

Appendix 5

Mine Site Stormwater Permit Application Support Drawings

Errata Sheet

Poly Met Mining, Inc. NorthMet Project

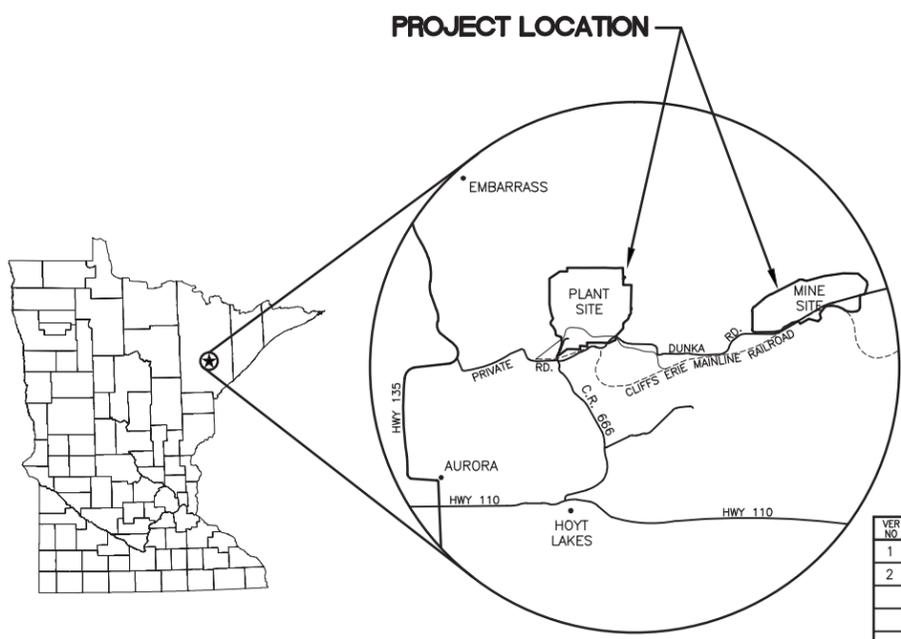
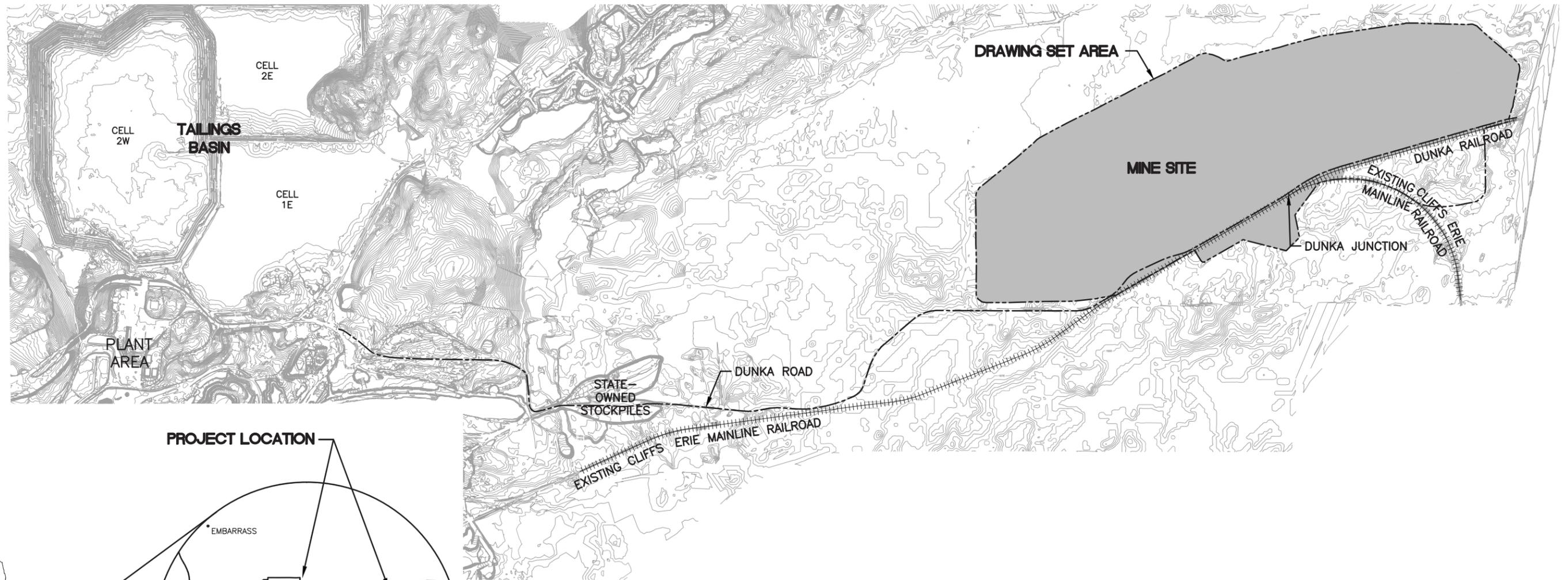
Permit Application Support Drawings: Mine Site Stormwater

August 2017 (version 3)

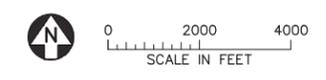
Engineering design is currently in progress. The table below lists changes that have been identified to-date and have not yet been incorporated in the attached permit application support drawings within this set. Final design will incorporate these changes along with additional site-specific information (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". |
| SW-003, SW-004, SW-005, SW-006, SW-031 | Temporary sedimentation basins or stormwater infiltration basins may be added to meet construction stormwater requirements. These construction stormwater features require additional site-specific data and will be evaluated in final design. |
| SW-002, SW-003, SW-004, SW-005, SW-006, SW-008, SW-009, SW-010, SW-013, SW-014, SW-015, SW-016, SW-017, SW-018, SW-019, SW-021, SW-031 | The "Mine Site Boundary" will be replaced by the "Mining Area Boundary" as shown on figures included in the Permit to Mine Application. |

POLY MET MINING, INC. NORTHMET PROJECT PERMIT APPLICATION SUPPORT DRAWINGS MINE SITE STORMWATER HOYT LAKES, MINNESOTA



SITE MAP



| VER NO | DATE | DESCRIPTION | ISSUE STATUS | | |
|--------|----------|--|--------------------------------|---------|----------|
| | | | ISSUED | VERSION | DATE |
| 1 | 5/26/15 | ISSUED FOR INCLUSION IN PERMIT APPLICATION | ISSUED | | |
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| | | | 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

PLANT DRAWING NUMBER:

MINE SITE STORMWATER 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. SW-001 REV B

CADD USER: Tyler W. Fincher FILE: \\WSP-AVALAGENT\ARGEPRO\DESIGN\23690C29\10\PERMIT_NMM-05-SW-001.DWG PLOT SCALE: 1:2 PLOT DATE: 8/24/2017 12:13 PM

LOCATION MAP
NOT TO SCALE

VICINITY MAP
NOT TO SCALE

GENERAL LEGEND

| EXISTING | | PROPOSED | |
|----------|-------------------------------|----------|---------------------------|
| —1000— | EXISTING CONTOUR - MAJOR | —1000— | PROPOSED CONTOUR - MAJOR |
| ⊗ | EXISTING POWER POLE | — | PROPOSED CONTOUR - MINOR |
| +++++ | EXISTING RAILROAD | == | PROPOSED ACCESS ROADS |
| ----- | WATER EDGE/CREEK CENTER LINE | ←← | PROPOSED STORMWATER DRAIN |
| == | EXISTING ROAD | → | SURFACE DRAINAGE |
| —R/W— | RIGHT OF WAY | | |
| --- | PROPERTY LINE | | |
| - - - - | MINE SITE BOUNDARY | | |
| □ | EXISTING STRUCTURES | | |
| ⊕ | WETLAND BOUNDARY | | |
| —OE— | EXISTING OVERHEAD ELECTRIC | | |
| —UE— | EXISTING UNDERGROUND ELECTRIC | | |
| — | EXISTING CULVERT | | |
| == | PROPOSED MINE WATER CULVERT | | |

SHEET INDEX

SHEET NO. TITLE

GENERAL DRAWINGS

| | |
|--------|--|
| SW-001 | STORMWATER LOCATION MAP AND SITE MAP |
| SW-002 | STORMWATER LEGEND AND SHEET INDEX |
| SW-003 | STORMWATER SITE DRAINAGE PLAN MINE YEAR 1 |
| SW-004 | STORMWATER SITE DRAINAGE PLAN MINE YEAR 11 |
| SW-005 | STORMWATER SITE DRAINAGE PLAN MINE YEAR 20 |
| SW-006 | STORMWATER SHEET LOCATION MAP |
| SW-007 | STORMWATER TYPICAL DIKES AND DITCHES CROSS SECTIONS |
| SW-008 | STORMWATER SEDIMENTATION POND A GRADING PLAN AND DETAILS |
| SW-009 | STORMWATER SEDIMENTATION POND B GRADING PLAN AND DETAILS |
| SW-010 | STORMWATER SEDIMENTATION POND C-EAST GRADING PLAN AND DETAILS |
| SW-011 | STORMWATER SEDIMENTATION POND C-WEST GRADING PLAN AND DETAILS |
| SW-012 | STORMWATER SEDIMENTATION POND D GRADING PLAN AND DETAILS |
| SW-013 | STORMWATER NORTH DIKE AND DITCH PLAN AND PROFILE STATION 10+00N - 38+50N |
| SW-014 | STORMWATER NORTH DIKE AND DITCH PLAN AND PROFILE STATION 38+50N - 66+50N |
| SW-015 | STORMWATER NORTH DIKE AND DITCH PLAN AND PROFILE STATION 66+50N - 94+00N |
| SW-016 | STORMWATER NORTH DIKE AND DITCH PLAN AND PROFILE STATION 94+00N - 122+00N |
| SW-017 | STORMWATER NORTH DIKE AND DITCH PLAN AND PROFILE STATION 122+00N - 144+00N |
| SW-018 | STORMWATER NORTH DIKE AND DITCH PLAN AND PROFILE STATION 146+00N - 162+00N |
| SW-019 | STORMWATER NORTH DIKE AND DITCH PLAN AND PROFILE STATION 162+00N - 183+00N |
| SW-020 | STORMWATER SOUTH DIKE AND DITCH PLAN AND PROFILE STATION 10+00S - 22+95S |
| SW-021 | STORMWATER DITCH B PLAN AND PROFILE STATION 0+00B - 17+50B |
| SW-022 | STORMWATER DITCH B PLAN AND PROFILE STATION 17+50B - 35+00B |
| SW-023 | STORMWATER DITCH C(E) PLAN AND PROFILE STATION 0+00C(E) - 19+64C(E) |
| SW-024 | STORMWATER DITCH C(W) PLAN AND PROFILE STATION 0+00C(W) - 18+00C(W) |
| SW-025 | STORMWATER DITCH C(W) PLAN AND PROFILE STATION 18+00C(W) - 34+50C(W) |
| SW-026 | STORMWATER DITCH C(W) PLAN AND PROFILE STATION 35+00C(W) - 55+00C(W) |
| SW-027 | STORMWATER DITCH C(W) PLAN AND PROFILE STATION 55+00C(W) - 75+00C(W) |
| SW-028 | STORMWATER DITCH C(W) PLAN AND PROFILE STATION 75+00C(W) - 94+60C(W) |
| SW-029 | STORMWATER DITCH C(W) PLAN AND PROFILE STATION 95+00C(W) - 124+35C(W) |
| SW-030 | STORMWATER DITCH D PLAN AND PROFILE STATION 0+00D - 27+00D |
| SW-031 | STORMWATER DIKES, DITCHES, AND PONDS CLOSURE PLAN |

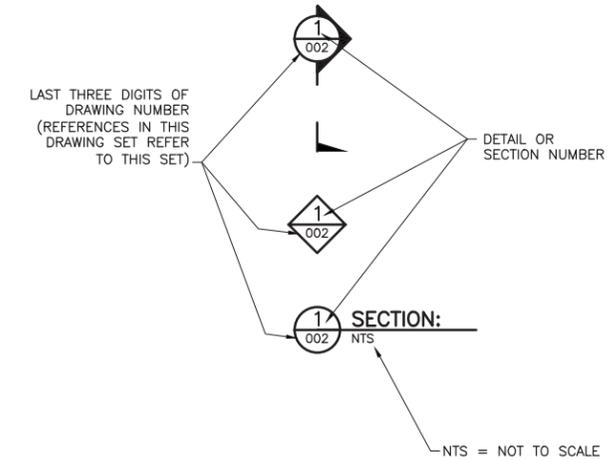
NOTES

- COORDINATE SYSTEM IS MINNESOTA STATE PLANE NORTH ZONE, NAD83.
- ELEVATIONS ARE BASED ON MEAN SEA LEVEL (MSL), NAVD88.
- EXISTING TOPOGRAPHIC INFORMATION SHOWN ON THE DRAWINGS WAS PREPARED BY AEROMETRIC, INC. FROM LIDAR DATA COLLECTED ON MARCH 17, 2010.
- CULVERT DIMENSIONS ARE PRELIMINARY. FINAL DIMENSIONS SHALL BE DETERMINED DURING FINAL DESIGN.
- THE BEDROCK PROFILES SHOWN ON THESE DRAWINGS REPRESENT THE BEST AVAILABLE INFORMATION FOR PLANNING PURPOSES. THE BEDROCK SURFACE FROM WHICH THE PROFILES ARE EXTRACTED IS A THREE-DIMENSIONAL, MODELED SURFACE THAT RESULTED FROM DEDUCTING THE DEPTH TO BEDROCK IDENTIFIED ON LOGS OF BORINGS CONDUCTED AT THE MINE SITE FROM THE LIDAR TOPOGRAPHIC GROUND SURFACE MODEL. THE RESULTING DATA WAS THEN MODELED IN GIS SOFTWARE TO DEVELOP A THREE-DIMENSIONAL BEDROCK SURFACE. THE PROFILES SHOW SIGNIFICANT DETAIL IN LOCAL ELEVATIONS, WHICH MAY OR MAY NOT ACTUALLY EXIST. THE BEDROCK SURFACE PROFILES SHOULD BE TAKEN AS REPRESENTATIVE, BUT NOT NECESSARILY PRECISE.

ABBREVIATIONS

| | | |
|------------------------|---|--|
| CATEGORY 1 STOCKPILE | - | CATEGORY 1 WASTE ROCK STOCKPILE |
| CATEGORY 2/3 STOCKPILE | - | CATEGORY 2/3 WASTE ROCK STOCKPILE |
| CL | - | CENTERLINE |
| CPS | - | CENTRAL PUMPING STATION |
| D50 | - | THE MEDIAN PARTICLE DIAMETER OF A PARTICLESIZE DISTRIBUTION; THE SIZE AT WHICH 50% OF THE PARTICLES IN THE MATERIAL PARTICLE SIZE DISTRIBUTION CURVE ARE SMALLER |
| EL | - | ELEVATION |
| INV | - | INVERT |
| I, I, III, IV, V | - | ROMAN NUMERALS FOR RIPRAP CLASSIFICATION |
| kV | - | KILOVOLT |
| LF | - | LINEAR FEET |
| MP | - | MINNESOTA POWER |
| MPP | - | MINE TO PLANT PIPELINES |
| NWL | - | NORMAL WATER LEVEL |
| RCP | - | REINFORCED CONCRETE PIPE |
| O.C. | - | ON CENTER |
| OSLA | - | OVERBURDEN STORAGE AND LAYDOWN AREA |
| PVI | - | POINT OF VERTICAL |
| SWPPP | - | STORMWATER POLLUTION PREVENTION PLAN |
| WWTS | - | WASTE WATER TREATMENT SYSTEM |
| (E) | - | EAST |
| (W) | - | WEST |

DRAWING NUMBERING



| | |
|---|---|
| PLANT DRAWING NUMBER: | |
| MINE SITE STORMWATER LEGEND AND SHEET INDEX | |
| POLYMET MINING | POLY MET MINING, INC. NORTHMET PROJECT HOYT LAKES, MINNESOTA |
| DRAWN: KKB/ATS CHECKED: ATS BARR PROJECT NO.: 23/69-0C29 SCALE: AS SHOWN | BARR BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE SUITE 200 MINNEAPOLIS, MN. Ph: 1-800-632-2277 |
| DWG. NO. SW-002 | REV B |

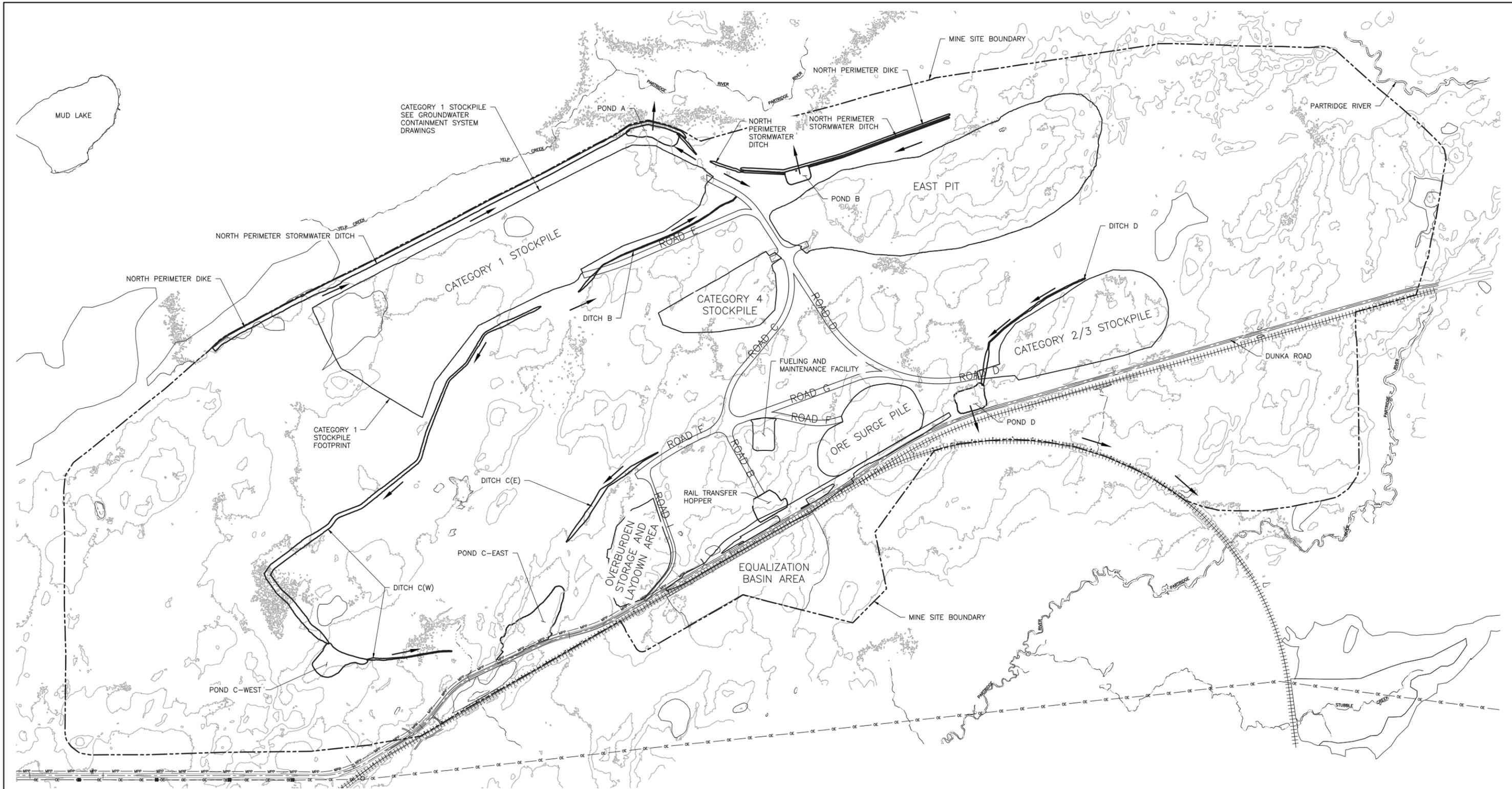
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PRINTED NAME **PAUL T. SWENSON**
 SIGNATURE *[Signature]*
 DATE **5/26/17** LICENSE# **20533**

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CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29-10\PERMIT_NMM-09-SW-003.DWG PLOT SCALE: 1:2 PLOT DATE: 6/1/2017 9:22 AM



1 PLAN: STORMWATER SITE DRAINAGE MINE YEAR 1



2
1
INCHES

| VER NO | DATE | DESCRIPTION | ISSUE STATUS | | |
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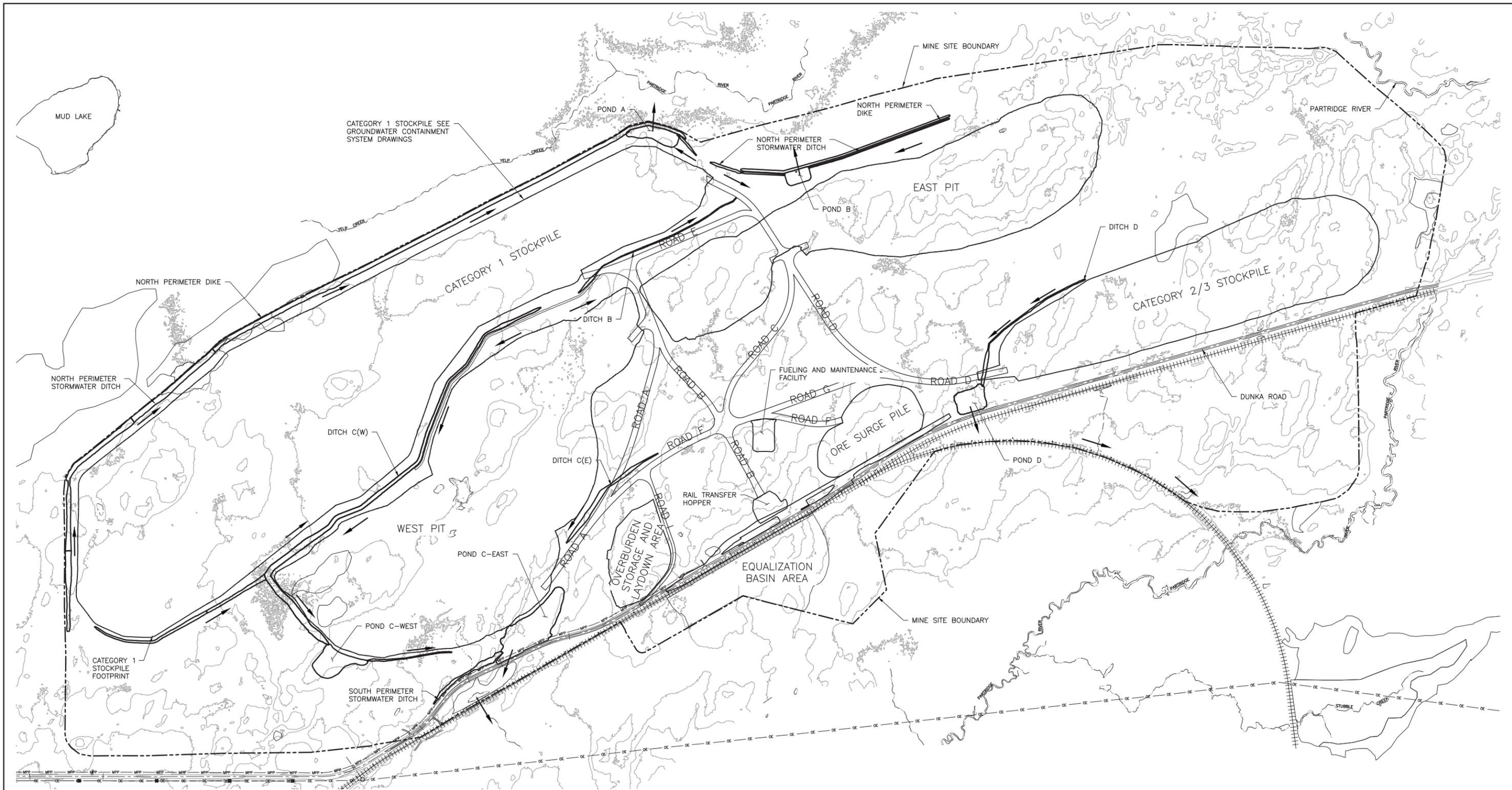
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BARR PROJECT NO.: 23/69-0C29
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|---|---|
| PLANT DRAWING NUMBER: | |
| MINE SITE STORMWATER SITE DRAINAGE PLAN MINE YEAR 1 | |
| POLY MET MINING, INC. NORTHMET PROJECT HOYT LAKES, MINNESOTA | |
| | BARR BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE SUITE 200 MINNEAPOLIS, MN. Ph: 1-800-632-2277 |
| DWG. NO. SW-003 | REV B |

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1 PLAN: STORMWATER SITE DRAINAGE MINE YEAR 11

0 700 1400
SCALE IN FEET



INCHES
1
2

| VER NO | DATE | DESCRIPTION | ISSUE STATUS | | |
|--------|----------|--|--------------------------------|---------|----------|
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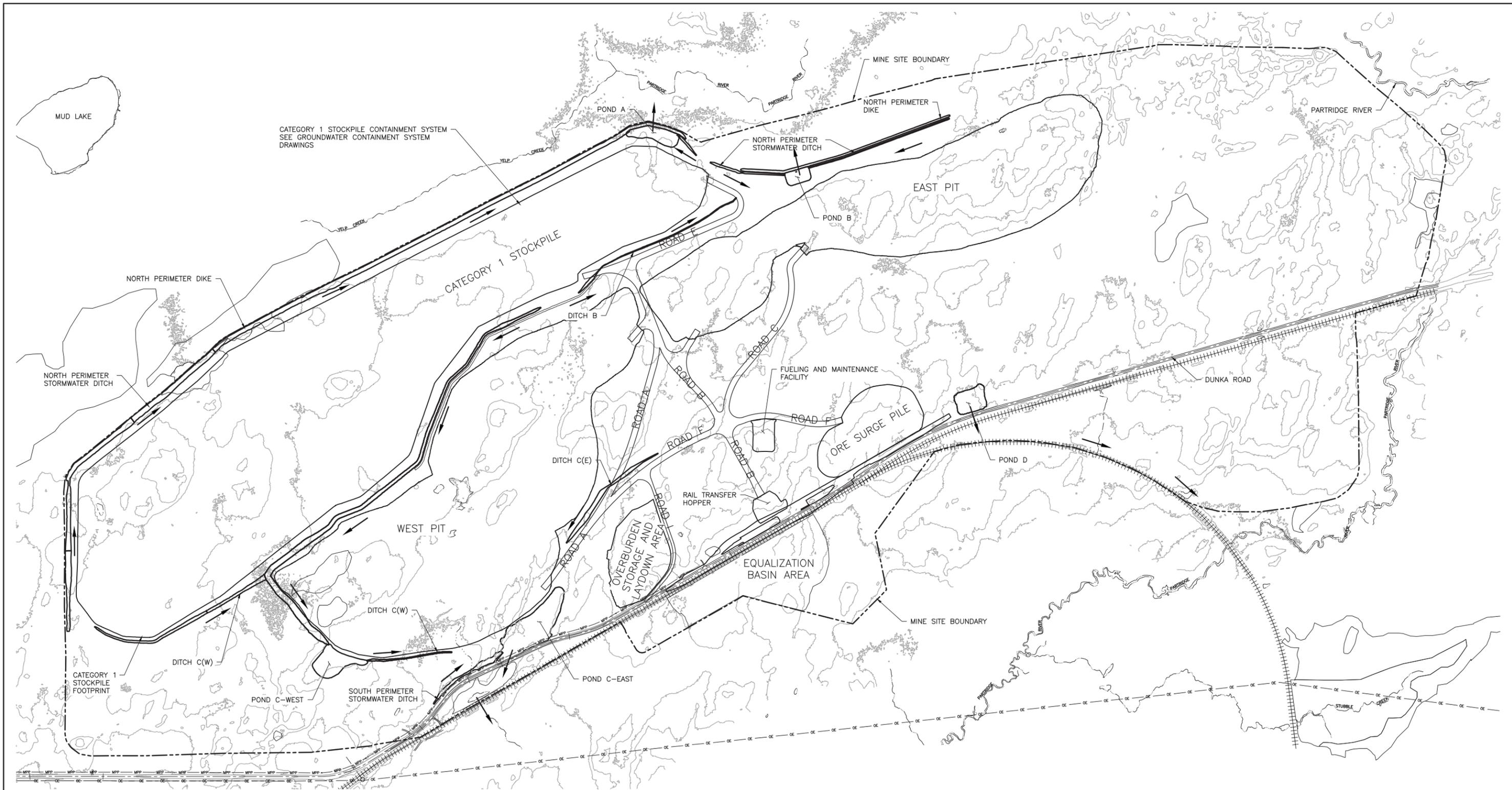
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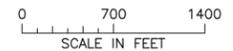
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BARR PROJECT NO.: 23/69-0C29
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| MINE SITE STORMWATER SITE DRAINAGE PLAN MINE YEAR 11 | |
| POLY MET MINING, INC. NORTHMET PROJECT HOYT LAKES, MINNESOTA | |
| | BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE SUITE 200 MINNEAPOLIS, MN. Ph: 1-800-632-2277 |
| DWG. NO. SW-004 | REV B |

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1 PLAN: STORMWATER SITE DRAINAGE MINE YEAR 20



INCHES
1
2

| VER NO | DATE | DESCRIPTION | ISSUE STATUS | | |
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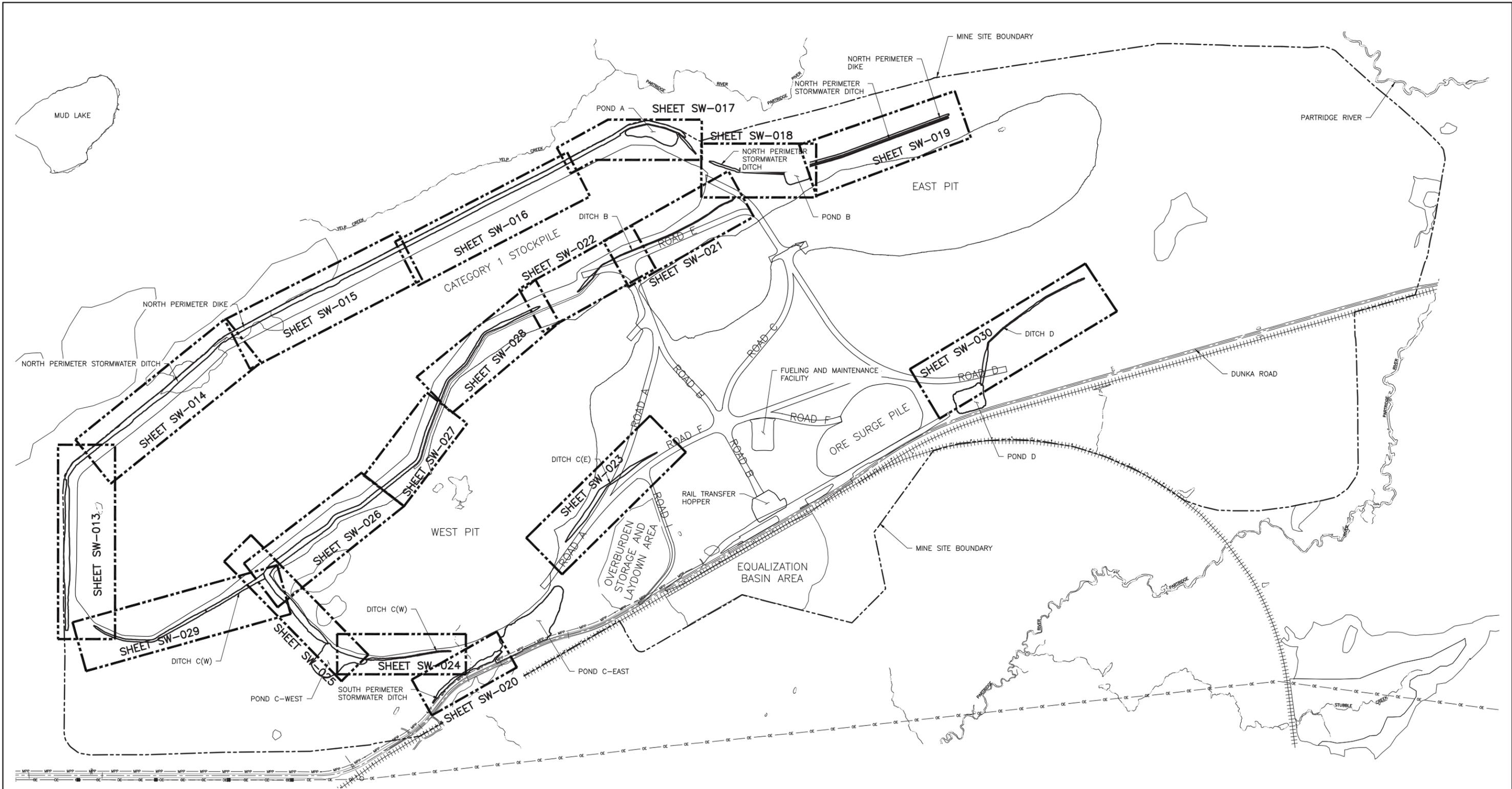
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|---|-----------------|
| PLANT DRAWING NUMBER: | |
| MINE SITE STORMWATER SITE DRAINAGE PLAN MINE YEAR 20 | |
|  POLYMET MINING, INC. NORTHMET PROJECT HOYT LAKES, MINNESOTA | |
|  BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE SUITE 200 MINNEAPOLIS, MN. Ph: 1-800-632-2277 | |
| DWG. NO. SW-005 | REV B |

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1 PLAN: STORMWATER SHEET LOCATION MAP



PLANT DRAWING NUMBER:

MINE SITE STORMWATER SHEET LOCATION 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

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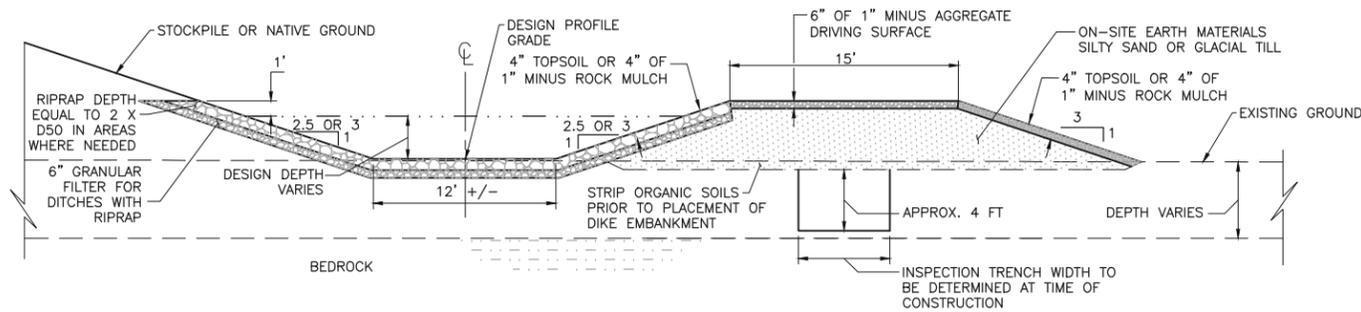
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DATE 5/26/17 LICENSE# 20533

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

DWG. NO. SW-006 REV B

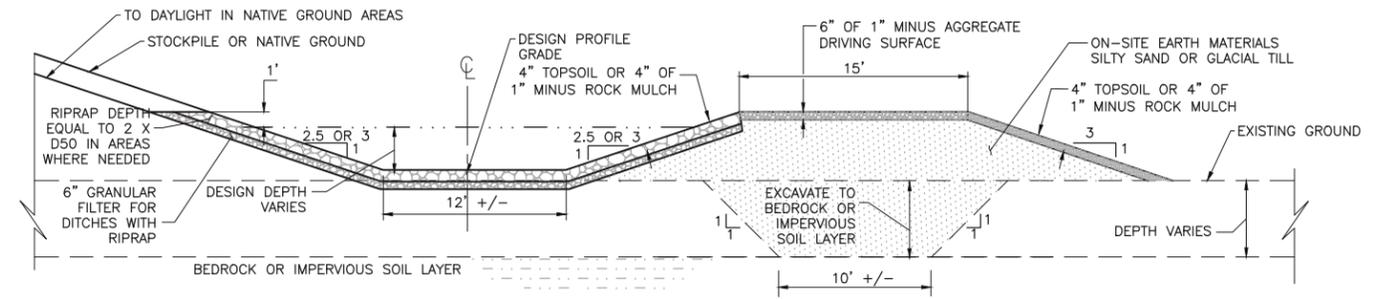
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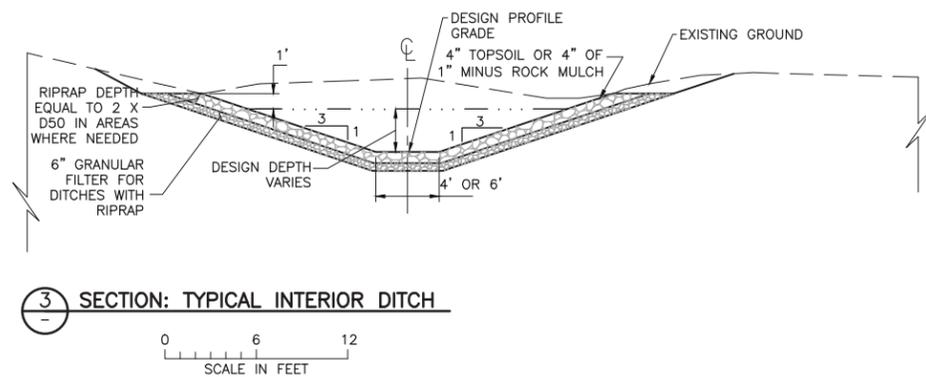
1 SECTION: TYPICAL PERIMETER DIKE AND DITCH WITHOUT SEEPAGE CUTOFF TRENCH

0 6 12
SCALE IN FEET



2 SECTION: TYPICAL PERIMETER DIKE AND DITCH WITH SEEPAGE CUTOFF TRENCH

0 6 12
SCALE IN FEET



3 SECTION: TYPICAL INTERIOR DITCH

0 6 12
SCALE IN FEET

NOTES

1. DITCHES NOT REQUIRING RIPRAP WILL BE CONSTRUCTED WITH NATIVE SOILS AND EITHER 4" TOPSOIL OR 4" OF 1" MINUS ROCK MULCH TO DESIGN PROFILE GRADE.
2. RESTORE ALL DISTURBED AREAS NOT STABILIZED WITH RIPRAP IN ACCORDANCE WITH THE SWPPP.
3. DESIGN DEPTH ESTABLISHED IN FINAL DESIGN OR IN FIELD. TOP OF DIKE TO FLOWLINE OF DITCH SHALL PROVIDE 1 FOOT OF FREEBOARD FROM DESIGN DEPTH.
4. INSPECTION TRENCH TO BE CONSTRUCTED ALONG ENTIRE LENGTH OF PERIMETER DIKES WHERE NON-ORGANIC MATERIALS ARE PRESENT.
5. PERIMETER DITCH AND DIKE ALONG THE NORTH SIDE OF THE CATEGORY 1 STOCKPILE (STATION 10+00 TO 143+53) SHALL HAVE 2.5H:1V SIDE SLOPES. ALL OTHER DITCHES AND DIKES SHALL HAVE SIDE SLOPES OF 3H:1V.

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

PLANT DRAWING NUMBER:

**MINE SITE STORMWATER
TYPICAL DIKES AND DITCHES
CROSS SECTIONS**

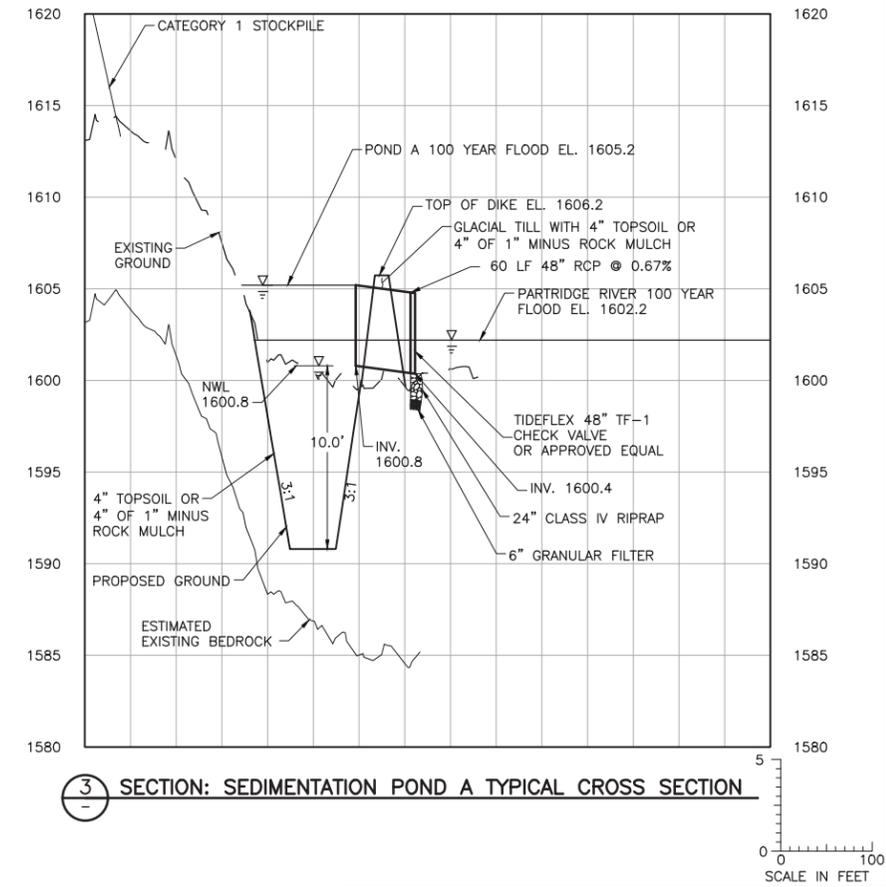
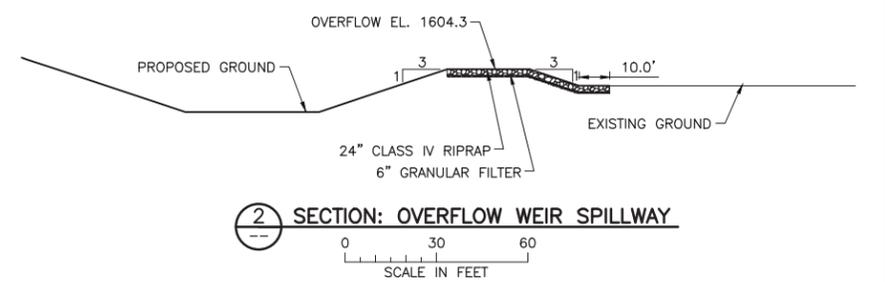
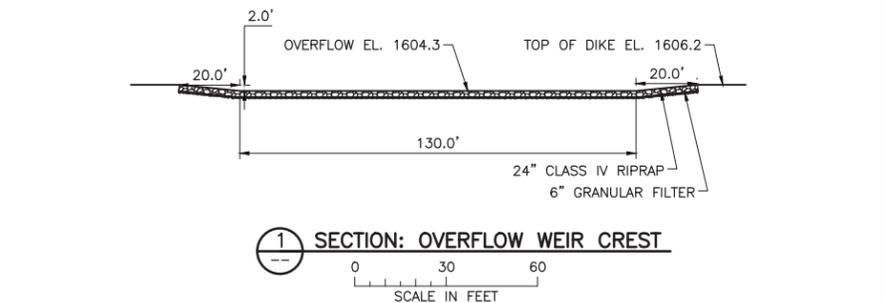
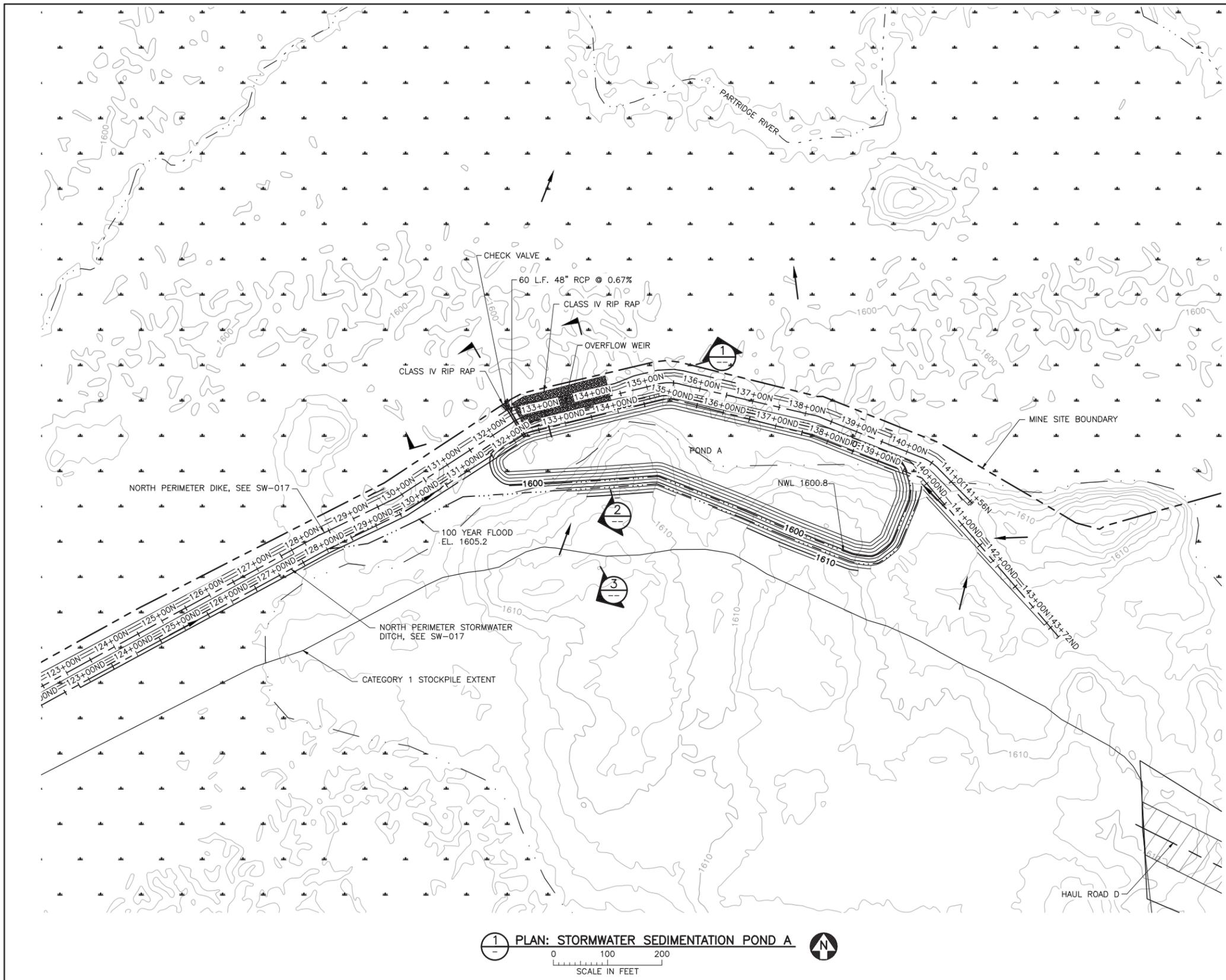
POLYMET MINING POLY MET MINING, INC.
NORTHMET PROJECT
HOYT LAKES, MINNESOTA

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

DWG. NO. SW-007
REV B

INCHES

CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29\10\PERMIT_NM--08--SW--08.DWG PLOT SCALE: 1:2 PLOT DATE: 6/6/2017 11:50 AM



NOTES

- ALL DISTURBED AREAS WILL BE RESTORED IN ACCORDANCE WITH THE SWPPP.

| VER NO | DATE | DESCRIPTION | ISSUE STATUS | | |
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 SIGNATURE: *[Signature]*
 DATE: 5/26/17 LICENSE# 20533

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

PLANT DRAWING NUMBER:

MINE SITE STORMWATER SEDIMENTATION POND A GRADING PLAN AND DETAILS

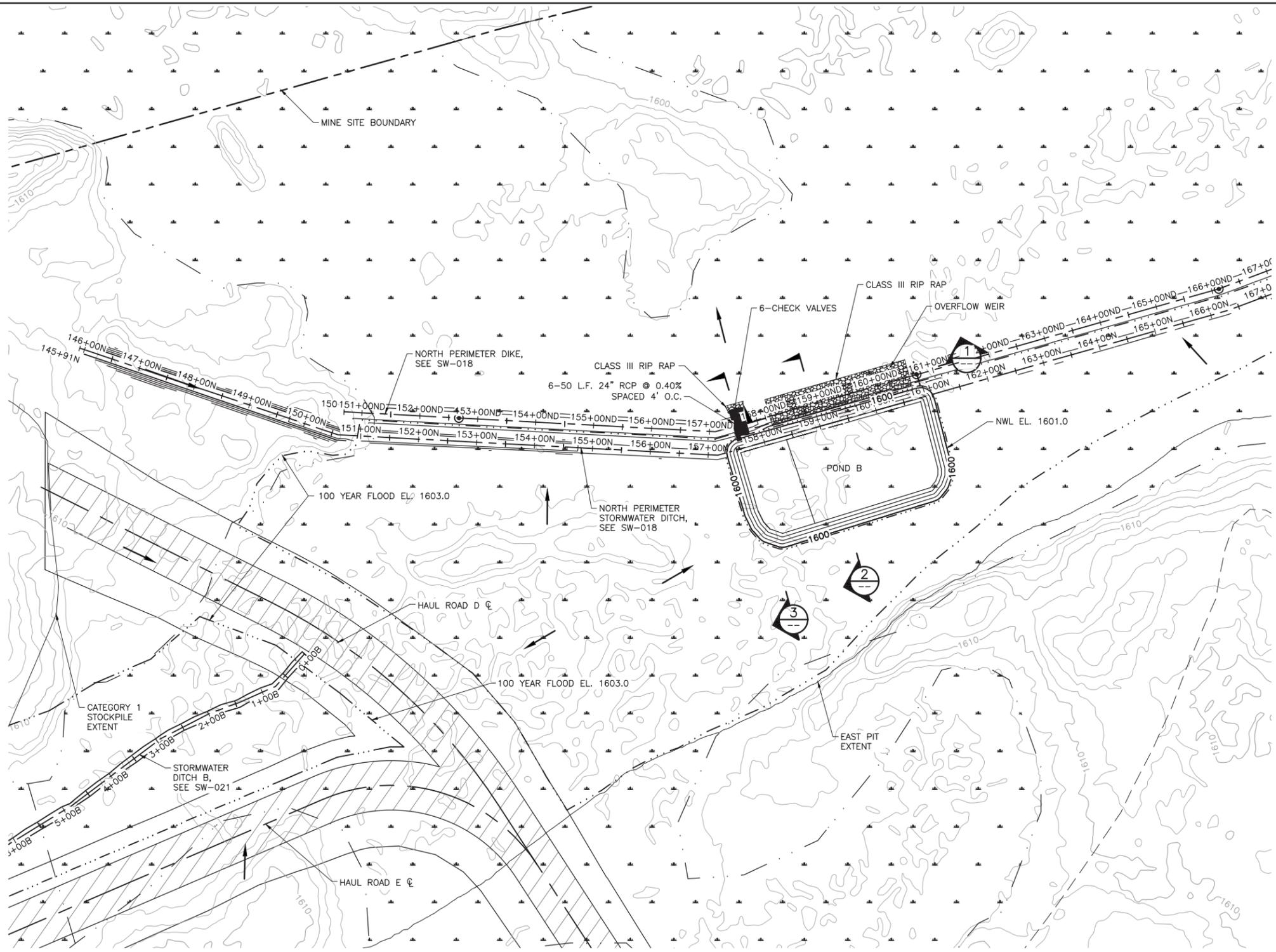
POLYMET MINING NORTHMET PROJECT HOYT LAKES, MINNESOTA

BARR BARR ENGINEERING COMPANY
 4700 WEST 77TH STREET
 MINNEAPOLIS, MN.
 Ph: 1-800-632-2277

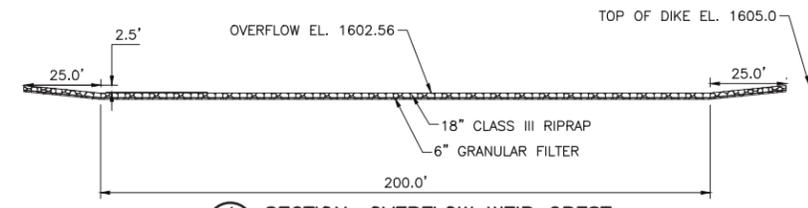
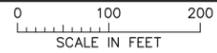
DWG. NO. **SW-008** REV **B**

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INCHES

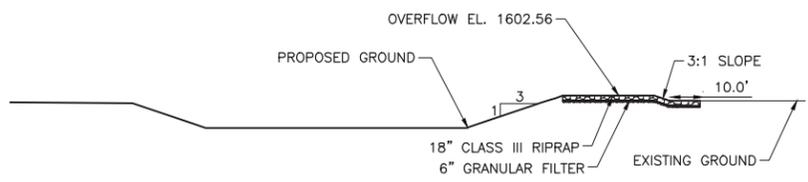
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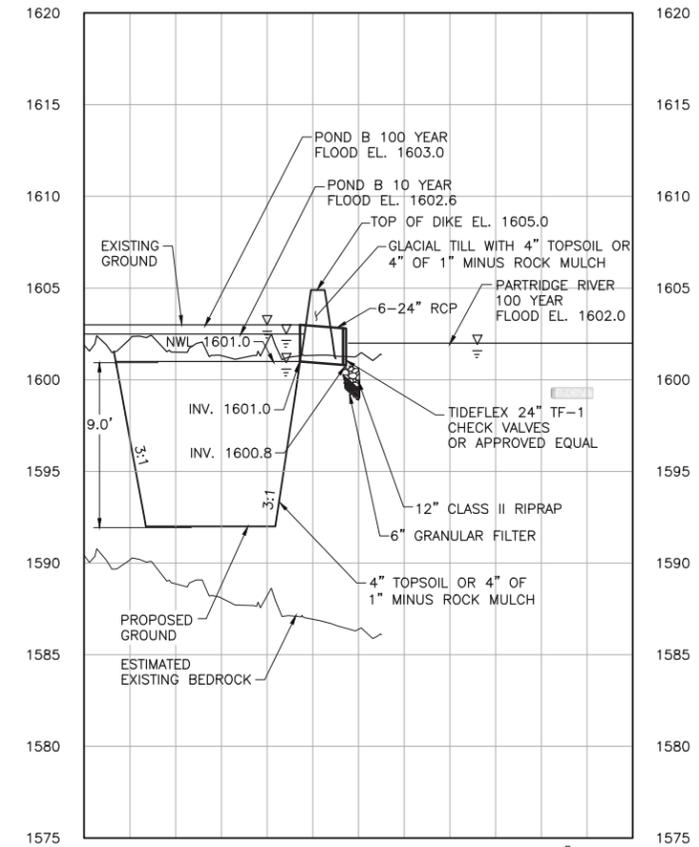
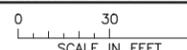
1 PLAN: STORMWATER SEDIMENTATION POND B



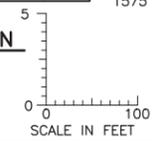
1 SECTION: OVERFLOW WEIR CREST



2 SECTION: OVERFLOW WEIR SPILLWAY



3 SECTION: SEDIMENTATION POND B TYPICAL CROSS SECTION



NOTES

1. ALL DISTURBED AREAS WILL BE RESTORED IN ACCORDANCE WITH THE SWPPP.

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

PLANT DRAWING NUMBER:

MINE SITE STORMWATER SEDIMENTATION POND B GRADING PLAN AND DETAILS

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

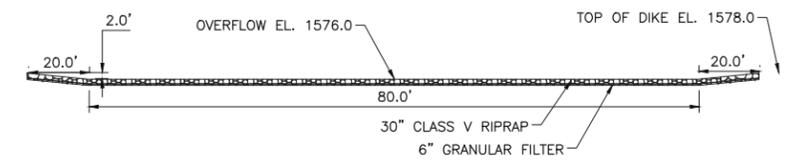
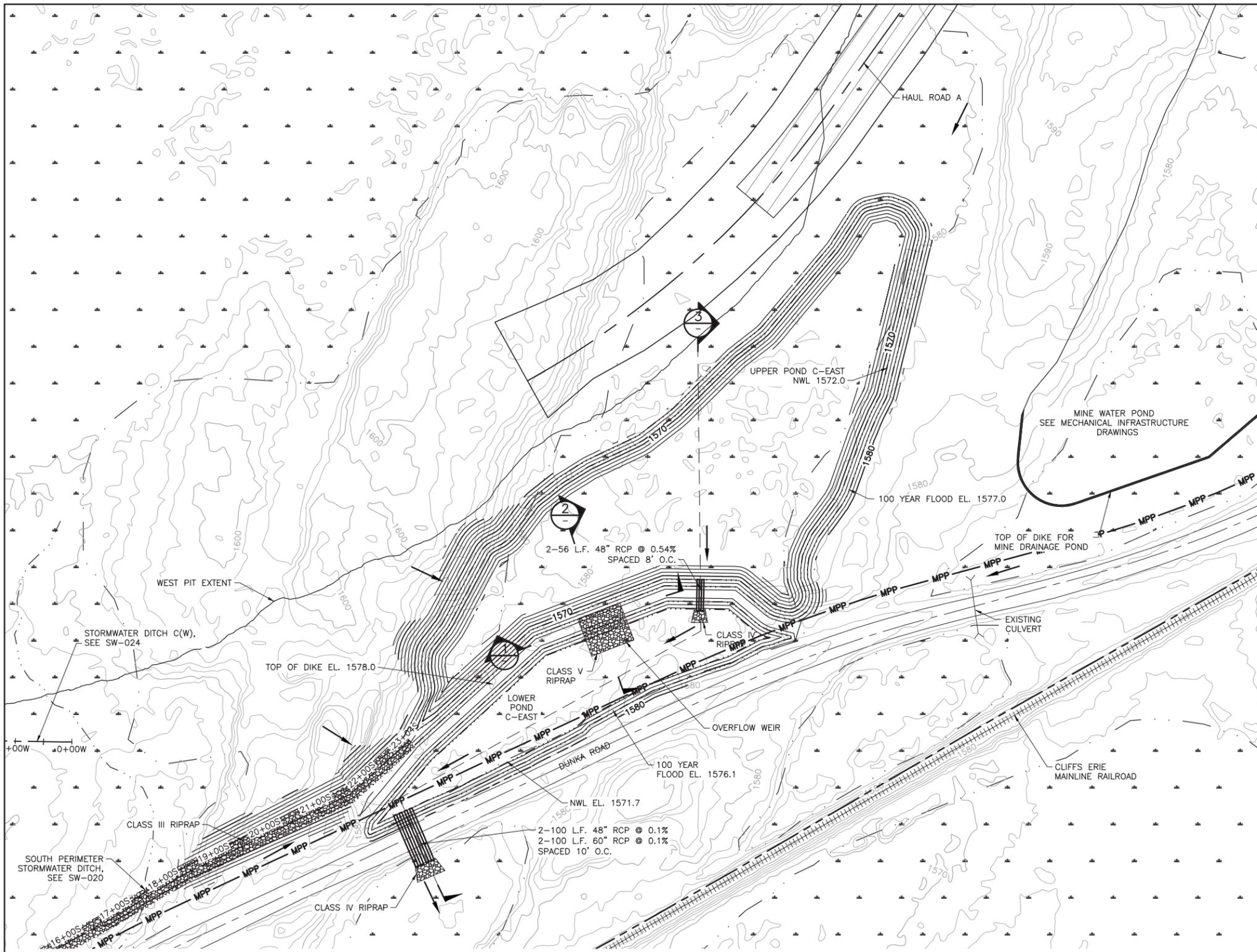
BARR BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE SUITE 200 MINNEAPOLIS, MN. Ph: 1-800-632-2277

DWG. NO. SW-009

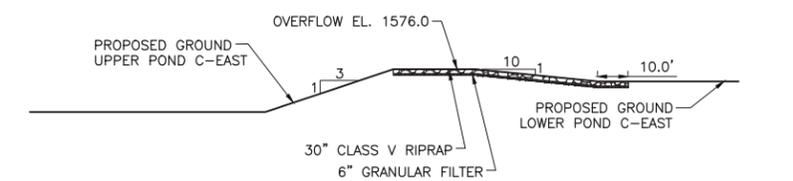
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INCHES 1 2

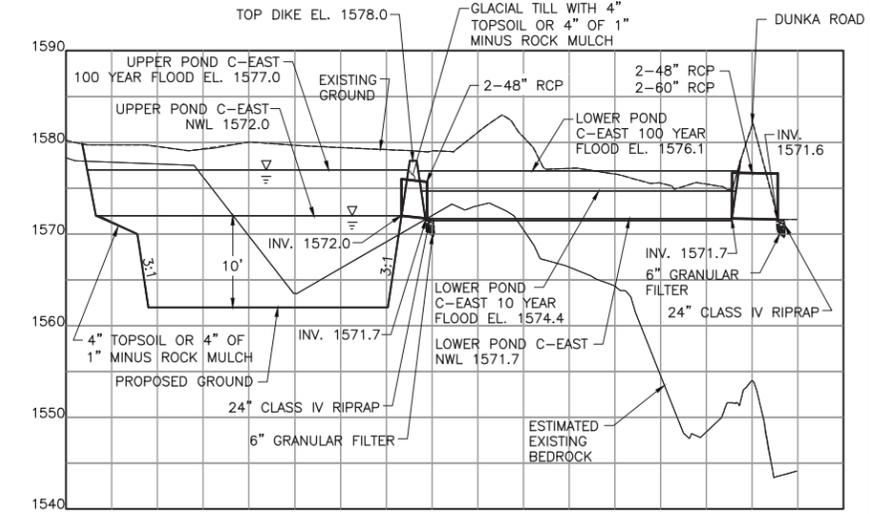
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1 SECTION: OVERFLOW WEIR CREST
N.T.S.



2 SECTION: UPPER POND OVERFLOW WEIR SPILLWAY
SCALE IN FEET



3 SECTION: UPPER POND SEDIMENTATION POND C-EAST TYPICAL CROSS SECTION

1 PLAN: STORMWATER SEDIMENTATION POND C-EAST
SCALE IN FEET

NOTES
1. ALL DISTURBED AREAS WILL BE RESTORED IN ACCORDANCE WITH THE SWPPP.

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DATE: 5/26/17 LICENSE# 20533

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

PLANT DRAWING NUMBER:
MINE SITE STORMWATER SEDIMENTATION POND C-EAST GRADING PLAN AND DETAILS

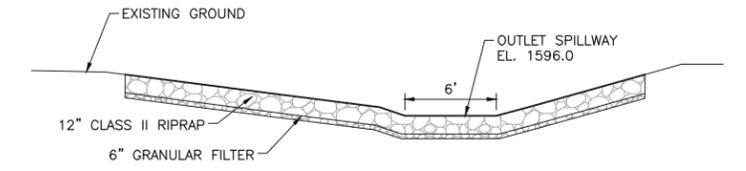
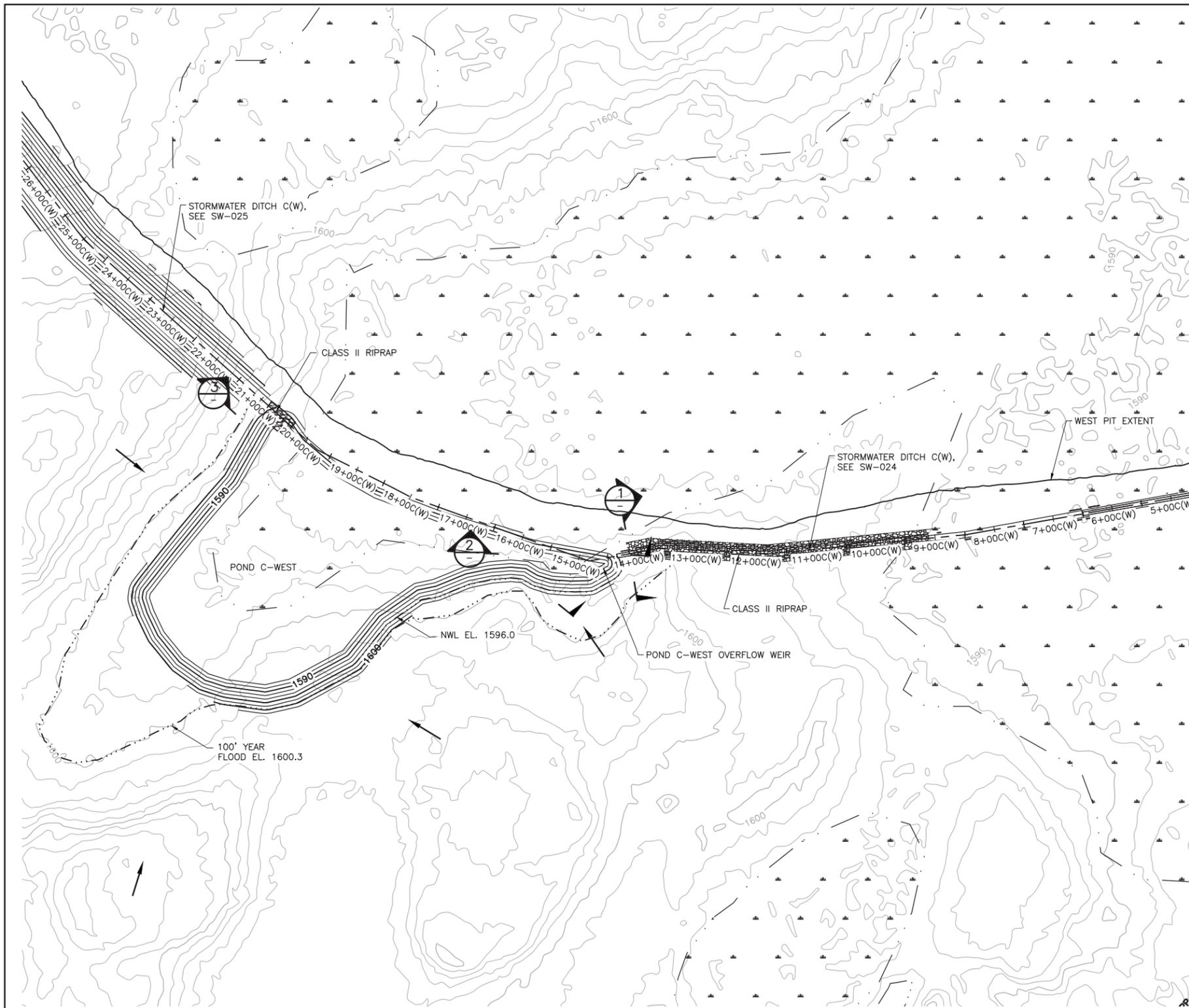
POLYMET MINING
POLY MET MINING, INC.
NORTHMET PROJECT
HOYT LAKES, MINNESOTA

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

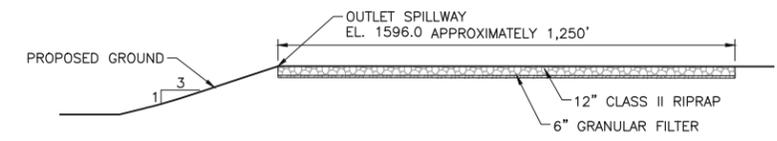
DWG. NO. **SW-010**
REV **B**

INCHES

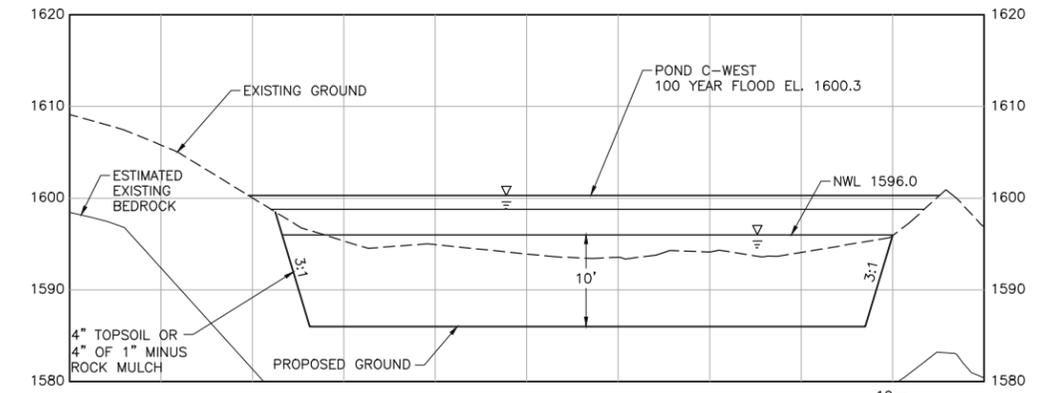
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1 SECTION: OVERFLOW WEIR CREST
N.T.S.



2 SECTION: OVERFLOW WEIR SPILLWAY
N.T.S.



3 SECTION: SEDIMENTATION POND C-WEST TYPICAL CROSS SECTION

NOTES

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

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

PLANT DRAWING NUMBER:

MINE SITE STORMWATER SEDIMENTATION POND C-WEST GRADING PLAN AND DETAILS

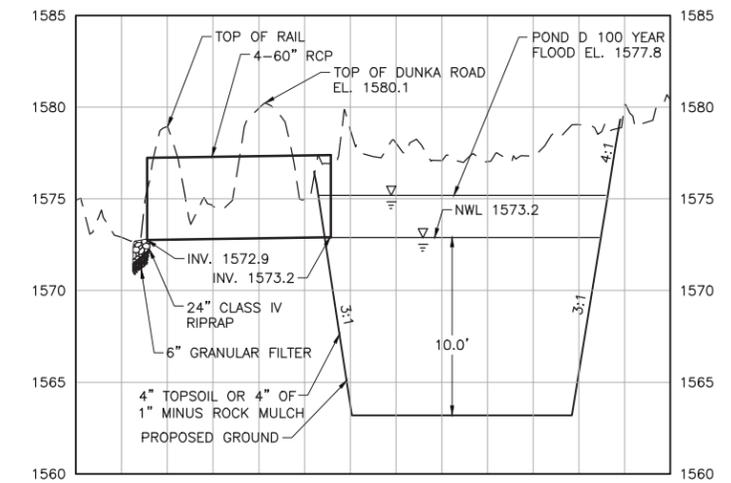
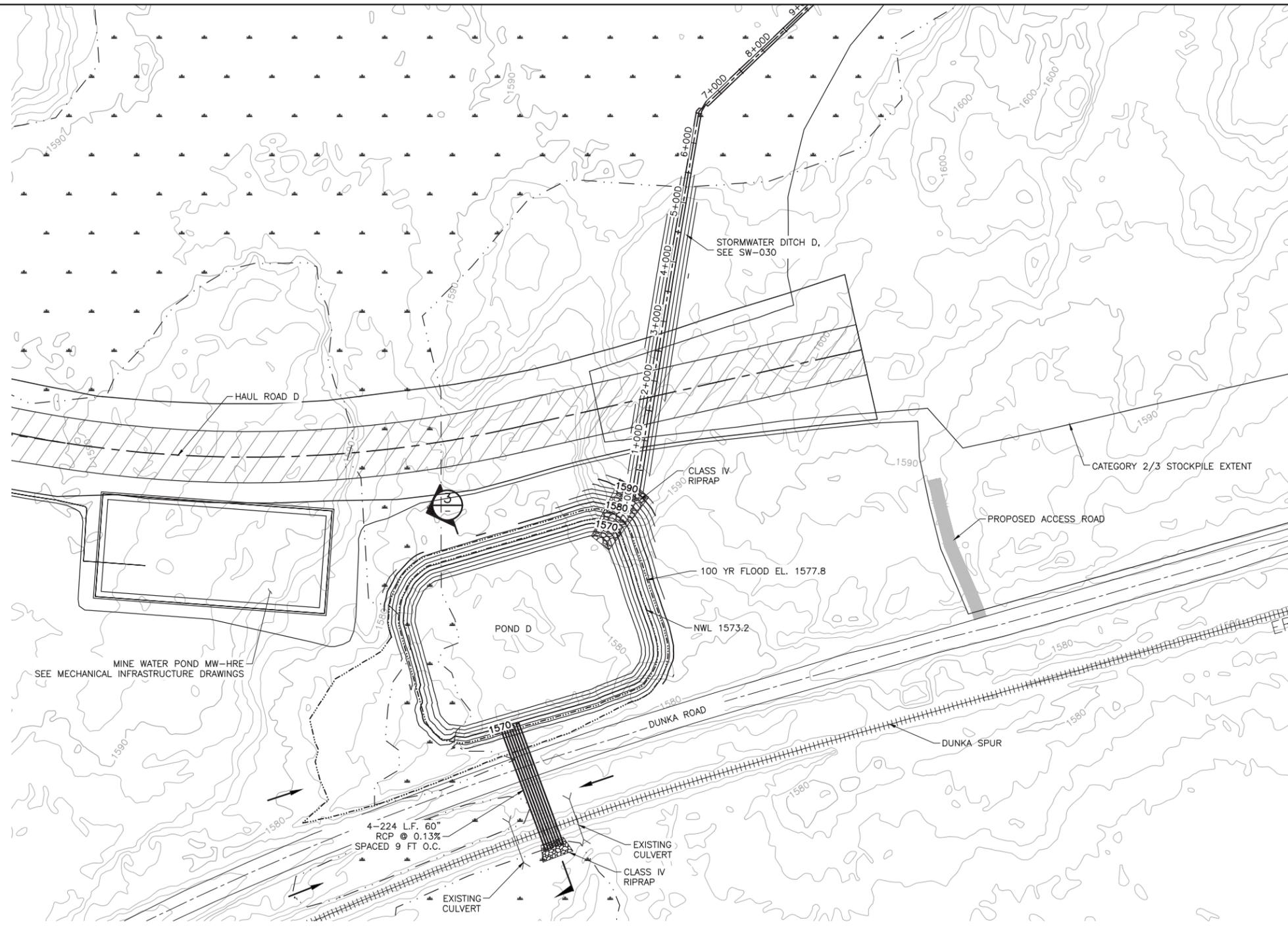
POLYMET MINING POLY MET MINING, INC. NORTHMET PROJECT HOYT LAKES, MINNESOTA

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

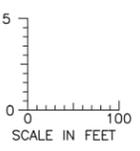
DWG. NO. SW-011

REV B

CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29\10\PERMIT_NMM-09-SW-012.DWG PLOT SCALE: 1:2 PLOT DATE: 6/6/2017 11:52 AM



SECTION: SEDIMENTATION POND D TYPICAL CROSS SECTION



1 PLAN: STORMWATER SEDIMENTATION POND D

| VER NO | DATE | DESCRIPTION | ISSUE STATUS | | |
|--------|----------|--|--------------------------------|---------|----------|
| | | | ISSUED | VERSION | DATE |
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DRAWN: KKB/ATS
 CHECKED: ATS
 BARR PROJECT NO.: 23/69-0C29
 SCALE: AS SHOWN

PLANT DRAWING NUMBER:

MINE SITE STORMWATER SEDIMENTATION POND D GRADING PLAN AND DETAILS

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

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

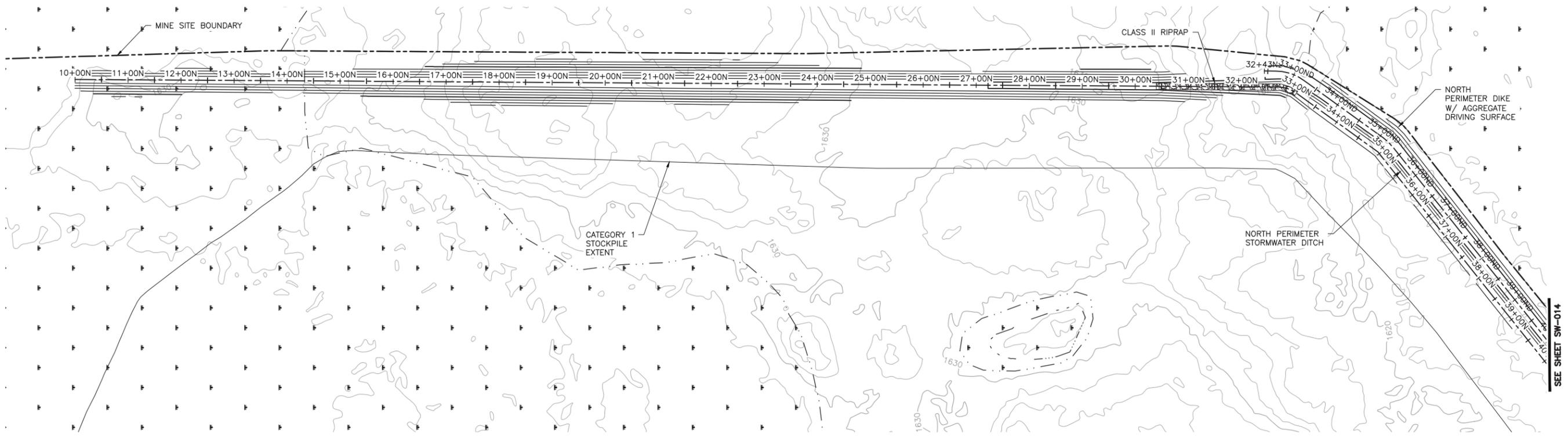
DWG. NO. SW-012

REV B

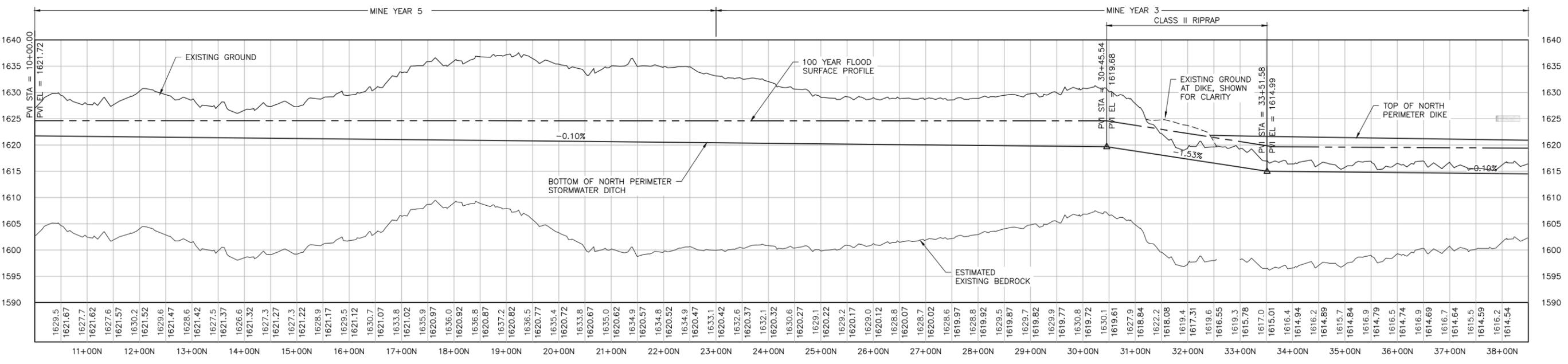
NOTES
 1. ALL DISTURBED AREAS WILL BE RESTORED IN ACCORDANCE WITH THE SWPPP.

INCHES 1 2

CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29\10\PERMIT_NMM-09-SW-013.DWG PLOT SCALE: 1:2 PLOT DATE: 6/1/2017 8:16 AM



1 PLAN: NORTH PERIMETER STORMWATER DITCH & DIKE STA. 10+00N-38+50N



2 PROFILE: NORTH PERIMETER STORMWATER DITCH & DIKE STA. 10+00N-38+50N

NOTES:

1. ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
2. EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.



| VER NO | DATE | DESCRIPTION | ISSUE STATUS | | |
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DRAWN: KKB/ATS
 CHECKED: ATS
 BARR PROJECT NO.: 23/69-0C29
 SCALE: AS SHOWN

PLANT DRAWING NUMBER:

**MINE SITE STORMWATER
 NORTH DIKE AND DITCH PLAN AND PROFILE
 STATION 10+00N - 38+50N**

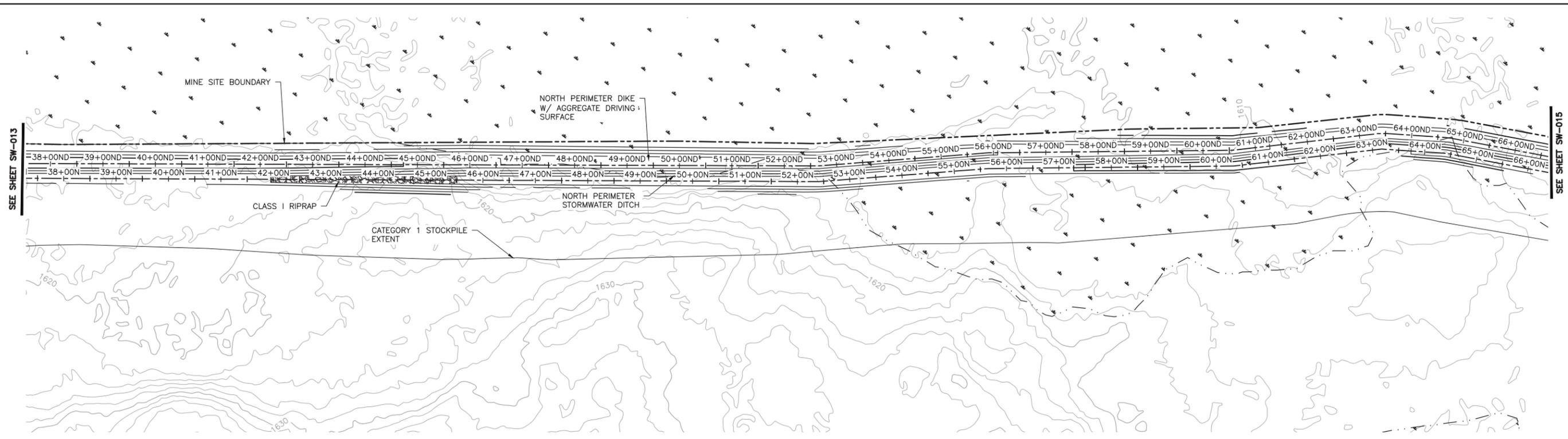
**POLY MET MINING, INC.
 NORTHMET PROJECT
 HOYT LAKES, MINNESOTA**

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

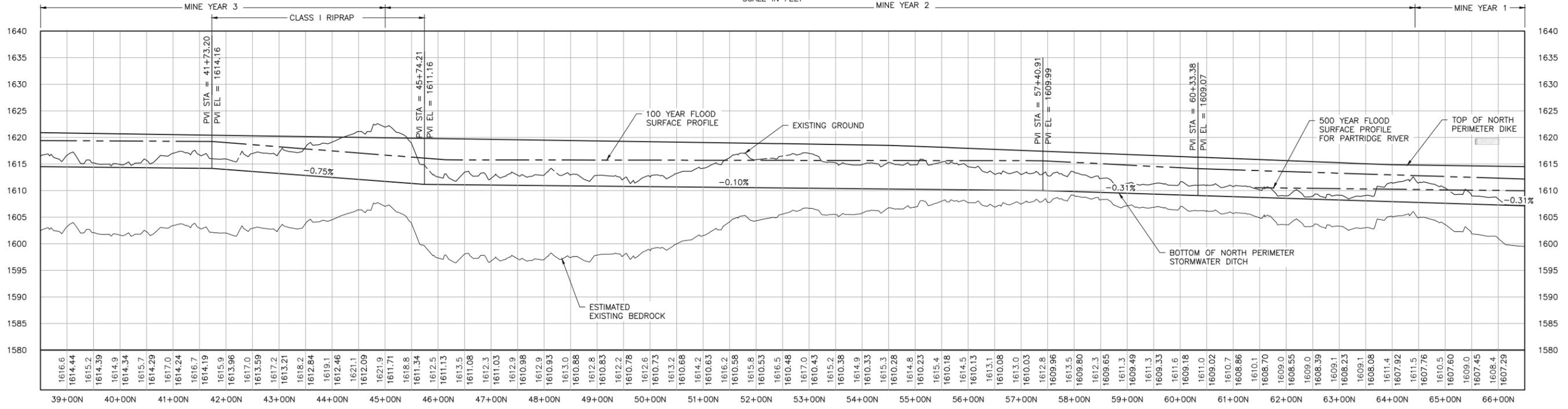
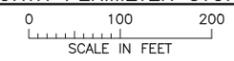
DWG. NO. **SW-013** REV **B**

INCHES

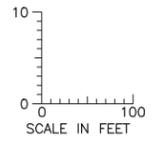
CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29-10\PERMIT_NMM-09-SW-014.DWG PLOT SCALE: 1:2 PLOT DATE: 6/1/2017 8:20 AM



1 PLAN: NORTH PERIMETER STORMWATER DITCH & DIKE STA. 38+50N-66+50N



2 PROFILE: NORTH PERIMETER STORMWATER DITCH & DIKE STA. 38+50N-66+50N



NOTES:

- ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
- EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.

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 SIGNATURE *Paul T. Swenson*
 DATE 5/26/17 LICENSE# 20533

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

PLANT DRAWING NUMBER:

MINE SITE STORMWATER NORTH DIKE AND DITCH PLAN AND PROFILE STATION 38+50N - 66+50N

POLYMET MINING

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

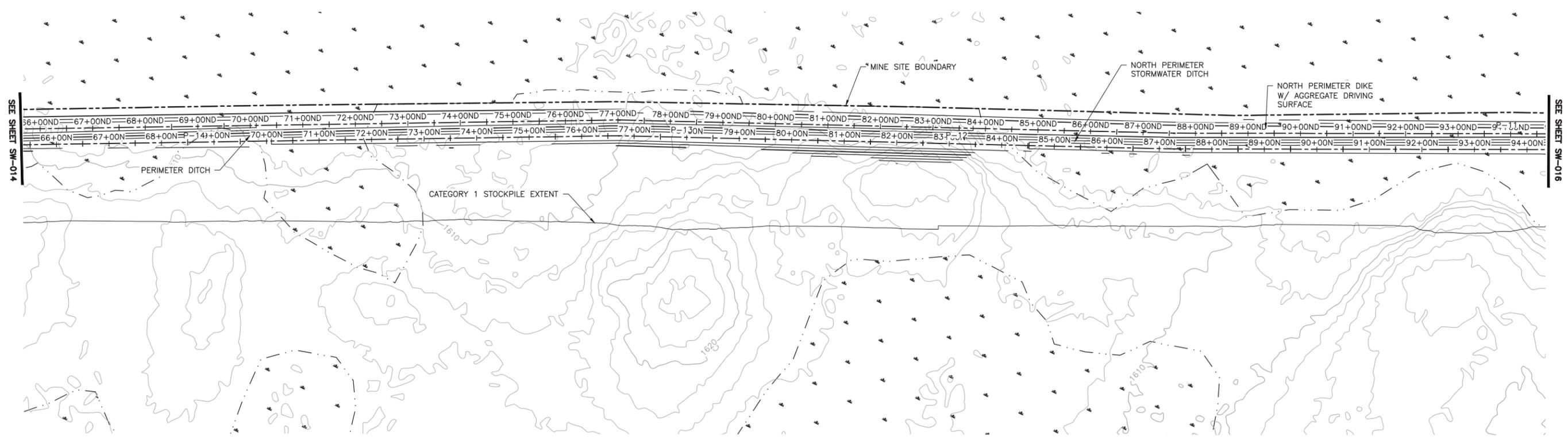
BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE SUITE 200 MINNEAPOLIS, MN. Ph: 1-800-632-2277

DWG. NO. SW-014

REV B

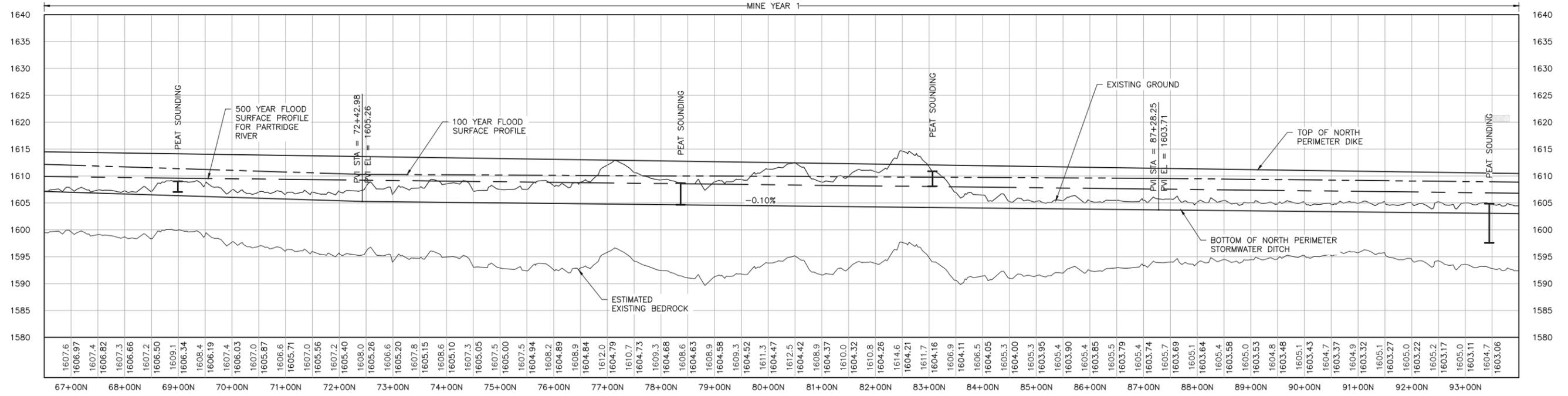
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CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29-10\PERMIT_NM-SW-015.DWG PLOT SCALE: 1:2 PLOT DATE: 6/1/2017 8:17 AM



1 PLAN: NORTH PERIMETER STORMWATER DITCH & DIKE STA. 66+50N-94+00N

0 100 200
SCALE IN FEET



2 PROFILE: NORTH PERIMETER STORMWATER DITCH & DIKE STA. 66+50N-94+00N

10
0 100
SCALE IN FEET

- NOTES:**
1. ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
 2. EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.

| VER NO | DATE | DESCRIPTION | ISSUE STATUS | | |
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DATE: 5/26/17 LICENSE # 20533

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

PLANT DRAWING NUMBER:

MINE SITE STORMWATER NORTH DIKE AND DITCH PLAN AND PROFILE STATION 66+50N - 94+00N

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

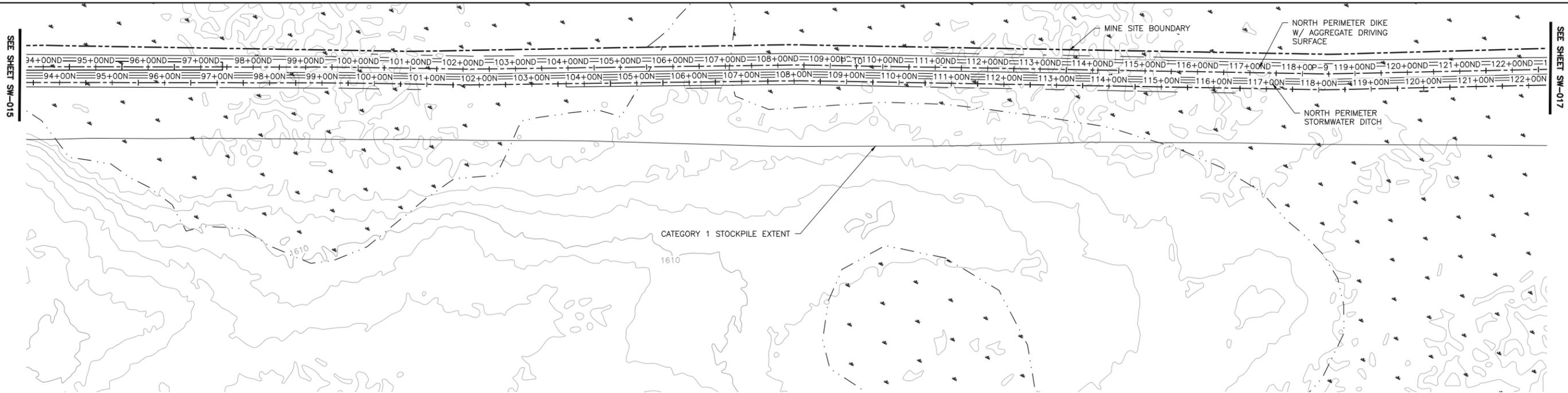
BARR
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN.
Ph: 1-800-632-2277

DWG. NO. **SW-015**

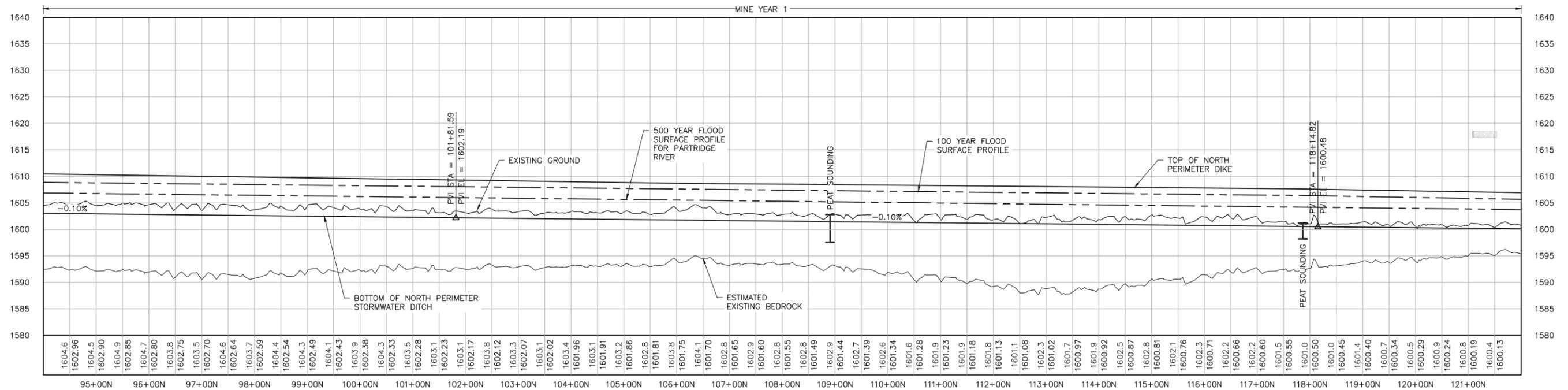
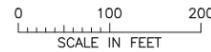
REV **B**

INCHES

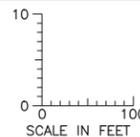
CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29\10\PERMIT_NM-SW-016.DWG PLOT SCALE: 1:2 PLOT DATE: 6/1/2017 8:18 AM



1 PLAN: NORTH PERIMETER STORMWATER DITCH & DIKE STA. 94+00N-122+00N



2 PROFILE: NORTH PERIMETER STORMWATER DITCH & DIKE STA. 94+00N-122+00N



NOTES:

1. ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
2. EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.

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 DATE: 5/26/17 LICENSE# 20533

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

PLANT DRAWING NUMBER:

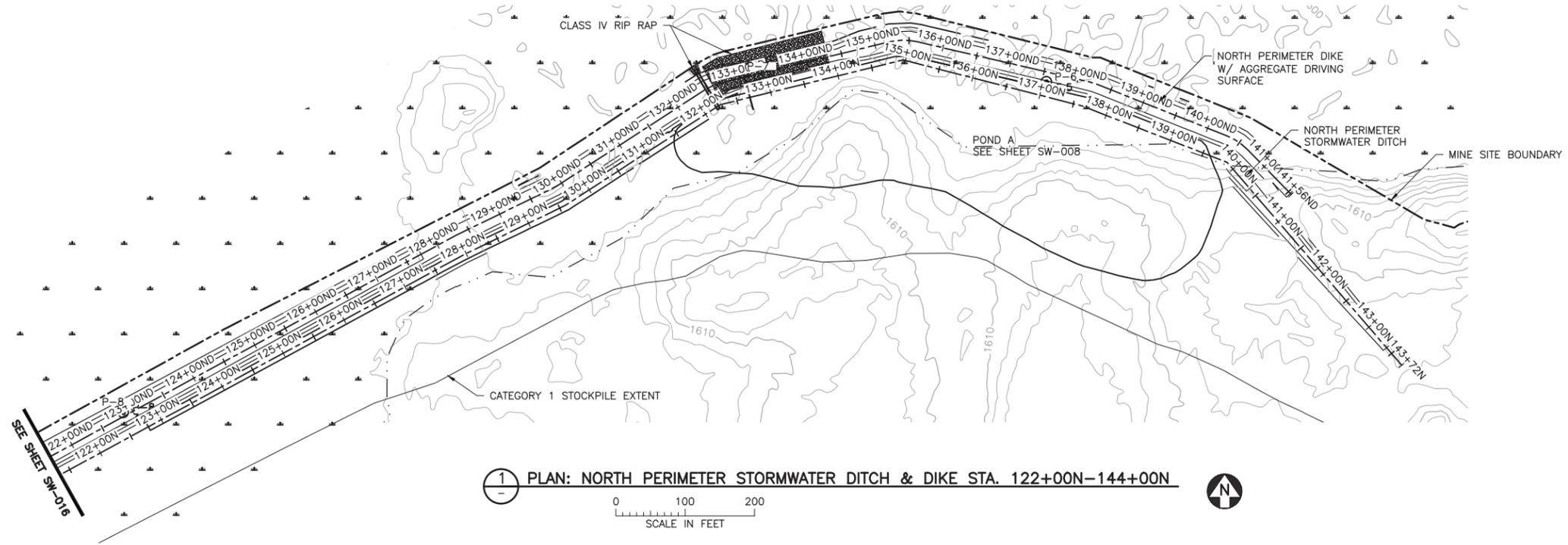
MINE SITE STORMWATER
 NORTH DIKE AND DITCH PLAN AND PROFILE
 STATION 94+00N - 122+00N

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

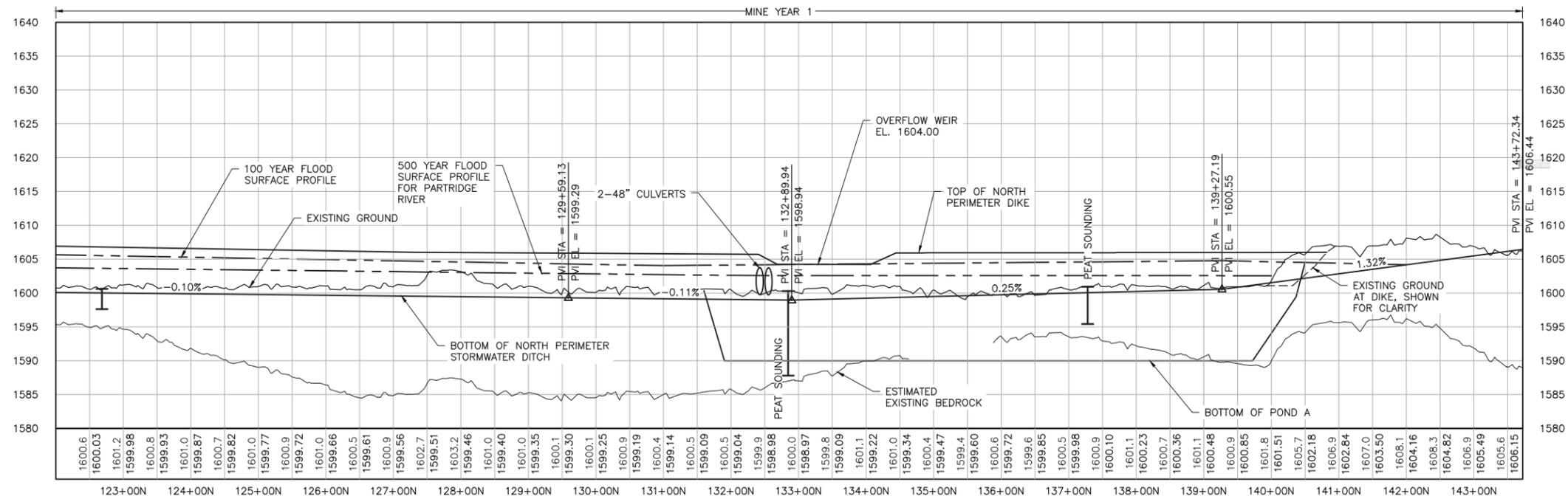
BARR ENGINEERING CO.
 4300 MARKETPOINTE DRIVE
 SUITE 200
 MINNEAPOLIS, MN.
 Ph: 1-800-632-2277

DWG. NO. SW-016
 REV B

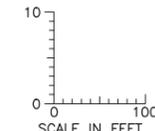
2
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INCHES



1 PLAN: NORTH PERIMETER STORMWATER DITCH & DIKE STA. 122+00N-144+00N



2 PROFILE: NORTH PERIMETER STORMWATER DITCH & DIKE STA. 122+00N-144+00N



PLANT DRAWING NUMBER:

**MINE SITE STORMWATER
NORTH DIKE AND DITCH PLAN AND PROFILE
STATION 122+00N - 144+00N**

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

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

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

DWG. NO. **SW-017**

REV **B**

NOTES:

- ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
- EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.
- BOTTOM OF DITCH PROFILE LINE SHOWN TO PRESENT HYDRAULIC GRADE REQUIREMENTS, RESULTING "FILL" AREAS SHALL BE LEFT AS IS. DO NOT PLACE FILL TO RAISE GROUND TO DITCH PROFILE LINE.

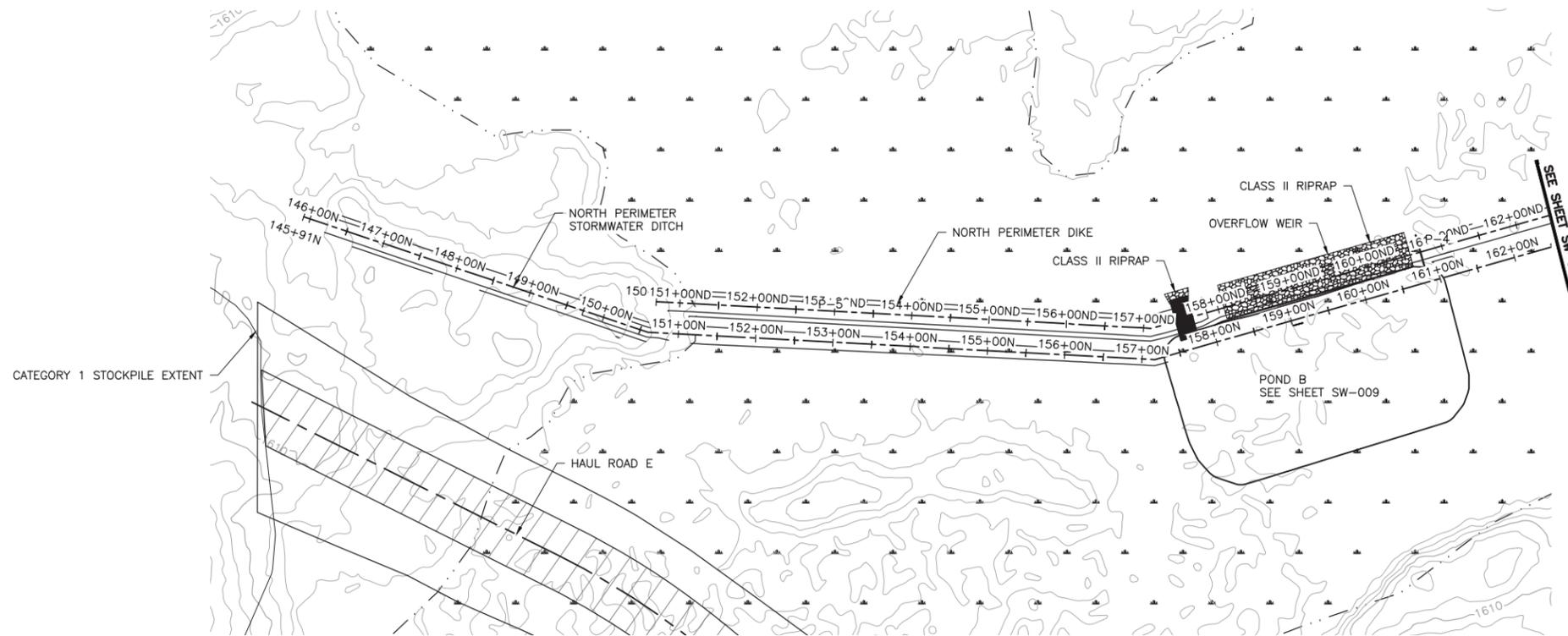
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| | | | ISSUED | VERSION | DATE |
| 1 | 5/26/15 | ISSUED FOR INCLUSION IN PERMIT APPLICATION | ISSUED | | |
| 2 | 6/7/2017 | PERMIT APPLICATION UPDATES | FOR PERMITTING | 2 | 6/7/2017 |
| | | | FOR CONSTRUCTION | | |
| | | | NOT APPROVED FOR CONSTRUCTION. | | |

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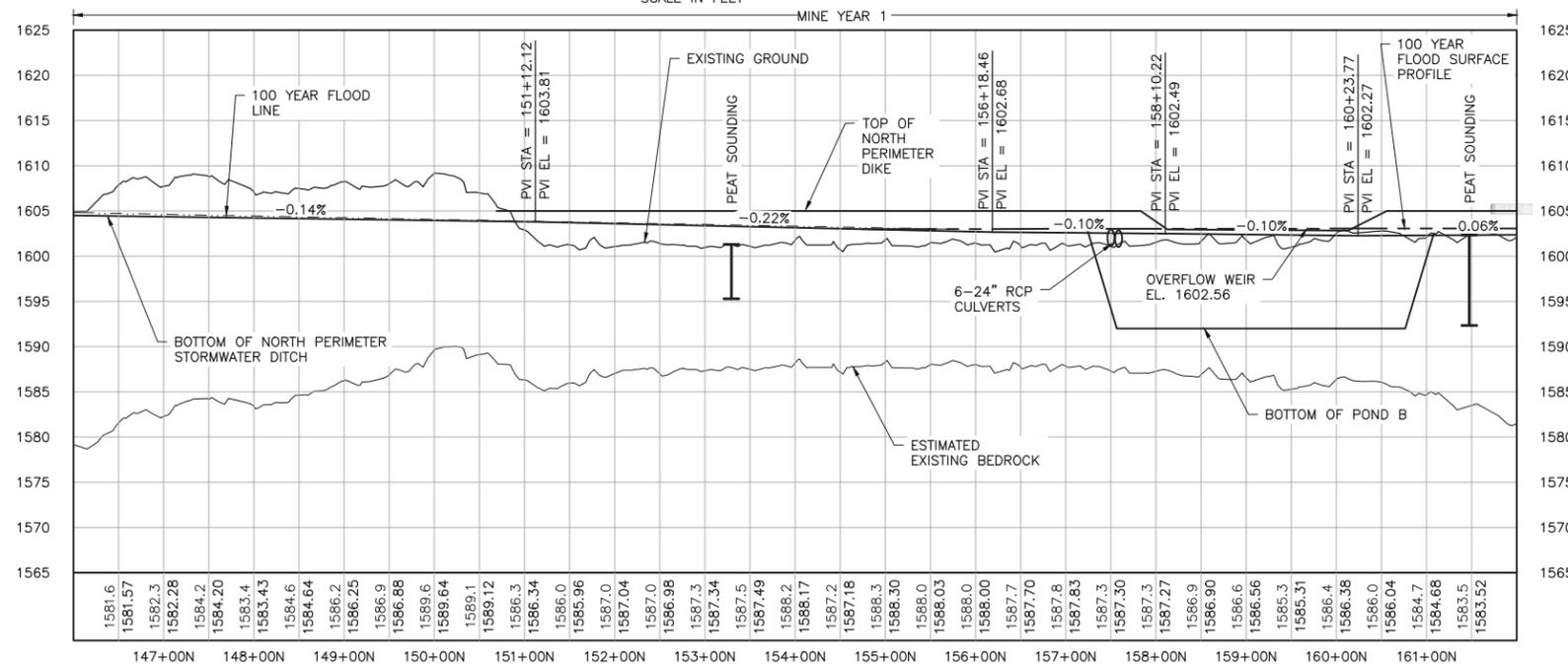
PRINTED NAME: PAUL T. SWENSON
SIGNATURE: *[Signature]*
DATE: 5/26/17 LICENSE# 20533

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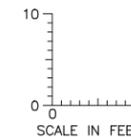
2
1
INCHES



1 PLAN: NORTH PERIMETER STORMWATER DITCH & DIKE STA. 146+00N-162+00N



2 PROFILE: NORTH PERIMETER STORMWATER DITCH & DIKE STA. 146+00N-162+00N



NOTES:

1. ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
2. EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.
3. BOTTOM OF DITCH PROFILE LINE SHOWN TO PRESENT HYDRAULIC GRADE REQUIREMENTS, RESULTING "FILL" AREAS SHALL BE LEFT AS IS. DO NOT PLACE FILL TO RAISE GROUND TO DITCH PROFILE LINE.

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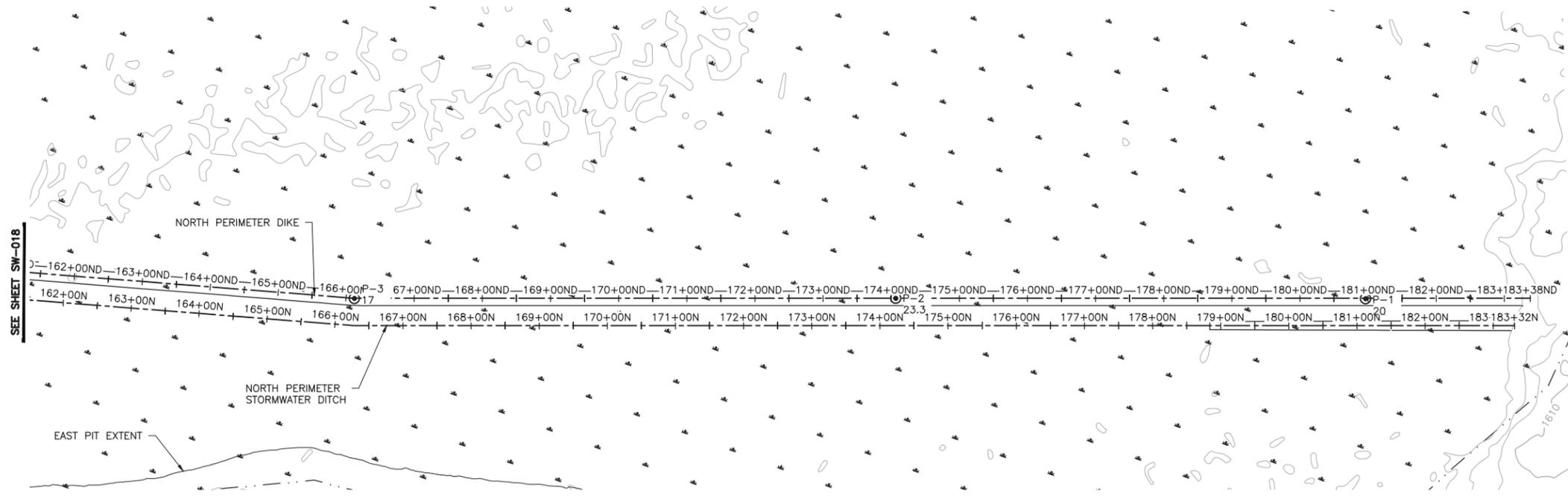
PRINTED NAME PAUL T. SWENSON
SIGNATURE *Paul T. Swenson*
DATE 5/26/17 LICENSE# 20533

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

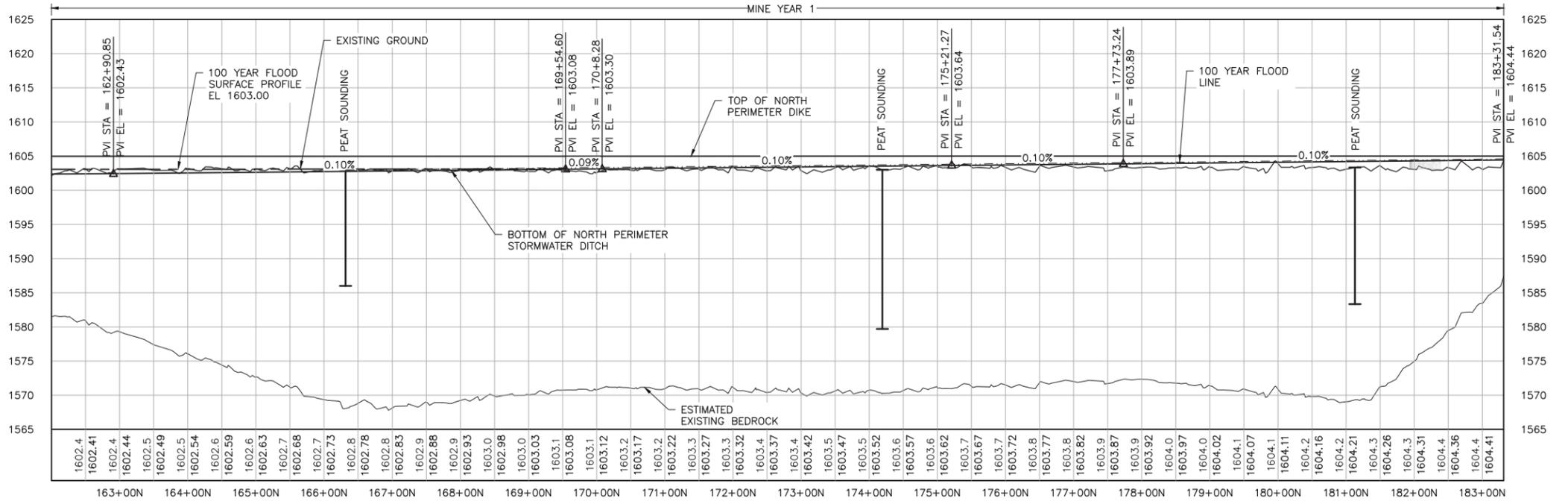
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| PLANT DRAWING NUMBER: | |
| MINE SITE STORMWATER NORTH DIKE AND DITCH PLAN AND PROFILE STATION 146+00N - 162+00N | |
| POLYMET MINING NORTHMET PROJECT HOYT LAKES, MINNESOTA | |
| BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE SUITE 200 MINNEAPOLIS, MN. Ph: 1-800-632-2277 | REV B |
| DWG. NO. SW-018 | |

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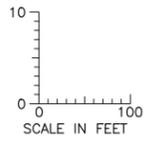
INCHES



1 PLAN: NORTH PERIMETER STORMWATER DITCH & DIKE STA. 162+00N-183+00N



2 PROFILE: NORTH PERIMETER STORMWATER DITCH & DIKE STA. 162+00N-183+00N



NOTES:

1. ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
2. EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.
3. BOTTOM OF DITCH PROFILE LINE SHOWN TO PRESENT HYDRAULIC GRADE REQUIREMENTS, RESULTING "FILL" AREAS SHALL BE LEFT AS IS. DO NOT PLACE FILL TO RAISE GROUND TO DITCH PROFILE LINE.

| VER NO | DATE | DESCRIPTION | ISSUE STATUS | | |
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| | | | ISSUED | VERSION | DATE |
| 1 | 5/26/15 | ISSUED FOR INCLUSION IN PAERMIT APPLICATIONS | | | |
| 2 | 6/7/2017 | PERMIT APPLICATION UPDATES | FOR PERMITTING | 2 | 6/7/2017 |
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 SIGNATURE: *[Signature]*
 DATE: 5/26/17 LICENSE# 20533

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

PLANT DRAWING NUMBER:

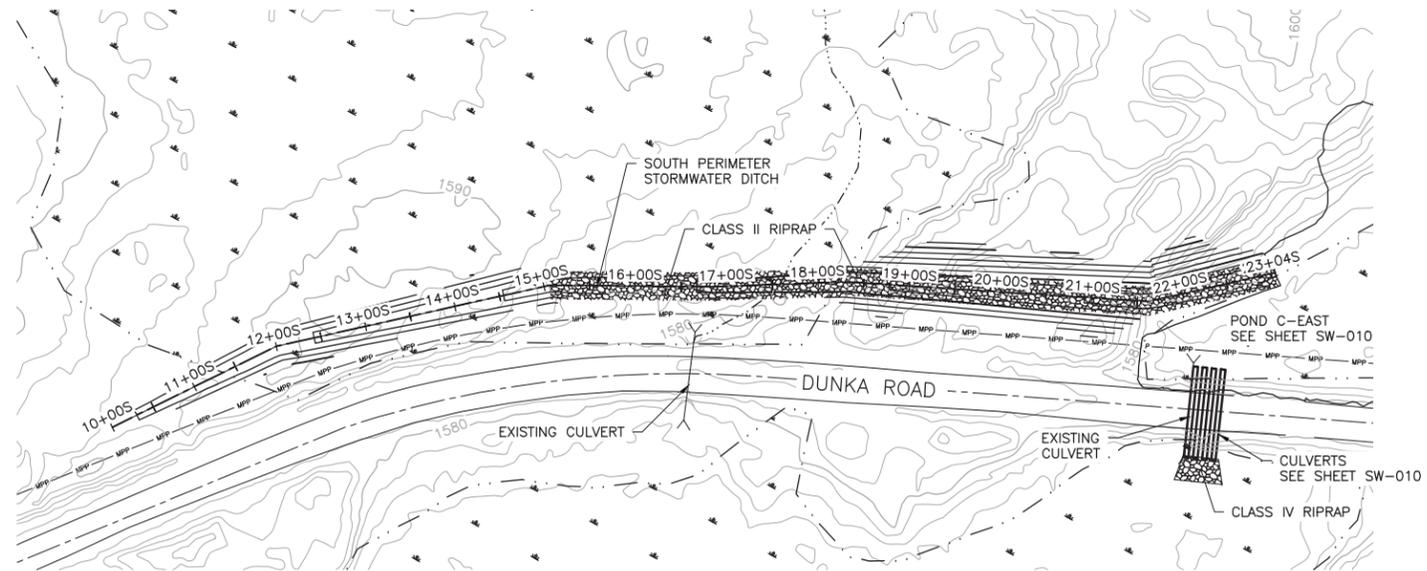
MINE SITE STORMWATER NORTH DIKE AND DITCH PLAN AND PROFILE STATION 162+00N - 183+00N

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

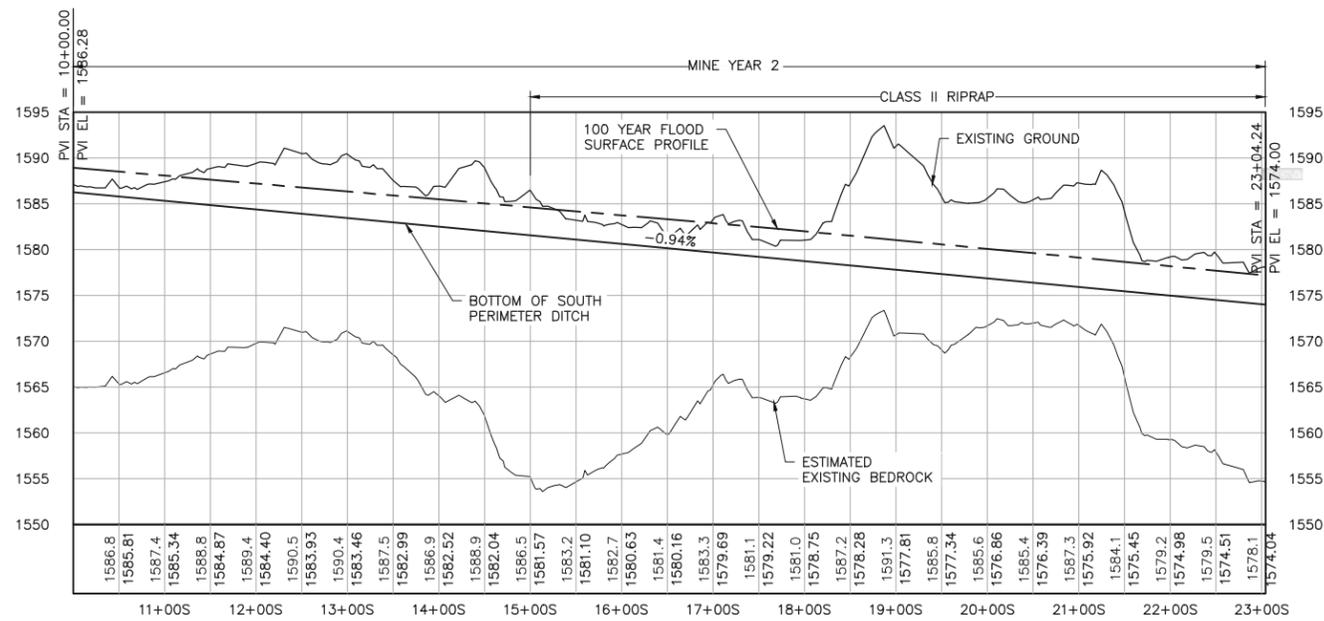
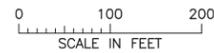
BARR
 BARR ENGINEERING CO.
 4300 MARKETPOINTE DRIVE
 SUITE 200
 MINNEAPOLIS, MN.
 Ph: 1-800-632-2277

DWG. NO. **SW-019**

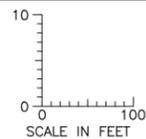
REV **B**



1 PLAN: SOUTH PERIMETER DITCH STA. 10+00S-22+95S



2 PROFILE: SOUTH PERIMETER DITCH STA. 10+00S-22+95S



NOTES:

1. ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
2. EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.

| VER NO. | DATE | DESCRIPTION | ISSUE STATUS | | |
|---------|----------|---|--------------------------------|---------|----------|
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| 1 | 5/26/15 | ISSUED FOR INCLUSION IN PERMIT APPLICATIONS | | | |
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PRINTED NAME: PAUL T. SWENSON
 SIGNATURE: *Paul T. Swenson*
 DATE: 5/26/17 LICENSE# 20533

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

PLANT DRAWING NUMBER:

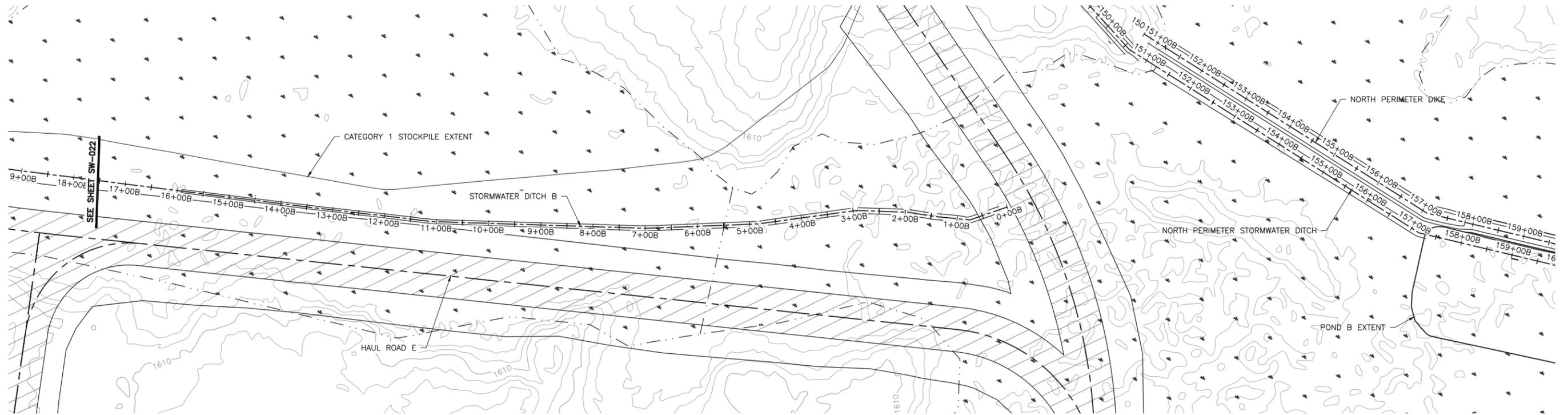
MINE SITE STORMWATER
 SOUTH DIKE AND DITCH PLAN AND PROFILE
 STATION 10+00S - 22+95S

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

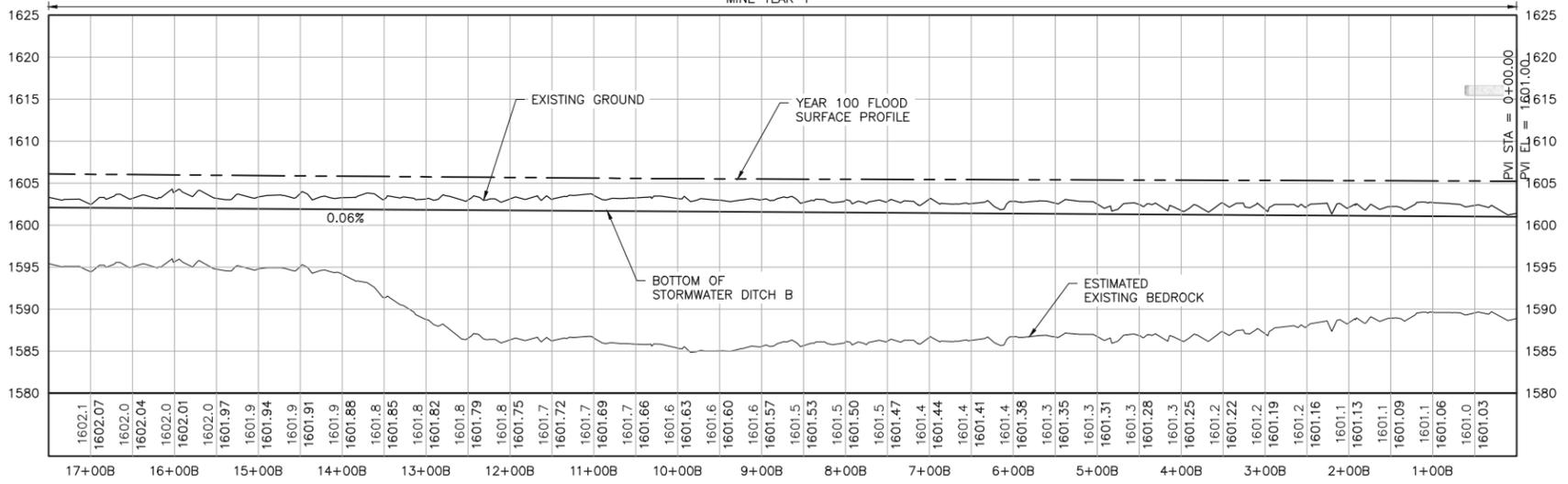
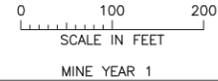
BARR ENGINEERING CO.
 4300 MARKETPOINTE DRIVE
 SUITE 200
 MINNEAPOLIS, MN.
 Ph: 1-800-632-2277

DWG. NO. SW-020
 REV B

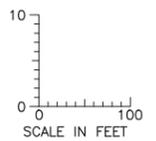
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1 PLAN: STORMWATER DITCH B STA. 0+00B-17+50B



2 PROFILE: STORMWATER DITCH B STA. 0+00B-17+50B



NOTES:

1. ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
2. EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.

| VER NO | DATE | DESCRIPTION | ISSUE STATUS | | |
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| | | | FOR CONSTRUCTION | | |
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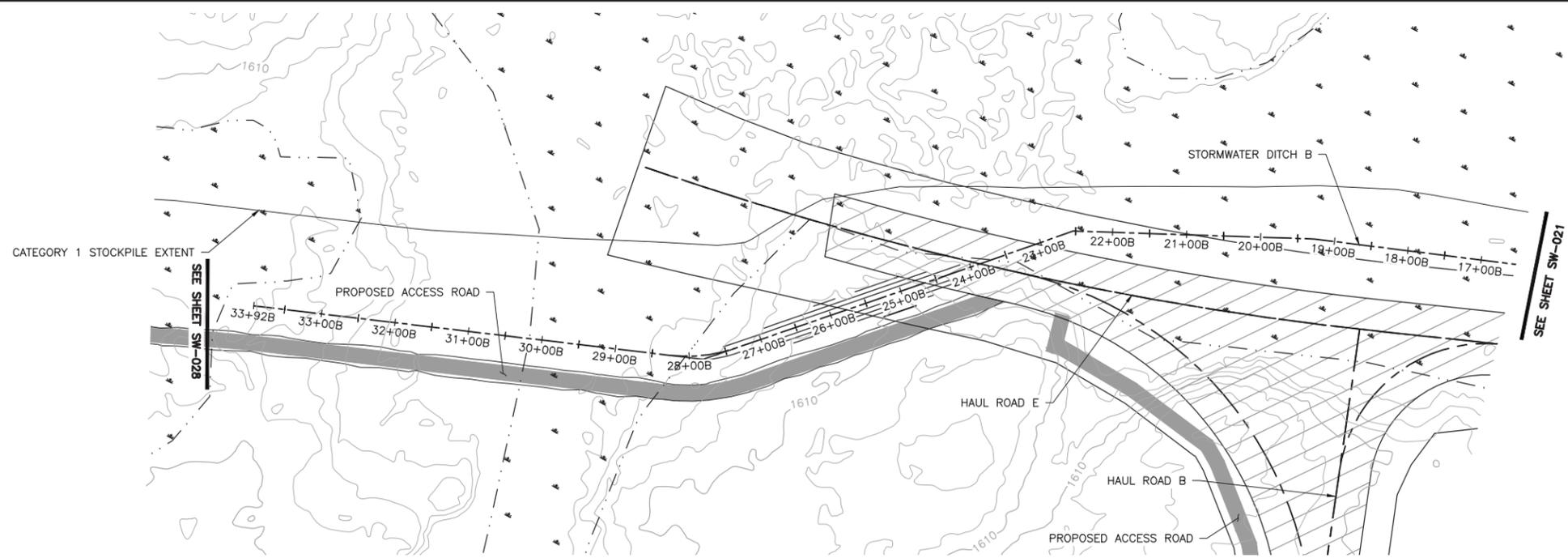
PRINTED NAME: PAUL T. SWENSON
 SIGNATURE: *[Signature]*
 DATE: 5/26/17 LICENSE# 20533

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

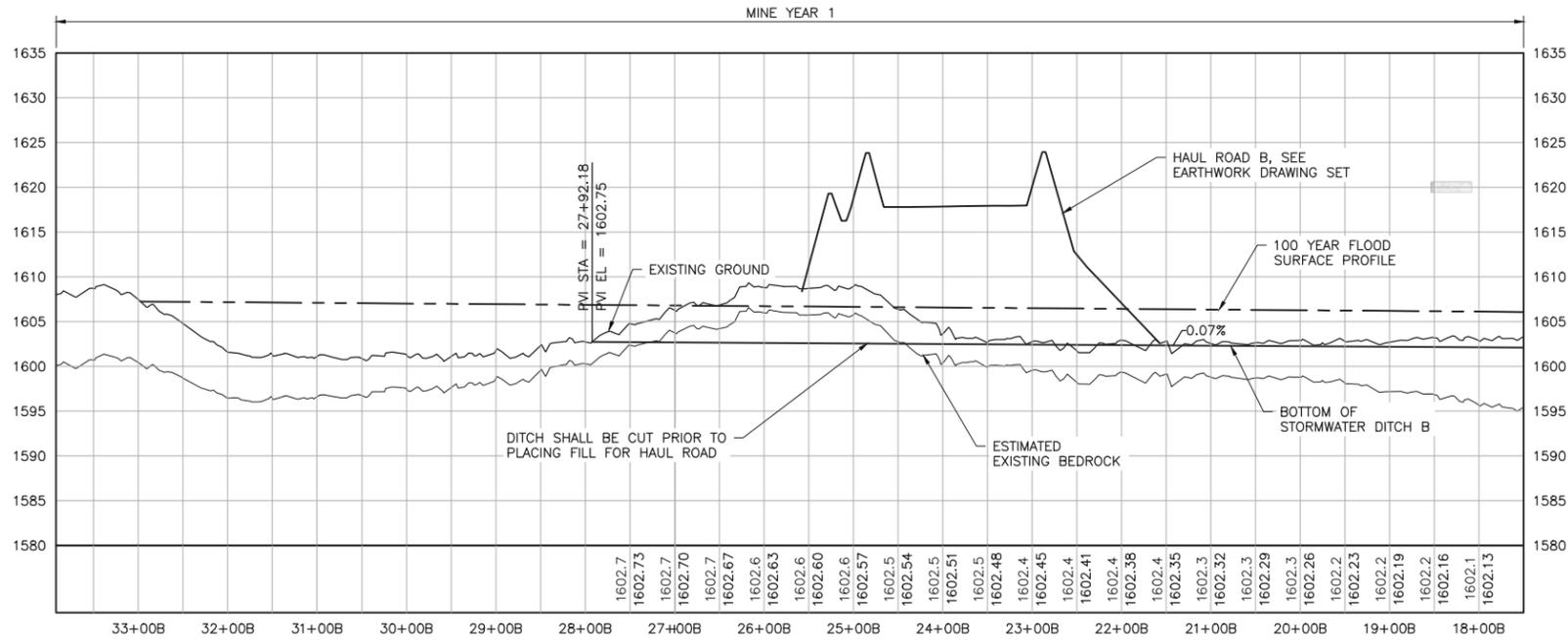
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| PLANT DRAWING NUMBER: | |
| MINE SITE STORMWATER DITCH B PLAN AND PROFILE STATION 0+00B - 17+50B | |
| POLY MET MINING, INC. NORTHMET PROJECT HOYT LAKES, MINNESOTA | |
| BARR | BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE SUITE 200 MINNEAPOLIS, MN. Ph: 1-800-632-2277 |
| DWG. NO. SW-021 | REV B |

INCHES

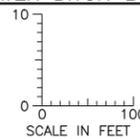
CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29-10\PERMIT_NM-SW-022.DWG PLOT SCALE: 1:2 PLOT DATE: 6/1/2017 7:56 AM



1 PLAN: STORMWATER DITCH B STA. 17+50B-33+92B



2 PROFILE: STORMWATER DITCH B STA. 17+50B-33+92B



NOTES:

1. ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
2. EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.
3. BOTTOM OF DITCH PROFILE LINE SHOWN TO PRESENT HYDRAULIC GRADE REQUIREMENTS, RESULTING "FILL" AREAS SHALL BE LEFT AS IS. DO NOT PLACE FILL TO RAISE GROUND TO DITCH PROFILE LINE.

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

PLANT DRAWING NUMBER:

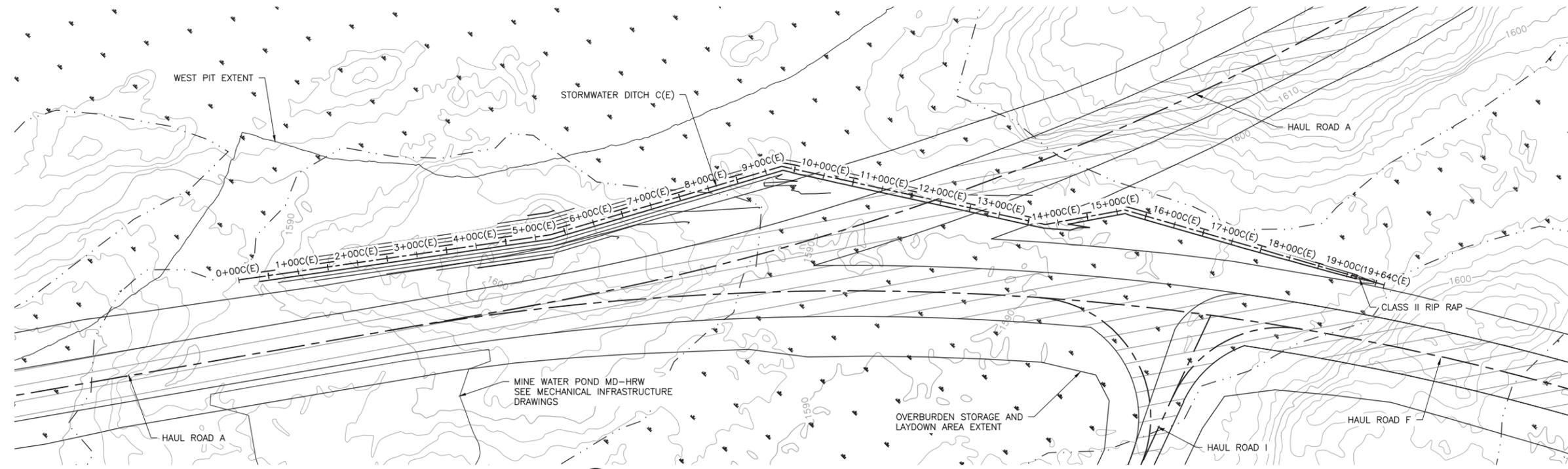
MINE SITE STORMWATER
 DITCH B PLAN AND PROFILE
 STATION 17+50B - 33+92B

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

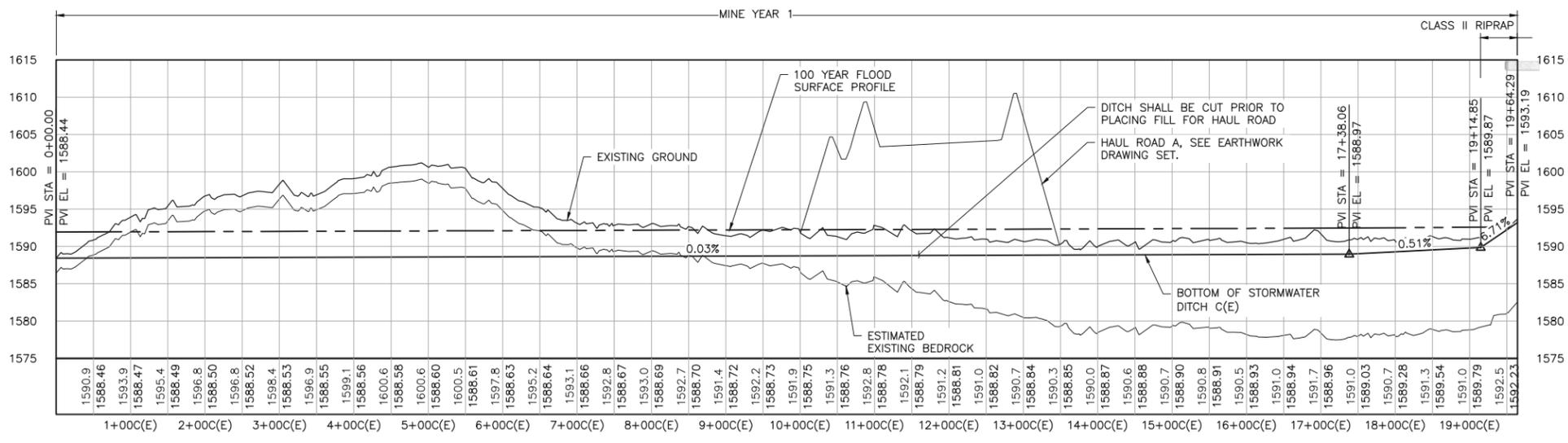
BARR ENGINEERING CO.
 4300 MARKETPOINTE DRIVE
 SUITE 200
 MINNEAPOLIS, MN.
 Ph: 1-800-632-2277

DWG. NO. SW-022
 REV B

2
1
INCHES



1 PLAN: STORMWATER DITCH C(E) STA. 0+00C(E)-19+64C(E)



2 PROFILE: STORMWATER DITCH C(E) STA. 0+00C(E)-19+64C(E)

- NOTES:
- ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
 - EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.

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 SIGNATURE *[Signature]*
 DATE 5/26/17 LICENSE# 20533

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

PLANT DRAWING NUMBER:

MINE SITE STORMWATER DITCH C(E) PLAN AND PROFILE STATION 0+00C(E) - 19+64C(E)

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. SW-023

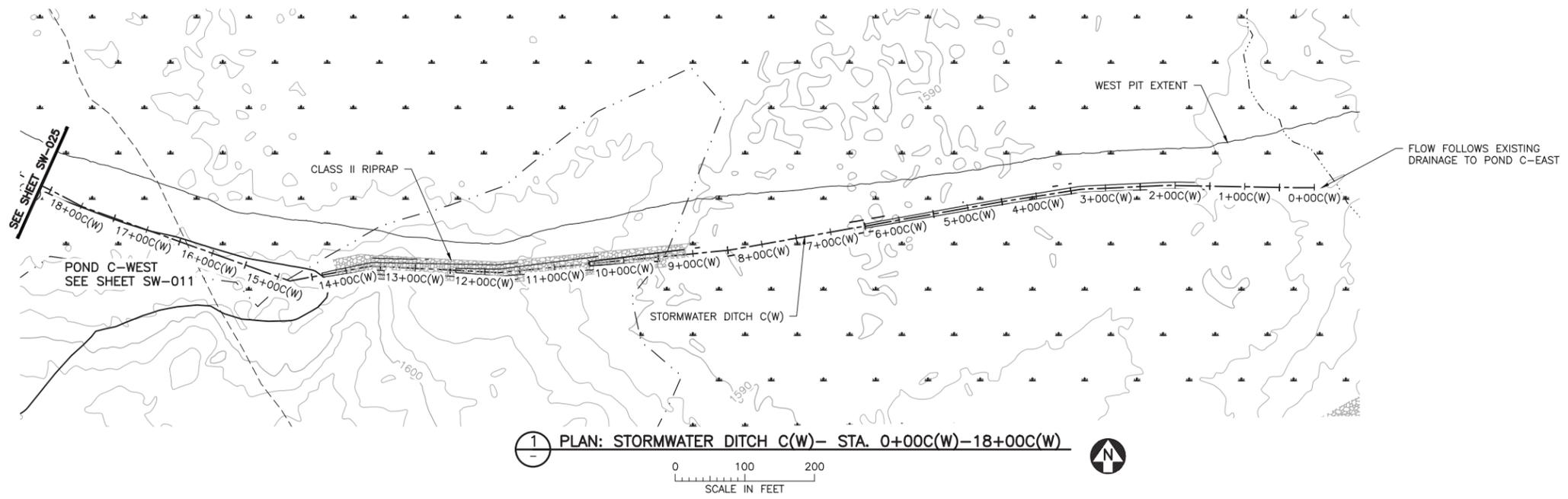
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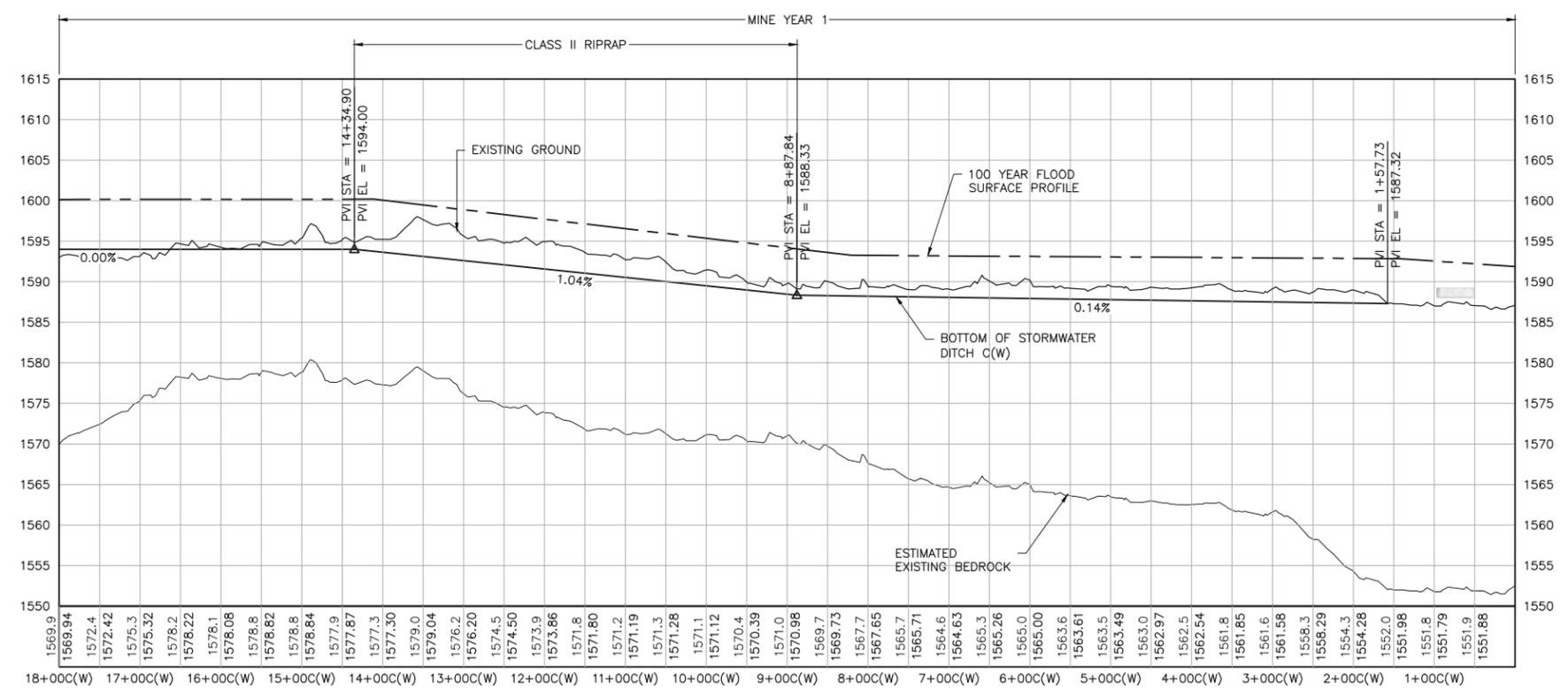
INCHES

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2
1
INCHES



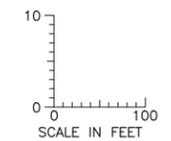
1 PLAN: STORMWATER DITCH C(W)- STA. 0+00C(W)-18+00C(W)



2 PROFILE: STORMWATER DITCH C(W)- STA. 0+00C(W)-18+00C(W)

NOTES:

1. ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
2. EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.
3. BOTTOM OF DITCH PROFILE LINE SHOWN TO PRESENT HYDRAULIC GRADE REQUIREMENTS, RESULTING "FILL" AREAS SHALL BE LEFT AS IS. DO NOT PLACE FILL TO RAISE GROUND TO DITCH PROFILE LINE.



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| 2 | 6/7/2017 | PERMIT APPLICATION UPDATES | FOR PERMITTING | 2 | 6/7/2017 |
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PRINTED NAME PAUL T. SWENSON
SIGNATURE *Paul T. Swenson*
DATE 5/26/17 LICENSE# 20533

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

PLANT DRAWING NUMBER:

MINE SITE STORMWATER DITCH C(W) PLAN AND PROFILE STATION 0+00C(W) - 18+00C(W)

POLYMET MINING

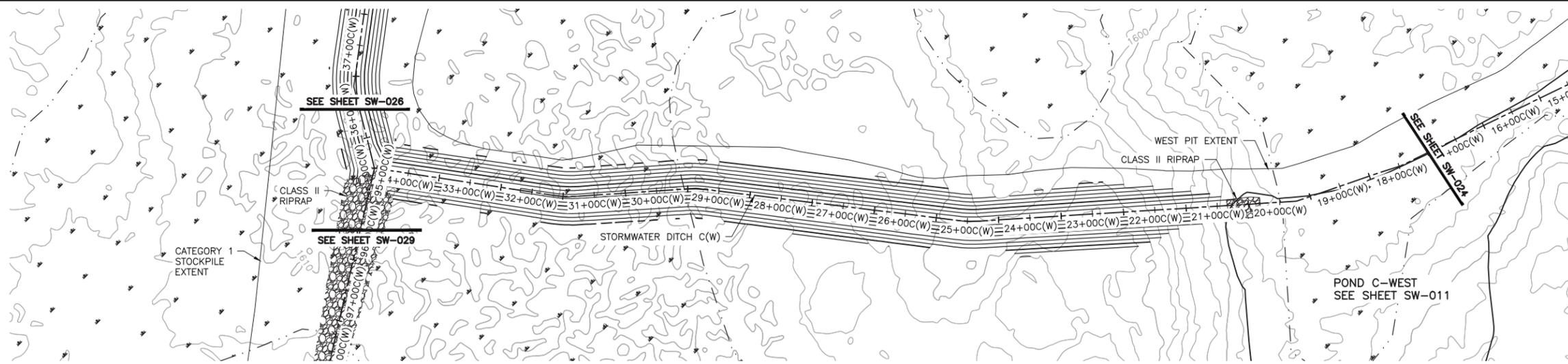
POLY MET MINING, INC. NORTHMET PROJECT HOYT LAKES, MINNESOTA

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

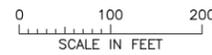
BARR

DWG. NO. SW-024

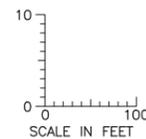
REV B



1 PLAN: STORMWATER DITCH C(W) - STA. 18+00C(W)-34+50C(W)



2 PROFILE: STORMWATER DITCH C(W) - STA. 18+00C(W)-34+50C(W)



NOTES:

1. ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
2. EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.
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 SIGNATURE *Paul T. Swenson*
 DATE 5/26/17 LICENSE # 20533

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

PLANT DRAWING NUMBER:

MINE SITE STORMWATER DITCH C(W) PLAN AND PROFILE STATION 18+00C(W) - 34+50C(W)

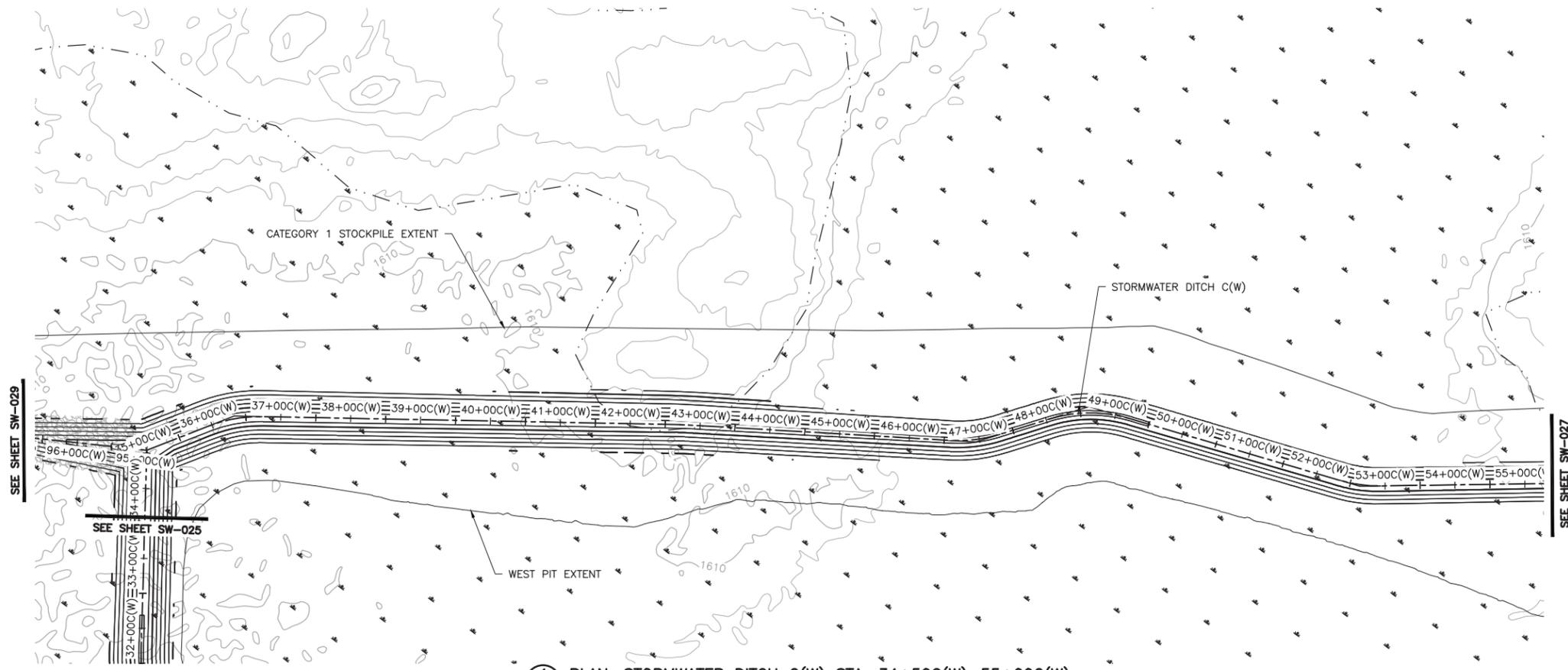
POLYMET MINING POLY MET MINING, INC. NORTHMET PROJECT HOYT LAKES, MINNESOTA

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

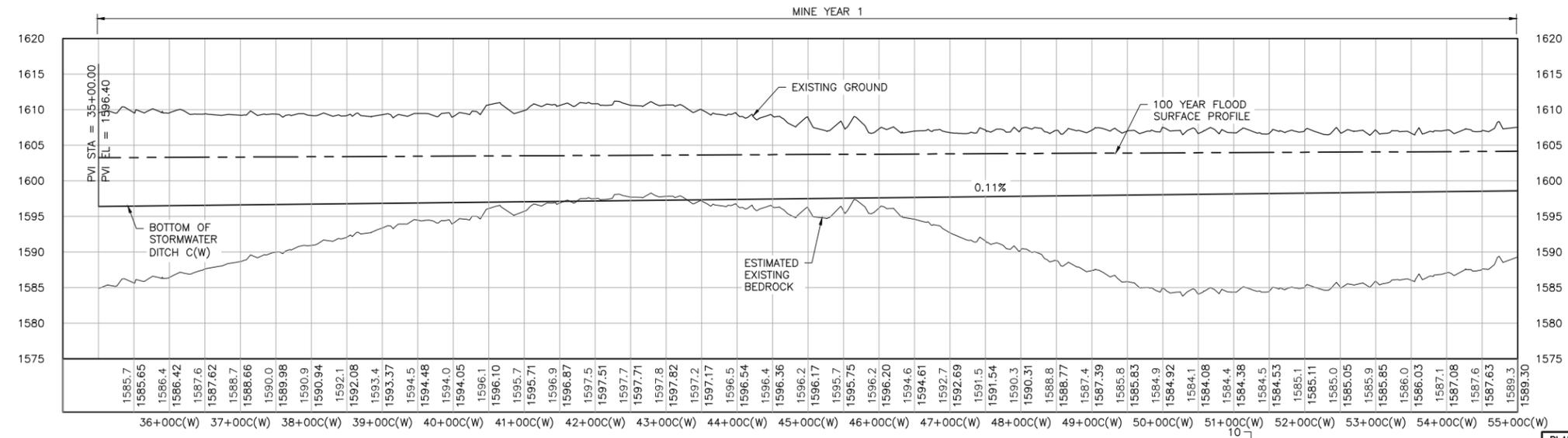
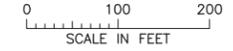
DWG. NO. SW-025 REV B

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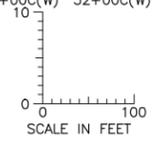
2
1
INCHES



1 PLAN: STORMWATER DITCH C(W) STA. 34+50C(W)-55+00C(W)



2 PROFILE: STORMWATER DITCH C(W) STA. 34+50C(W)-55+00C(W)



PLANT DRAWING NUMBER:
MINE SITE STORMWATER DITCH C(W) PLAN AND PROFILE STATION 34+50C(W) - 55+00C(W)

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

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

DWG. NO. **SW-026**

REV **B**

NOTES:

- ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
- EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.

| VER NO | DATE | DESCRIPTION | ISSUE STATUS | | |
|--------|----------|--|--------------------------------|---------|----------|
| | | | ISSUED | VERSION | DATE |
| 1 | 5/26/15 | ISSUED FOR INCLUSION IN PERMIT APPLICATION | ISSUED | | |
| 2 | 6/7/2017 | PERMIT APPLICATION UPDATES | FOR PERMITTING | 2 | 6/7/2017 |
| | | | FOR CONSTRUCTION | | |
| | | | NOT APPROVED FOR CONSTRUCTION. | | |

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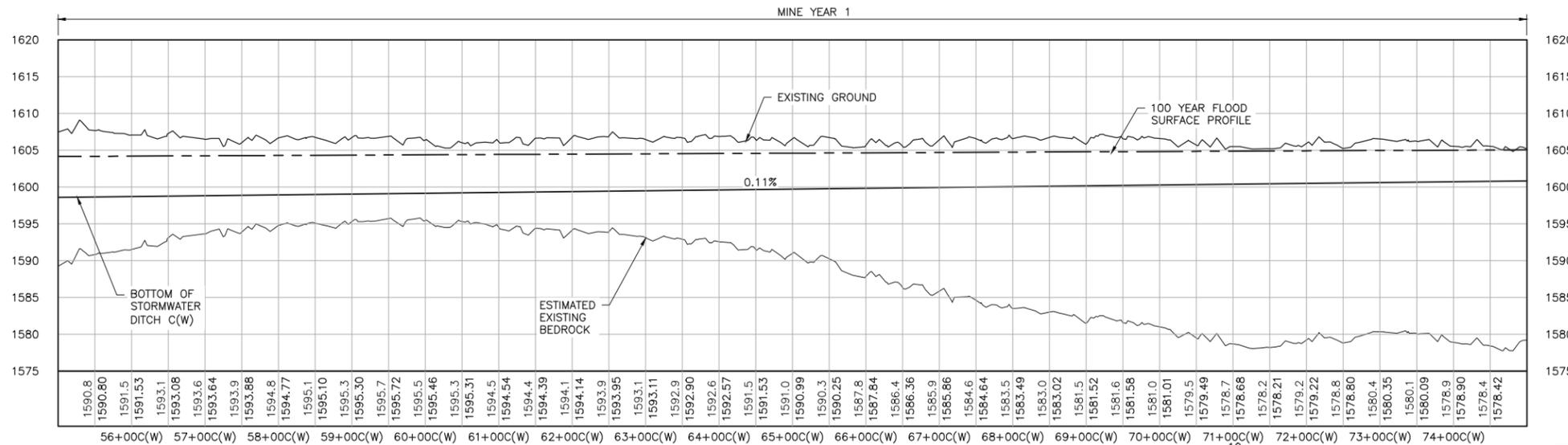
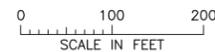
PRINTED NAME: PAUL T. SWENSON
SIGNATURE: *Paul T. Swenson*
DATE: 5/26/17 LICENSE # 20533

CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29\10\PERMIT_NMM-09-SW-027.DWG PLOT SCALE: 1:2 PLOT DATE: 6/1/2017 7:24 AM

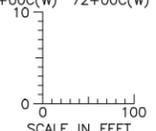
2
1
INCHES



1 PLAN: STORMWATER DITCH C(W) STA. 55+00C(W)-75+00C(W)



2 PROFILE: STORMWATER DITCH C(W) STA. 55+00C(W)-75+00C(W)



PLANT DRAWING NUMBER:

MINE SITE STORMWATER DITCH C(W) PLAN AND PROFILE STATION 55+00C(W) - 75+00C(W)

POLYMET MINING

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

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

BARR

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

DWG. NO. SW-027

REV B

NOTES:

- ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
- EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.

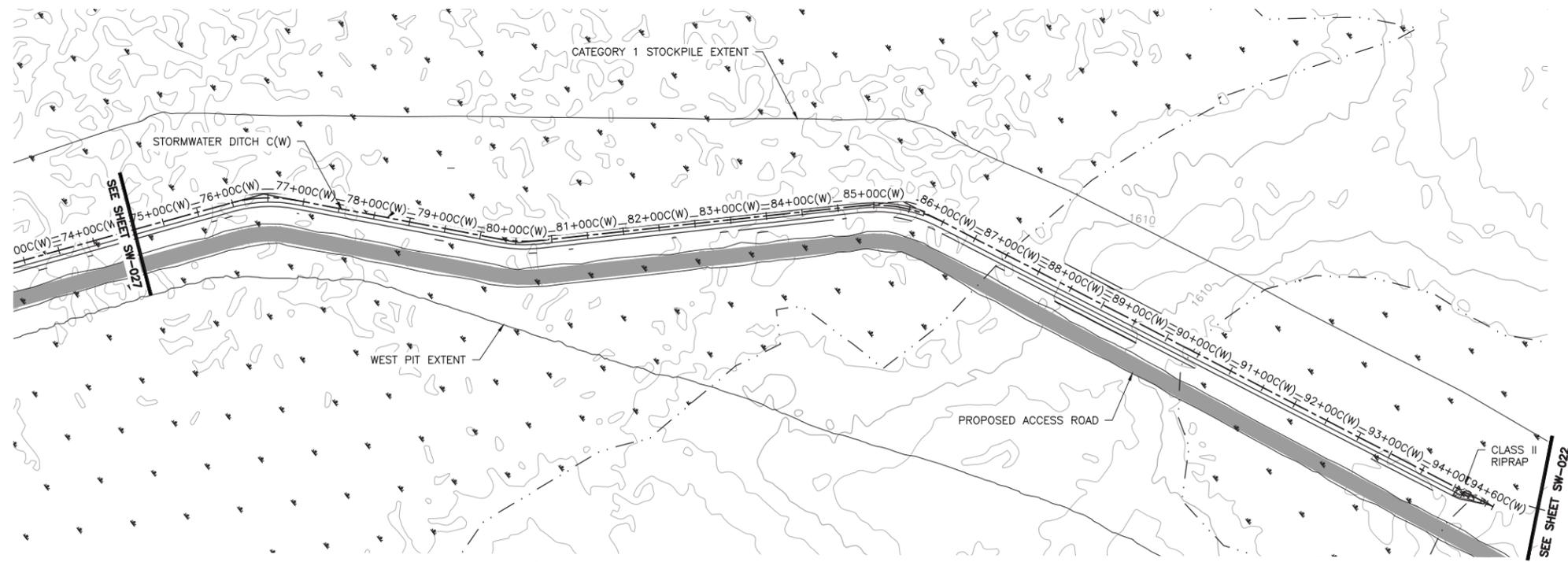
| VER NO | DATE | DESCRIPTION | ISSUE STATUS | | |
|--------|----------|--|--------------------------------|---------|----------|
| | | | ISSUED | VERSION | DATE |
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| | | | FOR CONSTRUCTION | | |
| | | | NOT APPROVED FOR CONSTRUCTION. | | |

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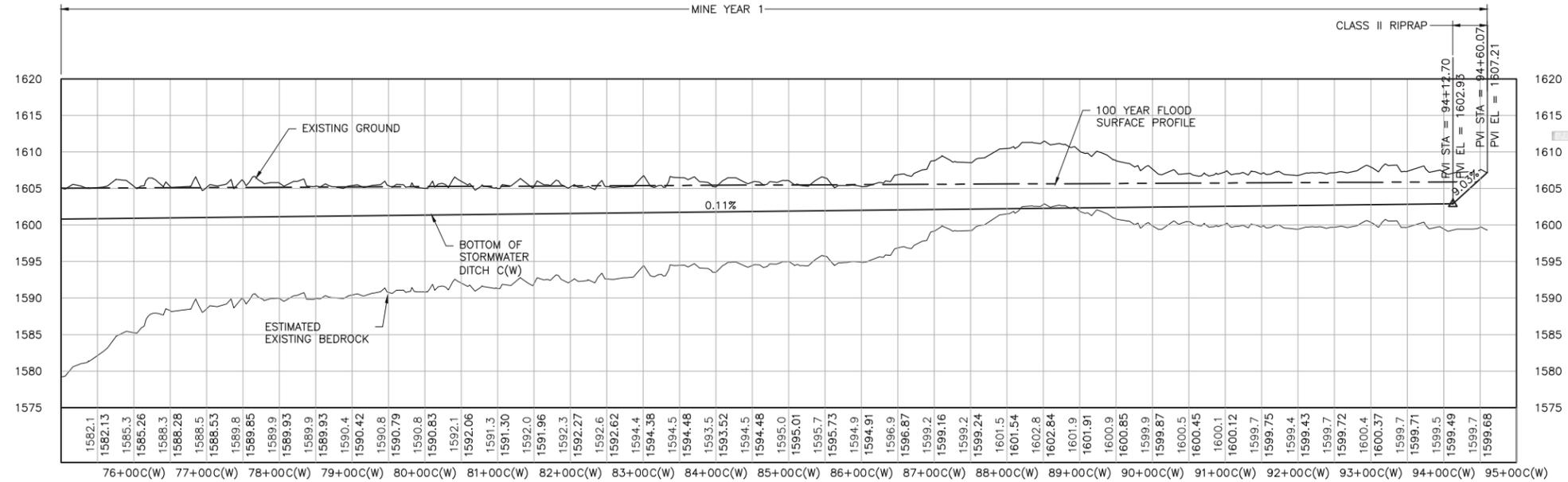
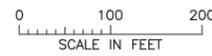
PRINTED NAME PAUL T. SWENSON
SIGNATURE *Paul T. Swenson*
DATE 5/26/17 LICENSE# 20533

CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29-10\PERMIT_NM-SW-028.DWG PLOT SCALE: 1:2 PLOT DATE: 6/1/2017 7:20 AM

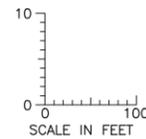
INCHES



1 PLAN: STORMWATER DITCH C(W) STA. 75+00C(W)-94+60C(W)



2 PROFILE: STORMWATER DITCH C(W) STA. 75+00C(W)-94+60C(W)



NOTES:

1. ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
2. EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.

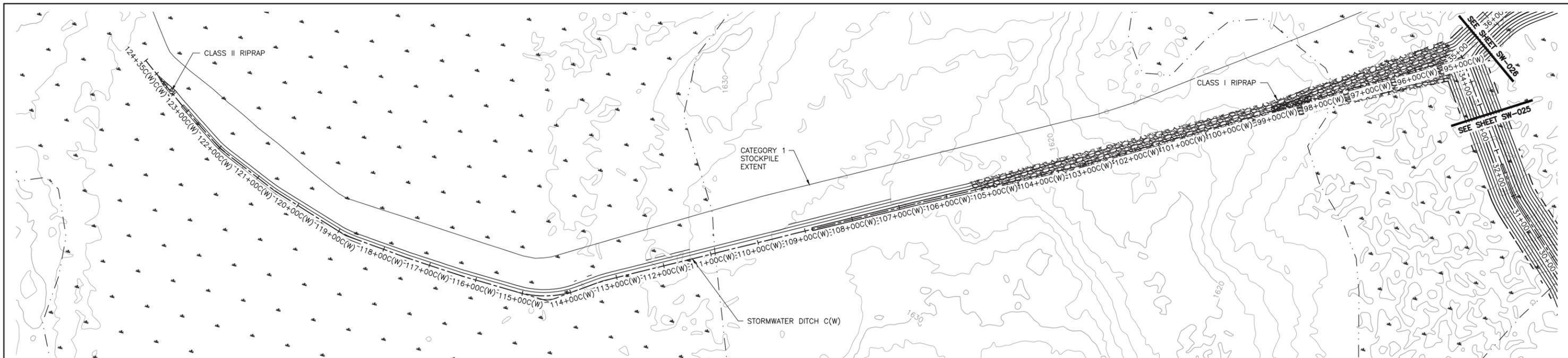
| VER NO | DATE | DESCRIPTION | ISSUE STATUS | | |
|--------|----------|--|--------------------------------|---------|----------|
| | | | ISSUED | VERSION | DATE |
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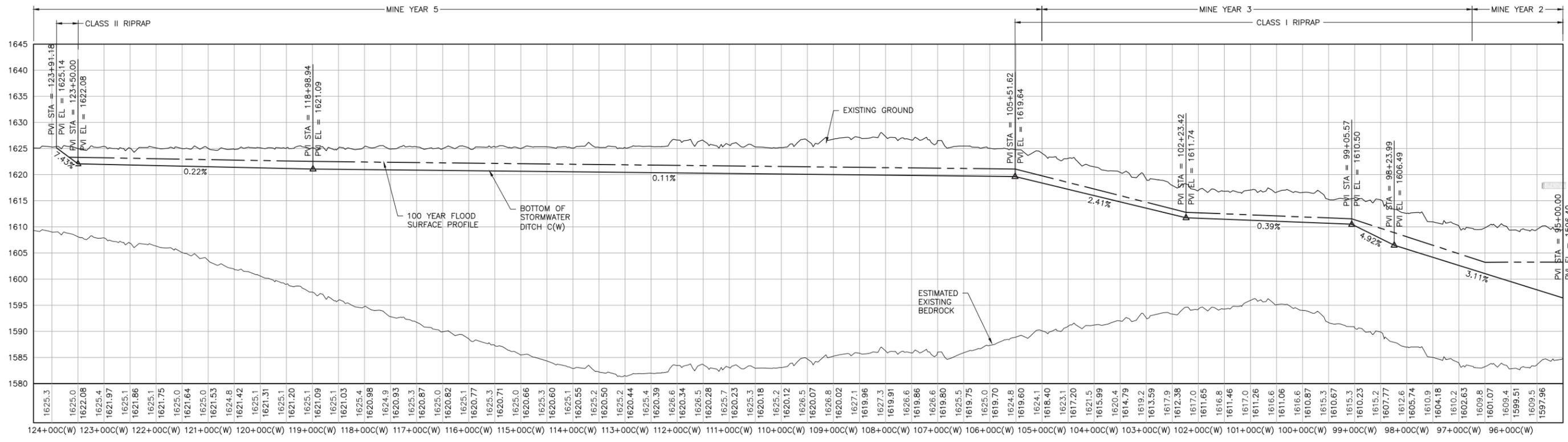
PRINTED NAME PAUL T. SWENSON
SIGNATURE *Paul T. Swenson*
DATE 5/26/17 LICENSE# 20533

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

| | |
|---|-----------------|
| PLANT DRAWING NUMBER: | |
| MINE SITE STORMWATER DITCH C(W) PLAN AND PROFILE STATION 75+00C(W) - 94+60C(W) | |
| 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. SW-028 | REV B |



1 PLAN: STORMWATER DITCH C(W) STA. 95+00C(W)–124+35C(W)



2 PROFILE: STORMWATER DITCH STA. 95+00C(W)–124+35C(W)

- NOTES:
- ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
 - EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.

| VER NO | DATE | DESCRIPTION | ISSUE STATUS | | |
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PRINTED NAME PAUL T. SWENSON
 SIGNATURE *[Signature]*
 DATE 5/26/17 LICENSE# 20533

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

PLANT DRAWING NUMBER:

MINE SITE STORMWATER DITCH C(W) PLAN AND PROFILE STATION 95+00C(W) – 124+35C(W)

POLYMET MINING

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

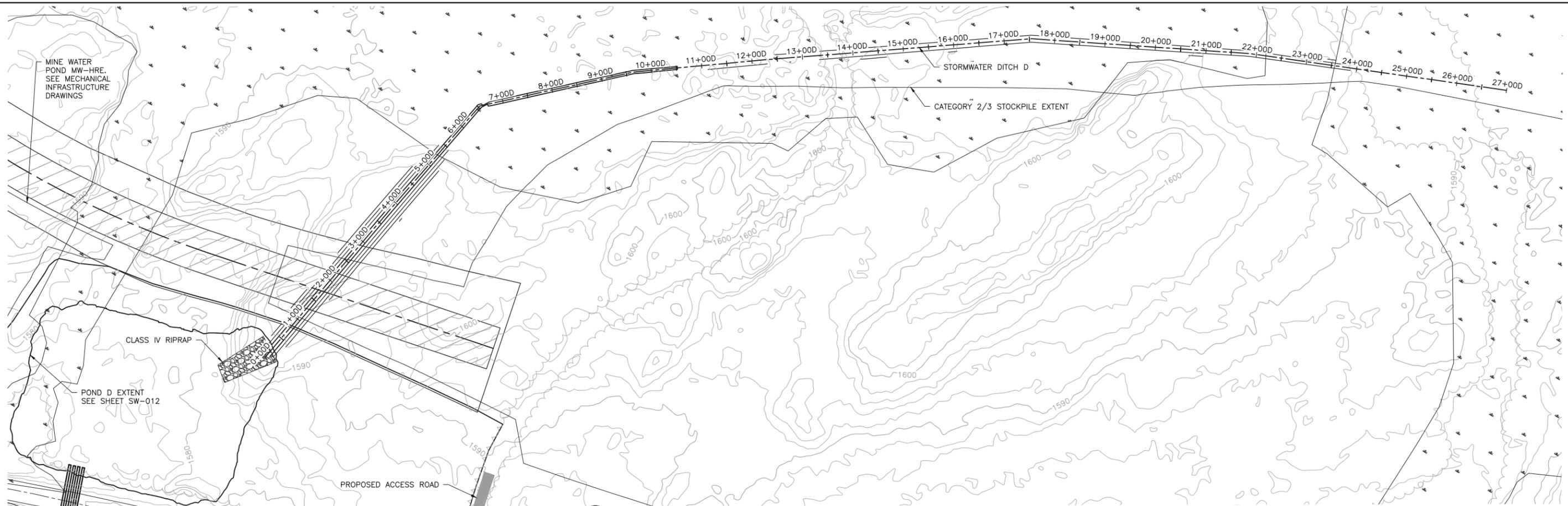
BARR ENGINEERING CO.
 4300 MARKETPOINTE DRIVE
 SUITE 200
 MINNEAPOLIS, MN.
 Ph: 1-800-632-2277

DWG. NO. SW-029

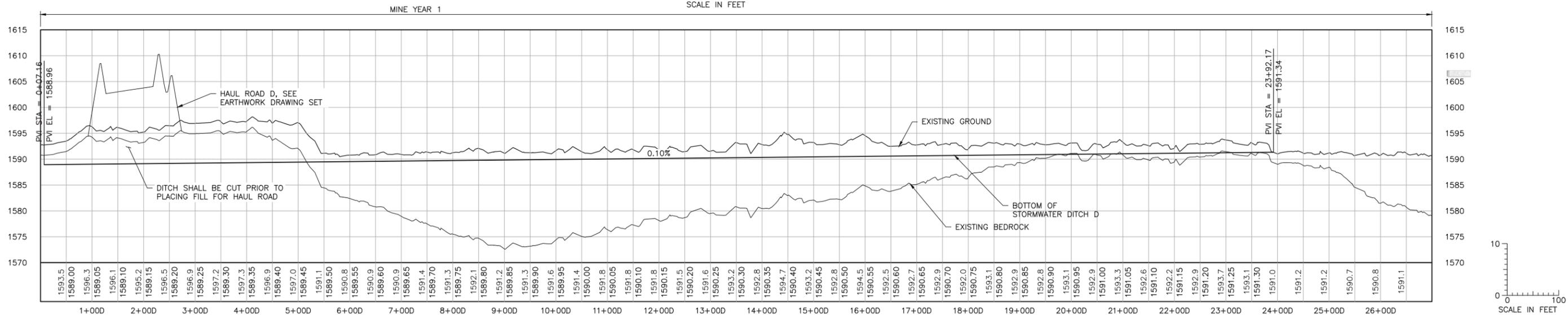
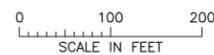
REV B

CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29\10\PERMIT_NMM-09-SW-029.DWG PLOT SCALE: 1:2 PLOT DATE: 6/1/2017 7:21 AM

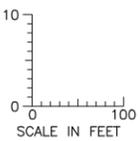
CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29-10\PERMIT_NM-09-SW-030.DWG PLOT SCALE: 1:2 PLOT DATE: 6/1/2017 7:25 AM



1 PLAN: STORMWATER DITCH D STA. 0+000-27+000



2 PROFILE: STORMWATER DITCH D STA. 0+000-27+000



NOTES:

1. ALL STATIONS SHOWN ON PROFILE ARE BASED ON DITCH CENTERLINE STATIONS.
2. EXISTING GROUND PROFILE REPRESENTS GRADE AT DITCH CENTERLINE.

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

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

PLANT DRAWING NUMBER:

MINE SITE STORMWATER DITCH D PLAN AND PROFILE STATION 0+000 - 27+000

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

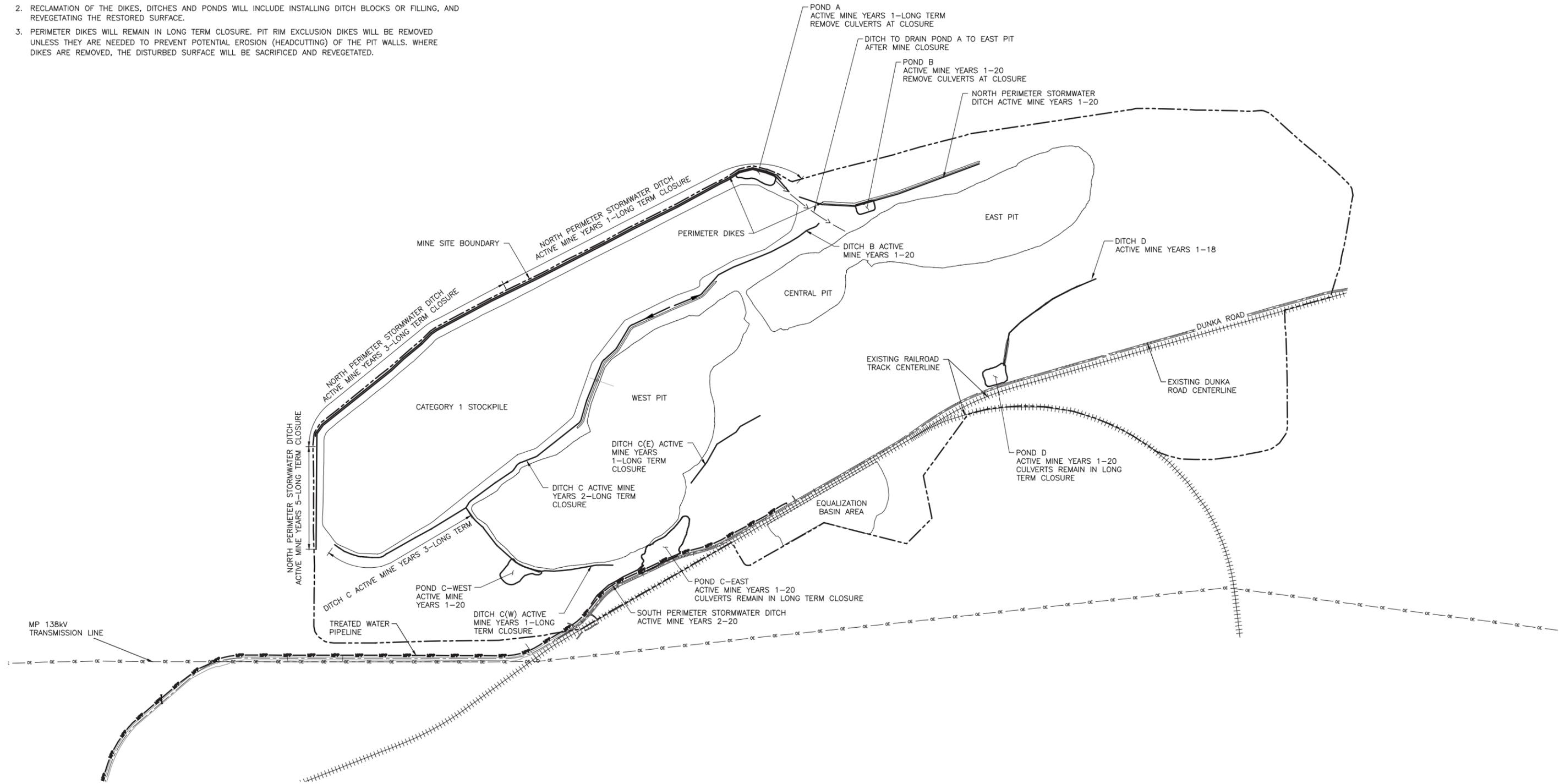
BARR
 BARR ENGINEERING CO.
 4300 MARKETPOINTE DRIVE
 SUITE 200
 MINNEAPOLIS, MN.
 Ph: 1-800-632-2277

DWG. NO. **SW-030** REV **B**

INCHES

NOTES:

1. ALL FEATURES SHOWN WILL REMAIN IN LONG-TERM CLOSURE UNLESS OTHERWISE NOTED.
2. RECLAMATION OF THE DIKES, DITCHES AND PONDS WILL INCLUDE INSTALLING DITCH BLOCKS OR FILLING, AND REVEGETATING THE RESTORED SURFACE.
3. PERIMETER DIKES WILL REMAIN IN LONG TERM CLOSURE. PIT RIM EXCLUSION DIKES WILL BE REMOVED UNLESS THEY ARE NEEDED TO PREVENT POTENTIAL EROSION (HEADCUTTING) OF THE PIT WALLS. WHERE DIKES ARE REMOVED, THE DISTURBED SURFACE WILL BE SACRIFICED AND REVEGETATED.



1 PLAN: STORMWATER DIKES, DITCHES, AND PONDS RECLAMATION PLAN

0 1000 2000
SCALE IN FEET



PLANT DRAWING NUMBER:

**MINE SITE STORMWATER
DIKES, DITCHES, AND PONDS
RECLAMATION 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

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

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

DWG. NO. SW-031
REV B

CADD USER: Kate K. Brown FILE: K:\DESIGN\23690C29\10\PERMIT_NMI-05-SW-031.DWG PLOT SCALE: 1:2 PLOT DATE: 6/9/2017 7:28 AM