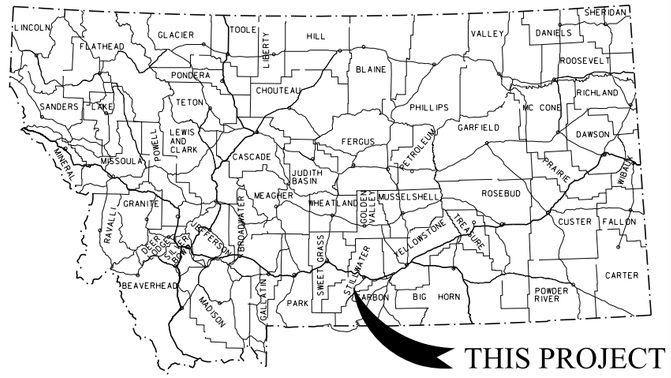
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# MONTANA DEPARTMENT OF TRANSPORTATION

| | | |
|---|---|---|
| PRESENT | 2014 | A.D.T. = 180 |
| LETTING | 2019 | A.D.T. = 190 |
| DESIGN | 2039 | A.D.T. = 230 |
| | | D.H.V. = 40 |
| | | TRUCKS = 6.1% |
| | | V. = 35 MPH |
| | | 18 KIP ESAL'S = 1.3 |
| | | GROWTH RATE = 1.0% |

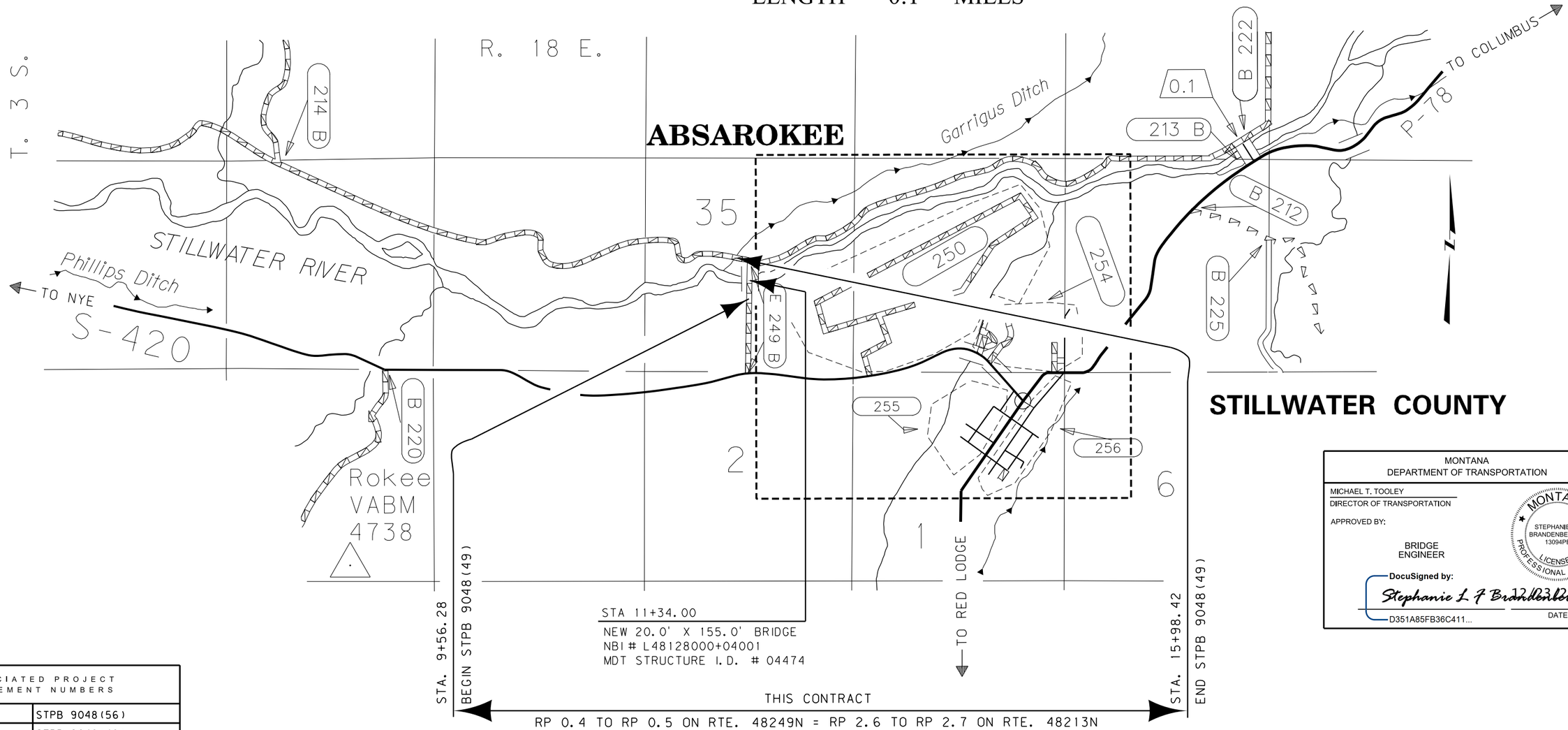
## FEDERAL AID PROJECT STPB 9048(49)
## BRIDGE REPLACEMENT
## STILLWATER R - 2 M NW ABSAROKEE
## STILLWATER COUNTY

LETTING DATE - _____

CSF = 0.99953213

SURFACING SOURCES -
CONTRACTOR FURNISHED

LENGTH 0.1 MILES




MONTANA
DEPARTMENT OF TRANSPORTATION

MICHAEL T. TOOLEY
DIRECTOR OF TRANSPORTATION

APPROVED BY:

BRIDGE
ENGINEER

STEPHANIE L F BRANDENBERGER 13094PE
MONTANA LICENSED PROFESSIONAL ENGINEER

DocuSigned by:
Stephanie L F Brandenberger 12/8/2020
D351A85FB36C411...
DATE

| ASSOCIATED PROJECT AGREEMENT NUMBERS | |
|---|---|
| R / W | STPB 9048(56) |
| P. E. | STPB 9048(48) |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3 | MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdttl001.dgn | DESIGNED BY | STEVE ERETH | 08/12/2020 | ROAD PLANS |
| 2 | | 12/1/2020 | REVIEWED BY | TRACY STONER | 08/18/2020 | |
| | | 8:52:07 AM CPS - U3829 | CHECKED BY | JOHN CORNELL | 08/10/2020 | UPN 8670000 |

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# NOTES

## BASIS OF PLAN QUANTITIES

(QUANTITIES FOR ESTIMATING PURPOSES ONLY)

| | |
|---|---|
| COMP. AGGREGATE WEIGHT | = 3750 LBS. PER CUBIC YARD |
| COMP. WEIGHT OF PL. MIX BIT. SURF. | = 4167 LBS. PER CUBIC YARD |
| ASPHALT CEMENT - GRADE S - 3/8" AGG. | = 6.2% OF PL. MIX BIT. SURF. |
| HYDRATED LIME | = 1.4% OF PL. MIX BIT. SURF. |
| BITUMINOUS MATERIAL | = 8.5 LBS. PER GAL. |
| EMULSIFIED ASPHALT TACK | = 0.05 GAL. PER SQ. YARD (UNDILUTED) |

## APPROACHES

CONSTRUCT FARM FIELD APPROACHES TO A 24' FINISHED TOP ON A 32.2' SUBGRADE.

PROVIDE THE FOLLOWING SURFACING:
0.60' CRUSHED TOP SURFACING

QUANTITIES FOR ONE FARM FIELD APPROACH:

| | |
|---|---|
| AVERAGE LENGTH | = 42.5 linear feet |
| CRUSHED TOP SURFACING | = 27.2 cubic yards |

CONSTRUCT PUBLIC APPROACHES TO A 34' FINISHED TOP ON A 44.2' SUBGRADE.

PROVIDE THE FOLLOWING SURFACING:
0.75' CRUSHED AGGREGATE COURSE

QUANTITIES FOR ONE PUBLIC APPROACH:

| | |
|---|---|
| AVERAGE LENGTH | = 37.5 linear feet |
| CRUSHED TOP SURFACING | = 40.6 cubic yards |

## CLEARING AND GRUBBING

CLEAR AND GRUB TO CONSTRUCTION LIMITS. INCLUDE THE COST OF CLEARING AND GRUBBING IN THE UNIT PRICE BID FOR EMBANKMENT-IN-PLACE. MINIMIZE IMPACTS TO THE EXISTING LILAC BUSH TO THE EXTENT POSSIBLE NEAR THE NORTHEAST ABUTMENT.

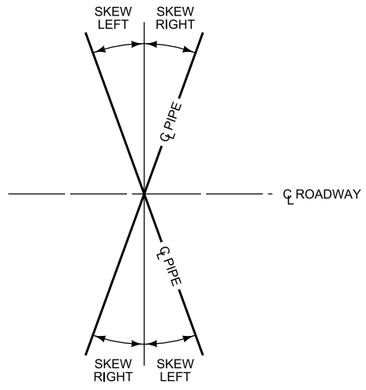
## UTILITIES

CALL THE UTILITIES UNDERGROUND LOCATION CENTER (811) OR OTHER NOTIFICATION SYSTEM FOR THE MARKING AND LOCATION OF ALL LINES AND SERVICES BEFORE EXCAVATING. ALL CLEARANCES OR DEPTHS PROVIDED FOR UTILITIES ARE FROM EXISTING GROUND LINE.

## PUBLIC LAND SURVEY MONUMENTS

ALL MONUMENTS TO BE REMOVED AND RELOCATED OR RESET BY STATE FORCES.

## SKEW DIAGRAM




## SOILS INFORMATION

SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION. THE LOCATION OF GEOTECHNICAL BORINGS IS SHOWN ON THE PLAN VIEW WITH THE FOLLOWING SYMBOL.

BORING NUMBER

(GEOTECHNICAL BORING)

(PLAN VIEW)

## WETLANDS

WETLANDS EXIST ADJACENT TO THE ROADWAY AND MAY EXIST BEYOND THE PROJECT LIMITS. WETLAND AREAS AND PERMANENT WETLAND IMPACT AREAS WITHIN THE PROJECT LIMITS HAVE BEEN DELINEATED AND ARE SHOWN ON THE PLANS. ANY ACTION IMPACTING WETLAND AREAS OUTSIDE OF THE PERMANENT IMPACT AREAS SHOWN IS THE RESPONSIBILITY OF THE CONTRACTOR.

DELINEATED WETLAND AREAS

PERMANENT WETLAND IMPACTED AREAS

## WETLAND DELINEATION TABLE

| WETLAND DESIGNATION | STATION FROM | STATION TO | WETLAND AREA (ACRES) DELINEATED AREA | WETLAND AREA (ACRES) PERMANENT IMPACTED AREA | REMARKS |
|---|---|---|---|---|---|
| WL 4a | 8+56 | 10+16 | # 0.031 | 0.000 | LT. |
| WL 4b | 10+53 | 10+64 | 0.002 | 0.002 | LT. |
| WL 3 | 10+55 | 10+79 | 0.018 | 0.007 | RT. - STILLWATER RIVER |
| WL 2 | 11+65 | 11+95 | 0.016 | 0.001 | RT. - STILLWATER RIVER |
| WL 1 | 12+71 | 13+20 | 0.004 | 0.004 | LT. - GARRIGUS DITCH |
| WL 1 | 13+29 | 13+64 | 0.003 | 0.003 | RT. - GARRIGUS DITCH |
| | | | | | |
| | TOTAL | | 0.07 | 0.02 | |

# AREA OF EXISTING WETLAND EXTENDS BEYOND PLAN LIMITS

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# LINEAR AND LEVEL DATA

| | | | |
|---|---|---|---|
| LENGTH OF ROADWAY | 2 LANE RURAL | 487.22 | ft |
| LENGTH OF BRIDGE | 2 LANE RURAL | 154.92 | ft |
| TOTAL LENGTH OF STPB 9048(49) | 2 LANE RURAL | 642.14 | ft |

## BEARING SOURCE

GRID — MONTANA COORDINATE SYSTEM NAD 83– 2011

## LEVEL DATUM SOURCE

NAVD 88 GNSS DERIVED ELEVATIONS USING GEOID 12A AND HOLDING BMS A8670

### CENTERLINE COORDINATE TABLE

| STATION | DESCRIPTION | N OR Y COORDINATE | E OR X COORDINATE | REMARKS |
|---|---|---|---|---|
| 8+56.28 | POT | 465,902.433 | 1,976,326.413 | |
| 9+56.28 | POT | 466,002.433 | 1,976,326.571 | BEGIN PROJECT STPB 9048(49) |
| 13+48.36 | PC | 466,394.516 | 1,976,327.191 | |
| 14+50.28 | PI | 466,496.432 | 1,976,327.352 | |
| 15+07.34 | PT | 466,494.659 | 1,976,225.450 | |
| 15+98.42 | POT | 466,493.073 | 1,976,134.381 | END PROJECT STPB 9048(49) |
| 16+98.42 | POT | 466,491.333 | 1,976,034.396 | |

GPK NAME: JOB867.GPK CHAIN NAME: DESIGN PROFILE NAME: PROF

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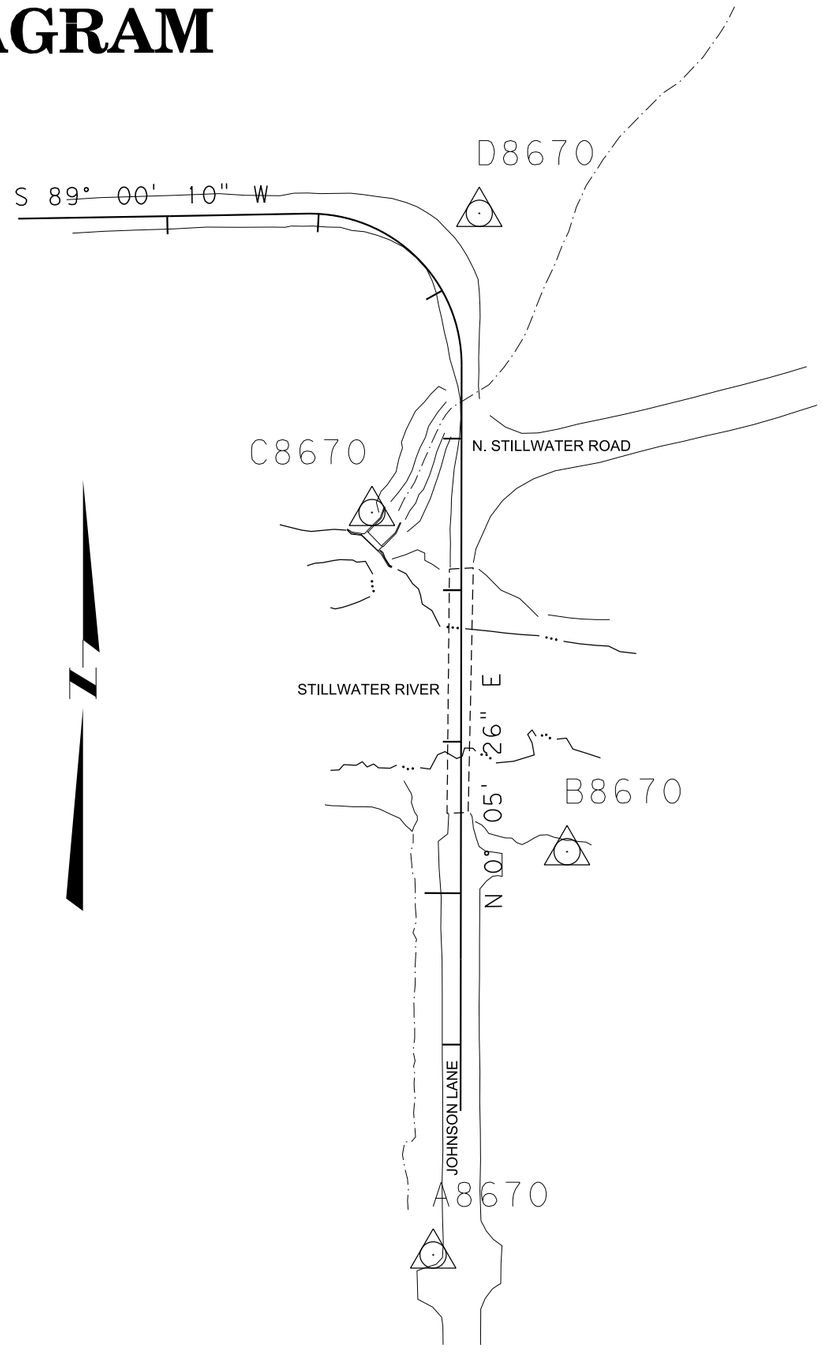
# CONTROL DIAGRAM

*SCALE: N/A*

| CONTROL ABSTRACT | | | | |
|---|---|---|---|---|
| POINT NAME/NUMBER | N OR Y COORDINATE | E OR X COORDINATE | POINT ELEVATION | LOCATION AND DESCRIPTION |
| A8670 | 465,807.371 | 1,976,308.353 | 4064.54 | ON THE NORTHWEST SIDE OF THE INTERSECTION OF JOHNSON BRIDGE ROAD AND STAR HAVEN DRIVE, SET STANDARD MDT CONTROL CAP ON 5/8"X 30" REBAR STAMPED "A8670 2015" - CAP IS 19' NORTHWEST OF CENTER OF INTERSECTION 18' N OF CENTER OF JOHNSON LAND LIVESTOCK DRIVEWAY 17' SOUTHEAST OF ALBERT JOHNSON MAILBOX, 12' SOUTHEAST OF WITNESS POST |
| B8670 | 466,073.517 | 1,976,396.768 | 4060.35 | ON THE EAST SIDE OF JOHNSON BRIDGE ROAD ON THE SOUTH SIDE OF THE BRIDGE ALONG THE BANK, SET STANDARD MDT CONTROL CAP ON 5/8"X 30" REBAR STAMPED "B8670 2015" - CAP IS 66' FROM CENTERLINE OF ROAD 6.7' SOUTH OF WITNESS POST AND TOP OF BANK. |
| C8670 | 466,297.459 | 1,976,267.960 | 4055.64 | ON THE NORTH SIDE OF JOHNSON BRIDGE AND THE WEST SIDE OF THE ROAD BETWEEN IRRIGATION OUTLET AND FENCE, SET STANDARD MDT CONTROL CAP ON 5/8"X 30" REBAR. STAMPED "C8670 2015" CAP IS 13.5' NORTH OF FENCE CORNER AND IRRIGATION STRUCTURE 3.3' EAST OF WITNESS POST IN FENCE. |
| D8670 | 466,494.933 | 1,976,338.838 | 4055.36 | ON THE NORTH SIDE OF THE BRIDGE AT THE CORNER WHERE JOHNSON BRIDGE ROAD TURNS TO THE WEST SET STANDARD MDT CONTROL CAP ON 5/8"X30" REBAR STAMPED "D8670 2015" CAP IS 18' NORTH OF EDGE OF GRAVEL, AND 6' SOUTH OF WITNESS POST. |
| | | | | |

NOTE:
THIS PROJECT IS ON THE MONTANA COORDINATE SYSTEM NAD83-2011.
NORTHING AND EASTING COORDINATES ARE EXPRESSED IN UNITS OF INTERNATIONAL FEET AND ELEVATIONS ARE IN UNITS OF U.S. SURVEY FEET.

DIMENSIONS SHOWN ON THE PLANS ARE GRID. ALL SURVEY AND STAKING REQUIRE THE USE OF A COMBINATION SCALE FACTOR (CSF) TO CONVERT GRID DIMENSIONS TO GROUND DIMENSIONS (GRID DISTANCE / CSF = GROUND DISTANCE).
THE CSF FOR THIS PROJECT IS 0.99953213.




| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3 | MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdtrv001.dgn | DESIGNED BY | | | ROAD PLANS | | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| 2 | | 12/1/2020 | REVIEWED BY | | | | | | |
| | | 8:52:21 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | | CSF = 0.99953213 UPN 8670000 | 4 |
| | | | REVISED BY | | | | | | |

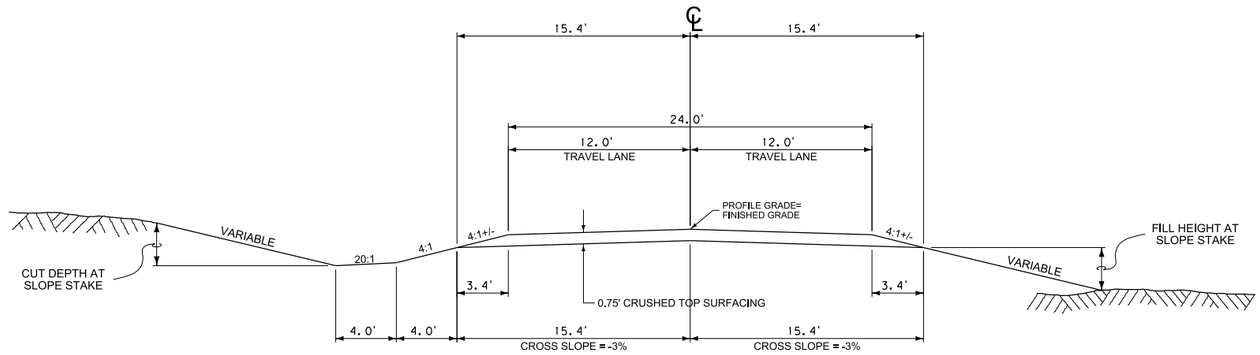
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# TYPICAL SECTION NO. 1

MAINLINE

| | | | |
|---|---|---|---|
| 9+56.28 | TO | 10+36.54 | THEN TO TYP. NO. 2 |
| 15+88.94 | TO | 15+98.42 | TYP. NO. 1 |




| QUANTITIES | |
|---|---|
| UNIT | AGGREGATE |
| | CRUSHED TOP SURFACING |
| AREA square feet | 20.55 |
| cubic yards PER STATION | 76.1 |
| tons PER STATION | |
| square yards PER STATION | |

| * FILL SLOPES | |
|---|---|
| 0' - 10' | 4:1 |
| 10' - 20' | 3:1 |
| 20' - 30' | 2:1 |
| OVER 30' | 2:1 |

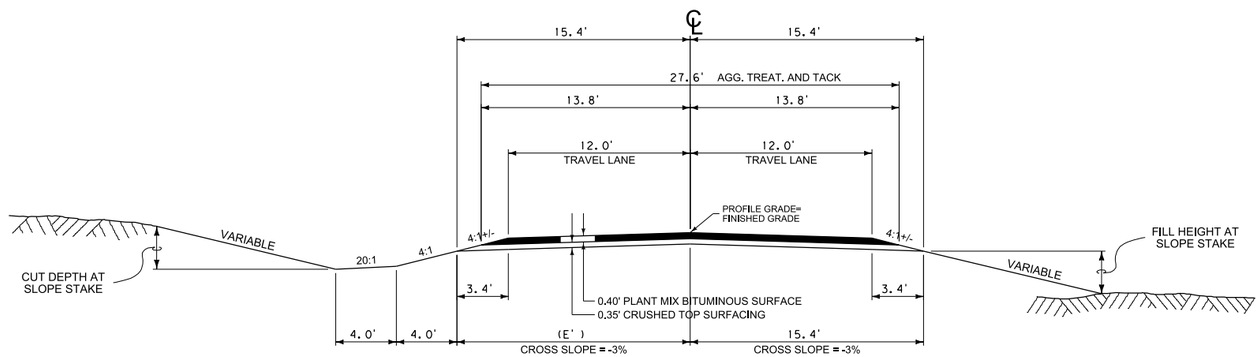
| * BACK SLOPES | |
|---|---|
| 0' - 5' | 4:1 |
| 5' - 10' | 3:1 |
| 10' - 15' | 2:1 |
| 15' - 20' | 2:1 |
| OVER 20' | 2:1 |

* SEE CROSS SECTIONS FOR DEVIATIONS

# TYPICAL SECTION NO. 2

MAINLINE

| | | | |
|---|---|---|---|
| 10+36.54 | TO | 10+56.54 B.E. | TYP. NO. 2 THEN TO TYP. NO. 3 |




| QUANTITIES | | | | | |
|---|---|---|---|---|---|
| UNIT | AGGREGATE | | UNIT | BITUMINOUS MAT. | |
| | PLANT MIX | CR. TOP SURF. | | EMULSIFIED ASPHALT TACK * | AGG. TREAT. |
| AREA square feet | 10.32 | 10.22 | square yards PER STATION | 613 | 307 |
| cubic yards PER STATION | 38.2 | 37.9 | tons PER STATION | | |
| tons PER STATION | 79.6 | | gals. PER STATION | 31 | |
| square yards PER STATION | | | | | |

* BASED ON TWO APPLICATIONS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdtyp001.dgn | DESIGNED BY | | | ROAD PLANS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| 2 | | 12/1/2020 | REVIEWED BY | | | | | |
| | | 8:52:31 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | UPN 8670000 | 5 |

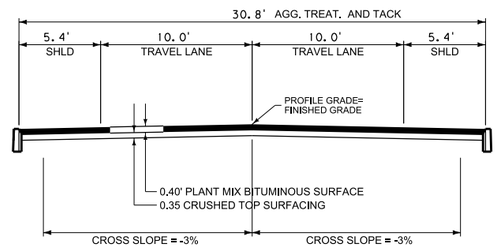
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# TYPICAL SECTION NO. 3

MAINLINE

12+11.46 B.E. TO 12+34.13 THEN TO TYP. N0.4




| QUANTITIES | | | | | |
|---|---|---|---|---|---|
| UNIT | AGGREGATE | | UNIT | BITUMINOUS MAT. | |
| | PLANT MIX | CR. TOP SURF. | | EMULSIFIED ASPHALT TACK * | AGG. TREAT |
| AREA square feet | 12,24 | 10,66 | square yards PER STATION | 684 | 342 |
| cubic yards PER STATION | 45,3 | 39,5 | tons PER STATION | | |
| tons PER STATION | 94.4 | | gals. PER STATION | 34 | |
| square yards PER STATION | | | | | |

* BASED ON TWO APPLICATIONS

| * FILL SLOPES | |
|---|---|
| 0' - 10' | 4:1 |
| 10' - 20' | 3:1 |
| 20' - 30' | 2:1 |
| OVER 30' | 2:1 |

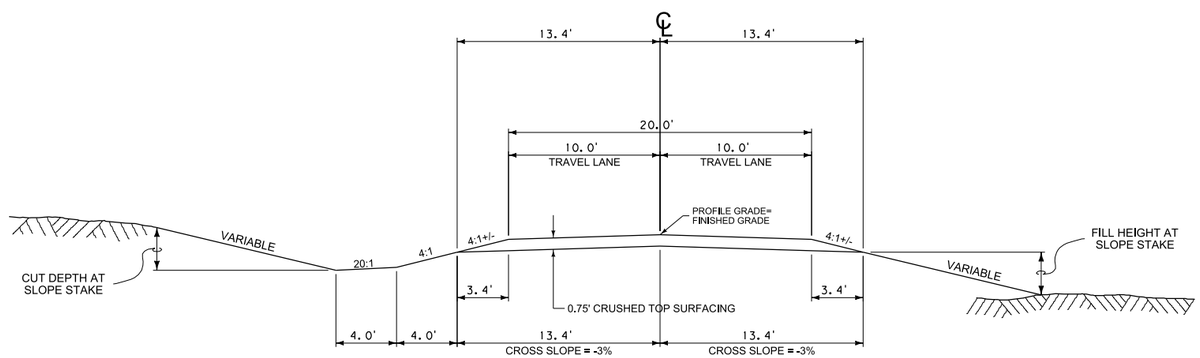
| * BACK SLOPES | |
|---|---|
| 0' - 5' | 4:1 |
| 5' - 10' | 3:1 |
| 10' - 15' | 2:1 |
| 15' - 20' | 2:1 |
| OVER 20' | 2:1 |

* SEE CROSS SECTIONS FOR DEVIATIONS

# TYPICAL SECTION NO. 4

MAINLINE

12+34.13 ONLY
12+34.13 TO 13+48.36 TRANS. TYP. NO. 4 TO TYP. NO.5




| QUANTITIES | |
|---|---|
| UNIT | AGGREGATE |
| | CRUSHED TOP SURFACING |
| AREA square feet | 17.55 |
| cubic yards PER STATION | 65.0 |
| tons PER STATION | |
| square yards PER STATION | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdtyp001.dgn | DESIGNED BY | | | ROAD PLANS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| 1 | | 12/1/2020 | REVIEWED BY | | | | | |
| | | 8:52:35 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | UPN 8670000 | 6 |

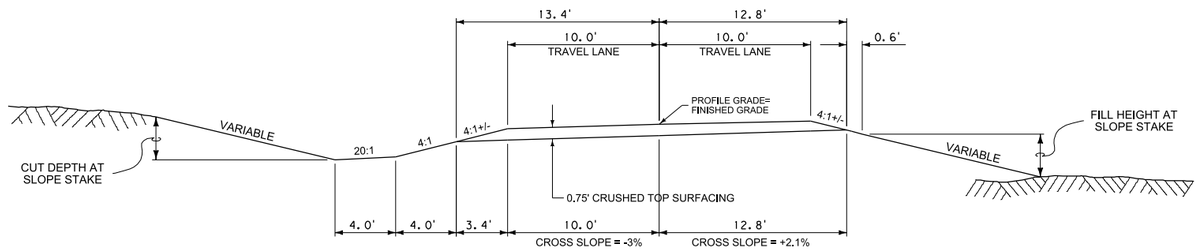
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# TYPICAL SECTION NO. 5

MAINLINE

13+48.36 TO 13+62.76 TRANS. TYP. NO. 5 TO TYP. NO. 6




FOR QUANTITIES SEE TYPICAL NO. 4

| * FILL SLOPES | |
|---|---|
| 0' - 10' | 4:1 |
| 10' - 20' | 3:1 |
| 20' - 30' | 2:1 |
| OVER 30' | 2:1 |

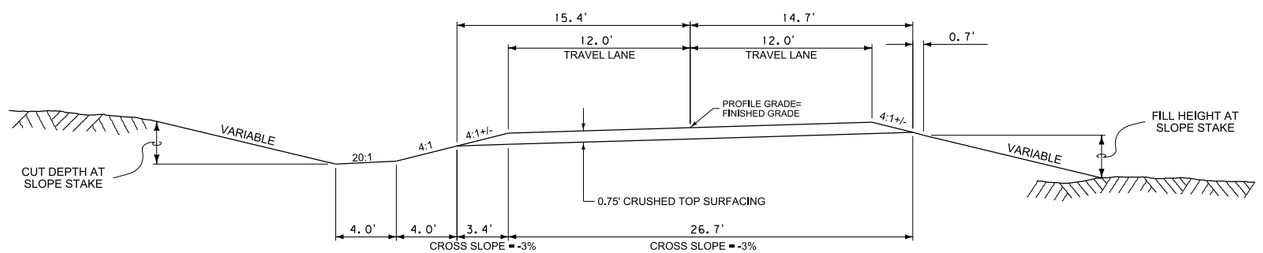
| * BACK SLOPES | |
|---|---|
| 0' - 5' | 4:1 |
| 5' - 10' | 3:1 |
| 10' - 15' | 2:1 |
| 15' - 20' | 2:1 |
| OVER 20' | 2:1 |

* SEE CROSS SECTIONS FOR DEVIATIONS

# TYPICAL SECTION NO. 6

MAINLINE

13+62.76 TO 14+92.94 3% LEFT
14+92.94 TO 15+88.94 TRANS. TYP. NO. 6 TO TYP. NO. 1




FOR QUANTITIES SEE TYPICAL NO. 1

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# SUMMARY

## GRADING

| STATION | | cubic yards | | REMARKS |
|---|---|---|---|---|
| FROM | TO | EXC. | EMB. IN PLACE | |
| | | | | |
| 9+56.28 | 15+98.42 | 475 | 329 | |
| | | 45 | 65 | ADDITIONAL GRADING |
| | | | 269 | TOPSOIL REPLACEMENT |
| | | | | |
| TOTAL | | # 520 | 663 | |

# FOR INFORMATION ONLY

## ADDITIONAL GRADING

| STATION | | cubic yards INCL. IN GRADING FRAME | | REMARKS |
|---|---|---|---|---|
| FROM | TO | EXC. | EMB. IN PLACE | |
| | | | | |
| 12+90 | | 15 | 45 | PUBLIC APPROACH RIGHT |
| | | | | |
| 14+10 | | 15 | 5 | FARM FIELD APPROACH RIGHT |
| | | | | |
| 15+18 | | 15 | 15 | FARM FIELD APPROACH LEFT |
| | | | | |
| TOTAL | | 45 | 65 | |

## MISCELLANEOUS ITEMS

| STATION | | cubic yards | lump sum | REMARKS |
|---|---|---|---|---|
| FROM | TO | MISCELLANEOUS ITEMS | REMOVE MISCELLANEOUS ITEMS | |
| | | | | |
| 11+88.85 | 12+12.84 | | 1 | ROCK WALL REMOVAL |
| 12+14.13 | 12+52.20 | 190 | | MSE WALL USED FOR QUANTITIES |
| | | | | |
| TOTAL | | 190 | 1 | |

## CULVERTS

| STATION | linear feet | | END SECTIONS | | cubic yards | | | square yards | linear feet | SKEW ANGLE | CULVERT IN PL. in x ft | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RCB | RCP CLASS 3 | | | GRANULAR BEDDING MATERIAL | SPECIAL BACKFILL | FOUNDATION MATERIAL | GEOTEXTILE STABILIZATION | HEIGHT OF COVER | | | |
| | 8' X 6' | 18" | LEFT | RIGHT | | | | | | | | |
| | | | | | | | | | | | | |
| 13+11.00 | 84 | | WINGWALL | WINGWALL | 41 | 445 | 82 | 282 | 1.5 | ±51° LT. | 12' x 6' x 20' RCB IRR. | SEE RCB DETAIL |
| | | | | | | | | | | | | |
| 13+17.82 | | # 18 | FETS | SQ | | | | | 1.5 | | | TIE INTO BOX CULVERT (SEE DETAILS) |
| | | | | | | | | | | | | |
| 15+18.00 | | $42 | FETS | FETS | | | | | 0.6 | | | FARM FIELD APPROACH LEFT |
| | | | | | | | | | | | | |
| TOTAL | 84 | 60 | ~ | ~ | 41 | 445 | 82 | 282 | ~ | ~ | ~ | |

# INCLUDE TRASH GUARD IN CULVERT COST.
$ - CLASS 4

## BRIDGE END BACKFILL

| STATION | | cubic yards | REMARKS |
|---|---|---|---|
| FROM | TO | BRIDGE END BACKFILL TYPE 3 | |
| | | | |
| 10+35.78 | 10+53.87 | 130 | |
| | | | |
| TOTAL | | 130 | |

## RANDOM RIPRAP

| STATION | | cubic yards | | square yards | | REMARKS |
|---|---|---|---|---|---|---|
| | | BANK PROTECTION | RIPRAP | GEOTEXTILE PERM. EROS. CONTROL HIGH SURV. CLASS A | RIPRAP REVEGETATION | |
| FROM | TO | TYPE 3 | CL. II | | | |
| | | | | | | |
| 10+49.43 | 10+84.56 | | 190.0 | 226 | 136 | SOUTH BENT 1 |
| | | | | | | |
| 11+95.64 | 12+21.49 | | 105.0 | 124 | 74 | NORTH BENT 2 |
| | | | | | | |
| 12+78.32 | | 22.0 | | 71 | | INLET BANK PROTECTION |
| | | | | | | |
| 13+43.68 | | 22.0 | | 71 | | OUTLET BANK PROTECTION |
| | | | | | | |
| TOTAL | | 44.0 | 295.0 | 492 | 210 | |

## REMOVE STRUCTURE

| STATION | lump sum | REMARKS |
|---|---|---|
| | REMOVE STRUCTURE | |
| | | |
| 11+34 | 0.8 | L48128000+04001 - 15.5' x 163' STEEL/TIMBER |
| | | |
| 13+25 | 0.2 | 12' X 6' X 20' RCB IRR. |
| | | |
| TOTAL | 1 | |

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# SUMMARY

## SURFACING

| STATION FROM | STATION TO | linear feet GROSS | linear feet NET | linear feet + | linear feet - | FOR | AGGREGATE tons COMM. MIX GR.S (3/8 in) PG 64-28 | AGGREGATE cubic yards CR. TOP SURF. TY. B GR.3 | AGGREGATE cubic yards TRAFFIC GRAVEL | BIT. MATL. gals EMULSIFIED ASHPHALT TACK | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| 9+56.28 | 10+36.54 | 80.26 | 80.26 | | | | | 61 | | | TYP. NO. 1 |
| 10+36.54 | 10+56.54 BE | 20.00 | 20.00 | | | | 16 | 8 | | 6 | TYP. NO. 2 |
| 10+56.54 BE | 12+11.46 BE | 154.92 | | | 154.92 | STILLWATER RIVER BRIDGE | | | | | |
| 12+11.46 BE | 12+34.13 | 22.67 | 22.67 | | | | 21 | 9 | | 8 | TYP. NO. 3 |
| 12+34.13 | 13+48.36 | 114.23 | 114.23 | | | | | 74 | | | TRANS. TYP. NO. 4 TO TYP. NO. 5 |
| 13+48.36 | 13+62.76 | 14.40 | 14.40 | | | | | 10 | | | TRANS. TYP. NO. 5 TO TYP. NO. 6 |
| 13+62.76 | 14+92.94 | 130.18 | 130.18 | | | | | 99 | | | TYP. NO. 6 |
| 14+92.94 | 15+88.94 | 96.00 | 96.00 | | | | | 73 | | | TRANS. TYP. NO. 6 TO TYP. NO. 1 |
| 15+88.94 | 15+98.42 | 9.48 | 9.48 | | | | | 7 | | | TYP. NO. 1 |
| | | | | | | | | | | | |
| | | | | | | ADDITIONAL SURFACING | | 95 | | | |
| | | | | | | | | | | | |
| **TOTAL** | | **642.14** | **487.22** | ~ | **154.92** | | **37** | **436** | **100** | **14** | |

## ADDITIONAL SURFACING (INCLUDED IN SURFACING FRAME)

| STATION FROM | STATION TO | linear feet GROSS | linear feet NET | linear feet + | linear feet - | FOR | cubic yards CR. TOP SURF. TY. B GR.3 | cubic yards TRAFFIC GRAVEL | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| 12+90 | | | | | | PUBLIC APPROACH | 41 | | |
| | | | | | | | | | |
| 14+10 | | | | | | FARM FIELD APPROACH | 23 | | |
| | | | | | | | | | |
| 15+20 | | | | | | FARM FIELD APPROACH | 31 | | |
| | | | | | | | | | |
| **SUBTOTAL** | | ~ | ~ | ~ | ~ | | **95** | ~ | |

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# SUMMARY

## TOPSOIL & SEEDING

| STATION | | cubic yards | acres | | | sq. yard | REMARKS |
|---|---|---|---|---|---|---|---|
| | | TOPSOIL SALVAGING & PLACING | SEED | | CONDITION SEEDBED | EROSION CONTROL BLANKET | |
| FROM | TO | | NO. 1 | NO. 2 | | SHORT TERM | |
| 9+56.28 | 15+98.42 | 269 | 0.5 | 0.1 | 0.5 | 29.0 | |
| TOTAL | | 269 | 0.5 | 0.1 | 0.5 | 29.0 | |

## RETAINING WALLS *

| STATION | | sq. yard | REMARKS |
|---|---|---|---|
| | | DESIGN, CONSTRUCT RETAINING WALL | |
| FROM | TO | | |
| 12+14.13 | 12+34.13 | 24 | LT. |
| 12+14.13 | 12+30.13 | 18 | RT. |
| TOTAL | | 42 | |

* SEE RETAINING WALL DETAIL

## FENCING

| STATION | | linear feet | | | each | | | | | | linear feet | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FARM FENCE | | TEMP. FENCE | FARM FENCE PANEL | | | | PEDESTRIAN PASS | DEADMAN | FARM GATE | |
| | | | | | SINGLE | | DOUBLE | | | | | |
| FROM | TO | TYPE F2-32WW | FENCE-WOOD-3 RAIL | | FW | FM | FW | FM | | | TYPE G3 | |
| 9+25 | 10+50 | 125 | | | | 2 | | 2 | | | | LT - TIE TO BRIDGE |
| 12+50 | 15+12 | 262 | | | | 2 | | 2 | | | | LT |
| 15+12 | 15+24 | | | | | | | | | | 12 | LT |
| 15+24 | 16+40 | 116 | | | | 1 | | 2 | | | | LT - TIE TO EXISTING FENCE |
| 9+25 | 10+54 | | 20 | | | | | | 1 | | | RT - TIE TO BRIDGE |
| 12+14 | 12+58 | | * 44 | | | | | | | | | RT - TIE TO EXISTING - SEE R/W AGREEMENT |
| TOTAL | | 503 | 64 | 465 | 0 | 5 | 0 | 6 | 1 | 4 | 12 | |

* MATCH EXISTING FENCING WITH WOVEN WIRE

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# HYDRAULIC DATA SUMMARY *

| STATION | STREAM NAME ( IF NAMED ) | DRAINAGE AREA ( mi.² ) | SIZE / TYPE STRUCTURE (1)(1A)(4) | DESIGN FLOOD | | | BASE FLOOD (1%) | | OVERTOPPING FLOOD (2)(3) | | | REMARKS (FLOOD OF RECORD, Qp(max), etc.) (5) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | MAGNITUDE (cfs) | FREQUENCY (%) | H.W. ELEV. (ft.) | MAGNITUDE (cfs) | H.W. ELEV. (ft.) | MAGNITUDE (cfs) | APPROX. FREQUENCY (%) | H.W. ELEV. (ft.) | |
| 11+30 | Stillwater River | 528.8 | 155' Bridge | 7,187 | 4.0 | 4,055.52 | 8,792 | 4,056.40 | 10,612 | 0.2 | 4,057.33 | Qp(max) |

NOTES :

* H.W. ELEVATIONS SHOWN ARE BASED UPON PEAK FLOW ANALYSIS UNLESS NOTED IN REMARKS COLUMN.

(1) STRUCTURE SIZE OR TYPE AND RELATED HYDRAULIC DATA MAY NOT REFLECT CHANGES MADE DUE TO R/W OR OTHER CONSIDERATIONS (I.E., STOCKPASS ADDED, STRUCTURE SIZE OR TYPE CHANGED, ROAD GRADE CHANGED DURING CONSTRUCTION, ETC.)

(1A) BRIDGE LENGTH SHOWN EQUALS THE WATER SURFACE WIDTH IN THE OPENING AT THE DESIGN H.W. ELEVATION MEASURED NORMAL TO FLOW.

(2) OVERTOPPING IS DEFINED AS FLOW OVER THE ROAD, FLOW THROUGH A SIGNIFICANT RELIEF STRUCTURE OR FLOW OVER THE BASIN DIVIDE WHICHEVER IS LOWER.

(3) FOR THOSE CROSSINGS NOTED BY Qp(max) IN THE REMARKS COLUMN OVERTOPPING DOES NOT OCCUR AND THE FLOOD MAGNITUDE LISTED CORRESPONDS TO THE FLOOD OF SECTION 650.115 (a) (1) (ii) OF FEDERAL-AID POLICY GUIDE, SUBCHAPTER G, PART 650, SUBPART A (DEC. 1991)
THE FLOOD SPECIFIED IS SUBJECT TO STATE-OF-THE-ART CAPABILITY TO ESTIMATE THE EXCEEDANCE PROBABILITY.
( PIPES 0.5%; BRIDGE .2%)

(4) HIGH WATER ELEVATIONS MAY VARY SLIGHTLY DEPENDING UPON THE PIPE OPTION SELECTED.

(5) PROCEDURE MEMORANDUM NO.10, HYDRAULICS MANUAL CHAPTER 9 APPENDIX H.

| EXCEEDANCE | PROBABILITIES |
|---|---|
| 25 YEAR | 4 % CHANCE |
| 50 YEAR | 2 % CHANCE |
| 100 YEAR | 1 % CHANCE |
| 200 YEAR | .5% CHANCE |
| 500 YEAR | .2% CHANCE |

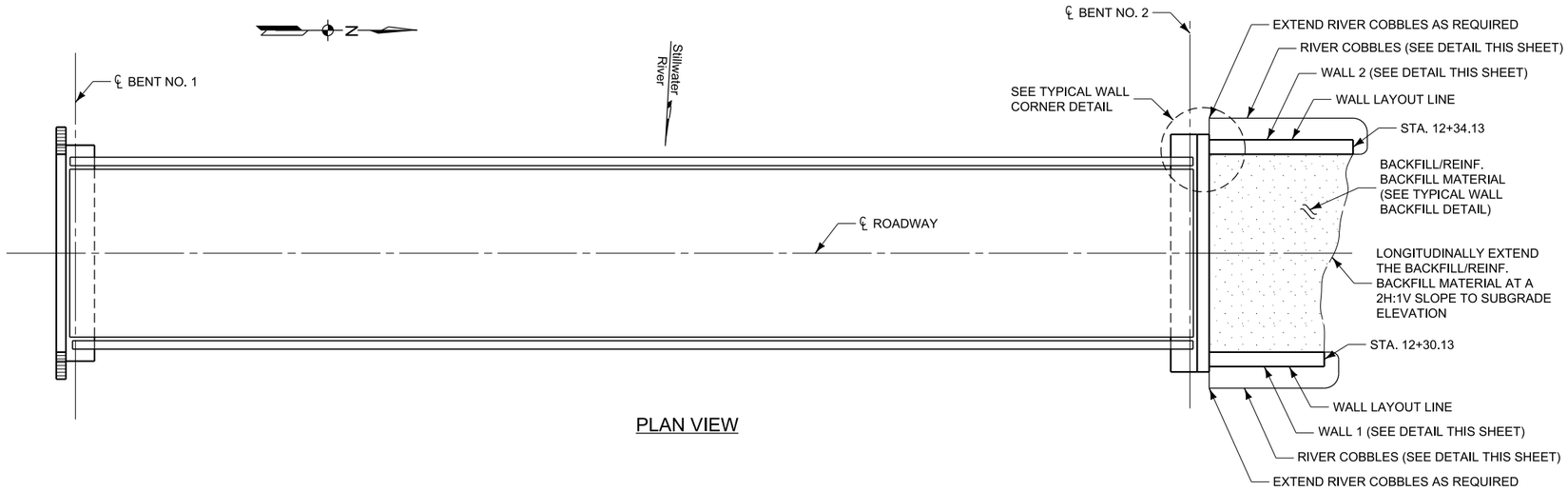
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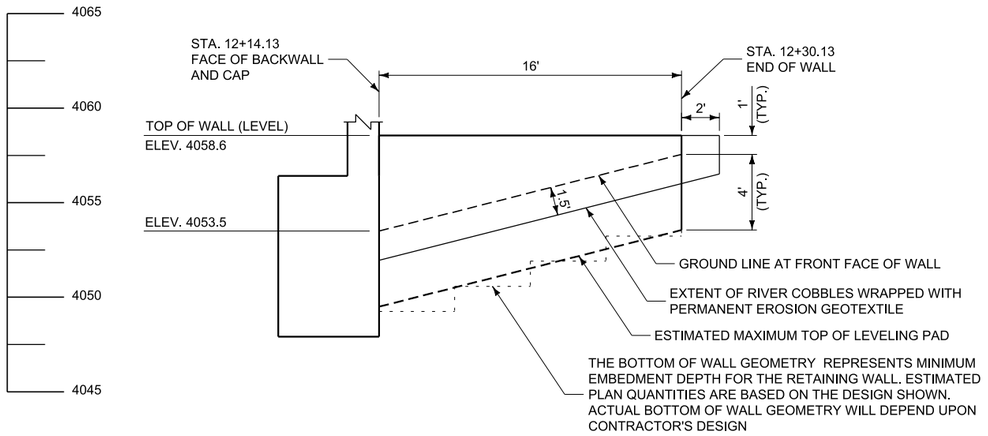
# DETAIL

NOTES:

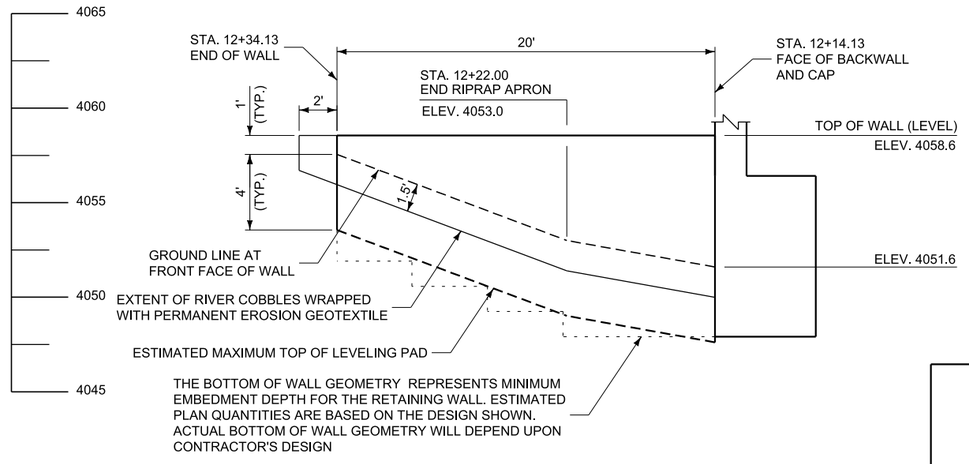
1. ALL ELEVATION VIEWS ARE TAKEN ALONG GRAVITY AND MSE RETAINING WALL LAYOUTS, LOOKING AT FRONT FACE.
2. SEE RETAINING WALL DETAIL SHEET FOR TYPICAL CORNER, GRAVITY AND MSE WALL DETAILS.




PLAN VIEW




WALL 1 ELEVATION VIEW




WALL 2 ELEVATION VIEW

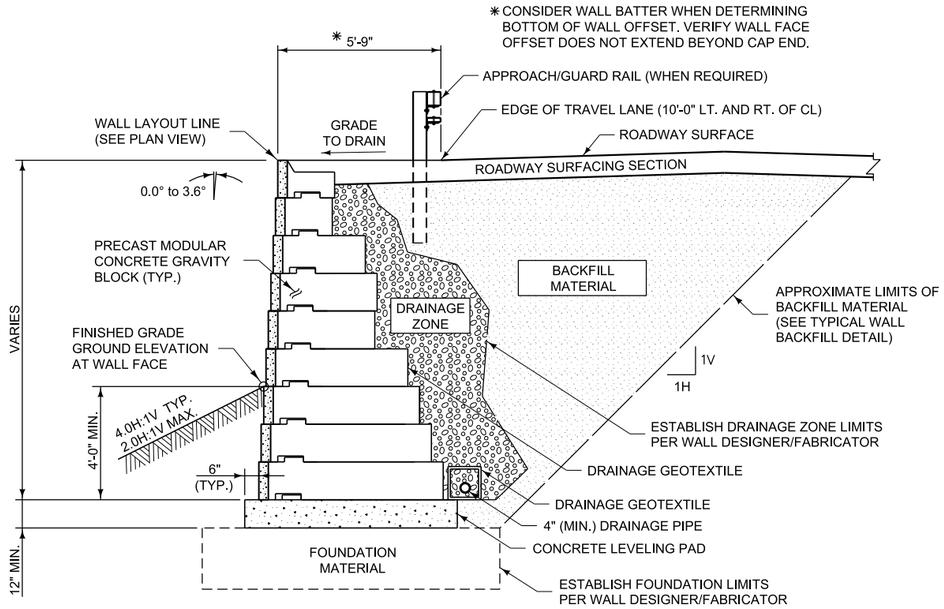
RETAINING WALLS - PLAN AND ELEVATION VIEWS

NO SCALE

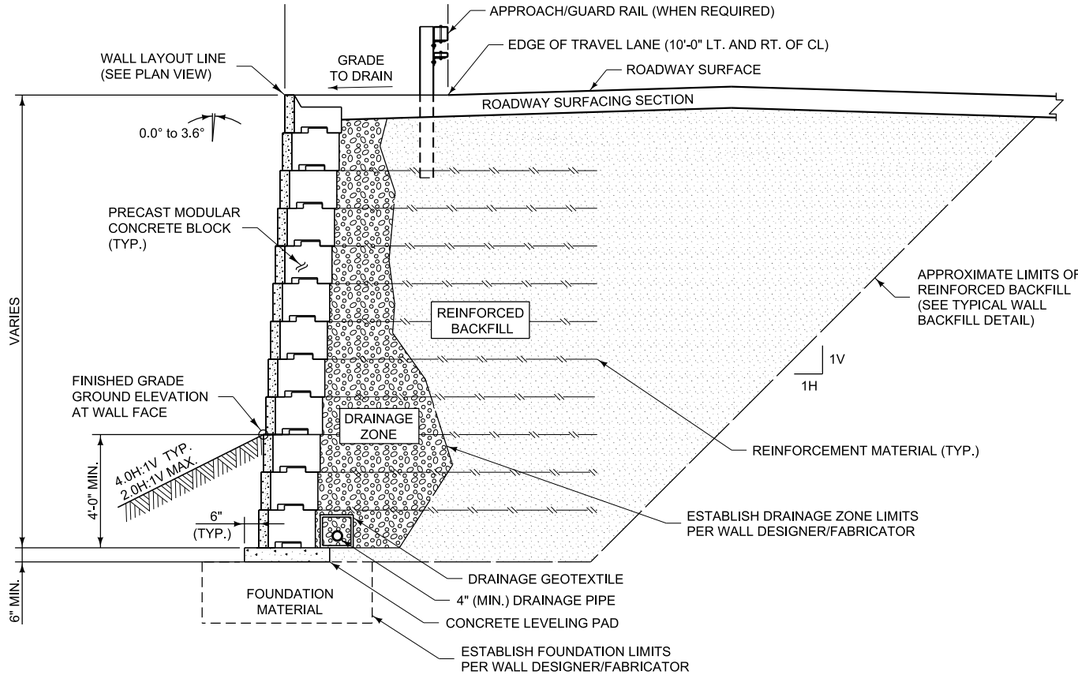
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# DETAIL



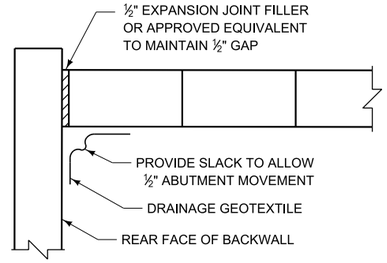

TYPICAL GRAVITY WALL SECTION



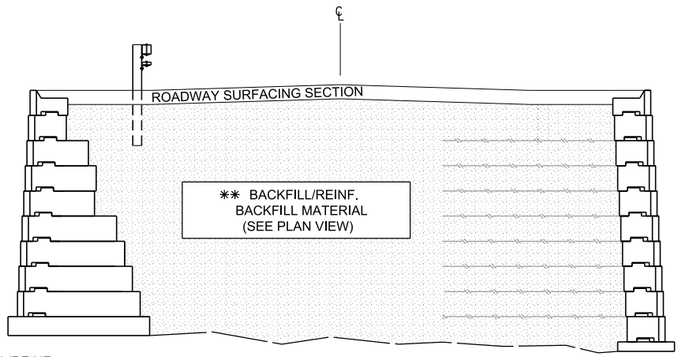

TYPICAL MSE WALL SECTION

## NOTES

1) SEE SPECIAL PROVISIONS FOR GRAVITY AND MSE RETAINING WALL DESIGN AND CONSTRUCTION REQUIREMENTS.
2) MINIMUM DIMENSIONS ARE GIVEN FOR ILLUSTRATION PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR PRODUCING A DESIGN.
3) BACKFILL FRONT FACE OF THE WALL TO THE FINISHED GRADE GROUND ELEVATION AS SHOWN ON THE PLANS.
4) PROVIDE CONCRETE LEVELING PAD WITH SPECIFIED MINIMUM EMBEDMENT DEPTH TO BOTTOM OF LEVELING PAD. INCREASE LEVELING PAD EMBEDMENT DEPTH AS REQUIRED BY FABRICATORS DESIGN.
5) FINAL WALL DESIGNS TO BE PROVIDED WITH SHOP DRAWINGS.
6) THE SECTION SHOWN IS A REPRESENTATIVE WALL SECTION. THE WALL HEIGHTS, ELEVATIONS, TOE SLOPES AND BACK SLOPES TO BE VERIFIED BY WALL DESIGNER.
7) WALL LAYOUT LINE IS PARALLEL TO ℄ ROADWAY.
8) GRADE, SHAPE, TOPSOIL, AND SEED FORESLOPE AT FRONT FACE OF WALL.
9) USE OSHA APPROVED METHODS OF PROTECTION AS REQUIRED FOR EXCAVATION DURING WALL CONSTRUCTION.
10) CONSTRUCT SURFACING SECTION/ROADWAY SURFACE TO TOP OF WALL. SEE CROSS-SECTIONS.




TYPICAL WALL CORNER DETAIL




✳✳ PLACE BACKFILL/REINF. BACKFILL MATERIAL THROUGHOUT ROADWAY EMBANKMENT WHEN RETAINING WALL SYSTEMS ARE LOCATED BOTH LEFT AND RIGHT IN-SECTION.

TYPICAL WALL BACKFILL DETAIL

RETAINING WALLS - SECTION VIEWS

NO SCALE

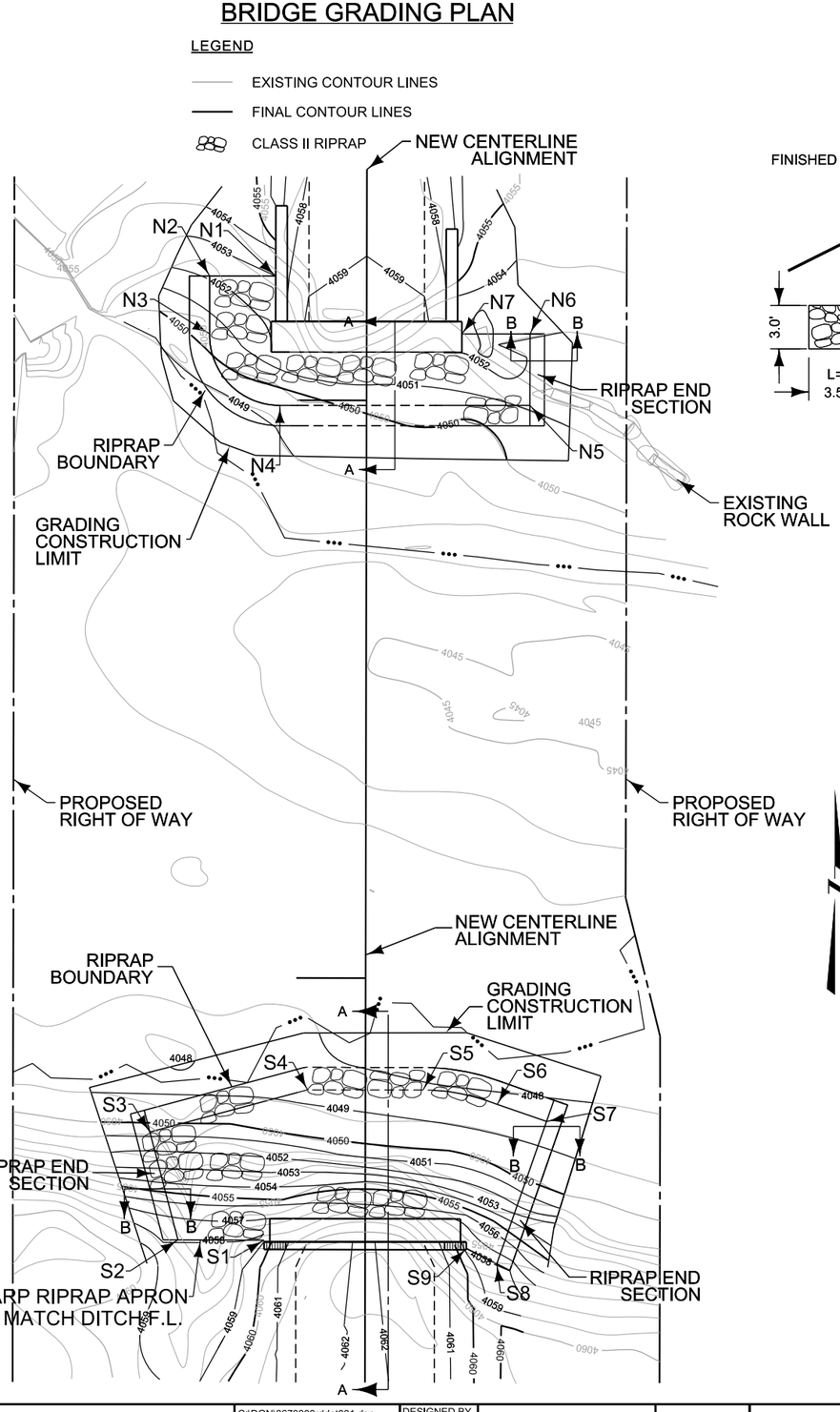
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| 2 | | 12/1/2020 | REVIEWED BY | | | | | | |
| | | 8:53:36 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | | UPN 8670000 | 13 |

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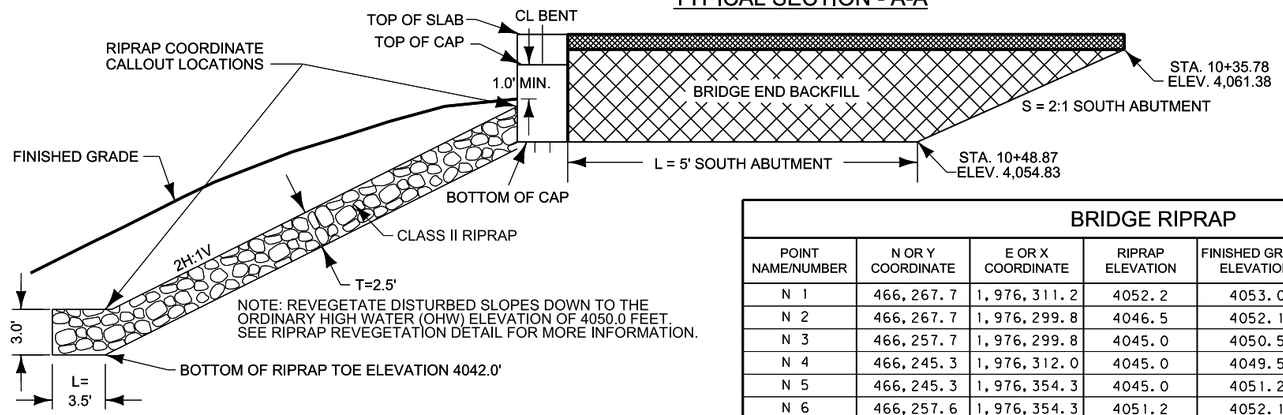
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# DETAIL

## BRIDGE GRADING PLAN



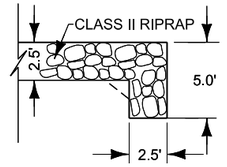

## TYPICAL SECTION - A-A




NOTE: REVEGETATE DISTURBED SLOPES DOWN TO THE ORDINARY HIGH WATER (OHW) ELEVATION OF 4050.0 FEET. SEE RIPRAP REVEGETATION DETAIL FOR MORE INFORMATION.

## TYPICAL SECTION - B-B

RIPRAP END SECTION




NOTE: RIPRAP END SECTION NOT TO BE LOWER THAN THE BOTTOM OF THE RIPRAP TOE.

## BRIDGE RIPRAP

| POINT NAME/NUMBER | N OR Y COORDINATE | E OR X COORDINATE | RIPRAP ELEVATION | FINISHED GRADE ELEVATION | LOCATION AND DESCRIPTION |
|---|---|---|---|---|---|
| N 1 | 466,267.7 | 1,976,311.2 | 4052.2 | 4053.0 | |
| N 2 | 466,267.7 | 1,976,299.8 | 4046.5 | 4052.1 | |
| N 3 | 466,257.7 | 1,976,299.8 | 4045.0 | 4050.5 | |
| N 4 | 466,245.3 | 1,976,312.0 | 4045.0 | 4049.5 | |
| N 5 | 466,245.3 | 1,976,354.3 | 4045.0 | 4051.2 | |
| N 6 | 466,257.6 | 1,976,354.3 | 4051.2 | 4052.1 | |
| N 7 | 466,257.6 | 1,976,343.5 | 4051.2 | 4052.8 | |
| | | | | | |
| S 1 | 466,100.8 | 1,976,309.2 | 4058.0 | 4058.8 | |
| S 2 | 466,100.8 | 1,976,294.3 | 4058.0 | 4058.0 | |
| S 3 | 466,119.5 | 1,976,289.5 | 4046.0 | 4050.7 | |
| S 4 | 466,126.8 | 1,976,316.8 | 4045.0 | 4048.8 | |
| S 5 | 466,126.8 | 1,976,336.8 | 4045.0 | 4048.2 | |
| S 6 | 466,124.3 | 1,976,349.6 | 4045.0 | 4048.3 | |
| S 7 | 466,121.3 | 1,976,358.1 | 4045.0 | 4048.4 | |
| S 8 | 466,096.7 | 1,976,349.5 | 4058.0 | 4058.0 | |
| S 9 | 466,100.0 | 1,976,343.0 | 4057.5 | 4058.5 | |
| | | | | | |

## RIPRAP REVEGETATION DETAIL

### LEGEND

- TOPSOIL WITH EROSION CONTROL BLANKET/MULCH COVER
- RANDOM RIPRAP
- GRANULAR BEDDING
- EXISTING GROUND
- PERMANENT EROSION CONTROL GEOTEXTILE
- EXCAVATION

NOTES:

FILL RIPRAP VOIDS WITH GRANULAR BEDDING OR A MATERIAL OF SIMILIAR GRADATION OBTAINED ON SITE TO PROVIDE A UNIFORM SURFACE FOR THE PLACEMENT OF TOPSOIL, AS APPROVED BY THE PROJECT MANAGER.

PLACE TOPSOIL WITH A MINIMUM THICKNESS OF 6".

THIS DETAIL IS TO BE USED AS A VISUAL GUIDE FOR RIPRAP REVEGETATION. REFER TO THE PLAN SHEETS AND CROSS SECTIONS FOR SPECIFIC ELEVATIONS AND GEOMETRIC CONFIGURATION OF THE RIPRAP LAYOUT.

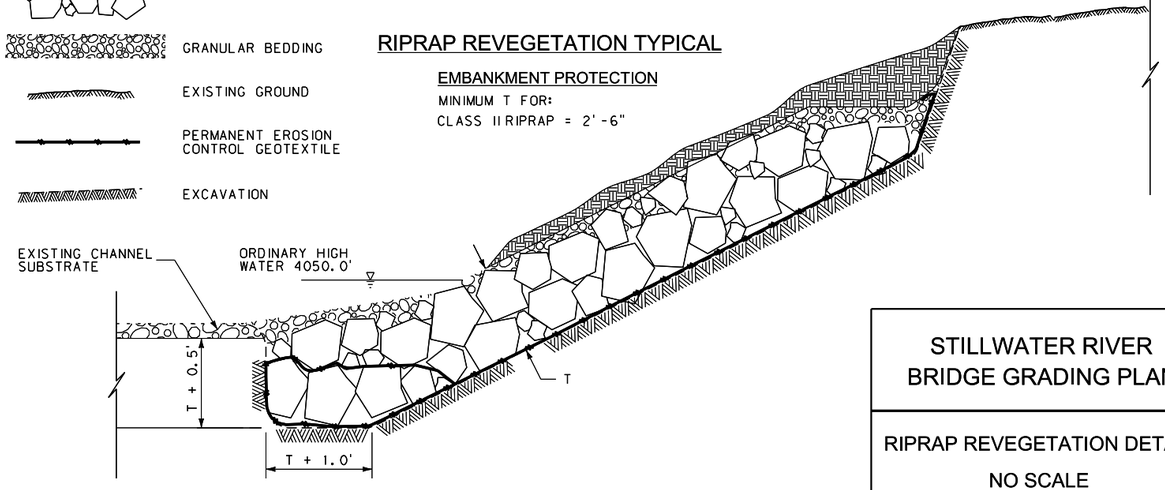
REFER TO THE SPECIAL PROVISIONS FOR PLANTING AND SEEDING SPECIFICATIONS

### RIPRAP REVEGETATION TYPICAL

EMBANKMENT PROTECTION

MINIMUM T FOR:

CLASS II RIPRAP = 2'-6"




STILLWATER RIVER
BRIDGE GRADING PLAN

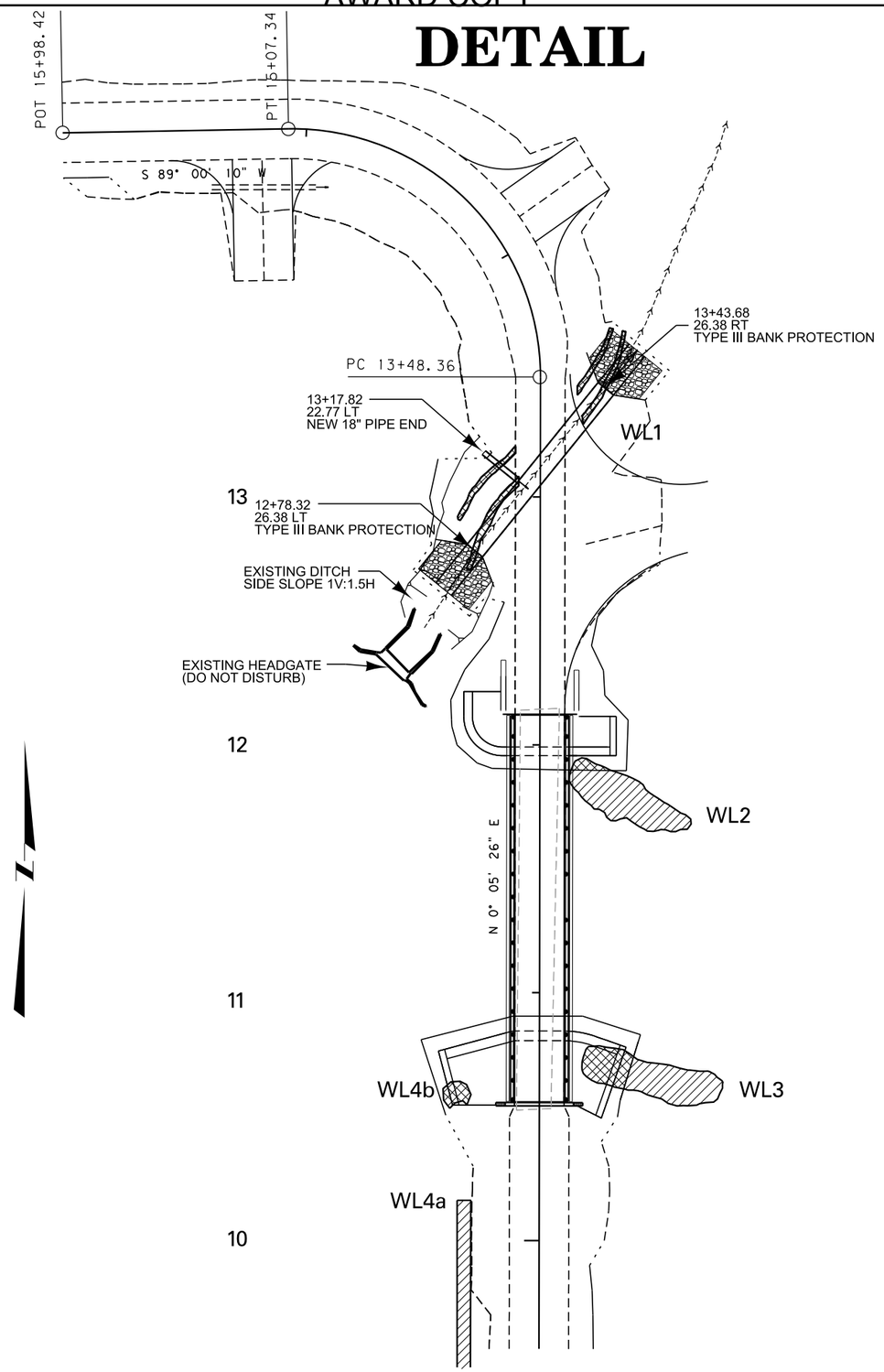
RIPRAP REVEGETATION DETAIL
NO SCALE

| | | | | | | | |
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| 2 | | 12/1/2020 | REVIEWED BY | | | | UPN 8670000 / 14 |
| | | 8:53:49 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | |

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# DETAIL




*GARRIGUS DITCH*
*PLAN VIEW*

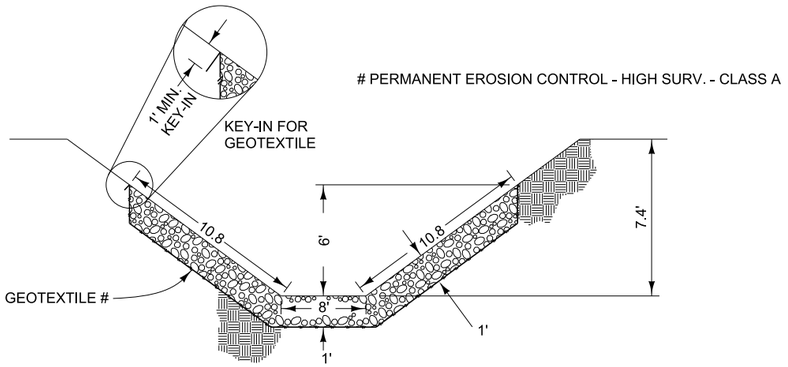
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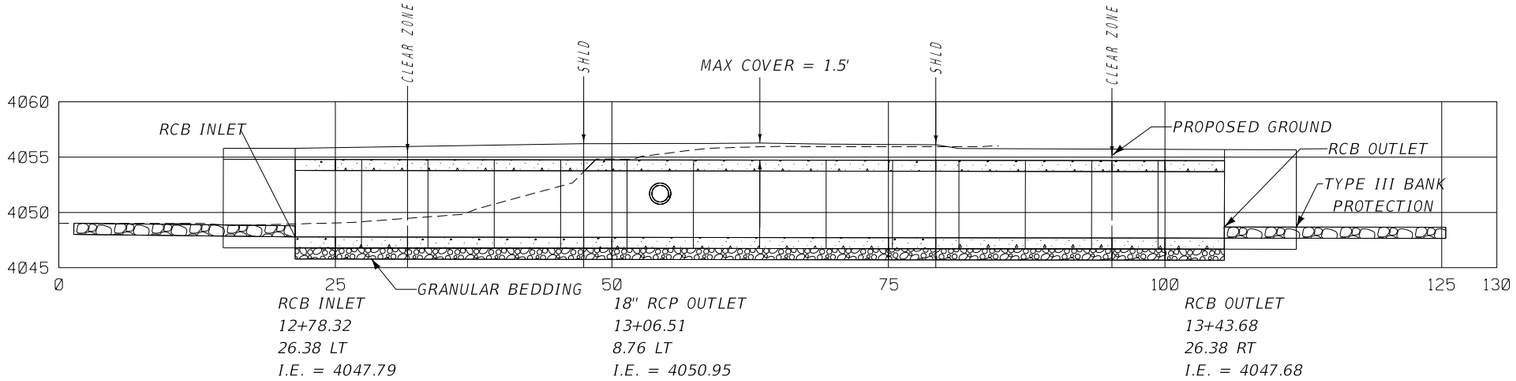
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# DETAIL




BANK PROTECTION



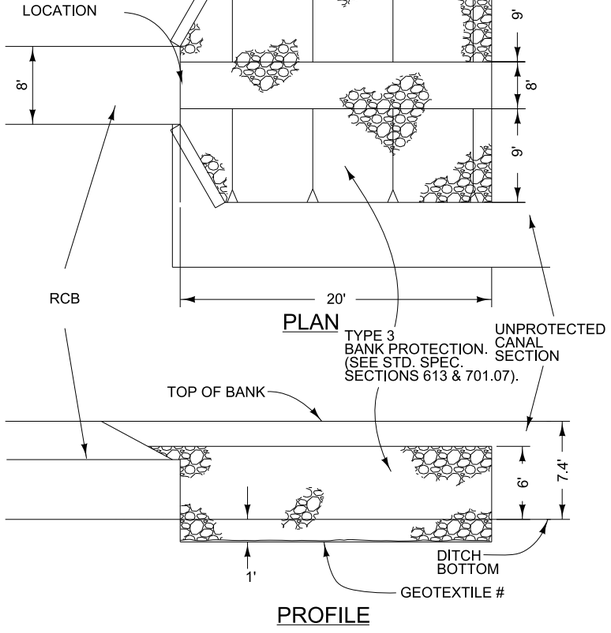

RCB INLET
12+78.32
26.38 LT
I.E. = 4047.79

18" RCP OUTLET
13+06.51
8.76 LT
I.E. = 4050.95

RCB OUTLET
13+43.68
26.38 RT
I.E. = 4047.68

## RCB PROFILE

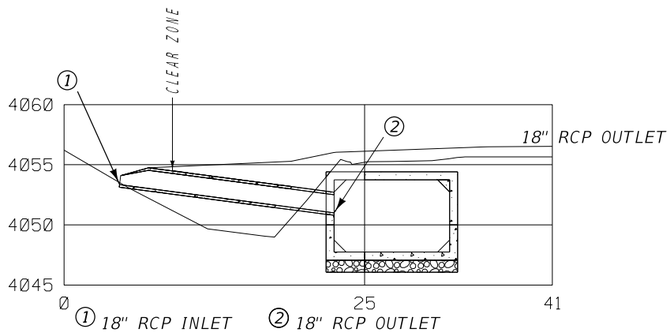
STATION: 13+11 51° LT
8' X 6' RCB
DEPRESSED 1'




PLAN




PROFILE

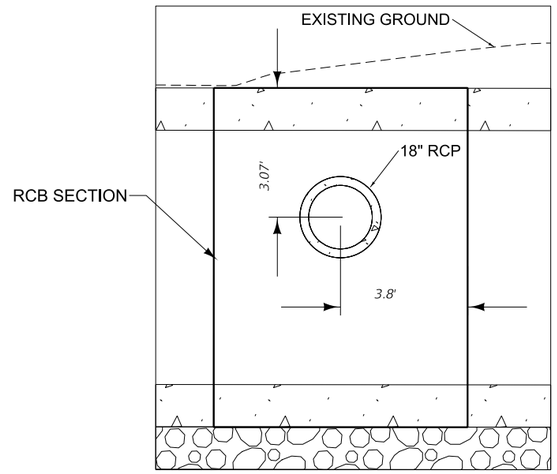



① 18" RCP INLET
13+17.82
22.77 LT W/FETS
I.E. = 4053.34

② 18" RCP OUTLET
13+06.51
8.76 LT
I.E. = 4050.95

* INCLUDE TRASH GUARD

## RCP PROFILE




## RCB PIPE PENETRATION

NOTES:

① INSTALL FLUSH TO INTERIOR WALL

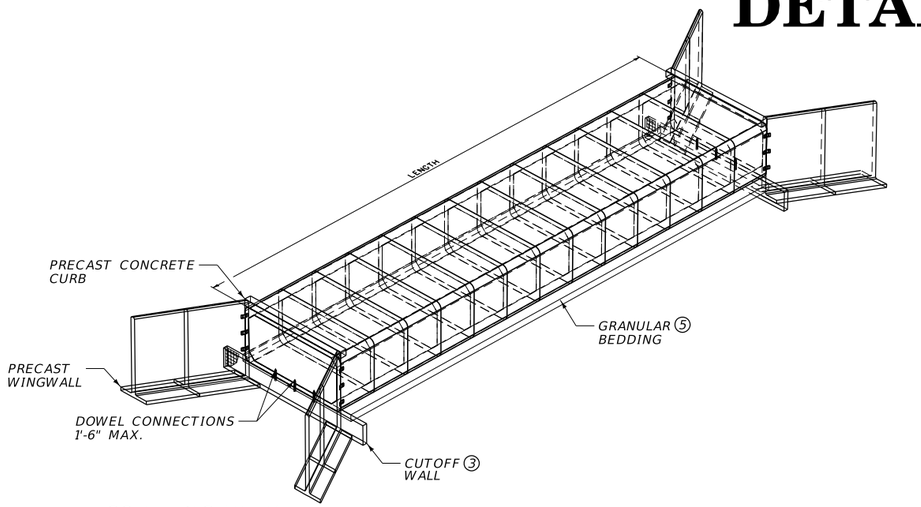
GARRIGUS DITCH
PROFILE AND
BANK PROTECTION

NO SCALE

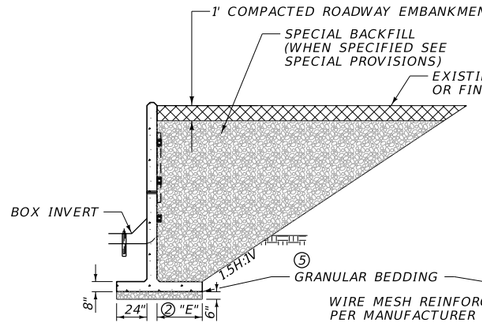
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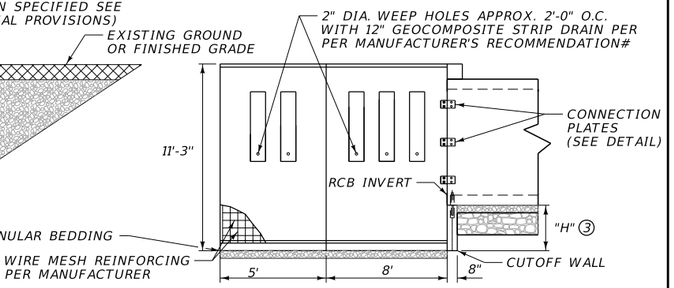
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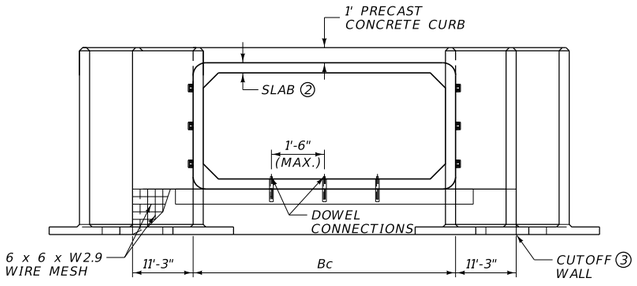

ISOMETRIC VIEW
OUTLET END



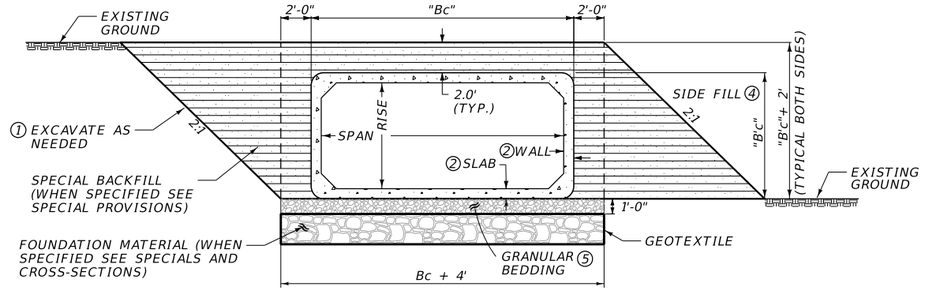

PRECAST WINGWALL
BEDDING AND BACKFILL DETAIL




PRECAST WINGWALL
DETAIL SIDE VIEW

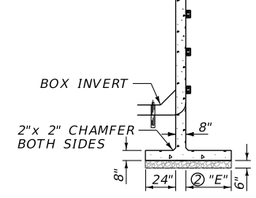



PRECAST SINGLE CELL BOX CULVERT
WITH CUTOFF WALL AND 60° PRECAST WINGWALLS

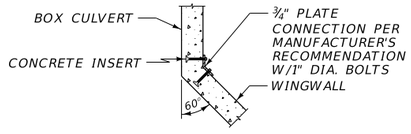



EXCAVATION TYPICAL — FILL TYPICAL

BOX CULVERT BEDDING DETAIL




PRECAST WINGWALL
DETAIL END VIEW




60° CONNECTION
PLATE DETAIL

NOTES:

① EXCAVATE A SUFFICIENT AMOUNT TO PROVIDE A SAFE WORKING ENVIRONMENT AND TO ALLOW ACHIEVEMENT OF ALL CULVERT INSTALLATION AND COMPACTION REQUIREMENTS. SLOPE, BENCH OR PROVIDE SHORING FOR ALL EXCAVATIONS IN ACCORDANCE WITH THE U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION.

② FOR ESTIMATING QUANTITIES ONLY. ACTUAL DIMENSION TO BE DETERMINED BY PRECAST MANUFACTURER.

③ 3'-0" MIN.OR 1'-0" BELOW BOTTOM OF FOUNDATION MATERIAL IF SPECIFIED.

④ COMPACT AND PLACE SIDE FILL PER SECTION 603 AND 203.

⑤ SEE SECTION 701 OF THE STANDARD SPECIFICATIONS FOR GRANULAR BEDDING REQUIREMENTS. THE CONTRACTOR HAS THE OPTION OF USING A SAND CUSHION ABOVE THE GRANULAR BEDDING TO FACILITATE JOINING OF THE BOX CULVERT SECTIONS.

| DIMENSIONS | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STATION | SPAN (ft.) | RISE (ft.) | LENGTH (ft.) | WALL (in.) | SLAB (in.) | "E" (in.) | "Bc" (ft.) | "B'c" (ft.) | "H" (ft.) | COVER (ft.) | NOTES: |
| 13+11 | 8 | 6 | 84 | 8 | 8 | 50 | 9.33 | 7.33 | 4 | 1.5 | 51° LT 60° WING WALL |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

NOTE: QUANTITIES ARE BASED ON THE DIMENSIONS IN THE TABLE.
PROVIDE BOX CULVERTS MEETING ASTM C1577.

INCLUDE PRECAST TAPERED WINGWALLS, PRECAST CONCRETE CURBS, CUTOFF WALLS, SPECIAL BACKFILL BEHIND PRECAST TAPERED WINGWALLS, STRIP DRAINS, SUBSURFACE DRAINAGE GEOTEXTILE AND GRANULAR BEDDING BENEATH THE PRECAST TAPERED WINGWALLS IN THE UNIT PRICE BID PER LINEAR FOOT OF RCB.

#PROVIDE A GEOCOMPOSITE STRIP DRAIN CONSTRUCTED OF A POLYMERIC DRAINAGE CORE WITH A MINIMUM COMPRESSIVE STRENGTH OF 9000 PSF PER ASTM D 1621 AND A MINIMUM FLOW CAPACITY OF 20 GPM PER ASTM D 4716. THE STRIP DRAIN MUST BE WRAPPED IN A SUBSURFACE DRAINAGE GEOTEXTILE FILTER MEETING THE REQUIREMENTS OF HIGH SURVIVABILITY, CLASS B OF SECTION 716.

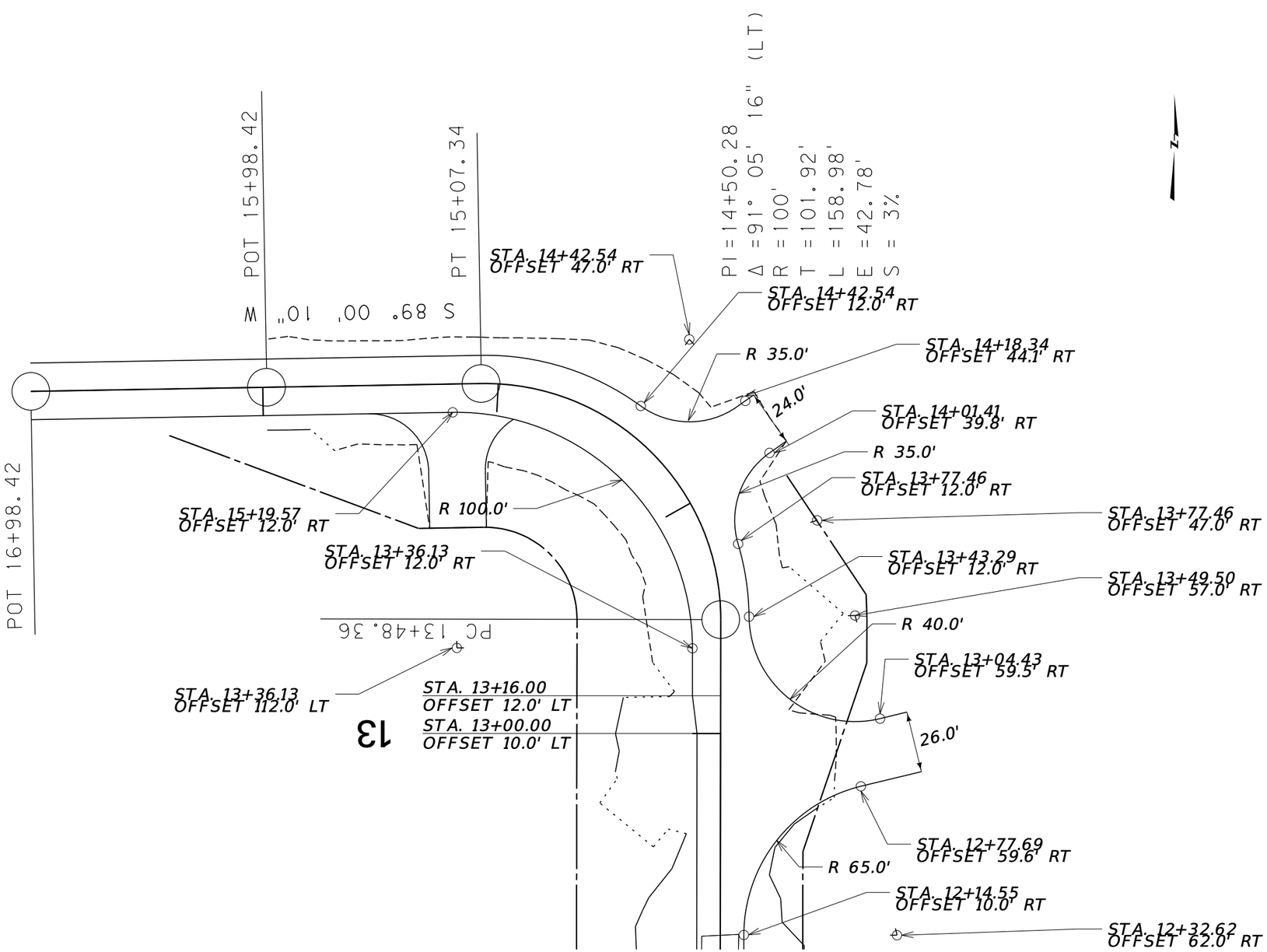
RCB WITH WING WALLS

NO SCALE

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# DETAIL




STA. 12+90

PUBLIC APPROACH

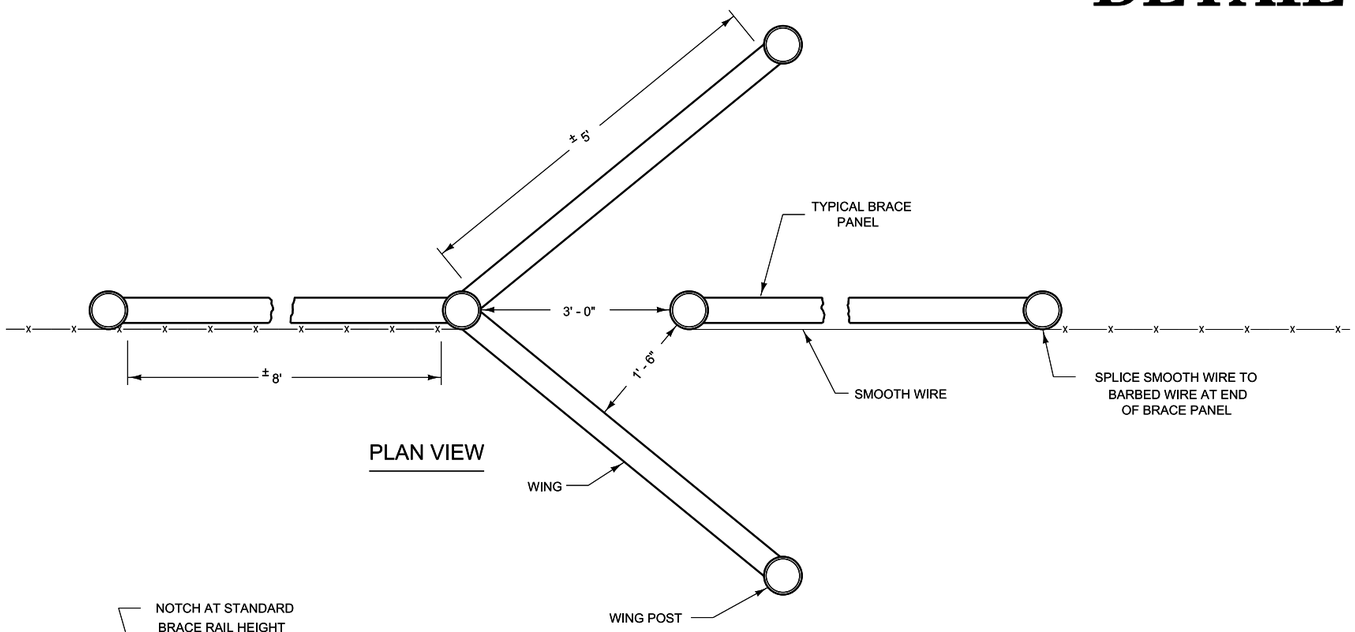
NO SCALE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3 | MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rddet003.dgn | DESIGNED BY | | | ROAD PLANS | | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| 2 | | 12/1/2020 | REVIEWED BY | | | | | | |
| | | 8:54:14 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | | UPN 8670000 | 18 |

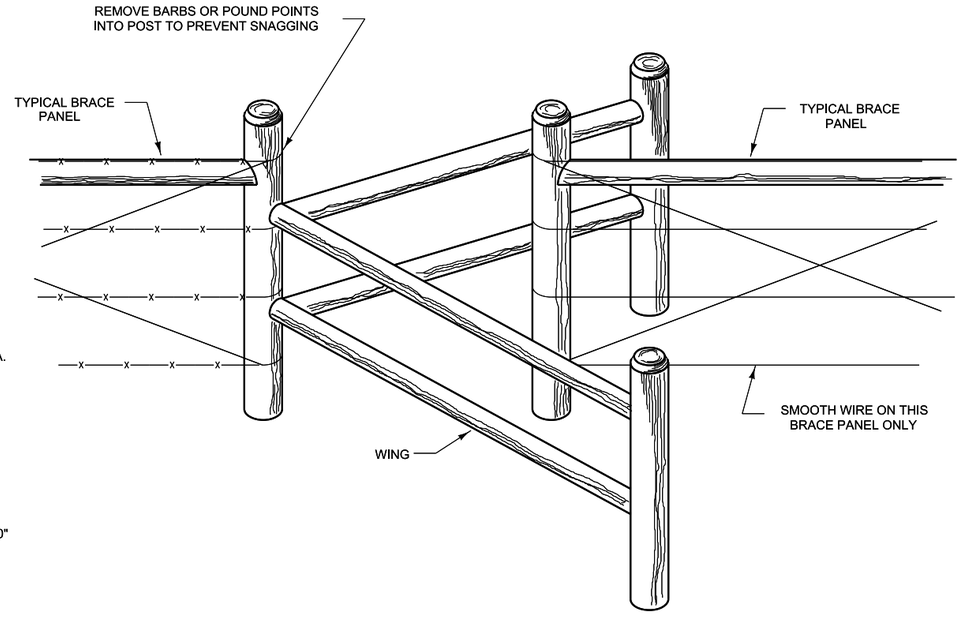
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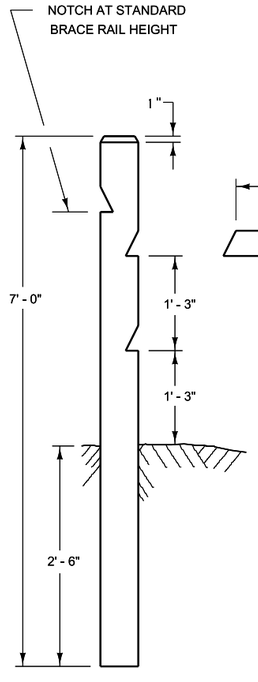
# DETAIL



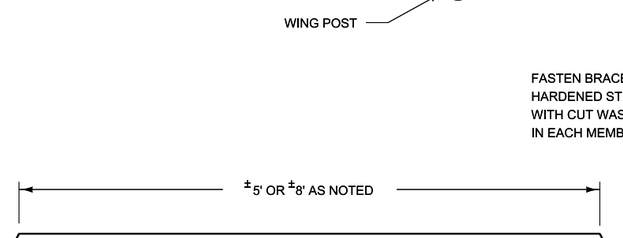

PLAN VIEW



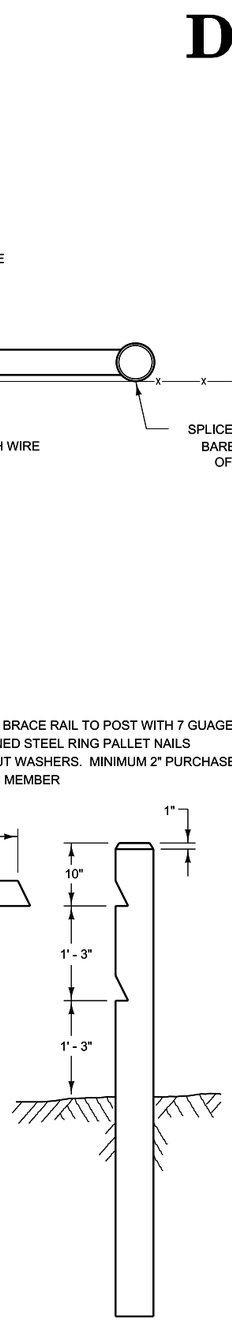

PERSPECTIVE



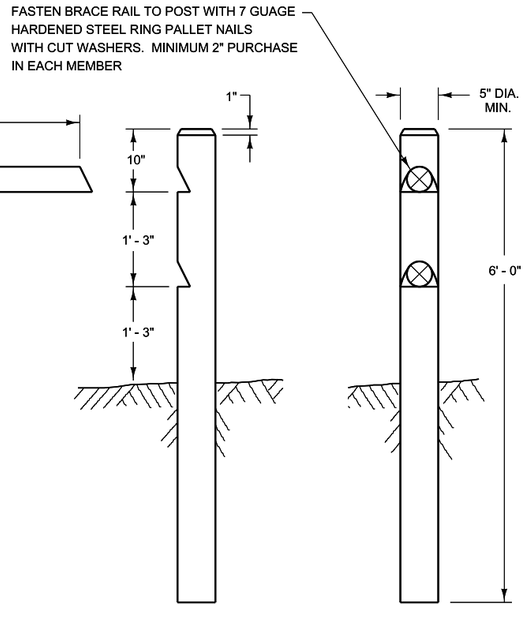

BRACE POST




NOTE:
FIT BRACE AND POST TOGETHER SNUGLY. BEAR A MINIMUM OF 60% OF THE END AREA OF THE POLE ON THE POST NOTCH. GAPS NO GREATER THAN 1/4". PRESSURE TREAT POSTS AND BRACES FULL LENGTH.




WING POST




WING POST

ELEVATION VIEW - FRONT

ELEVATION VIEW - SIDE

## PEDESTRIAN PASS DETAIL SOUTHEAST BENT 1

NO SCALE

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2 | MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rddet001.dgn | DESIGNED BY | | | ROAD PLANS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| 1 | | 12/1/2020 | REVIEWED BY | | | | | UPN 8670000 |
| | | 8:54:26 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | | 19 |

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WL-4a
DELINEATED AREA = 0.031 ACRES
IMPACTED AREA = 0.000 ACRES

WL-4b
DELINEATED AREA = 0.002 ACRES
IMPACTED AREA = 0.002 ACRES

WL-3
DELINEATED AREA = 0.018 ACRES
IMPACTED AREA = 0.007 ACRES

WL-1
DELINEATED AREA = 0.007 ACRES
IMPACTED AREA = 0.007 ACRES

WL-2
DELINEATED AREA = 0.016 ACRES
IMPACTED AREA = 0.001 ACRES

STILLWATER RIVER

STA 9+56.28
BEGIN STPB 9048(49)

STA 15+98.42
END STPB 9048(49)

POT 8+56.28
POT 9+56.28
POT 15+98.42
PT 15+07.34
PC 13+48.36
S 89° 00' 10" W
N 0° 05' 26" E
BORING # 8670000-2
BORING # 8670000-1
PI = 14+50.28
Δ = 91° 05' 16" (LT)
R = 100'
T = 101.92'
L = 158.98'
E = 42.78'
S = 3%

9+25 R/W 31.56' EX. EASE. = R/W
10+30 R/W 61'
15+07.34 R/W 61'
15+35 R/W 61'
16+40 R/W = EX. EASE.
R/W 9+25 28.45' EX. EASE. = R/W
R/W 10+30 51'
R/W 10+90 51'
R/W 11+54 35'
R/W 12+50 35'
R/W 13+30 62'
R/W 13+48.36 62'
R/W 13+55 62'
R/W 13+93 41.75' R/W = EX. EASE.

EX. EASE.
60'
TEL
GAS
PWR

11+34 15.5' X 163' BRIDGE IN PL. REMOVE
11+34 NEW 20' X 155' BRIDGE
13+18 NEW 18" RCP
13+11 NEW 8'x6' x 84' RCB IRR. SKEW 44°+/- LT.
13+25 12' X 6' X 20' RCB IRR. IN PL. REMOVE
15+18 NEW 18" RCP APP. LT.

RETAINING WALL LT. 12+90 PUBLIC APP. RT. 14+10 FARM FIELD APP. RT.
10+49.43 - 10+84.56 CL. 2 RIPRAP & GEOTEXTILE
15+18 FARM FIELD APP. LT.
RETAINING WALL RT.
10+35.78 - 10+53.87 BRIDGE END BACKFILL
11+95.64 - 12+21.49 CL. 2 RIPRAP & GEOTEXTILE
12+14.13 - 12+52.20 SPECIAL BACKFILL

9+56.28 4,062.54
10+50.00 EL. 4,062.07
10+56.54 EL. 4,062.05
10+10.00 EL. 4,062.19
11+65.00 EL. 4,061.72
12+11.46 EL. 4,059.55
12+50.00 EL. 4,057.84
13+16.28 EL. 4,055.95
13+89.75 EL. 4,055.68
14+86.28 EL. 4,055.97
15+98.42 4,057.45

35' VC
30' VC
127.43' VC
70' VC
70' VC
70' VC
-0.647%
-0.292%
-0.310%
-4.559%
-2.859%
-0.363%
+0.300%
+1.320%
+11

4080
4070
4060
4050
4040
9+00
10+00
11+00
12+00
13+00
14+00
15+00
16+00

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdplp001.dgn | DESIGNED BY | STEVE ERETH | 08/01/2017 | ROAD PLANS | STILLWATER RIVER - 2 MILES NW ABSAROKEE / STPB 9048(49) |
| 2 | | 12/1/2020 | REVIEWED BY | | | | |
| 1 | | 8:54:36 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | UPN 8670000 / 20 |

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# SUMMARY
# SIGNING & DELINEATION QUANTITIES

| MATERIAL | TOTAL | UNIT |
|---|---|---|
| SIGNS-SHEET ALUMINUM-REFLECTIVE SHEETING(IV) | 10.6 | SQ. FOOT |
| SIGNS-SHEET ALUMINUM-REFLECTIVE SHEETING(XI) | 89.2 | SQ. FOOT |
| | | |
| SIGNS-ALUMINUM SHEET INCREMENT SHEETING (IV) | | SQ. FOOT |
| SIGNS-ALUMINUM SHEET INCREMENT SHEETING (XI) | | SQ. FOOT |
| OVERLAY-SHEET ALUMINUM | | SQ. FOOT |
| POSTS-STEEL "U" | 88 | POUNDS |
| POLES-TREATED WOOD-4" DIA. | 144 | LINEAR FT. |
| POLES-TREATED WOOD-5" DIA. | | LINEAR FT. |
| | | |
| POLES-TREATED TIMBER-CLASS 4 | | LINEAR FT. |
| POLES-TREATED TIMBER-CLASS 3 | | LINEAR FT. |
| POSTS-TUBULAR STEEL (ROUND) | | POUNDS |
| POSTS-TUBULAR STEEL (SQUARE PERFORATED) | | POUNDS |
| POSTS-STRUCTURAL STEEL | | POUNDS |
| OVERHEAD STRUCTURE-METAL-CANTILEVER | | EACH |
| OVERHEAD STRUCTURE-METAL-BRIDGE | | EACH |
| | | |
| HIGHWAY TRAFFIC STRIPING-WHITE | | GAL.(S) |
| HIGHWAY TRAFFIC STRIPING-YELLOW | | GAL.(S) |
| WORDS & SYMBOLS | | GAL.(S) |
| | | |
| DELINEATOR-DESIGN A | | EACH |
| DELINEATOR-DESIGN B | | EACH |
| DELINEATOR-DESIGN C | | EACH |
| DELINEATOR-DESIGN D | | EACH |
| DELINEATOR-DESIGN E | | EACH |
| DELINEATOR-DESIGN F | | EACH |
| DELINEATOR-DESIGN G | | EACH |
| DELINEATOR-DESIGN H | | EACH |
| REMOVE SIGNS | 4 | EACH |
| REMOVE SIGNS-GUIDE | | EACH |
| RESET SIGNS | | EACH |
| RESET SIGNS-GUIDE | | EACH |
| | | |
| FRANGIBLE SIGN POST BREAKAWAY DEVICE- | | EACH |
| FRANGIBLE SIGN POST BREAKAWAY DEVICE- | | EACH |
| | | |
| | | |
| SQUARE TUBULAR SLIPBASE BREAKAWAY DEVICE-3" | | EACH |

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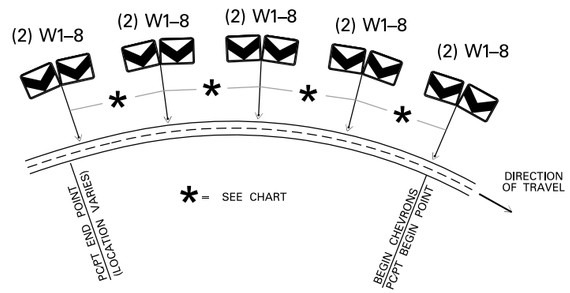
# SIGN LOCATION AND SPECIFICATIONS

| | | SIGN NO. | PANEL SIZE | REFL SHTG TYPE: BACK-GROUND | REFL SHTG TYPE: LEGEND | FEET: CLEARANCE | FEET: SIGN SUPPORT SPACING | TYPE OF SUPPORT | | FEET: CANTILEVER | FEET: SUPPORT LENGTH (ESTIMATED) | FEET: SUPPORT LENGTH (INSTALLED) | FEET: MOUNTING HEIGHT | FEET: FOUNDATION DEPTH | SIGN PANEL (SQ. FT.): SHEET ALUMINUM | SIGN PANEL (SQ. FT.): ALUMINUM SHEET INCREMENT | SIGN PANEL (SQ. FT.): ALUMINUM SHEET OVERLAY | TIMBER POLE (LINEAR FT.): 4" TOP DIA. | TIMBER POLE (LINEAR FT.): 5" TOP DIA. | STEEL POST (LBS.): ROUND TUBULAR | STEEL POST (LBS.): SQUARE TUBULAR | STEEL POST (LBS.): STRUCTURAL STEEL | STEEL POST (LBS.): "U" POST | BREAKAWAY | SIGNS: REMOVE | SIGNS: RESET | GUIDE: REMOVE | GUIDE: RESET | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10+70 RT | | N6-2 | 42X18 | IV | IV | 10-0 | | 4" Dia. POLE | | | 12-6 | | 5-0 | 3-0 | 5.3=IV | | | 14 | | | | | | | | | | | | NEW INSTALLATION |
| 10+80 RT | | OM-3R | 12X30 | XI | - | 2-0 | | 2 LB STL "U" | | | 11-0 | | 4-0 | 3-0 | 3.0=XI | | | | | | | | 22 | | 1 | | | | FY | |
| 10+80 LT | | OM-3L | 12X30 | XI | - | 2-0 | | 2 LB STL "U" | | | 11-0 | | 4-0 | 3-0 | 3.0=XI | | | | | | | | 22 | | 1 | | | | FY | |
| 12+05 RT | | OM-3R | 12X30 | XI | - | 2-0 | | 2 LB STL "U" | | | 11-0 | | 4-0 | 3-0 | 3.0=XI | | | | | | | | 22 | | 1 | | | | FY | |
| 12+05 LT | | OM-3L | 12X30 | XI | - | 2-0 | | 2 LB STL "U" | | | 11-0 | | 4-0 | 3-0 | 3.0=XI | | | | | | | | 22 | | 1 | | | | FY | |
| 12+15 LT | | N6-2 | 42X18 | IV | IV | 10-0 | | 4" Dia. POLE | | | 12-6 | | 5-0 | 3-0 | 5.3=IV | | | 14 | | | | | | | | | | | | NEW INSTALLATION |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12+30 RT | | W1-1L W13-1=15 | 30X30 18X18 | XI XI | - - | 10-0 | | 4" Dia. POLE | | | 16-0 | | 5-7 | 3-0 | 6.3=XI 2.3=XI | | | 16 | | | | | | | | | | | FY | NEW INSTALLATION |
| 13+48 RT | | (2)W1-8 | 24X30 | XI | - | 10-0 | | 4" Dia. POLE | | | 13-6 | | 5-0 | 3-0 | 10.0=XI | | | 14 | | | | | | | | | | | FY | NEW INSTALLATION |
| 13+88 RT | | (2)W1-8 | 24X30 | XI | - | 10-0 | | 4" Dia. POLE | | | 13-6 | | 5-0 | 3-0 | 10.0=XI | | | 14 | | | | | | | | | | | FY | NEW INSTALLATION |
| 14+25 RT | | (2)W1-8 | 24X30 | XI | - | 10-0 | | 4" Dia. POLE | | | 13-6 | | 5-0 | 3-0 | 10.0=XI | | | 14 | | | | | | | | | | | FY | NEW INSTALLATION |
| 14+65 RT | | (2)W1-8 | 24X30 | XI | - | 10-0 | | 4" Dia. POLE | | | 13-6 | | 5-0 | 3-0 | 10.0=XI | | | 14 | | | | | | | | | | | FY | NEW INSTALLATION |
| 15+03 RT | | (2)W1-8 | 24X30 | XI | - | 10-0 | | 4" Dia. POLE | | | 13-6 | | 5-0 | 3-0 | 10.0=XI | | | 14 | | | | | | | | | | | FY | NEW INSTALLATION |
| 15+43 RT | | (2)W1-8 | 24X30 | XI | - | 10-0 | | 4" Dia. POLE | | | 13-6 | | 5-0 | 3-0 | 10.0=XI | | | 14 | | | | | | | | | | | FY | NEW INSTALLATION |
| 16+32 LT | | W1-1R W13-1=15 | 30X30 18X18 | XI XI | - - | 10-0 | | 4" Dia. POLE | | | 16-0 | | 5-7 | 3-0 | 6.3=XI 2.3=XI | | | 16 | | | | | | | | | | | FY | NEW INSTALLATION |
| TOTALS | | | | | | | | | | | | | | | 10.6=IV 89.2=XI | | | 144 | | | | | 88 | | 4 | | | | | |

FY = TYPE XI FLUORESCENT YELLOW SHEETING REQUIRED.

## CHEVRON PLACEMENT DETAIL

(GUIDANCE ONLY)



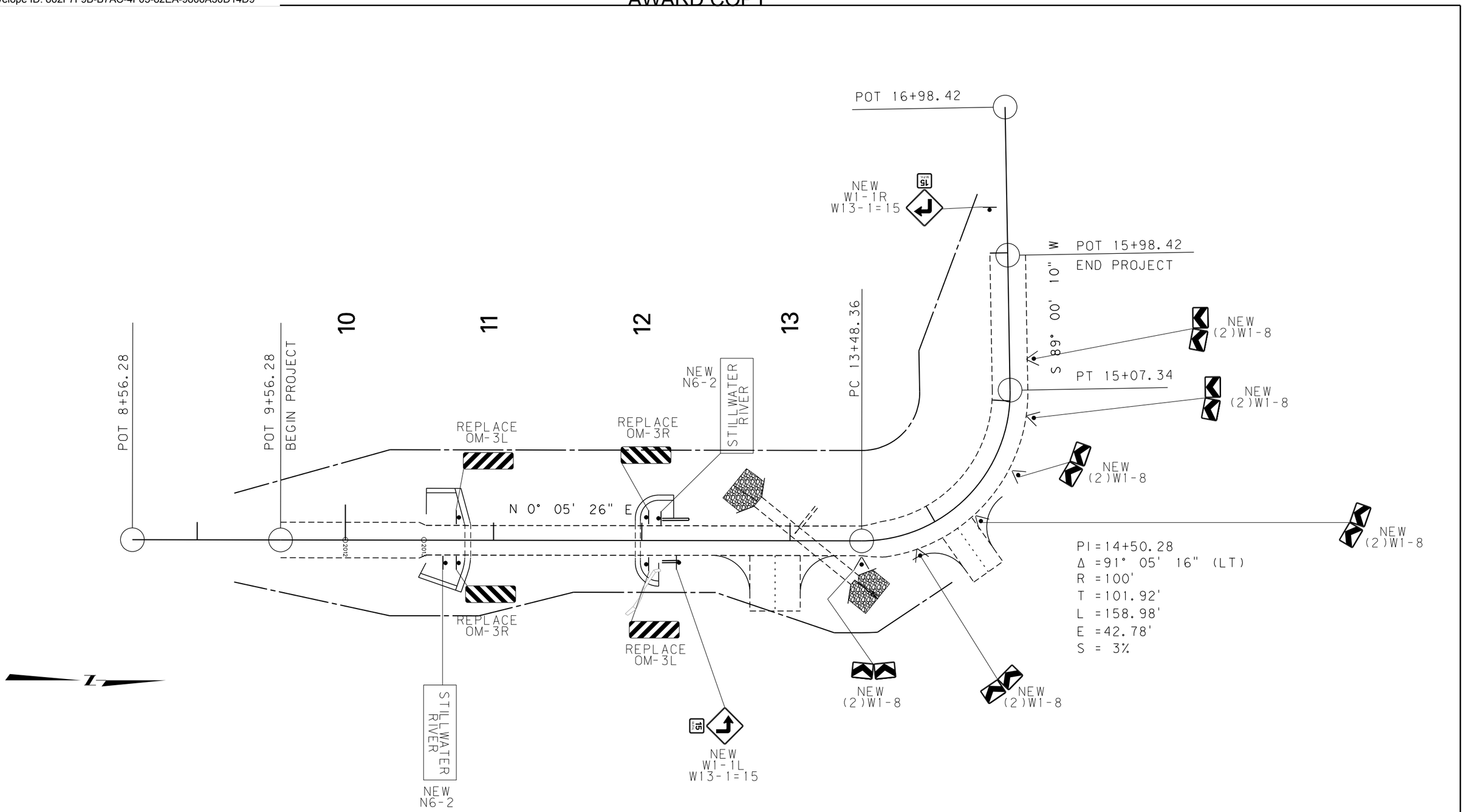

| CURVE RADIUS | SIGN SPACING | | R.P. CONVERSION |
|---|---|---|---|
| <200′ | 40′ | = | .008+– |
| 200′ – 400′ | 80′ | = | .015+– |
| 401′ – 700′ | 120′ | = | .023+– |
| 701′ – 1250′ | 160′ | = | .030+– |
| >1250′ | 200′ | = | .038+– |

1) SEE SPEC SHEET FOR CHEVRON PLACEMENT

2) USE BEGINNING OF CURVE LOCATION AS REFERENCE POINT TO INSTALL CHEVRONS (BEGIN POINT – ALWAYS ON OUTSIDE OF CURVE IN DIRECTION OF TRAVEL)

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3 | MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000sipln001.dgn | DESIGNED BY | N.J. THOLT | | SIGNING PLANS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| 2 | | 10/27/2020 | REVIEWED BY | | | | | |
| 1 | | 8:29:41 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | UPN 8670000 | S3 |

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| ASSOCIATED PROJECT AGREEMENT NUMBERS | |
|---|---|
| P. E. | STPB 9048(48) |

| BRIDGE IDENTIFICATION | |
|---|---|
| MDT STR ID | NBI NUMBER |
| 04474 | L48128000+04001 |

# MONTANA DEPARTMENT OF TRANSPORTATION

## BRIDGE PLANS AND QUANTITIES

## FEDERAL AID PROJECT STPB 9048(49)

### STILLWATER R - 2 M NW ABSAROKEE PROJECT

### STILLWATER COUNTY

LIST OF DRAWINGS

| SHEET NO. | DWG. NO. | TITLE |
|---|---|---|
| BRIDGE DRAWINGS | | |
| B1 | 24326 | LIST OF DRAWINGS & ESTIMATED BRIDGE PLAN QUANTITIES |
| B2 | 24237 | GENERAL LAYOUT AT STA. 11+34.00 |
| B3 | 24238 | FOOTING PLAN |
| B4 | 24239 | BENT NO. 1 |
| B5 | 24240 | BENT NO. 1 DETAILS & BILL OF REINFORCING STEEL |
| B6 | 24241 | BENT NO. 2 |
| B7 | 24242 | BENT NO. 2 DETAILS & BILL OF REINFORCING STEEL |
| B8 | 24243 | BENT NO. 1 DRILLED SHAFT & BILL OF REINFORCING STEEL |
| B9 | 24244 | BENT NO. 2 DRILLED SHAFT & BILL OF REINFORCING STEEL |

| DWG. NO. | TITLE |
|---|---|
| STANDARD DRAWINGS | |
| SBR-W740 (REVISED 3-15-17) | STANDARD BRIDGE RAIL TYPE W740 |
| SBR-WTRM (REVISED 1-19-16) | STANDARD BRIDGE RAIL TYPE W740 & W830 TERMINATION DETAILS |

**ESTIMATED BRIDGE PLAN QUANTITIES**

| LOCATION | LENGTH (FT) | CONCRETE - CLASS STRUCTURE ($YD^3$) | CONCRETE - CLASS DRILLED SHAFT ($YD^3$) | REINFORCING STEEL | | DRILLED SHAFT - 5.0 FT (FT) | DRILLED SHAFT CASING (L.B.) | BRIDGE SUPERSTRUCTURE (LUMP SUM) | BRIDGE RAIL W740-CSC (FT) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | REGULAR (LB) | EPOXY (LB) | | | | |
| BENT NO. 1 | | 34.6 | 50.4 | 16396 | 608 | 86.0 | 24245 | | |
| BENT NO. 2 | | 58.2 | 48.8 | 25681 | 484 | 84.0 | 19624 | | |
| SUPERSTRUCTURE | 155.0 | | | | | | | 1 | 313.7 |
| TOTAL | 155.0 | 92.8 | 99.2 | 42077 | 1092 | 170.0 | 43869 | 1 | 313.7 |

SHEET NO. B1

LIST OF DRAWINGS & ESTIMATED BRIDGE PLAN QUANTITIES

SCALE:

REFERENCE POINT

ROUTE

FEDERAL AID PROJECT NO.

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

| | | | |
|---|---|---|---|
| REVISED | | | |
| REVISED | | | |
| REVISED | | | |
| REVISED | | | |
| CHECKED | 8-3-20 | J.A.N. | |
| DRAWN | 8-14-20 | D.G.G. | |
| DESIGNED | 6-13-20 | D.E.S. | |
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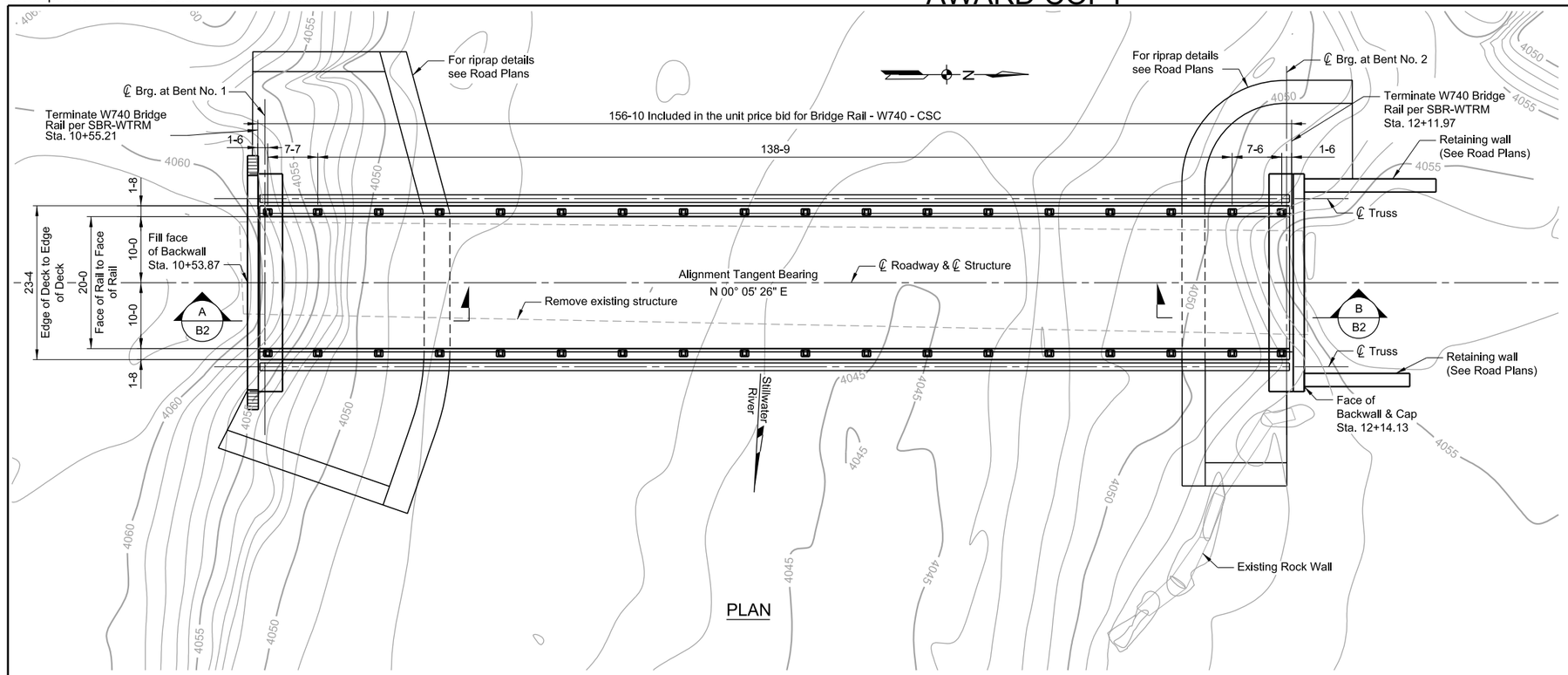
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MDT STRUCTURE 04474

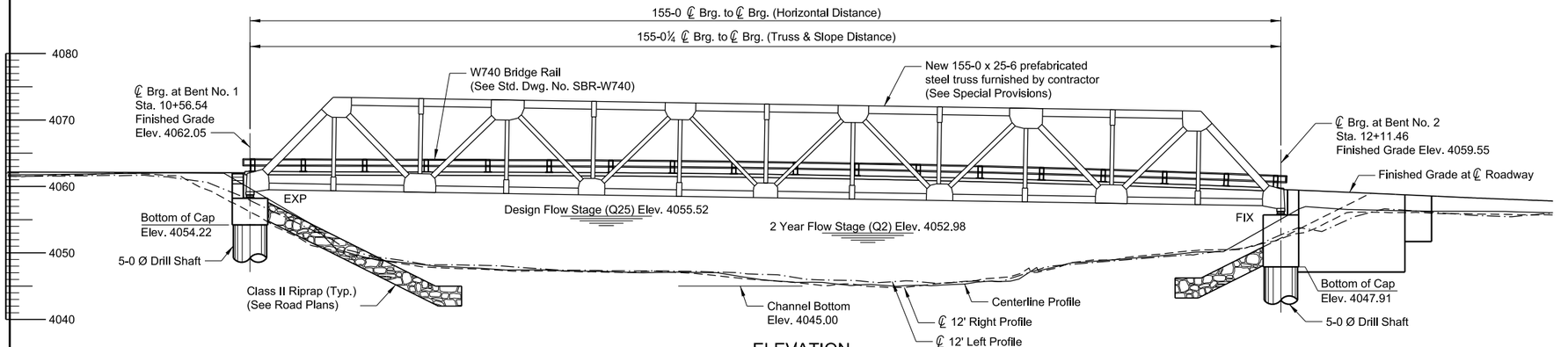
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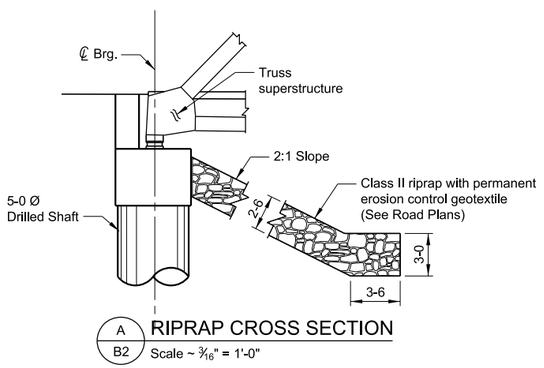
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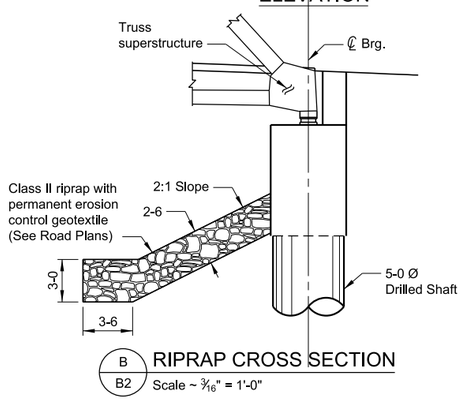

PLAN



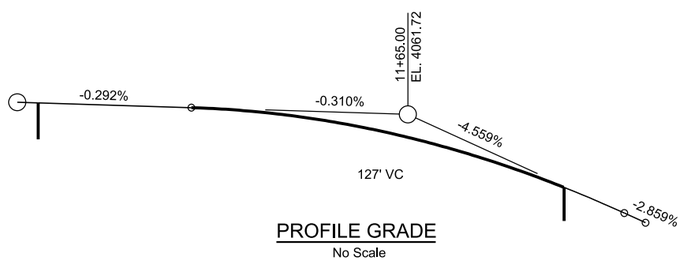

ELEVATION




A B2 RIPRAP CROSS SECTION
Scale ~ 3/16" = 1'-0"




B B2 RIPRAP CROSS SECTION
Scale ~ 3/16" = 1'-0"




PROFILE GRADE
No Scale

## NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

SPECIFICATIONS: The current version if the Standard and Supplemental Specifications for Road and Bridge Construction, adopted by the Montana Department of Transportation, applies. The design was prepared in accordance with AASHTO LRFD Bridge Design Specifications, Eighth edition - 2017, with standard HL-93 loading.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31 Grade 60. Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

REINFORCING STEEL SUFFIX: The suffix E denotes epoxy coated reinforcing steel.

REINFORCING STEEL COVER: Unless specified otherwise on the drawings, provide 2" minimum concrete cover measured from face of the concrete to face of any reinforcing steel, except as noted below:

| | |
|---|---|
| Bottom of Slab | 1" |
| Top of Slab | 2½" |
| Bottom of Abutment Caps | 3" |
| Concrete Barriers & Curbs | 1½" |

Concrete cover to any tie bar is ½" less than what is listed above.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use "Concrete - Class Structure" for all substructure concrete and "Concrete - Class Structure Low Slump" for all superstructure concrete and "Concrete - Class Drilled Shaft" for all drilled shaft concrete.

CONCRETE STRENGTH: Use f'c = 4000 p.s.i. for "Concrete - Class Structure". Use f'c = 4000 p.s.i. for "Concrete - Class Structure Low Slump" & "Concrete - Class Drilled Shaft".

STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for "Concrete - Class Structure".

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

EXISTING STRUCTURE: Remove the existing structure (see Road Plan sheets and Special Provisions).

BEARING AND LEVEL DATUM SOURCE: Stations and coordinates shown on the bridge plans are Montana State Plane Grid based on NAD83-2011.
Elevation shown on the bridge plans are NAVD88 Elevations.
See Road Plans for additional Elevation Datum information.

COMBINATION SCALE FACTOR: Dimensions shown on the bridge plans are horizontal ground distances and not Montana State Plane Grid distances. The combination scale factor (CFS) at this location is 0.99953213.

Horizontal ground distance x CSF = Grid Distance
Grid distance / CSF = Horizontal Ground Distance

## HYDRAULIC DATA

| | |
|---|---|
| Drift: | High |
| Ice: | None |
| Low Scour Elevation (Q100): | 4045.00 |
| Drainage Area: | 528.80 sq. mi. |
| Ordinary High Water Elevation: | 4050.0 |
| Q2 Elevation: | 4052.98 |
| * Q100 Flow: | 8792 cfs |
| Q100 Elevation: | 4056.40 |
| Q100 Velocity: | 10.27 fps |
| Actual Low Beam Elevation: | 4056.75 |
| Allowable Low Beam Elevation: | 4057.40 |

Also see Hydraulic Data Summary sheet.
* Q100 Elevation includes backwater.

SHEET NO. B2

GENERAL LAYOUT

SCALE: 1" = 10'-0" Except as Noted

BRIDGE OVER STILLWATER RIVER AT STA. 11+34.00

REFERENCE POINT 0+0.400

ROUTE 48249

FEDERAL AID PROJECT NO. STPB 9048(49)

STILLWATER COUNTY

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

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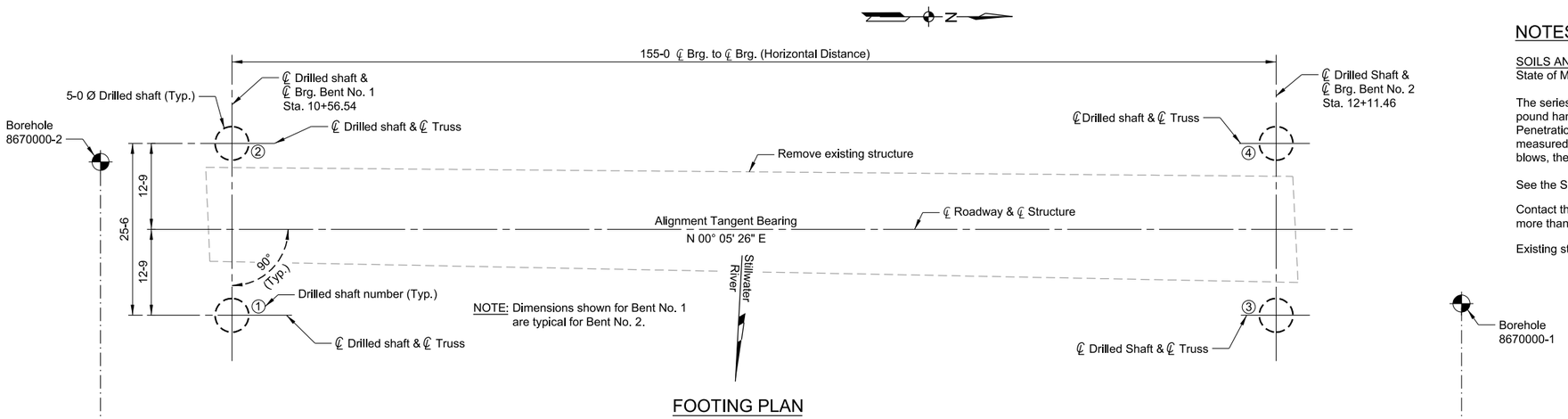
UPN NUMBER 8670000

MDT STRUCTURE 04474

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FOOTING PLAN

## NOTES

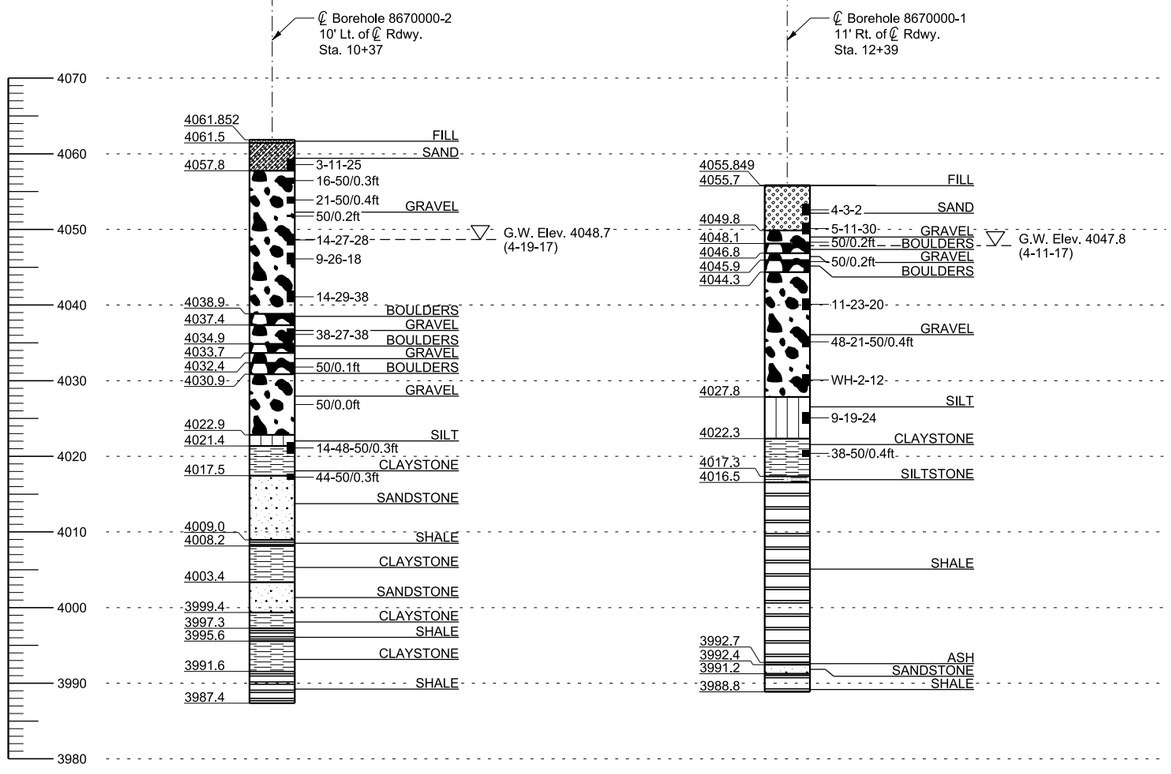
SOILS AND FOUNDATION MATERIALS: The Footing Plan shows points where the State of Montana, Department of Transportation, drilled boreholes.

The series of numbers on the Log of Borings shows the number of blows from a 140 pound hammer with a 30" drop required to drive a 2" split spoon sampler 6" (Standard Penetration Test). The length of the split spoon sampler is 18". The sampler length is measured as three 6" intervals. If the split spoon sampler did not penetrate 6" after 50 blows, the Log of Borings shows the measured penetration within that particular interval.

See the Special Provisions for original boring logs and additional subsurface information.

Contact the MDT Geotechnical Section at (406)444-6281 if drilled shaft elevations deviate more than 1 foot from the elevation indicated.

Existing structure location is approximate. Verify substructure locations.




SUMMARY OF LOG OF BORINGS

**COORDINATE TABLE**

| LOCATION | N OR Y COORDINATE | E OR X COORDINATE | DESCRIPTION |
|---|---|---|---|
| BENT NO. 1 | 1976326.73 | 466102.65 | CL BRG. AT CL ROADWAY |
| BENT NO. 2 | 1976326.97 | 466257.65 | CL BRG. AT CL ROADWAY |

**DRILLED SHAFT INFORMATION**

| LOCATION | SHAFT NO. | DESIGN DRILLED SHAFT TIP ELEVATION | TOP OF DRILLED SHAFT ELEVATION | BOTTOM OF PERMANENT CASING ELEVATION | ESTIMATED DRILLED SHAFT LENGTH (FT) | APPROXIMATE GROUND ELEVATION | APPROXIMATE LENGTH OF DRILLED SHAFT BELOW GROUND |
|---|---|---|---|---|---|---|---|
| BENT NO. 1 | 1 | 4010.90 | 4054.22 | 4016.40 | 43.3 | 4057.9 | 47.00 |
| BENT NO. 1 | 2 | 4010.90 | 4054.22 | 4016.40 | 43.3 | 4057.9 | 47.00 |
| BENT NO. 2 | 3 | 4005.90 | 4047.91 | 4017.30 | 42.0 | 4050.9 | 45.00 |
| BENT NO. 2 | 4 | 4005.90 | 4047.91 | 4017.30 | 42.0 | 4050.9 | 45.00 |

SHEET NO. B3

FOOTING PLAN

SCALE: 1" = 10'-0"

BRIDGE OVER STILLWATER RIVER AT STA. 11+34.00

REFERENCE POINT 0+0.400

ROUTE 48249

FEDERAL AID PROJECT NO. STPB 9048(49)

STILLWATER COUNTY

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

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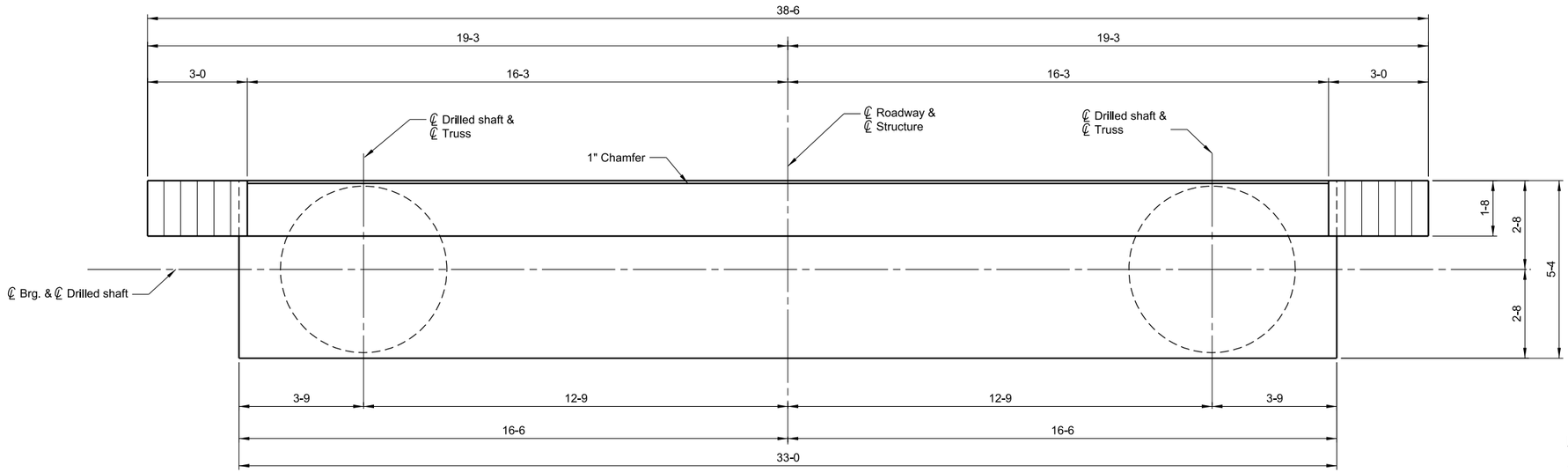
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MDT STRUCTURE 04474

DRAWING NO. 24238

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## BENT NO. 1 PLAN

Scale ~ ½" = 1'-0"

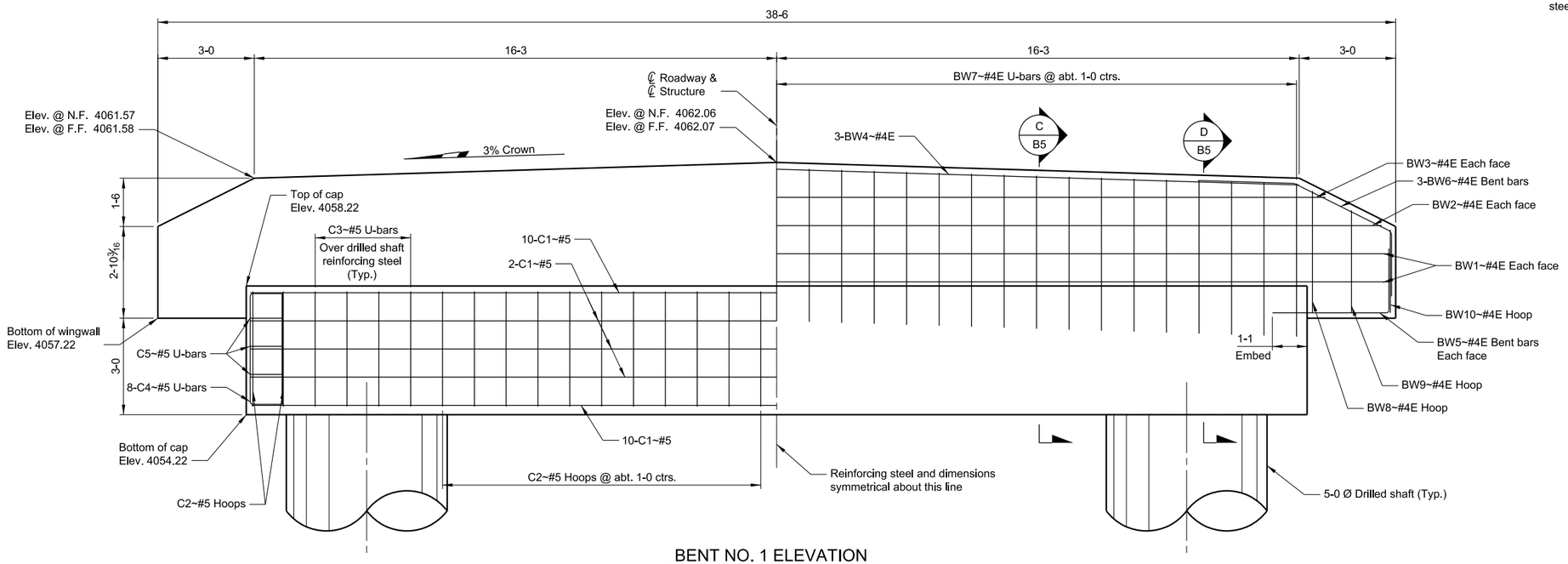
NOTES:

1.) N.F. denotes near face
F.F. denotes fill face

2.) See Sheet No. B5 for Bill of Reinforcing steel.

3.) All concrete in cap and backwall is Concrete - Class Structure.

4.) Final truss bearing type and location determined by truss fabricator. See Special Provisions. Ensure cap reinforcing steel does not interfere with anchor bolt placement.




## BENT NO. 1 ELEVATION

Scale ~ ½" = 1'-0"
(Looking back on line)

SHEET NO.
B4

BENT NO. 1

SCALE: Scale = ½" = 1'-0"

BRIDGE OVER STILLWATER RIVER
AT STA. 11+34.00

REFERENCE POINT
0+0.400

ROUTE
48249

FEDERAL AID PROJECT NO.
STPB 9048(49)

STILLWATER COUNTY

MDT
MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

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| REVISED | | | | | | D.E.S. | | |
| REVISED | | | | | | 8-3-20 | | |
| CHECKED | | | | | | 6-24-20 | | |
| DRAWN | | | | | | 6-2-20 | | |
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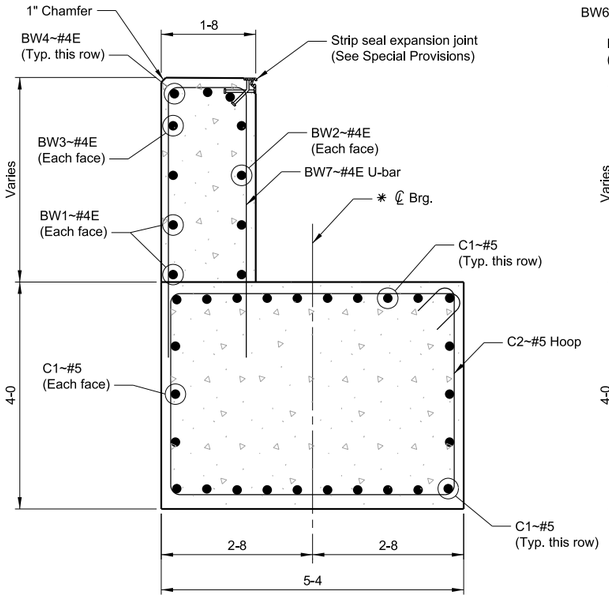
MDT STRUCTURE
04474

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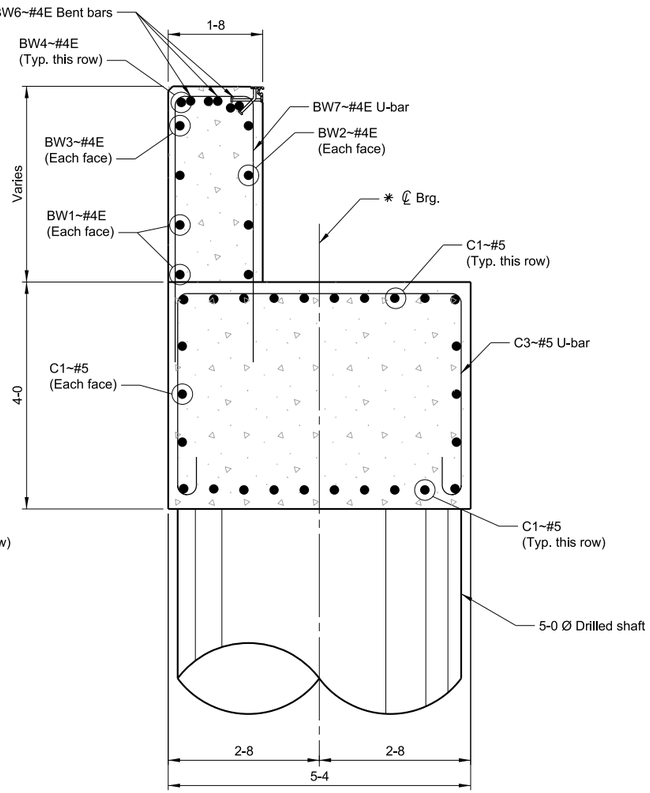
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* NOTE:
Final truss bearing type and location determined by truss fabricator. See Special Provisions. Ensure cap reinforcing steel does not interfere with anchor bolt placement.



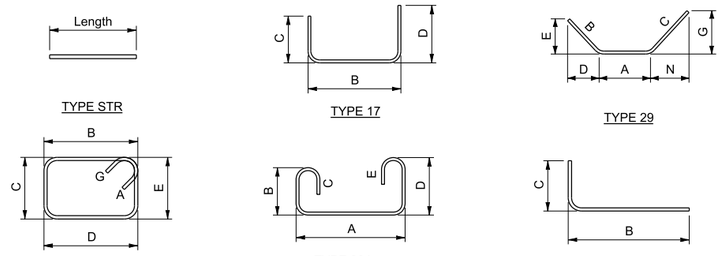

C B4 SECTION
Scale ~ ¾" = 1'-0"




D B4 SECTION
Scale ~ ¾" = 1'-0"

## BILL OF REINFORCING STEEL

(ALL DIMENSIONS ARE OUT TO OUT)




| Mark | Size | No. | Type | Length | A | B | C | D | E | G | N |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C1 | 5 | 26 | STR | 32-8 | | | | | | | |
| C2 | 5 | 26 | T1 | 18-1 | 0-5½ | 5-0 | 3-7 | 5-0 | 3-7 | 0-5½ | |
| C3 | 5 | 8 | 364 | 14-2 | 5-0 | 3-7 | 1-0 | 3-7 | 1-0 | | |
| C4 | 5 | 16 | 17 | 5-1½ | | 3-5½ | 0-10 | 0-10 | | | |
| C5 | 5 | 6 | 17 | 6-6½ | | 4-10½ | 0-10 | 0-10 | | | |
| | | | | | | | | | | | |
| BW1 | 4E | 4 | STR | 38-2 | | | | | | | |
| BW2 | 4E | 2 | STR | 37-8 | | | | | | | |
| BW3 | 4E | 2 | STR | 34-2 | | | | | | | |
| BW4 | 4E | 3 | STR | 32-6 | | | | | | | |
| BW5 | 4E | 4 | 37 | 5-8 | | 3-8 | 2-0 | | | | |
| BW6 | 4E | 6 | 29 | 8-4½ | 3-4½ | 2-0 | 3-0 | 0-11 | 1-9½ | 1-3 | 2-9 |
| BW7 | 4E | 33 | 17 | 10-10 | | 4-9 | 1-4 | 4-9 | | | |
| BW8 | 4E | 2 | T1 | 15-8 | 5 ½ | 3-9½ | 3-7 | 3-9½ | 3-7 | 5½ | |
| BW9 | 4E | 2 | T1 | 14-5 | 5 ½ | 3-2 | 3-7 | 3-2 | 3-7 | 5½ | |
| BW10 | 4E | 2 | T1 | 13-3 | 5 ½ | 2-7 | 3-7 | 2-7 | 3-7 | 5½ | |
| | | | | | | | | | | | |

SHEET NO.
B5

BENT NO. 1 DETAILS
&
BILL OF REINFORCING STEEL

SCALE: Scale ~ ¾" = 1'-0"

BRIDGE OVER STILLWATER RIVER
AT STA. 11+34.00

REFERENCE POINT
0+0.400

ROUTE
48249

FEDERAL AID PROJECT NO.
STPB 9048(49)

STILLWATER COUNTY

MDT
MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

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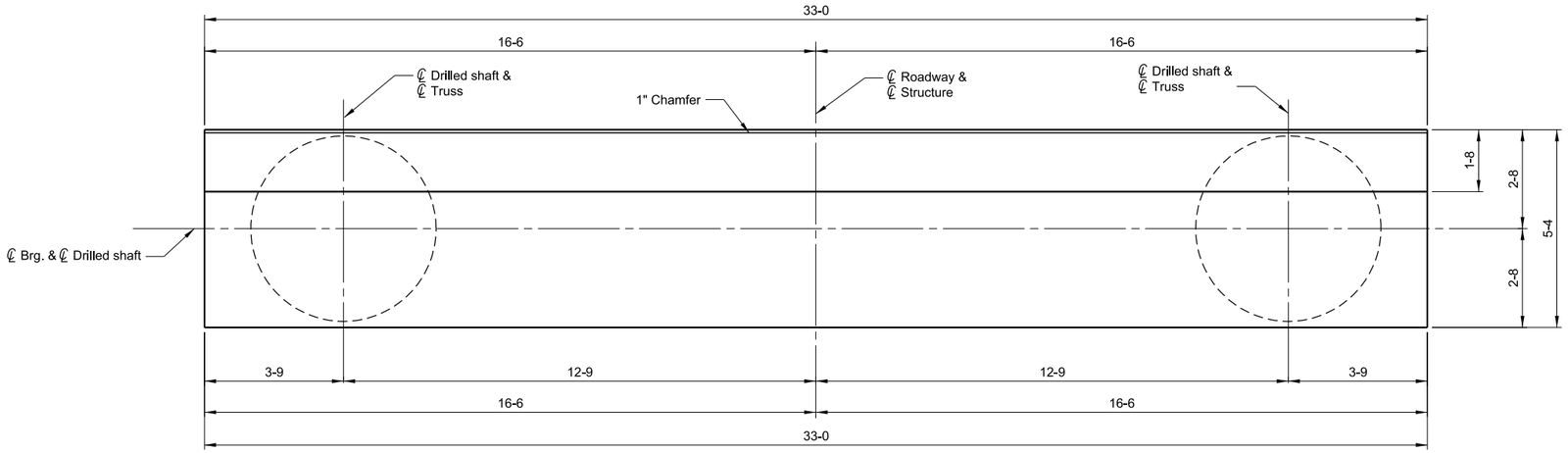
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MDT STRUCTURE
04474

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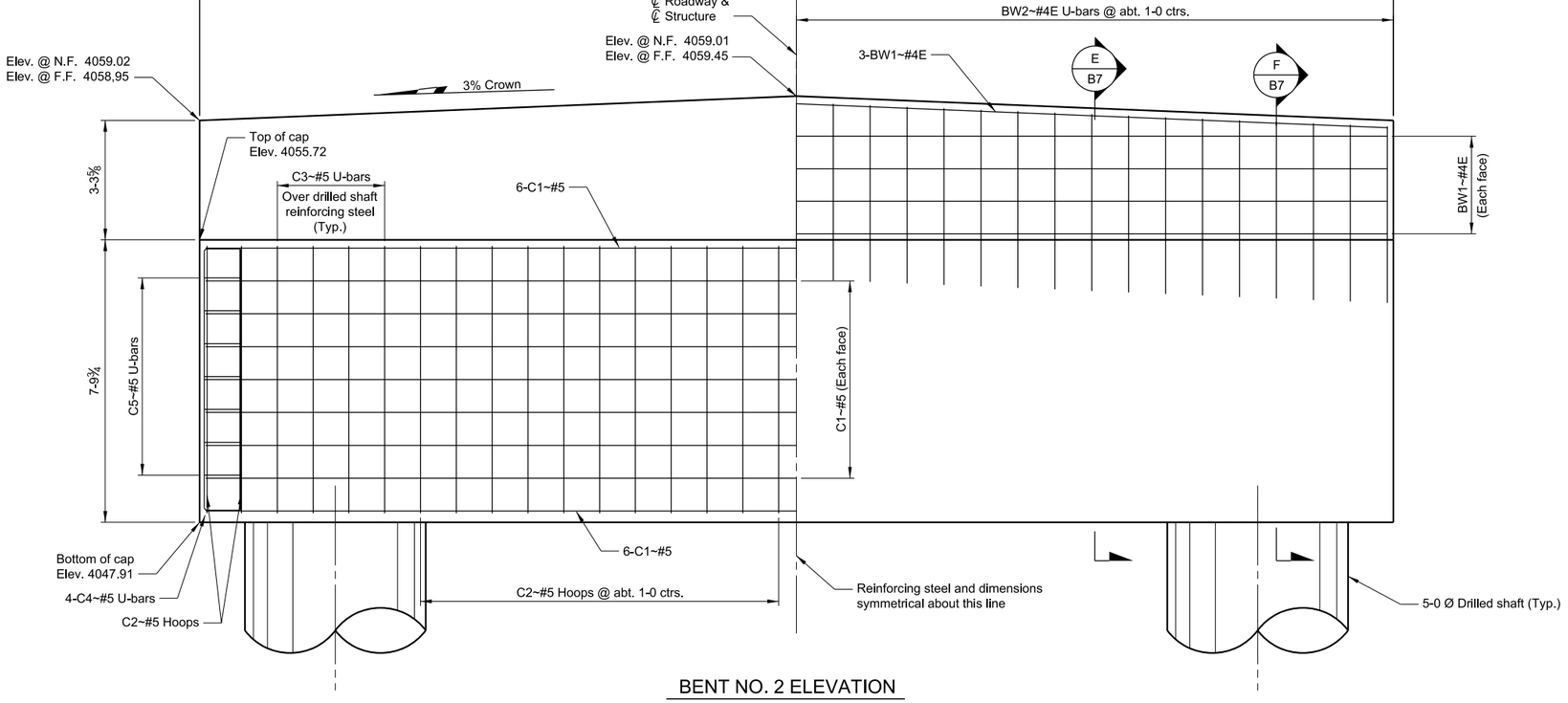
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## BENT NO. 2 PLAN

Scale ~ ½" = 1'-0"




## BENT NO. 2 ELEVATION

Scale ~ ½" = 1'-0"
(Looking ahead on line)

NOTES:

1.) N.F. denotes near face
F.F. denotes fill face

2.) See Sheet No. B7 for Bill of Reinforcing steel.

3.) All concrete in cap and backwall is Concrete - Class Structure.

4.) Final truss bearing type and location determined by truss fabricator. See Special Provisions. Ensure cap reinforcing steel does not interfere with anchor bolt placement.

SHEET NO. B6

BENT NO. 2

SCALE: Scale ~ ½" = 1'-0"

BRIDGE OVER STILLWATER RIVER
AT STA. 11+34.00

REFERENCE POINT 0+0.400

ROUTE 48249

FEDERAL AID PROJECT NO. STPB 9048(49)

STILLWATER COUNTY

MDT MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

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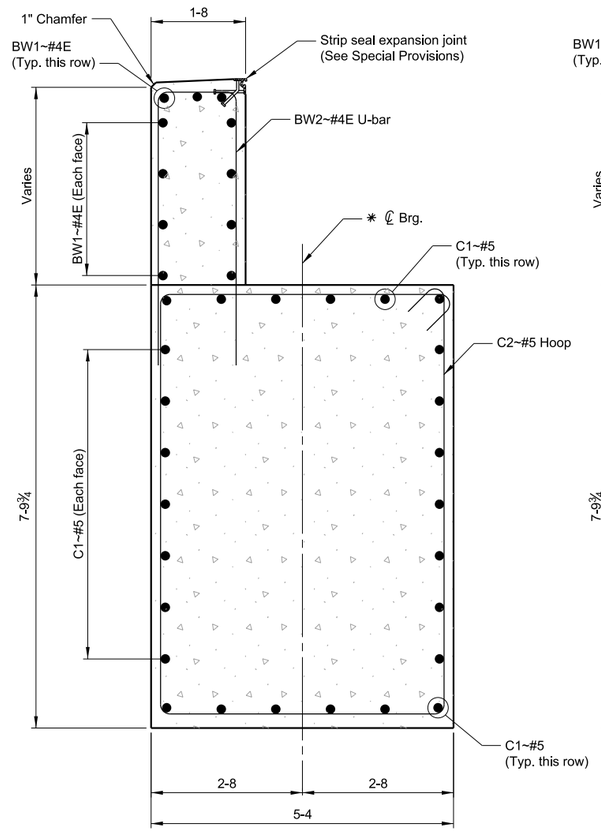
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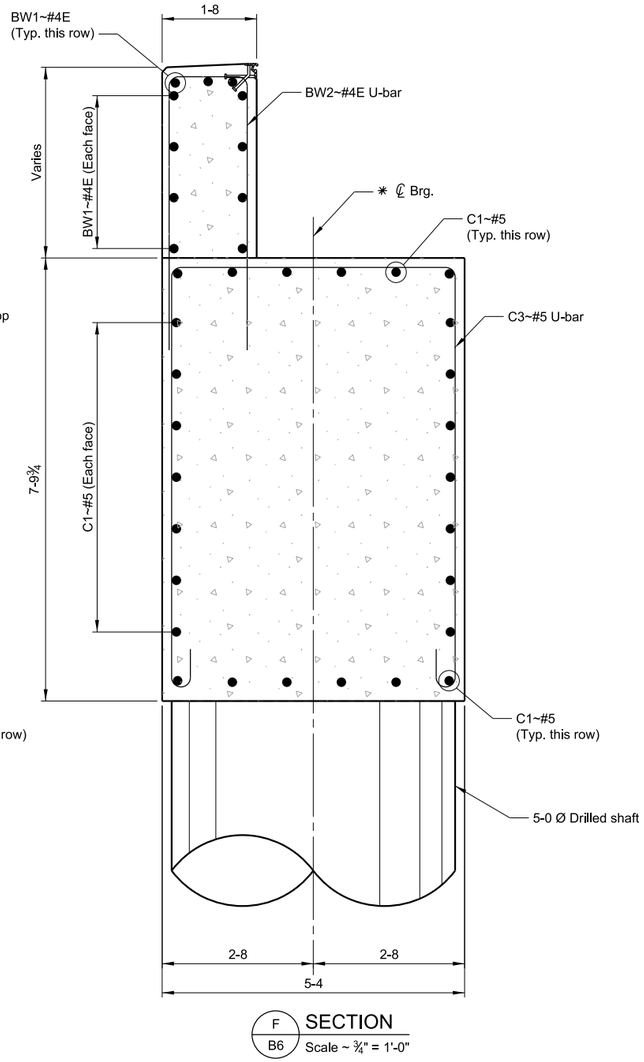
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✳ NOTE:
Final truss bearing type and location determined by truss fabricator. See Special Provisions. Ensure cap reinforcing steel does not interfere with anchor bolt placement.



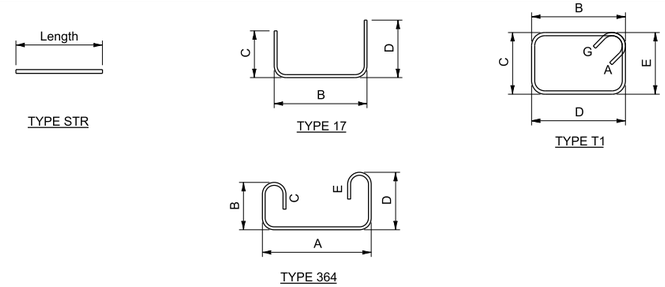

E / B6 SECTION
Scale ~ ¾" = 1'-0"




F / B6 SECTION
Scale ~ ¾" = 1'-0"

## BILL OF REINFORCING STEEL

(ALL DIMENSIONS ARE OUT TO OUT)




| Mark | Size | No. | Type | Length | A | B | C | D | E | G | N |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C1 | 5 | 26 | STR | 32-8 | | | | | | | |
| C2 | 5 | 26 | T1 | 25-9 | 0-5½ | 5-0 | 7-5 | 5-0 | 7-5 | 0-5½ | |
| C3 | 5 | 8 | 364 | 22-10 | 5-0 | 7-5 | 1-0 | 7-5 | 1-0 | | |
| C4 | 5 | 8 | 17 | 8-11½ | | 7-3½ | 0-10 | 0-10 | | | |
| C5 | 5 | 14 | 17 | 6-6½ | | 4-10½ | 0-10 | 0-10 | | | |
| | | | | | | | | | | | |
| BW1 | 4E | 11 | STR | 32-8 | | | | | | | |
| BW2 | 4E | 33 | 17 | 11-1 | | 4-10½ | 1-4 | 4-10½ | | | |
| | | | | | | | | | | | |

SHEET NO.
B7

BENT NO. 2 DETAILS
&
BILL OF REINFORCING STEEL

SCALE: Scale ~ ¾" = 1'-0"

BRIDGE OVER STILLWATER RIVER
AT STA. 11+34.00

REFERENCE POINT
0+0.400

ROUTE
48249

FEDERAL AID PROJECT NO.
STPB 9048(49)

STILLWATER COUNTY

MDT
MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

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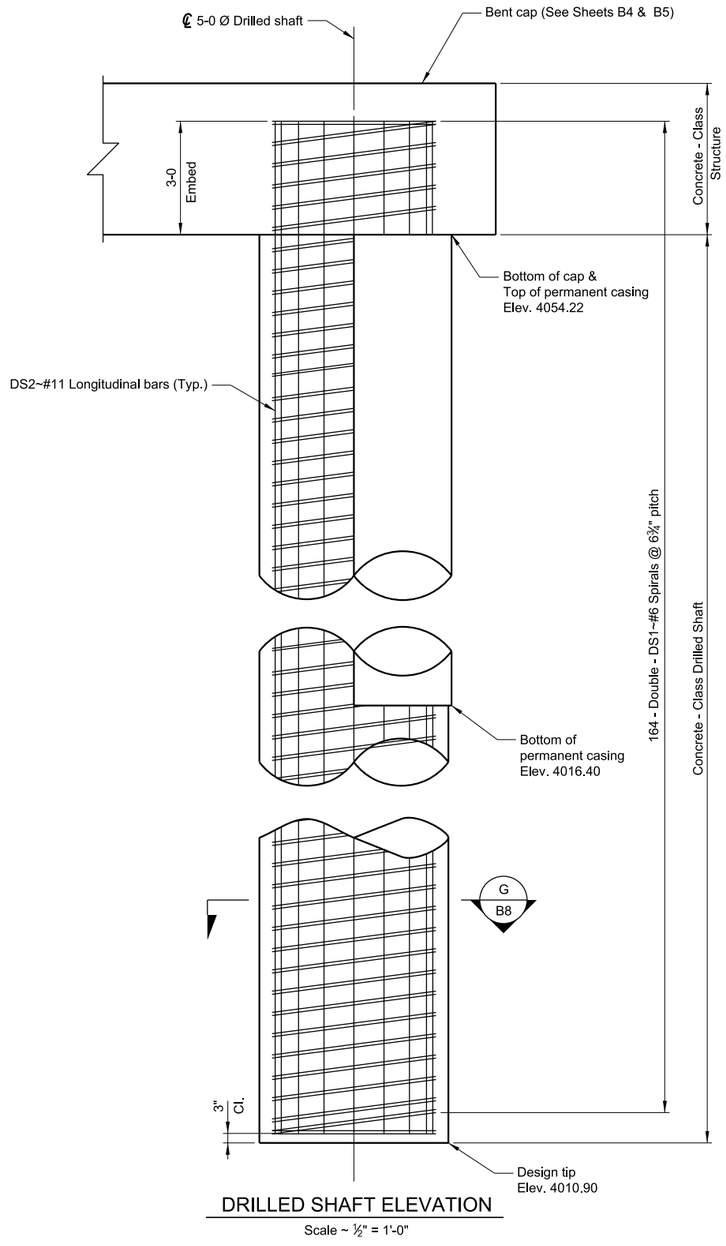
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MDT STRUCTURE
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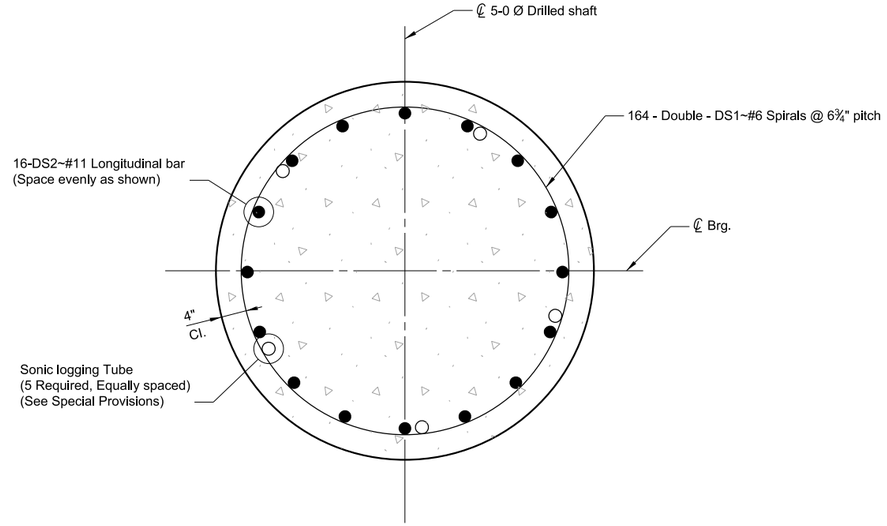
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DRILLED SHAFT ELEVATION

Scale ~ ½" = 1'-0"

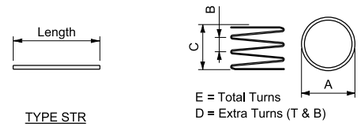



G / B8 DRILLED SHAFT SECTION

Scale ~ 1" = 1'-0"

## BILL OF REINFORCING STEEL

(ALL DIMENSIONS ARE OUT TO OUT)




| Mark | Size | No. | Type | Length | A | B | C | D | E | G | N |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DS1 | 6 | 4 | SP | 1155-1 | 4-4 | 0-6¾ | 46-1 | 3 | 84 | | |
| | | | | | | | | | | | |
| C3 | 11 | 32 | STR | 46-1 | | | | | | | |
| | | | | | | | | | | | |

NOTES:

1.) Ensure reinforcing steel does not interfere with anchor bolt placement.

2.) Permanent casing inside diameter may be adjusted. Use an inside diameter between 5-0 and 5-6. Minimum permanent casing thickness is ½" thick; increase thickness as required for placement.

3.) Sonic logging tubes do not extend more that 1-8 above permanent casing.

4.) Terminate spiral at each end by contact lap of 1½ turns in length.

SHEET NO. B8

BENT NO. 1 DRILLWS SHAFT & BILL OF REINFORCING STEEL

SCALE: Scale ~ As Shown

BRIDGE OVER STILLWATER RIVER AT STA. 11+34.00

REFERENCE POINT 0+0.400

ROUTE 48249

FEDERAL AID PROJECT NO. STPB 9048(49)

STILLWATER COUNTY

MDT MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

| | | | | | | | | | | | | | | |
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| REVISED | | | | | | | | | | | | J.A.N. | 8-3-20 | C:\DGN\8670000brdsd001.dgn |
| REVISED | | | | | | | | | | | | D.G.G. | 6-25-20 | 3:05:05 PM |
| REVISED | | | | | | | | | | | | D.E.S. | 6-2-20 | 12/14/2020 |
| REVISED | | | | | | | | | | | | CHECKED | DRAWN | DESIGNED |

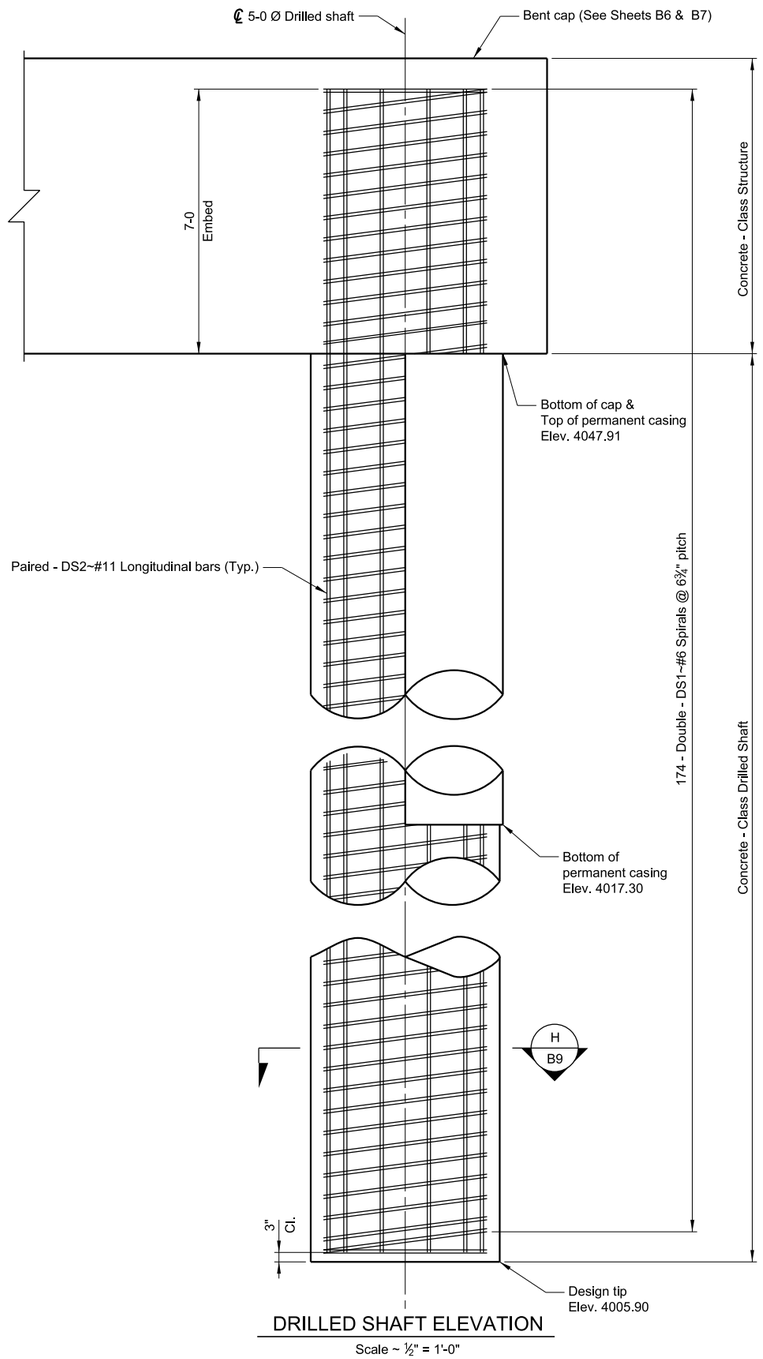
UPN NUMBER 8670000

MDT STRUCTURE 04474

DRAWING NO. 24243

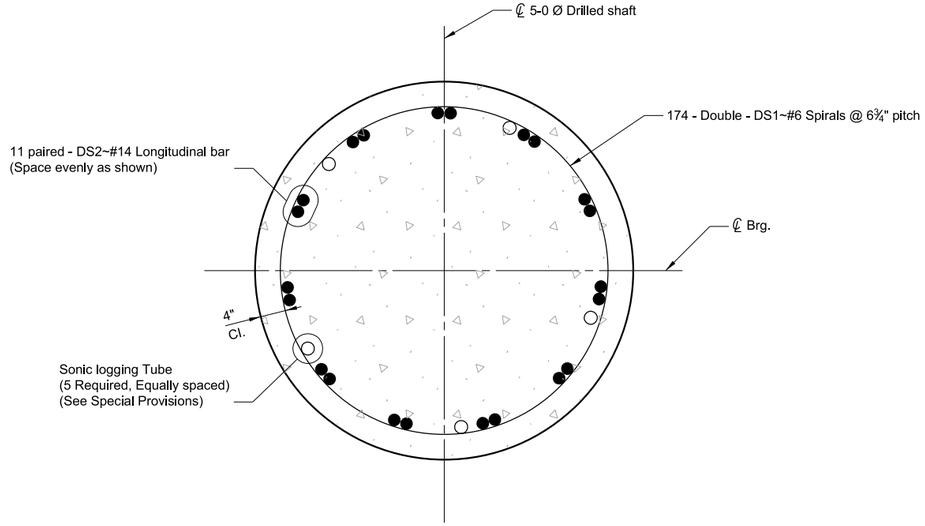
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AWARD COPY




DRILLED SHAFT ELEVATION

Scale ~ ½" = 1'-0"



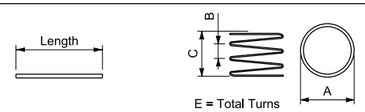

H
B9

DRILLED SHAFT SECTION

Scale ~ 1" = 1'-0"

## BILL OF REINFORCING STEEL

(ALL DIMENSIONS ARE OUT TO OUT)




TYPE STR

E = Total Turns
D = Extra Turns (T & B)

TYPE SP

| Mark | Size | No. | Type | Length | A | B | C | D | E | G | N |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DS1 | 6 | 4 | SP | 1219-7 | 4-4 | 0-6¾ | 48-9 | 3 | 90 | | |
| | | | | | | | | | | | |
| C3 | 14 | 44 | STR | 48-9 | | | | | | | |
| | | | | | | | | | | | |

NOTES;

1.) Ensure reinforcing steel does not interfere with anchor bolt placement.

2.) Permanent casing inside diameter may be adjusted. Use an inside diameter between 5-0 and 5-6. Minimum permanent casing thickness is ½" thick; increase thickness as required for placement.

3.) Sonic logging tubes do not extend more that 1-8 above permanent casing.

4.) Terminate spiral at each end by contact lap of 1½ turns in length.

SHEET NO. B9

BENT NO. 2 DRILLED SHAFT & BILL OF REINFORCING STEEL

SCALE: Scale ~ As Shown

BRIDGE OVER STILLWATER RIVER AT STA. 11+34.00

REFERENCE POINT 0+0.400

ROUTE 48249

FEDERAL AID PROJECT NO. STPB 9048(49)

STILLWATER COUNTY

MDT MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

| | | | |
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| REVISED | | | |
| REVISED | | | |
| REVISED | | | |
| REVISED | | | |
| CHECKED | 8-3-20 | J.A.N. | |
| DRAWN | 6-25-20 | D.G.G. | |
| DESIGNED | 6-2-20 | D.E.S. | |
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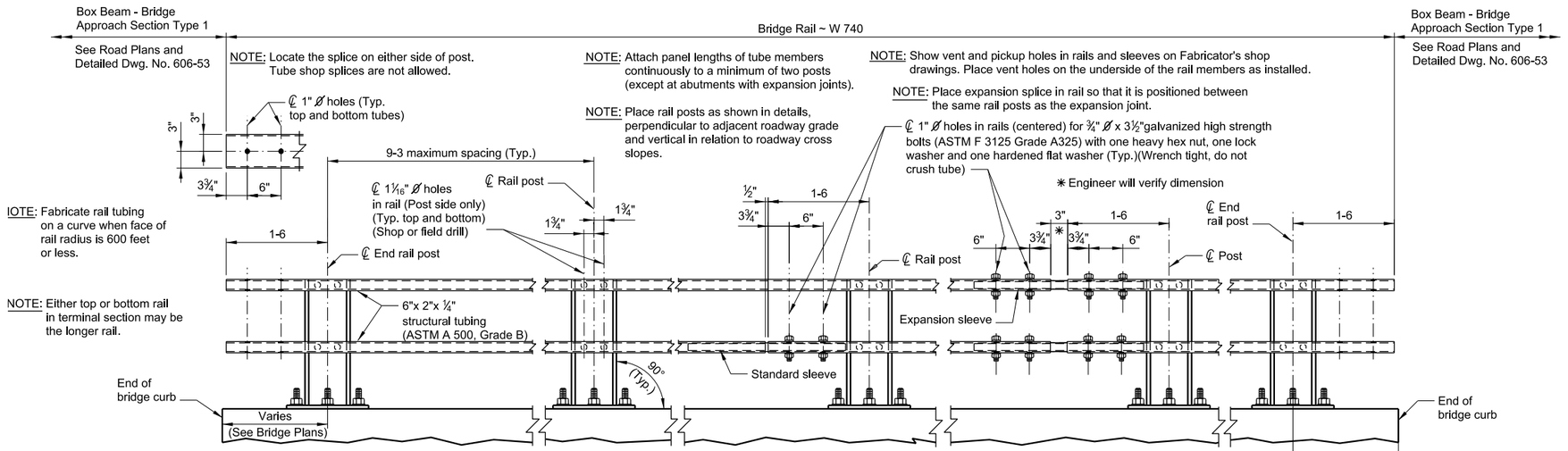
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MDT STRUCTURE 04474

DRAWING NO. 24244

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ELEVATION AT BOX BEAM GUARDRAIL CONNECTION

NOTE: Do not provide a tube splice in first panel unless it crosses an expansion joint.

STANDARD SPLICE

(Top or bottom rail)

EXPANSION SPLICE

(Top and bottom rail)

INSIDE ELEVATION OF RAIL

## NOTES

GALVANIZING: Galvanize all bolts, nuts, washers and pipe sleeves in accordance with ASTM F 2329.

REFLECTORS: Place a white reflector on top of the top tube rail at equal spacing (not to exceed 30 foot spacing) between ends of rail. See Dtl. Dwg. No. 605-00 for reflector detail. Mount the reflector on the tube rail with an approved adhesive. Include the cost of reflector in the unit price bid for Bridge Rail ~ W740.

PAYMENT: Payment for Bridge Rail ~ W740 per linear foot includes compensation for the cost of Concrete Class Deck in the curb and for all resources necessary to complete the work. See the General Layout for the number of linear feet for payment of Bridge Rail ~ W740. Use rail post plates and base plates conforming to AASHTO M 270 Grade 36 T3. Use AASHTO M 270 Grade 36 for all other plates.

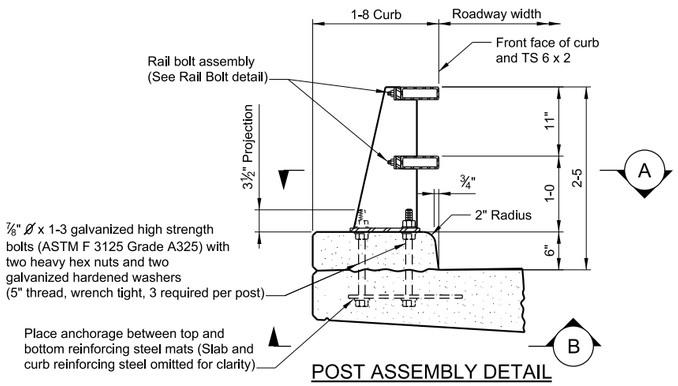
ERECTION: Place rail posts as shown in details, perpendicular to adjacent roadway grade and vertical in relation to roadway cross slopes. Place posts in proper alignment prior to placement of curb.

PAINTING: Paint all posts, structural tubing and plates (except as noted) in accordance with the Standard Specifications. Galvanizing the posts, structural tubing and plates in accordance with AASHTO M 111 will be allowed.

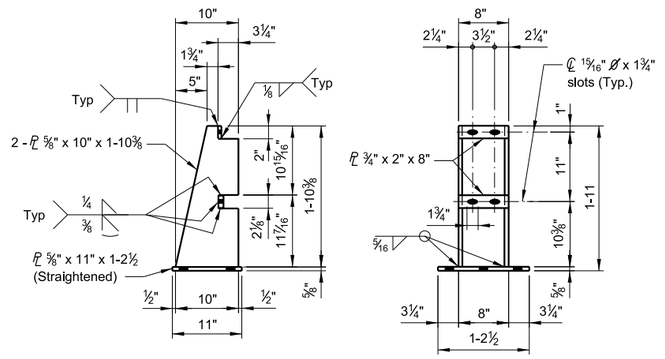
EXCEPTIONS: Use details shown on this drawing only as they apply to the project. Anchorage details may vary. Refer to other drawings for variations in these details.

FABRICATION: For the purposes of fabrication, this rail system is considered an ancillary item. The requirments of subsection 1.3.7 of AASHTO/AWS D1.5 apply.

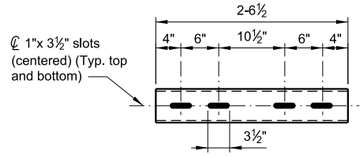
RAIL WEIGHT: For informational purposes only, the rail weight is approximately 123.0 lb/ft for the curb and 39 lb/ft for the rail.



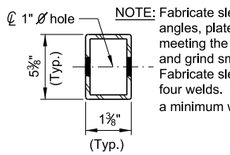

POST ASSEMBLY DETAIL




POST DETAILS

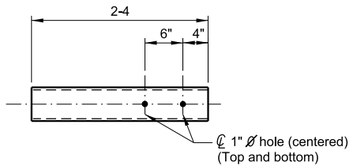



EXPANSION SLEEVE DETAIL

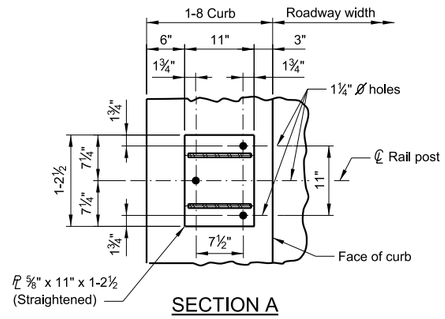



NOTE: Fabricate sleeves using channels, angles, plates, or bent plates meeting the dimensions shown. Weld and grind smooth as required. Fabricate sleeves using no more than four welds. Fabricate sleeves with a minimum wall thickness of 3/16".

SLEEVE FABRICATION OPTIONS

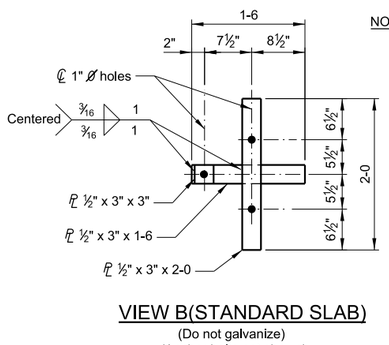



STANDARD SLEEVE DETAIL




SECTION A

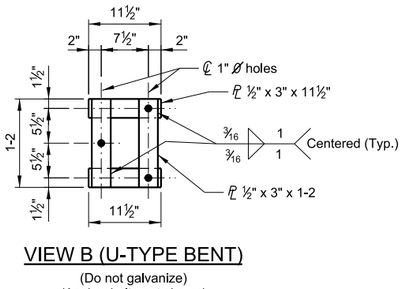
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VIEW B(STANDARD SLAB)

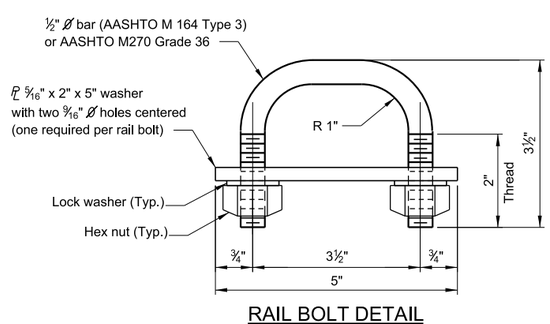
(Do not galvanize)
(Anchor bolts not shown)

NOTE: Anchor bolts may be tack welded to anchorage (shop or field).




VIEW B (U-TYPE BENT)

(Do not galvanize)
(Anchor bolts not shown)




RAIL BOLT DETAIL

STANDARD BRIDGE RAIL
TYPE W740

No Scale

MDT
MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

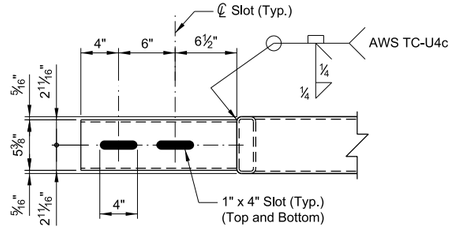
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| APPROVED | 3-26-08 | D.F.J. | |
| CHECKED | 12-4-06 | M.L.R. | |
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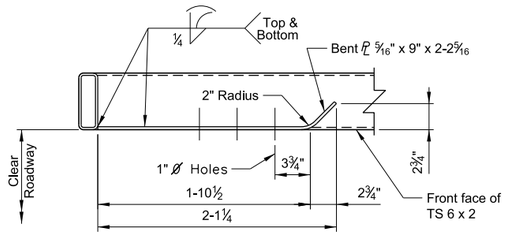
DRAWING NO.
SBR-W740

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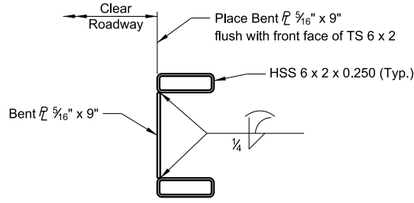
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## W740 TERMINATION DETAILS




BENT PLATE DETAIL




SECTION A

### NOTES

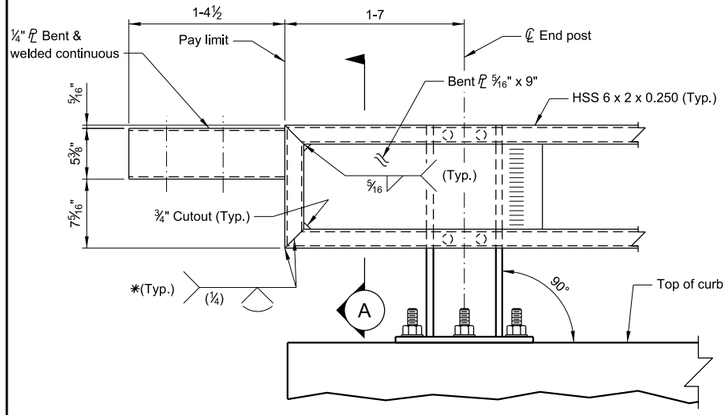
Either the top or bottom rail in terminal section may be the longer rail.

Railing that is part of terminal is continuous if either the top or bottom rail in the terminal is continuous over a minimum of two posts.

A brace bar is required and shall be placed 2-0 from the splice end of the shorter tube.

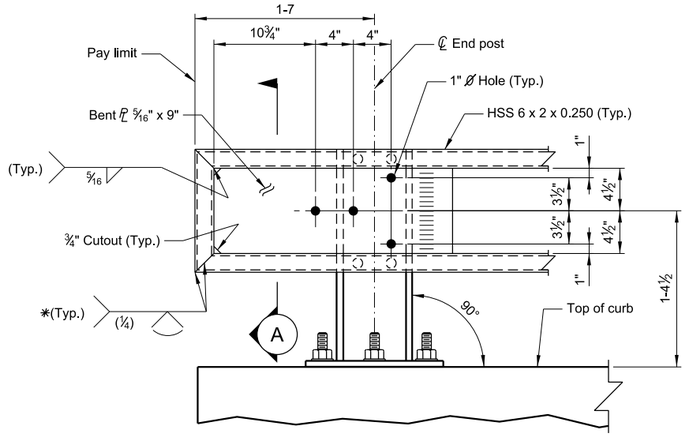
✳The Fabricator shall prepare a sample of the indicated joint and macroetch it to demonstrate that the required effective throat is achieved.

See Dwg. No. SBR-W740 for additional rail details.



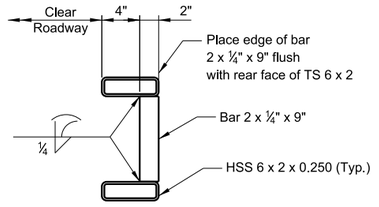

ELEVATION AT TERMINAL TYPE BOX BEAM

(Box Beam guardrail connection, Interstate exit departure end only)



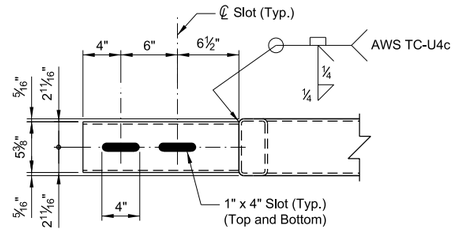

ELEVATION AT TERMINAL TYPE W-BEAM

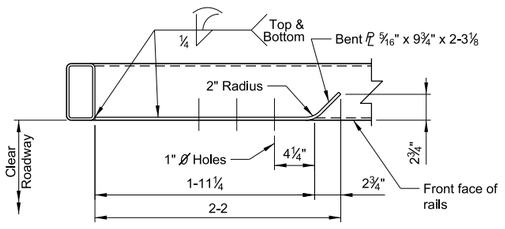
(W-beam guardrail connection
or no guardrail connection)



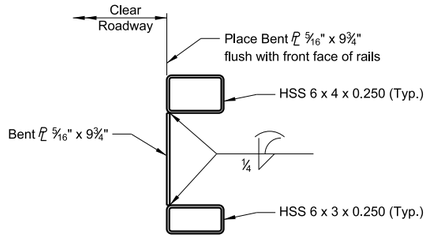

BRACE BAR DETAIL

## W830 TERMINATION DETAILS




BENT PLATE DETAIL




SECTION A

### NOTES

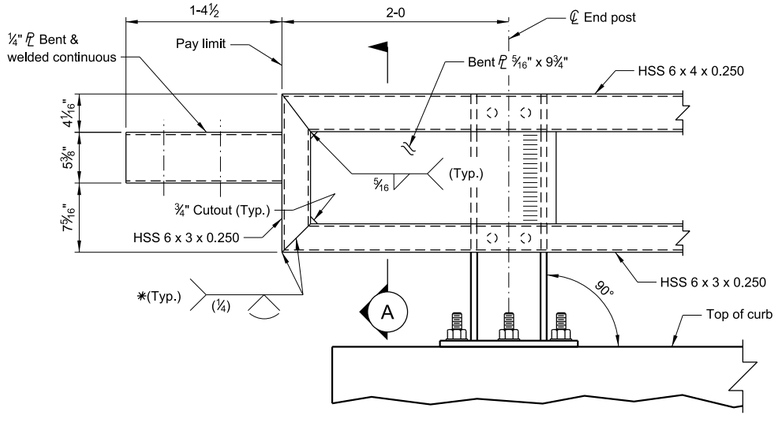
Either the top or bottom rail in terminal section may be the longer rail.

Railing that is part of terminal is continuous if either the top or bottom rail in the terminal is continuous over a minimum of two posts.

A brace bar is required and shall be placed 2-0 from the splice end of the shorter tube.

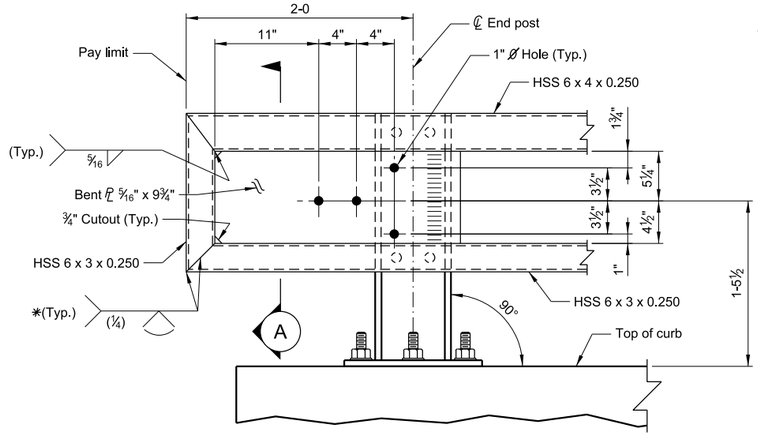
✳The Fabricator shall prepare a sample of the indicated joint and macroetch it to demonstrate that the required effective throat is achieved.

See Dwg. No. SBR-W830 for additional rail details.



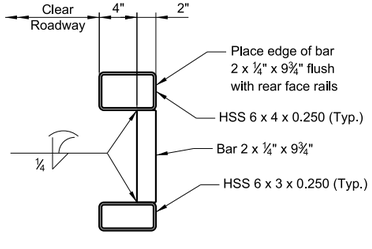

ELEVATION AT TERMINAL TYPE BOX BEAM

(Box Beam guardrail connection, Interstate exit departure end only)




ELEVATION AT TERMINAL TYPE W-BEAM

(W-beam guardrail connection
or no guardrail connection)




BRACE BAR DETAIL

# STANDARD BRIDGE RAIL TYPE W740 & W830 TERMINATION DETAILS

No Scale

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

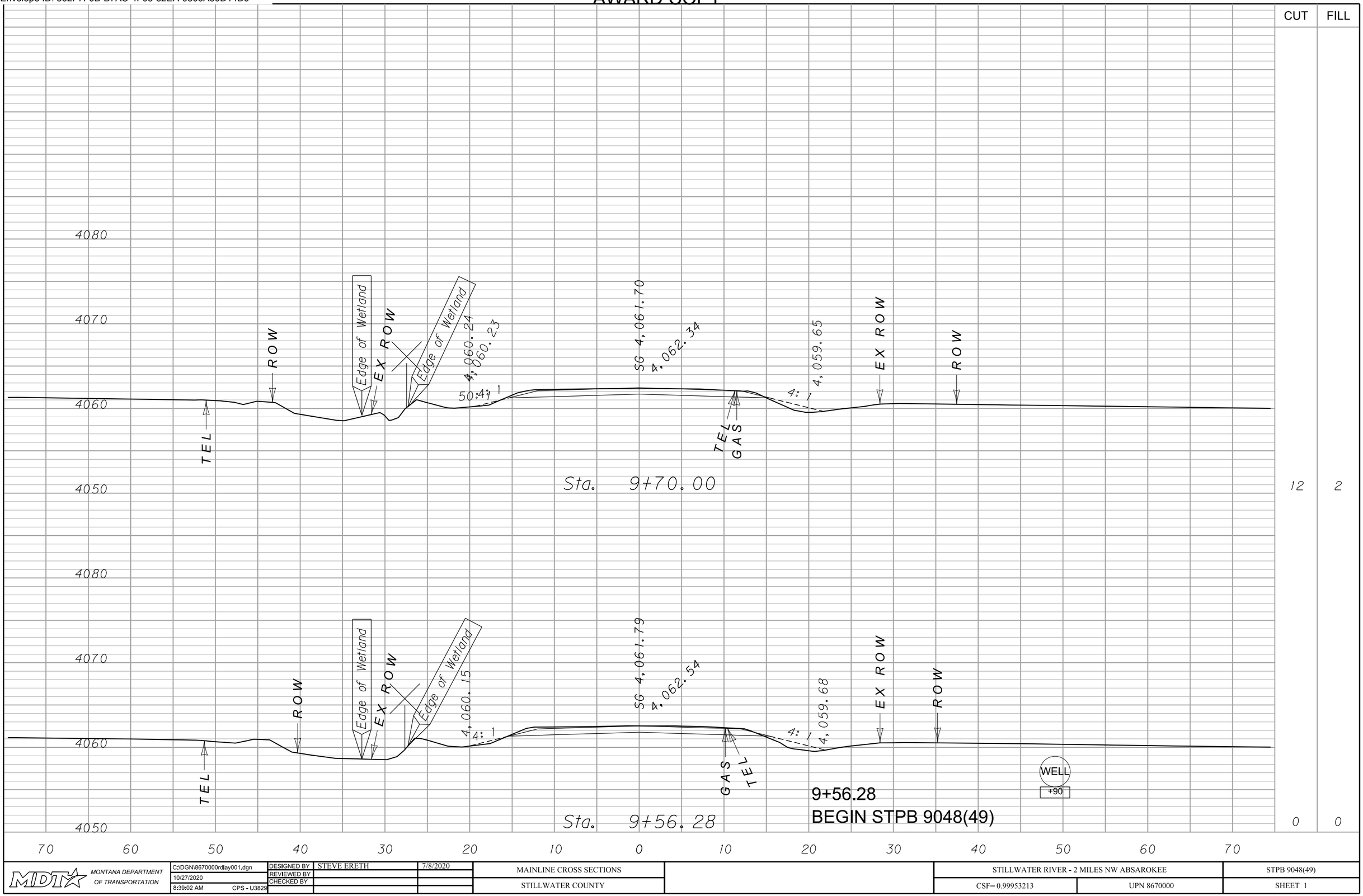
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| APPROVED | 10-28-11 | D.F.J. | |
| CHECKED | 10-28-11 | L.R.T. | |
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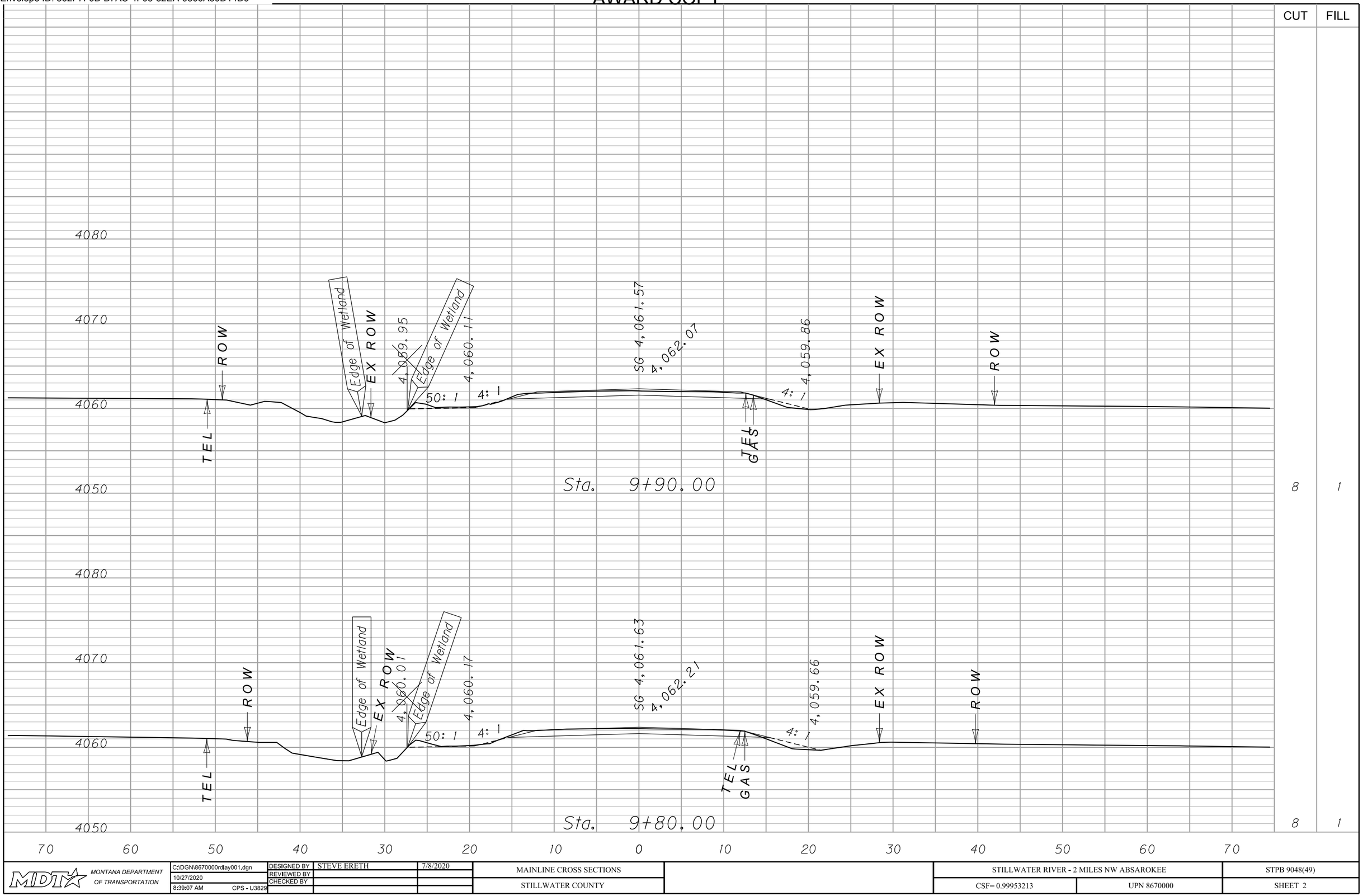



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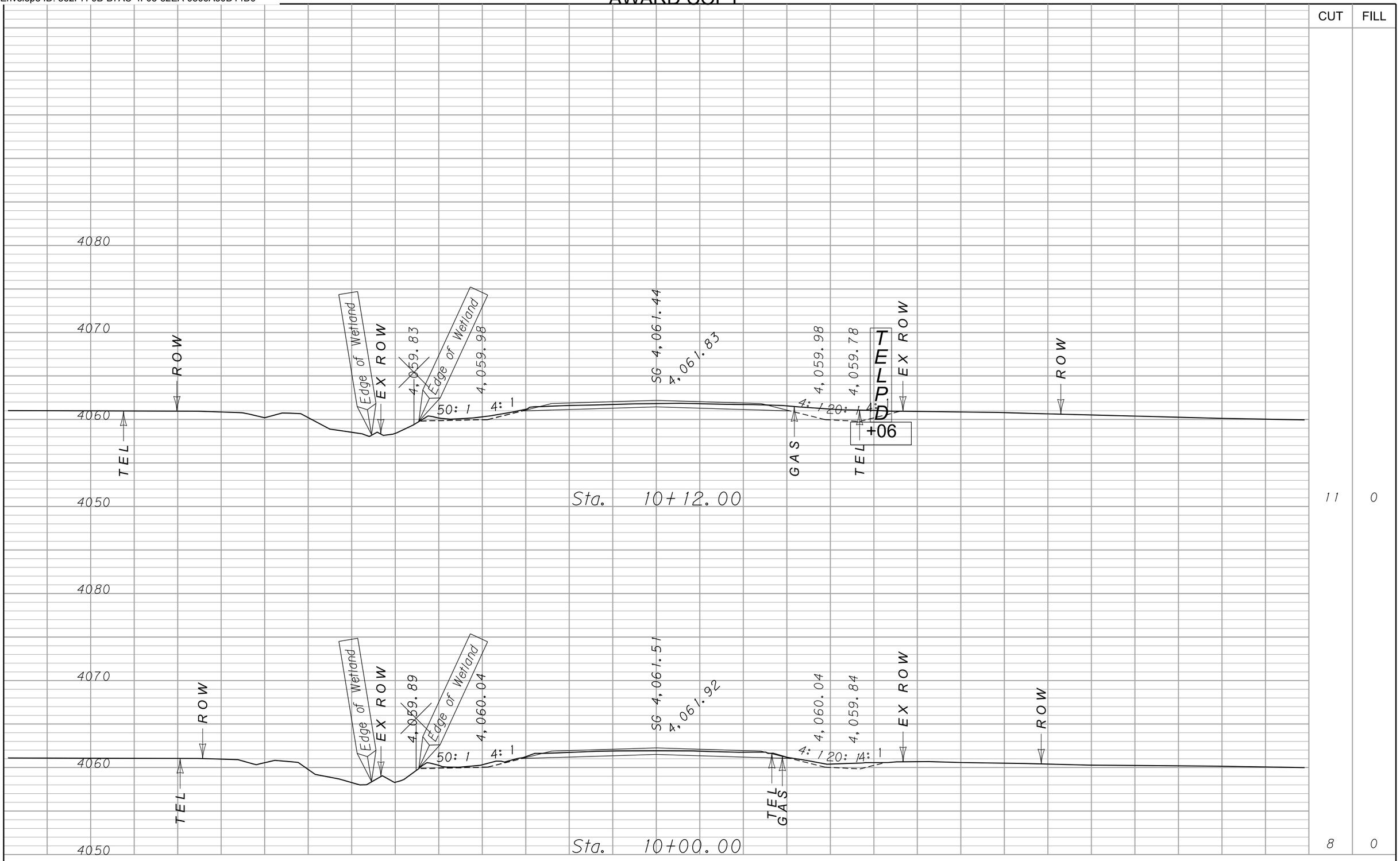
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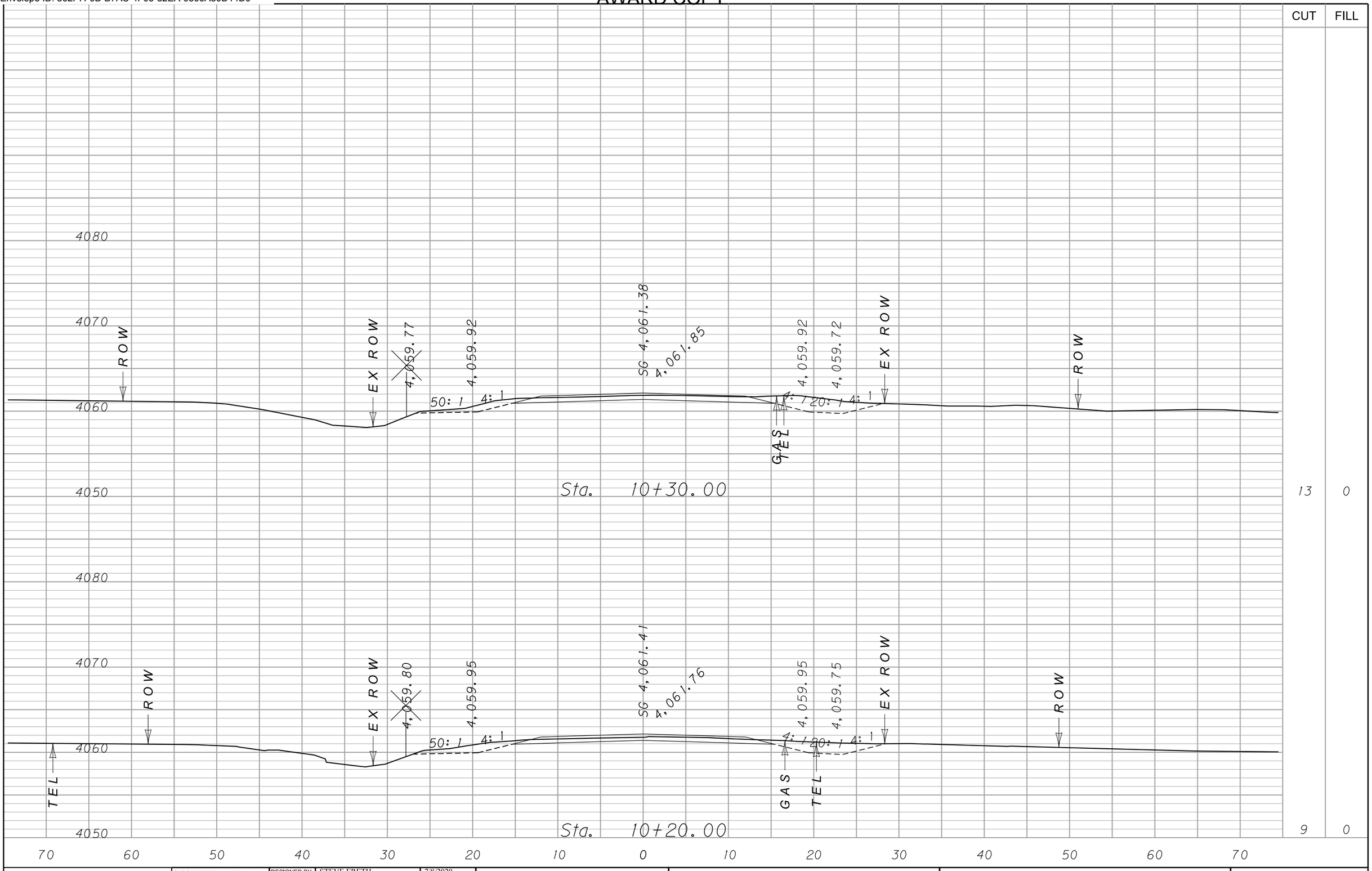



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| | 10/27/2020 | REVIEWED BY | | | | | |
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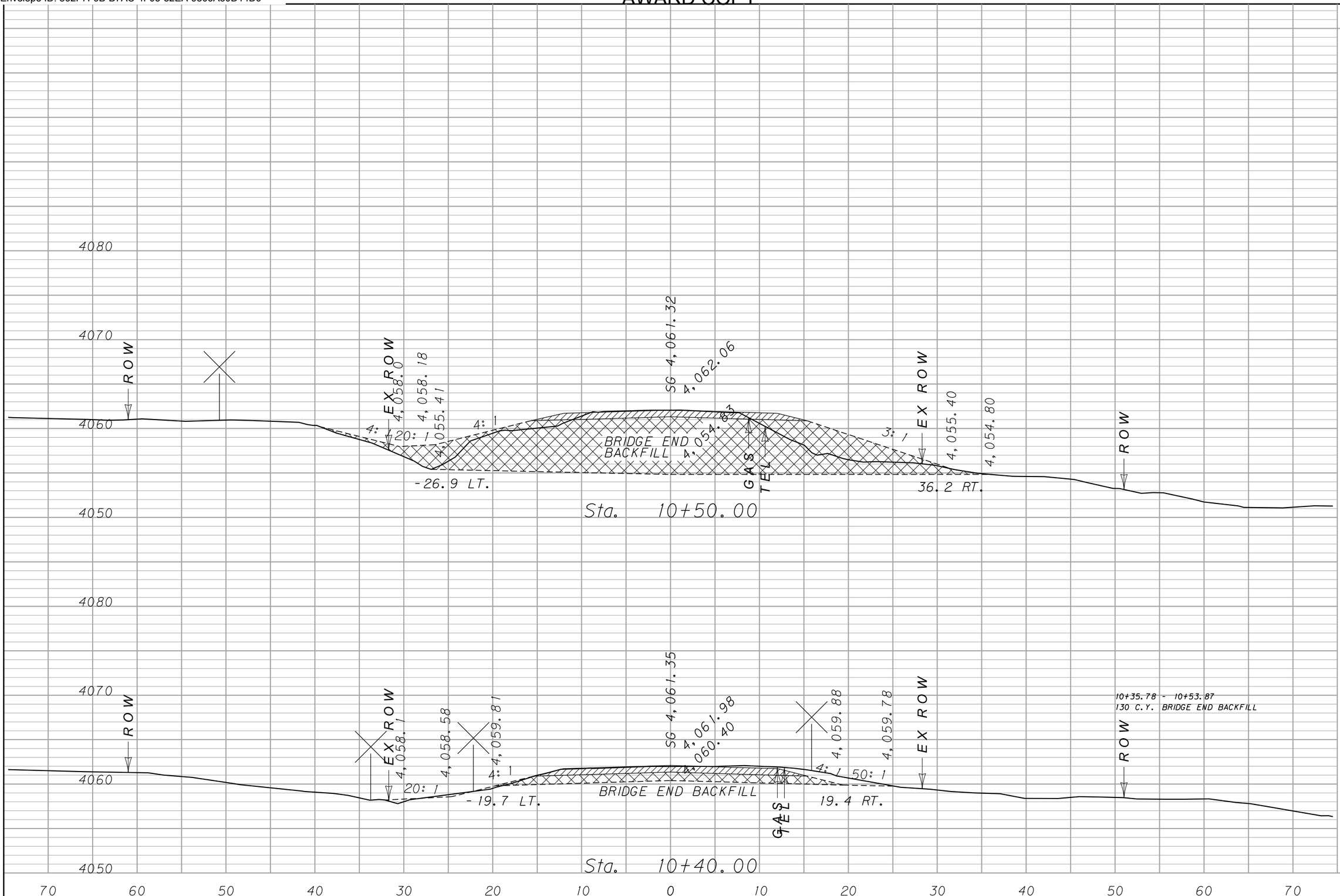



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| | 10/27/2020 | REVIEWED BY | | | | | |
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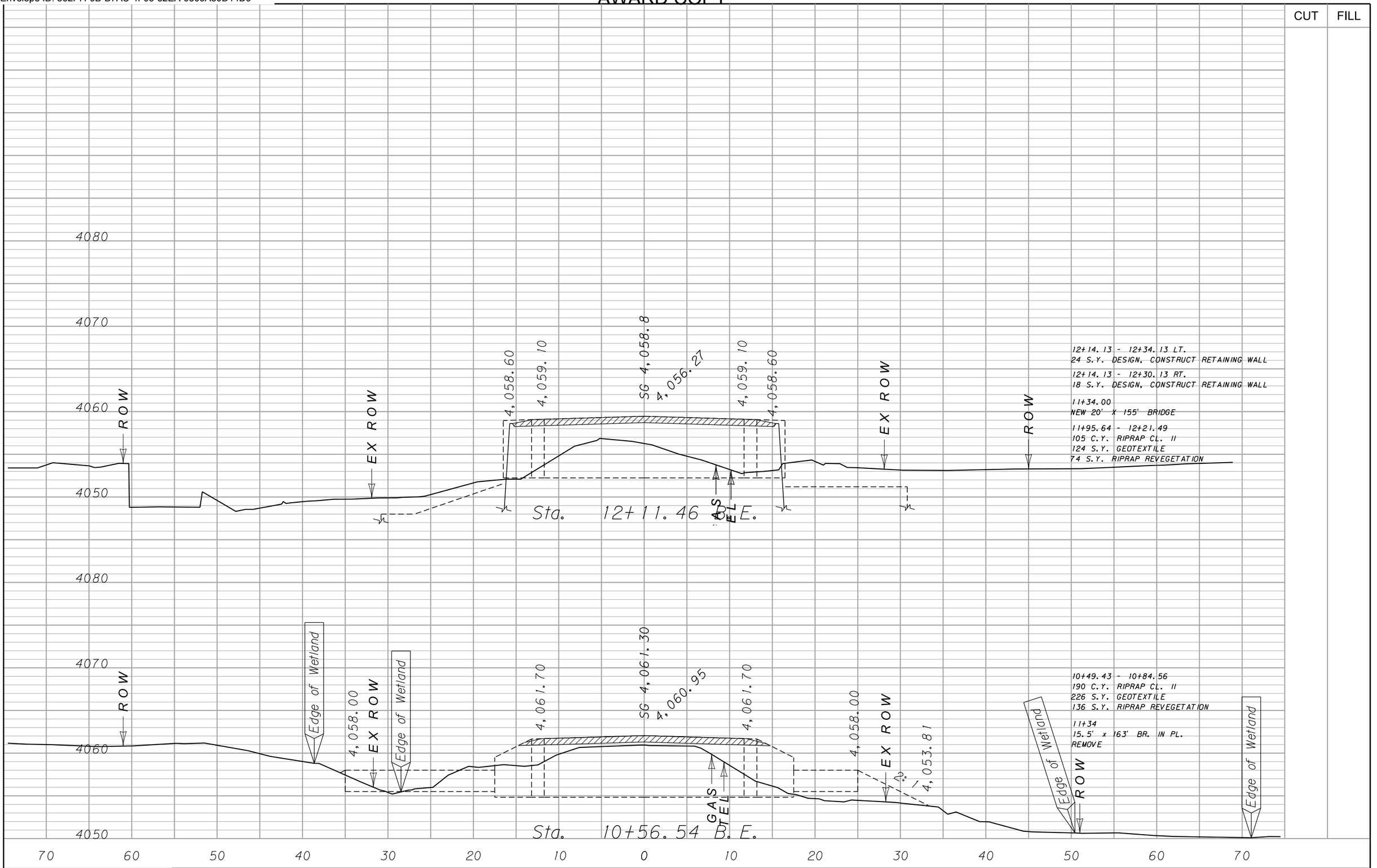



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| | 10/27/2020 | REVIEWED BY | | | | CSF= 0.99953213 / UPN 8670000 | |
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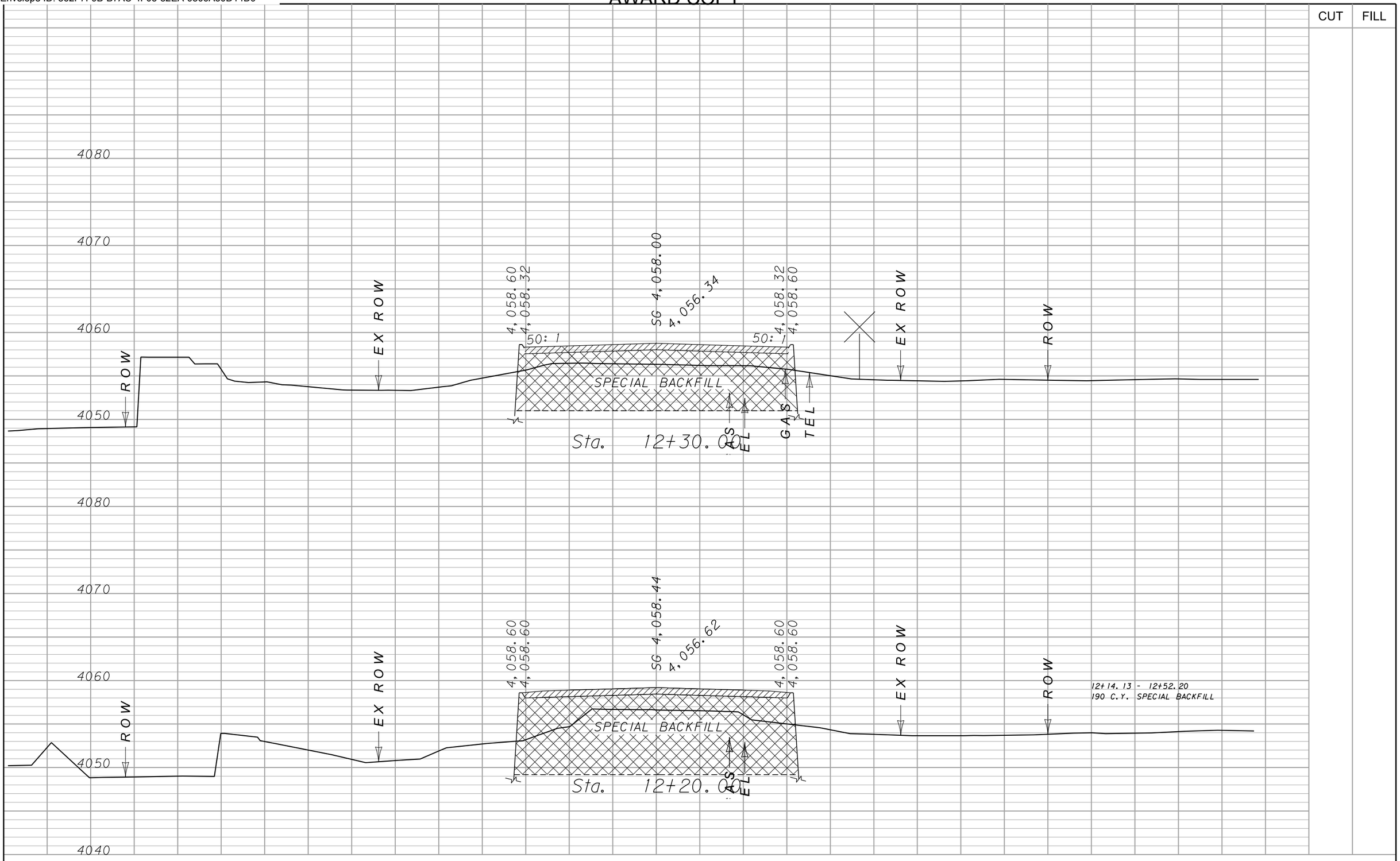



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| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | | |
| | 8:39:31 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 | SHEET 6 |

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| CUT | FILL |
|---|---|
| | |

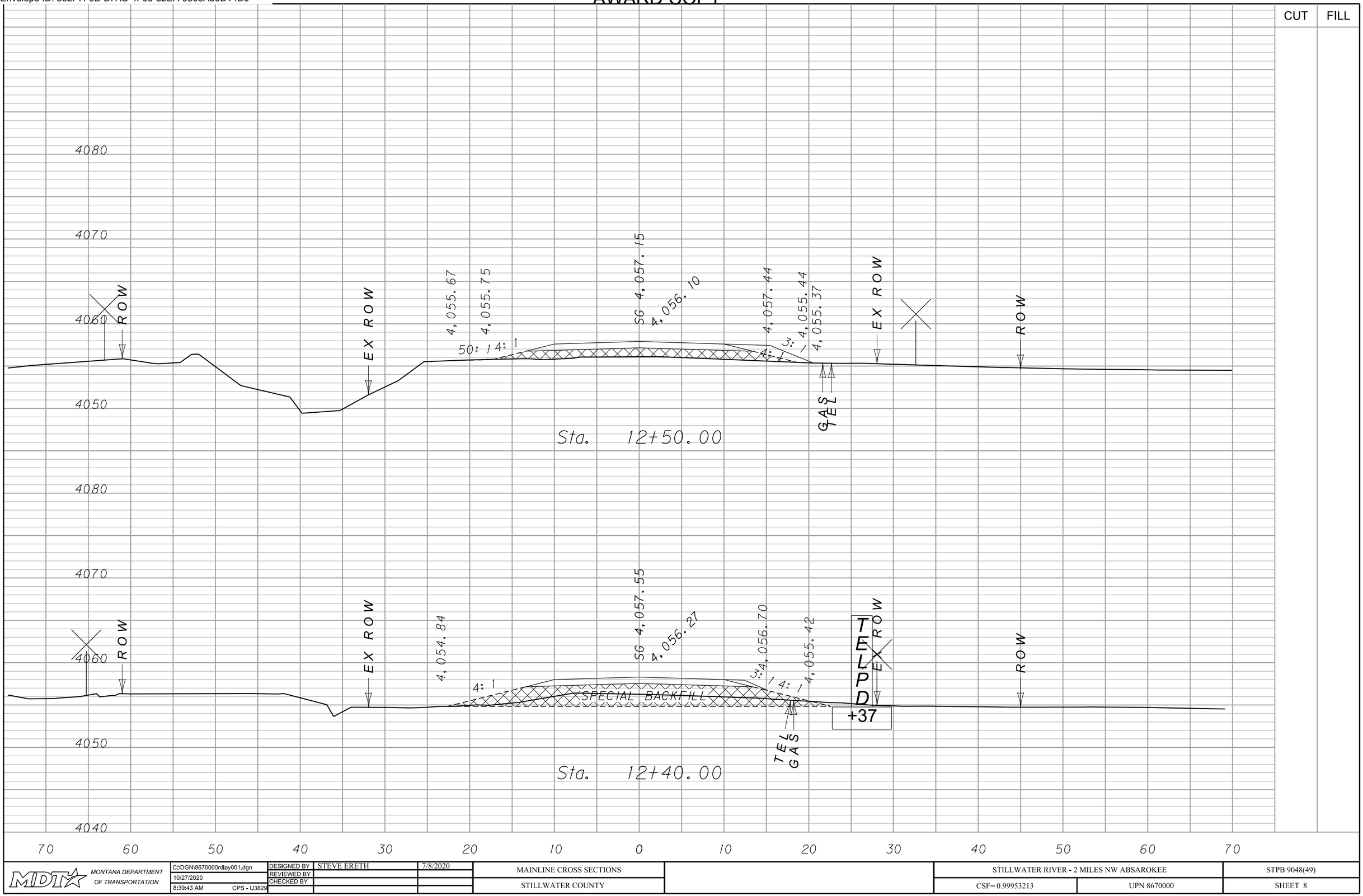



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | | |
| | 8:39:37 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 UPN 8670000 | SHEET 7 |

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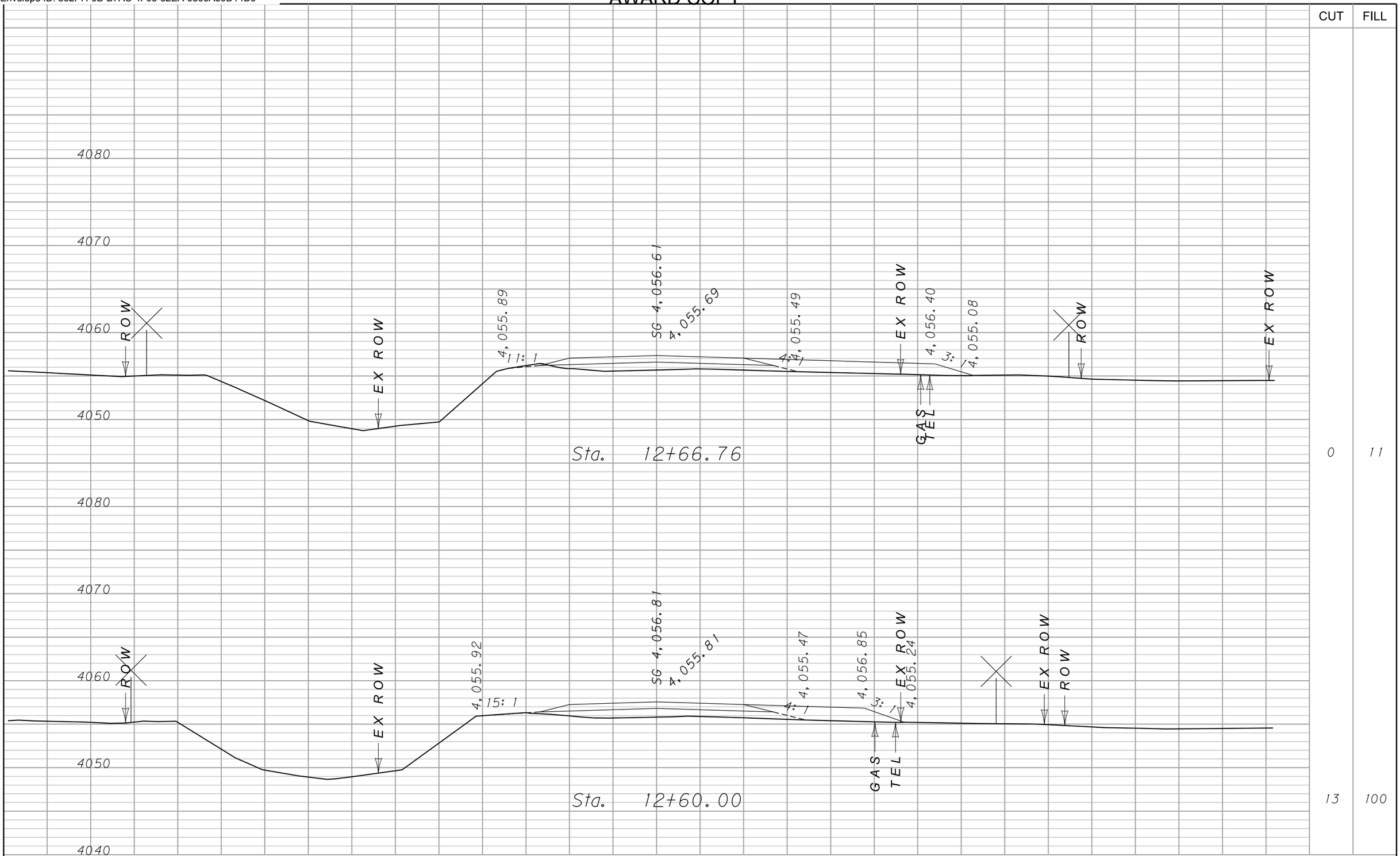
| CUT | FILL |
|---|---|




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 | SHEET 8 |
| | 8:39:43 AM CPS - U3829 | CHECKED BY | | | | | |

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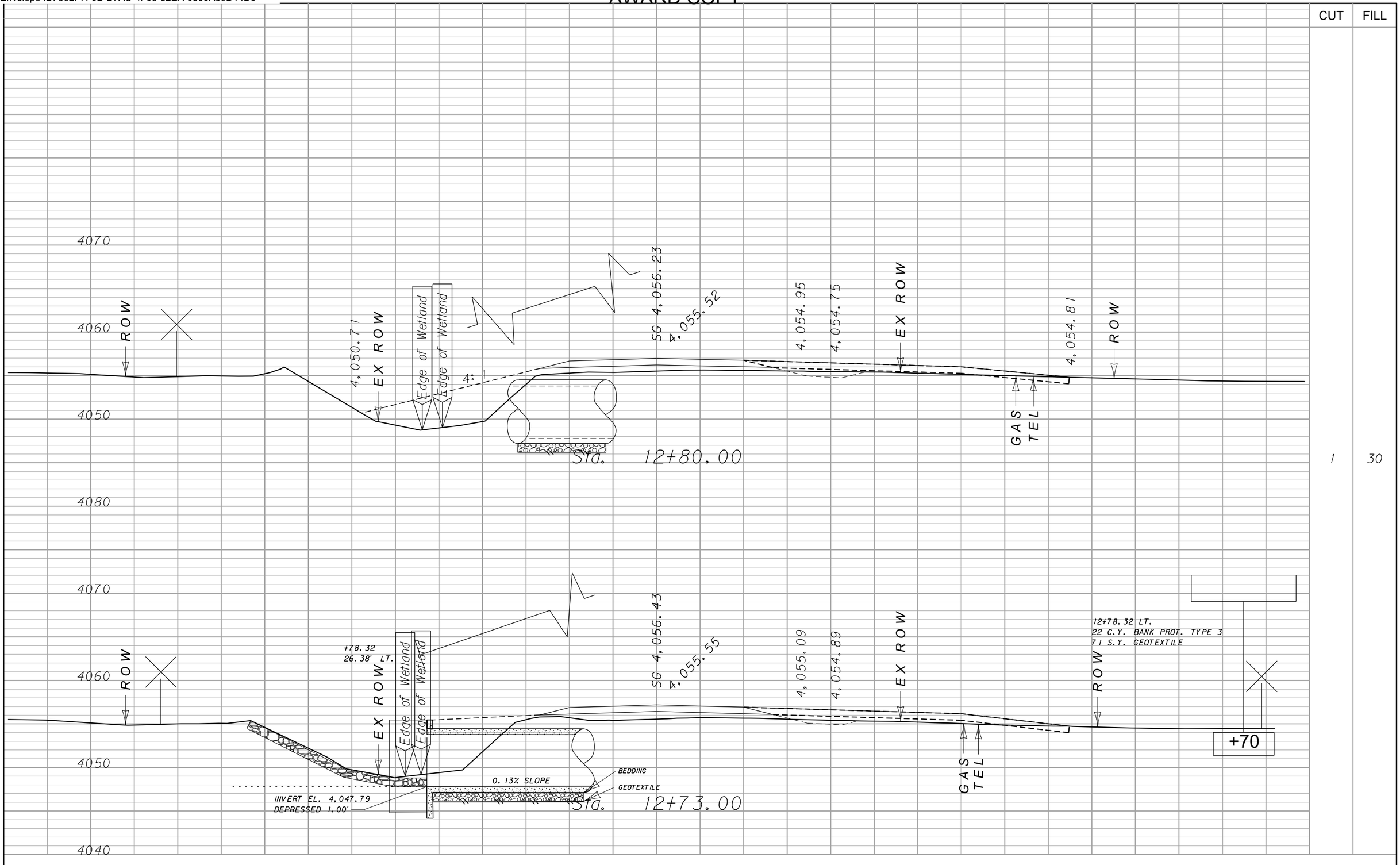



| | | | | | | |
|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE / STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | |
| | 8:39:48 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 / SHEET 9 |

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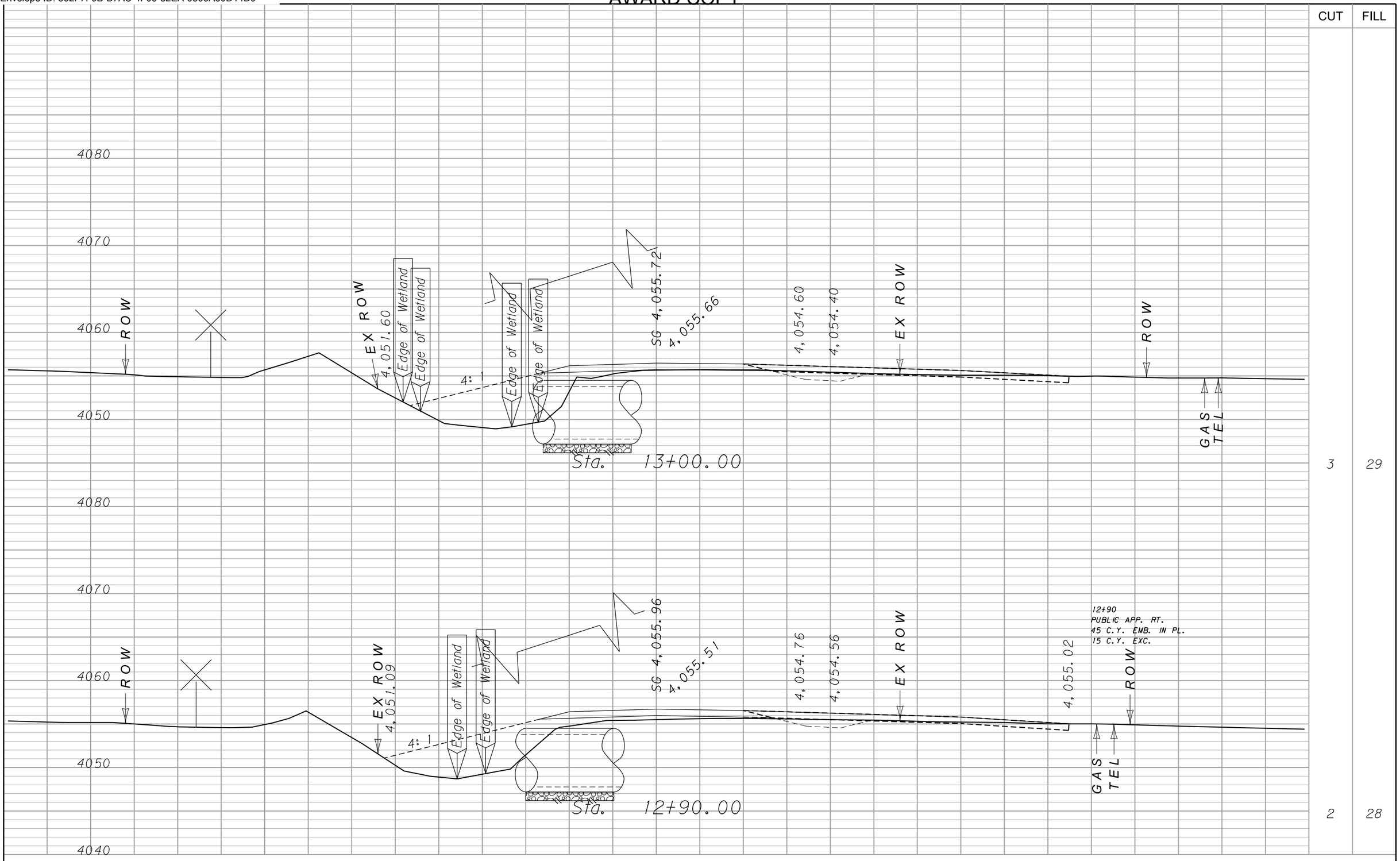
| CUT | FILL |
|---|---|
| 1 | 30 |




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 | SHEET 10 |
| | 8:39:54 AM CPS - U3829 | CHECKED BY | | | | | |

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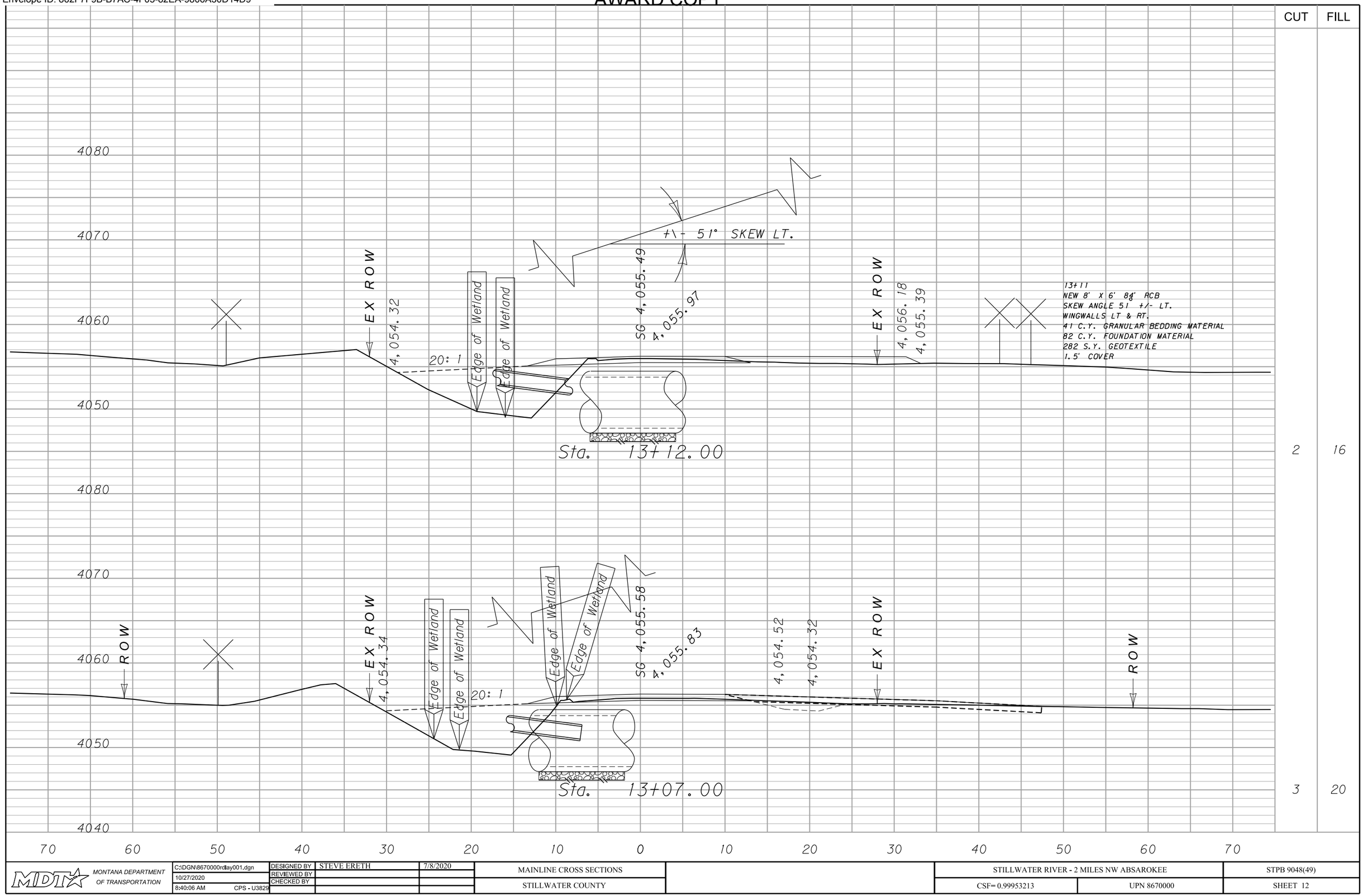



| CUT | FILL |
|---|---|
| 3 | 29 |
| 2 | 28 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | | |
| | 8:40:00 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 | SHEET 11 |

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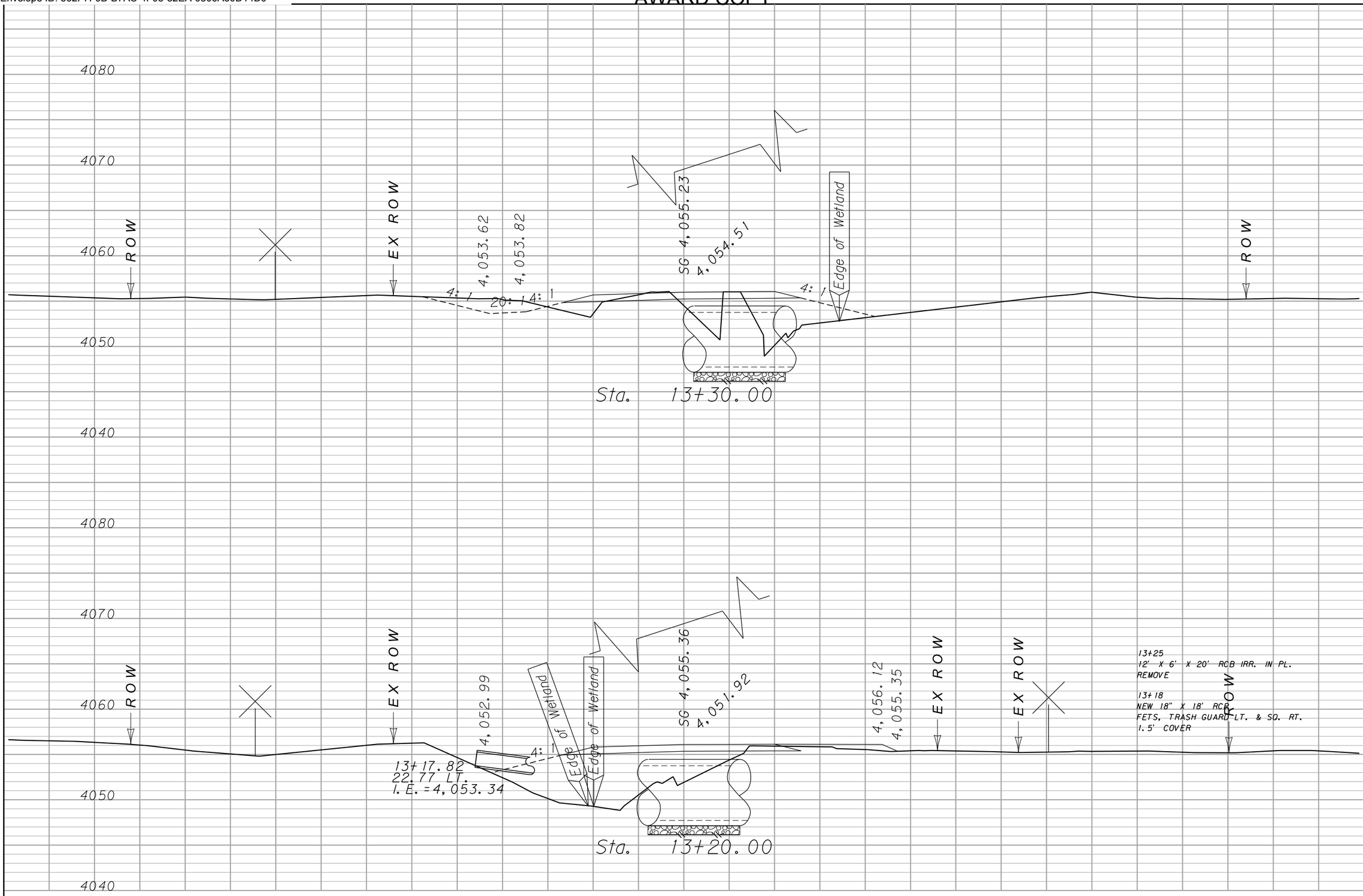



| CUT | FILL |
|---|---|
| 2 | 16 |
| 3 | 20 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | | |
| | 8:40:06 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 | SHEET 12 |

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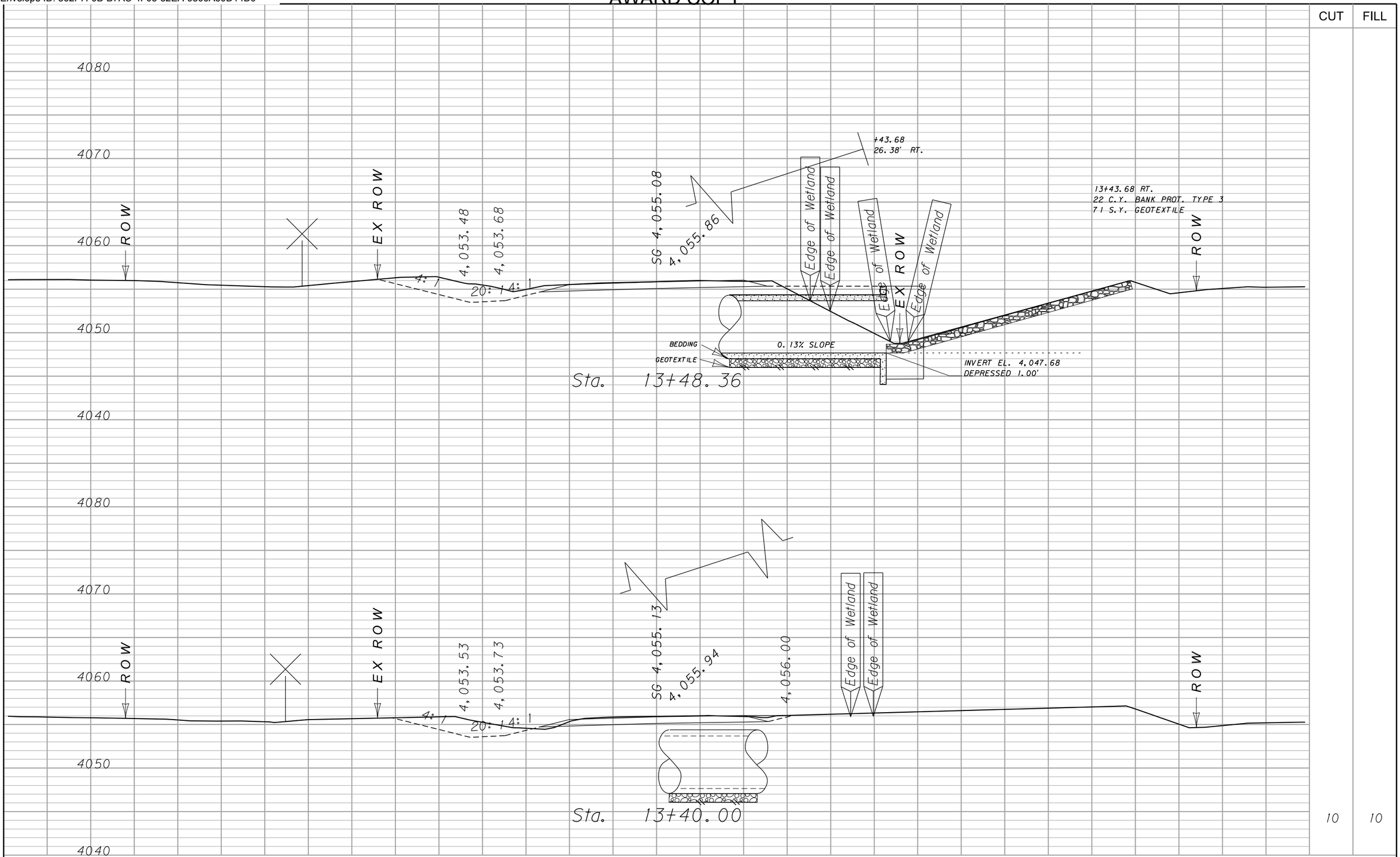

| CUT | FILL |
|---|---|
| 4 | 29 |
| 2 | 30 |

| | | | | | | |
|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE / STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | |
| | 8:40:12 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 / SHEET 13 |

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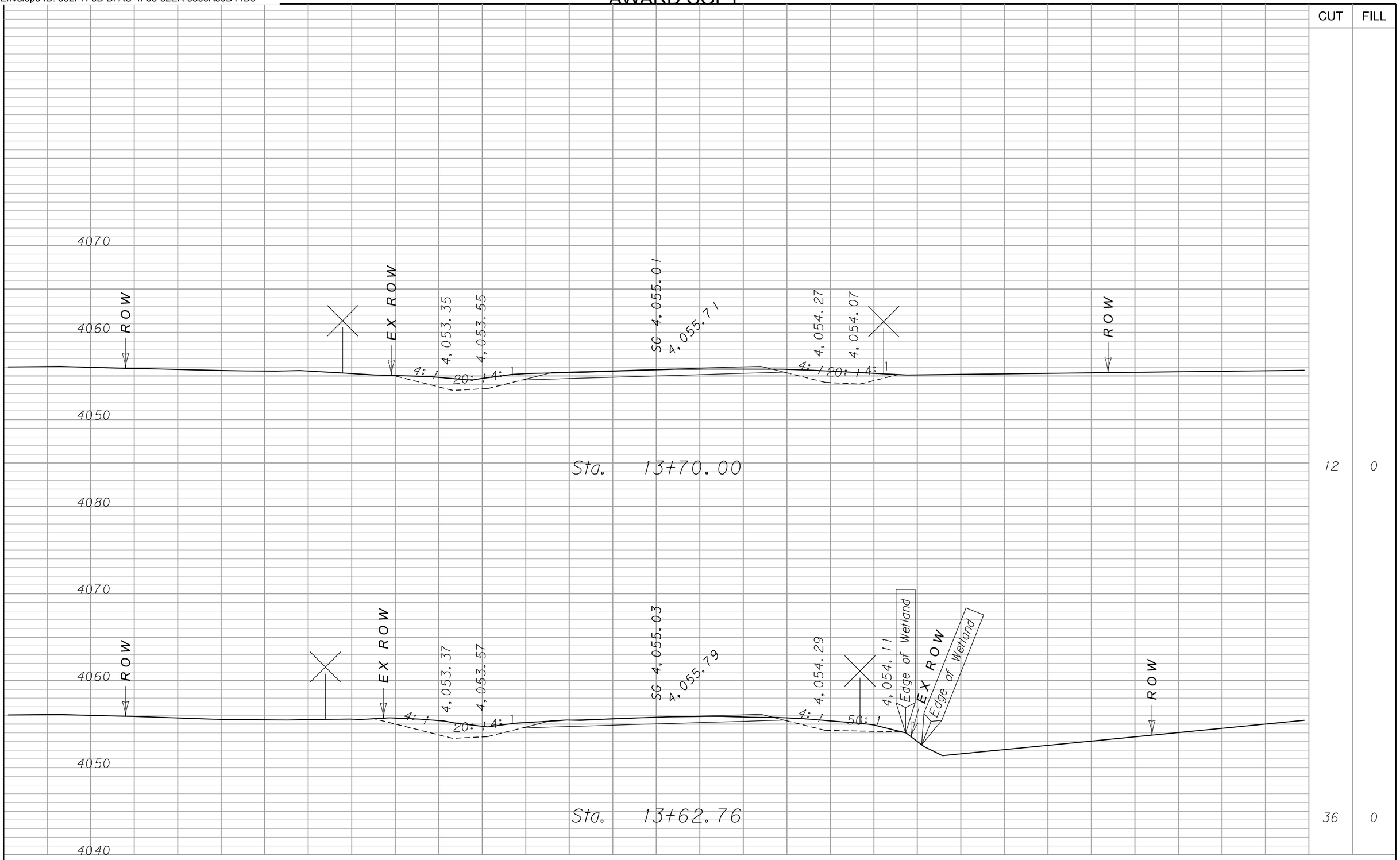
| CUT | FILL |
|---|---|
| 10 | 10 |




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | | |
| | 8:40:17 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 | SHEET 14 |

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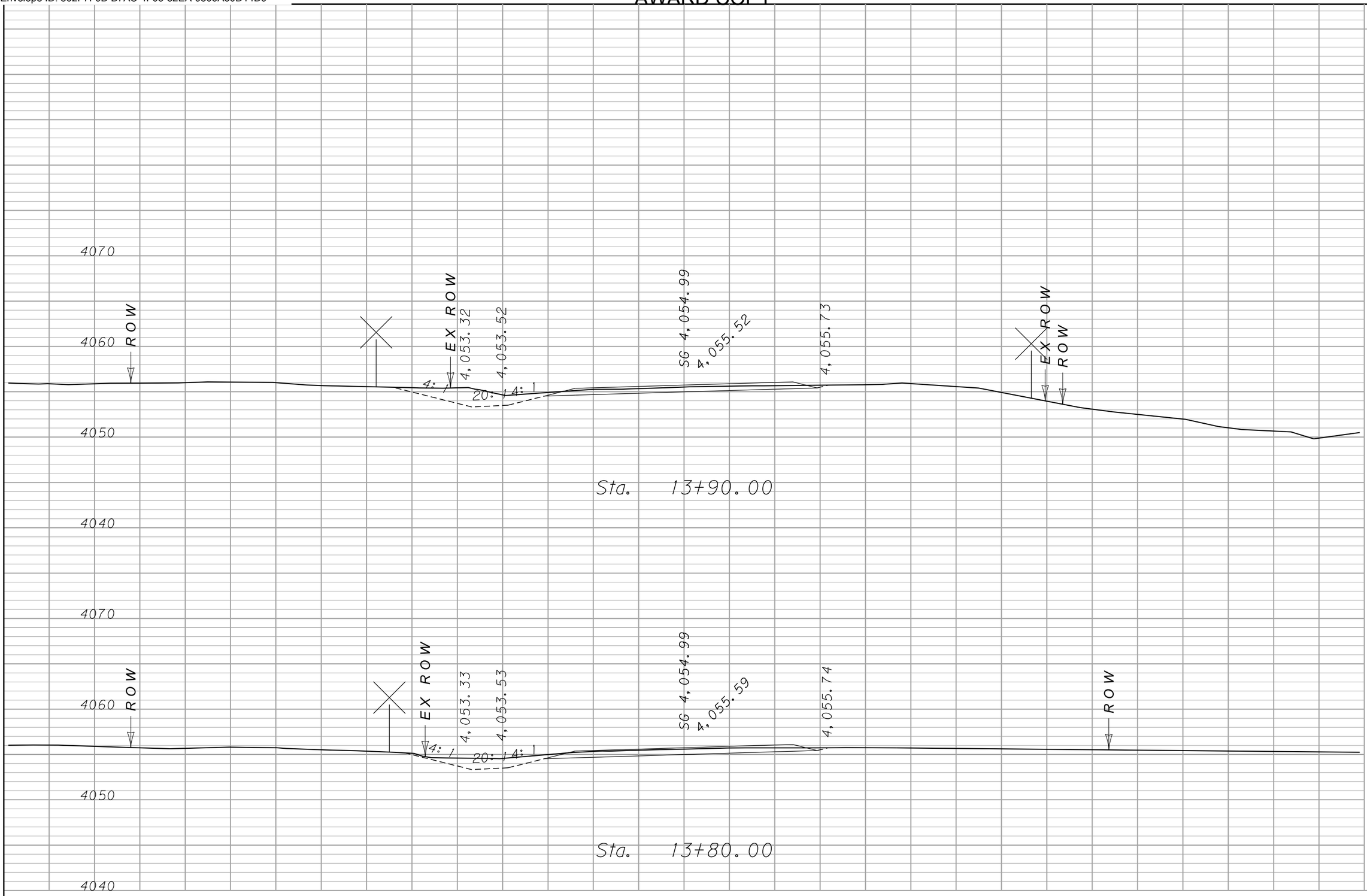



| CUT | FILL |
|---|---|
| 12 | 0 |
| 36 | 0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | | |
| | 8:40:23 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 | SHEET 15 |

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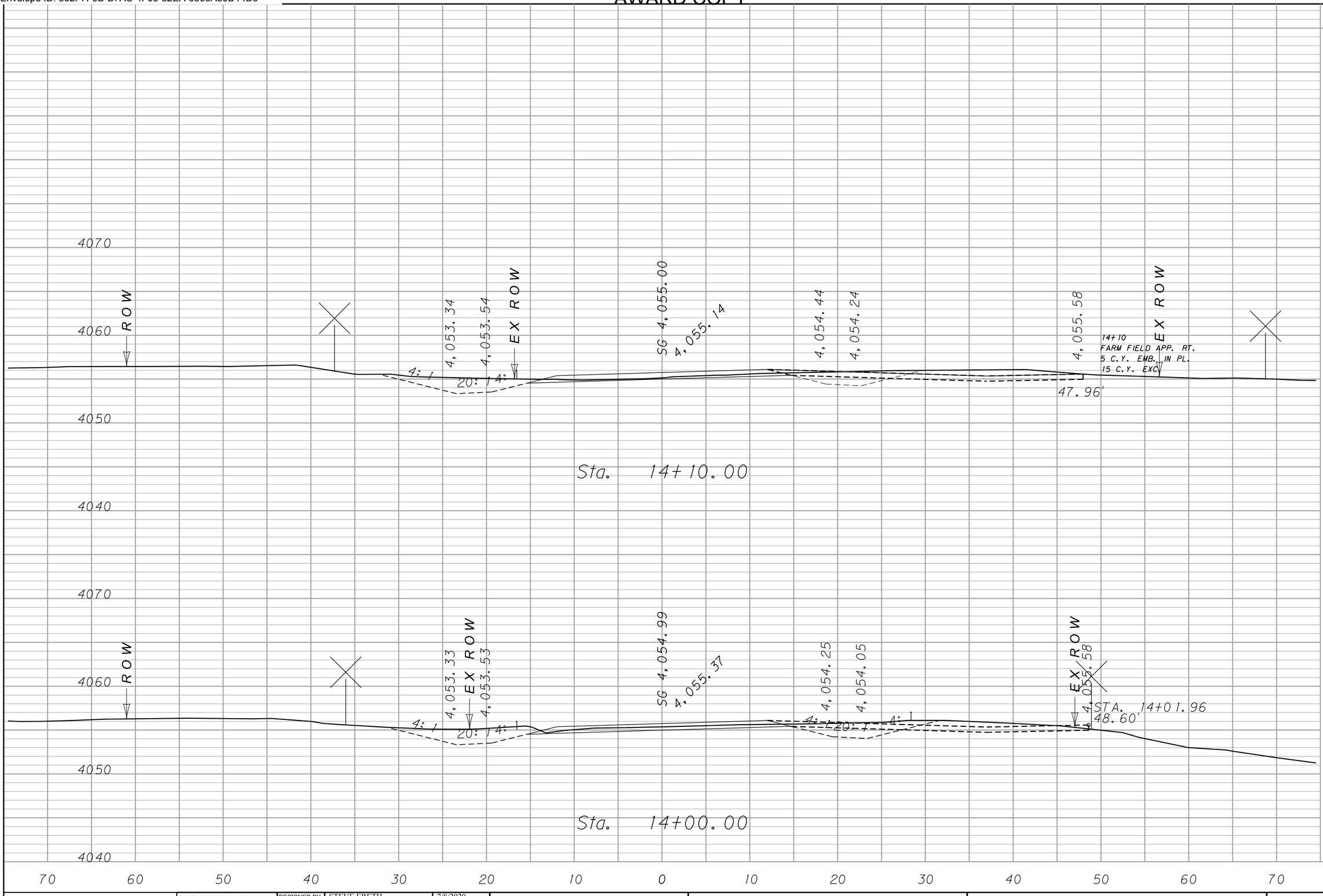

| CUT | FILL |
|---|---|
| 11 | 0 |
| 13 | 0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE / STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | |
| | 8:40:29 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 / SHEET 16 |

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| CUT | FILL |
|---|---|
| 17 | 0 |
| 15 | 0 |

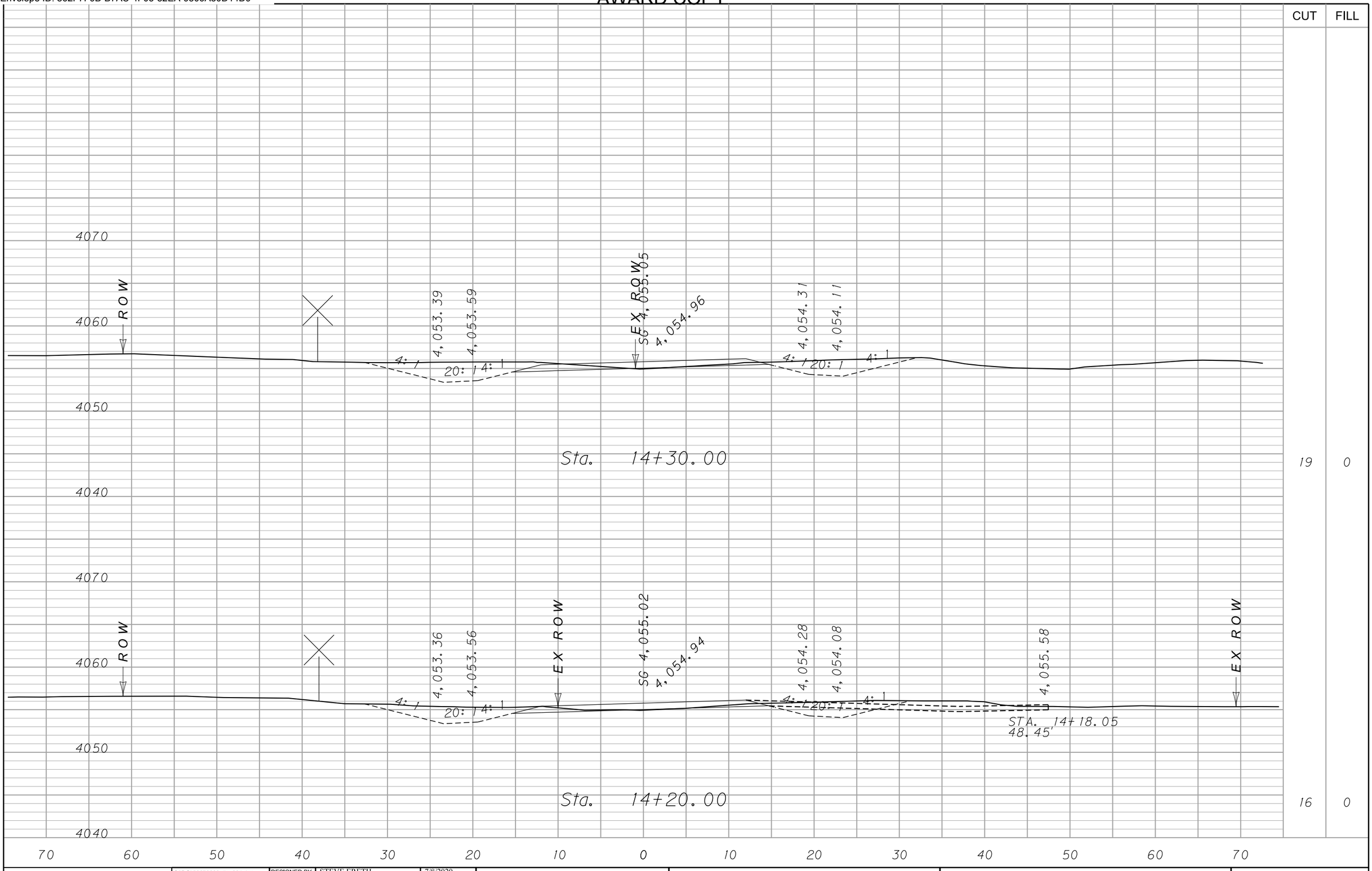



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|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE / STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | |
| | 8:40:35 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 / SHEET 17 |

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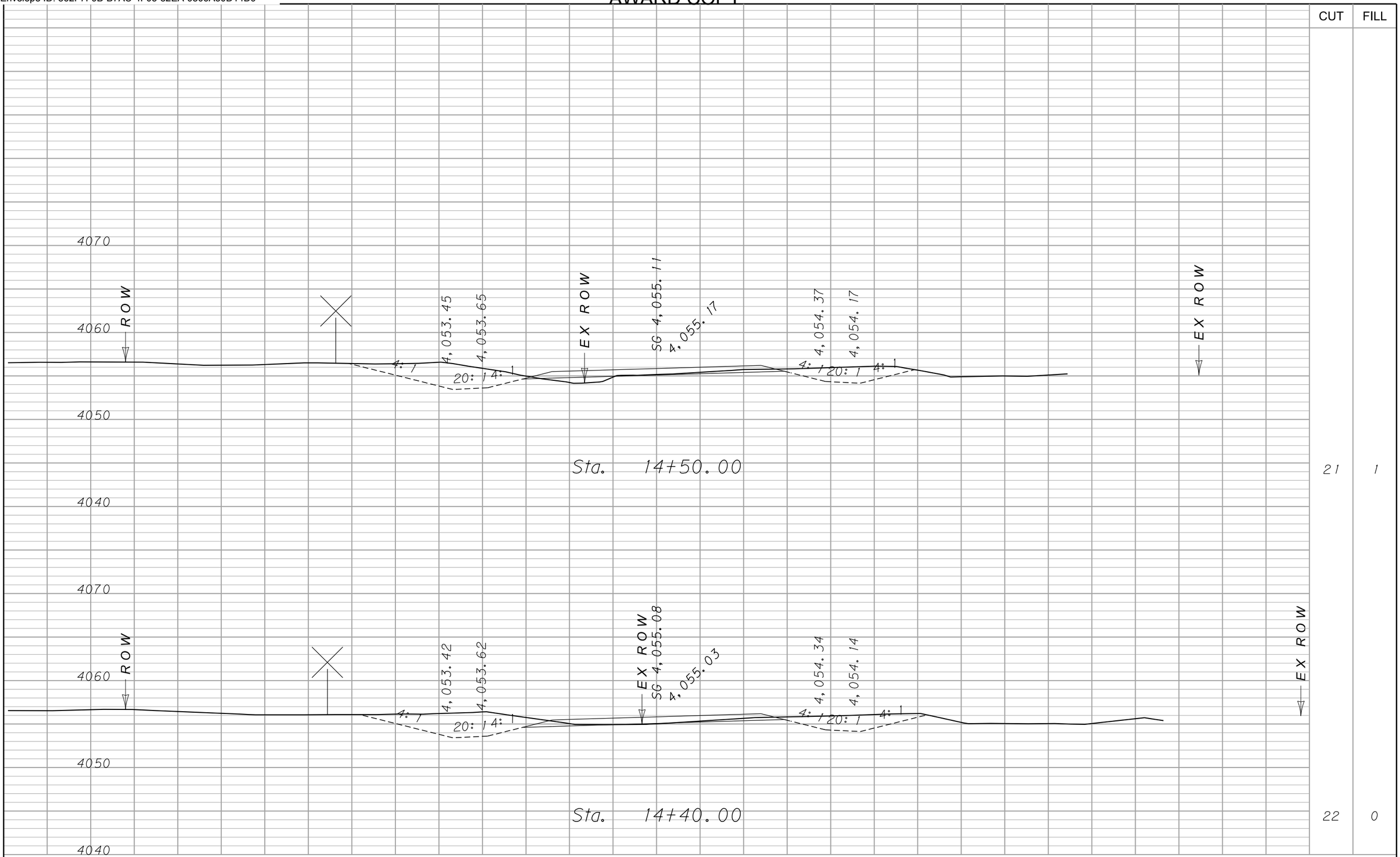
| CUT | FILL |
|---|---|
| 19 | 0 |
| 16 | 0 |




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | | |
| | 8:40:41 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 | SHEET 18 |

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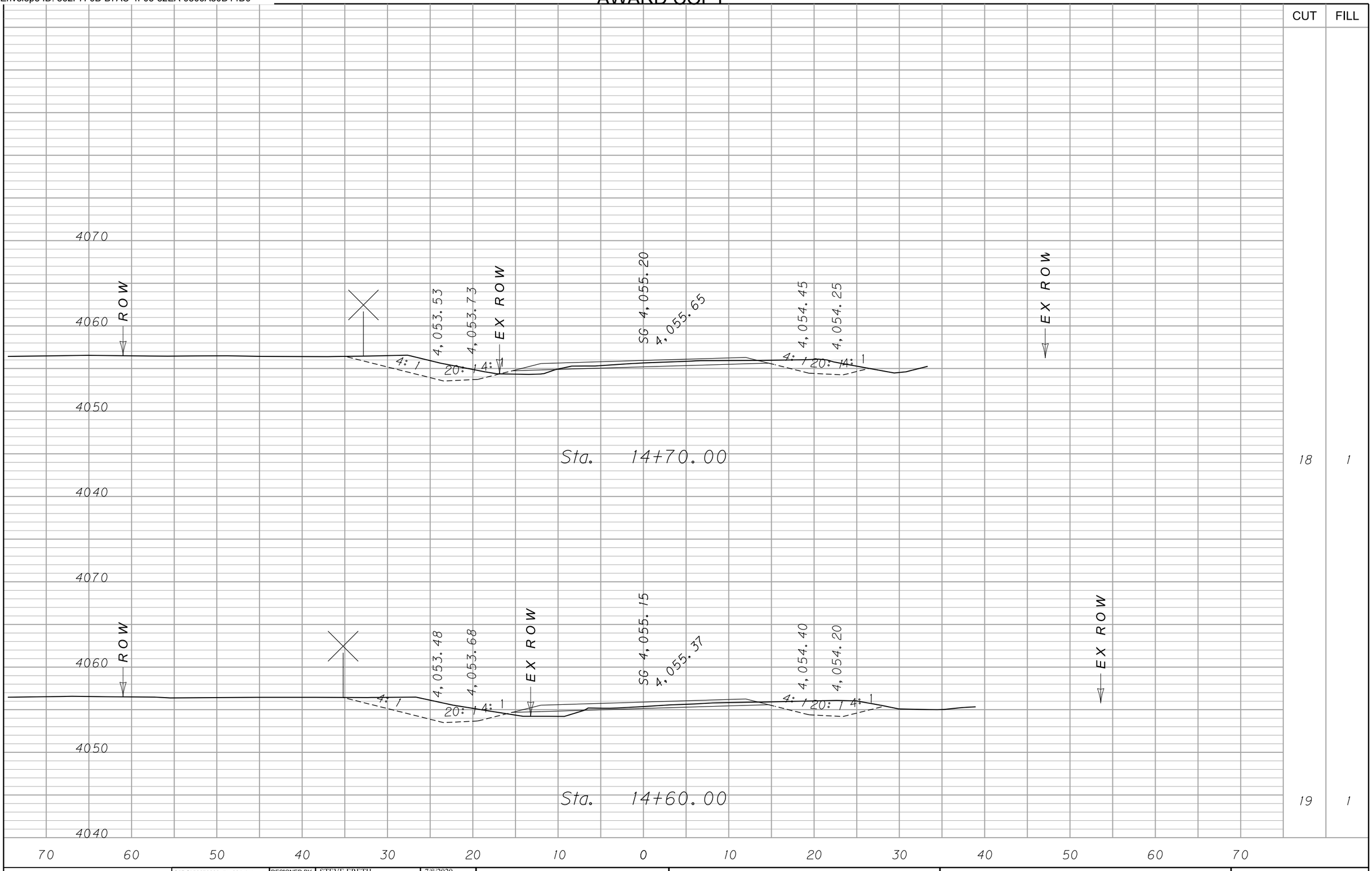



| CUT | FILL |
|---|---|
| 21 | 1 |
| 22 | 0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE / STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | |
| | 8:40:46 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 / SHEET 19 |

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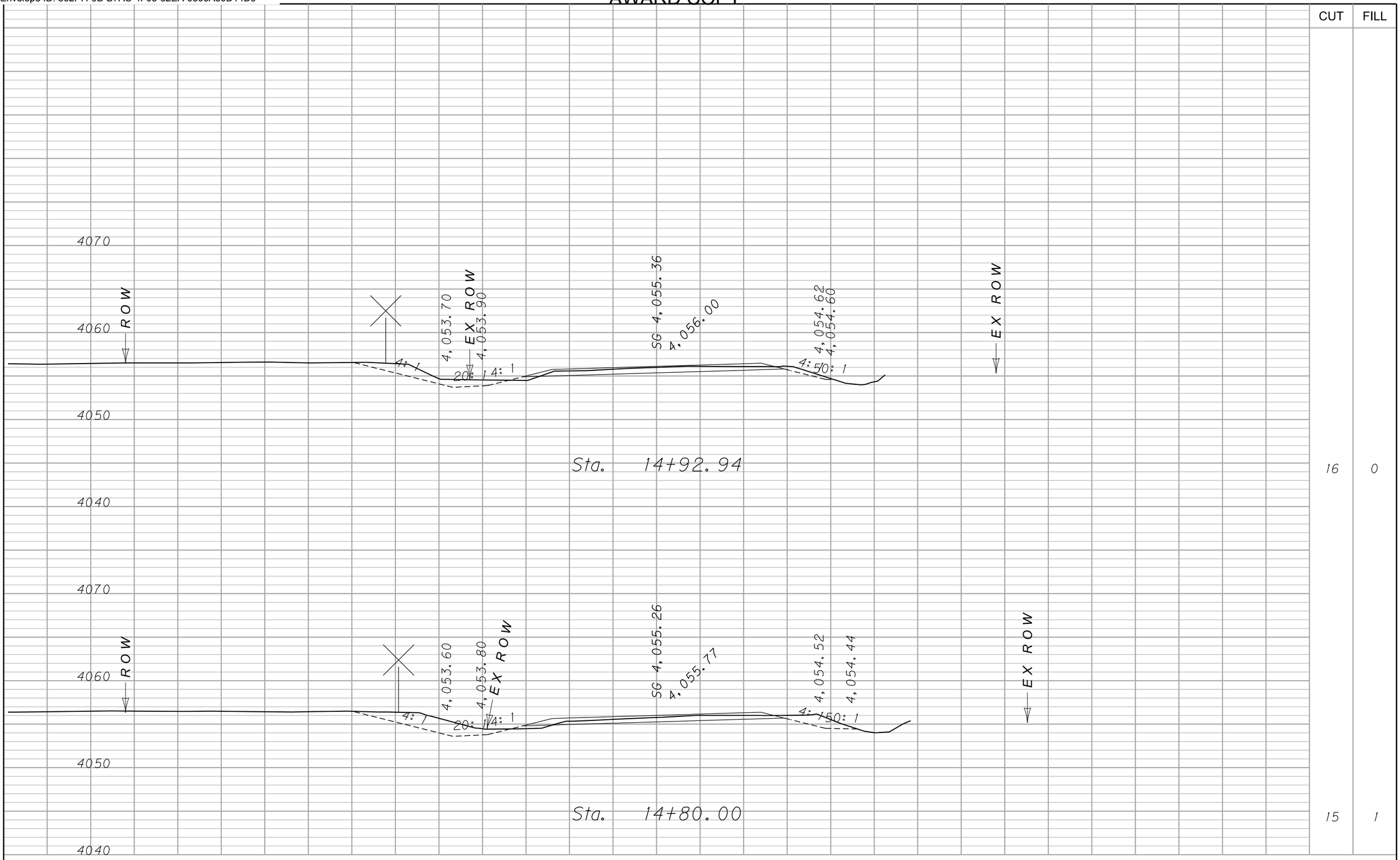



| CUT | FILL |
|---|---|
| 18 | 1 |
| 19 | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE / STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | |
| | 8:40:52 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 / SHEET 20 |

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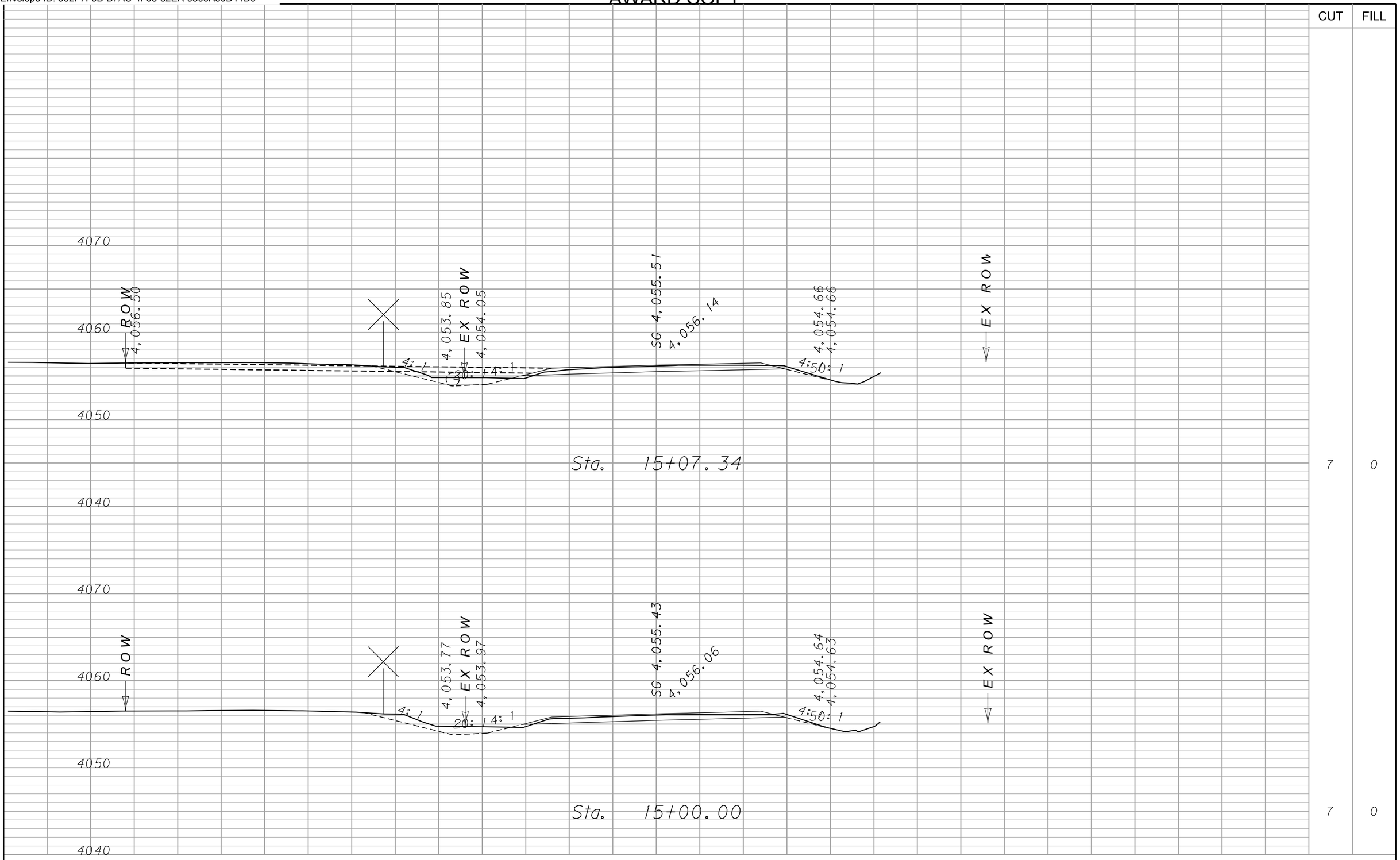

| CUT | FILL |
|---|---|
| 16 | 0 |
| 15 | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | | |
| | 8:40:58 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 | SHEET 21 |

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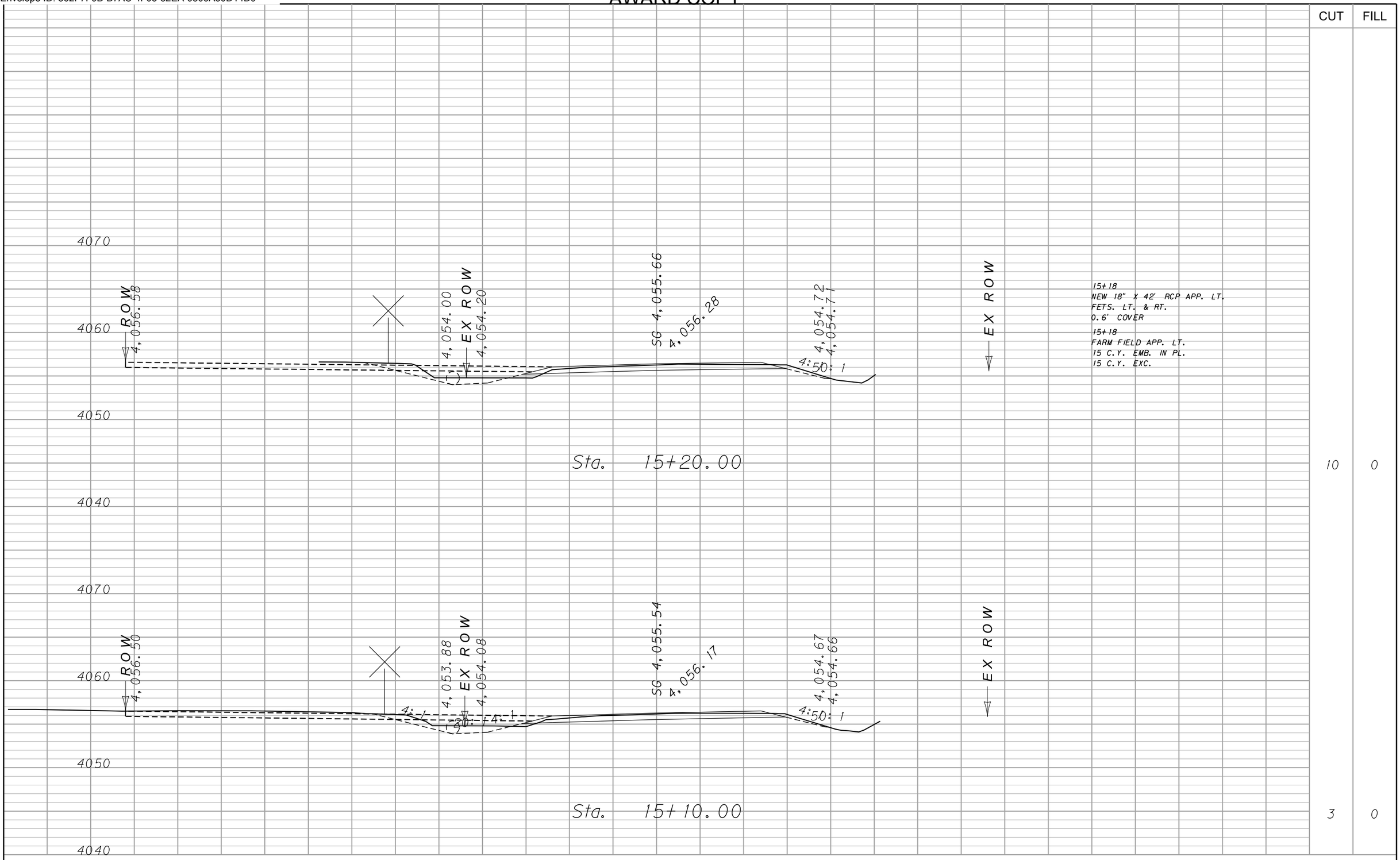
| CUT | FILL |
|---|---|
| 7 | 0 |
| 7 | 0 |




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | | |
| | 8:41:04 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 | SHEET 22 |

DocuSign Envelope ID: 862F7F9B-B7AC-4F05-82EA-9806A30D14D9

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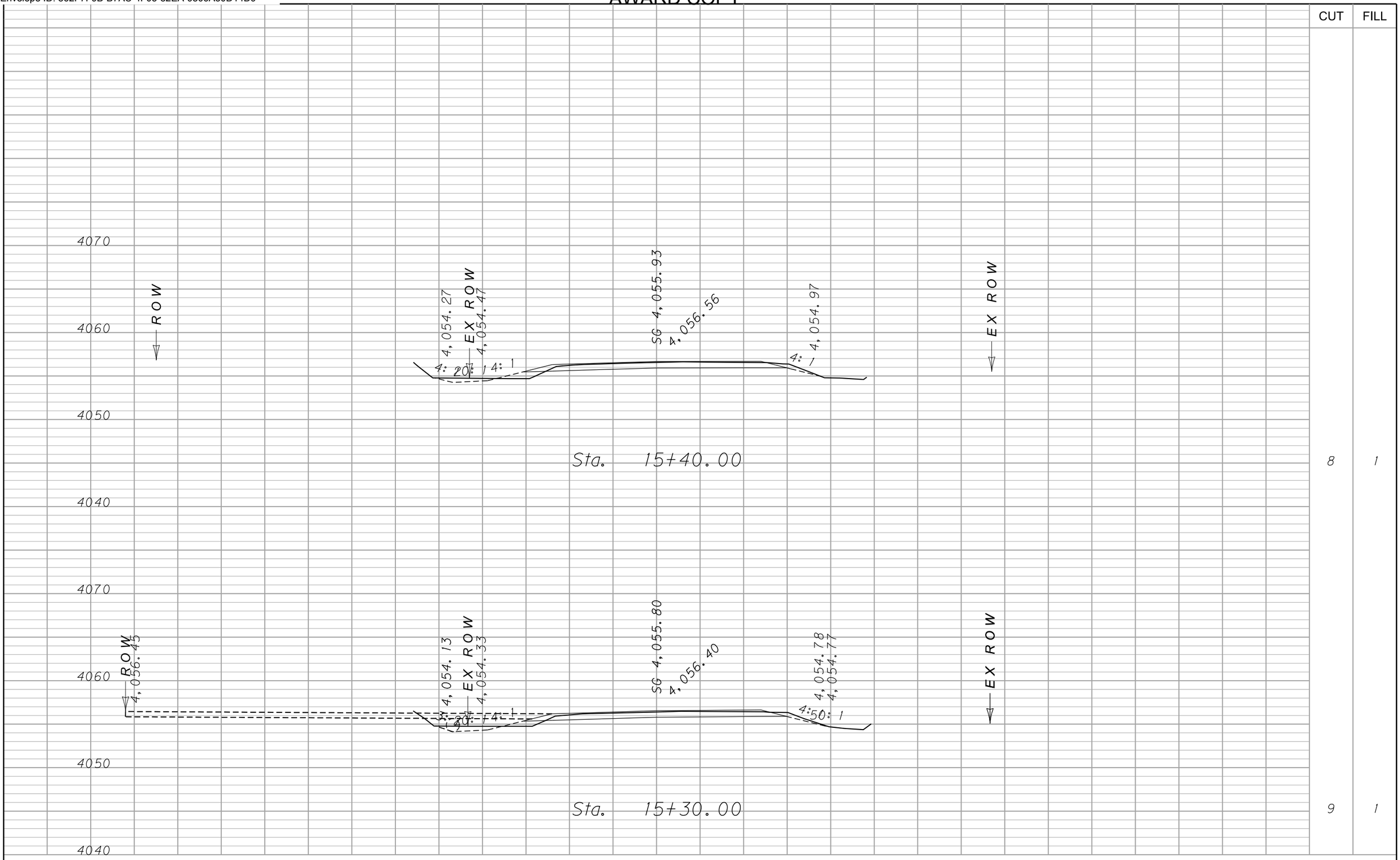



| CUT | FILL |
|---|---|
| 10 | 0 |
| 3 | 0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | | |
| | 8:41:10 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 | SHEET 23 |

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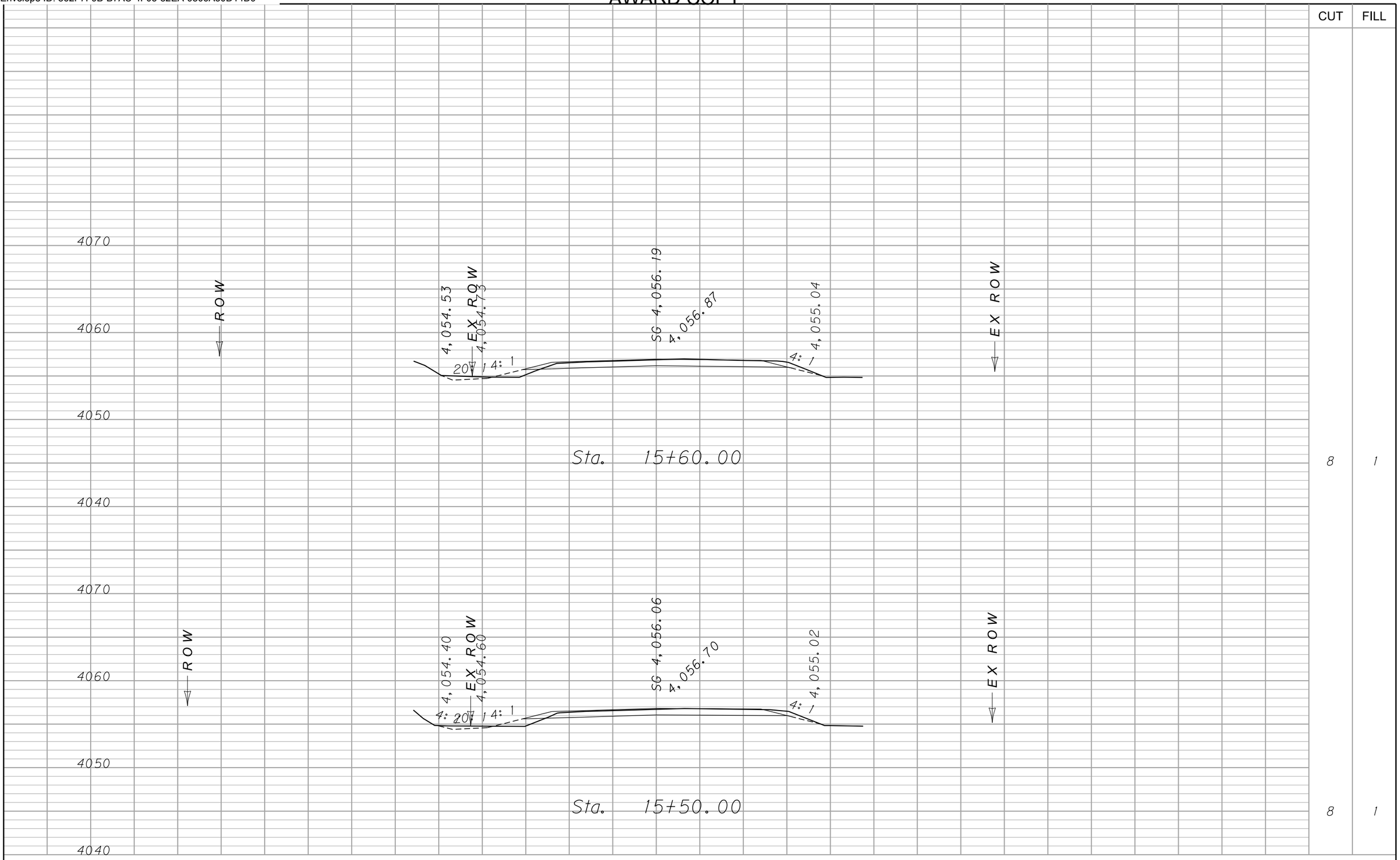



| CUT | FILL |
|---|---|
| 8 | 1 |
| 9 | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE / STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | |
| | 8:41:16 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 / SHEET 24 |

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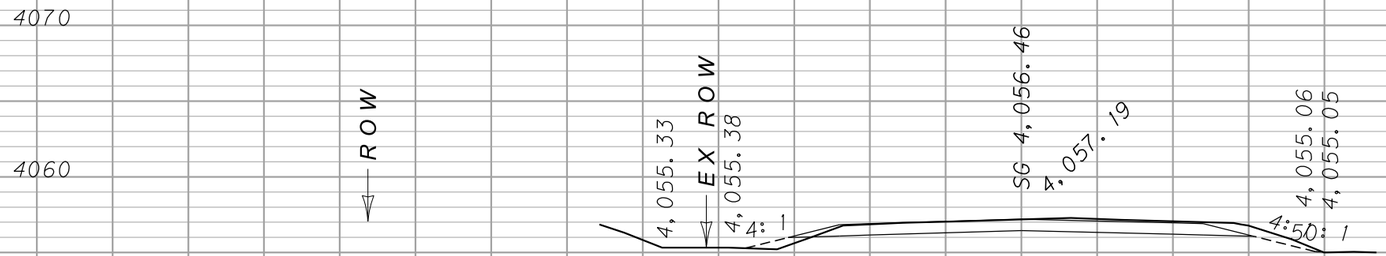

| CUT | FILL |
|---|---|
| 8 | 1 |
| 8 | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE / STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | |
| | 8:41:22 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 / SHEET 25 |

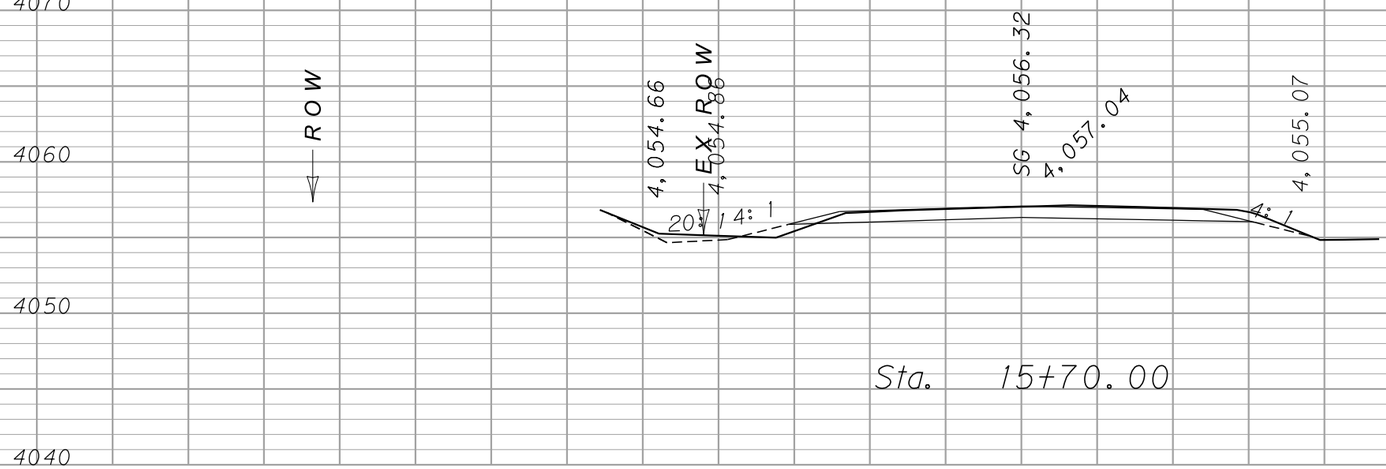
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| CUT | FILL |
|---|---|
| 9 | 1 |
| 9 | 1 |




Sta. 15+80.00




Sta. 15+70.00

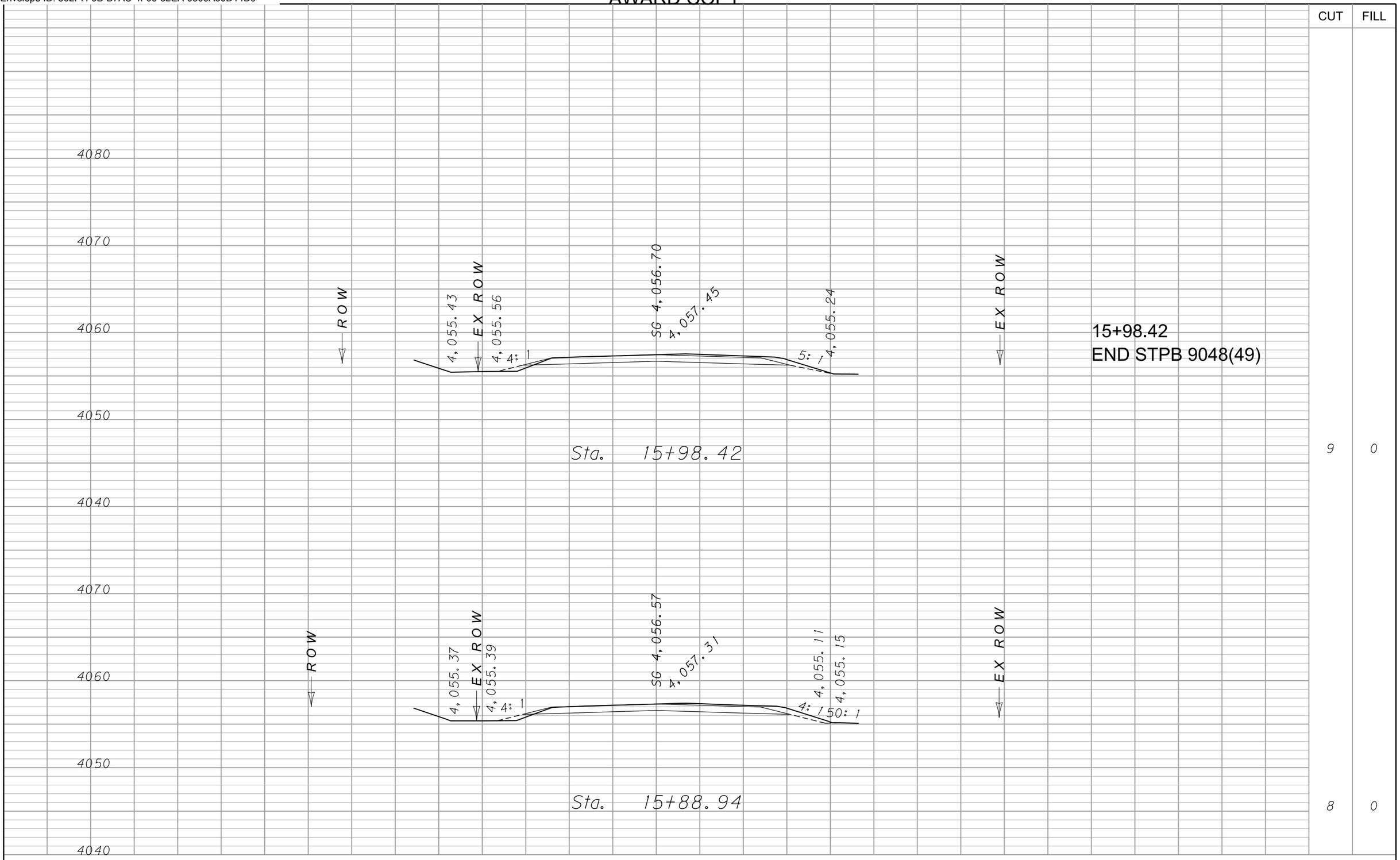
70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

| | | | | | | |
|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE / STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | |
| | 8:41:27 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 / SHEET 26 |

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AWARD COPY

| CUT | FILL |
|---|---|
| 9 | 0 |
| 8 | 0 |




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MDT MONTANA DEPARTMENT OF TRANSPORTATION | C:\DGN\8670000rdlay001.dgn | DESIGNED BY | STEVE ERETH | 7/8/2020 | MAINLINE CROSS SECTIONS | STILLWATER RIVER - 2 MILES NW ABSAROKEE | STPB 9048(49) |
| | 10/27/2020 | REVIEWED BY | | | | | |
| | 8:41:33 AM CPS - U3829 | CHECKED BY | | | STILLWATER COUNTY | CSF= 0.99953213 / UPN 8670000 | SHEET 27 |