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CONSTRUCTION SUMMARY REPORT
IVR WRSF water management system

Agnico Eagle Mines Ltd

Report
6127-648-132-REP-005_R1
March 2, 2022

Authorized Signatory:

Eng. 145737
2022-03-02

REGISTERED PROFESSIONAL ENGINEER
I. GAGNON
LICENSEE
NT/NU
L3940
2022-03-02

PERMIT TO PRACTICE
SNC - LAVALIN STAVIBEL INC.
Signature
Date 2022-03-02
PERMIT NUMBER: P 718
NT/NU Association of Professional Engineers and Geoscientists

Israël Gagnon, P. Eng., MBA
Mechanical Engineer

EXECUTIVE SUMMARY

The construction of IVR WRSF water management infrastructures at Whale Tail project was carried out from March 10th to November 4th, 2021. The infrastructures constructed for this project comprise of five sumps, four pumps installed in the sumps and their associated piping and four sets of culverts in Road 35. The objective of these infrastructures is to convey the runoff volumes that will be generated within the drainage area of the IVR WRSF towards the IVR Attenuation Pond.

The controls applied during the construction were used to confirm that the work was completed in compliance with the Construction Drawings. This includes earthwork such as excavation, fill placement, geomembrane, and culvert installations.

During the work, two field adjustments were applied to consider the site conditions and to optimize the construction activities according to the field observations of the last few years.

Revision list

Revision			Pages revised	Comments
#	By	Date		
A	IG/CP/PG	21/01/2022	ALL	For comment
0	IG/CP/PG	18/02/2022	ALL	Final
1	IG	02/03/2021	Appendix C	Revised Final

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Appendices

1 Introduction

As part of the water management of the contact/surface water around IVR WRSF, the construction of several infrastructures was required. This construction summary report is prepared in accordance with the Water License requirements 2AM-WTP1830.

The contact water and surface water resulting from runoff water received from natural precipitation on the IVR waste rock pile and natural terrain shall be collected within five sumps named IWA to IWE. Pumps and piping were installed to redirect the water from the sumps to the IVR Attenuation pond. For the proposed configuration of the sumps and the required access roads surrounding the area, a system consisting of four culverts was required to convey the runoff volumes that will be generated from rain events in the drainage area into the IVR Attenuation Pond or to allow the passage of piping under the accesses between sumps and the pond. Two pipe crossings and two water channel culverts were installed under the IVR WRSF ring road.

The construction of the IVR WRSF dewatering infrastructures at Whale Tail project was carried out from March 10th to November 4th, 2021.

This as-built report presents a summary of the roles and responsibilities of each actor, of the construction activities, the QA/QC activities, as well as the overall information used to produce the as-built drawings.

1.1 Site location plan

The Whale Tail Project is in the Kivalliq Region of Nunavut (65°24’25” N, 96°41’50” W). The 99,878-hectare Amaruq property is located on Inuit-owned and federal crown land, approximately 55 km north of the Meadowbank mine. The Meadowbank mine is accessible from Baker Lake, located 70 kilometers to the south. Figure 1 presents the IVR WRSF site.

Figure 1 – IVR WRSF Site

1.2 Key personnel

The Engineering Design and Construction Drawings for the culverts and the sump were developed by SNC-Lavalin inc. with inputs from Agnico Eagle. The Kivalliq Contractor Group (KCG) was contracted by Agnico Eagle to execute most of the work. However, a portion of the work was performed by the Mine Operations and E&I (Energy and Infrastructure) Departments.

The Owner's Representative from Agnico Eagle was the main point of contact between the stakeholders of the project (designer, contractor, Agnico Eagle project manager). The Owner's Representative was also responsible for the Quality Assurance (QA) to ensure the culverts and sumps and pipes were built as per the construction Drawings. All filling material was taken from stockpiles of controlled quality that were already sampled in the past; therefore, no QC was present or required for the culvert's installation, visual assessment was done by QA during field visits.

Table 1 presents a summary of the general roles and responsibilities for each of the parties involved during the culverts and sump construction. This table also includes the key companies and the key personnel that contributed to the various construction activities.

Table 1: Roles, Responsibilities and Key Personnel for IVR WRSF water management system

Company	Role	Responsibility	Key Personnel	Position
Agnico Eagle Mines Limited **Environnement**	Owner	Project Management Act as Owner's Representative QA during construction and technical review of construction work	Patrice Gagnon Laurier Collette Camille Pelletier Thomas Dahm Guillaume Baril	Geotechnical Specialist
Agnico Eagle Mines Limited **Mine Operations**		Carry out culvert and sump construction activity.	Ian Bourassa	Mine General Supervisor
Agnico Eagle Mines Limited **E&I**		Carry out culvert and sump construction activity.	Benjamin Duguay	Field & Dewatering Supervisor
Agnico Eagle Mines Limited **Construction**		Install piping between sumps towards Attenuation pond	Serge Racicot Sylvain Chartier	Construction General Supervisor
Kivaliq Contractor Group (KCG)	Contractor	Carry out culvert and sump construction activity.	Claude Tremblay Louis Soucie	Field Supervisor
			Michael Gagnon Danny Pageau	Superintendent
SNC Lavalin Inc.	Designer	Provide Engineering Design & Construction Drawings for the culverts and sump.	Dan Chen	Engineer

1.3 Definition of Terms Used in this Document

Table 1: Definitions of Terms

AEM	Agnico Eagle Mines Limited, Owner.
As-built drawing	Document showing no new concept. It is the graphical representation of a built structure showing the real measurements, installed instruments and objects. It can be seen as an inventory of what was built for reference.
Approval	A written engineering or geotechnical opinion, related to the progress and completion of the Work.
Designer	SNC Lavalin Inc.
Contractor	Kivaliq Contractor Group (KCG). On-site representative of the construction company contracted by the Owner to carry out the scope of work as defined by the drawings.
Fine Filter	Material produced from processing of NAG and meeting the Specifications. Used as sub granular material.
Geotextile	Stability element of the culvert and ditch design.
NAG	NAG: A material that has been geochemically classified as not being acid generating.
Owner	Agnico Eagle Mines Limited, Meadowbank Division (AEM).
Owner's Representative	Person(s) employed by the Owner to oversee the project works and the Owner's interests.
Quality Assurance (QA)	A planned system of inspection and testing that document, to the satisfaction of the Owner, other stakeholders, and regulator that the Work complies with design and Drawings. Quality Assurance forms a subset of the Quality Control program. Quality Assurance comprises inspections carried out during Quality Control and includes verifications, evaluations of materials and workmanship necessary to determine and document the quality of the constructed facility. Quality Assurance refers to the measures taken to assess whether the Contractor follows the design intent and Drawings.
Quality Control (QC)	A planned system of inspection, testing and documentation carried out by the Contractor during construction to ensure that the Work is being performed and completed in a manner that complies with the Drawings and Specifications. The Contractor is responsible for the Quality Control of all Work performed by him and all Work performed by any Subcontractor.
Work	All activities associated with the construction of Road 35 culverts, pipe crossings and IWD sump.

1.4 Description of the Structures Built

As part of the water management of the contact/surface water around IVR WRSF, the construction of several infrastructures was required.

The contact water and surface water resulting from runoff water received from natural precipitation on the IVR waste rock pile and natural terrain shall be collected within five sumps named IWA to IWE (Figure 1). Of these sumps, IWA, IWB and IWC were located in low topographic spots around the waste rock perimeter and IWD was excavated out of a low area of the tundra. The purpose of the IWD sump excavation is to manage water accumulation between the IVR WRSF ring road and the IVR WRSF itself that was flowing naturally from former lake A52 towards lake A53, now called the IVR Attenuation Pond. The IWE sump was located in the former lake A54, situated east of the IVR WRSF.

For the proposed configuration of the sumps and the required access roads surrounding the area, a culvert system was required to convey the runoff volumes that will be generated in the drainage area into the IVR Attenuation Pond or to allow the passage of piping between sumps and the pond. Culvert 35-1 and 35-2 will be used for pipe crossing, culvert 35-3 and 35-4A, 35-4B, 35-4C are set to convey the runoff volumes that will be generated from IWE into the IVR Attenuation Pond.

Here is the location of the infrastructures installed: culvert 35-1 at St. 0+60, culvert 35-2 at St. 0+400, culvert 35-3 at St. 0+860 and culverts 35-A, B and C at St. 0+980. The IWD sump was excavated at St. 0+550. The water culverts were built having a minimum longitudinal slope of 0.3% along their invert and were long enough to clear both toes of the access roads to allow for proper functionality and also inspections purposes.

The design of the culverts includes the use of a geotextile at the bottom of the excavation, to act as a transition/stabilizing element between natural ground and fine filter. The geotextile was installed on natural ground if it was porous. The geotextile was then overlaid by a layer of 400 mm of compacted fine filter material. Compaction was achieved with the bucket of an excavator and by a P10,000 Wacker Packer vibro-compactor. The culverts were then installed on that fine filter compacted bedding and the excavation was backfilled with a compacted fine filter layer with a thickness up to one meter above the top of the culverts.

1.5 Construction Documents

The Construction Drawings of the culverts and sump were completed by SNC Lavalin Inc. in 2021. Table 3 presents the available construction documents for the Road 35 culverts to be installed and a sump to be dug.

Table 2: List of Construction Drawings for IVR WRSF water management system.

Drawing Number	Date	Rev	Title
6127-695-132-REP-010	2021/01/27	01	Amaruq phase 2 IVR WRSF pumping system design report

1.6 As-built Drawing

Table 4 presents the as-built drawings for the Road 35 culverts and sumps. The surveying and the as-built drawings were done by the Geotechnical Technician.

Table 3: List of As-Built Drawings for IVR WRSF water management system.

Drawing Title	Date	Rev	Description
IVR WRSF general site view	2021-11-05	00	Plan View
Road 35 culverts and sump general site view	2021-11-05	00	Road #35 Culverts Plan View
As-built culvert 35-1	2021-11-07	00	Road #35-1 Culvert Pipe Crossing Cross Section
As-built culvert 35-2	2021-11-05	00	Road #35-2 Pipe Crossing Cross Section
As-built culvert 35-3	2021-11-05	00	Road #35-3 Water Management Culvert Cross Section
As-built culvert 35-4 (A, B, C)	2021-11-05	00	Road #35-4 Water Management Culvert Cross Section
As-built IWD sump	2021-11-09	00	Road #35 Sump Cross Section

2 Summary of Construction Activities and Schedule

This section presents the steps of the construction of the infrastructures required for the Water management at IVR WRSF and the schedule of the work done.

2.1 Schedule and Construction Steps

The installation of the four dewatering lines between the topographical low spots was done between March 10 and July 5th, 2021.

The construction of the culverts on the IVR WRSF perimeter road and the sump IWD at Whale Tail project was carried out from October 8th to November 4th, 2021. The work was performed on a combination of dayshift/nightshift.

Culverts installation:

- Site preparation (removal of material, temporary access construction).
- Excavation of the road and slope profiling.
- Geotextile installation at bottom of the excavation, if necessary.
- Placement and compaction of subgrade material (fine filter) along the excavation profile.
- Culvert installation.
- Placement and compaction of culvert protection layer (compacted fine filter).
- Re-establishment of the road surface on top of the new culvert(s) installed.
- Removal of the road 35 temporary access built for the construction period.
- Re-opening the road to full traffic.

IWD sump excavation:

- Site preparation (removal of material, temporary access construction).
- Excavation of the IWD sump and slop profiling.
- Placement of 200 mm of rockfill to stabilize slopes.
- Removal of the temporary access built for the construction period.

All the different steps were realized subsequently over the course of each culvert (35-1, 35-2, 35-3, 35-4) installation and sump excavation. The first culvert installed was the 35-1, located at St. 0+60, followed by 35-2, at St. 0+400, then 35-4 at St. 0+980, also IWD sump at St. 0+550 and finally culvert 35-3, at St. 0+860.

The work procedures followed during the construction of these work items are discussed in the following subsections.

Selected photographs of the work progress taken throughout the construction are shown in Appendix B.

Table 4: Culvert and IWD Sump Start and End Date

Earthwork	Start Date	End Date	Total Days	Comments
Culvert 35-1	10/08/2021	10/10/2021	3	
Culvert 35-2	10/08/2021	10/10/2021	3	
Culvert 35-3	10/31/2021	11/04/2021	5	
Culvert 35-4 (A, B, C)	10/08/2021	10/13/2021	6	
IWD Sump	10/17/2021	10/17/2021	1	

2.2 Site Preparation

The first step in the culvert construction and the IWD sump excavation was to stake out the area of the required earthworks then proceed with the construction of a temporary ramp to access the work areas. Road 35 traffic was limited during this period, to allow the installation of the culverts through the entire width of the road.

2.3 Excavation

The Road 35 excavation was completed at St. 0+60, St. 0+400, St. 0+550, St. 0+860, and St. 0+980 using an excavator. Drilling and blasting were not required. The excavation was done with a minimum 0.3% longitudinal profile for the water management culverts. The depth of the excavation varied from 1.5 to 2.5 m and ensured a minimum thickness of 1 m of fine filter above the installed culvert. The material excavated was comprise of either rockfill and till and it was disposed of by stacking it on the side of the road, and then reused to backfill the excavation.

During the excavation of IWD sump, the side slopes were profiled to have an angle of about 2H:1V. Slope profiling was not a concern during excavation, as the trenches would be backfilled; the slopes were angled as to ensure worker safety.

The volume of material excavated for the construction of the culverts represent approximatively 272 m3. The excavated volume of the IWD sump is about 650 m3. All the material was reused as backfill or in the berms of Road 35.

2.4 Geotextile Installation

The geotextile was only used in the construction of culverts 35-3 and 35-4 (A, B, C), and was installed on top of the excavated natural ground. For culvert 35-3, the width of the panel installed was such that a single panel could cover a perpendicular section of the excavation and the panel was extending at least 0.2 m from both sides. Only the ends (inlet and outlet) of the culvert trench were lined with a geotextile, as the center was on competent ground. Prior to installation, it was verified by the Owner's Representative that the natural ground surface was in good condition. In the case of culvert 35-4 (A, B, C), the geotextile was installed length wise; three strips were necessary.

When not in use, the geotextile rolls were stored on in storage container. After installation, the geotextile surface was visually inspected by the Owner's Representative and the Contractor for sign of punctures and defects before being covered by fine filter material. A total of 385 m2 of geotextile was installed during the construction of the culvert 35-4 (A, B, C), and about 109 m2 during the construction of culvert 35-3.

2.5 Subgrade Installation

A lift of 400 mm of fine filter material was place over the geotextile at the bottom of the excavation to act as bedding for the culvert placement. The material was placed and sloped with a minimal grade of 0.3% and compacted with the bucket of the excavator and a P10,000 Wacker-Packer vibro-compactor.

2.6 Culverts Installation

The culverts were lowered unto the bottom of the excavations using slings and excavator bucket. Whenever required, a union joining 2 sections was installed according to the standards. Final placement in the excavation was made by laborer before backfilling occurred.

2.7 Backfilling of the Culverts

Following the culverts installation, a protective cover was installed over them consisting of compacted fine filter. Each layer of about 0.7 to 1 m was compacted with the bucket of the excavator, and a P10,000 Wacker-Packer vibro-compactor.

A total of 136 m3 of fine filter was placed around culvert 35-1, a total of 145 m3 around culvert 35-2, a total of 247 m3 for 35-3, and a total of 597 m3 for 35-4.

2.8 Rockfill Installation in Sump

Approximatively 200 mm of rockfill was added to the IWD sump for structural support of the slopes, and to prevent muddy conditions during pumping. The rockfill consists of run-of-mine NAG material; it is placed using an excavator.

2.9 Water lines installation

Water lines were built in section at the fusion pad. Each section was then caried to its installation site and the flanged joint were bolted.

3 QA/QC Program and Results

3.1 General

During the construction of the culverts and IWD sump, the Quality Assurance (QA) of the culverts and sump installation was carried out by the Owner's Representative. The program included periodic inspection of all construction activity such as excavation, fill placement and geotextile installations. Review of the work methodology used was also done frequently and corrections were made if necessary. There was an Owner's Representative present full time on site during the construction period. Photographs of the work progress and activities were taken frequently as presented in the photographic record in Appendix B.

3.2 Excavation

The foundations were inspected before placing any material over natural soil and before the installation of the geotextile. The objective of the inspection process was to ensure that the foundation was suitable. The inspection was completed by the Owner's Representative. It was verified that the inspected foundation was competent, dry, free of contamination or ice, and that:

- The clearing and stripping were adequate.
- The foundation excavation and the removal of unsuitable foundation materials was adequate.
- The ground surface for geotextile placement was relatively smooth and the slope respected.

3.3 Geotextile Installation

After the completion of the geotextile installation, the Owner's Representative completed an inspection of the installation. The inspection was done to ensure the following:

- The geotextile was not damaged (ripped or punctured).
- The overlapping between strips was minimally 0.3 m.

3.4 Material Placement

During material placement, the quality of the material and the placement technique were routinely reviewed. It was ensured that the placement technique limited segregation, that the material quality was visually acceptable and that the lift thickness was respected. Material was compacted with a P10,000 Wacker-Packer vibro-compactor, but no formal compaction control was done during the placement of the material.

During placement of fine filter, it was visually verified that the fine filter was sufficient to anchor the geotextile.

4 Design Changes and Field Adjustments

Field adjustments were implemented during the construction of the culverts and IWD sump to adapt to the encountered field conditions. These changes were implemented by the Owner's Representative and are documented in this section. No design changes were done.

4.1 Field adjustment – Change in the location of culvert 35-4 (A, B, C)

Construction of the culvert 35-4 (A, B, C) was slightly modified as it was moved from its original proposed location, an area that was not a topographical low point. This move was necessary as the culverts would not have been as useful channeling contact water from IWE lake/sump to the IVR Attenuation Pond, because the water pathway was situated in the topographical low point.

4.2 Field adjustment – Added pipe crossing (culvert 35-2)

A pipe crossing culvert was added near the IWD sump to facilitate pumping into the IVR Attenuation pond. This crossing shortens the total length of pipping necessary to go from the sump pump to the pond.

4.3 Field adjustment – Configuration of IWD sump

The IWD sump volume was increased to hold approximatively 568 m3, by lengthening the sump by 10 m parallel to the road. The volume increase was necessary to conform with design specifications. The IWD sump was also moved slightly South-West to a topographical low point.

4.4 Field adjustment – Water line 17 layout

Line 17 was installed on the south side of the road 35 instead of the north side. This change won't have any effect on the water line performance.

5 Operation, Maintenance and Surveillance

A monitoring program is essential to ensure the integrity of these structures, especially at freshet. The monitoring program for these structures is included with the Whale Tail project Freshet action plan. This program includes regular inspections, monitoring, and maintenance. Water quality will also be monitored as per the NWB Water License.

If anomalous conditions are observed, a more detailed assessment should be done, and remedial action should be taken

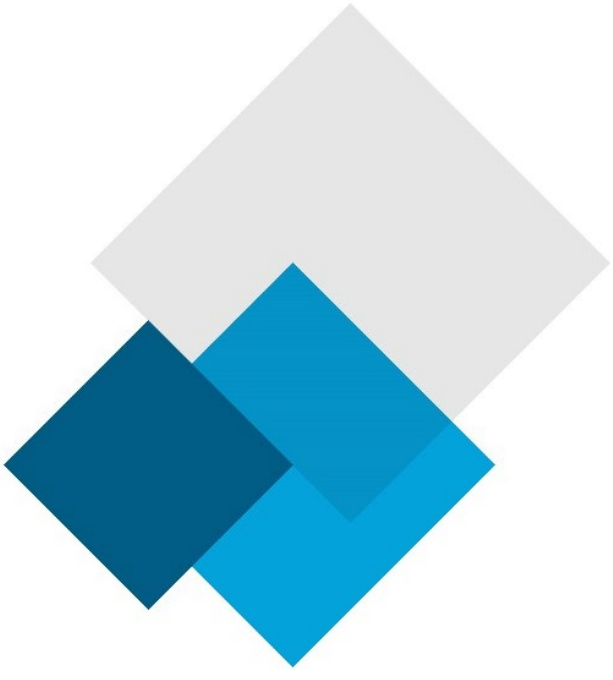
Camille Pelletier

Camille Pelletier
EIT, Water management & Geotechnics

Patrice Gagnon
Water Management and Geotechnical Coordinator

Appendix A

Final construction drawings



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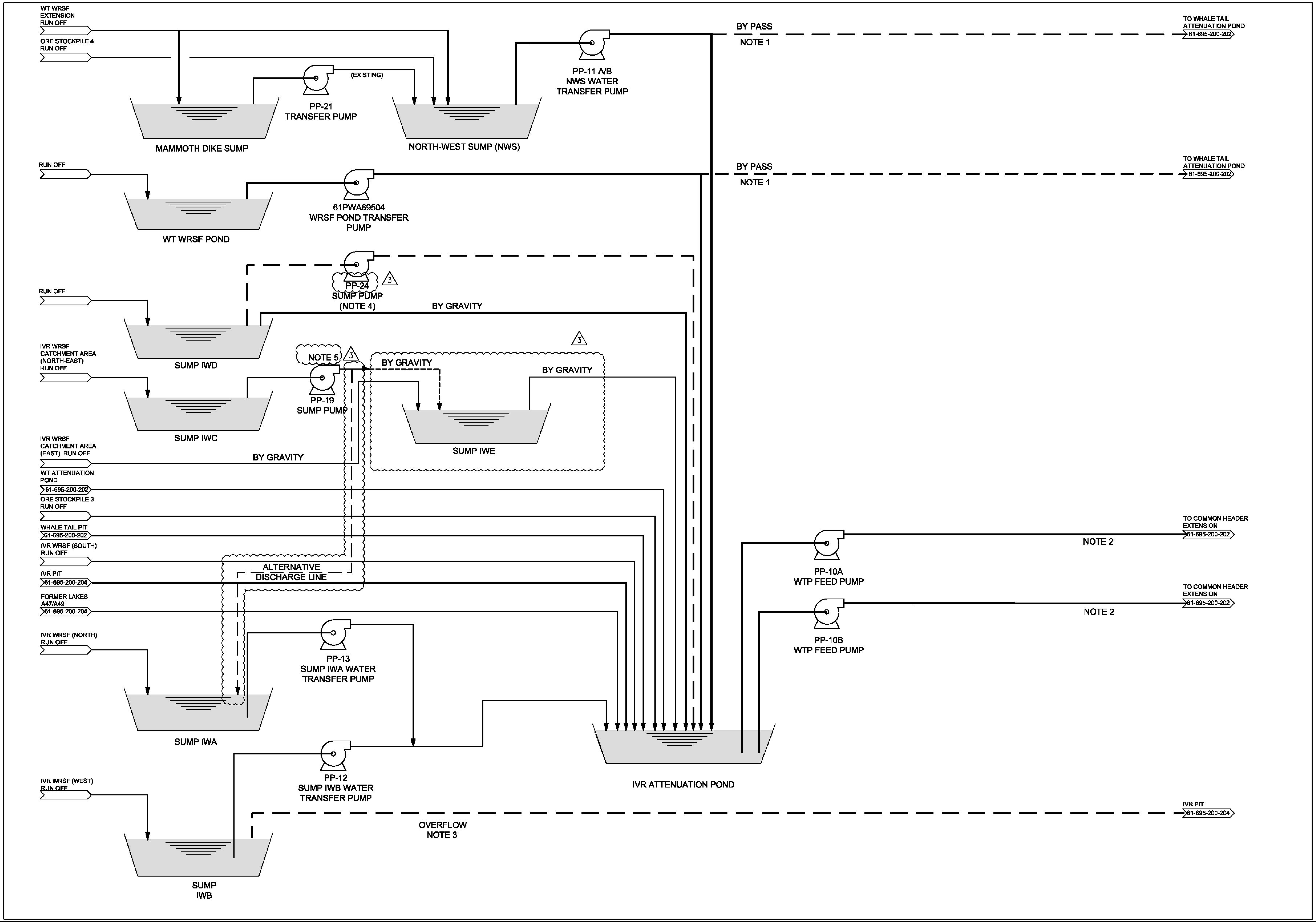

PLAN CLÉ / KEY PLAN

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5500, des Galeries Blvd., bur. 200, Quebec (Quebec), Canada G2K 2E2
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PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
668284	6000	49 D1	0002	E03

NOTES GÉNÉRALES / GENERAL NOTES

NOTES :

1. BY-PASS USED TO SEND WATER TO WT ATTENUATION POND ONLY WHEN REQUIRED.
2. WATER FROM IVR ATTENUATION POND WILL BE SENT TO THE COMMON HEADER BEFORE ENTERING THE WTP.
3. OVERFLOW CAUSED BY EVENTS BEYOND DESIGN FLOOD WILL BE SENT TO IVR PIT.
4. PUMP REQUIRED AT STORM EVENTS WHEN WATER LEVEL IN IVR ATTENUATION POND IS HIGH.
5. WATER FROM IWC SUMP SHALL BE PUMPED WITHIN THE IVR WRSF WATERSHED AND FLOWS TO THE IVR ATTENUATION POND BY GRAVITY. ALTERNATIVELY, WATER FROM IWC SUMP CAN BE PUMPED TO IWA SUMP IF REQUIRED.

3

LEGEND:

- PRIMARY STREAM
- SECONDARY STREAM
- INTERMITTENT STREAM

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
R3	2021–01–27	ISSUED FOR CONSTRUCTION	D.C.	A.L.N.	
R2	2020–11–10	ISSUED FOR CONSTRUCTION	D.C.	A.L.N.	
R1	2020–09–03	ISSUED FOR CONSTRUCTION	D.C.	A.L.N.	
R0	2020–02–14	ISSUED FOR CONSTRUCTION	D.C.	A.L.N.	
RB	2020–01–07	CLIENT COMMENTS	D.C.	A.L.N.	
RA	2019–12–18	ISSUED FOR COMMENTS	D.C.	A.L.N.	

REVISIONS

REGISTERED PROFESSIONAL ENGINEER A.-L. NGUYEN LICENSEE NT/NU 2021-01-27

PERMIT TO PRACTICE
SNC-LAVALIN INC.
Signature NAME
Date DATE 2020-01-27
PERMIT NUMBER: P 260
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

TITRE / TITLE

AGNICO EAGLE – AMARUQ DIVISION
695 – WATER MANAGEMENT

200 – PROCESS FLOWSHEET
AMARUQ PHASE 2 OPERATION
WHALE TAIL WRSF & EXTENSION,
IVR WRSF & IVR ATTENUATION POND

DESSINÉ PAR / DRAWN BY	M. MOVILA	DATE 2019–12–18
VÉRIFIÉ PAR / CHECKED BY	D. CHEN	2019–12–18
APPROUVÉ PAR / APPROVED BY	A.L. NGUYEN	2019–12–18
ÉCHELLE / SCALE		DATE 2019–12–18

NO. DESSIN / DRAWING NO. 61–695–200–203

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6127	R3	1 / 1

AE-CART-ARCH D

FILE NO. 61–695–200–203_R3.dwg

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NO. DESSIN DRAWING NO. 61-695-205-211

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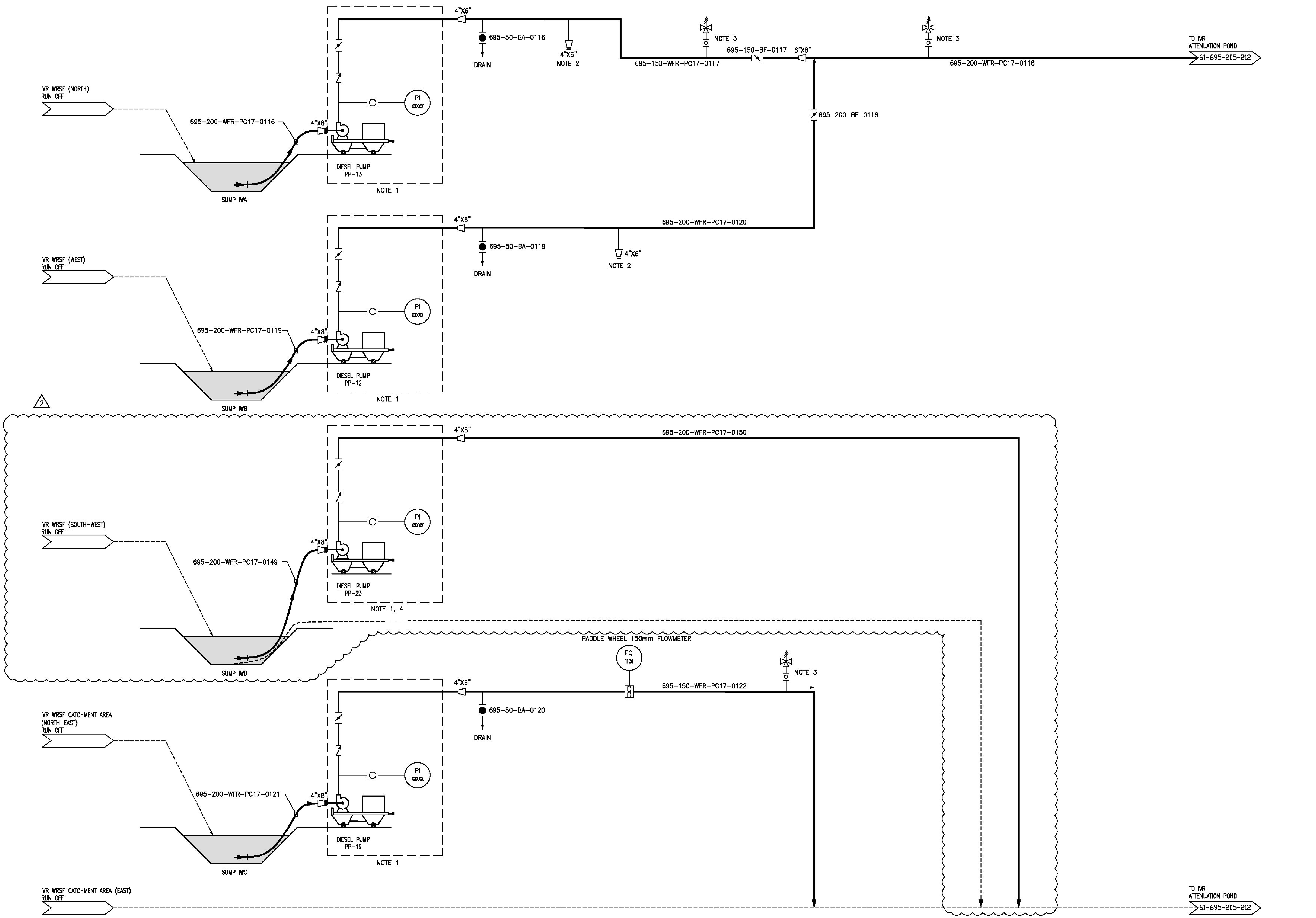

PLAN CLÉ
KEY PLAN

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PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
668284	6000	49 D4	0005	E02

NOTES GÉNÉRALES / GENERAL NOTES

NOTES :

1. DIESEL PUMP MOUNTED ON A SKID.
2. SPARE TIE-INS FOR CONECTING A SECOND PUMP IF REQUIRED.
3. SEE PROFILE DRAWING 61-695-270-218 FOR THE NUMBER AND THE LOCATION OF AIR RELEASE/VACCUUM BREAKER VALVES REQUIRED.
4. PUMP REQUIRED AT STORM EVENTS WHEN WATER LEVEL IN IVR ATTENUATION POND IS HIGH.

LEGEND:

- EXISTING LINE
- NEW LINE
- SURFACE RUNOFF
- OTHER FLOW

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
R2	2020-11-10	ISSUED FOR CONSTRUCTION	D.C.	A.L.N.	
R1	2020-09-03	ISSUED FOR CONSTRUCTION	D.C.	A.L.N.	
R0	2020-05-08	ISSUED FOR CONSTRUCTION	D.C.	A.L.N.	
RB	2019-02-28	ISSUED FOR CLIENT COMMENTS	D.C.	A.L.N.	
RA	2020-01-06	ISSUED FOR COMMENTS	D.C.	A.L.N.	

REVISIONS

REGISTERED PROFESSIONAL ENGINEER A. L. NGUYEN LICENSEE NT/NU 2020-11-10

PERMIT TO PRACTICE
SNC-LAVALIN INC.
Signature NAME
Date DATE 2020-11-10
PERMIT NUMBER: P 260
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

TITRE / TITLE
AGNICO EAGLE – AMARUQ DIVISION
695 – WATER MANAGEMENT

205–PIPING AND INSTRUMENTATION DIAGRAM
AMARUQ PHASE 2 OPERATION
IVR WRSF & PUMPING STATIONS

DESSINÉ PAR / DRAWN BY	M. MOVILA	DATE 2020-01-06
VERIFIÉ PAR / CHECKED BY	D. CHEN	2020-01-06
APPROUVÉ PAR / APPROVED BY	A.L. NGUYEN	2020-01-06
ÉCHELLE / SCALE		DATE 2020-01-06

NO. DESSIN / DRAWING NO. 61-695-205-211

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6127	R2	1 / 1

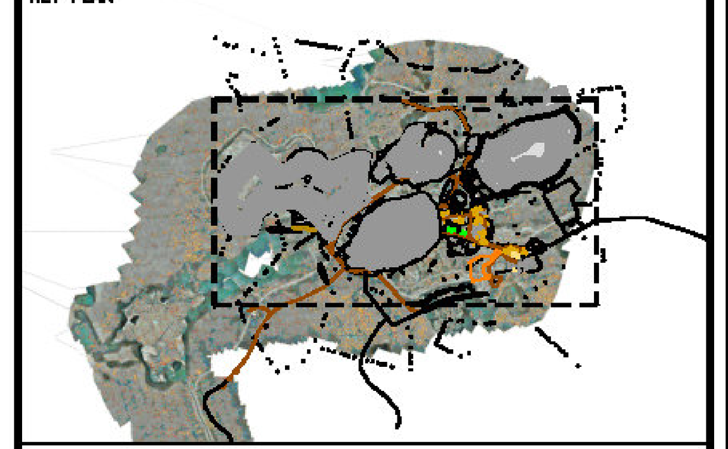
AE-CART-ARCH D

FILE NO. 61-695-205-211_R2.dwg

NO. DESSIN
DRAWING NO. 61-695-270-227

FORMAT ARCHD

PLAN CLÉ
KEY PLAN



PROJECT No	SUBDIVISION	SUBJECT		SERIAL	REV.
668284	6000	46	DD	0011	E03

NOTES GÉNÉRALES / GENERAL NOTES

NOTES

1. THE FOLLOWING DRAWING PROVIDES THE GENERAL ROUTING OF THE PIPELINE ON THE SITE. THEY CAN BE ADJUSTED BASED ON FIELD CONDITIONS. THE LINES SHOWN ARE NOT TO SCALE FOR CLARIFY PURPOSES.
2. THE DETAILS OF EACH PIPELINE PROFILE AND ROUTING ARE DESCRIBED IN INDIVIDUAL PROFILE DRAWINGS.
3. PIPES SHALL BE INSTALLED ON THE SAFETY BERM OF THE ORE STOCKPILE

LEGEND:

- 6" NOMINAL NON-INSULATED
- 8" NOMINAL NON-INSULATED
- 8" NOMINAL INSULATED AND HEAT TRACED
- 14" NOMINAL INSULATED AND HEAT TRACED
- 14" NOMINAL NON-INSULATED
- EXISTING PIPELINE
- NEW PIPELINE
- NEW CULVERT
- EXISTING CULVERT

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
R3	2020-12-22	ISSUED FOR CONSTRUCTION	M.M./D.C.	A.L.N.	
R2	2020-11-10	ISSUED FOR CONSTRUCTION	M.M./D.C.	A.L.N.	
R1	2020-09-02	ISSUED FOR CONSTRUCTION	M.M./D.C.	A.L.N.	
R0	2020-08-20	ISSUED FOR CONSTRUCTION	M.M./D.C.	A.L.N.	
RB	2020-08-11	ISSUED FOR CLIENT COMMENTS	M.M./D.C.	A.L.N.	
RA	2020-07-16	ISSUED FOR INTERNAL COMMENTS	M.M./D.C.	A.L.N.	

REVISIONS

REGISTERED PROFESSIONAL ENGINEER A.-L. NGUYEN LICENSEE NT/NU 2020-12-23

PERMIT TO PRACTICE
SNC-LAVALIN INC.
Signature NAME
Date DATE 2020-12-23
PERMIT NUMBER: P 260
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

TITRE / TITLE

AGNICO EAGLE – AMARUQ DIVISION
695 – WATER MANAGEMENT
270 – PIPING

AMARUQ PHASE 2
PIPE LAYOUT

DESSINÉ PAR / DRAWN BY	MARIUS MOVILA	DATE 2020-03-11
VERIFIÉ PAR / CHECKED BY	DAN CHEN	2020-03-11
APPROUVÉ PAR / APPROVED BY	ANH-LONG NGUYEN	2020-03-11
ÉCHELLE / SCALE	AS SHOWN	DATE 2020-03-11

NO. DESSIN / DRAWING NO. 61-695-270-227

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6127	R3	1 / 1

FILE NO.

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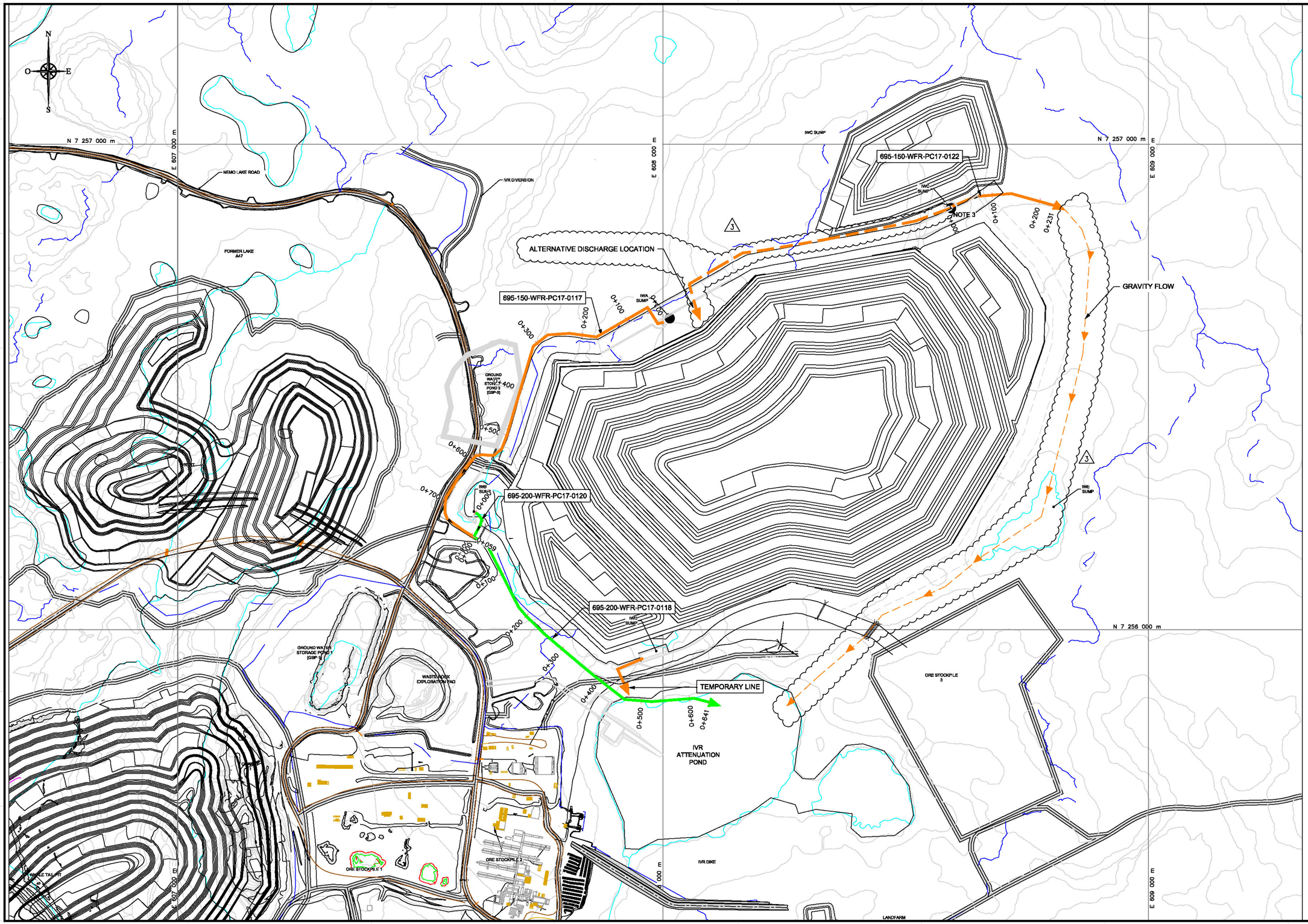
T:\proj\668284 WMGI Phase 2 Detailed Engineering\40_DD_DESSINS\6000\668284-6000-4600-0011-E03 (61-695-270-227).dwg

NO. DESSIN DRAWING NO. 61-695-270-218

FORMAT ARCH D



PLAN CLÉ
KEY PLAN

PROJECT No	SUBDMSION	SUBJECT	SERIAL	REV.
668284	6000	48 | DD	0002	E03

NOTES GÉNÉRALES / GENERAL NOTES

NOTES

1. THE FOLLOWING DRAWING PROVIDES THE GENERAL ROUTING OF THE PIPELINE ON THE SITE. THEY CAN BE ADJUSTED BASED ON FIELD CONDITIONS. THE LINES SHOWN ARE NOT TO SCALE FOR CLARIFY PURPOSES.
2. A MOBILE PUMP AT IWD SUMP IS REQUIRED AT STORM EVENTS WHEN WATER LEVEL IN IVR ATTENUATION POND IS HIGH.
3. WATER FROM IWC SUMP SHALL BE PUMPED WITHIN THE IVR WRSF WATERSHED AND FLOWS TO THE IVR ATTENUATION POND BY GRAVITY. ALTERNATIVELY, WATER FROM IWC SUMP CAN BE PUMPED TO IWA SUMP IF REQUIRED.

3

LEGEND:

- 6" NOMINAL NON-INSULATED
- 8" NOMINAL NON-INSULATED

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
—	—
—	—
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
R3	2021-01-27	ISSUED FOR CONSTRUCTION	M.M.	A.L.N.	A.L.
R2	2020-12-23	ISSUED FOR CONSTRUCTION	M.M.	A.L.N.	A.L.
R1	2020-11-10	ISSUED FOR CONSTRUCTION	M.M.	A.L.N.	A.L.
R0	2020-08-02	ISSUED FOR CONSTRUCTION	M.M.	A.L.N.	A.L.
RB	2020-04-23	ISSUED FOR CLIENT COMMENTS	M.M.	A.L.N.	A.L.
RA	2020-03-10	ISSUED FOR INTERNAL COMMENTS	M.M.	A.L.N.	A.L.

REVISIONS

PERMIT TO PRACTICE
SNC-LAVALIN INC.
Signature NAME
Date DATE 2020.01.27
PERMIT NUMBER: P 260
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU
2021-01-27

TITRE / TITLE

AGNICO EAGLE – AMARUQ DIVISION
695 – WATER MANAGEMENT
270 – PIPING

AMARUQ PHASE 2
PIPE LAYOUT AND PROFILE OF IVR WRSF AREA

DESSINÉ PAR DRAWN BY	MARIUS MOVILA	DATE 200-03-11
VÉRIFIÉ PAR CHECKED BY	ANH-LONG NGUYEN	200-03-11
APPROUVÉ PAR APPROVED BY	ALEXANDRE LAVALLÉE	200-03-11
ÉCHELLE SCALE	AS SHOWN	DATE 200-03-11

NO. DESSIN DRAWING NO. 61-695-270-218

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6127	R3	1 / 2

AE-CART-ARCH D

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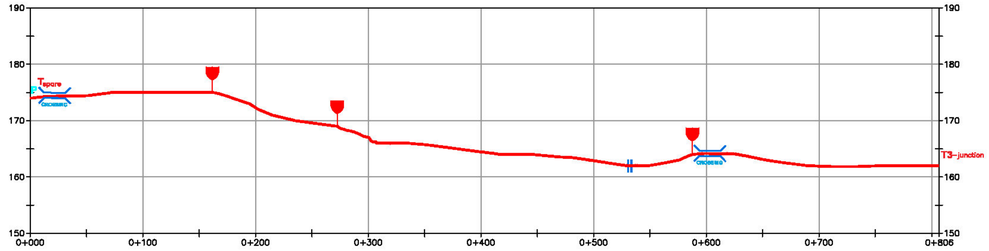
FILE NO.

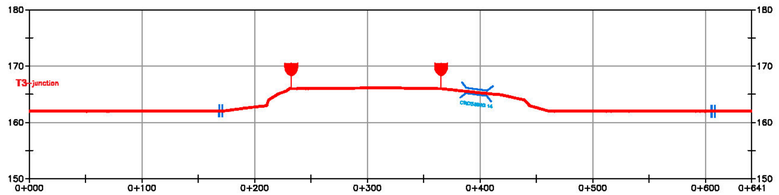
NO. DESSIN
DRAWING NO. 61-695-270-218

FORMAT ARCH D



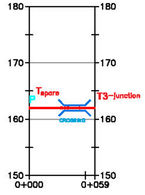
LINE 695-150-WFR-PC17-0117 FROM IWA SUMP TO TEE AT IWB SUMP

SCALE: HORIZONTAL 1:2500
VERTICAL 1:500



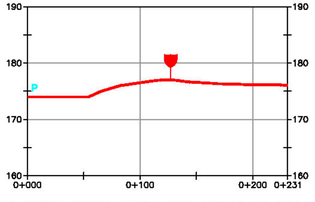
LINE 695-200-WFR-PC17-0118 FROM TEE AT IWB SUMP TO IVR ATTENUATION POND

SCALE: HORIZONTAL 1:2500
VERTICAL 1:500



LINE 695-200-WFR-PC17-0120 FROM IWB SUMP TO TEE AT IWB SUMP

SCALE: HORIZONTAL 1:2500
VERTICAL 1:500



LINE 695-150-WFR-PC17-0122 FROM IWC SUMP TO IVR ATTENUATION POND

SCALE: HORIZONTAL 1:2500
VERTICAL 1:500

PLAN CLÉ
KEY PLAN

PROJECT No	SUBDMSION	SUBJECT	SERIAL	REV.
668284	6000	48 | DD	0002	E03

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND:

- COMBINATION AIR VALVE / VACUUM BREAKER/AIR RELEASE
- FLANGE
- Tspare — SPARE TEE
- Tpig — PIGGING TEE
- P — PUMP
- CULVERT

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
—	—
—	—
—	—
—	—
—	—
—	—
—	—

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
R3	2021-01-27	ISSUED FOR CONSTRUCTION	M.M.	A.L.N.	A.L.
R2	2020-12-23	ISSUED FOR CONSTRUCTION	M.M.	A.L.N.	A.L.
R1	2020-11-10	ISSUED FOR CONSTRUCTION	M.M.	A.L.N.	A.L.
R0	2020-08-02	ISSUED FOR CONSTRUCTION	M.M.	A.L.N.	A.L.
RB	2020-04-23	ISSUED FOR CLIENT COMMENTS	M.M.	A.L.N.	A.L.
RA	2020-03-10	ISSUED FOR INTERNAL COMMENTS	M.M.	A.L.N.	A.L.

REVISIONS

PERMIT TO PRACTICE
SNC-LAVALIN INC.
Signature NAME
Date DATE 2020-01-27
PERMIT NUMBER: P 260
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

2021-01-27

TITRE / TITLE

AGNICO EAGLE – AMARUQ DIVISION
695 – WATER MANAGEMENT
270 – PIPING

AMARUQ PHASE 2
PIPE LAYOUT AND PROFILE OF IVR WRSF AREA

DESSINÉ PAR / DRAWN BY	MARIUS MOVILA	DATE 200-03-11
VERIFIÉ PAR / CHECKED BY	ANH-LONG NGUYEN	200-03-11
APPROUVÉ PAR / APPROVED BY	ALEXANDRE LAVALLÉE	200-03-11
ÉCHELLE / SCALE	AS SHOWN	DATE 200-03-11

NO. DESSIN / DRAWING NO. 61-695-270-218

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6127	R3	2 / 2

AE-CART-ARCH D

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FILE NO.

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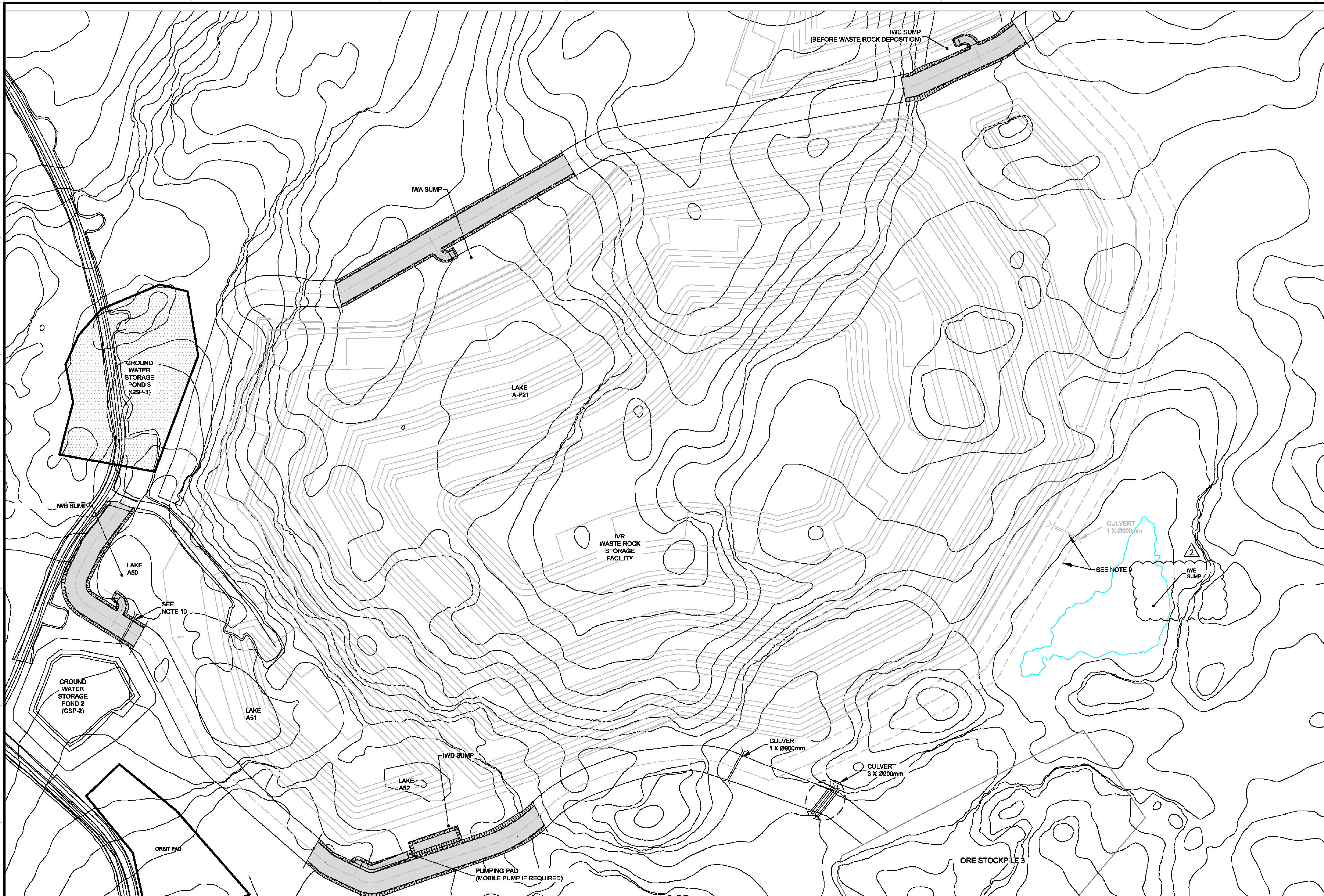
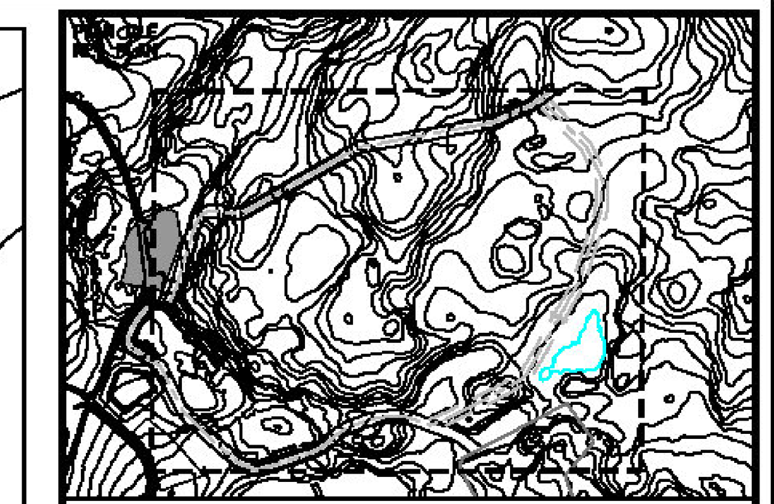


PLAN VIEW
ACCES RAMPS AND PUMPING PADS OF IWA, IWB, IWC AND IWD SUMPS

SCALE : 1: 2000



PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
668284	7000	4G DD	0002	E02

NOTES GÉNÉRALES / GENERAL NOTES

NOTES
1. GROUND TOPOGRAPHY WAS PROVIDED BY AEM.
2. ALL UNITS ARE IN METERS.
3. SAFETY BERMS SHALL BE BASED ON THE MINE SAFETY ACT REQUIREMENTS.
4. STABILITY OF THE RAMPS TO BE ASSESSED ON A DAILY BASIS BY QUALIFIED PERSONNEL DURING CONSTRUCTION. WORK SHALL BE SUSPENDED IF SIGNS OF INSTABILITY ARE OBSERVED.
5. INITIAL ROCK FILL MATERIAL PLACEMENT IN WATER, AGAINST THE NATURAL SOIL OF THE LAKE, MUST BE PLACED USING A SHOVAL.
6. FOR ALL ROCK FILL PLACEMENT OVER WATER, SOME FOUNDATION PREPARATION MIGHT BE NEEDED DEPENDING ON NATURE AND THICKNESS OF SEDIMENT ENCOUNTERED
7. IWC SUMP IS REQUIRED INITIALLY WHEN THE WASTE ROCK DEPOSITION IN THE NORTH SECTOR OF THE IVR WRSF IS NOT DEVELOPPED.
8. THE FOOTPRINT OF THE RING ROAD IS PRELIMINARILY PROPOSED WITH TYPICAL ROAD WIDTH OF 30M AT THE TOE OF THE SLOPE. THE CONSTRUCTION OF THE RING ROAD SHALL BE FIELD ADJUSTED AND AT LEAST 10 m FROM THE WASTE ROCK STOCKPILE.
9. THE SOUTH-EAST SECTION OF THE RING ROAD AND CULVERTS SHALL BE CONSTRUCTED AND INSTALLED IF REQUIRED.
10. A CULVERT CAN BE INSTALLED IF REQUIRED

LEGEND:

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
R2	2021-01-27	ISSUED FOR CONSTRUCTION	MM/DC	ALN/HB	
R1	2020-12-22	ISSUED FOR CONSTRUCTION	MM/DC	ALN/HB	
R0	2020-11-10	ISSUED FOR CONSTRUCTION	MM/DC	ALN/HB	
RC	2020-11-09	ISSUED FOR CLIENT COMMENTS	MM/DC	ALN/HB	
RB	2020-10-21	ISSUED FOR CLIENT COMMENTS	MM/DC	ALN/HB	
RA	2020-09-16	ISSUED FOR INTERNAL COMMENTS	MM/DC	ALN	

REVISIONS

REGISTERED PROFESSIONAL ENGINEER
A.-L. NGUYEN
LICENSEE
NT/NU
2021-01-27

PERMIT TO PRACTICE
SNC-LAVALIN INC.
Signature NAME
Date DATE 2020-01-27
PERMIT NUMBER: P 260
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

TITRE / TITLE

230 – GENERAL EARTHWORKS
270 – PIPING

PLAN VIEW, PROFILES AND TYPICAL SECTIONS

AMARUQ PHASE 2
ACCES RAMPS AND PUMPING PADS
OF IWA, IWB, IWC AND IWD SUMPS

DESSINÉ PAR / DRAWN BY	MARIUS MOVILA	DATE 2020-09-16
VÉRIFIÉ PAR / CHECKED BY	DAN CHEN	2020-09-16
APPROUVÉ PAR / APPROVED BY	ANH-LONG NGUYEN	2020-09-16
ÉCHELLE / SCALE 1:2000	DATE 2020-09-16	

NO. DESSIN / DRAWING NO. 61-695-230-212

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6127	R2	1 / 3

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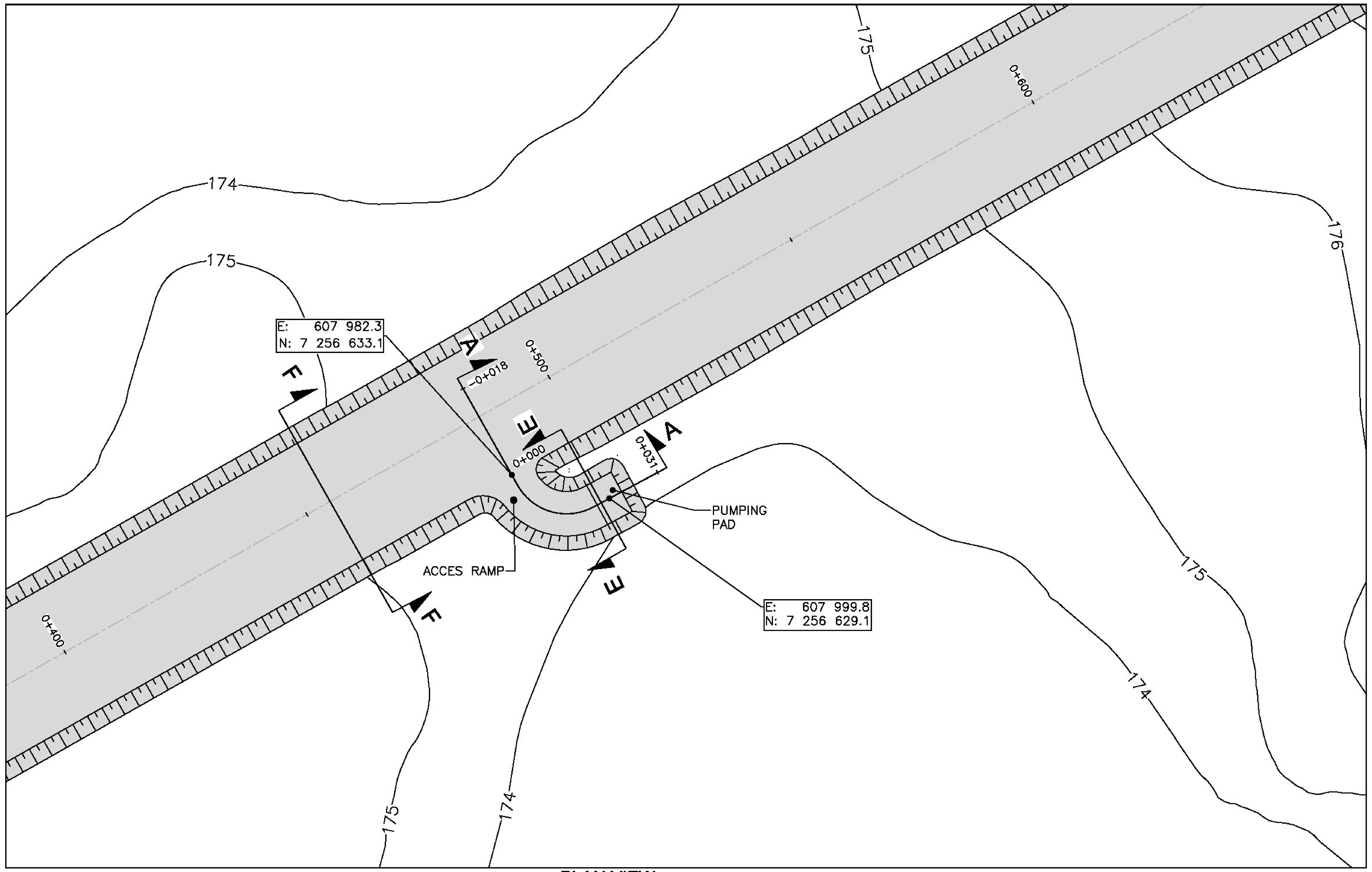
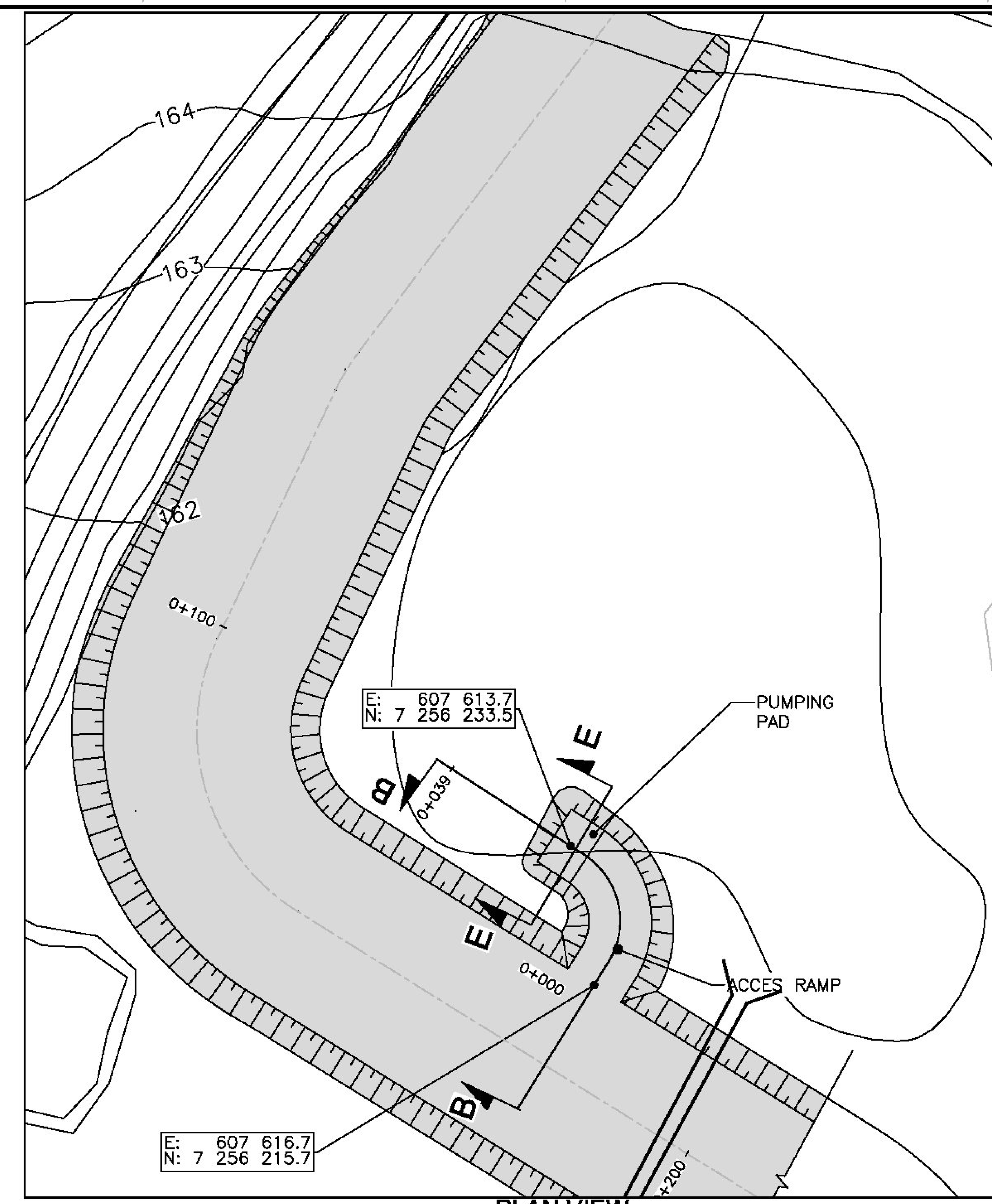
FILE NO.

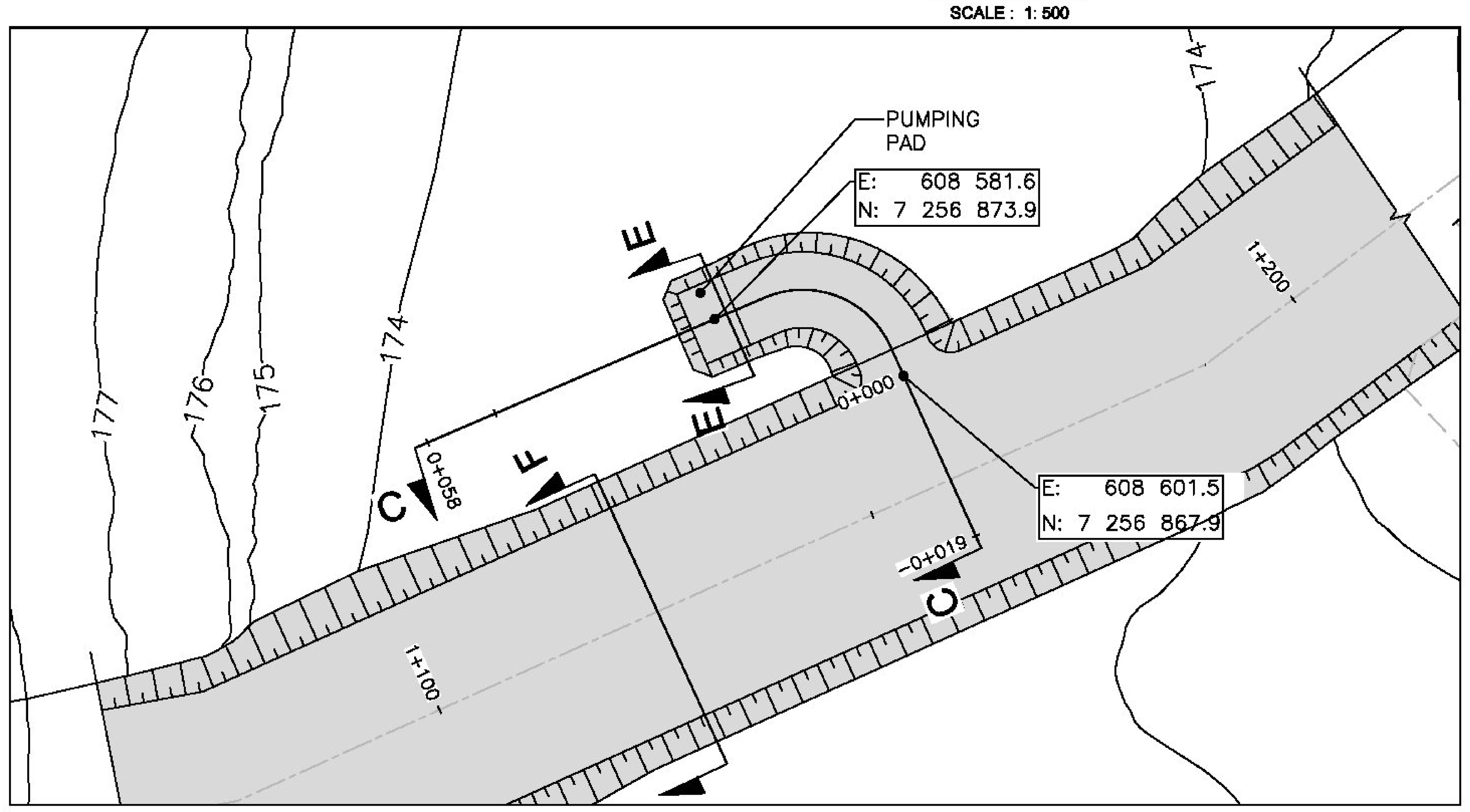
NO. DESSIN DRAWING NO. 61-695-230-212



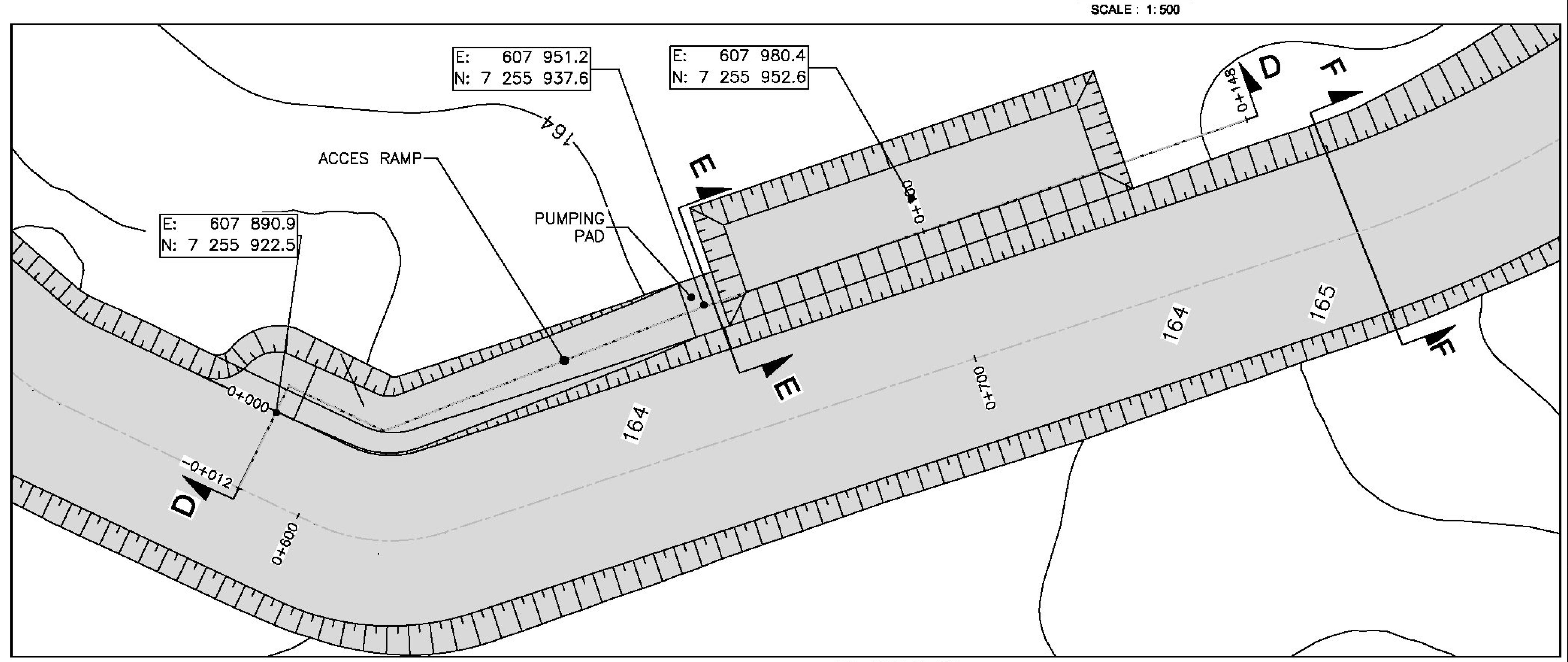
PLAN VIEW
ACCESS RAMP AND PUMPING PAD
IWA SUMP
SCALE : 1: 500



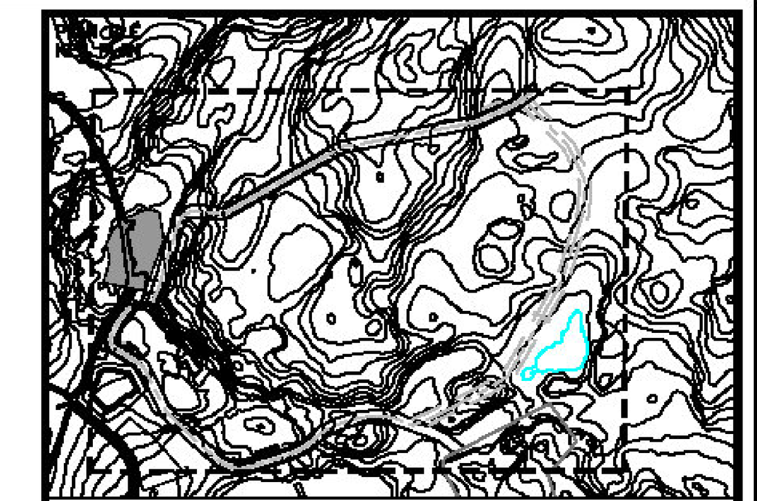
PLAN VIEW
ACCESS RAMP AND PUMPING PAD
IWB SUMP
SCALE : 1: 500



PLAN VIEW
ACCESS RAMP AND PUMPING PAD
IWC SUMP
SCALE : 1: 500



PLAN VIEW
ACCESS RAMP AND PUMPING PAD
IWD SUMP
SCALE : 1: 500



PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
668284	7000	4G DD	0002	E02

NOTES GÉNÉRALES / GENERAL NOTES

NOTES
1. GROUND TOPOGRAPHY WAS PROVIDED BY AEM.
2. ALL UNITS ARE IN METERS.
3. SAFETY BERMS SHALL BE BASED ON THE MINE SAFETY ACT REQUIREMENTS.
4. STABILITY OF THE RAMPS TO BE ASSESSED ON A DAILY BASIS BY QUALIFIED PERSONNEL DURING CONSTRUCTION. WORK SHALL BE SUSPENDED IF SIGNS OF INSTABILITY ARE OBSERVED.
5. INITIAL ROCK FILL MATERIAL PLACEMENT IN WATER, AGAINST THE NATURAL SOIL OF THE LAKE, MUST BE PLACED USING A SHOVAL.
6. FOR ALL ROCK FILL PLACEMENT OVER WATER, SOME FOUNDATION PREPARATION MIGHT BE NEEDED DEPENDING ON NATURE AND THICKNESS OF SEDIMENT ENCOUNTERED.
7. FINAL RING ROAD FOOTPRINT AND ELEVATION SHALL BE DETERMINED BY AEM. ONLY APPROXIMATE VALUES ARE PROPOSED IN THIS DRAWING.

LEGEND:

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
R2	2021-01-27	ISSUED FOR CONSTRUCTION	MM/DC	ALN/HB	
R1	2020-12-22	ISSUED FOR CONSTRUCTION	MM/DC	ALN/HB	
R0	2020-11-10	ISSUED FOR CONSTRUCTION	MM/DC	ALN/HB	
RC	2020-11-09	ISSUED FOR CLIENT COMMENTS	MM/DC	ALN/HB	
RB	2020-10-21	ISSUED FOR CLIENT COMMENTS	MM/DC	ALN/HB	
RA	2020-09-16	ISSUED FOR INTERNAL COMMENTS	MM/DC	ALN	

REVISIONS

REGISTERED PROFESSIONAL ENGINEER A.-L. NGUYEN LICENSEE NT/NU 2021-01-27

PERMIT TO PRACTICE
SNC-LAVALIN INC.
Signature NAME
Date DATE 2020-01-27
PERMIT NUMBER: P 260
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

TITRE / TITLE
230 – GENERAL EARTHWORKS
270 – PIPING
PLAN VIEW, PROFILES AND TYPICAL SECTIONS
AMARUQ PHASE 2
ACCES RAMPS AND PUMPING PADS OF IWA, IWB, IWC AND IWD SUMPS

DESSINÉ PAR DRAWN BY	MARIUS MOVILA	DATE 2020-09-16
VÉRIFIÉ PAR CHECKED BY	DAN CHEN	2020-09-16
APPROUVÉ PAR APPROVED BY	ANH-LONG NGUYEN	2020-09-16
ÉCHELLE SCALE 1:2000	DATE 2020-09-16	

NO. DESSIN DRAWING NO. 61-695-230-212

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6127	R2	2 / 3

FORMAT ARCHD

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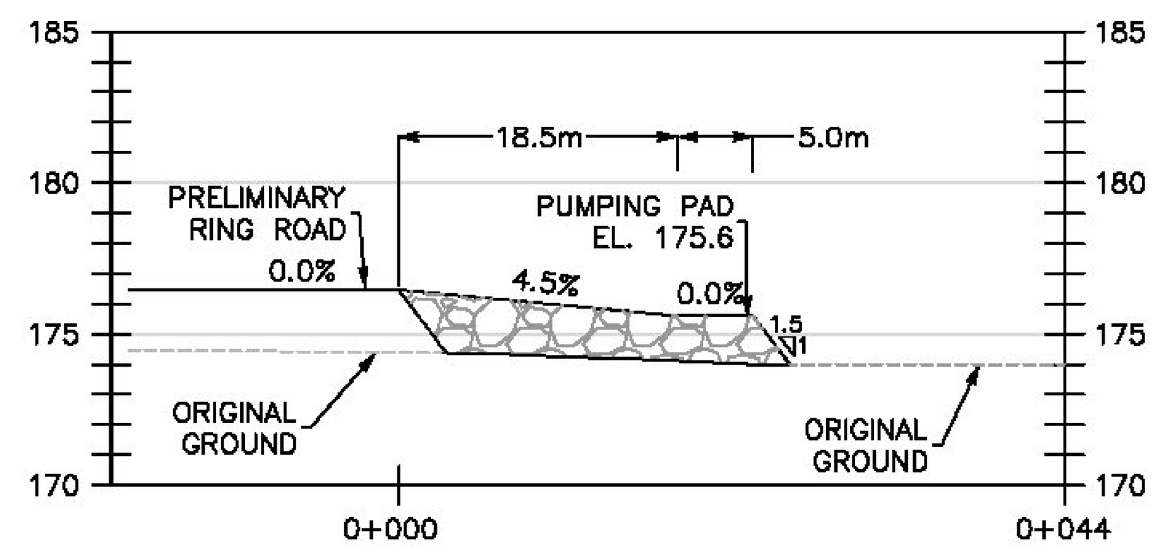
FILE NO.

NO. DESSIN DRAWING NO. 61-695-230-212



SECTION A-A
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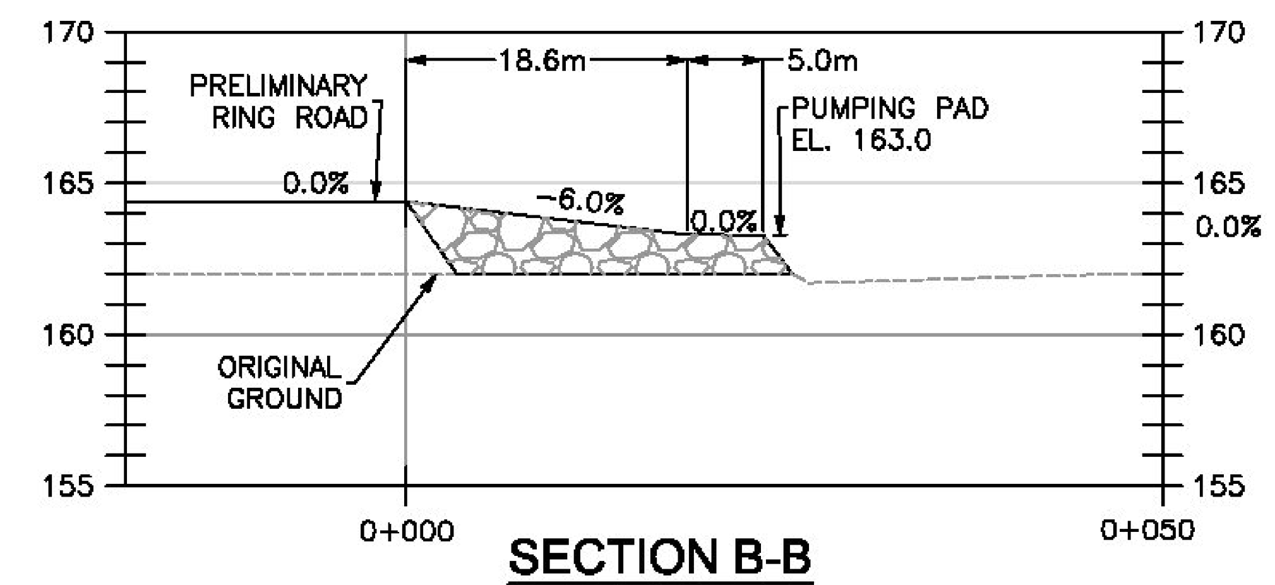
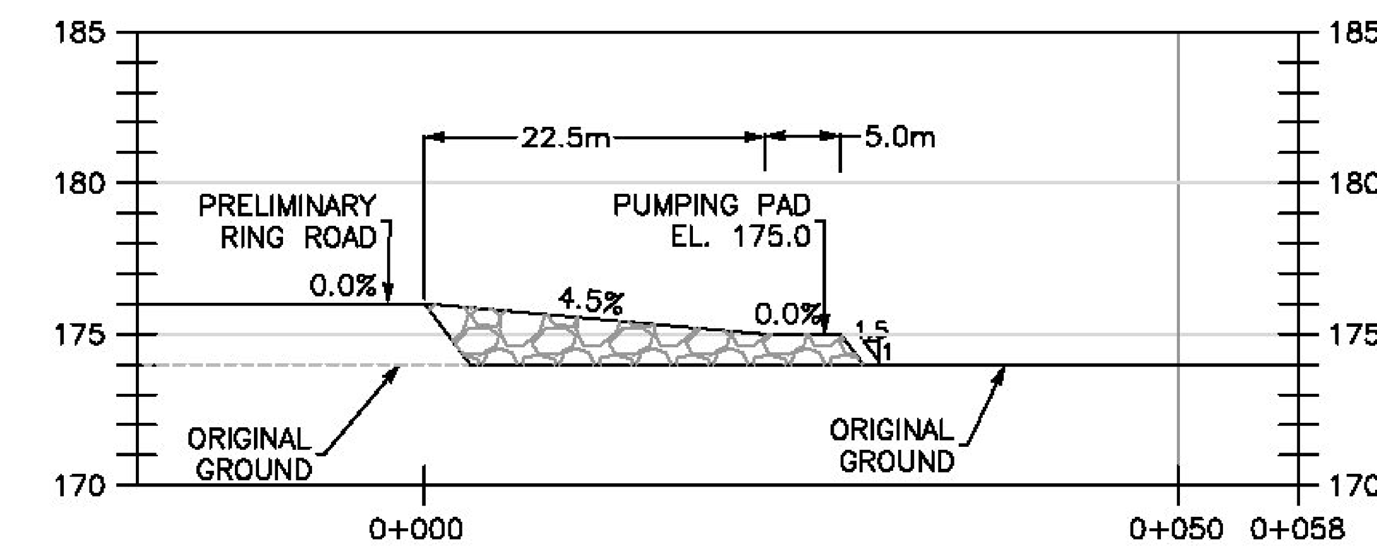
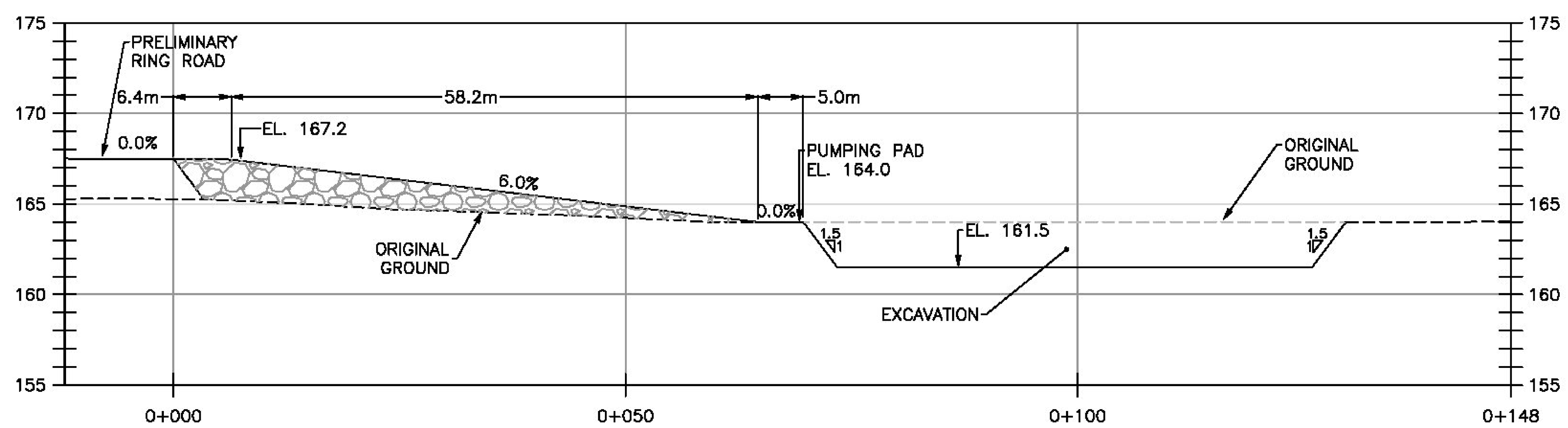
V 1:250



SECTION B-B
SCALE : H 1:500
V 1:250

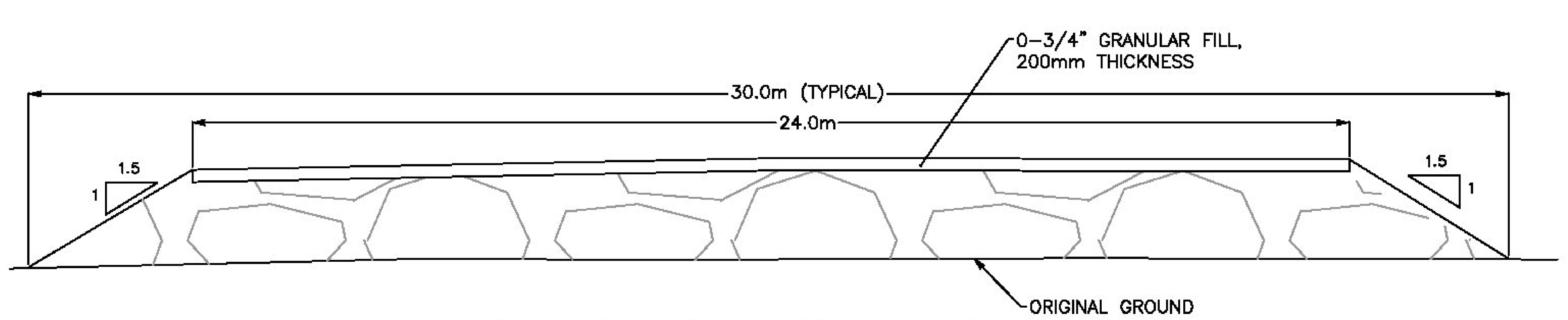


SECTION C-C
SCALE : H 1:500
V 1:250

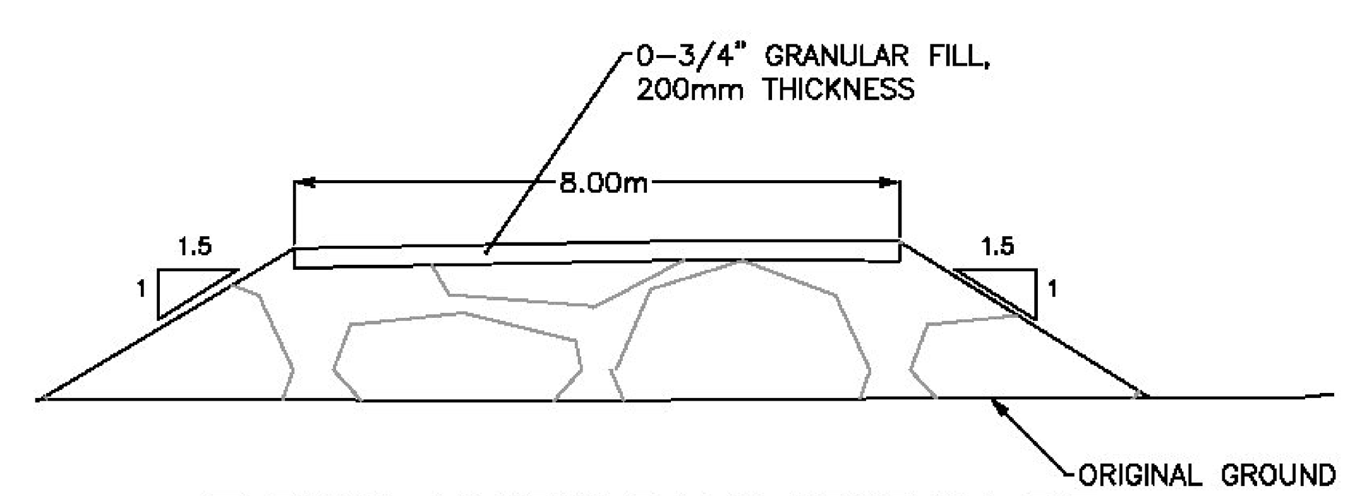


SECTION D-D
SCALE : H 1:500
V 1:250

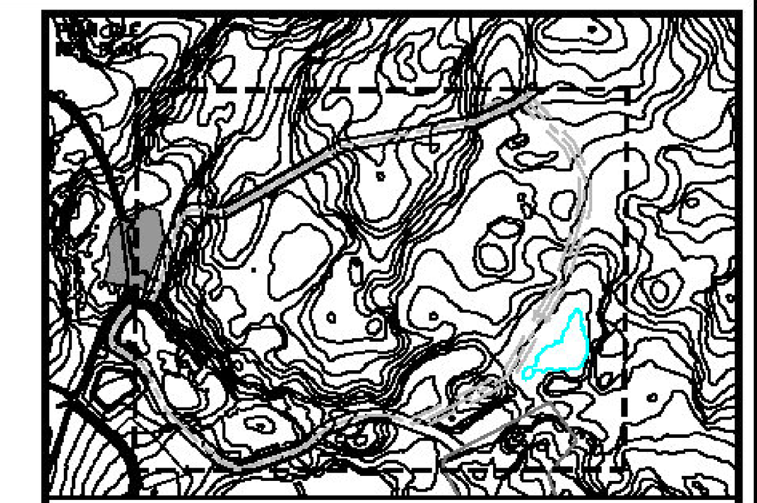
ESTIMATED IN-PLACE QUANTITIES		
CONSTRUCTION – ACCES RAMPS AND PUMPING PADS OF IWA SUMP		
AGGREGATE MATERIAL	Thickness (mm)	Required (m^3)
Granular fill, 0 – 3/4" (final grade)	200	39.0
ROM, 0–1000 mm.	–	307.0
CONSTRUCTION – ACCES RAMPS AND PUMPING PADS OF IWB SUMP		
AGGREGATE MATERIAL	Thickness (mm)	Required (m^3)
Granular fill, 0 – 3/4" (final grade)	200	37.7
ROM, 0–1000 mm.	–	292.2
CONSTRUCTION – ACCES RAMPS AND PUMPING PADS OF IWC SUMP		
AGGREGATE MATERIAL	Thickness (mm)	Required (m^3)
Granular fill, 0 – 3/4" (final grade)	200	44.4
ROM, 0–1000 mm.	–	326.6
CONSTRUCTION – ACCES RAMPS AND PUMPING PADS OF IWD SUMP		
AGGREGATE MATERIAL	Thickness (mm)	Required (m^3)
Granular fill, 0 – 3/4" (final grade)	200	115.1
ROM, 0–1000 mm.	–	612.9



TYPICAL RING ROAD SECTION F-F
SCALE : 1: 100



TYPICAL ACCESS RAMP SECTION E-E
SCALE : 1: 100



PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
668284	7000	4G DD	0002	E02

NOTES GÉNÉRALES / GENERAL NOTES

NOTES
1. GROUND TOPOGRAPHY WAS PROVIDED BY AEM.
2. ALL UNITS ARE IN METERS.
3. SAFETY BERMS SHALL BE BASED ON THE MINE SAFETY ACT REQUIREMENTS.
4. STABILITY OF THE RAMPS TO BE ASSESSED ON A DAILY BASIS BY QUALIFIED PERSONNEL DURING CONSTRUCTION. WORK SHALL BE SUSPENDED IF SIGNS OF INSTABILITY ARE OBSERVED.
5. INITIAL ROCK FILL MATERIAL PLACEMENT IN WATER, AGAINST THE NATURAL SOIL OF THE LAKE, MUST BE PLACED USING A SHOVAL.
6. FOR ALL ROCK FILL PLACEMENT OVER WATER, SOME FOUNDATION PREPARATION MIGHT BE NEEDED DEPENDING ON NATURE AND THICKNESS OF SEDIMENT ENCOUNTERED.
7. FINAL RING ROAD FOOTPRINT AND ELEVATION SHALL BE DETERMINED BY AEM. ONLY APPROXIMATE VALUES ARE PROPOSED IN THIS DRAWING.

LEGEND

RUN-OF-MINE ROCKFILL 0–1000 MM

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
R2	2021-01-27	ISSUED FOR CONSTRUCTION	MM/DC	ALN/HB	
R1	2020-12-22	ISSUED FOR CONSTRUCTION	MM/DC	ALN/HB	
R0	2020-11-10	ISSUED FOR CONSTRUCTION	MM/DC	ALN/HB	
RC	2020-11-06	ISSUED FOR CLIENT COMMENTS	MM/DC	ALN/HB	
RB	2020-10-21	ISSUED FOR CLIENT COMMENTS	MM/DC	ALN/HB	
RA	2020-09-16	ISSUED FOR INTERNAL COMMENTS	MM/DC	ALN	

REVISIONS

REGISTERED PROFESSIONAL ENGINEER A.-L. NGUYEN LICENSEE NT/NU 2021-01-27

PERMIT TO PRACTICE
SNC-LAVALIN INC.
Signature NAME
Date DATE 2020-01-27
PERMIT NUMBER: P 260
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

TITRE / TITLE
230 – GENERAL EARTHWORKS
270 – PIPING

PLAN VIEW, PROFILES AND TYPICAL SECTIONS

AMARUQ PHASE 2
ACCES RAMPS AND PUMPING PADS OF IWA, IWB, IWC AND IWD SUMPS

DESSINÉ PAR DRAWN BY	MARIUS MOVILA	DATE 2020-09-16
VÉRIFIÉ PAR CHECKED BY	DAN CHEN	2020-09-16
APPROUVÉ PAR APPROVED BY	ANH-LONG NGUYEN	2020-09-16
ÉCHELLE SCALE 1:2000	DATE 2020-09-16	

NO. DESSIN DRAWING NO. 61-695-230-212

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6127	R2	3 / 3

FORMAT ARCHD

AE-CART-ARCH D

T:\proj\668284 WMGI Phase 2 Detailed Engineering\40_DD_DESSINS\7000\668284-7000-4GDD-0002-02 (61-695-230-212).dwg

FILE NO.

Appendix B

Construction pictures

Photo 1. Installed culvert 35-1 on top of an underlaying layer of compacted fine filter, looking at outlet (South-West).

Photo 2. Installed culvert 35-1 on top of a layer of compacted fine filter, looking South-West.

Photo 3. Compacted pad of fine filter material extended to IWB sump for culvert 35-1, looking North-East.

Photo 4. Installed culvert 35-1 with compacted overlying protective layer, looking South at inlet.

Photo 5. View of the pipe crossing culvert 35-1 backfilled with fine filter material, and in the process of being backfilled with NAG by a bulldozer, looking North-East.

Photo 6. Excavation of rockfill and till material for culvert 35-2, looking South-West.

Photo 7. Installed culvert 35-2 with overlying protective layer compacted using a Wacker-Packer, looking North-East at outlet.

Photo 8. Installed culvert 35-2 with overlying protective compacted layer, looking North-East.

Photo 9. Installed culvert 35-2 with overlying compacted layer, looking North-East at inlet.

Photo 10. View of the pipe crossing 35-2 backfilled with fine filter material, and in the process of being backfilled with NAG by bulldozer, looking North-East.

Photo 11. Excavation of road material for installation of the culvert 35-3, looking North-East.

Photo 12. Excavation of road material for installation of culvert 35-3, looking South-West.

Photo 13. Exposed trench wall of culvert 35-3 showing till foundation underlying tundra.

Photo 14. Fine filter layer for culvert 35-3 the width of the road and installed geotextile strips at the South-West end of the trench.

Photo 15. Installed geotextile strips at the North-East end of the trench, culvert 35-3.

Photo 16. Fine filter subgrade material used as backfill, culvert 35-3.

Photo 17. Fine filter subgrade material covering geotextile strips at the South end of the trench for culvert 35-3.

Photo 18. Fine filter subgrade material final thickness, looking South-West, culvert 35-3.

Photo 19. Installed culvert 35-3 with overlaying compacted protective layer, looking South-West.

Photo 20. Installed culvert 35-3 with compacted overlying protective layer, looking North-East.

Photo 21. Culvert 35-3 North-East end with road berm.

Photo 22. Culvert 35-3 South-West with road berm.

Photo 23. Fine filter subgrade material covering geotextile strips and being compacted by roller-compactor, looking East, towards culvert 35-4 (A, B, C) inlet.

Photo 24. Culvert 35-4 (A, B, C) installation on top of compacted fine filter, looking North at inlet.

Photo 25. Installed portion of culvert 35-4 (A, B, C) being covered with compacted fine filter protection layer, looking North at inlet.

Photo 26. Installed culvert 35-4 (A, B, C), covered with a compacted fine filter layer, looking East at outlet.

Photo 27: Installed culvert 35-4 (A, B, C) covered with run-of-mine NAG, looking North.

Photo 28. North-East View of IWD Sump location prior to excavation.

Photo 29: IWD sump being excavated with Komatsu P450, looking North.

Photo 30. IWD sump being layered with rockfill, looking North.

Photo 31. IWD sump once completed with rockfill and slopes in place looking East.

Photo 32. View of the IWC sump and water line 122 looking East.

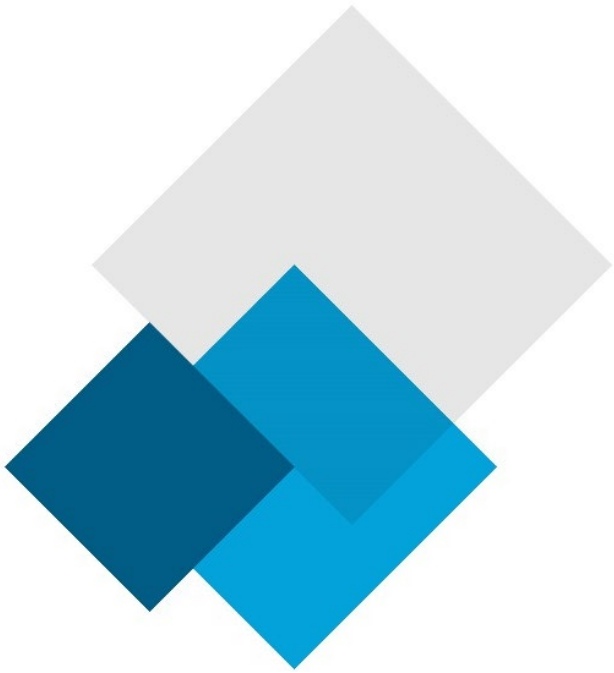
Photo 33. View of the IWA sump and water line 117, looking South.

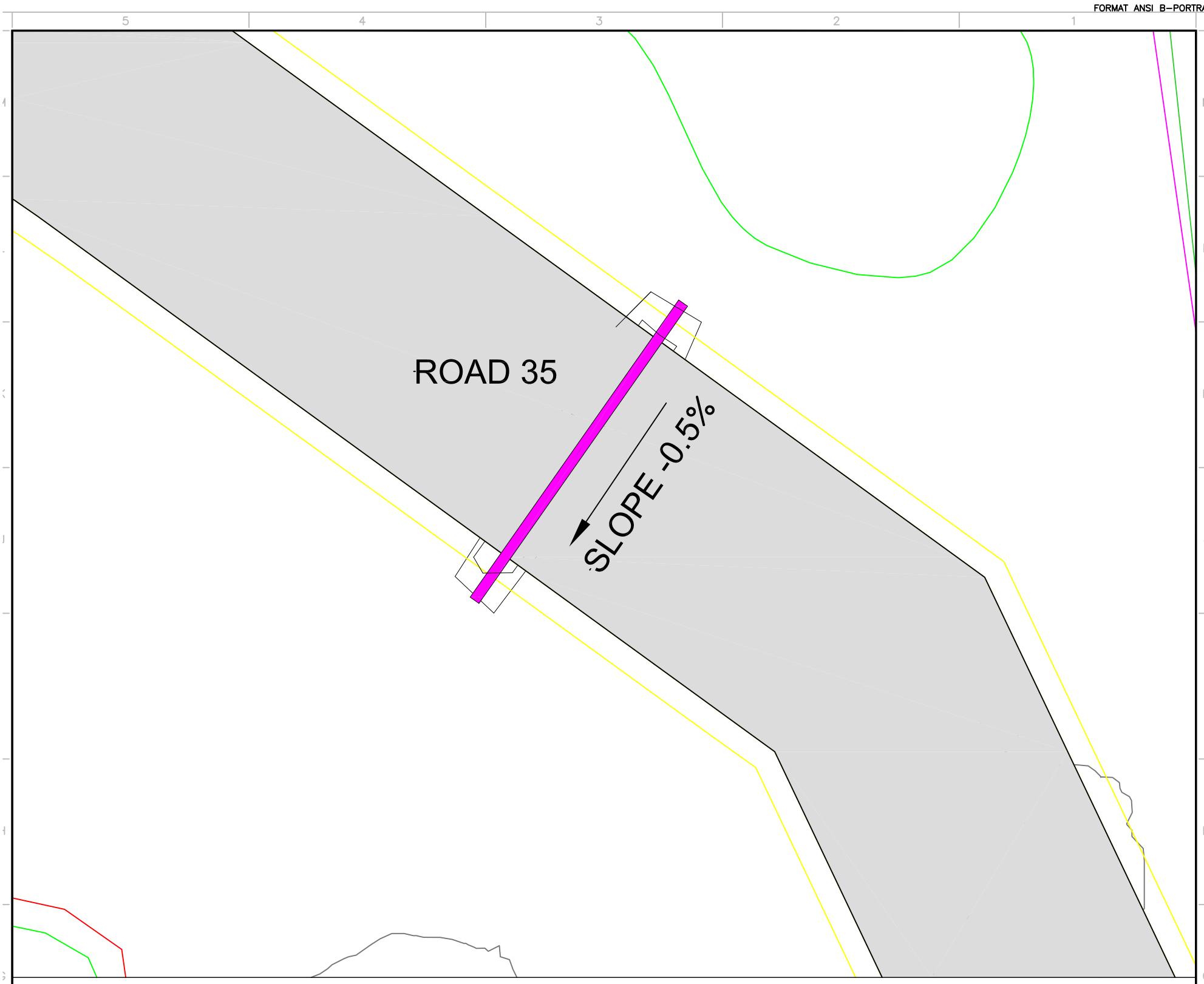
Photo 34. View of line 117, looking southwest.

Photo 35. IWB sump with end of pipe 117 underwater to the left and beginning of pipe 118, looking south.

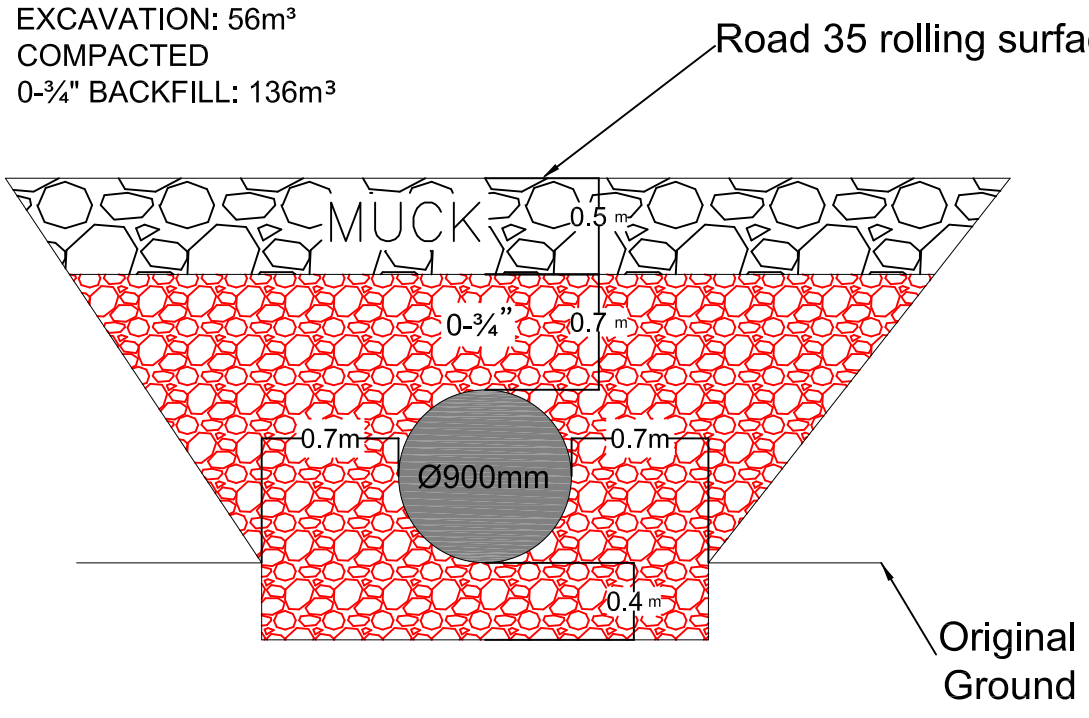
Appendix C

As-built drawings





CULVERT LENGTH: 30m
EXCAVATION: 56m³
COMPACTED
0-¾" BACKFILL: 136m³



ROAD #35-1 CULVERT
PIPE CROSSING CROSS SECTION

REV	DESCRIPTION	DATE	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

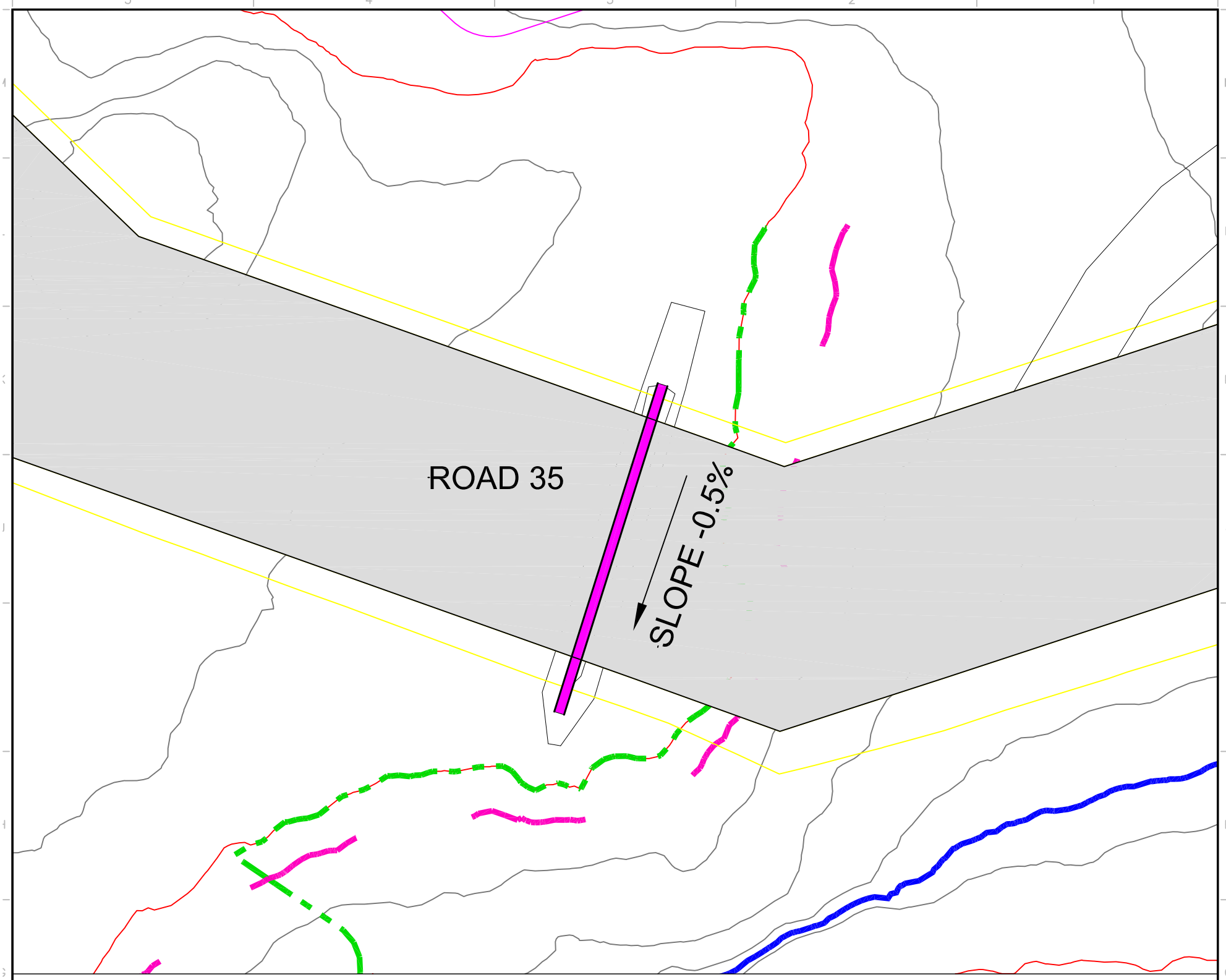
DRAWN BY	T. DAHM	DATE	2021–11–07
CHECKED BY	L. COLLETTE		2021–11–08
APPROVED BY			
PROJECT NO.			
DATE			

TITLE: AGNICO–EAGLE – MEADOWBANK DIVISION
ROAD #35–1 CULVERT
PIPE CROSSING CROSS SECTION

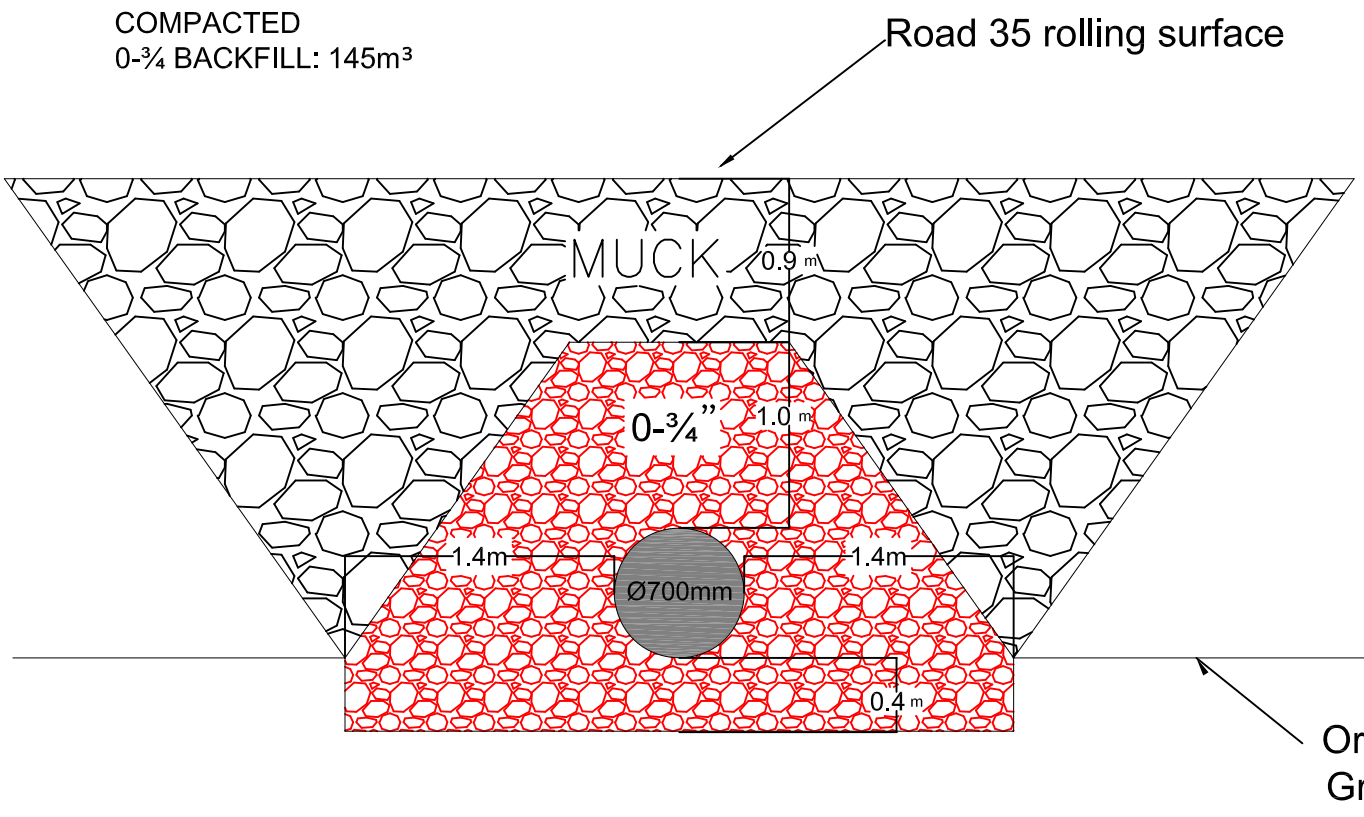
SCALE	FILE	REVISION	SHEET
N.T.S.	.DWG		2 / 6

DRAWING NO.

FORMAT ANSI B–PORTRAIT



CULVERT LENGTH: 30m
EXCAVATION: 56m³
COMPACTED
0-¾ BACKFILL: 145m³



ROAD #35-2 CULVERT
PIPE CROSSING CROSS SECTION

REV	DESCRIPTION	DATE	BY

REVISIONS

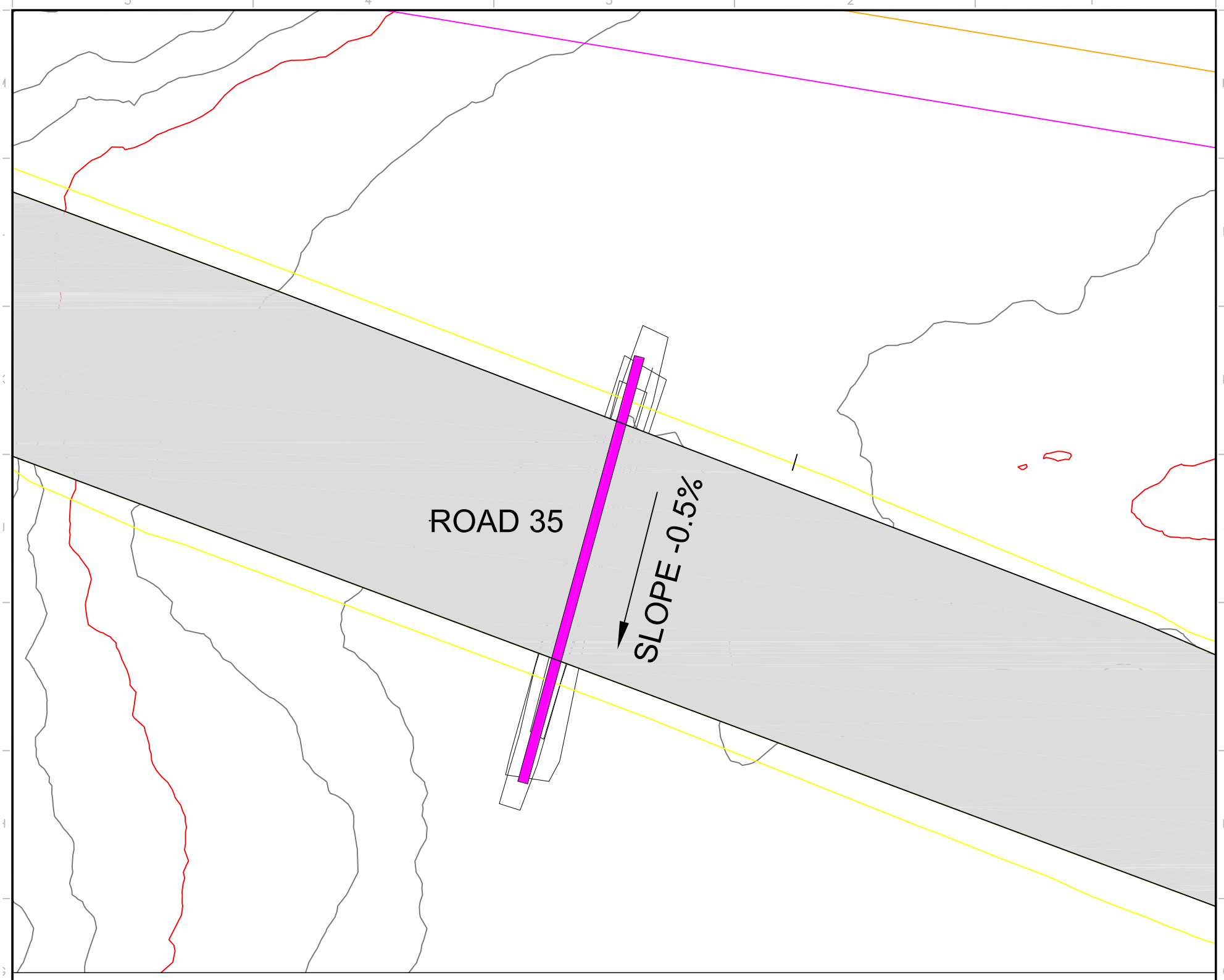
AGNICO EAGLE
MEADOWBANK

DRAWN BY	T. DAHM	DATE	2021–11–05
CHECKED BY	L. COLLETTE		2021–11–08
APPROVED BY			
PROJECT NO.			
DATE			

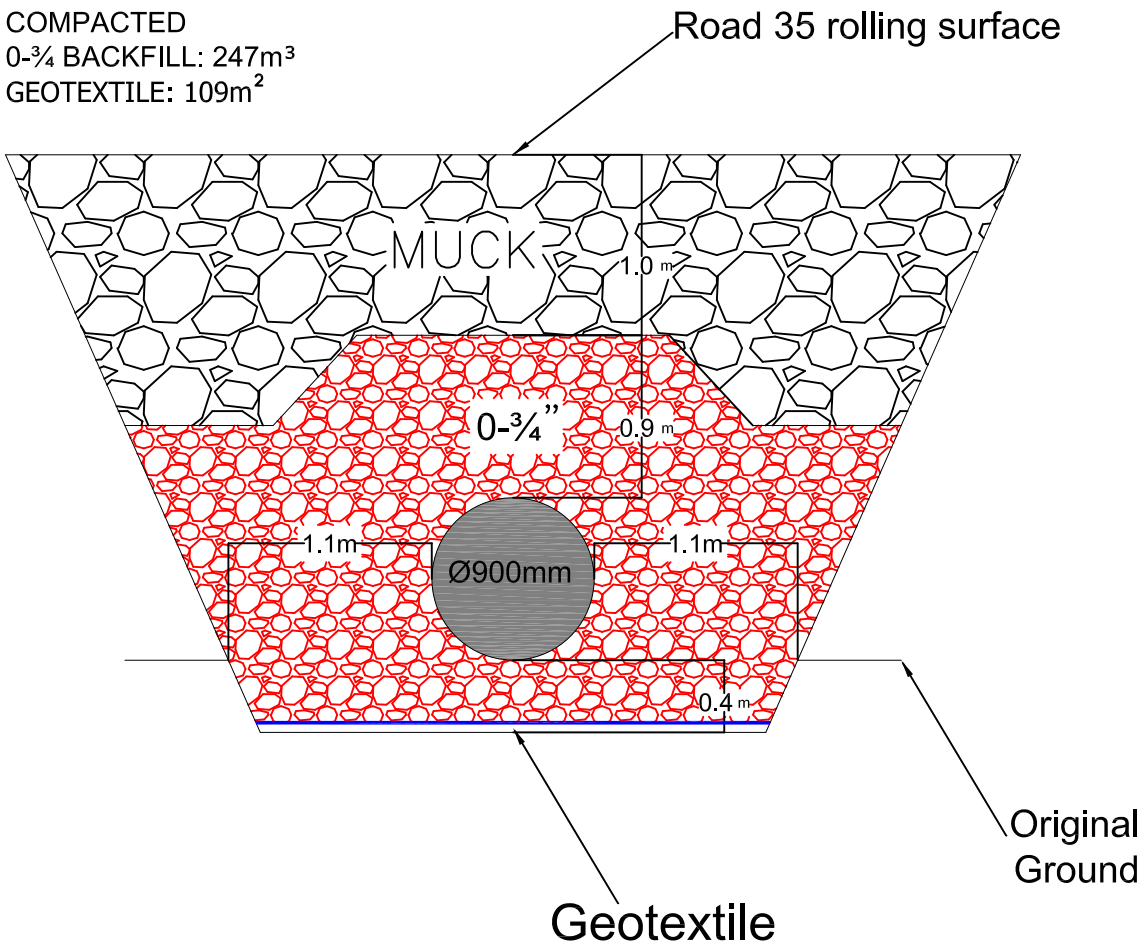
TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
ROAD #35–2
PIPE CROSSING CROSS SECTION

SCALE	FILE
N.T.S.	.DWG

DRAWING NO.	REVISION	SHEET
		3 / 6



CULVERT LENGTH: 39m
EXCAVATION: 45m³
COMPACTED
0-¾ BACKFILL: 247m³
GEOTEXTILE: 109m²



ROAD #35-3 WATER MANAGEMENT CULVERT CROSS SECTION

REV	DESCRIPTION	DATE	BY

REVISIONS

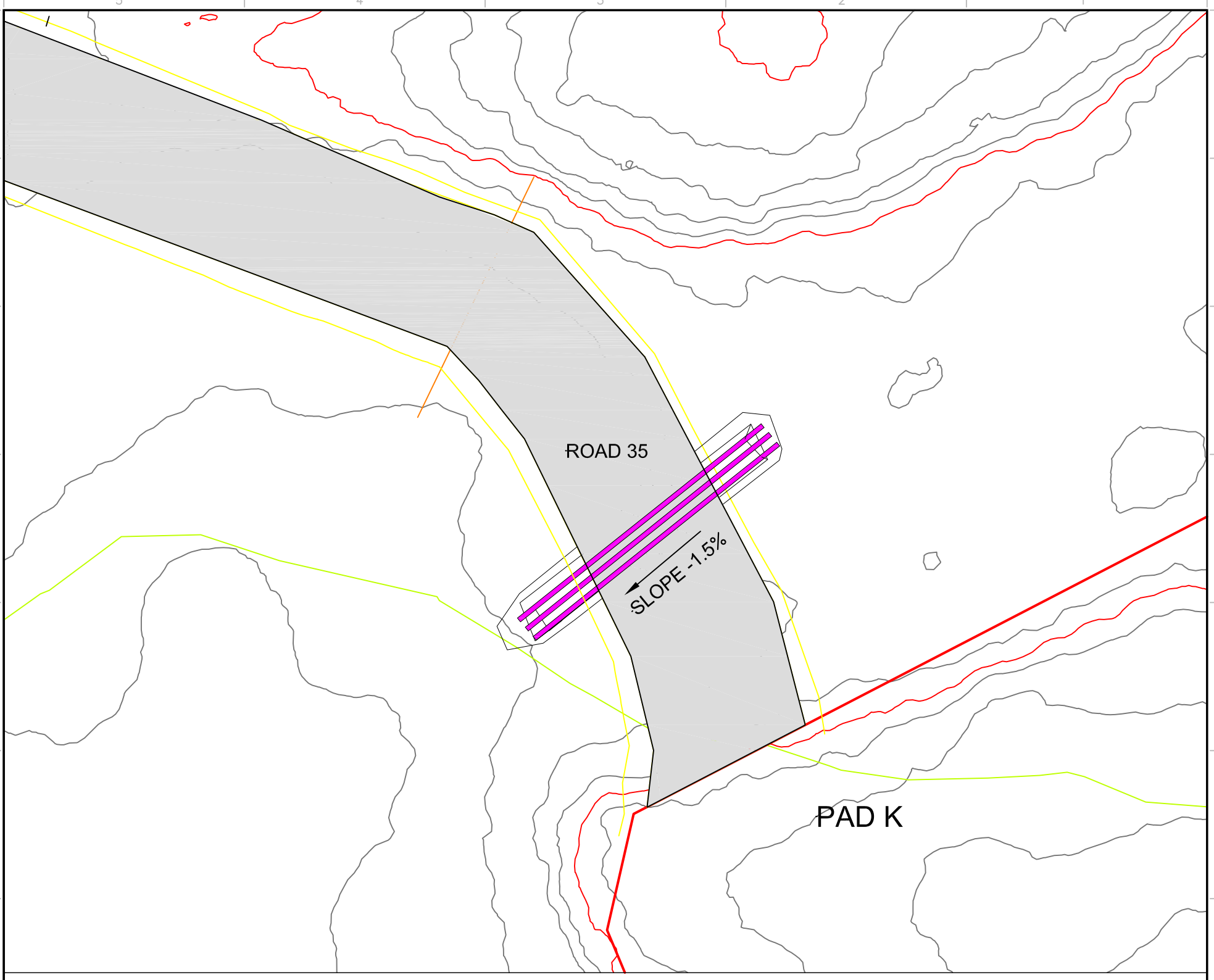
AGNICO EAGLE
MEADOWBANK

DRAWN BY	T. DAHM	DATE	2021–11–05
CHECKED BY	L. COLLETTE		2021–11–08
APPROVED BY			
PROJECT NO.			
DATE			

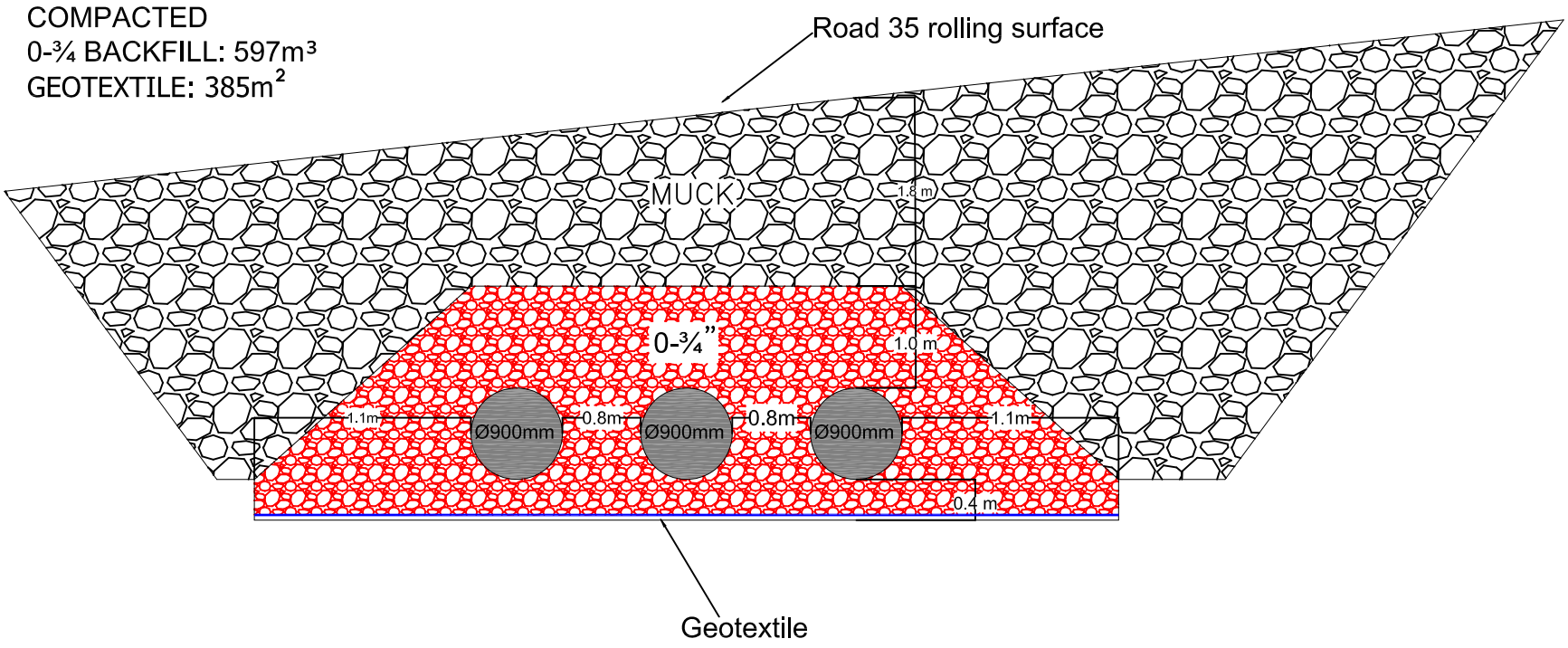
TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
ROAD #35–3
WATER MANAGEMENT CULVERT
CROSS SECTION

SCALE	FILE
N.T.S.	.DWG

DRAWING NO.	REVISION	SHEET
		4 / 6



CULVERT LENGTH: 45m
EXCAVATION: 115m³
COMPACTED
0-¾ BACKFILL: 597m³
GEOTEXTILE: 385m²



ROAD #35-4 WATER MANAGEMENT
CULVERT CROSS SECTION

REV	DESCRIPTION	DATE	BY

REVISIONS

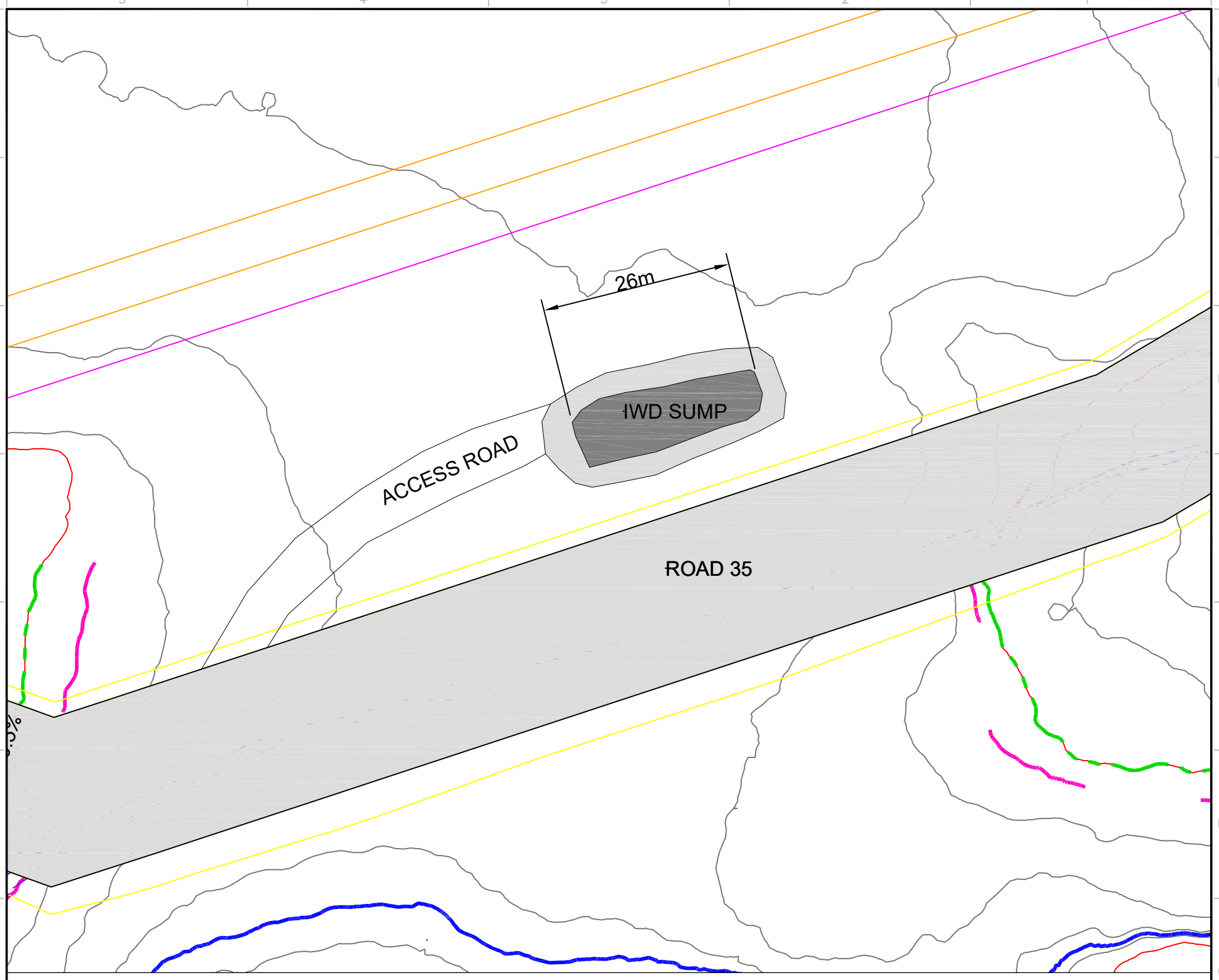
AGNICO EAGLE
MEADOWBANK

DRAWN BY	T. DAHM	DATE	2021–11–05
CHECKED BY	L. COLLETTE		2021–11–08
APPROVED BY			
PROJECT NO.			
DATE			

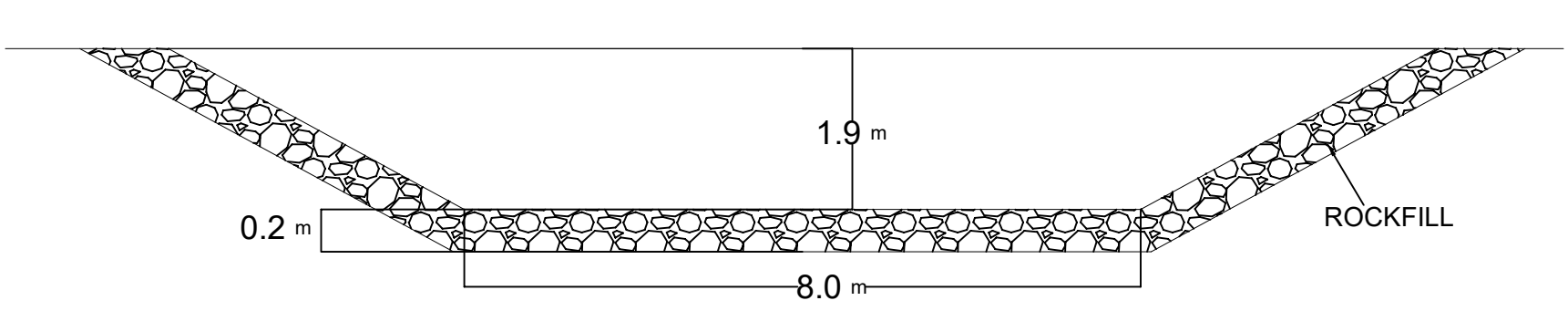
TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
ROAD #35–4
WATER MANAGEMENT CULVERT
CROSS SECTION

SCALE	FILE
N.T.S.	.DWG

DRAWING NO.	REVISION	SHEET
		5 / 6



SUMP VOLUME: 568m³



ROAD #35 SUMP CROSS SECTION

REV	DESCRIPTION	DATE	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

DRAWN BY	T. DAHM	DATE 2021–11–09
CHECKED BY	L. Collette	2021–11–09
APPROVED BY		
PROJECT NO.		
DATE		

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
ROAD #35 IWD SUMP
CROSS SECTION

SCALE	FILE
N.T.S.	.DWG

DRAWING NO.	REVISION	SHEET
		6 / 6

FORMAT ANSI B – LANDSCAPE

CUT DRILL CHECKLIST	INITIALS
MOST UP TO DATE .CSV	
STAKEOUT PRECISION REPORT CHECKED & COMPLIANT	
DISPLACED HOLES MANUALLY VERIFIED & COMPLIANT	

AGNICO EAGLE
MEADOWBANK

DRAWN BY	DATE
P.GAGNON	2020-02-14
SURVEY CHECK	DATE
GEOLOGY CHECK	DATE
ENGINEERING CHECK	DATE

MODIFIED BY	DATE

MEADOWBANK DIVISION
ENVIRONMENT
IVR WRSF WATER MANAGEMENT PLAN VIEW

SCALE	DATE	FILE
N.T.S.		.DWG

P:\Engineering\05–Geotechnic\14– Amaruq\08– Earthwork (Road & Pad)\15– Road35\1– Rd35\2– Construction\2– Deliverable\Road35_AsBuilt\IVR WRSF WATER MANAGEMENT AS–BUILT.dwg, 14 Feb 2022