# North Dakota Department of Transportation

Grant Levi, P.E.
*Director*

Jack Dalrymple
*Governor*


July 1, 2016

**ADDENDUM 1 – JOB 2**

TO: All prospective bidders on project SC-2730(061), Job No. 2 scheduled for the July 15, 2016 bid opening.

The following plan and request for proposal revisions shall be made:

Plan Revisions:

**See attached summary from Jessica R Karls, KLJ, dated June 30, 2016 for an explanation.**

Request for Proposal Revisions:

**Remove and replace page 7 thru 11 of 13 of the Proposal pages located at the beginning of the Request for Proposal, with the enclosed page revised 6/30/2016.**

Page 7 of 13:

Item 201 0300 CLEARING & GRUBBING; 1 ACRE was deleted.
Item 201 0330 CLEARING & GRUBBING; 1 L SUM was added.
Item 202 0350 REMOVAL OF TEMPORATY BYPASS; 4 EA was added.
Item 203 0101 COMMON EXCAVATION-TYPE A; 461 CY was deleted.
Item 203 0102 COMMON EXCAVATION-TYPE B; 1,613 CY was added.
Item 203 0109 TOPSOIL; quantity increased from 2,580 to 5,656 CY.
Item 203 0113 COMMON EXCAVATION WASTE; 11,348 CY was deleted.
Item 203 0121 TOPSOIL-WETLAND; quantity decreased from 621 to 604 CY
Item 203 0140 BORROW-EXCAVATION; quantity increased from 14,322 to 25,165 CY.

Page 8 of 13:

Item 210 0210 FOUNDATION FILL; quantity decreased from 2,909 to 2,445 CY.
Item 216 0100 WATER; quantity decreased from 485 to 392 M GAL.
Item 251 0200 SEEDING CLASS II; quantity decreased from 4.130 to 5.940 ACRE.
Item 251 1000 WETLAND SEED; quantity decreased from 0.770 to 0.750 ACRE.
Item 251 2000 TEMPORARY COVER CROP; quantity increased from 4.030 to 5.910 ACRE.
Item 253 0101 STRAW MULCH; quantity increased from 8.930 to 12.590 ACRE.
Item 260 0200 SILT FENCE SUPPORTED; 533 LF was added.
Item 260 0201 REMOVE SILT FENCE SUPPPORTED; 533 LF was added.
Item 261 0112 FIBER ROLLS 12IN; quantity increased from 10,456 to 16,680 LF.

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Item 261 0113 REMOVE FIBER ROLLS 12IN; quantity increased from 6,503 to 8,441 LF.
Item 262 0100 FLOTATION SILT CURTAIN; quantity decreased from 561 to 559 LF.
Item 262 0101 REMOVE FLOTATION SILT CURTAIN; quantity decreased from 561 to 559 LF.

Item 302 0120 AGGREGATE BASE COURSE CL 5; quantity increased from 1,366 to 3,544 TON.
Item 401 0050 TACK COAT; quantity increased from 366 to 478 GAL.
Item 401 0060 PRIME COAT; quantity increased from 915 to 1,195 GAL.
Item 401 0160 BLOTTER MATERIAL CL 44; quantity increased from 28 to 36 TON.
Item 430 0045 SUPERPAVE FAA 45; quantity increased from 805 to 1,044 TON.
Item 430 5828 PG 58-28 ASPHALT CEMENT; quantity increased from 47 to 63 TON.
Item 606 1108 11FT X 8FT PRECAST RCB CULVERT; quantity decreased from 114 to 110 LF.
Item 606 1211 12FT X 11FT PRECAST RCB CULVERT; quantity decreased from 84 to 64 LF.
Item 606 1311 13FT X 11FT PRECAST RCB CULVERT; quantity decreased from 84 to 64 LF.
Item 606 3108 DBL11FT X 8FT PRECAST RCB CULVERT; quantity decreased from 114 to 110 LF.
Item 606 3206 DBL12FT X 6FT PRECAST RCB CULVERT; quantity decreased from 168 to 128 LF.

Page 10 of 13:

Item 606 3211 DBL12FT X 11FT PRECAST RCB CULVERT; quantity decreased from 84 to 64 LF.
Item 606 3311 DBL13FT X 11FT PRECAST RCB CULVERT; quantity decreased from 84 to 64 LF.
Item 704 1041 ATTENUATION DEVICE TYPE B-55; 8 EA was deleted.
Item 704 1500 OBLITERATION OF PAVEMENT MARKING; 477 SF was added.

Page 11 of 13:

Item 709 0151 GEOSYNTHETIC MATERIAL TYPE R1; quantity decreased from 11,779 to 11,222 SY.
Item 714 4099 PIPE CONDUIT 18IN-APPROCH; 4 LF was added.
Item 714 6500 END SECT METAL 18IN; 2 EA was added.
Item 714 9680 PLUG PIPE–ALL TYPES & SIZES; 4 EA was added.
Item 762 0430 SHORT TERM 4IN LINE-TYPE NR; quantity increased from 3,608 to 4,572 LF.
Item 762 1104 PVMT MK PAINTED 4IN LINE; quantity increased from 3608 to 4572 LF.

This addendum is to be incorporated into the bidder's proposal for this project.
Expedite bid files should be updated by downloading the addendum file from the Bid Express on-line bidding exchange at http://www.bidx.com/ or the Department's web page (http://www.dot.nd.gov) and load it into the Expedite program.

For CAL J. GENDREAU – CONSTRUCTION SERVICES ENGINEER
80:plm
Enclosure

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June 30, 2016

ADDENDUM 1
Job No.2

TO: All prospective bidders and suppliers on Project SC-2730(061), Job No. 2, scheduled for the July 15, 2016, bid opening.

**Revisions for SC-2730(061):**
**Remove & Replace Plan Sheets:**

- Section 1 Sheet 1
- Section 2 Sheet 1
- Section 6 Sheet 1-2
- Section 8 Sheets 1-2
- Section 10 Sheet 1
- Section 30 Sheet 1
- Section 60 Sheets 1-4
- Section 75 Sheets 1-6
- Section 76 Sheets 1-4
- Section 77 Sheets 1-4
- Section 100 Sheet 1, 3-7
- Section 120 Sheet 1
- Section 170 Sheets 1-2, 4-5, 7-8, 10-11
- Section 200 Sheets 1-60

**with the enclosed sheets revised 06/06/16, 06/23/2016 & 6/30/2016.**
**Electronic files will be made available through the NDDOT's Plans and Proposals Page**

**SECTION 1**

***SHEET 1:***

- Revised Project Length table

**SECTION 2**

***SHEET 1:***

- Revised page numbers for Section 200

**SECTION 6**

***SHEET 1:***

- Added Sheet 1
- Added note 202-P04 – " REMOVAL OF TEMPORARY BYPASS: Include the following in the price bid for "REMOVAL OF TEMPORARY BYPASS": Daily maintenance of the temporary bypass, removal of material, regrading and the removal the aggregate base. Daily maintenance will include blading, watering and keeping traffic control clean. The aggregate removed will become property of the Contractor."

- Added note 203-P01 “COMPACTION CONTROL: Construct the embankment within the roadbed 2:1 prism with “BORROW-EXCAVATION” or “COMMON EXCAVATION-TYPE B” in accordance with Section 203.04 E.2 of the Standard Specifications. Construct the embankment outside the roadbed prism 2:1’s in accordance with Section 203.04 E.3 of the Standard Specifications.
- Revised note 704-450 to 704-P01
  LANE CLOSURE - SIGNAL CONTROL/FLAGGING CONTROL: Install either the signal controlled lane closure on Standard D-704-16 or the flagging controlled lane closure on Standard D-704-17.

  Obtain an electrical source for traffic signals. Solar powered signals may be used. Place generators a minimum of 60 feet from the roadway centerline, unless the generator and signal are part of a trailer mounted unit.

  Place utility poles and equipment a minimum of 60 feet from the roadway centerline and place power conductors a minimum of 6 inches below the ground surface. Remove poles after they are no longer necessary.

  The Engineer will measure individual traffic control devices, other than the signal system and flaggers, shown on the standards. Payment will be made at the respective contract unit price.

  Regardless of the means of operations four “LANE CLOSURE – SIGNAL CONTROL/FLAGGING CONTROL”, one per site, will be paid for.

  Include the cost of either a traffic signal system or flaggers/pilot car in the contract unit price for "LANE CLOSURE – SIGNAL CONTROL/FLAGGING CONTROL".

  ***SHEET 2:***
  - Added Sheet 2

**SECTION 8**

***SHEET 1:***
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 203 | 0109 | TOPSOIL | CY | 2580 | 5656 |
| 203 | 0121 | TOPSOIL – WETLAND | CY | 621 | 604 |
| 203 | 0140 | BORROW-EXCAVATION | CY | 14322 | 25165 |
| 210 | 0210 | FOUNDATION FILL | CY | 2909 | 2445 |
| 216 | 0100 | WATER | MGAL | 485 | 392 |
| 251 | 0200 | SEEDING CLASS II | ACRE | 4.13 | 5.94 |
| 251 | 1000 | WETLAND SEED | ACRE | 0.77 | 0.75 |
| 251 | 2000 | TEMPORARY COVER CROP | ACRE | 4.03 | 5.91 |

| | | | | | |
|---|---|---|---|---|---|
| 253 | 0101 | STRAW MULCH | ACRE | 8.93 | 12.59 |
| 261 | 0112 | FIBER ROLLS 12IN | LF | 10456 | 16680 |
| 261 | 0113 | REMOVE FIBER ROLLS 12IN | LF | 6503 | 8441 |
| 262 | 100 | FLOTATION SILT CURTAIN | LF | 561 | 559 |
| 262 | 101 | REMOVE FLOTATION SILT CURTAIN | LF | 561 | 559 |
| 302 | 0120 | AGGREGATE BASE COURSE CL 5 | TON | 1366 | 3544 |
| 401 | 0050 | TACK COAT | GAL | 366 | 478 |
| 401 | 0060 | PRIME COAT | GAL | 915 | 1195 |
| 401 | 0160 | BLOTTER MATERIAL CL 44 | TON | 28 | 36 |
| 430 | 0045 | SUPERPAVE FAA 45 | TON | 805 | 1044 |
| 430 | 5828 | PG 58-28 ASPHALT CEMENT | TON | 47 | 63 |
| 606 | 1108 | 11FT X 8FT PRECAST RCB CULVERT | LF | 114 | 110 |
| 606 | 1211 | 12FT X 11FT PRECAST RCB CULVERT | LF | 84 | 64 |
| 606 | 1311 | 13FT X 11FT PRECAST RCB CULVERT | LF | 84 | 64 |
| 606 | 3108 | DBL 11FT X 8FT PRECAST RCB CULVERT | LF | 114 | 110 |

***SHEET 1 (cont.):***

- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 606 | 3206 | DBL 12FT X 6FT PRECAST RCB CULVERT | LF | 168 | 128 |
| 606 | 3211 | DBL 12FT X 11FT PRECAST RCB CULVERT | LF | 84 | 64 |
| 606 | 3311 | DBL 13FT X 11FT PRECAST RCB CULVERT | LF | 84 | 64 |

- Added Bid Items:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 203 | 0102 | COMMON EXCAVATION-TYPE B | CY | - | 1613 |
| 202 | 0350 | REMOVAL OF TEMPORARY BYPASS | EA | - | 4 |
| 260 | 0200 | SILT FENCE SUPPORTED | LF | - | 533 |
| 260 | 0201 | REMOVE SILT FENCE SUPPORTED | LF | - | 533 |

- Removed Bid Items:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 203 | 0101 | COMMON EXCAVATION-TYPE A | CY | 461 | - |
| 203 | 0113 | COMMON EXCAVATION-WASTE | CY | 11348 | - |
| 704 | 1041 | ATTENUATION DEVICE-TYPE B-55 | EA | 8 | - |

- Moved from Sheet 1 to Sheet 2:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 704 | 1052 | TYPE III BARRICADE | EA | 12 | 12 |

***SHEET 2:***

- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 709 | 0151 | GEOSYNTHETIC MATERIAL TYPE R1 | SY | 11779 | 11222 |
| 762 | 430 | SHORT TERM 4IN LINE – TYPE NR | LF | 3608 | 4572 |
| 762 | 1104 | PVMT MK PAINTED 4IN LINE | LF | 3608 | 4572 |

- Added Bid Items:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 704 | 1500 | OBLITERATION OF PAVEMENT MARKING | SF | - | 477 |
| 714 | 4099 | PIPE CONDUIT 18IN-APPROACH | LF | - | 4 |
| 714 | 6500 | END SECT METAL 18IN | EA | - | 2 |
| 714 | 9680 | PLUG PIPE-ALL TYPES & SIZES | EA | - | 4 |

**SECTION 10**

***SHEET 1:***

- Updated Earthwork Summary Tables
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 203 | 0109 | TOPSOIL | CY | 1217 | 4293 |
| 203 | 0140 | BORROW-EXCAVATION | CY | 3443 | 14286 |

- Added Bid Items:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 203 | 0102 | COMMON EXCAVATION-TYPE B | CY | - | 1613 |

- Removed Bid Items:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 203 | 0101 | COMMON EXCAVATION-TYPE A | CY | 461 | - |

**SECTION 30**

***SHEET 1:*** Updated Proposed Co Rt 30 Typical Section

**SECTION 60**

***SHEET 1:***

- Reprinted due to grading limit changes
- Reprinted due to added shoulder
- Reprinted due to shortened box culvert
- Changed "Ppsd R/W" to "Temp Const Emst"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 302 | 0120 | AGGREGATE BASE COURSE CL 5 | TON | 351 | 911 |
| 401 | 0050 | TACK COAT | GAL | 94 | 123 |
| 401 | 0060 | PRIME COAT | GAL | 235 | 307 |
| 401 | 0160 | BLOTTER MATERIAL CL 44 | TON | 7 | 9 |
| 430 | 0045 | SUPERPAVE FAA 45 | TON | 207 | 268 |
| 430 | 5828 | PG 58-28 ASPHALT CEMENT | TON | 12 | 16 |

- Added Bid Items:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 714 | 9680 | PLUG PIPE-ALL TYPES & SIZES | EA | - | 4 |

***SHEET 2:***

- Reprinted due to grading limit changes
- Reprinted due to added shoulder
- Reprinted due to shortened box culvert
- Changed "Ppsd R/W" to "Temp Const Emst"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 302 | 0120 | AGGREGATE BASE COURSE CL 5 | TON | 351 | 911 |
| 401 | 0050 | TACK COAT | GAL | 94 | 123 |
| 401 | 0060 | PRIME COAT | GAL | 235 | 307 |
| 401 | 0160 | BLOTTER MATERIAL CL 44 | TON | 7 | 9 |
| 430 | 0045 | SUPERPAVE FAA 45 | TON | 207 | 268 |

| | | | | | |
|---|---|---|---|---|---|
| 430 | 5828 | PG 58-28 ASPHALT CEMENT | TON | 12 | 16 |

***SHEET 3:***

- Reprinted due to grading limit changes
- Reprinted due to added shoulder
- Reprinted due to shortened box culvert
- Changed "Ppsd R/W" to "Temp Const Emst"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 302 | 0120 | AGGREGATE BASE COURSE CL 5 | TON | 324 | 842 |
| 401 | 0050 | TACK COAT | GAL | 87 | 113 |
| 401 | 0060 | PRIME COAT | GAL | 217 | 283 |
| 401 | 0160 | BLOTTER MATERIAL CL 44 | TON | 7 | 9 |
| 430 | 0045 | SUPERPAVE FAA 45 | TON | 191 | 248 |
| 430 | 5828 | PG 58-28 ASPHALT CEMENT | TON | 11 | 15 |

***SHEET 4:***

- Reprinted due to grading limit changes
- Reprinted due to added shoulder
- Changed "Ppsd R/W" to "Temp Const Emst"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 302 | 0120 | AGGREGATE BASE COURSE CL 5 | TON | 340 | 880 |
| 401 | 0050 | TACK COAT | GAL | 91 | 119 |
| 401 | 0060 | PRIME COAT | GAL | 228 | 298 |
| 401 | 0160 | BLOTTER MATERIAL CL 44 | TON | 7 | 9 |
| 430 | 0045 | SUPERPAVE FAA 45 | TON | 200 | 260 |
| 430 | 5828 | PG 58-28 ASPHALT CEMENT | TON | 12 | 16 |

- Added Bid Items:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 714 | 4099 | PIPE CONDUIT 18IN-APPROACH | LF | - | 4 |
| 714 | 6500 | END SECT METAL 18IN | EA | - | 2 |

**SECTION 75**

***SHEET 1:*** Updated Wetland Impacts Table

***SHEET 2:*** Updated Other Waters Impacts Table

***SHEET 3:***

- Revised permanent impacts for Wetland 21 from 0.11 to 0.15 acres
- Revised temporary impacts for Wetland 21 from 0.14 to 0.12 acres
- Revised mitigation for Wetland 21 from 0.11 to 0.15 acres
- Changed "Ppsd R/W" to "Temp Const Emst"

***SHEET 4:***

- Revised permanent impacts for Wetland 26 from 0.10 to 0.11 acres
- Revised mitigation for Wetland 26 from 0.10 to 0.11 acres
- Revised permanent impacts for POWUS 1 from 0.05 (143') to 0.04 (114') acres
- Changed "Ppsd R/W" to "Temp Const Emst"

***SHEET 5:***

- Revised permanent impacts for Wetland 35 from 0.11 to 0.09 acres
- Revised mitigation for Wetland 35 from 0.11 to 0.09 acres
- Revised permanent impacts for POWUS 2 from 0.02 (60') to 0.01 (38') acres
- Changed "Ppsd R/W" to "Temp Const Emst"

***SHEET 6:***

- Revised permanent impacts for Wetland 37 from 0.06 to 0.04 acres
- Revised mitigation for Wetland 37 from 0.06 to 0.04 acres
- Changed "Ppsd R/W" to "Temp Const Emst"

**SECTION 76**

***SHEET 1:***

- Reprinted due to grading limit changes
- Reprinted due to added shoulder
- Reprinted due to shortened box culvert
- Changed "Ppsd R/W" to "Temp Const Emst"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 251 | 2000 | TEMPORARY COVER CROP | ACRE | 0.931 | 1.267 |
| 253 | 0101 | STRAW MULCH | ACRE | 0.931 | 1.267 |
| 261 | 0112 | FIBER ROLLS 12IN | LF | 672 | 1091 |
| 261 | 0113 | REMOVE FIBER ROLLS 12IN | LF | 672 | 1091 |
| 262 | 0100 | FLOTATION SILT CURTAIN | LF | 187 | 354 |
| 262 | 0101 | REMOVE FLOTATION SILT CURTAIN | LF | 187 | 354 |

***SHEET 2:***

- Reprinted due to grading limit changes
- Reprinted due to added shoulder
- Reprinted due to shortened box culvert
- Changed "Ppsd R/W" to "Temp Const Emst"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 251 | 2000 | TEMPORARY COVER CROP | ACRE | 0.942 | 1.382 |
| 253 | 0101 | STRAW MULCH | ACRE | 0.942 | 1.382 |
| 261 | 0112 | FIBER ROLLS 12IN | LF | 826 | 1363 |
| 261 | 0113 | REMOVE FIBER ROLLS 12IN | LF | 826 | 1363 |
| 262 | 0100 | FLOTATION SILT CURTAIN | LF | 109 | 40 |
| 262 | 0101 | REMOVE FLOTATION SILT CURTAIN | LF | 109 | 40 |

- Added Bid Items:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 260 | 0200 | SILT FENCE SUPPORTED | LF | - | 122 |
| 260 | 0201 | REMOVE SILT FENCE SUPPORTED | LF | - | 122 |

***SHEET 3:***

- Reprinted due to grading limit changes
- Reprinted due to added shoulder
- Reprinted due to shortened box culvert
- Changed "Ppsd R/W" to "Temp Const Emst"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 251 | 2000 | TEMPORARY COVER CROP | ACRE | 0.784 | 1.405 |
| 253 | 0101 | STRAW MULCH | ACRE | 0.784 | 1.405 |
| 261 | 0112 | FIBER ROLLS 12IN | LF | 792 | 1187 |
| 261 | 0113 | REMOVE FIBER ROLLS 12IN | LF | 792 | 1187 |
| 262 | 0100 | FLOTATION SILT CURTAIN | LF | 114 | 15 |
| 262 | 0101 | REMOVE FLOTATION SILT CURTAIN | LF | 114 | 15 |

- Added Bid Items:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 260 | 0200 | SILT FENCE SUPPORTED | LF | - | 335 |
| 260 | 0201 | REMOVE SILT FENCE SUPPORTED | LF | - | 335 |

***SHEET 4:***

- Reprinted due to grading limit changes
- Reprinted due to added shoulder
- Reprinted due to shortened box culvert
- Changed "Ppsd R/W" to "Temp Const Emst"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 251 | 2000 | TEMPORARY COVER CROP | ACRE | 1.370 | 1.855 |
| 253 | 0101 | STRAW MULCH | ACRE | 1.370 | 1.855 |
| 261 | 0112 | FIBER ROLLS 12IN | LF | 1013 | 1600 |
| 261 | 0113 | REMOVE FIBER ROLLS 12IN | LF | 1013 | 1600 |
| 262 | 0100 | FLOTATION SILT CURTAIN | LF | 31 | 30 |
| 262 | 0101 | REMOVE FLOTATION SILT CURTAIN | LF | 31 | 30 |

- Added Bid Items:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 260 | 0200 | SILT FENCE SUPPORTED | LF | - | 76 |
| 260 | 0201 | REMOVE SILT FENCE SUPPORTED | LF | - | 76 |

**SECTION 77**

***SHEET 1:***

- Reprinted due to grading limit changes
- Reprinted due to added shoulder
- Reprinted due to shortened box culvert
- Changed "Ppsd R/W" to "Temp Const Emst"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 203 | 0121 | TOPSOIL-WETLAND | CY | 241 | 256 |
| 251 | 0200 | SEEDING CL II | ACRE | 0.929 | 1.154 |
| 251 | 1000 | WETLAND SEED | ACRE | 0.299 | 0.317 |
| 253 | 0101 | STRAW MULCH | ACRE | 1.228 | 1.471 |
| 261 | 0112 | FIBER ROLLS 12IN | LF | 992 | 2341 |

***SHEET 2:***

- Reprinted due to grading limit changes
- Reprinted due to added shoulder
- Reprinted due to shortened box culvert
- Changed "Ppsd R/W" to "Temp Const Emst"

- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 203 | 0121 | TOPSOIL-WETLAND | CY | 123 | 131 |
| 251 | 0200 | SEEDING CL II | ACRE | 0.960 | 1.379 |
| 251 | 1000 | WETLAND SEED | ACRE | 0.152 | 0.162 |
| 253 | 0101 | STRAW MULCH | ACRE | 1.113 | 1.541 |
| 261 | 0112 | FIBER ROLLS 12IN | LF | 935 | 2100 |

***SHEET 3:***

- Reprinted due to grading limit changes
- Reprinted due to added shoulder
- Reprinted due to shortened box culvert
- Changed "Ppsd R/W" to "Temp Const Emst"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 203 | 0121 | TOPSOIL-WETLAND | CY | 175 | 135 |
| 251 | 0200 | SEEDING CL II | ACRE | 0.800 | 1.455 |
| 251 | 1000 | WETLAND SEED | ACRE | 0.217 | 0.168 |
| 253 | 0101 | STRAW MULCH | ACRE | 1.017 | 1.623 |
| 261 | 0112 | FIBER ROLLS 12IN | LF | 906 | 1827 |

***SHEET 4:***

- Reprinted due to grading limit changes
- Reprinted due to added shoulder
- Reprinted due to shortened box culvert
- Changed "Ppsd R/W" to "Temp Const Emst"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 251 | 0200 | SEEDING CL II | ACRE | 1.443 | 1.948 |
| 253 | 0101 | STRAW MULCH | ACRE | 1.545 | 2.050 |
| 261 | 0112 | FIBER ROLLS 12IN | LF | 1120 | 1971 |

**SECTION 100**

***SHEET 1:***

- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 762 | 0430 | SHORT TERM 4IN LIN-TYPE NR | LF | 3608 | 4572 |

- Added Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 704 | 1500 | OBLITERATION OF PAVEMENT MARKINGS | SF | - | 477 |

***SHEET 3:*** Removed "Common Excavation-Waste" from Temporary Bypass Earthwork Summary table

***SHEET 4:***
- Changed "Ppsd R/W" to "Temp Const Emst"
- Added Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 202 | 0350 | REMOVAL OF TEMPORARY BYPASS | EA | - | 1 |

***SHEET 5:***
- Changed "Ppsd R/W" to "Temp Const Emst"
- Added Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 202 | 0350 | REMOVAL OF TEMPORARY BYPASS | EA | - | 1 |

***SHEET 6:***
- Changed "Ppsd R/W" to "Temp Const Emst"
- Added Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 202 | 0350 | REMOVAL OF TEMPORARY BYPASS | EA | - | 1 |

***SHEET 7:***
- Changed "Ppsd R/W" to "Temp Const Emst"
- Added Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 202 | 0350 | REMOVAL OF TEMPORARY BYPASS | EA | - | 1 |

**SECTION 120**

***SHEET 1:***
- Revised Summary of Pavement Marking Details Table
- Revised Grand Totals Table

- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 762 | 1104 | PVMT MK PAINTED 4IN LINE | LF | 3608 | 4572 |

**SECTION 170**

***SHEET 1:***

- Changed length of box culvert from 84'-0" to 64'-0"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 210 | 0210 | FOUNDATION FILL | CY | 755 | 588 |
| 606 | 3206 | DBL 12FT X 6FT PRECAST RCB CULVERT | LF | 168 | 128 |
| 709 | 0151 | GEOSYNTHETIC MATERIAL TYPE R1 | SY | 803 | 612 |

***SHEET 2:***

- Changed note 100-P01 from "SCOPE OF WORK: Work at this site consists of removing the existing structures, four-60"Ø corrugated steel pipes and replacing them with a quadruple barrel 12' x 6' x 84' precast concrete box culvert." To "SCOPE OF WORK: Work at this site consists of removing the existing structures, four-60"Ø corrugated steel pipes and replacing them with a quadruple barrel 12' x 6' x 64' precast concrete box culvert."

***SHEET 4:***

- Changed length of box culvert from 84'-0" to 64'-0"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 210 | 0210 | FOUNDATION FILL | CY | 703 | 571 |
| 606 | 1211 | 12FT X 11FT PRECAST RCB CULVERT | LF | 84 | 64 |
| 606 | 3211 | DBL 12FT X 11FT PRECAST RCB CULVERT | LF | 84 | 64 |
| 709 | 0151 | GEOSYNTHETIC MATERIAL TYPE R1 | SY | 688 | 524 |

***SHEET 5:***

- Changed note 100-P01 from "SCOPE OF WORK: Work at this site consists of removing the existing structure, a 45' long bridge and replacing it with a new triple barrel 12' x 11' x 84' precast concrete box culvert." To "SCOPE OF WORK: Work at this site consists of removing the existing structure, a 45' long bridge and replacing it with a new triple barrel 12' x 11' x 64' precast concrete box culvert."

***SHEET 7:***

- Changed length of box culvert from 84'-0" to 64'-0"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 210 | 0210 | FOUNDATION FILL | CY | 692 | 552 |
| 606 | 1311 | 13FT X 11FT PRECAST RCB CULVERT | LF | 84 | 64 |
| 606 | 3311 | DBL 13FT X 11FT PRECAST RCB CULVERT | LF | 84 | 64 |
| 709 | 0151 | GEOSYNTHETIC MATERIAL TYPE R1 | SY | 717 | 546 |

***SHEET 8:***

- Changed note 100-P01 from "SCOPE OF WORK: Work at this site consists of removing the existing structure, a 68' long bridge and replacing it with a new triple barrel 13' x 11' x 84' precast concrete box culvert." To "SCOPE OF WORK: Work at this site consists of removing the existing structure, a 68' long bridge and replacing it with a new triple barrel 13' x 11' x 64' precast concrete box culvert."

***SHEET 10:***

- Changed length of box culvert from 114'-0" to 110'-0"
- Revised Quantities:

| Spec | Code | Description | Unit | Previous Quantity | Addendum A Quantity |
|---|---|---|---|---|---|
| 210 | 0210 | FOUNDATION FILL | CY | 759 | 734 |
| 606 | 1108 | 11FT X 8FT PRECAST RCB CULVERT | LF | 114 | 110 |
| 606 | 3108 | DBL 11FT X 8FT PRECAST RCB CULVERT | LF | 114 | 110 |
| 709 | 0151 | GEOSYNTHETIC MATERIAL TYPE R1 | SY | 891 | 860 |

***SHEET 11:***

- Changed note 100-P01 from "SCOPE OF WORK: Work at this site consists of removing the existing structures, two-10' corrugated steel pipes and replacing them with a new triple barrel 11' x 8' x 114' precast concrete box culvert." To "SCOPE OF WORK: Work at this site consists of removing the existing structures, two-10' corrugated steel pipes and replacing them with a new triple barrel 11' x 8' x 110' precast concrete box culvert."

**SECTION 200**

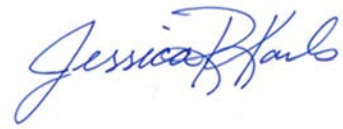
***SHEETS 1-19:***

- Renumbered and sheets 20-43 added
- Revised to reflect updated County Route 30 cross sections.

***SHEETS 20-60:***
Renumbered and revised to reflect wetland mitigation label changes.

This addendum is to be incorporated into bidder's proposal for this project.

Sincerely,
**KLJ**



Jessica R Karls

Project Engineer

Enclosure(s): Revised Plan Sheets
-Project #: SC-2730(061)

**Project: SC-2730(061) (PCN-21548)**

**Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.**

| Item No. | Spec No. | Code No. | Description | Unit | Approx. Quantity | Unit Price | | Amount | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | $$$$$ | 000 | $$$$$ | 00 |
| 001 | 103 | 0100 | CONTRACT BOND | L SUM | 1. | | | | |
| 002 | 201 | 0330 | CLEARING & GRUBBING | L SUM | 1. | | | | |
| 003 | 202 | 0108 | REMOVAL OF STRUCTURE-SITE 1 | L SUM | 1. | | | | |
| 004 | 202 | 0109 | REMOVAL OF STRUCTURE-SITE 2 | L SUM | 1. | | | | |
| 005 | 202 | 0110 | REMOVAL OF STRUCTURE-SITE 3 | L SUM | 1. | | | | |
| 006 | 202 | 0132 | REMOVAL OF BITUMINOUS SURFACING | SY | 3,309. | | | | |
| 007 | 202 | 0174 | REMOVAL OF PIPE ALL TYPES AND SIZES | LF | 360. | | | | |
| 008 | 202 | 0269 | REMOVAL OF STRUCTURE-SITE 4 | L SUM | 1. | | | | |
| 009 | 202 | 0312 | REMOVE EXISTING FENCE | LF | 927. | | | | |
| 010 | 202 | 0350 | REMOVAL OF TEMPORARY BYPASS | EA | 4. | | | | |
| 011 | 203 | 0102 | COMMON EXCAVATION-TYPE B | CY | 1,613. | | | | |
| 012 | 203 | 0109 | TOPSOIL | CY | 5,656. | | | | |
| 013 | 203 | 0121 | TOPSOIL-WETLAND | CY | 604. | | | | |
| 014 | 203 | 0140 | BORROW-EXCAVATION | CY | 25,165. | | | | |
| 015 | 210 | 0051 | BOX CULVERT EXCAVATION - SITE 1 | EA | 1. | | | | |
| 016 | 210 | 0052 | BOX CULVERT EXCAVATION - SITE 2 | EA | 1. | | | | |

**Project: SC-2730(061) (PCN-21548)**

**Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.**

| Item No. | Spec No. | Code No. | Description | Unit | Approx. Quantity | Unit Price | | Amount | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | $$$$$ | 000 | $$$$$ | 00 |
| 017 | 210 | 0053 | BOX CULVERT EXCAVATION - SITE 3 | EA | 1. | | | | |
| 018 | 210 | 0054 | BOX CULVERT EXCAVATION - SITE 4 | EA | 1. | | | | |
| 019 | 210 | 0202 | FOUNDATION PREPARATION-SITE 1 | L SUM | 1. | | | | |
| 020 | 210 | 0203 | FOUNDATION PREPARATION-SITE 2 | L SUM | 1. | | | | |
| 021 | 210 | 0204 | FOUNDATION PREPARATION-SITE 3 | L SUM | 1. | | | | |
| 022 | 210 | 0205 | FOUNDATION PREPARATION-SITE 4 | L SUM | 1. | | | | |
| 023 | 210 | 0210 | FOUNDATION FILL | CY | 2,445. | | | | |
| 024 | 216 | 0100 | WATER | M GAL | 392. | | | | |
| 025 | 251 | 0200 | SEEDING CLASS II | ACRE | 5.940 | | | | |
| 026 | 251 | 1000 | WETLAND SEED | ACRE | .750 | | | | |
| 027 | 251 | 2000 | TEMPORARY COVER CROP | ACRE | 5.910 | | | | |
| 028 | 253 | 0101 | STRAW MULCH | ACRE | 12.590 | | | | |
| 029 | 256 | 0200 | RIPRAP GRADE II | CY | 467. | | | | |
| 030 | 260 | 0200 | SILT FENCE SUPPORTED | LF | 533. | | | | |
| 031 | 260 | 0201 | REMOVE SILT FENCE SUPPORTED | LF | 533. | | | | |
| 032 | 261 | 0112 | FIBER ROLLS 12IN | LF | 16,680. | | | | |

**Project: SC-2730(061) (PCN-21548)**

**Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.**

| Item No. | Spec No. | Code No. | Description | Unit | Approx. Quantity | Unit Price | | Amount | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | $$$$$ | 000 | $$$$$ | 00 |
| 033 | 261 | 0113 | REMOVE FIBER ROLLS 12IN | LF | 8,441. | | | | |
| 034 | 262 | 0100 | FLOTATION SILT CURTAIN | LF | 559. | | | | |
| 035 | 262 | 0101 | REMOVE FLOTATION SILT CURTAIN | LF | 559. | | | | |
| 036 | 302 | 0050 | TRAFFIC SERVICE AGGREGATE | TON | 2,264. | | | | |
| 037 | 302 | 0120 | AGGREGATE BASE COURSE CL 5 | TON | 3,544. | | | | |
| 038 | 401 | 0050 | TACK COAT | GAL | 478. | | | | |
| 039 | 401 | 0060 | PRIME COAT | GAL | 1,195. | | | | |
| 040 | 401 | 0160 | BLOTTER MATERIAL CL 44 | TON | 36. | | | | |
| 041 | 430 | 0045 | SUPERPAVE FAA 45 | TON | 1,044. | | | | |
| 042 | 430 | 1000 | CORED SAMPLE | EA | 8. | | | | |
| 043 | 430 | 5828 | PG 58-28 ASPHALT CEMENT | TON | 63. | | | | |
| 044 | 606 | 1108 | 11FT X 8FT PRECAST RCB CULVERT | LF | 110. | | | | |
| 045 | 606 | 1211 | 12FT X 11FT PRECAST RCB CULVERT | LF | 64. | | | | |
| 046 | 606 | 1311 | 13FT X 11FT PRECAST RCB CULVERT | LF | 64. | | | | |
| 047 | 606 | 3108 | DBL 11FT X 8FT PRECAST RCB CULVERT | LF | 110. | | | | |
| 048 | 606 | 3206 | DBL 12FT X 6FT PRECAST RCB CULVERT | LF | 128. | | | | |

**Project: SC-2730(061) (PCN-21548)**

**Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.**

| Item No. | Spec No. | Code No. | Description | Unit | Approx. Quantity | Unit Price | | Amount | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | $$$$$ | 000 | $$$$$ | 00 |
| 049 | 606 | 3211 | DBL 12FT X 11FT PRECAST RCB CULVERT | LF | 64. | | | | |
| 050 | 606 | 3311 | DBL 13FT X 11FT PRECAST RCB CULVERT | LF | 64. | | | | |
| 051 | 606 | 7108 | DBL 11FT X 8FT PRECAST RCB END SECTION | EA | 2. | | | | |
| 052 | 606 | 7206 | DBL 12FT X 6FT PRECAST RCB END SECTION | EA | 2. | | | | |
| 053 | 606 | 7211 | DBL 12FT X 11FT PRECAST RCB END SECTION | EA | 2. | | | | |
| 054 | 606 | 7311 | DBL 13FT X 11FT PRECAST RCB END SECTION | EA | 2. | | | | |
| 055 | 702 | 0100 | MOBILIZATION | L SUM | 1. | | | | |
| 056 | 704 | 0100 | FLAGGING | MHR | 40. | | | | |
| 057 | 704 | 1000 | TRAFFIC CONTROL SIGNS | UNIT | 3,194. | | | | |
| 058 | 704 | 1018 | LANE CLOSURE-SIGNAL CONTROL/FLAGGING CONTROL | EA | 4. | | | | |
| 059 | 704 | 1052 | TYPE III BARRICADE | EA | 12. | | | | |
| 060 | 704 | 1060 | DELINEATOR DRUMS | EA | 20. | | | | |
| 061 | 704 | 1067 | TUBULAR MARKERS | EA | 130. | | | | |
| 062 | 704 | 1080 | STACKABLE VERTICAL PANELS | EA | 260. | | | | |
| 063 | 704 | 1500 | OBLITERATION OF PAVEMENT MARKING | SF | 477. | | | | |
| 064 | 706 | 0600 | CONTRACTOR'S LABORATORY | EA | 1. | | | | |

**Project: SC-2730(061) (PCN-21548)**

**Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.**

| Item No. | Spec No. | Code No. | Description | Unit | Approx. Quantity | Unit Price | | Amount | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | $$$$$ | 000 | $$$$$ | 00 |
| 065 | 709 | 0151 | GEOSYNTHETIC MATERIAL TYPE R1 | SY | 11,222. | | | | |
| 066 | 709 | 0155 | GEOSYNTHETIC MATERIAL TYPE RR | SY | 932. | | | | |
| 067 | 714 | 4099 | PIPE CONDUIT 18IN-APPROACH | LF | 4. | | | | |
| 068 | 714 | 6500 | END SECT METAL 18IN | EA | 2. | | | | |
| 069 | 714 | 9680 | PLUG PIPE-ALL TYPES & SIZES | EA | 4. | | | | |
| 070 | 752 | 0320 | FENCE BARBED WIRE 4 STRAND-STEEL POST | LF | 1,554. | | | | |
| 071 | 752 | 0900 | FENCE TEMPORARY INSTALL & REMOVE | LF | 2,213. | | | | |
| 072 | 752 | 0922 | FENCE REMOVE & RESET | LF | 588. | | | | |
| 073 | 752 | 2110 | RESET VEHICLE GATE | EA | 2. | | | | |
| 074 | 752 | 3150 | CORNER ASSEMBLY BARBED WIRE-WOOD POST | EA | 20. | | | | |
| 075 | 754 | 0803 | OBJECT MARKERS - TYPE III | EA | 16. | | | | |
| 076 | 762 | 0430 | SHORT TERM 4IN LINE-TYPE NR | LF | 4,572. | | | | |
| 077 | 762 | 1104 | PVMT MK PAINTED 4IN LINE | LF | 4,572. | | | | |
| 078 | 900 | 1000 | TEMPORARY STREAM DIVERSION | EA | 4. | | | | |
| | | | | | | | | | |
| | | | **TOTAL SUM BID** | | | | | | |

| Revised 06/23/16 | STATE | PROJECT NO. | PCN | SECTION NO. | SHEET NO. |
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| | ND | SC-2730(061) | 21548 | 1 | 1 |

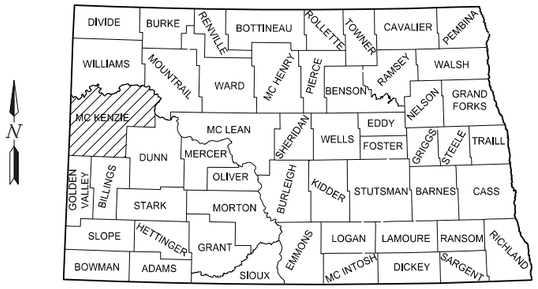
JOB # 2

# MCKENZIE COUNTY, NORTH DAKOTA

## SC-2730(061)

**Structure #27-131-30.3**
**Structure #27-132-29.1**
**Structure #27-134-27.0**
**Structure #27-136-27.0**

Structure Replacement & Roadway Construction



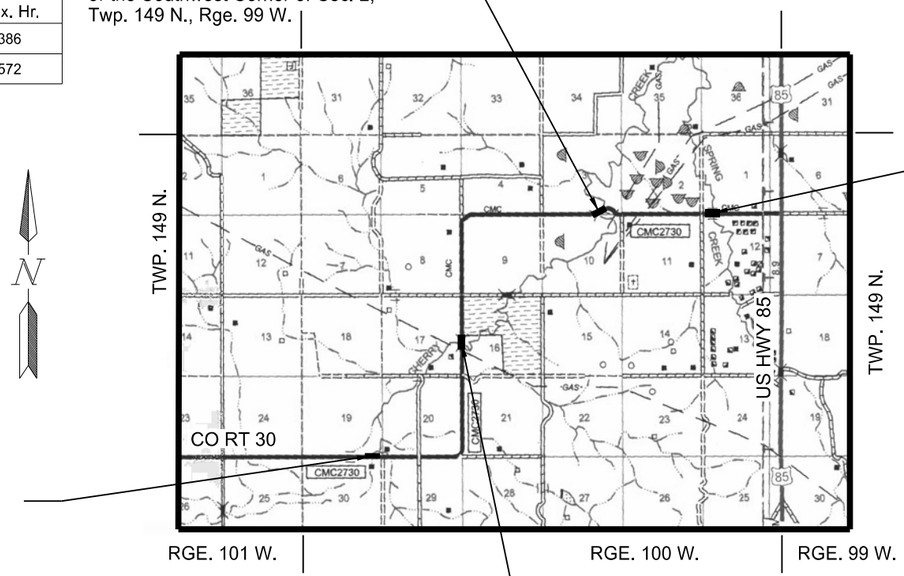

STATE COUNTY MAP

## DESIGN DATA

| Traffic SC-2730(061) | | Average Daily | | | Est. 30th Max. Hr. |
|---|---|---|---|---|---|
| | | Passenger | Trucks | Total | |
| Current Traffic | 2015 | 3690 | 170 | 3860 | 386 |
| Forecast Traffic | 2035 | 5470 | 250 | 5720 | 572 |

Design Speed: 55 MPH
Minimum Sight Dist. for Stopping: 495 Feet

BOX CULVERT
STRUCTURE #27-134-27.0
Sta 1196+75 = A Point Approximately
248 Feet North and 1400 Feet West
of the Southwest Corner of Sec. 2,
Twp. 149 N., Rge. 99 W.




BOX CULVERT
STRUCTURE #27-136-27.0
Sta 1271+78 = A Point Approximately
18 Feet North and 766 Feet East
of the Southwest Corner of Sec. 1,
Twp. 149 N., Rge. 99 W.

BOX CULVERT
STRUCTURE #27-131-30.0
Sta 897+20 = A Point Approximately
9 Feet North and 598 Feet West
of the Southwest Corner of Sec. 20,
Twp. 149 N., Rge. 99 W.

BOX CULVERT
STRUCTURE #27-132-29.1
Sta 1026+84 = A Point Approximately
2311 Feet North and 42 Feet West
of the Southwest Corner of Sec. 16,
Twp. 149 N., Rge. 99 W.

## GOVERNING SPECIFICATIONS

Standard Specifications for Road and Bridge Construction
adopted by the North Dakota Department of Transportation October 2008;
Standard Drawings currently in effect; and other Contract Provisions submitted herein.

## PROJECT LENGTH

| Project | Gross Miles | Net Miles |
|---|---|---|
| #27-131-30.0 | 0.152 | 0.152 |
| #27-132-29.1 | 0.156 | 0.156 |
| #27-134-27.0 | 0.152 | 0.152 |
| #27-136-27.0 | 0.156 | 0.156 |
| TOTAL | 0.616 | 0.616 |

Surveyed & Designed Date: November 2014

This document was originally issued and sealed by Jessica R. Karls, Registration Number PE- 8408, on 6/23/2016 and the original document is stored at KLJ Fargo, ND.

CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NORTH DAKOTA.

/s/ Jessica R Karls
KLJ

DATE 6/23/2016 REGISTRATION NUMBER 8408


KLJ
3203 32ND AVENUE SOUTH, SUITE 201
P.O. BOX 9767
FARGO, ND 58106
(701) 232-5353

| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 2 | 1 |

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## SPECIAL PROVISIONS

| SP # | DESCRIPTION |
|---|---|
| SP 0003(14) | Temporary Erosion and Sediment Best Management Practices |
| SP 0004(14) | Federal Migratory Bird Treaty Act |
| SP 5118(14) | Permits and Environmental Conditions |
| SP 324(14) | Temporary Water Diversion |

## LIST OF STANDARD DRAWINGS

| STANDARD NO. | DESCRIPTION |
|---|---|
| D-101-1, 2 & 3 | NDDOT Abbreviations |
| D-101-10 | NDDOT Utility Company and Organization Abbreviations |
| D-101-20 & 21 | Line Styles |
| D-101-30, 31 & 32 | Symbols |
| D-255-2 | Erosion and Siltation Control – Erosion Control Blanket Installation |
| D-260-1 | Erosion Control – Silt Fence |
| D-261-1 | Erosion Control – Fiber Roll Placement Details |
| D-704-2 | Traffic Control for Coring of Hot Bituminous Pavement |
| D-704-7 & 8 | Breakaway Systems for Construction Zone Signs |
| D-704-9 | Construction Sign Details - Terminal and Guide Signs |
| D-704-10 | Construction Sign Details - Regulatory Signs |
| D-704-11 | Construction Sign Details - Warning Signs |
| D-704-13 | Barricade and Channelizing Device Details |
| D-704-14 | Construction Sign Punching and Mounting Details |
| D-704-15 | Road Closure Layouts |
| D-704-16 | Lane Closure on a Two Lane Road Using Traffic Control Signals |
| D-704-17 | Sign Layout for One Lane Closure Two Lane Roadway |
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| D-704-21 | Detour and Roadway Diversion Sign Layouts |
| D-704-22 | Construction Truck and Temporary Detour Layouts |
| D-704-26 | Miscellaneous Sign Layouts |
| D-704-27 | Traffic Control Plan for Moving Operations |
| D-704-50 | Portable Sign Support Assembly |
| D-708-6 | Erosion and Siltation Controls - Median or Ditch Inlet Protection |
| D-754-23 | Perforated Tube Assembly Details |
| D-754-24A | Breakaway Coupler System for Perforated Tubes |
| D-754-24 & 25 | Mounting Details Perforated Tube |
| D-754-82 | Object Markers |
| D-762-4 | Pavement Marking |
| D-762-11 | Short Term Pavement Marking |

| Revised 06/30/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 6 | 1 |

# PLAN NOTES

100-P01 WEEKLY PLANNING/REPORTING MEETING: Organize a weekly meeting to coordinate efforts between subcontractors, utilities, local authorities, and others.

Send a knowledgeable representative to conduct the weekly reporting/planning meeting. Prepare minutes for each meeting and make the appropriate distribution of the minutes. Have the minutes approved by the Engineer before distribution.

Provide a written schedule of the next week's work and a tentative schedule of the following week. Include a discussion of problems encountered during the current week; also include information of interest to local authorities, subcontractors, and utilities.

Invite interested agencies to the meeting. At a minimum, include the following agencies and any other agencies that are necessary:

a. McKenzie County
b. Affected Utility Companies
c. Subcontractors

105-200 UTILITY COORDINATION: A utility coordination meeting is required.

107-710 HAUL ROADS: Before submitting a proposal, contact the appropriate State, County, Township or City officials to determine if there are any roadways that will be designated as "no haul routes".

200-P01 SHRINKAGE: An additional 25 percent volume is included in for shrinkage in earthwork embankment.

201-P01 CLEARING AND GRUBBING: Include the cost to remove the guardrail as specified in Section 202 of the Standard Specifications.

202-P01 SAW CUT: Include the cost of the full depth vertical saw cuts adjacent to pavement removal areas, specified in Section 202.04 A "General", in the contract unit price for “REMOVAL OF BITUMINOUS SURFACING”.

202-P02 REMOVAL OF PAVEMENT: Include the cost of removing aggregate as specified in Section 202.04 D, in the contract unit price for “REMOVAL OF BITUMINOUS SURFACING”.

202-P03 FENCE REMOVAL: Notify landowners in writing, with a copy to the Engineer, a minimum of 30 days in advance of fence removal. Just prior to removing fence, coordinate verbally with the adjacent landowners. Additional information, including the property owners’ contact information, will be available from the Engineer.

202-P04 REMOVAL OF TEMPORARY BYPASS: Include the following in the price bid for “REMOVAL OF TEMPORARY BYPASS”: Daily maintenance of the temporary bypass, removal of material, regrading and the removal the aggregate base. Daily maintenance will include blading, watering and keeping traffic control clean. The aggregate removed will become property of the Contractor.

203-385 AVERAGE HAUL: No average haul has been computed for this project.

203-P01 COMPACTION CONTROL: Construct the embankment within the roadbed 2:1 prism with “BORROW-EXCAVATION” or “COMMON EXCAVATION-TYPE B” in accordance with Section 203.04 E.2 of the Standard Specifications. Construct the embankment outside the roadbed prism 2:1’s in accordance with Section 203.04 E.3 of the Standard Specifications.

203-P02 BENCHING ON WIDENING SECTIONS: Bench all inslopes, regardless of rate of slope, unless otherwise directed by the Engineer. Bench deep enough to provide sufficient width to permit placing, spreading and compacting equipment to operate. Compact each bench thoroughly before placing additional embankment. Include costs for benching in the price bid for earthwork items.

203-P03 TOPSOIL: The quantity of topsoil to be removed, salvaged and respread is based upon an assumed topsoil depth of 4 inches and wetland topsoil depth of 6 inches. Make arrangements for topsoil storage areas if sufficient room is not available within the right of way. No payment will be made for additional handling of topsoil that must be moved to provide additional excavation area between the proposed grading limits and the right of way. Re-spread topsoil evenly over the areas to be seeded. The bid item “Topsoil” and “Topsoil-Wetland” includes all labor, materials and equipment associated with stripping, stockpiling and re-spreading the existing topsoil.

203-P04 COMMON EXCAVATION-TYPE B: Include all costs associated with excavating, transporting, placing material and shaping the channel in the price bid for “COMMON EXCAVATION-TYPE B”. “COMMON EXCAVATION-TYPE B” will be paid at plan quantity.

256-P01 RIPRAP: Place riprap around the proposed box culvert in such a manner that the box culvert is not damaged and the flow is not obstructed. Include all costs to place riprap around the pipe in the price bid for “RIPRAP GRADE II”.

704-P01 LANE CLOSURE - SIGNAL CONTROL/FLAGGING CONTROL: Install either the signal controlled lane closure on Standard D-704-16 or the flagging controlled lane closure on Standard D-704-17.

Obtain an electrical source for traffic signals. Solar powered signals may be used. Place generators a minimum of 60 feet from the roadway centerline, unless the generator and signal are part of a trailer mounted unit.

Place utility poles and equipment a minimum of 60 feet from the roadway centerline and place power conductors a minimum of 6 inches below the ground surface. Remove poles after they are no longer necessary.

The Engineer will measure individual traffic control devices, other than the signal system and flaggers, shown on the standards. Payment will be made at the respective contract unit price.

Regardless of the means of operations four “LANE CLOSURE – SIGNAL CONTROL/FLAGGING CONTROL”, one per site, will be paid for.

Include the cost of either a traffic signal system or flaggers/pilot car in the contract unit price for "LANE CLOSURE – SIGNAL CONTROL/FLAGGING CONTROL".

714-P01 TEMPORARY CULVERTS: Size and place temporary pipes as required. All costs associated with temporary pipe conduits shall be included in the price bid for “REMOVAL OF TEMPORARY BYPASS”.

752-P01 FENCE REMOVE & RESET: Contact the landowner seven days prior to the removal of the fence. Notify the Engineer once landowners have been contacted. Remove and reset the existing gates adjacent to fence designated in the plans to be reset. Include all costs associated with removing and resetting the existing gates in the bid item “FENCE REMOVE & RESET”. Provide temporary fence if needed at all locations requiring removal and resetting of fence. Include all costs associated with installing and removing temporary fence in the price bid for “FENCE REMOVE & RESET”.

900-P01 TEMPORARY STEAM DIVERSION: Temporary stream diversion shall be constructed according to current standards. All work and materials needed to construct temporary stream diversion shall be included in the price bid for “TEMPORARY STREAM DIVERSION”.

This document was originally issued and sealed by Jessica R. Karls Registration Number PE-8408, on 06/30/16 and the original document is stored at KLJ, Fargo, ND.

**COUNTY RT 30**
*MCKENZIE COUNTY, NORTH DAKOTA*

KLJ

**PLAN NOTES**

| DRWN. BY | CHKD. BY | PROJECT NO. |
|---|---|---|
| JN | JL | 14314102 |

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SC-2730(061) | 6 | 2 |

# ENVIRONMENTAL NOTES

ENVIRONMENTAL NOTES (EN): McKenzie County, the North Dakota Department of Transportation and the Federal Highway Administration have made environmental commitments to secure approval of this project. The following environmental notes are requirements to comply with these commitments:

EN-1 SPAWNING RESTRICTION: Do not work within Cherry Creek from April 15 to June 1.

EN-2 WHOOPING CRANE: The project is located within the migration corridor of the endangered whooping crane, and suitable stopover habitat for the whooping crane is present. The migration periods of the whooping crane are April 1st to May 15th and September 10 to October 31.

Stop all construction activities and notify the Engineer immediately in the event a whooping crane is identified within one mile of the project location. The Engineer will then coordinate with the USFWS, FHWA and NDDOT. Do not resume work within the avoidance area until the Engineer has confirmed that the bird has left the area.

One above ground utility line pole will be shifted; however, the alignment of the utility line will not change. Additional above ground utility conflicts are not foreseen with this project but if any impacts are required, contact the NDDOT Utility Engineer to coordinate with the utility company. Bird diverters will be installed by the utility company on overhead utility lines that are shifted due to the proposed action.

EN-3 AQUATIC NUISANCE SPECIES (ANS): Notify the North Dakota Game and Fish Department (NDGFD) at least 72 hours prior to any vehicles, vessels, pumps and equipment entering the water, to allow the NDGFD sufficient time to inspect any and all such equipment for ANS. Contact the NDGFD ANS Coordinator, Jessica Howell, by phone (701)368-8368 or e-mail jmhowell@nd.gov for equipment inspections, or any additional information regarding ANS prevention protocol. Supply the inspection report to the engineer prior to work taking place in the water.

EN-4 TEMPORARY WETLAND IMPACT: Temporary impact areas within wetlands and or other waters are incorporated into the plans for this project. Remove temporary fill placed and sedimentation in wetlands or other waters. Restore these wetlands to preconstruction contours.

EN-5 WETLAND MITIGATION: Wetland mitigation is required for unavoidable permanent wetland impacts. The wetland mitigation plan is incorporated into the plans for this project. After completion of the mitigation area, the Engineer will complete the Onsite Mitigation Certification Form SFN 61042. Any sedimentation occurring within the mitigation area will be removed.

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 8 | 1 |

## ESTIMATE OF QUANTITIES

| SPEC | CODE | ITEM DESCRIPTION | UNIT | TOTAL |
|---|---|---|---|---|
| 103 | 0100 | CONTRACT BOND | L SUM | 1 |
| 201 | 0330 | CLEARING & GRUBBING | L SUM | 1 |
| 202 | 0108 | REMOVAL OF STRUCTURE-SITE 1 | L SUM | 1 |
| 202 | 0109 | REMOVAL OF STRUCTURE-SITE 2 | L SUM | 1 |
| 202 | 0110 | REMOVAL OF STRUCTURE-SITE 3 | L SUM | 1 |
| 202 | 0132 | REMOVAL OF BITUMINOUS SURFACING | SY | 3,309 |
| 202 | 0269 | REMOVAL OF STRUCTURE-SITE 4 | L SUM | 1 |
| 202 | 0174 | REMOVAL OF PIPE ALL TYPES AND SIZES | LF | 360 |
| 202 | 0312 | REMOVE EXISTING FENCE | LF | 927 |
| 202 | 0350 | REMOVAL OF TEMPORARY BYPASS | EA | 4 |
| 203 | 0102 | COMMON EXCAVATION-TYPE B | CY | 1,613 |
| 203 | 0109 | TOPSOIL | CY | 5,656 |
| 203 | 0121 | TOPSOIL-WETLAND | CY | 604 |
| 203 | 0140 | BORROW-EXCAVATION | CY | 25,165 |
| 210 | 0051 | BOX CULVERT EXCAVATION - SITE 1 | EA | 1 |
| 210 | 0052 | BOX CULVERT EXCAVATION - SITE 2 | EA | 1 |
| 210 | 0053 | BOX CULVERT EXCAVATION - SITE 3 | EA | 1 |
| 210 | 0054 | BOX CULVERT EXCAVATION - SITE 4 | EA | 1 |
| 210 | 0202 | FOUNDATION PREPARATION-SITE 1 | L SUM | 1 |
| 210 | 0203 | FOUNDATION PREPARATION-SITE 2 | L SUM | 1 |
| 210 | 0204 | FOUNDATION PREPARATION-SITE 3 | L SUM | 1 |
| 210 | 0205 | FOUNDATION PREPARATION-SITE 4 | L SUM | 1 |
| 210 | 0210 | FOUNDATION FILL | CY | 2,445 |
| 216 | 0100 | WATER | M GAL | 392 |
| 251 | 0200 | SEEDING CLASS II | ACRE | 5.94 |
| 251 | 1000 | WETLAND SEED | ACRE | 0.75 |
| 251 | 2000 | TEMPORARY COVER CROP | ACRE | 5.91 |
| 253 | 0101 | STRAW MULCH | ACRE | 12.59 |
| 256 | 0200 | RIPRAP GRADE II | CY | 467 |
| 260 | 0200 | SILT FENCE SUPPORTED | LF | 533 |
| 260 | 0201 | REMOVE SILT FENCE SUPPORTED | LF | 533 |
| 261 | 0112 | FIBER ROLLS 12IN | LF | 16,680 |
| 261 | 0113 | REMOVE FIBER ROLLS 12IN | LF | 8,441 |
| 262 | 0100 | FLOTATION SILT CURTAIN | LF | 559 |
| 262 | 0101 | REMOVE FLOTATION SILT CURTAIN | LF | 559 |
| 302 | 0050 | TRAFFIC SERVICE AGGREGATE | TON | 2,264 |
| 302 | 0120 | AGGREGATE BASE COURSE CL 5 | TON | 3,544 |
| 401 | 0050 | TACK COAT | GAL | 478 |
| 401 | 0060 | PRIME COAT | GAL | 1,195 |
| 401 | 0160 | BLOTTER MATERIAL CL 44 | TON | 36 |
| 430 | 0045 | SUPERPAVE FAA 45 | TON | 1,044 |
| 430 | 1000 | CORED SAMPLE | EA | 8 |
| 430 | 5828 | PG 58-28 ASPHALT CEMENT | TON | 63 |
| 606 | 1108 | 11FT X 8FT PRECAST RCB CULVERT | LF | 110 |
| 606 | 1211 | 12FT X 11FT PRECAST RCB CULVERT | LF | 64 |
| 606 | 1311 | 13FT X 11FT PRECAST RCB CULVERT | LF | 64 |
| 606 | 3108 | DBL 11FT X 8FT PRECAST RCB CULVERT | LF | 110 |
| 606 | 3206 | DBL 12FT X 6FT PRECAST RCB CULVERT | LF | 128 |
| 606 | 3211 | DBL 12FT X 11FT PRECAST RCB CULVERT | LF | 64 |
| 606 | 3311 | DBL 13FT X 11FT PRECAST RCB CULVERT | LF | 64 |
| 606 | 7108 | DBL 11FT X 8FT PRECAST RCB END SECTION | EA | 2 |
| 606 | 7206 | DBL 12FT X 6FT PRECAST RCB END SECTION | EA | 2 |
| 606 | 7211 | DBL 12FT X 11FT PRECAST RCB END SECTION | EA | 2 |
| 606 | 7311 | DBL 13FT X 11FT BRECAST RCB END SECTION | EA | 2 |
| 702 | 0100 | MOBILIZATION | L SUM | 1 |
| 704 | 0100 | FLAGGING | MHR | 40 |
| 704 | 1000 | TRAFFIC CONTROL SIGNS | UNIT | 3,194 |
| 704 | 1018 | LANE CLOSURE-SIGNAL CONTROL/FLAGGING CONTROL | EA | 4 |

COUNTY RT 30

*MCKENZIE COUNTY, NORTH DAKOTA*

KLJ

ESTIMATE OF QUANTITIES

| DRAWN BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| AM | JL | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 8 | 2 |

## ESTIMATE OF QUANTITIES

| SPEC | CODE | ITEM DESCRIPTION | UNIT | MAINLINE |
|---|---|---|---|---|
| 704 | 1052 | TYPE III BARRICADE | EA | 12 |
| 704 | 1060 | DELINEATOR DRUMS | EA | 20 |
| 704 | 1067 | TUBULAR MARKERS | EA | 130 |
| 704 | 1080 | STACKABLE VERTICAL PANELS | EA | 260 |
| 704 | 1500 | OBLITERATION OF PAVEMENT MARKING | SF | 477 |
| 706 | 0600 | CONTRACTOR'S LABORATORY | EA | 1 |
| 709 | 0151 | GEOSYNTHETIC MATERIAL TYPE R1 | SY | 11222 |
| 709 | 0155 | GEOSYNTHETIC MATERIAL TYPE RR | SY | 932 |
| 714 | 4099 | PIPE CONDUIT 18IN-APPROACH | LF | 4 |
| 714 | 6500 | END SECT METAL 18IN | EA | 2 |
| 714 | 9680 | PLUG PIPE-ALL TYPES & SIZES | EA | 4 |
| 752 | 0320 | FENCE BARBED WIRE 4 STRAND-STEEL POST | LF | 1554 |
| 752 | 0900 | FENCE TEMPORARY INSTALL & REMOVE | LF | 2213 |
| 752 | 0922 | FENCE REMOVE & RESET | LF | 588 |
| 752 | 2110 | RESET VEHICLE GATE | EA | 2 |
| 752 | 3150 | CORNER ASSEMBLY BARBED WIRE-WOOD POST | EA | 20 |
| 754 | 0803 | OBJECT MARKERS - TYPE III | EA | 16 |
| 762 | 0430 | SHORT TERM 4IN LINE-TYPE NR | LF | 4572 |
| 762 | 1104 | PVMT MK PAINTED 4IN LINE | LF | 4572 |
| 900 | 1000 | TEMPORARY STREAM DIVERSION | EA | 4 |

COUNTY RT 30
*MCKENZIE COUNTY, NORTH DAKOTA*

KLJ

ESTIMATE OF QUANTITIES

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| AM | JL | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 10 | 1 |

# BASIS OF ESTIMATE

GRADING EARTHWORK SUMMARY

| | EMBANKMENT (CY) | COMMON EXCAVATION (CY) | BORROW - EXCAVATION (CY) |
|---|---|---|---|
| LOCATION | A | B | C = B - A |
| Box Culvert Structure #27-131-30.0 | 4372 | 100 | 4272 |
| Box Culvert Structure #27-132-29.1 | 3608 | 652 | 2956 |
| Box Culvert Structure #27-134-27.0 | 2916 | 379 | 2537 |
| Box Culvert Structure #27-136-27.0 | 5003 | 482 | 4521 |
| TOTAL | 15899 | 1613 | 14286 |

GRADING TOPSOIL SUMMARY

| | TOPSOIL EMBANKMENT (CY) | TOPSOIL COMMON EXCAVATION (CY) | TOPSOIL COMMON EXCAVATION-WASTE (CY) |
|---|---|---|---|
| LOCATION | A | B | C = B - A |
| Box Culvert Structure #27-131-30.0 | 861 | 940 | 79 |
| Box Culvert Structure #27-132-29.1 | 1128 | 1187 | 59 |
| Box Culvert Structure #27-134-27.0 | 977 | 1033 | 56 |
| Box Culvert Structure #27-136-27.0 | 1083 | 1133 | 50 |
| TOTAL | 4049 | 4293 | 244 |

Notes:

1. An additional volume of 25% to allow for shrinkage is included in all embankment volumes.
2. All Earthwork and Topsoil Quantities are an approximate using OSHA and NDDOT Standards. True quantities will be determined during construction.
3. If contractor decides to use a Temporary Bypass Channel to divert water around Box Culverts during construction add 3700 CY per box of Common Excation, 4590 CY per box of Embankment, 200 CY per box for Topsoil Excavation, and 200 CY per box for Topsoil Embankment. Temporary Bypass Channel quantities were based off of a 400' by 15' by 6' bottom Channel.

Pavement
Aggregate CL 5 @ 1.875 Ton/CY
Tack Coat @ 0.05 Gal/SY
Prime Coat @ 0.25 Gal/SY
Blotter Material Cl 44 @ 15 lbs/SY
PG 64-28 Asphalt Cement @ 5.9%
Superpave FAA 45 @ 2 Ton/CY

Water
10 M Gal/Mile for Dust Palliative
20 Gal/Ton for Aggregate
10 Gal/CY for Embankment

Topsoil
6 Inches

Seeding
Entire disturbed area less hard surfaces

Mulching
One application for temporary seeding
One application for permanent seeding less ECB & TRM locations

Floating Silt Curtain
30 LF per Temporary Bypass Channel to be used at contractors discretion following NDDOT and EPA Standards

Fiber Rolls 12IN
800 LF per Temporary Bypass Channel to be used at contractors discretion following NDDOT and EPA Standards

Geosyntetic Material Type R1
2170 SY per Temporary Bypass Channel to be used at contractors discretion following NDDOT and EPA Standards

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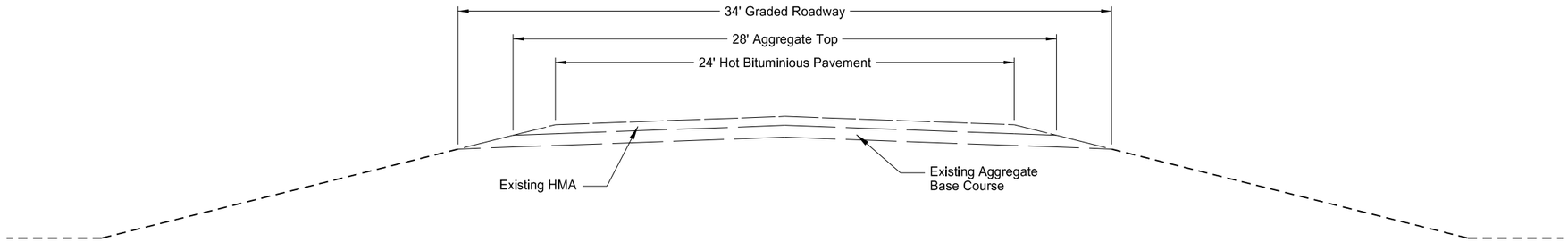
COUNTY RT 30
*MCKENZIE COUNTY, NORTH DAKOTA*

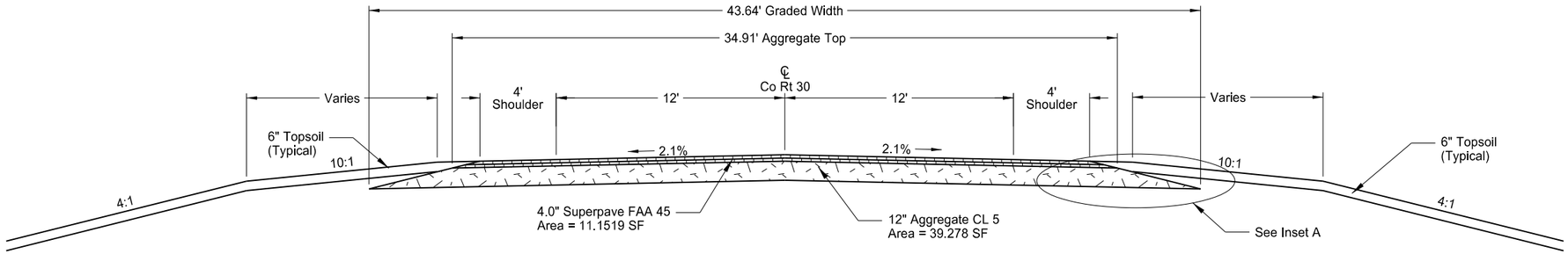
BASIS OF ESTIMATE

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 30 | 1 |

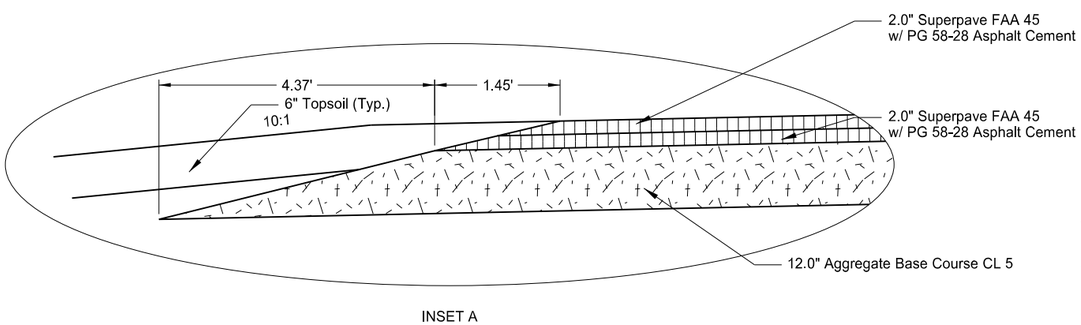



Existing Typical Section




Proposed Co Rt 30 Typical Section

Sta 895+50 to Sta 898+75
Sta 1025+25 to Sta 1028+50
Sta 1195+65 to Sta 1198+65
Sta 1270+60 to Sta 1273+75




INSET A

Proposed Typical Section Lift Summary:
Top Lift = 2.0"
Superpave FAA 45 (PG 58-28)
Average Area = 5.4546 SF
1st Lift = 2.0"
Superpave FAA 45 (PG 58-28)
Average Area = 5.6972 SF

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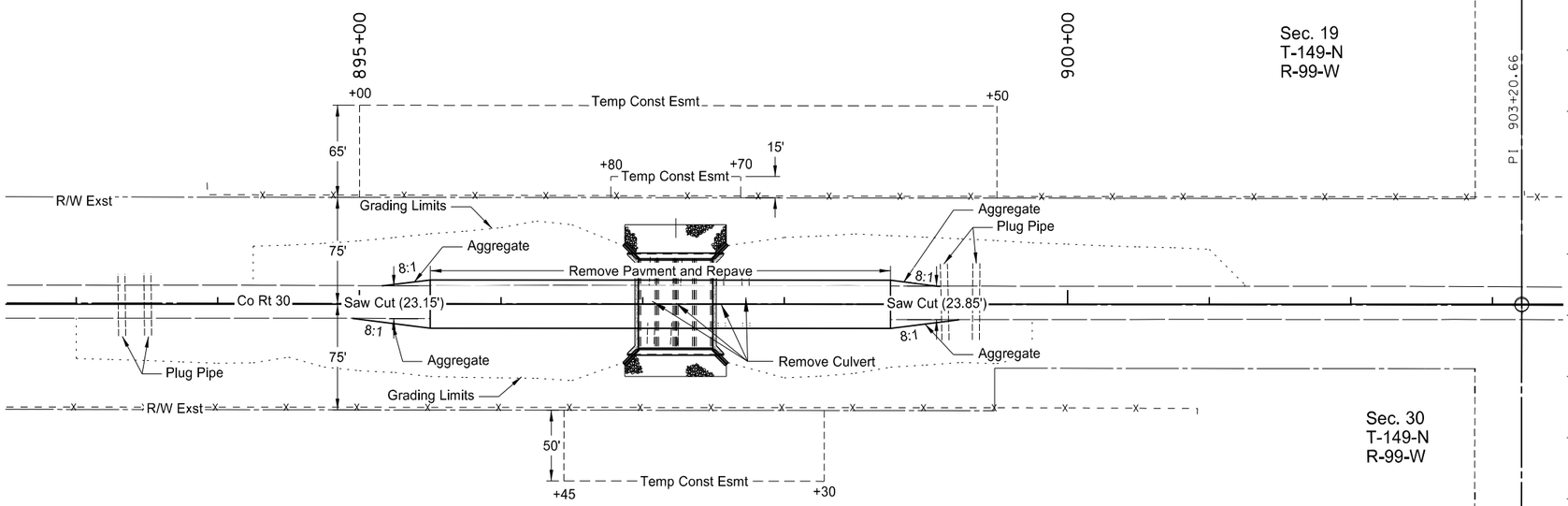
COUNTY RT 30
*MCKENZIE COUNTY, NORTH DAKOTA*

KLJ

TYPICAL SECTIONS

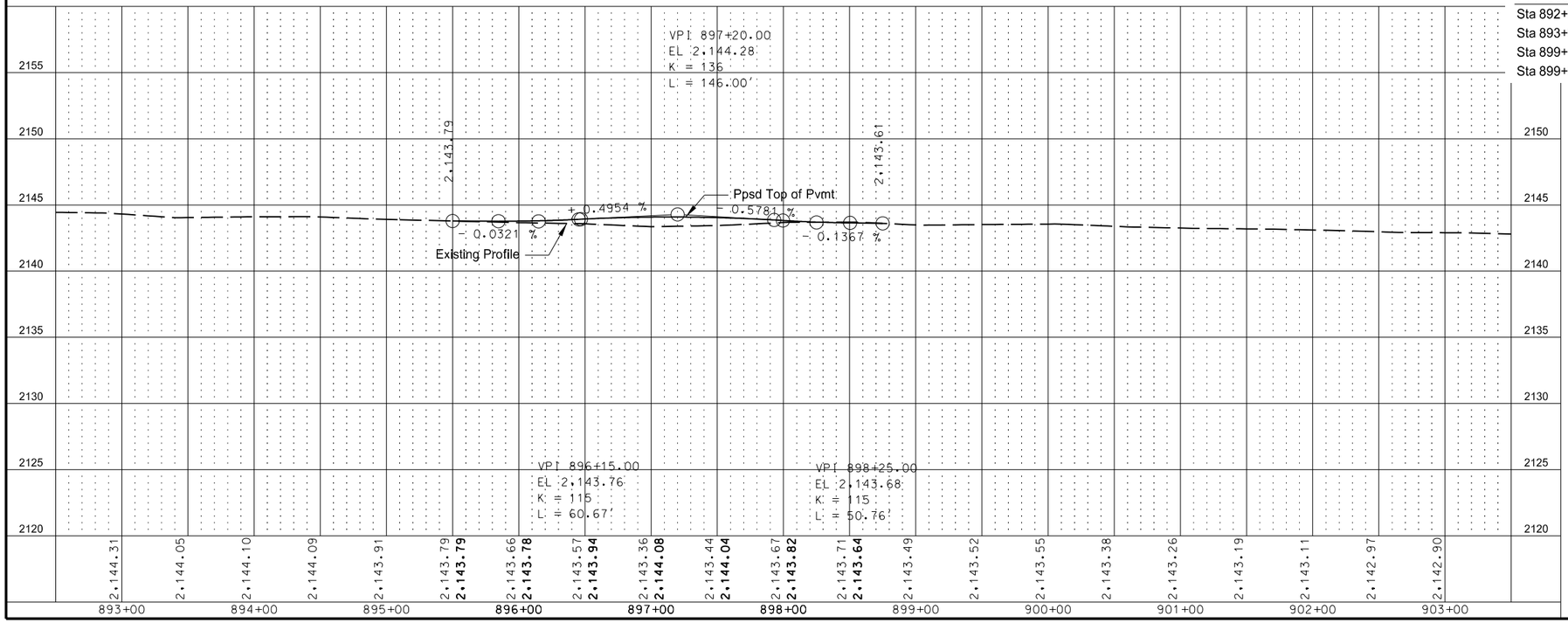
| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 60 | 1 |




**REMOVE**
STA 897+11 ~ ℄
2-60IN X 62 LF CSP
N. INV. = 2133.00
S. INV. = 2133.86

**REMOVE**
STA 897+61 ~ ℄
2-60IN X 38 LF CSP
N. INV. = 2136.20
S. INV. = 2136.44




202 0132 REMOVAL OF BITUMINOUS SURFACING

| | | |
|---|---|---|
| Sta 895+50 to 898+75 | 849 | SY |

202 0174 REMOVAL OF PIPE ALL TYPES AND SIZES

| | | |
|---|---|---|
| Sta 897+11 CL | 62 | LF |
| Sta 897+11 CL | 62 | LF |
| Sta 897+61 CL | 38 | LF |
| Sta 897+61 CL | 38 | LF |
| TOTAL | 200 | LF |

302 0120 AGGREGATE BASE COURSE CL 5

| | | |
|---|---|---|
| Sta 895+50 to 898+75 | 911 | TON |

401 0050 TACK COAT

| | | |
|---|---|---|
| Sta 895+50 to 898+75 | 123 | GAL |

401 0060 PRIME COAT

| | | |
|---|---|---|
| Sta 895+50 to 898+75 | 307 | GAL |

401 0160 BLOTTER MATERIAL CL 44

| | | |
|---|---|---|
| Sta 895+50 to 898+75 | 9 | TON |

430 0045 SUPERPAVE FAA 45

| | | |
|---|---|---|
| Sta 895+50 to 898+75 | 268 | TON |

430 1000 CORED SAMPLE

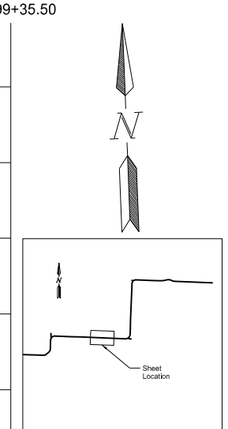
| | | |
|---|---|---|
| Sta 895+50 to 898+75 | 2 | EA |

430 5828 PG 58-28 ASPHALT CEMENT

| | | |
|---|---|---|
| Sta 895+50 to 898+75 | 16 | TON |

714 9680 PLUG PIPE-ALL TYPES & SIZES

| | | |
|---|---|---|
| Sta 892+32.30 | 1 | EA |
| Sta 893+50.60 | 1 | EA |
| Sta 899+13.30 | 1 | EA |
| Sta 899+35.50 | 1 | EA |
| TOTAL | 4 | EA |

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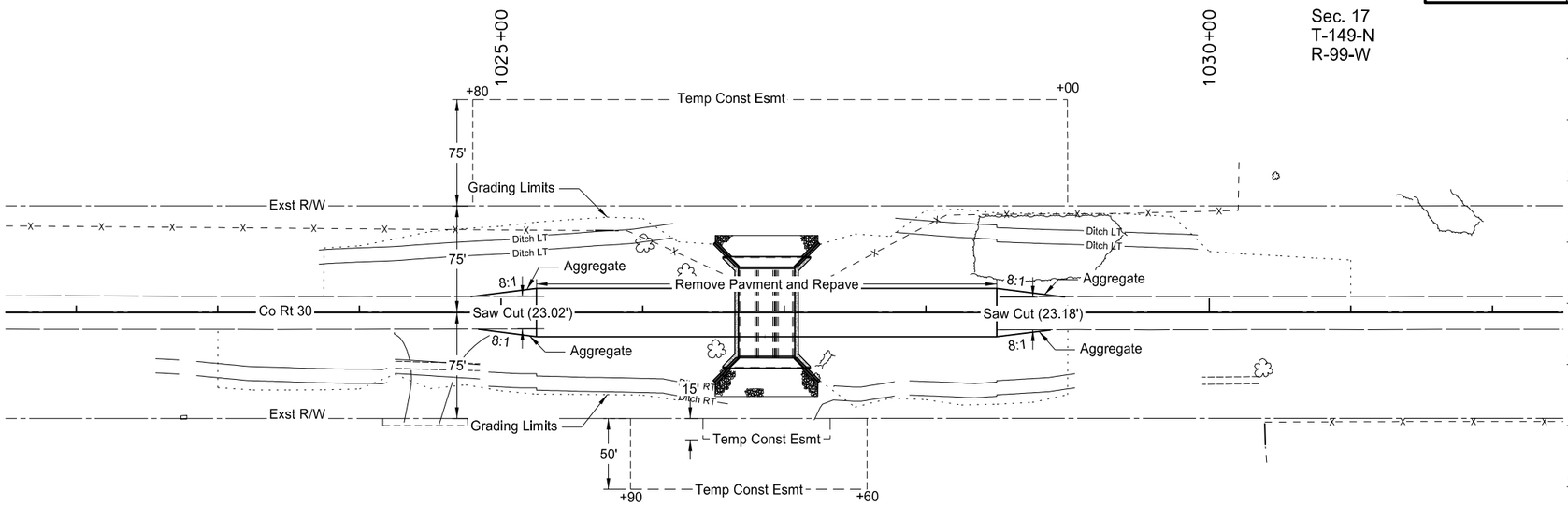
**COUNTY RT 30**
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-131-30.0

KLJ

**PLAN & PROFILE**
**Sta 893+00 to Sta 903+00**
**(EX30E)**

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| PM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 60 | 2 |




202 0132 REMOVAL OF BITUMINOUS SURFACING
Sta 1025+25 to 1028+50 — 833 SY

302 0120 AGGREGATE BASE COURSE CL 5
Sta 1025+25 to 1028+50 — 911 TON

401 0050 TACK COAT
Sta 1025+25 to 1028+50 — 123 GAL

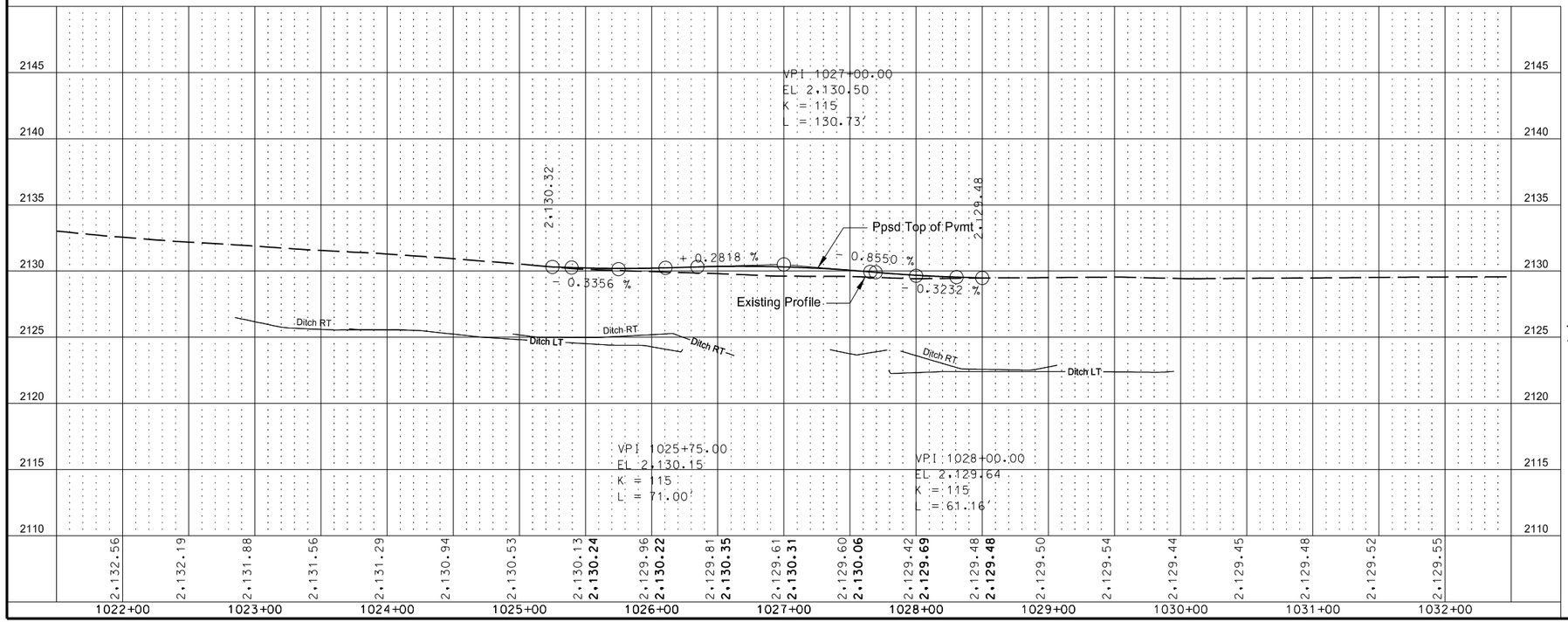
401 0060 PRIME COAT
Sta 1025+25 to 1028+50 — 307 GAL

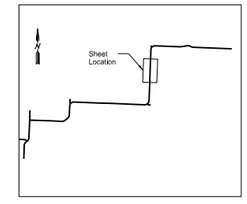
401 0160 BLOTTER MATERIAL CL 44
Sta 1025+25 to 1028+50 — 9 TON

430 0045 SUPERPAVE FAA 45
Sta 1025+25 to 1028+50 — 268 TON

430 1000 CORED SAMPLE
Sta 1025+25 to 1028+50 — 2 EA

430 5828 PG 58-28 ASPHALT CEMENT
Sta 1025+25 to 1028+50 — 16 TON

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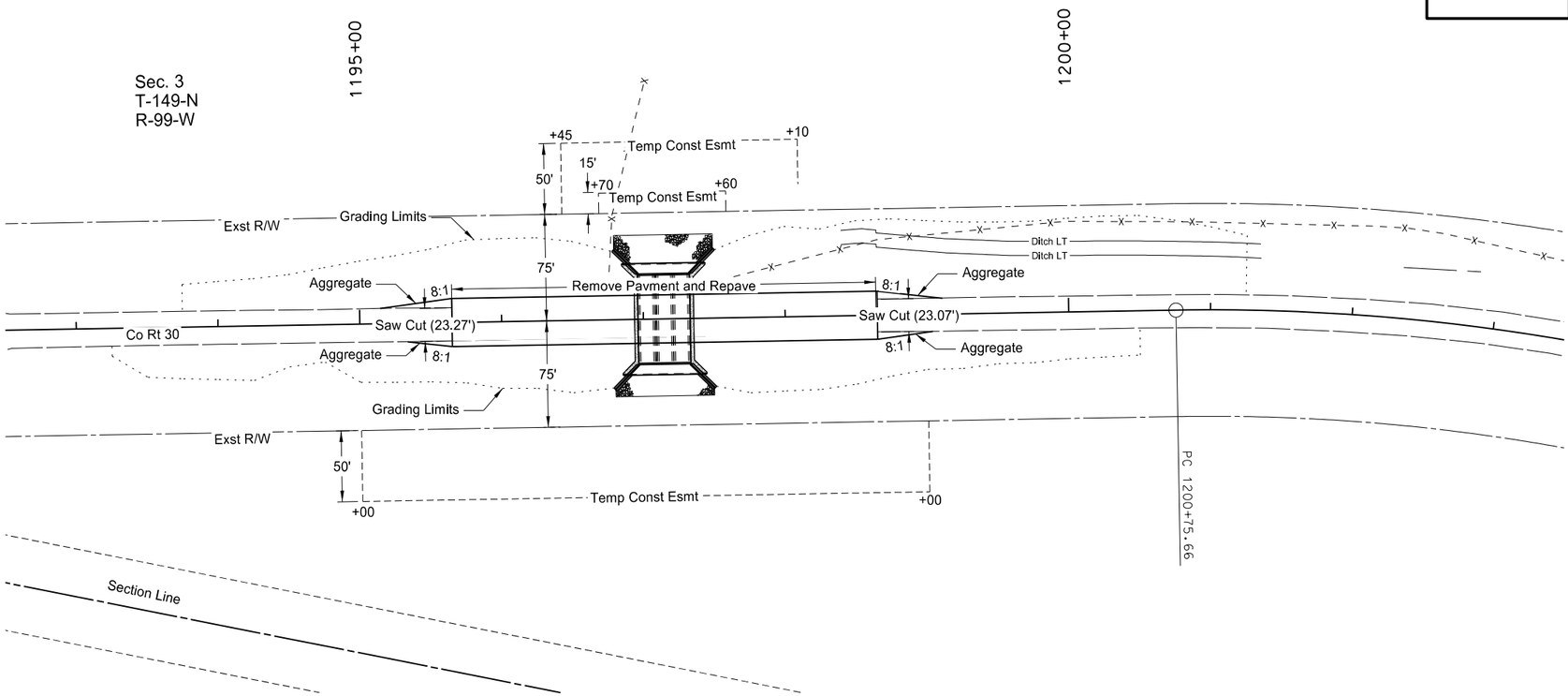
**COUNTY RT 30**
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-132-29.1

**PLAN & PROFILE**
**Sta 1022+00 to Sta 1032+00**
**(EX30E)**

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| PM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 60 | 3 |

Sec. 3
T-149-N
R-99-W




202 0132 REMOVAL OF BITUMINOUS SURFACING
Sta 1195+65 to 1198+65 780 SY

302 0120 AGGREGATE BASE COURSE CL 5
Sta 1195+65 to 1198+65 842 TON

401 0050 TACK COAT
Sta 1195+65 to 1198+65 113 GAL

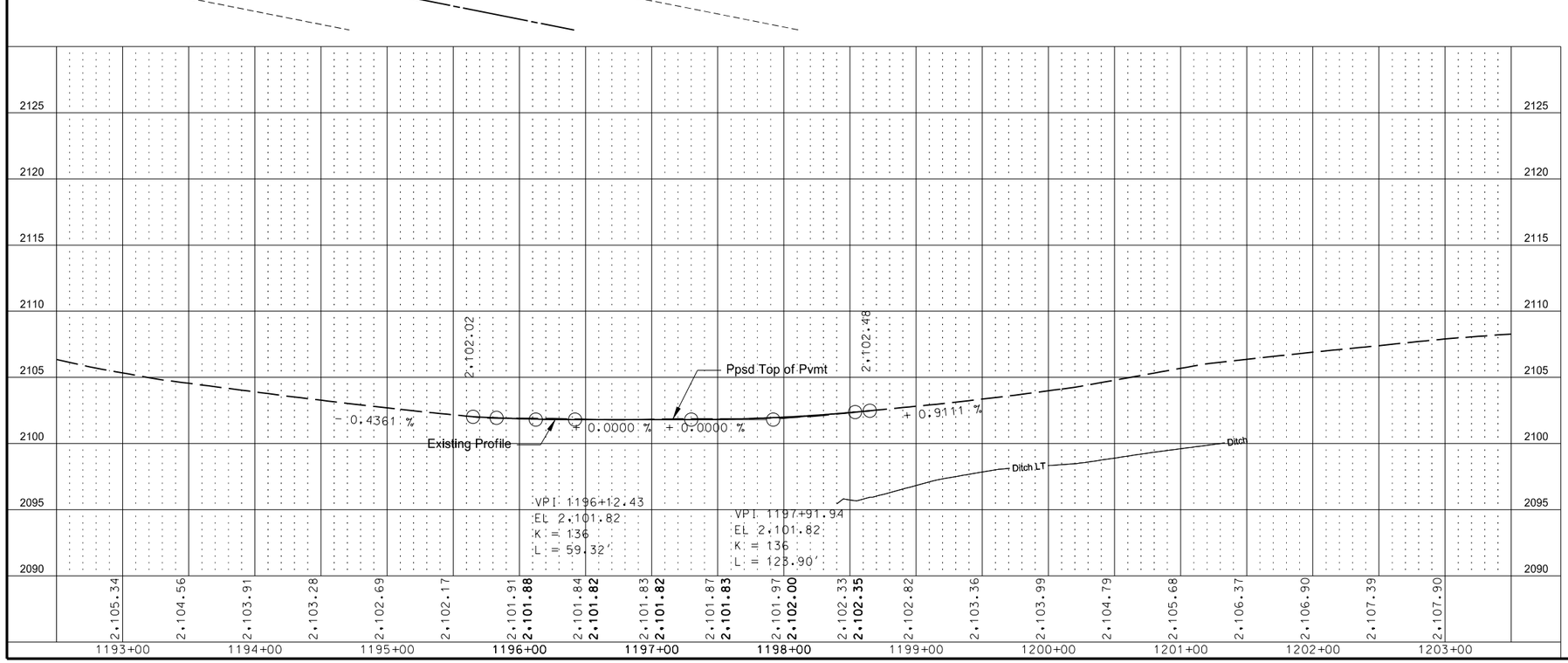
401 0060 PRIME COAT
Sta 1195+65 to 1198+65 283 GAL

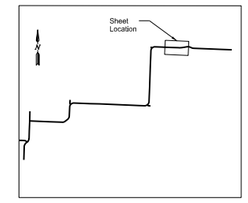
401 0160 BLOTTER MATERIAL CL 44
Sta 1195+65 to 1198+65 9 TON

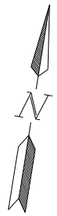
430 0045 SUPERPAVE FAA 45
Sta 1195+65 to 1198+65 248 TON

430 1000 CORED SAMPLE
Sta 1195+65 to 1198+65 2 EA

430 5828 PG 58-28 ASPHALT CEMENT
Sta 1195+65 to 1198+65 15 TON

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COUNTY RT 30
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-134-27.0

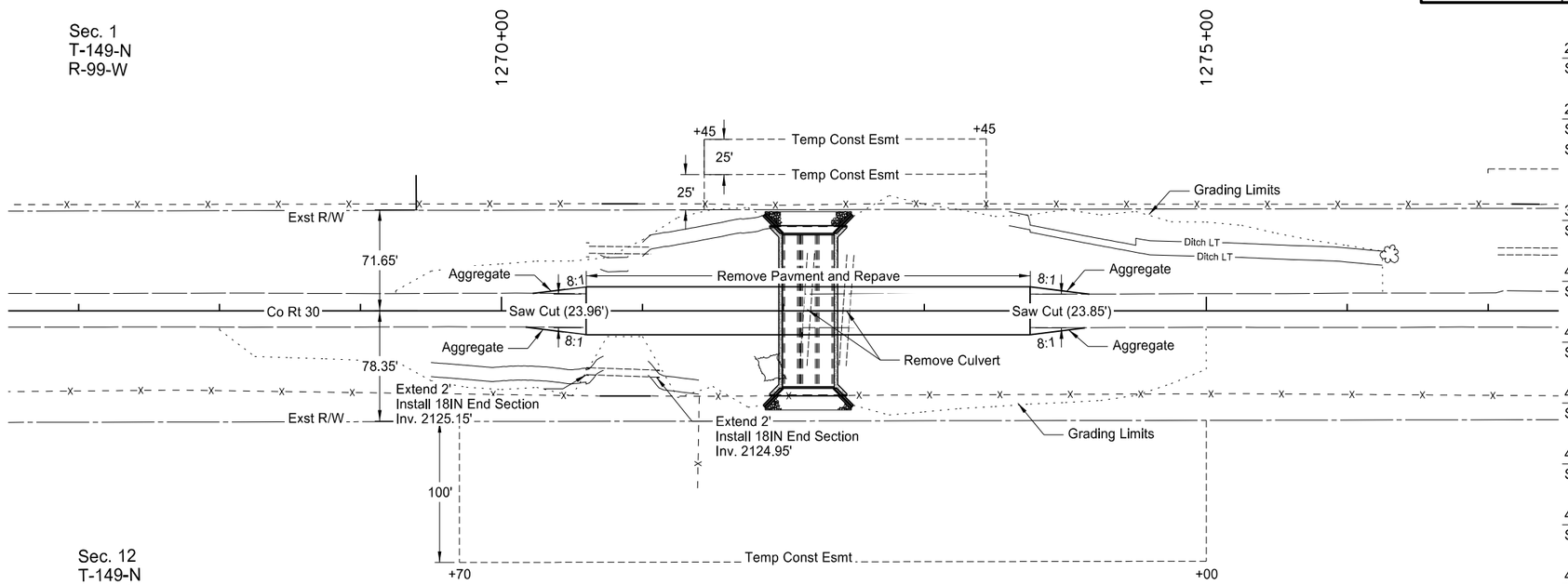
KLJ

PLAN & PROFILE
Sta 1193+00 to Sta 1203+00
(EX30E)

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| PM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 60 | 4 |

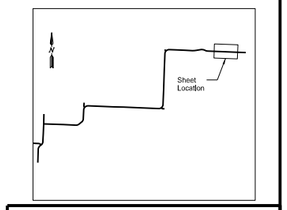
Sec. 1
T-149-N
R-99-W

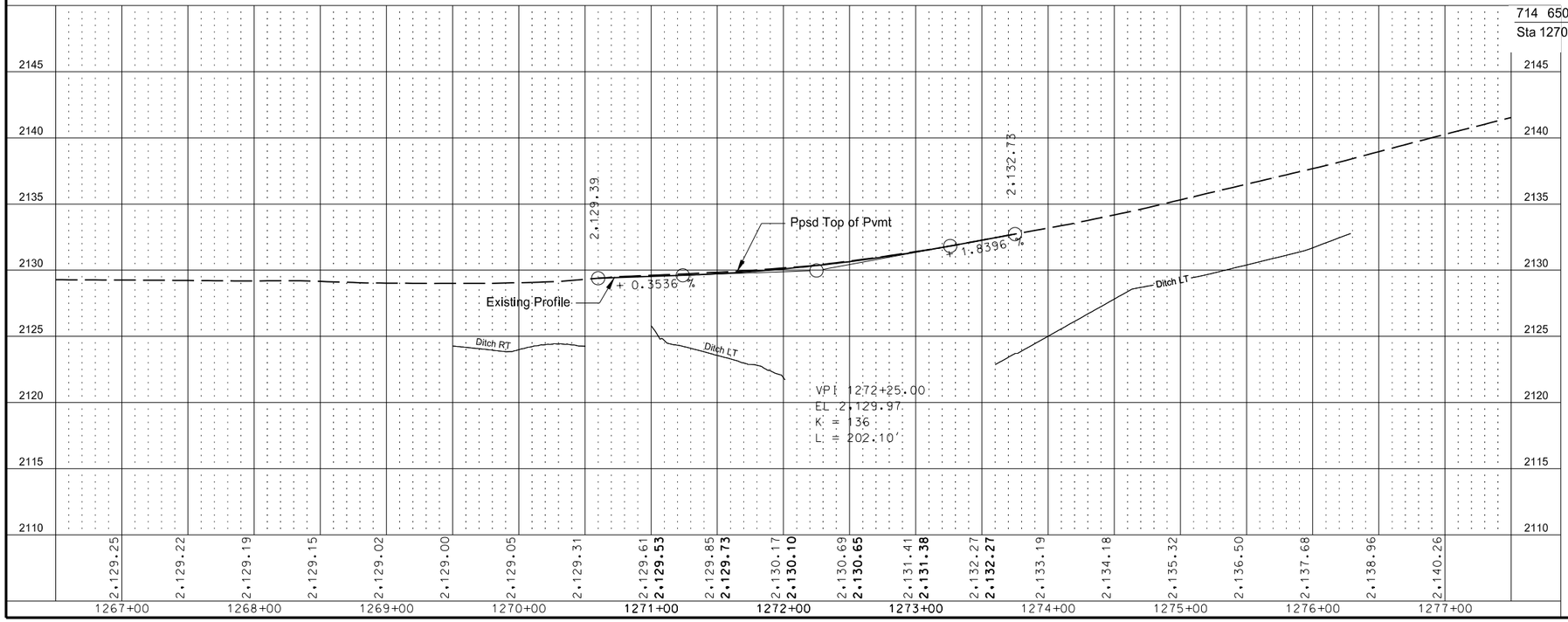



Sec. 12
T-149-N
R-99-W

**REMOVE**
STA 1271+91 ~ ℄
80 LF CSP
N. INV. = 2114.27
S. INV. = 2114.61

| | | | |
|---|---|---|---|
| 202 0132 REMOVAL OF BITUMINOUS SURFACING | | | |
| Sta 1270+60 to 1273+75 | 847 | SY | |
| 202 0174 REMOVAL OF PIPE ALL TYPES AND SIZES | | | |
| Sta 1271+91 CL | 80 | LF | |
| Sta 1271+91 CL | 80 | LF | |
| TOTAL | 160 | LF | |
| 302 0120 AGGREGATE BASE COURSE CL 5 | | | |
| Sta 1270+60 to 1273+75 | 880 | TON | |
| 401 0050 TACK COAT | | | |
| Sta 1270+60 to 1273+75 | 119 | GAL | |
| 401 0060 PRIME COAT | | | |
| Sta 1270+60 to 1273+75 | 298 | GAL | |
| 401 0160 BLOTTER MATERIAL CL 44 | | | |
| Sta 1270+60 to 1273+75 | 9 | TON | |
| 430 0045 SUPERPAVE FAA 45 | | | |
| Sta 1270+60 to 1273+75 | 260 | TON | |
| 430 1000 CORED SAMPLE | | | |
| Sta 1270+60 to 1273+75 | 2 | EA | |
| 430 5828 PG 58-28 ASPHALT CEMENT | | | |
| Sta 1270+60 to 1273+75 | 16 | TON | |
| 714 4099 PIPE CONDUIT 18IN-APPROACH | | | |
| Sta Sta 1270+60.33 to 1271+12.30 | 4 | LF | |
| 714 6500 END SECT METAL 18IN | | | |
| Sta 1270+60.33 to 1271+12.30 | 2 | EA | |





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**COUNTY RT 30**
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-136-27.0

KLJ

**PLAN & PROFILE**
**Sta 1267+00 to Sta 1277+00**
**(EX30E)**

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| PM | JK | 14314102 |

## Wetland Impact Table

| Wetland Number | Location | Cowardin Class. | Wetland Type | Wetland Size (acres) | Wetland Feature | USACE Jurisdictional Wetlands[1] | Wetland Impacts (acres) | | USFWS Easement Impacts (acres) | | Wetland Mitigation | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Mitigation Required | | Bank | | Onsite | | | |
| | | | | | | | Temp. | Perm. | Temp. | Perm. | EO 11990 | USACE | Location | acres | Mitigation Location; Ratio | acres | Constructed Site # | Constructed size (acres) |
| 21 | Sec. 30, T149N, R99W Sec. 19, 20 & 29, T149N, R99W | PEMCx | Road Ditch/ Drainage | 2.86[2] | Artificial/ Natural | Yes | 0.12 | 0.15 | N/A | N/A | Yes | No | N/A | N/A | Onsite adjacent to wetland 21 | 0.15 | N/A | N/A |
| 26[3] | Sec. 16 & 17, T149N, R99W | PEMC | Creek | 0.32 | Natural | Yes | 0.04 | 0.11 | N/A | N/A | Yes | Yes | N/A | N/A | Onsite adjacent to wetland 26 | 0.11 | N/A | N/A |
| 35[4] | Sec. 3, T149N, R99W | PEMC | Creek | 1.12 | Natural | Yes | 0.08 | 0.09 | N/A | N/A | Yes | Yes | N/A | N/A | Onsite adjacent to wetland 35 | 0.09 | N/A | N/A |
| 37 | Sec. 1 & 12, T149N, R99W | PEMC | Creek | 0.33 | Natural | Yes | 0.04 | 0.04 | N/A | N/A | Yes | No | N/A | N/A | Onsite adjacent to wetland 37 | 0.04 | N/A | N/A |
| | | | **Totals** | **1.77** | | | **0.28** | **0.39** | **N/A** | **N/A** | | | | **N/A** | | **0.39** | | **N/A** |

[1] A wetland Jurisdictional Determination was issued by the USACE on 1/27/2015; NWO-2014-2391-BIS.
[2] Wetland boundary shown in wetland delineation report was extended via office delineation by 0.38 acres to account for temporary impacts resulting from temporary bypass.
[3] Wetlands 26 and 35 are associated with the same aquatic resource (S. Hammond, Personal Communication, August 21, 2015).
[4] Wetlands 26 and 35 are associated with the same aquatic resource (S. Hammond, Personal Communication, August 21, 2015).

## Other Waters Impact Table

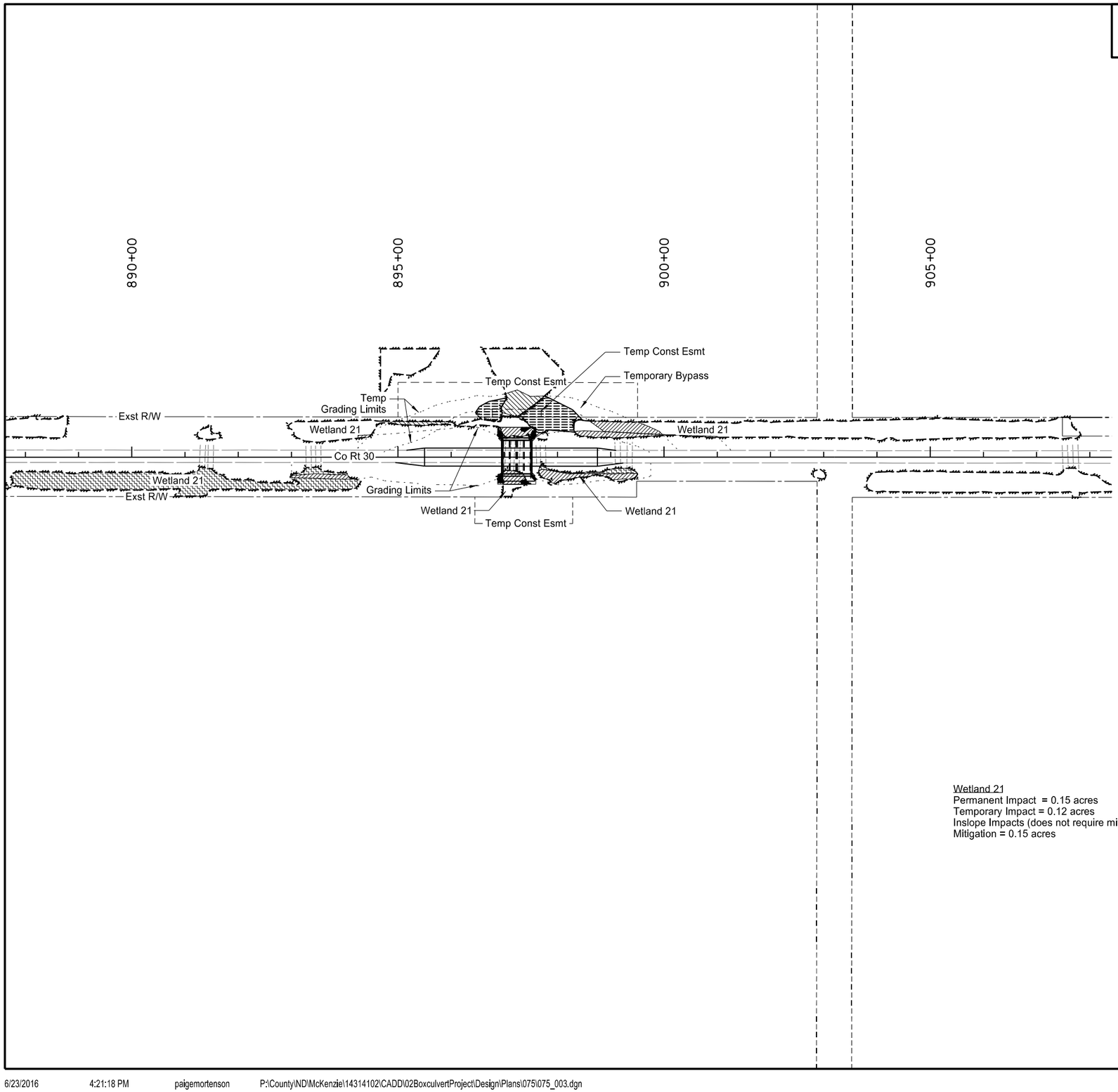
| Other Waters | | | | | | | | | | | Other Water Mitigation | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Location | Type | Size | | Feature | USACE Jurisdictional[1] | Impacts to Other Waters | | | | Mitigation Required[5] | | | Mitigation Location; ratio | Method |
| | | | Acres | Linear Feet | | | Acres Temp | Acres Perm | Linear Feet Temp | Linear Feet Perm | EO 11990 | USACE | USFWS | | |
| POWUS1[6] | Sec. 16 & 17, T149N, R99W | Named Stream (Cherry Creek) | 0.16 | 406 | Natural | Yes | 0.03 | 0.04 | 67 | 114 | N/A | No | N/A | N/A | N/A |
| POWUS2[7] | Sec. 3, T149N, R99W | Named Stream (Cherry Creek) | 0.10 | 351 | Natural | Yes | 0.00 | 0.01 | 0 | 38 | N/A | No | N/A | N/A | N/A |
| POWUS3 | Sec. 1 &12, T149N, R99W | Named Stream (Spring Creek) | 0.09 | 413 | Natural | Yes | 0.01 | 0.01 | 74 | 84 | N/A | No | N/A | N/A | N/A |
| | | **Totals** | **0.35** | **1,170** | | | **0.04** | **0.06** | **141** | **236** | | | | | |

## Summary Impact Table

| Total Permanent Impact Summary | | Temporary Impacts and additional information | |
|---|---|---|---|
| Wetland Type | Total (Acres) | Wetland Type | Total (Acres/Lf) |
| Natural/JD | 0.35 | Temporary JD | 0.28 |
| Natural/Non-JD | 0 | Non-JD Temporary | 0 |
| Artificial/JD | 0 | Permanent JD > 0.10 | 0.20[8] |
| Artificial /Non-JD | 0 | Permanent OW | 0.08/287 |
| Total | **0.35** | Temporary OW | 0.04/141 |

[5] All artificial/non-jurisdictional, deep water (impacts greater than 6.6 feet), Other Waters less than 300 linear feet (determined by the USACE on a case by case), and temporary impacts do not require mitigation.
[6] POWUS1 and POWUS2 are segments of the same aquatic resource.
[7] POWUS1 and POWUS2 are segments of the same aquatic resource.
[8] Sum of wetlands 26 and 35, which are associated with the same aquatic resource (S. Hammond, Personal Communication, August 21, 2015)

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 75 | 3 |




Temporary Wetland Impact

Permanent Wetland Impact

Inslope Wetland Impact

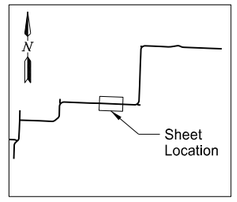
Temporary POWUS Impact

Permanent POWUS Impact

Wetland Mitigation

Wetland Delineated Line Exst

POWUS Line Exst




Wetland 21
Permanent Impact = 0.15 acres
Temporary Impact = 0.12 acres
Inslope Impacts (does not require mitigation) = 0.04 acres
Mitigation = 0.15 acres

N

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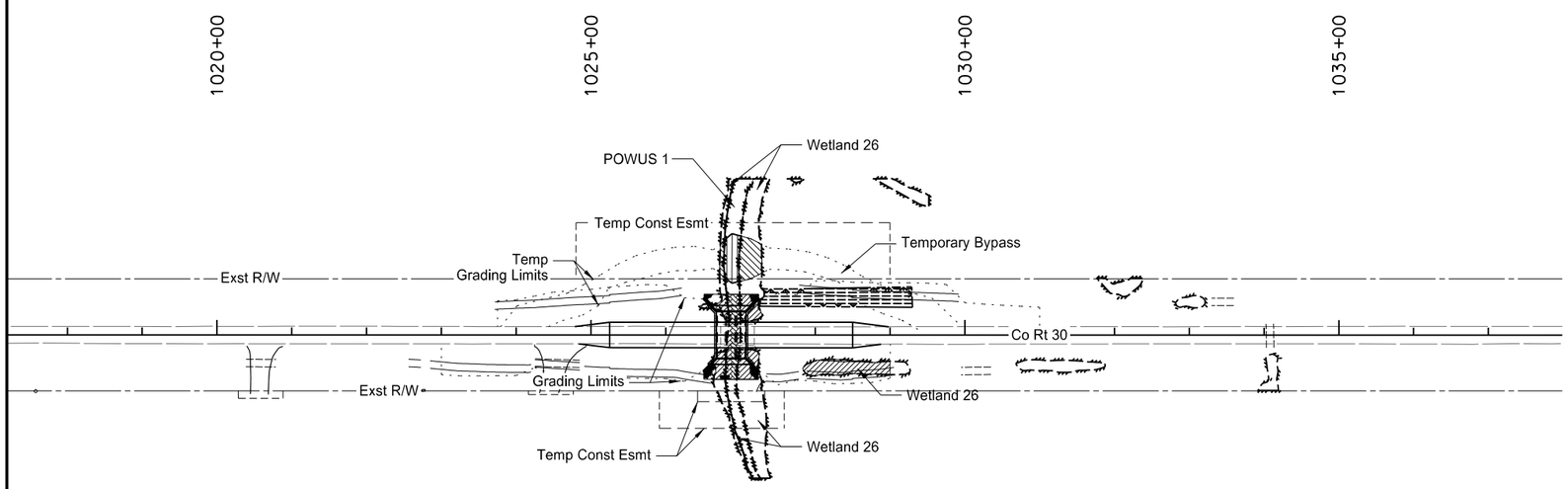
COUNTY RT 30
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-131-30.0

KLJ

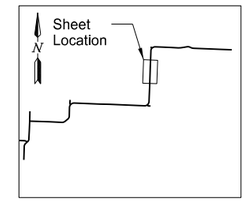
WETLAND IMPACTS
TEMPORARY BYPASS 131
Sta 890+00 to Sta 905+00
(EX30E)

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 75 | 4 |




- Temporary Wetland Impact
- Permanent Wetland Impact
- Temporary POWUS Impact
- Permanent POWUS Impact
- Wetland Mitigation
- Wetland Delineated Line Exst
- POWUS Line Exst




Wetland 26
Permanent Impact = 0.11 acres
Temporary Impact = 0.04 acres
Inslope Impact (does not require mitigation) = 0.00 acres
* Impacts less than 0.01 acres
Mitigation = 0.11 acres

POWUS 1
Temporary Impact = 0.03 acres (67')
Permanent Impact = 0.04 acres (114')

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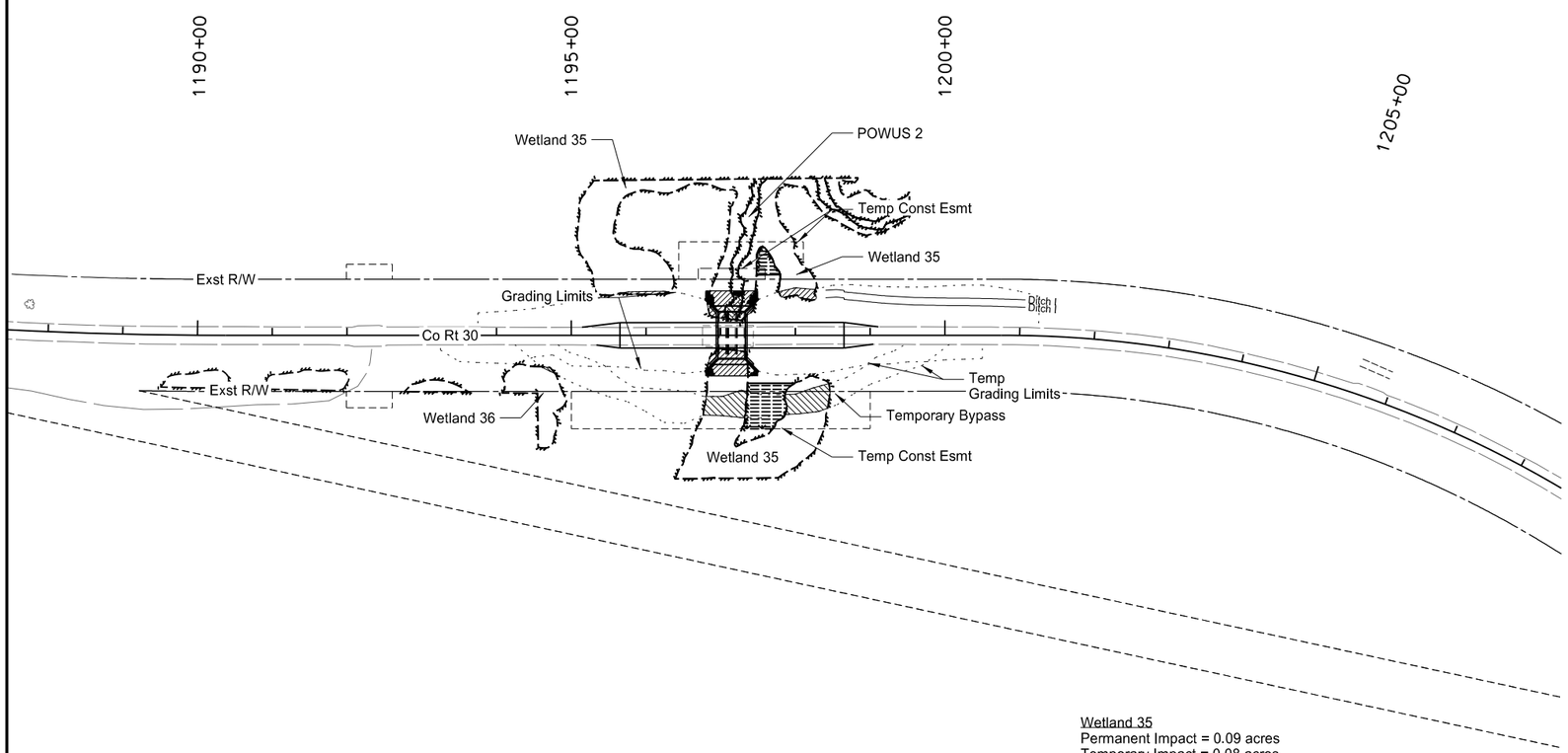
COUNTY RT 30
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-132-29.1

KLJ

WETLAND IMPACTS
TEMPORARY BYPASS 132
Sta 1020+00 to Sta 1035+00
(EX30E)

| DRAWN BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 75 | 5 |




Temporary Wetland Impact

Permanent Wetland Impact

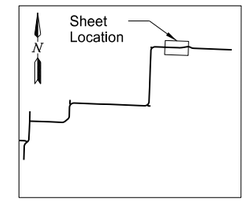
Temporary POWUS Impact

Permanent POWUS Impact

Wetland Mitigation

Wetland Delineated Line Exst

POWUS Line Exst




Wetland 35
Permanent Impact = 0.09 acres
Temporary Impact = 0.08 acres
Mitigation = 0.09 acres

Wetland 36
Temporary Impact = 0.00* acres
*Impacts less than 0.01 acres

POWUS 2
Permanent Impact = 0.01 acres (38')

N

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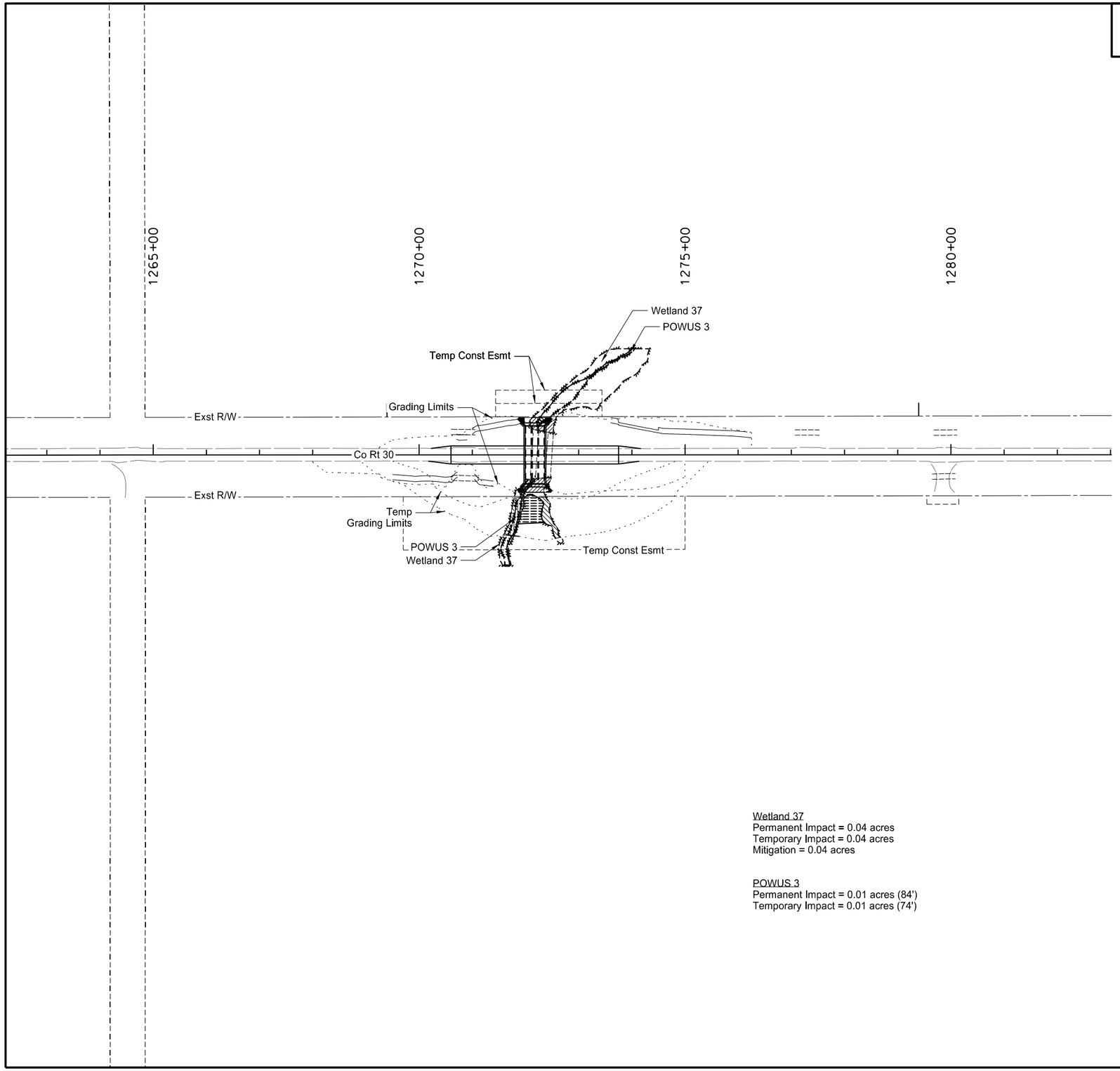
COUNTY RT 30
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-134-27.0

KLJ

WETLAND IMPACTS
TEMPORARY BYPASS 134
Sta 1190+00 to Sta 1205+00
(EX30E)

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 75 | 6 |




Temporary Wetland Impact

Permanent Wetland Impact

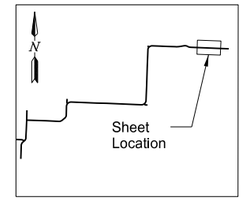
Temporary POWUS Impact

Permanent POWUS Impact

Wetland Mitigation

Wetland Delineated Line Exst

POWUS Line Exst




Wetland 37
Permanent Impact = 0.04 acres
Temporary Impact = 0.04 acres
Mitigation = 0.04 acres

POWUS 3
Permanent Impact = 0.01 acres (84')
Temporary Impact = 0.01 acres (74')

N

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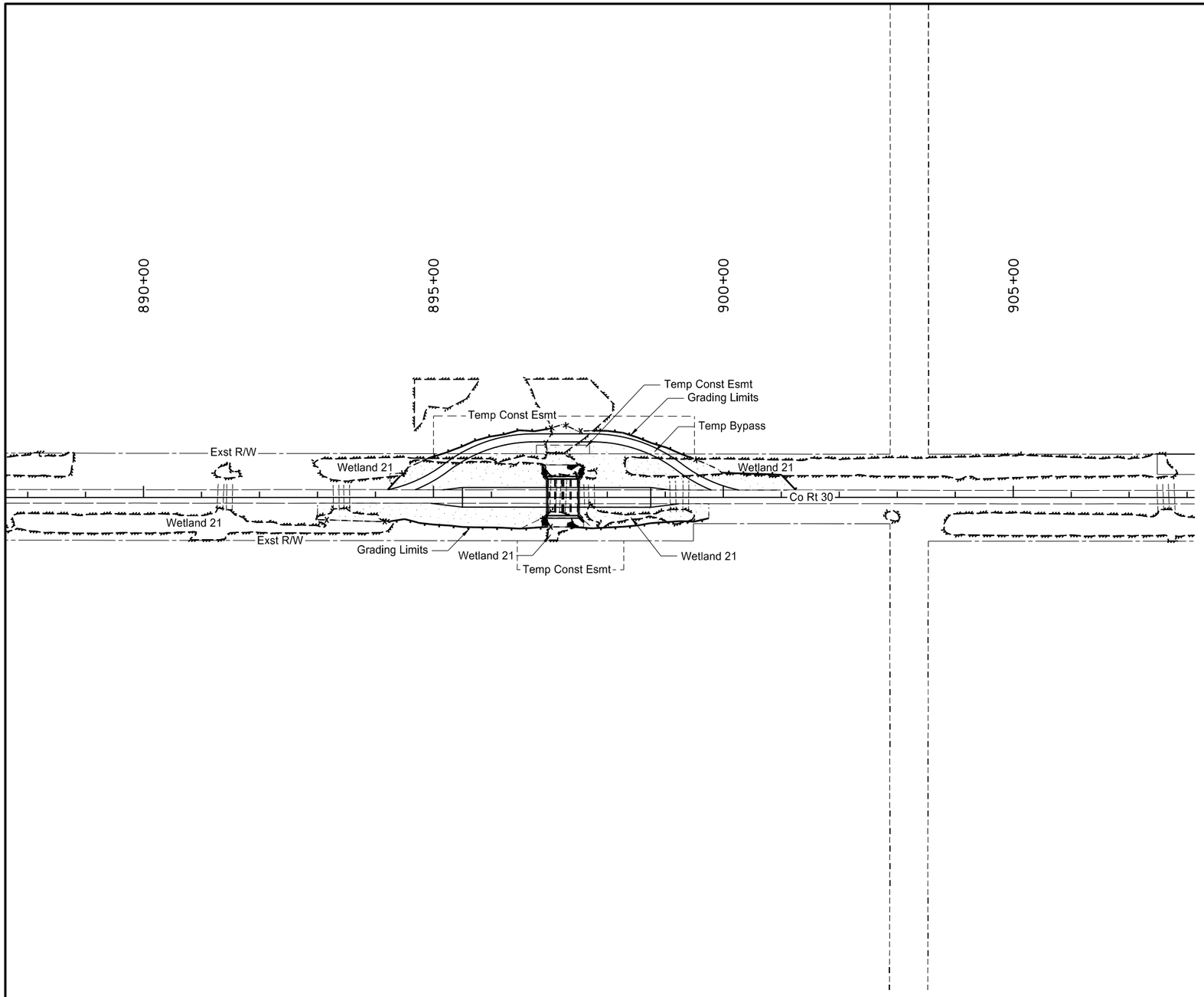
COUNTY RT 30
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-136-27.0

KLJ

WETLAND IMPACTS
TEMPORARY BYPASS 136
Sta 1265+00 to Sta 1280+00
(EX30E)

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 76 | 1 |




251 2000 TEMPORARY COVER CROP

| | | |
|---|---|---|
| Sta 890+00 to Sta 905+00 | 1.267 | ACRE |

253 0101 STRAW MULCH

| | | |
|---|---|---|
| Sta 890+00 to Sta 905+00 | 1.267 | ACRE |

261 0112 FIBER ROLLS 12IN

| | | |
|---|---|---|
| Sta 890+00 to Sta 905+00, Lt | 576 | LF |
| Sta 890+00 to Sta 905+00, Rt | 515 | LF |
| TOTAL | 1091 | LF |

261 0113 REMOVE FIBER ROLLS 12IN

| | | |
|---|---|---|
| Sta 890+00 to Sta 905+00, Lt | 576 | LF |
| Sta 890+00 to Sta 905+00, Rt | 515 | LF |
| TOTAL | 1091 | LF |

262 0100 FLOTATION SILT CURTAIN

| | | |
|---|---|---|
| Sta 890+00 to Sta 905+00, Lt | 192 | LF |
| Sta 890+00 to Sta 905+00, Rt | 162 | LF |
| TOTAL | 354 | LF |

262 0101 REMOVE FLOTATION SILT CURTAIN

| | | |
|---|---|---|
| Sta 890+00 to Sta 905+00, Lt | 192 | LF |
| Sta 890+00 to Sta 905+00, Rt | 162 | LF |
| TOTAL | 354 | LF |

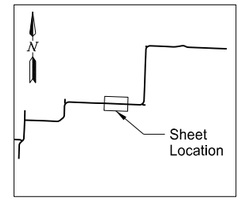
Temporary Cover Crop & Straw Mulch

12IN Fiber Rolls

Silt Fence

Delineated Wetland

Mitigated Wetland

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COUNTY RT 30

*MCKENZIE COUNTY, NORTH DAKOTA*

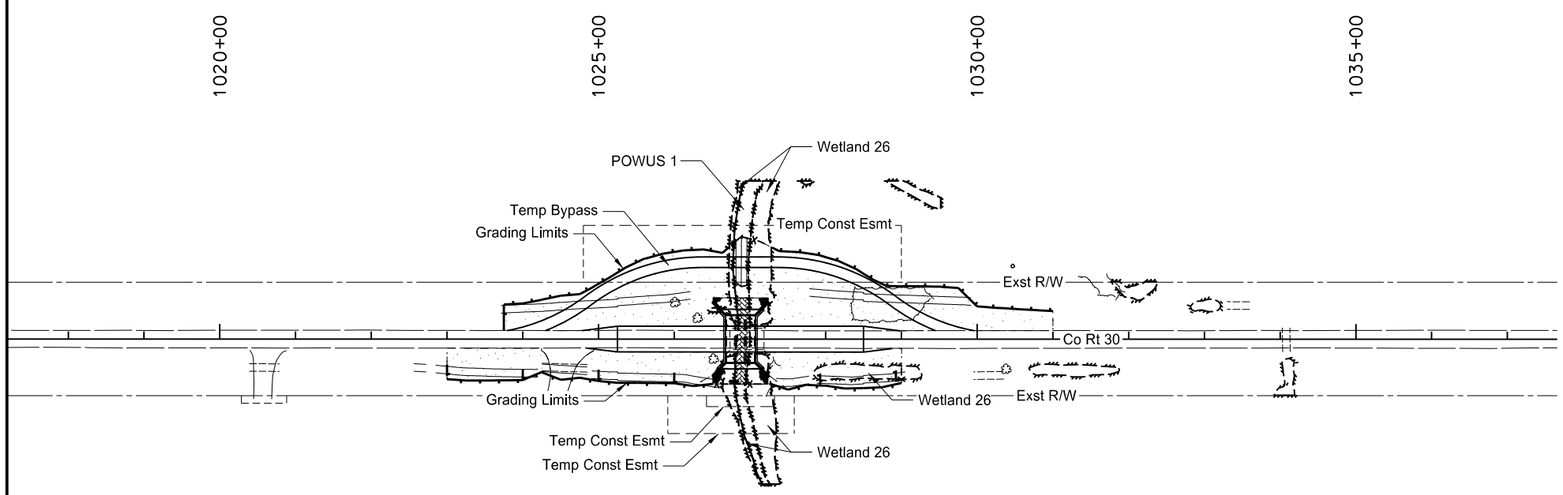
STRUCTURE #27-131-30.0

KLJ

TEMPORARY EROSION CONTROL Sta 890+00 to Sta 905+00 (EX30E)

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 76 | 2 |




251 2000 TEMPORARY COVER CROP

| | | |
|---|---|---|
| Sta 1020+00 to Sta 1035+00 | 1.382 | ACRE |

253 0101 STRAW MULCH

| | | |
|---|---|---|
| Sta 1020+00 to Sta 1035+00 | 1.382 | ACRE |

260 0200 SILT FENCE SUPPORTED

| | | |
|---|---|---|
| Sta 1020+00 to Sta 1035+00, Lt | 38 | LF |
| Sta 1020+00 to Sta 1035+00, Rt | 84 | LF |
| TOTAL | 122 | LF |

260 0201 REMOVE SILT FENCE SUPPORTED

| | | |
|---|---|---|
| Sta 1020+00 to Sta 1035+00, Lt | 38 | LF |
| Sta 1020+00 to Sta 1035+00, Rt | 84 | LF |
| TOTAL | 122 | LF |

261 0112 FIBER ROLLS 12IN

| | | |
|---|---|---|
| Sta 1020+00 to Sta 1035+00, Lt | 742 | LF |
| Sta 1020+00 to Sta 1035+00, Rt | 621 | LF |
| TOTAL | 1363 | LF |

261 0113 REMOVE FIBER ROLLS 12IN

| | | |
|---|---|---|
| Sta 1020+00 to Sta 1035+00, Lt | 742 | LF |
| Sta 1020+00 to Sta 1035+00, Rt | 621 | LF |
| TOTAL | 1363 | LF |

262 0100 FLOTATION SILT CURTAIN

| | | |
|---|---|---|
| Sta 1020+00 to Sta 1035+00, Lt | 25 | LF |
| Sta 1020+00 to Sta 1035+00, Rt | 15 | LF |
| TOTAL | 40 | LF |

262 0101 REMOVE FLOTATION SILT CURTAIN

| | | |
|---|---|---|
| Sta 1020+00 to Sta 1035+00, Lt | 25 | LF |
| Sta 1020+00 to Sta 1035+00, Rt | 15 | LF |
| TOTAL | 40 | LF |

Temporary Cover Crop & Straw Mulch

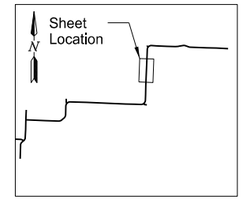
12IN Fiber Rolls

Silt Fence

Flotation Silt Curtain

Delineated Wetland

Mitigated Wetland

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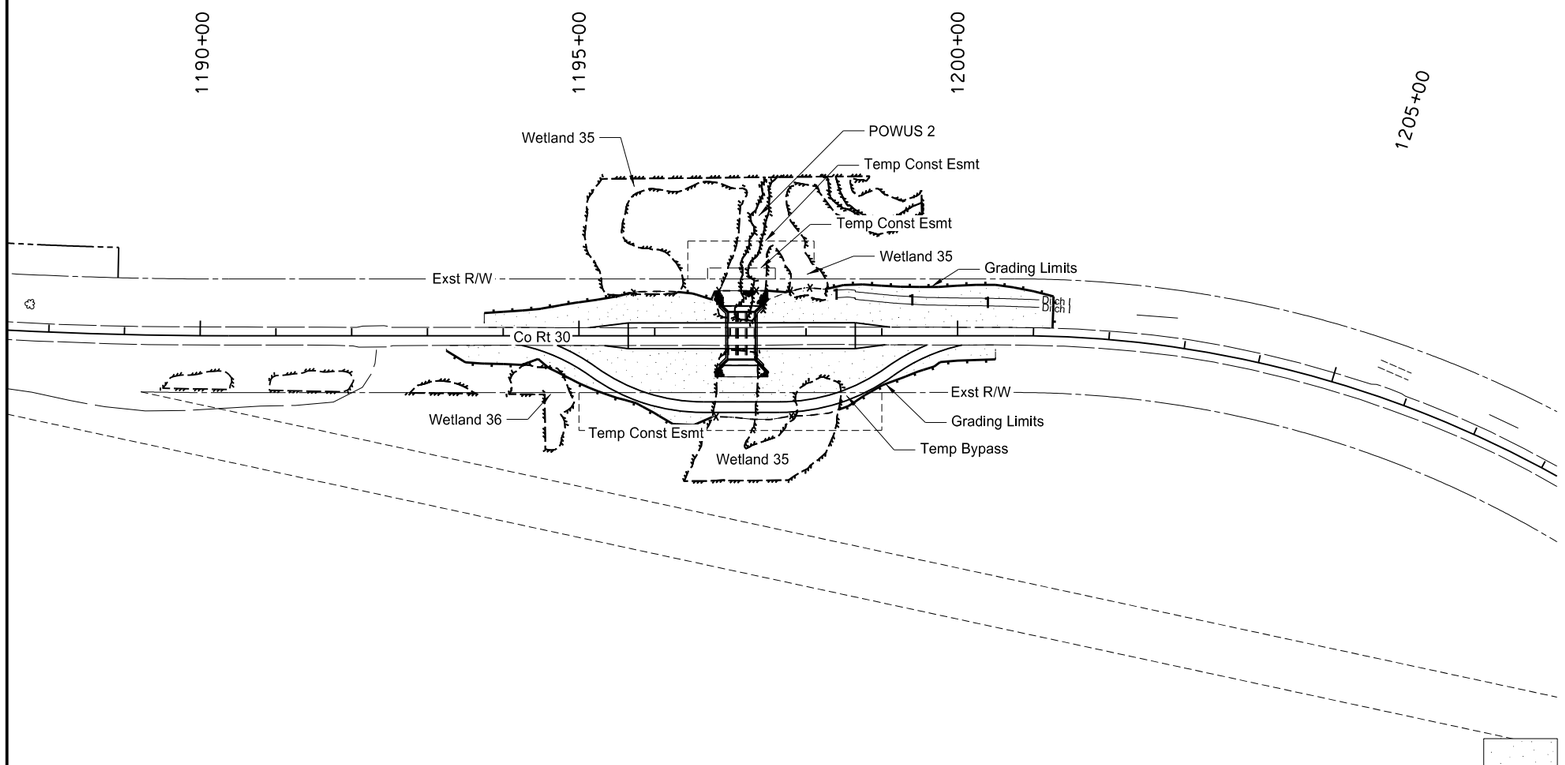
COUNTY RT 30
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-132-29.1

TEMPORARY EROSION CONTROL
Sta 1020+00 to Sta 1035+00
(EX30E)

| DRAWN BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 76 | 3 |




251 2000 TEMPORARY COVER CROP

| | | |
|---|---|---|
| Sta 1190+00 to Sta 1205+00 | 1.405 | ACRE |

253 0101 STRAW MULCH

| | | |
|---|---|---|
| Sta 1190+00 to Sta 1205+00 | 1.405 | ACRE |

260 0200 SILT FENCE SUPPORTED

| | | |
|---|---|---|
| Sta 1190+00 to Sta 1205+00, Lt | 167 | LF |
| Sta 1190+00 to Sta 1205+00, Rt | 168 | LF |
| TOTAL | 335 | LF |

260 0201 REMOVE SILT FENCE SUPPORTED

| | | |
|---|---|---|
| Sta 1190+00 to Sta 1205+00, Lt | 168 | LF |
| Sta 1190+00 to Sta 1205+00, Rt | 169 | LF |
| TOTAL | 335 | LF |

261 0112 FIBER ROLLS 12IN

| | | |
|---|---|---|
| Sta 1190+00 to Sta 1205+00, Lt | 585 | LF |
| Sta 1190+00 to Sta 1205+00, Rt | 602 | LF |
| TOTAL | 1187 | LF |

261 0113 REMOVE FIBER ROLLS 12IN

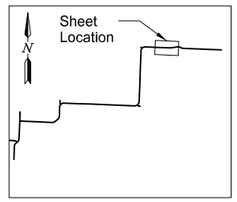
| | | |
|---|---|---|
| Sta 1190+00 to Sta 1205+00, Lt | 670 | LF |
| Sta 1190+00 to Sta 1205+00, Rt | 602 | LF |
| TOTAL | 1187 | LF |

262 0100 FLOTATION SILT CURTAIN

| | | |
|---|---|---|
| Sta 1190+00 to Sta 1205+00, Lt | 15 | LF |

262 0101 REMOVE FLOTATION SILT CURTAIN

| | | |
|---|---|---|
| Sta 1190+00 to Sta 1205+00, Lt | 15 | LF |




Temporary Cover Crop & Straw Mulch

12IN Fiber Rolls

Silt Fence

Flotation Silt Curtain

Delineated Wetland

Mitigated Wetland

N

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COUNTY RT 30

*MCKENZIE COUNTY, NORTH DAKOTA*

STRUCTURE #27-134-27.0

KLJ

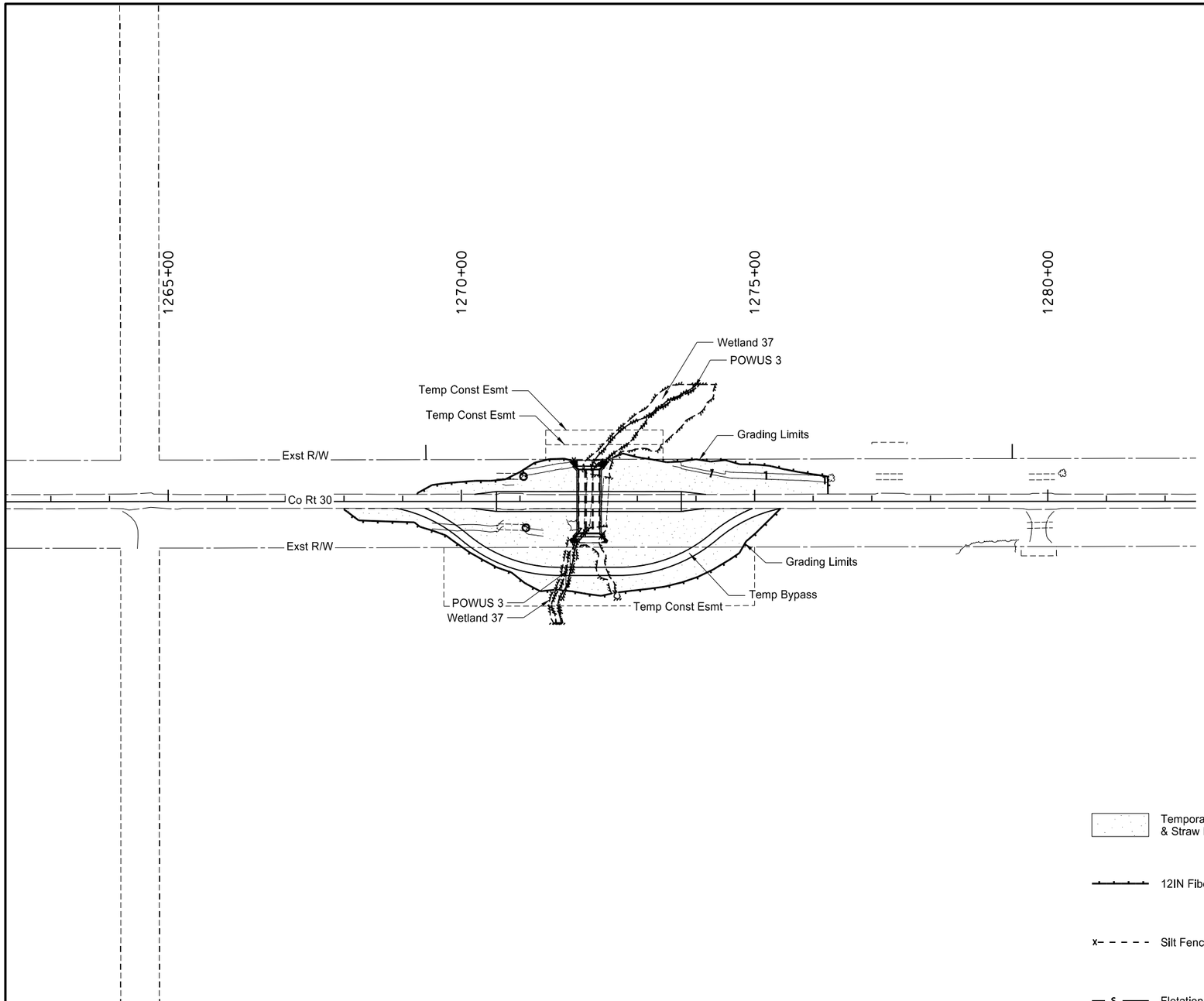
TEMPORARY EROSION CONTROL Sta 1190-00 to Sta 1205+00 (EX30E)

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |



6/23/2016 4:21:25 PM paigemortenson P:\County\ND\McKenzie\14314102\CADD\02BoxculvertProject\Design\Plans\076\076_003.dgn

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 76 | 4 |




251 2000 TEMPORARY COVER CROP

| | | |
|---|---|---|
| Sta 1265+00 to Sta 1280+00 | 1.855 | ACRE |

253 0101 STRAW MULCH

| | | |
|---|---|---|
| Sta 1265+00 to Sta 1280+00 | 1.855 | ACRE |

260 0200 SILT FENCE SUPPORTED

| | | |
|---|---|---|
| Sta 1265+00 to Sta 1280+00, Lt | 54 | LF |
| Sta 1265+00 to Sta 1280+00, Rt | 22 | LF |
| TOTAL | 76 | LF |

260 0201 REMOVE SILT FENCE SUPPORTED

| | | |
|---|---|---|
| Sta 1265+00 to Sta 1280+00, Lt | 54 | LF |
| Sta 1265+00 to Sta 1280+00, Rt | 22 | LF |
| TOTAL | 76 | LF |

261 0112 FIBER ROLLS 12IN

| | | |
|---|---|---|
| Sta 1265+00 to Sta 1280+00, Lt | 762 | LF |
| Sta 1265+00 to Sta 1280+00, Rt | 838 | LF |
| TOTAL | 1600 | LF |

261 0113 REMOVE FIBER ROLLS 12IN

| | | |
|---|---|---|
| Sta 1265+00 to Sta 1280+00, Lt | 762 | LF |
| Sta 1265+00 to Sta 1280+00, Rt | 838 | LF |
| TOTAL | 1600 | LF |

262 0100 FLOTATION SILT CURTAIN

| | | |
|---|---|---|
| Sta 1265+00 to Sta 1280+00, Lt | 20 | LF |
| Sta 1265+00 to Sta 1280+00, Rt | 10 | LF |
| TOTAL | 30 | LF |

262 0101 REMOVE FLOTATION SILT CURTAIN

| | | |
|---|---|---|
| Sta 1265+00 to Sta 1280+00, Lt | 20 | LF |
| Sta 1265+00 to Sta 1280+00, Rt | 10 | LF |
| TOTAL | 30 | LF |

Temporary Cover Crop & Straw Mulch

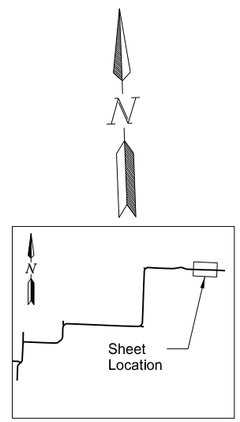
12IN Fiber Rolls

Silt Fence

Flotation Silt Curtain

Delineated Wetland

Mitigated Wetland

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COUNTY RT 30

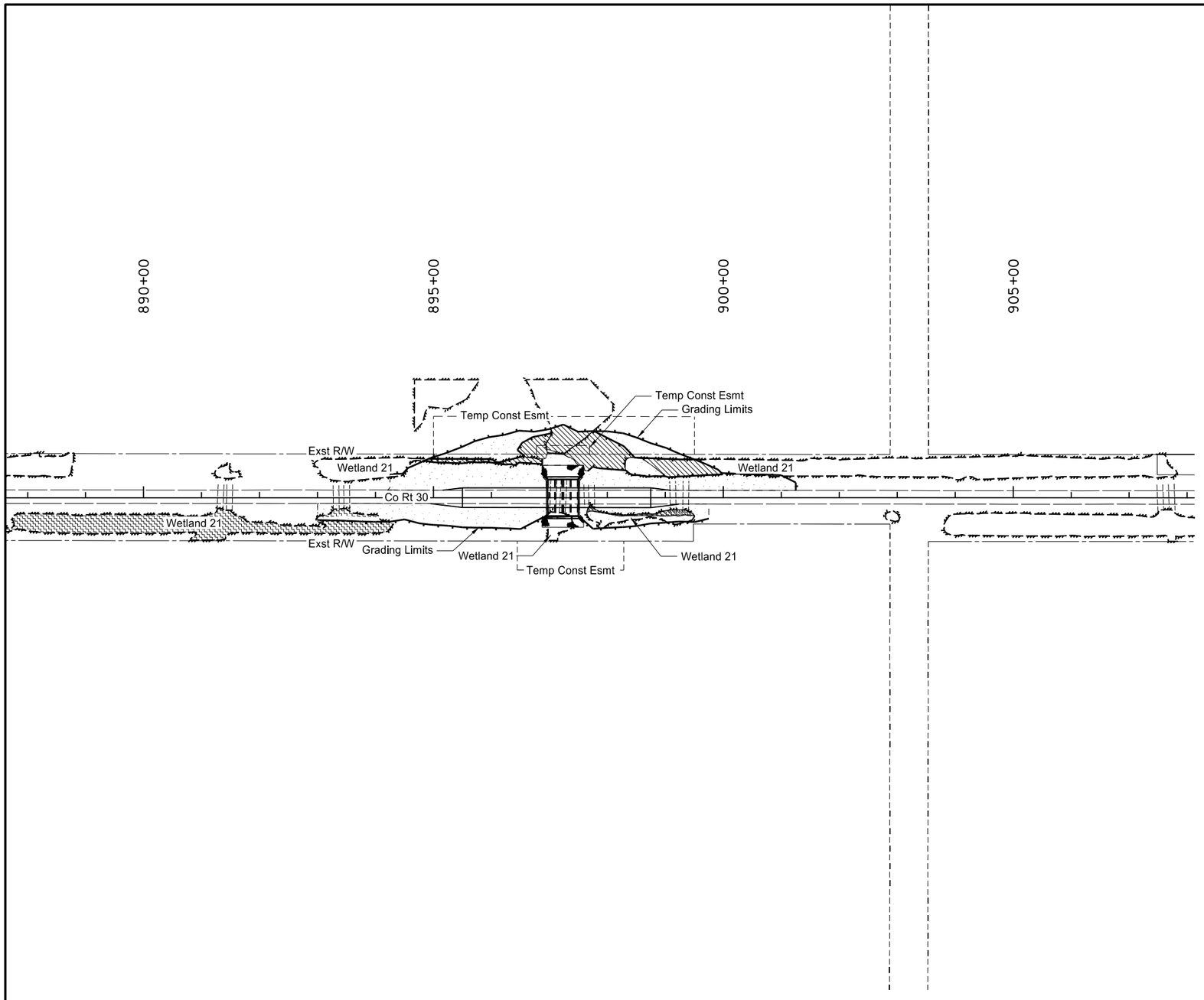
*MCKENZIE COUNTY, NORTH DAKOTA*

STRUCTURE #27-136-27.0

TEMPORARY EROSION CONTROL Sta 1265+00 to Sta 1280+00 (EX30E)

| DRAWN BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 77 | 1 |




| | | | |
|---|---|---|---|
| 203 0121 TOPSOIL-WETLAND | | | |
| Sta 890+00 to Sta 910+00 | | 256 | CY |
| 251 0200 SEEDING CLASS II | | | |
| Sta 890+00 to Sta 910+00 | | 1.154 | ACRE |
| 251 1000 WETLAND SEED | | | |
| Sta 890+00 to Sta 910+00 | | 0.317 | ACRE |
| 253 0101 STRAW MULCH | | | |
| Sta 890+00 to Sta 910+00 | | 1.471 | ACRE |
| 261 0112 FIBER ROLLS 12IN | | | |
| Sta 890+00 to Sta 905+00, Lt | | 1650 | LF |
| Sta 890+00 to Sta 905+00, Rt | | 691 | LF |
| | TOTAL | 2341 | LF |

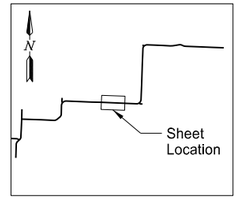
Seeding & Straw Mulch

Wetland Seed

12IN Fiber Rolls

Delineated Wetland

Mitigated Wetland





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# COUNTY RT 30

*MCKENZIE COUNTY, NORTH DAKOTA*

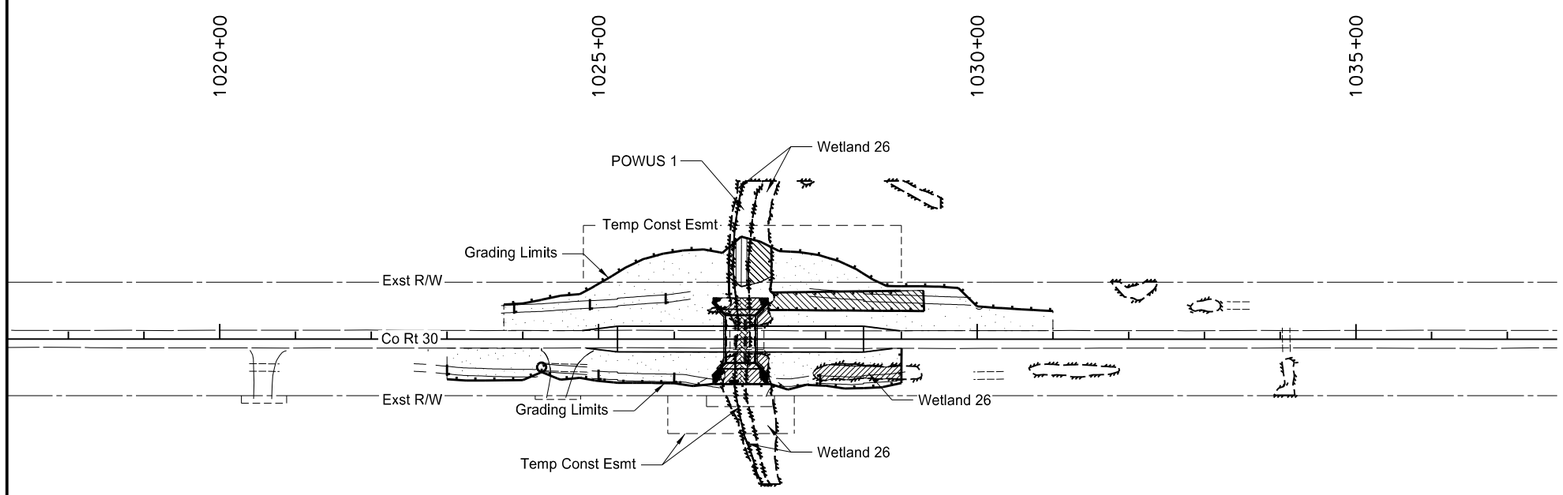
STRUCTURE #27-131-30.0

KLJ

## PERMANENT EROSION CONTROL Sta 890+00 to Sta 905+00 (EX30E)

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 77 | 2 |




203 0121 TOPSOIL-WETLAND

| | | |
|---|---|---|
| Sta 1020+00 to Sta 1040+00 | 131 | CY |

251 0200 SEEDING CLASS II

| | | |
|---|---|---|
| Sta 1020+00 to Sta 1040+00 | 1.379 | ACRE |

251 1000 WETLAND SEED

| | | |
|---|---|---|
| Sta 1020+00 to Sta 1040+00 | 0.162 | ACRE |

253 0101 STRAW MULCH

| | | |
|---|---|---|
| Sta 1020+00 to Sta 1040+00 | 1.541 | ACRE |

261 0112 FIBER ROLLS 12IN

| | | | |
|---|---|---|---|
| Sta 1020+00 to Sta 1035+00, Lt | | 1348 | LF |
| Sta 1020+00 to Sta 1035+00, Rt | | 752 | LF |
| | TOTAL | 2100 | LF |

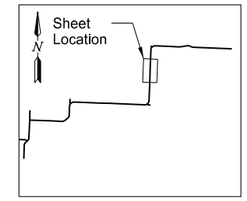
Seeding & Straw Mulch

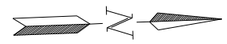
Wetland Seed

12IN Fiber Rolls

Delineated Wetland

Mitigated Wetland



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COUNTY RT 30

*MCKENZIE COUNTY, NORTH DAKOTA*

STRUCTURE #27-132-29.1

PERMANENT EROSION CONTROL Sta 1020+00 to Sta 1035+00 (EX30E)

| DRAWN BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |



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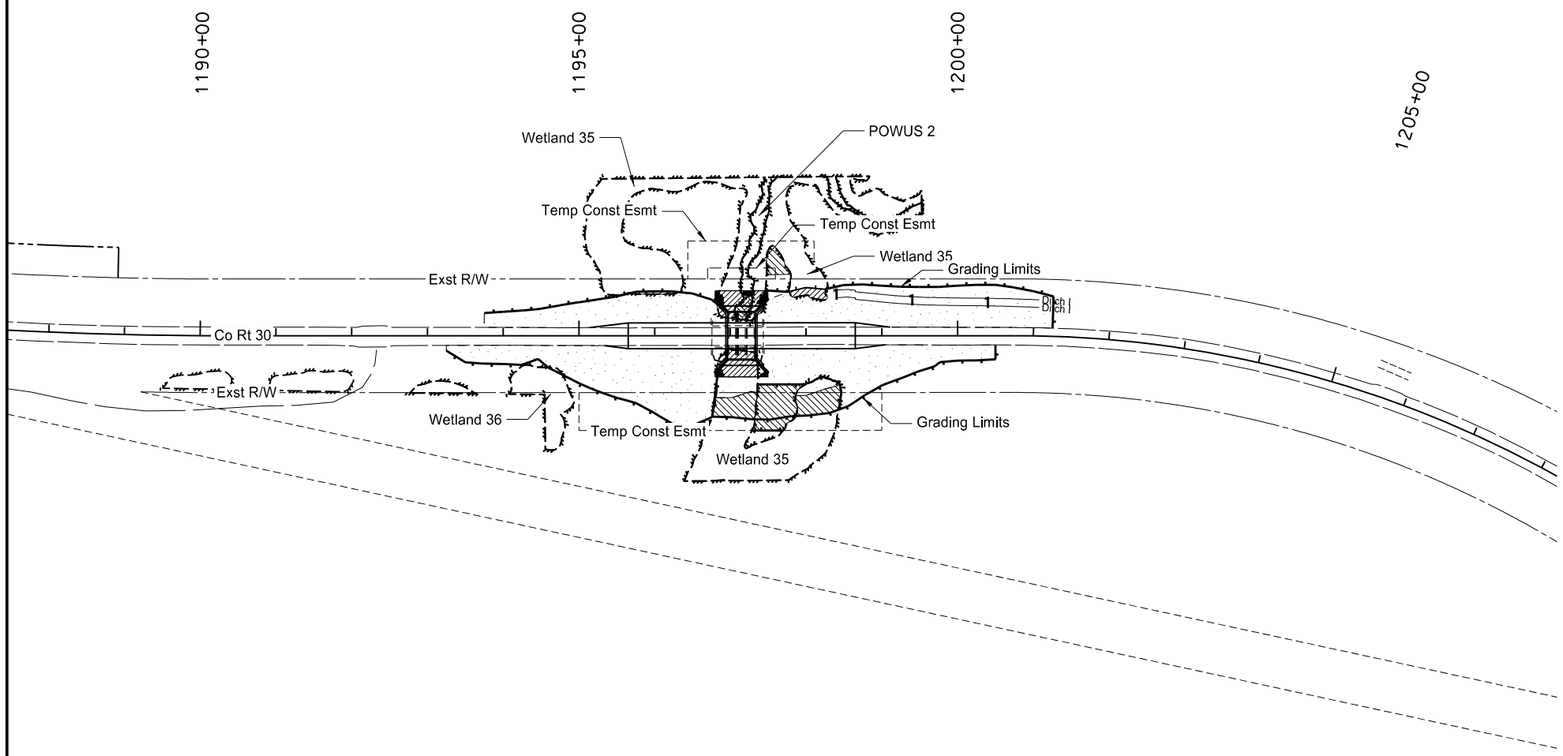
| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 77 | 3 |




| 203 0121 TOPSOIL-WETLAND | | |
|---|---|---|
| Sta 1190+00 to Sta 1210+00 | 135 | CY |

| 251 0200 SEEDING CLASS II | | |
|---|---|---|
| Sta 1190+00 to Sta 1210+00 | 1.455 | ACRE |

| 251 1000 WETLAND SEED | | |
|---|---|---|
| Sta 1190+00 to Sta 1210+00 | 0.168 | ACRE |

| 253 0101 STRAW MULCH | | |
|---|---|---|
| Sta 1190+00 to Sta 1210+00 | 1.623 | ACRE |

| 261 0112 FIBER ROLLS 12IN | | | |
|---|---|---|---|
| Sta 1190+00 to Sta 1205+00, Lt | | 794 | LF |
| Sta 1190+00 to Sta 1205+00, Rt | | 1033 | LF |
| | TOTAL | 1827 | LF |

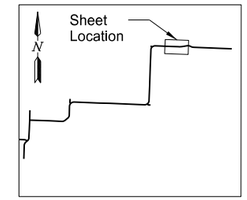
Seeding & Straw Mulch

Wetland Seed

12IN Fiber Rolls

Delineated Wetland

Mitigated Wetland

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COUNTY RT 30

*MCKENZIE COUNTY, NORTH DAKOTA*

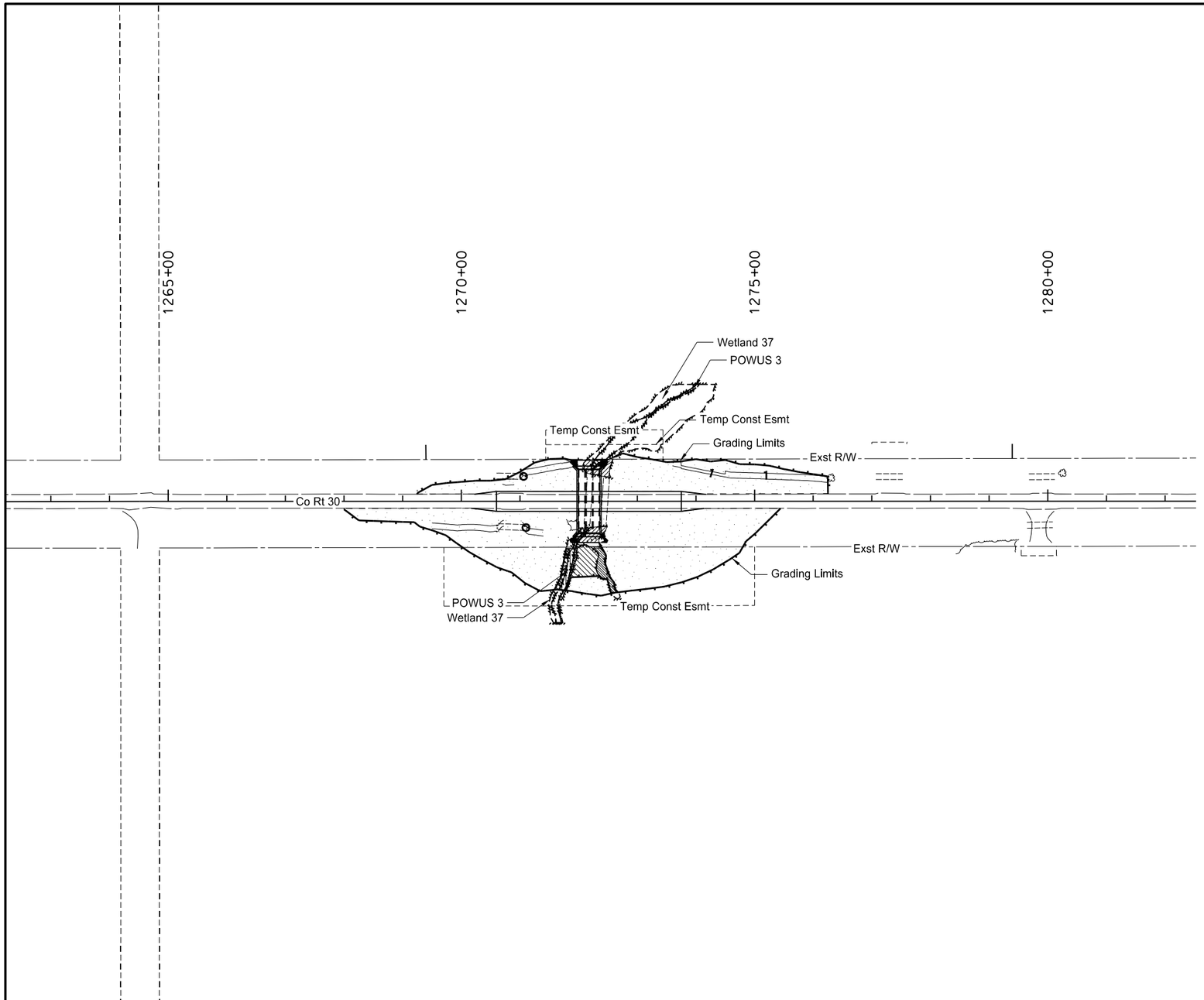
STRUCTURE #27-134-27.0

KLJ

PERMANENT EROSION CONTROL
Sta 1190-00 to Sta 1205+00
(EX30E)

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 77 | 4 |




| | | | |
|---|---|---|---|
| 203 0121 TOPSOIL-WETLAND | | | |
| Sta 1265+00 to Sta 1280+00 | | 82 | CY |
| 251 0200 SEEDING CLASS II | | | |
| Sta 1265+00 to Sta 1280+00, Lt | | 1.948 | ACRE |
| 251 1000 WETLAND SEED | | | |
| Sta 1265+00 to Sta 1280+00 | | 0.102 | ACRE |
| 253 0101 STRAW MULCH | | | |
| Sta 1265+00 to Sta 1280+00 | | 2.050 | ACRE |
| 261 0112 FIBER ROLLS 12IN | | | |
| Sta 1265+00 to Sta 1280+00, Lt | | 820 | LF |
| Sta 1265+00 to Sta 1280+00, Rt | | 1151 | LF |
| | TOTAL | 1971 | LF |

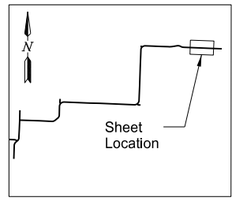
Seeding & Straw Mulch

Wetland Seed

12IN Fiber Rolls

Delineated Wetland

Mitigated Wetland

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COUNTY RT 30

*MCKENZIE COUNTY, NORTH DAKOTA*

STRUCTURE #27-136-27.0

KLJ

PERMANENT EROSION CONTROL
Sta 1265+00 to Sta 1280+00
(EX30E)

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |



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| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SC-2730(061) | 100 | 1 |

| SIGN NUMBER | SIGN SIZE | DESCRIPTION | AMOUNT REQUIRED | UNITS PER AMOUNT | UNITS SUB TOTAL |
|---|---|---|---|---|---|
| D3-36 | 36"x6" | STREET NAME SIGN (Sign and installation only) | | 6 | |
| **G20-1-60** | **60"x24"** | **ROAD WORK NEXT __ MILES** | **2** | **34** | **68** |
| G20-1b-60 | 60"x24" | WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only) | | 26 | |
| **G20-2-48** | **48"x24"** | **END ROAD WORK** | **2** | **19** | **38** |
| G20-4-36 | 36"x18" | PILOT CAR FOLLOW ME (Mounted to back of pilot car) | | 18 | |
| G20-4b-36 | 36" x30" | WAIT FOR PILOT CAR | | 15 | |
| G20-10-108 | 108"x48" | CONTRACTOR SIGN | | 64 | |
| G20-50a-72 | 72"x36" | ROAD WORK NEXT __ MILES RT & LT ARROWS | | 37 | |
| **G20-52a-72** | **72"x24"** | **ROAD WORK NEXT __ MILES RT or LT ARROW** | **2** | **30** | **60** |
| **G20-55-96** | **96"x48"** | **SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT** | **8** | **59** | **472** |
| M1-1-36 | 36"x36" | INTERSTATE ROUTE MARKER (Post and installation only) | | 10 | |
| M1-4-24 | 24"x24" | U.S. ROUTE MARKER (Post and installation only) | | 10 | |
| M1-5-24 | 24"x24" | STATE ROUTE MARKER (Post and installation only) | | 10 | |
| M1-6-24 | 24" x24" | COUNTY ROUTE MARKER | | 21 | |
| M3-1-24 | 24"x12" | NORTH (Mounted on route marker post) | | 7 | |
| M3-2-24 | 24"x12" | EAST (Mounted on route marker post) | | 7 | |
| M3-3-24 | 24"x12" | SOUTH (Mounted on route marker post) | | 7 | |
| M3-4-24 | 24"x12" | WEST (Mounted on route marker post) | | 7 | |
| M4-8-24 | 24"x12" | DETOUR (Mounted on route marker post) | | 7 | |
| M4-8a-24 | 24" x18" | END DETOUR (Installed on County Route Marker) | | 4 | |
| M4-9-30 | 30"x24" | DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT | | 15 | |
| M4-10-48 | 48"x18" | DETOUR ARROW RIGHT or LEFT | | 23 | |
| M5-1-21 | 21"x15" | ARROW AHD AND RT or LT(Mounted on route marker post) | | 7 | |
| M5-2-21 | 21"x15" | ARROW AHD UP & RT or LT (Mounted on route marker post) | | 7 | |
| M6-1-21 | 21"x15" | ARROW RT or LT (Mounted on route marker post) | | 7 | |
| M6-2-21 | 21"x15" | ARROW UP & RT or LT (Mounted on route marker post) | | 7 | |
| M6-3-21 | 21"x15" | ARROW AHD (Mounted on route marker post) | | 7 | |
| M6-4-21 | 21" x15" | DOUBLE ARROW (Installed on State Route Marker) | | 3 | |
| R1-1-48 | 48"x48" | STOP | | 32 | |
| **R1-1a-18** | **18"x18"** | **STOP and SLOW PADDLE Back to Back** | **8** | **5** | **40** |
| R1-2-60 | 60"x60" | YIELD | | 29 | |
| **R2-1-48** | **48"x60"** | **SPEED LIMIT __** | **15** | **39** | **585** |
| **R2-1a-24** | **24"x18"** | **MINIMUM FEE $80 (Mounted on Speed Limit post)** | **8** | **10** | **80** |
| R3-1-24 | 24" x24" | NO RIGHT TURN ARROW | | 14 | |
| R3-2-24 | 24" x24" | NO LEFT TURN ARROW | | 14 | |
| R3-7-48 | 48"x48" | LEFT or RIGHT LANE MUST TURN LEFT or RIGHT | | 35 | |
| R4-1-48 | 48"x60" | DO NOT PASS | | 39 | |
| R4-7-48 | 48"x60" | KEEP RIGHT SYMBOL | | 39 | |
| R5-1-48 | 48"x48" | DO NOT ENTER | | 35 | |
| R6-1-36 | 36"x12" | ONE WAY RIGHT or LEFT | | 13 | |
| R7-1-12 | 12"x18" | NO PARKING | | 11 | |
| **R10-6-24** | **24"x36"** | **STOP HERE ON RED** | **8** | **16** | **128** |
| R11-2-48 | 48"x30" | ROAD CLOSED | | 28 | |
| R11-2a-48 | 48"x30" | STREET CLOSED | | 28 | |
| R11-3a-60 | 60"x30" | ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY | | 31 | |
| R11-3c-60 | 60"x30" | STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY | | 31 | |
| R11-4-60 | 60" x30" | ROAD CLOSED TO THRU TRAFFIC | | 35 | |
| R11-4a-60 | 60"x30" | STREET CLOSED TO THRU TRAFFIC | | 31 | |
| W1-3-48 | 48"x48" | RIGHT or LEFT SHARP REVERSE CURVE ARROW | | 35 | |
| **W1-4-48** | **48"x48"** | **RIGHT or LEFT REVERSE CURVE ARROW** | **8** | **35** | **280** |
| W1-4b-48 | 48"x48" | DOUBLE RIGHT or LEFT REVERSE CURVE ARROW | | 35 | |
| **W1-6-48** | **48"x24"** | **LARGE ARROW** | **8** | **26** | **208** |
| W3-1-48 | 48"x48" | STOP AHEAD SYMBOL | | 35 | |
| **W3-3-48** | **48"x48"** | **SIGNAL AHEAD SYMBOL** | **8** | **35** | **280** |
| W3-4-48 | 48"x48" | BE PREPARED TO STOP | | 35 | |
| **W3-5-48** | **48"x48"** | **SPEED REDUCTION AHEAD** | **8** | **35** | **280** |
| W4-2-48 | 48"x48" | RIGHT or LEFT LANE TRANSITION SYMBOL | | 35 | |
| W5-1-48 | 48"x48" | ROAD NARROWS | | 35 | |
| W5-8-48 | 48"x48" | THRU TRAFFIC RIGHT LANE | | 35 | |
| W5-9-48 | 48"x48" | ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW | | 35 | |
| W6-3-48 | 48"x48" | TWO WAY TRAFFIC SYMBOL | | 35 | |
| W8-1-48 | 48"x48" | BUMP | | 35 | |
| W8-3-48 | 48"x48" | PAVEMENT ENDS | | 35 | |
| W8-7-48 | 48"x48" | LOOSE GRAVEL | | 35 | |
| W8-9a-48 | 48"x48" | SHOULDER DROP-OFF | | 35 | |
| W8-11-48 | 48"x48" | UNEVEN LANES | | 35 | |
| W8-12-48 | 48"x48" | NO CENTER STRIPE | | 35 | |
| W8-53-48 | 48"x48" | TRUCKS ENTERING HIGHWAY | | 35 | |
| W8-54-48 | 48"x48" | TRUCKS ENTERING AHEAD or __ FT. | | 35 | |
| W8-55-48 | 48"x48" | TRUCKS CROSSING AHEAD or __ FT. | | 35 | |
| W8-56-48 | 48"x48" | TRUCKS EXITING HIGHWAY | | 35 | |
| W9-3a-48 | 48"x48" | CENTER LANE CLOSED SYMBOL | | 35 | |
| W12-2-48 | 48"x48" | LOW CLEARANCE SYMBOL | | 35 | |
| W13-1-24 | 24"x24" | __ MPH ADVISORY SPEED PLATE (Mounted on warning sign post) | | 11 | |
| W13-4-48 | 48"x60" | RAMP ARROW | | 39 | |
| W14-3-48 | 48"x36" | NO PASSING ZONE | | 23 | |
| **W20-1-48** | **48"x48"** | **ROAD WORK AHEAD or _FT or _ MILE** | **1** | **35** | **35** |
| W20-2-48 | 48"x48" | DETOUR AHEAD or __ FT | | 35 | |
| W20-3-48 | 48"x48" | ROAD or STREET CLOSED AHEAD or __ FT. | | 35 | |
| **W20-4-48** | **48"x48"** | **ONE LANE ROAD AHEAD or __ FT.** | **8** | **35** | **280** |
| W20-5-48 | 48"x48" | RIGHT or LEFT LANE CLOSED AHEAD or __ FT. | | 35 | |
| **W20-7a-48** | **48"x48"** | **FLAGGING SYMBOL** | **8** | **35** | **280** |

| SIGN NUMBER | SIGN SIZE | DESCRIPTION | AMOUNT REQUIRED | UNITS PER AMOUNT | UNITS SUB TOTAL |
|---|---|---|---|---|---|
| **W20-7k-24** | **24"x18"** | **__ FEET (Mounted on warning sign post)** | **8** | **10** | **80** |
| W20-8-48 | 48"x48" | STREET CLOSED | | 35 | |
| W20-51-48 | 48"x48" | EQUIPMENT WORKING | | 35 | |
| W20-52-54 | 54"x12" | NEXT __ MILES (Mounted on warning sign post) | | 12 | |
| W21-1a-48 | 48"x48" | WORKERS SYMBOL | | 35 | |
| W21-2-48 | 48"x48" | FRESH OIL | | 35 | |
| W21-3-48 | 48"x48" | ROAD MACHINERY AHEAD or __ FT | | 35 | |
| W21-5-48 | 48"x48" | SHOULDER WORK | | 35 | |
| W21-5a-48 | 48"x48" | RIGHT or LEFT SHOULDER CLOSED | | 35 | |
| W21-5b-48 | 48"x48" | RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT. | | 35 | |
| W21-6a-48 | 48"x48" | SURVEY CREW AHEAD | | 35 | |
| W21-50-48 | 48"x48" | BRIDGE PAINTING AHEAD or __ FT. | | 35 | |
| W21-51-48 | 48"x48" | MATERIAL ON ROADWAY | | 35 | |
| W22-8-48 | 48"x48" | FRESH OIL LOOSE ROCK | | 35 | |
| | 24"x24" | TAKE TURNS (6" D letters) (Mounted on stop sign post) | | 11 | |

**SPECIAL SIGNS**

**SPEC & CODE**

| | | | |
|---|---|---|---|
| **704-1000** | **TRAFFIC CONTROL SIGNS** | **TOTAL UNITS** | **3194** |

| SPEC & CODE | DESCRIPTION | UNIT | QUANTITY |
|---|---|---|---|
| **704-0100** | **FLAGGING** | **MHR** | **40** |
| **704-1018** | **LANE CLOSURE-SIGNAL CONTROL/FLAGGING CONTROL** | **EACH** | **4** |
| 704-1041 | ATTENUATION DEVICE-TYPE B-55 | EACH | |
| 704-1043 | ATTENUATION DEVICE-TYPE B-65 | EACH | |
| 704-1044 | ATTENUATION DEVICE-TYPE B-70 | EACH | |
| 704-1050 | TYPE I BARRICADES | EACH | |
| 704-1051 | TYPE II BARRICADES | EACH | |
| **704-1052** | **TYPE III BARRICADES** | **EACH** | **12** |
| **704-1060** | **DELINEATOR DRUMS** | **EACH** | **20** |
| 704-1065 | TRAFFIC CONES | EACH | |
| **704-1067** | **TUBULAR MARKERS** | **EACH** | **130** |
| 704-1070 | DELINEATOR | EACH | |
| 704-1072 | FLEXIBLE DELINEATORS | EACH | |
| 704-1080 | STACKABLE VERTICAL PANELS | EACH | |
| 704-1081 | VERTICAL PANELS - BACK TO BACK | EACH | |
| 704-1085 | SEQUENCING ARROW PANEL - TYPE A | EACH | |
| 704-1086 | SEQUENCING ARROW PANEL - TYPE B | EACH | |
| 704-1087 | SEQUENCING ARROW PANEL - TYPE C | EACH | |
| 704-1088 | SEQUENCING ARROW PANEL - TYPE C - CROSSOVER | EACH | |
| 704-1095 | TYPE B FLASHERS | EACH | |
| **704-1500** | **OBLITERATION OF PVMT MK** | **SF** | **477** |
| 704-3501 | PORTABLE PRECAST CONCRETE MED BARRIER | LF | |
| 704-3510 | PRECAST CONCRETE MED BARRIER - STATE FURNISHED | EACH | |
| 762-0200 | RAISED PAVEMENT MARKERS | EACH | |
| 762-0420 | SHORT TERM 4IN LINE - TYPE R | LF | |
| **762-0430** | **SHORT TERM 4IN LINE - TYPE NR** | **LF** | **4572** |
| 772-2110 | FLASHING BEACON - POST MOUNTED | EACH | |

NOTE:
If additional signs are required, units will be calculated using the formula from Section III-19.06 of the Design Manual.
http://www.dot.nd.gov/

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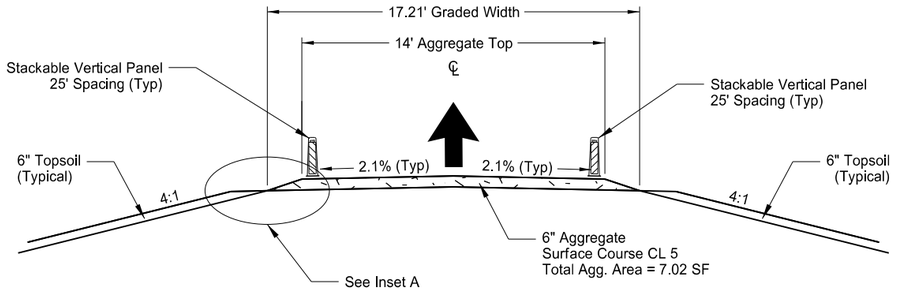
Traffic Control Devices List

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 100 | 3 |




Proposed Temporary Bypass Typical Section
Sta 4000+00 to Sta 4007+72.53 (PRBP131)
Sta 5000+00 to Sta 5007+89.86 (PRBP132)
Sta 6000+00 to Sta 6007+92.84 (PRBP134)
Sta 7000+00 to Sta 7008+59.15 (PRBP136)

Temporary Bypass Earthwork Summary

| | EMBANKMENT (CY) | COMMON EXCAVATION (CY) | BORROW - EXCAVATION (CY) |
|---|---|---|---|
| LOCATION | A | B | C = A - B |
| Temporary Bypass 131 | 2187 | 0 | 2187 |
| Temporary Bypass 132 | 1372 | 210 | 1162 |
| Temporary Bypass 134 | 829 | 259 | 570 |
| Temporary Bypass 136 | 6960 | 0 | 6960 |
| TOTAL | 11348 | 469 | 10879 |

Temporary Bypass Topsoil Summary

| LOCATION | TOPSOIL EMBANKMENT (CY) | TOPSOIL EXCAVATION (CY) |
|---|---|---|
| Temporary Bypass 131 | 250 | 0 |
| Temporary Bypass 132 | 274 | 0 |
| Temporary Bypass 134 | 320 | 0 |
| Temporary Bypass 136 | 519 | 0 |
| TOTAL | 1363 | 0 |

1. All device spacing follows MUTCD 2009 Edition.
2. If Flaggers are present use Standard Drawing D-704-19 for construction signing layout.
3. Space traffic control devices at 25' spacing.
4. Contractor to maintain all drainage.

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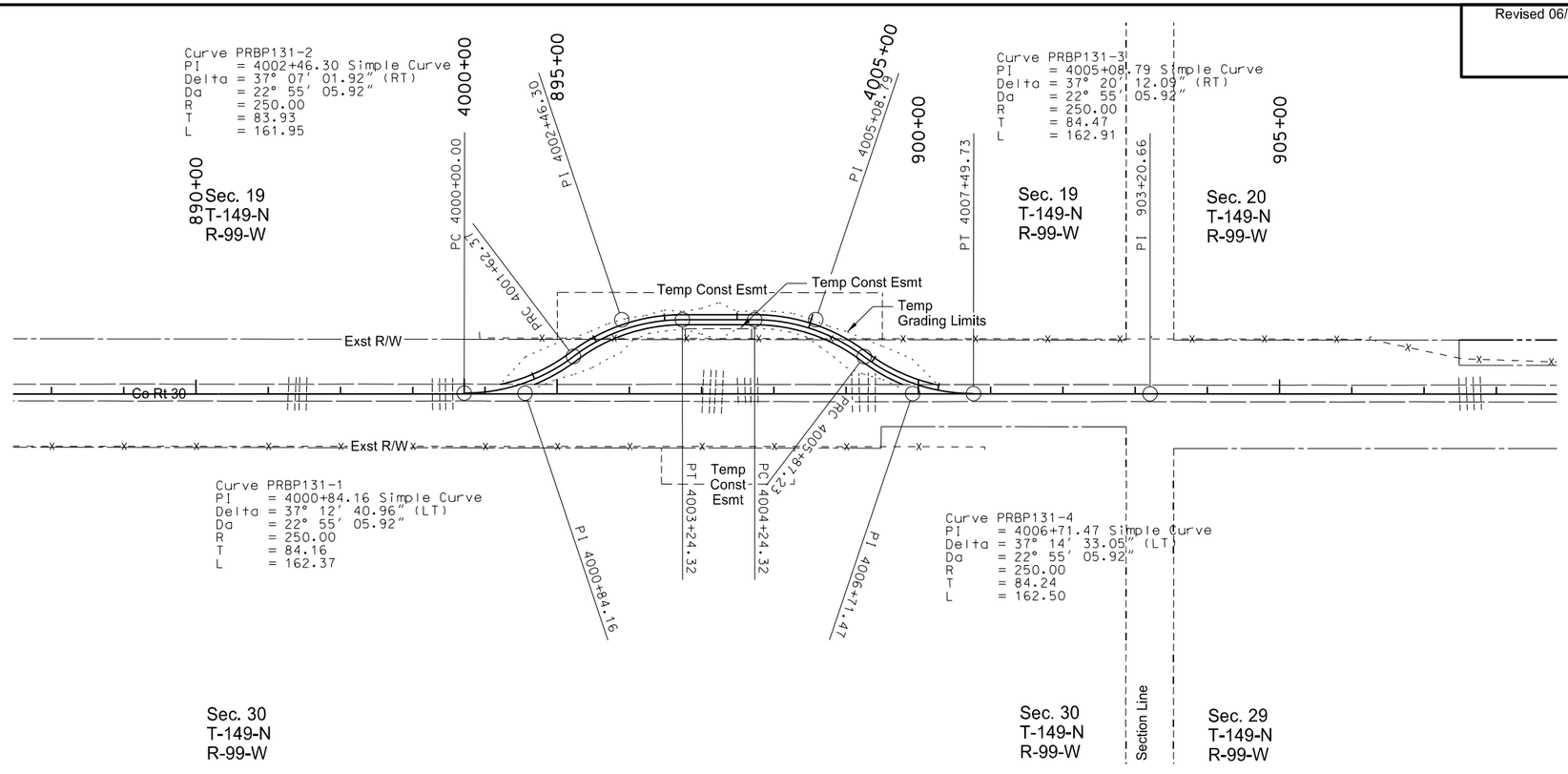
COUNTY RT 30
*MCKENZIE COUNTY, NORTH DAKOTA*

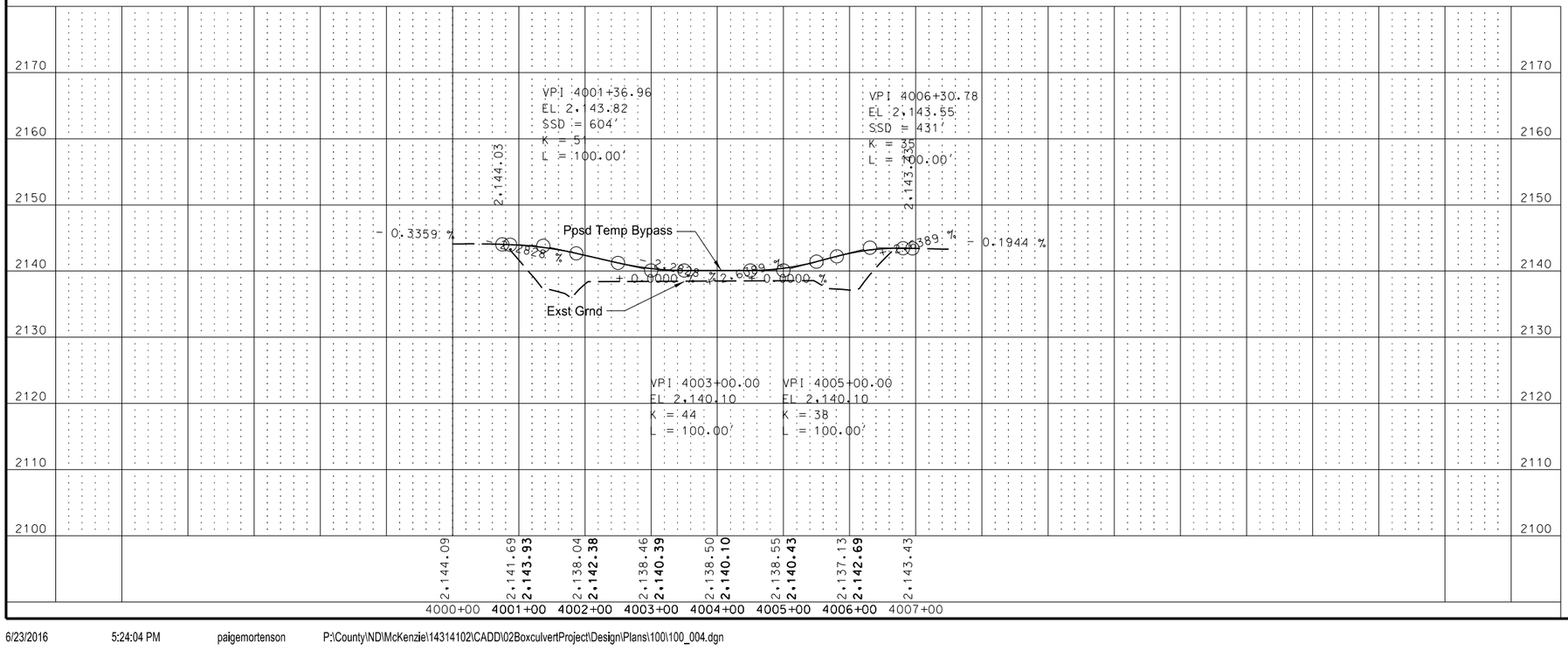
KLJ

TRAFFIC CONTROL TYPICAL SECTION

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 100 | 4 |



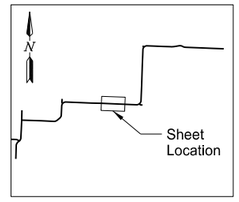




202 0350 REMOVAL OF TEMPORARY BYPASS

| | | |
|---|---|---|
| Temporary Bypass 131 | 1 | EA |

302 0050 TRAFFIC SERVICE AGGREGATE

| | | |
|---|---|---|
| Temporary Bypass 131 | 557 | TON |





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COUNTY RT 30
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-131-30.0

KLJ

PLAN & PROFILE
TEMPORARY BYPASS 131
Sta 4000+00 to 4007+49.73
(PRBP131)

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 100 | 5 |

Curve PRBP132-2
PI = 5002+45.93 Simple Curve
Delta = 37° 07' 25.66" (RT)
Da = 22° 55' 05.92"
R = 250.00
T = 83.95
L = 161.98

Curve PRBP132-3
PI = 5005+07.92 Simple Curve
Delta = 37° 07' 25.66" (RT)
Da = 22° 55' 05.92"
R = 250.00
T = 83.95
L = 161.98

Sec. 17
T-149-N
R-99-W

5000+00
1020+00
1025+00
5005+00
1030+00
1035+00

PC 5000+00.00
PI 5002+45.93
PI 5005+07.92
PT 5007+47.93
PRC 5001+61.98
PRC 5005+85.95
PI 5000+83.95
PI 5003+23.97
PC 5004+23.97
PI 5006+69.90

Temp Const Esmt
Temp Grading Limits
Exst R/W
Co Rt 30
Temp Const Esmt
Exst R/W
Temp Const Esmt

Curve PRBP132-1
PI = 5000+83.95 Simple Curve
Delta = 37° 07' 25.66" (LT)
Da = 22° 55' 05.92"
R = 250.00
T = 83.95
L = 161.98

Curve PRBP132-4
PI = 5006+69.90 Simple Curve
Delta = 37° 07' 25.66" (LT)
Da = 22° 55' 05.92"
R = 250.00
T = 83.95
L = 161.98

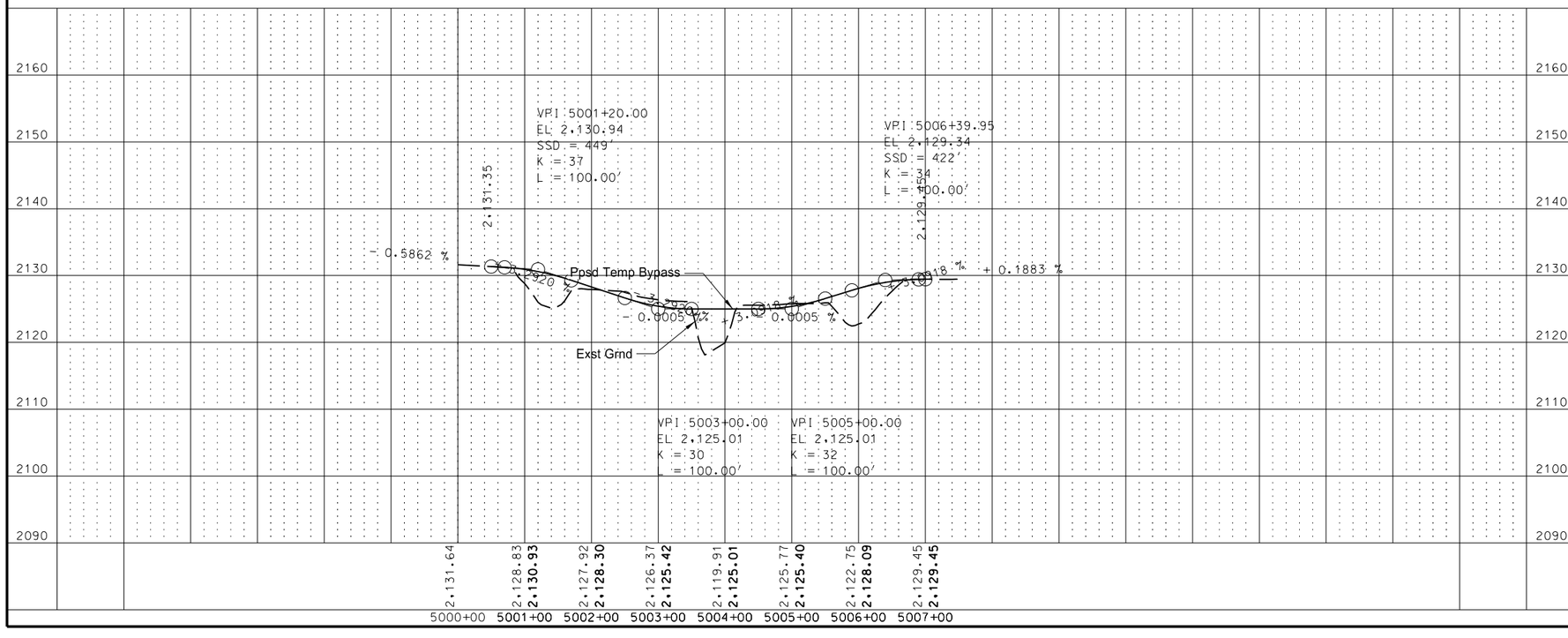
Sec. 16
T-149-N
R-99-W

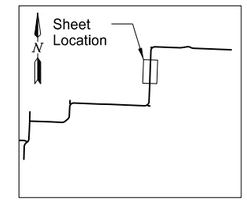
202 0350 REMOVAL OF TEMPORARY BYPASS

| | | |
|---|---|---|
| Temporary Bypass 132 | 1 | EA |

302 0050 TRAFFIC SERVICE AGGREGATE

| | | |
|---|---|---|
| Temporary Bypass 132 | 562 | TON |

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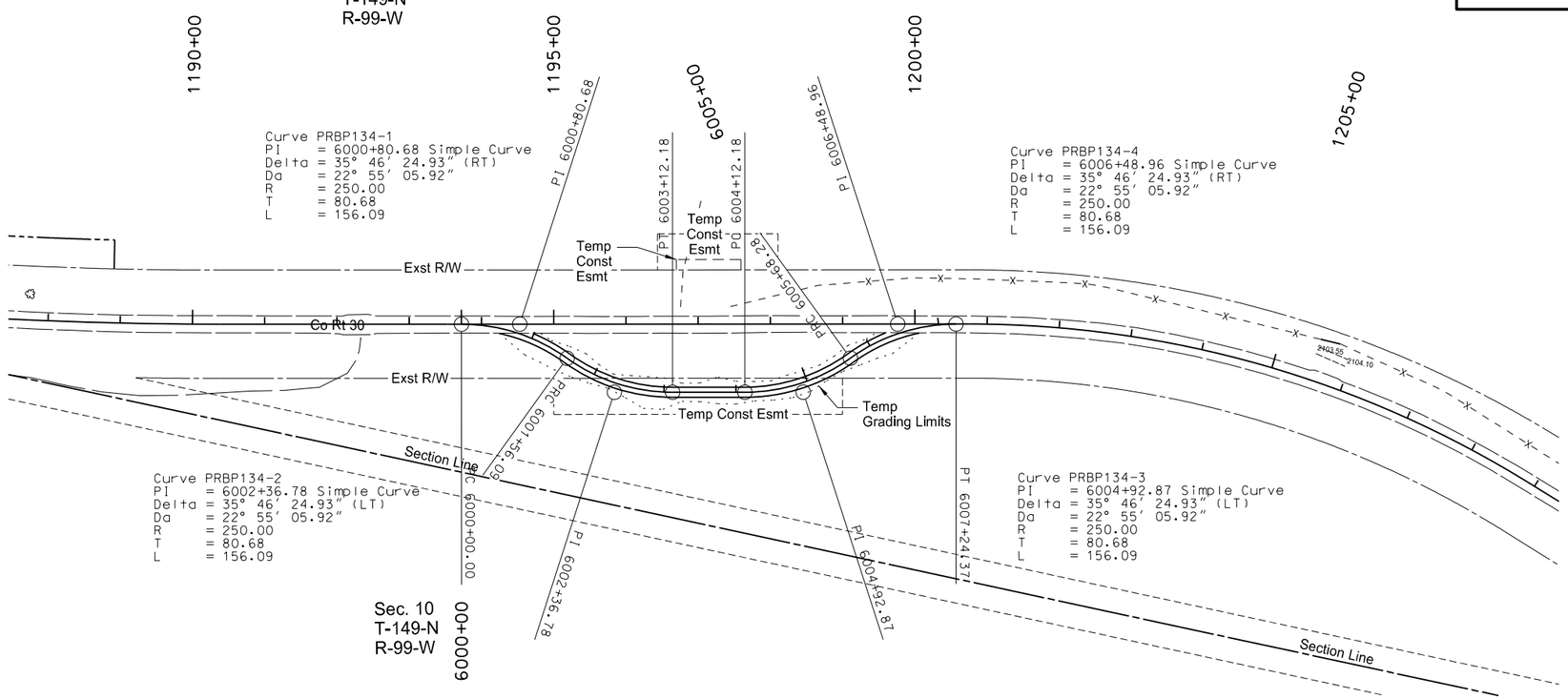
COUNTY RT 30
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-132-29.1

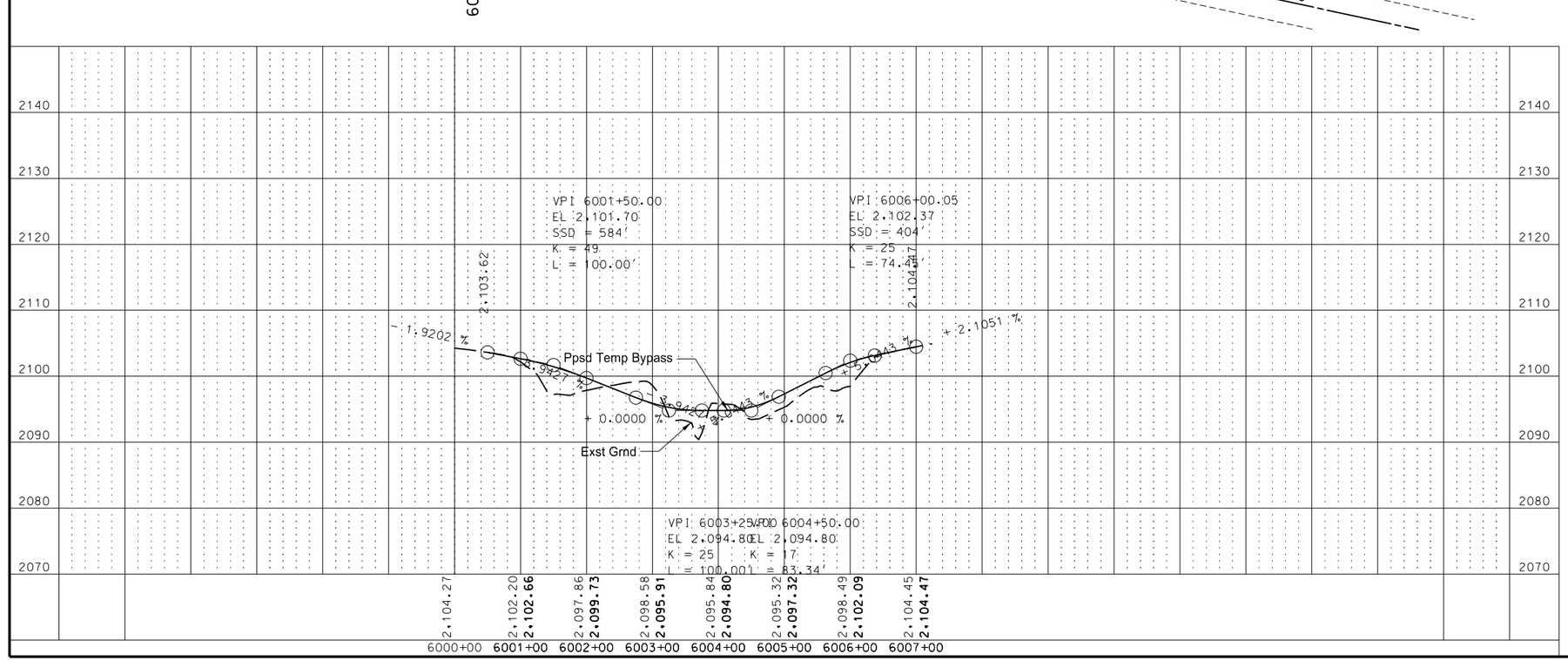
PLAN & PROFILE
TEMPORARY BYPASS 132
Sta 5000+00 to 5007+47.93
(PRBP132)

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

6/23/2016 5:24:05 PM paigemortenson P:\County\ND\McKenzie\14314102\CADD\02BoxculvertProject\Design\Plans\100\100_005.dgn

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 100 | 6 |



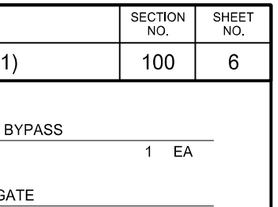




202 0350 REMOVAL OF TEMPORARY BYPASS

| | | |
|---|---|---|
| Temporary Bypass 134 | 1 | EA |

302 0050 TRAFFIC SERVICE AGGREGATE

| | | |
|---|---|---|
| Temporary Bypass 134 | 530 | TON |





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**COUNTY RT 30**

*MCKENZIE COUNTY, NORTH DAKOTA*

STRUCTURE #27-134-27.0

KLJ

**PLAN & PROFILE TEMPORARY BYPASS 134 Sta 6000+00 to 6007+24.37 (PRBP134)**

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 100 | 7 |

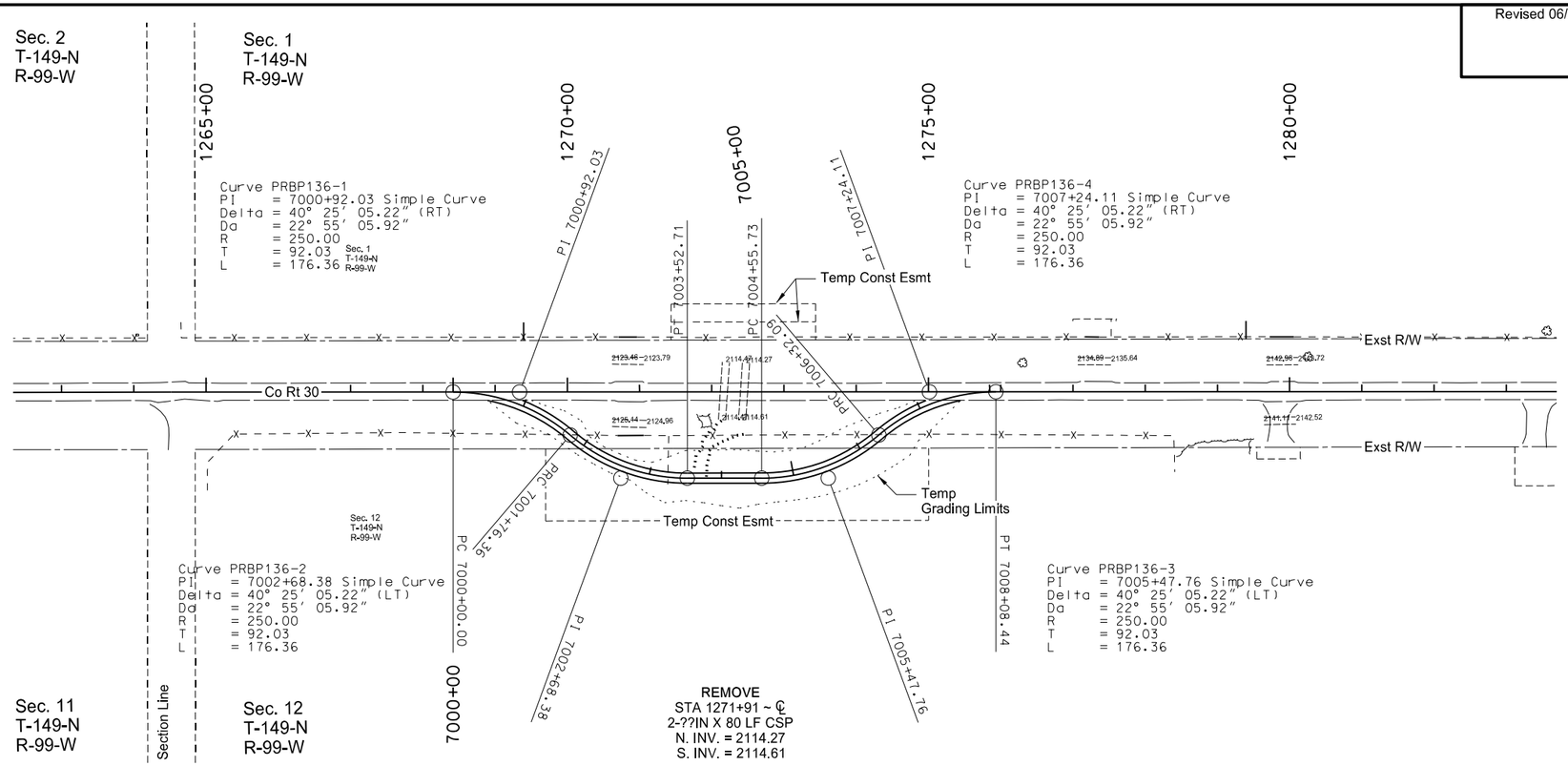
Sec. 2
T-149-N
R-99-W

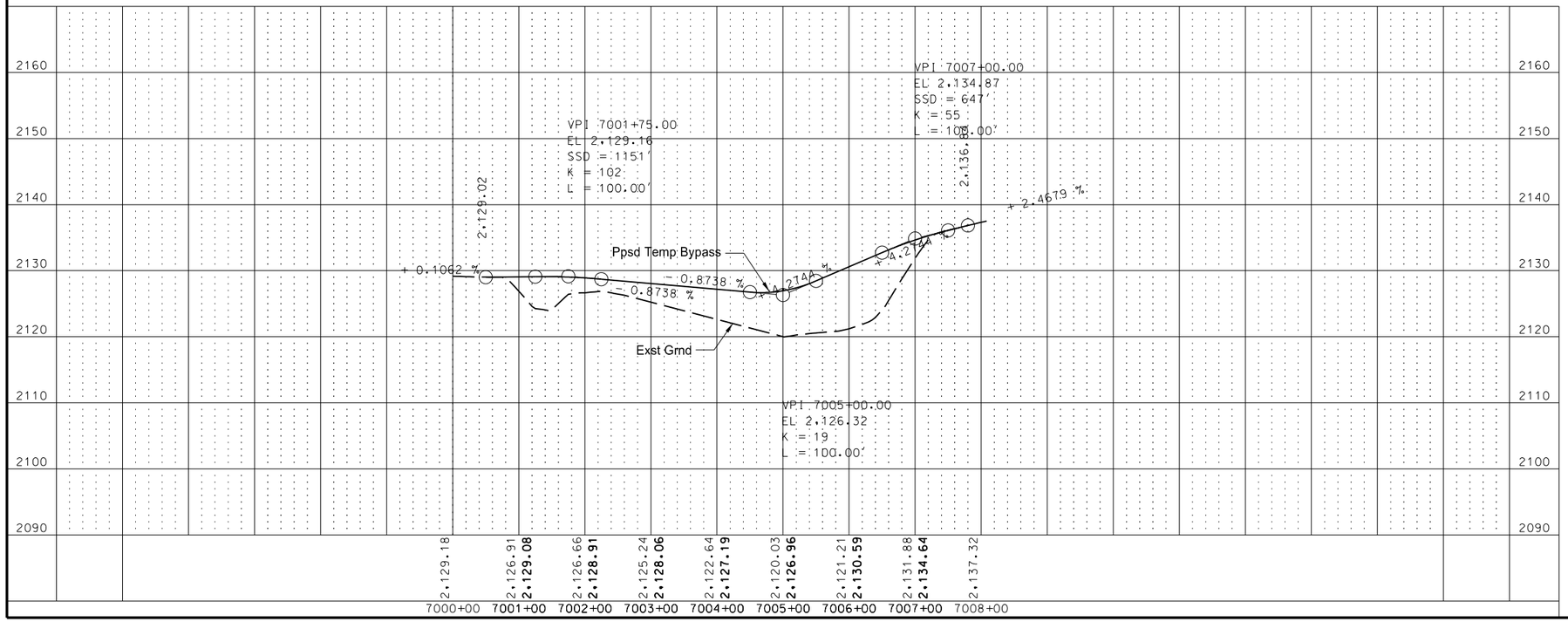
Sec. 1
T-149-N
R-99-W

Sec. 11
T-149-N
R-99-W

Sec. 12
T-149-N
R-99-W

Section Line



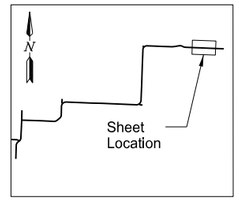



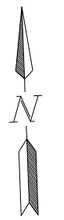

202 0350 REMOVAL OF TEMPORARY BYPASS

| | | |
|---|---|---|
| Temporary Bypass 136 | 1 | EA |

302 0050 TRAFFIC SERVICE AGGREGATE

| | | |
|---|---|---|
| Temporary Bypass 136 | 615 | TON |

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COUNTY RT 30
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-136-27.0

KLJ

PLAN & PROFILE
TEMPORARY BYPASS 136
Sta 7000+00 to 7008+08.44
(PRBP136)

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

| Revised 06/23/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 120 | 1 |

| Pavement Markings Summary | | | | | | |
|---|---|---|---|---|---|---|
| Station | to | Station | Description | PVMT MK PAINTED 4IN LINE | | |
| | | | | White Edge Line | Yellow CL Skips (10' Line, 30' Skip) | Double Yellow Barrier Line |
| 895+50 | to | 898+75 | Box Culvert 1 | 842 | 105 | - |
| 1025+25 | to | 1028+50 | Box Culvert 2 | 650 | - | 850 |
| 1195+65 | to | 1198+65 | Box Culvert 3 | 600 | - | 792 |
| 1270+60 | to | 1273+75 | Box Culvert 4 | 630 | 103 | - |
| SUMMARY | | | | 2,722 | 208 | 1,642 |

| GRAND TOTALS | | | | |
|---|---|---|---|---|
| SPEC | CODE | DESCRIPTION | TOTAL | UNIT |
| 762 | 1104 | PVMT MK PAINTED 4IN LINE | 4,572 | LF |

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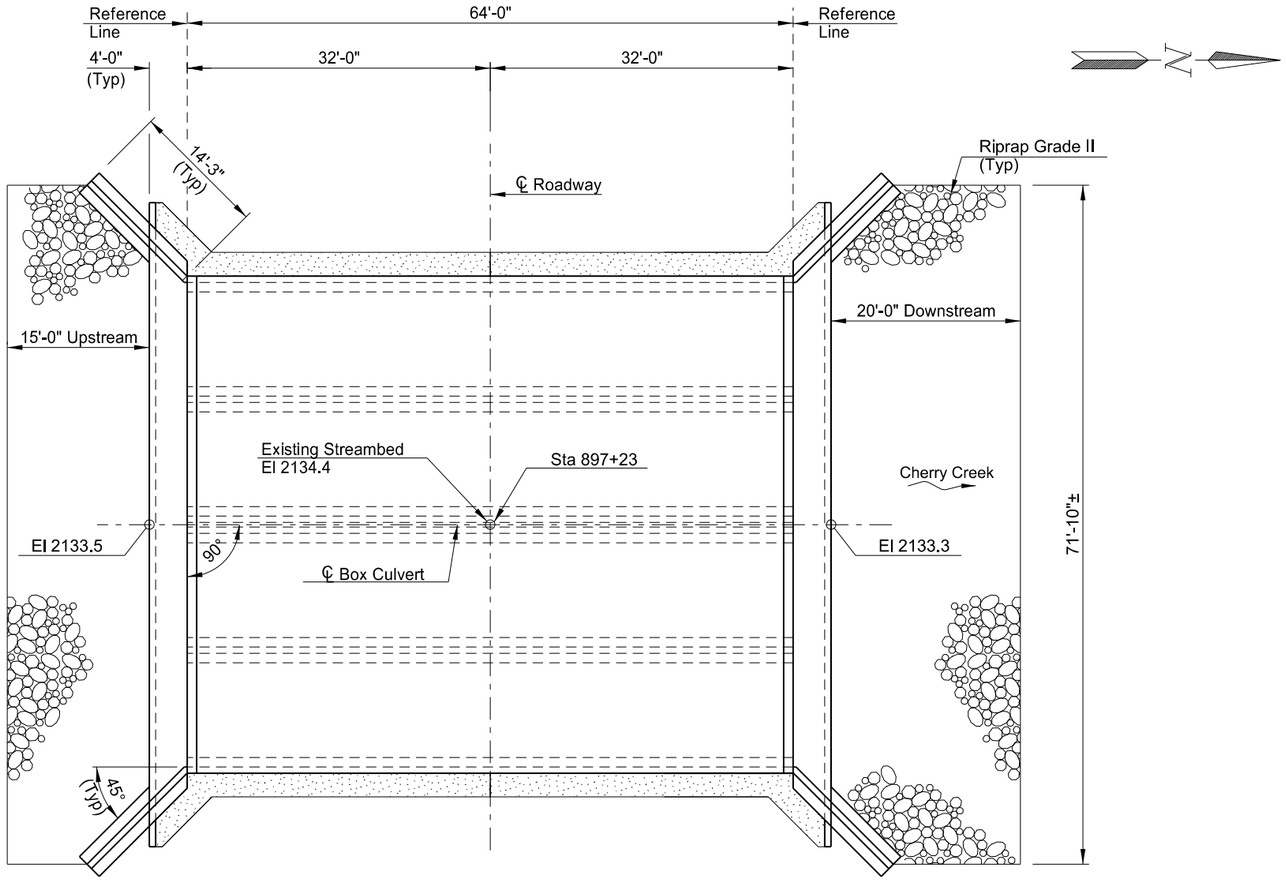
COUNTY RT 30

*MCKENZIE COUNTY, NORTH DAKOTA*

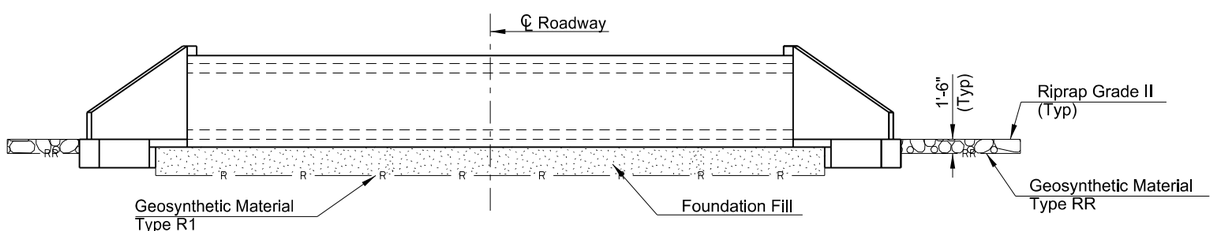
PAVEMENT MARKINGS

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| JM | JK | 14314102 |

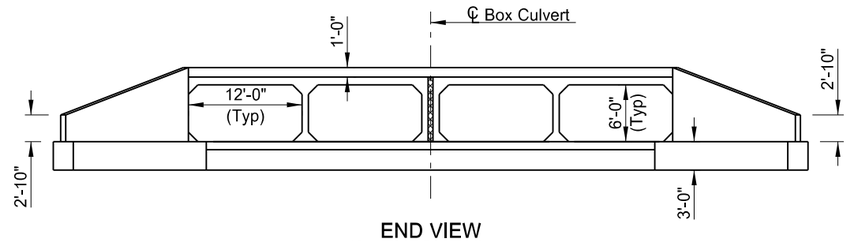
| Revised 06/06/16 | STATE | PROJECT NUMBER | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 170 | 1 |



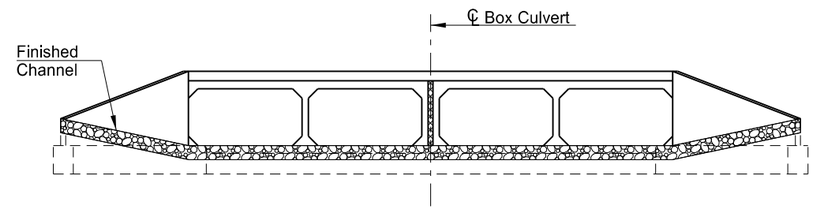

PLAN




ELEVATION




END VIEW
(Showing Dimensions)




END VIEW
(Showing Finished Section)

## HYDRAULIC DATA:

| | | |
|---|---|---|
| Drainage Area | 54.9 | sq mi |
| Stream Gradient | 0.0022 | ft/ft |
| Design Frequency | 25 | yr |
| Design Discharge | 1,913 | cfs |
| Design Headwater Stage | 2,141.0 | ft |
| Design Tailwater Stage | 2,138.3 | ft |
| Velocity Through Culvert | 10.0 | fps |
| 100-Year Frequency Discharge | 3,241 | cfs |
| 100-Year Frequency Headwater | 2,143.3 | ft |
| Overtopping Stage | 2,143.9 | ft |
| Overtopping Discharge | 3,900 | cfs |

For a double barrel box culvert with 9" thick roof, 9" floor, and 8" walls, the following total factored moments and shears would result from the application of the required loads:

| FACTORED DESIGN MOMENTS (DOUBLE) | | FACTORED DESIGN SHEARS (DOUBLE) | |
|---|---|---|---|
| WALL MOMENT | 187 ft-lbs | WALL SHEAR | 1,795 lbs |
| ROOF MOMENTS | | ROOF SHEARS | |
| CORNER | -13,432 ft-lbs | CORNER | 7,822 lbs |
| BOTTOM | 25,199 ft-lbs | WALL | 10,918 lbs |
| TOP | | FLOOR SHEARS | |
| FLOOR MOMENTS | -32,604 ft-lbs | CORNER | 9,914 lbs |
| CORNER | -12,716 ft-lbs | WALL | 13,293 lbs |
| TOP | 18,306 ft-lbs | | |
| BOTTOM | -34,117 ft-lbs | | |

## STRUCTURAL QUANTITIES ONLY

| SPEC | CODE | ITEM DESCRIPTION | UNIT | QUANTITY |
|---|---|---|---|---|
| 202 | 0108 | REMOVAL OF STRUCTURE - SITE 1 | L SUM | 1 |
| 210 | 0051 | BOX CULVERT EXCAVATION - SITE 1 | EA | 1 |
| 210 | 0202 | FOUNDATION PREPARATION - SITE 1 | L SUM | 1 |
| 210 | 0210 | FOUNDATION FILL | CY | 588 |
| 256 | 0200 | RIPRAP GRADE II | CY | 136 |
| 606 | 3206 | DBL 12FT X 6FT PRECAST RCB CULVERT | LF | 128 |
| 606 | 7206 | DBL 12FT X 6FT PRECAST RCB END SECTION | EA | 2 |
| 709 | 0151 | GEOSYNTHETIC MATERIAL TYPE R1 | SY | 612 |
| 709 | 0155 | GEOSYNTHETIC MATERIAL TYPE RR | SY | 271 |

**NOTE:**
The invert elevations shown represent an elevation 1 foot below the existing streambed.

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SC-2730(061)
*McKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-131-30.0

PRECAST BOX CULVERT LAYOUT

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| DMW | CLT | 14314102 |

| Revised 06/06/16 | STATE | PROJECT NUMBER | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 170 | 2 |

# STRUCTURAL NOTES

**100-P01** **SCOPE OF WORK:** Work at this site consists of removing the existing structures, four-60"ø corrugated steel pipes and replacing them with a quadruple barrel 12' x 6' x 64' precast concrete box culvert.

**202-P01** **REMOVAL OF STRUCTURE:** The existing structures are four 60" ø corrugated steel pipes. The two west pipes have a length of 62', and the two east pipes have a length of 38'. Refer to Section 6, sheet 2 and SP-4(14) for allowable removal dates for the structures.

The lump sum bid item "REMOVAL OF STRUCTURE - SITE 1" includes all work required to remove all drainage pipe components and any hazard markers at the location in accordance with the Standard Specifications. All removed materials are the property of the contractor and are to be disposed of properly off the right-of-way.

**210-P01** **BOX CULVERT EXCAVATION:** The unit price bid for "BOX CULVERT EXCAVATION - SITE 1" includes all excavation required to build the box culvert. Perform Box Culvert Excavation according to Section 210 of the Strandard Specifications. The unit price bid for "BOX CULVERT EXCAVATION - SITE 1" includes all labor and materials required to place the ordinary backfill within the limits shown on Section 170, Sheet 3.

The suitability of material from on-site excavations for use as ordinary backfill will be determined by the engineer. Embankment constructed from channel excavated material will not be measured for separate payment but will be included in the price bid for "BOX CULVERT EXCAVATION - SITE 1". Channel excavated material that is deemed not suitable for ordinary backfill will become property of the contractor and disposed of ouside of the road right-of-way, not adjacent to the construction site, and at a site approved by the engineer. The unit price bid for "BOX CULVERT EXCAVATION - SITE 1" includes all costs associated with excavation, hauling, depositing and leveling the waste material.

**210-P02** **FOUNDATION PREPARATION:** Be aware of the possible inundated conditions at this site before the bid opening. The cost of any cofferdams and dewatering the excavation is included in the bid for "FOUNDATION PREPARATION - SITE 1".

**210-P03** **FOUNDATION FILL:** Use CL 5 as specified in Section 816, "Aggregates". Place foundation fill in layers of not more than six inches, moisten or dry as required, and thoroughly compact with mechanical tamping equipment.

When additional Foundation Fill is placed under the box, payment will be determined by computation using plan dimensions and adding 25% for shrinkage.

**256-P01** **RIPRAP GRADE II**: Do not use broken concrete as riprap.

**606-P01** **PRECAST REINFORCED CONCRETE BOX CULVERT AND END SECTIONS:** Tie all barrel sections together with prestressing strands or 1"Ø tie bolts as shown on Standard Drawing D-714-22. If strands are used, use a minimum of six ½"Ø strands through each joint placed at each outside corner and center wall on the double cell. Protect prestressing cables against corrosion and grout their ends. If tie bolts are used, the joints will require two ties per exterior wall located at the third points of the wall clear height.

The "DBL 12FT X 6FT PRECAST RCB END SECTION" bid item consists of the apron, cutoff wall, parapet, and wingwalls. Attach the apron to the last barrel sections, the wingwalls, and the cutoff wall. Attach the wingwalls to the last barrel section. Use a welded tie type system to connect the apron to the box and the wingwalls unless otherwise approved by the Engineer. Connect the wingwalls to the last barrel section by the use of tie bolts, steel-bolted plates, or another approved method so the inside corner surface is smooth. After backfilling, wingwall sections are to be in line. If the wingwall sections are not in line or not installed to the angles shown in the plans, remove and reset the wingwalls to be in proper alignment.

All bolts, plates, angles, and studs are to meet ASTM A36. Nuts are to be a heavy hex in conformance with ASTM A563 and washers shall be ASTM F436, Type 1. Welded pipe sleeves are to conform to ASTM A53, Grade B. Welders are required to be properly certified for all shop and field welds. Coat all field welds with galvanizing paint. Galvanize all hardware according to AASHTO M 232. Galvanize structural steel after fabrication according to AASHTO M 111.

Install five ¾"Ø threaded inserts and steel eye bolts (20 total) along top and end faces of each wingwall to provide anchorage for fencing. A 3"x3"x⅜" hot dipped galvanized angle, as shown in Section 170 sheet 3 of the plans, is to also be included at each wingwall. Anchorage locations and specifications are to be shown on the shop drawings for approval by the Engineer. All costs associated with the threaded inserts, steel eye bolts, and galvanized angles are to be included in the price bid for "DBL 12FT X 6FT PRECAST RCB END SECTION."

Cast holes at 3'-0" centers through the apron and into the cutoff wall to receive ¾"Ø reinforcing bars. Cast holes in the last barrel section at 1'-0" centers for½"Ø reinforcing bars to attach the parapet. Cast the parapet against the section. Install the bars according to the manufacturer's recommendation, with a high strength adhesive specifically intended for concrete anchorage, in accordance with Section 806.02 of the NDDOT Standard Specifications.

The distance between separate precast units is to be a minimum of 3" and a maximum of 1'-0". Fill this gap with controlled density backfill. The controlled density backfill is to be a blend of cement, water, pozzolanic materials, and fillers. The material must be able to support normal loads after 6 hours and have a compressive strength in the range of 75 psi to 125 psi at 28 days. If the mix design shown is used, no further testing will be required. The mix design yields approximately one cubic yard of flowable mortar.

MIX DESIGN

| | |
|---|---|
| Cement | 100 lbs |
| Fly Ash | 300 lbs |
| Fine Aggregate | 2600 lbs |
| Water | 70 gals |

The 12" cap consists of a weatherproof and freeze/thaw resistant material such as Sikagrout©212, BASF Masterflow©928, Euclid NS Grout, or an approved equal which complies with ASTM C1107.

Controlled density backfill will not be measured separately but is included in the price bid for "DBL 12FT X 6FT PRECAST RCB CULVERT".

**DESIGN LOADS:**

A. HL-93 Loading
B. Maximum Fill Height = 5'

**WORK DRAWINGS:** Submit the following work drawings to the Engineer of Record:

PRECAST RCB CULVERT

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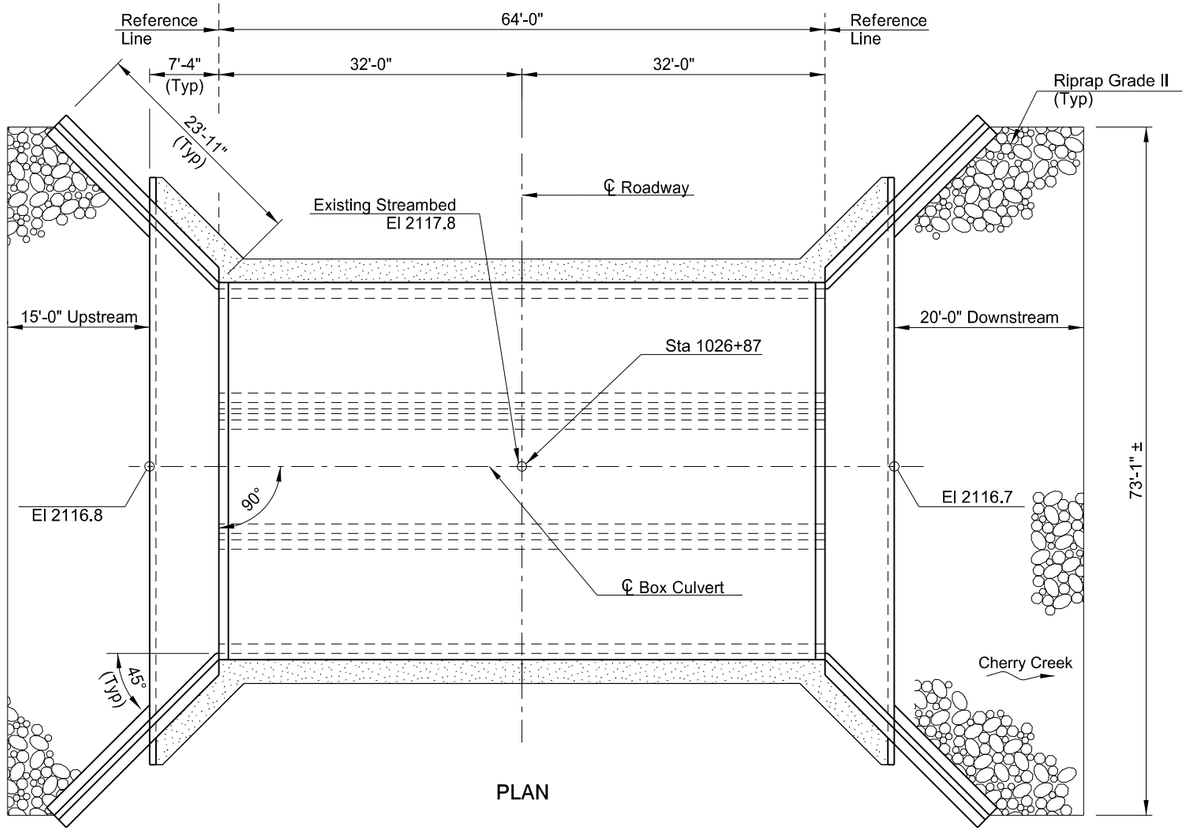
**SC-2730(061)**
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-131-30.0

KLJ

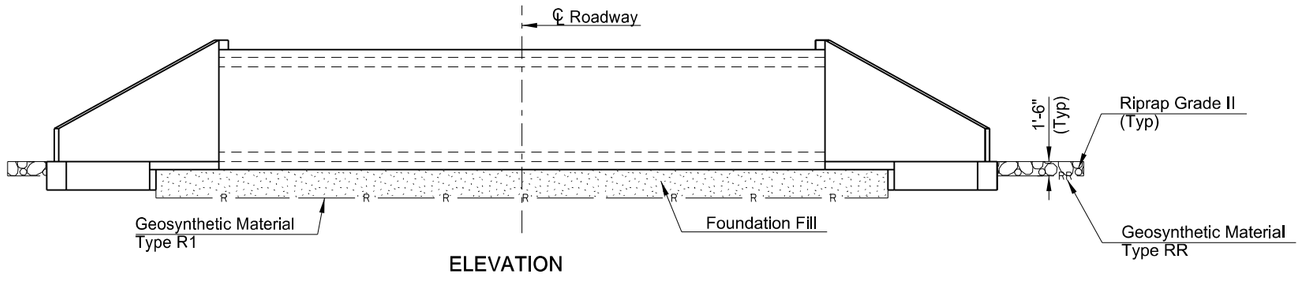
**STRUCTURAL NOTES**

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| DMW | CLT | 14314102 |

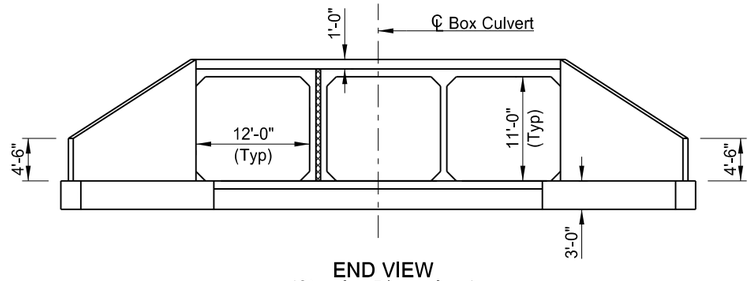
| Revised 06/06/16 | STATE | PROJECT NUMBER | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 170 | 4 |



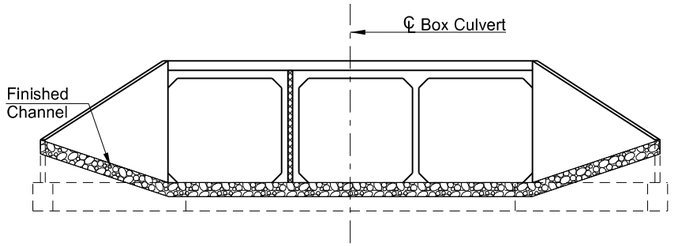

PLAN




ELEVATION




END VIEW
(Showing Dimensions)




END VIEW
(Showing Finished Section)

STRUCTURAL QUANTITIES ONLY

| SPEC | CODE | ITEM DESCRIPTION | UNIT | QUANTITY |
|---|---|---|---|---|
| 202 | 0109 | REMOVAL OF STRUCTURE - SITE 2 | L SUM | 1 |
| 210 | 0052 | BOX CULVERT EXCAVATION - SITE 2 | EA | 1 |
| 210 | 0203 | FOUNDATION PREPARATION - SITE 2 | L SUM | 1 |
| 210 | 0210 | FOUNDATION FILL | CY | 571 |
| 256 | 0200 | RIPRAP GRADE II | CY | 132 |
| 606 | 1211 | 12FT X 11FT PRECAST RCB CULVERT | LF | 64 |
| 606 | 3211 | DBL 12FT X 11FT PRECAST RCB CULVERT | LF | 64 |
| 606 | 7211 | DBL 12FT X 11FT PRECAST RCB END SECTION | EA | 2 |
| 709 | 0151 | GEOSYNTHETIC MATERIAL TYPE R1 | SY | 524 |
| 709 | 0155 | GEOSYNTHETIC MATERIAL TYPE RR | SY | 264 |

## HYDRAULIC DATA:

| | | |
|---|---|---|
| Drainage Area | 81.3 | sq mi |
| Stream Gradient | 0.0017 | ft/ft |
| Design Frequency | 25 | yr |
| Design Discharge | 2,372 | cfs |
| Design Headwater Stage | 2,128.1 | ft |
| Design Tailwater Stage | 2,127.0 | ft |
| Velocity Through Culvert | 7.0 | fps |
| 100-Year Frequency Discharge | 4,041 | cfs |
| 100-Year Frequency Headwater | 2,131.0 | ft |
| Overtopping Stage | 2,131.2 | ft |
| Overtopping Discharge | 4,066 | cfs |

For a single barrel box culvert with 9" thick roof, 9" floor, and 9" walls, the following total factored moments and shears would result from the application of the required loads:

| FACTORED DESIGN MOMENTS (SINGLE) | |
|---|---|
| WALL MOMENT | 1,762 ft-lbs |
| ROOF MOMENTS | |
| CORNER | -15,993 ft-lbs |
| BOTTOM | 28,433 ft-lbs |
| FLOOR MOMENTS | |
| CORNER | -19,059 ft-lbs |
| TOP | 25,390 ft-lbs |

| FACTORED DESIGN SHEARS (SINGLE) | |
|---|---|
| WALL SHEAR | 4,527 lbs |
| ROOF SHEARS | |
| CORNER | 9,370 lbs |
| FLOOR SHEARS | |
| CORNER | 12,535 lbs |

For a double barrel box culvert with 9" thick roof, 9" floor, and 9" walls, the following total factored moments and shears would result from the application of the required loads:

| FACTORED DESIGN MOMENTS (DOUBLE) | |
|---|---|
| WALL MOMENT | 3,512 ft-lbs |
| ROOF MOMENTS | |
| CORNER | -14,911 ft-lbs |
| BOTTOM | 25,196 ft-lbs |
| TOP | -32,226 ft-lbs |
| FLOOR MOMENTS | |
| CORNER | -15,950 ft-lbs |
| TOP | 18,910 ft-lbs |
| BOTTOM | -35,129 ft-lbs |

| FACTORED DESIGN SHEARS (DOUBLE) | |
|---|---|
| WALL SHEAR | 4,370 lbs |
| ROOF SHEARS | |
| CORNER | 7,988 lbs |
| WALL | 10,752 lbs |
| FLOOR SHEARS | |
| CORNER | 10,643 lbs |
| WALL | 13,671 lbs |

**NOTE:**
The invert elevations shown represent an elevation 1 foot below the existing streambed.

This document was originally issued and sealed by Colin A. Moran, Registration Number PE- 5344, on 06/06/16 and the original document is stored at the Office of KLJ Fargo, North Dakota.

SC-2730(061)
*McKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-132-29.1

PRECAST BOX CULVERT LAYOUT

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| DMW | CLT | 14314102 |

| Revised 06/06/16 | STATE | PROJECT NUMBER | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 170 | 5 |

# STRUCTURAL NOTES

**100-P01** **SCOPE OF WORK:** Work at this site consists of removing the existing structure, a 45' long bridge and replacing it with a new triple barrel 12' x 11' x 64' precast concrete box culvert.

**202-P01** **REMOVAL OF STRUCTURE:** The existing structue is a single span concrete bridge, 45' long with a clear roadway width of 28'. The abutments are timber. Refer to Section 6, sheet 2 and SP-4(14) for allowable removal dates for the structure.

The lump sum bid item "REMOVAL OF STRUCTURE - SITE 2" includes all work required to remove all drainage pipe components and any hazard markers at the location in accordance with the Standard Specifications. All removed materials are the property of the contractor and are to be disposed of properly off the right-of-way.

;

The Contractor will complete and submit SFN 17987 Asbestos Notification of Demolition and Renovation to the North Dakota Department of Health 10 days prior to beginning the removal of concrete. Tom Naas (ND License #5302) of KLJ (4585 Coleman Street, Bismarck, ND 58503-0431; 701-355-8400) completed an asbestos inspection of the existing structure on January 15, 2015. Based on laboratory analysis of bulk samples from the site, no building or structure materials were determined to contain asbestos. No other inaccessible and/or assumed ACMs were identified.

**210-P01** **BOX CULVERT EXCAVATION:** The unit price bid for "BOX CULVERT EXCAVATION - SITE 2" includes all excavation required to build the box culvert. Perform Box Culvert Excavation according to Section 210 of the Strandard Specifications. The unit price bid for "BOX CULVERT EXCAVATION - SITE 2" includes all labor and materials required to place the ordinary backfill within the limits shown on Section 170, Sheet 6.

The suitability of material from on-site excavations for use as ordinary backfill will be determined by the engineer. Embankment constructed from channel excavated material will not be measured for separate payment but will be included in the price bid for "BOX CULVERT EXCAVATION - SITE 2". Channel excavated material that is deemed not suitable for ordinary backfill will become property of the contractor and disposed of ouside of the road right-of-way, not adjacent to the construction site, and at a site approved by the engineer. The unit price bid for "BOX CULVERT EXCAVATION - SITE 2" includes all costs associated with excavation, hauling, depositing and leveling the waste material.

**210-P02** **FOUNDATION PREPARATION:** Be aware of the possible inundated conditions at this site before the bid opening. The cost of any cofferdams and dewatering the excavation is included in the bid for "FOUNDATION PREPARATION - SITE 2".

**210-P03** **FOUNDATION FILL:** Use CL 5 as specified in Section 816, "Aggregates". Place foundation fill in layers of not more than six inches, moisten or dry as required, and thoroughly compact with mechanical tamping equipment.

When additional Foundation Fill is placed under the box, payment will be determined by computation using plan dimensions and adding 25% for shrinkage. ;

**256-P01** **RIPRAP GRADE II**: Do not use broken concrete as riprap.

**606-P01** **PRECAST REINFORCED CONCRETE BOX CULVERT AND END SECTIONS:** Tie all barrel sections together with prestressing strands or 1"Ø tie bolts as shown on Standard Drawing D-714-22. If strands are used, use a minimum of six ½"Ø strands through each joint placed at each outside corner and center wall on the double cell and four ½"Ø double strands on the single cell. Protect prestressing cables against corrosion and grout their ends. If tie bolts are used, the joints will require two ties per exterior wall located at the third points of the wall clear height.

The "DBL 12FT X 11FT PRECAST RCB END SECTION" bid item consists of the apron, cutoff wall, parapet, and wingwalls. Attach the apron to the last barrel sections, the wingwalls, and the cutoff wall. Attach the wingwalls to the last barrel section. Use a welded tie type system to connect the apron to the box and the wingwalls unless otherwise approved by the Engineer. Connect the wingwalls to the last barrel section by the use of tie bolts, steel-bolted plates, or another approved method so the inside corner surface is smooth. After backfilling, wingwall sections are to be in line. If the wingwall sections are not in line or not installed to the angles shown in the plans, remove and reset the wingwalls to be in proper alignment.

All bolts, plates, angles, and studs are to meet ASTM A36. Nuts are to be a heavy hex in conformance with ASTM A563 and washers shall be ASTM F436, Type 1. Welded pipe sleeves are to conform to ASTM A53, Grade B. Welders are required to be properly certified for all shop and field welds. Coat all field welds with galvanizing paint. Galvanize all hardware according to AASHTO M 232. Galvanize structural steel after fabrication according to AASHTO M 111.

Install five ¾"Ø threaded inserts and steel eye bolts (20 total) along top and end faces of each wingwall to provide anchorage for fencing. A 3"x3"x⅜" hot dipped galvanized angle, as shown in Section 170 sheet 6 of the plans, is to also be included at each wingwall. Anchorage locations and specifications are to be shown on the shop drawings for approval by the Engineer. All costs associated with the threaded inserts, steel eye bolts, and galvanized angles are to be included in the price bid for "DBL 12FT X 11FT PRECAST RCB END SECTION."

Cast holes at 3'-0" centers through the apron and into the cutoff wall to receive ¾"Ø reinforcing bars. Cast holes in the last barrel section at 1'-0" centers for½"Ø reinforcing bars to attach the parapet. Cast the parapet against the section. Install the bars according to the manufacturer's recommendation, with a high strength adhesive specifically intended for concrete anchorage, in accordance with Section 806.02 of the NDDOT Standard Specifications.

The distance between separate precast units is to be a minimum of 3" and a maximum of 1'-0". Fill this gap with controlled density backfill. The controlled density backfill is to be a blend of cement, water, pozzolanic materials, and fillers. The material must be able to support normal loads after 6 hours and have a compressive strength in the range of 75 psi to 125 psi at 28 days. If the mix design shown is used, no further testing will be required. The mix design yields approximately one cubic yard of flowable mortar.

MIX DESIGN

| | |
|---|---|
| Cement | 100 lbs |
| Fly Ash | 300 lbs |
| Fine Aggregate | 2600 lbs |
| Water | 70 gals |

The 12" cap consists of a weatherproof and freeze/thaw resistant material such as Sikagrout©212, BASF Masterflow©928, Euclid NS Grout, or an approved equal which complies with ASTM C1107.

Controlled density backfill will not be measured separately but is included in the price bid for "DBL 12FT X 11FT PRECAST RCB CULVERT".

**DESIGN LOADS:**

A. HL-93 Loading
B. Maximum Fill Height = 3'

**WORK DRAWINGS:** The contractor shall submit the following work drawings to the Engineer of Record:

PRECAST RCB CULVERT

This document was originally issued and sealed by Colin A. Moran, Registration Number PE- 5344, on 06/06/16 and the original document is stored at the Office of KLJ Fargo, North Dakota.

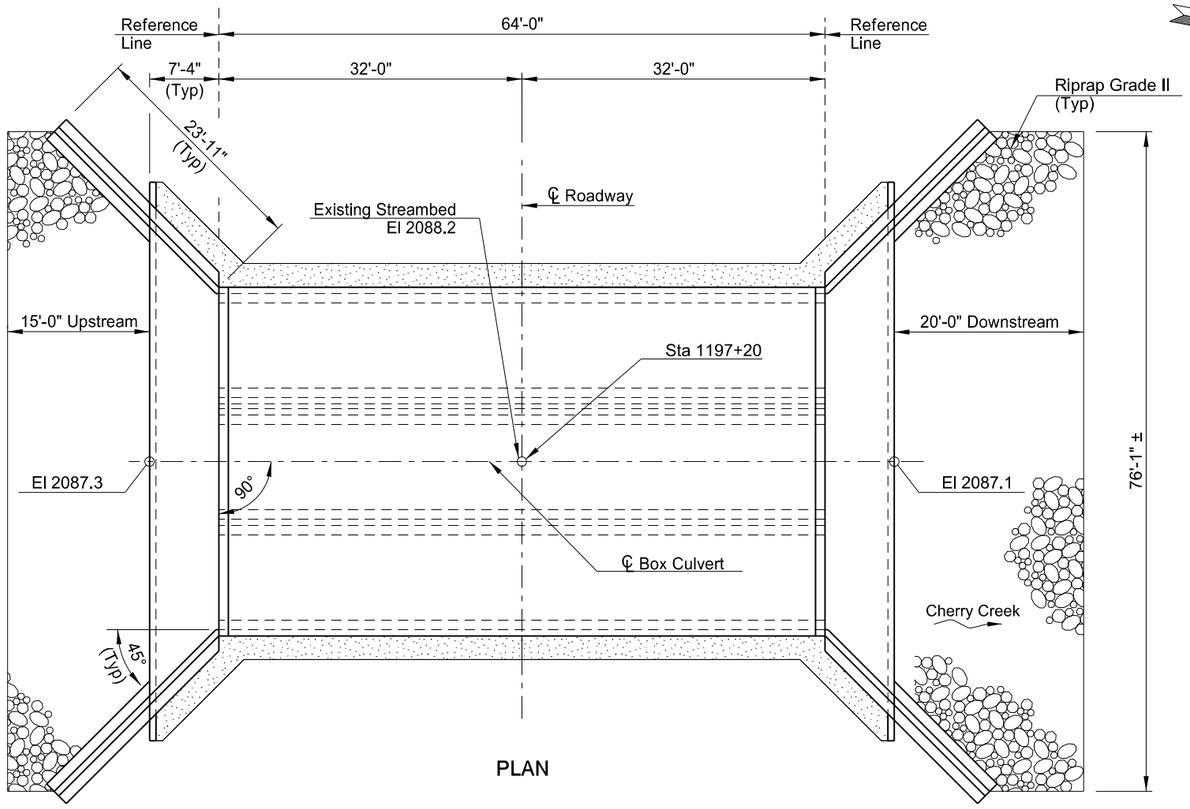
**SC-2730(061)**
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-132-29.1

KLJ

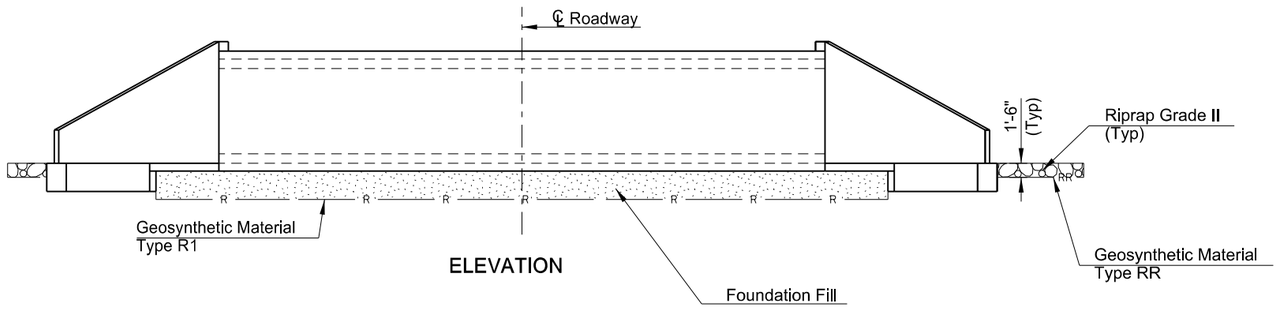
**STRUCTURAL NOTES**

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| DMW | CLT | 14314102 |

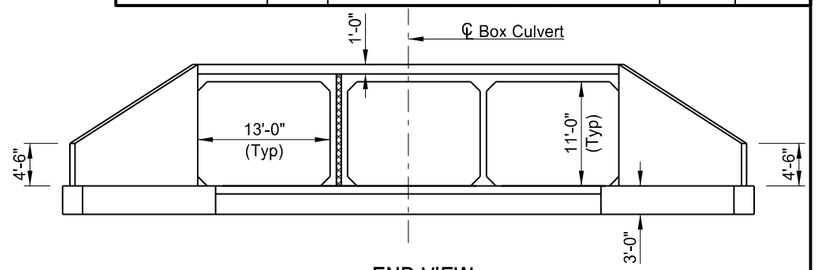
| Revised 06/06/16 | STATE | PROJECT NUMBER | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 170 | 7 |



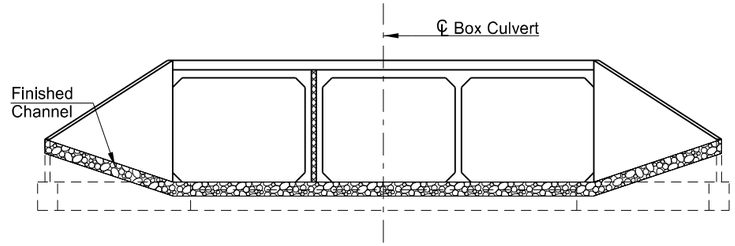

PLAN




ELEVATION




END VIEW
(Showing Dimensions)




END VIEW
(Showing Finished Section)

## STRUCTURAL QUANTITIES ONLY

| SPEC | CODE | ITEM DESCRIPTION | UNIT | QUANTITY |
|---|---|---|---|---|
| 202 | 0110 | REMOVAL OF STRUCTURE - SITE 3 | L SUM | 1 |
| 210 | 0053 | BOX CULVERT EXCAVATION - SITE 3 | EA | 1 |
| 210 | 0204 | FOUNDATION PREPARATION - SITE 3 | L SUM | 1 |
| 210 | 0210 | FOUNDATION FILL | CY | 552 |
| 256 | 0200 | RIPRAP GRADE II | CY | 137 |
| 606 | 1311 | 13 FT X 11FT PRECAST RCB CULVERT | LF | 64 |
| 606 | 3311 | DBL 13FT X 11FT PRECASE RCB CULVERT | LF | 64 |
| 606 | 7311 | DBL 13FT X 11FT PRECAST RCB END SECTION | EA | 2 |
| 709 | 0151 | GEOSYNTHETIC MATERIAL TYPE R1 | SY | 546 |
| 709 | 0155 | GEOSYNTHETIC MATERIAL TYPE RR | SY | 273 |

## HYDRAULIC DATA:

| | | |
|---|---|---|
| Drainage Area | 86.6 | sq mi |
| Stream Gradient | 0.0013 | ft/ft |
| Design Frequency | 25 | yr |
| Design Discharge | 2,296 | cfs |
| Design Headwater Stage | 2,097.6 | ft |
| Design Tailwater Stage | 2,096.6 | ft |
| Velocity Through Culvert | 7.0 | fps |
| 100-Year Frequency Discharge | 3,941 | cfs |
| 100-Year Frequency Headwater | 2,100.0 | ft |
| Overtopping Stage | 2,101.3 | ft |
| Overtopping Discharge | 4,552 | cfs |

For a single barrel box culvert with 10" thick roof, 10" floor, and 9" walls, the following total factored moments and shears would result from the application of the required loads:

| FACTORED DESIGN MOMENTS (SINGLE) | |
|---|---|
| WALL MOMENT | 1,336 ft-lbs |
| ROOF MOMENTS | |
| CORNER | -16,855 ft-lbs |
| BOTTOM | 33,165 ft-lbs |
| FLOOR MOMENTS | |
| CORNER | -19,943 ft-lbs |
| TOP | 31,576 ft-lbs |

| FACTORED DESIGN SHEARS (SINGLE) | |
|---|---|
| WALL SHEAR | 4,552 lbs |
| ROOF SHEARS | |
| CORNER | 10,240 lbs |
| FLOOR SHEARS | |
| CORNER | 13,407 lbs |

For a double barrel box culvert with 10" thick roof, 10" floor, and 9" walls, the following total factored moments and shears would result from the application of the required loads:

| FACTORED DESIGN MOMENTS (DOUBLE) | |
|---|---|
| WALL MOMENT | 3,179 ft-lbs |
| ROOF MOMENTS | |
| CORNER | -15,119 ft-lbs |
| BOTTOM | 28,310 ft-lbs |
| TOP | -38,713 ft-lbs |
| FLOOR MOMENTS | |
| CORNER | -16,269 ft-lbs |
| TOP | 22,659 ft-lbs |
| BOTTOM | -41,918 ft-lbs |

| FACTORED DESIGN SHEARS (DOUBLE) | |
|---|---|
| WALL SHEAR | 4,386 lbs |
| ROOF SHEARS | |
| CORNER | 8,513 lbs |
| WALL | 11,966 lbs |
| FLOOR SHEARS | |
| CORNER | 11,156 lbs |
| WALL | 14,910 lbs |

**NOTE:**
The invert elevations shown represent an elevation 1 foot below the existing streambed.

This document was originally issued and sealed by Colin A. Moran, Registration Number PE- 5344, on 06/06/16 and the original document is stored at the Office of KLJ Fargo, North Dakota.

SC-2730(061)
*McKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-134-27.0

PRECAST BOX CULVERT LAYOUT

| DRAWN BY: | CHK'D. BY: | PROJECT NO. |
|---|---|---|
| DMW | CLT | 14314102 |

| Revised 06/06/16 | STATE | PROJECT NUMBER | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 170 | 8 |

# STRUCTURAL NOTES

**100-P01** **SCOPE OF WORK:** Work at this site consists of removing the existing structure, a 68' long bridge and replacing it with a new triple barrel 13' x 11' x 64' precast concrete box culvert.

**202-P01** **REMOVAL OF STRUCTURE:** The existing structure is a single span concrete bridge, 68' long with a clear roadway width of 28'. The abutments are concrete. Refer to Section 6, sheet 2 and SP-4(14) for allowable removal dates for the structure.

The lump sum bid item "REMOVAL OF STRUCTURE - SITE 3" includes all work required to remove all bridge components and any hazard markers at the location in accordance with the Standard Specifications. All removed materials are the property of the contractor and are to be disposed of properly off the right-of-way.

The Contractor will complete and submit SFN 17987 Asbestos Notification of Demolition and Renovation to the North Dakota Department of Health 10 days prior to beginning the removal of concrete. Tom Naas (ND License #5302) of KLJ (4585 Coleman Street, Bismarck, ND 58503-0431; 701-355-8400) completed an asbestos inspection of the existing structure on January 15, 2015. Based on laboratory analysis of bulk samples from the site, no building or structure materials were determined to contain asbestos. No other inaccessible and/or assumed ACMs were identified.

**210-P01** **BOX CULVERT EXCAVATION:** The unit price bid for "BOX CULVERT EXCAVATION - SITE 3" includes all excavation required to build the box culvert. Perform Box Culvert Excavation according to Section 210 of the Strandard Specifications. The unit price bid for "BOX CULVERT EXCAVATION - SITE 3" includes all labor and materials required to place the ordinary backfill within the limits shown on Section 170, Sheet 9.

The suitability of material from on-site excavations for use as ordinary backfill will be determined by the engineer. Embankment constructed from channel excavated material will not be measured for separate payment but will be included in the price bid for "BOX CULVERT EXCAVATION - SITE 3". Channel excavated material that is deemed not suitable for ordinary backfill will become property of the contractor and disposed of ouside of the road right-of-way, not adjacent to the construction site, and at a site approved by the engineer. The unit price bid for "BOX CULVERT EXCAVATION - SITE 3" includes all costs associated with excavation, hauling, depositing and leveling the waste material.

**210-P02** **FOUNDATION PREPARATION:** Be aware of the possible inundated conditions at this site before the bid opening. The cost of any cofferdams and dewatering the excavation is included in the bid for "FOUNDATION PREPARATION - SITE 3".

**210-P03** **FOUNDATION FILL:** Use CL 5 as specified in Section 816, "Aggregates". Place foundation fill in layers of not more than six inches, moisten or dry as required, and thoroughly compact with mechanical tamping equipment.

When additional Foundation Fill is placed under the box, payment will be determined by computation using plan dimensions and adding 25% for shrinkage.

**256-P01** **RIPRAP GRADE II**: Do not use broken concrete as riprap.

**606-P01** **PRECAST REINFORCED CONCRETE BOX CULVERT AND END SECTIONS:** Tie all barrel sections together with prestressing strands or 1"Ø tie bolts as shown on Standard Drawing D-714-22. If strands are used, use a minimum of six ½"Ø strands through each joint placed at each outside corner and center wall on the double cell and four ½"Ø strands on the single cell. Protect prestressing cables against corrosion and grout their ends. If tie bolts are used, the joints will require two ties per exterior wall located at the third points of the wall clear height.

The "DBL13FT X 11FT PRECAST RCB END SECTION" bid item consists of the apron, cutoff wall, parapet, and wingwalls. Attach the apron to the last barrel sections, the wingwalls, and the cutoff wall. Attach the wingwalls to the last barrel section. Use a welded tie type system to connect the apron to the box and the wingwalls unless otherwise approved by the Engineer. Connect the wingwalls to the last barrel section by the use of tie bolts, steel-bolted plates, or another approved method so the inside corner surface is smooth. After backfilling, wingwall sections are to be in line. If the wingwall sections are not in line or not installed to the angles shown in the plans, remove and reset the wingwalls to be in proper alignment.

All bolts, plates, angles, and studs are to meet ASTM A36. Nuts are to be a heavy hex in conformance with ASTM A563 and washers shall be ASTM F436, Type 1. Welded pipe sleeves are to conform to ASTM A53, Grade B. Welders are required to be properly certified for all shop and field welds. Coat all field welds with galvanizing paint. Galvanize all hardware according to AASHTO M 232. Galvanize structural steel after fabrication according to AASHTO M 111.

Install five ¾"Ø threaded inserts and steel eye bolts (20 total) along top and end faces of each wingwall to provide anchorage for fencing. A 3"x3"x⅜" hot dipped galvanized angle, as shown in Section 170 sheet 9 of the plans, is to also be included at each wingwall. Anchorage locations and specifications are to be shown on the shop drawings for approval by the Engineer. All costs associated with the threaded inserts, steel eye bolts, and galvanized angles are to be included in the price bid for "DBL 13FT X 11FT PRECAST RCB END SECTION."

Cast holes at 3'-0" centers through the apron and into the cutoff wall to receive ¾"Ø reinforcing bars. Cast holes in the last barrel section at 1'-0" centers for ½"Ø reinforcing bars to attach the parapet. Cast the parapet against the section. Install the bars according to the manufacturer's recommendation, with a high strength adhesive specifically intended for concrete anchorage, in accordance with Section 806.02 of the NDDOT Standard Specifications.

The distance between separate precast units is to be a minimum of 3" and a maximum of 1'-0". Fill this gap with controlled density backfill. The controlled density backfill is to be a blend of cement, water, pozzolanic materials, and fillers. The material must be able to support normal loads after 6 hours and have a compressive strength in the range of 75 psi to 125 psi at 28 days. If the mix design shown is used, no further testing will be required. The mix design yields approximately one cubic yard of flowable mortar.

MIX DESIGN

| | |
|---|---|
| Cement | 100 lbs |
| Fly Ash | 300 lbs |
| Fine Aggregate | 2600 lbs |
| Water | 70 gals |

The 12" cap consists of a weatherproof and freeze/thaw resistant material such as Sikagrout©212, BASF Masterflow©928, Euclid NS Grout, or an approved equal which complies with ASTM C1107.

Controlled density backfill will not be measured separately but is included in the price bid for "DBL 13FT X 11FT PRECAST RCB CULVERT".

**DESIGN LOADS:**

A. HL-93 Loading
B. Maximum Fill Height = 4'

**WORK DRAWINGS:** The contractor shall submit the following work drawings to the Engineer of Record:

PRECAST RCB CULVERT

This document was originally issued and sealed by Colin A. Moran, Registration Number PE- 5344, on 06/06/16 and the original document is stored at the Office of KLJ Fargo, North Dakota.

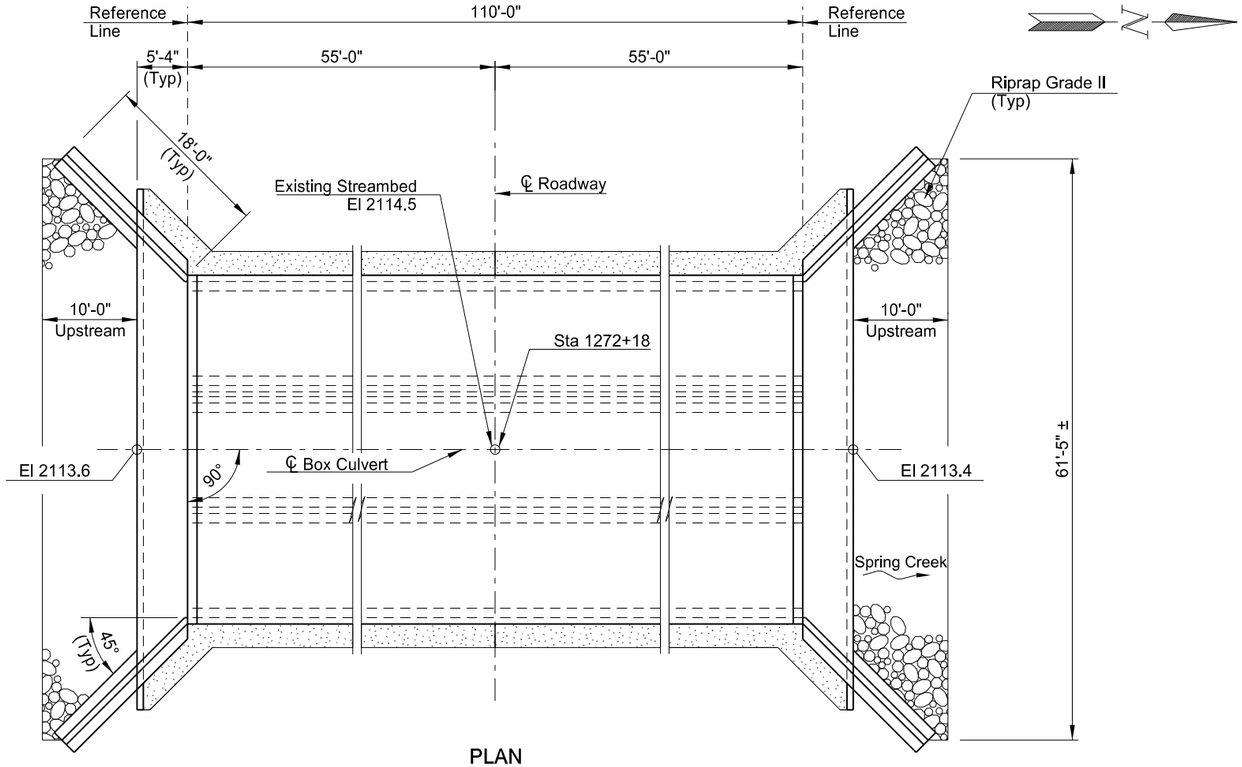
**SC-2730(061)**
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-134-27.0

KLJ

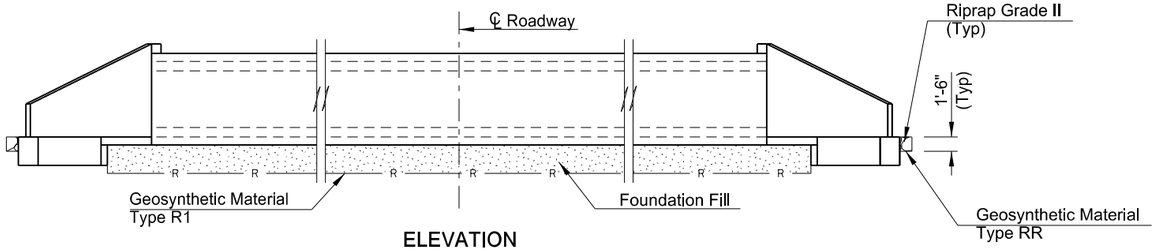
**STRUCTURAL NOTES**

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| DMW | CLT | 14314102 |

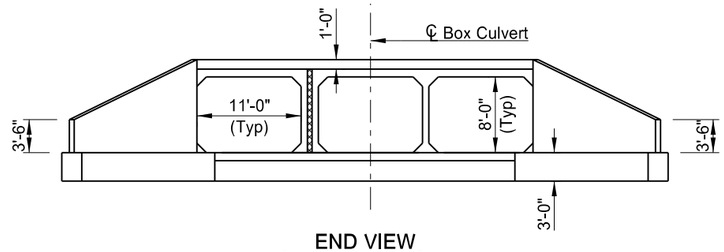
| Revised 06/06/16 | STATE | PROJECT NUMBER | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 170 | 10 |



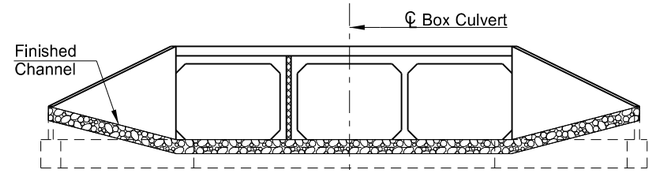

PLAN




ELEVATION




END VIEW
(Showing Dimensions)




END VIEW
(Showing Finished Section)

## STRUCTURAL QUANTITIES ONLY

| SPEC | CODE | ITEM DESCRIPTION | UNIT | QUANTITY |
|---|---|---|---|---|
| 202 | 0269 | REMOVAL OF STRUCTURE-SITE 4 | L SUM | 1 |
| 210 | 0054 | BOX CULVERT EXCAVATION- SITE 4 | EA | 1 |
| 210 | 0205 | FOUNDATION PREPARATION- SITE 4 | L SUM | 1 |
| 210 | 0210 | FOUNDATION FILL | CY | 734 |
| 256 | 0200 | RIPRAP GRADE II | CY | 62 |
| 606 | 1108 | 11FT X 8FT PRECAST RCB CULVERT | LF | 110 |
| 606 | 3108 | DBL 11FT X 8FT PRECAST RCB CULVERT | LF | 110 |
| 606 | 7108 | DBL 11FT X 8FT PRECAST RCB END SECTION | EA | 2 |
| 709 | 0151 | GEOSYNTHETIC MATERIAL TYPE R1 | SY | 860 |
| 709 | 0155 | GEOSYNTHETIC MATERIAL TYPE RR | SY | 124 |

## HYDRAULIC DATA:

| | | |
|---|---|---|
| Drainage Area | 32.4 | sq mi |
| Stream Gradient | 0.0025 | ft/ft |
| Design Frequency | 25 | yr |
| Design Discharge | 1,353 | cfs |
| Design Headwater Stage | 2,121.9 | ft |
| Design Tailwater Stage | 2,120.2 | ft |
| Velocity Through Culvert | 6.3 | fps |
| 100-Year Frequency Discharge | 2,289 | cfs |
| 100-Year Frequency Headwater | 2,124.1 | ft |
| Overtopping Stage | 2,130.2 | ft |
| Overtopping Discharge | 3,763 | cfs |

For a single barrel box culvert with 9" thick roof, 9" floor, and 8" walls, the following total factored moments and shears would result from the application of the required loads:

| FACTORED DESIGN MOMENTS (SINGLE) | |
|---|---|
| WALL MOMENT | 5,543 ft-lbs |
| ROOF MOMENTS | |
| CORNER | -14,287 ft-lbs |
| BOTTOM | 24,105 ft-lbs |
| FLOOR MOMENTS | |
| CORNER | -16,000 ft-lbs |
| TOP | 25,608 ft-lbs |

| FACTORED DESIGN SHEARS (SINGLE) | |
|---|---|
| WALL SHEAR | 3,833 lbs |
| ROOF SHEARS | |
| CORNER | 9,830 lbs |
| FLOOR SHEARS | |
| CORNER | 12,754 lbs |

For a double barrel box culvert with 9" thick roof, 9" floor, and 8" walls, the following total factored moments and shears would result from the application of the required loads:

| FACTORED DESIGN MOMENTS (DOUBLE) | |
|---|---|
| WALL MOMENT | 2,273 ft-lbs |
| ROOF MOMENTS | |
| CORNER | -11,731 ft-lbs |
| BOTTOM | 17,671 ft-lbs |
| TOP | -32,620 ft-lbs |
| FLOOR MOMENTS | |
| CORNER | -12,394 ft-lbs |
| TOP | 17,867 ft-lbs |
| BOTTOM | -34,441 ft-lbs |

| FACTORED DESIGN SHEARS (DOUBLE) | |
|---|---|
| WALL SHEAR | 3,712 lbs |
| ROOF SHEARS | |
| CORNER | 8,039 lbs |
| WALL | 11,620 lbs |
| FLOOR SHEARS | |
| CORNER | 10,614 lbs |
| WALL | 14,393 lbs |

**NOTE:**
The invert elevations shown represent an elevation 1 foot below the existing streambed.

This document was originally issued and sealed by Colin A. Moran, Registration Number PE- 5344, on 06/06/16 and the original document is stored at the Office of KLJ Fargo, North Dakota.

SC-2730(061)
*McKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-136-27.0

KLJ

PRECAST BOX CULVERT LAYOUT

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| DMW | CLT | 14314102 |

| Revised 06/06/16 | STATE | PROJECT NUMBER | SECTION NO. | SHEET NO. |
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| | ND | SC-2730(061) | 170 | 11 |

# STRUCTURAL NOTES

**100-P01** **SCOPE OF WORK:** Work at this site consists of removing the existing structures, two-10'ø corrugated steel pipes and replacing them with a new triple barrel 11' x 8' x 110' precast concrete box culvert.

**202-P01** **REMOVAL OF STRUCTURE:** The existing structures are two steel corrugated pipes spaced approximately 28' on center, and a roadway width of 24'. Refer to Section 6, sheet 2 and SP-4(14) for allowable removal dates for the structures.

The lump sum bid item "REMOVAL OF STRUCTURE - SITE 4" includes all work required to remove all drainage pipe components and any hazard markers at the location in accordance with the Standard Specifications. All removed materials are the property of the contractor and are to be disposed of properly, off the right-of-way.

**210-P01** **BOX CULVERT EXCAVATION:** The unit price bid for "BOX CULVERT EXCAVATION - SITE 4" includes all excavation required to build the box culvert. Perform Box Culvert Excavation according to Section 210 of the Strandard Specifications. The unit price bid for "BOX CULVERT EXCAVATION - SITE 4" includes all labor and materials required to place the ordinary backfill within the limits shown on Section 170, Sheet 12.

The suitability of material from on-site excavations for use as ordinary backfill will be determined by the engineer. Embankment constructed from channel excavated material will not be measured for separate payment but will be included in the price bid for "BOX CULVERT EXCAVATION - SITE 4". Channel excavated material that is deemed not suitable for ordinary backfill will become property of the contractor and disposed of ouside of the road right-of-way, not adjacent to the construction site, and at a site approved by the engineer. The unit price bid for "BOX CULVERT EXCAVATION - SITE 4" includes all costs associated with excavation, hauling, depositing and leveling the waste material.

**210-P02** **FOUNDATION PREPARATION:** Be aware of the possible inundated conditions at this site before the bid opening. The cost of any cofferdams and dewatering the excavation is included in the bid for "FOUNDATION PREPARATION - SITE 4".

**210-P03** **FOUNDATION FILL:** Use CL 5 as specified in Section 816, "Aggregates". Place foundation fill in layers of not more than six inches, moisten or dry as required, and thoroughly compact with mechanical tamping equipment.

When additional Foundation Fill is placed under the box, payment will be determined by computation using plan dimensions and adding 25% for shrinkage.

**256-P01** **RIPRAP GRADE II:** Do not use broken concrete as riprap.

**606-P01** **PRECAST REINFORCED CONCRETE BOX CULVERT AND END SECTIONS:** Tie all barrel sections together with prestressing strands or 1"Ø tie bolts as shown on Standard Drawing D-714-22. If strands are used, use a minimum of six ½"Ø strands through each joint placed at each outside corner and center wall on the double cell and four ½"Ø strands on the single cell. Protect prestressing cables against corrosion and grout their ends. If tie bolts are used, the joints will require two ties per exterior wall located at the third points of the wall clear height.

The "DBL11FT X 8FT PRECAST RCB END SECTION" bid item consists of the apron, cutoff wall, parapet, and wingwalls. Attach the apron to the last barrel sections, the wingwalls, and the cutoff wall. Attach the wingwalls to the last barrel section. Use a welded tie type system to connect the apron to the box and the wingwalls unless otherwise approved by the Engineer. Connect the wingwalls to the last barrel section by the use of tie bolts, steel-bolted plates, or another approved method so the inside corner surface is smooth. After backfilling, wingwall sections are to be in line. If the wingwall sections are not in line or not installed to the angles shown in the plans, remove and reset the wingwalls to be in proper alignment.

All bolts, plates, angles, and studs are to meet ASTM A36. Nuts are to be a heavy hex in conformance with ASTM A563 and washers shall be ASTM F436, Type 1. Welded pipe sleeves are to conform to ASTM A53, Grade B. Welders are required to be properly certified for all shop and field welds. Coat all field welds with galvanizing paint. Galvanize all hardware according to AASHTO M 232. Galvanize structural steel after fabrication according to AASHTO M 111.

Install five ¾"Ø threaded inserts and steel eye bolts (20 total) along top and end faces of each wingwall to provide anchorage for fencing. A 3"x3"x⅜" hot dipped galvanized angle, as shown in Section 170 sheet 12 of the plans, is to also be included at each wingwall. Anchorage locations and specifications are to be shown on the shop drawings for approval by the Engineer. All costs associated with the threaded inserts, steel eye bolts, and galvanized angles are to be included in the price bid for "DBL 11FT X 8FT PRECAST RCB END SECTION."

Cast holes at 3'-0" centers through the apron and into the cutoff wall to receive ¾"Ø reinforcing bars. Cast holes in the last barrel section at 1'-0" centers for½"Ø reinforcing bars to attach the parapet. Cast the parapet against the section. Install the bars according to the manufacturer's recommendation, with a high strength adhesive specifically intended for concrete anchorage, in accordance with Section 806.02 of the NDDOT Standard Specifications.

The distance between separate precast units is to be a minimum of 3" and a maximum of 1'-0". Fill this gap with controlled density backfill. The controlled density backfill is to be a blend of cement, water, pozzolanic materials, and fillers. The material must be able to support normal loads after 6 hours and have a compressive strength in the range of 75 psi to 125 psi at 28 days. If the mix design shown is used, no further testing will be required. The mix design yields approximately one cubic yard of flowable mortar.

MIX DESIGN

| | |
|---|---|
| Cement | 100 lbs |
| Fly Ash | 300 lbs |
| Fine Aggregate | 2600 lbs |
| Water | 70 gals |

The 12" cap consists of a weatherproof and freeze/thaw resistant material such as Sikagrout©212, BASF Masterflow©928, Euclid NS Grout, or an approved equal which complies with ASTM C1107.

Controlled density backfill will not be measured separately but is included in the price bid for "DBL11FT X 8FT PRECAST RCB CULVERT".

**DESIGN LOADS:**

A. HL-93 Loading
B. Maximum Fill Height = 9'

**WORK DRAWINGS:** The contractor shall submit the following work drawings to the Engineer of Record:

PRECAST RCB CULVERT

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**SC-2730(061)**
*MCKENZIE COUNTY, NORTH DAKOTA*
STRUCTURE #27-136-27.0

KLJ

**STRUCTURAL NOTES**

| DRWN. BY | CHK'D. BY | PROJECT NO. |
|---|---|---|
| DMW | CLT | 14314102 |

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|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 1 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2150
2140

Wetland Delineated

893+50.00

10:1
2143.34
15.74
4:1
2137.32
39.94

893+25.00

10:1
2143.66
14.12
4:1
2137.40
38.42

893+00.00

10:1
2144.03
12.50
4:1
2137.45
38.42

892+75.00

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| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 2 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2150
2140

Wetland Delineated
2137.66
0.00
2143.81
5.65
2142.80
0.225
2138.88
1.21
2137.72
1.13
894+50.00

Wetland Delineated
2137.66
0.00
2143.81
5.65
2142.80
0.225
2137.72
1.13
894+25.00

Wetland Delineated
2143.09
5.68
2135.41
1.70
894+00.00

Wetland Delineated
2143.22
1.38
2135.35
0.81
893+75.00

| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 3 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2150
2140

Wetland Delineated
Wetland Delineated
2136.78
49.08
4:1
2142.58
26.46
10:1
2143.45
16.00
2:1
2143.79
2:1
2143.45
16.00
10:1
2142.36
28.71
4:1
2136.77
51.06

895+50.00

Wetland Delineated
Wetland Delineated
2136.86
47.00
4:1
2142.63
24.34
10:1
2142.04
27.09
10:1
4:1
2136.74
48.28

895+25.00

Wetland Delineated
Wetland Delineated
2137.29
44.68
4:1
2142.91
22.22
10:1
10:1
2142.24
25.47
4:1
2136.86
47.00

895+00.00

Wetland Delineated
Wetland Delineated
2137.50
42.89
4:1
2143.20
20.70
10:1
10:1
2142.52
23.65
4:1
2137.40
44.32

894+75.00

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|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 4 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2150
2140

Wetland Mitigation
Wetland Delineated
Wetland Delineated
2135.81
56.03
2141.98
54.95
10:1
2143.60
16.00
2.1%
2143.84
2.1%
2143.60
16.00
10:1
2141.86
53.20
4:1
2137.15
52.03

896+50.00

Wetland Delineated
Wetland Delineated
2135.54
56.14
2141.99
52.82
10:1
2143.60
16.00
2.1%
2143.83
2.1%
2143.60
16.00
10:1
2141.92
53.58
4:1
2137.23
52.83

896+25.00

Wetland Delineated
Wetland Delineated
2136.95
53.92
2142.15
50.71
10:1
2143.44
16.00
2.1%
2143.78
2.1%
2143.44
16.00
10:1
2142.03
51.85
4:1
2137.01
52.03

896+00.00

Wetland Delineated
Wetland Delineated
2135.84
51.45
2142.36
28.58
10:1
2143.44
16.00
2.1%
2143.78
2.1%
2143.44
16.00
10:1
2142.19
30.33
4:1
2136.83
51.79

895+75.00

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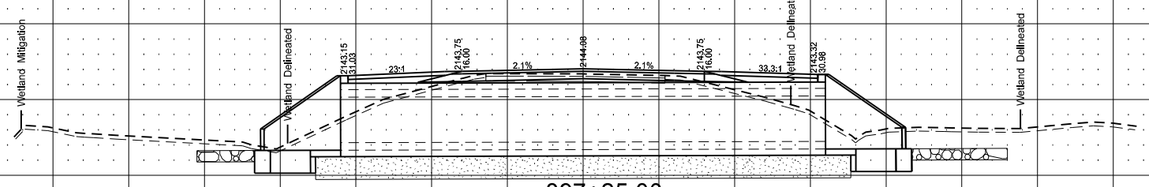
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 5 |

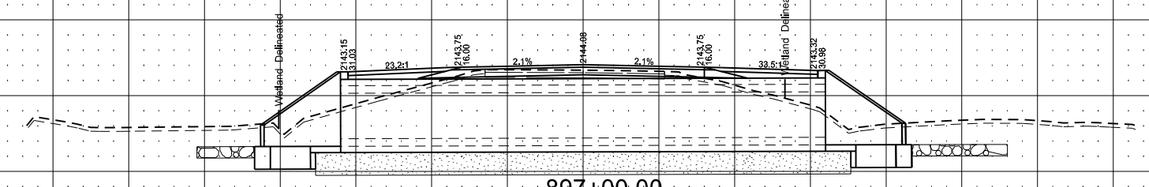
Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

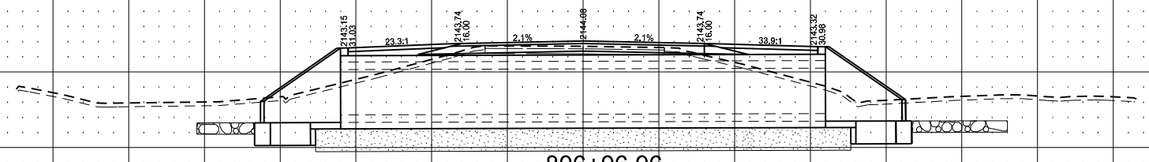
2150 2140 2130



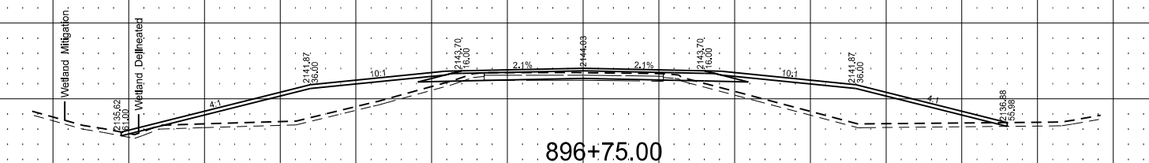

897+25.00




897+00.00




896+96.96




896+75.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 6 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2150 2140

2138.14 Wetland Mitigation
2144.81 53.35
2145.37 16.00
2144.74
2143.37 16.00
Wetland Delineated 2141.96 30.02
Wetland Delineated 2137.21 50.97

898+25.00

2150 2140

Wetland Mitigation 2138.74 47.06
2141.77 54.97
2143.49 16.00
2143.82
2143.49 16.00
Wetland Delineated
2141.82 34.45
Wetland Delineated 2137.42 52.39

898+00.00

2150 2140

Wetland Mitigation 2137.06 49.38
Wetland Delineated
Wetland Delineated 2141.80 36.00
2143.62 16.00
2144.05
2143.62 16.00
Wetland Delineated
Wetland Delineated 2141.80 36.00
2133.44 53.46

897+75.00

2150 2140 2130

Wetland Mitigation
Wetland Delineated 2143.15 24.92
24.9:1
2143.71 16.00
2144.04
2143.71 16.00
37.4:1
2143.32 39.96

897+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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| | ND | SC-2730(061) | 200 | 7 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2150
2140

Wetland Delineated
2137.18
26.05
Wetland Delineated
2141.97
26.86
10:1
Wetland Delineated
2142.29
10:1
4:1
2137.43
21.42
Wetland Delineated

899+25.00

Wetland Delineated
2137.18
27.15
Wetland Delineated
2141.85
26.48
10:1
Wetland Delineated
2142.72
10:1
4:1
2137.37
23.86
Wetland Delineated

899+00.00

Wetland Delineated
2137.22
26.30
Wetland Delineated
2141.77
30.10
10:1
2143.27
16.00
2.1%
2143.61
2.1%
2143.27
16.00
10:1
2141.86
Wetland Delineated
Wetland Delineated
4:1
2137.44
24.56

898+75.00

Wetland Delineated
2137.46
29.59
Wetland Delineated
2141.91
31.72
10:1
2143.31
16.00
2.1%
2143.64
2.1%
2143.31
16.00
10:1
Wetland Delineated
Wetland Delineated
4:1
2137.32
26.89

898+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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| | ND | SC-2730(061) | 200 | 8 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2150
2140

Wetland Delineated
Wetland Delineated
2137.34
41.26
4:1
2142.56
20.37
10:1

900+25.00

Wetland Delineated
Wetland Delineated
2137.42
42.38
4:1
2142.20
21.99
10:1

900+00.00

Wetland Delineated
Wetland Delineated
2137.39
44.32
4:1
2142.31
24.62
10:1
10:1
2142.76
17.43
4:1
2138.09
35.10

899+75.00

Wetland Delineated
Wetland Delineated
2137.21
40.83
4:1
2142.11
25.24
10:1
10:1
2142.49
18.86
4:1
Wetland Delineated
Wetland Delineated
2136.85
22.02

899+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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| | ND | SC-2730(061) | 200 | 9 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2150
2140

Wetland Delineated
Wetland Delineated

2142.82
18.51
10:1
2137.03
15.66
4:1

901+25.00

901+00.00

2142.72
17.13
10:1
2137.64
15.34
4:1

900+75.00

2142.62
16.75
10:1
2137.21
15.24
4:1

900+50.00

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| | ND | SC-2730(061) | 200 | 10 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2130 2130 2130 2130 2130 2150 2140

1023+50.00

1023+25.00

1023+00.00

1022+75.00

1022+50.00

901+50.00

Wetland Delineated

Wetland Delineated

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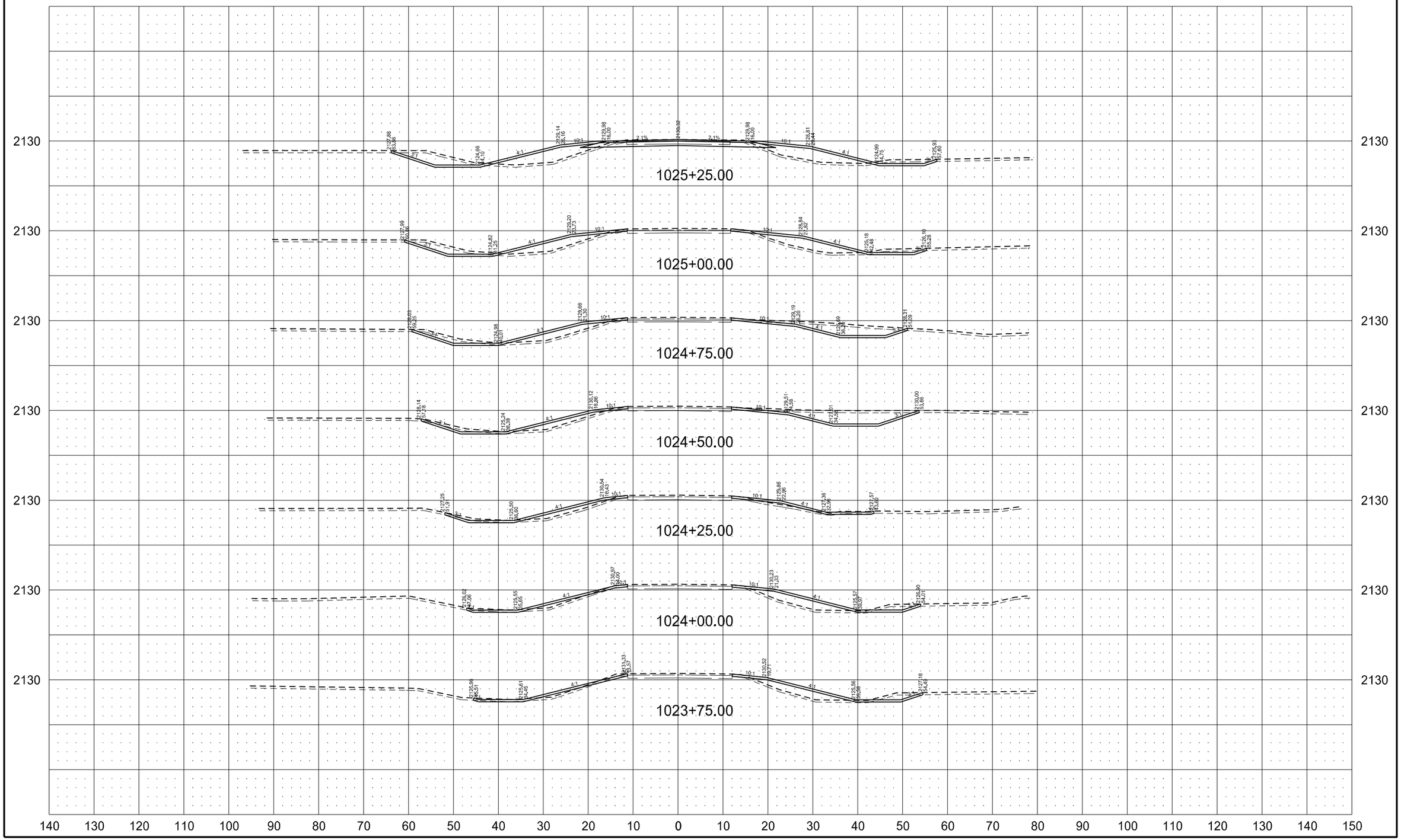
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 11 |

Co Rt 30 - Chain EXE30



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|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 12 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2130 2120

1026+67.58

2140 2130

1026+50.00

2130

1026+25.00

2130

1026+00.00

2130

1025+75.00

2130

1025+50.00

2130

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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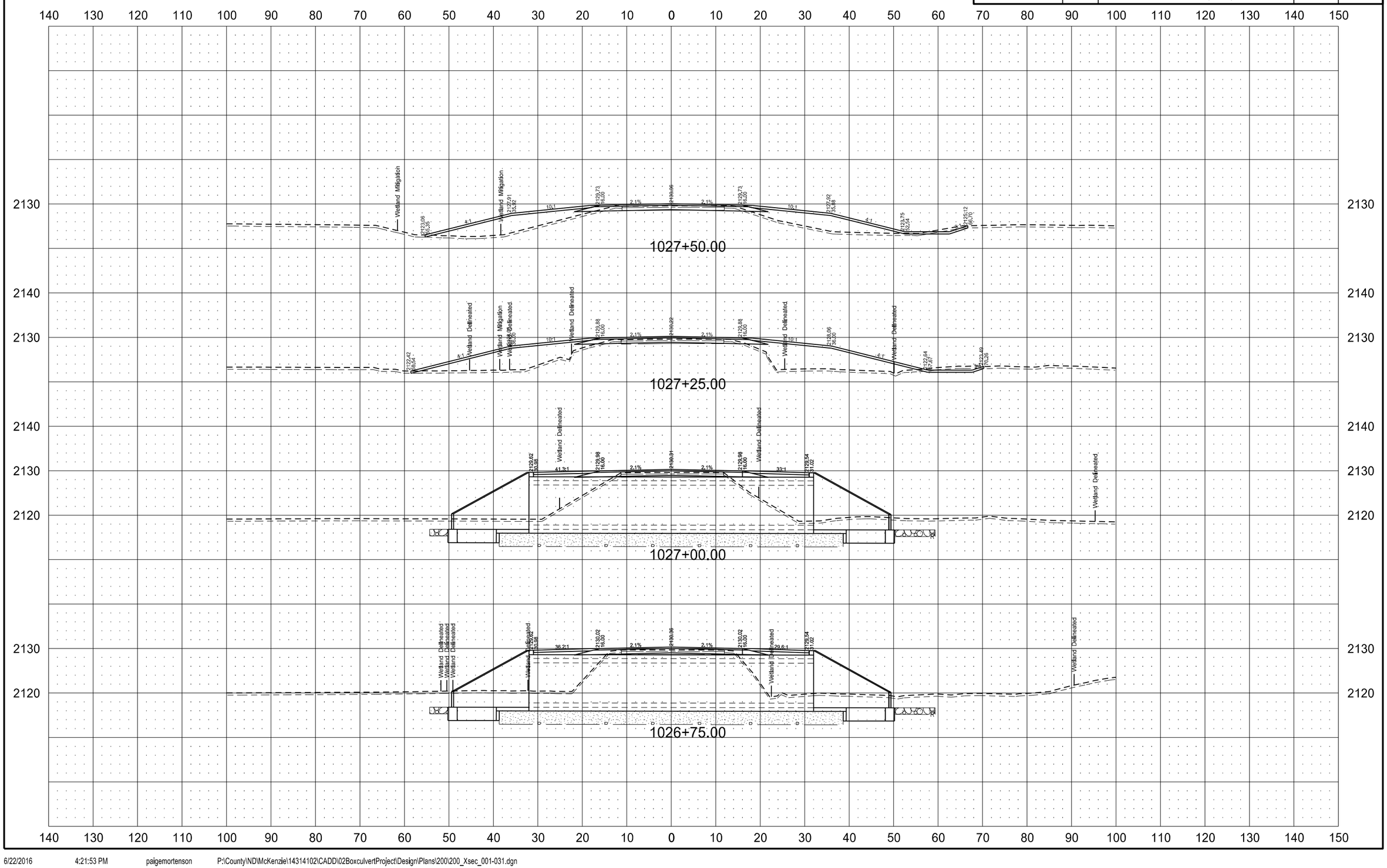
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 13 |

Co Rt 30 - Chain EXE30



| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 14 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2130

1028+75.00

1028+50.00

1028+25.00

1028+00.00

1027+75.00

| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 15 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2130

1030+25.00

2122.99
1.37
4:1
2128.81
14.69
10:1

1030+00.00

2122.75
13.15
4:1
2128.61
14.71
10:1

1029+75.00

2126.34
07.59
2122.36
15.51
4:1
2128.40
22.33
10:1

1029+50.00

2126.83
09.25
2122.38
16.38
4:1
2128.24
22.95
10:1

1029+25.00

2126.82
10.78
Wetland Mitigation
2122.40
17.31
Wetland Mitigation
4:1
2128.09
24.27
10:1
Wetland Delineated
Wetland Delineated

1029+00.00

2126.80
10.80
Wetland Mitigation
2122.40
18.15
Wetland Mitigation
4:1
2127.89
25.19
10:1
2128.43
21.29
Wetland Delineated
2122.78
13.89
Wetland Delineated
4:1
2124.13
17.31

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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| | ND | SC-2730(061) | 200 | 16 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2100

2130

1192+75.00

1031+25.00

1031+00.00

1030+75.00

1030+50.00

Wetland Delineated

4:1

10:1

2123.40
2117.00

2123.34*
2118.22

2129.21
2124.35

2129.01
2124.41

2123.16
2118.09

2123.30
2118.45

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|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 17 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2110
2100

1194+00.00

2098.95
13.66
4:1
2103.15
14.82
1:1
1:1
2103.14
14.47
4:1
2099.88
15.34

1193+75.00

2099.36
10.01
4:1
2103.67
12.00
1:1
1:1
2103.67
17.85
4:1
2099.04
15.36

1193+50.00

2104.19
16.23
1:1
4:1
2099.53
14.90
Wetland Delineated
Wetland Delineated

1193+25.00

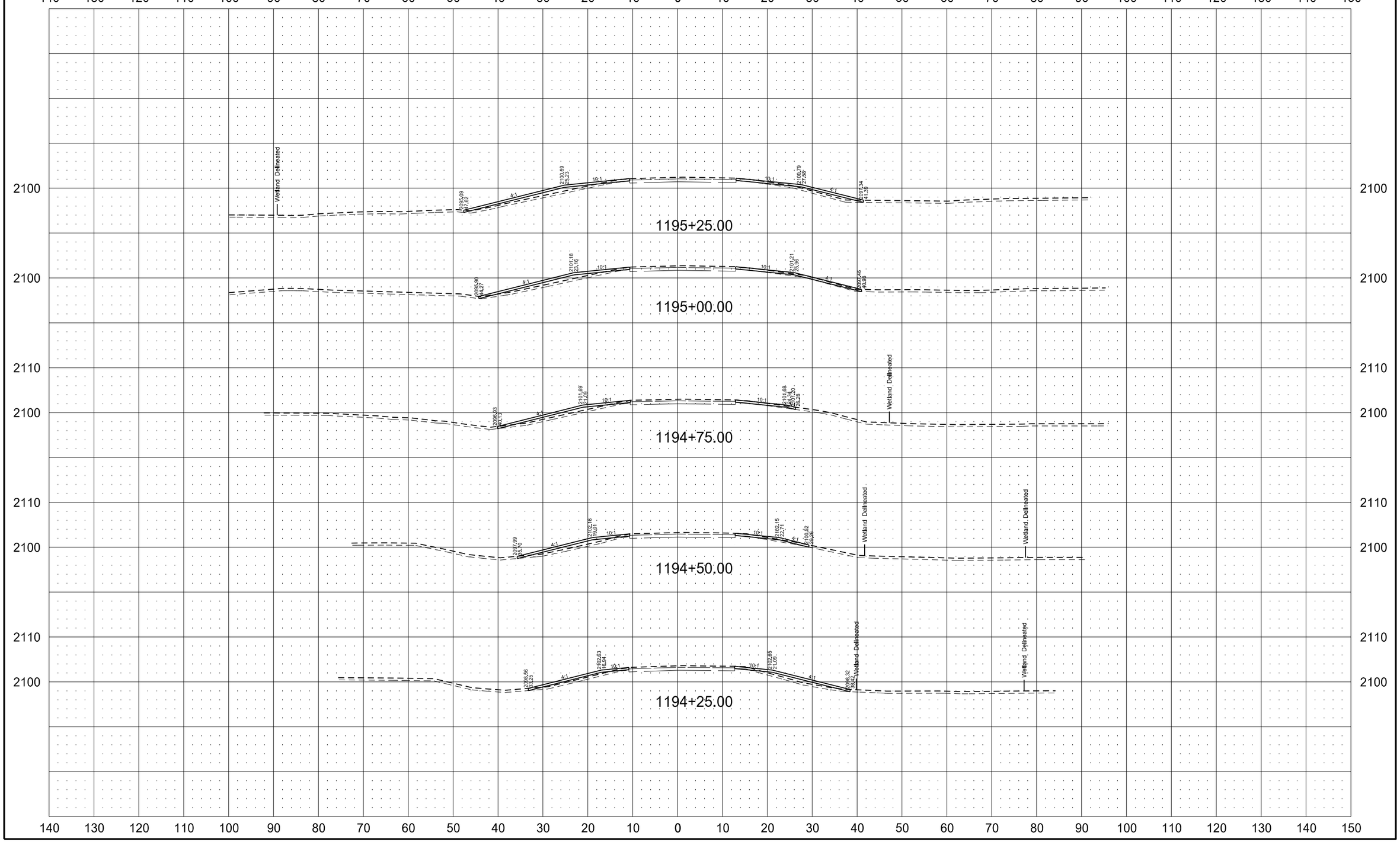
2104.89
14.51
1:1
2103.42
10.69
Wetland Delineated
Wetland Delineated

1193+00.00

2105.20
13.04
Wetland Delineated
Wetland Delineated

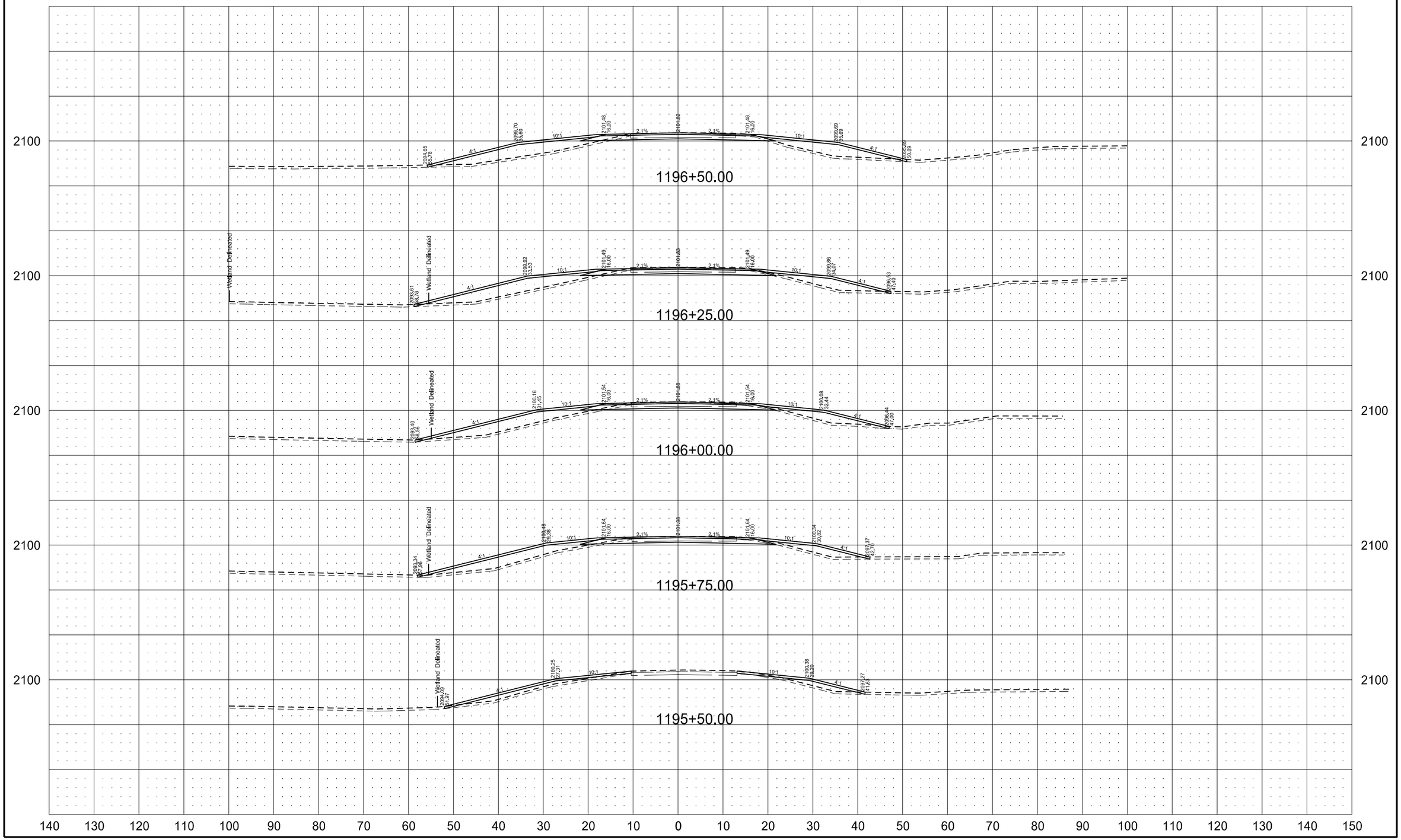
| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 18 |

Co Rt 30 - Chain EXE30



| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 19 |

Co Rt 30 - Chain EXE30

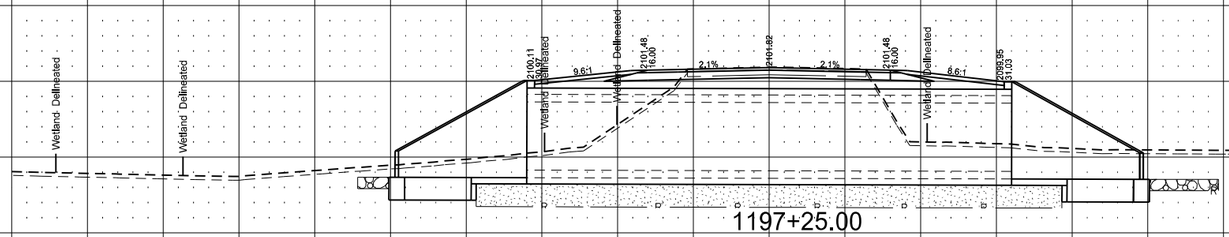


| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 20 |

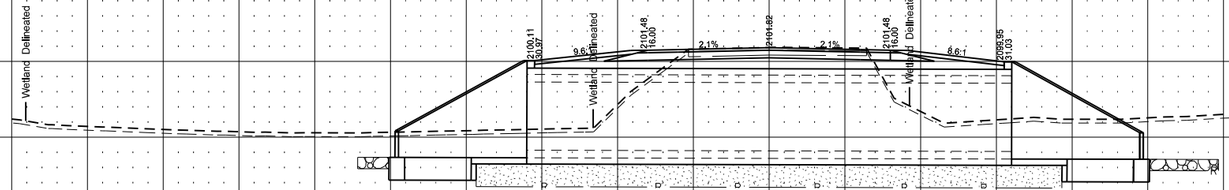
Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

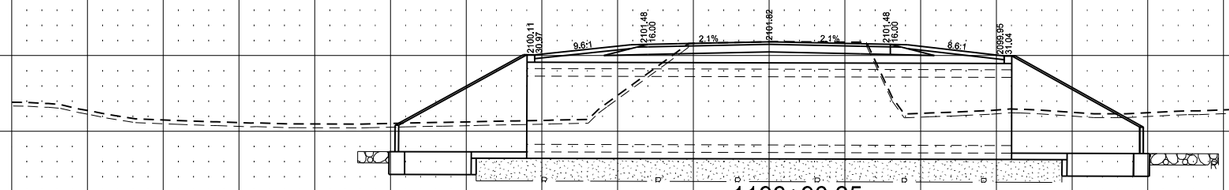
2100
2090



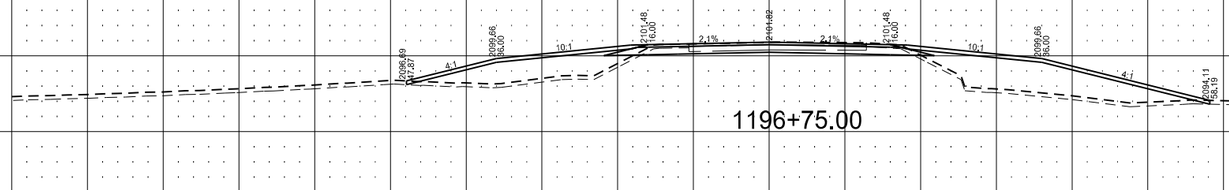

1197+25.00




1197+00.00




1196+96.25




1196+75.00

| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 21 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2100
2110
2100

1198+50.00

2097.73 66.89 | 2095.74 67.68 | 2100.87 51.41 | 2102.01 16.00 | 2102.35 | 2102.01 16.00 | 2100.79 50.02 | 2096.23 49.25

Wetland Delineated | Wetland Delineated | Wetland Delineated

2093.16 61.36 | 2100.31 52.75 | 2101.81 16.00 | 2102.15 | 2101.81 16.00 | 2100.39 52.00 | 2095.49 51.01

1198+25.00

2110
2100

Wetland Delineated

2092.68 53.05 | 2100.00 54.36 | 2101.66 16.00 | 2102.00 | 2101.66 16.00 | 2100.04 53.36 | 2095.47 51.26

1198+00.00

2110
2100

Wetland Delineated
Wetland Mitigation
Wetland Mitigation

2094.35 57.49 | 2099.74 55.37 | 2101.55 16.00 | 2101.89 | 2101.55 16.00 | 2099.74 55.36 | 2095.45 53.12

Wetland Mitigation

1197+75.00

2100

Wetland Mitigation

2093.36 61.24 | 2099.67 54.00 | 2101.49 16.00 | 2101.83 | 2101.49 16.00 | 2099.67 54.00 | 2095.02 54.83

Wetland Mitigation

1197+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 22 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2100

1200+25.00

2104.36 97.22 | 2098.56 93.98 | 2103.51 98.93 | 2103.65 98.15 | 2099.65 94.17

1200+00.00

2103.74 97.63 | 2098.35 93.61 | 2107.94 97.47 | 2103.03 98.13 | 2099.32 93.97

1199+75.00

2102.63 96.52 | 2096.17 92.03 | 2102.46 93.98 | 2102.51 94.11 | 2099.70 93.95

1199+50.00

2102.28 96.52 | 2097.89 91.65 | 2101.98 94.70 | 2102.03 95.06 | 2098.64 93.68

1199+25.00

2101.48 96.69 | 2097.46 92.50 | 2101.51 96.31 | 2101.60 96.08 | 2098.09 93.50

1199+00.00

2103.70 98.35 | 2096.89 94.51 | 2101.04 97.92 | 2101.19 98.06 | 2097.99 93.86

1198+75.00

2099.76 97.74 | 2096.22 94.01 | 2099.59 98.53 | 2100.73 99.37 | 2097.01 94.80

10:1 4:1

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|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 23 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2110
2100

1267+75.00

1201+50.00

2101.84
62.73
2099.99
67.13
2105.52
68.42

1201+25.00

2103.21
64.64
2099.65
67.84
2105.35
65.03

1201+00.00

2104.30
63.80
2099.31
68.68
2104.77
66.04

1200+75.00

2104.85
67.10
2098.94
69.18
2104.17
65.25
2104.29
64.17
2100.04
61.77

1200+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 24 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2130

1269+50.00

2125.35
28.10
4:1
2128.54
13.37
10:1
2127.90
22.23
4:1
2124.27
36.75
2125.22
45.04

1269+25.00

2128.46
7.39
2128.59
13.94
10:1
2128.11
20.52
4:1
2124.32
30.79

1269+00.00

2126.30
3.00
10:1
4:1
2124.28
35.05

1268+75.00

2128.46
7.39
10:1
4:1
2124.26
34.15

1268+50.00

2128.65
15.76
10
4:1
2124.29
33.21

1268+25.00

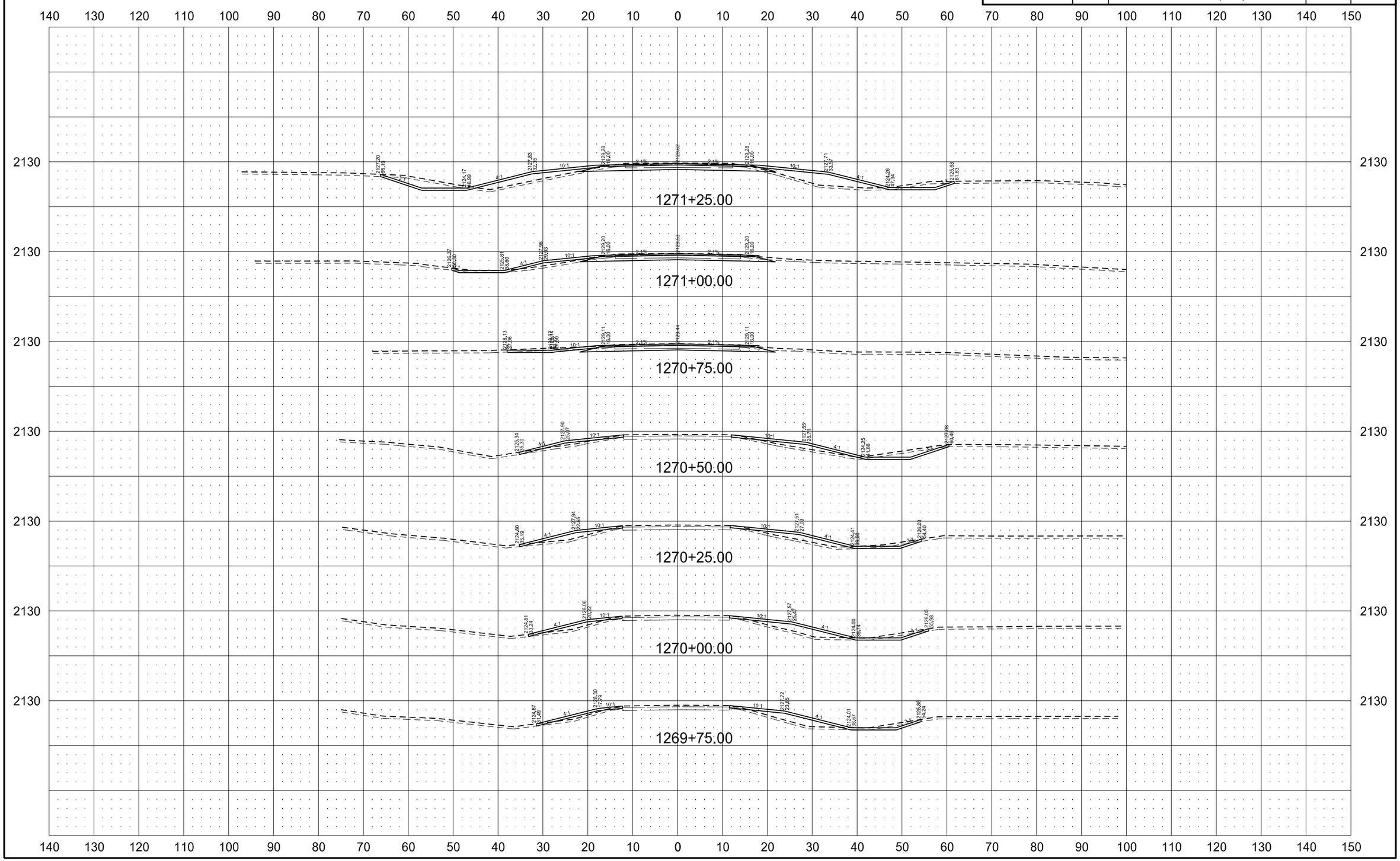
2128.87
14.14
10:1
4:1
2124.31
32.38

1268+00.00

2129.07
2.62
2129.62
10.49

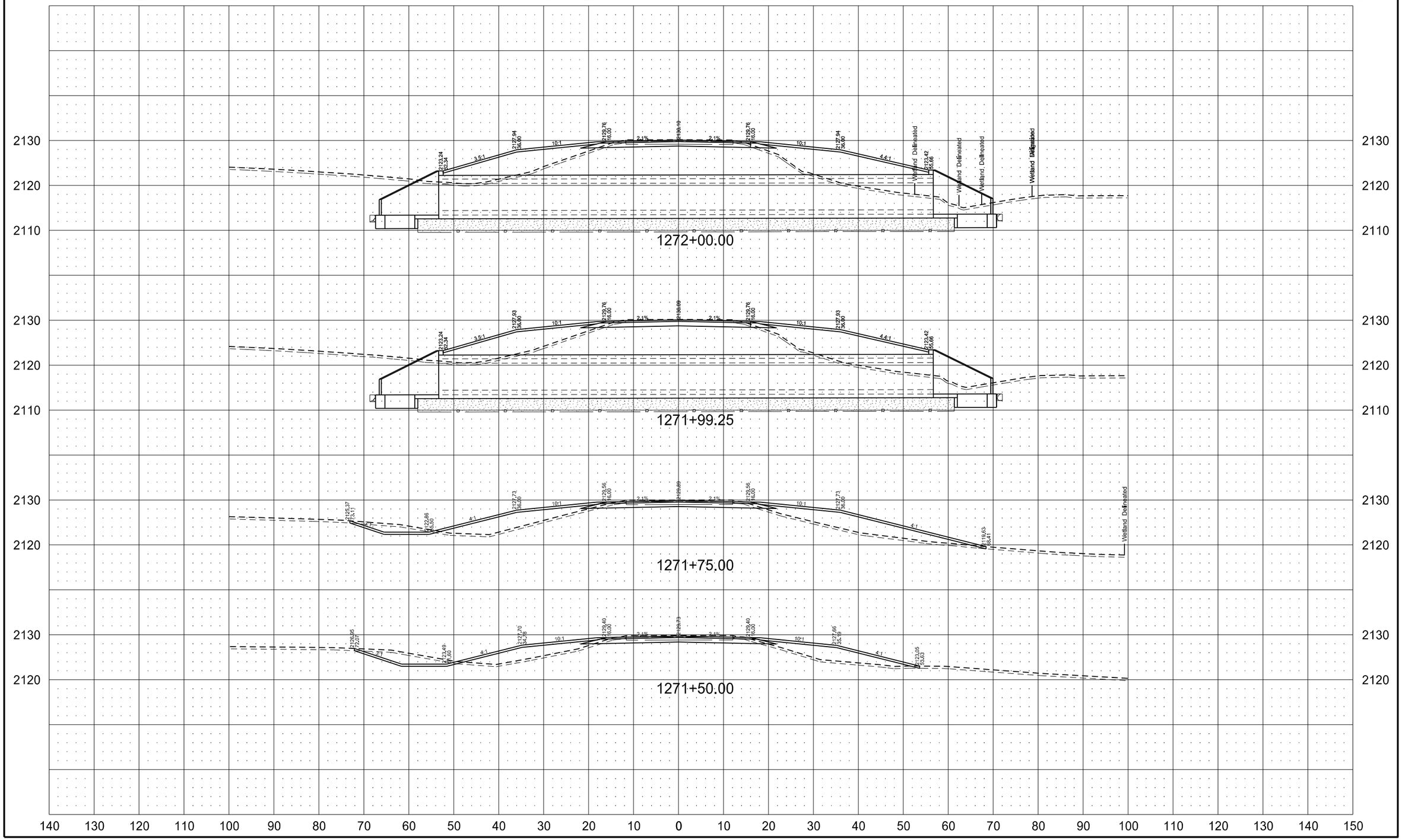
| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 25 |

Co Rt 30 - Chain EXE30



| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 26 |

Co Rt 30 - Chain EXE30



| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 27 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2130
2120
2110

1273+00.00

Wetland Delineated
2129.07
21.55
4:1
2129.39
34.27
10:1
2131.04
16.00
2131.38
2.1%
2.1%
2131.04
16.00
10:1
2126.48
33.41
4:1
2119.88
77.80

1272+75.00

Wetland Delineated
2113.37
51.78
Wetland Delineated
4:1
2128.84
33.89
10:1
2130.65
16.00
2130.99
2.1%
2.1%
2130.65
16.00
10:1
2128.85
33.84
4:1
2119.30
84.03

1272+50.00

Wetland Delineated
2113.93
54.29
Wetland Delineated
3:1
Wetland Delineated
2128.49
36.00
10:1
2130.31
16.00
2130.65
2.1%
2.1%
2130.31
16.00
10:1
2128.49
36.00
4:1
2118.79
77.79

1272+25.00

Wetland Delineated
Wetland Delineated
2123.24
62.34
Wetland Delineated
3:1
2128.19
36.00
10:1
2130.01
16.00
2130.35
2.1%
2.1%
2130.01
16.00
10:1
2128.19
36.00
Wetland Delineated
4:1
2122.42
55.68
Wetland Delineated

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|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 28 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2130
2120

1274+00.00

1273+75.00

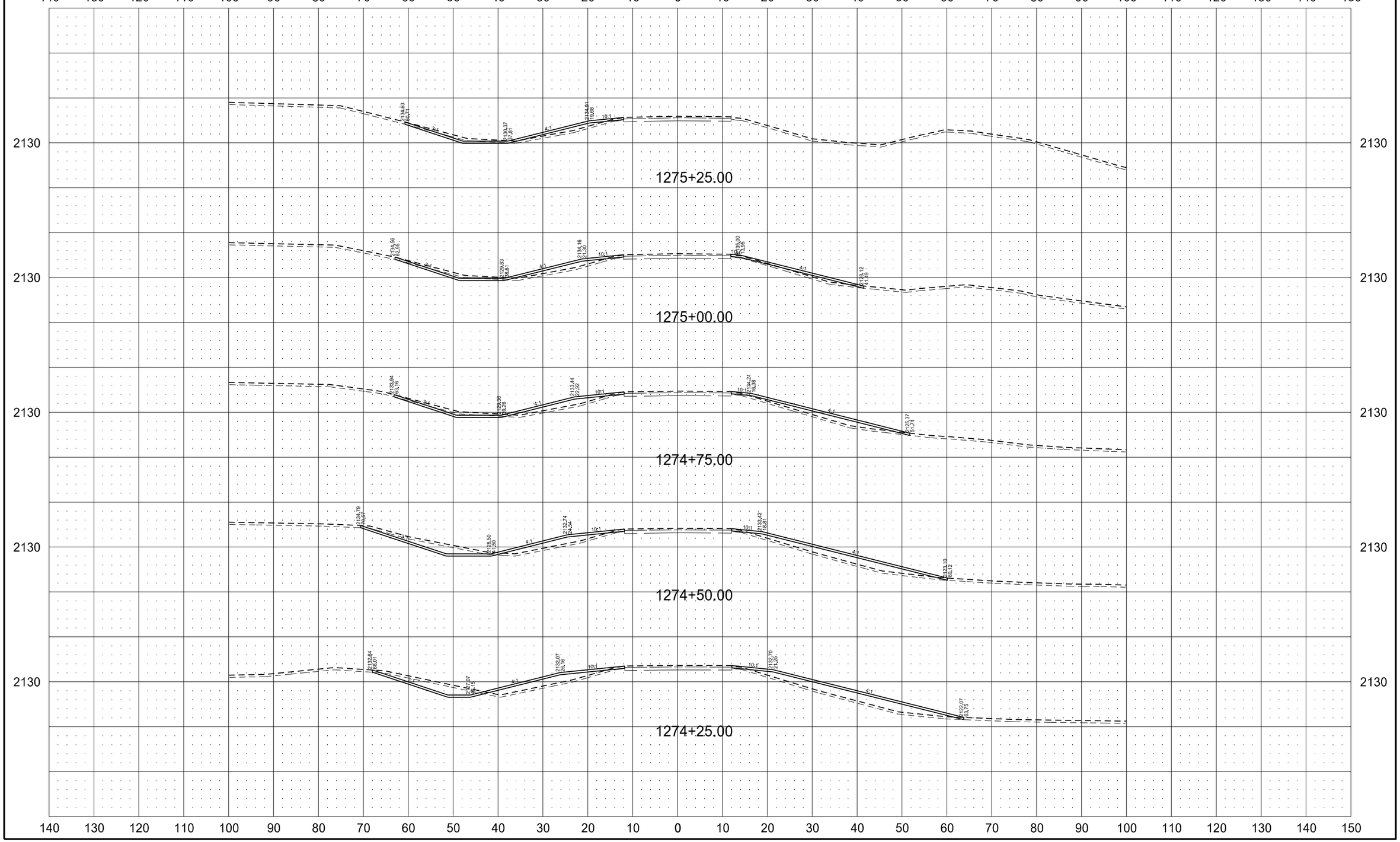
1273+50.00

1273+25.00

Wetland Delineated

| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 29 |

Co Rt 30 - Chain EXE30



| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 30 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2140
2130

2133.01
2132.37
2133.28
2132.27
4:1
2138.05
2139.49
10:1

1276+25.00

2132.92
2132.33
2137.27
2138.81

1276+00.00

2132.96
2132.05
2131.59
2131.90
2136.46
2136.90

1275+75.00

2133.65
2133.08
2135.66
2136.08

1275+50.00

| Revised 06/22/16 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 31 |

Co Rt 30 - Chain EXE30

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2140

2130

1276+50.00

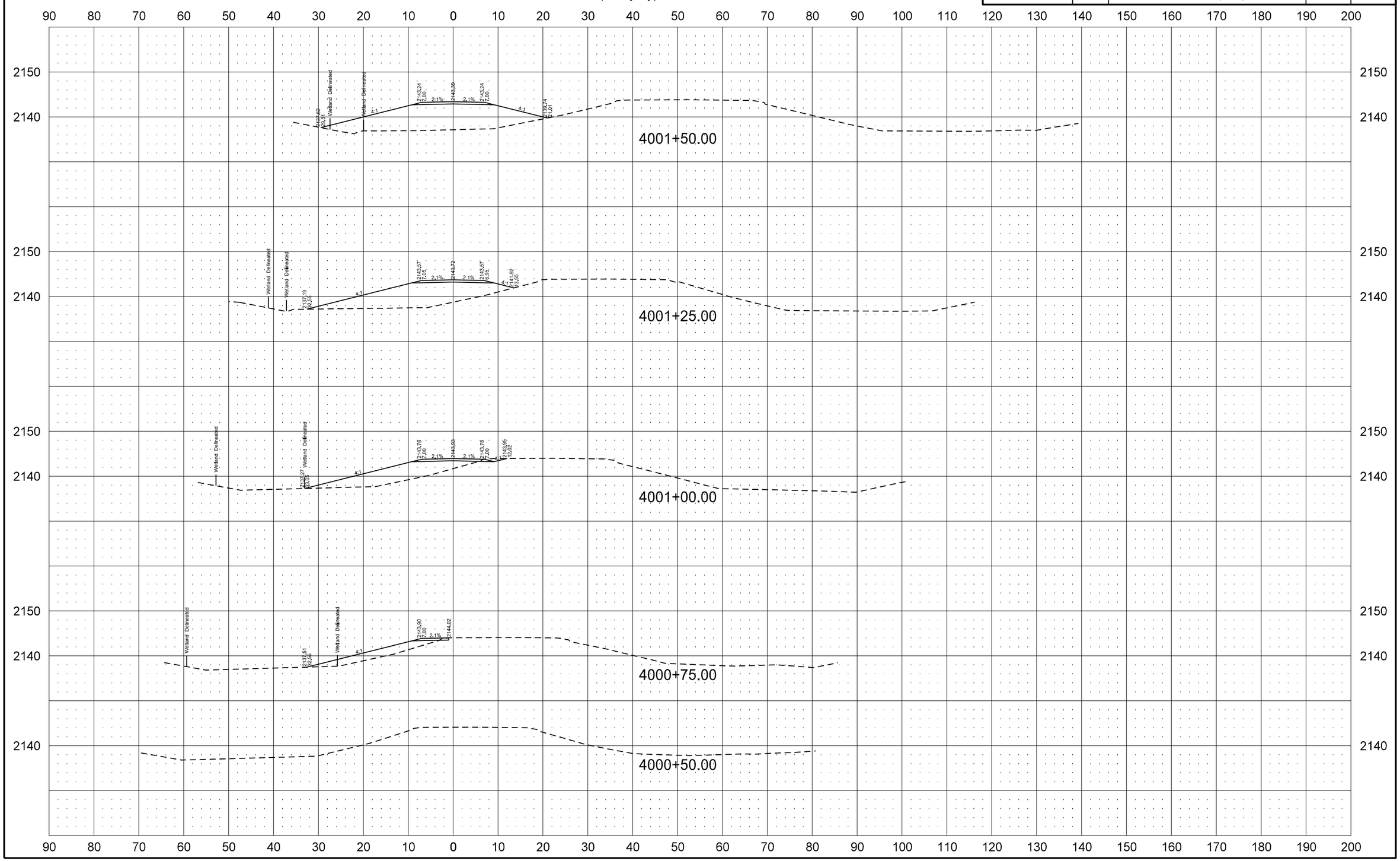
2140

2130

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

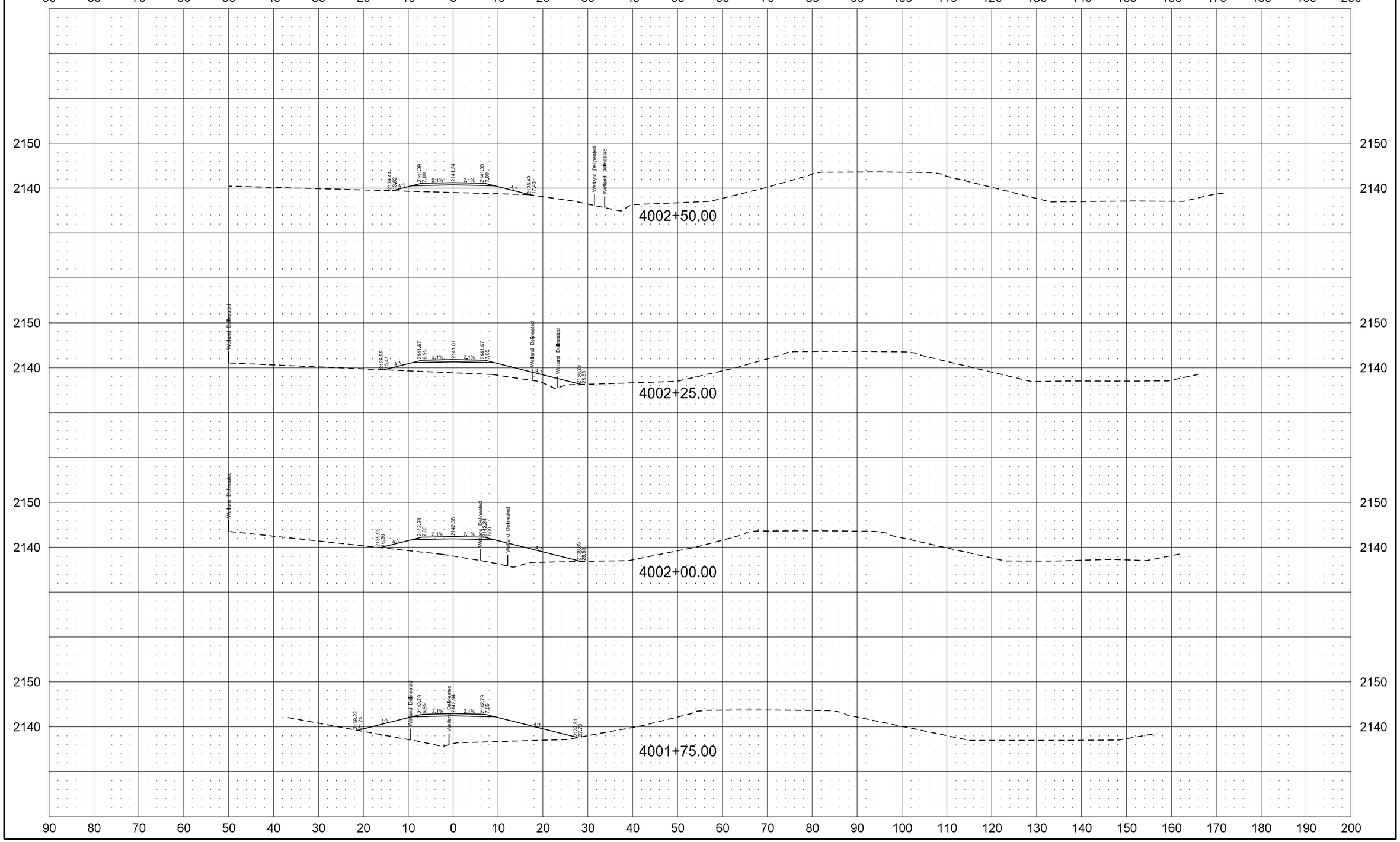
| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 32 |

## Temporary Bypass 131 - Chain PRBP131



| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 33 |

Temporary Bypass 131 - Chain PRBP131



| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 34 |

## Temporary Bypass 131 - Chain PRBP131

90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

2150
2140

Wetland Delineated
2137.81
15.58
4:1
Wetland Mitigation
2139.95
7.00
2.1%
2140.49
Wetland Mitigation
Wetland Delineated
2.1%
2139.95
7.00
4:1
2136.79
19.24
Wetland Delineated

4003+50.00

Wetland Delineated
Wetland Delineated
Wetland Delineated

2138.54
1.35
4:1
2140.02
7.00
2.1%
2140.49
2.1%
2140.02
7.00
4:1
2138.60
12.68
Wetland Mitigation
Wetland Delineated

4003+25.00

2138.40
1.34
4:1
2140.24
7.00
2.1%
2140.39
2.1%
2140.24
7.00
Wetland Mitigation
4:1
2138.40
14.33
Wetland Mitigation
Wetland Delineated
Wetland Delineated

4003+00.00

2139.58
1.22
4:1
2140.60
6.92
2.1%
2140.74
2.1%
2140.60
7.05
4:1
2138.78
14.30
Wetland Delineated
Wetland Delineated

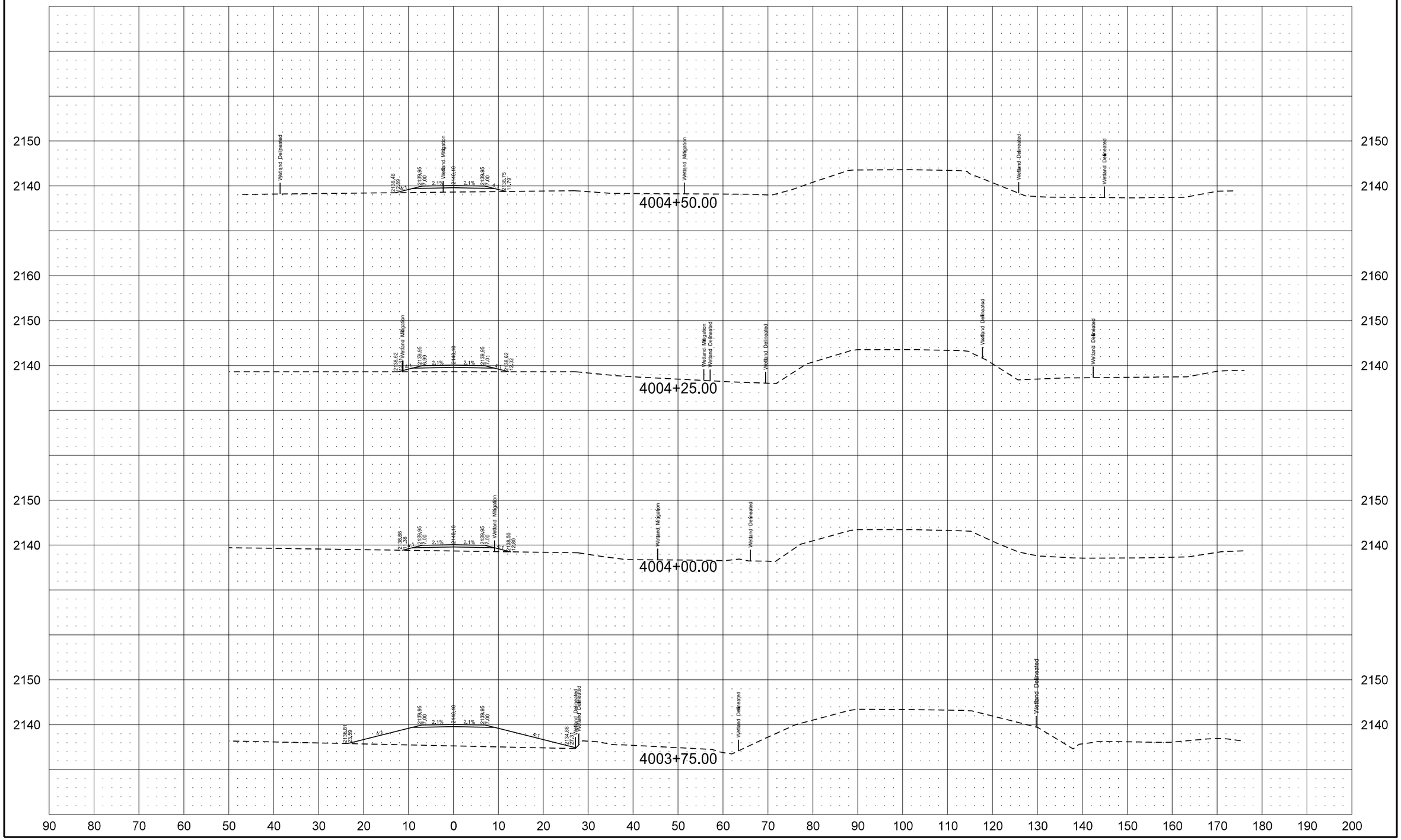
4002+75.00

90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

6/22/2016 4:22:24 PM paigemortenson P:\County\ND\McKenzie\14314102\CADD\02BoxculvertProject\Design\Plans\200\200_Xsec_032-038.dgn

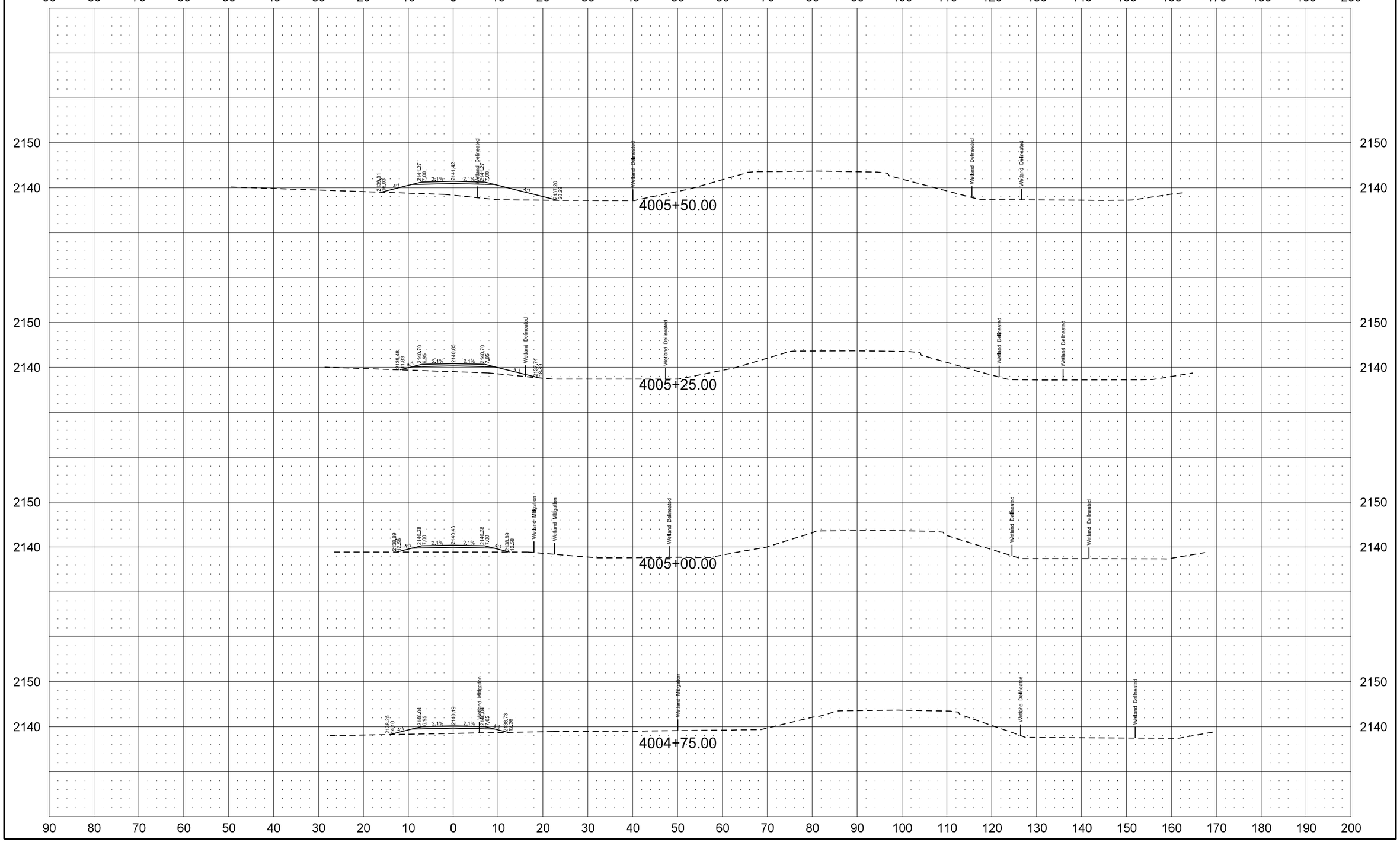
| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 35 |

Temporary Bypass 131 - Chain PRBP131



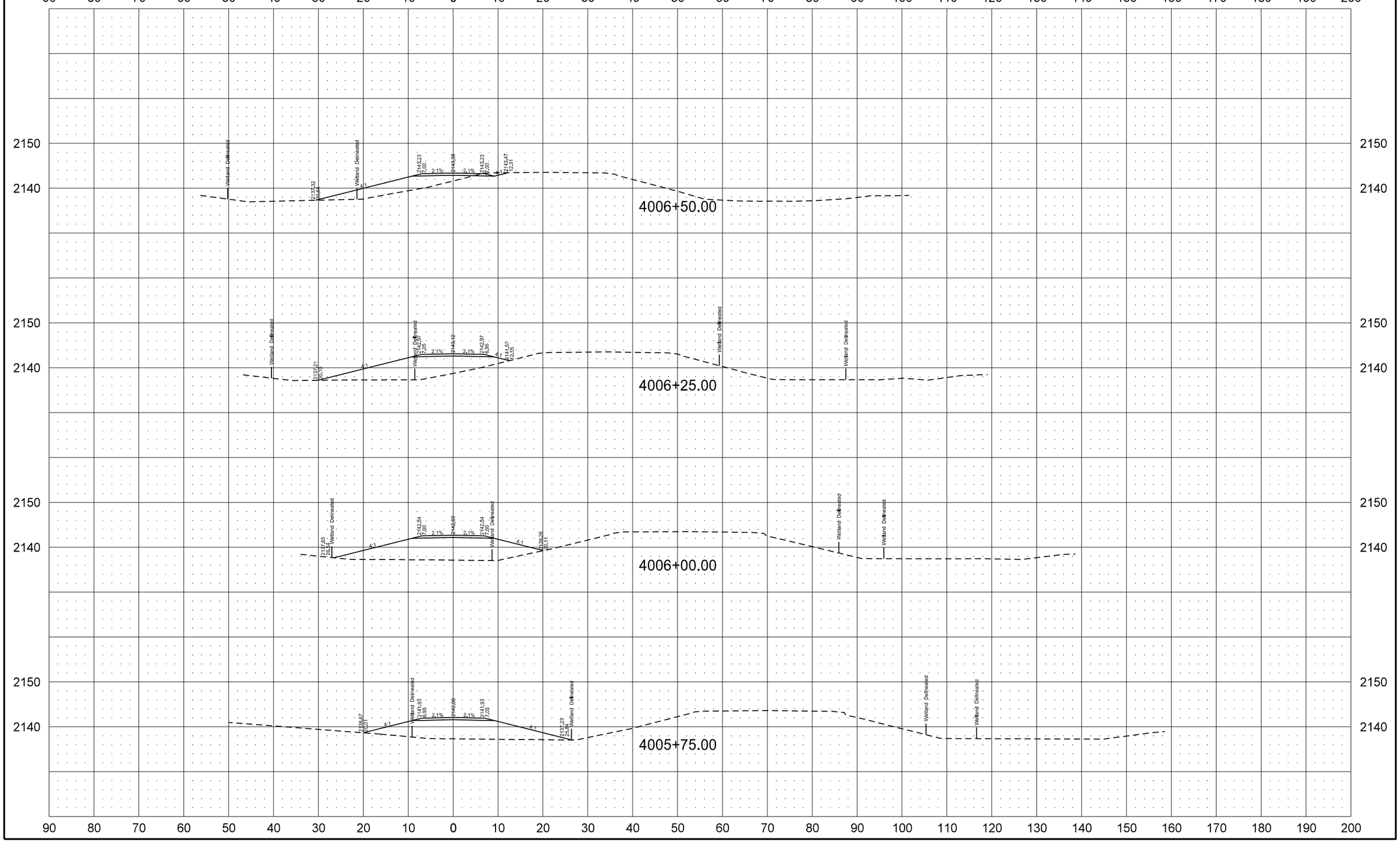
| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 36 |

Temporary Bypass 131 - Chain PRBP131



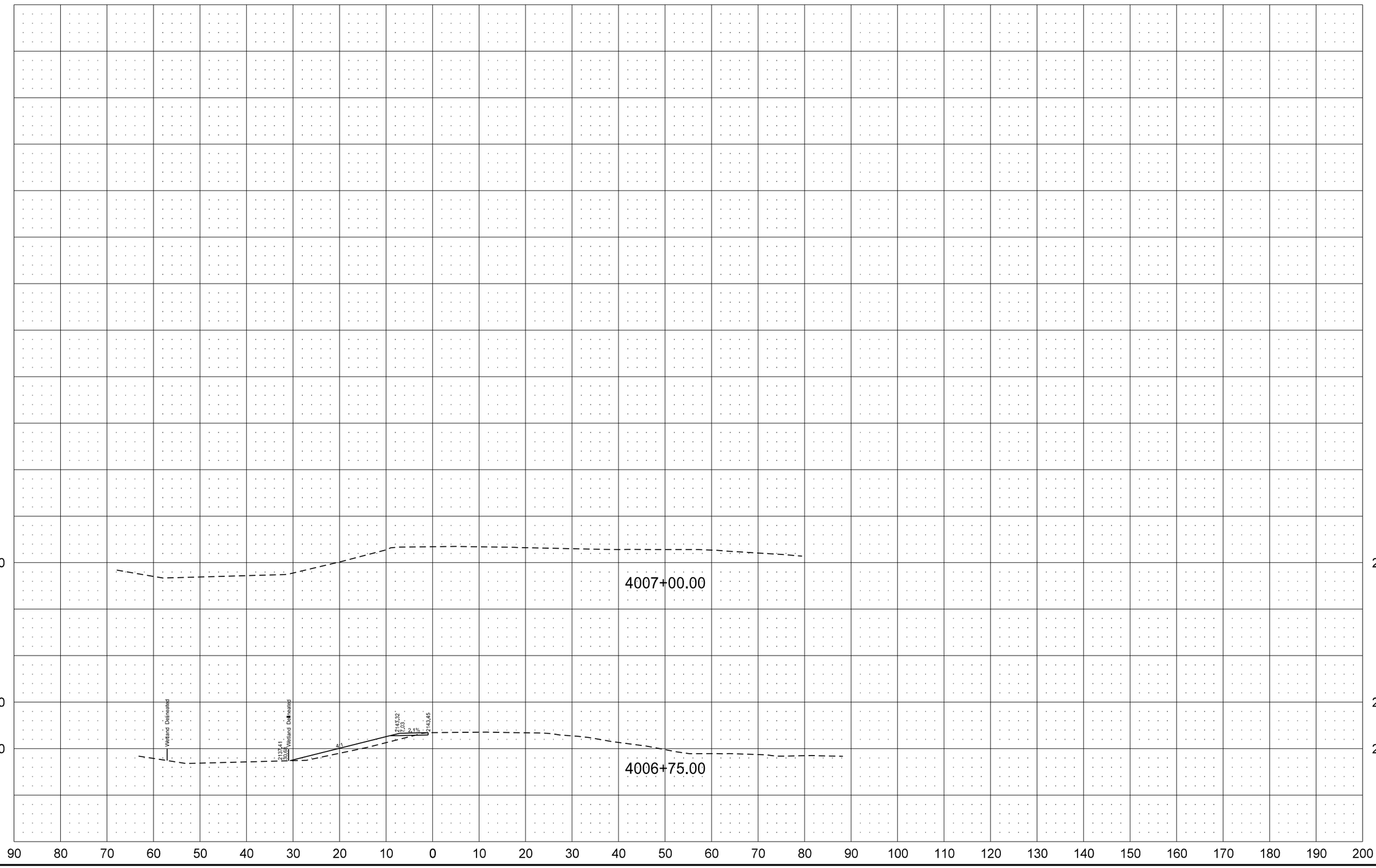
| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 37 |

Temporary Bypass 131 - Chain PRBP131



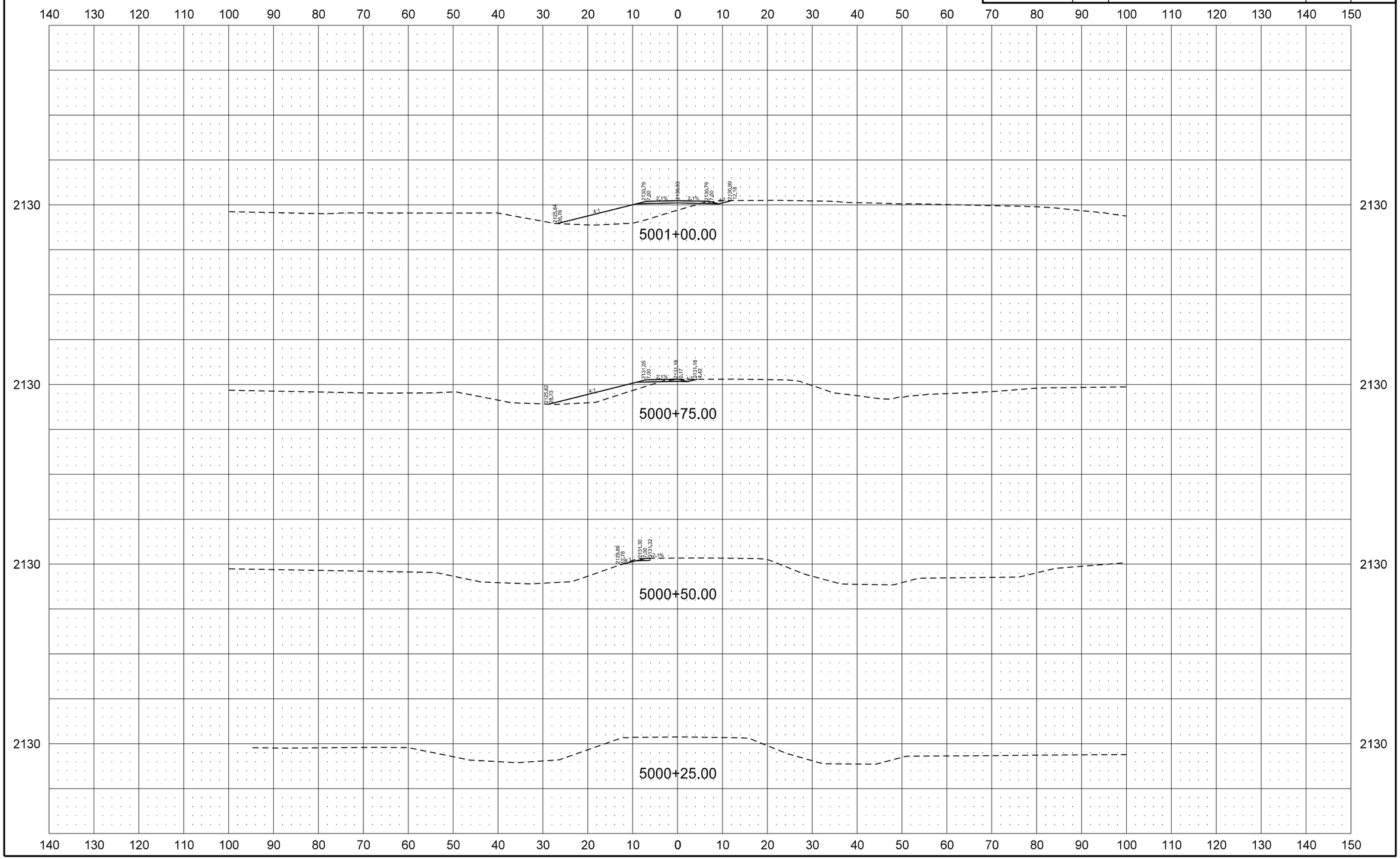
| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 38 |

Temporary Bypass 131 - Chain PRBP131



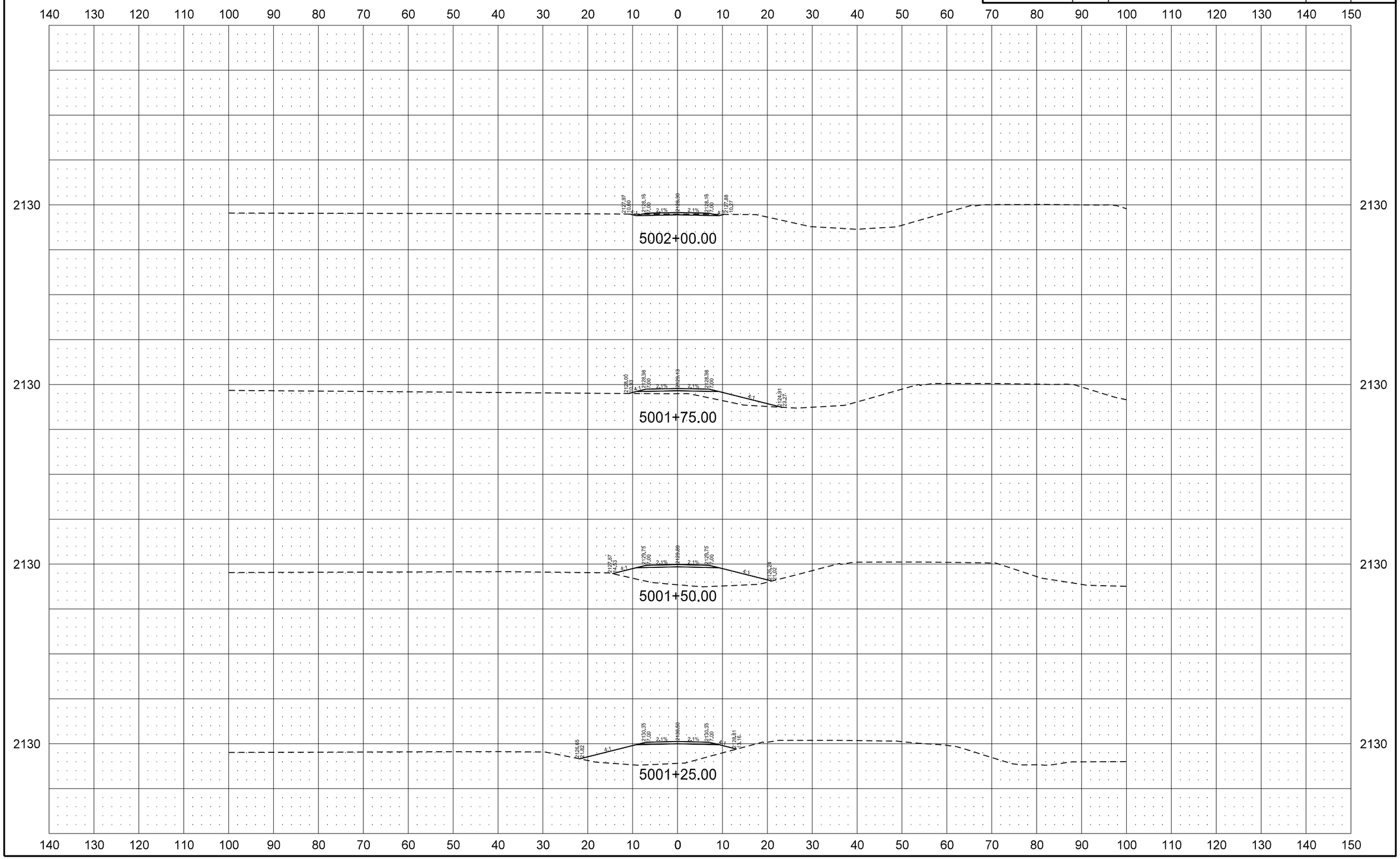
| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 39 |

Temporary Bypass 132 - Chain PRBP132



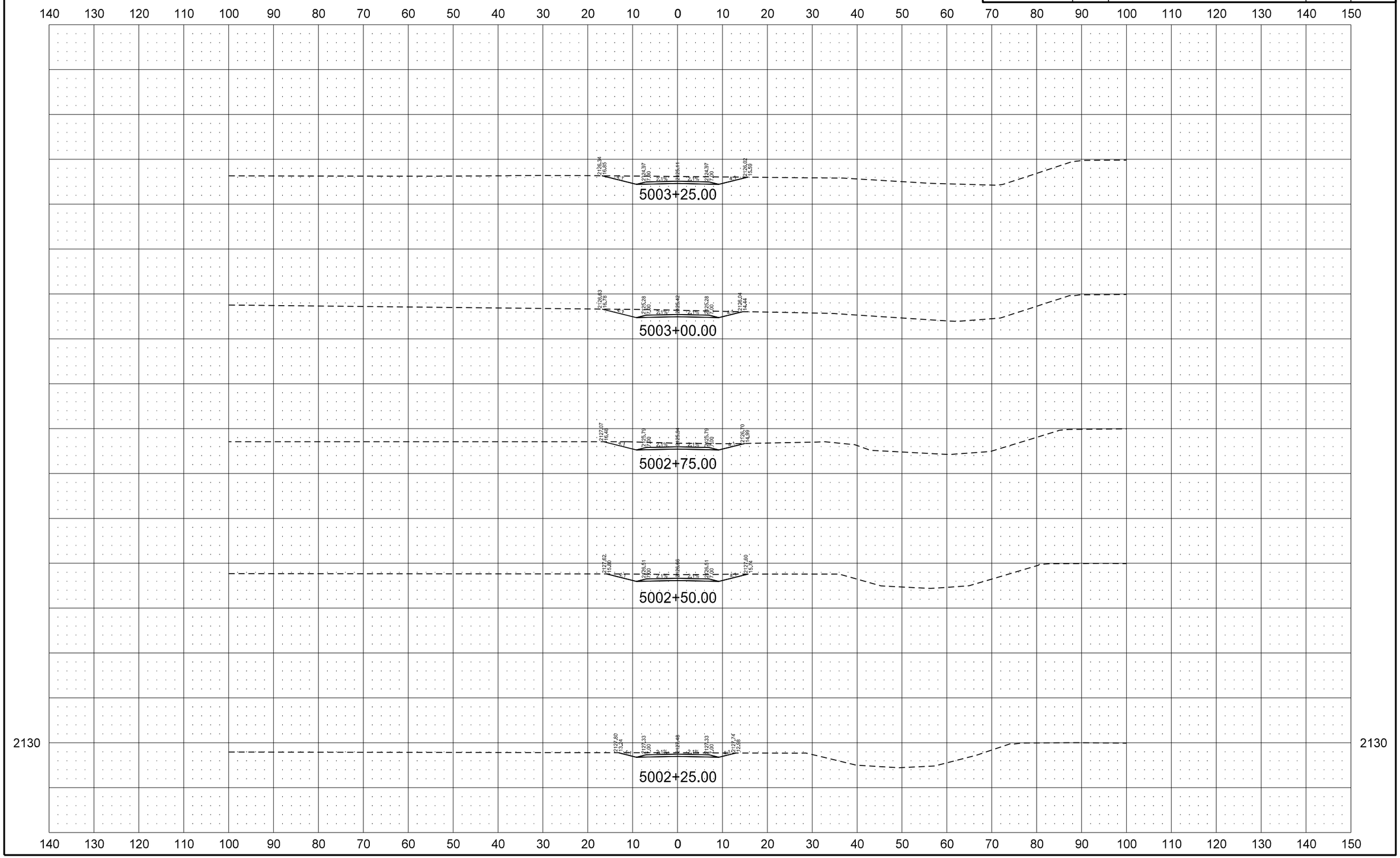
| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 40 |

Temporary Bypass 132 - Chain PRBP132



| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 41 |

Temporary Bypass 132 - Chain PRBP132



| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 42 |

Temporary Bypass 132 - Chain PRBP132

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2130
2120

Wetland Delineated
2119.83
27.15
4:1
2124.96
7.00
2.1%
2125.01
2.1%
4:1
2120.62
26.59
5004+00.00

Wetland Delineated
2125.68
14.56
2124.86
7.00
2.1%
2125.01
2.1%
2124.86
7.00
4:1
2125.46
13.73
5004+25.00

Wetland Delineated

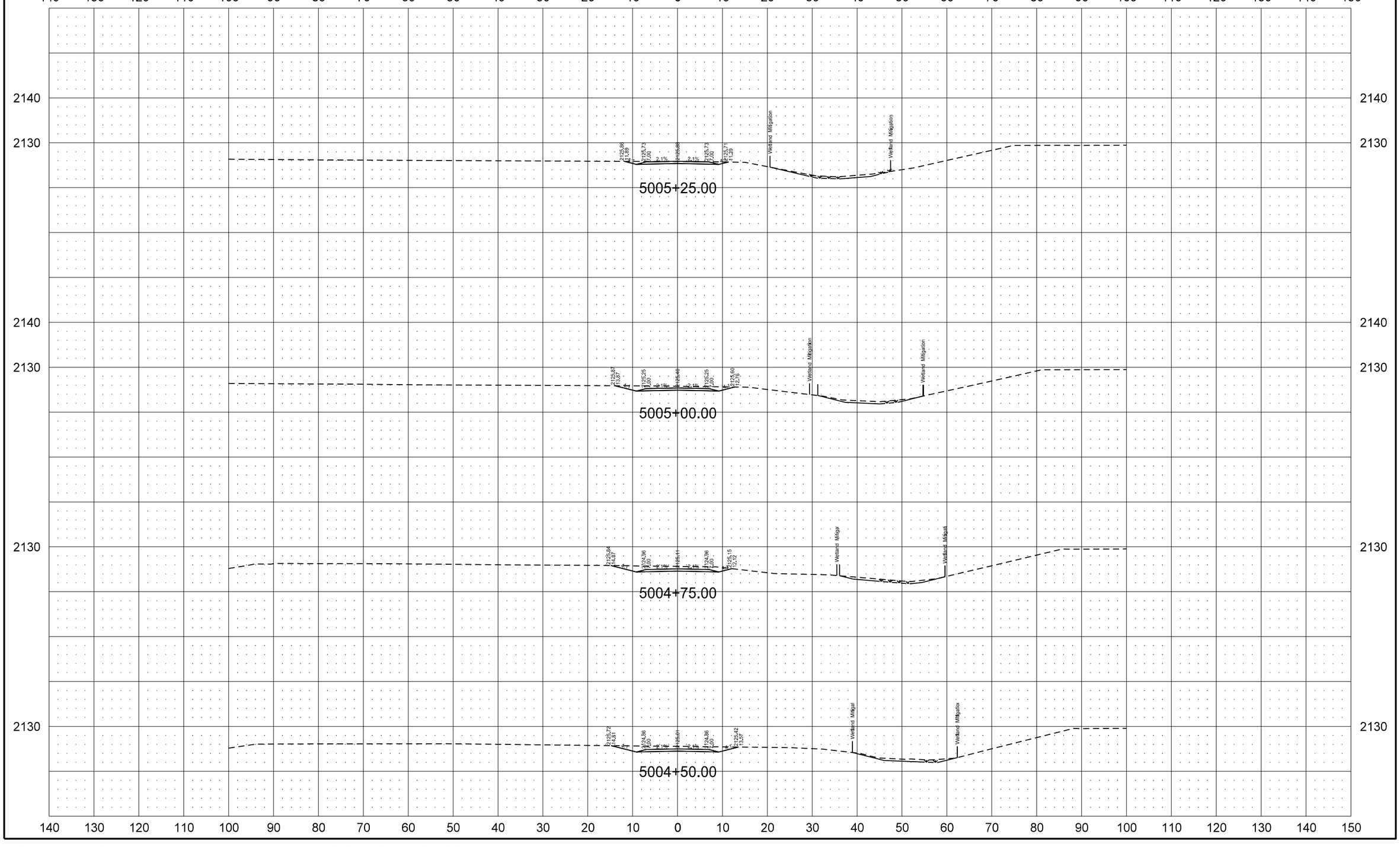
Wetland Delineated
2118.18
33.73
4:1
2124.86
7.00
2.1%
2125.01
2.1%
2124.86
7.00
4:1
2118.54
13.29
5003+75.00

Wetland Delineated
2125.09
14.27
2124.86
7.00
2.1%
2125.01
2.1%
2124.86
7.00
2125.17
12.58
5003+50.00

Wetland Delineated
Wetland Delineated

| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 43 |

Temporary Bypass 132 - Chain PRBP132

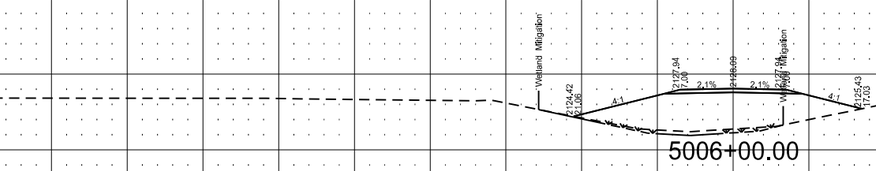


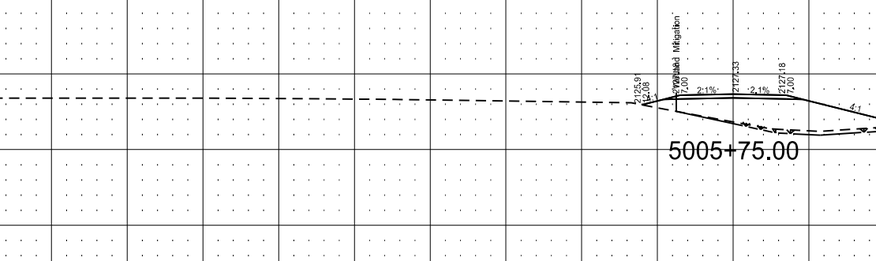
| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 44 |

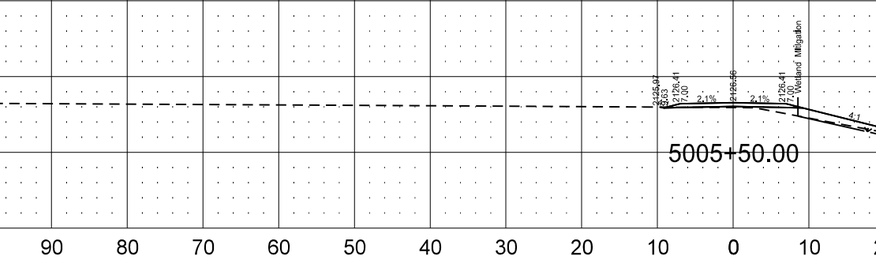
## Temporary Bypass 132 - Chain PRBP132

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2140
2130



| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 45 |

Temporary Bypass 132 - Chain PRBP132

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2140
2130

5007+00.00

2122.71
33.21
4:1
2129.27
2.00
2.1%
2129.41
2.00
2.1%

5006+75.00

2122.59
32.59
4:1
2128.98
2.00
2.1%
2129.12
2.00
2.1%
2128.98
2.00
2129.46
2.00
Wetland Delineated
Wetland Delineated

5006+50.00

2123.22
28.32
4:1
Wetland Mitigation
2126.79
2.00
2.1%
Wetland Mitigation
2126.65
2.00
2.1%
2126.55
2.00
2127.47
1.32
Wetland Delineated
Wetland Delineated

5006+25.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 46 |

## Temporary Bypass 134 - Chain PRBP134

190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

2110
2100

Wetland Delineated

2102.30
12.25
2102.51
2.00
2.1%
2102.66
2.1%
2102.51
7.00
4:1
Wetland Delineated
2099.10
24.70

6001+00.00

Wetland Delineated

2103.20
2.1%
2103.09
7.00
4:1
2101.10
3.48

Wetland Delineated

6000+75.00

Wetland Delineated

Wetland Delineated
Wetland Delineated
Wetland Delineated
Wetland Delineated

6000+50.00

190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

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|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 47 |

Temporary Bypass 134 - Chain PRBP134

190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

2110
2100

Wetland Delineated
Wetland Delineated

6001+75.00

2097.30
16.83
4:1
2100.50
7.00
2.1%
2100.55
2.1%
2.1%
2100.50
7.00
4:1
2097.68
18.27

6001+50.00

2099.20
16.40
4:1
2101.30
7.00
2.1%
2101.45
2.1%
2.1%
2101.30
7.00
4:1
2097.21
23.34
Wetland Delineated

6001+25.00

Wetland Delineated
Wetland Delineated
Wetland Delineated

2101.41
2.14
4:1
2101.97
7.00
2.1%
2102.42
2.1%
2.1%
2101.97
7.00
4:1
2097.51
22.28
Wetland Delineated
Wetland Delineated

| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 48 |

Temporary Bypass 134 - Chain PRBP134

190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

2110
2100

6002+50.00

2096.76
14.35
4:1
2097.61
4.00
2.1%
2098.76
2.1%
2097.61
7.00
4:1
2098.67
15.62

6002+25.00

Wetland Delineated
Wetland Delineated

2098.40
10.09
4:1
2098.60
7.00
2.1%
2098.74
2.1%
2098.60
7.00
4:1
2098.20
10.00

6002+00.00

Wetland Delineated
Wetland Delineated

2097.57
15.00
4:1
2098.58
7.00
2.1%
2098.73
2.1%
2098.58
7.00
4:1
2097.88
13.79

| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 49 |

Temporary Bypass 134 - Chain PRBP134

190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

2110
2100

6003+25.00

2093.75
12.57
4:1
2095.15
2.00
2.1%
2095.29
2.1%
Wetland Delineated
2095.15
7.00
4:1
2093.79
12.42

Wetland Delineated

6003+00.00

2097.76
19.43
4:1
2095.76
2.00
2.1%
2095.91
2.1%
2095.76
7.00
4:1
2098.91
23.98

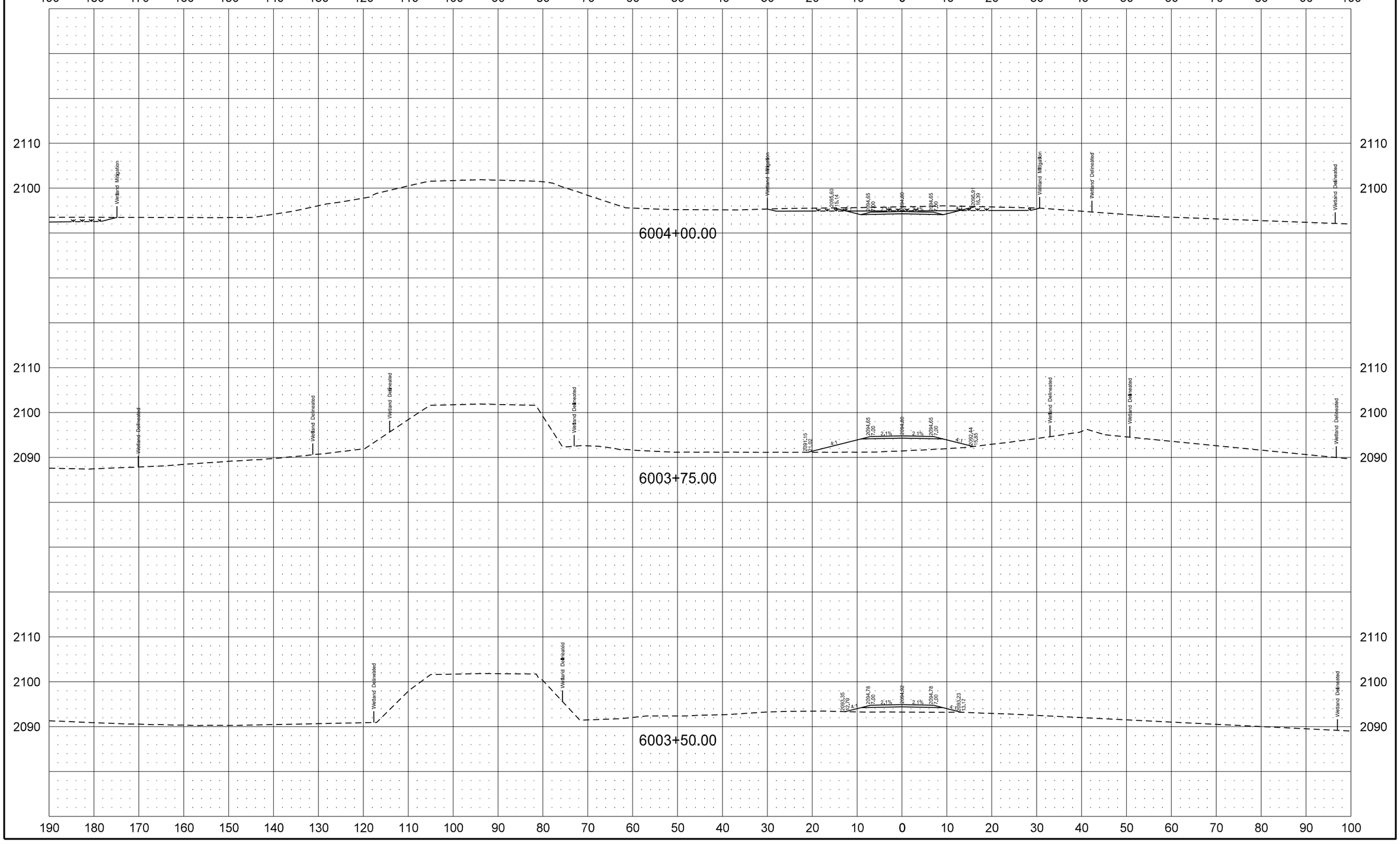
Wetland Delineated

6002+75.00

2098.50
18.65
4:1
2096.42
2.00
2.1%
2096.57
2.1%
2096.42
7.00
4:1
2100.27
25.14

| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 50 |

Temporary Bypass 134 - Chain PRBP134



| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 51 |

Temporary Bypass 134 - Chain PRBP134

190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

2110
2100

Wetland Delineated

6004+75.00

2093.67
13.02
4:1
2095.18
7.00
2.1%
2095.33
2.1%
2095.18
7.00
4:1
2093.76
15.96

Wetland Delineated

Wetland Delineated

Wetland Mitigation

Wetland Mitigation

Wetland Delineated

Wetland Delineated

6004+50.00

2093.67
13.02
4:1
2095.18
7.00
2.1%
2095.33
2.1%
2095.18
7.00
4:1
2093.47
13.53

Wetland Delineated

Wetland Mitigation

6004+25.00

2095.52
4.48
4:1
2094.74
7.00
2.1%
2094.88
2.1%
2094.74
7.00
4:1
2095.01
12.44

Wetland Delineated

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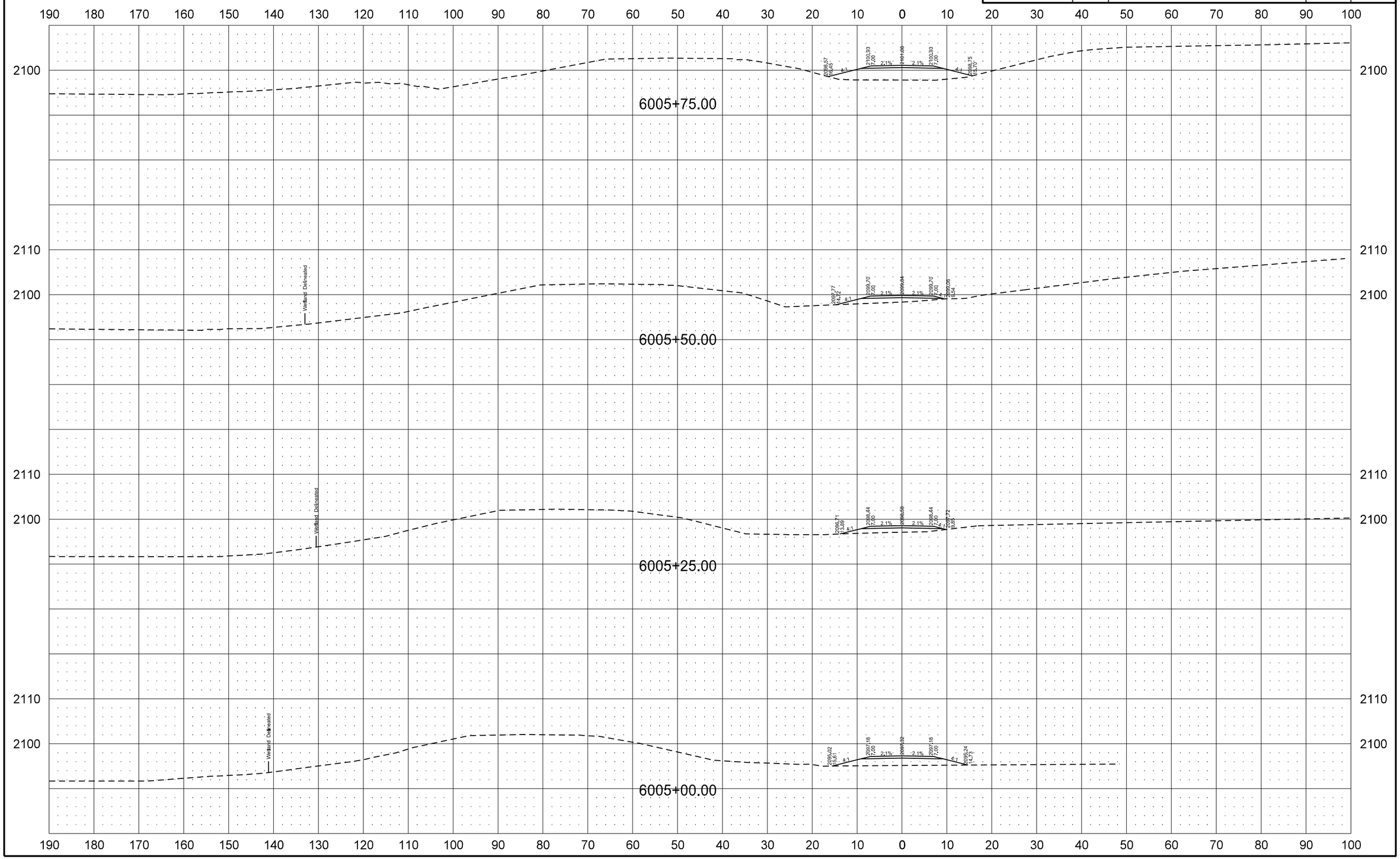
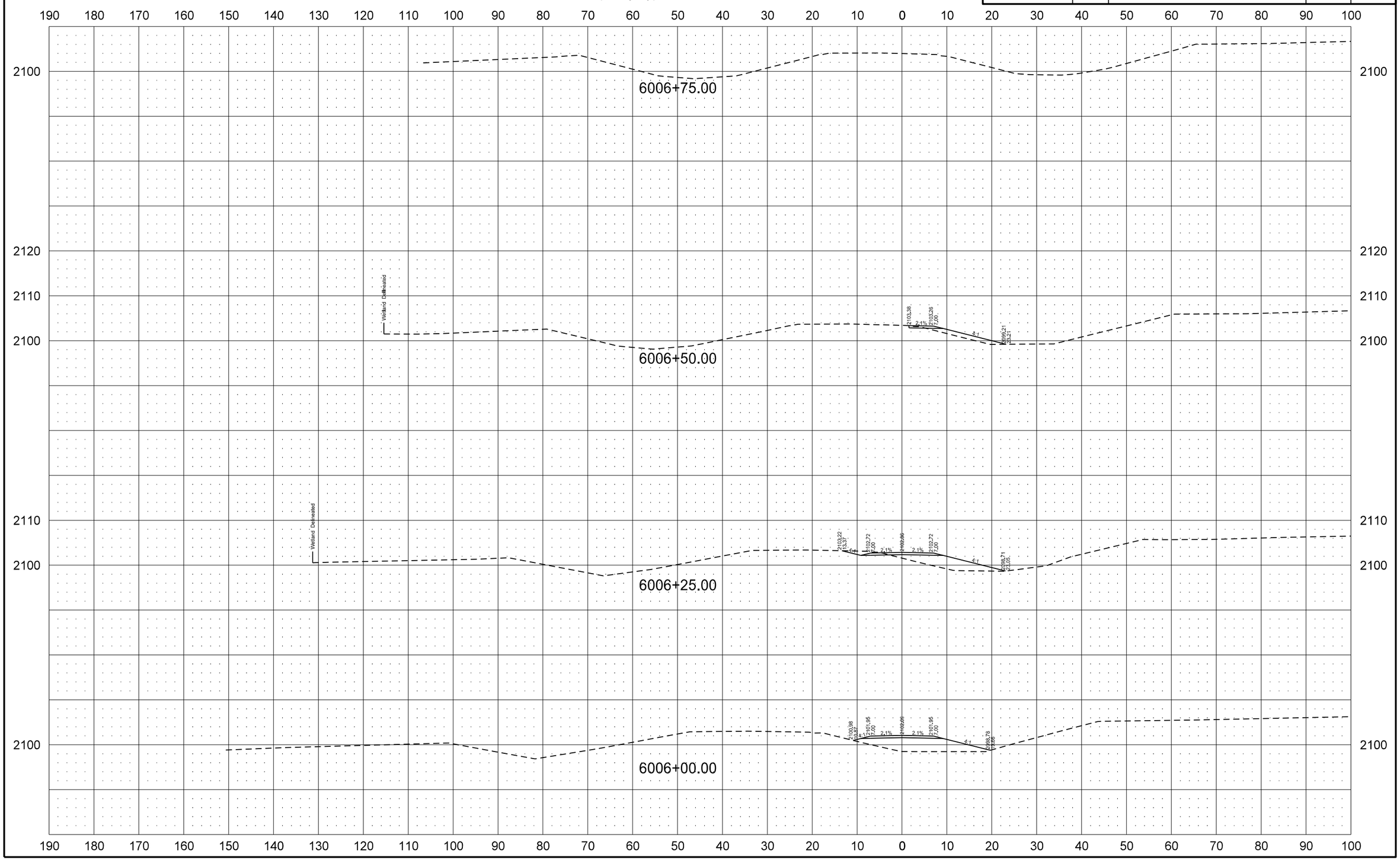
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 52 |

Temporary Bypass 134 - Chain PRBP134



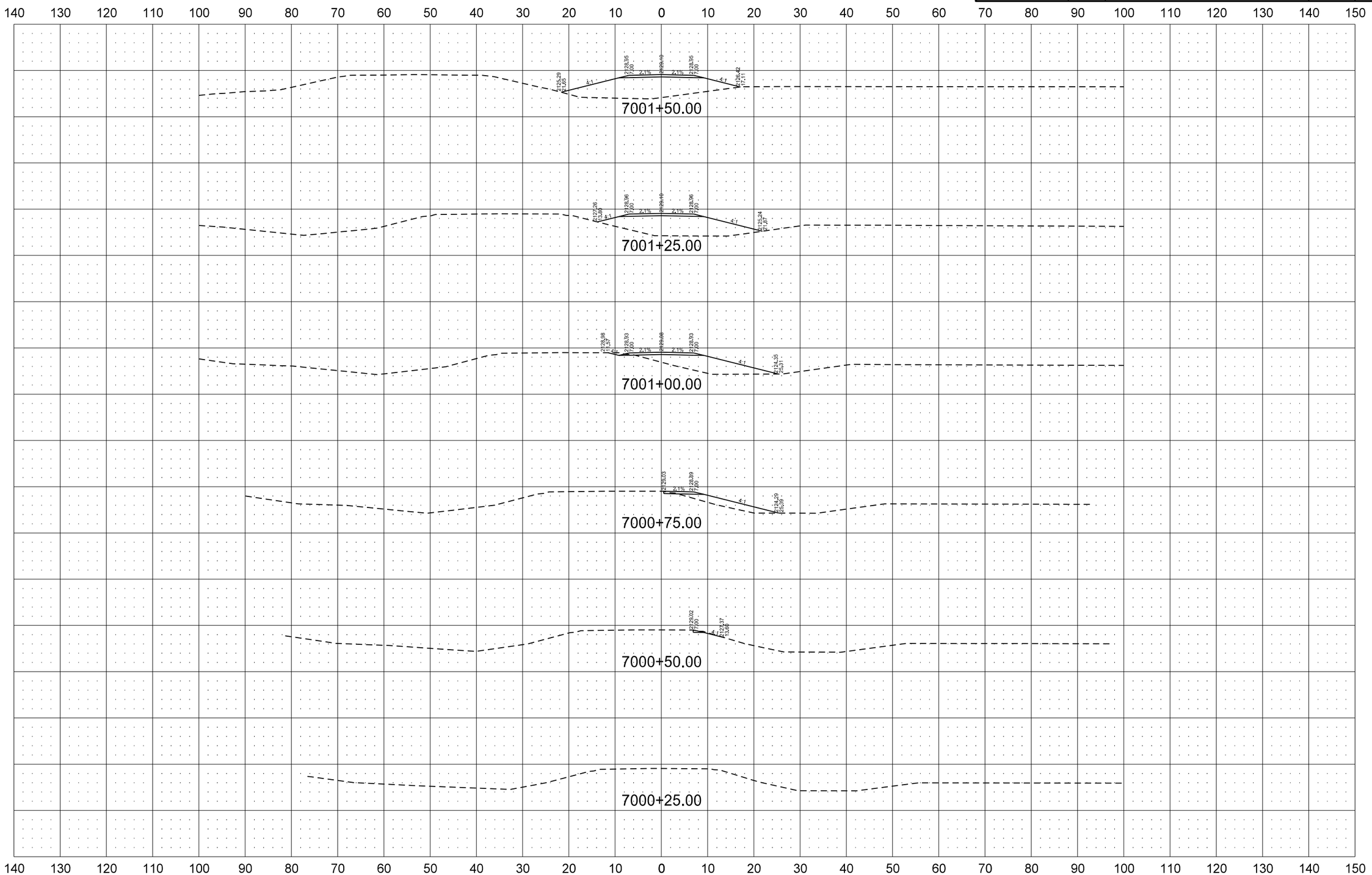
| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 53 |

Temporary Bypass 134 - Chain PRBP134



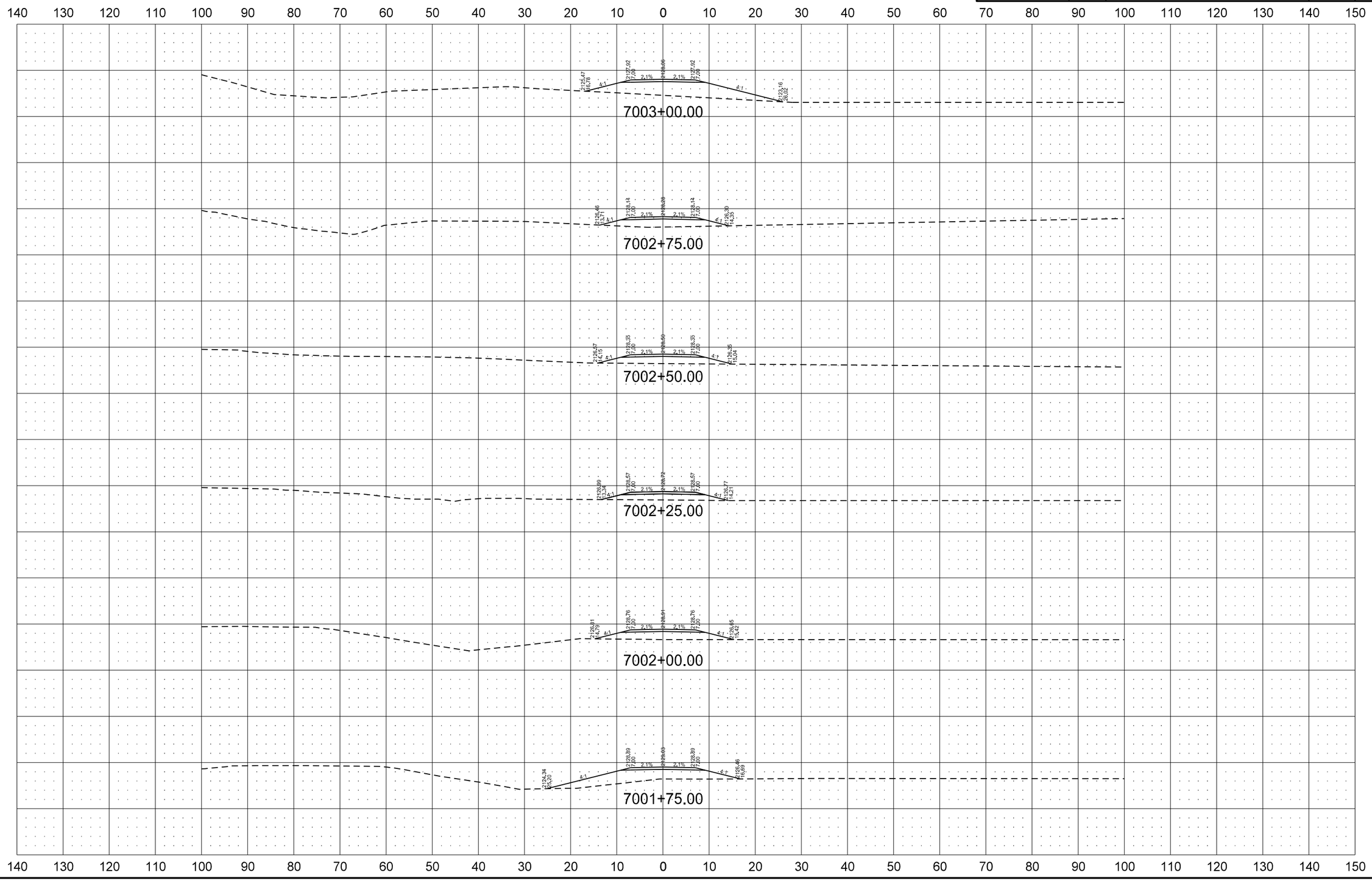
| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 54 |

Temporary Bypass 136 - Chain PRBP136



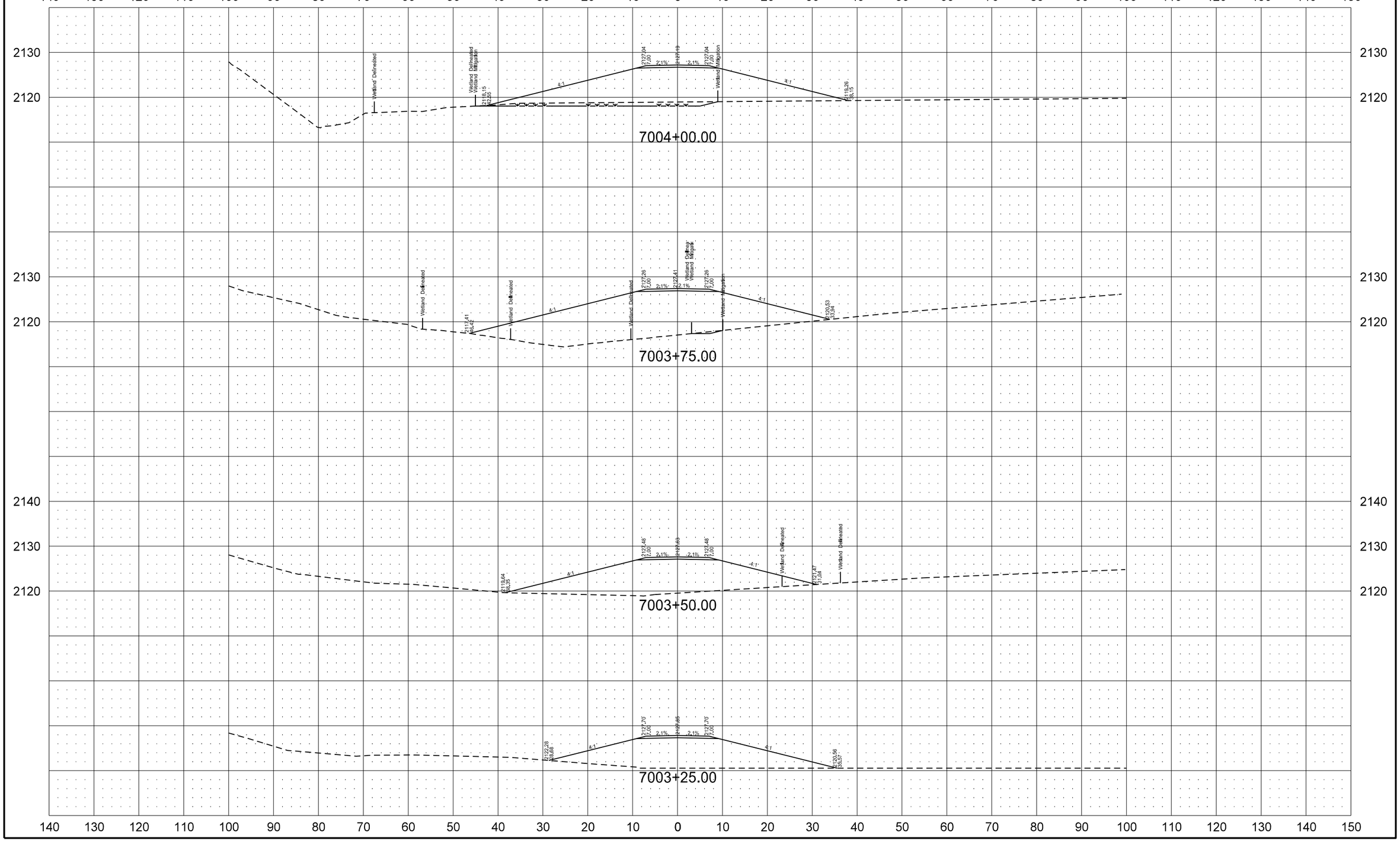
| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 55 |

Temporary Bypass 136 - Chain PRBP136



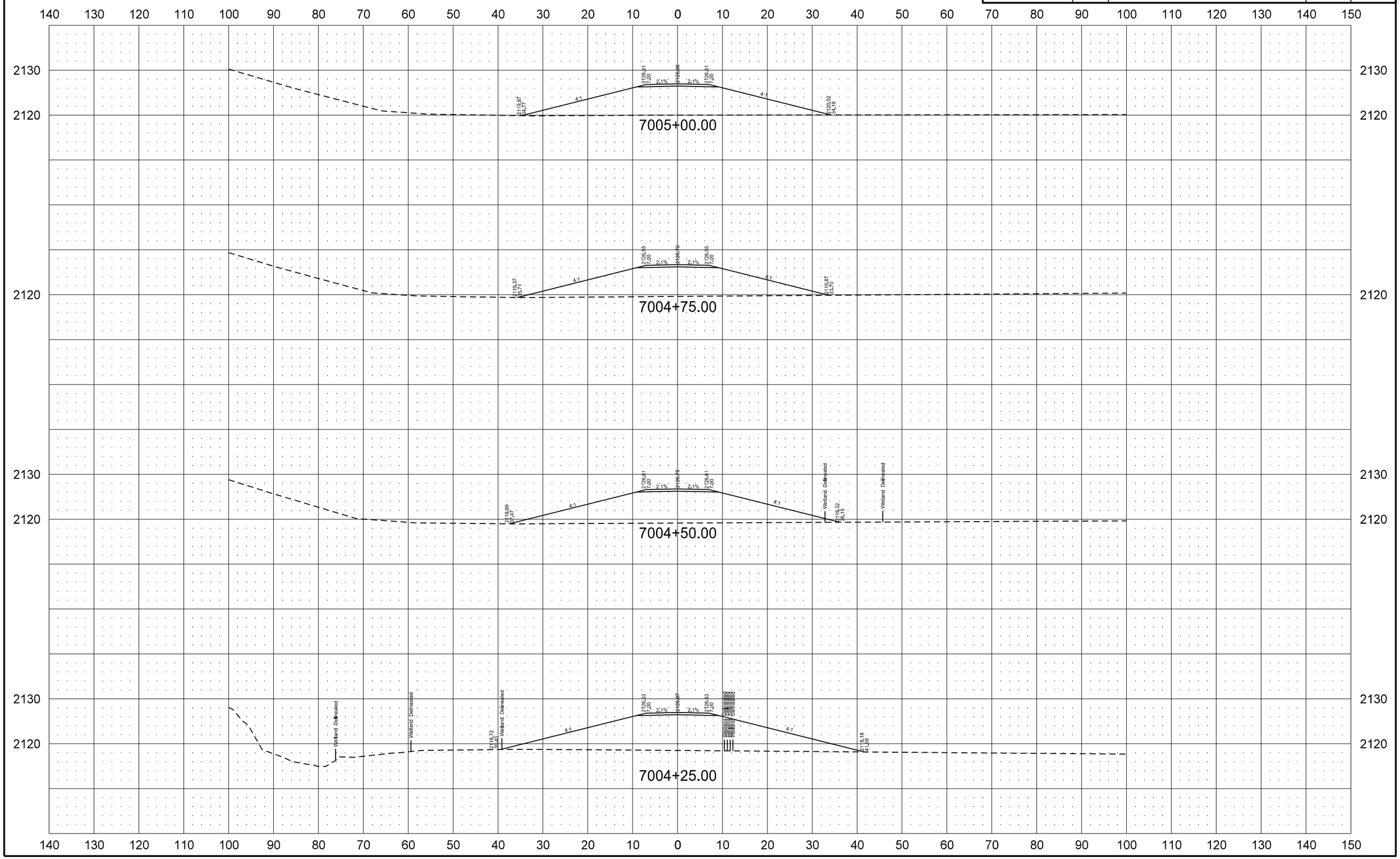
| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 56 |

## Temporary Bypass 136 - Chain PRBP136



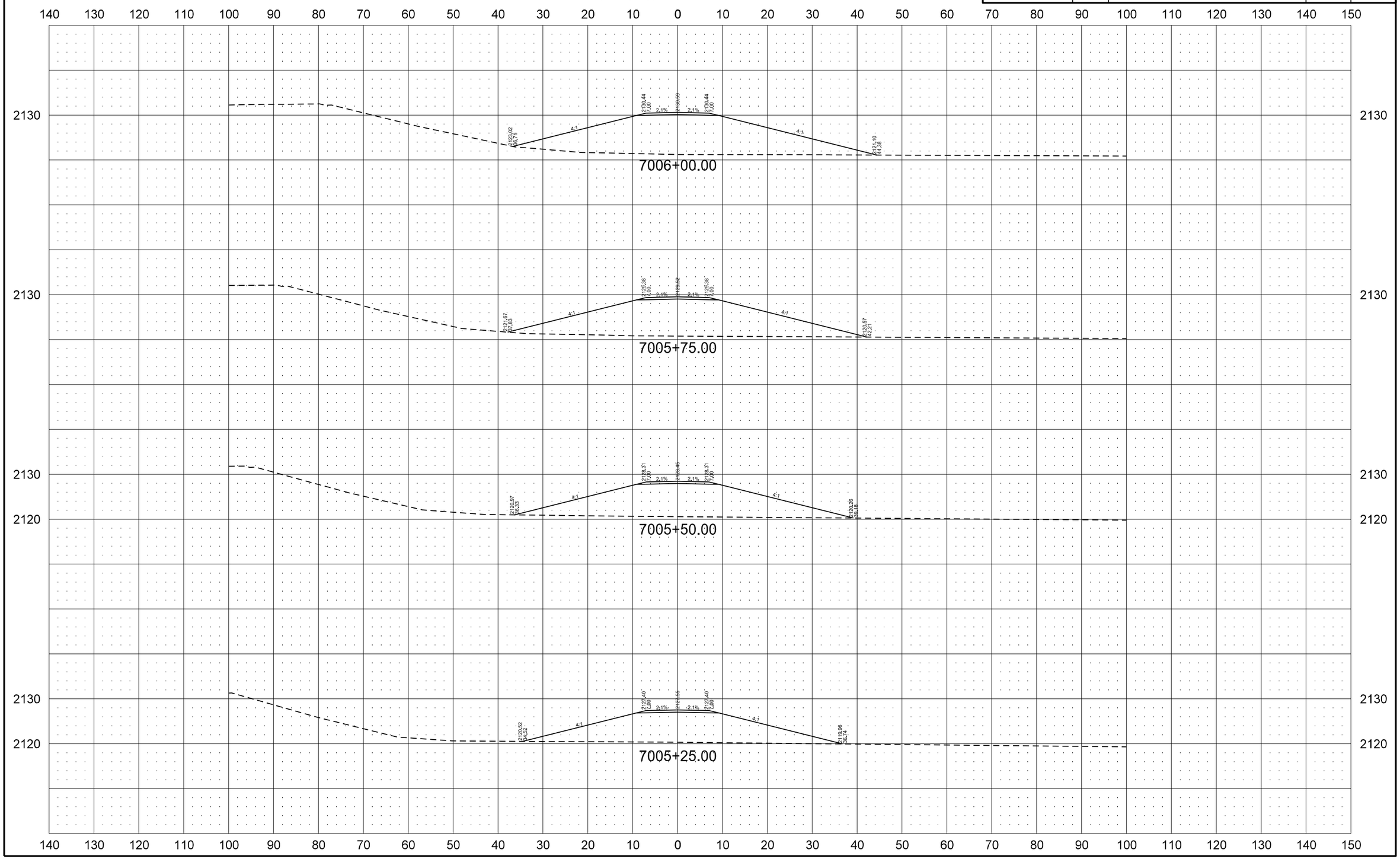
| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 57 |

Temporary Bypass 136 - Chain PRBP136



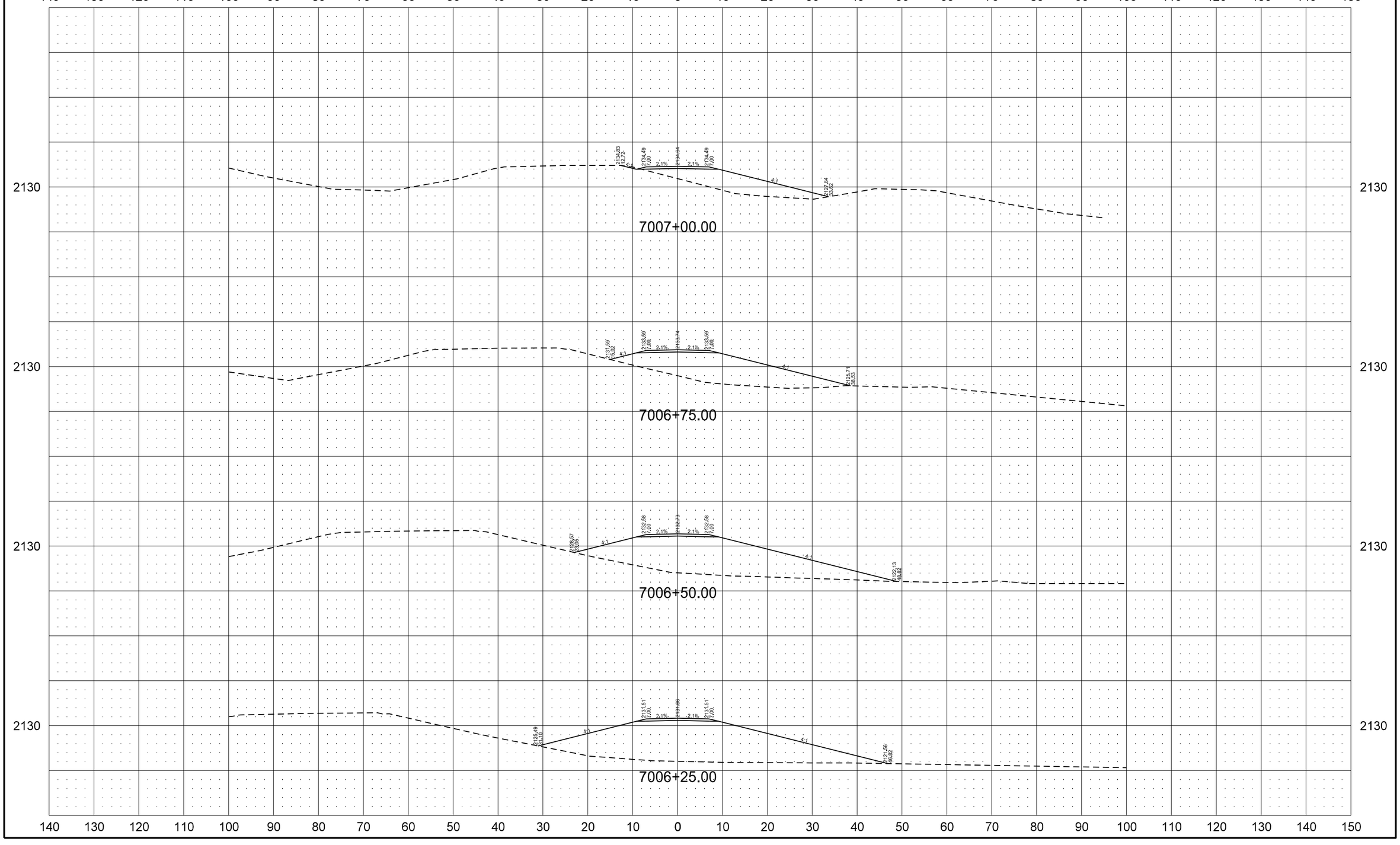
| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 58 |

Temporary Bypass 136 - Chain PRBP136



| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 59 |

Temporary Bypass 136 - Chain PRBP136



| Revised 06/22/2016 | STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| | ND | SC-2730(061) | 200 | 60 |

Temporary Bypass 136 - Chain PRBP136

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2130

7007+75.00

7007+50.00

2136.08
2.1%
2136.05
7.00
4:1
2131.37
25.71

7007+25.00

2135.47
2.1%
2135.28
7.00
4:1
2129.50
33.11

2130

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150