

Appendix 3

Mine Site and Dunka Road Earthwork Permit Application Support Drawings

Errata Sheet

Poly Met Mining, Inc. NorthMet Project

Permit Application Support Drawings: Mine Site and Dunka Road Earthwork

November 2017 (version 4)

Engineering design is currently in progress. The table below lists changes that have been identified to-date and have not yet been incorporated in the attached permit application support drawings within this set. Final design will incorporate these changes along with additional site-specific information (e.g., supplementary geotechnical data); therefore, additional adjustments may be made during final design that will be incorporated into the final design drawing set.

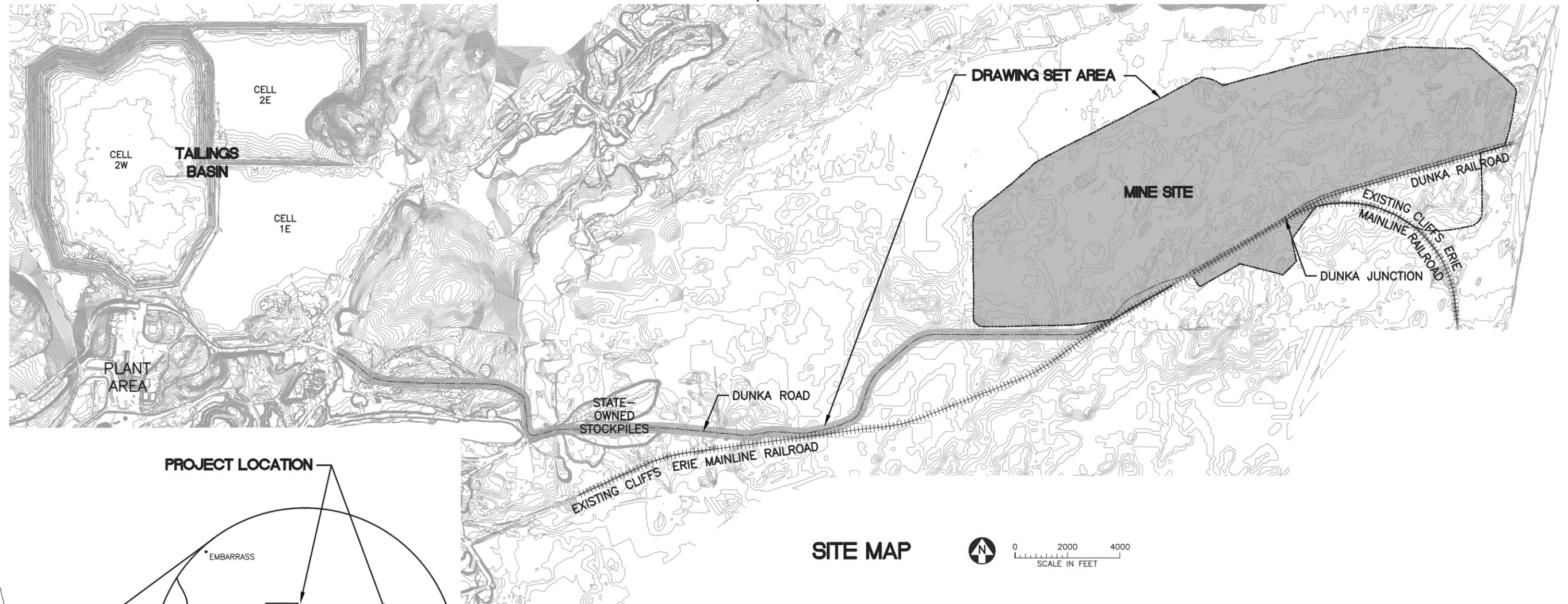
Drawing Sheet(s)	Change
Global change to all sheets, as needed	The terminology "mine drainage" as noted in these drawings will be changed to "mine water".
EW-003	Temporary sedimentation basins or stormwater infiltration basins may be added to meet construction stormwater requirements along Dunka Road. These construction stormwater features require additional site-specific data and will be evaluated in final design.
EW-008	All references to "pre-stripping" will be changed to "stripping"
EW-002, EW-003, EW-005, EW-009, EW-010, EW-011	The "Mine Site Boundary" will be replaced by the "Mining Area Boundary" as shown on figures included in the Permit to Mine Application.
EW-010, EW-011	Note 3 will be modified to read: "Reclamation of the Haul Roads will consist of removing safety berms through grading, seeding the regraded surface, and establishing a 15-foot-wide access road near the centerline of all haul roads." Note 3 will be modified to read: "All active haul roads to be reclaimed."

POLY MET MINING, INC. NORTHMET PROJECT

PERMIT APPLICATION SUPPORT DRAWINGS

MINE SITE AND DUNKA ROAD EARTHWORK

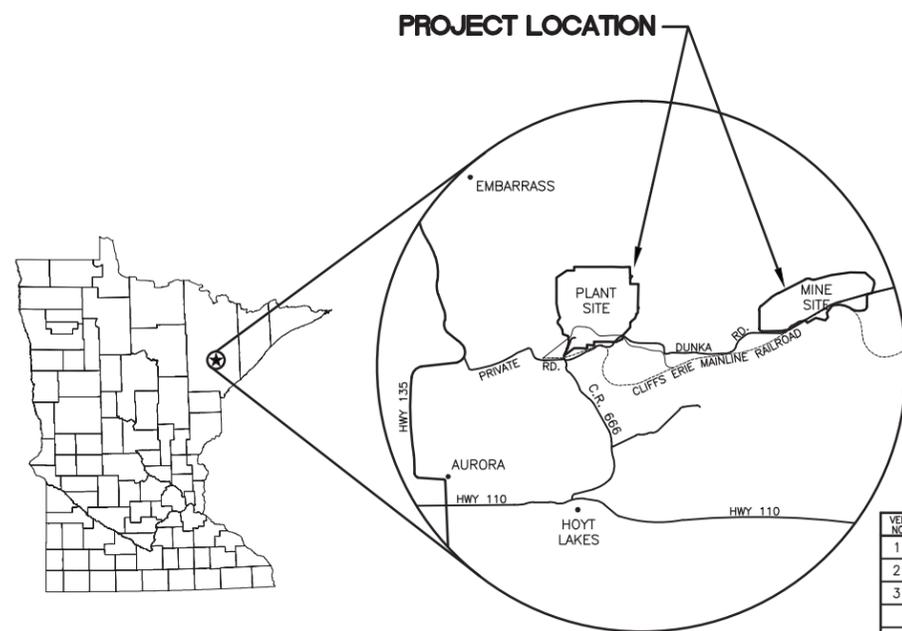
HOYT LAKES, MINNESOTA



SITE MAP



0 2000 4000
SCALE IN FEET



LOCATION MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

VER NO	DATE	DESCRIPTION	ISSUE STATUS		
			ISSUED	VERSION	DATE
1	5/21/15	ISSUED FOR INCLUSION IN PERMIT APPLICATION	ISSUED		
2	8/10/16	CORRECTION ON EW-009			
3	6/7/2017	PERMIT APPLICATION UPDATES	FOR PERMITTING	3	6/7/2017
			FOR CONSTRUCTION		
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PRINTED NAME **PAUL T. SWENSON**
SIGNATURE *Paul T. Swenson*
DATE **5/26/17** LICENSE# **20533**

DRAWN: **KKB**
CHECKED: **ATS**
BARR PROJECT NO.: **23/69-0C29**
SCALE: **AS SHOWN**

PLANT DRAWING NUMBER:
MINE SITE AND DUNKA ROAD EARTHWORK LOCATION MAP AND SITE MAP

POLYMET MINING POLY MET MINING, INC. NORTHMET PROJECT HOYT LAKES, MINNESOTA

BARR BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE SUITE 200 MINNEAPOLIS, MN. Ph: 1-800-632-2277

DWG. NO. **EW-001** REV **B**

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CADD USER: Kote K. Brown FILE: K:\DESIGN\23690C29-10\PERMIT_NMI-05-EW-002.DWG PLOT SCALE: 1:2 PLOT DATE: 6/9/2017 6:43 AM

GENERAL LEGEND

- EXISTING**
- 1000— EXISTING CONTOUR - MAJOR
 - — — EXISTING CONTOUR - MINOR
 - ⊗ EXISTING POWER POLE
 - +++++ EXISTING RAILROAD
 - - - - - WATER EDGE/CREEK CENTER LINE
 - ==== EXISTING ROAD
 - - - - - EXISTING TRAIL
 - - - - - EXISTING UNIMPROVED TRAIL
 - R/W— RIGHT OF WAY
 - — — — — PROPERTY LINE
 - - - - - MINE SITE BOUNDARY
 - EXISTING STRUCTURES
 - ~~~~~ TREE LINE
 - WETLAND BOUNDARY
 - OE — EXISTING OVERHEAD ELECTRIC
 - UE — EXISTING UNDERGROUND ELECTRIC
 - ⊠ EXISTING VALVE
 - > < EXISTING CULVERT
 - ≡ ≡ ≡ PROPOSED MINE WATER CULVERT

- PROPOSED**
- 1000— PROPOSED CONTOUR - MAJOR
 - — — PROPOSED CONTOUR - MINOR
 - ==== PROPOSED ROADS
- PROPOSED OTHER FACILITY**
- 1000— OTHER FACILITY PROPOSED CONTOUR - MAJOR
 - — — OTHER FACILITY PROPOSED CONTOUR - MINOR

ABBREVIATIONS

- CATEGORY 1 STOCKPILE - CATEGORY 1 WASTE ROCK STOCKPILE
- CATEGORY 2/3 STOCKPILE - CATEGORY 2/3 WASTE ROCK STOCKPILE
- CL - CENTERLINE
- EW - EARTHWORK
- MPP - MINE TO PLANT PIPELINES
- OE - OVERHEAD ELECTRIC
- STA - STATION
- SWPPP - STORMWATER POLLUTION PREVENTION PLAN
- TYP - TYPICAL
- I, II, III, IV, V - ROMAN NUMERALS FOR RIPRAP CLASSIFICATION

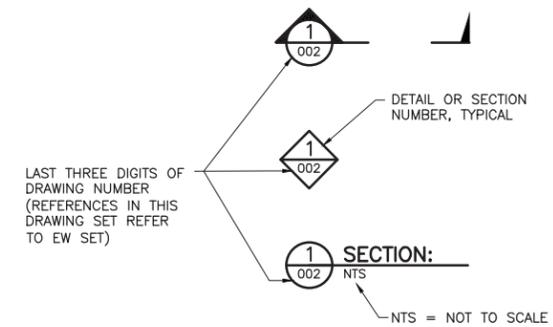
SHEET INDEX

SHEET NO.	TITLE
GENERAL DRAWINGS	
EW-001	LOCATION MAP AND SITE MAP
EW-002	LEGEND AND SHEET INDEX
EW-003	DUNKA ROAD UPGRADE GENERAL LAYOUT
EW-004	DUNKA ROAD UPGRADE TYPICAL SECTION
EW-005	HAUL ROADS GENERAL LAYOUT - MINE YEAR 11
EW-006	HAUL ROADS TYPICAL SECTIONS AND DETAILS
EW-007	HAUL ROADS TYPICAL SECTIONS AND DETAILS
EW-008	PRE-STRIPPING PIT TYPICAL SECTION
EW-009	OVERBURDEN STORAGE AND LAYDOWN AREA GRADING PLAN
EW-010	HAUL ROAD CLOSURE PLAN MINE YEARS 1-11
EW-011	HAUL ROAD CLOSURE PLAN MINE YEARS 11-20
G-100-B	RAIL TRANSFER HOPPER - PLAN VIEW
G-101-B	RAIL TRANSFER HOPPER - ELEVATION VIEW
G-101-C	RAIL TRANSFER HOPPER - ELEVATION VIEW

NOTES

1. COORDINATE SYSTEM IS MINNESOTA STATE PLANE NORTH ZONE, NAD83.
2. ELEVATIONS ARE BASED ON MEAN SEA LEVEL (MSL), NAVD88.
3. EXISTING TOPOGRAPHIC INFORMATION SHOWN ON THE DRAWINGS WAS PREPARED BY AEROMETRIC, INC. FROM LIDAR DATA COLLECTED ON MARCH 17, 2010.

DRAWING NUMBERING



PLANT DRAWING NUMBER:

MINE SITE AND DUNKA ROAD EARTHWORK
LEGEND AND SHEET INDEX

POLYMET MINING POLY MET MINING, INC.
NORTHMET PROJECT
HOYT LAKES, MINNESOTA

BARR BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN.
Ph: 1-800-632-2277

VER NO	DATE	DESCRIPTION	ISSUE STATUS		
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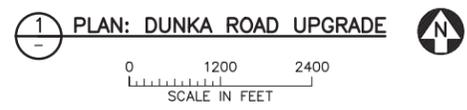
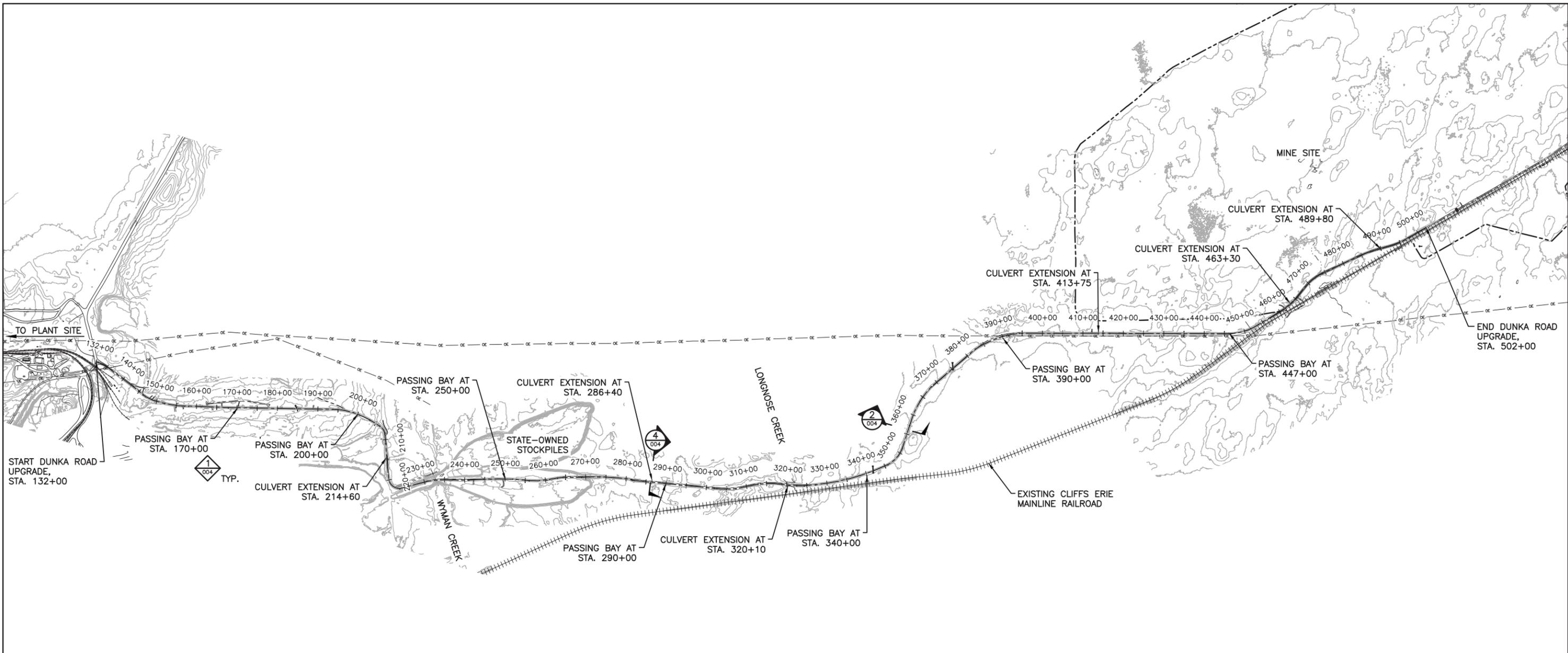
PRINTED NAME PAUL T. SWENSON
SIGNATURE *Paul T. Swenson*
DATE 5/26/17 LICENSE# 20533

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BARR PROJECT NO.: 23/69-0C29
SCALE: AS SHOWN

DWG. NO. EW-002 REV B

INCHES

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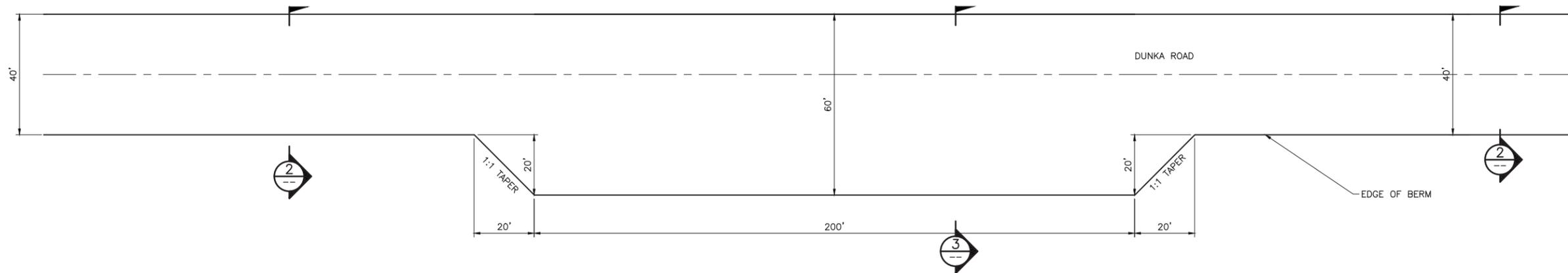
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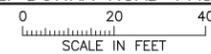
PRINTED NAME PAUL T. SWENSON
SIGNATURE *[Signature]*
DATE 5/26/17 LICENSE# 20533

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CHECKED: ATS
BARR PROJECT NO.: 23/69-0C29
SCALE: AS SHOWN

PLANT DRAWING NUMBER:	
MINE SITE AND DUNKA ROAD EARTHWORK DUNKA ROAD UPGRADE GENERAL LAYOUT	
 POLYMET MINING, INC. NORTHMET PROJECT HOYT LAKES, MINNESOTA	
 BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE SUITE 200 MINNEAPOLIS, MN. Ph: 1-800-632-2277	
DWG. NO. EW-003	REV B

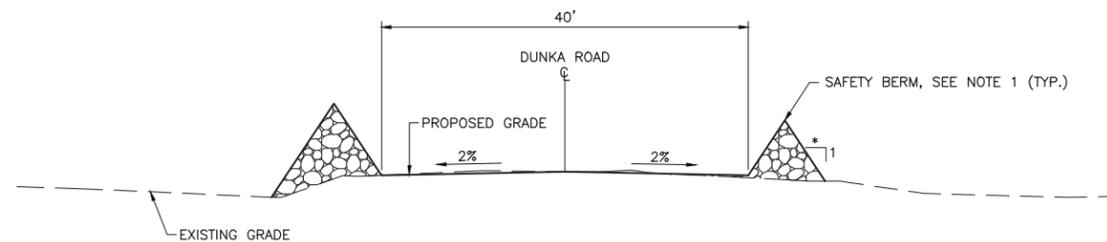


1
003 **DETAIL: DUNKA ROAD PASSING BAY**

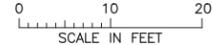


APPROXIMATE PASSING BAY LOCATIONS

- STA 170+00
- STA 200+00
- STA 250+00
- STA 290+00
- STA 340+00
- STA 390+00
- STA 447+00

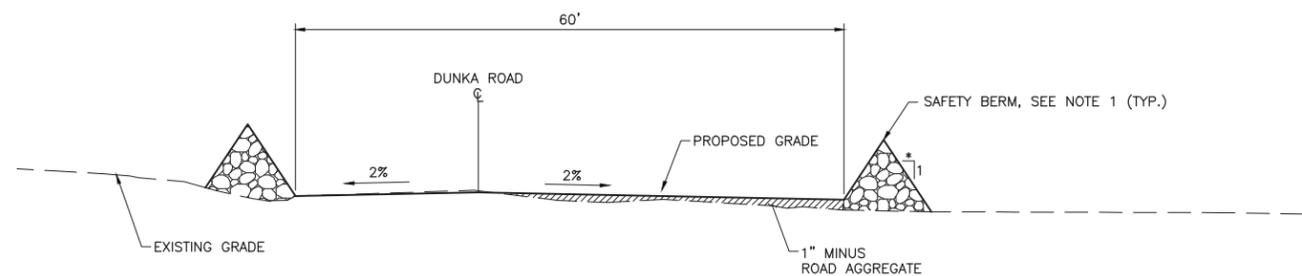


2
003 **SECTION: TYPICAL DUNKA ROAD**

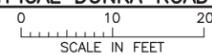


NOTES:

- 1. WHERE BERMS ARE REQUIRED.
- 2. * = ANGLE OF REPOSE



3
SECTION: TYPICAL DUNKA ROAD PASSING BAY

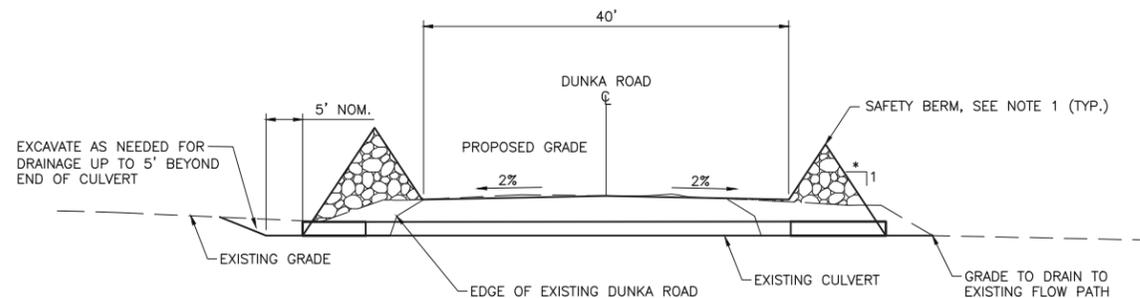


NOTES:

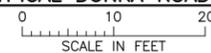
- 1. WHERE BERMS ARE REQUIRED.
- 2. * = ANGLE OF REPOSE

APPROXIMATE CULVERT EXTENSION LOCATIONS

- STA 214+60
- STA 286+40
- STA 320+10
- STA 413+75
- STA 463+30
- STA 489+80



4
003 **SECTION: TYPICAL DUNKA ROAD CULVERT EXTENSION**



NOTES:

- 1. WHERE BERMS ARE REQUIRED.
- 2. * = ANGLE OF REPOSE

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PLANT DRAWING NUMBER:

**MINE SITE AND DUNKA ROAD EARTHWORK
 DUNKA ROAD UPGRADE
 TYPICAL SECTION**

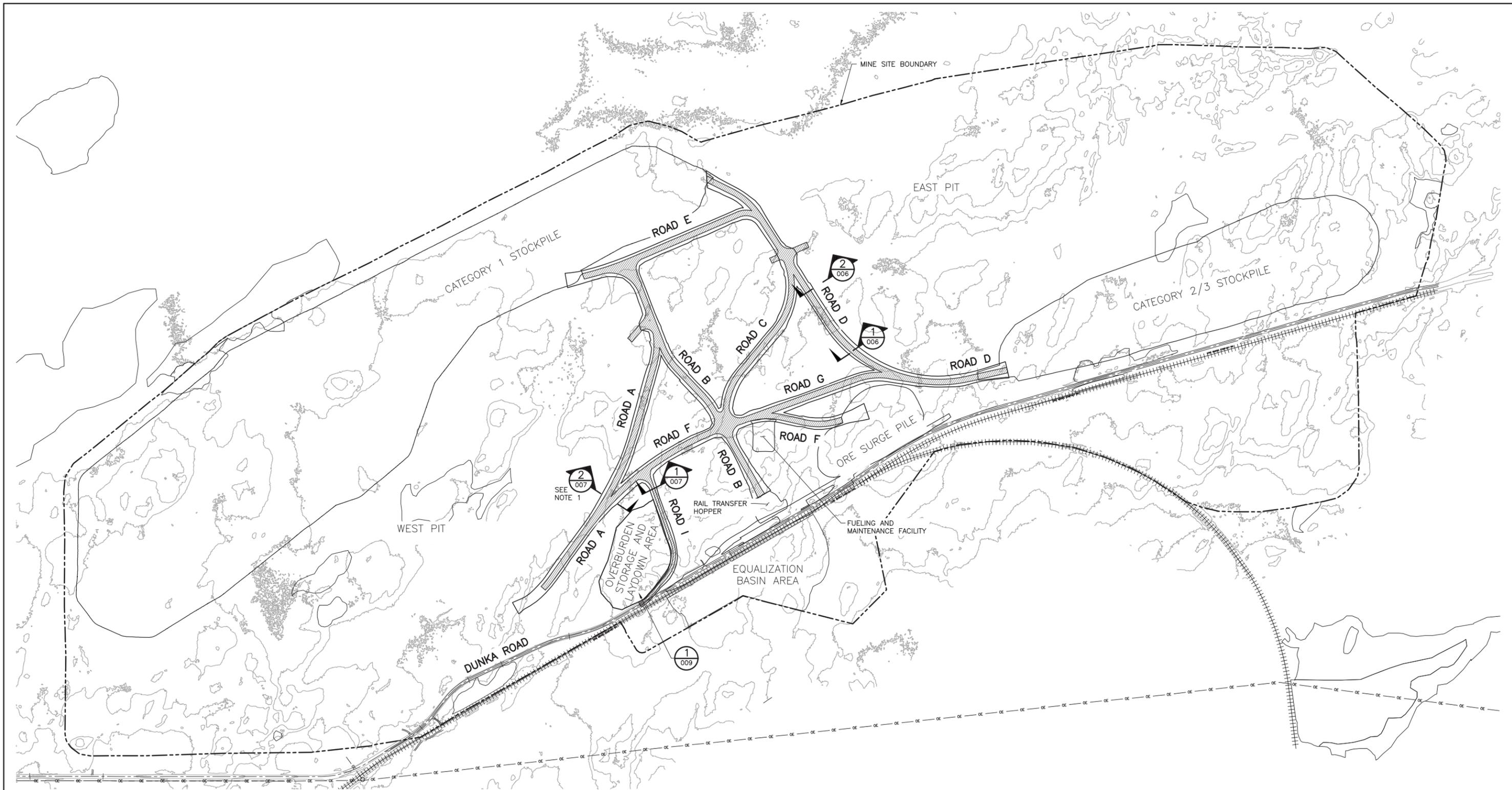
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 POLY MET MINING, INC.
 NORTHMET PROJECT
 HOYT LAKES, MINNESOTA

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DWG. NO. **EW-004** REV **B**

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NOTES

1. CULVERT SECTION SHOWN AS TYPICAL CALLOUT. ALL CULVERTS THAT CROSS THE HAUL ROADS, SHOWN ON THIS DRAWING WILL BE CONSTRUCTED AS SHOWN ON 2
007

1 PLAN: HAUL ROADS GENERAL LAYOUT - MINE YEAR 11



INCHES
1
2

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SCALE: AS SHOWN

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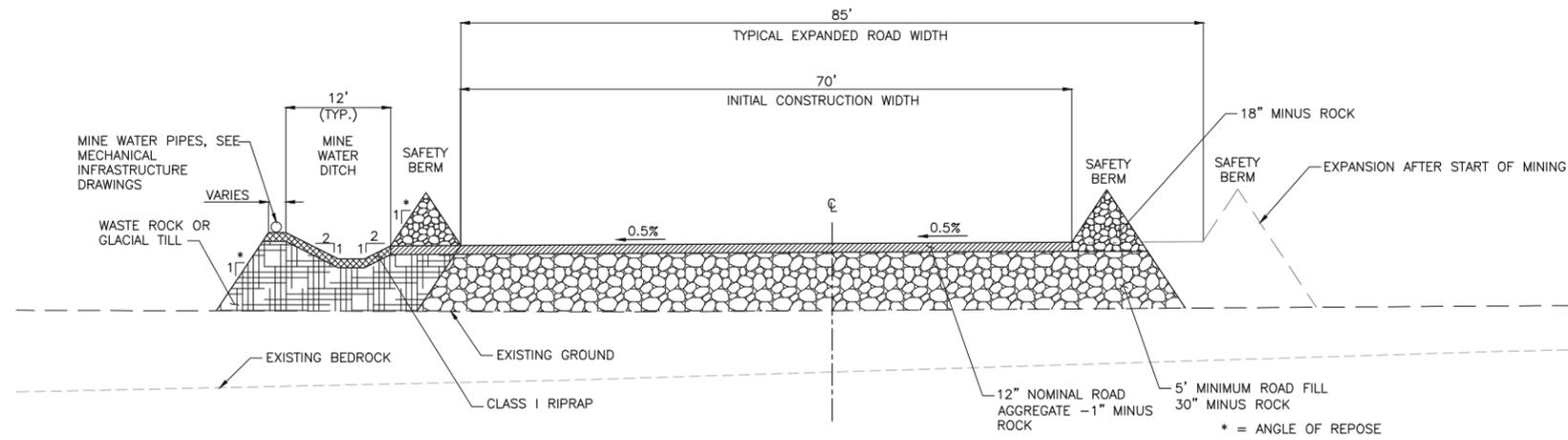
MINE SITE AND DUNKA ROAD EARTHWORK HAUL ROADS GENERAL LAYOUT MINE YEAR 11

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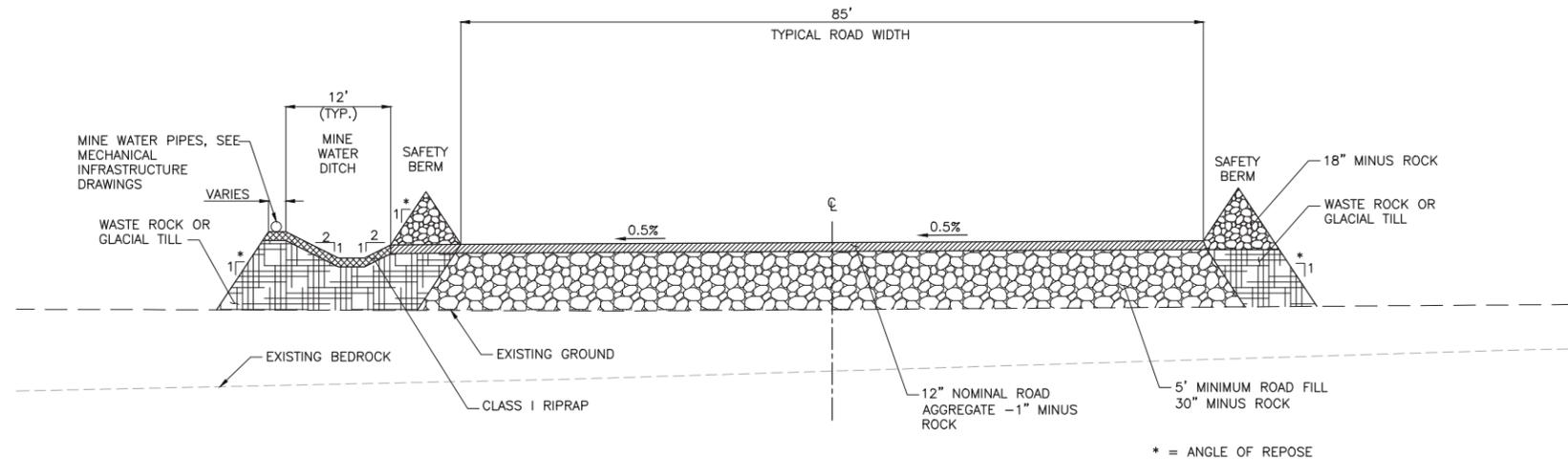
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1 SECTION: TYPICAL PRE-MINING HAUL ROAD WITH EXPANSION

005 SHOWN AT INITIAL CONSTRUCTION WIDTH
0 10 20
SCALE IN FEET



2 SECTION: TYPICAL HAUL ROAD AFTER START OF MINING (AFTER MINE ROCK EXCAVATION BEGINS)

0 10 20
SCALE IN FEET

NOTES:

1. MINE WATER DITCH TO BE CONSTRUCTED WHERE NEEDED. DITCH MAY BE LOCATED ON EITHER OR BOTH SIDES OF ROAD.
2. SAFETY BERMS TO BE CONSTRUCTED OF WASTE ROCK OBTAINED FROM STATE-OWNED STOCKPILE (PRIOR TO START OF MINING) OR FROM CATEGORY 1 WASTE ROCK (AFTER START OF MINING).
3. DESIGN GRADE OF DITCHES BASED ON HYDRAULIC DESIGN REQUIREMENTS STARTING AT STORAGE POND ELEVATION.
4. ROAD GRADE ESTABLISHED TO PROVIDE POSITIVE DRAINAGE INTO DITCH WITH NO BACKUP OF WATER ONTO THE ROAD FOR THE 10-YEAR, 24-HOUR STORM.
5. DRAINAGE SYSTEM DESIGNED TO CONTROL/CONTAIN THE 100-YEAR, 24-HOUR STORM.
6. DRAINAGE PATH MUST BE PROVIDED THROUGH BERM BETWEEN ROAD AND DITCH. THIS CAN BE ACCOMPLISHED BY THE FOLLOWING OPTIONS IN APPROPRIATELY SPACED LOCATIONS.
 - A. COARSE WASTE ROCK FROM STATE-OWNED STOCKPILE (PRIOR TO START OF MINING) OR FROM CATEGORY 1 WASTE ROCK (AFTER START OF MINING) (NO FINES)
 - B. CULVERTS
 - C. LARGE BOULDERS FROM PRE-STRIPPING
 - D. GAP IN BERM
7. ROAD FILL TO BE CONSTRUCTED OF WASTE ROCK OBTAINED FROM STATE-OWNED STOCKPILE (PRIOR TO START OF MINING) OR FROM CATEGORY 1 WASTE ROCK (AFTER START OF MINING).
8. DISTURBED SOIL AREAS SHALL BE VEGETATED IN ACCORDANCE WITH THE CONSTRUCTION SWPPP.

PLANT DRAWING NUMBER:

**MINE SITE AND DUNKA ROAD EARTHWORK
HAUL ROADS
TYPICAL SECTIONS AND DETAILS**

POLYMET MINING POLY MET MINING, INC.
NORTHMET PROJECT
HOYT LAKES, MINNESOTA

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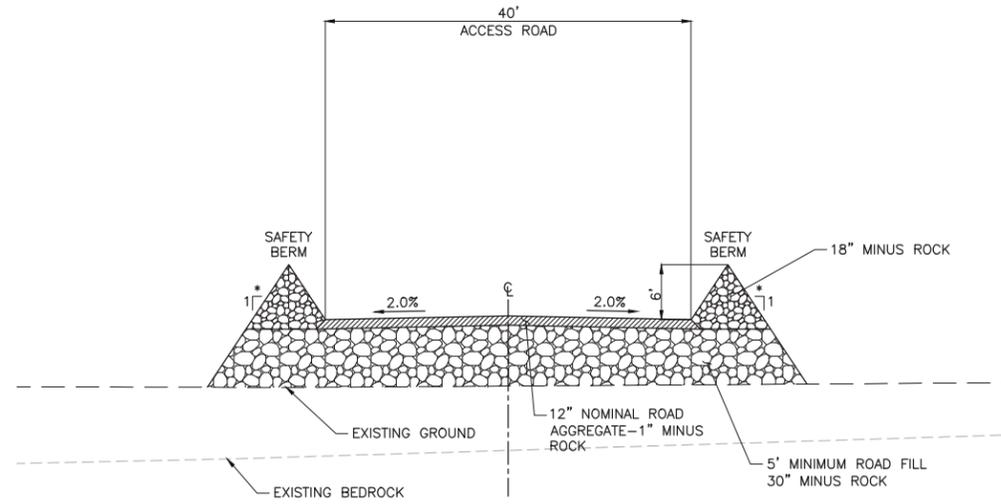
PRINTED NAME: PAUL T. SWENSON
SIGNATURE: *Paul T. Swenson*
DATE: 5/26/17 LICENSE# 20533

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BARR PROJECT NO.: 23/69-0C29
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DWG. NO. **EW-006** REV **B**

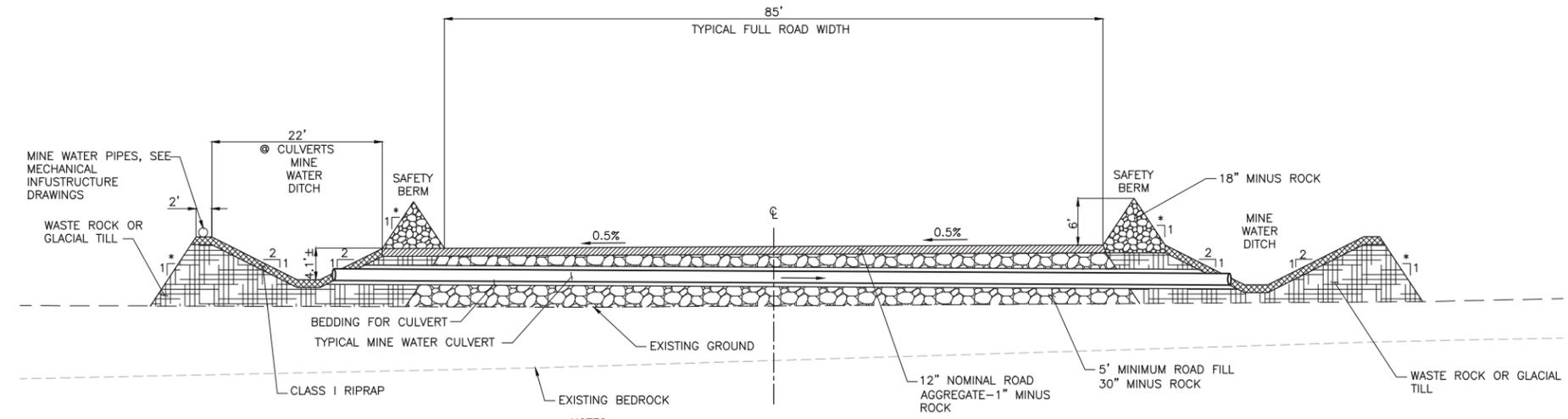
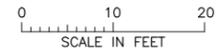
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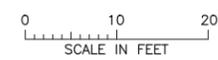
NOTES:
* - ANGLE OF REPOSE

1 SECTION: TYPICAL ACCESS ROAD (ROAD 1)



NOTES:
* - ANGLE OF REPOSE

2 SECTION: TYPICAL HAUL ROAD WITH MINE WATER CULVERT CROSSING



NOTES:

1. TYPICAL SECTION IS SHOWN TO ILLUSTRATE GENERALIZED DESIGN OF LOCATIONS WHERE ROAD DRAINAGE IS DIVERTED FROM ONE SIDE OF THE ROAD TO THE OTHER. ACTUAL DESIGN WILL VARY BY LOCATION. CROSS SLOPE ON ROAD WILL TRANSITION TO DRAIN SURFACE WATER TO DOWNSTREAM MINE DRAINAGE DITCH. CROSS SLOPE AT CULVERT MAY SLOPE EITHER DIRECTION, OR A PORTION OF THE ROAD MAY SLOPE BOTH DIRECTIONS, DEPENDING ON THE SPECIFIC CULVERT LOCATION.
2. REFER TO MINE SITE MINE WATER DRAWINGS FOR LOCATIONS.

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SCALE: AS SHOWN

PLANT DRAWING NUMBER:

MINE SITE AND DUNKA ROAD EARTHWORK HAUL ROADS TYPICAL SECTIONS AND DETAILS

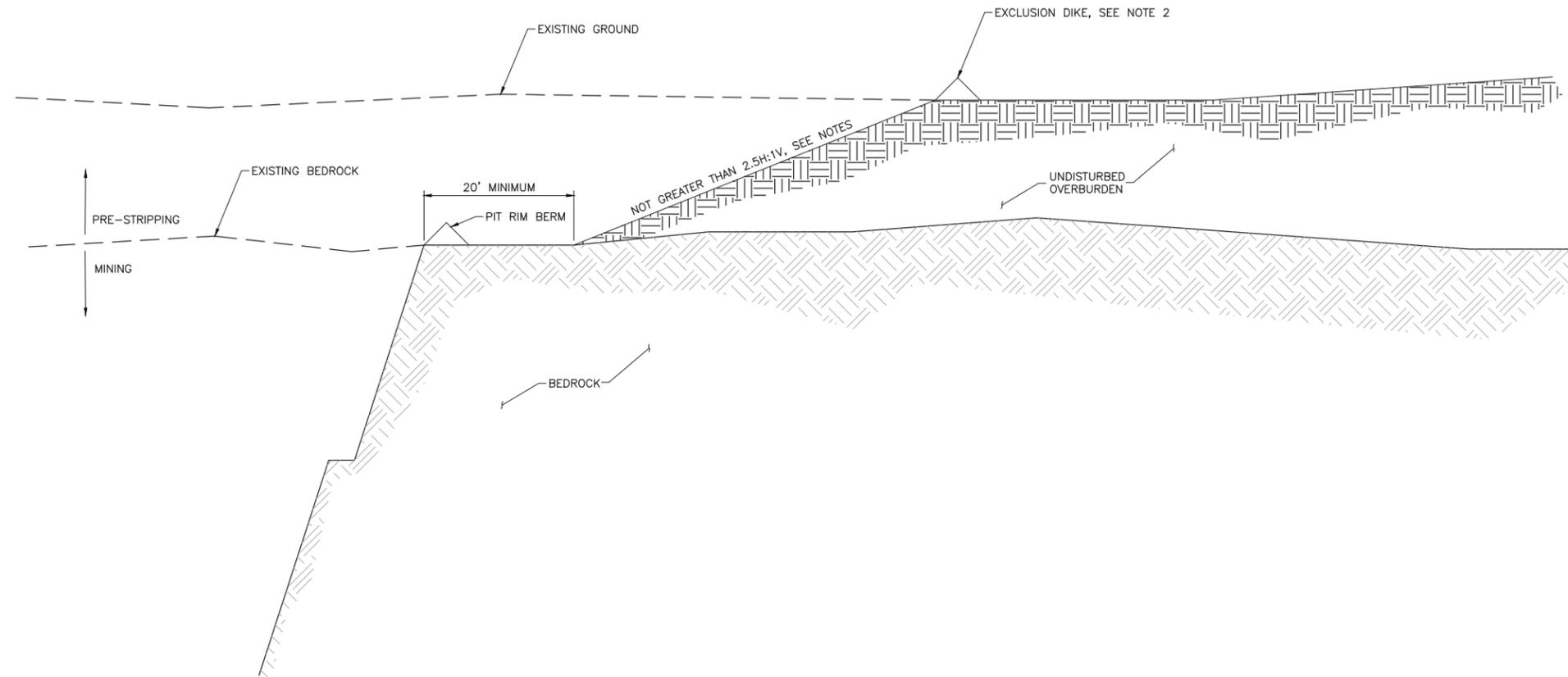
POLYMET MINING POLY MET MINING, INC. NORTHMET PROJECT HOYT LAKES, MINNESOTA

BARR BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE SUITE 200 MINNEAPOLIS, MN. Ph: 1-800-632-2277

DWG. NO. **EW-007** REV **B**

INCHES 1 2

CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29\10\PERMIT_NMM-09-EV-008.DWG PLOT SCALE: 1:2 PLOT DATE: 6/5/2017 10:46 AM



1 SECTION: TYPICAL EDGE OF PIT TO UNDISTURBED GROUND
 0 10 20
 SCALE IN FEET

NOTES:

1. PROPOSED FINISHED GRADE WITHIN PRE-STRIPPING AREA REFLECTS BEDROCK DATA PROVIDED BY POLYMET.
2. CONSTRUCT EXCLUSION DIKE AROUND PIT PERIMETER TO DIVERT SURFACE RUNOFF AWAY FROM PIT.
3. FINAL PIT SLOPES SHALL ADHERE TO CHAPTER 6132.23 OVERBURDEN PORTION OF PITWALLS OF MINNESOTA DNR STANDARDS. AFTER GRADING IS COMPLETED, RECLAIM FINAL PIT SLOPES IN ACCORDANCE WITH MINE RECLAMATION PLAN.
4. SLOPES IN AREAS WHERE ORGANIC SOILS AND WETLANDS ARE PRESENT MAY BE SLOPED AS NECESSARY TO MAINTAIN A STABLE SLOPE.
5. 20' BENCH SHALL BE ESTABLISHED FROM THE TOE OF THE OVERBURDEN TO THE FUTURE CREST OF ROCK IN ACCORDANCE WITH MINNESOTA DNR SIDEWALL DESIGN STANDARDS.
6. CONTRACTOR SHALL LEAVE TEMPORARY HAUL ROADS WITHIN PRE-STRIPPING LIMITS IN PLACE FOR OWNER'S ACCESS.
7. CONTRACTOR SHALL STOCKPILE OVERBURDEN IN LOCATIONS AND AT QUANTITIES TO BE APPROVED BY OWNER.

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: PAUL T. SWENSON
 SIGNATURE: *Paul T. Swenson*
 DATE: 5/26/17 LICENSE# 20533

DRAWN: KKB
 CHECKED: ATS
 BARR PROJECT NO.: 23/69-0C29
 SCALE: AS SHOWN

PLANT DRAWING NUMBER:

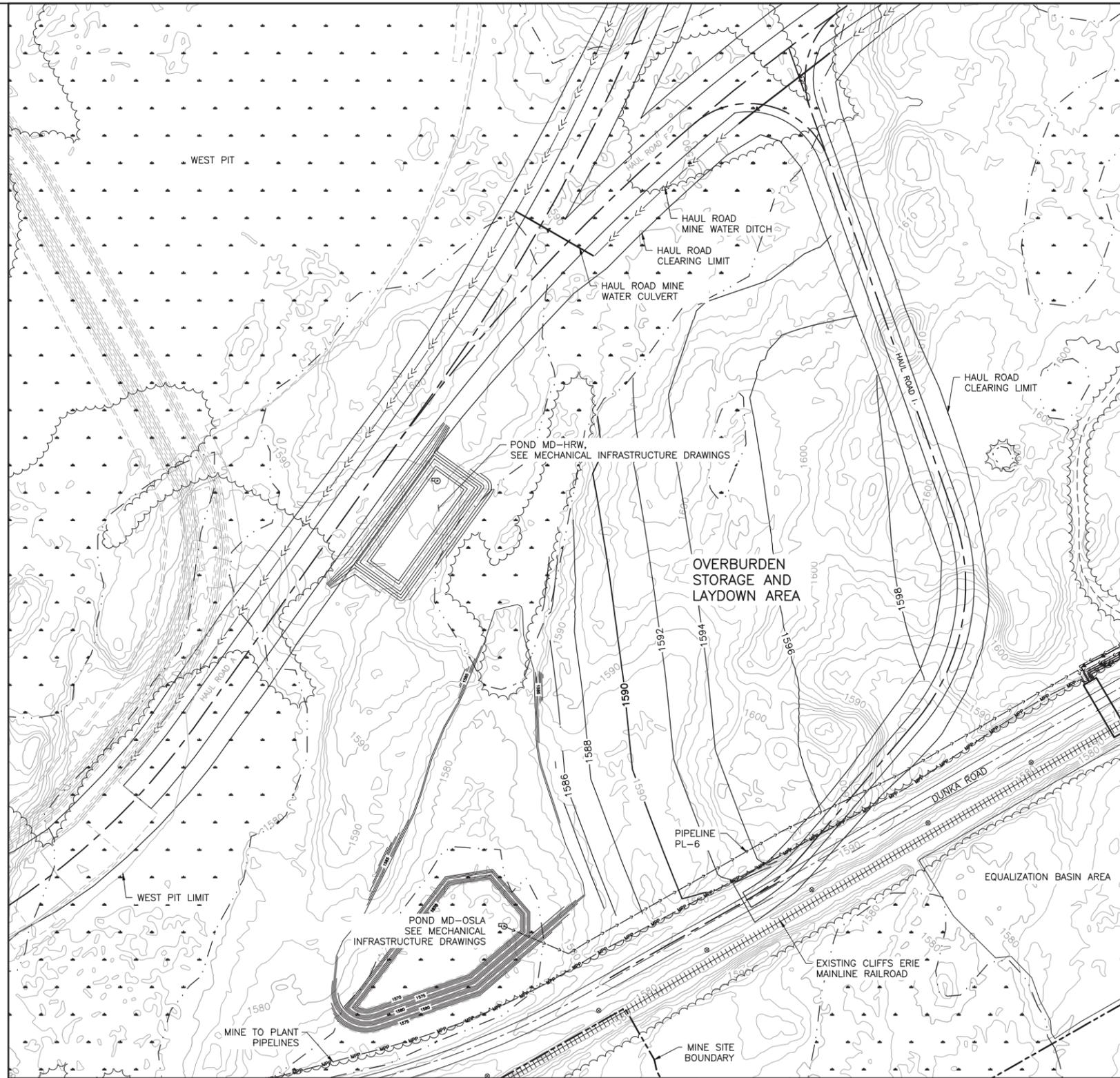
**MINE SITE AND DUNKA ROAD EARTHWORK
 PRE-STRIPPING
 PIT TYPICAL SECTION**

POLYMET MINING POLY MET MINING, INC.
 NORTHMET PROJECT
 HOYT LAKES, MINNESOTA

BARR BARR ENGINEERING CO.
 4300 MARKETPOINTE DRIVE
 SUITE 200
 MINNEAPOLIS, MN.
 Ph: 1-800-632-2277

DWG. NO. **EW-008** REV **B**

CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29\10\PERMIT_NM--EW--009.DWG PLOT SCALE: 1:2 PLOT DATE: 6/5/2017 10:48 AM



1 PLAN: OVERBURDEN STORAGE AND LAYDOWN AREA

0 150 300
SCALE IN FEET

PLANT DRAWING NUMBER:

**MINE SITE AND DUNKA ROAD EARTHWORK
OVERBURDEN STORAGE AND LAYDOWN AREA
GRADING PLAN**

POLYMET MINING POLY MET MINING, INC.
NORTHMET PROJECT
HOYT LAKES, MINNESOTA

BARR BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN.
Ph: 1-800-632-2277

VER NO	DATE	DESCRIPTION	ISSUE STATUS		
			ISSUED	VERSION	DATE
1	5/21/15	ISSUED FOR INCLUSION IN PERMIT APPLICATION	ISSUED		
2	8/10/16	OSLA CONTOUR DISPLAY CORRECTED			
3	6/7/2017	PERMIT APPLICATION UPDATES	FOR PERMITTING	3	6/7/2017
			FOR CONSTRUCTION		
			NOT APPROVED FOR CONSTRUCTION.		

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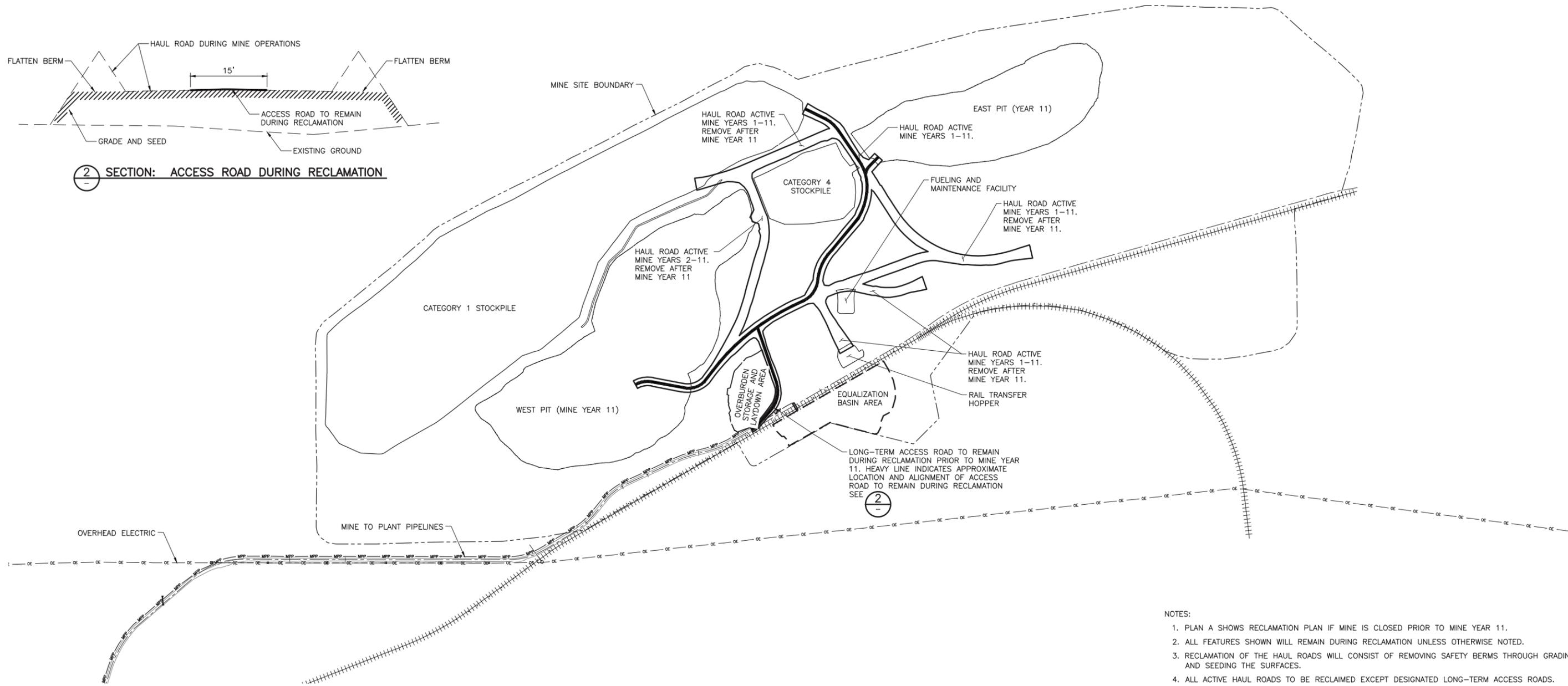
PRINTED NAME: PAUL T. SWENSON
SIGNATURE: *Paul T. Swenson*
DATE: 5/26/17 LICENSE# 20533

DRAWN: KKB
CHECKED: ATS
BARR PROJECT NO.: 23/69-0C29
SCALE: AS SHOWN

DWG. NO. **EW-009** REV **B**

INCHES 1 2

CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29\10\PERMIT_NMI-05-EW-010.DWG PLOT SCALE: 1:2 PLOT DATE: 6/9/2017 7:02 AM



- NOTES:
1. PLAN A SHOWS RECLAMATION PLAN IF MINE IS CLOSED PRIOR TO MINE YEAR 11.
 2. ALL FEATURES SHOWN WILL REMAIN DURING RECLAMATION UNLESS OTHERWISE NOTED.
 3. RECLAMATION OF THE HAUL ROADS WILL CONSIST OF REMOVING SAFETY BERMS THROUGH GRADING AND SEEDING THE SURFACES.
 4. ALL ACTIVE HAUL ROADS TO BE RECLAIMED EXCEPT DESIGNATED LONG-TERM ACCESS ROADS.

1 PLAN: HAUL ROAD RECLAMATION PLAN A

0 1000 2000
SCALE IN FEET

PLANT DRAWING NUMBER:
**MINE SITE AND DUNKA ROAD EARTHWORK
HAUL ROAD RECLAMATION PLAN A
MINE YEARS 1-11**

POLYMET MINING POLY MET MINING, INC.
NORTHMET PROJECT
HOYT LAKES, MINNESOTA

BARR BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN.
Ph: 1-800-632-2277

VER NO	DATE	DESCRIPTION	ISSUE STATUS		
			ISSUED	VERSION	DATE
1	5/21/15	ISSUED FOR INCLUSION IN PERMIT APPLICATION	ISSUED		
3	6/7/2017	PERMIT APPLICATION UPDATES	FOR PERMITTING	3	6/7/2017
			FOR CONSTRUCTION		
			NOT APPROVED FOR CONSTRUCTION.		

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PRINTED NAME **PAUL T. SWENSON**
SIGNATURE *[Signature]*
DATE **5/26/17** LICENSE# **20533**

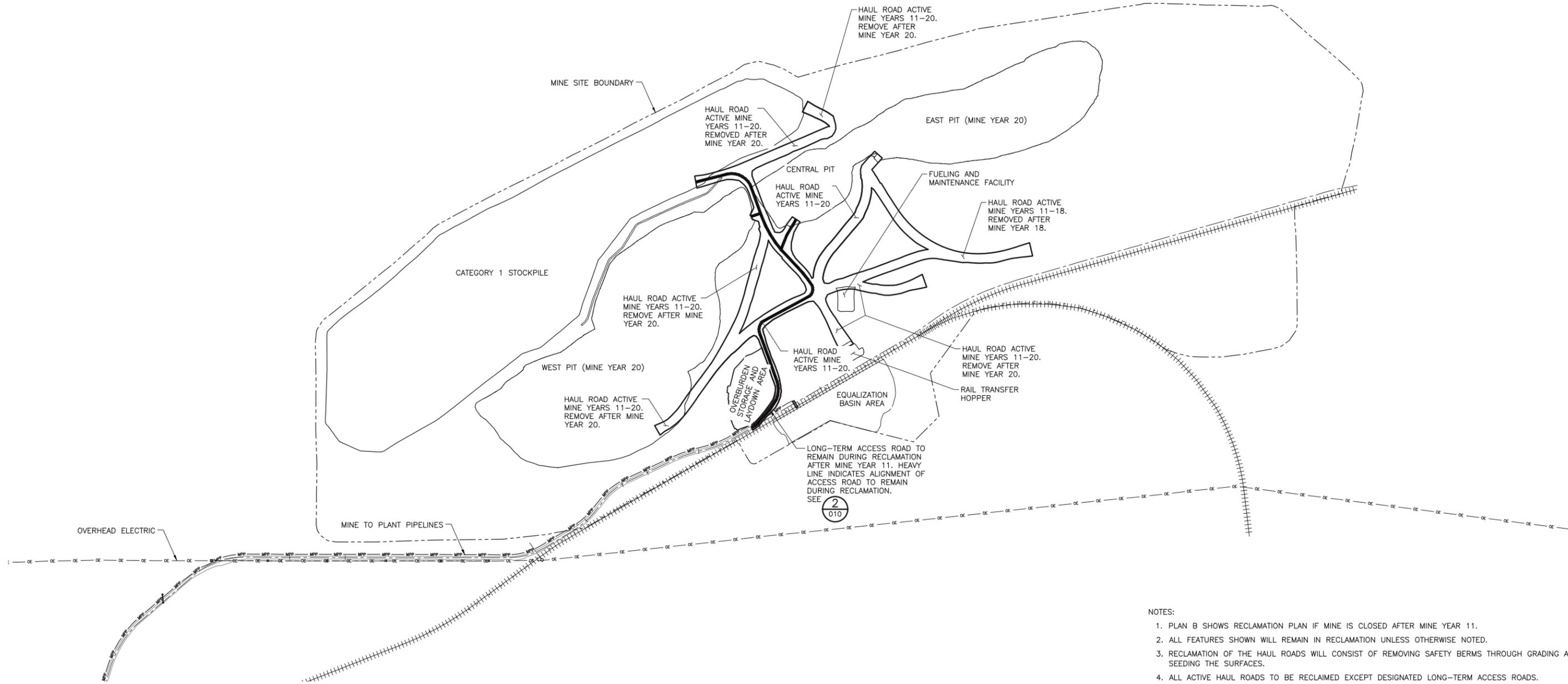
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CHECKED: ATS
BARR PROJECT NO.: 23/69-0C29
SCALE: AS SHOWN

DWG. NO. **EW-010** REV **B**

INCHES

CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29\10\PERMIT_NMI-05-EW-011.DWG PLOT SCALE: 1:2 PLOT DATE: 6/9/2017 6:50 AM

INCHES



- NOTES:
1. PLAN B SHOWS RECLAMATION PLAN IF MINE IS CLOSED AFTER MINE YEAR 11.
 2. ALL FEATURES SHOWN WILL REMAIN IN RECLAMATION UNLESS OTHERWISE NOTED.
 3. RECLAMATION OF THE HAUL ROADS WILL CONSIST OF REMOVING SAFETY BERMS THROUGH GRADING AND SEEDING THE SURFACES.
 4. ALL ACTIVE HAUL ROADS TO BE RECLAIMED EXCEPT DESIGNATED LONG-TERM ACCESS ROADS.

1 PLAN: HAUL ROAD RECLAMATION PLAN B

0 1000 2000
SCALE IN FEET



VER NO	DATE	DESCRIPTION	ISSUE STATUS		
			ISSUED	VERSION	DATE
1	5/05/17	ISSUED FOR INCLUSION IN PERMIT APPLICATION			
3	6/7/2017	PERMIT APPLICATION UPDATES	FOR PERMITTING	3	6/7/2017
			FOR CONSTRUCTION		
			NOT APPROVED FOR CONSTRUCTION.		

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PRINTED NAME **PAUL T. SWENSON**
SIGNATURE *[Signature]*
DATE **5/26/17** LICENSE# **20533**

DRAWN: KKB
CHECKED: ATS
BARR PROJECT NO.: 23/69-0C29
SCALE: AS SHOWN

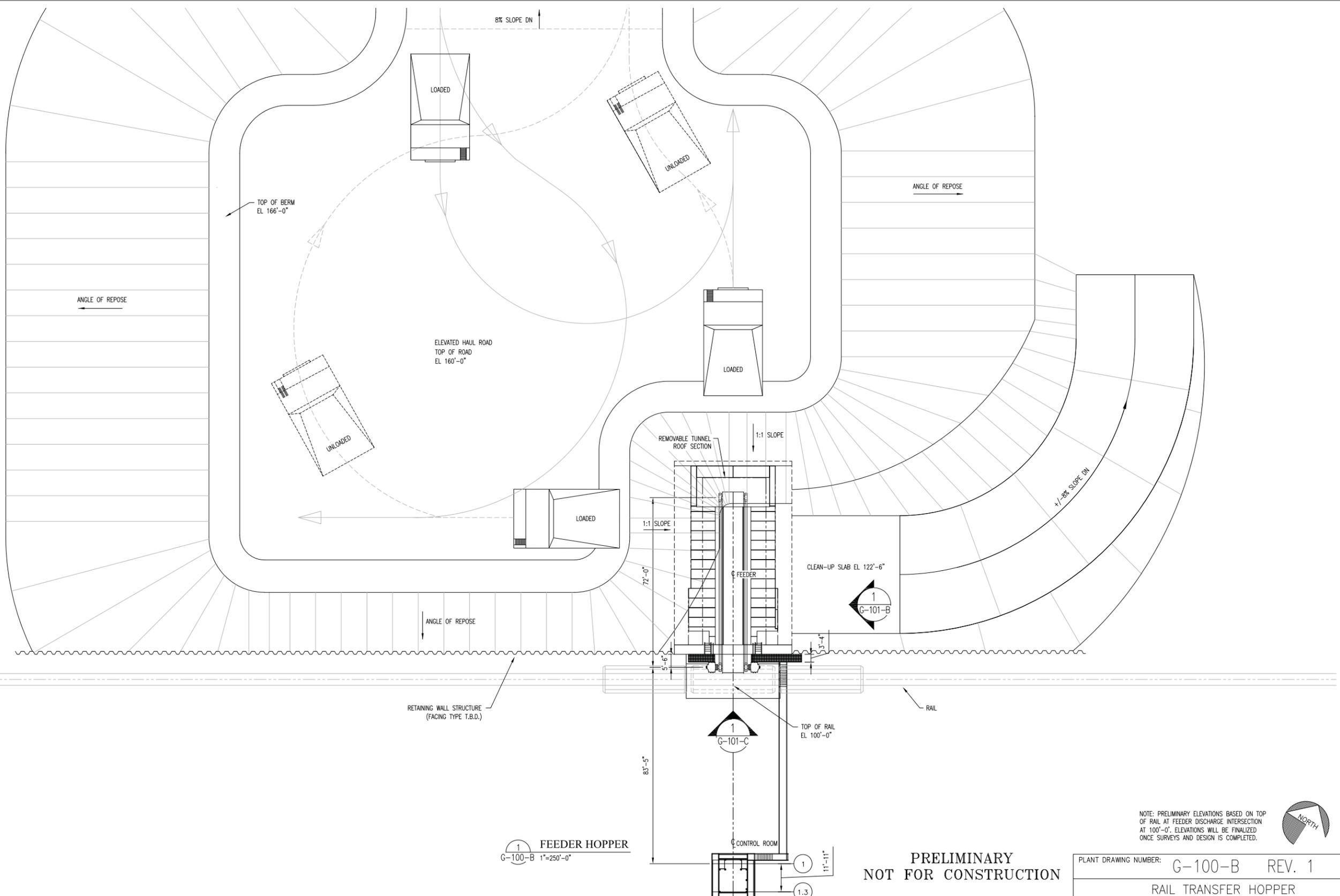
PLANT DRAWING NUMBER:

**MINE SITE AND DUNKA ROAD EARTHWORK
HAUL ROAD RECLAMATION PLAN B
MINE YEARS 11-20**

POLYMET MINING POLY MET MINING, INC.
NORTHMET PROJECT
HOYT LAKES, MINNESOTA

BARR BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN.
Ph: 1-800-632-2277

DWG. NO. **EW-011** REV **B**



1 FEEDER HOPPER
G-100-B 1"=250'-0"

PRELIMINARY
NOT FOR CONSTRUCTION

PLANT DRAWING NUMBER: G-100-B REV. 1

RAIL TRANSFER HOPPER
PLAN VIEW

POLY MET MINING, INC.
NORTHMET PROJECT
HOYT LAKES, MINNESOTA

KRECH OJARD Engineers & Architects
& ASSOCIATES, P.A.

227 WEST FIRST STREET, SUITE 200
DULUTH, MINNESOTA 55802
Ph: 218.727.3282
F: 218.727.1216
www.krechojard.com

REV NO	DATE	REVISIONS	BY	CHKR	DRAWING STATUS				
					ISSUED	REV	DATE	SDE	PEM
1	5/24/17	ISSUED FOR INCLUSION IN PERMIT APPLICATIONS	JF	RKM	ISSUED	1	5/24/17	-	-
-	-	-	-	-	PRELIMINARY	1	5/24/17	-	-
-	-	-	-	-	APPROVED FOR CONSTRUCTION	-	-	-	-
-	-	-	-	-	NOT APPROVED FOR CONSTRUCTION	-	-	-	-

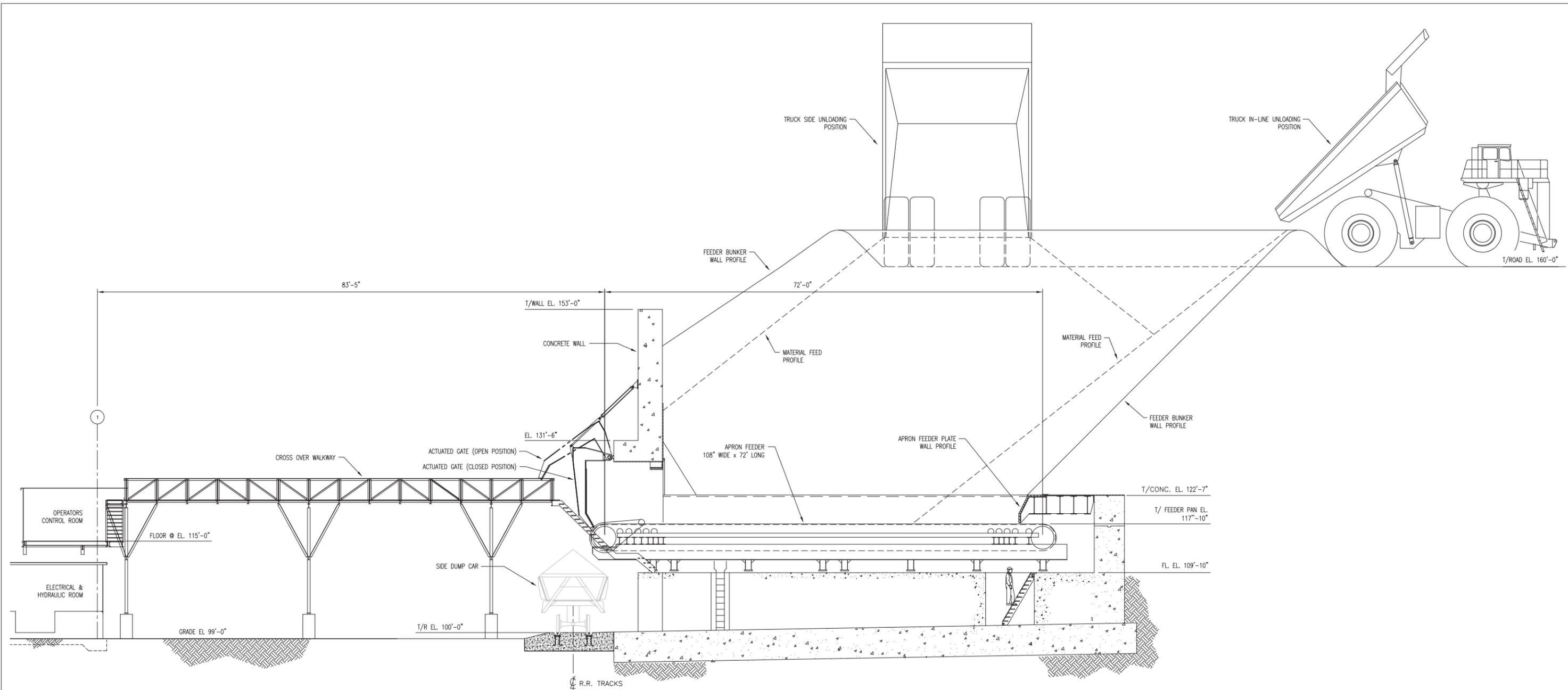
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SIGNATURE: *[Signature]*
PRINTED NAME: RYAN MCKIBBON
DATE: 5/24/17 REG. NO.: 46303

DRAWN: JF DATE: 5/24/17
CHECKED: RKM DATE: 5/24/17
KOA PROJECT NO.: 151003
SCALE: 1"=250'-0"

NOTE: PRELIMINARY ELEVATIONS BASED ON TOP OF RAIL AT FEEDER DISCHARGE INTERSECTION AT 100'-0". ELEVATIONS WILL BE FINALIZED ONCE SURVEYS AND DESIGN IS COMPLETED.

INCHES 1 2



1 EAST ELEVATION
G-101-B 1/8"=1'-0"

NOTE: PRELIMINARY ELEVATIONS BASED ON TOP OF RAIL AT FEEDER DISCHARGE INTERSECTION AT 100'-0". ELEVATIONS WILL BE FINALIZED ONCE SURVEYS AND DESIGN IS COMPLETED.

**PRELIMINARY
NOT FOR CONSTRUCTION**

PLANT DRAWING NUMBER: G-101-B REV. 1

RAIL TRANSFER HOPPER
ELEVATION VIEW

POLY MET MINING, INC.
NORTHMET PROJECT
HOYT LAKES, MINNESOTA

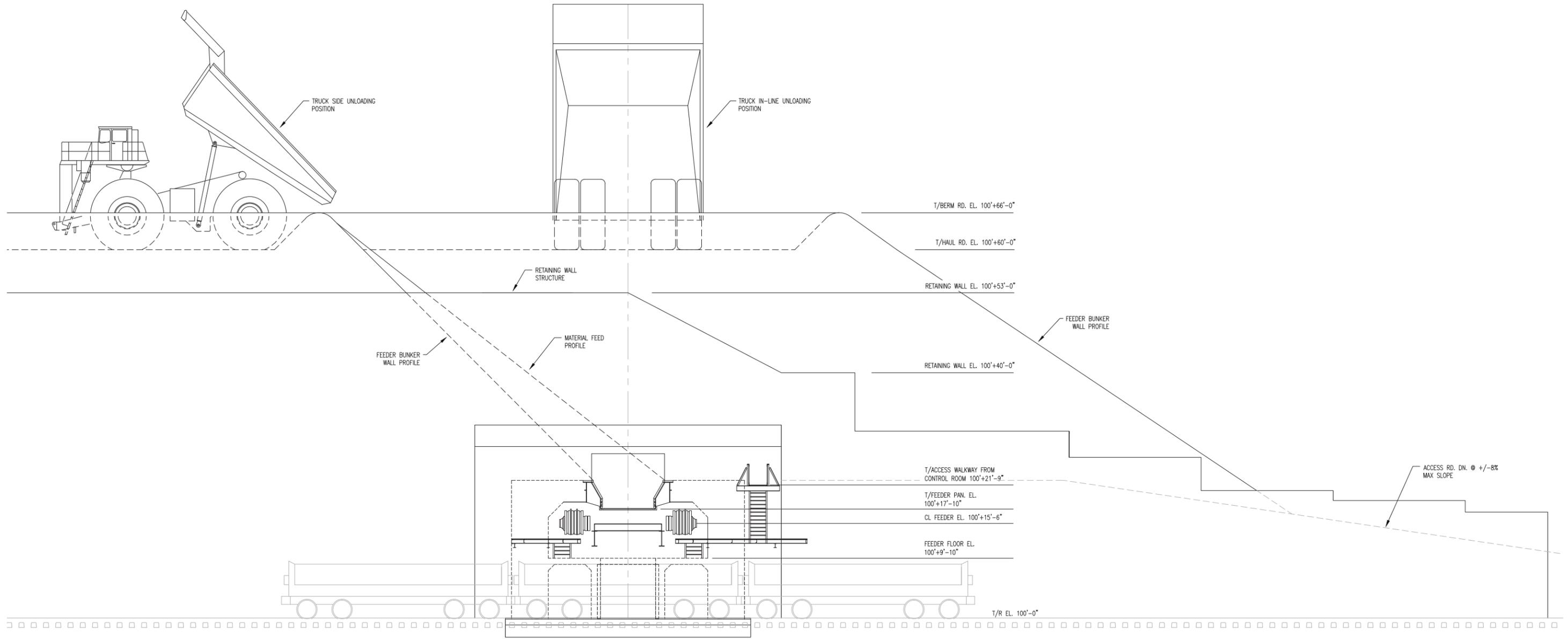
KRECH OJARD Engineers & Architects
227 WEST FIRST STREET, SUITE 200
DULUTH, MINNESOTA 55802
Ph: 218.727.3282
F: 218.727.1216
www.krechojard.com

REV NO	DATE	REVISIONS	BY	CHKR	DRAWING STATUS				
					ISSUED	REV	DATE	SDE	PEM
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-	-	-	-	-	PRELIMINARY	-	-	-	-
-	-	-	-	-	APPROVED FOR CONSTRUCTION	-	-	-	-
-	-	-	-	-	NOT APPROVED FOR CONSTRUCTION	-	-	-	-

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SIGNATURE: *[Signature]*
PRINTED NAME: RYAN MCKIBBON
DATE: 5/24/17 REG. NO.: 46303

DRAWN: JF DATE: 5/24/17
CHECKED: RKM DATE: 5/24/17
KOA PROJECT NO.: 151003
SCALE: 1"=250'-0"

INCHES 1 2



1 SOUTH ELEVATION
G-101-C 1/8"=1'-0"

NOTE: PRELIMINARY ELEVATIONS BASED ON TOP OF RAIL AT FEEDER DISCHARGE INTERSECTION AT 100'-0". ELEVATIONS WILL BE FINALIZED ONCE SURVEYS AND DESIGN IS COMPLETED.

PRELIMINARY
NOT FOR CONSTRUCTION

PLANT DRAWING NUMBER: G-101-C REV. 1

RAIL TRANSFER HOPPER
ELEVATION VIEW

POLY MET MINING, INC.
NORTHMET PROJECT
HOYT LAKES, MINNESOTA

KRECH OJARD Engineers & Architects
227 WEST FIRST STREET, SUITE 200
DULUTH, MINNESOTA 55802
PH: 218.727.3282
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WWW.KRECHOJARD.COM

REV NO	DATE	REVISIONS	BY	CHKR	DRAWING STATUS				
					ISSUED	REV	DATE	SDE	PEM
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-	-	-	-	-	PRELIMINARY	-	-	-	-
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DATE: 5/24/17 REG. NO.: 46303

DRAWN: JF DATE: 5/24/17
CHECKED: RKM DATE: 5/24/17
KOA PROJECT NO.: 151003
SCALE: 1"=250'-0"

INCHES
1
2