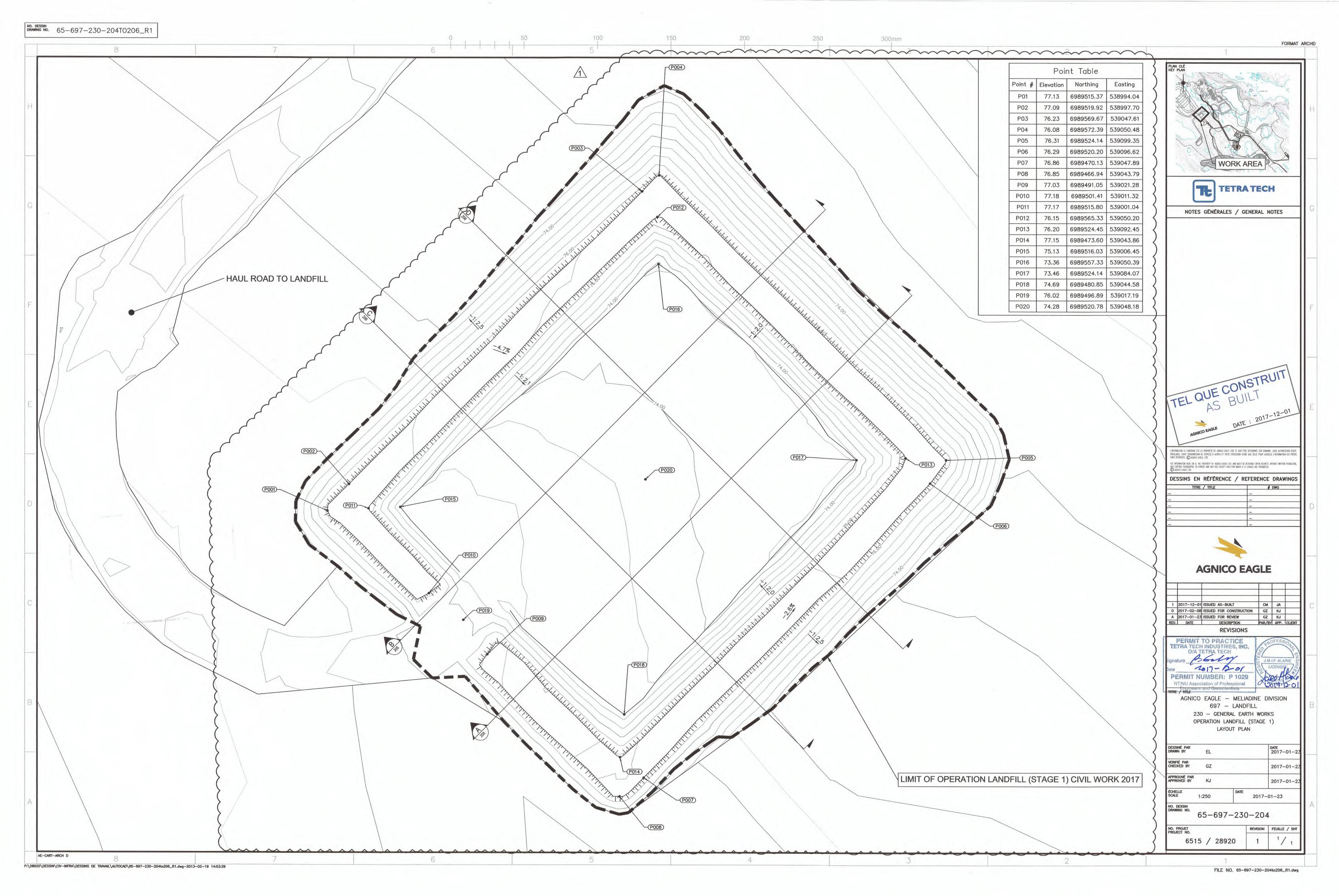
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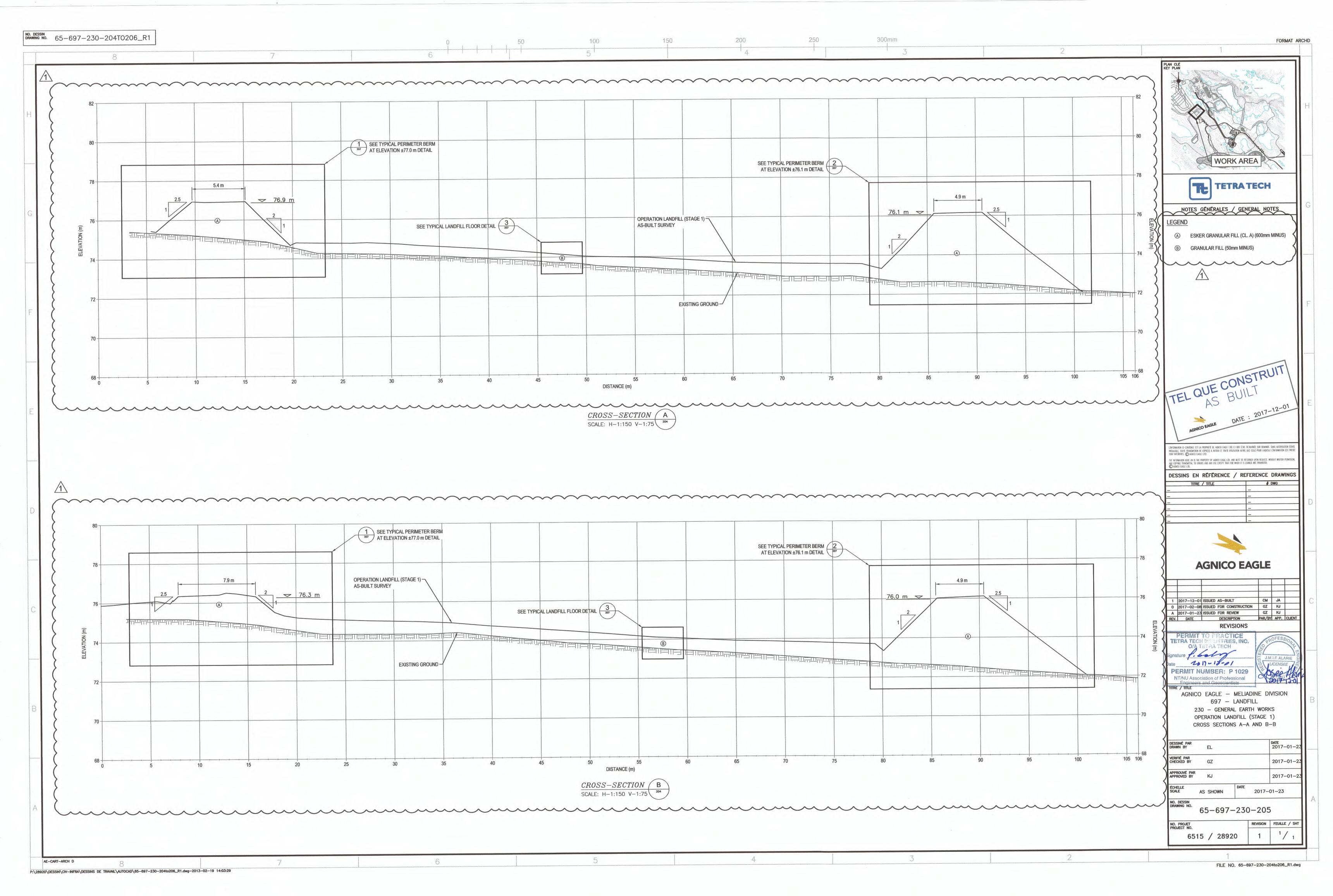
Prepared by: Christopher Morin, Jr. Eng. Direct Line: 514.257.2427 x3240 Christopher.Morin@tetratech.com

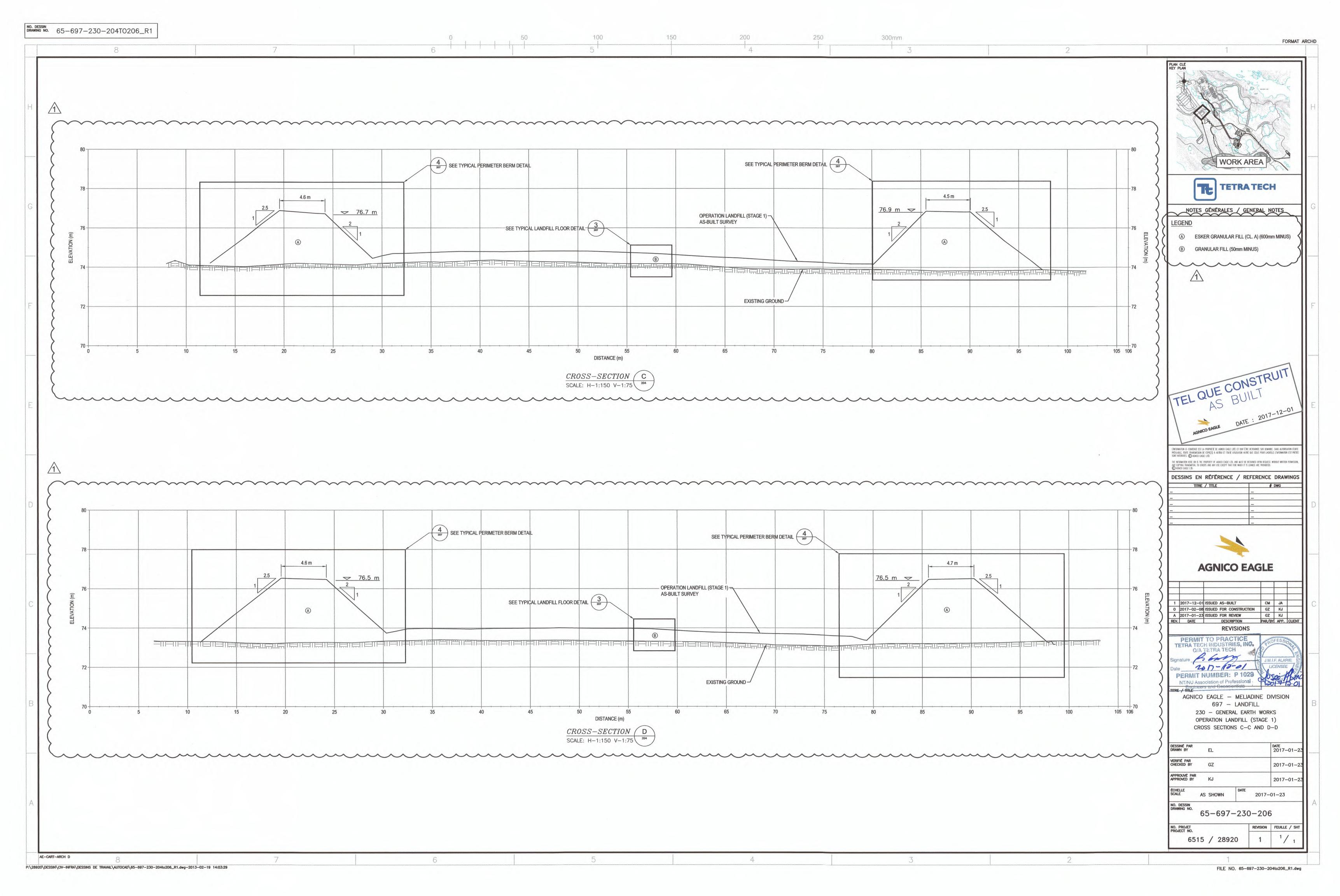
APPENDIX A

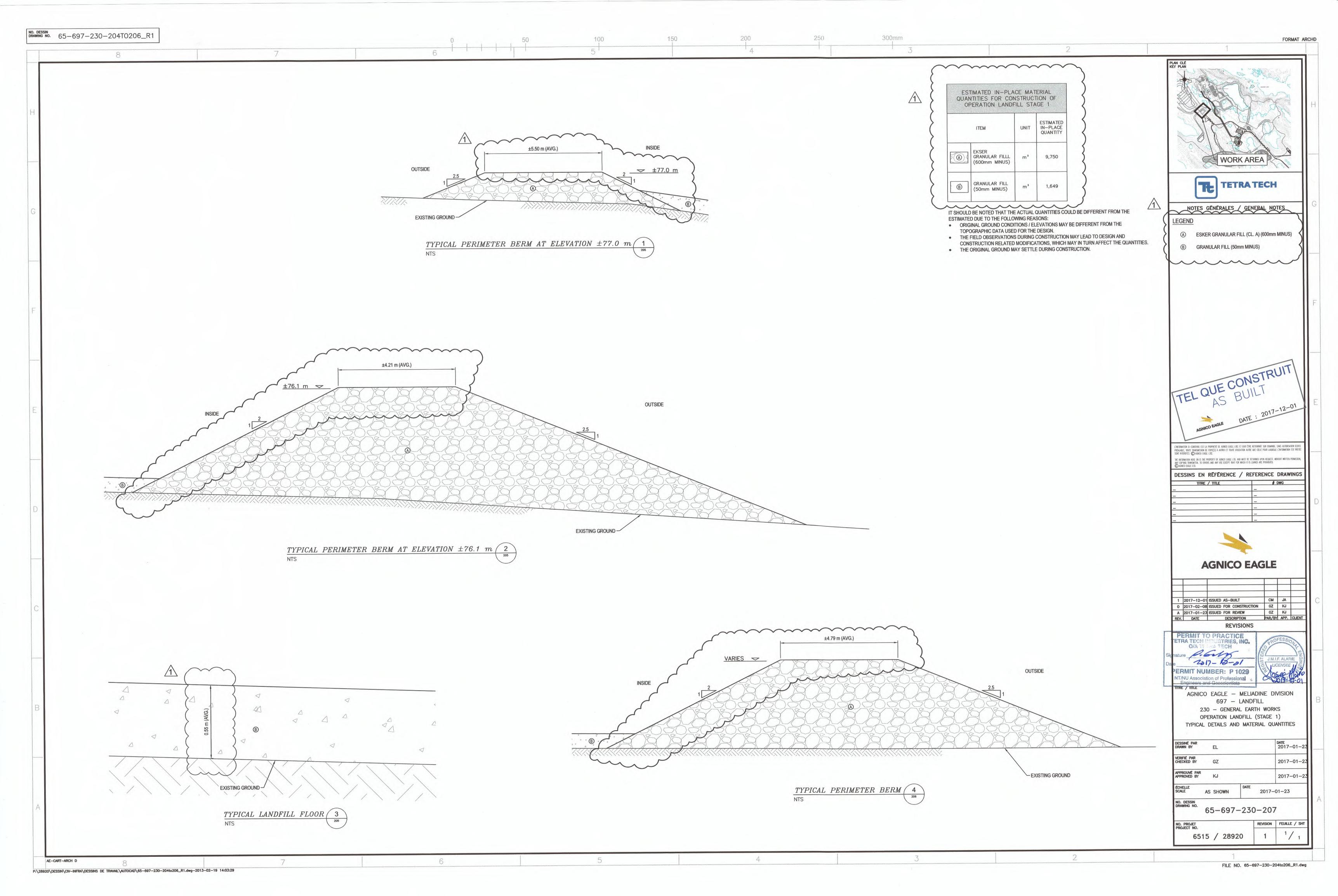
As-built drawings





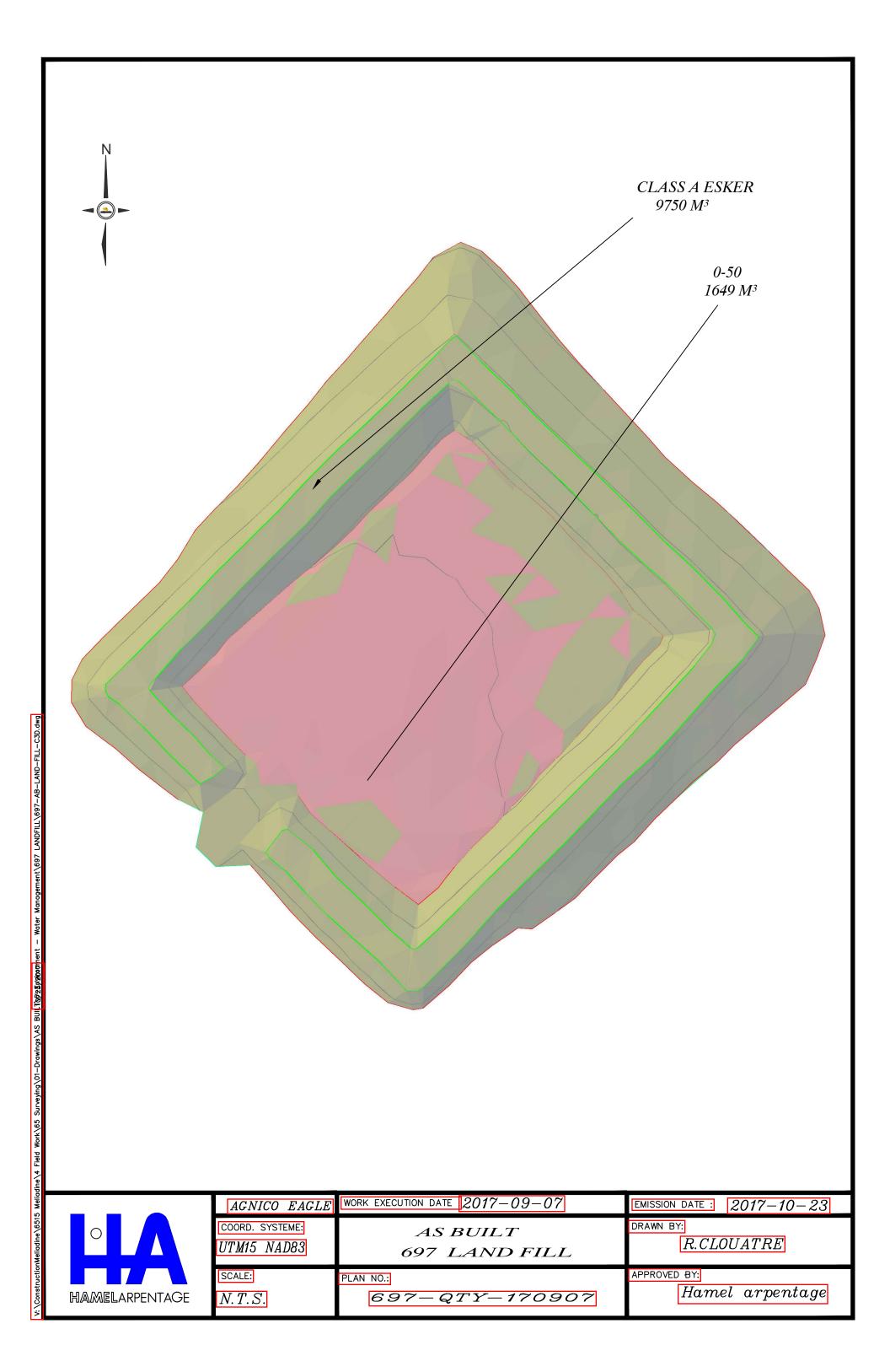






APPENDIX BSurvey drawings





APPENDIX C

Photographs of Operation Landfill (Stage 1)















APPENDIX D

Construction Summary of Operation Landfill (Stage 1)



Construction Summary – Operations Landfill

- Construction management and quality assurance performed by Agnico Eagle Construction
- Primary civil construction contractor was MTKSL
- All survey conducted by Hamel Arpentage

Design Deviations:

- Shortages of available run-of-mine (ROM) from Underground operations led to the issuance of RFI 6515-C-230-009_013 (issued July 19 and approved by Tt July 26) for the following material substitutions:
 - Replacement of 600 mm minus ROM with 600 mm minus Class A Esker material
 - Elimination of 150 mm minus Transition Rockfill and 20 mm minus Granular Fill from the interior slope of the perimeter berms
 - Replacement of 150 mm minus Transition Rockfill for the interior floor with 200 mm minus Transition Rockfill
- Further field alterations approved by Agnico Eagle Construction include:
 - Replacement of 200 mm minus Transition Rockfill on the floor with 50 mm minus screened esker material and Class A esker material
 - A small quantity of 600 mm minus ROM (which was previously placed) forms a portion
 of the first lift of the southeast perimeter berm and the floor in the southeast corner.
 This material was not surveyed separately from the Class A Esker material.
 - An opening for vehicle access/dumping was left in the southwest Perimeter Berm

1. Site Preparation (August 21 to August 23)

- OG survey of Landfill footprint
- Access road from Haul Road constructed along future TSF haul road alignment
- 2. Perimeter Berm Construction (August 23 to August 30)
- 600 mm minus Class A esker material from the Emulsion Esker was placed in controlled lifts and compacted
- Following placement of all lifts except the last, the berms were shaped to design slopes with an excavator with the excess material placed as the final lift
- 3. Floor Placement (September 2)
- Class A esker material removed from final sloping the interior of the Perimeter Berms was placed and compacted as part of the floor covering
- The remainder of the floor material consisted of 50 mm minus placed in controlled lifts and compacted

Equipment Used for Construction:

- CAT D6 Bulldozer
- CAT 345B Excavator
- CAT 980 Loader
- CAT 740 Haul Trucks

- CAT 773 Haul Trucks
- CAT CS56 10-ton vibratory drum compactor

QA/QC Summary

- 1. 600 mm minus was placed according to the Technical Specifications for Civil Earthworks Rev 3 (6515-GNS-014, June 6, 2017). Compaction efforts consisted of a minimum number (4-6) of passes with a 10-tonne vibratory compactor. Suitability for placement (free from frozen materials and/or ice) and compaction efforts were assessed visually and approved by AEM.
- 2. 50 mm minus screened esker material was placed according to the Technical Specifications for Civil Earthworks Rev 3 (6515-GNS-014, June 6, 2017). Compaction efforts consisted of a minimum number (4) passes with a 10-tonne vibratory compactor.
- 3. No QC was performed during construction.

APPENDIX E

Inspection Test Plan of Operation Landfill (Stage 1)



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	IT	TKS

CWP No.:

6515-C-235-009 - Industrial Pads

INSPECTION TEST PLAN

Review Documentation

W: Witness / Report

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Quality Assurance Representative

PROJECT:	AGNICO EAGLE MINES (AEM) - MELIADINE GOLD PROJECT								
Contractor:	MTKSL						Contract No.:	Job	6615-C-235-009
Area/System No.:	Landfill	34					ITI	No.:	6516-C-235-009_1TP_006 201708019
Contact Person:	MTKSL Tyler Wilson/Rejean Duval	L V	/eri	ification Type			A	EM Job	Titles
Work Area:	Landfill	, Н	4:	Hold Point	T:	Test	C	C Cor	struction Coordinator
Subcontractor:	Harnel (Survey), AEM Field Engineering (Materials Testing)	1:	:	Inspection	V:	Verify Test	F	Fiel	d Engineer

EWP No.:

N/A

		ACTIV	ITY DATA		100	N. 12 MAN						VEI	RIFICATION	N DAT	A4	10.37.5		
								Su	bcontra	ctor QC		MTKS	L QC			AEM		
No.	Description of Activities¹ (Describe in sequential order, Sequence must align with the execution sequence of the work to be performed.)	Functional ² Responsibility	Characteristic (s) ³	Verification ^s Frequency	Reference Document(s)	Acceptance Criteria	Verification ^s Document(s) (Reporting)	Type	Initials	Date	Type	Initials	Date	Type	Initials	Date	Title	Comments
1	FCs Approved (Issued for Construction)	AEM / MTKSL	Verify all IFCs are approved and correct		Issued IFCs	Stamped IFC Drawings and satest revisions	Orawing Log; AEM Transmittal	н			н	30	1034.6	R	R	10/24/17	RE	No work to proceed without Approved IFC Drawings Issued from AEM Document Contro Void older revisions
z	Materials Production	AEM/MTKSL	Material Acceptance	As required	Technical Specs	Passing material gradation	Sieve Analysis	N/A	X	7	н	SC	10-18,7	RV	58	Maya	RE	Sieve Analysis and moisture content testing. QC Testing by AEM.
3	Materials Assignment	AEM	Material Acceptance	Ongoing	Site Standards	Material suitability	Material Balance & Assignment Sheet	N/A			н	re	W P	w	58	OKZUHITY	RE	Materials sources for construction materials to be dictated by AEM.
4	Survey Layout	HAMEL	Layout area of construction	As required	Issued IFC's	Conforms to IFC's.	Survey Layout Report	V			н	TIL	W-151	R	38	Physical	RE	Survey provided by AE (Hamel)
5	Site Preparation	MTKSL	Ensure site is acceptable for placement	Once	FCs, Site Standards, Technical Specs	Conforms to IFCs and Technical specs	Release for backfill / Stripping Report	V/R			WIR	JC	1024	V/I	58	op:1/7	RE	OG Surface to be aurveyed prior to fill placement.
6	Placement of Material <600mm	MTKSL	Monitoring placement of materials	As required	FCs, Site Standards, Technical Specs	Conforms to IFCs and Technical speca	Back Fill Report	v			V/R	3C	N. A	R/I	58	weyl?	RE	Note Materials Change per RFIs.
,	Elecament of Material <200mm	WTKSL	Monitoring placement of materials	As required	FCs Site Standards, Technical Specs	Conforms to IFCs and Technical specs	Beek Fill Report	V		Non	JE.	USI	DJ	P.				Note Design & Material Changes per RFIs. 200mm removed from Interior slopes of berm
_	Placement of Material Canan	MTKSL	Monitoring placement of materials	As required	FCs. Site Standards, Technical Specs	Conforms to IFCs	Rack Fill Report	v			V/R	NIC	ATE (PU I	7	P		Note Design & Material Changes per RFB. 10mm removed from Interior berm slopes

MT	KSL
CONTRACTA	LADRIT VERTINAL

Comments: All survey to be performed by Hamel. Material Testing by AEM. Lifts to be released by QA.

INSPECTION TEST PLAN

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9	As built summary	AEM/MTKSL /HAMEL	Verify construction against IFC's	Once	Approved Field	EC's & Approved	Survey report & cleared ECN log	н		н	oc	W-1-1	R/V	JP.	1024/9	-/-	Survey to be completed at each material change or area
10	Walkdowns & Deficiency Correction	AEM/MTKSL	Verification	As Required	summary, IFCS,	Conforms to IFC's & Approved Field Changes	Cleared Punch Log	N/A		н	JL.	10-14	R/V/I	P	10/24/17	RE	
11	Final acceptance and turnover	AEM/MTKSL	Acceptance of final turnover		Issued IFC's, Technical Specs		Final Acceptance	н	1	н	3L	10 7	R	JR	024/17	RE	

Applicable Site Standard XXXXX-XXXXX		
Applicable Technical Specification - 6515-GNS-014_R3.		
ITP ISSUE APPROVALS		
Contractor Construction Manager / Superintendent (Print)	Title Signature Signature	Date (mm/dd/yy)
Contractor Site Quality Manager / Supervisor (Print) JENNIFER PYLIUK	RESIDENT ENGINEER Our Plus	Date (mm/dd/yy)
AEM Quality Manager / Supervisor (Print)	Title Signature	Date (mm/dd/yy)
ITP CLOSEOUT AND WORK ACCEPTANCE APPROVALS	/	
Om Cordinol	Construction form on pm	10-24-017
Contractor Site Quality Manager / Supervisor (Print) JENNIFER PYLIUK	RESIDENTENGINEER 1. Jumper Rollin	Date (mm/dd/yy)
AEM Quality Manager / Supervisor / Designate	Title Signature	Date (manufactions)