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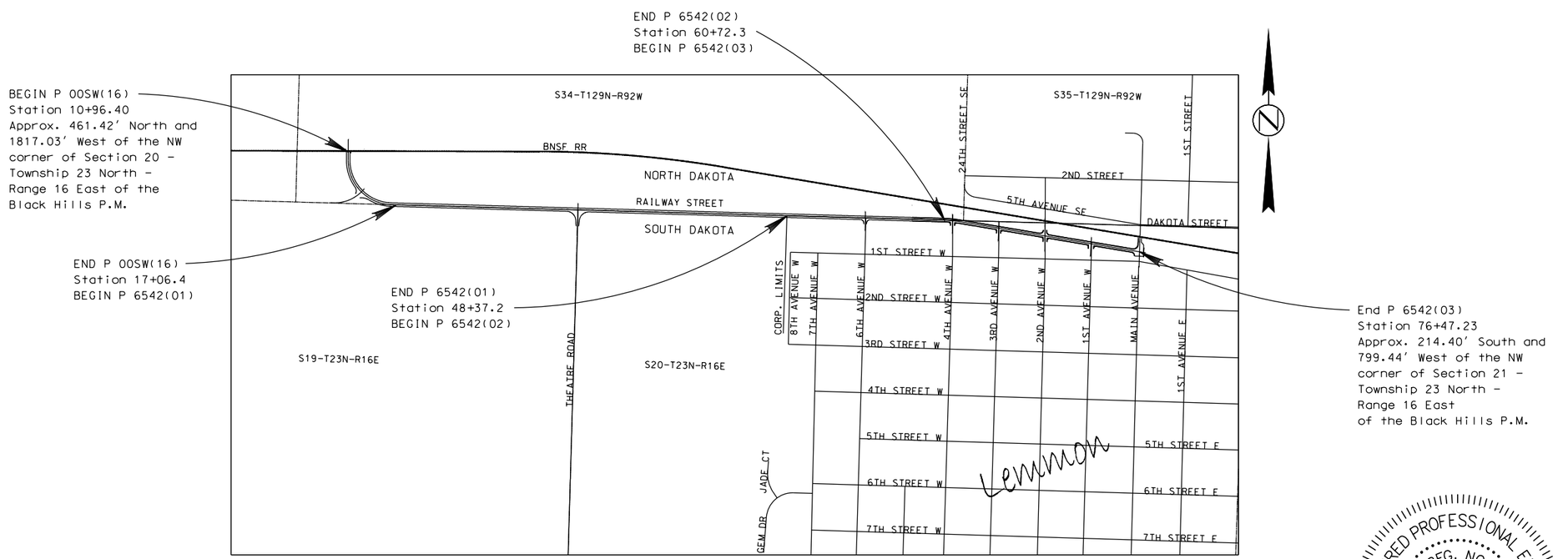
STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B1	B77
FILE: ...*Sheet_Files*B1.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

SECTION B: GRADING PLANS

INDEX OF SHEETS

B1	General Layout w/ Index
B2-B8	Estimate of Quantities/General Notes
B9	Typical Grading Sections
B10-12	Horizontal Alignment
B13	Control Data
B14-B25	Temporary Easement Plan
B26	Existing Topography, Symbology and Legend
B27-B38	Existing Conditions, Removals, and Inplace Utilities
B39-B62	Roadway and Storm Sewer Plan & Profile
B63-B66	Curb & Gutter Layout
B67-B77	Standard Plates



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Plot Scale - 1:1000

Plotted From - dkulseth

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SECTION B ESTIMATE OF QUANTITIES

Std. Bid Item	Item Description	P 00SW(16) Quantity	P 6542(01) Quantity	P 6542(02) Quantity	P 6542(03) Quantity	Total Quantity	Unit
009E0010	Mobilization					Lump Sum	LS
009E3230	Grade Staking	0.231	1.186	0.468	0.597	2.482	Mile
009E3250	Miscellaneous Staking	0.116	0.593	0.234	0.298	1.241	Mile
009E3280	Slope Staking	0.116	0.593	0.234	0.298	1.241	Mile
009E3300	Three Man Survey Crew	4.0	20.0	8.0	8.0	40	Hour
100E0100	Clearing			1		Lump Sum	LS
110E0300	Remove Concrete Curb and Gutter	-	-	-	126	126	Ft
110E0500	Remove Pipe Culvert	-	128	71	70	269	Ft
120E0010	Unclassified Excavation	1,941	11,526	4,510	5,911	23,888	CuYd
120E0100	Unclassified Excavation, Digouts	51	811	372	201	1,435	CuYd
120E2000	Undercutting	888	4457	1798	2292	9,435	CuYd
120E6100	Water for Embankment	19.4	115.3	45.1	59.1	238.9	MGal
250E0020	Incidental Work, Grading					Lump Sum	LS
270E0022	Salvage Asphalt Mix Material	750.5	3,831.7	1,304.1	2,300.0	8,186.3	Ton
270E0210	Haul and Stockpile Granular Material				8,186.3	8,186.3	Ton
380E4010	6" PCC Fillet Section	-	-	-	62.5	62.5	SqYd
450E0123	18" RCP Class 3, Furnish	-		-	1416	1,416	Ft
450E0130	18" RCP, Install	-			1416	1,416	Ft
450E0143	24" RCP Class 3, Furnish		46	-		46	Ft
450E0150	24" RCP, Install		46	-		46	Ft
450E0183	36" RCP Class 3, Furnish	-		-	38	38	Ft
450E0190	36" RCP, Install	-		-	38	38	Ft
450E2016	24" RCP Flared End, Furnish		2	-		2	Each
450E2017	24" RCP Flared End, Install		2	-		2	Each
450E3003	18" RCP Arch Class 3, Furnish			36	-	36	Ft
450E3010	18" RCP Arch, Install			36	-	36	Ft
450E3043	42" RCP Arch Class 3, Furnish		84	-		84	Ft
450E3050	42" RCP Arch, Install		84	-		84	Ft
450E4500	18" RCP Arch Flared End, Furnish			2	-	2	Each
450E4501	18" RCP Arch Flared End, Install			2	-	2	Each
450E4516	42" RCP Arch Flared End, Furnish		4	-		4	Each
450E4517	42" RCP Arch Flared End, Install		4	-		4	Each
450E4759	18" CMP 16 Gauge, Furnish		62	30		92	Ft
450E4760	18" CMP, Install		62	30		92	Ft
450E5211	18" CMP Flared End, Furnish		4	2		6	Each
450E5212	18" CMP Flared End, Install		4	2		6	Each
450E5509	18" CMP Arch 16 Gauge, Furnish				52	52	Ft
450E5510	18" CMP Arch, Install				52	52	Ft
450E6006	18" CMP Arch Safety End, Furnish				2	2	Each
450E6007	18" CMP Arch Safety End, Install				2	2	Each
450E8023	36" CMP to RCP Transition, Furnish				1	1	Each
450E8025	36" Pipe Transition, Install				1	1	Each
451E7520	Exploratory Excavation	1	5	2	2	10	Hour
462E0100	Class M6 Concrete	-			24.0	24.0	CuYd
480E0100	Reinforcing Steel	-			3170	3,170	Lb
600E0300	Type III Field Laboratory		1			1.00	Each
650E0060	Type B66 Concrete Curb and Gutter			468	3206	3,674	Ft
650E4660	Type P6 Concrete Gutter			22	41	63	Ft
670E1200	Type B Frame and Grate Assembly	-			14	14	Each
671E6007	Type A7 Manhole Frame and Lid	-			1	1	Each
831E0300	MSE Geotextile Fabric	100	500	200	200	1,000	SqYd
998E0100	Railroad Protective Insurance					Lump Sum	LS

PROJECT QUANTITIES BREAK-OUT

Due to the proximity of the project within South Dakota, North Dakota and the City of Lemmon, the project quantities have been broken-up as follows:

- **Sta. 10+96.4 (west end) to 17+06.4: PCN 051L**
  - Adams County, ND quantities
  - Project Number P 00SW(16)
- **Sta. 17+06.4 to 48+37.2: PCN 051Q**
  - 50% Adams County, ND quantities
  - 50% Perkins County, SD quantities
  - Project Number P 6542(01)
- **Sta. 48+37.2 to 60+72.3: PCN 051T**
  - 50% Adams County, ND quantities
  - 50% City of Lemmon, SD quantities
  - Project Number P 6542(02)
- **Sta. 60+72.3 to 76+95 (east end): PCN 051U**
  - City of Lemmon, SD quantities
  - Project Number P 6542(03)

RAILROAD PROTECTIVE INSURANCE

Due to work on the project taking place nearby the BNSF Railroad, the Contractor shall be required to have Railroad Protective Insurance. See Special Provision for Railroad protective Insurance.

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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 below.

POWER Montana-Dakota Utilities • Distribution (in-town) • Dickinson, ND • Attn: Tom Dwyer • (701) 290-2456 • Transmission (out-of-town) • Bismarck, ND • Attn: Holly Watts • (701) 222-7736	**POWER** Slope Electric New England, ND Attn: Dean Volk (701) 290-5669
COMMUNICATIONS West River Coop Telephone Bison, SD Attn: Tyrell Ellingson (605) 490-1601	**WATER** Southwest Water Authority Reeder, ND Attn: Leo Miller (701) 290-0472
CITY OF LEMMON STREETS, SEWER, WATER City of Lemmon Attn: Dave Huber (605) 374-5631	

A summary of the existing utilities are as follows:

1. Montana-Dakota Utilities has existing overhead power lines at:
   - The north side of Railway Street, Sta. 51+00 to 6th Ave
   - Across Railway Street at the east side of 6th Ave
   - The south side of Railway Street, 4th Ave to 3rd Ave
   - Across Railway Street at the east side of 2nd Ave
   - Across Railway Street halfway between 1st Ave and Main Ave
   - Across Railway Street at the west and east sides of Main Ave
2. West River Coop Telephone has buried telephone/fiber line at:
   - Across Railway Street at the west side of 6th Ave
   - Across Railway Street at the west side of Main Ave
3. City of Lemmon has buried water and sewer:
   - Across Railway Street at 6th Ave
   - At the southwest corner of 4th Ave
   - At the southeast corner of 3rd Ave
4. Slope Electric has no known utilities on-site.
5. Southwest Water Authority has no known utilities on-site.

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TYPE III FIELD LABORATORY

The lab shall be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection shall be provided with a multi-port wireless router. The internet connection shall be a minimum speed of 512 Kb unless limited by job location and approved by the DOT. Prior to installing the wireless router the Contractor shall submit the wireless router's technical data to the Area Office to check for compatibility with the state's computer equipment. The internet connection is intended for state personnel usage only. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer.

The Contractor shall submit a copy of each monthly bill for calls charged to this phone at the end of each month. The Project Engineer will then audit the bills to ensure all calls are legitimate and then initiate a Construction Change Order (CCO) to reimburse the Contractor for the actual phone calls made, including local and long distance calls. Reimbursement will not be made for fees associated with the purchase, installation, disconnection, monthly line charges, and incidentals involved in the installation, maintenance, and disconnection of the phone (including attachments). These items shall be incidental to the contract unit price per each for "Type III Field Laboratory".

CLEARING

Before clearing activities begin, the Contractor shall contact the Engineer to determine the limits of clearing for the project. If the trees or shrubs that are supposed to remain within the limits of work are damaged or destroyed by the Contractor, the Contractor shall replace them with the same size and type at the Contractor's expense.

EXPLORATORY EXCAVATION

This work consists of the Contractor excavating material to locate and verify depth of an existing utility line (private or public) when directed by the Engineer to avoid possible conflicts. Payment will be at the contract unit price per hour for all labor, equipment, and materials needed. A quantity of **10 hours** has been estimated for this project.

INCIDENTAL WORK, GRADING

"Incidental Work, Grading" shall consist of the following work:

- saw cutting existing PCC pavement and asphalt surfacing
- adjustment of water valve boxes during final paving

DRAINAGE DURING CONSTRUCTION

Drainage during construction is the Contractor's responsibility. Contractor shall be aware of existing drainage conditions and facilities, and shall provide for drainage during all phases of construction. Damage caused by improper temporary drainage facilities shall be repaired at the Contractor's expense and to the satisfaction of the Engineer.

TRENCH DEWATERING

The water quality must meet the standards as noted in the Surface Water Discharge Permit. All work and materials necessary to pump and transport the water shall incidental to the storm sewer pipe installation bid items.

A general dewatering permit is required when a discharge from dewatering, disinfection, or pressure testing could reach waters of the state.

TABLE OF REMOVE CONCRETE CURB AND GUTTER

Station	to Station	L/R	Quantity (Ft)
P 00SW(16)			
no quantity			
		Total:	0
P 6542(01)			
no quantity			
		Total:	0
P 6542(02)			
no quantity			
		Total:	0
P 6542(03)			
140+72.4	140+81.4	R	9
80+87.1	81+11.5	L	34
80+71.2	81+52	R	83
		Total:	126

TABLE OF REMOVE STORM SEWER PIPE

Station to	Station	L/R	RCP Circular Pipe 18" (Ft)	RCP Circular Pipe 24" (Ft)	RCP Circular Pipe 36" (Ft)	CMP Circular Pipe 18" (Ft)
P 00SW(16)						
		Total:	no quantity			
		Grand Total	0			
P 6542(01)						
17+53.3	17+53.3	L/R		63		
22+89.0	22+89.0	L/R			44	
44+63.6	44+84.3	R				21
		Total:	0	63	44	21
		Grand Total	128			
P 6542(02)						
51+83.7	52+14.5	L				32
52+22.0	52+22.0	L/R				39
		Total:	0	0	0	71
		Grand Total	71			
P 6542(03)						
68+63.5	69+03.6	L				40
70+81.0	70+81.0	L/R			30	
		Total:	0	0	30	40
		Grand Total	70			

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 00SW(16) / P 6542(01) P 6542(02) / P 6542(03)	B4	B77

Plotting Date: 2/16/2015

(For breakdown of Earthwork Computations, see the Earthwork Tabulations following the Cross Sections in Section X)

Station to Station				Topsoil Excavation (CuYd)	Excavation (CuYd)	Total Excavation (CuYd)	Excavation Digouts (CuYd)	Placing Topsoil	Embankment (30% Shrink) (CuYd)	Waste (CuYd)	Topsoil Waste (CuYd)
P 00SW(16)											
10+96.4	to	17+06.4		89	464	553	51	89	35	430	0
			Total:	89	464	553	51	89	35	430	0
P 6542(01)											
17+06.4	to	48+37.2		1,408	3,007	4,415	811	1,408	1,477	1,530	0
			Total:	1,408	3,007	4,415	811	1,408	1,477	1,530	0
P 6542(02)											
48+37.2	to	60+72.3		720	1,123	1,843	372	720	647	477	0
			Total:	720	1,123	1,843	372	720	647	477	0
P 6542(03)											
Railway St.											
60+72.3	to	76+00		460	1,625	2,085	178	460	196	1,370	193
Main Ave.				12	76	88	23	12	93	-44	-22
			Total:	472	1,701	2,173	201	472	289	1,326	171
			Project Total:	2,689	6,295	8,984	1,435	2,689	2,447	3,762	171

TABLE OF UNCLASSIFIED EXCAVATION

P 00SW(16)		
Topsoil Excavation	89	CuYd
Excavation	464	CuYd
Salvage and Stockpile Asphalt Mix and Granular Base Material	500	CuYd
Undercut	888	CuYd
Total:	1,941	CuYd
P 6542(01)		
Topsoil Excavation	1,408	CuYd
Excavation	3,007	CuYd
Salvage and Stockpile Asphalt Mix and Granular Base Material	2,554	CuYd
Undercut	4,557	CuYd
Total:	11,526	CuYd
P 6542(02)		
Topsoil Excavation	720	CuYd
Excavation	1,123	CuYd
Salvage and Stockpile Asphalt Mix and Granular Base Material	869	CuYd
Undercut	1,798	CuYd
Total:	4,510	CuYd
P 6542(03)		
Topsoil Excavation	460	CuYd
Excavation	1,625	CuYd
Salvage and Stockpile Asphalt Mix and Granular Base Material	1,534	CuYd
Undercut	2,292	CuYd
Total:	5,911	CuYd
Project Total:	23,888	CuYd

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GRADING OPERATIONS

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

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

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 Engineer for the proposed change.

A copy of the soils profile is available for review at the office of HDR Engineering. Contact Craig Mizera of HDR (#701-557-9701) to obtain this info.

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

The plans quantity shown shall be the quantity used for Unclassified Excavation. No field measurement shall be made.

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, which includes necessary undercutting to provide space for placement of topsoil.

The Excavation quantities from individual balances and the Table of Unclassified Excavation have been reduced by the volume of in place surfacing that will be removed.

The quantity for Salvage Asphalt Mix and Granular Base Material shall be added to the Excavation quantity to determine the Unclassified Excavation quantity. When finalizing the project, the quantities of Salvage Asphalt Mix and Granular Base Material will not be adjusted according to field measurements.

UNCLASSIFIED EXCAVATION DIGOUTS

The Contractor shall Scarify and Recompact the Subgrade to a depth of 12 inches prior to placing aggregate base course in cut sections.

Areas determined as unstable subgrade by the Engineer shall be excavated. The unstable material excavated shall be placed outside the subgrade shoulder in fill sections.

The estimated quantity of **1435 cubic yards** of unstable material excavation shall be paid for at the contract unit price per cubic yard for "Unclassified Excavation Digouts".

GEOTEXTILE MATERIAL

Areas determined as unstable subgrade by the Engineer are allowed to have geotextile material installed beneath the proposed pavement section.

A quantity of **1000 square yards** of MSE geotextile material is estimated for the project. The MSE geotextile material shall be installed below the backfilled undercut at locations it is installed. The unstable material should be excavated to a depth of 1foot below the subgrade top and the geotextile installed at the undercut depth. The undercut should then be backfilled with base course.

The geotextile will conform to the specification for Geotextiles and Impermeable Plastic Membrane, MSE Geotextile Fabric (Section 831.1 of the Specifications). The geotextile will be on the Approved Products List for this material or will be certified by the supplier to meet this specification prior to installation.

Geotextile will be paid for at the contract unit price per SqYd for MSE Geotextile Fabric. Payment quantities will be based on area covered plus 15%. Overlaps are accounted for by the additional 15%. Payment will be full compensation for furnishing and installing the geotextile only. Granular backfill materials will be paid for under a different bid item.

The geotextile will be placed as taut as possible with minimal wrinkles. Placement will be done so that subsequent granular cover material does not shove, wrinkle or distort the in place geotextile. The overlaps will be shingled in a manner that assures granular material will not be forced under the geotextile during backfilling operations. The geotextile may be held in place with small piles of granular material or staples.

The top of the subgrade shall be prepared by smoothing the surface of the subgrade to minimize any ruts, ridges, and depressions. Any rocks or other protrusions that might damage the geotextile will be removed. The geotextile shall be unrolled perpendicular to the centerline and overlapped a minimum of 2 feet.

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SALVAGE AND STOCKPILE ASPHALT MIX AND GRANULAR BASE MATERIAL

The existing asphalt surfacing and granular base material shall be salvaged from the entire length of the existing project roadway and stockpiled at the City of Lemmon Landfill Site. The City of Lemmon Landfill Site is approximately 2.5 miles south and east of the project area.

The Contractor shall use the truck routes within and around the City of Lemmon when hauling the materials to the Landfill Site. The Contractor shall use either Theatre Road or 2nd Avenue East when heading north/south. The Contractor shall then use HWY 12 / 10th St West when heading east/west. The Contractor shall access the Landfill site by using 2nd Avenue East and entering the east side of the Landfill. Contact Dave Huber (#605-430-1158) of the City of Lemmon Street Department for coordination of the stockpiling at the Landfill Site.

The Contractor shall be responsible for hauling the asphalt and gravel materials to the stockpile site and pushing the material into a pile at the stockpile site. The stockpile shall be uniform, kept neat and orderly by the Contractor. The stockpile shall have a good appearance upon the Contractor completing this work.

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 field quantity of "Salvage and Stockpile Asphalt Mix and Granular Base Material".

The soil borings taken along the project show the existing asphalt depth varies from 2"-6" and the gravel base depth varies from 3"-7". An average asphalt depth of 3.8" and gravel base depth of 6.3" was used to calculate the Salvage and Stockpile Asphalt Mix and Granular Base Material quantity.

TABLE OF SALVAGE AND STOCKPILE ASPHALT MIX AND GRANULAR BASE MATERIAL

			Area	Asphalt Quantity		Gravel Quantity		Total Quantity	
Station to	Station	L/R	(SqYd)	(CuYd)	(Ton)	(CuYd)	(Ton)	(CuYd)	(Ton)
P 00SW(16)									
10+96.4	17+06.4	L/R	1,787.0	187.6	281.5	312.7	469.1	500.4	750.5
		Total:	1,787.0	187.6	281.5	312.7	469.1	500.4	750.5
P 6542(01)									
17+06.4	48+37.2	L/R	9,123.0	957.9	1,436.9	1,596.5	2,394.8	2,554.4	3,831.7
		Total:	9,123.0	957.9	1,436.9	1,596.5	2,394.8	2,554.4	3,831.7
P 6542(02)									
48+37.2	60+72.3	L/R	3,105.0	326.0	489.0	543.4	815.1	869.4	1,304.1
		Total:	3,105.0	326.0	489.0	543.4	815.1	869.4	1,304.1
P 6542(03)									
60+72.3	76+95.0	L/R	5,477.0	575.1	862.6	958.5	1,437.7	1,533.6	2,300.3
		Total:	5,477.0	575.1	862.6	958.5	1,437.7	1,533.6	2,300.3

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.

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REINFORCED CONCRETE PIPE

High sulfate levels are likely to be encountered on this project. The type of cement used for the reinforced concrete pipes shall be either a type II with 20% class F modified fly ash substituted for cement in accordance with Specifications Section 605 or a type V. The water/cementitious material ratio shall not exceed 0.45 as defined in Specifications Section 460.3 C. The mix shall be as per the fabricator's design; however, minimum compressive strength shall not be less than 4500 psi at 28 days. The pipe must be marked in an acceptable way to designate meeting requirements for sulfate resistance.

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.

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TABLE OF REINFORCED CONCRETE PIPE

Station to	Station	L/R	Circular Pipe 18" (Ft)	Circular Pipe 24" (Ft)	Circular Pipe 36" (Ft)	Arch Pipe 18" (Ft)	Arch Pipe 42" (Ft)	Flared 24" (Ea)	Flared End 18" (Ea)	Flared End 42" (Ea)
P 00SW(16)										
			no quantity							
P 6542(01)										
17+53	17+53	L/R		46				2		
21+95	21+95	L/R					42			2
22+02	22+02	L/R					42			2
		Total:	0	46	0	0	84	2		4
P 6542(02)										
52+49	52+49	L/R				36			2	
		Total:	0	0	0	36	0	0	2	0
P 6542(03)										
DI#1	DI#2	L/R	24							
DI#2	DI#4	L	372							
DI#3	DI#4	L/R	24							
DI#4	DI#13B	L	218							
DI#13	DI#13B	L/R	24							
DI#13B	DI#6	L	136							
DI#5	DI#6	L/R	24							
DI#6	DI#7	L	242							
DI#7	to south	L/R			38					
DI#8	DI#9	L/R	24							
DI#9	DI#12	L	168							
DI#12	JB#1	L	20							
DI#11	DI#12	L	116							
DI#10	DI#11	L/R	24							
		Total:	1416	0	38	0	0	0	0	0

TABLE OF CORRUGATED METAL PIPE

Station	Station	L/R	Circular Pipe 18" (Ft)	Arch Pipe 18" (Ft)	Flared End Circular Pipe (Each)	Flared End Arch Pipe (Each)
P 00SW(16)						
			no quantity			
P 6542(01)						
101+13	101+13	R	40		2	
44+61	44+86	R	22		2	
		Total:	62	0	4	0
P 6542(02)						
51+81	52+15	L	30		2	
		Total:	30	0	2	0
P 6542(03)						
68+60.1	69+07.2	L	0	52	0	2
		Total:	0	52	0	2

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, will be the basis of payment for these items. If a precast drop inlet collar is used, it shall be incidental to the inlet cost.

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 STORM SEWER DROP INLETS AND JUNCTION BOXES

ID	Station	L/R	Inlet Type	Class M6 Concrete (CuYd)	Reinforcing Steel (Lb)	Frame and Grate Type B (Each)	Frame and Grate Type A7 (Each)
P 00SW(16)							
			no quantity				
			Total:	0.00	0	0	0
P 6542(01)							
			no quantity				
			Total:	0.00	0	0	0
P 6542(02)							
			no quantity				
			Total:	0.00	0	0	0
P 6542(03)							
DI#1	61+02	R	DOT 2x3 Type B	0.90	100	1	
DI#2	61+02	L	DOT 3x4 Type B	1.60	210	1	
DI#3	64+75	R	DOT 2x3 Type B	0.90	100	1	
DI#4	64+75	L	DOT 3x4 Type B	1.60	210	1	
DI#13	67+00	R	DOT 2x3 Type B	0.90	100	1	
DI#13B	67+00	L	DOT 3x4 Type B	1.60	100	1	
DI#5	68+33	R	DOT 3x4 Type B	1.60	200	1	
DI#6	68+33	L	DOT 3x4 Type B	1.60	210	1	
DI#7	70+79	L	DOT 3x4 Type B	2.50	340	1	
DI#8	72+08	R	DOT 2x3 Type B	0.90	100	1	
DI#9	72+08	L	DOT 3x4 Type B	1.60	200	1	
DI#12	73+80	L	DOT 3x4 Type B	2.00	250	1	
JB#1	73+80	L	DOT 5x5 JB	3.80	740		1
DI#10	74+98	R	DOT 2x3 Type B	0.90	100	1	
DI#11	74+98	L	DOT 3x4 Type B	1.60	210	1	
			Total:	24.00	3170	14	1

FOR BIDDING PURPOSES ONLY

6" PCC FILLET SECTIONS

Payment for "6" PCC Fillet Section" shall be based on plans quantity. If additions or reductions to the area of PCC fillet sections are ordered by the Engineer, payment will be made in accordance with the contract unit price per square yard for "6" PCC Fillet Section".

TABLE OF 6" PCC FILLET SECTION

Station	L/R	Quantity (SY)	Base Course (Ton)
P 00SW(16)			
		0	0
P 6542(01)			
		0	0
P 6542(02)			
		0	0
P 6542(03)			
61+34.8	R	6.3	3.7
61+65.1	R	9.9	5.7
65+05.3	R	5.5	3.2
65+35.2	R	10.0	5.8
68+79.0	R	5.5	3.2
69+07.5	R	10.0	5.8
72+41.5	R	5.7	3.3
72+81.7	R	9.6	5.6
	Total:	62.5	36.3

TABLE OF CONCRETE CURB & GUTTER

Station	Station	L/R	Type B66 (Ft)	Type P6 (Ft)	Base Course (Tons)
P 00SW(16)			0	0	0
P 6542(01)					
			0	0	0
P 6542(02)					
58+28.2	60+72.3	L	245		55.4
58+28.2	59+59.4	R	132		29.8
59+59.4	59+81.4	R		22	5.0
59+81.4	60+72.3	R	91		20.6
		Total:	468	22	110.8
P 6542(03)					
60+72.3	61+35.1	R	81		18.3
61+70.0	63+33.9	R	181		40.9
63+33.9	63+45.9	R		12	2.7
63+45.9	65+07.2	R	181		40.9
65+40.5	67+02.7	R	181		40.9
67+02.7	67+14.7	R		12	2.7
67+14.7	67+61.2	R	47		10.6
67+61.2	67+78.2	R		17	3.8
67+78.2	68+81.6	R	128		28.9
69+13.6	72+42.8	R	373		84.3
72+86.5	76+12.2	R	358		80.9
60+72.3	68+68.8	L	813		183.8
68+96.5	76+23.9	L	794		179.5
76+81.0	76+85.8	L/R	69		15.6
		Total:	3206	41	734.0

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TABLE OF CONSTRUCTION STAKING

(See Special Provisions for Contractor Staking Specifications)

Roadway or Description	Begin Station	End Station	Number of Lanes	Length (ft)	Grade Staking Length (mi)	Grade Staking Lane Factor	Grade Staking Sets of Stakes [1]	Grade Staking Staking [2] Quantity (mi)	Miscellaneous Staking Quantity (mi)	Slope Staking Quantity (mi)
P 00SW(16)	10+96.40	17+06.40	2	610.00	0.116	1	2	0.231	0.116	0.116
P 6542(01)	17+06.40	48+37.20	2	3,130.80	0.593	1	2	1.186	0.593	0.593
P 6542(02)	48+37.20	60+72.30	2	1,235.10	0.234	1	2	0.468	0.234	0.234
P 6542(03)	60+72.30	76+47.23	2	1,574.93	0.298	1	2	0.597	0.298	0.298
							Totals:	2.482	1.241	1.241

[1] = Blue Top Stakes Only (Asphalt Concrete Pavement)

[2] = Blue Top (Subgrade and Base Course)

[2] Grade Staking Quantity = (Length) x (Lane Factor) x (Sets of Stakes)

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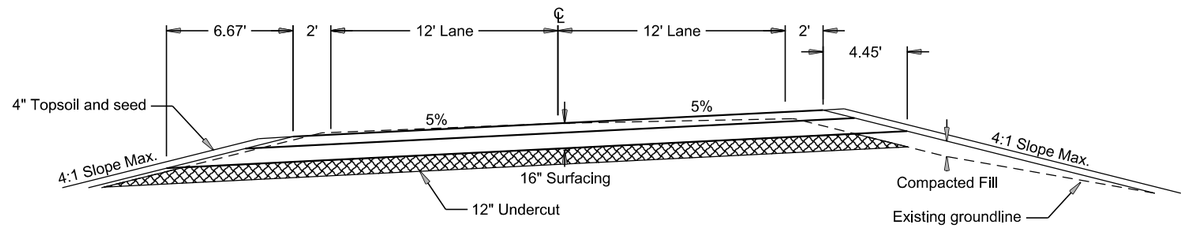
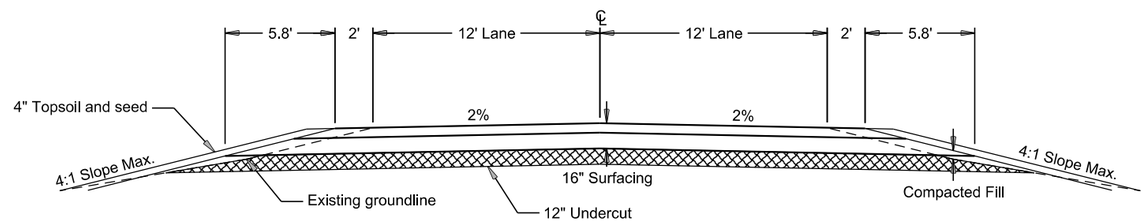
STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B9	B77

FILE: ...*Sheet_Files*B9.dgn
PLOTTING DATE: 02-16-2015
REV DATE:
INITIAL:

Typical Grading Sections

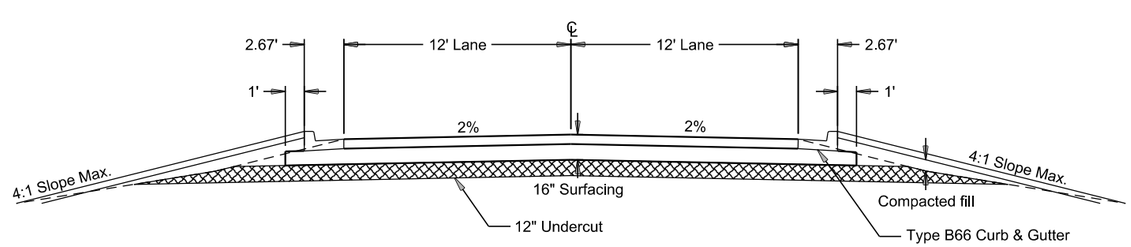


Railway Street Typical Section 1
Sta. 12+00.74 to Sta. 16+72.11



Railway Street Typical Section 2
Sta. 17+74.97 to Sta. 58+28.16

Transitions
Sta. 10+96.30 to Sta. 12+00.74
Sta. 16+72.11 to Sta. 17+74.97



Railway Street Typical Section 3
Sta. 58+28.16 to Sta. 76+47.23

REGISTERED PROFESSIONAL ENGINEER
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SCALE IN FEET
0 4 8

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Plot Scale - 1:8.00002
Plotted From - dkulseth

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HORIZONTAL ALIGNMENT DATA

MAINLINE					
POINT	STATION			NORTHING	EASTING
POB	10+96.37			777820.480	1412930.803
		TL= 70.08	S 90°00'00" W		
PC	11+66.45			777654.026	1412930.803
		R = 350.00	Delta = 88°23'29" L		
PT	17+06.40			777304.164	1413270.977
		TL= 4365.92	S 01°36'31" W		
PC	60+72.32			777181.601	1417635.176
		R = 1000.00	Delta = 07°53'30" R		
PT	62+10.06			777168.280	1417772.155
		TL= 1484.63	S 09°30'01" W		
POE	76+37.82			776923.24	1419236.42

COUNTY ROAD 19					
POINT	STATION			NORTHING	EASTING
POB	90+00			777317.67	1412790.17
		TL= 20.83	S 01°36'31" W		
PC	90+20.83			777317.08	1412810.99
		R = 310.00	Delta = 47°07'21" L		
PT	92+75.79			777409.73	1413040.85
		TL= 24.21	S 45°30'49" E		
POE	93+00.00			777427.01	1413057.82

THEATRE ROAD					
POINT	STATION			NORTHING	EASTING
POB	100+00.00			777062.79	1414741.54
		TL= 250.00			
POE	102+50.00			777312.66	1414749.40

REGISTERED PROFESSIONAL ENGINEER
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HORIZONTAL ALIGNMENT DATA

6TH AVENUE					
POINT	STATION			NORTHING	EASTING
POB	110+00.00			777098.87	1417019.09
		TL= 150.00			
POE	111+50.00			777248.85	1417021.67

4TH AVENUE					
POINT	STATION			NORTHING	EASTING
POB	120+00.00			777076.54	1417710.44
		TL= 150.00			
POE	121+50.00			777226.53	1417711.96

3RD AVENUE					
POINT	STATION			NORTHING	EASTING
POB	130+00.00			777017.41	1418072.74
		TL= 150.00			
POE	131+50.00			777167.31	1418078.44

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HORIZONTAL ALIGNMENT DATA

2ND AVENUE					
POINT	STATION			NORTHING	EASTING
POB	140+00.00			776936.99	1418442.64
		TL= 250.00			
POE	142+50.00			777186.99	1418443.22

1ST AVENUE					
POINT	STATION			NORTHING	EASTING
POB	150+00.00			776895.09	1418802.43
		TL= 150.00			
POE	151+50.00			777044.86	1418810.77

MAIN AVENUE					
POINT	STATION			NORTHING	EASTING
POB	80+00.00			776809.40	1419186.67
		TL= 250.00			
POE	82+50.00			777059.29	1419194.06

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CONTROL DATA

HORIZONTAL AND VERTICAL CONTROL POINTS

POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
10312	10+88	5268' R		716433.5343	2537057.5328	
CP 101	11+16	1760' R		719940.8530	2536993.7500	
CP 102	11+73	2468' R		719234.7040	2537062.1934	
BM #2	30+77	55' L	IP South of Row of Cottonwoods			1355.82
CP 2	32+94	32' L		721784.0030	2539123.6900	
BM #4	48+99	37' L	IP NW Corner of Hwy #10 and 11th Ave			1359.08
BM #5	52+81	38' L	IP NW Corner of Hwy #10 and 10th Ave			1359.13
BM #6	57+12	38' R	IP SE corner of Hwy #10 and 9th Ave			1359.99
CP 3	57+94	23' R		721779.9880	2541624.9000	
BM #7	60+31	39' L	IP NW Corner of Hwy #10 and 8th Ave			1361.17
BM #13	85+59	50' R	IP S of Hwy #10 at Kreenee Property			1357.23
BM #14	91+32	74' L	IP NW Corner of Hwy #10 and Dump Road			1356.58

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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B14	B77
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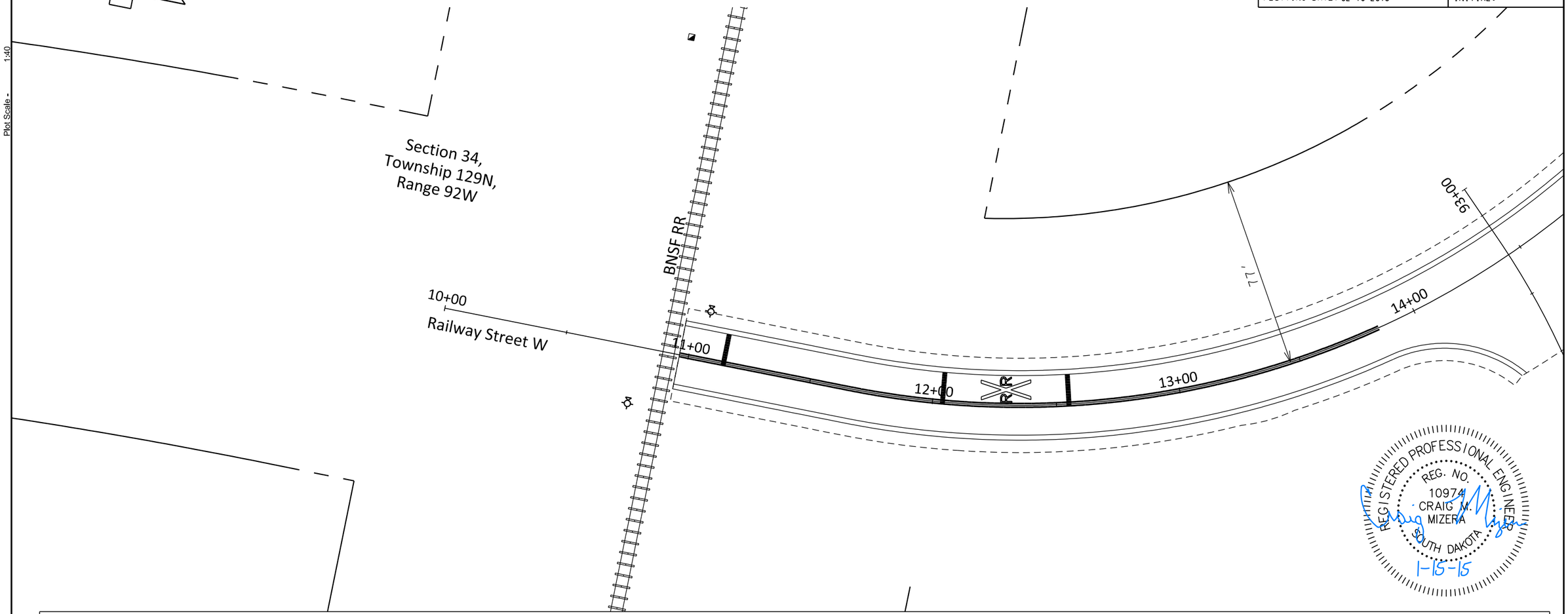
Temporary Easement Plan



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

TABLE OF RIGHT-OF-WAY AND EASEMENTS							
PARCEL NO.	STATION TO STATION	SIDE	TYPE	PURPOSE	AREA REQ'D SQ.	OWNER	DESCRIPTION

Legend: R.O.W. to be Acquired; Temporary Construction Easement; Proposed Roadway; Pavement Marking; Existing ROW/Property Lines; Limits of Construction; Roadway Centerline

SCALE IN FEET 0 20 40

HDR

Plot Scale - 1:40

Plotted From - dkulseth

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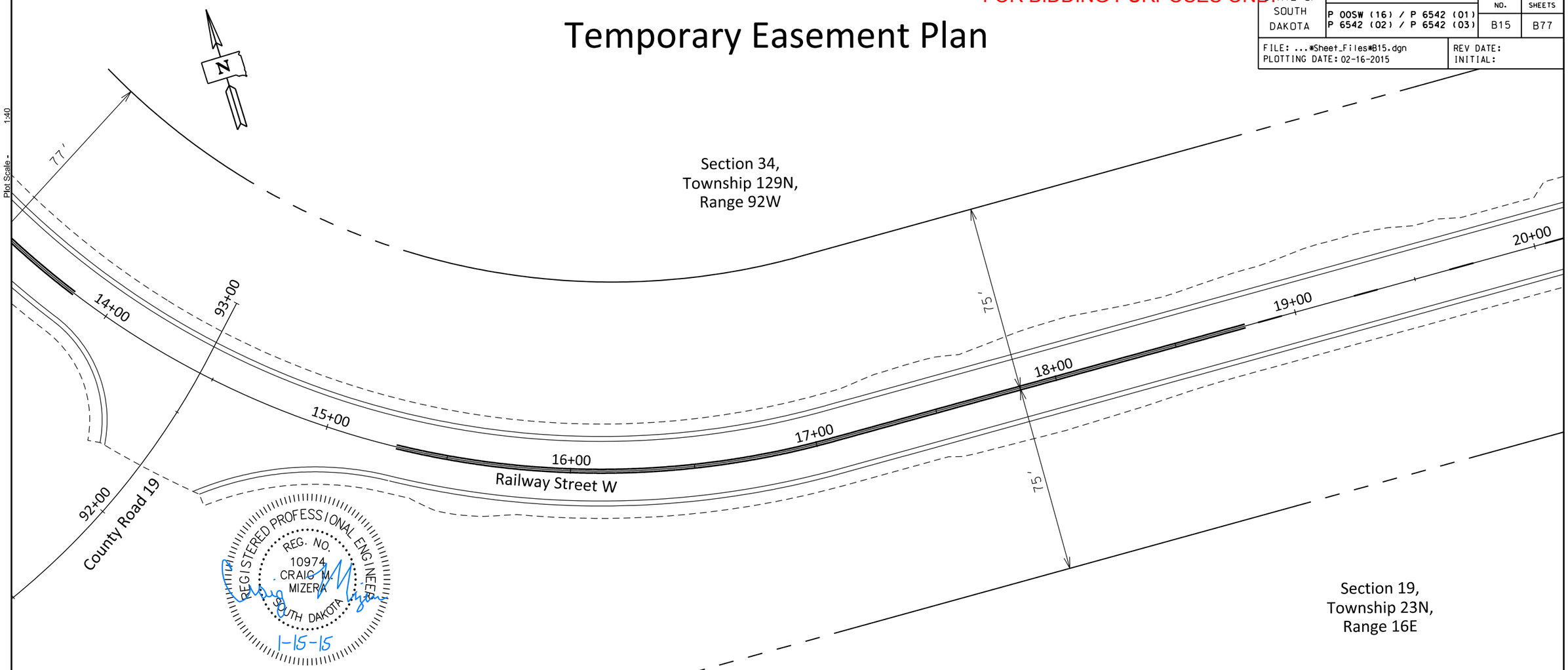
STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B15	B77
FILE: ...*Sheet_Files*B15.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Temporary Easement Plan



REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
1-15-15

TABLE OF RIGHT-OF-WAY AND EASEMENTS

PARCEL NO.	STATION TO STATION	SIDE	TYPE	PURPOSE	AREA REQ'D SQ.	OWNER	DESCRIPTION

Legend

R.O.W. to be Acquired

Temporary Construction Easement

Proposed Roadway

Pavement Marking

Existing ROW/Property Lines

Limits of Construction

Roadway Centerline

SCALE IN FEET
0 20 40

HDR

Plot Scale - 1:40

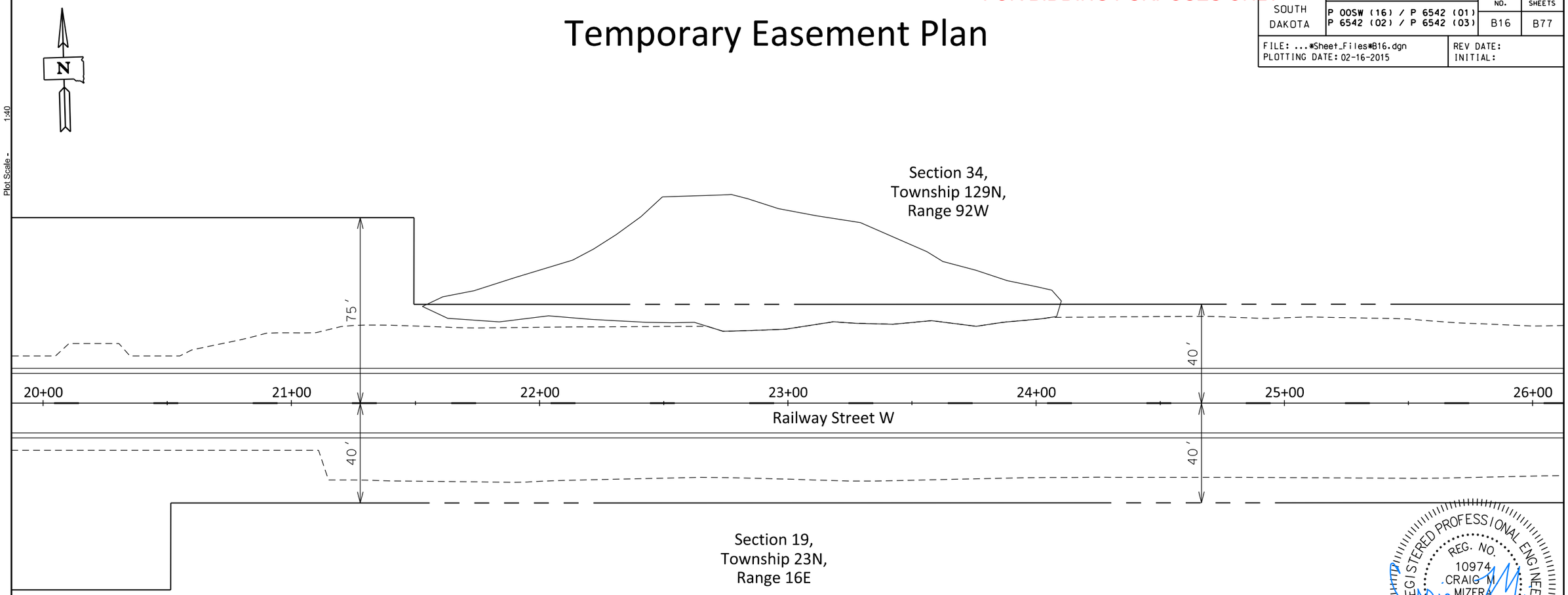
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B16	B77

FILE: ...*Sheet_Files*B16.dgn
PLOTTING DATE: 02-16-2015
REV DATE:
INITIAL:

Temporary Easement Plan



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1-15-15

TABLE OF RIGHT-OF-WAY AND EASEMENTS

PARCEL NO.	STATION TO STATION	SIDE	TYPE	PURPOSE	AREA REQ'D SQ.	OWNER	DESCRIPTION

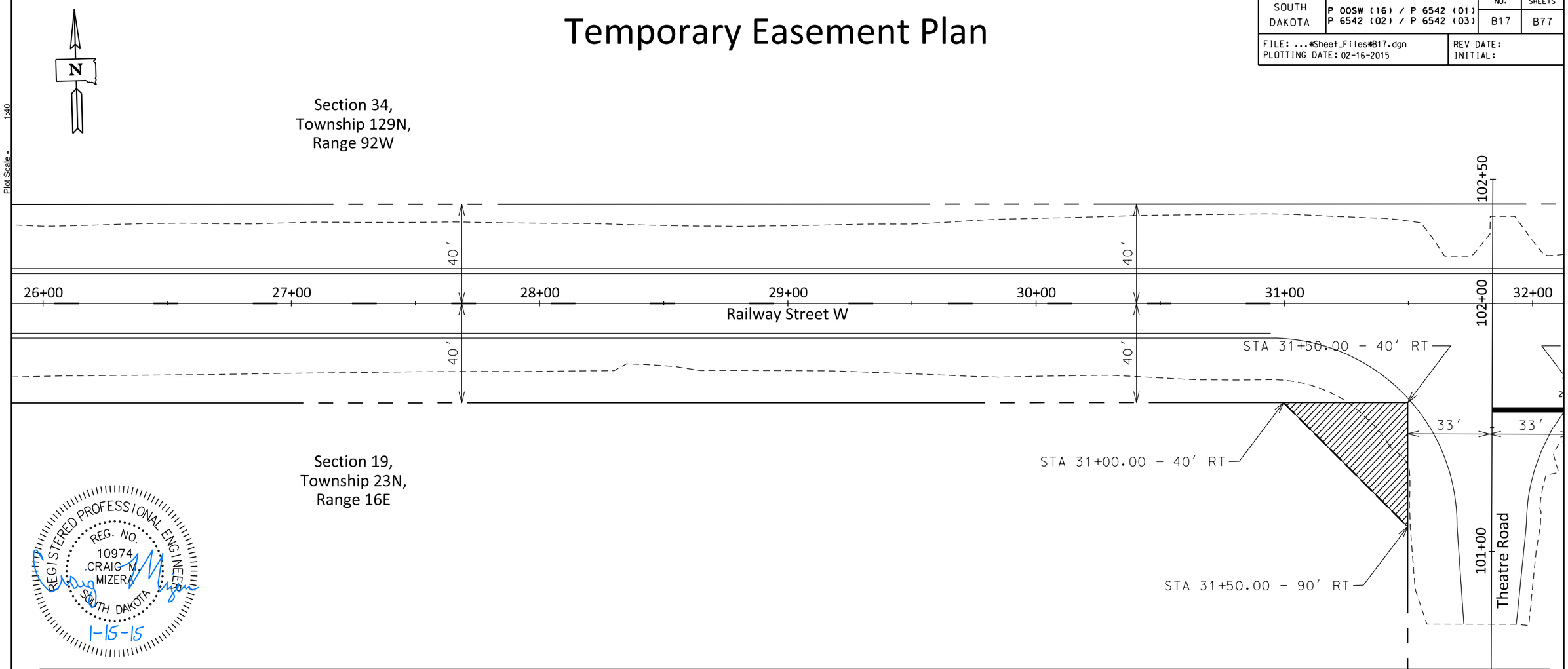
Legend
R.O.W. to be Acquired
Temporary Construction Easement
Proposed Roadway
Pavement Marking
Existing ROW/Property Lines
Limits of Construction
Roadway Centerline
SCALE IN FEET 0 20 40
HDR

Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B17	B77
FILE: ...*Sheet_Files*B17.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Temporary Easement Plan



REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
1-15-15

TABLE OF RIGHT-OF-WAY AND EASEMENTS

PARCEL NO.	STATION TO STATION	SIDE	TYPE	PURPOSE	AREA REQ'D SQ.	OWNER	DESCRIPTION
1	31+00.00 TO 31+50.00	RT	PERMANENT	RIGHT OF WAY	1250	Clark & Carol Johnson	A parcel of land to be acquired for highway purposes in The Southeast Quarter (SE1/4) of the Northeast Quarter (NE1/4) of Section 19 - Township 23 North - Range 16 East of the Black Hills Meridian

Legend: R.O.W. to be Acquired; Temporary Construction Easement; Proposed Roadway; Pavement Marking; Existing ROW/Property Lines; Limits of Construction; Roadway Centerline

SCALE IN FEET 0 20 40

HDR

Plot Scale - 1:40

Plotted From - dkulseth

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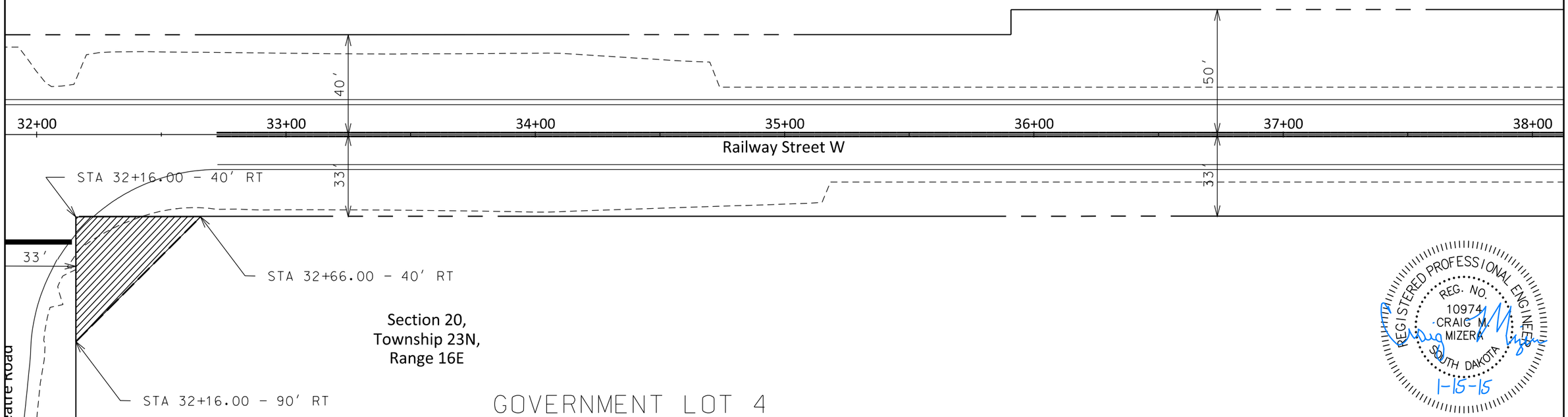
STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B18	B77
FILE: ...*Sheet_Files*B18.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Temporary Easement Plan



REGISTERED PROFESSIONAL ENGINEER
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1-15-15

TABLE OF RIGHT-OF-WAY AND EASEMENTS

PARCEL NO.	STATION TO STATION	SIDE	TYPE	PURPOSE	AREA REQ'D SQ.	OWNER	DESCRIPTION
2	32+16.00 TO 32+66.00	RT	PERMANENT	RIGHT OF WAY	1250	Vance & Tina Trogstad	A parcel of land to be acquired for highway purposes in Government Lot 4 in Southwest Quarter (SW1/4) of the Northwest Quarter (NW1/4) of Section 20 - Township 23 North - Range 16 East of the Black Hills Meridian

Legend: R.O.W. to be Acquired; Temporary Construction Easement; Proposed Roadway; Pavement Marking; Existing ROW/Property Lines; Limits of Construction; Roadway Centerline

SCALE IN FEET 0 20 40

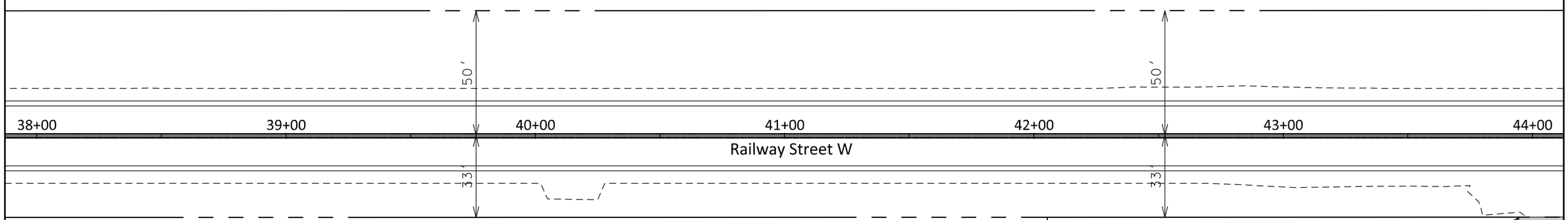
HDR

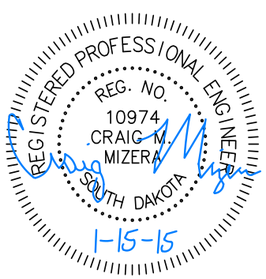
Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B19	B77
FILE: ...*Sheet_Files*B19.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Temporary Easement Plan





Section 20,
Township 23N,
Range 16E

TABLE OF RIGHT-OF-WAY AND EASEMENTS

PARCEL NO.	STATION TO STATION	SIDE	TYPE	PURPOSE	AREA REQ'D SQ.	OWNER	DESCRIPTION
3	43+95.00 TO 44+51.00	RT	TEMPORARY	EASEMENT	560	Vance & Tina Trogstad	Lot 1 of W1/2 of NW1/4 of Section 20, Township 23 North, Range 16 East

Legend

R.O.W. to be Acquired

Temporary Construction Easement

Proposed Roadway

Pavement Marking

Existing ROW/Property Lines

Limits of Construction

Roadway Centerline

SCALE IN FEET
0 20 40

HDR

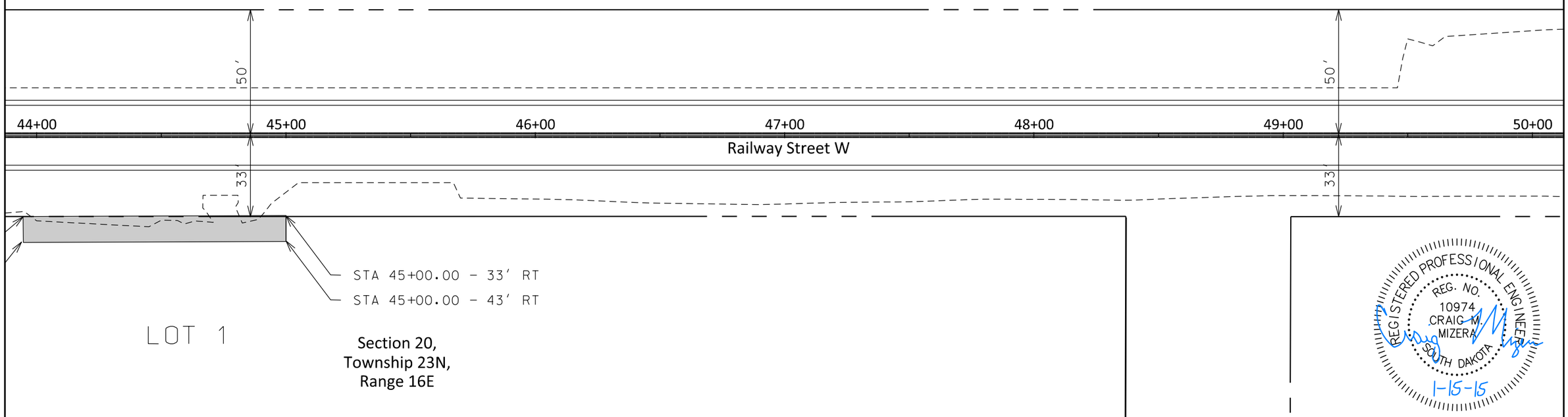
Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B20	B77
FILE: ...*Sheet_Files*B20.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Temporary Easement Plan



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

TABLE OF RIGHT-OF-WAY AND EASEMENTS

PARCEL NO.	STATION TO STATION	SIDE	TYPE	PURPOSE	AREA REQ'D SQ.	OWNER	DESCRIPTION
3	43+95.00 TO 45+00.00	RT	TEMPORARY	EASEMENT	560	Vance & Tina Trogstad	Lot 1 of W1/2 of NW1/4 of Section 20, Township 23 North, Range 16 East

Legend: R.O.W. to be Acquired; Temporary Construction Easement; Proposed Roadway; Pavement Marking; Existing ROW/Property Lines; Limits of Construction; Roadway Centerline

SCALE IN FEET 0 20 40

HDR

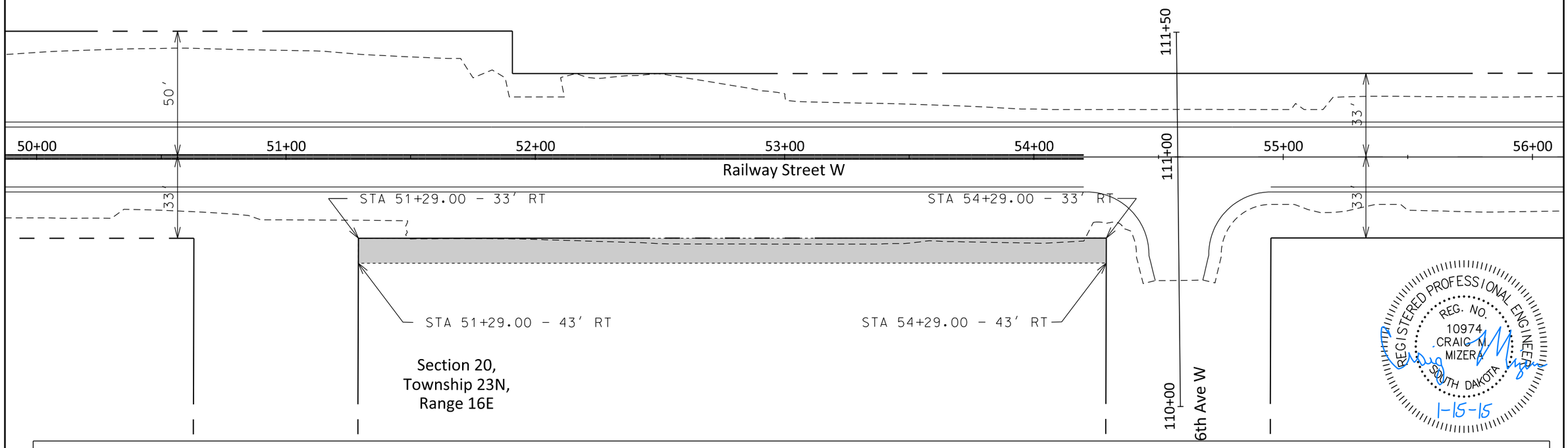
Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B21	B77
FILE: ...*Sheet_Files*B21.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Temporary Easement Plan



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

TABLE OF RIGHT-OF-WAY AND EASEMENTS

PARCEL NO.	STATION TO STATION	SIDE	TYPE	PURPOSE	AREA REQ'D SQ.	OWNER	DESCRIPTION
4	51+29.00 TO 54+29.00	RT	TEMPORARY	EASEMENT	3000	City of Lemmon	Block 6 of Government Lot 3 of E1/2 of NW1/4 of Section 20, Township 23 North, Range 16 East

Legend

R.O.W. to be Acquired

Temporary Construction Easement

Proposed Roadway

Pavement Marking

Existing ROW/Property Lines

Limits of Construction

Roadway Centerline

SCALE IN FEET 0 20 40

HDR

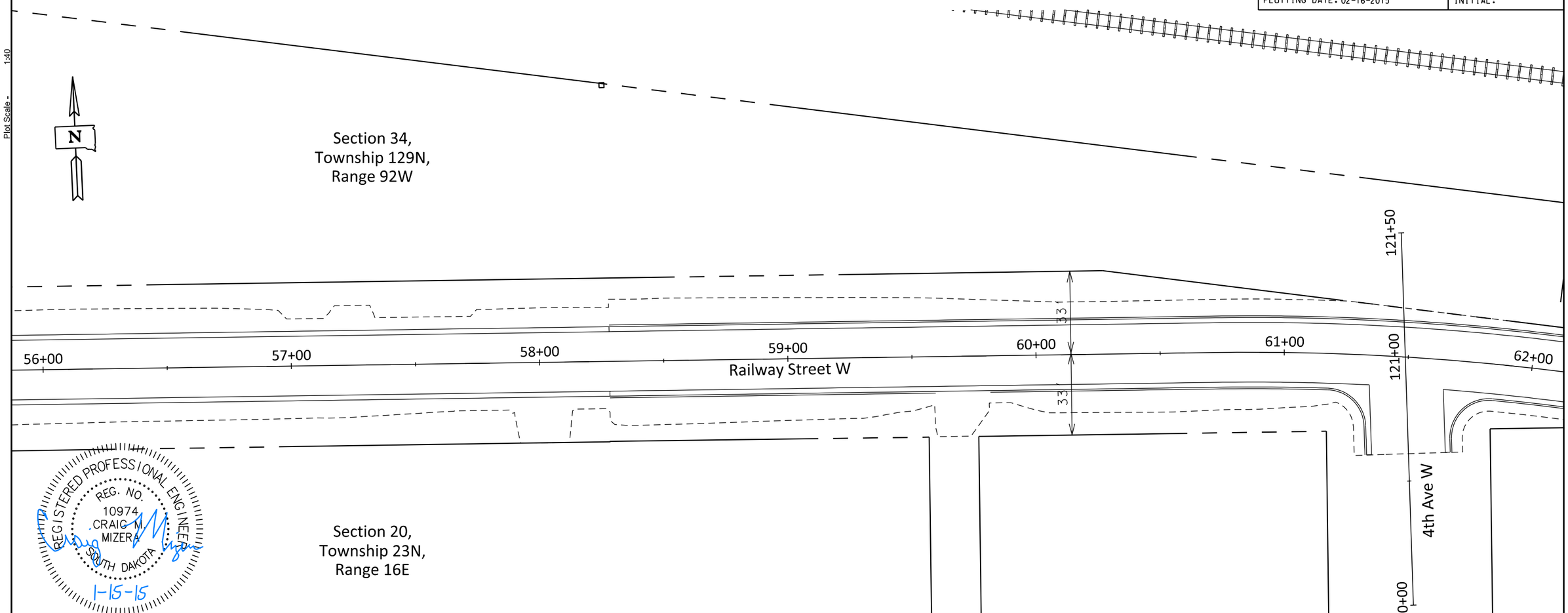
Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B22	B77
FILE: ...*Sheet_Files*B22.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Temporary Easement Plan



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

TABLE OF RIGHT-OF-WAY AND EASEMENTS

PARCEL NO.	STATION TO STATION	SIDE	TYPE	PURPOSE	AREA REQ'D SQ.	OWNER	DESCRIPTION

Legend

R.O.W. to be Acquired

Temporary Construction Easement

Proposed Roadway

Pavement Marking

Existing ROW/Property Lines

Limits of Construction

Roadway Centerline

SCALE IN FEET
0 20 40

HDR

Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B23	B77
FILE: ...*Sheet_Files*B23.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Temporary Easement Plan

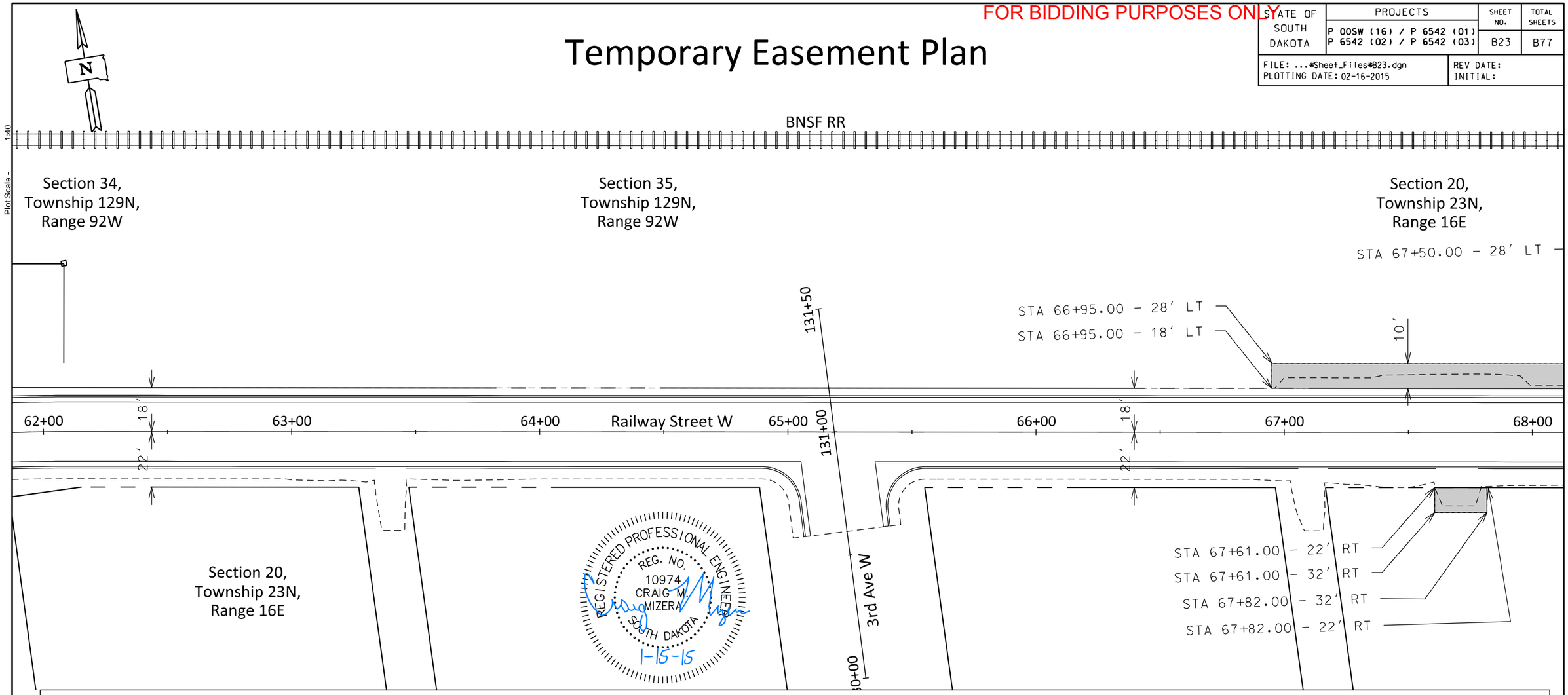


TABLE OF RIGHT-OF-WAY AND EASEMENTS

PARCEL NO.	STATION TO STATION	SIDE	TYPE	PURPOSE	AREA REQ'D SQ.	OWNER	DESCRIPTION
5	66+95.0 TO 74+20.00	LT	TEMPORARY	EASEMENT	15331	Burlington Northern Santa Fe (BNSF) Railroad Company	A Parcel in Government Lots 2 and 1 of Section 20, Township 23 North, Range 16 East
6	67+61.00 TO 67+82.00	RT	TEMPORARY	EASEMENT	211	Darin Peters	Block 39, Lot 1 of Milwaukee Land Co. 2nd Addition to the town, now City of Lemmon, Perkins County, SD

Legend

R.O.W. to be Acquired

Temporary Construction Easement

Proposed Roadway

Pavement Marking

Existing ROW/Property Lines

Limits of Construction

Roadway Centerline

SCALE IN FEET 0 20 40

HDR

Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B24	B77
FILE: ...*Sheet_Files*B24.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Temporary Easement Plan

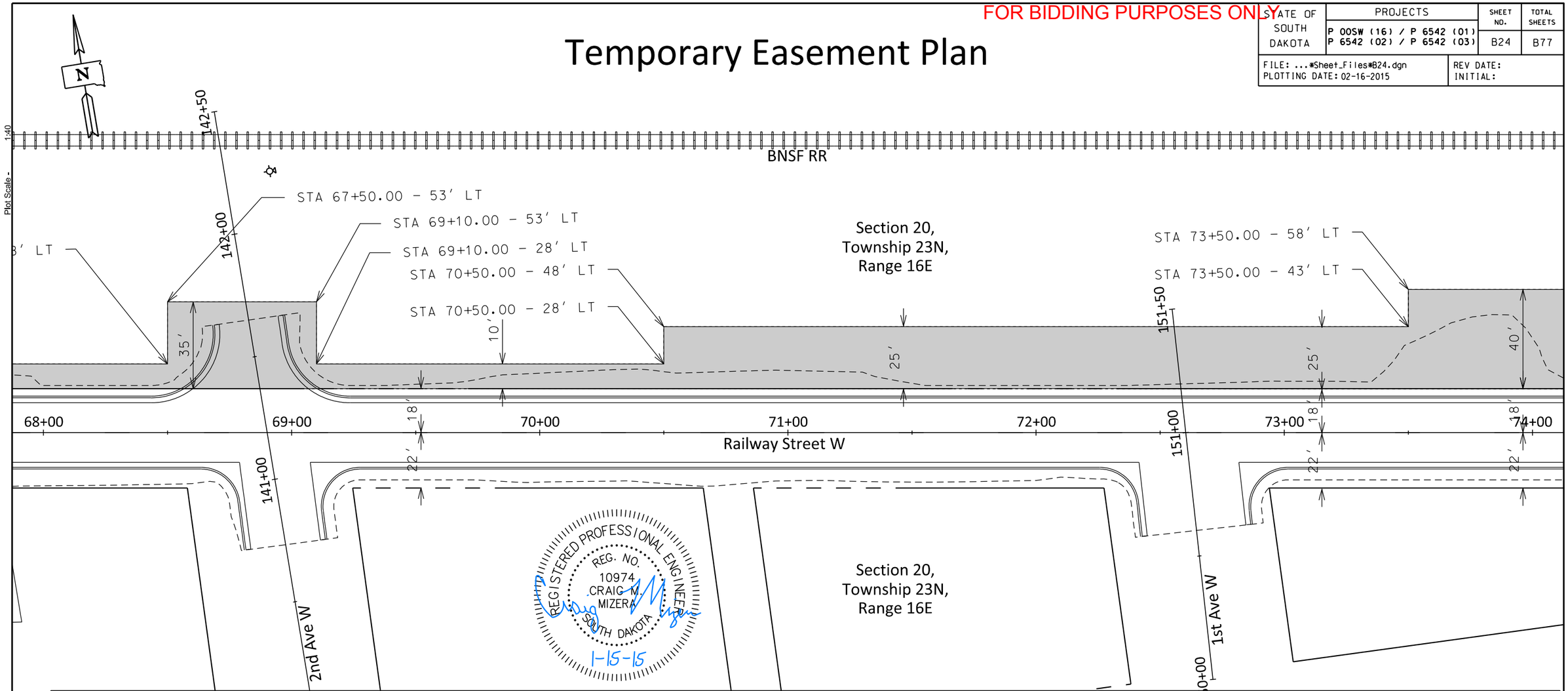


TABLE OF RIGHT-OF-WAY AND EASEMENTS

PARCEL NO.	STATION TO STATION	SIDE	TYPE	PURPOSE	AREA REQ'D SQ.	OWNER	DESCRIPTION
5	66+95.0 TO 74+20.00	LT	TEMPORARY	EASEMENT	15331	Burlington Northern Santa Fe (BNSF) Railroad Company	A Parcel in Government Lots 2 and 1 of Section 20, Township 23 North, Range 16 East

Legend

R.O.W. to be Acquired

Temporary Construction Easement

Proposed Roadway

Pavement Marking

Existing ROW/Property Lines

Limits of Construction

Roadway Centerline

SCALE IN FEET 0 20 40

HDR

Plot Scale - 1:40

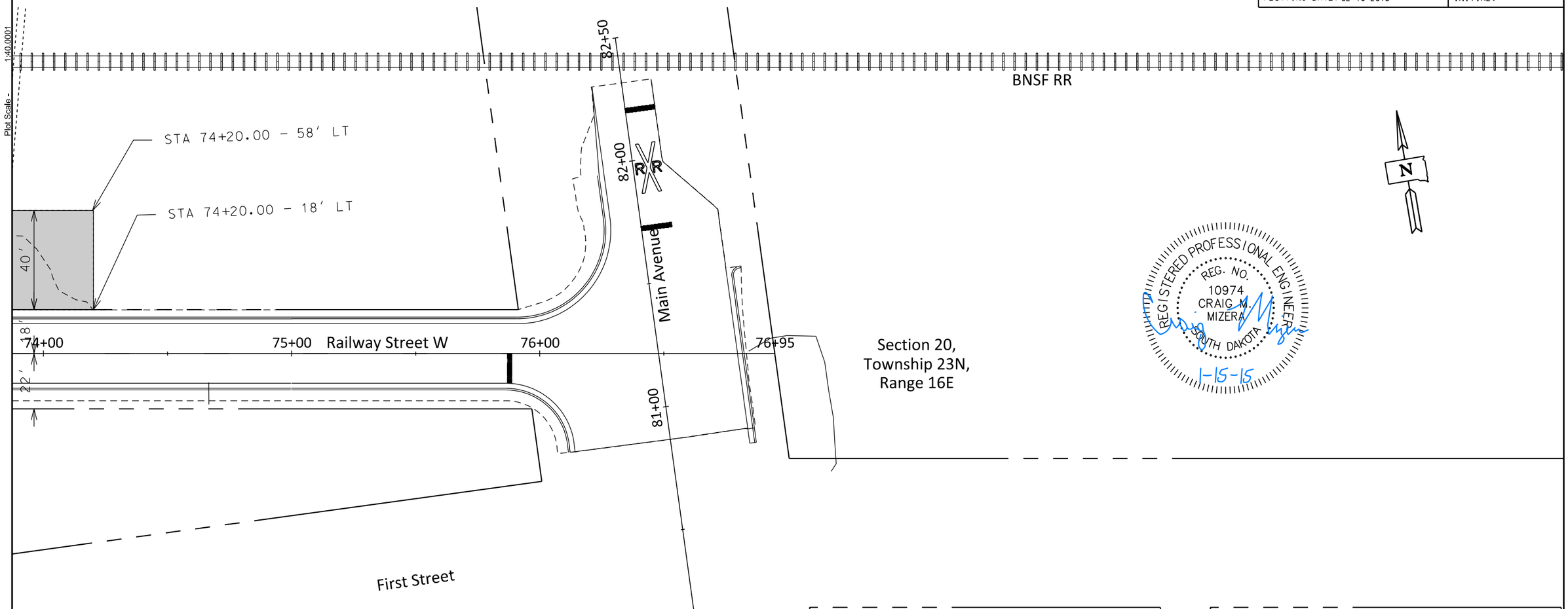
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B25	B77

FILE: ...*Sheet_Files*B25.dgn
PLOTTING DATE: 02-16-2015
REV DATE:
INITIAL:

Temporary Easement Plan



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

TABLE OF RIGHT-OF-WAY AND EASEMENTS

PARCEL NO.	STATION TO STATION	SIDE	TYPE	PURPOSE	AREA REQ'D SQ.	OWNER	DESCRIPTION
5	66+95.0 TO 74+20.00	LT	TEMPORARY	EASEMENT	15331	Burlington Northern Santa Fe (BNSF) Railroad Company	A Parcel in Government Lots 2 and 1 of Section 20, Township 23 North, Range 16 East

Legend: R.O.W. to be Acquired; Temporary Construction Easement; Proposed Roadway; Pavement Marking; Existing ROW/Property Lines; Limits of Construction; Roadway Centerline

SCALE IN FEET 0 20 40

HDR

Plot Scale - 1:40.0001
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B26	B77
FILE: ...*Sheet_Files*B26.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

EXISTING TOPOGRAPHY SYMBOLOGY AND LEGEND

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)

SCALE IN FEET
0 20 40

HDR

Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Existing Conditions, Removals, and Inplace Utilities

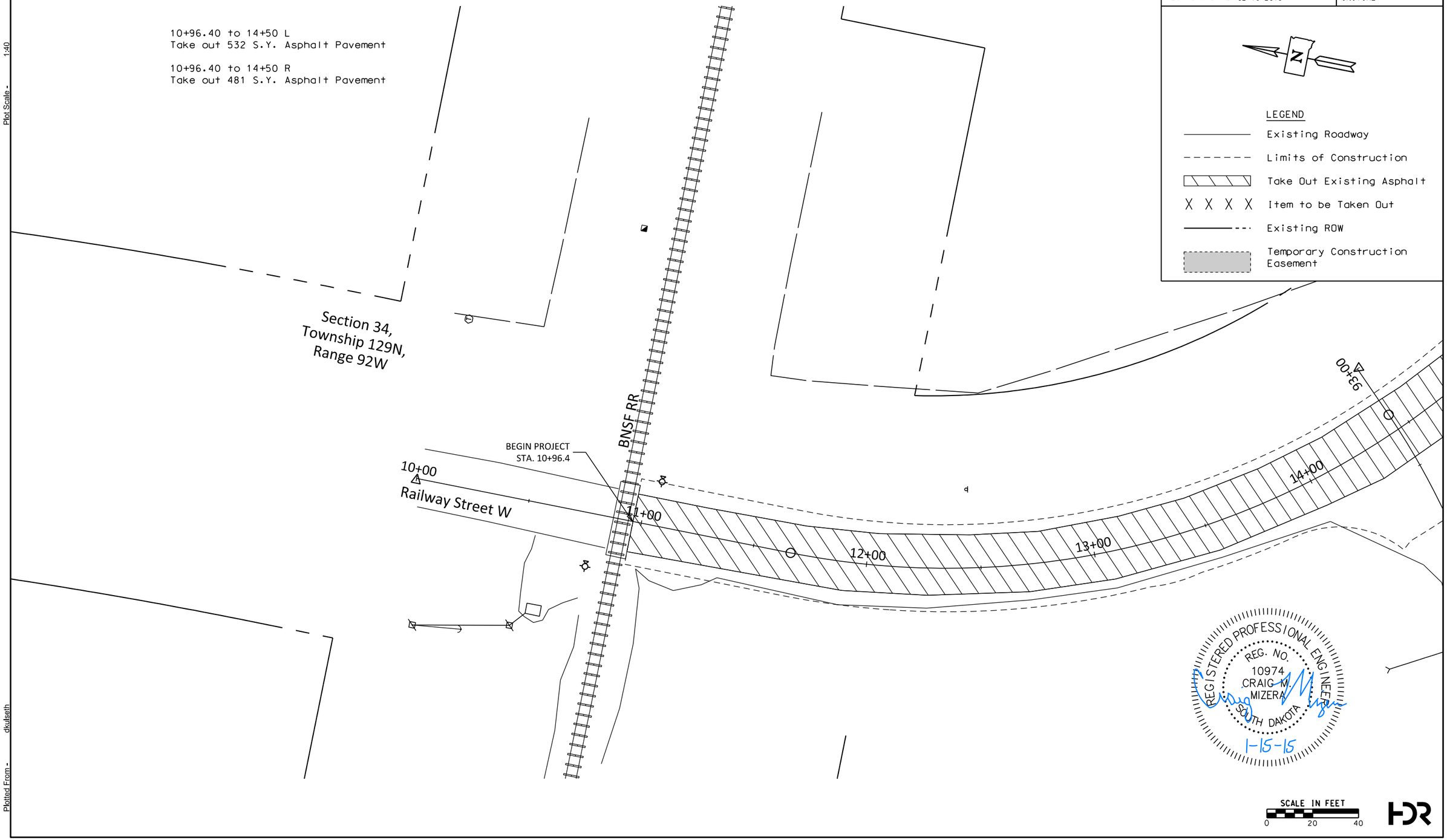
STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B27	B77

FILE: ...*Sheet_Files*B27.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

10+96.40 to 14+50 L
Take out 532 S.Y. Asphalt Pavement

10+96.40 to 14+50 R
Take out 481 S.Y. Asphalt Pavement



Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Existing Conditions, Removals, and Inplace Utilities

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B28	B77

FILE: ...*Sheet_Files*B28.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

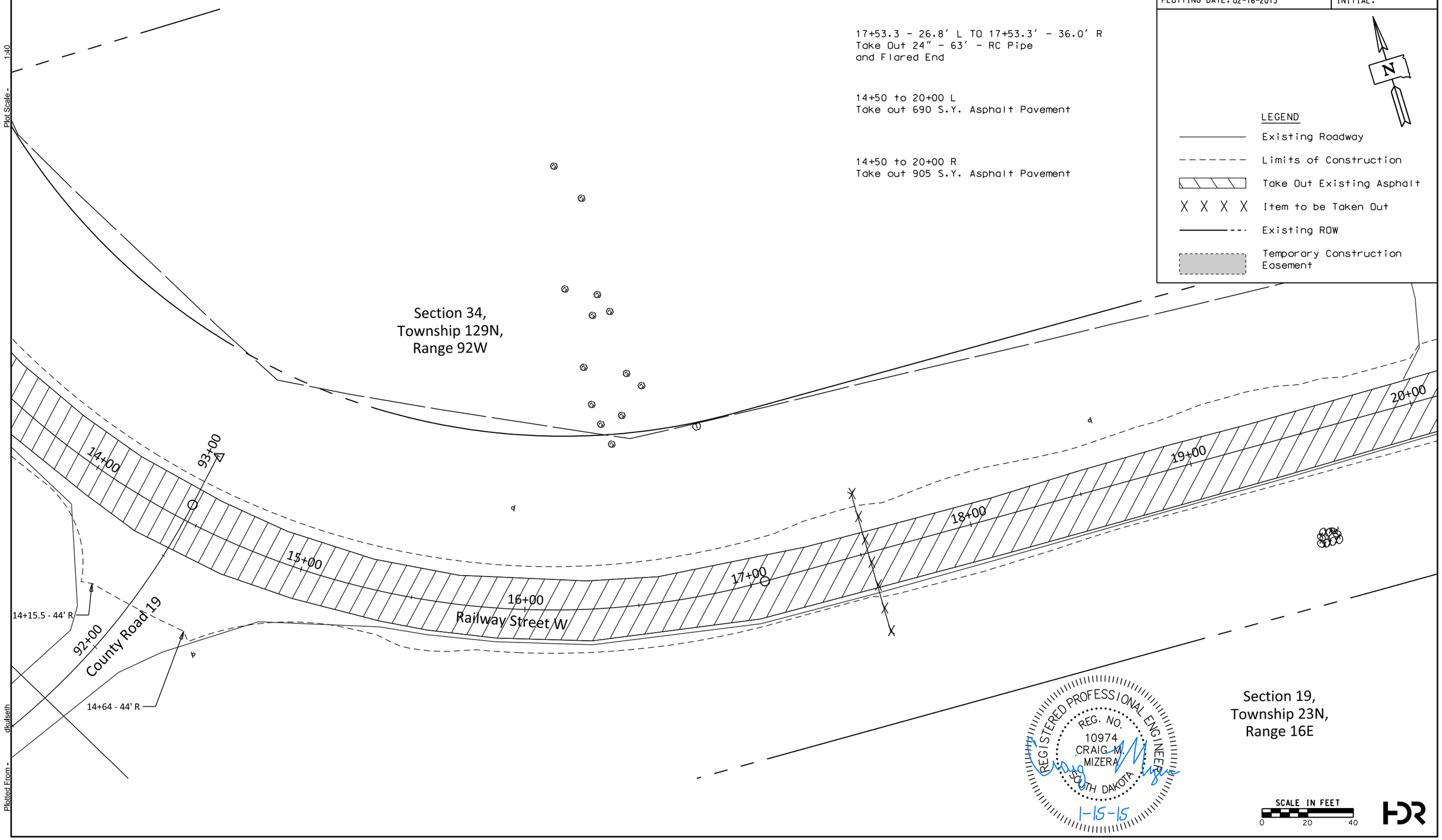
17+53.3 - 26.8' L TO 17+53.3' - 36.0' R
Take Out 24" - 63' - RC Pipe
and Flared End

14+50 to 20+00 L
Take out 690 S.Y. Asphalt Pavement

14+50 to 20+00 R
Take out 905 S.Y. Asphalt Pavement

LEGEND

- Existing Roadway
- Limits of Construction
- Take Out Existing Asphalt
- X X X X Item to be Taken Out
- Existing ROW
- Temporary Construction Easement



Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Existing Conditions, Removals, and Inplace Utilities

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B29	B77

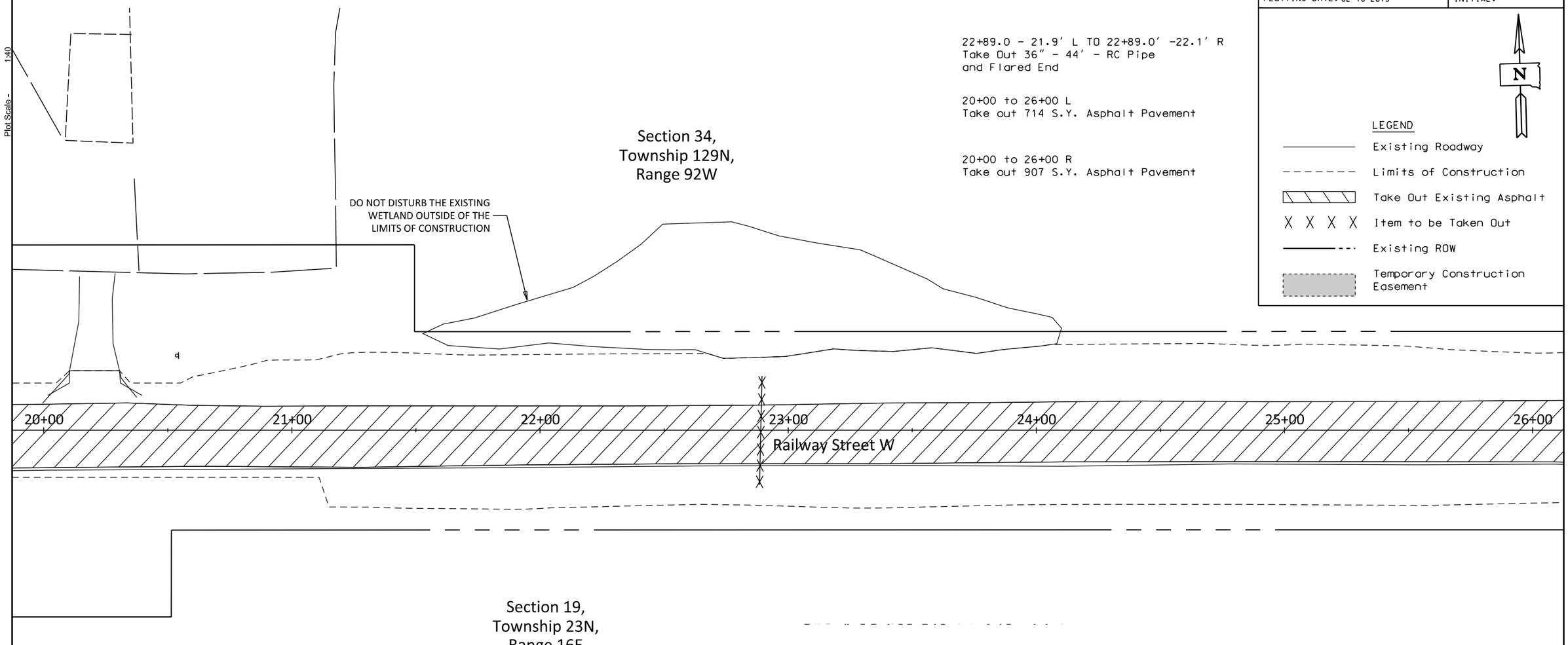
FILE: ...*Sheet_Files*B29.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

22+89.0 - 21.9' L TO 22+89.0' -22.1' R
Take Out 36" - 44' - RC Pipe
and Flared End

20+00 to 26+00 L
Take out 714 S.Y. Asphalt Pavement

20+00 to 26+00 R
Take out 907 S.Y. Asphalt Pavement



N

LEGEND

- Existing Roadway
- Limits of Construction
- Take Out Existing Asphalt
- X X X X Item to be Taken Out
- Existing ROW
- Temporary Construction Easement

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

SCALE IN FEET
0 20 40

HDR

Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Existing Conditions, Removals, and Inplace Utilities

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B30	B77

FILE: ...*Sheet_Files*B30.dgn
PLOTTING DATE: 02-16-2015
REV DATE:
INITIAL:

31+65.5 - 29.21' R TO 32+12.8 - 29.21' R
Take Out 18" - 48' - CM Pipe

26+00 to 32+00 L
Take out 860 S.Y. Asphalt Pavement

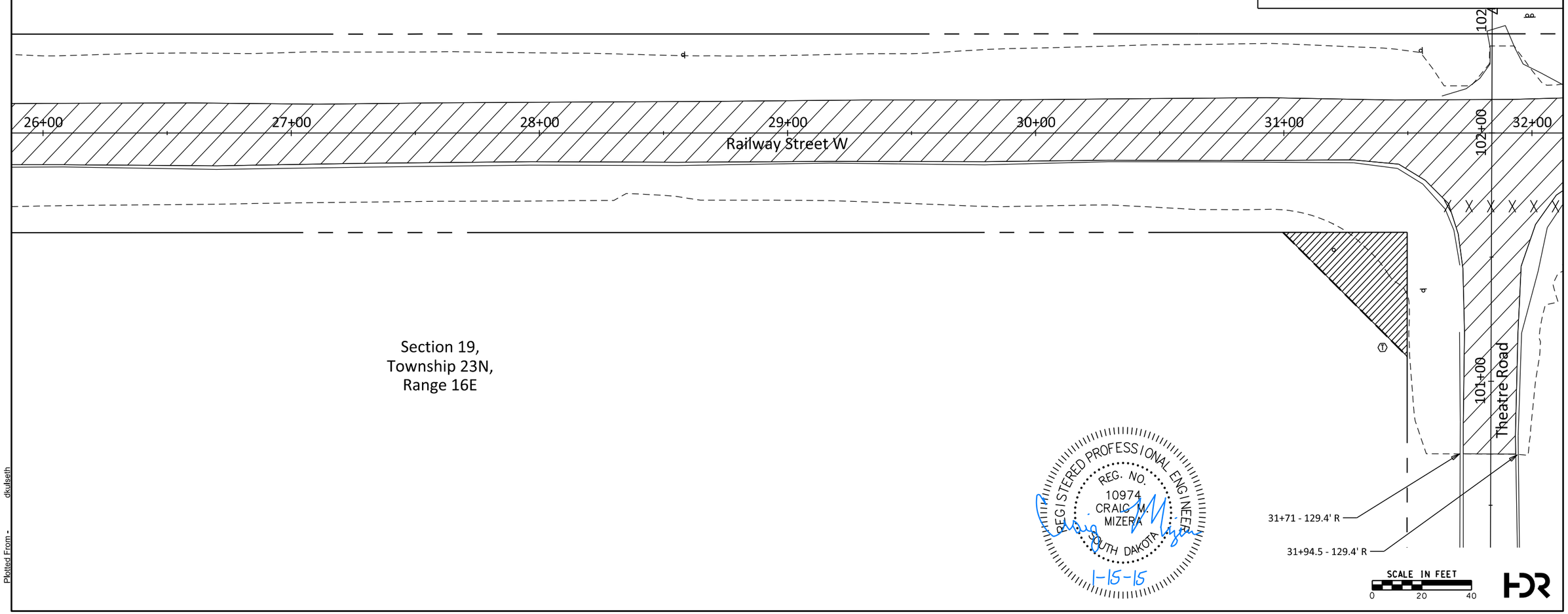
26+00 to 32+00 R
Take out 778 S.Y. Asphalt Pavement

100+70.65 to 101+89.15 L
Take out 187 S.Y. Asphalt Pavement

100+70.65 to 101+89.15 R
Take out 187 S.Y. Asphalt Pavement

Section 34,
Township 129N,
Range 92W

Section 19,
Township 23N,
Range 16E



Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Existing Conditions, Removals, and Inplace Utilities

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B31	B77

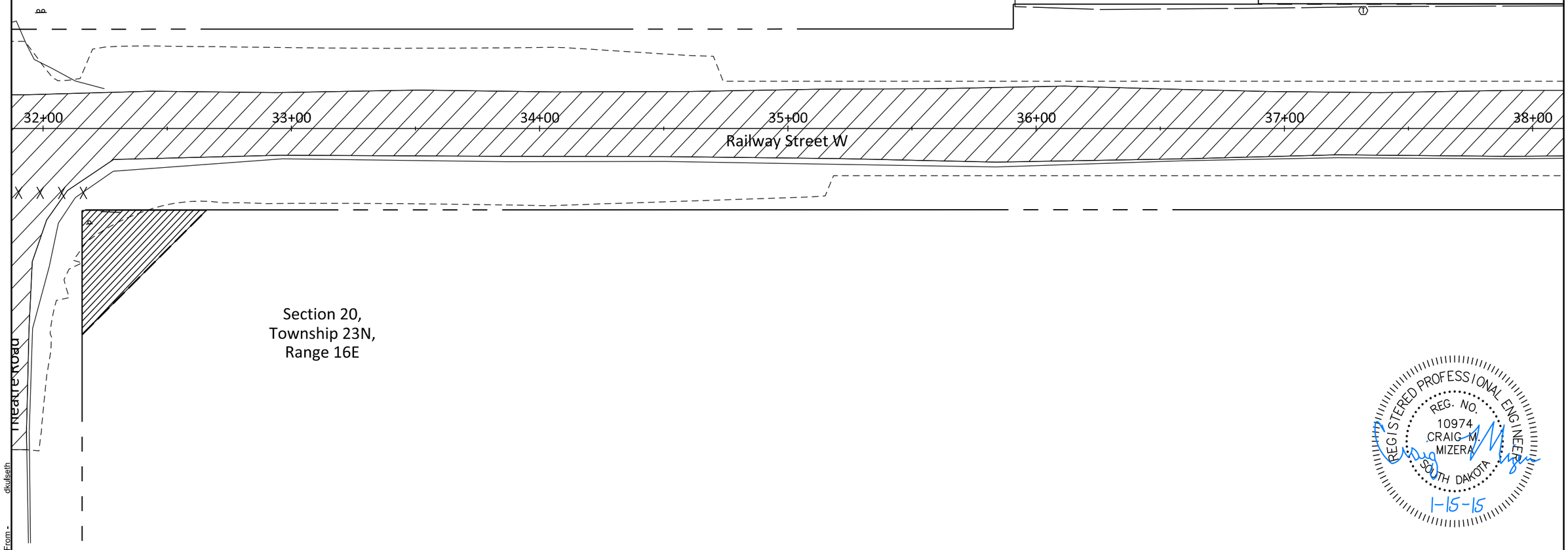
FILE: ...*Sheet_Files*B31.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

32+00 to 38+00 L
Take out 1037 S.Y. Asphalt Pavement

32+00 to 38+00 R
Take out 781 S.Y. Asphalt Pavement

Section 34,
Township 129N,
Range 92W



Section 20,
Township 23N,
Range 16E

LEGEND

- Existing Roadway
- Limits of Construction
- Take Out Existing Asphalt
- X X X X Item to be Taken Out
- Existing ROW
- Temporary Construction Easement

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

SCALE IN FEET
0 20 40

HDR

Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Existing Conditions, Removals, and Inplace Utilities

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B32	B77

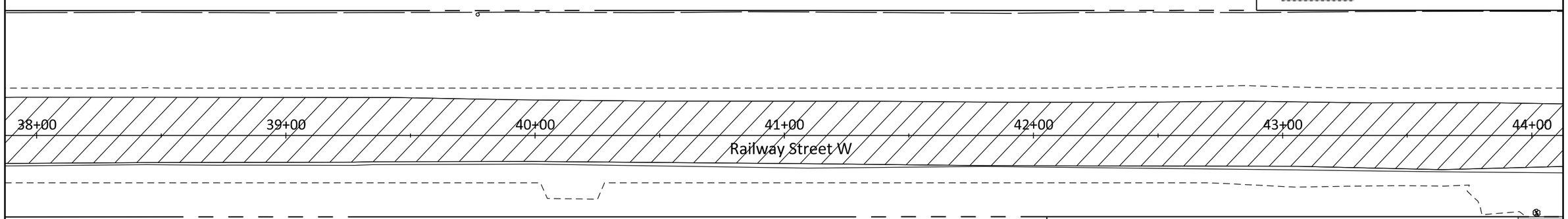
FILE: ...*Sheet_Files*B32.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

38+00 to 44+00 L
Take out 939 S.Y. Asphalt Pavement

38+00 to 44+00 R
Take out 772 S.Y. Asphalt Pavement

Section 34,
Township 129N,
Range 92W



Section 20,
Township 23N,
Range 16E

LEGEND

- Existing Roadway
- Limits of Construction
- Take Out Existing Asphalt
- X X X X Item to be Taken Out
- Existing ROW
- Temporary Construction Easement

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

SCALE IN FEET
0 20 40

HDR

Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Existing Conditions, Removals, and Inplace Utilities

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B33	B77

FILE: ...*Sheet_Files*B33.dgn
PLOTTING DATE: 02-16-2015
REV DATE:
INITIAL:

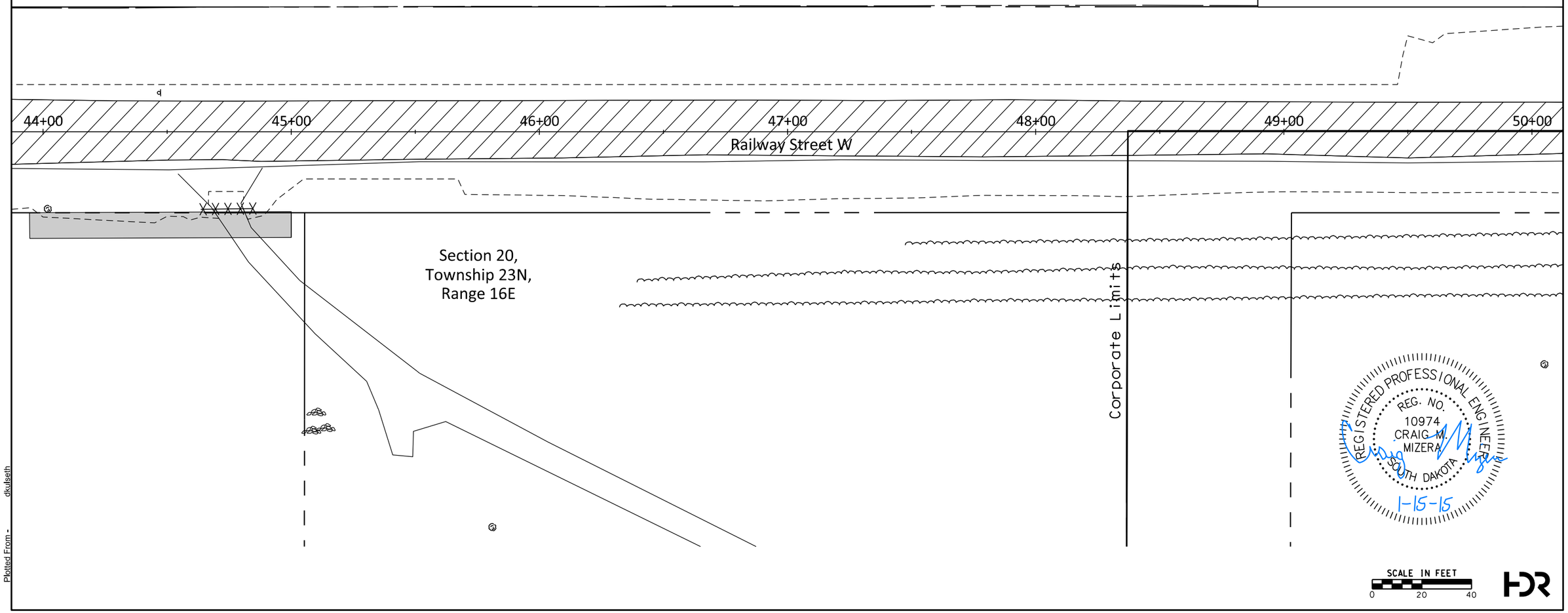
44+63.6 - 31.1' R TO 44+84.3 - 31.1' R
Take Out 18" - 21' - CM Pipe

44+00 to 50+00 L
Take out 824 S.Y. Asphalt Pavement

44+00 to 50+00 R
Take out 686 S.Y. Asphalt Pavement

LEGEND

- Existing Roadway
- Limits of Construction
- Take Out Existing Asphalt
- X X X X Item to be Taken Out
- Existing ROW
- Temporary Construction Easement



Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Existing Conditions, Removals, and Inplace Utilities

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B34	B77

FILE: ...*Sheet_Files*B34.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

51+83.7 - 29.6' L TO 52+14.5 - 29.6' L
Take Out 18" - 32' - CM Pipe

52+22 - 20.6' L TO 52+22 - 17.8' R
Take Out 18" - 39' - CM Pipe

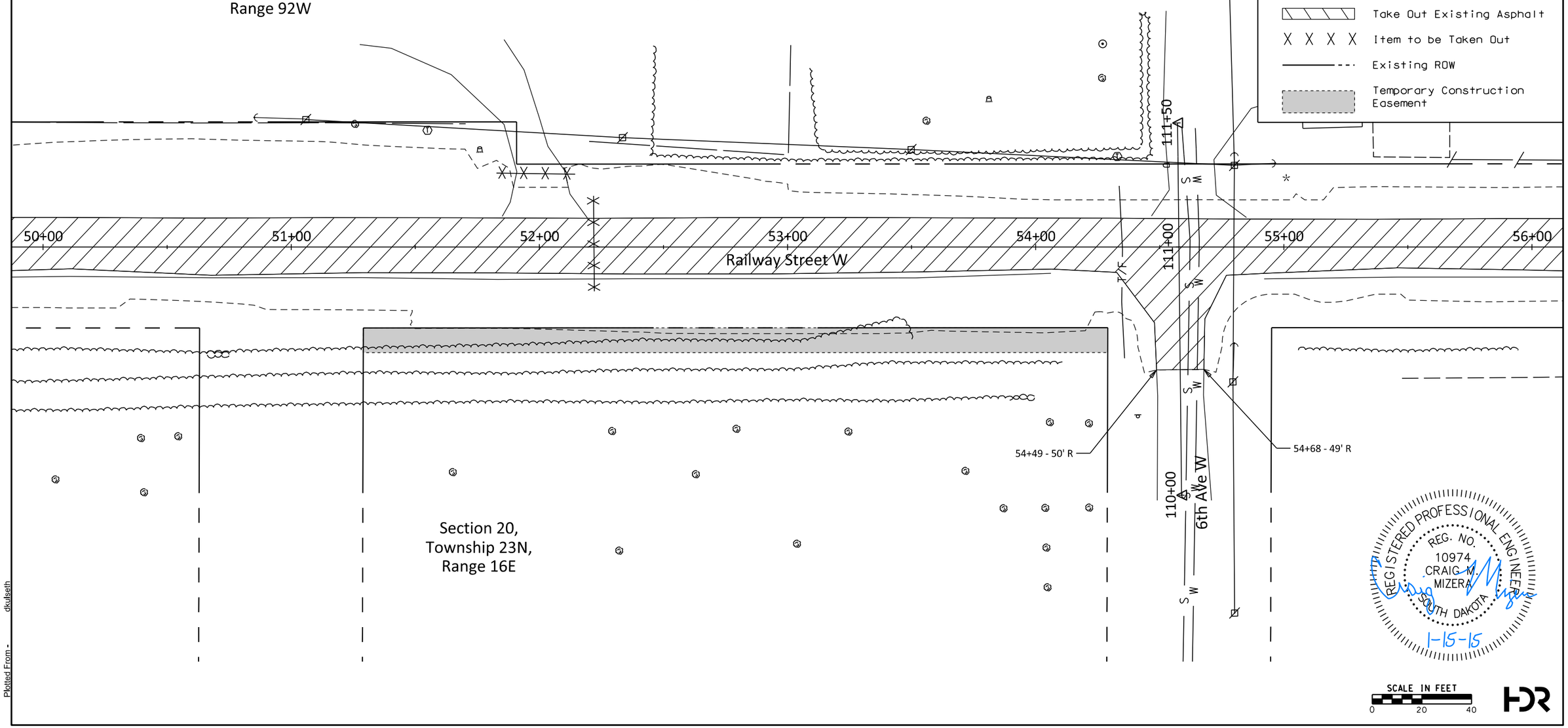
50+00 to 56+00 L
Take out 777 S.Y. Asphalt Pavement

50+00 to 56+00 R
Take out 656 S.Y. Asphalt Pavement

110+50.60 to 110+91.11 L
Take out 66 S.Y. Asphalt Pavement

110+50.60 to 110+91.11 R
Take out 66 S.Y. Asphalt Pavement

Section 34,
Township 129N,
Range 92W



Plot Scale - 1:40

Plotted From - dkulseth

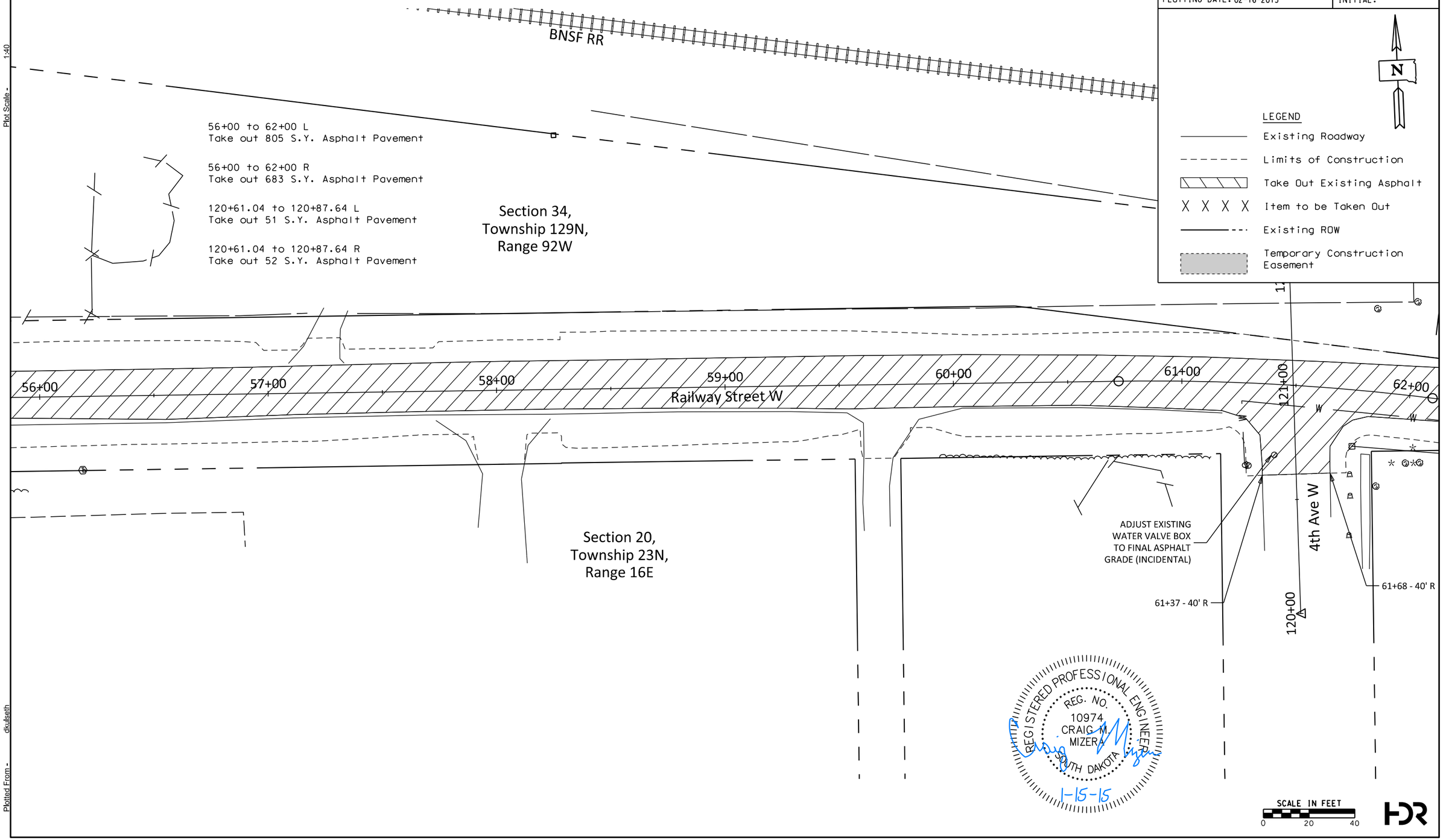
FOR BIDDING PURPOSES ONLY

Existing Conditions, Removals, and Inplace Utilities

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B35	B77

FILE: ...*Sheet_Files*B35.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:



Plot Scale - 1:40

Plotted From - dkulseth

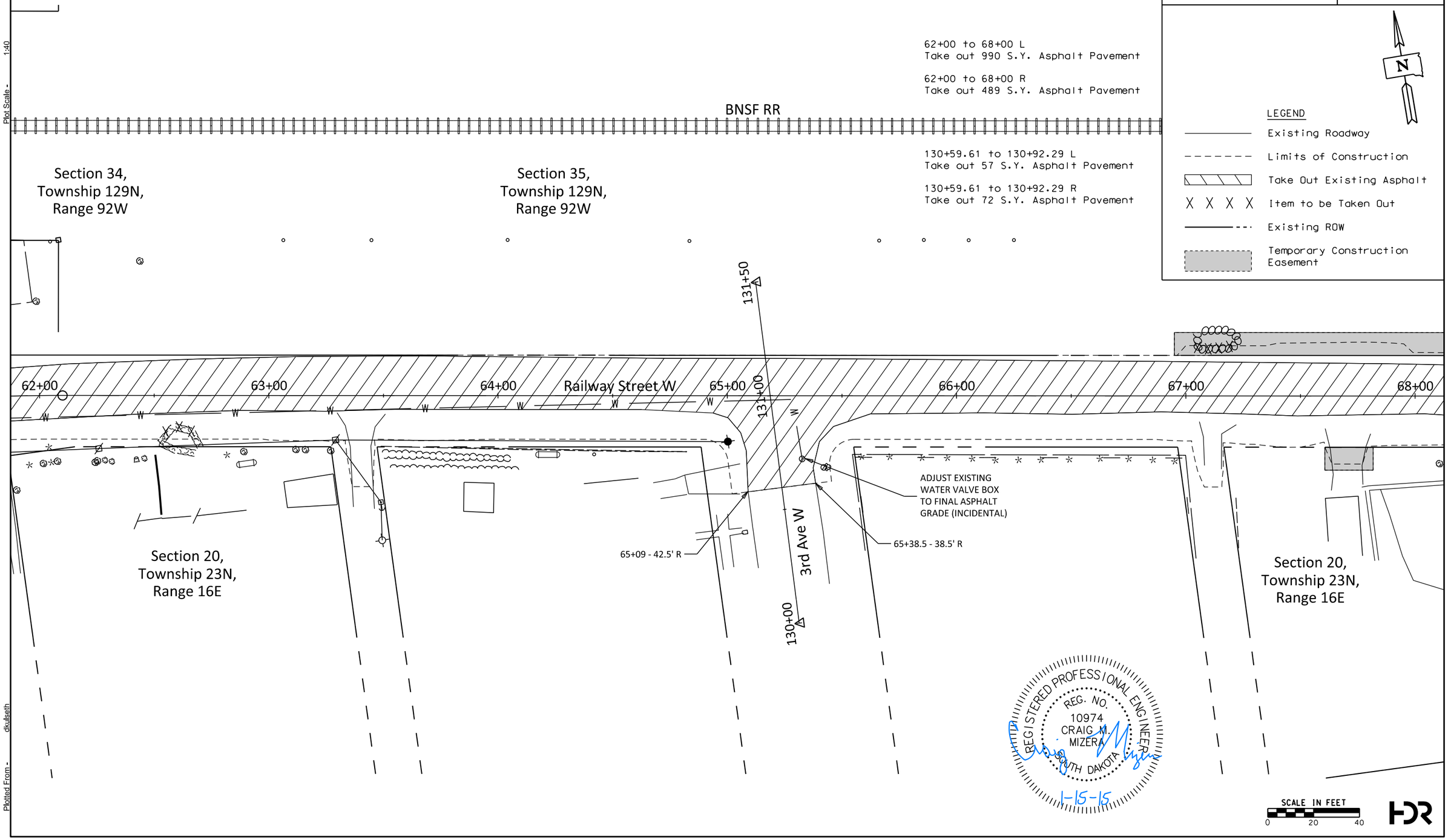
FOR BIDDING PURPOSES ONLY

Existing Conditions, Removals, and Inplace Utilities

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B36	B77

FILE: ...*Sheet_Files*B36.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:



LEGEND

- Existing Roadway
- Limits of Construction
- Take Out Existing Asphalt
- Item to be Taken Out
- Existing ROW
- Temporary Construction Easement

Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Existing Conditions, Removals, and Inplace Utilities

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B37	B77

FILE: ...*Sheet_Files*B37.dgn
PLOTTING DATE: 02-16-2015
REV DATE:
INITIAL:

68+63.5 - 28.0' L TO 69+03.6 - 29.3' L
Take Out 18" - 40' - CM Pipe

70+81.0 - 13.1' L TO 70+81.0 - 24.90' R
Take Out 36" - 40' - CM Pipe

150+60.35 to 150+94.03 L
Take out 118 S.Y. Asphalt Pavement

150+60.35 to 159+94.03 R
Take out 90 S.Y. Asphalt Pavement

140+72.4 TO 140+81.4 R
Take Out 9' Curb and Gutter

68+00 to 74+00 L
Take out 953 S.Y. Asphalt Pavement

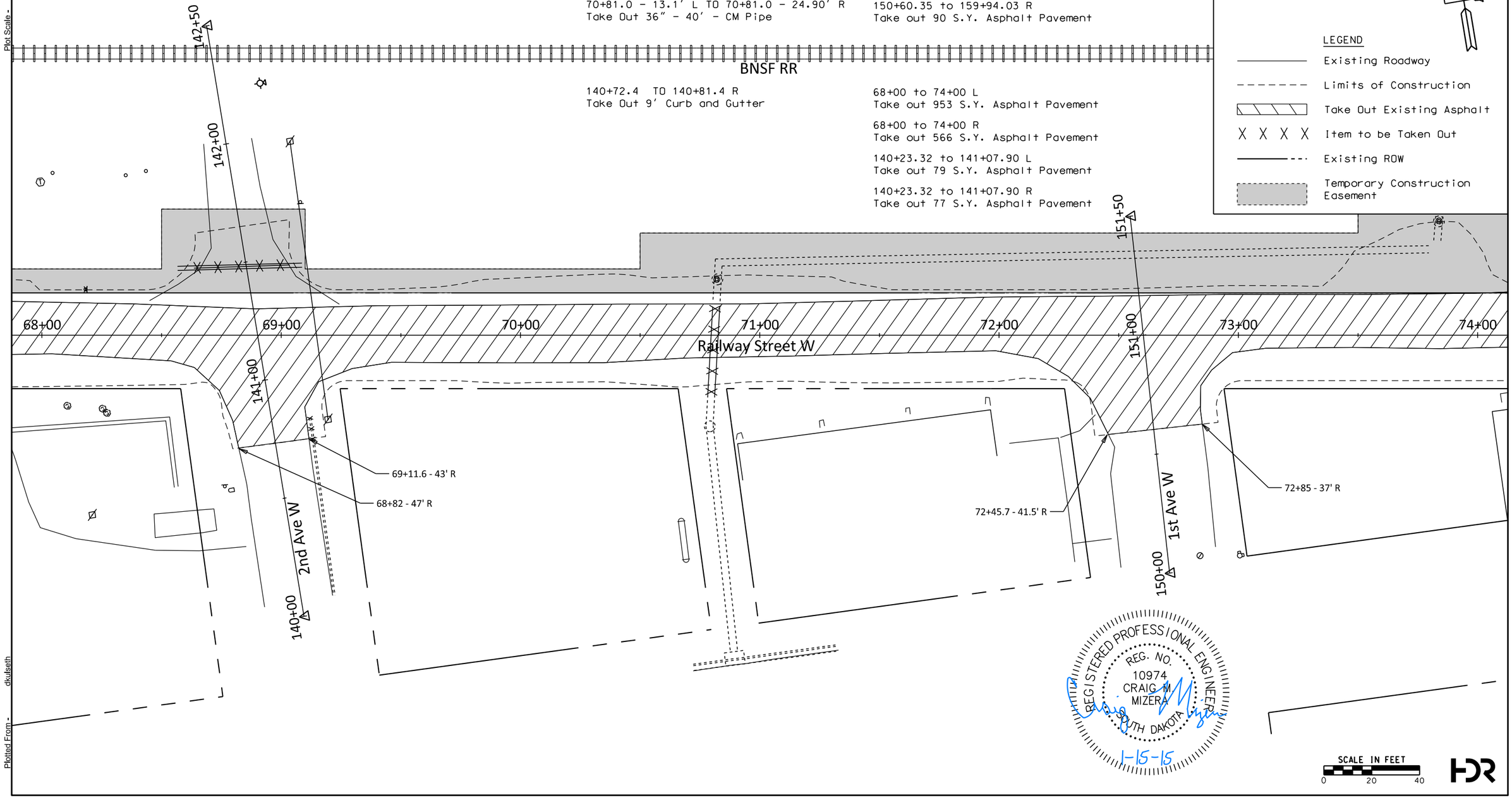
68+00 to 74+00 R
Take out 566 S.Y. Asphalt Pavement

140+23.32 to 141+07.90 L
Take out 79 S.Y. Asphalt Pavement

140+23.32 to 141+07.90 R
Take out 77 S.Y. Asphalt Pavement

LEGEND

- Existing Roadway
- Limits of Construction
- Take Out Existing Asphalt
- X X X X Item to be Taken Out
- Existing ROW
- Temporary Construction Easement



Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Existing Conditions, Removals, and Inplace Utilities

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B38	B77

FILE: ...*Sheet_Files*B38.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

80+86.73 to 81+15.88 L
and 81+38.81 to 82+31.74
Take out 336 S.Y. Asphalt Pavement

80+86.73 to 81+15.88
and 81+38.81 to 82+31.74 R
Take out 336 S.Y. Asphalt Pavement

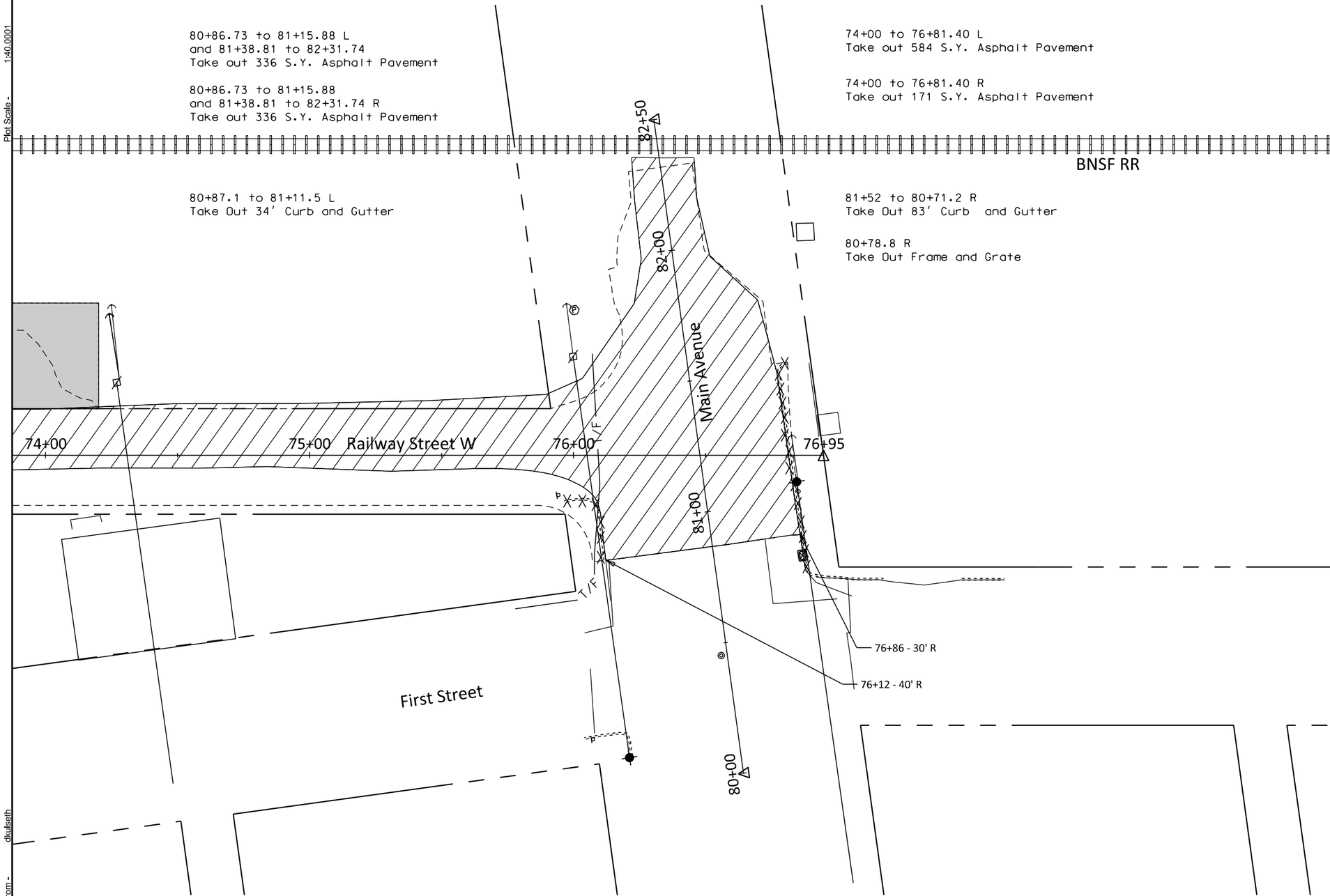
74+00 to 76+81.40 L
Take out 584 S.Y. Asphalt Pavement

74+00 to 76+81.40 R
Take out 171 S.Y. Asphalt Pavement

80+87.1 to 81+11.5 L
Take Out 34' Curb and Gutter

81+52 to 80+71.2 R
Take Out 83' Curb and Gutter

80+78.8 R
Take Out Frame and Grate



LEGEND

- Existing Roadway
- Limits of Construction
- Take Out Existing Asphalt
- X X X X Item to be Taken Out
- Existing ROW
- Temporary Construction Easement

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

SCALE IN FEET
0 20 40

HDR

Plot Scale - 1:40.0001
Plotted From - dkulseth

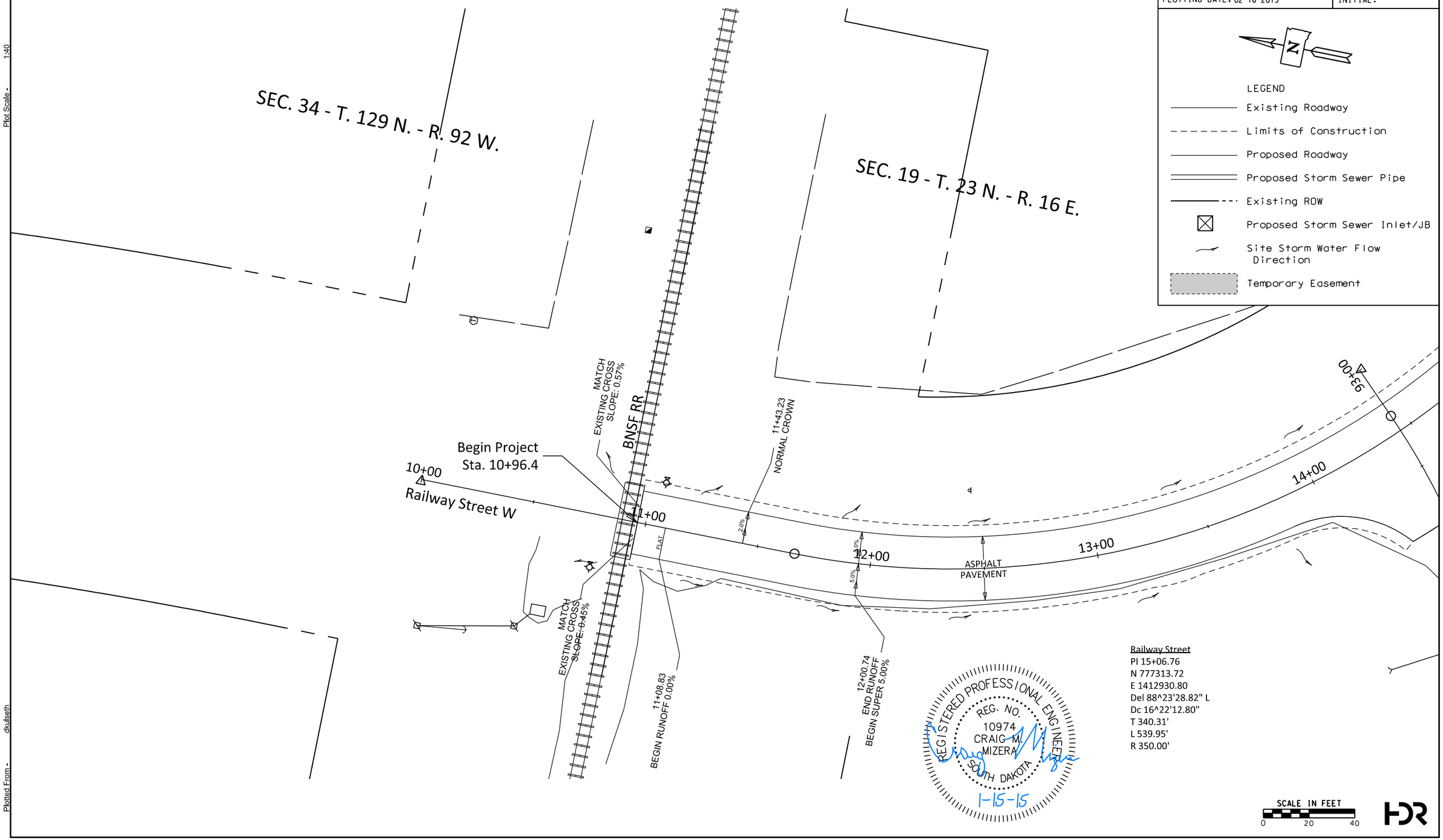
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B39	B77

FILE: ...*Sheet_Files*B39.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

Roadway and Storm Sewer Plan



LEGEND

- Existing Roadway
- Limits of Construction
- Proposed Roadway
- Proposed Storm Sewer Pipe
- Existing ROW
- Proposed Storm Sewer Inlet/JB
- Site Storm Water Flow Direction
- Temporary Easement

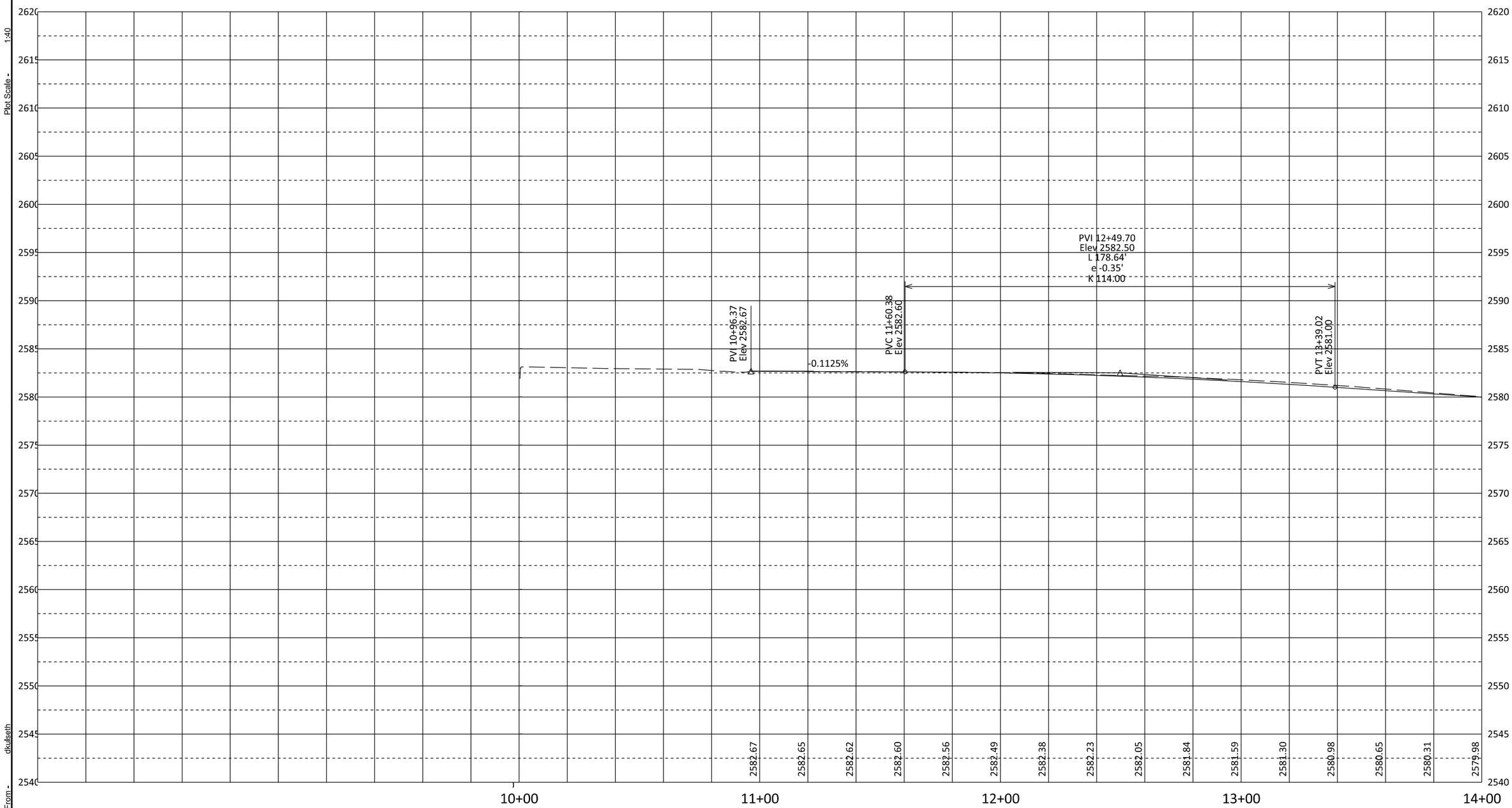
Railway Street
PI 15+06.76
N 777313.72
E 1412930.80
Del 88^23'28.82" L
Dc 16^22'12.80"
T 340.31'
L 539.95'
R 350.00'

Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B40	B77
FILE: ...*Sheet_Files*B40.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Roadway and Storm Sewer Profile



Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Roadway and Storm Sewer Plan

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B41	B77

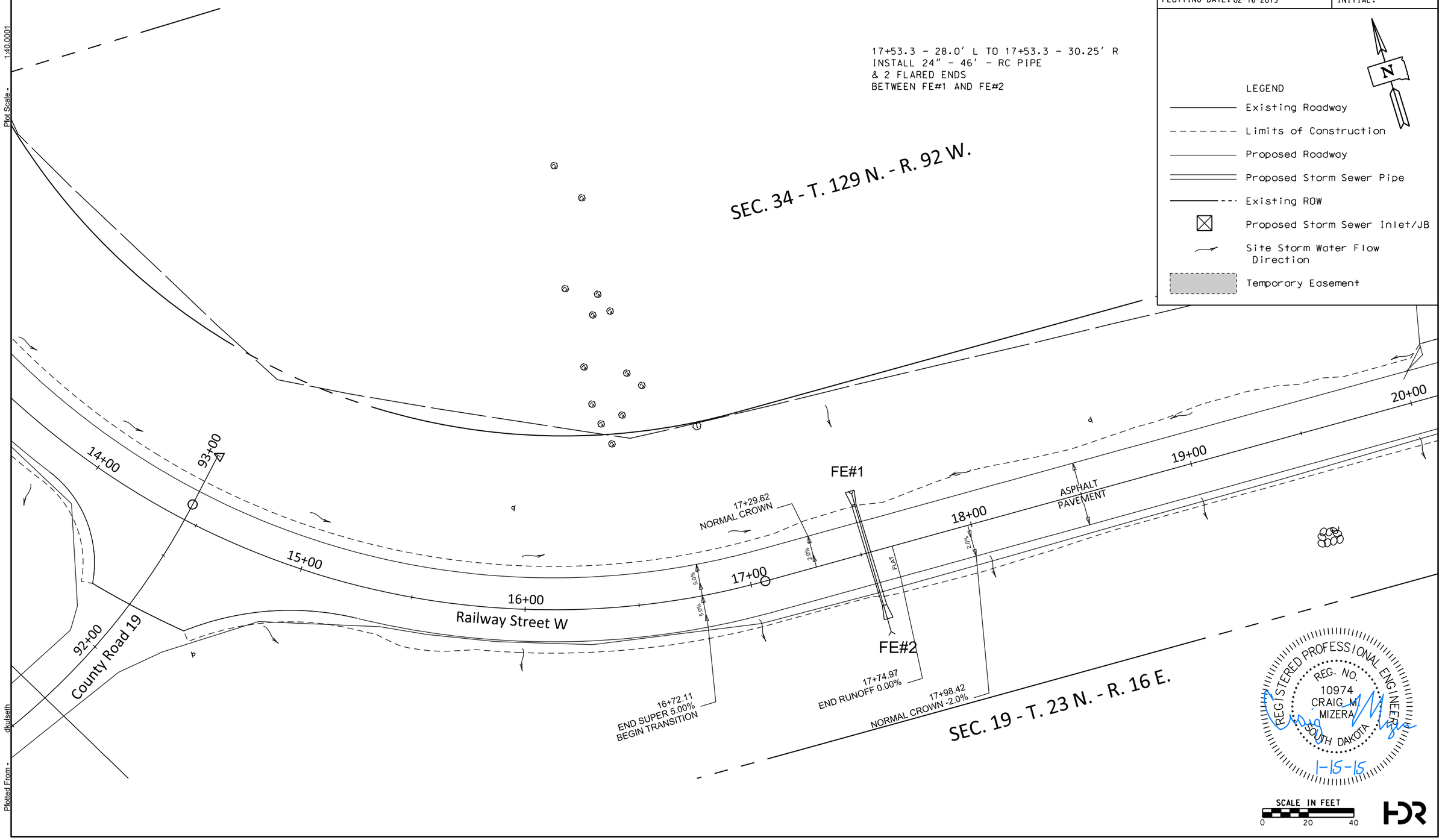
FILE: ...*Sheet_Files*B41.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

17+53.3 - 28.0' L TO 17+53.3 - 30.25' R
INSTALL 24" - 46' - RC PIPE
& 2 FLARED ENDS
BETWEEN FE#1 AND FE#2

LEGEND

- Existing Roadway
- Limits of Construction
- Proposed Roadway
- Proposed Storm Sewer Pipe
- Existing ROW
- Proposed Storm Sewer Inlet/JB
- Site Storm Water Flow Direction
- Temporary Easement



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

SCALE IN FEET
0 20 40

HDR

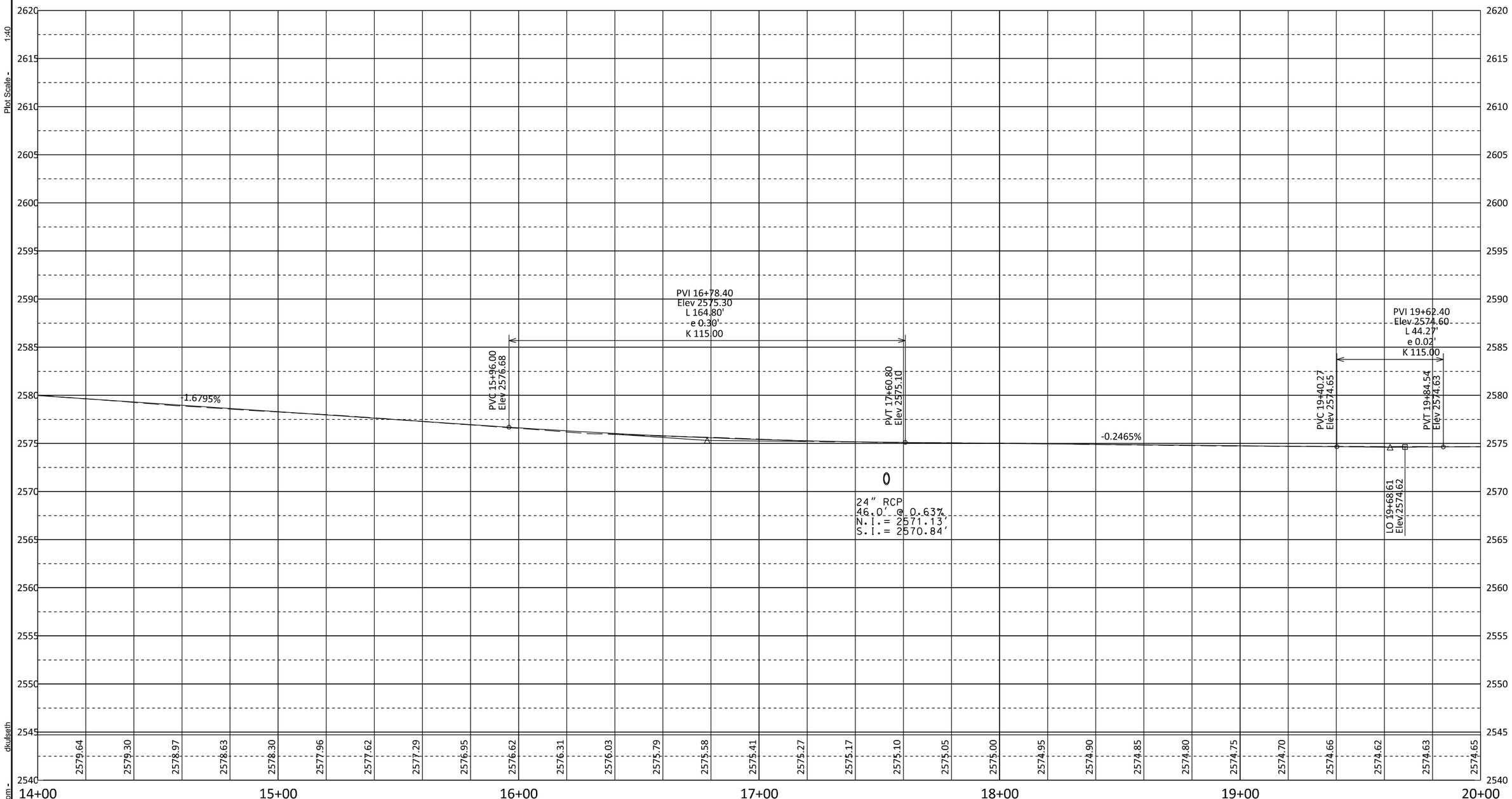
Plot Scale - 1:40.0001
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B42	B77

FILE: ...*Sheet_Files*B42.dgn
PLOTTING DATE: 02-16-2015
REV DATE:
INITIAL:

Roadway and Storm Sewer Profile



Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Roadway and Storm Sewer Plan

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B43	B77

FILE: ...*Sheet_Files*B43.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

LEGEND

- Existing Roadway
- Limits of Construction
- Proposed Roadway
- Proposed Storm Sewer Pipe
- Existing ROW
- Proposed Storm Sewer Inlet/JB
- Site Storm Water Flow Direction
- Temporary Easement

N

21+95.5 - 29.42' L TO 21+95.5 - 28.70' R
INSTALL 42" - 42' - ARCH RC PIPE
& 2 FLARED ENDS
BETWEEN FE#3 AND FE#4

22+04.6 - 29.09' L TO 22+04.6 - 29.13' R
INSTALL 42" - 42' - ARCH RC PIPE
& 2 FLARED ENDS
BETWEEN FE#5 AND FE#6

SEC. 34 - T. 129 N. - R. 92 W.

DO NOT DISTURB THE EXISTING WETLAND OUTSIDE OF THE EXISTING RIGHT OF WAY

FE#3 FE#5

20+00 21+00 22+00 23+00 24+00 25+00 26+00

Railway Street W

ASPHALT PAVEMENT

INSTALL CONTROLLED DENSITY FILL BETWEEN PIPES (10 CY)

FE#4 FE#6

SEC. 19 - T. 23 N. - R. 16 E.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

SCALE IN FEET
0 20 40

HDR

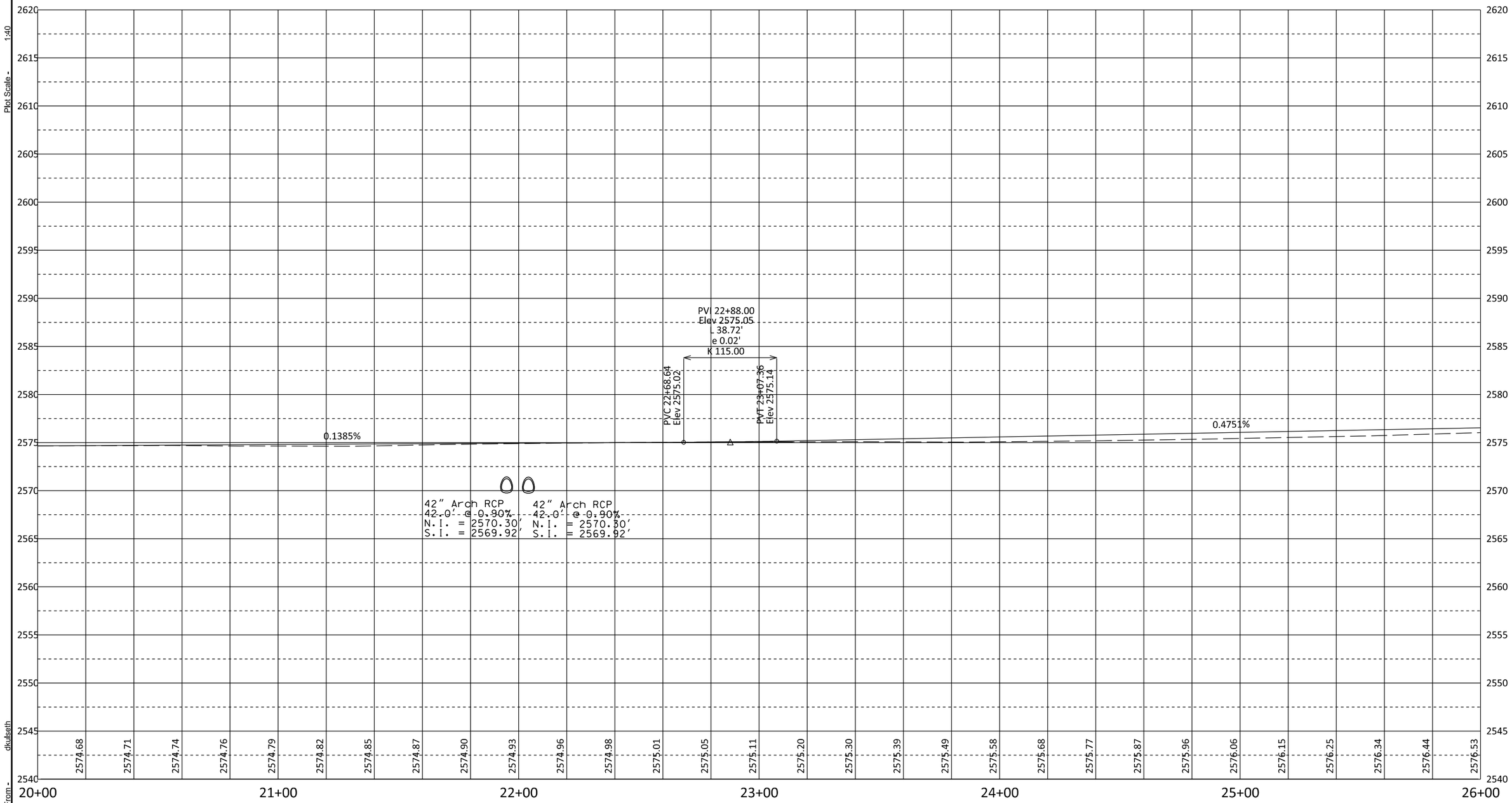
Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B44	B77
FILE: ...*Sheet_Files*B44.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Roadway and Storm Sewer Profile



Plot Scale - 1:40

Plotted From - dkulseth

HDR

FOR BIDDING PURPOSES ONLY

Roadway and Storm Sewer Plan

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B45	B77

FILE: ...*Sheet_Files*B45.dgn
PLOTTING DATE: 02-16-2015

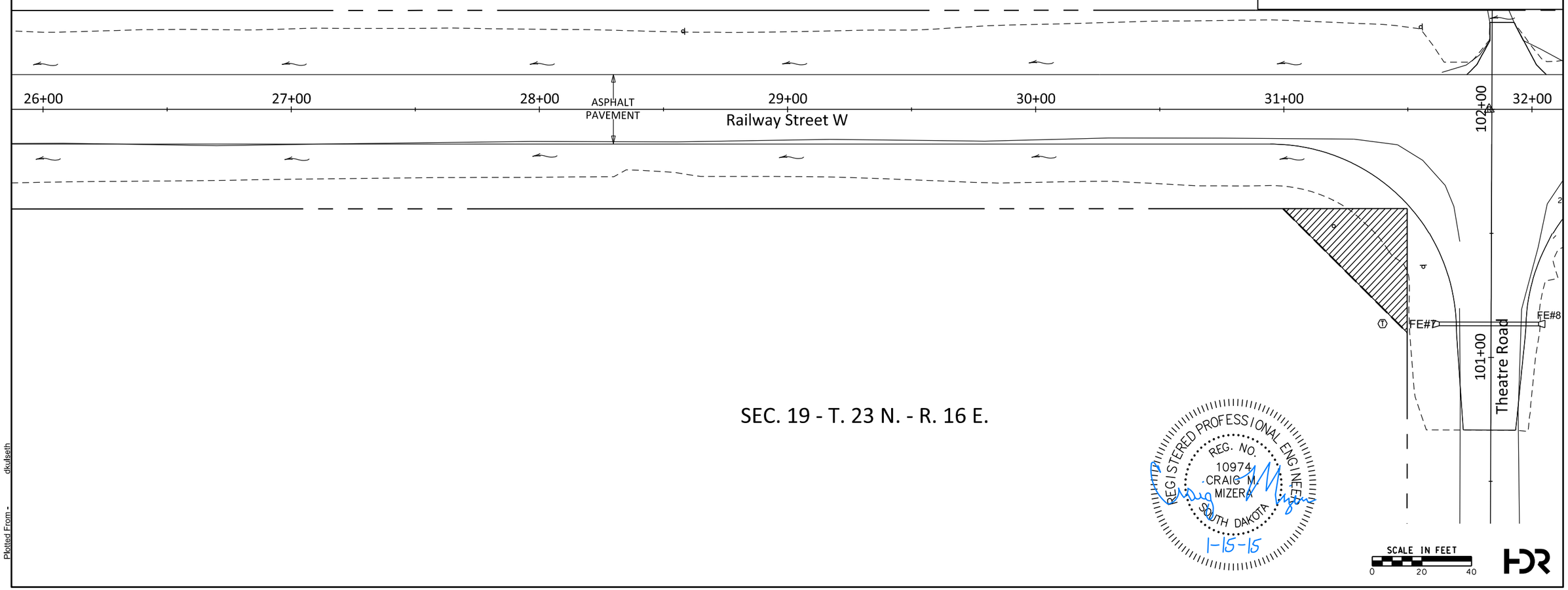
REV DATE:
INITIAL:

101+13 - 23.64' L TO 101+13 - 21.69' R
INSTALL 18" - 40' - CM PIPE
& 2 FLARED ENDS
BETWEEN FE#7 AND FE#8

SEC. 34 - T. 129 N. - R. 92 W.

LEGEND

- Existing Roadway
- Limits of Construction
- Proposed Roadway
- Proposed Storm Sewer Pipe
- Existing ROW
- Proposed Storm Sewer Inlet/JB
- Site Storm Water Flow Direction
- Temporary Easement



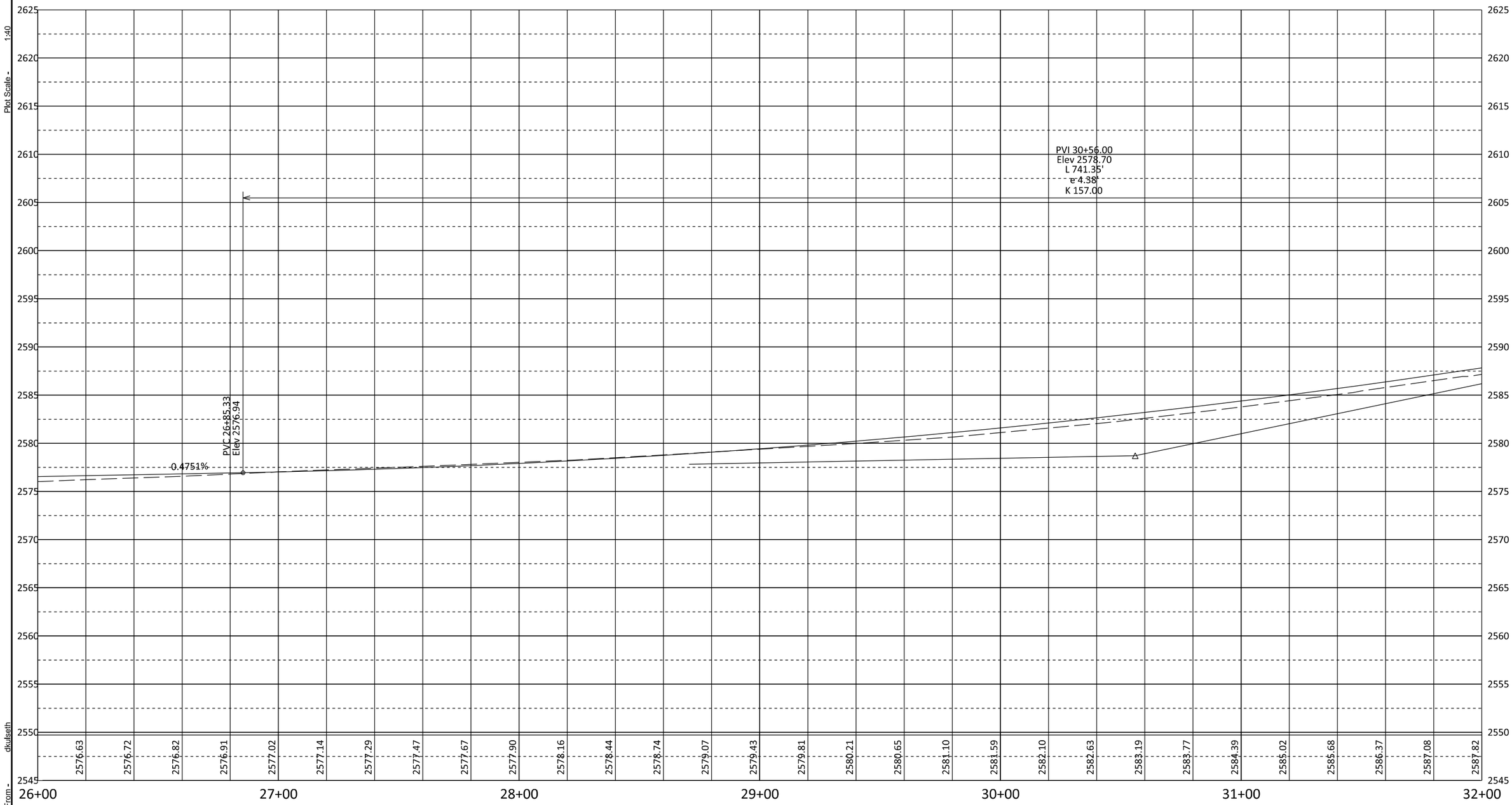
Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B46	B77
FILE: ...*Sheet_Files*B46.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Roadway and Storm Sewer Profile



Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Roadway and Storm Sewer Plan

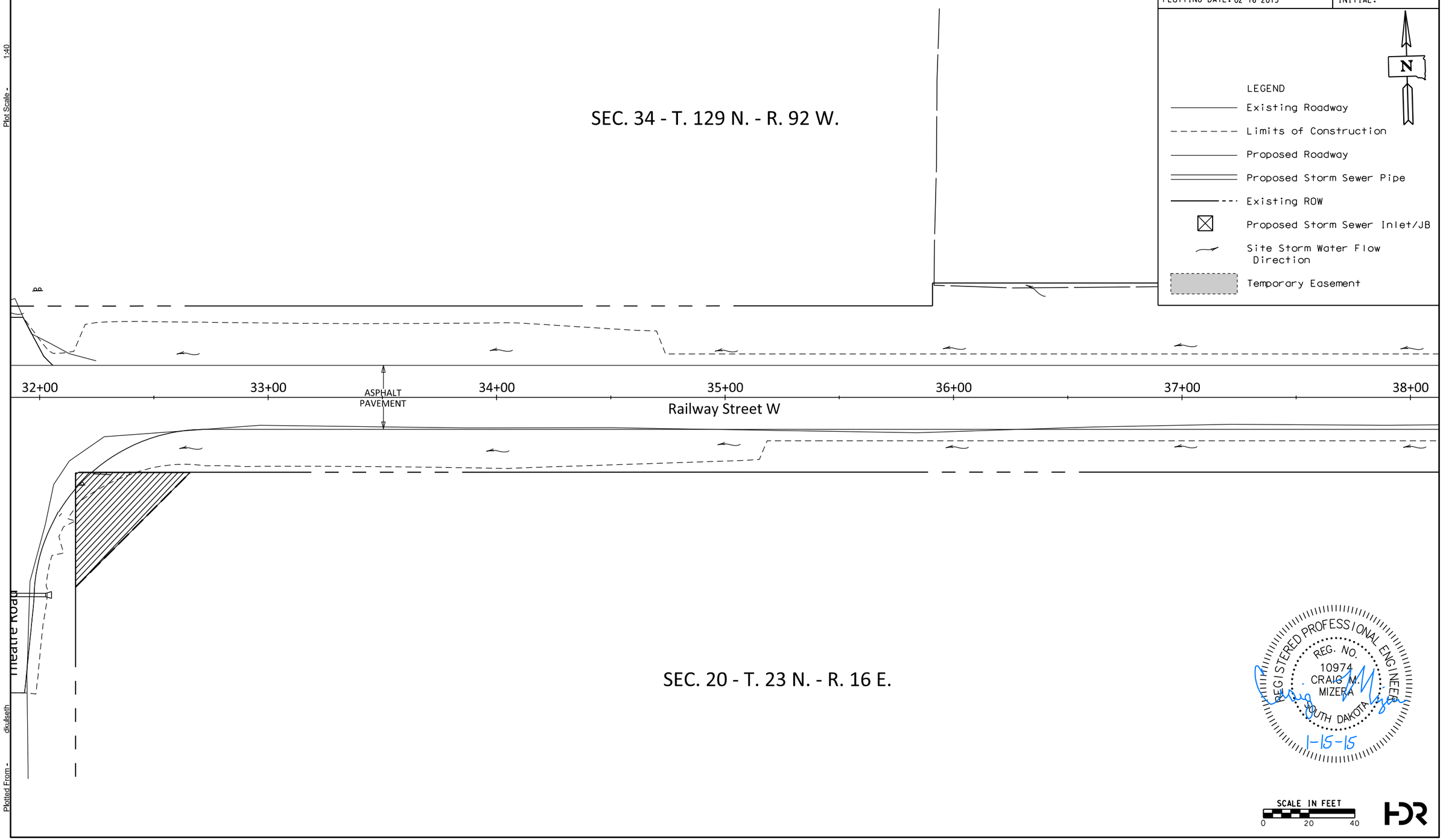
STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B47	B77

FILE: ...*Sheet_Files*B47.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

LEGEND

- Existing Roadway
- Limits of Construction
- Proposed Roadway
- Proposed Storm Sewer Pipe
- Existing ROW
- Proposed Storm Sewer Inlet/JB
- Site Storm Water Flow Direction
- Temporary Easement

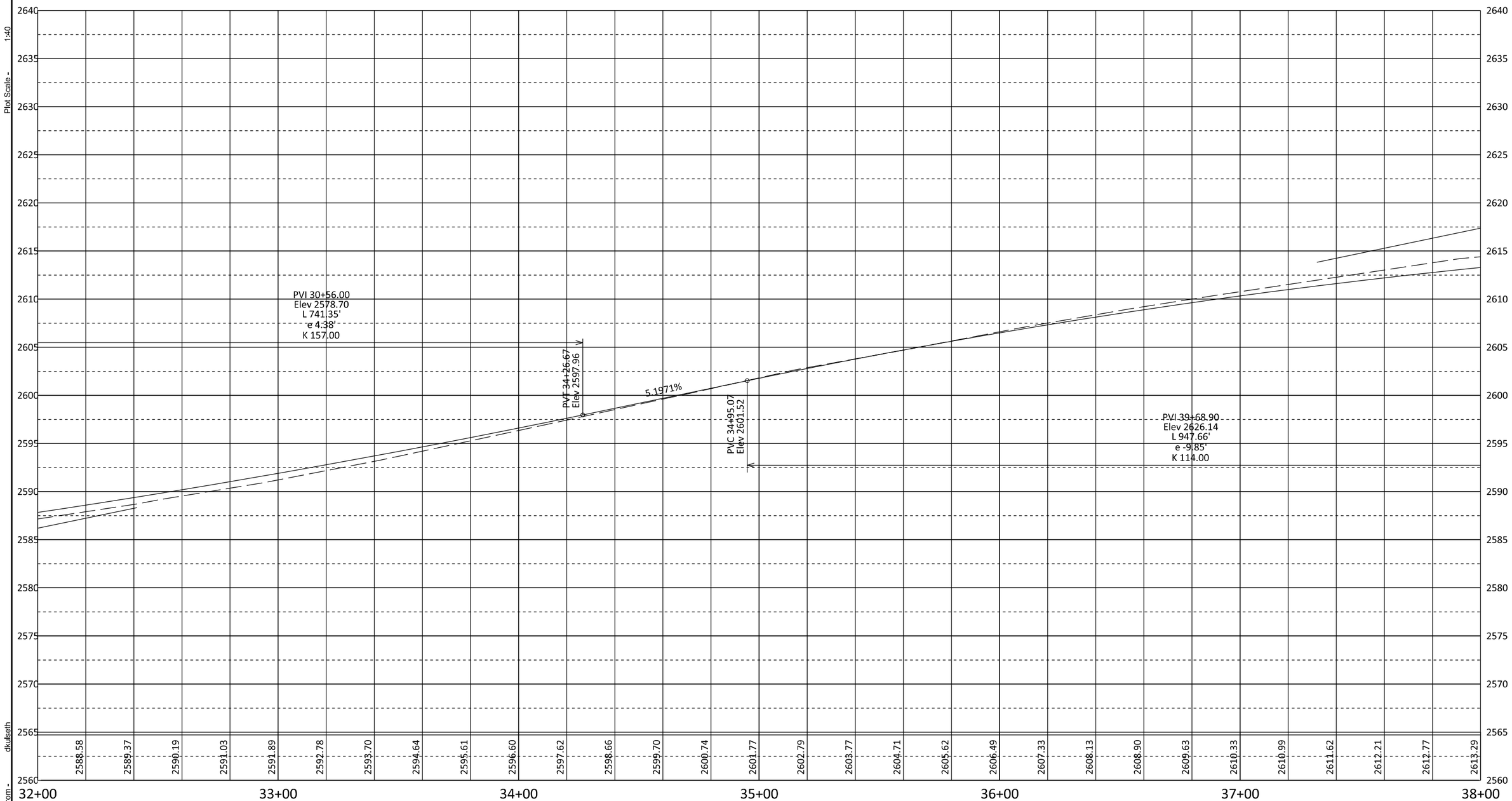


Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B48	B77
FILE: ...*Sheet_Files*B48.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Roadway and Storm Sewer Profile



Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Roadway and Storm Sewer Plan

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B49	B77

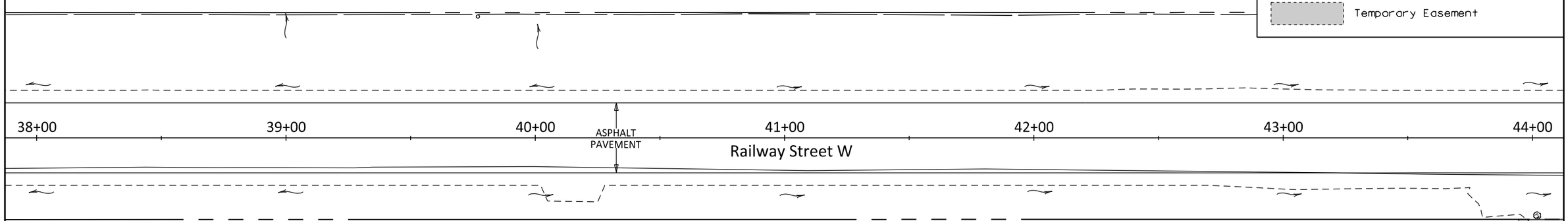
FILE: ...*Sheet_Files*B49.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

LEGEND

- Existing Roadway
- Limits of Construction
- Proposed Roadway
- Proposed Storm Sewer Pipe
- Existing ROW
- Proposed Storm Sewer Inlet/JB
- Site Storm Water Flow Direction
- Temporary Easement

SEC. 34 - T. 129 N. - R. 92 W.



SEC. 20 - T. 23 N. - R. 16 E.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

SCALE IN FEET
0 20 40

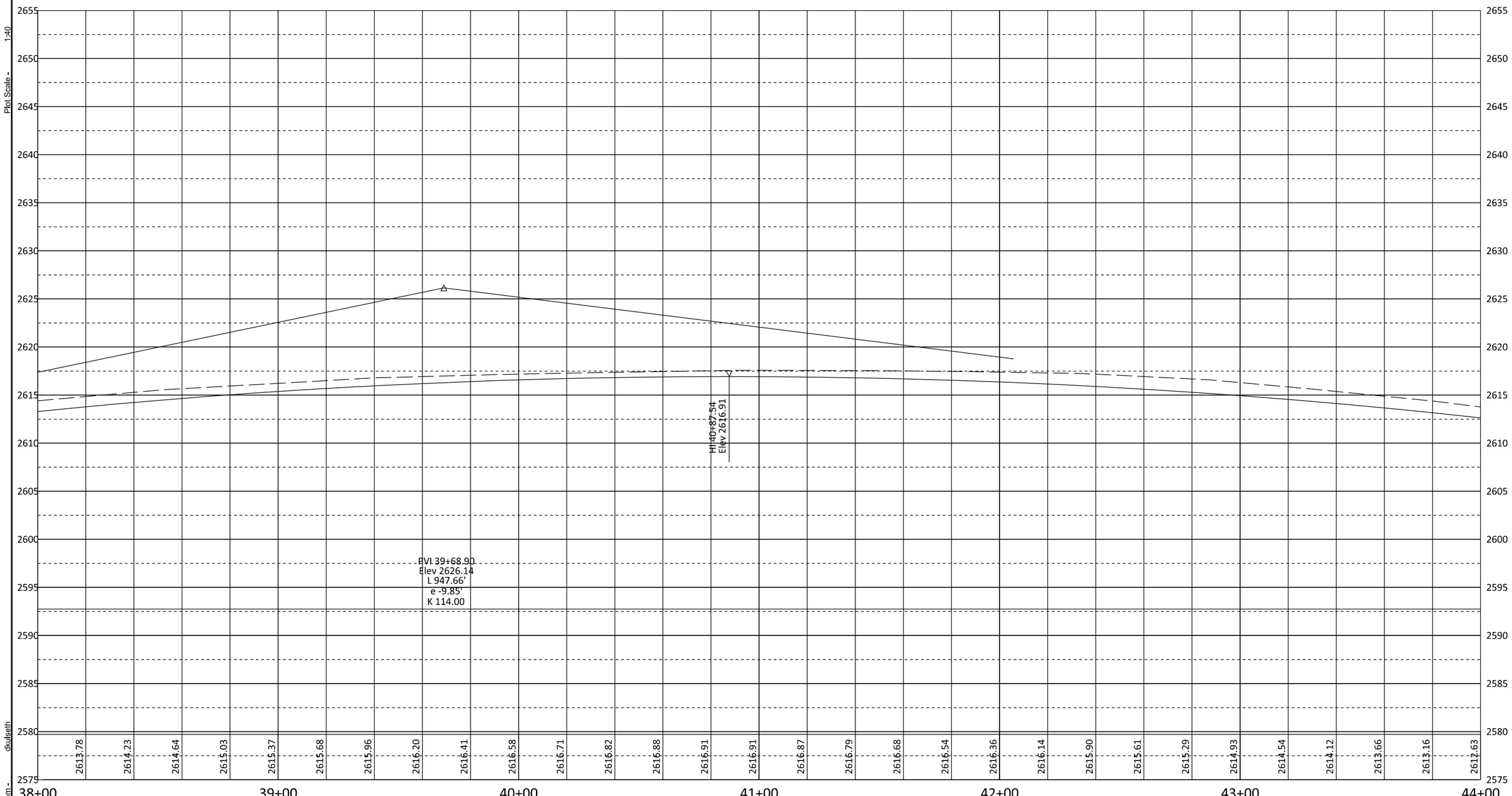
HDR

Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B50	B77
FILE: ...*Sheet_Files*B50.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Roadway and Storm Sewer Profile



Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Roadway and Storm Sewer Plan

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B51	B77

FILE: ...*Sheet_Files*B51.dgn
PLOTTING DATE: 02-16-2015

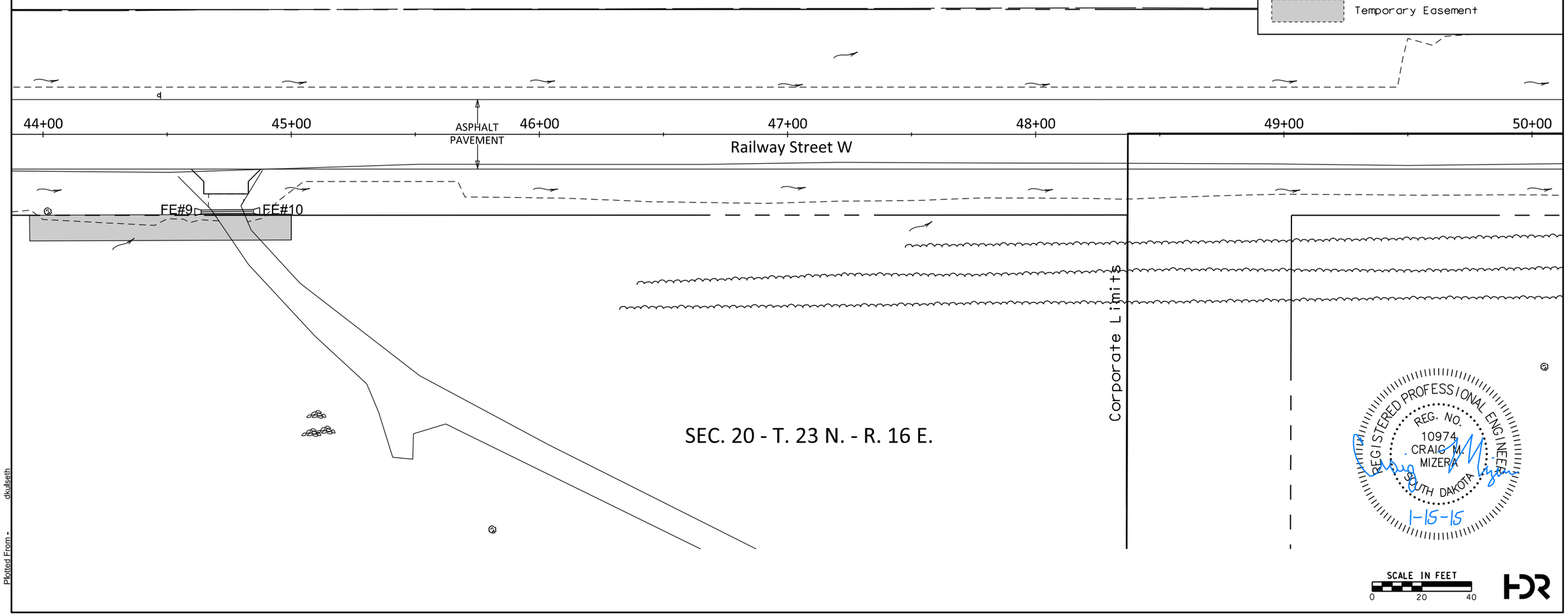
REV DATE:
INITIAL:

44+61 - 31.0' R TO 44+87.0 - 31.0' R
INSTALL 18" - 21' - CM PIPE
& 2 FLARED ENDS
BETWEEN FE#9 AND FE#10

SEC. 34 - T. 129 N. - R. 92 W.

LEGEND

- Existing Roadway
- Limits of Construction
- Proposed Roadway
- Proposed Storm Sewer Pipe
- Existing ROW
- Proposed Storm Sewer Inlet/JB
- Site Storm Water Flow Direction
- Temporary Easement

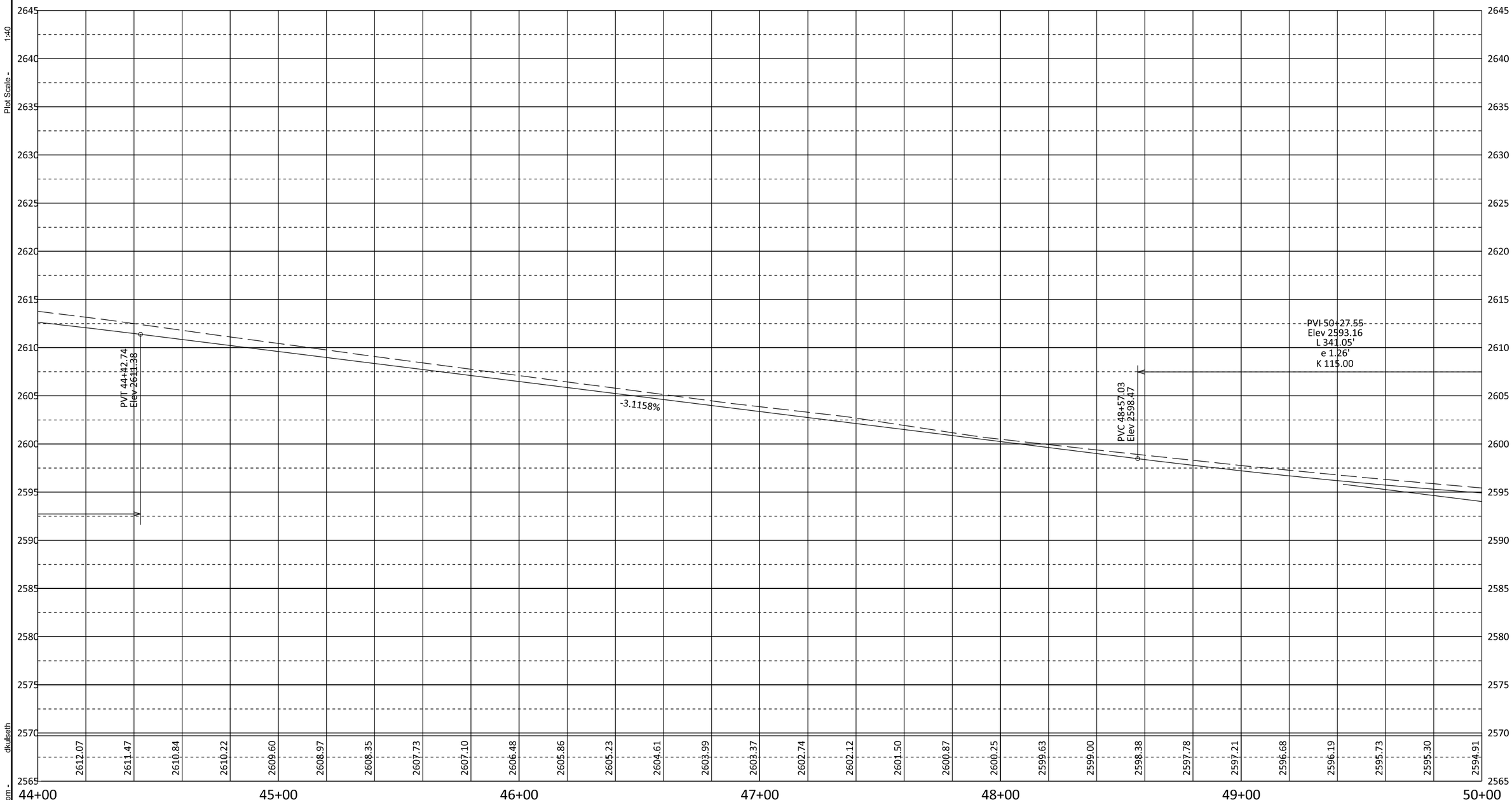


Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B52	B77
FILE: ...*Sheet_Files*B52.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Roadway and Storm Sewer Profile



Plot Scale - 1:40

Plotted From - dkulseth

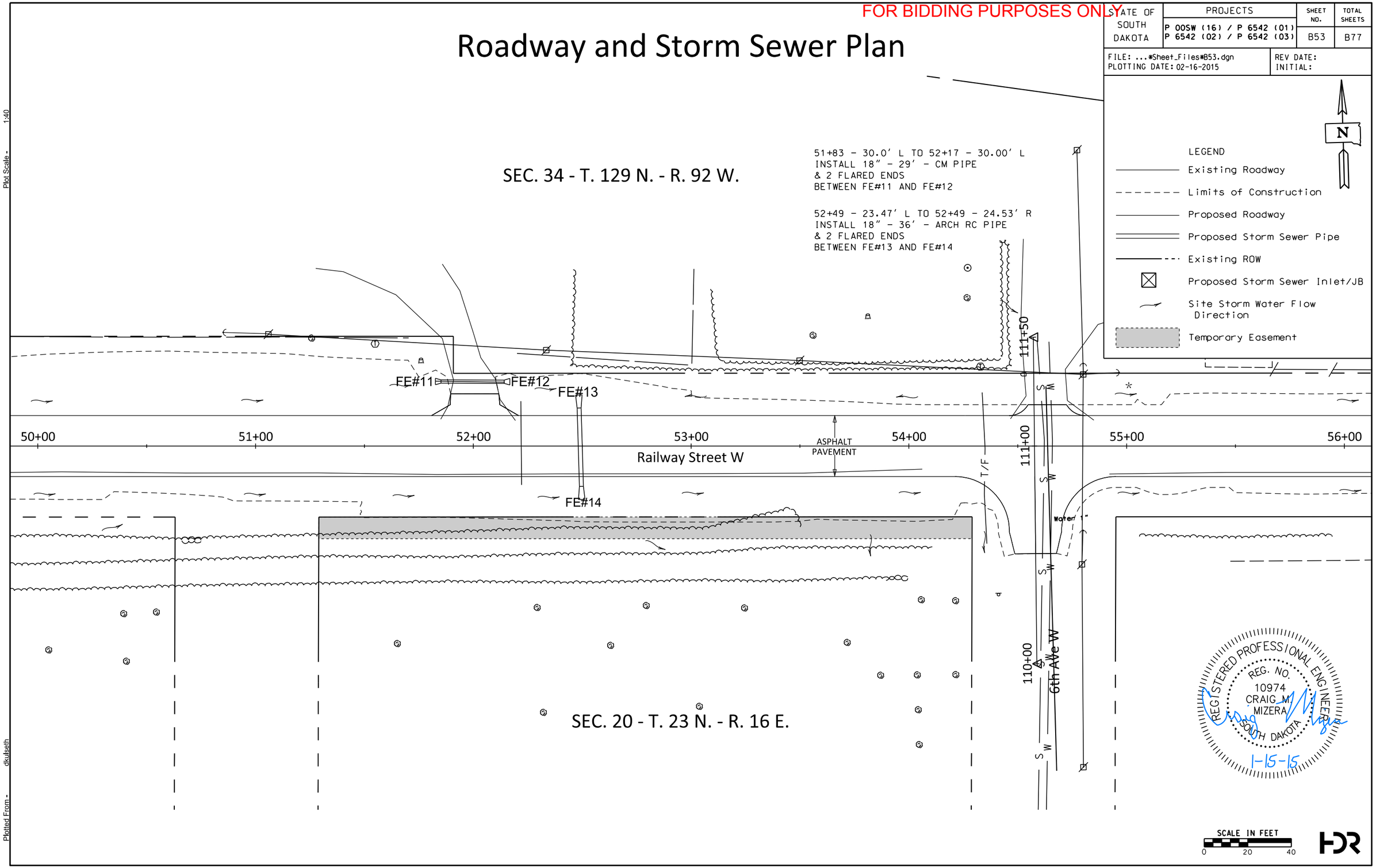
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B53	B77

FILE: ...*Sheet_Files*B53.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

Roadway and Storm Sewer Plan



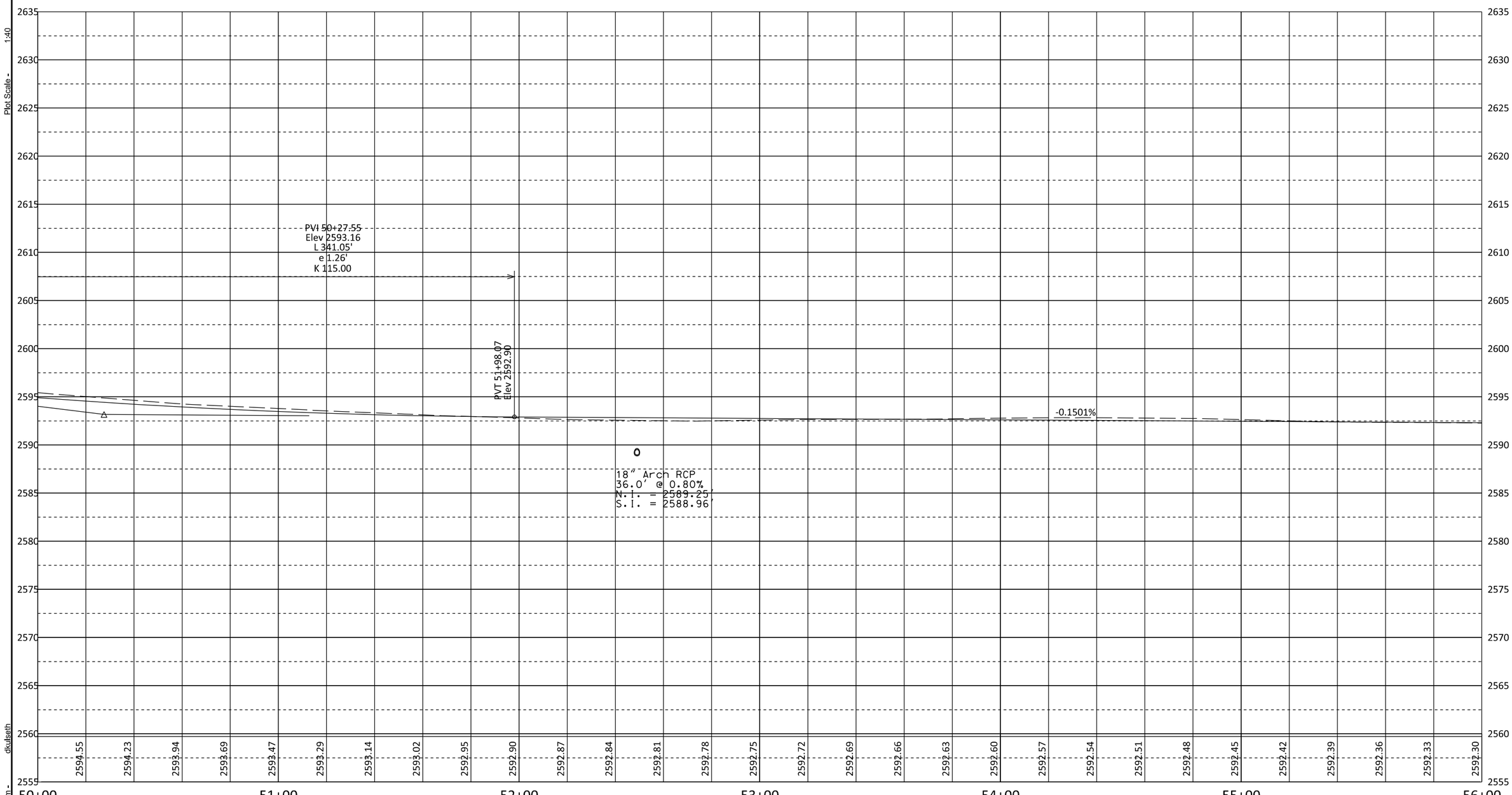
Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B54	B77
FILE: ...*Sheet_Files*B54.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Roadway and Storm Sewer Profile



Plot Scale - 1:40

Plotted From - dkulseth

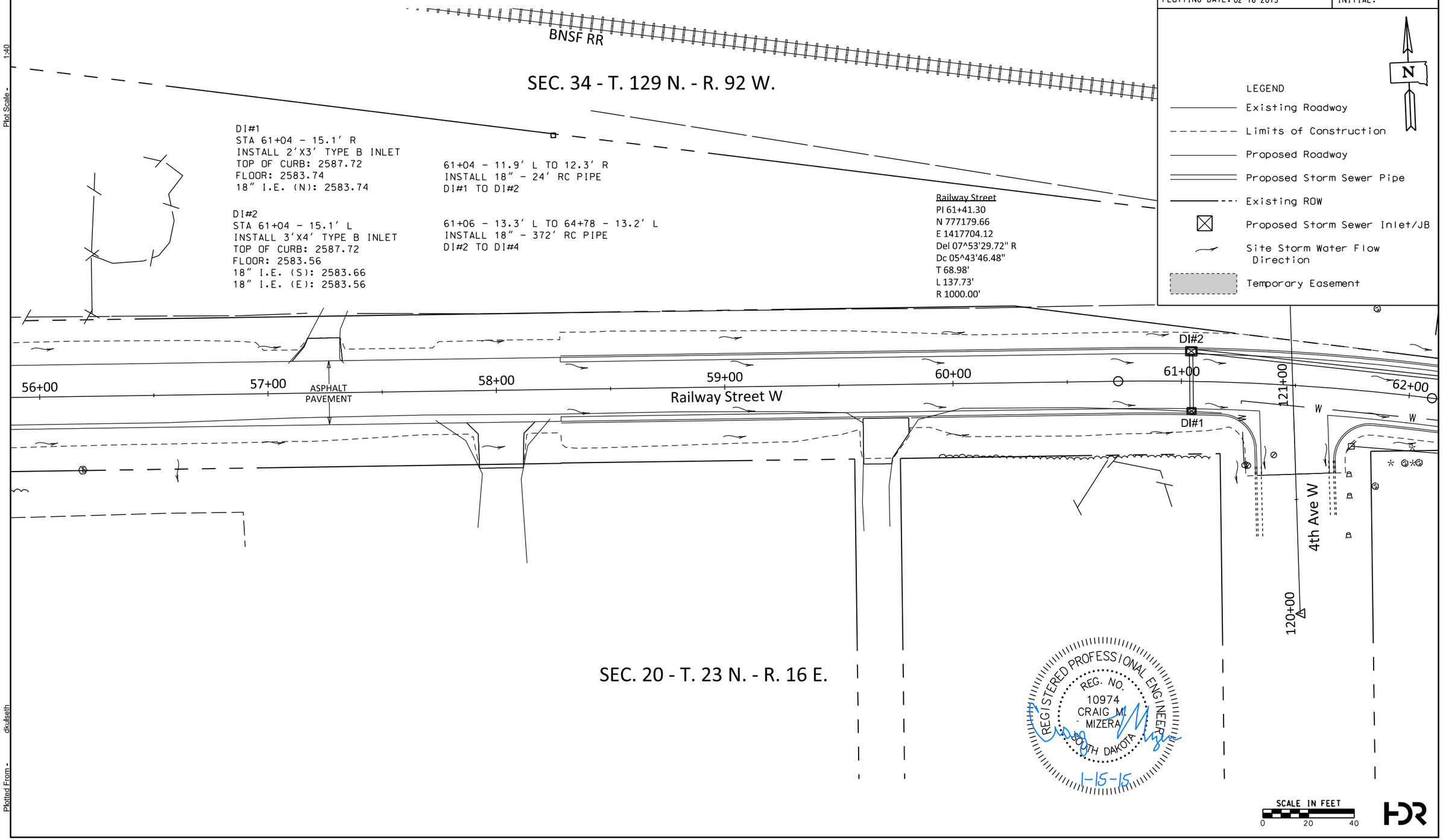
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B55	B77

FILE: ...*Sheet_Files*B55.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

Roadway and Storm Sewer Plan



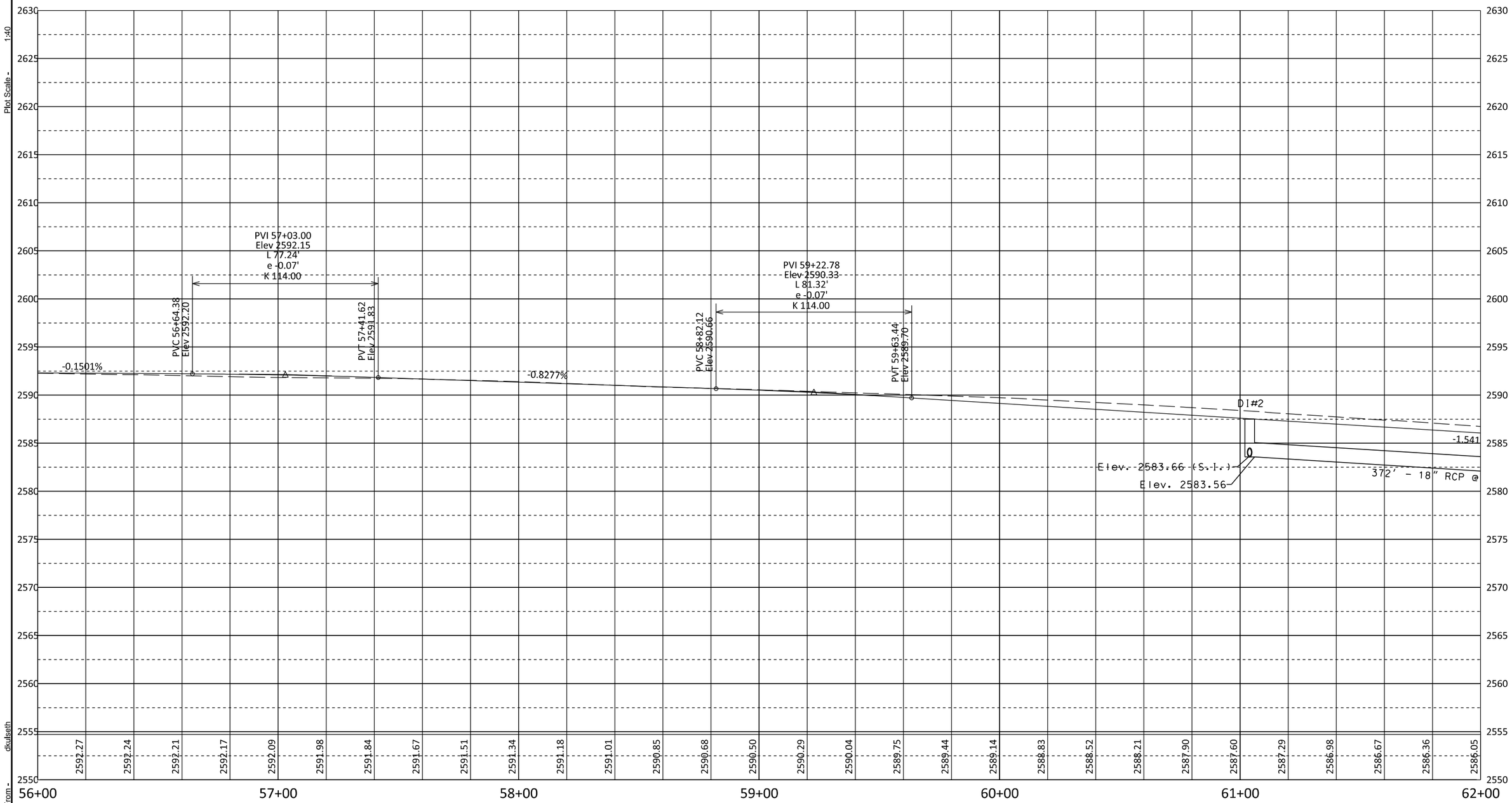
Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B56	B77
FILE: ...*Sheet_Files*B56.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Roadway and Storm Sewer Profile



Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

Roadway and Storm Sewer Plan

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B57	B77

FILE: ...*Sheet_Files*B57.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

Plot Scale - 1:40

SEC. 34 - T. 129 N. - R. 92 W.

BNSF RR

DI#4
STA 64+78 - 15.2' L
INSTALL 3'X4' TYPE B INLET
TOP OF CURB: 2581.97
FLOOR: 2577.72
18" I.E. (W): 2577.82
18" I.E. (S): 2577.91
18" I.E. (E): 2577.72

DI#3
STA 64+78 - 15.2' R
INSTALL 2'X3' TYPE B INLET
TOP OF CURB: 2581.97
FLOOR: 2577.99
18" I.E. (N): 2577.99

DI#13
STA 66+98 - 14.6' R
INSTALL 2'X3' TYPE B INLET
TOP OF CURB: 2578.53
FLOOR: 2574.55
18" I.E. (N): 2574.55

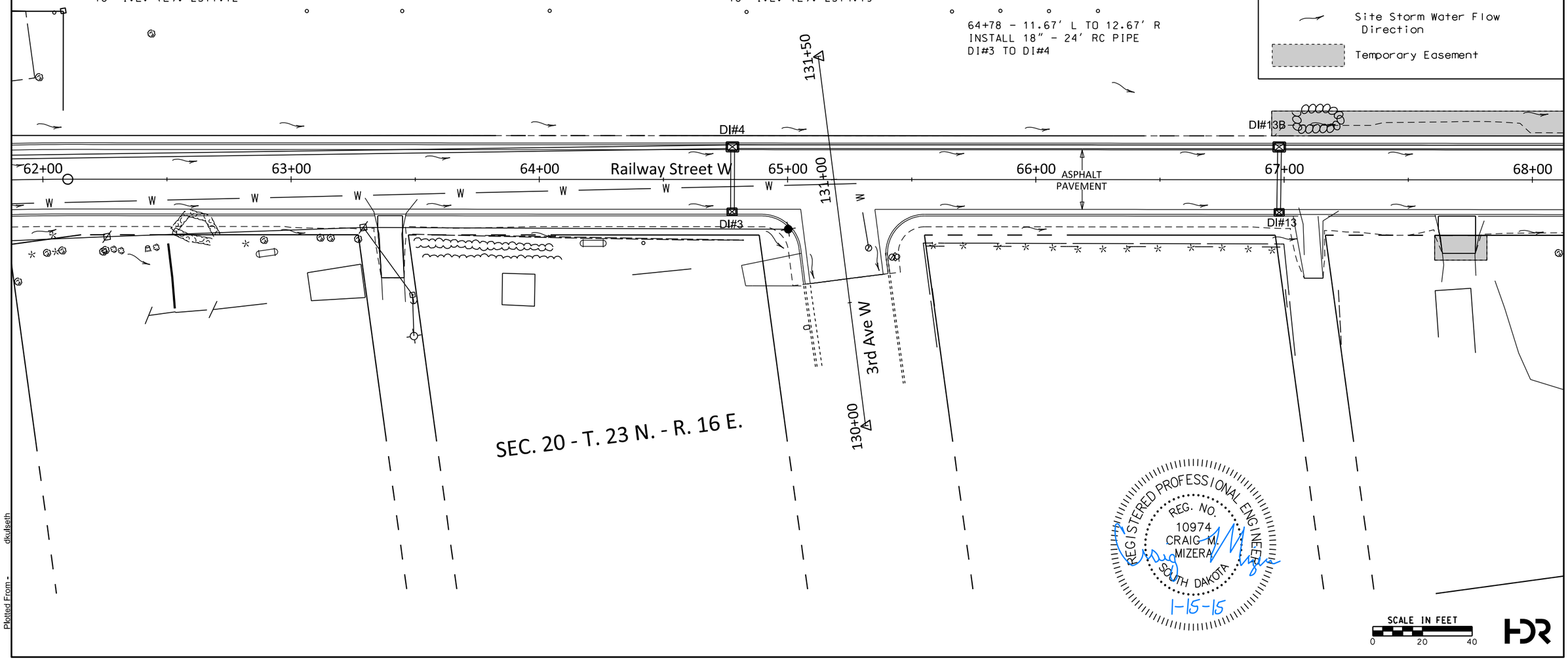
DI#13B
STA 66+98 - 15.2' L
INSTALL 3'X4' TYPE B INLET
TOP OF CURB: 2578.53
FLOOR: 2574.19
18" I.E. (S): 2574.45
18" I.E. (W): 2574.29
18" I.E. (E): 2574.19

64+78 - 13.3' L TO 68+34 - 13.2' L
INSTALL 18" - 354' RC PIPE
DI#4 TO DI#6

66+98 - 12.2' L TO 66+98 - 11.7' R
INSTALL 18" - 24' RC PIPE
DI#13 TO DI#13B

64+78 - 11.67' L TO 12.67' R
INSTALL 18" - 24' RC PIPE
DI#3 TO DI#4

LEGEND
- Existing Roadway
- Limits of Construction
- Proposed Roadway
- Proposed Storm Sewer Pipe
- Existing ROW
- Proposed Storm Sewer Inlet/JB
- Site Storm Water Flow Direction
- Temporary Easement

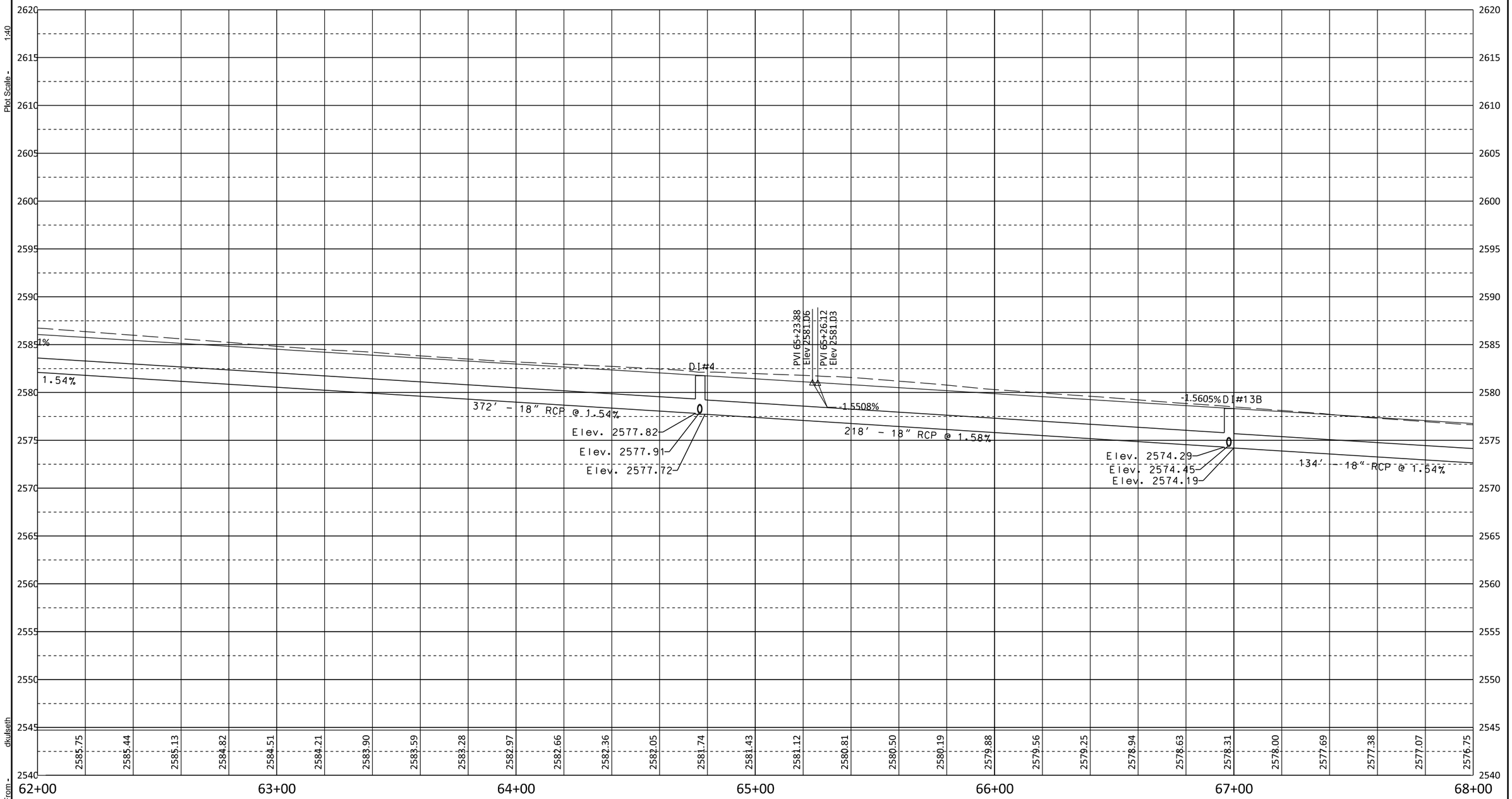


Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B58	B77
FILE: ...*Sheet_Files*B58.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Roadway and Storm Sewer Profile



Plot Scale - 1:40

Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B59	B77

FILE: ...*Sheet_Files*B59.dgn
PLOTTING DATE: 02-16-2015
REV DATE:
INITIAL:

Roadway and Storm Sewer Plan

DI#12
STA 73+79 - 15.2' L
INSTALL 3'X4' TYPE B INLET
TOP OF CURB: 2570.59
FLOOR: 2564.94
18" I.E. (W): 2565.04
18" I.E. (E): 2565.04
18" I.E. (N): 2564.94

DI#7
STA 70+81 - 15.2' L
INSTALL 3'X4' TYPE B INLET
TOP OF CURB: 2573.73
FLOOR: 2565.37
18" I.E. (W): 2568.12
36" I.E. (S): 2565.38 (EXISTING PIPE)
36" I.E. (N): 2565.37 (EXISTING PIPE)

SEC. 34 - T. 129 N. - R. 92 W.

DI#5
STA 68+36 - 15.2' R
INSTALL 2'X3' TYPE B INLET
TOP OF CURB: 2576.40
FLOOR: 2572.32
18" I.E. (N): 2572.32

DI#6
STA 68+36 - 15.2' L
INSTALL 3'X4' TYPE B INLET
TOP OF CURB: 2576.40
FLOOR: 2572.02
18" I.E. (W): 2572.12
18" I.E. (S): 2572.24
18" I.E. (E): 2572.02

LEGEND
- Existing Roadway
- Limits of Construction
- Proposed Roadway
- Proposed Storm Sewer Pipe
- Existing ROW
- Proposed Storm Sewer Inlet/JB
- Site Storm Water Flow Direction
- Temporary Easement

N

BNSF RR

70+81 - 11.91' L TO 24.90' R
INSTALL 36" - 38' RC PIPE
DI#7 TO THE SOUTH

72+09 - 13.1' L TO 73+79 - 13.1' L
INSTALL 18" - 168' RC PIPE
DI#9 TO DI#12

68+36 - 13.2' L TO 70+81 - 12.5' L
INSTALL 18" - 242' RC PIPE
DI#6 TO DI#7

68+36 - 11.7' L TO 12.2' R
INSTALL 18" - 24' RC PIPE
DI#5 TO DI#6

JB#1
STA 73+79 - 39.2' L
INSTALL 5'X5' JUNCTION BOX
RIM ELEVATION: 2568.56
FLOOR: 2564.53
18" I.E. (S): 2564.63
36" I.E. (W): 2564.55 (EXISTING PIPE)
36" I.E. (N): 2564.53 (EXISTING PIPE)
F&I TYPE A7 MANHOLE FRAME
AND LID

DI#8
STA 72+09 - 15.2' R
INSTALL 2'X3' TYPE B INLET
TOP OF CURB: 2572.63
FLOOR: 2568.65
18" I.E. (N): 2568.65

141+48 - 31.00' L TO 141+48 - 24.85' R
INSTALL 18" - 52' ARCH CM PIPE
& 2 FLARED ENDS
BETWEEN FE#15 AND FE#16

72+09.2 - 11.7' L TO 12.2' R
INSTALL 18" - 24' RC PIPE
DI#8 TO DI#9

142+50
142+00
151+50
151+00
141+00
140+00
150+00

FE#15
FE#16
DI#6
DI#5
DI#7
DI#9
DI#8
DI#12
JB#1

EXISTING 36" CM PIPE
EXISTING STORM SEWER AREA INLET
EXISTING 36" CM PIPE
EXISTING 36" CM PIPE

68+00
69+00
70+00
71+00
72+00
73+00
74+00

ASPHALT PAVEMENT

Railway Street W

2nd Ave W

1st Ave W

DI#9
STA 72+09 - 15.2' L
INSTALL 3'X4' TYPE B INLET
TOP OF CURB: 2572.63
FLOOR: 2568.48
18" I.E. (S): 2568.58
18" I.E. (E): 2568.48

73+79 - 15.2' L TO 73+79 - 34.0' L
INSTALL 18" - 20' RC PIPE
DI#12 TO JB#1

SEC. 20 - T. 23 N. - R. 16 E.

EXISTING STORM SEWER AREA INLET

ADD CMP TO RCP TRANSITION

70+81 - 26.12' R
INSTALL CMP TO RCP TRANSITION

EXISTING 36" CM PIPE

EXISTING STORM SEWER DROP INLET

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

SCALE IN FEET
0 20 40

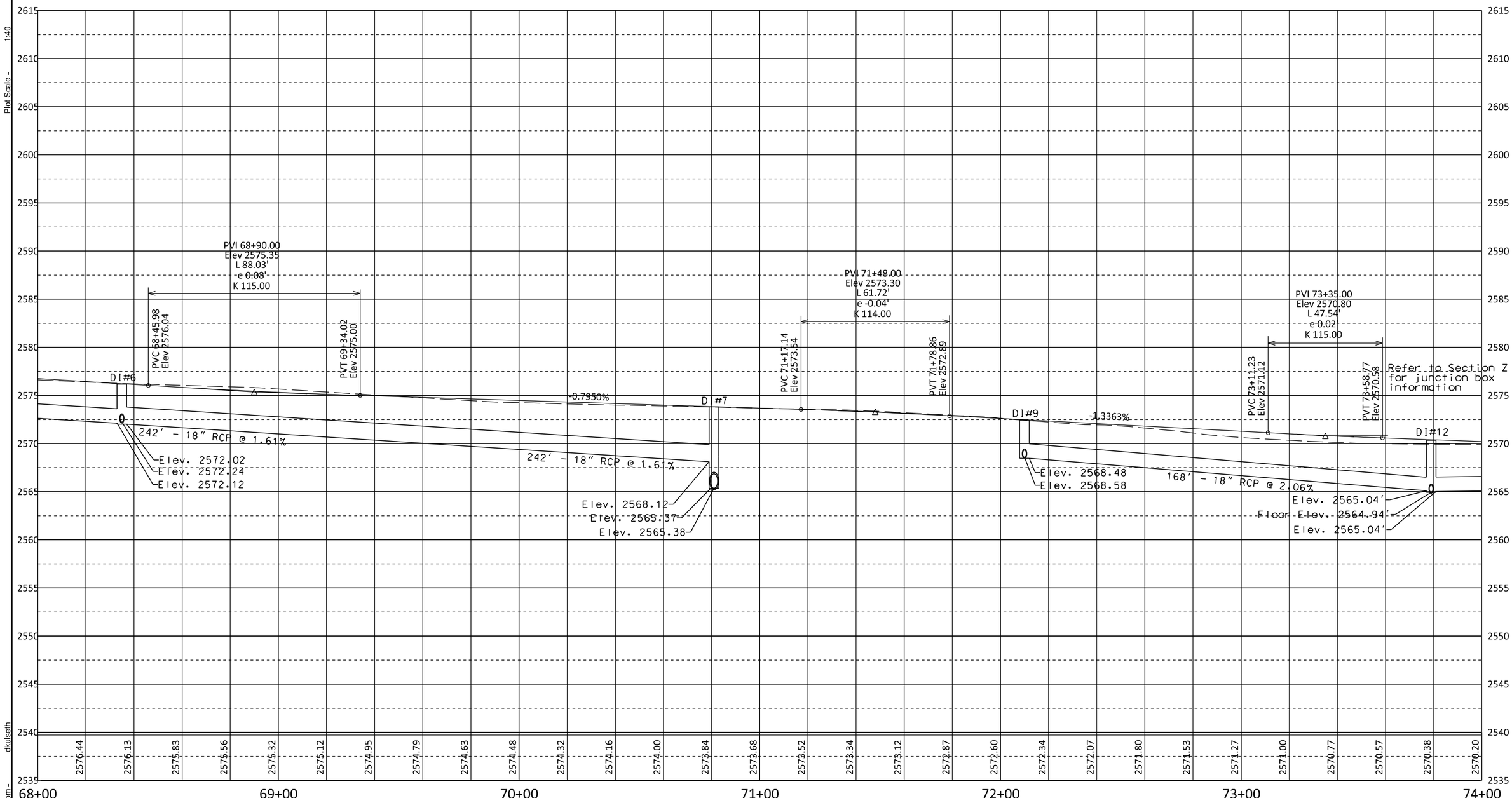
HDR

Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B60	B77
FILE: ...*Sheet_Files*B60.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Roadway and Storm Sewer Profile



Plot Scale - 1:40

Plotted From - dkulseth

HDR

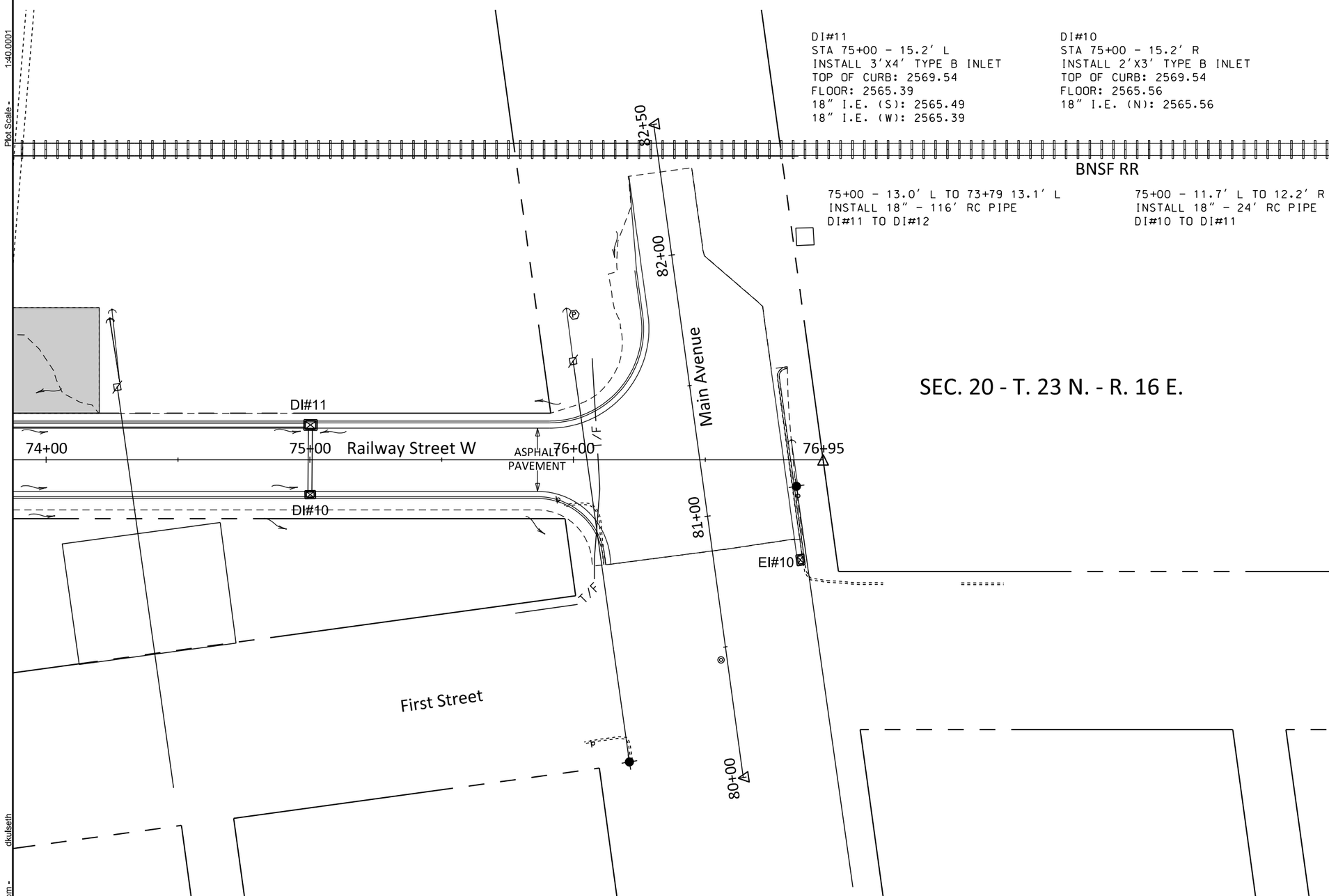
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B61	B77

FILE: ...*Sheet_Files*B61.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

Roadway and Storm Sewer Plan



SEC. 20 - T. 23 N. - R. 16 E.

LEGEND

- Existing Roadway
- Limits of Construction
- Proposed Roadway
- Proposed Storm Sewer Pipe
- Existing ROW
- Proposed Storm Sewer Inlet/JB
- Site Storm Water Flow Direction
- Temporary Easement

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

SCALE IN FEET
0 20 40

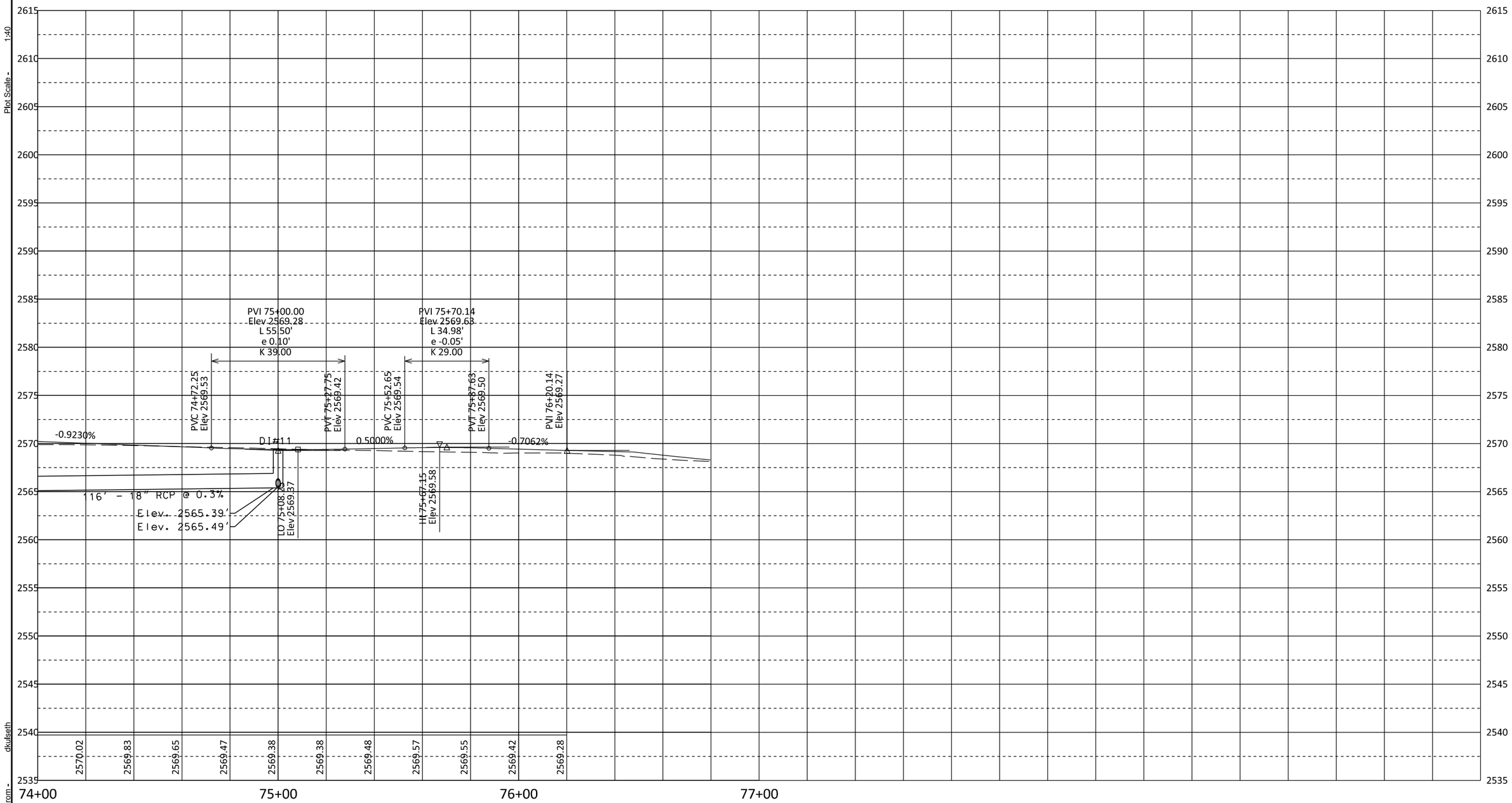
HDR

Plot Scale - 1:40.0001
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B62	B77
FILE: ...*Sheet_Files*B62.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Roadway and Storm Sewer Profile



Plot Scale - 1:40

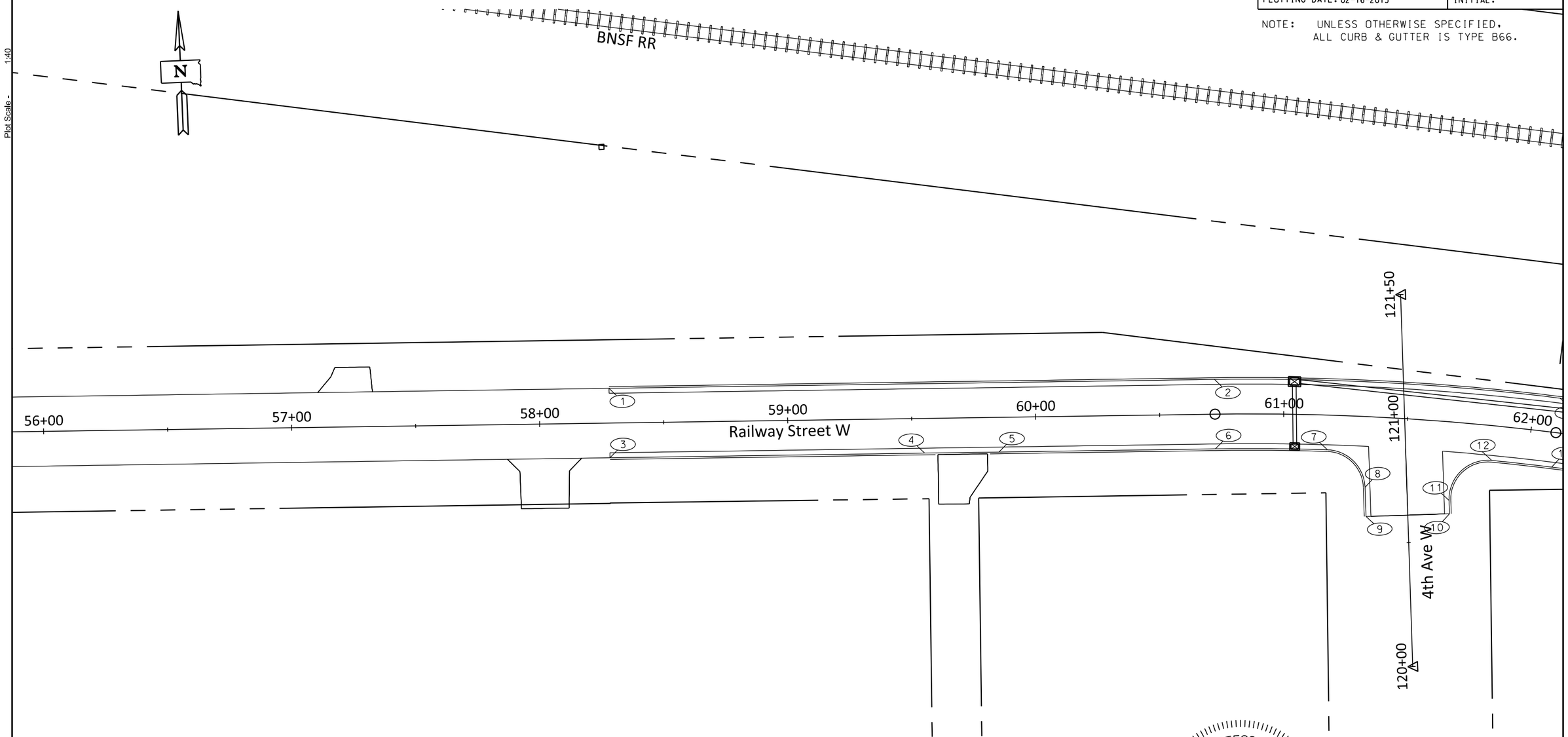
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B63	B77
FILE: ...*Sheet_Files*B63.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Curb & Gutter Layout Plan

NOTE: UNLESS OTHERWISE SPECIFIED, ALL CURB & GUTTER IS TYPE B66.



① Sta 58+25.37 LT
T.C. ELEV.: 2590.83

② Sta 60+69.54 LT
T.C. ELEV.: 2588.18

③ Sta 58+25.37 RT
T.C. ELEV.: 2590.83

④ Sta 59+54.79 RT
T.C. ELEV.: 2589.95

⑤ Sta 59+79.80 RT
T.C. ELEV.: 2589.57

⑥ Sta 60+69.54 RT
T.C. ELEV.: 2588.18

⑦ Sta 61+15.30 RT
T.C. ELEV.: 2587.46

⑧ Sta 61+31.38 RT
T.C. ELEV.: 2585.80

⑨ Sta 61+32.34 RT
T.C. ELEV.: 2584.30

⑩ Sta 61+67.30 RT
T.C. ELEV.: 2584.98

⑪ Sta 61+66.67 RT
T.C. ELEV.: 2585.25

⑫ Sta 61+82.80 RT
T.C. ELEV.: 2585.94

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

SCALE IN FEET
0 20 40

HDR

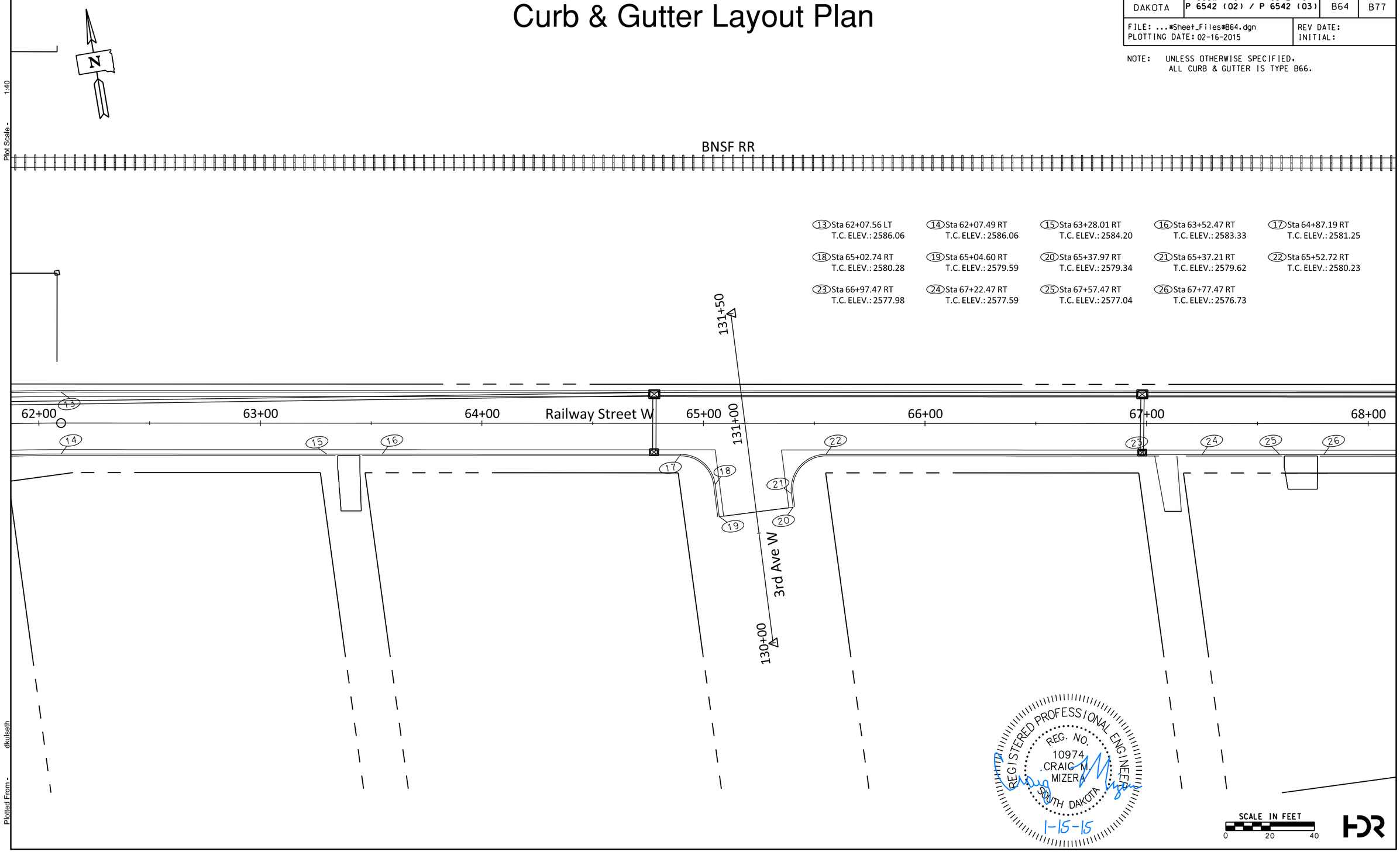
Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B64	B77
FILE: ...*Sheet_Files*B64.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Curb & Gutter Layout Plan

NOTE: UNLESS OTHERWISE SPECIFIED, ALL CURB & GUTTER IS TYPE B66.



Plot Scale - 1:40

Plotted From - dkulseth

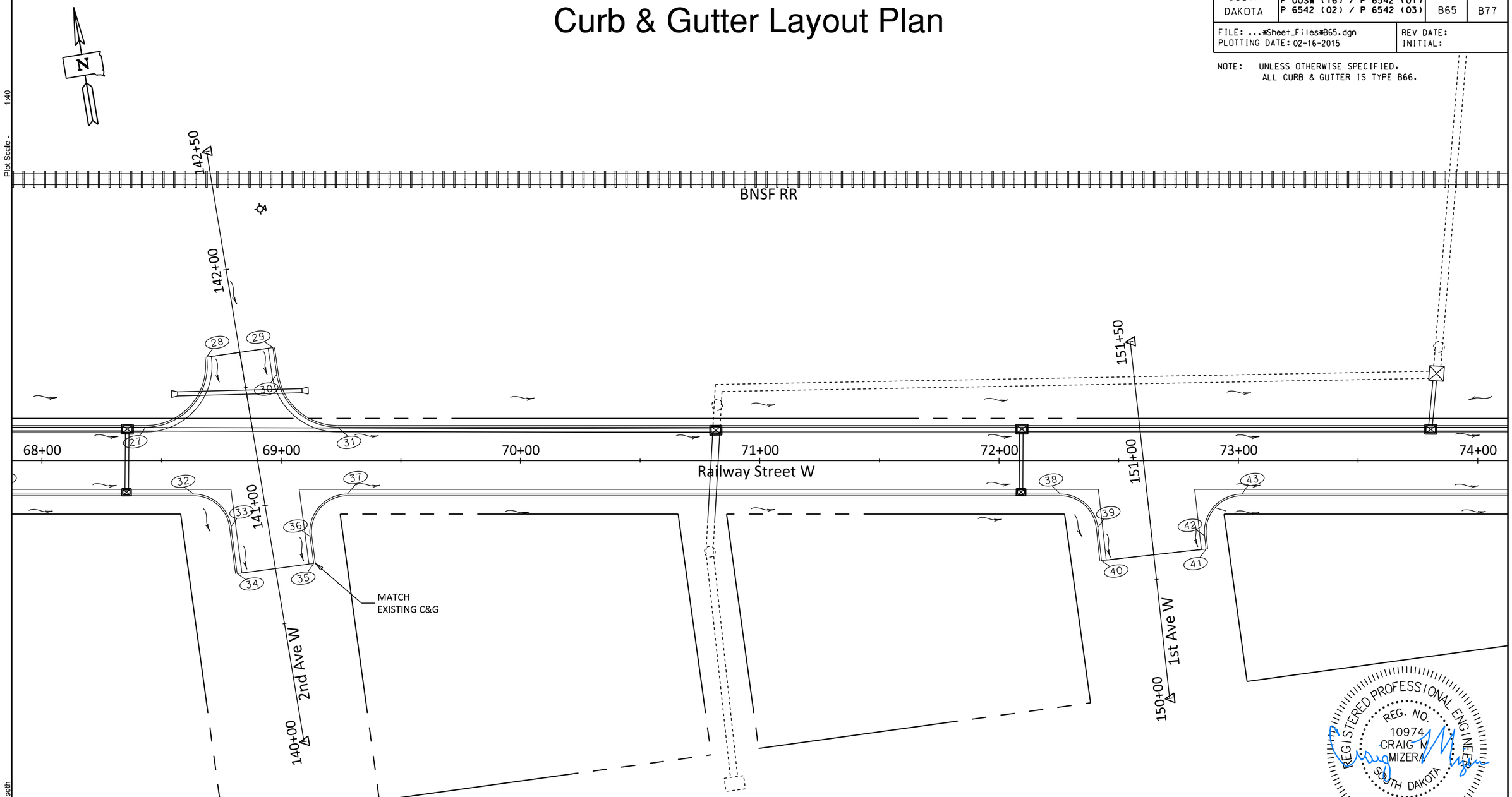
FOR BIDDING PURPOSES ONLY

Curb & Gutter Layout Plan

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B65	B77

FILE: ...*Sheet_Files*B65.dgn
PLOTTING DATE: 02-16-2015
REV DATE:
INITIAL:

NOTE: UNLESS OTHERWISE SPECIFIED, ALL CURB & GUTTER IS TYPE B66.



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

27 Sta 68+40.84 LT T.C. ELEV.: 2576.24	28 Sta 68+66.29 LT T.C. ELEV.: 2575.40	29 Sta 68+94.00 LT T.C. ELEV.: 2575.45	30 Sta 68+95.61 LT T.C. ELEV.: 2575.79	31 Sta 69+21.04 LT T.C. ELEV.: 2574.75	32 Sta 68+60.95 RT T.C. ELEV.: 2575.44
33 Sta 68+76.50 RT T.C. ELEV.: 2574.35	34 Sta 68+79.07 RT T.C. ELEV.: 2573.22	35 Sta 69+11.04 RT T.C. ELEV.: 2573.25	36 Sta 69+09.56 RT T.C. ELEV.: 2573.85	37 Sta 69+25.11 RT T.C. ELEV.: 2574.71	38 Sta 72+23.14 RT T.C. ELEV.: 2571.92
39 Sta 72+38.73 RT T.C. ELEV.: 2571.23	40 Sta 72+40.26 RT T.C. ELEV.: 2570.81	41 Sta 72+83.97 RT T.C. ELEV.: 2570.80	42 Sta 72+83.36 RT T.C. ELEV.: 2570.88	43 Sta 72+98.94 RT T.C. ELEV.: 2570.91	

SCALE IN FEET
0 20 40

HDR

Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

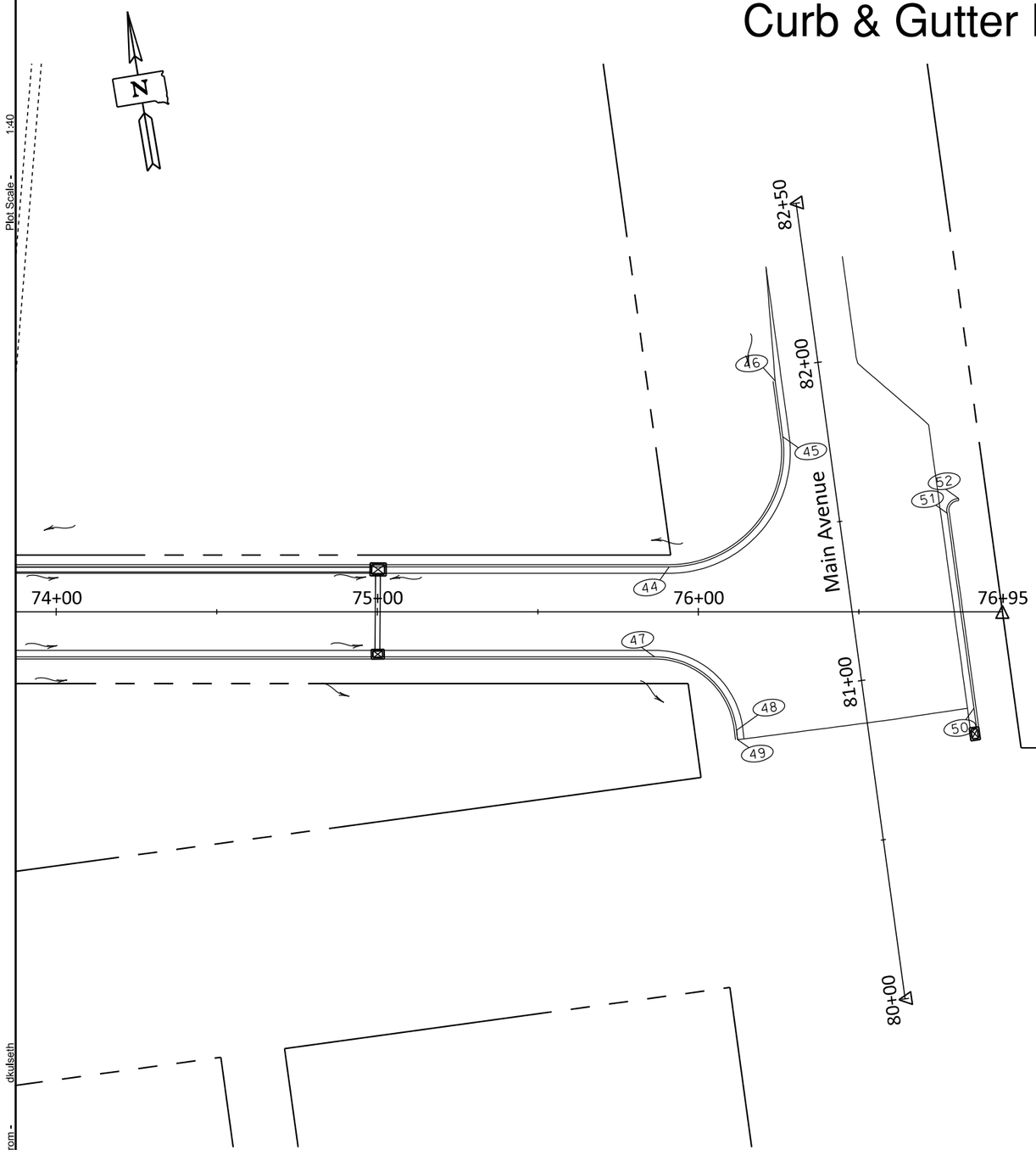
STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B66	B77

FILE: ...*Sheet_Files*B66.dgn
PLOTTING DATE: 02-16-2015

REV DATE:
INITIAL:

Curb & Gutter Layout Plan

NOTE: UNLESS OTHERWISE SPECIFIED, ALL CURB & GUTTER IS TYPE B66.



(44) Sta 75+88.38 LT
T.C. ELEV.: 2569.64

(45) Sta 76+23.75 LT
T.C. ELEV.: 2571.76

(46) Sta 76+21.37 LT
T.C. ELEV.: 2572.75

(47) Sta 75+83.81 RT
T.C. ELEV.: 2569.17

(48) Sta 76+09.37 RT
T.C. ELEV.: 2568.42

(49) Sta 76+09.67 RT
T.C. ELEV.: 2568.87

(50) Sta 76+83.29 RT
T.C. ELEV.: 2568.15

(51) Sta 76+74.96 LT
T.C. ELEV.: 2569.37

(52) Sta 76+78.51 LT
T.C. ELEV.: 2568.63

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10974
CRAIG M. MIZERA
SOUTH DAKOTA
1-15-15

SCALE IN FEET
0 20 40

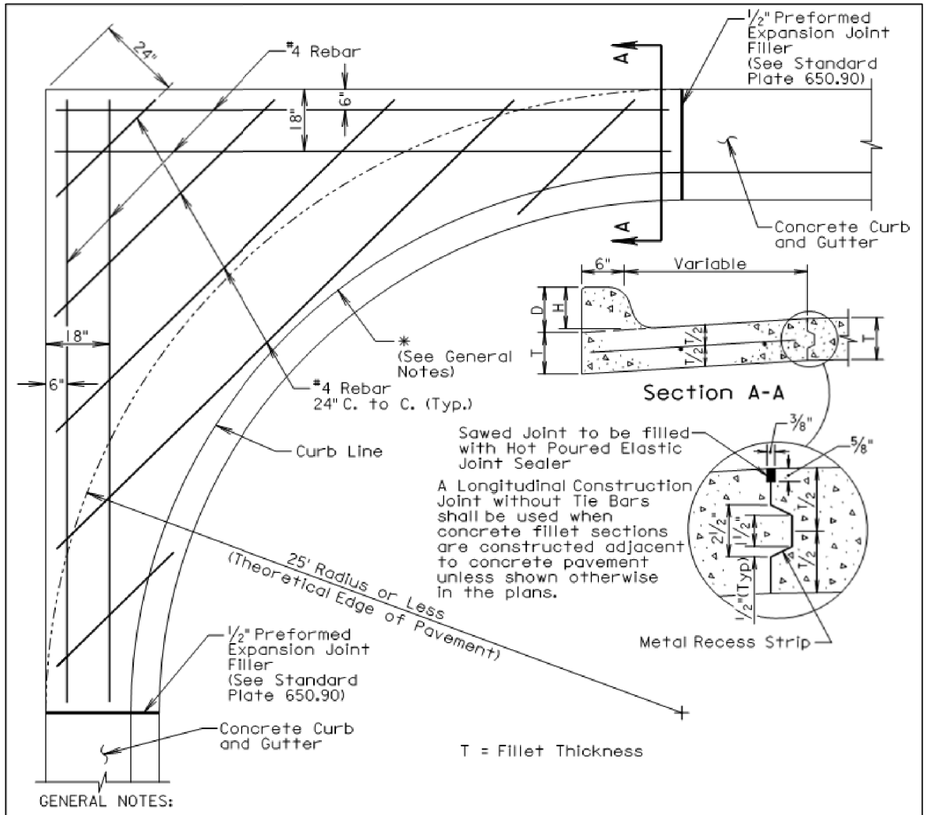
HDR

Plot Scale - 1:40
Plotted From - dkulseth

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B67	B77
FILE: ...*Sheet_Files*B67-B77_.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Standard Details



GENERAL NOTES:

* If a curb ramp is constructed adjacent to a PCC fillet section, the curb will need to be modified. Refer to the corresponding curb ramp standard plate or other special details in the plans for modification of the PCC fillet section.

Dimensions D, H, and T shall conform to those shown on the appropriate curb and gutter standard plate.

All rebar shall conform to A.S.T.M. A615 Grade 60 and the Standard Specifications Sections 480 and 1010. All rebar shall have a minimum of 3" clear cover.

Class M6 Concrete shall be used in construction of the fillets.

The concrete curb shall be monolithic with the concrete fillet. No separate payment for this curb will be made as the curb is considered a part of the fillet.

Joints shall be constructed at 10' intervals except when fillets are constructed adjacent to PCC Pavement. If there is adjacent PCC Pavement the joints shall be extended from edge of pavement through the fillet section as directed by the Engineer.

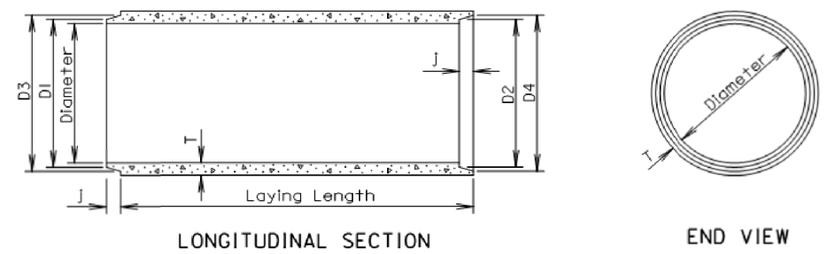
The cost for all materials, labor, and incidentals necessary to construct the PCC fillet section with curb and gutter shall be incidental to the contract unit price per square yard for the corresponding PCC fillet section bid item.

September 6, 2013

Published Date: 3rd Qtr. 2014	SDDOT	PCC FILLET SECTION WITH TYPE B CURB AND GUTTER	PLATE NUMBER 380.16
			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 Standard Specifications for Roads and Bridges.

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

March 31, 2000

Published Date: 3rd Qtr. 2014	SDDOT	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
			Sheet 1 of 1

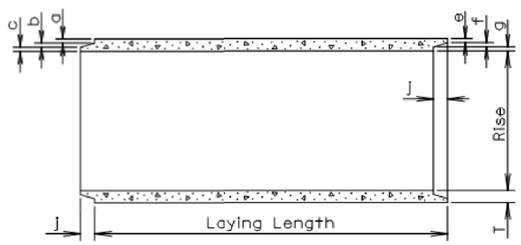
Plotted From - dkulseth

HDR

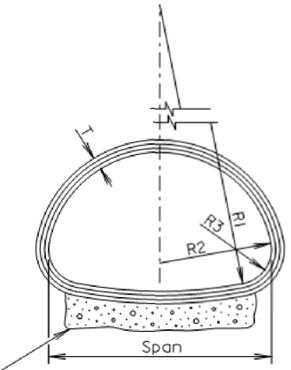
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B68	B77
FILE: ...*Sheet_Files*B67-B77_.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Standard Details



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

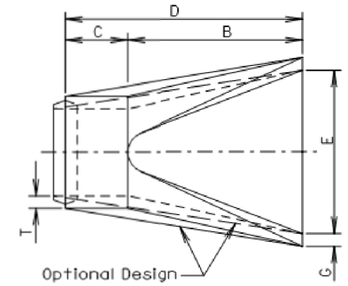
* Equivalent Diameter of Circular R. C. P.

GENERAL NOTES:

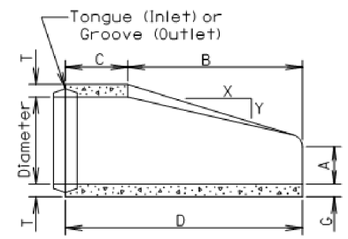
Construction of R.C.P. Arch shall conform to the requirements of Section 990 of the Standard Specifications for Roads and Bridges. Not more than 2 four foot sections shall be permitted near the ends of any culvert. Four foot lengths shall be used only to secure the required length of culvert.

March 31, 2000

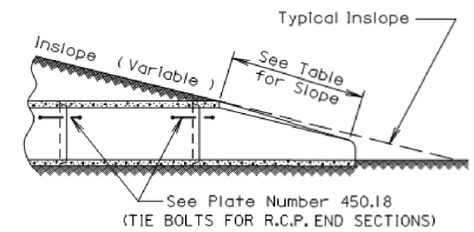
Published Date: 3rd Qtr. 2014	SDDOT	REINFORCED CONCRETE PIPE ARCH	PLATE NUMBER 450.02 Sheet 1 of 1



TOP VIEW



LONGITUDINAL SECTION

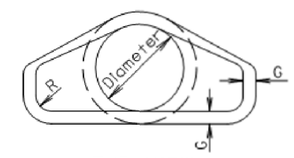


SLOPE DETAIL

GENERAL NOTES:

Lengths of concrete pipe shown on Plan Sheets are between flared Ends only.

Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Standard Specifications for Roads and Bridges.



END VIEW

Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4: 1	2	4	24	48 7/8	72 7/8	24	2	1 1/2
15	740	2.4: 1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3: 1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4: 1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	1 1/2
24	1520	2.5: 1	3	9 1/2	43 1/2	30	73 1/2	48	3	1 1/2
27	1930	2.5: 1	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	1 1/2
30	2190	2.5: 1	3 1/2	12	54	19 3/4	73 3/4	60	3 1/2	1 1/2
36	4100	2.5: 1	4	15	63	34 3/4	97 3/4	72	4	1 1/2
42	5380	2.5: 1	4 1/2	21	63	35	98	78	4 1/2	1 1/2
48	6550	2.5: 1	5	24	72	26	98	84	5	1 1/2
54	8240	2: 1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	1 1/2
60	8730	1.9: 1	6	35	60	39	99	96	5	1 1/2
66	10710	1.7: 1	6 1/2	30	72	27	99	102	5 1/2	1 1/2
72	12520	1.8: 1	7	36	78	21	99	108	6	1 1/2
78	14770	1.8: 1	7 1/2	36	90	21	111	114	6 1/2	1 1/2
84	18160	1.6: 1	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2
90	20900	1.5: 1	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	6

March 31, 2000

Published Date: 3rd Qtr. 2014	SDDOT	R. C. P. FLARED ENDS	PLATE NUMBER 450.10 Sheet 1 of 1

Plotted From - dkulseth

HDR

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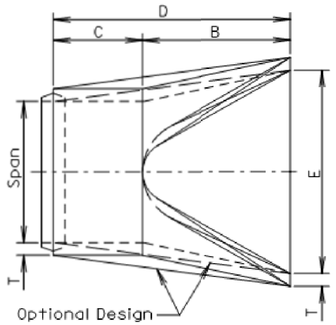
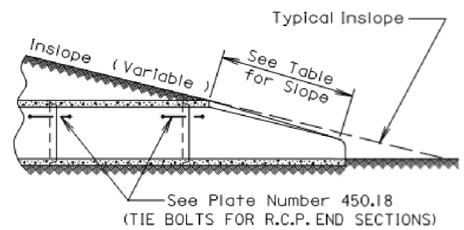
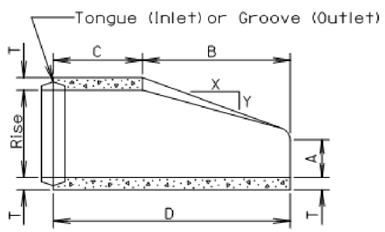
Standard Details



TOP VIEW



SLOPE DETAIL



LONGITUDINAL SECTION

END VIEW

GENERAL NOTES:

Lengths of concrete pipe shown on Plan Sheets are between Flared Ends only.

Construction of R. C. P. Arch Flared End shall conform to the requirements of Section 990 of the Standard Specifications for Roads and Bridges.

* Size (in.)	Approximate Weight of Section (lbs.)	Rise (in.)	Span (in.)	Slope (X:Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	R (in.)
18	1100	13 1/2	22	3:1	2 1/2	7	27	45	72	36	2
24	1750	18	28 1/2	3:1	3 1/2	8 1/2	39	33	72	48	3
30	3300	22 1/2	36 1/4	3:1	4	9 1/2	50	46	96	60	3
36	4350	26 5/8	43 3/4	3:1	4 1/2	11 1/8	60	36	96	72	6
42	5250	31 5/16	51 1/8	3:1	4 1/2	15 13/16	60	36	96	78	6
48	6400	36	58 1/2	3:1	5	21	60	36	96	84	6
54	7850	40	65	3:1	5 1/2	25 1/2	60	36	96	90	6
60	9500	45	73 1/2	3:1	6	31	60	36	96	96	6
72	13550	54	88	2:1	7	31	60	39	99	120	6
84	17950	62	102	2:1	8	28 1/2	83	19	102	144	6

*Equivalent Diameter of Circular R. C. P.

March 31, 2000

Published Date: 3rd Qtr. 2014

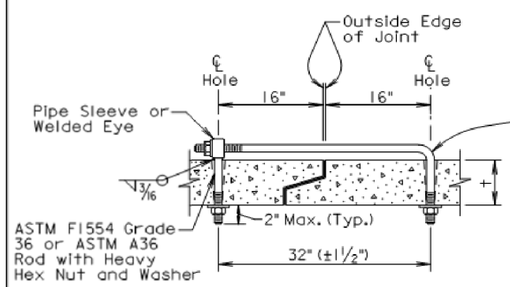
SDDOT

R. C. P. ARCH FLARED ENDS

PLATE NUMBER 450.11

Sheet 1 of 1

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



ADJUSTABLE EYE BOLT TIE

GENERAL NOTES:

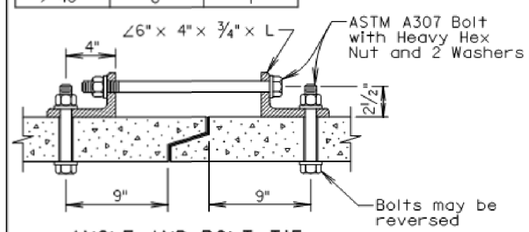
Tie bolts shall conform to ASTM F1554 Grade 36 or ASTM A36. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

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

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

ASTM F1554 Grade 36 or ASTM A36 Tie Bolt with 2 Heavy Hex Nuts and 2 Washers

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



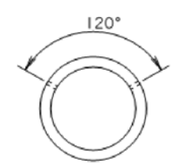
ANGLE AND BOLT TIE

GENERAL NOTES:

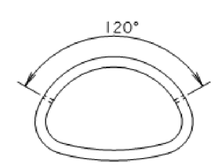
Angles shall conform to ASTM A36.

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.



END VIEW "CIRCULAR"



END VIEW "ARCH"

GENERAL NOTES:

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

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

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

February 28, 2013

Published Date: 3rd Qtr. 2014

SDDOT

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

PLATE NUMBER 450.18

Sheet 1 of 1

Plotted From - dkulseth

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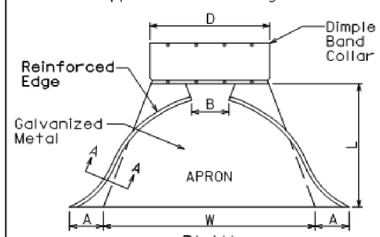
FOR BIDDING PURPOSES ONLY

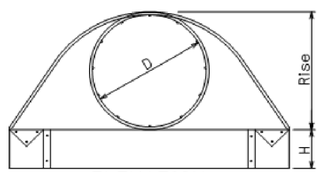
STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B70	B77
FILE: ...*Sheet_Files*B67-B77_.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Standard Details

Alternate Type Connector Sections may be used with approval of the Engineer.



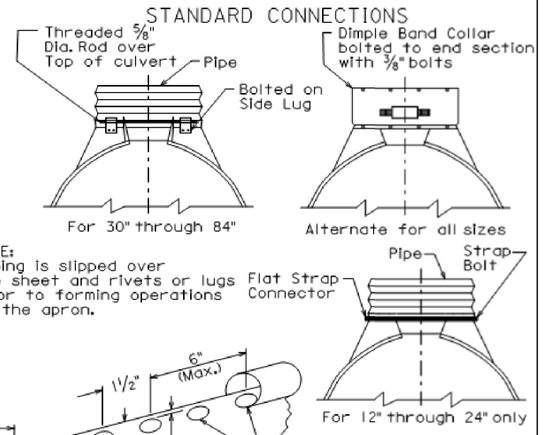
PLAN

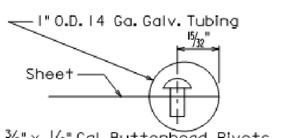


ELEVATION

Dia. D (in.)	Ga.	DIMENSIONS (in.) A	B	H	L	W	Approx. Slope	Body
12	16	6	6	6	21	24	2½:1	1 Pc.
15	16	7	8	6	26	30	2½:1	1 Pc.
18	16	8	10	6	31	36	2½:1	1 Pc.
21	16	9	12	6	36	42	2½:1	1 Pc.
24	16	10	13	6	41	48	2½:1	1 Pc.
30	14	12	16	8	46	60	2½:1	1 Pc.
36	14	14	19	9	51	72	2½:1	2 Pc.
42	12	16	22	11	60	84	2½:1	2 Pc.
48	12	18	27	12	69	90	2¼:1	2 Pc.
54	12	18	30	12	78	102	2:1	3 Pc.
60	12	18	33	12	84	114	1¾:1	3 Pc.
66	12	18	36	12	87	120	1½:1	3 Pc.
72	12	18	39	12	87	126	1⅓:1	3 Pc.
78	12	18	42	12	87	132	1¼:1	3 Pc.
84	12	18	45	12	87	138	1⅙:1	3 Pc.

STANDARD CONNECTIONS

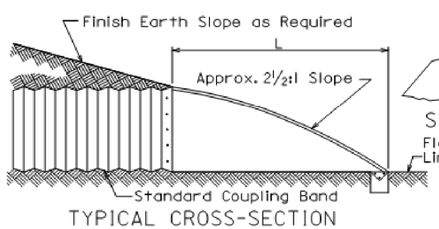




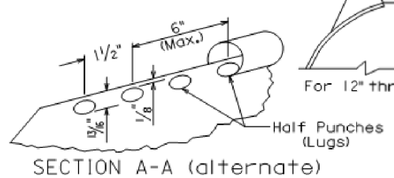
⅜" x ½" Gal. Buttonhead Rivets spaced 6" C. to C. Overall length of rivets=0.78"

TUBING ATTACHMENT DETAILS
SECTION A-A

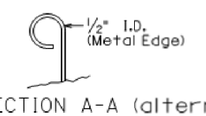
NOTE:
Tubing is slipped over the sheet and rivets or lugs prior to forming operations of the apron.



TYPICAL CROSS-SECTION



SECTION A-A (alternate)



SECTION A-A (alternate)

GENERAL NOTES:

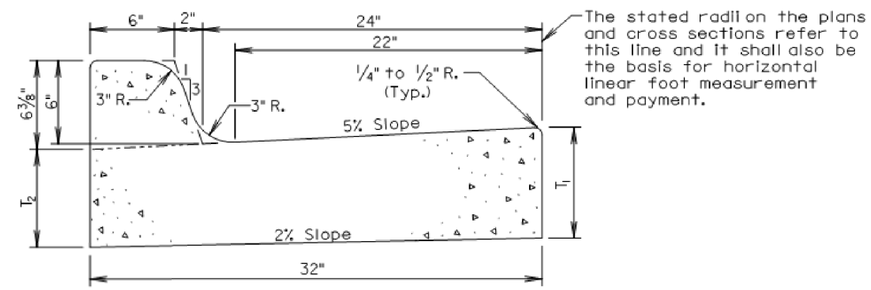
All 3 pc. bodies shall have 12 Ga. sides and 10 Ga. center panels. Width of center panels shall be greater than 20% of the pipe periphery. Multiple panel bodies to have lap seams tightly joined by ⅜" Dia. galvanized rivets or bolts.

For 60" through 84" sizes, reinforced edges shall be supplemented with galvanized stiffener angles. The angles will be 2" x 2" x ¼" for 60" through 72" diameters and 2½" x 2½" x ¼" for 78" and 84" diameters. The angles shall be attached by ⅜" diameter galvanized nuts and bolts.

Rivets and Bolts shall be ⅜" Dia. Min. for 10 Ga. and 12 Ga. sheet, and 5/16" Dia. Min. for 14 Ga. and 16 Ga. sheets. Tighten nuts with torque wrench to 25 lbs. torque.

March 31, 2000

Published Date: 3rd Qtr. 2014	SDDOT	C.M.P. FLARED ENDS	PLATE NUMBER 450.35
			Sheet 1 of 1



Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
B66	6	5 1/16	0.057	17.7
B67	7	6 1/16	0.065	15.4
B68	8	7 1/16	0.073	13.7
B68.5	8.5	7 9/16	0.077	13.0
B69	9	8 1/16	0.081	12.3
B69.5	9.5	8 9/16	0.085	11.7
B610	10	9 1/16	0.090	11.2
B610.5	10.5	9 9/16	0.094	10.7
B611	11	10 1/16	0.098	10.2
B611.5	11.5	10 9/16	0.102	9.8
B612	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: 3rd Qtr. 2014	SDDOT	TYPE B CONCRETE CURB AND GUTTER	PLATE NUMBER 650.01
			Sheet 1 of 1

Plotted From - dkulseth

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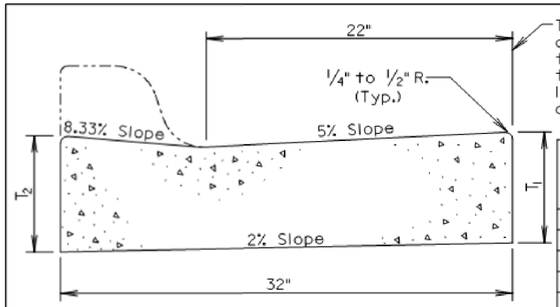
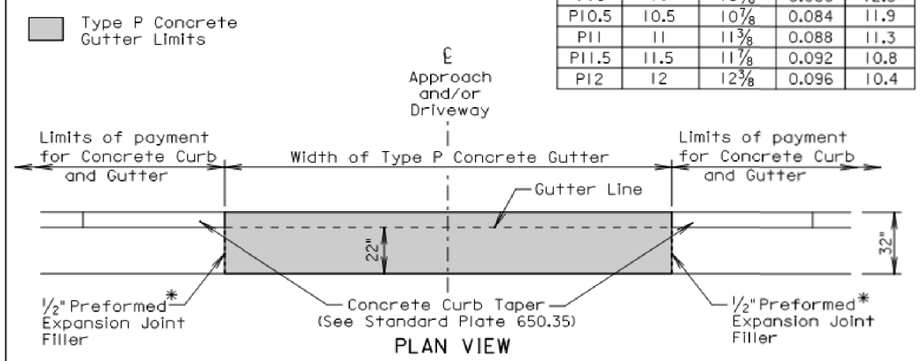
Standard Details



The stated radii on the plans and cross sections refer to this line and it shall also be the basis for horizontal linear foot measurement and payment.

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

TRANSVERSE SECTION



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 1/2" 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 Standard 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.

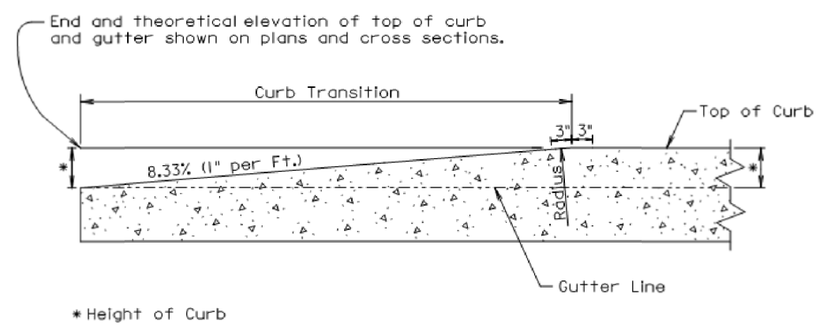
Transverse contraction joints shall be constructed at 10' intervals in the concrete gutter except when concrete gutter is constructed adjacent to mainline PCC pavement. When concrete gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint shall be constructed in the concrete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

September 6, 2013

Published Date: 3rd Qtr. 2014	SDDOT	TYPE P CONCRETE GUTTER	PLATE NUMBER 650.30
			Sheet 1 of 1



LONGITUDINAL SECTION OF CONCRETE CURB TAPER

September 14, 2005

Published Date: 3rd Qtr. 2014	SDDOT	CONCRETE CURB TAPER	PLATE NUMBER 650.35
			Sheet 1 of 1

Plotted From - dkulseth

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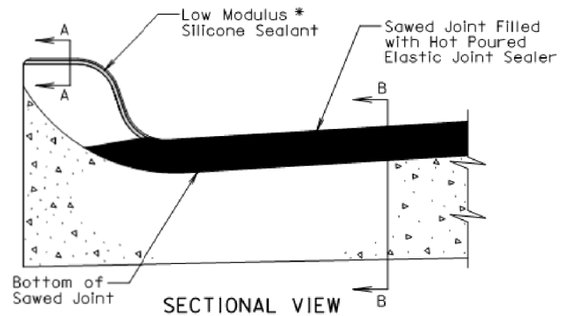
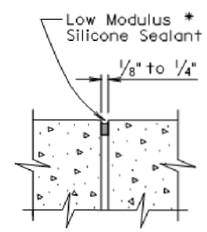
STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B72	B77
FILE: ...*Sheet_Files*B67-B77_.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

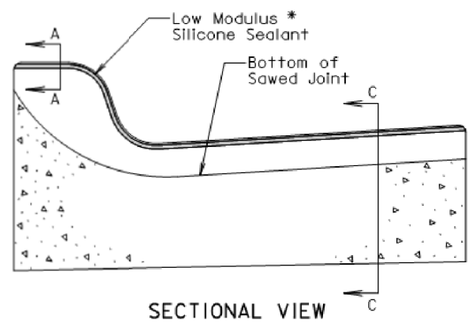
Standard Details



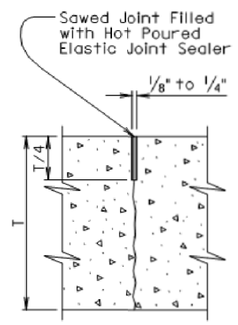
SECTIONAL VIEW
(Curb and Gutter Placed Monolithic with Adjacent Mainline PCC Pavement)



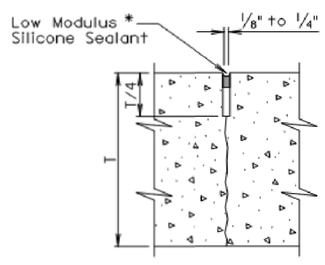
SECTION A-A



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



SECTION B-B

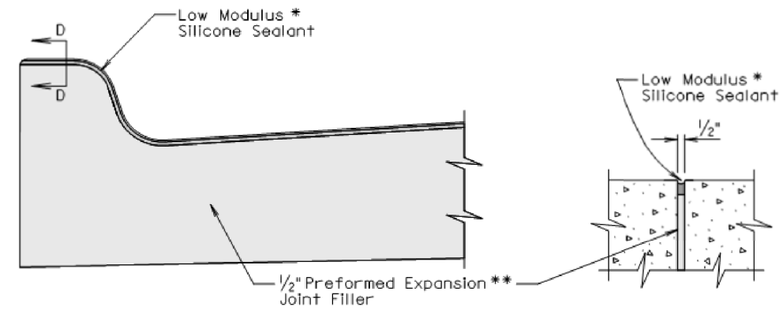


SECTION C-C

* 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: 3rd Qtr. 2014	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: 3rd Qtr. 2014	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 2 of 2

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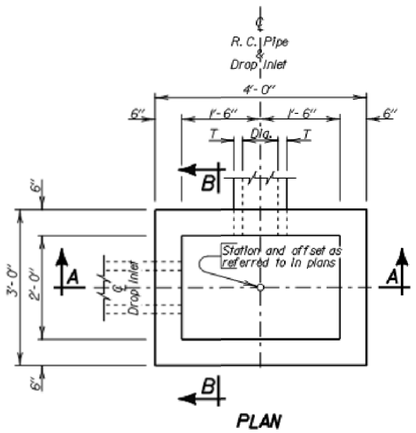
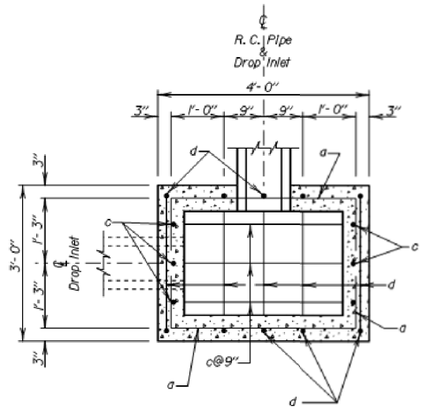
STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B73	B77

FILE: ...*Sheet_Files*B67-B77_.dgn
PLOTTING DATE: 02-16-2015
REV DATE:
INITIAL:

Standard Details



PLAN



BOTTOM SECTION

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

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	———

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

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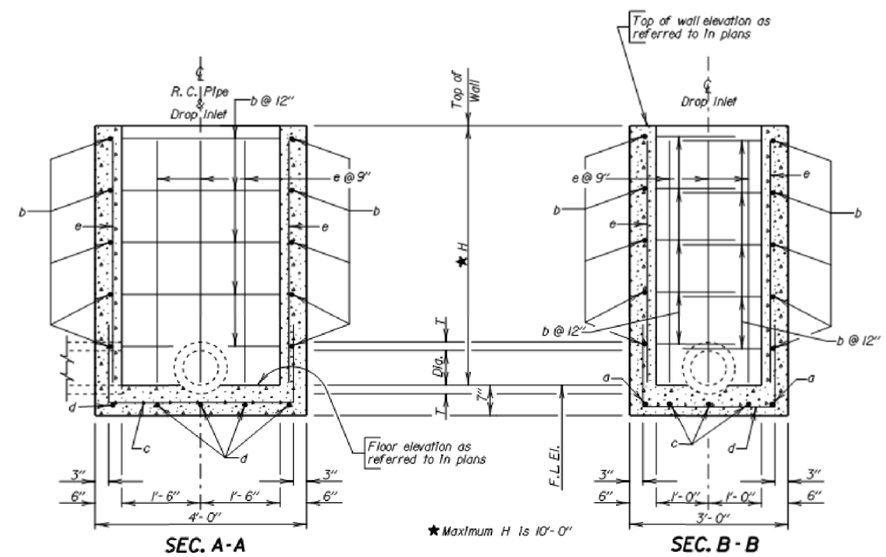
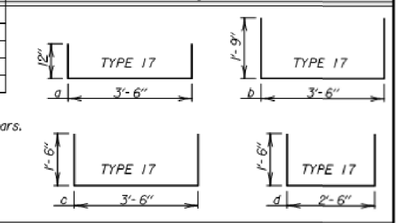


SEC. A-A

SEC. B-B

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: 3rd Qtr. 2014 | SDDOT | 2'X 3' TYPE B REINFORCED CONCRETE DROP INLET | PLATE NUMBER 670.01 | Sheet 2 of 2

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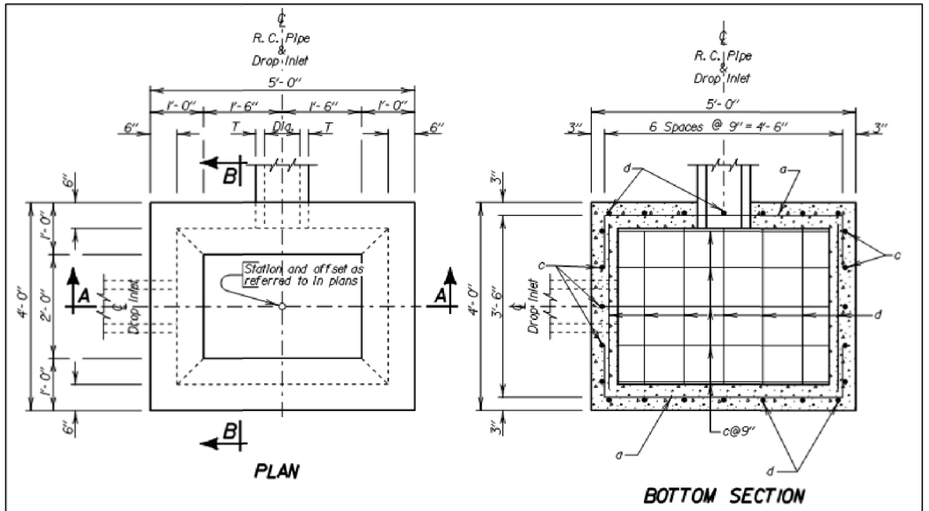
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B74	B77
FILE: ...*Sheet_Files*B67-B77_.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Standard Details



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
30	3 1/2	0.14
36	4	0.20

ESTIMATED QUANTITIES			
ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
✳ Class M6 Concrete	Cu'd	0.72	0.30H
Reinforcing Steel	Lb	98	32.06H
Frame and Grate Assembly	Each	1	———

DROP INLETS FOR 12" TO 36" 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 and f 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.

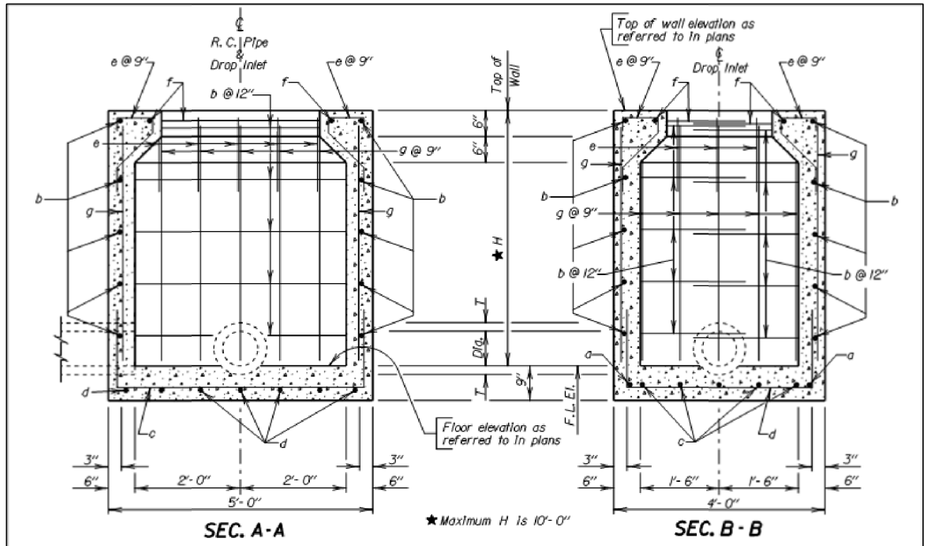
Precasting of reinforced drop inlets will be permissible. Prior to precasting, the Contractor shall submit details to the Engineer for approval.

Maximum pipe diameter shall not exceed 27 inches on the 4 foot wide side and shall not exceed 36 inches on the 5 foot wide side of the drop inlet.

The dimension of H is in feet.

December 23, 2009

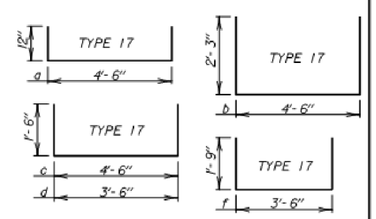
Published Date: 3rd Qtr. 2014	SDDOT	3' X 4' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.02
			Sheet 1 of 2



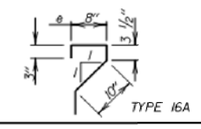
DROP INLETS FOR 12" TO 36" DIAMETER PIPE

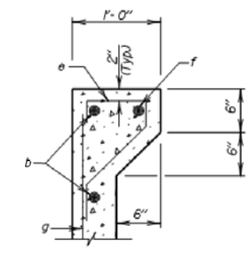
REINFORCING SCHEDULE				
MK.	No.	Size	Length	Type
a	2	4	6'- 6"	17
b	2H	4	9'- 0"	17
c	5	4	7'- 6"	17
d	7	4	6'- 6"	17
e	16	4	2'- 6"	16A
f	2	4	7'- 0"	17
g	24	4	H - 2"	Str.

Bending Details



NOTE:
All dimensions are out to out of bars.





TYPICAL SEC. TOP OF WALL

December 23, 2009

Published Date: 3rd Qtr. 2014	SDDOT	3' X 4' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.02
			Sheet 2 of 2

Plotted From - dkulseth

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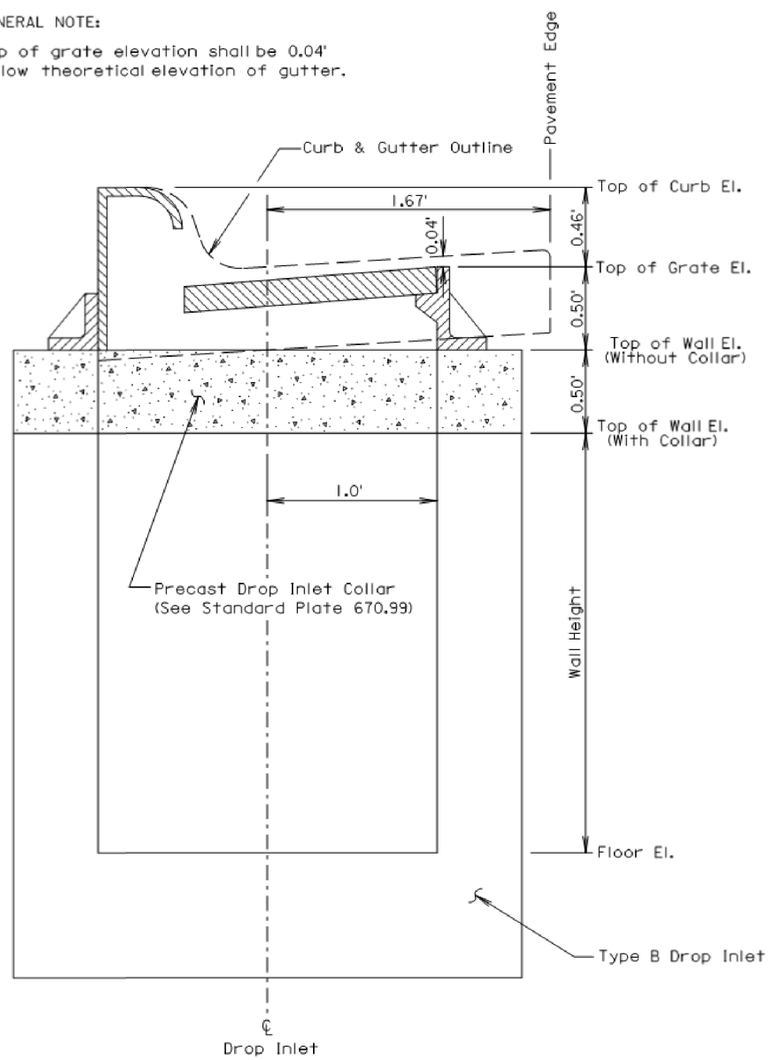
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B75	B77
FILE: ...*Sheet_Files*B67-B77_.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Standard Details

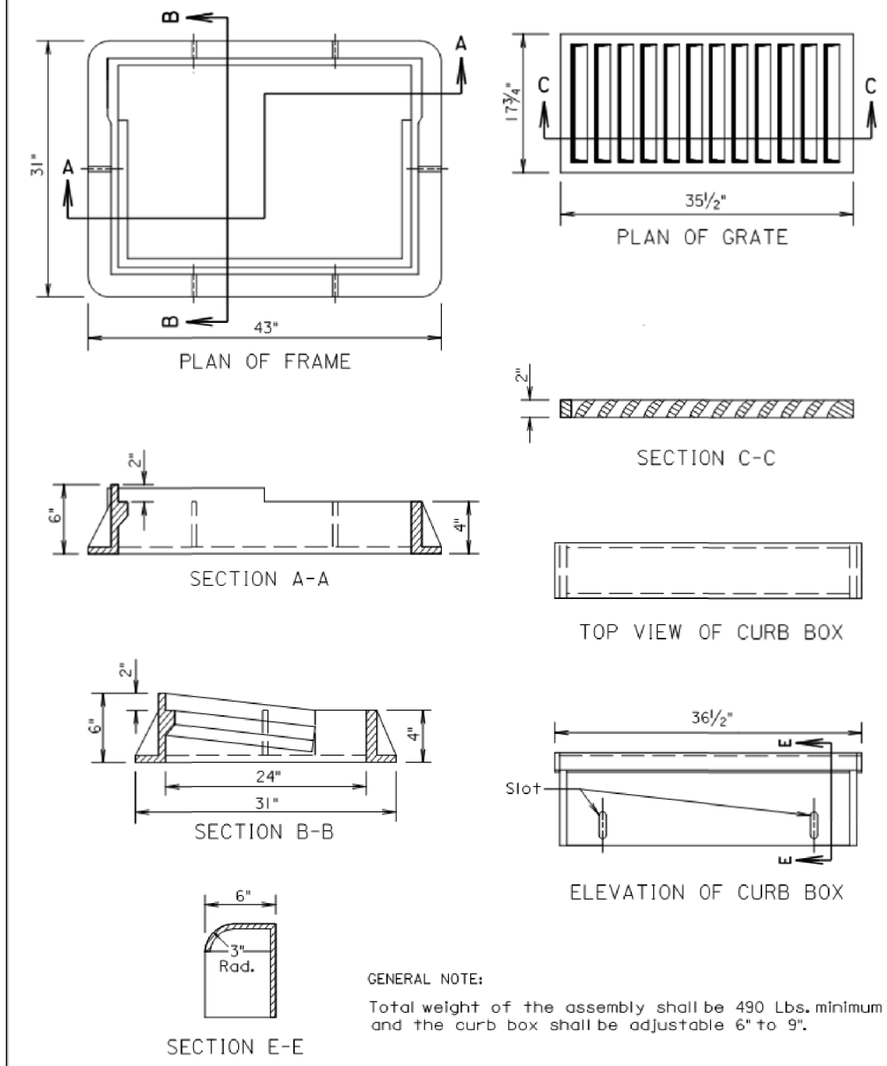
GENERAL NOTE:

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



June 26, 2011

Published Date: 3rd Qtr. 2014	SDDOT	INSTALLATION OF TYPE B DROP INLET	PLATE NUMBER 670.75
			Sheet 1 of 1



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: 3rd Qtr. 2014	SDDOT	TYPE B FRAME AND GRATE ASSEMBLY	PLATE NUMBER 670.80
			Sheet 1 of 1

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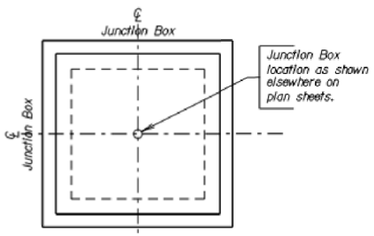
STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B76	B77

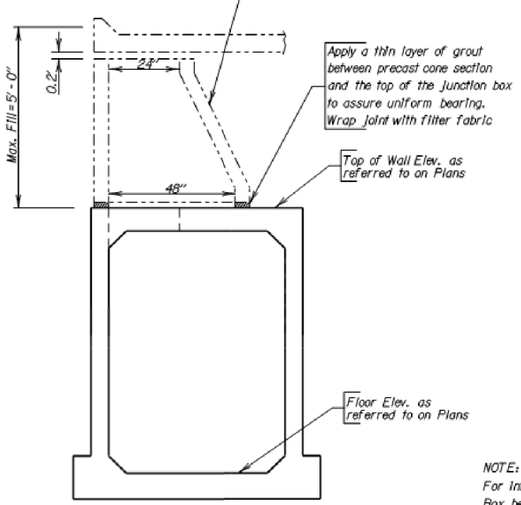
FILE: ...*Sheet_Files*B67-B77_.dgn
PLOTTING DATE: 02-16-2015
REV DATE:
INITIAL:

Standard Details



PLAN

△ Location, quantities, and method of payment for precast eccentric manhole cone sections are shown elsewhere on plan sheets.



△ DETAIL OF CONNECTION BETWEEN PRECAST ECCENTRIC MANHOLE CONE SECTION AND JUNCTION BOX

SPECIFICATIONS

1. Design Specifications: AASHTO Specifications for Highway Bridges, 1996 Edition (Service Load).
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

DESIGN MIX OF CONCRETE

1. Mix shall be designed to produce a concrete having a minimum compressive strength of 4000 p.s.i. at 28 days.
2. Type II Cement is required.

GENERAL NOTES

1. Design Live Load: HS 20-44 and Alternate Loading. No construction loading in excess of legal Load was considered.
2. The design of the junction box is based on a maximum fill over the junction box of 5 feet.
3. Unit Stresses: Concrete fc = 1600 p.s.i.
   Reinforcing Steel fs = 24000 p.s.i.
4. All reinforcing steel shall conform to ASTM A615 Grade 60.
5. All exposed edges shall be chamfered ¾".
6. Use 1" clear cover on all reinforcing steel except as shown.
7. The cost of furnishing and installing the manhole steps shall be incidental to the contract unit price per Lb. for "Reinforcing steel".
8. Reinforcing steel shall be cut and bent in field as necessary to fit pipe and manhole openings. (Pipe openings are not shown in these details.) Number, size and location of pipes entering junction box are shown elsewhere on plan sheets.
9. All pipes entering the junction box must fit between the inside faces of the walls.

ITEM	Class M6 Concrete	Reinforcing Steel
UNIT	Cu. Yd.	Lb.
H = 4' - 0"	4.37	821
H = 4' - 6"	4.61	846
H = 5' - 0"	4.85	908
H = 5' - 6"	5.10	933
H = 6' - 0"	5.34	958
H = 6' - 6"	5.58	1020
H = 7' - 0"	5.82	1045
H = 7' - 6"	6.06	1071
H = 8' - 0"	6.30	1132

NOTE:
For informational purposes only, the estimated quantities for Junction Box height H are shown above. These quantities do not include quantity reduction for pipe openings, but do include the reduction for the 24" diameter manhole opening.

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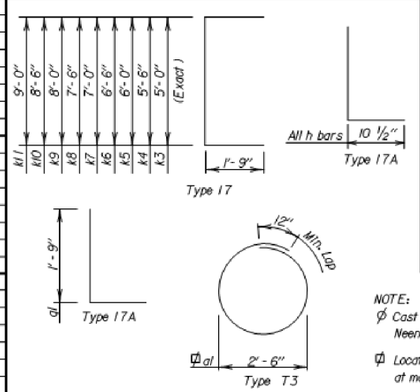
REINFORCING SCHEDULE

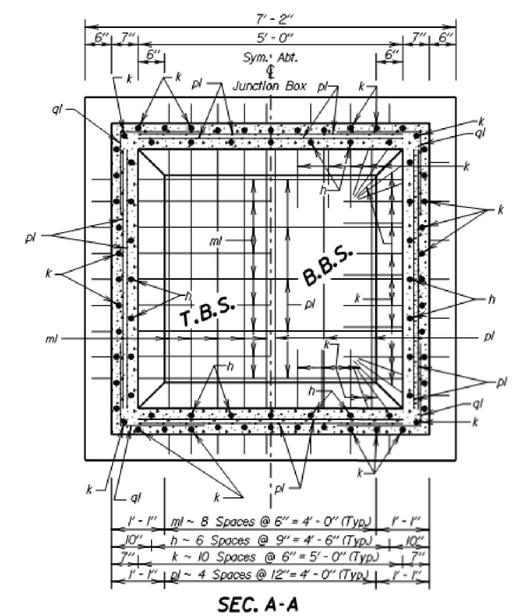
	Mk.	No.	Size	Length	Type
H = 4' - 0"	Φa1	1	6	9'- 0"	T3
	Φa2	4	-	——	-
	h3	28	4	5'- 9"	17A
	k3	48	4	8'- 6"	17
	ml	18	5	6'- 9"	Str.
	nl	18	5	5'- 9"	Str.
	pl	52	4	5'- 0"	Str.
	ql	8	4	3'- 6"	17A
H = 4' - 6"	Φa1	1	6	9'- 0"	T3
	Φa2	4	-	——	-
	h4	28	4	6'- 3"	17A
	k4	48	4	9'- 0"	17
	ml	18	5	6'- 9"	Str.
	nl	18	5	5'- 9"	Str.
	pl	52	4	5'- 0"	Str.
	ql	8	4	3'- 6"	17A
H = 5' - 0"	Φa1	1	6	9'- 0"	T3
	Φa2	5	-	——	-
	h5	28	4	6'- 9"	17A
	k5	48	4	9'- 6"	17
	ml	18	5	6'- 9"	Str.
	nl	18	5	5'- 9"	Str.
	pl	60	4	5'- 0"	Str.
	ql	12	4	3'- 6"	17A
H = 5' - 6"	Φa1	1	6	9'- 0"	T3
	Φa2	5	-	——	-
	h6	28	4	7'- 3"	17A
	k6	48	4	10'- 0"	17
	ml	18	5	6'- 9"	Str.
	nl	18	5	5'- 9"	Str.
	pl	60	4	5'- 0"	Str.
	ql	12	4	3'- 6"	17A
H = 6' - 0"	Φa1	1	6	9'- 0"	T3
	Φa2	6	-	——	-
	h7	28	4	7'- 9"	17A
	k7	48	4	10'- 6"	17
	ml	18	5	6'- 9"	Str.
	nl	18	5	5'- 9"	Str.
	pl	60	4	5'- 0"	Str.
	ql	12	4	3'- 6"	17A
H = 6' - 6"	Φa1	1	6	9'- 0"	T3
	Φa2	6	-	——	-
	h8	28	4	8'- 3"	17A
	k8	48	4	11'- 0"	17
	ml	18	5	6'- 9"	Str.
	nl	18	5	5'- 9"	Str.
	pl	68	4	5'- 0"	Str.
	ql	16	4	3'- 6"	17A
H = 7' - 0"	Φa1	1	6	9'- 0"	T3
	Φa2	7	-	——	-
	h9	28	4	8'- 9"	17A
	k9	48	4	11'- 6"	17
	ml	18	5	6'- 9"	Str.
	nl	18	5	5'- 9"	Str.
	pl	68	4	5'- 0"	Str.
	ql	16	4	3'- 6"	17A

Bending Details



	Mk.	No.	Size	Length	Type
H = 7' - 6"	Φa1	1	6	9'- 0"	T3
	Φa2	7	-	——	-
	h10	28	4	9'- 3"	17A
	k10	48	4	12'- 0"	17
	ml	18	5	6'- 9"	Str.
	nl	18	5	5'- 9"	Str.
	pl	68	4	5'- 0"	Str.
	ql	16	4	3'- 6"	17A
H = 8' - 0"	Φa1	1	6	9'- 0"	T3
	Φa2	8	-	——	-
	h11	28	4	9'- 9"	17A
	k11	48	4	12'- 6"	17
	ml	18	5	6'- 9"	Str.
	nl	18	5	5'- 9"	Str.
	pl	76	4	5'- 0"	Str.
	ql	20	4	3'- 6"	17A

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



SEC. A-A

March 31, 2000

Published Date: 3rd Qtr. 2014 | SDDOT | 5'X 5' JUNCTION BOX | PLATE NUMBER 671.01 | Sheet 2 of 3

Plotted From - dkulseth

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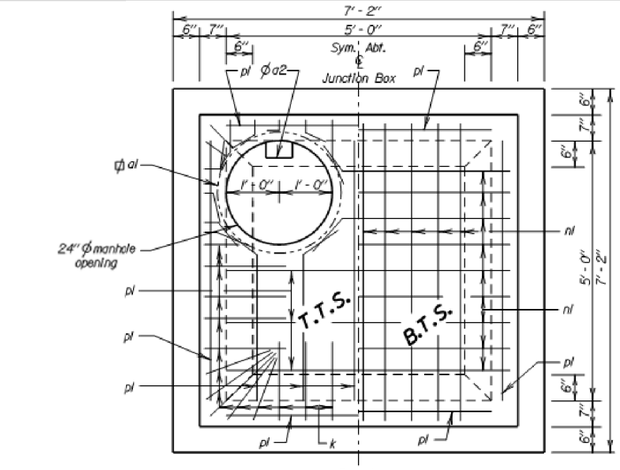
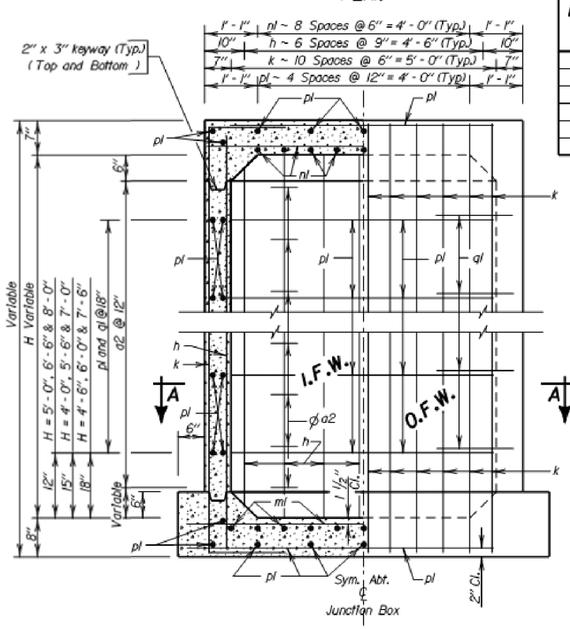
STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	B77	B77
FILE: ...*Sheet_Files*B67-B77_.dgn PLOTTING DATE: 02-16-2015	REV DATE: INITIAL:		

Standard Details



PLAN

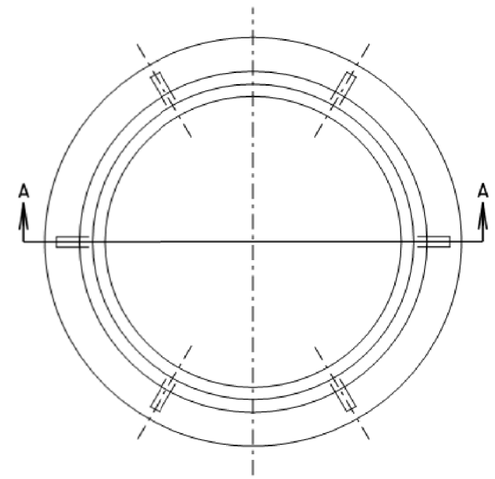


ELEVATION

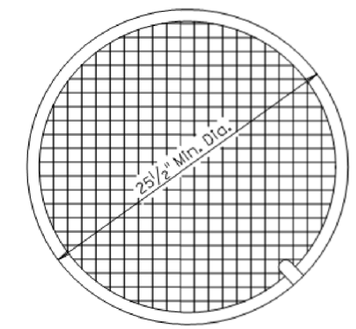
LEGEND FOR PLACING RE-STEEL
T. T. S. - Top of Top Slab
B. T. S. - Bottom of Top Slab
T. B. S. - Top of Bottom Slab
B. B. S. - Bottom of Bottom Slab
O. F. W. - Outside Face of Wall
I. F. W. - Inside Face of Wall

March 31, 2000

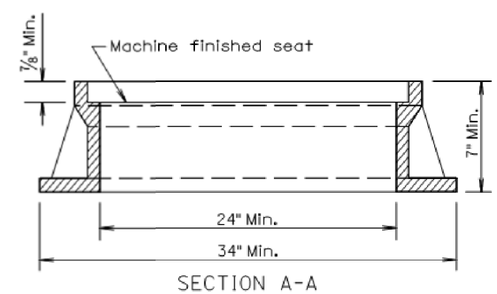
Published Date: 3rd Qtr. 2014	SDDOT	5' X 5' JUNCTION BOX	PLATE NUMBER 671.01
			Sheet 3 of 3



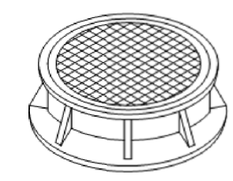
PLAN OF FRAME



PLAN OF LID



SECTION A-A



ASSEMBLED VIEW

TYPE	HEIGHT	MIN. WEIGHT
A7	7"	400Lbs.
A8	8"	440Lbs.
A9	9"	470Lbs.
A10	10"	480Lbs.

GENERAL NOTE:

Geometric pattern on top of lid other than that shown shall be approved by the Engineer.

March 31, 2000

Published Date: 3rd Qtr. 2014	SDDOT	TYPE A MANHOLE FRAME AND LID	PLATE NUMBER 671.10
			Sheet 1 of 1

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