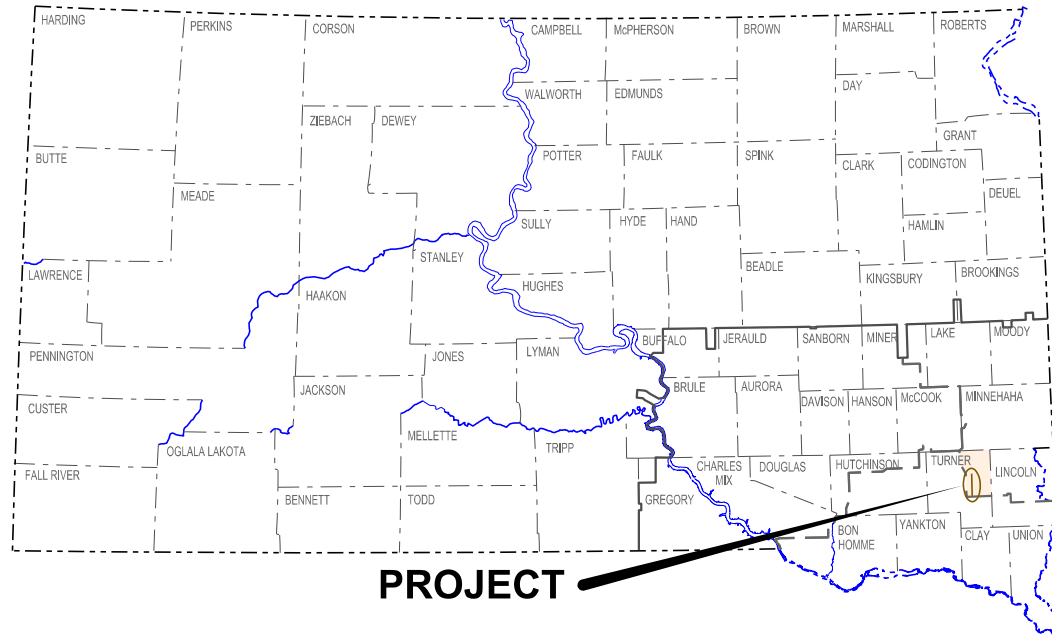


PLOT SCALE - 1"=8400'

PLOTTED FROM - TRM111118



STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED  
**PROJECT P 0019(49)43**  
**SD HIGHWAY 19**  
**TURNER COUNTY**

COLD MILLING, ASPHALT CONCRETE RESURFACING,  
FULL DEPTH RECLAMATION OF SHOULDERS,  
INTERSECTION IMPROVEMENT - LEFT TURN LANES,  
CULVERT WORK & PAVEMENT MARKING  
PCN 06QE

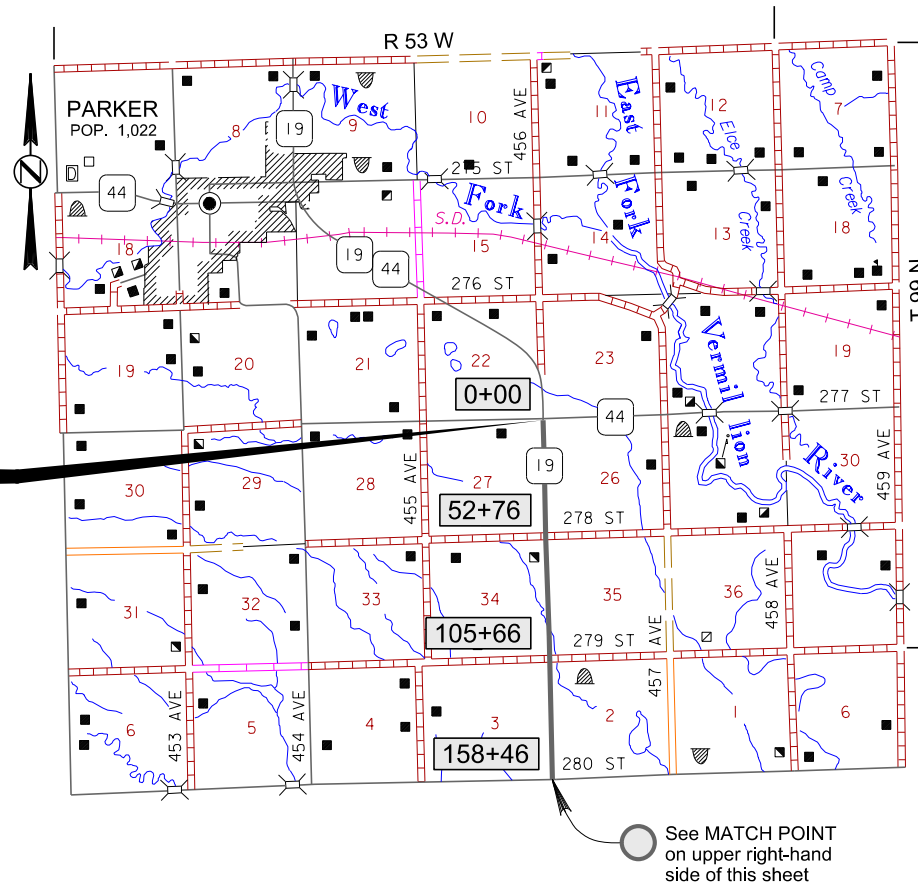
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|-----------------------------|--------------|-------|-----------------|
|                             | P 0019(49)43 | 1     | 85              |

Plotting Date: 03/24/2025

INDEX OF SHEETS

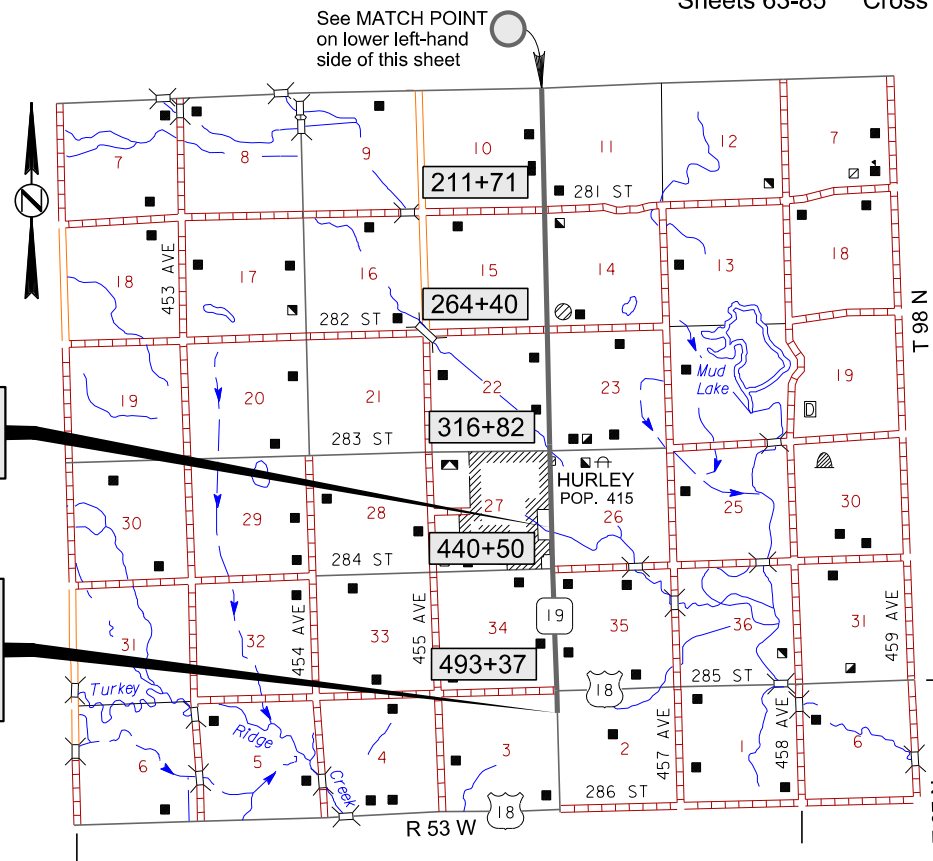
|              |                                                                |
|--------------|----------------------------------------------------------------|
| Sheet 1      | Layout Map & Index of Sheets                                   |
| Sheet 2      | Estimate of Quantities                                         |
| Sheets 3-6   | Environmental Commitments                                      |
| Sheets 7-9   | Typical Sections                                               |
| Sheets 10-11 | Rates of Materials                                             |
| Sheet 12     | Table of Project Stationing &<br>Table of Materials Quantities |
| Sheet 13     | Table of Additional Quantities                                 |
| Sheet 14     | Summary of Asphalt Concrete                                    |
| Sheets 15-16 | Table for Mainline Culvert Work                                |
| Sheet 17     | Table of Construction Staking                                  |
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| Sheets 27-31 | Pavement Marking Details                                       |
| Sheets 32-36 | Traffic Control                                                |
| Sheet 37     | Horizontal Alignment Data                                      |
| Sheet 38     | Legend                                                         |
| Sheets 39-40 | Turn Lane Plan Sheets                                          |
| Sheets 41-48 | Pipe Repair Plan Sheets                                        |
| Sheet 49     | Tree Clearing Plan Sheet                                       |
| Sheets 50-51 | Layouts for Cold Milling Tapers                                |
| Sheet 52     | Layout of Embankment and Surfacing<br>for Culvert Replacement  |
| Sheets 53-62 | Standard Plates                                                |
| Sheets 63-85 | Cross Sections                                                 |

**BEGIN PROJECT**  
STA. 0+75  
MRM 51.25 +0.000  
(At End Radii 75' S  
of Jct Q SD19)



**EQUATION**  
Sta. 351+55 Back=  
Sta. 422+62 Ahead

**END PROJECT**  
STA. 499+22  
695' S of MRM 43.30  
(585' S of Jct Q US18)



| DESIGN DESIGNATION |           |
|--------------------|-----------|
| ADT(2023)          | 1,212     |
| ADT(2043)          | 2,028     |
| DHV                | 234       |
| D                  | 51%       |
| T DHV              | 7.4%      |
| T ADT              | 16.2%     |
| V                  | 50/65 MPH |

| STORM WATER PERMIT                |  |
|-----------------------------------|--|
| Receiving Waters:                 |  |
| Tributaries to the                |  |
| Vermillion River                  |  |
| Area Disturbed: 12.5 Acres        |  |
| Total Project Area: 194 Acres     |  |
| Latitude: 43.3728 (Google Maps)   |  |
| Longitude: -97.0824 (Google Maps) |  |

**PROJECT LENGTH**  
Length: 42,740' 8.095 Miles

# ESTIMATE OF QUANTITIES

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 2     | 85              |

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| BID ITEM<br>NUMBER | ITEM                                                 | QUANTITY | UNIT |
|--------------------|------------------------------------------------------|----------|------|
| 009E0010           | Mobilization                                         | Lump Sum | LS   |
| 009E3210           | Construction Staking                                 | 8.095    | Mile |
| 009E3230           | Grade Staking                                        | 0.899    | Mile |
| 009E3240           | Graded Centerline Staking                            | 0.599    | Mile |
| 009E3250           | Miscellaneous Staking                                | 8.095    | Mile |
| 009E3280           | Slope Staking                                        | 0.599    | Mile |
| 009E3301           | Engineer Directed Surveying/Staking                  | 40.0     | Hour |
| 009E4200           | Construction Schedule, Category II                   | Lump Sum | LS   |
| 100E0100           | Clearing                                             | Lump Sum | LS   |
| 110E0135           | Remove Delineator                                    | 31       | Each |
| 110E0500           | Remove Pipe Culvert                                  | 172      | Ft   |
| 110E0510           | Remove Pipe End Section                              | 14       | Each |
| 110E1010           | Remove Asphalt Concrete Pavement                     | 969.0    | SqYd |
| 110E7500           | Remove Pipe for Reset                                | 54       | Ft   |
| 110E7510           | Remove Pipe End Section for Reset                    | 7        | Each |
| 120E0010           | Unclassified Excavation                              | 10,483   | CuYd |
| 120E0100           | Unclassified Excavation, Digouts                     | 405      | CuYd |
| 120E0600           | Contractor Furnished Borrow Excavation               | 6,535    | CuYd |
| 120E0900           | Contaminated Material Excavation                     | 100      | CuYd |
| 120E2000           | Undercutting                                         | 5,637    | CuYd |
| 120E6100           | Water for Embankment                                 | 75.0     | MGal |
| 120E6200           | Water for Granular Material                          | 316.0    | MGal |
| 230E0010           | Placing Topsoil                                      | 2,155    | CuYd |
| 260E1010           | Base Course                                          | 8,084.0  | Ton  |
| 280E0020           | Full Depth Reclamation, Shoulder                     | 88,878   | SqYd |
| 320E0005           | PG 58-34 Asphalt Binder                              | 1,781.2  | Ton  |
| 320E1200           | Asphalt Concrete Composite                           | 1,375.0  | Ton  |
| 320E1203           | Class Q3R Hot Mixed Asphalt Concrete                 | 34,859.0 | Ton  |
| 320E1800           | Asphalt Concrete Blade Laid                          | 1,214.0  | Ton  |
| 320E4000           | Hydrated Lime                                        | 357.2    | Ton  |
| 320E7012           | Grind 12" Rumble Strip or Stripe in Asphalt Concrete | 16.2     | Mile |
| 330E0010           | MC-70 Asphalt for Prime                              | 91.9     | Ton  |
| 330E0100           | SS-1h or CSS-1h Asphalt for Tack                     | 140.5    | Ton  |
| 330E0210           | SS-1h or CSS-1h Asphalt for Flush Seal               | 2.9      | Ton  |
| 330E1000           | Blotting Sand for Prime                              | 5.0      | Ton  |
| 332E0010           | Cold Milling Asphalt Concrete                        | 140,395  | SqYd |
| 421E0100           | Pipe Culvert Undercut                                | 28       | CuYd |
| 450E0142           | 24" RCP Class 2, Furnish                             | 76       | Ft   |
| 450E0150           | 24" RCP, Install                                     | 76       | Ft   |
| 450E0182           | 36" RCP Class 2, Furnish                             | 86       | Ft   |
| 450E0190           | 36" RCP, Install                                     | 86       | Ft   |
| 450E2008           | 18" RCP Flared End, Furnish                          | 8        | Each |
| 450E2009           | 18" RCP Flared End, Install                          | 8        | Each |

| BID ITEM<br>NUMBER | ITEM                                                 | QUANTITY | UNIT |
|--------------------|------------------------------------------------------|----------|------|
| 450E2028           | 36" RCP Flared End, Furnish                          | 2        | Each |
| 450E2029           | 36" RCP Flared End, Install                          | 2        | Each |
| 450E2200           | 24" RCP Sloped End, Furnish                          | 2        | Each |
| 450E2201           | 24" RCP Sloped End, Install                          | 2        | Each |
| 450E4759           | 18" CMP 16 Gauge, Furnish                            | 28       | Ft   |
| 450E4760           | 18" CMP, Install                                     | 28       | Ft   |
| 450E5100           | CMP Tee, Furnish                                     | 1        | Each |
| 450E5101           | CMP Tee, Install                                     | 1        | Each |
| 450E5406           | 18" CMP Safety End, Furnish                          | 1        | Each |
| 450E5407           | 18" CMP Safety End, Install                          | 1        | Each |
| 450E8209           | 18" Smooth Tapered Sleeve, Furnish                   | 2        | Each |
| 450E8210           | 18" Smooth Tapered Sleeve, Install                   | 2        | Each |
| 450E9000           | Reset Pipe                                           | 54       | Ft   |
| 450E9001           | Reset Pipe End Section                               | 7        | Each |
| 600E0300           | Type III Field Laboratory                            | 1        | Each |
| 632E2510           | Type 2 Object Marker Back to Back                    | 53       | Each |
| 633E1200           | High Build Waterborne Pavement Marking Paint, White  | 374      | Gal  |
| 633E1205           | High Build Waterborne Pavement Marking Paint, Yellow | 169      | Gal  |
| 634E0010           | Flagging                                             | 790.0    | Hour |
| 634E0020           | Pilot Car                                            | 395.0    | Hour |
| 634E0110           | Traffic Control Signs                                | 391.4    | SqFt |
| 634E0120           | Traffic Control, Miscellaneous                       | Lump Sum | LS   |
| 634E0275           | Type 3 Barricade                                     | 1        | Each |
| 634E0630           | Temporary Pavement Marking                           | 32.4     | Mile |
| 700E0210           | Class B Riprap                                       | 126.0    | Ton  |
| 730E0202           | Type B Permanent Seed Mixture                        | 225      | Lb   |
| 732E0100           | Mulching                                             | 25.0     | Ton  |
| 734E0102           | Type 2 Erosion Control Blanket                       | 73       | SqYd |
| 734E0103           | Type 3 Erosion Control Blanket                       | 315      | SqYd |
| 734E0510           | Shaping for Erosion Control Blanket                  | 333      | Ft   |
| 831E0110           | Type B Drainage Fabric                               | 215      | SqYd |
| 900E0010           | Refurbish Single Mailbox                             | 9        | Each |
| 900E0012           | Refurbish Double Mailbox                             | 1        | Each |
| 900E1980           | Storage Unit                                         | 1        | Each |

## SPECIFICATIONS

Standard Specifications for Roads and Bridges, 10-1-25 Version, Required Provisions, and Special Provisions as included in the Proposal. The Standard Specifications for Roads and Bridges are available for download and viewing at <https://dot.sd.gov/doing-business/contractors/standard-specifications>.

# ENVIRONMENTAL COMMITMENTS

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 3     | 85              |

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## ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <<https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf>>

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

## COMMITMENT A: AQUATIC RESOURCES

### COMMITMENT A1: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.27 acres of wetlands (includes temporary and permanent) becoming impacted. Refer to the plans for location and boundaries of the impacted wetlands.

#### Table of Impacted Wetlands

| Wetland No. | Station                  | Perm. Impact Left (Acres) | Perm. Impact Right (Acres) | Temp. Impact Left (Acres) | Temp. Impact Right (Acres) | Total Impact (Acres) |
|-------------|--------------------------|---------------------------|----------------------------|---------------------------|----------------------------|----------------------|
| 1           | 12+50 to 17+90 (L)       | 0.00                      | 0.00                       | 0.002                     | 0.00                       | 0.002                |
| 2           | 23+00 to 34+00 (R)       | 0.00                      | 0.00                       | 0.00                      | 0.004                      | 0.004                |
| 4           | 335+50 to 341+00 (L/R)   | 0.00                      | 0.004                      | 0.085                     | 0.179                      | 0.264                |
| 5           | A 436+00 to A 440+24 (L) | 0.00                      | 0.00                       | 0.007                     | 0.00                       | 0.007                |

#### Action Taken/Required:

Mitigation is required in accordance with the “*Statewide Finding Regarding Wetlands for South Dakota Federal-Aid Highway Projects (February 2018)*”. Replacement of 0.004 acres of permanent wetland impacts will be completed through another wetland mitigation opportunity in a manner which considers FHWA's program-wide goal of ‘net gain’ of wetlands through enhancement, creation, and preservation.

Temporary impacts identified in the Table of Impacted Wetlands will not be mitigated as original contours and elevations will be re-established as designated in the plans. Prior to initiating temporary work in wetlands, the Contractor will submit a plan to the Project Engineer in accordance with Section 7.21 D of the Specifications.

The Contractor will notify the Project Engineer if additional easement is needed to complete work adjacent to any wetland. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any wetlands beyond the work limits and easements shown in the plans.

## COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

### COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

#### Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.



# ENVIRONMENTAL COMMITMENTS

|                             |              |       |                 |
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|                             | P 0019(49)43 | 4     | 85              |

## COMMITMENT B5: NORTHERN LONG-EARED BAT

This project is within the range of suitable habitat for the Northern Long-Eared Bat (NLEB) and project work will avoid conflicts with NLEB roosting habitat.

### Action Taken/Required:

Project activities that include tree removal, structure work, and/or work within one-quarter mile of a known hibernacula or 150 feet of a known maternity roost tree, or suitable habitat should not occur within the location(s) listed below during the NLEB seasonal work restriction timeframe without approval from the SDDOT Environmental Office.

| Station            | NLEB Seasonal Work Restriction |
|--------------------|--------------------------------|
| 211+85 to 239+00 L | April 1 to October 31          |

Tree removal will occur between November 1<sup>st</sup> and March 31<sup>st</sup>.

The following avoidance, minimization, and mitigation measures are required:

- General AMM 1 – Ensure all operators, employees, and contractors working in areas of Indiana bat, NLEB, or TCB suitable habitat are aware of all Transportation Agency environmental commitments, including all applicable AMMs.
- Tree Removal/Trimming AMM 1 – Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to the extent practicable to avoid tree removal/trimming in excess of what is required to implement the project safely.
- Tree Removal/Trimming AMM 2 – Ensure tree removal/trimming is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field.
- Tree Removal AMM 3 – Ensure tree removal/trimming is limited to the inactive season, occurs within 100 ft of the road/rail surface, and is outside of documented habitat for the Indiana bat, NLEB, and TCB.
- Lighting AMM 1 – Direct temporary lighting away from suitable habitat during the active season.

## COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment will be power washed with hot water (≥140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

The Contractor will not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

### Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at:

< <https://sdleastwanted.sd.gov/maps/default.aspx> >

< [South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species:](https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04)  
<https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04> >

## COMMITMENT D: WATER QUALITY STANDARDS

### COMMITMENT D1: SURFACE WATER QUALITY

This project may be in the vicinity of multiple streams and wetlands. These waters are considered waters of the state and are protected under Administrative Rules of South Dakota (ARSD) Chapter 74:51. Special construction measures may have to be taken to ensure that this water body is not impacted.

### Action Taken/Required:

The Contractor is advised that the South Dakota Surface Water Quality Standards, administered by the South Dakota Department of Agriculture and Natural Resources (DANR), apply to this project. Special construction measures will be taken to ensure the above standard(s) of the surface waters are maintained and protected.

## COMMITMENT D2: SURFACE WATER DISCHARGE

The DANR General Permit for Temporary Discharge is required for temporary dewatering and discharges to waters of the state. The effluent limit for total suspended solids will be 90 mg/L 30-day average. The effluent limit applies to discharges to all waters of the state except discharges to waters classified as cold water permanent fish life propagation waters according to the ARSD 74:51:01:45. For discharges to waters of the state classified as cold water permanent fish life propagation waters, the effluent limit for total suspended solids will be 53 mg/L daily maximum.

The permittee has the option of completing effluent testing or implementing a pollution prevention plan for compliance with this permit. If the permittee develops a pollution prevention plan instead of total suspended solids sampling, the plan must be developed and implemented prior to discontinuing total suspended solids sampling. Refer to Section 4.0 of the permit. If any pollutants are suspected of being discharged, a sample must be taken for those parameters listed in Section 3.4 of the permit.

Refer to Commitment D1: Surface Water Quality for stream classification.

### Action Taken/Required:

If construction dewatering is required and this project is currently covered under a General Permit for Stormwater Discharges Associated with Construction Activities, the contractor will need to submit the dewatering information to the SDDANR using the following form:

<  
[https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR\\_AddTemplInfoFillable.pdf](https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_AddTemplInfoFillable.pdf) >

The Contractor will provide a copy of the approved permit or the submitted dewatering information to the Project Engineer prior to proceeding with any dewatering activities. The approved permit or submitted dewatering information must be kept on-site and as part of the project records.

Effluent monitoring, as a result of dewatering activities, will be summarized for each month and recorded on a separate Discharge Monitoring Report (DMR) and submitted to DANR monthly. Additional information can be found at:

<  
<https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/swdpermitting/Ereporting.aspx> >



# ENVIRONMENTAL COMMITMENTS

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|                             | P 0019(49)43 | 5     | 85              |

## COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance and/or work in a waterway.

### Action Taken/Required:

The DANR General Permit for Stormwater Discharges Associated with Construction Activities is required for construction activity disturbing one or more acres of earth and work in a waterway. The SDDOT is the owner of this permit and will submit the NOI to DANR 15 days prior to project start in order to obtain coverage under the General Permit. Work can begin once the DANR letter of approval is received.

The Contractor must adhere to the “Special Provision Regarding Storm Water Discharges to Waters of the State.”

The Contractor will complete the DANR Contractor Certification Form prior to the pre-construction meeting. The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the permit for this project. Work may not begin on this project until this form is signed and submitted to DANR.

The form can be found at:

<[https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR\\_CGPAppe ndixCCA2018Fillable.pdf](https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_CGPAppe ndixCCA2018Fillable.pdf)>

The Contractor is advised that permit coverage may also be required for off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

### Storm Water Pollution Prevention Plan

The Storm Water Pollution Prevention Plan (SWPPP) will be developed prior to the submittal of the NOI and will be implemented for all construction activities for compliance with the permit. The SWPPP must be kept on-site and updated as site conditions change. Erosion control measures and best management practices will be implemented in accordance with the SWPPP.

The DOT 298 Form will be used for site inspections and to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents and retained for a minimum of three years.

The inspection will include disturbed areas of the construction site that have not been finally stabilized, areas used for storage materials, structural control measures, and locations where vehicles enter or exit the site. These areas will be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWPPP will be observed to ensure that they are operating correctly, and sediment is not tracked off the site.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT: < <https://dot.sd.gov/doing-business/environmental/stormwater> >

DANR:<<https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/default.aspx>>

EPA: < <https://www.epa.gov/npdes> >

## COMMITMENT H: WASTE DISPOSAL SITE

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

### Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Agriculture and Natural Resources.

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, “No Dumping Allowed”.
2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

## COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historic Preservation Office (SHPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

### Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view in which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO within 48 hours of the discovery to determine an appropriate course of action.

SHPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

# ENVIRONMENTAL COMMITMENTS

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 6     | 85              |

## COMMITMENT L: CONTAMINATED MATERIAL

Contaminated soil and/or known gas stations, undergrounds storage tanks, etc. are located within the project limits. Petroleum contaminated soil may be located at the following sites:

| Description             | Station | L / R |
|-------------------------|---------|-------|
| Vehicle Collision Spill | 0+75    | L/R   |

### Action Taken/Required:

The Contractor will give written notice, with a copy to the Area Engineer and DANR, 30 days prior to the start of work. In addition, the Contractor will give written notice to the Engineer 7 days prior to the commencement of the work so the Engineer may notify DANR of the day work will start.

The Contractor will be responsible for having the existing underground utilities located in the construction area. Underground utilities damaged by the Contractor due to negligence will be repaired at the Contractor's expense.

Petroleum contaminated soil may be disposed of at the City of Sioux Falls regional Landfill (phone 605-367-8162). Measurement of "Contaminated Material Excavation" will be in accordance with Section 120.4 of the Specifications. All costs for excavating and transporting the contaminated materials to the disposal site and all fees charged per cubic yard by the disposal site will be incidental to the contract unit price per cubic yard for "Contaminated Material Excavation".

The estimated quantity of "Contaminated Material Excavation" is 100 cubic yards. The quantity of "Contaminated Material Excavation" may vary from the plans. No adjustment will be made to the contract unit price for variations in the quantity of "Contaminated Material Excavation". The estimated quantity of "Contaminated Material Excavation" is provided in the plans.

## COMMITMENT M: SECTION 4(f)/6(f) RESOURCES

### COMMITMENT M1: SECTION 4(f) PROPERTY

A Section 4(f) Evaluation concluded there are no feasible and prudent alternatives to avoiding Section 4(f) property located within the project.

| Station  | Section 4(f) Property                              |
|----------|----------------------------------------------------|
| 339+00 L | Chicago, Northwestern Railroad Grade<br>(39TU2003) |

### Action Taken/Required:

The following measures are required to minimize harm to the above Section 4(f) property:

- Do Not Disturb Railroad Grade.

The Contractor is not permitted to stage equipment or materials within the Chicago, Northwestern Railroad Grade. The Contractor will notify the Project Engineer if additional easement is needed to complete the work adjacent to any Section 4(f) property. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any Section 4(f) property.

## COMMITMENT N: SECTION 404 PERMIT

The SDDOT has obtained a Section 404 Permit from the USACE for the permanent actions associated with this project.

### Action Taken/Required:

The Contractor will comply with all requirements contained in the Section 404 Permit.

The Contractor will also be responsible for obtaining a Section 404 Permit for any dredge, excavation, or fill activities associated with material sources, storage areas, waste sites, and Contractor work sites outside the plan work limits that affect wetlands, floodplains, or waters of the United States.

## COMMITMENT Q: ARCHAEOLOGICAL COORDINATION

As a result of a Class I Records Search, historic properties have been identified within and/or adjacent to the project rights-of-way.

The following historic properties have been identified that require avoidance of construction activities:

### Table of Historic Properties

| Station | Offset<br>(Ft.) | L/R | Environmental<br>Sensitive Site                          | Action         |
|---------|-----------------|-----|----------------------------------------------------------|----------------|
| 339+00  | N/A             | L   | Chicago,<br>Northwestern<br>Railroad Grade<br>(39TU2003) | Do Not Disturb |

The locations and boundaries of the site(s) for avoidance are shown in the plans.

### Action Taken/Required:

If evidence for cultural resources is uncovered during project construction activities, then such activities within 150 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will consult with the Archaeological Research Center (ARC), the SHPO, and FHWA, to determine the appropriate course of action.

All artifacts, features, or other items of interest uncovered by project construction activities will not be displaced unless the landowner and the SHPO consent to it.

# TYPICAL COLD MILLING SECTION

SECTION 1

0+75 to 5+35

487+91.7 to 498+81.7

6' to 0'  
Cold Mill (1" Depth)\*

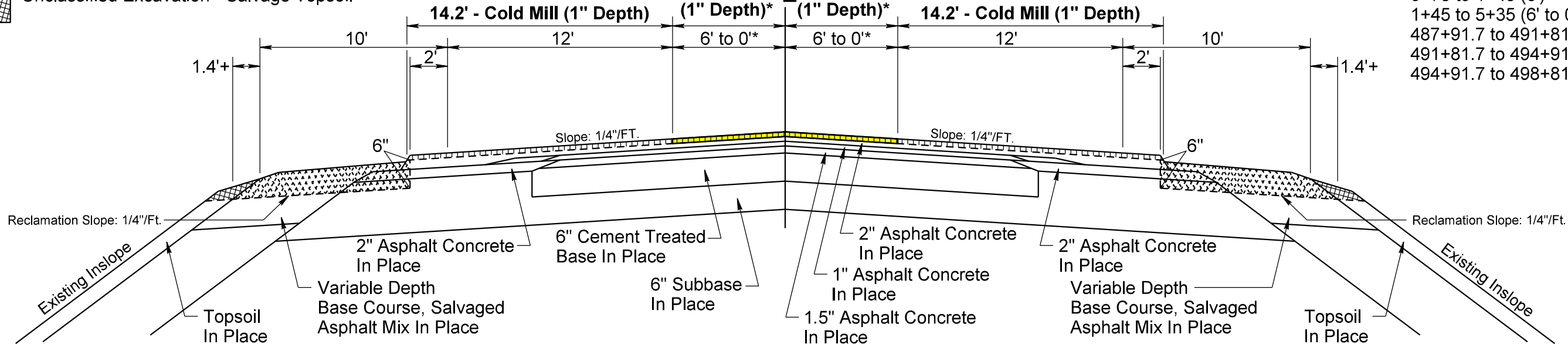
6' to 0'  
Cold Mill (1" Depth)\*

14.2' - Cold Mill (1" Depth)

14.2' - Cold Mill (1" Depth)

Quantities for Cold Mill are included in the Table of Additional Quantities.

\*Transition:  
0+75 to 1+45 (6')  
1+45 to 5+35 (6' to 0')  
487+91.7 to 491+81.7 (0' to 6')  
491+81.7 to 494+91.7 (6')  
494+91.7 to 498+81.7 (6' to 0')



# TYPICAL RESURFACING SECTION

SECTION 1

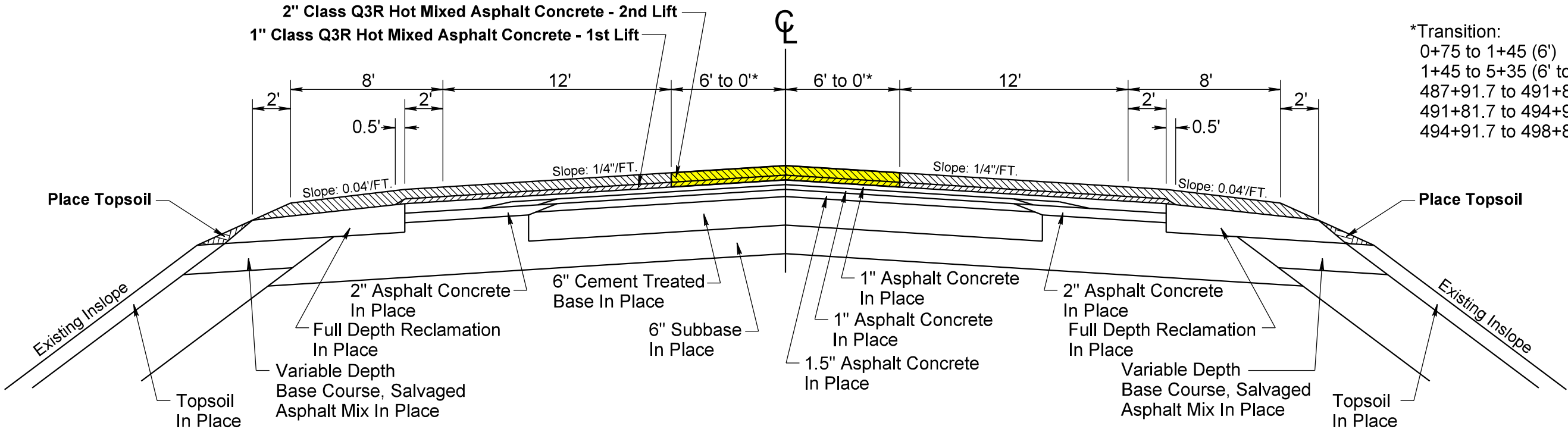
0+75 to 5+35

487+91.7 to 498+81.7

2" Class Q3R Hot Mixed Asphalt Concrete - 2nd Lift  
1" Class Q3R Hot Mixed Asphalt Concrete - 1st Lift

Quantities for Class Q3R Hot Mixed Asphalt Concrete and Asphalt for Tack are included in the Table of Additional Quantities.

\*Transition:  
0+75 to 1+45 (6')  
1+45 to 5+35 (6' to 0')  
487+91.7 to 491+81.7 (0' to 6')  
491+81.7 to 494+91.7 (6')  
494+91.7 to 498+81.7 (6' to 0')





PLOT SCALE - 1"=6'

PLOTTED FROM - TRM111118

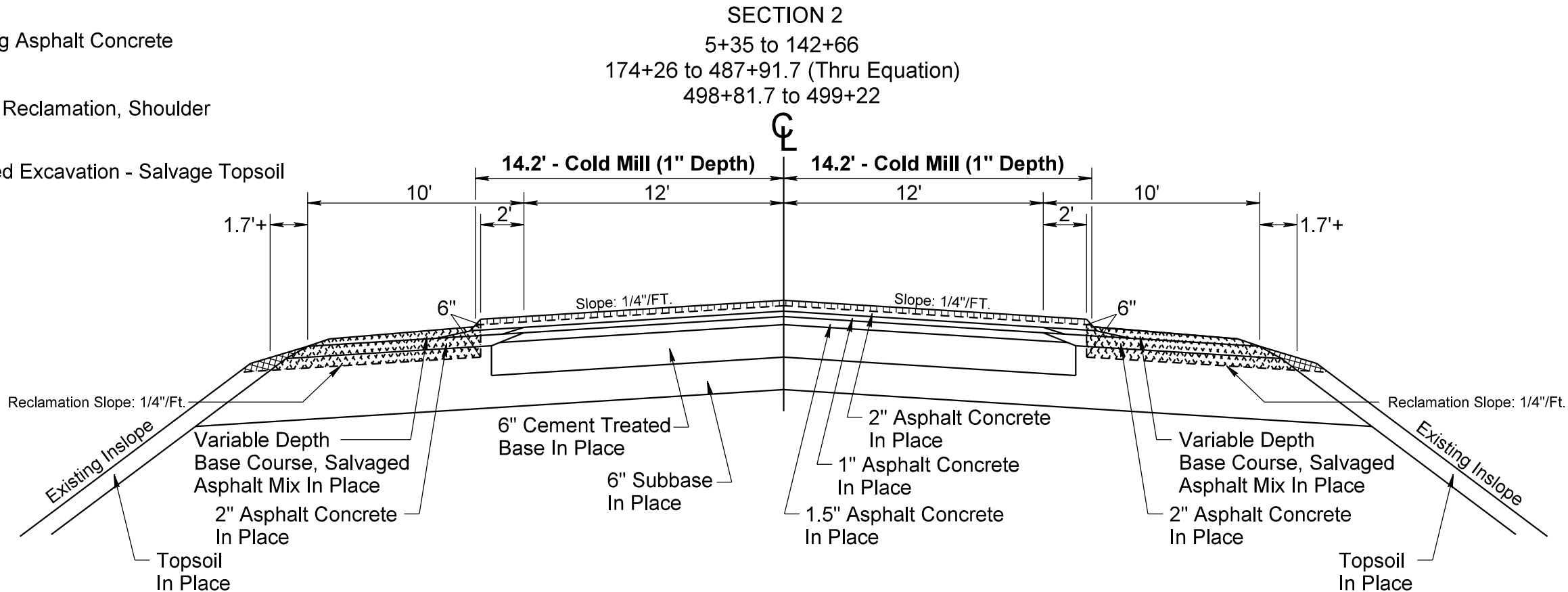
# TYPICAL COLD MILLING SECTION

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 8     | 85              |

Plotting Date: 04/07/2025

Rev. 4/7/25 GAW

- Cold Milling Asphalt Concrete
- Full Depth Reclamation, Shoulder
- Unclassified Excavation - Salvage Topsoil

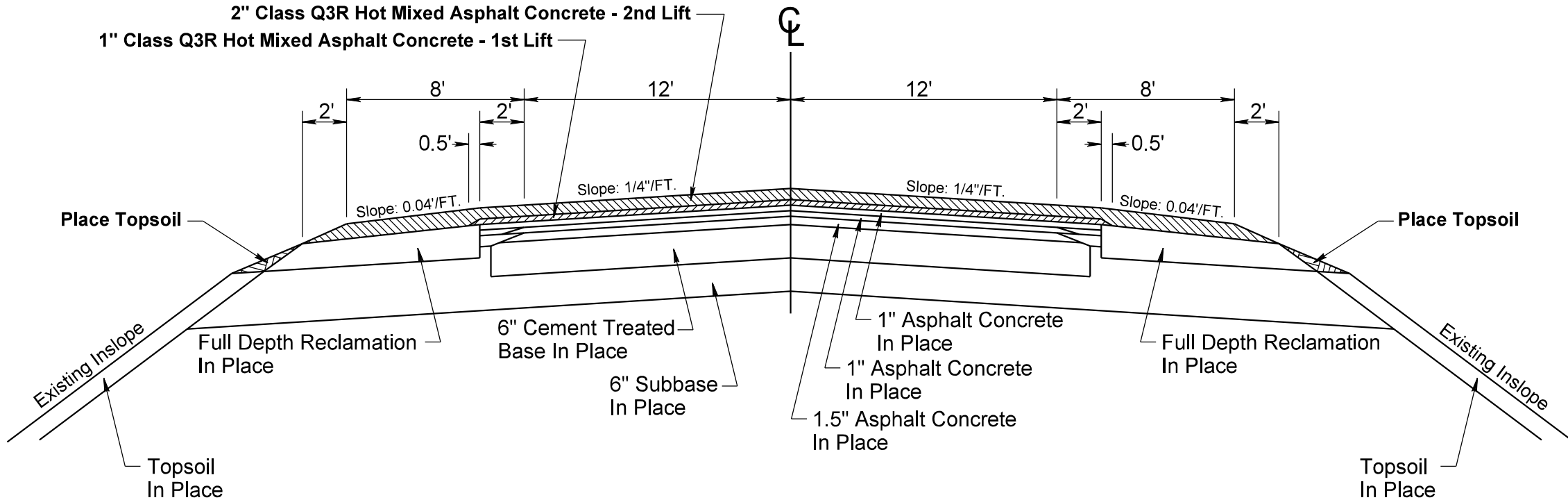


# TYPICAL RESURFACING SECTION

SECTION 2  
5+35 to 142+66  
174+26 to 487+91.7 (Thru Equation)  
498+81.7 to 499+22

2" Class Q3R Hot Mixed Asphalt Concrete - 2nd Lift

1" Class Q3R Hot Mixed Asphalt Concrete - 1st Lift



PLOT NAME - 3

FILE - ... \PRJ2026\TURN06GE\TSEC06GE.DGN

PLOT SCALE - 1"=6'

PLOTTED FROM - TRM111118

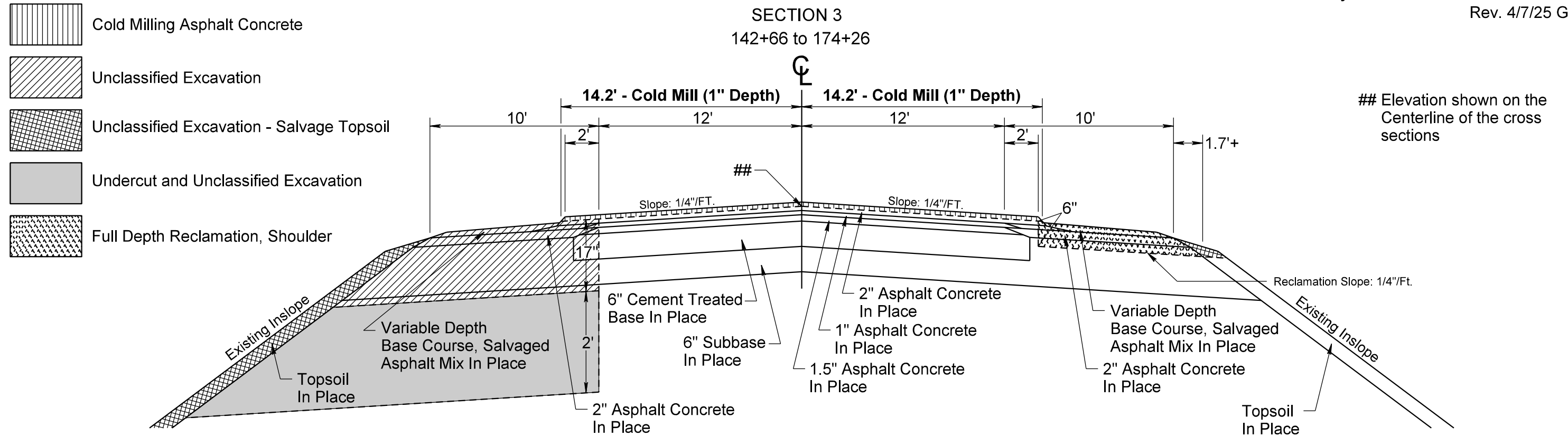
# TYPICAL COLD MILLING SECTION

SECTION 3  
142+66 to 174+26

|                             |                                |                   |                              |
|-----------------------------|--------------------------------|-------------------|------------------------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT<br><b>P 0019(49)43</b> | SHEET<br><b>9</b> | TOTAL<br>SHEETS<br><b>85</b> |
|-----------------------------|--------------------------------|-------------------|------------------------------|

Plotting Date: 04/07/2025

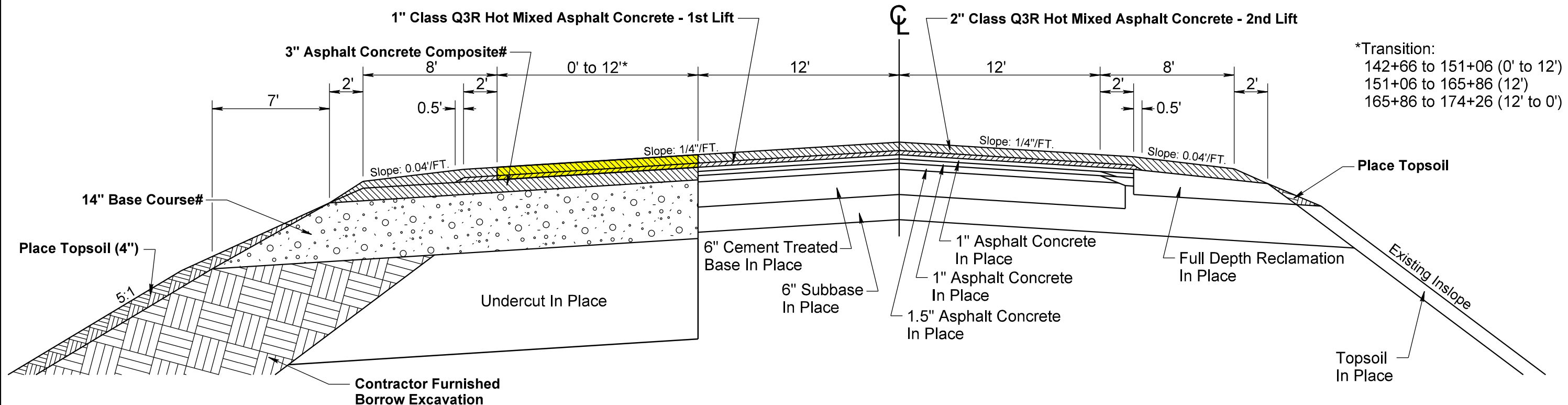
Rev. 4/7/25 GAW



# TYPICAL RESURFACING SECTION

SECTION 3  
142+66 to 174+26

Quantities for Class Q3R Hot Mixed Asphalt Concrete and Asphalt for Tack are included in the Table of Additional Quantities.



# Quantities are included in the Table of Additional Quantities.

FILE - ... \PRJ2026\TURN06GE\TSEC06GE.DGN PLOT NAME - 4

# RATES OF MATERIALS

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 10    | 85              |

Section 1  
3 Lane  
0+75.00 to 5+35.00  
487+91.70 to 498+81.70

Section 2  
2 Lane  
5+35.00 to 142+66.00  
174+26.00 to 351+55.00  
422+62.00 to 487+91.70  
498+81.70 to 499+22.00

The Estimate of quantities is based on the following quantities of materials per station.

FULL DEPTH RECLAMATION, SHOULDER

Water for Granular Material 0.27 MGal

MC-70 Asphalt for Prime at the rate of 0.22 ton applied 17 feet wide (8.5 feet wide each shoulder) (Rate = 0.3 gallon per square yard).

1" CLASS Q3R HOT MIXED ASPHALT CONCRETE 1ST LIFT

|                              |            |
|------------------------------|------------|
| Salvaged Asphalt Concrete    | 2.51 Tons  |
| Crushed Aggregate            | 14.21 Tons |
| PG 58-34 Asphalt Binder      | 0.86 Ton   |
| <div>TOTAL: 17.58 Tons</div> |            |
| Hydrated Lime                | 0.18 Ton   |
| <div>TOTAL: 17.76 Tons</div> |            |

The exact proportions of these materials will be determined on construction.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.09 ton applied 30 feet wide (Rate = 0.06 gallon per square yard).

2" CLASS Q3R HOT MIXED ASPHALT CONCRETE 2ND LIFT

|                              |            |
|------------------------------|------------|
| Salvaged Asphalt Concrete    | 8.38 Tons  |
| Crushed Aggregate            | 47.50 Tons |
| PG 58-34 Asphalt Binder      | 2.88 Tons  |
| <div>TOTAL: 58.76 Tons</div> |            |
| Hydrated Lime                | 0.59 Ton   |
| <div>TOTAL: 59.35 Tons</div> |            |

The exact proportions of these materials will be determined on construction.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.13 ton applied 45 feet wide (Rate = 0.06 gallon per square yard).

The Estimate of quantities is based on the following quantities of materials per mile.

FULL DEPTH RECLAMATION, SHOULDER

Water for Granular Material 14 MGals

MC-70 Asphalt for Prime at the rate of 11.8 tons applied 17 feet wide (8.5 feet wide each shoulder) (Rate = 0.3 gallon per square yard).

1" CLASS Q3R HOT MIXED ASPHALT CONCRETE 1ST LIFT

|                            |          |
|----------------------------|----------|
| Salvaged Asphalt Concrete  | 132 Tons |
| Crushed Aggregate          | 751 Tons |
| PG 58-34 Asphalt Binder    | 45 Tons  |
| <div>TOTAL: 928 Tons</div> |          |
| Hydrated Lime              | 9 Tons   |
| <div>TOTAL: 937 Tons</div> |          |

The exact proportions of these materials will be determined on construction.

SS-1h or CSS-1h Asphalt for Tack at the rate of 4.5 tons applied 30 feet wide (Rate = 0.06 gallon per square yard).

2" CLASS Q3R HOT MIXED ASPHALT CONCRETE 2ND LIFT

|                             |           |
|-----------------------------|-----------|
| Salvaged Asphalt Concrete   | 441 Tons  |
| Crushed Aggregate           | 2499 Tons |
| PG 58-34 Asphalt Binder     | 152 Tons  |
| <div>TOTAL: 3092 Tons</div> |           |
| Hydrated Lime               | 31 Tons   |
| <div>TOTAL: 3123 Tons</div> |           |

The exact proportions of these materials will be determined on construction.

SS-1h or CSS-1h Asphalt for Tack at the rate of 6.7 tons applied 45 feet wide (Rate = 0.06 gallon per square yard).

FLUSH SEAL (Centered over Outside Shoulder Rumble Strips)

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.4 ton applied 3 feet wide (1.5 feet wide each shoulder) (Rate = 0.05 gallon per square yard).

# RATES OF MATERIALS

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 11    | 85              |

Section 3  
3 Lane  
142+66.00 to 174+26.00

The Estimate of quantities is based on the following quantities of materials per station.

FULL DEPTH RECLAMATION, SHOULDER

Water for Granular Material 0.27 MGal

MC-70 Asphalt for Prime at the rate of 0.11 ton applied 8.5 feet wide (right shoulder) (Rate = 0.3 gallon per square yard).

1" CLASS Q3R HOT MIXED ASPHALT CONCRETE 1ST LIFT

|                           |                          |
|---------------------------|--------------------------|
| Salvaged Asphalt Concrete | 2.51 Tons                |
| Crushed Aggregate         | 14.21 Tons               |
| PG 58-34 Asphalt Binder   | 0.86 Ton                 |
|                           | <b>TOTAL: 17.58 Tons</b> |
| Hydrated Lime             | 0.18 Ton                 |
|                           | <b>TOTAL: 17.76 Tons</b> |

The exact proportions of these materials will be determined on construction.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.09 ton applied 30 feet wide (Rate = 0.06 gallon per square yard).

2" CLASS Q3R HOT MIXED ASPHALT CONCRETE 2ND LIFT

|                           |                          |
|---------------------------|--------------------------|
| Salvaged Asphalt Concrete | 7.98 Tons                |
| Crushed Aggregate         | 45.22 Tons               |
| PG 58-34 Asphalt Binder   | 2.74 Tons                |
|                           | <b>TOTAL: 55.94 Tons</b> |
| Hydrated Lime             | 0.56 Ton                 |
|                           | <b>TOTAL: 56.50 Tons</b> |

The exact proportions of these materials will be determined on construction.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.13 ton applied 45 feet wide (Rate = 0.06 gallon per square yard).





TABLE OF ADDITIONAL QUANTITIES

|                                     |      |      |      |      | REMOVE<br>ASPHALT<br>CONCRETE<br>PAVEMENT | BASE<br>COURSE | WATER<br>FOR<br>GRAN.<br>MATER. | COLD<br>MILLING<br>ASPHALT<br>CONCRETE | CLASS Q3R<br>HOT MIXED<br>ASPHALT<br>CONCRETE<br>1ST LIFT | PG 58-34<br>ASPHALT<br>BINDER | HYDRATED<br>LIME | SALV.<br>MAT'L.<br><br>N.A.B.I. | ASPHALT<br>CONCRETE<br>COMPOSITE<br>1ST LIFT | CLASS Q3R<br>HOT MIXED<br>ASPHALT<br>CONCRETE<br>2ND LIFT | PG 58-34<br>ASPHALT<br>BINDER | HYDRATED<br>LIME | SALV.<br>MAT'L.<br><br>N.A.B.I. | ASPHALT<br>CONCRETE<br>COMPOSITE<br>2ND LIFT |
|-------------------------------------|------|------|------|------|-------------------------------------------|----------------|---------------------------------|----------------------------------------|-----------------------------------------------------------|-------------------------------|------------------|---------------------------------|----------------------------------------------|-----------------------------------------------------------|-------------------------------|------------------|---------------------------------|----------------------------------------------|
|                                     |      |      |      |      | <---- 1ST LIFT ---->                      |                |                                 |                                        | <---- 2ND LIFT ---->                                      |                               |                  |                                 |                                              |                                                           |                               |                  |                                 |                                              |
| LOCATION                            | SqYd | Ton  | MGal | SqYd | Ton                                       | Ton            | Ton                             | Ton                                    | Ton                                                       | Ton                           | Ton              | Ton                             | Ton                                          | Ton                                                       | Ton                           | Ton              | Ton                             | Ton                                          |
| Mainline Transitions                |      |      |      |      |                                           |                |                                 |                                        |                                                           |                               |                  |                                 |                                              |                                                           |                               |                  |                                 |                                              |
| Sec. 1 0+75 to 1+45                 | -    | -    | -    | 93   | 5                                         | 0.2            | -                               | 1                                      | -                                                         | 10                            | 0.5              | 0.1                             | 1                                            | -                                                         |                               |                  |                                 |                                              |
| Sec. 1 1+45 to 5+35                 | -    | -    | -    | 260  | 15                                        | 0.7            | 0.1                             | 2                                      | -                                                         | 29                            | 1.4              | 0.3                             | 4                                            | -                                                         |                               |                  |                                 |                                              |
| Sec. 1 487+92 to 491+82             | -    | -    | -    | 260  | 15                                        | 0.7            | 0.1                             | 2                                      | -                                                         | 29                            | 1.4              | 0.3                             | 4                                            | -                                                         |                               |                  |                                 |                                              |
| Sec. 1 491+82 to 494+92             | -    | -    | -    | 413  | 23                                        | 1.1            | 0.2                             | 3                                      | -                                                         | 46                            | 2.2              | 0.5                             | 6                                            | -                                                         |                               |                  |                                 |                                              |
| Sec. 1 494+92 to 498+82             | -    | -    | -    | 260  | 15                                        | 0.7            | 0.1                             | 2                                      | -                                                         | 29                            | 1.4              | 0.3                             | 4                                            | -                                                         |                               |                  |                                 |                                              |
| Sec. 3 142+66 to 151+06             | -    | 1416 | 17   | -    | 31                                        | 1.5            | 0.3                             | 4                                      | 233                                                       | 63                            | 3.1              | 0.6                             | 9                                            | -                                                         |                               |                  |                                 |                                              |
| Sec. 3 151+06 to 165+86             | -    | 3261 | 39   | -    | 111                                       | 5.4            | 1.1                             | 16                                     | 575                                                       | 221                           | 10.7             | 2.2                             | 31                                           | -                                                         |                               |                  |                                 |                                              |
| Sec. 3 165+86 to 174+26             | -    | 1416 | 17   | -    | 31                                        | 1.5            | 0.3                             | 4                                      | 233                                                       | 63                            | 3.1              | 0.6                             | 9                                            | -                                                         |                               |                  |                                 |                                              |
| Other Locations (Density)           |      |      |      |      |                                           |                |                                 |                                        |                                                           |                               |                  |                                 |                                              |                                                           |                               |                  |                                 |                                              |
| Mainline Cross Pipe Replacement     | 362  | 462  | 6    | -    | -                                         | -              | -                               | -                                      | 54                                                        | -                             | -                | -                               | -                                            | 52                                                        |                               |                  |                                 |                                              |
| SD19/280St Intersection (East Side) | -    | -    | -    | 157  | 17                                        | 0.8            | 0.2                             | 2                                      | 26                                                        | 34                            | 1.6              | 0.3                             | 5                                            | -                                                         |                               |                  |                                 |                                              |
| Turnouts                            |      |      |      |      |                                           |                |                                 |                                        |                                                           |                               |                  |                                 |                                              |                                                           |                               |                  |                                 |                                              |
| 8 Mailbox Turnouts                  | -    | -    | -    | 603  | -                                         | -              | -                               | -                                      | -                                                         | -                             | -                | -                               | -                                            | -                                                         |                               |                  |                                 |                                              |
| Resurface to ROW                    |      |      |      |      |                                           |                |                                 |                                        |                                                           |                               |                  |                                 |                                              |                                                           |                               |                  |                                 |                                              |
| 7 Intersecting Roads                | -    | -    | -    | 694  | -                                         | -              | -                               | -                                      | -                                                         | 308                           | 15.0             | 3.1                             | 44                                           | -                                                         |                               |                  |                                 |                                              |
| Resurface to End of Radius          |      |      |      |      |                                           |                |                                 |                                        |                                                           |                               |                  |                                 |                                              |                                                           |                               |                  |                                 |                                              |
| 10 Intersecting Roads               | -    | 150  | 2    | 450  | -                                         | -              | -                               | -                                      | -                                                         | 170                           | 8.2              | 1.7                             | 24                                           | -                                                         |                               |                  |                                 |                                              |
| Pads                                |      |      |      |      |                                           |                |                                 |                                        |                                                           |                               |                  |                                 |                                              |                                                           |                               |                  |                                 |                                              |
| 6 Commercial Entrances              | -    | 180  | 2    | 400  | -                                         | -              | -                               | -                                      | -                                                         | -                             | -                | -                               | -                                            | -                                                         |                               |                  |                                 |                                              |
| 13 Farm Entrances                   | -    | 130  | 1    | 520  | -                                         | -              | -                               | -                                      | -                                                         | -                             | -                | -                               | -                                            | -                                                         |                               |                  |                                 |                                              |
| 22 Field Entrances                  | -    | 220  | 3    | 880  | -                                         | -              | -                               | -                                      | -                                                         | -                             | -                | -                               | -                                            | -                                                         |                               |                  |                                 |                                              |
| 4 House Entrances                   | -    | 40   | -    | 160  | -                                         | -              | -                               | -                                      | -                                                         | -                             | -                | -                               | -                                            | -                                                         |                               |                  |                                 |                                              |
| TOTALS:                             |      |      |      |      | 362                                       | 7275           | 87                              | 5150                                   | 263                                                       | 12.6                          | 2.4              | 36                              | 1121                                         | 1002                                                      | 48.6                          | 10.0             | 141                             | 52                                           |

NOTES: 4.0 tons of SS-1h or CSS-1h Asphalt for Tack are included in the Estimate of Quantities and will be applied at the rate shown on the plans as directed by the Engineer.

The tonnage shown above for Base Course is based on a compacted depth of 14 inches for Mainline Transition locations, 12 inches for Mainline Cross Pipe Replacement Locations and 2 inches for other locations.

The tonnage shown above for Class Q3R Hot Mixed Asphalt Concrete - 1st Lift is based on a compacted depth of 1 inch.  
The tonnage shown above for Class Q3R Hot Mixed Asphalt Concrete - 2nd Lift is based on a compacted depth of 2 inches.  
The tonnage shown above for Asphalt Concrete Composite - 1st Lift is based on a compacted depth of 2.5 inches for Mainline Cross Pipe Replacement and 3 inches for other locations.  
The tonnage shown above for Asphalt Concrete Composite - 2nd Lift is based on a compacted depth of 2.5 inches.

The above quantities are included in the Estimate of Quantities.









TABLE OF CONSTRUCTION STAKING  
(See Special Provision for Contractor Staking)

| Roadway and Description         | Begin<br>Station | End<br>Station | Number<br>of Lanes | Length<br>(Ft) | Grade Staking    |                |                       |                                       | Construction Staking<br>Quantity<br>(Mile) | Miscellaneous Staking<br>Quantity<br>(Mile) | Slope Staking<br>Quantity<br>(Mile) | Graded Centerline<br>Staking Quantity<br>(Mile) |
|---------------------------------|------------------|----------------|--------------------|----------------|------------------|----------------|-----------------------|---------------------------------------|--------------------------------------------|---------------------------------------------|-------------------------------------|-------------------------------------------------|
|                                 |                  |                |                    |                | Length<br>(Mile) | Lane<br>Factor | *Sets<br>of<br>Stakes | **Grade Staking<br>Quantity<br>(Mile) |                                            |                                             |                                     |                                                 |
| SD19 (Centerline Offset)        | 0+75             | 499+22         | 2                  | 42,740         | -                | -              | -                     | -                                     | 8.095                                      | -                                           | -                                   | -                                               |
| SD19 (Culvert Work/Replacement) | 0+75             | 499+22         | 2                  | 42,740         | -                | -              | -                     | -                                     | -                                          | 8.095                                       | -                                   | -                                               |
| SD19 (Left Turn Lane)           | 142+66           | 174+26         | 3                  | 3,160          | 0.599            | 1.5            | 1                     | 0.899                                 | -                                          | -                                           | 0.599                               | 0.599                                           |
| Totals:                         |                  |                |                    |                |                  |                |                       | 0.899                                 | 8.095                                      | 8.095                                       | 0.599                               | 0.599                                           |

\* 1 = Blue Top Stakes Only (Asphalt Concrete Pavement)  
2 = Blue Top and Paving Hub Stakes (PCC Pavement)

\*\* Grade Staking Quantity = (Length) x (Lane Factor) x (Sets of Stakes)

UTILITIES

The Contractor will contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It will be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor will contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

The Contractor will be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor will contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

SURFACING/SUBGRADE INVESTIGATION

A copy of the surfacing/subgrade investigation for this project is available from the Sioux Falls Area and the Mitchell Region Offices.

SURFACING THICKNESS DIMENSIONS

The plans shown spread rates will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, the depth/quantity may be varied to achieve the required elevation.

TYPE III FIELD LABORATORY

The lab will be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection will be provided with a multi-port wireless router. The internet connection will be a minimum speed of 5 Mbps unless limited by job location and approved by the DOT. Prior to installing the wireless router, the Contractor will submit the wireless router's technical data to the Area Office to check for compatibility with the State's computer equipment. The internet connection is intended for State personnel usage only. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer.

Reimbursement will not be made for fees associated with the purchase, installation, maintenance, monthly line charges, and incidentals involved with the internet connection (including attachments). These items will be incidental to the contract unit price per each for Type III Field Laboratory.

STORAGE UNIT

The Contractor will provide a storage unit such as a portable storage container or a semi-trailer meeting the minimum size requirements from the table below:

| Project Total<br>Asphalt Concrete<br>Tonnage | Minimum<br>Internal Size<br>(Cu Ft) | Minimum<br>External Size<br>(L x W x H) |
|----------------------------------------------|-------------------------------------|-----------------------------------------|
| Less than 50,000 ton                         | 1,166                               | 20' x 8' x 8.6' std                     |
| More than 50,000 ton                         | 2,360                               | 40' x 8' x 8.6' std                     |
| All Gyratory Controlled<br>QC/QA Projects    | 2,360                               | 40' x 8' x 8.6' std                     |

The storage unit is intended for use only by the Engineer for the duration of the project. The QC lab personnel or the Contractor will not be allowed to use the storage container while it is on the project, without permission of the Engineer.

The storage unit will be on site and operational prior to asphalt concrete production. Upon completion of asphalt concrete production, the Engineer will notify the Contractor when the storage unit can be removed from the project. The storage unit use will not exceed 30 calendar days from the completion of asphalt concrete production. The storage unit will remain the property of the Contractor.

The storage unit will be weather proof and will be set in a level position. The storage unit will be able to be locked with a padlock.

The storage unit will be placed adjacent to the QA lab, as approved by the Engineer.

The following will apply when the storage unit provided on the project is a portable storage container:

1. The portable storage container will be constructed of steel.
2. The portable storage container will be set such that it is raised above the surrounding ground level to keep water from ponding under or around the storage container.

The following will apply when the storage unit provided on the project is a semi-trailer:

1. A set of steps and hand railings will be provided at the exterior door.
2. If the floor of the semi-trailer is 18 inches or more above the ground, a landing will be constructed at the exterior door. The minimum dimensions for the landing will be 4 feet by 5 feet. The top of the landing will be level with the threshold or opening of the doorway.
3. The semi-trailer may be connected to the QA lab by a stable elevated walkway. The walkway will be a minimum of 48 inches wide and contain handrails installed at 32 inches above the deck of the walkway. The walkway will be constructed such that it is stable and the deck does not deform during use and allows for proper door operation. Walkway construction will be approved by the Engineer.

All cost for furnishing, maintaining, and removing the storage unit including labor, equipment, and materials including any necessary walkways, landings, stairways, and handrails will be included in the contract unit price per each for Storage Unit.

INTERSECTING ROADS AND ENTRANCES

Intersecting roads and entrances will be satisfactorily cleared of vegetation, shaped and compacted prior to placement of mainline surfacing. This work will be considered incidental to other contract items. Separate measurement and payment will not be made.

SALVAGING AND PLACING TOPSOIL

Prior to beginning surfacing operations, a 4" depth of topsoil will be bladed down the respective inslopes and left in a windrow off of the shoulder. Following completion of surfacing operations, topsoil will be bladed back up the inslope to the point indicated on the typical section.

Topsoil will also be salvaged and stockpiled prior to constructing the turn lane. Limits of this work, depth of salvage, and stockpile location will be directed by the Engineer. Following completion of construction, topsoil will be spread evenly over the disturbed areas.

The estimated amount of topsoil to be salvaged and placed is 2155 CuYds (1001 CuYds adjacent to shoulder work + 1154 CuYds left turn lane).

Cost for salvaging the topsoil will be included in the contract unit price per cubic yard for Unclassified Excavation.

Cost for placing the topsoil will be included in the contract unit price per cubic yard for Placing Topsoil.

The plan shown quantity will be the basis of payment. No measurement will be made.

GENERAL GEOLOGY

The project alignment traverses glacial terrain typical of eastern South Dakota. Included within this terrain may be areas of loess, shale, sand, gravel, glacial till and boulder till. As is the case with most glacial terrain, the materials throughout the project can vary greatly in a short distance.

CLASSIFICATION OF EXCAVATION

Most of the material encountered should be able to be excavated using conventional methods associated with normal Unclassified Excavation.

UNDERCUTTING

The existing embankment will be undercut in a manner that allows 2 foot of new embankment to be constructed below the finished subgrade top. The remaining new embankment will be benched in to the existing inslope as per Section 120.3 B.2 of the Specifications.

TABLE OF UNDERCUTTING LOCATIONS RURAL

| Station | to | Station |
|---------|----|---------|
| 142+66  |    | 174+26  |

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor will provide a suitable site for Contractor furnished borrow excavation material. The Contractor is responsible for obtaining required permits and clearances for the borrow site. The borrow material will be approved by the Engineer. The plans quantity for Contractor Furnished Borrow Excavation as shown in the Estimate of Quantities will be the basis of payment for this item.

Prior to placement or removal of fill material, the Contractor will be required to remove four inches of topsoil and replace it following the placement of the new fill material. For culvert work locations, removing and replacing topsoil will not be measured for payment but will be incidental to the contract unit price per cubic yard for Contractor Furnished Borrow Excavation.

Restoration of the Contractor furnished borrow excavation site will be the responsibility of the Contractor.

UNCLASSIFIED EXCAVATION

The plan shown quantity will be the basis of payment. No measurement will be made.

ROADWAY WIDENING

The elevation of the subgrade under roadway widening will be at or below subgrade elevation under existing adjacent mainline pavement that is to remain in place.

WATER FOR EMBANKMENT

Water for compaction of earth embankment will be applied at the rate of 10 gallons per cubic yard of Unclassified Excavation. Cost for water will be included in the contract unit price per MGal for Water for Embankment.

SHRINKAGE FACTOR: Embankment +50%

UNCLASSIFIED EXCAVATION, DIGOUTS

The locations and extent of digout areas will be determined in the field by the Engineer. The backfilling material for the digouts will be Asphalt Concrete Composite and Base Course. The depth of asphalt will match the in-place thickness.

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts and 75 square yards of Remove Asphalt Concrete Pavement per mile for the removal of asphalt and unstable material throughout the project.

Included in the Estimate of Quantities are 100 tons of Base Course and 25 tons of Asphalt Concrete Composite per mile for backfill of Unclassified Excavation, Digouts.

The digouts will be extended to the shoulder and backfilled with granular material that will daylight to the inslope to allow water to escape the subsurface.

WATER FOR COMPACTION

The moisture content for compaction of the Base Course will be approximately optimum moisture of the material. The quantity for Water for Granular Material is based on 5% of the quantity of Base Course.

COLD MILLING ASPHALT CONCRETE

Cold milling will be done according to the typical sections. At intersecting roads, entrances, turnouts, pads and in areas where maintenance patches have raised and/or widened the road, additional milling will be done to provide a uniform typical section. Milling will be daylighted to the outside edge of the roadway. Quantities for milling additional width are included in the Table of Additional Quantities.

The Los Angeles Abrasion Loss value on the aggregate used for the in place asphalt concrete was 19. This value was obtained from testing during construction of the in place asphalt concrete.

Cold milling is estimated to produce 7340 tons of cold milled asphalt concrete material. An estimated 4924 tons of cold milled asphalt concrete material will be used on this project as RAP in the Class Q3R Hot Mixed Asphalt Concrete mixture. The Contractor is responsible to assure that enough cold milled asphalt concrete material is available for use as RAP in the Class Q3R Hot Mixed Asphalt Concrete.

RAP not reused on the project (estimated at 2416 tons) will become the property of the Contractor for disposal.

Cold milling operations ahead of asphalt concrete laydown will be limited by particular job conditions and will be subject to approval of the Engineer. In no case will cold milling operations ahead of asphalt concrete laydown operations exceed seven calendar days.

If resurfacing as per the typical section cannot be placed immediately after cold milling at project ends, etc., then temporary asphalt mix ramps will be placed as directed by the Engineer. Cost for placing and removing the temporary ramps will be incidental to the contract unit prices for the various items.

Intersecting roads and entrances will be milled back to the shoulder edge so that additional surfacing may be placed at these locations.

Asphalt concrete intersecting roads will be milled-in for approximately ten feet at the ROW line so that additional surfacing may be placed at these locations.

COLD MILLING TAPERS

In order to construct the new surfacing flush with the asphalt concrete, it will be necessary to taper the depth of milling according to the details for Cold Milling Tapers.

The surface will be milled full roadway width.

Cost for this work will be incidental to the contract unit price per square yard for Cold Milling Asphalt Concrete.

Taper depth of Cold Milling at locations shown below:

| STA    | LOCATION      | SIZE                |
|--------|---------------|---------------------|
| 0+75   | Begin Project | 80' long X 56' wide |
| 499+22 | End Project   | 60' long X 44' wide |

FULL DEPTH RECLAMATION, SHOULDER

Asphalt concrete mix and granular base material will be processed in place so that a uniform blend is obtained. The material will be handled to ensure that salvaged material is not lost down the inslope. The final rolling of the top surface of the materials will embed as many loose stones as possible. The finished surface will be smooth and free from waves and the Contractor will finish the surfacing materials to within 0.5% of the typical section cross slope. The final shaping of the granular material on the shoulder must be completed after the Cold Milling Asphalt Concrete operation.

The requirements of specifications 280.3.B will not apply. All other requirements of Section 280, Full Depth Reclamation (FDR) will apply.

Included in the Estimate of Quantities are 14 MGal of Water for Granular Material per mile for compaction.

BLOTTING SAND FOR PRIME

Included in the Estimate of Quantities are 5 tons of Blotting Sand for Prime to be used where necessary for maintenance of traffic as directed by the Engineer. (Rate = 10 pounds per square yard)

ASPHALT CONCRETE COMPOSITE

Section 324 will apply except that Class Q3R Hot Mixed Asphalt Concrete as specified elsewhere in the plans may be used as Asphalt Concrete Composite.

Plans specified locations for Asphalt Concrete Composite will be paid for at the contract unit price per ton for Asphalt Concrete Composite regardless of the class of asphalt concrete used at such locations.

Asphalt Concrete Composite will include MC-70 Asphalt for Prime placed at the rate of 0.30 gallons per square yard. The Asphalt for Prime will be applied to the Base Course for the full width of the bottom layer of Asphalt Concrete Composite plus one foot additional on the outside shoulder.

Asphalt for tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.09 gallons per square yard on existing pavement or milled asphalt concrete surfaces and at a rate of 0.06 gallons per square yard on primed base course or new asphalt concrete pavement. The Asphalt for tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot additional on the outside shoulder.

ASPHALT CONCRETE BLADE LAID

Included in the Estimate of Quantities are 150 tons of Asphalt Concrete Blade Laid, 11.1 tons of PG 58-34 Asphalt Binder, 1.5 tons of Hydrated Lime and 5.4 tons of SS-1h or CSS-1h Emulsified Asphalt for Tack (Rate = 0.09 gallon per square yard) per mile and will be tight bladed on the existing surface 24' wide prior to the overlay.

Mineral Aggregate for tight bladed material will use only the fine aggregate components combined in the same proportions as the Class Q3R Hot Mixed Asphalt Concrete mix. Quality testing is not required on the coarse aggregate (+No. 4 sieve) in this mixture.

The Asphalt Concrete Blade Laid Lift will be designed using an N<sub>design</sub> Gyratory Compactive Effort of 65. The asphalt binder content will be determined so that the air voids of Asphalt Concrete Blade Laid Lift are between 3.0% and 5.0%.

CLASS Q3R HOT MIXED ASPHALT CONCRETE

Mineral Aggregate:

Asphalt concrete aggregate will consist of reclaimed asphalt pavement (RAP) and virgin aggregate.

Virgin mineral aggregate for Class Q3R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q3.

The Class Q3R Hot Mixed Asphalt Concrete will include 15% percent RAP in the mixture. RAP will be obtained from the material produced by cold milling.

Mix Design Criteria:

Gyratory Controlled QC/QA Mix Design requirements for the Class Q3R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q3 except as modified by the following:

Gyratory Compactive Effort:

|           |                      |                     |                      |
|-----------|----------------------|---------------------|----------------------|
|           | N <sub>initial</sub> | N <sub>design</sub> | N <sub>maximum</sub> |
| Class Q3R | 6                    | 50                  | 75                   |

All remaining requirements for Class Q3 will apply.

The 1” Class Q3R Hot Mixed Asphalt Concrete – 1<sup>st</sup> Lift will be compacted by the Specified Roller Coverage Method. All remaining requirements for Class Q3R Asphalt Concrete will apply for the 1” Class Q3R Hot Mixed Asphalt Concrete – 1<sup>st</sup> Lift.

ADDITIONAL QUANTITIES

Included in the Estimate of Quantities are 100 tons of Class Q3R Hot Mixed Asphalt Concrete, 4.9 tons of PG 58-34 Asphalt Binder and 1.0 tons of Hydrated Lime per mile for spot leveling, strengthening and repair of the existing surface throughout the project.

Included in the Estimate of Quantities are 2 tons of SS-1h or CSS-1h Asphalt for Tack for surface repair and leveling areas throughout the project. (Rate = 0.09 gallon per square yard).

EDGE LINE RUMBLE STRIPS

INSTALLATION:

Edgeline rumble strips will be constructed according to Standard Plate 320.24.

Rumble strips will be completed prior to application of the flush seal and permanent pavement marking.

Rumble strips will be installed in rural areas with posted speeds greater than 50 mph and are not required in urban areas. The rumble strips will begin at the location of the Speed Limit 65 sign as traffic is departing the built up area of a community, unless otherwise specified in the plans. The Engineer will provide the exact start and stop locations.

ROADWAY CLEANING:

The Contractor will be required to remove loose material from the driving surface and/or asphalt shoulders of the roadway. Loose material may be broomed to the edge of shoulders. It will be the Contractor’s responsibility to ensure the loose material does not enter any vegetated areas or waterways.

Cost for this work will be incidental to the contract unit price per mile for Grind 12” Rumble Strip or Stripe in Asphalt Concrete.

EDGE LINE RUMBLE STRIPS (CONTINUED)

A flush seal will be applied to the newly installed 12” rumble strips at a width of 18” and a rate of 0.05 Gal/SqYd. All costs associated with placing the flush seal will be incidental to the contract unit price per ton for SS-1h or CSS-1h Asphalt for Flush Seal.

MAINLINE CROSS PIPE REPLACEMENT

Pipe culverts at Station 300+00 and Station 338+09 will be installed in accordance with the following notes and as shown on the Layout of Embankment and Surfacing for Culvert Replacement.

This work will be completed prior to beginning cold milling on the project.

After the existing pipe has been removed, the new pipe culvert will be undercut to a minimum depth of 1 foot. The depth of undercut is an estimate and the actual depth necessary will be determined during construction. The Engineer will determine how much undercut will be done in accordance with Section 421 of the specifications but will not reduce the undercut to less than 1 foot in depth.

Select fill material for backfilling the undercut area will conform to the gradation requirements of Base Course in Section 882. If groundwater is encountered during construction, the select fill material for backfilling the undercut area and Class B Bedding will conform to the gradation requirements of Section 421.2 A. until backfill placement is above the groundwater level. The Engineer will process a CCO to provide for compensation to the Contractor for the added cost of the changed material. All other requirements of Section 421 will apply.

Pipe culverts will be bedded in accordance with Section 450.3 F.2, Class B Bedding with the following exceptions. The excavated area will extend 2 feet from the outermost diameter on both sides of the pipe with the back of the excavated area being sloped 2:1 upward to the top of the roadway surface. Select fill material for Class B Bedding will conform to the gradation requirements of Base Course in Section 882.

After the minimum testing requirements of M.S.T.R Section 4.1.F.3.a.1 (SDDOT Materials Manual) have been met, the minimum density testing requirements will be one test per zone. Each zone from the top of the pipe to the top of the subgrade will be 2 feet in depth. Moisture testing will remain as per M.S.T.R.

The remainder of the pipe culvert excavation will be backfilled with soils taken from the pipe removal excavation or other suitable material as approved by the Engineer. The backfill will be benched into 2:1 excavation slope. Compaction of the backfill material will be governed by the Specified Density Method.

After the new pipe has been backfilled to the top of the subgrade, a 12” depth of Base Course and 5” (2-2.5” lifts) depth of asphalt concrete composite will be placed as a patch matching the existing asphalt concrete.

All costs to remove and dispose of asphalt concrete pavement, including full depth saw cutting of the asphalt concrete pavement, will be incidental to the contract unit price per square yard to Remove Asphalt Concrete Pavement. All excavation necessary for Class B Bedding and the pipe installation will be incidental to the contract unit price per foot for the corresponding pipe installation contract items. The excavation of material for pipe culvert undercut will be paid for at the contract unit price per cubic yard for Pipe Culvert Undercut.

The select fill material used for backfilling the pipe culvert undercut and Class B Bedding will be paid for at the contract unit price per ton for Base Course. The 3” layer of bedding material to form the cradle in the pipe foundation will be incidental to the corresponding pipe installation contract items. The cost for asphalt concrete composite installed over the pipe replacement will be paid for at the contract unit price per ton for Asphalt Concrete Composite.

TABLE FOR MAINLINE CROSS PIPE REPLACEMENT

| LOCATION | REMOVE<br>ASPHALT<br>CONCRETE<br>(Sq.Yds) | SELECT<br>FILL<br>MATERIAL<br>(Tons) | BASE<br>COURSE<br>(Tons) | 1 <sup>ST</sup> LIFT<br>ASPHALT<br>CONCRETE<br>COMPOSITE<br>(Tons) | 2 <sup>ND</sup> LIFT<br>ASPHALT<br>CONCRETE<br>COMPOSITE<br>(Tons) |
|----------|-------------------------------------------|--------------------------------------|--------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|
| 300+00   | 147                                       | 66                                   | 115                      | 22                                                                 | 21                                                                 |
| 338+09   | 215                                       | 112                                  | 169                      | 32                                                                 | 31                                                                 |
| Totals:  | 362                                       | 178                                  | 284                      | 54                                                                 | 52                                                                 |

Quantities are included in the Table of Additional Quantities for Mainline Cross Pipe Replacement. The quantity for Select Fill Material will be added/included in the quantity for Base Course.

PIPE EXTENSIONS

For pipe extensions that are outside the new surfaced shoulder as shown in the typical sections, acceptance tests in the lower one-half and upper one-half of pipe culvert backfill of pipe 48” or less in diameter may be performed by visual inspection to the satisfaction of the Engineer. All other MSTR pipe density testing requirements will apply.

CULVERT CLEANOUT

Material in existing culverts (approach and mainline culverts) as listed in the Table for Mainline Culvert Work will be cleaned out by water flushing or other approved methods.

It is the responsibility of the Contractor to visit the site to determine the extent of culvert cleaning work required.

Cost for this work will be included in the contract unit price per each for Cleanout Pipe Culvert.

The Contractor will implement appropriate sediment control measures prior to water flushing in order to prevent discharges from project boundaries, and to comply with the Storm Water Permit.

DITCH RESTORATION

The ditches will be excavated for approximately 50 feet in each direction (or as directed by the Engineer) from the new/reset pipe ends to obtain proper water flow through the pipe. The excavated material may be used as fill material for culvert work, etc. as approved by the Engineer.

Cost for this work will be incidental to the contract unit price per cubic yard for Contractor Furnished Borrow Excavation.

CORRUGATED METAL PIPE

Corrugated metal pipes will have 2 3⁄8-inch x 1⁄2-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes will have 3-inch x 1-inch or 5-inch x 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

The gauge of the corrugated metal tees and ends will match the thickest gauge of corrugated metal pipe it is connected to.

TIE BOLTS FOR RCP/RCP ARCH CULVERTS

Tie bolts will conform to Standard Plate 450.18.

Tie Bolts will be installed at the inlet and outlet on the first three sections of new/reset culvert and on new/reset culvert ends (requires connection from existing culvert to new culvert / new end section).

For informational purposes:

Field drilling will be required to install the tie bolts on reset culvert, on reset culvert ends and on existing culvert when installing a new/reset end section.

Cost for removing tie bolts, drilling tie bolt holes and furnishing and installing tie bolts will be incidental to the contract unit prices for installing or resetting RCP/RCP Arch Culverts and End Sections. Existing tie bolts may be salvaged and reused if condition is acceptable to the Engineer.

The Contractor will place culvert and end sections such that the installation does not cause existing culvert sections to separate at any of the existing joints. Any joint separation caused by the Contractor's operations will result in removal, resetting and re-tie bolting of said culvert sections at the Contractor's expense.

CULVERT EXTENSION OPTION

Whenever Concrete to Metal Pipe Transitions and/or Smooth Tapered Sleeves are specified with CMP/CMP ARCH extensions and end sections, the Contractor may elect to perform the extension using RCP/RCP ARCH including end sections. It will be the responsibility of the Contractor to include the cost for using this option in the contract unit prices for the effected culvert items in the Estimate of Quantities.

EMBANKMENT ADJACENT TO CULVERTS

Earth embankment adjacent to the existing culverts/end sections shown in the Table of Mainline Culvert Work will be removed prior to removing the culverts/end sections. Upon installation/reset of the culvert/end sections, the earth embankment will be replaced and compacted adjacent to the culvert/end sections.

Cost for removing, replacing and compacting the earth embankment is included in the contract unit price per cubic yard for Contractor Furnished Borrow Excavation.

REFURBISH SINGLE AND DOUBLE MAILBOXES

Existing mailboxes will be removed, turnouts constructed, and mailboxes reset on new posts with the necessary support hardware for single or double mailbox assemblies. The local Postmaster will determine the recommended mounting height. The Contractor will coordinate with the Engineer on the proper postal representative to contact.

| STATION    | REFURBISH<br>DOUBLE<br>MAILBOX<br>EACH | REFURBISH<br>SINGLE<br>MAILBOX<br>EACH |
|------------|----------------------------------------|----------------------------------------|
| 61+50 Rt.  | -                                      | 1                                      |
| 175+50 Lt. | -                                      | 1                                      |
| 183+00 Lt. | 1                                      | -                                      |
| 204+30 Lt. | -                                      | 1                                      |
| 329+60 Lt. | -                                      | 1                                      |
| 342+25 Rt. | -                                      | 1                                      |
| 421+90 Rt. | -                                      | 1                                      |
| 426+85 Lt. | -                                      | 1                                      |
| 469+55 Rt. | -                                      | 1                                      |
| 477+24 Rt. | -                                      | 1                                      |
| TOTALS:    | 1                                      | 9                                      |

The Contractor will be responsible for maintaining a temporary mailbox assembly until the refurbished mailbox assembly is complete in place.

Cost for removing existing mailboxes, providing temporary mailbox assemblies, and resetting mailboxes with new posts and necessary support hardware will be incidental to the contract unit price per each for Refurbish Single Mailbox and Refurbish Double Mailbox.

PERMANENT SEEDING AND MULCHING

Type B Permanent Seed Mixture will consist of the following:

| Grass Species      | Variety                                                                     | Pure Live Seed<br>(PLS)<br>(Pounds/Acre) |
|--------------------|-----------------------------------------------------------------------------|------------------------------------------|
| Western Wheatgrass | Arriba, Flintlock, Rodan, Rosana, Walsh                                     | 7                                        |
| Switchgrass        | Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer | 3                                        |
| Indiangrass        | Holt, Tomahawk, Chief, Nebraska 54                                          | 3                                        |
| Big Bluestem       | Bison, Bonilla, Champ, Sunnyview, Rountree, Bonanza                         | 3                                        |
| Canada Wildrye     | Mandan                                                                      | 2                                        |
| Total:             |                                                                             | 18                                       |

The areas to be seeded and mulched consist of disturbed areas within the right-of-way resulting from the work required by this contract.

The areas to be seeded and mulched are estimated at 12.5 acres.

If the Contractor uses a no-till drill, mulch may be applied prior to seeding and the mulch can then be punched into the soil by the no-till drill. If the Contractor uses this process, the no-till drill seeding will be completed immediately following the mulch application and the mulch will be punched into the soil at a 3-inch depth.

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum will consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier will provide certification of the fungal species claimed and the live propagule count. The inoculum will include a minimum 25% the fungal species *Rhizophagus intraradices*. The remaining 75% may include other endomycorrhizal fungal species.

All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed will be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

The mycorrhizal inoculum will be as shown below or an approved equal:

| Product                    | Manufacturer                                                                                                                                       |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| MycoApply                  | Mycorrhizal Applications, Inc.<br>Grants Pass, OR<br>Phone: 1-866-476-7800<br><a href="http://www.mycorrhizae.com">www.mycorrhizae.com</a>         |
| AM 120 Multi Species Blend | Reforestation Technologies Int.<br>Gilroy, CA<br>Phone: 1-800-784-4769<br><a href="http://www.reforest.com">www.reforest.com</a>                   |
| LALRISE Prime and Max WP   | Lallemand Specialties Inc.<br>Milwaukee, WI<br>Phone: 1-844-590-7781<br><a href="http://www.lallemandplantcare.com">www.lallemandplantcare.com</a> |



PAVEMENT MARKING PAINT

The Contractor will advise the Engineer a minimum of 3 weeks prior to the application of the permanent pavement marking to allow the State to check and mark the location of no passing zones

Marking 8-inch edge lines and gore areas will require the use of 2 spray nozzles to achieve the required width. Marking 12-inch gore lines will require the use of 3 spray nozzles to achieve the required width.

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

All materials will be applied as per manufacturer’s recommendations. High build waterborne pavement marking paint will conform to the supplemental specifications for Section 980.1 B.

Reflective media will consist of glass beads. Reflective media will require a Certificate of Compliance for Certification for each source and lot. Acceptance sampling will not be required.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4” line = 22.5 Gals/Mile  
Dashed 4” line = 6.2 Gal/Mile  
Glass Beads = 8 Lbs/Gal.

All cost for materials, labor, and equipment necessary to furnish and install the pavement markings will be incidental to the contract unit price for the respective High Build Waterborne Pavement Marking Paint items.

RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT

The Department may take retroreflectivity readings on the pavement marking lines after 2 days and within 30 days of the line application using either a portable or mobile retroreflectometer that conforms to 30-meter geometry. If the Department chooses to take retroreflectivity readings, three retroreflectivity readings will be taken on each line at each test location. The three readings will be averaged and become the reading for that test location.

If the Department chooses to take retroreflectivity readings, three readings will be taken on the edge lines and lane lines in the direction of application. For combination solid yellow and skip yellow lines for turn lanes and for centerline markings on two-way roadways, three readings will be taken in one direction, the reflectometer will be turned 180 degrees and three more readings will be taken. The six readings for the centerline markings will be averaged and become the test reading for that test location.

If the Department chooses to take readings, the minimum retroreflectivity values will be 275 mc/m²/lux for white and 170 mc/m²/lux for yellow.

SEQUENCE OF OPERATIONS

1. Install Traffic Control devised per the details in these plans.
2. Complete pipe replacement and other culvert work.
3. Construct left turn lane at the intersection of SD19 and 280<sup>th</sup> St.
4. Complete all asphalt work.
5. Install pavement marking.

Contractor requests to deviate from the sequence of operations will be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department’s intent for traffic control and sequencing of the work. An alternate sequence will be submitted for review a minimum of one week prior to potential implementation.

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

All temporary speed limit signs will have a minimum mounting height of 5 feet in rural locations, even when mounted on portable supports.

Portable sign supports will not be located on sidewalks, bicycle facilities, or other areas designated for pedestrian or bicycle traffic.

All construction operations will be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 4:1 within 30 feet of the traveled way.

Traffic will be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor’s equipment will be repaired at no expense to the Department.

A Type 3 Barricade will be installed at the end of a lane closure taper as detailed in these plans.

Construction vehicles will exit or enter the construction work zone at locations identified by the Engineer. At no time will construction vehicles utilize the maintenance crossovers or the Interstate median to exit or enter Interstate traffic.

On Interstate projects with more than one construction site, slow moving equipment that operates at a speed less than 40 MPH may mobilize between sites if the equipment travels on the shoulder. The slow-moving equipment will also display a flashing amber light and a slow-moving sign.

FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on intersecting roads. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours.

It is required that the flaggers and pilot car operators be able to communicate with one another. If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for “Flagging”.

TEMPORARY PAVEMENT MARKING

Temporary flexible vertical markers (tabs) will be required on the top lift of asphalt concrete surfacing.

Temporary pavement marking paint will not be allowed on the final lift of asphalt surfacing. Temporary pavement marking paint will not be allowed on the chip seal, fog seal, or flush seal. Temporary flexible vertical markers (tabs) must be used on the final lift of asphalt surfacing. The Contractor may use tabs with covers, uncovering them for the chip seal, fog seal, or flush seal. As an alternative, the Contractor may install new tabs for the fog seal or flush seal.

Covers on the tabs will be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers will be properly disposed of. The Contractor will remove and properly dispose of the tabs after permanent pavement marking is applied. Method of removal will be nondestructive to the road surface and will be accomplished within one week of completion of the permanent pavement marking.

Full reflectivity of all temporary flexible vertical markers (tabs) is required at all times. The Contractor will be required to replace any missing or non-reflective tabs after each installation as detailed below at no additional cost to the State. Quantities of Temporary Pavement Markings consist of:

- One pass on top of the milled surface
- One pass on blade laid
- One pass on the first lift of asphalt concrete
- One pass on top of the final lift of asphalt concrete

PERMANENT PAVEMENT MARKING

The Contractor will be required to repaint all existing pavement markings including centerline, edge line, lane lines, turn arrows, stop bars, and railroad crossings. This list is approximate. The Contractor will be required to document and be able to relocate for replacement of the existing turn arrows, stop bars, railroad crossings, etc. before the markings are obliterated. Additional quantities are included in the estimate of quantities to paint the additional pavement marking. The cost to duplicate the existing marking locations will be incidental to the contract unit prices for the various contract items.

**STORMWATER POLLUTION PREVENTION PLAN CHECKLIST**  
*(The numbers left of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES (Stormwater Permit))*

**5.3 (2): STAFF TRAINING/SWPPP IMPLEMENTATION**

To promote stormwater management awareness specific for this project, the Contractor's Erosion Control Supervisor should provide correspondence of how the SWPPP will be implemented. The Contractor's Erosion Control Supervisor is responsible for providing this information at the preconstruction meeting, and subsequently completing an attendance log, which should identify site-specific implementation of the SWPPP and the names of the personnel who attended the preconstruction meeting. Documentation of the preconstruction meeting will be filed with the SWPPP documents.

**5.3 (3): DESCRIPTION OF CONSTRUCTION ACTIVITIES**

- **5.3 (3a): Project Limits** (See Title Sheet)
- **5.3 (3a): Project Description** (See Title Sheet)
- **5.3 (4): Site Map(s)** (See Title Sheet and Plans)
- **Major Soil Disturbing Activities** (check all that apply)
  - ☐ Clearing and grubbing
  - ☒ Excavation/borrow
  - ☒ Grading and shaping
  - ☒ Filling
  - ☐ Other (describe):
- **5.3 (3b): Total Project Area** 194 Acres
- **5.3 (3b): Total Area to be Disturbed** 12.5 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time** 12.5 Acres
- **5.3 (3d): Existing Vegetative Cover (%)** 70-80
- **5.3 (3d): Description of Vegetative Cover** Typical Eastern SD native and introduced grasses and forbs
- **5.3 (3e): Soil Properties:** AASHTO Soil or USDA-NRCS Soil Series Classification
- **5.3 (3f): Name of Receiving Water Body/Bodies** Tributaries to the Vermillion River
- **5.3 (3g): Location of Construction Support Activity Areas**

**5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES**

The Contractor will enter the Estimated Start Date.

| Description                     | Estimated Start Date |
|---------------------------------|----------------------|
| Cold Milling                    |                      |
| Remove topsoil                  |                      |
| Clearing and grubbing           |                      |
| Full Depth Shoulder Reclamation |                      |
| Construct Left Turn Lane        |                      |
| Culvert replacement/work        |                      |
| Asphalt Concrete Resurfacing    |                      |
| Place topsoil                   |                      |
| Reseed disturbed areas          |                      |
|                                 |                      |
|                                 |                      |
|                                 |                      |

**5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES**

All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report. Include the technical reasoning for selecting each control. (check all that apply)

**Perimeter Controls (See Detail Plan Sheets)**

| Description                                                                | Estimated Start Date |
|----------------------------------------------------------------------------|----------------------|
| <input type="checkbox"/> Natural Buffers (within 50 ft of Waters of State) |                      |
| <input type="checkbox"/> Silt Fence                                        |                      |
| <input type="checkbox"/> Erosion Control Wattles                           |                      |
| <input type="checkbox"/> Temporary Berm / Windrow                          |                      |
| <input type="checkbox"/> Floating Silt Curtain                             |                      |
| <input type="checkbox"/> Stabilized Construction Entrances                 |                      |
| <input type="checkbox"/> Entrance/Exit Equipment Tire Wash                 |                      |
| <input type="checkbox"/> Other:                                            |                      |

**Structural Erosion and Sediment Controls**

| Description                                                                | Estimated Start Date |
|----------------------------------------------------------------------------|----------------------|
| <input type="checkbox"/> Silt Fence                                        |                      |
| <input type="checkbox"/> Temporary Berm/Windrow                            |                      |
| <input type="checkbox"/> Erosion Control Wattles                           |                      |
| <input type="checkbox"/> Temporary Sediment Barriers                       |                      |
| <input type="checkbox"/> Erosion Bales                                     |                      |
| <input type="checkbox"/> Temporary Slope Drain                             |                      |
| <input checked="" type="checkbox"/> Turf Reinforcement Mat                 |                      |
| <input checked="" type="checkbox"/> Riprap                                 |                      |
| <input type="checkbox"/> Gabions                                           |                      |
| <input type="checkbox"/> Rock Check Dams                                   |                      |
| <input type="checkbox"/> Sediment Traps/Basins                             |                      |
| <input type="checkbox"/> Culvert Inlet Protection                          |                      |
| <input type="checkbox"/> Transition Mats                                   |                      |
| <input type="checkbox"/> Median/Area Drain Inlet Protection                |                      |
| <input type="checkbox"/> Curb Inlet Protection                             |                      |
| <input type="checkbox"/> Interceptor Ditch                                 |                      |
| <input type="checkbox"/> Concrete Washout Facility                         |                      |
| <input type="checkbox"/> Work Platform                                     |                      |
| <input type="checkbox"/> Temporary Water Barrier                           |                      |
| <input type="checkbox"/> Temporary Water Crossing                          |                      |
| <input type="checkbox"/> Permanent Stormwater Ponds                        |                      |
| <input type="checkbox"/> Permanent Open Vegetated Swales                   |                      |
| <input type="checkbox"/> Natural Depressions to allow for Infiltration     |                      |
| <input type="checkbox"/> Sequential Systems that combine several practices |                      |
| <input type="checkbox"/> Other:                                            |                      |

**Dust Controls**

| Description                                              | Estimated Start Date |
|----------------------------------------------------------|----------------------|
| <input type="checkbox"/> Tarps & Wind impervious fabrics |                      |
| <input type="checkbox"/> Watering                        |                      |
| <input type="checkbox"/> Stockpile location/orientation  |                      |
| <input type="checkbox"/> Dust Control Chlorides          |                      |
| <input type="checkbox"/> Other                           |                      |

**Dewatering BMPs**

| Description                                          | Estimated Start Date |
|------------------------------------------------------|----------------------|
| <input type="checkbox"/> Sediment Basins             |                      |
| <input type="checkbox"/> Dewatering bags             |                      |
| <input type="checkbox"/> Weir tanks                  |                      |
| <input type="checkbox"/> Temporary Diversion Channel |                      |
| <input type="checkbox"/> Other:                      |                      |

**Stabilization Practices (See Detail Plan Sheets)**

(Stabilization measures will begin the following work day whenever earth disturbing activity on any portion of the site has temporarily or permanently ceased. Temporary stabilization will be completed as soon as practicable but no later than 14 days after initiating soil stabilization activities **(3.18)**)

| Description                                                                 | Estimated Start Date |
|-----------------------------------------------------------------------------|----------------------|
| <input type="checkbox"/> Vegetation Buffer Strips                           |                      |
| <input type="checkbox"/> Temporary Seeding (Cover Crop Seeding)             |                      |
| <input checked="" type="checkbox"/> Permanent Seeding                       |                      |
| <input type="checkbox"/> Sodding                                            |                      |
| <input type="checkbox"/> Planting (Woody Vegetation for Soil Stabilization) |                      |
| <input checked="" type="checkbox"/> Mulching (Grass Hay or Straw)           |                      |
| <input type="checkbox"/> Fiber Mulching (Wood Fiber Mulch)                  |                      |
| <input type="checkbox"/> Soil Stabilizer                                    |                      |
| <input type="checkbox"/> Bonded Fiber Matrix                                |                      |
| <input type="checkbox"/> Fiber Reinforced Matrix                            |                      |
| <input type="checkbox"/> Erosion Control Blankets                           |                      |
| <input type="checkbox"/> Surface Roughening (e.g. tracking)                 |                      |
| <input type="checkbox"/> Other:                                             |                      |

**Wetland Avoidance**

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☒ No ☐ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

5.3 (6): PROCEDURES FOR INSPECTIONS

- Inspections will be conducted at least once every 7 days.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches 1/3 of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches 1/2 the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance and repair activities are the responsibility of the Contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT

Stormwater management will be handled by temporary controls outlined in "DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES" above, and any permanent controls needed to meet permanent stormwater management needs in the post construction period will be shown in the plans and noted as permanent.

5.3 (8): POLLUTION PREVENTION PROCEDURES

5.3 (8a): Spill Prevention and Response Procedures

- **Material Management**
  - Housekeeping
    - Only needed products will be stored on-site by the Contractor.
    - Except for bulk materials the contractor will store all materials under cover and/or in appropriate containers.
    - Products must be stored in original containers and labeled.
    - Material mixing will be conducted in accordance with the manufacturer's recommendations.
    - When possible, all products will be completely used before properly disposing of the container off-site.
    - The manufacturer's directions for disposal of materials and containers will be followed.
    - The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
    - Dust generated will be controlled in an environmentally safe manner.

- Hazardous Materials
  - Products will be kept in original containers unless the container is not resealable and provide secondary containment as applicable.
  - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
  - If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
  - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
  - Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any stormwater system or stormwater treatment system.
  - Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of stormwater runoff.

➤ **Spill Control Practices**

- In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.
- For all hazardous materials stored on site, the manufacturer's recommended methods for spill cleanup will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
  - Appropriate cleanup materials and equipment will be maintained by the Contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for cleanup purposes.
  - All spills will be cleaned immediately after discovery and the materials disposed of properly.
  - The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
  - After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
  - The Contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator.

➤ **Spill Response**

- The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into stormwater runoff and conveyance systems. If the release has impacted on-site stormwater, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens stormwater or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.
- The Contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
  - If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
  - Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the Contractor at the site.
  - If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
  - If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SDDANR.
  - Personnel with primary responsibility for spill response and cleanup will receive training by the Contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
  - Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

5.3 (8b): WASTE MANAGEMENT PROCEDURES

- **Waste Disposal**
  - All liquid waste materials will be collected and stored in approved sealed containers. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal and notices stating proper practices will be posted. The Contractor is responsible for ensuring waste disposal procedures are followed.
- **Hazardous Waste**
  - All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the Contractor will be responsible for seeing that these practices are followed.
- **Sanitary Waste**
  - Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units which must be secured to prevent tipping and serviced in a timely manner by a licensed waste management Contractor or as required by any local regulations.

5.3 (9): CONSTRUCTION SITE POLLUTANTS

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the heading “POLLUTION PREVENTION PROCEDURES” (check all that apply).

- ☐ Concrete and Portland Cement
- ☐ Detergents
- ☒ Paints
- ☒ Metals
- ☒ Bituminous Materials
- ☒ Petroleum Based Products
- ☒ Diesel Exhaust Fluid
- ☐ Cleaning Solvents
- ☐ Wood
- ☐ Cure
- ☐ Texture
- ☐ Chemical Fertilizers
- ☐ Other:

Product Specific Practices

- **Petroleum Products**

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- **Fertilizers**

Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to stormwater. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.
- **Paints**

All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.
- **Concrete Trucks**

Contractors will provide designated truck washout facilities on the site. These areas must be self-contained and not connected to any stormwater outlet of the site. Upon completion of construction, the area at the washout facility will be properly stabilized.

5.3 (10): NON-STORMWATER DISCHARGES

The following non-stormwater discharges are anticipated during the course of this project (check all that apply).

- ☐ Discharges from water line flushing.
- ☐ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- ☐ Uncontaminated ground water associated with dewatering activities.

5.3 (11): INFEASIBILITY DOCUMENTATION

If it is determined to be infeasible to comply with any of the requirements of the Stormwater Permit, the infeasibility determination must be thoroughly documented in the SWPPP.

7.0: SPILL NOTIFICATION

In the event of a spill, the Contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to SDDANR immediately **if any one of the following** conditions exists:

• The release or spill threatens or is able to threaten waters of the state (surface water or ground water)

• The release or spill causes an immediate danger to human health or safety

• The release or spill exceeds 25 gallons

• The release or spill causes a sheen on surface water

• The release or spill of any substance that exceeds the ground water quality standards of ARSD Chapter 74:54:01

• The release or spill of any substance that exceeds the surface water quality standards of ARSD Chapter 74:51:01

• The release or spill of any substance that harms or threatens to harm wildlife or aquatic life

• The release or spill is required to be reported according to Superfund Amendments and Reauthorization Act (SARA) Title III List of Lists, Consolidated List of Chemicals Subject to Reporting Under the Emergency Planning and Community Right to Know Act, US Environmental Protection Agency.
- To report a release or spill, call SDDANR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central Standard Time). To report the release after hours, on weekends or holidays, call South Dakota Emergency Management at 605-773-3231. Reporting the release to SDDANR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, you must also contact local authorities to determine the local reporting requirements for releases. A written report of the unauthorized release of any regulated substance, including quantity discharged, and the location of the discharge will be sent to SDDANR within 14 days of the discharge.



5.4: SWPPP CERTIFICATIONS

- **Certification of Compliance with Federal, State, and Local Regulations**
- The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.
- **South Dakota Department of Transportation**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature (See the General Permit, Section 7.4 (1))

- **Prime Contractor**
- This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.
- I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature

CONTACT INFORMATION

The following personnel are duly authorized representatives and have signatory authority for modifications made to the SWPPP:

- **Contractor Information:**
- Prime Contractor Name: \_\_\_\_\_
  - Contractor Contact Name: \_\_\_\_\_
  - Address: \_\_\_\_\_
  - \_\_\_\_\_
  - City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_
  - Office Phone: \_\_\_\_\_ Field: \_\_\_\_\_
  - Cell Phone: \_\_\_\_\_ Fax: \_\_\_\_\_
- **Erosion Control Supervisor**
- Name: \_\_\_\_\_
  - Address: \_\_\_\_\_
  - \_\_\_\_\_
  - City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_
  - Office Phone: \_\_\_\_\_ Field: \_\_\_\_\_
  - Cell Phone: \_\_\_\_\_ Fax: \_\_\_\_\_
- **SDDOT Project Engineer**
- Name: \_\_\_\_\_
  - Business Address: \_\_\_\_\_
  - Job Office Location: \_\_\_\_\_
  - City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_
  - Office Phone: \_\_\_\_\_ Field: \_\_\_\_\_
  - Cell Phone: \_\_\_\_\_ Fax: \_\_\_\_\_
- **SDDANR Contact Spill Reporting**
- Business Hours Monday-Friday (605) 773-3296
  - Nights and Weekends (605) 773-3231
- **SDDANR Contact for Hazardous Materials.**
- (605) 773-3153
- **National Response Center Hotline**
- (800) 424-8802.
- **SDDANR Stormwater Contact Information**
- SDDANR Stormwater (800) 737-8676
  - Surface Water Quality Program (605) 773-3351

5.5: REQUIRED SWPPP MODIFICATIONS

- **5.5 (1): Conditions Requiring SWPPP Modification**
- The SWPPP must be modified, including the site map(s), in response to any of the following conditions:
- When a new operator responsible for implementation of any part the SWPPP begins work on the site.
  - When changes to the construction plans, sediment and erosion control measures, or any best management practices on site that are no longer accurately reflected in the SWPPP. This includes changes made in response to corrective actions triggered by inspections.
  - To reflect areas on the site map where operational control has been transferred (including the date of the transfer) or has been covered under a new permit since initiating coverage under this general permit.
  - If inspections by site staff, local officials, SDDANR, or U.S. EPA determine that SWPPP modifications are necessary for compliance with the Stormwater Permit.
  - To reflect any revisions to applicable federal, state, or local requirements that affect the control measures implemented at the site.
  - If approved by the Secretary, to reflect any changes in chemical water treatment systems or controls, including the use of a different water treatment chemical, age rates, different areas, or methods of application.
- **5.5 (2): Deadlines for SWPPP Modification**
- Any required revisions to the SWPPP must be completed within 7 calendar days following any of the items listed above.
- **5.5 (3): Documentation of Modifications to the Plan**
- All SWPPP modification records are required to be maintained showing the dates of when the modification occurred. The records must include the name of the person authorizing each change and a brief summary of all changes.
- **5.5 (4): Certification Requirements**
- All modifications made to the SWPPP must be signed and certified as required in Section 7.4.
- **5.5 (5): Required Notice to Other Operators**
- If there are multiple operators at the site, the Contractor's Erosion Control Supervisor must notify each operator that may be impacted by the change to the SWPPP within 24 hours.

When modifications as described above occur, the SWPPP will be modified to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP using the DOT 298 form and drawings on the plan will be modified to reflect the needed changes. Copies of the DOT 298 forms and the SWPPP will be retained on site in a designated place for review throughout the course of the project. A copy of the DOT 298 form will be given to the Contractor Erosion Control Supervisor and a copy will be emailed to the SDDOT Environmental Section in accordance with the DOT 298 Form.

PAVEMENT MARKING

Typical pavement marking as shown on this sheet will be applied throughout the entire length of two lane roadway.

Traffic Control will be incidental to the cost of application. The striper and advance or trailing warning vehicle will be equipped with flashing amber lights and advance warning arrow board.

Application rates will be as follows:

| Two Lane Roadway<br>(Rates for one line)               |
|--------------------------------------------------------|
| Dashed Yellow Centerline<br>Rate = 6.2 Gals./Pass-Mile |
| Solid Yellow Centerline<br>Rate = 22.5 Gals./Pass-Mile |
| Solid White Edgeline<br>Rate = 22.5 Gals./Pass-Mile    |

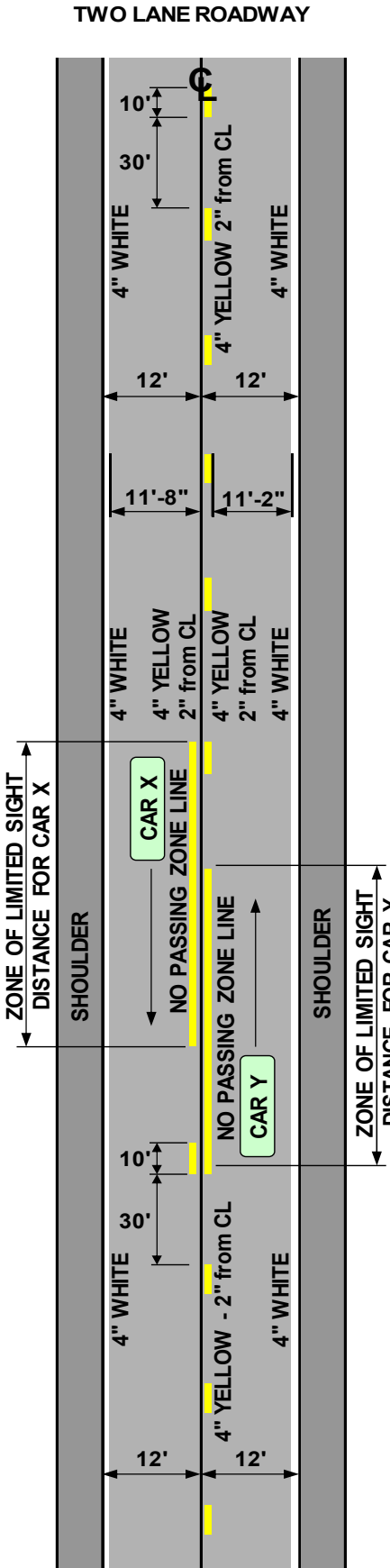
4" Yellow Skip Centerline (when not adjacent to a 4" Yellow No Passing Zone) will be placed consistently to the south or east side of centerline.

| ESTIMATED QUANTITIES (BASED ON ONE APPLICATION) |             |
|-------------------------------------------------|-------------|
| HIGH BUILD                                      | QUANTITY    |
| WHITE                                           | 374 GALLONS |
| YELLOW                                          | 169 GALLONS |

| Included in the above quantities are: |         |                                   |                                                                 |
|---------------------------------------|---------|-----------------------------------|-----------------------------------------------------------------|
| Additional White (1 Application)      |         | Additional Yellow (1 Application) |                                                                 |
| Description                           | Gallons | Description                       | Gallons                                                         |
| 4" Lines                              | -       | Transitions 40 Ea #####           | 89                                                              |
| 8" Lines                              | -       | 4" Skip Lines                     | -                                                               |
| 12" Gore Lines                        | -       | 8" Lines                          | -                                                               |
| Crosswalks                            | -       | 12" Lines                         | -                                                               |
| 24" Stop Lines                        | 36'     | 24" Hatches                       | 440'                                                            |
| 24" Hatches                           | -       | Solid Areas                       | -                                                               |
| Solid Areas                           | -       | Additional Yellow:                | 111                                                             |
| Arrows                                |         |                                   |                                                                 |
| Left Arrows                           | 12 Ea   | 8                                 | Additional Quantities                                           |
| Right Arrows                          | -       | -                                 | <u>Rates of Coverage:</u> SqFt/Gal                              |
| Straight Arrows                       | -       | -                                 | 4", 8" & 12" Lines - 60                                         |
| Combo Arrows                          | -       | -                                 | 24" Lines & Hatches - 40                                        |
| Lane Drop Arrows                      | -       | -                                 | Arrows, Messages and Solid Areas - 25                           |
| Messages                              |         |                                   |                                                                 |
| STOP                                  | -       | -                                 | All pavement marking dimensions are based on 12' driving lanes. |
| STOP AHEAD                            | -       | -                                 |                                                                 |
| R X R w/ Stop Lines                   | -       | -                                 |                                                                 |
| SCHOOL X-ING                          | -       | -                                 |                                                                 |
| Additional White:                     |         | 10                                |                                                                 |

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

| SIGN CODE | SIGN DESCRIPTION              | CONVENTIONAL ROAD                                  |           |               |       |
|-----------|-------------------------------|----------------------------------------------------|-----------|---------------|-------|
|           |                               | NUMBER                                             | SIGN SIZE | SQFT PER SIGN | SQFT  |
| R1-1      | STOP                          | 2                                                  | 30"       | 5.2           | 10.4  |
| W1-4      | REVERSE CURVE (R)             | 1                                                  | 48" x 48" | 16.0          | 16.0  |
| W3-1      | STOP AHEAD (symbol)           | 2                                                  | 48" x 48" | 16.0          | 32.0  |
| W8-1      | BUMP                          | 2                                                  | 48" x 48" | 16.0          | 32.0  |
| W8-11     | UNEVEN LANES                  | 8                                                  | 48" x 48" | 16.0          | 128.0 |
| W20-1     | ROAD WORK AHEAD               | 4                                                  | 48" x 48" | 16.0          | 64.0  |
| W20-4     | ONE LANE ROAD AHEAD           | 2                                                  | 48" x 48" | 16.0          | 32.0  |
| W20-7     | FLAGGER (symbol)              | 2                                                  | 48" x 48" | 16.0          | 32.0  |
| G20-1     | ROAD WORK NEXT <u>2</u> MILES | 1                                                  | 36" x 18" | 4.5           | 4.5   |
| G20-1     | ROAD WORK NEXT <u>3</u> MILES | 1                                                  | 36" x 18" | 4.5           | 4.5   |
| G20-1     | ROAD WORK NEXT <u>5</u> MILES | 1                                                  | 36" x 18" | 4.5           | 4.5   |
| G20-1     | ROAD WORK NEXT <u>6</u> MILES | 1                                                  | 36" x 18" | 4.5           | 4.5   |
| G20-2     | END ROAD WORK                 | 4                                                  | 36" x 18" | 4.5           | 18.0  |
|           |                               | CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 391.4 |           |               |       |





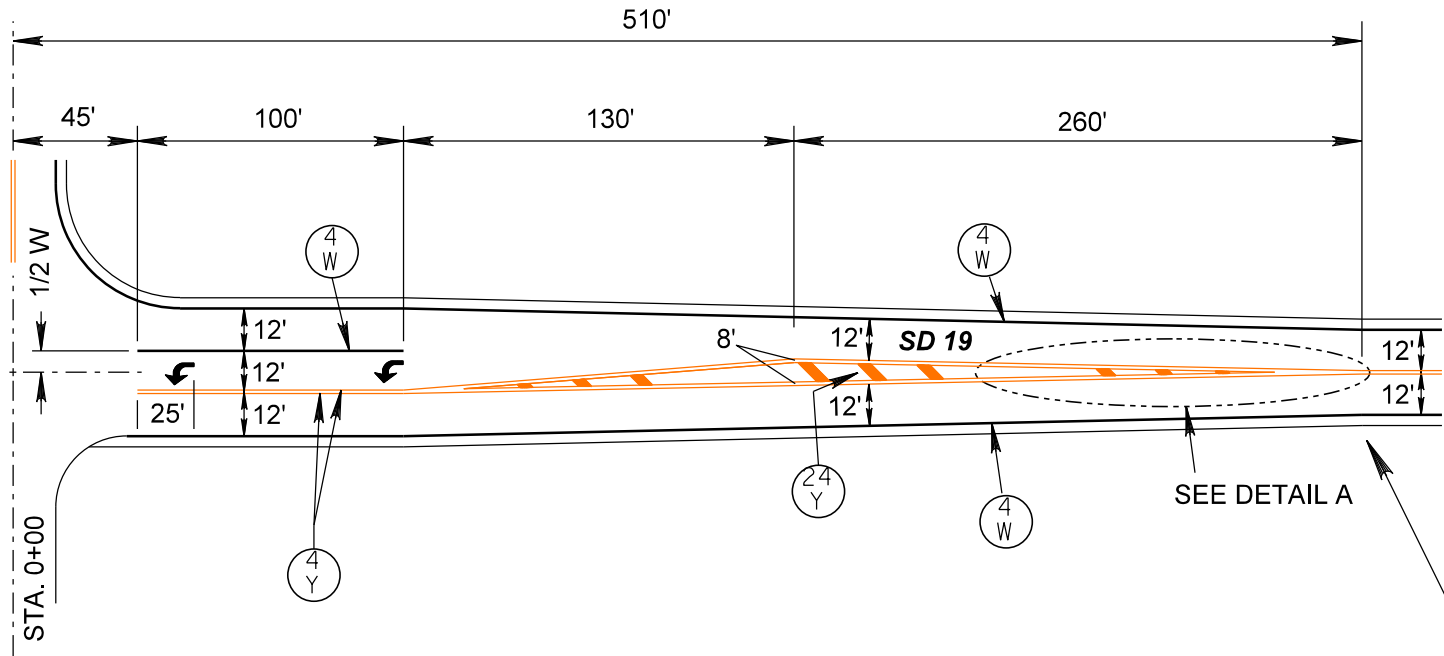
1386259  
Plot Scale -

Plotted From -  
TRM113315

PERMANENT PAVEMENT MARKING  
JCT OF SD19 & SD44

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 28    | 85              |

Plotting Date: 11/13/2024

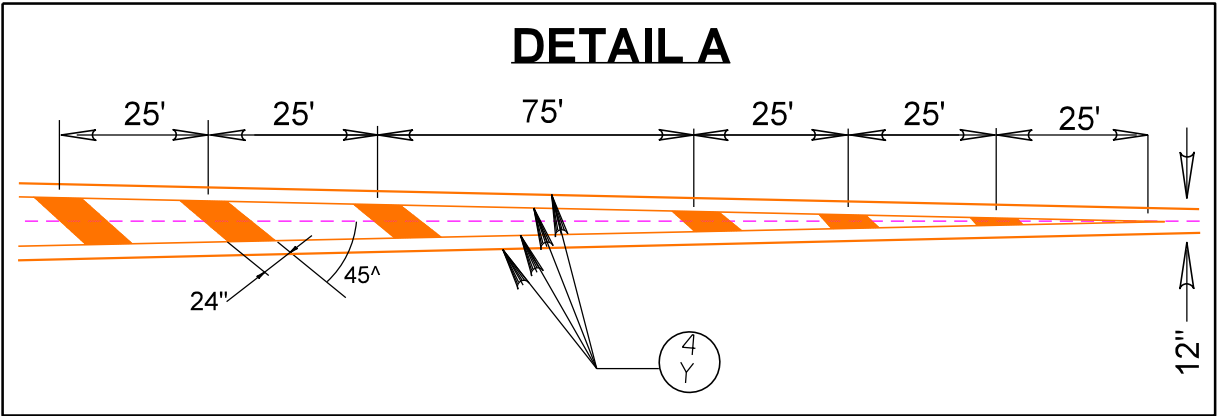


NO PASSING ZONE ENDS AT STA. 12+60  
NO PASSING ZONE BEGINS AT STA. 5+10

LEGEND

- ④ W - 4" WHITE PAINTED PAVEMENT MARKING
- ④ Y - 4" YELLOW PAINTED PAVEMENT MARKING
- ②④ Y - 24" YELLOW PAINTED PAVEMENT MARKING
- ↩ - WHITE PAVEMENT MARKING, ARROW

DETAIL A



Plot Name -  
\$Subname\$.dgn  
File -  
...TC\Marking Layouts 060E.dgn

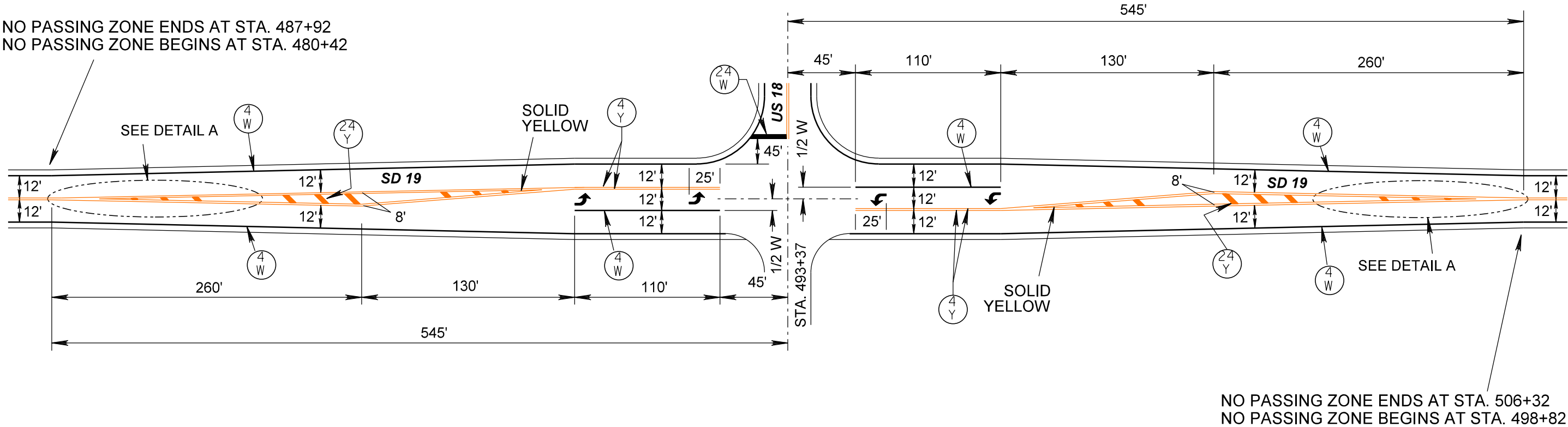
1365259  
Plot Scale -

TRM113315  
Plotted From -

PERMANENT PAVEMENT MARKING  
JCT OF SD19 & US18

| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|-----------------------------|--------------|-------|-----------------|
|                             | P 0019(49)43 | 29    | 85              |

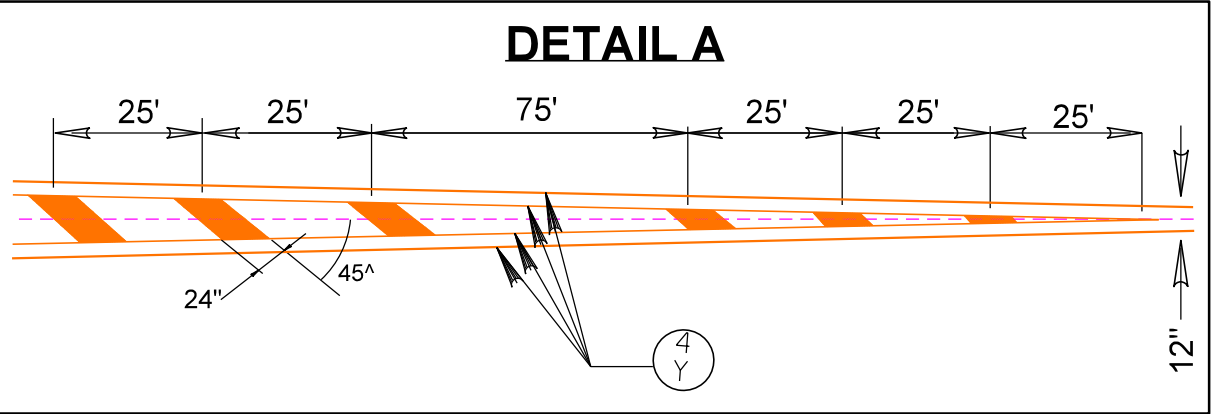
Plotting Date: 11/18/2024



LEGEND

-  - 4" WHITE PAINTED PAVEMENT MARKING
-  - 4" YELLOW PAINTED PAVEMENT MARKING
-  - 24" YELLOW PAINTED PAVEMENT MARKING
-  - 24" WHITE PAINTED PAVEMENT MARKING
-  - WHITE PAVEMENT MARKING, ARROW

DETAIL A



Plot Name - \$Subname\$.dgn  
File - ..\TC\Marking Layouts 0606.dgn

1386259  
Plot Scale -

TRM113315  
Plotted From -

# PERMANENT PAVEMENT MARKINGS

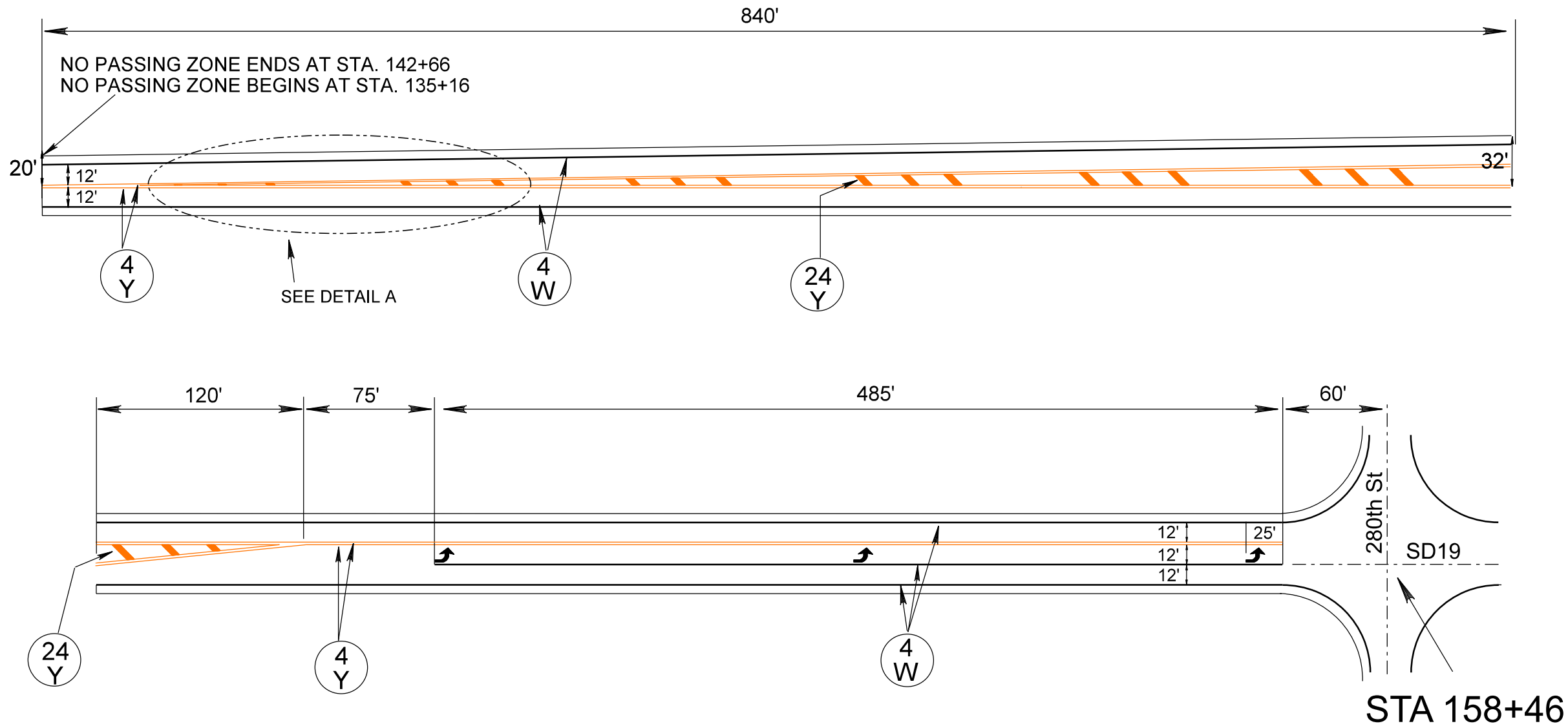
## SD19 North of 280th ST

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 30    | 85              |

Plotting Date:

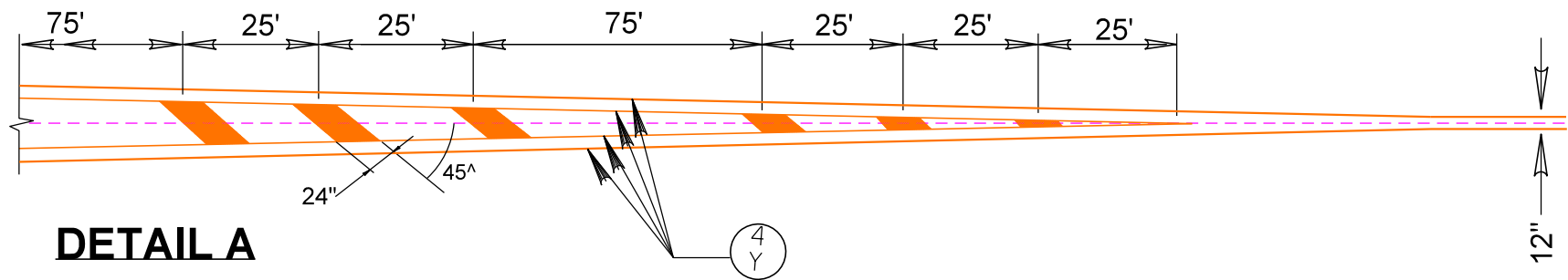
4/7/2025

REV. 04/07/2025 JSH



### LEGEND

- (4 W) - 4" WHITE PAINTED PAVEMENT MARKING
- (4 Y) - 4" YELLOW PAINTED PAVEMENT MARKING
- (24 Y) - 24" YELLOW PAINTED PAVEMENT MARKING
- ↩ - WHITE PAVEMENT MARKING, ARROW



1386259  
Plot Scale -

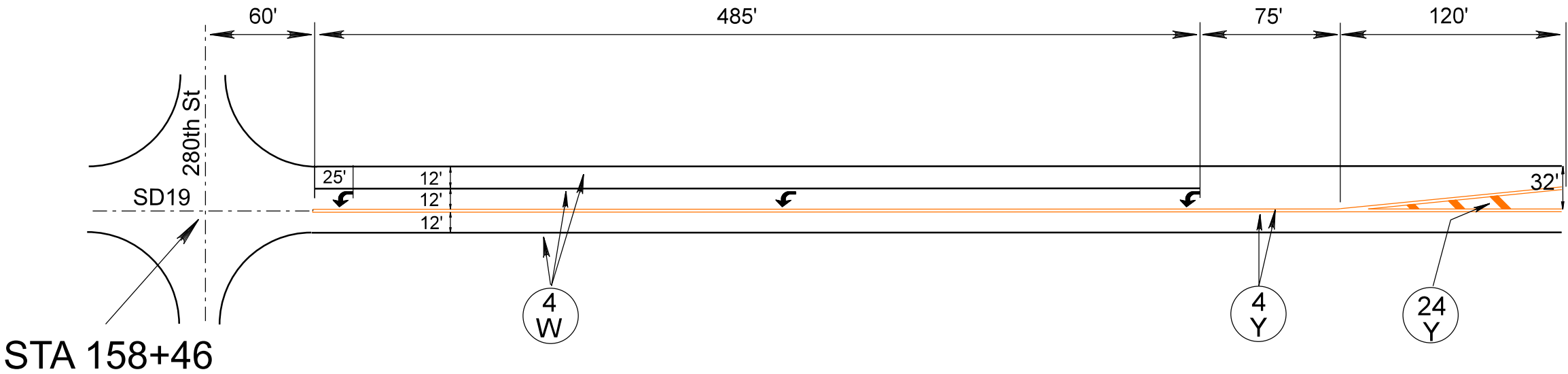
TRM113315  
Plotted From -

**PERMANENT PAVEMENT MARKINGS**  
**SD19 South of 280th ST**

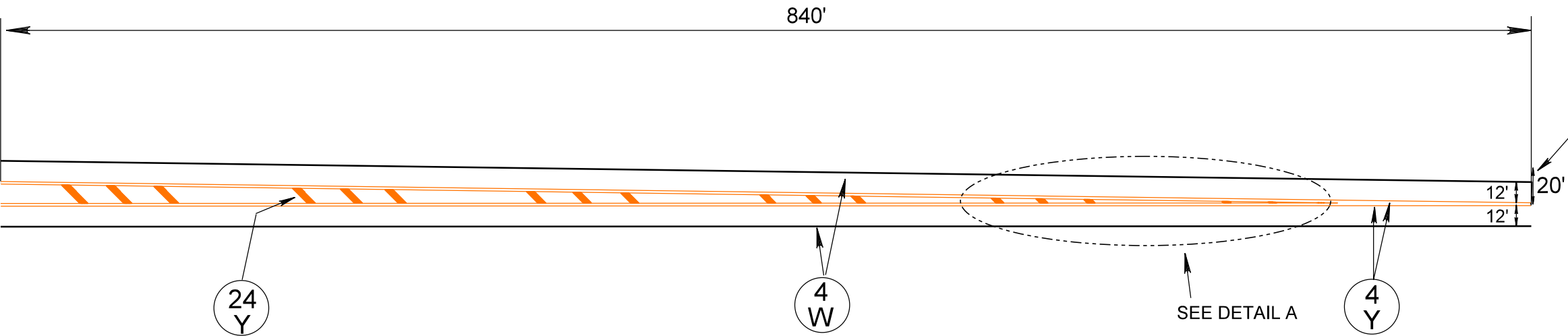
|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 31    | 85              |

Plotting Date: 4/7/2025

REV. 04/07/2025 JSH

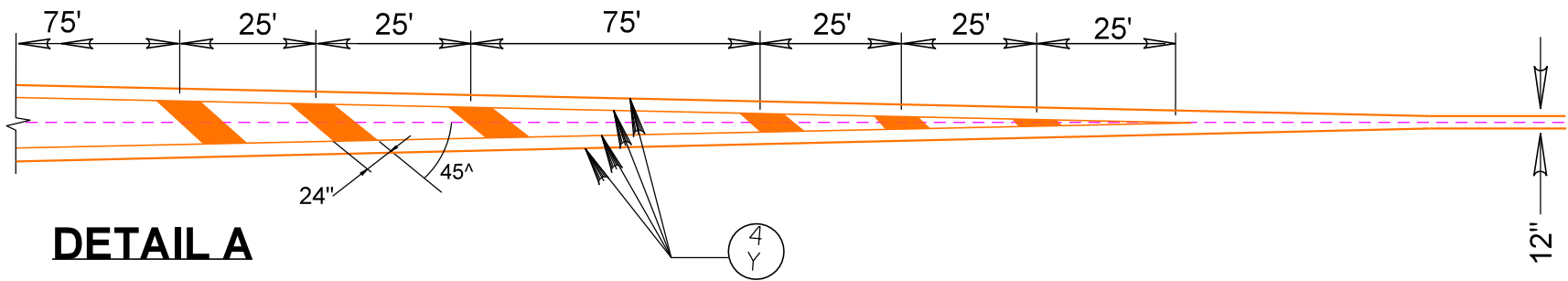


NO PASSING ZONE ENDS AT STA. 182+29  
NO PASSING ZONE BEGINS AT STA. 174+79



**LEGEND**

- ④ W - 4" WHITE PAINTED PAVEMENT MARKING
- ④ Y - 4" YELLOW PAINTED PAVEMENT MARKING
- ②④ Y - 24" YELLOW PAINTED PAVEMENT MARKING
- ↩ - WHITE PAVEMENT MARKING, ARROW



# FIXED LOCATION SIGNING

ROAD WORK  
NEXT 8 MILES

END  
ROAD WORK

ROAD WORK  
NEXT 5 MILES

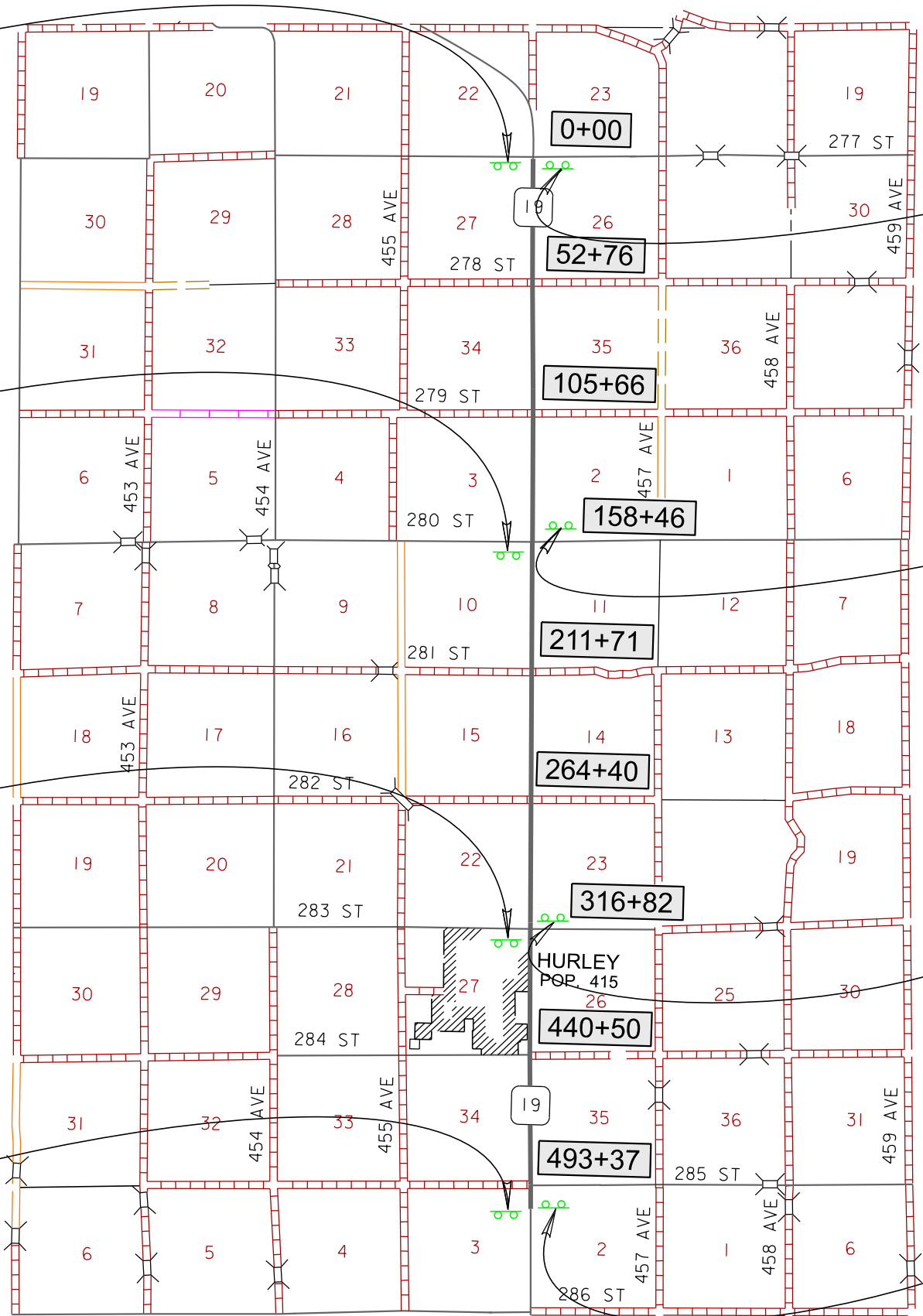
ROAD WORK  
NEXT 3 MILES

ROAD WORK  
NEXT 2 MILES

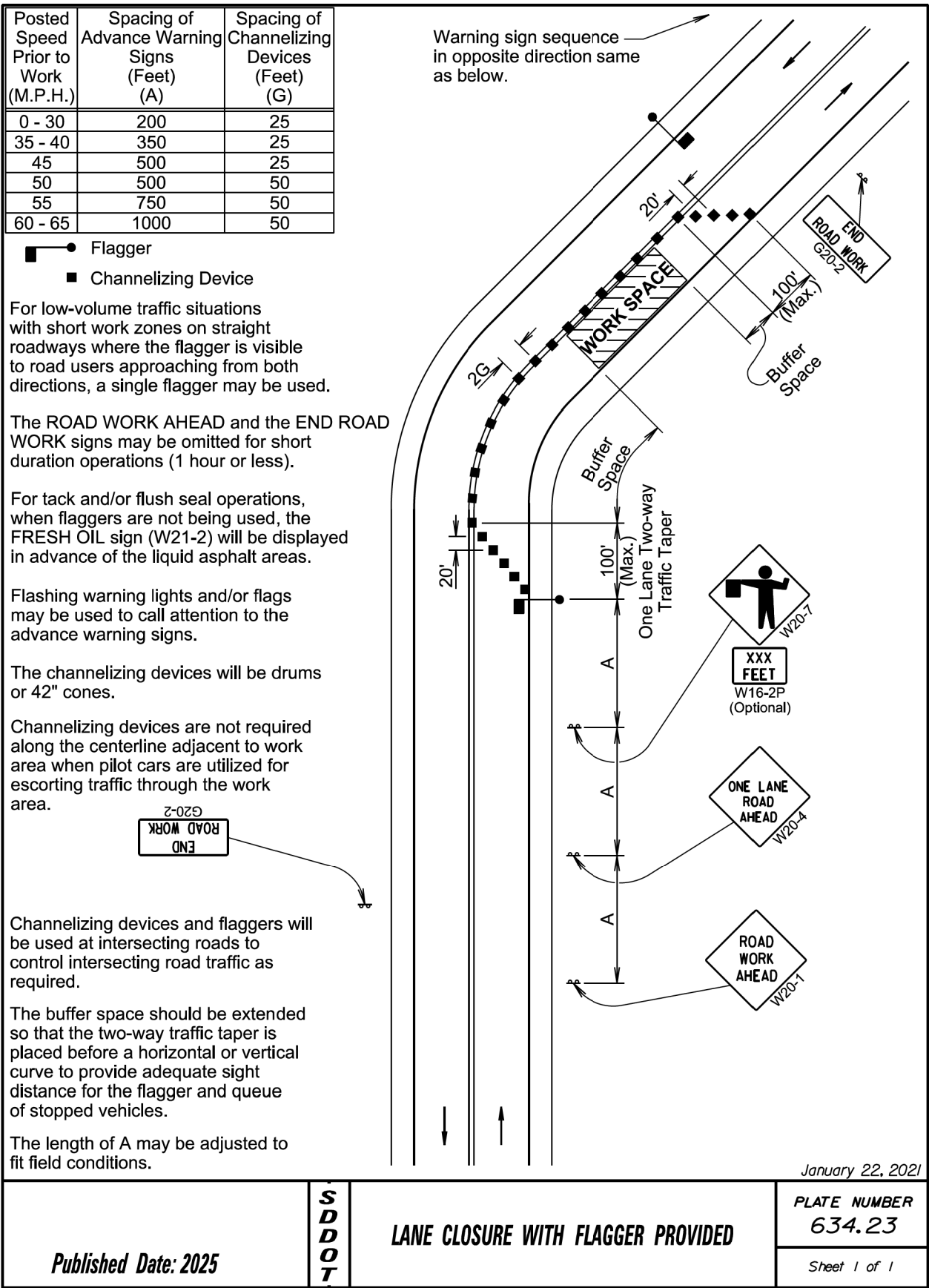
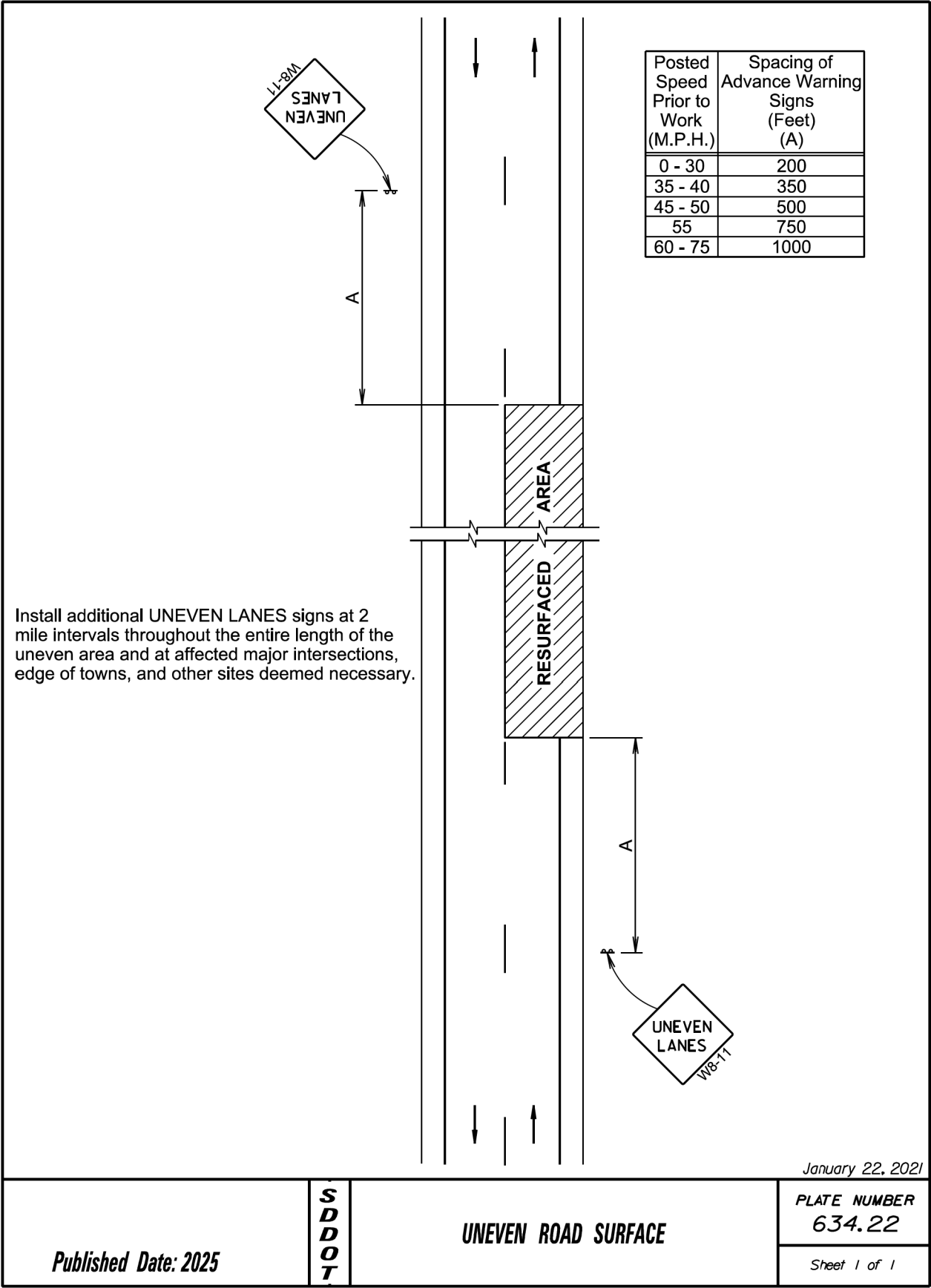
ROAD WORK  
NEXT 6 MILES

END  
ROAD WORK

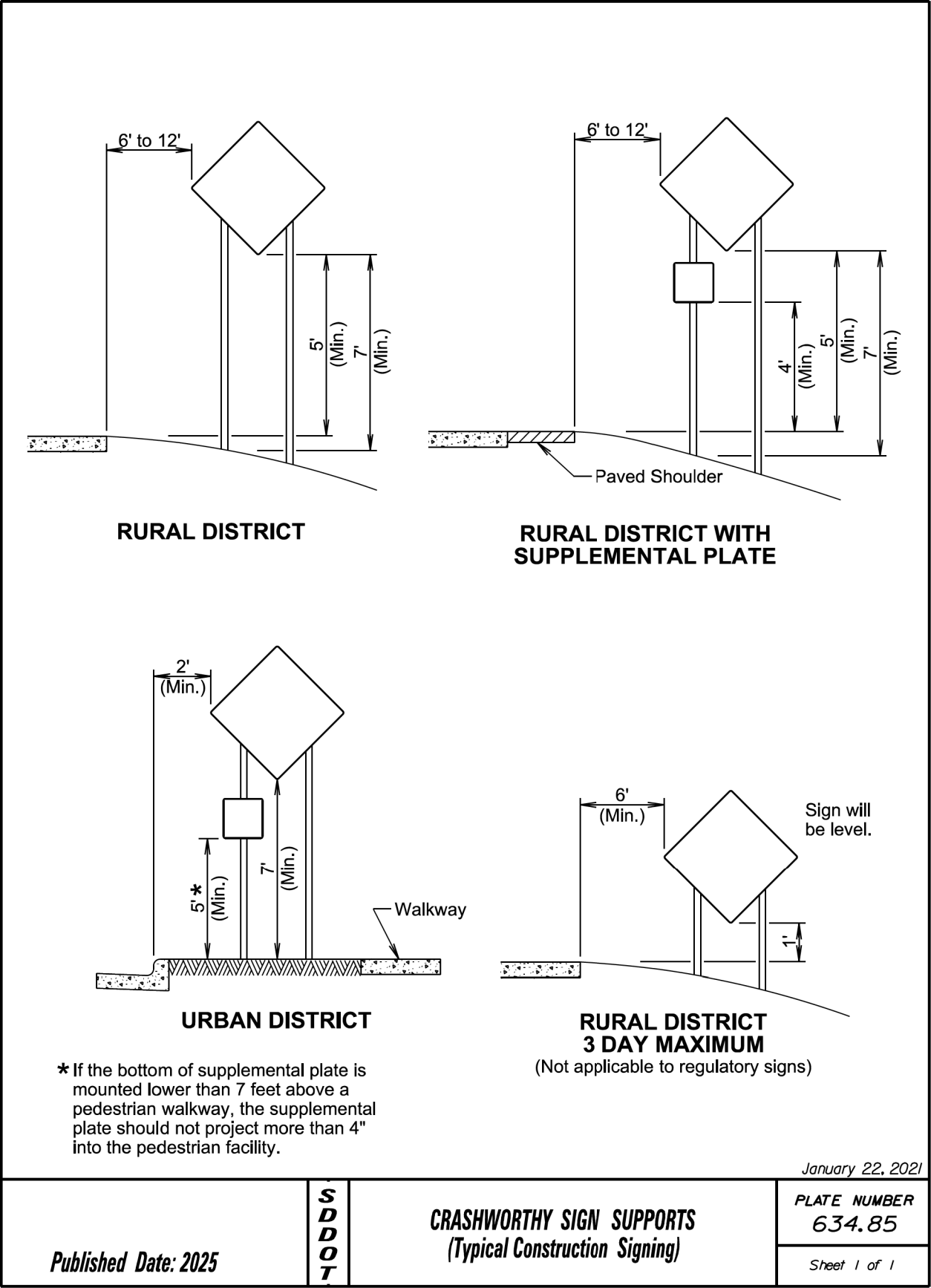
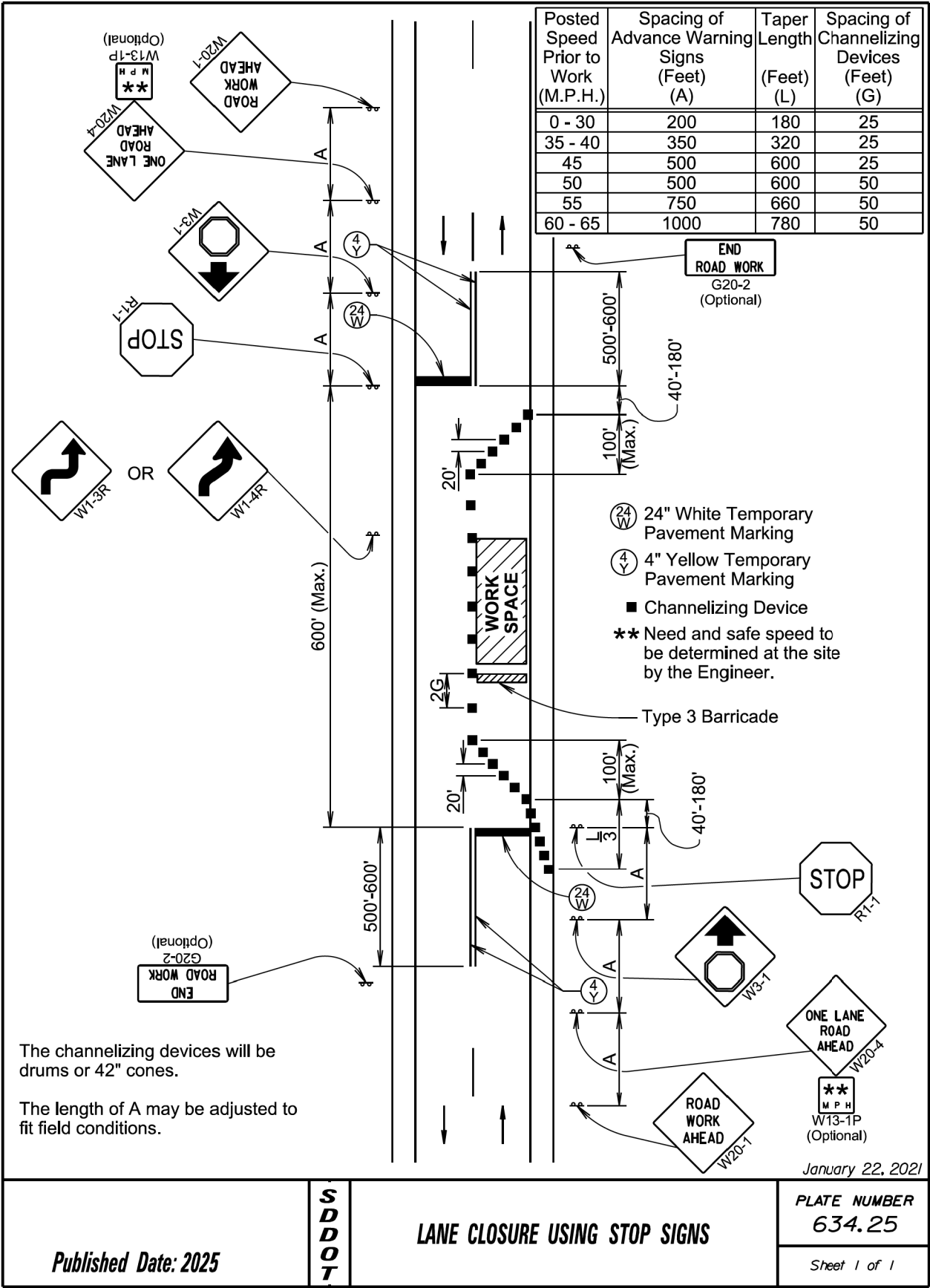
ROAD WORK  
NEXT 8 MILES







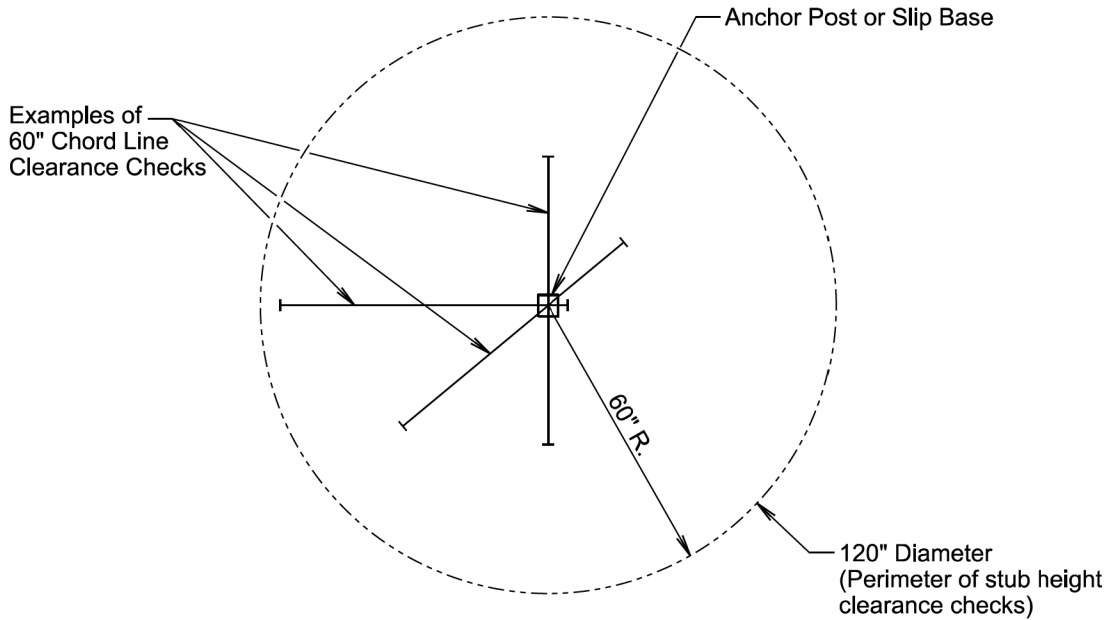




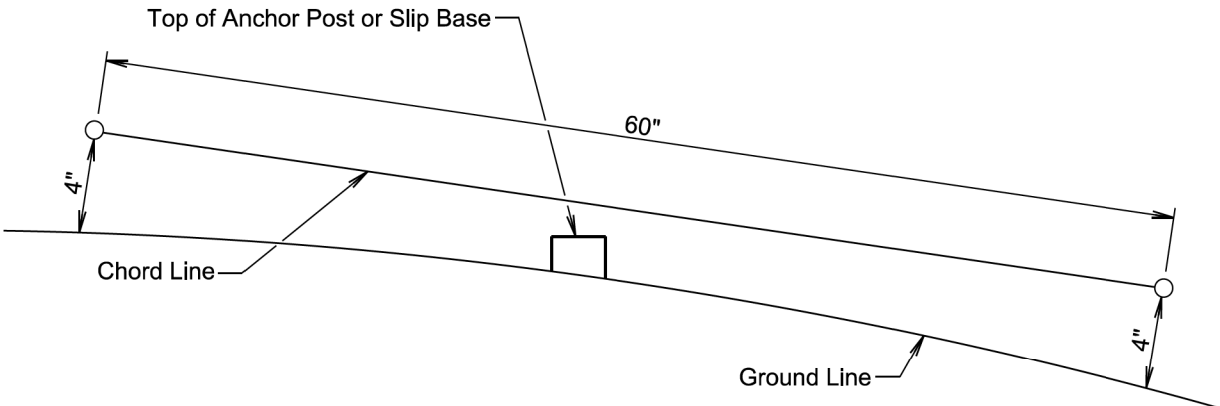
1386259  
Plot Scale -  
Plotted From -  
TRM113315

| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|-----------------------------|--------------|-------|-----------------|
|                             | P 0019(49)43 | 36    | 85              |

Plotting Date: 11/13/2024



**PLAN VIEW**  
(Examples of stub height clearance checks)



**ELEVATION VIEW**

**GENERAL NOTES:**

The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

January 22, 2021

|                             |                                  |                                         |                        |
|-----------------------------|----------------------------------|-----------------------------------------|------------------------|
| <i>Published Date: 2025</i> | <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>BREAKAWAY SUPPORT STUB CLEARANCE</b> | PLATE NUMBER<br>634.99 |
|                             |                                  |                                         | Sheet 1 of 1           |

\$Subname\$\$  
Plot Name -  
File -  
...TC\Marking Layouts 06QE.dgn

# HORIZONTAL ALIGNMENT DATA

15846

| <u>Type</u> | <u>Station</u> |                             | <u>Northing</u> | <u>Easting</u> |
|-------------|----------------|-----------------------------|-----------------|----------------|
| POB         | 142+32.77      |                             | 381626.669      | 2833227.581    |
|             |                | TL= 3246.44    S 2°24'39" E |                 |                |
| POE         | 174+79.21      |                             | 378383.099      | 2833364.145    |

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/2011)

1:200  
Plot Scale -  
Plotted From -

LEGEND

| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|-----------------------------|--------------|-------|-----------------|
|                             | P 0019(49)43 | 38    | 85              |

Plotting Date: 09/15/2020

|                                         |  |                               |  |                                          |  |                                    |  |
|-----------------------------------------|--|-------------------------------|--|------------------------------------------|--|------------------------------------|--|
| Anchor                                  |  | Mailbox                       |  | Subsurface Utility Exploration Test Hole |  | State and National Line            |  |
| Antenna                                 |  | Manhole Electric              |  | Telephone Fiber Optics                   |  | County Line                        |  |
| Approach                                |  | Manhole Gas                   |  | Telephone Junction Box                   |  | Section Line                       |  |
| Assumed Corner                          |  | Manhole Miscellaneous         |  | Telephone Pole                           |  | Quarter Line                       |  |
| Azimuth Marker                          |  | Manhole Sanitary Sewer        |  | Television Cable Jct Box                 |  | Sixteenth Line                     |  |
| BBQ Grill/ Fireplace                    |  | Manhole Storm Sewer           |  | Television Tower                         |  | Property Line                      |  |
| Bearing Tree                            |  | Manhole Telephone             |  | Test Wells/Bore Holes                    |  | Construction Line                  |  |
| Bench Mark                              |  | Manhole Water                 |  | Traffic Sign Double Face                 |  | ROW Line                           |  |
| Box Culvert                             |  | Merry-Go-Round                |  | Traffic Sign One Post                    |  | New ROW Line                       |  |
| Bridge                                  |  | Microwave Radio Tower         |  | Traffic Sign Two Post                    |  | Cut and Fill Limits                |  |
| Brush/Hedge                             |  | Miscellaneous Line            |  | Traffic Signal                           |  | Control of Access                  |  |
| Buildings                               |  | Miscellaneous Property Corner |  | Trash Barrel                             |  | New Control of Access              |  |
| Bulk Tank                               |  | Miscellaneous Post            |  | Tree Belt                                |  | Proposed ROW                       |  |
| Cattle Guard                            |  | Overhang Or Encroachment      |  | Tree Coniferous                          |  | (After Property Disposal)          |  |
| Cemetery                                |  | Overhead Utility Line         |  | Tree Deciduous                           |  |                                    |  |
| Centerline                              |  | Parking Meter                 |  | Tree Stumps                              |  | Drainage Arrow                     |  |
| Cistern                                 |  | Pedestrian Push Button Pole   |  | Triangulation Station                    |  |                                    |  |
| Clothes Line                            |  | Pipe With End Section         |  | Underground Electric Line                |  | Remove Concrete Pavement           |  |
| Concrete Symbol                         |  | Pipe With Headwall            |  | Underground Gas Line                     |  | Remove Concrete Driveway Pavement  |  |
| Control Point                           |  | Pipe Without End Section      |  | Underground High Pressure Gas Line       |  | Remove Asphalt Concrete Pavement   |  |
| Creek Edge                              |  | Playground Slide              |  | Underground Sanitary Sewer               |  | Remove Concrete Sidewalk           |  |
| Curb/Gutter                             |  | Playground Swing              |  | Underground Storm Sewer                  |  | Remove Concrete Median Pavement    |  |
| Curb                                    |  | Power And Light Pole          |  | Underground Tank                         |  | Remove Concrete Curb and/or Gutter |  |
| Dam Grade/Dike/Levee                    |  | Power And Telephone Pole      |  | Underground Telephone Line               |  |                                    |  |
| Deck Edge                               |  | Power Meter                   |  | Underground Television Cable             |  | Detectable Warning                 |  |
| Ditch Block                             |  | Power Pole                    |  | Underground Water Line                   |  | Pedestrian Push Button Pole        |  |
| Doorway Threshold                       |  | Power Pole And Transformer    |  | Water Fountain                           |  | and 30" x 48" Clear Space          |  |
| Drainage Profile                        |  | Power Tower Structure         |  | Water Hydrant                            |  | with 1.5% slope                    |  |
| Drop Inlet                              |  | Propane Tank                  |  | Water Meter                              |  |                                    |  |
| Edge Of Asphalt                         |  | Property Pipe                 |  | Water Tower                              |  |                                    |  |
| Edge Of Concrete                        |  | Property Pipe With Cap        |  | Water Valve                              |  |                                    |  |
| Edge Of Gravel                          |  | Property Stone                |  | Water Well                               |  |                                    |  |
| Edge Of Other                           |  | Public Telephone              |  | Weir Rock                                |  |                                    |  |
| Edge Of Shoulder                        |  | Railroad Crossing Signal      |  | Windmill                                 |  |                                    |  |
| Electric Transformer/Power Junction Box |  | Railroad Milepost Marker      |  | Wingwall                                 |  |                                    |  |
| Fence Barbwire                          |  | Railroad Profile              |  | Witness Corner                           |  |                                    |  |
| Fence Chainlink                         |  | Railroad ROW Marker           |  |                                          |  |                                    |  |
| Fence Electric                          |  | Railroad Signs                |  |                                          |  |                                    |  |
| Fence Miscellaneous                     |  | Railroad Switch               |  |                                          |  |                                    |  |
| Fence Rock                              |  | Railroad Track                |  |                                          |  |                                    |  |
| Fence Snow                              |  | Railroad Trestle              |  |                                          |  |                                    |  |
| Fence Wood                              |  | Rebar                         |  |                                          |  |                                    |  |
| Fence Woven                             |  | Rebar With Cap                |  |                                          |  |                                    |  |
| Fire Hydrant                            |  | Reference Mark                |  |                                          |  |                                    |  |
| Flag Pole                               |  | Retaining Wall                |  |                                          |  |                                    |  |
| Flower Bed                              |  | Riprap                        |  |                                          |  |                                    |  |
| Gas Valve Or Meter                      |  | River Edge                    |  |                                          |  |                                    |  |
| Gas Pump Island                         |  | Rock And Wire Baskets         |  |                                          |  |                                    |  |
| Grain Bin                               |  | Rockpiles                     |  |                                          |  |                                    |  |
| Guardrail                               |  | Satellite Dish                |  |                                          |  |                                    |  |
| Gutter                                  |  | Septic Tank                   |  |                                          |  |                                    |  |
| Guy Pole                                |  | Shrub Tree                    |  |                                          |  |                                    |  |
| Haystack                                |  | Sidewalk                      |  |                                          |  |                                    |  |
| Highway ROW Marker                      |  | Sign Face                     |  |                                          |  |                                    |  |
| Interstate Close Gate                   |  | Sign Post                     |  |                                          |  |                                    |  |
| Iron Pin                                |  | Slough Or Marsh               |  |                                          |  |                                    |  |
| Irrigation Ditch                        |  | Spring                        |  |                                          |  |                                    |  |
| Lake Edge                               |  | Stream Gauge                  |  |                                          |  |                                    |  |
| Lawn Sprinkler                          |  | Street Marker                 |  |                                          |  |                                    |  |



# TURN LANE AT 158+46

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 39    | 85              |

Plotting Date: 03/03/2025



PLOT SCALE - 1"=140'

PLOT NAME - 5

FILE - ... \PRJ2026\TURN06GE\14266.DGN

PLOTTED FROM - TRM11118

Sec. 2 - T98N - R53W

Sec. 11 - T98N - R53W

Sec. 3 - T98N - R53W

Sec. 10 - T98N - R53W

158+06 Lt  
18" RCP In Place  
Rt side: Remove Flared End

158+06 Lt  
Rt side: Install 18" Smooth Tapered Sleeve  
(Attach to 18" CMP Installed to 158+06)

158+06  
18" RCP In Place  
Lt side: Remove Flared End  
Rt side: Remove Flared End

158+06  
Lt side: Install 18" Smooth Tapered Sleeve,  
18"x28' CMP (Attach to Smooth Tapered  
Sleeve Installed to 158+06 Lt),  
18" CMP TEE & 18" CMP Safety End  
Rt side: Install 18" RCP Flared End

151+06  
End  
Taper  
for Turn  
Lane  
Begin  
Turn  
Lane

152+30 - 66' Lt  
Do Not Disturb  
Observation Well

142+66  
Begin  
Taper  
for Turn  
Lane

Horizontal Alignment: 15846

S 2°24'39" E

142+33

145+00

150+00

155+00

160+00

POB 142+32.77  
N 381626.669  
E 2833227.581

# TURN LANE AT 158+46

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 40    | 85              |

Plotting Date: 04/08/2025 Rev. 4/7/25 GAW

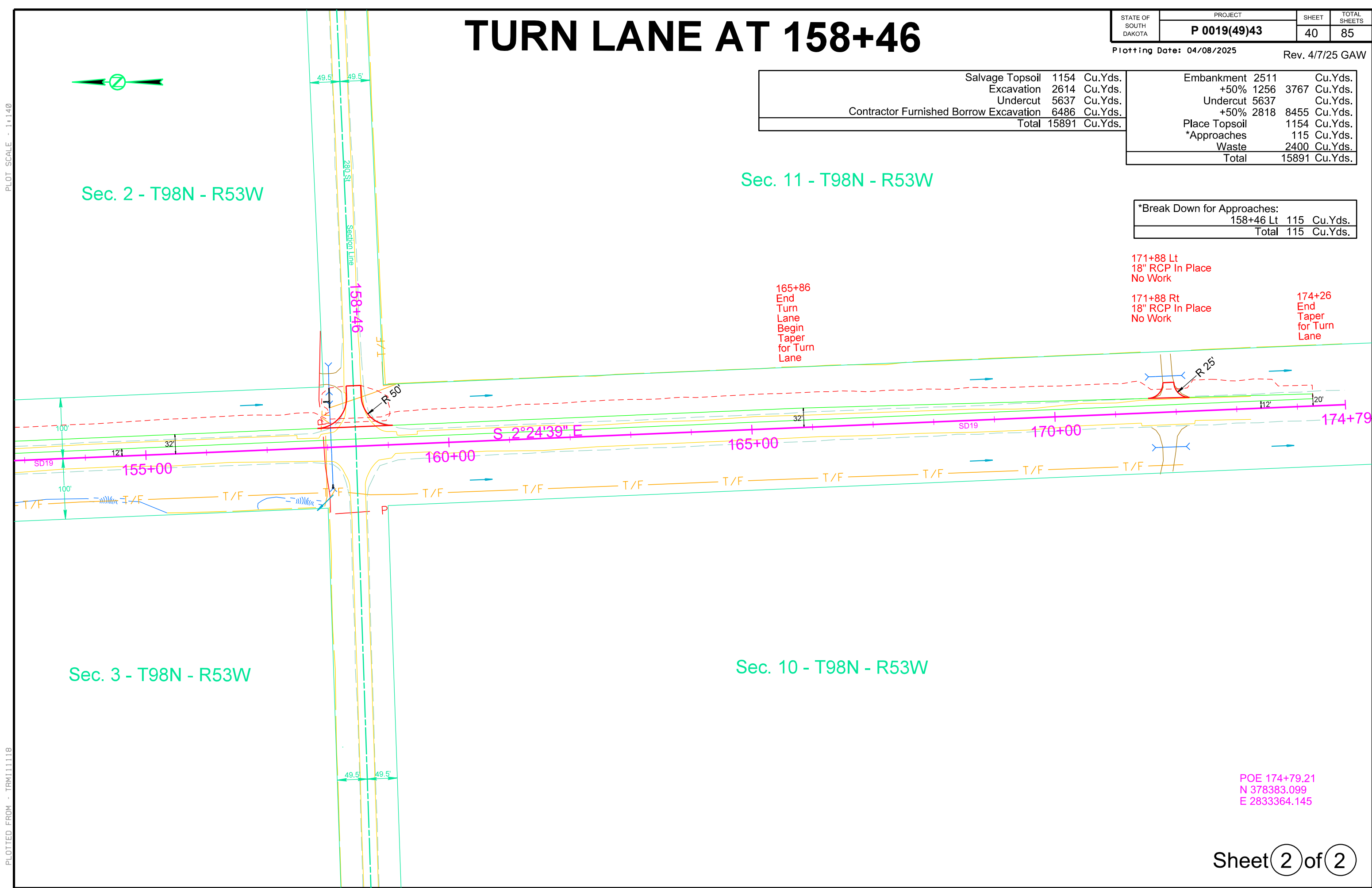
|                                        |       |         |               |       |              |
|----------------------------------------|-------|---------|---------------|-------|--------------|
| Salvage Topsoil                        | 1154  | Cu.Yds. | Embankment    | 2511  | Cu.Yds.      |
| Excavation                             | 2614  | Cu.Yds. | +50%          | 1256  | 3767 Cu.Yds. |
| Undercut                               | 5637  | Cu.Yds. | Undercut      | 5637  | Cu.Yds.      |
| Contractor Furnished Borrow Excavation | 6486  | Cu.Yds. | +50%          | 2818  | 8455 Cu.Yds. |
| Total                                  | 15891 | Cu.Yds. | Place Topsoil | 1154  | Cu.Yds.      |
|                                        |       |         | *Approaches   | 115   | Cu.Yds.      |
|                                        |       |         | Waste         | 2400  | Cu.Yds.      |
|                                        |       |         | Total         | 15891 | Cu.Yds.      |

|                             |     |         |
|-----------------------------|-----|---------|
| *Break Down for Approaches: |     |         |
| 158+46 Lt                   | 115 | Cu.Yds. |
| Total                       | 115 | Cu.Yds. |

PLOT SCALE - 1:140

PLOT NAME - 6

FILE - ... \PRJ2026\TURN06GE\17426.DGN



300+00 L  
Remove the Type 2  
Object Marker

300+00 L  
Remove 37' - 24" CMP  
and Flared End

300+00 L  
Install 38' of New 30"  
RC Pipe and Flared End

300+00 R  
Install 38' of New 30"  
RC Pipe and Flared End

300+00 R  
Remove the Type 2  
Object Marker

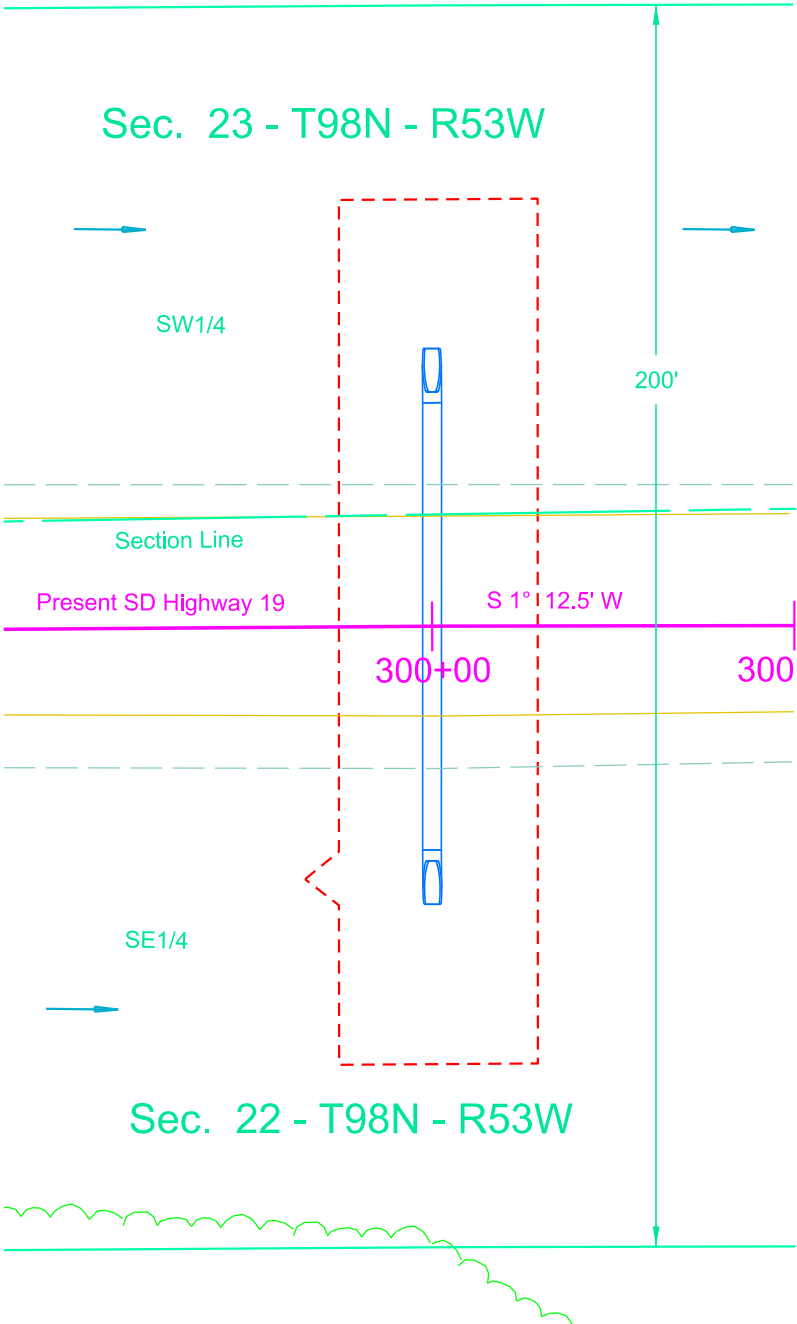
300+00 R  
Remove 39' - 24" CMP  
and Flared End

Place 16 CY Contractor  
Furnished Borrow, Shape  
and Seed Ditch

Place 14 CY Contractor  
Furnished Borrow, Shape  
and Seed Ditch

Install Two New Type 2  
Object Markers

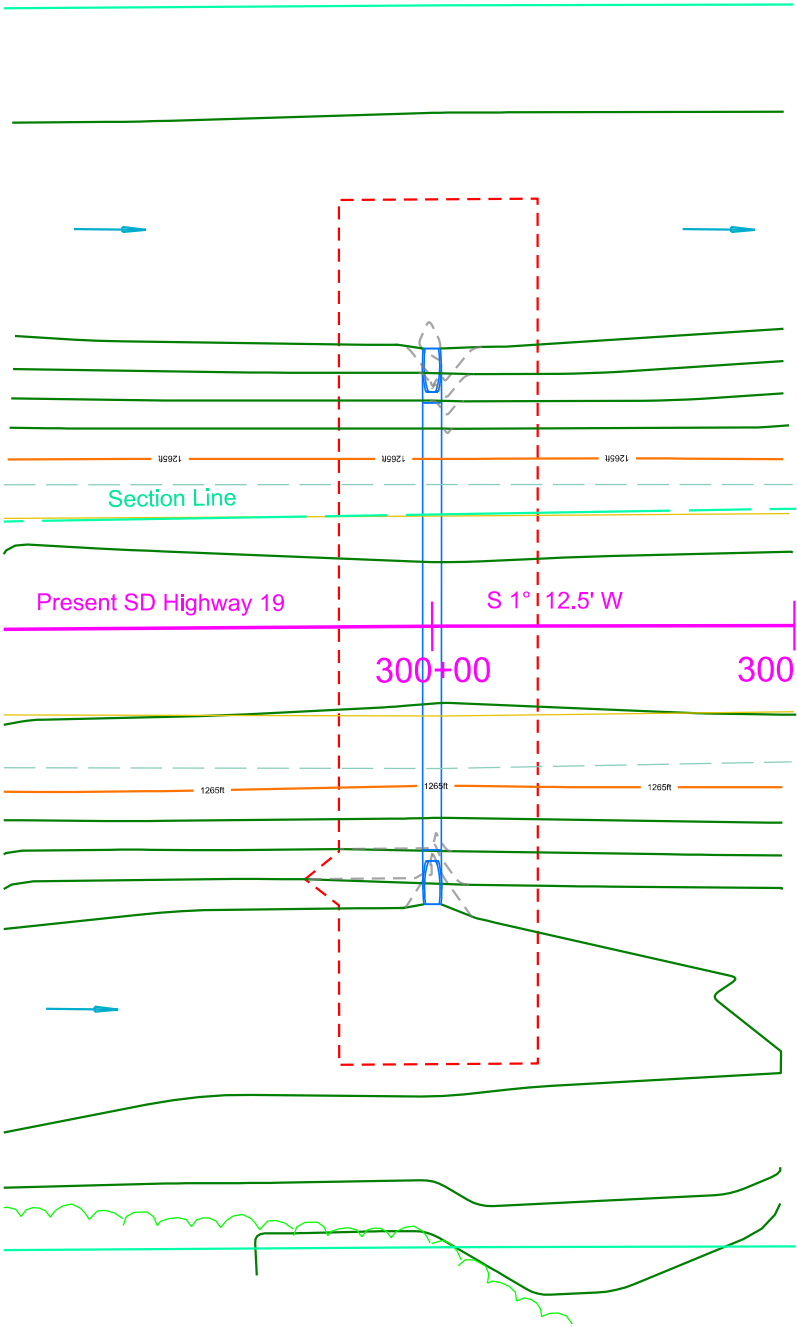
Install Two New Type 2  
Object Markers



# CONTOURS

## 300+00

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 42    | 85              |



327+74 R  
Remove 12' - 18" RCP  
and Safety End

328+37 R  
Remove Asphalt Surfacing  
as Necessary, Remove  
18' - 18" RCP and  
Safety End

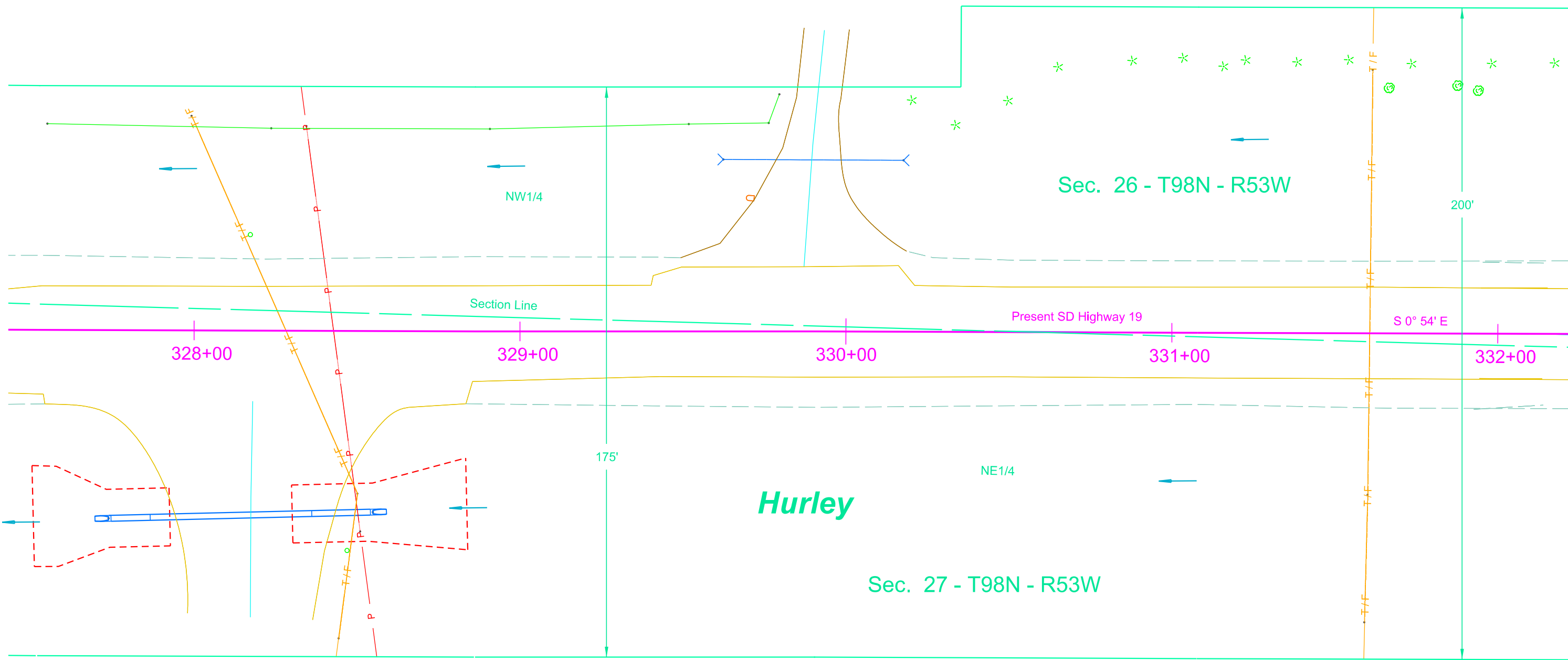
327+74 R  
Reset 12' - 18" RCP  
and Safety End

Shape and Seed Ditch  
and Flow Line

328+37 R  
Reset 18' - 18" RCP  
and Safety End

Install New Asphalt  
Surfacing

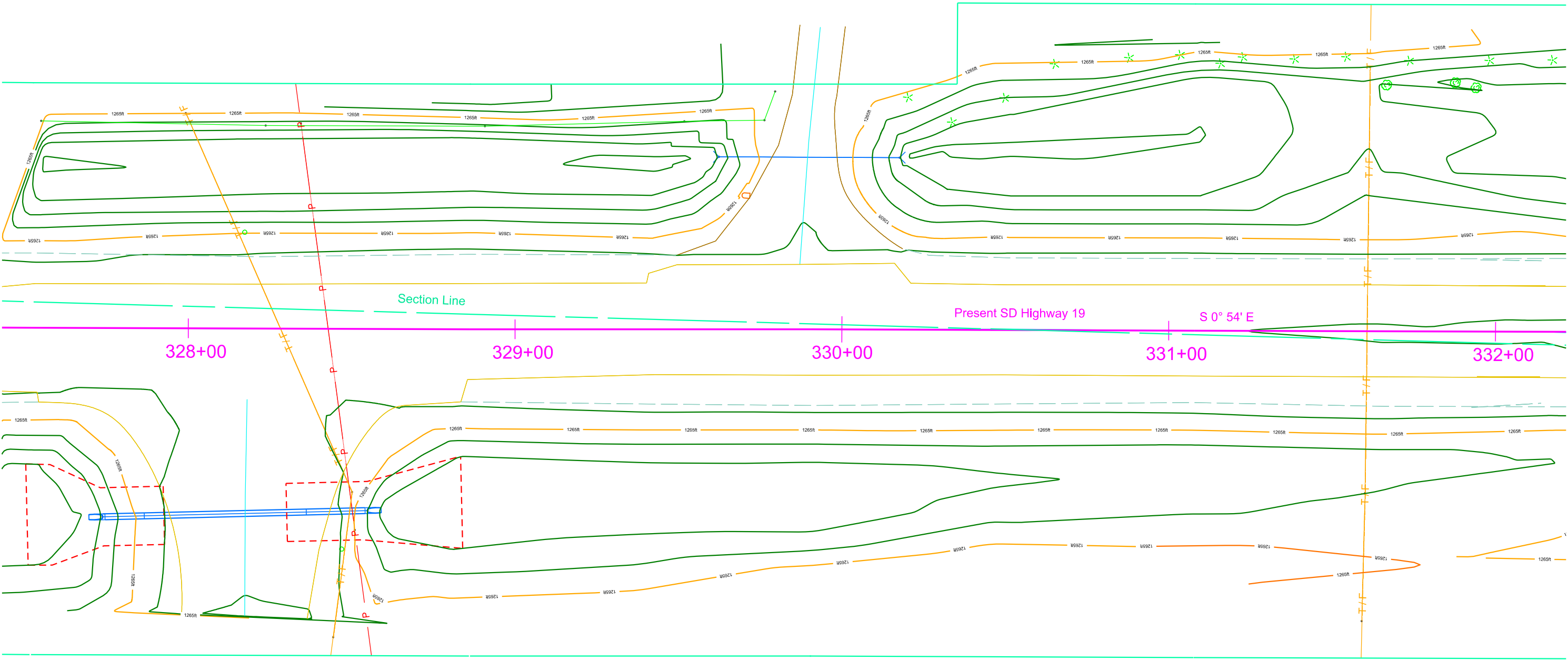
Shape and Seed Ditch  
and Flow Line



# CONTOURS

## 328+18 R

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 44    | 85              |





336+65 R  
Remove 12' - 24" RCP  
and Safety End

336+65 R  
Reset 12' - RCP and  
Safety End

Shape and Seed Ditch  
and Flow Line

338+09 L  
Remove 50' - 36" CMP  
and Flared End

338+09 R  
Remove 40' - 36" CMP

338+09 L  
Remove Two Type 2  
Object Markers

338+09 R  
Remove Two Type 2  
Object Markers

338+09 L  
Install 46' of New 36"  
RC Pipe and Flared End

Place 6 CY of Contractor  
Furnished Borrow, Shape  
and Seed Ditch

Install Two New Type 2  
Object Markers

338+09 R  
Install 40' of New 36"  
RC Pipe and Flared End

Place 34 CY of Contractor  
Furnished Borrow, Repair  
Erosion Damage

338+09 R  
Install 18" Depth Bank  
and Channel Protection  
Class B Riprap (17.0 Ton)  
and Type B Drainage  
Fabric (26 SY), Shape  
and Seed Ditch

Install Two New Type 2  
Object Markers

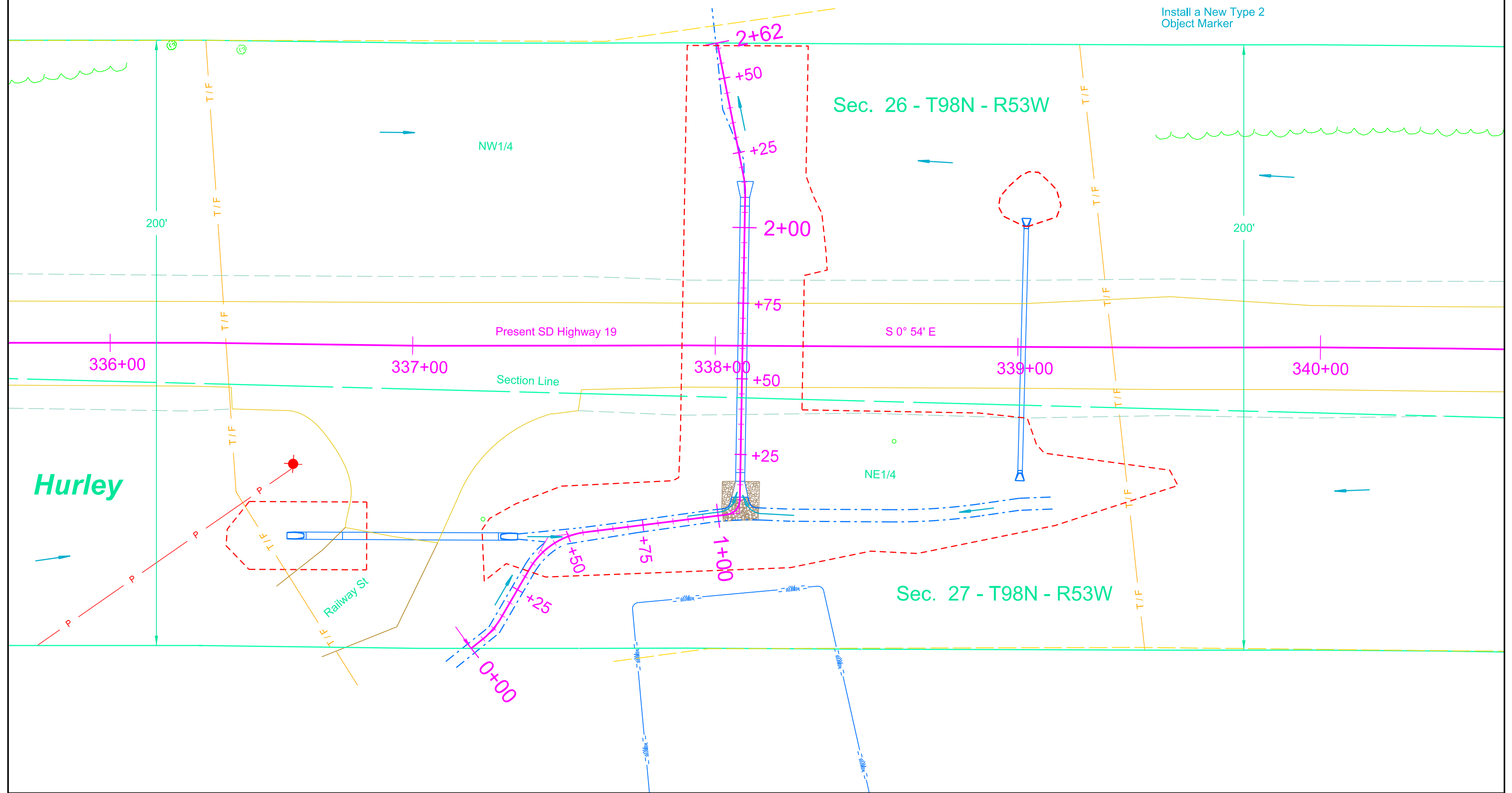
339+00 L  
Remove Type 2  
Object Marker

339+00 R  
Remove Flared  
End and Type 2  
Object Marker

339+00 L  
Shape and Seed Ditch,  
Install a New Type 2  
Object Marker

339+00 R  
Install a new Flared End,  
Place 3 CY of Contractor  
Furnished Borrow, Shape  
and Seed Ditch

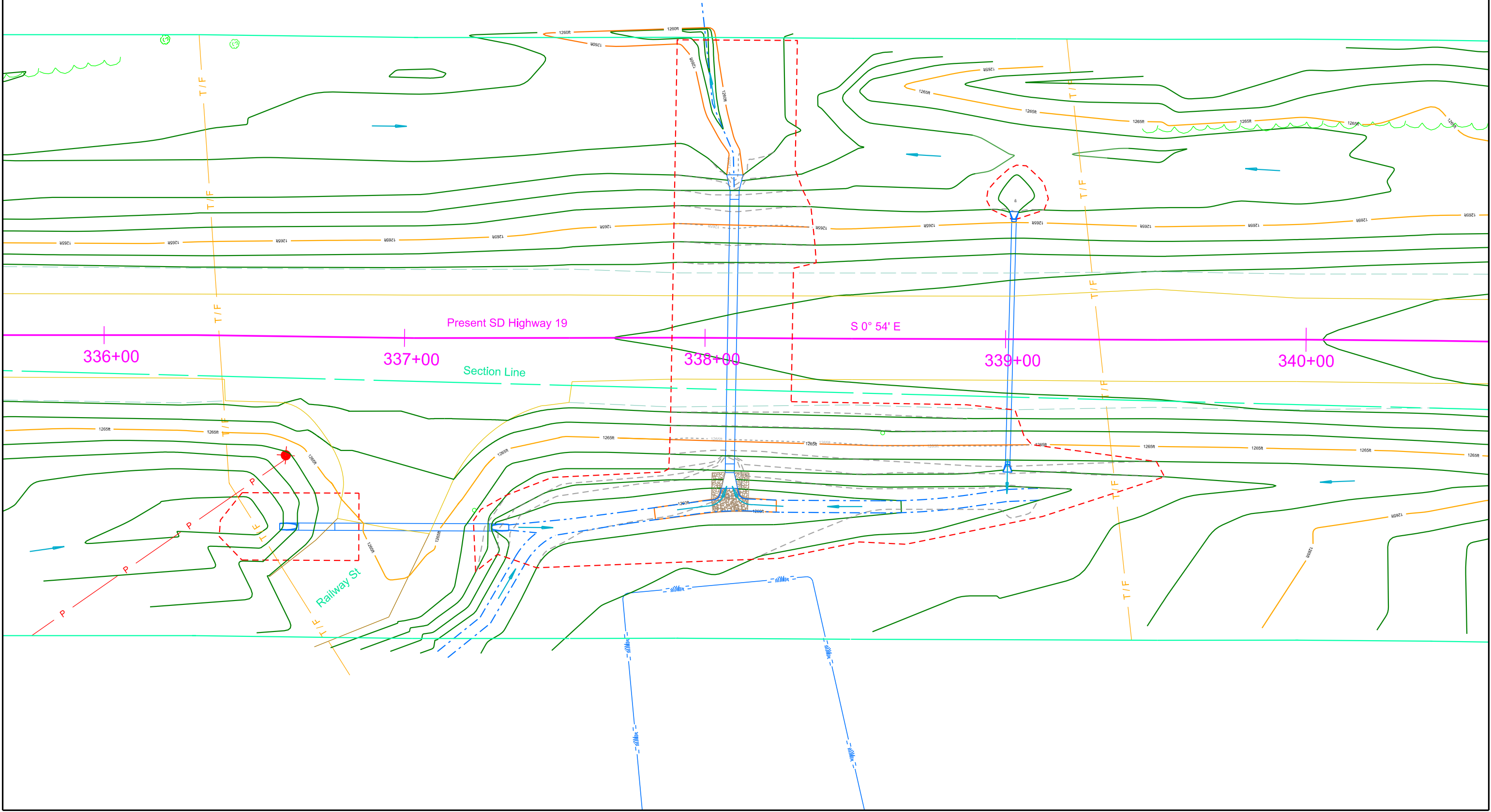
Install a New Type 2  
Object Marker



# CONTOURS

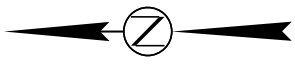
## 338+09

| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|-----------------------------|--------------|-------|-----------------|
|                             | P 0019(49)43 | 46    | 85              |



RIPRAP & DRAINAGE LAYOUT  
STA 308+09

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 47    | 85              |



- |   |                                                                                |   |                                                                    |
|---|--------------------------------------------------------------------------------|---|--------------------------------------------------------------------|
| 1 | 337+19.33- 100.00'R<br>ROW<br>N 362154.347<br>E 2833879.769                    | 4 | 338+08.37- 55.28'R<br>Drainage PI<br>N 362068.840<br>E 2833930.351 |
| 2 | 337+26.87- 93.94'R<br>Drainage PI<br>Rad=±25'<br>N 362147.232<br>E 2833886.319 | 5 | 338+09.61- 53.02'L<br>Drainage PI<br>N 362074.263<br>E 2834038.528 |
| 3 | 337+44.79- 63.13'R<br>Drainage PI<br>Rad=±25'<br>N 362131.427<br>E 2833918.270 | 6 | 338+00.05- 100.00'L<br>ROW<br>N 362086.684<br>E 2834084.829        |

Sec. 26 - T98N - R53W

SW1/4

Present SD Highway 19

S 0° 54' E

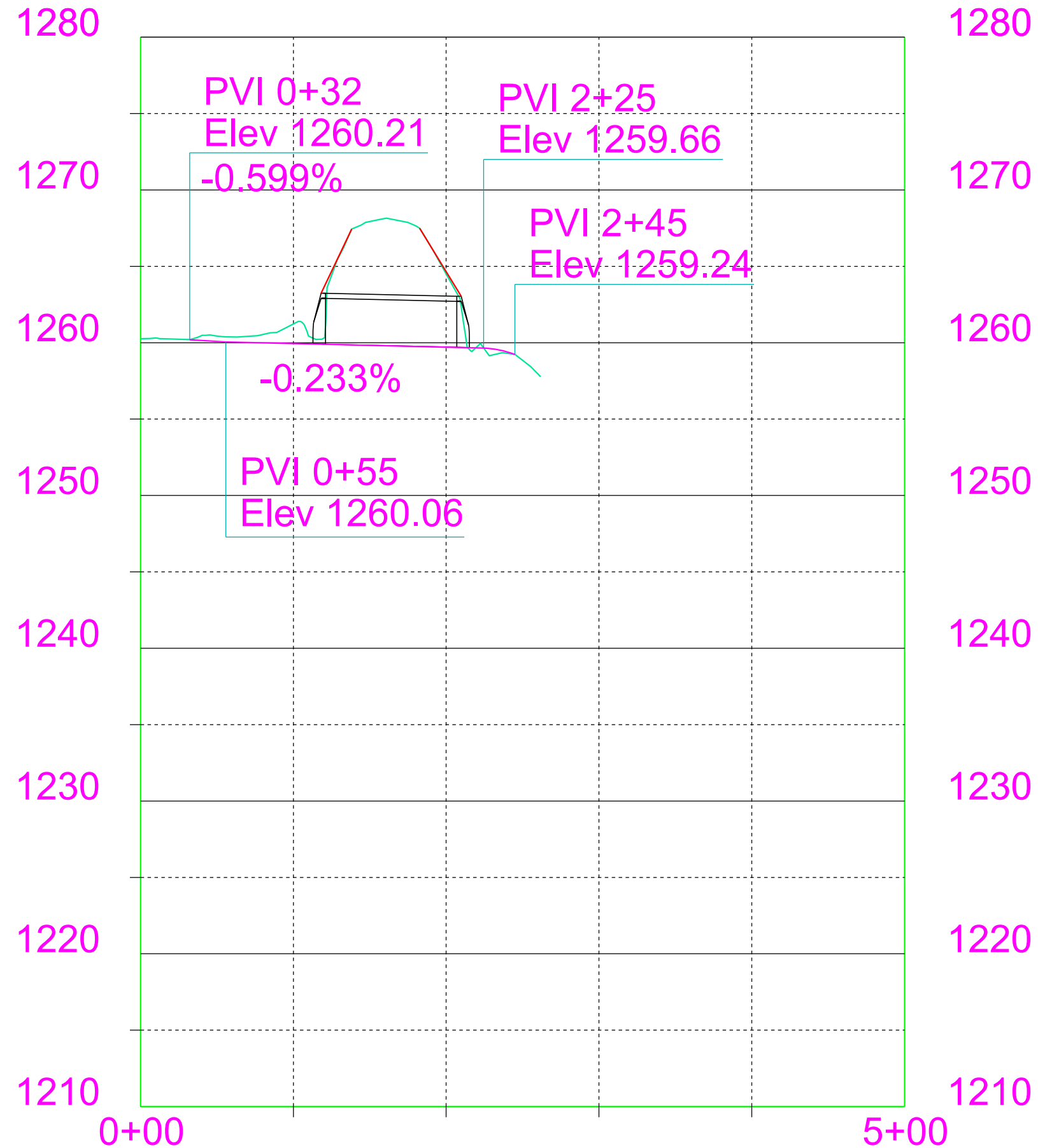
Section Line

Sec. 27 - T98N - R53W

- |   |                                                               |    |                                                               |
|---|---------------------------------------------------------------|----|---------------------------------------------------------------|
| 7 | 338+02.59- 44.85'R<br>Riprap<br>N 362075.248<br>E 2833940.410 | 10 | 338+14.90- 44.83'R<br>Riprap<br>N 362062.967<br>E 2833941.189 |
| 8 | 338+02.43- 53.74'R<br>Riprap<br>N 362074.863<br>E 2833931.528 | 11 | 338+14.75- 53.28'R<br>Riprap<br>N 362062.601<br>E 2833932.744 |
| 9 | 338+03.01- 58.08'R<br>Riprap<br>N 362074.024<br>E 2833927.225 | 12 | 338+14.48- 57.64'R<br>Riprap<br>N 362062.601<br>E 2833928.377 |

Note: The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System, South Zone (NAD 83)

# 338+09 DRAINAGE PROFILE



Scaled 1.0000 Times Hor.  
Scaled 10.0000 Times Ver.



# TREE CLEARING

| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|-----------------------------|--------------|-------|-----------------|
|                             | P 0019(49)43 | 49    | 85              |

Plotting Date: 11/12/2024

Sec. 14 - T98N - R53W

Sec. 15 - T98N - R53W

211+85 Lt to 239+00 Lt  
Clear trees, stumps, shrubs,  
roots and other protruding  
obstructions inside the  
Right of Way

211+85  
Begin  
Tree  
Clearing

239+00  
End  
Tree  
Clearing

PLOT SCALE - 1"=240'

PLOTTED FROM - TRM111118

PLOT NAME - 7

FILE - ... \TURN060E\060E\_TREE REMOVAL.DGN



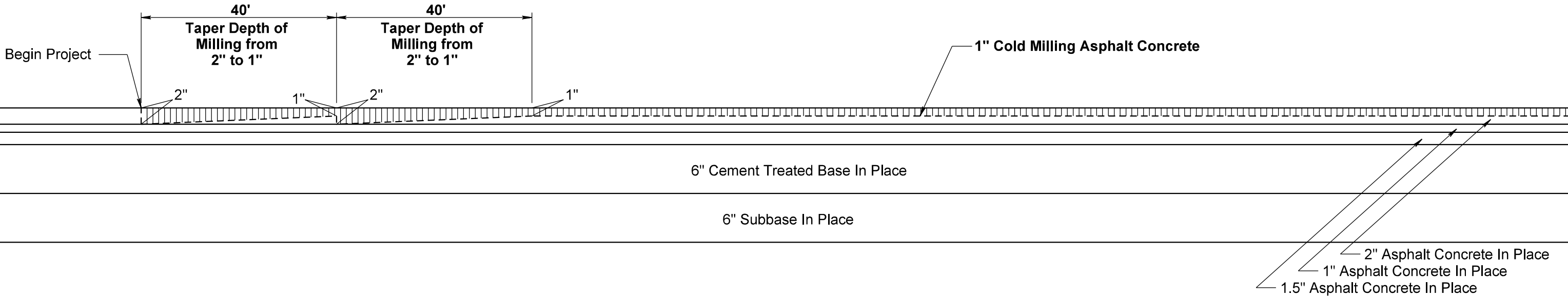
PLOT SCALE - 1:1.008

PLOTTED FROM - TRM111118

# DETAIL FOR COLD MILLING TAPER AT BEGIN PROJECT

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 50    | 85              |

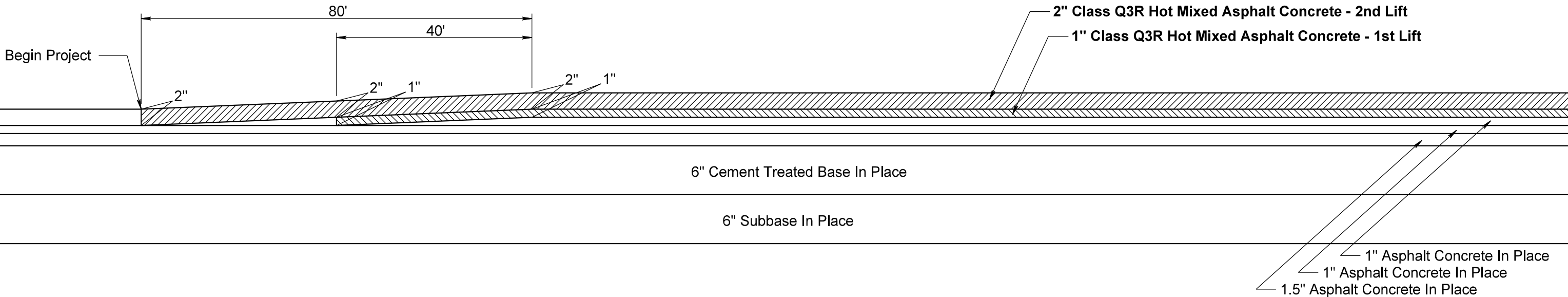
Plotting Date: 11/06/2024



PLOT NAME - 8

FILE - ... \PRJ2026\TURN060E\MILL060E.DGN

# DETAIL FOR RESURFACING TAPER AT BEGIN PROJECT



PLOT SCALE - 1:1,008

PLOTTED FROM - TRM111118

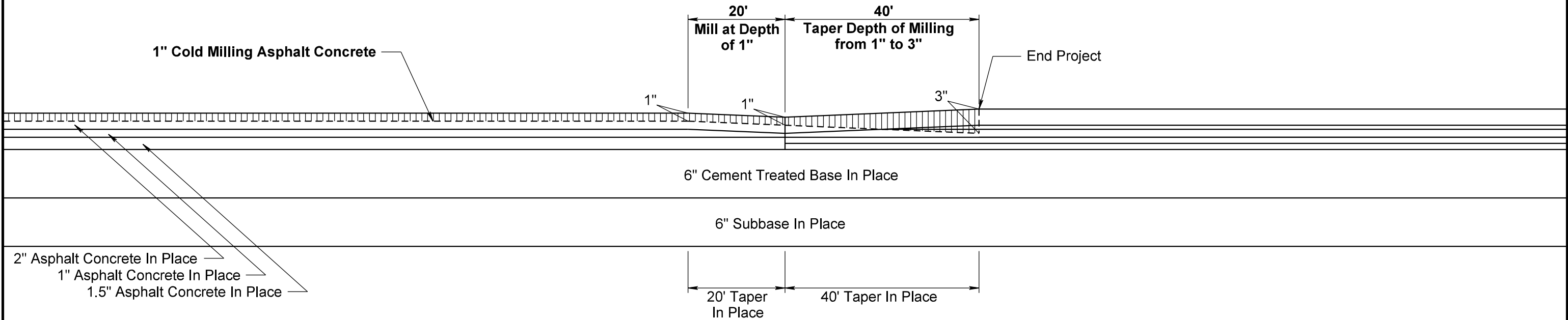
# DETAIL FOR COLD MILLING TAPER AT END PROJECT

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 51    | 85              |

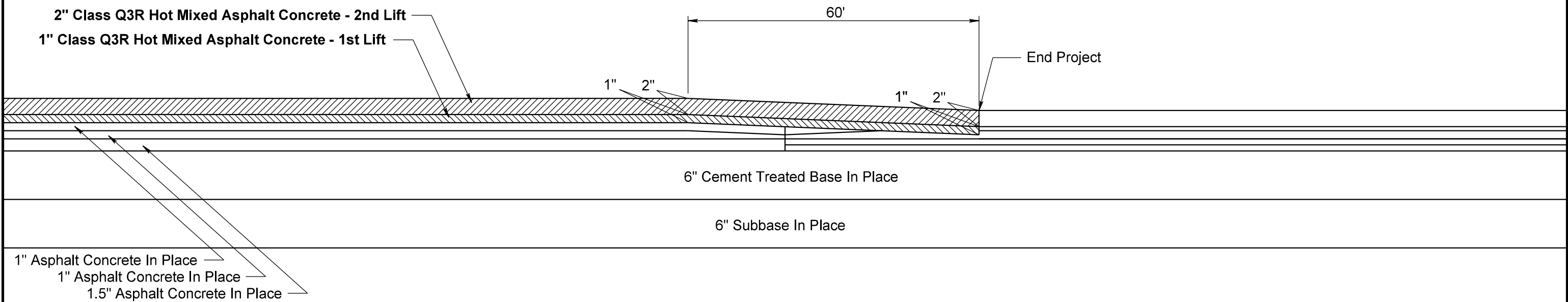
Plotting Date: 11/06/2024

PLOT NAME - 9

FILE - ... \PRJ2026\TURN06GE\MILL06GE.DGN

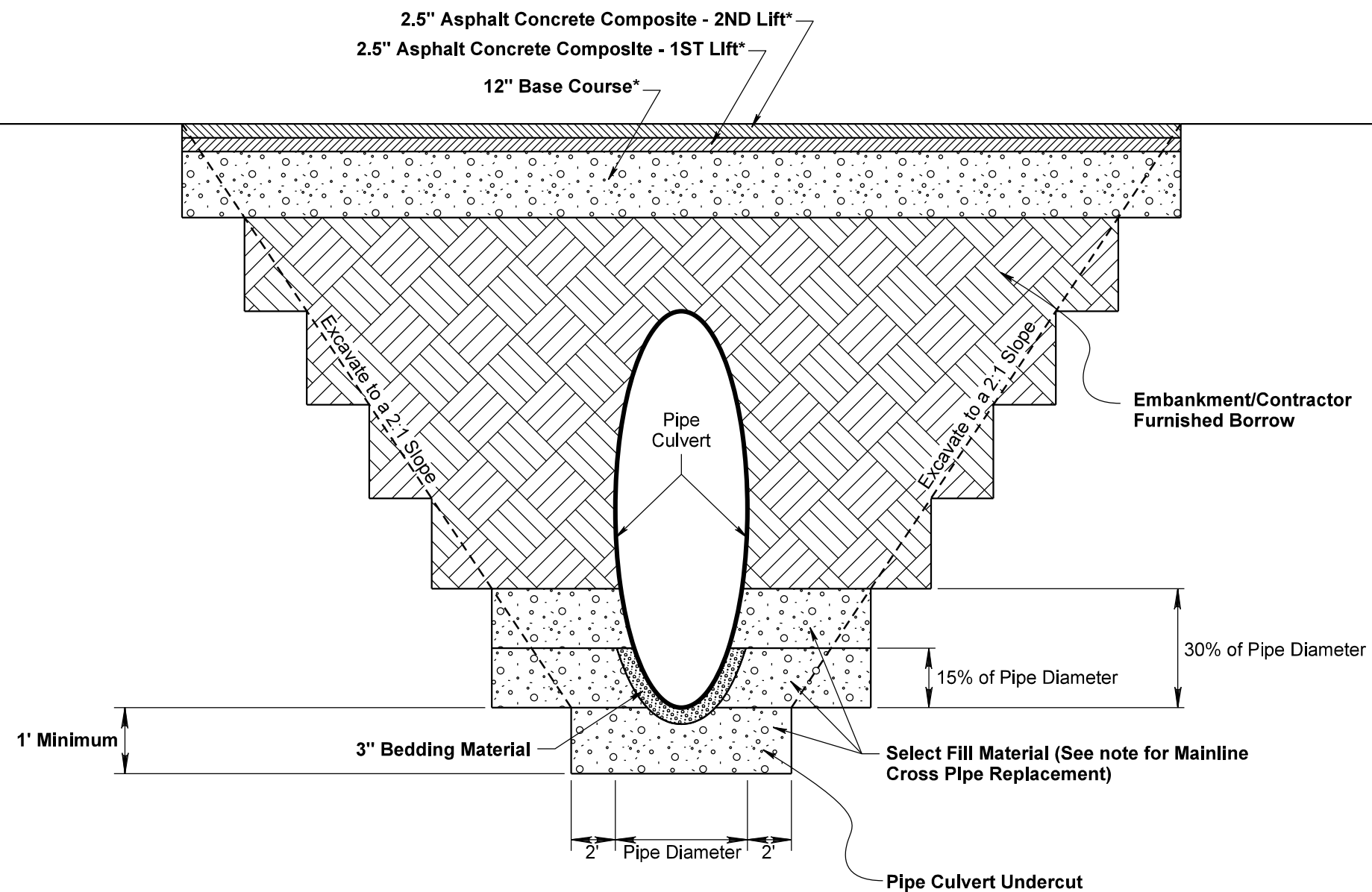


# DETAIL FOR RESURFACING TAPER AT END PROJECT





# LAYOUT OF EMBANKMENT AND SURFACING FOR CULVERT REPLACEMENT



Top of Existing Surfacing

Top of Existing Surfacing

Embankment/Contractor  
Furnished Borrow

3" Bedding Material

Select Fill Material (See note for Mainline  
Cross Pipe Replacement)

Pipe Culvert Undercut

\* Quantity is included in the Table of Additional Quantities.

PLOT SCALE - 1:200

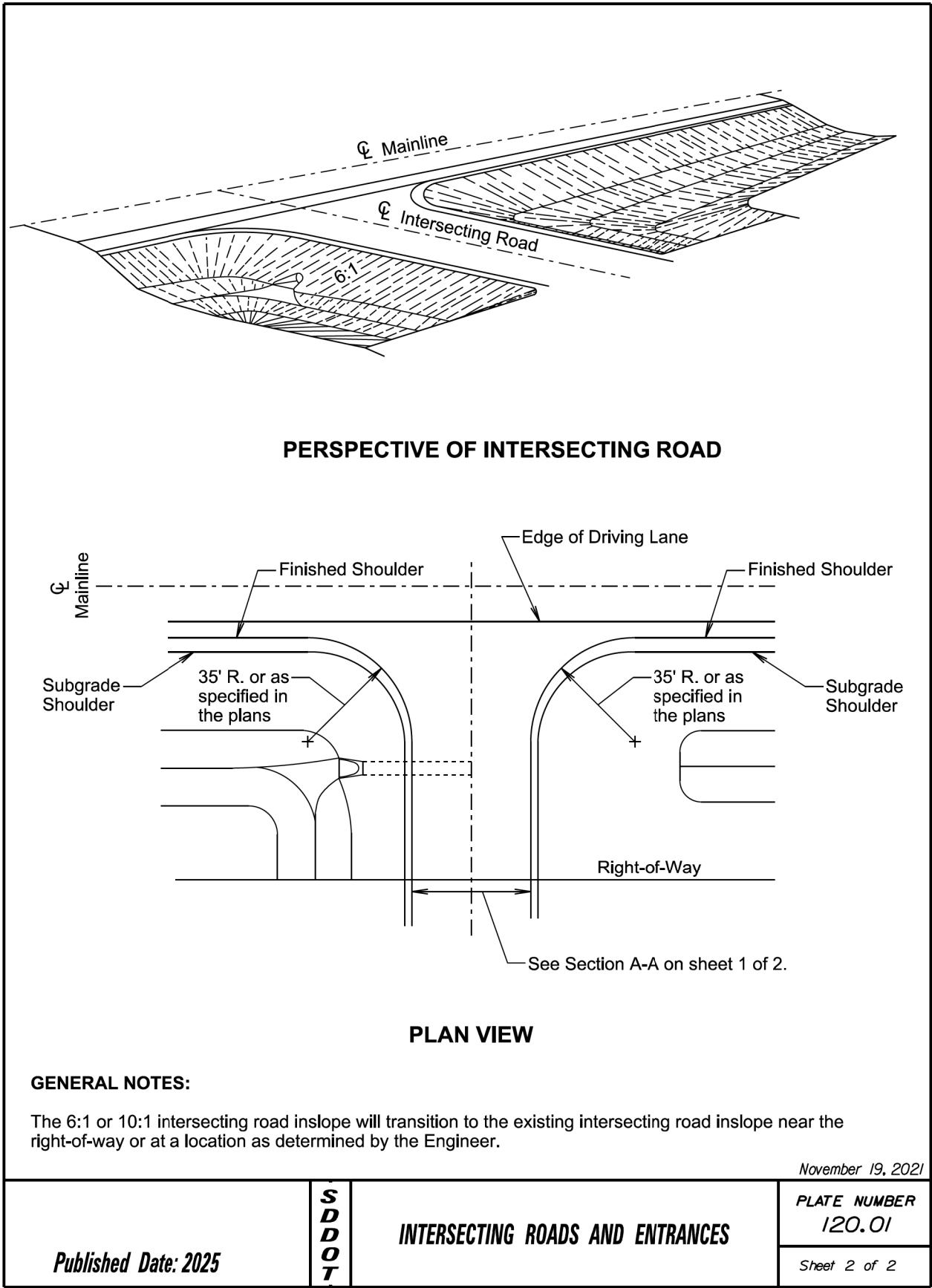
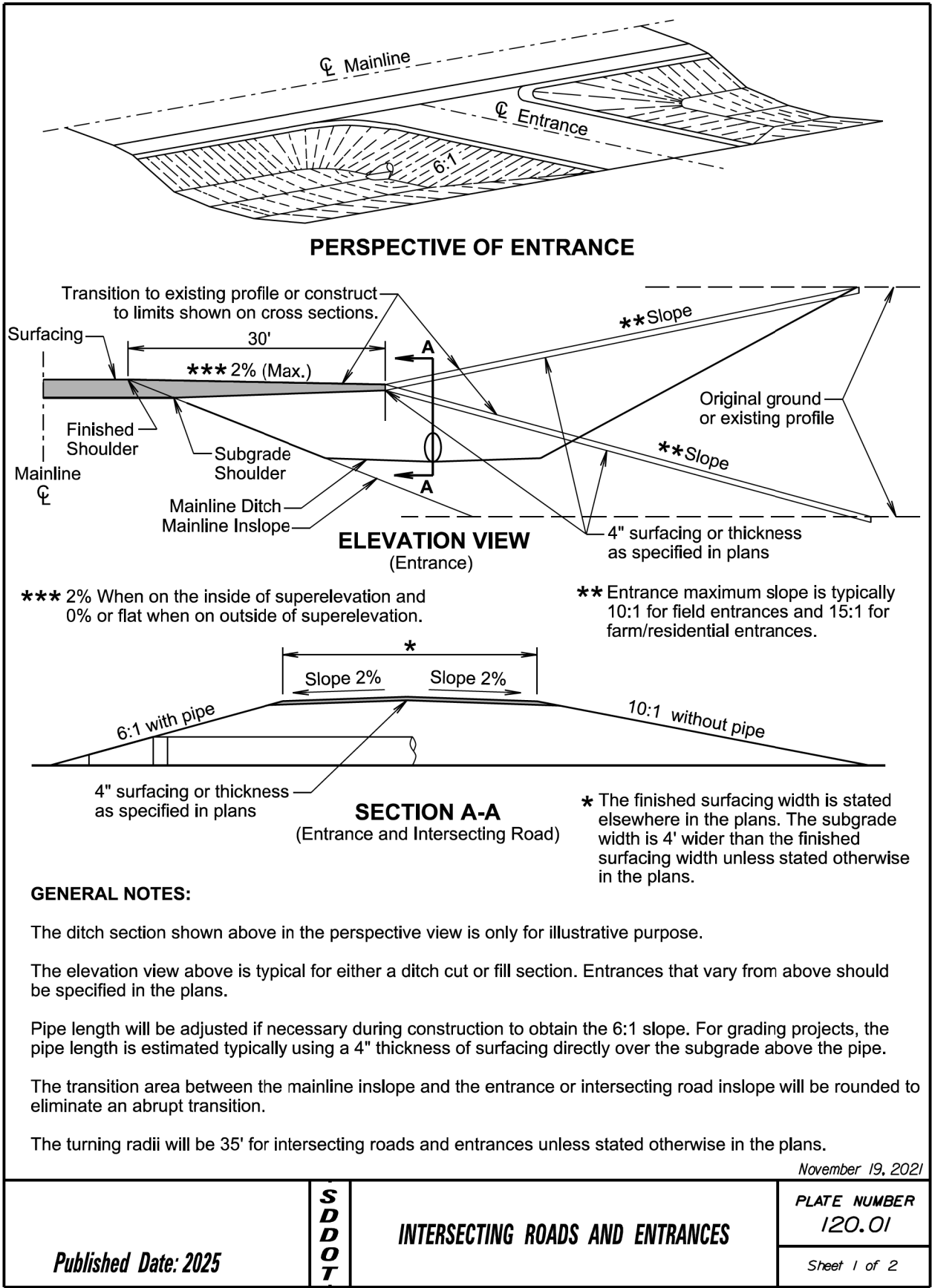
.PLOTTED FROM - TRM111118

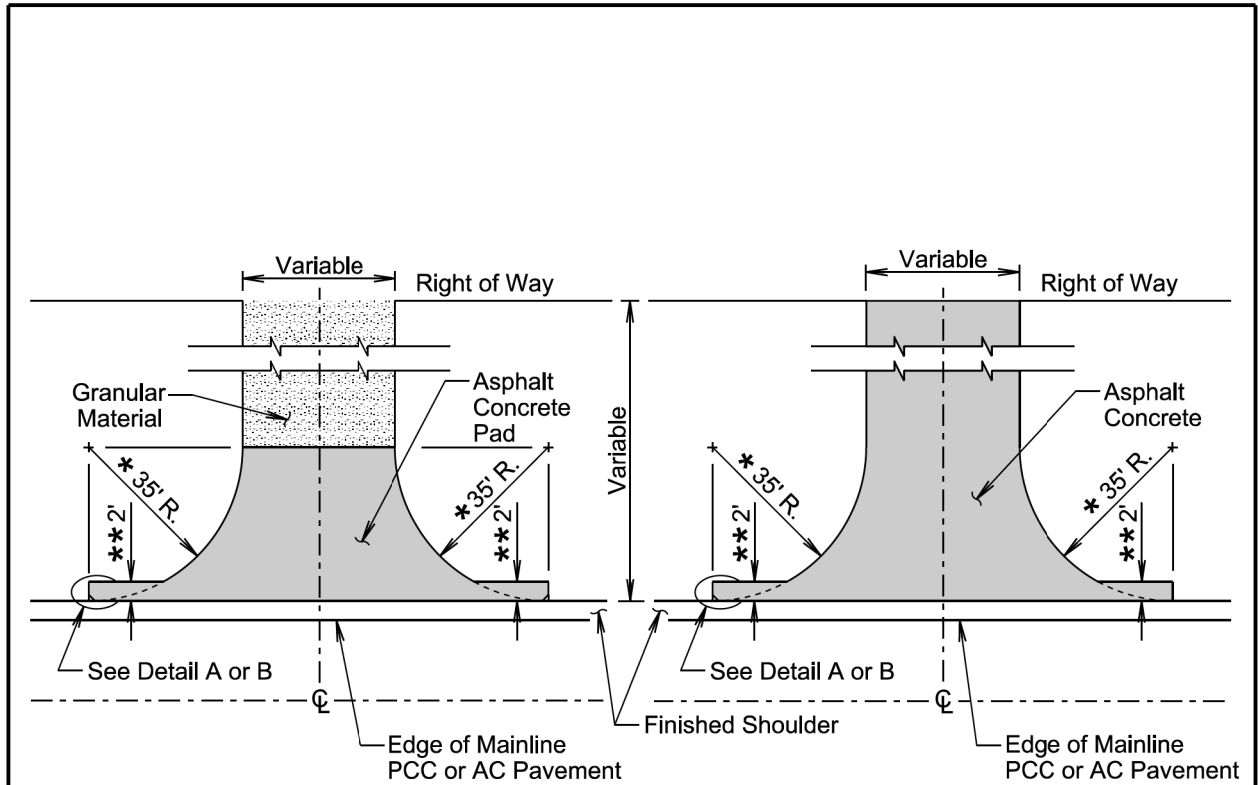
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT<br><b>P 0019(49)43</b> | SHEET<br><b>53</b> | TOTAL<br>SHEETS<br><b>85</b> |
|-----------------------------|--------------------------------|--------------------|------------------------------|
|-----------------------------|--------------------------------|--------------------|------------------------------|

Plotting Date: 10/30/2024

PLOT NAME - 1

FILE - ... \STANDARDPLATES\_060E.DGN





**PLAN VIEW**  
(Intersecting Road)  
(No Asphalt Concrete Surfacing  
Beyond Right of Way)

**PLAN VIEW**  
(Intersecting Road)  
(Asphalt Concrete Surfacing  
Beyond Right of Way)

**GENERAL NOTES:**

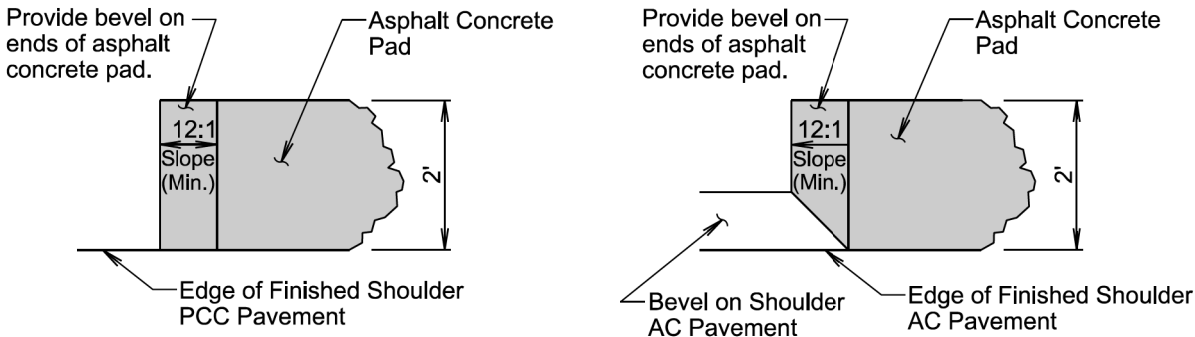
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

\* For new construction, 35' radius typical or as specified in the plans. For resurfacing projects, radius is variable depending on existing conditions.

\*\* The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete pads if the Engineer, in the Engineer's sole discretion, determines the pads are infeasible to construct due to site specific reasons including, but not limited to; existing inslope configuration, borrow and material availability, and right-of-way constraints.

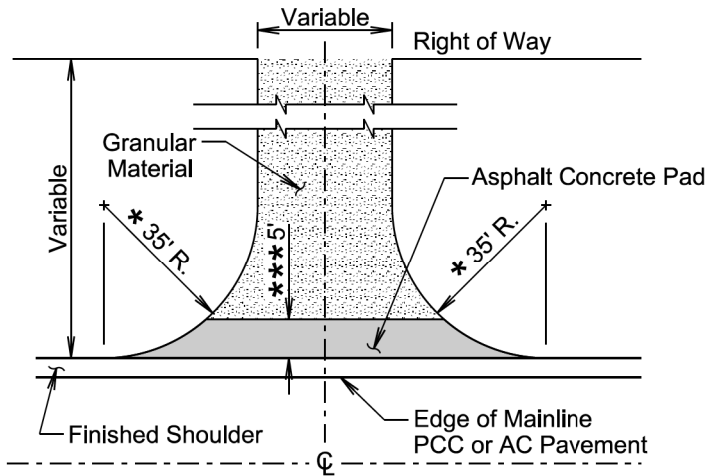
August 27, 2020

|                      |                       |                                                                                                                 |                        |
|----------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------|------------------------|
| Published Date: 2025 | S<br>D<br>D<br>O<br>T | SURFACING OR RESURFACING OF INTERSECTING<br>ROADS AND ENTRANCES (MAINLINE AND<br>SHOULDERS: PCC OR AC PAVEMENT) | PLATE NUMBER<br>320.04 |
|                      |                       |                                                                                                                 | Sheet 1 of 2           |



**DETAIL A**  
(Typ. for Projects with PCC Pavement on Shoulder)

**DETAIL B**  
(Typ. for Projects with AC Pavement on Shoulder)

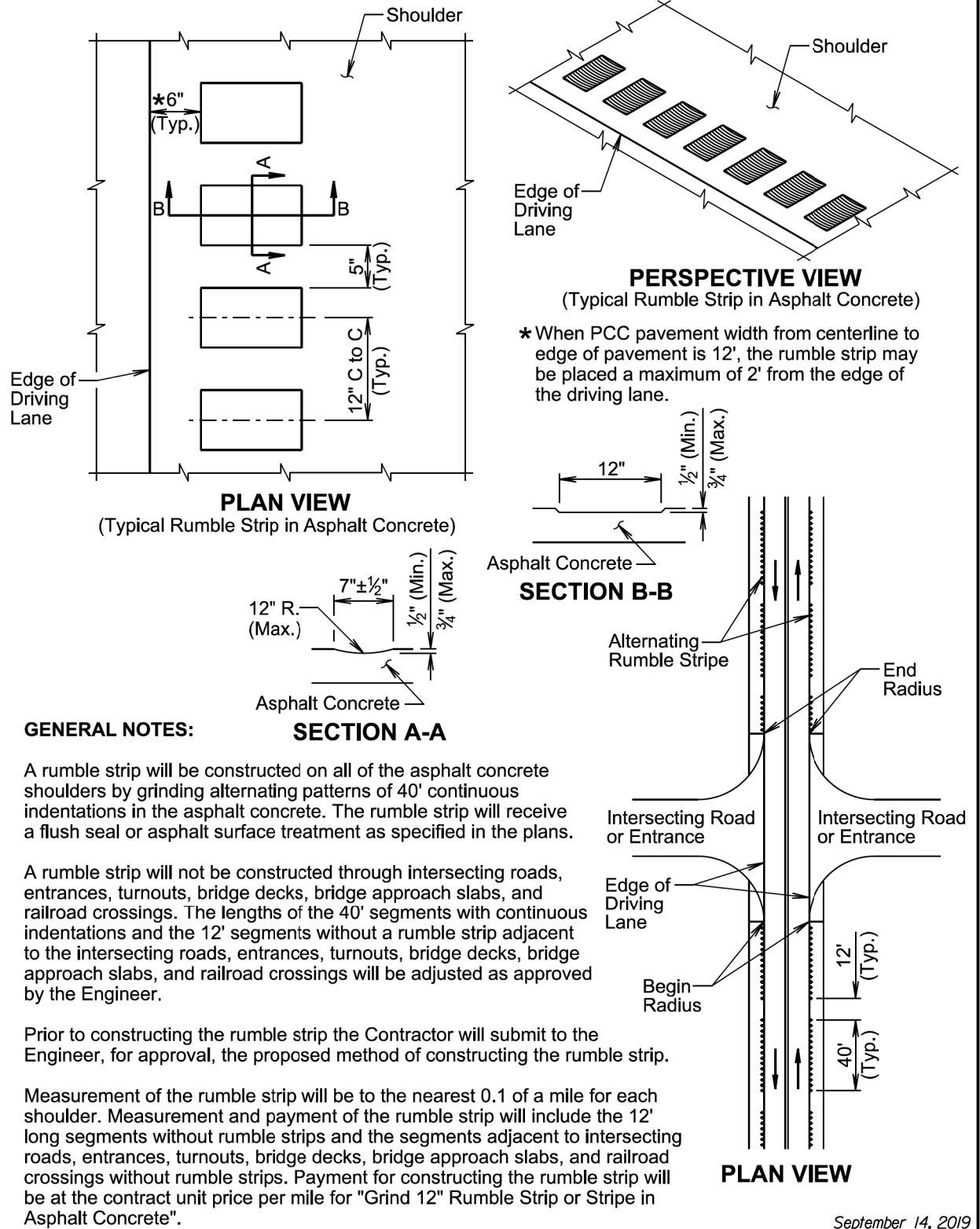


**PLAN VIEW**  
(Entrance)

\*\*\* Not required if finished shoulder width is 4' or greater.

August 27, 2020

|                      |                       |                                                                                                                 |                        |
|----------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------|------------------------|
| Published Date: 2025 | S<br>D<br>D<br>O<br>T | SURFACING OR RESURFACING OF INTERSECTING<br>ROADS AND ENTRANCES (MAINLINE AND<br>SHOULDERS: PCC OR AC PAVEMENT) | PLATE NUMBER<br>320.04 |
|                      |                       |                                                                                                                 | Sheet 2 of 2           |

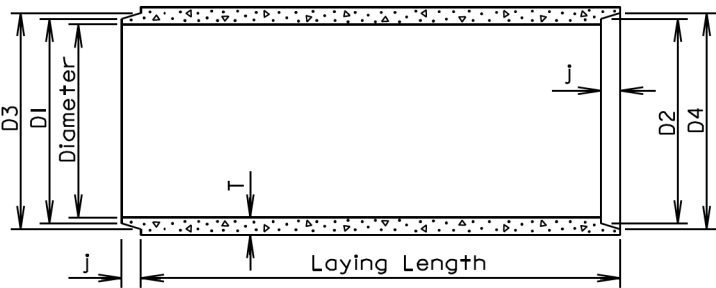


September 14, 2019

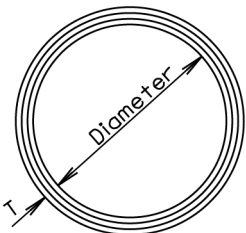
|                      |                       |                                                                         |                        |
|----------------------|-----------------------|-------------------------------------------------------------------------|------------------------|
| Published Date: 2025 | S<br>D<br>D<br>O<br>T | 12" RUMBLE STRIP IN ASPHALT CONCRETE<br>ON NONDIVIDED HIGHWAY SHOULDERS | PLATE NUMBER<br>320.24 |
|                      |                       |                                                                         | Sheet 1 of 1           |
|                      |                       |                                                                         |                        |

TOLERANCES IN DIMENSIONS

Diameter:  $\pm 1.5\%$  for 24" Dia. or less and  $\pm 1\%$  or  $\frac{3}{8}"$  whichever is more for 27" Dia. or greater.  
Diameters at joints:  $\pm \frac{3}{16}"$  for 30" Dia. or less and  $\pm \frac{1}{4}"$  for 36" or greater.  
Length of joint (J):  $\pm \frac{1}{4}"$ .  
Wall thickness (T): not less than design T by more than 5% or  $\frac{3}{16}"$ , whichever is greater.  
Laying length: shall not underrun by more than  $\frac{1}{2}"$ .



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

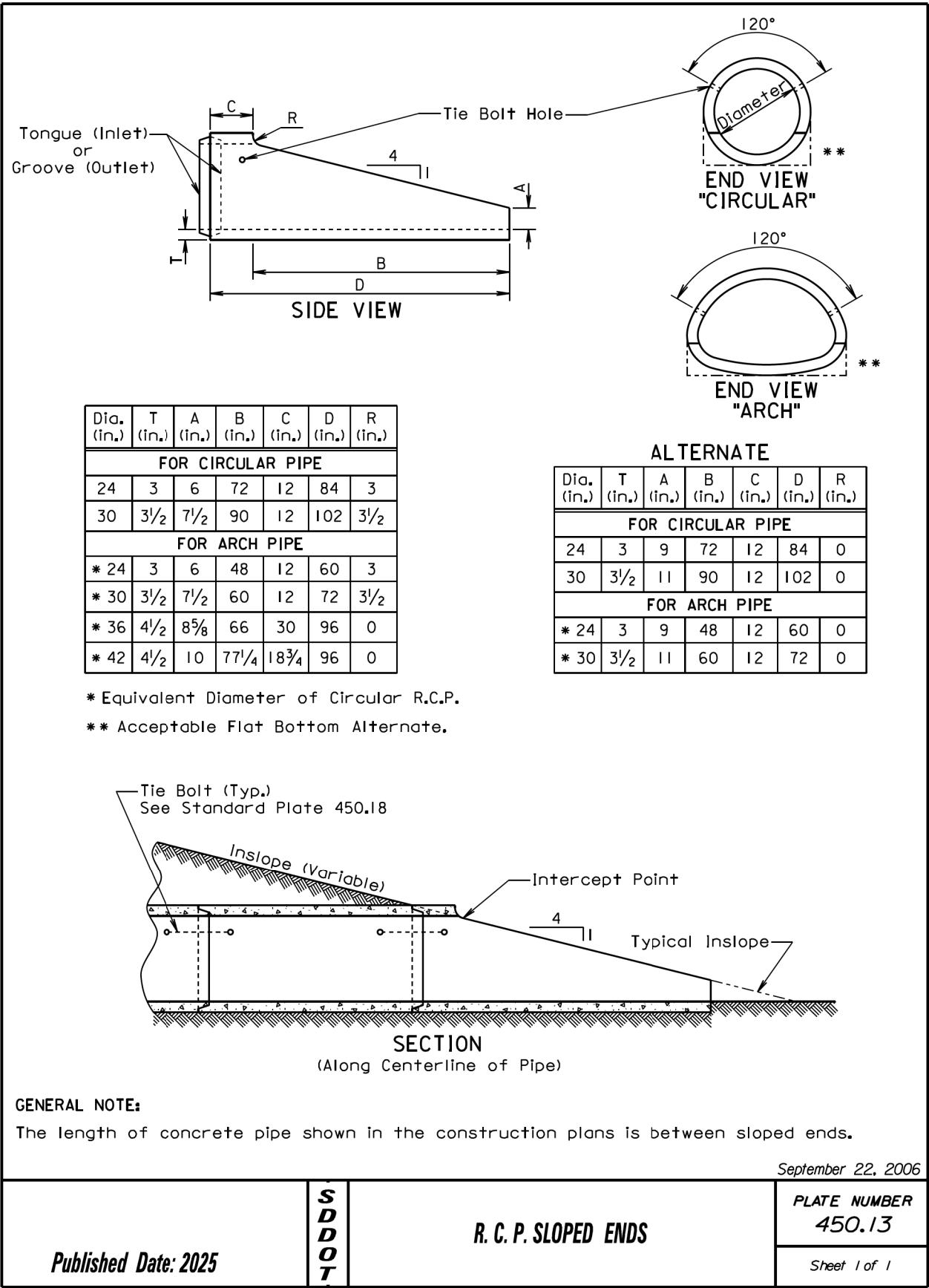
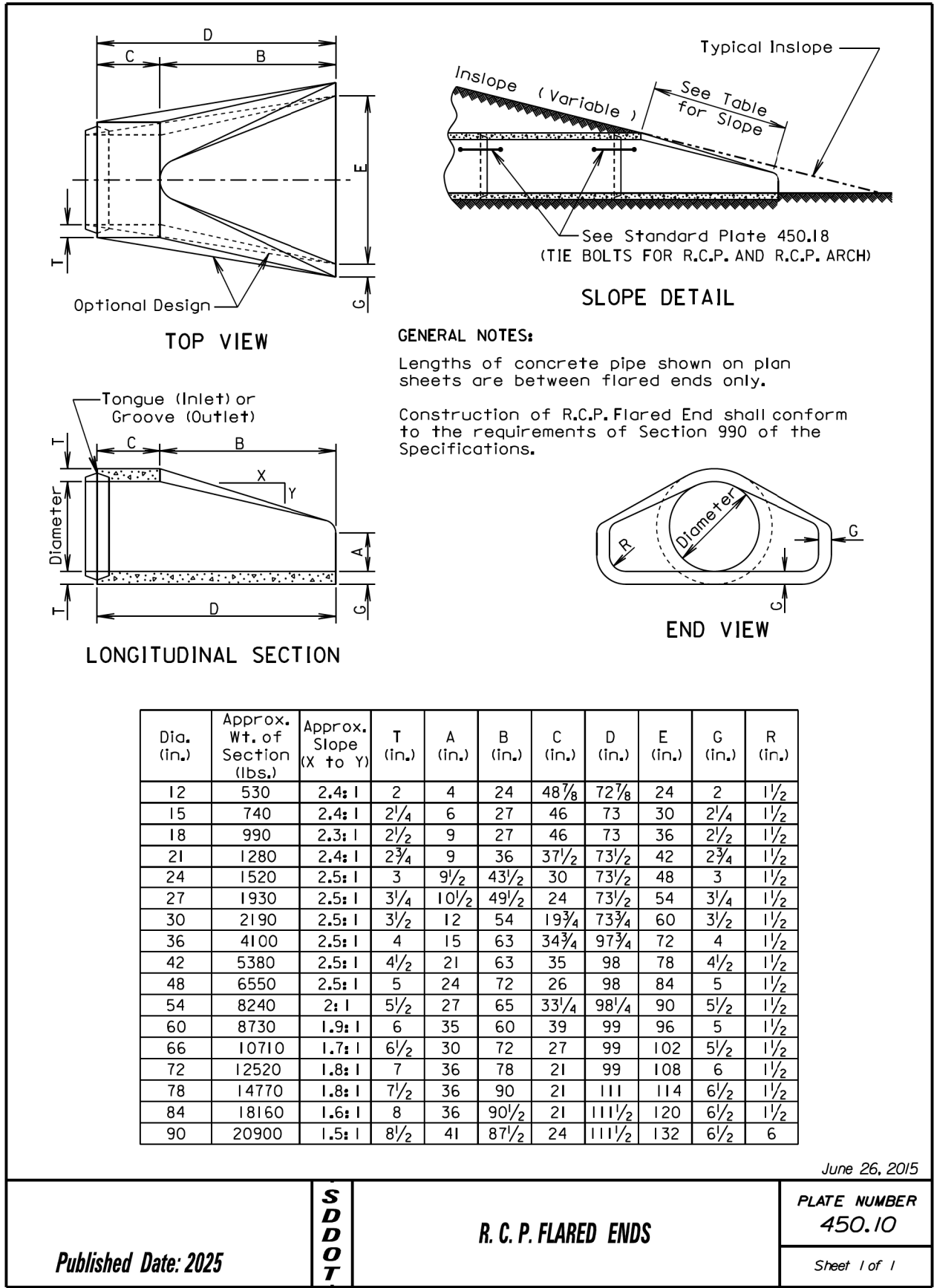
Construction of R.C.P. shall conform to the requirements of Section 990 of the Specifications.

Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

| Diam.<br>(in.) | Approx.<br>Wt. / Ft.<br>(lb.) | T<br>(in.) | J<br>(in.) | D1<br>(in.) | D2<br>(in.) | D3<br>(in.) | D4<br>(in.) |
|----------------|-------------------------------|------------|------------|-------------|-------------|-------------|-------------|
| 12             | 92                            | 2          | 1 3/4      | 13 1/4      | 13 5/8      | 13 3/8      | 14 1/4      |
| 15             | 127                           | 2 1/4      | 2          | 16 1/2      | 16 3/8      | 17 1/4      | 17 5/8      |
| 18             | 168                           | 2 1/2      | 2 1/4      | 19 5/8      | 20          | 20 3/8      | 20 3/4      |
| 21             | 214                           | 2 3/4      | 2 1/2      | 22 3/8      | 23 1/4      | 23 3/4      | 24 1/8      |
| 24             | 265                           | 3          | 2 3/4      | 26          | 26 3/8      | 27          | 27 3/8      |
| 27             | 322                           | 3 1/4      | 3          | 29 1/4      | 29 5/8      | 30 1/4      | 30 5/8      |
| 30             | 384                           | 3 1/2      | 3 1/4      | 32 3/8      | 32 3/4      | 33 1/2      | 33 7/8      |
| 36             | 524                           | 4          | 3 3/4      | 38 3/4      | 39 1/4      | 40          | 40 1/2      |
| 42             | 685                           | 4 1/2      | 4          | 45 1/8      | 45 5/8      | 46 1/2      | 47          |
| 48             | 867                           | 5          | 4 1/2      | 51 1/2      | 52          | 53          | 53 1/2      |
| 54             | 1070                          | 5 1/2      | 4 1/2      | 57 7/8      | 58 3/8      | 59 3/8      | 59 7/8      |
| 60             | 1296                          | 6          | 5          | 64 1/4      | 64 3/4      | 66          | 66 1/2      |
| 66             | 1542                          | 6 1/2      | 5 1/2      | 70 5/8      | 71 1/8      | 72 1/2      | 73          |
| 72             | 1810                          | 7          | 6          | 77          | 77 1/2      | 79          | 79 1/2      |
| 78             | 2098                          | 7 1/2      | 6 1/2      | 83 3/8      | 83 3/8      | 85 5/8      | 86 1/8      |
| 84             | 2410                          | 8          | 7          | 89 3/4      | 90 1/4      | 92 1/8      | 92 5/8      |
| 90             | 2740                          | 8 1/2      | 7          | 95 3/4      | 96 1/4      | 98 1/8      | 98 5/8      |
| 96             | 2950                          | 9          | 7          | 102 1/8     | 102 5/8     | 104 1/2     | 105         |
| 102            | 3075                          | 9 1/2      | 7 1/2      | 109         | 109 1/2     | 111 1/2     | 112         |
| 108            | 3870                          | 10         | 7 1/2      | 115 1/2     | 116         | 118         | 118 1/2     |

June 26, 2015

|                      |                       |                          |                        |
|----------------------|-----------------------|--------------------------|------------------------|
| Published Date: 2025 | S<br>D<br>D<br>O<br>T | REINFORCED CONCRETE PIPE | PLATE NUMBER<br>450.01 |
|                      |                       |                          | Sheet 1 of 1           |
|                      |                       |                          |                        |



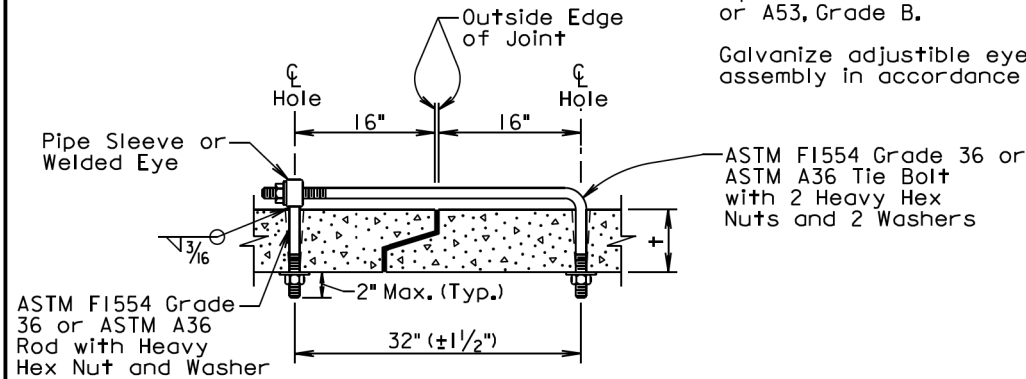
| Wall "t"<br>(in.) | Rod Dia.<br>(in.) | Pipe Sleeve Dia.<br>(nominal) |
|-------------------|-------------------|-------------------------------|
| ≤ 3 1/4           | 5/8               | 3/4                           |
| 3 1/2-6 1/2       | 3/4               | 1                             |
| ≥ 7               | 1                 | 1 1/4                         |

GENERAL NOTES:

Tie bolts shall conform to ASTM F1554 Grade 36 or ASTM A36. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Pipe Sleeve shall conform to ASTM A500 or A53, Grade B.

Galvanize adjustable eye bolt tie assembly in accordance with ASTM A153.



ADJUSTABLE EYE BOLT TIE

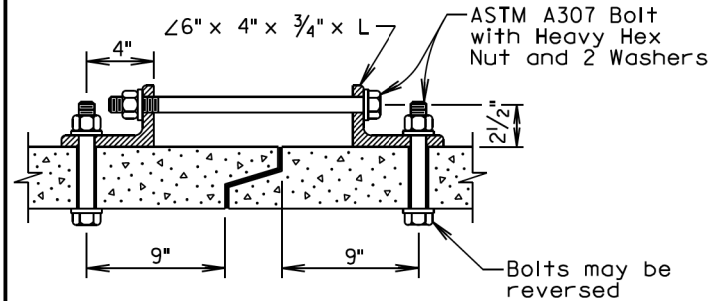
| Pipe Dia.<br>(in.) | "L"<br>(in.) | Bolt Dia.<br>(in.) |
|--------------------|--------------|--------------------|
| ≤ 48               | 4            | 3/4                |
| > 48               | 6            | 1                  |

GENERAL NOTES:

Angles shall conform to ASTM A36.

Bolts shall conform to ASTM A307. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



ANGLE AND BOLT TIE

GENERAL NOTES:

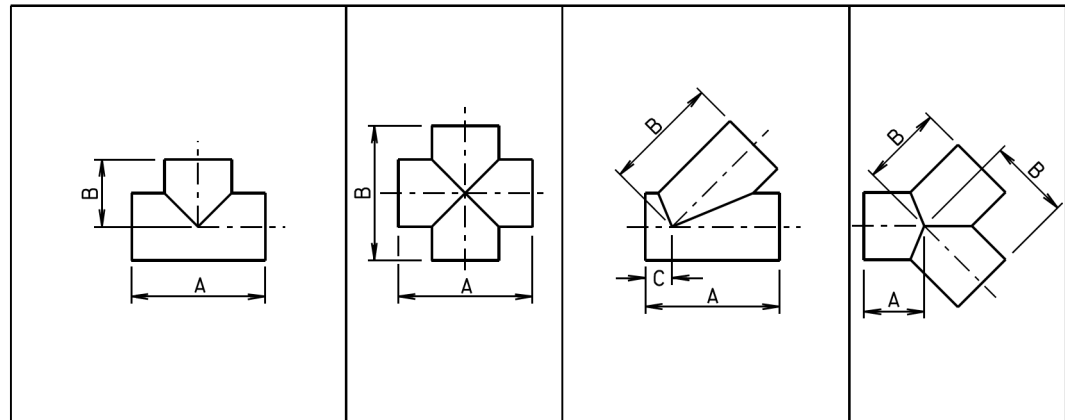
In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch shall be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manhole, and junction boxes shall be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

February 28, 2013

|                      |                       |                                      |                        |
|----------------------|-----------------------|--------------------------------------|------------------------|
| Published Date: 2025 | S<br>D<br>D<br>O<br>T | TIE BOLTS FOR R.C.P. AND R.C.P. ARCH | PLATE NUMBER<br>450.18 |
|                      |                       |                                      | Sheet 1 of 1           |



|          | Tee  |   |    | Cross |    |    | 45° Lateral |    |        |      | 45° Wye |   |    |
|----------|------|---|----|-------|----|----|-------------|----|--------|------|---------|---|----|
| Diameter | A    | B | L  | A     | B  | L  | A           | B  | C      | L    | A       | B | L  |
| Inches   | Feet |   |    | Feet  |    |    | Feet        |    | Inches | Feet | Feet    |   |    |
| 12       | 4    | 2 | 6  | 4     | 4  | 8  | 4           | 2  | 17     | 6    | 2       | 2 | 6  |
| 15       | 4    | 2 | 6  | 4     | 4  | 8  | 4           | 4  | 18     | 8    | 2       | 2 | 6  |
| 18       | 4    | 2 | 6  | 4     | 4  | 8  | 4           | 4  | 13     | 8    | 2       | 2 | 6  |
| 21       | 4    | 2 | 6  | 4     | 4  | 8  | 6           | 4  | 22     | 10   | 2       | 2 | 6  |
| 24       | 4    | 2 | 6  | 4     | 4  | 8  | 6           | 4  | 23     | 10   | 2       | 2 | 6  |
| 27       | 4    | 2 | 6  | 4     | 4  | 8  | 6           | 4  | 20     | 10   | 2       | 2 | 6  |
| 30       | 4    | 2 | 6  | 4     | 4  | 8  | 6           | 4  | 21     | 10   | 2       | 2 | 6  |
| 33       | 6    | 4 | 10 | 6     | 6  | 12 | 6           | 6  | 19     | 12   | 2       | 3 | 8  |
| 36       | 6    | 4 | 10 | 6     | 6  | 12 | 8           | 6  | 19     | 14   | 2       | 3 | 8  |
| 42       | 6    | 4 | 10 | 6     | 6  | 12 | 8           | 6  | 21     | 14   | 2       | 3 | 8  |
| 48       | 6    | 4 | 10 | 6     | 6  | 12 | 10          | 8  | 28     | 18   | 2       | 3 | 8  |
| 54       | 6    | 4 | 10 | 6     | 6  | 12 | 10          | 8  | 23     | 18   | 4       | 4 | 12 |
| 60       | 8    | 4 | 12 | 8     | 8  | 16 | 12          | 10 | 30     | 22   | 4       | 4 | 12 |
| 66       | 8    | 4 | 12 | 8     | 8  | 16 | 12          | 10 | 32     | 22   | 4       | 4 | 12 |
| 72       | 8    | 4 | 12 | 8     | 8  | 16 | 14          | 10 | 45     | 24   | 4       | 5 | 14 |
| 78       | 10   | 6 | 16 | 10    | 10 | 20 | 14          | 10 | 46     | 24   | 4       | 5 | 14 |
| 84       | 10   | 6 | 16 | 10    | 10 | 20 | 16          | 12 | 47     | 28   | 4       | 5 | 14 |
| 90       | 10   | 6 | 16 | 10    | 10 | 20 | 16          | 12 | 49     | 28   | 4       | 5 | 14 |
| 96       | 10   | 6 | 16 | 10    | 10 | 20 | 16          | 12 | 50     | 28   | 4       | 6 | 16 |

FABRICATED LENGTHS FOR TEES, CROSSES, AND WYES FOR ALL CORRUGATIONS

GENERAL NOTES:

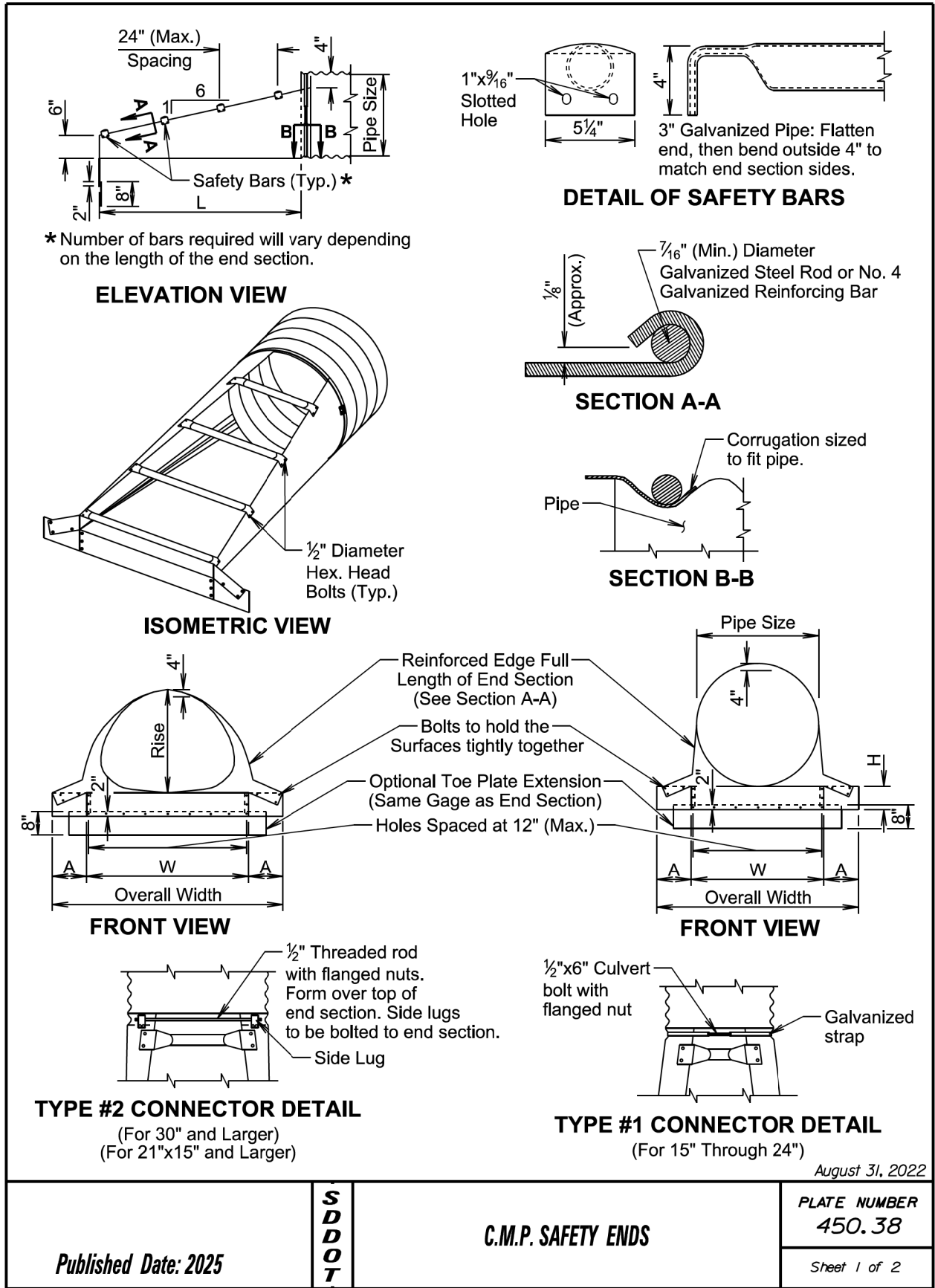
All dimensions shown are nominal.

L = Linear Feet of C.M.P. required to fabricate fitting.

June 26, 2001

|                      |                       |                                                          |                        |
|----------------------|-----------------------|----------------------------------------------------------|------------------------|
| Published Date: 2025 | S<br>D<br>D<br>O<br>T | C.M.P. FABRICATED LENGTHS FOR<br>TEES, CROSSES, AND WYES | PLATE NUMBER<br>450.33 |
|                      |                       |                                                          | Sheet 1 of 1           |





| ARCH C.M.P. SAFETY ENDS |          |      |               |                     |    |    |              |               |       |               |
|-------------------------|----------|------|---------------|---------------------|----|----|--------------|---------------|-------|---------------|
| Equiv. Dia. (Inch)      | (Inches) |      | (Min.) Thick. | Dimensions (Inches) |    |    | L Dimensions |               |       |               |
|                         | Span     | Rise | Inch          | Gage                | A  | H  | W            | Overall Width | Slope | Length (Inch) |
| 18                      | 21       | 15   | .064          | 16                  | 8  | 6  | 27           | 43            | 6:1   | 30            |
| 21                      | 24       | 18   | .064          | 16                  | 8  | 6  | 30           | 46            | 6:1   | 48            |
| 24                      | 28       | 20   | .064          | 16                  | 8  | 6  | 34           | 50            | 6:1   | 60            |
| 30                      | 35       | 24   | .079          | 14                  | 12 | 9  | 41           | 65            | 6:1   | 84            |
| 36                      | 42       | 29   | .109          | 12                  | 12 | 9  | 48           | 72            | 6:1   | 114           |
| 42                      | 49       | 33   | .109          | 12                  | 16 | 12 | 55           | 87            | 6:1   | 138           |
| 48                      | 57       | 38   | .109          | 12                  | 16 | 12 | 63           | 95            | 6:1   | 168           |
| 54                      | 64       | 43   | .109          | 12                  | 16 | 12 | 70           | 102           | 6:1   | 198           |
| 60                      | 71       | 47   | .109          | 12                  | 16 | 12 | 77           | 109           | 6:1   | 222           |
| 72                      | 83       | 57   | .109          | 12                  | 16 | 12 | 89           | 121           | 6:1   | 282           |

| CIRCULAR C.M.P. SAFETY ENDS |               |                     |    |    |    |               |       |               |
|-----------------------------|---------------|---------------------|----|----|----|---------------|-------|---------------|
| Pipe Dia.<br>(Inch)         | (Min.) Thick. | Dimensions (Inches) |    |    |    | L Dimensions  |       |               |
|                             | Inch          | Gage                | A  | H  | W  | Overall Width | Slope | Length (Inch) |
| 15                          | .064          | 16                  | 8  | 6  | 21 | 37            | 6:1   | 30            |
| 18                          | .064          | 16                  | 8  | 6  | 24 | 40            | 6:1   | 48            |
| 21                          | .064          | 16                  | 8  | 6  | 27 | 43            | 6:1   | 66            |
| 24                          | .064          | 16                  | 8  | 6  | 30 | 46            | 6:1   | 84            |
| 30                          | .109          | 12                  | 12 | 9  | 36 | 60            | 6:1   | 120           |
| 36                          | .109          | 12                  | 12 | 9  | 42 | 66            | 6:1   | 156           |
| 42                          | .109          | 12                  | 16 | 12 | 48 | 80            | 6:1   | 192           |
| 48                          | .109          | 12                  | 16 | 12 | 54 | 86            | 6:1   | 228           |
| 54                          | .109          | 12                  | 16 | 12 | 60 | 92            | 6:1   | 264           |
| 60                          | .109          | 12                  | 16 | 12 | 66 | 98            | 6:1   | 300           |

GENERAL NOTES:

Safety bars will be provided when specified in the plans.

Safety ends will be fabricated from galvanized steel conforming to the requirements of the Specifications.

Safety bars will be fabricated from steel schedule 40 pipe in conformance with ASTM A53, grade B or HSS 3.5x.216 in conformance with ASTM A500, grade B.

Slotted holes for safety bar attachment will be provided for all end sections.

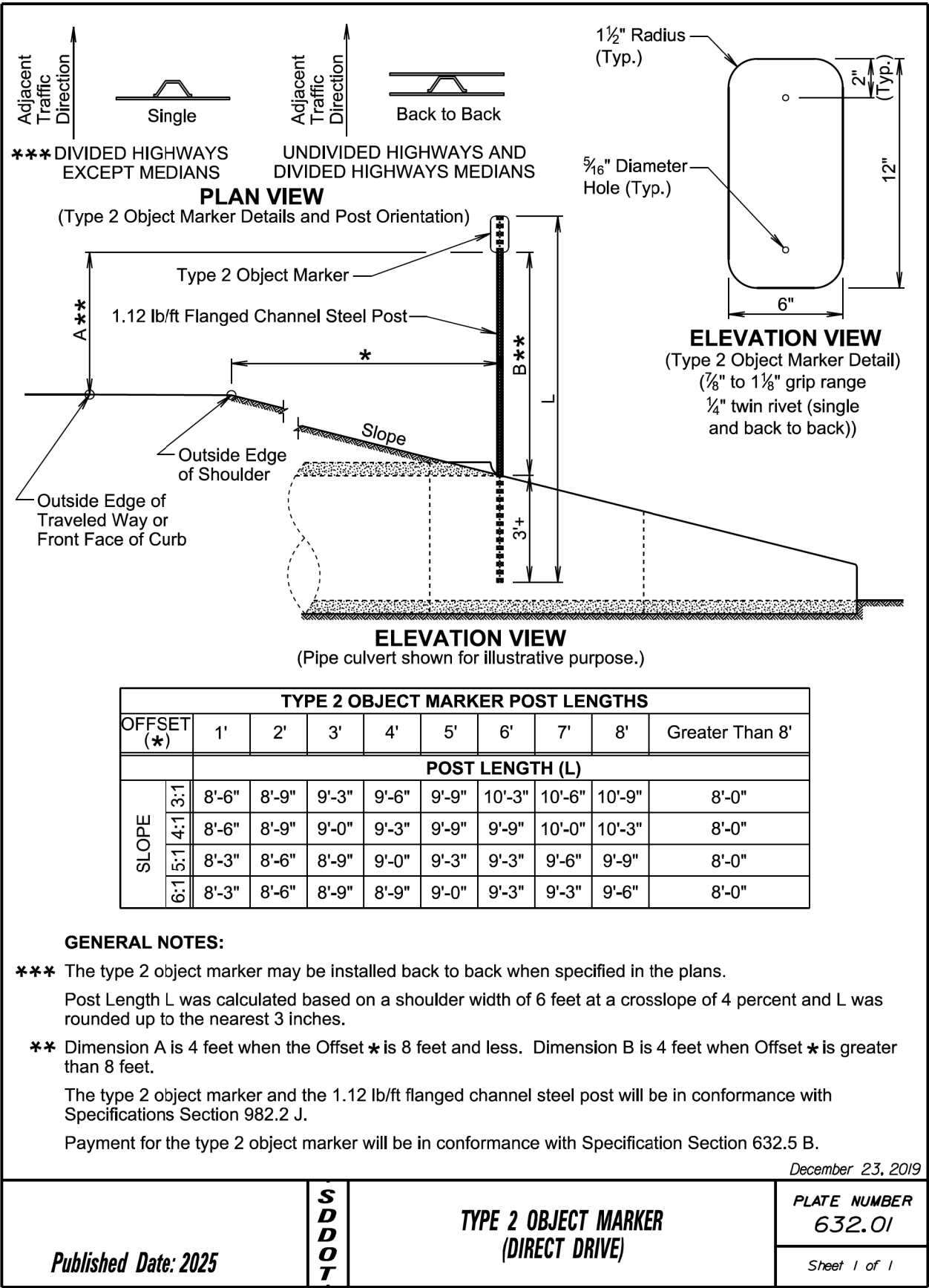
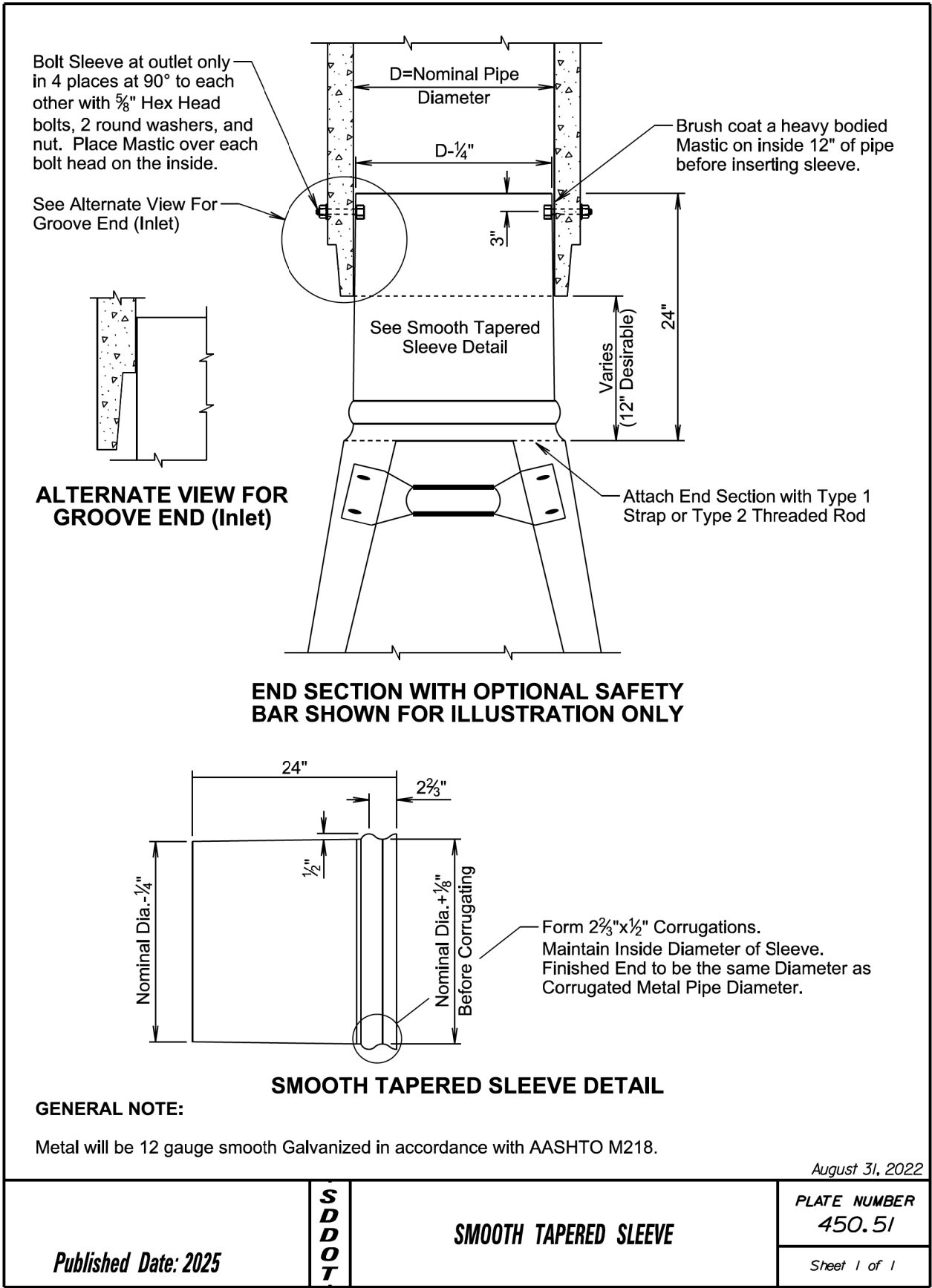
Attachment to circular pipes 15" through 24" diameter will be made with Type #1 straps. All other sizes will be attached with Type #2 rods and lugs.

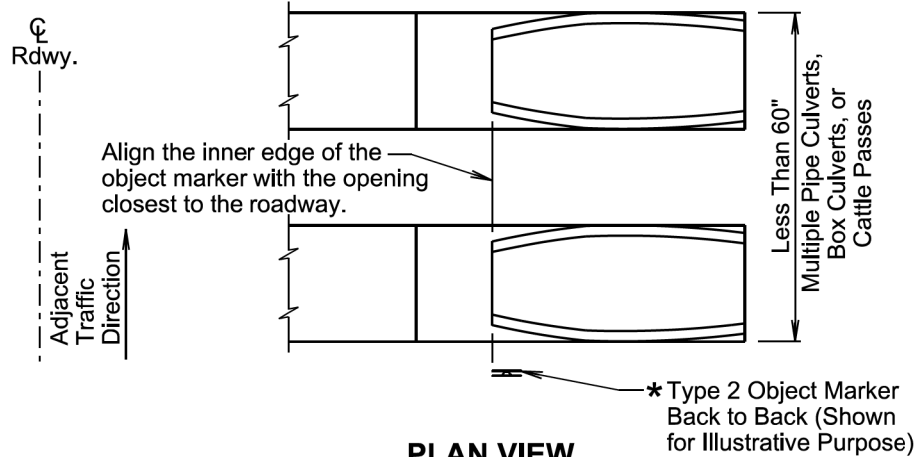
When stated in the plans, optional toe plate extension will be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension will be same gauge as end section. Dimensions will be overall width less 6" by 8" high.

Installation will be performed in accordance with the Specifications.

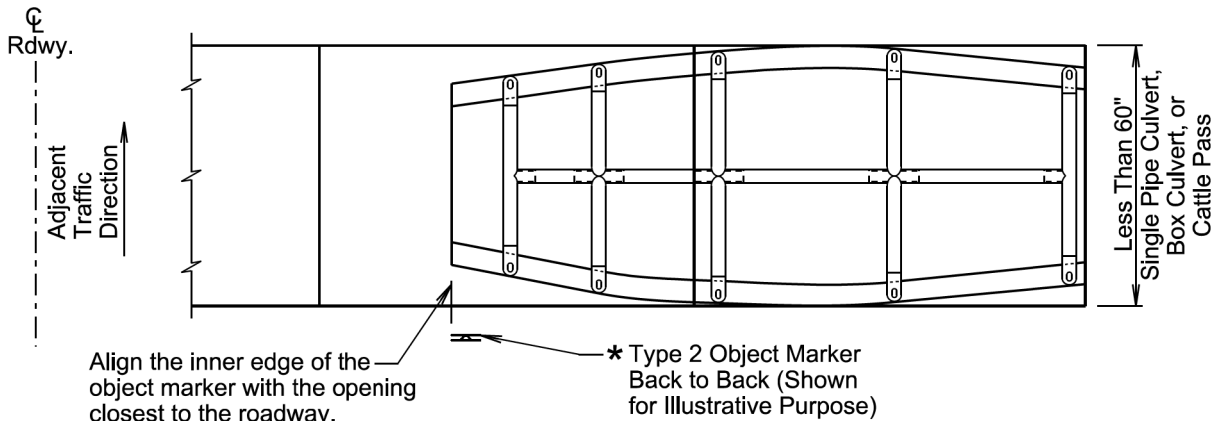
Cost of all work and materials required for fabrication and installation of safety ends will be incidental to the bid items for the various sizes of safety ends.

|                      |                       |                    |                        |
|----------------------|-----------------------|--------------------|------------------------|
| Published Date: 2025 | S<br>D<br>D<br>O<br>T | C.M.P. SAFETY ENDS | PLATE NUMBER<br>450.38 |
|                      |                       |                    | Sheet 2 of 2           |





**PLAN VIEW**  
(For Multiple Pipe Culverts, Box Culverts, and Cattle Passes)  
(Pipe culverts shown for illustrative purpose.)  
(Embankment is not shown.)



**PLAN VIEW**  
(For Single Pipe Culvert, Box Culvert, and Cattle Pass)  
(Pipe culvert shown for illustrative purpose.)  
(Embankment is not shown.)

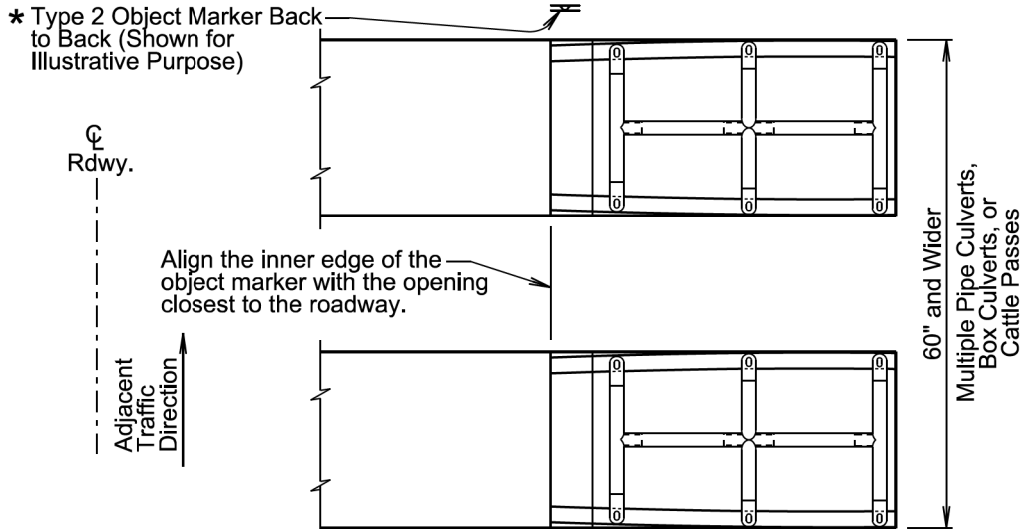
**GENERAL NOTES:**

This standard plate will be used in conjunction with standard plate 632.01.

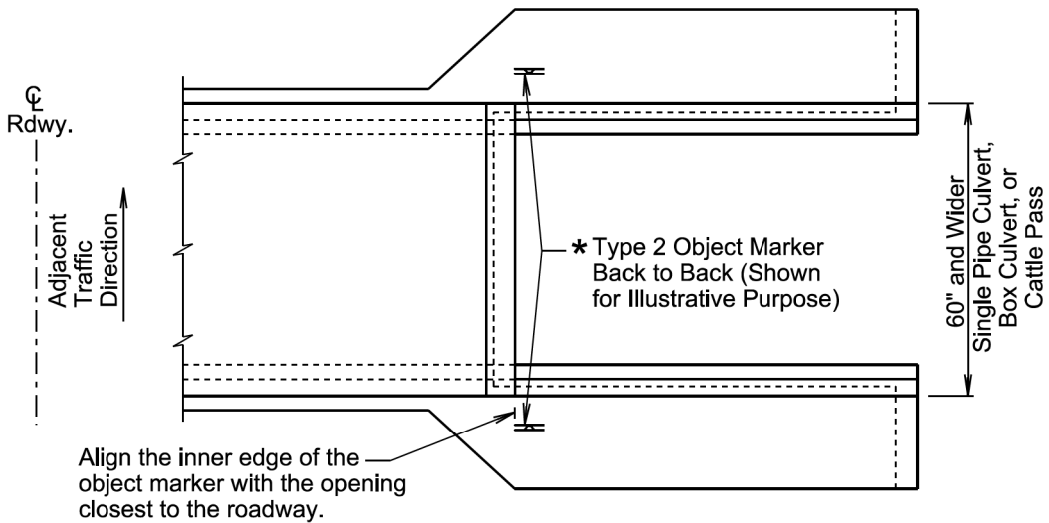
\* The type 2 object markers will be installed at the locations shown above. The type 2 object markers, single faced or back to back, will be as specified in the plans.

December 23, 2019

|                      |                       |                                                                                                            |                        |
|----------------------|-----------------------|------------------------------------------------------------------------------------------------------------|------------------------|
| Published Date: 2025 | S<br>D<br>D<br>O<br>T | TYPE 2 OBJECT MARKER AT PIPE<br>CULVERTS, BOX CULVERTS, AND CATTLE PASSES<br>(Less than 60" Overall Width) | PLATE NUMBER<br>632.03 |
|                      |                       |                                                                                                            | Sheet 1 of 1           |



**PLAN VIEW**  
(For Multiple Pipe Culverts, Box Culverts, and Cattle Passes)  
(Pipe culverts shown for illustrative purpose.)  
(Embankment is not shown.)



**PLAN VIEW**  
(For Single Pipe Culvert, Box Culvert, and Cattle Pass)  
(Box culvert shown for illustrative purpose.)  
(Embankment is not shown.)

**GENERAL NOTES:**

This standard plate will be used in conjunction with standard plate 632.01.

\* The type 2 object markers will be installed at the locations shown above. The type 2 object markers, single faced or back to back, will be as specified in the plans.

December 23, 2019

|                      |                       |                                                                                                              |                        |
|----------------------|-----------------------|--------------------------------------------------------------------------------------------------------------|------------------------|
| Published Date: 2025 | S<br>D<br>D<br>O<br>T | TYPE 2 OBJECT MARKER AT PIPE<br>CULVERTS, BOX CULVERTS, AND CATTLE PASSES<br>(60" and Greater Overall Width) | PLATE NUMBER<br>632.04 |
|                      |                       |                                                                                                              | Sheet 1 of 1           |

**STANDARD DITCH SECTION**

**SLOPED DITCH SECTION**

**TRENCH DETAIL**

**MEDIAN SECTION**

**OVERLAP DETAIL**

**PIPE END DETAIL**

**GENERAL NOTES:**

Prior to placement of the erosion control blanket, the areas will be properly prepared, shaped, seeded, and fertilized.

Erosion control blanket will be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket will be buried in a trench 6" wide by 6" deep. There will be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.

The erosion control blanket will be pinned to the ground according to the manufacturer's installation recommendations.

After the placement of the erosion control blanket, the Contractor will fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

All ditch sections will be shaped when installing the erosion control blanket. All costs for shaping the ditches will be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

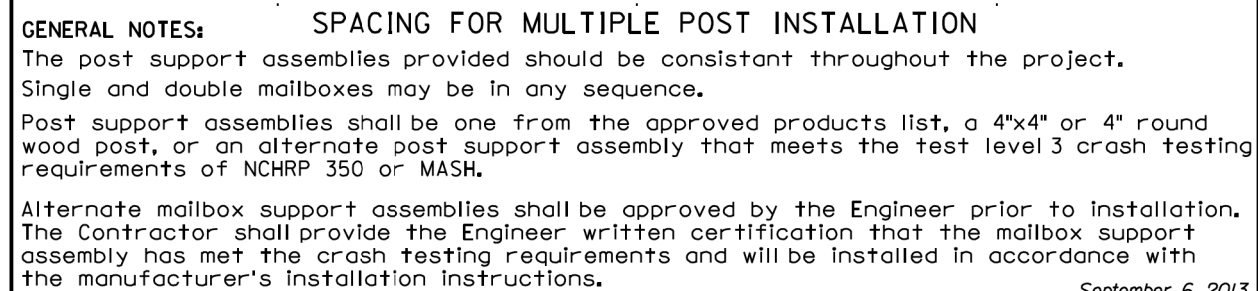
February 14, 2020

|                      |      |                         |                        |
|----------------------|------|-------------------------|------------------------|
| Published Date: 2025 | SDOT | EROSION CONTROL BLANKET | PLATE NUMBER<br>734.01 |
|                      |      |                         | Sheet 1 of 1           |

**MAILBOX TURNOUT**

September 6, 2015

|                      |      |                 |                        |
|----------------------|------|-----------------|------------------------|
| Published Date: 2025 | SDOT | MAILBOX TURNOUT | PLATE NUMBER<br>900.01 |
|                      |      |                 | Sheet 1 of 1           |



September 6, 2013

[illegible]

March 31, 2000

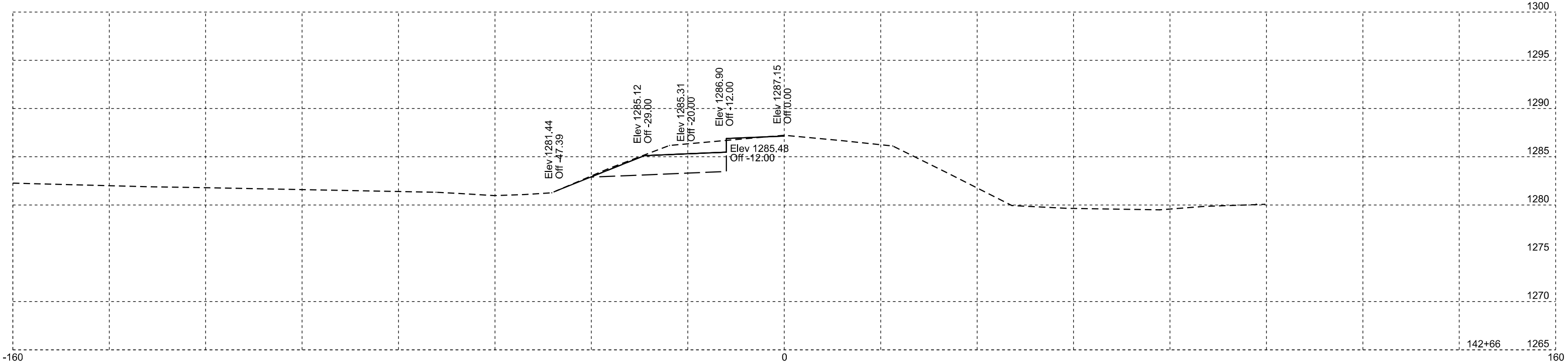
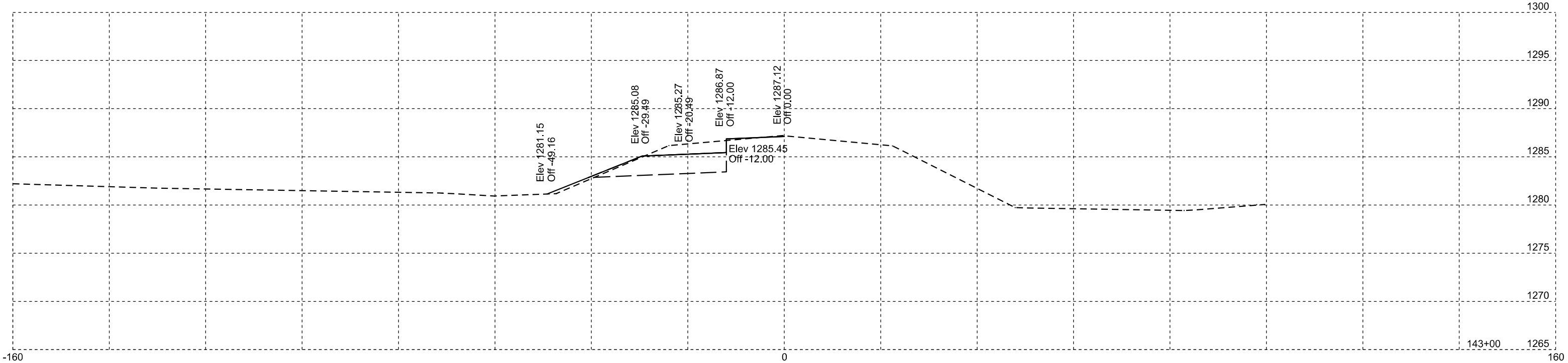
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|------------------------------------|-----------------------------------------|----------------------------------------|---------------------------------------|
| <p><i>Published Date: 2025</i></p> | <p><b>S<br/>D<br/>D<br/>O<br/>T</b></p> | <p><b>MAILBOX SUPPORT HARDWARE</b></p> | <p>PLATE NUMBER<br/><b>900.03</b></p> |
|                                    |                                         |                                        | <p>Sheet 1 of 1</p>                   |

# TURN LANE AT 158+46

Horizontal Alignment: 15846

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 63    | 85              |



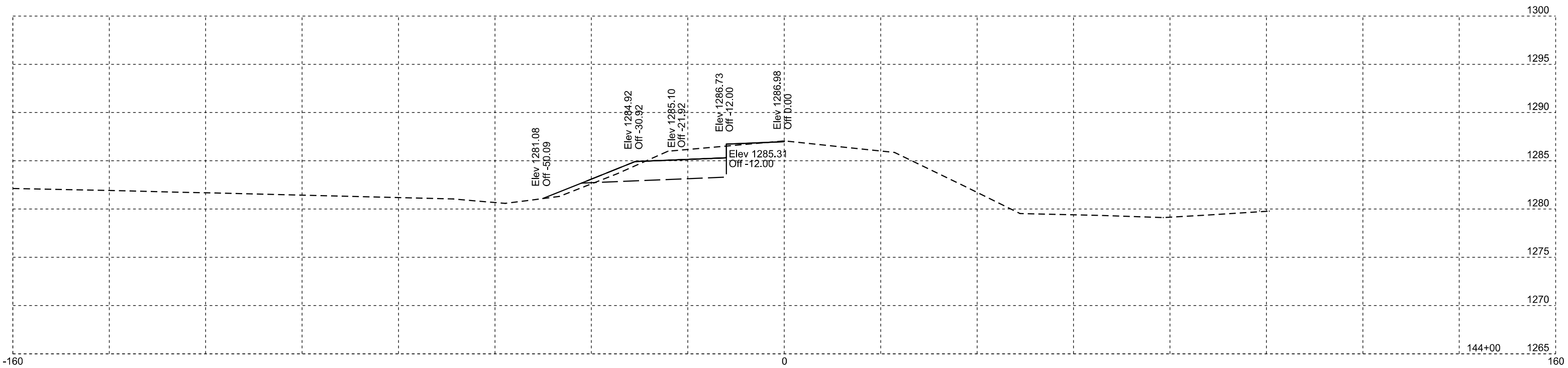
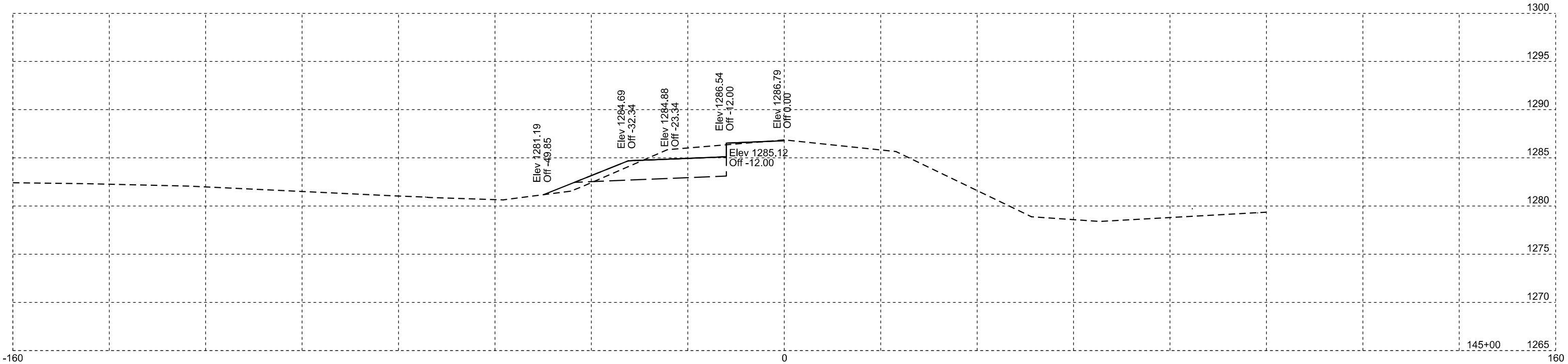


# TURN LANE AT 158+46

Horizontal Alignment: 15846

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 64    | 85              |

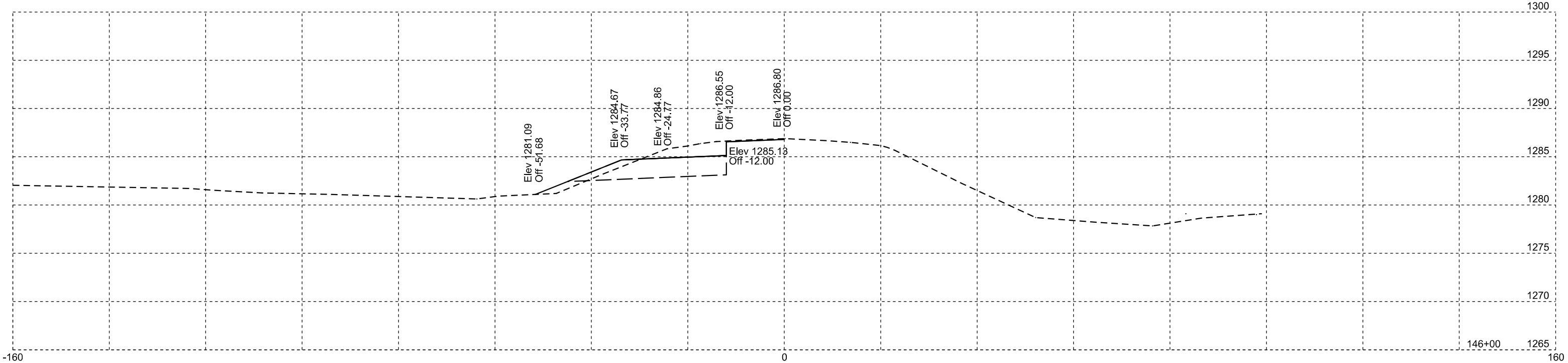
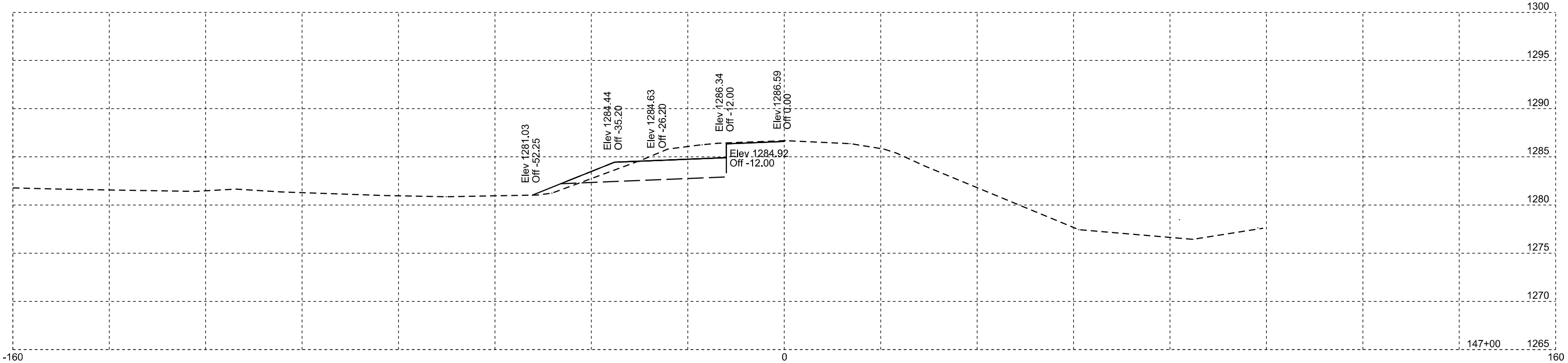


# TURN LANE AT 158+46

Horizontal Alignment: 15846

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 65    | 85              |

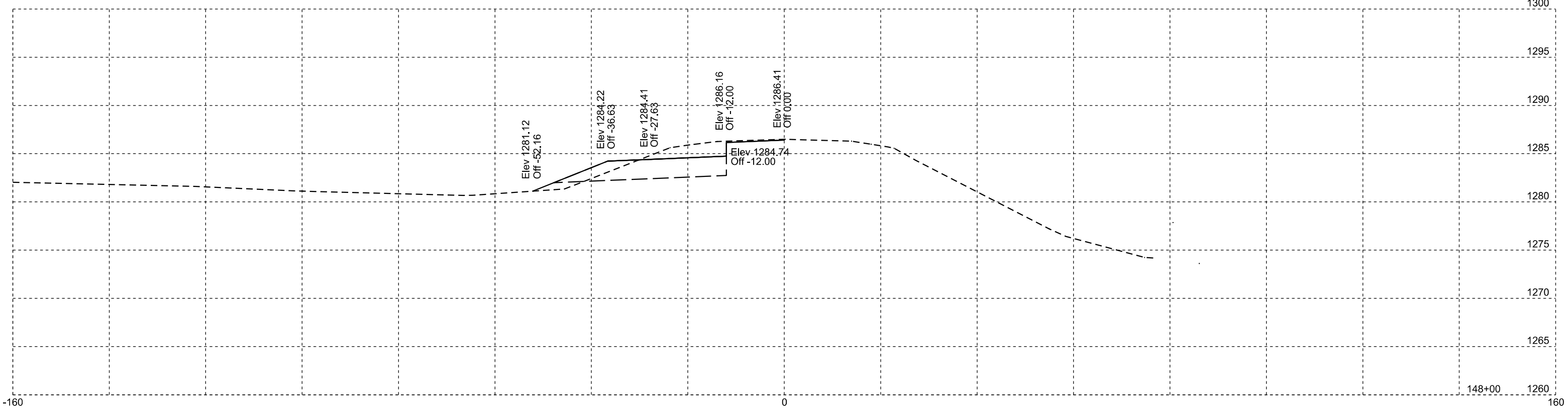
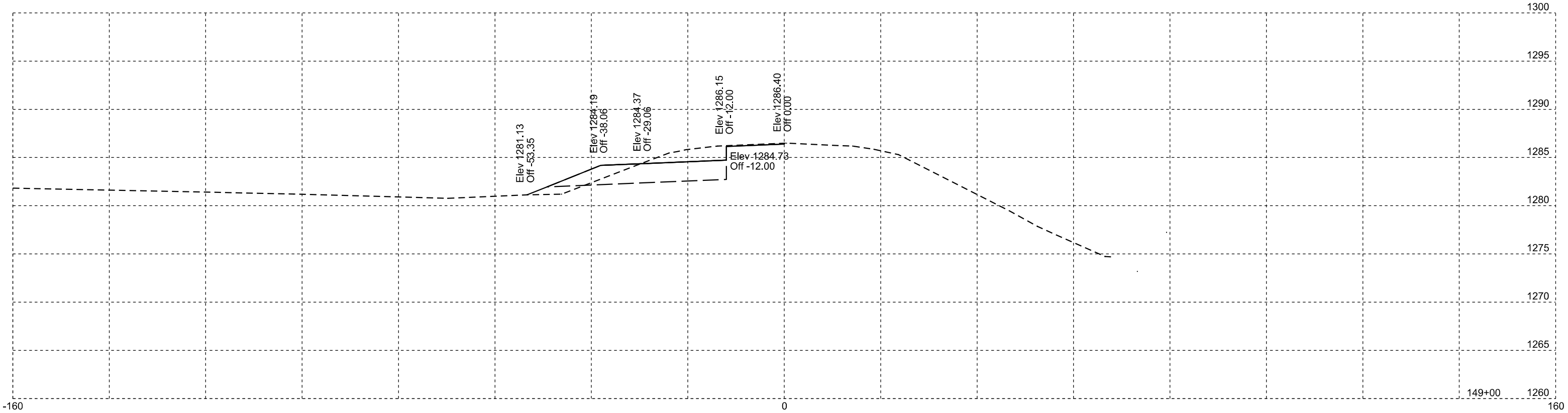


# TURN LANE AT 158+46

Horizontal Alignment: 15846

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 66    | 85              |

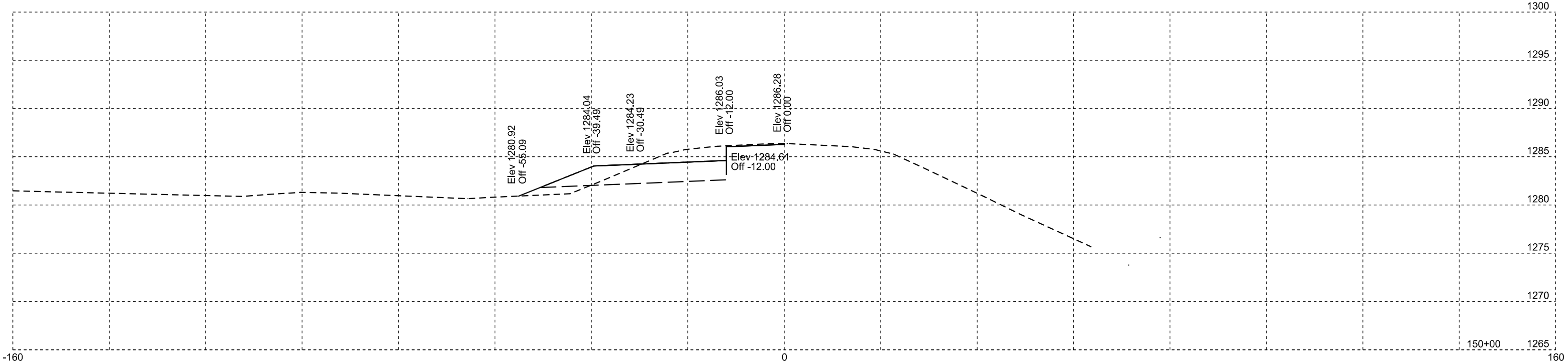
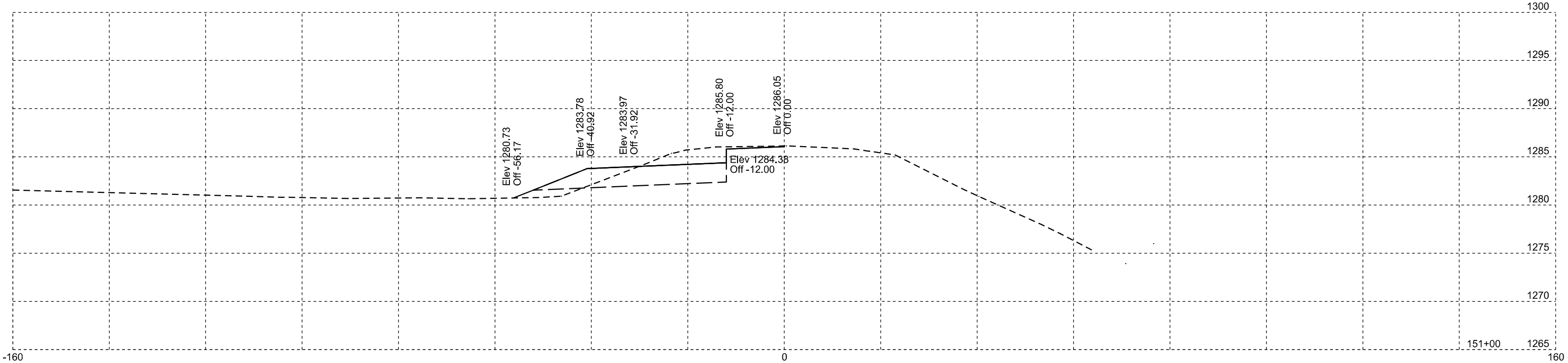


# TURN LANE AT 158+46

Horizontal Alignment: 15846

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 67    | 85              |

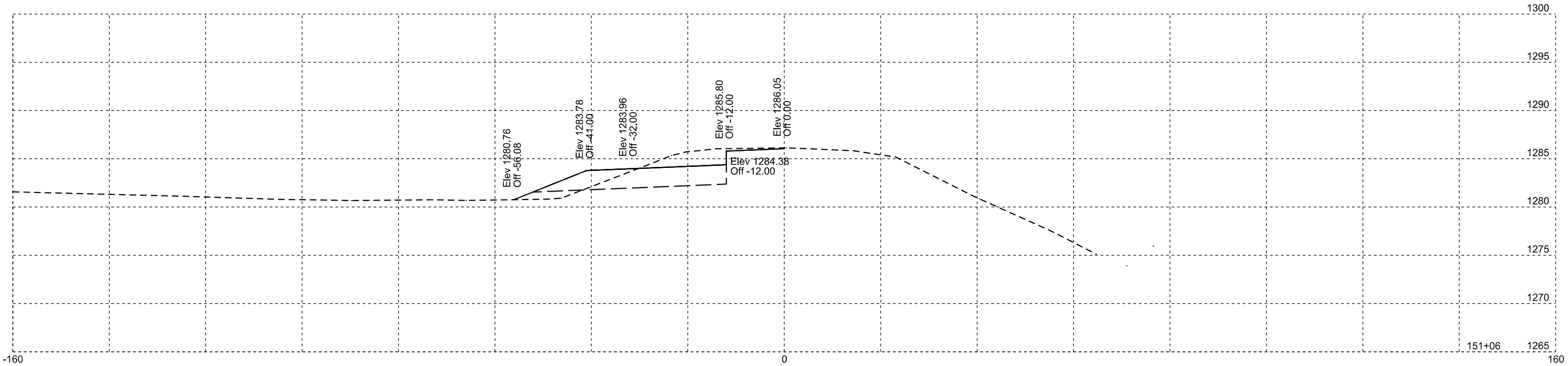
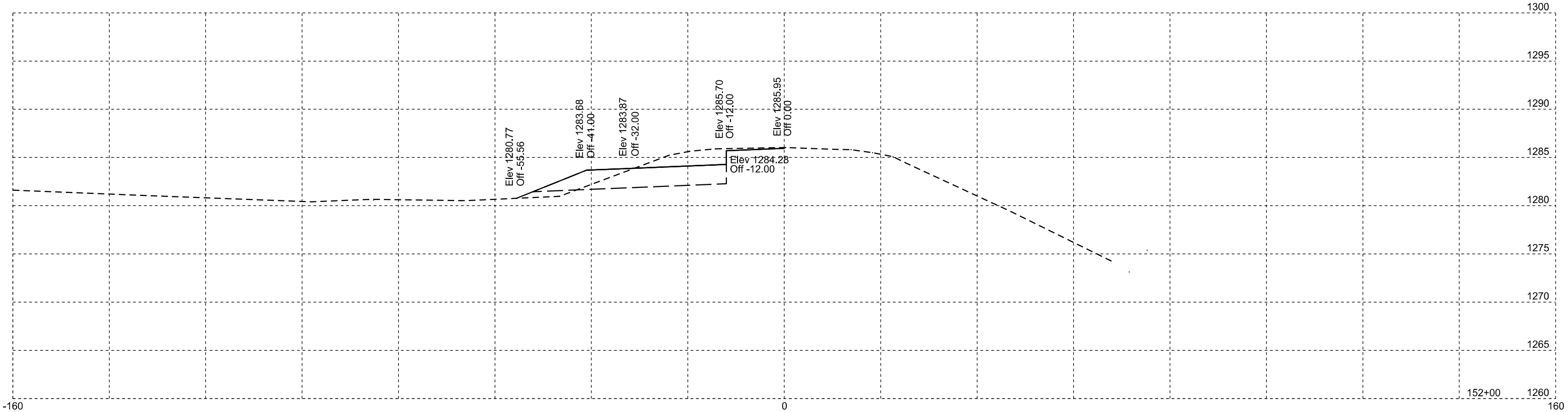


# TURN LANE AT 158+46

Horizontal Alignment: 15846

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 68    | 85              |

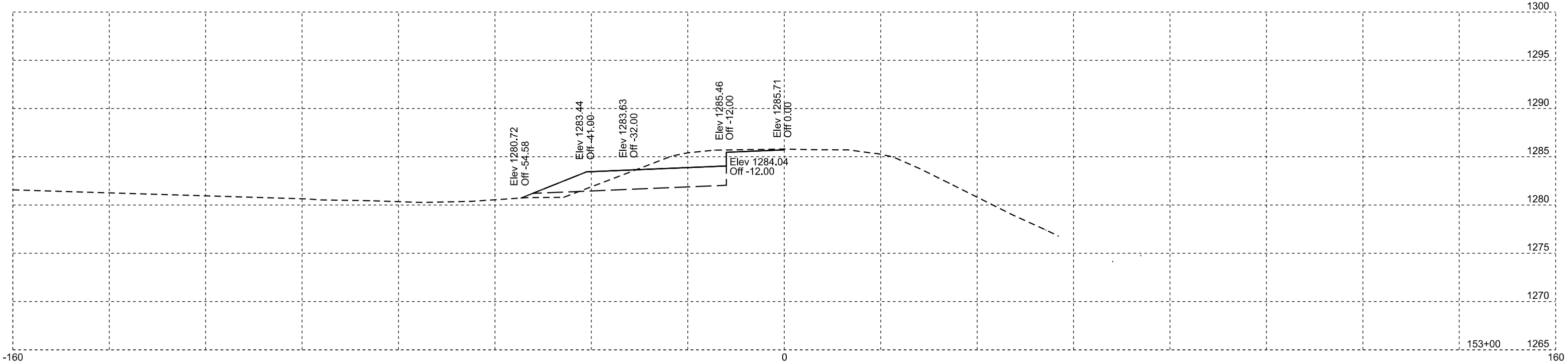
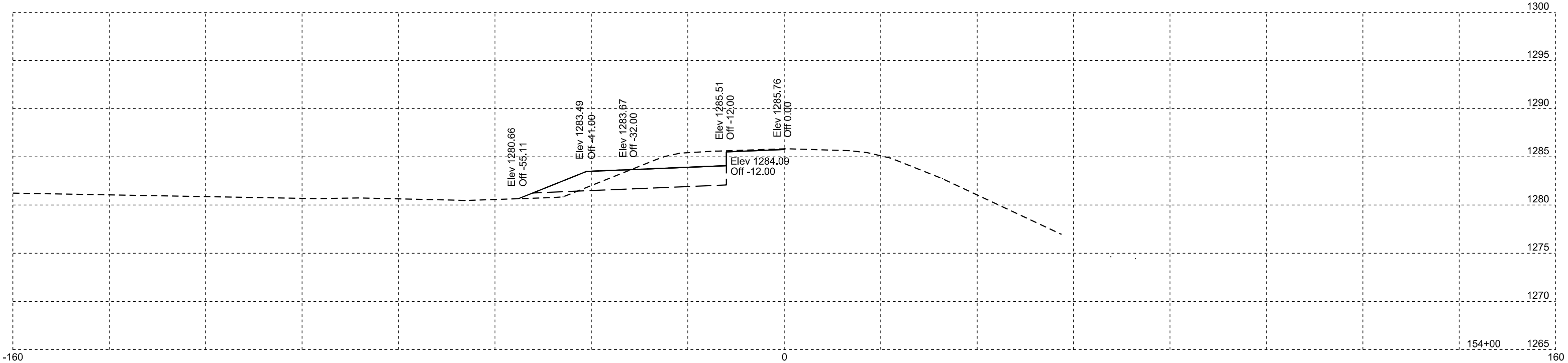


# TURN LANE AT 158+46

Horizontal Alignment: 15846

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 69    | 85              |



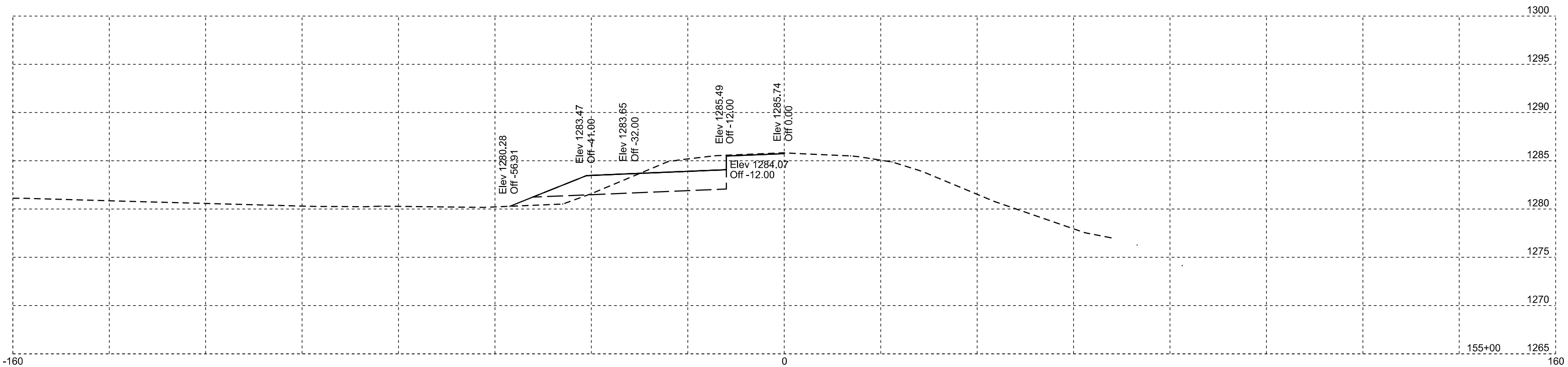
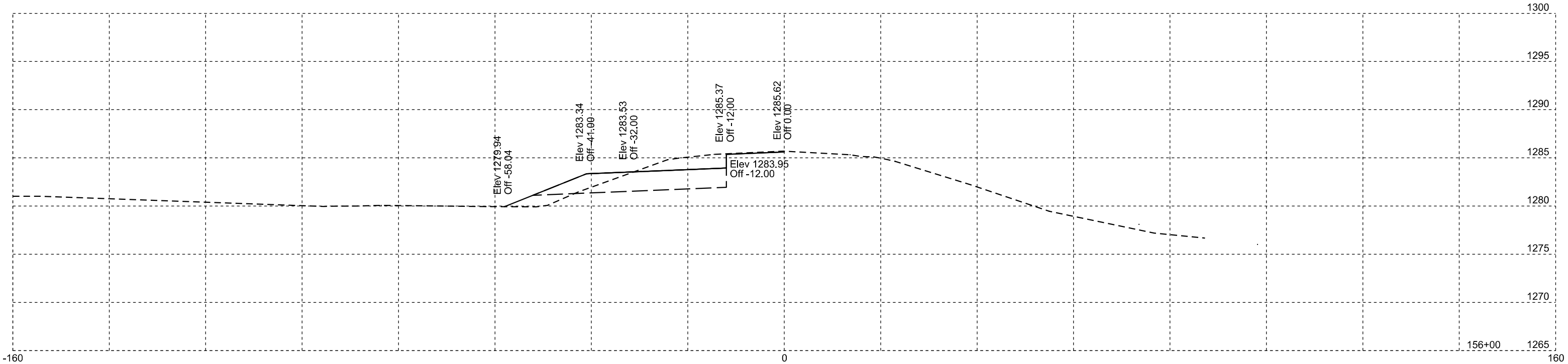


# TURN LANE AT 158+46

Horizontal Alignment: 15846

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 70    | 85              |

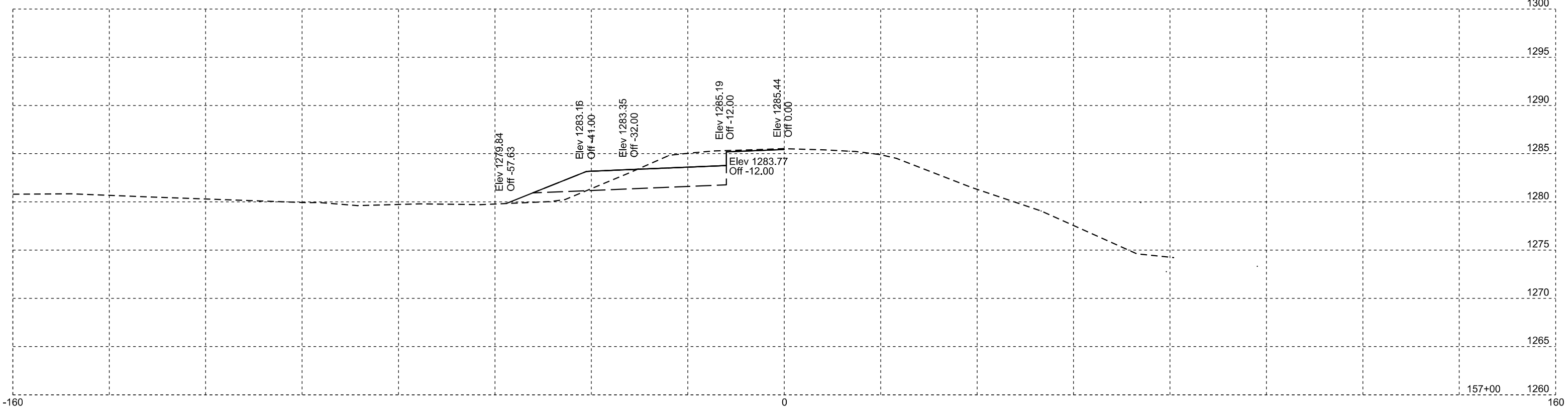
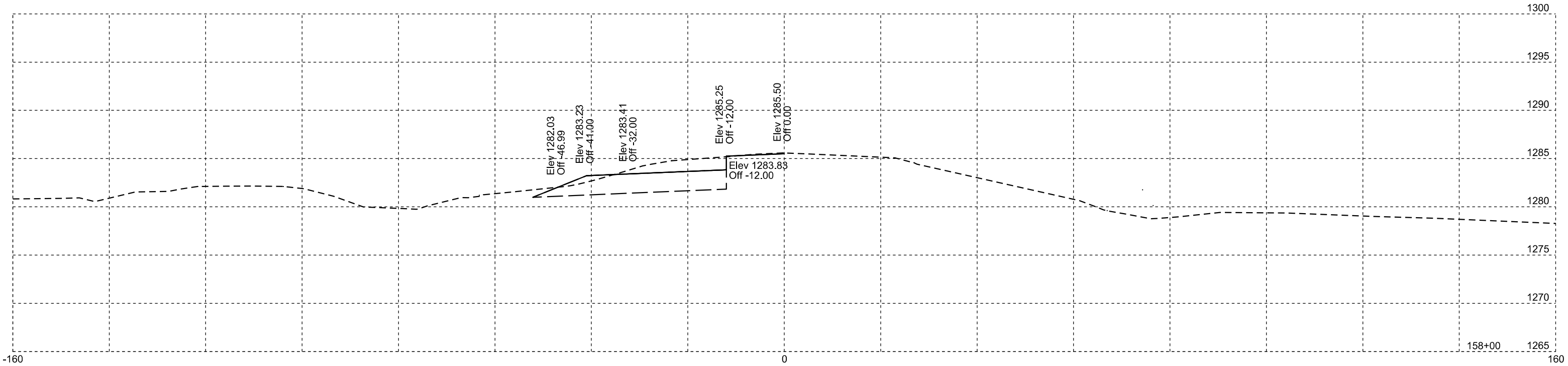


# TURN LANE AT 158+46

Horizontal Alignment: 15846

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 71    | 85              |

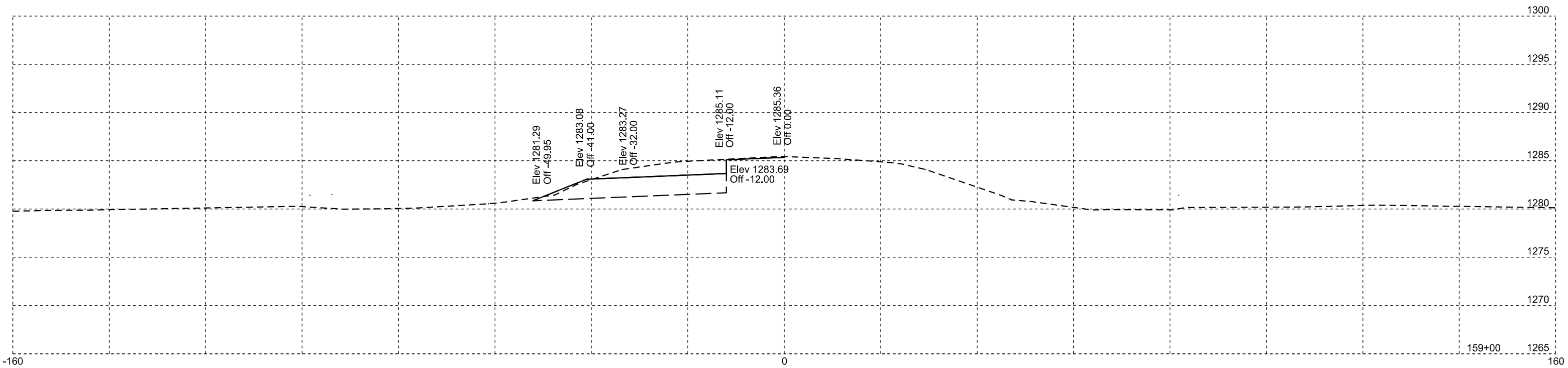
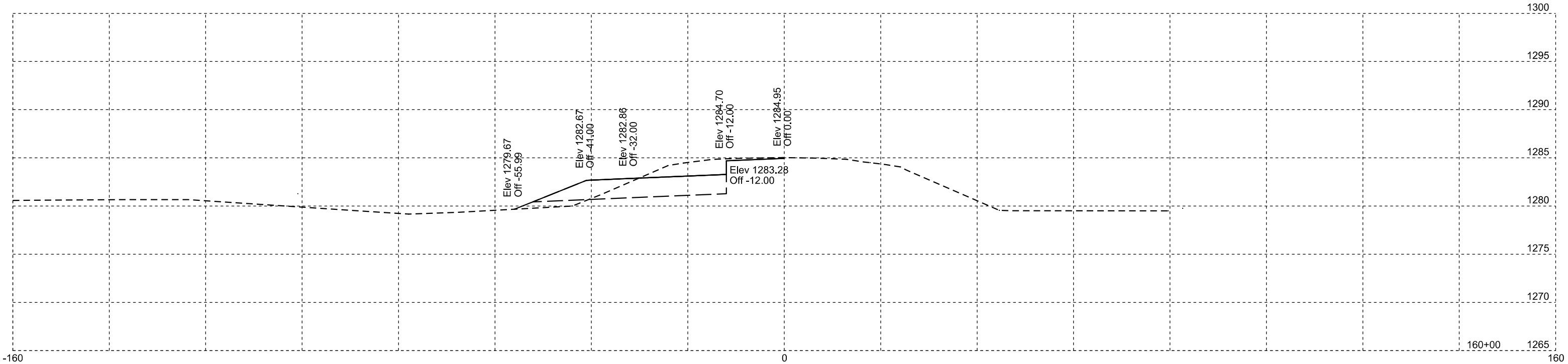


# TURN LANE AT 158+46

Horizontal Alignment: 15846

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 72    | 85              |

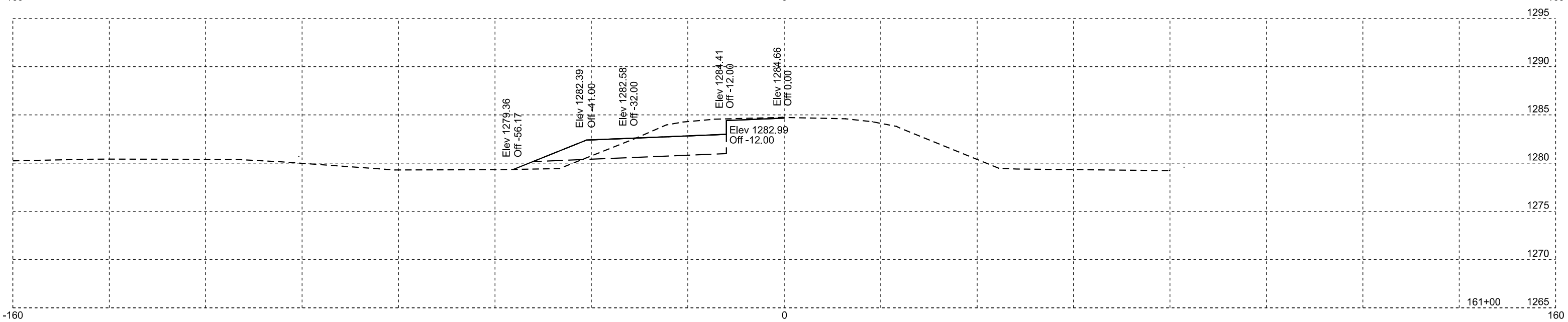
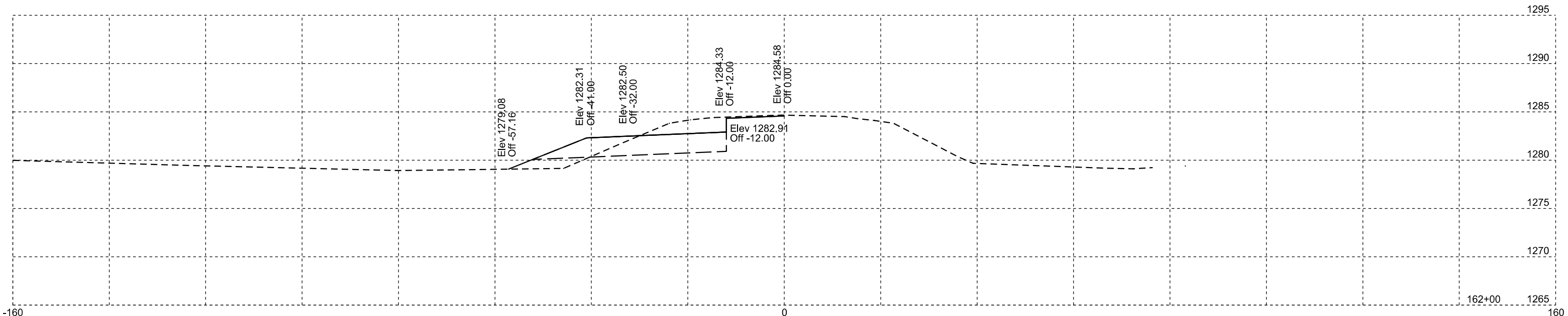
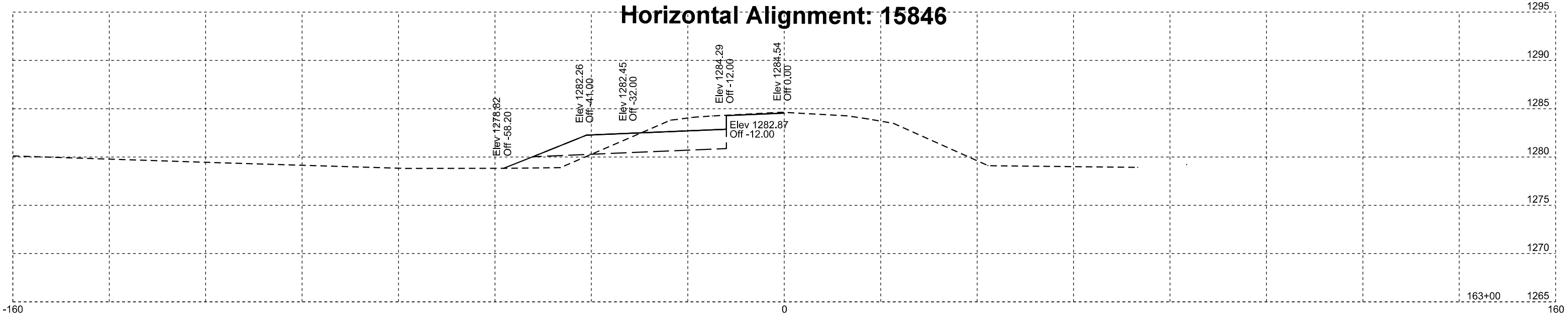


# TURN LANE AT 158+46

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 73    | 85              |

Horizontal Alignment: 15846

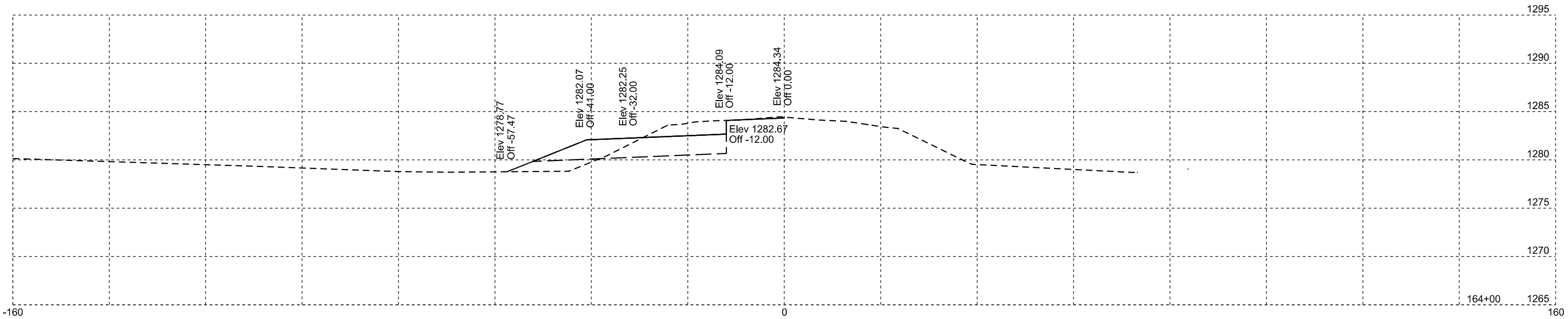
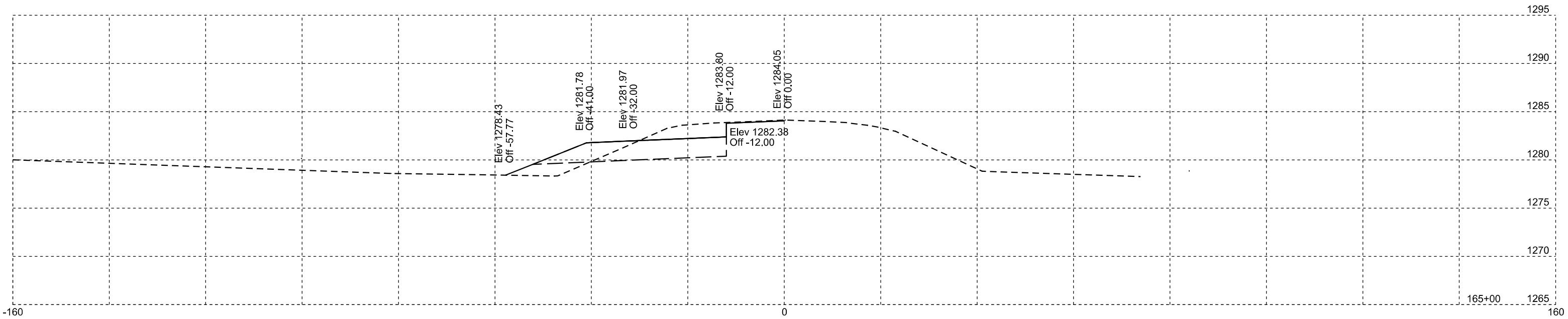
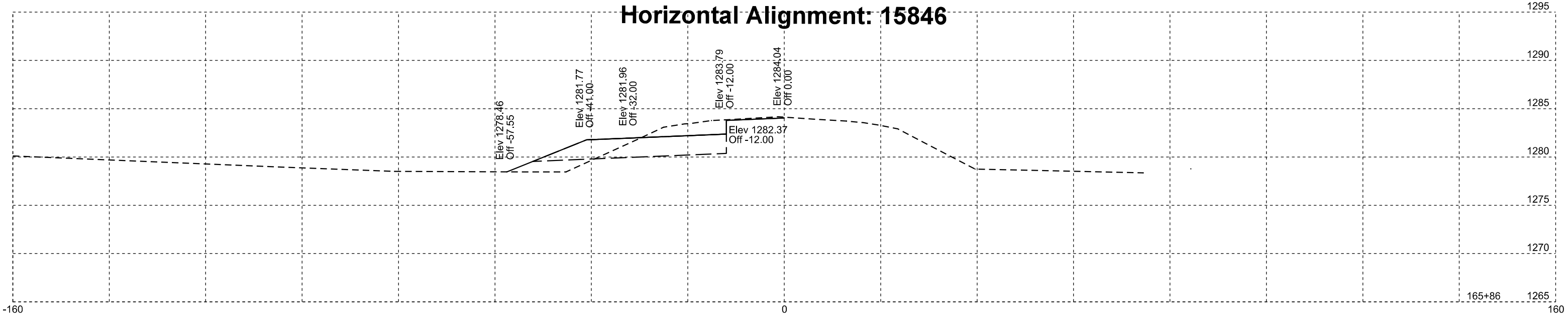


# TURN LANE AT 158+46

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 74    | 85              |

Horizontal Alignment: 15846

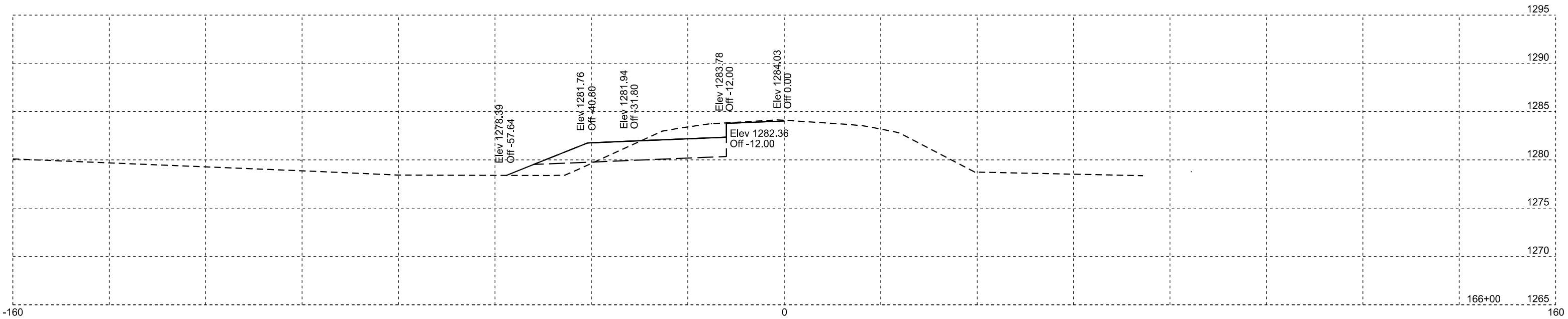
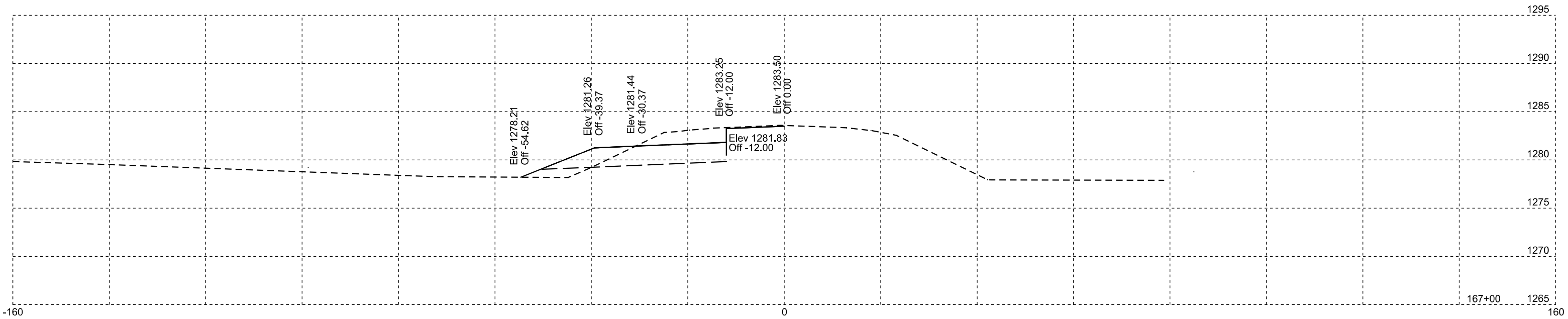
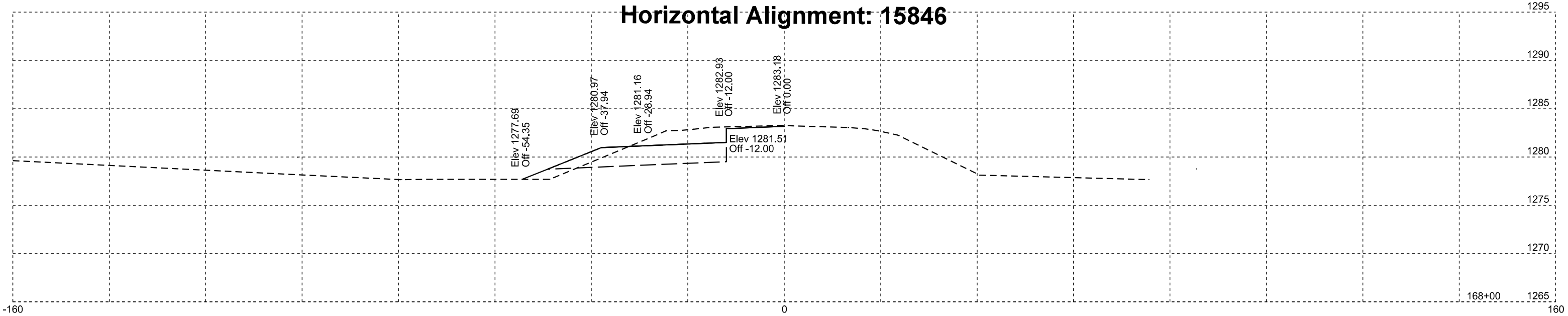


# TURN LANE AT 158+46

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 75    | 85              |

Horizontal Alignment: 15846



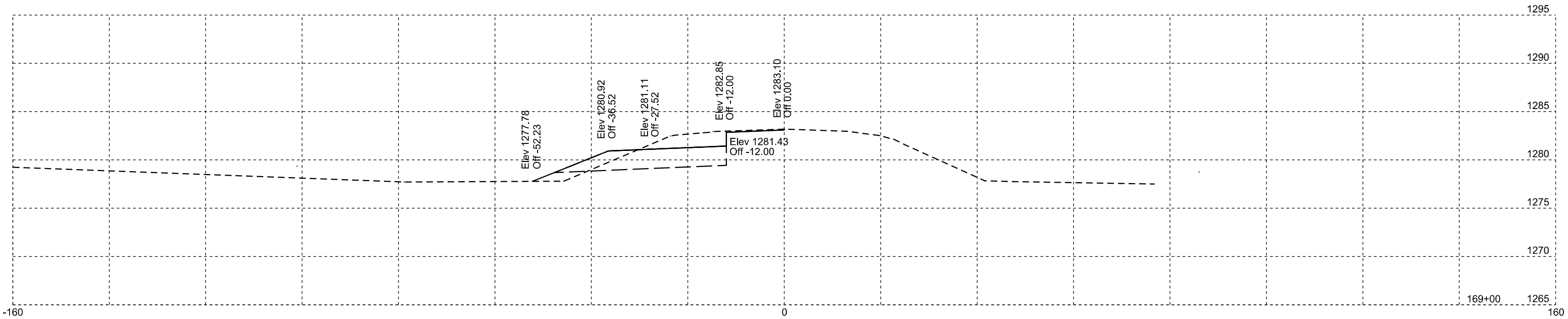
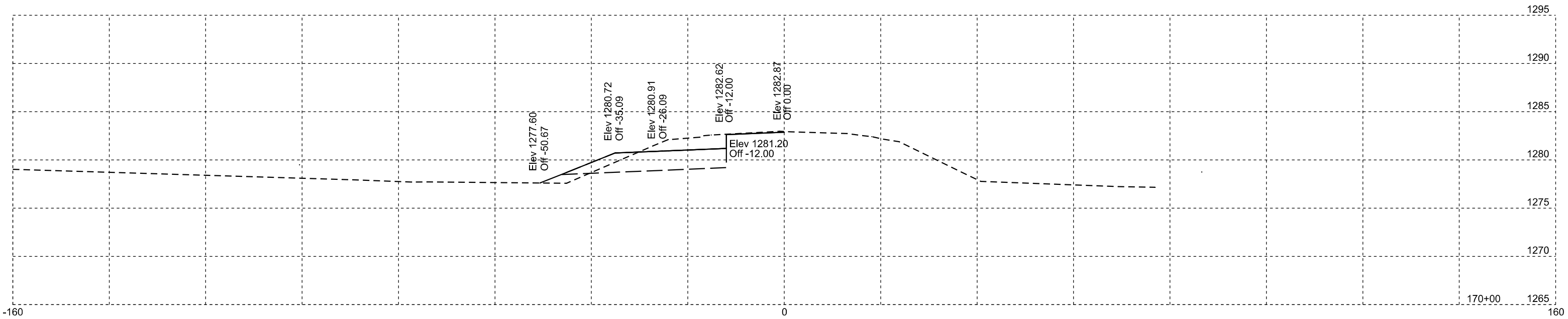
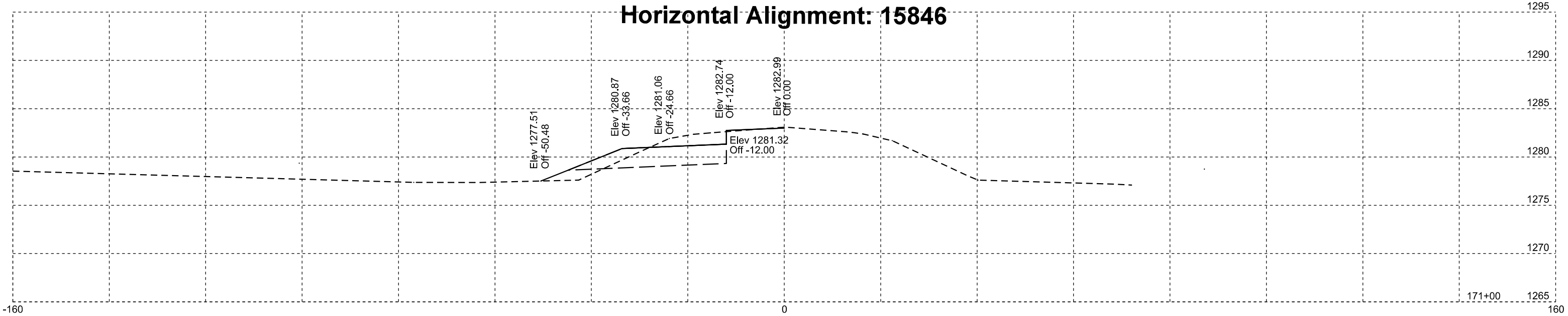


# TURN LANE AT 158+46

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 76    | 85              |

Horizontal Alignment: 15846



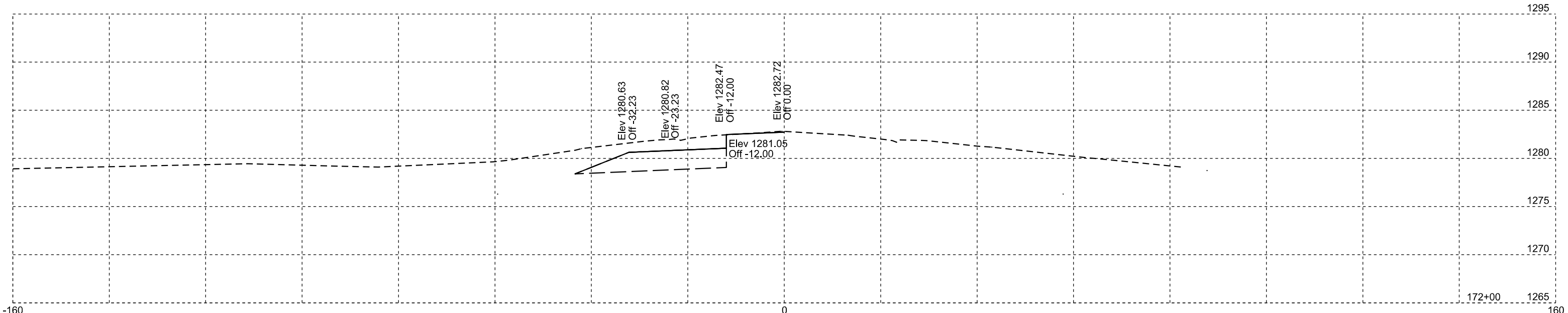
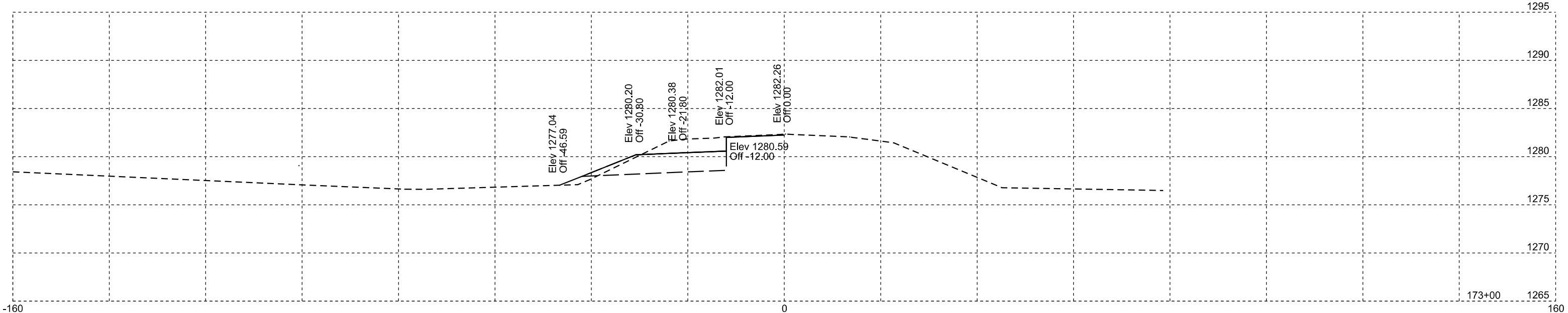
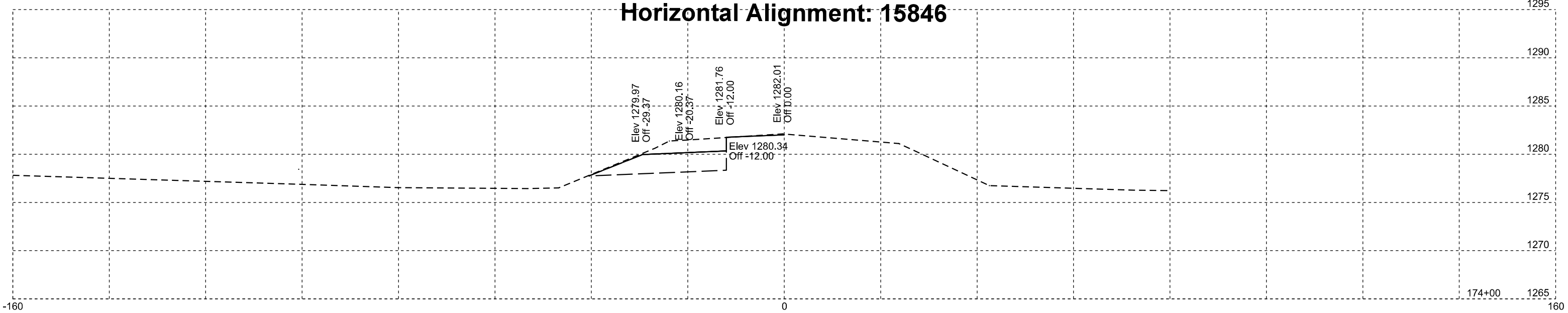


# TURN LANE AT 158+46

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 77    | 85              |

Horizontal Alignment: 15846

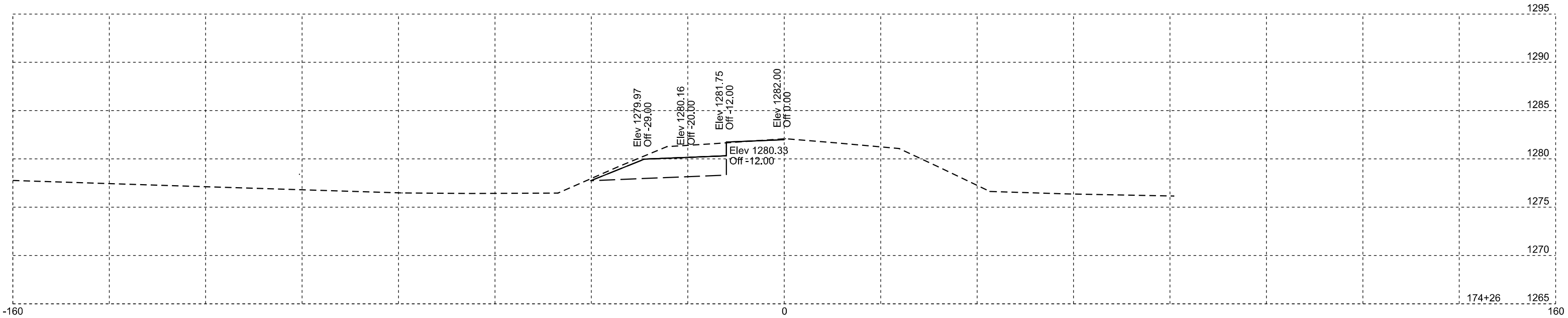


# TURN LANE AT 158+46

Horizontal Alignment: 15846

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 78    | 85              |



# TURN LANE AT 158+46

Horizontal Alignment: 15846

Plotting Date: 10/30/2024

|                             |              |       |                 |
|-----------------------------|--------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT      | SHEET | TOTAL<br>SHEETS |
|                             | P 0019(49)43 | 79    | 85              |

