SECTION F: SURFACING PLANS

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F1	F68

Plotting Date: 6/21/2024 _____

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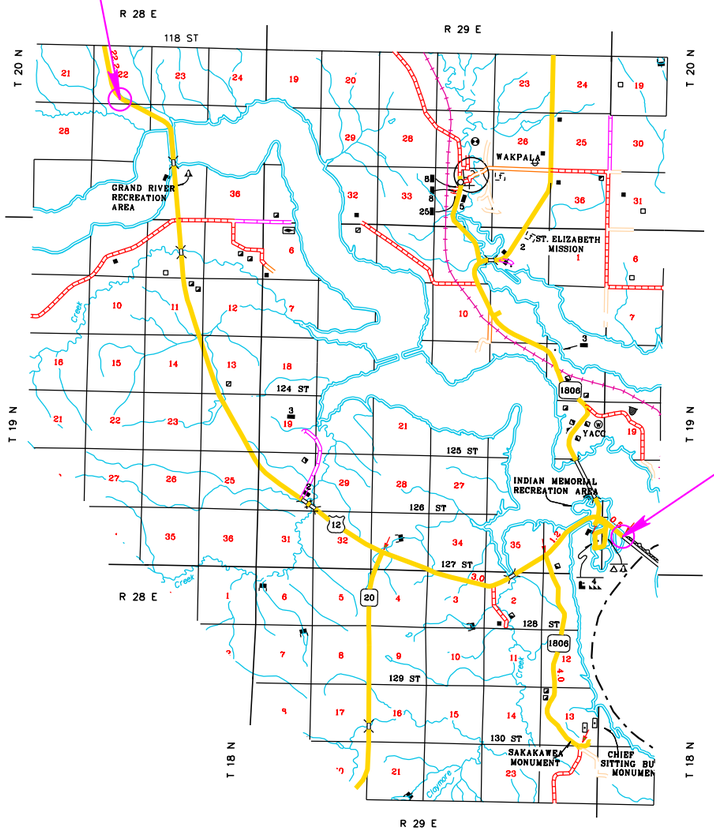
US 12 - 05TY
STATION 176+72.2



END NH 0012(230)171
US 12 - 05TY
STATION c 268+01.75

INDEX OF SHEETS

F1-F3	General Layout with Index
F4-F9	Estimate with General Notes & Tables
F10-F12	Tables of Project Stationing
F13-F15	Summaries of Asphalt Concrete
F16-F22	Rates of Materials
F23-F27	Tables of Material and Additional Quantities
F28-F42	In Place Typicals and Typical Surfacing Sections
F43-F57	Guardrail
F58-F65	Details
F66-F68	Standard Plates

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

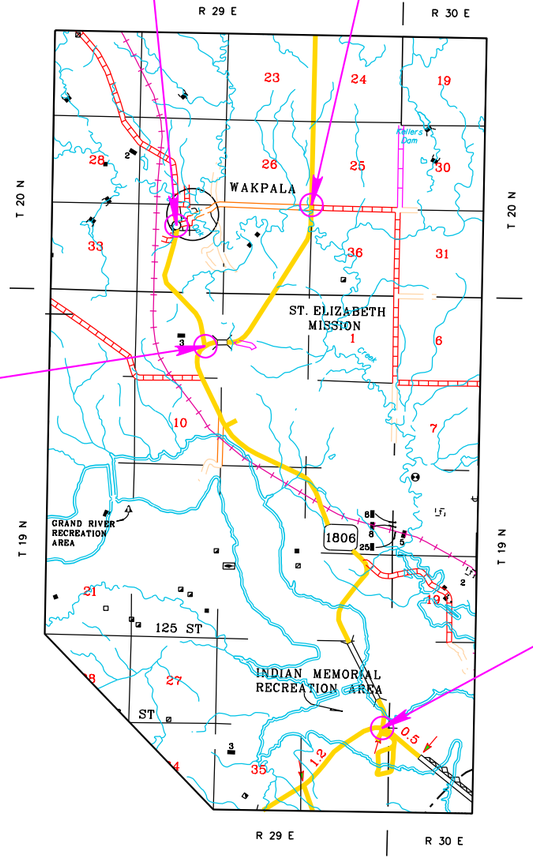
Plot Scale - 1:200
Plotted From - evanwolf
File - ...\Section Files\F_05TY.dgn

SECTION F: SURFACING PLANS

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F2	F68

Plotting Date: 6/21/2024 _____



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SD 1806 P - 06E0
STATION 0+00

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SD 1806 - 06A1
SATION 749+64.10

END P 1806(22)370
SD 1806 P - 06E0
STATION 87+91.22

END P 1806(19)364
SD 1806 - 06A1
STATION c 0+00

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

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SECTION F: SURFACING PLANS

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F3	F68

Plotting Date: 6/21/2024 _____

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SD 63 - 07CD
STATION 390+50.00

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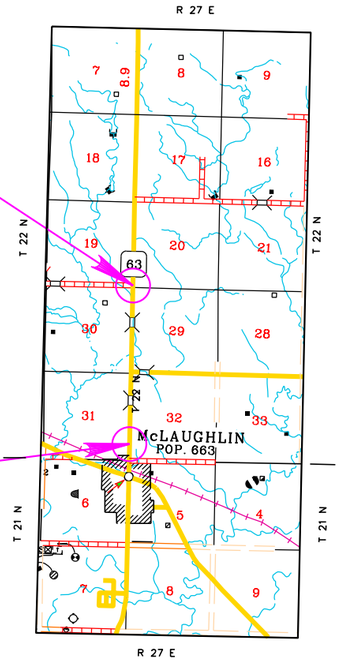
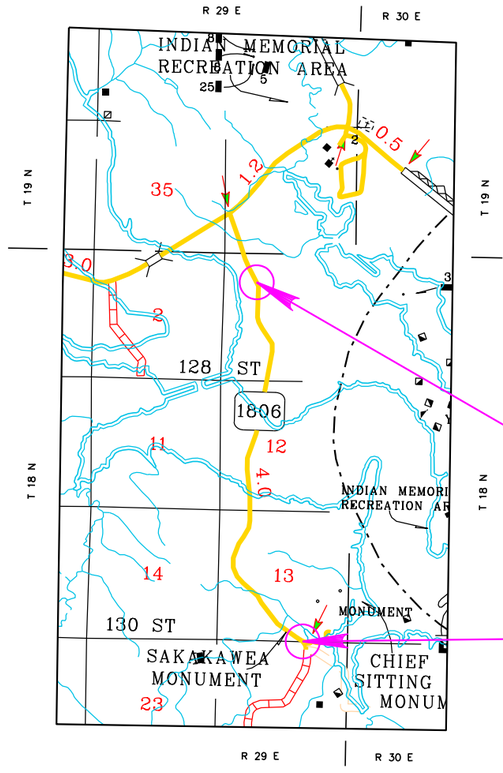
SD 63 - 07CD
STATION 288+47.00





BEGIN 1806(22)359
SD 1806 - 06RC
STATION 69+11.74

END P 1806(22)359
SD 1806 - 06RC
STATION b 229+74.50

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

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SECTION F – ESTIMATE OF QUANTITIES

05TY-Section F

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3320	Checker	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	869.0	SqYd
120E0100	Unclassified Excavation, Digouts	579	CuYd
120E6100	Water for Embankment	36.0	MGal
120E6200	Water for Granular Material	50.4	MGal
210E3510	Heavy Roadway Shaping	5,000.0	SqYd
260E1010	Base Course	3,395.4	Ton
260E1030	Base Course, Salvaged	745.0	Ton
260E6000	Granular Material, Furnish	65,744.3	Ton
270E0220	Blend and Stockpile Granular Material	745.0	Ton
280E0010	Full Depth Reclamation	384,421	SqYd
320E1200	Asphalt Concrete Composite	289.7	Ton
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	24.8	Mile
320E7028	Grind Centerline Rumble Stripe in Asphalt Concrete	12.4	Mile
330E0010	MC-70 Asphalt for Prime	268.1	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	207.4	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	70.7	Ton
330E1000	Blotting Sand for Prime	1,707.6	Ton
330E2000	Sand for Flush Seal	870.4	Ton
332E0010	Cold Milling Asphalt Concrete	368,382	SqYd
600E0300	Type III Field Laboratory	1	Each

05TY- Section F- Alternate A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	38,606.6	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	77,213.2	Ton
320E0005	PG 58-34 Asphalt Binder	3,480.7	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	76,423.6	Ton
320E4000	Hydrated Lime	760.6	Ton

*** - Denotes Non-Participating**

05TY- Section F- Alternate B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	38,280.4	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	76,200.4	Ton
320E0005	PG 58-34 Asphalt Binder	2,872.7	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	78,429.2	Ton
320E4000	Hydrated Lime	773.0	Ton

*** - Denotes Non-Participating**

06A1-Section F

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3320	Checker	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	5,992.3	SqYd
120E0100	Unclassified Excavation, Digouts	343	CuYd
260E1010	Base Course	5,657.7	Ton
260E1030	Base Course, Salvaged	725.0	Ton
260E6000	Granular Material, Furnish	362.5	Ton
270E0220	Blend and Stockpile Granular Material	725.0	Ton
320E1200	Asphalt Concrete Composite	1,321.8	Ton
320E1800	Asphalt Concrete Blade Laid	1,029.1	Ton
320E7008	Grind 8" Rumble Strip or Stripe in Asphalt Concrete	13.7	Mile
320E7028	Grind Centerline Rumble Stripe in Asphalt Concrete	6.9	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	76.0	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	23.9	Ton
330E1000	Blotting Sand for Prime	10.0	Ton
330E2000	Sand for Flush Seal	355.0	Ton
332E0010	Cold Milling Asphalt Concrete	100,700	SqYd
900E1980	Storage Unit	1	Each

06A1- Section F- Alternate A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	2,880.8	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	5,761.6	Ton
320E0005	PG 58-34 Asphalt Binder	664.7	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	12,934.3	Ton
320E4000	Hydrated Lime	141.3	Ton

*** - Denotes Non-Participating**

06A1- Section F- Alternate B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	2,805.7	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	5,611.5	Ton
320E0005	PG 58-34 Asphalt Binder	562.4	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	13,235.5	Ton
320E4000	Hydrated Lime	141.6	Ton

*** - Denotes Non-Participating**

06RC-Section F

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3320	Checker	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	712.9	SqYd
120E0100	Unclassified Excavation, Digouts	178	CuYd
260E1010	Base Course	917.8	Ton
260E1030	Base Course, Salvaged	195.0	Ton
260E6000	Granular Material, Furnish	97.5	Ton
270E0220	Blend and Stockpile Granular Material	195.0	Ton
320E1200	Asphalt Concrete Composite	182.6	Ton
320E1800	Asphalt Concrete Blade Laid	531.5	Ton
320E7008	Grind 8" Rumble Strip or Stripe in Asphalt Concrete	7.1	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	36.7	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	11.3	Ton
330E2000	Sand for Flush Seal	166.5	Ton
332E0010	Cold Milling Asphalt Concrete	48,912	SqYd

06RC- Section F- Alternate A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	1,297.3	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	2,594.6	Ton
320E0005	PG 58-34 Asphalt Binder	306.6	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	5,874.4	Ton
320E4000	Hydrated Lime	62.7	Ton

*** - Denotes Non-Participating**

06RC- Section F- Alternate B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	1,261.9	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	2,523.8	Ton
320E0005	PG 58-34 Asphalt Binder	260.3	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	6,023.2	Ton
320E4000	Hydrated Lime	66.3	Ton

*** - Denotes Non-Participating**

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
7/25/24

06E0-Section F

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3320	Checker	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	125.0	SqYd
120E0100	Unclassified Excavation, Digouts	83	CuYd
260E1010	Base Course	166.5	Ton
260E1030	Base Course, Salvaged	135.0	Ton
260E6000	Granular Material, Furnish	67.5	Ton
270E0220	Blend and Stockpile Granular Material	135.0	Ton
320E1200	Asphalt Concrete Composite	41.6	Ton
320E1800	Asphalt Concrete Blade Laid	249.8	Ton
320E7008	Grind 8" Rumble Strip or Stripe in Asphalt Concrete	3.3	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	20.9	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	5.9	Ton
330E2000	Sand for Flush Seal	86.6	Ton
332E0010	Cold Milling Asphalt Concrete	28,620	SqYd

06E0- Section F- Alternate A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	848.9	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	1,697.8	Ton
320E0005	PG 58-34 Asphalt Binder	170.7	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	3,348.4	Ton
320E4000	Hydrated Lime	36.3	Ton

*** - Denotes Non-Participating**

06E0- Section F- Alternate B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	829.9	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	1,659.8	Ton
320E0005	PG 58-34 Asphalt Binder	144.2	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	3,423.9	Ton
320E4000	Hydrated Lime	36.4	Ton

*** - Denotes Non-Participating**

07CD-Section F

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3320	Checker	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	140.0	SqYd
120E0100	Unclassified Excavation, Digouts	93	CuYd
260E1010	Base Course	273.1	Ton
260E1030	Base Course, Salvaged	545.0	Ton
260E6000	Granular Material, Furnish	272.5	Ton
270E0220	Blend and Stockpile Granular Material	545.0	Ton
320E1200	Asphalt Concrete Composite	46.7	Ton
320E1800	Asphalt Concrete Blade Laid	242.6	Ton
320E7008	Grind 8" Rumble Strip or Stripe in Asphalt Concrete	3.7	Mile
320E7028	Grind Centerline Rumble Stripe in Asphalt Concrete	1.9	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	26.8	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	7.9	Ton
330E2000	Sand for Flush Seal	100.0	Ton
332E0010	Cold Milling Asphalt Concrete	44,542	SqYd

07CD- Section F- Alternate A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	1,385.4	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	2,770.8	Ton
320E0005	PG 58-34 Asphalt Binder	249.9	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	5,048.7	Ton
320E4000	Hydrated Lime	53.4	Ton

*** - Denotes Non-Participating**

07CD- Section F- Alternate B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	1,358.8	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	2,717.6	Ton
320E0005	PG 58-34 Asphalt Binder	209.9	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	5,155.3	Ton
320E4000	Hydrated Lime	53.4	Ton

*** - Denotes Non-Participating**

STORAGE UNIT

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

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

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

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

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

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

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

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

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

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

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

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".

CHECKING SPREAD RATES

The Contractor will be responsible for checking the Asphalt Concrete spread rates and taking the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor will compute the required spread rates for each typical surfacing section and create a spread chart prior to the start of material delivery and placement. The Engineer will review and check the Contractor's calculations and spread charts. The station to station spread will be written on each ticket as the surfacing material is delivered to the roadway.

At the end of each day's shift, the Contractor will verify the following:

- All tickets are present and accounted for,
- The quantity summary for each item is calculated,
- The amount of material wasted if any,
- Each day's ticket summary is marked with the corresponding 'computed by',
- The ticket summary is initialed and certified that the delivered and placed quantity is correct.

All daily tickets and the summary by item will be given to the Engineer no later than the following morning.

If the checker is not properly and accurately performing the required duties, the Contractor will correct the problem or replace the checker with an individual capable of performing the duties to the satisfaction of the Engineer. Failure to do so will result in suspension of the work.

The Department will perform depth checks. The Contractor will be responsible for placement of material to the correct depth unless otherwise directed by the Engineer. If the placed material is not within a tolerance of ±1/2 inch of the plan shown depth, the Contractor will correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer. All costs for providing the Contractor furnished checker and performing all related duties will be incidental to the contract lump sum price for the CHECKER. No allowances will be made to the contract lump sum price for CHECKER due to authorized quantity variations unless the quantities for the material being checked vary above or below the estimated quantities by more than 25 percent. Payment for the Checker will then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

REMOVE ASPHALT CONCRETE PAVEMENT

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 24 for US12, SD1806, SD1806 P and 20 for SD63. This value was obtained from testing during construction of the in-place asphalt concrete.

An estimated 543 Cubic Yards of the in-place asphalt concrete surfacing will be removed from the existing US Highway 12 according to the in-place surfacing typical sections and wasted as directed by the Engineer.

An estimated 1997 Cubic Yards of the in-place asphalt concrete surfacing will be removed from the existing SD Highway 1806 North of US Highway 12 according to the in-place surfacing typical sections and wasted as directed by the Engineer.

An estimated 241 Cubic Yards of the in-place asphalt concrete surfacing will be removed from the existing SD Highway 1806 South of US Highway 12 according to the in-place surfacing typical sections and wasted as directed by the Engineer.

An estimated 42 Cubic Yards of the in-place asphalt concrete surfacing will be removed from the existing SD Highway 1806P according to the in-place surfacing typical sections and wasted as directed by the Engineer.

An estimated 36 Cubic Yards of the in-place asphalt concrete surfacing will be removed from the existing SD Highway 63 according to the in-place surfacing typical sections and wasted as directed by the Engineer.

The quantity of removed asphalt material is estimated from the in-place surfacing typical sections. This estimated quantity is not included in the unclassified excavation quantities.

COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 24 for US12, SD1806, SD1806 P and 20 for SD63. This value was obtained from testing during construction of the in-place asphalt concrete.

Cold milling asphalt concrete will be done according to the typical section(s). Heave repair, base course reinforcement and pipe repair locations will not be cold milled. In areas where maintenance patches have raised and/or widened the road, additional asphalt concrete will be milled to provide a uniform typical section from centerline to the edge of the finished shoulder. These areas also include farm, residential, field entrances and intersecting roads. Milling will be daylighted to the outside edge of the roadway. Any additional costs associated with this additional cold milling will be incidental to the contract unit price per square yard for "Cold Milling Asphalt Concrete".

Cold milling asphalt is estimated to produce 53406.4 tons of cold milled asphalt concrete material for 05TY, 5704.6 tons of cold milled asphalt concrete material for 06A1, 2510.1 tons of cold milled asphalt concrete material for 06RC, 1554.5 tons of cold milled asphalt concrete material for 06E0, and 2624.3 tons of cold milled asphalt concrete material for 07CD. An estimated 372.5 tons for 05TY, 362.5 tons for 06A1, 97.5 tons for 06RC, 67.5 tons for 06E0, and 272.5 tons for 07CD of cold milled asphalt concrete material will be blended with Granular Material, Furnish and will be used on this project as Base Course, Salvaged at the locations identified in the plans.

For 05TY, An estimated 14427.4 tons for Alternate A, or 14933.7 tons for Alternate B of cold milled asphalt concrete material will be used on this project as RAP in the Class Q3R Hot Mixed Asphalt Concrete mixture. The Contractor is responsible to assure enough asphalt concrete salvage is available for the Class Q3R Hot Mixed Asphalt Concrete.

For 06A1, An estimated 2461.3 tons for Alternate A, or 2536.4 tons for Alternate B, of cold milled asphalt concrete material will be used on this project as RAP in the Class Q3R Hot Mixed Asphalt Concrete mixture. The Contractor is responsible to assure enough asphalt concrete salvage is available for the Class Q3R Hot Mixed Asphalt Concrete.

For 06RC, An estimated 1115.3 tons for Alternate A, or 1150.7 tons for Alternate B of cold milled asphalt concrete material will be used on this project as RAP in the Class Q3R Hot Mixed Asphalt Concrete mixture. The Contractor is responsible to assure enough asphalt concrete salvage is available for the Class Q3R Hot Mixed Asphalt Concrete.

For 06E0, An estimated 638.1 tons for Alternate A, or 657.1 tons for Alternate B of cold milled asphalt concrete material will be used on this project as RAP in the Class Q3R Hot Mixed Asphalt Concrete mixture. The Contractor is responsible to assure enough asphalt concrete salvage is available for the Class Q3R Hot Mixed Asphalt Concrete.

For 07CD, An estimated 966.4 tons for Alternate A, or 993.0 tons for Alternate B of cold milled asphalt concrete material will be used on this project as RAP in the Class Q3R Hot Mixed Asphalt Concrete mixture. The Contractor is responsible to assure enough asphalt concrete salvage is available for the Class Q3R Hot Mixed Asphalt Concrete.

The remainder of the salvaged asphalt concrete material not required for production of the Q3R asphalt Concrete will be blended 50/50 with Granular Material, Furnish and stockpiled according to the Blend, Haul, and Stockpile Granular Material plan note.

RAP achieved for project use and/or other uses is based on the dimensions given in the typical section(s). Field conditions will vary from that given in the typical section(s). Therefore, the Contractor may be required to adjust the mill depth, as necessary, to provide the quantity of RAP specified by the plans, if approved by the Engineer.

ASPHALT CONCRETE BLADE LAID

Included in the Estimate of Surfacing Quantities are 150 tons of Asphalt Concrete Blade Laid, 1.5 tons of Hydrated Lime, and 11.1 tons of PG 58-34 Asphalt Binder per mile and will be tight bladed on the existing surface 24 feet wide prior to the overlay of Sections 9, 10, 12, and 14. These rates will also be used for 22 feet of tight blading on Sections 11 and 13.

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

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

Included in the Estimate of Surfacing Quantities are 38.3 tons of SS-1h or CSS-1h Asphalt for Tack for use prior to the application of the Blade Laid lift for 06a1. (Rate = 0.09 Gal./SqYd)

Included in the Estimate of Surfacing Quantities are 19.1 tons of SS-1h or CSS-1h Asphalt for Tack for use prior to the application of the Blade Laid lift for 06RC. (Rate = 0.09 Gal./SqYd)

Included in the Estimate of Surfacing Quantities are 8.9 tons of SS-1h or CSS-1h Asphalt for Tack for use prior to the application of the Blade Laid lift for 06E0. (Rate = 0.09 Gal./SqYd)

Included in the Estimate of Surfacing Quantities are 10.4 tons of SS-1h or CSS-1h Asphalt for Tack for use prior to the application of the Blade Laid lift for 07CD. (Rate = 0.09 Gal./SqYd)

CLASS Q3R HOT MIXED ASPHALT CONCRETE

Mineral Aggregate:

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

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

Virgin mineral aggregate for Class Q3R Hot Mixed Asphalt Concrete-Alternate B will consist of a minimum of 80 percent crushed limestone ledge rock and will conform to the requirements of Class Q3.

The Class Q3R Hot Mixed Asphalt Concrete will include 20 percent RAP in the mixture. RAP will be obtained from the material produced by cold milling on this project.

Mix Design Criteria:

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

Gyratory Compactive Effort:

	$N_{initial}$	N_{design}	$N_{maximum}$
Class Q3R	6	50	75

Mix Design Criteria – Alternate B:

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

Voids in Mineral Aggregate (VMA):

	Minimum VMA (%):
Class Q3R	13.0

Pay Factor Attributes – Alternate B:

Air Voids:

	Air Voids (%):
Class Q3R	3.5 ± 1.0

All remaining requirements for Class Q3 will apply.

BLEND AND STOCKPILE GRANULAR MATERIAL

An Estimated 372.5 tons (for informational purposes only) of salvaged asphalt material produced from cold milling will be blended with 372.5 tons of Granular Material, Furnish for 05TY, 362.5 tons (for informational purposes only) of salvaged asphalt material produced from cold milling will be blended with 362.5 tons of Granular Material, Furnish for 06A1, 97.5 tons (for informational purposes only) of salvaged asphalt material produced from cold milling will be blended with 97.5 tons of Granular Material, Furnish for 06RC, 67.5 tons (for informational purposes only) of salvaged asphalt material produced from cold milling will be blended with 67.5 tons of Granular Material, Furnish for 06E0, 272.5 tons (for informational purposes only) of salvaged asphalt material produced from cold milling will be blended with 272.5 tons of Granular Material, Furnish for 07CD, and stockpiled at the Contractor's furnished stockpile site.

The Contractor will use a portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale to control the blending and weighing of the salvage material with Contractor furnished granular material.

The salvaged asphalt mix material will be crushed to meet the requirements of Section 884.2 D.2 prior to blending into the stockpile.

Salvaged asphalt mix material will be blended with Granular Material, Furnish at a rate of 50% salvaged asphalt mix material and 50% Granular Material, Furnish to obtain stockpile material. Material will be uniformly blended to the satisfaction of the Engineer.

No further gradation testing of the blended material will be required.

All costs for crushing the salvaged asphalt mix material, stockpiling, and blending the materials will be incidental to the contract unit price per ton for "Blend and Stockpile Granular Material".

BASE COURSE, SALVAGED

Base Course, Salvaged will be obtained from the stockpile site(s) provided by the Contractor and may be used without further gradation testing.

The Contractor will ensure the Base Course, Salvaged material contains no more than 50% salvaged asphalt mix material and at least 50% granular material (salvaged or virgin). Blended material will be to the satisfaction of the Engineer.

All other requirements for Base Course, Salvaged will apply.

GRANULAR MATERIAL, FURNISH

Granular material will be furnished by the Contractor for use in blending with the salvaged asphalt mix material from this project.

The granular material will be Base Course meeting the requirements of Section 882.

BLEND, HAUL, AND STOCKPILE GRANULAR MATERIAL

Excess salvaged asphalt concrete material from 05TY, estimated at 38606.6 tons (for informational purposes only) will be blended with 38606.6 tons of Granular Material, Furnish for Alternative A, or 38100.3 tons (for informational purposes only) will be blended with 38100.3 tons of Granular Material, Furnish for Alternative B.

Excess salvaged asphalt concrete material from 06A1, estimated at 2880.8 tons (for informational purposes only) will be blended with 2880.8 tons of Granular Material, Furnish for Alternative A, or 2805.7 tons (for informational purposes only) will be blended with 2805.7 tons of Granular Material, Furnish for Alternative B.

Excess salvaged asphalt concrete material from 06RC, estimated at 1297.3 tons (for informational purposes only) will be blended with 1297.3 tons of Granular Material, Furnish for Alternative A, or 1261.9 tons (for informational purposes only) will be blended with 1261.9 tons of Granular Material, Furnish for Alternative B.

Excess salvaged asphalt concrete material from 06E0, estimated at 848.9 tons (for informational purposes only) will be blended with 848.9 tons of Granular Material, Furnish for Alternative A, or 829.9 tons (for informational purposes only) will be blended with 829.9 tons of Granular Material, Furnish for Alternative B.

Excess salvaged asphalt concrete material from 07CD, estimated at 1385.4 tons (for informational purposes only) will be blended with 1385.4 tons of Granular Material, Furnish for Alternative A, or 1358.8 tons (for informational purposes only) will be blended with 1358.8 tons of Granular Material, Furnish for Alternative B.

Material will be hauled, blended and stockpiled in the Southeast ¼ of Section 32, Township 19 North, Range 29 East of the 5th P.M., Corson County, South Dakota just west of the US12/SD20 junction at the state furnished stockpile site. The Contractor will have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

A computerized scale, portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale along with a scale operator will be provided by the Contractor at the stockpile site to weigh the salvaged material prior to blending.

The salvaged asphalt concrete material will be crushed to meet the requirements of Section 884.2 D.3 prior to blending into the stockpile.

Salvaged asphalt concrete material will be blended with Granular Material, Furnish at a rate of 50% salvaged asphalt mix material and 50% Granular Material, Furnish to obtain stockpile material. Material will be uniformly blended to the satisfaction of the Engineer.

No further gradation testing of the blended material will be required.

All other costs for crushing, hauling, stockpiling, and blending salvaged asphalt concrete material and Granular Material, Furnish will be incidental to the contract unit price per ton for “Blend, Haul and Stockpile Granular Material”.

UNCLASSIFIED EXCAVATION, DIGOUTS

The locations and extent of digout areas will be determined in the field by the Engineer. The backfilling material for the digouts will be Base Course for Sections 1, 2, 4, 5, 6, 7, 9-14. The backfilling material for the digouts will be Asphalt Concrete Composite and Base Course for Sections 1, 2, 4, 5, 6, 7, 9-14. The depth of asphalt will match the in-place thickness.

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts per mile for the removal of unstable material throughout the project.

Included in the Estimate of Quantities are 100 tons of Base Course per mile for backfill of Unclassified Excavation, Digouts throughout the project.

Included in the Estimate of Quantities are 75 square yards of Remove Asphalt Concrete Pavement per mile for the removal of asphalt for Sections 1, 2, 4, 5, 6, 7, and 9-14.

Included in the Estimate of Quantities are 25 tons of Asphalt Concrete Composite per mile for backfill of Unclassified Excavation, Digouts for Sections 1, 2, 4, 5, 6, 7, 9-14.

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

FULL DEPTH RECLAMATION (FDR)

After cold milling the asphalt concrete the Contractor will FDR 3 inches of asphalt pavement with 4 inches of Granular Material, Furnish and water, shape, and compact the blended material to the typical sections provided. The equipment used for processing and blending the material will be capable of providing a uniformly blended material of asphalt mix and granular base meeting the requirements of 884.2 E.

The Contractor may perform initial rolling with a sheepsfoot roller until the roller pads walk out of the reclaimed mix. The sheepsfoot roller will weigh at least 25,000 pounds. The maximum lift thickness may be increased to 8” if a sheepsfoot roller is utilized and good compaction results are obtained. Moisture and density requirements throughout the full depth of processing as required in Section 280.3 C will be adhered to; moisture testing will be completed behind the processing unit and prior to compaction.

Shaping of the surface to repair ruts, potholes, wash-boarding, sheepsfoot roller marks, and other distortions will be accomplished by scarifying to a depth of 2 inches below the deepest distortion and shaped and compacted to the typical section.

Repeated reclaiming and rolling may be required within two calendar days after the initial processing and rolling to achieve the target density on the completed in-place recycled surface. The Contractor will discontinue any type of rolling that results in cracking, movement, or other types of distress until such time that the problem can be resolved. If there is a significant change in mix proportions, weather conditions, or other controlling factors, the Engineer may require construction of test strips to check target density.

All other requirements for Full Depth Reclamation will apply.

BLOTTING SAND FOR PRIME

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

ASPHALT CONCRETE COMPOSITE

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

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

HEAVY ROADWAY SHAPING

Heavy Roadway Shaping shall be performed in accordance with the Standard Specifications.

Included in the Estimate of Quantities are 5000 SqYd of Heavy Roadway Shaping, 36 Mgal of Water for Embankment and 50.4 Mgal of Water for Granular Material to for mainline be used in areas designated by the Engineer.

FLUSH SEAL

Application of flush seal will be completed within 10 working days following completion of the asphalt concrete surfacing.

Application of flush seal may be eliminated by the Engineer. If the paved surface remains tight, the Engineer will notify the Contractor as soon as possible that the flush seal is unnecessary.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

SAND FOR FLUSH SEAL

The sand application will be placed 11' wide in each lane, leaving 12" on centerline and 6" on each edge line free of sand.

SURFACING THICKNESS DIMENSIONS

The plans shown spread rates will be applied even though the thickness may vary from that shown on the plans. At those locations where material must be placed to achieve a required elevation, the depth/quantity may be varied to achieve the required elevation

SHOULDER WIDENING

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

GRIND CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

Rumble stripes will be constructed on the centerline, as detailed in the plan set. Centerline Rumble stripes will be paid for at the contract unit price per mile for Grind Centerline Rumble Stripe in Asphalt Concrete. It is estimated that 12.4 miles of centerline rumble stripes will be required for 05TY, 6.9 miles on 06A1, and 1.9 miles on 07CD.

Centerline rumble stripe installation will be completed prior to application of the flush seal and permanent pavement markings. In the event the flush seal is eliminated from the contract, the Contractor will still be required to apply a flush seal to the newly installed centerline rumble stripes at a width of 24" and a rate of 0.10 gal./SqYd No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be paid at the contract unit price per ton.

GRIND RUMBLE STRIPS IN ASPHALT CONCRETE

Asphalt Concrete Rumble Strips will be constructed on the shoulders. On Sections 9-14, Rumble Stripes will be paid for at the contract unit price per mile for Grind 8" Rumble Stripe in Asphalt Concrete. It is estimated that 13.7 miles of asphalt concrete rumble stripes will be required for 06A1, 7.1 miles for 06RC, 3.3 miles for 06E0, and 3.7 miles for 07CD. In Sections 1-8, Rumble Strips will be paid for at the contract unit price per mile for Grind 12" Rumble Strip or Stripe in Asphalt Concrete. It is estimated that 24.8 miles of asphalt concrete rumble strips will be required for 05TY.

Rumble Strip installation will be completed prior to application of the Flush Seal and Permanent Pavement Markings. In the event the Flush Seal is eliminated from the contract, the Contractor will still be required to apply a Flush Seal to the newly installed 8" Rumble Strips and/or 12" Rumble Strips at a width of 1.5' and at the same rate as specified in this plan set. No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be paid at the contract unit price per ton.

CENTERLINE RUMBLE STRIPES – FLUSH SEAL

Asphalt for Flush Seal will be applied after the centerline rumble stripes have been installed. The application width will extend 1 ft beyond the centerline of the roadway in each direction to create a total application rate of 0.10 gal./SqYd on the centerline rumble stripes.

TABLE OF SUPERELEVATION

05TY

Station	to	Station	Remarks
176+72.20		209+40.80	Normal Crown Section
209+40.80		213+40.80	Superelevation Transition
213+40.80		223+75.00	4°00' Curve Rt. 0.060 Superevevation Rate Point of Rotation - 12' Rt.
223+75.00		227+75.00	Superelevation Transition
227+75.00		278+05.50	Normal Crown Section
Equation 278+05.5 Bk = A 0+00 Ah			
a 0+00.00		a 82+26.10	Normal Crown Section
a 82+26.10		a 83+49.10	Superelevation Transition
a 83+49.10		a 101+04.30	0°45' Curve Lt. 0.024 Superevevation Rate Point of Rotation - 12' Lt.
a 101+04.30		a 102+27.30	Superelevation Transition
a 102+27.30		a 182+36.50	Normal Crown Section
a 182+36.50		a 183+53.50	Superelevation Transition
a 183+53.50		a 199+06.60	0°40' Curve Lt. 0.022 Superevevation Rate Point of Rotation - 12' Lt.
a 199+06.60		a 200+23.60	Superelevation Transition
a 200+23.60		a 262+74.90	Normal Crown Section
a 262+74.90		a 265+74.90	Superelevation Transition
a 265+74.90		a 275+05.70	2°00' Curve Lt. 0.050 Superevevation Rate Point of Rotation - 12' Lt.
a 275+05.70		a 278+05.70	Superelevation Transition
a 278+05.70		a 374+17.10	Normal Crown Section
a 374+17.10		a 375+40.10	Superelevation Transition
a 375+40.10		a 394+72.90	0°45' Curve Lt. 0.024 Superevevation Rate Point of Rotation - 12' Lt.
a 394+72.90		a 395+95.90	Superelevation Transition
a 395+95.90		a 404+48.80	Normal Crown Section
Equation A 404+48.8 Bk = B 20+40.0 Ah			
b 20+40.00		b 69+50.00	Normal Crown Section
b 69+50.00		b 70+62.00	Superelevation Transition
b 70+62.00		b 84+43.80	0°30' Curve Lt. 0.020 Superevevation Rate Point of Rotation - 12' Lt.
b 84+43.80		b 85+55.80	Superelevation Transition
85+55.80		115+78.00	Normal Crown Section
Design Exception - 04XF			
b 208+31.00		b 209+59.30	Match Existing Superelevation Transition
b 209+59.30		b 225+75.20	1°15' Curve Rt. 0.036 Superevevation Rate Point of Rotation - 12' Rt.
b 225+75.20		b 227+31.20	Superelevation Transition
b 227+31.20		b 233+56.50	Normal Crown Section
b 233+56.50		b 239+56.50	Superelevation Transition
b 239+56.50		b 247+24.20	5°00' Curve Rt. 0.060 Superevevation Rate Point of Rotation - 12' Rt.
b 247+24.20		b 253+24.20	Superelevation Transition
b 253+24.20		b 262+01.60	Normal Crown Section
Equation: B 262+01.6 Bk = C 258+22.2 Ah			
c 258+22.20		c 265+51.75	Normal Crown Section

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
7/25/24

TABLES OF PROJECT STATIONING

05TY

SECTION	STATION		TO		STATION		DESCRIPTION	RESURFACING LENGTHS	EXCEPTIONS LENGTHS	GROSS PROJECT LENGTHS
1	**Begin Project**	176+72.20	to		249+37.00		Surfacing-2 Lane Rural	7264.80'	-	7264.80'
Exception		249+37.00	to		254+93.00		Surfacing Exception-Bridge	-	556.00'	556.00'
1		254+93.00	to		278+05.50		Sufacing-2 Lane	2312.50'	-	2312.50'
Equation		278+05.50 Bk.	=	a	0+00.00 Ah.		Equation	-	-	-
2	a	0+00.00	to	a	17+00.00		Surfacing-3 Lane Rural	1700.00'	-	1700.00'
3	a	17+00.00	to	a	30+00.00		Surfacing-4 Lane Rural	1300.00'	-	1300.00'
2	a	30+00.00	to	a	47+00.00		Surfacing-3 Lane Rural	1700.00'	-	1700.00'
4	a	47+00.00	to	a	55+28.00		Sufacing-2 Lane Rural	828.00'	-	828.00'
Exception	a	55+28.00	to	a	57+12.00		Surfacing Exception-Bridge	-	184.00'	184.00'
4	a	57+12.00	to	a	64+00.00		Sufacing-2 Lane Rural	688.00'	-	688.00'
2	a	64+00.00	to	a	79+00.00		Surfacing-3 Lane Rural	1500.00'	-	1500.00'
3	a	79+00.00	to	a	97+00.00		Surfacing-4 Lane Rural	1800.00'	-	1800.00'
2	a	97+00.00	to	a	119+00.00		Surfacing-3 Lane Rural	2200.00'	-	2200.00'
4	a	119+00.00	to	a	218+00.00		Surfacing-2 Lane Rural	9900.00'	-	9900.00'
2	a	218+00.00	to	a	242+00.00		Surfacing-3 Lane Rural	2400.00'	-	2400.00'
4	a	242+00.00	to	a	262+00.00		Surfacing-2 Lane Rural	2000.00'	-	2000.00'
2	a	262+00.00	to	a	299+50.00		Surfacing-3 Lane Rural	3750.00'	-	3750.00'
4	a	299+50.00	to	a	327+17.09		Surfacing-2 Lane Rural	2767.09'	-	2767.09'
Exception	a	327+17.09	to	a	328+62.91		Surfacing Exception-Bridge	-	145.82'	145.82'
4	a	328+62.91	to	a	339+00.00		Surfacing-2 Lane Rural	1037.09'	-	1037.09'
2	a	339+00.00	to	b	404+48.80		Surfacing-3 Lane Rural	6548.80'	-	6548.80'
Equation	a	404+48.80	=	b	20+40.00 Ah.		Equation	-	-	-
2	b	20+40.00	to	b	20+92.00		Surfacing-4 Lane Rural	52.00'	-	52.00'
5	a	20+92.00	to	b	23+71.00		Surfacing-4 Lane Rural	279.00'	-	279.00'
6	b	23+71.00	to	b	82+00.00		Surfacing-2 Lane Rural	5829.00'	-	5829.00'
7	b	82+00.00	to	b	115+78.00		Surfacing-3 Lane Rural	3378.00'	-	3378.00'
Exception	b	115+78.00	to	b	208+31.00		Surfacing Exception-PCN 04XF	-	9253.00'	9253.00'
6	b	208+31.00	to	b	240+05.00		Surfacing-2 Lane Rural	3174.00'	-	3174.00'
8	b	240+05.00	to	b	253+09.20		Surfacing-4 Lane Rural	1304.20'	-	1304.20'
6	b	253+09.20	to	b	262+01.60		Surfacing-2 Lane Rural	892.40'	-	892.40'
Equation	b	262+01.60 Bk.	=	c	258+22.20 Ah.		Equation	-	-	-
6	c	258+22.20	to	c	268+01.75 **End Project**		Surfacing-2 Lane Rural	979.55'	-	979.55'
								65584.43'	10138.82'	75723.25'
							TOTALS =	**12.421 Miles**	**1.920 Miles**	**14.341 Miles**

REGISTERED PROFESSIONAL ENGINEER
REG. No. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
25 Jun 24

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F11	F68

FOR BIDDING PURPOSES ONLY

TABLES OF PROJECT STATIONING

06A1

SECTION	STATION		TO	STATION		DESCRIPTION	RESURFACING LENGTHS	EXCEPTIONS LENGTHS	GROSS PROJECT LENGTHS
9	**Begin Project** 749+64.10		to	853+72.55		Rural-2-Lane	10408.45'	-	10408.45'
9	853+72.55		to	856+06.55		Surfacing Exception-Bridge		234.00'	234.00'
9	856+06.55		to	995+62.08		Rural-2-Lane	13955.53'	-	13955.53'
Equation	995+62.08	Bk. =	a	996+13.12	Ah.	Equation	-	-	-
9	a 996+13.12		to	a 997+61.70		Rural-2-Lane	148.58'	-	148.58'
9	a 997+61.70		to	a 999+65.36		Surfacing Exception-Bridge	-	203.66'	203.66'
9	a 999+65.36		to	a 999+70.16		Rural-2-Lane	4.80'		4.80'
10	a 999+70.16		to	1026+99.76		Rural-2-Lane	2729.60'	-	2729.60'
Equation	a 1026+99.76	Bk. =	b	1027+58.02	Ah.	Equation	-	-	-
10	b 1027+58.02		to	b 1029+18.02		Rural-2-Lane	160.00'	-	160.00'
9	b 1029+18.02		to	b 1098+83.01		Rural-2-Lane	6964.99'	-	6964.99'
Equation	b 1098+83.01	Bk. =	c	58+48.00	Ah.	Equation	-	-	-
11	c 58+48.00		to	c 18+46.00		Surfacing Exception-Bridge	-	4002.00'	4002.00'
11	18+46.00		to	c 0+00.00	**End Project**	Rural-2-Lane	1846.00'	-	1846.00'
							36217.95'	4439.66'	40657.61'
						TOTALS =	**6.859 Miles**	**0.841 Miles**	**7.700 Miles**

06RC

SECTION	STATION		TO	STATION		DESCRIPTION	RESURFACING LENGTHS	GROSS PROJECT LENGTHS
13	**Begin Project** 69+11.74		to	5+17.60		Rural 2-Lane	6394.14'	6394.14'
Equation	5+17.60	Bk. =	a	105+71.60	Ah.	Equation	-	-
13	105+71.60		to	a 219+56.60		Rural 2-Lane	11385.00'	11385.00'
Equation	a 219+56.60	Bk. =	b	219+90.20	Ah.	Equation	-	-
13	b 219+90.20		to	b 229+74.50	**End Project**	Rural 2-Lane	984.30'	984.30'
							18763.44'	18763.44'
						TOTALS =	**3.554 Miles**	**3.554 Miles**

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
25 Jun 24

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F12	F68

FOR BIDDING PURPOSES ONLY

TABLES OF PROJECT STATIONING

06E0

SECTION	STATION		TO	STATION		DESCRIPTION	RESURFACING LENGTHS	GROSS PROJECT LENGTHS
9	**Begin Project**	0+00.00	to	4+25.00		Rural-2-Lane	425.00'	425.00'
12		4+25.00	to	13+50.00		Rural-2-Lane	925.00'	925.00'
9		13+50.00	to	87+91.22	**End Project**	Rural-2-Lane	7441.22'	7441.22'
						TOTALS =	8791.22' **1.665 Miles**	8791.22' **1.665 Miles**

07CD

SECTION	STATION		TO	STATION		DESCRIPTION	RESURFACING LENGTHS	EXCEPTIONS LENGTHS	GROSS PROJECT LENGTHS
14	**Begin Project**	288+47.00	to	318+10.11		2-Lane	2963.11'	-	2963.11'
14		318+10.11	to	319+67.88		Surfacing Exception-Bridge	-	157.77'	157.77'
14		319+67.88	to	366+22.83		2-Lane	4654.95'	-	4654.95'
14		366+22.83	to	368+17.17		Surfacing Exception-Bridge	-	194.34'	194.34'
14		368+17.17	to	390+50.00	**End Project**	2-Lane	2232.83'	-	2232.83'
						TOTALS =	9850.89' **1.866 Miles**	352.11' **0.067 Miles**	10203.00' **1.933 Miles**

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

SUMMARIES OF ASPHALT CONCRETE

05TY

Location	ALT A Class Q3R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	ALT A Class Q3R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)
Section 1 (2-2" Lifts)				
24' Finished Roadway Width	5,729.7	-	5,881.2	-
4.5' Finished Shoulder w/ 2' Bevel		2,636.5		2,709.9
Section 1 Totals =	5,729.7	2,636.5	5,881.2	2,709.9
Section 2 (2-2" Lifts)				
36' Finished Roadway Width	17,803.8	-	18,285.0	-
3' Finished Shoulder w/ 2' Bevel		3,981.6		4,079.5
Section 2 Totals =	17,803.8	3,981.6	18,285.0	4,079.5
Section 3 (1.5" and 2-2" Lifts)				
48' Finished Roadway Width	5,097.3	-	5,235.0	-
3' Finished Shoulder w/ 2' Bevel		853.8		877.3
Section 3 Totals =	5,097.3	853.8	5,235.0	877.3
Section 4 (2-2" Lifts)				
24' Finished Roadway Width	14,678.9		15,000.0	
4.5' Finished Shoulder w/ 2' Bevel		6,476.3		6,705.7
Section 4 Totals =	14,678.9	6,476.3	15,000.0	6,705.7
Section 5 (2-2" Lifts)				
48' Finished Roadway Width	333.6		342.7	
3' Finished Shoulder w/ 2' Bevel		55.9		57.4
Section 5 Totals =	333.6	55.9	342.7	57.4
Section 6 (2-2" Lifts)				
24' Finished Roadway Width	6502.4		6,678.1	
4' Finished Shoulder w/ 2' Bevel		2,718.2		2,789.7
Section 6 Totals =	6,502.4	2,718.2	6,678.1	2,789.7
Section 7 (2-2" Lifts)				
36' Finished Roadway Width	3,029.7		3,111.5	
4' Finished Shoulder w/ 2' Bevel		844.2		867.1
Section 7 Totals =	3,029.7	844.2	3,111.5	867.1
Section 8 (1.5" and 2-2" Lifts)				
48' Finished Roadway Width	2,144.5		2,202.4	
3' Finished Shoulder w/ 2' Bevel		359.2		369.1
Section 8 Totals =	2,144.5	359.2	2,202.4	369.1
Table of Additional Quantities Totals =		3,178.0		3,237.6
TOTALS =	**55,319.9**	**21,103.7**	**56,735.9**	**21,693.3**

SUMMARIES OF ASPHALT CONCRETE

06A1

Location	ALT A Class Q3R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	ALT A Class Q3R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)
Section 9 (2" Lift)				
24' Finished Roadway Width w/ 2' Bevel	9,472.8	- 497.3	9,728.9	- 503.6
Section 9 Totals =	9,472.8	497.3	9,728.9	503.6
Section 10 (2" Lift)				
24' Finished Roadway Width w/ 2' Bevel	863.9	- 50.7	887.2	- 51.5
Section 10 Totals =	863.9	50.7	887.2	51.5
Section 11 (2" Lift)				
22' Finished Roadway Width w/ 2' Bevel	505.9	- 32.8	519.6	- 33.8
Section 11 Totals =	505.9	32.8	519.6	33.8
Table of Additional Quantities Totals =		1,510.9		1,510.9
TOTALS =	**10,842.6**	**2,091.7**	**11,135.7**	**2,099.8**

06RC

Location	ALT A Class Q3R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	ALT A Class Q3R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)
Section 13 (2" Lift)				
22' Finished Roadway Width 2' Bevel	5,127.2	- 325.5	5,265.8	- 335.7
Section 13 Totals =	5,127.2	325.5	5,265.8	335.7
Table of Additional Quantities Totals =		421.7		421.7
TOTALS =	**5,127.2**	**747.2**	**5,265.8**	**757.4**

SUMMARIES OF ASPHALT CONCRETE

06E0

Location	ALT A Class Q3R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	ALT A Class Q3R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)
Section 9 (2" Lift)				
24' Finished Roadway Width	2,351.7	-	2,415.2	-
w/ 2' Bevel		139.6		141.6
Section 9 Totals =	2,351.7	139.6	2,415.2	141.6
Section 12 (2" Lift)				
24' Finished Roadway Width	276.5	-	284.0	-
8' shoulder w/ 2' Bevel		97.7		100.2
Section 12 Totals =	276.5	97.7	284.0	100.2
Table of Additional Quantities Totals =	-	482.9	-	482.9
TOTALS =	**2,628.2**	**720.2**	**2,699.2**	**724.7**

07CD

Location	ALT A Class Q3R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	ALT A Class Q3R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)
Section 14 (2" Lift)				
24' Finished Roadway Width	2,945.0	-	3,024.6	-
3.5' Finished Shoulder w/ 1' Bevel		966.1		991.0
Section 15 Totals =	2,945.0	966.1	3,024.6	991.0
Table of Additional Quantities Totals =		1,137.6		1,139.7
TOTALS =	**2,945.0**	**2,103.7**	**3,024.6**	**2,130.7**

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

RATES OF MATERIALS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F16	F68

SECTION 1
US12 – PCN 05TY

Station 176+72.20 to Station 278+05.50

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

Class Q3R Hot Mixed Asphalt Concrete (2" Bottom and Top Mainline Lifts)

	Alt. A	Alt. B
Aggregate	1742 Tons	1806 Tons
Salvaged Asphalt Concrete	436 Tons	452 Tons
PG 58-34 Asphalt Binder	105 Tons	87 Tons
TOTAL MIX	**2283 Tons**	**2345 Tons**
Hydrated Lime	23 Tons	23 Tons
TOTAL MIX WITH HYDRATED LIME	**2306 Tons**	**2368 Tons**

Cold Milling Asphalt Concrete is computed at the rate of 22,147 square yards per mile, applied 37.75 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 5.7 tons per mile applied 38 feet wide (Rate = 0.06 gallon per square yard), prior to application of each 2" lift of Class Q3R Hot Mixed Asphalt Concrete.

MC-70 Asphalt for Prime will be applied at a rate of 0.15 Gal/SqYd applied 39 feet wide.

Blotting Sand for Prime will be applied at a rate of 10 lbs/SqYd applied 24 feet wife.

Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 4.5 tons per mile applied 37 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 52.0 tons per mile applied 22 feet wide (Rate = 8 pounds per square yard).

SECTION 2
US12 – PCN 05TY

Station a 0+00.00 to Station a 17+00.00
Station a 30+00.00 to Station a 47+00.00
Station a 64+00.00 to Station a 79+00.00
Station a 97+00.00 to Station a 119+00.00
Station a 218+00.00 to Station a 242+00.00
Station a 262+00.00 to Station a 299+50.00
Station a 339+00.00 to Station b 20+92.00 (Thru Equation)

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

Class Q3R Hot Mixed Asphalt Concrete (2" Bottom and Top Mainline Lifts)

	Alt. A	Alt B
Aggregate	2189 Tons	2269 Tons
Salvaged Asphalt Concrete	547 Tons	567 Tons
PG 58-34 Asphalt Binder	132 Tons	109 Tons
TOTAL MIX	**2868 Tons**	**2945 Tons**
Hydrated Lime	29 Tons	29 Tons
TOTAL MIX WITH HYDRATED LIME	**2897 Tons**	**2974 Tons**

Cold Milling Asphalt Concrete is computed at the rate of 28,160 square yards per mile, applied 48 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate 7.0 tons per mile applied 47 feet wide per side (Rate = 0.06 gallon per square yard), prior to application of each 2" lift of Class Q3R Hot Mixed Asphalt Concrete.

MC-70 Asphalt for Prime will be applied at a rate of 0.15 Gal/SqYd applied 48 feet wide.

Blotting Sand for Prime will be applied at a rate of 10 lbs/SqYd applied 36 feet wife.

Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 5.7 tons per mile applied 57 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 77 tons per mile applied 33 feet wide (Rate = 8 pounds per square yard).

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

RATES OF MATERIALS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F17	F68

SECTION 3
US12 – PCN 05TY

Station a 17+00.00 to Station a 30+00.00
Station a 79+00.00 to Station a 97+00.00

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

Class Q3R Hot Mixed Asphalt Concrete (1.5" Bottom Lift)

	Alt. A	Alt B
Aggregate	39.56 Tons	41.02 Tons
Salvaged Asphalt Concrete	9.89 Tons	10.25 Tons
PG 58-34 Asphalt Binder	2.38 Tons	1.97 Tons
TOTAL MIX	**51.83 Tons**	**53.24 Tons**
Hydrated Lime	0.52 Tons	0.53 Tons
TOTAL MIX WITH HYDRATED LIME	**52.35 Tons**	**53.77 Tons**

Class Q3R Hot Mixed Asphalt Concrete (2" Middle and Top Lifts)

	Alt. A	Alt B
Aggregate	52.75 Tons	54.69 Tons
Salvaged Asphalt Concrete	16.19 Tons	13.67 Tons
PG 58-34 Asphalt Binder	3.18 Tons	2.63 Tons
TOTAL MIX	**69.12 Tons**	**70.99 Tons**
Hydrated Lime	0.69 Tons	0.71 Tons
TOTAL MIX WITH HYDRATED LIME	**69.81 Tons**	**71.70 Tons**

Cold Milling Asphalt Concrete is computed at the rate of 628 square yards per station, applied 56.50 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.17 tons per station applied 59 feet wide (Rate = 0.06 gallon per square yard), prior to application of each 2" lift of Class Q3R Hot Mixed Asphalt Concrete.

MC-70 Asphalt for Prime will be applied at a rate of 0.15 Gal/SqYd applied 60 feet wide.

Blotting Sand for Prime will be applied at a rate of 10 lbs/SqYd applied 48 feet wife.

Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 0.14 tons per station applied 58 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 1.97 tons per station applied 44 feet wide (Rate = 8 pounds per square yard).

SECTION 4
US12 – PCN 05TY

Station a 47+00.00 to Station a 55+28.00
Station a 57+12.00 to Station a 64+00.00
Station a 119+00.00 to Station a 218+00.00
Station a 242+00.00 to Station a 262+00.00
Station a 299+50.00 to Station a 327+17.09
Station a 328+62.91 to Station a 339+00.00

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

Class Q3R Hot Mixed Asphalt Concrete (2" Bottom and Top Lifts)

	Alt. A	Alt. B
Aggregate	1742 Tons	1806 Tons
Salvaged Asphalt Concrete	436 Tons	452 Tons
PG 58-34 Asphalt Binder	105 Tons	87 Tons
TOTAL MIX	**2283 Tons**	**2345 Tons**
Hydrated Lime	23 Tons	23 Tons
TOTAL MIX WITH HYDRATED LIME	**2306 Tons**	**2368 Tons**

Cold Milling Asphalt Concrete is computed at the rate of 24,347 square yards per station, applied 41.5 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 5.7 tons per mile applied 38 feet wide (Rate = 0.06 gallon per square yard), prior to application of each 2" lift of Class Q3R Hot Mixed Asphalt Concrete.

MC-70 Asphalt for Prime will be applied at a rate of 0.15 Gal/SqYd applied 39 feet wide.

Blotting Sand for Prime will be applied at a rate of 10 lbs/SqYd applied 24 feet wife.

Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 4.6 tons per mile applied 37 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 52.0 tons per mile applied 22 feet wide (Rate = 8 pounds per square yard).

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

RATES OF MATERIALS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F18	F68

SECTION 5
US12 – PCN 05TY

Station b 20+92.00 to Station b 23+71.00 (Thru Equation)

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

Class Q3R Hot Mixed Asphalt Concrete (2" Bottom and Top Lifts)

	Alt. A	Alt B
Aggregate	52.75 Tons	54.69 Tons
Salvaged Asphalt Concrete	16.19 Tons	13.67 Tons
PG 58-34 Asphalt Binder	3.18 Tons	2.63 Tons
TOTAL MIX	**69.12 Tons**	**70.99 Tons**
Hydrated Lime	0.69 Tons	0.71 Tons
TOTAL MIX WITH HYDRATED LIME	**69.81 Tons**	**71.70 Tons**

Cold Milling Asphalt Concrete is computed at the rate of 653 square yards per station, applied 58.75 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.17 tons per station applied 59 feet wide (Rate = 0.06 gallon per square yard), prior to application of each 2" lift of Class Q3R Hot Mixed Asphalt Concrete.

MC-70 Asphalt for Prime will be applied at a rate of 0.15 Gal/SqYd applied 60 feet wide.

Blotting Sand for Prime will be applied at a rate of 10 lbs/SqYd applied 48 feet wife.

Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 0.14 tons per station applied 58 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 1.95 ton/Sta. applied 44 feet wide (Rate = 8 pounds per square yard).

SECTION 6
US12 – PCN 05TY

Station b 23+71.00 to Station b 82+00.00
Station b 208+31.00 to Station b 240+05.00
Station b 253+09.20 to Station c 268+01.75 (Thru Equation)

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

Class Q3R Hot Mixed Asphalt Concrete (2" Bottom and Top Lifts)

	Alt. A	Alt. B
Aggregate	1691 Tons	1753 Tons
Salvaged Asphalt Concrete	423 Tons	438 Tons
PG 58-34 Asphalt Binder	102 Tons	84 Tons
TOTAL MIX	**2216 Tons**	**2275 Tons**
Hydrated Lime	22 Tons	23 Tons
TOTAL MIX WITH HYDRATED LIME	**2238 Tons**	**2298 Tons**

Cold Milling Asphalt Concrete is computed at the rate of 23,760 square yards per mile, applied 40.5 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 5.5 ton per mile applied 37 feet wide (Rate = 0.06 gallon per square yard), prior to application of each 2" lift of Class Q3R Hot Mixed Asphalt Concrete.

MC-70 Asphalt for Prime will be applied at a rate of 0.15 Gal/SqYd applied 38 feet wide.

Blotting Sand for Prime will be applied at a rate of 10 lbs/SqYd applied 24 feet wife.

Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 4.5 tons per mile ton applied 36 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 52.0 ton per mile ton applied 22 feet wide (Rate = 8 pounds per square yard).

RATES OF MATERIALS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F19	F68

SECTION 7
US12 – PCN 05TY

Station b 82+00.00 to Station b 115+78.00 (Reversed Section)

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

Class Q3R Hot Mixed Asphalt Concrete (2" Bottom and Top Lifts)

	Alt. A	Alt B
Aggregate	43.33 Tons	44.92 Tons
Salvaged Asphalt Concrete	10.83 Tons	11.23 Tons
PG 58-34 Asphalt Binder	2.61 Tons	2.16 Tons
TOTAL MIX	**56.77 Tons**	**58.31 Tons**
Hydrated Lime	0.57 Tons	0.58 Tons
TOTAL MIX WITH HYDRATED LIME	**57.34 Tons**	**58.59 Tons**

Cold Milling Asphalt Concrete is computed at the rate of 594 square yards per station, applied 53.5 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.14 tons per station applied 49 feet wide (Rate = 0.06 gallon per square yard), prior to application of each 2" lift of Class Q3R Hot Mixed Asphalt Concrete.

MC-70 Asphalt for Prime will be applied at a rate of 0.15 Gal/SqYd applied 50 feet wide.

Blotting Sand for Prime will be applied at a rate of 10 lbs/SqYd applied 36 feet wife.

Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 0.12 tons per station applied 48 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 1.47 ton/Sta. applied 33 feet wide (Rate = 8 pounds per square yard).

SECTION 8
US12 – PCN 05TY

Station b 240+05.00 to Station b 253+09.20

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

Class Q3R Hot Mixed Asphalt Concrete (1.5" Bottom Lift)

	Alt. A	Alt B
Aggregate	39.56 Tons	41.02 Tons
Salvaged Asphalt Concrete	9.89 Tons	10.25 Tons
PG 58-34 Asphalt Binder	2.38 Tons	1.97 Tons
TOTAL MIX	**51.83 Tons**	**53.24 Tons**
Hydrated Lime	0.52 Tons	0.53 Tons
TOTAL MIX WITH HYDRATED LIME	**52.35 Tons**	**53.77 Tons**

Class Q3R Hot Mixed Asphalt Concrete (2" Middle and Top Lifts)

	Alt. A	Alt B
Aggregate	52.75 Tons	54.69 Tons
Salvaged Asphalt Concrete	16.19 Tons	13.67 Tons
PG 58-34 Asphalt Binder	3.18 Tons	2.63 Tons
TOTAL MIX	**69.12 Tons**	**70.99 Tons**
Hydrated Lime	0.69 Tons	0.71 Tons
TOTAL MIX WITH HYDRATED LIME	**69.81 Tons**	**71.70 Tons**

Cold Milling Asphalt Concrete is computed at the rate of 633 square yards per station, applied 57 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.17 tons per station applied 59 feet wide (Rate = 0.06 gallon per square yard), prior to application of each lift of Class Q3R Hot Mixed Asphalt Concrete.

MC-70 Asphalt for Prime will be applied at a rate of 0.15 Gal/SqYd applied 60 feet wide.

Blotting Sand for Prime will be applied at a rate of 10 lbs/SqYd applied 48 feet wife.

Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 1.95 tons per station applied applied 58 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 1.95 ton/Sta. applied 44 feet wide (Rate = 8 pounds per square yard).

RATES OF MATERIALS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F20	F68

Revised: 7/24/24 - EJW

SECTION 9

SD1806P Spur Road to Wakpala – PCN 06E0

Station 0+00.00 to Station 4+25.00
Station 13+50.00 to Station 87+91.22

SD1806 North of US 12 – PCN 06A1

Station 749+64.10 to Station 853+72.55
Station 856+06.55 to Station a 999+70.16 (Thru Equation)
Station b 1029+18.02 to Station b 1098+83.01

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

Class Q3R Hot Mixed Asphalt Concrete (2" Mainline Lift)

	Alt. A	Alt B
Aggregate	1263 Tons	1309 Tons
Salvaged Asphalt Concrete	316 Tons	327 Tons
PG 58-34 Asphalt Binder	76 Tons	63 Tons
TOTAL MIX	**1655 Tons**	**1699 Tons**
Hydrated Lime	17 Tons	17 Tons
TOTAL MIX WITH HYDRATED LIME	**1672 Tons**	**1716 Tons**

Cold Milling Asphalt Concrete is computed at the rate of 15,019 square yards per mile, applied 25.6 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 5.6 tons per mile for applied 25.0 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

SS-1h or CSS-1h Asphalt for Tack at the rate of 4.3 tons per mile applied 29.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q3R Hot Mixed Asphalt Concrete.

Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 3.5 tons per mile applied 28.0 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 52.0 tons per mile applied 22.0 feet wide (Rate = 8 pounds per square yard).

SECTION 10

SD1806 North of US12 – PCN 06A1

Station a 999+70.16 to Station b 1029+18.02 (Thru Equation)

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

Class Q3R Hot Mixed Asphalt Concrete (2" Mainline Lift)

	Alt. A	Alt B
Aggregate	1263 Tons	1309 Tons
Salvaged Asphalt Concrete	316 Tons	327 Tons
PG 58-34 Asphalt Binder	76 Tons	63 Tons
TOTAL MIX	**1655 Tons**	**1699 Tons**
Hydrated Lime	17 Tons	17 Tons
TOTAL MIX WITH HYDRATED LIME	**1672 Tons**	**1716 Tons**

Cold Milling Asphalt Concrete is computed at the rate of 15,019 square yards per mile, applied 25.6 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 5.6 tons per mile applied 25.0 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

SS-1h or CSS-1h Asphalt for Tack at the rate of 4.3 tons per mile applied 29.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q3R Hot Mixed Asphalt Concrete.

Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 3.5 tons per mile applied 28.0 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 52.0 tons per mile applied 22.0 feet wide (Rate = 8 pounds per square yard).

RATES OF MATERIALS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F21	F68

Revised: 7/24/24 - EJW

SECTION 11

SD1806 North of US12 – PCN 06A1

Station c 18+46.00 to Station c 0+00.00 South to North Stationing

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

Class Q3R Hot Mixed Asphalt Concrete (2" Mainline Lift)

	Alt. A	Alt B
Aggregate	1163 Tons	1206 Tons
Salvaged Asphalt Concrete	291 Tons	301 Tons
PG 58-34 Asphalt Binder	70 Tons	58 Tons
TOTAL MIX	**1524 Tons**	**1565 Tons**
Hydrated Lime	15 Tons	16 Tons
TOTAL MIX WITH HYDRATED LIME	**1539 Tons**	**1581 Tons**

Cold Milling Asphalt Concrete is computed at the rate of 13,787 square yards per mile, applied 23.5 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 5.2 tons per mile applied 23.0 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

SS-1h or CSS-1h Asphalt for Tack at the rate of 4 tons per station applied 27.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q3R Hot Mixed Asphalt Concrete.

Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 3.2 tons per mile applied 26.0 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 47.0 tons per mile applied 20.0 feet wide (Rate = 8 pounds per square yard).

SECTION 12

SD1806P Spur Road to Wakpala – PCN 06E0

Station 4+25.00 to Station 13+50.00

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

Class Q3R Hot Mixed Asphalt Concrete (2" Mainline Lift)

	Alt. A	Alt B
Aggregate	30.57 Tons	31.69 Tons
Salvaged Asphalt Concrete	7.64 Tons	7.92 Tons
PG 58-34 Asphalt Binder	1.84 Tons	1.52 Tons
TOTAL MIX	**40.05 Tons**	**41.13 Tons**
Hydrated Lime	0.40 Tons	0.41 Tons
TOTAL MIX WITH HYDRATED LIME	**40.45 Tons**	**41.54 Tons**

Cold Milling Asphalt Concrete is computed at the rate of 367 square yards per station, applied 33.0 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.10 tons per station applied 25.0 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.10 ton applied 34.5 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q3R Hot Mixed Asphalt Concrete.

Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 0.08 tons per station applied 34.0 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 0.98 tons per station applied 22.0 feet wide (Rate = 8 pounds per square yard).

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
7/25/24

RATES OF MATERIALS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F22	F68

SECTION 13

SD1806 South of US 12 – PCN 06RC

Station 76+09.20 to Station 5+71.60 (Reverse Stationing)
Station a 105+71.60 to Station a 219+56.60
Station b 219+90.20 to Station b 229+74.50

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

Class Q3R Hot Mixed Asphalt Concrete (2" Mainline Lift)

	Alt. A	Alt B
Aggregate	1163 Tons	1206 Tons
Salvaged Asphalt Concrete	291 Tons	301 Tons
PG 58-34 Asphalt Binder	70 Tons	58 Tons
TOTAL MIX	**1524 Tons**	**1565 Tons**
Hydrated Lime	15 Tons	16 Tons
TOTAL MIX WITH HYDRATED LIME	**1539 Tons**	**1581 Tons**

Cold Milling Asphalt Concrete is computed at the rate of 13,640 square yards per station, applied 23.25 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 5.2 tons per mile applied 23.0 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

SS-1h or CSS-1h Asphalt for Tack at the rate of 4.0 tons per mile applied 27.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q3R Hot Mixed Asphalt Concrete.

Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 3.2 tons per mile applied 26.0 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 47.0 tons per mile applied 20 feet wide (Rate = 8 pounds per square yard).

SECTION 14

SD 63 – PCN 07CD

Station 288+47.00 to Station 318+10.11
Station 319+67.88 to Station 366+22.83
Station 368+17.17 to Station 390+50.00

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

Class Q3R Hot Mixed Asphalt Concrete (2" Mainline Lift)

	Alt. A	Alt B
Aggregate	1584 Tons	1642 Tons
Salvaged Asphalt Concrete	396 Tons	410 Tons
PG 58-34 Asphalt Binder	95 Tons	79 Tons
TOTAL MIX	**2075 Tons**	**2131 Tons**
Hydrated Lime	21 Tons	21 Tons
TOTAL MIX WITH HYDRATED LIME	**2096 Tons**	**2152 Tons**

Cold Milling Asphalt Concrete is computed at the rate of 19,213 square yards per station, applied 32.75 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 5.6 tons per mile applied 25.0 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

SS-1h or CSS-1h Asphalt for Tack at the rate of 5.1 tons per mile applied 34.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q3R Hot Mixed Asphalt Concrete.

Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 4.1 tons per mile applied 33.0 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 52.0 tons per mile applied 22.0 feet wide (Rate = 8 pounds per square yard).

TABLES OF MATERIAL AND ADDITIONAL QUANTITIES

05TY – MATERIAL QUANTITIES

Description	Cold Milling Asphalt Concrete (SqYd)	Full Depth Reclamation (SqYd)	Granular Material, Furnish (Ton)	ALT A Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT A PG 58-34 Asphalt Binder (Ton)	ALT B PG 58-34 Asphalt Binder (Ton)	ALT A Hydrated Lime (Ton)	ALT B Hydrated Lime (Ton)	MC 70 Asphalt for Prime (Ton)	Blotting Sand for Prime (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
Section 1	40,175	47,289	8,894.0	8,366.2	8,591.1	380.9	315.6	83.4	83.4	26.0	135.1	20.6	8.3	94.3
Section 2	105,882	110,282	21,597.7	21,785.4	22,364.5	992.6	819.7	218.1	218.1	62.7	397.0	52.6	21.4	289.5
Section 3	19,468	22,044	-	5,951.1	6,112.3	270.9	224.1	58.9	60.5	12.2	82.7	15.9	4.3	60.5
Section 4	111,680	116,442	20,897.2	21,155.2	21,705.7	963.3	793.6	211.0	215.6	60.5	314.0	52.2	21.1	238.5
Section 5	1,822	1,953	389.6	389.5	400.1	17.7	14.7	3.9	4.0	1.1	7.4	1.0	0.4	5.4
Section 6	48,946	51,958	9,649.5	9,220.6	9,467.8	420.2	346.1	90.6	94.8	27.2	145.0	22.6	9.3	107.1
Section 7	20,065	21,019	3,943.8	3,873.9	3,978.6	176.3	145.9	38.5	39.2	11.1	67.6	9.4	4.1	49.7
Section 8	8,256	9,347	-	2,503.7	2,571.5	114.0	94.3	24.8	25.4	5.2	34.8	6.6	1.8	25.4
Table of Additional Quantities Totals =	12,088	4,087	372.5	3,178.0	3,237.6	144.8	118.7	31.4	32.0	62.1	524.0	26.5	-	-
TOTALS =	**368,382**	**384,421**	**65,744.3**	**76,423.6**	**78,429.2**	**3,480.7**	**2,872.7**	**760.6**	**773.0**	**268.1**	**1,707.6**	**207.4**	**70.7**	**870.4**

05TY – ADDITIONAL QUANTITIES

Description	Cold Milling Asphalt Concrete (SqYd)	Remove Asphalt Concrete Pavement (SqYd)	FDR (SqYd)	Unclassified Excavation, Digouts (CuYd)	Base Course (Ton)	Base Course, Salvaged (Ton)	Asphalt Concrete Composite (Ton)	Granular Material, Furnish (Ton)	ALT A Granular Material, Furnish (Ton)	ALT B Granular Material, Furnish (Ton)	Blend & Stockpile Granular Material (Ton)	ALT A Blend, Haul, & Stockpile Granular Material (Ton)	ALT B Blend, Haul, & Stockpile Granular Material (Ton)	ALT A Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT A PG 58-34 Asphalt Binder (Ton)	ALT B PG 58-34 Asphalt Binder (Ton)	ALT A Hydrated Lime (Ton)	ALT B Hydrated Lime (Ton)	MC-70 Asphalt for Prime (Ton)	Blotting Sand for Prime (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)
Asphalt to End of ROW 5 Intersecting Road, Private, & Commercial Entrances	1400	-	-	-	-	-	-	-	220.5	220.5	-	441	441	157.5	157.5	7.2	5.8	1.6	1.6	-	-	0.4
Asphalt to End of Radius/Base Course, Salvaged Asphalt Mix to ROW 5 Commercial Entrance	1000	-	-	-	-	100.0	-	50.0	157.5	157.5	100.0	315	315	110.0	110.0	5.0	4.0	1.1	1.1	-	-	0.3
Farm & Field Entrances 43 Farm & Field, Private, & Commercial Entrances	4945	-	-	-	-	645.0	-	322.5	779	779	645.0	1557.7	1557.7	559.0	559.0	25.5	20.5	5.5	5.5	-	-	1.3
US12/ SD20 Intersection	1100	-	-	-	-	-	-	-	115.5	115.5	-	231.0	231.0	244.2	250.8	11.1	9.2	2.4	2.5	-	-	-
Section Transitions	2292	-	2693	-	-	-	-	-	361.0	361.0	-	721.9	721.9	1233.7	1267.0	56.2	46.4	12.2	12.5	62.1	524.0	24.5
US12 Widening at SD20	-	-	-	-	1162.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
US12 Widening at SD1806	-	-	-	-	1060.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cold Milling/ Surfacing for Guardrail at Bridge Ends	1351	-	1394	-	13.4	-	-	-	292.7	292.7	-	585.4	585.4	146.3	146.3	6.7	5.4	1.4	1.4	-	-	-
Bridge Transitions (See Layout for Asphalt Concrete Surfacing at Bridge Ends)	-	-	-	-	-	-	-	-	392.0	392.0	-	784.0	784.0	727.2	746.9	33.1	27.4	7.2	7.4	-	-	-
Blend, Haul, & Stockpile Cold Milled Asphalt	-	-	-	-	-	-	-	-	36,468.6	35,962.3	-	72,937.3	71,924.7	-	-	-	-	-	-	-	-	-
Unclassified Excavation, Digouts	-	869	-	579	1158.7	-	289.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS =	**12,088**	**869**	**4,087**	**579**	**3,395.4**	**745.0**	**289.7**	**372.5**	**38,786.7**	**38,280.4**	**745.0**	**77,573.4**	**76,560.8**	**3,178.0**	**3,237.6**	**144.8**	**118.7**	**31.4**	**32.0**	**62.1**	**524.0**	**26.5**

Quantities for Class Q3R Hot Mixed Asphalt Concrete is calculated using 31.5 tons per intersecting road.

Quantities for Base Course, Salvaged to be placed on commercial entrances that are to only have asphalt pads were calculated using 20.0 tons per entrance. Quantities for Class Q3R Hot Mixed Asphalt Concrete is calculated using 22.0 tons per commercial entrance.

Quantities for Base Course, Salvaged to be placed on approaches and farm & field entrances that are to only have asphalt pads were calculated using 13.0 tons per entrance. Quantities for Class Q3R Hot Mixed Asphalt Concrete is calculated using 15.0 tons per entrance.

Tonnage shown in the tables above for Class Q3R Hot Mixed Asphalt Concrete is based on a compacted depth as detailed in the plans.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F24	F68

TABLES OF MATERIAL AND ADDITIONAL QUANTITIES

06A1 – MATERIAL QUANTITIES

Description	Cold Milling Asphalt Concrete (SqYd)	Base Course, Salvaged (Ton)	Asphalt Concrete Blaid Laid (Ton)	ALT A Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT A PG 58-34 Asphalt Binder (Ton)	ALT B PG 58-34 Asphalt Binder (Ton)	ALT A Hydrated Lime (Ton)	ALT B Hydrated Lime (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
Section 9	80,307	-	-	9,970.1	10,232.5	453.2	375.7	101.4	101.4	25.6	20.9	310.1
Section 10	8,215	-	-	914.6	938.7	41.6	34.5	9.3	9.3	2.4	1.9	28.4
Section 11	4,825	-	-	538.7	553.4	24.5	20.3	5.3	5.6	1.4	1.1	16.5
Asphalt Concrete Blade Laid	-	-	1,029.1		-	76.2	76.2	10.2	10.2	38.3	-	-
Table of Additional Quantities Totals =	7,354	725.0	-	1,510.9	1,510.9	69.2	55.7	15.1	15.1	8.3	-	-
TOTALS =	**100,700**	**725.0**	**1,029.1**	**12,934.3**	**13,235.5**	**664.7**	**562.4**	**141.3**	**141.6**	**76.0**	**23.9**	**355.0**

06A1 – ADDITIONAL QUANTITIES

Description	Cold Milling Asphalt Concrete (SqYd)	Remove Asphalt Concrete Pavement (SqYd)	Unclassified Excavation, Digouts (CuYd)	Base Course (Ton)	Base Course, Salvaged (Ton)	Asphalt Concrete Composite (Ton)	Granular Material, Furnish (Ton)	ALT A Granular Material, Furnish (Ton)	ALT B Granular Material, Furnish (Ton)	Blend & Stockpile Granular Material	ALT A Blend, Haul, & Stockpile Granular Material (Ton)	ALT B Blend, Haul, & Stockpile Granular Material (Ton)	ALT A Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT A PG 58-34 Asphalt Binder (Ton)	ALT B PG 58-34 Asphalt Binder (Ton)	ALT A Hydrated Lime (Ton)	ALT B Hydrated Lime (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)
Asphalt to End of ROW 2 Intersecting Road, Private, & Commercial Entrances	560	-	-	-	-	-		51.5	51.5		102.9	102.9	63.0	63.0	2.9	2.3	0.6	0.6	0.1
Asphalt to End of Radius/Base Course, Salvaged Asphalt Mix to ROW 10 Commercial Entrance	2000	-	-	-	200.0	-	100.0	183.8	183.8	200.0	367.5	367.5	220.0	220.0	10.0	8.1	2.2	2.2	0.5
Farm & Field Entrances 35 Farm & Field, Private, & Commercial Entrances	4025	-	-	-	525.0	-	262.5	369.8	369.8	525.0	739.6	739.6	455.0	455.0	20.7	16.7	4.5	4.5	1.0
Cold Milling/ Asphalt for Guardrail at Bridge Ends	769	-	-	191.7	-	-		70.6	70.6		141.2	141.2	87.0	87.0	4.0	3.2	0.9	0.9	0.2
Pipe Repair Locations	-	286.7	-	60.2	-	60.2		-	-		-	-	-	-	-	-	-	-	0.1
Heave Repair MRM 367.300 to MRM 367.550	-	4107.0	-	3189.8	-	862.5		-	-		-	-	-	-	-	-	-	-	2.1
Base Course Reinforcement MRM 369.817 to MRM 369.873	-	1084.2	-	1530.0	-	227.7		-	-		-	-	-	-	-	-	-	-	0.6
Blend, Haul, & Stockpile Cold Milled Asphalt	-	-	-	-	-	-		1,925.2	1,850.1		3,850.4	3,700.2	-	-	-	-	-	-	-
Spot Leveling, Strengthening, & Repair	-	-	-	-	-	-		-	-		-	-	685.9	685.9	31.6	25.4	6.9	6.9	3.6
Cold Milling Depth Transitions at Bridge Ends and Project Beginning	-	-	-	-	-	-		280.0	280.0		560.0	560.0	-	-	-	-	-	-	-
Unclassified Excavation, Digouts	-	514.4	343	686	-	171.5		-	-		-	-	-	-	-	-	-	-	0.1
TOTALS =	7,354	5,992.3	343	5,657.7	725.0	1,321.8	362.5	2,880.8	2,805.7	725.0	5,761.6	5,611.5	1,510.9	1,510.9	69.2	55.7	15.1	15.1	8.3

Quantities for Class Q3R Hot Mixed Asphalt Concrete is calculated using 31.5 tons per intersecting road.

Quantities for Base Course, Salvaged to be placed on commercial entrances that are to only have asphalt pads were calculated using 20.0 tons per entrance. Quantities for Class Q3R Hot Mixed Asphalt Concrete is calculated using 22.0 tons per commercial entrance.

Quantities for Base Course, Salvaged to be placed on approaches and farm & field entrances that are to only have asphalt pads were calculated using 13.0 tons per entrance. Quantities for Class Q3R Hot Mixed Asphalt Concrete is calculated using 15.0 tons per commercial entranc

Tonnage shown in the tables above for Class Q3R Hot Mixed Asphalt Concrete is based on a compacted depth as detailed in the plans.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
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TABLES OF MATERIAL AND ADDITIONAL QUANTITIES

06RC – MATERIAL QUANTITIES

Description	Cold Milling Asphalt Concrete (SqYd)	Base Course, Salvaged (Ton)	Asphalt Concrete Blaid Laid (Ton)	ALT A Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT A PG 58-34 Asphalt Binder (Ton)	ALT B PG 58-34 Asphalt Binder (Ton)	ALT A Hydrated Lime (Ton)	ALT B Hydrated Lime (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
Section 13	48,327	-	-	5,452.7	5,601.5	248.0	205.5	53.1	56.7	14.2	11.3	166.5
Asphalt Concrete Blade Laid	-	-	531.5	-	-	39.3	39.3	5.3	5.3	18.4	-	-
Table of Additional Quantities Totals =	585	195.0	-	421.7	421.7	19.3	15.5	4.3	4.3	4.1	-	-
TOTALS =	**48,912**	**195.0**	**531.5**	**5,874.4**	**6,023.2**	**306.6**	**260.3**	**62.7**	**66.3**	**36.7**	**11.3**	**166.5**

06RC – ADDITIONAL QUANTITIES

Description	Cold Milling Asphalt Concrete (SqYd)	Remove Asphalt Concrete Pavement (SqYd)	Unclassified Excavation, Digouts (CuYd)	Base Course (Ton)	Base Course, Salvaged (Ton)	Granular Material, Furnish (Ton)	ALT A Granular Material, Furnish (Ton)	ALT B Granular Material, Furnish (Ton)	Blend & Stockpile Granular Material (Ton)	ALT A Blend, Haul, & Stockpile Granular Material (Ton)	ALT B Blend, Haul, & Stockpile Granular Material (Ton)	Asphalt Concrete Composite (Tons)	ALT A Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT A PG 58-34 Asphalt Binder (Ton)	ALT B PG 58-34 Asphalt Binder (Ton)	ALT A Hydrated Lime (Ton)	ALT B Hydrated Lime (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)
Farm & Field Entrances 13 Farm & Field, Private, & Commercial Entrances	585	-	-	-	195.0	97.5	30.7	30.7	195.0	61.4	61.4	-	66.3	66.3	3.0	2.4	0.7	0.7	0.2
Cold Milling Transitions at Begin/End Project	-	-	-	-	-	-	5.4	5.4	-	10.8	10.8	-	-	-	-	-	-	-	-
Blend, Haul, & Stockpile Cold Milled Asphalt	-	-	-	-	-	-	1,261.2	1,225.8	-	2,522.4	2,451.6	-	-	-	-	-	-	-	-
Spot Leveling, Strengthening, & Repair	-	-	-	-	-	-	-	-	-	-	-	-	355.4	355.4	16.3	13.1	3.6	3.6	3.6
Culvert Repair	-	446.4	-	562.4	-	-	-	-	-	-	-	93.7	-	-	-	-	-	-	0.2
Unclassified Excavaiton, Digouts	-	266.6	178	355.4	-	-	-	-	-	-	-	88.9	-	-	-	-	-	-	0.1
TOTALS =	**585**	**712.9**	**178**	**917.8**	**195.0**	**97.5**	**1,297.3**	**1,261.9**	**195.0**	**2,594.6**	**2,523.8**	**182.6**	**421.7**	**421.7**	**19.3**	**15.5**	**4.3**	**4.3**	**4.1**

Quantities for Base Course/ Base Course, Salvage to be placed on approaches and farm & field entrances that are to only have asphalt pads were calculated using 5.1 tons per entrance.
Tonnage shown in the tables above for Class Q3R Hot Mixed Asphalt Concrete is based on a compacted depth as detailed in the plans.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

TABLES OF MATERIAL AND ADDITIONAL QUANTITIES

06E0 – MATERIAL QUANTITIES

Description	Cold Milling Asphalt Concrete (SqYd)	Base Course, Salvaged (Ton)	Asphalt Concrete Blaid Laid (Ton)	ALT A Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT A PG 58-34 Asphalt Binder (Ton)	ALT B PG 58-34 Asphalt Binder (Ton)	ALT A Hydrated Lime (Ton)	ALT B Hydrated Lime (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
Section 9	22,378	-	-	2,491.3	2,556.8	113.2	93.9	25.3	25.3	6.4	5.2	77.5
Section 12	3,395	-	-	374.2	384.2	17.0	14.1	3.7	3.8	0.9	0.7	9.1
Asphalt Concrete Blade Laid	-	-	249.8		-	18.4	18.4	2.5	2.5	8.9	-	-
Table of Additional Quantities Totals =	2,847	135.0	-	482.9	482.9	22.1	17.8	4.8	4.8	4.7	-	-
TOTALS =	**28,620**	**135.0**	**249.8**	**3,348.4**	**3,423.9**	**170.7**	**144.2**	**36.3**	**36.4**	**20.9**	**5.9**	**86.6**

06E0 – ADDITIONAL QUANTITIES

Description	Cold Milling Asphalt Concrete (SqYd)	Remove Asphalt Concrete Pavement (SqYd)	Unclassified Excavation, Digouts (CuYd)	Base Course (Ton)	Base Course, Salvaged (Ton)	Granular Material, Furnish (Ton)	ALT A Granular Material, Furnish (Ton)	ALT B Granular Material, Furnish (Ton)	Blend Stockpile Granular Material (Ton)	ALT A Blend, Haul, & Stockpile Granular Material (Ton)	ALT B Blend, Haul, & Stockpile Granular Material (Ton)	Asphalt Concrete Composite (Ton)	ALT A Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT A PG 58-34 Asphalt Binder (Ton)	ALT B PG 58-34 Asphalt Binder (Ton)	ALT A Hydrated Lime (Ton)	ALT B Hydrated Lime (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)
Asphalt to End of ROW 7 Intersecting Road, Private, & Commercial Entrances	2037	-	-	-	-	-	106.9	106.9	-	213.9	213.9	-	226.1	226.1	10.3	8.3	2.2	2.2	0.8
Asphalt to End of Radius/Base Course, Salvaged Asphalt Mix to ROW 3 Commercial Entrance	450	-	-	-	45.0	22.5	23.6	23.6	45.0	47.3	47.3	-	50.1	50.1	2.3	1.8	0.5	0.5	0.2
Farm & Field Entrances 6 Farm & Field, Private, & Commercial Entrances	360	-	-	-	90.0	45.0	18.9	18.9	90.0	37.8	37.8	-	40.2	40.2	1.8	1.5	0.4	0.4	0.1
Blend & Stockpile Cold Milled Asphalt	-	-	-	-	-	-	696.7	677.7	-	1,393.4	1,355.4	-	-	-	-	-	-	-	-
Spot Leveling, Strengthening, & Repair	-	-	-	-	-	-	-	-	-	-		-	166.5	166.5	7.7	6.2	1.7	1.7	3.6
Cold Milling Transitions at End Project	-	-	-	-	-	-	2.7	2.7	-	5.4	5.4	-	-	-	-	-	-	-	-
Unclassified Excavation, Digouts	-	125	83	166.5	-	-	-	-	-	-	-	41.6	-	-	-	-	-	-	-
TOTALS =	**2,847**	**125**	**83**	**166.5**	**135.0**	**67.5**	**848.9**	**829.9**	**135.0**	**1,697.8**	**1,659.8**	**41.6**	**482.9**	**482.9**	**22.1**	**17.8**	**4.8**	**4.8**	**4.7**

Quantities for Class Q3R Hot Mixed Asphalt Concrete is calculated using 31.5 tons per intersecting road.

Quantities for Base Course, Salvaged to be placed on commercial entrances that are to only have asphalt pads were calculated using 20.0 tons per entrance. Quantities for Class Q3R Hot Mixed Asphalt Concrete is calculated using 16.7 tons per commercial entrance.

Quantities for Base Course/ Base Course, Salvage to be placed on approaches and farm & field entrances that are to only have asphalt pads were calculated using 6.7 tons per entrance.

Tonnage shown in the tables above for Class Q3R Hot Mixed Asphalt Concrete is based on a compacted depth as detailed in the plans.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F27	F68

TABLES OF MATERIAL AND ADDITIONAL QUANTITIES

07CD – MATERIAL QUANTITIES

Description	Cold Milling Asphalt Concrete (SqYd)	Base Course, Salvaged (Ton)	Asphalt Concrete Blade Laid (Ton)	ALT A Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT A PG 58-34 Asphalt Binder (Ton)	ALT B PG 58-34 Asphalt Binder (Ton)	ALT A Hydrated Lime (Ton)	ALT B Hydrated Lime (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
Section 14	35,851	-	-	3,911.1	4,015.6	177.3	147.4	39.2	39.2	9.5	7.7	97.0
Asphalt Concrete Blade Laid	-	-	242.6	-	-	20.7	20.7	2.8	2.8	10.4	-	-
Table of Additional Quantities Totals =	8,691	545.0	-	1,137.6	1,139.7	51.9	41.8	11.4	11.4	6.9	0.2	3.0
TOTALS =	**44,542**	**545.0**	**242.6**	**5,048.7**	**5,155.3**	**249.9**	**209.9**	**53.4**	**53.4**	**26.8**	**7.9**	**100.0**

07CD – ADDITIONAL QUANTITIES

Description	Cold Milling Asphalt Concrete (SqYd)	Unclassified Excavation, Digouts (CuYd)	Remove Asphalt Concrete Pavement (SqYd)	Base Course (Ton)	Base Course, Salvaged (Ton)	Asphalt Concrete Composite (Ton)	Granular Material, Furnish (Ton)	ALT A Granular Material, Furnish (Ton)	ALT B Granular Material, Furnish (Ton)	Blend Stockpile Granular Material (Ton)	ALT A Blend, Haul, & Stockpile Granular Material (Ton)	ALT B Blend, Haul, & Stockpile Granular Material (Ton)	ALT A Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT B Class Q3R Hot Mixed Asphalt Concrete (Ton)	ALT A PG 58-34 Asphalt Binder (Ton)	ALT B PG 58-34 Asphalt Binder (Ton)	ALT A Hydrated Lime (Ton)	ALT B Hydrated Lime (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
Asphalt to End of ROW 5 Intersecting Roads	1400.0	-	-	-	-	-	-	128.6	128.6	-	257.3	257.3	157.5	157.5	7.2	5.8	1.6	1.6	0.5	-	-
Asphalt to End of Radius/Base Course to ROW 1 Commercial Entrance	225	-	-	-	20.0	-	10.0	20.7	20.7	20.0	41.3	41.3	22.0	22.0	1.0	0.8	0.2	0.2	0.1	-	-
Farm & Field Entrances 35 Farm & Field, Private, & Commercial Entrances	5250	-	-	-	525.0	-	262.5	482.3	482.3	525.0	964.7	964.7	584.5	584.5	26.6	21.4	5.8	5.8	2.0	-	-
Cold Milling/Asphalt for Guardrail at Bridge Ends	766	-	-	86.5	-	-	-	40.2	40.2	-	80.5	80.5	109.3	109.3	5.0	4.0	1.1	1.1	0.3	-	-
Blend, Haul, & Stockpile Cold Milled Asphalt	-	-	-	-	-	-	-	621.1	594.5	-	1,242.2	1,188.9	-	-	-	-	-	-	-	-	-
Spot Leveling, Strengthening, & Repair	-	-	-	-	-	-	-	-	-	-	-	-	186.6	186.6	8.6	6.9	1.9	1.9	3.6	-	-
Section 14 to 15 Transitions	1050	-	-	-	-	-	-	55.1	55.1	-	110.3	110.3	77.7	79.8	3.5	2.9	0.8	0.8	0.4	0.2	3.0
Cold Milling Transitions at Begin/End Project	-	-	-	-	-	-	-	37.3	37.3	-	74.6	74.6	-	-	-	-	-	-	-	-	-
Unclassified Excavation, Digouts	-	93	140	186.6	-	46.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS =	**8,691**	**93**	**140.0**	**273.1**	**545.0**	**46.7**	**272.5**	**1,385.4**	**1,358.8**	**545.0**	**2,770.8**	**2,717.6**	**1,137.6**	**1,139.7**	**51.9**	**41.8**	**11.4**	**11.4**	**6.9**	**0.2**	**3.0**

Quantities for Class Q3R Hot Mixed Asphalt Concrete is calculated using 31.5 tons per intersecting road.

Quantities for Base Course, Salvaged to be placed on commercial entrances that are to only have asphalt pads were calculated using 20.0 tons per entrance. Quantities for Class Q3R Hot Mixed Asphalt Concrete is calculated using 22.0 tons per commercial entrance.

Quantities for Base Course, Salvaged to be placed on approaches and farm & field entrances that are to only have asphalt pads were calculated using 15.0 tons per entrance. Quantities for Class Q3R Hot Mixed Asphalt Concrete is calculated using 16.7 tons per commercial entrance.

Tonnage shown in the tables above for Class Q3R Hot Mixed Asphalt Concrete is based on a compacted depth as detailed in the plans.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

TYPICAL SURFACING SECTIONS

FOR BIDDING PURPOSES ONLY

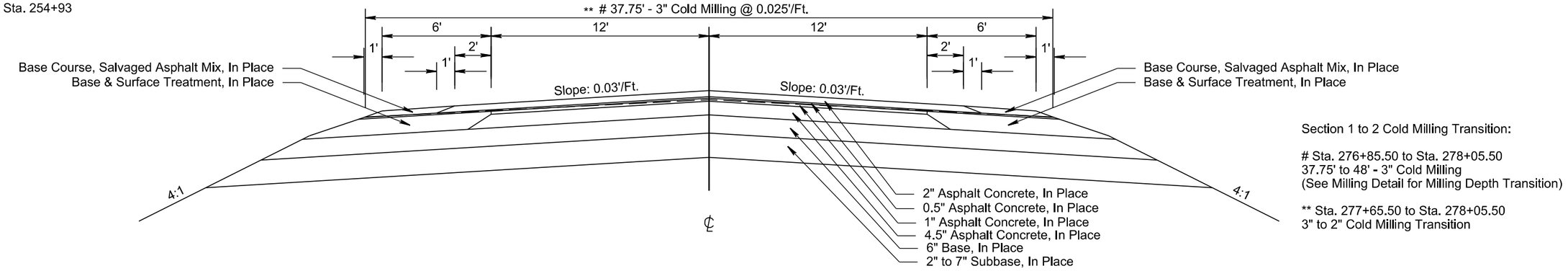
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F28	F68

Plotting Date: 6/21/2024

PCN 05TY

Bridge:
Sta. 249+37 to Sta. 254+93

Section 1
Sta. 176+72.20 to Sta. 278+05.50



Section 1 to 2 Cold Milling Transition:

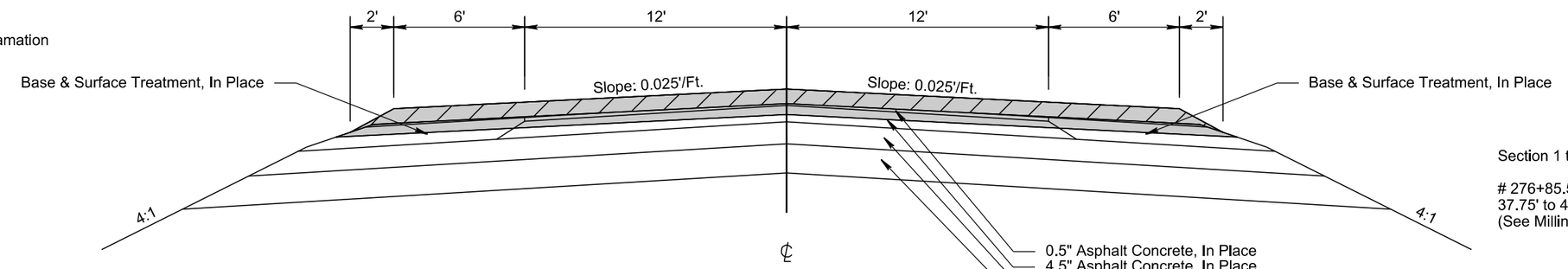
Sta. 276+85.50 to Sta. 278+05.50
37.75' to 48' - 3" Cold Milling
(See Milling Detail for Milling Depth Transition)

** Sta. 277+65.50 to Sta. 278+05.50
3" to 2" Cold Milling Transition

4" Granular Material, Furnish

7" Full Depth Reclamation

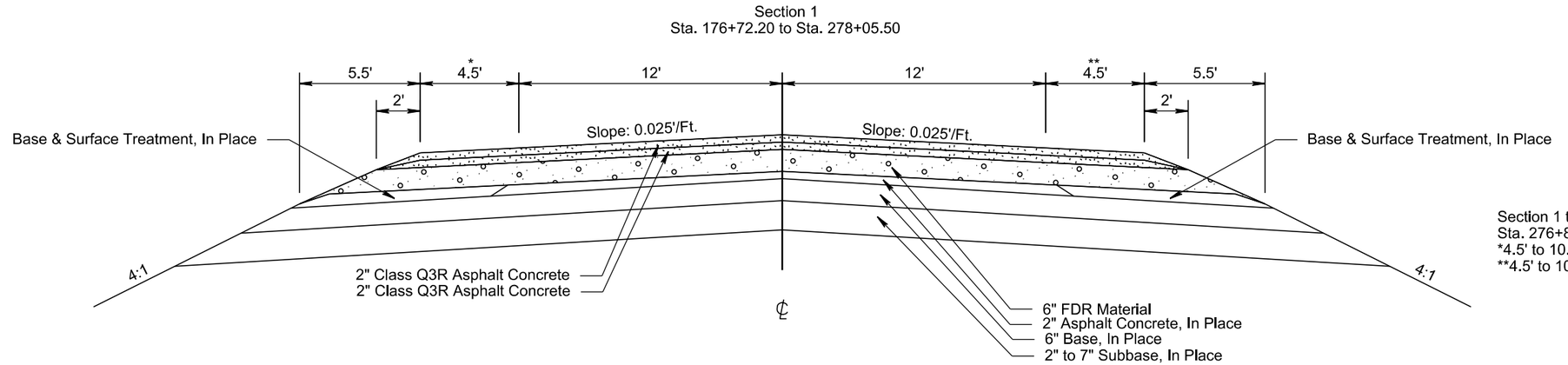
Section 1
Sta. 176+72.20 to Sta. 278+05.50



Section 1 to 2 FDR Transition:

276+85.50 to 278+05.50
37.75' to 48'
(See Milling Detail for Milling Depth Transition)

Section 1
Sta. 176+72.20 to Sta. 278+05.50



Section 1 to 2 Surfacing Transition:
Sta. 276+85.50 to Sta. 278+05.50
*4.5' to 10.5'
**4.5' to 10.5' (Reversed Sections)

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

PLOT SCALE - 1:6.00001

PLOT NAME - 1

FILE - ...\05TY_TYPSECT_TJD2.DGN

PLOTTED FROM - EVANWOLF

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F29	F68

Plotting Date: 6/21/2024

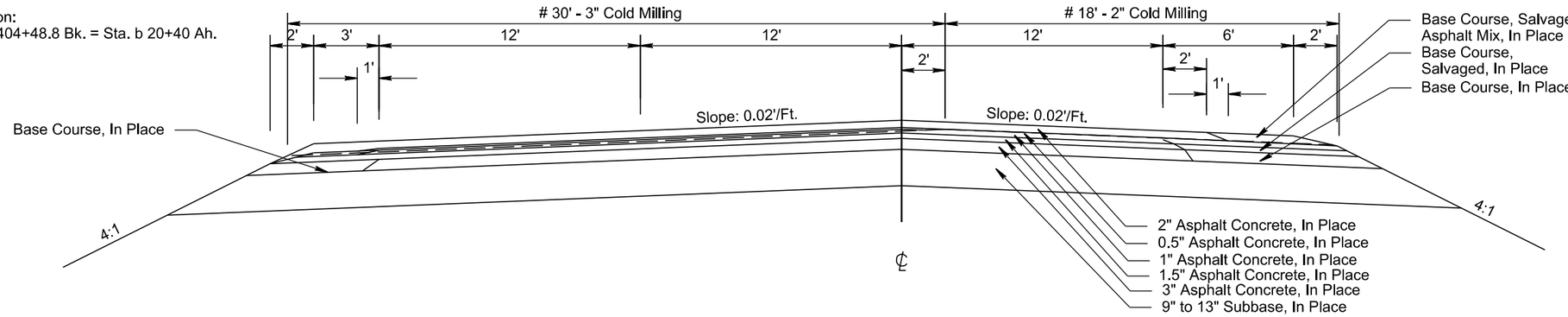
PCN 05TY

Equation:
Sta. 278+05.5 Bk. = Sta. a 0+00 Ah.

Equation:
Sta. a 404+48.8 Bk. = Sta. b 20+40 Ah.

Section 2
Sta. a 30+00.00 to Sta. a 47+00.00
Sta. a 97+00.00 to Sta. a 119+00.00
Sta. a 262+00.00 to Sta. a 299+50.00

Section 2 Reversed
Sta. a 0+00.00 to Sta. a 17+00.00
Sta. a 64+00.00 to Sta. a 79+00.00
Sta. a 218+00.00 to Sta. a 242+00.00
Sta. a 339+00.00 to Sta. b 20+92.00



Section 2 to 3 Cold Milling Transition:
Sta. a 15+80.00 to Sta. a 17+00.00
Sta. a 77+80.00 to Sta. a 79+00.00
48' to 56.5' Cold Milling
(See Milling Detail for Milling Depth Transition)

Section 2 to 4 Cold Milling Transitions
** Sta. a 44+00 to Sta. a 47+00
Sta. a 116+00 to Sta. a 119+00
Sta. a 239+00 to Sta. a 242+00
Sta. a 296+50 to Sta. a 299+50
48' to 41.5' Cold Milling Transition

Section 4 to 2 Cold Milling Transitions
Sta. a 30+00.00 to Sta. a 31+20.00
Sta. a 64+00 to Sta. a 65+20
Sta. a 97+00.00 to Sta. a 98+20.00
Sta. a 218+00 to Sta. a 219+20
Sta. a 262+00.00 to a Sta. 263+20
Sta. a 339+00.00 to Sta. a 340+20.00
48' to 41.5' Cold Milling Transition

Section 2 to 3 FDR &
Granular Material Transitions:
Sta. 15+80.00 to Sta. 17+00.00
Sta. 77+80.00 to Sta. 79+00.00
50.25' to 63.75' FDR Width Transition
7" to 10" FDR Depth Transition
50.25' to 63.75' Granular Material
4" to 0" Granular Material
(See Milling Detail for Cold Milling Depth Transition & Granular Material Depth Transition)

Section 2 to 4 FDR Transitions:
** Sta. a 44+00 to Sta. a 47+00
Sta. a 116+00 to Sta. a 119+00
Sta. a 239+00 to Sta. a 242+00
Sta. a 296+50 to Sta. a 299+50
50.25' to 44' FDR Width Transition

Section 2 to 5 FDR Transition:
Sta. a 394+78 to Sta. b 20+92
50.25' to 62.75' FDR Width Transition

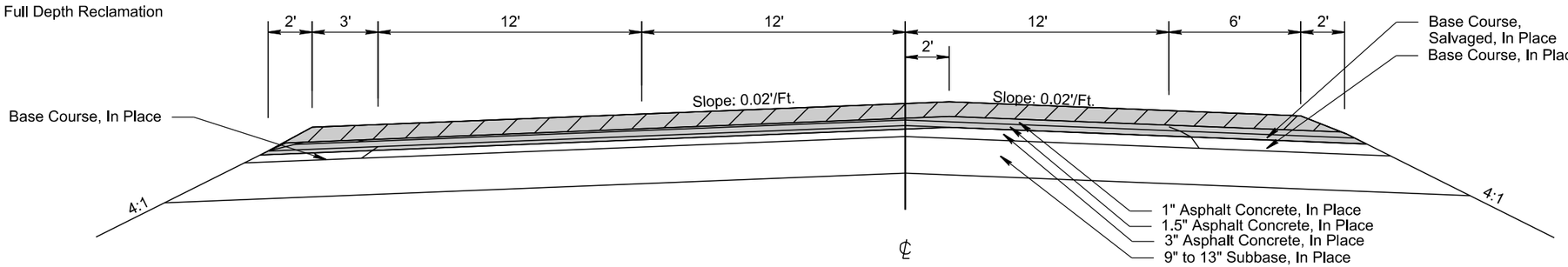
Section 4 to 2 FDR Transitions:
Sta. a 30+00.00 to Sta. a 31+20.00
Sta. a 64+00 to Sta. a 65+20
Sta. a 97+00.00 to Sta. a 98+20.00
Sta. a 218+00 to Sta. a 219+20
Sta. a 262+00.00 to a Sta. 263+20
Sta. a 339+00.00 to Sta. a 340+20.00
44' to 50.25' FDR Width Transition

4" Granular Material, Furnish

7" Full Depth Reclamation

Section 2
Sta. a 30+00.00 to Sta. a 47+00.00
Sta. a 97+00.00 to Sta. a 119+00.00
Sta. a 262+00.00 to Sta. a 299+50.00

Section 2 Reversed
Sta. a 0+00.00 to Sta. a 17+00.00
Sta. a 64+00.00 to Sta. a 79+00.00
Sta. a 218+00.00 to Sta. a 242+00.00
Sta. a 339+00.00 to Sta. b 20+92.00



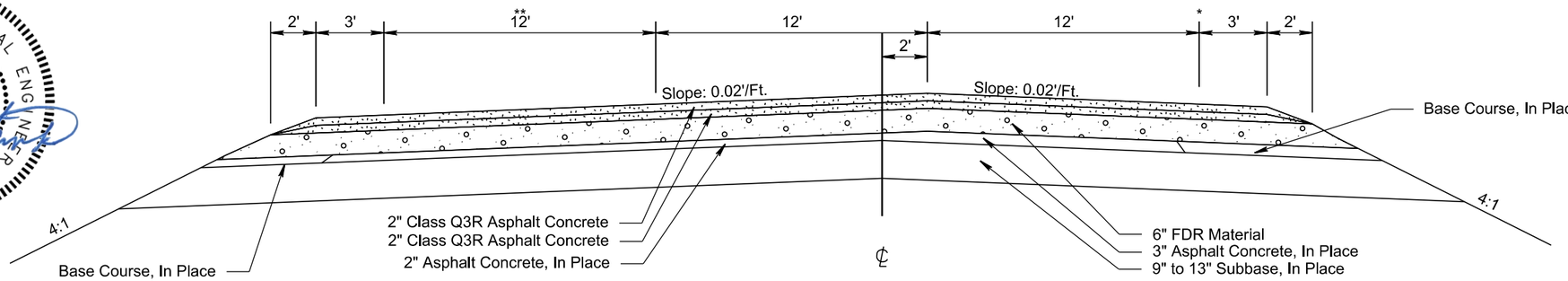
Section 2 to 3 Surfacing Transitions:
* Sta. a 15+80.00 to Sta. a 17+00.00
Sta. a 77+80.00 to Sta. a 79+00.00
0' to 12' (Transition to 4-Lane Section)

Section 2 to 4 Surfacing Transitions:
** Sta. a 44+00 to Sta. a 47+00
Sta. a 116+00 to Sta. a 119+00
Sta. a 239+00 to Sta. a 242+00
Sta. a 296+50 to Sta. a 299+50
*12' to 1.5' (3-Lane to 2-Lane)

Section 4 to 2 Surfacing Transitions:
Sta. a 30+00.00 to Sta. a 31+20.00
Sta. a 64+00 to Sta. a 65+20
Sta. a 97+00.00 to Sta. a 98+20.00
Sta. a 218+00 to Sta. a 219+20
Sta. a 262+00.00 to a Sta. 263+20
Sta. a 339+00.00 to Sta. a 340+20.00
** 1.5 to 12" (2-Lane to 3-Lane Section)

Section 2
Sta. a 30+00.00 to Sta. a 47+00.00
Sta. a 97+00.00 to Sta. a 119+00.00
Sta. a 262+00.00 to Sta. a 299+50.00

Section 2 Reversed
Sta. a 0+00.00 to Sta. a 17+00.00
Sta. a 64+00.00 to Sta. a 79+00.00
Sta. a 218+00.00 to Sta. a 242+00.00
Sta. a 339+00.00 to Sta. b 20+92.00



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
STATE OF SOUTH DAKOTA
24 Jun 24

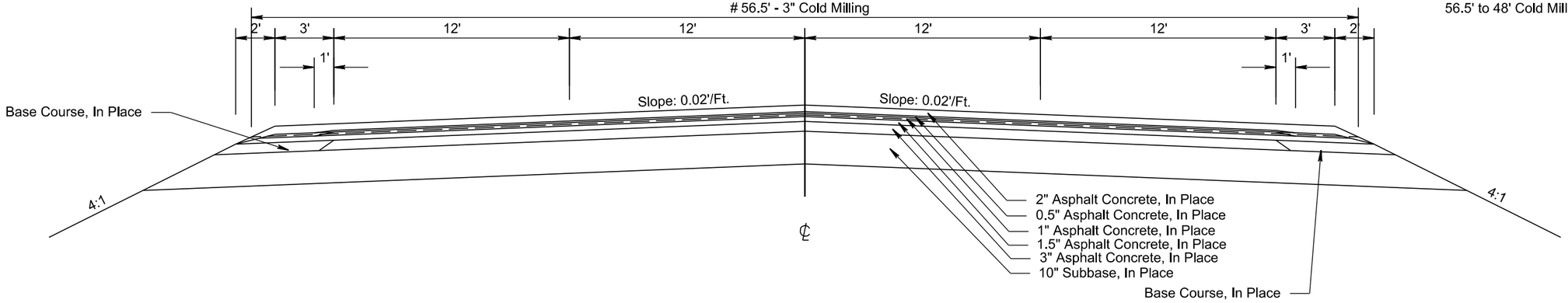
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F30	F68

Plotting Date: 6/21/2024

PCN 05TY

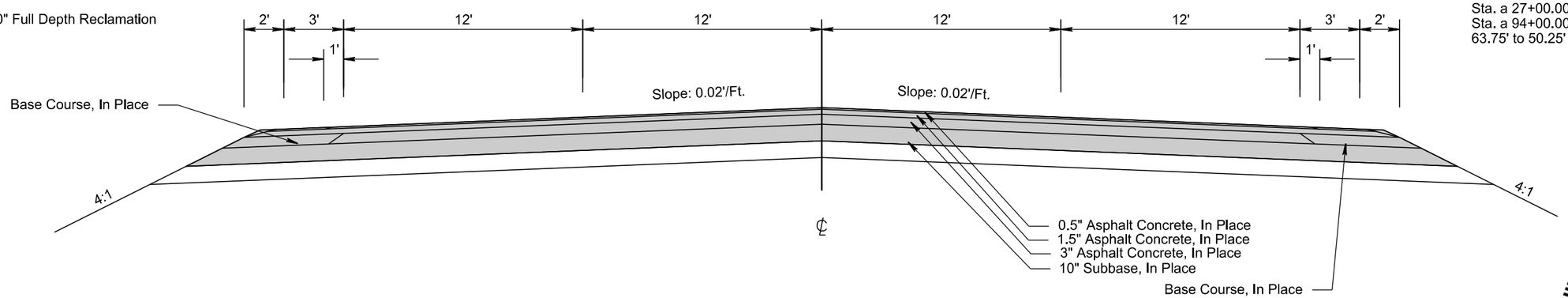
Section 3
Sta. a 17+00.00 to Sta. a 30+00.00
Sta. a 79+00.00 to Sta. a 97+00.00



Section 3 to 2 Cold Milling Transition:
Sta. a 27+00.00 to Sta. a 30+00.00
Sta. a 94+00.00 to Sta. 97+00.00
56.5' to 48' Cold Milling Transition

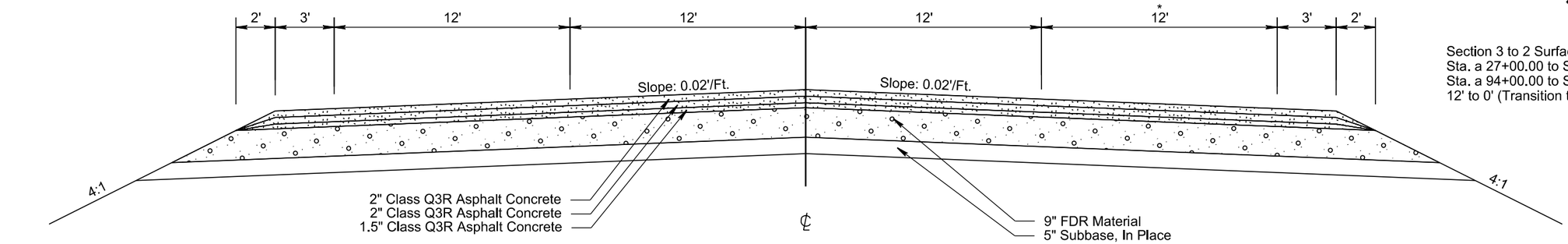
Section 3
Sta. a 17+00.00 to Sta. a 30+00.00
Sta. a 79+00.00 to Sta. a 97+00.00

10" Full Depth Reclamation



Section 3 to 2 FDR Transitions:
Sta. a 27+00.00 to Sta. a 30+00.00
Sta. a 94+00.00 to Sta. 97+00.00
63.75' to 50.25' FDR Transition

Section 3
Sta. a 17+00.00 to Sta. a 30+00.00
Sta. a 79+00.00 to Sta. a 97+00.00



Section 3 to 2 Surfacing Transitions:
Sta. a 27+00.00 to Sta. a 30+00.00
Sta. a 94+00.00 to Sta. 97+00.00
12' to 0' (Transition to 3-Lanes)

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F31	F68

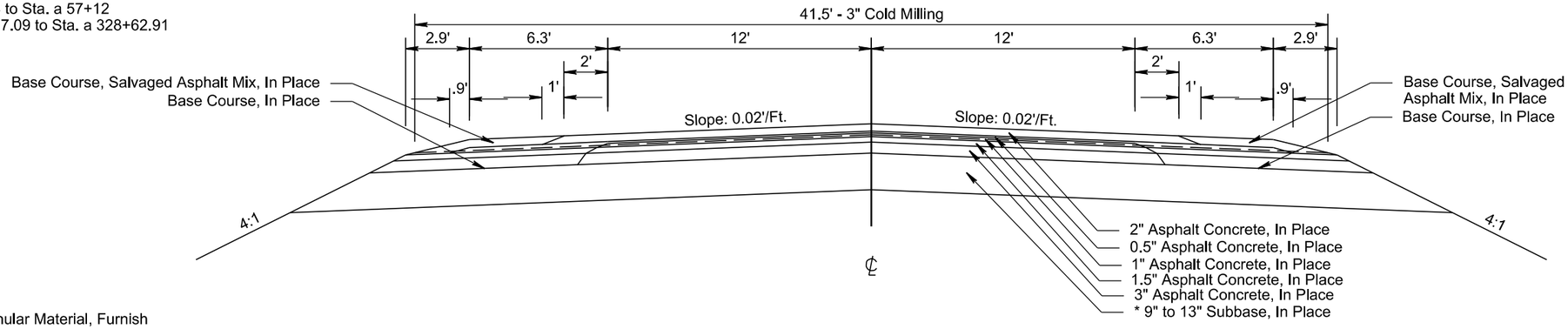
Plotting Date: 6/21/2024

PCN 05TY
Section 4
Sta. a 47+00.00 to Sta. a 64+00.00
Sta. a 119+00.00 to Sta. a 218+00.00
Sta. a 242+00.00 to Sta. a 262+00.00
Sta. a 299+50.00 to Sta. a 339+00.00

Bridge:
Sta. a 55+28 to Sta. a 57+12
Sta. a 327+17.09 to Sta. a 328+62.91

Transitions:

Sta. a 155+50 to Sta. a 205+00
* Bituminous & Lime Treated Subbase, In Place



4" Granular Material, Furnish

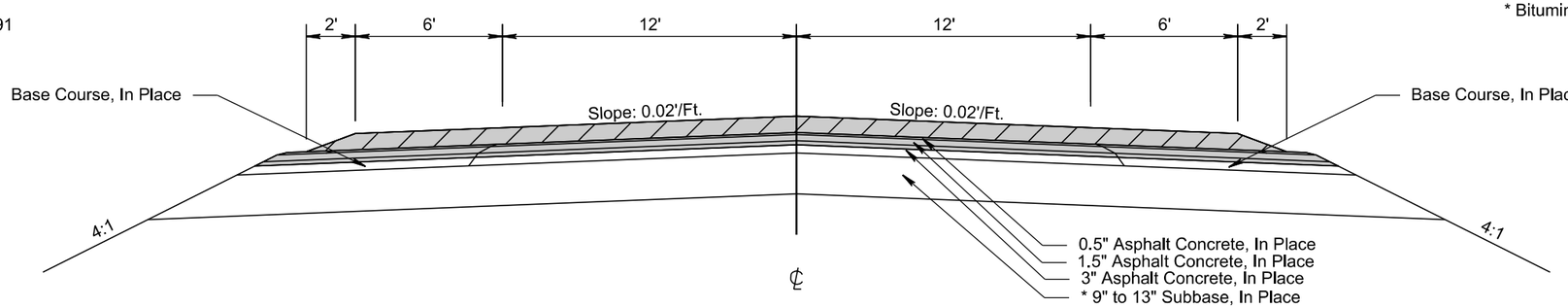
7" Full Depth Reclamation

Section 4
Sta. a 47+00.00 to Sta. a 64+00.00
Sta. a 119+00.00 to Sta. a 218+00.00
Sta. a 242+00.00 to Sta. a 262+00.00
Sta. a 299+50.00 to Sta. a 339+00.00

Bridge:
Sta. a 55+28 to Sta. a 57+12
Sta. a 327+17.09 to Sta. a 328+62.91

Transitions:

Sta. a 155+50 to Sta. a 205+00
* Bituminous & Lime Treated Subbase, In Place

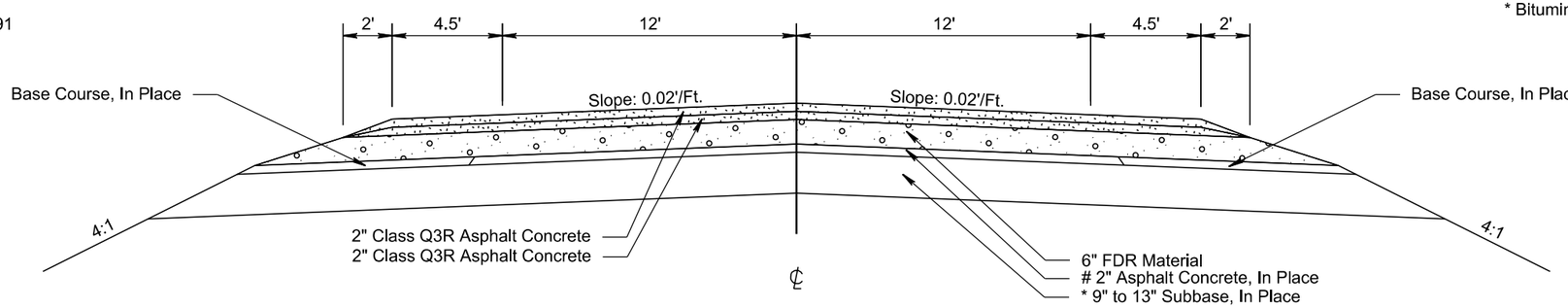


Section 4
Sta. a 47+00.00 to Sta. a 64+00.00
Sta. a 119+00.00 to Sta. a 218+00.00
Sta. a 242+00.00 to Sta. a 262+00.00
Sta. a 299+50.00 to Sta. a 339+00.00

Bridge:
Sta. a 55+28 to Sta. a 57+12
Sta. a 327+17.09 to Sta. a 328+62.91

Transitions:

Sta. 155+50 to Sta. 205+00
* Bituminous & Lime Treated Subbase, In Place



Bridge Surfacing Transitions:
2" to 0"
4" to 6" Class Q3R Asphalt Concrete
(See Details for Surfacing Transitions at Bridge Ends)

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

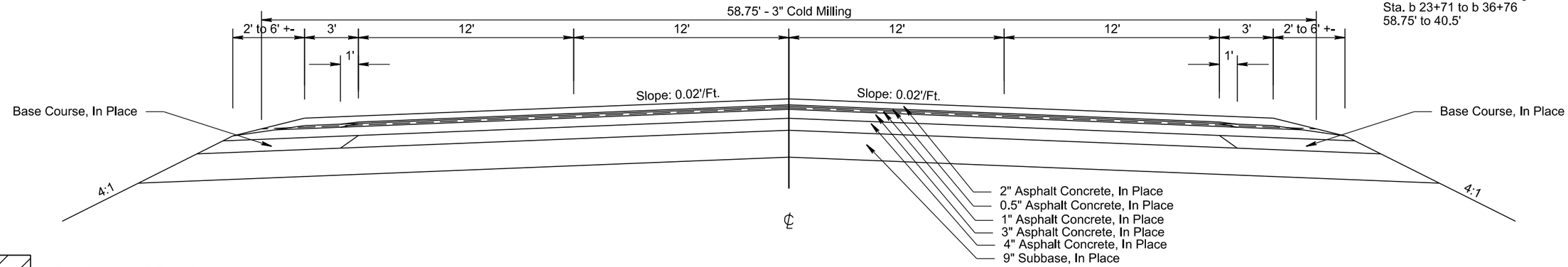
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F32	F68

Plotting Date: 6/21/2024

PCN 05TY

Section 5
Sta. b 20+92.00 to Sta. b 23+71
58.75' - 3" Cold Milling



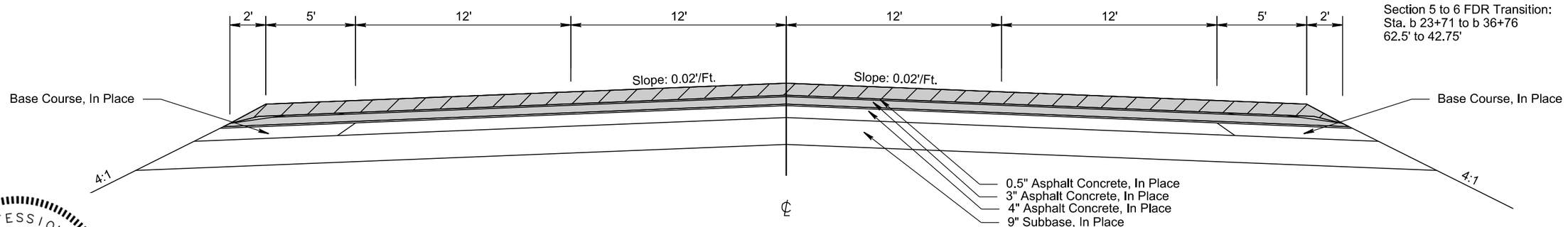
4" Granular Material, Furnish

7" Full Depth Reclamation

Section 2 to 5 Cold Milling Width Transition:
Sta. a 397+92 to b 20+92.
48' to 58.75' Cold Milling

Section 5 to 6 Cold Milling Width Transition:
Sta. b 23+71 to b 36+76
58.75' to 40.5'

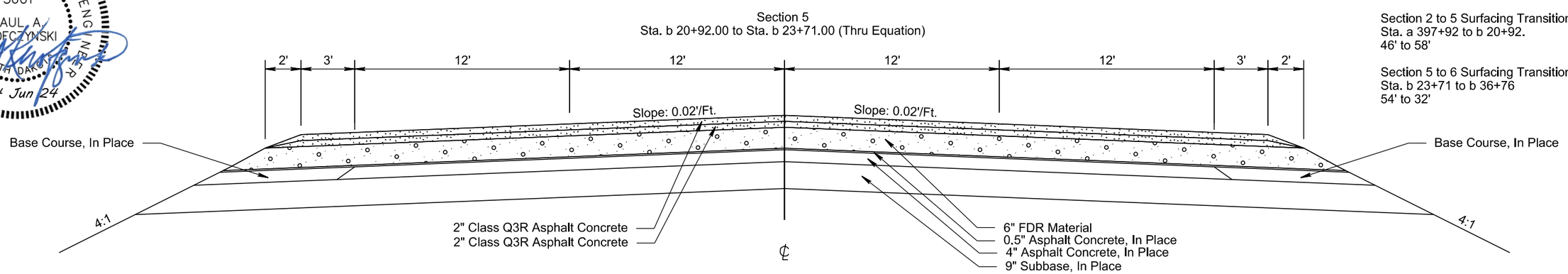
Section 5
Sta. b 20+92.00 to Sta. b 23+71.00 (Thru Equation)



Section 2 to 5 FDR Transition:
Sta. a 397+92 to b 20+92.
50.25' to 62.5' Cold Milling

Section 5 to 6 FDR Transition:
Sta. b 23+71 to b 36+76
62.5' to 42.75'

Section 5
Sta. b 20+92.00 to Sta. b 23+71.00 (Thru Equation)



Section 2 to 5 Surfacing Transition:
Sta. a 397+92 to b 20+92.
46' to 58'

Section 5 to 6 Surfacing Transition:
Sta. b 23+71 to b 36+76
54' to 32'

REGISTERED PROFESSIONAL ENGINEER
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PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

PLOT SCALE - 1:6.00001

PLOT NAME - 5

FILE - ...\05TY_TYPSECT_TJD2.DGN

PLOTTED FROM - EVANWOLF

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F33	F68

Plotting Date: 6/21/2024

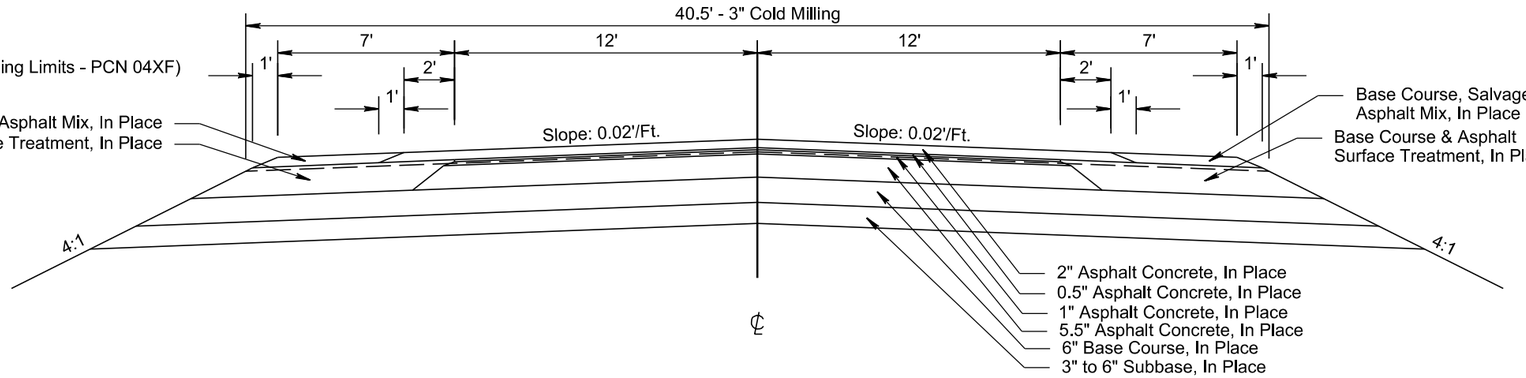
PCN 05TY

Section 6
Sta. b 23+71.00 to Sta. b 82+00.00
Sta. b 208+31.00 to Sta. b 240+05.00
Sta. b 253+09.20 to Sta. c 268+01.75 (Thru Equation)

Equation:
Sta. b 262+01.6 Bk. = Sta. c 258+22.2 Ah.

Surfacing Exception:

Sta. b 115+58.61 to Sta. b 203+80.27 (Grading Limits - PCN 04XF)



4" Granular Material, Furnish

7" Full Depth Reclamation

Section 6 to 7 Cold Milling Width Transition:
Sta. b 80+80.00 to Sta. 82+00.00
40.5' to 53.5' Cold Milling

Section 6 to 8 Cold Milling Width Transition:
Sta. b 233+10.00 to b 240+05.00
40.5' to 57' Cold Milling

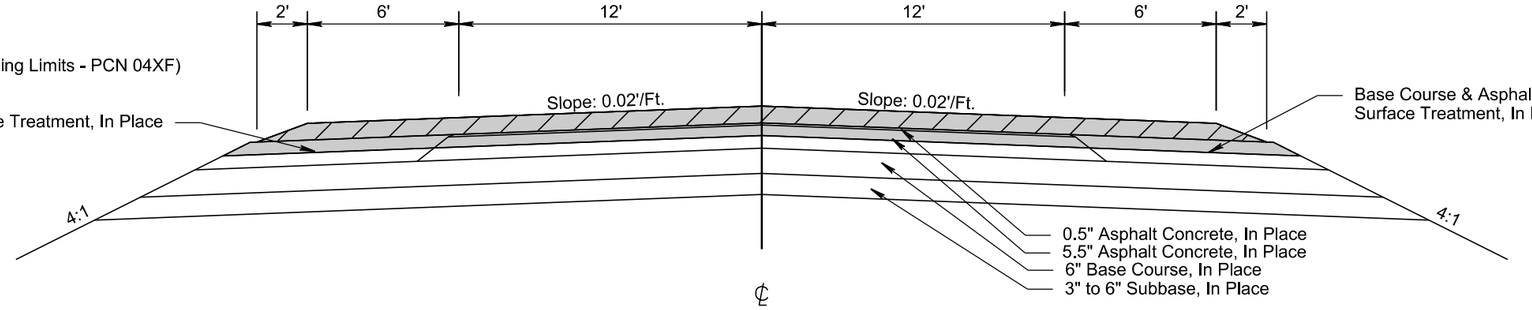
Section 8 to 6 Cold Milling Width Transition:
Sta. b 253+09.20 to Sta. b 256+09.20
57' to 40.5' Cold Milling

Section 6
Sta. b 23+71.00 to Sta. b 82+00.00
Sta. b 208+31.00 to Sta. b 240+05.00
Sta. b 253+09.20 to Sta. c 268+01.75 (Thru Equation)

Equation:
Sta. b 262+01.6 Bk. = Sta. c 258+22.2 Ah.

Surfacing Exception:

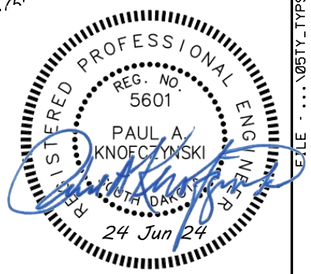
Sta. b 115+58.61 to Sta. b 203+80.27 (Grading Limits - PCN 04XF)



Section 6 to 7 FDR Transition:
Sta. b 80+80.00 to Sta. 82+00.00
42.75' to 55.75'

Section 6 to 8 FDR Transition:
Sta. b 233+10.00 to b 240+05.00
42.75' to 64.5'

Section 8 to 6 FDR Transition:
Sta. b 253+09.20 to Sta. b 256+09.20
64.5' to 42.75'

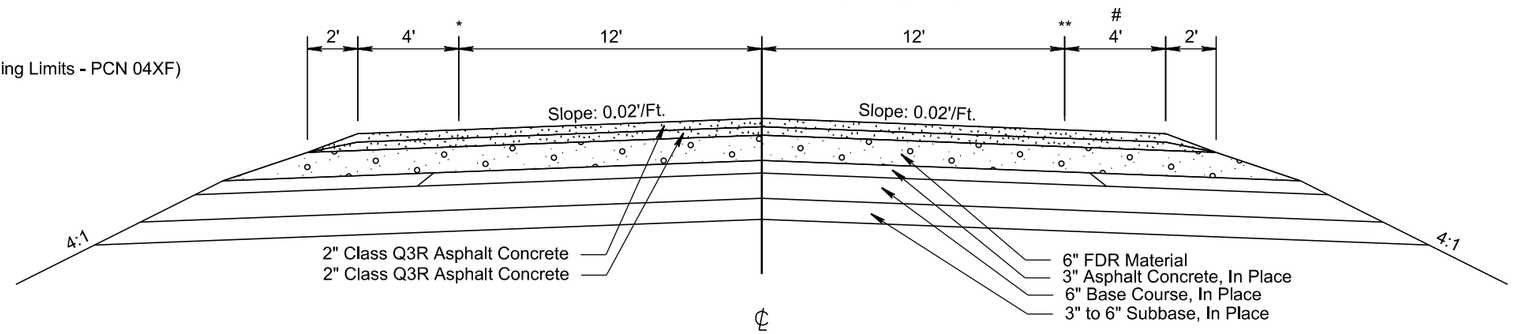


Section 6
Sta. b 23+71.00 to Sta. b 82+00.00
Sta. b 208+31.00 to Sta. b 240+05.00
Sta. b 253+09.20 to Sta. c 268+01.75 (Thru Equation)

Equation:
Sta. b 262+01.6 Bk. = Sta. c 258+22.2 Ah.

Surfacing Exception:

Sta. b 115+78.00 to Sta. b 208+31.00 (Grading Limits - PCN 04XF)



Section 6 to 7 Surfacing Transition:
Sta. b 80+80.00 to Sta. 82+00.00
**0' to 12'
4' to 7'

Section 6 to 8 Surfacing Transition:
Sta. b 233+10.00 to b 240+05.00
40.5' to 58.75' Cold Milling
* 0' to 11'
** 0' to 11'

Section 8 to 6 Surfacing Transition:
Sta. b 253+09.20 to Sta. b 256+09.20
* 11' to 0'
** 0' to 11'

PLOT SCALE - 1:6.00001

PLOTTED FROM - EVANWOLF

PLOT NAME - 6

FILE - ...\05TY_TYPSECT_TJD2.DGN

TYPICAL SURFACING SECTIONS

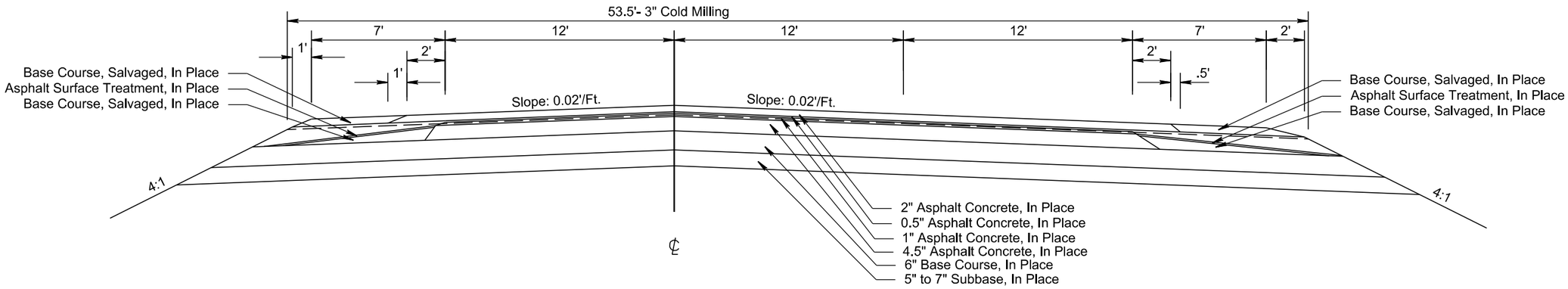
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F34	F68

Plotting Date: 6/21/2024

Surfacing Exception:

Sta. b 115+58.61 to Sta. b 208+31.00 (Grading Limits - PCN 04XF)

PCN 05TY
Section 7
Sta. b 82+00.00 to Sta. b 115+78.00 (Reversed Section)



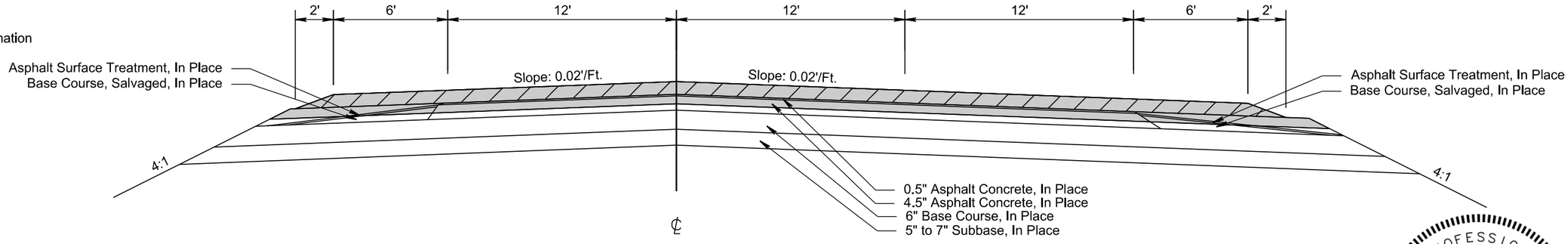
Surfacing Exception:

Sta. b 115+58.61 to Sta. b 203+80.27 (Grading Limits - PCN 04XF)

4" Granular Material, Furnish

7" Full Depth Reclamation

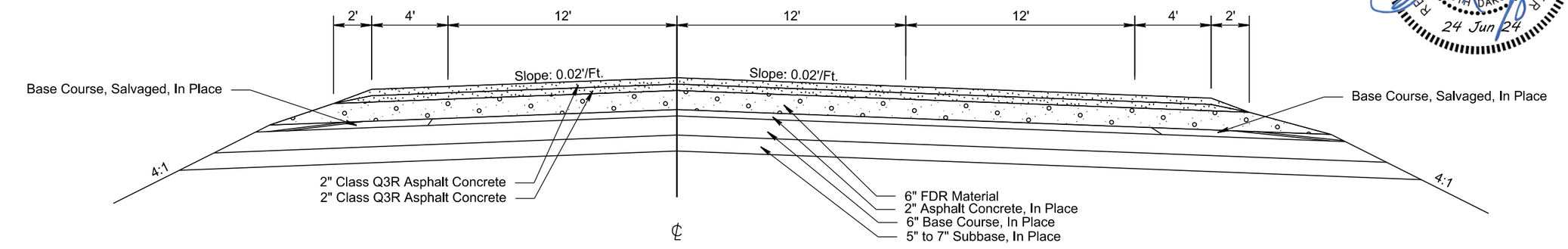
Section 7
Sta. b 82+00.00 to Sta. b 115+78.00 (Reversed Section)



Surfacing Exception:

Sta. b 115+58.61 to Sta. b 203+80.27 (Grading Limits - PCN 04XF)

Section 7
Sta. b 82+00.00 to Sta. b 115+78.00 (Reversed Section)



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

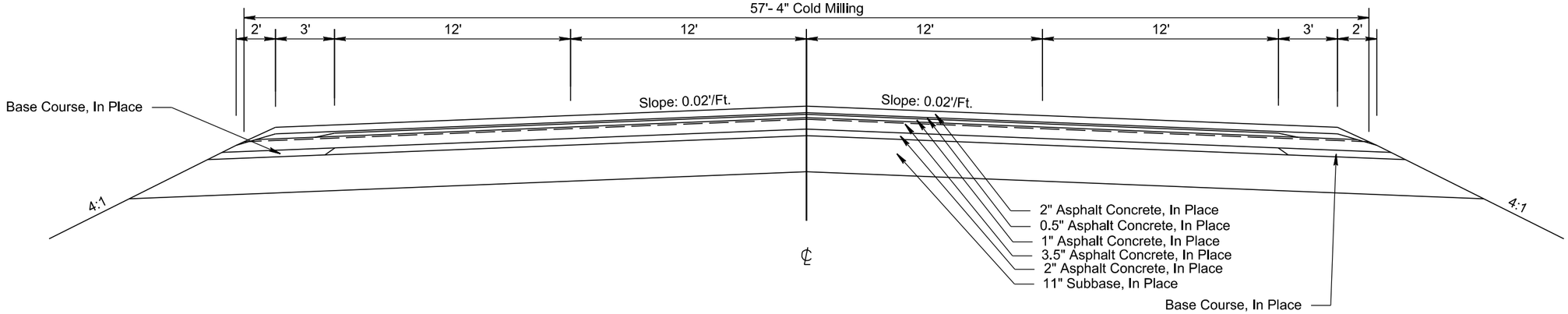
TYPICAL SURFACING SECTIONS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F35	F68

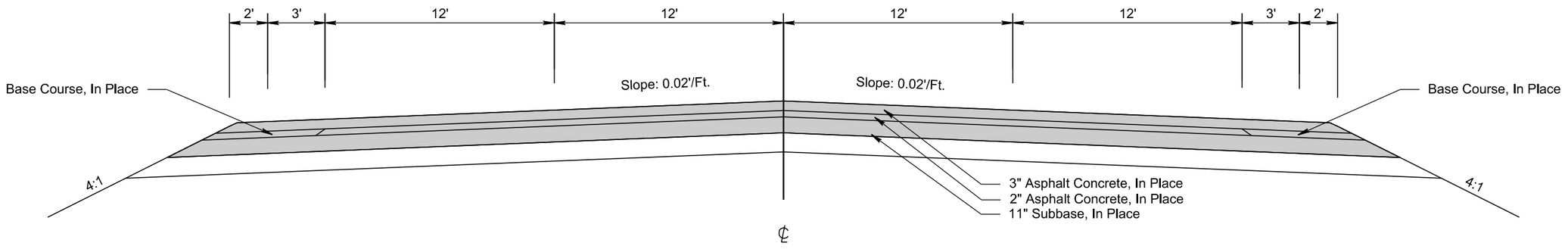
Plotting Date: 6/21/2024

PCN 05TY
Section 8
Sta. b 240+05.00 to Sta. b 253+09.20

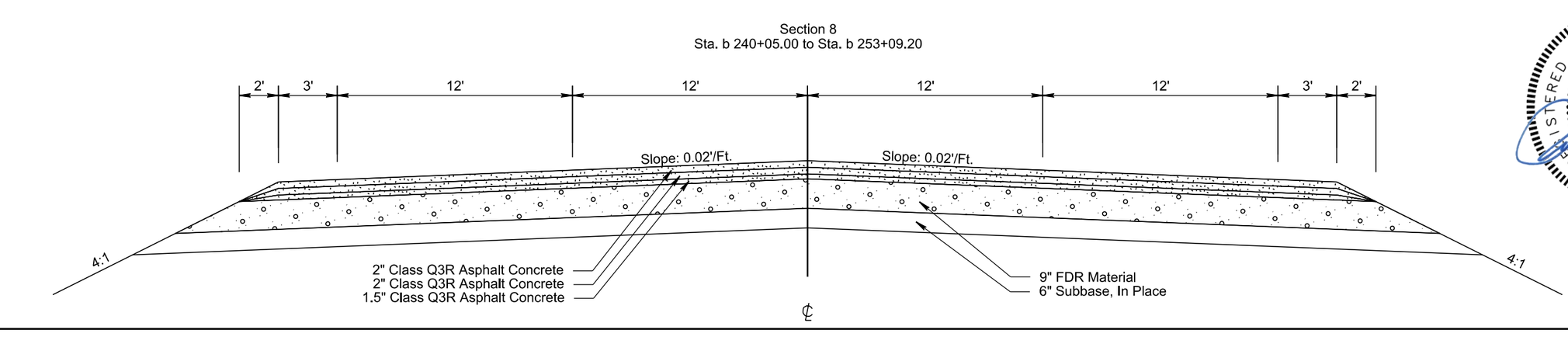


10" Full Depth Reclamation

Section 8
Sta. b 240+05.00 to Sta. b 253+09.20



Section 8
Sta. b 240+05.00 to Sta. b 253+09.20



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SOUTH DAKOTA
24 Jun 24

PLOT SCALE - 1:6.00001

PLOT NAME - 8

FILE - ...\05TY_TYPSECT_TJD2.DGN

PLOTTED FROM - EVANWOLF

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F36	F68

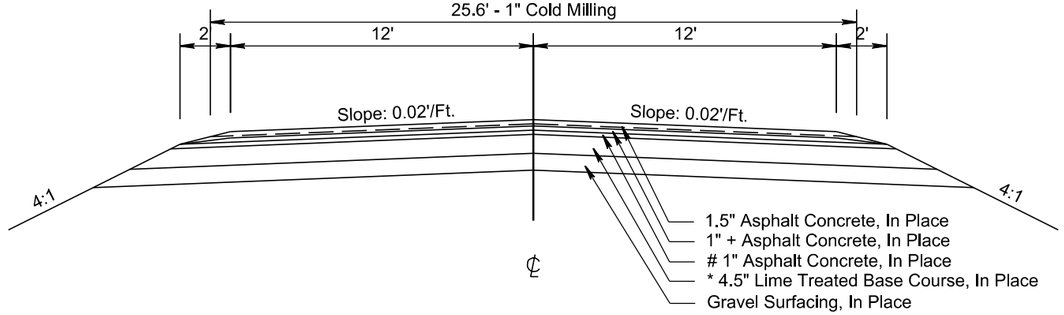
Plotting Date: 6/21/2024

Bridge:
Sta. 853+72.55 to Sta. 856+06.55
Sta. a 997+61.70 to Sta. a 999+65.36

Equation:
Sta. 995+62.08 Bk. = Sta. a 996+13.12 Ah.

Section 9
SD1806P Spur Road to Wakpala - PCN 06E0
Sta. 0+00.00 to Sta. 4+25.00 - *,#
Sta. 13+50.00 to Sta. 87+91.22 - *,#

SD1806 North of US12 - PCN 06A1
Sta. 749+64.10 to Sta. 853+72.55
Sta. 856+06.55 to Sta. a 999+70.16 (Thru Equation) - *,#
Sta. b 1029+18.02 to Sta. b 1098+83.01 - *,#

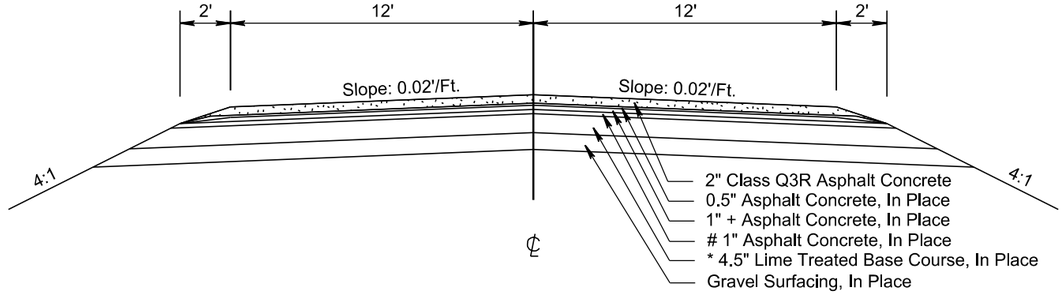


Notes:

* 5" Lime Treated Base Course, In Place
# 1.5" Asphalt Concrete, In Place

Section 9
SD1806P Spur Road to Wakpala - PCN 06E0
Sta. 0+00.00 to Sta. 4+25.00 - *,#
Sta. 13+50.00 to Sta. 87+91.22 - *,#

SD1806 North of US12 - PCN 06A1
Sta. 749+64.10 to Sta. 853+72.55
Sta. 856+06.55 to Sta. a 999+70.16 (Thru Equation) - *,#
Sta. b 1029+18.02 to Sta. b 1098+83.01 - *,#



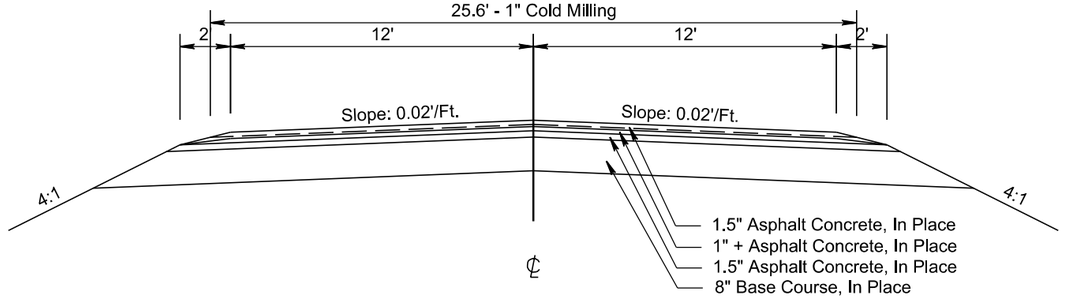
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F37	F68

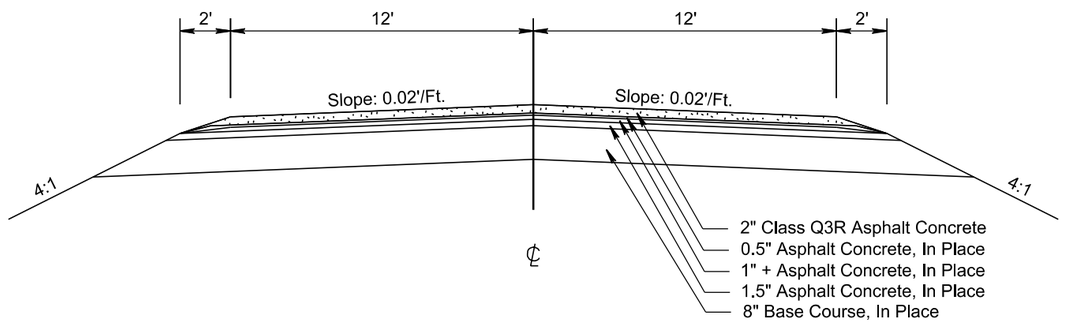
Plotting Date: 6/21/2024

Equation:
Sta. a 1026+99.76 Bk. = Sta. b 1027+58.02 Ah.

Section 10
SD1806 North of US12 - PCN 06A1
Sta. a 999+70.16 to Sta. b 1029+18.02 (Thru Equation)



Section 10
SD1806 North of US12 - PCN 06A1
Sta. a 999+70.16 to Sta. b 1029+18.02 (Thru Equation)



TYPICAL SURFACING SECTIONS

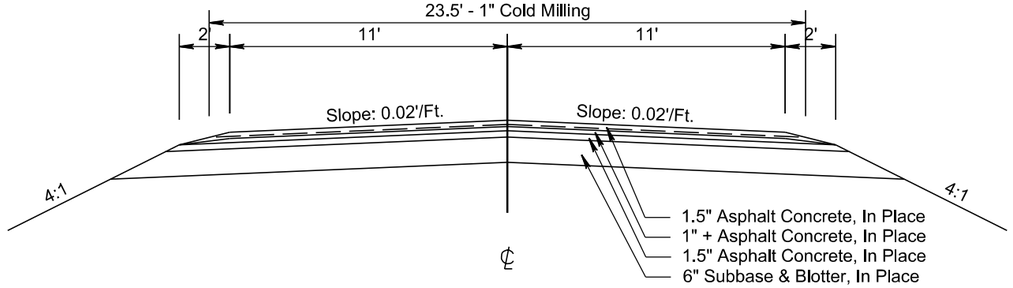
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F38	F68

Plotting Date: 6/21/2024

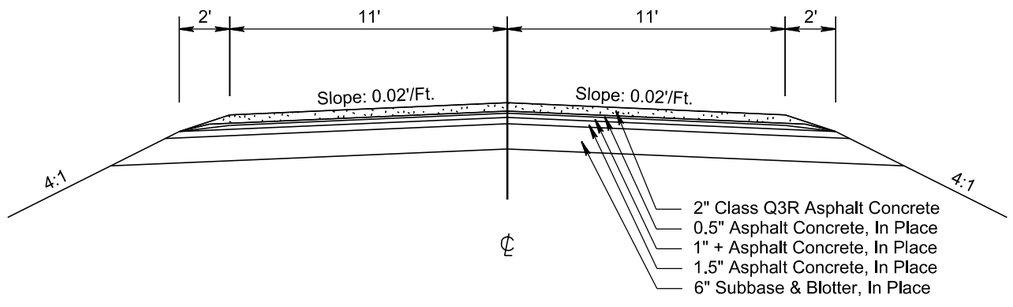
Bridge:
Sta. c 58+48 to Sta. c 18+46

Equation:
Sta. b 1098+83.01 Bk. = Sta. c 58+48 Ah.

Section 11
SD1806 North of US12 - PCN 06A1
Sta. c 18+46.00 to Sta. c 0+00.00 - South to North Stationing



Section 11
SD1806 North of US12 - PCN 06A1
Sta. c 18+46.00 to Sta. c 0+00.00 - South to North Stationing



REGISTERED PROFESSIONAL ENGINEER
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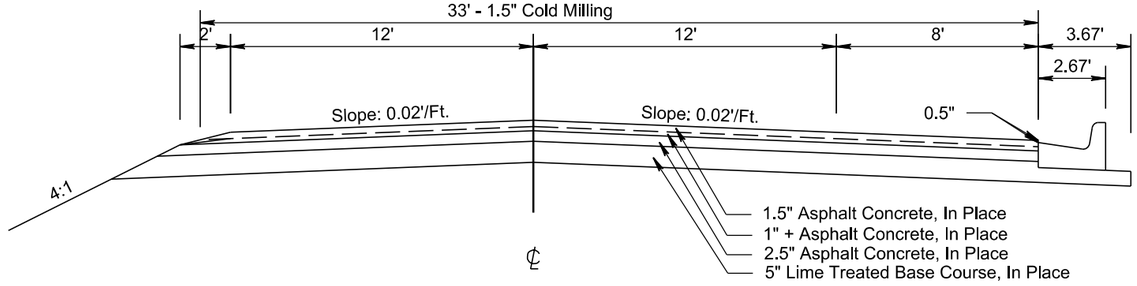
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

TYPICAL SURFACING SECTIONS

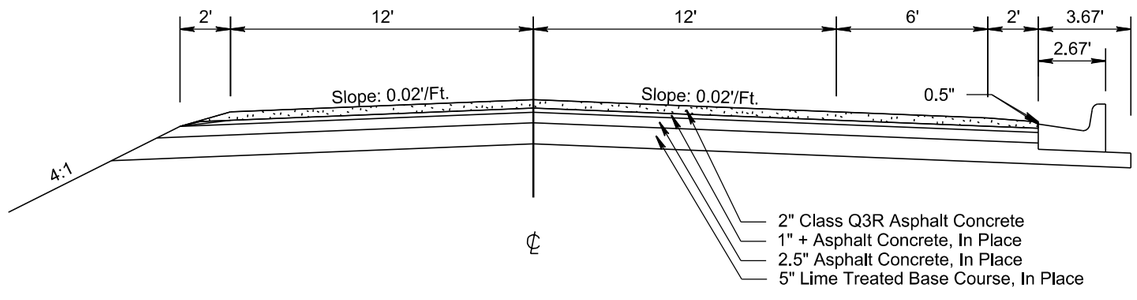
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F39	F68

Plotting Date: 6/21/2024

Section 12
SD1806P Spur Road to Wakpala - PCN 06E0
Sta. 4+25.00 to Sta. 13+50.00



Section 12
SD1806P Spur Road to Wakpala - PCN 06E0
Sta. 4+25.00 to Sta. 13+50.00



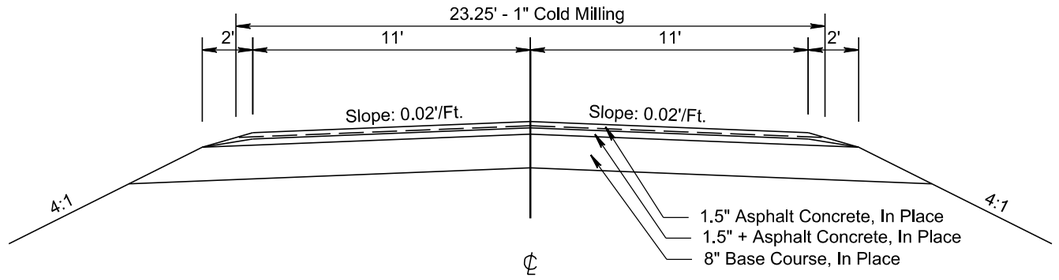
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F40	F68

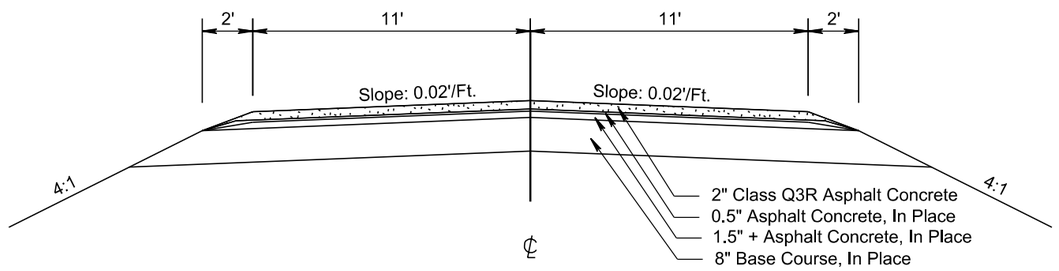
Plotting Date: 6/21/2024

Equation:
Sta. 5+71.60 Bk. = Sta. a 105+71.60
Sta. a 219+56.60 = Sta. b 219+90.20

Section 13
SD1806 South of US12 - PCN 06RC
Sta. 69+11.74 to Sta. 5+71.60 (Reverse Stationing)
Sta. a 105+71.60 to Sta a 219+56.60
Sta. b 219+90.20 to Sta. b 229+74.50

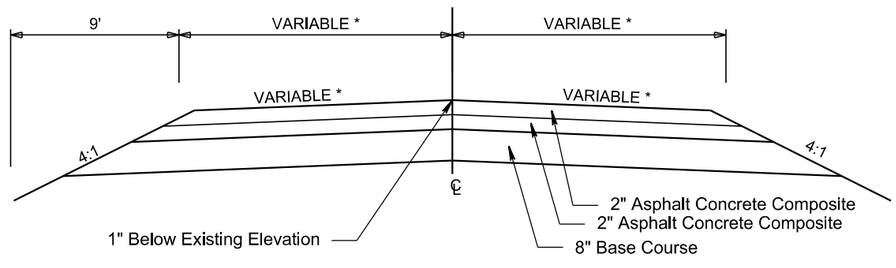


Section 13
SD1806 South of US12 - PCN 06RC
Sta. 76+09.20 to Sta. 5+71.60(Reverse Stationing)
Sta. a 105+71.60 to Sta a 219+56.60
Sta. b 219+90.20 to Sta. b 229+74.50



* Match Existing

Pipe Replacements



Surfacing at pipe replacements, heave repair, and base course reinforcements will be brought to 1" below the existing roadway elevation. Milling will not occur through these areas. The final lift will be 2" Class Q3R Aspahlt Concrete.

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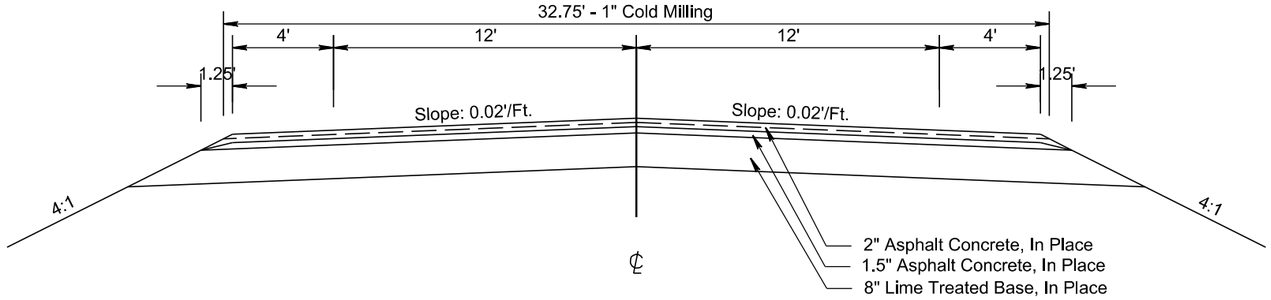
24 Jun 24

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(230)171...+	F41	F68

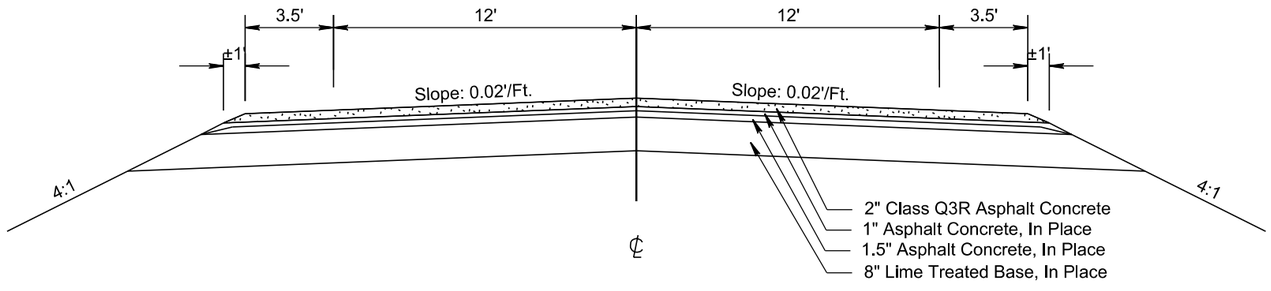
Plotting Date: 6/21/2024

Section 14
SD63 - PCN 07CD
Sta. 288+47.00 to Sta. 318+10.11
Sta. 319+67.88 to Sta. 366+22.83
Sta. 368+17.17 to Sta. 390+50.00



Surfacing Excpetion:
Sta. 318+10.11 to Sta. 319+67.88 (Bridge)
Sta. 366+22.83 to Sta. 368+17.17 (Bridge)

Section 14
SD63 - PCN 07CD
Sta. 288+47.00 to Sta. 318+10.11
Sta. 319+67.88 to Sta. 366+22.83
Sta. 368+17.17 to Sta. 390+50.00



INTERSECTION WIDENING

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F42	F68

Plotting Date: 6/20/2024

Section 2 (Reversed) to 5
Section 5 to 6
US Hwy 12

Transitions:

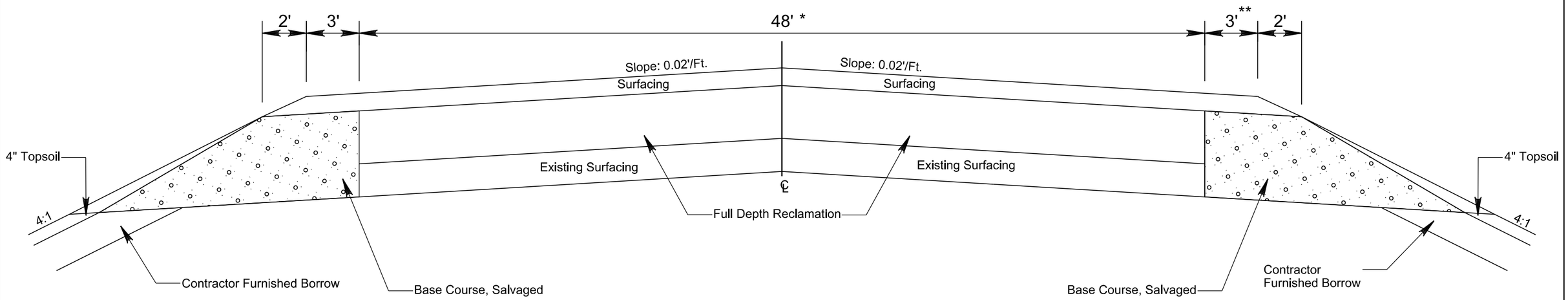
Sta. a 397+86 to Sta. b 20+92
* 24' to 48'

Sta. b 23+71 to Sta. b 36+76
* 48' to 24'

Shoulder Width:

Sta. a 397+86 to Sta. a 400+34
** 15.5' to 3'

Sta. a 397+86 to Sta. b 36+76
Grading Section
(See Section Typicals for Surfacing Depths)

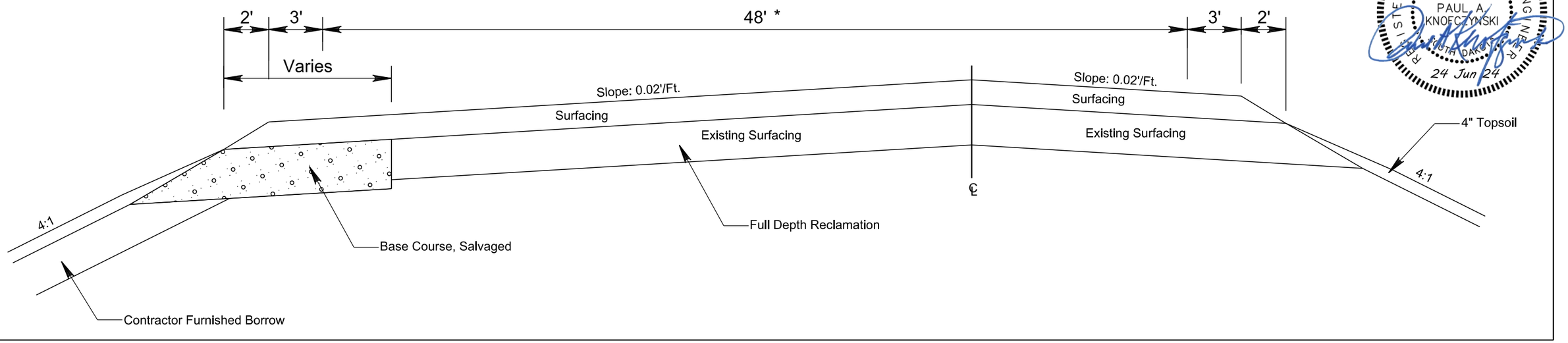


Sections 6 to 8
US Hwy 12

Transitions:

Sta. b 233+10 to Sta. b 237+77
* 24' to 48'

Sta. b 233+10 to Sta. b 245+00
Grading Section



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:200

Plotted From - evanwolf

File - ...\Section F\Gradingtyp.dgn

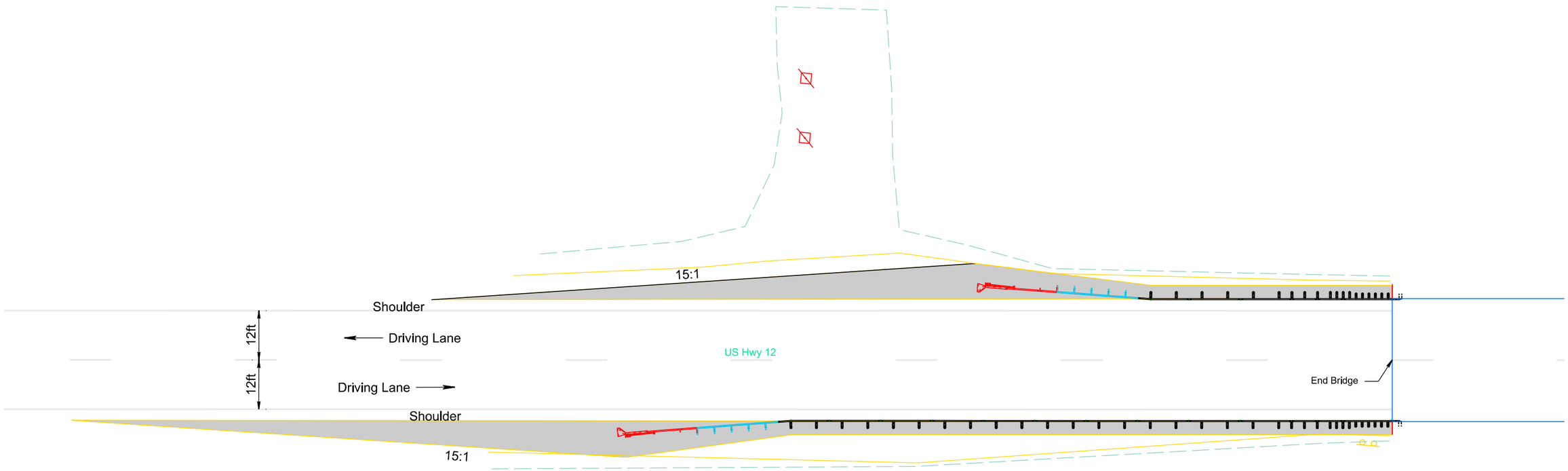
GUARDRAIL LAYOUT

Structure No. 16-665-200
US Hwy 12
MRM 173.40

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F43	F68

Plotting Date: 6/21/2024



Cold Milling Asphalt Concrete and Place 2" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	0
Class Q3R Hot Mixed Asphalt Concrete	Ton	27.3
Cold Milling Asphalt Concrete	SqYd	260

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REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:25
Plotted From - evanwolf
File - ...\Guardrail\gr173.40_1F.dgn

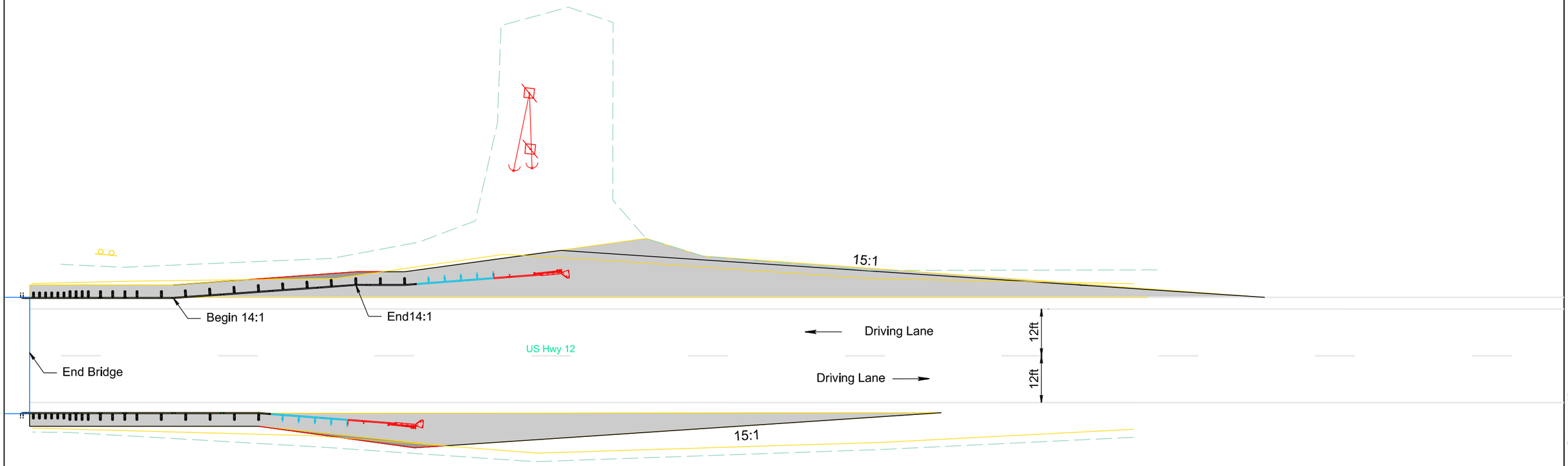
GUARDRAIL LAYOUT

FOR BIDDING PURPOSES ONLY

Structure No. 16-665-200
US Hwy 12
MRM 173.40

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F44	F68

Plotting Date: 6/21/2024



6" Base Course, and 4" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete and Place 4" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	1.9
Class Q3R Hot Mixed Asphalt Concrete	Ton	35.9
Cold Milling Asphalt Concrete	SqYd	336

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SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:25.1048

Plotted From - evanwolf

File - ...\Guardrail\gr173.40_2F.dgn

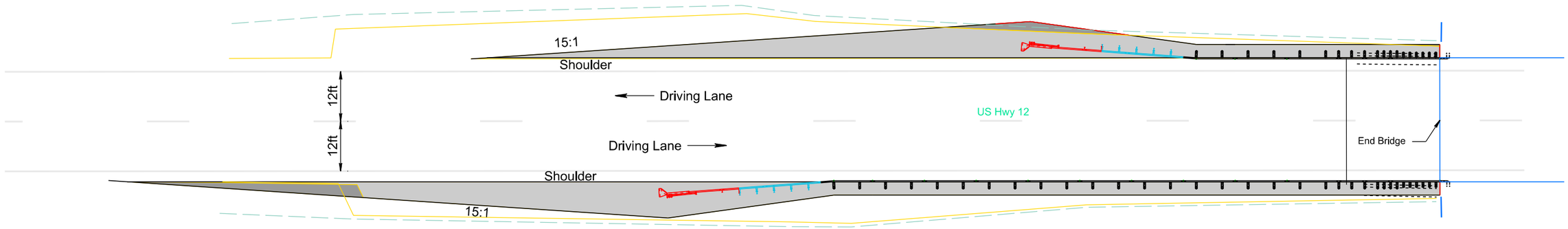
GUARDRAIL LAYOUT

FOR BIDDING PURPOSES ONLY

Structure No. 16-666-216
US Hwy 12
MRM 174.92

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F45	F68

Plotting Date: 6/21/2024



Place Contractor Furnished Borrow, 6" Base Course, and 2" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete and Place 2" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	8.7
Class Q3R Hot Mixed Asphalt Concrete	Ton	28.2
Cold Milling Asphalt Concrete	SqYd	241

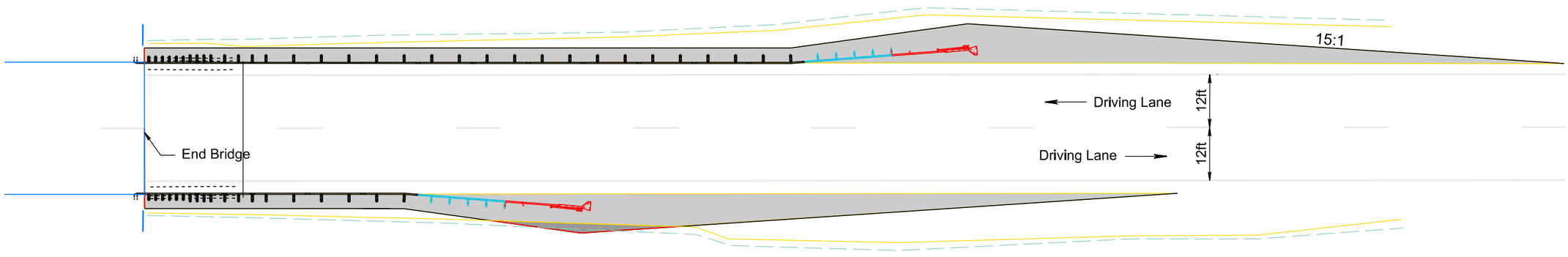
GUARDRAIL LAYOUT

FOR BIDDING PURPOSES ONLY

Structure No. 16-666-216
US Hwy 12
MRM 174.92

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F46	F68

Plotting Date: 6/21/2024



Place Contractor Furnished Borrow, 6" Base Course, and 2" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete and Place 2" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	1.6
Class Q3R Hot Mixed Asphalt Concrete	Ton	27.4
Cold Milling Asphalt Concrete	SqYd	256

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SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:25.1048

Plotted From - evanwolf

File - ...\Guardrail\gr174.92_2F.dgn

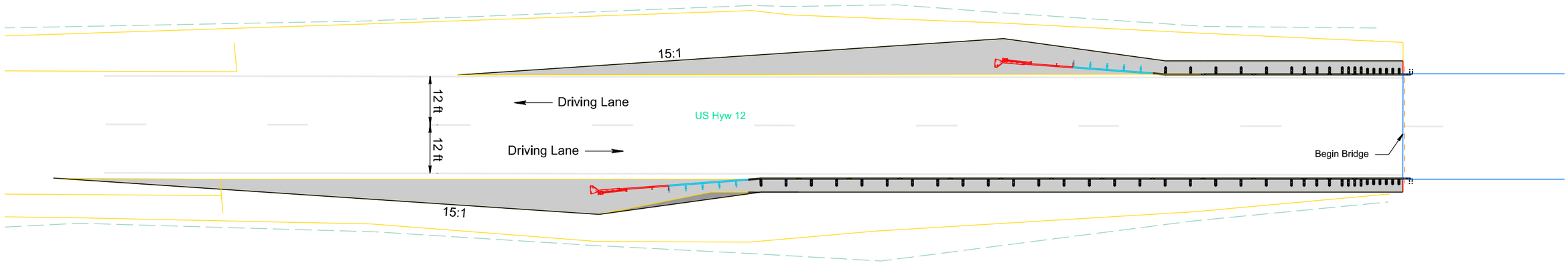
GUARDRAIL LAYOUT

FOR BIDDING PURPOSES ONLY

Structure No.
US 12
MRM 186.185

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F47	F68

Plotting Date: 6/21/2024



Place Contractor Furnished Borrow, 6" Base Course, and 2" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete and Place 2" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	1.2
Class Q3R Hot Mixed Asphalt Concrete	Ton	27.5
Cold Milling Asphalt Concrete	SqYd	258

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SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:25.1048
Plotted From - evanwolf
File - ...\Guardrail\gr186.185F.dgn

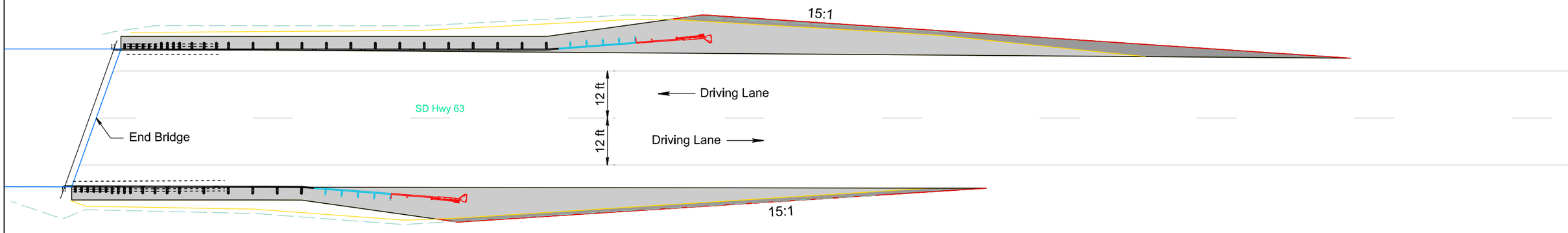
GUARDRAIL LAYOUT

Structure No. 16-580-084
SD 63
MRM 252.80

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F48	F68

Plotting Date: 6/21/2024



6" Base Course, and 2" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete and Place 2" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	14.5
Class Q3R Hot Mixed Asphalt Concrete	Ton	29.4
Cold Milling Asphalt Concrete	SqYd	234

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:25.1048
Plotted From - evanwolf
File - ...\Guardrail\gr252.80_1F.dgn

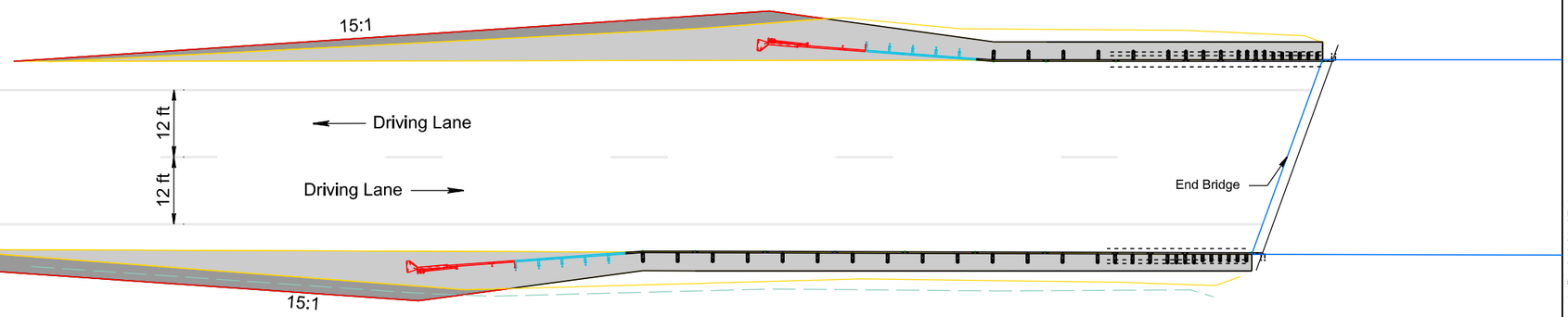
GUARDRAIL LAYOUT

Structure No. 16-580-084
SD 63
MRM 252.80

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F49	F68

Plotting Date: 6/21/2024



Place Contractor Furnished Borrow, 6" Base Course, and 2" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete and Place 2" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	19.2
Class Q3R Hot Mixed Asphalt Concrete	Ton	25.8
Cold Milling Asphalt Concrete	SqYd	185

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:25.1048
Plotted From - evanwolf
File - ...\Guardrail\gr252.80_2F.dgn

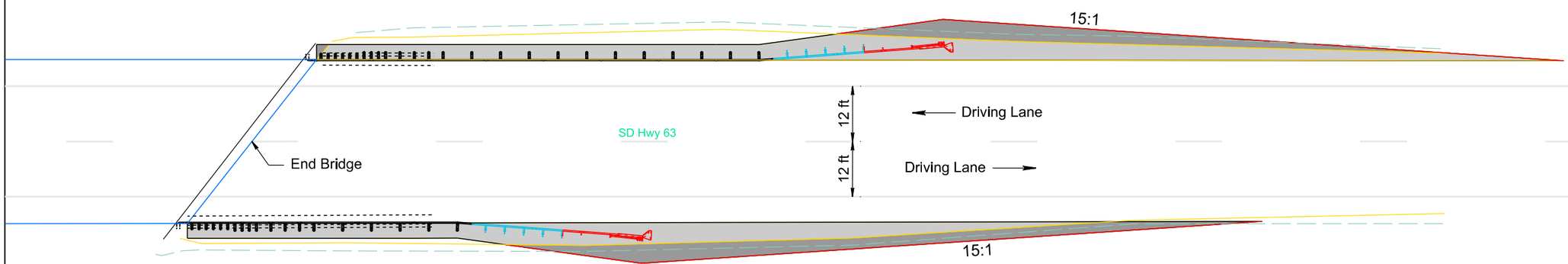
GUARDRAIL LAYOUT

Structure No. 16-580-075
SD 63
MRM 253.60

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F50	F68

Plotting Date: 6/21/2024



Place Contractor Furnished Borrow, 6" Base Course, and 2" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete and Place 2" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	23.2
Class Q3R Hot Mixed Asphalt Concrete	Ton	25.5
Cold Milling Asphalt Concrete	SqYd	169

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:25.1048
Plotted From - evanwolf
File - ...\Guardrail\gr253.60_1F.dgn

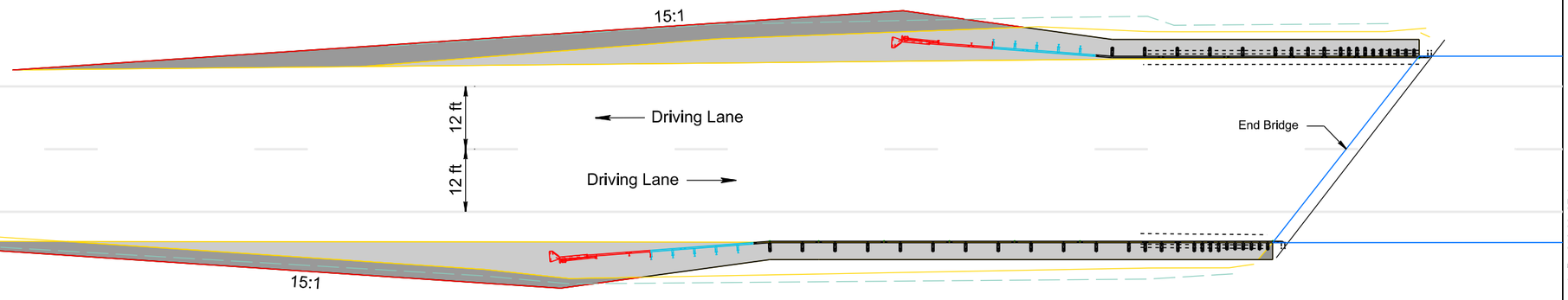
GUARDRAIL LAYOUT

Structure No. 16-580-075
SD 63
MRM 253.60

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F51	F68

Plotting Date: 6/21/2024



Place Contractor Furnished Borrow, 6" Base Course, and 2" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete and Place 2" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	29.6
Class Q3R Hot Mixed Asphalt Concrete	Ton	28.6
Cold Milling Asphalt Concrete	SqYd	179

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SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:25.1048
Plotted From - evanwolf
File - ...\Guardrail\gr253.60_2F.dgn

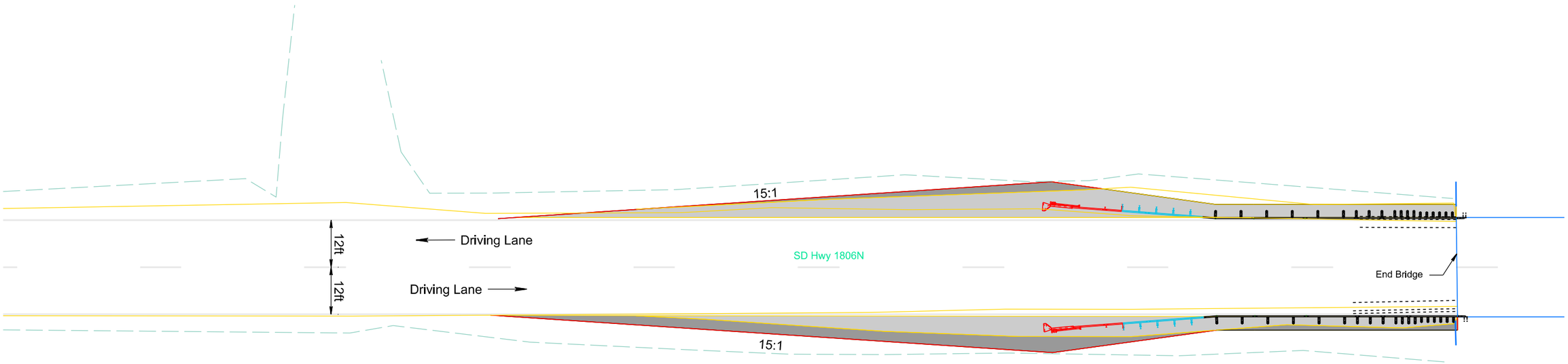
GUARDRAIL LAYOUT

FOR BIDDING PURPOSES ONLY

Structure No. 16-737-253
SD 1806N
MRM 365.72

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F52	F68

Plotting Date: 6/21/2024



Place Contractor Furnished Borrow, 6" Base Course, and 5.5" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete and Place 2" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	18.9
Class Q3R Hot Mixed Asphalt Concrete	Ton	23.8
Cold Milling Asphalt Concrete	SqYd	166

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

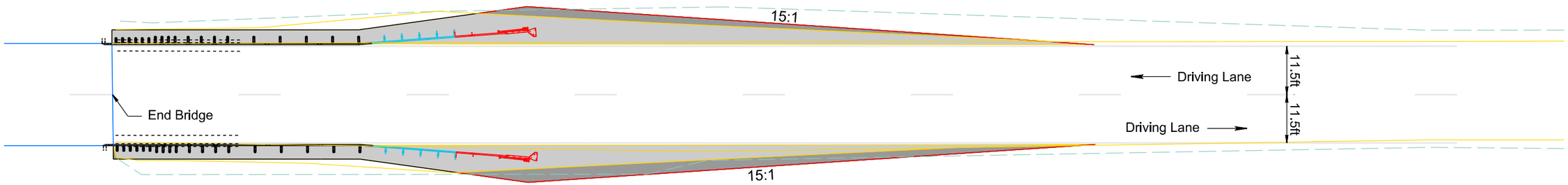
GUARDRAIL LAYOUT

Structure No. 16-737-253
SD 1806N
MRM 365.72

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F53	F68

Plotting Date: 6/21/2024



Place Contractor Furnished Borrow, 6" Base Course, and 2" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete and Place 2" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	15.5
Class Q3R Hot Mixed Asphalt Concrete	Ton	18.9
Cold Milling Asphalt Concrete	SqYd	180

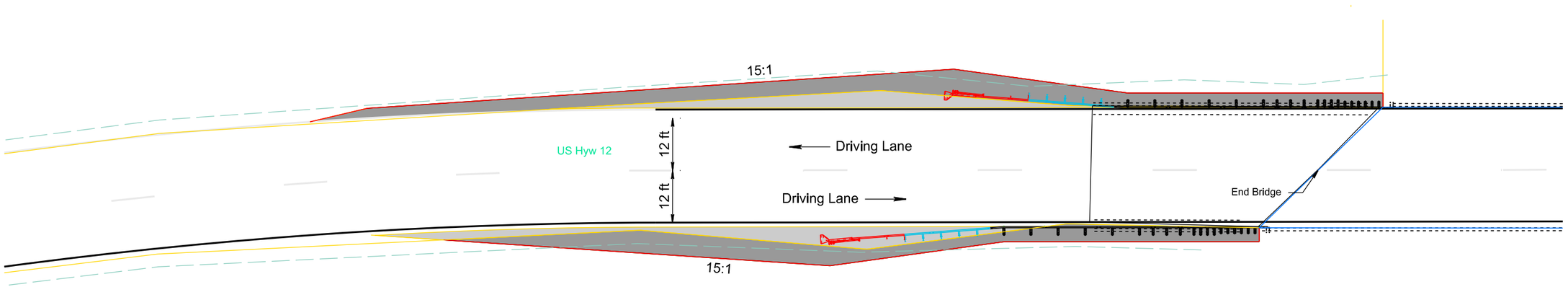
GUARDRAIL LAYOUT

FOR BIDDING PURPOSES ONLY

Structure No. 16-732-234
SD 1806N
MRM 367.64

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F54	F68

Plotting Date: 6/21/2024



Place Contractor Furnished Borrow, 6" Base Course, and 2" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete and Place 2" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	52.3
Class Q3R Hot Mixed Asphalt Concrete	Ton	7.0
Cold Milling Asphalt Concrete	SqYd	67

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:25.1048

Plotted From - evanwolf

File - ...\Guardrail\gr367.64_1F.dgn

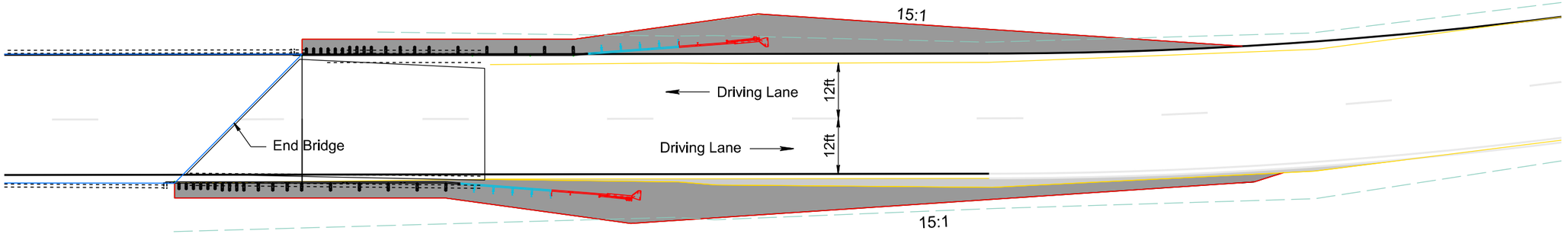
GUARDRAIL LAYOUT

Structure No. 16-732-234
SD 1806N
MRM 367.64

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F55	F68

Plotting Date: 6/21/2024



Place Contractor Furnished Borrow, 6" Base Course, and 2" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete and Place 2" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	69.1
Class Q3R Hot Mixed Asphalt Concrete	Ton	2.5
Cold Milling Asphalt Concrete	SqYd	23

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24 Jun 24

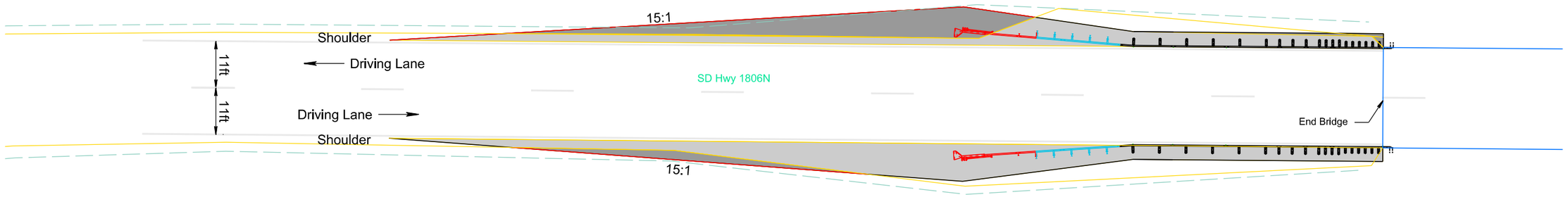
GUARDRAIL LAYOUT

Structure No. 16-665-200
SD 1806N
MRM 370.35

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F56	F68

Plotting Date: 6/21/2024



Place Contractor Furnished Borrow, 6" Base Course, and 2" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete and Place 2" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	19.1
Class Q3R Hot Mixed Asphalt Concrete	Ton	17.6
Cold Milling Asphalt Concrete	SqYd	168

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REG. NO. 5601
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SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:25.1048
Plotted From - evanwolf
File - ...\Guardrail\g370.35_1F.dgn

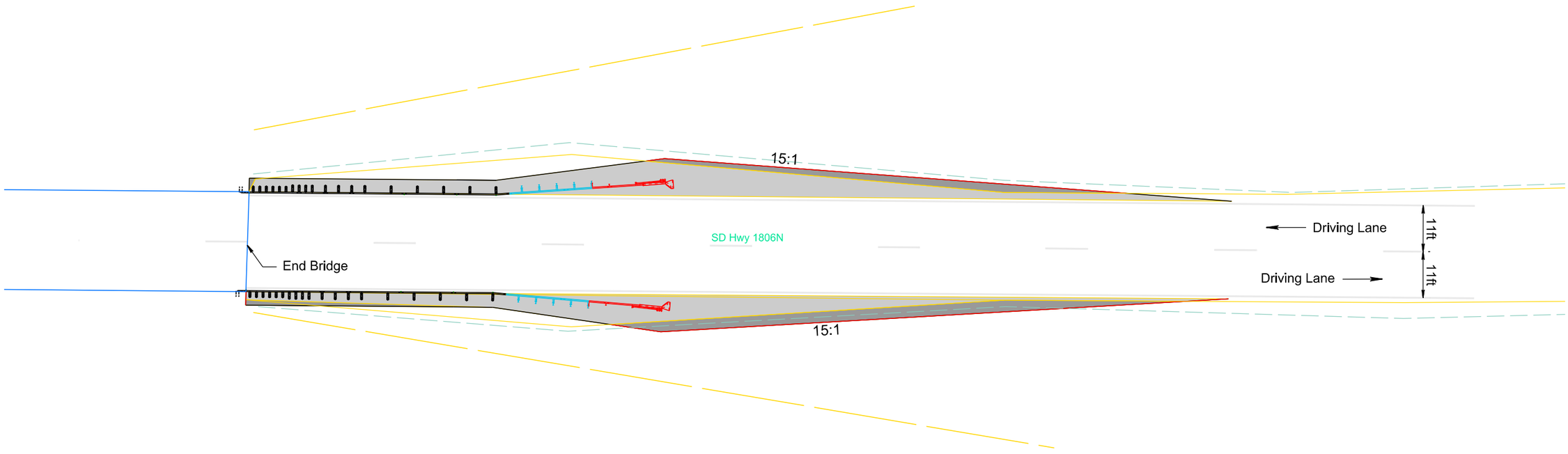
GUARDRAIL LAYOUT

Structure No. 16-665-200
SD 1806N
MRM 370.35

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F57	F68

Plotting Date: 6/21/2024



Place Contractor Furnished Borrow, 6" Base Course, and 2" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete and Place 2" Class Q3R Hot Mixed Asphalt Concrete

ESTIMATED QUANTITIES	UNIT	QUANTITY
Base Course	Ton	16.8
Class Q3R Hot Mixed Asphalt Concrete	Ton	17.3
Cold Milling Asphalt Concrete	SqYd	165

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SOUTH DAKOTA
7/25/24

Plot Scale - 1:25.1048
Plotted From - evanwolf
File - ...\Guardrail\gr370.35_2F.dgn

BASE COURSE REINFORCEMENT

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F58	F68

Plotting Date: 6/21/2024

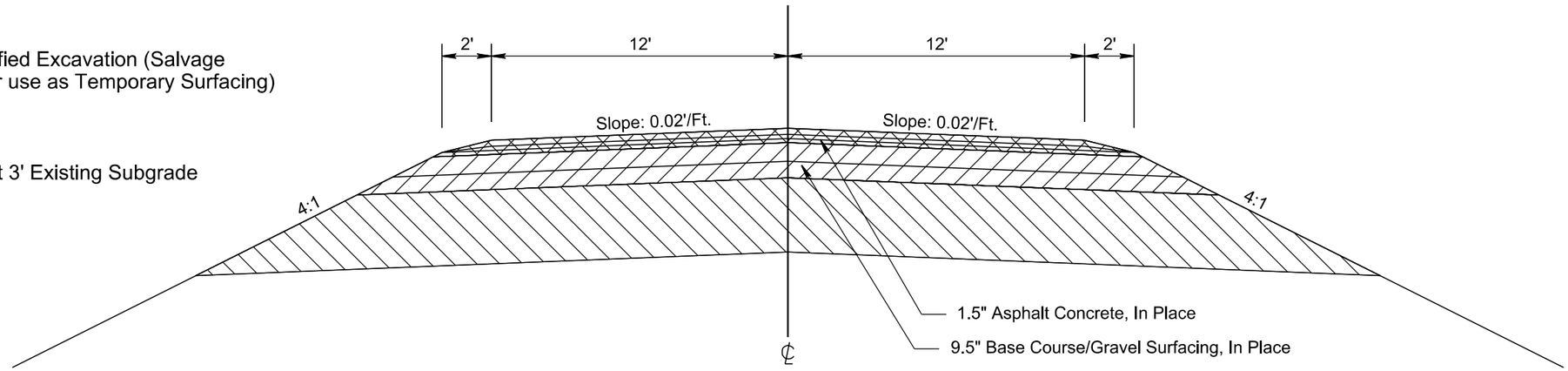
SD1806
06A1

Remove Asphalt Concrete Pavement

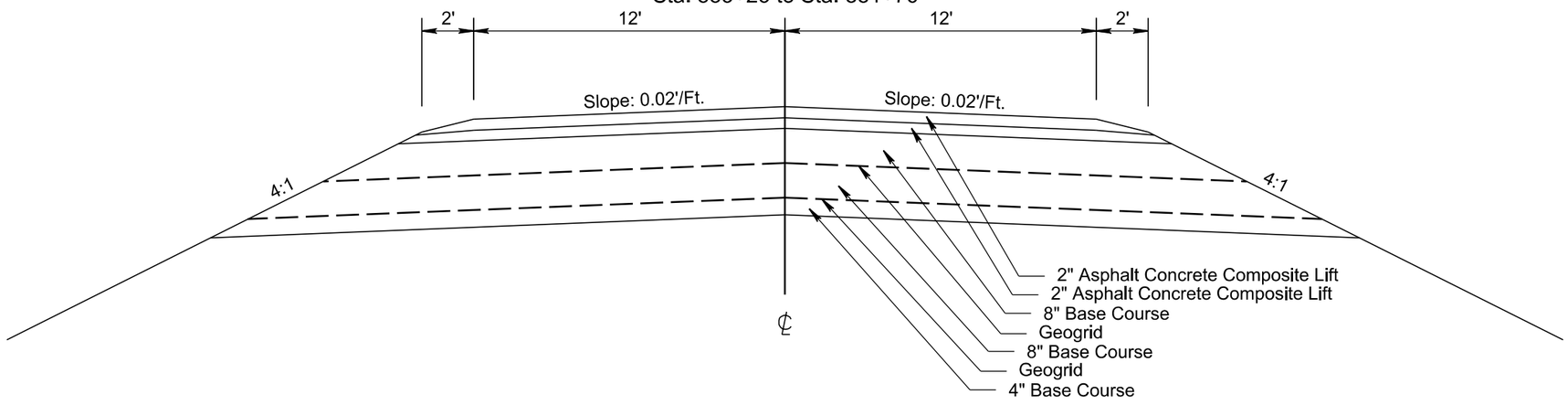
Unclassified Excavation (Salvage top 5" for use as Temporary Surfacing)

Undercut 3' Existing Subgrade

MRM 369.812± to MRM 369.878±
Sta. 885+25 to Sta. 881+76



MRM 369.812± to MRM 369.878±
Sta. 885+25 to Sta. 881+76



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SOUTH DAKOTA
24 Jun 24

* This Detail does not show the ultimate resurfacing section which will include Cold Milling Asphalt Concrete and the 2" Class Q3R Asphalt Concrete overlay that will be accomplished after the heave repair has been completed.

Plot Scale - 1:26.6667
Plotted From - evanwolf
File - ...\Section F\Heave Repair.dgn

HEAVE REPAIR

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F59	F68

Plotting Date: 6/24/2024 _____

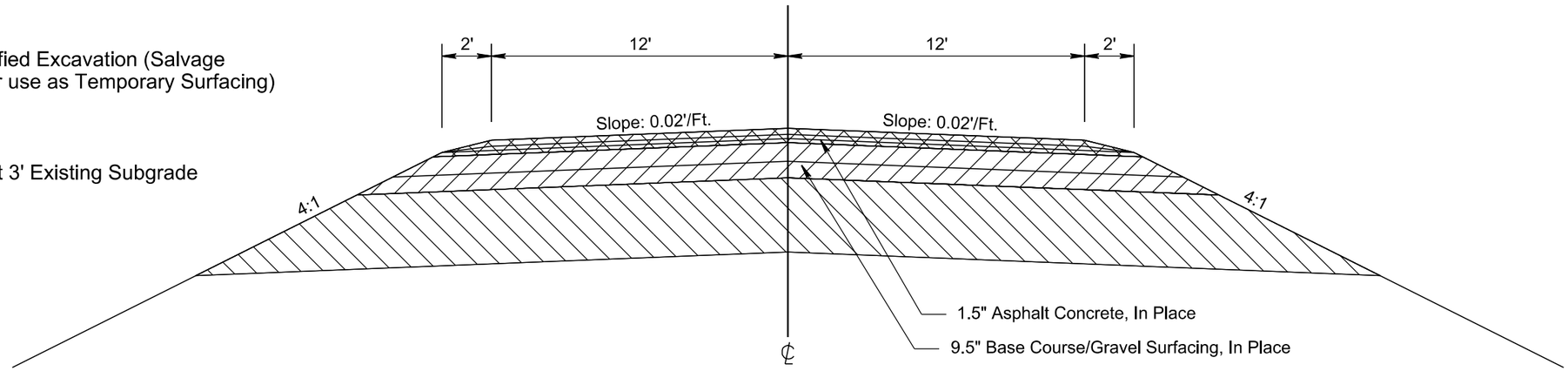
SD1806
06A1

Remove Asphalt Concrete Pavement

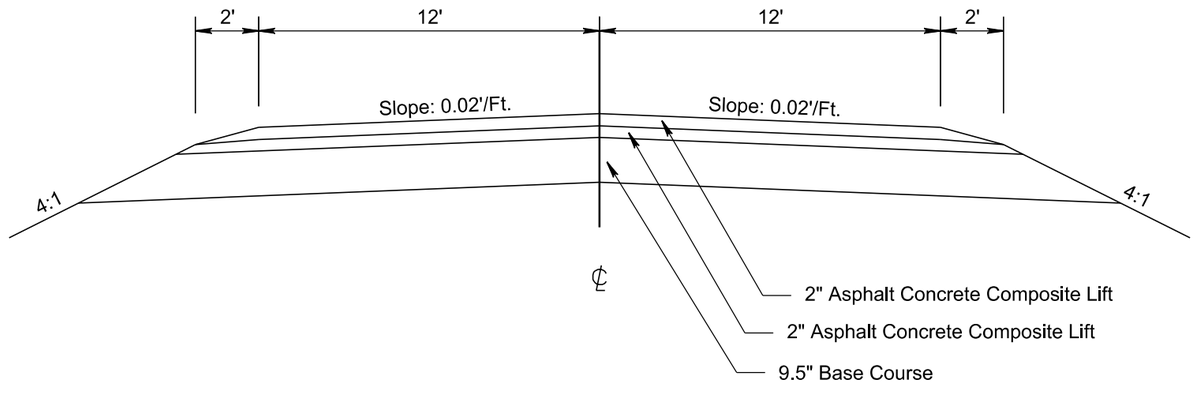
Unclassified Excavation (Salvage top 5" for use as Temporary Surfacing)

Undercut 3' Existing Subgrade

MRM 367.300± to MRM 367.550±
Sta. a 1018+13± Sta. b 1031+33±



MRM 367.300± to MRM 367.550±
Sta. a 1018+13± Sta. b 1031+33±



* This Detail does not show the ultimate resurfacing section which will include Cold Milling Asphalt Concrete and the 2" Class Q3R Asphalt Concrete overlay that will be accomplished after the heave repair has been completed.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:26.6667
Plotted From - evanwolf
File - ...\Section F\Heave Repair.dgn

SURFACING TRANSITION DETAILS

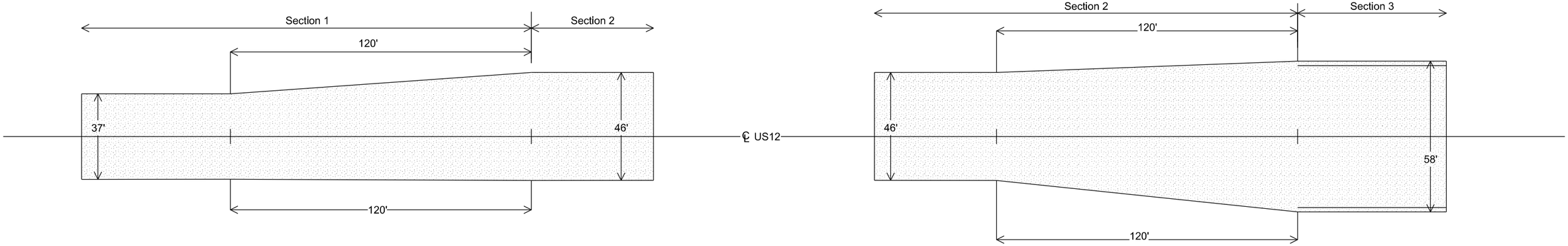
FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F60	F68

Plotting Date: 6/21/2024

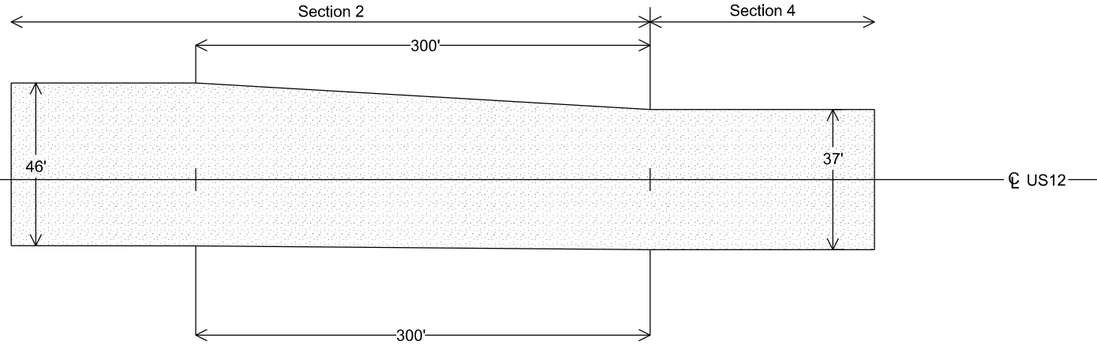
05TY

SECTION 1 TO 2 SURFACING TRANSITION

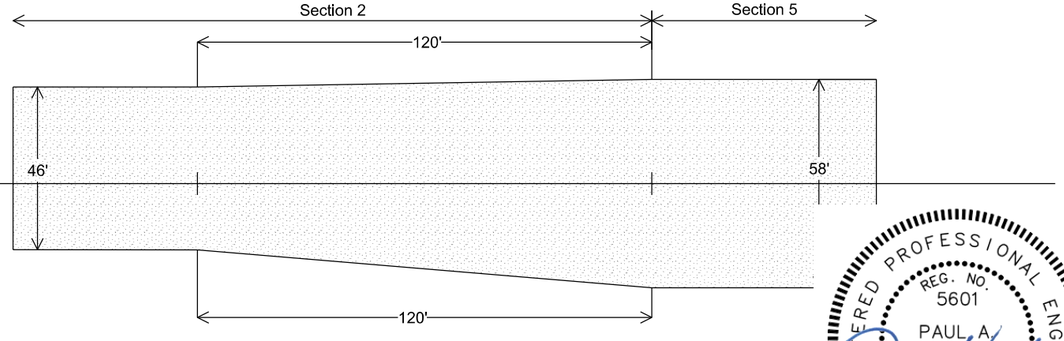


SECTION 2 TO 3 SURFACING TRANSITION

SECTION 2 TO 4 SURFACING TRANSITION



SECTION 2 TO 5 SURFACING TRANSITION



DRAWING NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:40

Plotted From - evanwolf

File - ...\Surfacing Transitions.dgn

SURFACING TRANSITION DETAILS

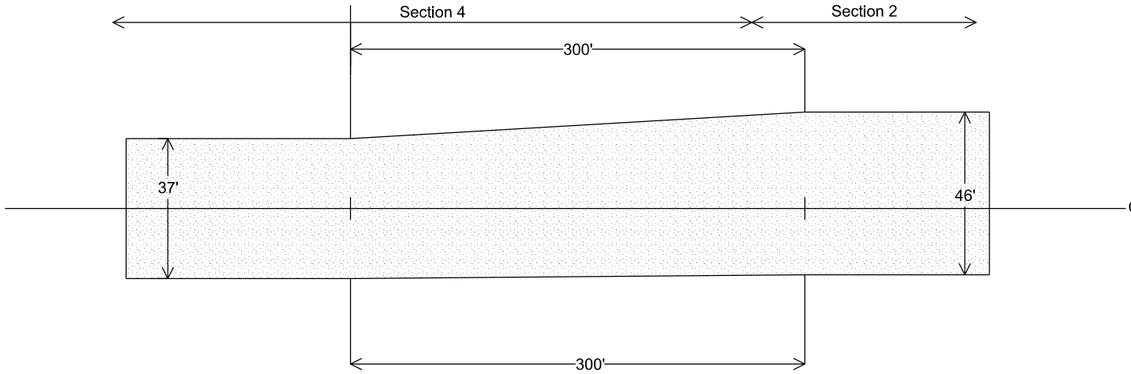
05TY

FOR BIDDING PURPOSES ONLY

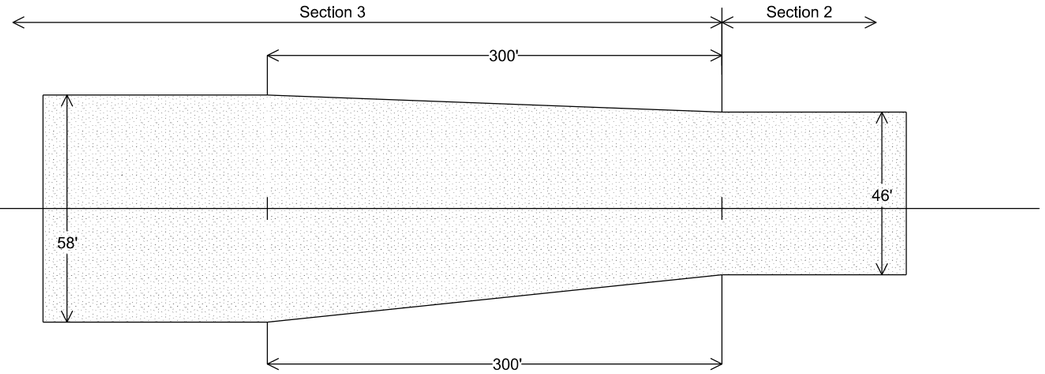
KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F61	F68

Plotting Date: 6/21/2024

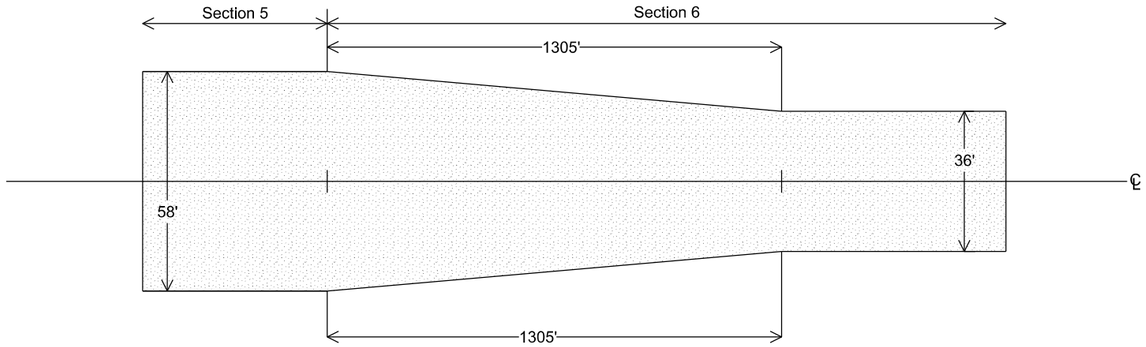
SECTION 4 TO 2 SURFACING TRANSITION



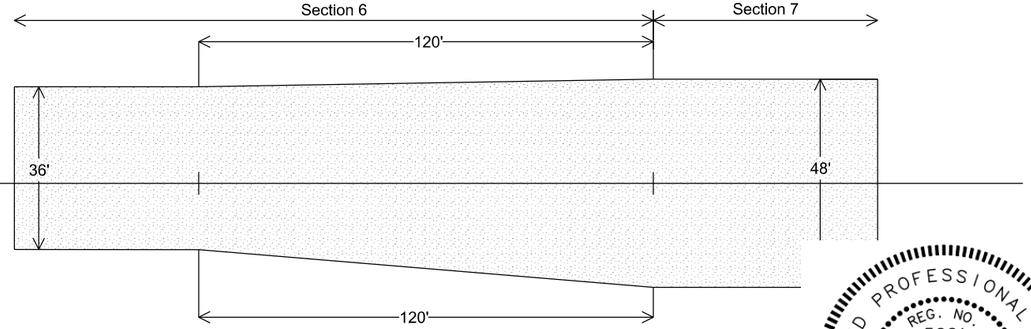
SECTION 3 TO 2 SURFACING TRANSITION



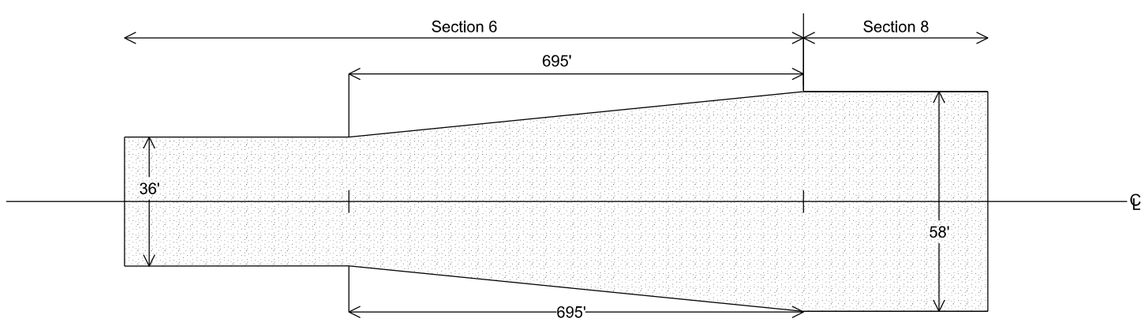
SECTION 5 TO 6 SURFACING TRANSITION



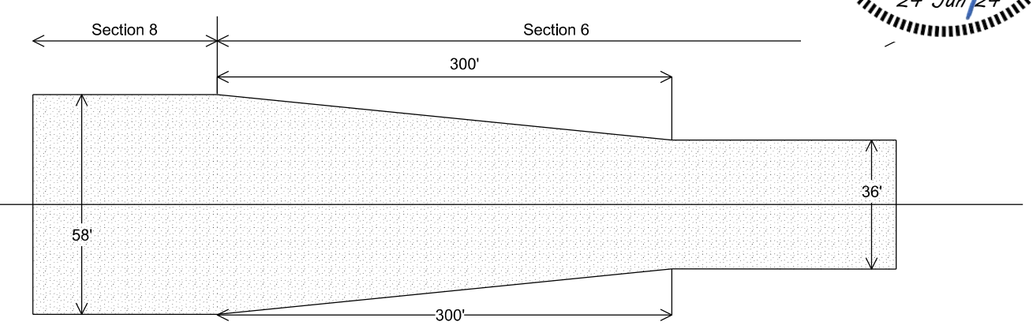
SECTION 6 TO 7 SURFACING TRANSITION



SECTION 6 TO 8 SURFACING TRANSITION



SECTION 8 TO 6 SURFACING TRANSITION



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:40

Plotted From - evanwolf

ng Transitions.dgn

SURFACING TRANSITIONS AT BRIDGE ENDS

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F62	F68

Plotting Date: 6/21/2024

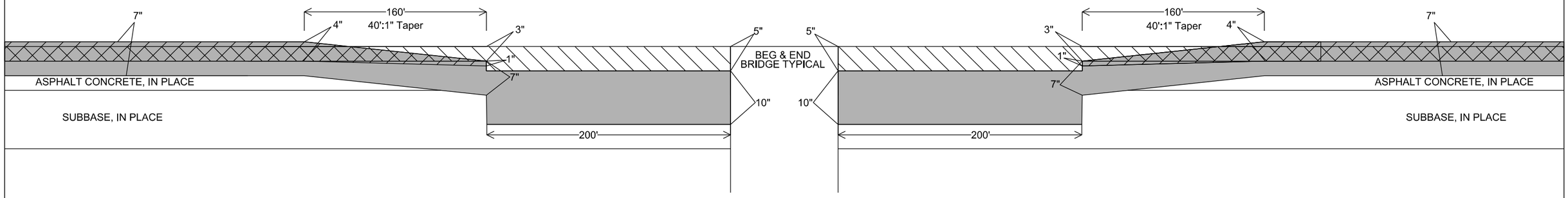
05TY

COLD MILLING ASPHALT CONCRETE

FULL DEPTH RECLAMATION

GRANULAR MATERIAL, FURNISH

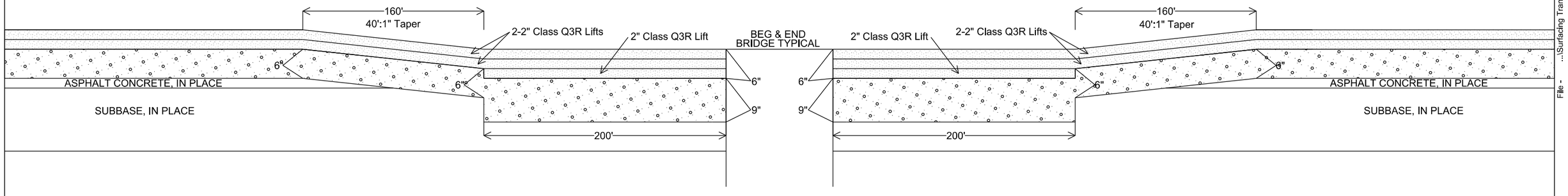
COLD MILLING FULL DEPTH RECLAMATION (FDR) DETAIL



CLASS Q3R ASPHALT CONCRETE

FDR MATERIAL

RESURFACING DETAIL



DRAWING NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:40

Plotted From - evanwolf

File - ...\Surfacing Transitions.dgn

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F63	F68

Plotting Date: 6/21/2024

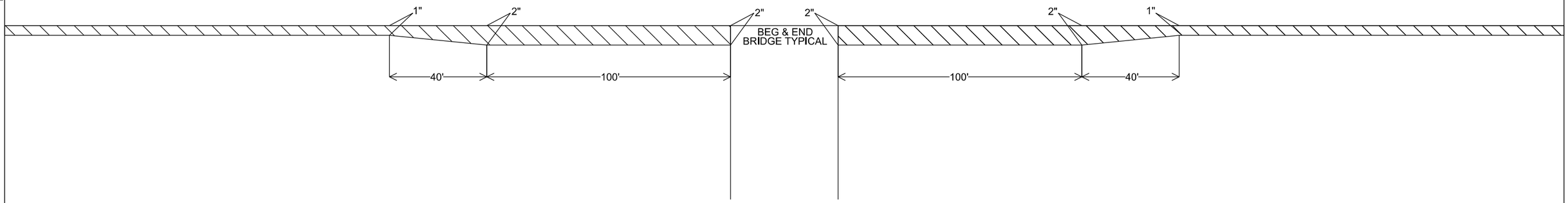
SURFACING TRANSITIONS AT BRIDGE ENDS

FOR BIDDING PURPOSES ONLY

06A1 & 07CD

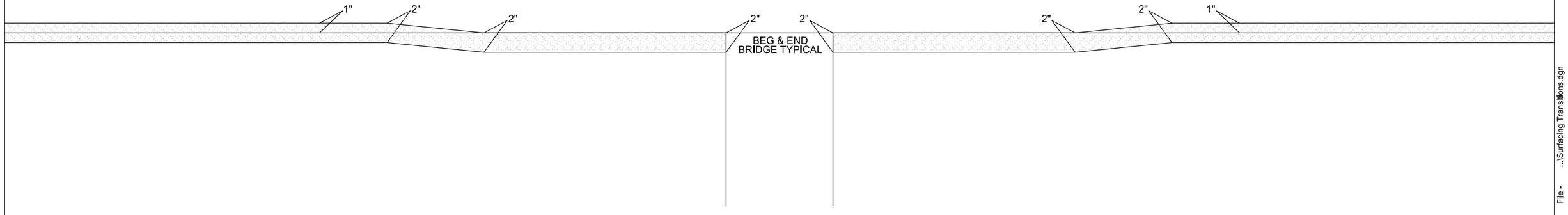
COLD MILLING DETAIL

COLD MILLING ASPHALT CONCRETE



RESURFACING DETAIL

CLASS Q3R ASPHALT CONCRETE



DRAWING NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:40

Plotted From - evanwolf

File - ...\Surfacing Transitions.dgn

SURFACING TRANSITIONS AT BEGIN PROJECT AND EXCEPTIONS

FOR BIDDING PURPOSES ONLY

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F64	F68

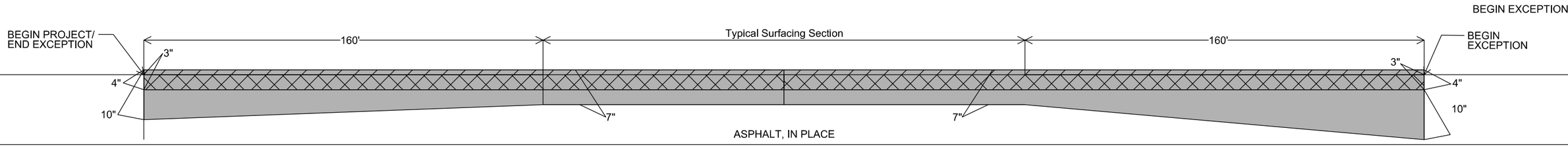
Plotting Date: 6/21/2024

05TY

COLD MILLING ASPHALT CONCRETE

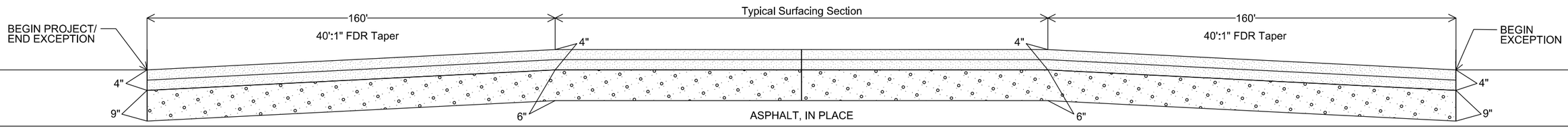
FULL DEPTH RECLAIMATION

GRANULAR MATERIAL, FURNISH



CLASS Q3R ASPHALT CONCRETE

FDR MATERIAL



DRAWING NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOEFCZYNSKI
SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:40

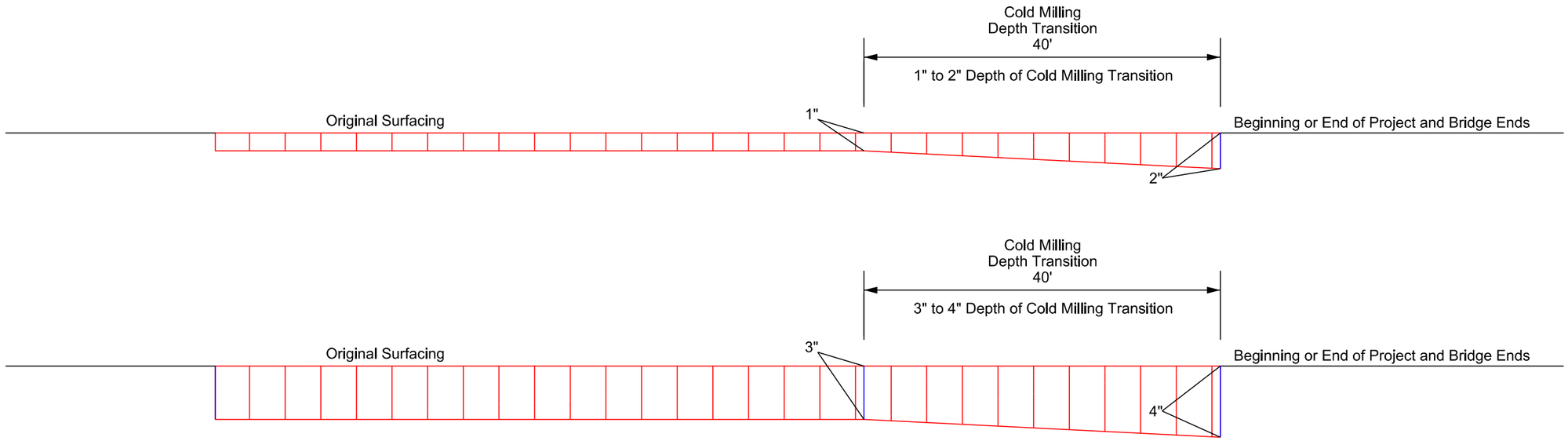
Plotted From - evanwolf

File - ...\Surfacing Transitions.dgn

KLJ	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		NH 0012(230)171...+	F65	F68

Plotting Date: 6/21/2024

COLD MILLING ASPHALT CONCRETE AT PROJECT LIMITS AND BRIDGE ENDS

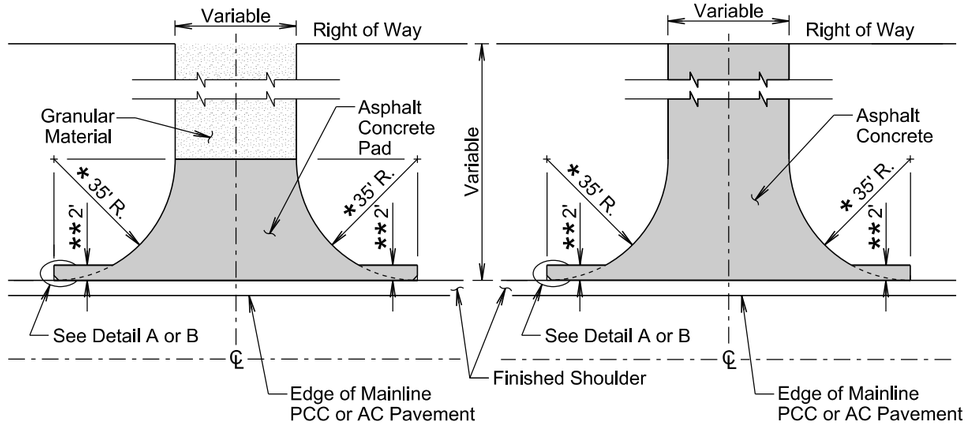


REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5601
PAUL A. KNOFCZYNSKI
SOUTH DAKOTA
24 Jun 24

Plot Scale - 1:50

Plotted From - evanwolf

File - ...\Spedal Cold Milling Transitions.dgn



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

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

GENERAL NOTES:

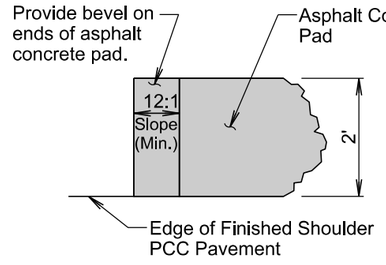
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

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

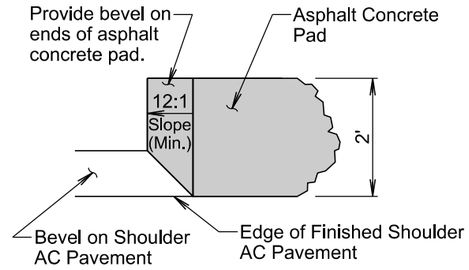
** The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete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

August 27, 2020

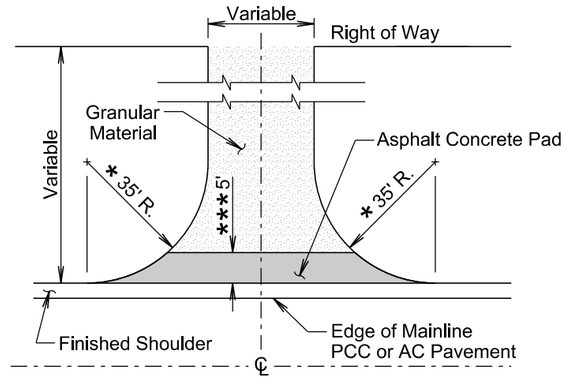
Published Date: 2025	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 1 of 2



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



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

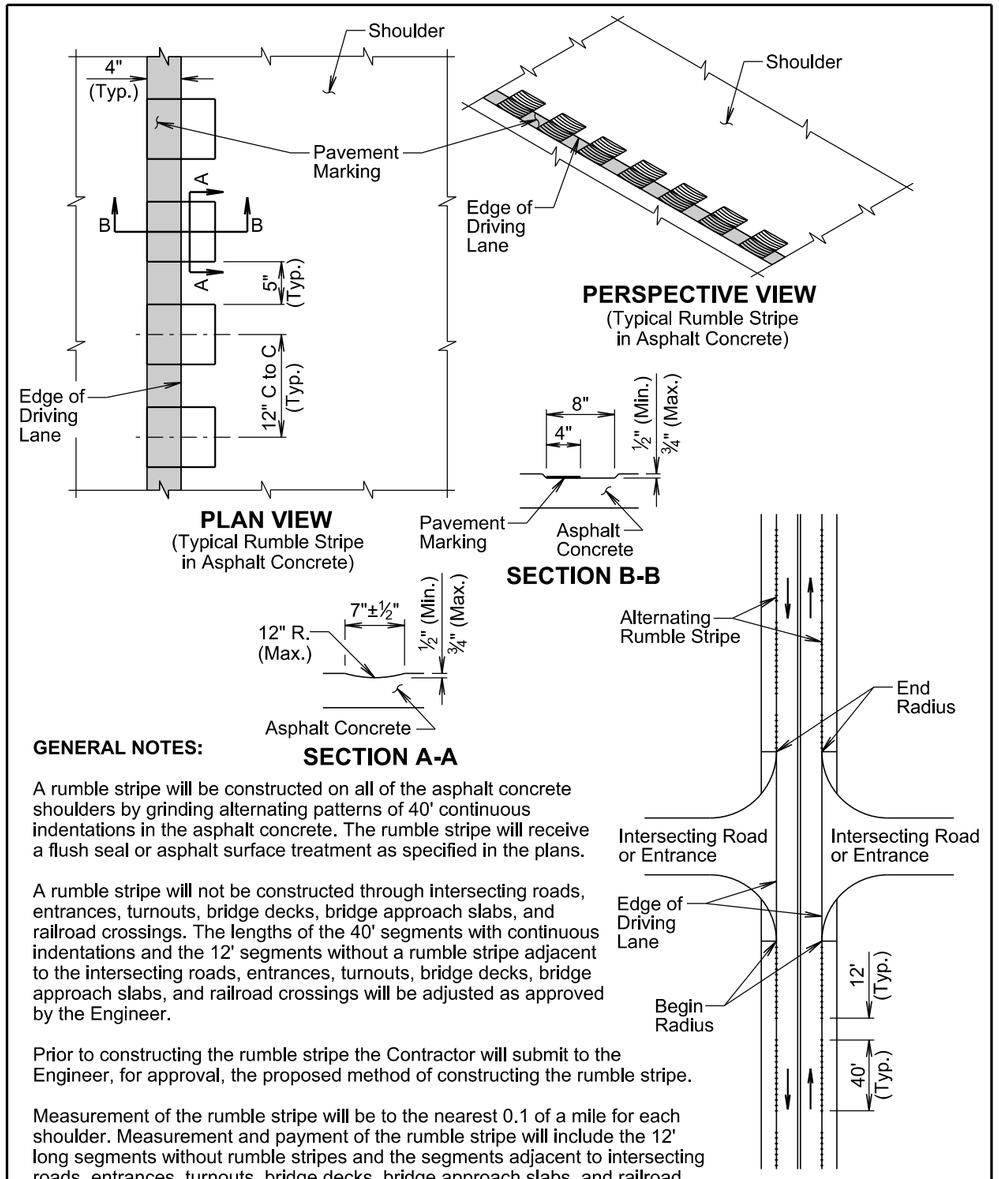


PLAN VIEW
(Entrance)

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

August 27, 2020

Published Date: 2025	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 2 of 2



GENERAL NOTES:

A rumble stripe will be constructed on all of the asphalt concrete shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble stripe will receive a flush seal or asphalt surface treatment as specified in the plans.

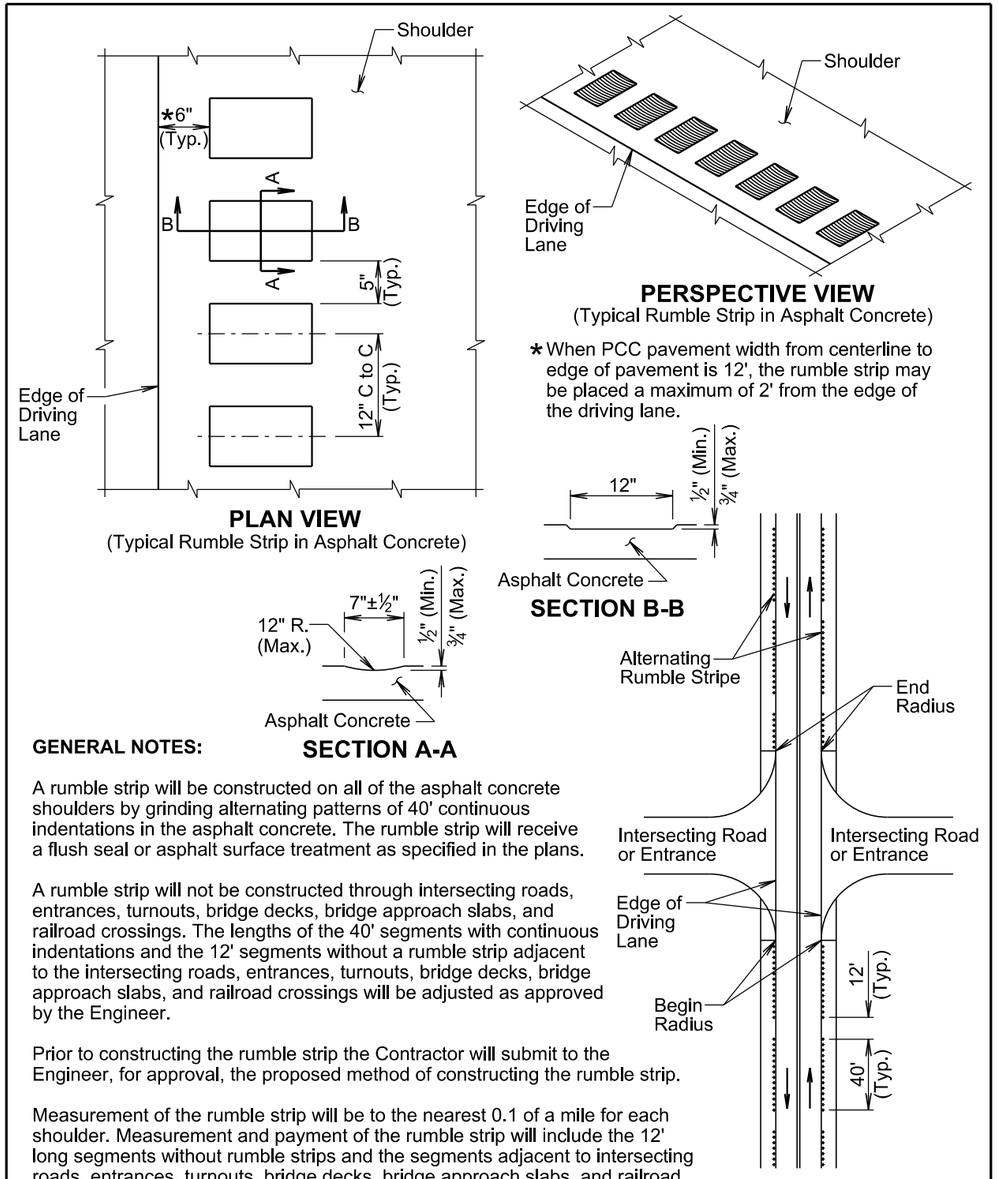
A rumble stripe will not be constructed through intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble stripe adjacent to the intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the Engineer.

Prior to constructing the rumble stripe the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

Measurement of the rumble stripe will be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble stripe will include the 12' long segments without rumble stripes and the segments adjacent to intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings without rumble stripes. Payment for constructing the rumble stripe will be at the contract unit price per mile for "Grind 8" Rumble Strip or Stripe in Asphalt Concrete".

September 14, 2019

Published Date: 2025	SDDOT	8" RUMBLE STRIPE IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.20
			Sheet 1 of 1



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

GENERAL NOTES:

A rumble strip will be constructed on all of the asphalt concrete shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble strip will receive a flush seal or asphalt surface treatment as specified in the plans.

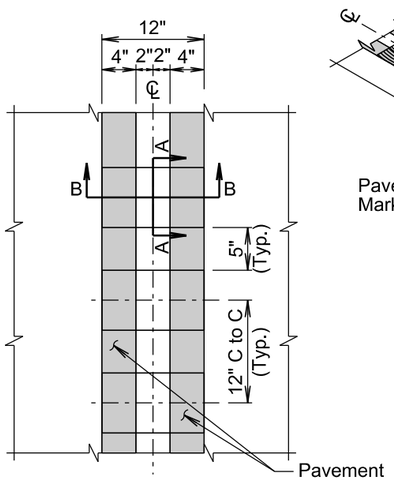
A rumble strip will not be constructed through intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble strip adjacent to the intersecting roads, entrances,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

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

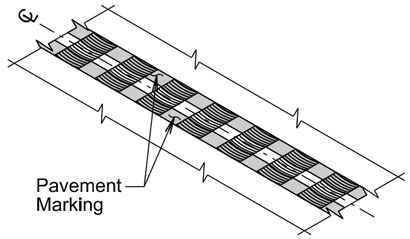
Measurement of the rumble strip will be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble strip will include the 12' long segments without rumble strips and the segments adjacent to intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad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

September 14, 2019

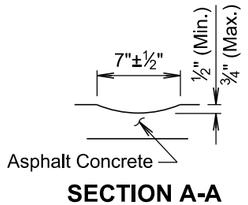
Published Date: 2025	SDDOT	12" RUMBLE STRIP IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.24
			Sheet 1 of 1



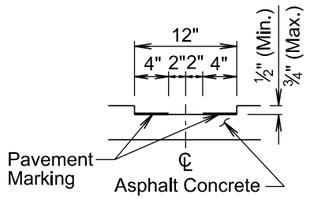
PLAN VIEW
(Typical Rumble Stripe in Asphalt Concrete)



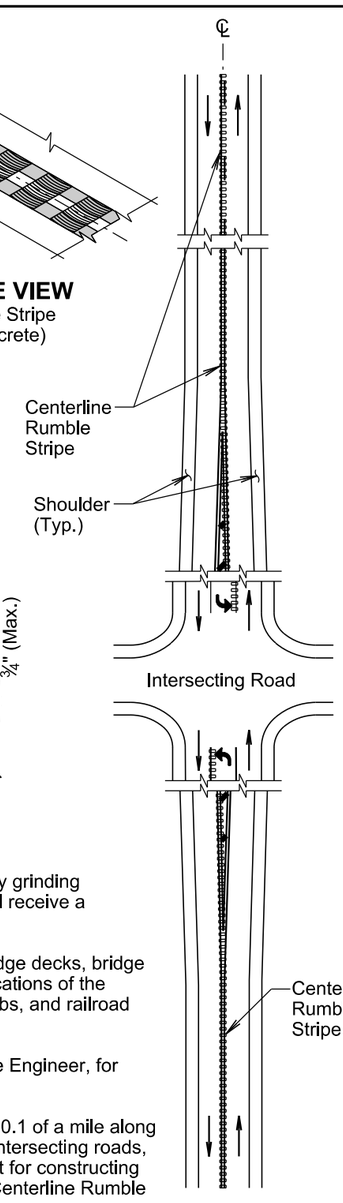
PERSPECTIVE VIEW
(Typical Rumble Stripe in Asphalt Concrete)



SECTION A-A



SECTION B-B



PLAN VIEW

GENERAL NOTES:

A rumble stripe will be constructed on the centerline of the roadway by grinding continuous indentations in the asphalt concrete. The rumble stripe will receive a flush seal or asphalt surface treatment as specified in the plans.

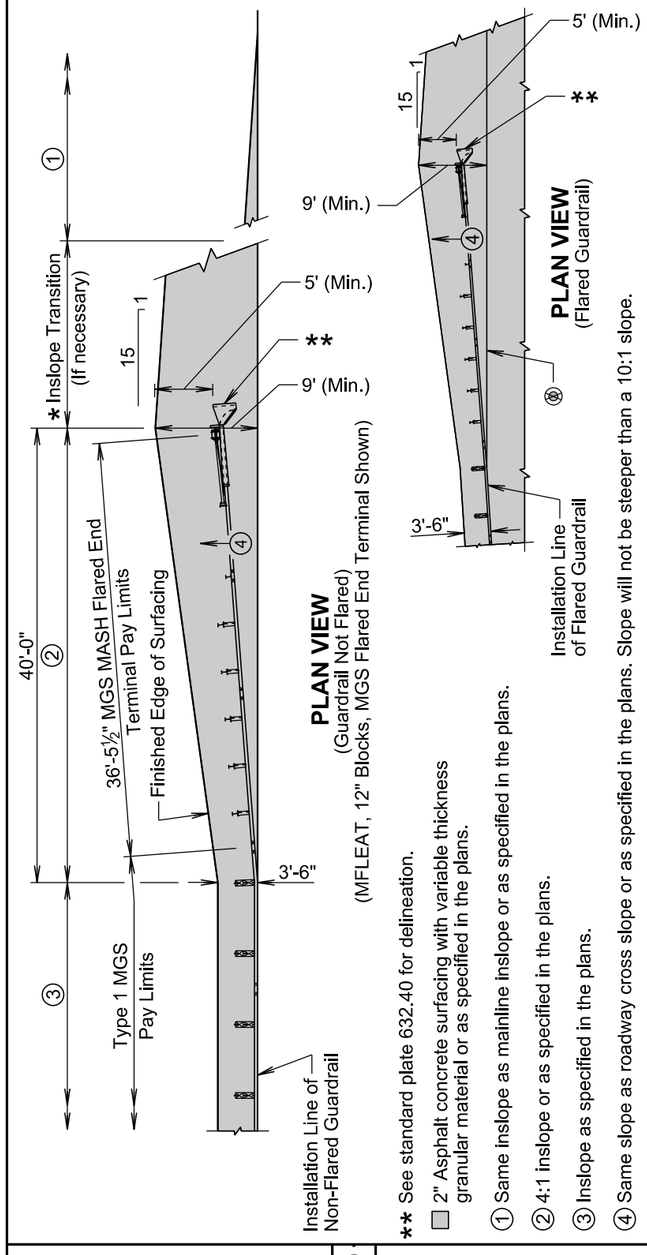
A rumble stripe will not be constructed through intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. The beginning and ending locations of the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the Engineer.

Prior to constructing the rumble stripe the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

Measurement and payment of the rumble stripe will be to the nearest 0.1 of a mile along the centerline and will include segments without the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. Payment for constructing the rumble stripe will be at the contract unit price per mile for "Grind Centerline Rumble Stripe in Asphalt Concrete".

November 19, 2020

Published Date: 2025	SDDOT	12" CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE	PLATE NUMBER 320.18
			Sheet 1 of 1



PLAN VIEW
(Guardrail Not Flared)
(MGS Flared End Terminal Shown)
(MFLEAT, 12" Blocks, MGS Flared End Terminal Shown)

PLAN VIEW
(Flared Guardrail)

** See standard plate 632.40 for delineation.

2" Asphalt concrete surfacing with variable thickness granular material or as specified in the plans.

① Same inslope as mainline inslope or as specified in the plans.

② 4:1 inslope or as specified in the plans.

③ Inslope as specified in the plans.

④ Same slope as roadway cross slope or as specified in the plans. Slope will not be steeper than a 10:1 slope.

GENERAL NOTES:

The flared guardrail end terminals above are for illustrative purpose only.

* The length of inslope transition varies with the amount of change between inslopes. The length of the transition will change 100 feet for every whole number change in the inslope. For Example: If the inslope changes from a 5:1 to a 4:1 the length of the inslope transition would be 200 feet. If the inslope changes from a 6:1 to a 4:1 the length of the inslope transition would be 400 feet.

Ⓐ The installation reference line for flared guardrail end terminals will always be parallel to the roadway.

Asphalt concrete will be the same type used elsewhere on the project or will be as specified in the plans. If asphalt concrete is not specified in the plans, the material will conform to the Specifications for "Asphalt Concrete Composite."

Granular material will be the same type used elsewhere on the project or will be as specified in the plans. If granular material type is not specified in the plans, the material will conform to the Specifications for "Base Course". The granular material will be placed the same thickness as the mainline surfacing or as specified in the plans.

June 26, 2019

Published Date: 2025	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH FLARED END TERMINAL	PLATE NUMBER 630.87
			Sheet 1 of 1