STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	1	137

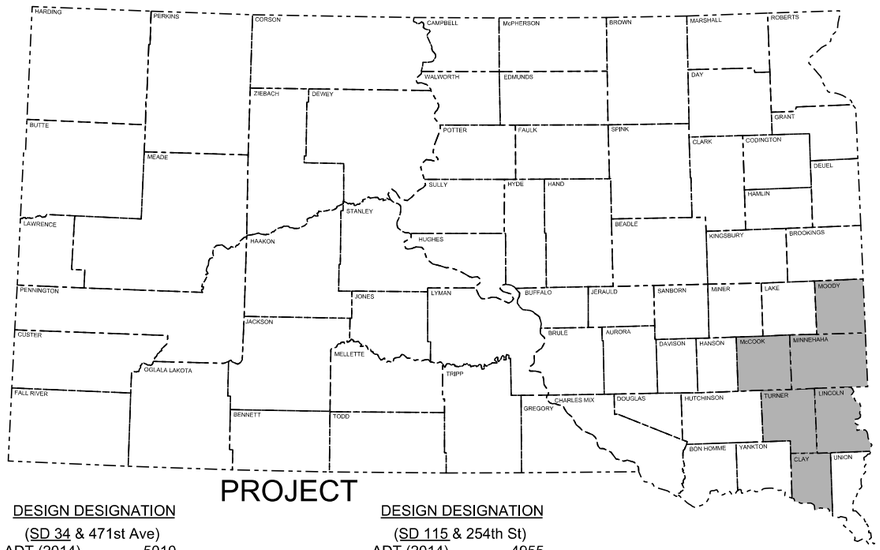
Plotting Date: 12/14/2015

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT PH 0020(139)
CLAY, LINCOLN, McCOOK, MINNEHAHA, MOODY & TURNER COUNTIES

GRADING, C & G, STORM SEWER,
PCC PAVEMENT & AC SURFACING
PCN 04GP



PROJECT

DESIGN DESIGNATION (SD 34 & 471st Ave)	
ADT (2014)	5010
ADT (2034)	5135
DHV	632
D	50%
T DHV	3.1%
T ADT	6.9%
V	70 MPH

STORM WATER PERMIT

Major Receiving
Body of Water: Bachelor Creek
Area Disturbed: 2.55 Acres
Total Project Area: 4.40 Acres
Approx. Begin Lat,Long: 43.9789, -96.7931

DESIGN DESIGNATION (SD 115 & 258th St)	
ADT (2014)	4955
ADT (2034)	7928
DHV	951
D	51%
T DHV	2.6%
T ADT	5.7%
V	70 MPH

STORM WATER PERMIT

Major Receiving
Body of Water: Silver Creek
Area Disturbed: 1.43 Acres
Total Project Area: 2.09 Acres
Approx. Begin Lat,Long: 43.6450, -96.7114

DESIGN DESIGNATION (SD 44 & 447th Ave)	
ADT (2014)	1980
ADT (2034)	2132
DHV	279
D	52%
T DHV	5.7%
T ADT	12.6%
V	70 MPH

STORM WATER PERMIT

Major Receiving
Body of Water: West Fork Vermillion River
Area Disturbed: 1.87 Acres
Total Project Area: 3.58 Acres
Approx. Begin Lat,Long: 43.4011, -97.2650

SCALES

PLAN		1"=100'
CROSS SECTIONS	HORIZONTAL:	1"=20'
	VERTICAL:	1"=10'

DESIGN DESIGNATION (SD 34 & 471st Ave)	
ADT (2014)	4955
ADT (2034)	7928
DHV	951
D	51%
T DHV	2.6%
T ADT	5.7%
V	70 MPH

STORM WATER PERMIT

Major Receiving
Body of Water: Silver Creek
Area Disturbed: 1.78 Acres
Total Project Area: 2.58 Acres
Approx. Begin Lat,Long: 43.7011, -96.7111

DESIGN DESIGNATION (SD 11 & 276th St)	
ADT (2014)	2485
ADT (2034)	4806
DHV	630
D	52%
T DHV	2.5%
T ADT	5.6%
V	70 MPH

STORM WATER PERMIT

Major Receiving
Body of Water: Ninemile Creek
Area Disturbed: 2.79 Acres
Total Project Area: 4.49 Acres
Approx. Begin Lat,Long: 43.3906, -96.6483

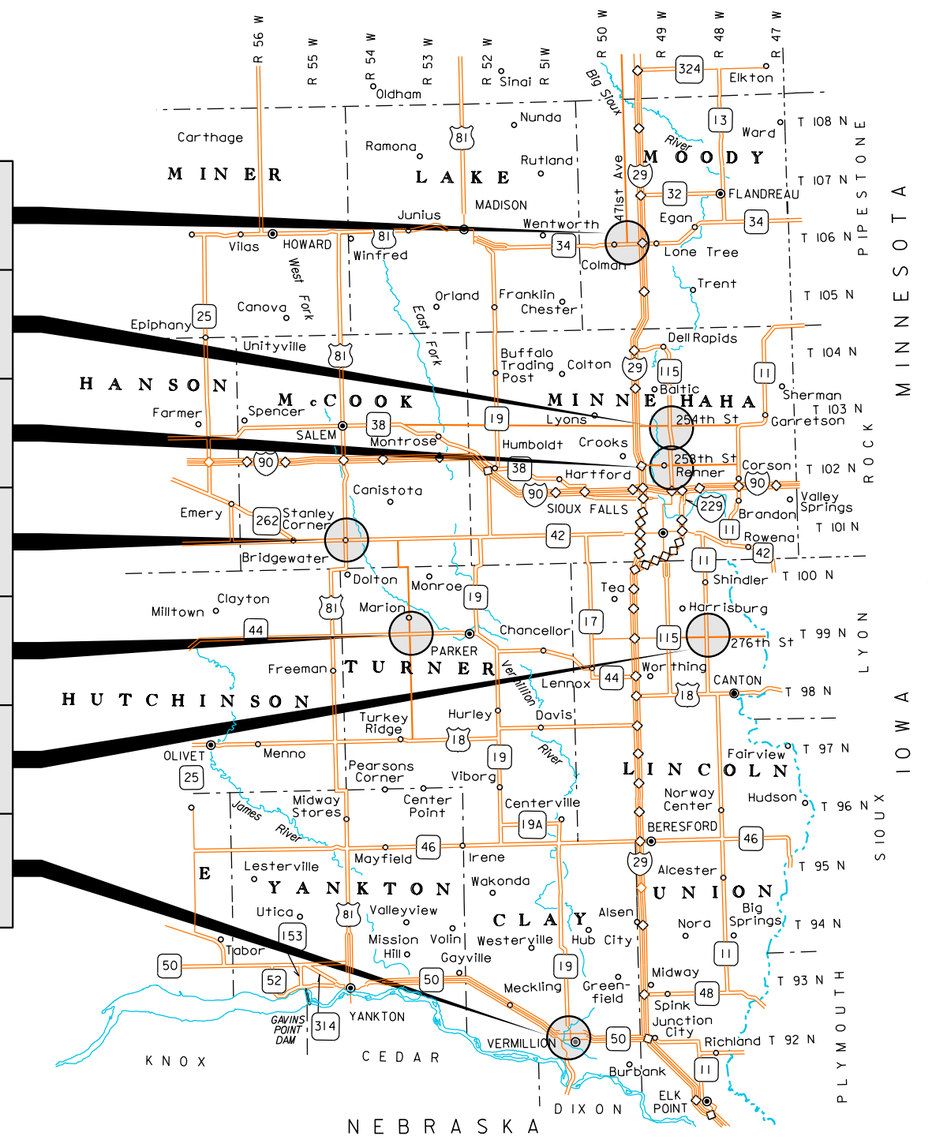
DESIGN DESIGNATION (SD 19 & SD 50)	
ADT (2014)	1935
ADT (2034)	2647
DHV	347
D	52%
T DHV	3.2%
T ADT	7.1%
V	70 MPH

STORM WATER PERMIT

Major Receiving
Body of Water: Vermillion River
Area Disturbed: 0.00 Acres
Total Project Area: 0.15 Acres
Approx. Begin Lat,Long: 42.7931, -96.9489

DESIGN DESIGNATION (SD 42 & US 81)		
	SD 42	US 81
ADT (2014)	1320	1752
ADT (2034)	1716	2276
DHV	225	298
D	52%	52%
T DHV	4.6%	11.6%
T ADT	10.2%	25.5%
V	70 MPH	70 MPH

BEGIN PROJECT (SD 34 & 471st Ave)
STA. 462+65.20
MRM 404.00 +0.786
END PROJECT (SD 34 & 471st Ave)
STA. 480+74.71
MRM 405.00 +0.129
LENGTH: 1810 FEET; 0.343 MILES
BEGIN PROJECT (SD 115 & 254th St)
STA. 335+85.81
MRM 95.00 +0.953
END PROJECT (SD 115 & 254th St)
STA. 358+57.48
MRM 96.00 +0.383
LENGTH: 2272 FEET; 0.430 MILES
BEGIN PROJECT (SD 115 & 258th St)
STA. 125+22.00
MRM 91.00 +0.964
END PROJECT (SD 115 & 258th St)
STA. 142+00.20
MRM 92.00 +0.281
LENGTH: 1678 FEET; 0.318 MILES
BEGIN PROJECT (SD 42 & US 81)
MRM 49.00+0.310
END PROJECT (SD 42 & US 81)
MRM 49.00+0.310
LENGTH: 0 FEET; 0 MILES
BEGIN PROJECT (SD 44 & 447th Ave)
STA. 414+20.11
MRM 385.00 +0.739
END PROJECT (SD 44 & 447th Ave)
STA. 434+05.18
MRM 386.00 +0.115
LENGTH: 1985 FEET; 0.376 MILES
BEGIN PROJECT (SD 11 & 276th St)
STA. 148+79.00
MRM 61.0 +0.588
END PROJECT (SD 11 & 276th St)
STA. 164+34.40
MRM 61.0 +0.293
LENGTH: 1555 FEET; 0.295 MILES
BEGIN PROJECT (SD 19 & SD 50)
STA. 32+50.00
MRM 4.50 +0.430
END PROJECT (SD 19 & SD 50)
STA. 35+13.00
MRM 4.50 +0.480
LENGTH: 263 FEET; 0.050 MILES



Professional Engineers and Land Surveyors

Plans Prepared by:
McLaury Engineering, Inc.
Sioux Falls, South Dakota

INDEX OF SHEETS

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

Rev. 1/5/16 JDL

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	1.952	Mile
009E3250	Miscellaneous Staking	1.827	Mile
009E3280	Slope Staking	1.827	Mile
009E3300	Three Man Survey Crew	40.0	Hour
110E0400	Remove Drop Inlet	1	Each
110E1010	Remove Asphalt Concrete Pavement	565.4	SqYd
110E1100	Remove Concrete Pavement	2,479.7	SqYd
110E1110	Remove Concrete Approach Pavement	29.7	SqYd
110E1130	Remove Concrete Driveway Pavement	227.1	SqYd
110E1690	Remove Sediment	1.1	CuYd
110E1695	Remove Sediment Filter Bag	29	Ft
110E1700	Remove Silt Fence	87	Ft
110E7152	Remove Delineator for Reset	17	Each
110E7510	Remove Pipe End Section for Reset	4	Each
120E0010	Unclassified Excavation	21,276	CuYd
120E0600	Contractor Furnished Borrow Excavation	17,279	CuYd
120E2000	Undercutting	11,865	CuYd
120E6100	Water for Embankment	295.0	MGal
120E6200	Water for Granular Material	177.6	MGal
230E0010	Placing Topsoil	3,421	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	3,557.8	Ton
260E1030	Base Course, Salvaged	5,031.0	Ton
260E2010	Gravel Cushion	1,597.3	Ton
260E2030	Gravel Cushion, Salvaged	4,465.0	Ton
270E0040	Salvage and Stockpile Asphalt Mix and Granular Base Material	10,550.2	Ton
320E1200	Asphalt Concrete Composite	4,430.8	Ton
320E5010	Saw and Seal Shoulder Joint	6,877	Ft
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	1.0	Mile
380E0050	8" Nonreinforced PCC Pavement	6,907.7	SqYd
380E3040	8" PCC Driveway Pavement	184.6	SqYd
380E3520	6" PCC Approach Pavement	24.5	SqYd
380E3540	8" PCC Approach Pavement	28.9	SqYd
380E6000	Dowel Bar	2,552	Each
380E6110	Insert Steel Bar in PCC Pavement	3,096	Each
450E0122	18" RCP Class 2, Furnish	146	Ft
450E0130	18" RCP, Install	146	Ft
450E0142	24" RCP Class 2, Furnish	40	Ft
450E0150	24" RCP, Install	40	Ft
450E0182	36" RCP Class 2, Furnish	24	Ft
450E0190	36" RCP, Install	24	Ft
450E2200	24" RCP Sloped End, Furnish	4	Each
450E2201	24" RCP Sloped End, Install	4	Each
450E2207	36" RCP Sloped End with Bars, Furnish	2	Each
450E2209	36" RCP Sloped End, Install	2	Each
450E2304	18" RCP Safety End, Furnish	10	Each
450E2307	18" RCP Safety End, Install	10	Each
450E3052	48" RCP Arch Class 2, Furnish	50	Ft
450E3060	48" RCP Arch, Install	50	Ft
450E4759	18" CMP 16 Gauge, Furnish	20	Ft
450E4760	18" CMP, Install	20	Ft
450E5406	18" CMP Safety End, Furnish	4	Each
450E5407	18" CMP Safety End, Install	4	Each
450E5549	42" CMP Arch 14 Gauge, Furnish	18	Ft
450E5550	42" CMP Arch, Install	18	Ft
450E5917	42" CMP Arch Sloped End with Bars, Furnish	1	Each
450E5919	42" CMP Arch Sloped End, Install	1	Each
450E9001	Reset Pipe End Section	4	Each
462E0100	Class M6 Concrete	0.9	CuYd
480E0100	Reinforcing Steel	96	Lb
632E1320	2.0"x2.0" Perforated Tube Post	88.0	Ft
632E2100	Reset Delineator	17	Each
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	44.8	SqFt
632E3520	Remove, Salvage, Relocate, and Reset Traffic Sign	38	Each
633E0030	Cold Applied Plastic Pavement Marking, 24"	848	Ft
633E0040	Cold Applied Plastic Pavement Marking, Arrow	29	Each
633E1400	Pavement Marking Paint, 4" White	16,324	Ft
633E1405	Pavement Marking Paint, 4" Yellow	30,473	Ft
633E1430	Pavement Marking Paint, 24" White	56	Ft
633E5015	Grooving for Cold Applied Plastic Pavement Marking, 24"	848	Ft
633E5025	Grooving for Cold Applied Plastic Pavement Marking, Arrow	29	Each
634E0010	Flagging	120.0	Hour
634E0110	Traffic Control Signs	1,321	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	19	Each
634E0530	Flexible Delineator	6	Each
634E0560	Remove Pavement Marking, 4" or Equivalent	22,243	Ft
634E0565	Remove Pavement Marking, Arrow	2	Each
634E0575	Remove Pavement Marking, Area	560.0	SqFt
634E1215	Contractor Furnished Portable Changeable Message Sign	2	Each
635E4010	1 Section Vehicle Signal Head	4	Each
635E5302	Type 2 Electrical Junction Box	4	Each
635E5510	Signal Flasher Unit	4	Each
635E6200	Miscellaneous, Electrical	Lump Sum	LS
635E8015	1.5" Rigid Galvanized Steel Conduit	40	Ft
635E8220	2" Rigid Conduit, Schedule 80	250	Ft
635E9020	1/C #10 AWG Copper Wire	1,100	Ft
650E1080	Type F68 Concrete Curb and Gutter	373	Ft
650E4680	Type P8 Concrete Gutter	99	Ft
670E1200	Type B Frame and Grate Assembly	1	Each
670E5400	Precast Drop Inlet Collar	1	Each
671E7010	Adjust Manhole	2	Each
730E0206	Type D Permanent Seed Mixture	255	Lb
730E0212	Type G Permanent Seed Mixture	144	Lb
731E0100	Fertilizing	1,239	Lb
732E0100	Mulching	15.7	Ton
734E0154	12" Diameter Erosion Control Wattle	370	Ft
734E0165	Remove and Reset Erosion Control Wattle	93	Ft
734E0180	Sediment Filter Bag	29	Ft
734E0604	High Flow Silt Fence	346	Ft
734E0610	Mucking Silt Fence	24	CuYd
734E0620	Repair Silt Fence	87	Ft
734E0845	Sediment Control at Inlet with Frame and Grate	1	Each
900E0010	Refurbish Single Mailbox	4	Each

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived 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.

The environmental commitments associated with this project are as follows:

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

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, dairk, 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 D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

Silver Creek is classified as warm water, marginal fishery with a total suspended solids standard of 150 milligrams/liter.

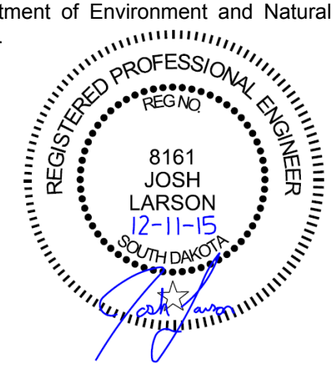
The unnamed Tributary to Bachelor Creek is classified as warm water, marginal fishery with a total suspended solids standard of 150 milligrams/liter.

Silver Creek is classified as fish and wildlife propagation, recreation, irrigation, and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

The unnamed Tributary to Bachelor Creek is classified as fish and wildlife propagation, recreation, irrigation, and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

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 shall be taken to ensure the above standard(s) of the surface waters are maintained and protected.



COMMITMENT D2: SURFACE WATER DISCHARGE

Silver Creek is classified as warm water, marginal fishery with a Surface Water Discharge standard of 150 milligrams/liter total suspended solids.

The unnamed Tributary to Bachelor Creek is classified as warm water, marginal fishery with a Surface Water Discharge standard of 150 milligrams/liter total suspended solids.

Silver Creek is classified as fish and wildlife propagation, recreation, irrigation and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

The unnamed Tributary to Bachelor Creek is classified as fish and wildlife propagation, recreation, irrigation and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

Action Taken/Required:

If construction dewatering is required, the Contractor shall obtain a Temporary Discharge Permit from the DENR and provide a copy to the Project Engineer. Contact the DENR Surface Water Program at 605-773-3351 to apply for a permit.

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance.

Action Taken/Required:

The DENR and the US Environmental Protection Agency (EPA) have issued separate general permits for the discharge of storm water runoff. The DENR permit applies to discharges on state land and the EPA permit applies to discharges on federal or reservation land. The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the General Permit for Construction Activities. A Notice of Intent (NOI) will be submitted to DENR a minimum of 15 days prior to project start by the DOT Environmental Office. A letter must be received from DENR that acknowledges project coverage under this general permit before project start. The Contractor is advised that permit coverage may also be required by off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

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

A major component of the storm water construction permits is development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which is a joint effort and responsibility of the SDDOT and the Contractor. Erosion control measures and best management practices will be implemented in accordance with the SWPPP. The SWPPP is a dynamic document and is to be available on-site at all times.

COMMITMENT E: STORM WATER (Continued)

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

SDDOT:
http://www.sddot.com/business/environmental/stormwater/Default.aspx

DENR: http://www.denr.sd.gov/des/sw/stormwater.aspx

EPA: http://cfpub.epa.gov/npdes/home.cfm?program_id=6

Contractor Certification Form:

The “Department of Environmental and Natural Resources – Contractor Certification Form” (SD EForm – 2110LDV1-ContractorCertification.pdf) shall be completed by the Contractor or their certified Erosion Control Supervisor after the award of the contract. Work may not begin on the project until this form is signed.

The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the Surface Water Discharge General Permit for Storm Water Discharges Associated with Construction Activities for the Project.

The online form can be found at:
http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall 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 State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway 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) shall 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 shall apply:

COMMITMENT H: WASTE DISPOSAL SITE (Continued)

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State 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 shall 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) shall 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 designated option borrow 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: staging areas, borrow sites, waste disposal sites, and all material processing sites.

The Contractor shall 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 shall 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.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES (Continued)

The Contractor shall 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 shall cease and the Project Engineer shall 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 staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands, threatened and endangered species, or waterways. The Contractor shall 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 US Army Corps of Engineers for the permanent actions associated with this project.

Action Taken/Required:

The Contractor shall comply with all requirements contained in the Section 404 permit.

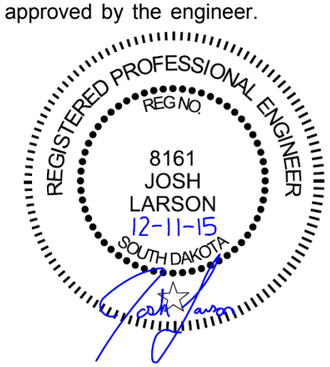
The Contractor shall also be responsible for obtaining a Section 404 permit for any dredge, excavation, or fill activities associated with staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands or waters of the United States.

PLACING TOPSOIL

A 4” depth of topsoil shall be salvaged and stockpiled prior to beginning construction. Where adequate right-of-way exists beyond the work limits the topsoil shall be bladed down the respective inslopes and left in a windrow at the edge of the work limits. In locations where right-of-way is limited the Contractor shall salvage the existing topsoil and stockpile in convenient locations within the right-of-way as approved by the engineer. Following completion of construction, topsoil shall be spread evenly over the disturbed areas.

The estimated amount of topsoil to be removed and replaced is 3,421 CuYd.

Placing topsoil shall not be measured for payment with basis of payment being plans quantity.



SEQUENCE OF OPERATIONS

The following Sequence of Operations shall be adhered to. Any changes must be approved in writing by the Area Engineer prior to changes being made.

The intersecting county/township roads on Hwy 34 (471st Avenue Sta 474+06 R & 474+07 L) can be closed to accommodate construction. The entrances on Hwy 34 at Sta 467+87 L, 468+78 L, and 470+08 L can be closed only when 471st Avenue heading north (Sta 474+07 L) is open.

The intersecting county/township road on Hwy 115 (254th Street Sta 343+10 L) and entrances at Sta 340+30 R, 341+64 R, and 348+87 L can be closed to accommodate construction.

The intersecting county/township road on Hwy 115 (258th Street Sta 126+23 R) can be closed to accommodate construction. The entrances on Hwy 115 at Sta 134+38 R, 135+33 R, 136+57 R, and 137+78 R can be closed. The intersecting county/township road (Fredrick Road Sta 138+37 R) has to remain open to 1 lane of traffic at all times. The entrances on Hwy 115 at Sta 140+66 R and 141+78 R must have temporary access provided at all times.

The intersecting county/township road on Hwy 11 (276th Avenue Sta 158+24 R & L) shall remain open to traffic at all times. Signing and flaggers as depicted on Standard Plate 634.32 shall be displayed.

The intersecting county/township road on Hwy 44 (447th Avenue Sta 425+23 R) shall remain open to traffic at all times. Signing and flaggers as depicted on Standard Plate 634.32 shall be displayed.

1. Install construction signing.
2. Remove topsoil.
3. Saw cut and remove P.C.C. Pavement, and salvage and stockpile asphalt mix and granular base material.
4. Install erosion control measures.
5. Complete undercut.
6. Place contractor furnished borrow.
7. Place base course and base course, salvaged material. Or Place gravel cushion and gravel cushion, salaved material.
8. Place P.C.C. Pavement or Asphalt Concrete.
9. Place remainder of base course or gravel cushion.
10. Repeats steps 2 through 9 for the other side of roadway.
11. Place asphalt concrete shoulders.
12. Install permanent pavement markings.
13. Install Permanent Signing and Delineation Work.
14. Restore topsoil to disturbed areas.
15. Reseed disturbed areas.
16. Remove Construction Signing and Traffic Control.

Once work begins (not including permanent signing) on one of the project locations it shall be worked on a continuous basis until completion of that location. Leaving the project will not be permitted unless authorized by the Engineer.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	5	137

Rev. 12/18/15 JDL

TRAFFIC CONTROL

One lane of traffic shall be maintained at all times. During non-working hours, one lane of traffic in both directions shall be maintained.

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost of this work shall be incidental to the various contract items unless otherwise specified in the plans. Delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

Storage of vehicles and equipment shall be as near the right-of-way line as possible. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

Work activities during non-daylight hours are subject to prior approval.

Traffic approaching the project from intersecting roadways, streets, and approaches must be adequately accommodated. Major intersections or large commercial entrances may require additional signing, flaggers, and channelizing devices on a temporary basis until work activities pass these areas.

Warning lights shall be placed on top of flagging station signing as per Section 634.3.E.3 and shall be yellow in color. This shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

Shoulder Drop Off signs (W8-17) and Shoulder Drop-Off plaques (W8-17P) shall be placed at each end of the project any time there is a shoulder drop off of 3" or greater. These signs are included in the Traffic Control Devices Inventory sheet.

During nonworking hours, signing as depicted on Standard Plate 634.03 shall be displayed. If the shoulder drop off is 3" or greater, the spacing of the channelizing devices shall be 50' maximum.

An 8' wide Type III Barricade shall be placed on the shoulder at the beginning of the work space and at the far side of the intersecting road.

The bottom of the signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas. Portable sign supports may be used as long as the duration is less than 3 days. If the duration is more than 3 days the signs shall be on fixed location, ground mounted, breakaway supports.

The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP Report 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

Traffic Control units, 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.

TRAFFIC CONTROL (Continued)

Channelizing Devices, Drums and/or Type II Barricades shall be maintained to a minimum height of 3' above the surface which is being used to maintain traffic.

ADVANCE CLOSURE NOTICE

1 week prior road closures at any of the intersections, (2) portable changeable message signs shall be installed notifying drivers of the upcoming road closure. The Contractor shall program the portable changeable message signs with the following message:

(Road Name) (direction - N, S, E, or W)
ROAD CLOSED
STARTS (Date)

The closures shall be in accordance with the special provision for contract time.

CONTRACTOR FURNISHED PORTABLE CHANGEABLE MESSAGE SIGN

Contractor Furnished Portable Changeable Message Signs shall be utilized on this project to advise the traveling public of project conditions and as stated under the notes for ADVANCE CLOSURE NOTICE. The Contractor shall furnish, position and maintain the message signs at locations as directed by the Engineer.

Each message sign shall be in a new or nearly new condition and consist of a message board, power supply and a message control system, all mounted on a heavy duty trailer. The message signs shall remain the property of the Contractor upon completion of the project.

Addco Manufacturing, Precision Solar Controls Inc., Winkomatic Signal Company and American Signal Company are manufacturers of acceptable Solar Powered Portable Changeable Message Signs.

The overall dimensions of the message board shall be a minimum of 108" wide x 72" high. The message board shall be enclosed in a rigidly framed, weather tight housing.

The message board shall contain a minimum of three message lines. Each message line shall be capable of displaying a minimum of 8 characters. Each character shall be approximately 18" high and shall be formed by 35 dots in a 5 x 7 matrix. The message boards shall be capable of changing the entire message content in not more than 100 milliseconds. No more than 2 displays shall be used within any message cycle.

All costs associated with obtaining, positioning, re-positioning, programming, re-programming, maintaining, and removing the message signs shall be incidental to the contract unit price per each for "Contractor Furnished Portable Changeable Message Sign".

GRADING OPERATIONS

The estimated cubic yards of excavation and/or embankment required to construct outlet ditches, ditch blocks, and approaches are included in the earthwork balance note.

Special ditch grades and other sections of the roadway different than the typical sections shall be constructed to the limits shown on the cross sections. If significant changes to the cross sections are necessary during construction, the Engineer shall contact the Designer for the proposed change.

UTILITIES

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

INSLOPE TRANSITIONS

Inslope transitions will be required at various pipe locations. Refer to Standard Plate 120.05 for details.

TABLE OF INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

Station	L/R	Type
SD 115 & 258		
139+54	R	1
139+74	R	1
139+94	R	1
140+14	R	1
Total Type 1 Inslope Transition:		4

SHRINKAGE FACTOR: Embankment +35%

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

TABLE OF EXCAVATION QUANTITIES

Unclassified Excavation shall be plans quantity and will not be adjusted according to field measurements, see Typical Sections. Unclassified Excavation is salvaged asphalt mix and granular base material, undercut, and removal of waste material. The Unclassified Excavation waste material shall be disposed of as directed by the Engineer.

The salvaged material will be used as Base Course, Salvaged and Gravel Cushion, Salvaged on this project.

Location	Exc (CuYd)	Salvage and Stockpile Asphalt Mix and Granular Base Material (CuYd)	* Undercut (CuYd)
SD 34			
Sta 462+65.20 to 480+74.71 L	-	569.7	1100.0
Sta 462+65.20 to 480+74.71 R	-	569.7	1100.0
Intersecting Road 474+06 R	-	38.7	-
Intersecting Road 474+07 L	-	72.2	-
Entrances	40.0	-	-
SD 115 & 254th			
Sta 335+85.81 to 338+51.74 R	-	92.4	165.0
Sta 338+51.74 to 342+97.7 R	-	66.6	240.0
Sta 342+90.17 to 358+57.44 L	-	544.6	980.0
Intersecting Road 343+10 L	-	37.1	-
Entrances	20.0	-	-
SD 115 & 258th			
Sta 125+22.0 to 142+00.17 R	-	583.1	1010.0
Intersecting Road 126+23 R	-	50.9	-
Entrances/Ditch	290.0	-	-
SD 11			
Sta 148+79.0 to 164+34.40 L	-	720.4	2000.0
Sta 148+79.0 to 164+34.40 R	-	720.4	2000.0
Intersecting Road 158+44 R	-	137.1	-
Intersecting Road 158+46 L	-	133.9	-
Entrances/Ditch	58.0	-	-
SD 44			
Sta 414+20.01 to 424+09.0 R	-	356.4	1078.0
Sta 424+09.0 to 434+05.18 R	-	393.5	1687.0
Sta 425+41.47 to 428+61.43 L	-	126.4	505.0
Intersecting Road 425+23 R	-	261.1	-
Intersecting Road 425+41 L	-	107.9	-
Totals:	408.0	5582.1	11865.0

* The quantities for these items are in the Estimate of Quantities under their respective bid items.

TABLE OF UNCLASSIFIED EXCAVATION

	(CuYd)
Excavation	408
Undercut	11,865
Topsoil	3,421
Salvaged Asphalt Mix and Granular Base Material	5,582
Total:	21,276

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

When plan quantities are used for payment, the Unclassified Excavation quantity shall be used for final payment.

The following paragraphs are general earthwork information and information in regards to computing the Unclassified Excavation quantity when final cross sections are taken in the field:

The Topsoil quantity in the Table of Unclassified Excavation is an estimate. The quantity of Topsoil from the cuts will be paid for twice as Unclassified Excavation, as it will be in both the Excavation and Topsoil quantities. This will be full compensation for Excavation.

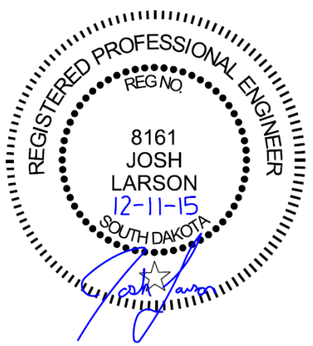
The volume of in place Concrete Surfacing removed will NOT be paid for as Unclassified Excavation.

The Excavation quantities from the table above have been reduced by the volume of in place concrete pavement that will be removed.

UNDERCUTTING

After the existing surfacing is removed in the widening areas, the existing embankment will be undercut in a manner that allows for 1 or 2 feet of new embankment to be constructed below the finished subgrade top. The undercut material or other suitable material, as directed by the Engineer, shall then be replaced and compacted to the density specified for the section being constructed.

The plan shown quantity will be the basis of payment. However, if there are additional areas of undercut other than what is shown in the plans, the Engineer shall direct removal of these areas and the additional areas will be measured according to the Engineer.



SALVAGE AND STOCKPILE ASPHALT MIX AND GRANULAR BASE MATERIAL

An **estimated 10,550.2 to**ns (5,582.1 Cubic Yards) of asphalt mix and granular base material shall be salvaged from the entire length of the existing highways and stockpiled at sites furnished by the Contractor and satisfactory to the Engineer.

The quantity of salvage asphalt mix and granular base material may vary from the plans. No adjustment will be made to the contract unit price for variations of the quantity of "Salvage and Stockpile Asphalt Mix and Granular Base Material." Plans quantity will be the basis of measurement and payment for the above mentioned work.

Location of Removal Areas	Salvage and Stockpile Asphalt Mix and Granular Base Material (Tons)
SD 34	
Sta 462+65.20 to 480+74.71 L	1076.7
Sta 462+65.20 to 480+74.71 R	1076.7
Intersecting Road 474+06 R	73.2
Intersecting Road 474+07 L	136.4
SD 115 & 254th	
Sta 335+85.81 to 338+51.74 R	174.6
Sta 338+51.74 to 342+97.7 R	125.8
Sta 342+90.17 to 358+57.44 L	1029.3
Intersecting Road 343+10 L	70.1
SD 115 & 258th	
Sta 125+22.0 to 142+00.17 R	1102.1
Intersecting Road 126+23 R	96.3
SD 11	
Sta 148+79.0 to 164+34.40 L	1361.6
Sta 148+79.0 to 164+34.40 R	1361.6
Intersecting Road 158+44 R	259.1
Intersecting Road 158+46 L	253.1
SD 44	
Sta 414+20.01 to 424+09.0 R	673.6
Sta 424+09.0 to 434+05.18 R	743.7
Sta 425+41.47 to 428+61.43 L	238.9
Intersecting Road 425+23 R	493.5
Intersecting Road 425+41 L	203.9
Total	10550.2

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor shall provide suitable sites for Contractor furnished borrow excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow sites. The borrow material shall 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.

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

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste.

Location	Contractor Furnished Borrow Excavation (CuYd)	Water for Embankment (Mgal)
SD 34		
Sta 462+65.20 to 480+74.71	3464.0	57.0
SD 115 & 254th		
Sta 335+85.81 to 358+57.44	3624.0	50.0
SD 115 & 258th		
Sta 125+22.0 to 142+00.17	1036.0	23.0
SD 11		
Sta 148+79.0 to 164+34.40	4892.0	90.0
SD 44		
Sta 414+20.01 to 434+05.18	4263.0	75.0
Total	17279.0	295.0

BASE COURSE, SALVAGED

Base Course, Salvaged shall be obtained from the material produced on this project and may be used without further testing.

All other requirements for Base Course, Salvaged shall apply.

All Base Course, Salvaged materials shall be utilized. It is assumed that there will be a 10% loss of material during the stockpiling and handling process, therefore the quantity of Base Course, Salvaged indicated in the plans is as follows:

An estimated 2,912.0 tons will be used on SD Hwy 11 for this project.
An estimated 2,119.0 tons will be used on SD Hwy 44 for this project.

GRAVEL CUSHION, SALVAGED

Gravel Cushion, Salvaged shall be obtained from the material produced on this project and may be used without further testing.

All other requirements for Gravel Cushion, Salvaged shall apply.

All Gravel Cushion, Salvaged materials shall be utilized. It is assumed that there will be a 10% loss of material during the stockpiling and handling process, therefore the quantity of Gravel Cushion, Salvaged indicated in the plans is as follows:

An estimated 2,127.0 tons will be used on SD Hwy 34 for this project.
An estimated 1,260.0 tons will be used on SD Hwy 115/254 for this project.
An estimated 1,078.0 tons will be used on SD Hwy 115/258 for this project.

INCIDENTAL WORK, GRADING

Station	to	Station	Remarks
SD 34			
468+45 - 48' L			Take out 18" CMP End Section
469+10 - 48' L			Take out 18" CMP End Section
469+78 - 48' L			Take out 18" CMP End Section
470+39 - 48' L			Take out 18" CMP End Section
471+98 - 45' R			Take out 24" RCP End Section
471+99 - 47' L			Take out 24" RCP End Section
SD 115 - 254			
341+90 - 33' R		342+05 - 36' R	Remove (3) Flexible Delineators
342+71 - 34' R		342+79 - 39' R	Remove (3) Flexible Delineators
342+46 - 27' R		342+16 - 21' R	Take out 18" - 6' RCP
348+54 - 60' L			Take out 18" CMP End Section
348+58 - 60' L		349+44 - 59' L	Take out 18" - 86' CMP
349+48 - 59' L			Take out 18" CMP End Section
351+42 - 57' L			Take out 24" RCP End Section
351+59 - 56' L			Take out 24" RCP End Section
SD 11			
157+95 - 60' R			Take out 18" RCP End Section
157+95 - 64' R			Take out 18" RCP End Section
157+95- 60' L			Take out 18" RCP End Section
158+52 - 115' R		158+54 - 89' R	Take out 18" - 26' RCP
158+52 - 121' R			Take out 18" RCP End Section
158+54 - 65' R			Take out 18" RCP End Section
158+54 - 82' R			Take out 18" RCP End Section
158+54 - 61' R			Take out 18" RCP End Section
158+55 - 60' L			Take out 18" RCP End Section
158+55 - 123' L			Take out 18" RCP End Section
158+56 - 84' L			Take out 18" RCP End Section
158+56 - 116' L		158+56 - 90' L	Take out 18" - 26' RCP

INCIDENTAL WORK, GRADING (Continued)

Station	to	Station	Remarks
SD 44			
416+33 - 32' R			Take out 42" Arch CMP End Section
427+34 - 34' R			Take out 36" RCP End Section
427+37 - 42' L			Take out 36" RCP End Section

REMOVAL OF EXISTING CONCRETE PAVEMENT

SD 34
The existing 8 inch P.C.C. Pavement is non-reinforced PCC Pavement. The existing contraction joints are spaced at approximately 15 feet. The aggregate in the existing P.C.C. pavement is quartzite.

SD 115-254
The existing 8 inch P.C.C. Pavement is non-reinforced PCC Pavement. The existing contraction joints are spaced at approximately 20 feet. The aggregate in the existing P.C.C. pavement is quartzite.

SD 155-258
The existing 8 inch P.C.C. Pavement is non-reinforced PCC Pavement. The existing contraction joints are spaced at approximately 20 feet. The aggregate in the existing P.C.C. pavement is quartzite.

TABLE OF CONCRETE PAVEMENT REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
SD 34				
462+65.2		480+75.5	L	603.1
462+65.2		480+74.7	R	603.2
SD 115-254				
335+85.8		342+98.5	R	552.2
342+90.2		358+57.4	L	348.3
SD 115-258				
125+22.0		142+00.2	R	372.9
			Total:	2479.7

TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
SD 34				
468+10.0		467+68.5	L	80.6
468+51.3		469+05.6	L	117.8
469+82.3		470+32.3	L	88.2
SD 115-254				
340+12.8		340+45.3	R	46.0
342+78.2		342+96.4	R	39.0
SD 115-254				
134+17.8		134+55.2	R	74.6
136+39.6		136+72.8	R	66.4
137+65.5		137+93.2	R	52.8
			Total:	565.4

TABLE OF CONCRETE APPROACH PAVEMENT REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
SD 115-254				
341+32.6		341+89.0	R	29.7
			Total:	29.7

TABLE OF CONCRETE DRIVEWAY PAVEMENT REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
SD 115-254				
341+37.0		342+84.7	R	227.1
			Total:	227.1

TABLE OF DROP INLET REMOVAL

All costs for removal of the frame and grate assembly shall be incidental to the contract unit price per each for “Remove Drop Inlet”.

Station	L/R	Quantity (Each)
SD 115-254		
342+46	27' R	1
	Total:	1

RATES OF MATERIALS

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

MAINLINE – SD 34

STA. 466+85.23 to STA. 476+54.68

5” Gravel Cushion, Salvaged and Gravel Cushion beneath P.C.C. Pavement and Shoulder
(Rate per one side)

Salvaged Material and Crushed Aggregate 54.4 Tons

STA. 462+65.09 to STA. 480+74.71

Gravel Cushion, Salvaged and Gravel Cushion beyond P.C.C. Pavement
(Rate per one shoulder only)

Salvaged Material and Crushed Aggregate 19.6 Tons

Asphalt Concrete Composite (Rate per one shoulder only)

Asphalt Concrete Composite 12.5 Tons

MAINLINE – SD 115 & 254th

STA. 337+05.37 to STA. 338+51.58

5” Gravel Cushion, Salvaged and Gravel Cushion beneath P.C.C. Pavement and Shoulder
(Rate per one side)

Salvaged Material and Crushed Aggregate 66.1 Tons

STA. 338+51.58 to STA. 342+46.34

5” Gravel Cushion, Salvaged and Gravel Cushion beneath P.C.C. Pavement, Curb and Gutter, and 3’ beyond Curb and Gutter
(Rate per one side)

Salvaged Material and Crushed Aggregate 45.8 Tons

STA. 346+20.00 to STA. 350+40.00

5” Gravel Cushion, Salvaged and Gravel Cushion beneath P.C.C. Pavement and Shoulder
(Rate per one side)

Salvaged Material and Crushed Aggregate 71.9 Tons

RATES OF MATERIALS

STA. 335+85.81 to STA. 338+51.58
STA. 342+90.20 to STA. 358+57.48

Gravel Cushion, Salvaged and Gravel Cushion beyond P.C.C. Pavement
(Rate per one shoulder only)

Salvaged Material and Crushed Aggregate 19.6 Tons

Asphalt Concrete Composite (Rate per one shoulder only)

Asphalt Concrete Composite 12.5 Tons

MAINLINE – SD 115 & 258th

STA. 128+79.48 to STA. 133+60.10

5” Gravel Cushion, Salvaged and Gravel Cushion beneath P.C.C. Pavement and Shoulder
(Rate per one side)

Salvaged Material and Crushed Aggregate 71.9 Tons

STA. 125+22.00 to STA. 142+00.20

Gravel Cushion, Salvaged and Gravel Cushion beyond P.C.C. Pavement
(Rate per one shoulder only)

Salvaged Material and Crushed Aggregate 19.6 Tons

Asphalt Concrete Composite (Rate per one shoulder only)

Asphalt Concrete Composite 12.5 Tons

RATES OF MATERIALS

MAINLINE – SD 11

STA. 152+39.10 to STA. 160+74.30

12" Base Course, Salvaged and Base Course beneath Mainline A.C.C. Surfacing and Shoulder
(Rate per one side)

Salvaged Material and Crushed Aggregate 133 Tons

Asphalt Concrete Composite - Mainline (Rate per one side)

1st - 2" Lift - Asphalt Concrete Composite 9.9 Tons
2nd - 2" Lift - Asphalt Concrete Composite 9.9 Tons
3rd - 2" Lift - Asphalt Concrete Composite 9.9 Tons

STA. 148+79.00 to STA. 164+34.40

Base Course, Salvaged and Base Course beneath Shoulder A.C.C Surfacing
(Rate per one shoulder only)

Salvaged Material and Crushed Aggregate 9.4 Tons

Asphalt Concrete Composite – Shoulder (Rate per one shoulder only)

Asphalt Concrete Composite 12.5 Tons

MAINLINE – SD 44

STA. 422+60.10 to STA. 425+65.10 (Right)
STA. 425+41.47 to STA. 427+41.43 (Left)

12" Base Course, Salvaged and Base Course beneath Mainline A.C.C. Surfacing and Shoulder
(Rate per one side)

Salvaged Material and Crushed Aggregate 175.1 Tons

Asphalt Concrete Composite - Mainline (Rate per one side)

1st - 2" Lift - Asphalt Concrete Composite 17.3 Tons
2nd - 2" Lift - Asphalt Concrete Composite 17.3 Tons
3rd - 2" Lift - Asphalt Concrete Composite 17.3 Tons

STA. 414+20.01 to STA. 434+05.18 (Right)
STA. 427+41.43 to STA. 428+61.43 (Left)

Base Course, Salvaged and Base Course beneath Shoulder A.C.C Surfacing
(Rate per one shoulder only)

Salvaged Material and Crushed Aggregate 9.4 Tons

Asphalt Concrete Composite – Shoulder (Rate per one shoulder only)

Asphalt Concrete Composite 12.5 Tons

SUMMARY OF SURFACING MATERIALS

Location	Gravel Cushion, Salvaged and Gravel Cushion (Ton)	Base Course, Salvaged and Base Course (Ton)	Asphalt Concrete Composite (Ton)
SD 34			
Mainline 466+85.23 to 476+54.68 R	527.4	-	-
Mainline 466+85.23 to 476+54.68 L	527.4	-	-
Shoulder 462+85.23 to 473+39.6 - R	206.7	-	131.8
Shoulder 474+71.63 to 480+74.71 - R	118.3	-	75.4
Shoulder 462+85.23 to 473+35.0 - L	205.8	-	131.2
Shoulder 474+78.0 to 480+74.71 - L	117.0	-	74.6
Subtotals:	1702.6	0.0	413.0
SD 115 & 254th			
Mainline 337+05.37 to 338+51.58	96.6	-	-
Mainline 338+51.58 to 342+46.34	180.8	-	-
Mainline 346+20.00 to 350+40.00	302.0	-	-
Shoulder 335+85.81 to 338+51.58 R	52.1	-	33.2
Shoulder 343+59.77 to 358+57.48 L	293.6	-	187.2
Subtotals:	925.1	0.0	220.4
SD 115 & 258th			
Mainline 128+79.48 to 133+60.10	345.6	-	-
Shoulder 125+22.00 to 125+71.78	9.8	-	6.2
Shoulder 126+73.21 to 142+00.20	299.3	-	190.9
Subtotals:	654.7	0.0	197.1
SD 11			
Mainline 152+39.10 to 160+74.3 R	-	1110.9	247.3
Mainline 152+39.10 to 160+74.3 L	-	1110.9	247.3
Shoulder 148+79.0 to 157+52.53 R	-	82.2	109.2
Shoulder 159+01.97 to 164+34.40 R	-	50.1	66.6
Shoulder 148+79.0 to 157+52.70 L	-	82.2	109.2
Shoulder 159+03.29 to 164+34.4 L	-	50.0	66.4
Subtotals:	0	2486.3	846.0
SD 44			
Mainline 422+60.1 to 425+65.1 R	-	534.1	158.1
Mainline 425+41.47 to 427+41.43 L	-	350.1	103.6
Shoulder 414+20.01 to 424+27.08 R	-	94.7	125.9
Shoulder 426+09.09 to 434+05.18 R	-	74.8	99.5
Shoulder 426+18.33 to 428+61.43 L	-	22.9	30.4
Subtotals:	0	1076.5	517.5
Totals:	3282.4	3562.8	2194.0

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	10	137

TABLE OF ADDITIONAL QUANTITIES

Location	Gravel Cushion, Salvaged and Gravel Cushion (Ton)	Base Course, Salvaged and Base Course (Ton)	Asphalt Concrete Composite (Ton)
SD 34			
Gravel Cushion beneath P.C.C.P. and Shoulder in width transition areas	763.9	-	-
Intersecting Road 474+06 R	105.0	-	116.9
Intersecting Road 474+07 L	129.0	-	140.0
Ent - Sta 465+72 R	17.0	-	-
Ent - Sta 467+87 L	19.0	-	13.9
Ent - Sta 468+78 L	25.0	-	18.3
Ent - Sta 470+08 L	20.0	-	14.3
Subtotals:	1078.9	0.0	303.4
SD 115 & 254th			
Gravel Cushion beneath P.C.C.P. and Shoulder in width transition areas	685.0	-	-
Radius/Fillet Section 342+80 R	43.0	-	-
Intersecting Road 343+10 L	52.0	-	63.7
Drive - Sta 340+30 R	22.0	-	10.7
Drive - Sta 341+64 R	30.0	-	-
Ent - Sta 348+87 L	17.0	-	-
Subtotals:	849.0	0.0	74.4
SD 115 & 258th			
Gravel Cushion beneath P.C.C.P. and Shoulder in width transition areas	637.0	-	-
Intersecting Road 126+33 R	62.0	-	73.1
Ent - Sta 134+38 R	12.0	-	8.3
Ent - Sta 135+33 R	13.0	-	-
Ent - Sta 136+57 R	12.0	-	8.3
Ent - Sta 137+78 R	11.0	-	7.9
Ent - Sta 138+37 R	68.0	-	25.2
Ent - Sta 140+66 R	20.0	-	-
Ent - Sta 141+78 R	17.0	-	-
Subtotals:	852.0	0.0	122.8

TABLE OF ADDITIONAL QUANTITIES (CONTINUED)

Location	Gravel Cushion, Salvaged and Gravel Cushion (Ton)	Base Course, Salvaged and Base Course (Ton)	Asphalt Concrete Composite (Ton)
SD 11			
Mainline surfacing and Shoulders in width transition areas	-	1714.0	639.5
Intersecting Road 158+44 R	-	216.0	138.9
Intersecting Road 158+46 L	-	214.0	138.4
Ent - Sta 158+44 R	-	11.0	-
Ent - Sta 158+46 L	-	11.0	-
Subtotals:	0.0	2166.0	916.8
SD 44			
Mainline surfacing and Shoulders in width transition areas	-	2395.0	533.0
Intersecting Road 425+23 R	-	360.0	217.8
Intersecting Road 425+41 L	-	105.0	68.6
Subtotals:	0.0	2860.0	819.4
Totals:	2779.9	5026.0	2236.8

WATER FOR COMPACTION OF GRANULAR MATERIALS

Location	Water for Compaction of Granular Materials (Mgal)
SD 34	
462+85.23 to 480+74.71	33.7
SD 115 & 254th	
335+85.81 to 358+57.48	21.5
SD 115 & 258th	
125+22.00 to 142+00.20	18.3
SD 11	
148+79.0 to 164+34.4	56.4
SD 44	
414+20.01 to 434+05.18	47.7
Totals:	177.6

8" NONREINFORCED PCC PAVEMENT

The aggregate may require screening as determined by the Engineer.

The concrete used in the Portland Cement Concrete Pavement shall conform to section 380, shall contain a minimum of 600 lbs of cement and fly ash at 20%. The concrete shall contain at least 55% coarse aggregate. The use of a water reducer at manufacturers recommendations will be required. The concrete shall obtain a minimum 4,000 psi at 28 days. The contractor is responsible for the mix design used. The contractor shall submit a mix design for approval at least 2 weeks prior to use.

In lieu of an automatic subgrader operating from a preset line, a motor grader or other suitable equipment may be used to trim the gravel cushion to final grade prior to placement of concrete. There will be no direct payment for trimming of the gravel cushion for PCC pavement. The trimming will be considered incidental to the related items required for PCC Pavement.

A minimum of 6 pavement blockouts may be required at various locations on this project to facilitate traffic during the paving activity.

A construction joint will be sawed whenever new concrete pavement is placed adjacent to existing concrete pavement.

The transverse contraction joints shall be perpendicular to the centerline as detailed in the standard plates 380.01 and 380.08. In multilane areas the transverse contraction joints shall be perpendicular to the centerline and be in a straight line across the width of the pavement. In special situations the Engineer may pre-approve transverse contraction joints that do not meet these requirements. All nonconforming transverse contraction joints that are not pre-approved shall be removed at the Contractor's expense. Any method of placement that cannot produce these requirements shall not be allowed to continue.

The surface of the mainline paving shall be transversely tined. All other areas shall be tined as directed by the Engineer. The surface of the mainline paving shall be tined to within 2 or 3 feet of the face of the curb. A self-propelled mechanical tiner will not be required.

ALKALI SILICA REACTIVITY

Fine aggregate shall conform to Section 800.2 D. Alkali Silica Reactivity (ASR) Requirements of the Specifications.

Below is a list of known fine aggregate sources and the average corresponding 14 day expansion values:

Source	Location	Expansion Value
Bachman	Winner, SD	0.335*
Bitterman	Delmont, SD	0.316*
Concrete Materials	Corson, SD	0.170
Croell	Hot Springs, SD	0.089
Croell	Wasta, SD	0.212
Emme Sand & Gravel	Oneil, NE	0.217
Fisher S&G – Mickelson Pit	E. of Nisland, SD	0.129
Fisher S&G - Vallery Pit	Nisland, SD	0.110
Fisher S&G	Rapid City, SD	0.092
Fisher S&G	Spearfish, SD	0.053
Fisher S&G	Wasta, SD	0.159
Fuchs	Pickstown, SD	0.275*
Higman	Akron, IA	0.203
Higman	Hudson, SD	0.187
Hilde	Madison, SD	0.116
Jensen	Herried, SD	0.276*
L.G. Everist	Brookings, SD	0.186
L.G. Everist	Hawarden, IA	0.166
L.G. Everist	Summit, SD	0.178
Morris	Blunt, SD	0.192
Morris - Richards Pit	Onida, SD	0.188
Myrl & Roys – Ode Pit	E Sioux Falls, SD	0.214
Myrl & Roys - Nelson Pit	NE Sioux Falls, SD	0.156
Northern Concrete Agg.	Rauville, SD	0.113
Northern Concrete Agg.	Luverne, MN	0.133
Opperman - Gunvordahl Pit	Burke, SD	0.362*
Opperman - Cahoy Pit	Herrick, SD	0.307*
Opperman - Jones Pit	Burke, SD	0.321*
Opperman - Randall Pit	Pickstown, SD	0.239
Pete Lien & Sons	Creston, SD	0.158
Pete Lien & Sons	Oral, SD	0.129
Pete Lien & Sons	Wasta, SD	0.192
Thorpe Pit	Britton, SD	0.098
Wagner Building Supplies	Pickstown (Wagner), SD	0.241
Winter Brothers- Whitehead Pit	Brookings, SD	0.197

* These sources will require Type V cement in the concrete mix design and Class F (Modified) fly ash as specified.

The Department will use the running average of the last three known expansion test results or less for determining acceptability of source and the required Type of cement. These expansion results are reported in the preceding table. Additional testing, when requested by the Contractor, will be performed by the Department at the Contractor's expense.

The values listed in the table are intended for use in bidding. If a previously tested pit by SDDOT with acceptable test values (less than 0.250) is discovered after letting to require Type V cement (greater than 0.250) the Department will accept financial responsibility for the change from Type II to Type V cement.

Type II or Type V cement will not change the requirement for the fly ash. The cost for either type of cement shall be subsidiary to the contract item.

RUMBLE STRIPS

Rumble Strips for the Asphalt Concrete shoulders shall be constructed as per Standard Plate 320.24.

TABLE OF RUMBLE STRIPS FOR ASPHALT CONCRETE

Station to Station	Length (Ft)	Length (Miles)
SD 11		
148+79.0 to 164+34.4 L	1,555.4	
148+79.0 to 164+34.4 R	1,555.4	
SD 44		
414+19.9 to 435+05.2 R	2,085.3	
Total:	5,196.1	1.0

Rumble Strips for the PCC Pavement shoulders shall be constructed as per Standard Plate 380.15. Rumble Strips shall be placed 1.25 feet wide 3 inches from the outside edge of the pavement. Rumble strips shall not be placed on the side where curb & gutter is located. Payment for forming rumble strips including labor, materials and incidentals shall be incidental to the contract unit price per square yard for “8" Nonreinforced PCC Pavement”.

TABLE OF RUMBLE STRIPS FOR PCC PAVEMENT

Station to Station	Length (Ft)	Length (Miles)
SD 34		
462+65.2 to 480+74.5 L	1,809.3	
462+65.2 to 480+74.7 R	1,809.5	
SD 115-254		
342+90.2 to 358+57.4 L	1,567.2	
SD 115-258		
125+22.0 to 142+00.1 R	1,678.1	
Total:	6,864.1	1.3

TABLE OF PCC PAVEMENT

Station	8" Nonreinforced PCC Pavement SqYd
SD 34	
462+65.2 to 480+74.5 Lt.	1319.8
462+65.2 to 480+74.7 Rt.	1339.6
SD 115-254	
335+85.8 to 342+96.5 Rt	844.1
342+90.2 to 358+57.4 Lt.	1657.3
SD 115-258	
125+22.0 to 142+00.1 Rt.	1746.9
Total:	6907.7

TABLE OF DOWEL BARS

Station	Number of Dowel Bars per Joint	Number of Joints	1 ¼" X 18" Dowel Bar (Each)
SD 34			
464+01.3 to 466+85.3 Lt.	2 to 6 bars	19	64
466+85.3 to 476+54.6 Lt.	6 or 8 bars	66	410
476+58.3 to 479+16.6 Lt.	6 to 2 bars	19	68
464+03.7 to 466+85.3 Rt.	2 to 6 bars	19	69
466+85.3 to 476+54.6 Rt.	6 or 8 bars	65	408
476+54.6 to 480+74.7 Rt.	6 to 1 bars	20	70
SD 115-254			
335+85.8 to 337+05.8 Rt.	2 to 11 bars	6	37
337+05.8 to 338+51.8 Rt.	12 bars	7	84
338+51.8 to 342+35.0 Rt.	10 bars	20	200
342+90.2 to 346+20.11 Lt.	2 to 11 bars	17	99
346+20.1 to 350+40.0 Lt.	11 bars	21	233
350+40.0 to 357+33.3 Lt.	11 to 2 bars	35	224
SD 115-258			
125+22.0 to 128+79.5 Rt.	2 to 11 bars	15	91
128+79.5 to 133+60.1 Rt.	11 bars	24	264
133+60.1 to 140+64.3 Rt.	11 to 2 bars	36	231
Total:		4389	2552

8" PCC DRIVEWAY PAVEMENT

The concrete for the 8" PCC driveway pavement shall comply with the requirements of the specifications for Class M6 concrete unless otherwise stated in the plans.

Contraction joints in the 8" PCC driveway pavement shall be 1½ inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint shall be at least ¼ the thickness of the approach pavement.

All costs for furnishing and placing the 8" PCC driveway pavement and constructing the expansion and contraction joints including labor, equipment and materials shall be incidental to the contract unit price per square yard for "8" PCC Driveway Pavement".

All costs for excavation required for placing the 8" PCC driveway pavement and granular material shall be incidental to the contract unit price per cubic yard for "Unclassified Excavation".

All costs for furnishing and placing the granular material shall be incidental to the contract unit price per ton for "Gravel Cushion".

INSERT STEEL BAR IN PCC PAVEMENT

The Contractor shall insert the Steel Bars (1-1/4" x 18" Plain Round Dowel Bars and No. 5 x 30" Deformed Steel Bars) into drilled holes in the existing concrete pavement.

The steel bars shall be cut to the specified length by sawing or shearing and shall be free from burring or other deformations.

Epoxy coated plain round steel bars shall be inserted on 12 inch centers in the transverse joint. The first steel bar shall be placed a minimum of 3 inches and a maximum of 6 inches from the outside edge of the slab.

Epoxy coated deformed steel bars shall be inserted on 30 inch centers in the longitudinal joint and shall be spaced a minimum of 15 inches from the existing transverse contraction joint.

TABLE OF INSERT STEEL BAR IN PCC PAVEMENT

Station	1 1/4" X 18" Plain Round Dowel Bars (Each)	No. 5 x 24" Deformed Steel Bars (Each)
SD 34		
462+65.2 Lt.	2	
462+65.2 Rt.	2	
462+65.2 to 480+74.5 Lt.		723
462+65.2 to 480+74.7 Rt.		723
SD 115-254		
335+85.8 Rt	2	
335+85.8 to 342+96.5 Rt		284
342+95.5 Rt	55	
342+90.2 Lt.	2	
342+90.2 to 358+57.4 Lt.		626
358+57.4 Lt.	2	
SD 115-258		
125+22.0 Rt.	2	
125+22.0 to 142+00.1 Rt.		671
142+00.1 Rt.	2	
Total:	69	3027

CORRUGATED METAL PIPE

Corrugated metal pipes shall 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. Corrugated metal pipes shall have 3-inch X 1-inch or 5-inch X 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

The gauge of the corrugated metal ends shall match the thickest gauge of corrugated metal pipe it is connected to.

CONCRETE PIPE CONNECTIONS

Pipe connections to existing pipes, manholes, junction boxes, and drop inlets shall be done by breaking a hole into the existing structure and inserting the pipe. A concrete collar shall then be poured around the pipe in the area of the connection.

When it is not possible to use a normal pipe joint (male-female ends), connections to existing pipe shall be made by placing a 2' wide by 6" thick M6 concrete collar around the outside of the connection. The concrete collar shall be reinforced with 6x6 W2.9 x W2.9 wire mesh.

All costs for constructing the concrete collars including materials and labor shall be incidental to the contract unit price per foot for the corresponding pipe bid item.

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STORM SEWER

Reinforced concrete pipe may be either bell and spigot or tongue and groove. The pipe sections shall be adjoined such that the ends are fully entered and the inner surfaces are reasonably flush and even.

Lift holes in the reinforced concrete pipe shall be plugged with grout.

Watertight joints are required for reinforced concrete pipe, drop inlets, manholes, and junction boxes where storm sewers run parallel to and within 10 feet horizontally from existing or proposed water mains.

Watertight joints are required where reinforced concrete pipes, drop inlets, manholes, or junction boxes cross water mains and are separated a distance of 18 inches or less, above or below, the water main.

If watertight joints are required then the watertight joints shall extend for a distance of 10 feet beyond the water main. This measurement shall be from the sealed concrete joint to the outer most surface of the water main.

Watertight joint seals shall conform to the following requirements:

1. Reinforced Concrete Pipe (Circular): Gasketed pipe shall conform to the requirements of ASTM C443. Non-gasketed concrete pipe shall be sealed with a mastic joint seal conforming to the requirements of ASTM C990 and encased with a minimum 2' wide by 6" thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh.

2. Reinforced Concrete Pipe (Arch): Joints shall be sealed with a waterstop seal meeting the requirements of ASTM C990. Waterstop seals shall consist of hydrophilic compounds such as Waterstop-RX or ConSeal CS-231.

3. Drop Inlets, Manholes, and Junction Boxes: Joints shall be sealed with a waterstop seal or seal wrap meeting the requirements of ASTM C990 or encased with a minimum 2' wide by 6" thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh. Waterstop seal shall contain hydrophilic compounds such as Waterstop-RX or ConSeal CS-231. Seal wrap shall be a self adhesive external joint wrap such as ConWrap CS-217 or Mar Mac Seal Wrap.

Gaskets and seals (mastic, waterstop, and seal wraps) shall be installed in accordance with the manufacturer's recommendations.

The cost for furnishing and installing all gaskets, mastic joint seal, waterstop seal, seal wrap, concrete collars, and for plugging the lift holes shall be incidental to the contract unit price per foot for the corresponding pipe bid item.

DROP INLETS

Where drop inlets are constructed within areas of curb and gutter, the Contractor shall construct weep holes of at least 3 inches in diameter in the drop inlet walls. The weep holes shall be constructed at the same elevation as the adjacent top of the earthen subgrade and shall be maintained clean and open at all times until the permanent surfacing is placed. The drop inlets shall be covered throughout construction operations as necessary with an Engineer approved cover to provide safe travel for motorists and to prevent materials from entering the storm sewer system. After the permanent surfacing has been placed, the Contractor shall seal the weep holes with grout and remove all debris from the drop inlet. All costs involved with the coverings, weep holes, and removing debris from the drop inlets shall be incidental to the contract unit prices for the components of the drop inlets.

The plan shown quantities of the drop inlet components such as Class M6 Concrete, Reinforcing Steel, Type B Frame and Grate Assembly, and, Precast Drop Inlet Collar will be the basis of payment for these items.

If additions or reductions to the number of drop inlets are ordered by the Engineer, payment for the components required to construct the drop inlets will be made at the contract unit prices for the components of the drop inlets.

TABLE OF DROP INLETS AND QUANTITIES

Station	L/R	Drop Inlet Size	Drop Inlet Type	Class M6 Conc. (CuYd)	Reinf. Steel (Lb)	6" Precast Drop Inlet Collar (Each)	Frame & Grate/Lid Type
SD 115-258							
342+46.53	31.39' R	2'x3'	B	0.86	96.5	1	B
			Total:	0.86	96.5	1	

Total Type B Frame and Grate Assembly: 1

ADJUSTMENT OF MANHOLES

The Contractor shall adjust manholes to the extent necessary on this project. Adjusting the manholes may consist of removing the upper course of brick or removing the concrete walls, replacing the removed materials with brick or Class M6 concrete, placing adjusting rings if necessary, and resetting the manhole frame and lid. The elevation of the lid shall be set at the same elevation of the adjacent new pavement or surrounding ground. All manhole frames, lids, and rings that are cracked or broken due to carelessness of the Contractor shall be replaced with new manhole frames, lids, and rings that conform with the Specifications at the Contractor's expense. Manholes shall be adjusted to the satisfaction of the Engineer. All costs involved in adjusting the manholes shall be incidental to the contract unit price per each for "Adjust Manhole".

The Engineer may direct adjustment of manholes that were not included in these plans. Payment for adjusting manholes that were not included in the plans will be at the contract unit price per each for "Adjust Manhole".

TABLE OF ADJUST MANHOLES

Station	L/R	Type of Adjustment
SD 115-258		
138+45.4	53.62' R	Sanitary MH -0.20'
139+35.8	23.15' R	Sanitary MH +0.82'

MAILBOXES

The Contractor shall reset the existing mailboxes on new posts with the necessary support hardware for single mailbox assemblies. The local Postmaster will determine the recommended mounting height of the mailboxes throughout the project. The Contractor shall coordinate with the Engineer on the proper postal representative to contact.

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts and necessary support hardware shall be incidental to the contract unit price per each for "Refurbish Single Mailbox".

TABLE OF REFURBISH MAILBOX

Station	L/R	Single (Each)
SD 115-254		
341+16	31' R	1
341+17	31' R	1
341+18	31' R	1
SD 115-258		
140+41	23' R	1
	Total:	4

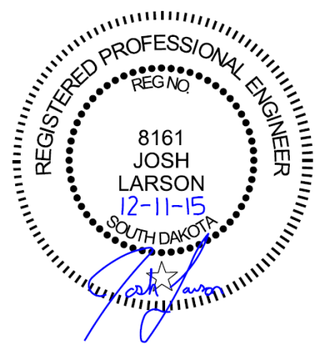


TABLE OF CONSTRUCTION STAKING

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Grade Staking Length (Mile)	Grade Staking Lane Factor	Grade Staking *Sets of Stakes	Grade Staking **Grade Staking Quantity (Mile)	Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)
SD 34	462+65	480+75	2	1,810	0.343	1	2	0.686	0.343	0.343
SD 115 - 254th Street (Northbound)	335+86	342+98	1	712	0.135	0.5	2	0.135	0.135	0.135
SD 115 - 254th Street (Southbound)	342+80	358+57	1	1,577	0.299	0.5	2	0.299	0.299	0.299
SD 115 - 258th Street	125+22	142+00	1	1,678	0.318	0.5	2	0.318	0.318	0.318
SD 11	148+79	164+34	2	1,555	0.295	1	1	0.295	0.295	0.295
SD 44 (Eastbound)	414+20	434+05	1	1,985	0.376	0.5	1	0.188	0.376	0.376
SD 44 (Westbound)	425+41	428+62	1	321	0.061	0.5	1	0.031	0.061	0.061
							Totals:	1.952	1.827	1.827

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

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

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum shall 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 shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

Glomus intraradices	25%
Glomus aggregatu	25%
Glomus mosseae	25%
Glomus etunicatum	25%

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

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

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 http://www.mycorrhizae.com/

FERTILIZING

The Contractor shall apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer shall have a minimum guaranteed analysis of 4-6-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 3.2%, a minimum of 6% (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 shall 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 shall 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 shall 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 all-natural slow release fertilizer shall be applied according to the manufacturer's application recommendations.

The application rate is 34 pounds per 1,000 square feet.

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

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 http://www.sustane.com/

Fertilizer shall only be applied to areas to be seeded with Type D Permanent Seed Mixture.

PERMANENT SEEDING

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways and temporary easements under cultivation.

All seeding shall be Type G Permanent Seed Mixture except the areas at the SD 115 – 254th Street Intersection from Station 338+52 to Station 341+42 and all of the SD 115 – 258th Street Intersection, which shall both be seeded with Type D Permanent Seed Mixture.

Type D Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/1000 SqFt)
Kentucky Bluegrass	Avalanche, Appalachian, Wildhorse, Blue Bonnet	1.4
Perennial Ryegrass	Turf Type Varieties	1.4
Creeping Red Fescue	Epic, Boreal	1.4
Chewings Fescue	Ambrose, K2, VNS, Zodiac	1.4
Alkali Grass	Fults, Fults II, Quill, Salty	1.4
	Total:	7

PERMANENT SEEDING (Continued)

Type G Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana	7
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	3
Indiangrass	Holt, Tomahawk	3
Big Bluestem	Bison, Bonilla, Champ, Pawnee, Sunnyview	3
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
	Total:	26

MULCHING (GRASS HAY OR STRAW)

An additional 3 tons of Grass Hay or Straw Mulch has been added to the Estimate of Quantities for temporary erosion control on areas determined by the Engineer during construction.

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall 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 shall provide certification that the erosion control wattles do not contain noxious weed seeds.

Erosion control wattles shall remain on the project to decompose.

An additional quantity of 12” Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels and as an alternative to low flow or high flow silt fence at wetland areas adjacent to the highway.

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

http://sddot.com/business/certification/products/Default.aspx

TABLE OF EROSION CONTROL WATTLE

Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
SD 34				
463+41 to 464+41	59' R	12	Perimeter Protection	100
463+47 to 464+47	57' L	12	Perimeter Protection	100
SD 115-258				
128+93	48' R	12	Ditch Bottom	15
130+42	49' R	12	Ditch Bottom	15
131+92	51' R	12	Ditch Bottom	15
SD 11				
150+18	49' R	12	Ditch Bottom	15
151+56	54' R	12	Ditch Bottom	15
153+56	54' R	12	Ditch Bottom	15
155+56	53' R	12	Ditch Bottom	15
157+56	51' R	12	Ditch Bottom	15
			Additional Quantity	50
			Total:	370

HIGH FLOW SILT FENCE

The high flow silt fence fabric provided shall be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

http://sddot.com/business/certification/products/Default.aspx

High flow silt fence shall be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

TABLE OF HIGH FLOW SILT FENCE

Station	L/R	Location	Quantity (Ft)
SD 34			
468+36.7	47.6' L	Culvert Inlet	18
469+70.0	47.6' L	Culvert Inlet	18
471+98.8	50.0' L	Culvert Inlet	18
SD 115-258			
134+12.3	45.6' R	Culvert Inlet	18
136+30.0	44.6' R	Culvert Inlet	30
137+45.4	46.6' R	Culvert Inlet	30
SD 11			
158+53.2	125.5' R	Culvert Inlet	18
158+67.9	82.6' L	Culvert Inlet	18
158+68.1	63.4' R	Culvert Inlet	18
158+74.6	59.7' L	Culvert Inlet	18
SD 44			
416+32.8	50.1' R	Culvert Inlet	30
427+36.5	56.3' L	Culvert Inlet	30
		Silt Fence as Interim Sediment Control:	22
		Additional Quantity:	60
		Total:	346

INTERIM SEDIMENT CONTROL AT INLETS, MANHOLES, AND JUNCTION BOXES AFTER SURFACING REMOVAL AND BEFORE PLACEMENT OF SURFACING

Refer to Standard Plate 734.05 for details of installation of high flow silt fence at drop inlets, manholes, and junction boxes.

The high flow silt fence fabric provided shall be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

http://sddot.com/business/certification/products/Default.aspx

In addition, the Contractor shall do the following for this installation:

- A space of at least 1' shall be provided between the silt fence installation and the inlet. This space shall be filled completely with a 2" depth of aggregate, 2" minus or smaller.
- The top elevation of the silt fence shall be such that a 12" horizontal flap of silt fence will remain at the bottom.
- The base of the silt fence shall conform to the natural ground profile but does not need to be trenched in at the bottom.
- The extra 12" of the silt fence material may be cut so that the material will lay flat upon the subgrade.
- Sediment filter bags shall be placed on the 12" flap around the perimeter of the silt fence installation. The sediment filter bags shall overlap 6" at the ends and be placed tightly together.
- The sediment filter bags shall be filled with clean aggregate 2" minus or smaller.

Sediment Filter Bag

Product	Manufacturer
Snake Bag	Sacramento Bag Manufacturing Co. Sacramento, CA Phone: 1-800-287-2247 www.sacbag.com

The sediment filter bag shall be the Snake Bag from Sacramento Bag Manufacturing Company or an approved equal.

All costs for furnishing and installing the sediment filter bags shall be incidental to the contract unit price per foot for "Sediment Filter Bag."

All costs for removing the sediment filter bags shall be incidental to the contract unit price per foot for "Remove Sediment Filter Bag".

Payment for high flow silt fence shall be as stated in Section 734.5 of the Specifications.

All costs for furnishing, installing, and removing the 2" depth of aggregate shall be incidental to other erosion and sediment control bid items.

All costs for removing and disposing of sediment collected by the sediment control device shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

The Contractor and Engineer shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event greater than 1/2".

TABLE OF INTERIM SEDIMENT CONTROL AT INLETS, MANHOLES, AND JUNCTION BOXES AFTER SURFACING REMOVAL AND BEFORE PLACEMENT OF SURFACING

Station	L/R	High Flow Silt Fence Quantity (Ft)	Sediment Filter Bag Quantity (Ft)	Remove Sediment Quantity (CuYd)
SD 115-254				
342+46.5	31.39' R	22	29	0.25
	Totals:	22	29	0.25

SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

This type of sediment control device should be used where there is pavement in the vicinity of the drop inlets and storm water or sediment could possibly enter the frame and grate. Sediment Control at Inlet with Frame and Grate shall be installed prior to working in the vicinity of the drop inlets.

The Contractor shall be responsible for maintaining and repairing the sediment control device for the duration of the project for which sediment control measures are required. Maintenance shall be scheduled to prevent storm water from backing up into the driving lane.

"Sediment Control at Inlet with Frame and Grate" will be paid for one time at each location, regardless of the number of times the sediment control devices are installed, inspected, cleaned, removed, repaired, or replaced. All costs associated with furnishing, installing, inspecting, maintaining, cleaning, sediment removal, and repairing Sediment Control at Inlet with Frame and Grate shall be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

Sediment collection device shall be:

A commercial made sediment collection device from the "Sediment Control at Inlet with Frame and Grate" list or an approved equal. The device shall be installed in reinforced concrete drop inlets according to the manufacturer's recommendations.

Sediment Control at Inlet with Frame and Grate Approved List:

Product	Manufacturer
InfraSafe Debris Collection Device with filter sock	Royal Environmental Systems, Inc. Stacy, MN Phone: 1-800-817-3240 www.royalenterprises.net
Dandy Curb Sack	Dandy Products Inc. Dublin, OH Phone: 1-800-591-2284 www.dandyproducts.com
Silt Trapper	Storm Water Solutions Lakeville, MN Phone: 1-952-461-4376 www.silttrapper.com
DIP Basket	Skyview Construction Co., LLC Waubay, SD Phone: 1-605-520-0555 www.skyviewconst.com
FLEXSTORM Inlet Filters	Inlet and Pipe Protection, Inc. Naperville, IL Phone: 1-866-287-8655 www.inletfilters.com
GR-8 Guard or Combo Guard	ERTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 www.ertecsystems.com
Sediment Catchers	Shaun Jensen Brookings, SD Phone: 1-605-690-4950
Grate FX, Slammer, or VertPro	Enviroscape ECM, Ltd. Oakwood, OH Phone: 1-419-594-3210 www.strawblanket.com
BX Inlet Sediment Boxes	BX Civil and Construction Dell Rapids, SD Phone: 1-605-428-5483 bx-cc.com

TABLE OF SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

Station	L/R	Quantity (Each)
SD 115-254		
342+46.5	31.39' R	1
	Total:	1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	17	137

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

❖ **SITE DESCRIPTION (4.2 1)**
- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
  - ☒ Clearing and grubbing
  - ☐ Excavation/borrow
  - ☒ Grading and shaping
  - ☒ Filling
  - ☐ Cutting and filling
  - ☐ Other (describe):
- **Total Project Area** See Title Sheet **(4.2 1.b.)**
- **Total Area To Be Disturbed** See Title Sheet **(4.2 1.b.)**
- **Existing Vegetative Cover** SD 34 – 51%; SD 115-254 – 47%; SD 115-258 – 48%; SD 11 – 62%; SD 44 – 46% 1
- **Soil Properties:** SD 34 – Baltic-Wentworth-Egan Associations; SD 115-254 – Houdek-Shindler-Blendon Associations; SD 115-258 – Blendon-Chaska Associations; SD 11 – Chancellor-Viborg-Wentworth Associations; SD 44 – Clarno-Crossplain-Davison Associations **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** See Title Sheet **(4.2 1.e.)**

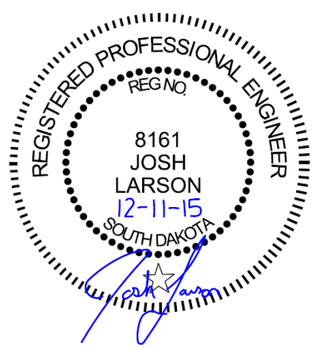
❖ **ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)**
(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)
- **Special sequencing requirements (**see sheet).
- **Install perimeter protection where runoff sheets from the site.**
- **Install channel and ditch bottom protection.**
- **Clearing and grubbing.**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Install utilities, storm sewers, curb and gutter.**
- **Install inlet and culvert protection after completing storm drainage and other utility installations.**
- **Complete final grading.**
- **Complete final paving and sealing of concrete.**
- **Complete traffic control installation and protection devices.**
- **Reseed areas disturbed by removal activities**.

❖ **EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))**
(Check all that apply)
- **Stabilization Practices (See Detail Plan Sheets)**
  - ☐ Temporary Seeding (Cover Crop Seeding)
  - ☒ Permanent Seeding
  - ☐ Sodding
  - ☐ Planting (Woody Vegetation for Soil Stabilization)
  - ☒ Mulching (Grass Hay or Straw)
  - ☐ Hydraulic Mulch (Wood Fiber Mulch)
  - ☐ Soil Stabilizer
  - ☐ Bonded Fiber Matrix
  - ☐ Erosion Control Blankets or Mats
  - ☐ Vegetation Buffer Strips
  - ☐ Roughened Surface (e.g. tracking)
  - ☐ Dust Control
  - ☐ Other:
- **Structural Temporary Erosion and Sediment Controls**
  - ☒ Silt Fence
  - ☐ Floating Silt Curtain
  - ☐ Straw Bale Check
  - ☐ Temporary Berm
  - ☐ Temporary Slope Drain
  - ☒ Straw Wattles or Rolls
  - ☐ Turf Reinforcement Mat
  - ☐ Rip Rap
  - ☐ Gabions
  - ☐ Rock Check Dams
  - ☐ Sediment Traps/Basins
  - ☒ Inlet Protection
  - ☐ Outlet Protection
  - ☐ Surface Inlet Protection (Area Drain)
  - ☒ Curb Inlet Protection
  - ☐ Stabilized Construction Entrances
  - ☐ Entrance/Exit Equipment Tire Wash
  - ☐ Interceptor Ditch
  - ☐ Concrete Washout Area
  - ☐ Temporary Diversion Channel
  - ☐ Work Platform
  - ☐ Temporary Water Barrier
  - ☐ Temporary Water Crossing
  - ☐ 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.
- **Storm Water Management (4.2 2.b., (1) and (2))**
  Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.
- **Other Storm Water Controls (4.2 2.c., (1) and (2))**
  - **Waste Disposal**
    All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. 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 in the field office. The general contractor's representative responsible for the conduct of work on the site will be responsible for seeing 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 individual designated as the contractor's on-site representative 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 in a timely manner by a licensed waste management contractor or as required by any local regulations.

❖ **Maintenance and Inspection (4.2 3. and 4.2 4.)**
- **Maintenance and Inspection Practices**
  - Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
  - 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 in order 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 site superintendent are responsible for inspections. Maintenance, 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.

❖ **Non-Storm Water Discharges (3.0)**
The following non-storm water 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.

❖ **Materials Inventory (4.2. 2.c.(2))**
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 headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).
- ☒ Concrete and Portland Cement
- ☐ Detergents
- ☒ Paints
- ☐ Metals
- ☒ Bituminous Materials
- ☒ Petroleum Based Products
- ☐ Cleaning Solvents
- ☐ Wood
- ☒ Cure
- ☐ Texture
- ☐ Chemical Fertilizers
- ☐ Other:



❖ **Spill Prevention (4.2 2.c.(2))**

➢ **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 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.
  - Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.

- Hazardous Materials
  - Products will be kept in original containers unless the container is not resealable.
  - 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 storm water system or storm water 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 storm water runoff.

➢ **Product Specific Practices (6.8)**

- 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 storm water. 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 areas on the site. These areas must be self contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

➢ **Spill Control Practices (4.2 2 c.(2))**

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 clean up 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 clean up 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. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

➢ **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water 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 SD DENR.
- Personnel with primary responsibility for spill response and clean up 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.

❖ **Spill Notification**

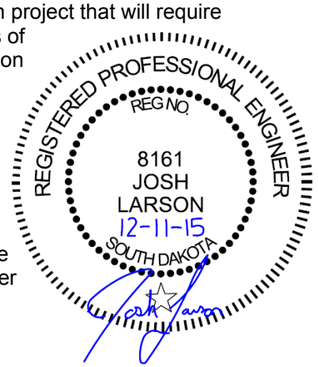
In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

➢ A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately **if any one of the following** conditions exists:
- The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
- The discharge causes an immediate danger to human health or safety.
- The discharge exceeds 25 gallons.
- The discharge causes a sheen on surface water.
- The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.
- The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.
- The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
- The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

❖ **Construction Changes (4.4)**

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.



❖ CERTIFICATIONS

➢ Certification of Compliance with Federal, State, and Local Regulations

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

➢ South Dakota Department of Transportation

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

Authorized Signature (See the General Permit, Section 6.7.1.C.)

➢ 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

➢ 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: _____

➢ SD DENR Contact Spill Reporting

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➢ SD DENR Contact for Hazardous Materials.

- (605) 773-3153

➢ National Response Center Hotline

- (800) 424-8802.

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SHOP DRAWING AND CATALOG CUTS SUBMITTALS

The Contractor shall submit shop drawings and catalog cuts in accordance with Section 985 of the Specifications.

Adobe PDF submittals shall be sent to the following email addresses:

John.Less@state.sd.us
Pete.Longman@state.sd.us

SCOPE OF WORK

The Stop Sign Beacon work includes, but is not limited to, the following:

A. Items to be removed by the Contractor:
   1. Existing power poles and guy wires
   2. Existing overhead flashing beacons and span wire
B. Items to be furnished and installed by the Contractor:
   1. Electrical conduits and wiring
   2. Post mounted flashing beacons

UTILITIES

The Contractor shall be responsible for coordinating electrical installations with the power source. Utility contact information is listed below:

Xcel Energy
Bob VanKirk
7100 E. Rice St.
Sioux Falls, SD 57110
1-605-339-8234

MISCELLANEOUS, ELECTRICAL

All cost to remove Existing Power Poles, Guy Wires, Span Wire, and Flashing Beacon, as detailed on the plans, shall be incidental to the contract lump sum price for Miscellaneous Electrical.

Cost to connect to existing power supply, including miscellaneous electrical parts and associated costs with the power supplier, shall be incidental to the contract lump sum price for Miscellaneous, Electrical.

PAVEMENT MARKING PAINT

All materials shall be applied as per manufacturer's recommendations.

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

COLD APPLIED PLASTIC PAVEMENT MARKING

All materials shall be applied as per the manufacturer's recommendations.

Cold Applied Plastic Pavement Markings shall be 3M Series 380 AW or an approved equal.

COLD WEATHER WATERBORNE PAINT

Waterborne paint applied after October 15 shall be formulated as cold-weather waterborne paint and shall be applied in accordance with the manufacturer's recommendations, including minimum temperature requirements.

Cold-weather waterborne paint shall conform to Section 980 of the Specifications except for the following:

980.1: Resin Binder shall be FASTRACK™ XSR™ manufactured by Dow, or an approved equal.

980.1 A. Quantitative Requirements:

Pigment, percent by weight: 60.0 to 63.0 for white and 58.5 to 61.5 for yellow.

Pigment, percent by weight; tested in accordance with ASTM D3723: 60.0 to 63.0 for white and 56.1 to 59.2 for yellow.

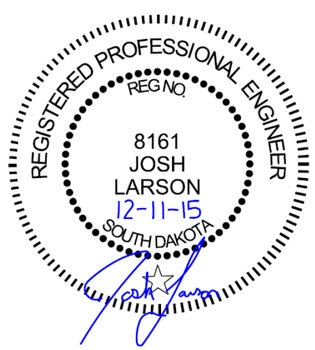
Non-volatile Vehicle, percent by weight; tested in accordance with NIST 141C (Method 4051.1): 41.5 minimum for white and 41.5 minimum for yellow.

GROOVING FOR COLD APPLIED PLASTIC PAVEMENT MARKING

The Contractor shall establish a positive means for the removal of the grinding and/or grooving residue. Residue from dry grooving shall be vacuumed. Solid residue shall be removed from the pavement surfaces before being blown by traffic action or wind. Residue from wet grooving shall not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, shall be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state. All costs for removal of grinding and/or grooving residue shall be included in the contract unit price per foot for "Grooving for Cold Applied Plastic Pavement Marking".

REMOVE PAVEMENT MARKING, 4" OR EQUIVALENT

Markings that fall outside of the new groove shall be obliterated using additional methods approved by the Engineer. Removal of the existing markings shall be accomplished without causing damage to the pavement, pavement joints, or joint sealant. The Contractor shall repair any damage to the pavement, pavement joints, or joint sealant for no additional payment and at no cost to the State. All costs for materials, labor, and equipment necessary to remove the existing markings shall be incidental to the contract unit price per foot for "Remove Pavement Marking, 4" or Equivalent".



SCOPE OF PERMANENT SIGN WORK

The permanent sign work includes, but is not limited to, the following:

A. Item to be removed and salvaged by the Contractor:
   1. Existing permanent signs
   2. Existing breakaway sign posts
   3. Delineators
   4. Object markers
B. Items to be Reset by the Contractor:
   1. Salvaged permanent signs
   2. Salvaged breakaway sign posts
   3. Salvaged Delineators
   4. Salvaged object markers
C. Installations as listed in the SIGN INSTALLATION TABLE

REMOVE, SALVAGE, RELOCATE AND RESET PERMANENT SIGNS

The Contractor shall remove, salvage, relocate, and reset signs as indicated in the Permanent Sign Table.

The Contractor shall replace in kind any signs, supports, support bases or related hardware lost or damaged during the time the signs were removed, salvaged, stockpiled and reset. Any replacement materials shall be in kind and at the Contractor's expense.

To complete the project sign work, resetting of signs shall be at their original locations or as near as practicable to their original locations as completed project related work allows.

FURNISH AND INSTALL TRAFFIC SIGNS

The signs listed on the Permanent Sign Table in the plans as new installations shall be provided for the locations specified.

Flat aluminum signs greater than 24" on the horizontal axis when installed shall be 0.100" flat sheet aluminum. Flat aluminum signs 24" or less on the horizontal axis when installed shall be 0.080" flat sheet aluminum.

SIGN LEGEND, BORDER AND BACKGROUND

All signs are to be installed in accordance with Sections 632 and 982 of the Specifications.

All sign legend, border and background sheeting material shall meet or exceed standards for ASTM D4956 classified Type XI super/very high intensity sheeting, as indicated in the plans.

Sheeting material on warning signs shall be fluorescent yellow and meet or exceed standards for ASTM D4956 classified Type XI super/very high intensity microprismatic sheeting.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	21	137

SIGN POSTS

The plan post lengths shall be field verified by the Contractor.

Breakaway anchor perforated tube post lengths listed in the Post Size/ Quantity columns of the SIGN INSTALLATION TABLE include 0.8’ (9”)/post minimum subgrade length.

Supports shall be cut to provide the proper sign height where necessary.

Post anchors shall be 48” long. Two-piece anchor post systems are required for 2” perforated tube post anchor stub posts. Heavy duty 7 gauge galvanized steel anchor stub posts that do not require stiffener sleeves are required for 2 ½” perforated tube post non slip base post installations.

All sign support bases shall conform to Plate number 634.99.

PIPE QUANTITIES

STATE OF SOUTH DAKOTA | PROJECT: PH 0020(139) | SHEET: 22 | TOTAL SHEETS: 137

Rev. 12/18/15 JDL

Station	Offset (L/R)	Reinforced Concrete: Circular 18" Cl. 2 (Ft)	Circular 24" Cl. 2 (Ft)	Circular 36" Cl. 2 (Ft)	Arch 48" Cl. 2 (Ft)	Circular Sloped End 24" (Each)	Circular Sloped End 36" With Bars (Each)	Circular Safety End 18" (Each)	Remove Pipe End Section for Reset 48" Arch (Each)	Reset Pipe End Section 48" Arch (Each)	Corrugated Metal Pipe: Circular 18" 16 Ga (Ft)	Arch 42" 14 Ga (Ft)	Circular Safety End 18" (Each)	Arch Sloped End 42" With Bars (Each)
SD 34														
468+39.66-47.62' L to 468+47.72-47.67' L											4		1	
469+07.23-48.04' L to 469+17.03-48.10' L											6		1	
469+73.03-47.59' L to 469+81.04-47.63' L											4		1	
470+36.31-47.89' L to 470+45.85-47.94' L											6		1	
471+98.25-49.72' R to 471+98.32-37.37' R		6				1								
471+98.71-39.95' L to 471+98.76-49.67' L		4				1								
SD 115 - 254th St														
342+46.48-21.47' R to 342+46.53-31.39' R	10													
351+41.72-49.92' L to 351+41.70-69.10' L		14				1								
351+59.07-70.66' L to 351+58.95-49.23' L		16				1								
SD 115 - 258th St														
139+53.98-29.82' R to 139+54.21-50.52' R				14					1	1				
139+73.78-30.40' R to 139+73.90-50.23' R				12					1	1				
139+93.85-30.19' R to 139+93.97-49.95' R				12					1	1				
140+13.80-30.16' R to 140+13.85-49.66' R				12					1	1				
SD 11														
157+83.70-63.98' R to 158+01.48-64.36' R	12							1						
157+83.73-60.59' L to 158+01.90-60.42' L	12							1						
157+83.76-59.77' R to 158+01.55-60.01' R	12							1						
158+47.29-65.33' R to 158+62.35-65.65' R	10							1						
158+47.78-60.57' R to 158+65.13-60.93' R	12							1						
158+48.29-59.98' L to 158+71.64-59.76' L	18							1						
158+53.94-122.58' R to 158+63.64-84.31' R	28							2						
158+57.42-128.26' L to 158+67.24-85.54' L	32							2						
SD 44														
416+32.82-49.77' R to 416+33.03-24.14' R												18		1
427+36.30-30.01' L to 427+37.02-55.24' L			14				1							
427+34.56-31.12' R to 427+33.94-52.76' R			10				1							
Total:		146	40	24	50	4	2	10	4	4	20	18	4	1

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PAVEMENT, CURB AND GUTTER, AND SIDEWALK QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	23	137

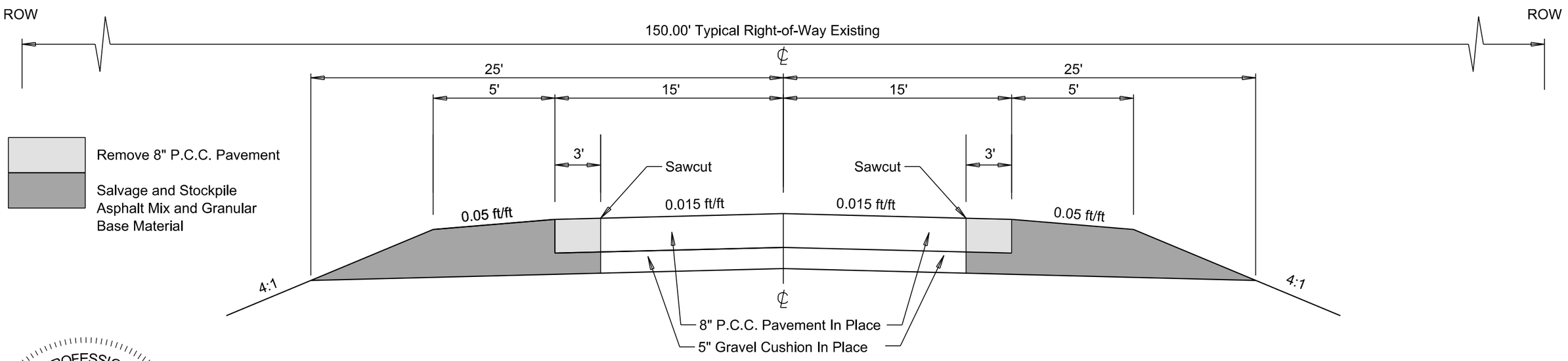
Rev. 12/18/15 JDL

Station to Station		Concrete Curb and Gutter Type F 68 Ft	Concrete Gutter Type P 8 Ft	Type A PCC Approach Pavement 6" SqYd	Type A PCC Approach Pavement 8" SqYd	PCC Driveway Pavement 8" SqYd
SD 115-254						
338+51.59	339+55.77	105				
339+55.77	340+14.00	59				
340+14.00	340+45.99		32	24.5		
340+45.99	341+43.99	98				
341+43.99	341+83.99		40		28.9	82.8
341+83.99	342+46.33	63				101.8
342+46.33	342+88.03	48				
342+88.03	342+98.47		27			
Total:		373	99	24.5	28.9	184.6

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	24	137

TYPICAL REMOVAL SECTION

SD34
462+65.37 TO 480+74.54



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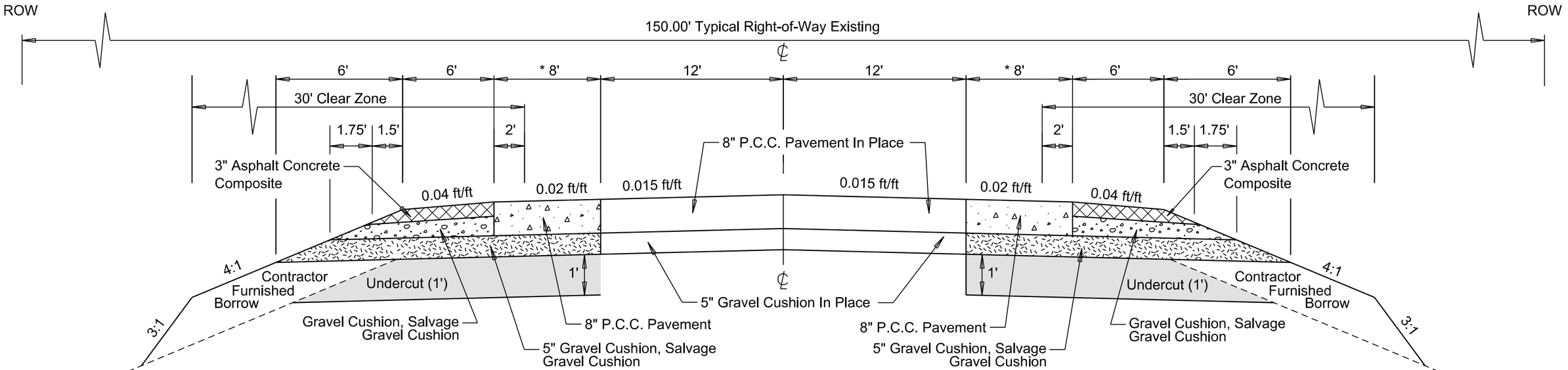
SOUTH DAKOTA

TYPICAL SURFACING SECTION

SD34
462+65.37 TO 480+74.54

Transitions:
* Sta 462+65.20 to 466+85.23 - 2' to 8'
* Sta 476+54.68 to 480+74.71 - 8' to 2'

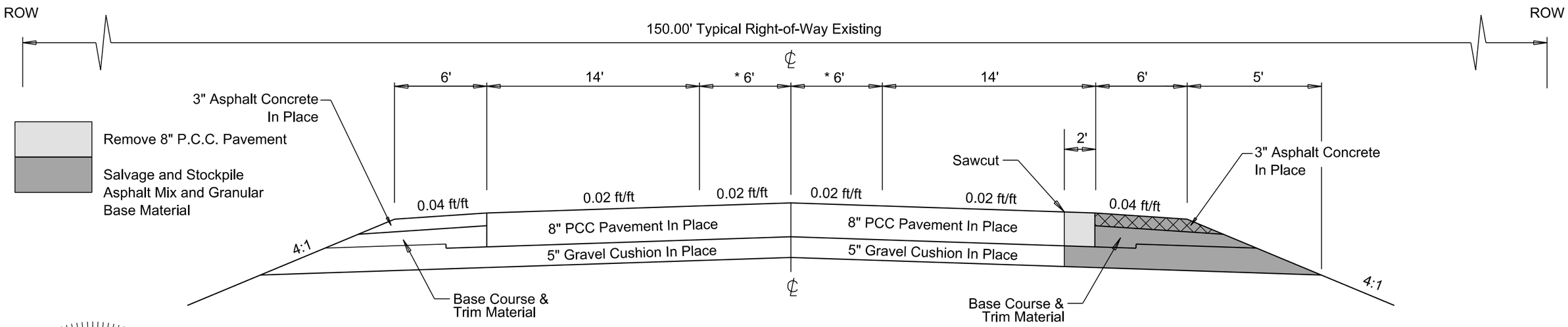


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	25	137

TYPICAL REMOVAL SECTION

SD115 (254th Street Intersection)
335+85.81 TO 338+51.58

Transitions:
* Sta 335+96 to 339+56 - 0' to 6'



REGISTERED PROFESSIONAL ENGINEER
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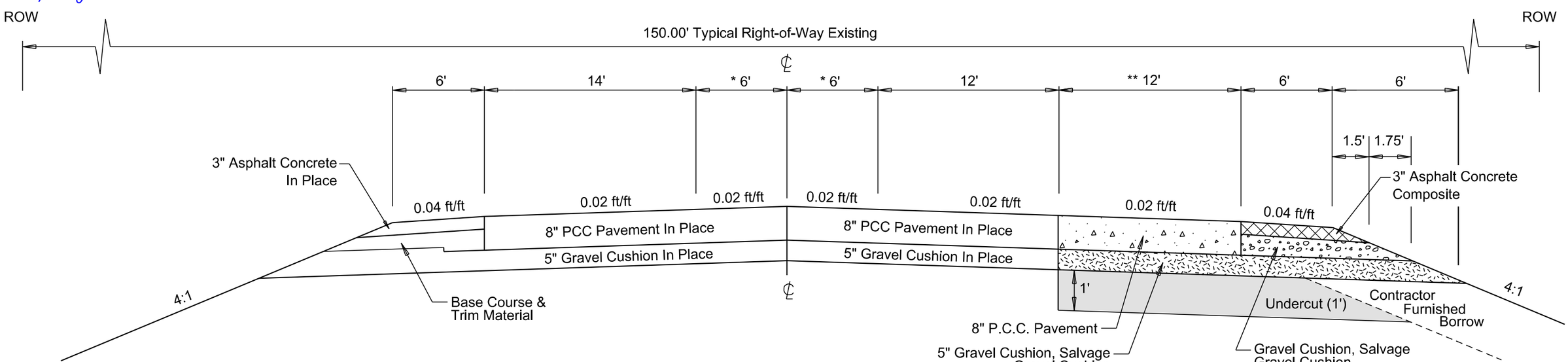
SOUTH DAKOTA

TYPICAL SURFACING SECTION

SD115 (254th Street Intersection)
335+85.81 TO 338+51.58

Transitions:
* Sta 335+96 to 339+56 - 0' to 6'

** Sta 335+85.81 to 337+05.37 - 2' to 12'

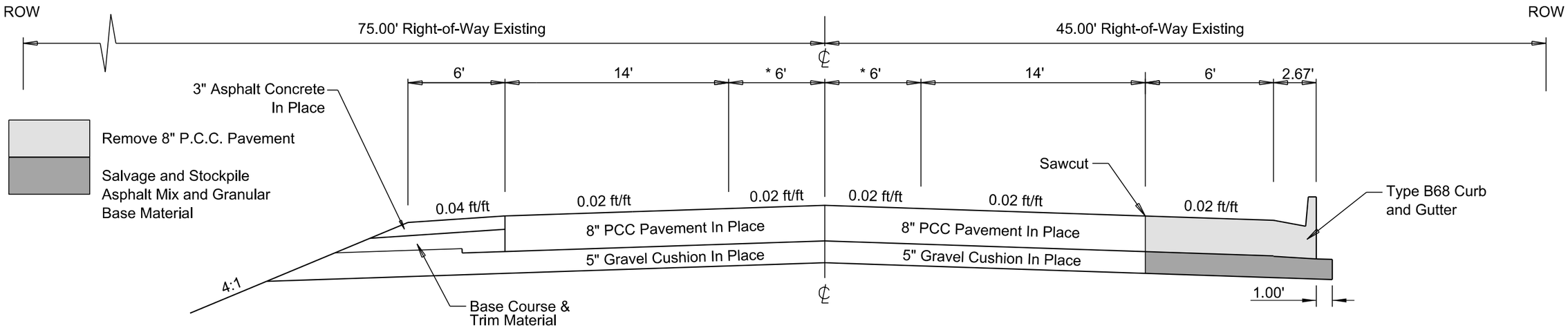


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	26	137

TYPICAL REMOVAL SECTION

SD115 (254th Street Intersection)
338+51.58 TO 342+98.47

Transitions:
* Sta 335+96 to 339+56 - 0' to 6'



REGISTERED PROFESSIONAL ENGINEER
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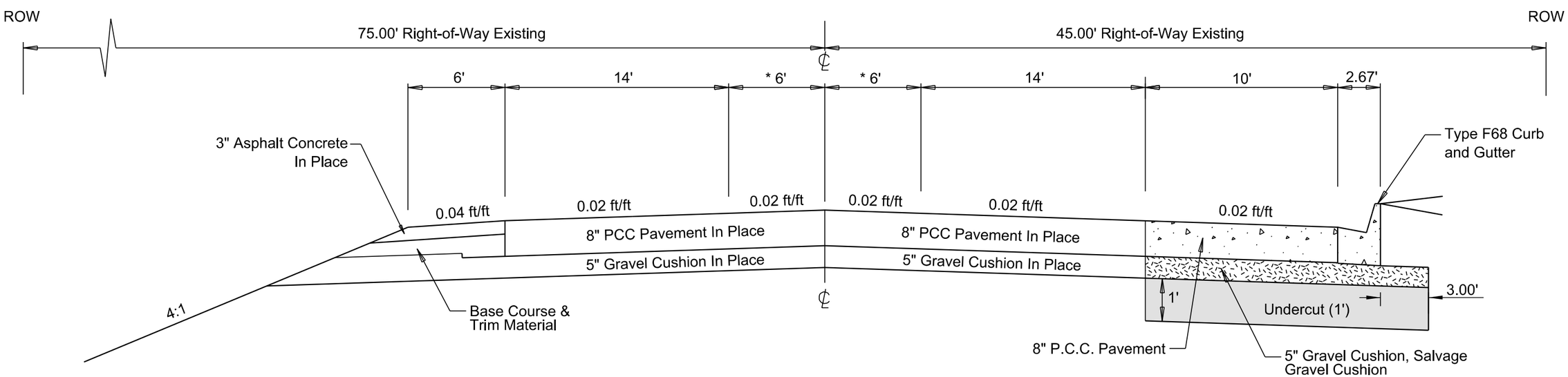
SOUTH DAKOTA

TYPICAL SURFACING SECTION

SD115 (254th Street Intersection)
338+51.58 TO 342+98.47

Transitions:
* Sta 335+96 to 339+56 - 0' to 6'

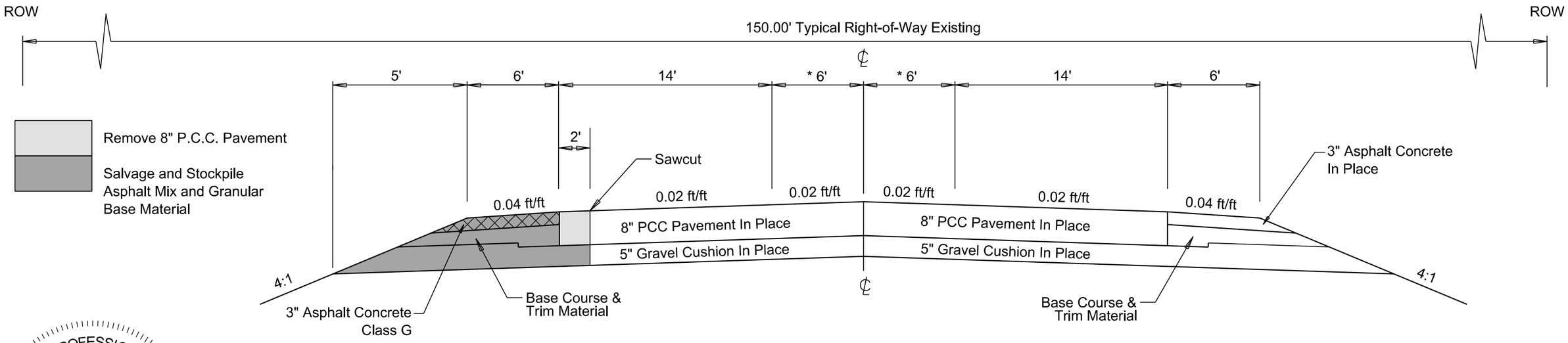


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	27	137

TYPICAL REMOVAL SECTION

SD115 (254th Street Intersection)
342+90.20 TO 358+57.48

Transitions:
* Sta 342+76 to 346+36 - 6' to 0'



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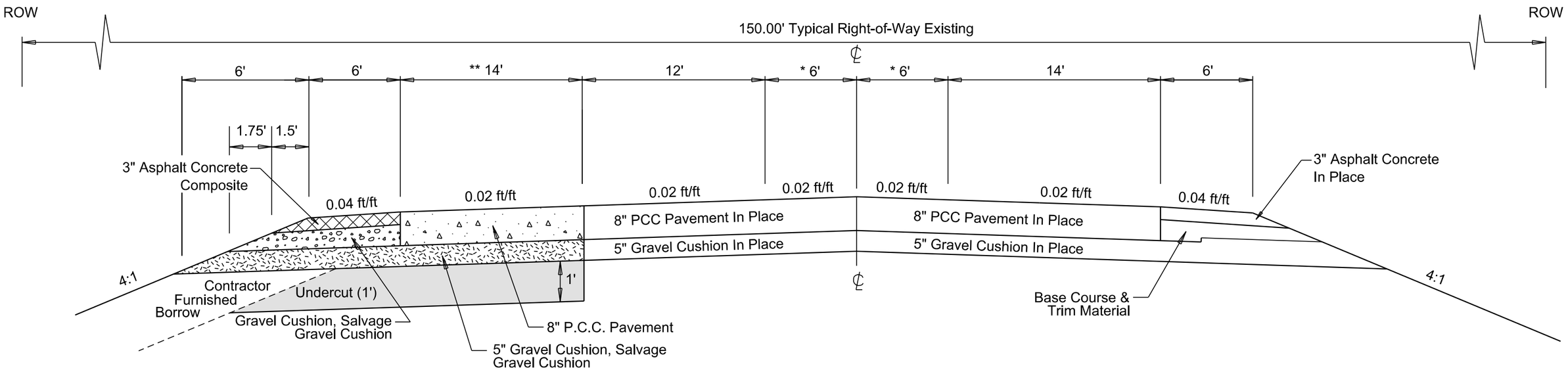
TYPICAL SURFACING SECTION

SD115 (254th Street Intersection)
342+90.20 TO 358+57.48

Transitions:
* Sta 342+76 to 346+36 - 6' to 0'

** Sta 342+90.17 to 346+20.00 - 2' to 14'
** Sta 350+40.00 to 358+57.48 - 14' to 2'

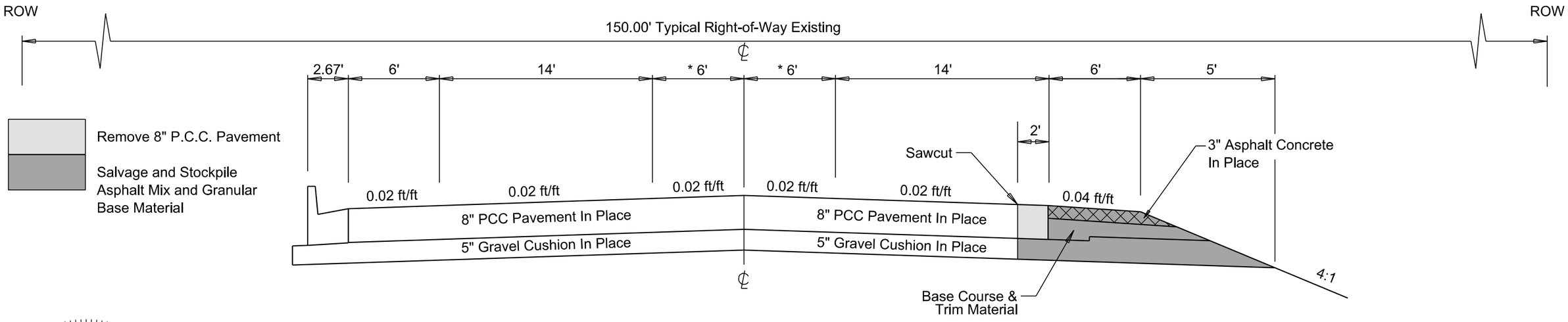


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	28	137

TYPICAL REMOVAL SECTION

SD115 (258th Street Intersection)
125+22.00 TO 130+21.35

Transitions:
* Sta 125+92 to 128+92 - 6' to 0'



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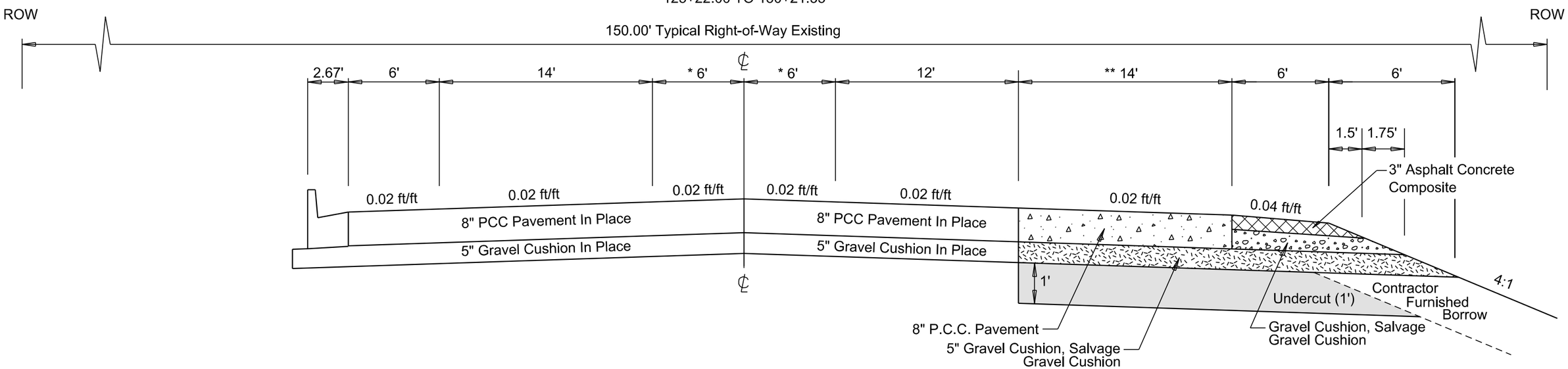
TYPICAL SURFACING SECTION

Transitions:
* Sta 125+92 to 128+92 - 6' to 0'

** Sta 125+22.00 to 128+79.48 - 2' to 14'

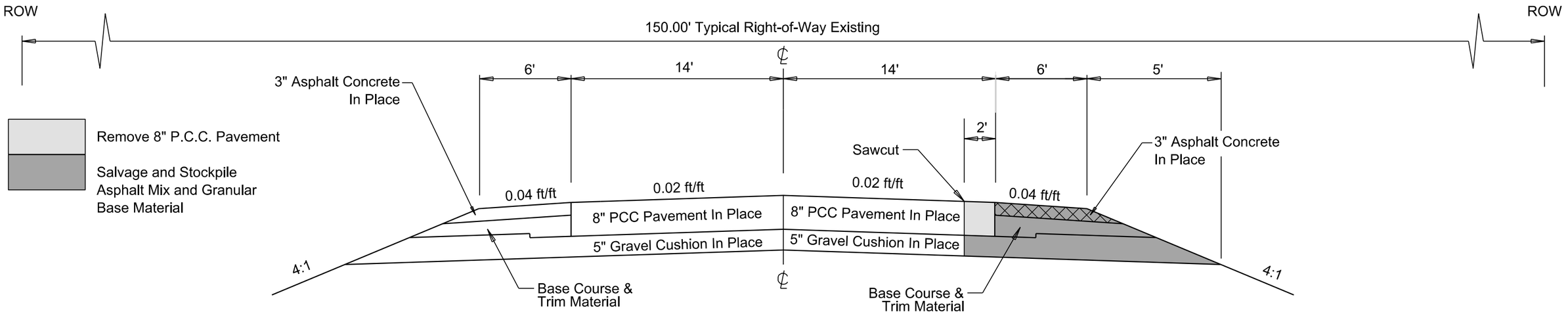
SD115 (258th Street Intersection)
125+22.00 TO 130+21.35



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	29	137

TYPICAL REMOVAL SECTION

SD115 (258th Street Intersection)
130+21.35 TO 142+00.20



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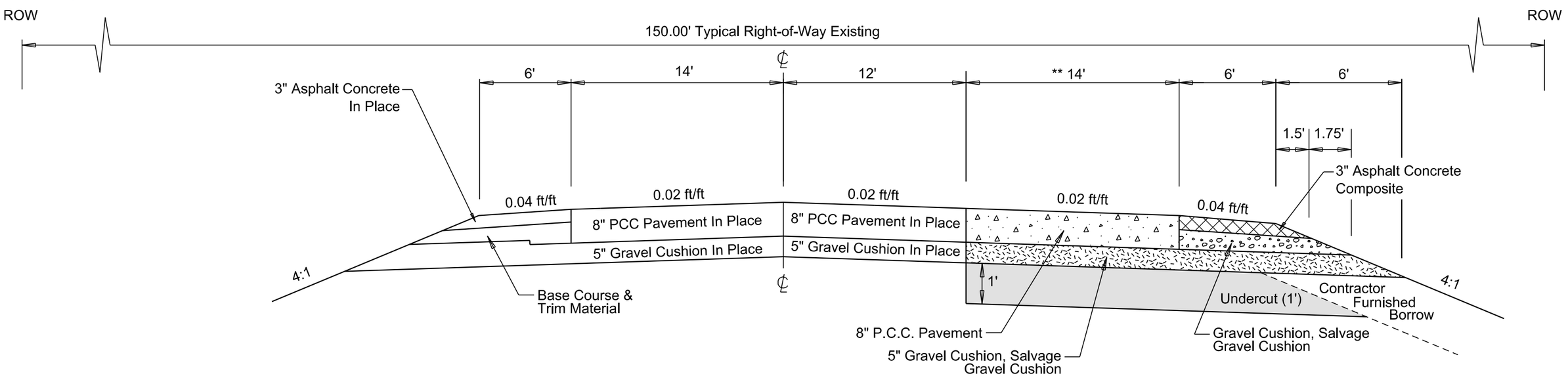
TYPICAL SURFACING SECTION

SD115 (258th Street Intersection)
130+21.35 TO 142+00.20

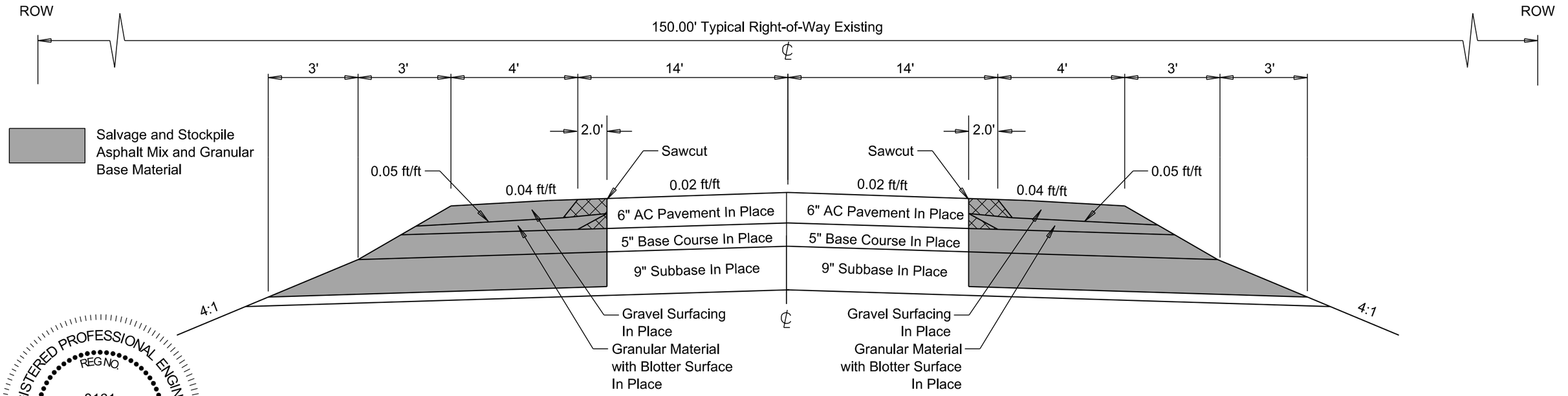
Transitions:
** Sta 133+60.10 to 142+00.20 - 14' to 2'



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	30	137

TYPICAL REMOVAL SECTION

SD11
148+79.00 TO 164+34.40



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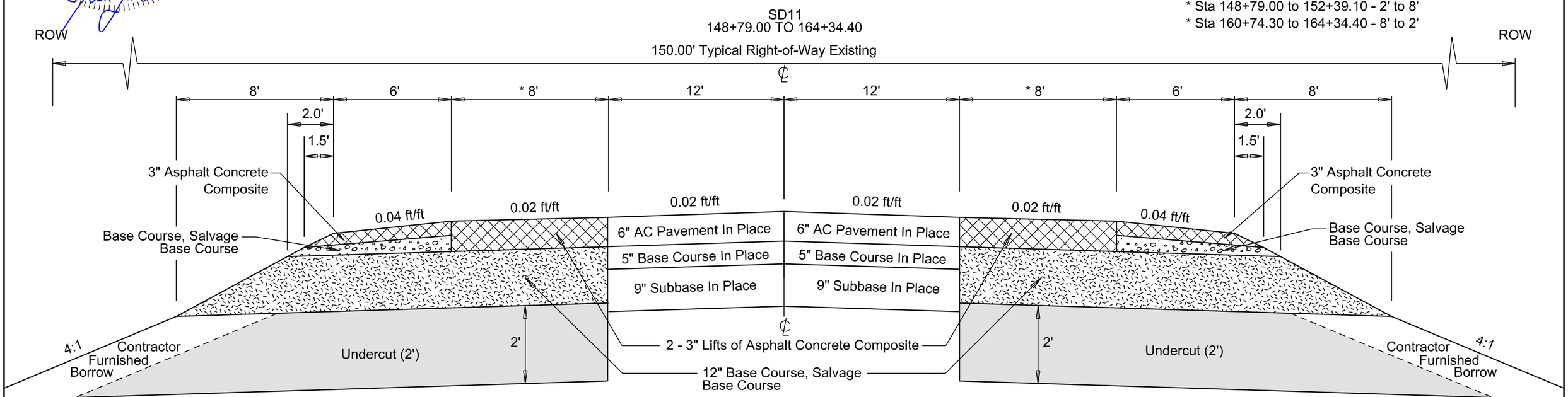
TYPICAL SURFACING SECTION

Transitions:
* Sta 148+79.00 to 152+39.10 - 2' to 8'
* Sta 160+74.30 to 164+34.40 - 8' to 2'

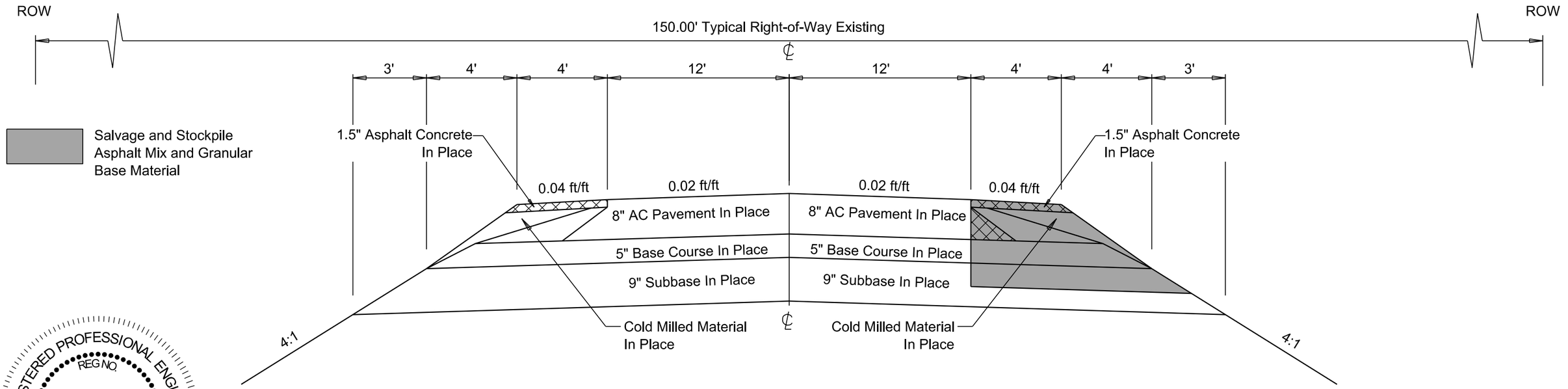
SD11
148+79.00 TO 164+34.40



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	31	137

TYPICAL REMOVAL SECTION

SD44
414+20.01 TO 424+09



REGISTERED PROFESSIONAL ENGINEER
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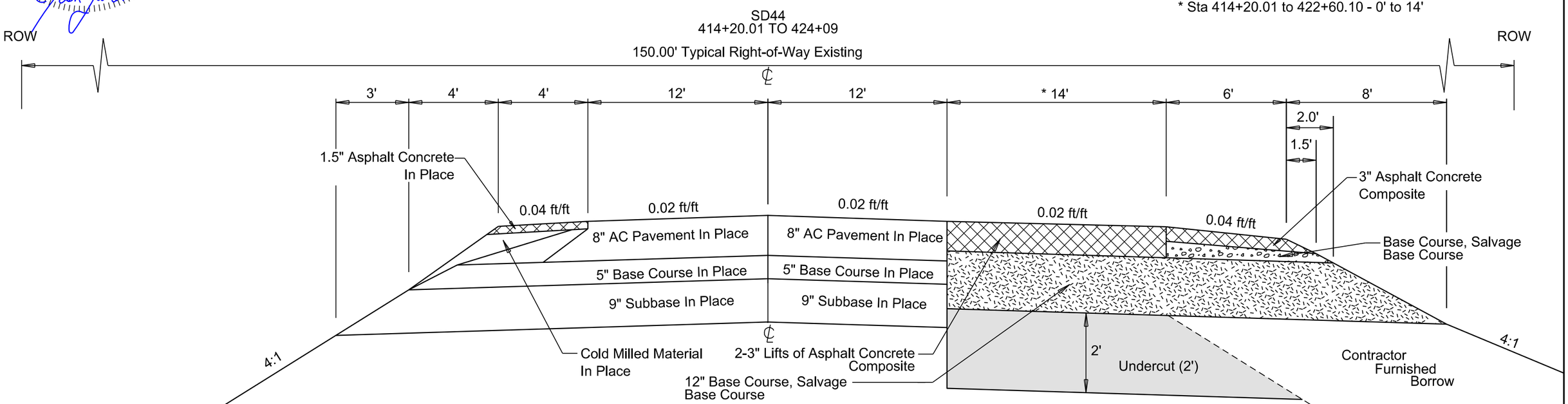
SOUTH DAKOTA

TYPICAL SURFACING SECTION

Transitions:
* Sta 414+20.01 to 422+60.10 - 0' to 14'

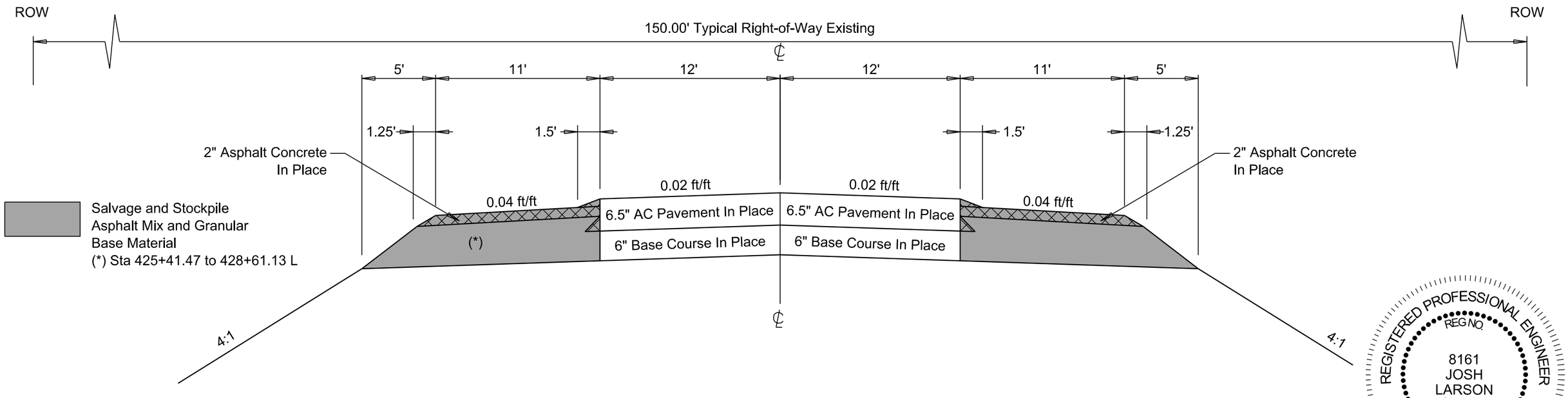
SD44
414+20.01 TO 424+09



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	32	137

TYPICAL REMOVAL SECTION

SD44
424+09 TO 434+05.01
425+41.47 TO 428+61.43 (Left Removal Only)



REGISTERED PROFESSIONAL ENGINEER
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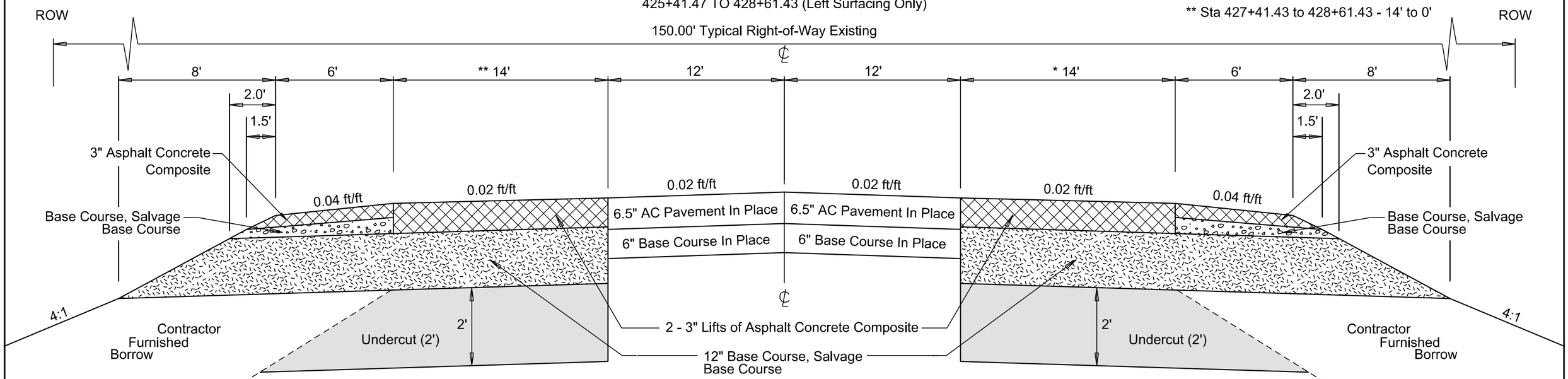
SOUTH DAKOTA

TYPICAL SURFACING SECTION

SD44
424+09 TO 434+05.01
425+41.47 TO 428+61.43 (Left Surfacing Only)

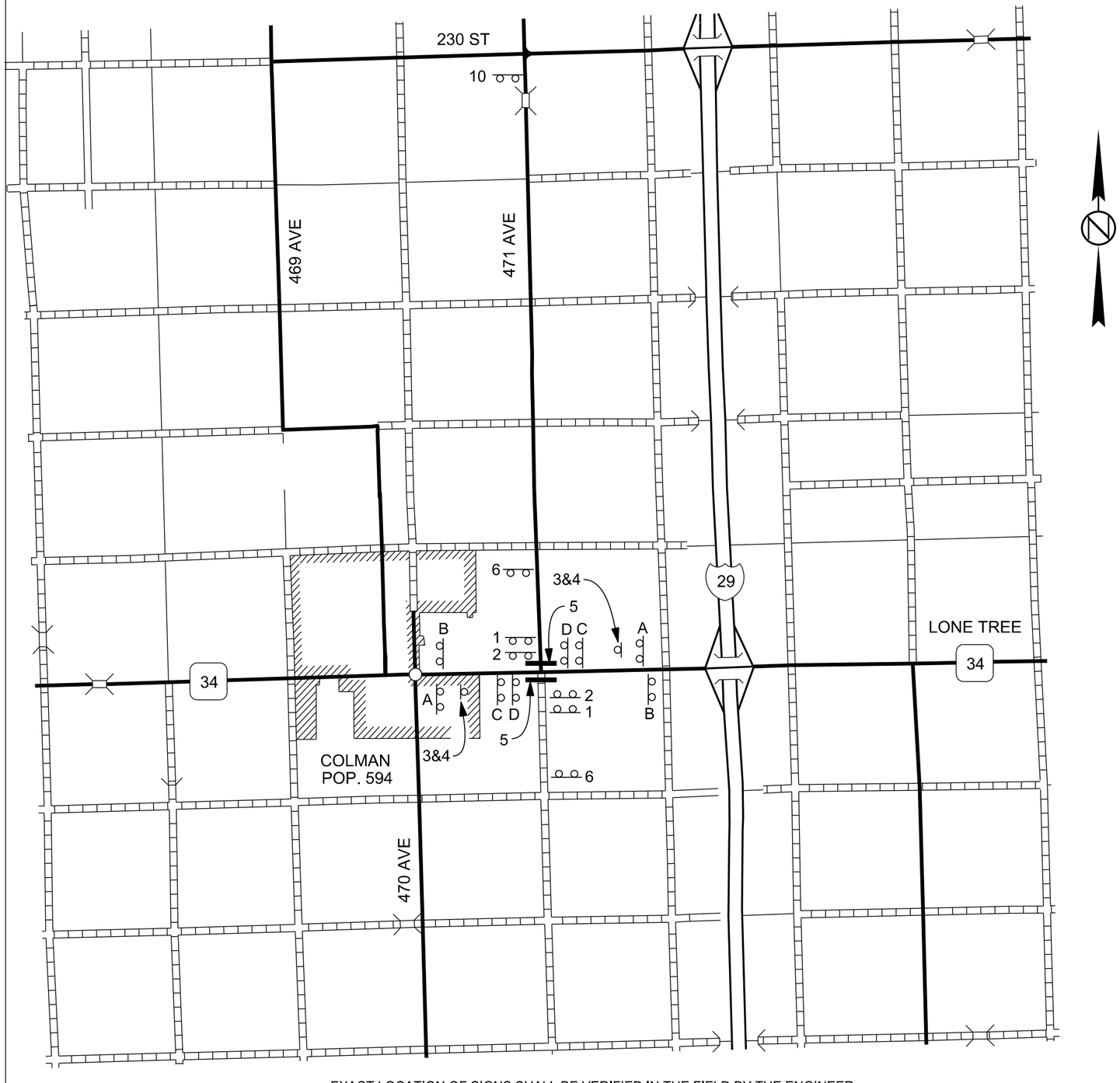
Transitions:
* Sta 425+65.10 to 434+05.18 - 14' to 0'
** Sta 427+41.43 to 428+61.43 - 14' to 0'



TRAFFIC CONTROL

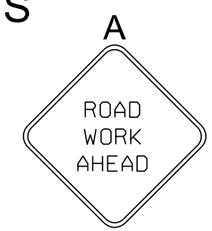
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	33	137

FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS

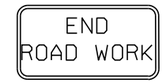


EXACT LOCATION OF SIGNS SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER

A



B



C

D

SIGNS 1-6 SHALL BE IN PLACE ONLY WHEN PLACING P.C.C PAVEMENT AND REMAIN IN PLACE UNTIL THE P.C.C. PAVEMENT HAS OBTAINED A COMPRESSIVE STRENGTH OF 4000 PSI.

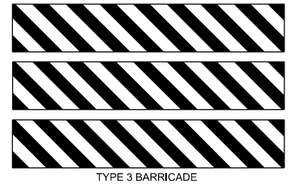
1

2

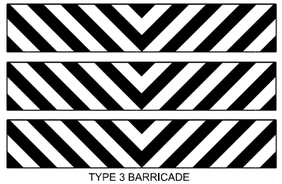
3

4

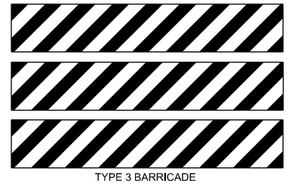
5



TYPE 3 BARRICADE
DOUBLE SIDED BARRICADE (8')

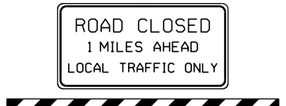


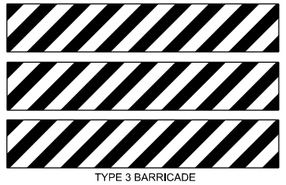
TYPE 3 BARRICADE
DOUBLE SIDED BARRICADE (8') WITH ROAD CLOSED SIGN



TYPE 3 BARRICADE
DOUBLE SIDED BARRICADE (8')

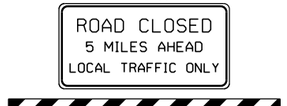
6

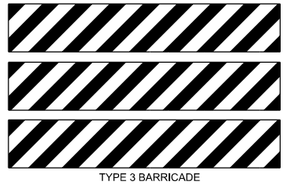




TYPE 3 BARRICADE
DOUBLE SIDED (8') BARRICADE

10



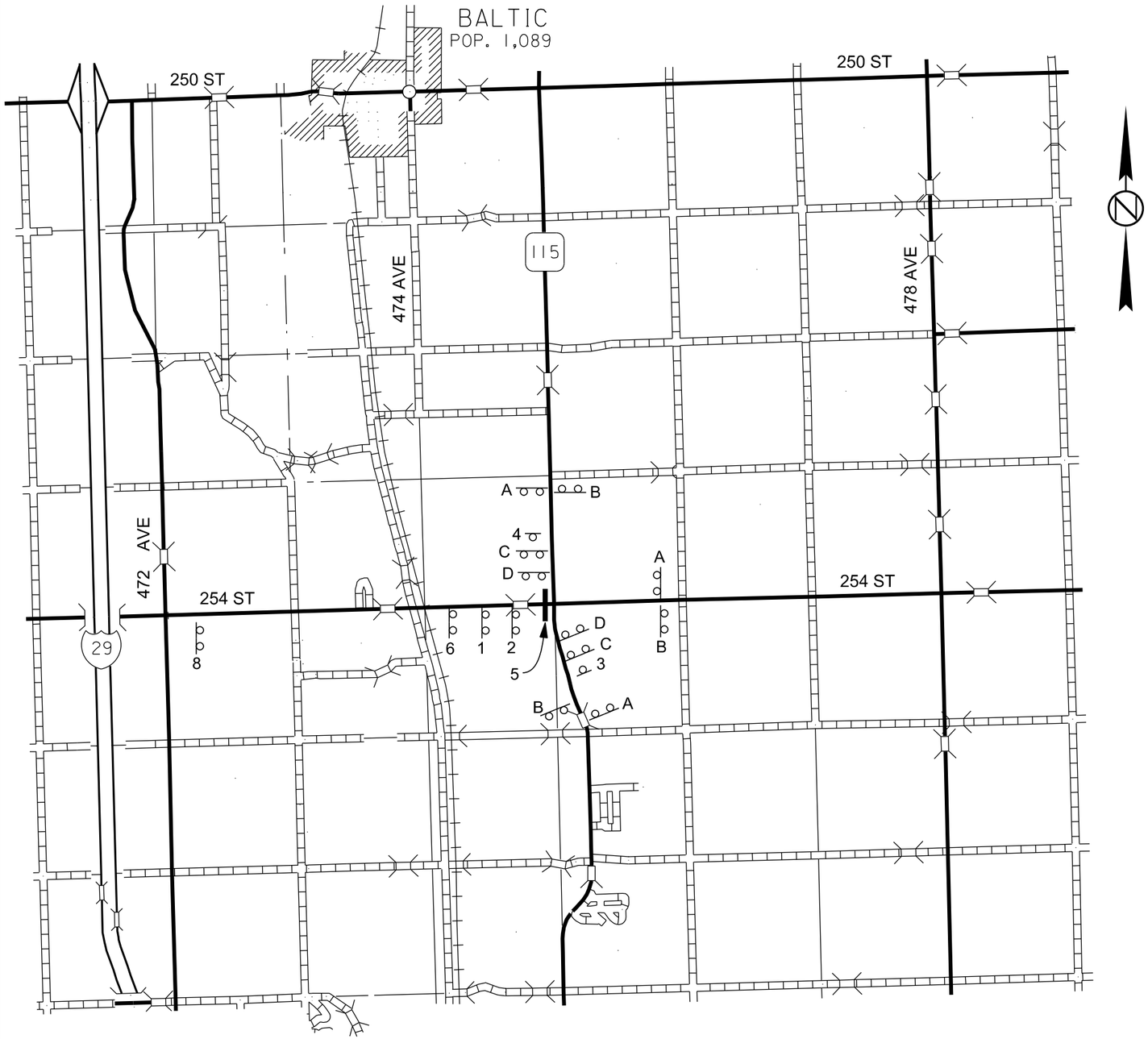


TYPE 3 BARRICADE
DOUBLE SIDED (8') BARRICADE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	34	137

TRAFFIC CONTROL

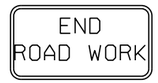
FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS



EXACT LOCATION OF SIGNS SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER

A

B

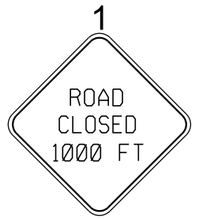


C

D

SIGNS 1-6 SHALL BE IN PLACE ONLY WHEN PLACING P.C.C PAVEMENT AND REMAIN IN PLACE UNTIL THE P.C.C. PAVEMENT HAS OBTAINED A COMPRESSIVE STRENGTH OF 4000 PSI.

1

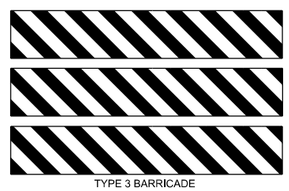


2

3

4

5

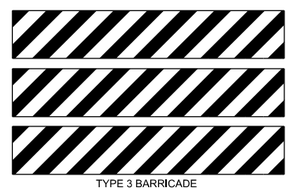


TYPE 3 BARRICADE

DOUBLE SIDED BARRICADE (8')

TYPE 3 BARRICADE

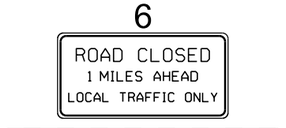
DOUBLE SIDED BARRICADE (8') WITH ROAD CLOSED SIGN



TYPE 3 BARRICADE

DOUBLE SIDED BARRICADE (8')

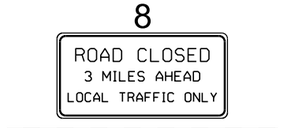
6



TYPE 3 BARRICADE

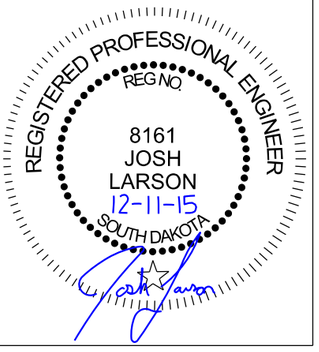
DOUBLE SIDED (8') BARRICADE

8



TYPE 3 BARRICADE

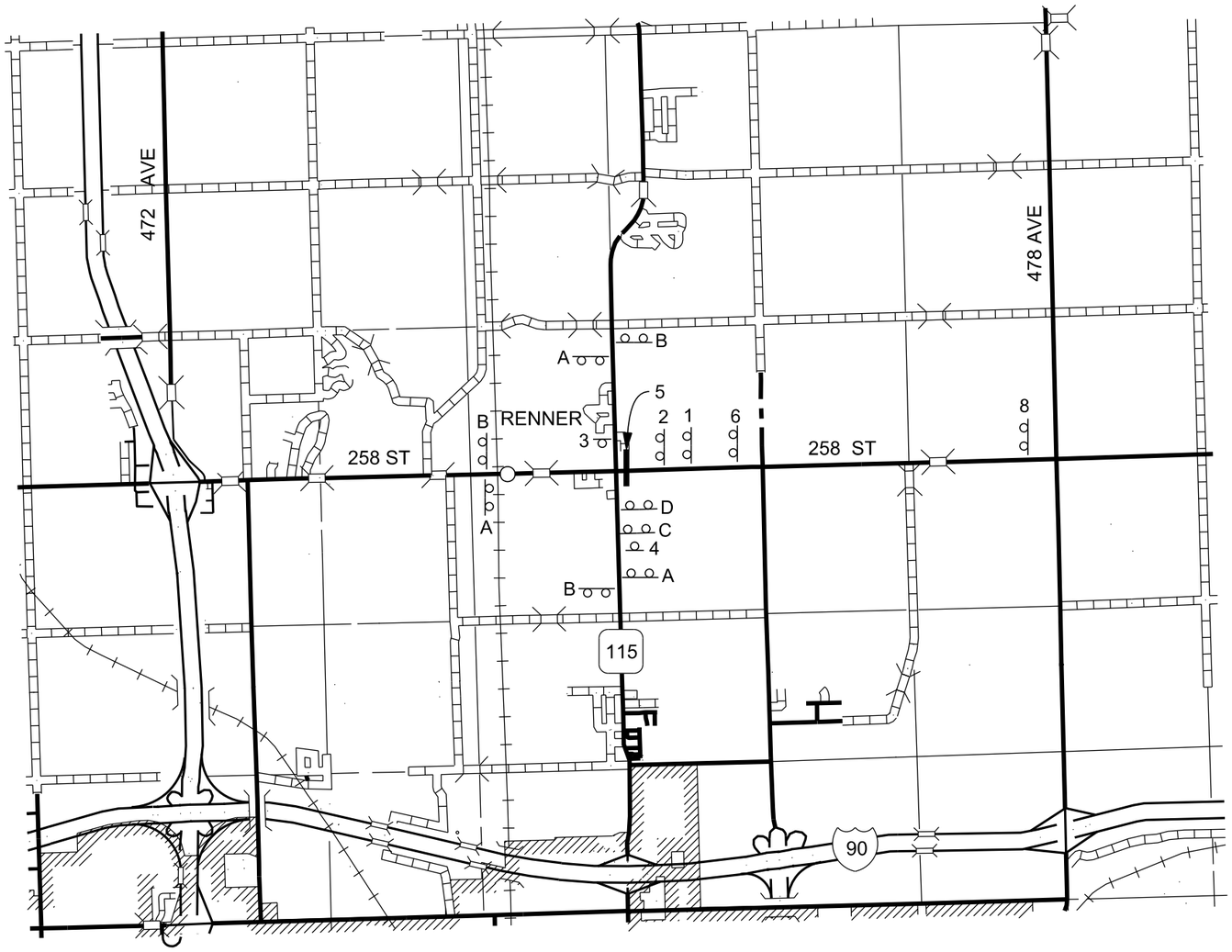
DOUBLE SIDED (8') BARRICADE



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	35	137

TRAFFIC CONTROL

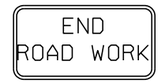
FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS



EXACT LOCATION OF SIGNS SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER

A

B

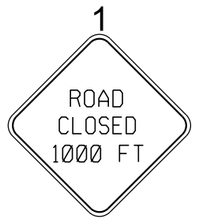


C

D

SIGNS 1-6 SHALL BE IN PLACE ONLY WHEN PLACING P.C.C PAVEMENT AND REMAIN IN PLACE UNTIL THE P.C.C. PAVEMENT HAS OBTAINED A COMPRESSIVE STRENGTH OF 4000 PSI.

1

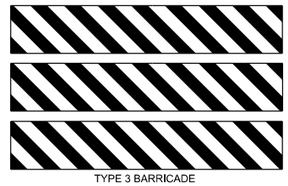


2

3

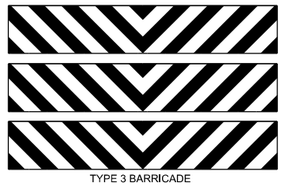
4

5



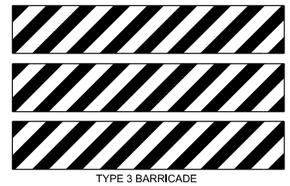
TYPE 3 BARRICADE

DOUBLE SIDED BARRICADE (8')



TYPE 3 BARRICADE

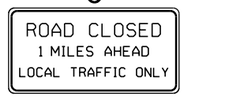
DOUBLE SIDED BARRICADE (8') WITH ROAD CLOSED SIGN

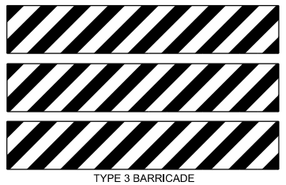


TYPE 3 BARRICADE

DOUBLE SIDED BARRICADE (8')

6

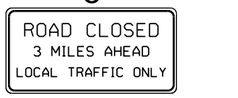


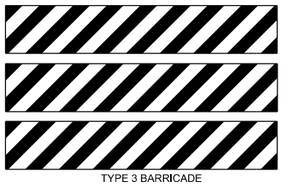


TYPE 3 BARRICADE

DOUBLE SIDED (8') BARRICADE

8





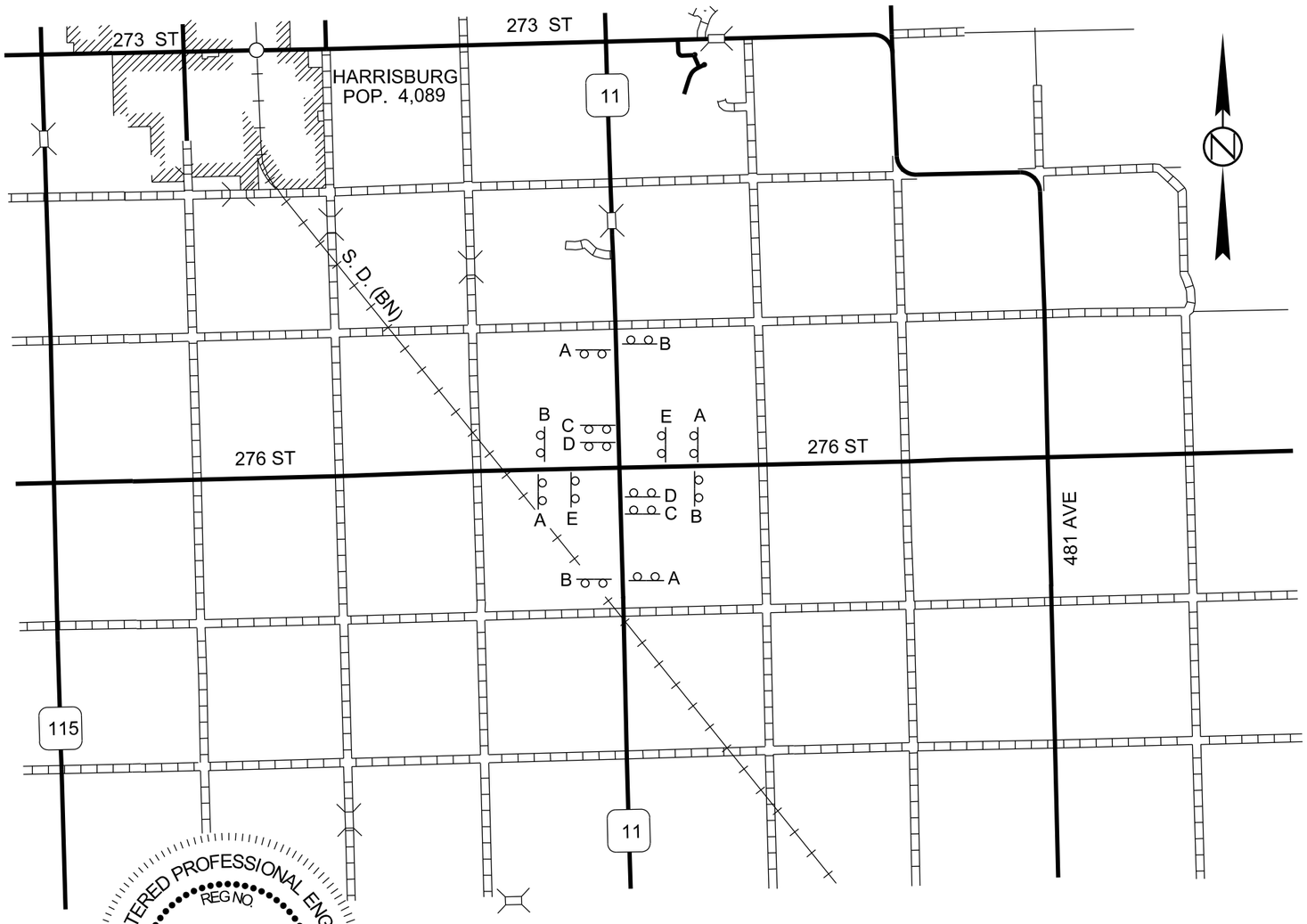
TYPE 3 BARRICADE

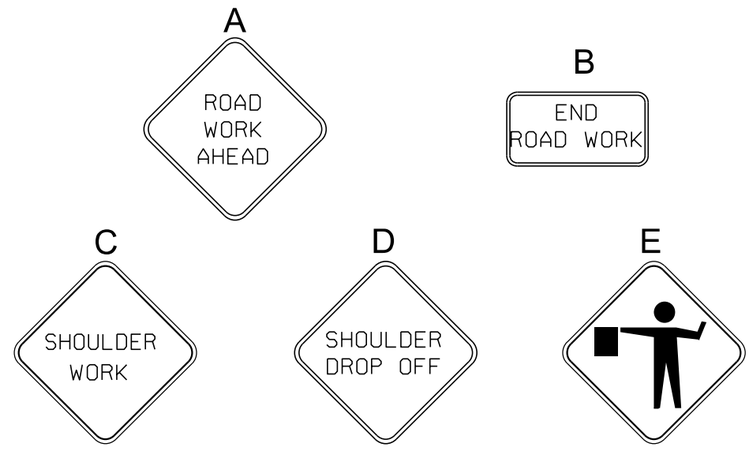
DOUBLE SIDED (8') BARRICADE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	36	137

TRAFFIC CONTROL

FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS





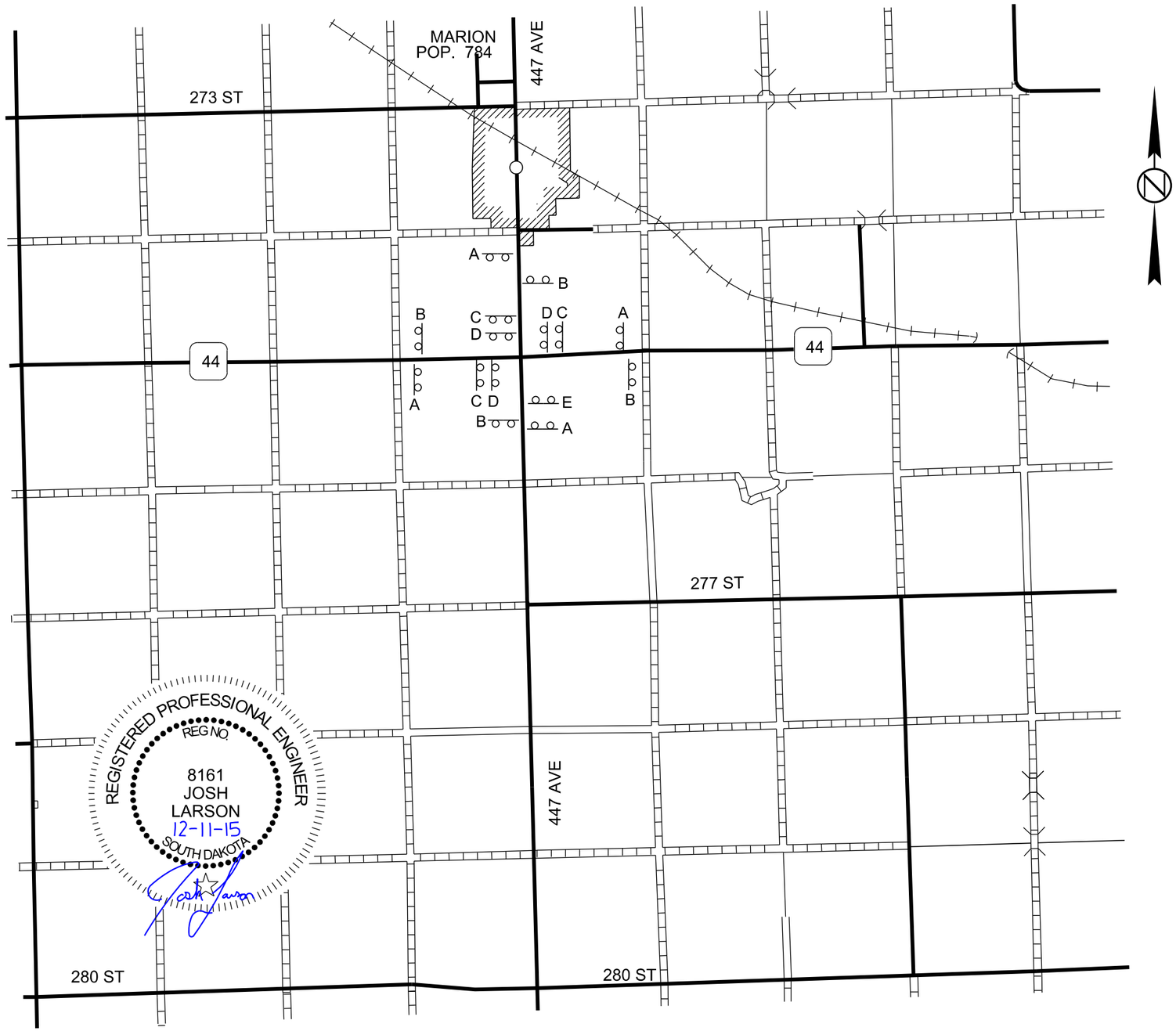
REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

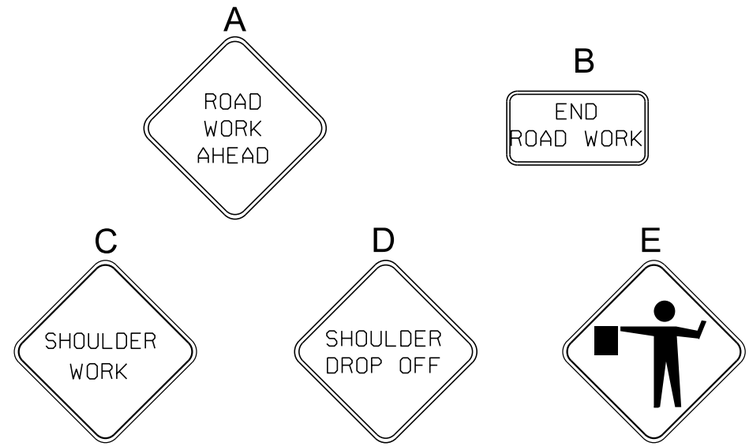
EXACT LOCATION OF SIGNS SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	37	137

TRAFFIC CONTROL

FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS





EXACT LOCATION OF SIGNS SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER

TRAFFIC CONTROL

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	38	137

SD 34 & 471st Avenue

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R3-1	RIGHT TURN PROHIBITION (symbol)	2	24" x 24"	4	8
R3-2	LEFT TURN PROHIBITION (symbol)	2	24" x 24"	4	8
R11-2	ROAD CLOSED	4	48" x 30"	10	40
R11-3a	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY	3	60" x 30"	13	39
W8-17	SHOULDER DROP-OFF (symbol)	2	48" x 48"	16	32
W8-17P	SHOULDER DROP-OFF (plaque)	2	30" x 24"	5	10
W20-1	ROAD WORK AHEAD	2	48" x 48"	16	32
W20-3	ROAD CLOSED AHEAD	4	48" x 48"	16	64
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-5	SHOULDER WORK	2	48" x 48"	16	32
G20-2	END ROAD WORK	2	36" x 18"	5	10
	CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT				339

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	9 Each

SD 115 & 258th Street

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R3-1	RIGHT TURN PROHIBITION (symbol)	1	24" x 24"	4	4
R3-2	LEFT TURN PROHIBITION (symbol)	1	24" x 24"	4	4
R11-2	ROAD CLOSED	1	48" x 30"	10	10
R11-3a	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY	2	60" x 30"	13	26
W8-17	SHOULDER DROP-OFF (symbol)	1	48" x 48"	16	16
W8-17P	SHOULDER DROP-OFF (plaque)	1	30" x 24"	5	5
W20-1	ROAD WORK AHEAD	3	48" x 48"	16	48
W20-3	ROAD CLOSED AHEAD	2	48" x 48"	16	32
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-5	SHOULDER WORK	1	48" x 48"	16	16
G20-2	END ROAD WORK	3	36" x 18"	5	15
	CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT				240

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	5 Each

SD 115 & 254th Street

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R3-1	RIGHT TURN PROHIBITION (symbol)	1	24" x 24"	4	4
R3-2	LEFT TURN PROHIBITION (symbol)	1	24" x 24"	4	4
R11-2	ROAD CLOSED	1	48" x 30"	10	10
R11-3a	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY	2	60" x 30"	13	26
W8-17	SHOULDER DROP-OFF (symbol)	2	48" x 48"	16	32
W8-17P	SHOULDER DROP-OFF (plaque)	2	30" x 24"	5	10
W20-1	ROAD WORK AHEAD	3	48" x 48"	16	48
W20-3	ROAD CLOSED AHEAD	2	48" x 48"	16	32
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-5	SHOULDER WORK	2	48" x 48"	16	32
G20-2	END ROAD WORK	3	36" x 18"	5	15
	CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT				277

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	5 Each

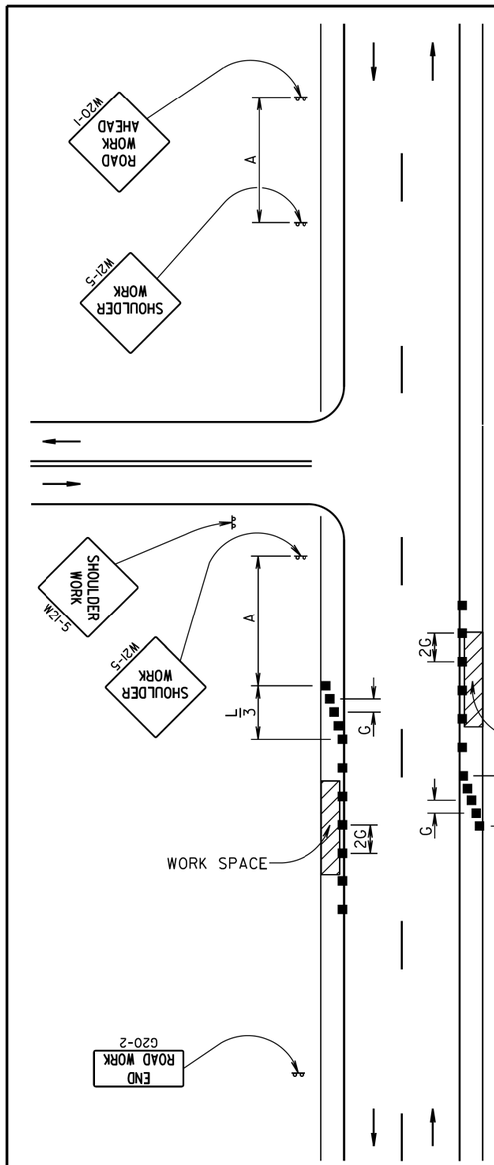
REGISTERED PROFESSIONAL ENGINEER
REG NO
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

SD 11 & 276th Street

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-17	SHOULDER DROP-OFF (symbol)	2	48" x 48"	16	32
W8-17P	SHOULDER DROP-OFF (plaque)	2	30" x 24"	5	10
W20-1	ROAD WORK AHEAD	4	48" x 48"	16	64
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-5	SHOULDER WORK	2	48" x 48"	16	32
G20-2	END ROAD WORK	4	36" x 18"	5	20
	CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT				222

SD 44 & 447th Avenue

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-17	SHOULDER DROP-OFF (symbol)	3	48" x 48"	16	48
W8-17P	SHOULDER DROP-OFF (plaque)	3	30" x 24"	5	15
W20-1	ROAD WORK AHEAD	4	48" x 48"	16	64
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	1	48" x 48"	16	16
W21-5	SHOULDER WORK	3	48" x 48"	16	48
G20-2	END ROAD WORK	4	36" x 18"	5	20
	CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT				243



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 - 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.

September 22, 2014

Published Date: 4th Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
			Sheet 1 of 1

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 - 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.

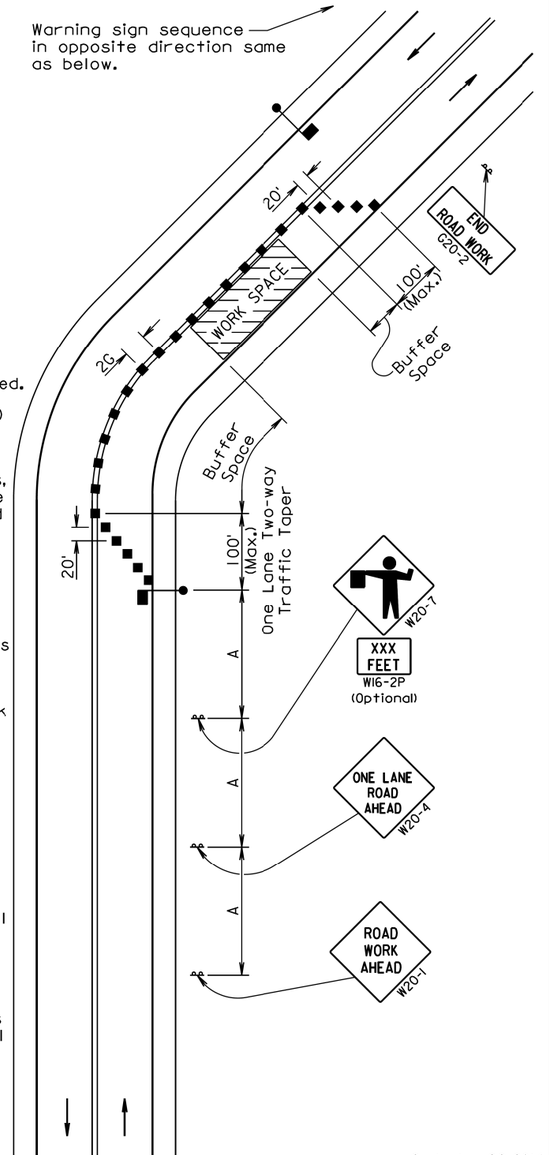
The channelizing devices shall be drums or 42" cones.

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.

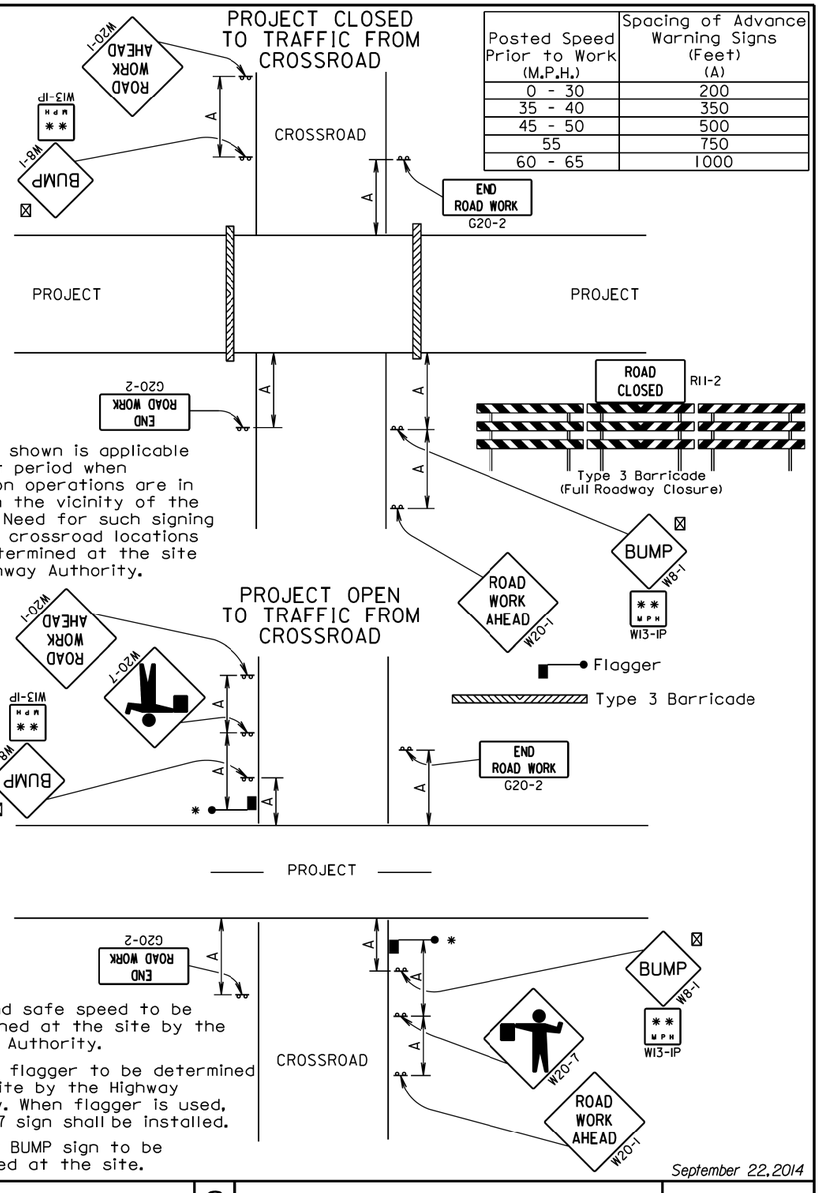


September 22, 2014

Published Date: 4th Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1

PROJECT CLOSED TO TRAFFIC FROM CROSSROAD

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 - 65	1000



The signing shown is applicable during that period when construction operations are in progress in the vicinity of the crossroad. Need for such signing at specific crossroad locations shall be determined at the site by the Highway Authority.

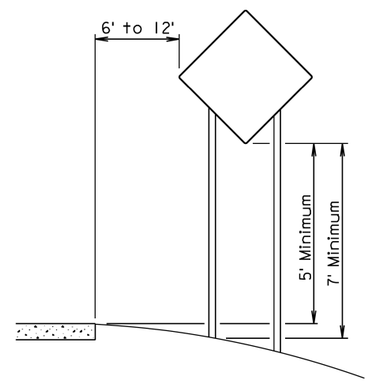
** Need and safe speed to be determined at the site by the Highway Authority.

* Need for flagger to be determined at the site by the Highway Authority. When flagger is used, the W20-7 sign shall be installed.

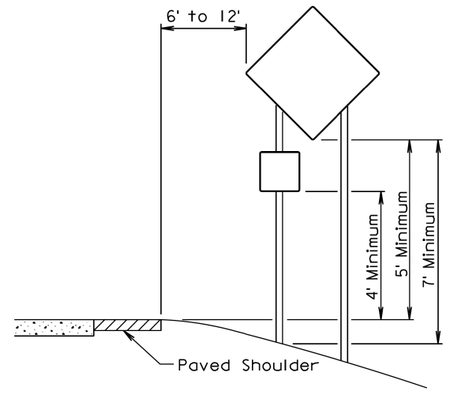
☒ Need for BUMP sign to be determined at the site.

September 22,2014

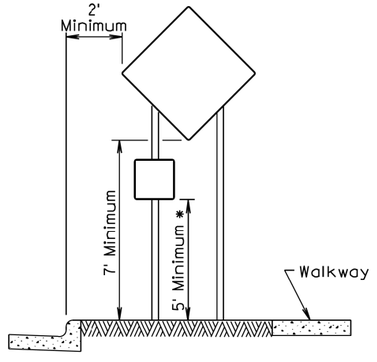
Published Date: 4th Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES CROSSROAD SIGNING	PLATE NUMBER 634.32
			Sheet 1 of 1



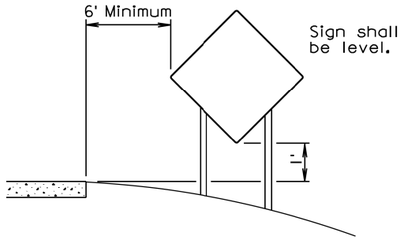
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

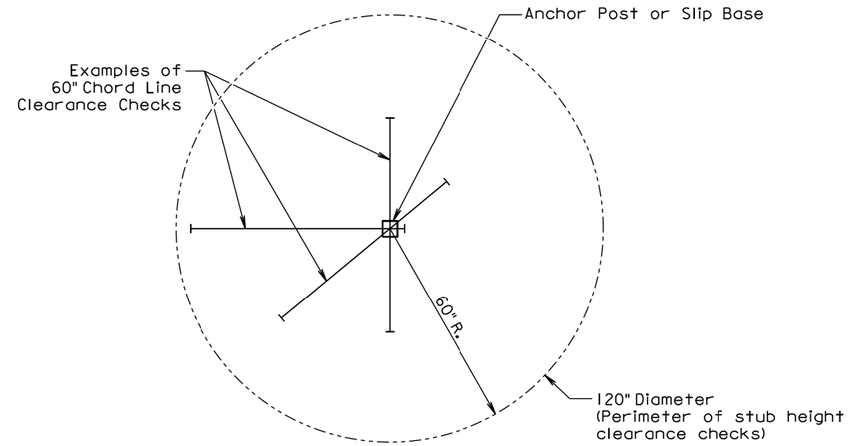


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

* 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.

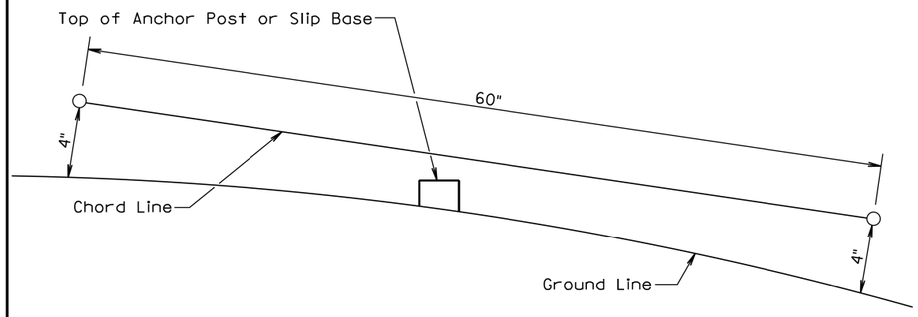
September 22,2014

Published Date: 4th Qtr. 2015	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



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: 4th Qtr. 2015	**SDDOT**	***BREAKAWAY SUPPORT STUB CLEARANCE***	***PLATE NUMBER*** *634.99*
			Sheet 1 of 1

HORIZONTAL ALIGNMENT DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	42	137

SD Highway 34

Type	Station			Northing	Easting
POB	455+00.00			619631.955	2899279.475
		TL= 3500.00	N 88°33'10" E		
POE	490+00.00			619720.357	2902778.358

SD Highway 115-254

Type	Station			Northing	Easting
POB	316+17.83			517541.219	2926477.716
		TL= 1361.44	N 15°24'15" W		
PC	329+79.27			518853.748	2926116.083
PI	334+13.97	R= 3819.19	Delta = 12°59'13" R	519272.834	2926000.614
PT	338+44.95			519707.150	2925982.280
		TL= 466.18	N 2°25'02" W		
PI	343+11.13			520172.918	2925962.619
		TL= 2636.48	N 2°33'08" W		
POE	369+47.61			522806.785	2925845.221

SD Highway 115-258

Type	Station			Northing	Easting
POB	115+00.00			497939.745	2926905.958
		TL= 3000.00	N 2°29'59" W		
POE	145+00.00			500936.890	2926775.112

SD Highway 11

Type	Station			Northing	Easting
POB	147+00.00			407234.597	2947594.945
		TL= 1958.77	S 2°33'37" E		
POE	166+58.77			405277.785	2947682.443

SD Highway 44

Type	Station			Northing	Easting
POB	410+00.00			404179.897	2783300.231
		TL= 2700.00	N 87°36'12" E		
POE	437+00.00			404292.801	2785997.869

SD Highway 19

Type	Station			Northing	Easting
POB	0+00.00			182770.450	2876865.491
		TL= 4000.00	N 2°17'18" W		
POE	40+00.00			186767.260	2876705.776

REGISTERED PROFESSIONAL ENGINEER
REG NO
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

CONTROL DATA

SD 34 HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	**STATION**	**OFFSET**	**DESCRIPTION**	**NORTHING**	**EASTING**	**ELEVATION**
CP 101			Aluminum Cap at NW Corner of S23-T106N-R50W	619543.804	2895817.883	1700.98
CP 102	467+76.01	59.26’ L	5/8” Rebar with Cap on West Edge of West Approach into Sioux Valley Power	619723.428	2900553.577	1683.81
CP 103			Aluminum Cap at South ¼ Corner of S13-T106N-R50W	619779.576	2903830.559	1686.16

SD 115 – 254 HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	**STATION**	**OFFSET**	**DESCRIPTION**	**NORTHING**	**EASTING**	**ELEVATION**
CP 201	343+11.13	0.0’ L	SDDOT CAP at Intersection of Hwy 115 & 254th.	520172.918	2925962.619	1478.10
CP 202	343+11.31	4.63’ R	1/2” Rebar at SE Corner of S21-T103N-R49W	520173.309	2925967.231	1478.06
CP 203	343+60.60	813.97’ L	Property Corner with FOWLDS Cap	520186.097	2925147.249	1447.62
CP 204			SDDOT Cap at East ¼ Corner of S21-T103N-R49W	522806.744	2925844.142	1483.93

SD 115 - 258 HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	**STATION**	**OFFSET**	**DESCRIPTION**	**NORTHING**	**EASTING**	**ELEVATION**
CP 301	126+26.92	11.50’ L	SDDOT CAP at SE Corner of S9-T102N-R49W	499065.090	2926845.315	1450.11
CP 302	137+00.14	74.53’ R	5/8” Rebar at SW Property Corner of Lot 5 Sorrum Northview Addition	500141.037	2926884.457	1449.46
CP 303			Punch Hole in Concrete at E ¼ Corner of S9-T102N-R49W	501695.931	2926737.387	1479.66

SD 11 HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	**STATION**	**OFFSET**	**DESCRIPTION**	**NORTHING**	**EASTING**	**ELEVATION**
CP 401			5/8” Rebar at West ¼ Corner of S16-T99N-R49W	408752.020	2947525.744	1402.19
CP 402	158+24.20	0.1’ L	5/8” Rebar at NW Corner of S21-T99N-R49W	406111.514	2947645.066	1405.36
CP 403	158+70.83	111.69’ L	5/8” Rebar with Cap on West Edge of Field Approach	406059.942	2947535.667	1403.22
CP 404			5/8” Rebar at West ¼ Corner of S21-T99N-R49W	403475.795	2947754.171	1412.02

SD 44 HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	**STATION**	**OFFSET**	**DESCRIPTION**	**NORTHING**	**EASTING**	**ELEVATION**
CP 501	424+56.06	241.67’ L	5/8” Rebar with Cap on North Side of 447th Ave Field Approach	404482.241	2784744.909	1457.65
CP 502			5/8” Rebar with Cap on West Side of Field Approach, to West of Project. Approximately 12’ North of Fence Line	404098.418	2783496.169	1460.465
CP 503			5/8” Rebar with Cap on West Side of Field Approach, to East of Project. Approximately 3’ North of Culvert	404261.014	2786607.231	1471.490

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/(2011); epoch 2015.5529; Geoid 09; SF = 1.000000
The elevations shown on this sheet are based on NAVD 88.

EXISTING TOPOGRAPHY SYMBOLOGY AND LEGEND

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	44	137

Plotting Date: 12/14/2015

- 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
- Elec. Trans./Power Jct. Box
- Fence Barbwire
- Fence Chainlink
- Fence Electric
- Fence Misc.
- 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 R.O.W. Marker
- Interstate Close Gate
- Iron Pin
- Irrigation Ditch
- Lake Edge
- Lawn Sprinkler
- Mailbox
- Manhole Electric
- Manhole Gas
- Manhole Misc
- Manhole Sanitary Sewer
- Manhole Storm Sewer
- Manhole Telephone
- Manhole Water
- Merry-Go-Round
- Microwave Radio Tower
- Misc. Line
- Misc. Property Corner
- Misc. Post
- Overhang Or Encroachment
- Overhead Utility Line — OH —
- Parking Meter
- 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 R.O.W. 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
- R. O. W. Line
- New R. O. W. Line
- Cut and Fill Limits
- Control of Access
- New Control of Access
- Proposed ROW (After Property Disposal)

Plot Scale - 1:196

Plotted From - Iario

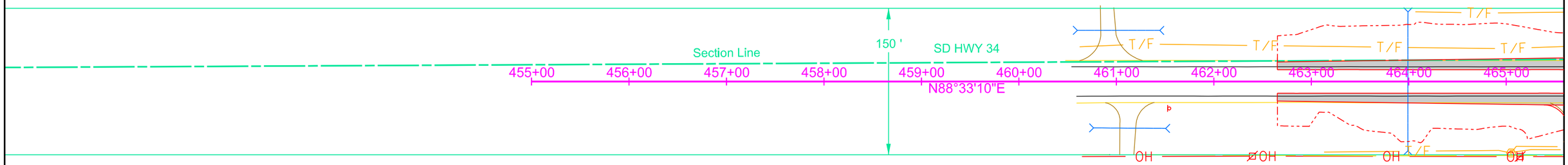
File - ...\PCN04\GPI\Topo Symb & Legend.dgn

SD 34 - 471st Ave.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	45	137

MOODY COUNTY

SEC 14 - T106N - R50W



SEC 23 - T106N - R50W

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

INSTALL SURFACING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	46	137

SD 34 - 471st Ave.

468+39.66-47.62' L to 468+47.72-47.67' L
Install 18" - 4' CMP
& 1 Safety End

469+07.23-48.04' L to 469+17.03-48.10' L
Install 18" - 6' CMP
& 1 Safety End

469+73.03-47.59' L to 469+81.04-47.63' L
Install 18" - 4' CMP
& 1 Safety End

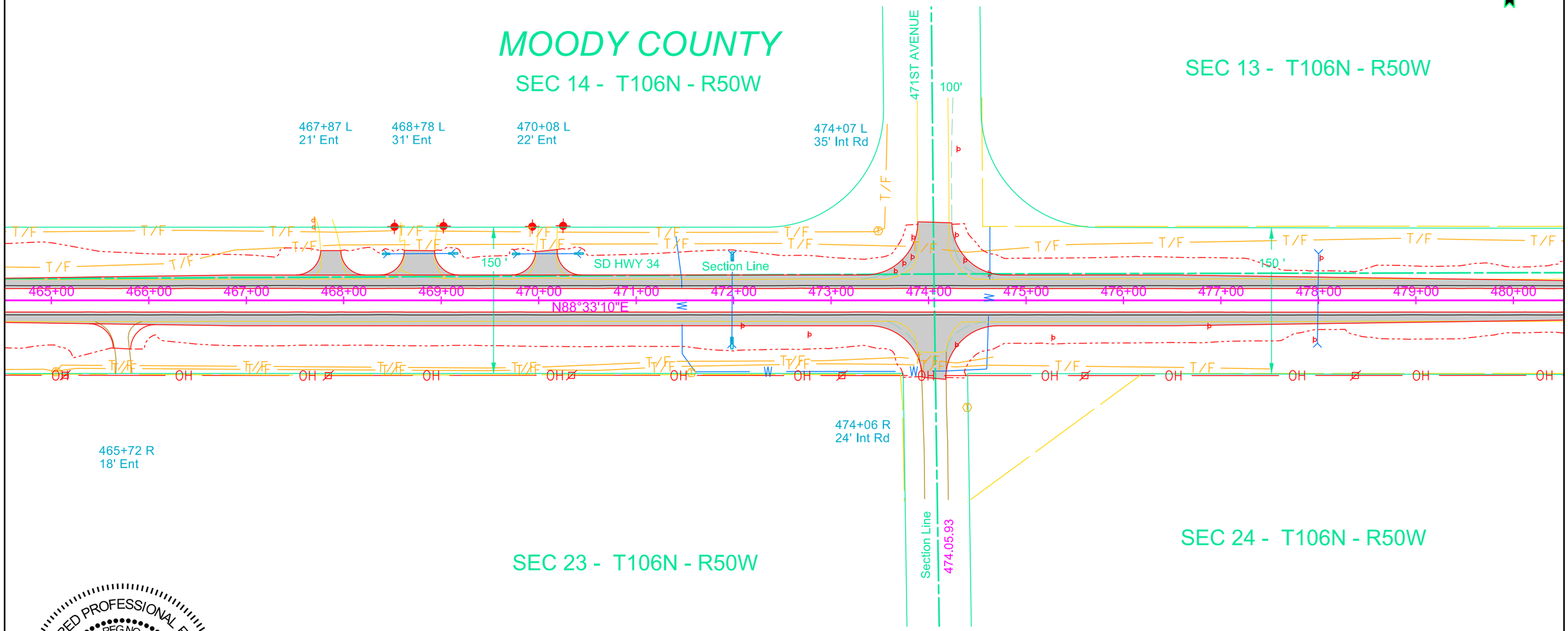
470+36.31-47.89' L to 470+45.85-47.94' L
Install 18" - 6' CMP
& 1 Safety End

471+98.25-49.72' R to 471+98.32-37.37' R
Install 24" - 6' RCP
& 1 Sloped End

471+98.71-39.95' L to 471+98.76-49.67' L
Install 24" - 4' RCP
& 1 Sloped End

(Incidental Work, Grading)
Take Out 18" CMP
Pipe End Sections
at the following locations:
468+45-48' L
469+10-48' L
469+78-48' L
470+39-48' L

(Incidental Work, Grading)
Take Out 24" RCP
Pipe End Sections
at the following locations:
471+98-45' R
471+99-47' L



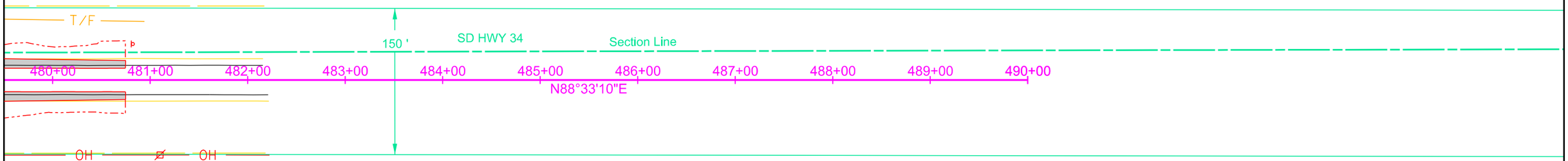
REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

SD 34 - 471st Ave.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	47	137

MOODY COUNTY

SEC 13 - T106N - R50W



SEC 24 - T106N - R50W

REGISTERED PROFESSIONAL ENGINEER
REG NO.
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JOSH
LARSON
12-11-15
SOUTH DAKOTA

INSTALL SURFACING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	48	137

SD 115 - 254th St.

341+90-33' R to 342+05-36' R
Remove Flexible Delineators
(Incidental Work, Grading)

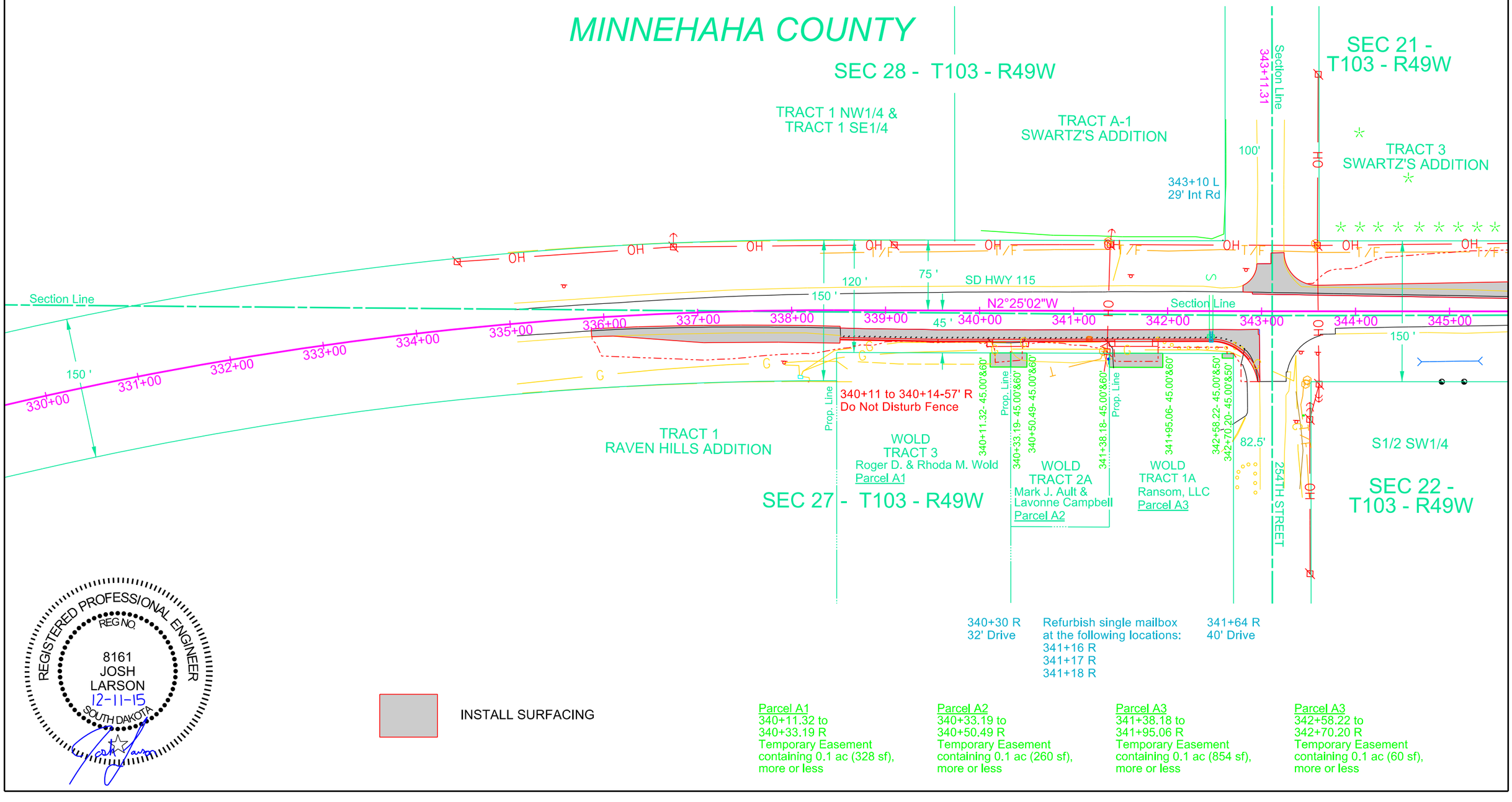
342+71-34' R to 342+79-39' R
Remove Flexible Delineators
(Incidental Work, Grading)

342+46-27' R
Take out Drop Inlet
with Frame and Grate

342+46-27' R to 342+16-21' R
Take out 18"-6' RCP
(Incidental Work, Grading)

Install 2'x3' Type B Drop Inlet
with 6" Concrete Collar and
Type B Frame & Grate
at the following locations:
342+46.53-31.39' R

342+46.48-21.47' R to 342+46.53-31.39' R
Install 18" - 10' RCP
(Between Existing Pipe & Drop Inlet)



340+30 R
32' Drive

Refurbish single mailbox
at the following locations:
341+16 R
341+17 R
341+18 R

341+64 R
40' Drive

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12-11-15
SOUTH DAKOTA

INSTALL SURFACING

Parcel A1
340+11.32 to
340+33.19 R
Temporary Easement
containing 0.1 ac (328 sf),
more or less

Parcel A2
340+33.19 to
340+50.49 R
Temporary Easement
containing 0.1 ac (260 sf),
more or less

Parcel A3
341+38.18 to
341+95.06 R
Temporary Easement
containing 0.1 ac (854 sf),
more or less

Parcel A3
342+58.22 to
342+70.20 R
Temporary Easement
containing 0.1 ac (60 sf),
more or less

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	49	137

SD 115 - 254th St.

(Incidental Work, Grading)
Take Out 18" CMP
Pipe End Sections
at the following locations:
348+54-60' L
349+48-59' L

348+58-60' L to 349+44-59' L
Take out 18"-86' CMP
(Incidental Work, Grading)

(Incidental Work, Grading)
Take Out 24" RCP
Pipe End Sections
at the following locations:
351+42-57' L
351+59-56' L

351+41.72-49.92' L to 351+41.70-69.10' L
Install 24" - 14' RCP
& 1 Sloped End

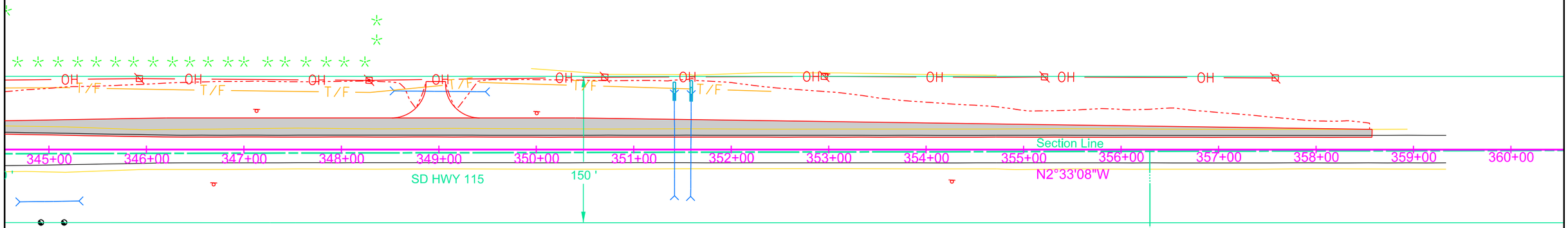
351+59.07-70.66' L to 351+58.95-49.23' L
Install 24" - 16' RCP
& 1 Sloped End

MINNEHAHA COUNTY

SEC 21 - T103 - R49W

348+87 L
20' Ent

SE1/4
EX. SWARTZ'S ADDITION



S1/2 SW1/4

1/16 Section Line

N1/2 SW1/4

SEC 22 - T103 - R49W

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SOUTH DAKOTA

INSTALL SURFACING

SD 115 - 258th St.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	50	137

MINNEHAHA COUNTY

SEC 16 - T102 - R49W

Block 9
Berrys Subdivision

Lot 3 | Lot 2 | Lot 1

Prop. Line

Prop. Line

MONARCH LANE

Block 1
Sorum's First Addition

SEC 9 - T102 - R49W

County Auditors Tract 2

66'

150'

33'

75'

100'

Section Line

SD HWY 115

Section Line

115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00 126+00 127+00 128+00 129+00 130+00

N2°29'59"W

126+23 R
28' Int Rd

126+26.93

Section Line

258TH STREET

Northwest Quarter

SEC 15 - T102 - R49W

West 561.5' SW 1/4 SW1/4

SEC 10 - T102 - R49W

INSTALL SURFACING

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	51	137

SD 115 - 258th St.

Remove 48" RCP Arch Pipe End Section for Reset at the following locations:
139+54-38' R
139+74-38' R
139+94-38' R
140+14-38' R

139+53.98-29.82' R to 139+54.21-50.52' R
Install 48" - 14' Arch RCP
& Reset Pipe End Section

139+73.78-30.40' R to 139+73.90-50.23' R
Install 48" - 12' Arch RCP
& Reset Pipe End Section

139+93.85-30.19' R to 139+93.97-49.95' R
Install 48" - 12' Arch RCP
& Reset Pipe End Section

140+13.80-30.16' R to 140+13.85-49.66' R
Install 48" - 12' Arch RCP
& Reset Pipe End Section

MINNEHAHA COUNTY

SEC 9 - T102 - R49W

County Auditors Tract 3

South 200' of County Auditors Tract 6

South 66' of the N 273.6' County Auditors Tract 6

South 200' of County Auditors Tract 6

North 60' of County Auditors Tract 6

County Auditors Tract 4

CONCORD DRIVE

Lot 3A Block 2

Prop. Line

1/16 Section Line

Section Line

SD HWY 115

N2°29'59"W

33'

60'

130+00 131+00 132+00 133+00 134+00 135+00 136+00 137+00 138+00 139+00 140+00 141+00 142+00 143+00 144+00 145+00

75'

OH

W

S

LOT 1A
SORUM'S 1ST ADDITION

S. 120' LOT 6

N. 120' LOT 6

LOT 5 EX. N. 110'

N. 110' LOT 5

SORUM'S NORTHVIEW ADDITION

FREDERICK ROAD

WATERWAY

S 215' NW1/4 SW1/4

TRACT 1
MILLER'S ADDITION SW1/4

134+38 R
25' Ent

135+33 R
30' Ent

136+57 R
25' Ent

137+78 R
24' Ent

138+37 R
26' Int Rd

Refurbish single mailbox at the following locations:
140+41 R

140+66 R
15' Ent

141+78 R
18' Ent

INSTALL SURFACING

REGISTERED PROFESSIONAL ENGINEER
REG NO.
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JOSH
LARSON
12-11-15
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	52	137

SD 11 - 276th St.

(Incidental Work, Grading)
Take Out 18" RCP
Pipe End Sections
at the following locations:
157+95-60' R
157+95-64' R
157+95-60' L
158+52-121' R
158+54-65' R
158+54-82' R
158+54-61' R
158+55-60' L
158+55-123' L
158+56-84' L

158+52-115' R to 158+54-89' R
Take out 18"-26' RCP
(Incidental Work, Grading)

158+56-116' L to 158+56-90' L
Take out 18"-26' RCP
(Incidental Work, Grading)

157+83.70-63.98' R to 158+01.48-64.36' R
Install 18" - 12' RCP
& 1 Safety End

157+83.73-60.59' L to 158+01.90-60.42' L
Install 18" - 12' RCP
& 1 Safety End

157+83.76-59.77' R to 158+01.55-60.01' R
Install 18" - 12' RCP
& 1 Safety End

158+47.29-65.33' R to 158+62.35-65.65' R
Install 18" - 10' RCP
& 1 Safety End

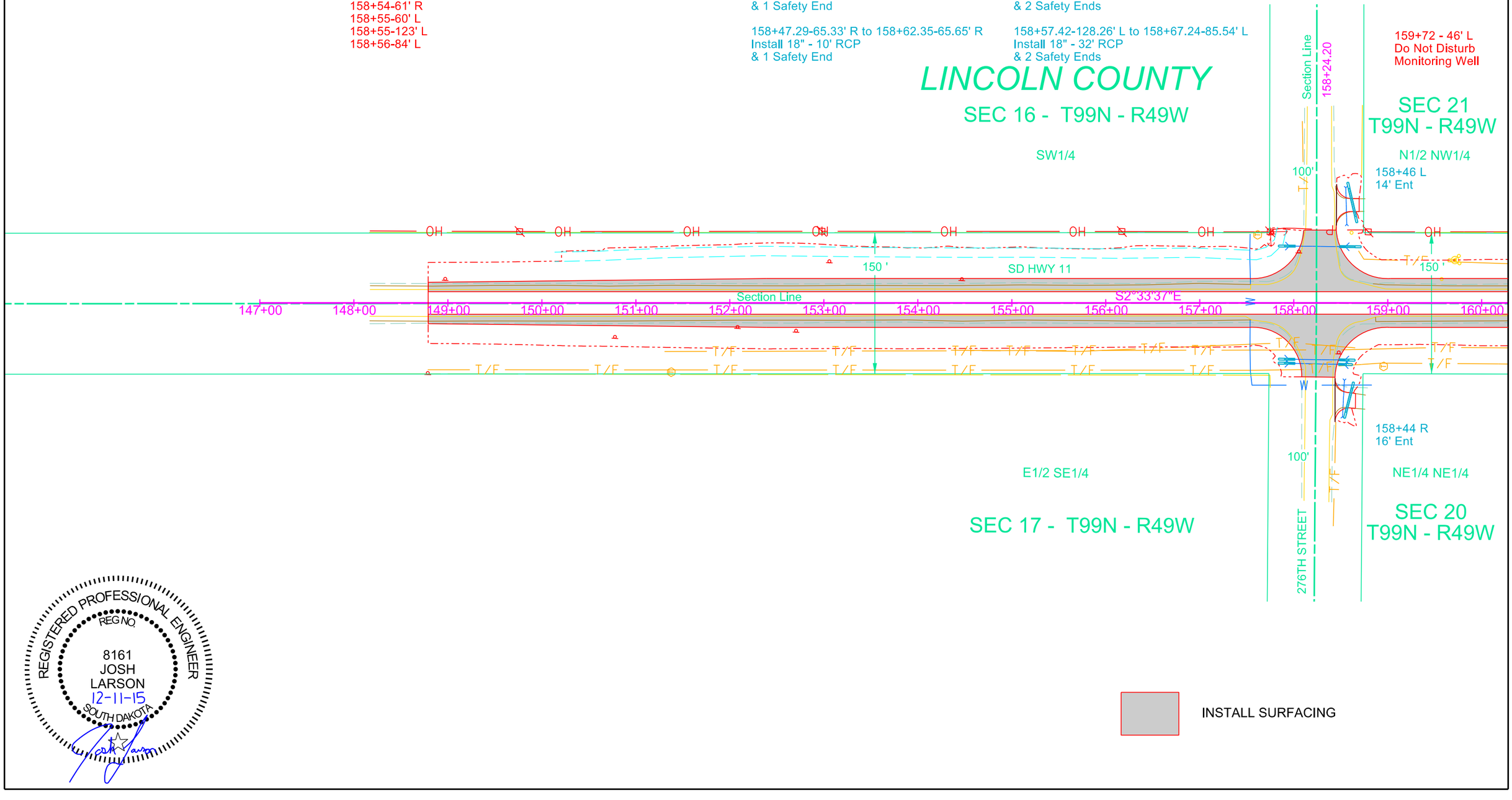
158+47.78-60.57' R to 158+65.13-60.93' R
Install 18" - 12' RCP
& 1 Safety End

158+48.29-59.98' L to 158+71.64-59.76' L
Install 18" - 18' RCP
& 1 Safety End

158+53.94-122.58' R to 158+63.64-84.31' R
Install 18" - 28' RCP
& 2 Safety Ends

158+57.42-128.26' L to 158+67.24-85.54' L
Install 18" - 32' RCP
& 2 Safety Ends

159+72 - 46' L
Do Not Disturb
Monitoring Well

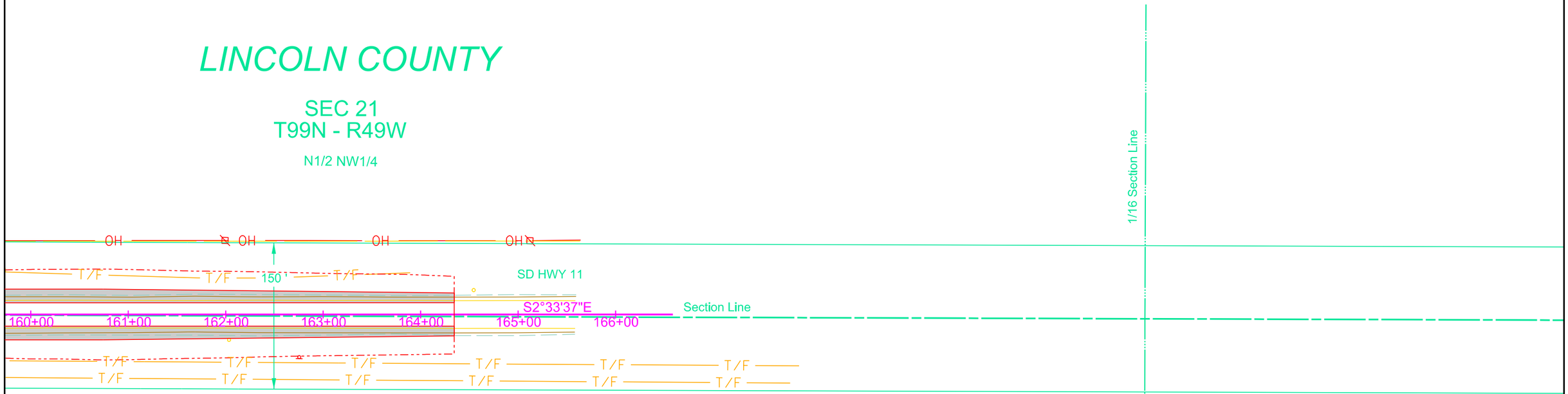


INSTALL SURFACING

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

SD 11 - 276th St.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	53	137



REGISTERED PROFESSIONAL ENGINEER
REG NO.
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12-11-15
SOUTH DAKOTA

INSTALL SURFACING

SD 44 - 447th Ave.

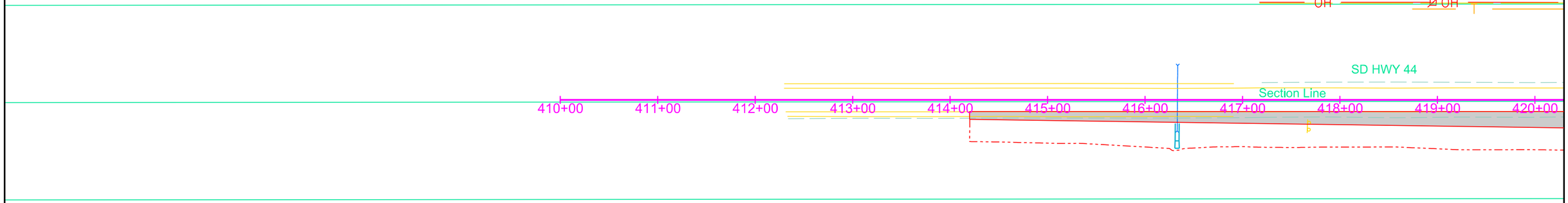
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	54	137

416+32.82-49.77' R to 416+33.03-24.14' R
Install 42" - 18' Arch CMP
& 1 Sloped End

(Incidental Work, Grading)
Take Out 42" Arch CMP
Pipe End Section
at the following location:
416+33-32' R

TURNER COUNTY

SEC 7 - T99N - R54W



SEC 18 - T99N - R54W

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

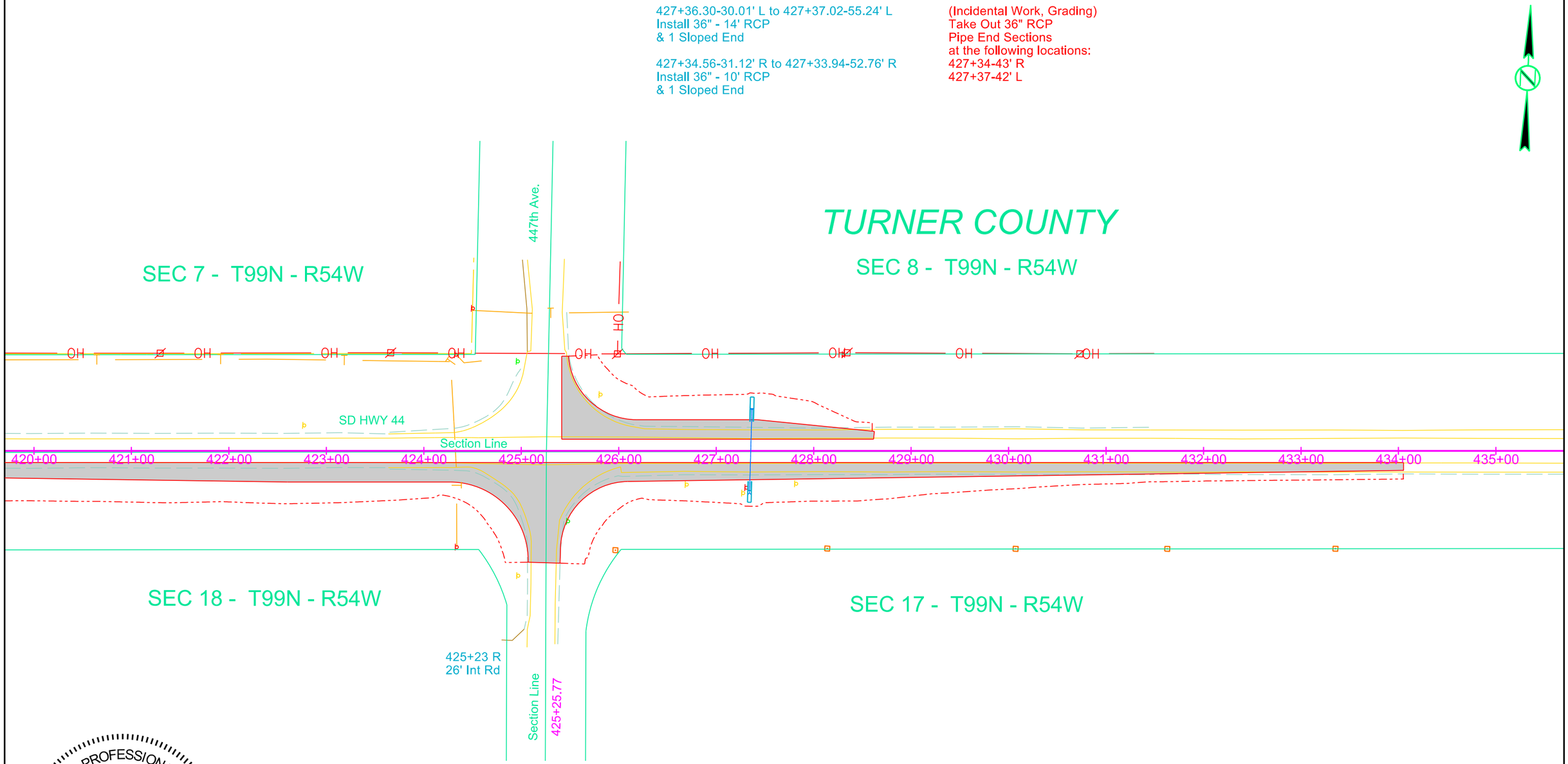
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	55	137

SD 44 - 447th Ave.

427+36.30-30.01' L to 427+37.02-55.24' L
Install 36" - 14' RCP
& 1 Sloped End

427+34.56-31.12' R to 427+33.94-52.76' R
Install 36" - 10' RCP
& 1 Sloped End

(Incidental Work, Grading)
Take Out 36" RCP
Pipe End Sections
at the following locations:
427+34-43' R
427+37-42' L



REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	56	137

Rev. 12/18/15 JDL

CURB & GUTTER LAYOUT

SD 115 - 254th St.

1 338+51.59 - 29.02' R
BEGIN STR. C&G
TC ELEV. 1479.27

2 339+55.77 - 30.62' R
END STR. C&G
BEGIN STR. C&G
TC ELEV. 1479.25

3 340+14.00 - 30.44' R
END STR. C&G
BEGIN TYPE P GUTTER
TC ELEV. 1479.08 (THEOR.)

4 340+45.99 - 30.34' R
END TYPE P GUTTER
BEGIN STR. C&G
TC ELEV. 1478.98 (THEOR.)

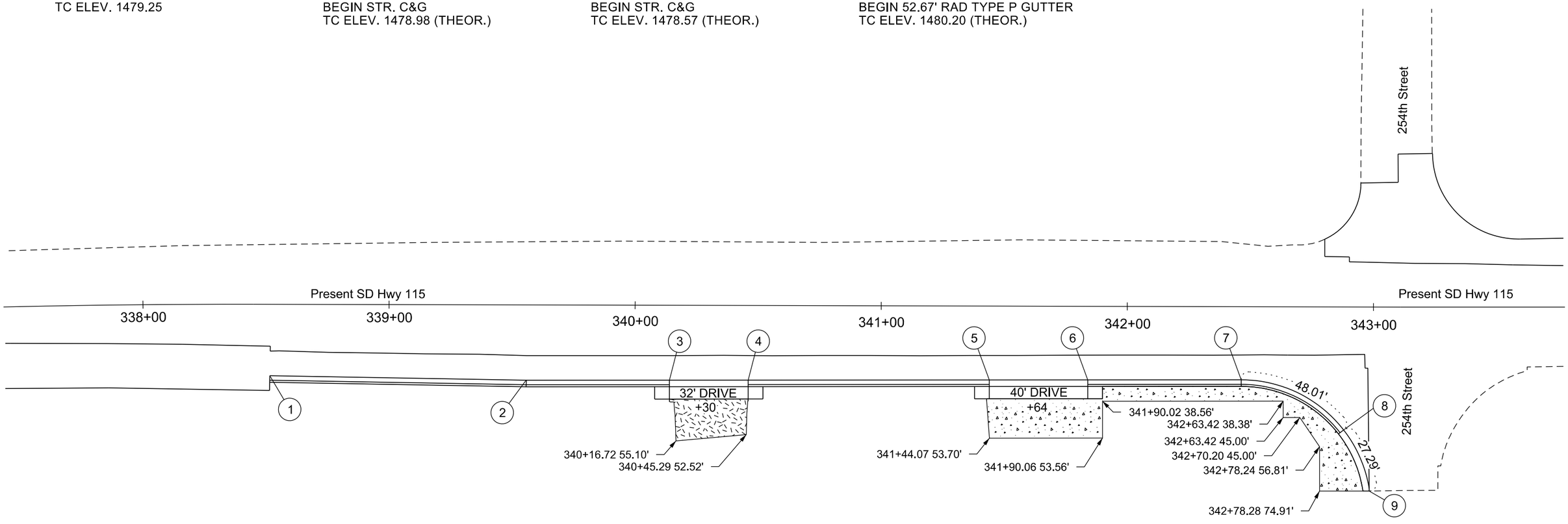
5 341+43.99 - 30.04' R
END STR. C&G
BEGIN TYPE P GUTTER
TC ELEV. 1478.80 (THEOR.)

6 341+83.99 - 29.91' R
END TYPE P GUTTER
BEGIN STR. C&G
TC ELEV. 1478.57 (THEOR.)

7 342+46.33 - 29.72' R
END STR. C&G
BEGIN 52.67' RAD C&G
TC ELEV. 1478.26

8 342+88.03 - 50.00' R
END 52.67' RAD C&G
BEGIN 52.67' RAD TYPE P GUTTER
TC ELEV. 1480.20 (THEOR.)

9 342+98.47 - 74.82' R
END 52.67' RAD TYPE P GUTTER
TC ELEV. 1481.31 (THEOR.)



REGISTERED PROFESSIONAL ENGINEER
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JOSH
LARSON
12-11-15
SOUTH DAKOTA

Note: All Curb & Gutter shown on this sheet is Type B68 and all P gutter is Type P8 except as noted.

Existing Edge of Pavement
Asphalt Surfacing
Concrete Surfacing
Gravel Surfacing

PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	57	137

SD 34

462+65.09-20'L

462+65.09-20'R

466+85.23-26'L

466+85.23-26'R

473+35.00-26'L

473+39.60-26'R

474+71.63-26'R

474+78.00-26'L

480+74.82-20'L

480+74.82-20'R

476+54.68-26'L

476+54.68-26'R

463+00 464+00 465+00 466+00 467+00 468+00 469+00 470+00 471+00 472+00 473+00 474+00 475+00 476+00 477+00 478+00 479+00 480+00 481+00

471st Ave

3" Asphalt Concrete Composite & 4" Gravel Cushion, Salvaged Gravel Cushion

4" Gravel Cushion, Salvaged Gravel Cushion

6" Asphalt Concrete Composite & 7" Gravel Cushion, Salvaged Gravel Cushion

R 25 '

R 54 '

REGISTERED PROFESSIONAL ENGINEER
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12-11-15
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LEGEND:

- Asphalt Concrete Composite
- PCC Driveway Pavement
- Gravel Cushion, Salvaged Gravel Cushion
- Intersecting Road
- EJ — Existing Joints
- L — Longitudinal Joint Without Tie Bar (Construction or Sawed)
- LT — Longitudinal Joint With Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation (Longitudinal or Transverse Joint)
- Edge of Surfacing

Fillet areas shall be reinforced with #4 rebar 24" on center both directions. Cost for furnishing and placing the rebar shall be incidental to the contract unit price per square yard for 8" NONREINFORCED PCC PAVEMENT. No dowel bar assemblies shall be placed in these areas.

Transverse contraction joints within these areas shall not have dowel bar assemblies. All other transverse contraction joints shall have dowel bar assemblies.

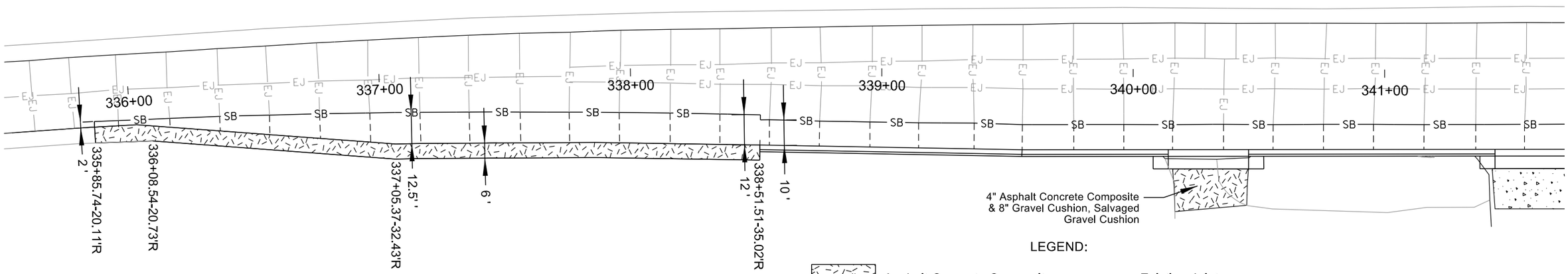
LOCATION OF CONCRETE PAVEMENT JOINTS:

The location of joints, as shown and/or designated on pcc pavement joint layout sheets are only approximate locations to be used as a guide in the final location of the joints and to afford bidders a basis for estimating the construction cost of the joints. The final location of the joints are to be designated by the Engineer during construction.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	58	137

PCC PAVEMENT JOINT LAYOUT

SD 115 - 254th St.



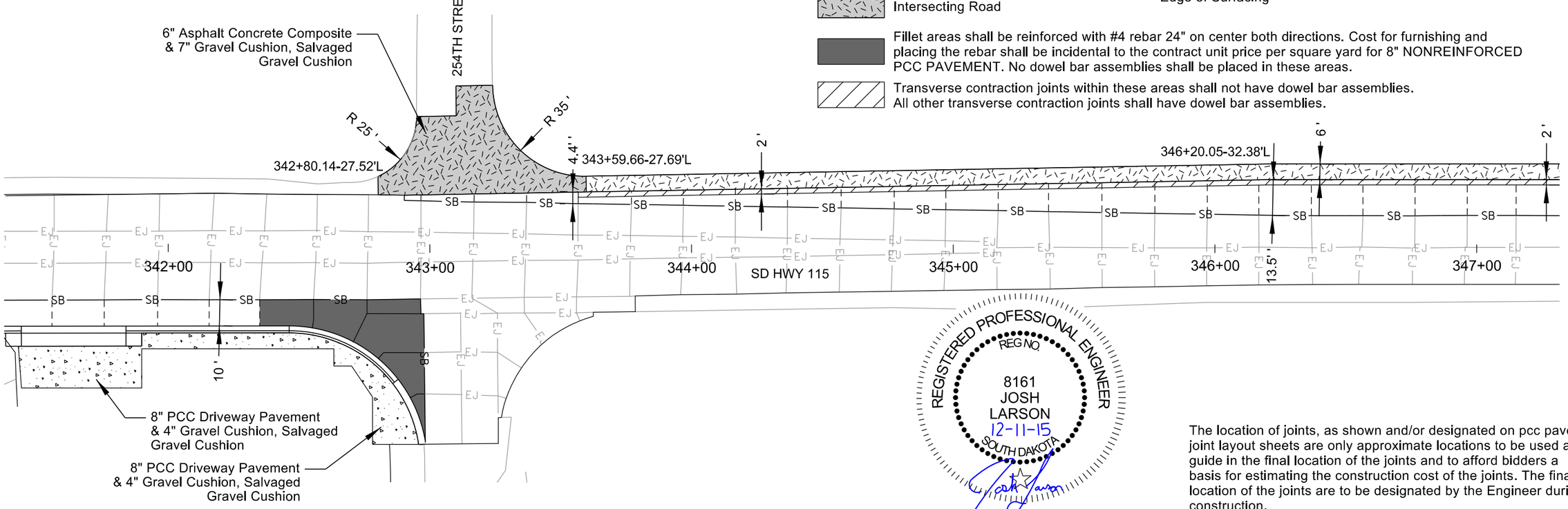
LEGEND:

- Asphalt Concrete Composite
- PCC Driveway Pavement
- Gravel Cushion, Salvaged Gravel Cushion
- Intersecting Road

- EJ — Existing Joints
- L — Longitudinal Joint Without Tie Bar (Construction or Sawed)
- LT — Longitudinal Joint With Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation (Longitudinal or Transverse Joint)
- Edge of Surfacing

Fillet areas shall be reinforced with #4 rebar 24" on center both directions. Cost for furnishing and placing the rebar shall be incidental to the contract unit price per square yard for 8" NONREINFORCED PCC PAVEMENT. No dowel bar assemblies shall be placed in these areas.

Transverse contraction joints within these areas shall not have dowel bar assemblies. All other transverse contraction joints shall have dowel bar assemblies.



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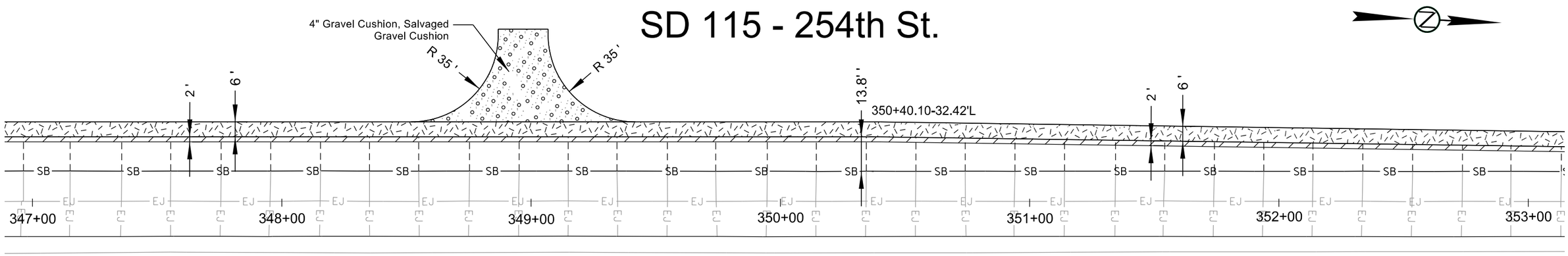
SOUTH DAKOTA

The location of joints, as shown and/or designated on pcc pavement joint layout sheets are only approximate locations to be used as a guide in the final location of the joints and to afford bidders a basis for estimating the construction cost of the joints. The final location of the joints are to be designated by the Engineer during construction.

PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	59	137

SD 115 - 254th St.



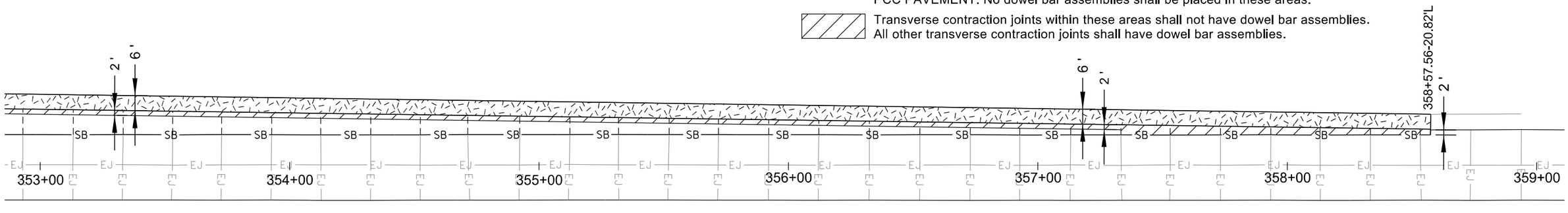
LEGEND:

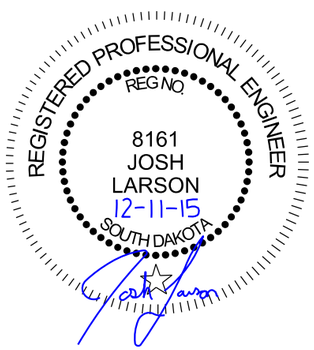
- Asphalt Concrete Composite
- PCC Driveway Pavement
- Gravel Cushion, Salvaged Gravel Cushion
- Intersecting Road

- EJ — Existing Joints
- L — Longitudinal Joint Without Tie Bar (Construction or Sawed)
- LT — Longitudinal Joint With Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation (Longitudinal or Transverse Joint)
- Edge of Surfacing

Fillet areas shall be reinforced with #4 rebar 24" on center both directions. Cost for furnishing and placing the rebar shall be incidental to the contract unit price per square yard for 8" NONREINFORCED PCC PAVEMENT. No dowel bar assemblies shall be placed in these areas.

Transverse contraction joints within these areas shall not have dowel bar assemblies. All other transverse contraction joints shall have dowel bar assemblies.





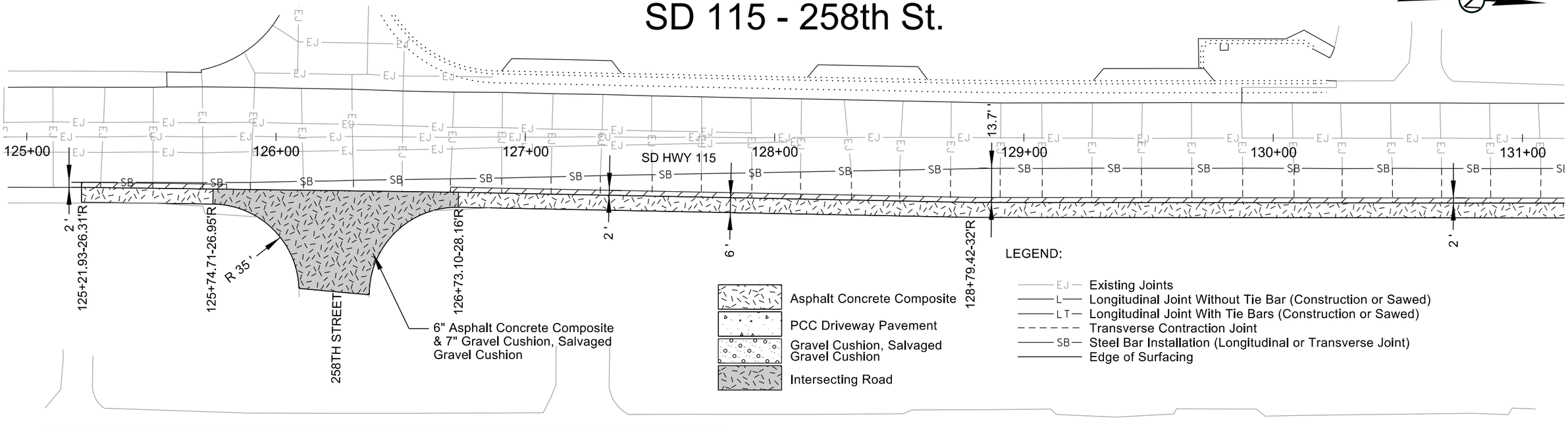
LOCATION OF CONCRETE PAVEMENT JOINTS:

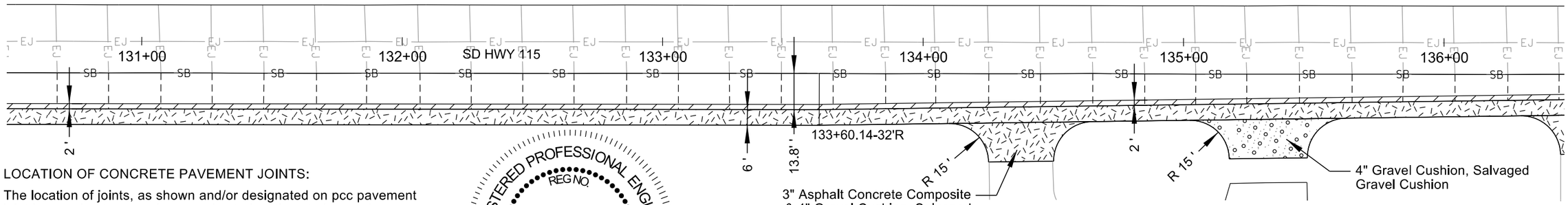
The location of joints, as shown and/or designated on pcc pavement joint layout sheets are only approximate locations to be used as a guide in the final location of the joints and to afford bidders a basis for estimating the construction cost of the joints. The final location of the joints are to be designated by the Engineer during construction.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	60	137

PCC PAVEMENT JOINT LAYOUT

SD 115 - 258th St.





LOCATION OF CONCRETE PAVEMENT JOINTS:

The location of joints, as shown and/or designated on pcc pavement joint layout sheets are only approximate locations to be used as a guide in the final location of the joints and to afford bidders a basis for estimating the construction cost of the joints. The final location of the joints are to be designated by the Engineer during construction.

REGISTERED PROFESSIONAL ENGINEER
REG NO.
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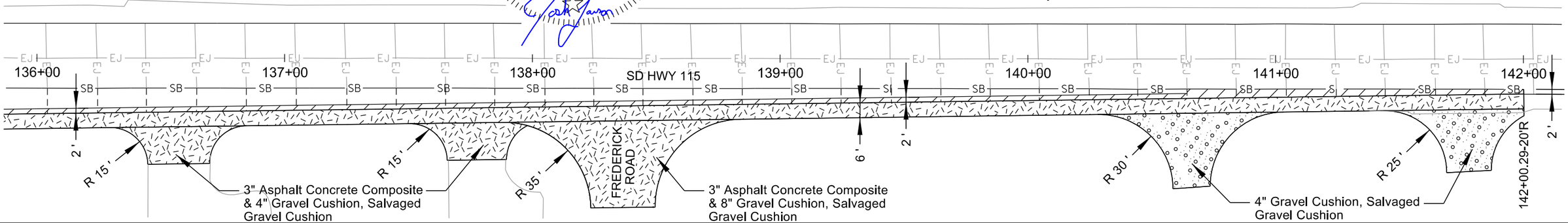
SOUTH DAKOTA

Fillet areas shall be reinforced with #4 rebar 24" on center both directions. Cost for furnishing and placing the rebar shall be incidental to the contract unit price per square yard for 8" NONREINFORCED PCC PAVEMENT. No dowel bar assemblies shall be placed in these areas.

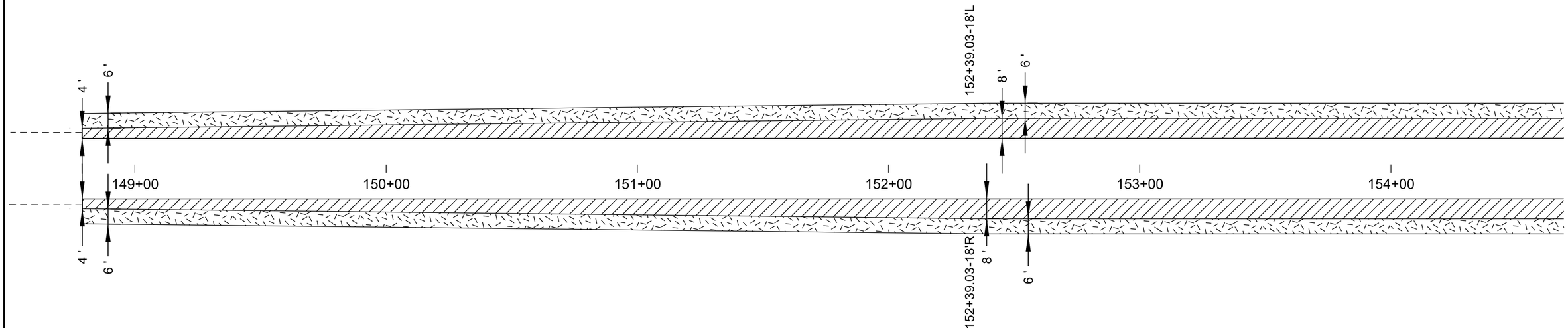
Transverse contraction joints within these areas shall not have dowel bar assemblies. All other transverse contraction joints shall have dowel bar assemblies.



AC PAVEMENT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	61	137

SD 11 - 276th St.



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SOUTH DAKOTA

LEGEND:

- Mainline Asphalt Concrete Composite
- Shoulder Asphalt Concrete Composite
- PCC Driveway Pavement
- Gravel Cushion, Salvaged Gravel Cushion
- Intersecting Road
- Edge of Surfacing

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	62	137

AC PAVEMENT LAYOUT

SD 11 - 276th St.

LEGEND:

- Mainline Asphalt Concrete Composite
- Shoulder Asphalt Concrete Composite
- PCC Driveway Pavement
- Gravel Cushion, Salvaged Gravel Cushion
- Intersecting Road
- Edge of Surfacing

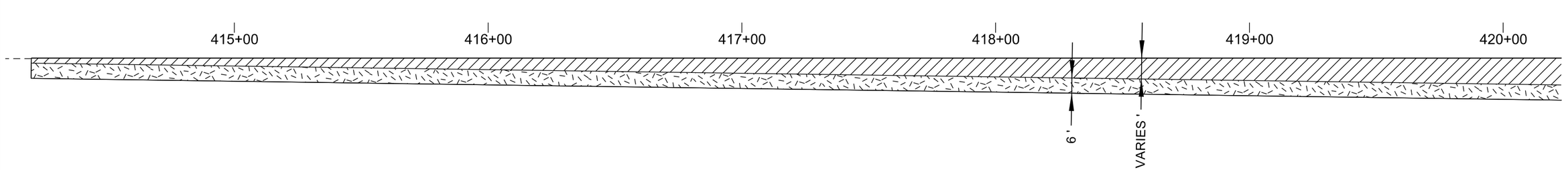
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	63	137

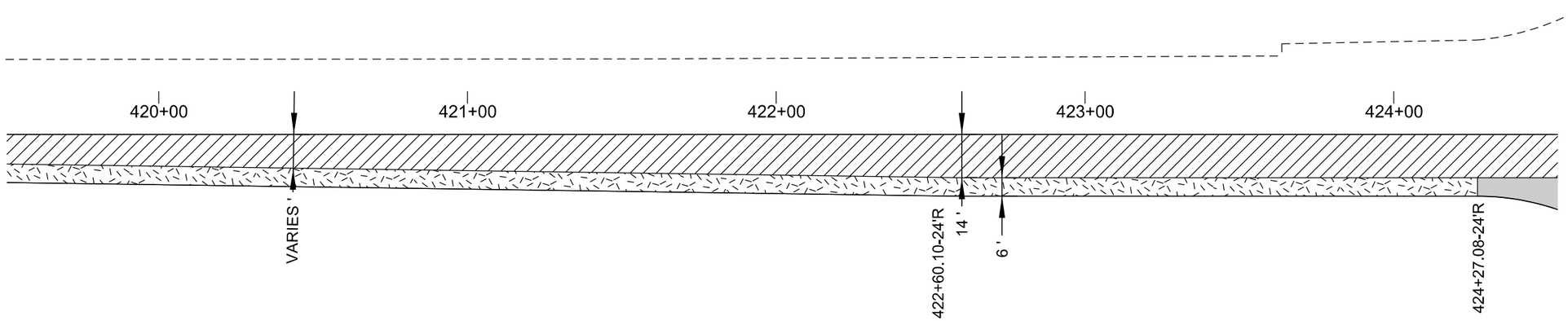
AC PAVEMENT LAYOUT

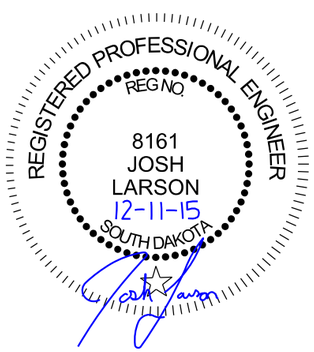
SD 44 - 447th Ave.

LEGEND:

- Mainline Asphalt Concrete Composite
- Shoulder Asphalt Concrete Composite
- PCC Driveway Pavement
- Gravel Cushion, Salvaged Gravel Cushion
- Intersecting Road
- Edge of Surfacing



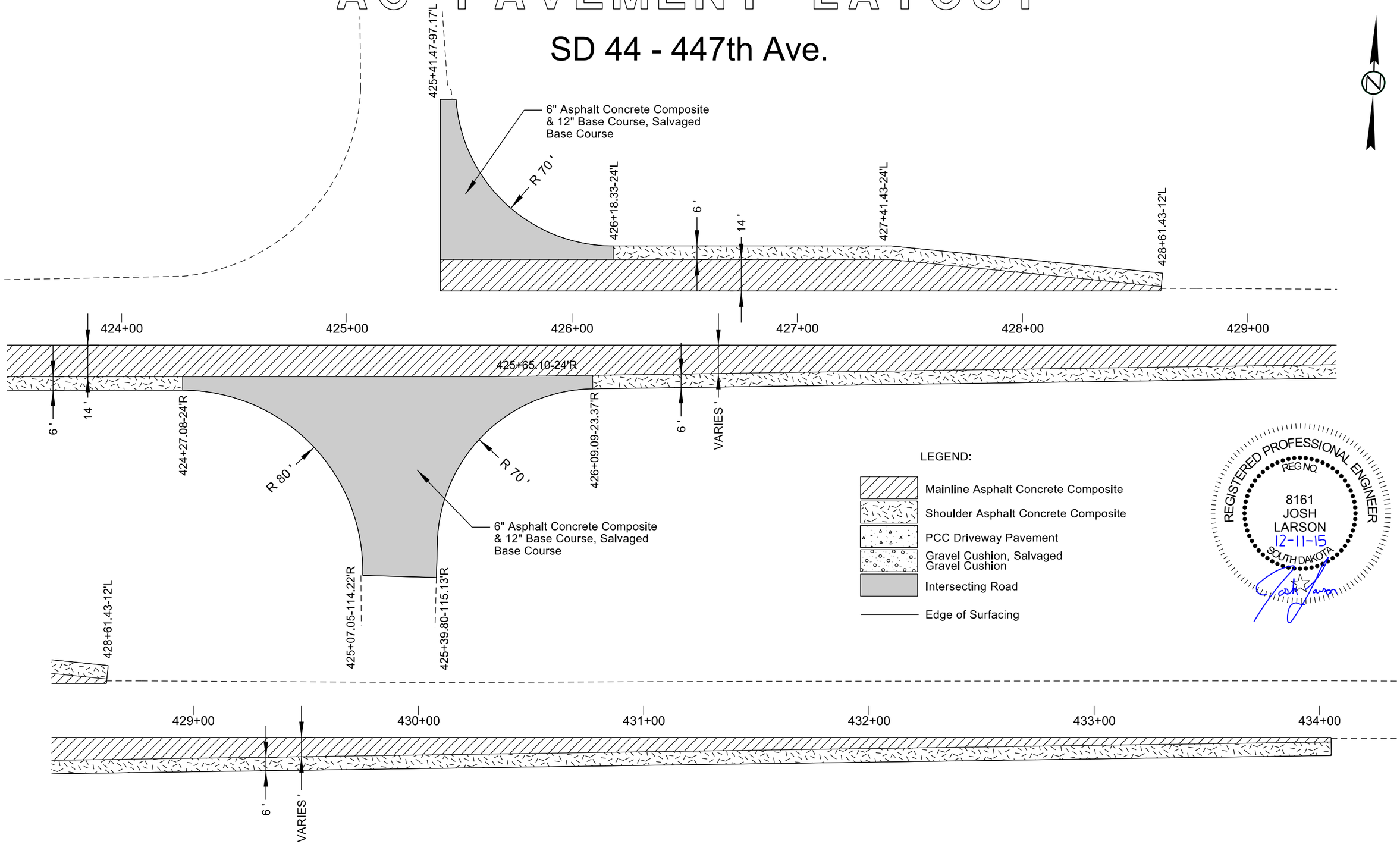




STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	64	137

AC PAVEMENT LAYOUT

SD 44 - 447th Ave.



LEGEND:

- Mainline Asphalt Concrete Composite
- Shoulder Asphalt Concrete Composite
- PCC Driveway Pavement
- Gravel Cushion, Salvaged Gravel Cushion
- Intersecting Road
- Edge of Surfacing

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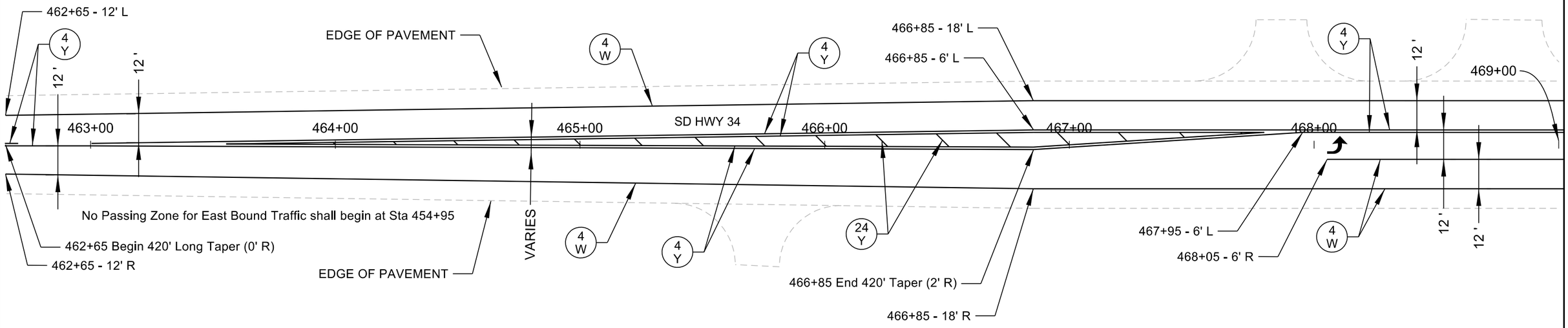
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	65	137

PAVEMENT MARKING LAYOUTS

SD 34 - 471st Ave.

ESTIMATE OF QUANTITIES (Hwy 34 - 471st St.)			
KEY	ITEM	QUANTITY	UNIT
4 W	Pavement Marking Paint, 4" White	4382	FT
4 Y	Pavement Marking Paint, 4" Yellow	7488	FT
24 Y	Cold Applied Plastic Pavement Marking, 24" Yellow	145	FT
↰	Cold Applied Plastic Pavement Marking, Arrow	5	EACH
	Grooving for Cold Applied Plastic Pavement Marking, 24"	145	FT
	Grooving for Cold Applied Plastic Pavement Marking, Arrow	5	EACH

ESTIMATE OF QUANTITIES (Hwy 34 - 471st St.)		
ITEM	QUANTITY	UNIT
Remove Pavement Marking, 4" or Equivalent	5219	Ft



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	66	137

PAVEMENT MARKING LAYOUTS

SD 34 - 471st Ave.

REGISTERED PROFESSIONAL ENGINEER
REG NO.
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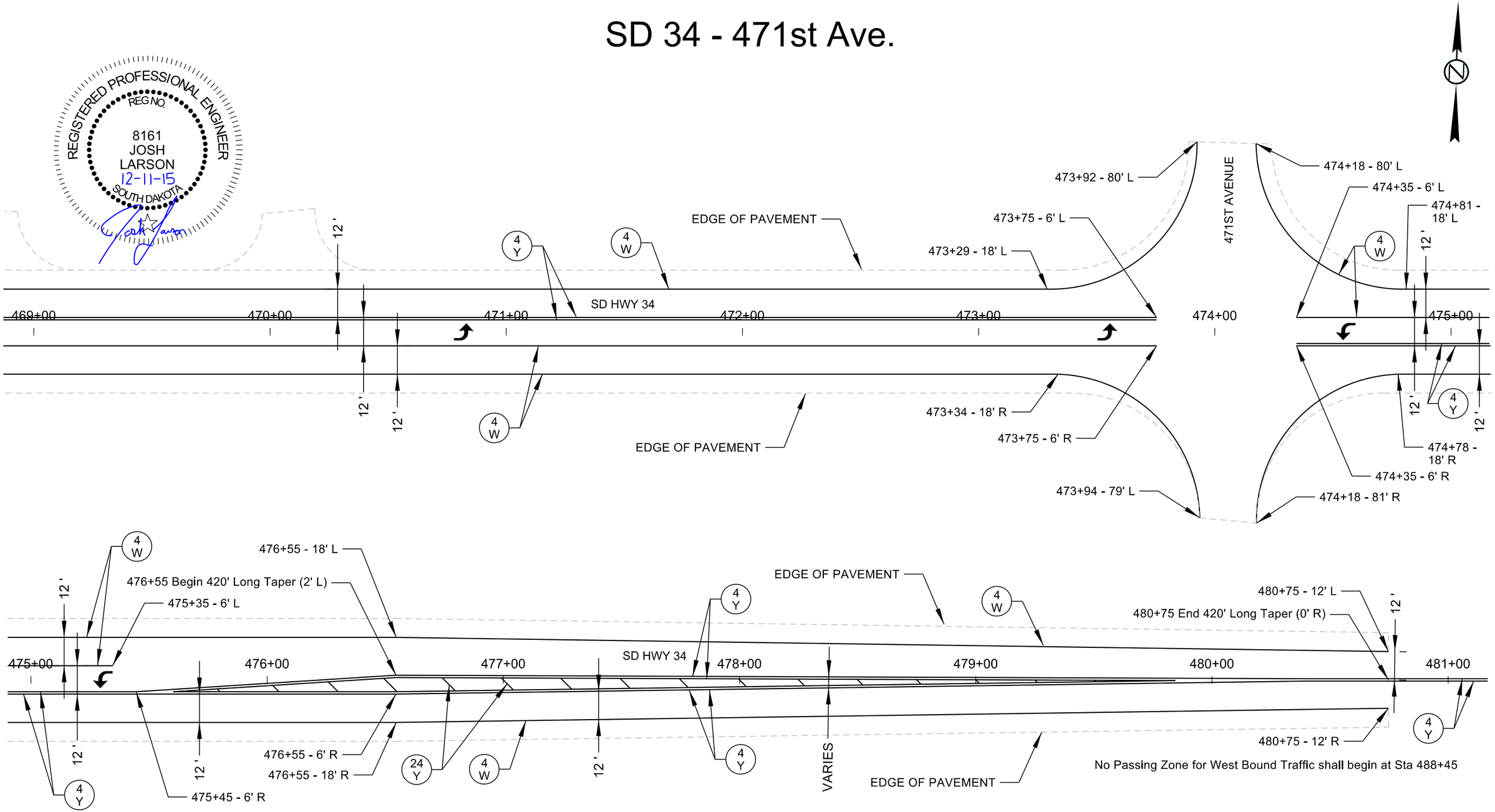
12-11-15
SOUTH DAKOTA



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	67	137

PAVEMENT MARKING LAYOUTS

SD 115 - 254th St.

ESTIMATE OF QUANTITIES (Hwy 115 - 254th St.)			
KEY	ITEM	QUANTITY	UNIT
4 W	Pavement Marking Paint, 4" White	2953	FT
4 Y	Pavement Marking Paint, 4" Yellow	5308	FT
24 Y	Cold Applied Plastic Pavement Marking, 24" Yellow	126	FT
	Cold Applied Plastic Pavement Marking, Arrow	6	EACH
	Grooving for Cold Applied Plastic Pavement Marking, 24"	126	FT
	Grooving for Cold Applied Plastic Pavement Marking, Arrow	6	EACH

REMOVAL QUANTITIES (Hwy 115 - 254th St.)		
ITEM	QUANTITY	UNIT
Remove Pavement Marking, 4" or Equivalent	5715	Ft
Remove Pavement Marking, Area	228	SqFt

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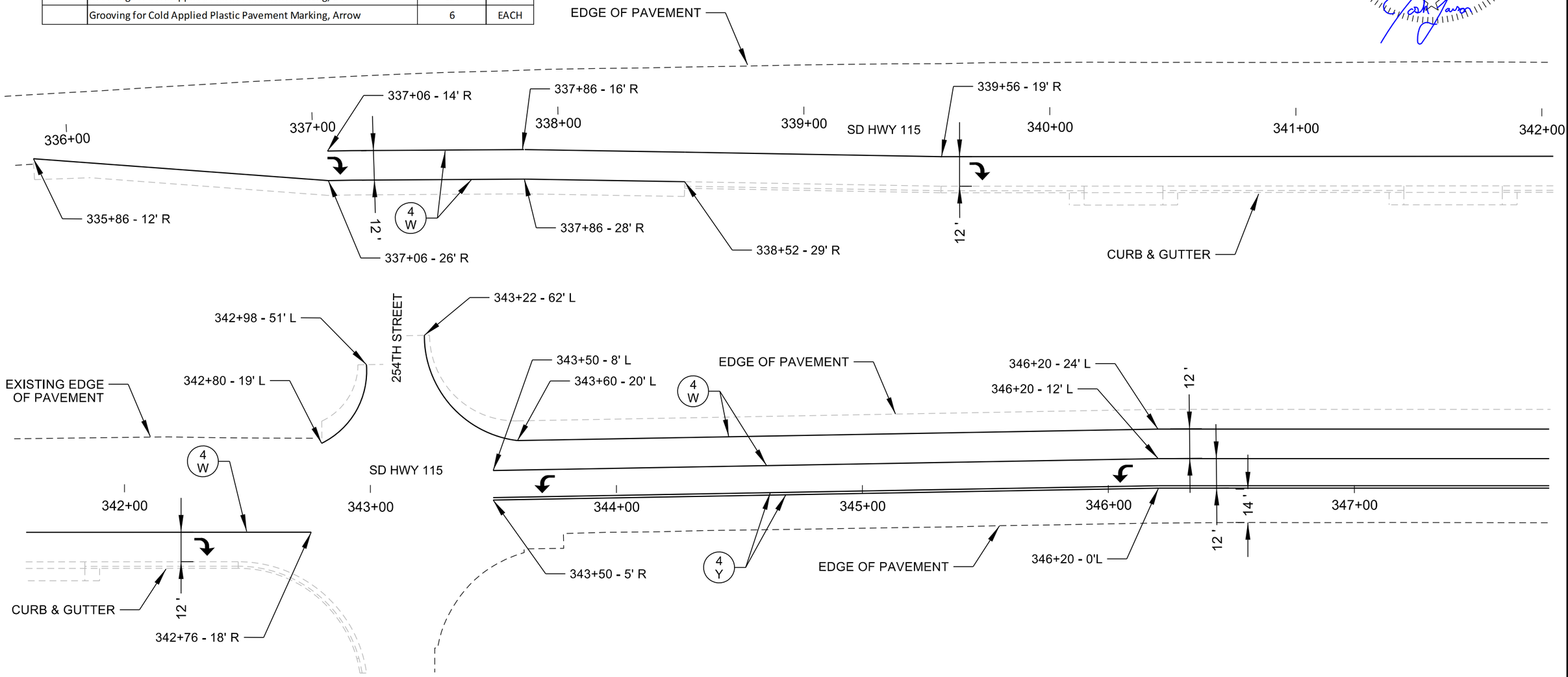
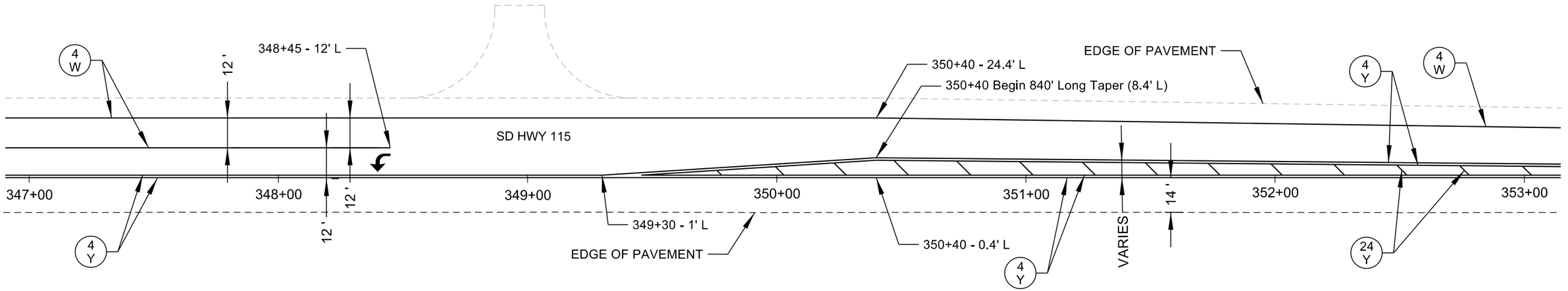
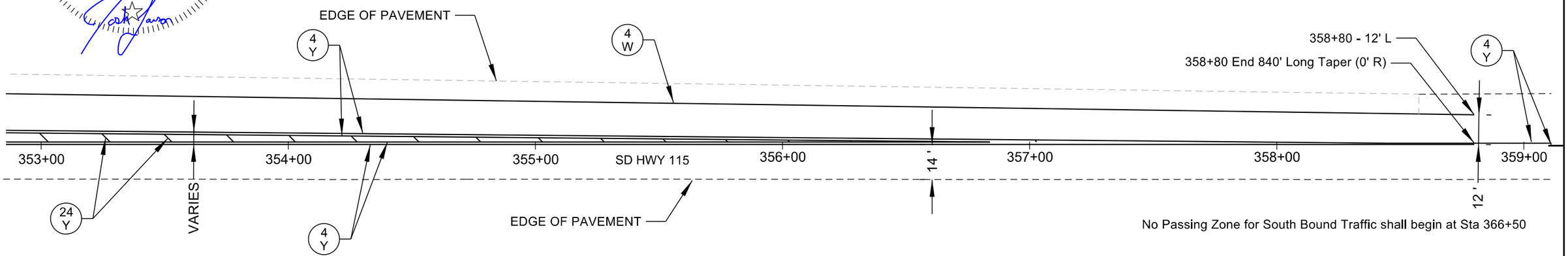


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	68	137

PAVEMENT MARKING LAYOUTS

SD 115 - 254th St.





No Passing Zone for South Bound Traffic shall begin at Sta 366+50

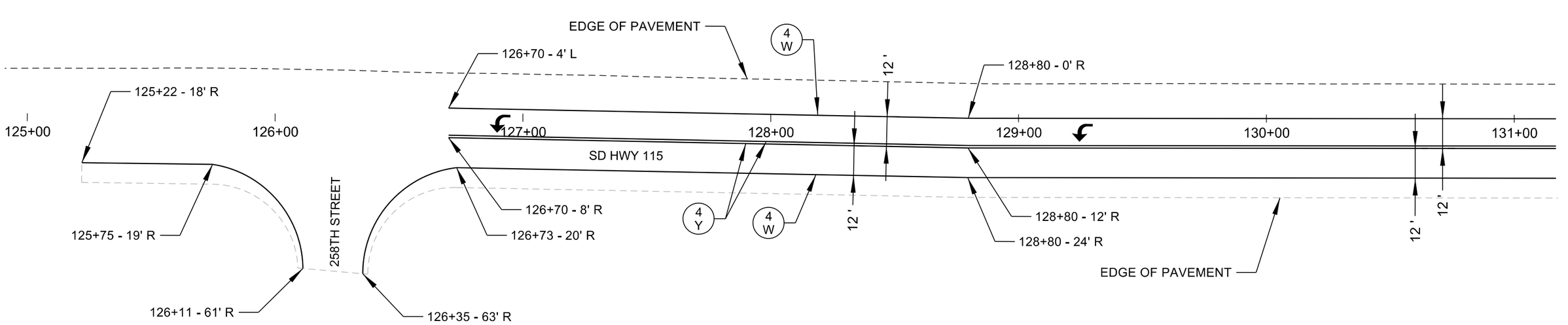
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	69	137

PAVEMENT MARKING LAYOUTS

SD 115 - 258th St.

ESTIMATE OF QUANTITIES (Hwy 115 - 258th St.)			
KEY	**ITEM**	**QUANTITY**	**UNIT**
4 W	Pavement Marking Paint, 4" White	2198	FT
4 Y	Pavement Marking Paint, 4" Yellow	4830	FT
24 Y	Cold Applied Plastic Pavement Marking, 24" Yellow	123	FT
↰	Cold Applied Plastic Pavement Marking, Arrow	3	EACH
	Grooving for Cold Applied Plastic Pavement Marking, 24"	123	FT
	Grooving for Cold Applied Plastic Pavement Marking, Arrow	3	EACH

REMOVAL QUANTITIES (Hwy 115 - 258th St.)		
ITEM	**QUANTITY**	**UNIT**
Remove Pavement Marking, 4" or Equivalent	3578	Ft
Remove Pavement Marking, Area	254	SqFt



REGISTERED PROFESSIONAL ENGINEER
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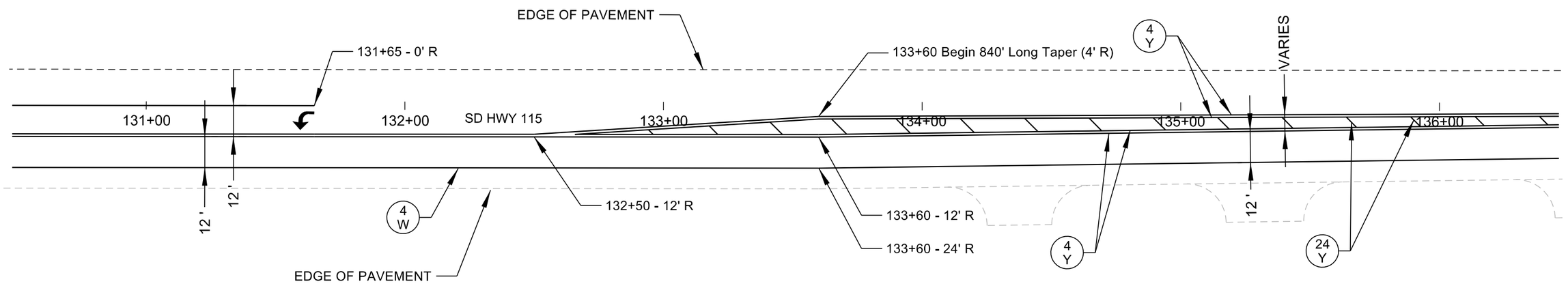
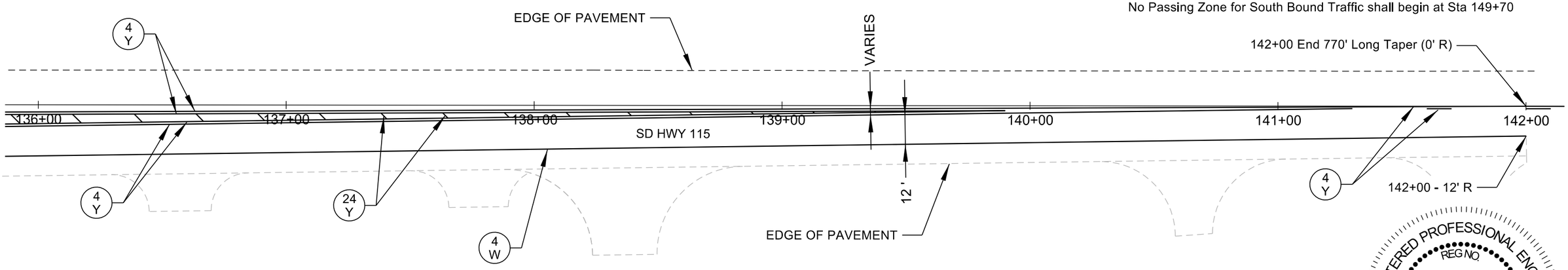
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	70	137

PAVEMENT MARKING LAYOUTS

SD 115 - 258th St.





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12-11-15
SOUTH DAKOTA

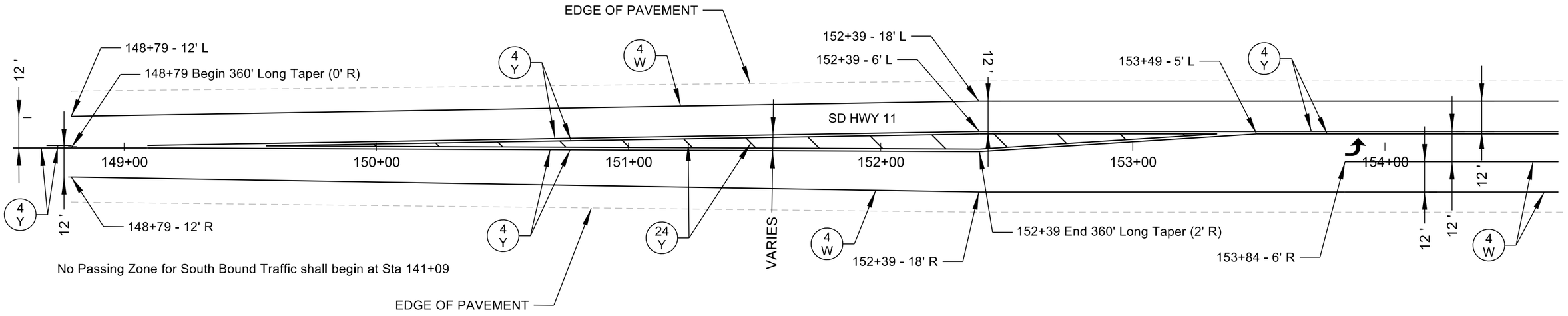
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	71	137

PAVEMENT MARKING LAYOUTS

SD 11 - 276th St.

ESTIMATE OF QUANTITIES (Hwy 11 - 276th St.)			
KEY	**ITEM**	**QUANTITY**	**UNIT**
4 W	Pavement Marking Paint, 4" White	3708	FT
4 Y	Pavement Marking Paint, 4" Yellow	4954	FT
24 Y	Cold Applied Plastic Pavement Marking, 24" Yellow	128	FT
	Cold Applied Plastic Pavement Marking, Arrow	5	EACH
	Grooving for Cold Applied Plastic Pavement Marking, 24"	128	FT
	Grooving for Cold Applied Plastic Pavement Marking, Arrow	5	EACH

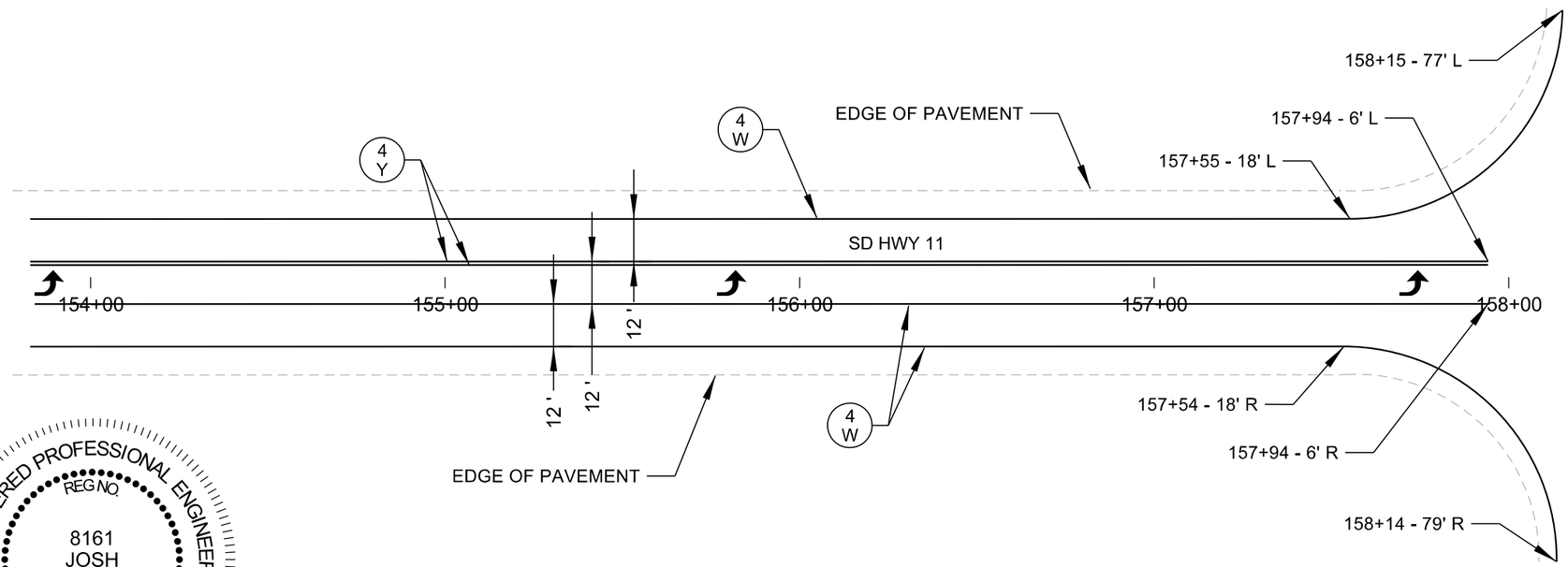
REMOVAL QUANTITIES (Hwy 11 - 276th St.)		
ITEM	**QUANTITY**	**UNIT**
Remove Pavement Marking, 4" or Equivalent	4041	Ft

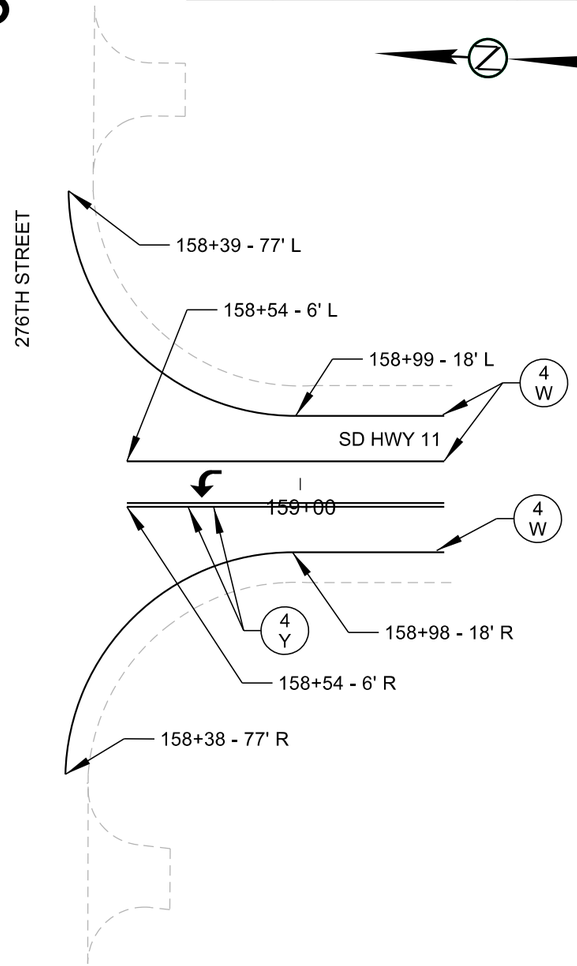


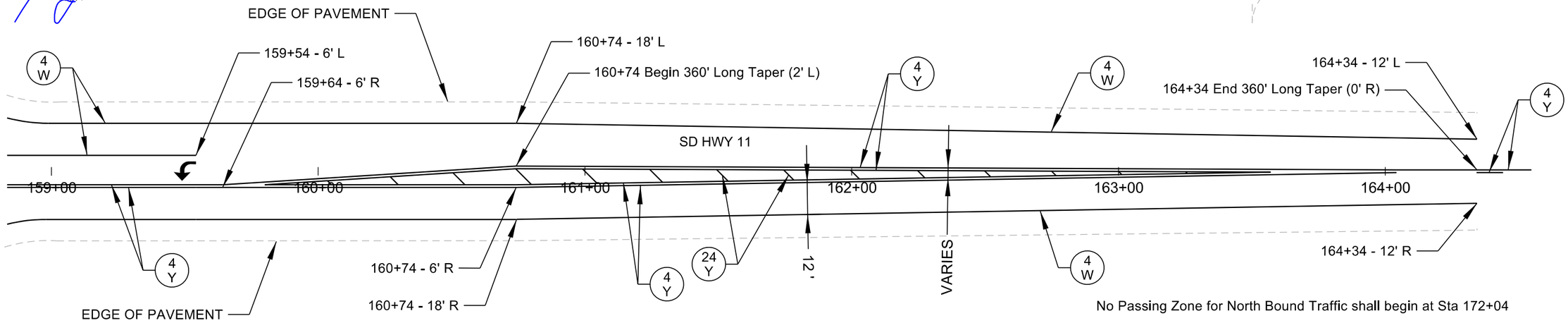
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	72	137

PAVEMENT MARKING LAYOUTS

SD 11 - 276th St.







No Passing Zone for North Bound Traffic shall begin at Sta 172+04

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA

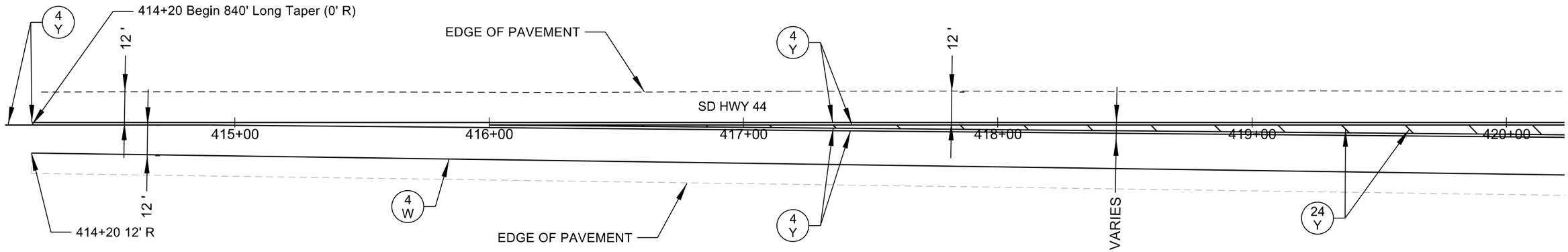
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	73	137

PAVEMENT MARKING LAYOUTS

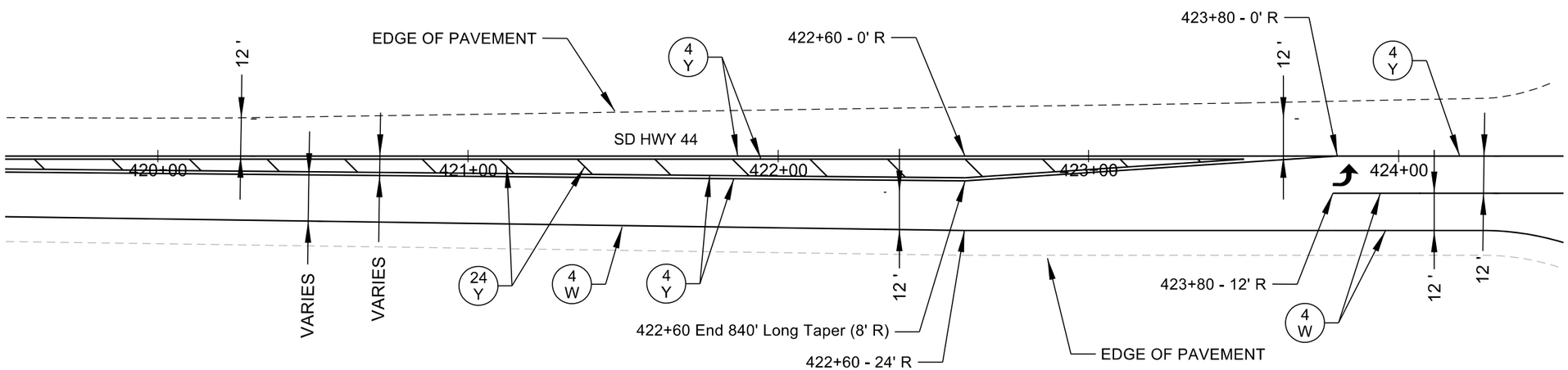
SD 44 - 447th Ave.

ESTIMATE OF QUANTITIES (Hwy 44 - Hwy 17)			
KEY	ITEM	QUANTITY	UNIT
4 W	Pavement Marking Paint, 4" White	2712	FT
4 Y	Pavement Marking Paint, 4" Yellow	7325	FT
24 Y	Cold Applied Plastic Pavement Marking, 24" Yellow	326	FT
	Cold Applied Plastic Pavement Marking, Arrow	4	EACH
	Grooving for Cold Applied Plastic Pavement Marking, 24"	326	FT
	Grooving for Cold Applied Plastic Pavement Marking, Arrow	4	EACH

REMOVAL QUANTITIES (Hwy 44 - Hwy 17)		
ITEM	QUANTITY	UNIT
Remove Pavement Marking, 4" or Equivalent	2993	Ft



No Passing Zone for East Bound Traffic shall begin at Sta 406+50



REGISTERED PROFESSIONAL ENGINEER
REG NO.
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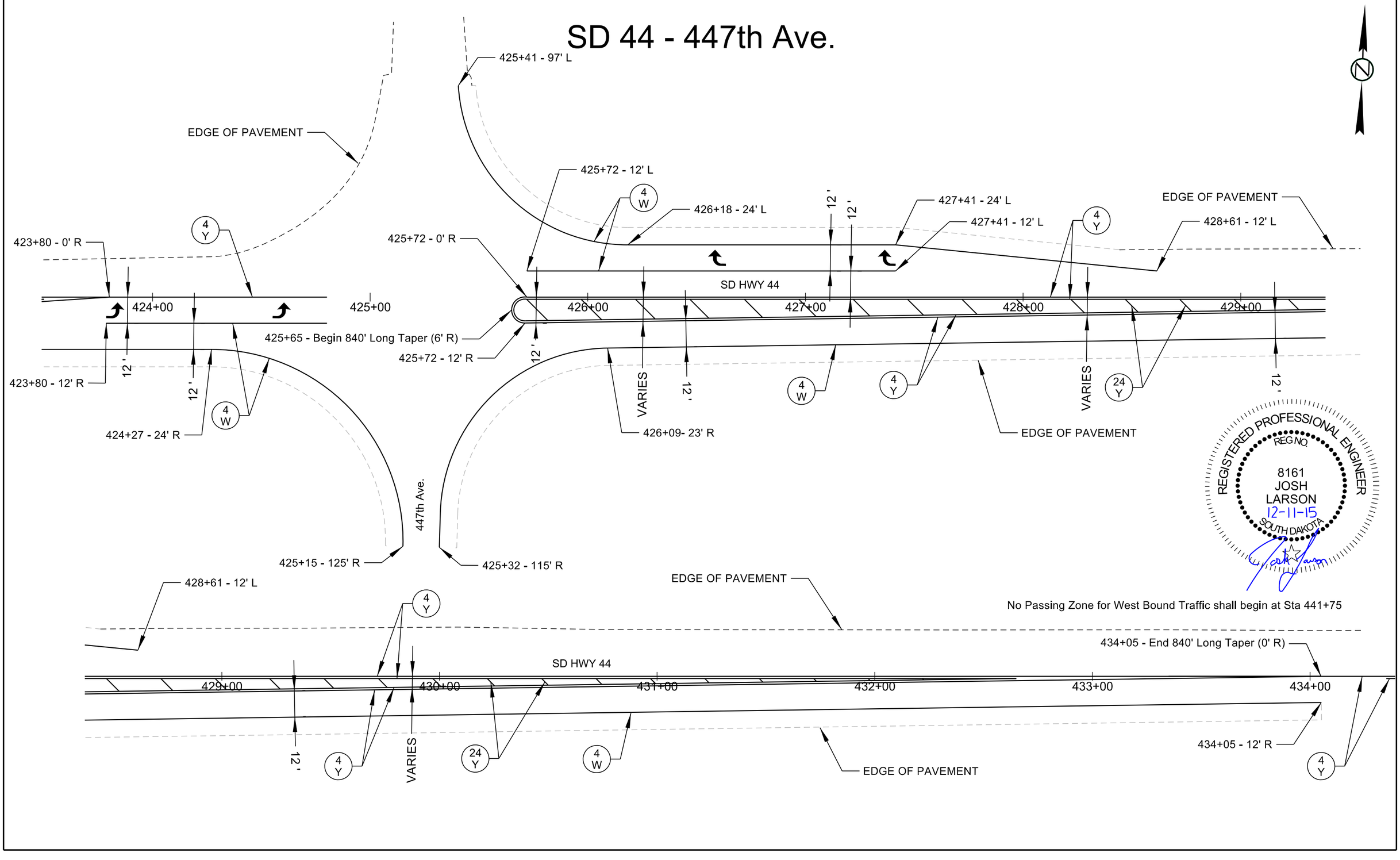
LARSON
12-11-15
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	74	137

PAVEMENT MARKING LAYOUTS

SD 44 - 447th Ave.



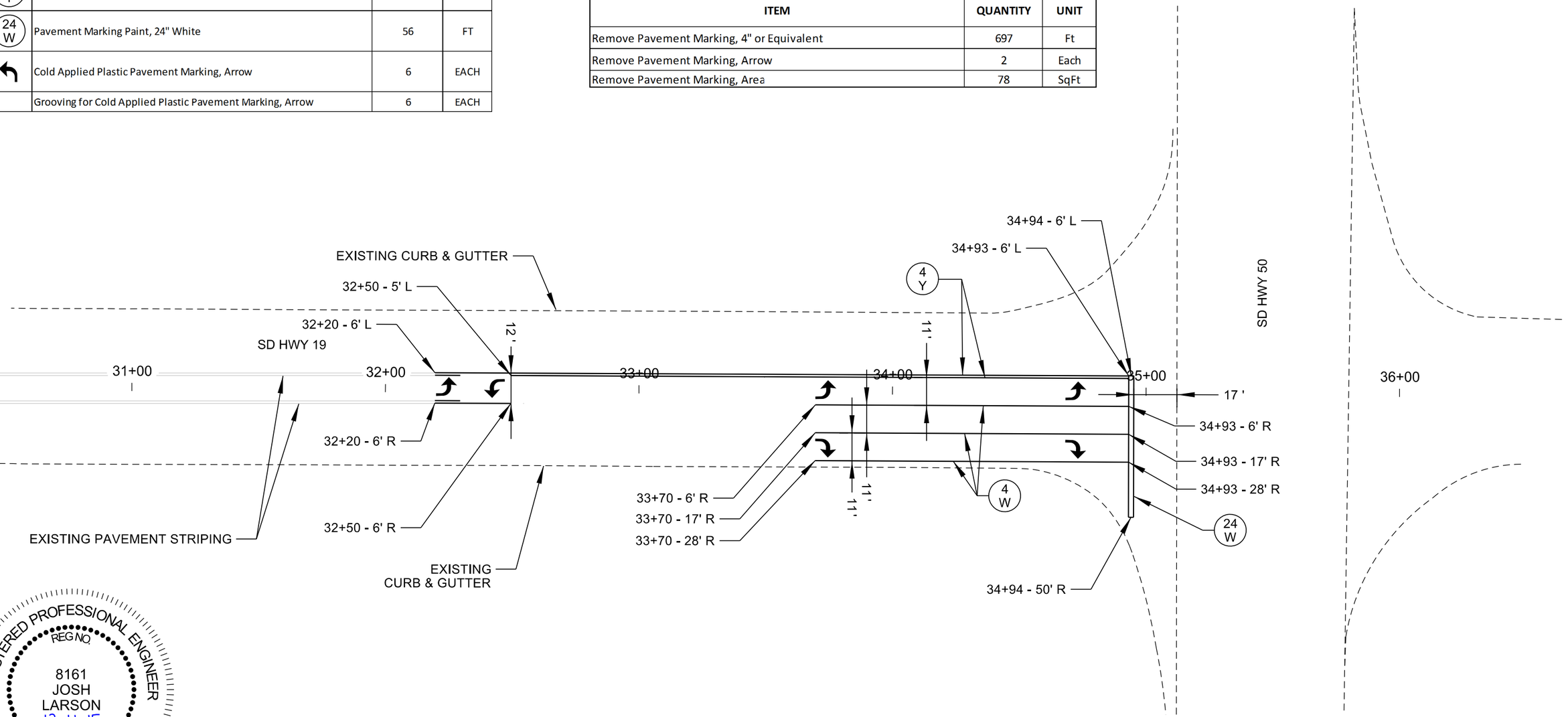
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	75	137

PAVEMENT MARKING LAYOUTS

SD 19 - SD 50

ESTIMATE OF QUANTITIES (Hwy 50 - Hwy 19)			
KEY	ITEM	QUANTITY	UNIT
4 W	Pavement Marking Paint, 4" White	371	FT
4 Y	Pavement Marking Paint, 4" Yellow	568	FT
24 W	Pavement Marking Paint, 24" White	56	FT
	Cold Applied Plastic Pavement Marking, Arrow	6	EACH
	Grooving for Cold Applied Plastic Pavement Marking, Arrow	6	EACH

REMOVAL QUANTITIES (Hwy 50 - Hwy 19)		
ITEM	QUANTITY	UNIT
Remove Pavement Marking, 4" or Equivalent	697	Ft
Remove Pavement Marking, Arrow	2	Each
Remove Pavement Marking, Area	78	SqFt



REGISTERED PROFESSIONAL ENGINEER
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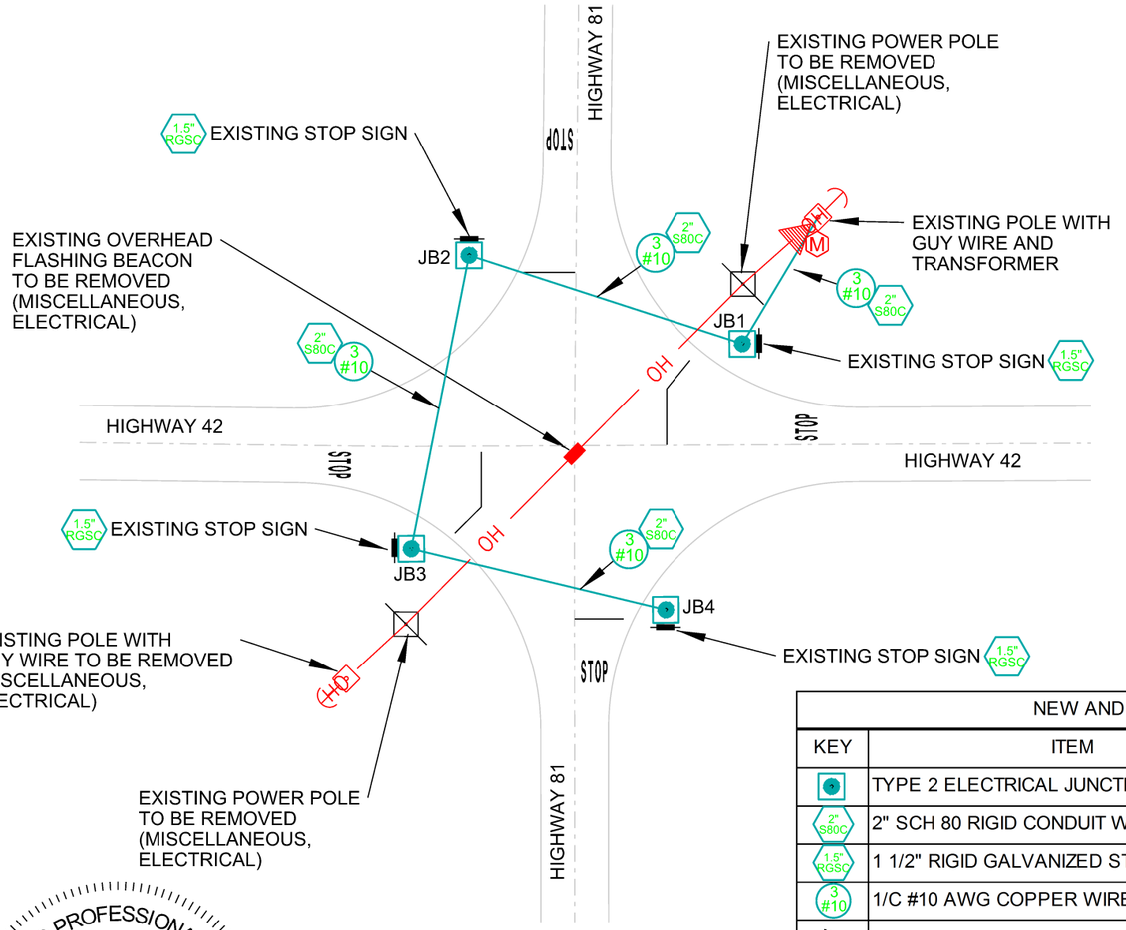
LARSON
12-11-15
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	76	137

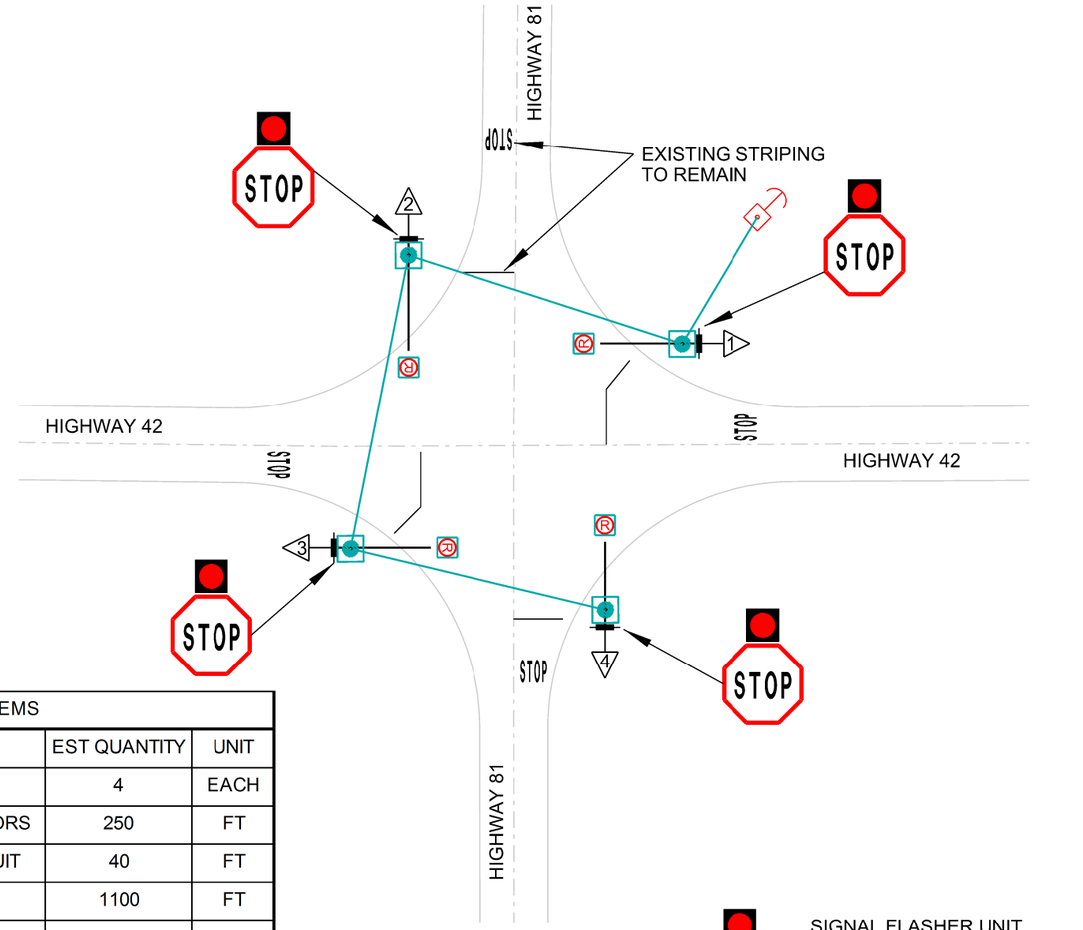
SIGN INSTALLATION
JUNCTION SD 81 AND SD 42

CONDUIT LAYOUT
JUNCTION SD 81 AND SD 42



NEW AND EXISTING ITEMS			
KEY	ITEM	EST QUANTITY	UNIT
	TYPE 2 ELECTRICAL JUNCTION BOX	4	EACH
2" S80C	2" SCH 80 RIGID CONDUIT W/CONDUCTORS	250	FT
1.5" RGSC	1 1/2" RIGID GALVANIZED STEEL CONDUIT	40	FT
3 #10	1/C #10 AWG COPPER WIRE	1100	FT
	1 SECTION VEHICLE SIGNAL HEAD (1-4)	4	EACH
	SIGNAL FLASHER UNIT	4	EACH
	EXISTING UTILITY POLE	-	-
	EXISTING UTILITY POLE WITH GUY WIRE	-	-
M	EXISTING METER	-	-
	EXISTING ELECTRICAL SERVICE CABINET	-	-
	EXISTING OVERHEAD FLASHING BEACON	-	-

BEACONS LAYOUT
JUNCTION SD 81 AND SD 42



SIGNAL FLASHER UNIT

EXISTING 48" WARNING SIGN

UNDERGROUND CONDUIT

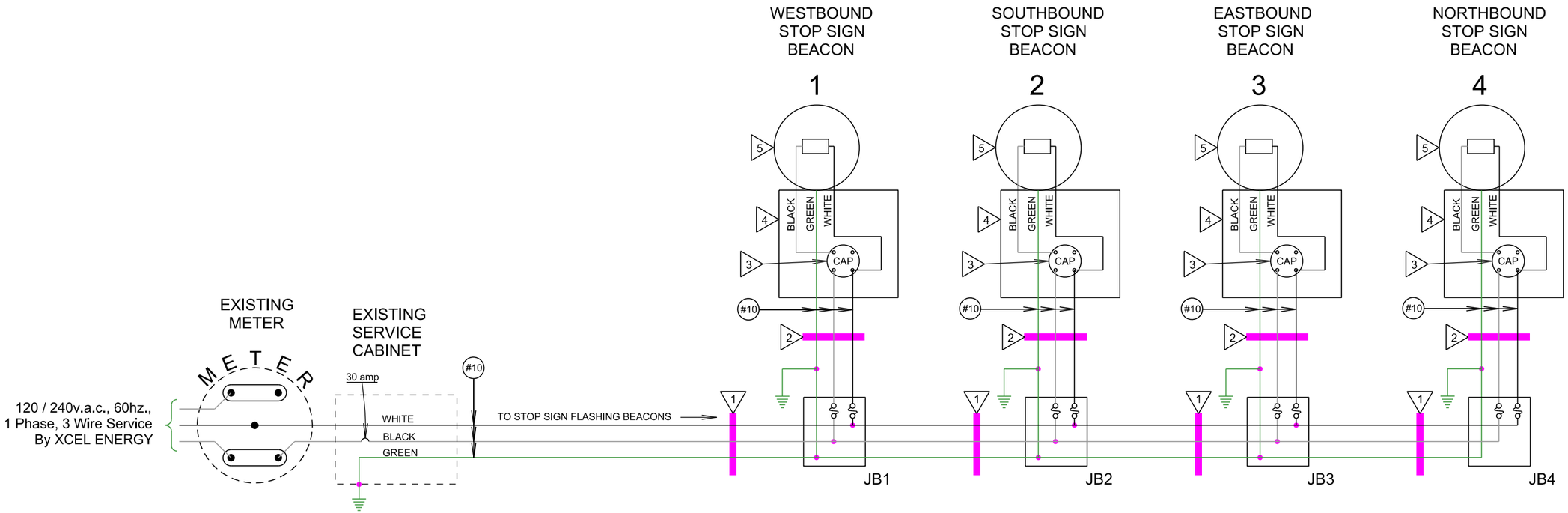
OH — OVERHEAD POWER

SIGNAL HEAD PLACEMENT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	77	137

STOP SIGN BEACON WIRING DIAGRAMS

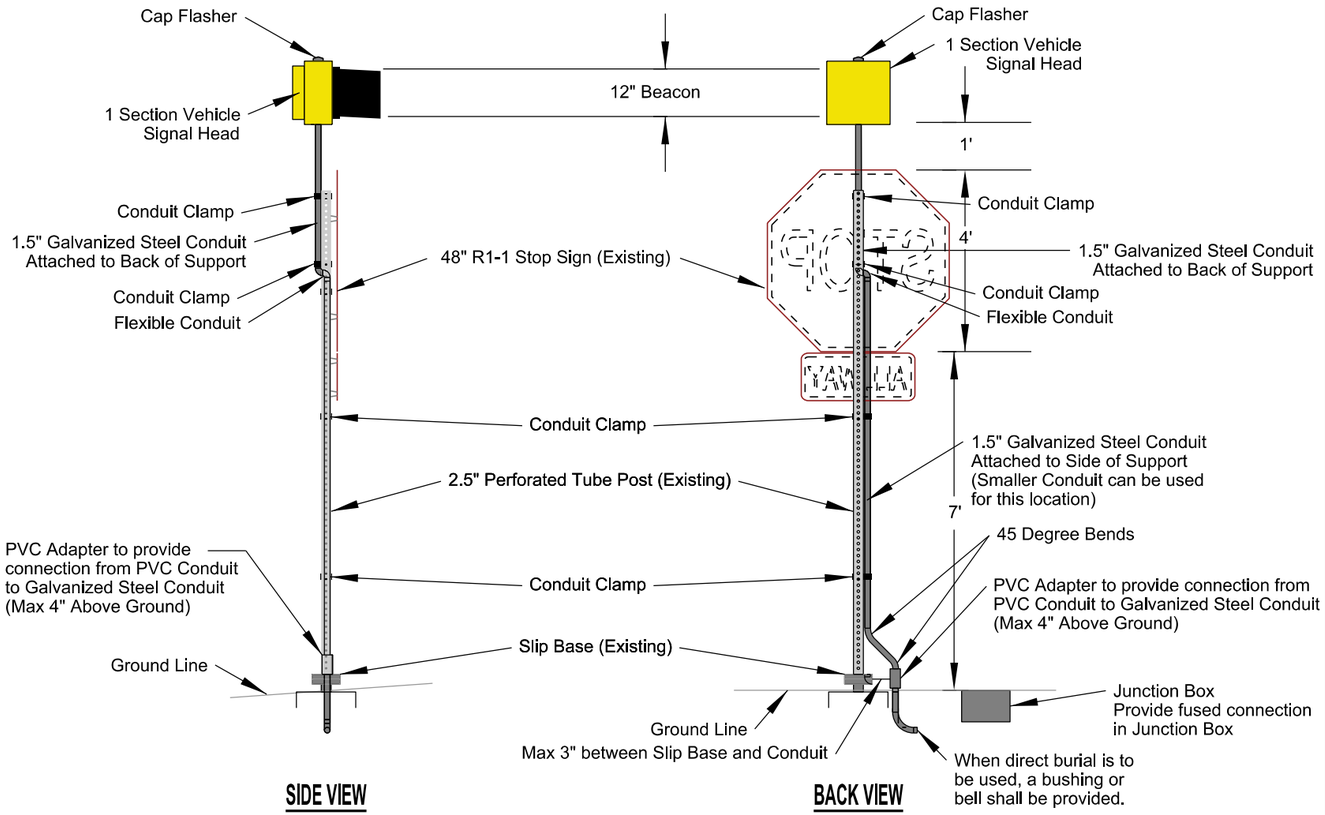
JUNCTION SD 81 AND SD 42



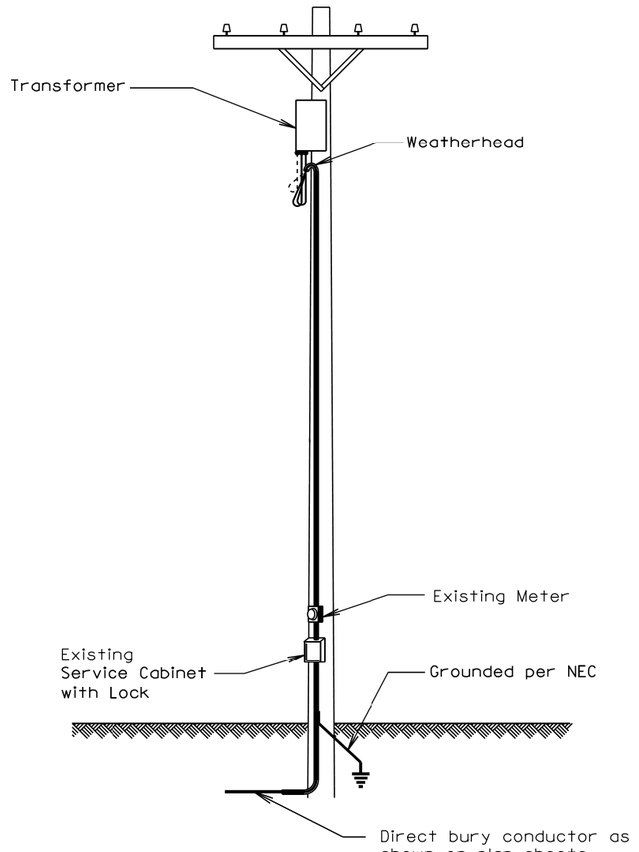
FUSE

1. 2" SCH 80 RIGID CONDUIT WITH CONDUCTORS. BORED UNDER THE HIGHWAY PAVEMENT
2. 1 1/2" RIGID GALVANIZED STEEL CONDUIT WITH #10 AWG CONDUCTORS
3. CAP FLASHER MODEL CF-2F AS MANUFACTURED BY TSC (or equal) IN VEHICLE SIGNAL HEAD HOUSING.
4. VEHICLE SIGNAL HEAD HOUSING WITH TUNNEL VISOR, 12 inch.
5. SIGNAL MODULE INDICATION IN VEHICLE SIGNAL HEAD HOUSING.

STOP SIGN BEACON INSTALLATION ON EXISTING PERFORATED TUBE POST SIGN SUPPORT



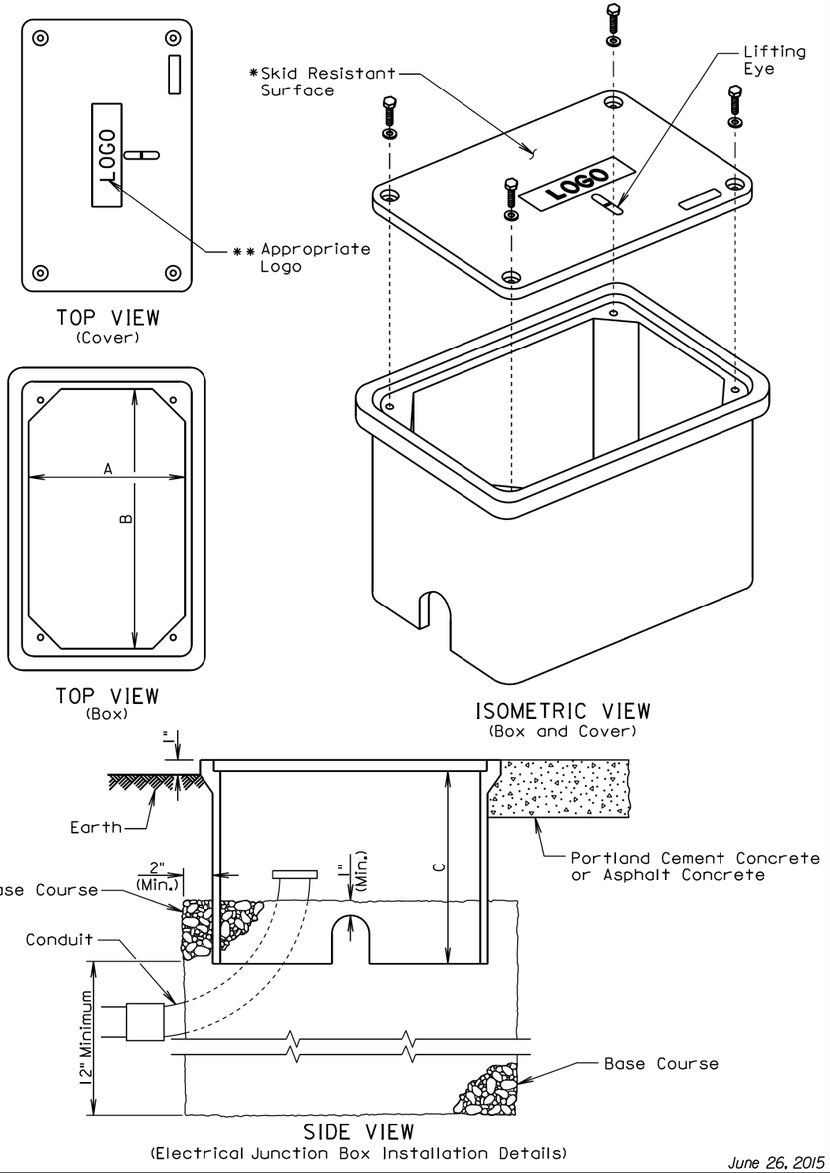
EXISTING SERVICE CABINET AND METER ON OVERHEAD UTILITY POLE



GENERAL NOTE:

All materials and labor from meter shall be supplied by Contractor.

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA



June 26, 2015

Published Date: 4th Qtr. 2015	SDDOT	ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4	PLATE NUMBER 635.65
			Sheet 1 of 2

ELECTRICAL JUNCTION BOX

TYPE	DESCRIPTION	DIMENSIONS		
		A	B	C
1	Open Bottom with Gasket	11"-15"	18"-21"	18" (Min.)
2	Open Bottom with Gasket	13"-18"	23"-28"	18" (Min.)
3	Open Bottom with Gasket	17"-22"	24"-30"	18" (Min.)
4	Open Bottom with Gasket	28"-33"	36"-48"	24" (Min.)

GENERAL NOTES:

The cover shall be gasketed with a minimum of two stainless steel bolts and washers.

The cover shall have a lifting eye.

* The surface of the cover shall have a minimum wet and dry coefficient of friction value of 0.5 as determined by ASTM F 609.

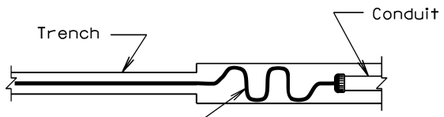
** The cover of the junction box shall have the appropriate logo in one inch size letters and shall be recessed. When the junction box contains cables or wires for a traffic signal then the logo shall be "Signal". When the junction box contains lighting conductors then the logo shall be "Lighting".

The electrical junction boxes shall comply with the American National Standards Institute (ANSI)/Society of Cable Telecommunications Engineers (SCTE) 77 2007 Specification for Underground Enclosure Integrity. The loading requirement for all the electrical junction boxes shall be Tier 8 of ANSI/SCTE 77 2007.

The electrical junction boxes shall be UL listed.

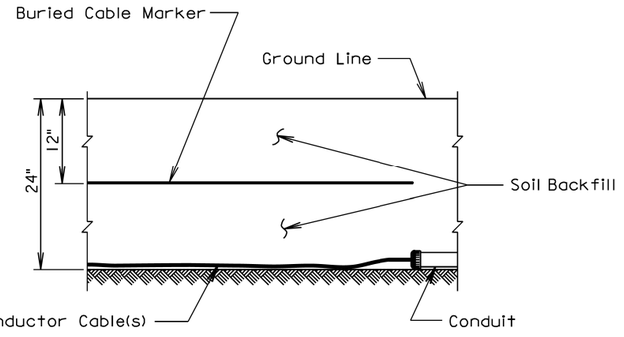
June 26, 2015

Published Date: 4th Qtr. 2015	SDDOT	ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4	PLATE NUMBER 635.65
			Sheet 2 of 2



Conductor cable(s) shall be laid in a series of curves, accumulating approximately 3 feet of slack before entering conduit.

PLAN VIEW



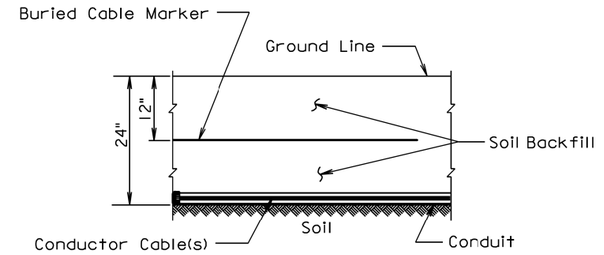
SECTION VIEW

GENERAL NOTE:

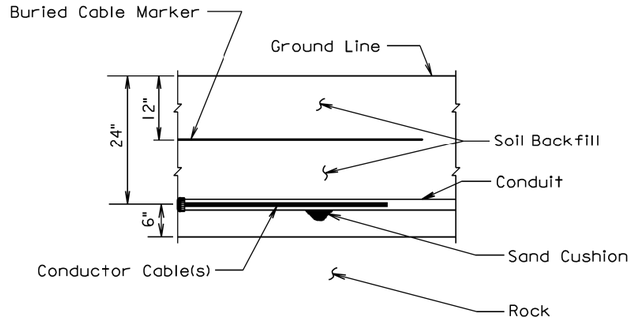
The Buried Cable Marker shall be plastic, approximately 6" wide, and shall be capable of sustaining a minimum of a 350% tolerance of elongation without tearing. The Buried Cable Marker shall have a life expectancy approximately equal to that of the conductor(s) beneath it. A phrase indicating the presence of a buried electric circuit below shall be printed in a contrasting color on the cable marker. The Buried Cable Marker shall be subject to approval by the Engineer. All costs associated with furnishing and installing the Buried Cable Marker shall be incidental to the contract unit price per Foot for the bid item used for the electrical conductor.

March 31, 2000

Published Date: 4th Qtr. 2015	SDDOT	DIRECT BURIAL INSTALLATION OF CONDUCTOR CABLE(S)	PLATE NUMBER 635.75
			Sheet 1 of 1



SECTION VIEW



SECTION VIEW

GENERAL NOTE:

The Buried Cable Marker shall be plastic, approximately 6" wide, and shall be capable of sustaining a minimum of a 350% tolerance of elongation without tearing. The Buried Cable Marker shall have a life expectancy approximately equal to that of the conductor(s) beneath it. A phrase indicating the presence of a buried electric circuit below shall be printed in a contrasting color on the cable marker. The Buried Cable Marker shall be subject to approval by the Engineer. All costs associated with furnishing and installing the Buried Cable Marker shall be incidental to the contract unit price per Foot for the bid item used for the electrical conductor.

March 31, 2000

Published Date: 4th Qtr. 2015	SDDOT	CONDUIT INSTALLATION	PLATE NUMBER 635.76
			Sheet 1 of 1

SIGN AND DELINEATOR REMOVE & RESET TABLE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	81	137

SD 34 SIGN DATA

STATION	L/R	DESCRIPTION	REMOVE & RESET TRAFFIC SIGN * [632E3520]	REMOVE DELINEATOR FOR RESET [110E7152]	RESET DELINEATOR [632E2100]	FLEXIBLE DELINEATOR [634E0530]
463+92	Lt	4”x4” White Delineator		1	1	
466+81	Rt	4”x4” White Delineator		1	1	
469+31	Lt	4”x4” White Delineator		1	1	
471+95	Lt	Object Marker	1{U}			
471+96	Rt	Object Marker	1{U}			
472+10	Rt	4”x4” White Delineator		1	1	
472+78	Rt	Mileage Reference Marker	1{U}			
473+66	Lt	4” Tubular White Delineator		1	1	
473+75	Lt	Stop	1{U}			
473+84	Lt	4” Tubular White Delineator		1	1	
473+85	Lt	4” Tubular White Delineator		1	1	
474+29	Rt	Stop	1{W}			
474+29	Lt	4” Tubular White Delineator		1	1	
474+38	Lt	4” Tubular White Delineator		1	1	
474+63	Lt	4” Tubular White Delineator		1	1	
475+28	Rt	East Highway 34	1{U}			
476+88	Rt	4”x4” White Delineator		1	1	

SD 115-254th SIGN DATA

STATION	L/R	DESCRIPTION	REMOVE & RESET TRAFFIC SIGN * [632E3520]	REMOVE DELINEATOR FOR RESET [110E7152]	RESET DELINEATOR [632E2100]	FLEXIBLE DELINEATOR [634E0530]
341+90	Rt	Reflector/Marker				1
341+97	Rt	Reflector/Marker				1
342+05	Rt	Reflector/Marker				1
342+71	Rt	Reflector/Marker				1
342+72	Rt	Reflector/Marker				1
342+79	Rt	Reflector/Marker				1
347+13	Lt	Garretson Destination Palisades State Park Destination	2{W}			
350+00	Lt	Curve Advanced Warning	1{W}			
351+37	Lt	Object Marker	1{U}			
351+65	Lt	Object Marker	1{U}			

SD 115-258th SIGN DATA

STATION	L/R	DESCRIPTION	REMOVE & RESET TRAFFIC SIGN * [632E3520]	REMOVE DELINEATOR FOR RESET [110E7152]	RESET DELINEATOR [632E2100]	FLEXIBLE DELINEATOR [634E0530]
130+27	Rt	Object Marker	1{U}			
131+46	Rt	Off Road Vehicle Prohibition	1{W}			
133+45	Rt	Mile Reference Marker	1{U}			
136+86	Rt	No Passing Zone	1{W}			
138+56	Rt	Stop	1{W}			
138+69	Rt	Rural Street	1{PT}			
139+50	Rt	Object Marker	1{U}			
140+17	Rt	Object Marker	1{U}			

SD 11 SIGN DATA

STATION	L/R	DESCRIPTION	REMOVE & RESET TRAFFIC SIGN * [632E3520]	REMOVE DELINEATOR FOR RESET [110E7152]	RESET DELINEATOR [632E2100]	FLEXIBLE DELINEATOR [634E0530]
148+97	Lt	4”x4” White Delineator		1	1	
150+78	Rt	Advance Warning Sign	1{W}			
152+08	Rt	4”x4” White Delineator		1	1	
152+71	Rt	County Road	1{U}			
153+06	Lt	Adopt a Highway Group Name	1{W}			
154+47	Lt	4”x4” White Delineator		1	1	
157+11	Rt	4”x4” White Delineator		1	1	
158+05	Lt	Stop Cross Traffic Does Not Stop	1{W}			
158+48	Rt	Stop Cross Traffic Does Not Stop	1{W}			
159+57	Lt	4”x4” White Delineator		1	1	
162+03	Rt	4”x4” White Delineator		1	1	

SD 44 SIGN DATA

STATION	L/R	DESCRIPTION	REMOVE & RESET TRAFFIC SIGN * [632E3520]	REMOVE DELINEATOR FOR RESET [110E7152]	RESET DELINEATOR [632E2100]	FLEXIBLE DELINEATOR [634E0530]
416+32	Rt	Object Marker	1{U}			
417+67	Rt	Marion/Parker Destination	2{W}			
425+48	Rt	Stop	1{W}			
425+81	Lt	Hwy 44/447th Ave. Rural Street	1{PT}			
426+70	Rt	East Highway 44	1{W}			
427+28	Rt	Mileage Reference Marker	1{U}			
427+31	Rt	Object Marker	1{U}			
427+44	Lt	Object Marker	1{U}			
427+82	Rt	Chad Mechels Memorial Hwy	1{W}			

PROJECT TOTALS:	38	17	17	6

Flexible Delineators shall be Yellow in color to match existing delineators.

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

* -Number and type-[{U}-Channel {W}ood {L}-Luminaire {P}ipe {PF} Pipe on Footing {2PF} Two Pipe on Footing {PT} Perforated Tube {S} Signal Pole {WU} Wood Utility {2I} Two I-Beam]-of support(s).

SIGN INSTALLATION TABLE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	82	137

SIGN DATA							NEW POST DATA				
STATION	DESCRIPTION	SIGN CODE	SIGN SIZE (FT)	SIGN AREA (SqFt) TYPE XI	SIGN FACES	COMMENTS	POST LENGTHS ⁑ INSIDE	POST LENGTHS ⁑ OUTSIDE	FIXED OR BREAK-AWAY**	SIZE/QUANTITY (FT) 2.0" x 2.0" TUBE	
				632E3205						632E1320	
SD 34											
454+95 L		W14-3	4.0 X 4.0 X 3.0	5.6	West		11.0'		A	11.0	
488+45 R		W14-3	4.0 X 4.0 X 3.0	5.6	East		11.0'		A	11.0	
SD 115-254TH											
366+50 R		W14-3	4.0 X 4.0 X 3.0	5.6	North		11.0'		A	11.0	
SD 115-258TH											
149+70 R		W14-3	4.0 X 4.0 X 3.0	5.6	North		11.0'		A	11.0	
SD 11											
141+09 L		W14-3	4.0 X 4.0 X 3.0	5.6	North		11.0'		A	11.0	
172+04 R		W14-3	4.0 X 4.0 X 3.0	5.6	South		11.0'		A	11.0	
SD 44											
406+50 L		W14-3	4.0 X 4.0 X 3.0	5.6	West		11.0'		A	11.0	
441+75 R		W14-3	4.0 X 4.0 X 3.0	5.6	East		11.0'		A	11.0	
PH 0020(139) TOTALS :				44.8						88.0	

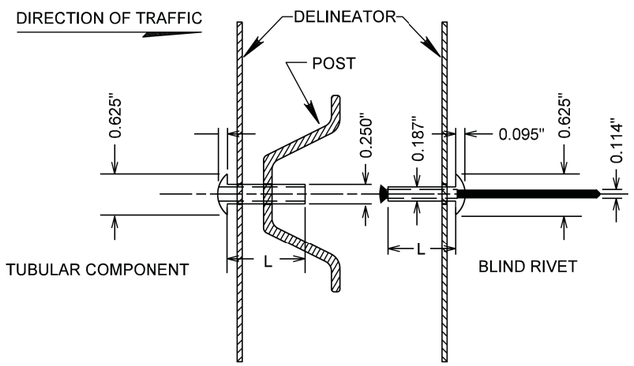
**- (F)ixed Base, or Breakaway (S)lip Base, (A)nchor Stub Post, (M)ulti-directional Surface Mount, (D)irect drive, or (W)ood Post.

⁑-Plan post lengths are estimates. The post lengths shall be field verified by Contractor.

DELINEATOR ERECTION DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	83	137

4" X 4" DELINEATORS MOUNTED BACK-TO-BACK

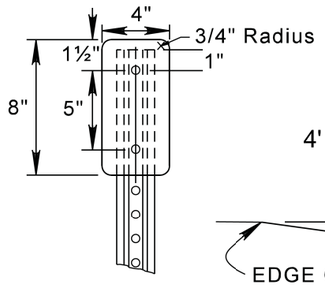


(L)ength varies with Grip Range of Rivet

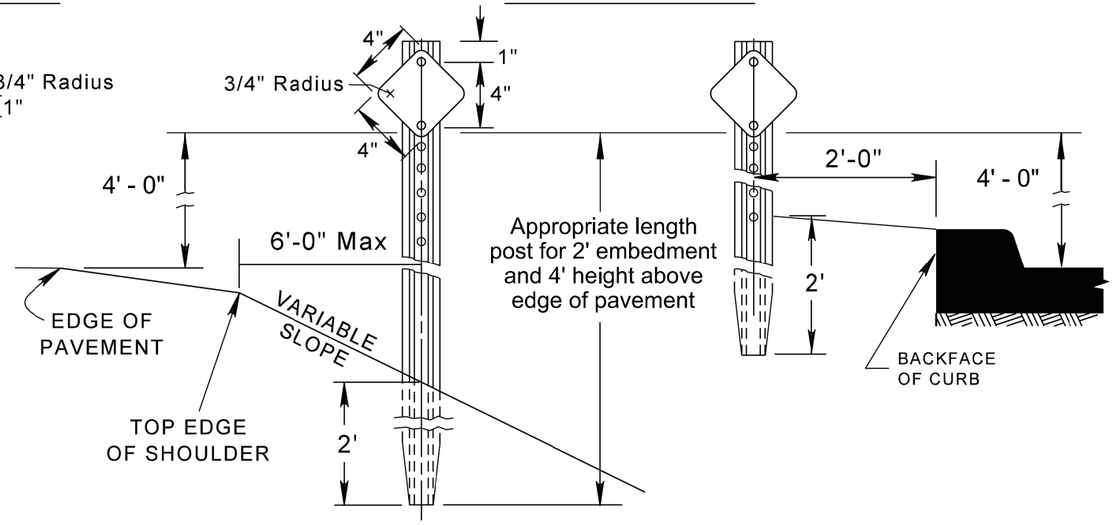
1/4" Two Piece Oval Head Blind Rivet with Aluminum Sleeve, Aluminum Mandrel,and Aluminum Tubular Component is shown. An alternative method of fastening, such as a two piece 3/16 rivet lock bolt, may be used if approved by the Engineer.

4"X 4" and 4"X 8" DELINEATORS

4"X 8" DELINEATOR

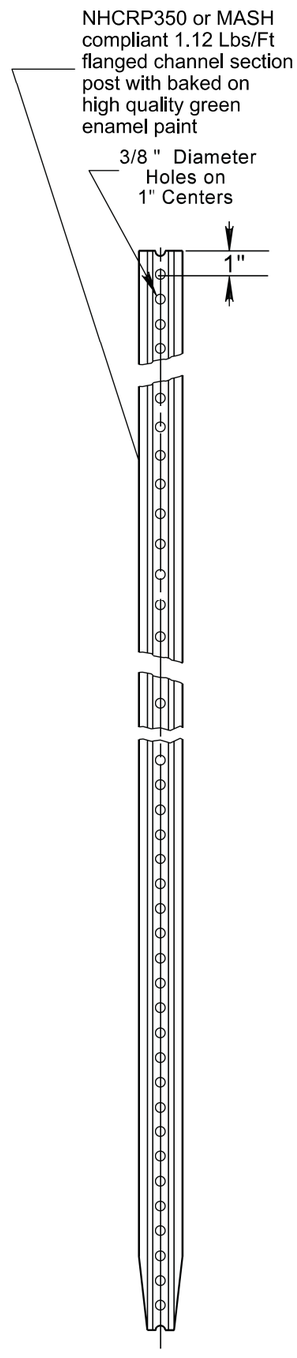


4"X 4" DELINEATOR



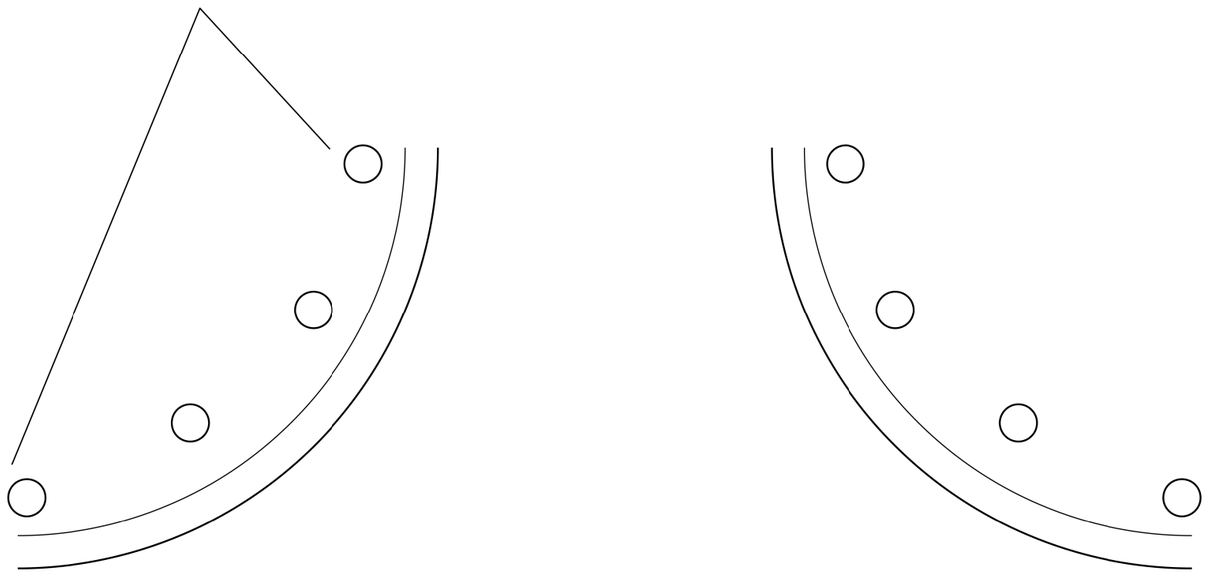
1/4 " Diameter Mounting Holes in all Delineators

POST DETAIL

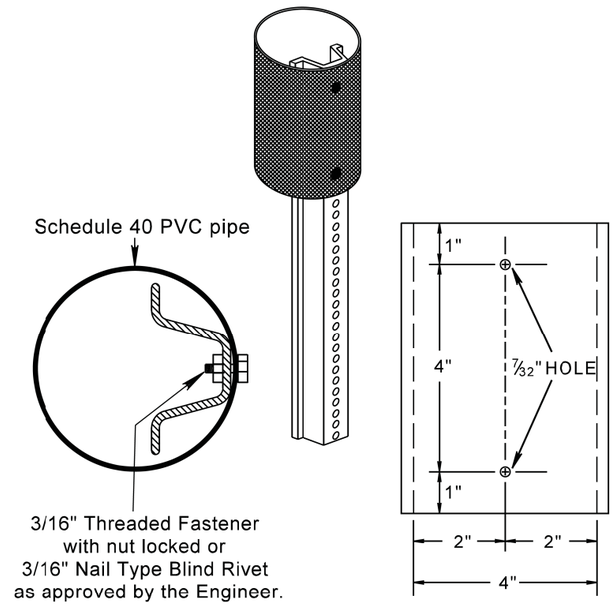


(TYPICAL)

4- 4" DIAMETER TUBULAR DELINEATORS EQUALLY SPACED AROUND RADIUS

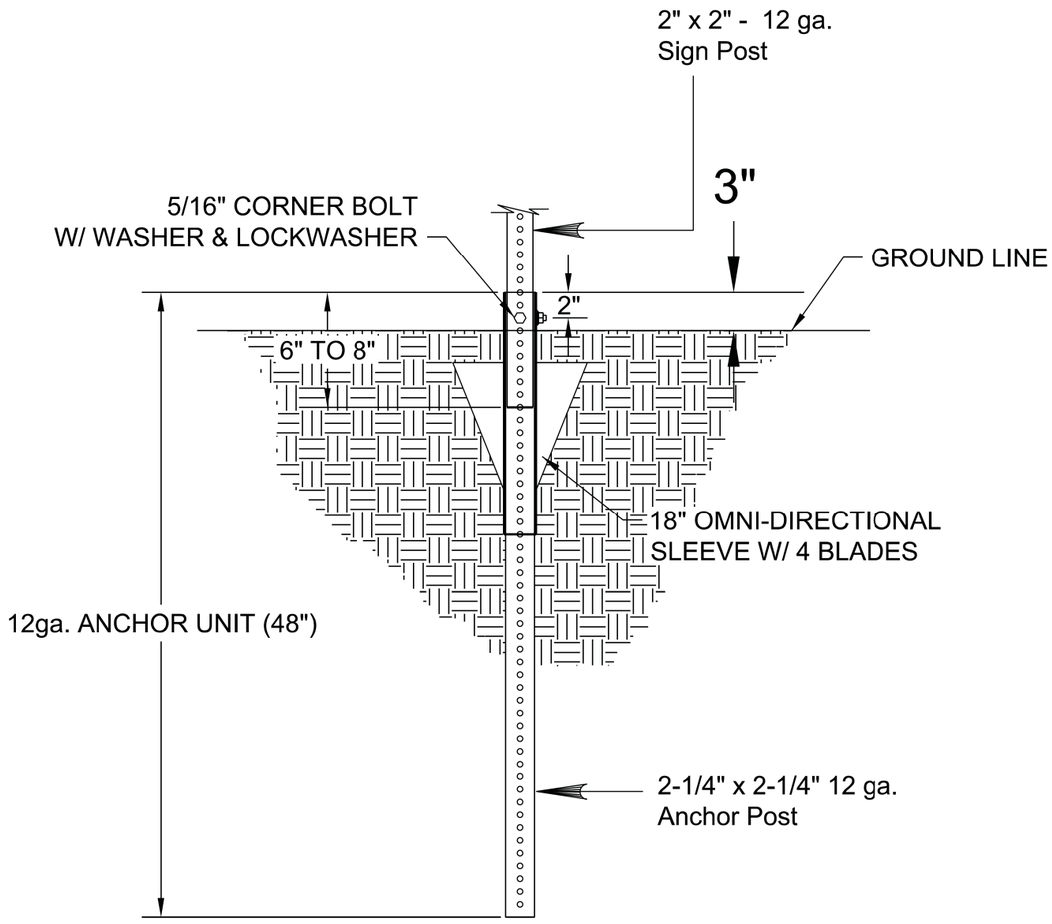


4" TUBULAR DELINEATOR MOUNTED ON POST



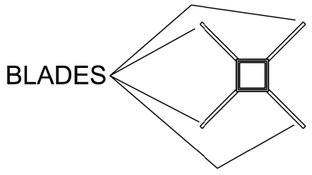
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	84	137

SQUARE TUBE
4 BLADE ANCHOR DETAIL



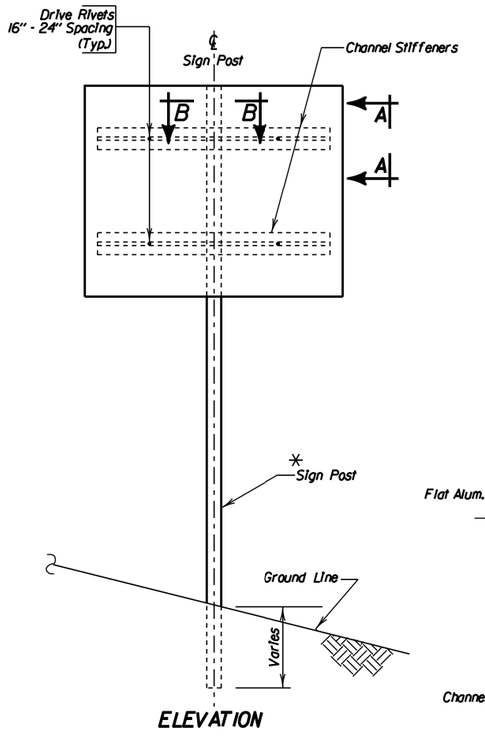
2-1/2" x 18" OMNI-ANCHOR SLEEVE
FOR SOIL STABILIZATION.

ANCHOR SLEEVE
TOP VIEW



2-1/2" x 18" 12 ga. Omni-Sleeve

ONE POST BREAKAWAY SIGN SUPPORTS



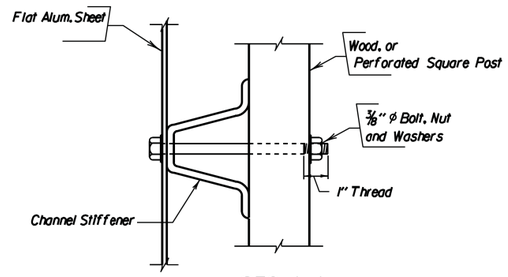
ELEVATION

ϕ A plastic washer, as recommended by the sheeting manufacturer, shall be installed between the sign face and the metal washer shown.

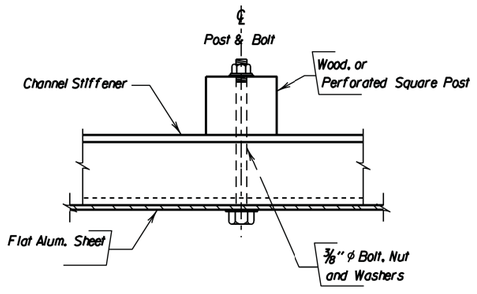
Height and lateral distance as recommended by latest edition of MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

* Single post installation shown. (See applicable Details or Standard Plates shown in these plans for multiple post spacing requirements.)

(Typical Sign and Stiffener Details)

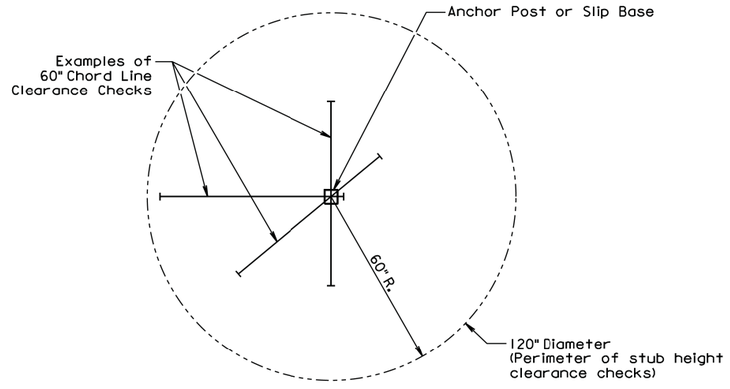


SEC. A-A

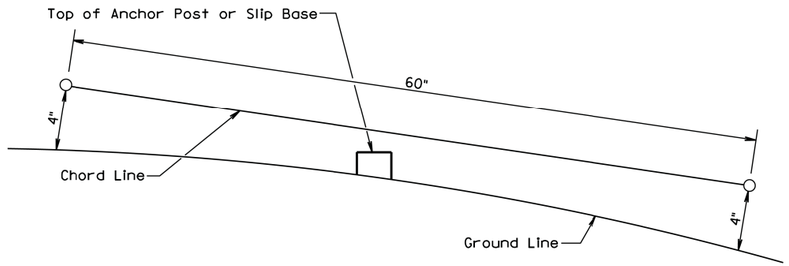


SEC. B-B

BREAKAWAY SUPPORT STUB CLEARANCE



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

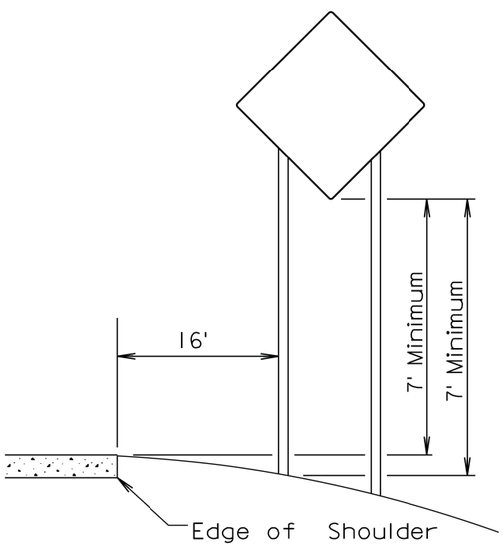
GENERAL NOTES:

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.

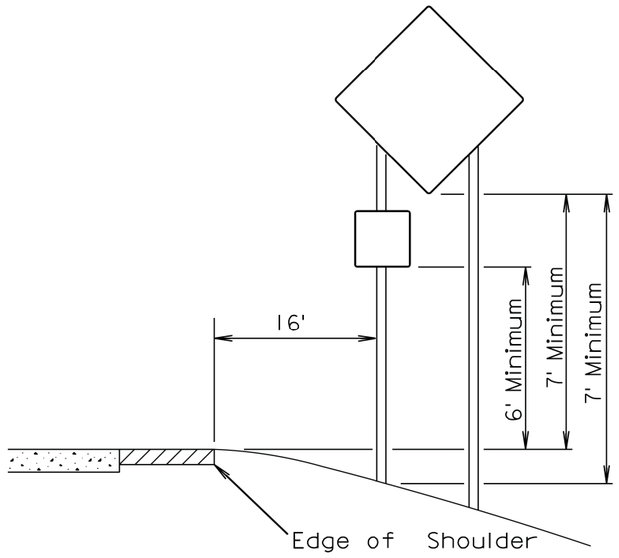
At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	86	137

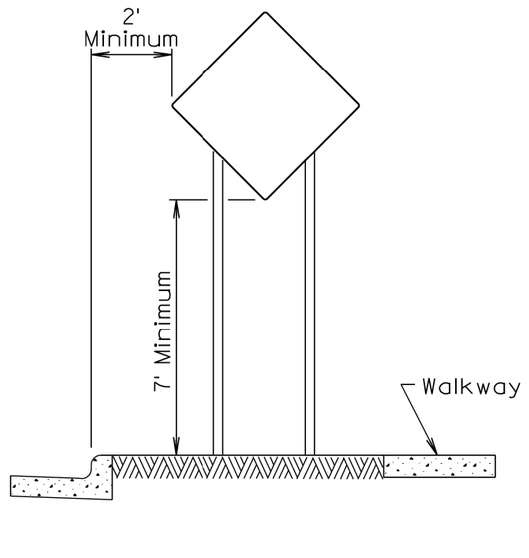
SIGN SUPPORTS
(Lateral Off–Sets)



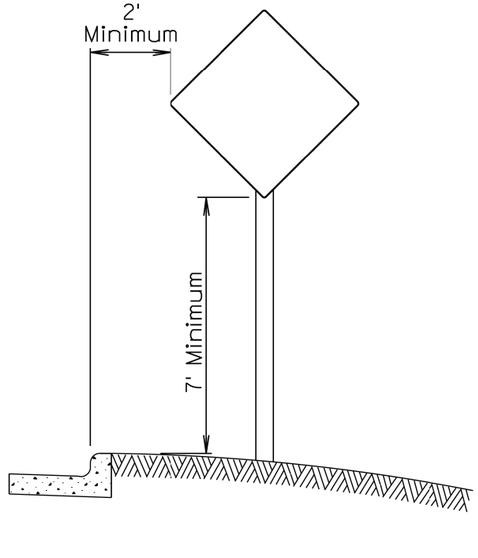
RURAL DISTRICT



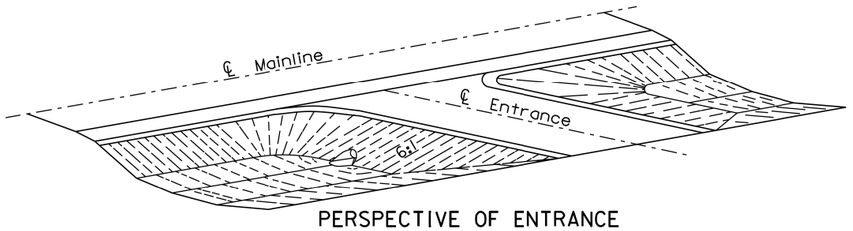
RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



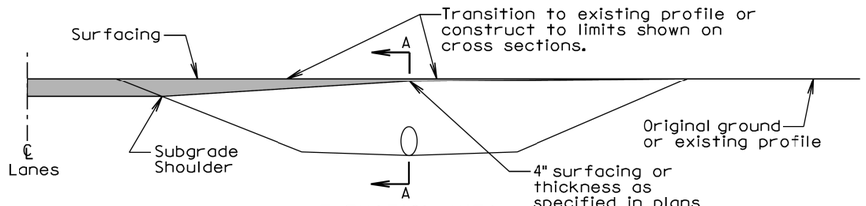
URBAN DISTRICT



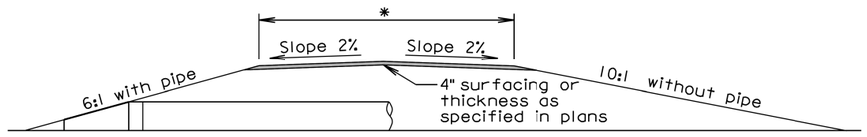
URBAN DISTRICT



PERSPECTIVE OF ENTRANCE



ELEVATION VIEW (ENTRANCE)



SECTION A-A (ENTRANCE)

*The finished surfacing width is stated elsewhere in the plans. The subgrade width is 4' wider than the finished surfacing width unless stated otherwise in the plans.

GENERAL NOTES:

The ditch section shown above in the perspective and elevation view is only for illustrative purposes.

A 6:1 inslope shall be constructed for an entrance when a pipe is required. A 10:1 inslope shall be constructed when a pipe is not required.

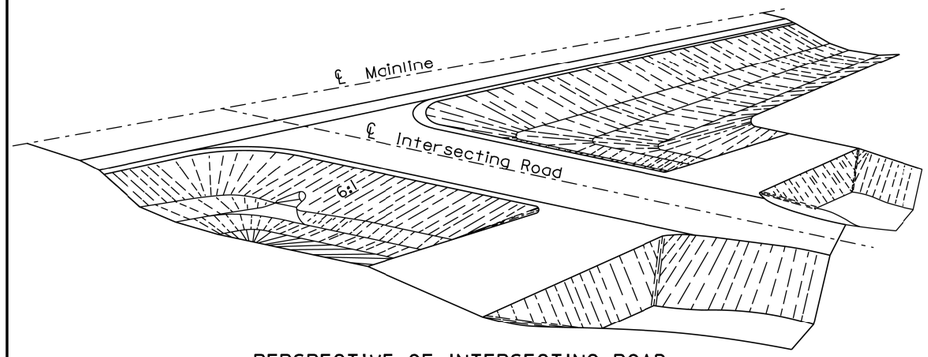
Pipe lengths shall be adjusted if necessary during construction to obtain the 6:1 slopes. For grading projects, the pipe lengths are estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

The transition area between the mainline inslope and the approach inslope for entrances shall be rounded to eliminate an abrupt transition.

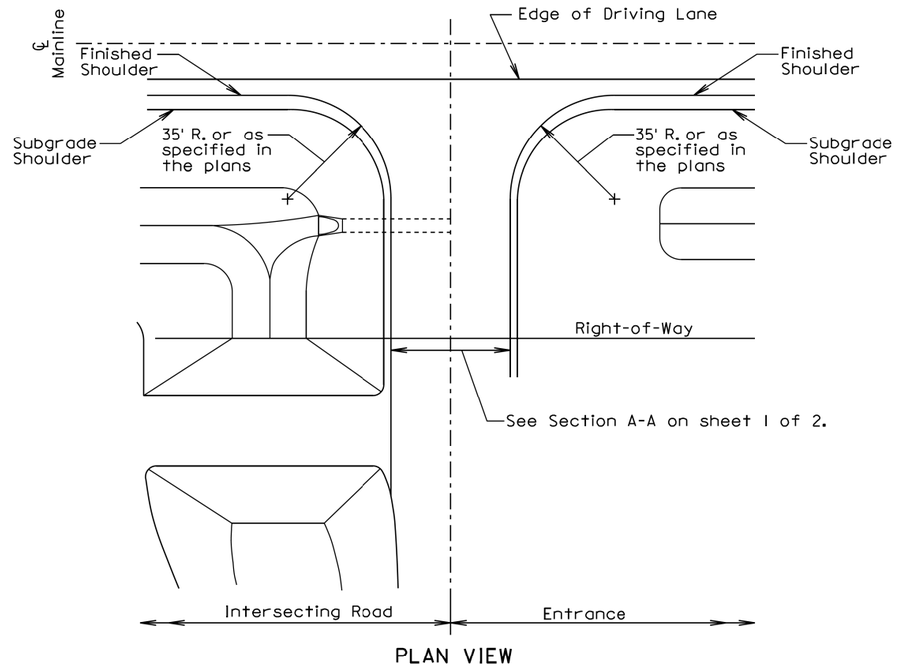
The turning radii shall be 35' for intersecting roads and entrances unless stated otherwise in the plans.

September 6, 2013

Published Date: 4th Qtr. 2015	SDDOT	***INTERSECTING ROADS AND ENTRANCES***	***PLATE NUMBER*** *120.01* *Sheet 1 of 2*



PERSPECTIVE OF INTERSECTING ROAD



PLAN VIEW

September 6, 2013

Published Date: 4th Qtr. 2015	SDDOT	***INTERSECTING ROADS AND ENTRANCES***	***PLATE NUMBER*** *120.01* *Sheet 2 of 2*

Published Date: 4th Qtr. 2015

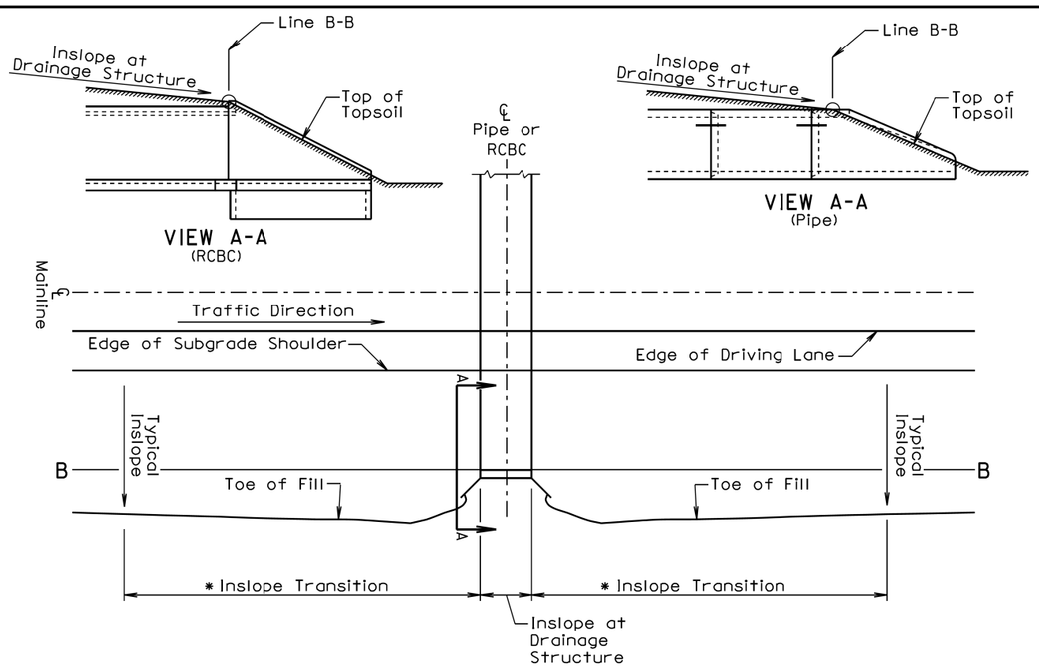
SDDOT

INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

PLATE NUMBER 120.05

Sheet 1 of 2

February 14, 2011



TYPE 1 INSLOPE TRANSITION

GENERAL NOTES:

This Type 1 Inslope Transition is used when the specified inslope at the drainage structure is flatter than the typical inslope and the inslope at the drainage structure is between a 4:1 slope and 6:1 slope.

Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from the typical inslope to the inslope at the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone shall be transitioned gradually to the slope necessary adjacent to the RCBC wing wall or pipe culvert end section within the transition length necessary for the transition within the clear zone.

Published Date: 4th Qtr. 2015

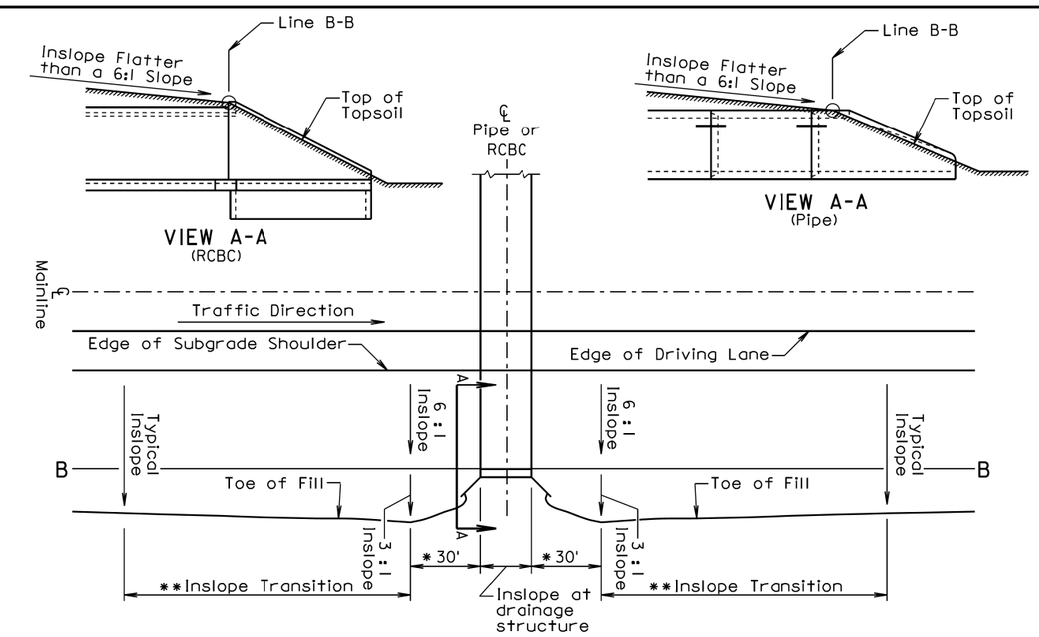
SDDOT

INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

PLATE NUMBER 120.05

Sheet 2 of 2

February 14, 2011



TYPE 2 INSLOPE TRANSITION

GENERAL NOTES:

This Type 2 Inslope Transition is used when the specified inslope at the pipe or RCBC is flatter than a 6:1 slope.

Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from inslope at drainage structure to a 6 : 1 inslope and 3:1 inslope.

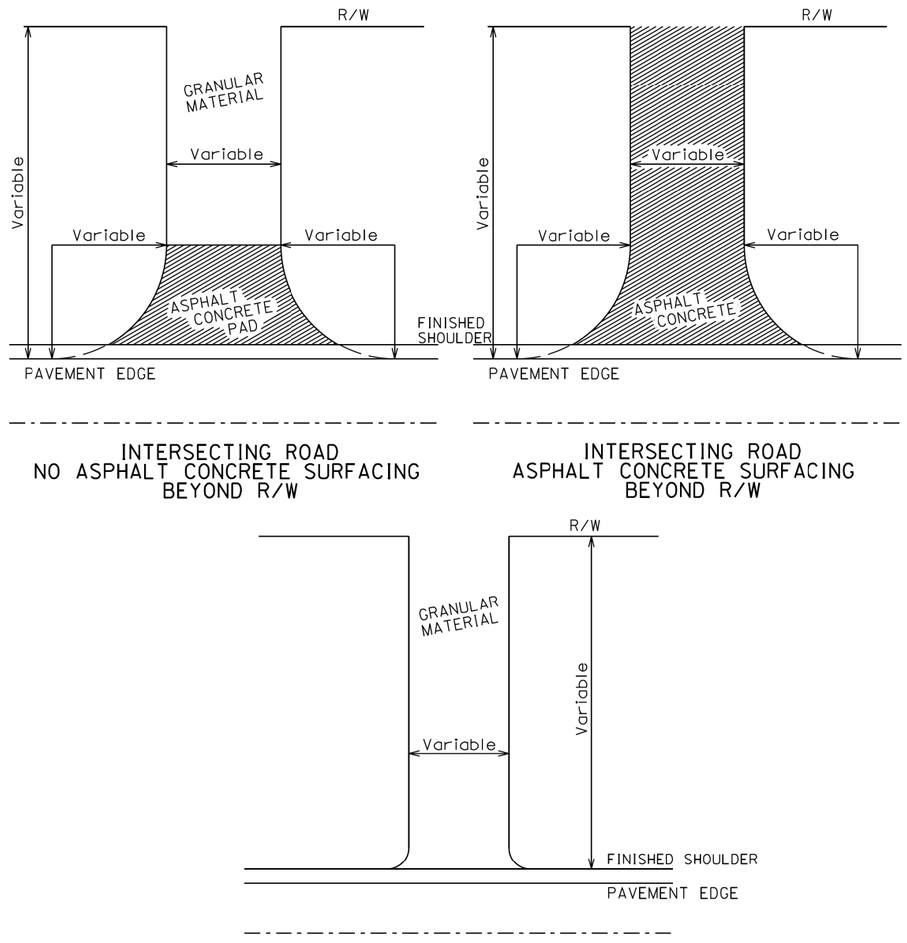
** Transition from typical inslope to the inslopes adjacent to the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone shall be transitioned to a 3:1 inslope within the transition length necessary for the transition within the clear zone.

STATE OF SOUTH DAKOTA

PROJECT PH 0020(139)

SHEET 88

TOTAL SHEETS 137



INTERSECTING ROAD
NO ASPHALT CONCRETE SURFACING
BEYOND R/W

INTERSECTING ROAD
ASPHALT CONCRETE SURFACING
BEYOND R/W

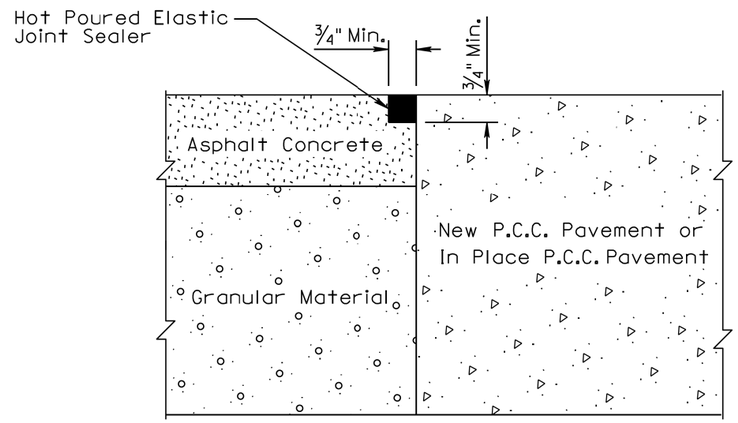
ENTRANCE

The surfacing details shown on this sheet are provided as a guide for surfacing these facilities. The precise construction limits for situations other than the standards shown will be determined by the Engineer, at the time of construction.

ROADWAY WITH SHOULDER

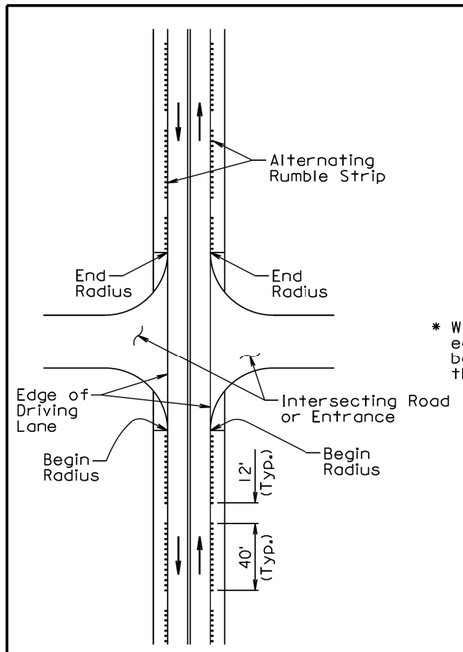
March 31, 2000

Published Date: 4th Qtr. 2015	SDDOT	RESURFACING OF INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 320.11
			Sheet 1 of 1

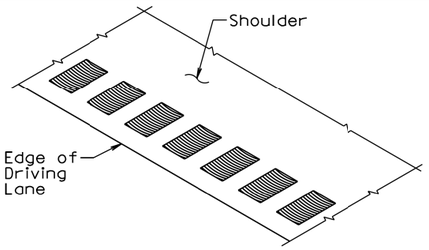


March 31, 2000

Published Date: 4th Qtr. 2015	SDDOT	ASPHALT CONCRETE SHOULDER JOINT ADJACENT TO PCC PAVEMENT	PLATE NUMBER 320.15
			Sheet 1 of 1

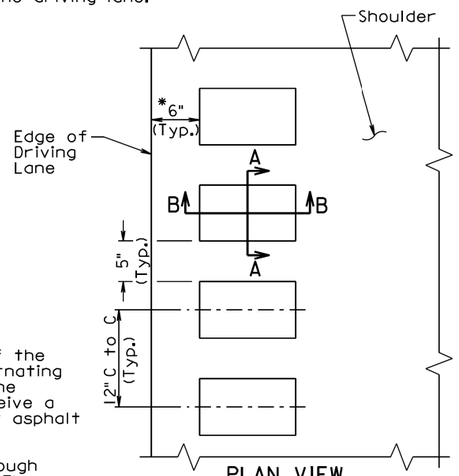


PLAN VIEW

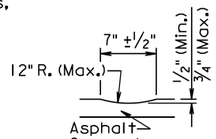


PERSPECTIVE OF TYPICAL
RUMBLE STRIP IN ASPHALT CONCRETE

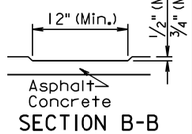
* When PCC pavement width from centerline to edge of pavement is 12', the rumble strip may be placed a maximum of 2' from the edge of the driving lane.



PLAN VIEW
TYPICAL RUMBLE STRIP
IN ASPHALT CONCRETE



SECTION A-A



SECTION B-B

GENERAL NOTES:

A rumble strip shall be constructed on all of the asphalt concrete shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble strip shall receive a flush seal with the shoulder flush sealing or asphalt surface treatment.

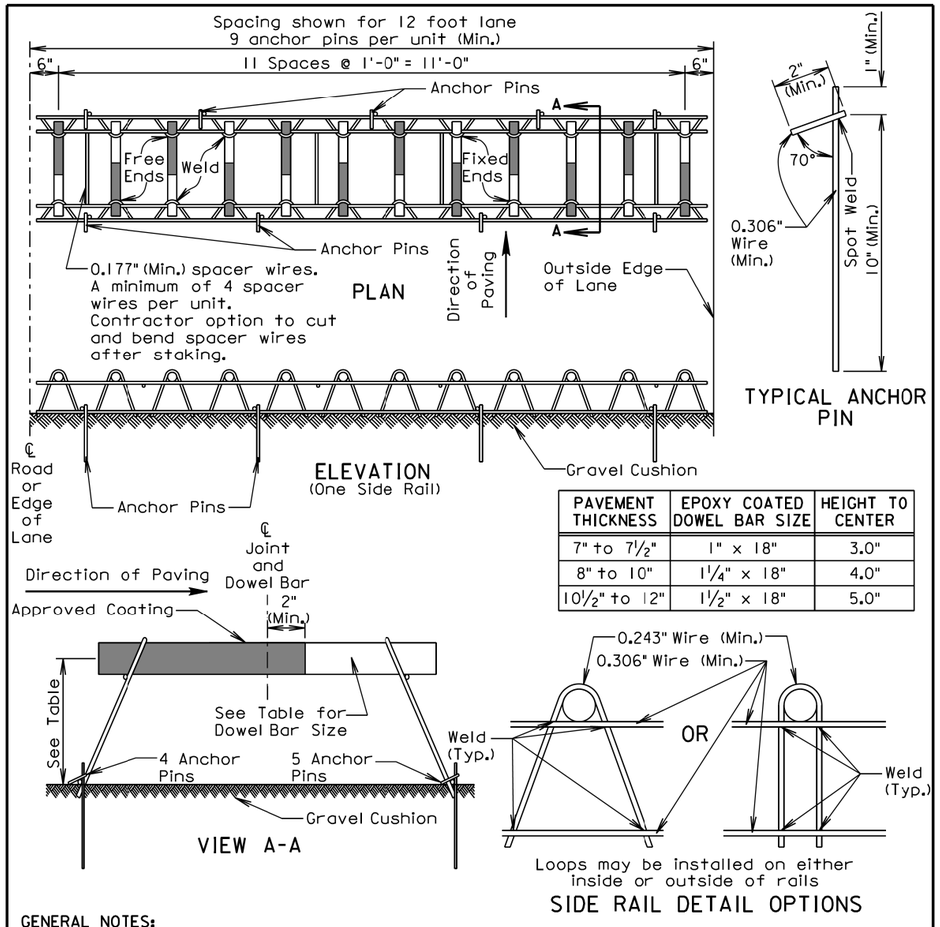
A rumble strip shall not be constructed through intersecting roads, entrances, and turnouts. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble strip adjacent to the intersecting roads, entrances, and turnouts shall be adjusted as approved by the Engineer.

Prior to constructing the rumble strip the Contractor shall submit to the Engineer, for approval, the proposed method of constructing the rumble strip.

Measurement of the rumble strip shall be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble strip shall include the 12' long segments without rumble strips and the segments adjacent to the intersecting roads, entrances, and turnouts without rumble strips. Payment for constructing the rumble strip shall be at the contract unit price per mile for "Grind 12" Rumble Strip or Stripe in Asphalt Concrete".

June 26, 2011

Published Date: 4th Qtr. 2015	SDDOT	12" RUMBLE STRIP IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.24
			Sheet 1 of 1



TYPICAL ANCHOR PIN

PAVEMENT THICKNESS	EPOXY COATED DOWEL BAR SIZE	HEIGHT TO CENTER
7" to 7½"	1" x 18"	3.0"
8" to 10"	1¼" x 18"	4.0"
10½" to 12"	1½" x 18"	5.0"

SIDE RAIL DETAIL OPTIONS

GENERAL NOTES:

Longitudinal joint tie bars shall be placed a minimum of 15 inches from the transverse contraction joint.

Centerline of individual dowel bars shall be parallel to top of subgrade ±1/8 inch in 18 inches and to all other dowel bars in the assembly ±1/16 inch in 18 inches.

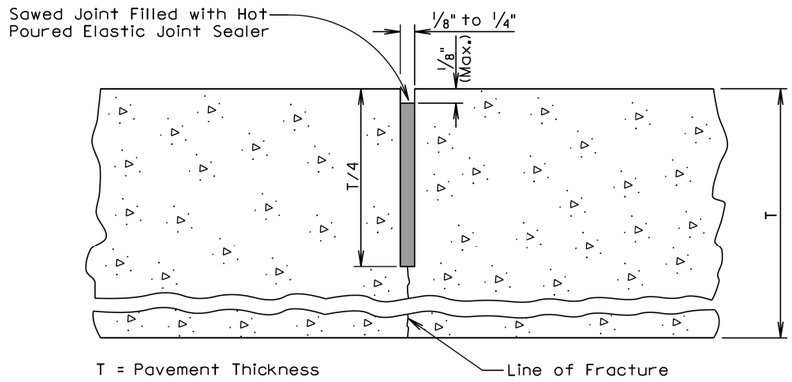
Centerline of individual dowel bars shall be parallel to the centerline of the roadway ±1/2 inch in 18 inches.

The transverse contraction joints shall be sawed perpendicular to the centerline of the roadway and the dowel bars shall be centered on the sawed joint ±1 inch.

Supporting devices as shown on this sheet, or equivalent as approved by the Engineer, shall be used to maintain proper horizontal and vertical alignment of the dowel bars.

August 30, 2013

Published Date: 4th Qtr. 2015	SDDOT	PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 12 Bar Assembly on Granular Base Material	PLATE NUMBER 380.01
			Sheet 1 of 1



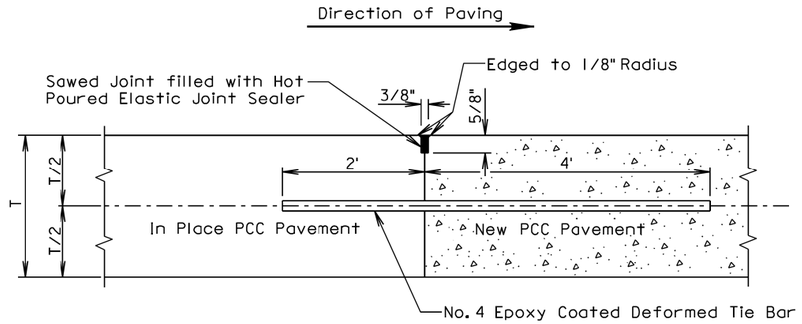
GENERAL NOTES:

If an early entrance sawcut does not develop the full transverse crack, then the saw cut to control cracking shall be a minimum of 1/4 the thickness of the pavement.

All hot poured elastic joint sealer material spilled on the surface of the concrete pavement shall be removed as soon as the material has cooled. The extent of removal of material shall be to the satisfaction of the Engineer. All costs for removal of the spilled joint sealer material shall be borne by the Contractor.

June 26, 2015

Published Date: 4th Qtr. 2015	SDDOT	PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.05
			Sheet 1 of 1



T = Pavement Thickness

GENERAL NOTES:

No. 4 epoxy coated deformed tie bars shall be spaced 12 inches center to center and shall be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

The minimum distance between a transverse construction joint with tie bars and an adjacent transverse contraction joint shall be 5 feet.

When a transverse construction joint is made, paving will not be allowed in this area for 12 hours.

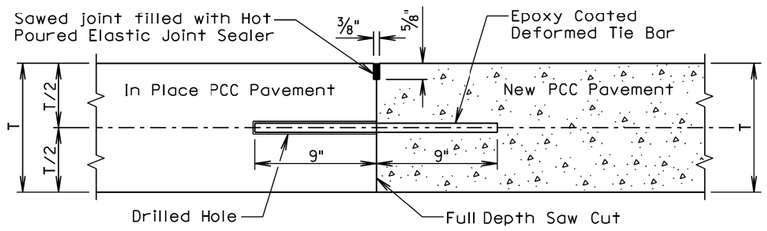
A transverse construction joint may be placed in lieu of the transverse contraction joint when shown in the plans.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on the current project.

June 26, 2013

Published Date: 4th Qtr. 2015	SDDOT	PCC PAVEMENT MID PANEL TRANSVERSE CONSTRUCTION JOINT	PLATE NUMBER 380.07
			Sheet 1 of 1

DETAIL A
TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

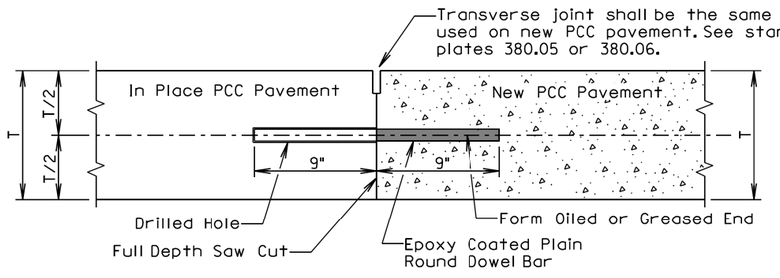
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

See sheet 2 of 2 of this standard plate to determine if Detail A shall be used.

The tie bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

No. 9 epoxy coated deformed tie bars shall be used in 10 inch thickness and less PCC Pavement and No. 11 epoxy coated deformed tie bars shall be used in 10.5 inch thickness and greater PCC Pavement. The tie bar spacing shall be 18 inches center to center and shall be a minimum of 3 inches and a maximum of 9 inches from the pavement edges.

DETAIL B
TRANSVERSE CONSTRUCTION JOINT WITH DOWEL BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

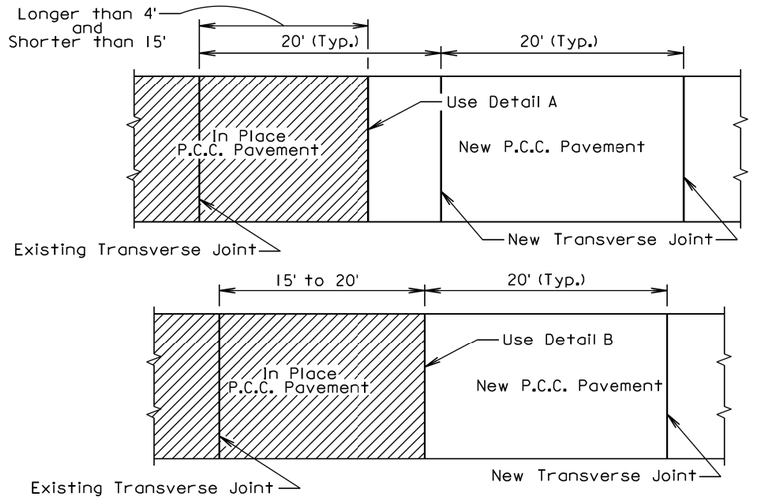
See sheet 2 of 2 of this standard plate to determine if Detail B shall be used.

The plain round dowel bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

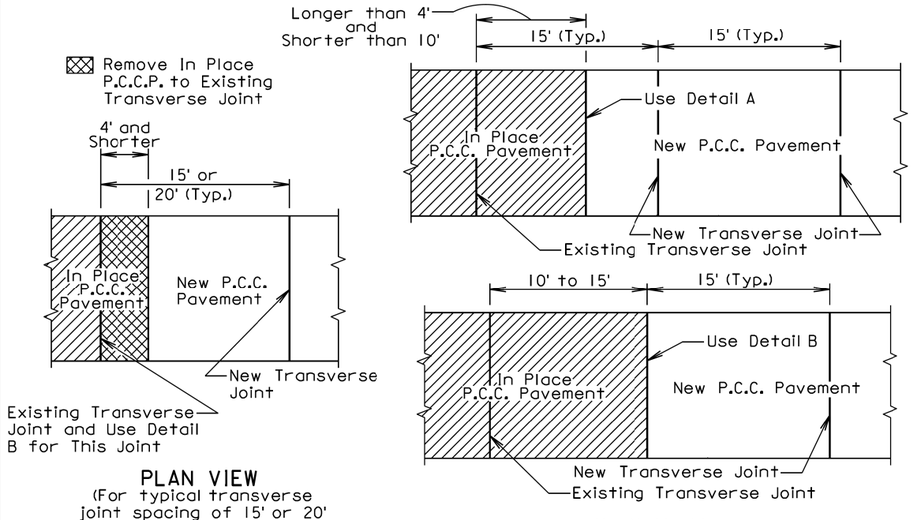
The epoxy coated plain round dowel bar size, number, and spacing shall be the same as detailed on the corresponding dowel bar assembly standard plate (380.01, 380.02, 380.03, or 380.04). The epoxy coated plain round dowel bars shall be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

September 6, 2013

Published Date: 4th Qtr. 2015	SDDOT	***PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS***	*PLATE NUMBER* 380.08 *Sheet 1 of 2*



PLAN VIEW
(For typical transverse joint spacing of 20' on the current project)



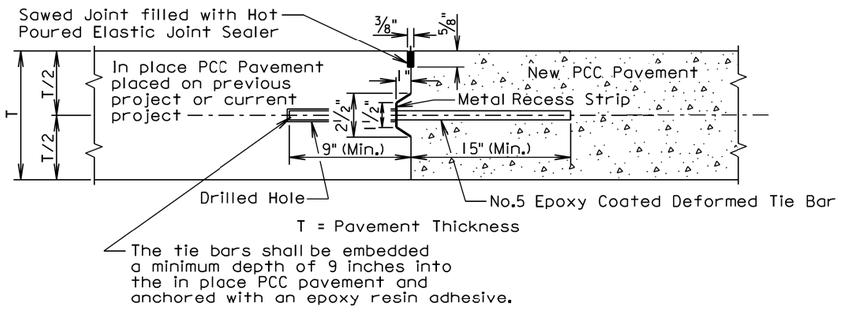
PLAN VIEW
(For typical transverse joint spacing of 15' or 20' on the current project)

PLAN VIEW
(For typical transverse joint spacing of 15' on the current project)

September 6, 2013

Published Date: 4th Qtr. 2015	SDDOT	***PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS***	*PLATE NUMBER* 380.08 *Sheet 2 of 2*

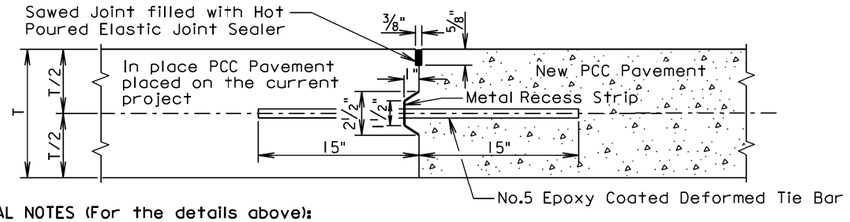
LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(DRILLED IN BARS)



T = Pavement Thickness

The tie bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(INSERTED OR FORMED IN BARS)



GENERAL NOTES (For the details above):

The epoxy coated deformed tie bars shall be spaced in accordance with the following tables:

Tie Bar Spacing 48" Maximum	
Transverse Contraction Joint Spacing	Number of Tie Bars
6.5' to 10'	2
10.5' to 14'	3
14.5' to 18'	4
18.5' to 22'	5

Tie Bar Spacing 30" Maximum	
Transverse Contraction Joint Spacing	Number of Tie Bars
5' to 7'	2
7.5' to 9.5'	3
10' to 12'	4
12.5' to 14.5'	5
15' to 17'	6
17.5' to 19.5'	7
20' to 22'	8

The tie bars shall be placed a minimum of 15 inches from transverse contraction joints.

The required number of tie bars as shown in the table shall be uniformly spaced within each panel. The uniformly spaced tie bars shall be spaced a maximum of 48 inches center to center for a female keyway and shall be spaced a maximum of 30 inches center to center for a vertical face and male keyway. The maximum tie bar spacing shall apply to tie bars within each panel.

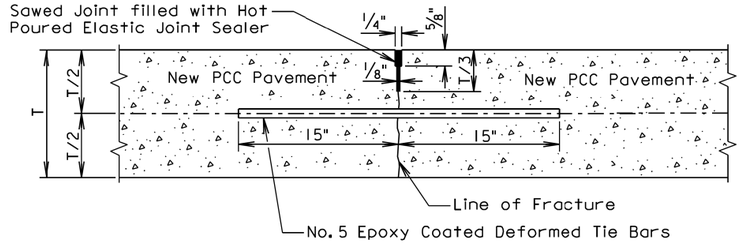
The keyway illustrated in the above details depict a female keyway.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

August 31, 2013

Published Date: 4th Qtr. 2015	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10
			Sheet 1 of 2

SAWED LONGITUDINAL JOINT WITH TIE BARS
(POURED MONOLITHICALLY)



T = Pavement Thickness

GENERAL NOTES (For the detail above):

The epoxy coated deformed tie bars shall be spaced in accordance with the following table:

Tie Bar Spacing 48" Maximum	
Transverse Contraction Joint Spacing	Number of Tie Bars
6.5' to 10'	2
10.5' to 14'	3
14.5' to 18'	4
18.5' to 22'	5

The tie bars shall be placed a minimum of 15 inches from the transverse contraction joints.

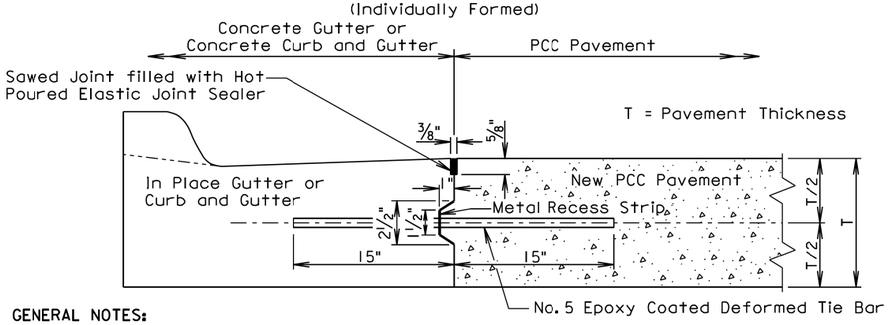
The required number of tie bars as shown in the table shall be uniformly spaced within each panel with a maximum space of 48 inches center to center. The maximum tie bar spacing shall apply to tie bars within each panel.

The first saw cut to control cracking shall be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer is necessary.

August 31, 2013

Published Date: 4th Qtr. 2015	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10
			Sheet 2 of 2

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(Individually Formed)



GENERAL NOTES:

No. 5 epoxy coated deformed tie bars shall be spaced 48 inches center to center. The keyway shown above is a female keyway.

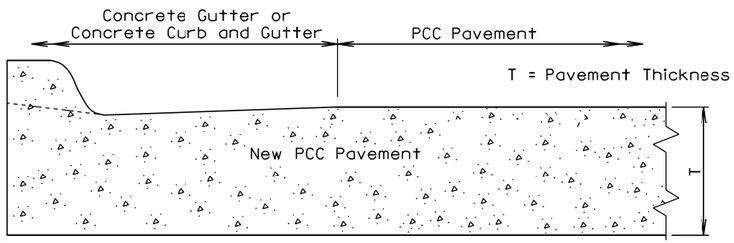
The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

The transverse contraction joints in the concrete gutter or concrete curb and gutter shall be placed at each mainline PCC pavement transverse contraction joint. The transverse contraction joints in the concrete gutter or the concrete curb and gutter shall be 1½ inches deep if formed in fresh concrete using a suitable grooving tool. If a saw is used to cut the transverse contraction joints, then the depth of the joint shall be at least ¼ the thickness of the concrete gutter or concrete curb and gutter.

The term "In Place Gutter or Curb and Gutter" in the above drawing indicates that the in place concrete gutter and concrete curb and gutter was placed on the current project.

POURED MONOLITHICALLY



GENERAL NOTES:

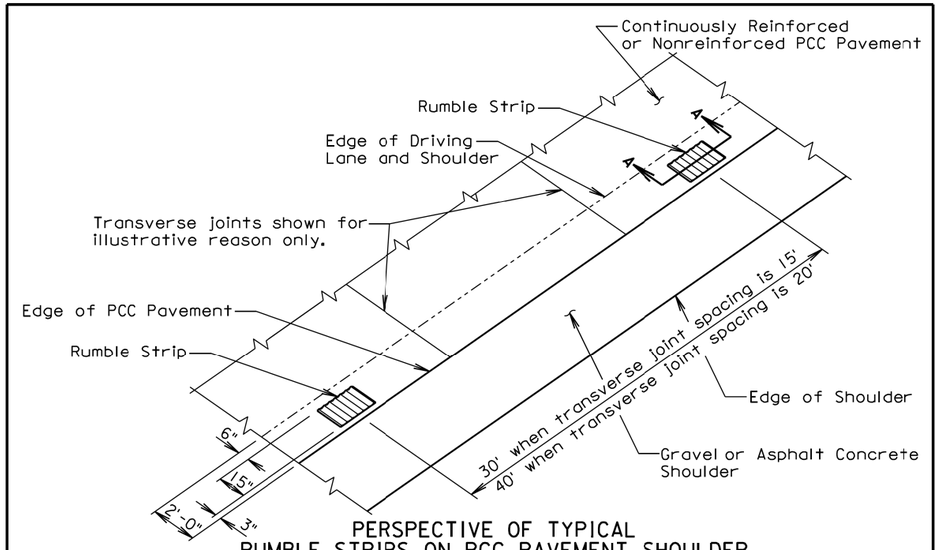
The mainline curb and gutter may be placed monolithically with the PCC pavement if the mainline lane width is less than or equal to 12 feet. If this method of construction is used, the tie bars and the sawed joint between the curb and gutter and the PCC pavement shall be eliminated.

The gutter or curb and gutter shall be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter shall be sawed and sealed same as the transverse contraction joints in the PCC pavement.

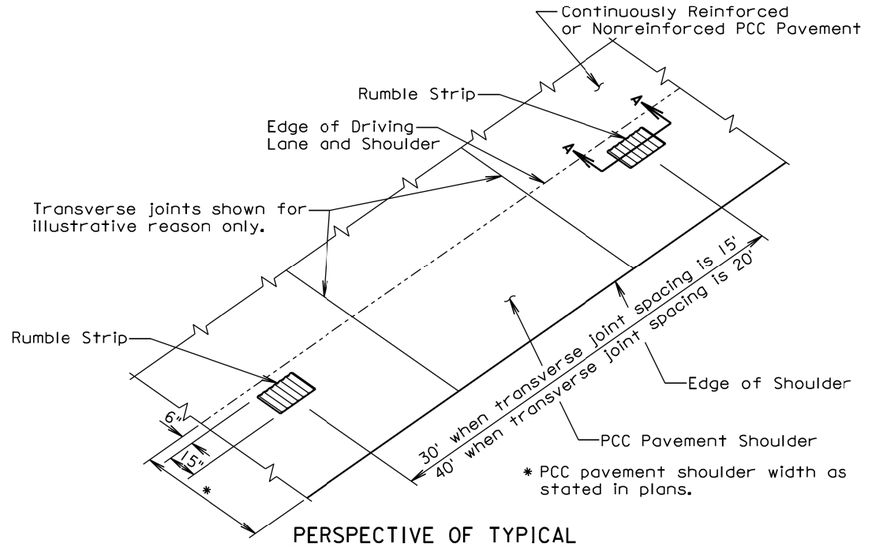
The slope of the gutter shall be the slope designated for the type of gutter or curb and gutter to be constructed. The bottom slope of the gutter or curb and gutter shall be constructed at the same slope as the mainline concrete pavement.

June 26, 2013

Published Date: 4th Qtr. 2015	SDDOT	PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER	PLATE NUMBER 380.11
			Sheet 1 of 1



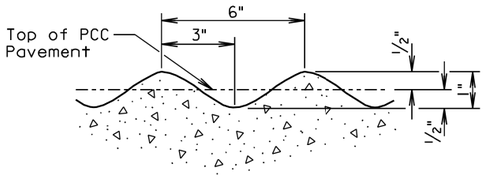
PERSPECTIVE OF TYPICAL
RUMBLE STRIPS ON PCC PAVEMENT SHOULDER
ADJACENT TO GRAVEL OR ASPHALT CONCRETE SHOULDER



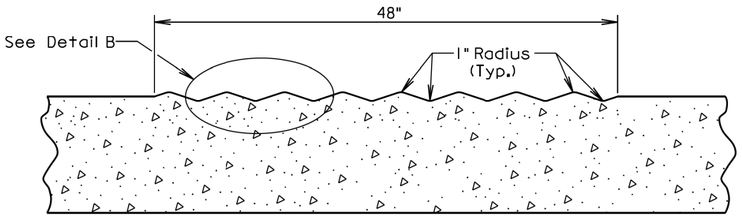
PERSPECTIVE OF TYPICAL
RUMBLE STRIPS ON PCC PAVEMENT SHOULDER

August 31, 2013

Published Date: 4th Qtr. 2015	SDDOT	RUMBLE STRIP ON PCC PAVEMENT SHOULDER	PLATE NUMBER 380.15
			Sheet 1 of 2



DETAIL B



SECTION A-A

GENERAL NOTES:

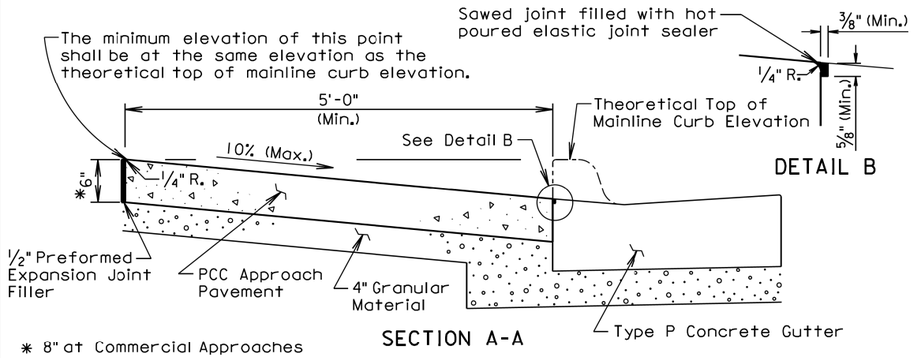
The rumble strips shall be evenly spaced and shall not coincide with any transverse contraction joints.

The rumble strips shall NOT be placed along areas adjacent to entrance ramps, exit ramps, and gore areas.

Payment for constructing the PCC Pavement Rumble Strips shall be incidental to the contract unit price per square yard for the corresponding PCC Pavement bid item.

August 31, 2013

Published Date: 4th Qtr. 2015	SDDOT	RUMBLE STRIP ON PCC PAVEMENT SHOULDER	PLATE NUMBER 380.15
			Sheet 2 of 2



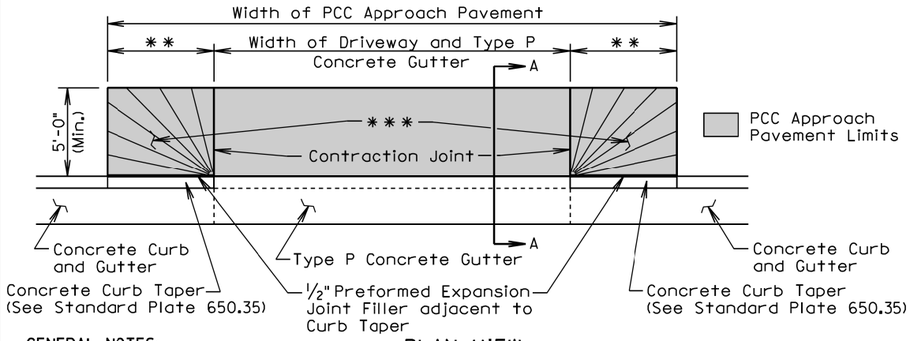
DETAIL B

SECTION A-A

* 8" at Commercial Approaches

** Width for 6" high curb is 6' (See Standard Plate 650.35)

*** Within these areas, the surface of the type A PCC approach pavement shall be sloped transitionally as approved by the Engineer.



PLAN VIEW

GENERAL NOTES:

The concrete for the type A PCC approach pavement and adjacent driveway shall comply with the requirements of the Specifications for class M6 concrete unless otherwise stated in the plans.

Contraction joints in the type A PCC approach pavement shall be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint shall be at least 1/4 the thickness of the approach pavement. Additional contraction joints not shown in the Plan View shall be spaced as follows:

One joint at the center of the approach for driveways 16' to 24' wide.
Two joints spaced at equal intervals for driveways greater than 24' to 40' wide.

All costs for furnishing and placing the type A PCC approach pavement and constructing the expansion and contraction joints including labor, equipment, and materials including the earthen backfill shall be incidental to the contract unit price per square yard for the corresponding PCC Approach Pavement bid item.

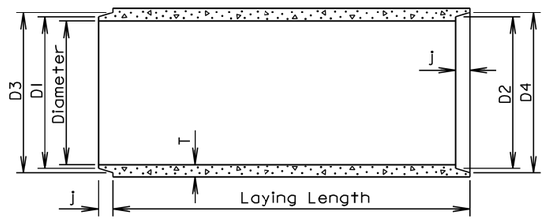
All costs for excavation required for placing the type A PCC approach pavement and granular material shall be incidental to the contract unit price per cubic yard for "Unclassified Excavation". All costs for furnishing and placing the granular material shall be incidental to the contract unit price per ton for the corresponding granular material bid item.

June 26, 2015

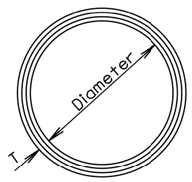
Published Date: 4th Qtr. 2015	SDDOT	TYPE A PCC APPROACH PAVEMENT	PLATE NUMBER 380.40
			Sheet 1 of 1

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:

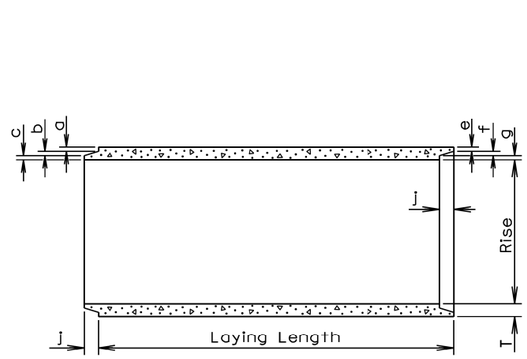
Construction of R. C. P. shall conform to the requirements of Section 990 of the Specifications.

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.

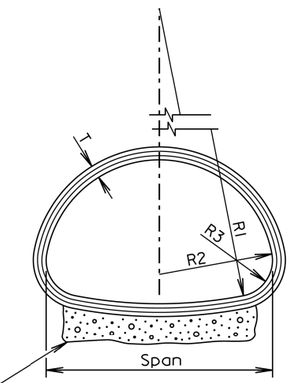
Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	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: 4th Qtr. 2015	SDDOT	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
			Sheet 1 of 1



LONGITUDINAL SECTION



END VIEW

TOLERANCES IN DIMENSIONS

Radial dimensions at joints: ± 1/8" for 65" span or less and ± 1/4" for longer spans.
Rise and Span: ±2% of tabular values.
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".

Gravel Bedding Material shall be supplied for 102" to 169" spans. It shall be placed to a thickness of 6" (Min.) x 85% of the Span x Length of culvert and shall conform to the gradation requirements for gravel surfacing except material may be screened or may be plan provided material.

* Size (in.)	Approx. Wt./Ft. (lb.)	Rise (in.)	Span (in.)	T (in.)	a (in.)	b (in.)	c (in.)	j (in.)	e (in.)	f (in.)	g (in.)	R1 (in.)	R2 (in.)	R3 (in.)
18	170	13 1/2	22	2 1/2	1 3/8	3/8	3/4	2	1 1/8	3/8	1	27 1/2	13 3/4	5 1/4
24	320	18	28 1/2	3 1/2	1 5/8	1/2	1 3/8	3	1 3/8	1/2	1 5/8	40 11/16	14 3/4	4 5/8
30	450	22 1/2	36 1/4	4	1 13/16	5/8	1 9/16	3 1/2	1 9/16	5/8	1 13/16	51	18 3/4	6 1/8
36	600	26 5/8	43 3/4	4 1/2	2	3/4	1 3/4	4	1 3/4	3/4	2	62	22 1/2	6 1/2
42	740	31 5/16	51 1/8	4 1/2	2	3/4	1 3/4	4	1 3/4	3/4	2	73	26 1/4	7 3/4
48	890	36	58 1/2	5	2 1/4	3/4	2	5	2	3/4	2 1/4	84	30	8 7/8
54	1100	40	65	5 1/2	2 1/2	3/4	2 1/4	5	2 1/4	3/4	2 1/2	92 1/2	33 3/8	10
60	1400	45	73 1/2	6	3 5/16	3/4	1 15/16	5	2 3/4	3/4	2 1/2	105	37 1/2	11
72	1900	54	88	7	3 13/16	1	2 3/16	6	3 1/4	1	2 3/4	126	45	13 5/16
84	2500	62	102	8	4 1/8	1	2 7/8	6	3 1/2	1	3 1/2	162 1/2	52	14 1/2
96	3300	78	122 3/8	9	4 1/2	1	3 1/2	7	4	1	4	218	62	20
108	4200	88	138 1/2	10	5	1	4	7	4 1/2	1	4 1/2	269	70	22
120	5100	96 7/8	154	11	5 1/2	1	4 1/2	7	5	1	5	301 3/8	78	24
132	5100	106 1/2	168 3/4	10		1	4	7	4 1/2	1	4 1/2	329	85 5/8	26 7/8

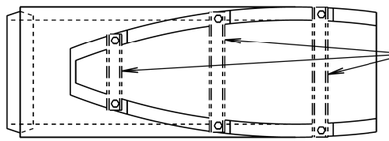
* Equivalent Diameter of Circular R. C. P.

GENERAL NOTES:

Construction of R.C.P. Arch 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.

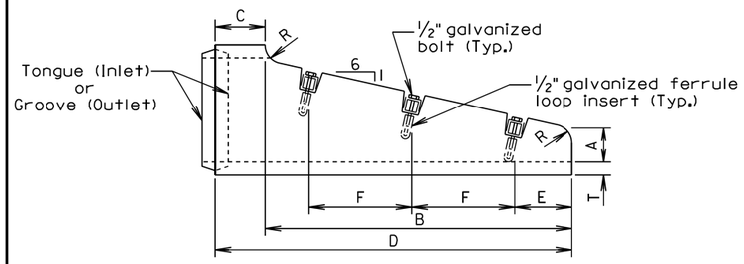
June 26, 2015

Published Date: 4th Qtr. 2015	SDDOT	REINFORCED CONCRETE PIPE ARCH	PLATE NUMBER 450.02
			Sheet 1 of 1

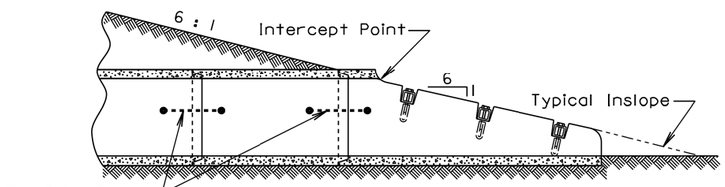


If bars are specified in the plans then provide HSS 2.5X2.5X.1875 Structural Steel Tubing in conformance with ASTM A500, Grade B or 3" Diameter Schedule 40 Pipe in conformance with ASTM A53, Grade B.

TOP VIEW



SIDE VIEW



ELEVATION VIEW

Dia. (in.)	T (in.)	R (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	No. Sections	No. Bars
FOR CIRCULAR PIPE										
15	2 1/4	3	6	48	9	57	6	18	1	3
18	2 1/2	3	6	69	9	78	9	24	1	3
*24	3	3	6	111	9	120	6	24	1 or 2	5
FOR ARCH PIPE										
**18	2 1/2	1	6	39	33	72	6	24	1	2

*The use of 2 sections must be an approved design.
**Equivalent Diameter of Circular R. C. P.

GENERAL NOTES:

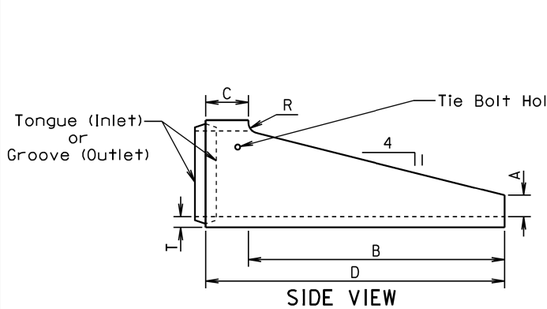
The length of concrete pipe shown on the plans is between safety ends.

Safety ends without bars are acceptable with or without the bar notches.

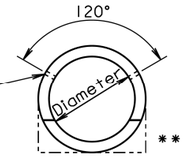
Bars shall be galvanized after fabrication in accordance with ASTM A123.

August 31, 2013

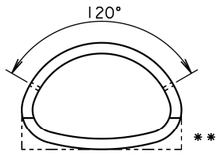
Published Date: 4th Qtr. 2015	SDDOT	R. C. P. SAFETY ENDS WITH OR WITHOUT BARS	PLATE NUMBER 450.12
			Sheet 1 of 1



SIDE VIEW



END VIEW "CIRCULAR"



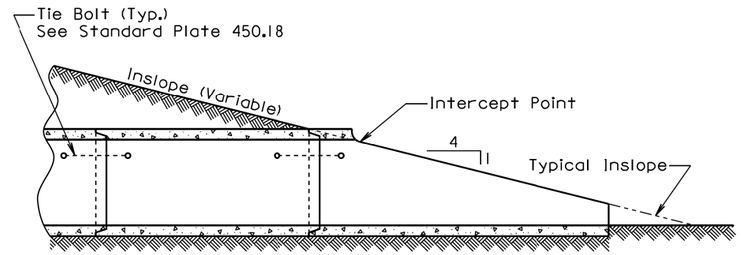
END VIEW "ARCH"

Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
FOR CIRCULAR PIPE						
24	3	6	72	12	84	3
30	3 1/2	7 1/2	90	12	102	3 1/2
FOR ARCH PIPE						
* 24	3	6	48	12	60	3
* 30	3 1/2	7 1/2	60	12	72	3 1/2
* 36	4 1/2	8 5/8	66	30	96	0
* 42	4 1/2	10	77 1/4	18 3/4	96	0

ALTERNATE

Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
FOR CIRCULAR PIPE						
24	3	9	72	12	84	0
30	3 1/2	11	90	12	102	0
FOR ARCH PIPE						
* 24	3	9	48	12	60	0
* 30	3 1/2	11	60	12	72	0

* Equivalent Diameter of Circular R.C.P.
** Acceptable Flat Bottom Alternate.



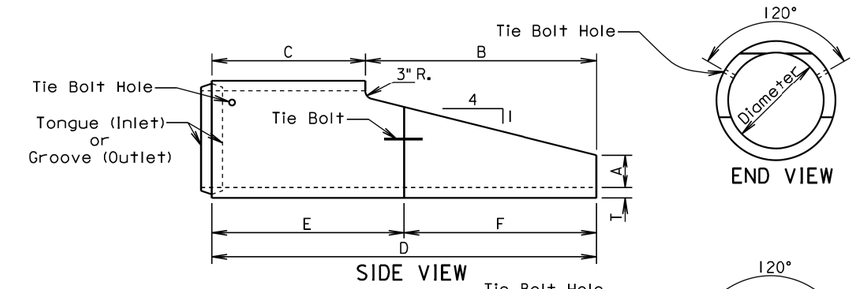
SECTION
(Along Centerline of Pipe)

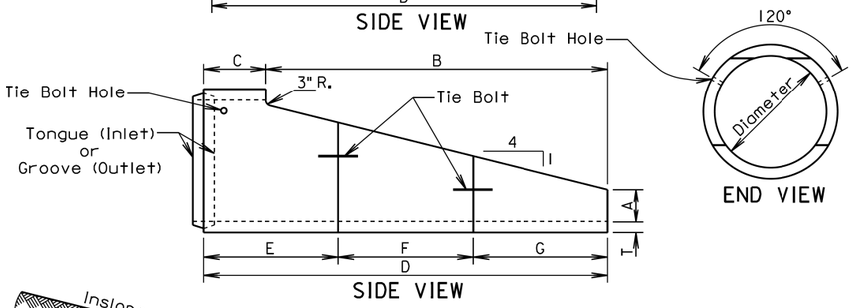
GENERAL NOTE:

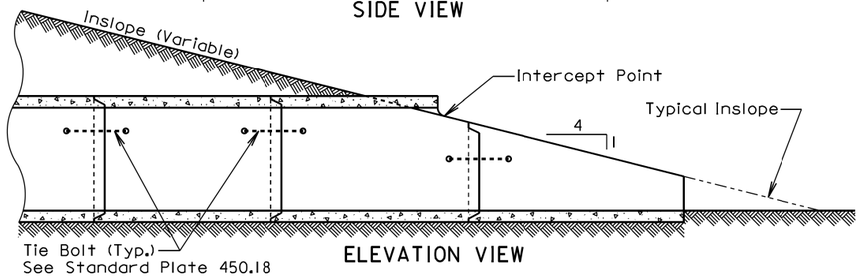
The length of concrete pipe shown in the construction plans is between sloped ends.

September 22, 2006

Published Date: 4th Qtr. 2015	SDDOT	R. C. P. SLOPED ENDS	PLATE NUMBER 450.13
			Sheet 1 of 1







Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	G (in.)
36	4	12	86.5	57.5	144	72	72	
42	4.5	12	110.5	33.5	144	72	72	
48	5	12	134.5	33.5	168	96	72	
54	5.5	12	158.5	33.5	192	96	96	
60	6	12	182.5	33.5	216	72	72	72

GENERAL NOTE:

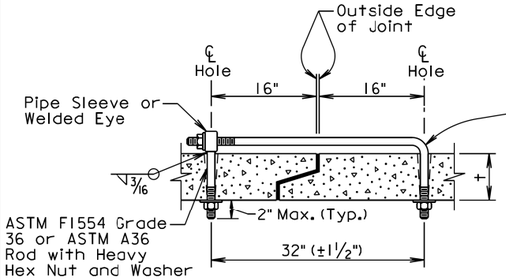
The length of concrete pipe shown in the construction plans is between sloped ends.

If bars are specified in the plans, then the bar assemblies shall be constructed in accordance with Standard Plate 450.15.

August 31, 2013

Published Date: 4th Qtr. 2015	SDDOT	R. C. P. SLOPED ENDS WITH OR WITHOUT BARS	PLATE NUMBER 450.14
			Sheet 1 of 1

Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3¼	⅝	¾
3½-6½	¾	1
≥ 7	1	1¼



ADJUSTABLE EYE BOLT TIE

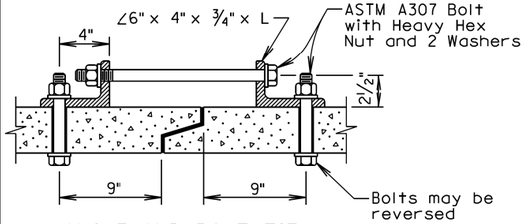
GENERAL NOTES:

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 adjustible eye bolt tie assembly in accordance with ASTM A153.

Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	¾
> 48	6	1



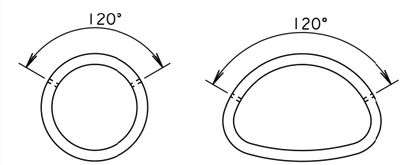
ANGLE AND BOLT TIE

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.



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.

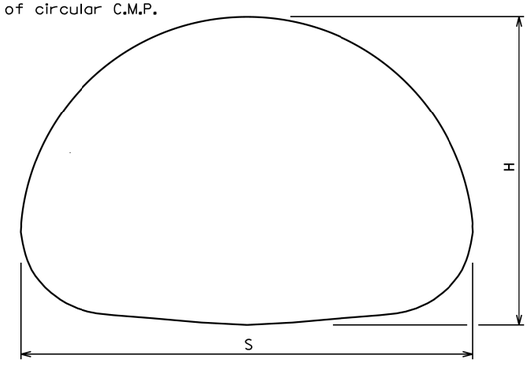
There will be no seperate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

February 28, 2013

Published Date: 4th Qtr. 2015	SDDOT	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
			Sheet 1 of 1

	2⅔" x ½" CORRUGATIONS			3" X 1" CORRUGATIONS		
* Dia. (in.)	S Span (in.)	H Rise (in.)	Area (Sq. Ft.)	S Span (in.)	H Rise (in.)	Area (Sq. Ft.)
15	17	13	1.1			
18	21	15	1.6			
21	24	18	2.2			
24	28	20	2.8			
30	35	24	4.4			
36	42	29	6.4	40	31	7.0
42	49	33	8.7	46	36	9.4
48	57	38	11.4	53	41	12.3
54	64	43	14.3	60	46	15.6
60	71	47	17.6	66	51	19.3
66	77	52	21.3	73	55	23.2
72	83	57	25.3	81	59	27.4
78				87	63	32.1
84				95	67	37.0
90				103	71	42.4
96				112	75	48.0
102				117	79	54.2
108				128	83	60.8
114				137	87	67.4
120				142	91	74.5

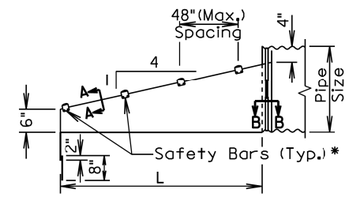
* Equivalent diameter of circular C.M.P.



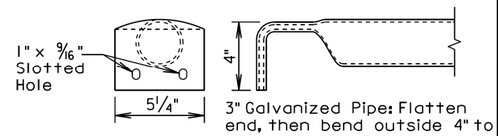
GENERAL NOTE:
All dimensions measured from inside crest.

March 31, 2000

Published Date: 4th Qtr. 2015	SDDOT	CORRUGATED METAL PIPE ARCH CULVERT	PLATE NUMBER 450.30
			Sheet 1 of 1

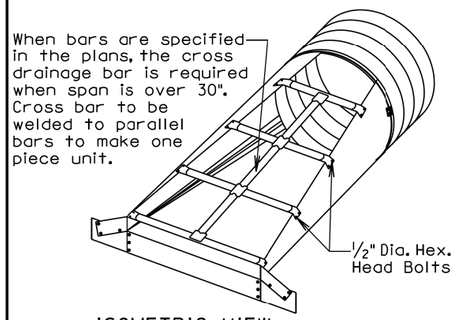


ELEVATION VIEW

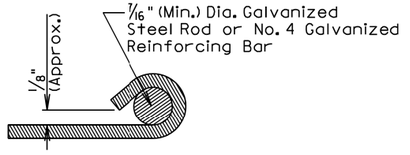


DETAIL OF SAFETY BARS

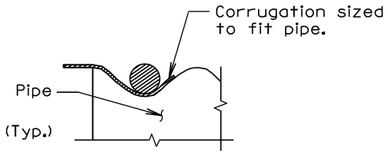
* Number of bars required will vary depending on the length of the end section.



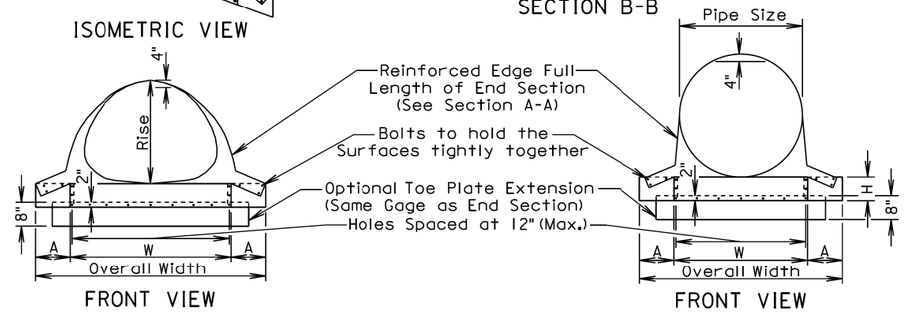
ISOMETRIC VIEW



SECTION A-A

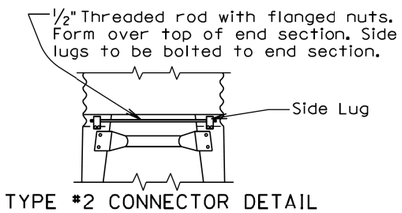


SECTION B-B

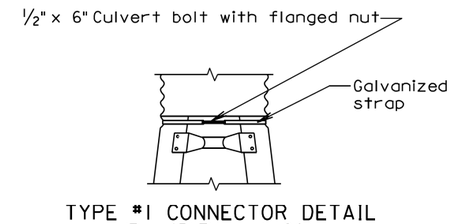


FRONT VIEW

FRONT VIEW



TYPE #2 CONNECTOR DETAIL
(For 30" and Larger)
(For 21" X 15" and Larger)



TYPE #1 CONNECTOR DETAIL
(For 15" Through 24")

February 10, 2014

Published Date: 4th Qtr. 2015	SDDOT	C. M. P. SLOPED ENDS	PLATE NUMBER 450.37
			Sheet 1 of 2

ARCH C.M.P. SLOPED ENDS										
Equv. Dia. (Inch)	(Inches)		Min. Thick.		Dimensions (Inches)				L Dimensions	
	Span	Rise	Inch	Gage	A	H	W	Overall Width	Slope	Length (Inch)
18	21	15	.064	16	8	6	27	43	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.		Dimensions (Inches)				L Dimensions	
	Inch	Gage	A	H	W	Overall Width	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.

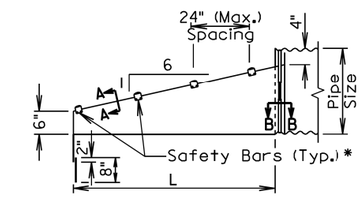
When stated in the plans, optional toe plate extension shall be punched and bolted to end section apron lip with ⅜" diameter galvanized bolts. Steel for toe plate extension shall be same gauge as end section. Dimensions shall be overall width less 6" by 8" high.

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.

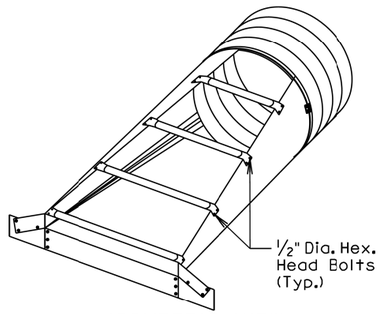
February 10, 2014

Published Date: 4th Qtr. 2015	SDDOT	C. M. P. SLOPED ENDS	PLATE NUMBER 450.37
			Sheet 2 of 2

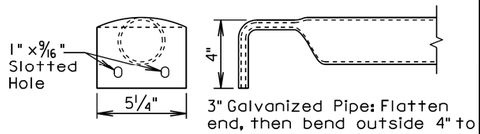


ELEVATION VIEW

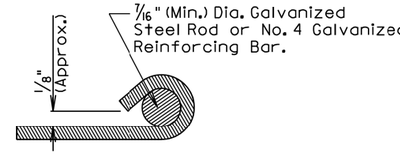
*Number of bars required will vary depending on the length of the end section.



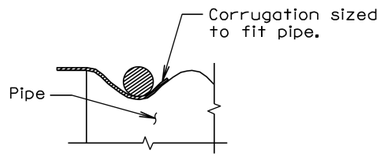
ISOMETRIC VIEW



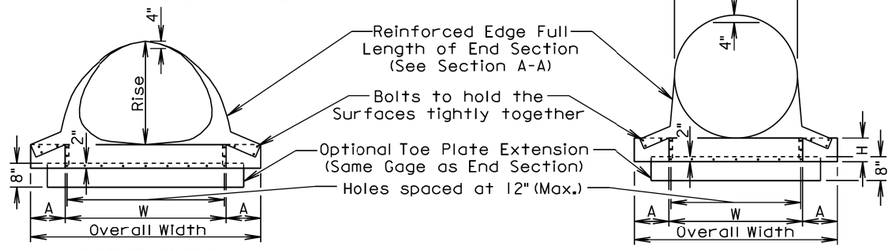
DETAIL OF SAFETY BARS



SECTION A-A

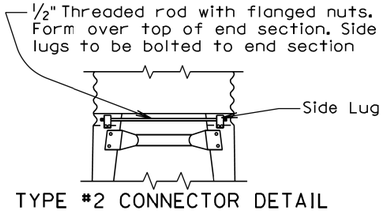


SECTION B-B

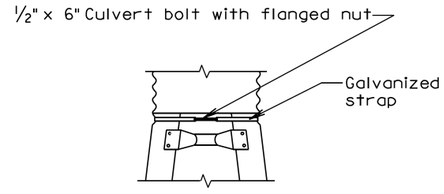


FRONT VIEW

FRONT VIEW



TYPE #2 CONNECTOR DETAIL
(For 30" and Larger)
(For 21" X 15" and Larger)



TYPE #1 CONNECTOR DETAIL
(For 15" Through 24")

June 26, 2015

Published Date: 4th Qtr. 2015	SDDOT	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 1 of 2

ARCH C.M.P. SAFETY ENDS

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

CIRCULAR C.M.P. SAFETY ENDS

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

GENERAL NOTES:

Safety ends shall be fabricated from galvanized steel conforming 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.

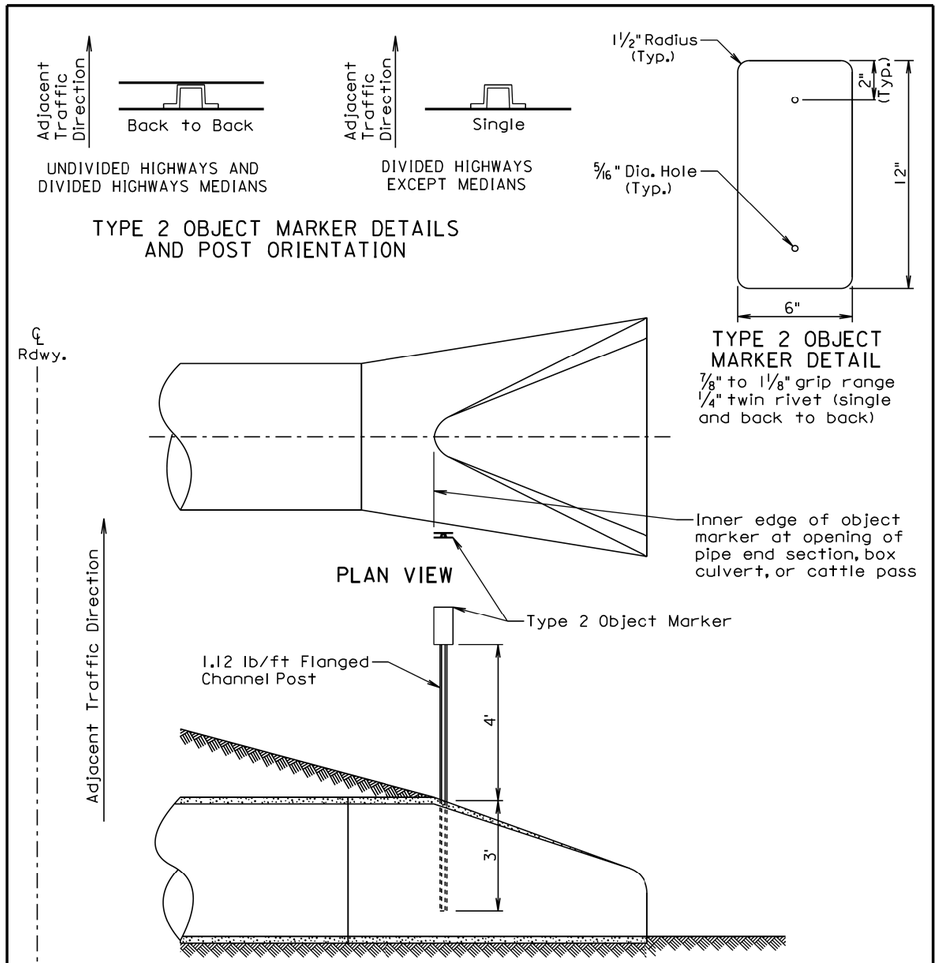
When stated in the plans, optional toe plate extension shall be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension shall be same gauge as end section. Dimensions shall be overall width less 6" by 8" high.

Installation shall be performed in accordance with the Specifications.

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

June 26, 2015

Published Date: 4th Qtr. 2015	SDDOT	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 2 of 2



TYPE 2 OBJECT MARKER DETAILS AND POST ORIENTATION

TYPE 2 OBJECT MARKER DETAIL

7/8" to 1 1/8" grip range
1/4" twin rivet (single and back to back)

ELEVATION

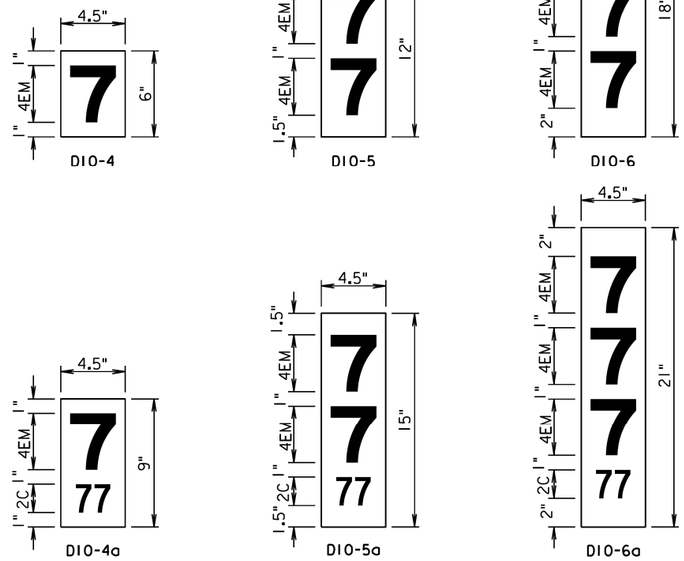
GENERAL NOTES:

The type 2 object markers and the 1.12 lb/ft flanged channel posts shall be in conformance with Specifications Section 982.2 J.

Payment for the type 2 object markers shall be in conformance with Specification Section 632.5 B.

June 26, 2015

Published Date: 4th Qtr. 2015	SDDOT	TYPE 2 OBJECT MARKER INSTALLATION AT PIPE CULVERTS, BOX CULVERTS, AND CATTLE PASSES	PLATE NUMBER 632.10
			Sheet 1 of 1



GENERAL NOTES:

Background shall be high intensity green.

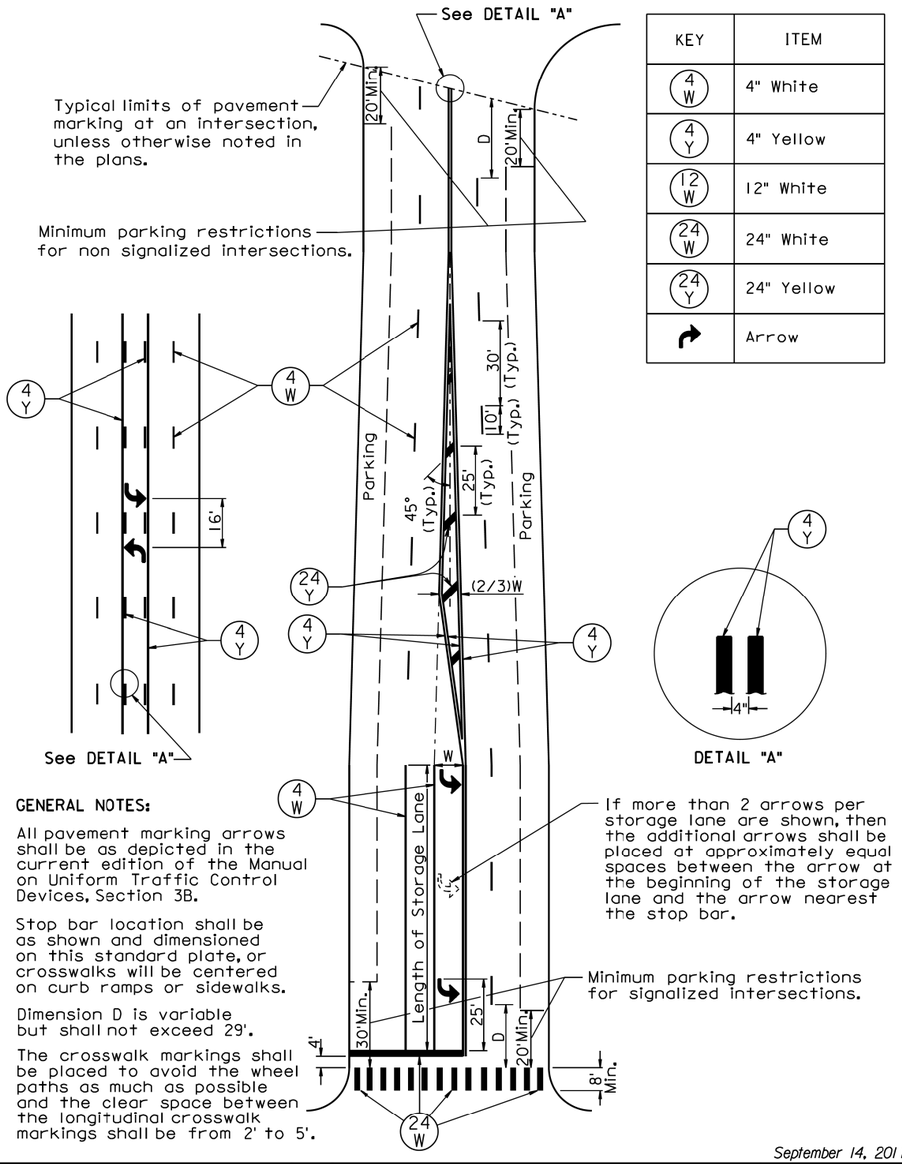
Legend shall be high intensity white.

Signs shall have squared corners with no border.

Sign locations shall be staked by the Engineer.

December 23, 2003

Published Date: 4th Qtr. 2015	SDDOT	NON-INTERSTATE MILEAGE REFERENCE MARKERS	PLATE NUMBER 632.30
			Sheet 1 of 1



KEY	ITEM
4 W	4" White
4 Y	4" Yellow
12 W	12" White
24 W	24" White
24 Y	24" Yellow
↱	Arrow

GENERAL NOTES:

All pavement marking arrows shall be as depicted in the current edition of the Manual on Uniform Traffic Control Devices, Section 3B.

Stop bar location shall be as shown and dimensioned on this standard plate, or crosswalks will be centered on curb ramps or sidewalks.

Dimension D is variable but shall not exceed 29'.

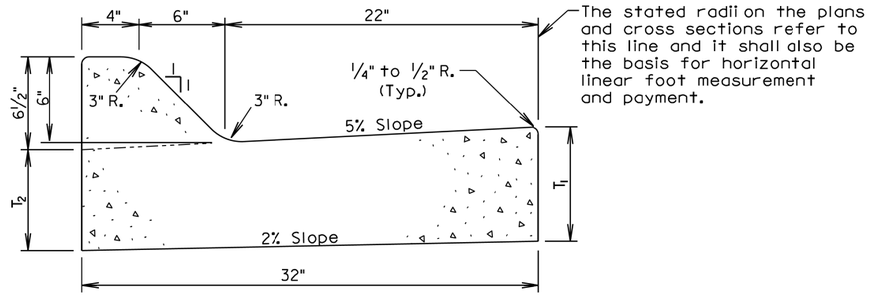
The crosswalk markings shall be placed to avoid the wheel paths as much as possible and the clear space between the longitudinal crosswalk markings shall be from 2' to 5'.

If more than 2 arrows per storage lane are shown, then the additional arrows shall be placed at approximately equal spaces between the arrow at the beginning of the storage lane and the arrow nearest the stop bar.

Minimum parking restrictions for signalized intersections.

September 14, 2011

Published Date: 4th Qtr. 2015	SDDOT	PAVEMENT MARKINGS FOR ADJACENT INTERSECTIONS AND CENTER TURN LANE	PLATE NUMBER 633.01
			Sheet 1 of 1



Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
F66	6	5 1/16	0.057	17.6
F67	7	6 1/16	0.065	15.4
F68	8	7 1/16	0.073	13.6
F68.5	8.5	7 9/16	0.077	12.9
F69	9	8 1/16	0.082	12.3
F69.5	9.5	8 9/16	0.086	11.7
F610	10	9 1/16	0.090	11.1
F610.5	10.5	9 9/16	0.094	10.7
F611	11	10 1/16	0.098	10.2
F611.5	11.5	10 9/16	0.102	9.8
F612	12	11 1/16	0.106	9.4

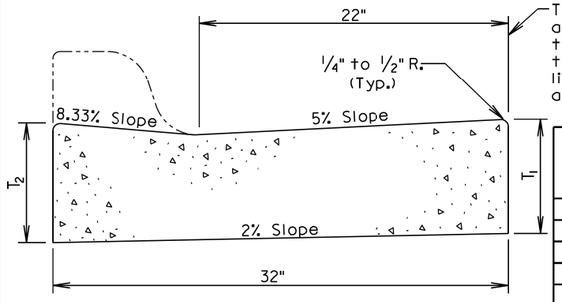
GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

See Standard Plate 650.90 for expansion and contraction joints in the curb and gutter.

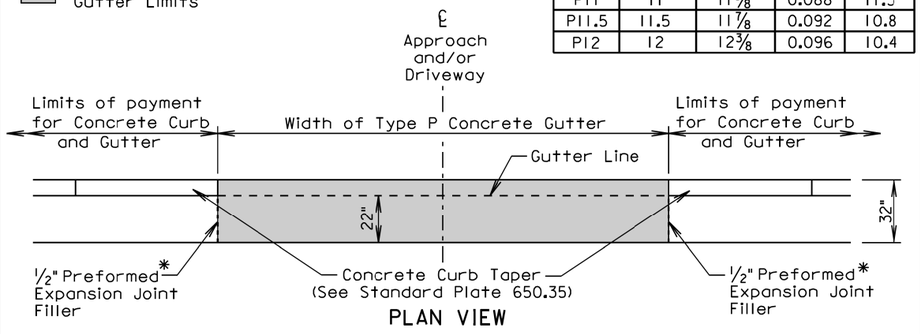
September 6, 2008

Published Date: 4th Qtr. 2015	SDDOT	TYPE F CONCRETE CURB AND GUTTER	PLATE NUMBER 650.20
			Sheet 1 of 1



TRANSVERSE SECTION

Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
P6	6	6 3/8	0.047	21.2
P7	7	7 3/8	0.055	18.1
P8	8	8 3/8	0.064	15.7
P8.5	8.5	8 7/8	0.068	14.8
P9	9	9 3/8	0.072	13.9
P9.5	9.5	9 7/8	0.076	13.2
P10	10	10 3/8	0.080	12.5
P10.5	10.5	10 7/8	0.084	11.9
P11	11	11 3/8	0.088	11.3
P11.5	11.5	11 7/8	0.092	10.8
P12	12	12 3/8	0.096	10.4



PLAN VIEW

* Joint will not be needed if concrete curb and gutter and type P concrete gutter is placed at the same time. If the ½" Preformed Expansion Joint Filler is provided, then the joint shall be sealed in accordance with Standard Plate 650.90.

GENERAL NOTES:

The concrete for the Type P Concrete Gutter shall comply with the requirements of the Specifications for Class M6 Concrete.

When concrete gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

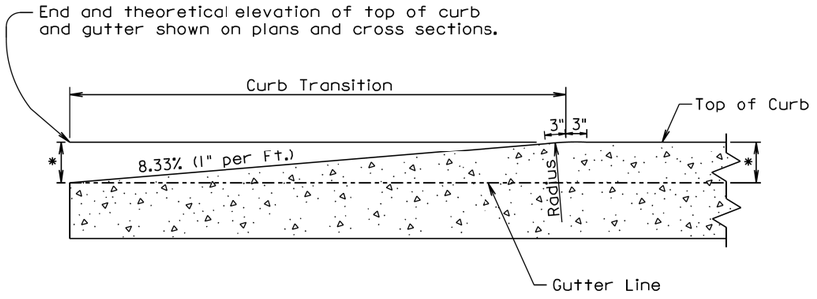
Transverse contraction joints shall be constructed at 10' intervals in the concrete gutter except when concrete gutter is constructed adjacent to mainline PCC pavement. When concrete gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint shall be constructed in the concrete gutter at each mainline PCC pavement transverse contraction joint location.

When concrete gutter is placed monolithically with mainline PCC pavement, the transverse contraction joints in the concrete gutter shall be sawed and sealed the same as the transverse contraction joints in the mainline PCC pavement.

When concrete gutter is not placed monolithically with the mainline PCC pavement and when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete gutter shall be 1½ inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint shall be at least ¼ the thickness of the concrete.

June 26, 2015

Published Date: 4th Qtr. 2015	SDDOT	TYPE P CONCRETE GUTTER	PLATE NUMBER 650.30
			Sheet 1 of 1

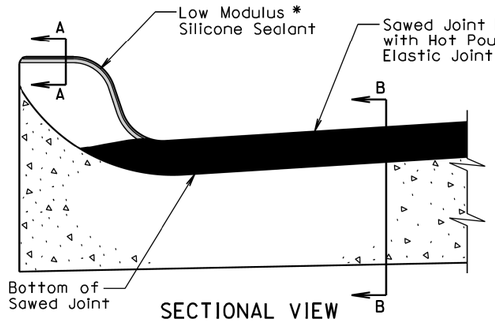


* Height of Curb

LONGITUDINAL SECTION OF CONCRETE CURB TAPER

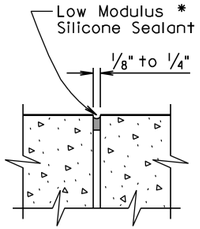
September 14, 2005

Published Date: 4th Qtr. 2015	SDDOT	CONCRETE CURB TAPER	PLATE NUMBER 650.35
			Sheet 1 of 1

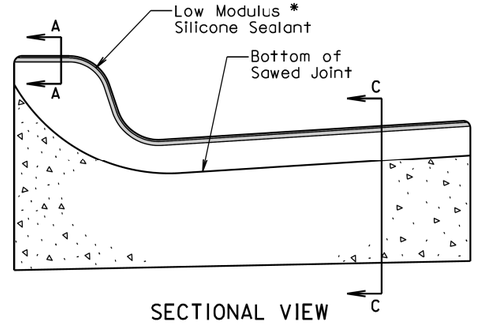


SECTIONAL VIEW

(Curb and Gutter Placed Monolithic with Adjacent Mainline PCC Pavement)

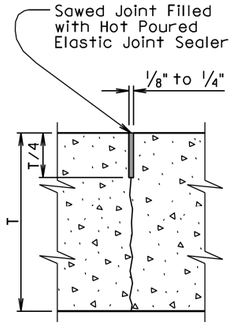


SECTION A-A

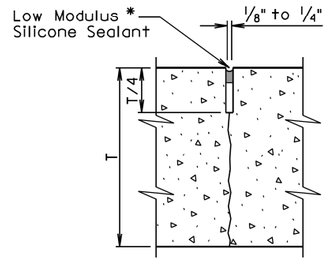


SECTIONAL VIEW

(Curb and Gutter not Placed Monolithic with Adjacent Mainline PCC Pavement or Mainline Surfacing is not PCC Pavement)



SECTION B-B

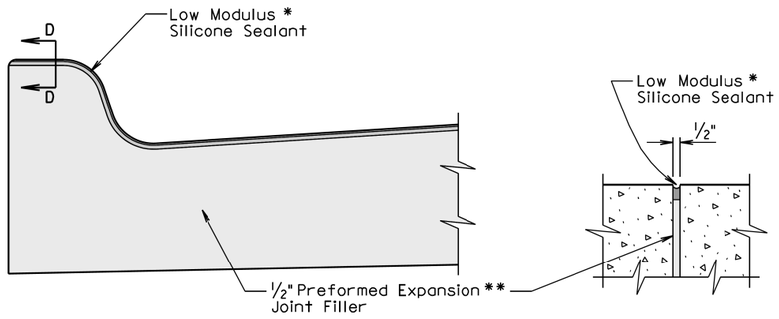


SECTION C-C

* The silicone sealant shall be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Engineer.

September 6, 2013

Published Date: 4th Qtr. 2015	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 1 of 2



SECTIONAL VIEW
(Curb and Gutter at 1/2" Preformed
Expansion Joint Filler Location)

SECTION D-D

* The silicone sealant shall be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Engineer.

GENERAL NOTES:

For illustrative reason, only the type B curb and gutter is shown.

** A 1/2" preformed expansion joint filler shall be placed transversely in the curb and gutter at the following locations:

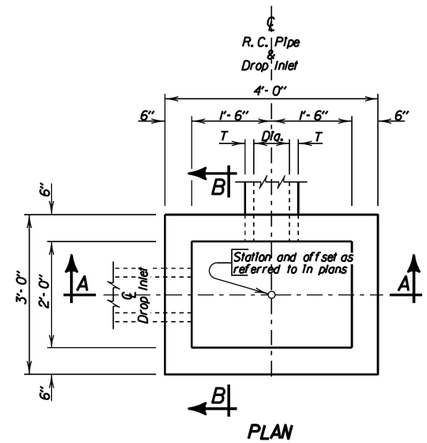
1. At each junction between the radius return of curb and gutter and curb and gutter which is parallel to the project centerline.
2. At each junction between new curb and gutter and existing curb and gutter.

Transverse contraction joints shall be constructed at 10' intervals in the concrete curb and gutter except when the concrete curb and gutter is constructed adjacent to mainline PCC pavement. When concrete curb and gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint shall be constructed in the concrete curb and gutter at each mainline PCC pavement transverse contraction joint location.

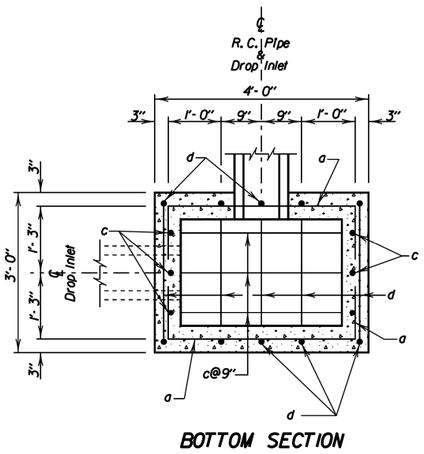
When concrete curb and gutter is not placed monolithically with the mainline PCC pavement or when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete curb and gutter shall be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint shall be at least 1/4 the thickness of the concrete and the joint shall be sealed in accordance with the details shown above.

September 6, 2013

Published Date: 4th Qtr. 2015	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 2 of 2



PLAN



BOTTOM SECTION

ESTIMATED QUANTITIES			
ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
⚹ Class M6 Concrete	Cu'd	0.26	0.22H
Reinforcing Steel	Lb	37	20.04H
Frame and Grate Assembly	Each	1	———

PIPE DISPLACEMENT REDUCTIONS

R.C. Pipe Diameter Inches	T Inches	Class M6 Concrete Cu'd
12	2	0.03
15	2 1/4	0.04
18	2 1/2	0.05
24	3	0.09
27	3 1/4	0.11

DROP INLETS FOR 12" TO 27" DIAMETER PIPE

GENERAL NOTES:

⚹ Reduce total quantities of concrete by the amount of concrete displaced by the pipe. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.

Drop inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts.

Reinforcing steel shall conform to ASTM A615 Grade 60. The b bars shall be lapped 12 inches. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.

Pipe shall not enter through a corner of the drop inlet.

Use 2" clear cover on all reinforcing steel unless otherwise noted.

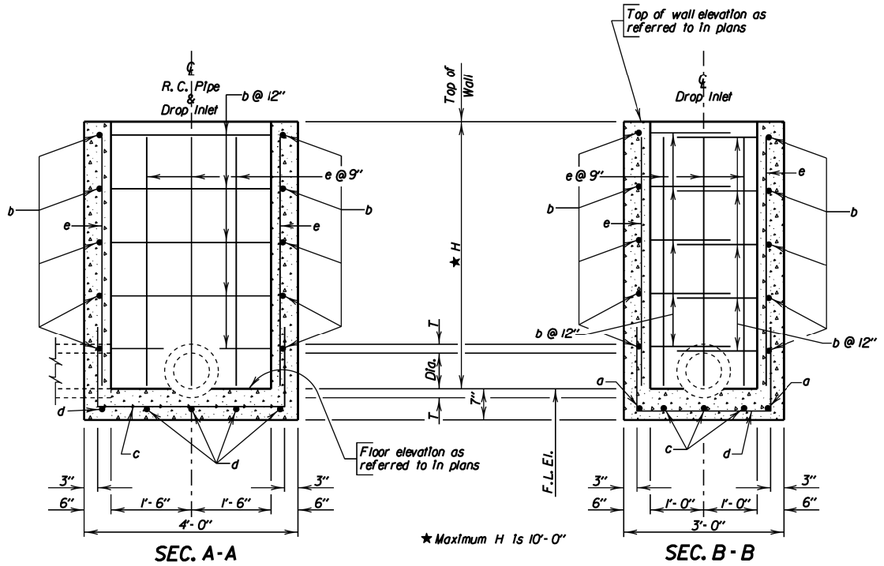
Precasting of reinforced drop inlets will be permissible. Prior to precasting, the Contractor shall submit details to the Engineer for approval.

Maximum pipe diameter shall not exceed 18 inches on the 3 foot wide side and shall not exceed 27 inches on the 4 foot wide side of the drop inlet.

The dimension of H is in feet.

December 23, 2009

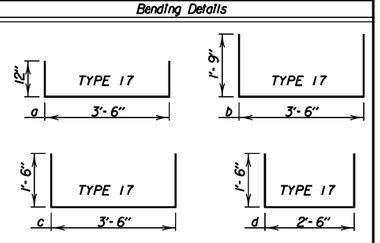
Published Date: 4th Qtr. 2015	SDDOT	2'X 3' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.01
			Sheet 1 of 2



DROP INLETS FOR 12" TO 27" DIAMETER PIPE

REINFORCING SCHEDULE

MK.	No.	Size	Length	Type	Bending Details
a	2	4	5'-6"	17	
b	2H	4	7'-0"	17	
c	3	4	6'-6"	17	
d	5	4	5'-6"	17	
e	16	4	H - 2"	Str.	



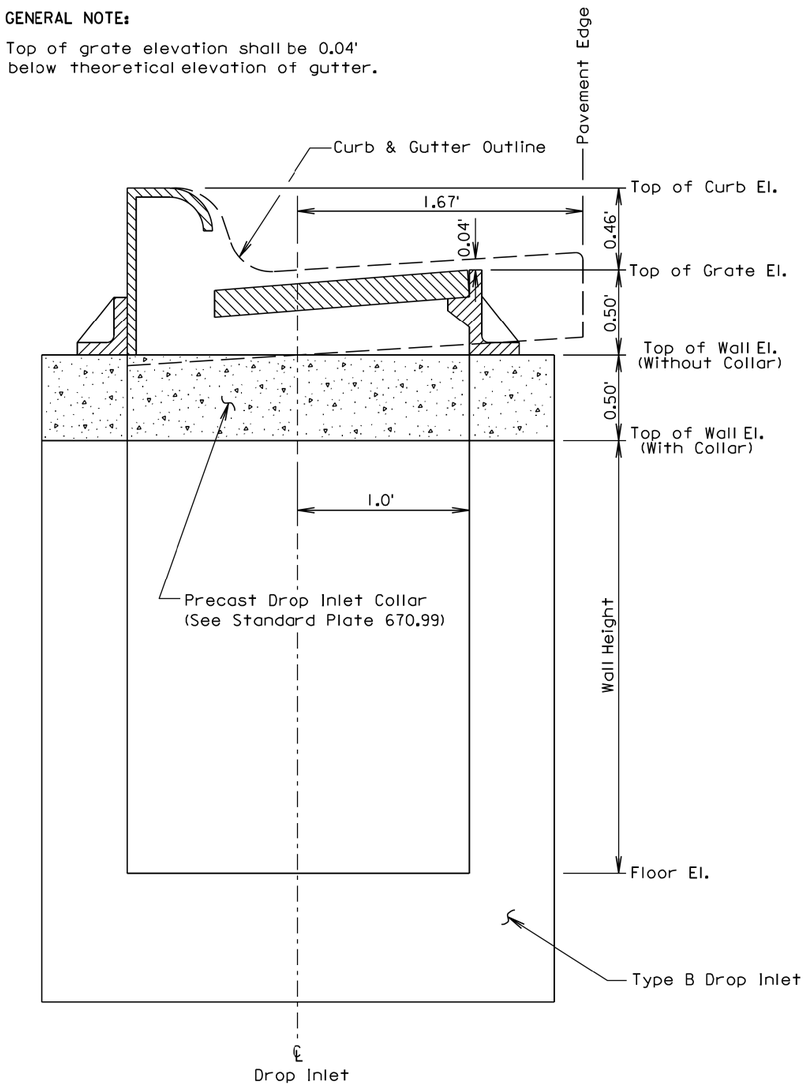
NOTE:
All dimensions are out to out of bars.

December 23, 2009

Published Date: 4th Qtr. 2015	SDDOT	2'X 3' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.01 Sheet 2 of 2

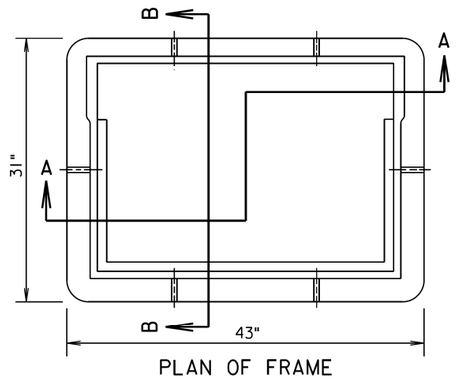
GENERAL NOTE:

Top of grate elevation shall be 0.04' below theoretical elevation of gutter.

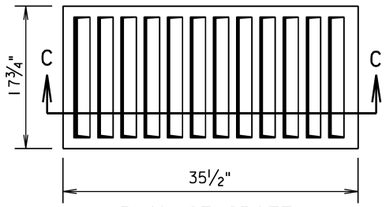


June 26, 2011

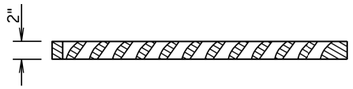
Published Date: 4th Qtr. 2015	SDDOT	INSTALLATION OF TYPE B DROP INLET	PLATE NUMBER 670.75 Sheet 1 of 1



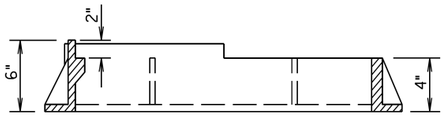
PLAN OF FRAME



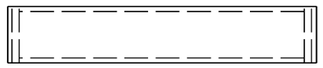
PLAN OF GRATE



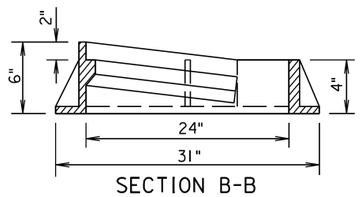
SECTION C-C



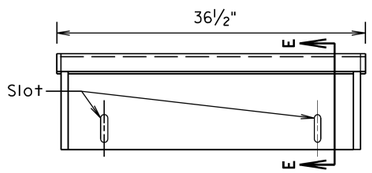
SECTION A-A



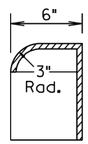
TOP VIEW OF CURB BOX



SECTION B-B



ELEVATION OF CURB BOX



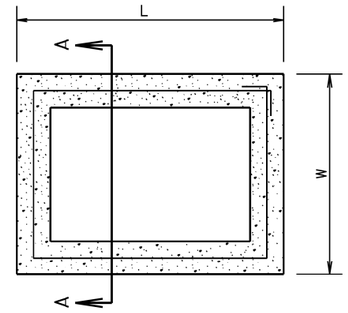
SECTION E-E

GENERAL NOTE:

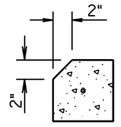
Total weight of the assembly shall be 490 Lbs. minimum and the curb box shall be adjustable 6" to 9".

March 31, 2000

Published Date: 4th Qtr. 2015	SDDOT	TYPE B FRAME AND GRATE ASSEMBLY	PLATE NUMBER 670.80
			Sheet 1 of 1

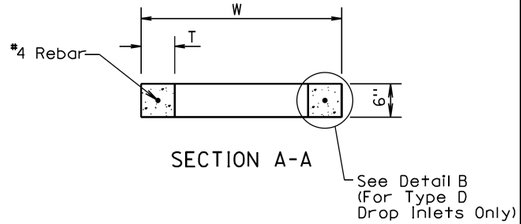


PLAN VIEW



For Type D Drop Inlets only:
Use Precast Drop Inlet Collar with 2" chamfer on L sides only.

DETAIL B



SECTION A-A

INFORMATIONAL QUANTITIES

FRAME AND GRATE TYPE	L Ft-In	W Ft-In	T In	CLASS M6 CONCRETE CuYd	REINFORCING STEEL Lb
TYPE B	4'-0"	3'-0"	6	0.11	9
TYPE C	5'-0"	4'-0"	6	0.15	11
TYPE D	4'-0"	2'-6"	6	0.10	8

GENERAL NOTES:

All reinforcing steel shall conform to ASTM A615, Grade 60.

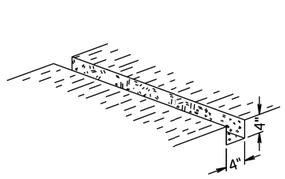
The ½" diameter bar shall lap 6" ± and shall be centered in the concrete.

The cost of furnishing and installing Precast Drop Inlet Collars, including labor, materials, and incidentals shall be incidental to the contract unit price per Each for "Precast Drop Inlet Collar".

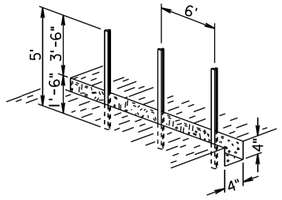
March 31, 2000

Published Date: 4th Qtr. 2015	SDDOT	PRECAST DROP INLET COLLAR	PLATE NUMBER 670.99
			Sheet 1 of 1

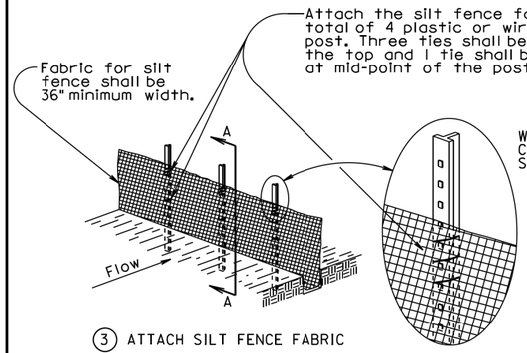
MANUAL HIGH FLOW SILT FENCE INSTALLATION



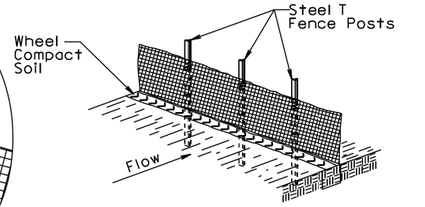
(1) EXCAVATE TRENCH



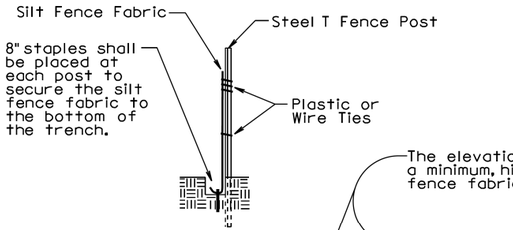
(2) DRIVE STEEL T FENCE POSTS



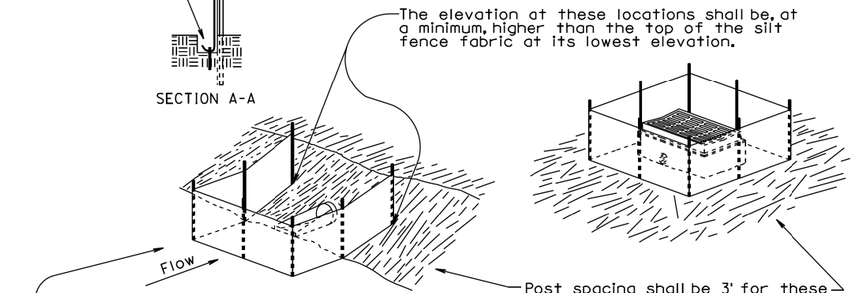
(3) ATTACH SILT FENCE FABRIC



(4) BACKFILL TRENCH AND WHEEL COMPACT SOIL



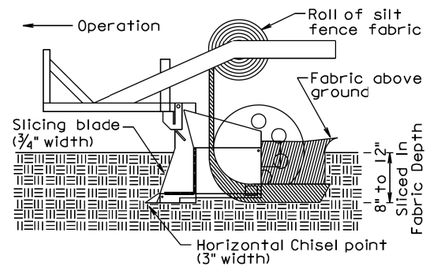
SECTION A-A



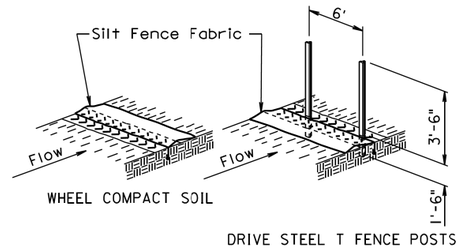
December 23, 2003

Published Date: 4th Qtr. 2015	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 1 of 2

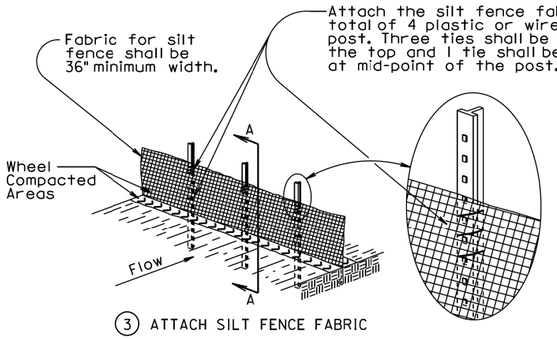
MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



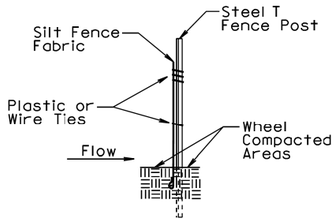
(1) INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



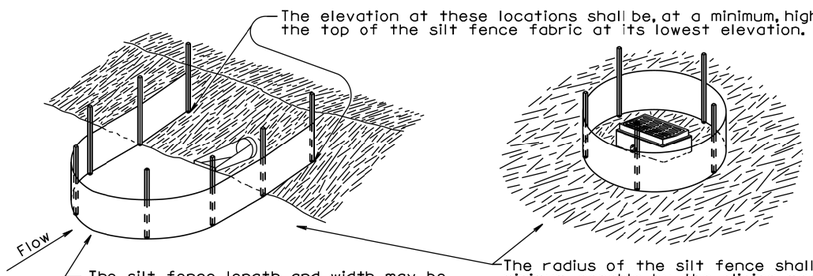
(2) WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.



(3) ATTACH SILT FENCE FABRIC



SECTION A-A

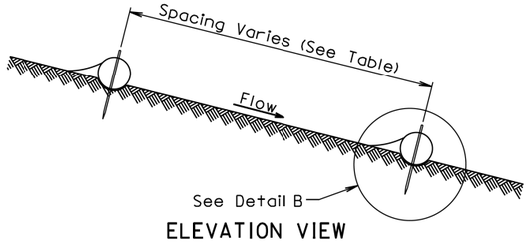


GENERAL NOTE:

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end shall be provided on top of the extra length of silt fence fabric to prevent underflow.

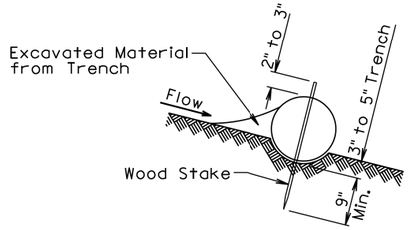
December 23, 2003

Published Date: 4th Qtr. 2015	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 2 of 2

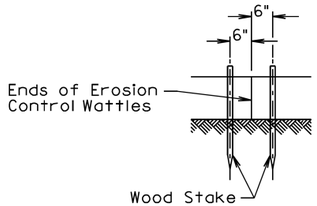


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

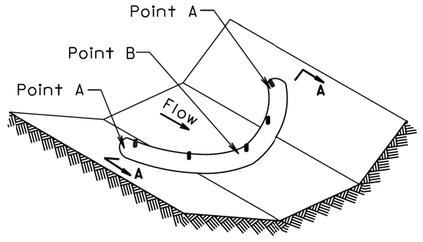
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



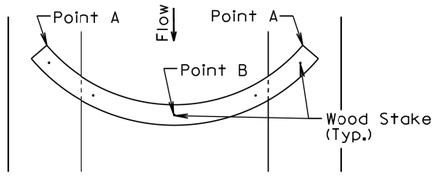
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

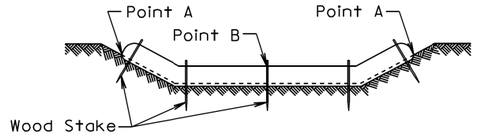


ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION

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



SECTION A-A

December 23, 2004

Published Date: 4th Qtr. 2015	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

GENERAL NOTES:

At cut or fill slope installations, wattles shall 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 shall 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 shall 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 shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

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

The Contractor and Engineer shall inspect the erosion control wattles once every week and within 24 hours after every rainfall event greater than ½". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

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

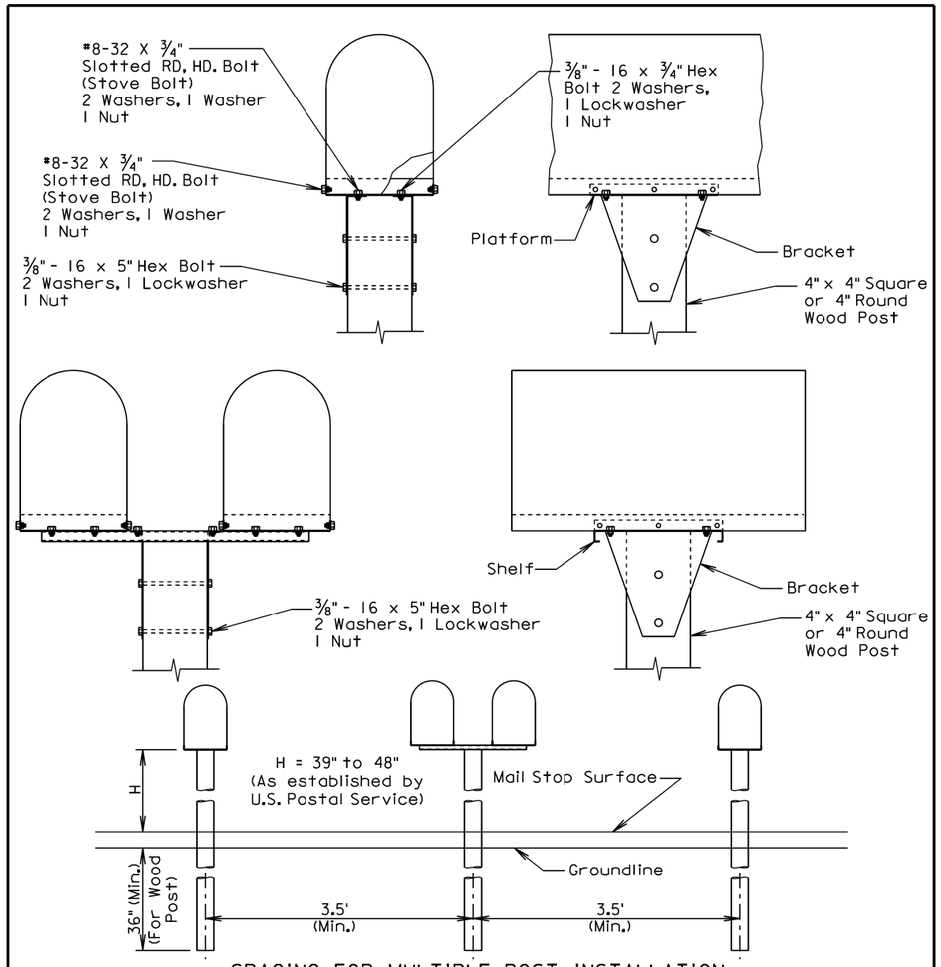
All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

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

December 23, 2004

Published Date: 4th Qtr. 2015	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	110	137



SPACING FOR MULTIPLE POST INSTALLATION

GENERAL NOTES:

The post support assemblies provided should be consistant throughout the project.

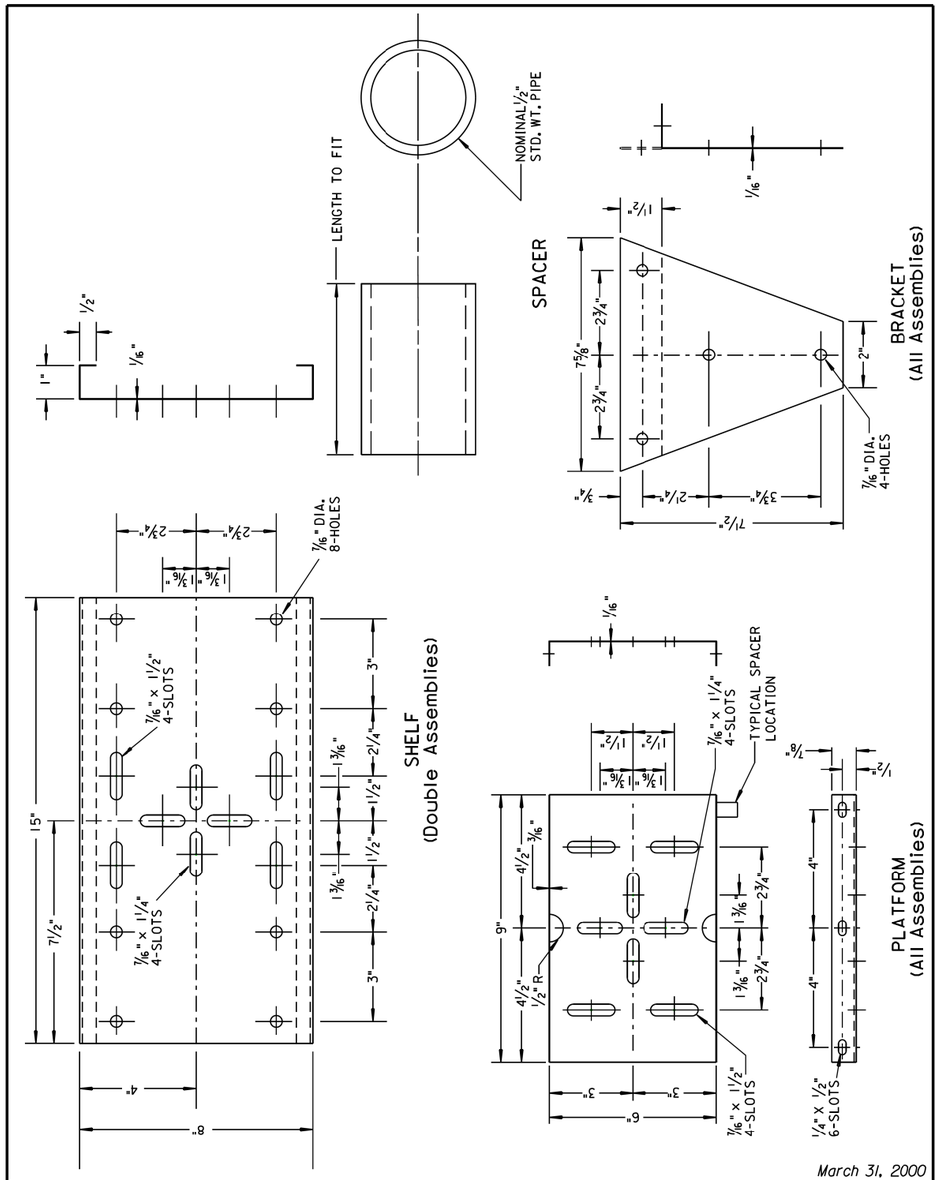
Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

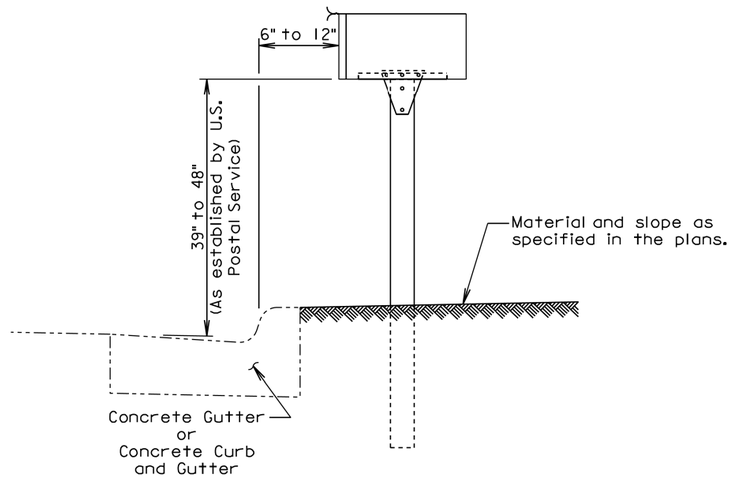
September 6, 2013

Published Date: 4th Qtr. 2015	**SDDOT**	***SINGLE AND DOUBLE MAILBOX ASSEMBLIES***	*PLATE NUMBER* 900.02
			Sheet 1 of 1



March 31, 2000

Published Date: 4th Qtr. 2015	**SDDOT**	***MAILBOX SUPPORT HARDWARE***	*PLATE NUMBER* 900.03
			Sheet 1 of 1



ELEVATION VIEW

GENERAL NOTES:

The post support assemblies provided should be consistant throughout the project.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

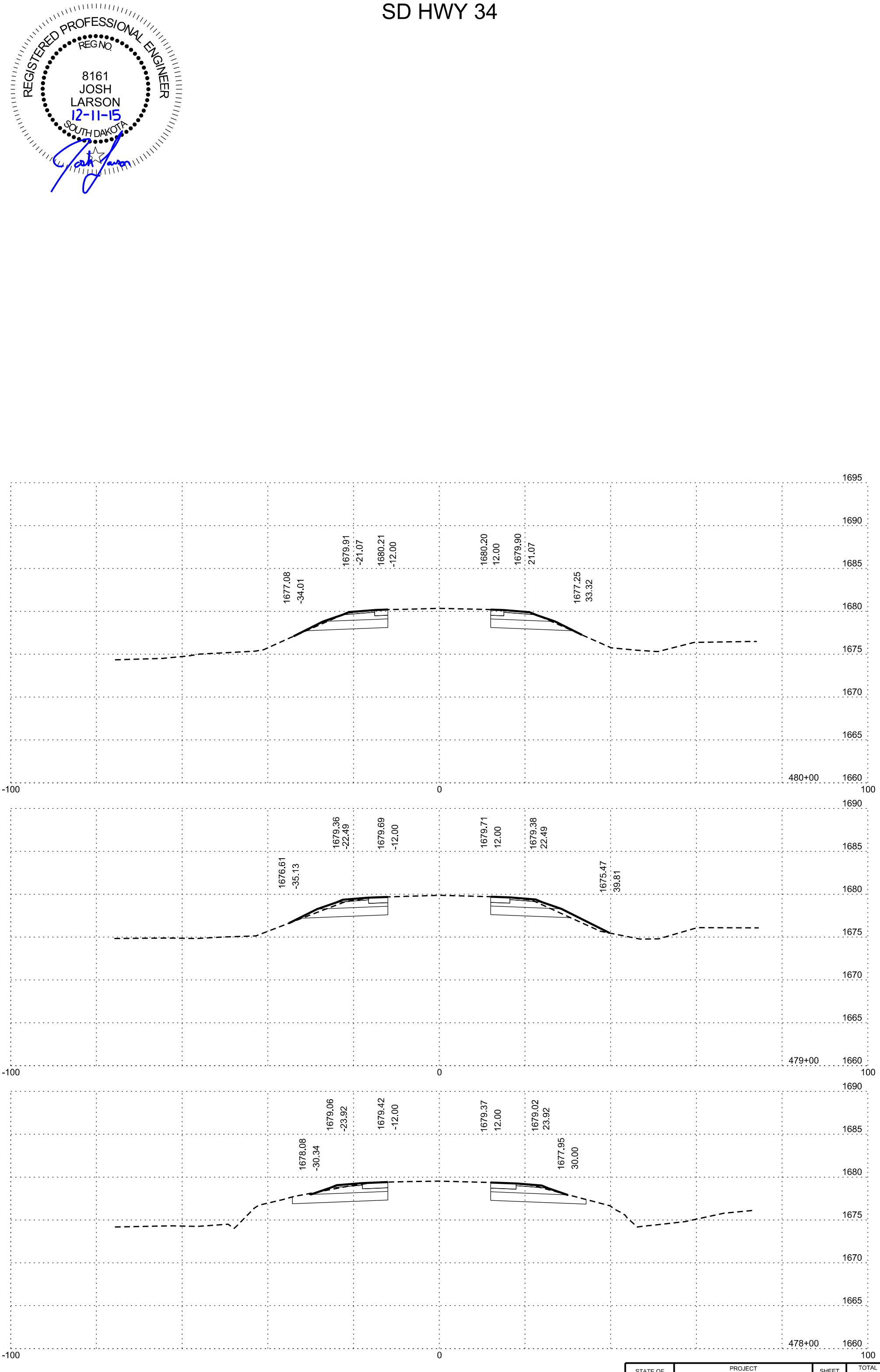
Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

February 10, 2014

Published Date: 4th Qtr. 2015	**SDDOT**	***MAILBOX ADJACENT TO CONCRETE GUTTER OR CONCRETE CURB AND GUTTER***	***PLATE NUMBER*** *900.05*
			Sheet 1 of 1

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

SD HWY 34



Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	112	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

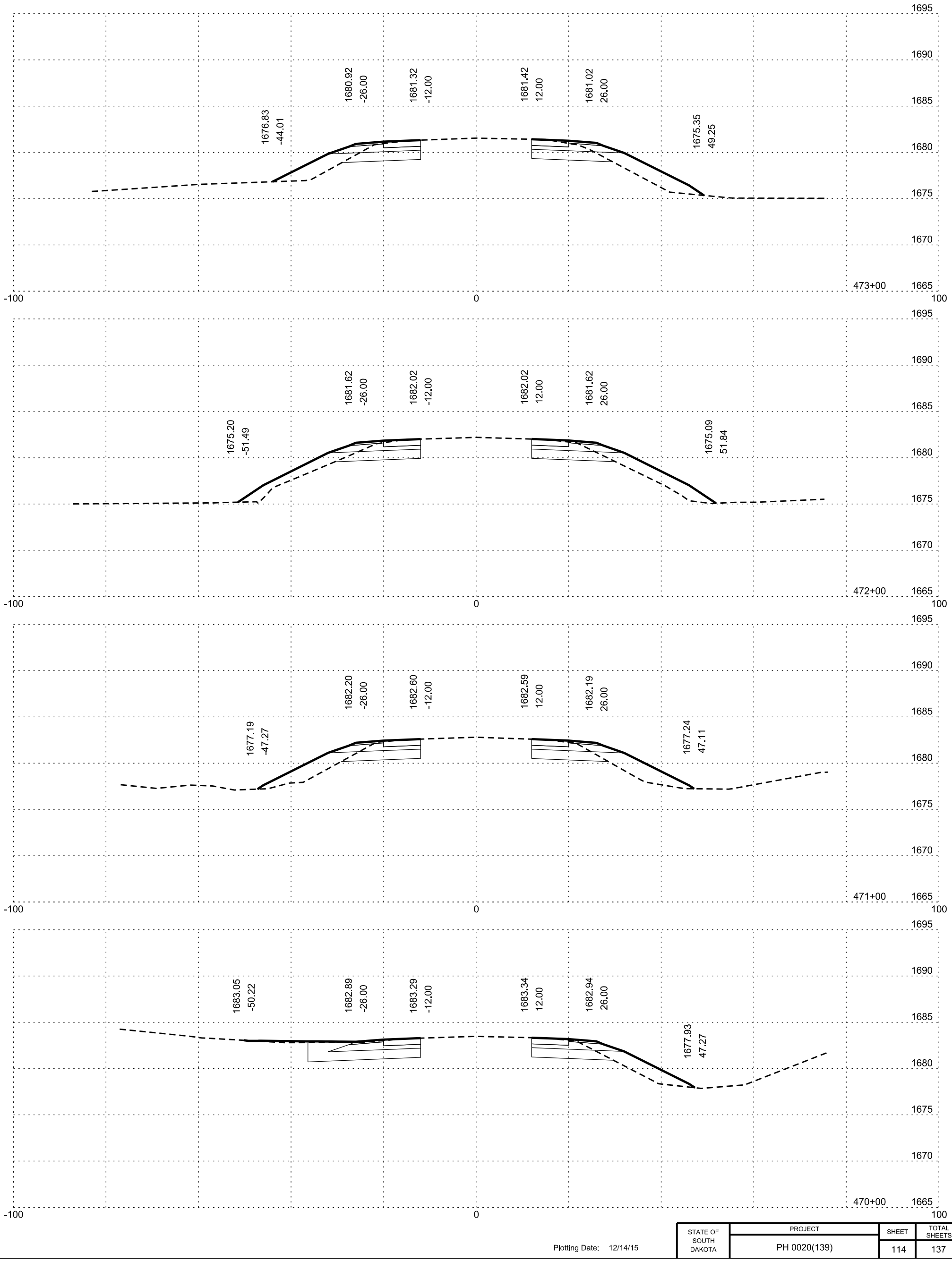
SD HWY 34

Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	113	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

SD HWY 34



Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	114	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

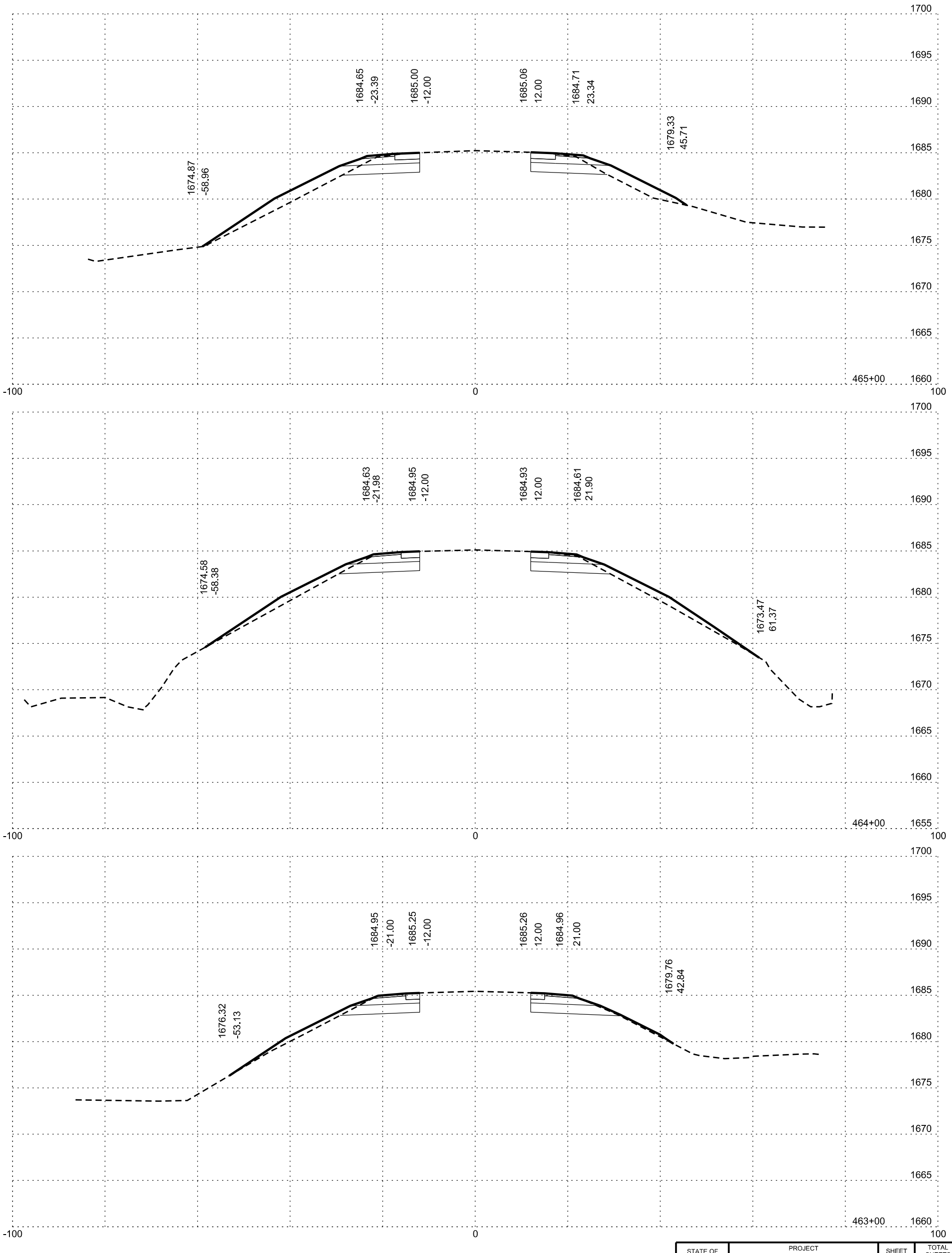
SD HWY 34

Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	115	137

SD HWY 34

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

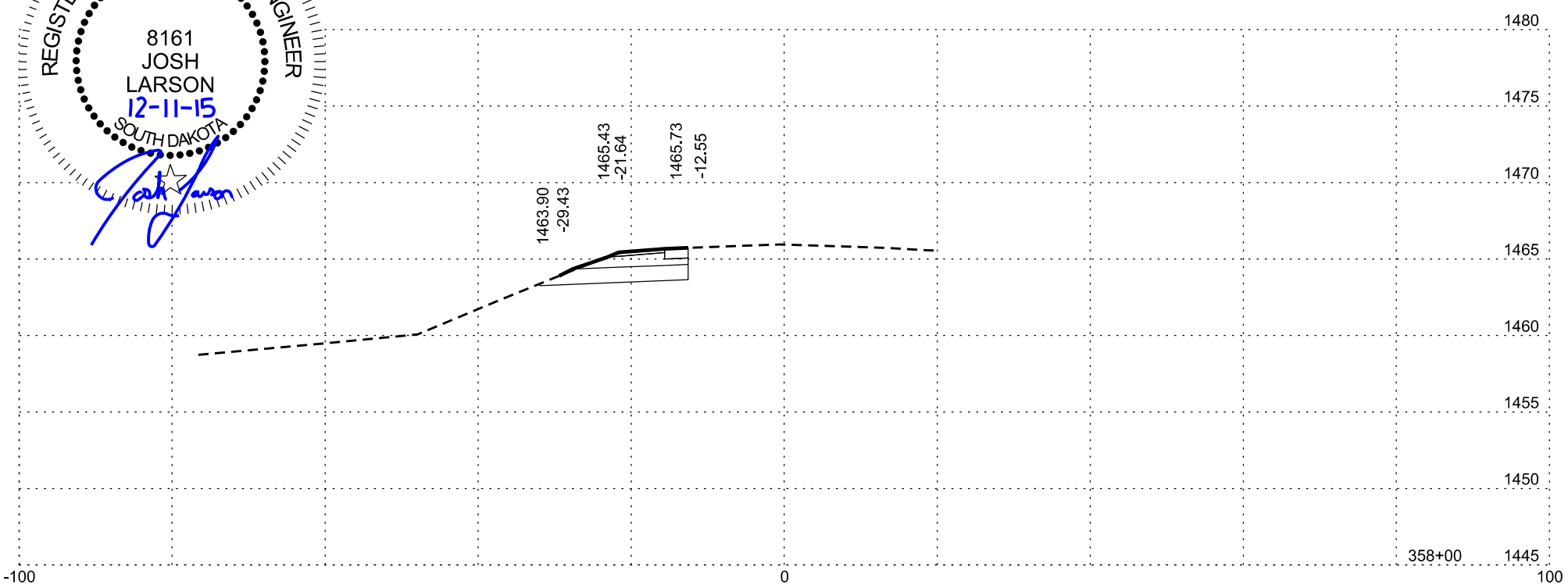


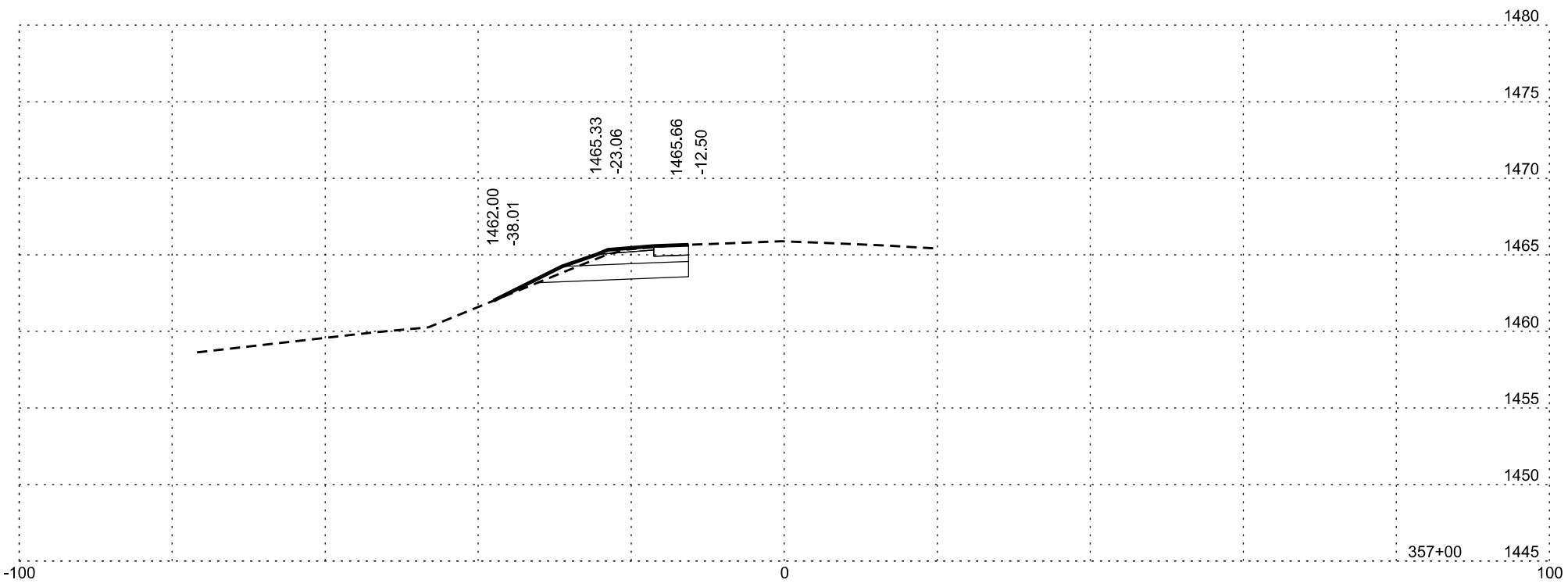
Plotting Date: 12/14/15

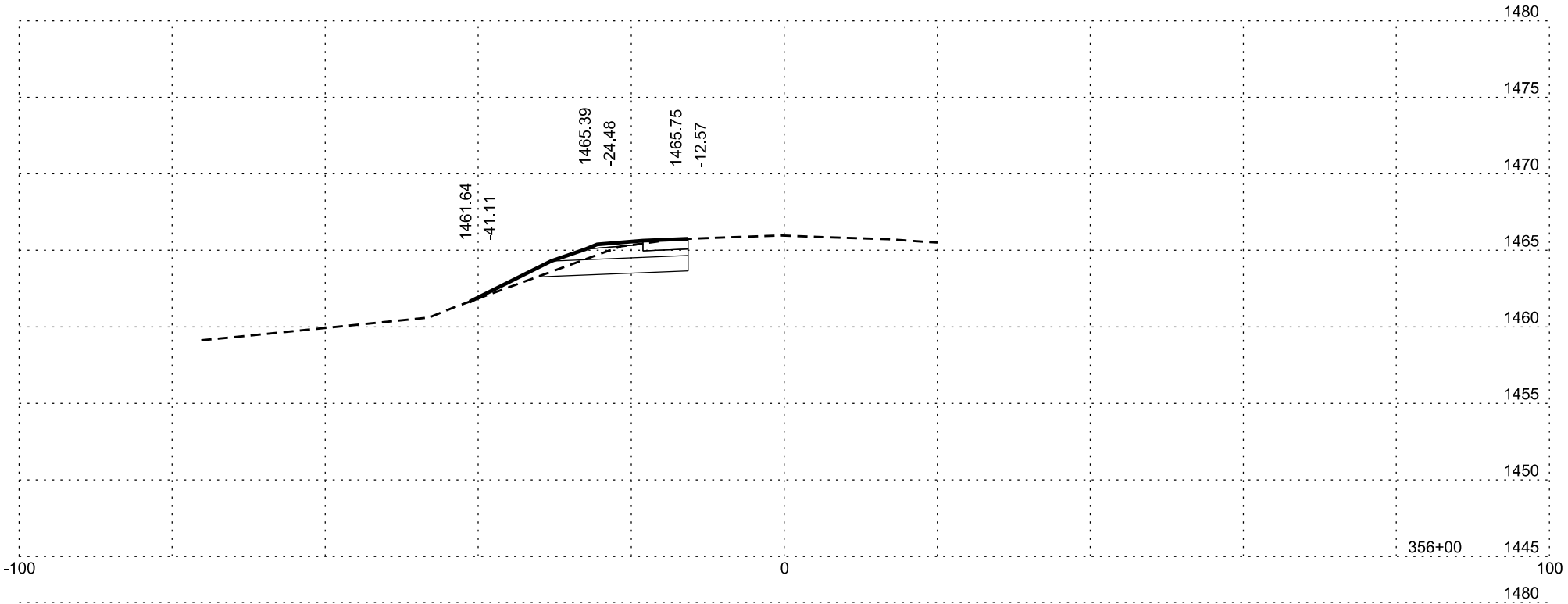
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	116	137

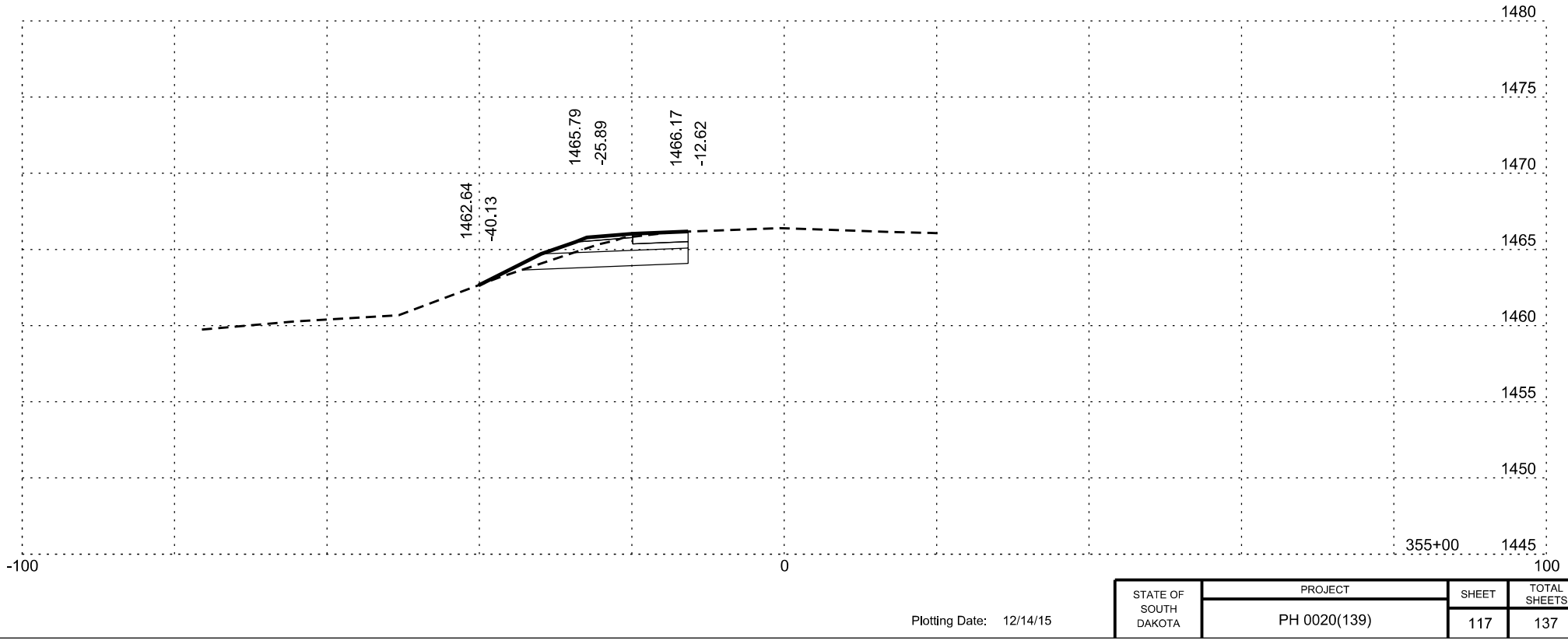
SD HWY 115 - 254TH STREET INTERSECTION

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA







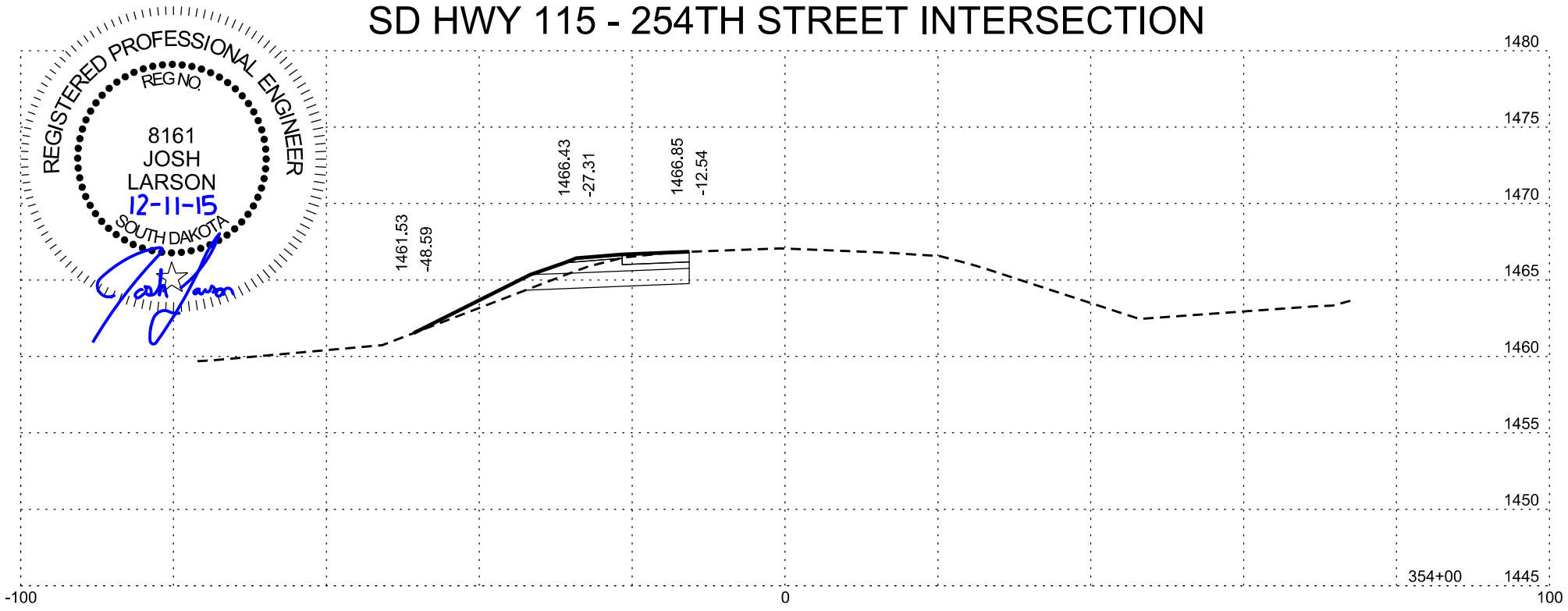


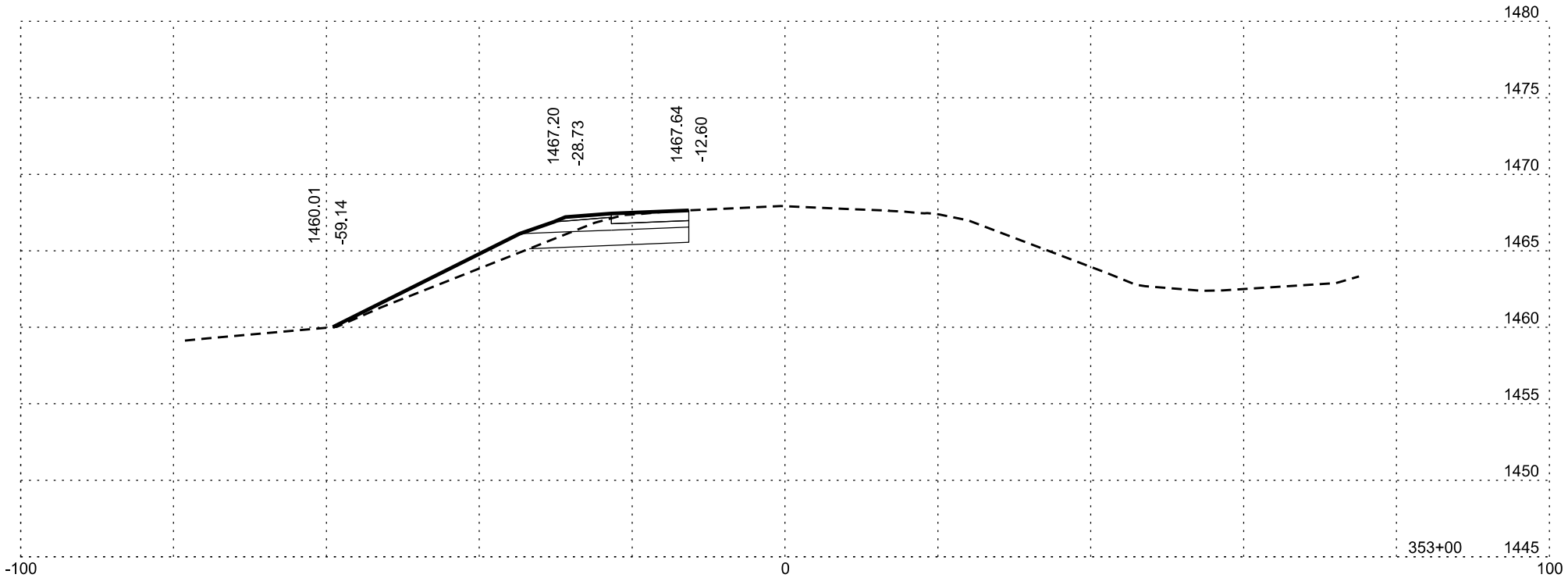
Plotting Date: 12/14/15

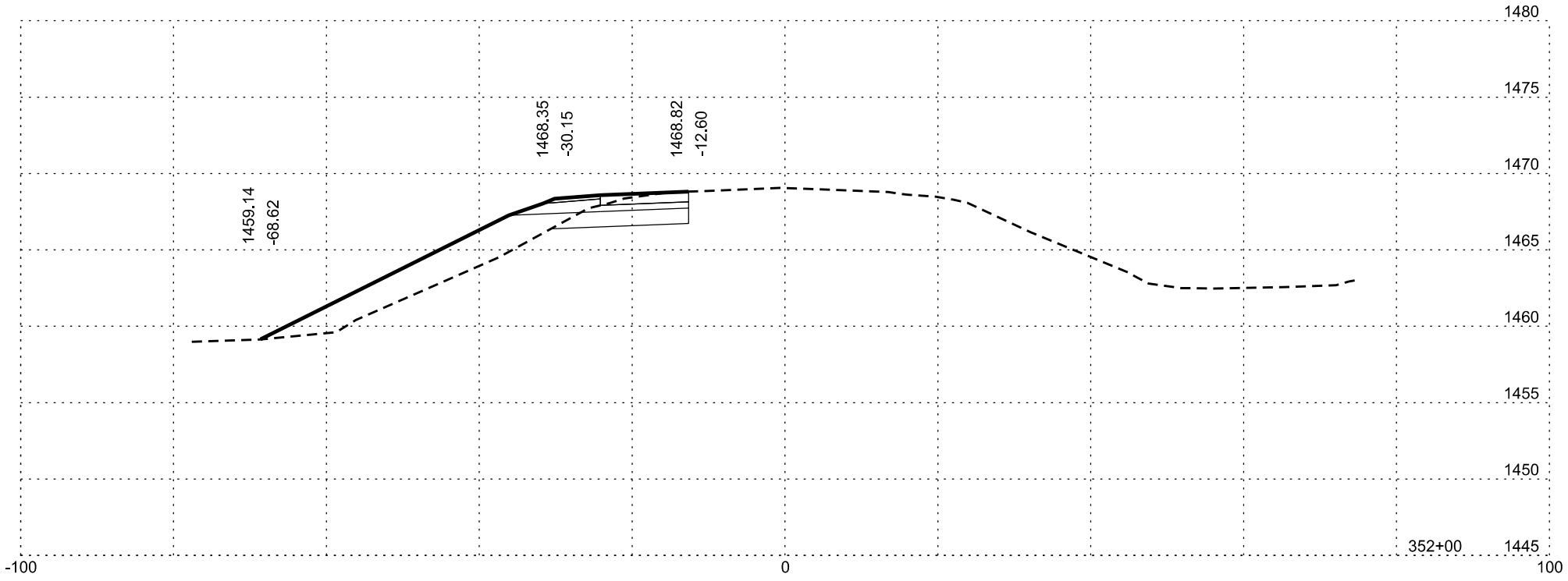
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	117	137

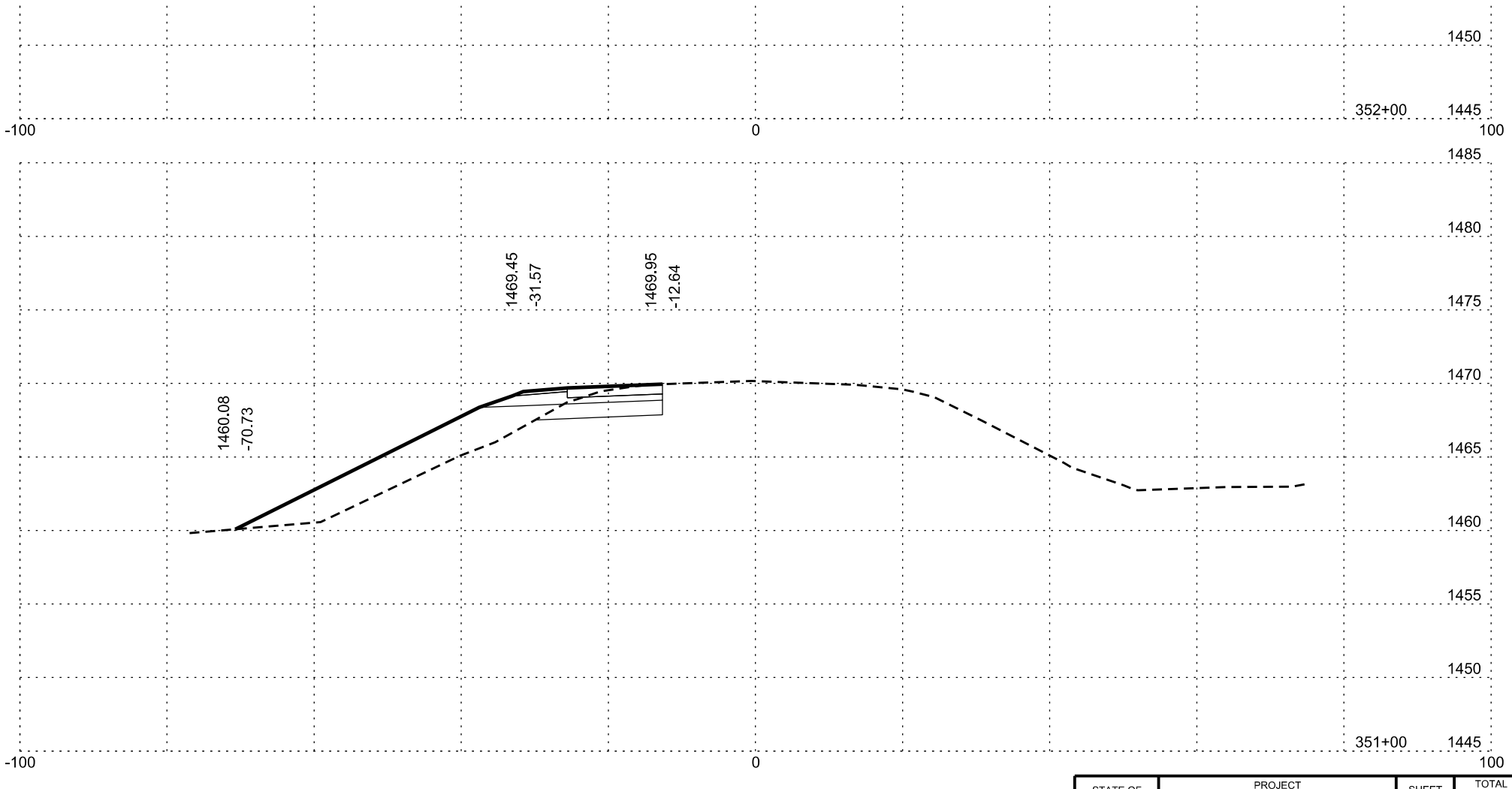
SD HWY 115 - 254TH STREET INTERSECTION

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA







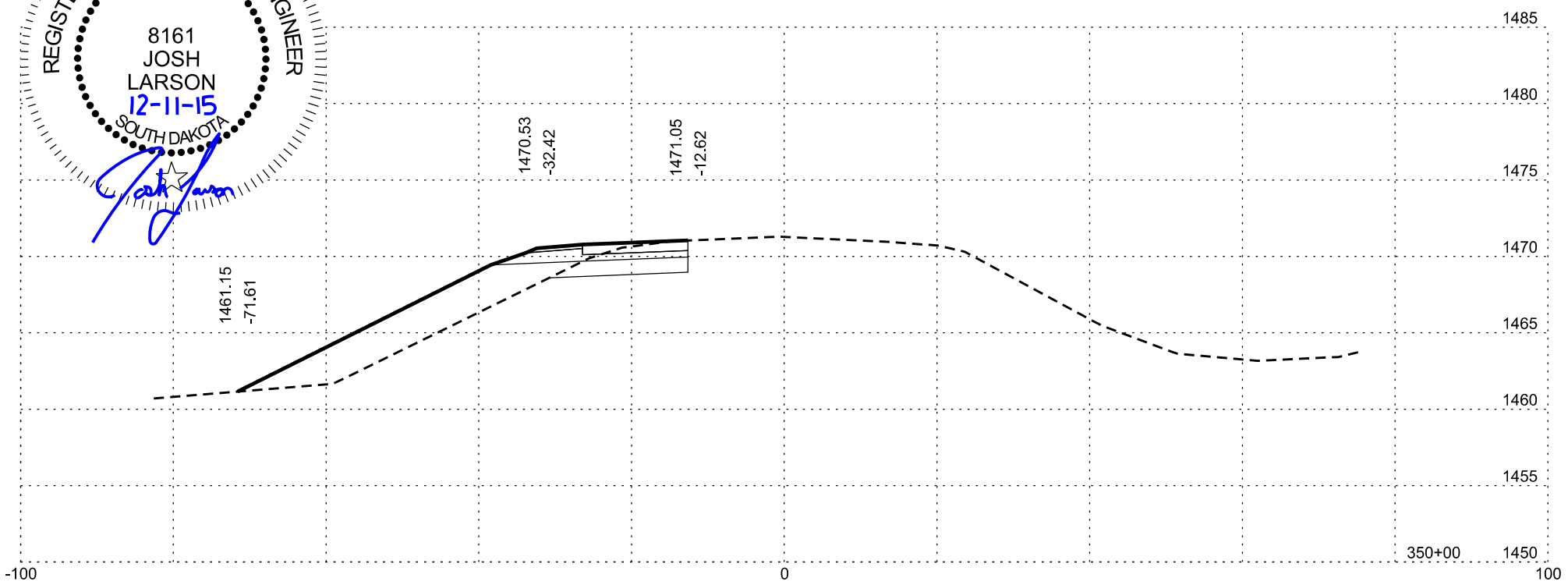


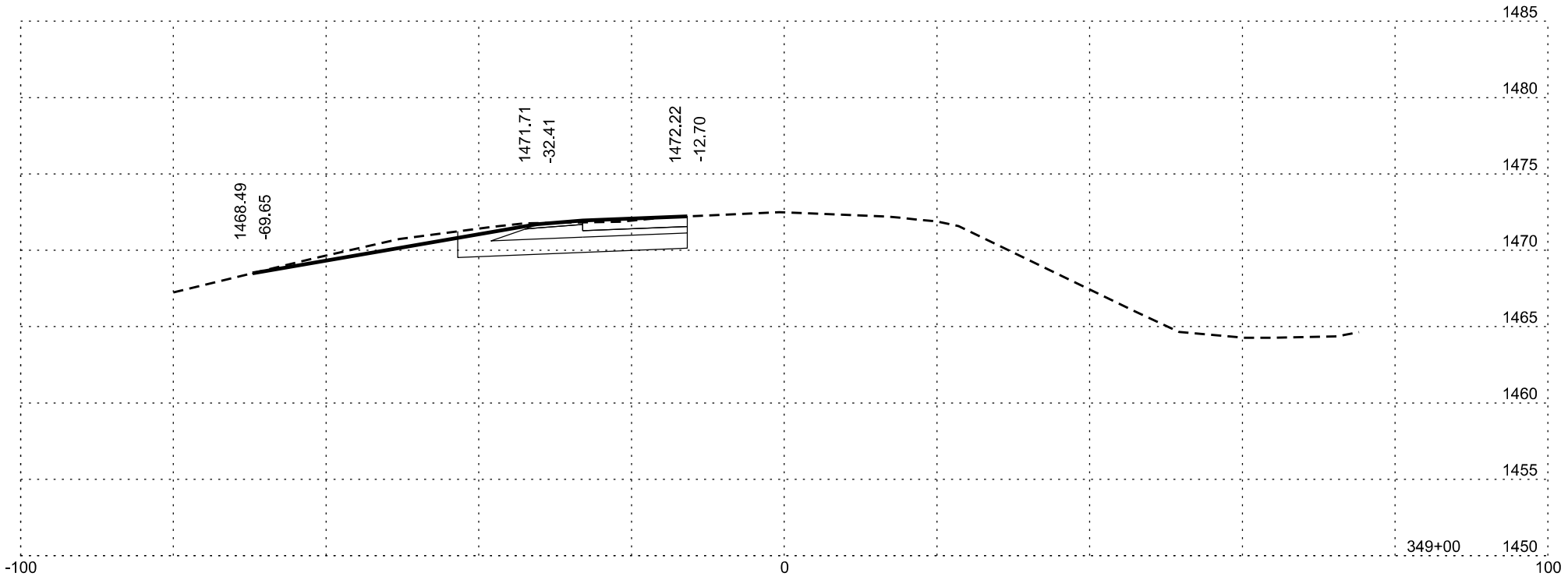
Plotting Date: 12/14/15

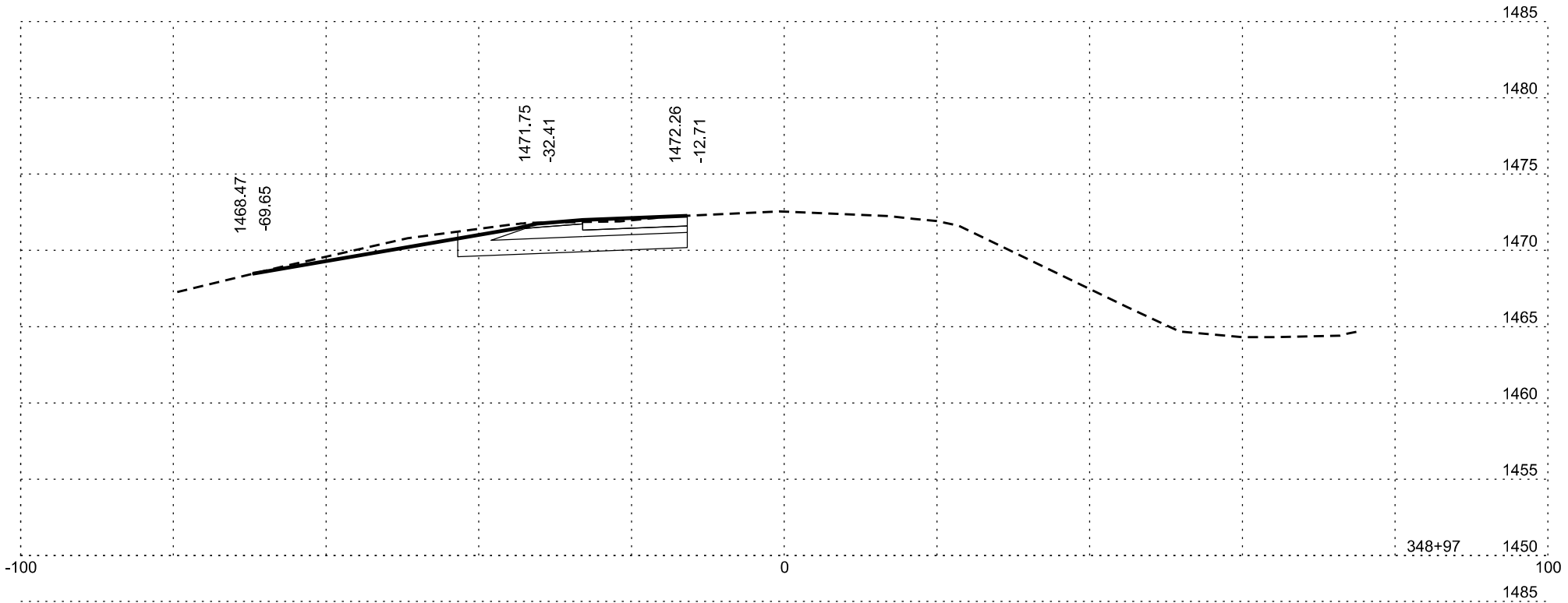
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	118	137

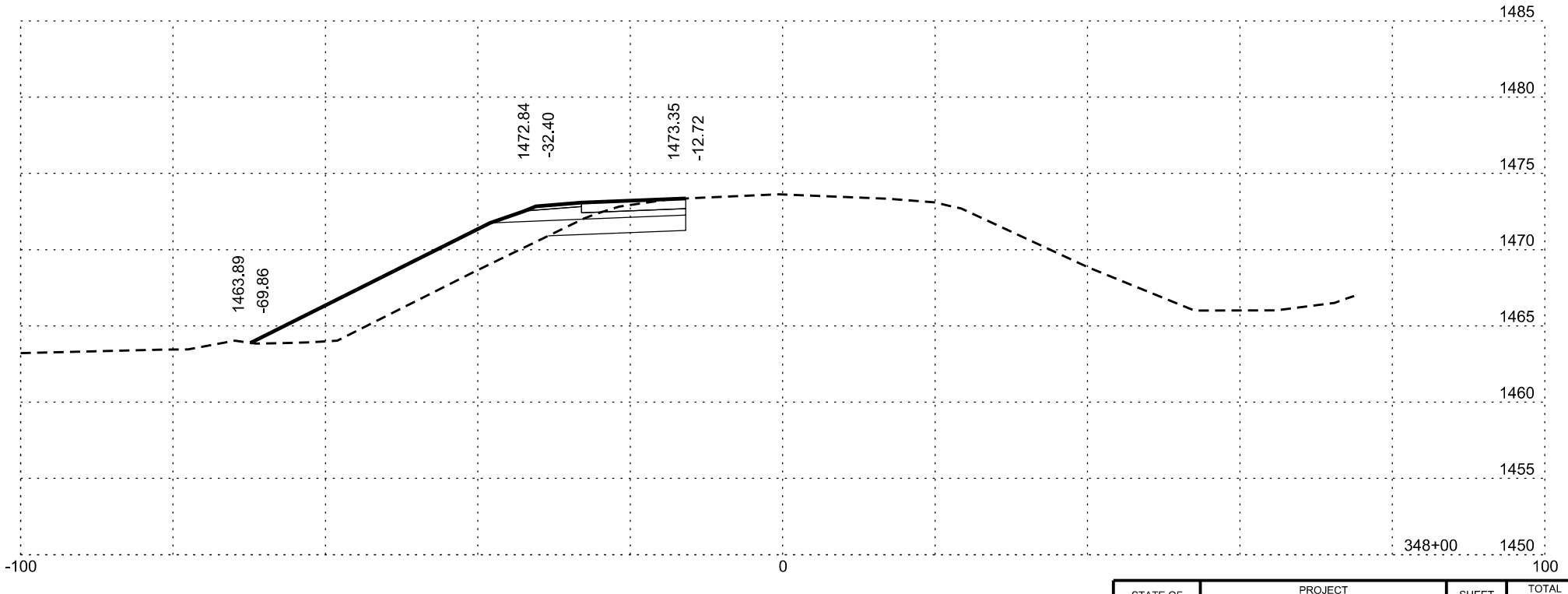
SD HWY 115 - 254TH STREET INTERSECTION

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA







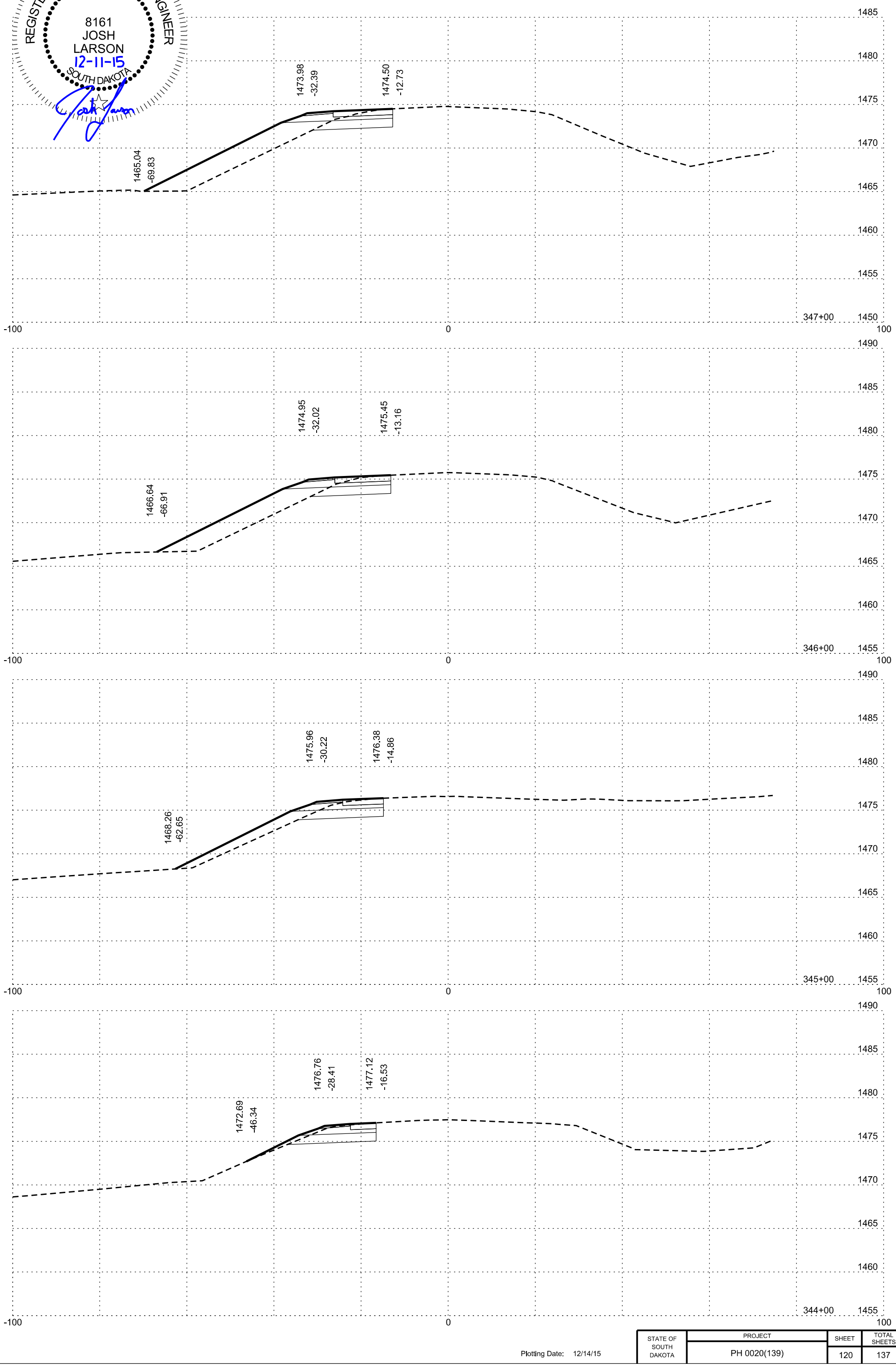


Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	119	137

SD HWY 115 - 254TH STREET INTERSECTION

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA



Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	120	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

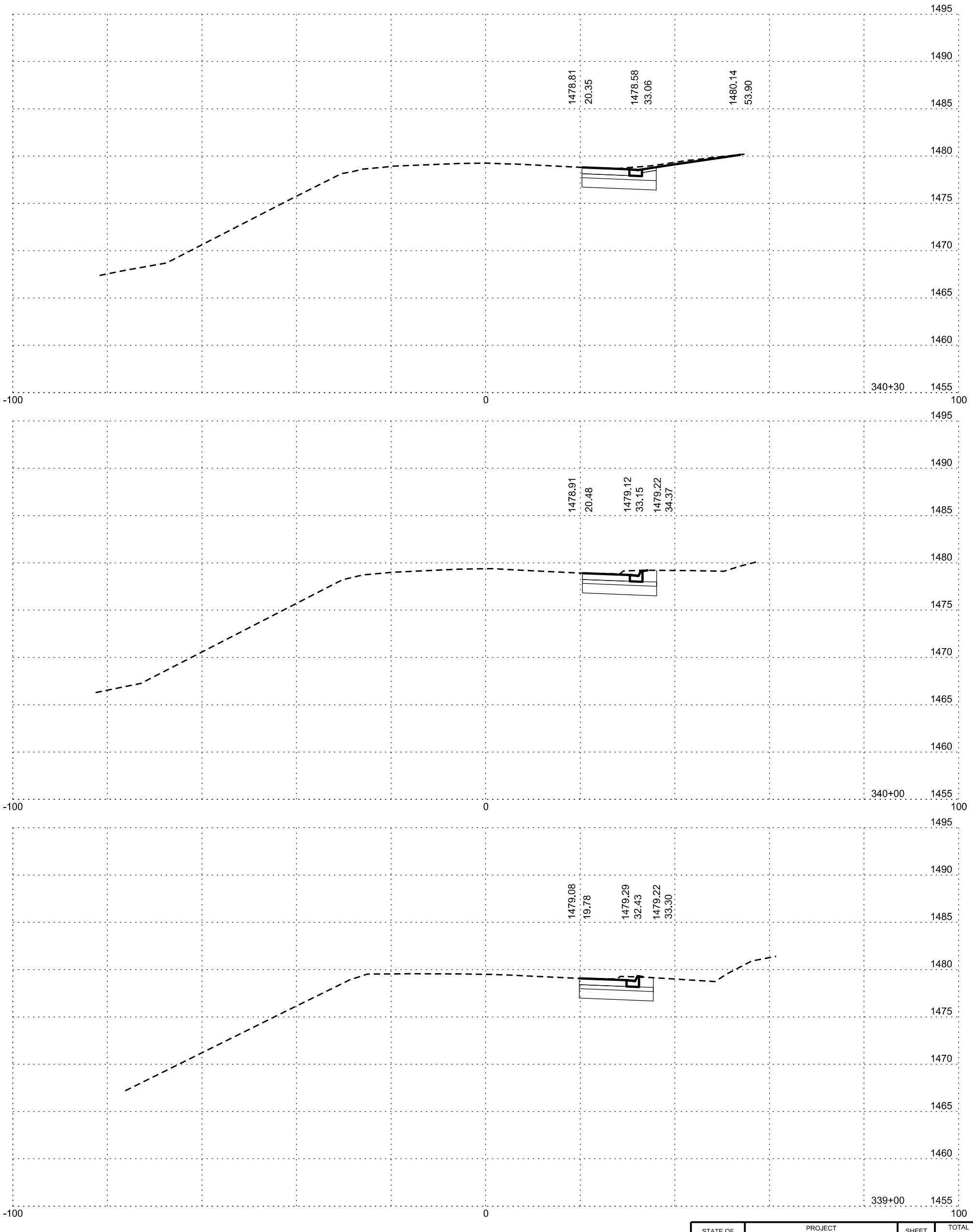
SD HWY 115 - 254TH STREET INTERSECTION

Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	121	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

SD HWY 115 - 254TH STREET INTERSECTION

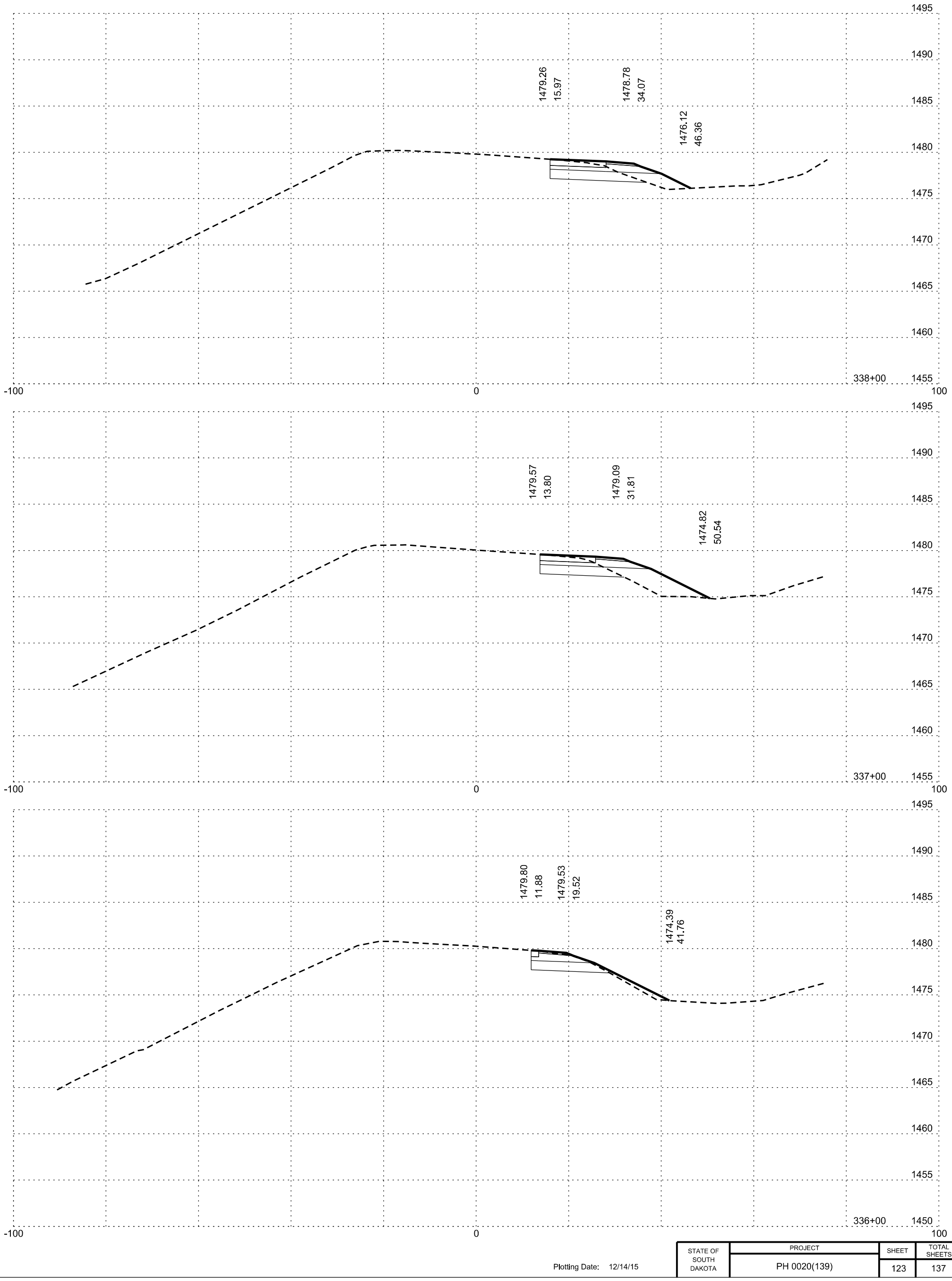


Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	122	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

SD HWY 115 - 254TH STREET INTERSECTION

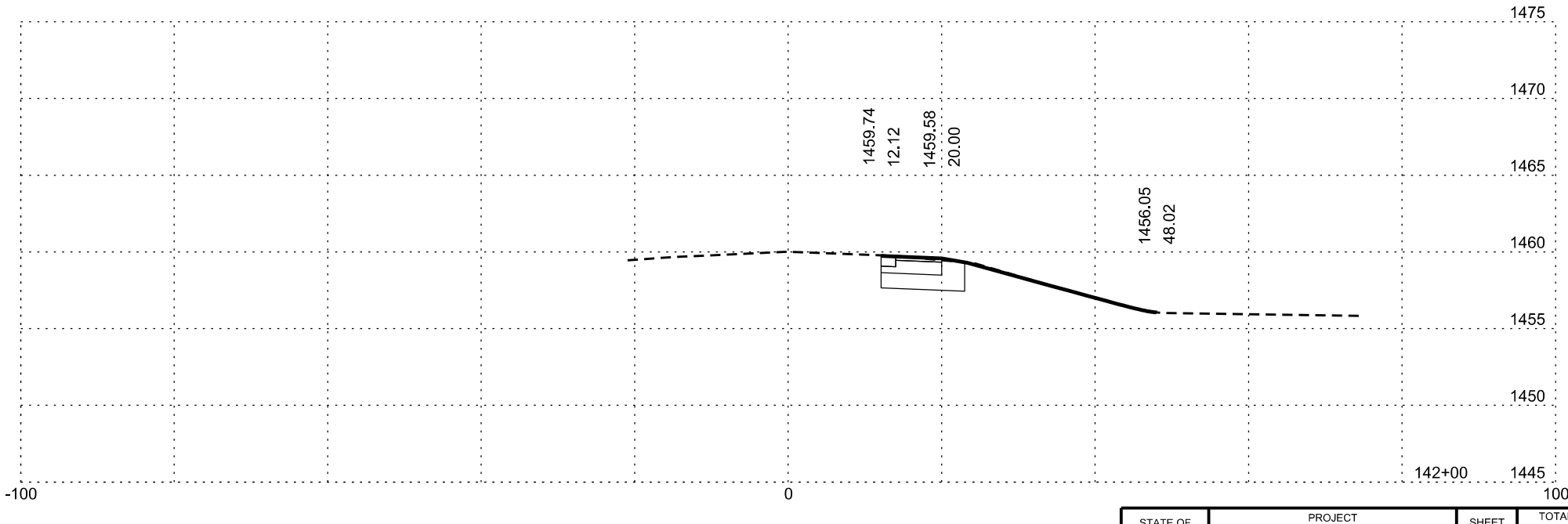


Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	123	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

SD HWY 115 - 258TH STREET INTERSECTION



Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	124	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

SD HWY 115 - 258TH STREET INTERSECTION

Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	125	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

SD HWY 115 - 258TH STREET INTERSECTION

Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	126	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

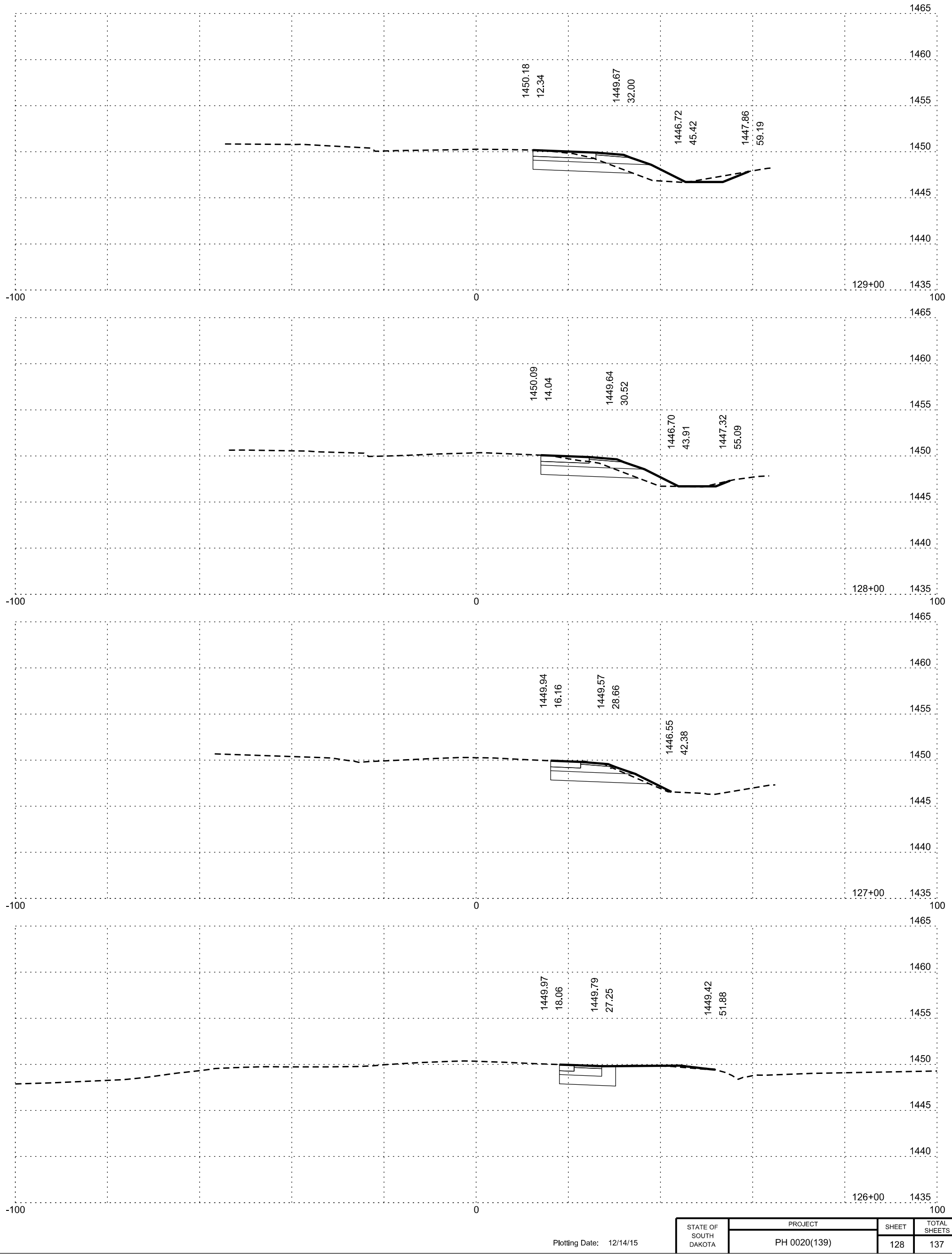
SD HWY 115 - 258TH STREET INTERSECTION

Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	127	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

SD HWY 115 - 258TH STREET INTERSECTION

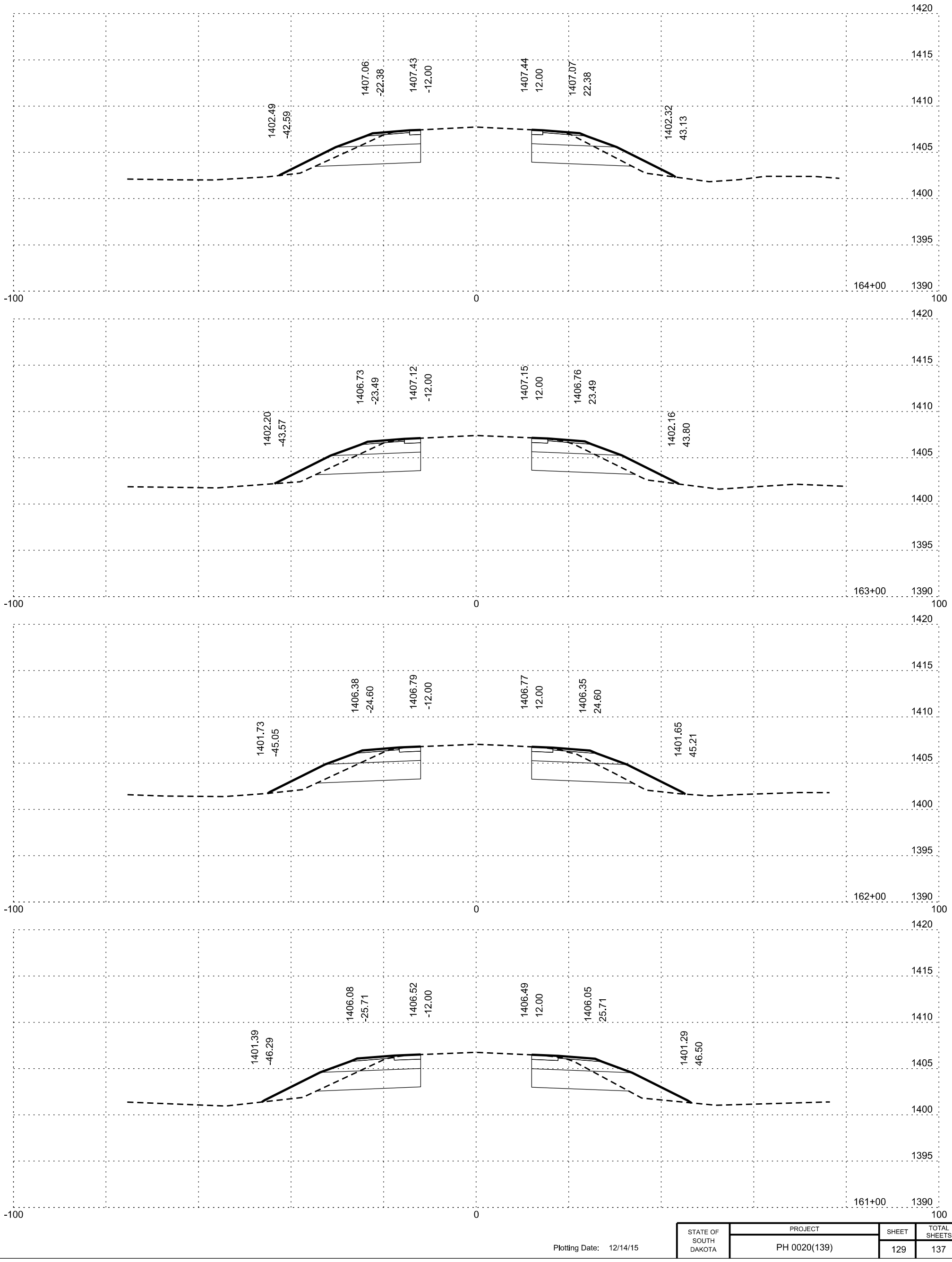


Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	128	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

SD HWY 11

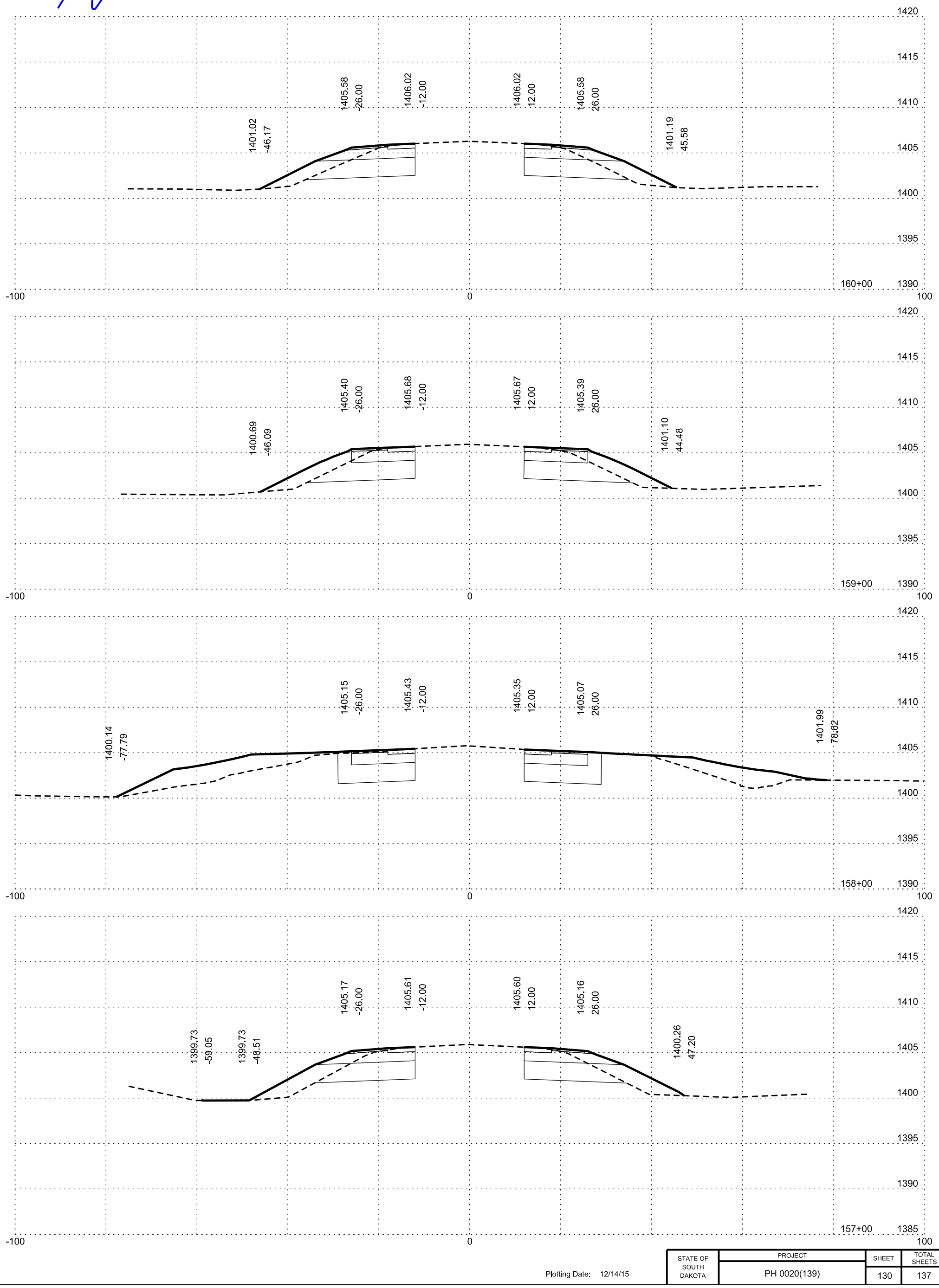


Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	129	137

SD HWY 11

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

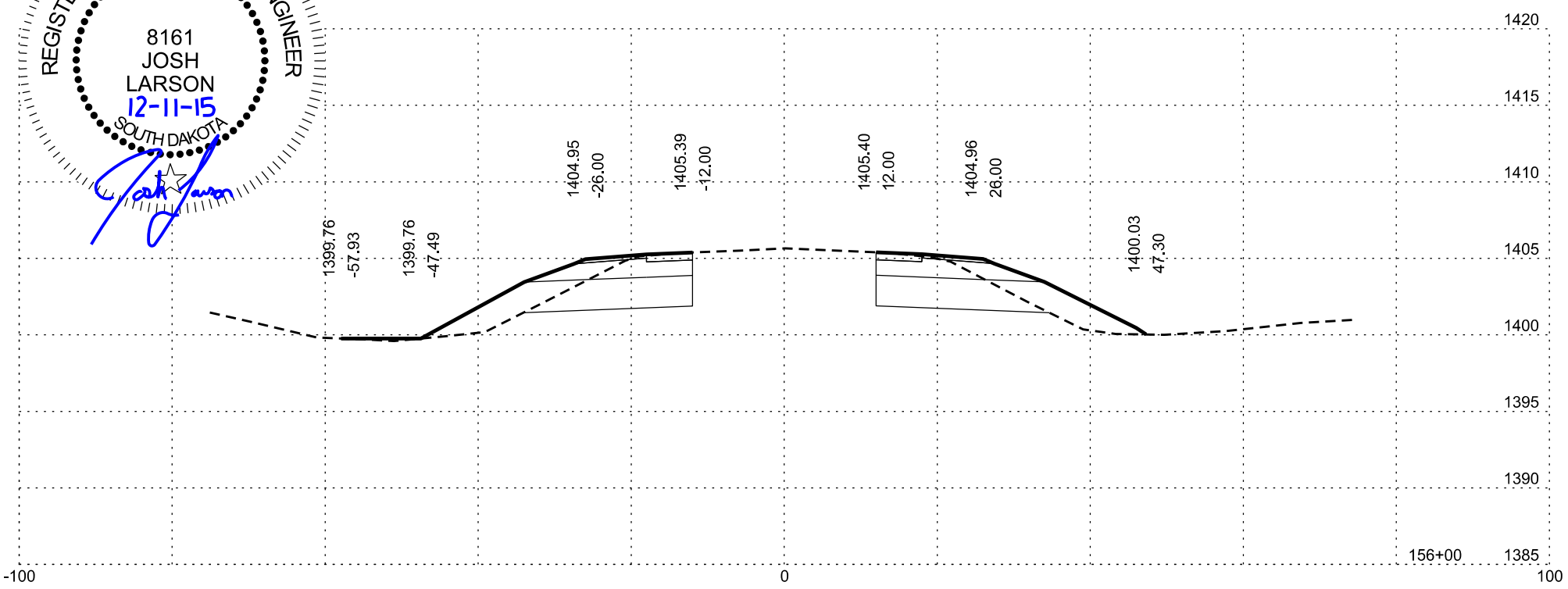


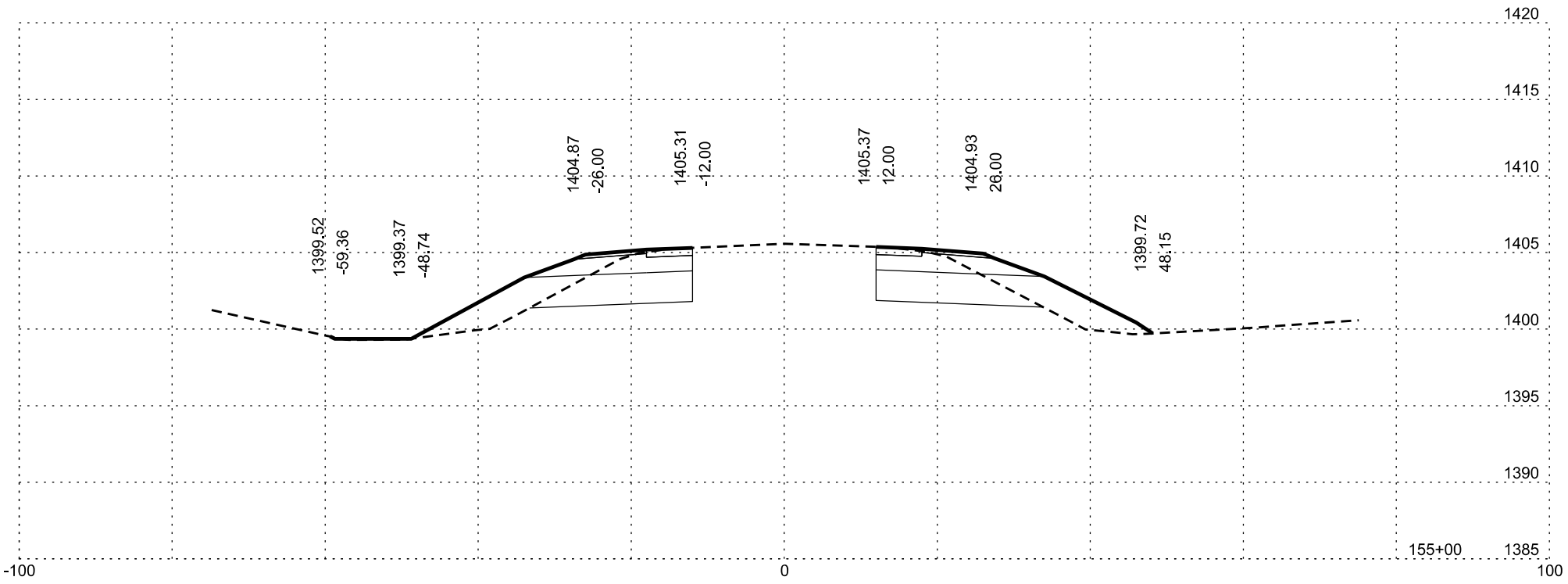
Plotting Date: 12/14/15

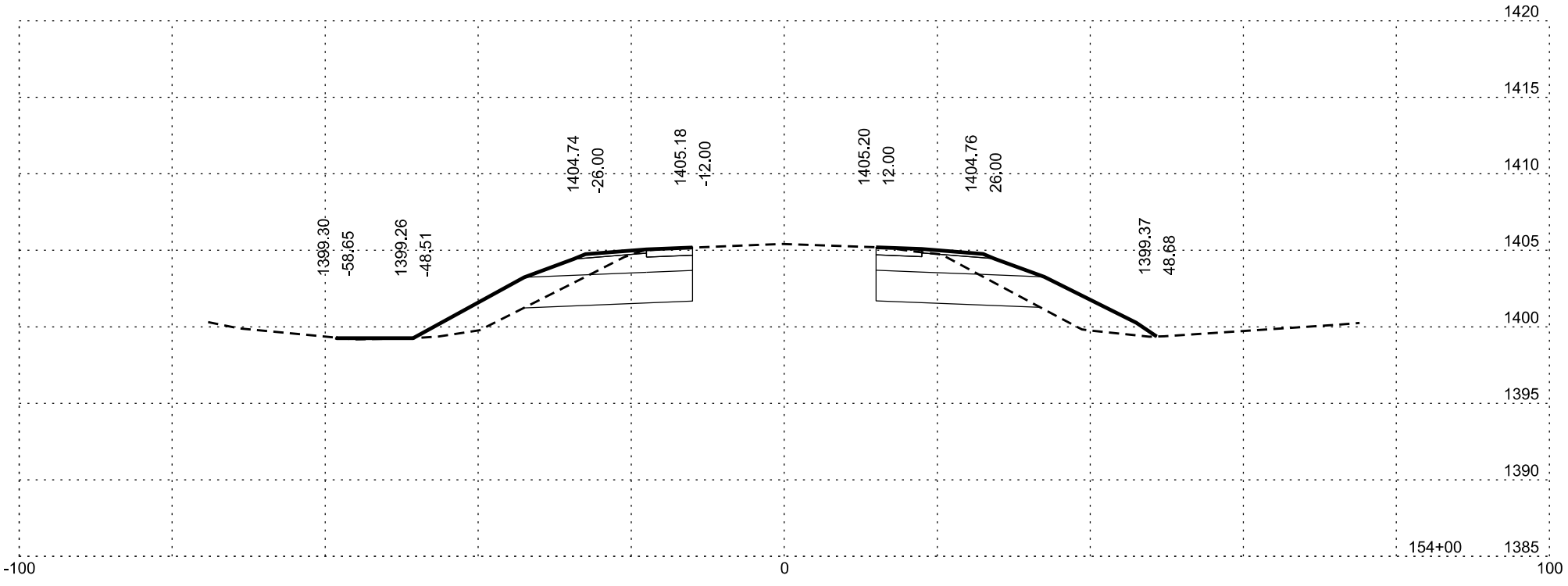
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	130	137

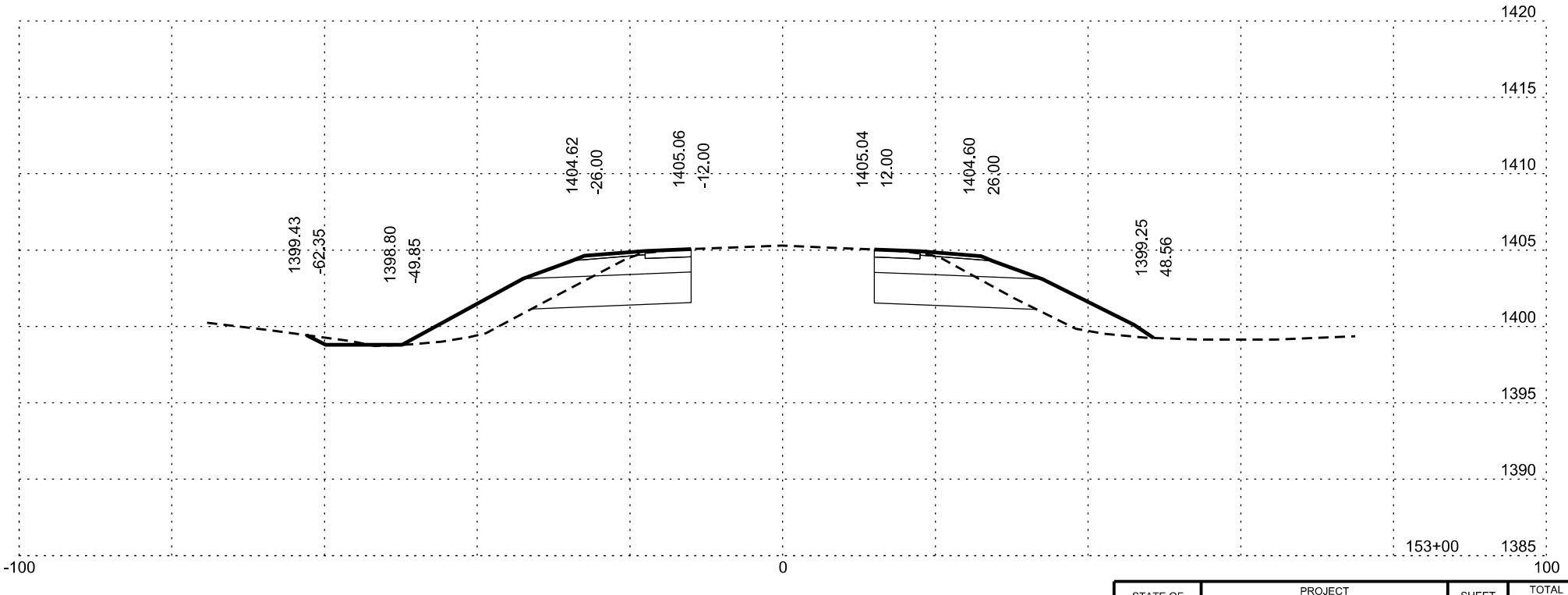
SD HWY 11

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA







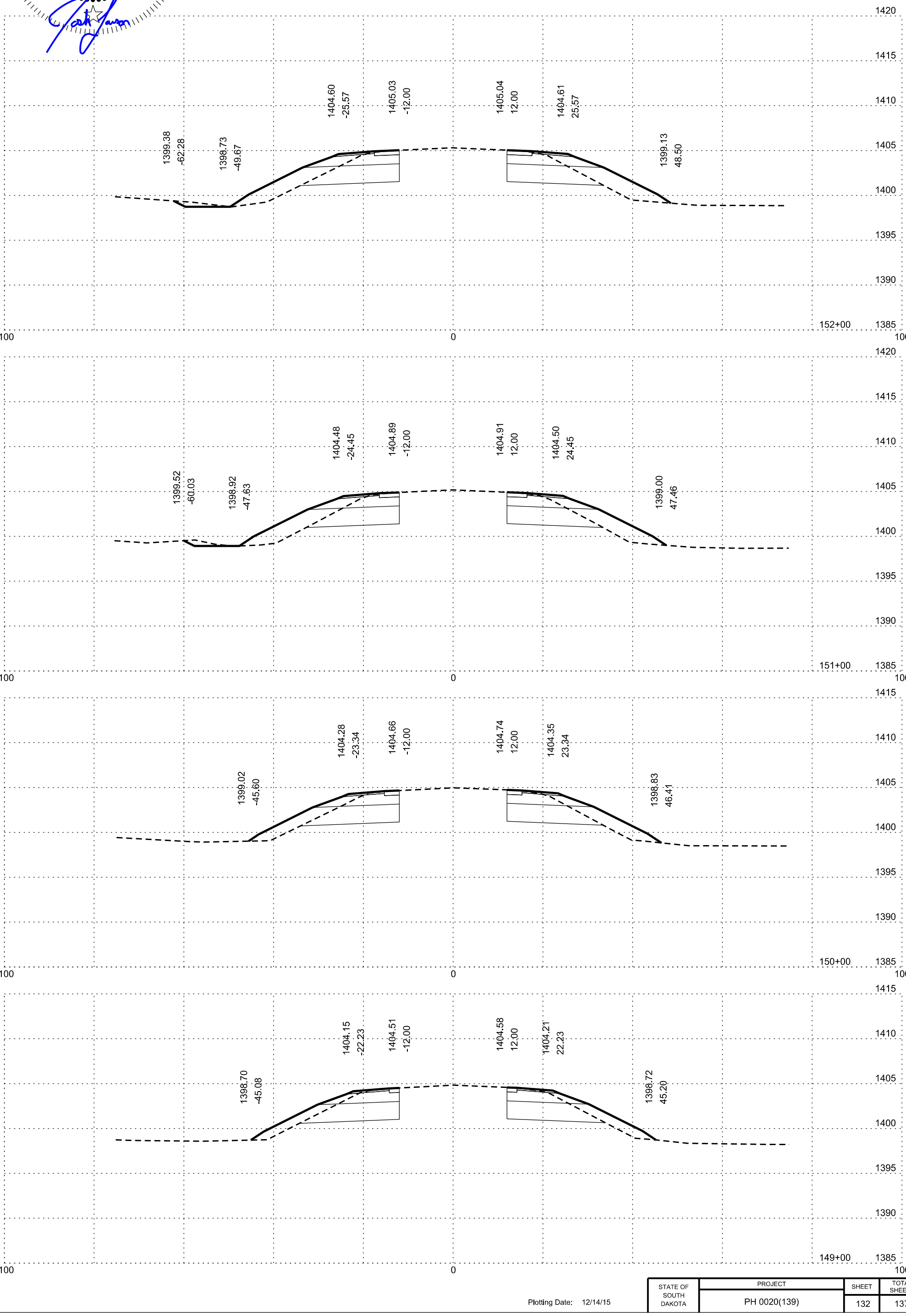


Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	131	137

SD HWY 11

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

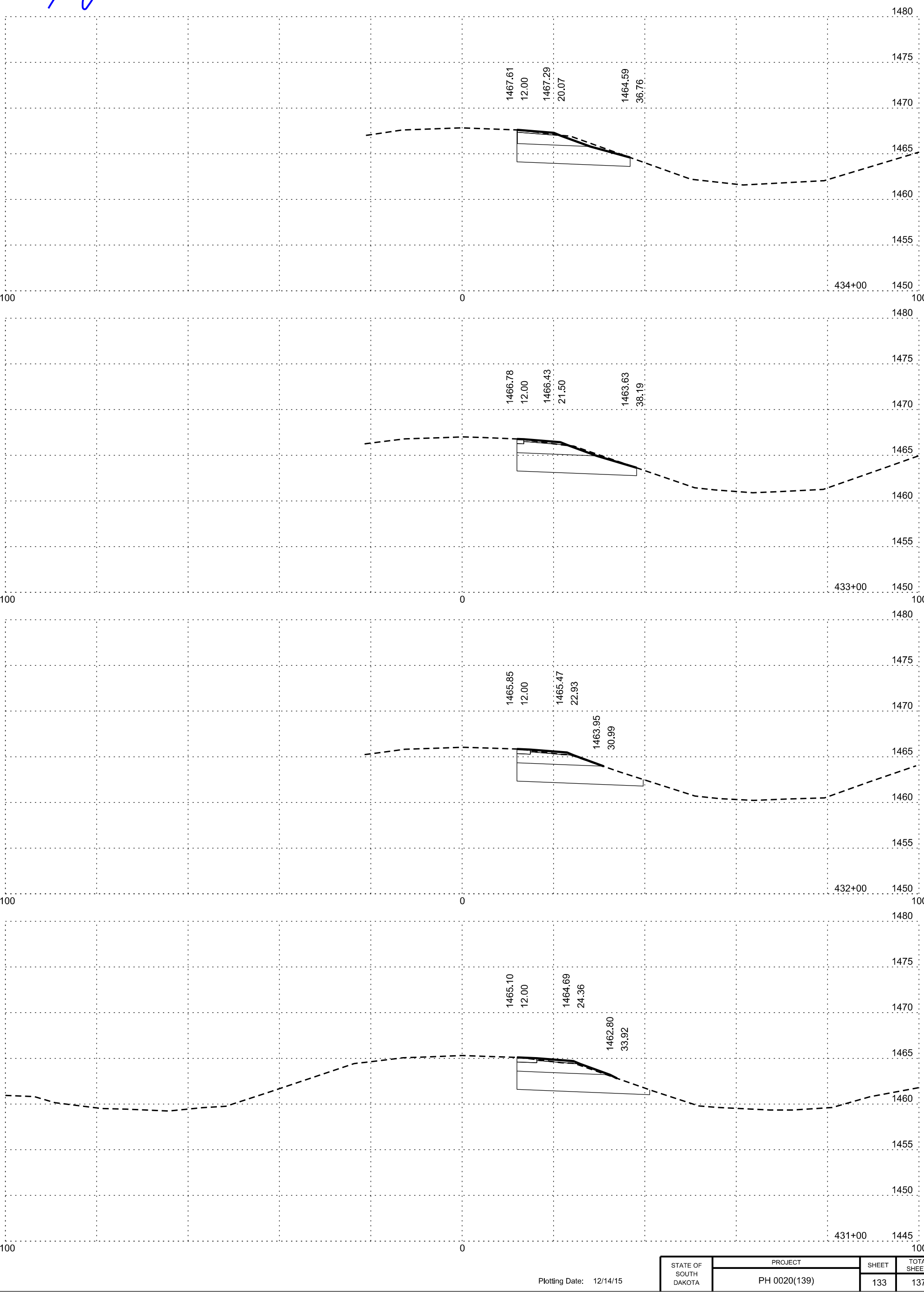


Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	132	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

SD HWY 44



Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	133	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

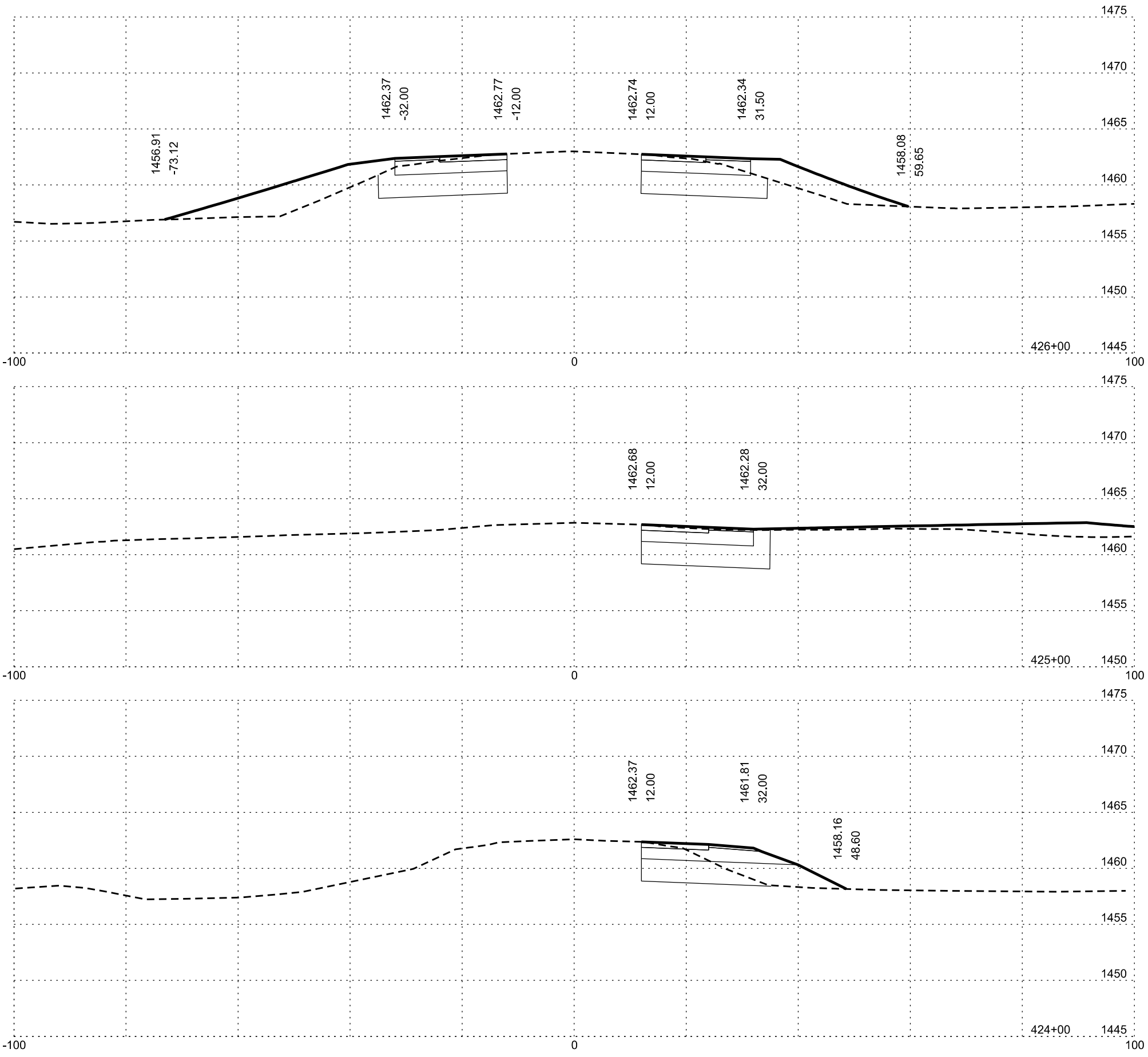
SD HWY 44

Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	134	137

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
12-11-15
SOUTH DAKOTA

SD HWY 44



Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	135	137

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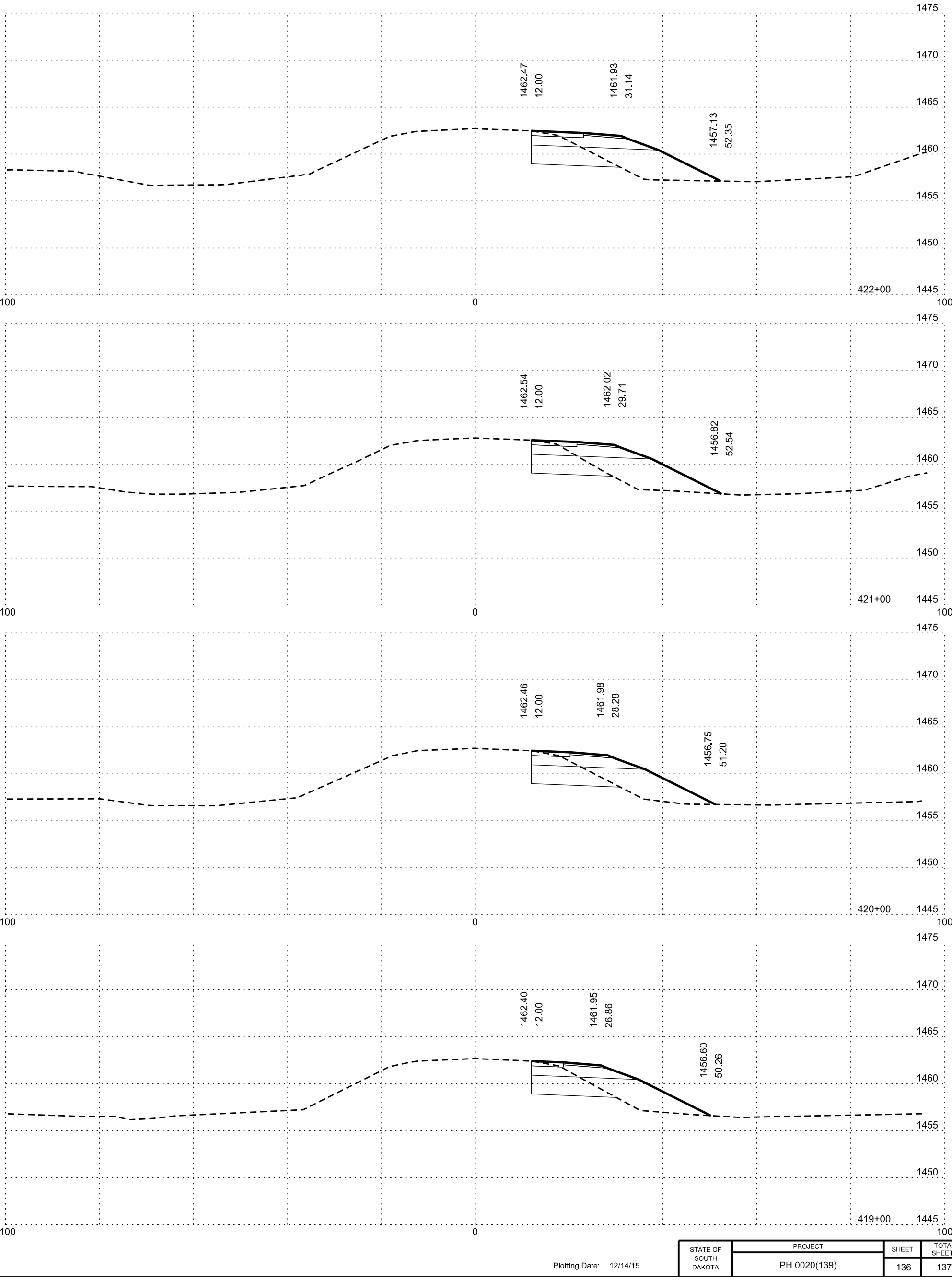
SOUTH DAKOTA

SD HWY 44



Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	136	137

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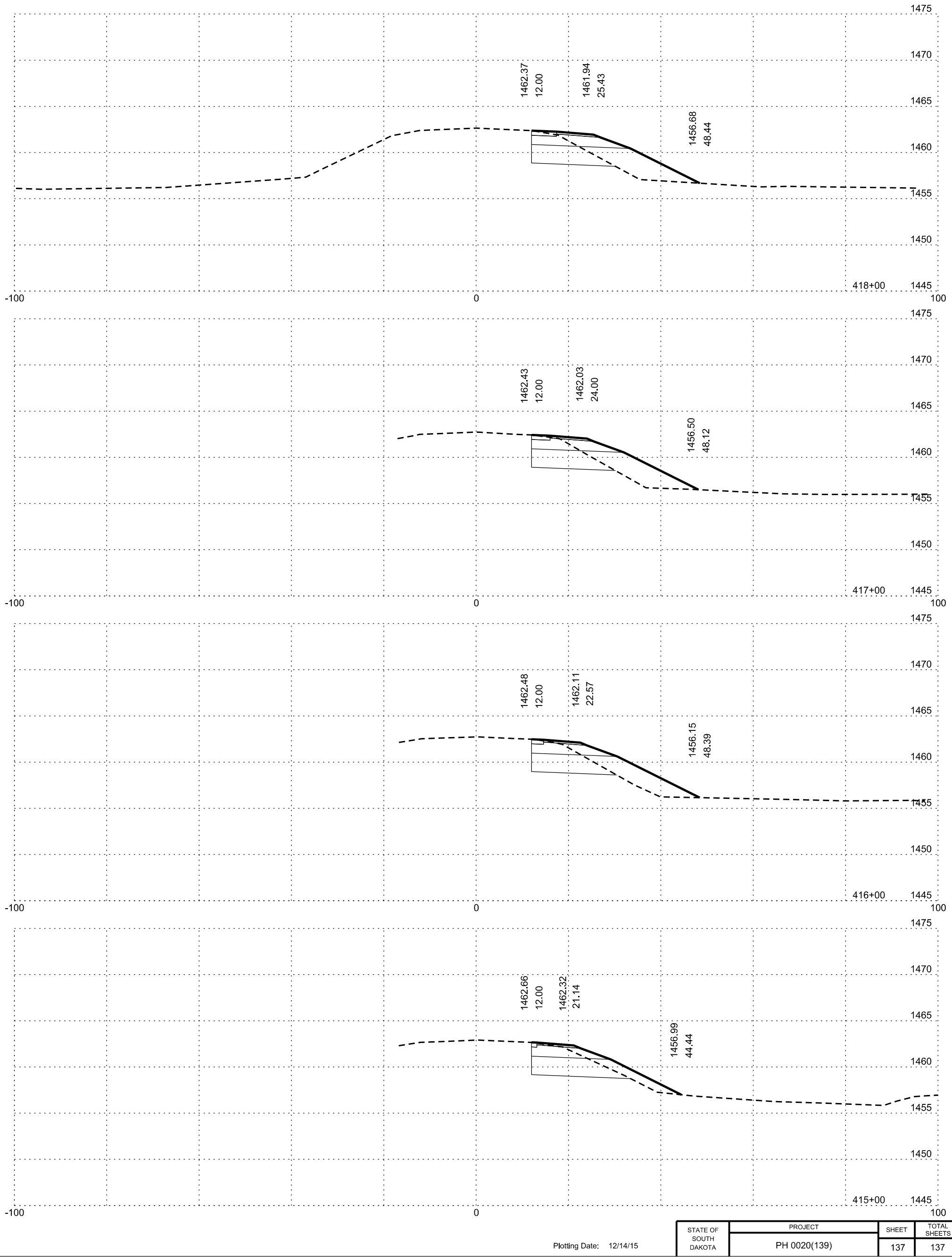
SD HWY 44



Plotting Date: 12/14/15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0020(139)	137	137