STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	1	66

Plotting Date: 08/27/2020

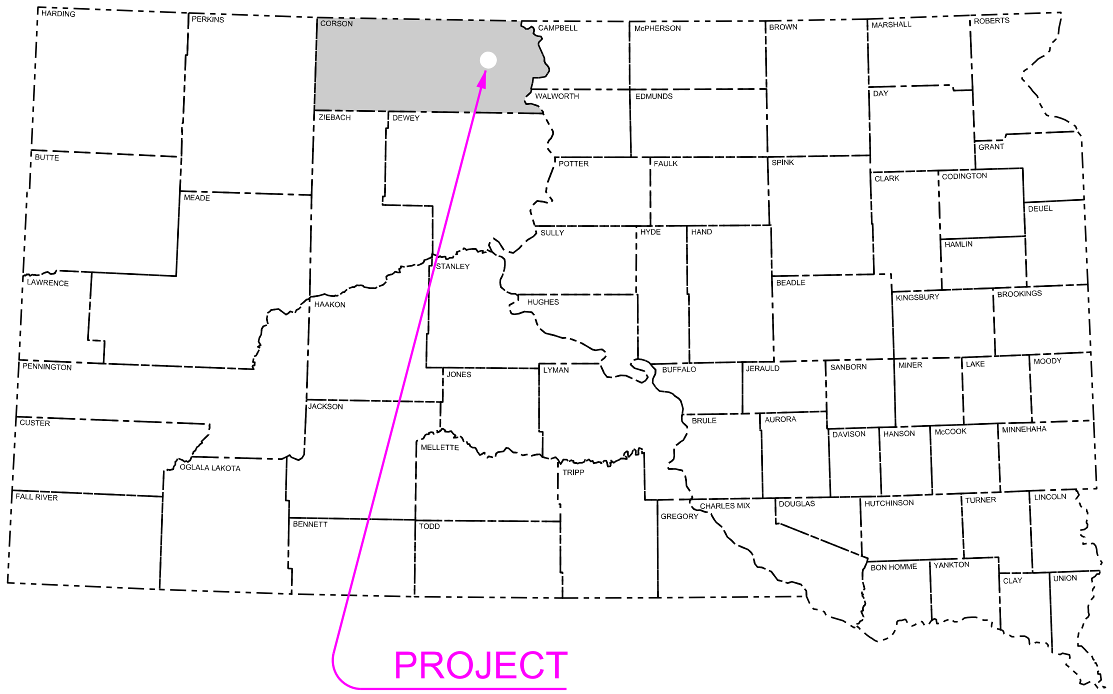
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

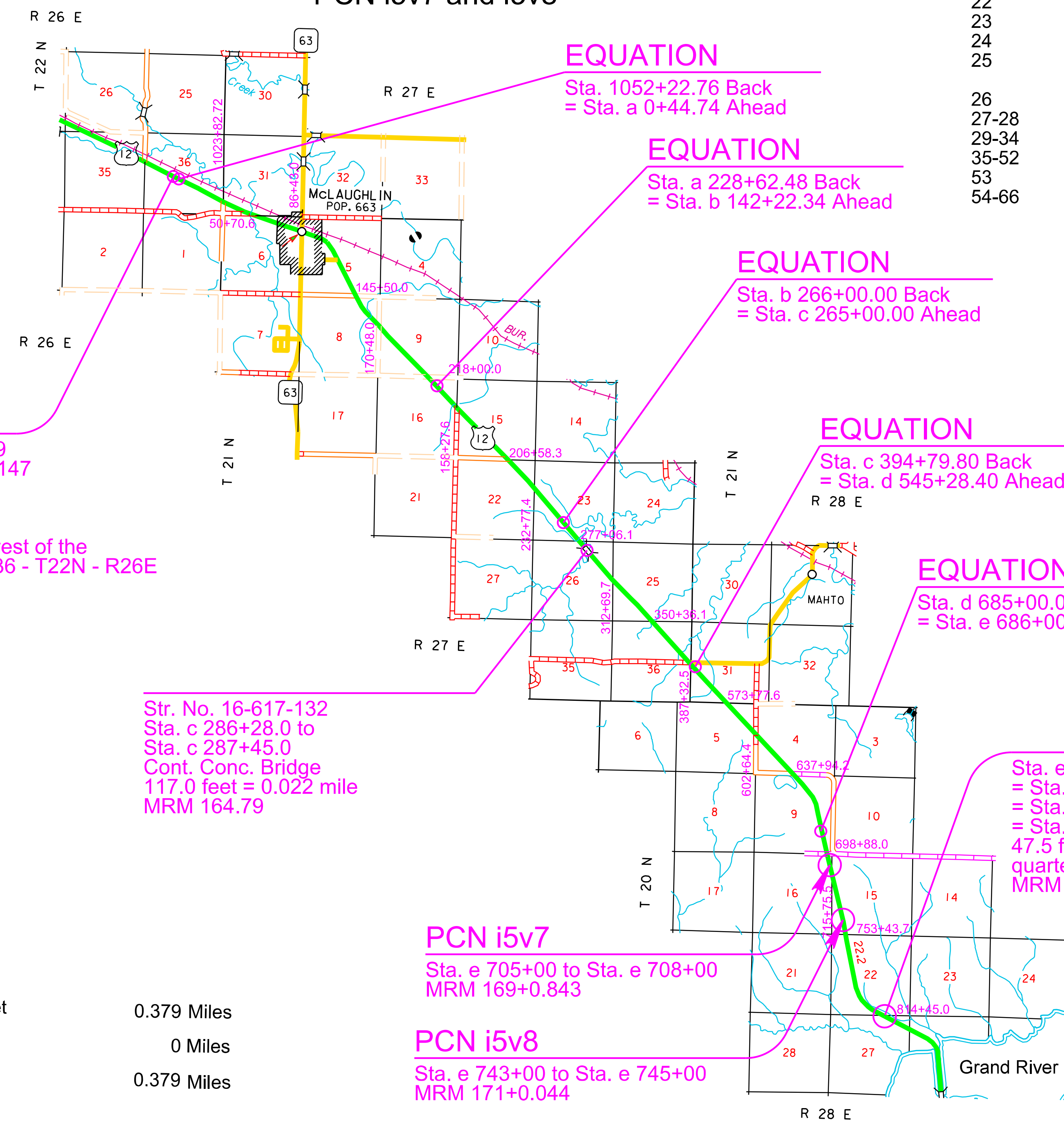
PLANS FOR PROPOSED

PROJECT 012-371
US HIGHWAY 12
CORSON COUNTY

PIPE WORK

PCN i5v7 and i5v8





EQUATION
Sta. 1052+22.76 Back
= Sta. a 0+44.74 Ahead

EQUATION
Sta. a 228+62.48 Back
= Sta. b 142+22.34 Ahead

EQUATION
Sta. b 266+00.00 Back
= Sta. c 265+00.00 Ahead

EQUATION
Sta. c 394+79.80 Back
= Sta. d 545+28.40 Ahead

EQUATION
Sta. d 685+00.00 Back
= Sta. e 686+00.00 Ahead

Sta. 1048+22.76 on 0012(213)159
= Sta. 1048+22.76 on F 0012(66)147
= Sta. 0+44.74 on F044-2(2)
= Sta. 708+44.74 on F180(25)
= Sta. 1331+17.44 on FAP 180F
400.4 feet South and 463.6 feet west of the interior quarter corner of Section 36 - T22N - R26E
MRM 157.00 +0.585

Str. No. 16-617-132
Sta. c 286+28.0 to
Sta. c 287+45.0
Cont. Conc. Bridge
117.0 feet = 0.022 mile
MRM 164.79

Sta. e 815+52.50 on 0012(213)159
= Sta. 815+52.5 on F044-2(2)
= Sta. 176+72.2 on FAP 180-D(2)
= Sta. 1786+72.2 on WAR 180 Sec III
47.5 feet south and 796.52 east of the north quarter corner of Sec. 27 -T20 - N R28E
MRM 171.00 +0.895

PCN i5v7
Sta. e 705+00 to Sta. e 708+00
MRM 169+0.843

PCN i5v8
Sta. e 743+00 to Sta. e 745+00
MRM 171+0.044

DESIGN DESIGNATION

ADT (2018)	433
ADT (2038)	592
DHV	92
D	50%
T DHV	12%
T ADT	26.4%
V	65 mph

STORM WATER PERMIT

Major Receiving
Body of Water: Grand River
Area Disturbed: 0.9 acres
Total Project Area: 4 acre
Approx. Begin Lat,Long: 45.704339,-100.670769

Gross Length	2000 Feet	0.379 Miles
Length of Exceptions	0 Feet	0 Miles
Net Length	2000 Feet	0.379 Miles

ESTIMATE OF QUANTITIES

PCN i5V7 MRM 169+0.843

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
100E0020	Clear and Grub Tree	10	Each
100E0100	Clearing	Lump Sum	LS
110E0500	Remove Pipe Culvert	60	Ft
110E0510	Remove Pipe End Section	1	Each
110E0600	Remove Fence	298	Ft
110E1690	Remove Sediment	0.8	CuYd
110E7500	Remove Pipe for Reset	60	Ft
120E0010	Unclassified Excavation	3,120	CuYd
120E2000	Undercutting	16	CuYd
120E6100	Water for Embankment	55.0	MGal
230E0020	Contractor Furnished Topsoil	100	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
450E4768	24" CMP 14 Gauge, Furnish	60	Ft
450E4770	24" CMP, Install	60	Ft
450E5310	24" CMP Sloped End, Furnish	2	Each
450E5311	24" CMP Sloped End, Install	2	Each
450E9000	Reset Pipe	60	Ft
462E0100	Class M6 Concrete	17.9	CuYd
464E0100	Controlled Density Fill	2.0	CuYd
480E0100	Reinforcing Steel	3,028	Lb
620E0020	Type 2 Right-of-Way Fence	634	Ft
620E0515	Type 1A Temporary Fence	796	Ft
620E1020	2 Post Panel	9	Each
634E0010	Flagging	8.0	Hour
634E0110	Traffic Control Signs	185.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
670E5200	Special Frame and Grate Assembly	1	Each
671E0070	7' x 7' Junction Box	1	Each
720E1010	PVC Coated Bank and Channel Protection Gabion	10.0	CuYd
730E0210	Type F Permanent Seed Mixture	11	Lb
731E0200	Fertilizing	0.30	Ton
732E0250	Fiber Mulching	1,254	Lb
734E0133	Type 3 Turf Reinforcement Mat	116.0	SqYd
734E0154	12" Diameter Erosion Control Wattle	350	Ft
734E0165	Remove and Reset Erosion Control Wattle	88	Ft
734E0325	Surface Roughening	0.4	Acre
734E0400	Rock Check Dam	13.4	CuYd
831E0110	Type B Drainage Fabric	29	SqYd

PCN i5V8 MRM 171+0.044

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0600	Remove Fence	200	Ft
110E1690	Remove Sediment	0.2	CuYd
110E7500	Remove Pipe for Reset	8	Ft
110E7510	Remove Pipe End Section for Reset	1	Each
120E0010	Unclassified Excavation	402	CuYd
120E0600	Contractor Furnished Borrow Excavation	605	CuYd
120E6100	Water for Embankment	12.0	MGal
230E0020	Contractor Furnished Topsoil	76	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
450E0142	24" RCP Class 2, Furnish	8	Ft
450E0150	24" RCP, Install	8	Ft
450E9000	Reset Pipe	8	Ft
450E9001	Reset Pipe End Section	1	Each
620E0020	Type 2 Right-of-Way Fence	200	Ft
620E0515	Type 1A Temporary Fence	553	Ft
620E1020	2 Post Panel	2	Each
632E2510	Type 2 Object Marker Back to Back	2	Each
634E0010	Flagging	8.0	Hour
634E0110	Traffic Control Signs	185.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
720E1010	PVC Coated Bank and Channel Protection Gabion	12.0	CuYd
730E0210	Type F Permanent Seed Mixture	13	Lb
731E0200	Fertilizing	0.40	Ton
732E0100	Mulching	1.0	Ton
734E0133	Type 3 Turf Reinforcement Mat	216.0	SqYd
734E0154	12" Diameter Erosion Control Wattle	100	Ft
734E0165	Remove and Reset Erosion Control Wattle	25	Ft
734E0400	Rock Check Dam	11.4	CuYd
831E0110	Type B Drainage Fabric	34	SqYd

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

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. 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: http://www.sddot.com/resources/Manuals/EnvironProcManual.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 Office at 605-773-3098 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

COMMITMENT A: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.003 acre of permanent wetland impact.

Table of Impacted Wetlands

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Total Impact (Acres)
1	705+00	0	0.002	0.002
2	744+07	0	0.001	0.001

Action Taken/Required:

Mitigation is required in accordance with the "*Statewide Finding Regarding Wetlands for South Dakota Federal-Aid Highway Projects (February 2016)*". Replacement of 0.003 acre of permanent wetland impact 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.

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 pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

ACTION TAKEN/REQUIRED:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

The Grand River embayment of Lake Oahe (Missouri River) is classified as a cold water permanent fishery with a total suspended solids standard of less than 90 mg/L 30-day average, less than 158 mg/L daily maximum.

Action Taken/Required:

The Contractor is advised the South Dakota Surface Water Quality Standards, administered by the Department of Environment and Natural Resources (DENR), 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 DENR 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 3.0 of the permit. If any pollutants are suspected of being discharged, a sample must be taken for those parameters listed in section 2.2 of the permit.

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

Action Taken/Required:

If construction dewatering is required, the Contractor will obtain the General Permit for Temporary Discharge Activities from the DENR Surface Water Program, 605-773-3351.
http://denr.sd.gov/des/sw/swqformsandpermits.aspx

The Contractor will provide a copy of the approved permit to the Project Engineer prior to proceeding with any dewatering activities. The approved permit 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 DENR monthly. Additional information can be found at http://denr.sd.gov/des/sw/WhatisaDMR.aspx

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

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 Environment 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 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 completely 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

COMMITMENT H: WASTE DISPOSAL SITE (CONTINUED)

will control the access to waste disposal sites not within the Public ROW through the use of 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 of time 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: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) 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 review of cultural resources impacts. 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 cultural resource survey and/or records search. 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; 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 on 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 records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). 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.

If evidence for cultural resources is uncovered during project construction activities, then such activities will cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO 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 provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

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 O: SECTION 401 WATER QUALITY CERTIFICATION

The SDDOT has obtained a Clean Water Act Section 401 Water Quality Certification from the Environmental Protection Agency (EPA) regarding an US Army Corp of Engineers CWA Section 404 Permit for the actions associated with this project.

ACTION TAKEN/REQUIRED:

The Contractor will comply with all requirements contained in the Section 401 certification. A copy of the EPA CWA 401 Certification must be retained on-site.

SCOPE OF WORK

The work required for this project includes, but is not limited to, the following items, not necessarily listed in order of execution.

Pipe Work

1. Install Traffic Control Devices
2. Install Temporary Fence
3. Remove & Replace Topsoil
4. Install/Reset Culverts and construct Junction Box
5. Grade areas and install topsoil
6. Seed, Mulch and Install Erosion Control Measures on Disturbed Areas
7. Install Permanent Fence
8. Remove Traffic Control Devices
9. Remove Project Temporary Signing
10. Complete Any Remaining Project Cleanup

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting.

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.

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.

Utilities are not planned to be affected on this project. 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.

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 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.

GENERAL TRAFFIC CONTROL (CONTINUED)

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

Traffic Control Signs, as shown in the Estimate of Quantities, are estimates. Contractor's operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

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 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.

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.

The Contractor will furnish, install, maintain, and remove TRUCK CROSSING (W8-6) signs daily. The TRUCK CROSSING signs will be displayed always when haul vehicles are hauling material. When hauling conditions no longer exist, the signs will be covered or removed from view. The exact number and location will be determined during construction. Payment for additional signs will be based on the contract unit price per square foot for "Traffic Control Signs".

FLAGGING

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

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".

CLEARING

The Contractor shall remove the existing brush and trees at the sites designated for the Junction Box construction. All removed material shall become the property of the Contractor for their disposal.

A large tree near Station 705+40 - 121' R is marked "Do Not Disturb". The Contractor will make provisions to protect the tree and avoid impacts to the tree.

It is estimated that approximately 10 trees greater than 6 inches in diameter and 8,700 square feet of brush may need to be cleared, based on a 10 foot offset from the footing of the junction box and a 1.5 to 1 slope to the top of the excavation. This may be less depending on the classification of soils found in the excavation or Contractor's use of shoring in the excavation.

All costs associated with removing the brush/trees will be incidental to the contract lump sum price for "Clearing" and contract unit price each for "Clear and Grub Tree".

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor will provide a suitable site for Contractor Furnished Borrow Excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. Borrow material will be utilized to grade the inslopes according to the plans.

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.

Water for Embankment is estimated at the rate of 15.0 gallons of water per cubic yard of Embankment.

The Borrow material will be compacted to the satisfaction of the Engineer.

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

UNCLASSIFIED EXCAVATION

Water for Embankment is estimated at the rate of 15.0 gallons of water per cubic yard of Embankment.

The Unclassified Excavation material will be compacted to the satisfaction of the Engineer.

Temporary Excavation Slopes

Temporary 1 1/2:1 backslopes are required to install the junction box at Station 706+38, 186' Rt. The temporary slopes will be unstable over the long-term.

However, the slopes should remain globally stable over the short-term during construction if measures are taken to divert runoff away from the slopes and construction activities are sequenced to minimize the amount of time the temporary backslopes are left exposed and unsupported.

Regular monitoring of temporary slopes is required during construction. If temporary slopes become unstable, excavation shall cease, and the slope shall be evaluated by the Engineer.

TABLE OF EXCAVATION PCN (I5V7)

Unclassified Excavation		3120
Undercutting (Junction Box)		16
Topsoil		181
Contractor Furnished Topsoil		100
	Total	3417 CuYd

TABLE OF EXCAVATION PCN (I5V8)

Unclassified Excavation		402
Contractor Furnished Borrow Excavation		605
Topsoil		263
Contractor Furnished Topsoil		76
	Total	1346 CuYd

UNDERCUTTING

The foundation area below the junction box will be undercut 12' x 12' by 3 feet deep. The undercut material or other suitable material, as directed by the Engineer, will then be replaced and compacted to the density specified for the section being constructed.

The plan shown quantity will be the basis of payment.

TIE BOLTS FOR RCP

All joints for RCP installed both new and reset, will be tied together. This includes connection from existing culvert sections to new or reset sections. Existing tie bolts may be salvaged and reused if condition is acceptable to the Engineer. The cost for furnishing and installing the tie bolts for new and reset sections will be incidental to corresponding pipe items.

For informational purposes: Field drilling will be required to install the tie bolts on reset culvert, on reset culvert ends and existing culvert when installing a new/reset end section. All cost for removing/resetting existing tie bolts, drilling tie bolt holes, and furnishing and installing the tie bolts will be incidental to corresponding pipe items.

CULVERTS

For pipe extensions and resets that are outside the surfaced shoulder as shown in the typical sections, acceptance tests in the lower one-half and upper one-half 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.

CORRUGATED METAL PIPE

Corrugated metal pipes will have 2 ⅔-inch x ½-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans.

The soils within the project area are highly corrosive to steel. Corrugated metal pipe in these areas are specified in the Table of Pipe Quantities and the pipe will be 14 gauge steel. Corrugated metal pipe in these areas including the connection bands, elbows will be polymer coated and will be in conformance with AASHTO M245 and AASHTO M36. Riveted pipe will not be allowed. The connection bands will be 24 inches wide.

All damage to the polymer coating will be repaired in accordance with the manufacturer's recommendations prior to installation of the pipe.

All costs associated with the polymer coating including repair of polymer coating will be incidental to the corresponding CMP contract items.

Metal pipe end sections connected to polymer coated CMP will be aluminum-coated (Type 2) in accordance with AASHTO M36 as specified in the Table of Pipe Quantities. All costs associated for gauge, coating, and connections will be incidental to the corresponding CMP End Section contract items.

CONTROLLED DENSITY FILL FOR PIPE

Controlled density fill will be in conformance with Section 464 of the Specifications.

The controlled density fill will be placed between the pipes from the base of pipe elevation to the haunch of the pipes and extend to the end of the end section. Controlled density fill between metal pipes will require the pipes to be anchored to resist floating. Anchoring methods will be determined by the Contractor and approved by the Engineer. Payment for anchoring the pipes will be incidental to the pipe installation contract item.

REMOVE AND REPLACE TOPSOIL

6 inches of topsoil will be salvaged and stockpiled prior to constructing the following: culvert extension/resets and junction box installation.

Limits of this work and stockpile locations will be as directed by the Engineer. Following completion of construction, topsoil will be spread evenly over the disturbed areas. The estimated amount of topsoil to be removed and replaced is 181 CuYd. (i5V7) and 263 CuYd (i5V8).

All costs associated with removing and replacing the topsoil in areas to be disturbed will be incidental to the contract lump sum price for “Remove and Replace Topsoil”

CONTRACTOR FURNISHED TOPSOIL

It is anticipated that a larger volume of topsoil will be needed to replace the eroded area of the grade than can be salvaged from the existing grade. The Contractor will be required to furnish and place 6 inches of topsoil on roadway inslopes and areas as determined by the Engineer during construction.

Contractor furnished topsoil will be free from clay lumps, stones, coarse gravel, or similar objects larger than 1/2 inch in diameter. Brush, stumps, roots, wood, objectionable weeds, litter, or any other material which may be harmful to plant growth will not be allowed. Organic material will be decomposed.

All costs to furnish and place the Contractor furnished topsoil will be incidental to the contract unit price per cubic yard for “Contractor Furnished Topsoil”.

SURFACE ROUGHENING

Surface roughening will be done after topsoil placement and before permanent seeding, fertilizing, and mulching applications. Refer to Standard Plate 734.25 for details.

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 the following fungal species:

25% *Glomus intraradices*
25% *Glomus aggregatum or deserticola*
25% *Glomus mosseae*
25% *Glomus etunicatum*

All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre.

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

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 www.mycorrhizae.com
AM 120 Multi Species Blend	Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 www.reforest.com

FERTILIZING

The Contractor will apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer will be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer will have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer will also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The fertilizer will be applied at a rate of 1,500 pounds per acre in accordance with the manufacturer’s recommended method of application.

The all-natural slow release fertilizer will be as shown below or an approved equal:

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 www.sustane.com
Perfect Blend	Perfect Blend, LLC Bellevue, WA Phone: 1-866-456-8890 www.perfect-blend.com

PERMANENT SEEDING

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways.

Type F Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Green Needlegrass	Lodorm, AC Mallard Ecovar	4
Sideoats Grama	Butte, Pierre	3
Blue Grama	Bad River	2
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
	Total:	26

FIBER MULCHING

Fiber mulch will be applied in a separate operation following permanent seeding.

An additional 2% by weight of tackifier will be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier will be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier will be synthetic.

Fiber mulch will be applied at the rate of **3,000** pounds per acre.

The Contractor will allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials will be incidental to the contract unit price per pound for “Fiber Mulching”.

The fiber mulch provided will be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

https://dot.sd.gov/doing-business/certification-accreditation/approved-products

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment will be installed at locations noted in the table and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.
The Contractor will provide certification that the erosion control wattles do not contain noxious weed seeds.

Erosion control wattles will remain on the project to decompose.

The erosion control wattle provided will be from the approved product list. The approved product list for erosion control wattle may be viewed at the following internet site:

https://dot.sd.gov/doing-business/certification-accreditation/approved-products

ROCK CHECK DAM

The rock for the rock check dam will be 6 to 12 inches in diameter. The rock check dam will be constructed to the limits shown on Standard Plate 734.03. All costs for constructing the rock check dam including labor, equipment, excavation, and rock will be incidental to the contract unit price per cubic yard for "Rock Check Dam".

MODIFIED ROCK CHECK DAM

The rock for the modified rock check dam will be 6 to 12 inches in diameter. The modified rock check dam will be constructed to the limits shown on sheet "Modified Rock Check Dam". All costs for constructing the rock check dam including labor, equipment, excavation, and rock will be incidental to the contract unit price per cubic yard for "Rock Check Dam".

TURF REINFORCEMENT MAT

Turf Reinforcement Mat will be installed at locations shown in the table at the widths specified, and at locations determined by the Engineer during construction. The Contractor will use a turf reinforcement mat from the approved products list. The approved product list for turf reinforcement mat may be viewed at the following internet site:

https://dot.sd.gov/doing-business/certification-accreditation/approved-products

Turf Reinforcement Mat will be installed in accordance with the manufacturer's installation instructions.

SPECIAL FRAME AND GRATE

The Special Frame and grate will be a Type S Frame and Grate with open grate Neenah R-6450-GG or Equivalent.

TEMPORARY FENCE

The Contractor will verify the location of the temporary fence with the landowner prior to installation of the fence.

BRACE PANELS FOR ROW FENCE

The E-Z Brace or an approved equal may be utilized as an alternate horizontal brace in the brace panels if approved by the Engineer. The E-Z Brace will be attached to each wood post utilizing two 5/16" x 3" lag screws. Holes of appropriate diameter, based on wood post condition, will be drilled before placement of lag screws. The following are contacts regarding the E-Z Brace:

Roger Papka E-Z Brace 1160 Karen St. Watertown, SD 57201 605-881-6142	Dennis Mack E-Z Brace 108 18th St. NE Watertown, SD 57201 605-881-4990

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: 4.0 acre**
- **5.3 (3b): Total Area to be Disturbed: 0.8 acre**
- **5.3 (3c): Maximum Area Disturbed at One Time: 0.8 acre**
- **5.3 (3d): Existing Vegetative Cover (%): 100%**
- **5.3 (3d): Description of Vegetative Cover: Pasture grasses**
- **5.3 (3e): Soil Properties: A-7 (Clay and Silty Clay Loam)**
- **5.3 (3f): Name of Receiving Water Body/Bodies: Grand River**
- **5.3 (3g): Location of Construction Support Activity Areas**

5.3 (3H): ORDER OF CONSTRUCTION ACTIVITIES

- **Special sequencing requirements** (see sheet).

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install perimeter protection where runoff may exit site.	
Install perimeter protection around stockpiles.	
Install channel and ditch bottom protection.	
Clearing and grubbing.	
Remove and stockpile topsoil.	
Stabilize disturbed areas.	
Final grading.	
Removal of protection devices.	
Reseed areas disturbed by removal activities.	

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
☒ Natural Buffers (within 50 ft of Waters of State)	
☐ Silt Fence	
☒ Erosion Control Wattles	
☐ Temporary Berm / Windrow	
☐ Floating Silt Curtain	
☐ Stabilized Construction Entrances	
☐ Entrance/Exit Equipment Tire Wash	
☐ Other:	

Structural Erosion and Sediment Controls

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

Dust Controls

Description	Estimated Start Date
☐ Tarps & Wind impervious fabrics	
☐ Watering	
☐ Stockpile location/orientation	
☐ Dust Control Chlorides	
☐Other	

Dewatering BMPs

Description	Estimated Start Date
☐ Sediment Basins	
☐ Dewatering bags	
☐ Weir tanks	
☐ Temporary Diversion Channel	
☐ Other:	

Stabilization Practices (See Detail Plan Sheets)

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

Description	Estimated Start Date
☒Vegetation Buffer Strips	
☒ Temporary Seeding (Cover Crop Seeding)	
☒ Permanent Seeding	
☐ Sodding	
☐ Planting (Woody Vegetation for Soil Stabilization)	
☒ Mulching (Grass Hay or Straw)	
☒ Fiber Mulching (Wood Fiber Mulch)	
☐ Soil Stabilizer	
☐ Bonded Fiber Matrix	
☐ Fiber Reinforced Matrix	
☐ Erosion Control Blankets	
☒ Surface Roughening (e.g. tracking)	
☐ 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 ½ 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 SUDDEN.
  - 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 SDDENR 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 SDDENR 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 SDDENR 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 shall be sent to SDDENR 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.

Joanne M. Hight

____

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: ______________
- **SDDENR Contact Spill Reporting**
  - Business Hours Monday-Friday (605) 773-3296
  - Nights and Weekends (605) 773-3231
- **SDDENR Contact for Hazardous Materials.**
  - (605) 773-3153
- **National Response Center Hotline**
  - (800) 424-8802.
- **SDDENR Stormwater Contact Information**
  - SDDENR 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, SDDENR, 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.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	12	66

Plotting Date: 08/27/2020

FENCE QUANTITIES

Station to Station		Side (L/R)	Right-of-Way Fence					Temporary Fence			Post Panels			Gates					
			Remove Fence (Ft)		Type 2 (Ft)			Type 1A (Ft)			2 Post Panel (Each)								
PCN i5V7																			
705+02	708+00	R	298																
705+02	708+00	R			634						9								
705+02	708+00	R						796											
PCN i5V8																			
743+00	745+00	R	200																
743+00	745+00	R			200						2								
743+00	745+00	R						553											
	TOTALS:		498		834			1349			11								

Post Type and Sequence:
Right-of-way fence shall be constructed using alternate wood and steel posts except as noted.

PLOT SCALE - 1:200

PLOTTED FROM - TRMOINT04

PLOT NAME - 12

FILE - ...\I5V7-I5V8 NOTES.DGN

TABLE OF CULVERT REPAIRS

Stationing				d 642+80		d 670+92		d 693+00		e 705+40		e 705+40		e 722+02 - 130' Lt to e 722+95 - 130' Lt		e 744+00		e 756+40		e 768+75		e 789+40		e 803+50		e 811+17	
MRM				168.00 + 0.678		169.00 + 0.206		169.00 + 0.606		169.00 + 0.836		169.00 + 0.843		170.00 + 0.165		170.00 + 0.571		170.00 + 0.804		171.00 + 0.044		171.00 + 0.436		171.00 + 0.699		171.00 + 0.845	
Existing Structure Type				24 RCP		24 RCP		24 RCP		24 CMP		18 RCP		24 CMP		24 RCP		24 CMP		24 RCP		24 RCP		24 RCP		24 CMP	
Existing End Treatment				0		FES		FES		FES		Sloped		FES		FES		FES		FES		FES		FES		FES	
012-371 PCN i5V7 & i5V8 US 12			PROJECT TOTALS	No work		No work		No work		Remove portion of existing culverts right. Install 7' x 7' junction box and 30 ft. twin 24" CMP, connect existing culverts & install gabbion baskets and fabric. Grade outlet channel & install rock check dam.				No work		Remove and reset right end section and 1st section of pipe, extend exiting pipe 8' & install tie bolts for all reset sections & install gabion baskets and fabric at outlet. Fill erosion and grade outlet channel. Install Rock Check Dams. Install object marker.		No work		No work		No work		No work		No work	
Bid Item	Bid Item Description	Unit		Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt		
110E0500	Remove Pipe Culvert	(Ft)	60							-	30	-	30			-	-										
110E0510	Remove Pipe End Section	(Each)	1							-	1	-	-			-	-										
110E7500	Remove Pipe for Reset	(Ft)	68							-	30	-	30			-	8										
110E7510	Remove Pipe End Section for Reset	(Each)	1							-	-	-	-			-	1										
120E0010	Unclassified Excavation	(CuYd)	3522							-	3120	-	*			-	402										
120E0600	Contractor Furnished Borrow Excavation	(CuYd)	605							-	-	-	*			-	605										
120E2000	Undercutting	(CuYd)	16							-	16	-	*			-	-										
230E0020	Contractor Furnished Topsoil	(CuYd)	176							-	100	-	*			-	76										
230E0100	Remove and Replace Topsoil	(Lump Sum)	2							-	1	-	-			-	1										
450E0142	24" RCP Class 2, Furnish	(Ft)	8							-	-	-	-			-	8										
450E0150	24" RCP, Install	(Ft)	8							-	-	-	-			-	8										
450E4768	24" CMP 14 Gauge, Furnish	(Ft)	60							-	30	-	30			-	-										
450E4770	24" CMP, Install	(Ft)	60							-	30	-	30			-	-										
450E5310	24" CMP Sloped End, Furnish	(Each)	2							-	1	-	1			-	-										
450E5311	24" CMP Sloped End, Install	(Each)	2							-	1	-	1			-	-										
450E9000	Reset Pipe	(Ft)	68							-	30	-	30			-	8										
450E9001	Reset Pipe End Section	(Each)	1							-	-	-	-			-	1										
460E0100	Class M6 Concrete	(CuYd)	17.9							-	17.9	-	*			-	-										
465E0100	Controlled Density Fill	(CuYd)	2							-	2	-	*			-	-										
480E0100	Reinforcing Steel	(Lb)	3028							-	3028	-	*			-	-										
632E2510	Type 2 Object Marker Back to Back	(Each)	2							-	-	-	-			1	1										
670E5200	Special Frame and Grate Assembly	(Each)	1							-	1	-	*			-	-										
671E0070	7' x 7' Junction Box	(Each)	1							-	1	-	*			-	-										
720E1010	PVC Coated Bank and Channel Protection Gabion	(CuYd)	22							-	10*	-	*			-	12										
734E0133	Type 3 Turf Reinforcement Mat	(SqYd)	332							-	116*	-	-			-	216										
734E0400	Rock Check Dam	(CuYd)	24.8							-	13.4*	-	-			-	11.4										
831E0110	Type B Drainage Fabric	(SqYd)	63							-	29*	-	*			-	34										

* Shared outlet

TABLE OF SWPPP QUANTITIES

Stationing			e 705+40		e 705+40		e 744+00				Total
MRM			169.84		169.84		170.57				
Structure Type			24 CMP		18 RCP		24 CMP				
Work			Remove portion of existing culverts right. Install 7' x 7' junction box and 30 ft. twin 24" CMP, connect existing culverts & install gabbion baskets and fabric. Grade outlet channel & install rock check dam.		Remove portion of existing culverts right. Install 7' x 7' junction box and 30 ft. twin 24" CMP, connect existing culverts & install gabbion baskets and fabric. Grade outlet channel & install rock check dam.		Remove and reset right end section and 1st section of pipe, extend exiting pipe 8' & install tie bolts for all reset sections & install gabion baskets and fabric at outlet. Fill erosion and grade outlet channel. Install Rock Check Dams. Install object marker.				
Side			Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	
Estimated Seeding Disturbed Area (SqFt)			-	18165	-	See e 705+40 24" CMP	-	21295			39460
Estimated Seeding Disturbed Area (SqYd)			-	2019	-		-	2367			4386
Estimated Seeding Disturbed Area (ac.)			-	0.42	-		-	0.49			0.907
Wattle (ft)			-	350	-		-	100			450
Permanent Seed (lb)			-	11	-		-	13			24
Fertilizer (ton)			-	0.3	-		-	0.4			0.7
Mulching (ton)			-	-	-		-	1.0			1.0
Fiber Mulching (lb)			-	1254	-		-	-			1254
Surface Roughening (acre)			-	0.4	-		-	-			0.4

PCN i5v7

PROJECT SIGN TABULATION

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
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
W21-5	SHOULDER WORK	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			**185.0**

PCN i5v8

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
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
W21-5	SHOULDER WORK	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			**185.0**

CONTROL DATA

Plotting Date: 08/27/2020

HORIZONTAL AND VERTICAL CONTROL POINTS

POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
12-160.9	eqa 170+05.8	105' L	1.0-mile SE of McLaughlin, near the airport, on US Highway 12 100.0 ft NE of the highway centerline, 14 ft E of center of road, 7.0 ft E of fence corner (PID - AC7941)	717690.01	1767017.15	2008.00
BM1	eqc 387+01.1	100' R	122' SW intersection of US Highway 12 and Matho Rd, 35' E of centerline of County Rd on approach near E gate brace	695455.152	1787773.741	1994.40
CP6	eqe 705+00.9	30' R	Approximately 30' W of centerline of US Highway 12 at MRM 169+0.82, on ditch block in west ditch 25' SE of 18" RCP Sloped end section	682265.349	1797237.528	2019.05
CP10	eqb 257+60.9	112' L	Approximately 100' E of centerline of US Highway 12 at MRM 164+0.21, on approach near N gate brace	705155.365	1779081.734	1969.86
BM2			SE of Grand River bridge of US Highway 12 154' SE of SE corner of Grand River Bridge, 46' E of centerline of US Highway 12 on approach near S gate brace	666435.68	1805090.453	1640.26
12-181-52			2833.7 ft E of milepost 181, 97.8 ft N of the highway centerline, 30.2 ft W of underground cable junction box number ws6c1 1, 3.0 ft W of the extended centerline of SD Highway 20, 2.0 ft S of fence. (PID - AI4142)	631529.514	1824579.314	1762.91

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (ITRF to NAD 83/2011); epoch 2010.00
Geoid 12B (Conus); SF = 0.99993178
The elevations shown on this sheet are based on NAVD 88.

PLOT SCALE - 1:200

HORIZONTAL ALIGNMENT DATA

MAINLINE

Type	Station			Northing	Easting
POB	1048+22.76			728231.790	1751246.715
		TL= 400.0	S 64°14'24" E		
PI	a 0+44.7			726997.499	1753804.517
EQNBK	1052+22.8			726997.499	1753804.517
EQNAHD	a 0+44.7			726997.499	1753804.517
		TL= 3191.8	S 64°14'24" E		
PC	a 32+36.5			725610.355	1756679.089
PI	a 43+06.7	R = 17190.0	Delta = 7°07'30" L	725145.244	1757642.935
PT	a 53+74.1			724803.275	1758657.028
		TL= 4442.6	S 71°21'54" E		
TS	a 98+16.7			723383.694	1762866.719
SPI	a 99+50.1		Delta = 4°00'00" R	723341.078	1762993.095
SC	a 100+16.7			723315.409	1763054.655
PI	a 104+75.7	R = 1432.4	Delta = 35°32'00" R	723138.769	1763478.275
CS	a 109+05.1			722748.826	1763720.349
SPI	a 109+71.8		Delta = 4°00'00" R	722692.159	1763755.527
ST	a 111+05.1			722574.219	1763817.793
		TL= 3613.5	S 27°49'54" E		
TS	a 147+18.6			719378.698	1765504.858
SPI	a 149+52.0		Delta = 2°37'30" L	719172.333	1765613.808
SC	a 150+68.6			719071.745	1765672.957
PI	a 154+53.2	R = 3819.7	Delta = 11°30'00" L	718740.193	1765867.918
CS	a 158+35.3			718454.166	1766125.067
SPI	a 159+52.0		Delta = 2°37'30" L	718367.390	1766203.082
ST	a 161+85.3			718201.179	1766366.882
EQNBK	a 228+62.4			713445.386	1771053.732
EQNAHD	b 142+22.3			713445.386	1771053.732
		TL= 6677.3	S 44°34'54" E		
PI	b 142+22.5			713445.260	1771053.856
		TL= 8447.5	S 44°34'54" E		
PC	b 226+70.0			707428.523	1776983.369
PI	b 231+33.6	R = 11459.5	Delta = 4°38'00" R	707098.324	1777308.782
PT	b 235+96.7			706742.917	1777606.458
EQNBK	b 266+00.0			704440.494	1779534.885
EQNAHD	c 265+00.0			704440.494	1779534.885
		TL= 6825.1	S 39°56'54" E		
PC	c 303+21.8			701510.634	1781988.832
PI	c 309+39.0	R = 11458.0	Delta = 6°10'00" L	701037.473	1782385.134
PT	c 315+55.0			700609.622	1782829.970
		TL= 2964.7	S 46°06'54" E		
PC	c 345+19.7			698554.453	1784966.726
PI	c 351+16.5	R = 22918.3	Delta = 2°59'00" R	698140.744	1785396.860
PT	c 357+13.0			697705.208	1785804.878
EQNBK	c 394+79.8			694956.263	1788380.147
EQNAHD	d 545+28.4			694956.263	1788380.147

MAINLINE (continued)

Type	Station			Northing	Easting
		TL= 3766.9	S 43°07'54" E		
PI	d 545+28.5			694956.183	1788380.222
		TL= 10556.4	S 43°07'54" E		
TS	d 650+84.9			687252.269	1795597.410
SPI	d 652+85.0		Delta = 3°00'00" R	687106.291	1795734.165
SC	d 653+84.9			687029.814	1795798.636
PI	d 659+79.9	R = 2864.8	Delta = 23°28'00" R	686574.892	1796182.146
CS	d 665+58.3			686004.876	1796352.780
SPI	d 666+58.3		Delta = 3°00'00" R	685909.051	1796381.465
ST	d 668+58.3			685714.685	1796428.721
EQNBK	d 685+00.0			684119.424	1796816.571
EQNAHD	e 686+00.0			684119.424	1796816.571
		TL= 1641.9	S 13°39'54" E		
PI	e 686+00.2			684119.237	1796816.617
		TL= 10475.1	S 13°39'54" E		
TS	e 790+75.3			673940.649	1799291.304
SPI	e 793+42.1		Delta = 6°00'00" L	673681.382	1799354.339
SC	e 794+75.3			673555.694	1799399.255
PI	e 801+18.6	R = 1909.9	Delta = 37°14'00" L	672949.860	1799615.758
CS	e 807+16.4			672598.505	1800154.700
SPI	e 808+49.9		Delta = 6°00'00" L	672525.612	1800266.510
ST	e 811+16.4			672404.057	1800504.033
		TL= 436.3	S 62°53'54" E		
POE	e 815+52.7			672205.291	1800892.428

704+07 Outlet

Type	Station			Northing	Easting
POB	0+00.0			682001.159	1797026.608
		TL= 27.8	N 60°12'35" E		
PI	0+27.8			682014.971	1797050.735
		TL= 385.3	N 39°39'25" E		

744+00 RCP

Type	Station			Northing	Easting
POB	-0+76.1			678427.826	1797873.375
		TL= 180.0	N 84°40'54" E		
PI	1+03.9			678444.511	1798052.606
		TL= 16.0	N 80°45'08" E		
PI	1+19.9			678447.082	1798068.398
		TL= 8.1	N 76°00'55" E		
PI	1+27.9			678449.029	1798076.213
		TL= 267.2	N 76°06'07" E		
POE	3+95.2				

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (ITRF to NAD 83/2011); epoch 2010.00 Geoid 12B (Conus); SF = 0.99993178

PLOTTED FROM - TRMOINT04

PLOT NAME - 16

FILE '...\I5V7-I5V8 NOTES.DGN

TABLE OF PROJECT STATIONING

SECTION		STATION	TO	STATION		Description	PROJECT GROSS LENGTHS	EXCEPTION LENGTH	PROJECT NET LENGTHS
1	**Begin Project**	1048+22.76	to	1052+22.76		Transition top width 39' to 35'	400.00'	-	400.00'
Equation		1052+22.76	Bk =	a 0+44.74	Ah	-	-	-	-
2		a 0+44.74	to	a 74+47.90		Rural 2 Lane	7403.16'	-	7403.16'
3		a 74+47.90	to	a 84+78.00		Urban 4 lane	1030.10'	-	1030.10'
4		a 84+78.00	to	a 85+27.10		Urban 4 lane	49.10'	-	49.10'
5		a 85+27.10	to	a 88+18.80		Urban 4 lane	291.70'	-	291.70'
4		a 88+18.80	to	a 88+43.00		Urban 4 lane	24.20'	-	24.20'
3		a 88+43.00	to	a 99+00.00		Urban 4 lane	1057.00'	-	1057.00'
2		a 99+00.00	to	a 228+62.48		Rural 2 Lane	12962.48'	-	12962.48'
Equation		a 228+62.48	Bk =	b 142+22.34	Ah	-	-	-	-
2		b 142+22.34	to	b 218+00.00		Rural 2 Lane	7577.66'	-	7577.66'
6		b 218+00.00	to	b 265+00.00		Rural 2 Lane	4700.00'	-	4700.00'
2		b 265+00.00	to	b 266+00.00		Rural 2 Lane	100.00'	-	100.00'
Equation		b 266+00.00	Bk =	c 265+00.00	Ah	-	-	-	-
2		c 265+00.00	to	c 286+28.00		Rural 2 Lane with climbing lane	2128.00'	-	2128.00'
Exception		c 286+28.00	to	c 287+45.00		Structure No. 16-617-132	117.00'	117.00'	
2		c 287+45.00	to	c 294+00.00		Rural 2 Lane with climbing lane	655.00'	-	655.00'
6		c 294+00.00	to	c 317+00.00		Rural 2 Lane	2300.00'	-	2300.00'
2		c 317+00.00	to	c 394+79.80		Rural 2 Lane	7779.80'	-	7779.80'
Equation		c 394+79.80	Bk =	d 545+28.40	Ah	-	-	-	-
2		d 545+28.40	to	d 685+00.00		Rural 2 Lane	13971.60'	-	13971.60'
Equation		d 685+00.00	Bk =	e 686+00.00	Ah	-	-	-	-
2		e 686+00.00	to	e 687+00.00		Rural 2 Lane	100.00'	-	100.00'
7		e 687+00.00	to	e 806+00.00		Rural 2 Lane with climbing lane	11900.00'	-	11900.00'
2		e 806+00.00	to	e 815+52.50	**End Project**	Rural 2 Lane	952.50'	-	952.50'
						TOTALS =	75499.30'	117.00'	75382.30'
							14.299 Miles	**0.022 Miles**	**14.277 Miles**

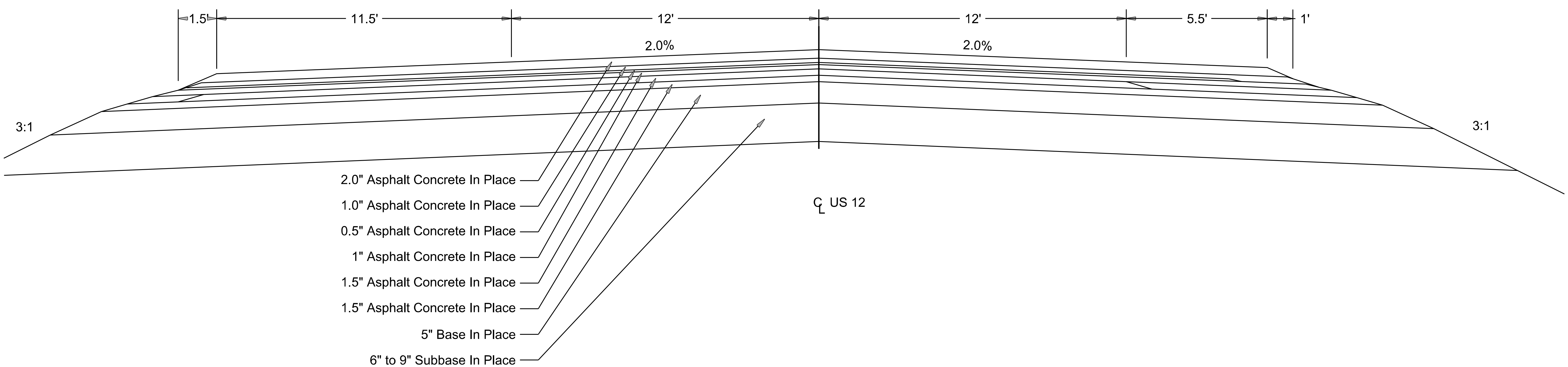
TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	18	66

Plotting Date: 08/27/2020

Sta. e 687+00 to Sta. e 794+76.31

In Place



PLOT SCALE - 1:100

PLOTTED FROM - TRMOINT04

PLOT NAME - 18

FILE - ...\I5V7-I5V8_TYPICALS.DGN

LEGEND

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	19	66

Plotting Date: 08/27/2020

- Anchor
- Antenna
- Approach
- Assumed Corner
- Azimuth Marker
- BBQ Grill/ Fireplace
- Bearing Tree
- Bench Mark
- Box Culvert
- Bridge
- Brush
- Buildings
- Bulk Tank
- Cattle Guard
- Cemetery
- Centerline
- Cistern
- Clothes Line
- Commercial Sign Double Face
- Commercial Sign One Post
- Commercial Sign Overhead
- Commercial Sign Two Post
- Concrete Symbol
- Creek Edge
- Curb/Gutter
- Curb
- Dam Grade/Dike/Levee
- Deck Edge
- Ditch Block
- Doorway Threshold
- Drainage Profile
- Drop Inlet
- Edge Of Asphalt
- Edge Of Concrete
- Edge Of Gravel
- Edge Of Other
- Edge Of Shoulder
- Electric Transformer/Power Junction Box
- Fence Barbwire
- Fence Chainlink
- Fence Electric
- Fence Miscellaneous
- Fence Rock
- Fence Snow
- Fence Wood
- Fence Woven
- Fire Hydrant
- Flag Pole
- Flower Bed
- Gas Valve Or Meter
- Gas Pump Island
- Grain Bin
- Guardrail
- Guide Sign One Post
- Guide Sign Two Post
- Gutter
- Guy Pole
- Haystack
- Hedge

- Highway ROW Marker
- Interstate Close Gate
- Iron Pin
- Irrigation Ditch
- Lake Edge
- Lawn Sprinkler
- Mailbox
- Manhole Electric
- Manhole Gas
- Manhole Miscellaneous
- Manhole Sanitary Sewer
- Manhole Storm Sewer
- Manhole Telephone
- Manhole Water
- Merry-Go-Round
- Microwave Radio Tower
- Miscellaneous Line
- Miscellaneous Property Corner
- Miscellaneous Post
- Overhang Or Encroachment
- Overhead Utility Line — OH —
- Parking Meter
- Pedestrian Push Button Pole
- Pipe With End Section
- Pipe With Headwall
- Pipe Without End Section
- Playground Slide
- Playground Swing
- Power And Light Pole
- Power And Telephone Pole
- Power Meter
- Power Pole
- Power Pole And Transformer
- Power Tower Structure
- Propane Tank
- Property Pipe
- Property Pipe With Cap
- Property Stone
- Public Telephone
- Railroad Crossing Signal
- Railroad Milepost Marker
- Railroad Profile
- Railroad ROW Marker
- Railroad Signs
- Railroad Switch
- Railroad Track
- Railroad Trestle
- Rebar
- Rebar With Cap
- Reference Mark
- Regulatory Sign One Post
- Regulatory Sign Two Post
- Retaining Wall
- Riprap
- River Edge
- Rock And Wire Baskets
- Rockpiles
- Satellite Dish
- Septic Tank

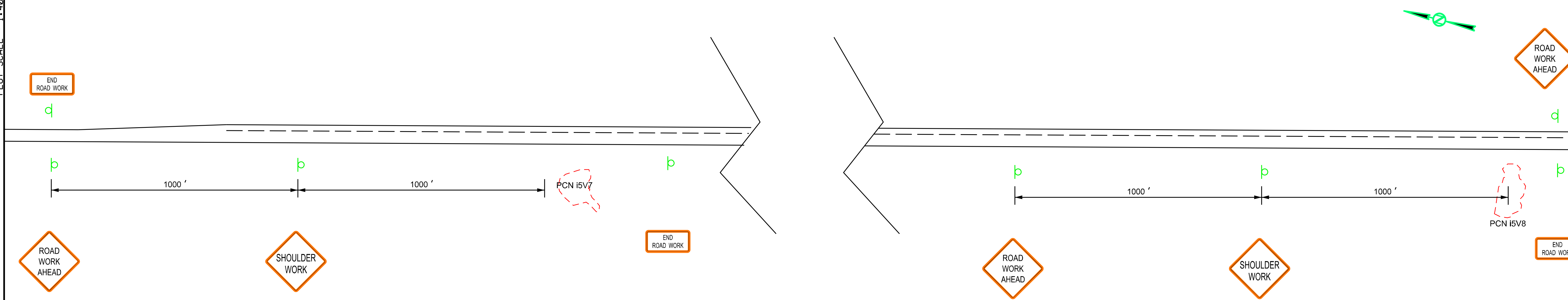
- Shrub Tree
- Sidewalk
- Sign Face
- Sign Post
- Slough Or Marsh
- Spring
- Stream Gauge
- Street Marker
- Subsurface Utility Exploration Test Hole
- Telephone Fiber Optics — T/F —
- Telephone Junction Box
- Telephone Pole
- Television Cable Jct Box
- Television Tower
- Test Wells/Bore Holes
- Traffic Signal
- Trash Barrel
- Tree Belt
- Tree Coniferous
- Tree Deciduous
- Tree Stumps
- Triangulation Station
- Underground Electric Line — P —
- Underground Gas Line — G —
- Underground High Pressure Gas Line — HG —
- Underground Sanitary Sewer — S —
- Underground Storm Sewer = S =
- Underground Tank
- Underground Telephone Line — T —
- Underground Television Cable — TV —
- Underground Water Line — W —
- Warning Sign One Post
- Warning Sign Two Post
- Water Fountain
- Water Hydrant
- Water Meter
- Water Tower
- Water Valve
- Water Well
- Weir Rock
- Windmill
- Wingwall
- Witness Corner

- State and National Line
- County Line
- Section Line
- Quarter Line
- Sixteenth Line
- Property Line
- Construction Line
- ROW Line
- New ROW Line
- Cut and Fill Limits
- Control of Access
- New Control of Access
- Proposed ROW (After Property Disposal)
- Drainage Arrow
- Remove Concrete Pavement
- Remove Concrete Driveway Pavement
- Remove Asphalt Concrete Pavement
- Remove Concrete Sidewalk
- Remove Concrete Median Pavement
- Remove Concrete Curb and/or Gutter
- Detectable Warning
- Pedestrian Barricade
- Traffic Control Sign

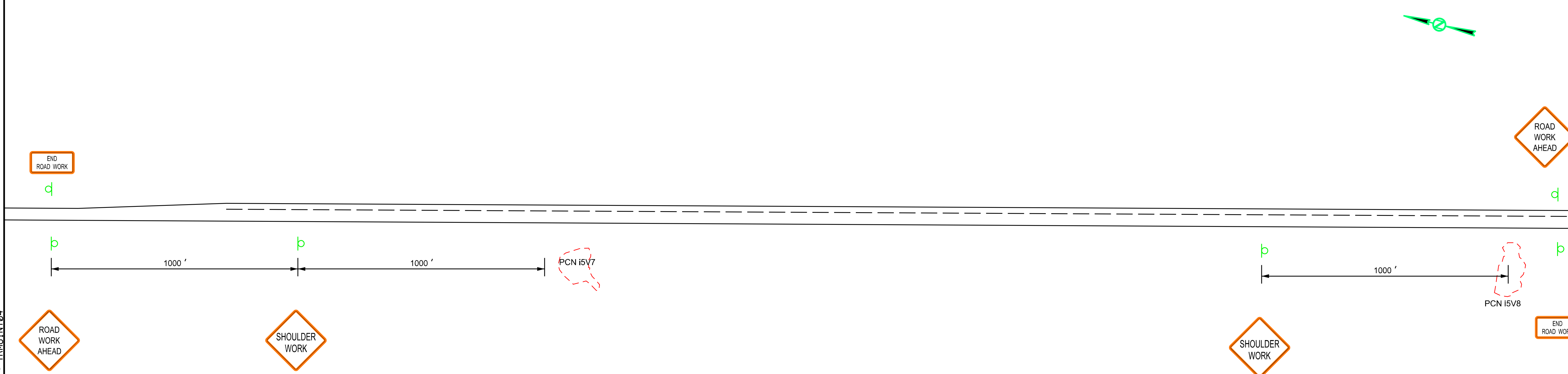
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	20	66

Plotting Date: 08/27/2020

Fixed Location Sign Layout



Alternate #1 - The projects are worked sequentially.



Alternate #2 - Both projects are worked concurrently.

PLOT SCALE - 1:400

PLOT NAME - 20

FILE - ...\TC_I5V7-I5V8.DGN

PLOTTED FROM - TRMOINT04

e 705+20 - 38' L to e 706+36 - 185' R
Retain 24" CMP and Flared End

e 706+36 - 183' R to e 706+49 - 208' R
Remove 30' - 24" CMP and Flared End

e 706+22 - 156' R to e 706+36 - 183' R
Remove and Reset 30' - 24" CMP

e 704+84 - 47' R to e 706+36 - 185' R
Retain 18" RCP and Safety End

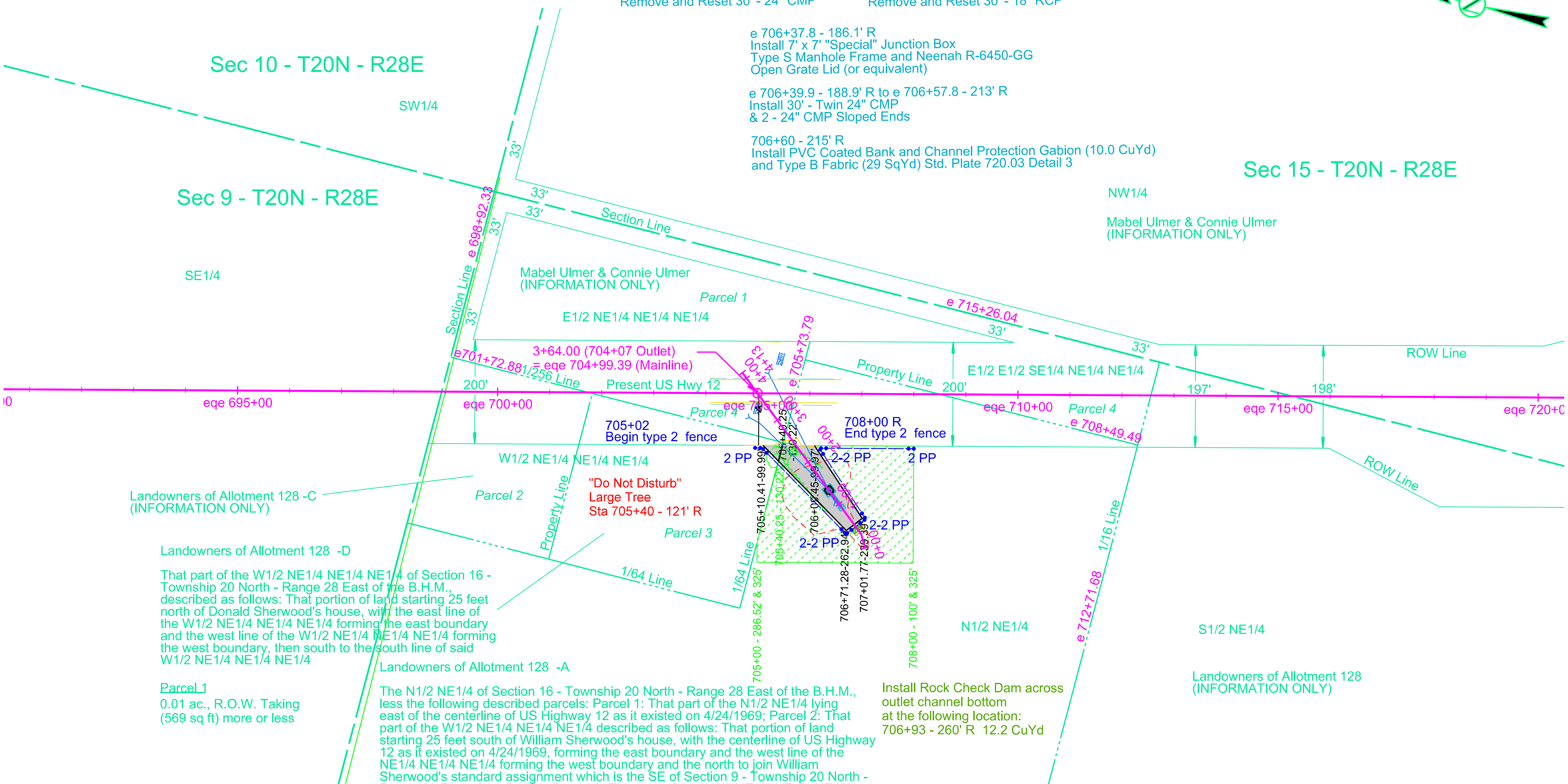
e 706+35 - 184' R to e 706+56 - 208' R
Remove 30' - 18" RCP

e 706+13 - 163' R to e 706+35 - 184' R
Remove and Reset 30' - 18" RCP

e 706+37.8 - 186.1' R
Install 7' x 7' "Special" Junction Box
Type S Manhole Frame and Neenah R-6450-GG
Open Grate Lid (or equivalent)

e 706+39.9 - 188.9' R to e 706+57.8 - 213' R
Install 30' - Twin 24" CMP
& 2 - 24" CMP Sloped Ends

706+60 - 215' R
Install PVC Coated Bank and Channel Protection Gabion (10.0 CuYd)
and Type B Fabric (29 SqYd) Std. Plate 720.03 Detail 3



That part of the W1/2 NE1/4 NE1/4 NE1/4 of Section 16 - Township 20 North - Range 28 East of the B.H.M., described as follows: That portion of land starting 25 feet north of Donald Sherwood's house, with the east line of the W1/2 NE1/4 NE1/4 NE1/4 forming the east boundary and the west line of the W1/2 NE1/4 NE1/4 NE1/4 forming the west boundary, then south to the south line of said W1/2 NE1/4 NE1/4 NE1/4

Parcel 1
0.01 ac., R.O.W. Taking
(569 sq ft) more or less

The N1/2 NE1/4 of Section 16 - Township 20 North - Range 28 East of the B.H.M., less the following described parcels: Parcel 1: That part of the N1/2 NE1/4 lying east of the centerline of US Highway 12 as it existed on 4/24/1969; Parcel 2: That part of the W1/2 NE1/4 NE1/4 NE1/4 described as follows: That portion of land starting 25 feet south of William Sherwood's house, with the centerline of US Highway 12 as it existed on 4/24/1969, forming the east boundary and the west line of the NE1/4 NE1/4 NE1/4 forming the west boundary and the north to join William Sherwood's standard assignment which is the SE of Section 9 - Township 20 North - Range 28 East of the B.H.M.; Parcel 3: That part of the W1/2 NE1/4 NE1/4 NE1/4 described as follows: That portion of land standing 25 feet north of Donald Sherwood's house with the east line of the W1/2 NE1/4 NE1/4 NE1/4 forming the east boundary and the west line of the W1/2 NE1/4 NE1/4 NE1/4 forming the west boundary, then south to the south line of said W1/2 NE1/4 NE1/4 NE1/4; Parcel 4: That part of the E1/2 NE1/4 NE1/4 NE1/4 N1/2 and that part of the E1/2 E1/2 SE1/4 NE1/4 NE1/4 lying west of the centerline of US Highway 12 as it existed on 5/6/1982

Install Rock Check Dam across outlet channel bottom at the following location:
706+93 - 260' R 12.2 CuYd

Parcel 2
0.25 ac., R.O.W. Taking
(10714 sq ft) more or less

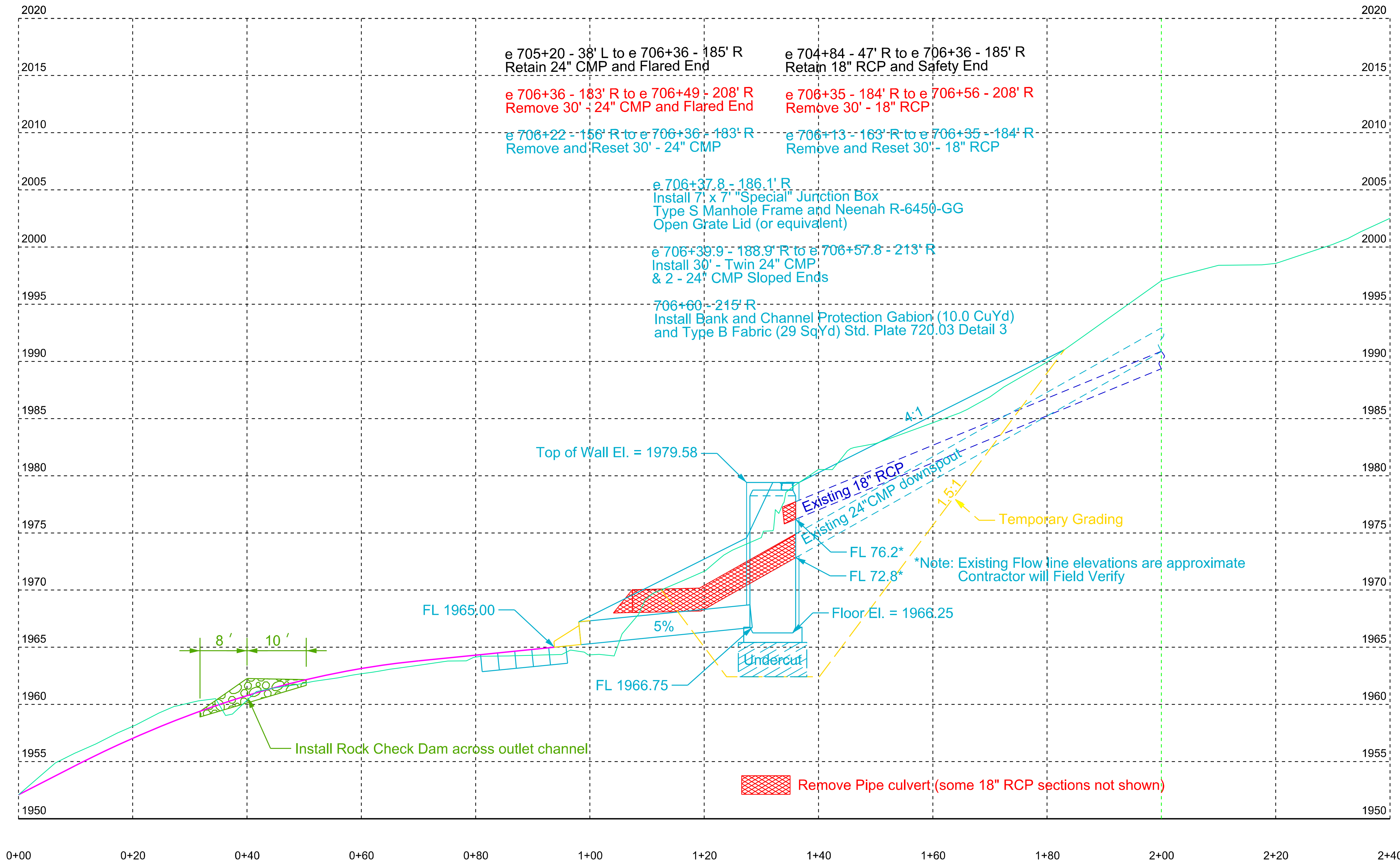
Parcel 2
Station 705+00 to 708+00 R
Temporary easement containing
1.2 acres, more or less

PLOT SCALE - 1:200
PLOTTED FROM - TRMOINT04
PLOT NAME - 21
FILE - ...\PIPE REPAIRS 15V7 15V8\681.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-372	22	66

Plotting Date: 08/27/2020

Culvert Profile @
Sta. e 704+99 (36.68° RHF)



PLOT SCALE - 1:20

PLOTTED FROM - TRMOINT04

PLOT NAME - 22

FILE - ...\PI5V7-I5V8.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	23	66

Plotting Date: 08/27/2020

Junction Box Sta 1+32

e 705+20 - 38' L to e706+36 - 185' R
Retain 24" CMP and Flared End

e 704+84 - 47' R to e 706+36 - 185' R
Retain 18" RCP and Safety End

e 706+36 - 183' R to e 706+49 - 208' R
Remove 30' - 24" CMP and Flared End

e 706+35 - 184' R to e 706+56 - 208' R
Remove 30' - 18" RCP

e 706+22 - 156' R to e 706+36 - 183' R
Remove and Reset 30' - 24" CMP

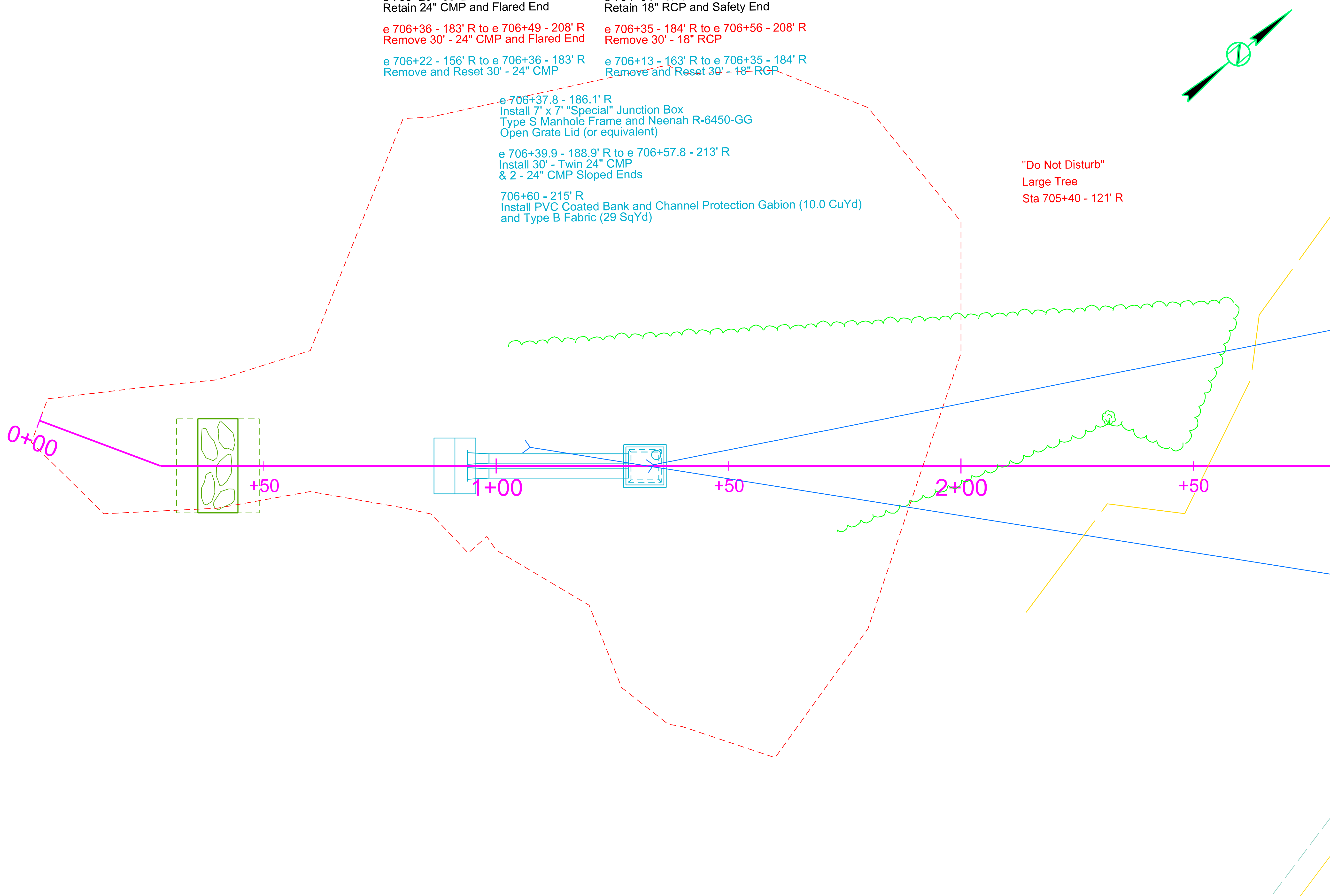
e 706+13 - 163' R to e 706+35 - 184' R
Remove and Reset 30' - 18" RCP

e 706+37.8 - 186.1' R
Install 7' x 7' "Special" Junction Box
Type S Manhole Frame and Neenah R-6450-GG
Open Grate Lid (or equivalent)

e 706+39.9 - 188.9' R to e 706+57.8 - 213' R
Install 30' - Twin 24" CMP
& 2 - 24" CMP Sloped Ends

706+60 - 215' R
Install PVC Coated Bank and Channel Protection Gabion (10.0 CuYd)
and Type B Fabric (29 SqYd)

"Do Not Disturb"
Large Tree
Sta 705+40 - 121' R



PLOT SCALE - 1:20

PLOTTED FROM - TRMOINT04

PLOT NAME - 23

FILE - ...\681P.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	24	66

Plotting Date: 08/27/2020

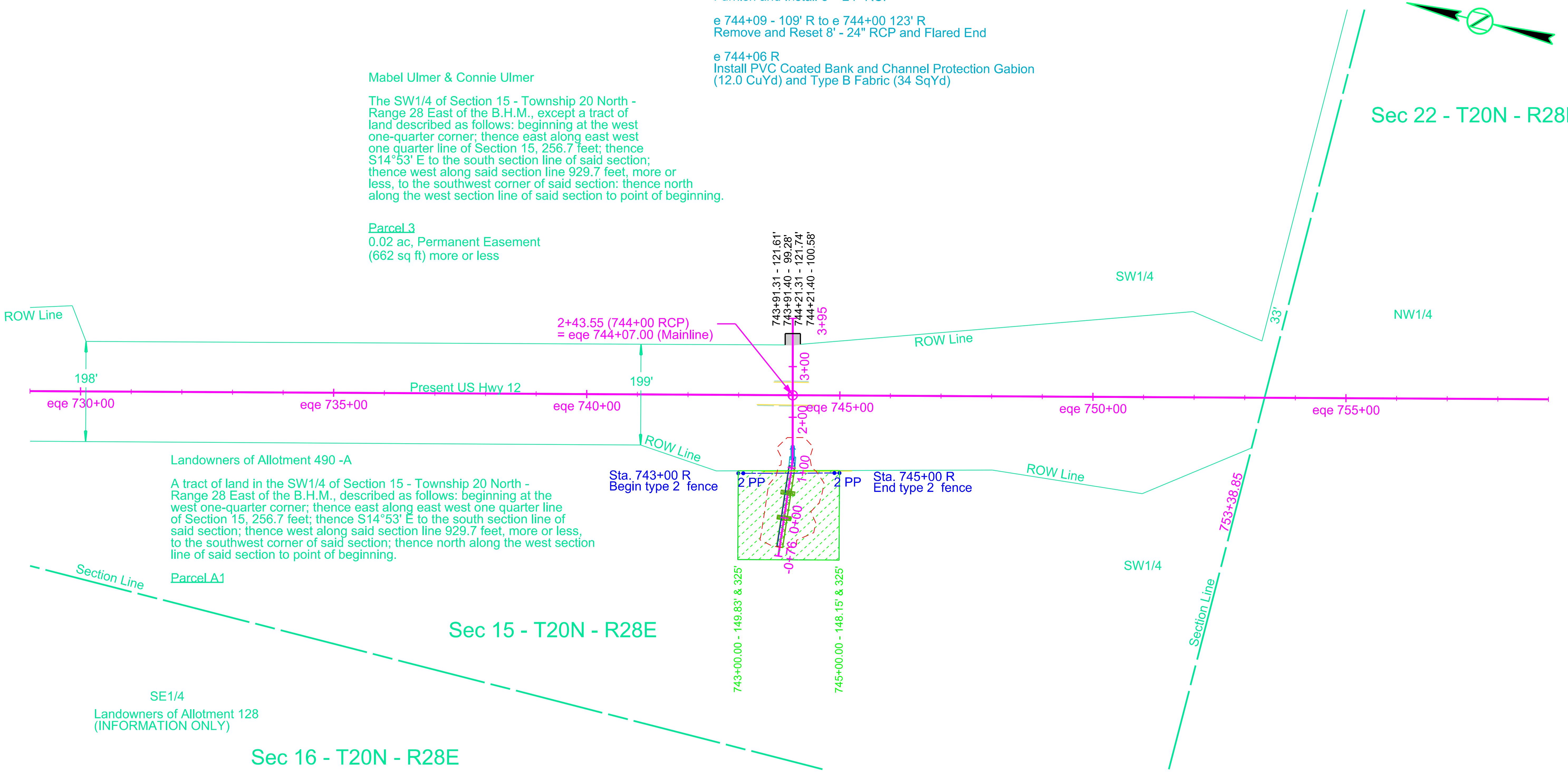
e 743+00 R to e 745+00 R
Remove Fence

e 744+07 - 102' L to 101' R
Retain 24" RCP and Flared End

e 744+07 - 101' R to e 744+00 109' R
Furnish and Install 8' - 24" RCP

e 744+09 - 109' R to e 744+00 123' R
Remove and Reset 8' - 24" RCP and Flared End

e 744+06 R
Install PVC Coated Bank and Channel Protection Gabion
(12.0 CuYd) and Type B Fabric (34 SqYd)



Parcel A1
Station 743+00 to 745+00 R
Temporary easement containing
0.7 Acres, more or less

PLOT SCALE - 1:200

PLOTTED FROM - TRMOINT04

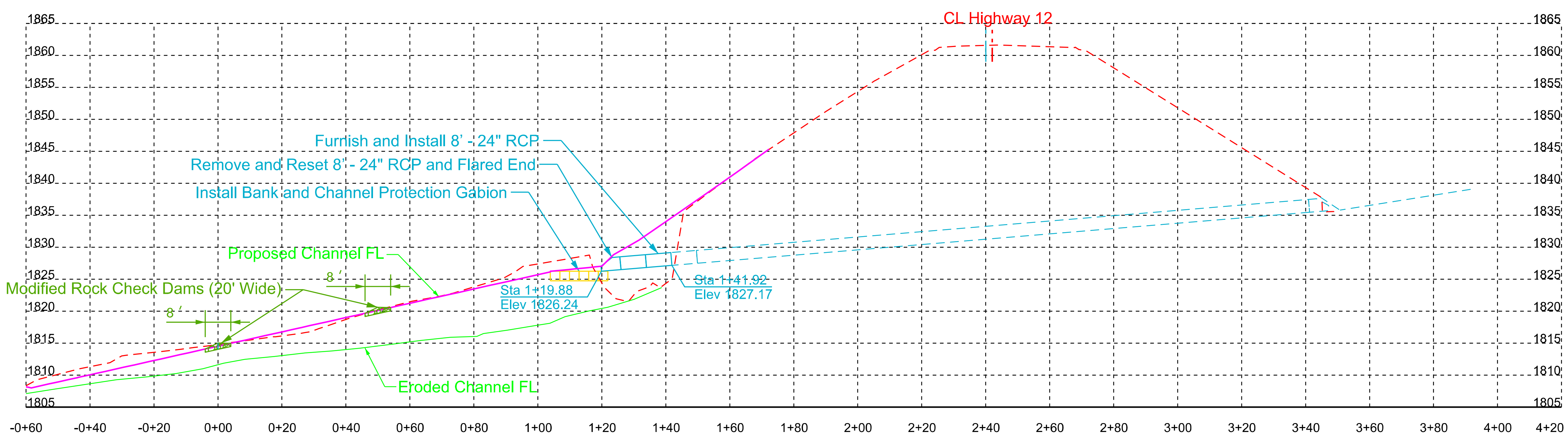
PLOT NAME - 24

FILE - ...\PIPE REPAIRS 15V7 15V8\729.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-372	25	66

Plotting Date: 08/27/2020

Culvert And Channel Profile
Sta. 744+07 Rt



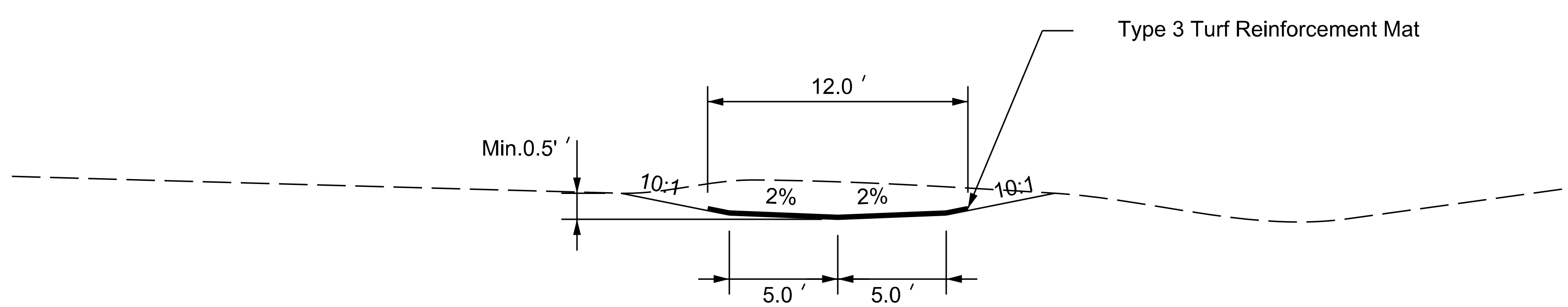
PLOT SCALE - 1:40

PLOTTED FROM - TRMOINT04

PLOT NAME - 25

FILE - ...\PI5V7-I5V8.DGN

744+00
Outlet Ditch Typical



Not to Scale

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	27	66

Plotting Date: 08/27/2020

EROSION AND SEDIMENT CONTROL PLAN
Junction Box Sta 1+32

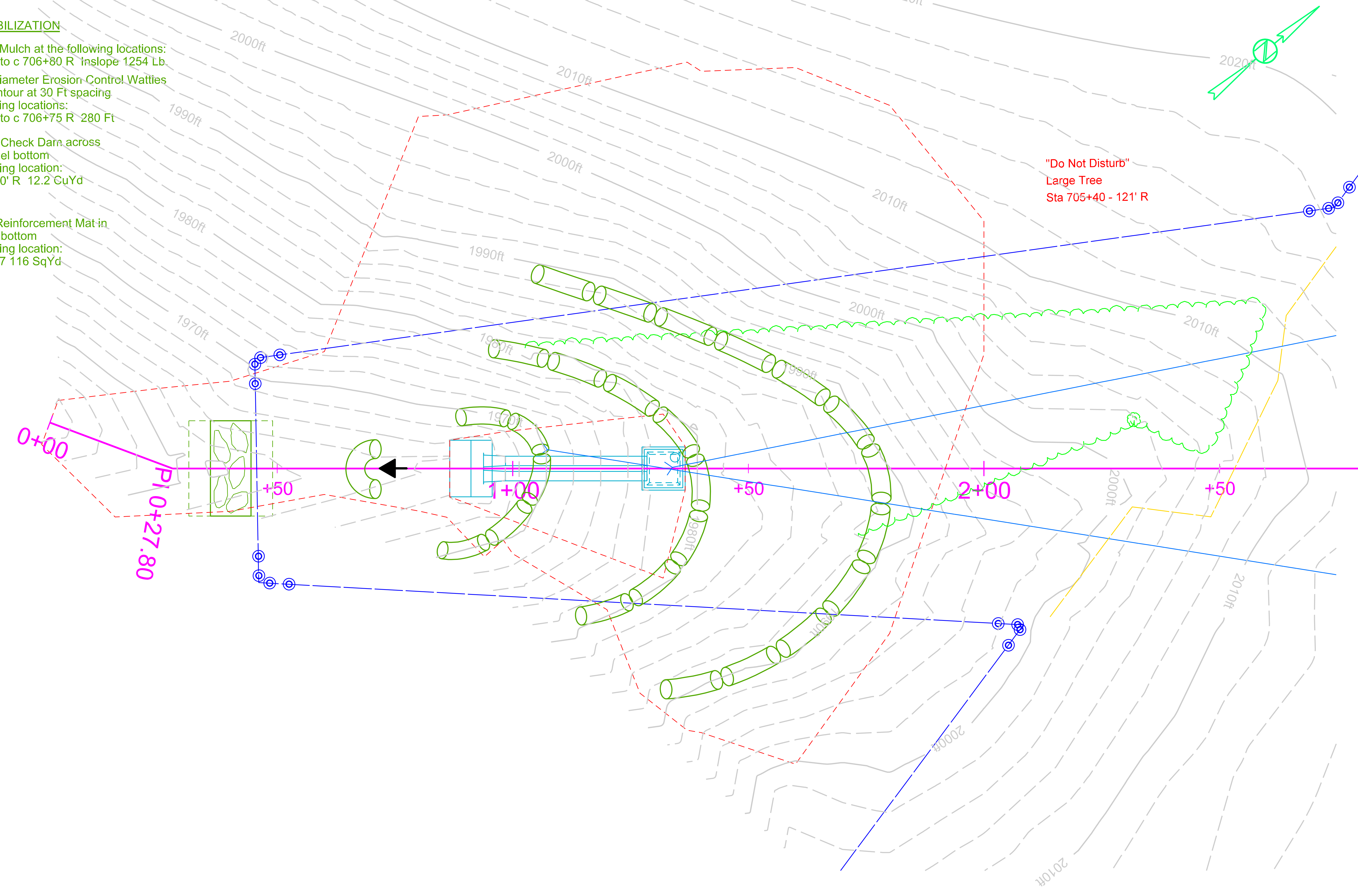
FINAL STABILIZATION

Apply Fiber Mulch at the following locations:
c 705+50 R to c 706+80 R Inslope 1254 Lb

Install 12" Diameter Erosion Control Wattles
on slope contour at 30 Ft spacing
at the following locations:
c 706+20 R to c 706+75 R 280 Ft

Install Rock Check Dam across
outlet channel bottom
at the following location:
706+93 - 260' R 12.2 CuYd

Install Turf Reinforcement Mat in
the channel bottom
at the following location:
0+00 to 0+87 116 SqYd



PLOT SCALE - 1:20

PLOTTED FROM - TRMOINT04

PLOT NAME - 27

FILE - ...\681EC.DGN

EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	28	66

Plotting Date: 08/27/2020

PLOT SCALE - 1:100

PLOT NAME - 28

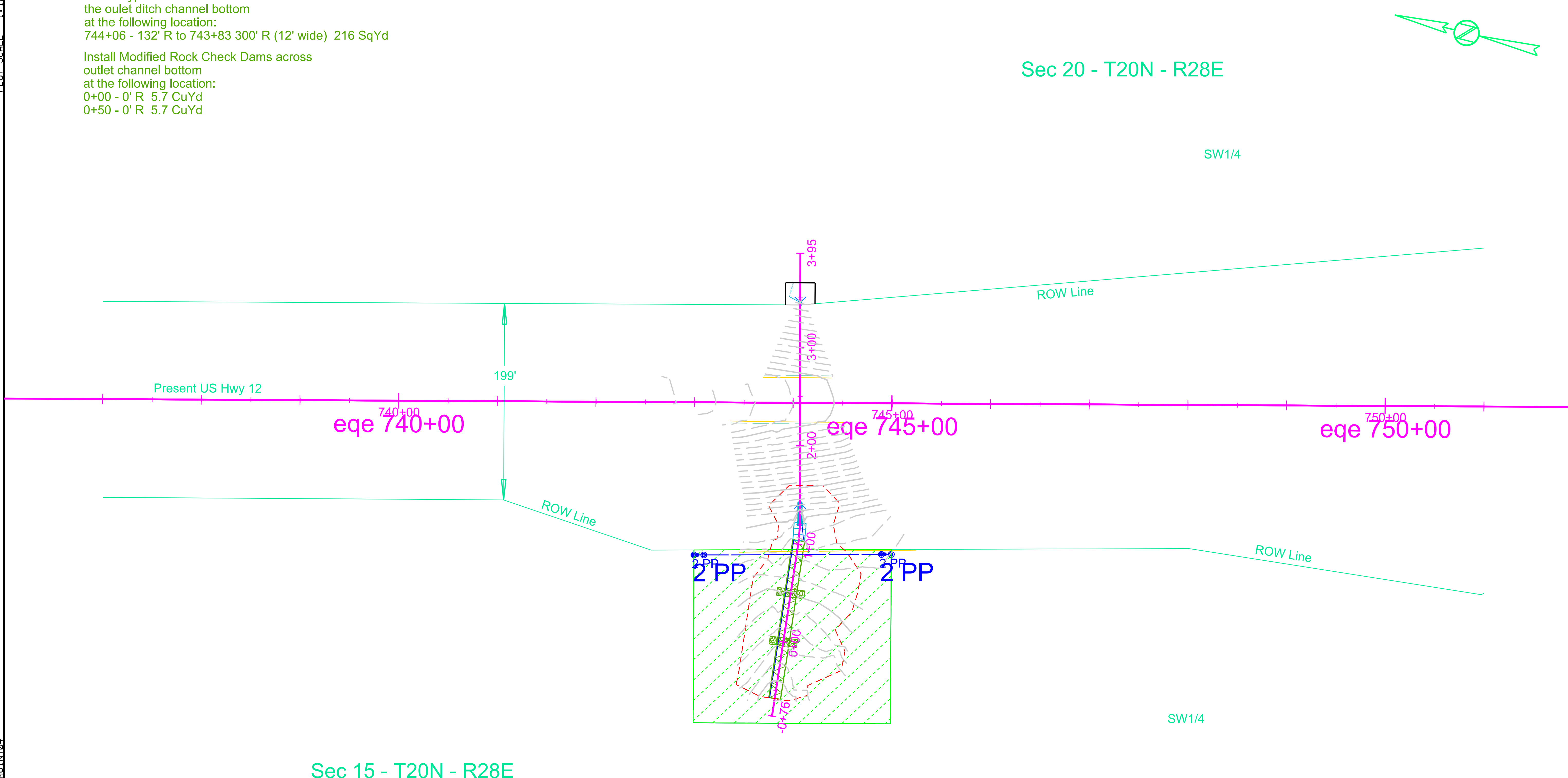
FILE - ...\729EC.DGN

PLOTTED FROM - TRMOINT04

FINAL STABILIZATION

Install Type 3 Turf Reinforcement Mat in
the oulet ditch channel bottom
at the following location:
744+06 - 132' R to 743+83 300' R (12' wide) 216 SqYd

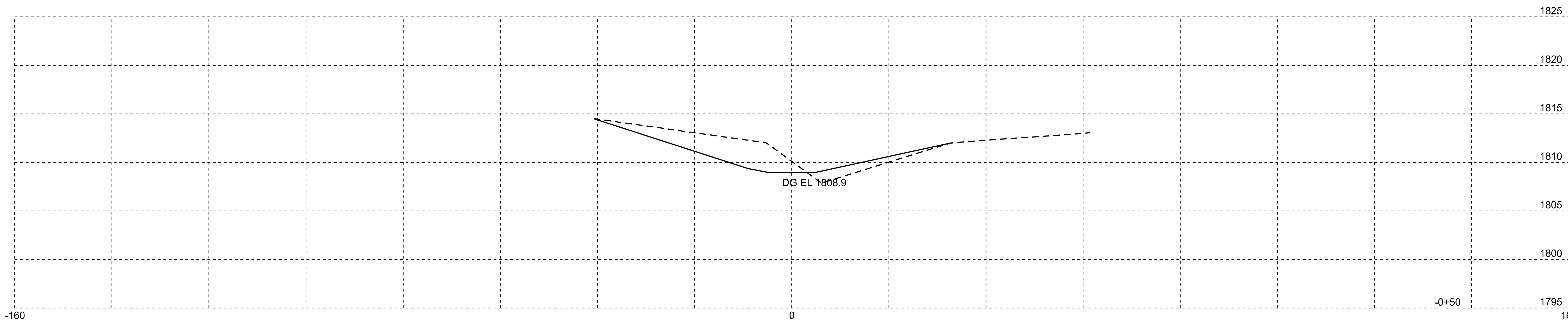
Install Modified Rock Check Dams across
outlet channel bottom
at the following location:
0+00 - 0' R 5.7 CuYd
0+50 - 0' R 5.7 CuYd

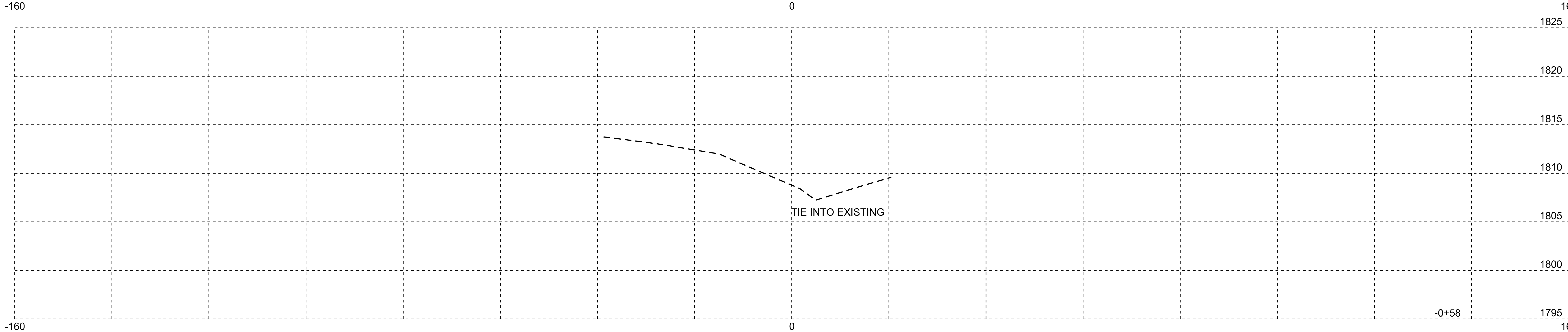


744+07 Outlet

Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	29	66

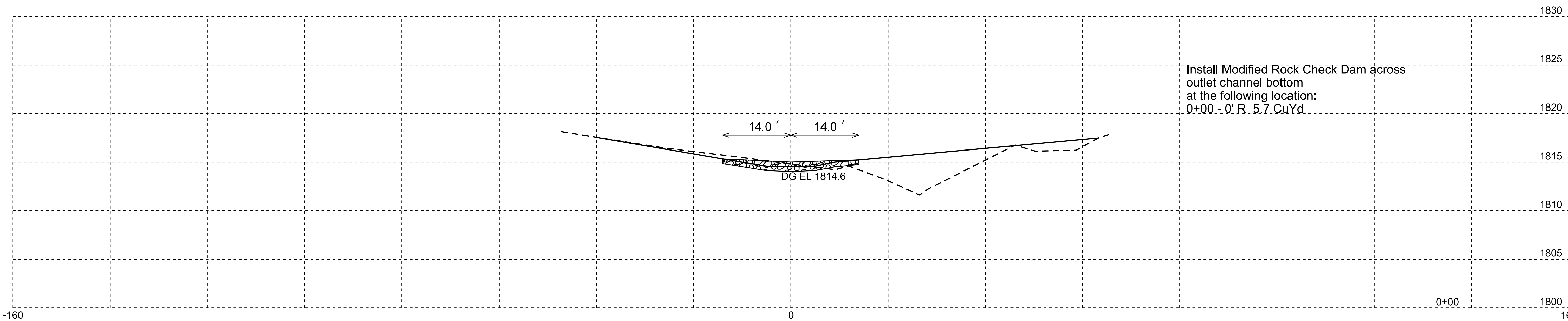


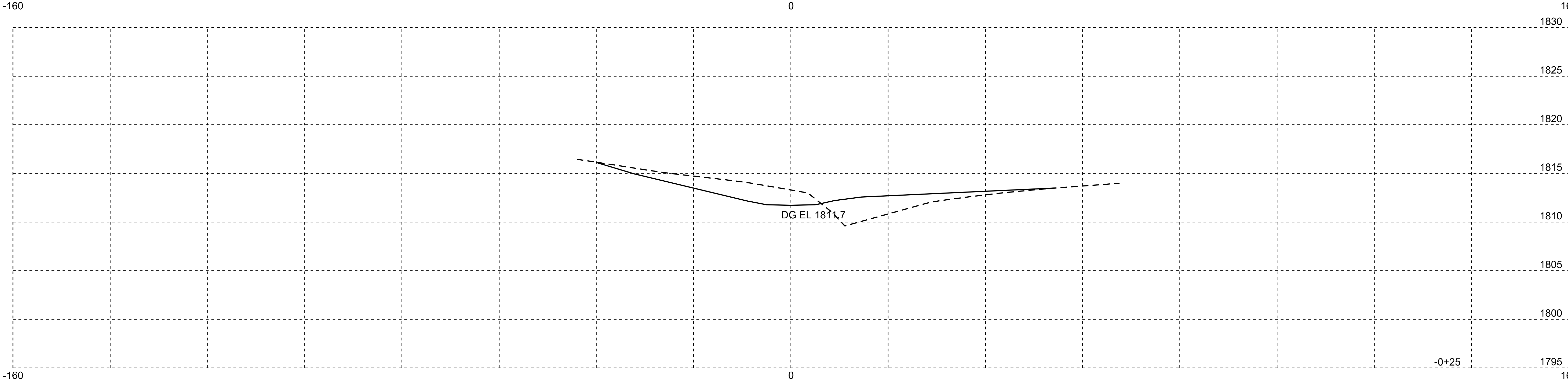


744+07 Outlet

Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	30	66



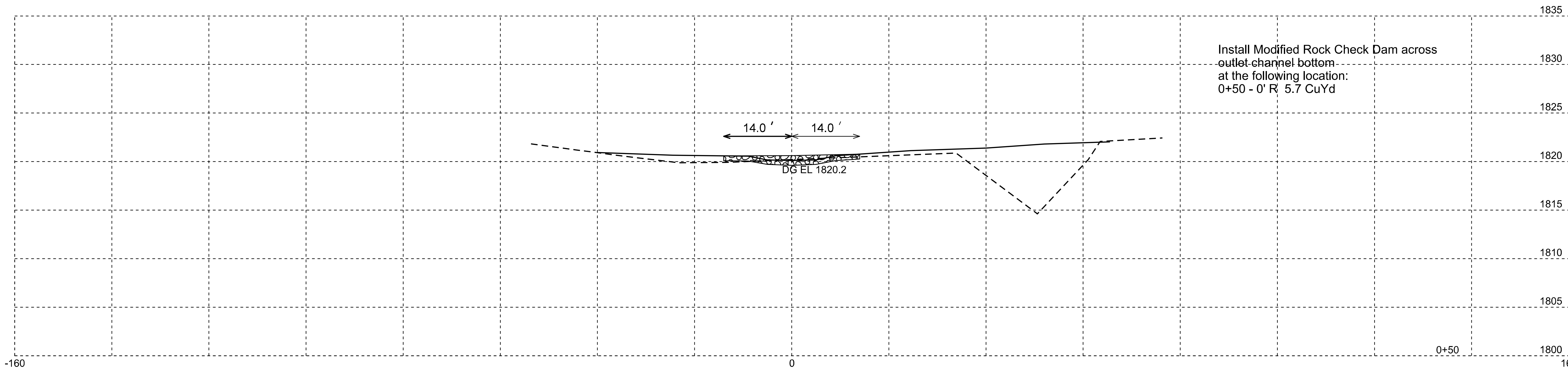


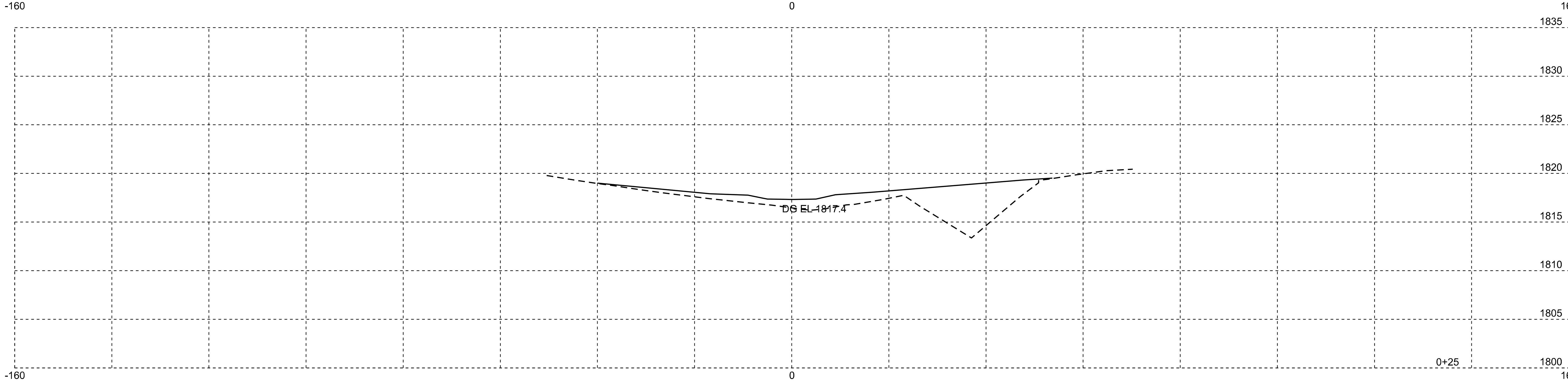
744+07 Outlet

Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	31	66

Install Modified Rock Check Dam across
outlet channel bottom
at the following location:
0+50 - 0' R 5.7 CuYd

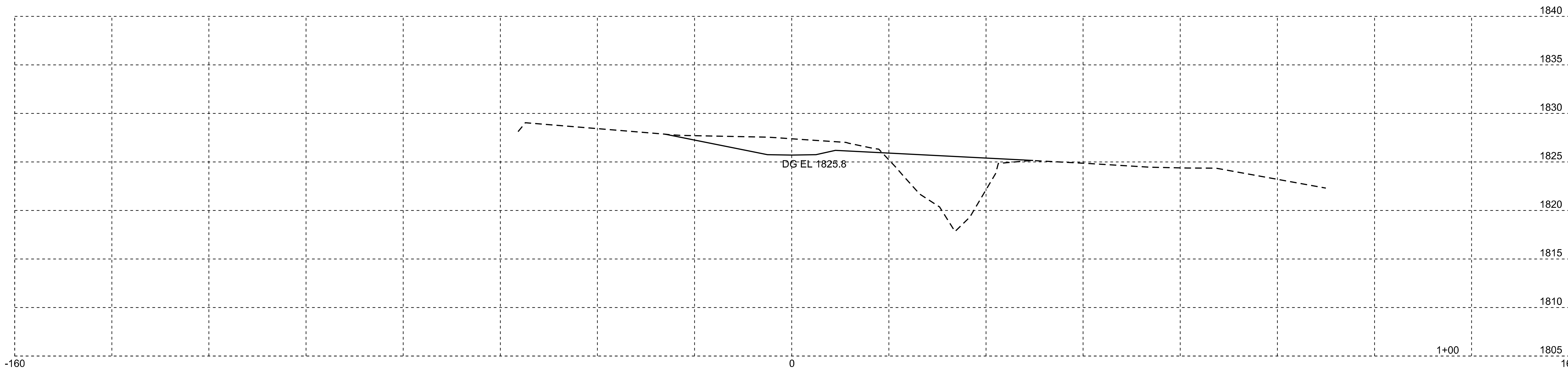


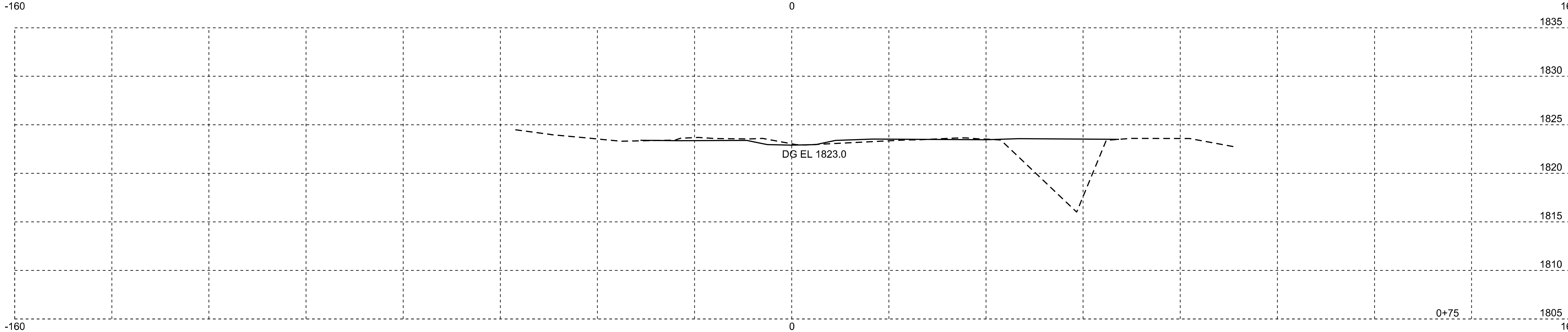


Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	32	66

744+07 Outlet

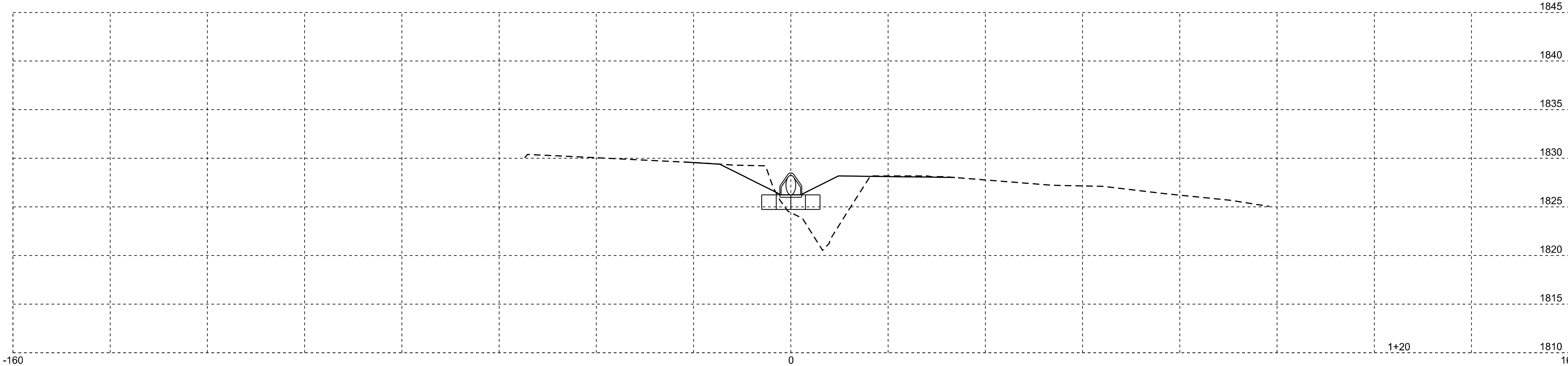


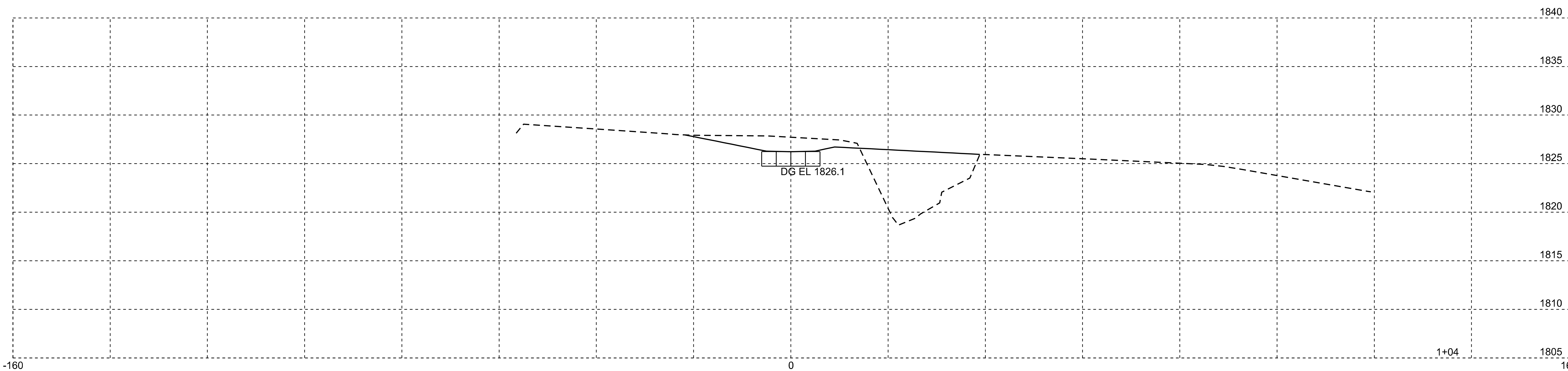


744+07 Outlet

Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	33	66

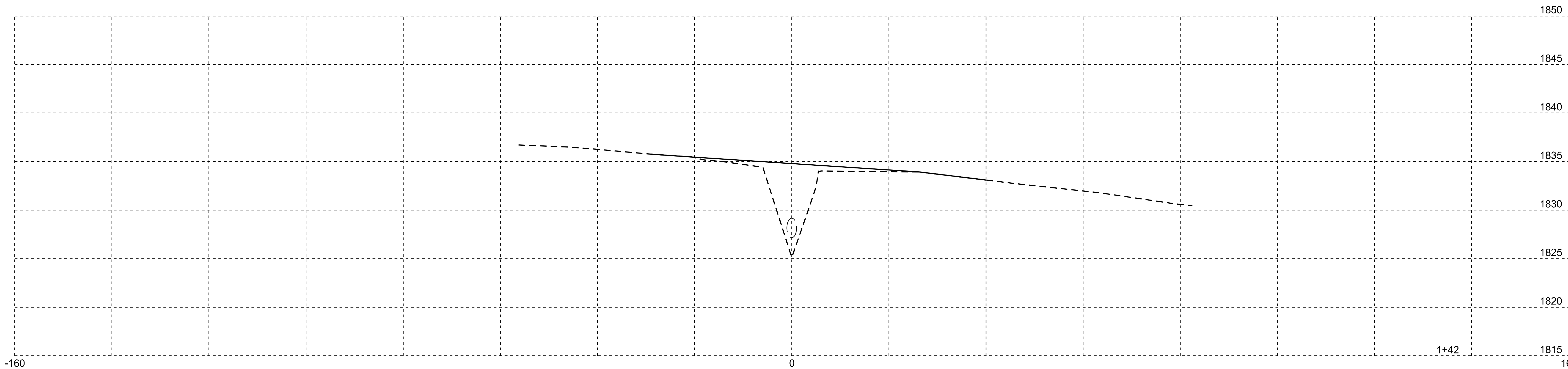


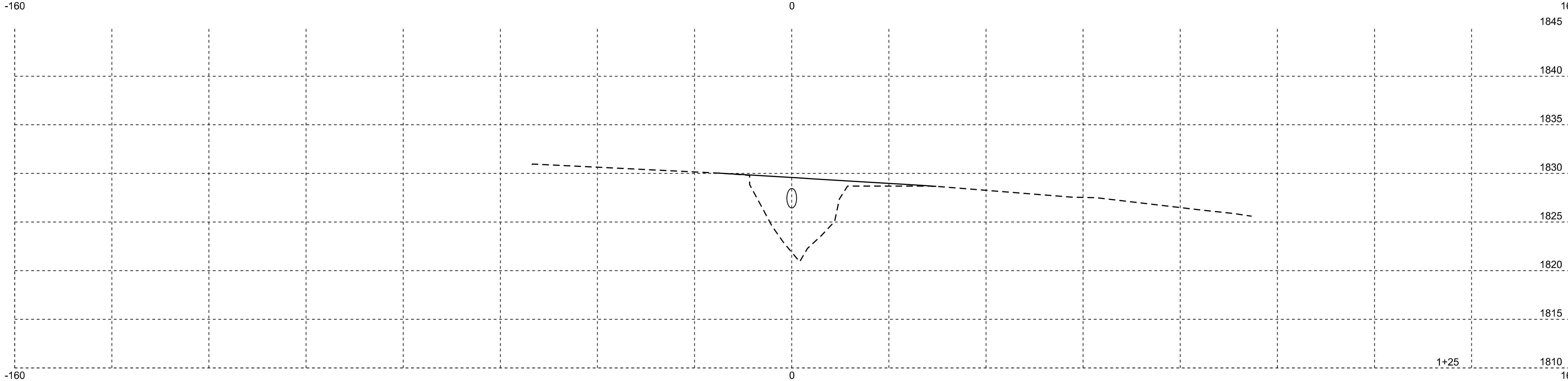


744+07 Outlet

Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	34	66

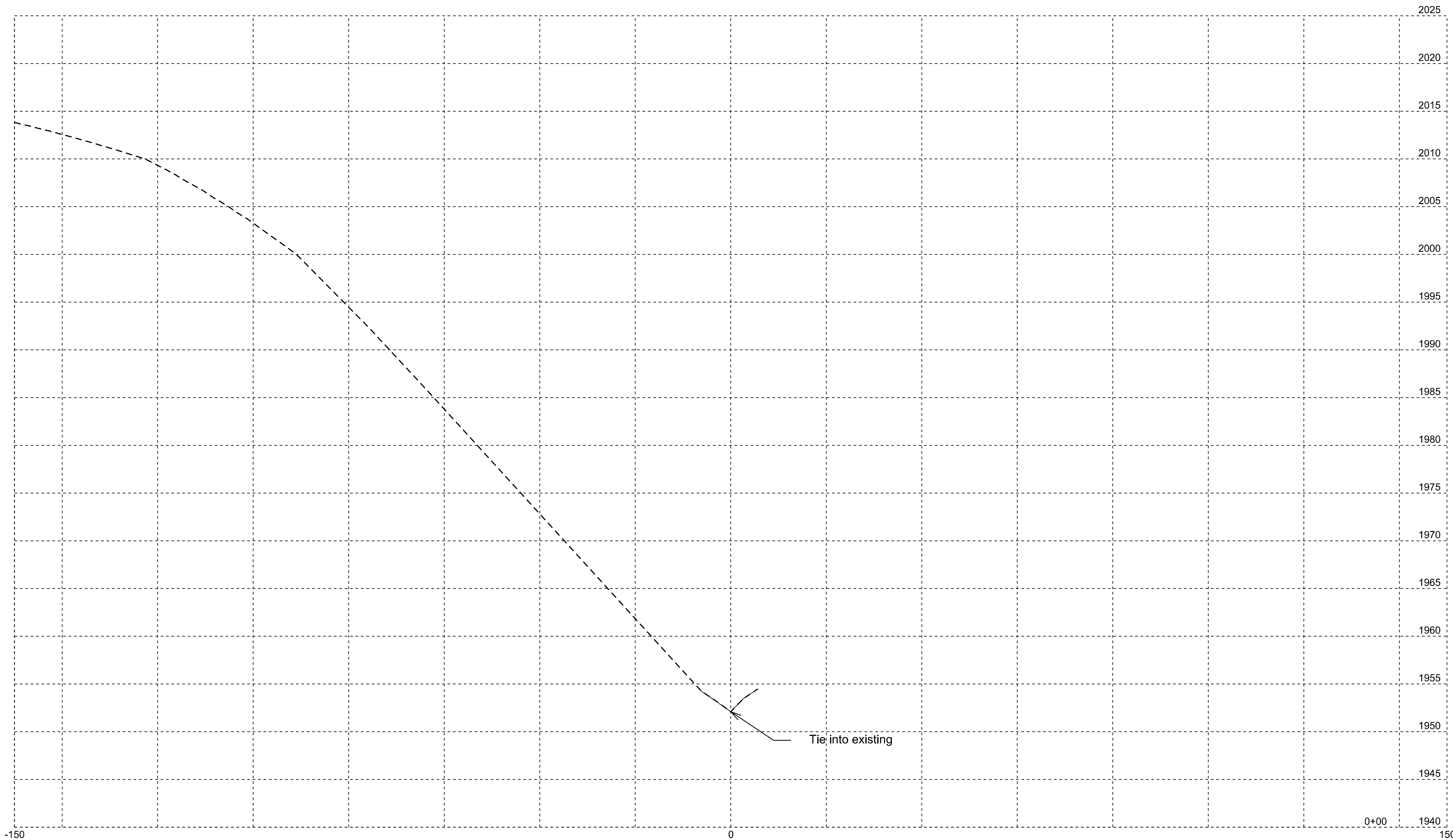




Junction Box Sta. 1+32

Plotting Date: 08/27/2020

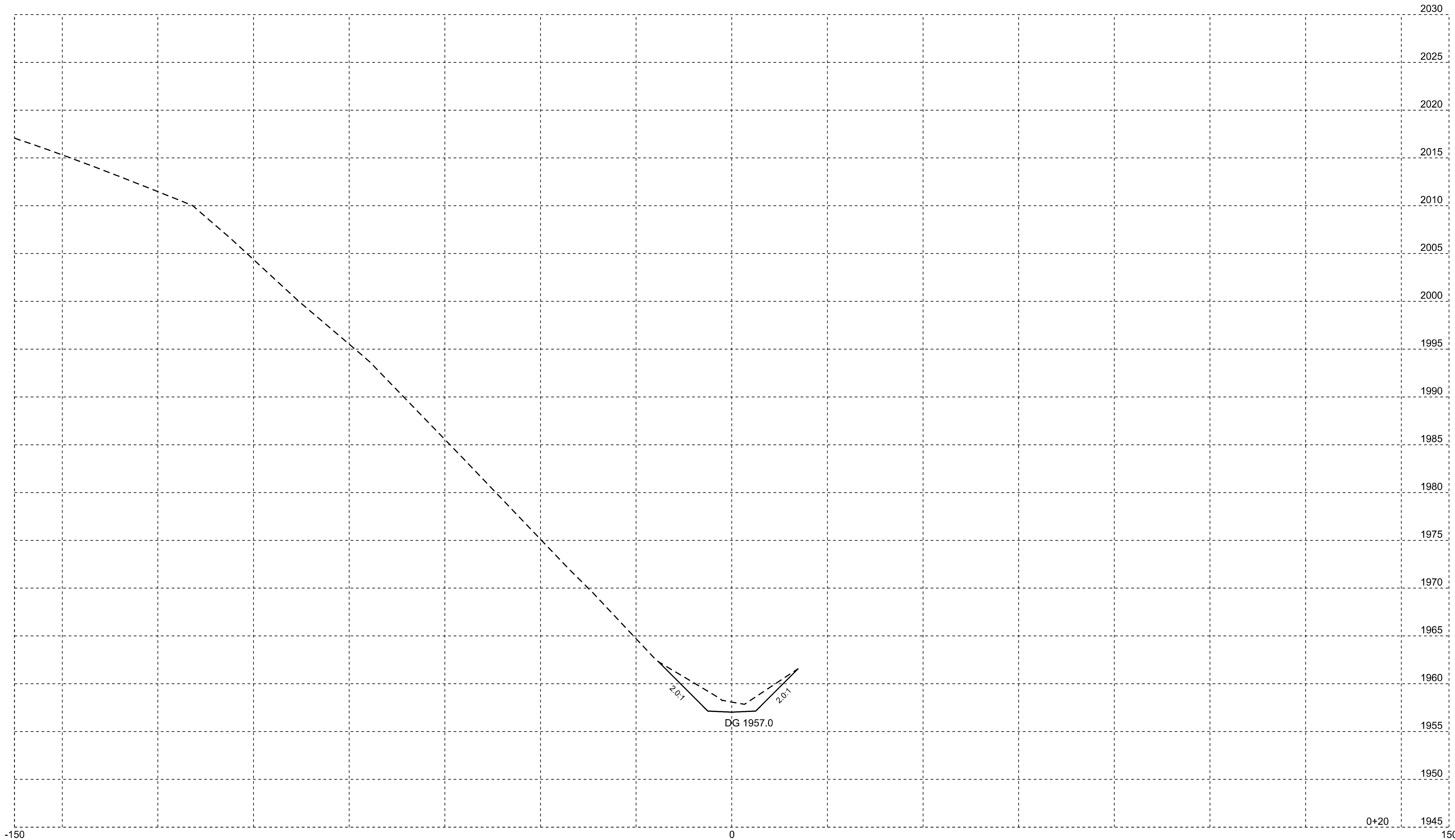
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	35	66



Junction Box Sta. 1+32

Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	36	66



Junction Box Sta. 1+32

Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	37	66

Junction Box Sta. 1+32

Plotting Date: 08/27/2020

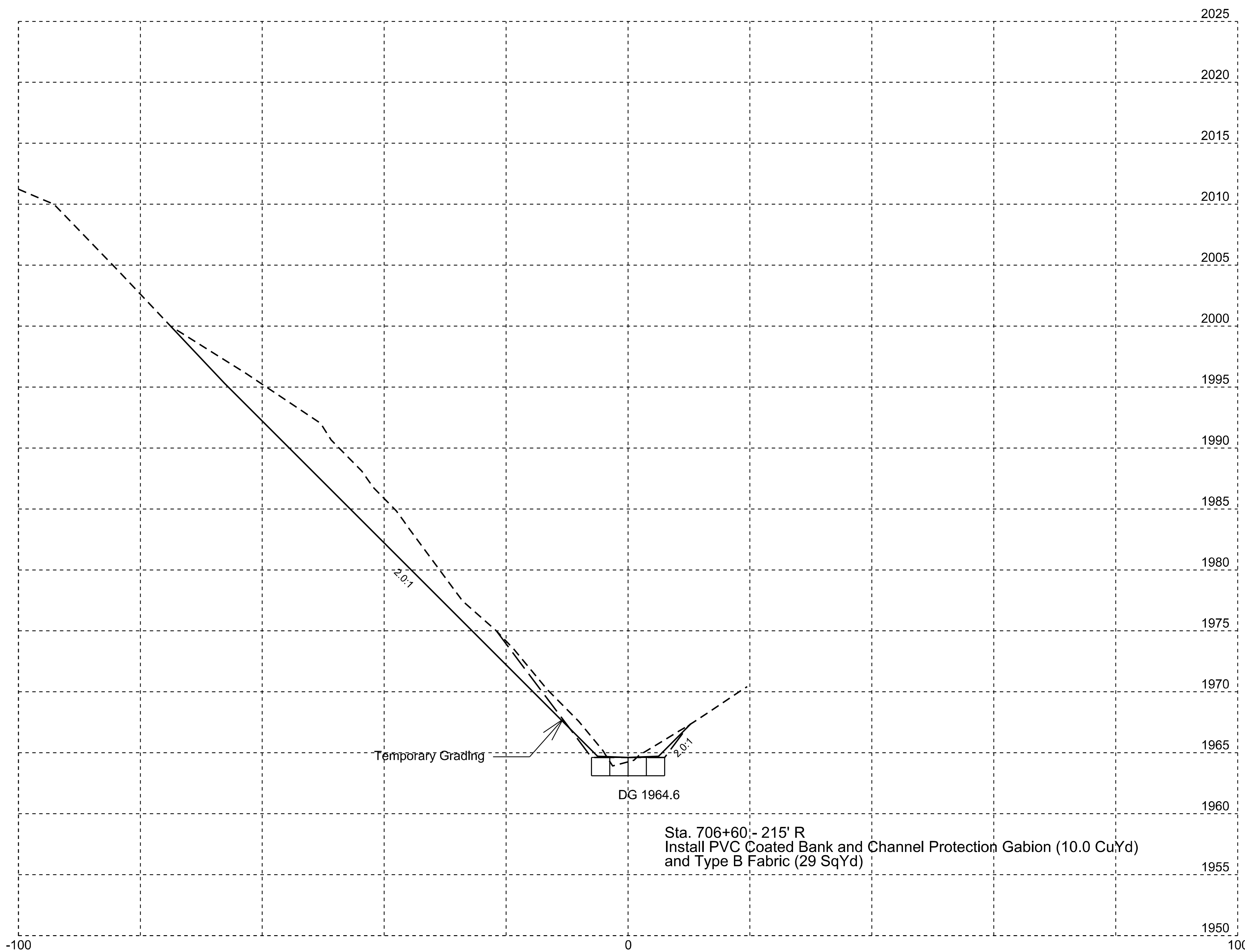
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	38	66

Junction Box Sta. 1+32

Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	39	66

Junction Box Sta. 1+32

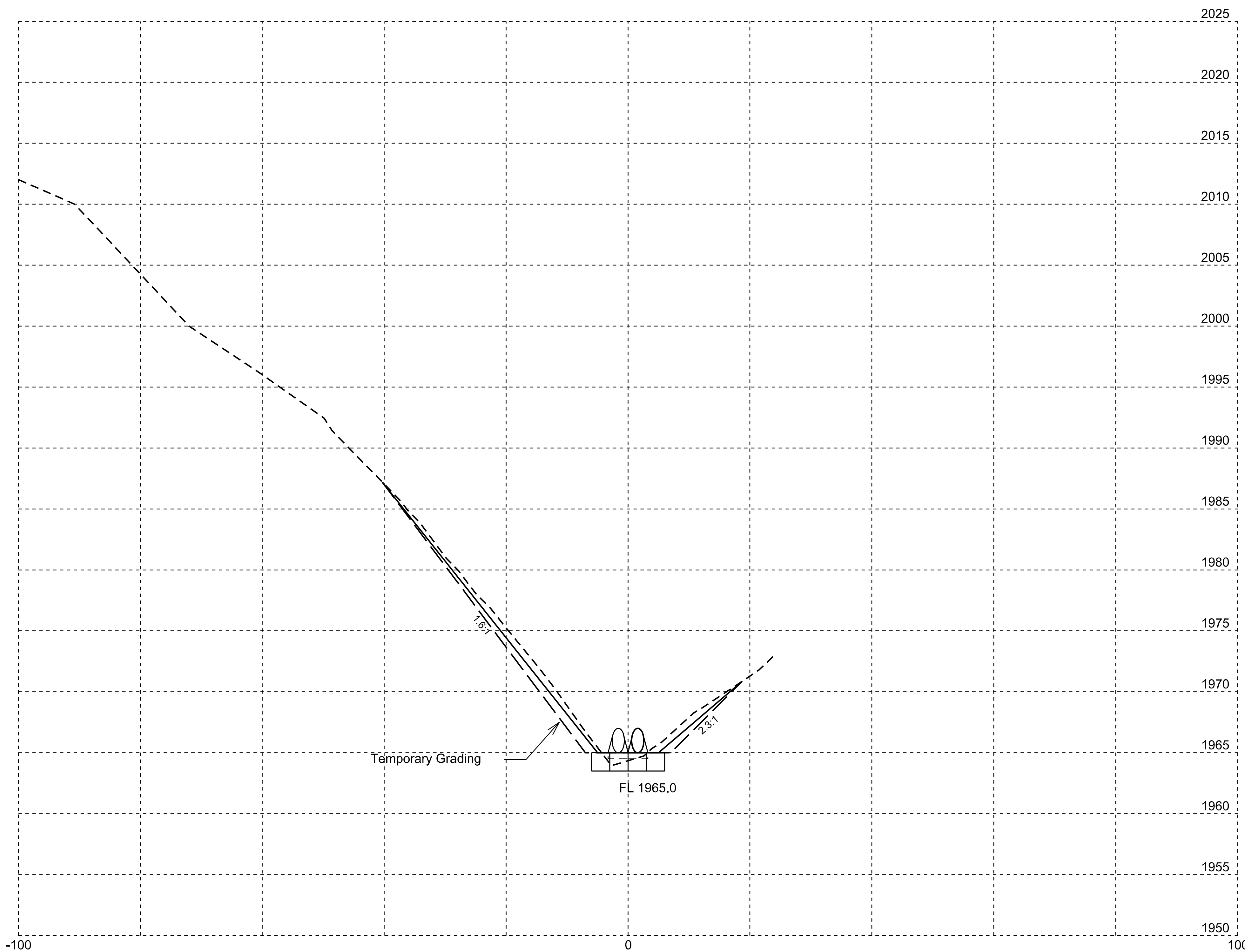


0+86

Junction Box Sta. 1+32

Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	41	66

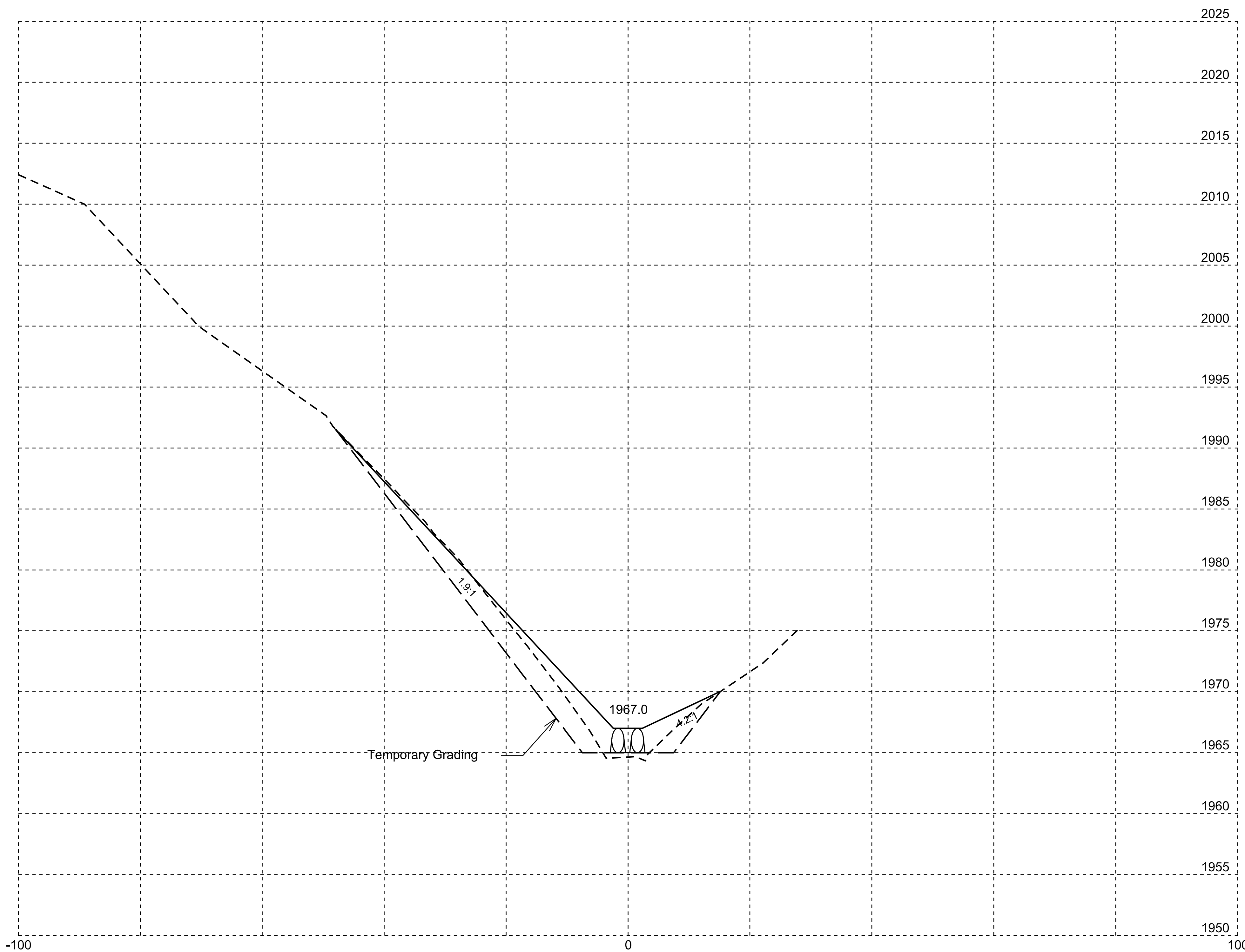


0+94

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	42	66

Plotting Date: 08/27/2020

Junction Box Sta. 1+32

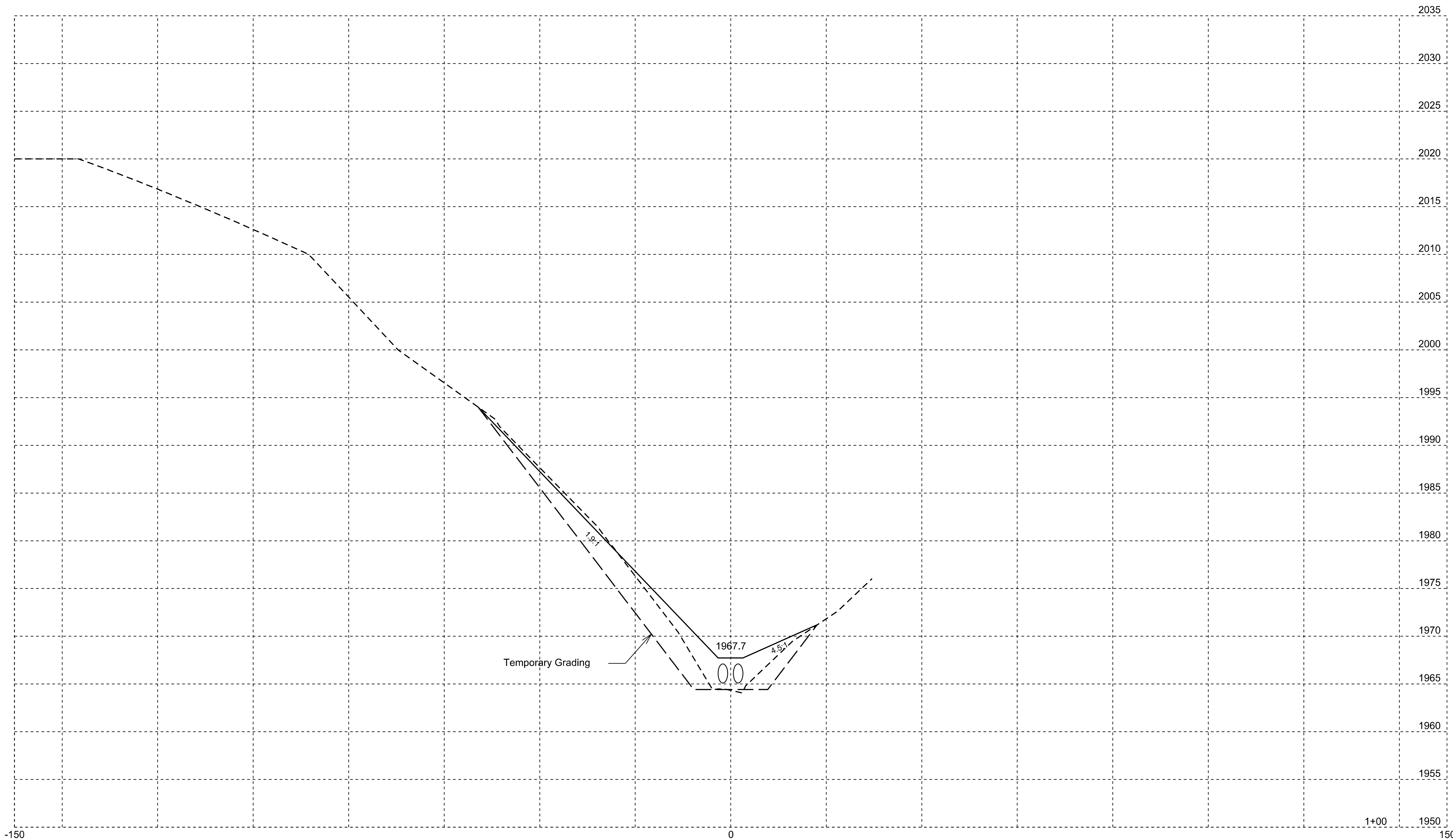


0+98

Junction Box Sta. 1+32

Plotting Date: 08/27/2020

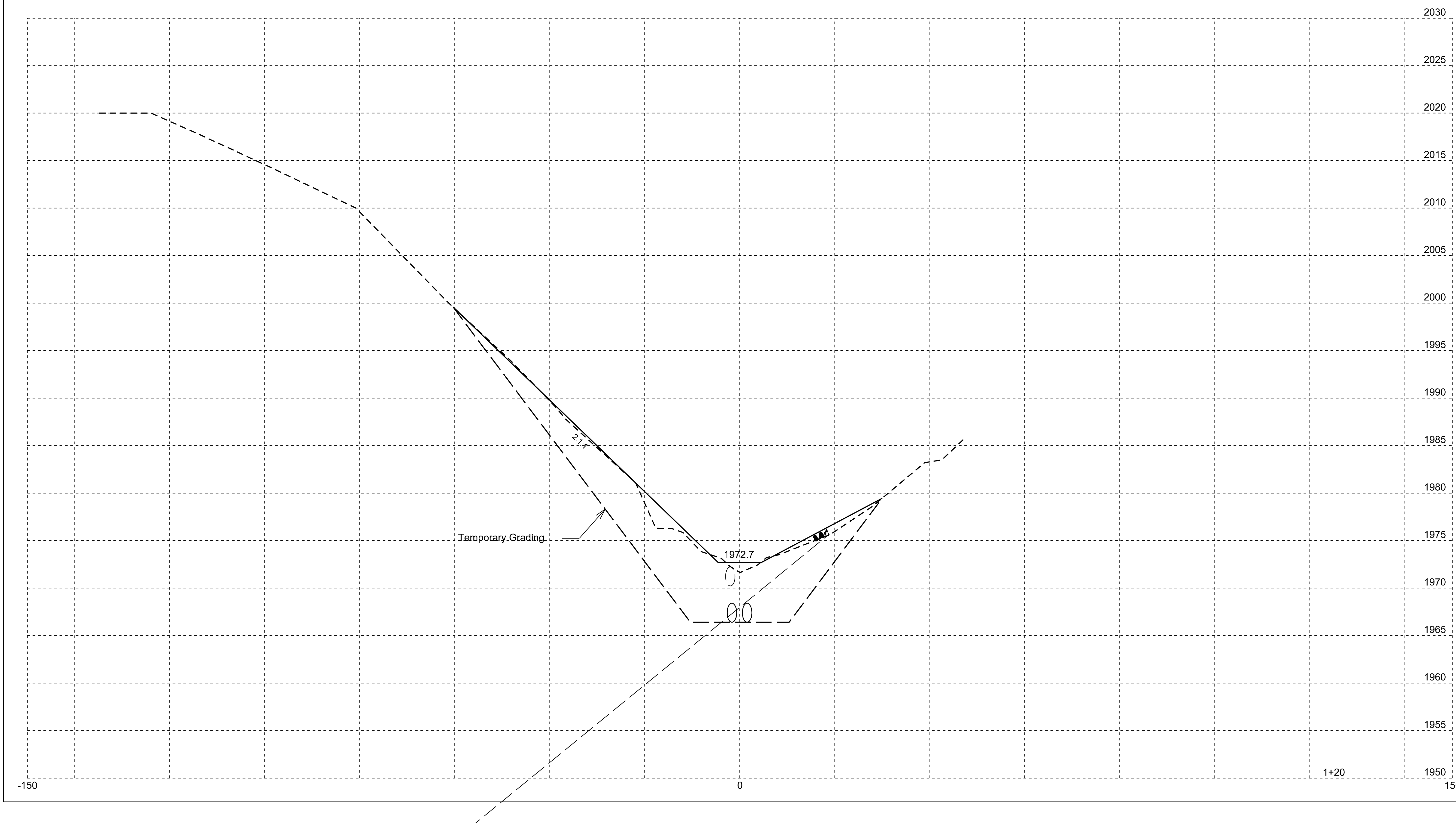
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	43	66



Junction Box Sta. 1+32

Plotting Date: 08/27/2020

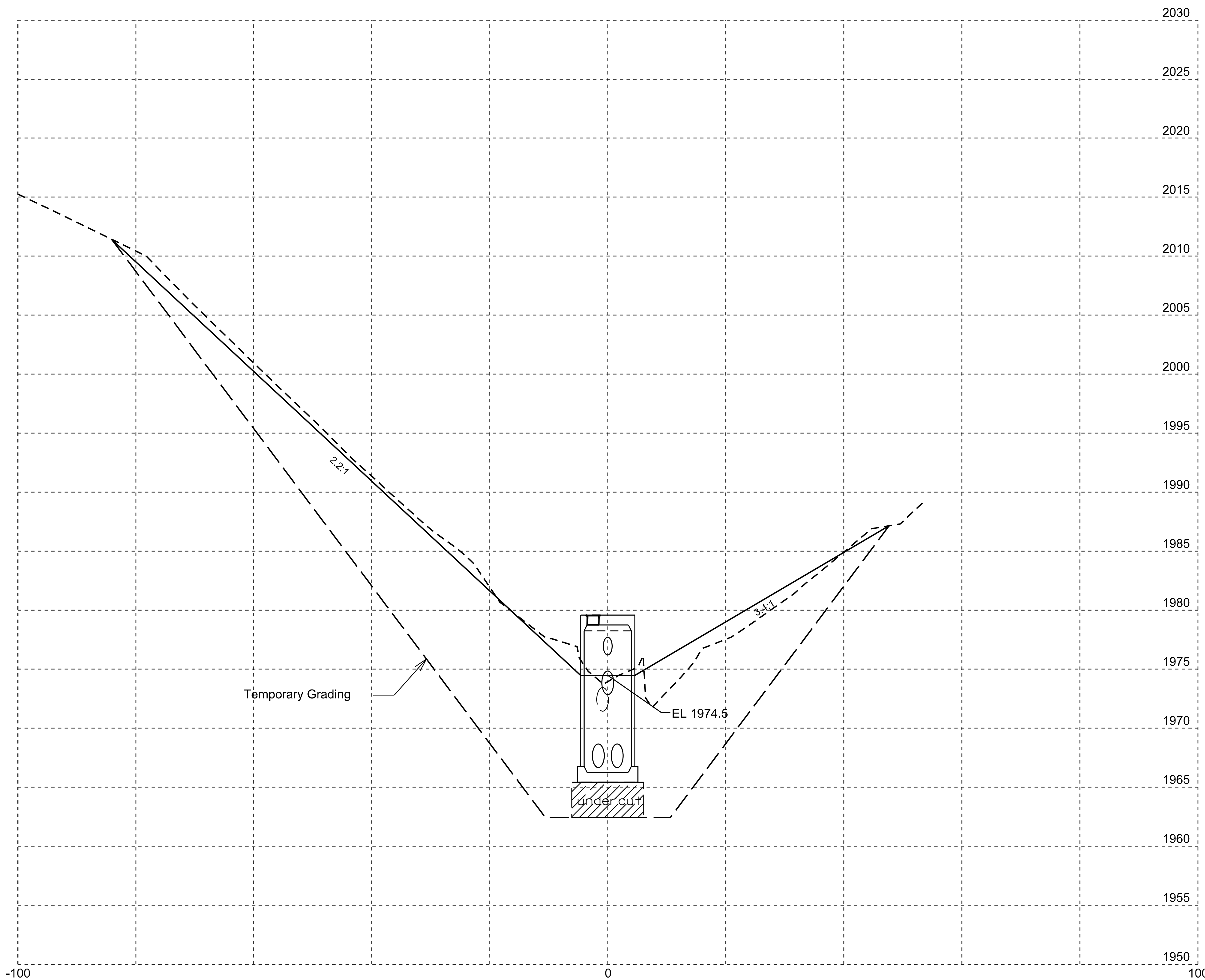
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	44	66



Junction Box Sta. 1+32

Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	45	66

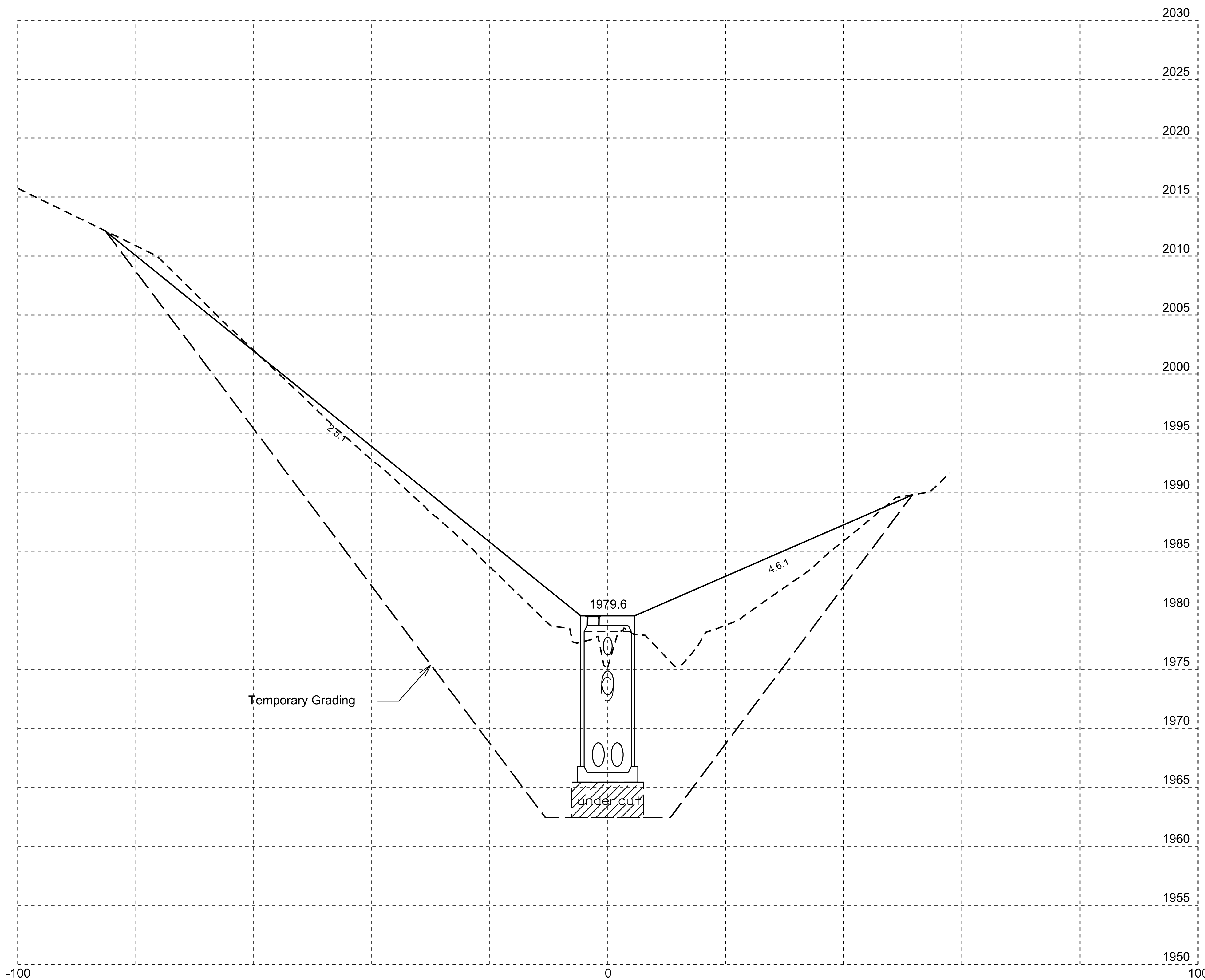


1+27

Junction Box Sta. 1+32

Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	46	66

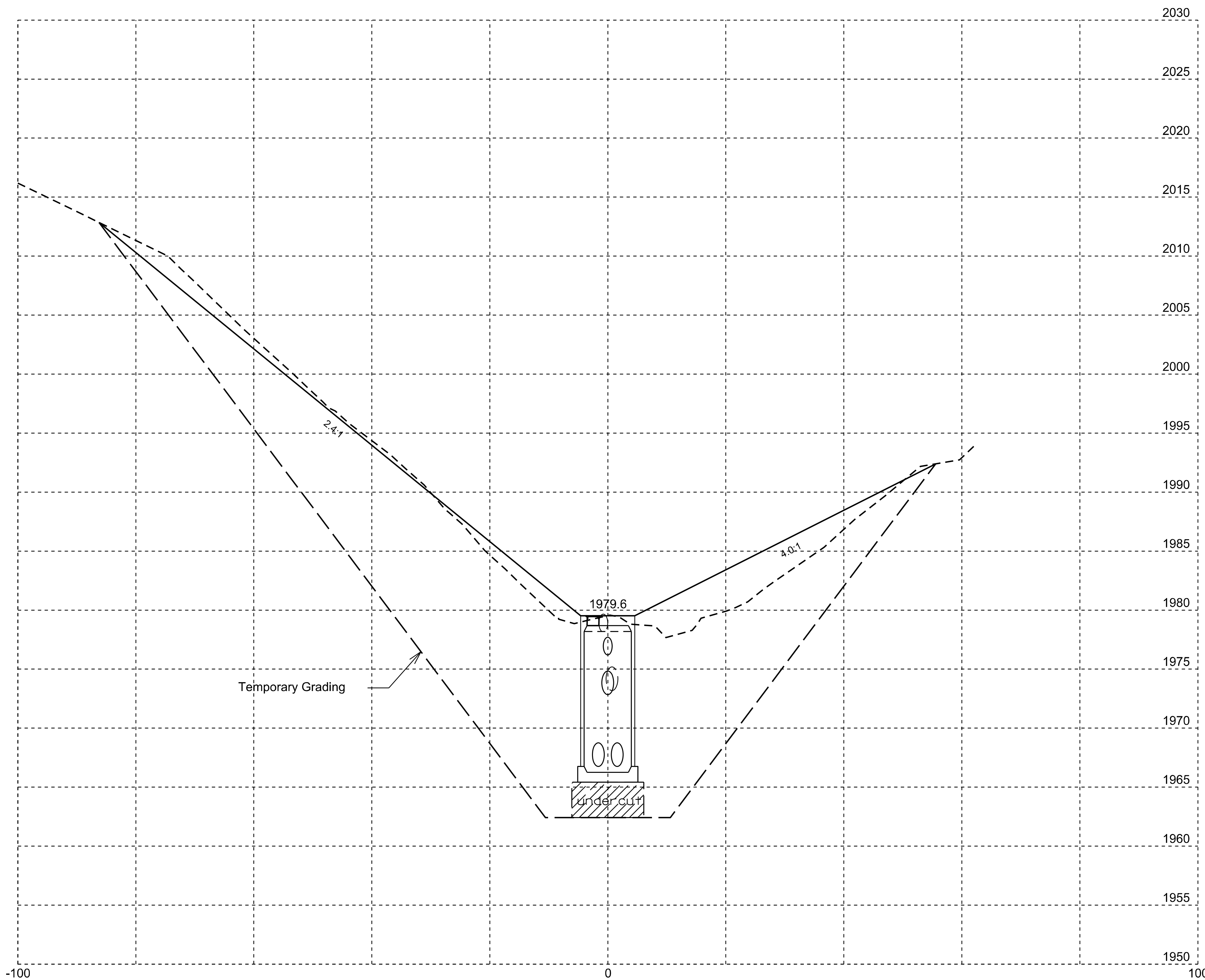


1+32

Junction Box Sta. 1+32

Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	47	66

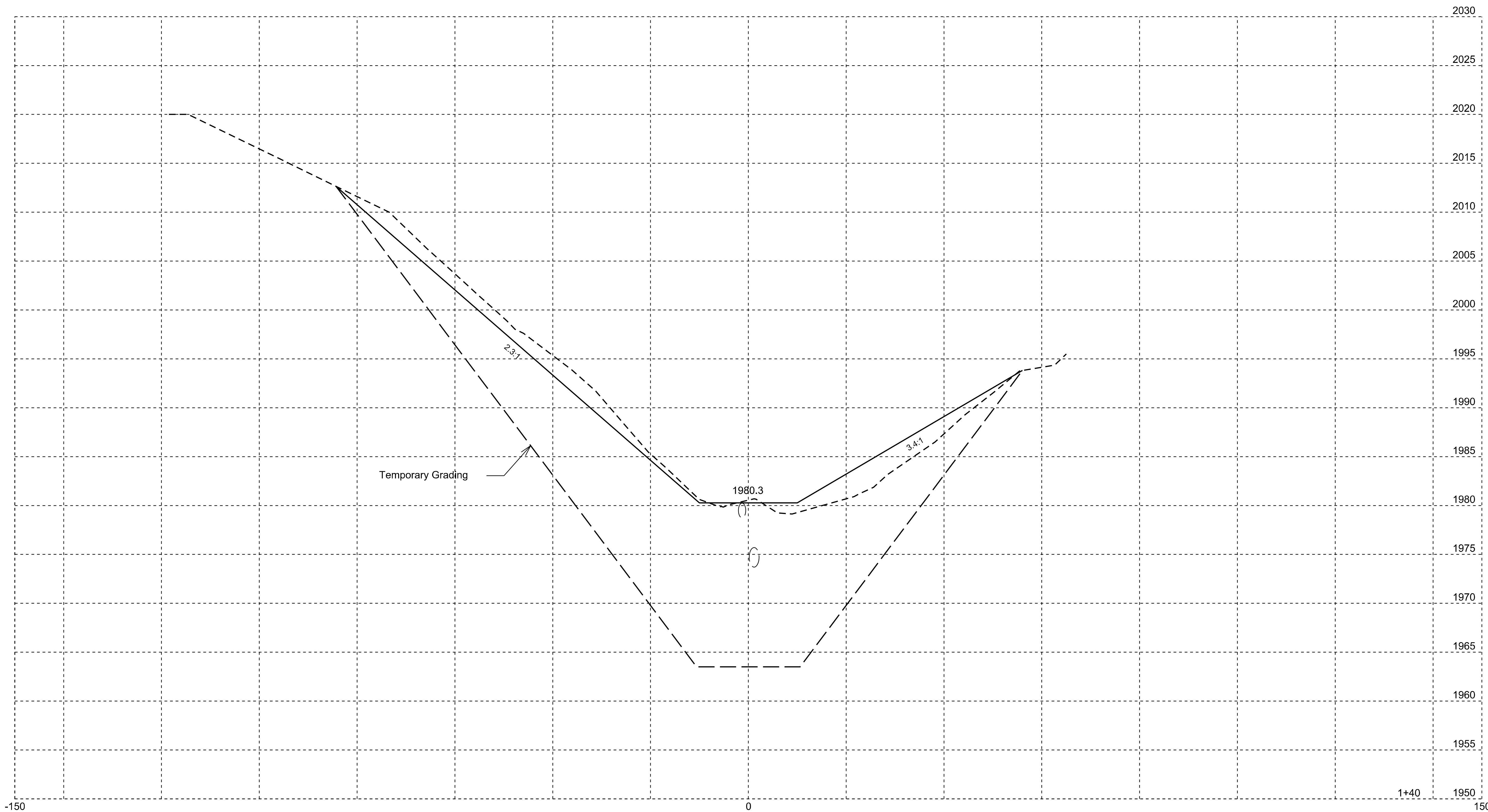


1+37

Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	48	66

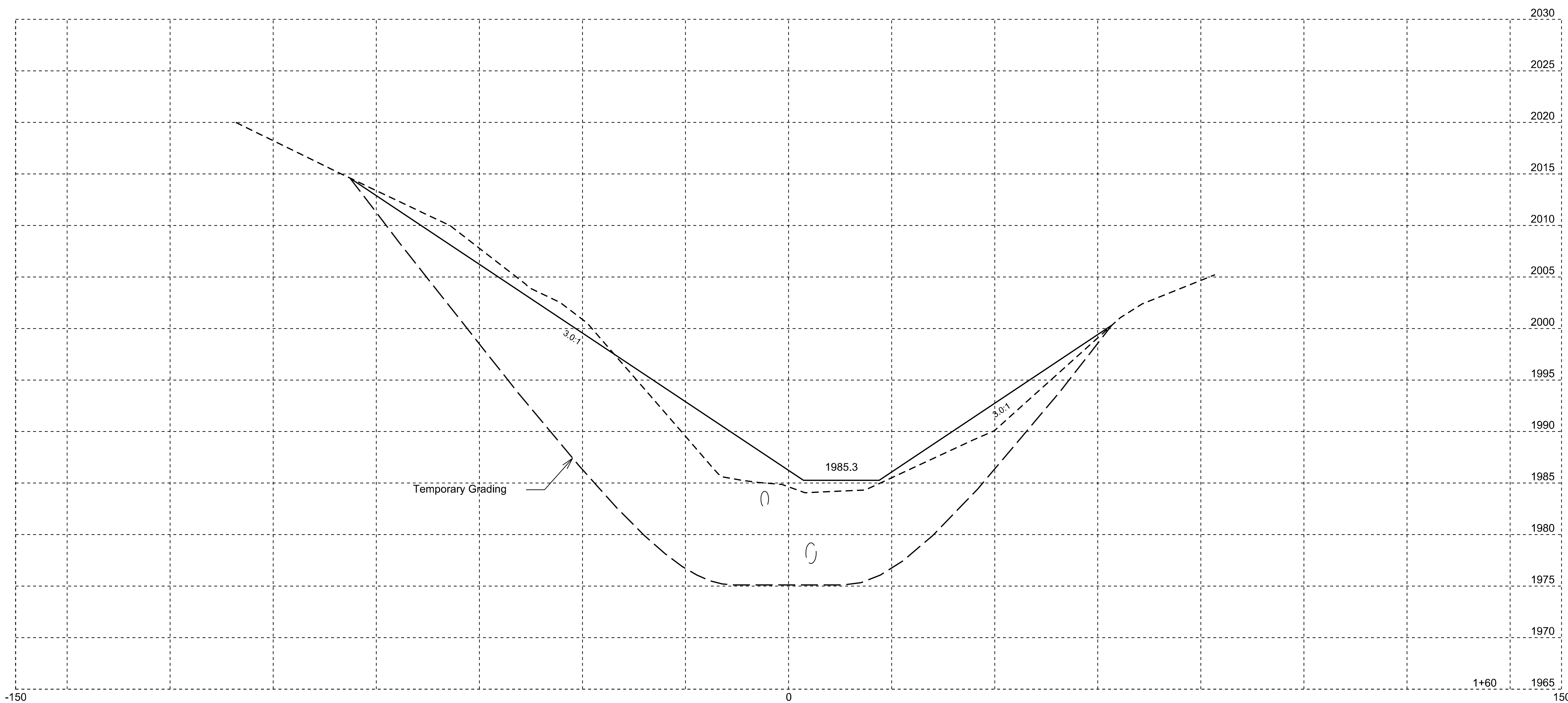
Junction Box Sta. 1+32



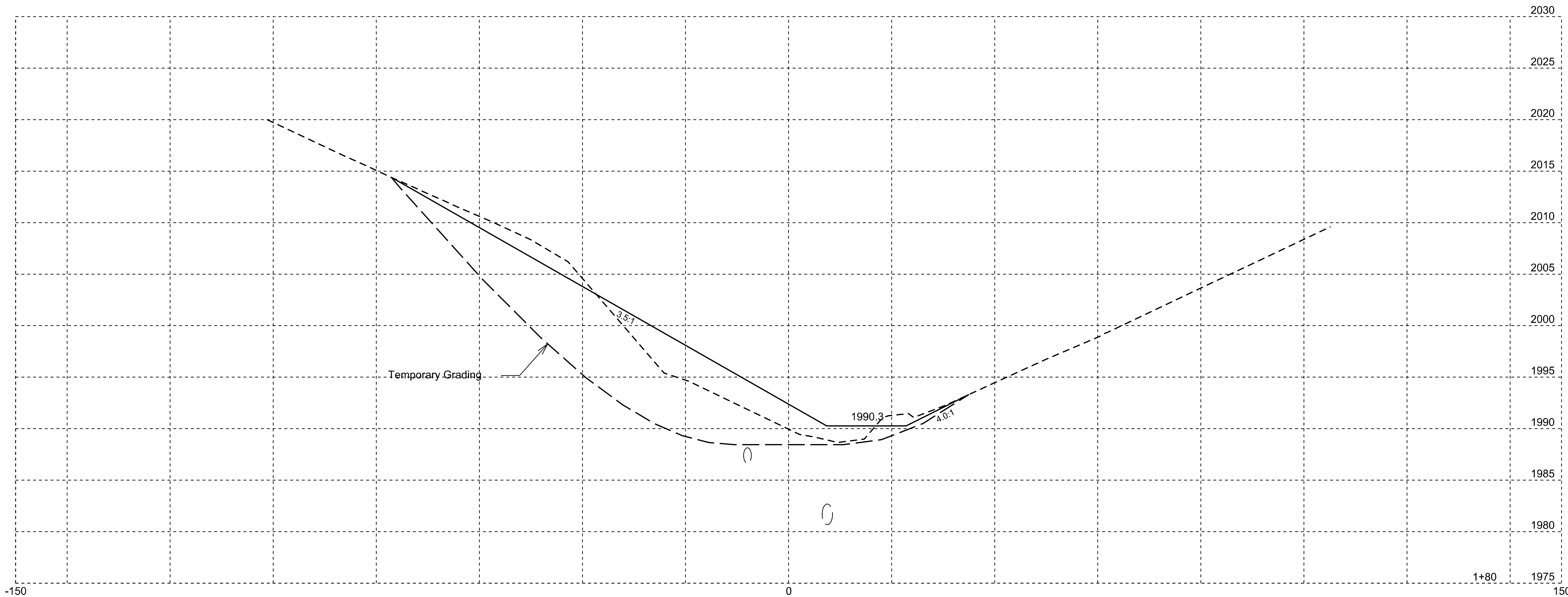
Junction Box Sta. 1+32

Plotting Date: 08/27/2020

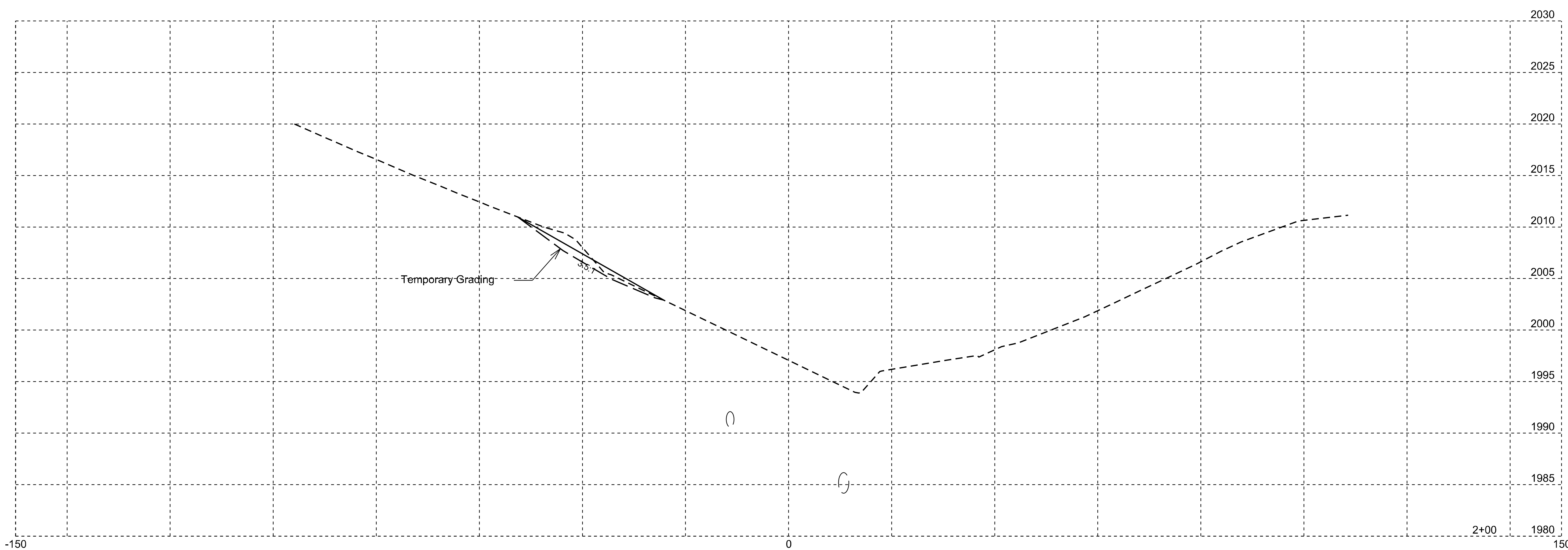
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	49	66



Junction Box Sta. 1+32



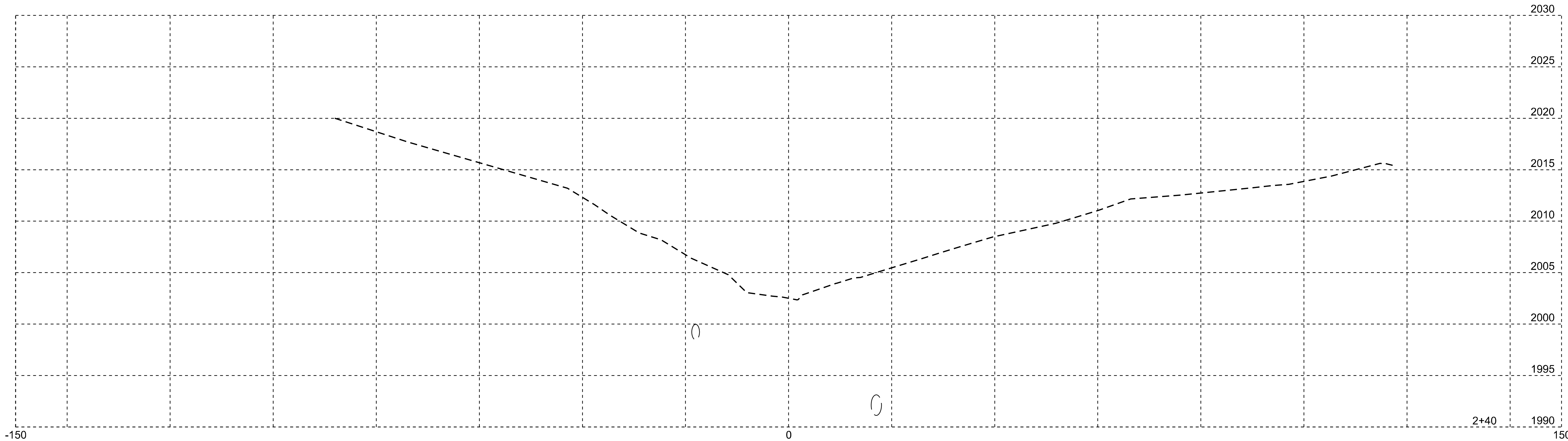
Junction Box Sta. 1+32

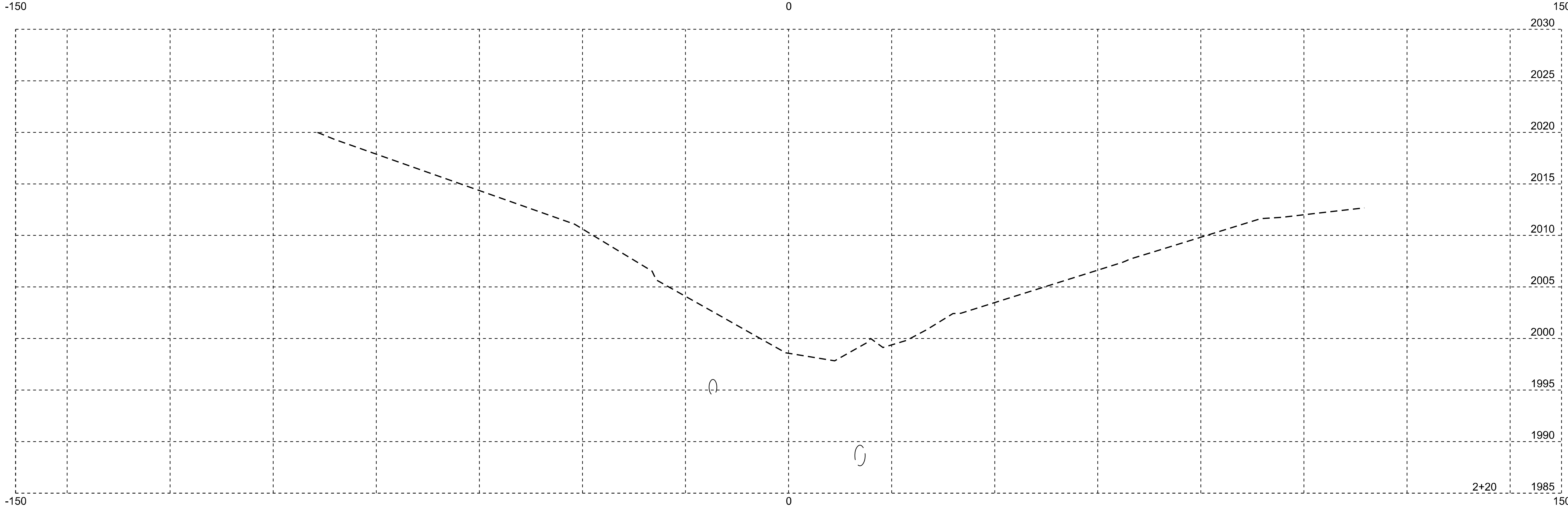


Junction Box Sta. 1+32

Plotting Date: 08/27/2020

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	52	66

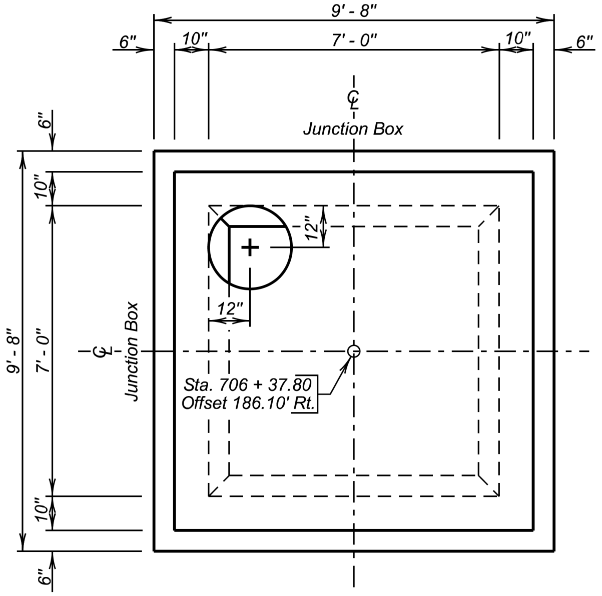




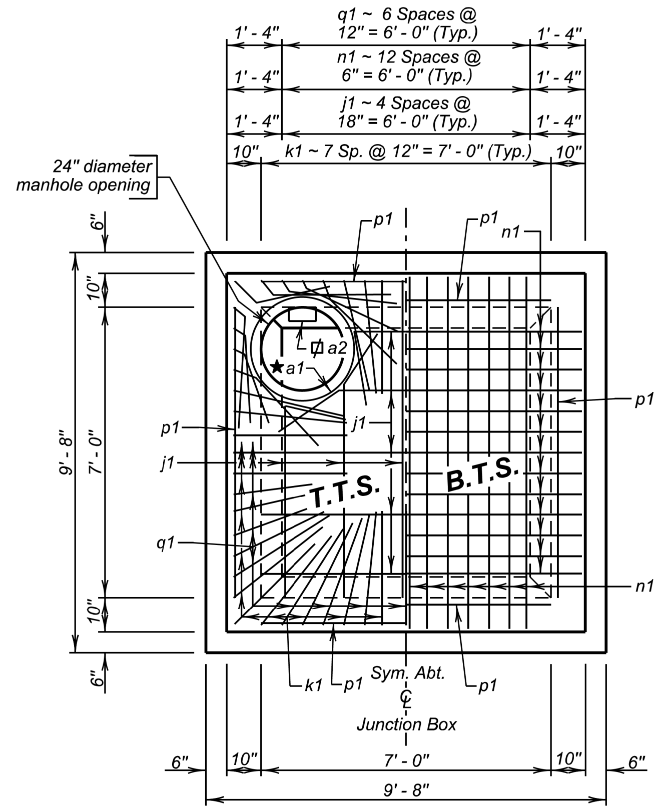
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	012-371	53	66

PLOT SCALE - 1:200

PLOT NAME - 53



PLAN



PLAN

PIPE DISPLACEMENT REDUCTIONS

R.C. Pipe Diameter (Inches)	Thickness of Pipe (Inches)	Class M6 Concrete (Cu. Yd.)
18" R.C.P.	2 ½	0.09
24" C.M.P.	¹⁄₁₆	0.10

LEGEND FOR PLACING RE-STEEL

- T.T.S. - Top of Top Slab
- B.T.S. - Bottom of Top Slab
- T.B.S. - Top of Bottom Slab
- B.B.S. - Bottom of Bottom Slab
- O.F.W. - Outside Face of Wall
- I.F.W. - Inside Face of Wall

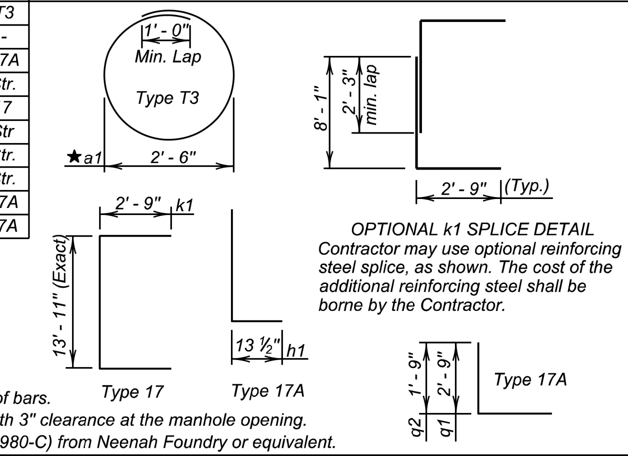
ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
✱ Class M6 Concrete	Cu. Yd.	17.9
Reinforcing Steel	Lb.	3028

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type
a1	1	6	9' - 0"	T3
⌀ a2	12	-	-----	-
h1	60	5	14' - 9"	17A
j1	20	4	7' - 0"	Str.
k1	36	5	19' - 6"	17
m1	26	5	9' - 6"	Str
n1	26	5	8 - 6"	Str.
p1	112	4	7' - 0"	Str.
q1	56	5	5' - 6"	17A
q2	48	4	3 - 6"	17A

Bending Details



OPTIONAL k1 SPLICE DETAIL
Contractor may use optional reinforcing steel splice, as shown. The cost of the additional reinforcing steel shall be borne by the Contractor.

NOTES:
All dimensions are out to out of bars.
★ Locate in center of top slab with 3" clearance at the manhole opening.
⌀ Cast Iron Manhole Steps (R-1980-C) from Neenah Foundry or equivalent.

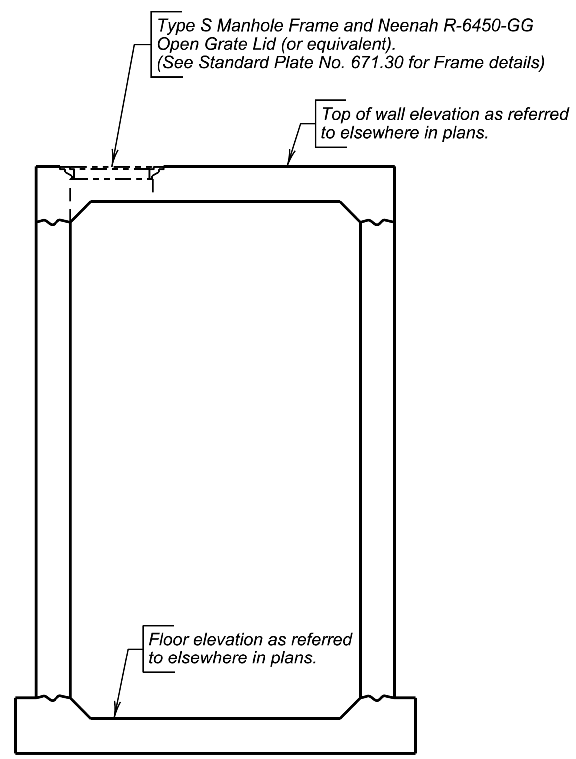
SPECIFICATIONS

1. Design Specifications: AASHTO LRFD Bridge Design Specifications, 2014 Edition.
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

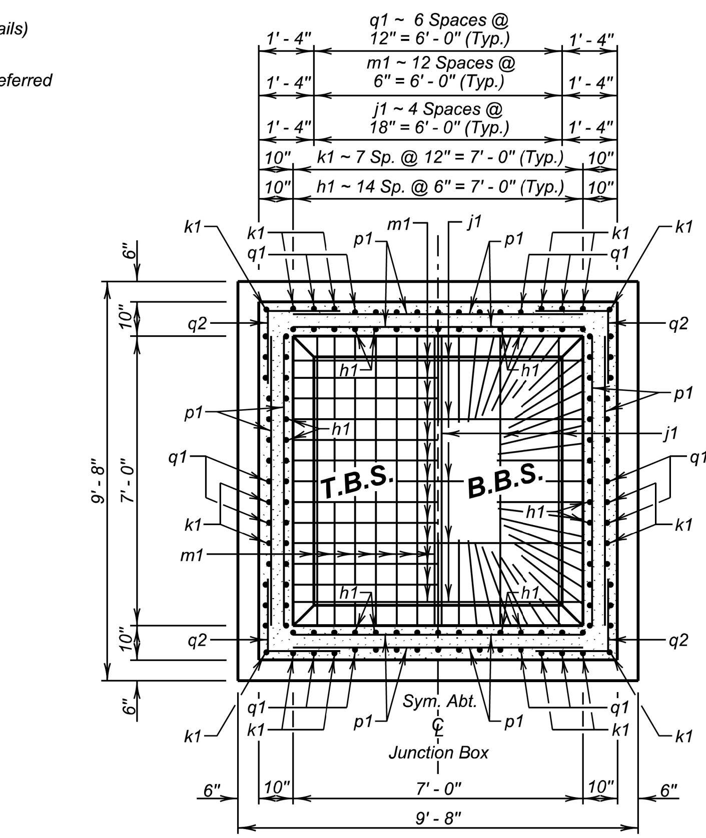
GENERAL NOTES

1. Design Live Load: HL-93. No construction loading in excess of legal load was considered.
2. The design of the Junction Box is based on 2 feet of fill.
3. All concrete will be Class M6 conforming to Section 462.
4. Reinforcing steel will conform to ASTM A615 Grade 60. Cut and bend reinforcing steel as required to place pipe(s) thru junction box wall.
5. Junction Box may be precast. If precast, submit a checked design (done by a South Dakota registered P.E.) and shop plans to the Office of Bridge Design for approval.
6. Use 1 inch clear cover on all reinforcing steel unless otherwise noted.
7. All exposed edges will be chamfered ¾ inch.
8. Junction Box shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering Junction Box must fit between the inside face of walls.
9. The cost of furnishing and installing the manhole steps will be incidental to the contract unit price per Lb. for "Reinforcing Steel".

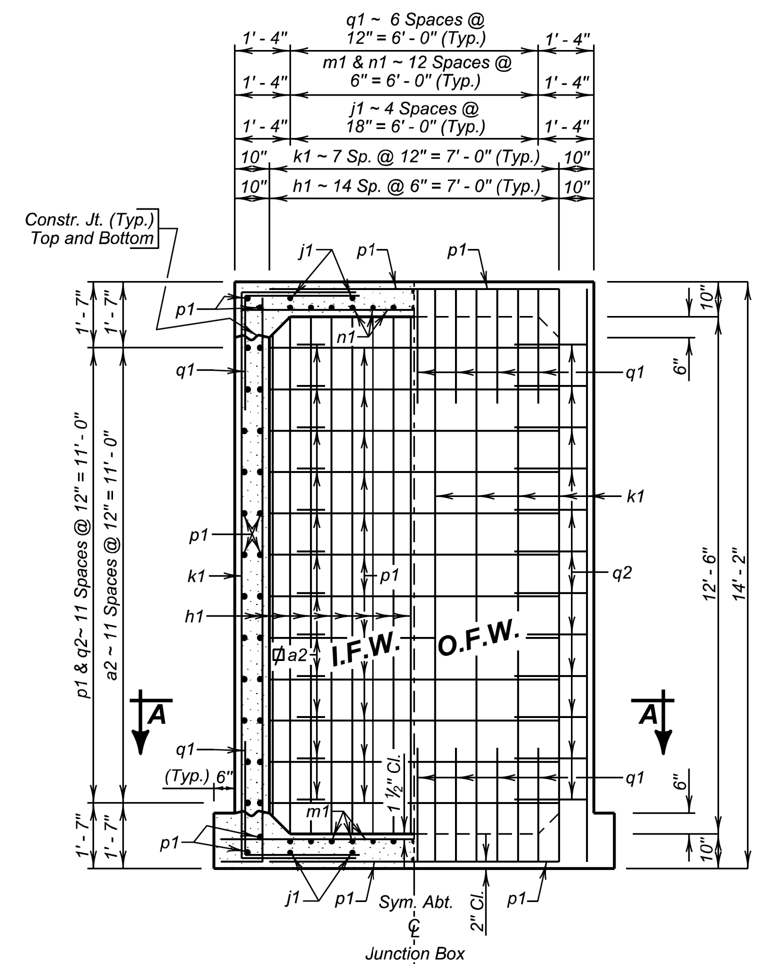
✱ 10. Reduce total quantities of concrete by the amount of concrete displaced by the pipes. The total quantity of concrete will be computed to the nearest tenth of a cubic yard. The total quantity of reinforcing steel will be computed to the nearest pound.



ELEVATION
(Cone section not shown.)



SECTION A - A



ELEVATION

DETAILS
FOR
"SPECIAL" 7' X 7' JUNCTION BOX
STA. 706 + 37.80 - 186.10' RT. SEC. 16-T20N-R28E
PCN I5V7 012-371

CORSON COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2020

1 OF 1

PLANS BY :
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

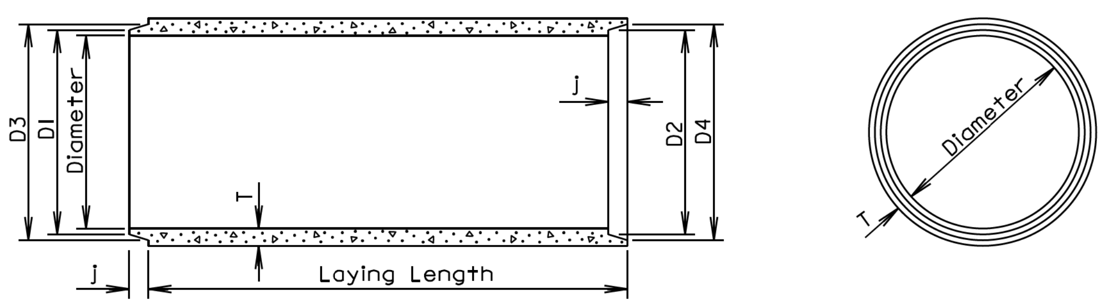
DESIGNED BY	CK. DES. BY	DRAFTED BY	
PW	BB/CL	MG	BRIDGE ENGINEER
CORSI5V7	I5V7GA01		

PLOTTED FROM - TRMOINT04

FILE - ...\I5V7-I5V8 NOTES.DGN

TOLERANCES IN DIMENSIONS

Diameter: ±1.5% for 24" Dia. or less and ±1% or 3/8" whichever is more for 27" Dia. or greater.
Diameters at joints: ± 3/16" for 30" Dia. or less and ± 1/4" for 36" or greater.
Length of joint (j): ± 1/4".
Wall thickness (T): not less than design T by more than 5% or 3/16", whichever is greater.
Laying length: shall not underrun by more than 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. (in.)	Approx. Wt./Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	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 7/8	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 7/8	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: 3rd Qtr. 2020

SDDOT

REINFORCED CONCRETE PIPE

PLATE NUMBER 450.01

Sheet 1 of 1

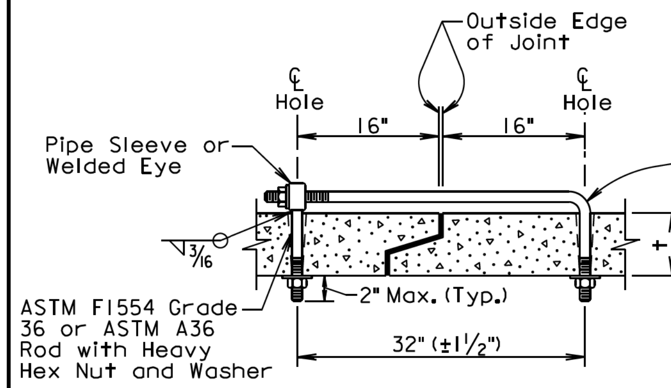
Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3 1/4	5/8	3/4
3 1/2-6 1/2	3/4	1
≥ 7	1	1 1/4

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

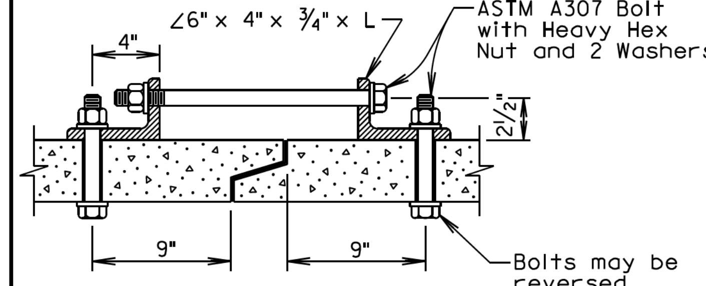
Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	3/4
> 48	6	1

GENERAL NOTES:

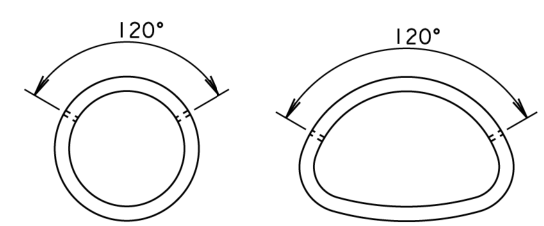
Angles shall conform to ASTM A36.

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



END VIEW "CIRCULAR"

END VIEW "ARCH"

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: 3rd Qtr. 2020

SDDOT

TIE BOLTS FOR R.C.P. AND R.C.P. ARCH

PLATE NUMBER 450.18

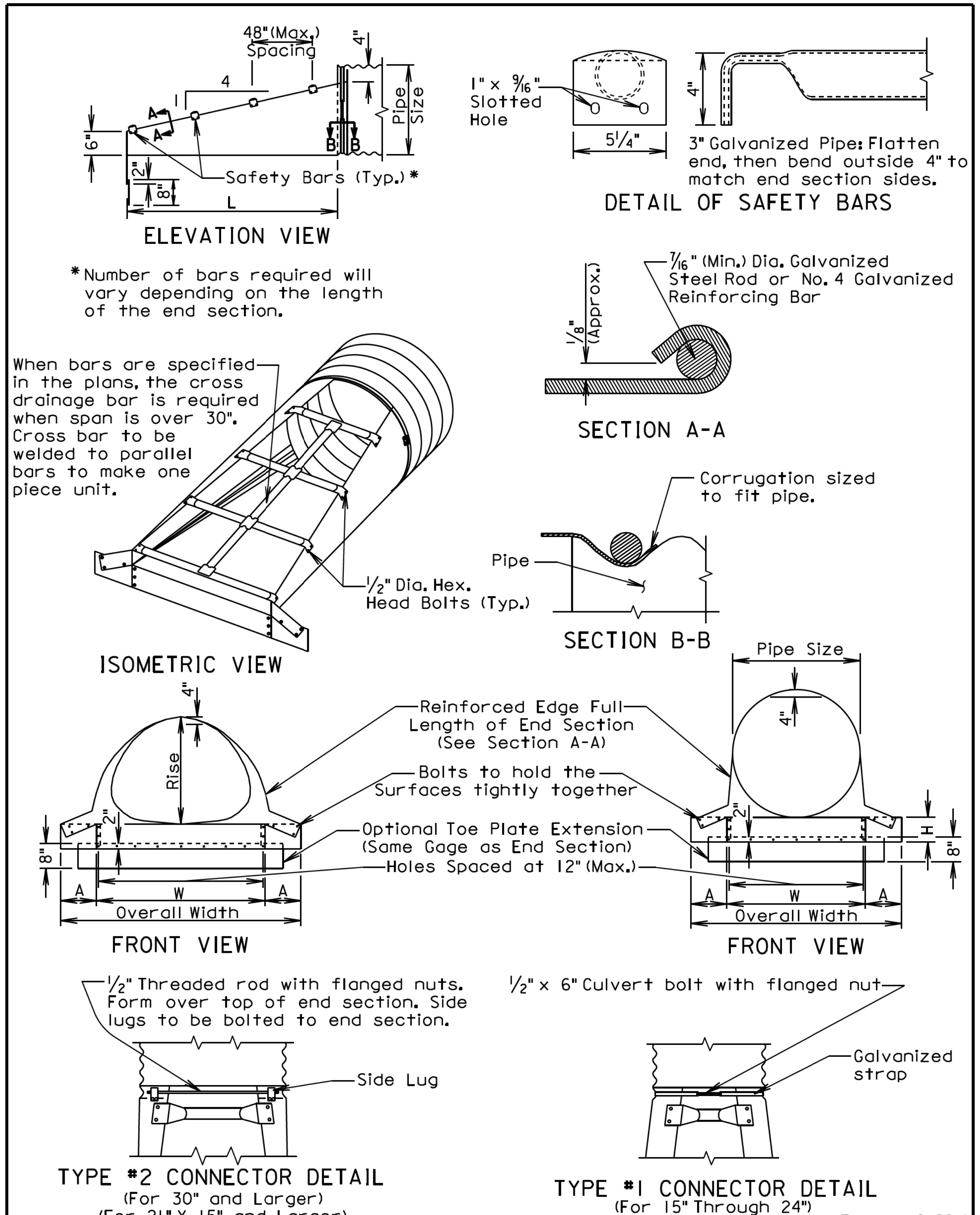
Sheet 1 of 1

PLOT SCALE - 1:200

PLOTTED FROM - TRMOINT04

PLOT NAME - 55

FILE - ...\S45037_1_S45037_2.DGN



February 10, 2014

Published Date: 3rd Qtr. 2020	SDDOT	C. M. P. SLOPED ENDS	PLATE NUMBER 450.37 Sheet 1 of 2

ARCH C.M.P. SLOPED ENDS

Equv. Dia. (Inch)	(Inches) Span	Rise	Min. Thick. Inch	Gage	Dimensions (Inches) A	H	W	Overall Width	L Dimensions Slope	Length (Inch)
18	21	15	.064	16	8	6	27	43	4:1	20
21	24	18	.064	16	8	6	30	46	4:1	32
24	28	20	.064	16	8	6	34	50	4:1	40
30	35	24	.079	14	12	9	41	65	4:1	56
36	42	29	.109	12	12	9	48	72	4:1	76
42	49	33	.109	12	16	12	55	87	4:1	92
48	57	38	.109	12	16	12	63	95	4:1	112
54	64	43	.109	12	16	12	70	102	4:1	132
60	71	47	.109	12	16	12	77	109	4:1	148
72	83	57	.109	12	16	12	89	121	4:1	188

CIRCULAR C.M.P. SLOPED ENDS

Pipe Dia. (Inch)	Min. Thick. Inch	Gage	Dimensions (Inches) A	H	W	Overall Width	L Dimensions Slope	Length (Inch)
15	.064	16	8	6	21	37	4:1	20
18	.064	16	8	6	24	40	4:1	32
21	.064	16	8	6	27	43	4:1	44
24	.064	16	8	6	30	46	4:1	56
30	.109	12	12	9	36	60	4:1	80
36	.109	12	12	9	42	66	4:1	104
42	.109	12	16	12	48	80	4:1	128
48	.109	12	16	12	54	86	4:1	152
54	.109	12	16	12	60	92	4:1	176
60	.109	12	16	12	66	98	4:1	200

GENERAL NOTES:

Safety bars shall be attached to sloped ends over 30" in diameter only when specified in the plans.

Sloped ends shall be fabricated from galvanized steel and shall conform to the requirements of the Specifications.

Safety bars shall 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 shall be provided for all end sections.

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

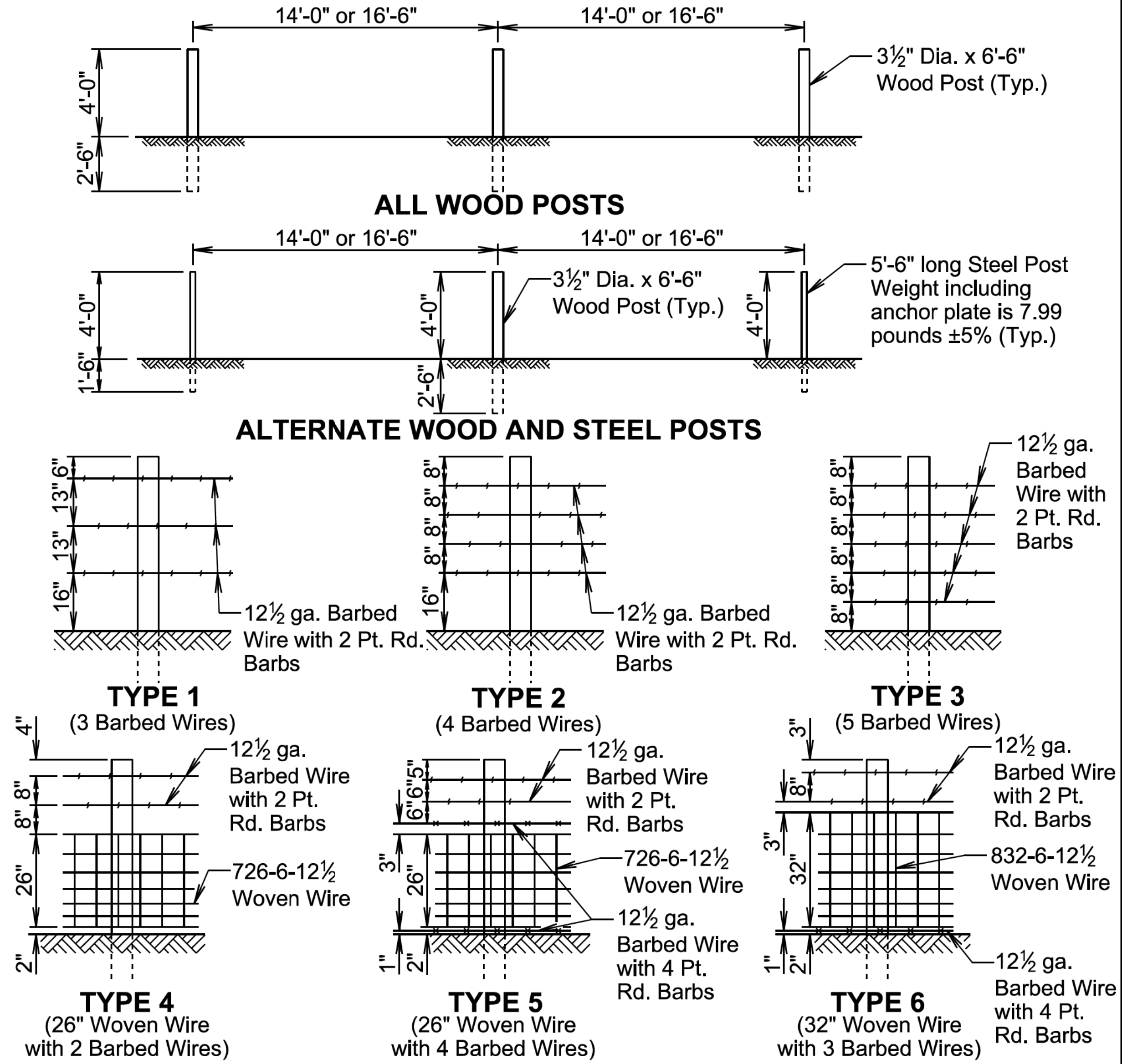
When stated in the plans, optional toe plate extension shall be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension shall be same gauge as end section. Dimensions shall be overall width less 6" by 8" high.

Installation shall be performed in accordance with the Specifications.

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

February 10, 2014

Published Date: 3rd Qtr. 2020	SDDOT	C. M. P. SLOPED ENDS	PLATE NUMBER 450.37 Sheet 2 of 2



TYPE OF FENCE		LINE POST SPACING	BARBED WIRE		WOVEN WIRE
TYPE	DESCRIPTION		WIRE GAGE	NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.
1	3 Barbed Wires	16'-6"	12½	2 Point Round	—
2	4 Barbed Wires	16'-6"	12½	2 Point Round	—
3	5 Barbed Wires	16'-6"	12½	2 Point Round	—
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12½	2 Point Round	726-6-12½
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 2 wires with 4 Pt. Rd.	726-6-12½
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 1 wire with 4 Pt. Rd.	832-6-12½

GENERAL NOTES:

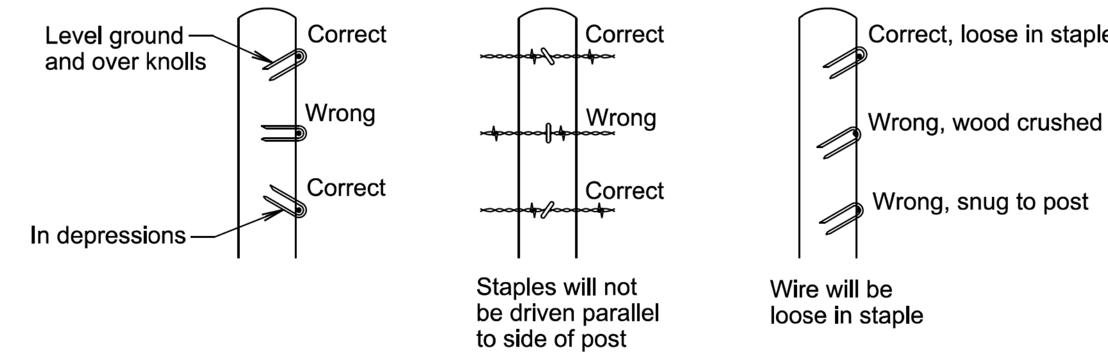
Fence types designated on the plans that are followed by the letter S will have smooth (barbless) wires.

When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.

All degrees of curvature stated for fence are at centerline of roadway.

June 26, 2019

Published Date: 3rd Qtr. 2020	SDDOT	**RIGHT-OF-WAY FENCE**	PLATE NUMBER 620.01 Sheet 1 of 1



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence will consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire will be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts will be used for brace panels. Gates will be of the type designated in the plans or as otherwise directed by the Engineer. Fence will be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects will be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Right-of-Way fence other than on Interstate Projects will be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

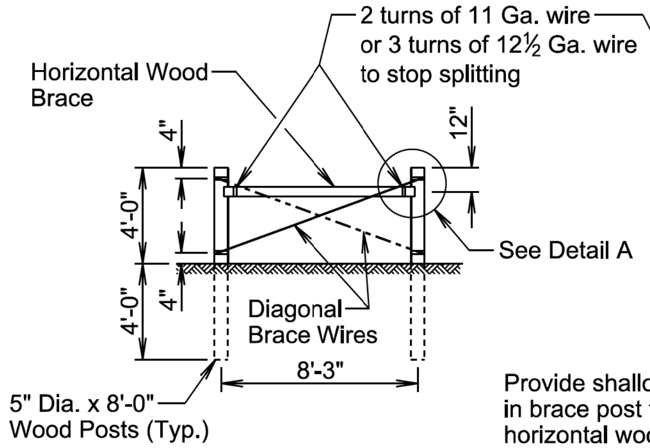
Barbs will be fabricated from zinc coated 14 ga. wire. Two point barbs will be wrapped twice around one main strand at four-inch spacings and the four point barbs will be interlocked and wrapped around both main strands at five-inch spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts will be as stated in AASHTO M281. Woven wire will conform to design and specifications of ASTM A116 and barbed wire will conform to ASTM A121.

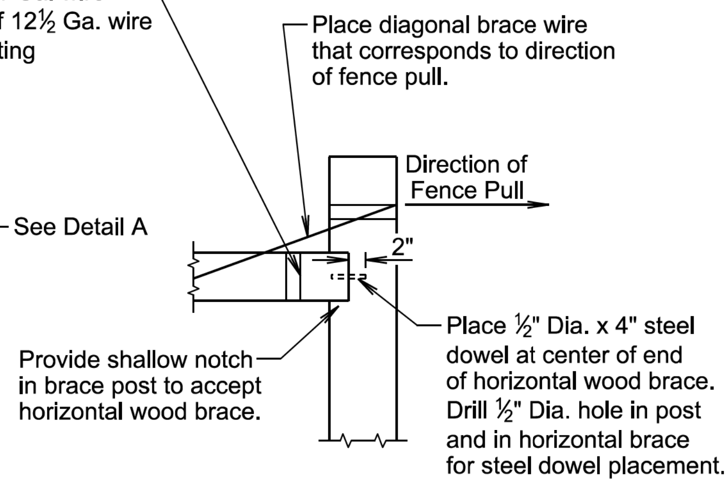
June 26, 2019

Published Date: 3rd Qtr. 2020	SDDOT	**STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES**	PLATE NUMBER 620.02 Sheet 1 of 1

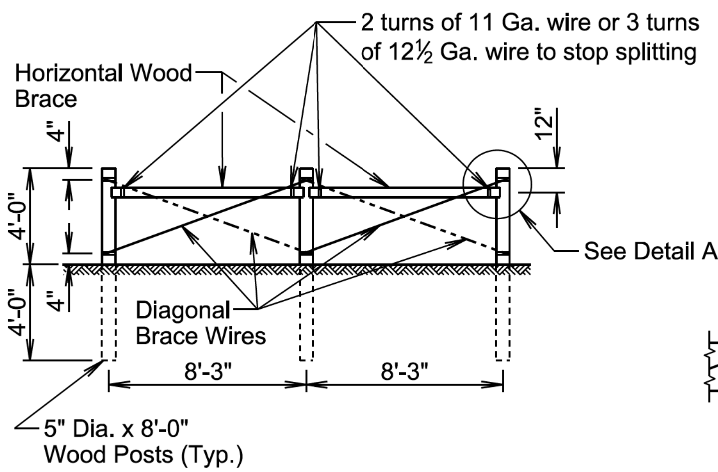
PLOT SCALE - 1:200



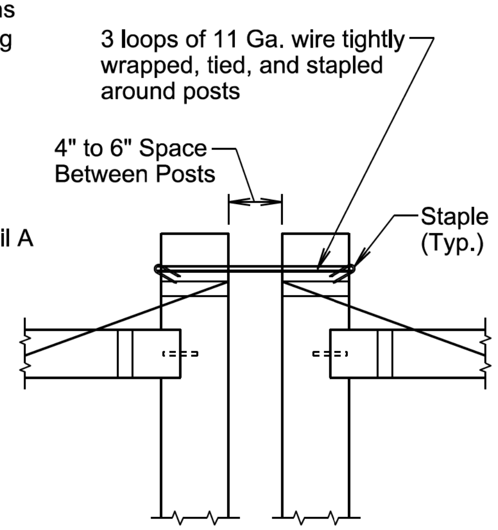
ELEVATION VIEW
(2 Post Panel)



DETAIL A



ELEVATION VIEW
(3 Post Panel)



DETAIL B

GENERAL NOTES:

Two Post Panels will be installed at least every 1320' between corners.

Two Post Panels will be installed at any sharp vertical angle crest points and as directed by the Engineer.

Horizontal wood braces will consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.

Diagonal brace wires will be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires will be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

June 26, 2019

Published Date: 3rd Qtr. 2020 | SDDOT | BRACE PANELS AND APPLICATIONS OF BRACE PANELS | PLATE NUMBER 620.03 | Sheet 1 of 3

SPACING OF 2 POST PANELS WITHIN CURVES	
DEGREE OF CURVE	SPACING OF 2 POST PANEL
less than 3°15'	** 1320'
3°15' and greater	** At P.C., P.T., and at every 1320' between P.C. and P.T.

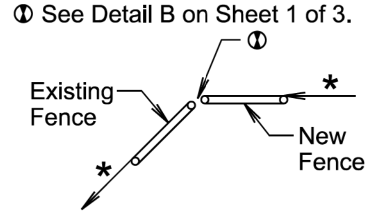
GENERAL NOTE:

All degrees of curvature stated for fence are at centerline of roadway.

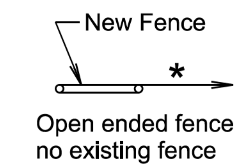
* If fence length is less than 600' to next corner use a 2 post panel.
If fence length is greater than 600' to next corner use a 3 post panel.

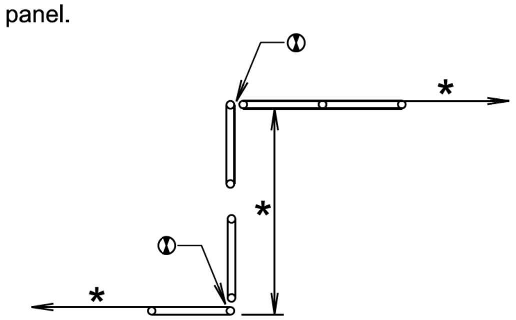
** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

① See Detail B on Sheet 1 of 3.

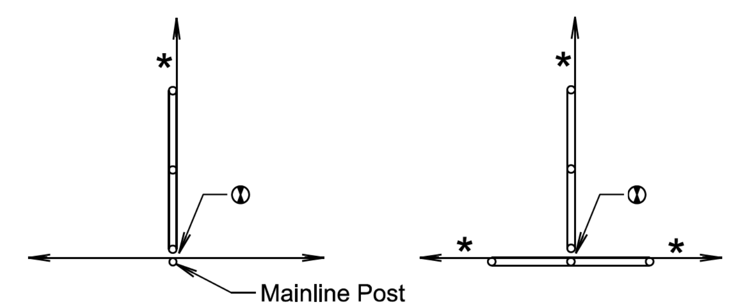


BEGIN OR END FENCE
(Where new fence ties into existing fence)

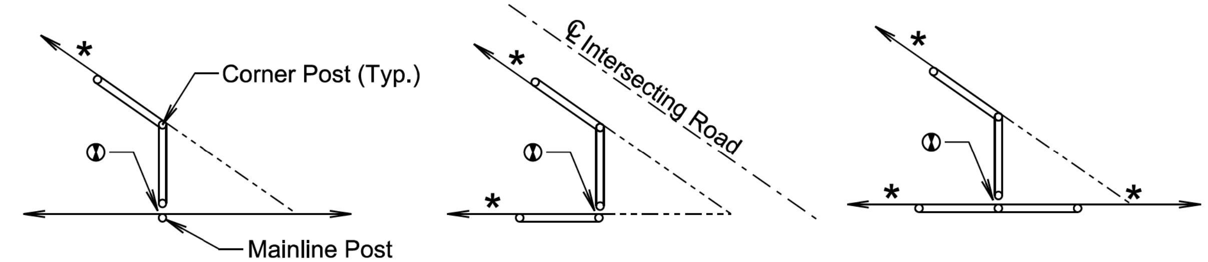




SHORT JOGS IN FENCE



CROSS FENCE



SHARP ANGLES IN CROSS FENCE

Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.

Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

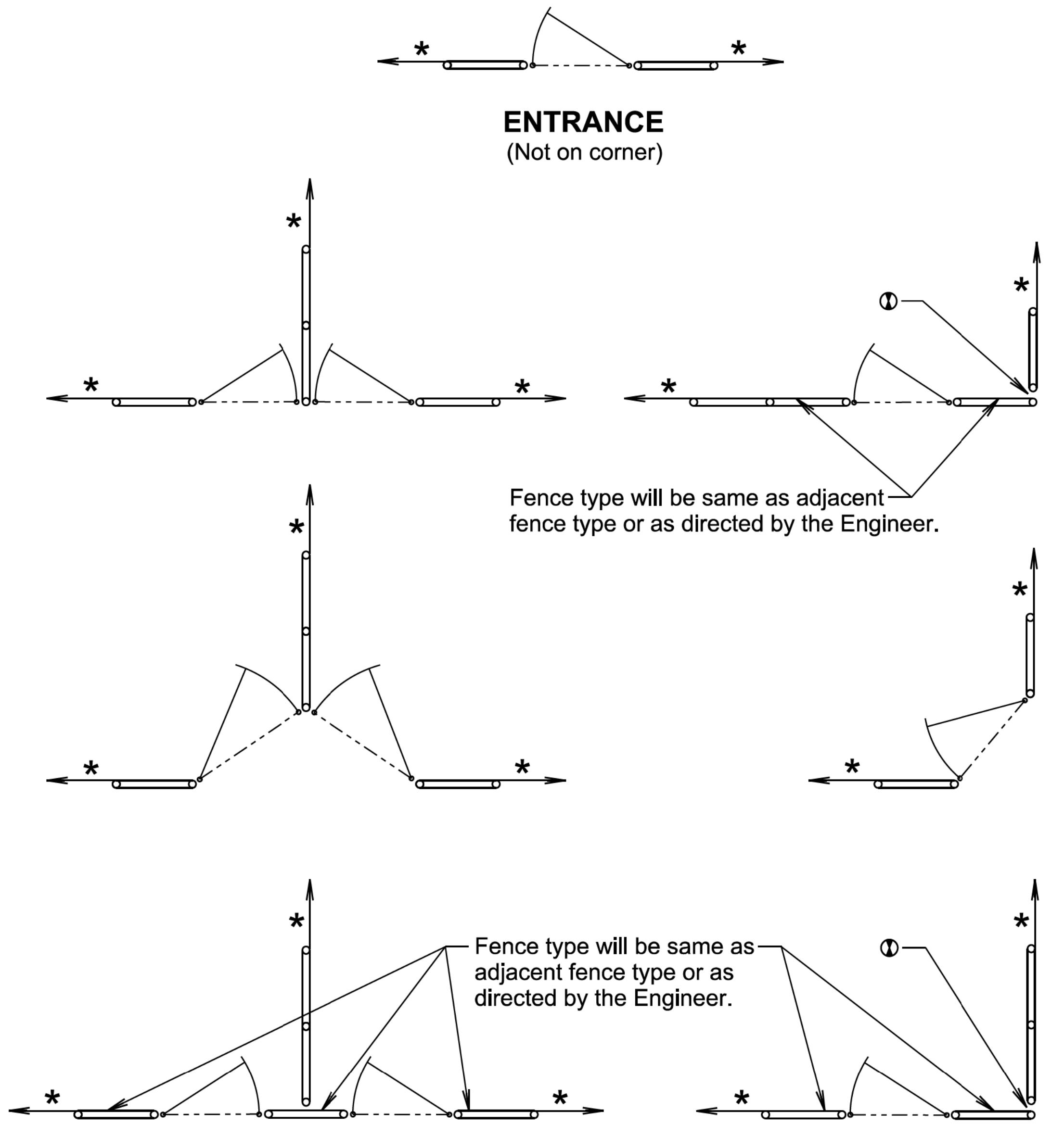
June 26, 2019

Published Date: 3rd Qtr. 2020 | SDDOT | BRACE PANELS AND APPLICATIONS OF BRACE PANELS | PLATE NUMBER 620.03 | Sheet 2 of 3

PLOT NAME - 57

FILE - ...\S62003_1_S62003_2.DGN

-PLOTTED FROM - TRMOINT04



DOUBLE ENTRANCES **ENTRANCES AT CORNERS**

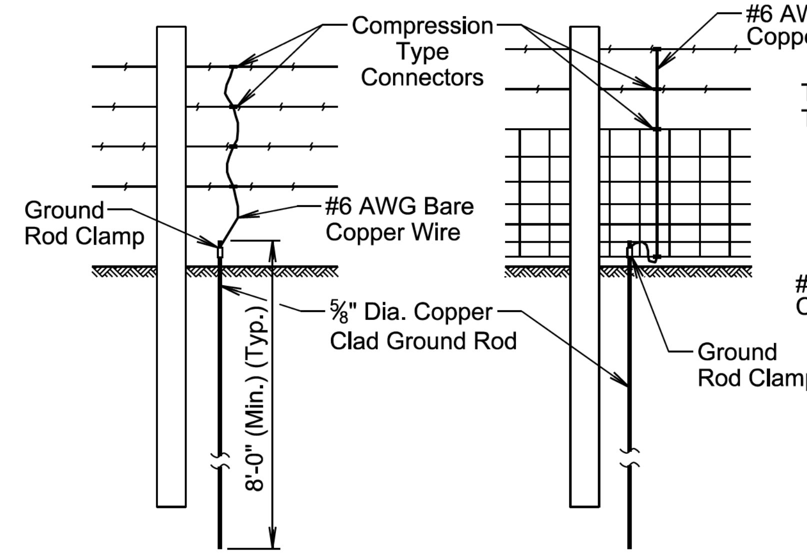
GATES

* If fence length is less than 600' to next corner use a 2 post panel.
If fence length is greater than 600' to next corner use a 3 post panel.

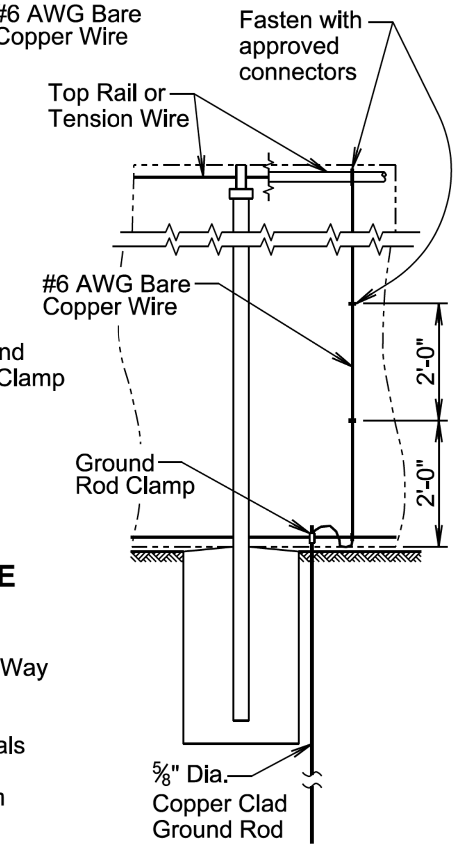
① See Detail B on Sheet 1 of 3.

June 26, 2019

Published Date: 3rd Qtr. 2020 | SDDOT | **BRACE PANELS AND APPLICATIONS OF BRACE PANELS** | PLATE NUMBER 620.03 | Sheet 3 of 3



BARBED WIRE FENCE **WOVEN WIRE FENCE**



CHAIN LINK FENCE

GENERAL NOTES:

Details shown on this standard plate will apply to all types of Right-of-Way fence constructed with all wood posts or chain link fence.

Continuous fence in urban areas will be grounded at maximum intervals of 500 feet. Continuous fence in rural areas will be grounded at maximum intervals of 1000 feet. There will be a ground at a maximum of 100 feet from a gate in each adjacent section of fence.

Fence placed under a power line will be grounded with three grounds. One ground will be placed directly below the crossing and the other two will be placed 25 feet to 50 feet away, one on each side.

One ground will be placed directly below each telephone or cable crossing.

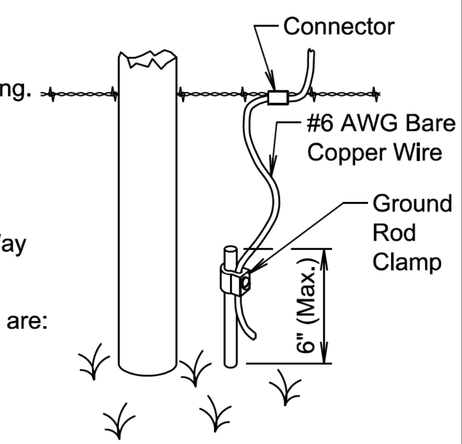
Ground rods will be located on the post side of the fence and will be as close as possible to the post and fence.

The cost of furnishing and placing all materials for grounding will be incidental to the contract unit price per foot for the respective Right-of-Way fence or chain link fence contract item.

The approximate quantites of materials per each installation of a ground are:

1 ground rod clamp.
1 ⅝" diameter x 8' long copper clad ground rod
1 #6 AWG bare copper wire; 7' long for Right-of-Way fence or 10' long for chain link fence.

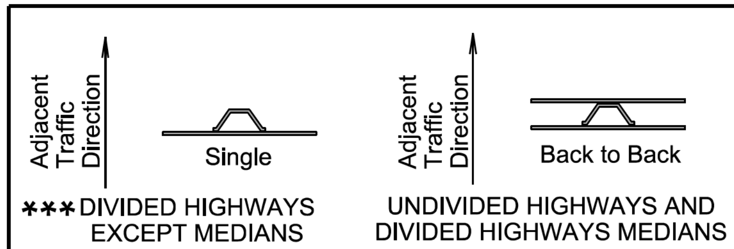
Compression type or other type of connectors:
- 26" woven wire will have a total of two connectors, one secured to the top and one secured to the bottom.
- 32" woven wire will have a total of three connectors, one secured to the top, one secured to the middle, and one secured to the bottom.
- One connector will be used for each strand of barbed wire.
- A minimum of 3 connectors will be installed on chain link fence, the connectors will be placed vertically at every 2-foot increment and connectors will be placed on the top and bottom tension wires or top rail.



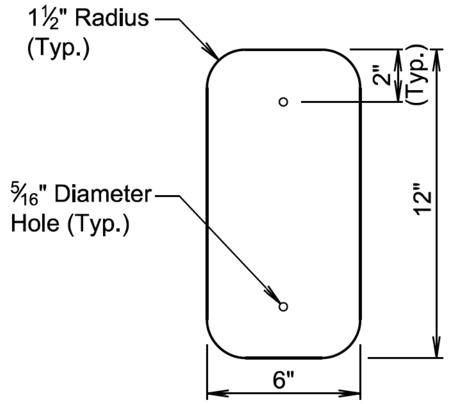
GROUND ROD DETAIL

June 26, 2019

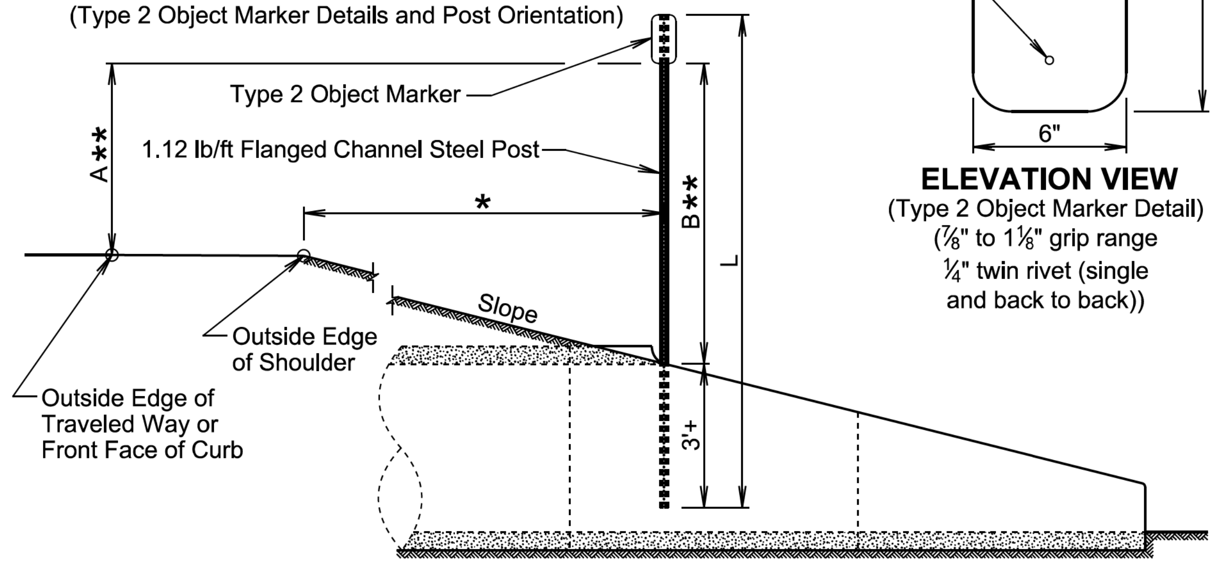
Published Date: 3rd Qtr. 2020 | SDDOT | **FENCE GROUNDING** | PLATE NUMBER 620.11 | Sheet 1 of 1



PLAN VIEW
(Type 2 Object Marker Details and Post Orientation)



ELEVATION VIEW
(Type 2 Object Marker Detail)
(7/8" to 1⅛" grip range
¼" twin rivet (single and back to back))



ELEVATION VIEW
(Pipe culvert shown for illustrative purpose.)

TYPE 2 OBJECT MARKER POST LENGTHS										
OFFSET (*)		1'	2'	3'	4'	5'	6'	7'	8'	Greater Than 8'
		POST LENGTH (L)								
SLOPE	3:1	8'-6"	8'-9"	9'-3"	9'-6"	9'-9"	10'-3"	10'-6"	10'-9"	8'-0"
	4:1	8'-6"	8'-9"	9'-0"	9'-3"	9'-9"	9'-9"	10'-0"	10'-3"	8'-0"
	5:1	8'-3"	8'-6"	8'-9"	9'-0"	9'-3"	9'-3"	9'-6"	9'-9"	8'-0"
	6:1	8'-3"	8'-6"	8'-9"	8'-9"	9'-0"	9'-3"	9'-3"	9'-6"	8'-0"

GENERAL NOTES:

*** The type 2 object marker may be installed back to back when specified in the plans.

Post Length L was calculated based on a shoulder width of 6 feet at a crosslope of 4 percent and L was rounded up to the nearest 3 inches.

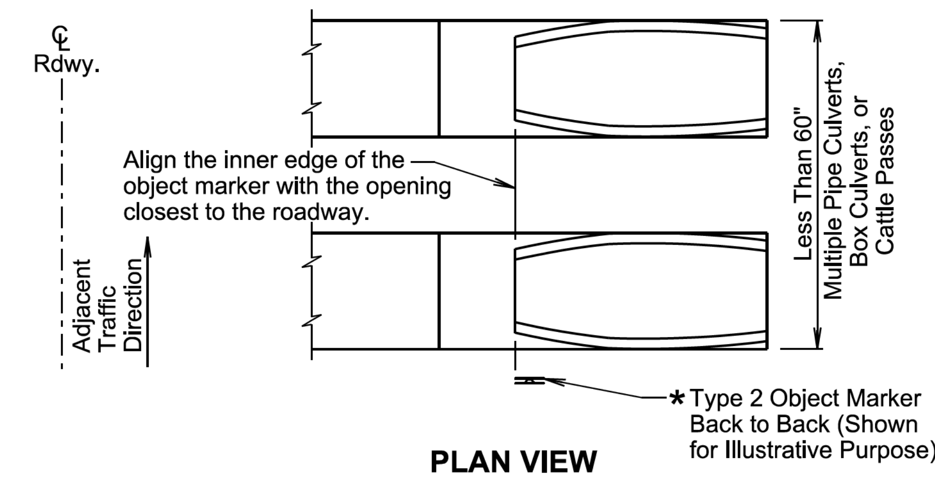
** Dimension A is 4 feet when the Offset * is 8 feet and less. Dimension B is 4 feet when Offset * is greater than 8 feet.

The type 2 object marker and the 1.12 lb/ft flanged channel steel post will be in conformance with Specifications Section 982.2 J.

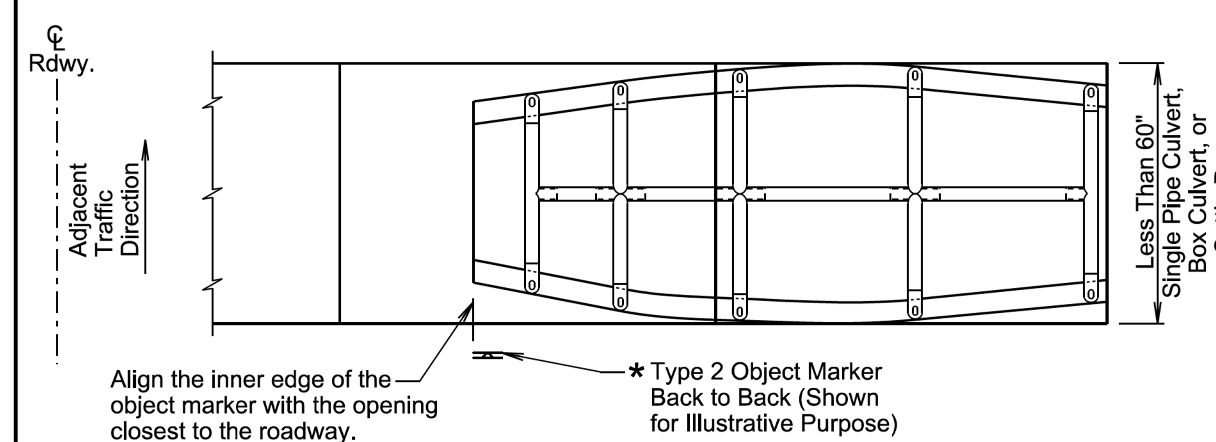
Payment for the type 2 object marker will be in conformance with Specification Section 632.5 B.

December 23, 2019

Published Date: 3rd Qtr. 2020	SDDOT	TYPE 2 OBJECT MARKER (DIRECT DRIVE)	PLATE NUMBER 632.01 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)
(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: 3rd Qtr. 2020	SDDOT	TYPE 2 OBJECT MARKER AT PIPE CULVERTS, BOX CULVERTS, AND CATTLE PASSES (Less than 60" Overall Width)	PLATE NUMBER 632.03 Sheet 1 of 1

PLOT SCALE - 1:200

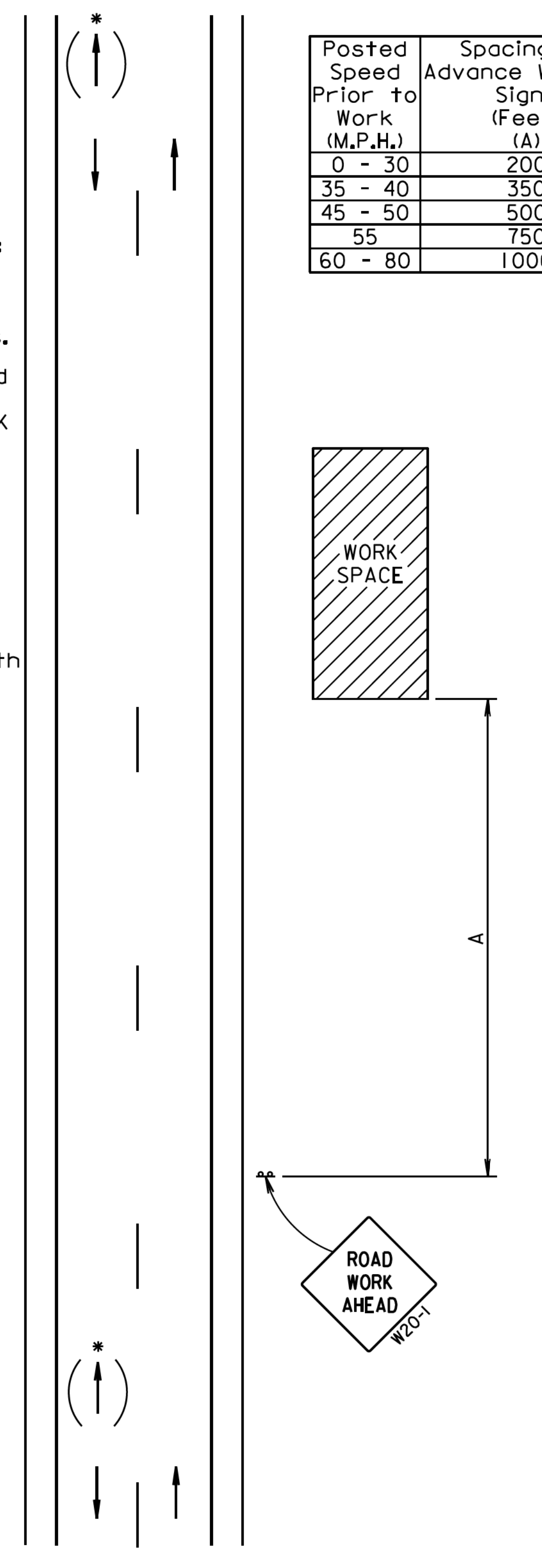
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

The signs illustrated shall be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 80	1000

April 15, 2015

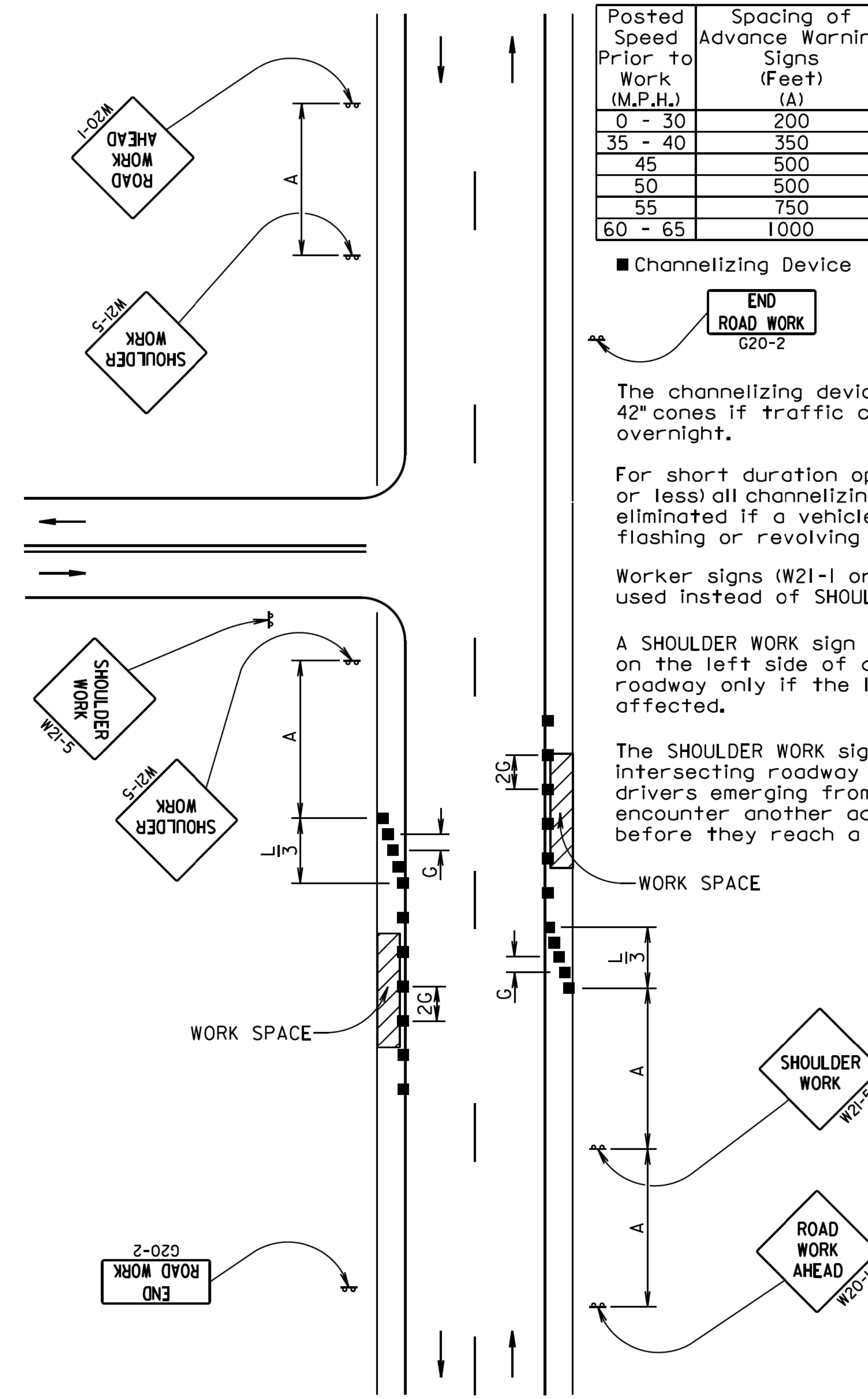
Published Date: 3rd Qtr. 2020

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
WORK BEYOND THE SHOULDER

PLATE NUMBER 634.01

Sheet 1 Of 1



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50
55	750	660	50
60 - 65	1000	780	50

■ Channelizing Device

The channelizing devices shall be drums or 42" cones if traffic control must remain overnight.

For short duration operations (1 hour or less) all channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

June 3, 2016

Published Date: 3rd Qtr. 2020

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
WORK ON SHOULDERS

PLATE NUMBER 634.03

Sheet 1 of 1

PLOT NAME - 60

FILE - ...\S63401_63403.DGN

-PLOTTED FROM - TRMOINT04

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45	500	25
50	500	50
55	750	50
60 - 65	1000	50

Flagger

Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

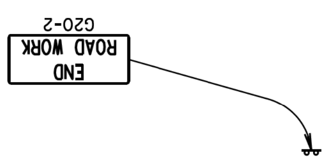
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices shall be drums or 42" cones.

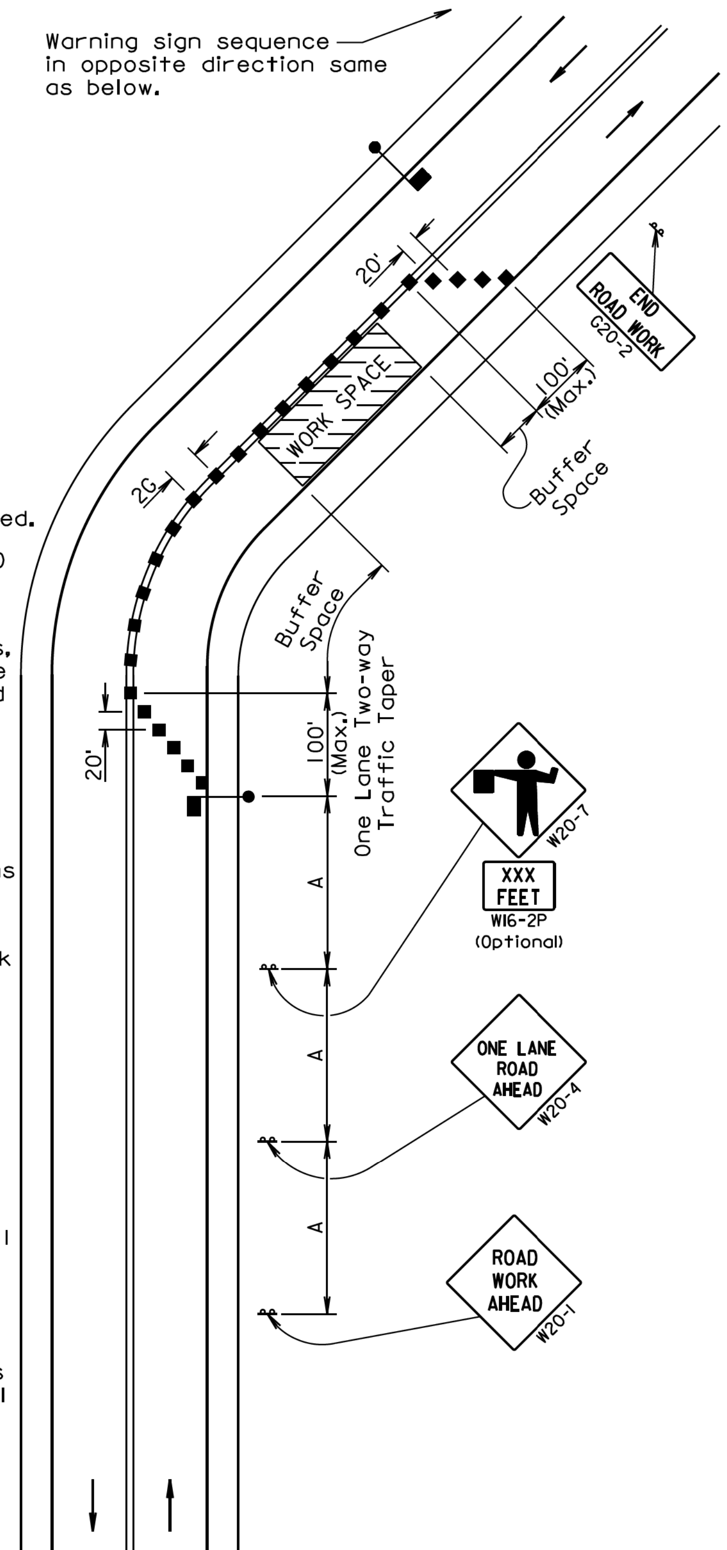
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.



June 3, 2016

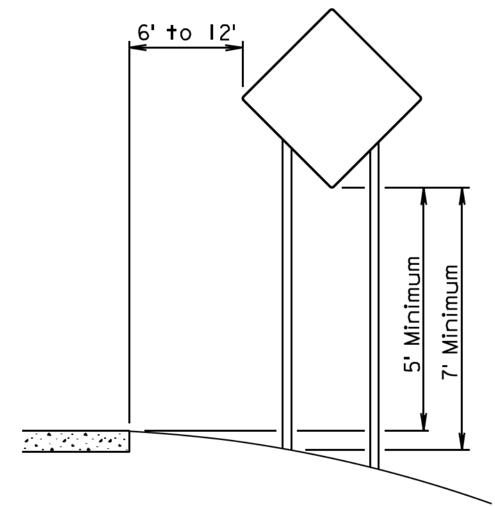
Published Date: 3rd Qtr. 2020

SDDOT

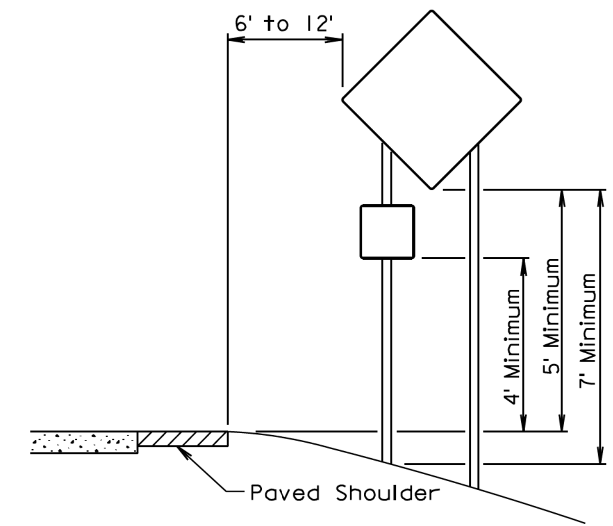
GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED

PLATE NUMBER 634.23

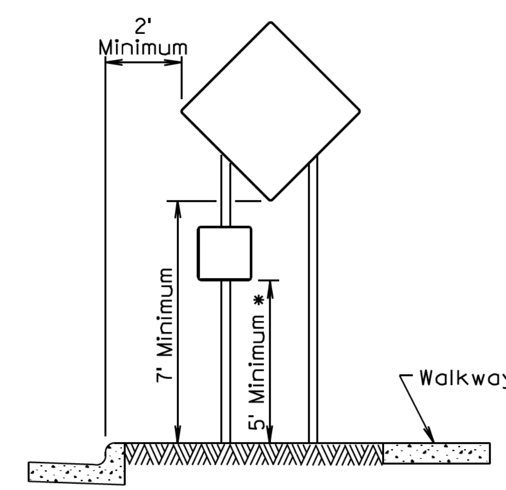
Sheet 1 of 1



RURAL DISTRICT

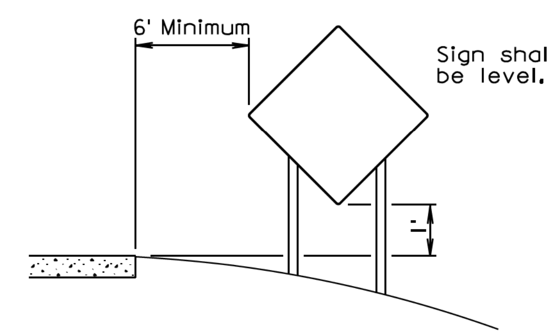


RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



RURAL DISTRICT 3 DAY MAXIMUM

(Not applicable to regulatory signs)

September 22, 2014

Published Date: 3rd Qtr. 2020

SDDOT

CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)

PLATE NUMBER 634.85

Sheet 1 of 1

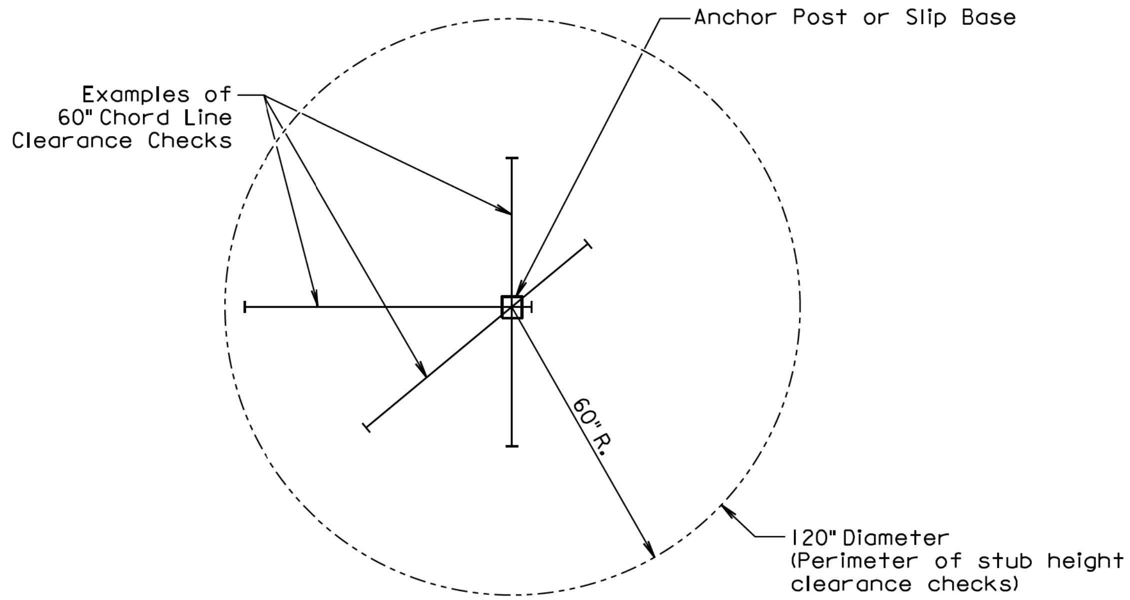
PLOT SCALE - 1:200

PLOTTED FROM - TRMOINT04

PLOT NAME - 61

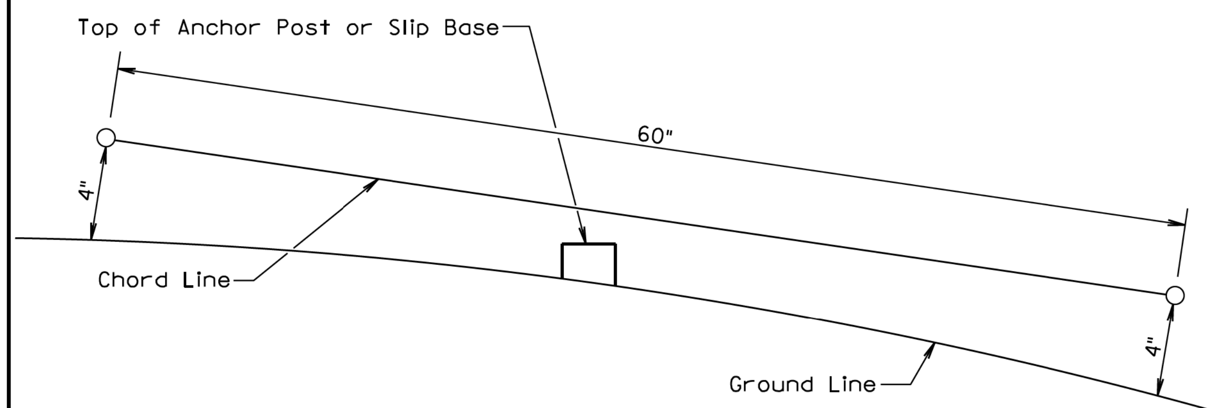
FILE - ...\S63423_S63485.DGN

PLOT SCALE - 1:200



PLAN VIEW

(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

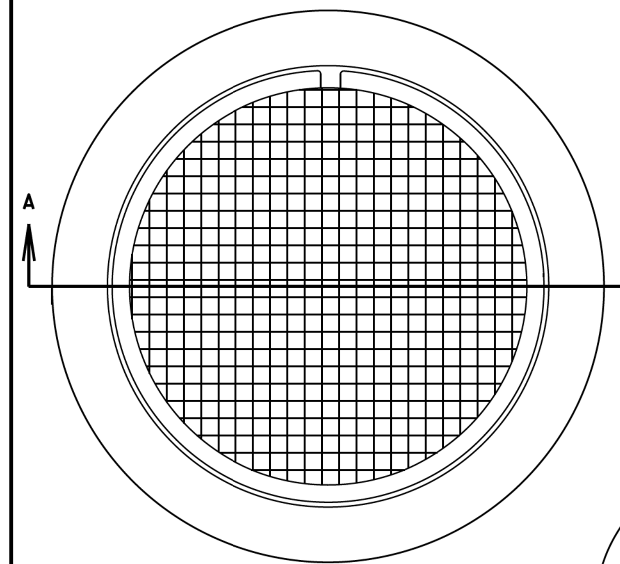
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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

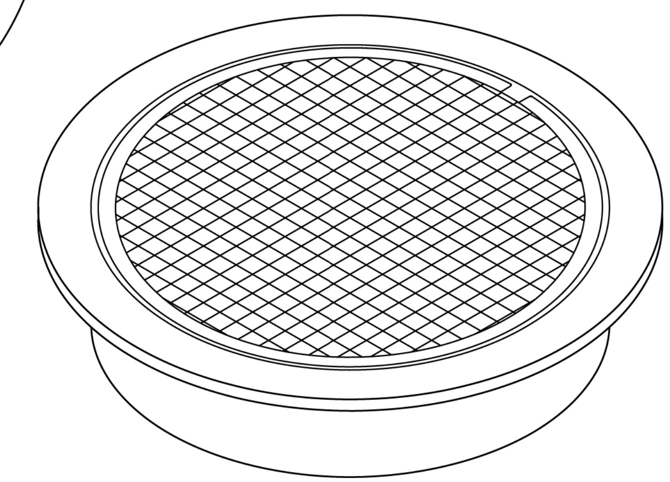
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

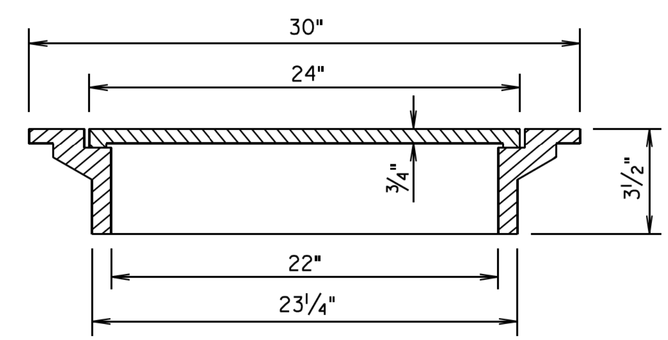
Published Date: 3rd Qtr. 2020	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99 / Sheet 1 of 1



PLAN VIEW



ASSEMBLED VIEW



SECTION A-A

GENERAL NOTE:

Total weight of the frame and lid shall be 140 Lbs. minimum.

March 31, 2000

Published Date: 3rd Qtr. 2020	SDDOT	TYPE S MANHOLE FRAME AND LID	PLATE NUMBER 671.30 / Sheet 1 of 1

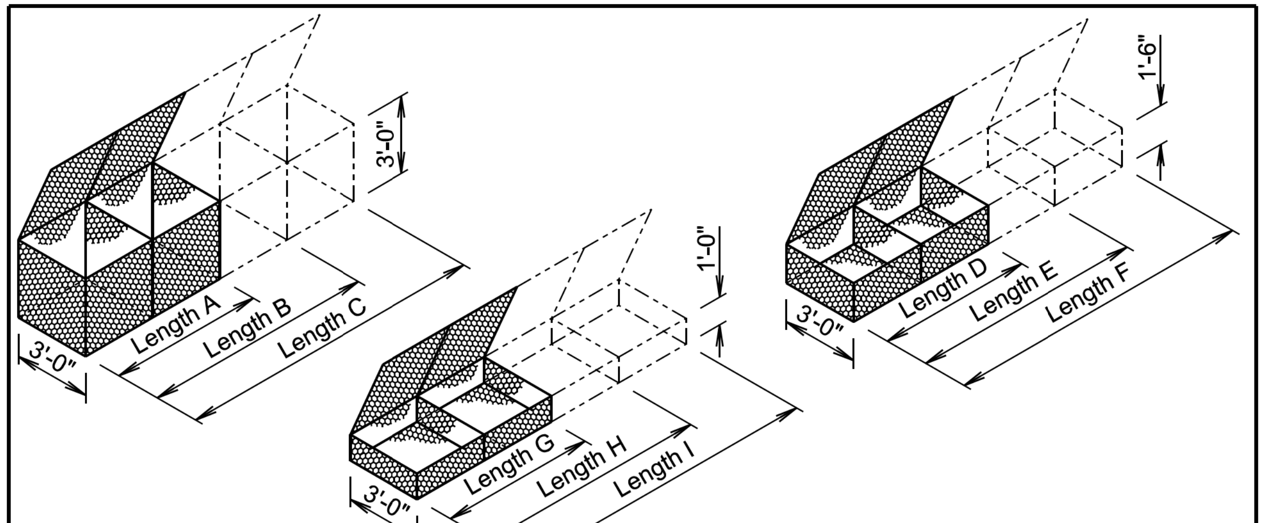
PLOTTED FROM - TRMOINT04

PLOT NAME - 62

FILE - ...\S63499_S637130.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	63	66

Plotting Date: 08/27/2020



GABION DETAILS

STANDARD SIZES					
SIZE	LENGTH	WIDTH	HEIGHT	NUMBER OF CELLS	CAPACITY (Cu. Yd.)
A	6'-0"	3'-0"	3'-0"	2	2.0
B	9'-0"	3'-0"	3'-0"	3	3.0
C	12'-0"	3'-0"	3'-0"	4	4.0
D	6'-0"	3'-0"	1'-6"	2	1.0
E	9'-0"	3'-0"	1'-6"	3	1.5
F	12'-0"	3'-0"	1'-6"	4	2.0
G	6'-0"	3'-0"	1'-0"	2	0.7
H	9'-0"	3'-0"	1'-0"	3	1.0
I	12'-0"	3'-0"	1'-0"	4	1.3

Above dimensions subject to mill tolerances.

GENERAL NOTES:

Lacing and internal connecting wire will be 0.0866 inch diameter steel wire ASTM A641, Class 3 soft temper measured after galvanizing and for PVC coated gabions will be 0.0866 inch diameter steel wire measured after galvanizing but before PVC coating.

The lacing procedure is as follows:

1. Cut a length of lacing wire approximately 1½ times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing wire terminal.

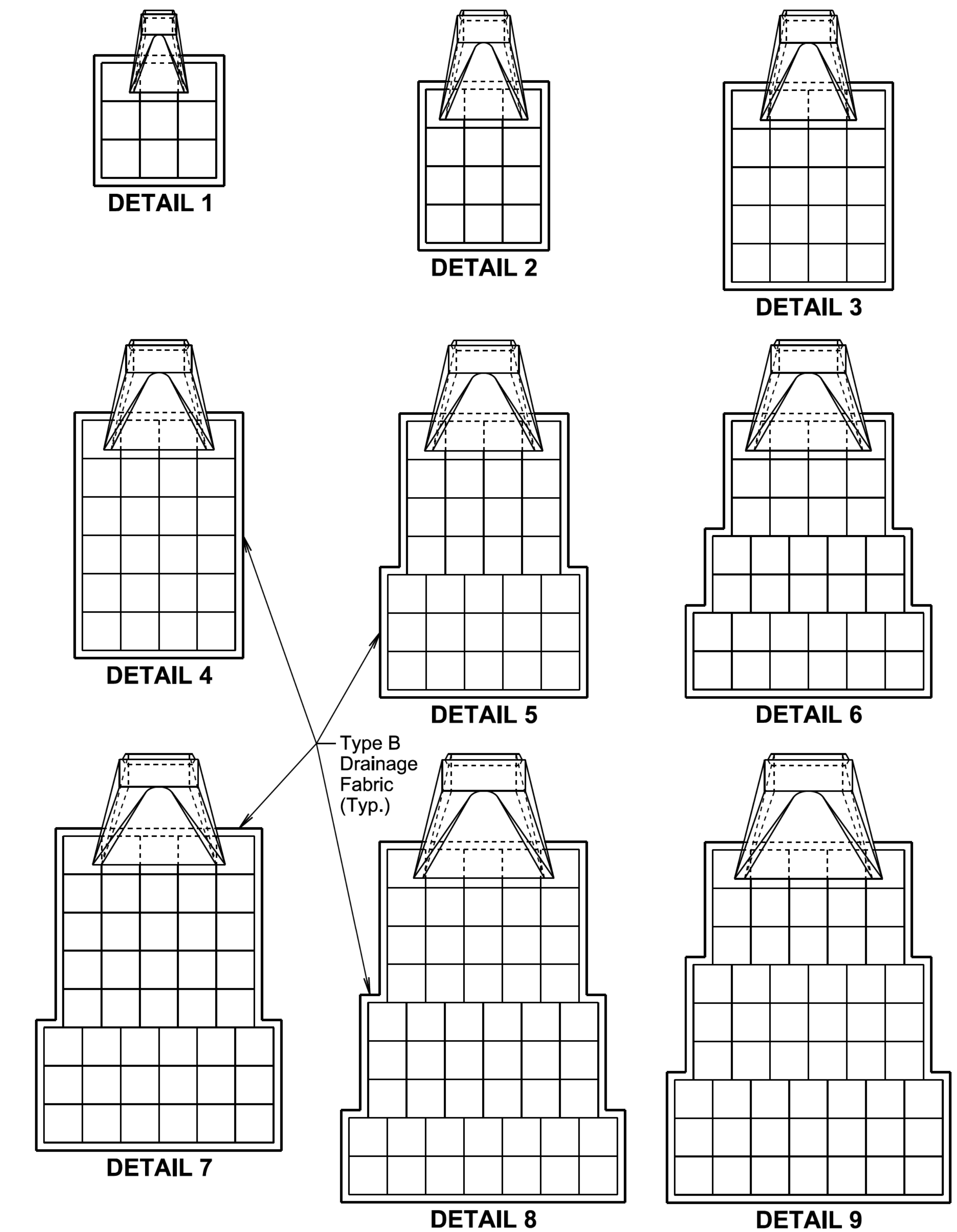
Wire lacing or interlocking type fasteners will be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions will be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing will conform to ASTM A641-92, Class 3 coating. Fasteners will also be in accordance with ASTM A764, Class II, Type III.

Interlocking fasteners for PVC coated gabions will be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class 1. The spacing of the interlocking fasteners during all phases of assembly and construction will not exceed 6 inches.

All fasteners will be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

February 14, 2020

Published Date: 3rd Qtr. 2020	SDDOT	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER 720.01 Sheet 1 of 1



February 14, 2020

Published Date: 3rd Qtr. 2020	SDDOT	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03 Sheet 1 of 2

PLOT SCALE - 1:200

PLOTTED FROM - TRMOINT04

PLOT NAME - 63

FILE - ...\S72001_S72003_1.DGN

	★ ESTIMATED QUANTITIES			
	Detail	Pipe Diameter (Inches)	Gabion (Cu. Yd.)	Type B Drainage Fabric (Sq. Yd.)
RCP, RCP Arch, CMP, and CMP Arch	1	12, 18, and 24	4.5	15
	2	30 and 36	6.0	19
	3	42	10.0	29
	4	48 and 54	12.0	34
	5	60	15.5	43
	6	66	17.0	47
	7	72	21.5	57
	8	78	26.0	68
	9	84	27.0	70

GENERAL NOTES:

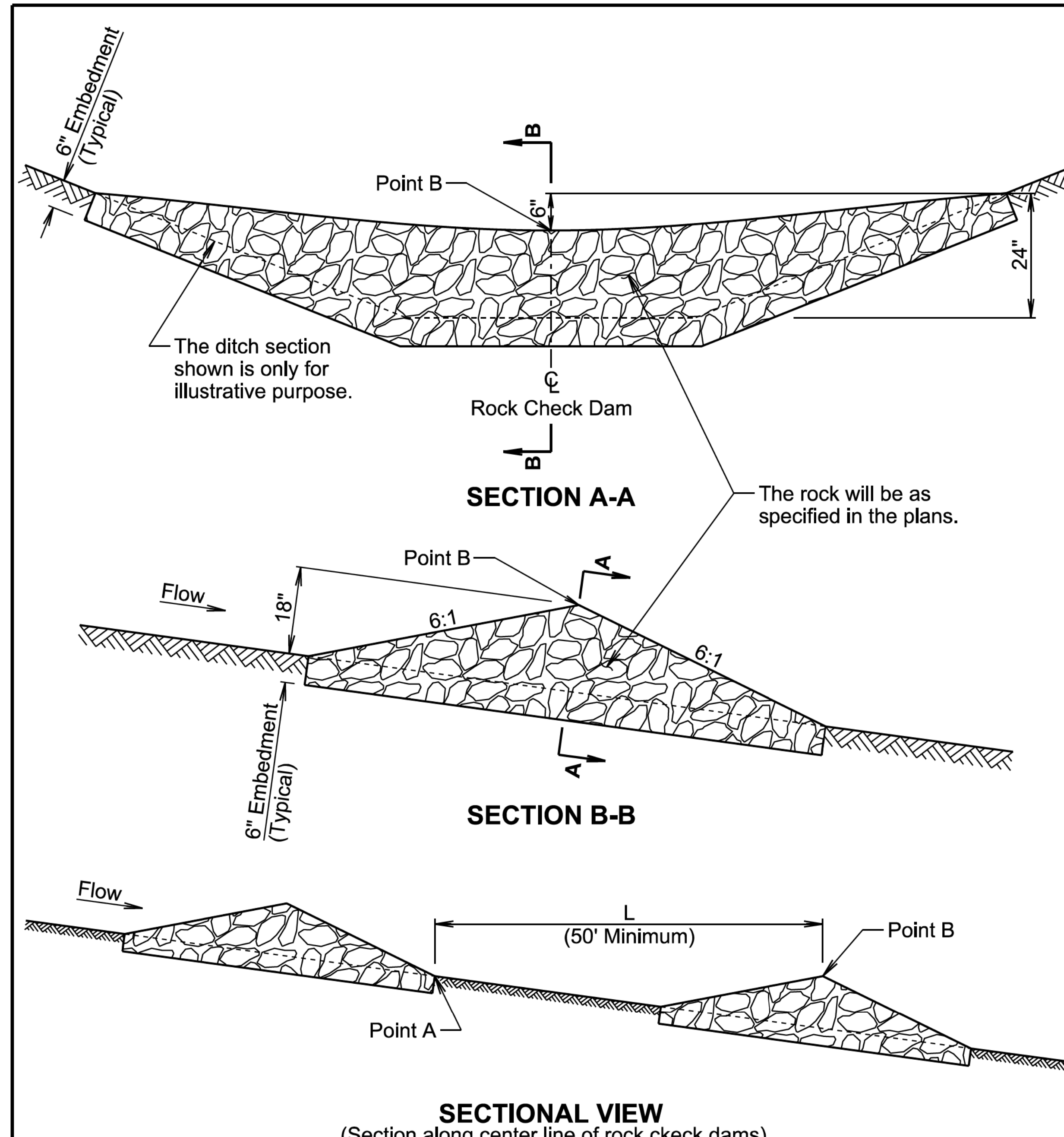
Gabions at outlets of CMP and RCP will be placed under the end section a distance of 2 feet from the outlet end. For CMP end section installations, the upper fabric of the gabions will be modified to accommodate the metal end section as approved by the Engineer.

★ Gabion and type B drainage fabric quantities on this standard plate are based on standard gabion sizes D, E, and F as depicted on standard plate 720.01.

Type B drainage fabric will be placed under the gabions and around the exterior sides (perimeter) of the gabions as approved by the Engineer. The type B drainage fabric will be in conformance with Section 831 of the Specifications. Measurement and payment of the type B drainage fabric will be in conformance with Section 720 of the Specifications.

February 14, 2020

Published Date: 3rd Qtr. 2020	SDDOT	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03 / Sheet 2 of 2



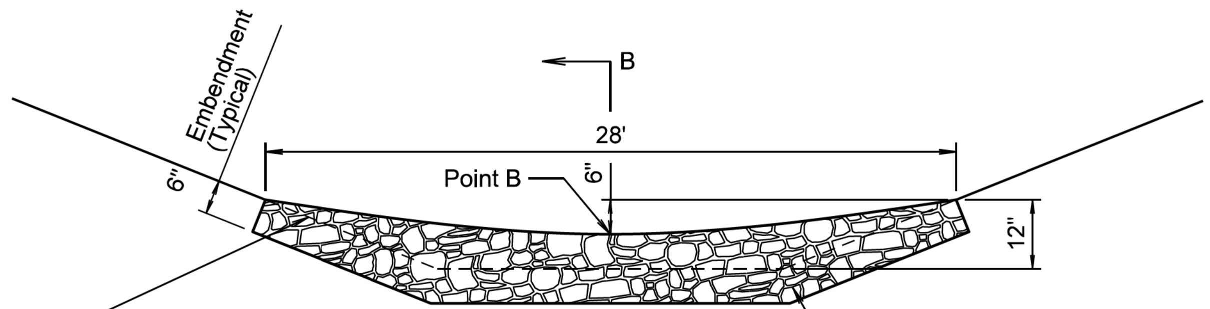
GENERAL NOTES:

The elevation of Point A and Point B will be the same. The distance L is the distance required such that Point A and Point B are at the same elevation.

All costs for constructing the rock check dam including labor, equipment, excavation, and rock will be incidental to the contract unit price per cubic yard for "Rock Check Dam".

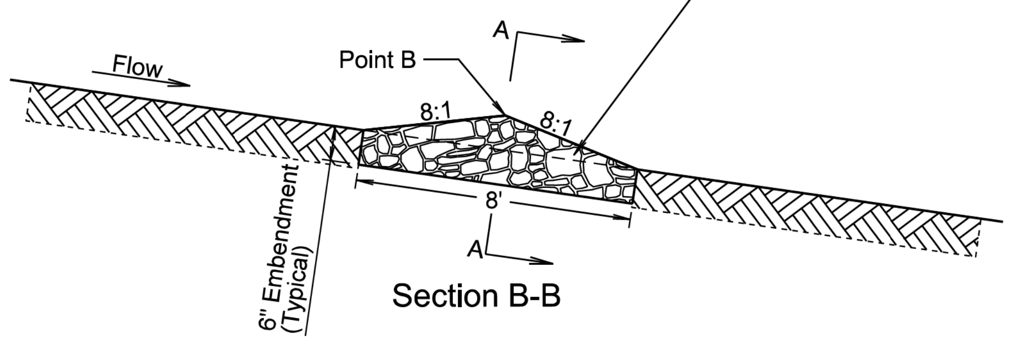
February 14, 2020

Published Date: 3rd Qtr. 2020	SDDOT	ROCK CHECK DAM	PLATE NUMBER 734.03 / Sheet 1 of 1

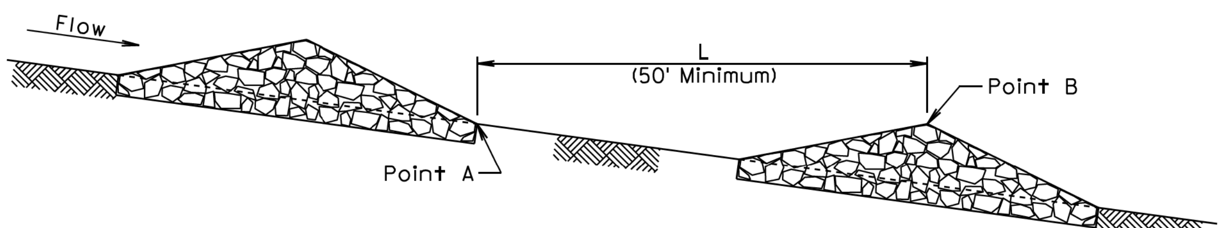


Section A-A

The rock will be as specified in the plans.



Section B-B



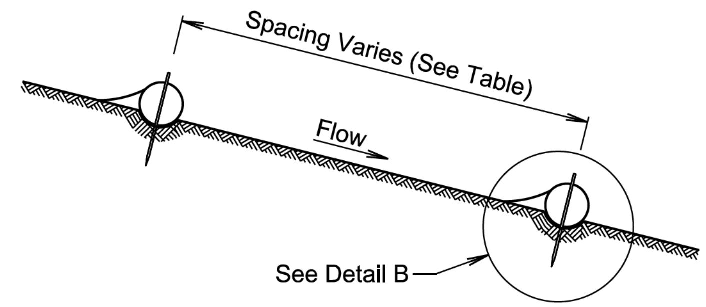
SECTION ALONG CENTERLINE OF ROCK CHECK DAMS

GENERAL NOTES:

The elevation of Point A and Point B shall be the same. The distance L is the distance required such that Point A and Point B are at the same elevation.

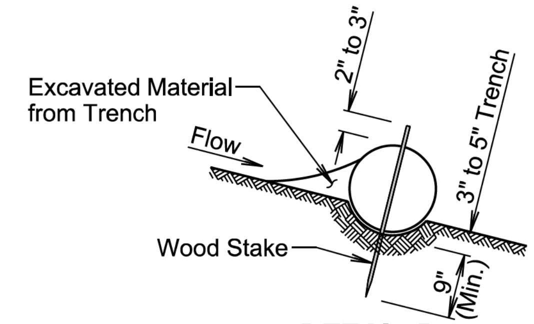
All costs for constructing the Rock Check Dam including labor, equipment, excavation, and rock shall be incidental to the contract unit price per cubic yard for "Rock Check Dam".

Date: August 2020	SDDOT	MODIFIED ROCK CHECK DAM	MODIFIED 734.03 Sheet 1 of 1

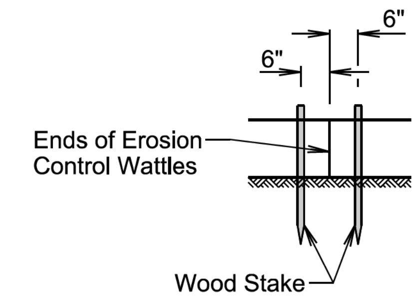


ELEVATION VIEW
(Cut or Fill Slope Installation)

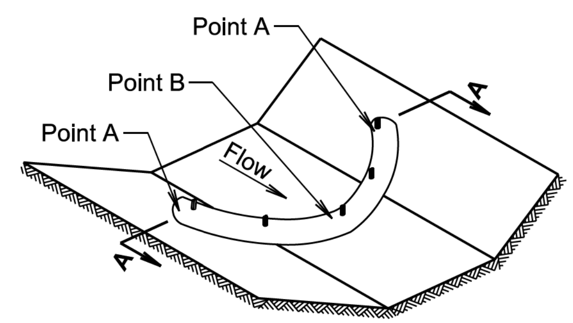
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



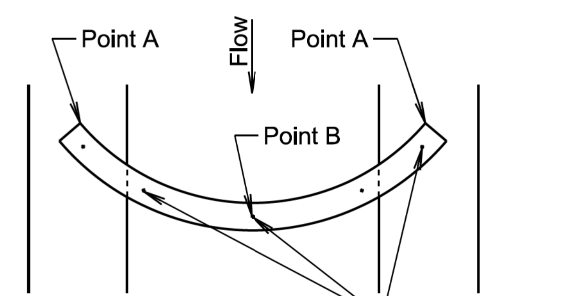
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

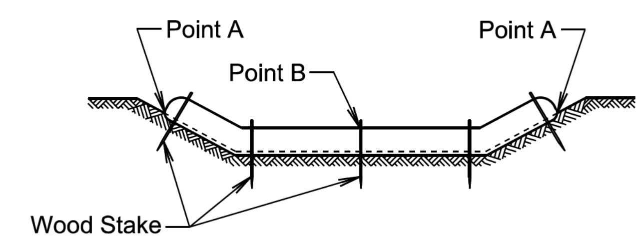


ISOMETRIC VIEW
(Ditch Installation)



PLAN VIEW
(Ditch Installation)

DITCH INSTALLATION	
Grade	Spacing (Ft.)
2%	150
3%	100
4%	75
5%	50



SECTION A-A

February 14, 2020

Published Date: 3rd Qtr. 2020	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06 Sheet 1 of 2

PLOT SCALE - 1:200

PLOT NAME - 66

FILE - ...\S73406_2_S73425.DGN

PLOTTED FROM - TRMOINT04

GENERAL NOTES:

At cut or fill slope installations, wattles will be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor will dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes will be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes will be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles will be 3' to 4'.

Where installing running lengths of wattles, the Contractor will butt the second wattle tightly against the first and will not overlap the ends. See Detail C.

The Contractor and Engineer will inspect the erosion control wattles in accordance with the storm water permit. The Contractor will remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

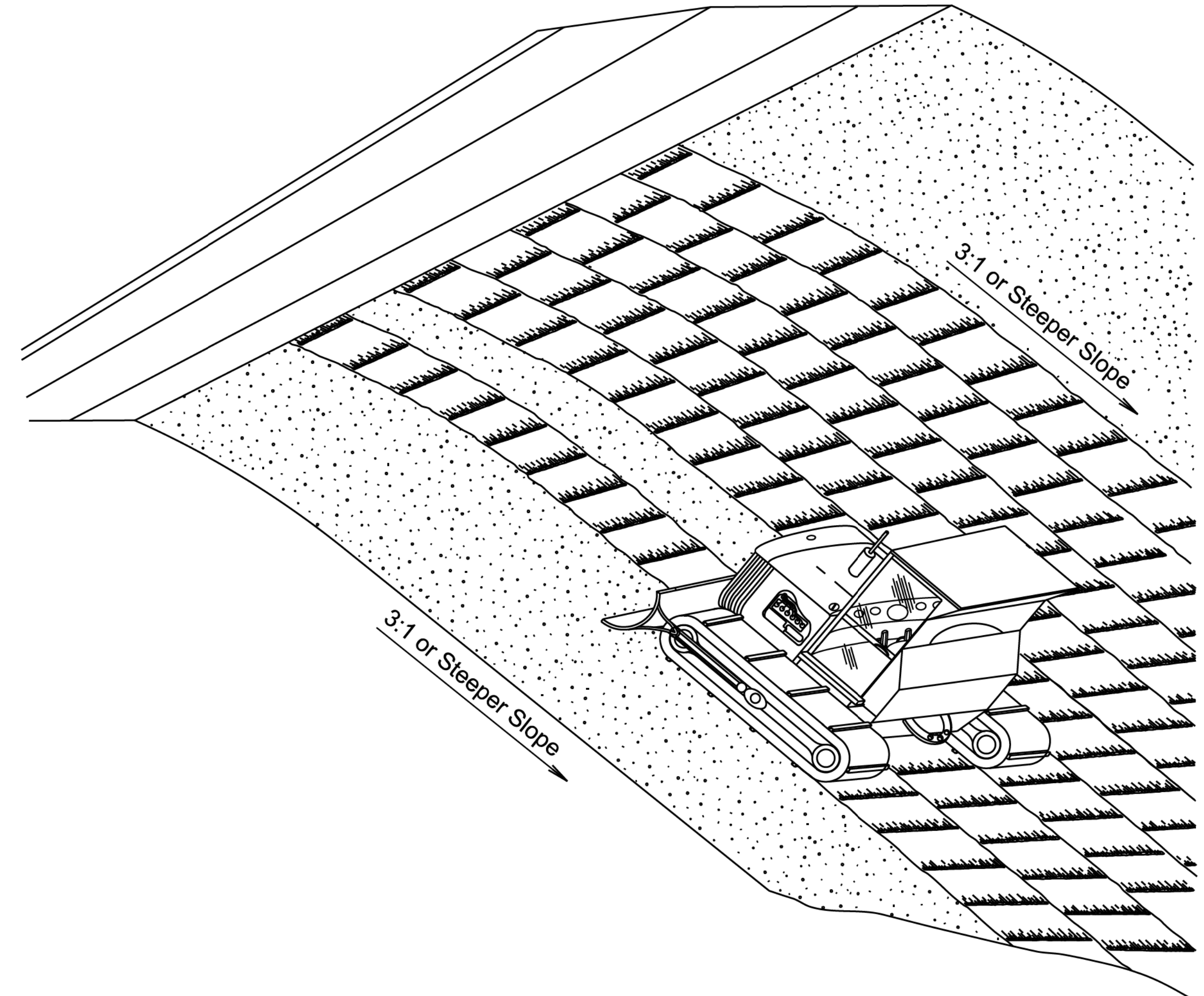
Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping will be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials will be incidental to the contract unit price per foot for the corresponding erosion control wattle contract item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials will be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

February 14, 2020

Published Date: 3rd Qtr. 2020	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06 — Sheet 2 of 2



GENERAL NOTES:

Where practical, surface roughening will be done on slopes 3:1 and steeper and on slopes deemed necessary by the Engineer.

The equipment used for surface roughening will be equipped with tracks that are capable of creating ridges in the soil that are perpendicular to the slope. The final condition of the surface roughening will be approved by the Engineer.

Measurement for surface roughening will be to the nearest tenth of an acre.

All costs associated with surface roughening including labor, equipment, and materials will be incidental to the contract unit price per acre for "Surface Roughening".

February 14, 2020

Published Date: 3rd Qtr. 2020	SDDOT	SURFACE ROUGHENING	PLATE NUMBER 734.25 — Sheet 1 of 1