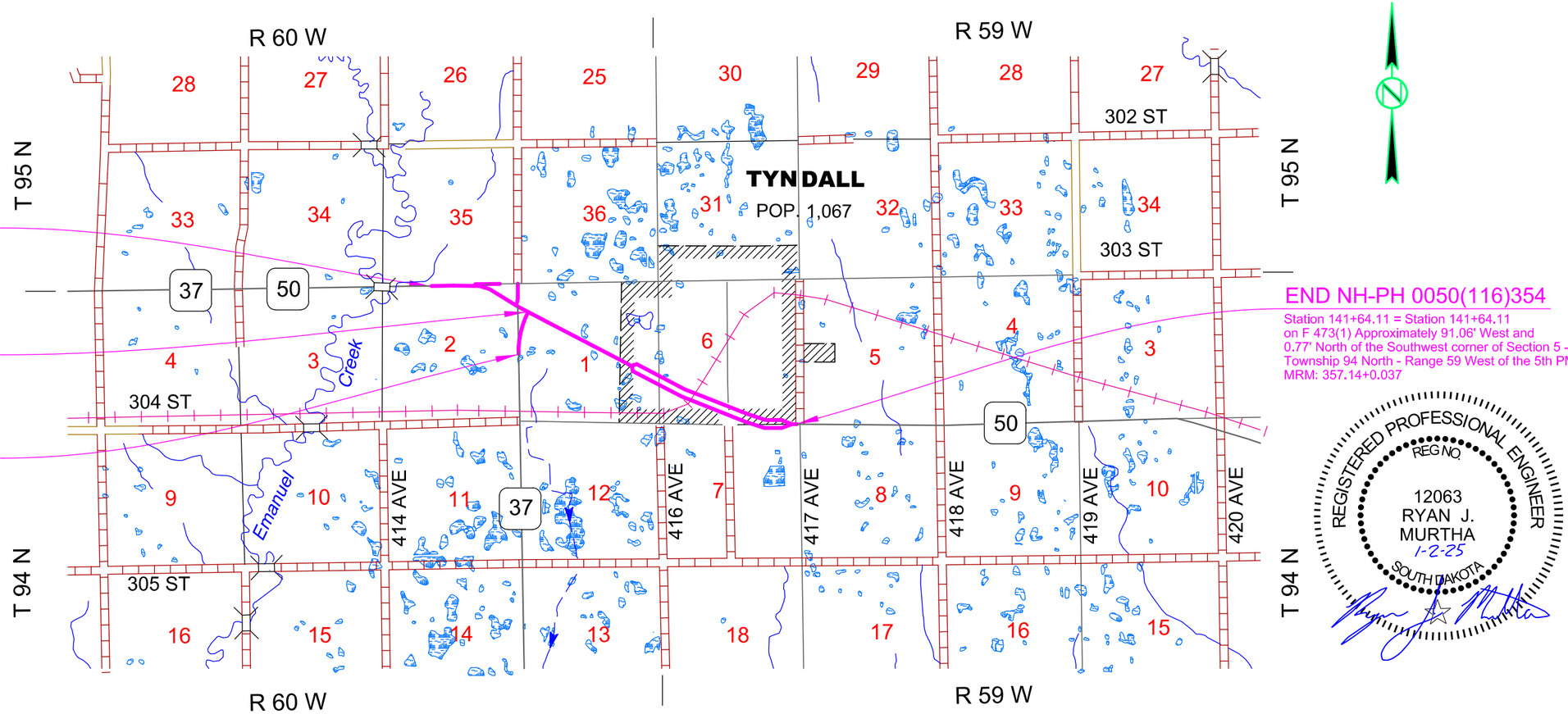
SECTION B: GRADING PLANS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B1	B101

Plotting Date: 1/2/2025

INDEX OF SHEETS



BEGIN NH-PH 0050(116)354

Station -9+51.75 = Station -9+51.75
on F 473(1) Approximately 2003.26' East and
66.71' North of the Southwest corner of Section 35 -
Township 95 North - Range 60 West of the 5th PM
MRM: 354.00+0.283

END P 0037(168)19

Station 478+04.62 = Station 8+13.1
on FAP 167A(3) Approximately 1058.45' South and
495.45' East of the Northwest corner of Section 1
Township 94 North - Range 60 West of the 5th PM
MRM: 20.00+0.377

BEGIN P 0037(168)19

Station 459+89.26 = Station 459+89.30
on PH 0037(139)11 Approximately 2420.36' North and
111.73' West of the Southwest corner of Section 1 -
Township 94 North - Range 60 West of the 5th PM
MRM: 020.00+0.027

END NH-PH 0050(116)354

Station 141+64.11 = Station 141+64.11
on F 473(1) Approximately 91.06' West and
0.77' North of the Southwest corner of Section 5 -
Township 94 North - Range 59 West of the 5th PM
MRM: 357.14+0.037

REGISTERED PROFESSIONAL ENGINEER
REG NO.
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RYAN J.
MURTHA
1-2-25
SOUTH DAKOTA

SECTION B ESTIMATE OF QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037 (168)19	B2	B101

Plotting Date: 1/2/2025 Rev 9/16/2025 RJM

PCN 04K7

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3220	Reestablish Right-of-Way and Property Corner	51	Each
009E3225	Reestablish Public Land Survey System Corner	2	Each
009E3230	Grade Staking	7.786	Mile
009E3250	Miscellaneous Staking	3.875	Mile
009E3280	Slope Staking	3.875	Mile
009E3290	Structure Staking	1	Each
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E4300	Construction Schedule, Category III	Lump Sum	LS
110E0300	Remove Concrete Curb and/or Gutter	470	Ft
110E0600	Remove Fence	15,850	Ft
110E1100	Remove Concrete Pavement	68,813.3	SqYd
110E1130	Remove Concrete Driveway Pavement	476.8	SqYd
110E7040	Remove Gate for Reset	1	Each
120E0010	Unclassified Excavation	226,203	CuYd
120E1000	Muck Excavation	1,838	CuYd
120E2000	Undercutting	8,655	CuYd
120E6100	Water for Embankment	288.0	MGal
120E6200	Water for Granular Material	707.0	MGal
240E0010	Obliterate Old Road	7	Sta
250E0020	Incidental Work, Grading	Lump Sum	LS
260E4500	Processed Subgrade Topping	70,670	CuYd
260E6010	Granular Material	120.0	Ton
270E0020	Salvage and Stockpile Asphalt Mix Material	8,545.3	Ton
270E0022	Salvage Asphalt Mix Material	23,169.0	Ton
380E2554	4" Barrier Type Median PCC Pavement	256.9	SqYd
380E3540	8" PCC Approach Pavement	20.0	SqYd
380E4050	8" PCC Fillet Section	11.4	SqYd
421E0100	Pipe Culvert Undercut	311	CuYd
450E0122	18" RCP Class 2, Furnish	1,070	Ft
450E0130	18" RCP, Install	1,070	Ft
450E0142	24" RCP Class 2, Furnish	92	Ft
450E0150	24" RCP, Install	92	Ft
450E0162	30" RCP Class 2, Furnish	100	Ft
450E0170	30" RCP, Install	100	Ft
450E0262	84" RCP Class 2, Furnish	102	Ft
450E0270	84" RCP, Install	102	Ft
450E2060	84" RCP Flared End, Furnish	2	Each
450E2061	84" RCP Flared End, Install	2	Each
450E2204	30" RCP Sloped End, Furnish	2	Each
450E2205	30" RCP Sloped End, Install	2	Each
450E2304	18" RCP Safety End, Furnish	38	Each
450E2307	18" RCP Safety End, Install	38	Each

PCN 04K7 (Continued)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
450E2308	24" RCP Safety End, Furnish	2	Each
450E2311	24" RCP Safety End, Install	2	Each
450E3002	18" RCP Arch Class 2, Furnish	272	Ft
450E3004	18" RCP Arch Class 4, Furnish	382	Ft
450E3010	18" RCP Arch, Install	654	Ft
450E3022	30" RCP Arch Class 2, Furnish	316	Ft
450E3030	30" RCP Arch, Install	316	Ft
450E3032	36" RCP Arch Class 2, Furnish	92	Ft
450E3040	36" RCP Arch, Install	92	Ft
450E3042	42" RCP Arch Class 2, Furnish	464	Ft
450E3050	42" RCP Arch, Install	464	Ft
450E4604	30" RCP Arch Sloped End, Furnish	6	Each
450E4605	30" RCP Arch Sloped End, Install	6	Each
450E4606	36" RCP Arch Sloped End, Furnish	2	Each
450E4607	36" RCP Arch Sloped End, Install	2	Each
450E4608	42" RCP Arch Sloped End, Furnish	8	Each
450E4609	42" RCP Arch Sloped End, Install	8	Each
450E4650	18" RCP Arch Safety End, Furnish	17	Each
450E4653	18" RCP Arch Safety End, Install	17	Each
450E4759	18" CMP 16 Gauge, Furnish	362	Ft
450E4760	18" CMP, Install	362	Ft
450E4769	24" CMP 16 Gauge, Furnish	62	Ft
450E4770	24" CMP, Install	62	Ft
450E4779	30" CMP 16 Gauge, Furnish	62	Ft
450E4780	30" CMP, Install	62	Ft
450E4789	36" CMP 16 Gauge, Furnish	84	Ft
450E4790	36" CMP, Install	84	Ft
450E5406	18" CMP Safety End, Furnish	12	Each
450E5407	18" CMP Safety End, Install	12	Each
450E5410	24" CMP Safety End, Furnish	2	Each
450E5411	24" CMP Safety End, Install	2	Each
450E5414	30" CMP Safety End, Furnish	2	Each
450E5417	30" CMP Safety End, Install	2	Each
450E5420	36" CMP Safety End, Furnish	2	Each
450E5423	36" CMP Safety End, Install	2	Each
450E5509	18" CMP Arch 16 Gauge, Furnish	132	Ft
450E5510	18" CMP Arch, Install	132	Ft
450E5529	30" CMP Arch 16 Gauge, Furnish	56	Ft
450E5530	30" CMP Arch, Install	56	Ft
450E6006	18" CMP Arch Safety End, Furnish	6	Each
450E6007	18" CMP Arch Safety End, Install	6	Each
450E6014	30" CMP Arch Safety End, Furnish	2	Each
450E6017	30" CMP Arch Safety End, Install	2	Each

PCN 04K7 (Continued)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
451E0522	12" PVC Pipe	20	Ft
451E3012	12" Pipe Bend	1	Each
462E0100	Class M6 Concrete	111.3	CuYd
464E0100	Controlled Density Fill	3.1	CuYd
480E0100	Reinforcing Steel	19,033	Lb
600E0300	Type III Field Laboratory	1	Each
620E0020	Type 2 Right-of-Way Fence	13,466	Ft
620E0060	Type 6 Right-of-Way Fence	2,384	Ft
620E0510	Type 1 Temporary Fence	1,690	Ft
620E0520	Type 2 Temporary Fence	161	Ft
620E1020	2 Post Panel	16	Each
620E1030	3 Post Panel	28	Each
620E2100	Reset Gate	1	Each
650E0080	Type B68 Concrete Curb and Gutter	359	Ft
650E1080	Type F68 Concrete Curb and Gutter	12,224	Ft
650E1560	Type R48 Concrete Curb and Gutter	240	Ft
650E4680	Type P8 Concrete Gutter	24	Ft
670E1200	Type B Frame and Grate	10	Each
670E5340	4' x 11' Precast Concrete Type S Drop Inlet Lid	27	Each
670E5400	Precast Drop Inlet Collar	10	Each
900E0010	Refurbish Single Mailbox	3	Each
900E1080	Orange Plastic Safety Fence	200	Ft

REGISTERED PROFESSIONAL ENGINEER
REG NO.
12063
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MURTHA
9-16-25
SOUTH DAKOTA

SECTION B ESTIMATE OF QUANTITIES (Continued)

PCN080L

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3220	Reestablish Right-of-Way and Property Corner	17	Each
009E3225	Reestablish Public Land Survey System Corner	1	Each
009E3230	Grade Staking	0.363	Mile
009E3250	Miscellaneous Staking	0.344	Mile
009E3280	Slope Staking	0.344	Mile
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E4300	Construction Schedule, Category III	Lump Sum	LS
110E0600	Remove Fence	835	Ft
120E0010	Unclassified Excavation	13,884	CuYd
120E2000	Undercutting	2,185	CuYd
120E6100	Water for Embankment	246.0	MGal
240E0010	Obliterate Old Road	9	Sta
250E0020	Incidental Work, Grading	Lump Sum	LS
260E6010	Granular Material	120.0	Ton
270E0022	Salvage Asphalt Mix Material	2,564.3	Ton
270E0112	Salvage Granular Material	2,121.6	Ton
450E0142	24" RCP Class 2, Furnish	260	Ft
450E0150	24" RCP, Install	260	Ft
450E2200	24" RCP Sloped End, Furnish	4	Each
450E2201	24" RCP Sloped End, Install	4	Each
450E2308	24" RCP Safety End, Furnish	1	Each
450E2311	24" RCP Safety End, Install	1	Each
450E3012	24" RCP Arch Class 2, Furnish	52	Ft
450E3020	24" RCP Arch, Install	52	Ft
450E4600	24" RCP Arch Sloped End, Furnish	1	Each
450E4601	24" RCP Arch Sloped End, Install	1	Each
450E4759	18" CMP 16 Gauge, Furnish	164	Ft
450E4760	18" CMP, Install	164	Ft
450E5406	18" CMP Safety End, Furnish	4	Each
450E5407	18" CMP Safety End, Install	4	Each
462E0100	Class M6 Concrete	2.0	CuYd
480E0100	Reinforcing Steel	281	Lb
620E0020	Type 2 Right-of-Way Fence	835	Ft
620E1030	3 Post Panel	2	Each
670E5202	Special Frame and Grate	1	Each
670E5400	Precast Drop Inlet Collar	1	Each
900E0010	Refurbish Single Mailbox	1	Each

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, ditch blocks, and approaches are included in the earthwork balance notes on the profile sheets.

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

Generally, all shallow inlet and outlet ditches as noted on the plan sheets will be cut with a 10-foot wide bottom with 5:1 backslopes. However, the Engineer may direct the Contractor to adjust the ditch width for proper alignment with the drainage structure.

Temporary fence and/or permanent fence will be placed ahead of the grading operation unless otherwise directed by the Engineer.

The Contractor is advised that at the time of the investigation (August-September 2021), groundwater was encountered at levels that will be near or above the bottom of the proposed ditch cuts at Stations -5+00, 23+00, 70+00, 100+00, 116+00, and 120+00. Seasonal changes may affect the groundwater elevations. The Contractor is encouraged to review the soil borings shown in the cross sections for additional water table information.

TYPE III FIELD LABORATORY

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

UTILITIES

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

FOR BIDDING PURPOSES ONLY

OBLITERATING OLD ROAD

The Contractor will obliterate the existing roadway at the locations listed in the Table of Obliterating Old Road.

The surfacing material of the existing roadway will be salvaged. Refer to the Salvage and Stockpile Asphalt Mix and Granular Base Material note for quantities and payment information.

The Contractor will obliterate the existing roadway in accordance with Section 240 of the Specifications when the existing roadway is not being removed in accordance with the template section.

The earthwork necessary for obliterating the existing road will be accomplished to such an extent that placing topsoil and seeding can be done in a satisfactory manner. Quantities of topsoil, fertilizing, mulching, and seeding for the obliterated sections of the old road are included in the Section D - Erosion and Sediment Control Plans Estimate of Quantities.

TABLE OF OBLITERATING OLD ROAD - PCN04K7

Station	to	Station	L/R	Length (Sta)
SD Highway 50 Mainline				
9+95		10+45	L	0.20
98+75		99+25	L	1.49
xr022 (Ford Ave)				
1+00		3+30	R	4.58
			Total:	**7**

TABLE OF OBLITERATING OLD ROAD - PCN080L

Station	to	Station	L/R	Length (Sta)
SD Highway 37 Mainline				
470+35		477+00	L	8.15
			Total:	**9**

INSLOPE TRANSITIONS – PCN04K7

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

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

Station	L/R	Type
14+55	R	2
59+37	L	1
59+88	R	1
138+40	L	2
138+40	R	2

PIPE END SECTION SLOPE TRANSITIONS

End section transitions will be required at various pipe locations. These transitions are necessary at locations where the end section slope differs from the typical inslope.

The transition will be made by maintaining the typical inslope above the end section and flattening the inslope below to match the end section slope. This transition will be made over a minimum distance of 20’.

TABLE OF PIPE END SECTION SLOPE TRANSITIONS - PCN04K7

Station	L/R	Pipe Size	Inslope	End Section Slope
SD Highway 50 Mainline				
10+02	L&R	18"	4:1	6:1
76+91	R	18"	4:1	6:1
76+92	L	18"	4:1	6:1
78+43	L	18"	4:1	6:1
78+44	R	18"	4:1	6:1
79+89	L	18"	4:1	6:1
85+25	L	18"	4:1	6:1
85+49	R	18"	4:1	6:1
87+12	L	18"	4:1	6:1
87+12	R	18"	4:1	6:1
88+23	L	18"	4:1	6:1
95+46	L	18"	4:1	6:1
97+94	L	18"	4:1	6:1
97+98	R	18"	4:1	6:1
99+07	R	18"	4:1	6:1
99+31	L	18"	4:1	6:1
99+87	R	18" Arch	4:1	6:1
99+93	L	18" Arch	4:1	6:1
100+08	L&R	18" Arch	4:1	6:1
100+23	L&R	18" Arch	4:1	6:1
102+78	L	18"	4:1	6:1
111+47	L	18"	4:1	6:1
111+50	R	18"	4:1	6:1
114+36	L	18"	4:1	6:1
114+62	R	18"	4:1	6:1
117+85	R	18"	4:1	6:1
121+50	L	18"	4:1	6:1
125+50	L	18"	4:1	6:1
129+00	L	18"	4:1	6:1
132+00	L	18"	4:1	6:1
133+87	L	18"	4:1	6:1
135+47	R	18"	4:1	6:1
135+50	L	18"	4:1	6:1
137+33	R	18"	4:1	6:1
137+34	L	18"	4:1	6:1
xr022 (Ford Ave)				
5+62	L&R	18"	4:1	6:1

GENERAL GEOLOGY

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

CLASSIFICATION OF EXCAVATION

Large glacial boulders may be encountered sporadically within the project limits. Very large boulders could require more effort to excavate. Most of the material encountered should be able to be excavated using conventional methods associated with normal Unclassified Excavation. Muck Excavation will be required at the areas shown in the plans or as directed by the Engineer.

FOR BIDDING PURPOSES ONLY

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

SHRINKAGE FACTOR: Embankment +25%

TABLE OF EXCAVATION QUANTITIES

Station to	Station	EXCAVATION Excavation (CuYd)	* Undercut (CuYd)	Unstable (CuYd)	* Muck (CuYd)	Processed Subgrade Topping (CuYd)	Total Excavation (CuYd)	** ^ Out-of Balance Exc. (CuYd)	** Waste (CuYd)
PCN04K7									
SD50									
-9+51.75	4+71.18	15,740	0	0	0	5,055	20,795	0	20,739
4+71.18	11+07.52	7,430	0	0	190	1,525	9,145	0	8,907
11+07.52	41+91.93	30,685	0	0	0	12,260	42,945	0	42,907
41+91.93	76+80.74	18,520	0	0	0	8,980	27,500	0	25,875
76+80.74	137+44.11	41,740	0	0	0	24,940	66,680	0	60,755
137+44.11	141+64.11	4,320	0	0	0	1,565	5,885	0	5,885
Ramp A (303rd Ave)									
14+25.07	27+21.33	1,300	4,245	0	0	0	5,545	130	0
xr022 (Ford Ave)									
0+90	6+81.41	1,060	1,050	1,205	0	0	3,315	1,423	0
xr086 (Birch St)									
3+61.71	10+67.69	1,240	535	0	1,003	0	2,778	2,576	0
xr099 (Fir St)									
4+14.75	8+18.11	650	1,225	0	162	0	2,037	16	0
xr008 (Ivy St)									
0+00	1+91.82	200	470	0	0	0	670	0	20
xr115 (Main St)									
0+73.01	5+27.62	730	1,130	0	483	0	2,343	107	0
PCN04K7 TOTALS:		**123,615**	**8,655**	**1,205**	**1,838**	**54,325**	**189,638**	**4,252**	**165,088**
PCN080L									
SD37									
459+89.26	478+04.62	6,210	2,185	705	0	0	9,100	15,469	0
PCN 080L TOTALS:		**6,210**	**2,185**	**705**	**0**	**0**	**9,100**	**15,469**	**0**

* The quantities for these items are in the Estimate of Quantities under their respective contract items.
** The quantities for these items are for information only.
^ This quantity will be used as fill for other areas of roadway grading.

TABLE OF UNCLASSIFIED EXCAVATION

	PCN04K7 (CuYd)	PCN080L (CuYd)
Excavation	123,615	6,210
Undercut	8,655	2,185
Unstable	1,205	705
Processed Subgrade Topping Ex.	54,325	0
Topsoil	23,856	2,304
Exc. for RCBC Installation	1,934	0
Salvaged Asphalt Mix Material	12,259	1,357
Salvaged Granular Material	0	1,123
Salvaged Asphalt Mix and Granular Base Material from Obliterated Roads	354	0
Total:	**226,203**	**13,884**

Plans quantity will be the basis of payment for Unclassified Excavation.

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

When plan quantities are used for payment, the Unclassified Excavation quantity will be used for final payment and the plans quantity of Topsoil and salvaged surfacing items listed in the Table of Unclassified Excavation will not be adjusted according to field measurements.

REGISTERED PROFESSIONAL ENGINEER
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2-13-25
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037 (168)19	B6	B101

FOR BIDDING PURPOSES ONLY

Plotting Date: 1/2/2025

RECYCLED CONCRETE AGGREGATE

PCC pavement removed from within the project limits will be crushed to a minus 2.5-inch size to be used as Recycled Concrete Aggregate (RCA). All in-place rebar will be separated and removed from the RCA.

All costs to remove the existing PCC pavement will be incidental to the contract unit price per square yard for “Remove Concrete Pavement”.

Payment for crushing the PCC pavement, and incorporating it into the Processed Subgrade Topping, will be incidental to the contract unit price per cubic yard for “Processed Subgrade Topping”.

PROCESSED SUBGRADE TOPPING

After the existing PCC pavement and shoulders are removed, the Contractor will salvage and stockpile the existing granular material to later be incorporated with the RCA. Salvaged asphalt concrete pavement will not be allowed in the subgrade.

The Contractor will excavate the exposed subgrade to a depth of 1.5 feet below the top of the proposed subgrade. The Contractor will blend the RCA and salvaged granular material with the excavated soil. The blended material will be used as Processed Subgrade Topping to backfill the excavation. The blended backfill material will consist of a mix approximately 50% excavated soil and approximately 50% RCA and salvaged granular material. The top 1.5 feet of subgrade will be constructed using this blended material.

Sources of the excavation for Processed Subgrade Topping material are confined to the areas specified in the typical sections. The upper 6 inches of sodded areas, material with high humus or silt content, and out washed material in poorly drained areas will not be acceptable. Unsatisfactory material found within the areas specified in the typical sections will not be used as Processed Subgrade Topping.

It is anticipated there will be approximately 165,088 cubic yards of excess material (see Table of Excavation Quantities). Excess excavated material not required to produce the Processed Subgrade Topping may be used, as directed by the Engineer, or wasted.

The Contractor will develop a plan, which demonstrates that an adequate quantity of the designated material will be salvaged or reserved for Processed Subgrade Topping. The Contractor will follow the established grading plan to the extent that an adequate quantity of material for Processed Subgrade Topping will be conserved for use.

Compaction of Processed Subgrade Topping will be in accordance with 260.3 C and the maximum compacted lift thickness will not exceed 6 inches. Four soil types were encountered during the subsurface investigation. It is anticipated a test strip will be required for each of these soil types. Additional test strips will be performed as required by changes in soil types. It is anticipated that extra drying effort of the subgrade material will be necessary around Stations 84+00 and 90+00 due to elevated moisture contents.

Density testing will be performed at a minimum frequency of 1 per ½ mile per lift.

Moisture testing will be performed at a minimum frequency of 1 per day.

A copy of the subsurface investigation is available for review at the Mitchell Region and Yankton Area offices.

Field measurement of Processed Subgrade Topping will not be made. The quantity of Processed Subgrade Topping will be based upon plans quantity unless changes are directed by the Engineer. The plan quantity will be based on computed embankment volume. If changes in plan dimensions or locations are authorized, the final quantity will be determined by the as-constructed volume. Final field measurement will not be made except that required to determine that the work was completed in accordance with plans and to document changes.

Payment for the excavation for the Processed Subgrade Topping, estimated at 54,325 cubic yards, will be paid at the contract unit price per cubic yard for “Unclassified Excavation”. The scarifying and recompaction of the subgrade will be incidental to the contract unit price per cubic yard for “Processed Subgrade Topping”.

The cost for all work over and above that normally required for subgrade construction including all costs associated with stockpiling, windrowing, excavating the subgrade soil, mixing the RCA and soil, placement of the Processed Subgrade Topping material, and compaction, will be incidental to the contract unit price per cubic yard for “Processed Subgrade Topping”. Included in the Estimate of Quantities for “Water for Granular Material” are 707 Mgal of Water for the mixing and compaction of the Processed Subgrade Topping material

UNDERCUTTING

In all cut sections the earthen subgrade will be undercut 2 feet below the earthen subgrade surface. The undercut material or other suitable material, as directed by the Engineer, will then be replaced and compacted to the density specified for the section being constructed.

Shallow embankment sections, fills less than 2 feet in height measured at the finished subgrade shoulders, will be undercut to ensure a minimum 2-foot height of earth embankment for the entire width of roadbed. The upper 6 inches of undercut material that consists of topsoil with a high humus content will be used as topsoil, placed in the fill slopes outside the shoulders of the earthen subgrade, or placed in the lower portion (below 4-foot depth) in fills which are greater than 4 feet in height. The remaining undercut soil and soil obtained from adjacent excavation (excluding the upper 6 inches) will then be replaced and compacted to the density specified to the section being constructed.

The undercut depth will be 2 feet for SD Highway 37, Ramp A (303rd Street), xr022 (Ford Avenue), xr086 (Birch Street), xr099 (Fir Street), xr008 (Ivy Street), and xr115 (Main Street).

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

UNSTABLE MATERIAL EXCAVATION

The areas of unstable material excavation are drawn on the cross sections with a normal depth of 2 feet. The estimated quantity of 1910 cubic yards of unstable material excavation will be paid for at the contract unit price per cubic yard for “Unclassified Excavation”.

All areas designated as Unstable will be excavated. The unstable material excavated on this project will be placed outside the subgrade shoulder in fill sections or stockpiled and used as topsoil.

Field measurement of unstable material excavation will not be made. However, if there are additional areas of unstable material excavation other than what is shown in the plans, the Engineer will direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNSTABLE MATERIAL EXCAVATION - PCN04K7

Station	to	Station	L/R	Depth (Ft)	Quantity (CuYd)
xr022 (Ford Ave)					
1+00		4+50	L&R	2	1,205
				Total:	**1,205**

TABLE OF UNSTABLE MATERIAL EXCAVATION - PCN080L

Station	to	Station	L/R	Depth (Ft)	Quantity (CuYd)
SD Highway 37 Mainline					
465+00		467+00	R	2	705
				Total:	**705**

MUCK EXCAVATION

The areas of muck excavation are drawn on the cross sections with a normal depth of 3 feet. The estimated quantity of 1838 cubic yards of muck excavation will be paid for at the contract unit price per cubic yard for “Muck Excavation”.

Muck excavation consists of the removal of highly organic and/or highly saturated material from the designated areas shown on the cross sections. Highly organic muck material will not be used in the embankment but may be used as topsoil. Non-organic muck material may be used as embankment outside of the fill subgrade shoulder if it is properly handled and dried prior to placement in the embankment.

Field measurement of muck excavation will not be made unless the Engineer orders additional excavation, or when the Engineer determines, in accordance with Section 120.3 A.1 of the Specifications, that the classification of excavation be changed.

If the areas designated as muck excavation can be removed with similar equipment and procedures as used for unclassified excavation, the material will be measured and paid for as “Unclassified Excavation”.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037 (168)19	B7	B101

FOR BIDDING PURPOSES ONLY

Plotting Date: 1/2/2025

TABLE OF MUCK EXCAVATION – PCN04K7

Station	to	Station	L/R	Depth (Ft)	Quantity (CuYd)
SD 50					
7+00		8+50	L	3	190
xr086 (Birch Street)					
4+25		8+40	L	3	1,003
xr099 (Fir Street)					
6+40		7+65	L	3	162
xr115 (Main Street)					
3+60		4+80	L&R	3	483
				Total:	**1,838**

SALVAGE ASPHALT MIX MATERIAL

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 24. This value was obtained from testing during construction of the in-place asphalt concrete.

An estimated 23,169.0 tons (12,259 Cubic Yards) for PCN04K7 and 2,564.3 tons (1,357 Cubic Yards) for PCN080L of asphalt mix material will be salvaged from the existing highway according to the in-place surfacing typical sections.

The Contractor will ensure that no vegetation, topsoil, subgrade, or other foreign material is incorporated into the salvaged asphalt mix material.

The quantity of salvaged asphalt mix material may vary from the plans.

The quantity of salvageable material is estimated from the in-place surfacing typical sections. This estimated quantity was included in the unclassified excavation quantities.

SALVAGE AND STOCKPILE ASPHALT MIX MATERIAL

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 24. This value was obtained from testing during construction of the in-place asphalt concrete.

An estimated 8,545.3 tons of salvaged asphalt mix material will be used on this project as RAP in the Class Q3R Hot Mixed Asphalt Concrete mixture. The Contractor is responsible to assure enough asphalt concrete salvage is available for the Class Q3R Hot Mixed Asphalt Concrete.

Salvaged material will be processed to meet the requirements of Section 884.2 C.1 prior to stockpiling. The Contractor will ensure that no vegetation, topsoil, subgrade, or other foreign material is incorporated into the salvaged asphalt mix material.

The salvaged material not used on the project will be stockpiled or disposed of as directed by the Engineer.

The following table is furnished for information only.

Station	Offset (ft) from New Centerline	Thickness of Asphalt Mix Material (Inches)	Thickness of Granular Material (Inches)
-5+00	19.8’LT	2.0	15.0
0+00	53’RT	5.0	12.0
4+00	51’LT	4.0	12.0
10+00	54’RT	4.0	12.0
15+00	52’LT	4.0	9.0
20+00	52’RT	5.0	12.0
23+00	52’LT	3.0	11.0
30+00	55’RT	4.0	13.0
40+00	19.4’RT	4.0	12.0
50+00	19.4’RT	4.0	12.0
60+00	19.2’RT	4.0	12.0
70+00	18.4’LT	3.0	14.0
80+00	52’RT	5.0	12.0
84+00	53’LT	6.0	10.0
90+00	53’RT	6.0	10.0
95+00	51’LT	5.0	11.0
100+00	53’RT	6.0	11.0
104+00	52’LT	4.0	13.0
110+00	53’RT	5.0	12.0
116+00	51’LT	4.0	13.0
120+00	52’RT	5.0	12.0
125+00	52’LT	4.0	13.0
130+00	52’RT	4.0	12.0
135+00	45’LT	4.0	12.0
140+00	23.4’RT	4.0	12.0
	Average Thickness:	4.3	12.0

SALVAGE GRANULAR MATERIAL

An estimated 2,121.6 tons (1,123 Cubic Yards) for PCN080L of granular material will be salvaged from the existing highway according to the in-place surfacing typical sections.

The Contractor will ensure that no vegetation, topsoil, subgrade, or other foreign material is incorporated into the salvaged granular material.

The quantity of salvaged granular material may vary from the plans.

The quantity of salvageable material is estimated from the in-place surfacing typical sections. This estimated quantity was included in the unclassified excavation quantities.

EXCAVATION FOR REINFORCED CONCRETE BOX CULVERT INSTALLATION

Included in the quantity of “Unclassified Excavation” are 1934 cubic yards of excavation for installation of reinforced concrete box culverts.

All work necessary to excavate a trench for installation of reinforced concrete box culverts including labor, equipment, and incidentals will be incidental to the contract unit price per cubic yard for “Unclassified Excavation”. Payment for excavation of reinforced concrete box culverts will be based only on plans quantity and measurement of these excavation quantities during construction will not be performed.

The excavation quantities for installation of reinforced concrete box culverts are not included with the earthwork balance quantities on the plans profile sheets. The quantities computed for excavation of the reinforced concrete box culverts are based on the limits shown in the drawing below.

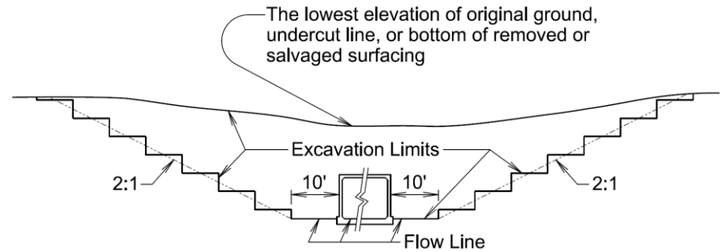


TABLE OF EXCAVATION FOR REINFORCED CONCRETE BOX CULVERT INSTALLATION – PCN04K7

Station	Type	Quantity (CuYd)
138+40	RCBC	1,934
	Total:	**1,934**

FOR BIDDING PURPOSES ONLY

Plotting Date: 1/2/2025

PIPE CULVERT UNDERCUT

The table includes undercut for 36 inch and larger pipe culverts. The depth of undercut is an estimate and the actual depth necessary will be determined during construction. Pipes listed may or may not require undercutting and pipes not listed may require undercutting. The Engineer will determine which pipe will be undercut in accordance with Section 421 of the Specifications.

Station	Undercut Depth (Ft)	Pipe Culvert Undercut (CuYd)
SD Highway 50 Mainline		
-4+60	1	79
14+55	1	31
25+86	1	92
59+61	2	109
	Total:	**311**

The table below describes the material types and groundwater elevation at the pipe location based on the subsurface investigation conducted in September 2021.

Station	Soils below Flowline	Groundwater Elevation	Flowline of Pipe		Undercut Depth
			Inlet	Outlet	
59+50	Brown silt clay with sand	1408.9	1412.3	1412.0	24 in.

The large diameter pipe culverts will be undercut to a minimum depth of 24 inches. The depth of undercut is an estimate, and the actual depth necessary will be determined during construction. The Engineer will determine how much undercut will be done in accordance with Section 421 of the Specifications but will not reduce the undercut to less than the depth stated above.

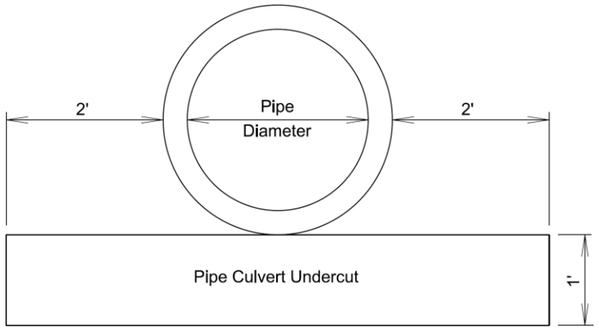
At the time of the subsurface investigation (August-September 2021), soil borings indicate that groundwater may be encountered within the pipe culvert undercut excavations at Stations -4+78, 38+97, 69+90, 99+06, 99+86, 115+08. Seasonal changes in groundwater may affect other pipe culverts not listed.

Granular material may be required for backfilling the pipe culvert undercut areas where site conditions warrant. Granular material will conform to the gradation requirements in Section 421.2.A of the Specifications and will be paid for at the contract unit price per ton for “Granular Material”. A quantity of 120 tons of granular material is included in the estimate of quantities for use where it is determined to be needed. The quantity will be adjusted or eliminated by construction change order, depending on field conditions.

The table below contains the rate for one-foot depth of pipe culvert undercut per foot of pipe length and should be used as an aid in determining the actual amount of undercut to be performed during construction. The table is derived from the drawing below and conforms to the Specifications. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

Storm sewer and approach pipes do not require undercutting unless specified otherwise in these plans.

Pipe Diameter (In)	Round Pipe Undercut Rate for 1’ Depth (CuYd/Ft)	Arch Pipe Undercut Rate for 1’ Depth (CuYd/Ft)
24	0.2407	0.2577
30	0.2623	0.2847
36	0.2840	0.3110
42	0.3056	0.3337
48	0.3272	0.3596
54	0.3488	0.3827
60	0.3704	0.4105
66	0.3920	---
72	0.4136	0.4630
78	0.4352	---
84	0.4568	0.5123
90	0.4784	---



ANCHORING C.M.P ENDS

All 30” or larger corrugated metal pipe end sections (Pipe Inlet End Only) will be anchored in accordance with the “ANCHORING C.M.P ENDS” detail found elsewhere in Section B.

The 4” galvanized steel arrowhead earth anchors will be from the list below:

Product	Manufacturer
Arrowhead Earth Anchor	MILSPEC Anchors Alexander City, AL Phone: 1-877-326-2467 www.milspecanchors.com
American Earth Anchor	American Earth Anchors, Inc. Franklin, MA Phone: 1-866-520-8511 www.americanea.com
Arrowhead Anchor	LACONIA Earth Anchors, Inc. Warwick, RI Phone: 1-401-739-8541 www.laconiaearthanchors.com

INCIDENTAL WORK, GRADING – PCN04K7

Station	L/R	Remarks
SD Highway 50 Mainline		
-4+79		Take out 42" - 144' RCP Arch
-2+96	L	Take out 18" - 59' RCP
10+02	R	Take out 18" - 69' RCP
10+09-91'	L	Take out 24" - 112' RCP
11+02	L	Take out 18" - 67' RCP
14+51		Take out 30" - 165' RCP
25+12		Take out 36" - 211' RCP
26+48	R	Take out 18" - 67' RCP
38+99		Take out 24" - 102' RCP
39+00		Take out 12" - 64' RCP
59+63		Take out 48" - 88' CMP
70+38-49'	L	Take out 18" - 50' RCP
79+97	L	Take out 18" - 61' RCP
97+16	R	Take out 18" - 69' RCP
97+18	L	Take out 18" - 69' RCP
99+18		Take out 18" - 162' RCP
99+82	R	Take out 18" - 65' RCP
99+93	L	Take out 18" - 69' RCP
114+03	R	Take out 18" 69' RCP
120+93	L	Take out 18" - 69' RCP
134+75-86'	R	Take out 18" - 67' RCP
135+67	L	Take out 18" - 67' RCP
138+35		Take out 72" - 106' RCP Arch
Ramp A (303rd Street)		
10+02	R	Take out 18" - 69' RCP
10+09-91'	L	Take out 24" - 112' RCP
11+02	L	Take out 18" - 67' RCP
14+51		Take out 30" - 165' RCP
26+88	L	Take out 15' - 26' CMP
xr022 (Ford Avenue)		
2+98-99'	R	Take out 24" - 67' RCP
xr086 (Birch Street)		
4+95-55'	R	Take out 18" -72' CMP
5+55-10'	L	Take out 18" - 60' CMP
xr115 (Main Street)		
3+40-6'	L	Take out 15" - 48' CMP
4+52		Take out 18" - 80' CMP
6+65		Take out 18" - 84' RCP
7+11-32'	R	Connect to Existing Storm Sewer

INCIDENTAL WORK, GRADING – PCN080L

Station	L/R	Remarks
SD Highway 37 Mainline		
466+68-44'	L	Take out 18" - 65' RCP

REMOVAL OF EXISTING CONCRETE PAVEMENT STA. -4+75 to STA. 137+91

Existing asphalt concrete and/or existing asphalt concrete patch work that was placed above the existing concrete pavement is included in the quantity for “Remove Concrete Pavement”.

The existing concrete is 8” Plain Jointed PCC Pavement that has been cracked and seated. The existing transverse joints are perpendicular and spaced at 20 ft. The aggregate in the existing Plain Jointed PCC Pavement is quartzite.

Locations for concrete removal are provided in the “Remove Concrete Pavement Table”.

TABLE OF CONCRETE PAVEMENT REMOVAL – PCN04K7

Station to	Station	Description	Quantity (SqYd)
-9+52	-4+75	Transition From 2 Lane to 4 Lane	1,777.8
-4+75	35+32	North 2 Lanes (Divided 4 Lane)	10,737.5
-4+75	35+32	South 2 Lanes (Divided 4 Lane)	10,639.2
35+32	38+44	Transition From 4 Lane to 2 Lane	1,141.7
38+44	73+97	2 Lane	9,474.2
73+97	76+58	Transition From 2 Lane to 4 Lane	1,001.9
76+58	137+91	North 2 Lanes (Divided 4 Lane)	16,315.2
76+58	137+91	South 2 Lanes (Divided 4 Lane)	16,421.9
137+91	141+64	Transition From 4 Lane to 2 Lane	1,303.9
		Total:	**68,813.3**

TABLE OF CONCRETE CURB AND/OR GUTTER REMOVAL – PCN04K7

Station	to Station	L/R	Quantity (Ft)
SD Hwy 50			
114+06	114+07	L & R	204.9
116+48	116+50	L & R	201.9
xr115 (Main Street)			
6+85	7+10	R	63.1
		Total:	**469.9**

TABLE OF CONCRETE DRIVEWAY PAVEMENT REMOVAL - PCN04K7

Station	to Station	L/R	Quantity (SqYd)
SD Hwy 50			
105+25	106+25	L	260.7
xr022 (Ford Avenue)			
2+70	3+10	R	214.2
xr115 (Main Street)			
6+93	7+02	L	1.9
		Total:	**476.8**

CORRUGATED METAL PIPE

Corrugated metal pipes will have 2 ⅔-inch x ½-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes will have 3-inch x 1-inch or 5-inch x 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

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

PIPE FOR APPROACHES

Class 2 reinforced concrete pipe, high density polyethylene pipe, polypropylene pipe (will be in conformance with AASHTO M330), or steel reinforced polyethylene pipe may be substituted for corrugated metal pipe at approaches at no additional cost to the State.

If corrugated metal pipes are provided, the pipes will be as specified in the CORRUGATED METAL PIPE note.

If high density polyethylene pipe, polypropylene pipe (will be in conformance with AASHTO M330), or steel reinforced polyethylene pipe are provided, then the end sections will be metal, be compatible, and conform to the type of end section as shown in the plans.

CONTROLLED DENSITY FILL FOR PIPE

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

The controlled density fill will be placed between the pipes from the base of pipe elevation to the haunch of the pipes and extend to the end of the end section.

TABLE OF CONTROLLED DENSITY FILL FOR PIPE – PCN04K7

Station	Quantity (CuYd)
6+73 (xr099)	3.10
Total:	**3.1**

CONCRETE PIPE CONNECTIONS

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

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

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

PIPE COVER

The earthen subgrade cover for some pipe installations is less than one foot. The Contractor will take the necessary precautions to ensure the structural properties of the pipes are not damaged after installation and prior to the placement of final surfacing. Any additional costs for preventing damage to these pipes will be incidental to the contract unit price per foot for the corresponding pipe installation contract item.

STORM SEWER

Reinforced concrete pipe may be bell and spigot. The pipe sections will 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 will 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 will extend for a distance of 10 feet beyond the water main. This measurement will be from the sealed concrete joint to the outer most surface of the water main.

Watertight joint seals will conform to the following requirements:

1. Reinforced Concrete Pipe (Circular): Gasketed pipe will conform to the requirements of ASTM C443 and the gasket will be in conformance with Section 990 of the Specifications. Non-gasketed concrete pipe will be sealed with a mastic joint seal conforming to the requirements of ASTM C990 and encased with a minimum 2-foot wide by 6-inch thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh.

2. Reinforced Concrete Pipe (Arch): Gasketed pipe will conform to the requirements of ASTM C443 and the gasket will be in conformance with Section 990 of the Specifications. Non-gasketed concrete pipe joints will be sealed with a hydrophilic flexible water stop seal and wrapped with a 1-foot wide strip of fabric above the cradle. The fabric will conform to the requirements of Section 831 of the Specifications for Type A Drainage Fabric. The hydrophilic flexible water stop will be from the list below.

3. Drop Inlets, Manholes, and Junction Boxes: Joints will be sealed with one of the following methods:

   A. A flexible strip seal placed in the joints conforming to the requirements of ASTM C990 and the perimeter encased with a minimum 2-foot wide by 6-inch thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh.

   B. A hydrophilic flexible water stop seal placed in the joints and a 1-foot wide strip of fabric wrapped around the perimeter of the pipe. The fabric will conform to the requirements of Section 831 of the Specifications for Type A Drainage Fabric. The hydrophilic flexible water stop will be from the list below.

   C. A self-adhesive external joint seal wrap. The seal wrap will be from the list below.

Approved List of Self-adhesive Joint Wrap

Product	Manufacturer
Mar Mac Seal Wrap	Mar Mac Construction Products McBee, SC 843-335-5909 www.marmac.com
ConWrap CS-212	Concrete Sealants, Inc. Tipp City, OH 800-332-7325 http://www.conseal.com

Approved List of Hydrophilic Flexible Water Stop Seal:

Product	Manufacturer
Waterstop RX	Cetco Hoffman Estates, IL 800-527-9948 www.cetco.com
Conseal CS-231	Concrete Sealants, Inc. Tipp City, OH 800-332-7325 http://www.conseal.com

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

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

DROP INLETS

Where drop inlets are constructed within areas of curb and gutter, the Contractor will construct weep holes of at least 3 inches in diameter in the drop inlet walls. The weep holes will be constructed at the same elevation as the adjacent top of the earthen subgrade and will be maintained clean and open at all times until the permanent surfacing is placed. The drop inlets will 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 will 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 will 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, Special Frame and Grate Assembly, Precast Drop Inlet Collar, and Precast Concrete Type S Drop Inlet Lid will be the basis of payment for these items.

The Special Frame and Grate Assembly will be a Neenah Foundry model R-3501-TB or equivalent.

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 TYPE B DROP INLETS AND QUANTITIES - PCN04K7

Station	L/R	Drop Inlet Size	Drop Inlet Type	Class M6 Concrete (CuYd)	Reinf. Steel (Lb)	Precast Drop Inlet Collar (Each)	Frame & Grate Type
SD Highway 50 Mainline							
78+44.05	L	2 X 3	B	1.40	208	1	B
78+44.00	R	2 X 3	B	1.41	209	1	B
79+89.05	L	2 X 3	B	1.47	217	1	B
88+22.63	L	2 X 3	B	0.93	146	1	B
111+50.00	R	2 X 3	B	0.85	136	1	B
133+86.02	R	2 X 3	B	1.32	197	1	B
135+46.02	R	2 X 3	B	1.39	206	1	B
xr086 (Birch Street)							
8+62.35	L	2 X 3	B	0.93	146	1	B
9+91.65	L	2 X 3	B	0.83	133	1	B
xr115 (Main Street)							
5+00.01	L	3 X 4	B	1.78	281	1	B
			Totals	**12.31**	**1879**	**10**	

Total Type B Frame and Grate Assembly 10

TABLE OF TYPE B DROP INLETS AND QUANTITIES - PCN080L

Station	L/R	Drop Inlet Size	Drop Inlet Type	Class M6 Concrete (CuYd)	Reinf. Steel (Lb)	Precast Drop Inlet Collar (Each)	Frame & Grate Type
SD Highway 37 Mainline							
477+12.61	R	3 X 4	B	1.96	281	1	Special
			Totals	**1.96**	**281**	**1**	

TABLE OF TYPE S DROP INLETS AND QUANTITIES - PCN04K7

Station	L / R	Drop Inlet Size	Drop Inlet Type	Class M6 Concrete (CuYd)	Reinf. Steel (Lb)
SD Highway 50 Mainline					
76+92.74	L	4 X 11	S	4.67	748
76+92.74	R	4 X 11	S	4.72	753
85+27.00	L	4 X 11	S	3.55	621
85+54.63	R	4 X 11	S	3.89	660
87+12.42	L	4 X 11	S	3.20	581
87+12.42	R	4 X 11	S	2.95	554
95+45.50	L	4 X 11	S	3.57	624
97+97.66	R	4 X 11	S	3.01	560
97+99.19	L	4 X 11	S	2.90	548
99+86.77	L	4 X 11	S	3.09	575
99+86.77	R	4 X 11	S	3.28	596
102+78.43	L	4 X 11	S	2.97	555
111+47.11	L	4 X 11	S	3.58	625
114+35.63	L	4 X 11	S	3.91	662
114+69.34	R	4 X 11	S	3.48	614
117+85.12	R	4 X 11	S	3.93	665
121+50.00	L	4 X 11	S	4.38	715
125+50.00	L	4 X 11	S	4.38	715
129+00.00	L	4 X 11	S	4.04	677
132+00.00	L	4 X 11	S	4.12	685
135+50.00	L	4 X 11	S	4.28	703
137+32.22	L	4 X 11	S	4.42	719
137+32.22	R	4 X 11	S	5.01	787
xr099 (Fir Street)					
6+11.56	L	4 X 11	S	2.75	531
6+11.56	R	4 X 11	S	3.12	578
xr115 (Main Street)					
6+85.36	L	4 X 11	S	2.72	528
6+89.29	R	4 X 11	S	3.11	575
			Totals	**99.0**	**17,154**

Total 4'x11' Precast Concrete Type S Drop Inlet Lid 27

8" PCC FILLET SECTIONS

Payment for "8" PCC Fillet Section" will 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 "8" PCC Fillet Section".

MAILBOXES

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

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

TABLE OF REFURBISH MAILBOX - PCN04K7

Station	L/R	Single (Each)
SD Highway 50 Mainline		
105+95-107'	L	1
105+95-108'	L	1
xr022 (Ford Avenue)		
3+40-58'	R	1
	Total:	**3**

TABLE OF REFURBISH MAILBOX - PCN080L

Station	L/R	Single (Each)
SD Highway 37 Mainline		
471+49-196'	L	1
	Total:	**1**

TEMPORARY FENCE

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

BRACE PANELS FOR ROW FENCE

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

Charlie Mack
Macksteel E-Z Braces
415 20th Ave. SE.
Watertown, SD 57201
605-882-2177

FOR BIDDING PURPOSES ONLY

Plotting Date: 1/2/2025

TABLE OF SUPERELEVATION

Station	To	Station	
SD Hwy 50			
-009+51.75		-000+39.67	Normal Crown Section
-000+39.67		001+88.33	Superelevation Transition
001+88.33		016+00.21	2864.72' Radius Curve Right
			0.056 Superelevation Rate
			Point of Rotation at Centerline
016+00.21		018+28.21	Superelevation Transition
018+28.21		088+02.06	Normal Crown Section
088+02.06		090+42.06	Superelevation Transition
090+42.06		095+47.60	5729.02' Radius Curve Lt
			0.020 Superelevation Rate
			Point of Rotation 6' Right of Centerline
095+47.60		097+87.60	Superelevation Transition
097+87.60		116+99.82	Normal Crown Section
116+99.82		119+39.11	Superelevation Transition
			0.020 Superelevation Rate
			Point of Rotation 6' Right of Centerline
119+39.11		120+34.82	Superelevation Transition
120+34.82		130+32.06	2864.72' Radius Curve Lt
			0.036 Superelevation Rate
			Point of Rotation at Centerline
130+32.06		131+27.77	Superelevation Transition
131+27.77		133+67.06	Superelevation Transition
			0.020 Superelevation Rate
			Point of Rotation 6' Right of Centerline
133+67.06		141+64.11	Normal Crown Section

Station	To	Station	
SD Hwy 37			
		459+89.26	Normal Crown Section
459+89.26		462+11.26	Superelevation Transition
462+11.26		475+35.09	2910' Radius Curve Right
			0.054 Superelevation Rate
			Point of Rotation at Centerline
475+35.09		477+57.09	Superelevation Transition
477+57.09		478+04.62	Normal Crown Section

Station	To	Station	
xr022 (Ford Avenue)			
000+00.00		000+98.46	Normal Crown Section
000+98.46		002+34.46	Superelevation Transition
002+34.46		005+45.41	654' Radius Curve Left
			0.050 Superelevation Rate
			Point of Rotation at Centerline
005+45.41		006+81.41	Superelevation Transition
006+81.41			Normal Crown Section

Station	To	Station	
Ramp A (303rd Street)			
014+24.68		015+73.55	0.02 Superelevation Rate
015+73.55		016+58.35	Superelevation Transition
016+58.35		024+70.23	11,100' Radius Curve Rt
			-0.02 Superelevation Rate
			Point of Rotation at Centerline
024+70.23		025+76.73	Superelevation Transition
025+76.73		027+21.33	Normal Crown Section

PUBLIC LANDS SURVEY SYSTEM, RIGHT OF WAY, AND PROPERTY CORNERS

The Contractor will have a Land Surveyor, licensed in the State of South Dakota, to set, reestablish or verify public land survey system (PLSS) corners, right of way (ROW) corners, and property corners as directed by the appropriate SDDOT Region Land Surveyor. It is estimated that 3 PLSS corners and 68 ROW and property corners will be set, reestablished, or verified for this project. The Contractor's Land Surveyor, under the direction of the Region Land Surveyor, will set, reestablish, or verify all corner monuments after surfacing and fencing operations are completed in accordance with the PUBLIC LANDS SURVEY SYSTEM CORNERS section and the RIGHT OF WAY AND PROPERTY CORNERS section in Chapter 8 of the SDDOT Survey Manual.

< https://dot.sd.gov/doing-business/engineering/design-services/surveyors >

All costs associated with furnishing and installing PLSS caps, rebar, and all other materials associated with setting, reestablishing, or verifying PLSS, ROW corners, and property corners in accordance with the SDDOT Survey Manual will be incidental to the contract unit price per each for "Reestablish Public Land Survey System Corner" and/or "Reestablish Right-of-Way and Property Corner".

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037 (168)19	B13	B101

FOR BIDDING PURPOSES ONLY

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

TABLE OF CONSTRUCTION STAKING FOR PROJECT NH-PH 0050(116)354
(See Special Provision for Contractor Staking)

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Grade Staking Length (Mile)	Grade Staking Lane Factor	Grade Staking *Sets of Stakes	Grade Staking **Grade Quantity (Mile)	Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Structure Staking Quantity (Each)
SD 50 (2 Lane AC Pavement)	-9+52	11+43	2	2,095	0.397	1	1	0.397	0.397	0.397	
SD 50 (Transition from 2 Lane to 3 Lane AC Pavement)	11+43	15+28	3	385	0.073	1.5	1	0.109	0.073	0.073	
SD 50 (3 Lane AC Pavement)	15+28	22+27	3	699	0.132	1.5	1	0.199	0.132	0.132	
SD 50 (Transition from 3 Lane to 7 Lane AC Pavement)	22+27	23+47	7	120	0.023	3.5	1	0.080	0.023	0.023	
SD 50 (7 Lane AC Pavement)	23+47	29+51	7	604	0.114	3.5	1	0.400	0.114	0.114	
SD 50 (Transition from 7 Lane to 4 Lane AC Pavement)	29+51	30+71	7	120	0.023	3.5	1	0.080	0.023	0.023	
SD 50 (4 Lane AC Pavement)	30+71	37+72	4	701	0.133	2	1	0.266	0.133	0.133	
SD 50 (Transition from 4 lane to 3 Lane AC Pavement)	37+72	41+92	4	420	0.080	2	1	0.159	0.080	0.080	
SD 50 (3 Lane Pavement)	41+92	56+10	3	1,418	0.269	1.5	1	0.403	0.269	0.269	
SD 50 (Transition from 3 Lane to 2 Lane AC Pavement)	56+10	62+10	3	600	0.114	1.5	1	0.170	0.114	0.114	
SD 50 (2 Lane AC Pavement)	62+10	72+61	2	1,051	0.199	1	1	0.199	0.199	0.199	
SD 50 (Transition from 2 Lane to 3 Lane AC Pavement)	72+61	76+81	3	420	0.080	1.5	1	0.119	0.080	0.080	
SD 50 (Transition from 3 Lane to 5 Lane AC Pavement)	76+81	82+81	5	600	0.114	2.5	1.5	0.426	0.114	0.114	
SD 50 (5 Lane AC Pavement)	82+81	131+44	5	4,863	0.921	2.5	1.5	3.454	0.921	0.921	
SD 50 (Transition from 5 lane to 3 Lane AC Pavement)	131+44	137+44	5	600	0.114	2.5	1.5	0.426	0.114	0.114	
SD 50 (Transition from 3 Lane to 2 Lane AC Pavement)	137+44	141+64	3	420	0.080	1.5	1	0.119	0.080	0.080	1
Ramp A (303rd St) (1 Lane AC Pavement)	0+00	24+51	1	2,451	0.464	0.5	1	0.232	0.464	0.464	
Ramp A (303rd St) (Transition from 1 Lane to 2 Lane AC Pavement)	24+51	26+11	2	160	0.030	1	1	0.030	0.030	0.030	
Ramp A (303rd St) (2 Lane AC Pavement)	26+11	27+21	2	110	0.021	1	1	0.021	0.021	0.021	
xr022 (Ford Ave) (2 Lane AC Pavement)	0+00	6+81	2	681	0.129	1	1	0.129	0.129	0.129	
xr086 (Birch St) (2 Lane AC Pavement)	3+62	10+69	2	707	0.134	1	1	0.134	0.134	0.134	
xr099 (Fir St) (2 Lane AC Pavement)	4+15	8+21	2	406	0.077	1	1	0.077	0.077	0.077	
xr008 (Ivy St) (2 Lane AC Pavement)	0+00	1+92	2	192	0.036	1	1	0.036	0.036	0.036	
xr115 (Main St) (2 Lane AC Pavement)	0+73	7+10	2	637	0.121	1	1	0.121	0.121	0.121	
							Totals:	**7.786**	**3.875**	**3.875**	**1**

* 1 = Blue Top Stakes Only (Asphalt Concrete Pavement)
2 = Blue Top and Paving Hub Stakes (PCC Pavement)
In curb and gutter sections, the Sets of Stakes has been increased to 1.5 to allow for Blue Top Stakes for grade check of crown

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

TABLE OF CONSTRUCTION STAKING FOR PROJECT P 0037()19
(See Special Provision for Contractor Staking)

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Grade Staking Length (Mile)	Grade Staking Lane Factor	Grade Staking *Sets of Stakes	Grade Staking **Grade Quantity (Mile)	Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Structure Staking Quantity (Each)
SD 37 (2 Lane AC Pavement)	459+89	476+05	2	1,616	0.306	1	1	0.306	0.306	0.306	
SD 37 (3 Lane AC Pavement)	476+05	478+05	3	200	0.038	1.5	1	0.057	0.038	0.038	
							Totals:	**0.363**	**0.344**	**0.344**	**0**

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

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

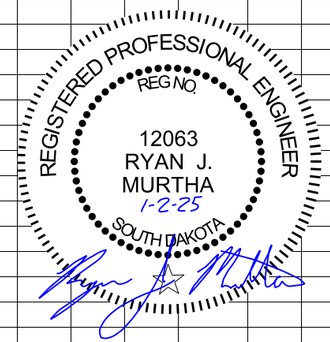
PIPE QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B14	B101

Plotting Date: 1/2/2025

Station to Station/Offset L & R	Reinforced Concrete Pipe																			Corrugated Metal Pipe												PVC			
	Circular				Arched						Circular Safety End		Circular Sloped End		Circular Flared End	Arched Safety End	Arched Sloped End				Circular				Arched		Arched Safety End		Circular Safety End				Bend	Pipe	Cntrl Density Fill	
	18" Cl. 2 Ft	24" Cl. 2 Ft	30" Cl. 2 Ft	84" Cl. 2 Ft	18" Cl. 2 Ft	24" Cl. 2 Ft	30" Cl. 2 Ft	36" Cl. 2 Ft	42" Cl. 2 Ft	18" Cl. 4 Ft	18" Each	24" Each	24" Each	30" Each	84" Each	18" Each	24" Each	30" Each	36" Each	42" Each	18" 16 Ga Ft	24" 16 Ga Ft	30" 16 Ga Ft	36" 16 Ga Ft	18" 16 Ga Ft	30" 16 Ga Ft	18" Each	30" Each	18" Each	24" Each	30" Each	36" Each	12" (30°) Each	12" Ft	CuYd	
PCN04K7																																		
SD Highway 50 Mainline																																		
-4+60									108											2														
-4+60									108											2														
10+02										62						2																		
14+55								92											2															
25+86									124											2														
25+86									124											2														
38+97			100											2																				
59+61				102											2																				
70+37-62' L																							84								2			
70+37-62' R																						62								2				
76+92.74-28.14' R to 76+90.96-60.24' R	24										1																							
76+92.74-22.37' L to 76+92.04-57.25' L	28										1																							
78+44.05-22.94' L to 78+43.24-63.55' L	34										1																							
78+44.00-31.67' R to 72.38' R	34										1																							
79+89.05-25.84' L to 79+88.21-67.66' L	36										1																							
85+27.00-34.13' L to 85+24.84-62.86' L	22										1																							
85+54.63-34.13' R to 85+49.30-65.02' R	24										1																							
87+12.42-34.13' L to 59.83' L	18										1																							
87+12.42-34.13' R to 57.90' R	16										1																							
88+22.63-31.67' L to 62.85' L	24										1																							
95+45.50-34.13' L to 62.98' L	22										1																							
97+18							110											2																
97+18							110											2																
97+97.66-34.13' R to 64.85' R	24										1																							
97+99.19-34.13' L to 97+94.02-56.38' L	16										1																							
99+20	122										2																							
99+86.77-34.13' L to 99+92.98-55.39' L					16											1																		
99+86.77-34.13' L to 34.13' R										64																								
99+86.77-34.13' R to 56.84' R					16											1																		
100+15										102						2																		
100+15										102						2																		
102+78.43-34.13' L to 58.46' L	16										1																							
111+47.11-34.13' L to 63.09' L	22										1																							
111+50.00-31.67' R to 61.45' R	24										1																							
114+35.63-34.13' L to 65.41' L	24										1																							
114+69.34-34.13' R to 114+61.63-62.69' R	22										1																							
117+85.12-34.13' R to 65.59' R	24										1																							
121+50.00-34.13' L to 68.88' L	28										1																							
125+50.00-34.13' L to 68.87' L	28										1																							
129+00.00-34.13' L to 66.44' L	24										1																							
132+00.00-34.13' L to 66.92' L	26										1																							
133+86.02-26.83' R to 133+86.80-65.78' R	32										1																							
134+74-75' R																						62								2				
135+46.02-23.63' R to 135+46.83-63.92' R	34										1																							
135+50.00-34.13' L to 68.12' L	26										1																							
137+32.22-22.37' R to 137+33.01-61.77' R	28										1																							
137+32.22-28.13' L to 137+34.16-63.01' L	20										1																							
Subtotal:	822	0	100	102	32	0	220	92	464	330	30	0	0	2	2	8	0	4	2	8	0	62	62	84	0	0	0	0	0	2	2	2	0	0	0	



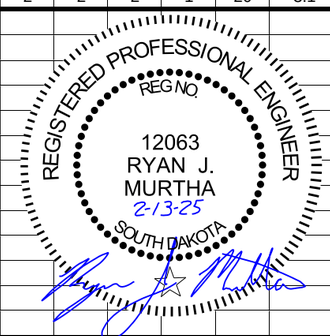
PIPE QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037()19	B15	B101

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

Station to Station/Offset L & R	Reinforced Concrete Pipe																				Corrugated Metal Pipe													PVC			
	Circular				Arched						Circular Safety End		Circular Sloped End		Circular Flared End	Arched Safety End	Arched Sloped End				Circular				Arched		Arched Safety End		Circular Safety End				Bend	Pipe	Cntrl Density Fill		
	18" Cl. 2 Ft	24" Cl. 2 Ft	30" Cl. 2 Ft	84" Cl. 2 Ft	18" Cl. 2 Ft	24" Cl. 2 Ft	30" Cl. 2 Ft	36" Cl. 2 Ft	42" Cl. 2 Ft	18" Cl. 4 Ft	18" Each	24" Each	24" Each	30" Each	84" Each	18" Each	24" Each	30" Each	36" Each	42" Each	18" 16 Ga Ft	24" 16 Ga Ft	30" 16 Ga Ft	36" 16 Ga Ft	18" 16 Ga Ft	30" 16 Ga Ft	18" Each	30" Each	18" Each	24" Each	30" Each	36" Each	12" (30°) Each	12" Pipe Ft			
xr022 (Ford Avenue)																																				
0+83	68										2																									
2+87-33' R																					64								2							
3+35-36' L																					54								2							
5+25-37' R																					54								2							
5+62	52										2																									
xr086 (Birch Street)																																				
4+93-36' R																					70								2							
5+59-35' L																					60								2							
7+02-38' R																					60								2							
8+62.35-14.67' L to 8+60.27-52.05' L	30										1																									
9+91.65-15.47' L to 10+04.79-42.09' L	22										1																									
xr099 (Fir Street)																																				
6+11.56-22.92' R to 6+01.14-52.92' R	26										1																									
6+11.56-22.96' R to 22.96' L					42																															
6+73					70											2																		3.1		
6+73					70											2																				
7+89-24' L										52						2																				
xr115 (Main Street)																																				
3+43-32' R																									36		2									
3+42-33' L																									42		2									
4+99.07-53.22' L to 5+00.01-14.67' L		28										1																								
5+00.01-14.67' L to 4+68.45-53.04' R		64										1																								
6+37							96											2																		
6+39.05-50.32' R to 6+89.29-23.46' R	50										1																									
6+69.38-52.43' L to 6+85.36-39.28' L					14											1																				
6+89.29-23.46' R to 7+10.96-32.15' R																																		20		
7+10.96-32.15' R																																	1			
xr008 (Ivy Street)																																				
0+77					44											2																				
Ramp A (303rd Street)																																				
6+00-56' L																										56		2								
26+44-28' L																									54		2									
Subtotal:	248	92	0	0	240	0	96	0	0	52	8	2	0	0	0	9	0	2	0	0	362	0	0	0	132	56	6	2	12	0	0	0	1	20	3.1	
Total 04K7:	1070	92	100	102	272	0	316	92	464	382	38	2	0	2	2	17	0	6	2	8	362	62	62	84	132	56	6	2	12	2	2	2	1	20	3.1	
PCN080L																																				
SD Highway 37 Mainline																																				
466+59		88											2																							
469+94-156' L																					66								2							
470+00-66' L																					98								2							
473+14		100											2																							
477+09.55-60.89' L to 477+12.61-21.61' R		72										1																								
477+12.61-21.61' R to 477+06.75-74.57' R						52											1																			
Subtotal:	0	260	0	0	0	52	0	0	0	0	0	1	4	0	0	0	1	0	0	0	164	0	0	0	0	0	0	0	4	0	0	0	0	0	0	
Total 080L:	0	260	0	0	0	52	0	0	0	0	0	1	4	0	0	0	1	0	0	0	164	0	0	0	0	0	0	0	4	0	0	0	0	0	0	



PAVEMENT, CURB AND GUTTER, AND SIDEWALK QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH0050(116)354 P 0037(168)19	B16	B101

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

Station	to	Station	PCC Fillet Section 8" SqYd	Concrete Curb and Gutter Type B 68 Ft	Type F 68 Ft	Type R 48 Ft	Concrete Gutter Type P 8 Ft	Type A PCC Approach Pavement 8" SqYd	Barrier Type Median PCC Pavement 4" SqYd
30+51.15-93.37' R		30+51.15-31.00' R				62.4			
30+56.15-26.00' R		31+33.52-26.00' R				77.4			
31+35.03-33.70' R		30+58.46-95.62' R				99.9			
30+51.15-93.37' R		30+51.15-31.00' R							256.9
76+80.74-18.00' L		82+80.74-30.00' L			600.1				
82+80.74-30.00' L		85+33.00-30.00' L			252.3				
85+33.00-30.00' L		85+66.23-75.97' L			66.1				
85+66.23-75.97' L		85+90.92-84.11' L			28.4				
85+90.92-84.11' L		85+98.71-56.80' L			46.7				
86+32.73-30.00' L		89+94.06-30.00' L			361.3				
89+94.06-30.00' L		95+95.60-30.00' L			598.4				
76+80.55-23.33' R		78+00.68-30.00' R			120.3				
78+00.68-30.00' R		85+60.63-30.00' R			760.0				
85+60.63-30.00' R		85+94.37-55.71' R			45.6				
85+94.37-55.71' R		86+04.47-86.63' R			32.5				
86+04.47-86.63' R		86+28.78-77.41' R			67.7				
86+61.50-30.00' R		89+94.06-30.00' R			332.6				
89+94.06-30.00' R		95+95.60-30.00' R			604.7				
95+95.60-30.00' L		98+05.19-30.00' L			209.6				
98+05.19-30.00' L		98+29.96-58.37' L			42.7				
98+29.96-58.37' L		98+05.56-144.01' L		89.3					
98+39.96-159.36' L		98+68.60-52.41' L		106.2					
98+68.60-52.41' L		98+93.47-30.00' L			36.7				
95+95.60-30.00' R		98+03.66-30.00' R			208.1				
98+03.66-30.00' R		98+38.66-65.00' R			55.0				
98+64.66-65.00' R		98+99.66-30.00' R			55.0				
98+93.47-30.00' L		105+16.69-30.00' L			623.2				
98+99.66-30.00' R		105+14.69-30.00' R			615.0				
105+16.69-30.00' L		105+56.69-70.00' L			62.8				
105+92.69-70.00' L		106+32.69-30.00' L			62.8				
106+32.69-30.00' L		114+41.63-30.00' L			808.9				
114+41.63-30.00' L		114+74.54-76.90' L			67.1				
114+74.54-76.90' L		114+67.72-94.14' L		18.5					
114+67.72-94.14' L		114+47.18-109.15' L	11.4						
114+47.18-109.15' L		114+29.26-110.89' L		18.0					
114+84.24-152.19' L		115+01.48-113.43' L		42.4					
115+01.48-113.43' L		115+21.19-56.44' L		60.4					
115+21.19-56.44' L		115+55.12-30.00' L			46.3				
115+55.12-30.00' L		119+67.82-30.00' L			412.7				
105+14.69-30.00' R		105+54.69-70.00' R			62.8				
105+94.69-70.00' R		106+34.69-30.00' R			62.8				
106+34.69-30.00' R		114+75.34-30.00' R			840.7				
114+75.34-30.00' R		115+09.62-57.91' R			47.8				
115+09.62-57.91' R		115+15.36-81.51' R		24.3					
115+40.39-74.47' R		115+74.09-30.00' R			64.6				
115+74.09-30.00' R		119+67.82-30.00' R			393.7				
119+67.82-30.00' R		130+99.06-30.00' R			1143.1				
119+67.82-30.00' L		130+99.06-30.00' L			1119.4				
130+99.06-30.00' L		136+24.17-30.00' L			525.1				
136+24.17-30.00' L		137+44.22-23.33' L			120.3				
130+99.06-30.00' R		131+44.11-30.00' R			45.1				
131+44.11-30.00' R		134+60.50-23.67' R			316.5				
134+54.50-23.67' R		134+90.50-23.19' R						20.0	
134+60.50-23.67' R		134+84.50-23.19' R					24.0		
134+84.50-23.19' R		137+44.22-18.00' R			259.8				
Subtotal:			11.4	359.2	12224.3	239.7	24.0	20.0	256.9

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FOR BIDDING PURPOSES ONLY

FENCE QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B17	B101

Plotting Date: 1/2/2025 Rev 8/18/2025 RJM

Station to Station		Side (L/R)	Right-of-Way Fence Type 2 (Ft)	Right-of-Way Fence Type 6 (Ft)	Temporary Fence Type 1 (Ft)	Temporary Fence Type 2 (Ft)	Post Panels 2 Post Panel (Each)	Post Panels 3 Post Panel (Each)	Gates N.A.B.I. Barbed Wire Gate (Each)	Safety Fence Orange Plastic (Ft)	Remove Fence (Ft)	Remove Gate For Reset (Each)	Reset Gate (Each)
SD Highway 50 Mainline													
-3+32	25+20	R	2852				1	5			2852		
26+32	29+55	R	323				2	1			323		
26+41	55+28	L	2887				1	5	1		2887		
31+07	56+49	R	2532				4	4	1		2532		
98+68	98+86	R								200			
118+18	142+02	L		2384			1	4			2384		
124+81	134+60	R	979		979		1	2			979		
134+84	141+95	R	711		711			3	1		711		
xr022 (Ford Avenue)													
5+27		R										1	1
Ramp A (303rd Street)													
-4+83	26+99	L	3182			161	6	4	2		3182		
PCN 04K7 TOTALS:			13466	2384	1690	161	16	28	5	200	15850	1	1

Station to Station		Side (L/R)	Right-of-Way Fence Type 2 (Ft)	Right-of-Way Fence Type 6 (Ft)	Temporary Fence Type 1 (Ft)	Temporary Fence Type 2 (Ft)	Post Panels 2 Post Panel (Each)	Post Panels 3 Post Panel (Each)	Gates N.A.B.I. Barbed Wire Gate (Each)	Safety Fence Orange Plastic (Ft)	Remove Fence (Ft)	Remove Gate For Reset (Each)	Reset Gate (Each)
SD 37													
461+45	469+80	L	835					2	1		835		
PCN 080L TOTALS:			835	0	0	0	0	2	1	0	835	0	0

Post Type and Sequence:

Right-of-way fence will be constructed using alternate wood and steel posts except as noted.

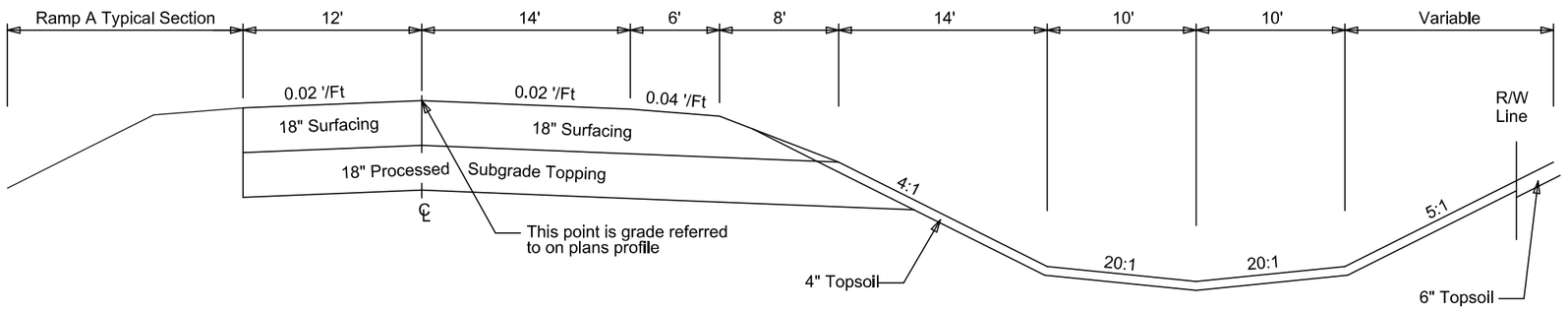
TYPICAL GRADING SECTION

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B18	B101

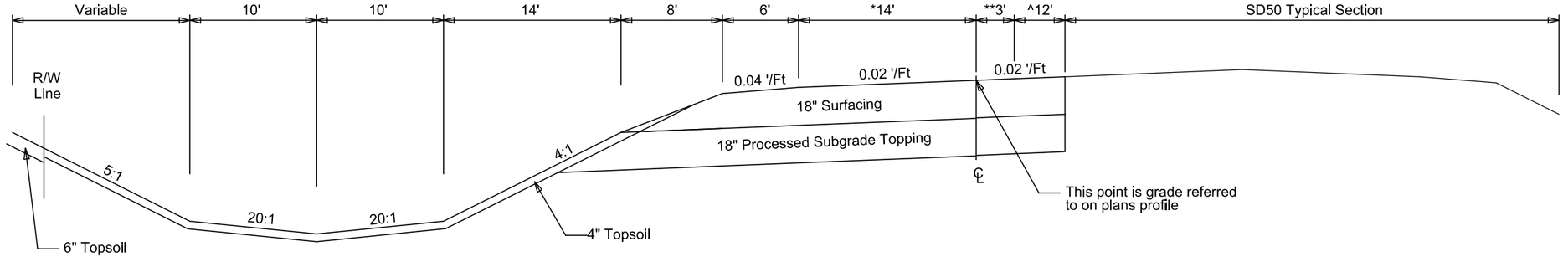
Plotting Date: 1/2/2025

SD50
-9+51.75 to 4+71.18



Transitions:
* Sta 0+00 to 6+00 - 2' to 14'
* Sta 6+00 to 14+25.07- 14'
** Sta 0+00 to 10+94.49 - 0'
** Sta 10+94.49 to 12+25.92- 0' to 3'
** Sta 12+25.92 to 14+25.07 - 3'

Ramp A
0+00.00 to 14+25.07



Transitions:
^ Sta 0+00 to 12+25.92 - 0'
^ Sta 12+25.92 to 14+25.07 - 0' to 12'

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TYPICAL GRADING SECTION

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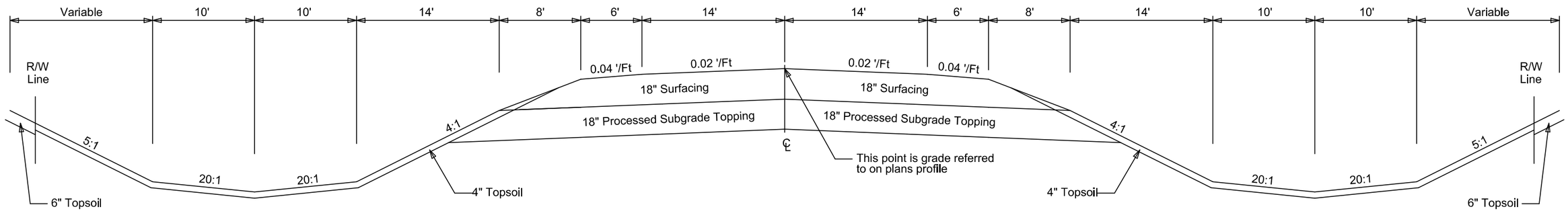
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B19	B101

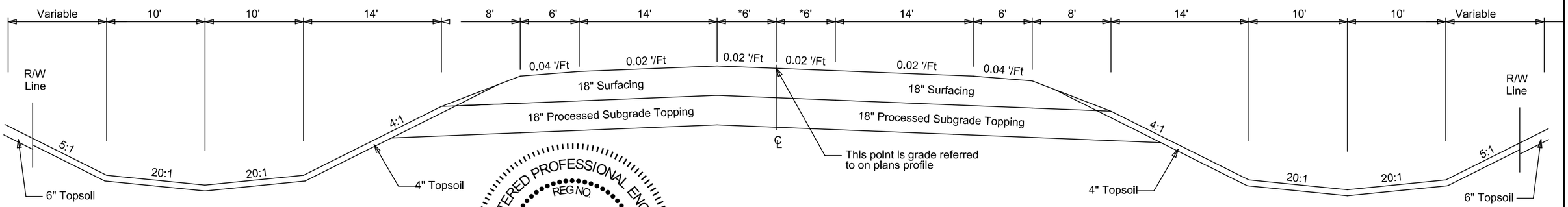
Plotting Date: 1/2/2025

SD50
4+71.18 to 11+07.52
41+91.93 to 72+60.74



SD 50 Transitions:
* Sta 11+07.52 to 15+27.52 - 0' to 6'
* Sta 15+27.52 to 22+27.29 - 6'
* Sta 30+71.15 to 37+71.93 - 6'
* Sta 37+71.93 to 41+91.93 - 6' to 0'

SD50
11+07.52 to 22+27.29
30+71.15 to 41+91.93
72+60.74 to 76+80.74 (Mirrored Typical Section)
137+44.11 to 141+64.11 (Mirrored Typical Section)



SD 50 Transitions:
* Sta 72+60.74 to 76+80.74 - 0' to 6'
* Sta 137+44.11 to 141+64.11 - 6' to 0'

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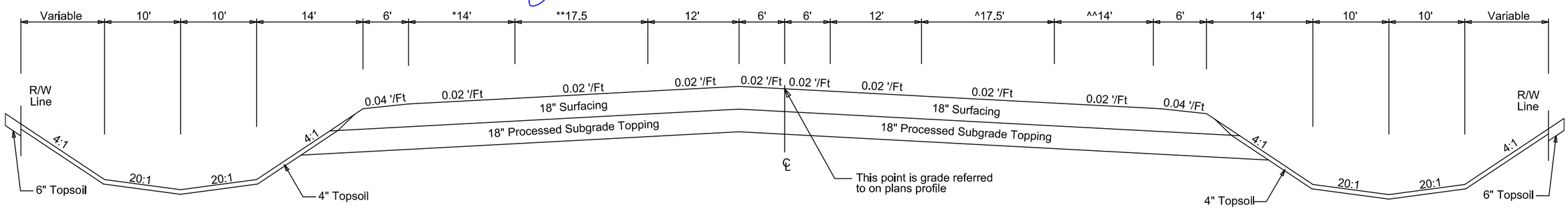
Transitions:
* Sta 22+27.29 to 29+51.46 - 14'
* Sta 29+51.46 to 30+71.15 - 14' to 2'
** Sta 22+27.29 to 29+51.46 - 17.5' to 0'
** Sta 29+51.46 to 30+71.15 - 0'

SD50
22+27.29 to 30+71.15



Transitions:
^ Sta 22+27.29 to 23+46.98 - 0'
^ Sta 23+46.98 to 30+71.15 - 0' to 17.5'
^^ Sta 22+27.29 to 23+46.98 - 2' to 14'
^^ Sta 23+46.98 to 30+71.15 - 14'

TYPICAL GRADING SECTION

FOR BIDDING PURPOSES ONLY

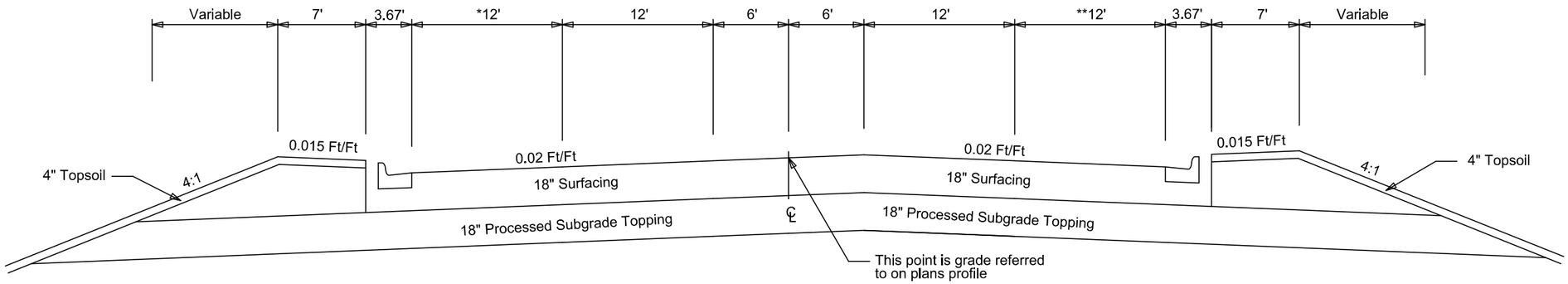
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B20	B101

Plotting Date: 1/2/2025

Transitions:
* Sta 76+80.74 to 82+80.74 - 0' to 12'
* Sta 82+80.74 to 136+24.11 - 12'
* Sta 136+24.11 to 137+44.11 - 12' to 5.33'

Transitions:
** Sta 76+80.74 to 78+00.74 - 5.33' to 12'
** Sta 78+00.74 to 131+44.11 - 12'
** Sta 131+44.11 to 137+44.11 - 12' to 0'

SD50
76+80.74 to 137+44.11



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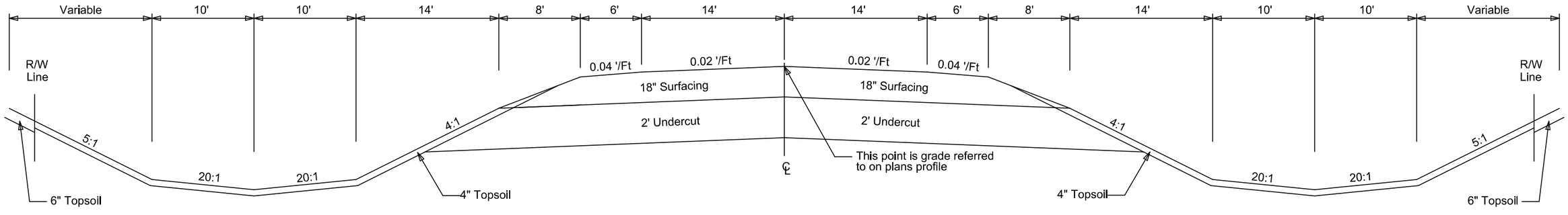
SD37
459+89.26 to 478+04.62



TYPICAL GRADING SECTION

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B21	B101

Plotting Date: 1/2/2025

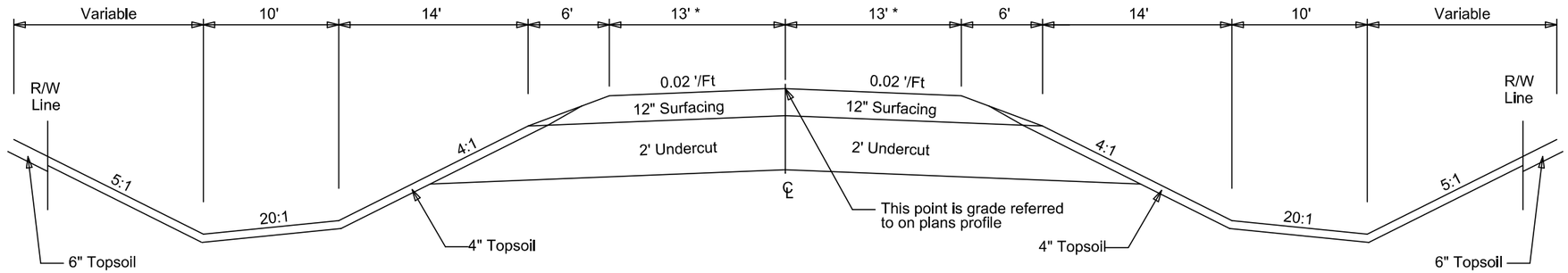
xr022 (Ford Ave)
0+00 to 6+81.41

xr086 (Birch Street)
3+61.71 to 8+32.95
9+99.69 to 10+69.28

xr099 (Fir Street)
4+14.75 to 4+66.38
6+96.25 to 8+18.11

xr115 (Main Street)
0+73.01 to 4+78.54

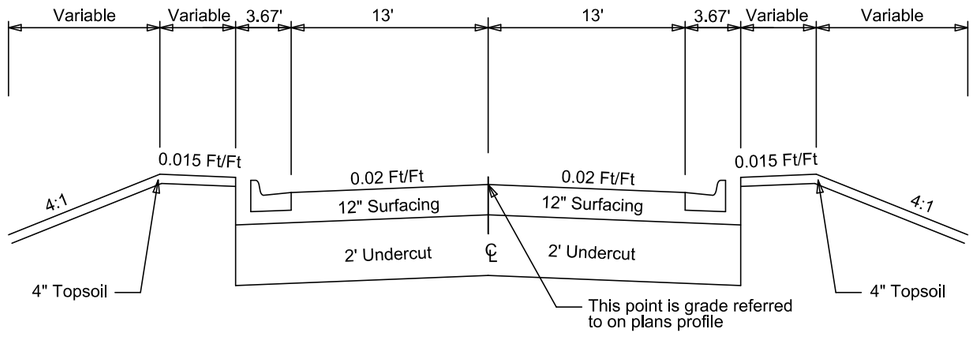
* - 14' - 415th Ave - 0+00 to 6+81.41



xr086 (Birch Street)
8+32.95 to 8+87.16
9+48.10 to 9+99.69

xr099 (Fir Street)
4+66.38 to 5+10.50

xr115 (Main Street)
4+78.54 to 5+27.62



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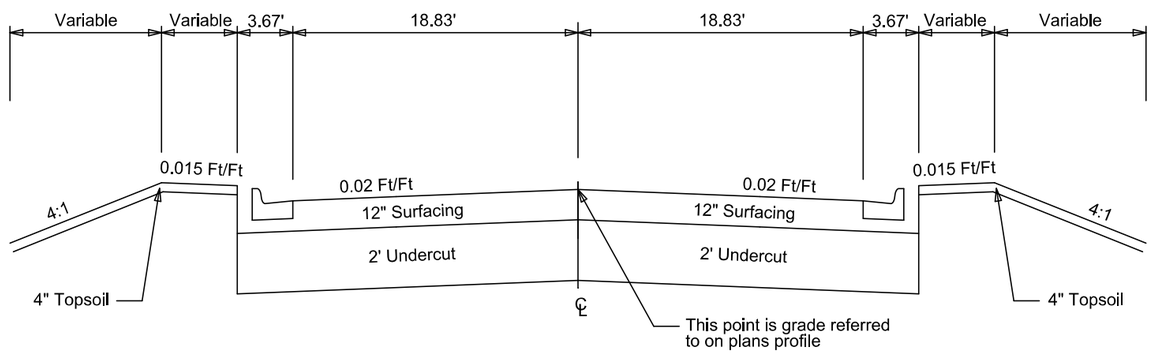
TYPICAL GRADING SECTION

FOR BIDDING PURPOSES ONLY

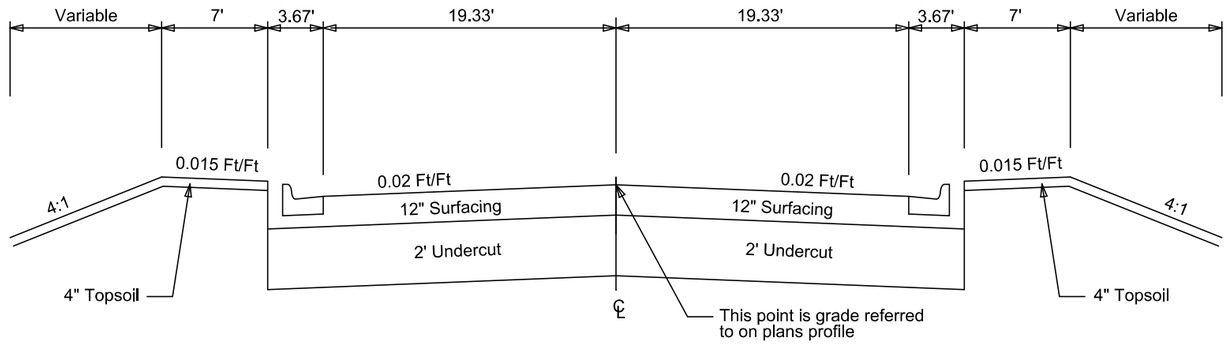
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B22	B101

Plotting Date: 1/2/2025

xr099 (Fir Street)
5+70.51 to 6+96.25



xr115 (Main Street)
5+88.55 to 7+10.25



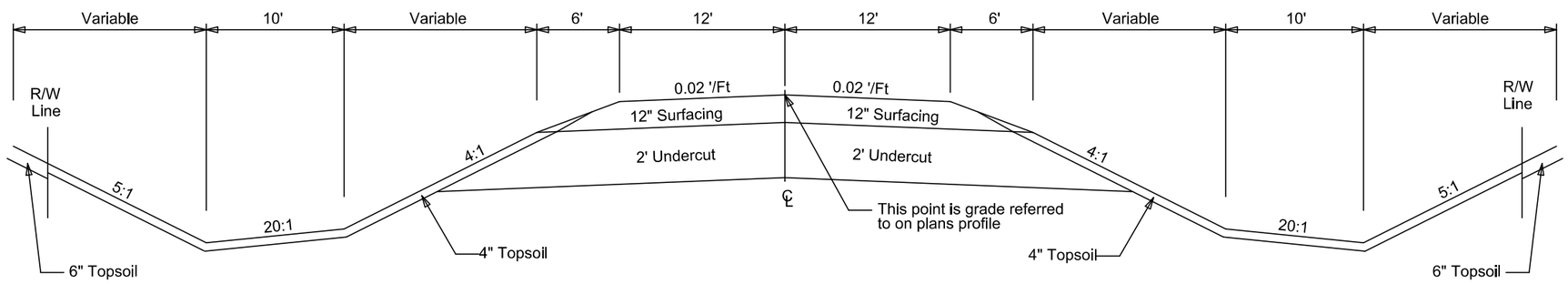
TYPICAL GRADING SECTION

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B23	B101

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

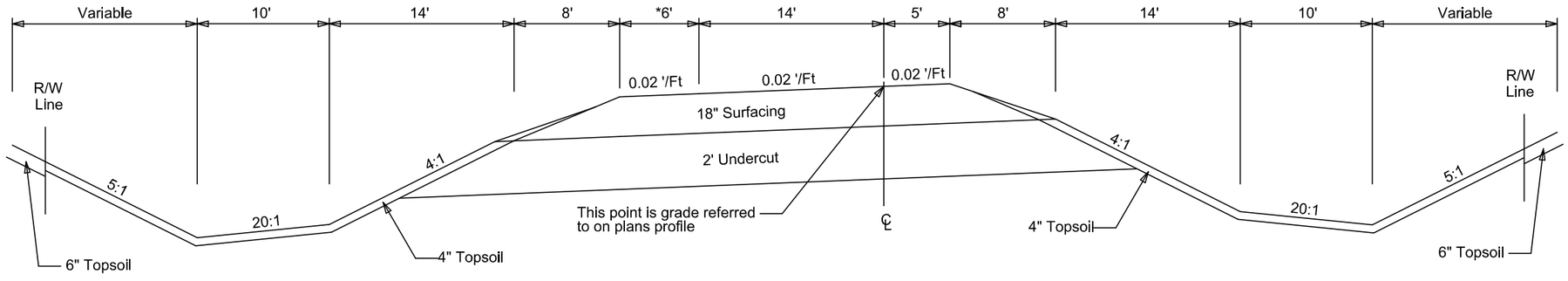
xr008 (Ivy Street)
0+00 to 1+91.48



Transitions:

* Sta 14+25.07 to 20+07.49 - 6'
* Sta 20+07.49 to 21+27.49 - 6' to 0'
* Sta 21+27.49 to 27+21.33 - 0'

Ramp A (303rd Street)
14+25.07 to 27+21.33



HORIZONTAL ALIGNMENT DATA

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B24	B101

Plotting Date: 1/2/2025

SD Highway 50 Mainline

Type	Station			Northing	Easting
POB	00+27.12			250894.689	2616189.132
		TL= 3098.85	N 88°05'34" E		
PC	1+42.73			250997.827	2619286.270
PI	9+12.00	R= 2864.72	Delta= 30°03'44" R	251023.431	2620055.113
PT	16+45.81			250660.445	2620733.358
		TL= 7348.24	S 61°50'42" E		
PC	89+94.06			247193.115	2627212.114
PI	92+95.11	R= 5729.02	Delta= 06°00'58" L	247051.062	2627477.541
PT	95+95.60			246937.610	2627756.395
		TL= 2372.22	S 67°51'40" E		
PC	119+67.82			246043.631	2629953.714
PI	125+40.90	R= 2864.72	Delta= 22°37'31" L	245827.662	2630484.547
PT	130+99.06			245832.526	2631057.612
		TL= 1156.12	N 89°30'49" E		
PI	142+55.17			245842.340	2632213.688
		TL= 2221.62	N 89°14'26" E		
PC	164+76.79			245871.784	2634435.111
PI	169+16.85	R= 22917.75	Delta= 2°12'00" L	245877.617	2634875.131
PT	173+56.80			245900.337	2635314.603
		TL= 2218.16	N 87°02'26" E		
POE	195+74.96			246014.859	2637529.803

SD Highway 37 Mainline

Type	Station			Northing	Easting
POB	459+00.00			248168.037	2621591.131
		TL= 266.86	N 02°38'43" W		
PC	461+66.86			248434.610	2621578.827
PI	469+68.34	R= 2910.00	Delta= 30°47'52" R	249235.243	2621541.872
PT	477+31.04			249941.891	2621920.060
		TL= 73.58	N 28°09'18" E		
POE	478+04.62			250006.760	2621954.777

xr022 (Ford Avenue)

Type	Station			Northing	Easting
POB	0+00.00			250367.317	2621281.071
		TL= 207.26	N 29°21'45" E		
PC	2+07.26			250547.952	2621382.698
PI	3+94.84	R= 654.00	Delta= 32°00'28" L	250711.435	2621474.676
PT	5+72.61			250898.815	2621466.018
		TL= 166.53	N 02°38'43" W		
POE	7+39.14			251065.165	2621458.333

xr086 (Birch Street)

Type	Station			Northing	Easting
POB	0+00.00			246473.722	2626927.090
		TL= 361.71	N 02°04'40" W		
PC	3+61.71			246835.198	2626913.975
PI	3+90.17	R= 333.00	Delta= 09°46'02" L	246863.632	2626912.944
PT	4+18.48			246891.478	2626907.103
		TL= 302.72	N 11°50'42" W		
PC	7+21.20			247187.752	2626844.966
PI	8+10.43	R= 333.00	Delta= 30°00'00" R	247275.079	2626826.650
PT	8+95.56			247359.864	2626854.453
		TL= 56.13	N 18°09'18" E		
PC	9+51.69			247413.203	2626871.943
PI	10+11.11	R= 333.00	Delta= 20°13'58" L	247469.660	2626890.456
PT	10+69.28			247529.036	2626888.302
		TL= 919.72	N 02°04'40" W		
POE	19+89.00			248448.147	2626854.956

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/11); Epoch 2010.00; Geoid 09; SF = 0.99991167
The elevations Shown on this sheet are based on NAVD 88.

HORIZONTAL ALIGNMENT DATA

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B25	B101

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

xr099 (Fir Street)

Type	Station			Northing	Easting
POB	0+00.00			246370.896	2627728.823
		TL= 414.75	N 31°01'17" E		
PC	4+14.75			246726.329	2627942.569
PI	4+40.62	R= 333.00	Delta= 08°52'56" L	246748.494	2627955.898
PT	4+66.38			246772.451	2627965.644
		TL= 45.14	N 22°08'20" E		
PI	5+11.51			246814.259	2627982.654
		TL= 44.97	N 22°08'20" E		
PC	5+56.48			246855.914	2627999.602
PI	6+27.41	R= 333.00	Delta= 24°02'55" L	246921.614	2628026.332
PT	6+96.25			246992.504	2628023.968
		TL= 315.27	N 01°54'35" W		
POE	10+11.52			247307.596	2628013.462

xr115 (Main Street)

Type	Station			Northing	Easting
POB	0+00.00			245663.172	2629566.638
		TL= 73.01	N 00°47'30" W		
PC	0+73.01			245736.172	2629565.629
PI	1+82.85	R= 1039.00	Delta= 12°04'10" L	245846.002	2629564.112
PT	2+91.87			245953.086	2629539.663
		TL= 74.52	N 12°51'40" W		
PC	3+66.39			246025.737	2629523.076
PI	4+40.22	R= 333.00	Delta= 25°00'00" R	246097.709	2629506.643
PT	5+11.69			246169.882	2629522.167
		TL= 74.88	N 12°08'20" E		
PC	5+86.57			246243.089	2629537.914
PI	6+27.40	R= 333.00	Delta= 13°58'50" L	246283.006	2629546.499
PT	6+67.83			246323.814	2629545.187
		TL= 352.07	N 01°50'29" W		
POE	10+19.89			246675.698	2629533.874

xr008 (Ivy Street)

Type	Station			Northing	Easting
POB	0+00.00			247025.451	2628022.869
		TL= 85.18	N 89°23'07" E		
PC	0+85.18			247026.365	2628108.046
PI	1+07.17	R= 40.00	Delta= 57°35'25" L	247026.600	2628130.031
PT	1+25.39			247045.287	2628141.615
		TL= 241.67	N 31°47'42" E		
POE	3+67.05			247250.689	2628268.945

Ramp A (303rd Street)

Type	Station			Northing	Easting
POB	0+00.00			250973.393	2618191.992
		TL= 1216.37	N 88°05'34" E		
PC	12+16.37			251013.877	2619407.688
PI	13+04.48	R= 11100.00	Delta= 00°54'34" R	251016.810	2619495.746
PCC	13+92.58			251018.344	2619583.838
PI	14+83.07	R= 11100.00	Delta= 00°56'03" R	251019.92	2619674.314
PT	15+73.55			251020.02	2619764.804
		TL= 97.58	N 89°56'11" E		
PC	16+71.13			251020.129	2619862.383
PI	18+39.32	R= 11100.00	Delta= 01°44'10" L	251020.315	2620030.572
PT	20+07.49			251025.598	2620198.678
		TL= 713.84	N 88°12'01" E		
POE	27+21.33			251048.017	2620912.167

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2-13-25
SOUTH DAKOTA

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/11); Epoch 2010.00; Geoid 09; SF = 0.99991167
The elevations Shown on this sheet are based on NAVD 88.

CONTROL DATA

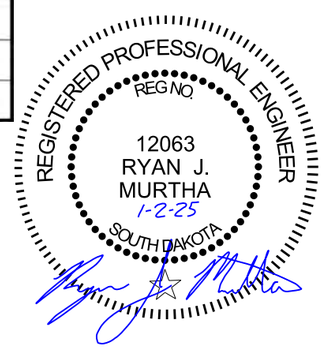
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B26	B101

Plotting Date: 1/2/2025

SD HIGHWAYS 50 & 37 - HORIZONTAL AND VERTICAL CONTROL POINTS

POINT	STATION & OFFSET		NORTHING	EASTING	ELEVATION
161	-0+92.85 - 5336.30' L	1" PIPE	256323.330	2618873.211	1433.79
165	20+95.89 - 700.00' L	1" PIPE	251065.247	2621460.484	1421.45
169	48+18.73 - 3874.00' R	MAG NAIL	245747.674	2621702.858	1418.22
170	25+51.57 - 5212.19' R	WEEKS CAP	245637.606	2619072.528	1410.08
171	-28+81.07 - 5369.86' L	5/8" REBAR	245530.300	2616442.866	1401.58
172	93+35.02 - 1352.82' R	NAIL	245812.666	2626951.073	1417.32
174	80+87.39 - 938.25' L	1/2" REBAR	248448.165	2626855.456	1423.63
175	67+07.49 - 3306.79' L	1/2" REBAR	251187.566	2626756.441	1424.89
176	54+11.03 - 5631.82' L	5/8" REBAR	253849.228	2626710.481	1429.91
177	41+17.57 - 7950.57' L	5/8" REBAR	256503.943	2626664.187	1438.40
178	34+75.21 - 1616.05' R	MAG NAIL	248372.399	2621583.745	1424.44
180	9+22.17 - 5613.02' L	1/2" REBAR	256371.873	2621386.859	1421.78
188	116+86.76 - 355.99' R	5/8" REBAR	245819.807	2629559.225	1411.54
189	114+54.88 - 6186.79' R	5/8" REBAR	240506.279	2627147.074	1408.03
190	143+64.39 - 5276.58' R	5/8" REBAR	240567.667	2632392.828	1385.02
191	169+20.73 - 5230.90' R	5/8" REBAR	240653.849	2635049.558	1374.71
192	195+74.96 - 0.00' R	MAG NAIL	246014.859	2637529.803	1398.50
193	196+16.30 - 3035.61' L	5/8" REBAR	248652.592	2637434.830	1404.62
194	169+72.82 - 5557.47' L	MAG NAIL	251437.814	2634737.082	1409.45
195	141+93.89 - 2672.68' L	5/8" REBAR	248514.404	2632129.717	1398.70
196	142+55.17 - 0.00' R	MAG NAIL	245842.340	2632213.688	1396.82
344	18+16.38 - 6647.38' L	5/8" REBAR	256440.785	2624020.367	1432.53
345	103+57.72 - 3750.29' R	5/8" REBAR BENT	243176.617	2627049.011	1414.84
383	141+30.63 - 5509.22' L	1/2" REBAR	251350.304	2632042.388	1403.10
387	194+78.91 - 5276.93' R	5/8" REBAR	240740.004	2637706.333	1374.18
390	143+10.46 - 2641.14' R	RR SPIKE	243202.169	2632303.979	1393.47



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LEGEND

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B27	B101

Plotting Date: 1/2/2025

- 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
- Pedestrian Push Button Pole
- Pipe With End Section
- Pipe With Headwall
- Pipe Without End Section
- Playground Slide
- Playground Swing
- Power And Light Pole
- Power And Telephone Pole
- Power Meter
- Power Pole
- Power Pole And Transformer
- Power Tower Structure
- Propane Tank
- Property Pipe
- Property Pipe With Cap
- Property Stone
- Public Telephone
- Railroad Crossing Signal
- Railroad Milepost Marker
- Railroad Profile
- Railroad 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)

- Drainage Arrow

- Salvage Asphalt Concrete and Remove Concrete Pavement
- Remove Concrete Driveway Pavement
- Salvage Asphalt Concrete Pavement
- Remove Asphalt Concrete Pavement
- Remove Concrete Median Pavement
- Remove Concrete Curb and/or Gutter

- Detectable Warning
- Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope

REGISTERED PROFESSIONAL ENGINEER
REG NO.
12063
RYAN J.
MURTHA
1-2-25
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B28	B101

Plotting Date: 1/2/2025

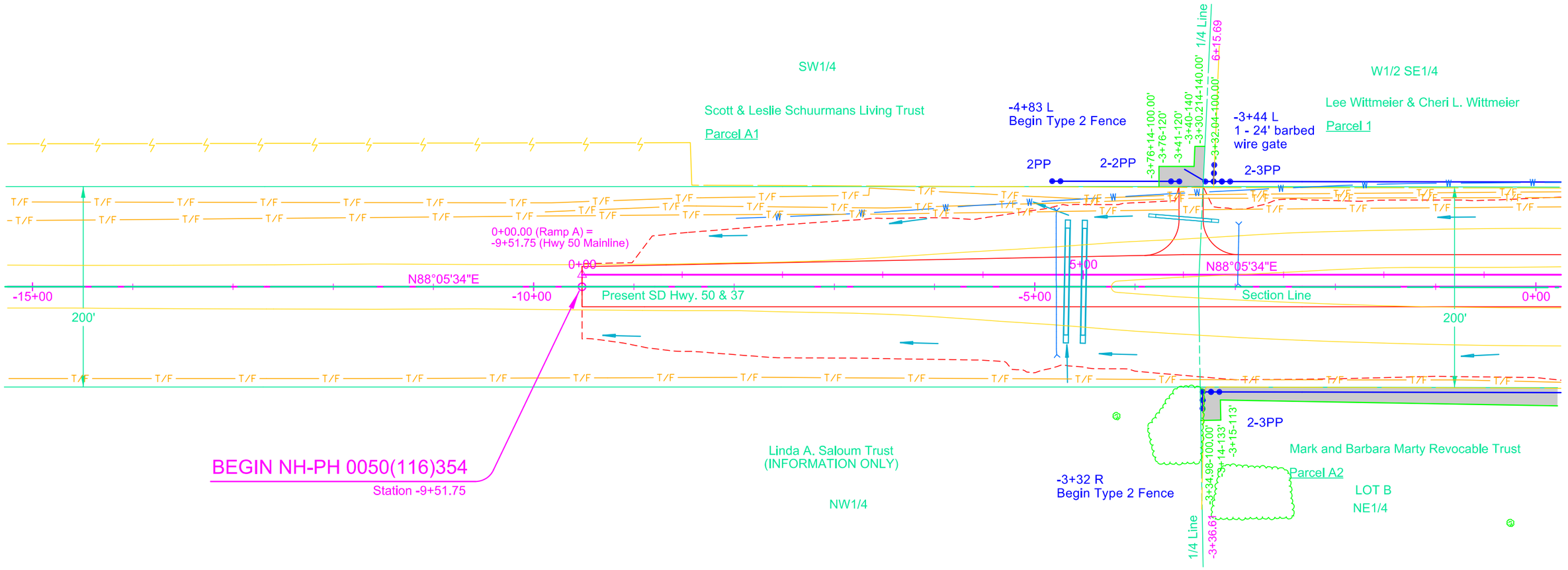
FOR BIDDING PURPOSES ONLY

-4+79
Take out 42"-144' RCP Arch
(Incidental Work, Grading)

-4+60 (322 ac)
Install Twin 42"-108' RCP Arch
(Spaced 17.0' C to C)
& 4 Sloped Ends

-2+96 L
Take out 18"-59' RCP
(Incidental Work, Grading)

6+00-56' L (Ramp A) (36 ac)
Install 30"-56' CMP Arch
& 2 Safety Ends



Parcel A1
-3+76.14 to -3+30.21 L
Temporary Easement containing
0.1 ac, more or less

Parcel A2
-3+34.99 to 15+97.84 R
Temporary Easement containing
0.8 ac, more or less

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B29	B101

FOR BIDDING PURPOSES ONLY

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

SD50 - Sta -9+51.75 to 4+71.18

EXCAVATION		EMBANKMENT		
Excavation	15,740 CY	Embankment	45 CY	
Undercut	0 CY	+25%	11 CY	56 CY
Unstable	0 CY	Undercut Backfill	0 CY	
Muck	0 CY	+25%	0 CY	0 CY
Processed Subgrade Topping	5,055 CY	Unstable Backfill	0 CY	
Total	20,795 CY	+25%	0 CY	0 CY
		Muck Backfill	0 CY	
		+25%	0 CY	0 CY
		Waste		20,739 CY
			Total	20,795 CY

Waste is excess material to be disposed of at a site approved by the Engineer

Waste 130 CY to Ramp A

-9+52
Begin Work

-3+44 L
24' Ent

L 800.00ft
G1 2.0000%
G2 0.6000%
K 571.43

PVI -1+00.00
Elev 1403.80

-5+03 R
Ditch Block
Elev 1389.40

PVI -9+51.75
Elev 1386.77

2.0000%

RDGPI -4+78
Elev 1386.50

LDGPI -2+70
Elev 1394.38

LDG 1.3461%

LDG 4.0203%

RDG 2.5000%

RDG 1.2500%

RDGPI -3+00
Elev 1388.73

LDGPI -7+56
Elev 1385.00

LDG 0.3596%

LDGPI -9+52
Elev 1381.57

LDG 1.7553%

RDG 1.2000%

RDGPI -5+23
Elev 1386.58

LDGPI -4+78
Elev 1386.00

FLL 1386.47
FLR 1386.61

RDGPI -9+52
Elev 1381.43

Q_{20} = 85.3 cfs
EI 1389.8

BM161
-0+92.85-5336.30' L
1" Pipe
Elev 1433.79

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2-13-25
SOUTH DAKOTA

1435 1430 1425 1420 1415 1410 1405 1400 1395 1390 1385 1380 1375 1370 1365 1360 1355 1350

1387.80 1389.80 1391.80 1393.80 1395.80 1397.71 1399.45 1401.01 1402.40 1403.61

-15+00 -10+00 -5+00 0+00

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B30	B101

Plotting Date: 1/2/2025

FOR BIDDING PURPOSES ONLY

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1-2-25
SOUTH DAKOTA

9+95 L to 10+45 L
Obliterate Road

10+02 R
Take out 18"-69' RCP
(Incidental Work, Grading)

10+02 (1.1 ac)
Install 18"-62' RCP Arch
& 2 Safety Ends

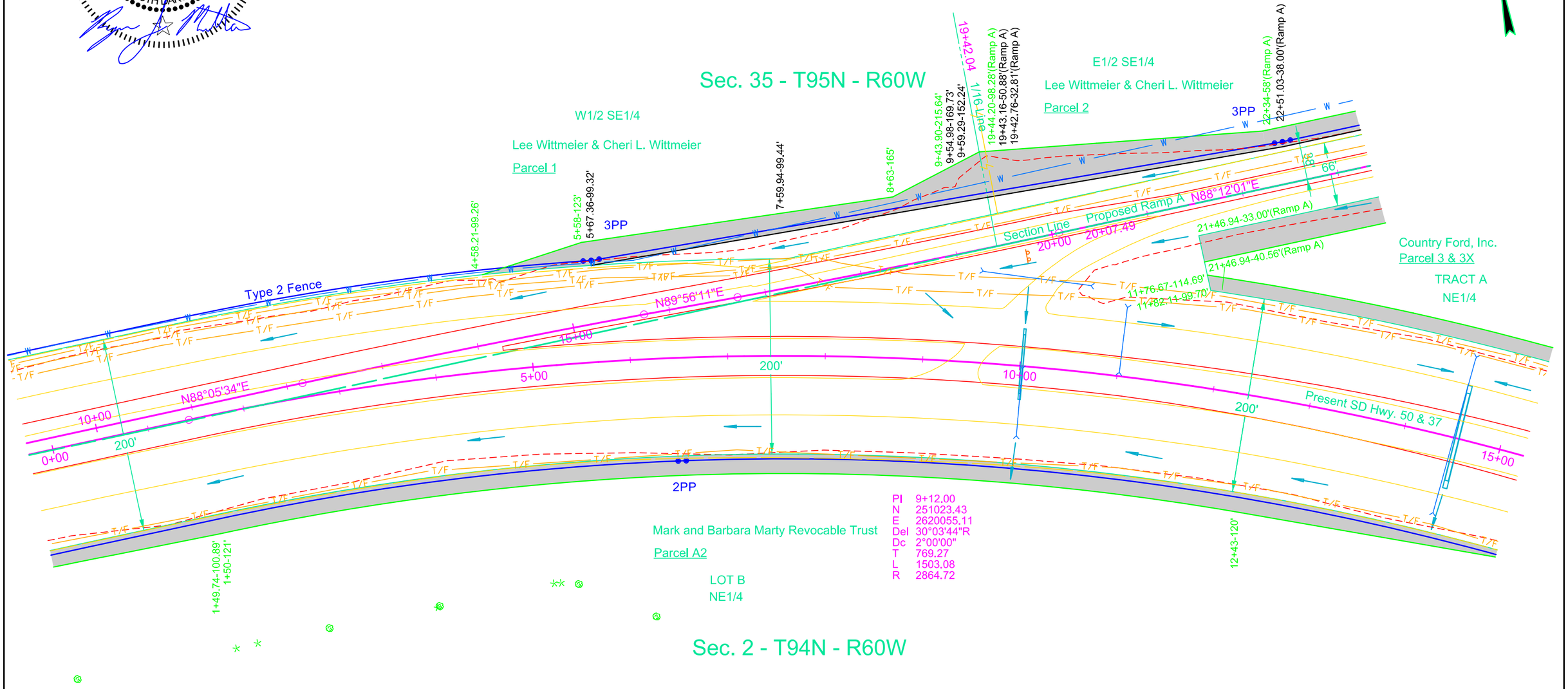
10+09-91'L
Take out 24"-112' RCP
(Incidental Work, Grading)

11+02 L
Take out 18"-67' RCP
(Incidental Work, Grading)

11+93-104' L
Do Not Disturb Sign

14+51
Take out 30"-165' RCP
(Incidental Work, Grading)

14+55 (52 ac)
Install 36"-92' RCP Arch
& 2 Sloped Ends



Parcel 1
4+58.21 to 9+54.98 L
Temporary Easement containing
0.3 ac, more or less

Parcel 2
19+43.16 to 26+99.42 L (Ramp A)
Temporary Easement containing
0.4 ac, more or less

Parcel 3
21+46.94 to 27+41.33 R (Ramp A)
Temporary Easement containing
0.4 ac, more or less

Parcel 3
11+76.67 to 22+21.41 L
Temporary Easement containing
0.6 ac, more or less

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B31	B101

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

SD50 - Sta 4+71.18 to 11+07.52

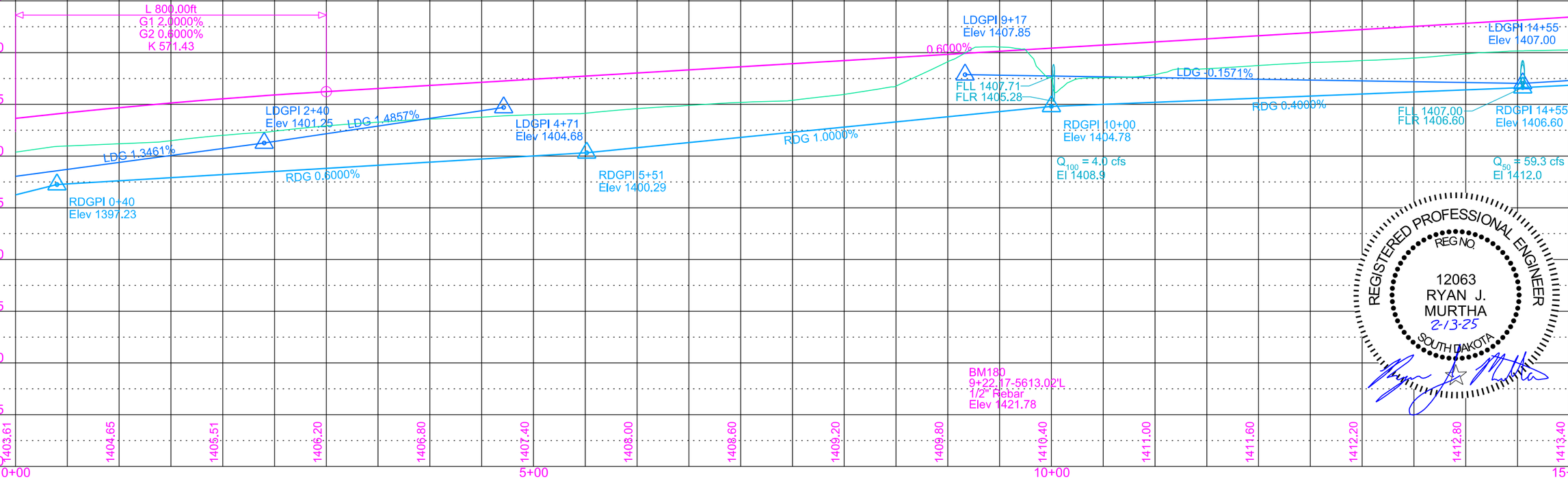
4+71 — 11+08

EXCAVATION	
Excavation	7,430 CY
Undercut	0 CY
Unstable	0 CY
Muck	190 CY
Processed Subgrade Topping	1,525 CY
Total	9,145 CY

EMBANKMENT		
Embankment	0 CY	
+25%	0 CY	0 CY
Undercut Backfill	0 CY	
+25%	0 CY	0 CY
Unstable Backfill	0 CY	
+25%	0 CY	0 CY
Muck Backfill	190 CY	
+25%	48 CY	238 CY
Waste		8,907 CY
Total		9,145 CY

Waste is excess material to be disposed of at a site approved by the Engineer

Waste 1,423 CY to xr022



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2-13-25
SOUTH DAKOTA

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SOUTH DAKOTA

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B32	B101

Plotting Date: 1/2/2025

Sec. 2 - T94N - R60W

Sec. 1 - T94N - R60W

NE1/4
TRACT A
Country Ford, Inc.
Parcel 3 & 3X

Government Lot 2
FORD ADDITION
Country Ford, Inc.
Parcel A4

Mark and Barbara Marty Revocable Trust
Parcel A2
LOT B

Mark and Barbara Marty Revocable Trust
Parcel A3
LOT A

Diane L. Markman, William Daryl Grubbs and Joel Christopher Grubbs
Parcel 4 & 4X
NW1/4

Government Lot 2

Present SD Hwy. 50 & 37
Present SD Hwy. 37
Proposed SD Hwy. 37
Section Line
Ford Avenue
Proposed Ford Ave

5+27 R (xr022)
Remove Gate for Reset

5+27 R (xr022)
Reset Gate

2+98-99'R (xr022)
Take out 24"-67' RCP
(Incidental Work, Grading)

23+22-117' L
Do Not Disturb Sign

1+00 R to 3+30R (xr022)
Obliterate Road

25+12
Take out 36"-211' RCP
(Incidental Work, Grading)

26+48 R
Take out 18"-67' RCP
(Incidental Work, Grading)

26+50-117' L
Do Not Disturb
Vehicle Display Area

2+87-33' R (xr022)
Install 18"-64' CMP
& 2 Safety Ends

5+25-37' R (1.7 ac)(xr022)
Install 18"-54' CMP
& 2 Safety Ends

25+86 (95 ac)
Install Twin 42"-124' RCP Arch
(Spaced 17.0' C to C)
& 4 Sloped Ends

3+35-36' L (0.3 ac)(xr022)
Install 18"-54' CMP
& 2 Safety Ends

5+62 (2.8 ac)(xr022)
Install 18"-52' RCP
& 2 Safety Ends

0+83 (0.9 ac)(xr022)
Install 18"-68' RCP
& 2 Safety Ends

3+40-58' R (xr022)
Refurbish single mailbox

xr022
PI 3+94.84
N 250711.44
E 2621474.68
Del 32°00'28" L
Dc 8°45'39"
T 187.59
L 365.35
R 654.00

25+20 R
End Type 2 Fence

26+41 L
Begin Type 2 Fence

27+09 R
Begin Type 2 Fence

29+55 R
End Type 2 Fence

Parcel 3X
23+09.15 to 23+94.03 L
Temporary Easement containing
0.1 ac, more or less

Parcel A3
19+80.79 to 25+25.17 R
Temporary Easement containing
0.2 ac, more or less

Parcel 4X
26+77.77 to 29+69.62 R
Temporary Easement containing
0.4 ac, more or less

Parcel A4
2+61.32 to 6+22.17 R (xr022)
Temporary Easement containing
0.2 ac, more or less

Parcel A4
24+87.40 to 30+98+94 L
Temporary Easement containing
0.2 ac, more or less

xr022 (Ford Ave)

EXCAVATION		EMBANKMENT		
Excavation	1,060 CY	Embankment	1,535 CY	
Undercut	1,050 CY	+25%	384 CY	1,919 CY
Unstable	1,205 CY	Undercut Backfill	1,050 CY	
Muck	0 CY	+25%	263 CY	1,313 CY
Processed Subgrade Topping	0 CY	Unstable Backfill	1,205 CY	
OBE from 4+71 to 11+07 SD50	1,423 CY	+25%	301 CY	1,506 CY
Total	4,738 CY	Muck Backfill	0 CY	
		+25%	0 CY	0 CY
		Waste		0 CY
			Total	4,738 CY

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B33	B101

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

xr022
Ford Avenue
5+25 R
24' Ent

PVI 0+47.78
Elev 1417.54
0.7811%
RDGPI 0+50
Elev 1413.08
RDG 1.5214%
LDG 0.9051%
LDGPI 0+50
Elev 1411.81
FLL 1412.61
FLR 1413.11
Q_{100} = 4 cfs
El 1414.3

PVI 3+30.00
Elev 1419.74
2+89 R
30' Ent
3+35 L
30' Ent
RDGPI 3+30
Elev 1417.34
RDG -0.3000%
L 400.00ft
G1 0.7811%
G2 0.4000%
K 1049.65
RDGPI 5+60
Elev 1416.55
Q_{100} = 4 cfs
El 1418.0

PVI 6+81.41
Elev 1421.15
RDGPI 6+10
Elev 1417.00
0.4000%
FLL 1416.44
FLR 1416.67
LDGPI 6+81
Elev 1418.68
LDG 2.5000%
RDG 0.7000%
LDGPI 6+09
Elev 1416.87

22+67 L
28' Int Rd
24+64 L
Ditch Block
Elev 1416.80
L 800.00ft
G1 0.6000%
G2 1.3594%
K 1053.45
L 900.00ft
G1 1.3594%
G2 0.1000%
K 714.62
1.3594%

PVI 25+00.00
Elev 1419.40
0.6000%
LDG 0.6245%
RDG 0.4834%
RDGPI 21+25
Elev 1409.84
LDGPI 22+25
Elev 1411.81
LDGPI 23+30
Elev 1413.15
LDG 1.3324%
RDG 0.5000%
LDGPI 24+637
Elev 1414.58
RDGPI 24+38
Elev 1411.40
LDGPI 24+89
Elev 1414.81
LDG -0.5000%
RDG 1.0000%
LDGPI 25+90
Elev 1414.31
RDGPI 26+40
Elev 1413.42
FLR 1412.97
FLL 1414.32
Q_{64} = 109 cfs
El 1417.7
LDG 1.4500%
RDG 1.5851%
RDGPI 29+46
Elev 1418.27

BM344
18+16.38-6647.38'L
5/8" Rebar
Elev 1432.53

BM165
20+95.89-700.00'L
1" Pipe
Elev 1421.45

BM170
25+51.57-5212.19'R
Weeks Cap
Elev 1410.08

1417.95 1418.71 1419.37 1419.94 1420.42 1420.82

1413.40 1414.00 1414.60 1415.20 1415.80 1416.40 1417.00 1417.65 1418.39 1419.23 1420.16 1421.19 1422.31 1423.53 1424.84 1426.13

0+00 5+00 8+00 15+00 20+00 25+00 30+00

REGISTERED PROFESSIONAL ENGINEER
REG NO.
12063
RYAN J.
MURTHA
2-13-25
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B34	B101

Plotting Date: 1/2/2025

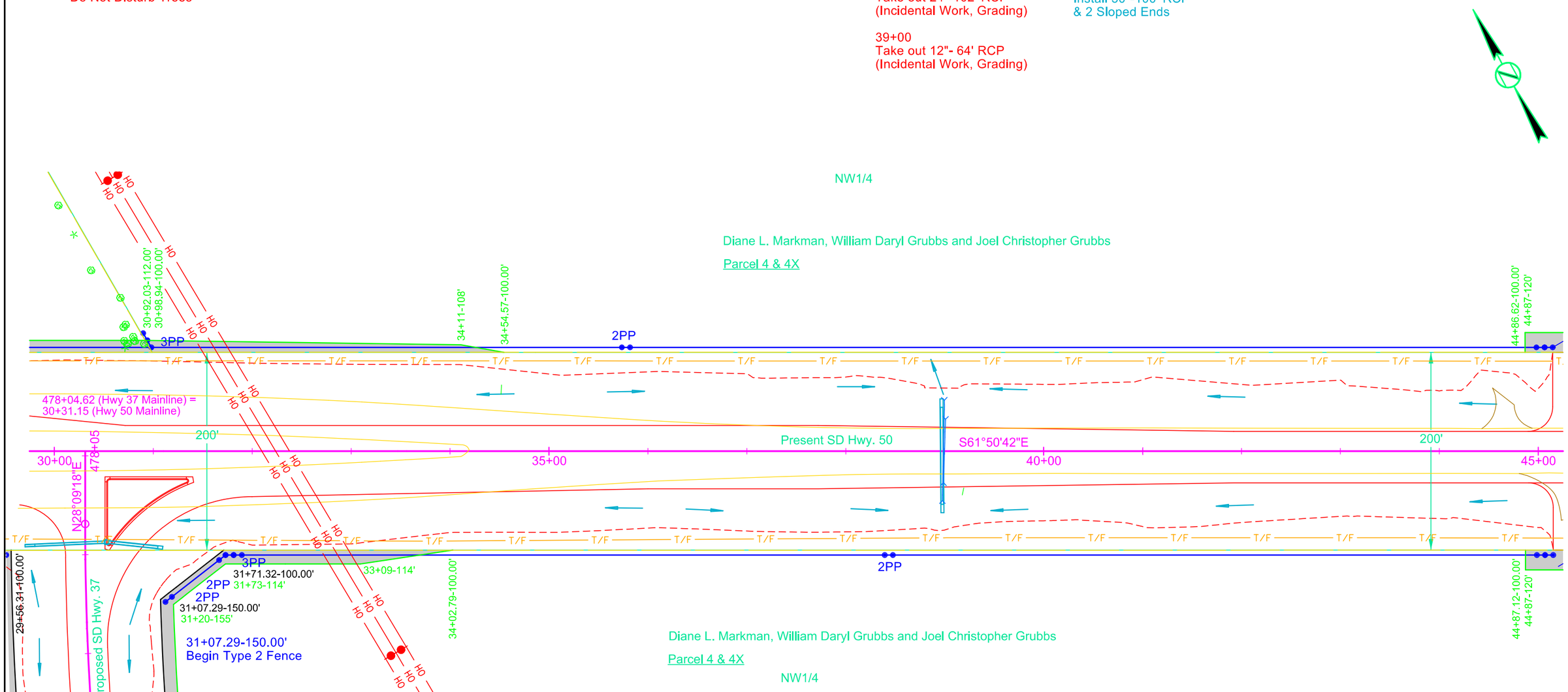
FOR BIDDING PURPOSES ONLY

30+80-105' L
Do Not Disturb Trees

38+99
Take out 24"-102' RCP
(Incidental Work, Grading)

39+00
Take out 12"- 64' RCP
(Incidental Work, Grading)

38+97 (25 ac)
Install 30"-100' RCP
& 2 Sloped Ends



Sec. 1 - T94N - R60W

Parcel 4
30+92.03 to 34+54.57 L
Temporary Easement containing
0.1 ac, more or less

Parcel 4
31+07.29 to 34+02.79 R
Temporary Easement containing
0.6 ac, more or less

Parcel 4
44+86.62 to 45+66.62 L
Temporary Easement containing
0.1 ac, more or less

Parcel 4
44+87.12 to 45+67.12 R
Temporary Easement containing
0.1 ac, more or less

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B35	B101

FOR BIDDING PURPOSES ONLY

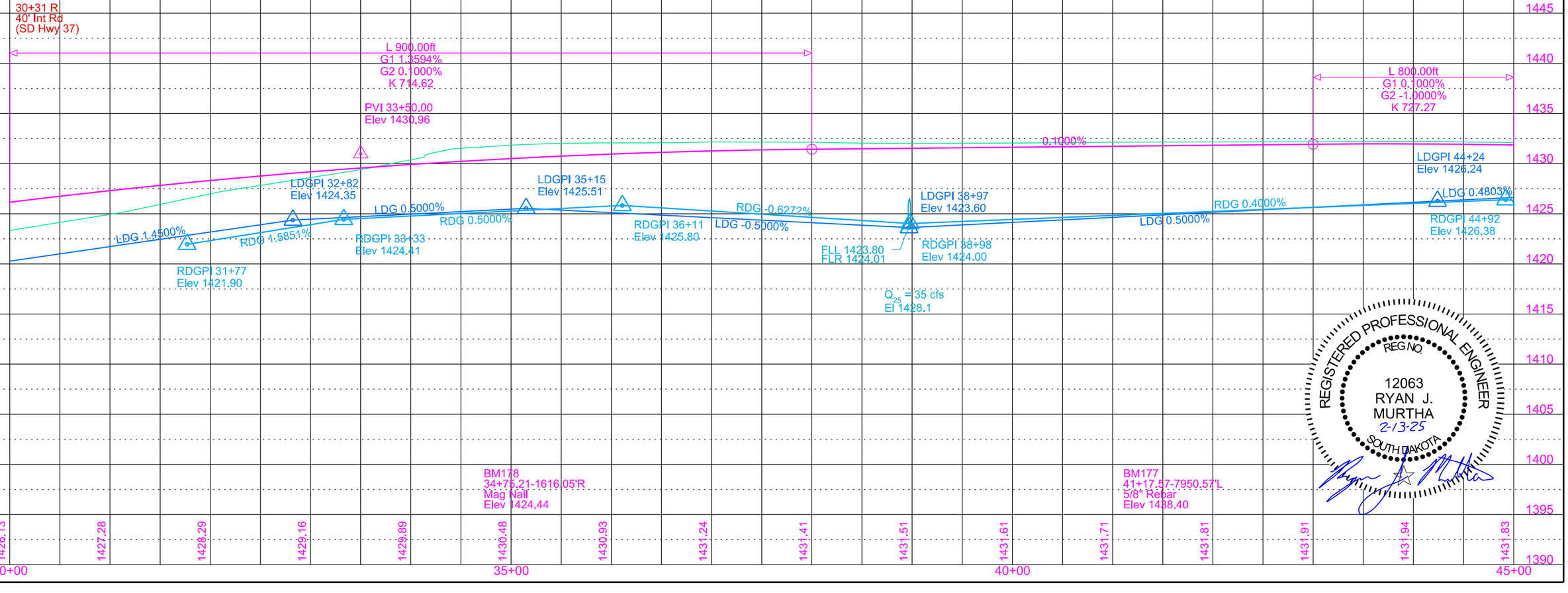
Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

SD50 - Sta 11+07.52 to 41+91.93

EXCAVATION		EMBANKMENT		
Excavation	30,685 CY	Embankment	30 CY	
Undercut	0 CY	+25%	8 CY	38 CY
Unstable	0 CY	Undercut Backfill	0 CY	
Muck	0 CY	+25%	0 CY	0 CY
Processed Subgrade Topping	12,260 CY	Unstable Backfill	0 CY	
Total	42,945 CY	+25%	0 CY	0 CY
		Muck Backfill	0 CY	
		+25%	0 CY	0 CY
		Waste		42,907 CY
			Total	42,945 CY

Waste is excess material to be disposed of at a site approved by the Engineer

Waste 15,469 CY to SD37



REGISTERED PROFESSIONAL ENGINEER
REG NO.
12063
RYAN J.
MURTHA
2-13-25
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B36	B101

Plotting Date: 1/2/2025

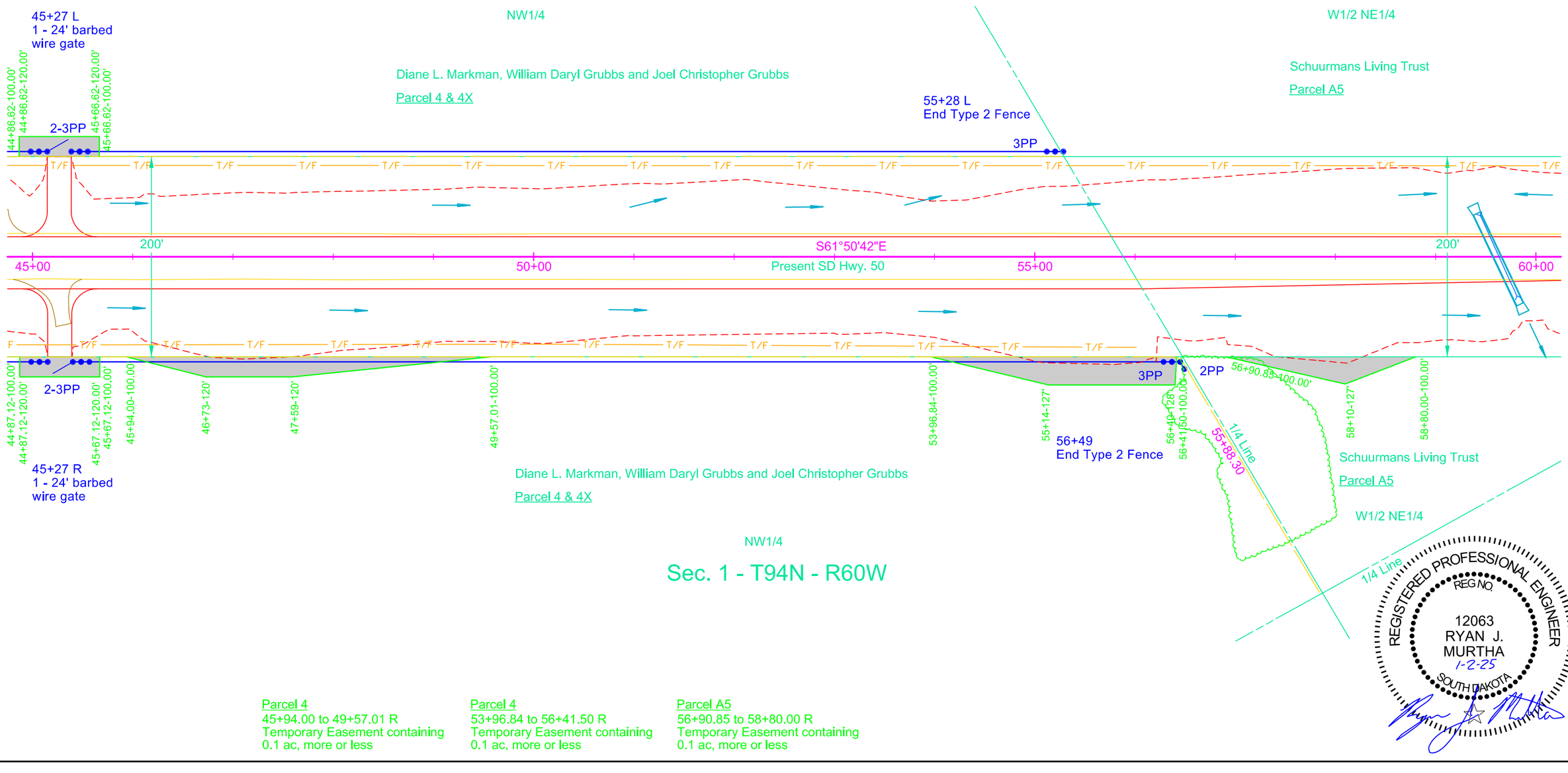
FOR BIDDING PURPOSES ONLY

56+44-105' R
Do Not Disturb Sign

56+75-100' R
Do Not Disturb Trees

59+63
Take out 48"-88' CMP
(Incidental Work, Grading)

59+61 (780 ac)
Install 84"-102' RCP
Skewed 25° RHF
& 2 Flared Ends



Parcel 4
45+94.00 to 49+57.01 R
Temporary Easement containing
0.1 ac, more or less

Parcel 4
53+96.84 to 56+41.50 R
Temporary Easement containing
0.1 ac, more or less

Parcel A5
56+90.85 to 58+80.00 R
Temporary Easement containing
0.1 ac, more or less

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SOUTH DAKOTA

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B37	B101

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

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SOUTH DAKOTA

SD50 - Sta 41+91.93 to 76+80.74

EXCAVATION		EMBANKMENT		
Excavation	18,520 CY	Embankment	1,300 CY	
Undercut	0 CY	+25%	325 CY	1,625 CY
Unstable	0 CY	Undercut Backfill	0 CY	
Muck	0 CY	+25%	0 CY	0 CY
Processed Subgrade Topping	8,980 CY	Unstable Backfill	0 CY	
Total	27,500 CY	+25%	0 CY	0 CY
		Muck Backfill	0 CY	
		+25%	0 CY	0 CY
		Waste		25,875 CY
			Total	27,500 CY

Waste is excess material to be disposed of at a site approved by the Engineer

45+27 L
24' Ent
45+27 R
24' Ent

L 800.00ft
G1 0.1000%
G2 -1.0000%
K 727.27

PVI 47+00.00
Elev 1432.31

L 1200.00ft
G1 -1.0000%
G2 0.1280%
K 903.61

PVI 59+00.00
Elev 1420.31

LDGPI 45+00
Elev 1426.60

LDG -0.9000%

LDGPI 47+15
Elev 1424.67

LDG -0.6500%

RDG -0.8500%

LDGPI 51+29
Elev 1421.97

-1.0000%

LDG -1.2727%

LDGPI 54+10
Elev 1418.40

RDGPI 54+00
Elev 1418.66

RDG -1.2700%

LDG -1.4286%

RDGPI 58+82
Elev 1412.54

FL 1409.94

RDGPI 59+90
Elev 1412.00

RDG -0.5000%

LDG 1.0000%

FL 1409.27

LDGPI 59+35
Elev 1410.90

Q_{25} = 171 cfs
EI 1416.3

Q_{100} = 321 cfs
EI 1419.7

BM169
48+18.73-3874.00'R
Mag Nail
Elev 1418.22

BM176
54+11.03-5631.82'L
5/8" Rebar
Elev 1429.91

1470 1465 1460 1455 1450 1445 1440 1435 1430 1425 1420 1415 1410 1405 1400 1395 1390 1385

1431.83 1431.59 1431.21 1430.69 1430.03 1429.24 1428.31 1427.31 1426.31 1425.36 1424.53 1423.81 1423.19 1422.69 1422.30 1422.02

45+00 50+00 55+00 60+00

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B38	B101

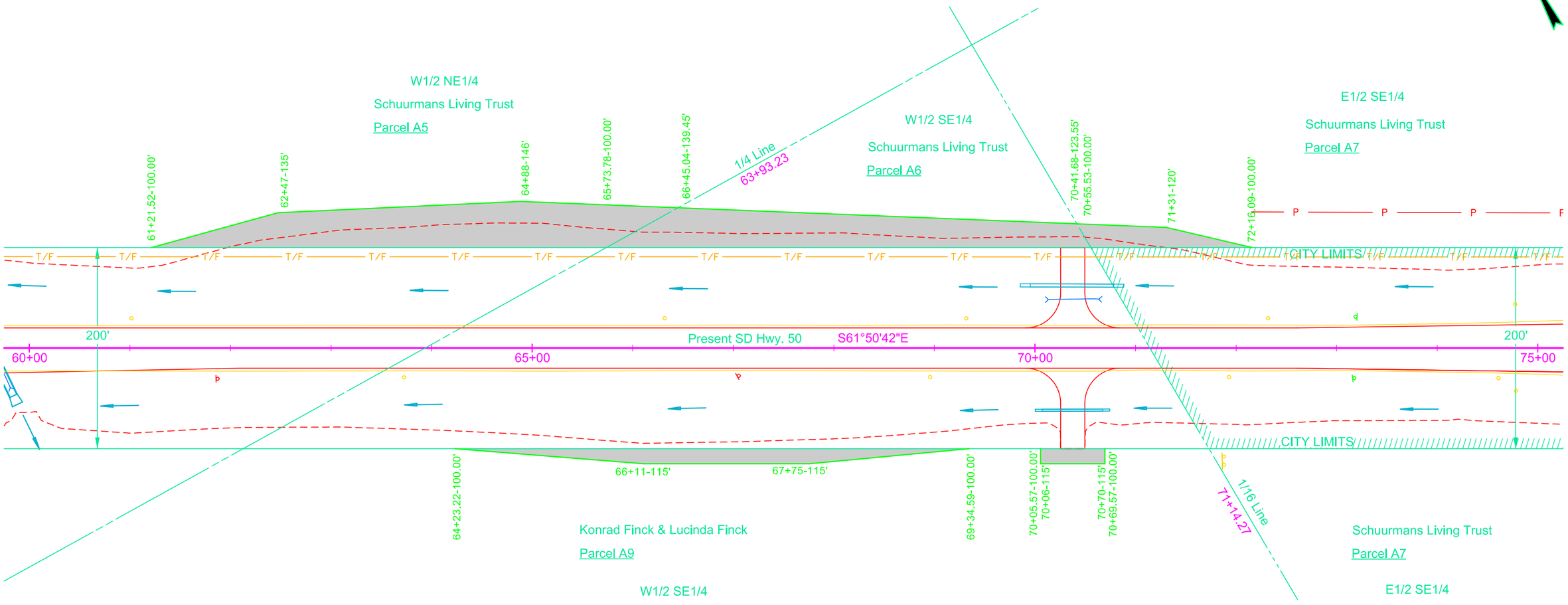
Plotting Date: 1/2/2025

FOR BIDDING PURPOSES ONLY

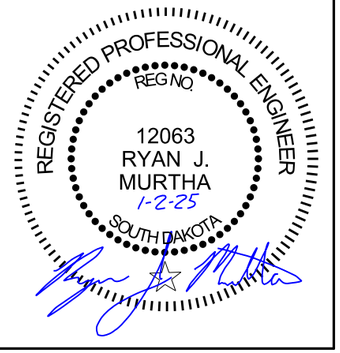
70+38-49'L
Take out 18"-50' RCP
(Incidental Work, Grading)

70+37-62' L (52 ac)
Install 36"-84' CMP
& 2 Safety Ends

70+37-62' R (15 ac)
Install 24"-62' CMP
& 2 Safety Ends



Sec. 1 - T94N - R60W



Parcel A5
61+21.52 to 66+45.04 L
Temporary Easement containing
0.4 ac, more or less

Parcel A9
64+23.22 to 69+34.59 R
Temporary Easement containing
0.1 ac, more or less

Parcel A6
65+73.78 to 70+55.53 L
Temporary Easement containing
0.3 ac, more or less

Parcel A9
70+05.57 to 70+70 R
Temporary Easement containing
0.1 ac, more or less

Parcel A7
70+41.68 to 72+16.09 L
Temporary Easement containing
0.1 ac, more or less

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B39	B101

FOR BIDDING PURPOSES ONLY

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

1470
1465
1460
1455
1450
1445
1440
1435
1430
1425
1420
1415
1410
1405
1400
1395
1390
1385

70+38 L
24' Ent
70+38 R
24' Ent

L 800.00ft
G1 0.3280%
G2 0.0842%
K 3280.83

L 1200.00ft
G1 -1.0000%
G2 0.3280%
K 903.61

PVI 69+00.00
Elev 1423.59

0.0842%

LDGPI 61+24
Elev 1412.79

RDG 0.6000%
LDG 1.0000%

RDGPI 61+33
Elev 1412.86

RDG 0.2500%
LDG 0.2500%

BM175
67+07.49-3306.79'L
1/2" Rebar
Elev 1424.89

1422.02 1421.85 1421.79 1421.84 1422.00 1422.28 1422.59 1422.87 1423.12 1423.34 1423.53 1423.69 1423.82 1423.92 1424.01 1424.09

60+00 65+00 70+00 75+00

REGISTERED PROFESSIONAL ENGINEER
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2-13-25
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B40	B101

FOR BIDDING PURPOSES ONLY

Plotting Date: 1/2/2025 Rev 3/26/2025 RJM

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MURTHA
3-26-25
SOUTH DAKOTA

79+97 L
Take out 18"-61' RCP
(Incidental Work, Grading)

4+95-55'R (xr086)
Take out 18"-72' CMP
(Incidental Work, Grading)

5+55-10'L (xr086)
Take out 18"-60' CMP
(Incidental Work, Grading)

76+92.74-28.14' R to 76+90.96-60.24' R
Install 18"-24' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)

78+44.00-31.67' R to 72.38' R
Install 18"-34' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)

87+12.42-34.13' L to 59.83' L
Install 18"-18' RCP
& 1 Safety End L
(Between Drop Inlet & Outlet)

76+92.74-22.37' L to 76+92.04-57.25' L
Install 18"-28' RCP
& 1 Safety End L
(Between Drop Inlet & Outlet)

79+89.05-25.84' L to 79+88.21-67.66' L
Install 18"-36' RCP
& 1 Safety End L
(Between Drop Inlet & Outlet)

87+12.42-34.13' R to 57.90' R
Install 18"-16' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)

78+44.05-22.94' L to 78+43.24-63.55' L
Install 18"-34' RCP
& 1 Safety End L
(Between Drop Inlet & Outlet)

7+02-38' R (0.3 ac)(xr086)
Install 18"-60' CMP
& 2 Safety Ends

5+59-35' L (1.4 ac)(xr086)
Install 18"-60' CMP
& 2 Safety Ends

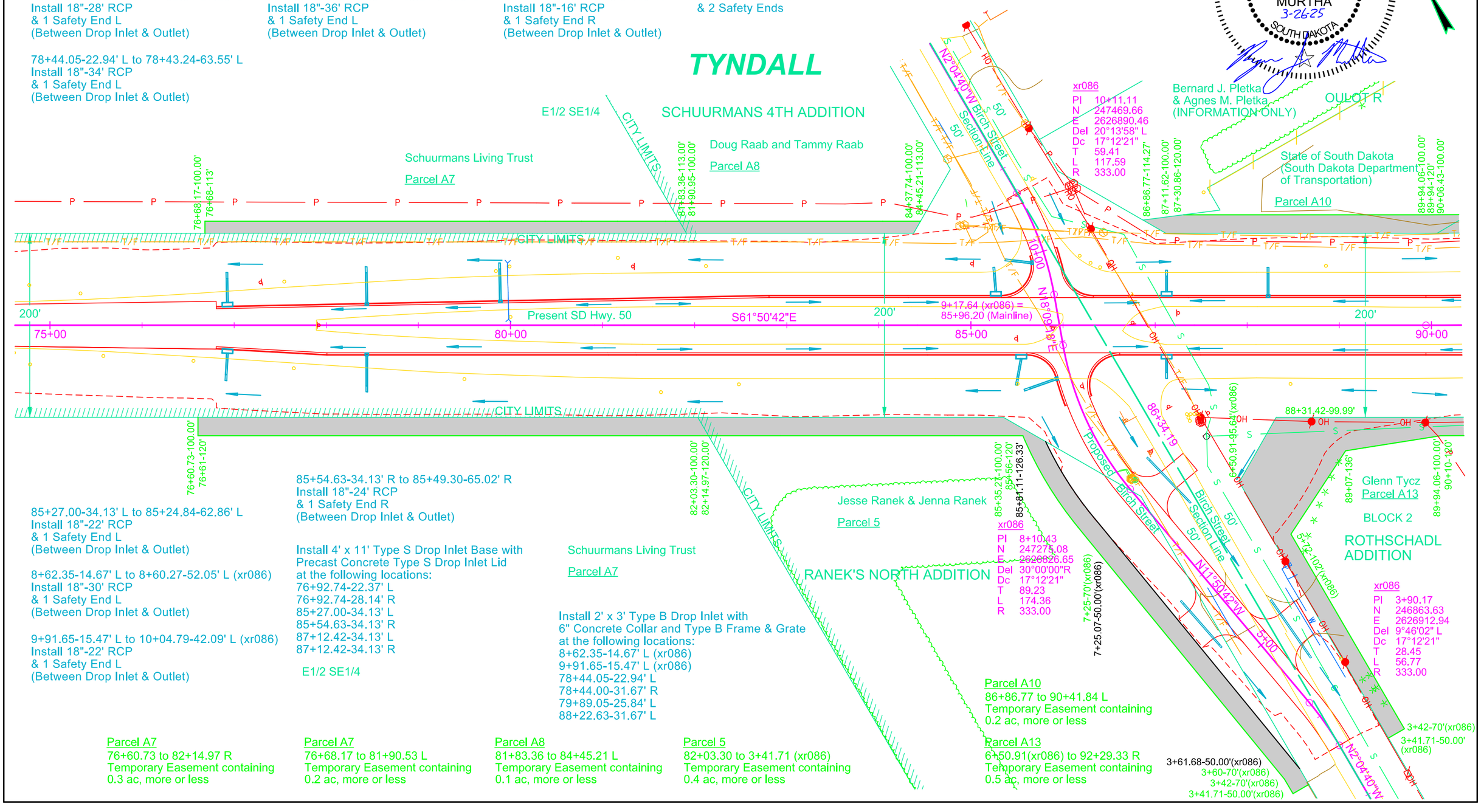
4+93-36' R (1.8 ac)(xr086)
Install 18"-70' CMP
& 2 Safety Ends

84+95-132' L
Do Not Disturb
Tyndall Town Sign

87+40-334' R
Do Not Disturb
Drive-thru Access
to Coffee Shop

88+22.63-31.67' L to 62.85' L
Install 18"-24' RCP
& 1 Safety End L
(Between Drop Inlet & Outlet)

88+62-245' R to 88+99-149' R
Do Not Disturb Trees



xr086 (Birch St)

EXCAVATION		EMBANKMENT		
Excavation	1,240 CY	Embankment	2,745 CY	
Undercut	535 CY	+25%	686 CY	3,431 CY
Unstable	0 CY	Undercut Backfill	535 CY	
Muck	1,003 CY	+25%	134 CY	669 CY
Processed Subgrade Topping	0 CY	Unstable Backfill	0 CY	
OBE from 76+80 to 137+44 SD50	2,576 CY	+25%	0 CY	0 CY
Total	5,354 CY	Muck Backfill	1,003 CY	
		+25%	251 CY	1,254 CY
		Waste		0 CY
		Total		5,354 CY

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B41	B101

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MURTHA
2-13-25
SOUTH DAKOTA

xr086
Birch Street
7+02 R
24' Ent

PVI 3+61.71
Elev 1421.30

4+93 R
40' Ent

5+59 L
40' Ent

PVI 8+32.95
Elev 1424.41

PVI 8+87.16
Elev 1424.14

PVI 9+48.10
Elev 1423.96

PVI 9+99.69
Elev 1424.32

PVI 10+69.28
Elev 1424.41

0.6602%

0.5000%

-0.7000%

0.1277%

LDGPI 3+62
Elev 1417.60

RDG 0.35%

RDG 0.64%

LDG 0.15%

RDGPI 6+00
Elev 1418.19

RDGPI 8+40
Elev 1419.73

FL 1419.68

FL 1420.19

RDG 0.67%

LDG 3.41%

LDGPI 8+65
Elev 1418.37

LDGPI 9+95
Elev 1418.72

LDGPI 10+69
Elev 1421.30

RDGPI 10+69
Elev 1420.73

RDGPI 3+62
Elev 1417.35

RDGPI 9+70
Elev 1420.06

1421.53 1422.21 1422.87 1423.53 1424.19 1424.32

3+00 8+00 11+00

76+81

85+96
26' Int Rd

PVI 76+00.75
Elev 1424.18

L 100.00ft
G1 0.0842%
G2 0.5000%
K 240.48

PVI 81+34.08
Elev 1426.84

L 100.00ft
G1 0.5000%
G2 -0.5000%
K 100.00

PVI 87+12.42
Elev 1423.95

L 100.00ft
G1 -0.5000%
G2 0.5000%
K 100.00

L 200.00ft
G1 0.5000%
G2 -0.7500%
K 160.00

0.0842%

0.5000%

-0.5000%

0.5000%

FLR 1418.05

FLL 1418.01

RDG -0.2500%

FLR 1418.52

FLL 1418.48

FL 1418.87

LDG 0.2500%

RDGPI 80+00
Elev 1417.52

RDG 0.1500%

LDGPI 84+95
Elev 1418.72

FL 1419.91

FL 1419.44

LDGPI 85+21
Elev 1418.76

RDGPI 85+61
Elev 1418.37

LDGPI 86+29
Elev 1418.97

RDG -0.5000%

LDG -0.3000%

FLR 1420.37

FLL 1419.72

RDGPI 86+55
Elev 1419.73

RDG 0.4000%

FL 1419.59

RDGPI 88+40
Elev 1418.80

RDG -1.4160%

RDGPI 89+55
Elev 1419.26

BM174
80+87.39-938.25'L
1/2" Rebar
Elev 1423.63

1424.09 1424.23 1424.67 1425.17 1425.67 1426.17 1426.66 1426.51 1426.01 1425.51 1425.01 1424.51 1424.08 1424.39 1424.89 1425.38

75+00 80+00 85+00 90+00

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B42	B101

Plotting Date: 1/2/2025 Rev 8/25/2025 RJM

FOR BIDDING PURPOSES ONLY

97+16 R
Take out 18"-69' RCP
(Incidental Work, Grading)

97+18 L
Take out 18"-69' RCP
(Incidental Work, Grading)

99+18
Take out 18"-162' RCP
(Incidental Work, Grading)

99+82 R
Take out 18"-65' RCP
(Incidental Work, Grading)

95+45.50-34.13' L to 62.98' L
Install 18"-22' RCP
& 1 Safety End L
(Between Drop Inlet & Outlet)

97+18 (35 ac)
Install Twin 30"-110' RCP Arch
(Spaced 16.0' C to C)
& 4 Sloped Ends

97+97.66-34.13' R to 64.85' R
Install 18"-24' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)

97+99.19-34.13' L to 97+94.02-56.38' L
Install 18"-16' RCP
& 1 Safety End L
(Between Drop Inlets & Outlet)

6+11.56-22.96' R to 6+01.14-52.92' R (xr099)
Install 18"-26' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)

6+11.56-22.96' R to 22.96' L (xr099)
Install 18"-42' RCP Arch
(Between Drop Inlets)

6+73 (4.9 ac) (xr099)
Install Twin 18"-70' RCP Arch
(Spaced 3.3' C to C)
& 4 Safety Ends & 3.1 CuYd of
Controlled Density Fill

7+89-24' L (xr099)
Install 18"-52' RCP Arch
& 2 Safety Ends

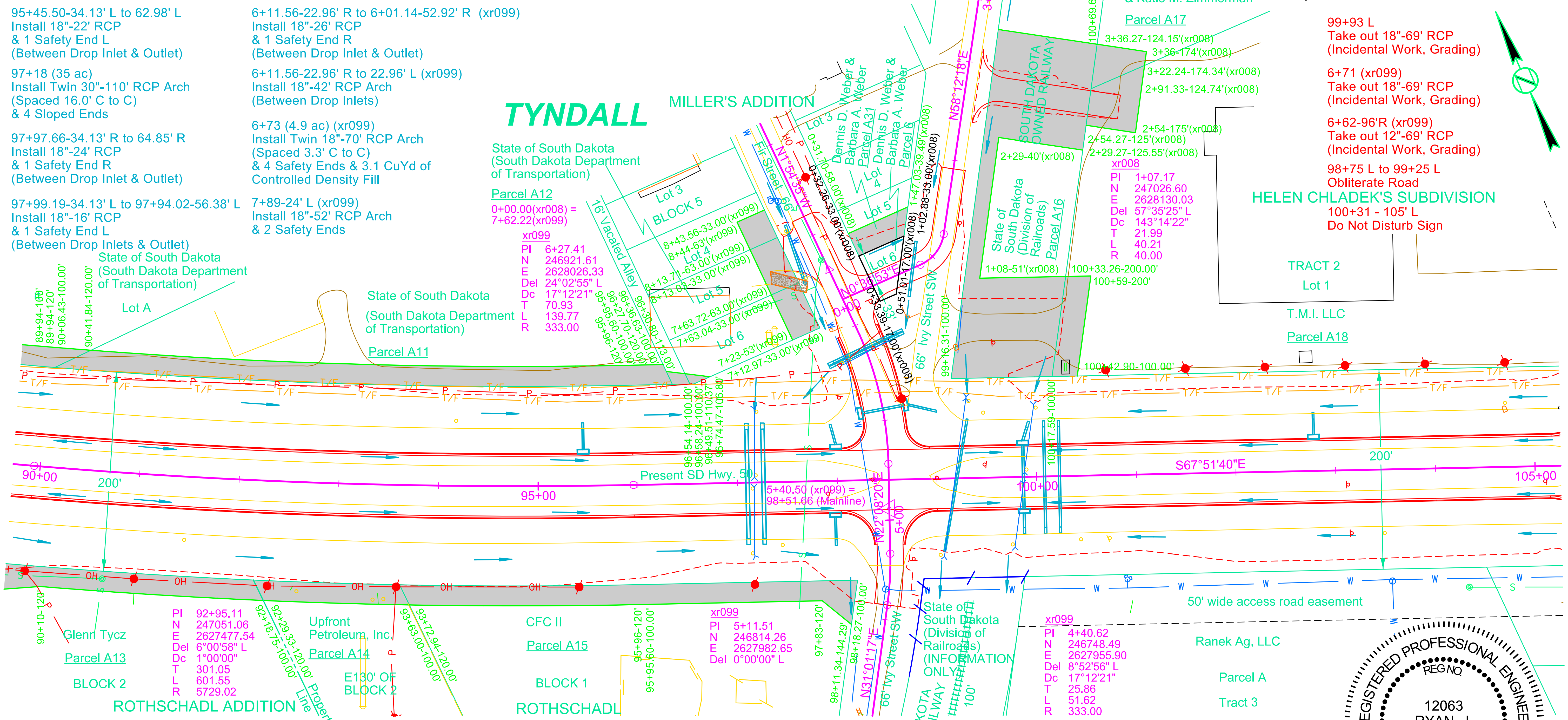
99+93 L
Take out 18"-69' RCP
(Incidental Work, Grading)

6+71 (xr099)
Take out 18"-69' RCP
(Incidental Work, Grading)

6+62-96'R (xr099)
Take out 12"-69' RCP
(Incidental Work, Grading)

98+75 L to 99+25 L
Obliterate Road

100+31 - 105' L
Do Not Disturb Sign



TYNDALL
MILLER'S ADDITION
State of South Dakota
(South Dakota Department
of Transportation)
Parcel A12
0+00.00(xr008) =
7+62.22(xr099)
xr099
PI 6+27.41
N 246921.61
E 2628026.33
Del 24°02'55" L
Dc 17°12'21"
T 70.93
L 139.77
R 333.00
State of South Dakota
(South Dakota Department
of Transportation)
Parcel A11
Lot A
16' Vacated Alley
BLOCK 5
Lot 3
Lot 4
Lot 5
Lot 6
Fir Street SW
Ivy Street SW
Dennis D. Weber & Barbara A. Weber
Parcel A31
Parcel 6
N58°12'18"E
SOUTH DAKOTA OWNED RAILWAY
State of South Dakota (Division of Railroads)
Parcel A16
Anthony L. Zimmerman
& Katie M. Zimmerman
Parcel A17
Lot 9
xr008
PI 1+07.17
N 247026.60
E 2628130.03
Del 57°35'25" L
Dc 143°14'22"
T 21.99
L 40.21
R 40.00
HELEN CHLADEK'S SUBDIVISION
TRACT 2
Lot 1
T.M.I. LLC
Parcel A18
Present SD Hwy. 50
5+40.50 (xr099) =
98+51.66 (Mainline)
S67°51'40"E
90+00
95+00
100+00
105+00
200'
Glenn Tycz
Parcel A13
BLOCK 2
ROTHSCHADL ADDITION
PI 92+95.11
N 247051.06
E 2627477.54
Del 6°00'58" L
Dc 1°00'00"
T 301.05
L 601.55
R 5729.02
Upfront
Petroleum, Inc.
Parcel A14
E130' OF
BLOCK 2
Property Line
CFC II
Parcel A15
BLOCK 1
ROTHSCHADL
xr099
PI 5+11.51
N 246814.26
E 2627982.65
Del 0°00'00" L
N22°08'20"E
N31°01'17"E
State of South Dakota
(Division of
Railroads)
(INFORMATION
ONLY)
SOUTH DAKOTA OWNED RAILWAY
xr099
PI 4+40.62
N 246748.49
E 2627955.90
Del 8°52'56" L
Dc 17°12'21"
T 25.86
L 51.62
R 333.00
50' wide access road easement
Ranek Ag, LLC
Parcel A
Tract 3

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8-25-25
SOUTH DAKOTA

0+77 (xr008)
Install 18"-44' RCP Arch
Skewed 31° LHF
& 2 Safety Ends

99+20 (2 ac)
Install 18"-122' RCP
Skewed 11° LHF
& 2 Safety Ends

99+86.77-34.13' L to 99+92.98-55.39' L
Install 18"-16' RCP Arch
& 1 Safety End L
(Between Drop Inlet & Outlet)

99+86.77-34.13' L to 34.13' R
Install 18"-64' RCP Arch
(Between Drop Inlets)

99+86.77-34.13' R to 56.84' R
Install 18"-16' RCP Arch
& 1 Safety End R
(Between Drop Inlet & Outlet)

100+15 (10 ac)
Install Twin 18"-102' RCP Arch
(Spaced 15.0' C to C)
& 4 Safety Ends

98+68 R
Begin Orange
Plastic Safety
Fence

98+86 R
End Orange
Plastic Safety
Fence

102+78.43-34.13' L to 58.46' L
Install 18"-16' RCP
& 1 Safety End L
(Between Drop Inlet & Outlet)

Install 4' x 11' Type S Drop Inlet Base with
Precast Concrete Type S Drop Inlet Lid
at the following locations:
6+11.56-22.96' L (xr099)
6+11.56-22.96' R (xr099)
95+45.50-34.13' L
97+97.66-34.13' R
97+99.19-34.13' L
99+86.77-34.13' L
99+86.77-34.13' R
102+78.43-34.13' L

Parcel A11
90+06.43 to 96+36.63 L
Temporary Easement containing
0.3 ac, more or less

Parcel A14
92+18.75 to 93+72.94 R
Temporary Easement containing
0.1 ac, more or less

Parcel A15
93+63.00 to 98+18.27 R
Temporary Easement containing
0.2 ac, more or less

Parcel A12
7+12.97 to 8+44 L (xr099)
Temporary Easement containing
0.1 ac, more or less

Parcel A12
96+30.80 to 96+74.47 L
Temporary Easement containing
0.1 ac, more or less

Parcel A31
0+31.70 to 1+47.03 L (xr008)
Temporary Easement containing
0.1 ac, more or less

Parcel 6
Omitted

Parcel A16
99+16.31 to 100+69.60 L
Temporary Easement containing
0.5 ac, more or less

Parcel A17
2+91.33 to 3+36.27 R (xr008)
Temporary Easement containing
0.1 ac, more or less

Parcel A18
2+54.27 to 3+22.24 R (xr008)
Temporary Easement containing
0.1 ac, more or less

Parcel A18
100+17.59 to 100+59 L
Temporary Easement containing
0.1 ac, more or less

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B43	B101

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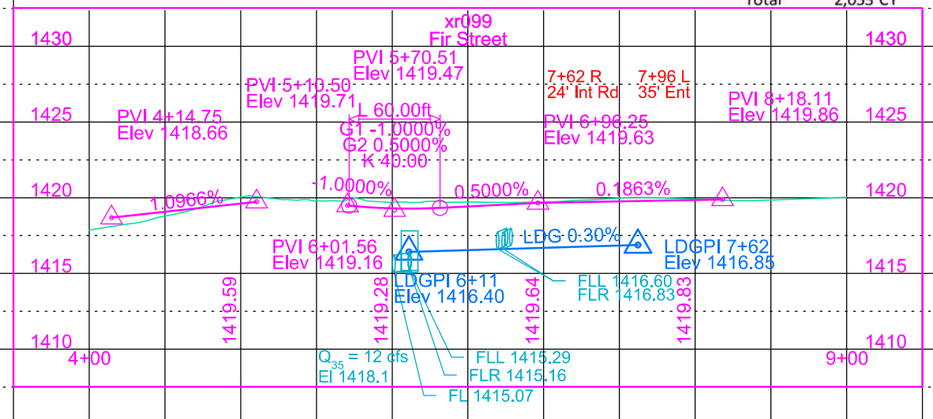
xr099 (Fir St)

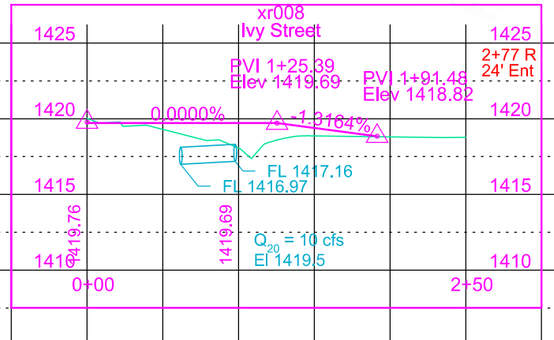
EXCAVATION		EMBANKMENT		
Excavation	650 CY	Embankment	255 CY	
Undercut	1,225 CY	+25%	64 CY	319 CY
Unstable	0 CY	Undercut Backfill	1,225 CY	
Muck	162 CY	+25%	306 CY	1,531 CY
Processed Subgrade Topping	0 CY	Unstable Backfill	0 CY	
OBE from 76+80 to 137+44 SD50	16 CY	+25%	0 CY	0 CY
Total	2,053 CY	Muck Backfill	162 CY	
		+25%	41 CY	203 CY
		Waste		0 CY
			Total	2,053 CY

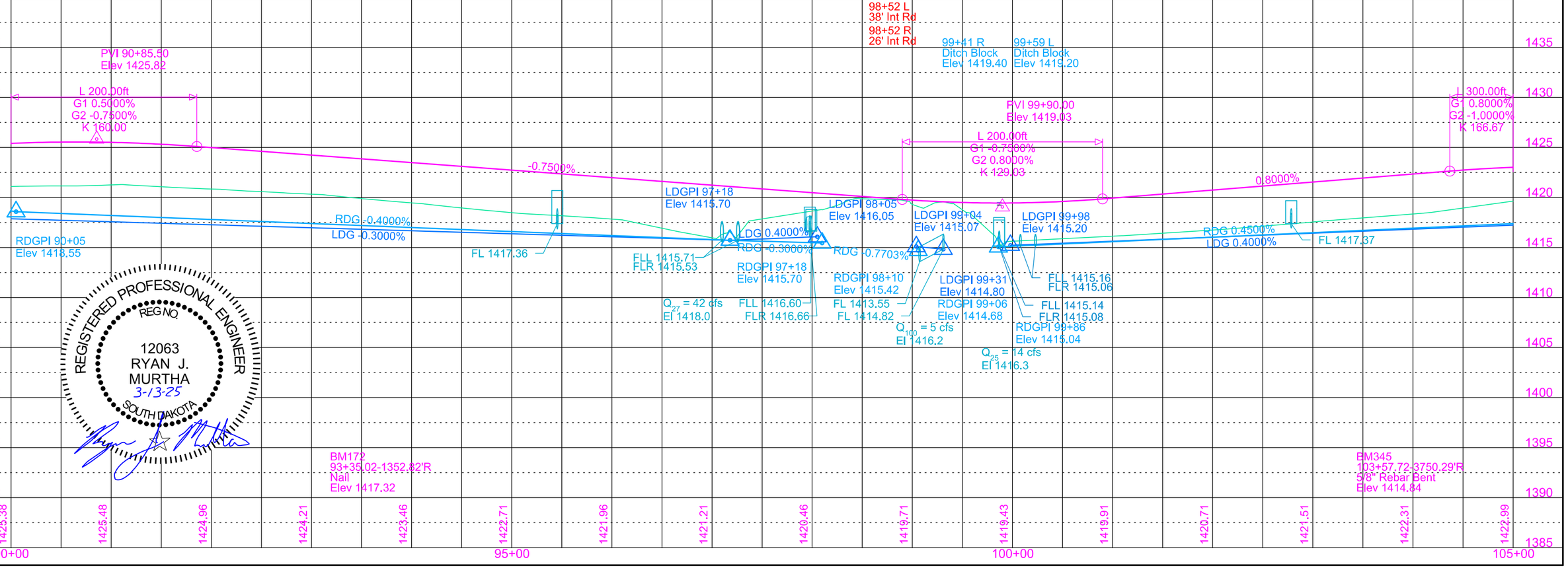


xr008 (Ivy St)

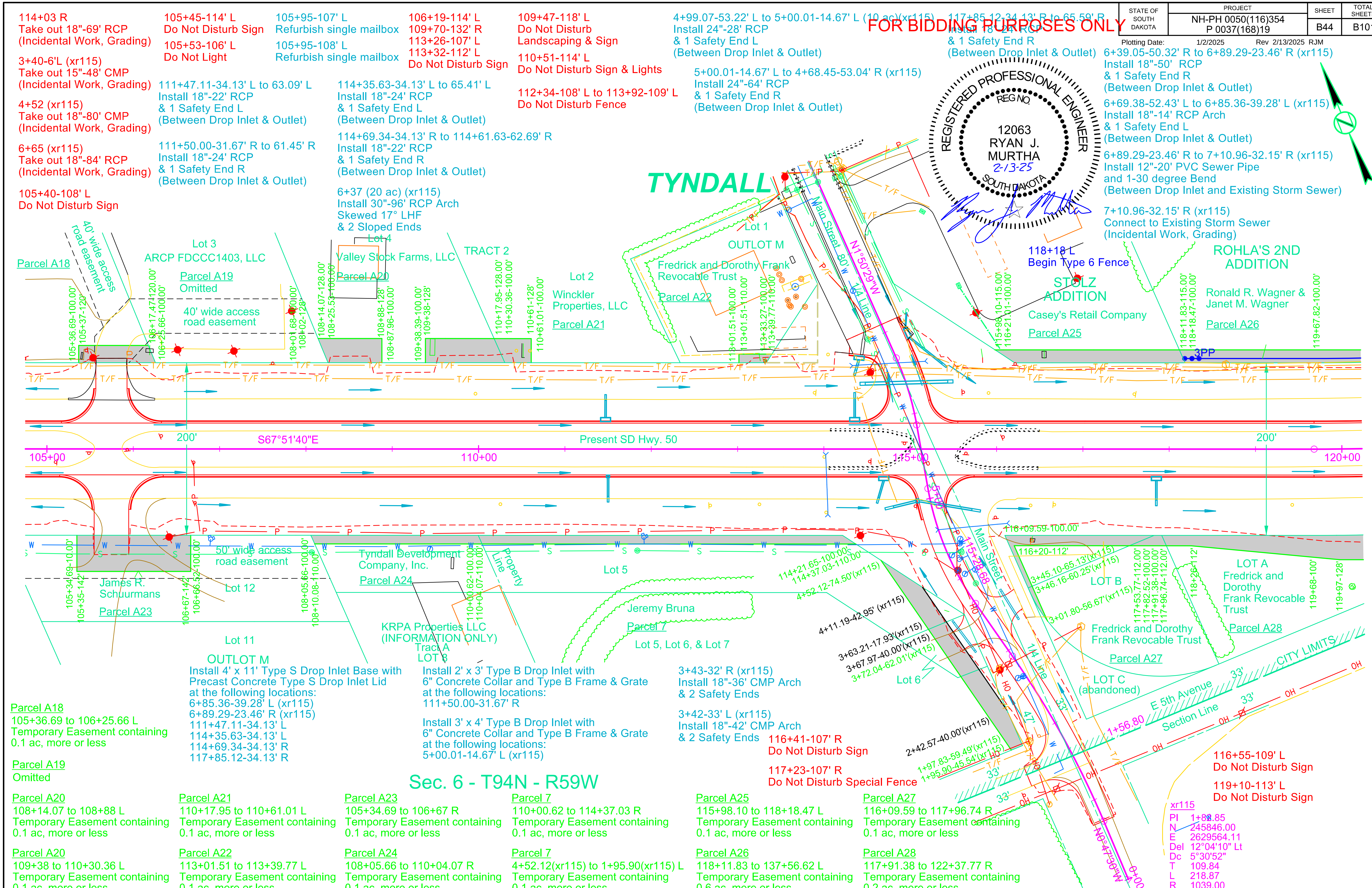
EXCAVATION		EMBANKMENT		
Excavation	200 CY	Embankment	50 CY	
Undercut	470 CY	+25%	13 CY	63 CY
Unstable	0 CY	Undercut Backfill	470 CY	
Muck	0 CY	+25%	118 CY	588 CY
Processed Subgrade Topping	0 CY	Unstable Backfill	0 CY	
Total	670 CY	+25%	0 CY	0 CY
		Muck Backfill	0 CY	
		+25%	0 CY	0 CY
		Waste		20 CY
			Total	670 CY

Waste is excess material to be disposed of at a site approved by the Engineer





REGISTERED PROFESSIONAL ENGINEER
REG NO.
12063
RYAN J.
MURTHA
3-13-25
SOUTH DAKOTA


STATE OF SOUTH DAKOTA
PROJECT
NH-PH 0050(116)354
P 0037(168)19
SHEET
B44
TOTAL SHEETS
B101
Plotting Date: 1/2/2025
Rev 2/13/2025 RJM
FOR BIDDING PURPOSES ONLY
REGISTERED PROFESSIONAL ENGINEER
REG NO.
12063
RYAN J. MURTHA
2-13-25
SOUTH DAKOTA
114+03 R
Take out 18"-69' RCP
(Incidental Work, Grading)
3+40-6'L (xr115)
Take out 15"-48' CMP
(Incidental Work, Grading)
4+52 (xr115)
Take out 18"-80' CMP
(Incidental Work, Grading)
6+65 (xr115)
Take out 18"-84' RCP
(Incidental Work, Grading)
105+40-108' L
Do Not Disturb Sign
105+45-114' L
Do Not Disturb Sign
105+53-106' L
Do Not Light
105+95-107' L
Refurbish single mailbox
105+95-108' L
Refurbish single mailbox
106+19-114' L
109+70-132' R
113+26-107' L
113+32-112' L
Do Not Disturb Sign
109+47-118' L
Do Not Disturb
Landscaping & Sign
110+51-114' L
Do Not Disturb Sign & Lights
112+34-108' L to 113+92-109' L
Do Not Disturb Fence
111+47.11-34.13' L to 63.09' L
Install 18"-22' RCP
& 1 Safety End L
(Between Drop Inlet & Outlet)
111+50.00-31.67' R to 61.45' R
Install 18"-24' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)
114+35.63-34.13' L to 65.41' L
Install 18"-24' RCP
& 1 Safety End L
(Between Drop Inlet & Outlet)
114+69.34-34.13' R to 114+61.63-62.69' R
Install 18"-22' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)
6+37 (20 ac) (xr115)
Install 30"-96' RCP Arch
Skewed 17° LHF
& 2 Sloped Ends
4+99.07-53.22' L to 5+00.01-14.67' L (10 ac)(xr115)
Install 24"-28' RCP
& 1 Safety End L
(Between Drop Inlet & Outlet)
5+00.01-14.67' L to 4+68.45-53.04' R (xr115)
Install 24"-64' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)
117+85.12-34.13' R to 65.59' R
Install 18"-24' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)
6+39.05-50.32' R to 6+89.29-23.46' R (xr115)
Install 18"-50' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)
6+69.38-52.43' L to 6+85.36-39.28' L (xr115)
Install 18"-14' RCP Arch
& 1 Safety End L
(Between Drop Inlet & Outlet)
6+89.29-23.46' R to 7+10.96-32.15' R (xr115)
Install 12"-20' PVC Sewer Pipe
and 1-30 degree Bend
(Between Drop Inlet and Existing Storm Sewer)
7+10.96-32.15' R (xr115)
Connect to Existing Storm Sewer
(Incidental Work, Grading)
118+18 L
Begin Type 6 Fence
TYNDALL
ROHLA'S 2ND ADDITION
STOLZ ADDITION
Casey's Retail Company
Parcel A25
Ronald R. Wagner & Janet M. Wagner
Parcel A26
Lot 1
OUTLOT M
Fredrick and Dorothy Frank Revocable Trust
Parcel A22
Lot 2
Winckler Properties, LLC
Parcel A21
TRACT 2
Lot 4
Valley Stock Farms, LLC
Parcel A20
Lot 3
ARCP FDCCC1403, LLC
Parcel A19
Omitted
40' wide access road easement
Parcel A18
Main Street
N1°50'29"W
1/4 Line
S67°51'40"E
Present SD Hwy. 50
105+00
110+00
115+00
120+00
200'
Tyndall Development Company, Inc.
Parcel A24
50' wide access road easement
James R. Schuurmans
Parcel A23
Lot 12
Lot 11
OUTLOT M
Lot 5
Property Line
Jeremy Bruna
Parcel 7
Lot 5, Lot 6, & Lot 7
KRPA Properties LLC
(INFORMATION ONLY)
Tract A
LOT B
LOT B
LOT A
Fredrick and Dorothy Frank Revocable Trust
Parcel A28
Fredrick and Dorothy Frank Revocable Trust
Parcel A27
LOT C
(abandoned)
Lot 6
E 5th Avenue
Section Line
CITY LIMITS
116+09.59-100.00'
116+20-112'
3+45.10-65.13'(xr115)
3+46.16-60.25'(xr115)
3+01.80-56.67'(xr115)
114+21.65-100.00'
114+37.03-110.00'
4+52.12-74.50'(xr115)
4+11.19-42.95' (xr115)
3+63.21-17.93'(xr115)
3+67.97-40.00'(xr115)
3+72.04-62.01'(xr115)
2+42.57-40.00'(xr115)
1+97.83-59.49'(xr115)
1+95.90-45.54'(xr115)
1+56.80
N0°05'47"W
0+00
115+23.68
OUTLOT M
Install 4' x 11' Type S Drop Inlet Base with
Precast Concrete Type S Drop Inlet Lid
at the following locations:
6+85.36-39.28' L (xr115)
6+89.29-23.46' R (xr115)
111+47.11-34.13' L
114+35.63-34.13' L
114+69.34-34.13' R
117+85.12-34.13' R
Install 2' x 3' Type B Drop Inlet with
6" Concrete Collar and Type B Frame & Grate
at the following locations:
111+50.00-31.67' R
Install 3' x 4' Type B Drop Inlet with
6" Concrete Collar and Type B Frame & Grate
at the following locations:
5+00.01-14.67' L (xr115)
3+43-32' R (xr115)
Install 18"-36' CMP Arch
& 2 Safety Ends
3+42-33' L (xr115)
Install 18"-42' CMP Arch
& 2 Safety Ends
116+41-107' R
Do Not Disturb Sign
117+23-107' R
Do Not Disturb Special Fence
116+55-109' L
Do Not Disturb Sign
119+10-113' L
Do Not Disturb Sign
xr115
PI 1+88.85
N 245846.00
E 2629564.11
Del 12°04'10" Lt
Dc 5°30'52"
T 109.84
L 218.87
R 1039.00
Sec. 6 - T94N - R59W
Parcel A18
105+36.69 to 106+25.66 L
Temporary Easement containing
0.1 ac, more or less
Parcel A19
Omitted
Parcel A20
108+14.07 to 108+88 L
Temporary Easement containing
0.1 ac, more or less
Parcel A20
109+38 to 110+30.36 L
Temporary Easement containing
0.1 ac, more or less
Parcel A21
110+17.95 to 110+61.01 L
Temporary Easement containing
0.1 ac, more or less
Parcel A22
113+01.51 to 113+39.77 L
Temporary Easement containing
0.1 ac, more or less
Parcel A23
105+34.69 to 106+67 R
Temporary Easement containing
0.1 ac, more or less
Parcel A24
108+05.66 to 110+04.07 R
Temporary Easement containing
0.1 ac, more or less
Parcel 7
110+00.62 to 114+37.03 R
Temporary Easement containing
0.1 ac, more or less
Parcel 7
4+52.12(xr115) to 1+95.90(xr115) L
Temporary Easement containing
0.1 ac, more or less
Parcel A25
115+98.10 to 118+18.47 L
Temporary Easement containing
0.1 ac, more or less
Parcel A26
118+11.83 to 137+56.62 L
Temporary Easement containing
0.6 ac, more or less
Parcel A27
116+09.59 to 117+96.74 R
Temporary Easement containing
0.1 ac, more or less
Parcel A28
117+91.38 to 122+37.77 R
Temporary Easement containing
0.2 ac, more or less

xr115 (Main St)

FOR BIDDING PURPOSES ONLY

EXCAVATION		EMBANKMENT		
Excavation	730 CY	Embankment	830 CY	
Undercut	1,130 CY	+25%	208 CY	1,038 CY
Unstable	0 CY	Undercut Backfill	1,130 CY	
Muck	483 CY	+25%	283 CY	1,413 CY
Processed Subgrade Topping	0 CY	Unstable Backfill	0 CY	
OBE from 76+80 to 137+44 SD50	107 CY	+25%	0 CY	0 CY
Total	2,450 CY	Muck Backfill	0 CY	
		+25%	0 CY	0 CY
		Waste		0 CY
		Total		2,450 CY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B45	B101

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

105+75 L
36' Ent
105+75 R
40' Ent

PVI 105+86.76
Elev 1423.81
L 300.00ft
G1 0.8000%
G2 -1.0000%
K 166.67

LDGPI 106+31
Elev 1418.22

LDG 0.8336%
RDG 0.4500%

LDGPI 105+18
Elev 1417.28

RDGPI 106+58
Elev 1418.07

LDG -1.2000%

RDG -1.1000%

FLL 1413.17
FLR 1413.83

1.0000%

FL 1409.74
FL 1410.37

LDGPI 114+33
Elev 1408.60

RDGPI 114+85
Elev 1408.97

LDGPI 115+39
Elev 1406.75

RDGPI 115+65
Elev 1407.81

RDG -1.0000%
LDG -1.1000%

FL 1406.79

115+12 L
39' Int Rd
115+12 R
26' Int Rd

PVI 0+73.01
Elev 1412.01

1+60 L
24' Int Rd

3+42 L 3+42 R
24' Ent 24' Ent

0.5734%

RDGPI 1+96
Elev 1411.00

RDG -0.84%
LDG -0.20%

LDGPI 1+90
Elev 1409.76

xr115
Main Street

PVI 4+78.54
Elev 1414.34

PVI 5+27.62
Elev 1414.09

0.5000%

FLL 1409.27
FL 1408.90
FL 1408.80

FLR 1408.08

LDGPI 4+79
Elev 1409.18

RDGPI 4+77
Elev 1408.60

Q_{36} = 19 cfs
El 1412.0

FLL 1408.55
FLR 1407.15

PVI 5+88.55
Elev 1414.00
L 80.00ft
G1 -2.0000%
G2 0.5000%
K 32.00

PVI 7+10.88
Elev 1412.69

0.5000%

PVI 6+65.29
Elev 1412.47

FL 1438.75
FL 1438.57

FL 1408.02

RDG 5.56%

RDGPI 6+72
Elev 1409.52

RDGPI 6+23
Elev 1406.80
Q_{48} = 34 cfs
El 1412.1

1412.16 1412.74 1413.31 1413.89 1414.23 1413.77 1412.64

0+00 5+00 8+00

BM189
114+54.88-6186.79'R
5/8" Rebar
Elev 1408.03

BM188
116+86.76-355.99'R
5/8" Rebar
Elev 1411.54

1422.99 1423.11 1422.64 1421.68 1420.68 1419.68 1418.68 1417.68 1416.68 1415.68 1414.68 1413.68 1412.68 1411.68 1410.68 1409.68

105+00 110+00 115+00 120+00

REGISTERED PROFESSIONAL ENGINEER
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2-13-25
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B46	B101

Plotting Date: 1/2/2025

FOR BIDDING PURPOSES ONLY

120+93 L
Take out 18"-69' RCP
(Incidental Work, Grading)

120+86-108' L
Do Not Disturb Sign

125+31-107' L
Do Not Disturb Sign

126+98-105' L
Do Not Disturb Sign

128+84-109' L
Do Not Disturb Sign

133+15-107' L
Do Not Disturb Sign

134+05-102' L
Do Not Disturb Sign

134+75-66' R
Take out 18"-67' RCP
(Incidental Work, Grading)

121+50.00-34.13' L to 68.88' L
Install 18"-28' RCP
& 1 Safety End L
(Between Drop Inlet & Outlet)

125+50.00-34.13' L to 68.87' L
Install 18"-28' RCP
& 1 Safety End L
(Between Drop Inlet & Outlet)

129+00.00-34.13' L to 66.44' L
Install 18"-24' RCP
& 1 Safety End L
(Between Drop Inlet & Outlet)

132+00.00-34.13' L to 66.92' L
Install 18"-26' RCP
& 1 Safety End L
(Between Drop Inlet & Outlet)

133+86.02-26.83' R to 133+86.80-65.78' R
Install 18"-32' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)

134+74-75' R (34 ac)
Install 30"-62' CMP
& 2 Safety Ends

Install 4' x 11' Type S Drop Inlet Base with
Precast Concrete Type S Drop Inlet Lid
at the following locations:
121+50.00-34.13' L
125+50.00-34.13' L
129+00.00-34.13' L
132+00.00-34.13' L

Install 2' x 3' Type B Drop Inlet with
6" Concrete Collar and Type B Frame & Grate
at the following locations:
133+86.02-26.83' R

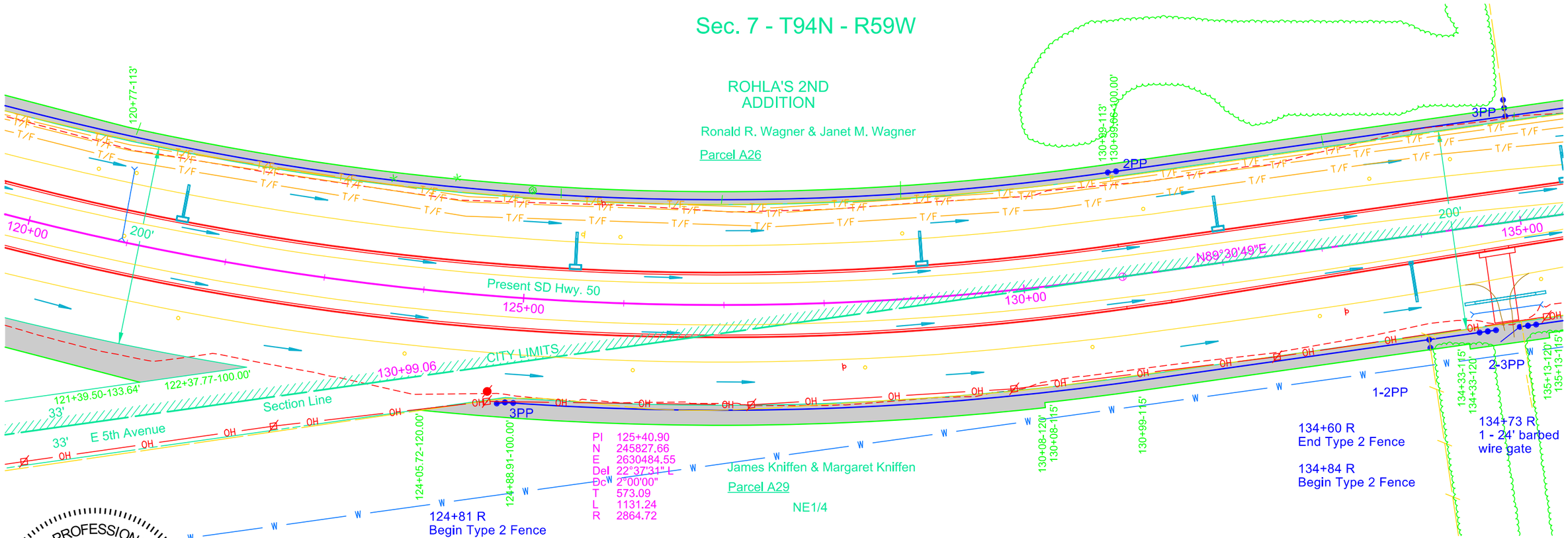
TYNDALL

Sec. 7 - T94N - R59W

ROHLA'S 2ND
ADDITION

Ronald R. Wagner & Janet M. Wagner

Parcel A26



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1-2-25
SOUTH DAKOTA

Parcel A29
124+05.72 to 136+88.29 R
Temporary Easement containing
0.5 ac, more or less

134+08-112' R
Do Not Disturb Trees

135+00-113' R
Do Not Disturb Trees

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B47	B101

FOR BIDDING PURPOSES ONLY

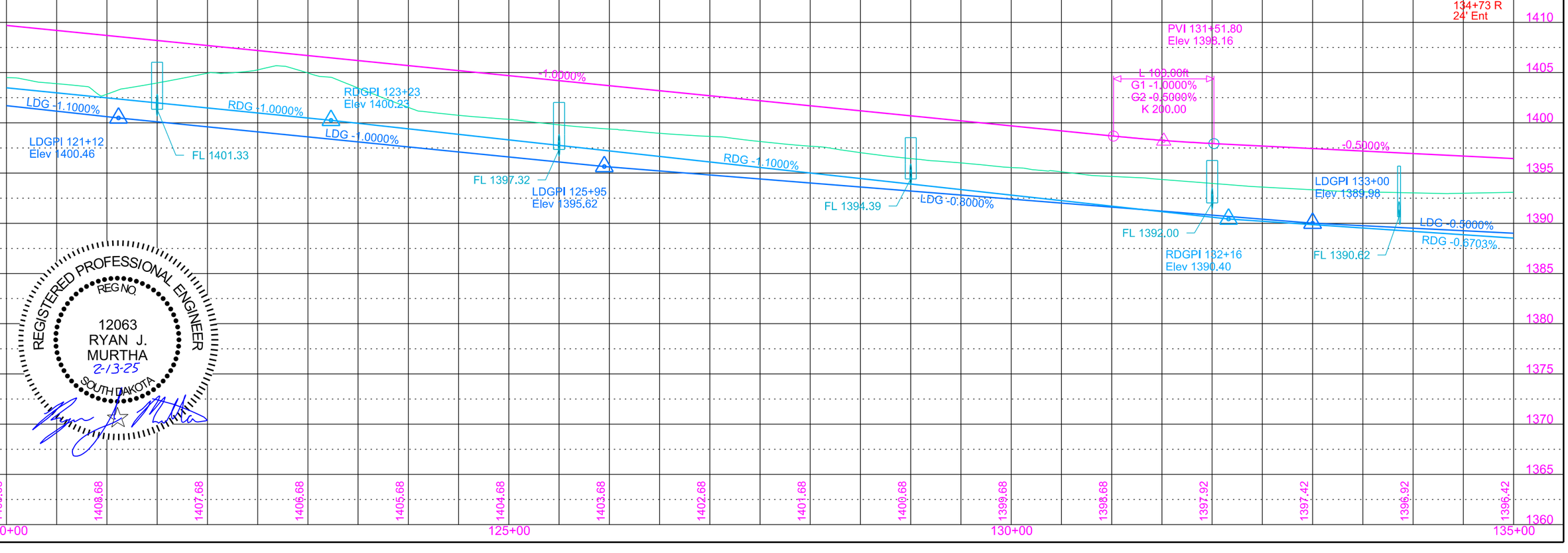
Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

SD50 - Sta 76+80.74 to 137+44.11

EXCAVATION		EMBANKMENT		
Excavation	41,740 CY	Embankment	4,740 CY	
Undercut	0 CY	+25%	1,185 CY	5,925 CY
Unstable	0 CY	Undercut Backfill	0 CY	
Muck	0 CY	+25%	0 CY	0 CY
Processed Subgrade Topping	24,940 CY	Unstable Backfill	0 CY	
Total	66,680 CY	+25%	0 CY	0 CY
		Muck Backfill	0 CY	
		+25%	0 CY	0 CY
		Waste		60,755 CY
		Total		66,680 CY

Waste is excess material to be disposed of at a site approved by the Engineer

Waste 2,576 CY to xr086, 16 CY to xr099, and 107 CY to xr115



REGISTERED PROFESSIONAL ENGINEER
REG NO.
12063
RYAN J.
MURTHA
2-13-25
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B48	B101

Plotting Date: 1/2/2025

FOR BIDDING PURPOSES ONLY

135+08-104' L
Do Not Disturb Sign

135+67 L
Take out 18"-67' RCP
(Incidental Work, Grading)

138+35
Take out 72"-106' RCP Arch
(Incidental Work, Grading)

135+46.02-23.63' R to 135+46.83-63.92' R
Install 18"-34' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)

135+50.00-34.13' L to 68.12' L
Install 18"-26' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)

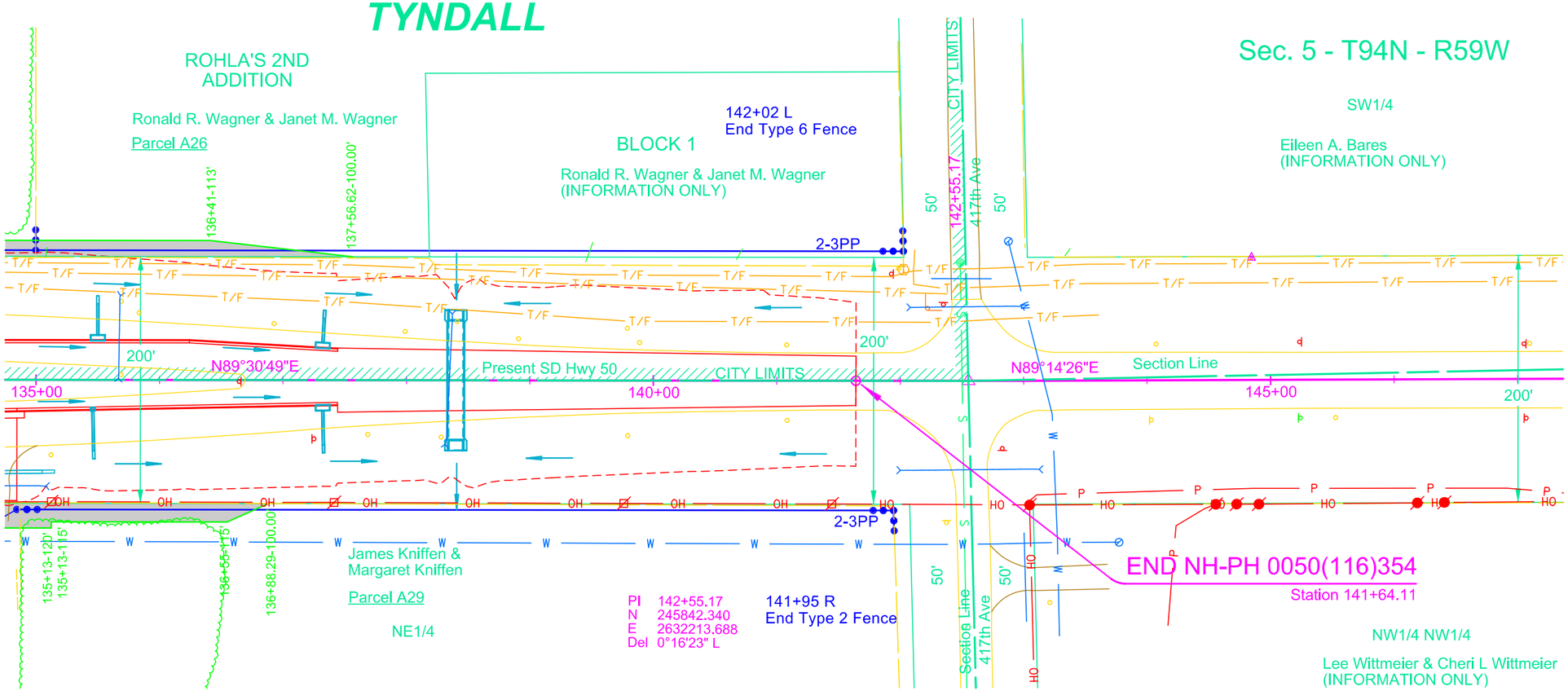
137+32.22-22.37' R to 137+33.01-61.77' R
Install 18"-28' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)

137+32.22-28.13' L to 137+34.16-63.01' L
Install 18"-20' RCP
& 1 Safety End R
(Between Drop Inlet & Outlet)

138+40 (1525 ac)
Alternate A
Install 12'x5'x114'
Box Culvert (C.I.P)
Alternate B
Install 12'x5'X116'
Box Culvert (Precast)
(See Section E)

Install 4' x 11' Type S Drop Inlet Base with
Precast Concrete Type S Drop Inlet Lid
at the following locations:
135+50.00-34.13' L
137+32.22-28.13' L
137+32.22-22.37' R

Install 2' x 3' Type B Drop Inlet with
6" Concrete Collar and Type B Frame & Grate
at the following locations:
135+46.02-23.63' R



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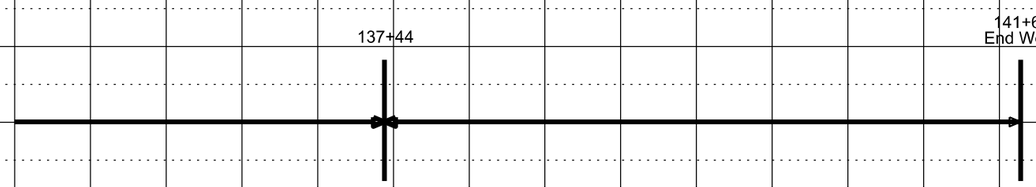
MURTHA
1-2-25
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B49	B101

FOR BIDDING PURPOSES ONLY

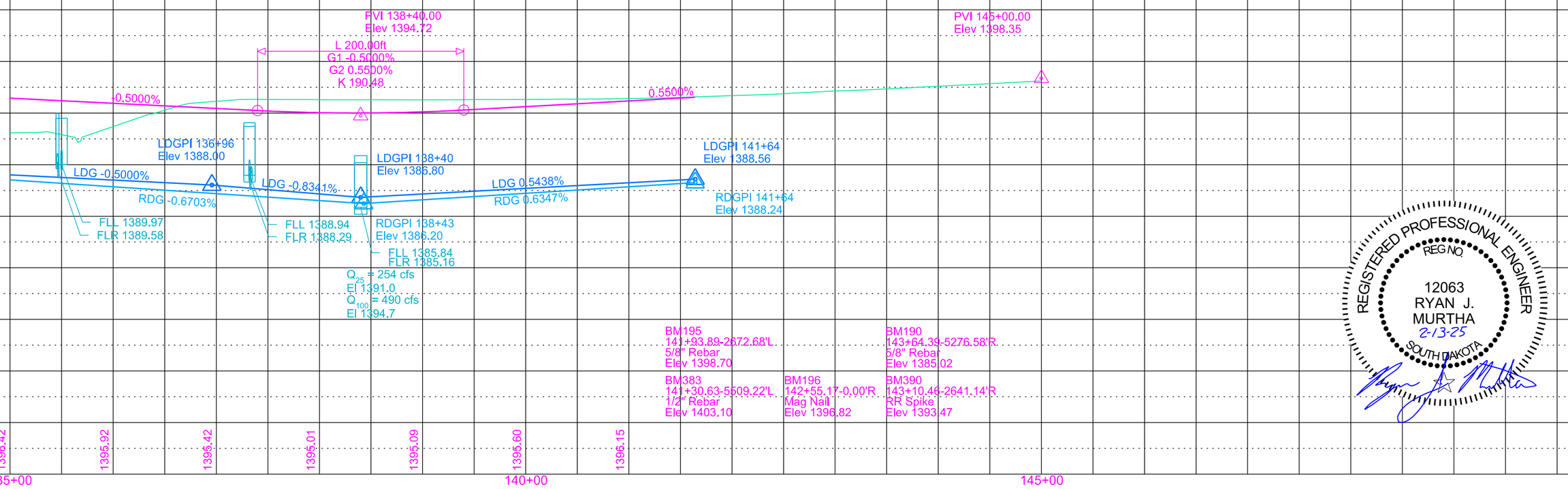
Plotting Date: 1/2/2025 Rev 2/13/2025 RJM



SD50 - Sta 137+44.11 to 141+64.11

EXCAVATION		EMBANKMENT		
Excavation	4,320 CY	Embankment	0 CY	
Undercut	0 CY	+25%	0 CY	0 CY
Unstable	0 CY	Undercut Backfill	0 CY	
Muck	0 CY	+25%	0 CY	0 CY
Processed Subgrade Topping	1,565 CY	Unstable Backfill	0 CY	
Total	5,885 CY	+25%	0 CY	0 CY
		Muck Backfill	0 CY	
		+25%	0 CY	0 CY
		Waste		5,885 CY
		Total		5,885 CY

Waste is excess material to be disposed of at a site approved by the Engineer



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1-2-25
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B50	B101

Plotting Date: 1/2/2025

FOR BIDDING PURPOSES ONLY

466+68-44'L
Take out 18"-65' RCP
(Incidental Work, Grading)

470+35 L to 477+00 L
Obliterate Road

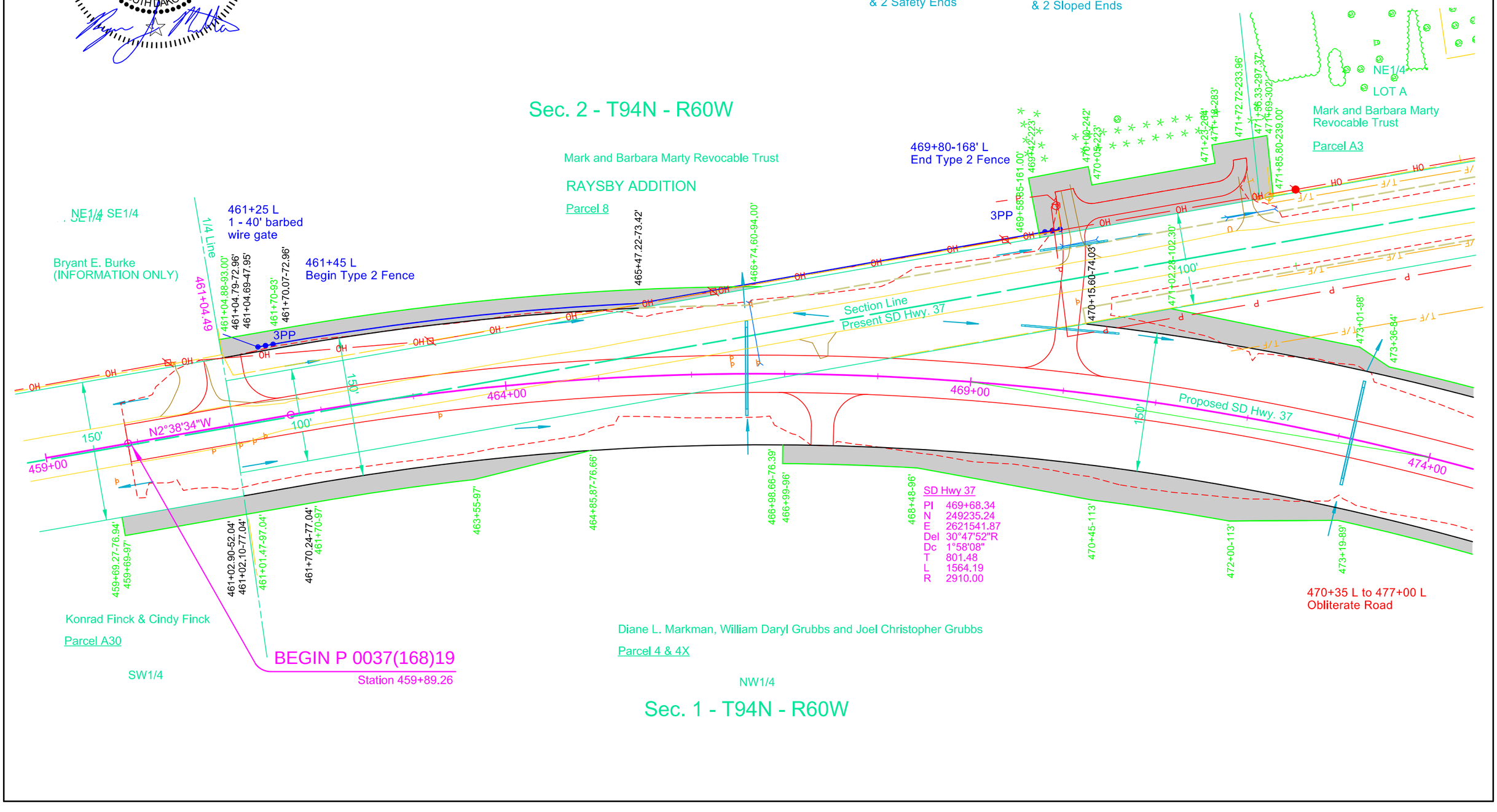
466+59 (4 ac)
Install 24"-88' RCP
& 2 Sloped Ends

470+00-66' L (0.5 ac)
Install 18"-98' CMP
& 2 Safety Ends

471+49-196' L
Refurbish single mailbox

469+94-156' L (0,6 ac)
Install 18"-66' CMP
& 2 Safety Ends

473+14 (29 ac)
Install 24"-100' RCP
& 2 Sloped Ends



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B51	B101

Plotting Date: 1/2/2025

FOR BIDDING PURPOSES ONLY

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1-2-25
SOUTH DAKOTA

SD37 - 459+89.26 to 478+04.62

EXCAVATION		EMBANKMENT		
Excavation	6,210 CY	Embankment	16,765 CY	
Undercut	2,185 CY	+25%	4,191 CY	20,956 CY
Unstable	705 CY	Undercut Backfill	2,185 CY	
Muck	0 CY	+25%	546 CY	2,731 CY
Processed Subgrade Topping	0 CY	Unstable Backfill	705 CY	
OBE from 76+80 to 137+44 SD50	15,469 CY	+25%	176 CY	881 CY
Total	24,569 CY	Muck Backfill	0 CY	
		+25%	0 CY	0 CY
		Waste		0 CY
			Total	24,569 CY

459+89.26
Begin Work

461+05 L
40' Ent

467+42 R
24' Ent

469+97 L
24' Ent

PVI 459+89.26
Elev 1424.61

PVI 469+00.00
Elev 1425.61

L 400.00ft
G1 0.1100%
G2 -0.7500%
K 465.12

L 400.00ft
G1 -0.7500%
G2 1.0000%
K 228.57

LDGPI 459+86
Elev 1420.61

LDGPI 460+23
Elev 1421.00

LDGPI 461+32
Elev 1420.81

0.1100%

-0.7500%

LDG 1.0773%

LDG -0.1758%

RDG 0.5000%

LDG -0.5700%

RDG -0.4000%

RDGPI 459+86
Elev 1420.00

RDGPI 460+75
Elev 1420.44

RDGPI 466+50
Elev 1418.10

LDGPI 468+00
Elev 1419.90

LDGPI 470+00
Elev 1416.90

PVI 473+08.16
Elev 1422.55

LDG 1.5000%

LDG -1.5000%

RDG -0.5946%

LDG 0.9500%

FLL 1413.92
FLR 1414.21

RDG 3.0000%

LDG 3.0000%

FLL 1417.63
FLR 1417.71

LDGPI 466+60
Elev 1417.80

LDGPI 473+16
Elev 1413.90

RDGPI 473+16
Elev 1414.20

Q_{100} = 9 cfs
El 1420.3

Q_{30} = 29 cfs
El 1419.7

1424.62 1424.73 1424.84 1424.95 1425.06 1425.17 1425.28 1425.39 1425.39 1425.18 1424.75 1424.11 1423.52 1423.32 1423.50

1470 1465 1460 1455 1450 1445 1440 1435 1430 1425 1420 1415 1410 1405 1400 1395 1390 1385

459+00 464+00 469+00 474+00

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B52	B101

FOR BIDDING PURPOSES ONLY

Plotting Date: 1/2/2025

Sec. 2 - T94N - R60W

NE1/4

LOT A

Mark and Barbara Marty
Revocable Trust

Parcel A3

25+13.24-100.00'
25+25.17-120.00'
2 - 3PP

25+11.84

Section Line
Present SD Hwy. 37

50'

26+77.77-120.57'
27+14.71-100.00'
2PP

Diane L. Markman, William Daryl Grubbs
and Joel Christopher Grubbs

Parcel 4 & 4X

NW1/4

2PP 29+56.31-100.00'
29+47-129'

473+36-84'

150'

474+00

Proposed SD Hwy. 37

478+04.62 (Hwy 37 Mainline) =
30+31.15 (Hwy 50 Mainline)

473+19-89'

2PP
31+20-155'
31+07.29-150.00'

2PP
3PP
31+73-114'
31+71.32-100.00'

Diane L. Markman, William Daryl Grubbs
and Joel Christopher Grubbs

Parcel 4 & 4X

NW1/4

25+00

S61°50'42"E

Present SD Hwy. 50

200'

24+87.40-138.64'
25+10.44-100.00'
25+33-112'

3PP

FORD ADDITION

NW1/4

Country Ford Inc.
Parcel A4

END P 0037(168)19

Station 478+04.62

N28°09'18"E

30+00

478+05

30+92.03-112.00'
30+98.94-100.00'
3PP

Sec. 1 - T94N - R60W

Government Lot 2

Diane L. Markman, William Daryl Grubbs
and Joel Christopher Grubbs

Parcel 4 & 4X

NW1/4

477+09.55-60.89' L to 477+12.61-21.61' R
Install 24"-72' RCP
& 1 Safety End
(Between Drop Inlet & Outlet)

477+12.61-21.61' R to 477+06.32-78.25' R (2.4 ac)
Install 24"-52' RCP Arch
& 1 Sloped End
(Between Drop Inlet & Outlet)

Install 3' x 4' Type B Drop Inlet with
6" Concrete Collar and Special Frame & Grate
at the following locations:
477+12.61-21.61' R

REGISTERED PROFESSIONAL ENGINEER
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1-2-25
SOUTH DAKOTA

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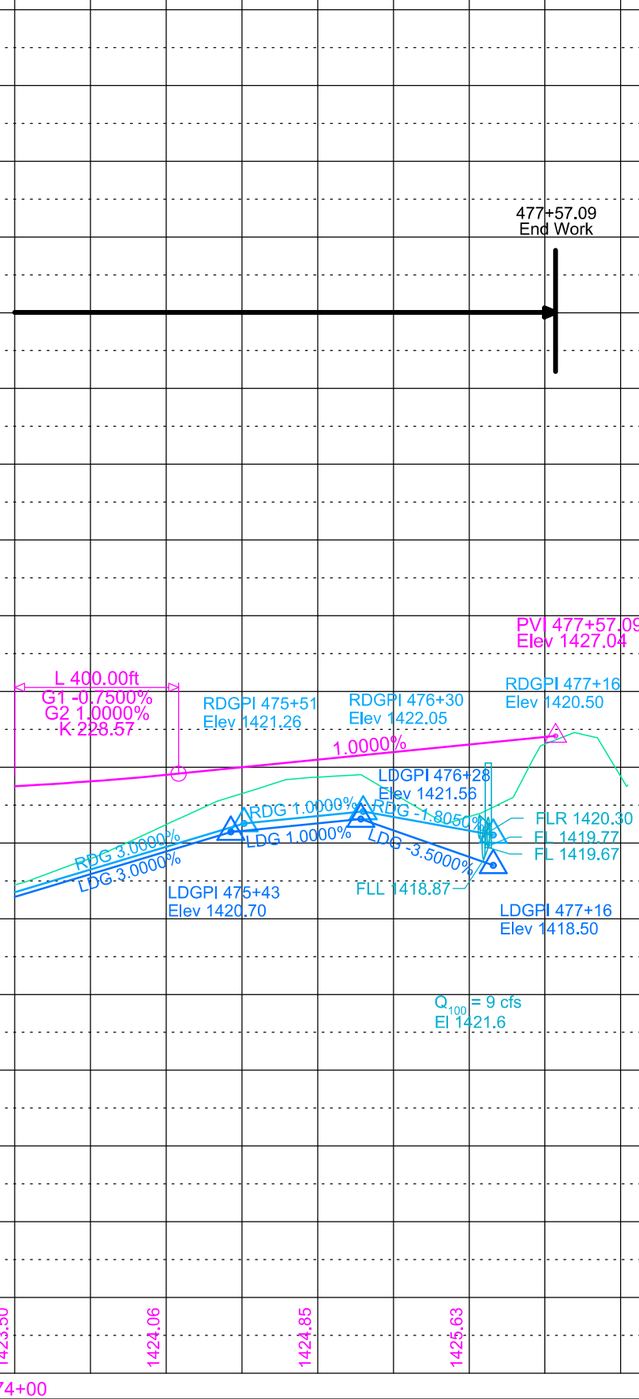
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B53	B101

Plotting Date: 1/2/2025



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REGISTERED PROFESSIONAL ENGINEER
REG NO
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RYAN J.
MURTHA
2-13-25
SOUTH DAKOTA

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B54	B101

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

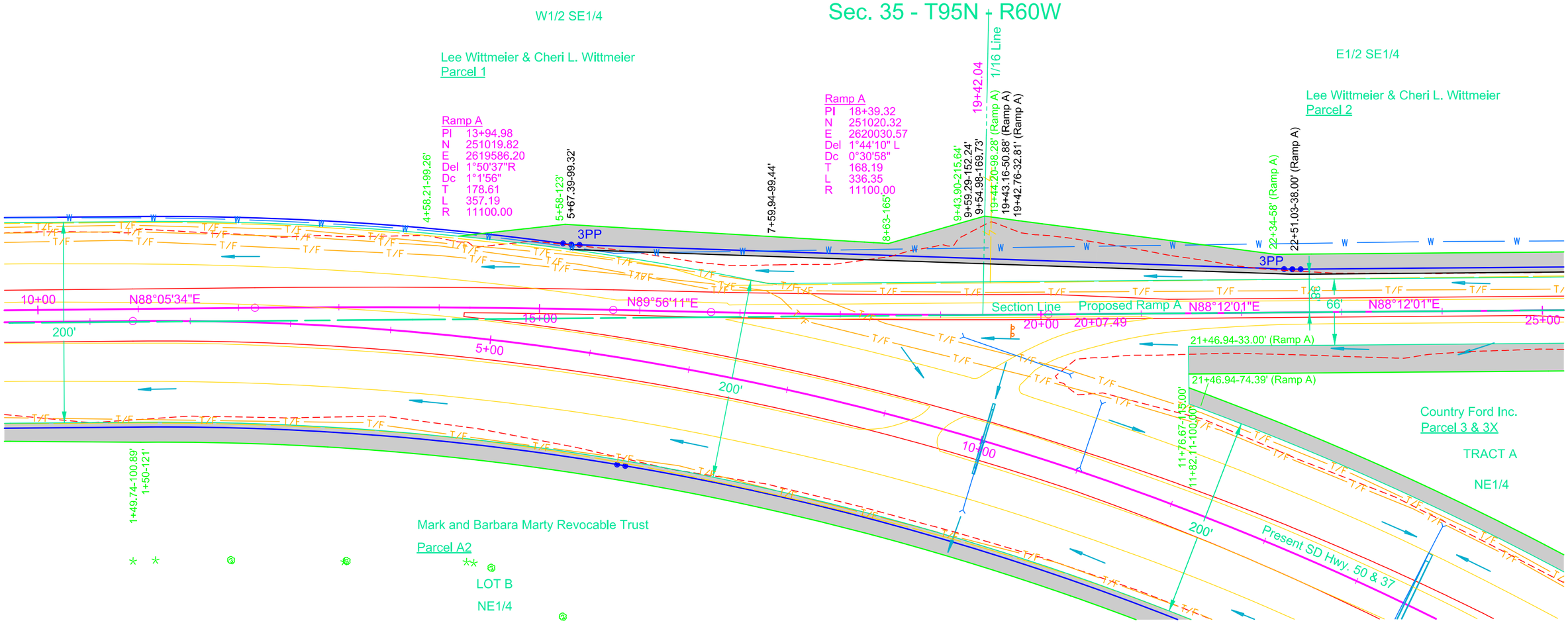
9+95 L to 10+45 L
Obliterate Road

10+02 R
Take out 18"-69' RCP
(Incidental Work, Grading)

11+02 L
Take out 18"-67' RCP
(Incidental Work, Grading)

10+09-91'L
Take out 24"-112' RCP
(Incidental Work, Grading)

14+51
Take out 30"-165' RCP
(Incidental Work, Grading)



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B55	B101

FOR BIDDING PURPOSES ONLY

Plotting Date: 1/2/2025

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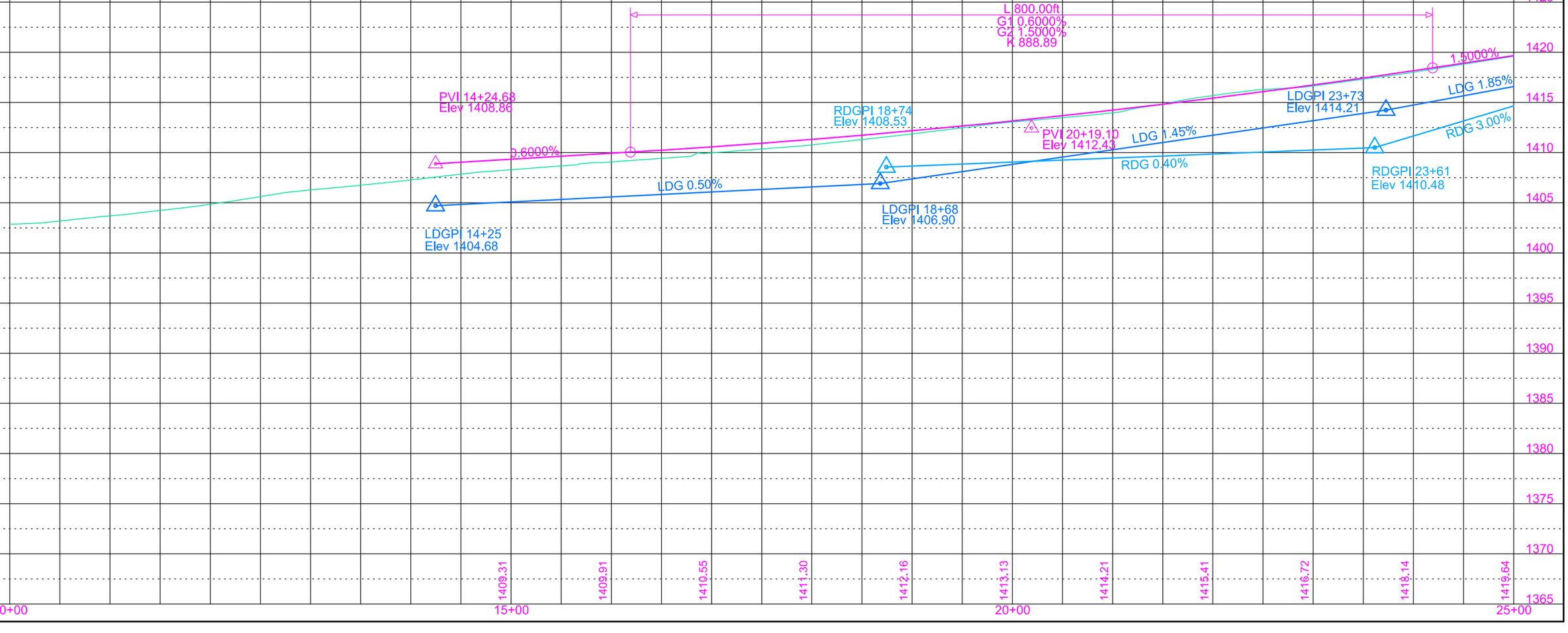
SOUTH DAKOTA

Ramp A (303rd Ave)

EXCAVATION		EMBANKMENT		
Excavation	1,300 CY	Embankment	295 CY	
Undercut	4,245 CY	+25%	74 CY	369 CY
Unstable	0 CY	Undercut Backfill	4,245 CY	
Muck	0 CY	+25%	1,061 CY	5,306 CY
Processed Subgrade Topping	0 CY	Unstable Backfill	0 CY	
OBE from -9+51 to 4+71 SD50	130 CY	+25%	0 CY	0 CY
Total	5,675 CY	Muck Backfill	0 CY	
		+25%	0 CY	0 CY
		Waste		0 CY
			Total	5,675 CY



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B56	B101

Plotting Date: 1/2/2025

FOR BIDDING PURPOSES ONLY

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MURTHA
1-2-25
SOUTH DAKOTA

26+88 L (303rd Street)
Take out 15"-26' CMP
(Incidental Work, Grading)

26+44-28' L (Ramp A)
Install 18"-54' CMP Arch
& 2 Safety Ends

E1/2 SE1/4

Lee Wittmeier & Cheri L. Wittmeier
Parcel 2

26+44 L
1 - 40' barbed
wire gate

3-2PP

26+99.42-38.00'(Ramp A)
26+99.18-38.00'(Ramp A)
26+99.12-33.00'(Ramp A)

26+99 L
End Type 2 Fence

Proposed Ramp A
25+00

38'

66'

N88°12'01"E

303rd Street
Section Line

66'

66'

27+41.61'(Ramp A)
27+41.33-33.00'(Ramp A)

Country Ford Inc.
Parcel 3 & 3X

TRACT A
NE1/4

Sec. 2 - T94N - R60W

Sec. 35 - T95N - R60W

PARCEL A

Leo's Catholic Cemetery
(INFORMATION ONLY)

Section Line
415th Avenue

33'

33'

6+26.65-74.00'(xr022)

5+73-74'(xr022)
5+61.52-50.00'(xr022)

N2°38'43"W

Ford Avenue

Proposed Ford Avenue

50'

7+39

5+00

6+22.17-79.00'(xr022)

5+38.38-51.96'(xr022)

4+86-86'(xr022)
4+85-78'(xr022)

Sec. 36 - T95N - R60W

Schuurmans Living Trust
(INFORMATION ONLY)
SW1/4

Country Ford Inc.
Parcel A5

FORD ADDITION
NW1/4

Sec. 1 - T94N - R60W

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B57	B101

Plotting Date: 1/2/2025

FOR BIDDING PURPOSES ONLY

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1-2-25
SOUTH DAKOTA

1460
1455
1450
1445
1440
1435
1430
1425
1420
1415
1410
1405
1400
1395
1390
1385
1380
1375

26+44 L
40' Ent

PVI 27+21.33
Elev 1422.96

1.5000%
LDG 1.85%
RDG 3.00%
LDG 1.26%
RDG 2.00%

LDGPI 27+21
Elev 1420.39

RDGPI 27+21
Elev 1420.06

LDGPI 26+75
Elev 1419.81

RDGPI 26+00
Elev 1417.63

1419.64
1421.14
1422.64

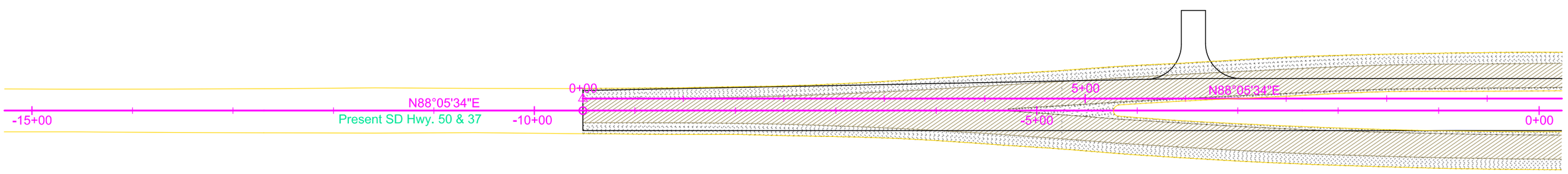
25+00
30+00
35+00
40+00

PAVEMENT REMOVAL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B58	B101

Plotting Date: 1/2/2025



Salvage Asphalt Concrete and Remove Concrete Pavement

Remove Concrete Driveway Pavement

Salvage Asphalt Concrete Pavement

Remove Concrete Median Pavement

Remove Concrete Curb and/or Gutter

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SOUTH DAKOTA

PAVEMENT REMOVAL LAYOUT

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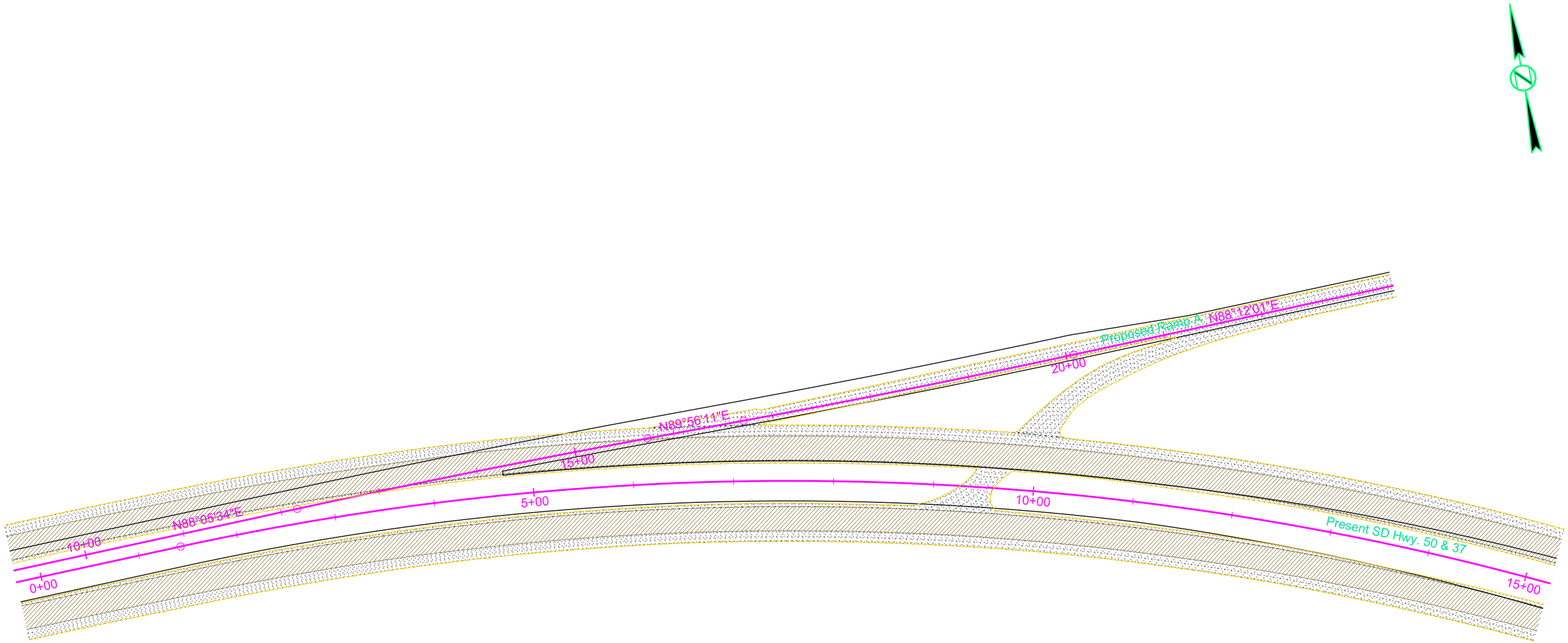
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B59	B101

Plotting Date: 1/2/2025



Salvage Asphalt Concrete and Remove Concrete Pavement

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PAVEMENT REMOVAL LAYOUT

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B60	B101

Plotting Date: 1/2/2025

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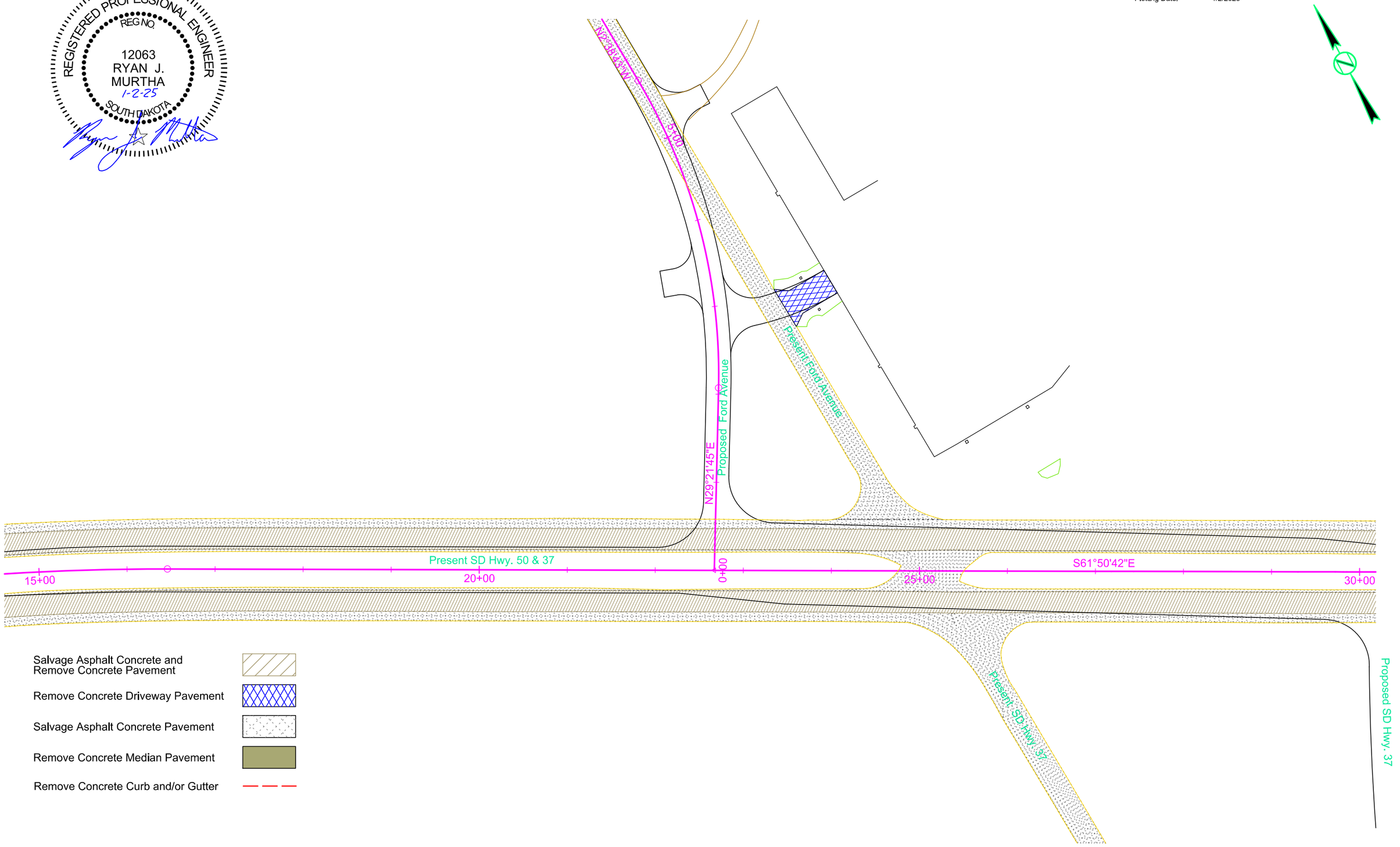
SOUTH DAKOTA

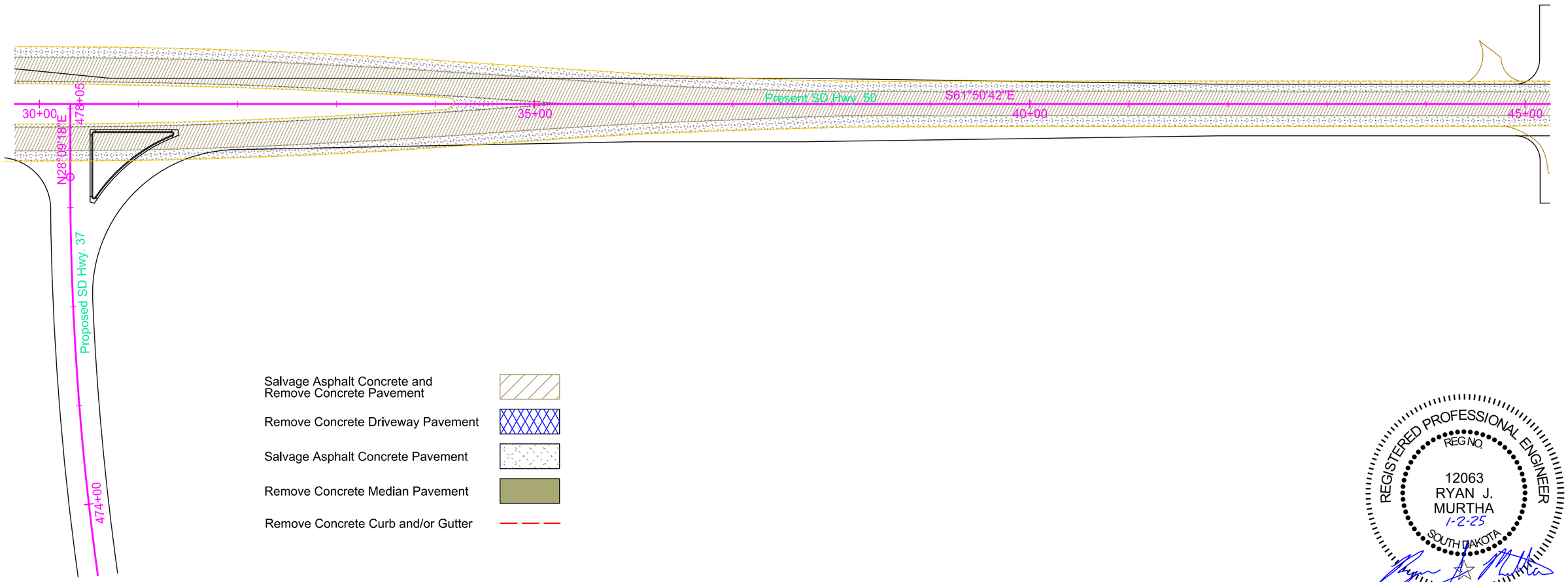


PAVEMENT REMOVAL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B61	B101

Plotting Date: 1/2/2025



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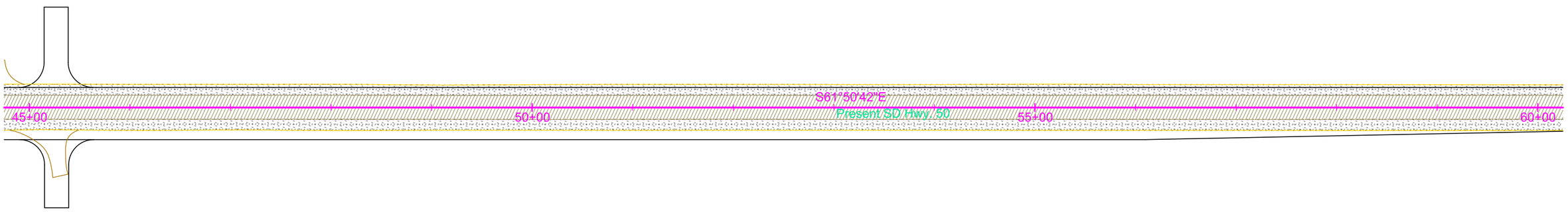
SOUTH DAKOTA

PAVEMENT REMOVAL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B62	B101

Plotting Date: 1/2/2025



Salvage Asphalt Concrete and Remove Concrete Pavement

Remove Concrete Driveway Pavement

Salvage Asphalt Concrete Pavement

Remove Concrete Median Pavement

Remove Concrete Curb and/or Gutter

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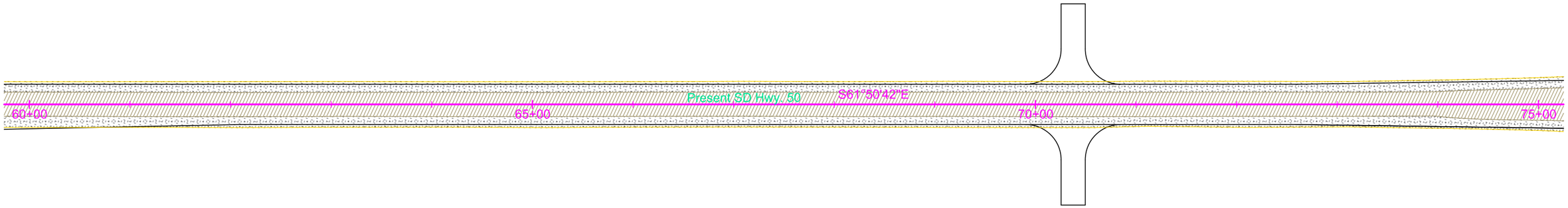
1-2-25
SOUTH DAKOTA

PAVEMENT REMOVAL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B63	B101

Plotting Date: 1/2/2025



Salvage Asphalt Concrete and Remove Concrete Pavement

Remove Concrete Driveway Pavement

Salvage Asphalt Concrete Pavement

Remove Concrete Median Pavement

Remove Concrete Curb and/or Gutter

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SOUTH DAKOTA

PAVEMENT REMOVAL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B64	B101

Plotting Date: 1/2/2025

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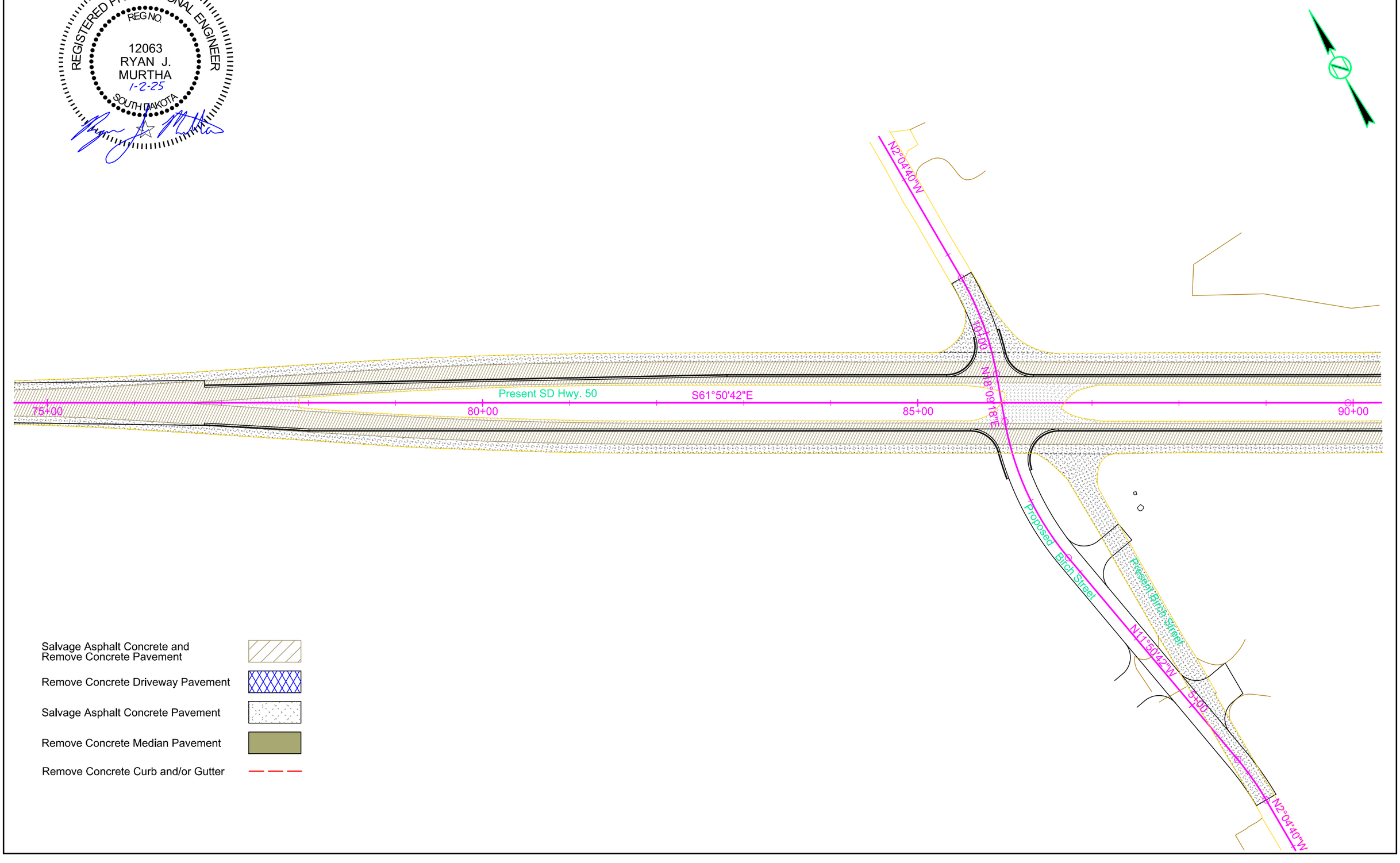
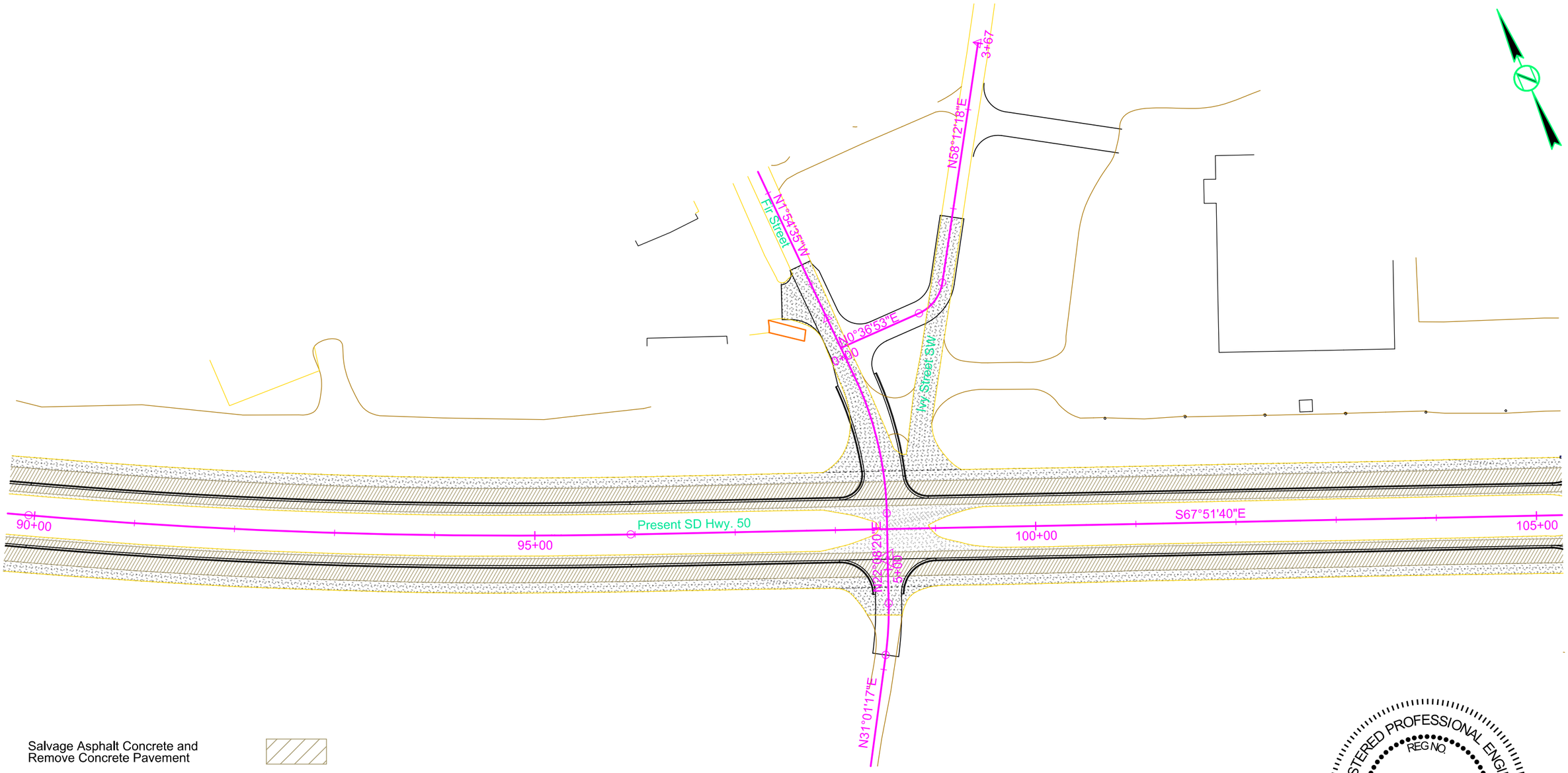


PAVEMENT REMOVAL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B65	B101

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM



Salvage Asphalt Concrete and Remove Concrete Pavement

Remove Concrete Driveway Pavement

Salvage Asphalt Concrete Pavement

Remove Concrete Median Pavement

Remove Concrete Curb and/or Gutter

REGISTERED PROFESSIONAL ENGINEER
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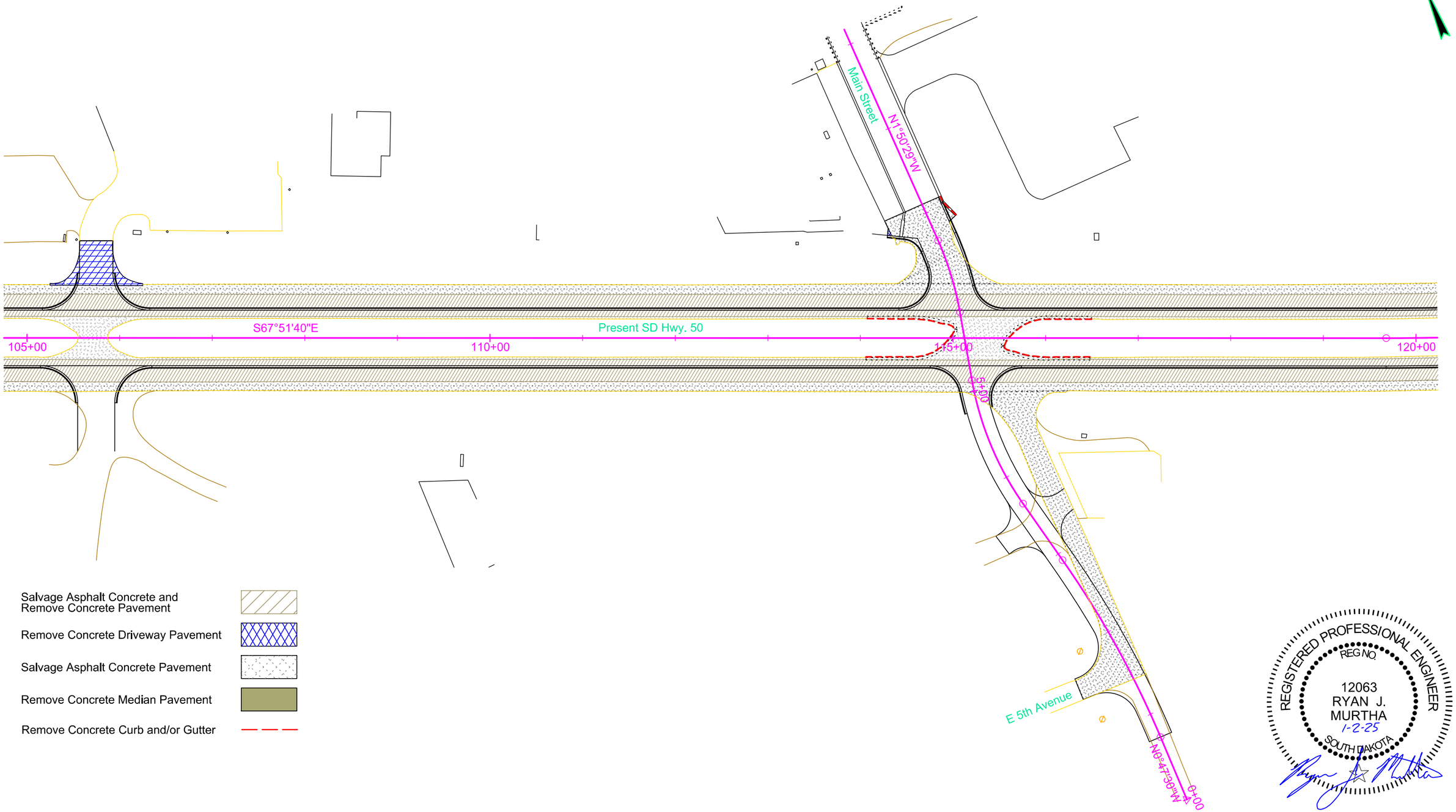
2-13-25
SOUTH DAKOTA

PAVEMENT REMOVAL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B66	B101

Plotting Date: 1/2/2025



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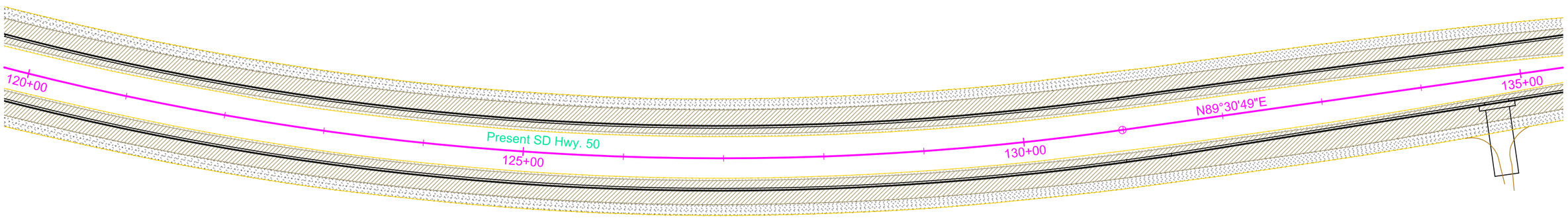
SOUTH DAKOTA

PAVEMENT REMOVAL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B67	B101

Plotting Date: 1/2/2025



Salvage Asphalt Concrete and Remove Concrete Pavement

Remove Concrete Driveway Pavement

Salvage Asphalt Concrete Pavement

Remove Concrete Median Pavement

Remove Concrete Curb and/or Gutter

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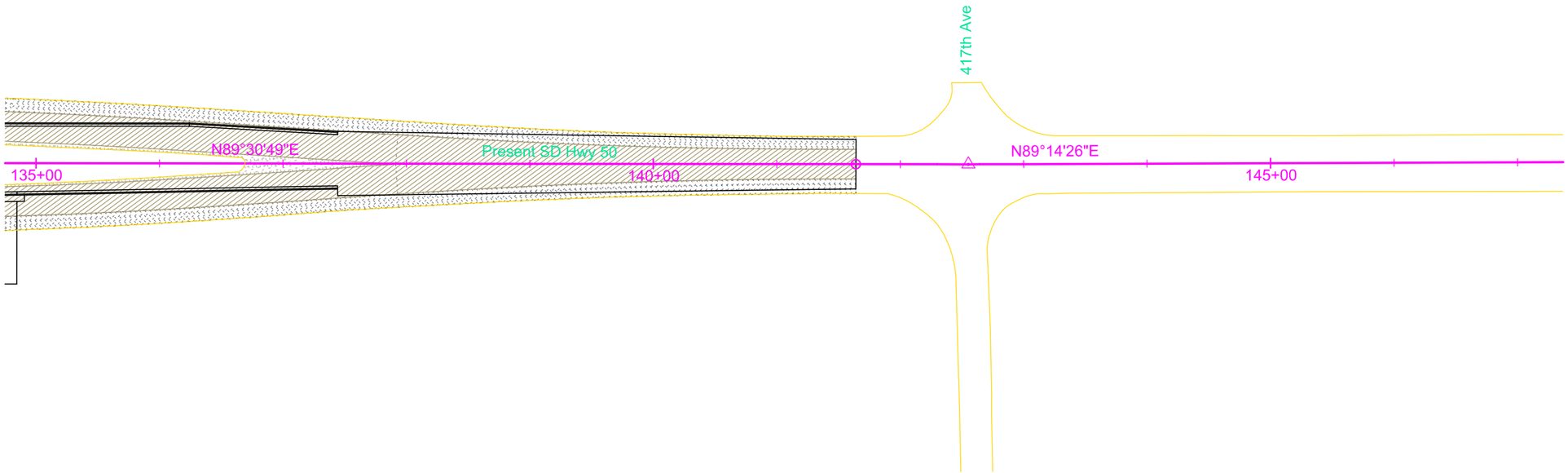
SOUTH DAKOTA

PAVEMENT REMOVAL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B68	B101

Plotting Date: 1/2/2025



Salvage Asphalt Concrete and Remove Concrete Pavement

Remove Concrete Driveway Pavement

Salvage Asphalt Concrete Pavement

Remove Concrete Median Pavement

Remove Concrete Curb and/or Gutter

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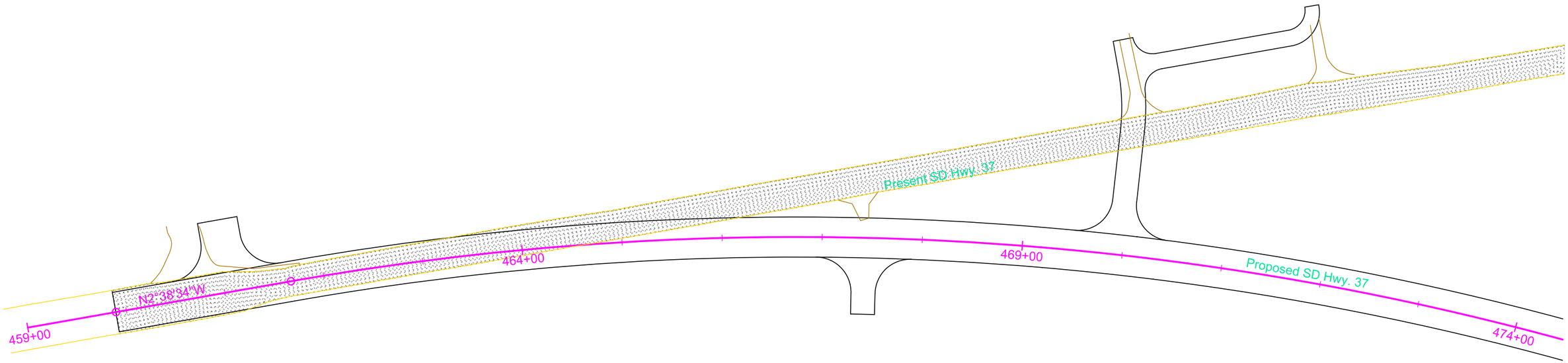
PAVEMENT REMOVAL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B69	B101

Plotting Date: 1/2/2025



Salvage Asphalt Concrete and Remove Concrete Pavement

Remove Concrete Driveway Pavement

Salvage Asphalt Concrete Pavement

Remove Concrete Median Pavement

Remove Concrete Curb and/or Gutter

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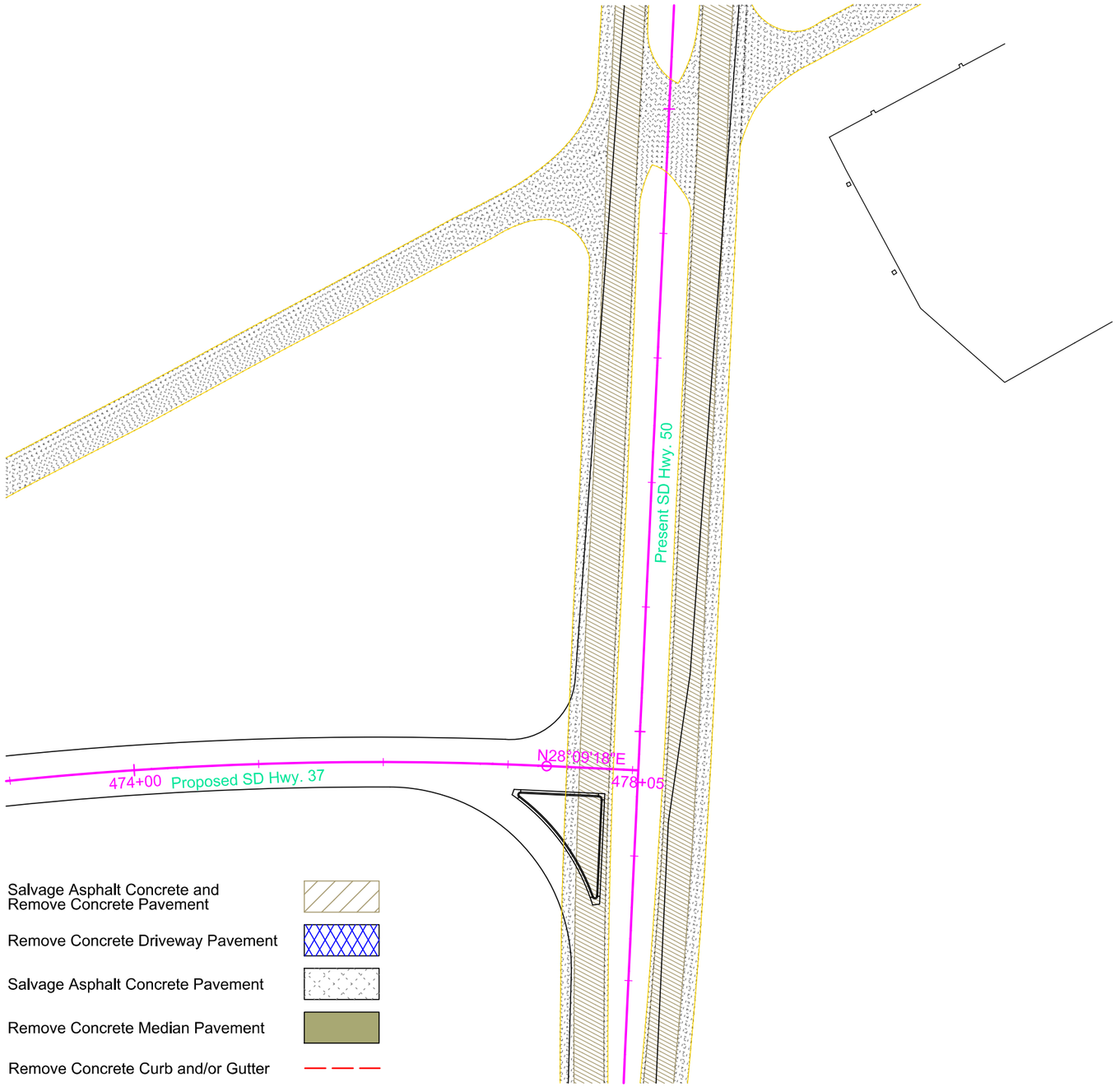
SOUTH DAKOTA

PAVEMENT REMOVAL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B70	B101

Plotting Date: 1/2/2025



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1-2-25
SOUTH DAKOTA

PAVEMENT REMOVAL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B71	B101

Plotting Date: 1/2/2025

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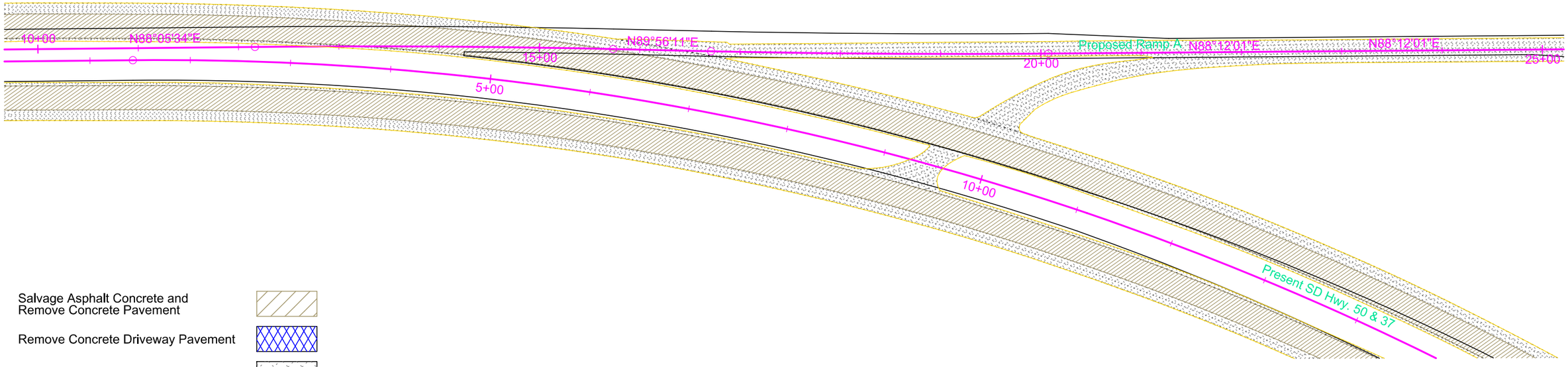
1-2-25
SOUTH DAKOTA



Salvage Asphalt Concrete and Remove Concrete Pavement

Remove Concrete Driveway Pavement

Salvage Asphalt Concrete Pavement

Remove Concrete Median Pavement

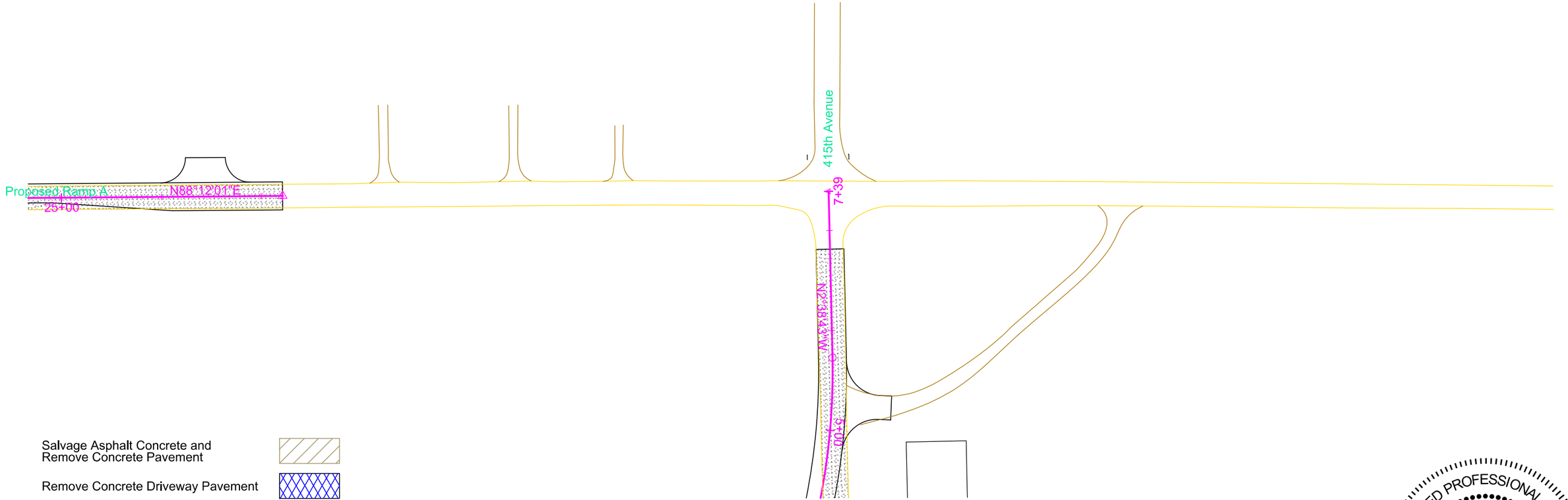
Remove Concrete Curb and/or Gutter

PAVEMENT REMOVAL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B72	B101

Plotting Date: 1/2/2025



Salvage Asphalt Concrete and Remove Concrete Pavement

Remove Concrete Driveway Pavement

Salvage Asphalt Concrete Pavement

Remove Concrete Median Pavement

Remove Concrete Curb and/or Gutter

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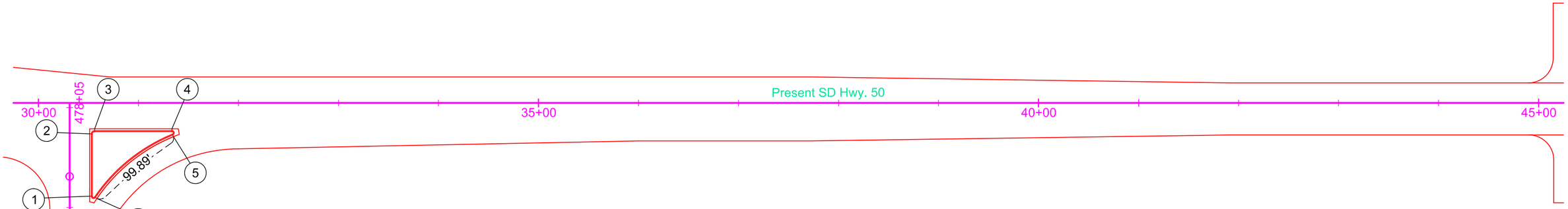
1-2-25
SOUTH DAKOTA

CURB AND GUTTER LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B73	B101

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM



1 30+51.15-93.37' R
End 4' Rad Fillet
Begin Str Type R48 C & G
TC Elev 1425.58

2 30+51.15-31.00' R
End Str Type R48 C & G
Begin 5' Rad Fillet
TC Elev 1426.26

3 30+56.15-26.00' R
End 5' Rad Fillet
Begin Str Type R48 C & G
TC Elev 1426.42

4 31+33.52-26.00' R
End Str Type R48 C & G
Begin 4' Rad Fillet
TC Elev 1427.26

5 31+35.03-33.70' R
End 4' Rad Fillet
Begin 171' Rad Type R48 C & G
TC Elev 1427.28

6 30+58.46-95.62' R
End 171' Rad Type R48 C & G
Begin 4' Rad Fillet
TC Elev 1426.00

CURB AND GUTTER LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B74	B101

Plotting Date: 1/2/2025

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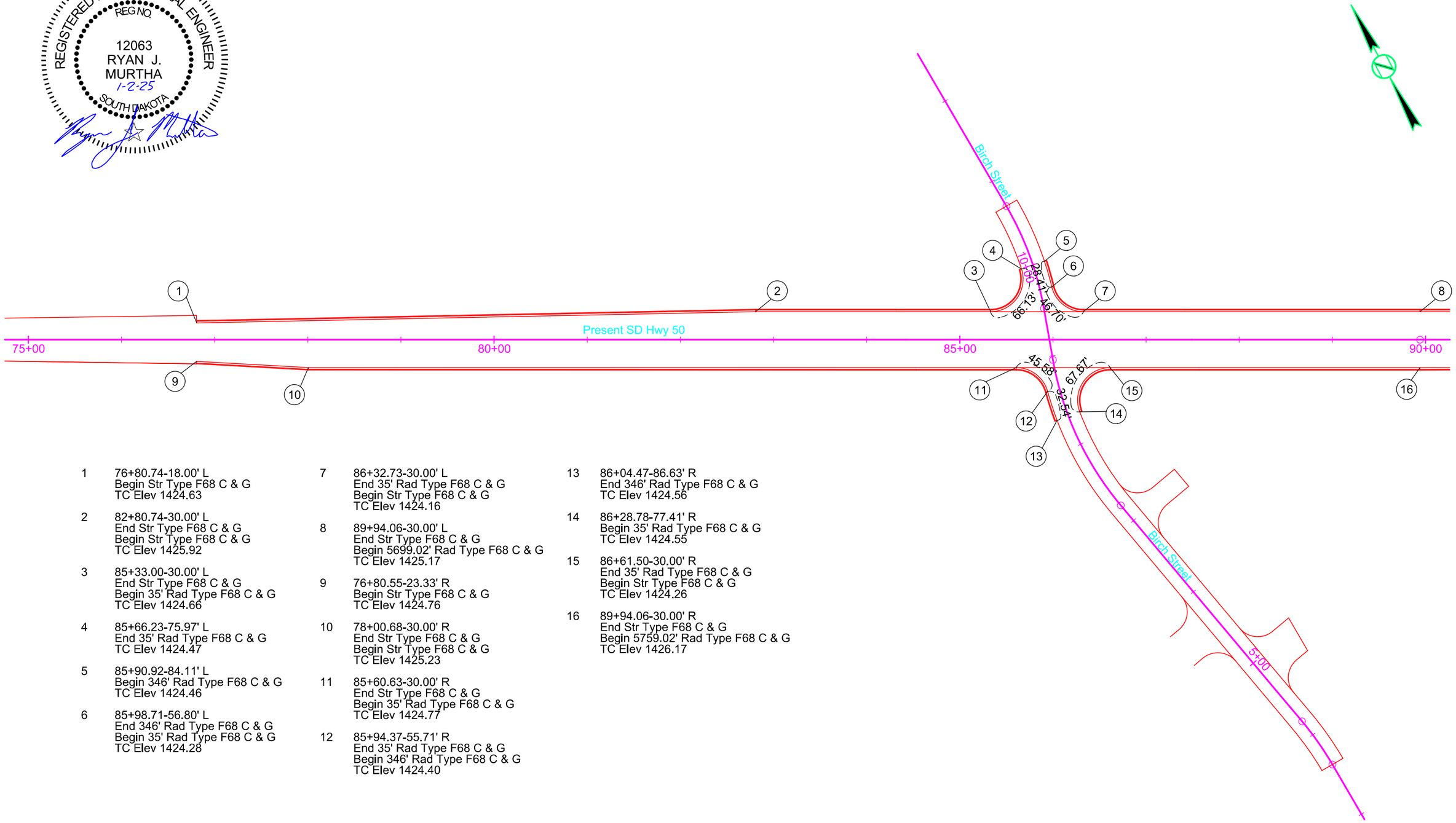
12063
RYAN J.
MURTHA
1-2-25
SOUTH DAKOTA



1 76+80.74-18.00' L
Begin Str Type F68 C & G
TC Elev 1424.63

2 82+80.74-30.00' L
End Str Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1425.92

3 85+33.00-30.00' L
End Str Type F68 C & G
Begin 35' Rad Type F68 C & G
TC Elev 1424.66

4 85+66.23-75.97' L
End 35' Rad Type F68 C & G
TC Elev 1424.47

5 85+90.92-84.11' L
Begin 346' Rad Type F68 C & G
TC Elev 1424.46

6 85+98.71-56.80' L
End 346' Rad Type F68 C & G
Begin 35' Rad Type F68 C & G
TC Elev 1424.28

7 86+32.73-30.00' L
End 35' Rad Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1424.16

8 89+94.06-30.00' L
End Str Type F68 C & G
Begin 5699.02' Rad Type F68 C & G
TC Elev 1425.17

9 76+80.55-23.33' R
Begin Str Type F68 C & G
TC Elev 1424.76

10 78+00.68-30.00' R
End Str Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1425.23

11 85+60.63-30.00' R
End Str Type F68 C & G
Begin 35' Rad Type F68 C & G
TC Elev 1424.77

12 85+94.37-55.71' R
End 35' Rad Type F68 C & G
Begin 346' Rad Type F68 C & G
TC Elev 1424.40

13 86+04.47-86.63' R
End 346' Rad Type F68 C & G
TC Elev 1424.56

14 86+28.78-77.41' R
Begin 35' Rad Type F68 C & G
TC Elev 1424.55

15 86+61.50-30.00' R
End 35' Rad Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1424.26

16 89+94.06-30.00' R
End Str Type F68 C & G
Begin 5759.02' Rad Type F68 C & G
TC Elev 1426.17

CURB AND GUTTER LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B75	B101

Plotting Date: 1/2/2025 Rev 2/13/2025 RJM

1 95+95.60-30.00' L
End 5699.02' Rad Type F68 C & G
Begin Str C & G
TC Elev 1421.80

2 98+05.19-30.00' L
End Str Type F68 C & G
Begin 25' Rad Type F68 C & G
TC Elev 1420.23

3 98+29.96-58.37' L
End 25' Rad Type F68 C & G
Begin 314.17' Rad Type B68 C & G
TC Elev 1419.31

4 98+05.56-144.01' L
End 314.17' Rad Type B68 C & G
TC Elev 1419.66

5 98+41.84-155.05' L
Begin 351.83' Rad Type B68 C & G
TC Elev 1419.64

6 98+68.60-52.41' L
End 351.83' Rad Type B68 C & G
Begin 25' Rad Type F68 C & G
TC Elev 1419.35

7 98+93.47-30.00' L
End 25' Rad Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1419.57

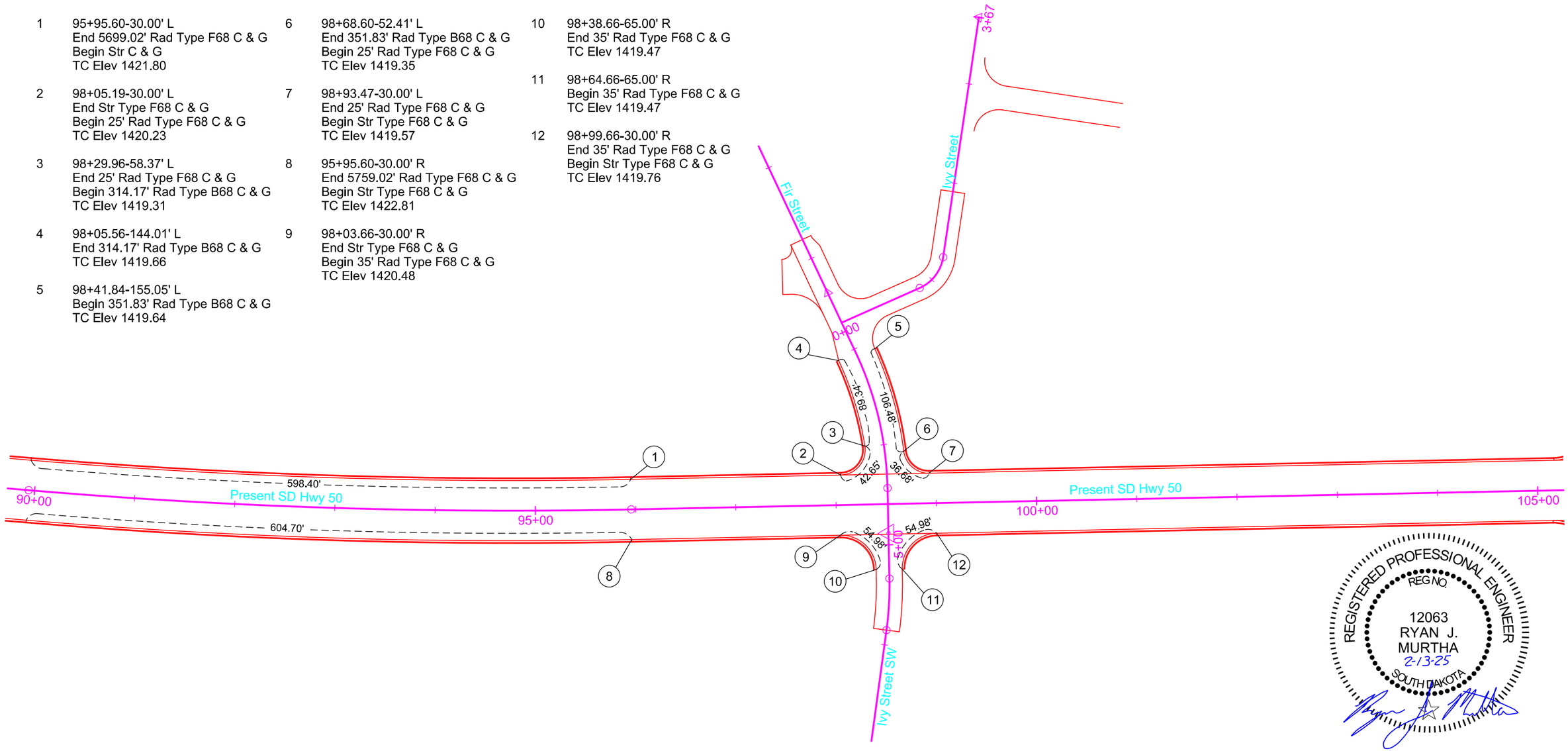
8 95+95.60-30.00' R
End 5759.02' Rad Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1422.81

9 98+03.66-30.00' R
End Str Type F68 C & G
Begin 35' Rad Type F68 C & G
TC Elev 1420.48

10 98+38.66-65.00' R
End 35' Rad Type F68 C & G
TC Elev 1419.47

11 98+64.66-65.00' R
Begin 35' Rad Type F68 C & G
TC Elev 1419.47

12 98+99.66-30.00' R
End 35' Rad Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1419.76



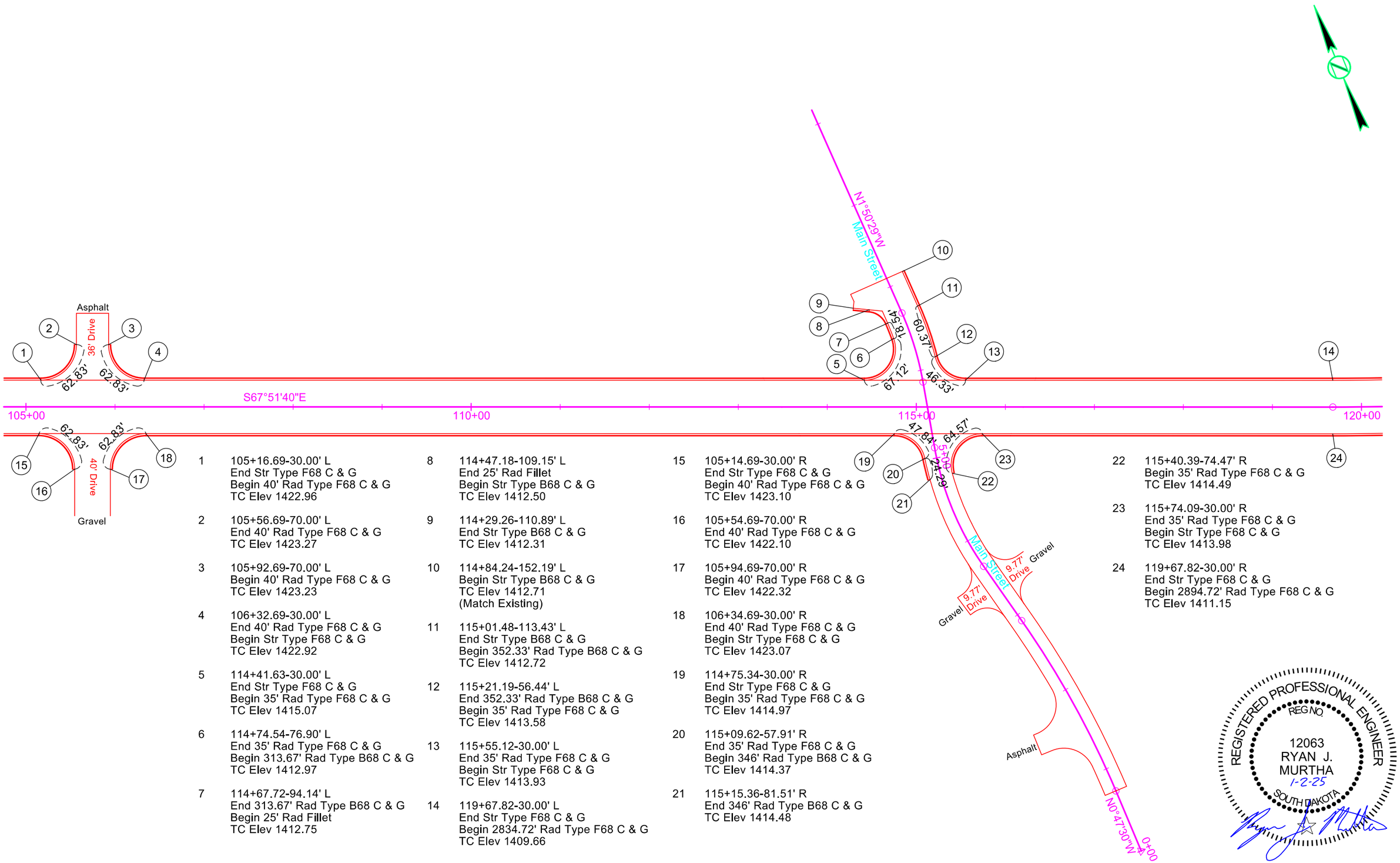
REGISTERED PROFESSIONAL ENGINEER
REG NO.
12063
RYAN J.
MURTHA
2-13-25
SOUTH DAKOTA

CURB AND GUTTER LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B76	B101

Plotting Date: 1/2/2025



1 105+16.69-30.00' L
End Str Type F68 C & G
Begin 40' Rad Type F68 C & G
TC Elev 1422.96

2 105+56.69-70.00' L
End 40' Rad Type F68 C & G
TC Elev 1423.27

3 105+92.69-70.00' L
Begin 40' Rad Type F68 C & G
TC Elev 1423.23

4 106+32.69-30.00' L
End 40' Rad Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1422.92

5 114+41.63-30.00' L
End Str Type F68 C & G
Begin 35' Rad Type F68 C & G
TC Elev 1415.07

6 114+74.54-76.90' L
End 35' Rad Type F68 C & G
Begin 313.67' Rad Type B68 C & G
TC Elev 1412.97

7 114+67.72-94.14' L
End 313.67' Rad Type B68 C & G
Begin 25' Rad Fillet
TC Elev 1412.75

8 114+47.18-109.15' L
End 25' Rad Fillet
Begin Str Type B68 C & G
TC Elev 1412.50

9 114+29.26-110.89' L
End Str Type B68 C & G
TC Elev 1412.31

10 114+84.24-152.19' L
Begin Str Type B68 C & G
TC Elev 1412.71
(Match Existing)

11 115+01.48-113.43' L
End Str Type B68 C & G
Begin 352.33' Rad Type B68 C & G
TC Elev 1412.72

12 115+21.19-56.44' L
End 352.33' Rad Type B68 C & G
Begin 35' Rad Type F68 C & G
TC Elev 1413.58

13 115+55.12-30.00' L
End 35' Rad Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1413.93

14 119+67.82-30.00' L
End Str Type F68 C & G
Begin 2834.72' Rad Type F68 C & G
TC Elev 1409.66

15 105+14.69-30.00' R
End Str Type F68 C & G
Begin 40' Rad Type F68 C & G
TC Elev 1423.10

16 105+54.69-70.00' R
End 40' Rad Type F68 C & G
TC Elev 1422.10

17 105+94.69-70.00' R
Begin 40' Rad Type F68 C & G
TC Elev 1422.32

18 106+34.69-30.00' R
End 40' Rad Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1423.07

19 114+75.34-30.00' R
End Str Type F68 C & G
Begin 35' Rad Type F68 C & G
TC Elev 1414.97

20 115+09.62-57.91' R
End 35' Rad Type F68 C & G
Begin 346' Rad Type B68 C & G
TC Elev 1414.37

21 115+15.36-81.51' R
End 346' Rad Type B68 C & G
TC Elev 1414.48

22 115+40.39-74.47' R
Begin 35' Rad Type F68 C & G
TC Elev 1414.49

23 115+74.09-30.00' R
End 35' Rad Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1413.98

24 119+67.82-30.00' R
End Str Type F68 C & G
Begin 2894.72' Rad Type F68 C & G
TC Elev 1411.15

REGISTERED PROFESSIONAL ENGINEER
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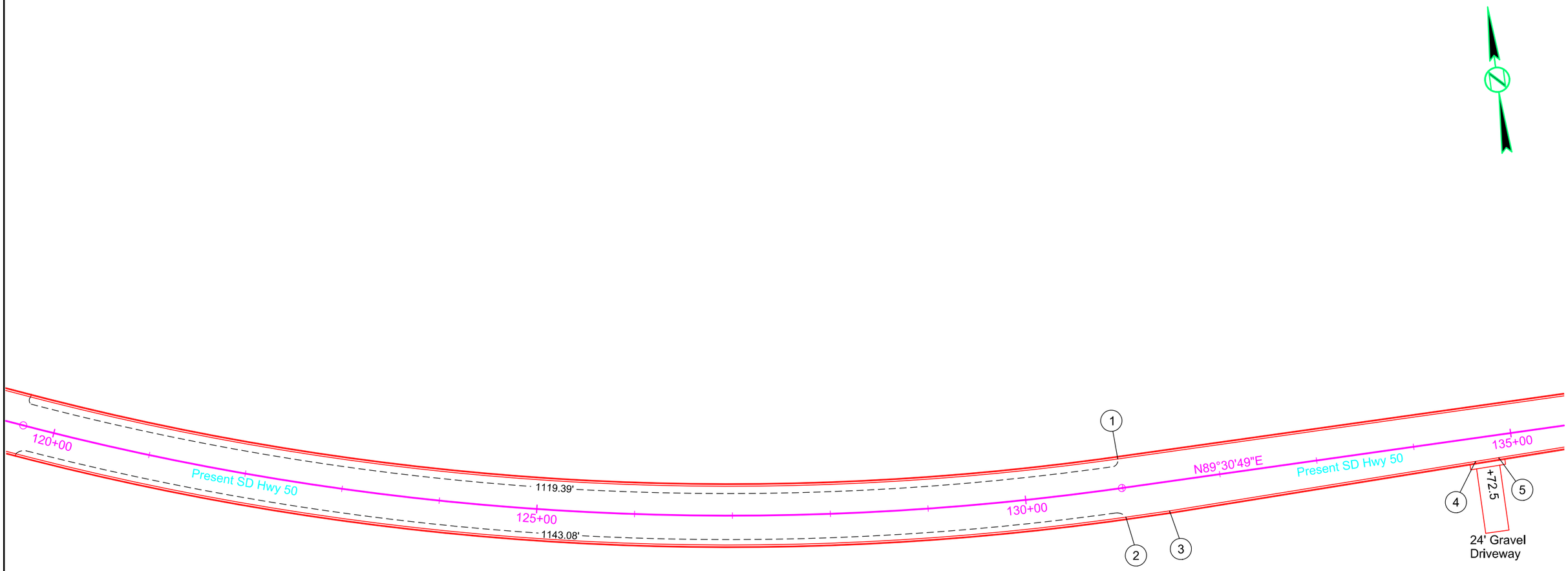
RYAN J.
MURTHA
1-2-25
SOUTH DAKOTA

CURB AND GUTTER LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B77	B101

Plotting Date: 1/2/2025



1 130+99.06-30.00' L
End 2834.72' Rad Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1398.35

2 130+99.06-30.00' R
End 2894.72' Rad Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1399.84

3 131+44.11-30.00' R
End Str Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1399.22

4 134+60.50-23.67' R
End Str Type F68 C & G
Begin Type P8 Gutter
TC Elev 1396.79 (Theor)

5 134+84.50-23.19' R
End Type P8 Gutter
Begin Str Type F68 C & G
TC Elev 1396.68 (Theor)

REGISTERED PROFESSIONAL ENGINEER
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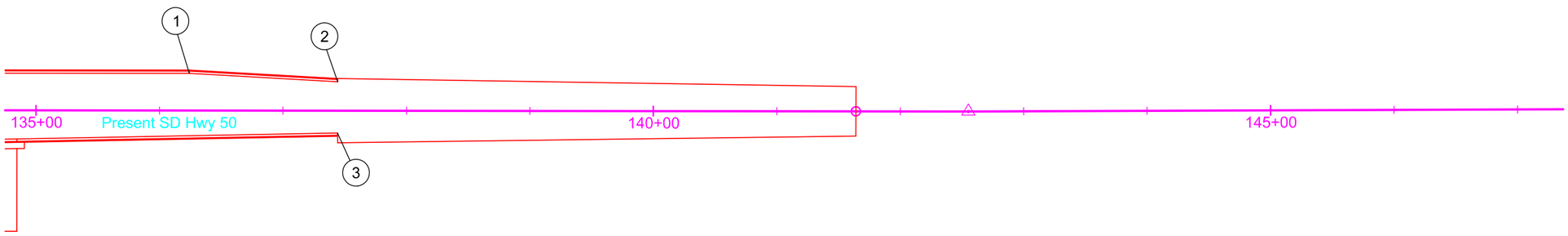
1-2-25
SOUTH DAKOTA

CURB AND GUTTER LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B78	B101

Plotting Date: 1/2/2025



1 136+24.17-30.00' L
End Str Type F68 C & G
Begin Str Type F68 C & G
TC Elev 1395.60

2 137+44.22-23.33' L
End Str Type F68 C & G
TC Elev 1395.14

3 137+44.22-18.00' R
End Str Type F68 C & G
TC Elev 1395.48

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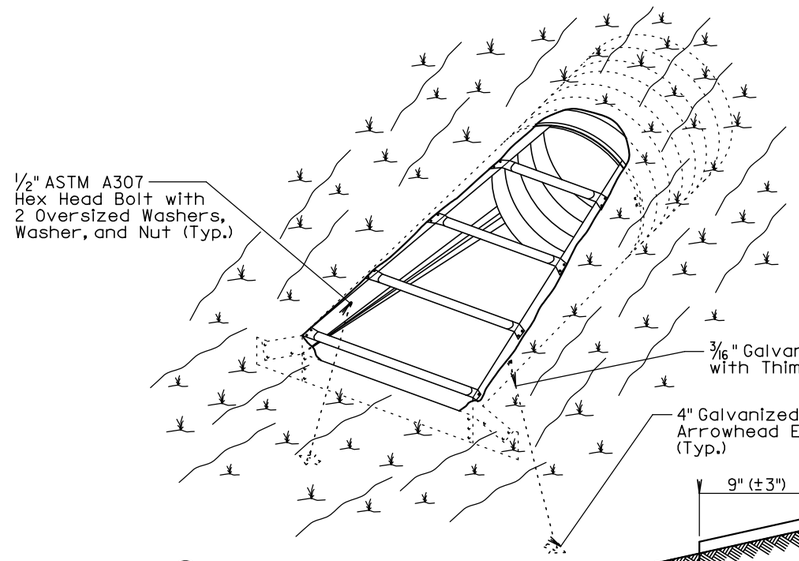
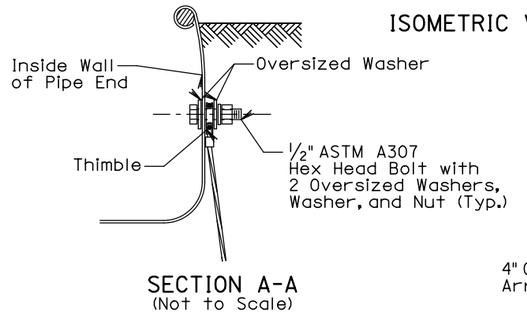
1-2-25
SOUTH DAKOTA

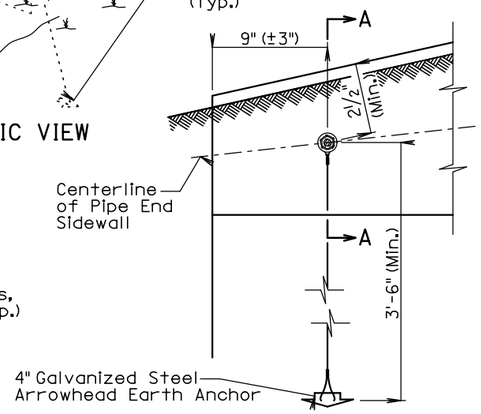
DETAILS FOR ANCHORING C. M. P. ENDS



ISOMETRIC VIEW



SECTION A-A
(Not to Scale)



SIDE VIEW
(Safety Bars Not Shown)

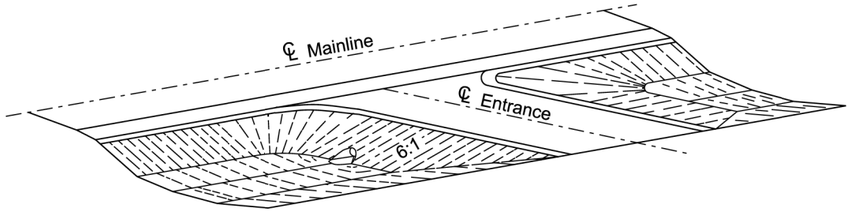
GENERAL NOTES:

Each end of the corrugated metal pipe shall be anchored with two 4" galvanized steel earth anchors with 3/16" galvanized cable and thimble. The arrowhead earth anchors provided shall be from the approved product list provided in the plans. The arrowhead anchors shall be installed in accordance with the manufacturer's recommendations.

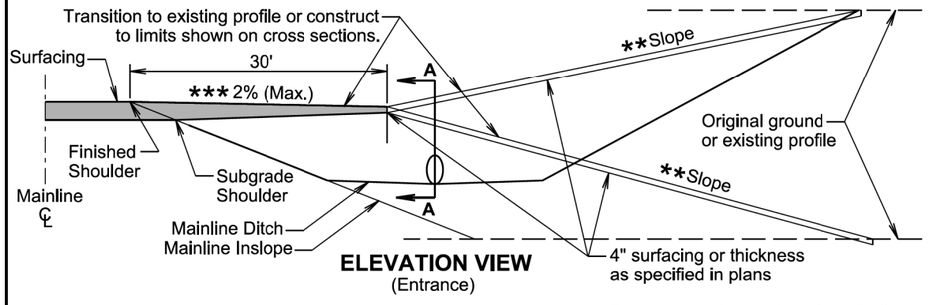
After the arrowhead anchors are placed, 9/16" diameter holes shall be drilled at a location approximately at the centerline of the sidewall (see drawings) to provide a taut cable attached to the pipe end.

The hex bolts shall be in conformance with ASTM A307. The hex nuts shall be in conformance with ASTM A563. The hex bolts and nuts shall be galvanized in accordance with ASTM A153. The washers shall be in conformance with ASTM F436, Grade 1.

All costs associated for anchoring the pipe end including equipment, labor, materials, and incidentals shall be included in the contract unit price per each for the corresponding install bid item of the pipe end.



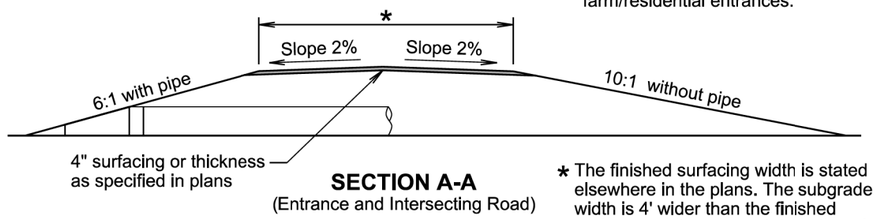
PERSPECTIVE OF ENTRANCE



ELEVATION VIEW
(Entrance)

*** 2% When on the inside of superelevation and 0% or flat when on outside of superelevation.

** Entrance maximum slope is typically 10:1 for field entrances and 15:1 for farm/residential entrances.



SECTION A-A
(Entrance and Intersecting Road)

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

GENERAL NOTES:

The ditch section shown above in the perspective view is only for illustrative purpose.

The elevation view above is typical for either a ditch cut or fill section. Entrances that vary from above should be specified in the plans.

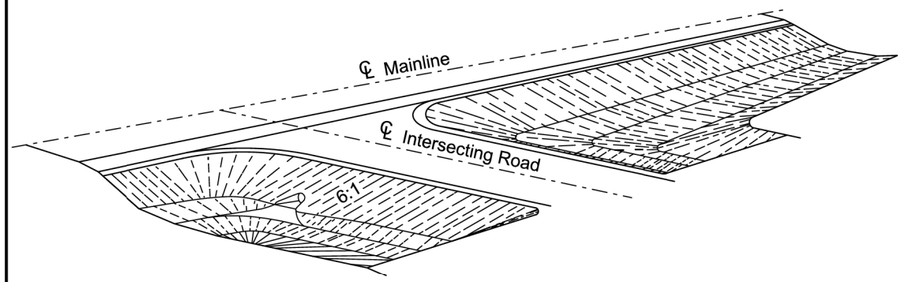
Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

The transition area between the mainline inslope and the entrance or intersecting road inslope will be rounded to eliminate an abrupt transition.

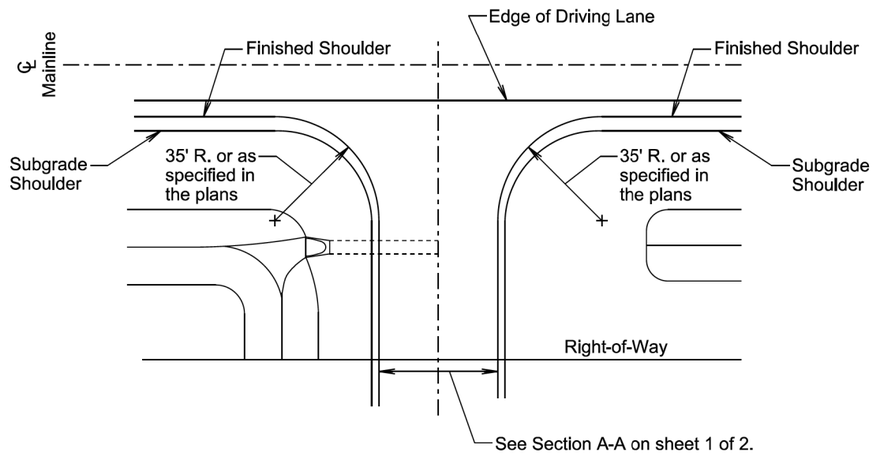
The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

Published Date: 2025	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD



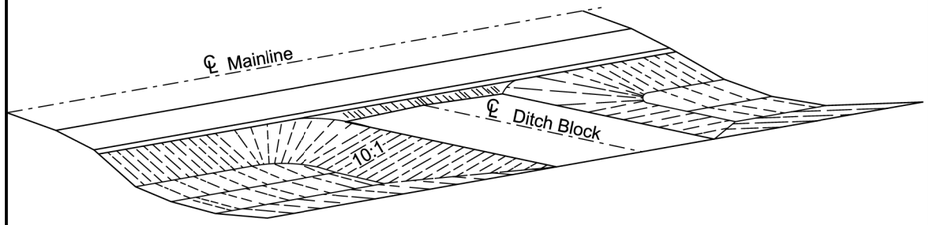
PLAN VIEW

GENERAL NOTES:

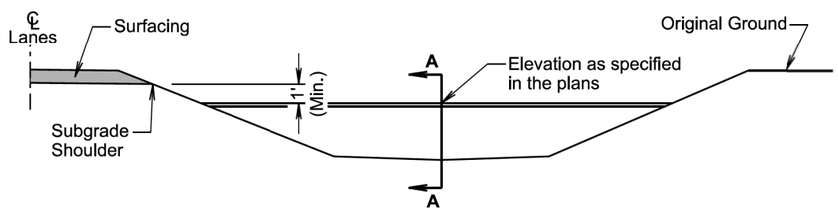
The 6:1 or 10:1 intersecting road inslope will transition to the existing intersecting road inslope near the right-of-way or at a location as determined by the Engineer.

November 19, 2021

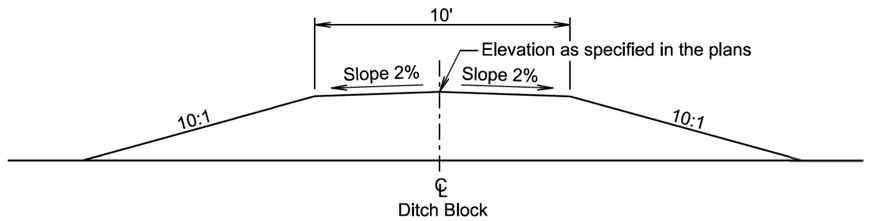
Published Date: 2025	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2



PERSPECTIVE OF DITCH BLOCK



ELEVATION VIEW



SECTION A-A

GENERAL NOTES:

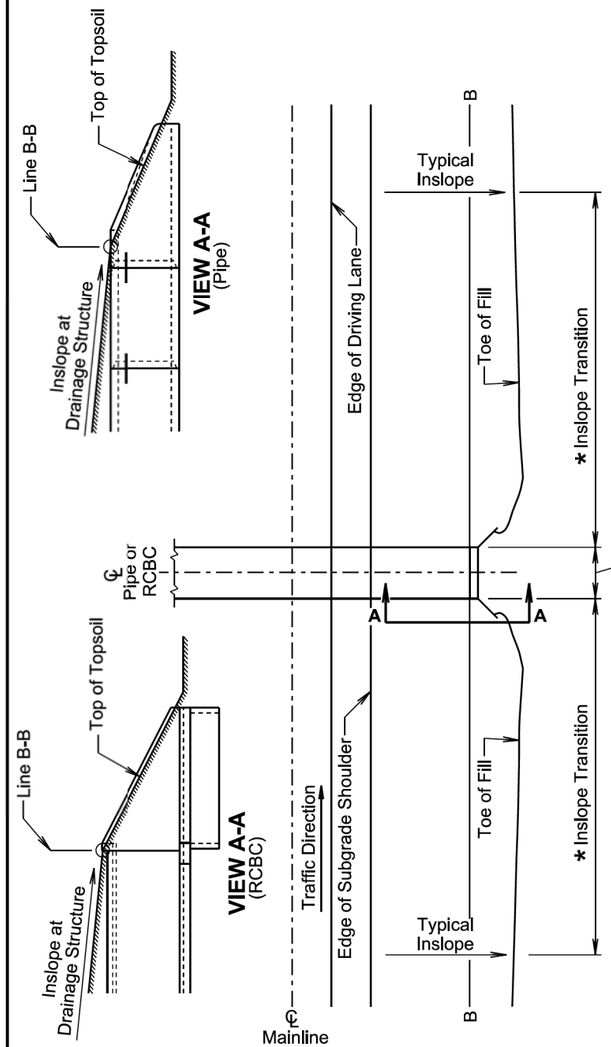
The ditch section shown above in the perspective and elevation view is only for illustrative purpose.

The inslopes of the ditch block will be 10:1 or as specified in the plans.

The transition area between the mainline inslope and the ditch block inslope will be rounded to eliminate an abrupt transition.

September 14, 2018

Published Date: 2025	SDDOT	DITCH BLOCK	PLATE NUMBER 120.02
			Sheet 1 of 1



TYPE 1 INSLOPE TRANSITION

GENERAL NOTES:

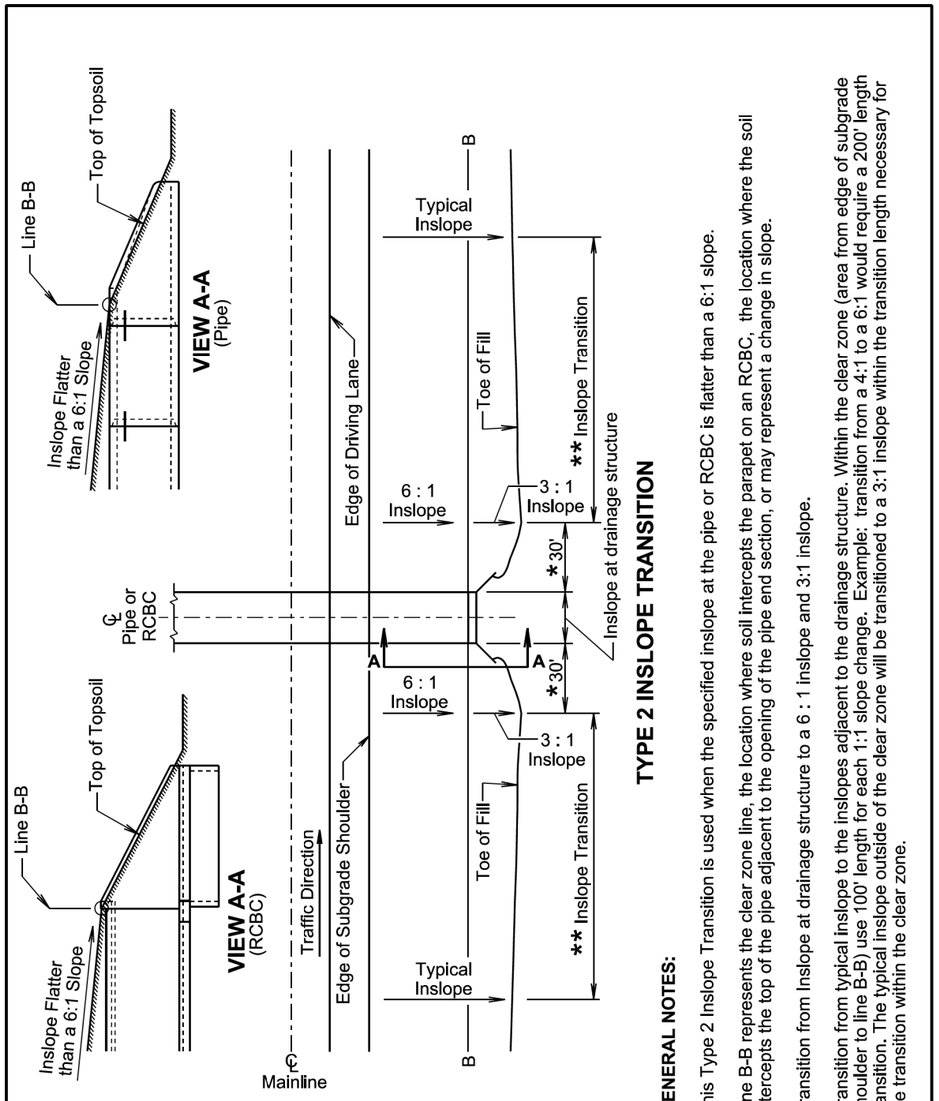
This Type 1 Inslope Transition is used when the specified inslope at the drainage structure is flatter than the typical inslope and the inslope at the drainage structure is between a 4:1 slope and 6:1 slope.

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

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

September 14, 2018

Published Date: 2025	SDDOT	INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS	PLATE NUMBER 120.05
			Sheet 1 of 2



TYPE 2 INSLOPE TRANSITION

GENERAL NOTES:

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

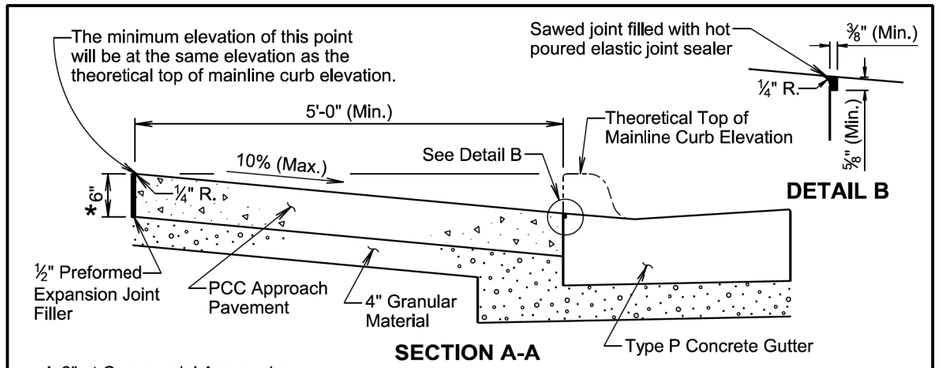
Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

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

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

September 14, 2018

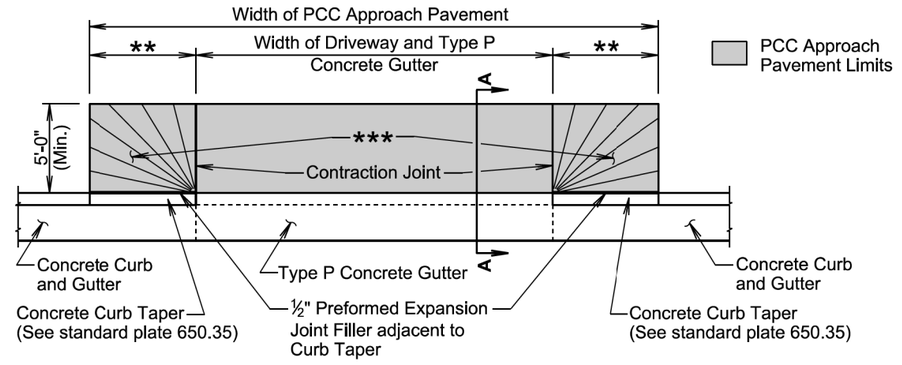
Published Date: 2025	SDDOT	INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS	PLATE NUMBER 120.05
			Sheet 2 of 2



* 8" at Commercial Approaches

** Width for 6" high curb is 6' (See standard plate 650.35)

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



PLAN VIEW

GENERAL NOTES:

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

Contraction joints in the type A PCC approach pavement will be 1½ inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint will be at least ¼ the thickness of the approach pavement. Additional contraction joints not shown in the Plan View will be spaced as follows:

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

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

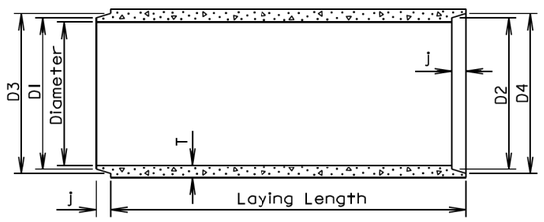
June 26, 2019

Published Date: 2025	SDDOT	TYPE A PCC APPROACH PAVEMENT	PLATE NUMBER 380.40
			Sheet 1 of 1

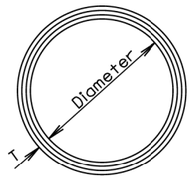
FOR BIDDING PURPOSES ONLY

TOLERANCES IN DIMENSIONS

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



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

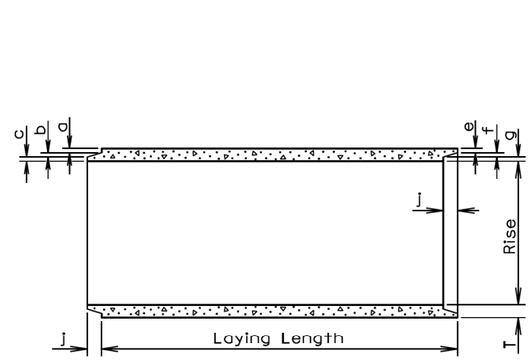
Construction of R. C. P. shall conform to the requirements of Section 990 of the Specifications.

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

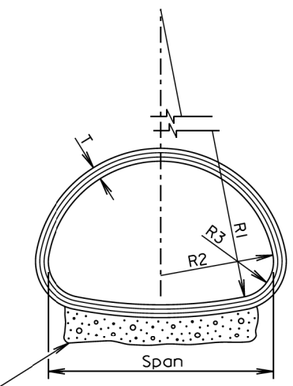
Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322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

June 26, 2015

Published Date: 2025	SDDOT	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
			Sheet 1 of 1



LONGITUDINAL SECTION



END VIEW

TOLERANCES IN DIMENSIONS

Radial dimensions at joints: ± 1/8" for 65" span or less and ± 1/4" for longer spans.
Rise and Span: ±2% of tabular values.
Length of Joint (J): ± 1/4".
Wall thickness (T): not less than design T by more than 5% or 3/16", whichever is greater.
Laying length: shall not underrun by more than 1/2".

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

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

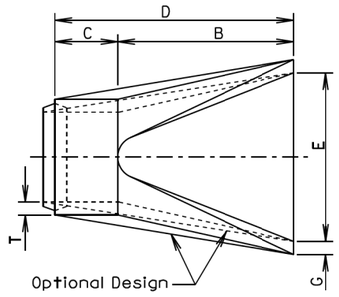
* Equivalent Diameter of Circular R. C. P.

GENERAL NOTES:

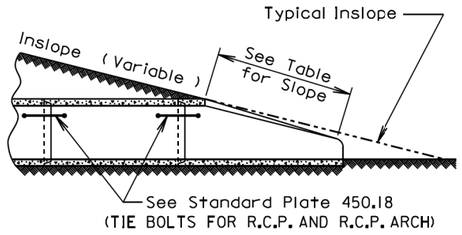
Construction of R.C.P. Arch shall conform to the requirements of Section 990 of the Specifications. Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

June 26, 2015

Published Date: 2025	SDDOT	REINFORCED CONCRETE PIPE ARCH	PLATE NUMBER 450.02
			Sheet 1 of 1



TOP VIEW

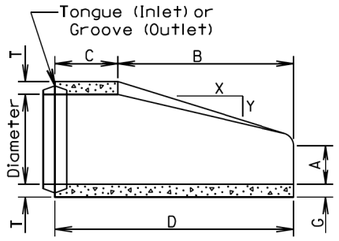


SLOPE DETAIL

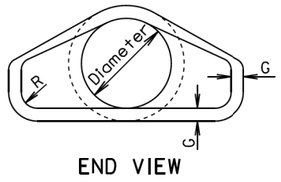
GENERAL NOTES:

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 Specifications.



LONGITUDINAL SECTION

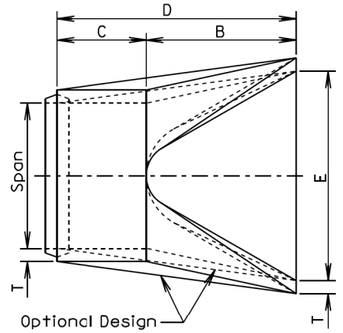


END VIEW

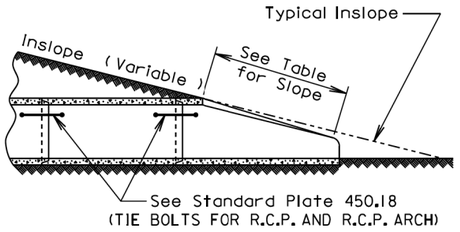
Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4:1	2	4	24	48 7/8	72 7/8	24	2	1 1/2
15	740	2.4:1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3:1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4:1	2 3/4	9	36	37 1/2	73 1/2	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

June 26, 2015

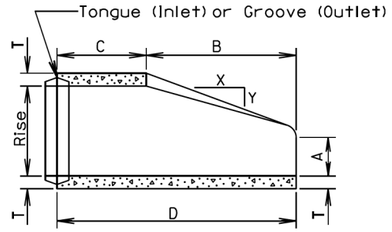
Published Date: 2025	SDDOT	R. C. P. FLARED ENDS	PLATE NUMBER 450.10 Sheet 1 of 1



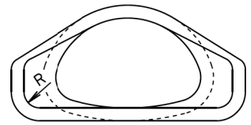
TOP VIEW



SLOPE DETAIL



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

Lengths of concrete pipe shown on plan sheets are between flared ends only.

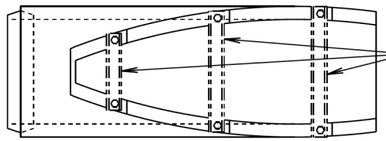
Construction of R. C. P. Arch Flared End shall conform to the requirements of Section 990 of the Specifications.

* 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	1 11/8	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.

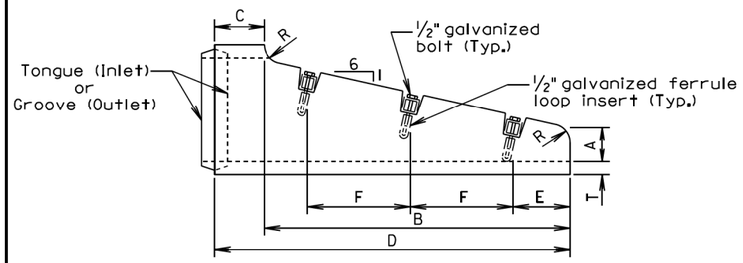
June 26, 2015

Published Date: 2025	SDDOT	R. C. P. ARCH FLARED ENDS	PLATE NUMBER 450.11 Sheet 1 of 1

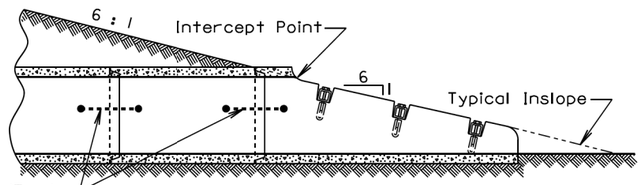


If bars are specified in the plans then provide HSS 2.5X2.5X.1875 Structural Steel Tubing in conformance with ASTM A500, Grade B or 3" Diameter Schedule 40 Pipe in conformance with ASTM A53, Grade B.

TOP VIEW



SIDE VIEW



ELEVATION VIEW

Dia. (in.)	T (in.)	R (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	No. Sections	No. Bars
FOR CIRCULAR PIPE										
15	2¼	3	6	48	9	57	6	18	1	3
18	2½	3	6	69	9	78	9	24	1	3
*24	3	3	6	111	9	120	6	24	1 or 2	5
FOR ARCH PIPE										
**18	2½	1	6	39	33	72	6	24	1	2

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

GENERAL NOTES:

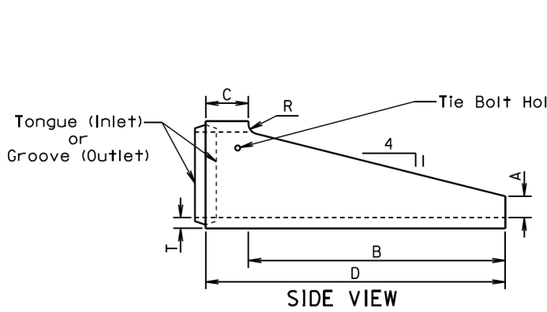
The length of concrete pipe shown on the plans is between safety ends.

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

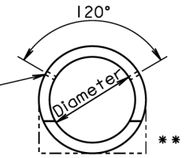
Bars shall be galvanized after fabrication in accordance with ASTM A123.

August 31, 2013

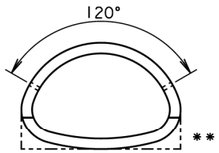
Published Date: 2025	SDDOT	R. C. P. SAFETY ENDS WITH OR WITHOUT BARS	PLATE NUMBER 450.12
			Sheet 1 of 1



SIDE VIEW



END VIEW "CIRCULAR"



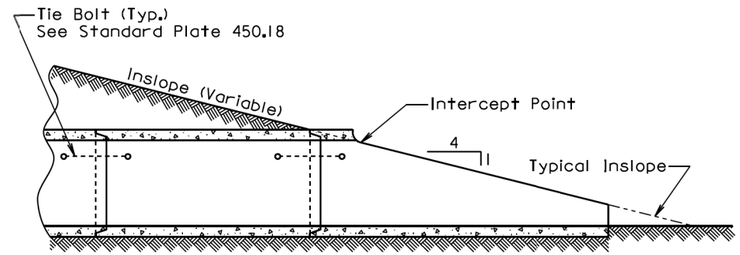
END VIEW "ARCH"

Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
FOR CIRCULAR PIPE						
24	3	6	72	12	84	3
30	3½	7½	90	12	102	3½
FOR ARCH PIPE						
* 24	3	6	48	12	60	3
* 30	3½	7½	60	12	72	3½
* 36	4½	8⅝	66	30	96	0
* 42	4½	10	77¼	18¾	96	0

ALTERNATE

Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
FOR CIRCULAR PIPE						
24	3	9	72	12	84	0
30	3½	11	90	12	102	0
FOR ARCH PIPE						
* 24	3	9	48	12	60	0
* 30	3½	11	60	12	72	0

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



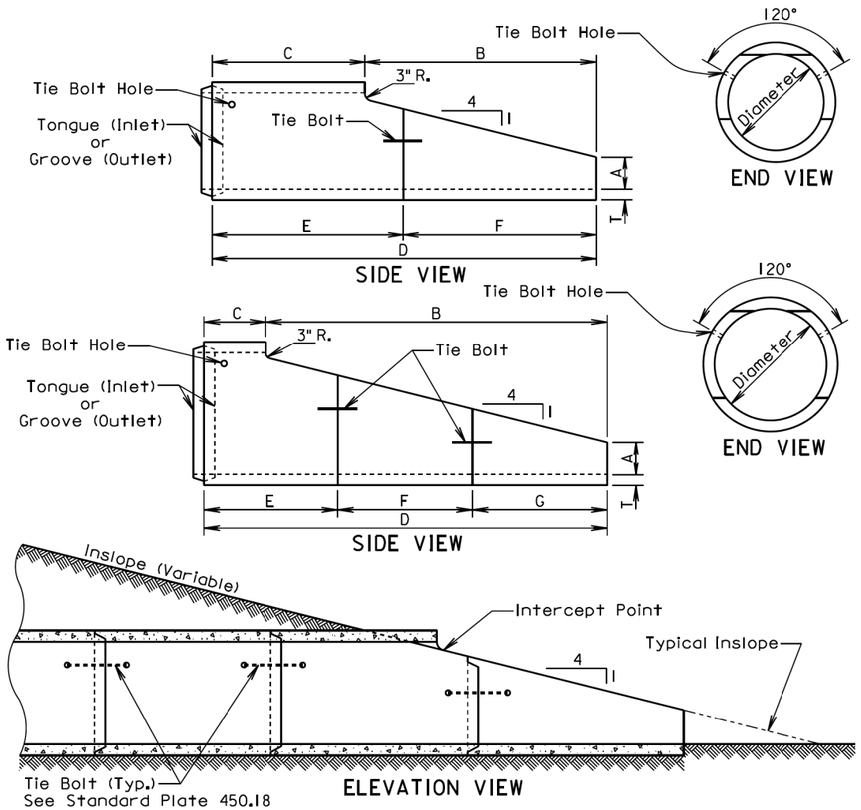
SECTION
(Along Centerline of Pipe)

GENERAL NOTE:

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

September 22, 2006

Published Date: 2025	SDDOT	R. C. P. SLOPED ENDS	PLATE NUMBER 450.13
			Sheet 1 of 1



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

GENERAL NOTE:

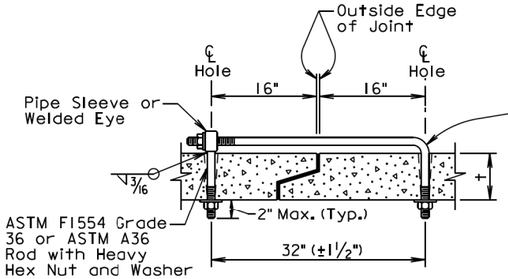
The length of concrete pipe shown in the construction plans is between sloped ends.

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

August 31, 2013

Published Date: 2025	SDDOT	R. C. P. SLOPED ENDS WITH OR WITHOUT BARS	PLATE NUMBER 450.14
			Sheet 1 of 1

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



ADJUSTABLE EYE BOLT TIE

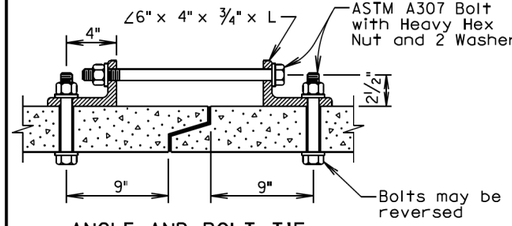
GENERAL NOTES:

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

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

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

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



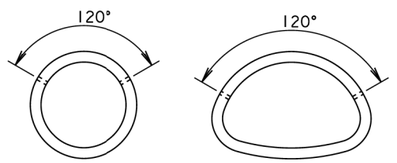
ANGLE AND BOLT TIE

GENERAL NOTES:

Angles shall conform to ASTM A36.

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

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



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.

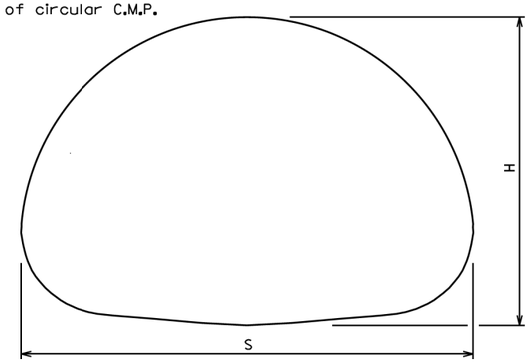
There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

February 28, 2013

Published Date: 2025	SDDOT	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
			Sheet 1 of 1

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

* Equivalent diameter of circular C.M.P.



GENERAL NOTE:
All dimensions measured from inside crest.

March 31, 2000

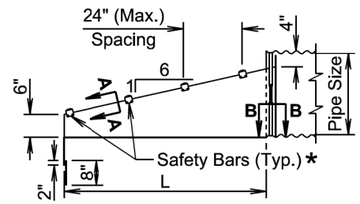
Published Date: 2025

SDDOT

CORRUGATED METAL PIPE ARCH CULVERT

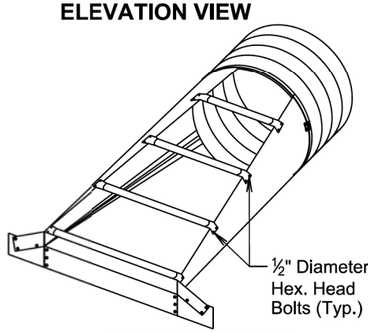
PLATE NUMBER 450.30

Sheet 1 of 1

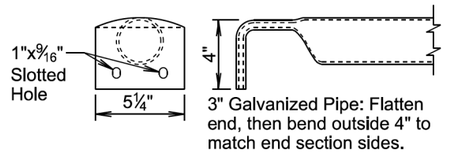


* Number of bars required will vary depending on the length of the end section.

ELEVATION VIEW

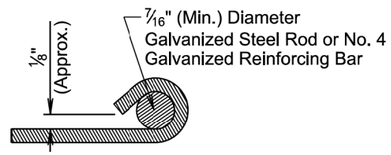


ISOMETRIC VIEW

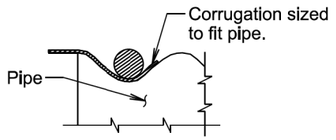


3" Galvanized Pipe: Flatten end, then bend outside 4" to match end section sides.

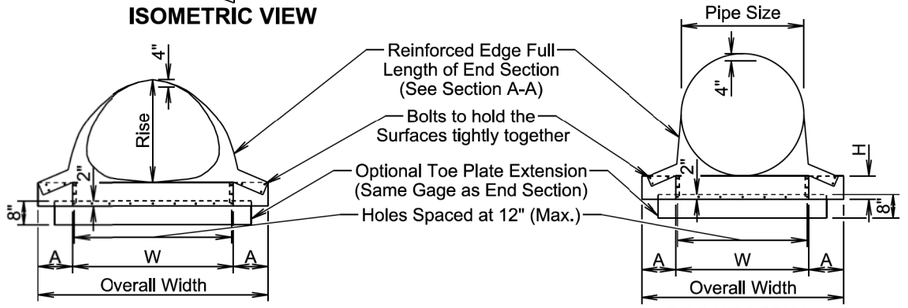
DETAIL OF SAFETY BARS



SECTION A-A

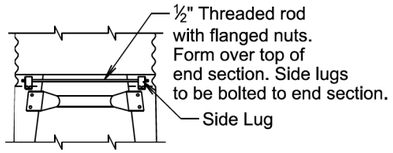


SECTION B-B

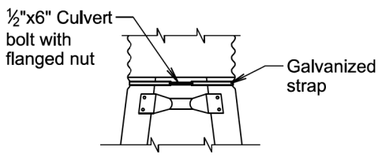


FRONT VIEW

FRONT VIEW



TYPE #2 CONNECTOR DETAIL
(For 30" and Larger)
(For 21"x15" and Larger)



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

August 31, 2022

Published Date: 2025

SDDOT

C.M.P. SAFETY ENDS

PLATE NUMBER 450.38

Sheet 1 of 2

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

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

GENERAL NOTES:

Safety bars will be provided when specified in the plans.

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

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

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

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

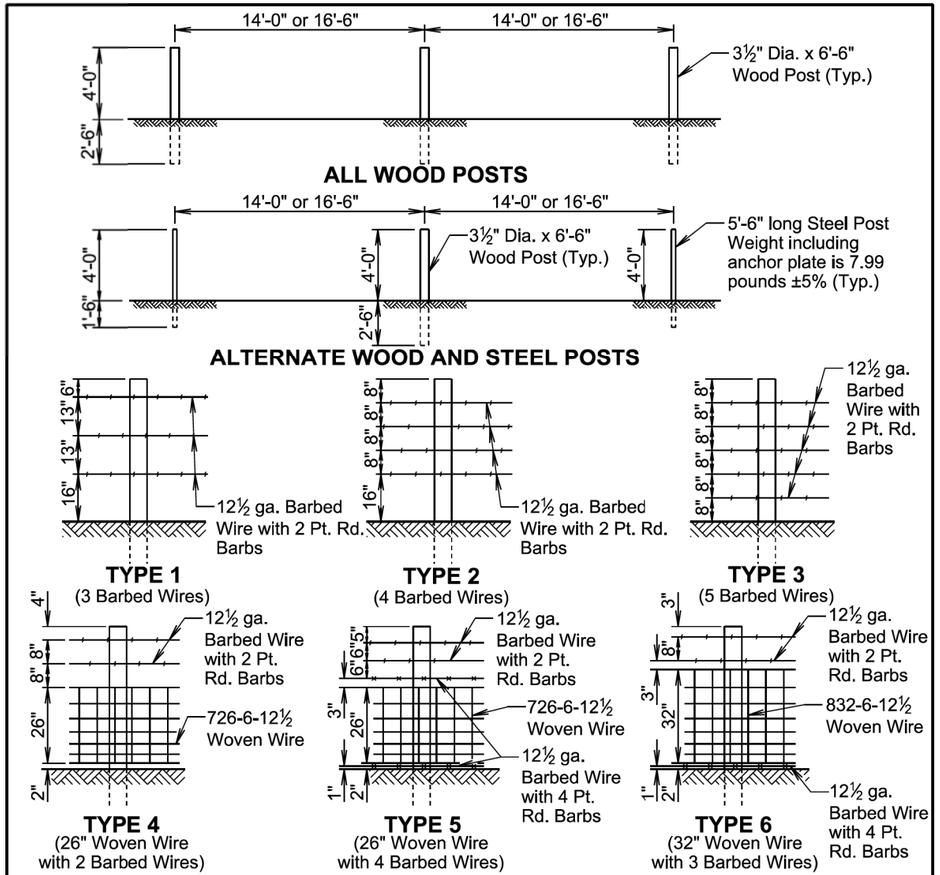
When stated in the plans, optional toe plate extension will be punched and bolted to end section apron lip with ⅜" diameter galvanized bolts. Steel for toe plate extension will be same gauge as end section. Dimensions will be overall width less 6" by 8" high.

Installation will be performed in accordance with the Specifications.

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

August 31, 2022

Published Date: 2025	SDDOT	C.M.P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 2 of 2



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

GENERAL NOTES:

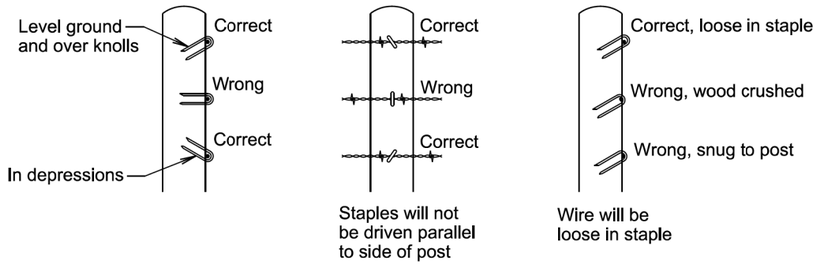
Fence types designated on the plans that are followed by the letter S will have smooth (barbless) wires.

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

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

June 26, 2019

Published Date: 2025	SDDOT	RIGHT-OF-WAY FENCE	PLATE NUMBER 620.01
			Sheet 1 of 1



STAPLE INSTALLATION

GENERAL NOTES:

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

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

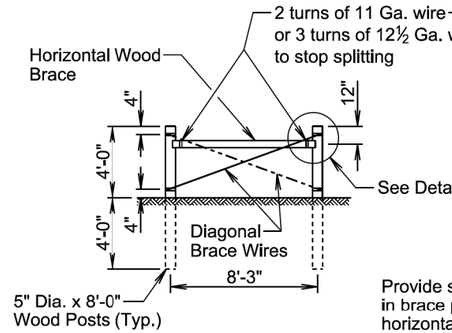
Right-of-Way fence other than on Interstate Projects will be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

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

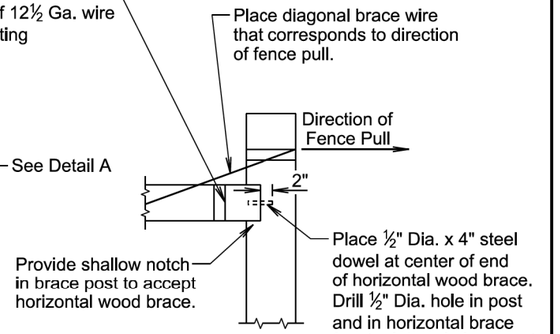
The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts will be as stated in AASHTO M281. Woven wire will conform to design and specifications of ASTM A116 and barbed wire will conform to ASTM A121.

June 26, 2019

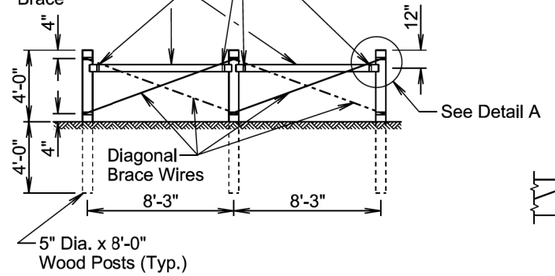
Published Date: 2025	SDDOT	STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES	PLATE NUMBER 620.02 Sheet 1 of 1



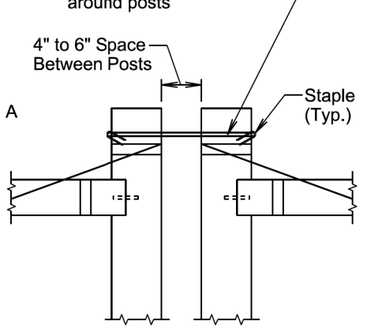
ELEVATION VIEW
(2 Post Panel)



DETAIL A



ELEVATION VIEW
(3 Post Panel)



DETAIL B

GENERAL NOTES:

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

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

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

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

March 31, 2024

Published Date: 2025	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03 Sheet 1 of 3

SPACING OF 2 POST PANELS WITHIN CURVES	
RADIUS OF CURVE	SPACING OF 2 POST PANEL
Greater than 1800 Ft.	** 1320'
Less than 1800 Ft.	**At P.C., P.T., and at every 1320' between P.C. and P.T.

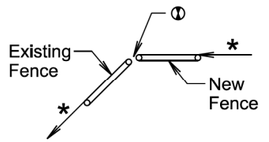
** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

① See Detail B on Sheet 1 of 3.

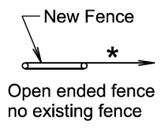
GENERAL NOTE:

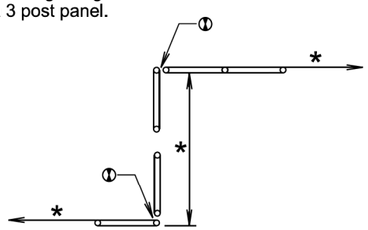
All radius of curvature stated for fence are at centerline of roadway.

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

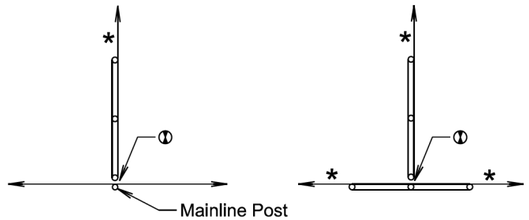


BEGIN OR END FENCE
(Where new fence ties into existing fence)

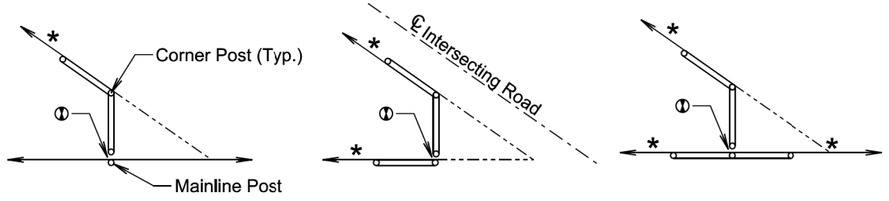




SHORT JOGS IN FENCE



CROSS FENCE



SHARP ANGLES IN CROSS FENCE

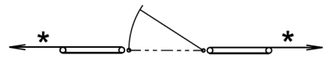
Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.

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

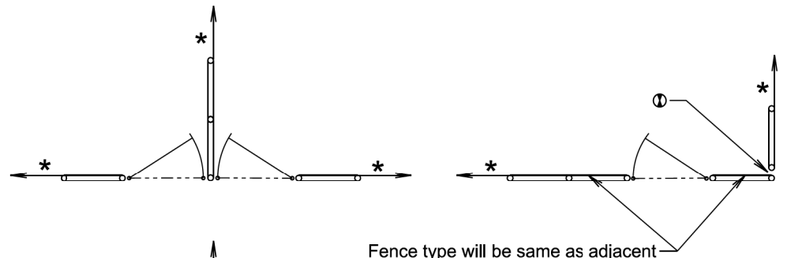
ANGLES IN MAINLINE FENCE

March 31, 2024

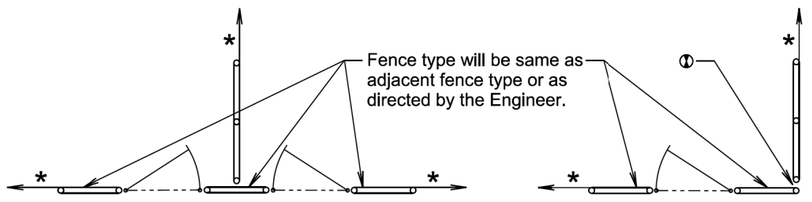
Published Date: 2025	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 2 of 3



ENTRANCE
(Not on corner)



Fence type will be same as adjacent fence type or as directed by the Engineer.



DOUBLE ENTRANCES

ENTRANCES AT CORNERS

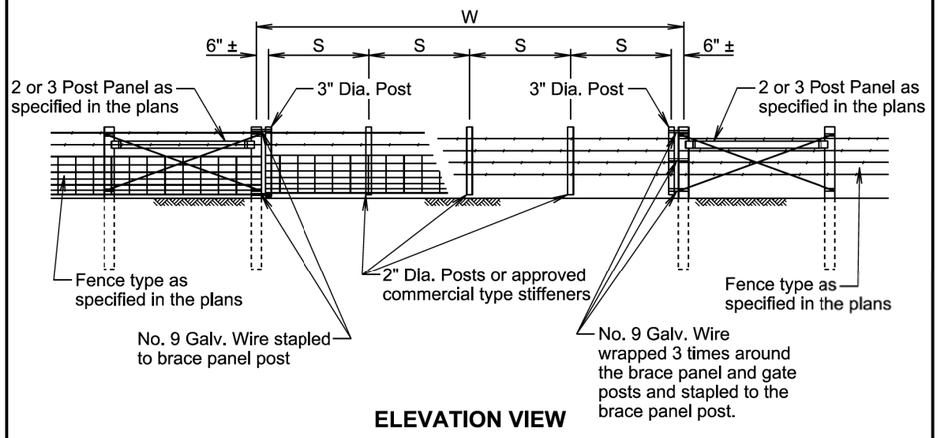
GATES

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

① See Detail B on Sheet 1 of 3.

March 31, 2024

Published Date: 2025	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 3 of 3



ELEVATION VIEW

W Gate Width (Ft.)	S Post Spacing
16	3 @ 5'-0" ±
20	4 @ 4'-9" ±
24	4 @ 5'-9" ±
30	5 @ 5'-10" ±
40	6 @ 6'-6" ±

GENERAL NOTES:

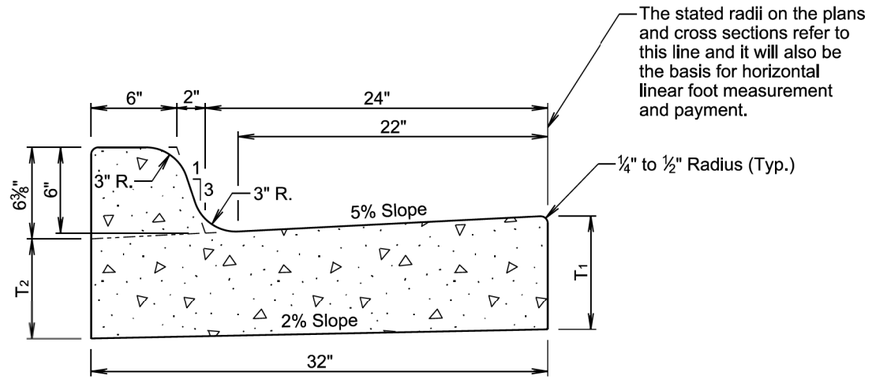
Creosote treatment of the gate posts will not be accepted.

The type of fencing in the gate will be of the same type as specified for the adjacent Right-of-Way fence.

All costs for furnishing and constructing the wire gate(s) will be incidental to the contract unit price per foot for the respective Right-of-Way fence contract item.

June 26, 2019

Published Date: 2025	SDDOT	WIRE GATES	PLATE NUMBER 620.20
			Sheet 1 of 1



TYPE B CONCRETE CURB AND GUTTER				
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

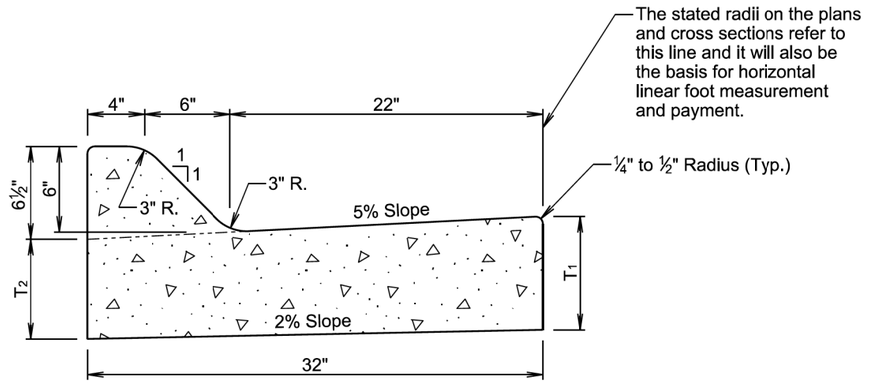
GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment will be by one of the methods shown on standard plate 380.21.

See standard plate 650.90 for expansion and contraction joints in the curb and gutter.

January 22, 2023

Published Date: 2025	SDDOT	TYPE B CONCRETE CURB AND GUTTER	PLATE NUMBER 650.01
			Sheet 1 of 1



TYPE F CONCRETE CURB AND GUTTER

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

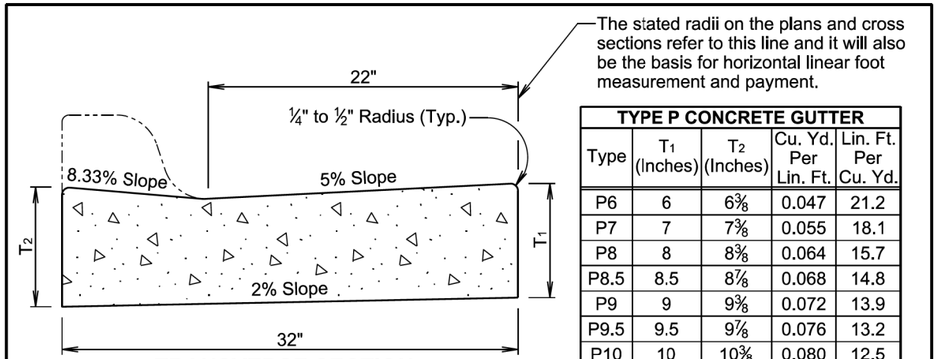
GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment will be by one of the methods shown on standard plate 380.21.

See standard plate 650.90 for expansion and contraction joints in the curb and gutter.

January 22, 2023

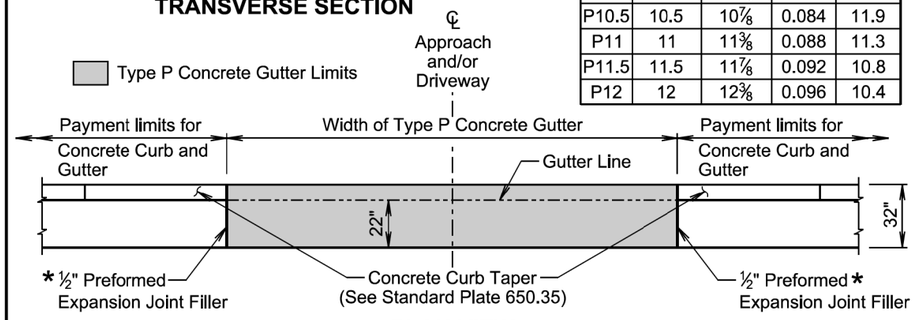
Published Date: 2025	SDDOT	TYPE F CONCRETE CURB AND GUTTER	PLATE NUMBER 650.20
			Sheet 1 of 1



TRANSVERSE SECTION

TYPE P CONCRETE GUTTER

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



PLAN VIEW

* Joint will not be needed if concrete curb and gutter and type P concrete gutter is placed at the same time. If the ½" preformed expansion joint filler is provided, then the joint will be sealed in accordance with standard plate 650.90.

GENERAL NOTES:

The concrete for the type P concrete gutter will comply with the requirements of the specifications for class M6 concrete.

When concrete gutter longitudinally adjoins new concrete pavement, the method of attachment will be by one of the methods shown on standard plate 380.21.

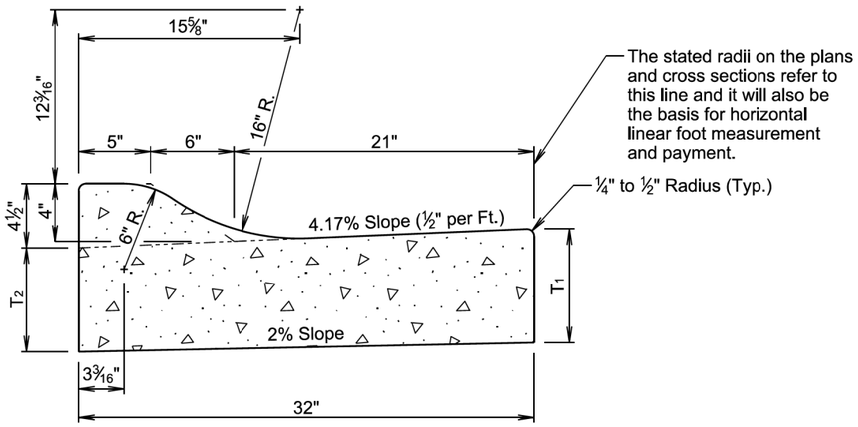
Transverse contraction joints will be constructed at 10-foot intervals in the concrete gutter except when concrete gutter is constructed adjacent to mainline PCC pavement. When concrete gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint will be constructed in the 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 will 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 will be 1½ inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint will be at least ¼ the thickness of the concrete.

January 22, 2023

Published Date: 2025	SDDOT	TYPE P CONCRETE GUTTER	PLATE NUMBER 650.30
			Sheet 1 of 1



TYPE R CONCRETE CURB AND GUTTER

Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
R48	8	$7\frac{5}{16}$	0.073	13.7
R48.5	8.5	$7\frac{13}{16}$	0.077	13.0
R49	9	$8\frac{5}{16}$	0.081	12.4
R49.5	9.5	$8\frac{13}{16}$	0.085	11.8
R410	10	$9\frac{5}{16}$	0.089	11.2
R410.5	10.5	$9\frac{13}{16}$	0.093	10.7
R411	11	$10\frac{5}{16}$	0.097	10.3
R411.5	11.5	$10\frac{13}{16}$	0.101	9.9
R412	12	$11\frac{5}{16}$	0.106	9.5

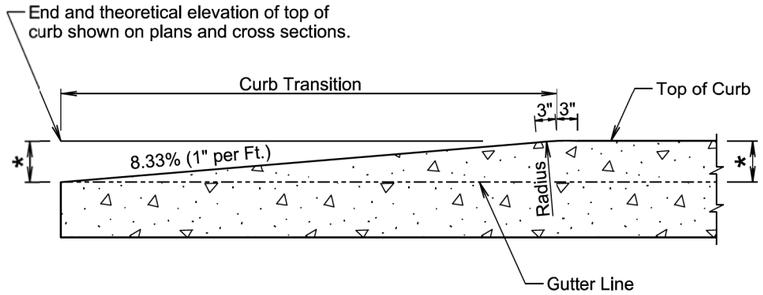
GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment will be by one of the methods shown on standard plate 380.21.

See standard plate 650.90 for expansion and contraction joints in the curb and gutter.

January 22, 2023

Published Date: 2025	SDDOT	TYPE R CONCRETE CURB AND GUTTER	PLATE NUMBER 650.33 Sheet 1 of 1

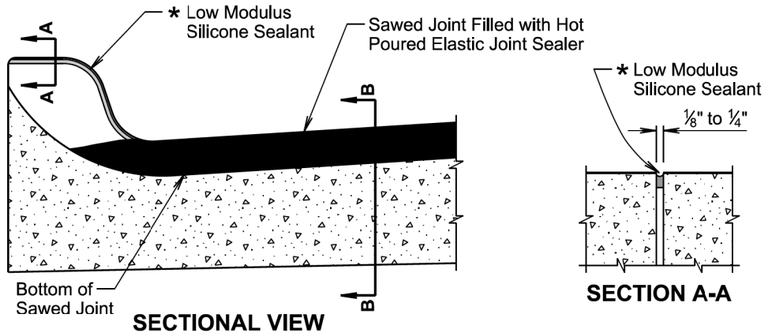


* Height of Curb

LONGITUDINAL SECTION
(Concrete Curb Taper)

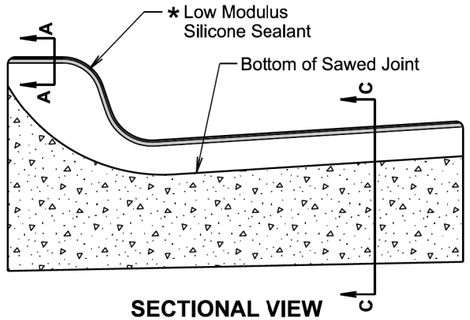
December 23, 2019

Published Date: 2025	SDDOT	CONCRETE CURB TAPER	PLATE NUMBER 650.35 Sheet 1 of 1

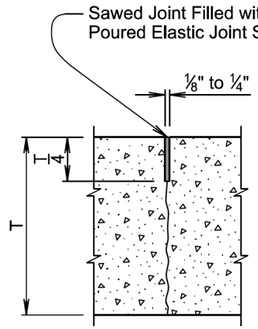


SECTIONAL VIEW
(Curb and Gutter Placed Monolithic with Adjacent Mainline PCC Pavement)

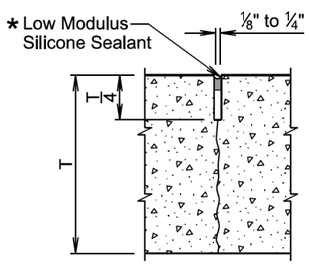
SECTION A-A



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



SECTION B-B

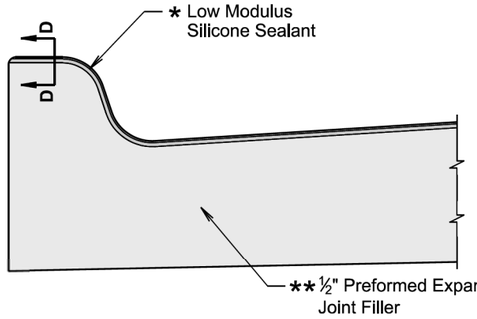


SECTION C-C

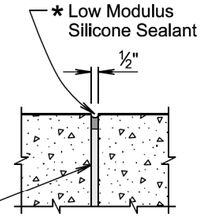
* The silicone sealant will be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Engineer.

December 23, 2019

Published Date: 2025	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 1 of 2



SECTIONAL VIEW
(Curb and Gutter at ½" Preformed Expansion Joint Filler Location)



SECTION D-D

* The silicone sealant will 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 ½-inch preformed expansion joint filler will be placed transversely in the curb and gutter at the following locations:

At each junction between the radius return of curb and gutter, and curb and gutter which is parallel to the project centerline.

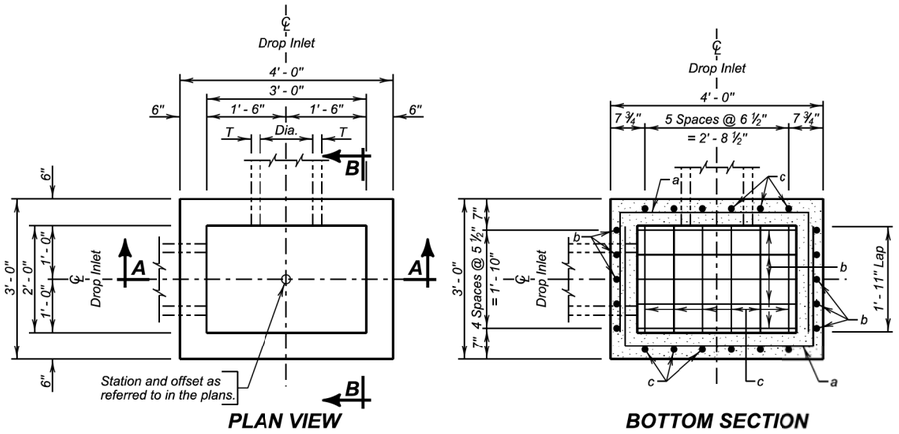
At each junction between new curb and gutter and existing curb and gutter.

Transverse contraction joints will be constructed at 10 foot 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 will 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 will be 1½ inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint will be at least ¼ the thickness of the concrete and the joint will be sealed in accordance with the details shown above.

December 23, 2019

Published Date: 2025	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 2 of 2



ESTIMATED QUANTITIES

ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
✳ Class M6 Concrete	Cu. Yd.	0.26	0.22H
Reinforcing Steel	Lb.	51.19	28.97H
Frame and Grate Assembly	Each	1	———

DROP INLETS FOR 12" TO 24" DIAMETER PIPE

SPECIFICATIONS

Design Specifications: AASHTO LRFD Bridge Design Specifications, 2012 Edition.

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

GENERAL NOTES:

Design Live Load: HL-93. No construction loading in excess of legal load was considered.

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

Drop inlet may be precast. If precast drop inlet details differ from this standard plate, submit a checked design done by a SD registered P.E. and shop plans to the Office of Bridge Design for approval.

✳ Reduce total quantities of concrete by the amount of concrete displaced by the pipe(s). 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 inlet shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering drop inlet must fit between the inside face of walls and shall not enter through the corners.

Maximum R.C.P. diameter shall not exceed 18 inches on the 2-foot wide side and shall not exceed 24 inches (24 inches for R.C. arch) on the 3-foot wide side of the drop inlet.

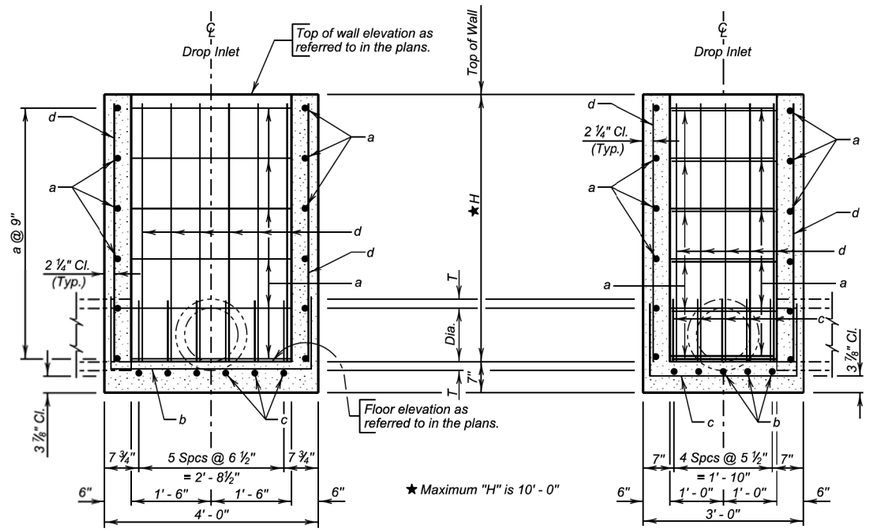
The dimension of H is in feet. Maximum H is 10 feet.

PIPE DISPLACEMENT REDUCTIONS

	Diameter (Inches)	Wall T (Inches)	Class M6 Concrete (Cu. Yd.)
R.C.P.	12	2	0.03
	15	2 ¼	0.04
	18	2 ½	0.05
	24	3	0.09
R.C. ARCH	18	2 ½	0.05
	24	3 ½	0.09

March 31, 2024

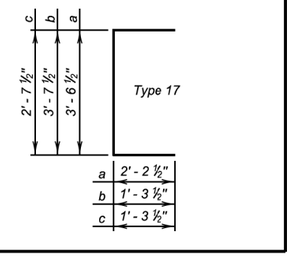
Published Date: 2025	SDDOT	2'X 3' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.01
			Sheet 1 of 2



REINFORCING SCHEDULE

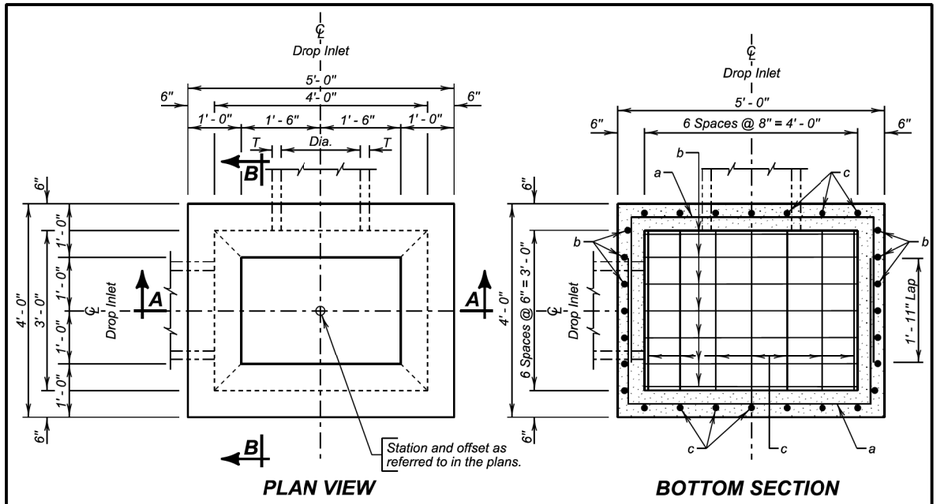
Mk.	No.	Size	Length	Type	Bending Details
a	2.67H	4	8' - 0"	17	
b	5	5	6' - 3"	17	
c	6	4	5' - 3"	17	
d	22	4	H - 2"	Str.	

NOTE:
All dimensions are out to out of bars.



March 31, 2024

Published Date: 2025	SDDOT	2'X 3' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.01
			Sheet 2 of 2



PLAN VIEW

BOTTOM SECTION

ESTIMATED QUANTITIES

ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
⚹ Class M6 Concrete	Cu. Yd.	0.72	0.30H
Reinforcing Steel	Lb.	130.93	36.54H
Frame and Grate Assembly	Each	1	———

DROP INLETS FOR 12" TO 36" DIAMETER PIPE

SPECIFICATIONS

Design Specifications: AASHTO LRFD Bridge Design Specifications, 2012 Edition.

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

GENERAL NOTES:

Design Live Load: HL-93. No construction loading in excess of legal load was considered.

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

Drop inlet may be precast. If precast drop inlet details differ from this standard plate, submit a checked design done by a SD registered P.E. and shop plans to the Office of Bridge Design for approval.

⚹ Reduce total quantities of concrete by the amount of concrete displaced by the pipe(s). 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 inlet shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering drop inlet must fit between the inside face of walls and shall not enter through the corners.

Maximum R.C.P. diameter shall not exceed 24 inches (24 inches for R. C. arch) on the 3-foot wide side and shall not exceed 36 inches (30 inches for R.C. arch) on the 4-foot wide side of the drop inlet.

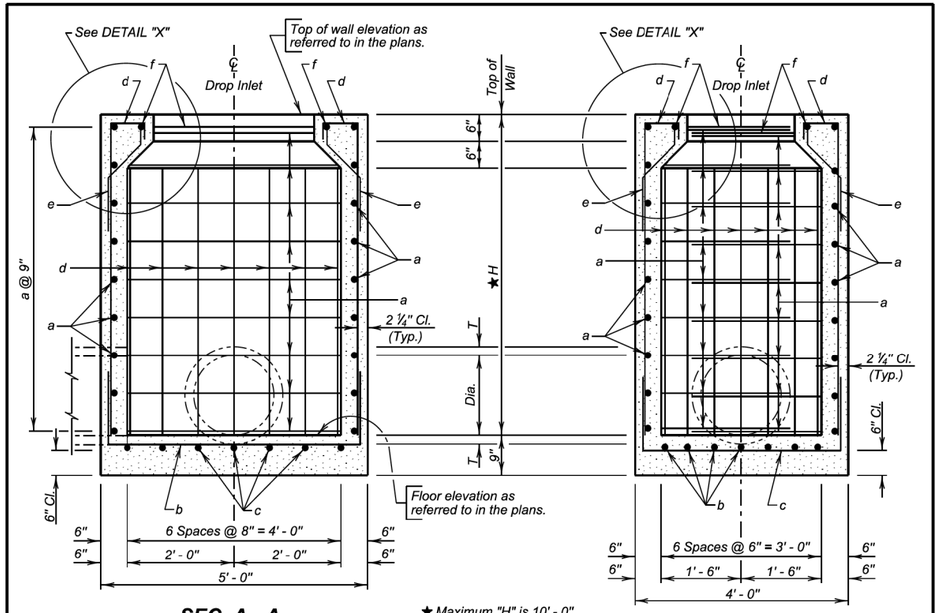
The dimension of H is in feet. Maximum H is 10 feet.

PIPE DISPLACEMENT REDUCTIONS

	Diameter (Inches)	Wall T (Inches)	Class M6 Concrete (Cu. Yd.)
R.C.P.	12	2	0.03
	15	2 ¼	0.04
	18	2 ½	0.05
	24	3	0.09
	30	3 ½	0.14
	36	4	0.20
R.C. ARCH	18	2 ½	0.05
	24	3 ½	0.09
	30	4	0.14

December 16, 2015

Published Date: 2025	SDDOT	3' X 4' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.02
			Sheet 1 of 2



SEC. A - A

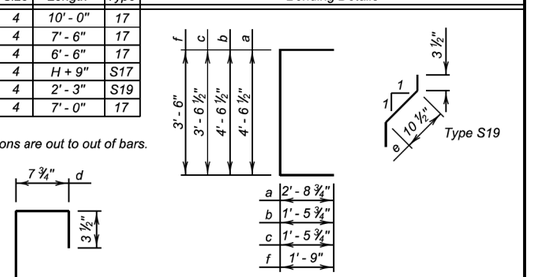
★Maximum "H" is 10' - 0"

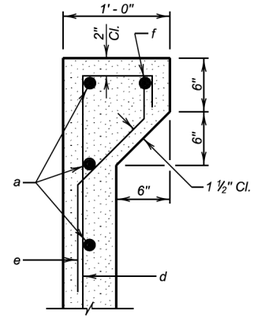
SEC. B - B

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
a	2.67H	4	10' - 0"	17	
b	7	4	7' - 6"	17	
c	7	4	6' - 6"	17	
d	28	4	H + 9"	S17	
e	28	4	2' - 3"	S19	
f	2	4	7' - 0"	17	

NOTE:
All dimensions are out to out of bars.

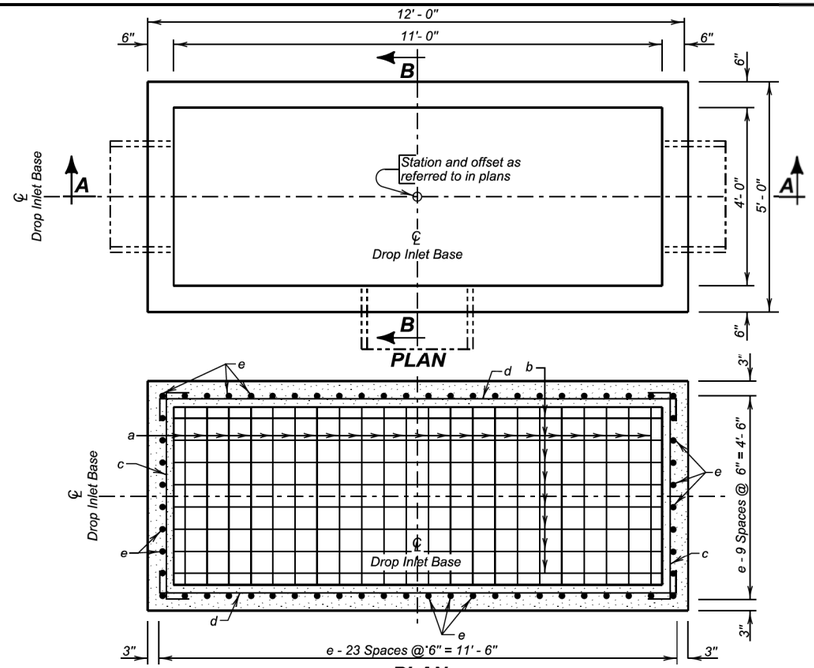




DETAIL "X"

December 16, 2015

Published Date: 2025	SDDOT	3' X 4' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.02
			Sheet 2 of 2



SPECIFICATIONS:

1. Design Specifications: AASHTO LRFD Bridge Design Specifications 2012 Edition.
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

GENERAL NOTES:

1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Base is intended for use with a Precast Concrete Type S Drop Inlet Lid, Standard Plate 670.40. Base may be precast. If precast base used, and details differ from that shown, the precast base must be on the current approved list. The current approved list is available through proper channels from the SDDOT Office of Bridge Design.
3. To qualify for addition to the approved list, submit a checked design, by South Dakota Registered Professional Engineers and shop plans to the Office of Bridge Design for approval. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
4. ✳ 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.
5. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
6. Maximum R.C.P. diameter shall not exceed 36 inches (30 inches for R.C. Arch) on the 4-foot wide side of the Drop Inlet.
7. Reinforcing steel shall conform to ASTM A615 Grade 60. Cut and bend reinforcing steel as required to place pipe(s) through the inlet wall.
8. Use 1 inch clear cover on all reinforcing steel unless otherwise noted.
9. The dimension of H is in feet. Maximum H is 8 feet.

June 26, 2015

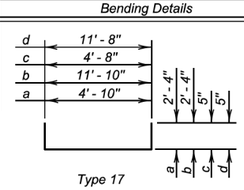
Published Date: 2025	SDDOT	4' X 11' TYPE S DROP INLET BASE	PLATE NUMBER 670.32
			Sheet 1 of 2

PIPE DISPLACEMENT REDUCTIONS

	Diameter (Inches)	Wall T (Inches)	Class M6 Concrete (Cu. Yd.)
R.C.P.	12	2	0.03
	15	2 ¼	0.04
	18	2 ½	0.05
	24	3	0.09
	30	3 ½	0.14
	36	4	0.20
	42	4 ½	0.26
	48	5	0.34
	54	5 ½	0.43
	60	6	0.52
R.C. ARCH	18	2 ½	0.05
	24	3 ½	0.09
	30	4	0.14
	36	4 ½	0.19
	42	4 ½	0.24
	48	5	0.32
	54	5 ½	0.39
	60	6	0.49
	72	7	0.70
	84	8	0.93

REINFORCING SCHEDULE

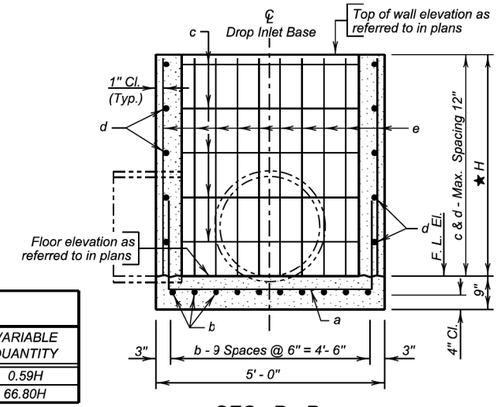
Mk.	No.	Size	Length	Type	Bending Details
a	24	5	9' - 6"	17	
b	10	5	16' - 6"	17	
c	2H	4	5' - 6"	17	
d	2H	4	12' - 6"	17	
e	64	4	H - 2"	Str.	



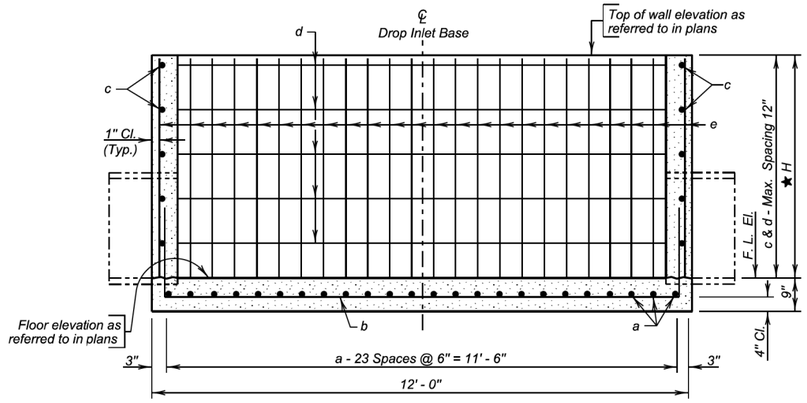
NOTE:
All dimensions are out to out of bars.

ESTIMATED QUANTITIES

ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
✳ Class M6 Concrete	Cu. Yd.	1.67	0.59H
Reinforcing Steel	Lb.	402.77	66.80H



SEC. B - B



SEC. A - A

★ Maximum H is 8' - 0"

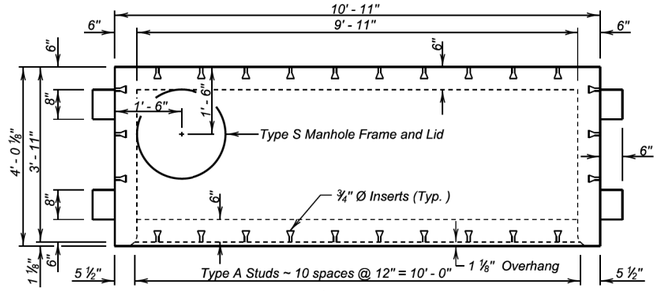
June 26, 2015

Published Date: 2025	SDDOT	4' X 11' TYPE S DROP INLET BASE	PLATE NUMBER 670.32
			Sheet 2 of 2

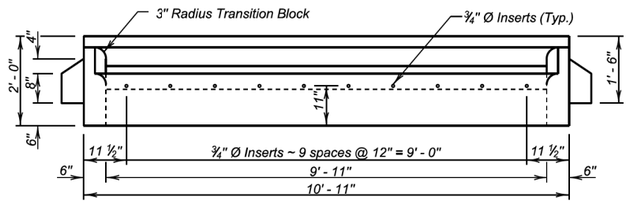
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH 0050(116)354 P 0037(168)19	B98	B101

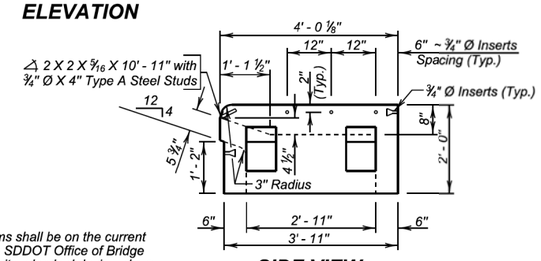
Plotting Date: 1/2/2025



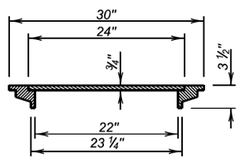
PLAN



ELEVATION



SIDE VIEW
(With Sidewalk Inserts)



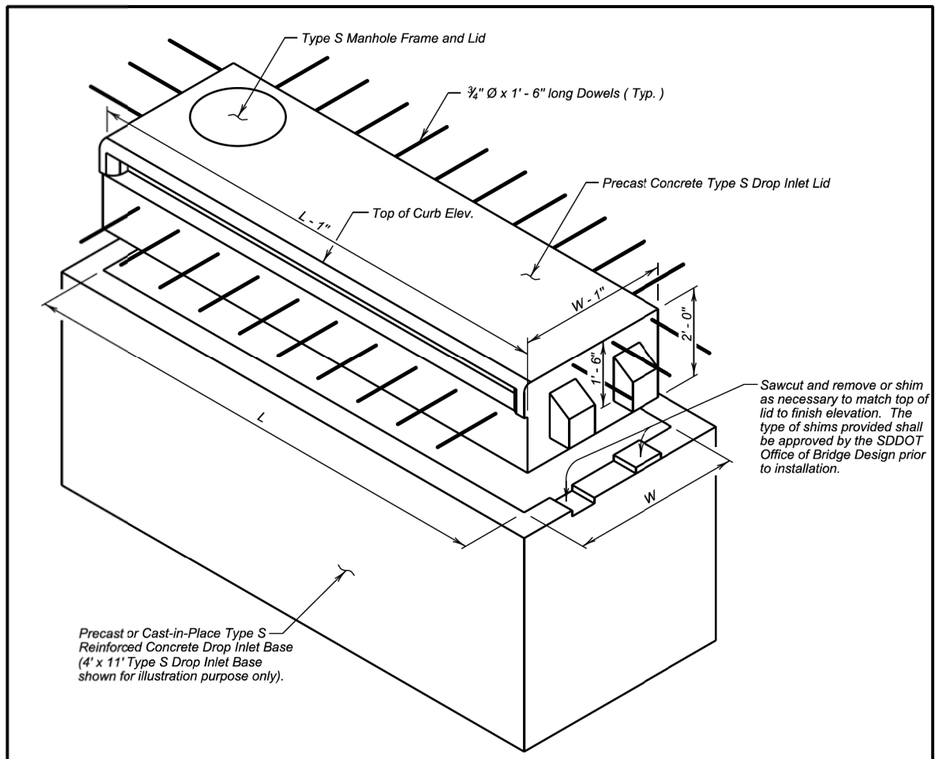
TYPICAL SECTION THROUGH TYPE S MANHOLE FRAME AND LID
(Weight 140 Lbs.)

GENERAL NOTES:

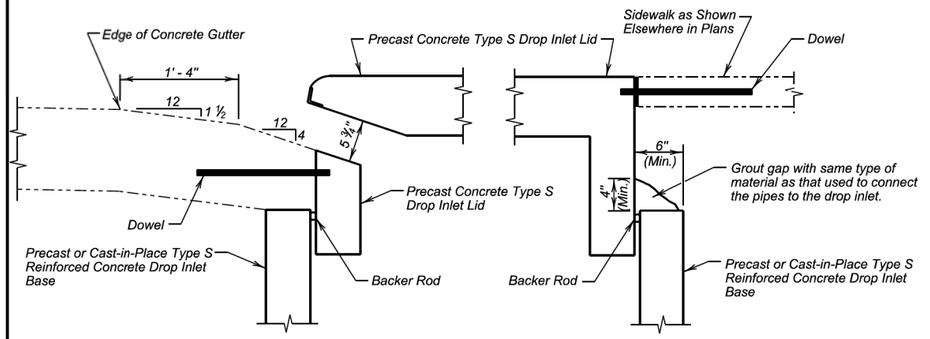
1. The Precast Concrete Type S Drop Inlet Lid and the shims shall be on the current approved list available through proper channels from the SDDOT Office of Bridge Design. To qualify for addition to the approved list, submit a checked design, done by South Dakota Registered Professional Engineers, and shop plans to the Office of Bridge Design for approval. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
2. Design Live Load shall be HL - 93.
3. Concrete mix shall be as per fabricators design, however, minimum compressive strength shall not be less than 4500 psi. Type II Cement is required.
4. The Type S Manhole Frame and Lid shall conform to AASHTO M105, Class 30.
5. Structural Steel shall conform to ASTM A36. The ¾ inch diameter Headed Type A Steel Studs shall conform to Section 7 of the current edition of AWS D1. 1 Structural Steel Welding Code.
6. The ¾ inch diameter Concrete Inserts shall be galvanized or made of a corrosion resistant material. Provide ¾ inch diameter x 1' - 6" long dowels conforming to ASTM A615, Gr. 60 threaded to fit inserts with each lid.
7. All costs associated with furnishing and installing the Precast Concrete Type S Drop Inlet Lid including the type S manhole frame and lid, shims, inserts, and dowels shall be included in the contract unit price per each for " 4' x 11' Precast Concrete Type S Drop Inlet Lid ".

December 23, 2012

Published Date: 2025	SDDOT	4' X 11' PRECAST CONCRETE TYPE S DROP INLET LID	PLATE NUMBER 670.40
			Sheet 1 of 1



TYPE S DROP INLET

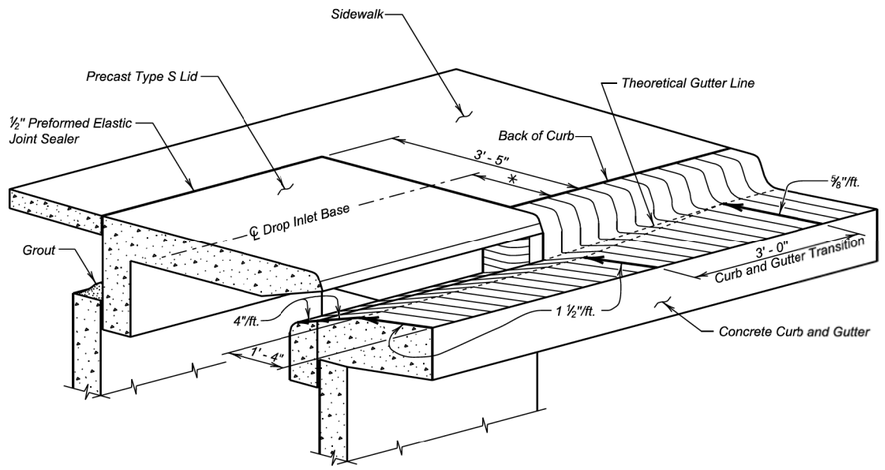


CONCRETE GUTTER DETAIL

GROUTING DETAIL
(Sides and Back, Adjacent to Sidewalk)

December 23, 2012

Published Date: 2025	SDDOT	INSTALLATION DETAILS FOR PRECAST CONCRETE TYPE S DROP INLET LID	PLATE NUMBER 670.45
			Sheet 1 of 2



CURB AND GUTTER TRANSITION DETAILS

Drop Inlet Base Unit Size	* Distance
4' x 6'	1' - 5 ½"
4' x 11'	1' - 5 ½"
7' x 11'	2' - 11 ½"

GENERAL NOTES:

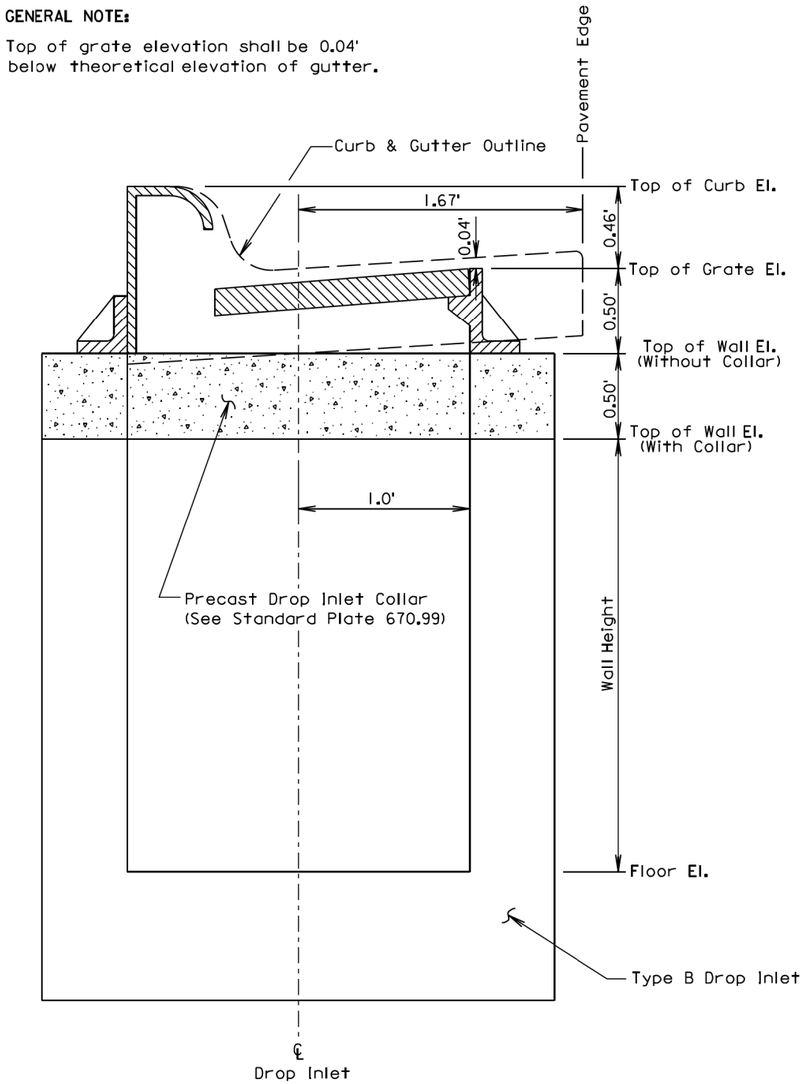
1. Dowels shall be used to anchor the precast concrete Type S drop inlet lid to the concrete gutter. See Standard Plate 670.38 or 670.40 as applicable. If there is sidewalk adjacent dowels shall be used to anchor the precast concrete Type S drop inlet lid to the sidewalk. If there is sidewalk adjacent to the drop inlet, the precast lid shall match the finish elevations and cross slopes of the sidewalk.
2. The sidewalk shall be steel reinforced when the sidewalk adjoins the precast lid. Refer to Standard Plate 651.70 for reinforced concrete sidewalk details.

December 23, 2012

Published Date: 2025	SDDOT	INSTALLATION DETAILS FOR PRECAST CONCRETE TYPE S DROP INLET LID	PLATE NUMBER 670.45
			Sheet 2 of 2

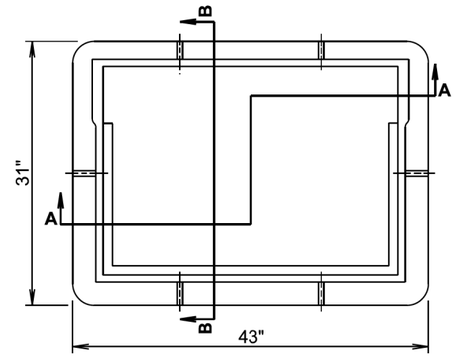
GENERAL NOTE:

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

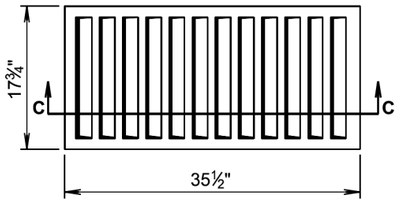


June 26, 2011

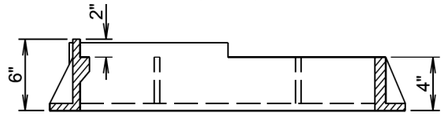
Published Date: 2025	SDDOT	INSTALLATION OF TYPE B DROP INLET	PLATE NUMBER 670.75
			Sheet 1 of 1



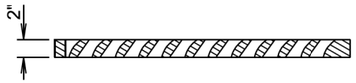
PLAN VIEW
(Frame)



PLAN VIEW
(Grate)

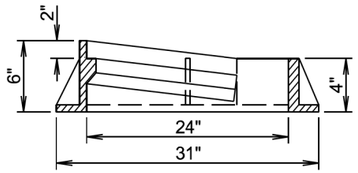


SECTION A-A

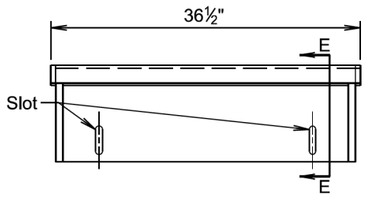


SECTION C-C

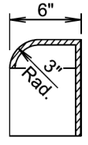
TOP VIEW
(Curb Box)



SECTION B-B



ELEVATION VIEW
(Curb Box)



SECTION E-E

GENERAL NOTES:

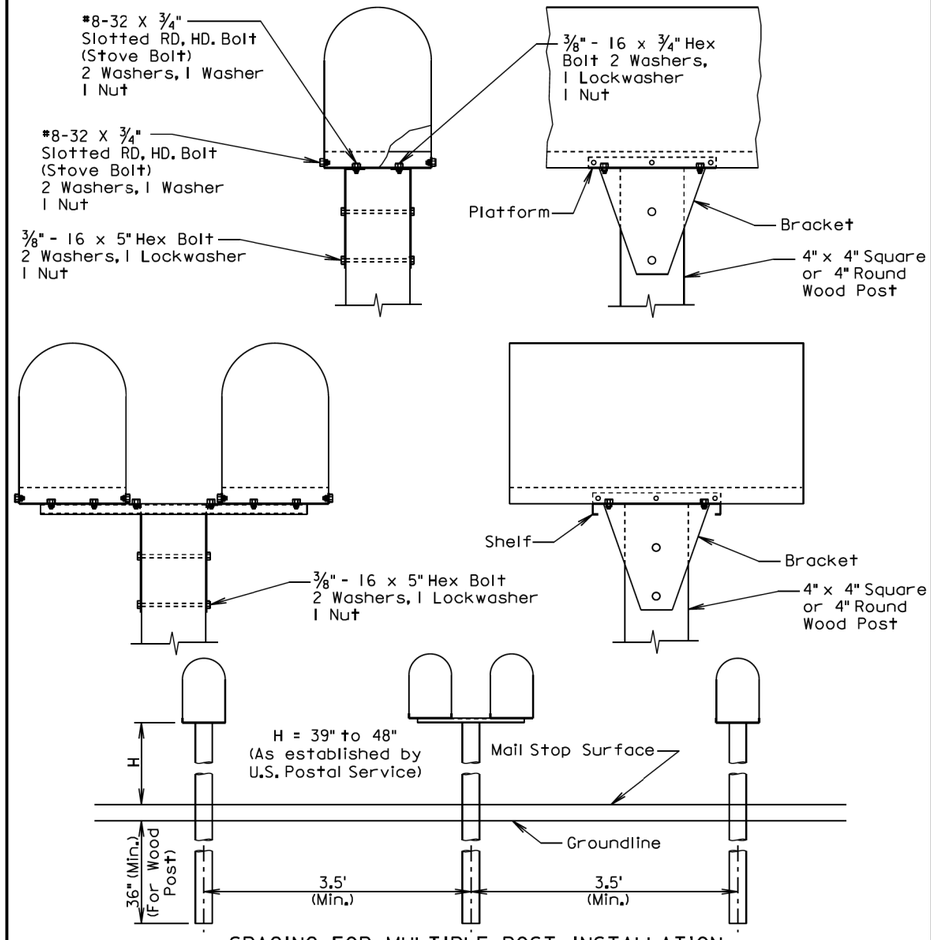
The product dimensions may vary from those shown on the standard plate depending on the manufacturer. Grate size and configuration will be similar to the standard plate for hydraulic capacity and bicycle safety. Any variation in dimensions will be approved by the Engineer and the type B frame and grate assembly will be from a manufacturer on the approved products lists.

Design load for the grate will meet the requirements of AASHTO HL-93.

The curb box will be adjustable 6" to 9".

June 1, 2022

Published Date: 2025	SDDOT	*TYPE B FRAME AND GRATE*	*PLATE NUMBER* 670.80 *Sheet 1 of 1*



SPACING FOR MULTIPLE POST INSTALLATION

GENERAL NOTES:

The post support assemblies provided should be consistant throughout the project.

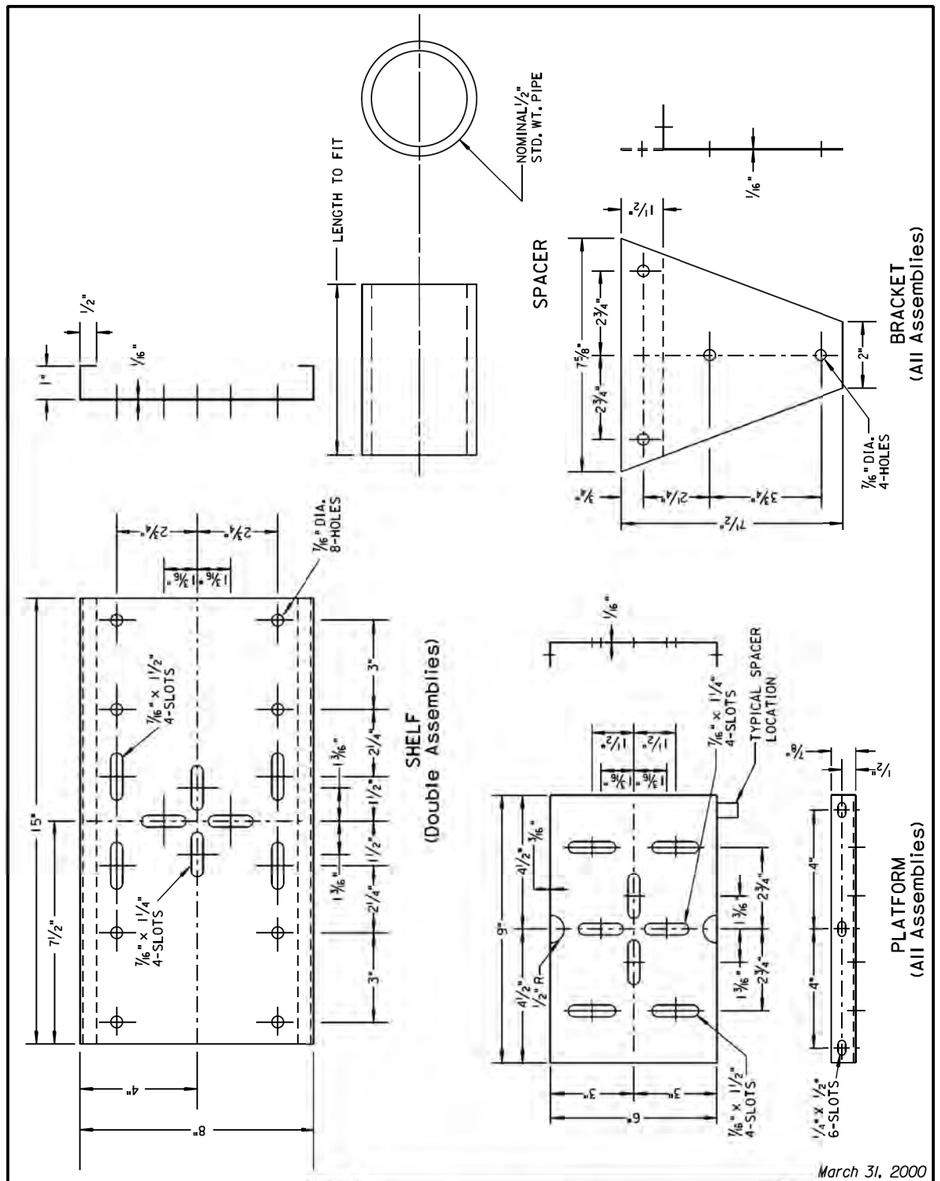
Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

September 6, 2013

Published Date: 2025	SDDOT	*SINGLE AND DOUBLE MAILBOX ASSEMBLIES*	*PLATE NUMBER* 900.02 *Sheet 1 of 1*



March 31, 2000

Published Date: 2025	SDDOT MAILBOX SUPPORT HARDWARE	PLATE NUMBER 900.03 Sheet 1 of 1