

ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	1,574.7	SqYd
120E0100	Unclassified Excavation, Digouts	1,050	CuYd
210E1000	Shoulder Preparation	0.120	Mile
260E1010	Base Course	4,184.6	Ton
320E0005	PG 58-34 Asphalt Binder	2,871.2	Ton
320E1200	Asphalt Concrete Composite	524.9	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	56,700.6	Ton
320E1800	Asphalt Concrete Blade Laid	3,149.4	Ton
320E4000	Hydrated Lime	587.5	Ton
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	42.0	Mile
320E7028	Grind Centerline Rumble Stripe in Asphalt Concrete	18.3	Mile
320E7030	Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete	2.7	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	253.9	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	111.1	Ton
330E2000	Sand for Flush Seal	1,105.8	Ton
332E0010	Cold Milling Asphalt Concrete	360,054	SqYd
600E0300	Type III Field Laboratory	1	Each
633E0030	Cold Applied Plastic Pavement Marking, 24"	166	Ft
633E0040	Cold Applied Plastic Pavement Marking, Arrow	3	Each
633E1200	High Build Waterborne Pavement Marking Paint, White	950	Gal
633E1206	High Build Waterborne Pavement Marking Paint with Reflective Elements, Yellow	307	Gal
633E5015	Grooving for Cold Applied Plastic Pavement Marking, 24"	166	Ft
633E5025	Grooving for Cold Applied Plastic Pavement Marking, Arrow	3	Each
634E0010	Flagging	740.0	Hour
634E0020	Pilot Car	345.0	Hour
634E0110	Traffic Control Signs	752.2	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	84.0	Mile
900E0010	Refurbish Single Mailbox	1	Each
900E0022	Remove and Reset Mailbox	2	Each
900E1980	Storage Unit	1	Each

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf> >

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary. Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment will be power washed with hot water (≥ 140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

The Contractor will not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at:

< <https://sdleastwanted.sd.gov/maps/default.aspx> >

< [South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species: https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04](https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04) >

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

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

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Agriculture and Natural Resources.

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(204)245	4	38

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historic Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view in which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 150 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

SHPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

TYPICAL SURFACING SECTIONS

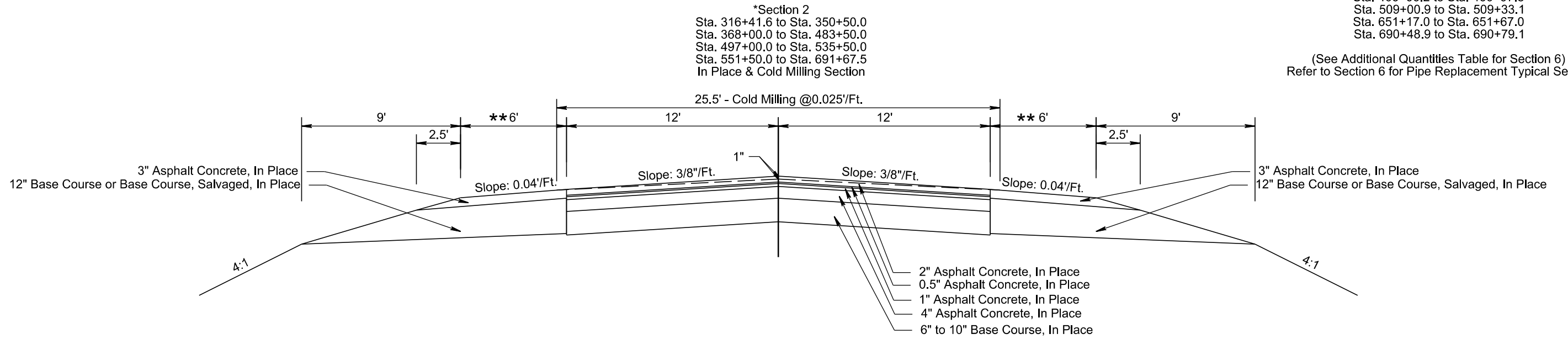
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(204)245	6	38

Plotting Date: 05/10/2024

*Pipe Replacement Locations within Section 2:

- Sta. 368+96.6 to Sta. 369+45.4
- Sta. 435+72.4 to Sta. 436+03.6
- Sta. 466+06.2 to Sta. 466+97.8
- Sta. 509+00.9 to Sta. 509+33.1
- Sta. 651+17.0 to Sta. 651+67.0
- Sta. 690+48.9 to Sta. 690+79.1

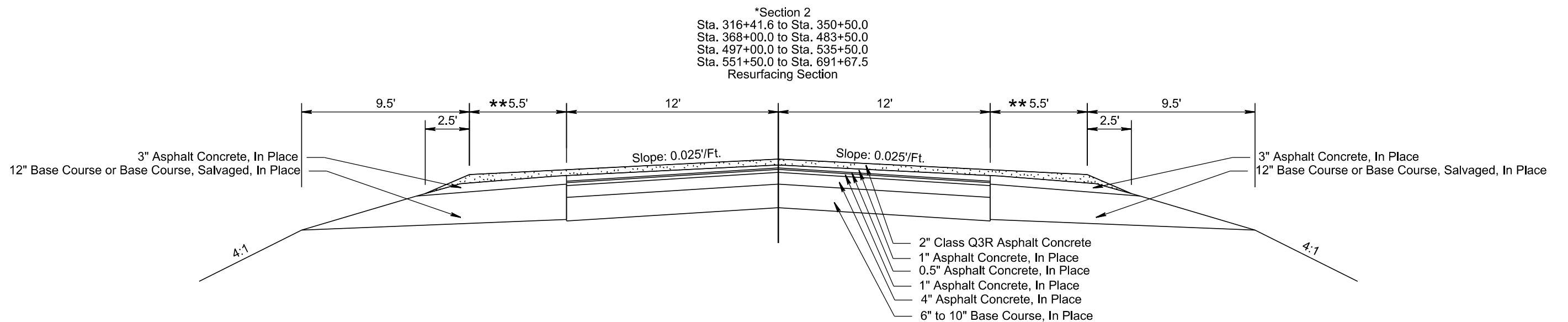
(See Additional Quantities Table for Section 6)
Refer to Section 6 for Pipe Replacement Typical Section



Transitions:

Sta. 315+42 to Sta. 323+32
** 11.5'

Sta. 323+32 to Sta. 327+52
** 11.5' to 5.5'



PLOT SCALE - 1+6.00001

PLOTTED FROM - TRAB17901

PLOT NAME - 2

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TYPICAL SURFACING SECTIONS

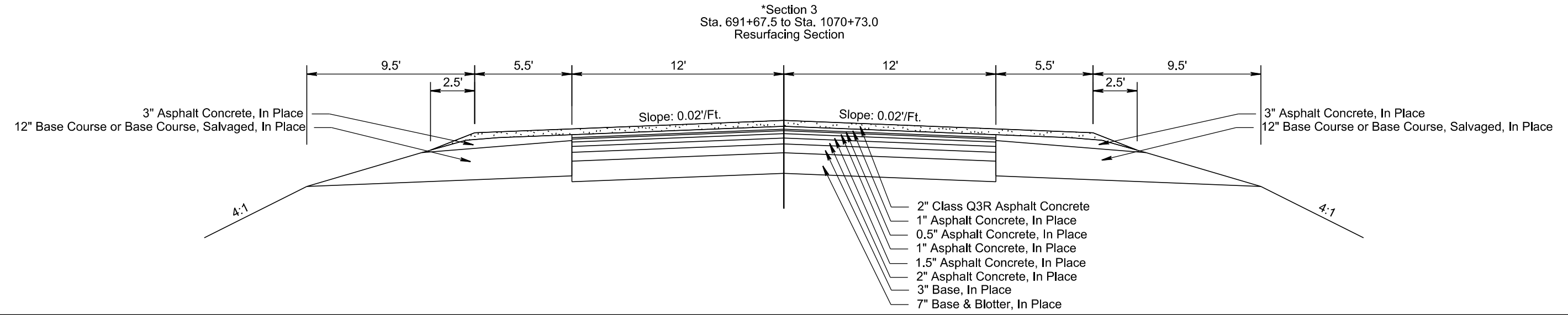
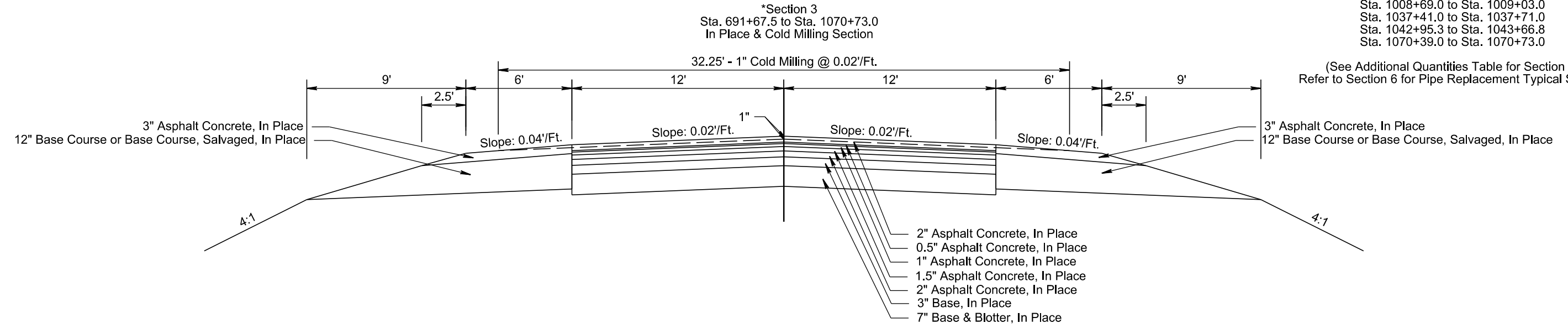
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(204)245	7	38

Plotting Date: 05/10/2024

*Pipe Replacement Locations within Section 3:

- Sta. 705+83.0 to Sta. 706+21.0
- Sta. 764+85.0 to Sta. 765+25.0
- Sta. 776+26.0 to Sta. 776+90.0
- Sta. 819+46.0 to Sta. 819+80.0
- Sta. 872+41.7 to Sta. 872+80.3
- Sta. 968+40.0 to Sta. 968+80.0
- Sta. 981+32.5 to Sta. 981+63.5
- Sta. 1008+69.0 to Sta. 1009+03.0
- Sta. 1037+41.0 to Sta. 1037+71.0
- Sta. 1042+95.3 to Sta. 1043+66.8
- Sta. 1070+39.0 to Sta. 1070+73.0

(See Additional Quantities Table for Section 6)
Refer to Section 6 for Pipe Replacement Typical Section



PLOT SCALE - 1+6.00001

PLOTTED FROM - TRAB17901

PLOT NAME - 3

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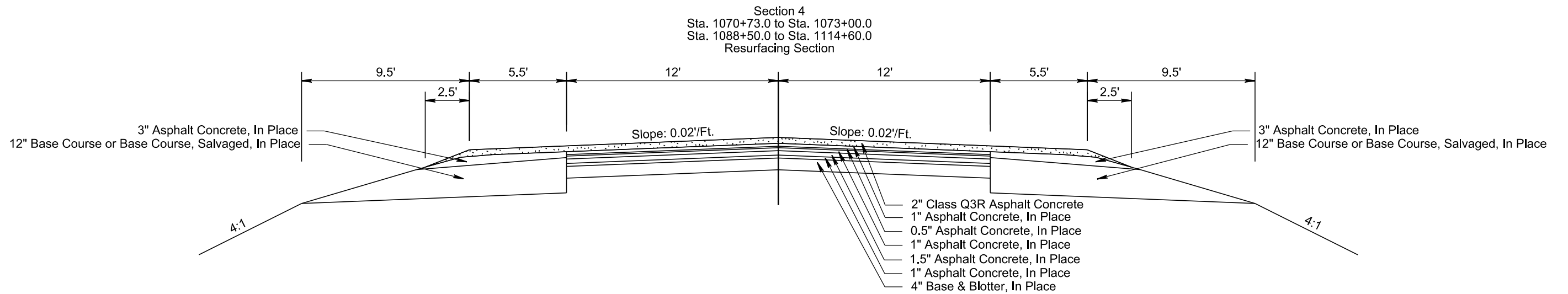
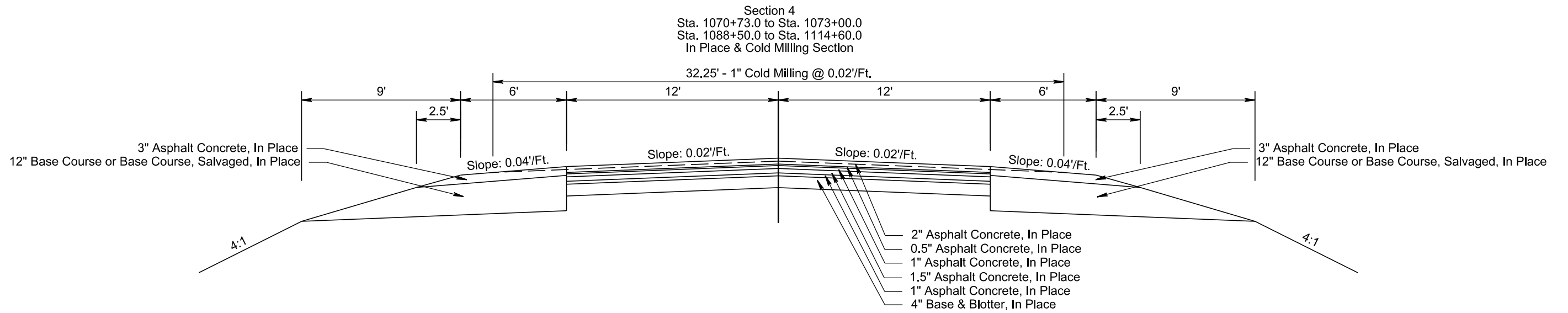
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT NH 0212(204)245	SHEET 8	TOTAL SHEETS 38
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Plotting Date: 05/10/2024

PLOT SCALE - 1+6.00001

PLOT NAME - 4



PLOTTED FROM - TRAB17901

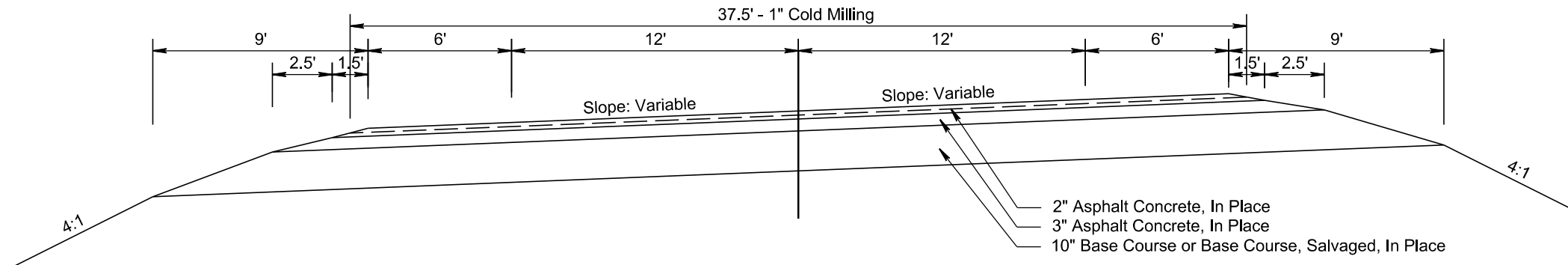
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TYPICAL SURFACING SECTIONS

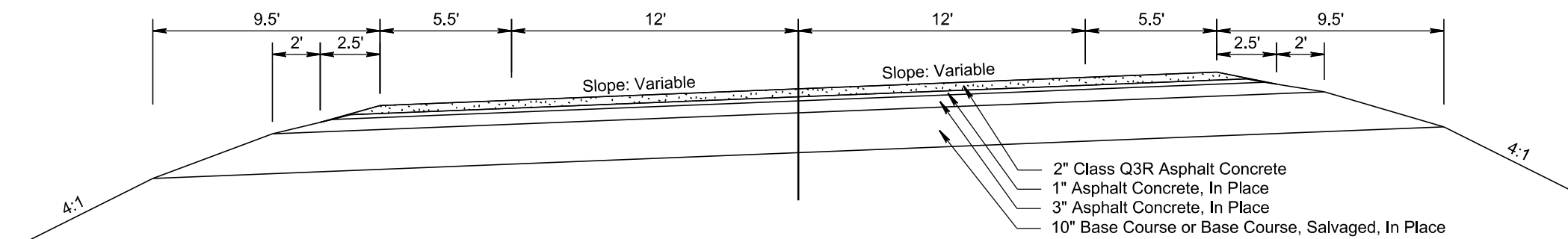
STATE OF SOUTH DAKOTA	PROJECT NH 0212(204)245	SHEET 9	TOTAL SHEETS 38
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Plotting Date: 05/10/2024

Section 5
Superelevated Curves
Sta. 350+50 to Sta. 368+00
Sta. 483+50 to Sta. 497+00
Sta. 535+50 to Sta. 551+50
Sta. 1073+00 to Sta. 1088+50
In Place & Cold Milling Section



Section 5
Superelevated Curves
Sta. 350+50 to Sta. 368+00
Sta. 483+50 to Sta. 497+00
Sta. 535+50 to Sta. 551+50
Sta. 1073+00 to Sta. 1088+50
Resurfacing Section



PLOT SCALE - 1+6.00001

PLOT NAME - 6

PLOTTED FROM - TRAB17901

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TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT NH 0212(204)245	SHEET 10	TOTAL SHEETS 38
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Plotting Date: 05/10/2024

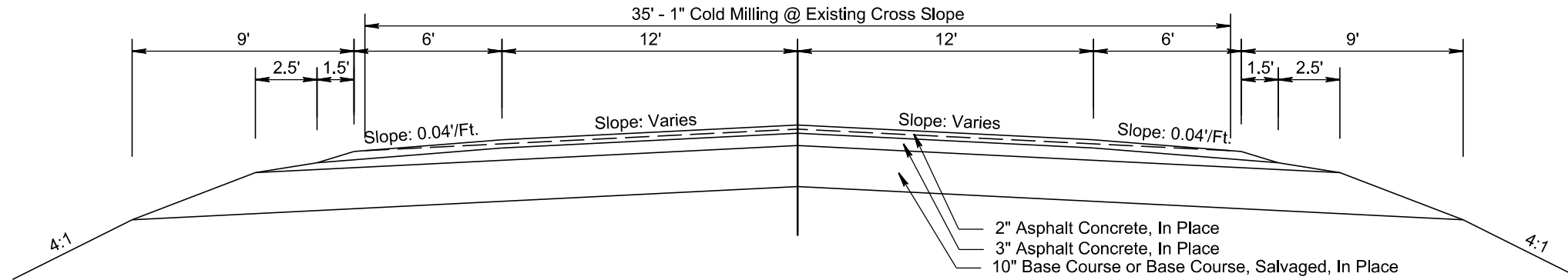
Pipe Replacement Areas

Sta. 96+77.9 to Sta. 97+16.1
 Sta. 125+38.1 to Sta. 125+95.9
 Sta. 148+49.5 to Sta. 148+82.5
 Sta. 271+45.0 to Sta. 272+00.0
 Sta. 298+98.7 to Sta. 299+87.3
 Sta. 368+96.6 to Sta. 369+45.4
 Sta. 435+72.4 to Sta. 436+03.6
 Sta. 466+06.2 to Sta. 466+97.8
 Sta. 509+00.9 to Sta. 509+33.1
 Sta. 651+17.0 to Sta. 651+67.0
 Sta. 690+48.9 to Sta. 690+79.1
 In Place & Cold Milling Section

Section 6

Pipe Replacement Areas

Sta. 705+83.0 to Sta. 706+21.0
 Sta. 764+85.0 to Sta. 765+25.0
 Sta. 776+26.0 to Sta. 776+90.0
 Sta. 819+46.0 to Sta. 819+80.0
 Sta. 872+41.7 to Sta. 872+80.3
 Sta. 968+40.0 to Sta. 968+80.0
 Sta. 981+32.5 to Sta. 981+63.5
 Sta. 1008+69.0 to Sta. 1009+03.0
 Sta. 1037+41.0 to Sta. 1037+71.0
 Sta. 1042+95.3 to Sta. 1043+66.8
 Sta. 1070+39.0 to Sta. 1070+73.0
 In Place & Cold Milling Section



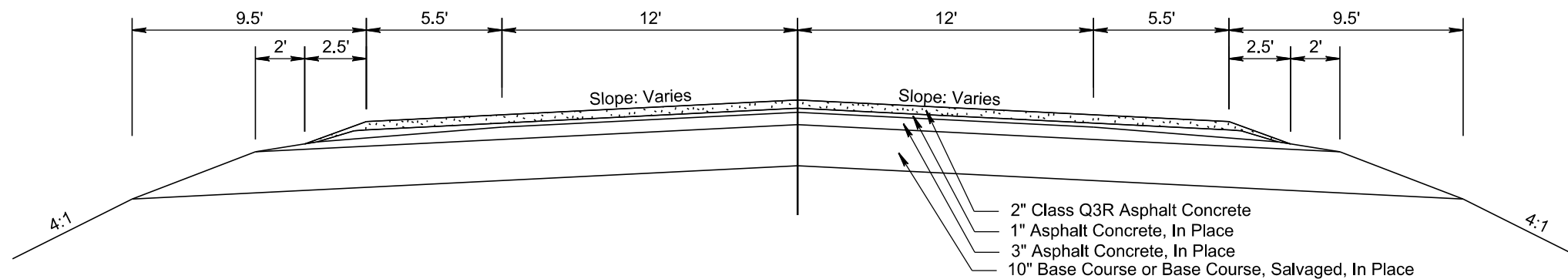
Pipe Replacement Areas

Sta. 96+77.9 to Sta. 97+16.1
 Sta. 125+38.1 to Sta. 125+95.9
 Sta. 148+49.5 to Sta. 148+82.5
 Sta. 271+45.0 to Sta. 272+00.0
 Sta. 298+98.7 to Sta. 299+87.3
 Sta. 368+96.6 to Sta. 369+45.4
 Sta. 435+72.4 to Sta. 436+03.6
 Sta. 466+06.2 to Sta. 466+97.8
 Sta. 509+00.9 to Sta. 509+33.1
 Sta. 651+17.0 to Sta. 651+67.0
 Sta. 690+48.9 to Sta. 690+79.1
 Resurfacing Section

Section 6

Pipe Replacement Areas

Sta. 705+83.0 to Sta. 706+21.0
 Sta. 764+85.0 to Sta. 765+25.0
 Sta. 776+26.0 to Sta. 776+90.0
 Sta. 819+46.0 to Sta. 819+80.0
 Sta. 872+41.7 to Sta. 872+80.3
 Sta. 968+40.0 to Sta. 968+80.0
 Sta. 981+32.5 to Sta. 981+63.5
 Sta. 1008+69.0 to Sta. 1009+03.0
 Sta. 1037+41.0 to Sta. 1037+71.0
 Sta. 1042+95.3 to Sta. 1043+66.8
 Sta. 1070+39.0 to Sta. 1070+73.0
 Resurfacing Section



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRAB17901

PLOT NAME - 5

FILE - ... \07YX_TYPSPECT_UPDATES.DGN

RATES OF MATERIALS

The Estimate of Quantities is based on the following quantities of material per mile.

Section 1 Sta. 6+00.0 to Sta. 316+41.6

Section 2 Sta. 316+41.6 to Sta. 350+50.0
Sta. 368+00.0 to Sta. 483+50.0
Sta. 497+00.0 to Sta. 535+50.0
Sta. 551+50.0 to Sta. 691+67.5

Section 3 Sta.691+67.5 to Sta. 1070+73.0

Section 4 Sta.1070+73.0 to Sta. 1073+00.0
Sta.1088+50.0 to Sta. 1114+60.0

Section 5 Sta. 350+50.0 to Sta. 368+00.0
Sta. 483+50.0 to Sta. 497+00.0
Sta. 535+50.0 to Sta. 551+50.0
Sta. 1073+00.0 to Sta. 1088+50.0

CLASS Q3R HOT MIXED ASPHALT CONCRETE – 2” LIFT

Crushed Aggregate.....	1999 Tons
Salvaged Asphalt Concrete	500 Tons
PG 58-34 Asphalt Binder.....	123 Tons
Total without Lime	2622 Tons
Hydrated Lime.....	26 Tons
Total with Lime	2648 Tons

The exact proportion of these materials will be determined on construction.

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of **5.6** tons applied **25** feet wide prior to Asphalt Concrete Blade Laid.
(Rate = **0.09** Gal./Sq.Yd.)

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of **6.1** tons applied **41** feet wide prior to Q3R Lift.
(Rate = **0.06** Gal./Sq.Yd.)

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of **5.0** tons applied **40** feet wide.
(Rate = **0.05** Gal./Sq.Yd.).

Sand for Flush Seal at the rate of **52** tons applied **22** feet wide.
(Rate = 8 Lb./Sq.Yd.).

CLASS Q3R HOT MIXED ASPHALT CONCRETE – 2” LIFT

Crushed Aggregate.....	1863 Tons
Salvaged Asphalt Concrete	466 Tons
PG 58-34 Asphalt Binder.....	115 Tons
Total without Lime	2444 Tons
Hydrated Lime.....	24 Tons
Total with Lime	2468 Tons

The exact proportion of these materials will be determined on construction.

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of **5.6** tons applied **25** feet wide prior to Asphalt Concrete Blade Laid.
(Rate = **0.09** Gal./Sq.Yd.)

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of **6.1** tons applied **41** feet wide prior to Q3R Lift.
(Rate = **0.06** Gal./Sq.Yd.)

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SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of **5.0** tons applied **40** feet wide.
(Rate = **0.05** Gal./Sq.Yd.).

Sand for Flush Seal at the rate of **52** tons applied **22** feet wide.
(Rate = 8 Lb./Sq.Yd.).

CLASS Q3R HOT MIXED ASPHALT CONCRETE – 2” LIFT

Crushed Aggregate.....	1814 Tons
Salvaged Asphalt Concrete	453 Tons
PG 58-34 Asphalt Binder.....	112 Tons
Total without Lime	2379 Tons
Hydrated Lime.....	24 Tons
Total with Lime	2403 Tons

The exact proportion of these materials will be determined on construction.

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of **5.6** tons applied **25** feet wide prior to Asphalt Concrete Blade Laid.
(Rate = **0.09** Gal./Sq.Yd.)

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of **6.1** tons applied **41** feet wide prior to Q3R Lift.
(Rate = **0.06** Gal./Sq.Yd.)

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SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of **5.0** tons applied **40** feet wide.
(Rate = **0.05** Gal./Sq.Yd.).

Sand for Flush Seal at the rate of **52** tons applied **22** feet wide.
(Rate = 8 Lb./Sq.Yd.).

TABLE OF QUANTITIES

TABLE OF PROJECT STATIONING								
SECTION	STATION	TO	STATION	LENGTH	GROSS SECTION LENGTH	GROSS SECTION LENGTH	NET SECTION LENGTH	NET SECTION LENGTH
				(Ft)	(Ft)	(Miles)	(Ft)	(Miles)
1	6+00.00	to	316+41.60	31041.60	31041.60	5.879	31041.60	5.879
2	316+41.60	to	350+50.00	3408.40	32825.90	6.217	32825.90	6.217
	368+00.00	to	483+50.00	11550.00				
	497+00.00	to	535+50.00	3850.00				
	551+50.00	to	691+67.50	14017.50				
3	691+67.50	to	1070+73.00	37905.50	37905.50	7.179	37905.50	7.179
4	1070+73.00	to	1073+00.00	227.00	2837.00	0.537	2837.00	0.537
	1088+50.00	to	1114+60.00	2610.00				
5	350+50.00	to	368+00.00	1750.00	6250.00	1.184	6250.00	1.184
	483+50.00	to	497+00.00	1350.00				
	535+50.00	to	551+50.00	1600.00				
	1073+00.00	to	1088+50.00	1550.00				
TOTAL:				110860.00	110860.00	20.996	110860.00	20.996

TABLE OF MATERIAL QUANTITIES																							
Section	UNCLASSIFIED EXCAVATION, DIGOUTS	BASE COURSE	COLD MILLING ASPHALT CONCRETE	Estimated Cold Milled Material Produced	REMOVE ASPHALT CONCRETE PAVEMENT	ASPHALT CONCRETE COMPOSITE	ASPHALT CONCRETE BLADE LAID	HYDRATED LIME	PG 58-34 ASPHALT BINDER	VIRG. AGGR. (N.A.B.I.)	CLASS Q3R ASPHALT CONCRETE	HYDRATED LIME	PG 58-34 ASPHALT BINDER	SALVAGED ASPHALT CONCRETE (RAP=20%) (N.A.B.I.)	VIRG. AGGR. (NABI.)	CLASS Q3R ASPHALT CONCRETE	HYDRATED LIME	PG 58-34 ASPHALT BINDER	SALVAGED ASPHALT CONCRETE (RAP=20%) (N.A.B.I.)	VIRG. AGGR. (NABI.)	SS-1h/ CSS-1h ASPH. FOR TACK	SS-1h/ CSS-1h ASPH. FOR FLUSH SEAL	SAND FOR FLUSH SEAL
	CuYd	Ton	SqYd	Ton	SqYd	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton
							←-----Blade Laid-----→				←-----Spot Leveling-----→				←-----Mainline Lift-----→								
1	294.0	587.9	87951	2309	440.9	147.0	881.9	8.8	65.3	807.8	587.9	5.9	27.6	110.9	443.5	15567.8	152.9	723.1	2939.5	11752.3	69.0	29.3	303.5
2	310.9	621.7	93007	2441	466.3	155.4	932.6	9.3	69.0	854.2	621.7	6.2	29.2	117.3	469.0	16462.7	161.6	764.7	3108.5	12427.8	73.0	31.0	321.0
3	359.0	717.9	135828	7131	538.4	179.5	1076.9	10.8	79.7	986.4	717.9	7.2	33.7	135.4	541.6	17717.9	172.3	825.6	3345.4	13374.6	84.3	35.8	370.6
4	26.9	53.7	10166	534	40.3	13.4	80.6	0.8	6.0	73.8	53.7	0.5	2.5	10.1	40.6	1326.1	12.9	61.8	250.4	1001.0	6.3	2.7	27.7
5	59.2	118.4	26042	1367	88.8	29.6	177.6	1.8	13.1	162.6	118.4	1.2	5.6	22.3	89.3	2844.5	28.4	132.6	536.2	2147.3	13.9	5.9	61.1
Subtotal:	1050.0	2099.6	352994	13782	1574.7	524.9	3149.4	31.5	233.1	2884.9	2099.6	21.0	98.6	396.0	1584.0	53919.0	528.1	2507.8	10180.0	40703.0	246.6	104.7	1084.0
Additional Quantities	-	2085	7060	371	-	-	-	-	-	-	-	-	-	-	-	682.0	6.9	31.7	128.7	514.7	7.4	6.4	21.9
Total:	1050	4184.6	360054	14152.7	1574.7	524.9	3149.4	31.5	233.1	2884.9	2099.6	21.0	98.6	396.0	1584.0	54601.0	535.0	2539.5	10308.7	41217.7	253.9	111.1	1105.8

SECTION 6 & TABLE OF ADDITIONAL QUANTITIES

TABLE OF PROJECT STATIONING								
SECTION	STATION	TO	STATION	LENGTH (Ft)	GROSS SECTION	GROSS SECTION	NET SECTION	NET SECTION
					LENGTH	LENGTH	LENGTH	LENGTH
					(Ft)	(Miles)	(Ft)	(Miles)
6	96+77.90	to	97+16.10	38.20	1011.70	0.192	1011.70	0.192
	125+38.10	to	125+95.90	57.80				
	148+49.50	to	148+82.50	33.00				
	271+45.00	to	272+00.00	55.00				
	298+98.70	to	299+87.30	88.60				
	368+96.60	to	369+45.40	48.80				
	435+72.40	to	436+03.60	31.20				
	466+06.20	to	466+97.80	91.60				
	509+00.90	to	509+33.10	32.20				
	651+17.00	to	651+67.00	50.00				
	690+48.90	to	690+79.10	30.20				
	705+83.00	to	706+21.00	38.00				
	764+85.00	to	765+25.00	40.00				
	776+26.00	to	776+90.00	64.00				
	819+46.00	to	819+80.00	34.00				
	872+41.70	to	872+80.30	38.60				
	968+40.00	to	968+80.00	40.00				
	981+32.50	to	981+63.50	31.00				
	1008+69.00	to	1009+03.00	34.00				
	1037+41.00	to	1037+71.00	30.00				
1042+95.30	to	1043+66.80	71.50					
1070+39.00	to	1070+73.00	34.00					

TABLE OF ADDITIONAL QUANTITIES											
	BASE COURSE	CLASS Q3R ASPHALT CONCRETE	PG 58-34 ASPHALT BINDER	HYDRATED LIME	Recycled Asphalt (RAP) N.A.B.I.	Virgin Aggregate N.A.B.I.	SS-1h/ CSS-1h ASPH. FOR TACK	SS-1h/ CSS-1h ASPH. FOR FLUSH	SAND FOR FLUSH SEAL	COLD MILLING ASPHALT CONCRETE	Estimated Cold Milled Material Produced
LOCATIONS:	TON	TON	TON	TON	TON	TON	TON	TON	TON	SQYD	TON
*Faulk/Potter County Line East (Shoulders)	-	110.0	5.1	1.1	20.8	83.0	-	-	-	-	-
SD 47 Intersection -Road Widening for Turn Lane	-	245.0	11.4	2.5	46.2	184.9	0.89	0.50	9.77	2336.0	122.6
**US 212 Shoulders: Intersecting Roads and Entrances	2085.0	327.0	15.2	3.3	61.7	246.8	1.16	0.67	12.10	790.0	41.5
Section 6 (Additional Cold Milling Asphalt Width beyond what is required for Typical Sections 1-3.)	-	-	-	-	-	-	-	-	-	3934.4	206.6
TOTALS	2085.0	682.0	31.7	6.9	128.7	514.7	2.1	1.2	21.9	7060.4	370.7

*Refer to "Shoulder Preparation" note for additional information.
 **See "TABLE OF INTERSECTING ROADS AND ENTRANCES"
 Application will be at the rate shown on the plans or as directed by the Engineer.
 The above quantities are included in the Estimate of Quantities.

SUMMARY OF ASPHALT CONCRETE

	Class Q3R Hot Mixed Asphalt Concrete with Specified Density Compaction	Class Q3R Hot Mixed Asphalt Concrete without Specified Density Compaction	Asphalt Concrete Composite
LOCATIONS:	<u>TONS</u>	<u>TONS</u>	<u>TONS</u>
Section 1 (24' Mainline with Specified Density)	9289.5	-	147.0
Section 1 (5.5' Shoulders and 2.5' Sluff without Specified Density)	-	6278.3	
Section 2 (24' Mainline with Specified Density)	9823.5	-	155.4
Section 2 (5.5' Shoulders and 2.5' Sluff without Specified Density)	-	6639.2	
Section 3 (24' Mainline with Specified Density)	11343.6	-	179.5
Section 3 (5.5' Shoulders and 2.5' Sluff without Specified Density)	-	6374.3	
Section 4 (24' Mainline with Specified Density)	849.0	-	13.4
Section 4 (5.5' Shoulders and 2.5' Sluff without Specified Density)	-	477.1	
Section 5 (24' Mainline with Specified Density)	1870.4	-	29.6
Section 5 (5.5' Shoulders and 2.5' Sluff without Specified Density)	-	974.1	
Spot Leveling, Strengthening, and Repair of existing surface	-	2099.6	-
Table of Additional Quantities	-	682.0	-
TOTAL	33175.9	23524.7	524.9
<i>Total Class Q3R Hot Mixed Asphalt Concrete:</i>	56700.6	Tons	

TABLE OF INTERSECTING ROADS AND ENTRANCES

Plotting Date: 03/18/2024

APPROXIMATE STATION	Sides: Left/Right/ Both	DESCRIPTION	SURFACING REQUIRED	Asphalt Surface Area (SqFt) (N.A.B.I.)	Cold Mill Asphalt Concrete (SqYd)	Base Course (Ton)	Class Q3R Asphalt Concrete Depth (In)	Class Q3R Hot Mixed Asphalt Concrete (Ton)	SS-1h or CSS-1h Asphalt for Tack (Ton)	SS-1h or CSS-1h Asphalt for Flush (Ton)	Sand for Flush Seal (Ton)
10+00	B	FIELD ENTRANCE	Gravel			30					
28+90	L	FIELD ENTRANCE	Gravel			30					
38+95	L	FIELD ENTRANCE	Gravel			15					
52+00	B	330TH AVENUE	Gravel			30					
66+40	R	FIELD ENTRANCE	Gravel			15					
78+49	L	FIELD ENTRANCE	Gravel			15					
87+65	R	FIELD ENTRANCE	Gravel			15					
104+96	B	331ST AVENUE	Gravel			30					
120+00	B	FIELD ENTRANCE	Gravel			30					
130+70	R	FIELD ENTRANCE	Gravel			15					
135+45	L	FIELD ENTRANCE	Gravel			15					
156+45	L	GRAVEL CURVE	Gravel			15					
157+80	L	333rd Ave.	Asphalt to ROW, then Gravel	2200		15	2	28	0.1	0.06	1
157+80	R	333rd Ave.	Asphalt to ROW	1600	178		2	20	0.07	0.04	0.8
164+45	L	FIELD ENTRANCE	Gravel			15					
171+24	L	COMMERCIAL DRIVEWAY	Gravel			15					
177+81	L	COMMERCIAL DRIVEWAY	Gravel			15					
184+05	R	FIELD ENTRANCE	Gravel			15					
193+74	R	FIELD ENTRANCE	Gravel			15					
197+99	L	FIELD ENTRANCE	Gravel			15					
210+95	B	334TH AVENUE	Gravel			30					
230+02	B	FIELD ENTRANCE	Gravel			30					
246+32	L	FIELD ENTRANCE	Gravel			15					
263+65	B	335TH AVENUE	Gravel			30					
277+03	R	FIELD ENTRANCE	Gravel			15					
290+14	B	FIELD ENTRANCE	Gravel			30					
316+42	L	SD 47 SOUTH	Gravel			15					
316+42	R	SD 47 SOUTH	Asphalt to ROW	3500	389		2	44	0.15	0.09	1.6
323+32	L	FIELD ENTRANCE	Gravel			15					
350+07	R	FIELD ENTRANCE	Gravel			15					
364+00	L	FIELD ENTRANCE	Gravel			15					
372+88	R	FIELD ENTRANCE	Gravel			15					
386+35	L	FIELD ENTRANCE	Gravel			15					
408+15	L	FIELD ENTRANCE	Gravel			15					
424+20	L	FIELD ENTRANCE	Gravel			15					
424+30	R	338TH AVENUE	Asphalt to ROW, then Gravel	780		15	2	10	0.04	0.02	0.4
439+98	R	FIELD ENTRANCE	Gravel			15					
453+90	B	FIELD ENTRANCE	Gravel			30					
470+95	L	FIELD ENTRANCE	Gravel			15					
478+25	L	339TH AVENUE	Asphalt to ROW, then Gravel	1800		15	2	23	0.08	0.05	0.8
478+40	R	339TH AVENUE	Asphalt to ROW, then Gravel	1900		15	2	24	0.08	0.05	0.9
485+55	B	FIELD ENTRANCE	Gravel			30					
501+54	R	FIELD ENTRANCE	Gravel			15					
510+92	B	FIELD ENTRANCE	Gravel			30					
535+11	L	340TH AVENUE	Gravel			15					
535+11	R	340TH AVENUE	Asphalt to ROW, then Gravel	1700		15	2	22	0.08	0.04	0.8
549+09	R	FIELD ENTRANCE	Gravel			15					
553+55	L	FIELD ENTRANCE	Gravel			15					
562+85	B	FIELD ENTRANCE	Gravel			30					

PLOT SCALE - 1:200

PLOTTED FROM - TRAB17901

PLOT NAME - 15

FILE - ... \PRJ\FALK07X\STD PLATES.DGN

TABLE OF INTERSECTING ROADS AND ENTRANCES

Plotting Date: 03/18/2024

APPROXIMATE STATION	Sides: Left/Right/ Both	DESCRIPTION	SURFACING REQUIRED	Asphalt Surface Area (SqFt) (N.A.B.I.)	Cold Mill Asphalt Concrete (SqYd)	Base Course (Ton)	Class Q3R Asphalt Concrete Depth (In)	Class Q3R Hot Mixed Asphalt Concrete (Ton)	SS-1h or CSS-1h Asphalt for Tack (Ton)	SS-1h or CSS-1h Asphalt for Flush (Ton)	Sand for Flush Seal (Ton)
588+59	B	341ST AVENUE	Gravel			30					
606+64	B	FIELD ENTRANCE	Gravel			30					
629+55	R	FIELD ENTRANCE	Gravel			15					
629+55	L	RESIDENTIAL DRIVEWAY	Gravel			15					
634+55	L	RESIDENTIAL DRIVEWAY	Gravel			15					
641+30	B	FIELD ENTRANCE	Gravel			30					
673+86	R	RESIDENTIAL DRIVEWAY	Gravel			15					
673+86	L	FIELD ENTRANCE	Gravel			15					
691+75	L	343RD AVENUE	Asphalt to ROW, then Gravel	2300		15	2	29	0.1	0.06	1.1
691+75	R	343RD AVENUE	Asphalt to ROW, then Gravel	2000		15	2	25	0.09	0.05	0.9
708+74	B	FIELD ENTRANCE	Gravel			30					
718+11	B	FIELD ENTRANCE	Gravel			30					
740+75	L	RESIDENTIAL DRIVEWAY	Gravel			15					
744+58	B	344TH AVENUE	Gravel			30					
746+53	L	RESIDENTIAL DRIVEWAY	Gravel			15					
756+68	L	RESIDENTIAL DRIVEWAY	Asphalt to ROW, then Gravel	2000		15	2	25	0.09	0.05	0.9
756+68	R	FIELD ENTRANCE	Gravel			15					
771+21	L	FIELD ENTRANCE	Gravel			15					
784+40	B	FIELD ENTRANCE	Gravel			30					
797+53	L	346TH AVENUE	Asphalt to ROW, then Gravel	1000		15	2	13	0.05	0.03	0.5
797+53	R	346TH AVENUE	Gravel			15					
799+28	L	RESIDENTIAL DRIVEWAY	Gravel			15					
804+04	R	FIELD ENTRANCE	Gravel			15					
811+52	L	FIELD ENTRANCE	Gravel			15					
819+05	R	FIELD ENTRANCE	Gravel			15					
824+06	L	FIELD ENTRANCE	Gravel			15					
824+28	R	FIELD ENTRANCE	Gravel			15					
842+49	B	FIELD ENTRANCE	Gravel			30					
848+24	L	RESIDENTIAL DRIVEWAY	Gravel			15					
850+70	L	347TH AVENUE	Asphalt to ROW, then Gravel	1600		15	2	20	0.07	0.04	0.8
850+70	R	347TH AVENUE	Gravel			15					
862+20	R	FIELD ENTRANCE	Gravel			15					
867+84	B	FIELD ENTRANCE	Gravel			30					
877+59	B	FIELD ENTRANCE	Gravel			30					
891+07	B	FIELD ENTRANCE	Gravel			30					
903+78	B	348TH AVENUE	Gravel			30					
910+74	B	FIELD ENTRANCE	Gravel			30					
920+89	B	FIELD ENTRANCE	Gravel			30					
948+44	B	FIELD ENTRANCE	Gravel			30					
956+44	B	349TH AVENUE	Gravel			30					
970+20	B	FIELD ENTRANCE	Gravel			30					
983+26	B	FIELD ENTRANCE	Gravel			30					
998+67	R	FIELD ENTRANCE	Gravel			15					
1009+50	L	350TH AVENUE	Gravel			15					
1009+50	R	350TH AVENUE	Asphalt to ROW, then Gravel	1500		15	2	19	0.07	0.04	0.7
1016+22	L	FIELD ENTRANCE	Gravel			15					
1019+00	R	FIELD ENTRANCE	Gravel			15					
1027+79	R	NORTH LAKE ST.	Asphalt to ROW	2000	223	30	2	25	0.09	0.05	0.9
1035+84	B	351ST AVENUE	Gravel			30					

PLOT SCALE - 1:200

PLOT NAME - 15

FILE - ... \PRJ\FALK07X\STD PLATES.DGN

-PLOTTED FROM - TRAB17901

TABLE OF INTERSECTING ROADS AND ENTRANCES

Plotting Date: 03/18/2024

APPROXIMATE STATION	Sides: Left/Right/ Both	DESCRIPTION	SURFACING REQUIRED	Asphalt Surface Area (SqFt) (N.A.B.I.)	Cold Mill Asphalt Concrete (SqYd)	Base Course (Ton)	Class Q3R Asphalt Concrete Depth (In)	Class Q3R Hot Mixed Asphalt Concrete (Ton)	SS-1h or CSS-1h Asphalt for Tack (Ton)	SS-1h or CSS-1h Asphalt for Flush (Ton)	Sand for Flush Seal (Ton)
1054+11	B	FIELD ENTRANCE	Gravel			30					
1061+99	B	FIELD ENTRANCE	Gravel			30					
1084+01	L	RESIDENTIAL DRIVEWAY	Gravel			15					
1085+17	B	FIELD ENTRANCE	Gravel			30					
1089+56	R	FIELD ENTRANCE	Gravel			15					
1099+92	R	RESIDENTIAL DRIVEWAY	Gravel			15					
1105+08	L	FIELD ENTRANCE	Gravel			15					
1105+08	R	RESIDENTIAL DRIVEWAY	Gravel			15					
1111+76	L	RESIDENTIAL DRIVEWAY	Gravel			15					
TOTALS:				25880	790	2085	-	327	1.16	0.67	12.1

The above quantities are included in the Table of Additional Quantities.
See the Table of Additional Quantities for quantity of binder, lime, RAP and virgin granular material required with the Class Q3R Hot Mixed Asphalt Concrete.

PLOT SCALE - 1:200

PLOT NAME - 15

-PLOTTED FROM - TRAB17901

FILE - ... \PRJ\FALK07X\STD PLATES.DGN

SURFACING THICKNESS DIMENSIONS

The plans shown spread rates will be applied even though the thickness may vary from that shown in 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.

SCOPE OF WORK

Work on this project involves cold milling asphalt concrete, placement of asphalt concrete pavement, rumble strips, and pavement markings.

SEQUENCE OF OPERATIONS

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

1. Install Traffic Control Signing.
2. Complete Cold Milling Operations.
3. Complete Unclassified Excavation for Digouts and Backfill Operations.
4. Complete Asphalt Concrete Paving Operations.
6. Grind Rumble Strips.
8. Complete Flush Seal.
9. Install Permanent Pavement Markings.
10. Refurbish/Remove & Reset Mailboxes.
11. Remove Traffic Control Signing.
12. Mow Project Inslopes and Complete any Remaining Project Cleanup.

Contractor requests to deviate from the sequence of operations will be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence will be submitted for review a minimum of one week prior to potential implementation.

GENERAL NOTES

The Contractor will be required to mow the inslopes with a rotary mower to a height of 6 inches for a distance of 14 feet from the edge of the roadway (or shoulder) for the length of the project. This work will be completed to the satisfaction of the Engineer after all construction activities are completed. All costs associated with this work will be incidental to the various contract items.

UTILITIES

The Contractor will contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It will be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor will contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

Portable sign supports will not be located on sidewalks, bicycle facilities, or other areas designated for pedestrian or bicycle traffic.

All construction operations will be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

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

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

Traffic will be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor's equipment will be repaired at no expense to the Department.

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

GROOVED PAVEMENT (W8-15) signs with MOTORCYCLE (W8-15P) plaques are required in advance of areas that have been cold milled and are not resurfaced the same day. The GROOVED PAVEMENT sign assemblies will be installed a minimum of 1000 feet in advance of cold milled sections and remain in place until the sections have been resurfaced.

The Contractor will notify businesses/homeowners a minimum of two weeks prior to construction to inform them of upcoming construction and again a minimum of 48 hours prior to any blocked access to make appropriate arrangements.

A mobile work operation will be allowed provided the rumble strip or rumble stripe grooving, flush sealing, and pavement marking can be completed satisfactorily by a continuously moving work operation. A mobile work operation will require approval by the Engineer.

If inappropriate or conflicting pavement markings exist, the markings will be removed and replaced with applicable temporary pavement markings when the work duration is more than 3 days. When the work duration is less than 3 days, the channelizing devices in the area where the pavement markings conflict will be placed at one-half of the normal channelizing device spacing. Pavement marking removals will be incidental to the contract price for TRAFFIC CONTROL, MISCELLANEOUS. Temporary pavement marking will be paid for at the contract unit price per mile/foot for "TEMPORARY PAVEMENT MARKING". The additional channelizing devices will be incidental to the contract lump sum price for "TRAFFIC CONTROL, MISCELLANEOUS".

Lane closures will be limited to 5 miles in length. The distance between the closest points of any two-lane closures will be at least 3 miles, excluding tapers.

FLAGGING

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

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on intersecting roads. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours. Also included in the Estimate of Quantities are WAIT FOLLOW PILOT CAR signs for use on low volume intersecting roads as determined by the Engineer. WAIT FOLLOW PILOT CAR signs will not block the view of the stop sign.



It is required that the flaggers and pilot car operators be able to communicate with one another. If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for FLAGGING.

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.

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.

INTERSECTING ROADS AND ENTRANCES

Intersecting roads and entrances will be satisfactorily cleared of vegetation, shaped, and compacted prior to placement of mainline surfacing. This work will be considered incidental to other contract items. Separate measurement and payment will not be made.

In areas where granular material has been placed adjacent to the existing asphalt concrete, the Contractor will be required to remove the granular material to a depth below the existing asphalt concrete to allow for the placement of the new asphalt concrete. New asphalt concrete will be placed flush with the existing asphalt concrete. The existing granular material removed will be placed on the entrances, intersecting roads or other locations as directed by the Engineer.

All costs to remove and place the granular material including labor, equipment and incidentals will be incidental to the various related contract items.

SHOULDER CLEARING

Prior to cold milling or asphalt concrete resurfacing, SDDOT personnel will mow and/or spray the shoulders to kill existing vegetation.

Vegetation and accumulated material on or adjacent to the existing roadway edge will be removed by the Contractor, to the satisfaction of the Engineer, prior to cold milling. Any remaining windrow of accumulated material will be spread evenly on the inslope adjacent to the asphalt shoulder, to the satisfaction of the Engineer, following application of the flush seal.

The Contractor will notify the Aberdeen Area Office at (605) 626-7885 at least two weeks prior to beginning work on this project so SDDOT personnel can spray along the shoulder and inslopes. The Department will not be responsible for the effectiveness of the spraying.

SHOULDER PREPARATION

From the Faulk/Potter County line, easterly 600 feet, up to the beginning of the project limits, the Contractor will remove salvage granular material from both shoulders to such a depth that will allow 3" of Asphalt Concrete. The removed material will become the property of the Contractor for their disposal. The Contractor may use removed granular material for field approaches, as approved by the Engineer.

Prior to placement of asphalt concrete on the shoulders of this section, the existing shoulder material will be watered and compacted until a uniform stable surface is obtained. Cost for this work, including removal of shoulder granular material, will be incidental to the contract unit price per mile for SHOULDER PREPARATION. Compaction will be to the satisfaction of the Engineer.

Water needed for compaction will be incidental to the contract unit price per mile for SHOULDER PREPARATION.

3" of Class Q3R Asphalt Concrete is to be placed on the shoulders at a top width of 3.5' and a bottom width of 6.0'. 110 tons of Q3R Asphalt Concrete have been added to the "Table of Additional Quantities."

COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 23. This value was obtained from testing during construction of the in-place asphalt concrete.

The placement of asphalt concrete will begin within 5 working days after completion of cold milling of mainline asphalt concrete.

Cold milling asphalt concrete will be done according to the typical section(s). 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 14152.7 tons of cold milled asphalt concrete material. An estimated 10704.7 tons 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 will become the property of the Contractor for disposal.

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.

TABLE OF IN PLACE MAINTENANCE PATCHES (For Information Only)

MRM	to	MRM	Length (Ft)
246.33		246.36	145
247.60		247.63	135
247.81		247.84	170
248.30		248.37	340
250.16		250.19	165
250.32		250.35	155
250.61		250.64	150
255.08		255.10	100
256.07		256.11	200
257.35		257.41	330
257.45		257.48	185
257.53		257.57	195
258.70		258.72	120
260.32		260.34	150
261.45		261.48	150
263.15		263.18	140
263.38		263.43	260
264.02		264.08	280
265.58		264.66	390
265.81		265.91	610
Total:			4370

TABLE OF CULVERT DIPS (For Information Only)

Culvert Station	Length (Ft)
96+97	65
125+67	90
148+66	70
271+73	55
435+88	40
466+52	140
509+17	45
561+63	65
651+42	50
690+64	60
706+02	45
765+05	45
776+58	60
819+63	50
968+60	60
981+48	45
1037+56	50
1043+31	60
1070+56	50
Total:	1145

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 Asphalt Concrete Composite and Base Course. The depth of asphalt will match the in-place thickness.

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts and 75 square yards of Remove Asphalt Concrete Pavement per mile for the removal of asphalt and unstable material throughout the project.

Included in the Estimate of Quantities are 100 tons of Base Course and 25 tons of Asphalt Concrete Composite per mile for backfill of Unclassified Excavation, Digouts.

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.

A copy of the surfacing/subgrade investigation for this project is available from the Aberdeen Region and Aberdeen Area offices.

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.

WATER FOR COMPACTION OF GRANULAR MATERIALS

Cost of water for compaction of the granular material will be incidental to the contract unit price for the various contract items. Six percent, plus or minus, moisture will be required at the time of compaction unless otherwise directed 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.

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%.

FLEXIBLE PAVEMENT SMOOTHNESS PROVISION

All sections, not excluded by the Special Provision for Flexible Pavement Smoothness, will be evaluated as two opportunities.

ASPHALT FOR TACK

Included in the Estimate of Quantities are 5.3 tons of SS 1h or CSS 1h Asphalt for Tack for surface repair, strengthening, and spot leveling areas throughout the project. (Rate = 0.06 Gal./ Sq.Yd.).

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 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

All remaining requirements for Class Q3 will apply.

ADDITIONAL QUANTITIES

Included in the Estimate of Quantities are 100 tons of Class Q3R Asphalt Concrete and, 1.0 tons of Hydrated Lime of Asphalt concrete and 4.7 tons of PG 58-34 Asphalt Binder per mile for spot leveling, strengthening, and repair of the existing surface throughout the project. This material will be placed where and as directed 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.

SAND FOR FLUSH SEAL

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

TABLE OF SUPERELEVATION

Station	to	Station	
6+00		350+84.32	- Normal Crown Section
350+84.32		352+24.32	- Superelevation Transition
352+24.32		365+90.85	- 5730' Radius Curve Right 0.03'/' Superelevation Rate Point of Rotation at Centerline
365+90.85		367+30.85	- Superelevation Transition
367+30.85		483+54.44	- Normal Crown Section
483+54.44		484+99.44	- Superelevation Transition
484+99.44		494+65.08	- 5500' Radius Curve Right 0.032'/' Superelevation Rate Point of Rotation at Centerline
494+65.08		496+10.08	- Superelevation Transition
496+10.08		535+93.11	- Normal Crown Section
535+93.11		538+93.11	- Superelevation Transition
538+93.11		548+14.64	- 2865' Radius Curve Left 0.05'/' Superelevation Rate Point of Rotation at Centerline
548+14.64		551+14.64	- Superelevation Transition
551+14.64		1073+32.22	- Normal Crown Section
1073+32.22		1076+82.22	- Superelevation Transition
1076+82.22		1084+94.87	- 1950' Radius Curve Right 0.06'/' Superelevation Rate Point of Rotation at Centerline
1084+94.87		1088+44.87	- Superelevation Transition
1088+44.87		1120+04.46	- Normal Crown Section
1120+04.46		1123+54.46	- Superelevation Transition
1123+54.46		1131+24.37	- 1900' Radius Curve Left 0.06'/' Superelevation Rate Point of Rotation at Centerline
1131+24.37		1134+74.37	- Superelevation Transition
1134+74.37		1146+00	- Normal Crown Section

REFURBISH MAILBOXES

Existing mailboxes will be removed, turnouts constructed, and mailboxes reset on new posts with the necessary support hardware for single or double mailbox assemblies (See Standard Plate No's. 900.02 and 900.03). The local Postmaster will determine the recommended mounting height of the mailboxes throughout the project. The Contractor will coordinate with the Engineer on the proper postal representative to contact.

TABLE OF MAILBOXES

Location		SINGLE MAILBOX EACH	ACTION NEEDED
MRM	SIDE		
256.00+0.86	Lt	1	Remove and Reset
258.00+0.98	Lt	1	Remove and Reset
260.00+0.08	Lt	1	Refurbish
TOTALS		3	

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts and necessary support hardware will be incidental to the contract unit price per each for REMOVE AND RESET MAILBOX and REFURBISH SINGLE MAILBOX.

RUMBLE STRIPE/STRIP ROADWAY CLEANING

The Contractor will be required to remove loose material from the driving surface and/or asphalt shoulders. Loose material may be broomed to the edge of shoulders and it will be the Contractor's responsibility to ensure the loose material does not enter any vegetated areas and/or waterways. A pick-up broom will not be required.

All costs associated with this work will be incidental to the contract unit price per mile for and/or GRIND 12" RUMBLE STRIP OR STRIPE IN ASPHALT CONCRETE or GRIND CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE or GRIND SINUSOIDAL CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE.

GRIND RUMBLE STRIPS IN ASPHALT CONCRETE

Asphalt concrete rumble strips will be constructed on the shoulders. 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 42 miles of asphalt concrete rumble strips will be required.

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 12" rumble strips at a width of 18" 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.

Table of 12" Rumble Strips on Shoulders

	12" Rumble Strips
Station to Station:	6+00.0 to 1114+60.0
Total:	221720 ft
	42.0 mi

*Edgeline Rumble Strips will be installed along the full project's length. (With flush seal application rate of 0.05 gal./sq.yd.)

GRIND SINUSOIDAL CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

Sinusoidal rumble stripes will be constructed on the centerline, as detailed in the plan set. Sinusoidal rumble stripes will be paid for at the contract unit price per mile for Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete. It is estimated that 2.7 miles of sinusoidal rumble stripes will be required.

CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

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 sinusoidal 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.

TABLE OF 12" CENTERLINE RUMBLE STRIPS

	<u>Traditional, 12"</u>	<u>Sinusoidal, 12"</u>
Station to Station:	6+00.0 to 148+50.0	148+50.0 to 187+90.0
	187+90.0 to 621+00.0	621+00.0 to 642+50.0
	642+50.0 to 735+00.0	735+00.0 to 758+50.0
	758+50.0 to 791+50.0	791+50.0 to 807+50.0
	807+50.0 to 834+50.0	834+50.0 to 856+50.0
	856+50.0 to 1093+50.0	1093+50.0 to 1114+60.0
Total:	96510 ft	14350 ft
	18.3 mi	2.7 mi

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./sq.yd on the centerline rumble stripes. Included in the estimate of additional quantities is 5.2 Tons of SS-1h or CSS-1h Asphalt for Flush Seal to cover this additional width.

MARKINGS WITHIN SINUSOIDAL CENTERLINE RUMBLE STRIPES

The sinusoidal centerline rumble stripes are recessed below the pavement surface, so pavement marking grooving will not be required at these locations.

Retroreflectivity readings will not be taken for pavement markings within the sinusoidal rumble stripe. Restriping of pavement markings to meet the specified application rate requirements and to provide a quality retroreflective line will be at the expense of the Contractor with no additional cost to the Department. Sections to be restriped will be determined by the Engineer.

TEMPORARY PAVEMENT MARKINGS

Temporary flexible vertical markers (tabs) will be installed on one side of the centerline rumble for the temporary pavement marking. No passing zones will be marked in accordance with Specifications. DO NOT PASS (R4-1) and PASS WITH CARE (R4-2) signs will also be used in addition to the temporary flexible vertical markers (tabs) placed per Specifications to mark no passing zones.

The total length of no passing zone on this project is estimated to be **5.1** miles.

Quantities of Temporary Pavement Markings consist of:

- One pass on top of the milled surface
- One pass on the Blade Laid lift of asphalt concrete
- One pass on Class Q3R lift of asphalt concrete
- One pass on Flush Seal

It is estimated that 37 DO NOT PASS and 37 PASS WITH CARE signs will be required.

Temporary pavement marking paint will not be allowed on the final lift of asphalt surfacing. Temporary pavement marking paint will not be allowed on the flush seal. The Contractor may use tabs with covers, uncovering them for the flush seal. As an alternative, the Contractor may install new tabs for the fog seal or flush seal.

Covers on the tabs will be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers will be properly disposed of. The Contractor will remove and properly dispose of the tabs after permanent pavement marking is applied. Method of removal will be nondestructive to the road surface and will be accomplished within one week of completion of the permanent pavement marking.

Full reflectivity of all temporary flexible vertical markers (tabs) is required at all times. The Contractor will be required to replace any missing or non-reflective tabs after each installation as detailed below at no additional cost to the State.

If the Engineer determines that an additional pass prior to the flush seal is not required, this application of the temporary pavement marking will be eliminated. If the flush seal is eliminated for the project, the application of the temporary pavement marking on top of the flush seal as well as the additional pass prior to the flush seal will be eliminated.

No adjustment in the contract unit price for "Temporary Pavement Marking" will be made because of a variation in quantities.

In the absence of a signed lane closure or pilot car operation, FLAGGER (W20-7) symbol signs and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights will be positioned on the shoulder in advance of workers for both directions of traffic during the installation and removal of the temporary flexible vertical markers (tabs). The traffic control device used will be moved intermittently to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1) sign, a WORKER (W21-1) symbol sign or a BE PREPARED TO STOP (W3-4) sign will be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work must be approved by the Engineer.

Prior to nightfall, tabs will be required to mark centerline on segments of roadway where existing centerline markings have been removed and new markings have not been installed.

PERMANENT PAVEMENT MARKING

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

The application of permanent pavement marking will begin no sooner than 7 calendar days following completion of the fog or flush seal. Application of permanent pavement marking will be completed within 14 calendar days following completion of the final surfacing.

Traffic control will be incidental to the cost of application. The striper and advance or trailing warning vehicle will be equipped with flashing amber lights or advance warning arrow panel.

WHITE HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

All materials will be applied as per manufacturer's recommendations. High build waterborne pavement marking paint will conform to the supplemental specifications for Section 980.1 B.

Reflective media will consist of glass beads. Reflective media will require a Certificate of Compliance for Certification for each source and lot. Acceptance sampling will not be required.

YELLOW HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

All materials will be applied as per manufacturer's recommendations. High build waterborne pavement marking paint will conform to the supplemental specifications for Section 980.1 B.

Reflective media consisting of glass beads as well as bonded core reflective elements will be adhered to the paint.

The bonded core reflective elements will contain either clear or yellow tinted microcrystalline ceramic beads bonded to the outer surface. The bonded core reflective elements will provide a 50/50 blend of dry to wet ratio of reflective element. All microcrystalline ceramic beads bonded to reflective elements will have a minimum index of refraction of 1.8 for dry retroreflectivity and 2.4 for wet retroreflectivity when tested using the liquid oil immersion method.

Reflective media will require a Certificate of Compliance for Certification for each type, source, and lot. Acceptance sampling will not be required.

The Department will take retroreflectivity readings on the pavement marking lines no sooner than 3 days and no later than 30 days after the completion of all line applications required for an individual highway route using a portable retroreflectometer conforming to 30-meter geometry. Retroreflectivity readings will be taken on a test location with cleaning being limited to light hand brooming.

Pavement markings not conforming to the retroreflectivity requirements will be removed and replaced. If replacement of markings cannot be applied within the same year, the Contractor will schedule subject work to be completed no later than June 15th in the following year. Upon replacement, the retroreflectivity testing process will be done again requiring new readings.

The Department will randomly select one test location per mile of each edge line including ramps and one test location per mile of centerline (solid and/or skip line will be considered as one centerline). Three retroreflectivity readings will be taken at each test location. The three readings will be averaged and become the reading for that test location.

Initial readings:

Pavement Marking Color	Minimum Value
White	350 mc/m ² /lux
Yellow	275 mc/m ² /lux

All pavement markings not conforming to the requirements provided in these plans will be considered deficient and will be removed and replaced. Additional retroreflectivity readings will be taken by the Department to determine the limits of removal. The removal will be accomplished using suitable sand blasting or grinding equipment unless the Engineer authorizes other means. The removal process will remove at least 90% of the deficient line, with no excessive scarring of the existing pavement. The removal width will be one inch wider all around the nominal width of the pavement marking to be removed. Removal and replacement of the pavement markings will be at the Contractor's expense, with no cost incurred by the State.

RATES OF MATERIALS FOR WHITE HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4" line = 22.5 Gals/Mile
Dashed 4" line = 6.2 Gal/Mile
Glass Beads = 8 Lbs/Gal.

All cost for materials, labor and equipment necessary to furnish and install the pavement markings will be incidental to the contract unit price for the respective High Build Waterborne Pavement Marking Paint items.

RATES OF MATERIALS FOR YELLOW HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT WITH REFLECTIVE ELEMENTS

Solid 4" line = 27.8 Gals/Mile
Dashed 4" line = 7.6 Gal/Mile
Glass Beads = 5.3 Lbs/Gal.
Composite Reflective Elements = 2.1 Lbs/Gal.

All cost for materials, labor and equipment necessary to furnish and install the pavement markings will be incidental to the contract unit price for the respective High Build Waterborne Pavement Marking Paint items.

RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT

The Department may take retroreflectivity readings on the pavement marking lines after 2 days and within 30 days of the line application using either a portable or mobile retroreflectometer that conforms to 30-meter geometry. If the Department chooses to take retroreflectivity readings, three retroreflectivity readings will be taken on each line at each test location. The three readings will be averaged and become the reading for that test location.

If the Department chooses to take retroreflectivity readings, three readings will be taken on the edge lines and lane lines in the direction of application. For combination solid yellow and skip yellow lines for turn lanes and for centerline markings on two-way roadways, three readings will be taken in one direction, the reflectometer will be turned 180 degrees and three more readings will be taken. The six readings for the centerline markings will be averaged and become the test reading for that test location.

If the Department chooses to take readings, the minimum retroreflectivity values will be 275 mc/m²/lux for white and 170 mc/m²/lux for yellow.

GROOVING FOR COLD APPLIED PLASTIC PAVEMENT MARKING

The Contractor will establish a positive means for the removal of the grinding and/or grooving residue. Residue from dry grooving will be vacuumed. Solid residue will be removed from the pavement surfaces before being blown by traffic action or wind. The Contractor will conduct this work to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or nuisance to property owners. Residue from wet grooving will not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, will be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state. The cleaning of the residue for grooving will be to the satisfaction of the Engineer and may require more than one pass to adequately remove material. All costs for removal of grinding and/or grooving residue will be included in the contract unit price per foot, square foot, or each for GROOVING FOR COLD APPLIED PLASTIC PAVEMENT MARKING contract items.

GROOVING TABLE

ITEM	LOCATION	QUANTITY
Cold Applied Plastic Pavement Marking, Arrows	SD 47 Intersection	3 Each
Cold Applied Plastic Pavement Marking, 24" Yellow	SD 47 Intersection	151 Ft
Cold Applied Plastic Pavement Marking, 24" White	SD 47 Intersection	15 Ft

COLD APPLIED PLASTIC PAVEMENT MARKING

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

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

Cold Applied Plastic Pavement Marking Table

ITEM	LOCATION	QUANTITY
Cold Applied Plastic Pavement Marking, Arrows	SD 47 Intersection	3 Each
Cold Applied Plastic Pavement Marking, 24"	SD 47 Intersection	151 Ft
Cold Applied Plastic Pavement Marking, 24" White	SD 47 Intersection	15 Ft

FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS

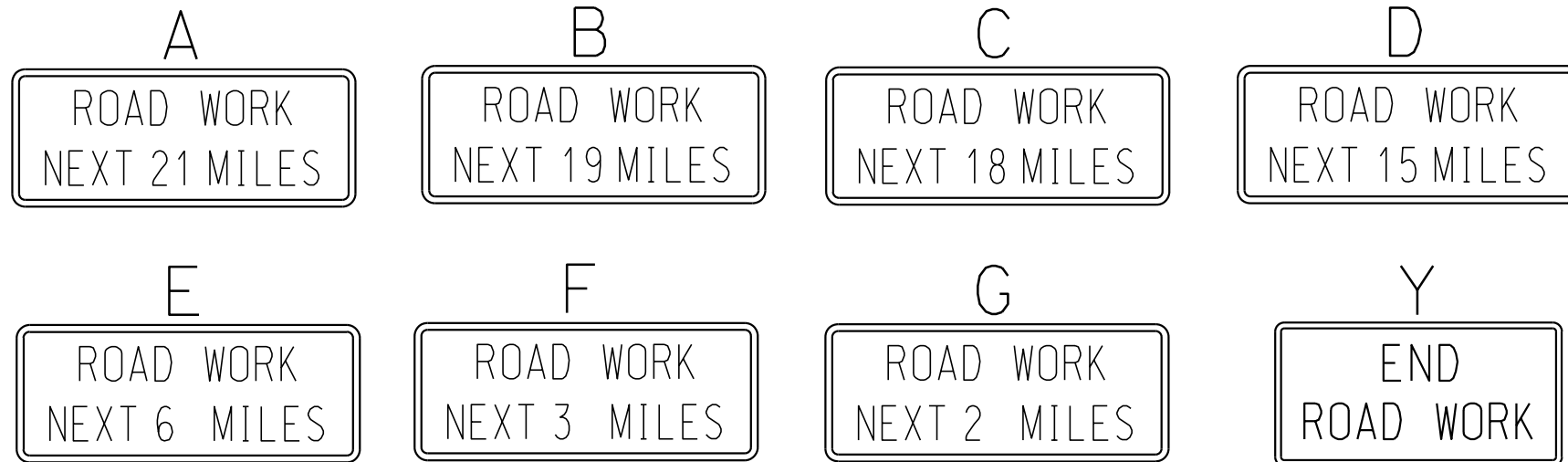
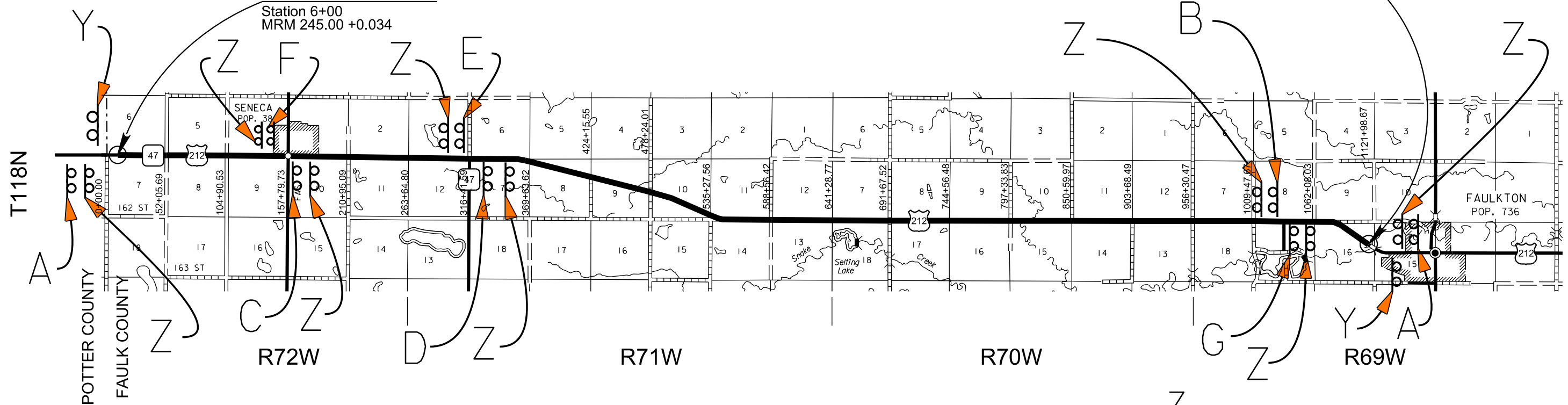
EXACT LOCATION OF SIGNS TO BE DETERMINED
IN THE FIELD BY THE ENGINEER.

END PROJECT

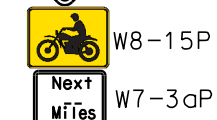
Station 1114+60.00
MRM 266.00 +0.036

BEGIN PROJECT

Station 6+00
MRM 245.00 +0.034

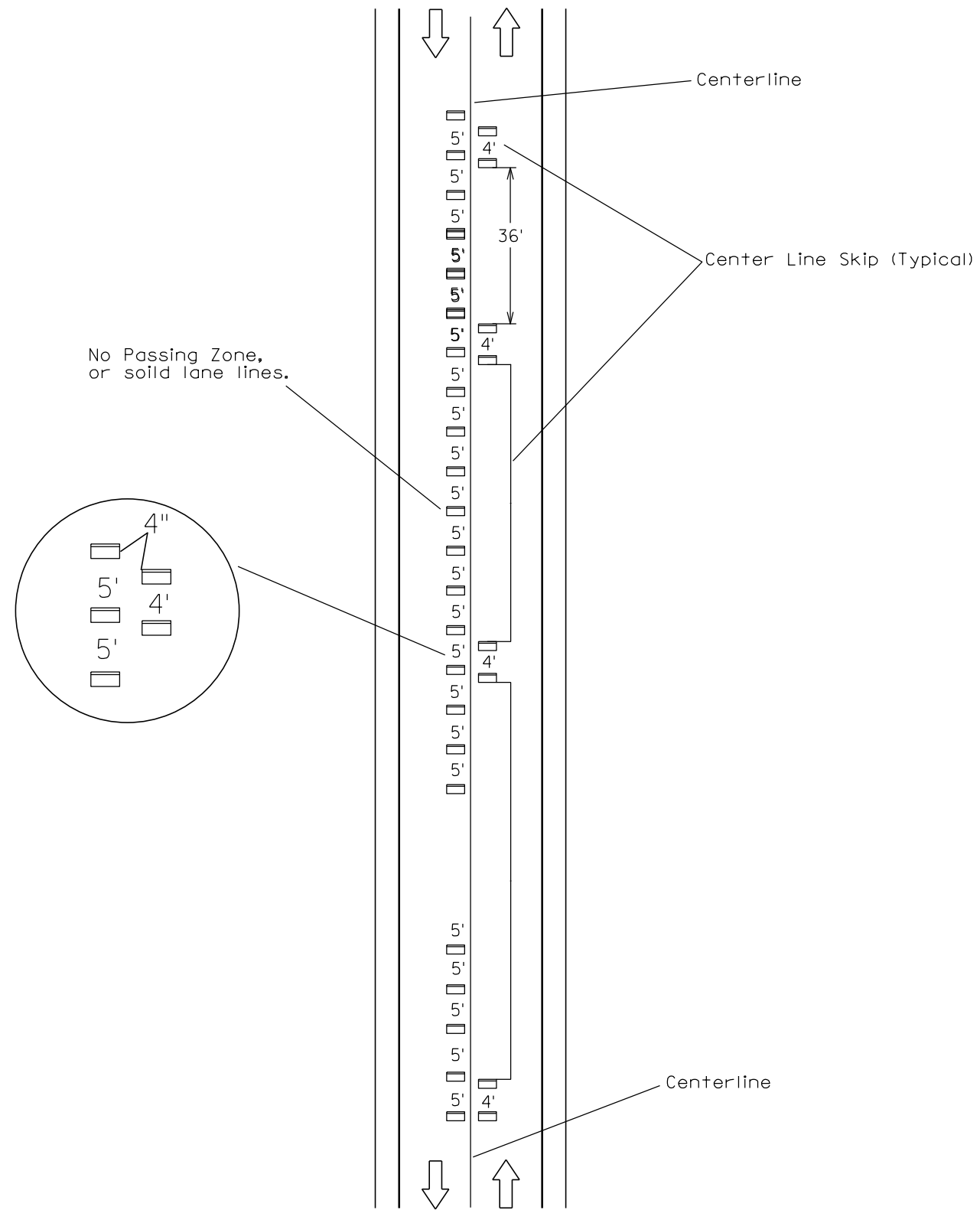


GROOVED PAVEMENT signs must only be visible when the condition exists. Signs will be covered or removed when the grooved road condition is not present.

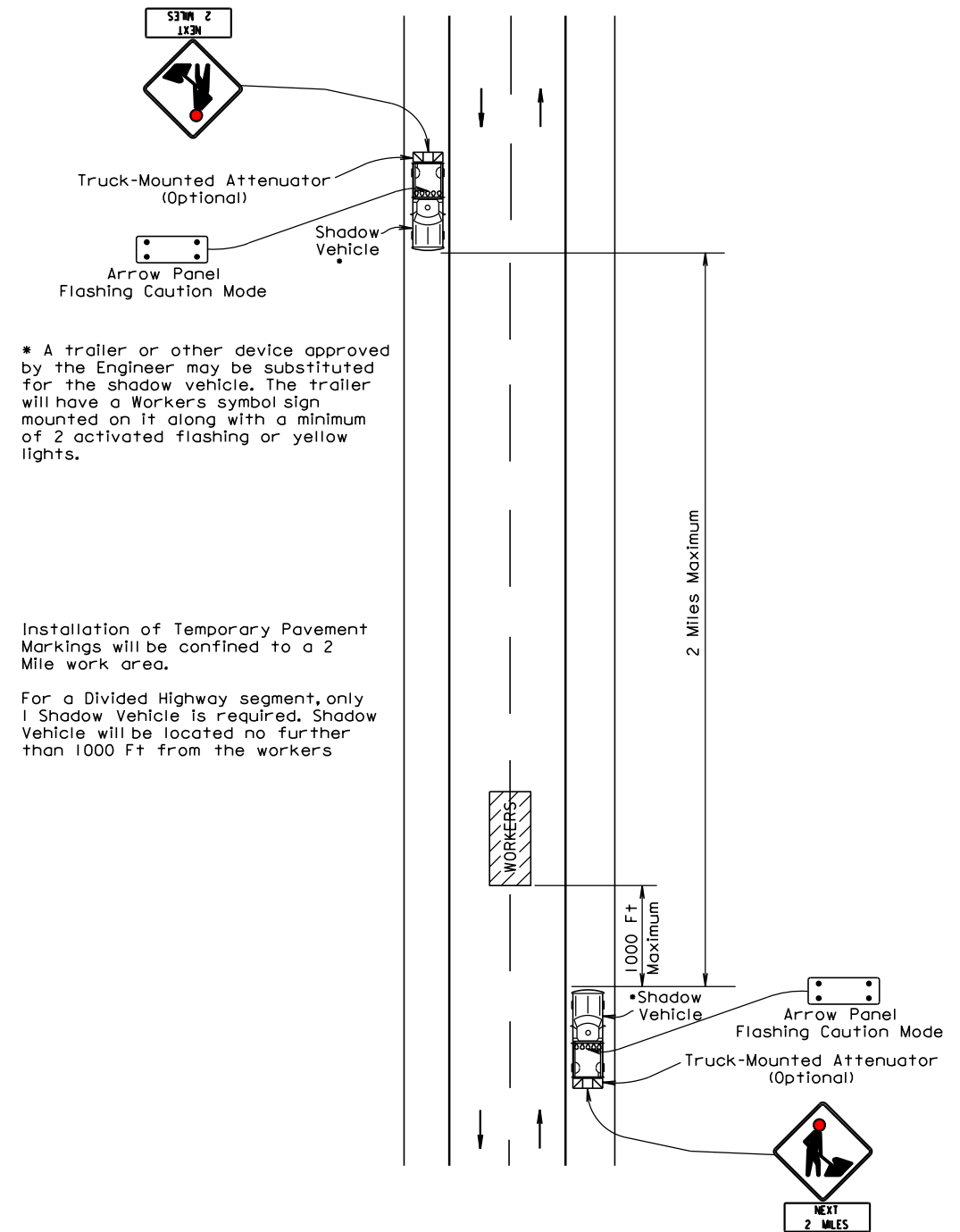


W20-1 ROAD WORK AHEAD signs will be mounted on portable supports, and will be placed on intersecting roadways as directed by the Engineer. ROAD WORK AHEAD signs will be moved as necessary to keep current with the work activities.

GUIDES FOR TRAFFIC CONTROL DEVICES TEMPORARY ROAD MARKER INSTALLATION



GUIDES FOR TRAFFIC CONTROL DEVICES APPLICATION OF TEMPORARY PAVEMENT MARKING TABS



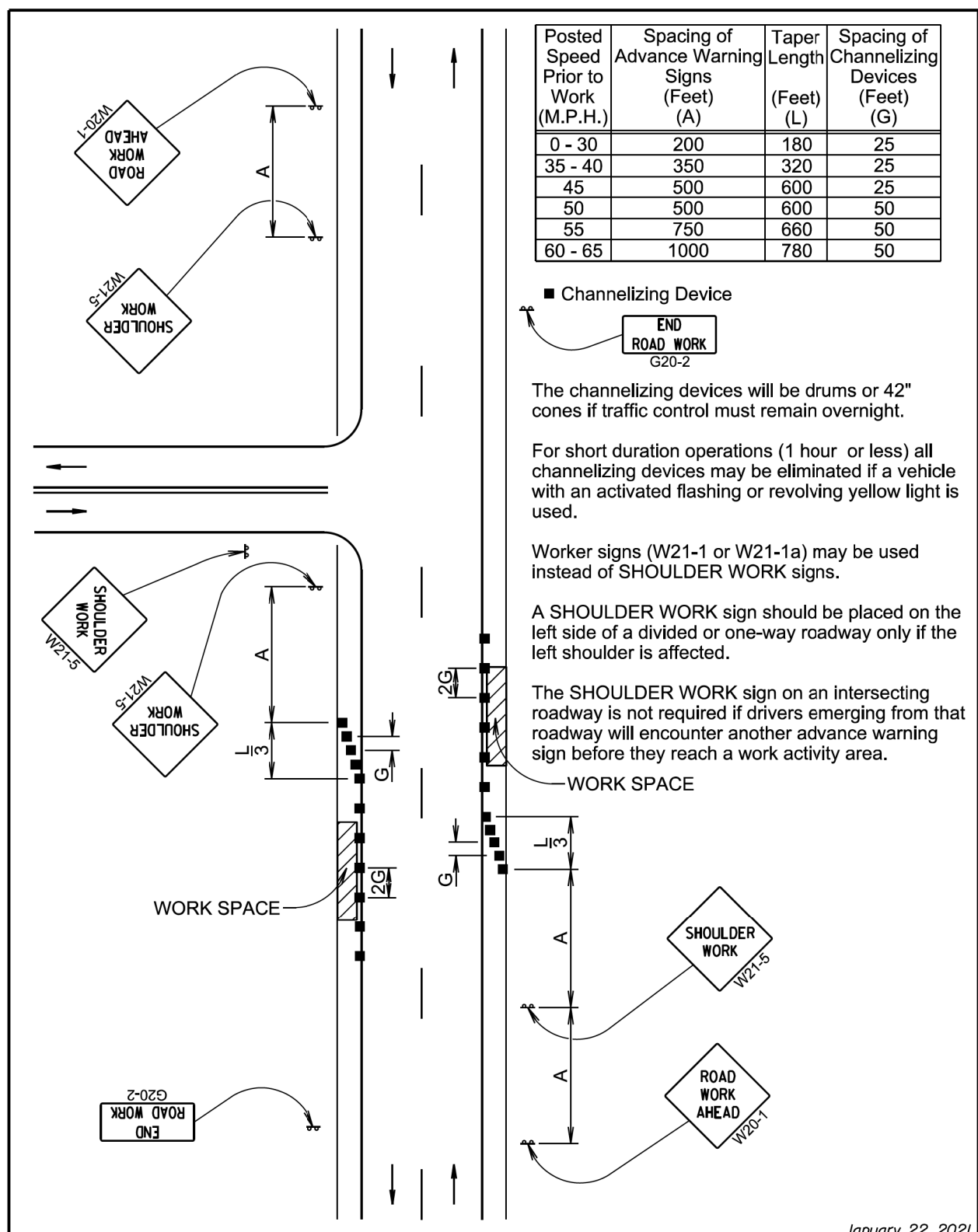
* A trailer or other device approved by the Engineer may be substituted for the shadow vehicle. The trailer will have a Workers symbol sign mounted on it along with a minimum of 2 activated flashing or yellow lights.

Installation of Temporary Pavement Markings will be confined to a 2 Mile work area.

For a Divided Highway segment, only 1 Shadow Vehicle is required. Shadow Vehicle will be located no further than 1000 Ft from the workers

PLOT SCALE - 1:200

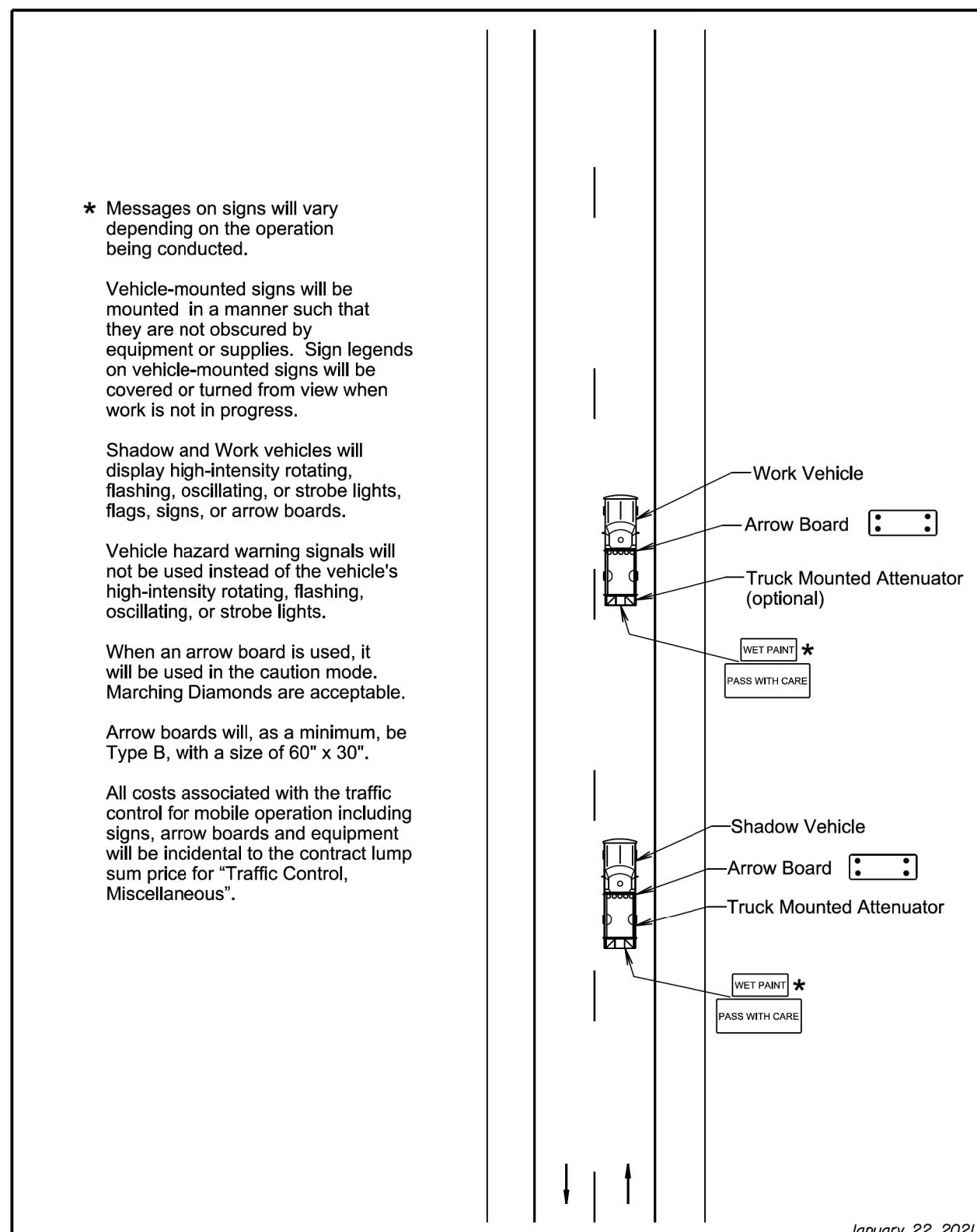
PLOT NAME - 4



January 22, 2021

S D D O T	WORK ON SHOULDERS	PLATE NUMBER 634.03
		Sheet 1 of 1

Published Date: 2024

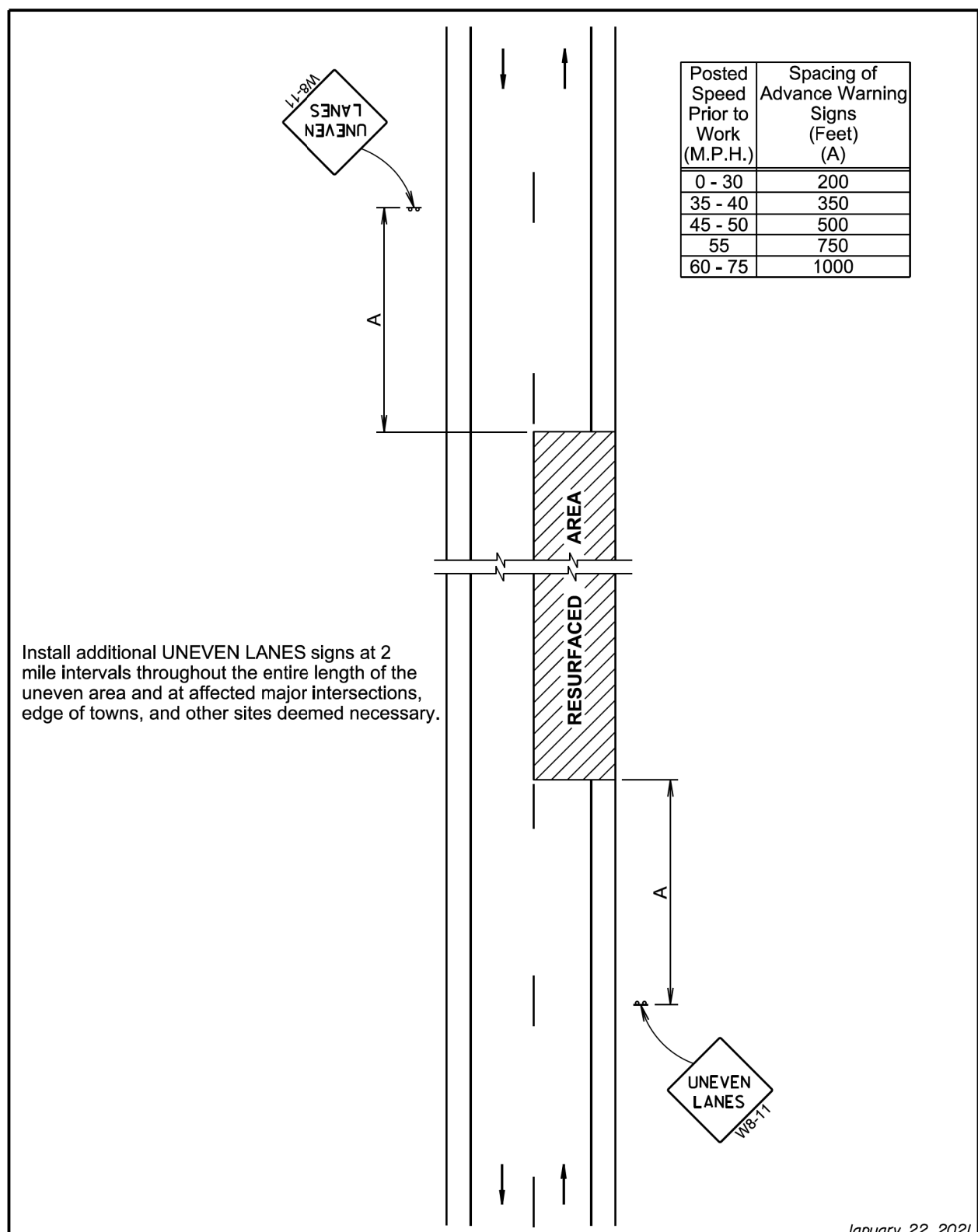


January 22, 2021

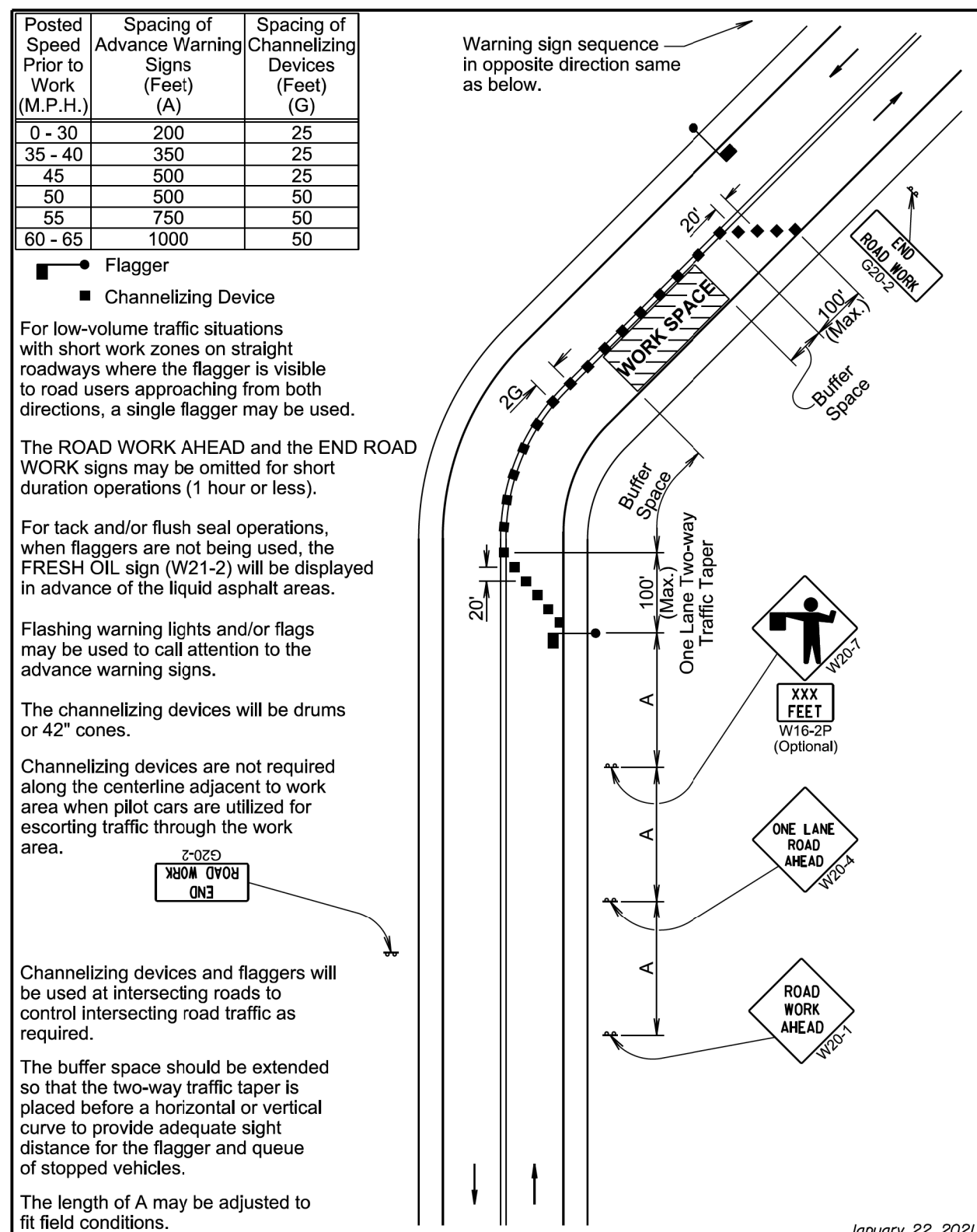
S D D O T	MOBILE OPERATIONS ON 2-LANE ROAD	PLATE NUMBER 634.06
		Sheet 1 of 1

Published Date: 2024

-PLOTTED FROM - TRAB17901



S D D O T	UNEVEN ROAD SURFACE	PLATE NUMBER 634.22
	Published Date: 2024	January 22, 2021



S D D O T	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
	Published Date: 2024	January 22, 2021

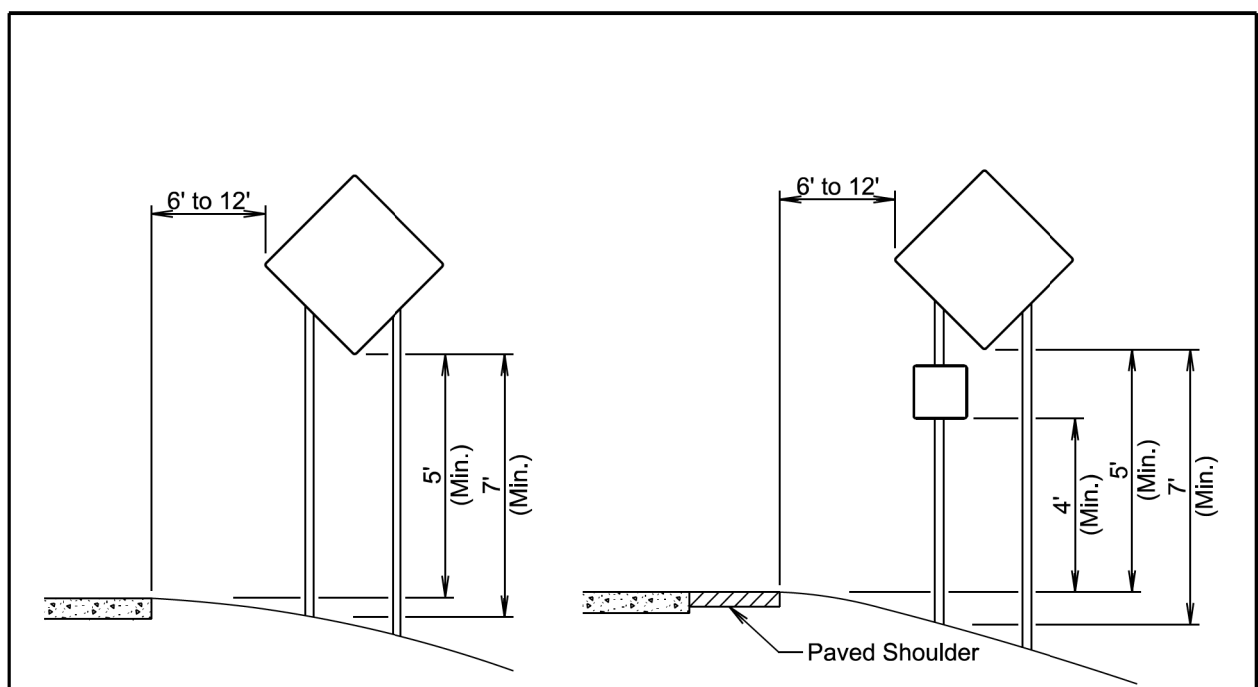
FILE ... \PRJ\FALK07XX\STD PLATES.DGN

PLOT NAME - 8

PLOT SCALE - 1:200

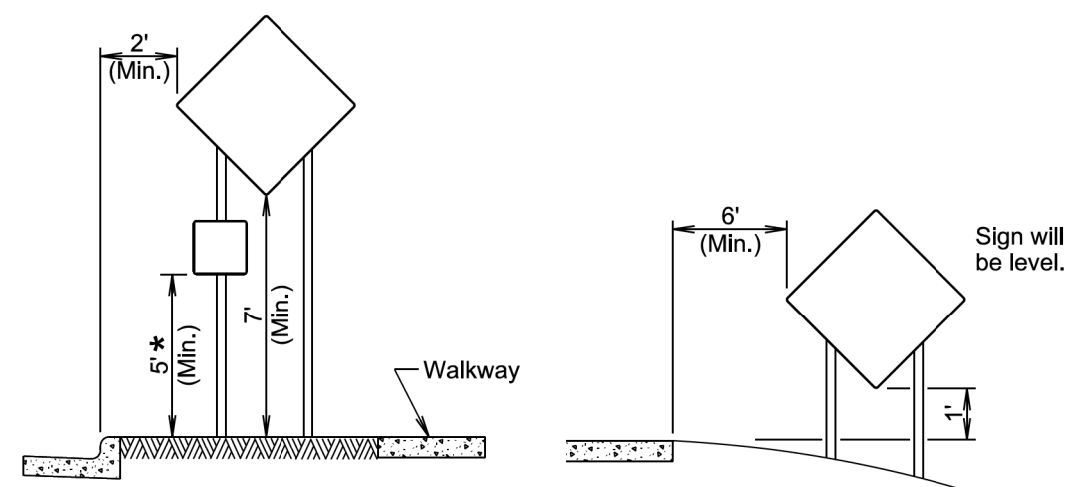
PLOT NAME - 10

FILE - ... \PRJ\FALK07X\STD PLATES.DGN



RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



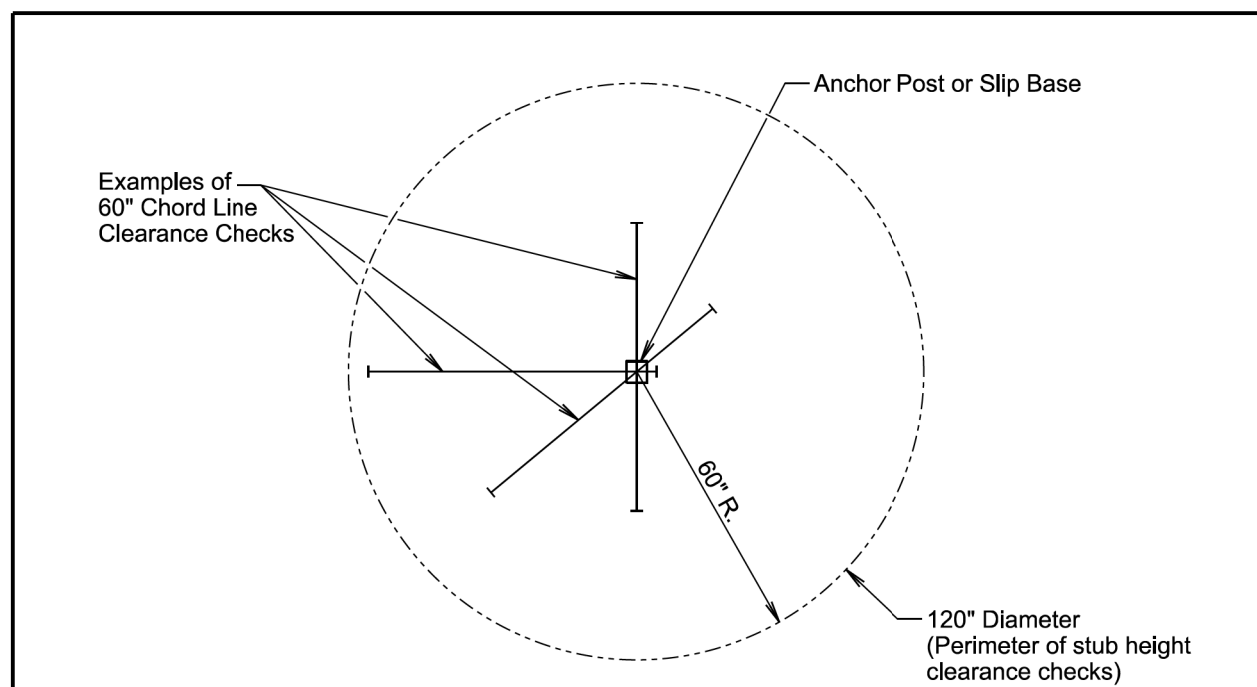
URBAN DISTRICT

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

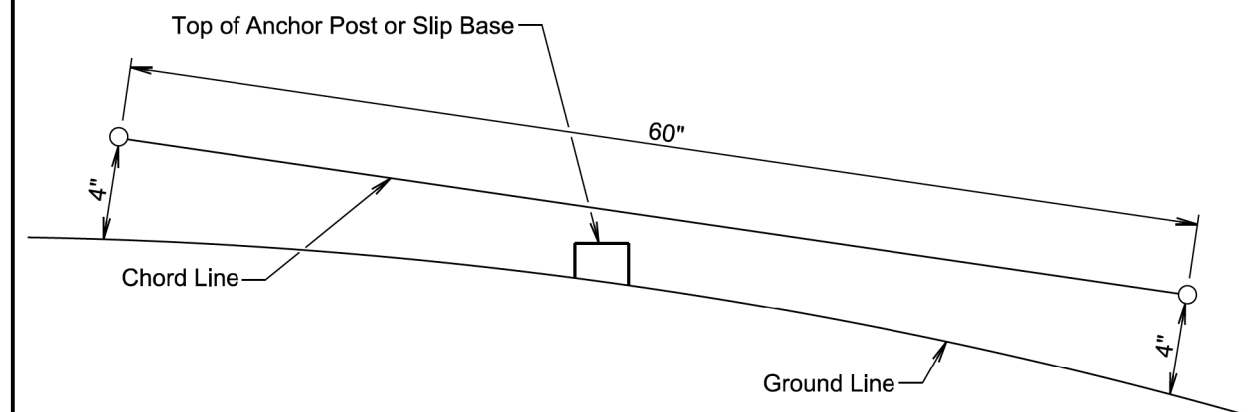
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2024	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

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

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

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

January 22, 2021

Published Date: 2024	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

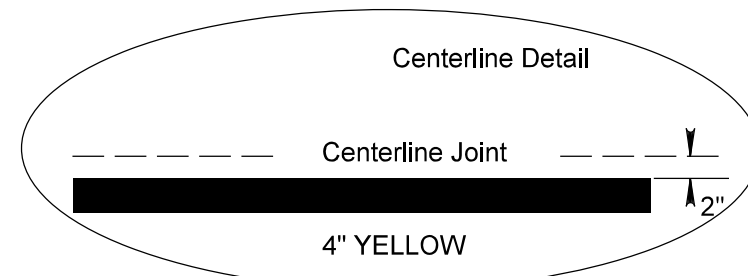
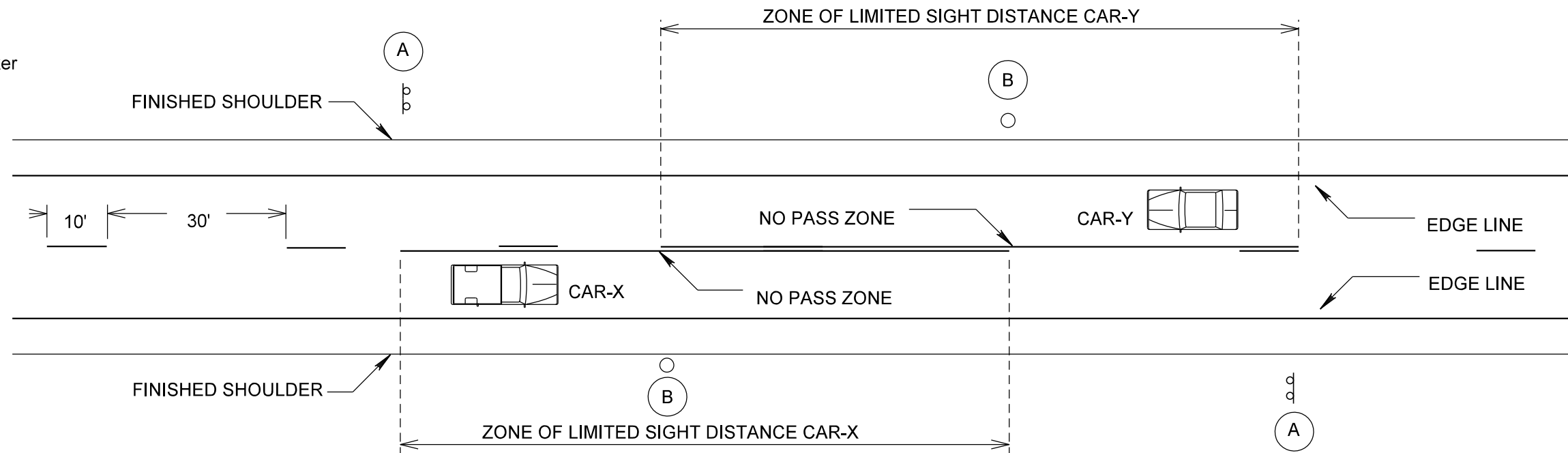
ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W7-3aP	NEXT ___ MILES (plaque)	8	36" x 30"	7.5	60.0
W8-1	BUMP	4	48" x 48"	16.0	64.0
W8-6	TRUCK CROSSING	4	48" x 48"	16.0	64.0
W8-7	LOOSE GRAVEL	2	48" x 48"	16.0	32.0
W8-11	UNEVEN LANES	4	48" x 48"	16.0	64.0
W8-15	GROOVED PAVEMENT	8	48" x 48"	16.0	128.0
W8-15P	MOTORCYCLE (plaque)	8	24" x 18"	3.0	24.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
W21-2	FRESH OIL	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
SPECIAL	WAIT FOLLOW PILOT CAR	4	30" x 18"	3.8	15.2
G20-1	ROAD WORK NEXT 21 MILES	2	36" x 18"	4.5	9.0
G20-1	ROAD WORK NEXT 19 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT 18 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT 15 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT 6 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT 3 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT 2 MILES	1	36" x 18"	4.5	4.5
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 752.2			

TYPICAL PAVEMENT MARKING LAYOUT

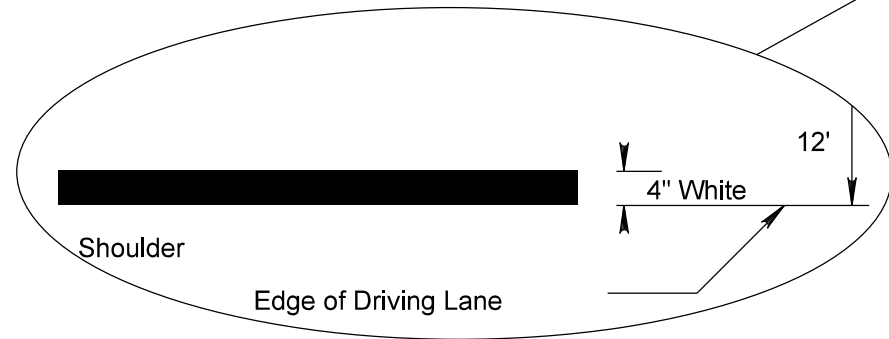
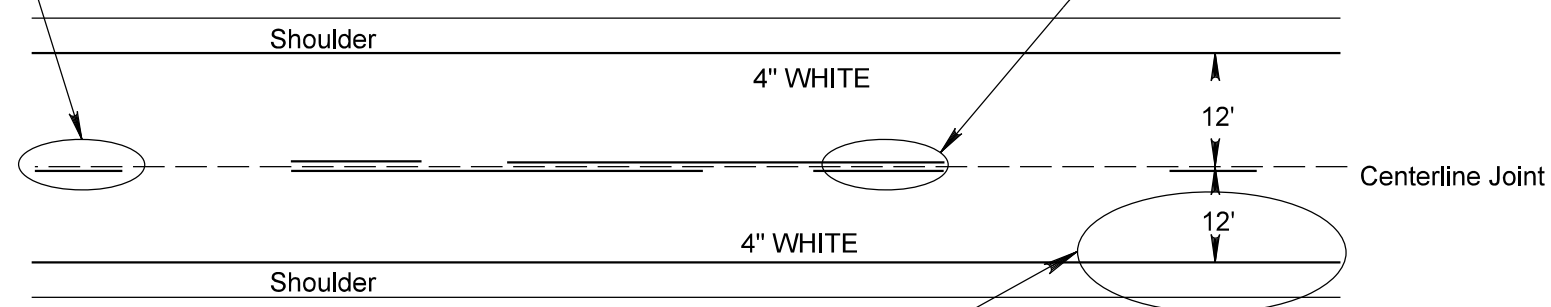
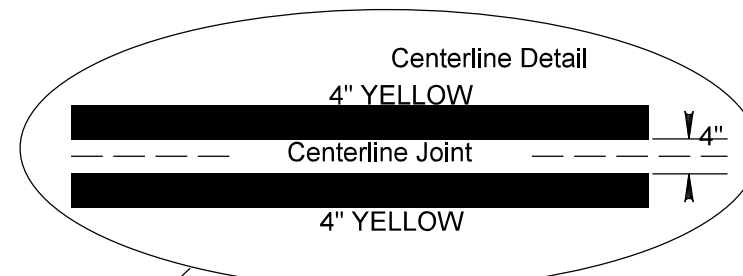


B End of Zone Marker



NOTE: A TWO "GUN" SYSTEM WILL BE USED TO OBTAIN THIS PATTERN.

WHEN A SINGLE SKIP LINE EXISTS, THE SKIP WILL BE PLACED TO THE SOUTH OR EAST OF THE CENTERLINE JOINT.

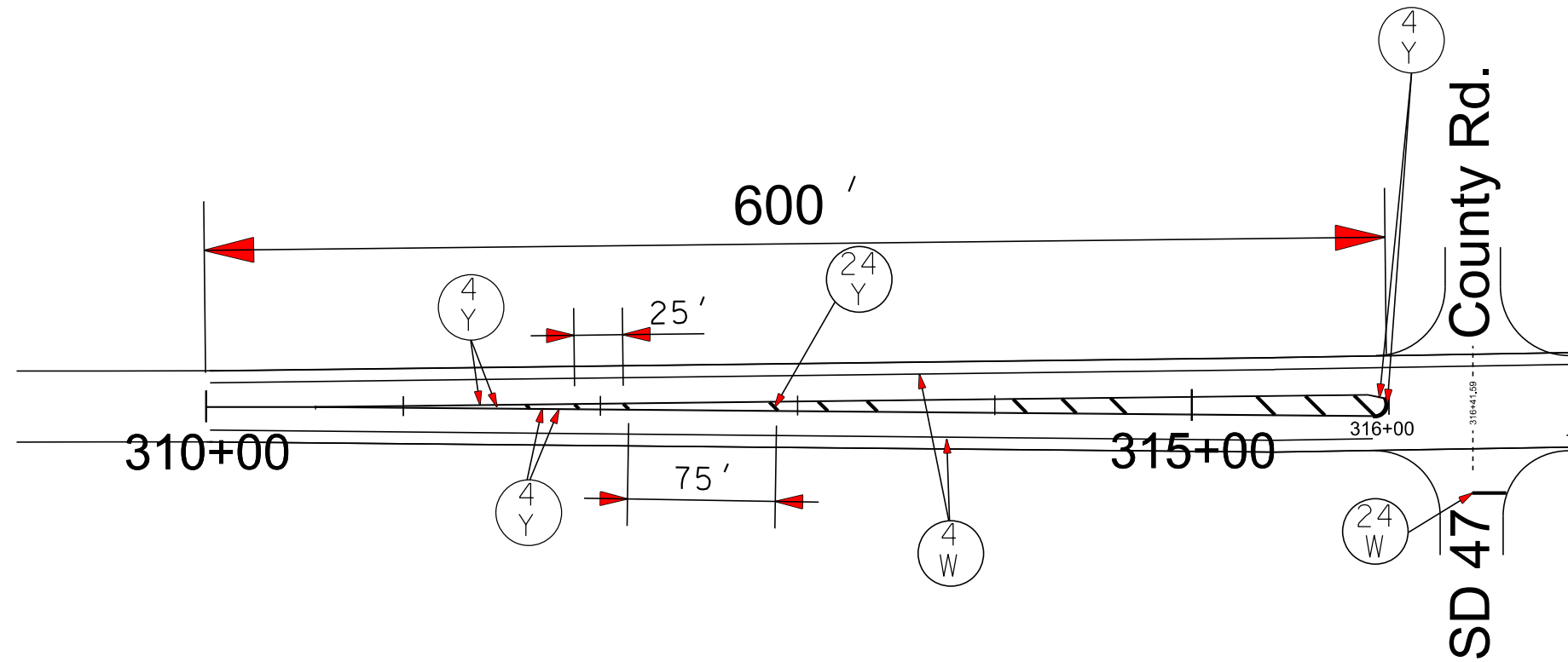


FURNISHING AND APPLYING HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT (some w/ Reflective Elements)

1. The typical pavement markings as shown on this sheet will be applied throughout the entire length of the project.
2. Exact location of the NO PASSING ZONE lines will be determined in the field by the Engineer. A dash of white paint will mark the beginning and end of all no passing zones. NO PASSING ZONE signs and the ending post in fence lines, if present, will not be used as the beginning and ending NO PASSING ZONE lines.
3. Traffic Control will be incidental to the cost of application. The striping and advance or trailing warning vehicle will be equipped with flashing amber lights or advance warning arrow panel.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0212 (204) 245	32	38
Plotting Date: 05/13/2024			

SD 47 Intersection Pavement Marking Layout

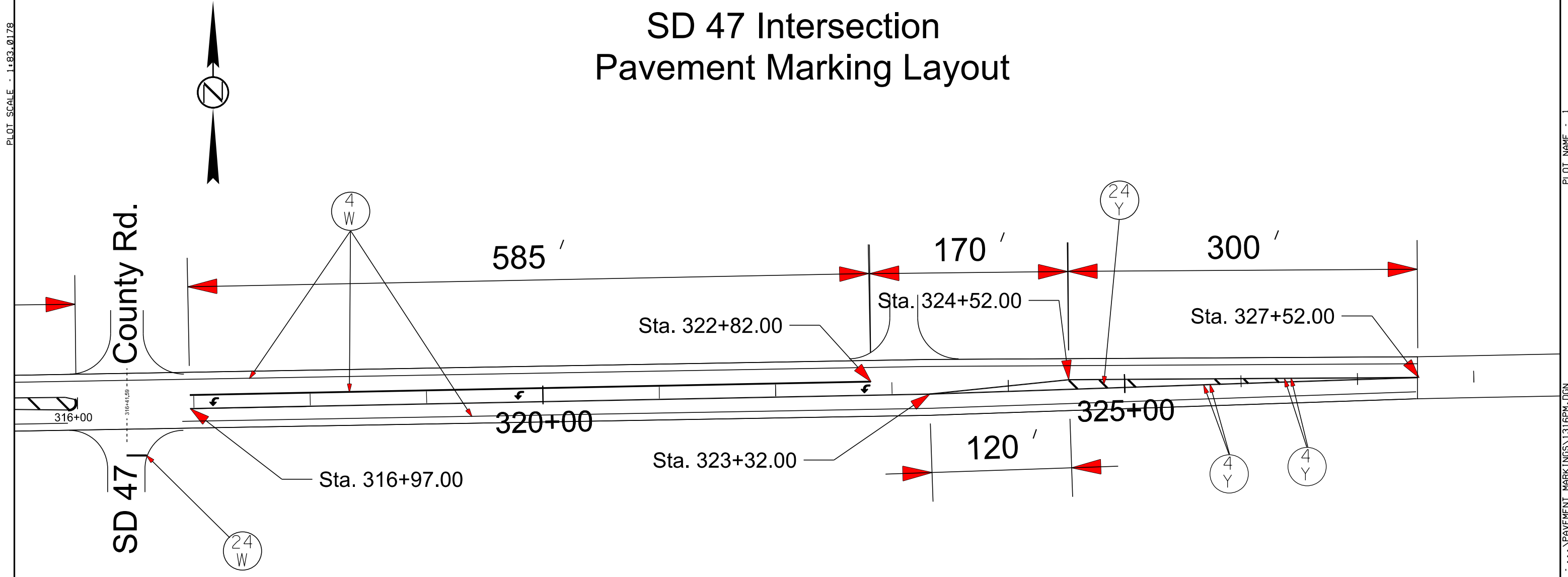


-  24" White Cold Applied Plastic Pavement Marking
-  24" Yellow Cold Applied Plastic Pavement Marking
-  4" High Build Waterborne Pavement Marking Paint, White
-  4" High Build Waterborne Pavement Marking Paint, Yellow
-  Cold Applied Plastic Pavement Marking, Arrow

SD 47 Intersection Pavement Marking Layout

PLOT SCALE - 1:83.0178

PLOT NAME - 1



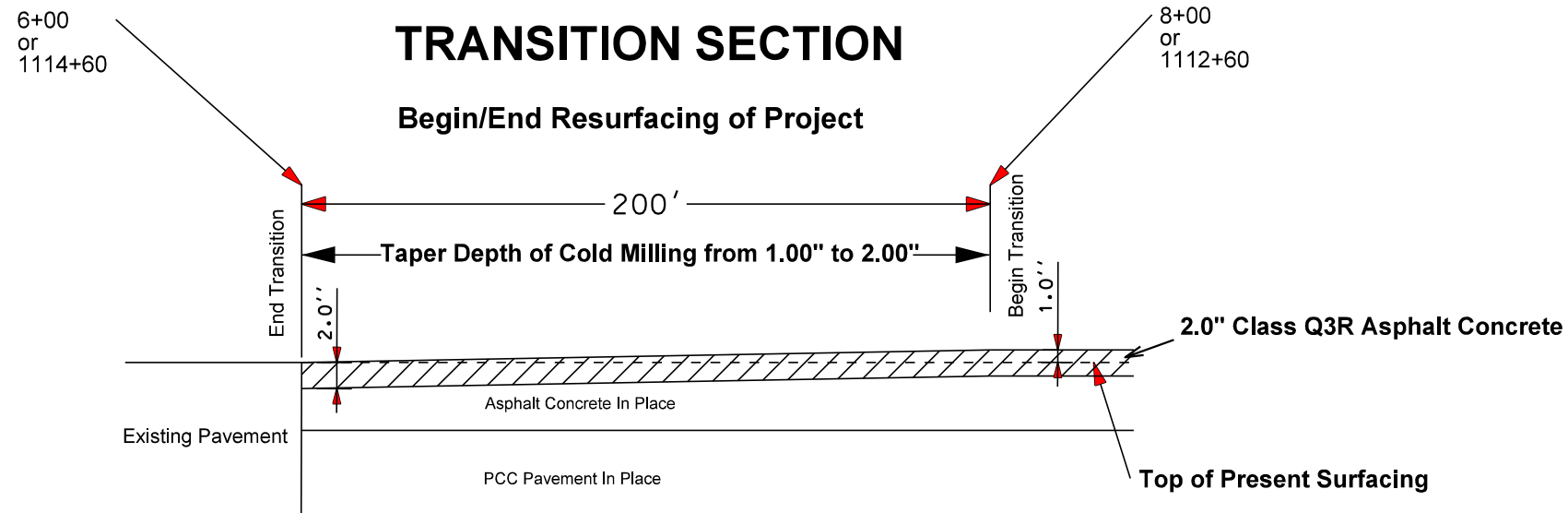
ESTIMATE OF QUANTITIES - Hwy 212 & SD 47 Intersection			
KEY	ITEM	EST QUANT	UNIT
(24 Y)	Cold Applied Plastic Pavement Marking, 24" Yellow	151	Feet
(24 W)	Cold Applied Plastic Pavement Marking, 24" White	15	Feet
↖	Cold Applied Plastic Pavement Marking, Arrow	3	Each
	Grooving for Cold Applied Plastic Pavement Marking, 24" Yellow	151	Feet
	Grooving for Cold Applied Plastic Pavement Marking, 24" White	15	Feet
	Grooving for Cold Applied Plastic Pavement Marking, Arrow	3	Each

PLOTTED FROM - TRAB17901

FILE - ... \PAVEMENT MARKINGS\1316PM.DGN

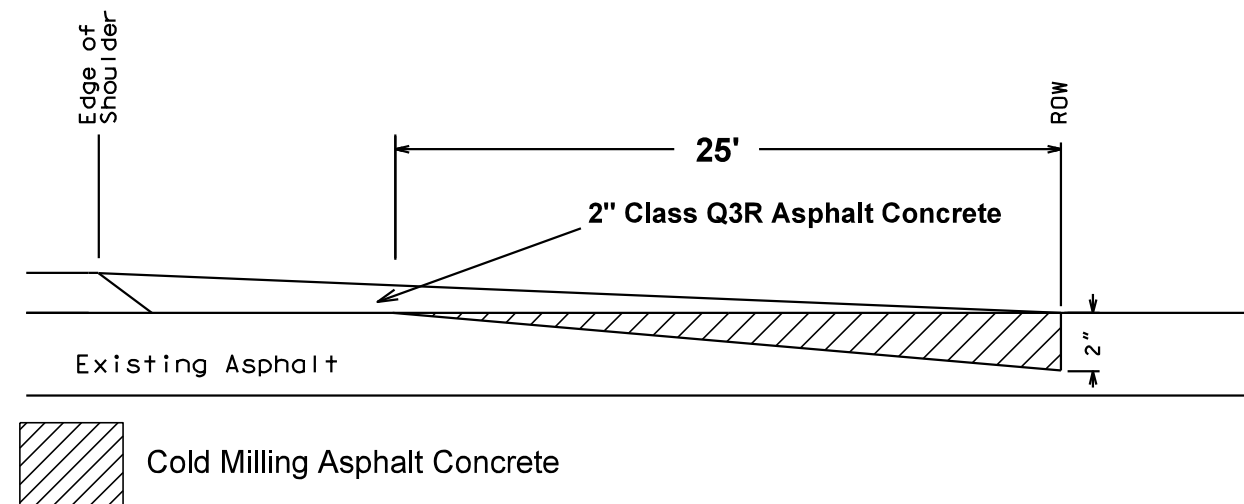
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0212(204)245	34	38
Plotting Date: 05/13/2024			

TRANSITION DETAILS FOR PROJECT LIMITS



TRANSITION DETAILS FOR INTERSECTING ROADS

Intersecting Roads
Sta. 157+85 Rt.
Sta. 316+42 Rt.
Sta. 1027+79 Rt.



Notes: Width of Cold Milling Asphalt Concrete will match adjacent surfacing width.

Quantities are Included in the Table of Additional Quantities for these Intersecting Roads for Cold Milling Asphalt Concrete. Basis of payment will be plans quantity regardless of width of the Intersecting Roads.

PLOT SCALE - 1:28000

PLOTTED FROM - TRAB17901

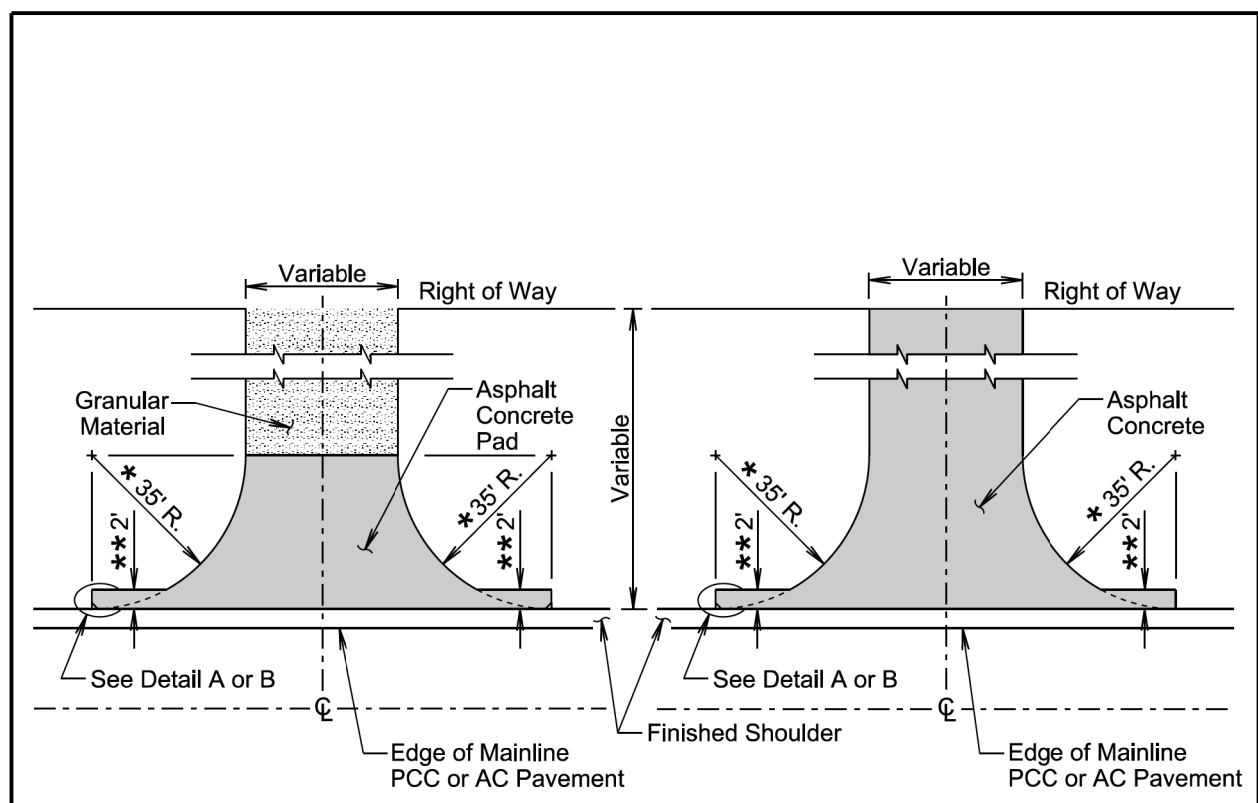
PLOT NAME - 1

FILE - ... \07YX COLD MILLING DETAILS.DGN

Plotting Date: 04/11/2024

PLOT SCALE - 1:200

PLOT NAME - 10



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:

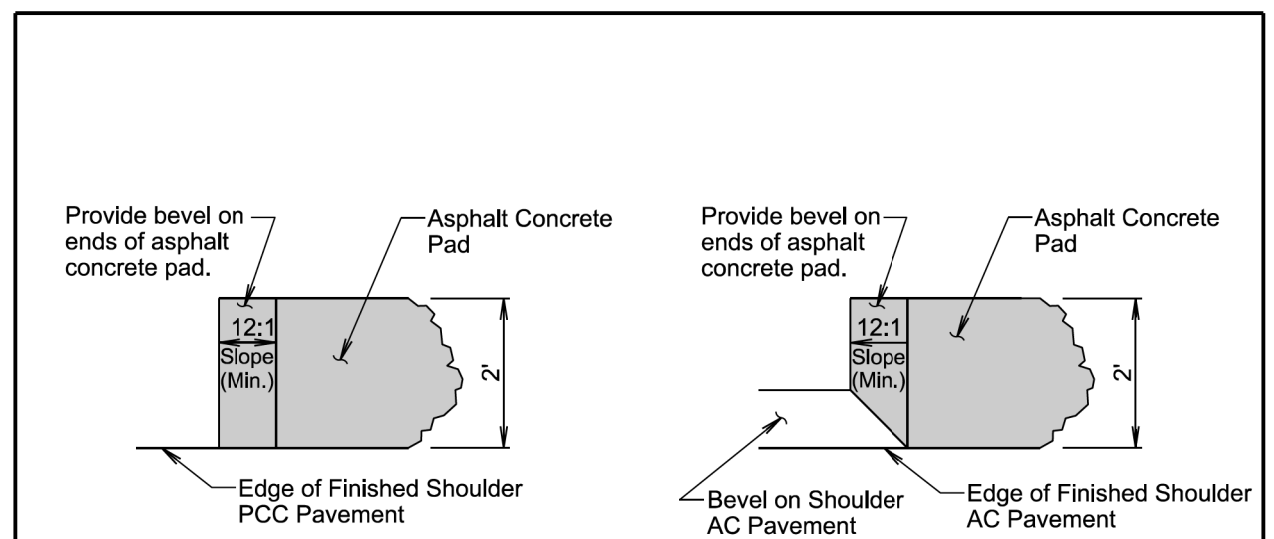
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

* 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.

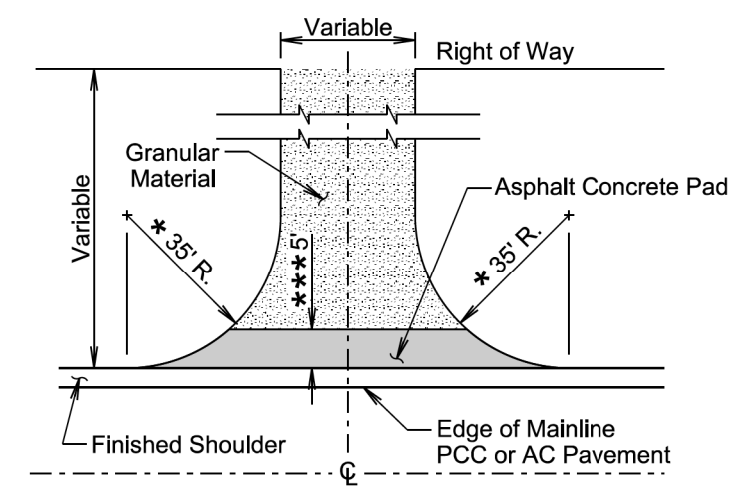
August 27, 2020

S D D O T	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04
		Sheet 1 of 2
Published Date: 2024		



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

S D D O T	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04
		Sheet 2 of 2
Published Date: 2024		

-PLOTTED FROM - TRAB17901

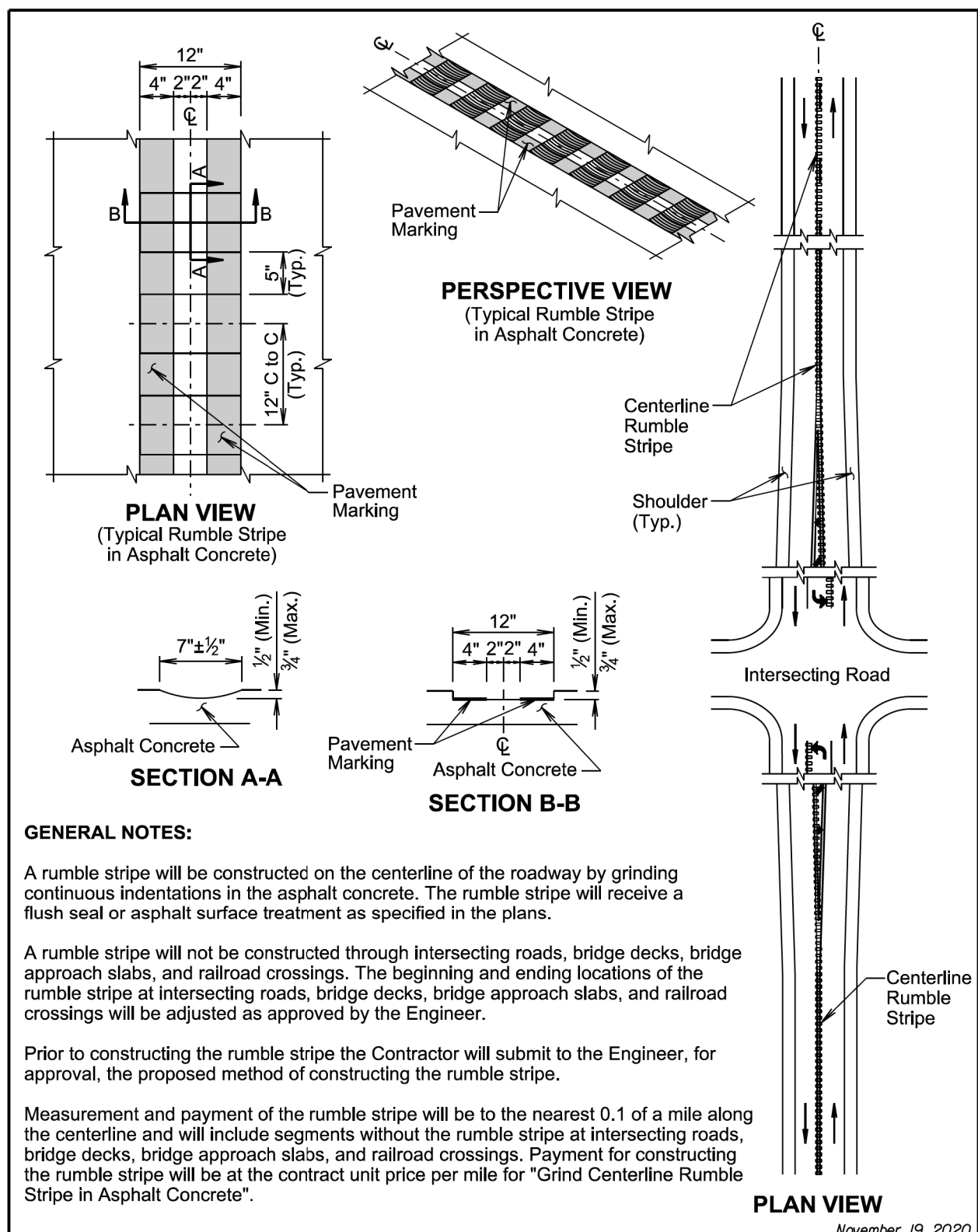
FILE - ... \PRJ\FALK07X\STD PLATES.DGN

Plotting Date: 04/23/2024

PLOT SCALE - 1:200

PLOT NAME - 7

FILE - ... \PRJ\FALK07XX\STD PLATES.DGN



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.

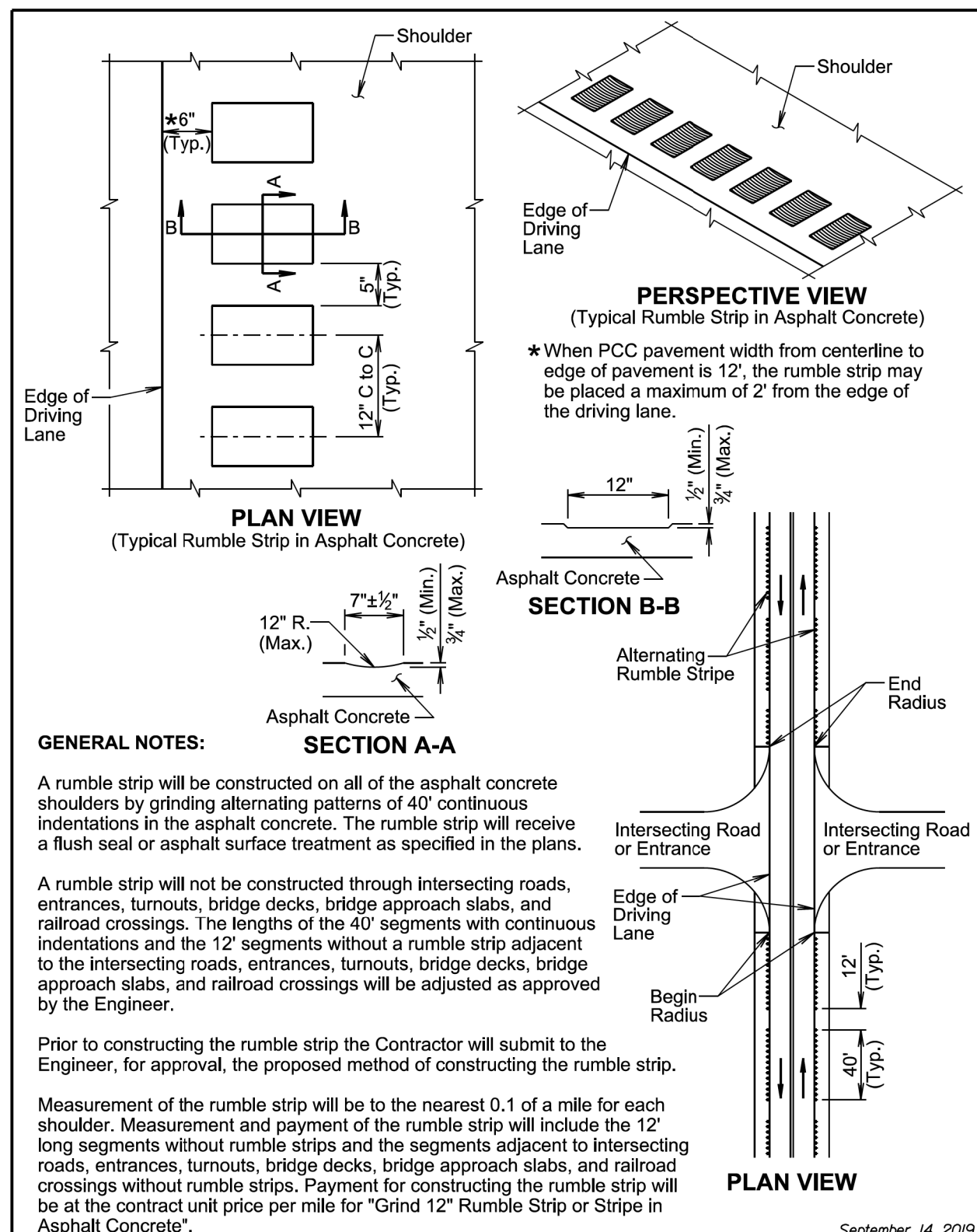
A rumble stripe will not be constructed through intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. The beginning and ending locations of the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the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

S D D O T	12" CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE	PLATE NUMBER 320.18
	Published Date: 2024	Sheet 1 of 1



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 stripe.

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".

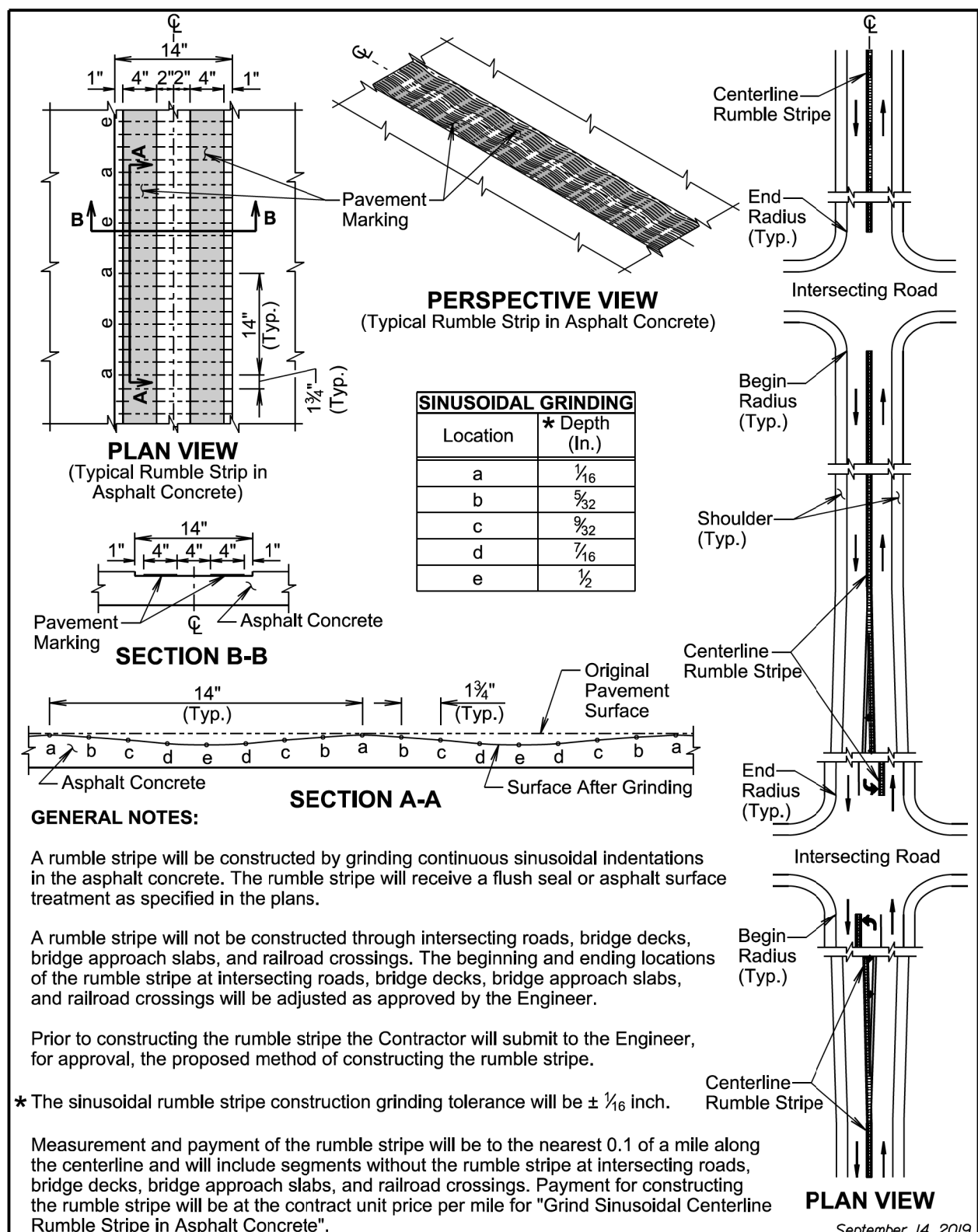
September 14, 2019

S D D O T	12" RUMBLE STRIP IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.24
	Published Date: 2024	Sheet 1 of 1

PLOT SCALE - 1:200

PLOT NAME - 8

FILE - ... \PRJ\FALK\07X\STD PLATES.DGN



GENERAL NOTES:

A rumble stripe will be constructed by grinding continuous sinusoidal 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.

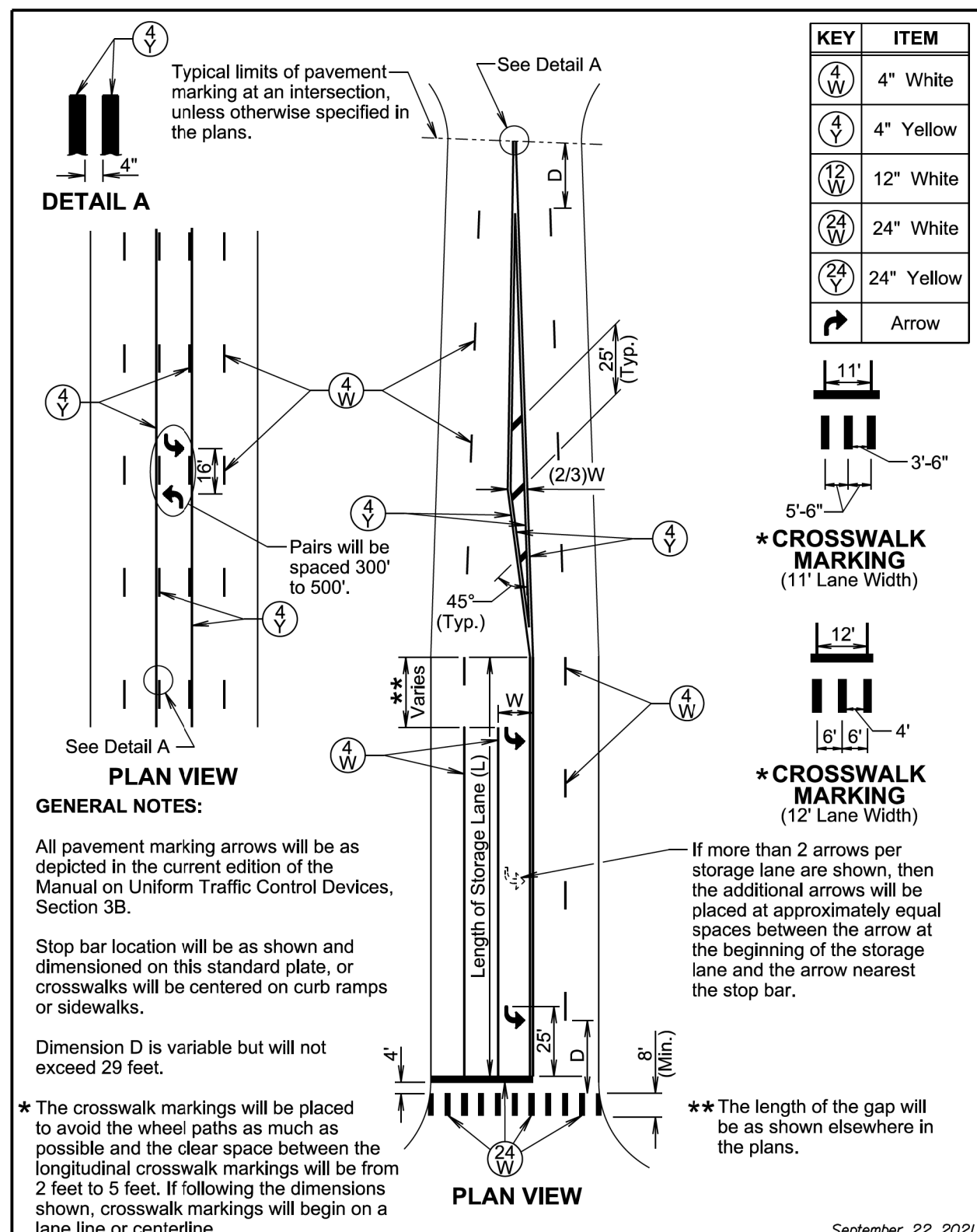
Prior to constructing the rumble stripe the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

* The sinusoidal rumble stripe construction grinding tolerance will be $\pm 1/16$ inch.

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 Sinusoidal Centerline Rumble Stripe in Asphalt Concrete".

September 14, 2019

S D D O T	SINUSOIDAL CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE	PLATE NUMBER 320.40
	Published Date: 2024	Sheet 1 of 1



GENERAL NOTES:

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

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

Dimension D is variable but will not exceed 29 feet.

* The crosswalk markings will be placed to avoid the wheel paths as much as possible and the clear space between the longitudinal crosswalk markings will be from 2 feet to 5 feet. If following the dimensions shown, crosswalk markings will begin on a lane line or centerline.

** The length of the gap will be as shown elsewhere in the plans.

September 22, 2021

S D D O T	PAVEMENT MARKINGS FOR ADJACENT INTERSECTIONS AND CENTER TURN LANE	PLATE NUMBER 633.01
	Published Date: 2024	Sheet 1 of 1

