

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
**PROJECTS NH 0016(85)22,
& P 016A(09)22**
US HIGHWAYS 16 & 16A
CUSTER COUNTY

MICRO-MILLING ASPHALT CONCRETE AND
ASPHALT CONCRETE RESURFACING

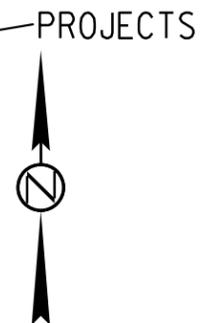
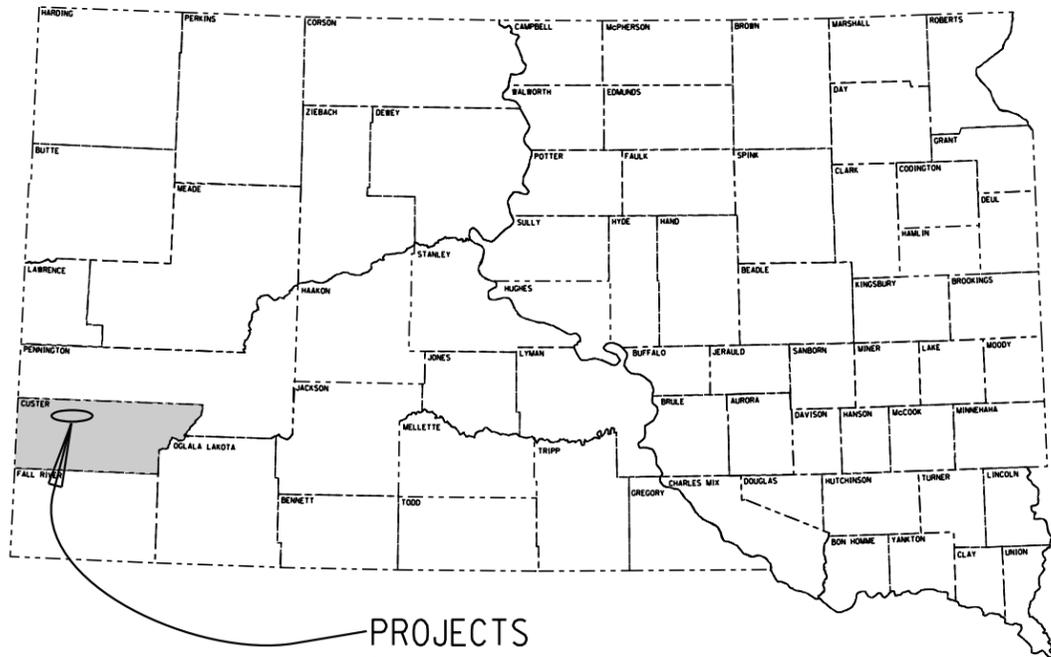
PCN 04E6, & 05MP

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22		
Plotting Date: 03/14/2016		1	106
Revise Date: - -		Initials:	

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PLOT SCALE - 1:200



DESIGN DESIGNATION PCN 04E6

ADT (2014)	2672
ADT (2034)	3246
DHV	589
D	53%
T DHV	4.8%
T ADT	10.5%
V	55-25MPH

DESIGN DESIGNATION PCN 05MP

ADT (2014)	2672
ADT (2034)	3246
DHV	671
D	53%
T DHV	4.8%
T ADT	10.5%
V	25-55MPH

PCN 04E6

Gross Length	24794.92 Feet	4.696 Miles
Length of Exceptions	267.20 Feet	0.051 Miles
Net Length	24527.72 Feet	4.645 Miles

PCN 05MP

Gross Length	17263.50 Feet	3.270 Miles
Length of Exceptions	180.00 Feet	0.034 Miles
Net Length	17083.50 Feet	3.236 Miles

STORM WATER PERMIT

None Required

BEGIN PROJECT
NH 0016(85)22
STA 9+87
MRM 22.00 + 0.150

① MRM 25.09
Continuous Concrete Bridge
Str.# 17-214-079
106.8' = 0.0202 mi.

② MRM 26.11
Continuous Concrete Bridge
Str.# 17-221-074
93.3' = 0.0177 mi.

③ MRM 26.47
Continuous Concrete Bridge
Str.# 17-226-073
67.1' = 0.0127 mi.

Equation
STA.31+53.08 Bk=
STA.31+57.45 Ah

Equation
STA.114+42.40 Bk=
STA.0+00.00 Ah
2nd Station

Equation
STA.116+87.50 Bk=
STA.0+00.00 Ah
3rd Station

Equation
STA.13+04.04 Bk=
STA.13+03.92 Ah
3rd Station

Equation
STA.21+60.16 Bk=
STA.21+60.00 Ah
3rd Station

END PROJECT
P 016A(09)22
STA 171+50
MRM 26.00 + 0.156

END PROJECT
NH 0016(85)22
STA 26+56.1
MRM 26.80 + 0.164 (US16)

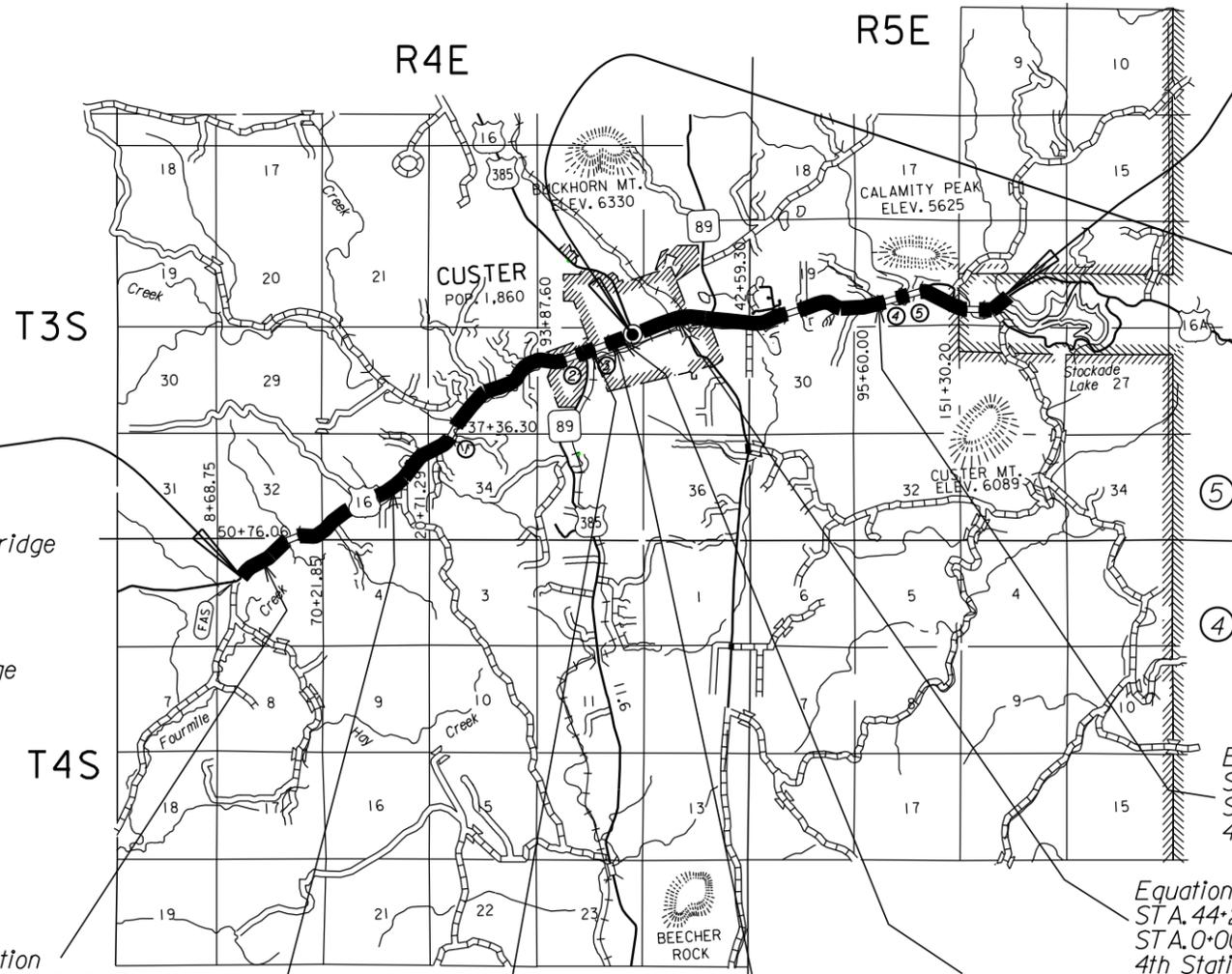
BEGIN PROJECT
P 016A(09)22
STA 26+56.1
MRM 22.50 + 0.000 (US16A)

⑤ MRM 25.22
Continuous Concrete Bridge
Str.# 17-256-066
90.0' = 0.0170 mi.

④ MRM 25.01
Continuous Concrete Bridge
Str.# 17-254-067
90.0' = 0.0170 mi.

Equation
STA.111+25.70 Bk=
STA.111+24.60 Ah
4th Station

Equation
STA.44+25.50 Bk=
STA.0+00.00 Ah
4th Station



10

PLOTTED FROM - TRRC12608

PLOT NAME - 1

FILE - ... \CUSTOMER\DESIGN\04E6 TITLE.DGN

SHEET OF SHEETS

ESTIMATE OF QUANTITIES

PCN 04E6 – US Highway 16

Alternate A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0008	PG 64-34 Asphalt Binder	286.6	Ton
320E1050	Class E Asphalt Concrete	4,940.8	Ton

Alternate B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0008	PG 64-34 Asphalt Binder	253.0	Ton
320E1050	Class E Asphalt Concrete	5,062.2	Ton

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0300	Remove Concrete Curb and Gutter	18	Ft
110E1140	Remove Concrete Sidewalk	16.4	SqYd
110E5020	Salvage Traffic Sign	2	Each
110E6220	Remove Double W Beam Guardrail for Reset	50.0	Ft
110E6230	Remove W Beam Guardrail for Reset	437.5	Ft
110E6270	Remove W Beam Guardrail Flared End Terminal for Reset	4	Each
110E6300	Remove Rubrail for Reset	4.0	Ft
120E0100	Unclassified Excavation, Digouts	232	CuYd
250E0010	Incidental Work	Lump Sum	LS
260E1010	Base Course	465.0	Ton
270E0210	Haul and Stockpile Granular Material	2,615.0	Ton
320E0008	PG 64-34 Asphalt Binder	334.5	Ton
320E1080	Class S Asphalt Concrete	5,797.0	Ton
320E3000	Compaction Sample	3	Each
320E3100	Stabilizing Additive for Asphalt Concrete	31.0	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	61.0	Ton
332E4000	Micro-Milling Asphalt Concrete	111,105	SqYd
451E6080	Adjust Water Valve Box	6	Each
600E0300	Type III Field Laboratory	1	Each
630E2110	Beam Guardrail Post and Block	94	Each
630E5160	Reset W Beam Rail	437.5	Ft
630E5170	Reset Double W Beam Rail	50.0	Ft
630E5207	Reset W Beam Guardrail Flared End Terminal	4	Each
630E5220	Reset Rubrail	48.0	Ft
632E1320	2.0"x2.0" Perforated Tube Post	60.0	Ft
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	16.7	SqFt
633E1200	Waterborne Pavement Marking Paint with High Grade Polymer, White	350	Gal
633E1205	Waterborne Pavement Marking Paint with High Grade Polymer, Yellow	161	Gal
633E1400	Pavement Marking Paint, 4" White	991	Ft
633E1430	Pavement Marking Paint, 24" White	2,420	Ft
633E1435	Pavement Marking Paint, 24" Yellow	32	Ft
633E1445	Pavement Marking Paint, Arrow	4	Each
633E1450	Pavement Marking Paint, Combination Arrow	2	Each
633E1460	Pavement Marking Paint, Symbol	2	Each
633E5100	Grooving for Durable Pavement Marking, 4"	69,443	Ft
633E5115	Grooving for Durable Pavement Marking, 24"	2,420	Ft
633E5125	Grooving for Durable Pavement Marking, Arrow	4	Each
633E5130	Grooving for Durable Pavement Marking, Combination Arrow	2	Each
634E0010	Flagging	250.0	Hour

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	NH 0016(85)22 & P 016A(09)22	2	106

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BID ITEM NUMBER	ITEM	QUANTITY	UNIT
634E0020	Pilot Car	125.0	Hour
634E0110	Traffic Control Signs	953	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	6	Each
634E0420	Type C Advance Warning Arrow Board	2	Each
634E0630	Temporary Pavement Marking	9.3	Mile
635E5535	Sawed-In, Preformed Detector Loop	13	Each
650E0060	Type B66 Concrete Curb and Gutter	18	Ft
651E0040	4" Concrete Sidewalk	148	SqFt
670E5205	Special Grate	1	Each
671E7010	Adjust Manhole	8	Each
900E0010	Refurbish Single Mailbox	7	Each
900E0012	Refurbish Double Mailbox	5	Each

* - Denotes Non-Participating

PCN 05MP – US Highway 16A

Alternate A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0008	PG 64-34 Asphalt Binder	201.6	Ton
320E1050	Class E Asphalt Concrete	2,721.1	Ton

Alternate B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0008	PG 64-34 Asphalt Binder	183.0	Ton
320E1050	Class E Asphalt Concrete	2,785.7	Ton

ESTIMATE OF QUANTITIES (CONTINUED)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0300	Remove Concrete Curb and Gutter	65	Ft
110E1140	Remove Concrete Sidewalk	47.8	SqYd
110E6220	Remove Double W Beam Guardrail for Reset	100.0	Ft
110E6230	Remove W Beam Guardrail for Reset	300.0	Ft
110E6270	Remove W Beam Guardrail Flared End Terminal for Reset	7	Each
110E6300	Remove Rubrail for Reset	96.0	Ft
120E0100	Unclassified Excavation, Digouts	178	CuYd
250E0010	Incidental Work	Lump Sum	LS
260E1010	Base Course	356.0	Ton
* 270E0210	Haul and Stockpile Granular Material	1,417.7	Ton
320E0008	PG 64-34 Asphalt Binder	348.8	Ton
320E1080	Class S Asphalt Concrete	5,212.6	Ton
320E3000	Compaction Sample	3	Each
320E3100	Stabilizing Additive for Asphalt Concrete	16.0	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	46.1	Ton
332E4000	Micro-Milling Asphalt Concrete	86,153	SqYd
451E6080	Adjust Water Valve Box	3	Each
630E2110	Beam Guardrail Post and Block	107	Each
630E5160	Reset W Beam Rail	300.0	Ft
630E5170	Reset Double W Beam Rail	100.0	Ft
630E5207	Reset W Beam Guardrail Flared End Terminal	7	Each
630E5220	Reset Rubrail	96.0	Ft
633E1200	Waterborne Pavement Marking Paint with High Grade Polymer, White	420	Gal
633E1205	Waterborne Pavement Marking Paint with High Grade Polymer, Yellow	192	Gal
633E1400	Pavement Marking Paint, 4" White	2,778	Ft
633E1410	Pavement Marking Paint, 8" White	246	Ft
633E1430	Pavement Marking Paint, 24" White	2,738	Ft
633E1440	Pavement Marking Paint, Area	105	SqFt
633E1445	Pavement Marking Paint, Arrow	30	Each
633E1452	Pavement Marking Paint, Lane Reduction Arrow	3	Each
633E1460	Pavement Marking Paint, Symbol	6	Each
633E5100	Grooving for Durable Pavement Marking, 4"	65,242	Ft
633E5105	Grooving for Durable Pavement Marking, 8"	246	Ft
633E5115	Grooving for Durable Pavement Marking, 24"	2,738	Ft
633E5120	Grooving for Durable Pavement Marking, Area	105	SqFt
633E5125	Grooving for Durable Pavement Marking, Arrow	30	Each
633E5131	Grooving for Durable Pavement Marking, Lane Reduction Arrow	3	Each
633E8000	Curb Painting	250	Ft
634E0010	Flagging	250.0	Hour
634E0020	Pilot Car	125.0	Hour

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
634E0110	Traffic Control Signs	916	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	6	Each
634E0420	Type C Advance Warning Arrow Board	2	Each
634E0630	Temporary Pavement Marking	6.5	Mile
635E5535	Sawed-In, Preformed Detector Loop	6	Each
650E0060	Type B66 Concrete Curb and Gutter	65	Ft
650E3060	Type B6 Concrete Curb	38	Ft
651E0040	4" Concrete Sidewalk	412	SqFt
670E5205	Special Grate	2	Each
671E7010	Adjust Manhole	7	Each
900E0010	Refurbish Single Mailbox	4	Each
900E0012	Refurbish Double Mailbox	9	Each

* - Denotes Non-Participating

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, 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 pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer.

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The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

Action Taken/Required:

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

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

Action Taken/Required:

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

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

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

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".
2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

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

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

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

COMMITMENT i: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all 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 review of cultural resources impacts. 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 shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

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

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for 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 shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

COMMITMENT R: FIRE PREVENTION IN THE BLACK HILLS AREA

This project is located within the confines of the Black Hills Forest Fire Protection Boundary.

Action Taken/Required:

The Contractor shall adhere to the "Special Provision for Fire Plan".

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UTILITIES

The Contractor shall be responsible for locating and protecting any utility that would conflict with any work. 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 shall contact the project engineer to determine modifications that will be necessary to avoid utility impacts.

Any damage done to a utility will be the Contractor's responsibility to repair.

Utilities within the limits of the proposed construction shall be adjusted by the owner unless otherwise indicated in these plans.

SURFACING THICKNESS DIMENSIONS

Plans tonnage shall 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, plans tonnage may be varied to achieve the required elevation.

INTERSECTING ROADS AND ENTRANCES

Intersecting roads and entrances shall be satisfactorily cleared of vegetation, shaped, milled and compacted prior to placement of mainline surfacing. This work shall be considered incidental to the various bid items on the project.

EXCAVATION OF UNSTABLE MATERIAL

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

Included in the Estimate of Quantities are 100 tons per mile of Base Course for backfilling the digtouts.

BROOMING SHOULDERS

The Contractor shall broom gravel and all other loose material off the shoulders for the length of the project on both sides of the roadway prior to beginning paving operations. This work shall be performed to the satisfaction of the Engineer.

For curb and gutter sections the Contractor shall use a pickup broom having integral self-contained storage to clean the roadway. The pickup broom used shall be a minimum of 6 feet wide and have working gutter brooms.

All costs associated with this work shall be incidental to the various contract items. No additional payment shall be made for brooming.

SIGNS AND DELINEATION

The Contractor will be required to remove and reinstall delineator posts, signs, etc., as necessary for construction of this project. Reinstallation shall be as directed by the Engineer. Cost of performing this work shall be incidental to the contract lump sum price for Incidental Work. Any delineators, signs, etc. damaged and/or lost through removal and/or storage shall be replaced by the Contractor at no cost to the State.

REPLACE TYPE B GRATES

Remove drop inlet grates and replace with new Type B grates at locations shown in the table. All removed grates shall become the property of the Contractor. All costs associated with removing and replacing grates shall be incidental to the contract unit price per each for Special Grate.

TABLE OF SPECIAL GRATES

Table of Special Grates		
	L/R	Special Grates (Each)
US 16A PCN 05MP MRM		
22.994	R	1
22.896	L	1
Total		2
US 16 PCN 04E6 MRM		
25.578	L	1
Total		1

INCIDENTAL WORK

Included in this item are the following:

1. Removal and resetting of delineator posts, bases, signs etc. as needed during construction of the project.

SAWED IN DETECTOR LOOPS

The Contractor shall note the locations of existing detector loops at locations within the area of asphalt milling. The loops shall be removed and replaced.

The Contractor will be responsible for all materials, labor, conduit if needed, splicing, and loop wires to replace all detector loops that will be removed.

The Contractor shall contact the City of Custer to set the signals to a default phasing to control traffic during the time frame when loops are inoperable.

The Contractor shall contact the City of Custer to set the signals back to original timing after the loops are installed

All costs for the above mentioned work shall be incidental to the contract unit price per each for Sawed-In Detector Loop.

HAUL AND STOCKPILE GRANULAR MATERIAL

Combined excess Micro-Milled material from the Class E areas in both projects estimated at 4032.7 tons (for informational purposes only) shall be hauled and stockpiled at the site located in the Custer maintenance yard located within Section 26, T3S, R4E Custer County, SD. The Contractor shall have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

The Contractor shall use a portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or belt scale to control the weighing of the salvage material.

The RAP shall be crushed to meet the requirements of Section 884.2C.1 prior to incorporation into the stockpile.

Screening or scalping of the RAP stockpile(s) will not be allowed.

All other costs for hauling and stockpiling the remaining Micro-milled material shall be incidental to the contract unit price per ton for Haul and Stockpile Granular Material.

MICRO-MILLING ASPHALT CONCRETE

The work consists of Micro-milling the existing asphalt concrete surface course.

The Los Angeles Abrasion Loss value on the aggregate used for the in place asphalt concrete was 26 percent. This value was obtained from testing during construction of the in place asphalt concrete.

Micro-Milling asphalt is estimated to produce a combined quantity of 7627.8 tons of RAP material from Class S areas, and 4032.7 tons of RAP material from Class E areas (for informational purposes). RAP material from Class E areas (Sections 4, 5, 6, 7, 8, & 9) shall be hauled to the site located at the Custer maintenance yard located within Section 26, T3S, R4E Custer County, SD and stockpiled. RAP material from Class S areas shall become the property of the Contractor.

The Contractor will be required to mill around all manholes and radii for intersecting streets. This quantity is included in the Table of Additional Quantities. No additional payment will be made.

Prior to allowing traffic on the milled surface, the surface shall be thoroughly broomed free of remaining loose material.

The work shall be performed only during daylight hours.

Placement of asphalt concrete resurfacing shall follow the beginning of Micro-Milling Asphalt Concrete within 7 calendar days. Failure to begin asphalt concrete resurfacing within 7 calendar days will result in a penalty of \$1000 per calendar day.

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ADJUSTMENT OF MANHOLES

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

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

The manholes located at Sta 60+00 and 64+25 on US 16 and the two manholes located at Sta 39+00 are surrounded by concrete. This concrete shall be removed prior to the asphalt overlay operations. The cost of removing this concrete shall be incidental to the contract unit price per each for Adjust Manhole.

Table of Adjust Manholes, Water		
US 16 PCN 04E6		
Station	Offset	Manholes
50+50	CL	1
60+00	9' L	1
64+25	12' L	1
68+50	4' L	1
73+00	CL	1
Square Utility Access		
73+00	48' L	1
76+75	24' L	1
77+25	24' L	1
Total		8
Water Shut-Off Valves		
39+00	24' L	2
43+10	2' L	1
64+50	48' L	2
72+75	48' L	1
Total		6

**Table of Adjust Manholes, Water
Valves, and Utility Accesses**

16A PCN 05MP

Station	Offset	Manholes
85+80	CL	1
86+90	CL	1
90+10	CL	1
94+50	CL	1
97+10	CL	1
97+40	CL	1
Square Utility Access		
94+25	24' R	1
Total		7
Water Shut-Off Valves		
81+25	38' L	1
94+75	36' L	2
Total		3

Table of Micro-Milling Asphalt Concrete - Project Number NH 0016(85)22 - PCN 04E6

Section	Hwy	Station	to	Station		Length (Ft)	Width (Ft)	Micro- Milling Asphalt Concrete (SqYd)	Approximate Tons of Millings Produced (Ton)
Section 1	US16	9+87.00		31+53.08	Equation	2166.1	28	6738.9	410.6
	US16	31+57.40		58+50.00		2692.6	28	8377	510.5
	US16	14+00.00	2nd	44+31.59	2nd Exception	3031.6	28	9431.6	574.7
	US16	45+38.41	2nd	65+60.00	2nd	2021.6	28	6289.4	383.3
Section 2	US16	58+50.00		69+00.00		1050.0	40	4666.7	290.6
	US16	93+00.00		114+42.40	Equation	2142.4	40	9521.8	592.9
	US16	0+00.00	2nd	14+00.00	2nd	1400.0	40	6222.2	387.5
Section 3	US16	69+00.00		93+00.00		2400.0	52	13866.7	875
Section 4	US16	65+60.00	2nd	98+78.35	2nd Exception	3318.4	48	17697.9	1016.2
	US16	99+71.66	2nd	116+14.17	2nd	1642.5	48	8760.1	503
Section 5	US16	116+14.17	2nd	116+87.50	2nd Equation	73.3	48	391.1	22.5
	US16	0+00.00	3rd	0+88.44	3rd Exception	88.4	48	471.7	27.1
	US16	1+55.56	3rd	9+37.50	3rd	781.9	48	4170.3	239.5
Section 6	US16	9+37.50	3rd	13+04.04	3rd Equation	366.5	48	1954.9	112.3
	US16	13+03.92	3rd	21+60.16	3rd Equation	856.2	48	4566.6	262.2
	US16	21+60.00	3rd	21+88.00	3rd	28.0	48	149.3	8.6
Section 7	US16	21+88.00	3rd	26+56.10	3rd	468.1	91	4733	260.8
Additional Quantities								3098.4	162.8
						Total		111107.6	6640.1

Table of Micro-Milling Asphalt Concrete - P 016A(09)22 - PCN 05MP

Section	Hwy	Station	to	Station		Length (Ft)	Width (Ft)	Micro- Milling Asphalt Concrete (SqYd)	Approximate Tons of Millings Produced (Ton)
Section 7	US16A	26+56.10	3rd	39+68.50	3rd	1312.4	91	13269.8	731.1
Section 9	US16A	0+00.00	4th	14+70.00	4th	1470.0	48	7840	450.2
	US16A	14+70.00	4th	17+00.00	4th Transition	230.0	48	1226.7	70.4
Section 11	US16A	29+00.00	4th	33+00.00	4th	400.0	28	1244.4	75.8
	US16A	43+00.00	4th	80+00.00	4th	3700.0	28	11511.1	701.4
	US16A	91+00.00	4th	111+25.70	4th Equation	2025.7	28	6302.2	384
	US16A	111+24.60	4th	113+90.00	4th Exception	265.4	28	825.7	50.3
	US16A	114+80.00	4th	125+89.00	4th Exception	1109.0	28	3450.2	210.2
US16A	126+79.00	4th	171+50.00	4th	4471.0	28	13909.8	847.6	
Section 12	US16A	33+00.00	4th	43+00.00	4th	1000.0	38	4222.2	277.1
Section 13	US16A	80+00.00	4th	91+00.00	4th	1100.0	40	4888.9	304.8
Additional Quantities								17462.0	917.5
						Total		86153	5020.4

TYPE III FIELD LABORATORY

One lab shall be used for both projects.

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

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

CLASS E ASPHALT CONCRETE

Mineral Aggregate for Class E Asphalt Concrete - Alternate A shall conform to the requirements for Class E, Type 1.

Mineral Aggregate for Class E Asphalt Concrete - Alternate B shall consist of a minimum of 80 percent crushed limestone ledgerrock and shall conform to the requirements for Class E, Type 1.

All other requirements in the Specifications for Class E shall apply.

CLASS S ASPHALT CONCRETE

Mineral aggregate for the Class S shall conform to the requirements for Class S, Type 1.

When directed by the Engineer, the Contractor shall saw and remove a total of three undamaged compaction cores (4" dia. min.) from designated area(s) and repair the hole(s) to the satisfaction of the Engineer. All costs associated with the compaction cores shall be incidental to the contract unit price per ton for Class S Asphalt Concrete.

All other requirements in the Specifications for Class S Asphalt Concrete shall apply

ADDITIONAL QUANTITIES

Included in the Estimate of Quantities are 100 tons of Class E Asphalt Concrete and 5.8 tons of PG 64-34 Asphalt Binder per mile for Alt A and 100 tons of Class E Asphalt Concrete and 5.0 tons of PG 64-34 Asphalt Binder per mile for Alt B for spot leveling and repair of the existing surface for each project.

Included in the Estimate of Quantities are 4 tons of SS-1h or CSS-1h Emulsified Asphalt for Tack for tight blading, repair and leveling areas throughout each project.

CHECKING SPREAD RATES

The Contractor shall be responsible for checking the Asphalt Concrete Surfacing and Base Course spread rates and take the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor shall compute the required spread rates for each typical surfacing section and create a spread chart prior to the start of material delivery and placement. The Engineer will review and check the Contractor's calculations and spread charts.

The station to station spread shall be written on each ticket as the surfacing material is delivered to the roadway.

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

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

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

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

The Department will perform depth checks. The Contractor shall be responsible for placement of material to the correct depth unless otherwise directed by the Engineer. If the placed material is not within a tolerance of ±1/4" of the plan shown depth, the Contractor shall correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	8	106
Revised 2/23/2016 GDS			

All costs for providing the Contractor furnished checker and performing all related duties shall be incidental to the contract lump sum price for the Checker. No allowances will be made to the contract lump sum price for Checker due to authorized quantity variations unless the quantities for the material being checked vary above or below the estimated quantities by more than 25%. Payment for the Checker shall then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

RATES OF MATERIALS, SURFACING

Rates are per station unless otherwise specified.

Section 1

	Station	to	Station	
US16	9+87.00		31+53.08	Equation
US16	31+57.40		58+50.00	
US16	14+00.00	2nd	44+31.59	2nd Exception
US16	45+38.41	2nd	65+60.00	2nd

CLASS S ASPHALT CONCRETE

Crushed Aggregate	1534 Tons/Mile
PG 64-34 Asphalt Binder	94 Tons/Mile
Total Mix	1628 Tons/Mile
Stabilizing Additive	5 Tons/Mile
TOTAL	1633 Tons/Mile

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

Emulsified Asphalt for Tack SS-1h or CSS-1h at a rate of 9.6 tons applied 43 feet wide (Rate = 0.09 gallons per square yard).

RATES OF MATERIALS, SURFACING (CONTINUED)

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	9	106

Revised 2/29/2016 GDS

Section 2

	Station	to	Station	
US16	58+50.00		69+00.00	
US16	93+00.00		114+42.40	Equation
US16	0+00.00 2nd		14+00.00 2nd	

CLASS S ASPHALT CONCRETE

Crushed Aggregate	34.85 Tons
PG 64-34 Asphalt Binder	2.15 Tons
Total Mix	<u>37.00 Tons</u>
Stabilizing Additive	0.11 Tons
TOTAL	<u>37.11 Tons</u>

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

Emulsified Asphalt for Tack SS-1h or CSS-1h at a rate of 0.22 tons applied 51 feet wide (Rate = 0.09 gallons per square yard).

Section 3

	Station	to	Station
US16	69+00.00		93+00.00

CLASS S ASPHALT CONCRETE

Crushed Aggregate	40.67 Tons
PG 64-34 Asphalt Binder	2.50 Tons
Total Mix	<u>43.17 Tons</u>
Stabilizing Additive	0.13 Tons
TOTAL	<u>43.30 Tons</u>

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

Emulsified Asphalt for Tack SS-1h or CSS-1h at a rate of .025 tons applied 59 feet wide (Rate = 0.09 gallons per square yard).

Section 4

	Station	to	Station	
US16	65+60.00 2nd		98+78.35 2nd	Exception
US16	99+71.66 2nd		116+14.17 2nd	

CLASS E ASPHALT CONCRETE

	Alt A	Alt B
Crushed Aggregate	41.82	43.32 Tons
PG 64-34 Asphalt Binder	2.58	2.28 Tons
Total Mix	<u>44.40</u>	<u>45.60 Tons</u>

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

Emulsified Asphalt for Tack SS-1h or CSS-1h at a rate of 0.21 tons applied 48 feet wide (Rate = 0.09 gallons per square yard).

Section 5

	Station	to	Station	
US16	116+14.17 2nd		116+87.50 2nd	Equation
US16	0+00.00 3rd		0+88.44 3rd	Exception
US16	1+55.56 3rd		9+37.50 3rd	

CLASS E ASPHALT CONCRETE

	Alt A	Alt B
Crushed Aggregate	41.82	43.32 Tons
PG 64-34 Asphalt Binder	2.58	2.28 Tons
Total Mix	<u>44.40</u>	<u>45.60 Tons</u>

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

Emulsified Asphalt for Tack SS-1h or CSS-1h at a rate of 0.21 tons applied 48 feet wide (Rate = 0.09 gallons per square yard).

Section 6

	Station	to	Station	
US16	9+37.50 3rd		13+04.04 3rd	Equation
US16	13+03.92 3rd		21+60.16 3rd	Equation
US16	21+60.00 3rd		21+88.00 3rd	

CLASS E ASPHALT CONCRETE

	Alt A	Alt B
Crushed Aggregate	41.82	43.32 Tons
PG 64-34 Asphalt Binder	2.58	2.28 Tons
Total Mix	<u>44.40</u>	<u>45.60 Tons</u>

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

Emulsified Asphalt for Tack SS-1h or CSS-1h at a rate of 0.21 tons applied 48 feet wide (Rate = 0.09 gallons per square yard).

RATES OF MATERIALS, SURFACING (CONTINUED)

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	10	106
Revised 2/29/2016 GDS			

Section 7

	Station	to	Station
US16	21+88.00 3rd		26+56.10 3rd
US16A	26+56.10 3rd		39+68.50 3rd

CLASS E ASPHALT CONCRETE

	Alt A	Alt B
Crushed Aggregate	80.17	83.04 Tons
PG 64-34 Asphalt Binder	4.94	4.37 Tons
Total Mix	85.11	87.41 Tons

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

Emulsified Asphalt for Tack SS-1h or CSS-1h at a rate of 0.40 tons applied 92 feet wide (Rate = 0.09 gallons per square yard).

Section 9

	Station	to	Station
US16A	0+00.00 4th		14+70.00 4th
US16A	14+70.00 4th		17+00.00 4th Transition

CLASS E ASPHALT CONCRETE

	Alt A	Alt B
Crushed Aggregate	41.82	43.32 Tons
PG 64-34 Asphalt Binder	2.58	2.28 Tons
Total Mix	44.40	45.60 Tons

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

Emulsified Asphalt for Tack SS-1h or CSS-1h at a rate of 0.21 tons applied 48 feet wide (Rate = 0.09 gallons per square yard).

Section 11

	Station	to	Station	
US16A	29+00.00 4th		33+00.00 4th	
US16A	43+00.00 4th		80+00.00 4th	
US16A	91+00.00 4th		111+25.70 4th	Equation
US16A	111+24.60 4th		113+90.00 4th	Exception
US16A	114+80.00 4th		125+89.00 4th	Exception
US16A	126+79.00 4th		171+50.00 4th	

CLASS S ASPHALT CONCRETE

Crushed Aggregate	1534 Tons/Mile
PG 64-34 Asphalt Binder	94 Tons/Mile
Total Mix	1628 Tons/Mile
Stabilizing Additive	5 Tons/Mile
TOTAL	1633 Tons/Mile

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

Emulsified Asphalt for Tack SS-1h or CSS-1h at a rate of 9.6 tons applied 43 feet wide (Rate = 0.09 gallons per square yard).

Section 12

	Station	to	Station
US16A	33+00.00 4th		43+00.00 4th

CLASS S ASPHALT CONCRETE

Crushed Aggregate	34.85 Tons
PG 64-34 Asphalt Binder	2.15 Tons
Total Mix	37.00 Tons
Stabilizing Additive	0.11 Tons
TOTAL	37.11 Tons

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

Emulsified Asphalt for Tack SS-1h or CSS-1h at a rate of 0.22 tons applied 51 feet wide (Rate = 0.09 gallons per square yard).

Section 13

	Station	to	Station
US16A	80+00.00 4th		91+00.00 4th

CLASS S ASPHALT CONCRETE

Crushed Aggregate	32.68 Tons
PG 64-34 Asphalt Binder	2.01 Tons
Total Mix	34.69 Tons
Stabilizing Additive	0.10 Tons
TOTAL	34.79 Tons

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

Emulsified Asphalt for Tack SS-1h or CSS-1h at a rate of 0.21 tons applied 48 feet wide (Rate = 0.09 gallons per square yard).

Table of Material Quantities - Project Number NH 0016(85)22 - PCN 04E6

		Station	to	Station		Length (Ft)	Length (Miles)	Class S Asphalt Concrete (Ton)	PG 64-34 Asphalt Binder (Ton)	Stabilizing Additive for Asphalt Concrete (Ton)	Alt A Class E Asphalt Concrete (Ton)	Alt A PG 64-34 Asphalt Binder (Ton)	Alt B Class E Asphalt Concrete (Ton)	Alt B PG 64-34 Asphalt Binder (Ton)	SS-1h or CSS-1h Asphalt for Tack (Ton)	Unclassified Excavation, Digouts (CuYd)	Base Course (Ton)
Section 1	US16	9+87.00		31+53.08	Equation	2166.08	0.41	669.5	38.5	2.1					3.9	20.5	41.0
	US16	31+57.40		58+50.00		2692.60	0.51	832.8	47.9	2.6					4.9	25.5	51.0
	US16	14+00.00 2nd		44+31.59 2nd	Exception	3031.59	0.57	930.8	53.6	2.9					5.5	28.5	57.0
	US16	45+38.41 2nd		65+60.00 2nd		2021.59	0.38	620.5	35.7	1.9					3.6	19.0	38.0
Section 2	US16	58+50.00		69+00.00		1050.00	0.20	389.7	22.6	1.2					2.3	10.0	20.0
	US16	93+00.00		114+42.40	Equation	2142.40	0.41	795.0	46.1	2.4					4.7	20.5	41.0
	US16	0+00.00 2nd		14+00.00 2nd		1400.00	0.27	519.5	30.1	1.5					3.1	13.5	27.0
Section 3	US16	69+00.00		93+00.00		2400.00	0.45	1039.2	60.0	16.4					6.0	22.5	45.0
Section 4	US16	65+60.00 2nd		98+78.35 2nd	Exception	3318.35	0.63				1473.3	85.5	1513.2	75.7	7.0	31.5	63.0
	US16	99+71.66 2nd		116+14.17 2nd		1642.52	0.31				729.3	42.3	749.0	37.4	3.4	15.5	31.0
Section 5	US16	116+14.17 2nd		116+87.50 2nd	Equation	73.33	0.01				32.6	1.9	33.4	1.7	0.2	0.5	1.0
	US16	0+00.00 3rd		0+88.44 3rd	Exception	88.44	0.02				39.3	2.3	40.3	2.0	0.2	1.0	2.0
	US16	1+55.56 3rd		9+37.50 3rd		781.94	0.15				347.2	20.1	356.6	17.8	1.6	7.5	15.0
Section 6	US16	9+37.50 3rd		13+04.04 3rd	Equation	366.54	0.07				162.7	9.4	167.1	8.4	0.8	3.5	7.0
	US16	13+03.92 3rd		21+60.16 3rd	Equation	856.24	0.16				380.2	22.0	390.4	19.5	1.8	8.0	16.0
	US16	21+60.00 3rd		21+88.00 3rd		28.00	0.01				12.4	0.7	12.8	0.6	0.1	0.5	1.0
Section 7	US16	21+88.00 3rd		26+56.10 3rd		468.10	0.09				398.4	23.1	409.2	20.5	1.9	4.5	9.0
Additional Quantities											1365.4	79.3	1390.2	69.4	10.0		
Total								5797.0	334.5	31.0	4940.8	286.6	5062.2	253.0	61.0	232.5	465.0

Table of Additional Quantities - Project Number NH 0016(85)22 - PCN 04E6

		Micro- Milling Asphalt Concrete	Alt A Class E Asphalt Concrete	Alt A PG 64-34 Asphalt Binder	Alt B Class E Asphalt Concrete	Alt B PG 64-34 Asphalt Binder	SS-1h or CSS-1h Asphalt for Tack
	Lt/Rt	(SqYd)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)
Approaches							
Pleasant Valley Road	Rt	188.9	10.5	0.6	10.8	0.5	0.07
Beaver Lake Road	Rt	160.0	8.9	0.5	9.1	0.5	0.06
661K	Lt	155.6	8.6	0.5	8.9	0.4	0.06
Stagg Road	Rt	177.8	9.9	0.6	10.1	0.5	0.07
Upper French Creek Road	Lt	182.2	10.1	0.6	10.4	0.5	0.07
Little Italy Road	Lt	151.1	8.4	0.5	8.6	0.4	0.06
Wazi Lane	Rt	164.4	9.1	0.5	9.4	0.5	0.06
Rosse Lane	Lt	72.2	4.0	0.2	4.1	0.2	0.03
Centennial Drive (US89/US385)	Rt	465.6	25.8	1.5	26.5	1.3	0.18
North 1st Street	Lt	80.2	4.5	0.3	4.6	0.2	0.03
South 1st Street	Rt	145.1	8.1	0.5	8.3	0.4	0.06
North 2nd Street	Lt	64.9	3.6	0.2	3.7	0.2	0.02
South 2nd Street	Rt	119.6	6.6	0.4	6.8	0.3	0.05
North 3rd Street	Lt	82.4	4.6	0.3	4.7	0.2	0.03
South 3rd Street	Rt	128.9	7.2	0.4	7.3	0.4	0.05
North 4th Street	Lt	241.3	13.4	0.8	13.8	0.7	0.09
South 4th Street	Rt	142.1	7.9	0.5	8.1	0.4	0.05
North 5th Street	Lt	138.0	7.7	0.4	7.9	0.4	0.05
South 5th Street	Rt	238.1	13.2	0.8	13.6	0.7	0.09
Spot Leveling/Repair			464.5	26.9	464.5	23.2	
Tight Blading, Repair, and Leveling							4.00
Turn Bays			684.0	39.7	703.0	35.2	4.71
Guardrail Installations							
Str. No. 17-254-079			44.8	2.6	46.0	2.3	0.15
Total		3098.4	1365.4	79.3	1390.2	69.4	10.0

Table of Additional Quantities - Project Number P 016A(09)22 - PCN 05MP

		Micro- Milling Asphalt Concrete	Class S Asphalt Concrete	PG 64-34 Asphalt Binder	Stabilizing Additive for Asphalt Concrete	Alt A Class E Asphalt Concrete	Alt A PG 64-34 Asphalt Binder	Alt B Class E Asphalt Concrete	Alt B PG 64-34 Asphalt Binder	SS-1h or CSS-1h Asphalt for Tack	Unclassified Excavation, Digouts	Base Course
	Lt/Rt	(SqYd)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(CuYd)	(Ton)
Approaches												
North 6th Street	Lt	173.1				9.6	0.6	9.9	0.5	0.07		
South 6th Street	Rt	171.1				9.5	0.6	9.8	0.5	0.07		
North 7th Street	Lt	186.8				10.4	0.6	10.6	0.5	0.07		
South 7th Street	Rt	58.0				3.2	0.2	3.3	0.2	0.02		
North 8th Street	Lt	182.8				10.1	0.6	10.4	0.5	0.07		
South 8th Street	Rt	159.7				8.9	0.5	9.1	0.5	0.06		
North 9th Street	Lt	220.6				12.2	0.7	12.6	0.6	0.08		
South 9th Street	Rt	125.4				7.0	0.4	7.2	0.4	0.05		
Sylvan Lkae Road (US 89)	Lt	1536.9				85.3	4.9	87.6	4.4	0.59		
Sidney Park Avenue	Rt	148.9				8.3	0.5	8.5	0.4	0.06		
America Center Road	Lt	151.1				8.4	0.5	8.6	0.4	0.06		
Heller Road	Lt	122.2				6.8	0.4	7.0	0.4	0.05		
Lower French Creek Road	Rt	228.9				12.7	0.7	13.0	0.7	0.09		
Section 8		3161.6				263.2	15.3	270.3	13.5	1.21	4.5	9.0
Section 10		10834.9	751.9	43.6	2.3					4.14	11.5	23.0
Spot Leveling/Repair												
						323.4	18.8	323.4	16.2			
Tight Blading, Repair, and Leveling												
										4.00		
Guardrail Installations												
Str. No. 17-254-067						29.1	1.7	29.9	1.5	0.10		
Str. No. 17-256-066						22.0	1.3	22.5	1.1	0.08		
Subtotal												
				43.6								
Total												
		17462.0	751.9		2.3	830.1	91.9	843.7	85.9	10.9	16.0	32.0

Summary of Asphalt Concrete Compaction - Project Number NH 0016(85)22 - PCN 04E6										
				Alternate A		Alternate B				
				Class E Asphalt Concrete with Specified Compaction	Class E Asphalt Concrete without Specified Compaction	Class E Asphalt Concrete with Specified Compaction	Class E Asphalt Concrete without Specified Compaction			
		Station	to	Station		(Ton)	(Ton)			
Section 4	US16	65+60.00	2nd	98+78.35	2nd	Exception	1473.3	1513.2		
	US16	99+71.66	2nd	116+14.17	2nd		729.3	749.0		
Section 5	US16	116+14.17	2nd	116+87.50	2nd	Equation	32.6	33.4		
	US16	0+00.00	3rd	0+88.44	3rd	Exception	39.3	40.3		
	US16	1+55.56	3rd	9+37.50	3rd		347.2	356.6		
Section 6	US16	9+37.50	3rd	13+04.04	3rd	Equation	162.7	167.1		
	US16	13+03.92	3rd	21+60.16	3rd	Equation	380.2	390.4		
	US16	21+60.00	3rd	21+88.00	3rd		12.4	12.8		
Section 7	US16	21+88.00	3rd	26+56.10	3rd		398.4	409.2		
Additional Quantities								1365.4	1390.2	
		Total					3575.4	1365.4	3672.0	1390.2

Summary of Asphalt Concrete Compaction - Project Number P 016A(09)22 - PCN 05MP										
				Alternate A		Alternate B				
				Class E Asphalt Concrete with Specified Compaction	Class E Asphalt Concrete without Specified Compaction	Class E Asphalt Concrete with Specified Compaction	Class E Asphalt Concrete without Specified Compaction			
		Station	to	Station		(Ton)	(Ton)			
Section 7	US16A	26+56.10	3rd	39+68.50	3rd		1117.0	1147.2		
Section 9	US16A	0+00.00	4th	14+70.00	4th		652.7	670.3		
	US16A	14+70.00	4th	17+00.00	4th	Transition	121.3	124.5		
Additional Quantities							263.2	566.9	270.3	573.4
		Total					2154.2	566.9	2212.3	573.4

Table of Guardrail

Structure Number	Remove Double W Beam Guardrail For Reset (Ft)	Remove W Beam Guardrail For Reset (Ft)	Remove Rubrail For Reset (Ft)	Remove W Beam Guardrail Flared End Terminal For Reset (Each)	Remove W Beam Guardrail Special Anchor Assembly For Reset (Incidental)	Reset W Beam Guardrail Flared End Terminal (Each)	Reset W Beam Guardrail Special Anchor Assembly (Incidental)	Reset Rubrail (Ft)	Beam Guardrail Post And Block (Each)	Reset W Beam Rail (Ft)	Reset Double W Beam Rail (Ft)
US16 PCN 04E6											
17-214-079	50	437.5	48	4		4		48	94	437.5	50
Total	50	437.5	48	4		4		48	94	437.5	50
US 16A PCN 05MP											
17-254-067	50	150	48	4		4		48	58	150	50
17-256-066	50	150	48	3	1	3	1	48	49	150	50
Total	100	300	96	7	1	7	1	96	107	300	100

RESET BEAM RAIL

The Contractor shall furnish new galvanized steel hardware for resetting beam rail in accordance with the details provided in these plans. All costs associated with this work shall be incidental to the contract unit price per foot for the rail being reset.

Removal for reset and reset of the Special Guardrail Anchor Assembly shall be incidental to the various other guardrail items.

Structure Number 17-256-066 will require the reset of 7 CRT posts with the reset of the curved W-Beam guardrail. All costs for resetting the CRT posts shall be incidental to the contract unit price per foot for Reset W-Beam Rail.

GUARDRAIL DELINEATORS

The Contractor shall remove and reset guardrail delineators on all portions of guardrail as per standard plate 632.40. All costs for removing and resetting guardrail delineation shall be incidental to the contract unit price per foot for the various guardrail removal and reset items.

MAILBOXES

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

If large mailboxes are located at double mailbox installations, a single post may need to be used for the large mailbox.

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

Table of Mailbox Refurbishing - PCN 05MP

US 16A MRM	L/R	Refurbish Single Mailbox (Each)	Refurbish Double Mailbox (Each)
24.111	L		1
24.239	L	1	
24.295	L	1	
24.814	L		3
24.833	L		2
25.139	R	1	
25.195	L		1
25.790	L		1
25.968	L		1
26.049	L	1	
Total		4	9

Table of Mailbox Refurbishing - PCN 04E6

US 16 MRM	L/R	Refurbish Single Mailbox (Each)	Refurbish Double Mailbox (Each)
22.994	R	1	
23.661	R	1	
24.073	L	1	
24.874	R		3
24.936	L		1
24.985	L	1	
25.235	R	1	
25.398	L		1
25.494	L	1	
25.713	L	1	
Total		7	5

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	18	106

PERMANENT SIGNING

The Contractor shall furnish all signs, posts, stiffeners, bases, hardware, and labor for installation of permanent signs in size, type, and quantity as shown in these plans and/or as required by the Engineer. The Contractor shall match style, legend, and size for non-standard signs.

The Contractor shall provide all labor and equipment necessary to install permanent signing, remove existing signs, and reset existing signs as detailed in these plans and/or as required by the Engineer. Payment for furnishing and installing permanent signs will be paid for at the contract unit price for each type of sign based on sheeting requirements per square foot of sign. Payment for new signposts, hardware, bases, and labor will be made at the contract unit price per foot for 2.0" x 2.0" perforated tube post. Breakaway post details regarding posts, hardware, and bases shall be followed as per the manufacture's recommendations. The sign post contract items shall include post bases and all hardware. The lengths of the posts in the sign tables are approximate lengths only. The post lengths shall be verified by the Contractor. The Contractor is urged to cut posts to length on job site after site by site verification of post length.

The Contractor shall use Telespar brand (or equivalent) posts and bases on all new standard highway signs as approved by the Engineer. All post materials shall conform to Section 982 of the Standard Specifications, and be in accordance with ASTM specifications. Signs designated as requiring a shear slip base shall have a 4 foot long base assembly with a shear breakaway base connecting the base to the signpost. The height of the post shall not exceed the minimum height needed by more than 0.5 feet. Any portion that extends above the sign shall be cut off. No separate payment will be made for cutting the post or for that length cut off. All posts and bases shall be accompanied by Certificates of Compliance and shall meet all safety standards as set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).

The Contractor shall stake the signs and the Engineer will verify the location prior to installation and no additional payment will be made for staking. This is incidental to various bid items on the project. The lateral distance from the roadway and the height of the sign shall be established by the Contractor according to the Typical Signing Details, as well as the Standard Plates in the plans and the MUTCD.

PERFORATED TUBE POST

Payment for 2.0" x 2.0" perforated tube post shall include all costs for labor, equipment, and materials necessary to complete the following work:

1. Furnish all posts, stiffeners, breakaway bases, soil stabilizers, and hardware.
2. Assembly and installation of breakaway base sign supports as per details shown in these plans.
3. Assembly of sign(s) to sign post as per erection details for Highway Signs as shown in these plans.
4. Installation of sign post and sign(s).

SHEETING REQUIREMENTS

All legend and border utilizing the color black shall be vinyl or screen printed black, non-reflectorized material. All other legend and border shall be of same type of sheeting as the background of the same sign. All signs in the Permanent Signing Table that call for "HIGH" sheeting shall have High Intensity Prismatic retro-reflective background, Type IV as per AASHTO designation M 268 (ASTM D4956) as noted in the Permanent Signing table.

SIGN LEGEND, BORDER, BACKGROUND, AND MOUNTING

The sign colors shall be as stipulated in the MUTCD. When signs are vertically mounted in succession, they shall be 1-2 inches apart. Lateral placement of signs shall be determined by the Engineer.

REMOVE, SALVAGE, RELOCATE & RESET TRAFFIC SIGN

The Contractor shall remove signs, posts, and bases for remove and stockpile as shown in the table for Permanent Signing. All existing signs, posts, and hardware removed as per these plans remain property of the State of South Dakota and shall be transported to the Rapid City DOT South Maintenance Yard by the Contractor. The Contractor shall notify the Engineer two days prior to time of delivery to the maintenance yard so correct placement for storage and inventory of materials can be made upon receipt.

All bolts, nuts, and washers shall be removed. Backing materials shall be separated from the signs and may be reused at the Contractor's discretion.

Any post assembly including sign, post, or bases that call for being removed, relocated or reset in the remarks column in the Table of Permanent Signing shall be included in the contract unit price per each for "Remove, Salvage, Relocate & Reset Traffic sign". All other signs, posts, and bases that call for removal and stockpile shall be included in the contract unit price per each for "Salvage Traffic Sign". These payments shall include all cost for labor and equipment to remove, dismantle, backfill holes (wooden posts only) and deliver signs to the Rapid City DOT Maintenance Yard.

HARDWARE

Aluminum U-Channel stiffeners shall be used on all standard highway signs greater than or equal to 36" in width and shall conform to Alloy 6063-T6 or 6061-T6. The U-Channel shall be 2 inches in width and free of holes. The U-Channel stiffeners shall also be used to connect various signs and perforated tube posts together so that an entire sign can be erected as a single installation. Stiffeners may be fastened to signs by use of 1/4" drive rivets with a minimum of one on each end and one centered between each post. Installation of the stiffeners shall be incidental to other contract items.

2" perforated tube signpost base material shall be fastened with 5/16" diameter corner bolts (Grade 2).

All 2.0" perforated tube signposts shall have a soil stabilizer attached to the base. Soil stabilizers shall be MPJ sign wedge style or equivalent.

All signs and sign assemblies mounted on concrete or asphalt surfacing shall use a surface mount breakaway assembly for square posts. The Contractor shall use Xcessories Squared brand, Kleen Break Model 425 Surface Mount Coupler Assembly for 1 3/4" & 2" square post or equivalent.

All flush mount breakaway base design shall be submitted to the Engineer for approval two weeks prior to installation and shall meet the requirements of NCHRP Report 350.

FURNISH & INSTALL FLAT ALUMINUM SIGNS / NON-REMOVABLE COPY HIGH INTENSITY

Measurement of sign areas will include payment for the entire sign blank before trimming for rounded corners. The square unit measurement for each sign shall be as shown in the Permanent Signing Table. The payment shall include all labor (including installing date decals), equipment, and materials to complete the work, and shall be paid for at the contract unit price per square foot for Flat Aluminum Sign/Non-Removable Copy High Intensity.

PERMANENT SIGNING - Mt. Rushmore Road

STATION (APPROX.)	NEW STATION (APPROX.)	SIGN								POST					DESCRIPTION	REMARKS
		Width (in)	Height (in)	Number	Facing Traffic	New Sign	Remove Existing	Square Footage	Sheeting Type	New Post	Length (ft)	Size (in)	#	Shear Slip Base		
23.30 L	SAME	12	24	R7-8	WESTBOUND	FLAT ALUM	NO	2.0	IV	YES	10.0	2.0	1	-	RESERVED PARKING - HANDICAP WITH LAW	INSTALL NEW SIGN ON NEW POST
23+35R	SAME	12	24	R7-8	EASTBOUND	FLAT ALUM	NO	2.0	IV	YES	10.0	2.0	1	-	RESERVED PARKING - HANDICAP WITH LAW	INSTALL NEW SIGN ON NEW POST
29.92R	SAME	12	24	R7-8	EASTBOUND	FLAT ALUM	NO	2.0	IV	YES	10.0	2.0	1	-	RESERVED PARKING - HANDICAP WITH LAW	INSTALL NEW SIGN ON NEW POST
29+93L	SAME	12	24	R7-8	WESTBOUND	FLAT ALUM	YES	2.0	IV	NO	-	-	-	-	RESERVED PARKING - HANDICAP WITH LAW	SALVAGE EXISTING SIGN & REPLACE WITH NEW SIGN
31+84R	SAME	12	24	R7-8	EASTBOUND	FLAT ALUM	NO	2.0	IV	YES	10.0	2.0	1	-	RESERVED PARKING - HANDICAP WITH LAW	INSTALL NEW SIGN ON NEW POST
34+36	SAME	12	24	R7-8	WESTBOUND	FLAT ALUM	YES	2.0	IV	NO	-	-	-	-	RESERVED PARKING - HANDICAP WITH LAW	SALVAGE EXISTING SIGN & REPLACE WITH NEW SIGN
34+36	SAME	12	6	R7-8P	WESTBOUND	FLAT ALUM	NO	0.5	IV	NO	-	-	-	-	VAN ACCESSIBLE	INSTALL NEW SIGN UNDER RESERVED PARKING SIGN
37+74	SAME	12	24	R7-8	EASTBOUND	FLAT ALUM	NO	2.0	IV	YES	10.0	2.0	1	-	RESERVED PARKING - HANDICAP WITH LAW	INSTALL NEW SIGN ON NEW POST
38+73	SAME	12	24	R7-8	WESTBOUND	FLAT ALUM	NO	2.0	IV	YES	10.0	2.0	1	-	RESERVED PARKING - HANDICAP WITH LAW	INSTALL NEW SIGN ON NEW POST

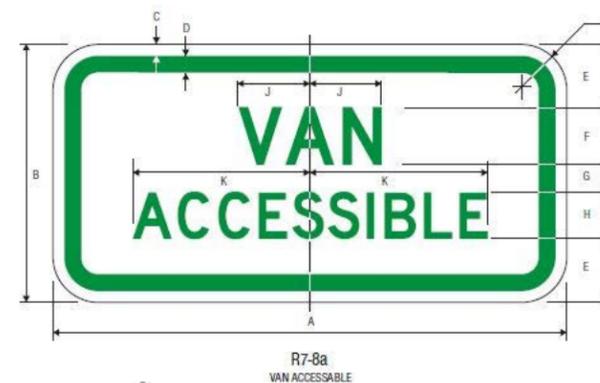
R7-8 RESERVED PARKING – HANDICAP WITH LAW SIGN DESIGN

This sign shall be green (retroreflective) legend on a white (retroreflective) background. blue (retroreflective) on a white (retroreflective) background.



R7-8a VAN ACCESSIBLE SIGN DESIGN

This sign shall be green (retroreflective) legend on a white (retroreflective) background



A	B	C	D	E	F	G	H	J	K	L
12	6	.375	.438	1.5	1.5D	.5	1 D	1.871	3.869	1.5

PERMANENT PAVEMENT MARKINGS

All surfaces have existing markings and the Contractor is encouraged to review this route prior to bidding.

All areas to be painted shall be thoroughly broomed prior to placement of any permanent paint to the satisfaction of the Engineer.

All markings shall be of High Grade Polymer Paint and grooved in. Except for parking lane lines from 4th Street to 8th Street, they shall not be grooved in and shall be painted with High Grade Polymer Paint. The total number of parking spaces are as follows:

PCN: 04E6
From 4th St. to 5th St. - WB 22 & EB 24

PCN: 05MP
From 5th St. to 6th St. - WB 26 & EB 24
From 6th St. to 7th St. - WB 26 & EB 19
From 7th St. to 8th St. - WB 12 & EB 14

All cost for material, labor, and equipment necessary to furnish and install the parking lane lines and parking gore areas shall be incidental to the contract unit price for Pavement Marking Paint, 4" white.

Crosswalks and Stop bars shall be grooved in and painted. All cost for materials, labor, and equipment necessary to furnish and install the Crosswalks and Stop bars shall be incidental to the contract unit price for Grooving for Durable Pavement Marking, 24" and Pavement marking Paint, 24" white.

Handicap Symbols shall be painted and not grooved in. There are 9 locations as shown in the Pavement Marking Layout between 4th Street and 8th Street. All cost for materials, labor, and equipment necessary to furnish and install the Pavement Marking Symbol shall be incidental to the contract unit price for Pavement Marking Paint, Symbol.

Raised Curb shall be painted (Yellow) in areas as shown in the pavement marking layout. There is approximately 250 feet to be painted. All cost for materials, labor, and equipment necessary to furnish and install the curb painting shall be incidental to the contract unit price for Curb Painting.

Left turn arrows and right turn arrows shall be grooved in and painted. All cost for materials, labor, and equipment necessary to furnish and install the turn arrows shall be incidental to the contract unit price for Grooving for Durable Pavement Marking, Arrows and Pavement Marking Paint, Arrow.

Lane reduction arrows shall be grooved in and painted. All cost for materials, labor, and equipment necessary to furnish and install the lane reduction arrows shall be incidental to the contract unit price for Grooving for Durable Pavement Marking, Lane Reduction Arrow and Pavement Marking Paint, Lane Reduction Arrow.

Combination arrows shall be grooved in and painted. All cost for materials, labor, and equipment necessary to furnish and install the combination arrows shall be incidental to the contract unit price for Grooving for Durable Pavement Marking, Combination Arrow and Pavement Marking Paint, Combination Arrow.

Bull Noses shall be grooved in and painted. Bull Noses are calculated to be an estimated 35 Sqft each. All cost for materials, labor, and equipment necessary to furnish and install the bull noses shall be incidental to the contract unit price for Grooving for Durable Pavement Marking, Area and Pavement Marking Paint, Area.

PAVEMENT MARKING PAINT WITH HIGH GRADE POLYMER

This material shall consist of a durable high build, low VOC, fast drying, waterborne traffic paint with a 100% acrylic polymer (DOW DT-400 or DOW HD-21A or equivalent) and with reflective media adhered to the paint. The reflective media shall consist of glass beads as well as bonded core reflective elements.

The bonded core reflective elements shall contain either clear or yellow tinted microcrystalline ceramic beads bonded to the outer surface. All microcrystalline ceramic beads bonded to reflective elements shall have a minimum index of refraction of 1.8 when tested using the liquid oil immersion method.

The Department will take retro-reflectivity 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 retro-reflectometer conforming to 30-meter geometry. Retro-reflectivity readings will be taken on a test location with cleaning being limited to light hand brooming.

Pavement markings not conforming to the Retro-reflectivity requirements shall be removed and replaced. If replacement of markings cannot be applied within the same year, the Contractor shall schedule subject work to be completed no later than June 15th in the following year. Upon replacement, the retro-reflectivity 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 retro-reflectivity readings will be taken at each test location. The three readings will be averaged and become the reading for that test location.

Initial Readings (within 3 - 30 days of the line application):

<u>Pavement Marking Color</u>	<u>Minimum Value</u>
White	350 mcd/m2/lux
Yellow	275 mcd/m2/lux

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

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	NH 0016(85)22 & P 016A(09)22	20	106
Revised 2/29/2016 GDS			

RATES OF MATERIALS FOR HIGH GRADE POLYMER PAINT

Solid 4" Line = 27.8 Gals/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 shall be incidental to the contract unit price per gallon for Waterborne Pavement Marking Paint with High Grade Polymer, White or Yellow.

GROOVE PAVEMENT FOR PAINT WITH HIGH GRADE POLYMER

The Contractor shall establish a positive means for the removal of the grinding and/or grooving residue. Solid residue shall be removed from the pavement surfaces before being blown by traffic action or wind. Residue shall not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, shall be handled in a manner that will prevent it from reaching any waterway in a concentrated state and shall be disposed of at an approved facility. Contractor shall not store or place residue in the Right-of-Way.

Unless otherwise specified in the plans, the Contractor shall groove the surface for Pavement Marking Paint with High Grade Polymer as specified in these plans and as per manufacturer's instructions.

The grooving shall be completed within the following tolerances:

Depth of Groove:	70 mils ± 5 mils
Width of 4" Groove:	5" to 6"
Length of Skip Lines:	10'-6" with tolerance of ± 3"
Tapers at Begin/End Lines:	6" to 9"

The equipment shall be capable of the following:

- Grooving the total width of the groove in one pass or uniform depths with multiple passes.
- Grooving without causing damage to the pavement joints or joint sealant material.
- Providing uniform alignment and depth.
- Moving continuously to permit a mobile traffic work operation.

If damage to joints, joint sealant material, backer rod, etc. occurs, the grooving operation shall be stopped and modifications shall be made to the grooving operation to prevent further damage. The Contractor may be required to use specially prepared circular diamond blade cutting heads to prevent damage at the joints. Damage caused to joints, the joint sealant material, backer rod, etc. shall be repaired or replaced by the Contractor, as directed by the Engineer. No additional payment will be made for the repair work or any reapplication of the pavement marking in the area of the repair. Grooving on bridge decks shall start and stop a sufficient distance from the expansion joints so no damage occurs in these areas. Markings on bridge decks shall be surface applied.

The grooving process shall remove the existing marking that falls within the width of the new groove.

TRAFFIC CONTROL – GENERAL NOTES

1. Requests to deviate from the sequence of operations shall 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 shall be submitted for review a minimum of one week prior to potential implementation.
2. Unless otherwise stated in these plans, no work will be allowed during hours of darkness.
3. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage of the vegetation, surfacing, embankment, delineators, and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.
4. Existing guide, route, informational logo, regulatory, warning signs and delineation shall be temporarily reset and maintained during construction as directed by the Engineer. Removing, relocating, salvaging and resetting of the above items shall be the responsibility of the Contractor.
5. Construction signing mounted on portable supports shall not be used for a duration of more than 3 days, unless approved by the Engineer. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed location, ground mounted, breakaway supports.
6. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.
7. All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.
8. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.
9. All haul trucks shall be equipped with a second flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights shall be incidental to the various related contract bid items.
10. All construction operations shall be conducted in the general direction of traffic movement.
11. If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD – whichever is more stringent shall be used, as determined by the Engineer.
12. Temporary Flexible Vertical Markers (Tabs) shall be used for lane closure tapers or lane shift tapers and shall be installed at 5' spacing. Tabs used for tapers and shifts will not be measured for payment. All costs associated to furnish, install, maintain (including replacement as required by the Engineer at no added cost to the Department), and remove all markers will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

13. Permanent pavement markings, signs, and delineation shall be installed prior to opening the completed roadway to traffic.
14. At no time shall mainline traffic be exposed to differential elevations in traveling lanes due either to milling or paving operations. All lanes that are milled or paved shall be left closed until the adjacent lane is completed in a similar manner with no drop offs. All transitions shall be paved for a smooth ride as approved by the Engineer.
15. At the end of each day's work all traffic, control devices shall be pulled off the roadway and taken down and traffic shall be opened to two lanes. Applicable signing shall remain in place, i.e. "Road Work Ahead" etc.
16. During overlay operations, traffic shall not be delayed more than 5 minutes while crossing intersections.
17. The pilot car shall be a four-wheeled vehicle with the Contractor's name prominently displayed on both sides of the vehicle. The pilot car will be equipped with a flashing amber light.
18. Traffic shall not be delayed for a period longer than 15 minutes.
19. The Contractor shall repeat all applicable construction signing every 2 miles or as directed by the Engineer.
20. The Contractor shall keep the portion of the project being used by public traffic in a condition that will adequately and safely accommodate traffic. A power broom (a pickup type street sweeper with sufficient water), will be required to clean all loose debris off of paved surfacing.
21. Bump Signs (W8-1, black on orange) with appropriate Advisory Speed Plaque (W13-1P, black on orange) shall be placed 500' in advance of the bump or as approved by the Engineer for adequate sight distance. Type I Object Markers (orange - 18"x18") shall be placed at the bump location.
22. Road Work Ahead (W20-1) signs shall be placed at applicable intersecting roads and as directed by the Engineer.
23. The Contractor shall not allow mainline traffic to run on a milled surface at any location on the project for more than 14 calendar days.
24. The Contractor shall place Uneven Lane (W8-11) signs where appropriate.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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REFLECTORIZED SHEETING REQUIREMENTS FOR TEMPORARY TRAFFIC CONTROL DEVICES

Delete the first paragraph of Section 984.1 and replace with the following:

Temporary traffic control devices, including signs, drums, cones, tubular markers, barricades, vertical panels, and direction indicator barricades shall be reflectORIZED with sheeting applied to a satisfactory backing. For all temporary traffic control warning signs, the reflective sheeting shall meet or exceed the standards of Type VII, Type VIII, Type IX, or Type XI as defined by AASHTO M 268 (ASTM D4956). For all other temporary traffic control signs, the reflective sheeting shall meet or exceed the standards of Type IV, Type V, Type VII, Type VIII, Type IX, or Type XI as defined by AASHTO M 268 (ASTM D4956). For barricades, vertical panels, and direction indicator barricades; the reflective sheeting shall meet or exceed the standards of Type III as defined by AASHTO M 268 (ASTM D4956). Round surfaced temporary traffic control devices including, but not limited to; drums, cones, and tubular markers shall be reflectORIZED with reflectORIZED sheeting meeting or exceeding the standards of Type IV as defined by AASHTO M 268 (ASTM D4956). All orange colored material shall be fluorescent.

ITEMIZED LIST OF TRAFFIC CONTROL DEVICES

PCN 04E6

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R3-7R	RIGHT LANE MUST TURN RIGHT	2	30" x 30"	6	12
R4-7	KEEP RIGHT (symbol)	4	24" x 30"	5	20
W3-4	BE PREPARED TO STOP	2	48" x 48"	16	32
W4-1	MERGE (symbol)	2	48" x 48"	16	32
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16	32
W8-1	BUMP	2	48" x 48"	16	32
W8-11	UNEVEN LANES	6	48" x 48"	16	96
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6	12
W20-1	ROAD WORK AHEAD	22	48" x 48"	16	352
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	4	48" x 48"	16	64
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-2	FRESH OIL	4	48" x 48"	16	64
W21-5	SHOULDER WORK	2	48" x 48"	16	32
W21-5a	LEFT or RIGHT SHOULDER CLOSED	2	48" x 48"	16	32
W21-5b	LEFT or RIGHT SHOULDER CLOSED AHEAD	2	48" x 48"	16	32
G20-2	END ROAD WORK	9	36" x 18"	5	45
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					953

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Single Sided	6 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Arrow Board	2 Each

ITEMIZED LIST OF TRAFFIC CONTROL DEVICES (CONTINUED)

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	22	106

PCN 05MP

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R3-7R	RIGHT LANE MUST TURN RIGHT	2	30" x 30"	6	12
R4-7	KEEP RIGHT (symbol)	4	24" x 30"	5	20
W3-4	BE PREPARED TO STOP	2	48" x 48"	16	32
W4-1	MERGE (symbol)	2	48" x 48"	16	32
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16	32
W8-1	BUMP	2	48" x 48"	16	32
W8-11	UNEVEN LANES	6	48" x 48"	16	96
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6	12
W20-1	ROAD WORK AHEAD	20	48" x 48"	16	320
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	4	48" x 48"	16	64
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-2	FRESH OIL	4	48" x 48"	16	64
W21-5	SHOULDER WORK	2	48" x 48"	16	32
W21-5a	LEFT or RIGHT SHOULDER CLOSED	2	48" x 48"	16	32
W21-5b	LEFT or RIGHT SHOULDER CLOSED AHEAD	2	48" x 48"	16	32
G20-2	END ROAD WORK	8	36" x 18"	5	40
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					916

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Single Sided	6 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Arrow Board	2 Each

SEQUENCE OF OPERATIONS

Work shall proceed according to the following sequence:

1. Install Traffic Control.
2. Perform Micro Milling of in place asphalt concrete surfacing. The Contractor shall be restricted to milling 1-days production in each lane prior to milling ahead on the project. **No uneven lanes will be permitted at night.**
3. Place temporary pavement marking in closed lane.
4. Switch traffic to milled lane and repeat steps 2 & 3.
5. Do spot leveling and dig out repair in closed lane.
6. Resurface closed lane. The Contractor shall be restricted to resurfacing 1-days production in each lane prior to resurfacing ahead on the project.
7. Place temporary pavement marking in closed lane.
8. Repeat steps 5, 6 & 7 for closed lane.
9. Application of Pavement Marking Paint shall begin 7 calendar days after completion.

Exceptions for 4-Lane Sections Only

1. The use of pilot cars will not be needed in 4-lane sections of roadway. At least one lane in each direction shall remain open to traffic at all times through 4-lane sections of road.
2. Uneven lanes shall be allowed in 4-lane sections overnight so long as one of the two lanes traveling in the same direction stays closed with the appropriate traffic control.

Urban Sections

1. The Contractor shall be restricted to closing the adjacent lane/parking in front of any one business for a maximum of 1 Day during milling and resurfacing operations.
2. When milling and resurfacing operations reach an intersection the Contractor may close the intersecting street for one day only if there are alternate routes available. If not, then the Contractor shall perform the work 1/2 of the intersection at a time.
3. The Contractor shall not close intersecting State Highways or Streets adjacent to emergency response units. These intersections shall be completed 1/2 of the intersection at a time.

TEMPORARY PAVEMENT MARKING

Temporary pavement marking paint shall be used on micro-milled surfaces. Temporary pavement marking paint shall be used for centerline delineation and lane line as directed by the Engineer. The Contractor shall conduct his milling and paving operations such that the surfaces only need to be temporarily painted once. Paint shall not be used for Temporary Pavement Marking on the top lift of asphalt concrete.

Temporary Flexible Vertical Markers (Tabs) with covers shall be used on the top lift of asphalt surfacing.

Tabs shall be used on the top lift of asphalt surfacing until permanent pavement marking is applied, and as directed by Engineer.

Tabs shall be attached to the roadway surface with a flexible non-permanent bituminous adhesive capable of being removed from the roadway surface or with an adhesive approved by the Engineer.

The Tabs shall be installed at 5-foot spacing and will be paid for at the contract unit price per foot per 4" line for both Yellow and White markers. The contract unit price per mile for Temporary Pavement Marking will be full compensation for all costs associated to furnish, install, maintain (including replacement as required by the Engineer at no added cost to the Department), and remove all markers.

For a time period of no longer than two weeks, the Contractor may use "DO NOT PASS" signs at 1 mile intervals instead of the pavement markings normally used to identify no passing zones. The cost for furnishing, installing, and removing the DO NOT PASS signs shall be incidental to the contract unit price per mile for Temporary Pavement Marking.

The Contractor shall be responsible for maintaining a visible and reflective centerline throughout the project. Any marking covered or damaged shall be replaced prior to the end of the day.

Flagger symbol signs (W20-7) and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights shall be positioned on the roadway shoulder in advance of workers for both directions of traffic during the installation of temporary road markers. The traffic control device used shall be moved to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1), a Worker symbol sign (W21-1) or a BE PREPARED TO STOP (W3-4) warning sign shall be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work shall be approved by the Engineer.

The total quantity for performing this work is 9.3 miles for PCN 04E6 and 6.5 miles for PCN 05MP.

All costs for temporary pavement marking including furnishing, applying, uncovering, maintenance and removal of tabs shall be incidental to the contract unit price per mile for Temporary Pavement Marking.

TYPE C ADVANCE WARNING ARROW BOARD

The quantity of Type C Advance Warning Arrow Boards paid will be the most installations in place at any one time regardless of the number of setups on the project.

PRESS RELEASE ANNOUNCEMENTS

The SDDOT will prepare a Press Release to be released 5 days prior to any phase change or any other major change that affects traffic flow. The SDDOT will be responsible to keep law enforcement, emergency services, and the traveling public notified of changes in project access. The Contractor shall provide the Engineer with pertinent information 7 days prior to any phase change or any other major changes that affect traffic flow.

Station	L/R	Typical Installation Std. Plate	Remove Concrete Curb and Gutter (Ft)	Remove Concrete Sidewalk (SqYd)	Type B66 Concrete Curb and Gutter (Ft)	Type B6 Concrete Curb (Ft)	4" Concrete Sidewalk (SqFt)
PCN 04E6							
US 16							
23+18	L	Type 1	9.0	8.2	9.0		74.0
23+18	R	Type 1	9.0	8.2	9.0		74.0
PCN 05MP			Total	18.0	16.4	18.0	148.0
US 16A							
30+10	R	Type 1	9.0	8.2	9.0		74.0
31+65	R	Type 1	9.0	8.2	9.0		74.0
34+55	L	Type 1	9.0	8.2	9.0		74.0
37+55	R	Type 3	19.0	11.6	19.0	19.0	95.0
38+90	L	Type 3	19.0	11.6	19.0	19.0	95.0
			Total	65.0	47.8	65.0	412.0

TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	24	106

Plotting Date: 02/23/2016

PLOT SCALE - 1+6.1875

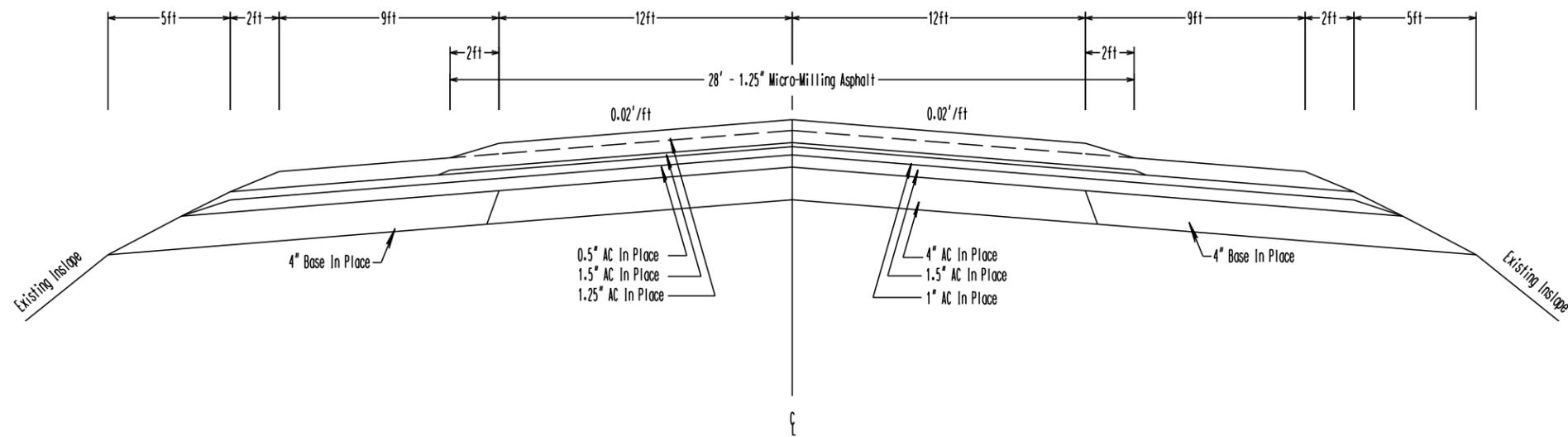
PLOT NAME - 2

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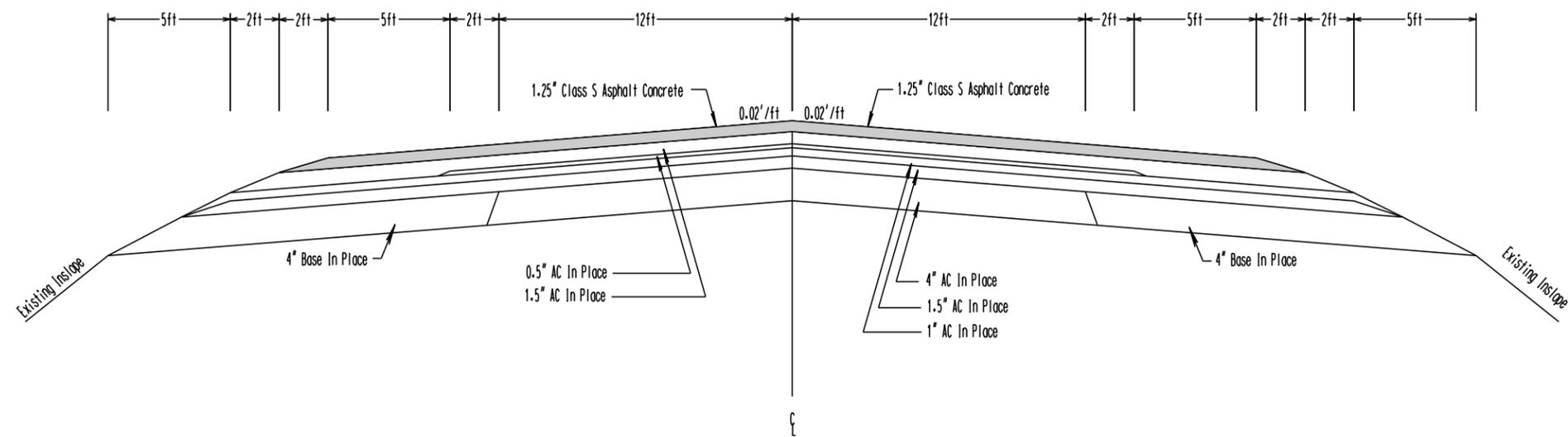
Section 1

	Station	to	Station	Equation
US16	9+87.00		31+53.08	
US16	31+57.40		58+50.00	
US16	14+00.00	2nd	44+31.59	Exception
US16	45+38.41	2nd	65+60.00	2nd

In Place & Micro-Milling Section



Resurfacing Section



PLOTTED FROM - TRRC12608

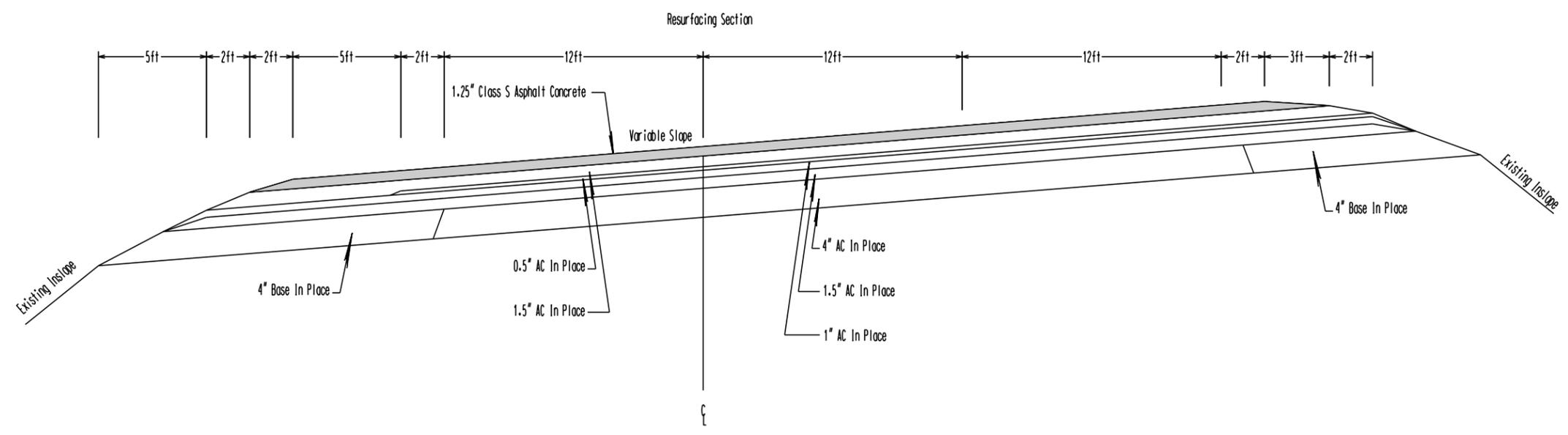
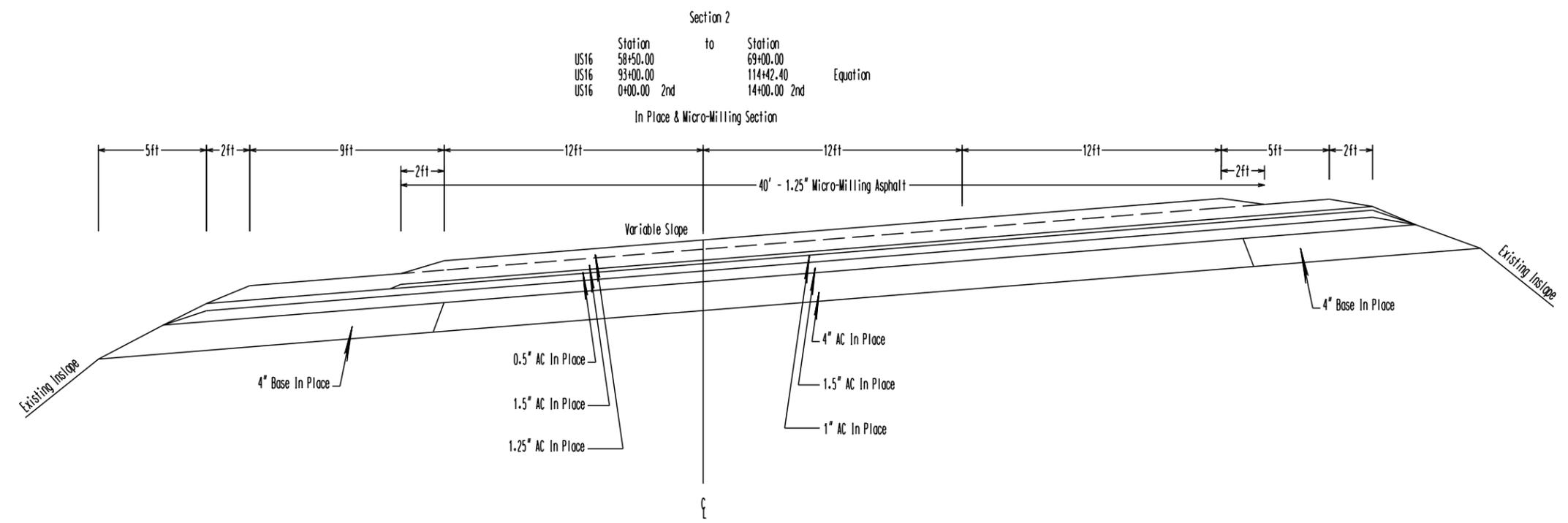
TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	25	106

Plotting Date: 02/23/2016

PLOT SCALE - 1+6.1875

PLOT NAME - 3



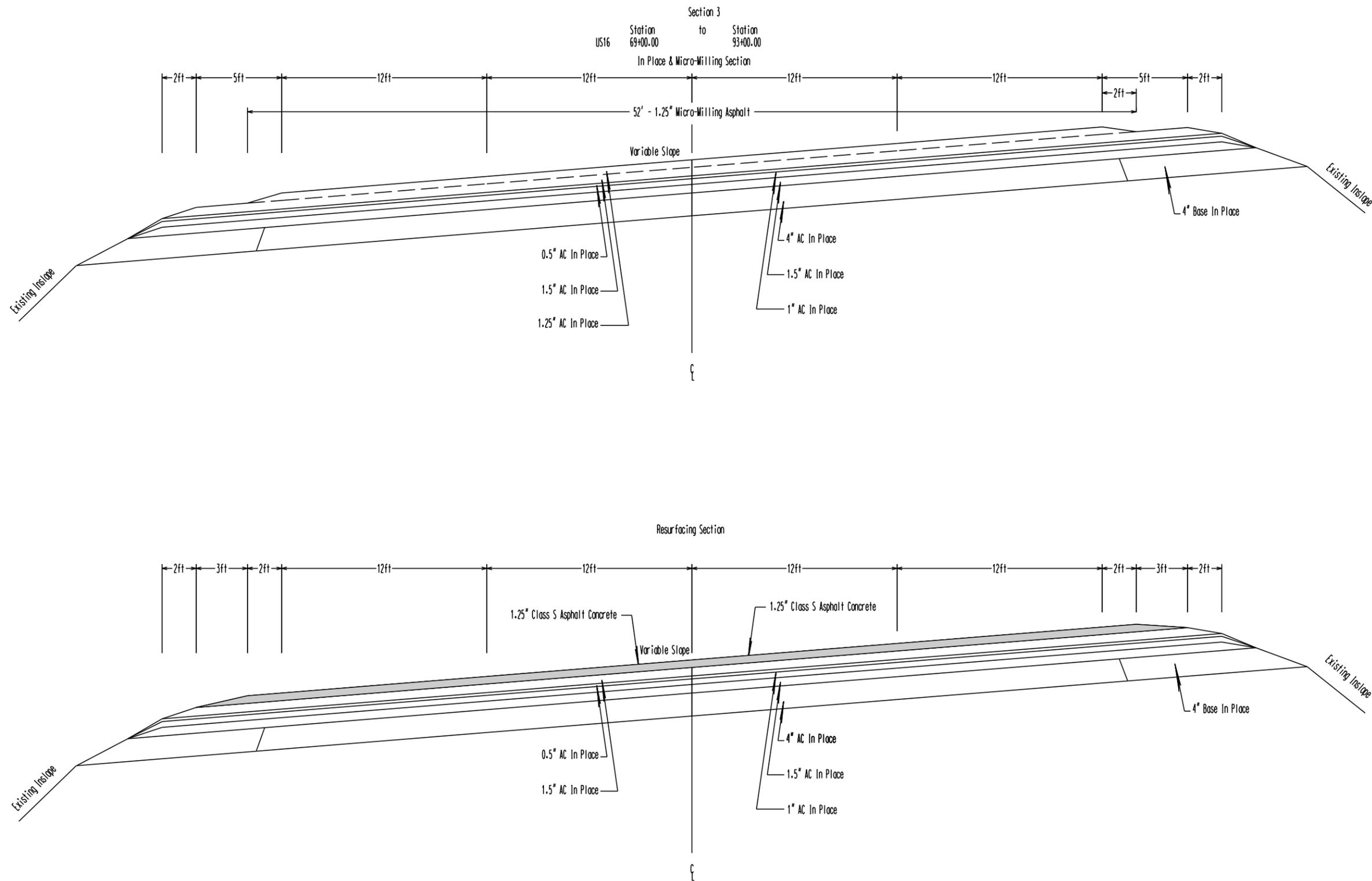
PLOTTED FROM - TRRC12508

FILE - ... \CUST04EG\DESIGN\04EG TYP.DGN

TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	26	106

Plotting Date: 02/23/2016



PLOT SCALE - 1+6.1875

PLOTTED FROM - TRRC12508

PLOT NAME - 4

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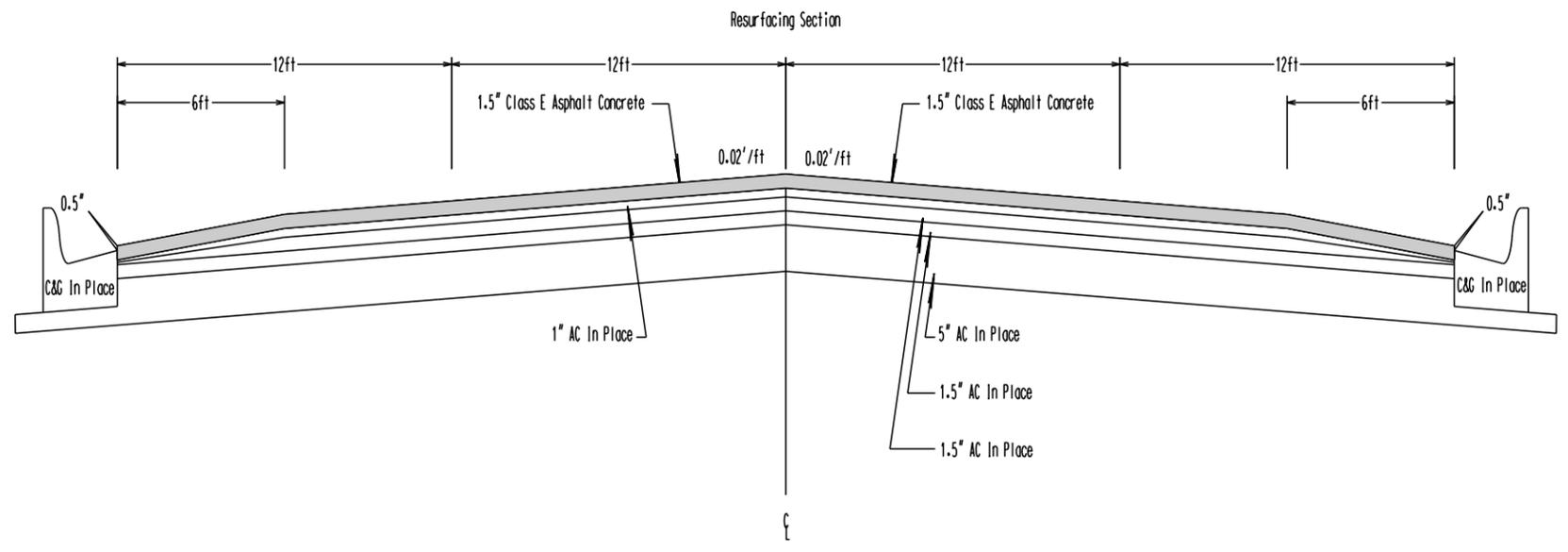
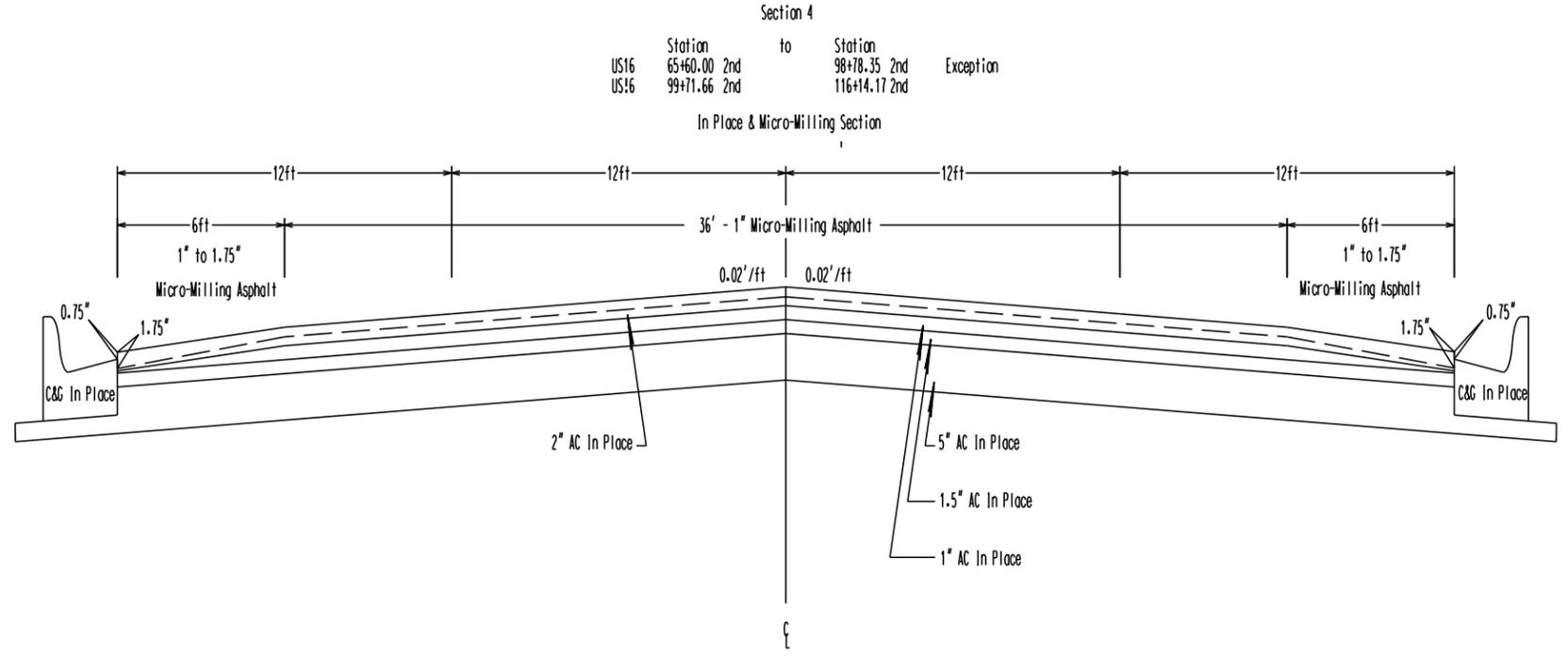
TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	27	106

Plotting Date: 02/23/2016

PLOT SCALE - 1+6.1875

PLOT NAME - 5



PLOTTED FROM - TRRC12508

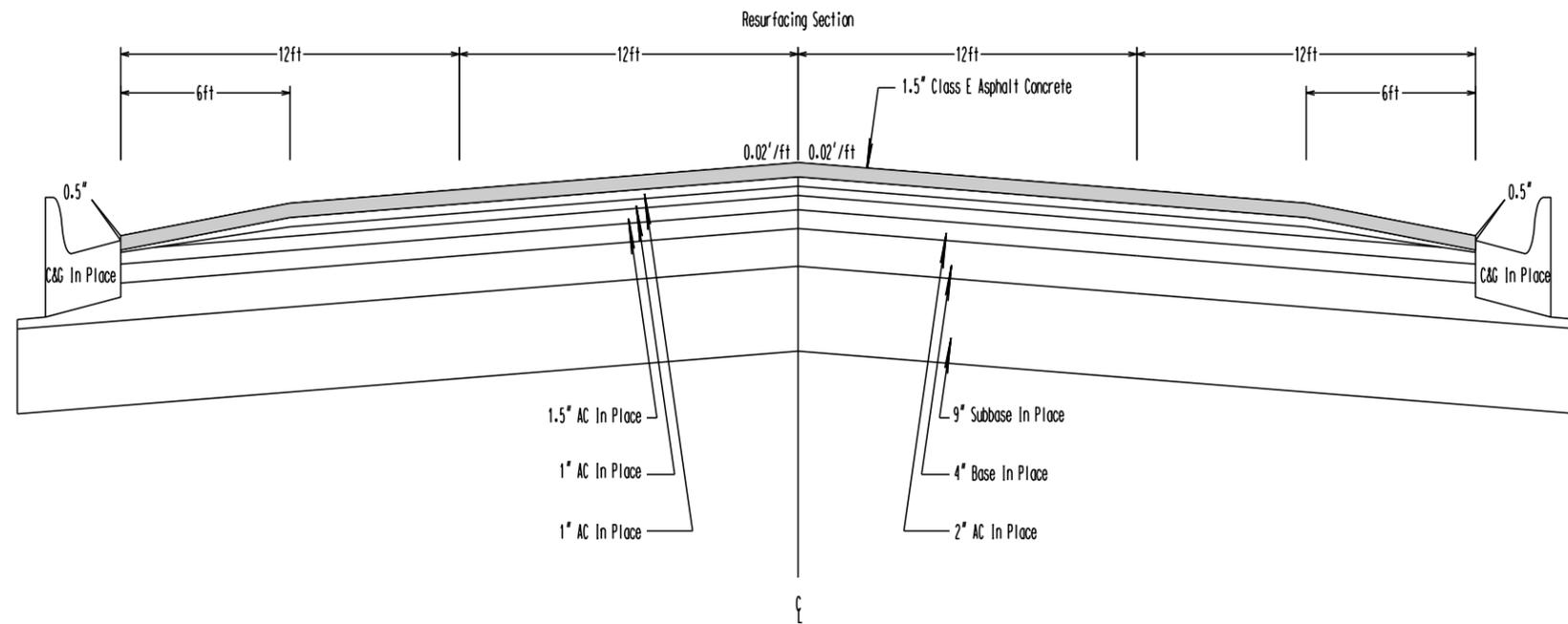
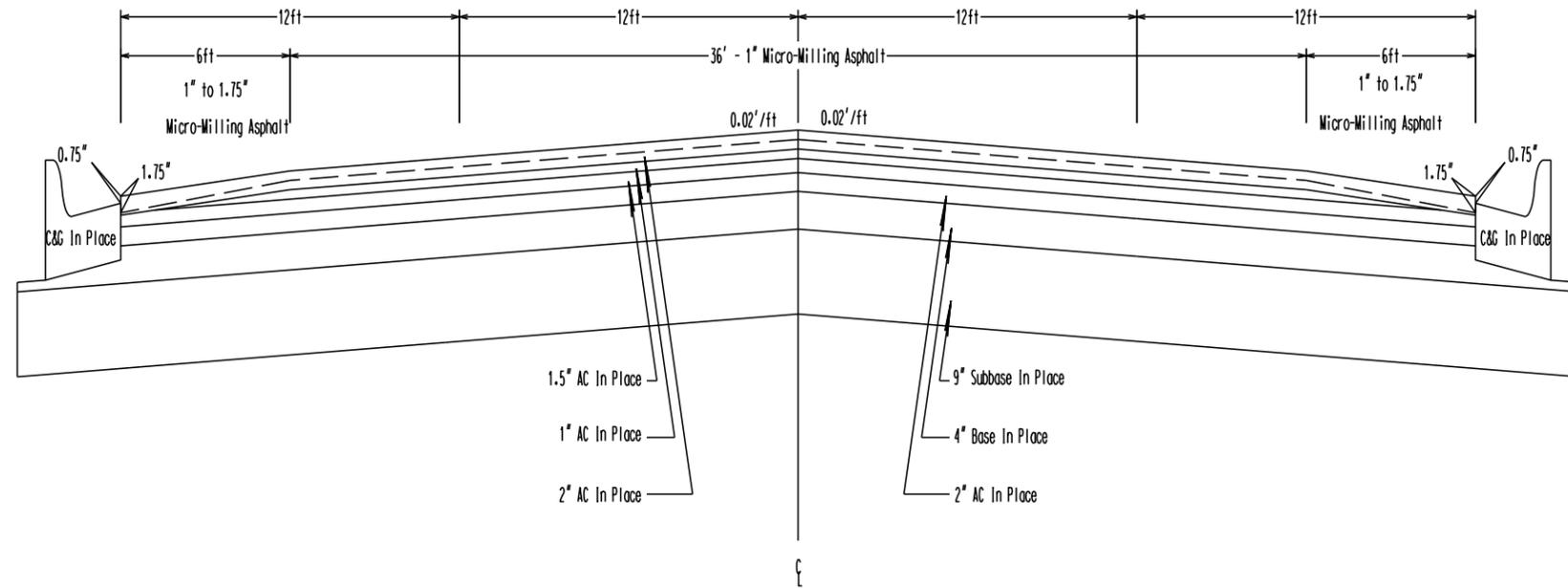
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TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	28	106

Plotting Date: 02/23/2016

Section 5
 Station 116+14.17 2nd to Station 116+87.50 2nd Equation Exception
 US16 0+00.00 3rd 0+88.44 3rd
 US16 1+55.56 3rd 9+37.50 3rd
 In Place & Micro-Milling Section



PLOT SCALE - 1+6.1875

PLOTTED FROM - ITRC12508

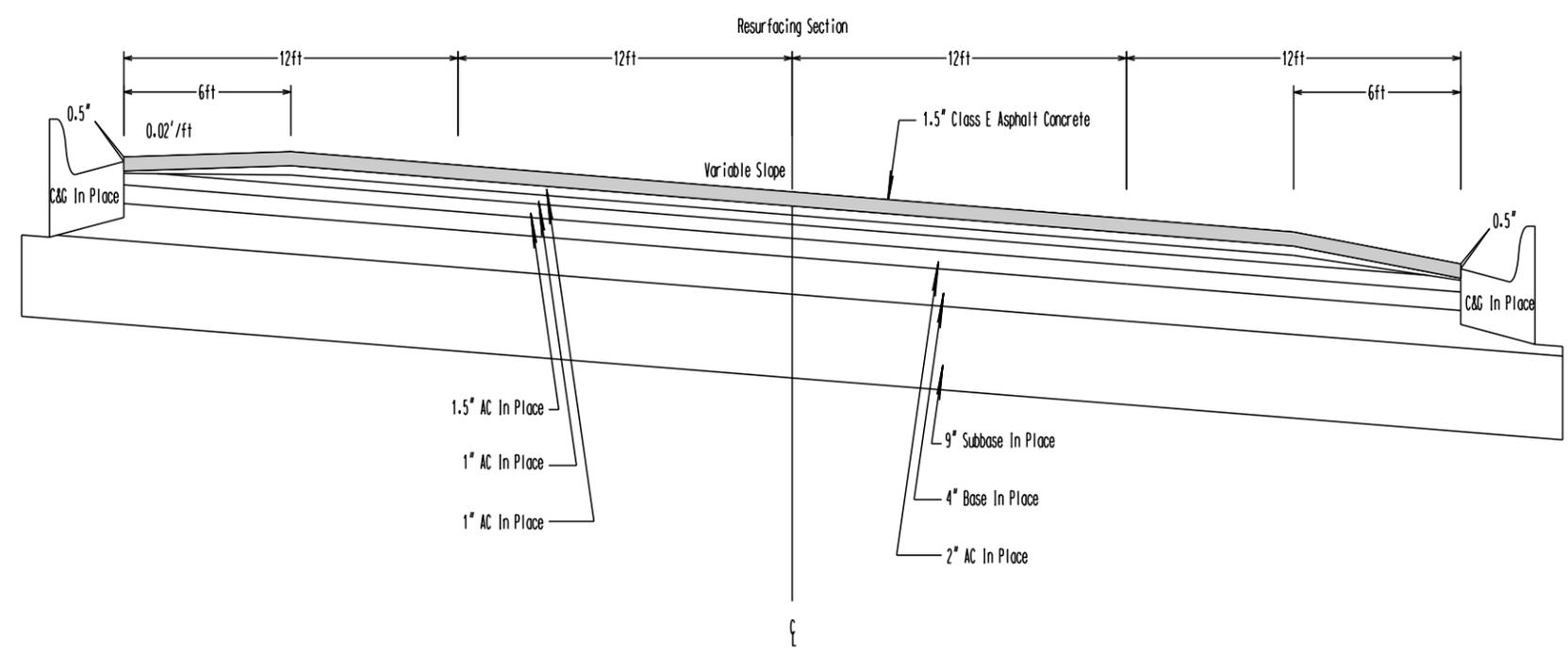
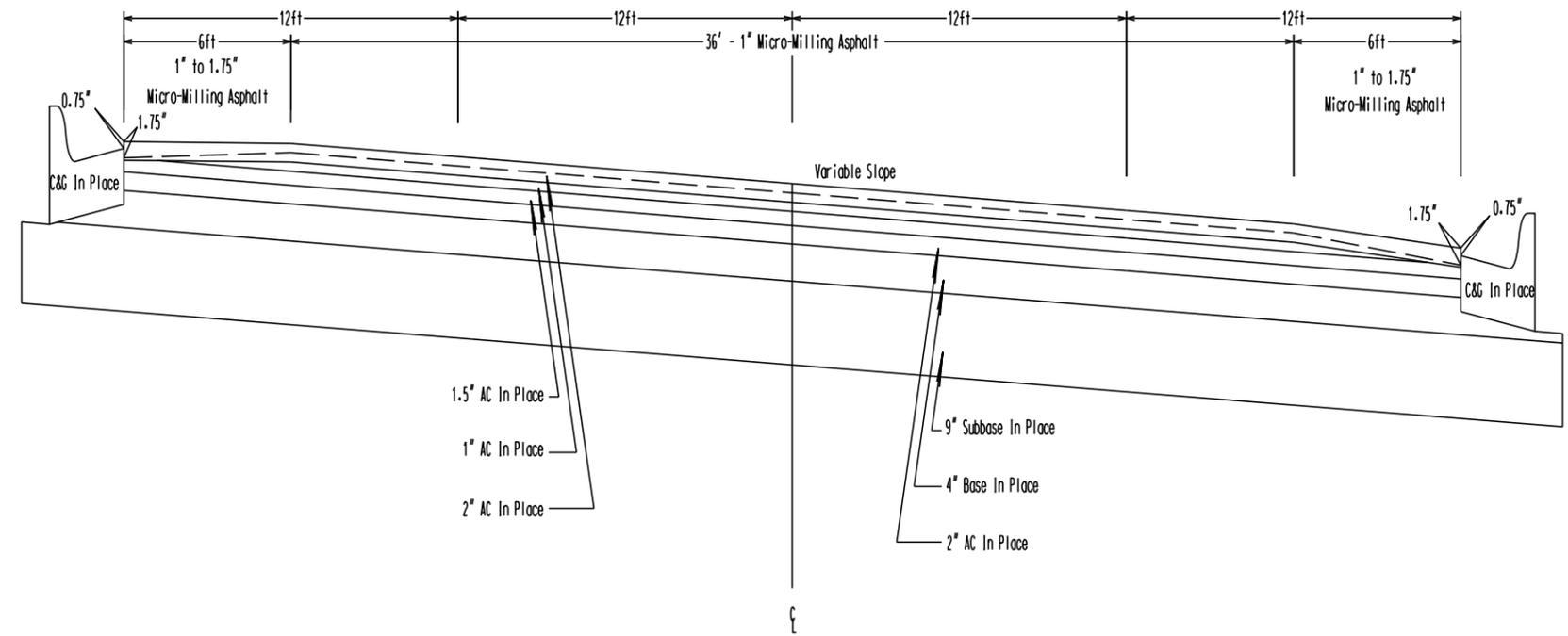
PLOT NAME - 6

FILE - ... \CUST04EG\DESIGN\04EG_TYP.DGN

TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22		
Plotting Date: 02/23/2016		29	106

Section 6
 Station 9+37.50 3rd to Station 13+04.04 3rd Equation
 US16 13+03.92 3rd to Station 21+60.16 3rd Equation
 US17 21+60.00 3rd to Station 21+88.00 3rd Equation
 In Place & Micro-Milling Section



PLOT SCALE - 1/4" = 1'-0"

PLOTTED FROM - ITRC12508

PLOT NAME - 7

FILE - ... \CUST04EG\DESIGN\04EG_TYP.DGN

TYPICAL SECTION

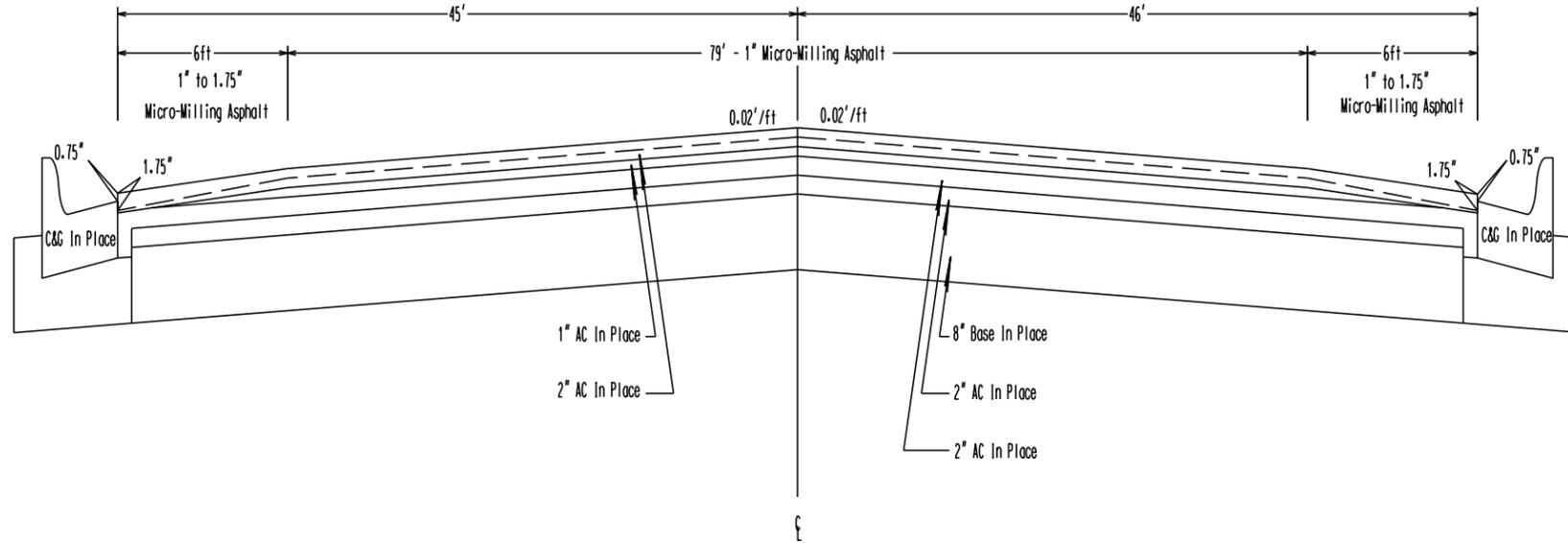
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	30	106

Plotting Date: 02/23/2016

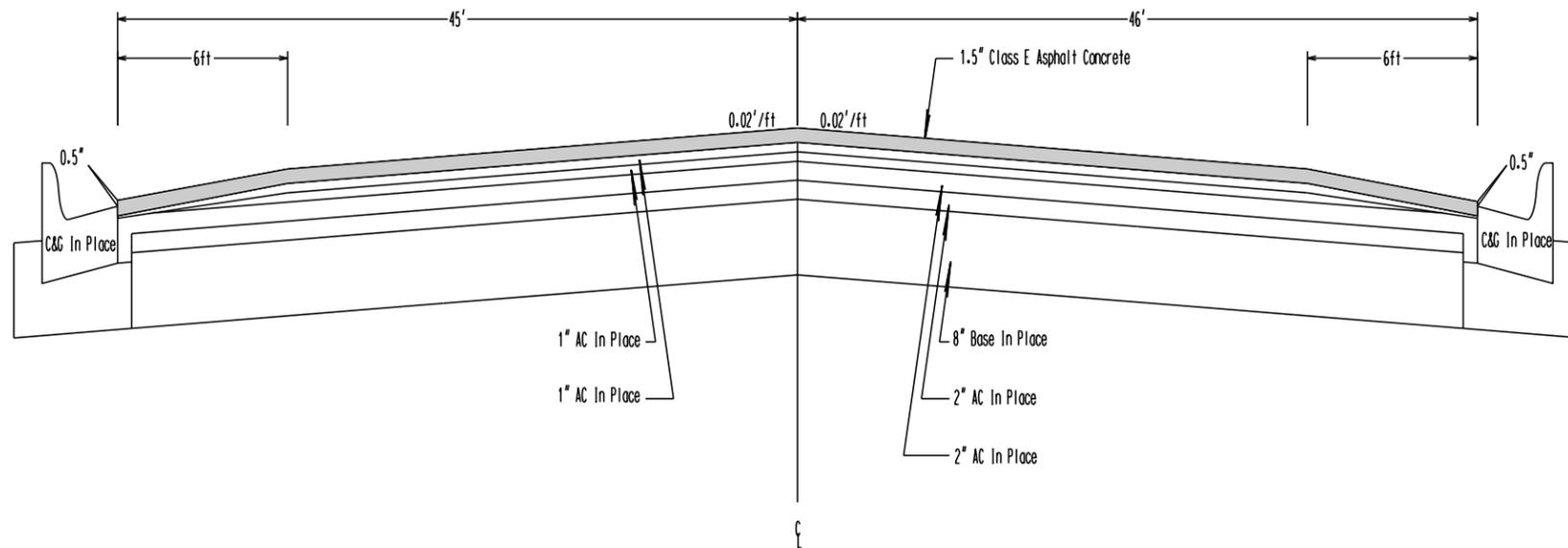
PLOT SCALE - 1+6.1875

PLOT NAME - 8

Section 7
 Station 21+88.00 3rd to Station 26+56.10 3rd
 US16 to Station 26+56.10 3rd to Station 39+68.50 3rd
 US16A In Place & Micro-Milling Section



Resurfacing Section



PLOTTED FROM - TRRC12508

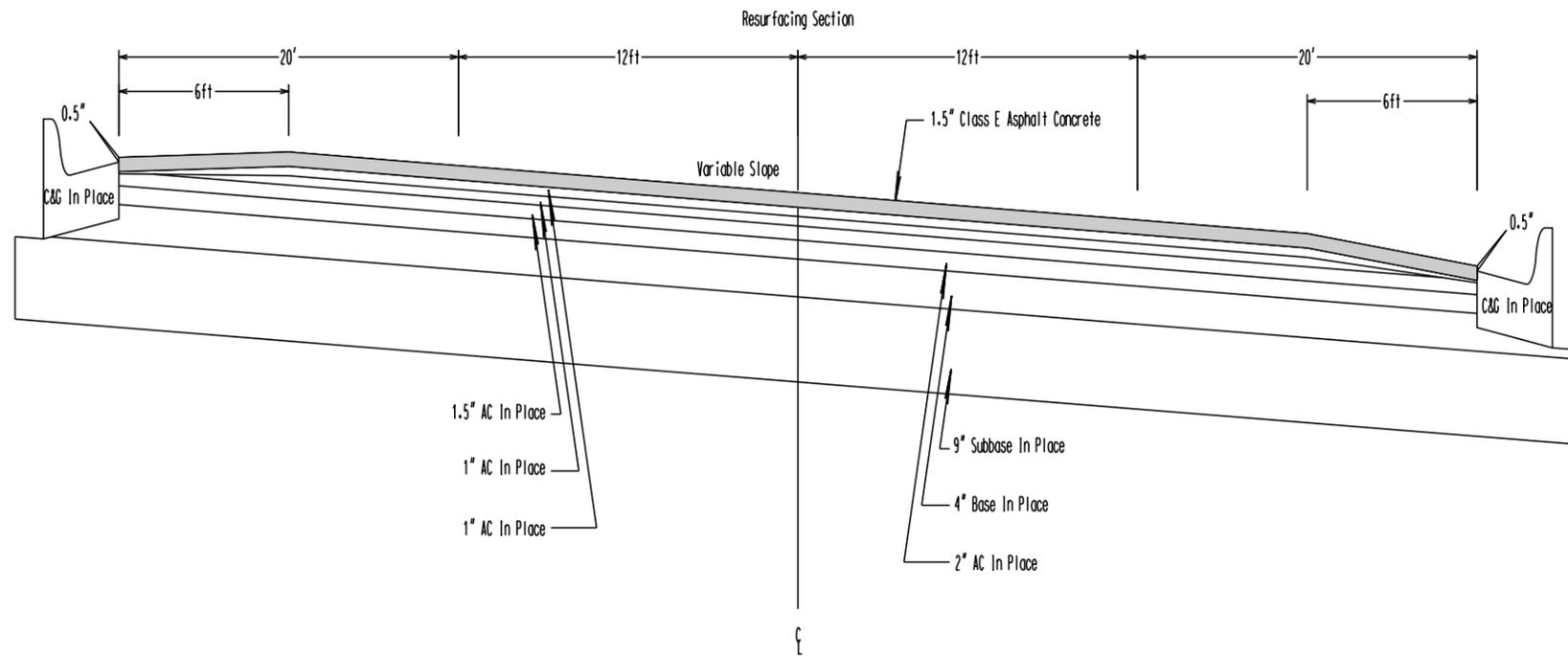
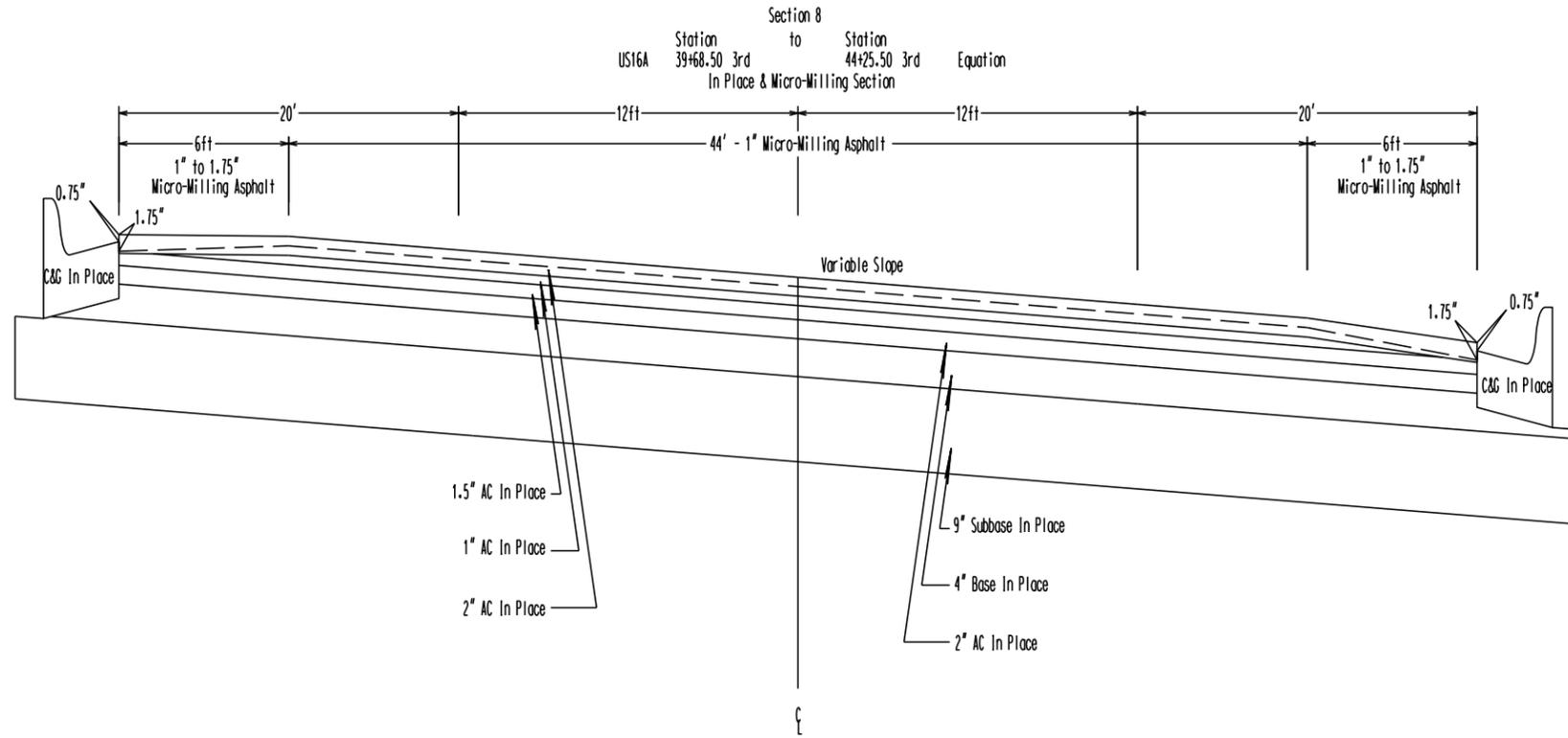
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TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22		
Plotting Date: 02/23/2016		31	106

PLOT SCALE - 1+6.1875

PLOT NAME - 9



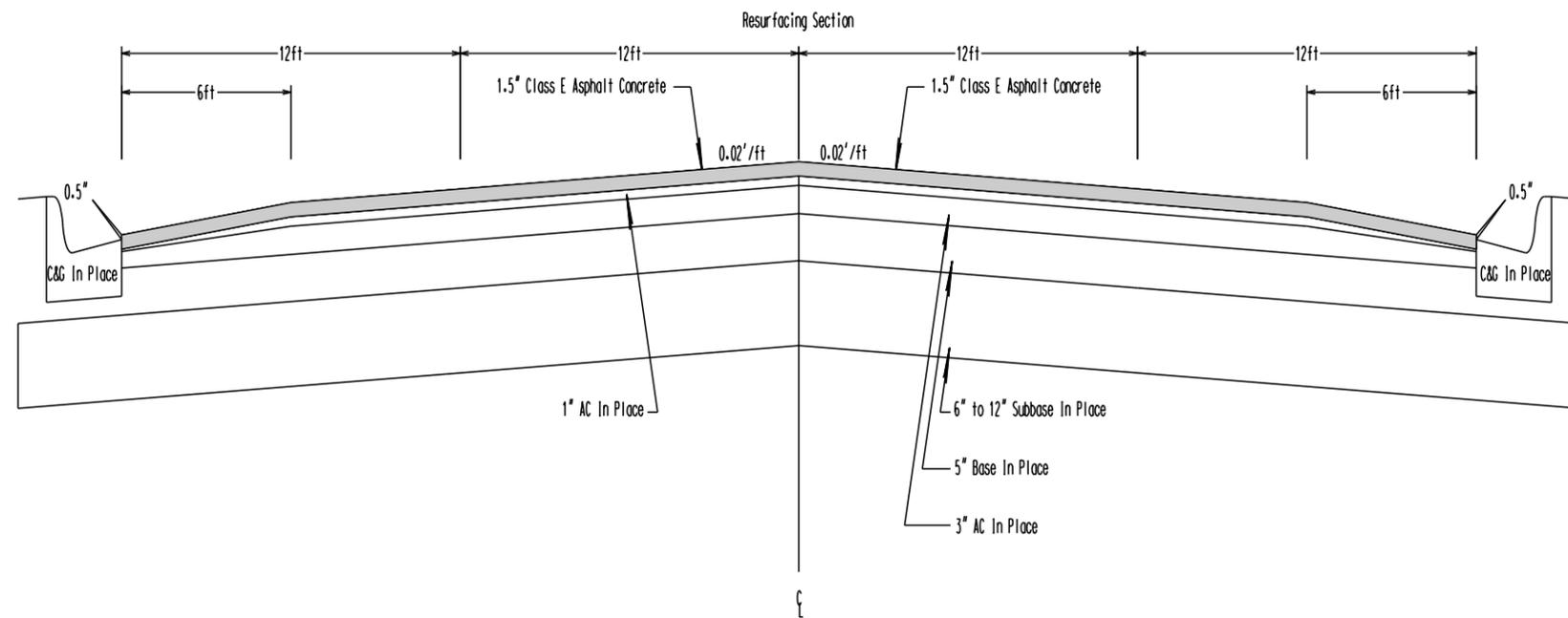
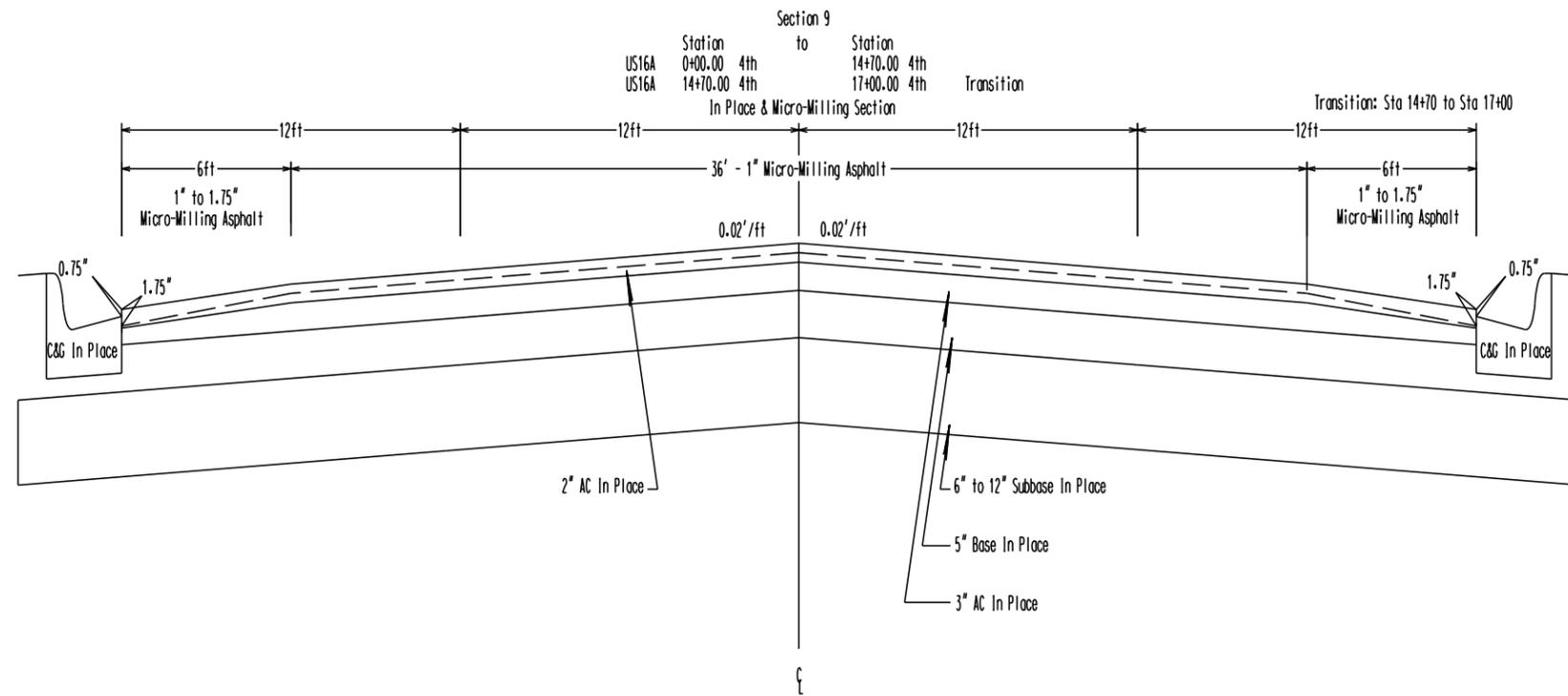
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TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	32	106

Plotting Date: 02/23/2016



PLOT SCALE - 1+6.1875

PLOTTED FROM - ITRC12508

PLOT NAME - 10

FILE - ... \CUST04E6\DESIGN\04E6 TYP.DGN

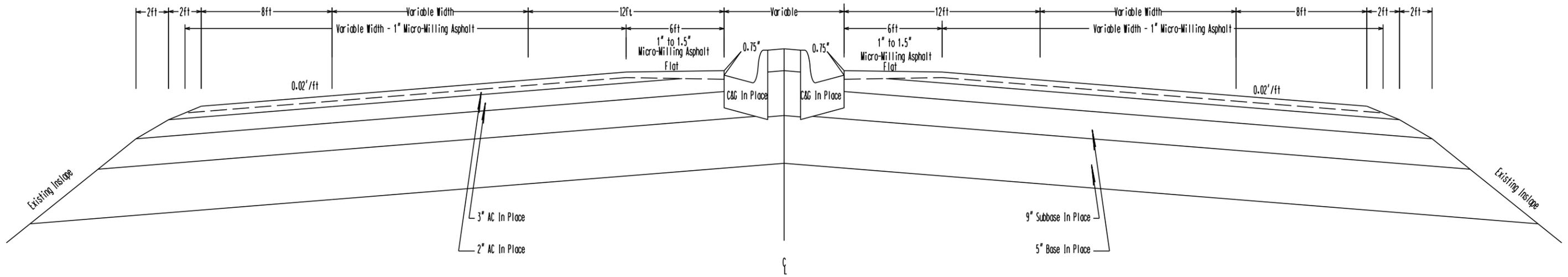
TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22		
Plotting Date: 02/23/2016		33	106

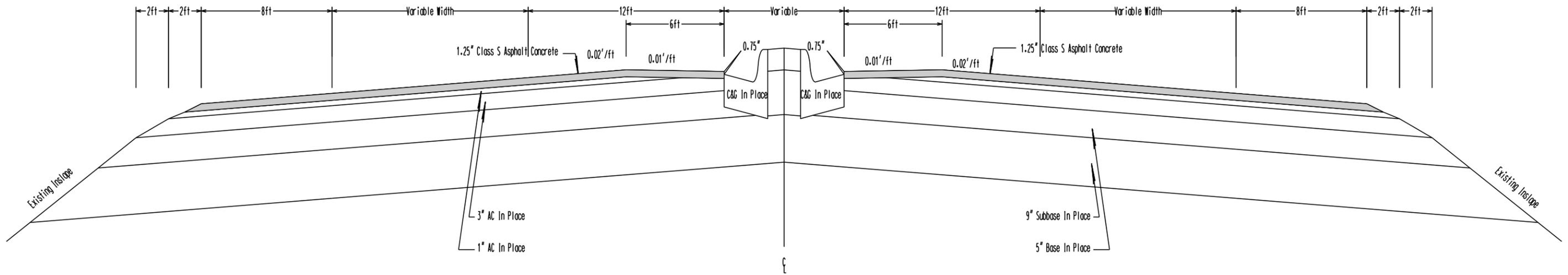
PLOT SCALE - 1+6.18725

PLOT NAME - 11

Section 10
Station 17+00.00 4th to Station 29+00.00 4th
In Place & Micro-Milling Section



Resurfacing Section



PLOTTED FROM - TRRC12508

FILE - ... \CUST04EG\DESIGN\04EG_TYP.DGN

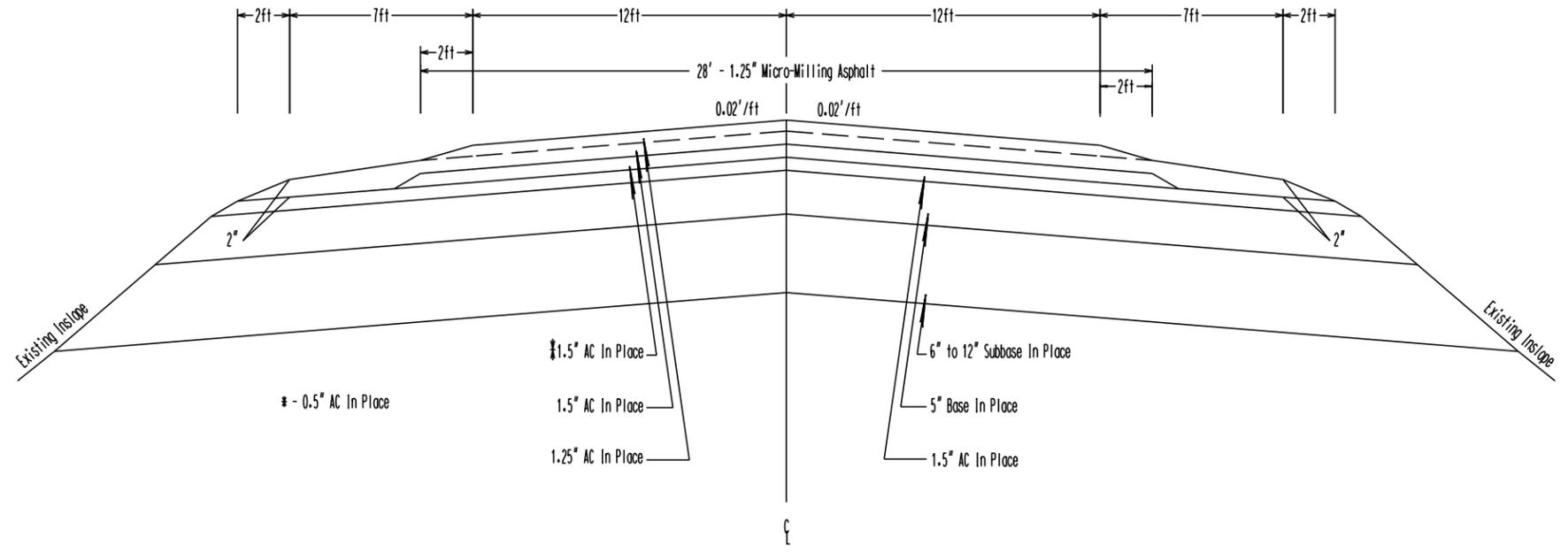
TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22		
Plotting Date: 02/23/2016		34	106

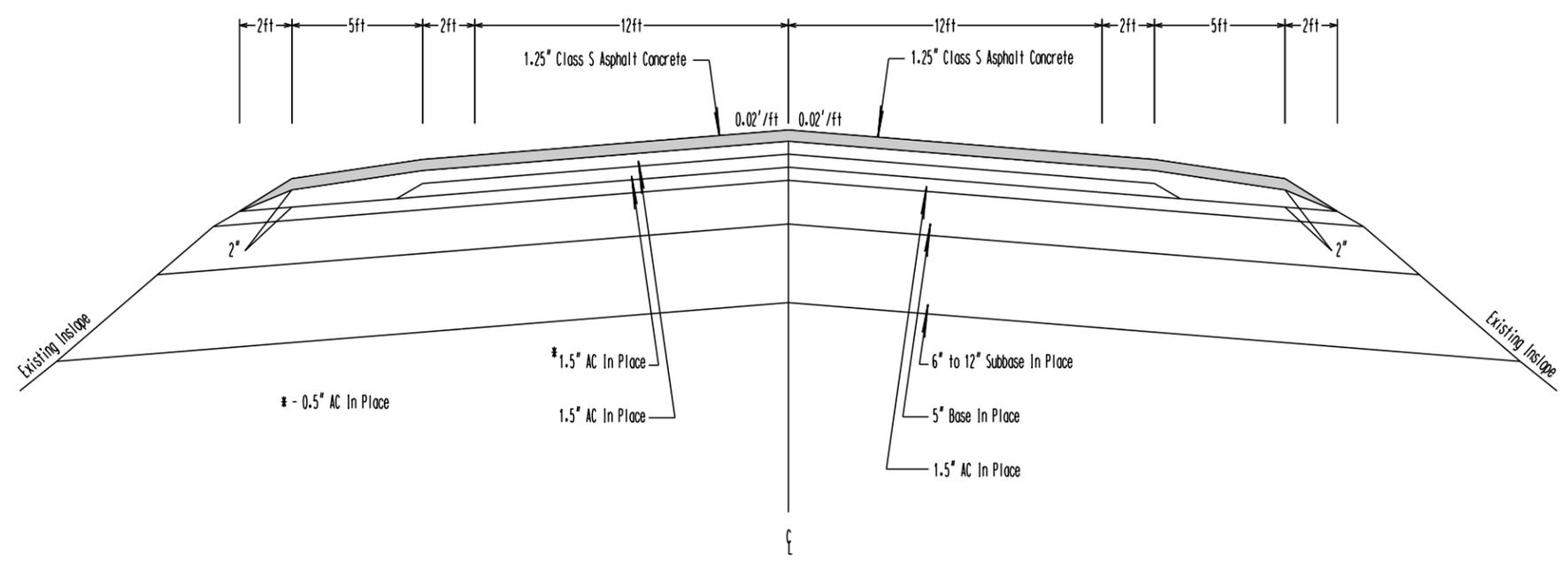
Section 11

Station	to	Station	
US16A 29+00.00 4th		33+00.00 4th	
#US16A 43+00.00 4th		80+00.00 4th	
#US16A 91+00.00 4th		111+25.70 4th	Equation
#US16A 111+24.60 4th		113+90.00 4th	Exception
#US16A 114+80.00 4th		125+89.00 4th	Exception
#US16A 126+79.00 4th		171+50.00 4th	

In Place & Micro-Milling Section



Resurfacing Section



PLOT SCALE - 1+6.1875

PLOTTED FROM - TRRC12508

PLOT NAME - 12

FILE - ... \CUST04EG\DESIGN\04EG_TYP.DGN

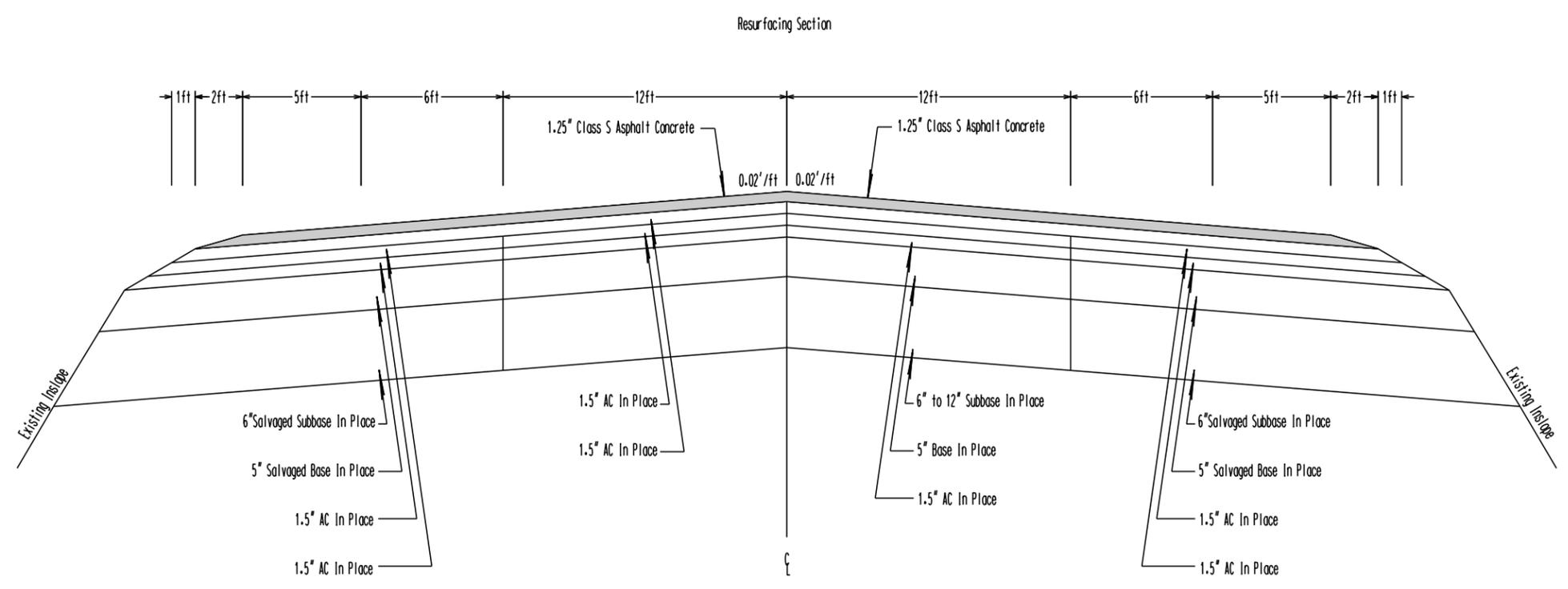
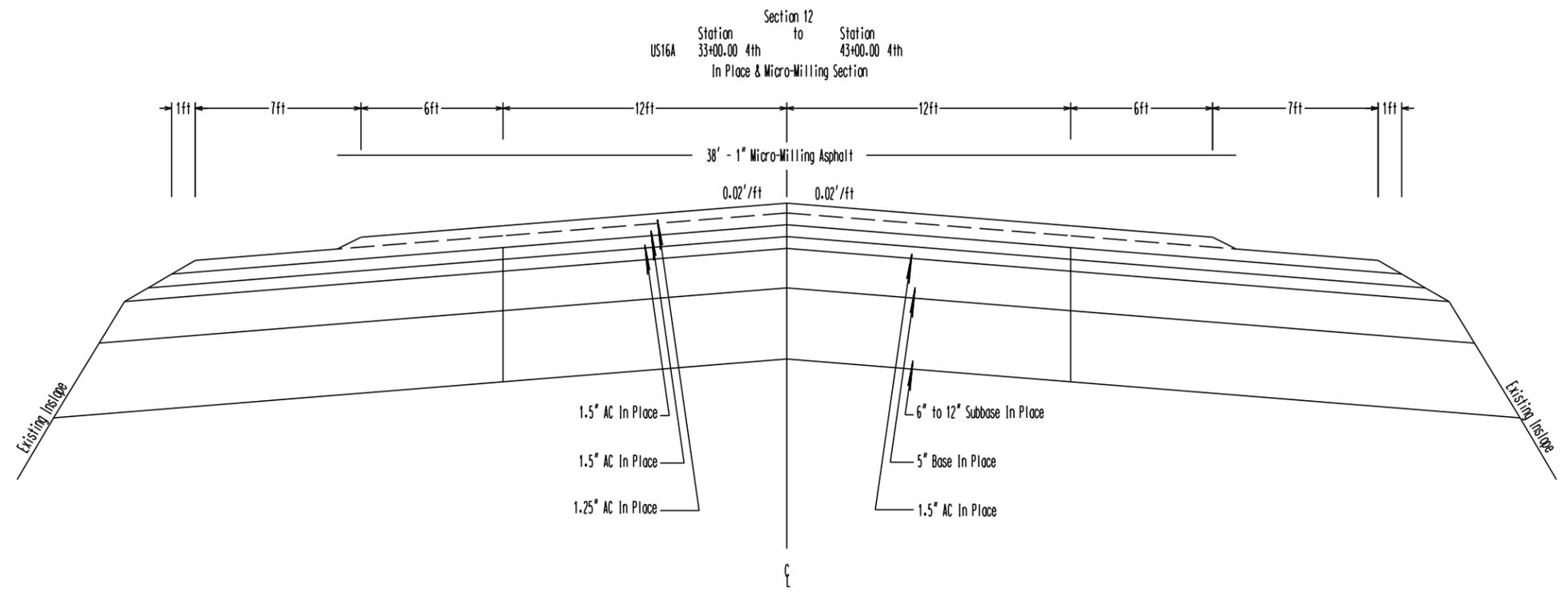
TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	35	106

Plotting Date: 02/23/2016

PLOT SCALE - 1+6.1875

PLOT NAME - 13

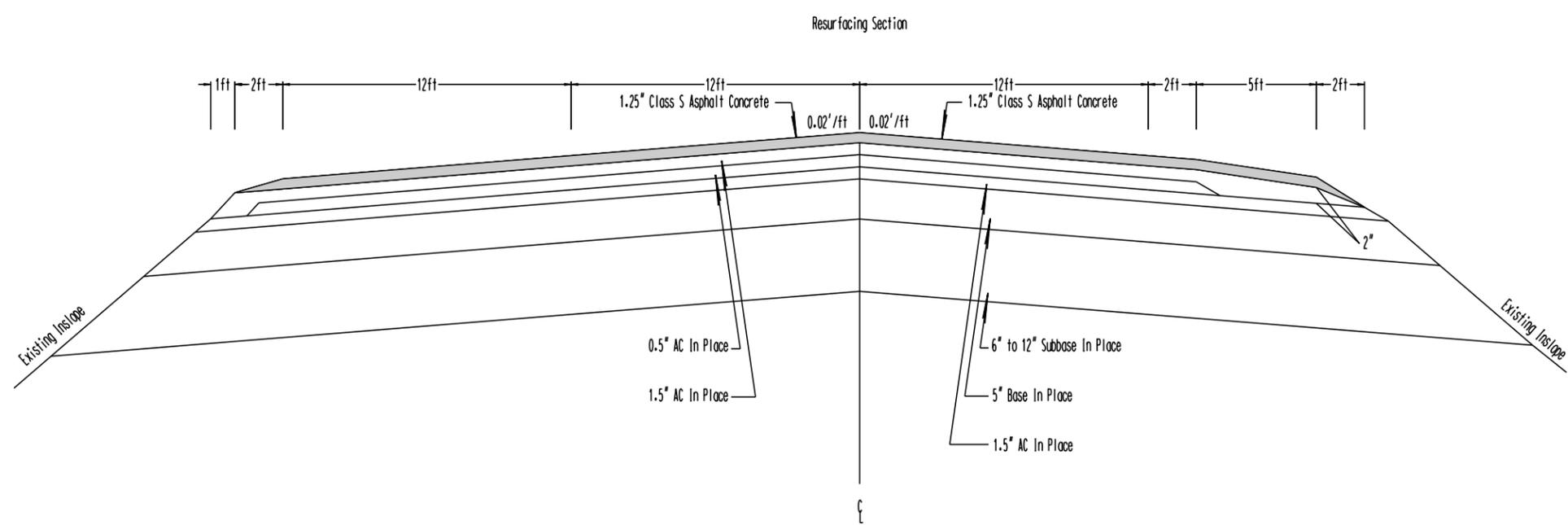
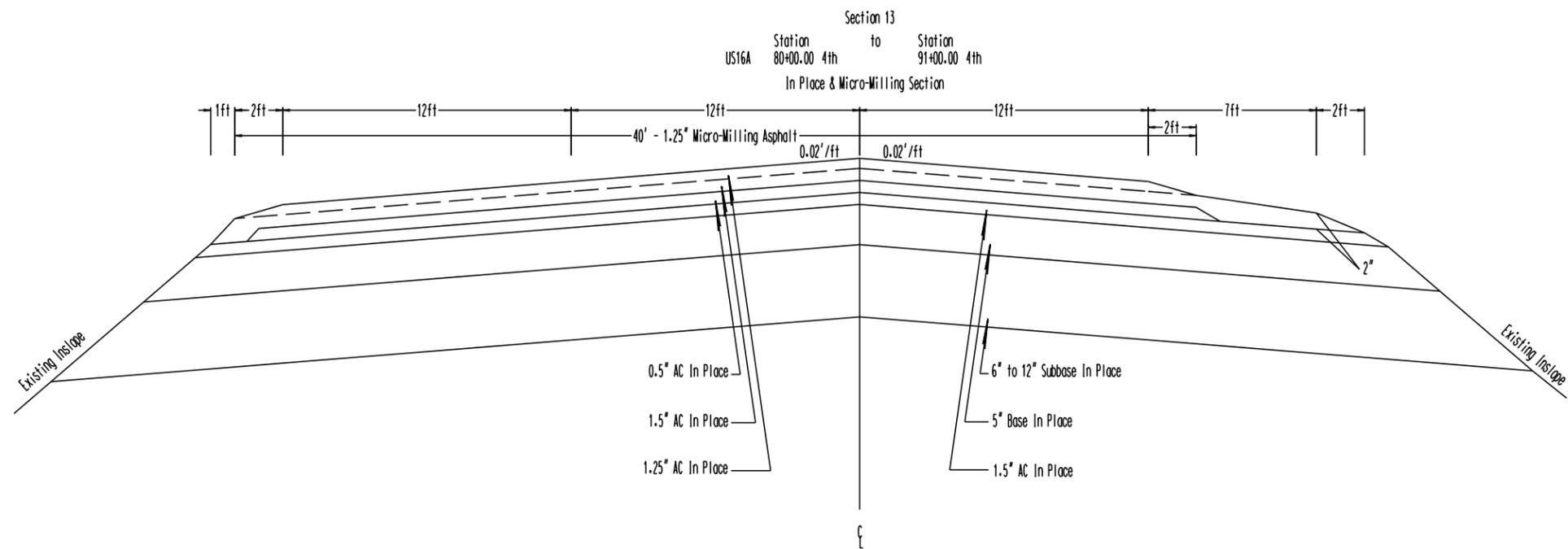


PLOTTED FROM - TRRC12508

FILE - ... \CUST04EG\DESIGN\04EG_TYP.DGN

TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22		
Plotting Date: 02/23/2016		36	106



PLOT SCALE - 1+6.1875

PLOTTED FROM - TRRC12508

PLOT NAME - 14

FILE - ... \CUST04EG\DESIGN\04EG_TYP.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	37	106

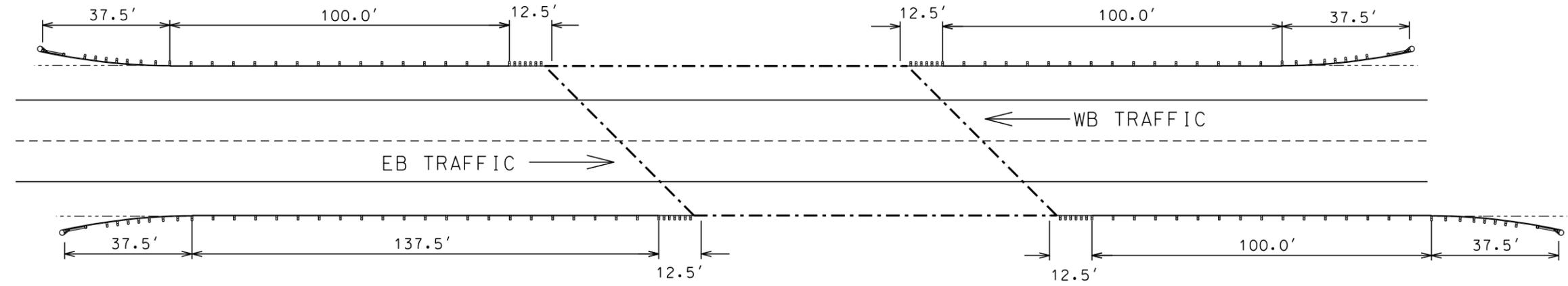
Plotting Date: 02/23/2016

GUARDRAIL LAYOUT

STR. NO. 17 - 214 - 07 9

HIGHWAY 16 - MRM 25 .09

Reset (1) W Beam Guardrail Flared End Terminal Reset (100') W Beam Rail Reset (12.5') Double W Beam Rail Reset (12') Rubrail Reset (12') Rubrail Reset (12.5') Double W Beam Rail Reset (100') W Beam Rail Reset (1) W Beam Guardrail Flared End Terminal



Reset (1) W Beam Guardrail Flared End Terminal Reset (137.5') W Beam Rail Reset (12.5') Double W Beam Rail Reset (12') Rubrail Reset (12') Rubrail Reset (12.5') Double W Beam Rail Reset (100') W Beam Rail Reset (1) W Beam Guardrail Flared End Terminal

PLOT SCALE - 1:36.45

PLOT NAME - 15

FILE - ... \CUST04EG\DESIGN\17-214-079.DGN

PLOTTED FROM - TRRC12508

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	38	106

Plotting Date: 02/23/2016

GUARDRAIL LAYOUT

STR. NO. 17 - 254 - 067

HIGHWAY 16A - MRM 25.01

Reset (1) W Beam
Guardrail Flared
End Terminal

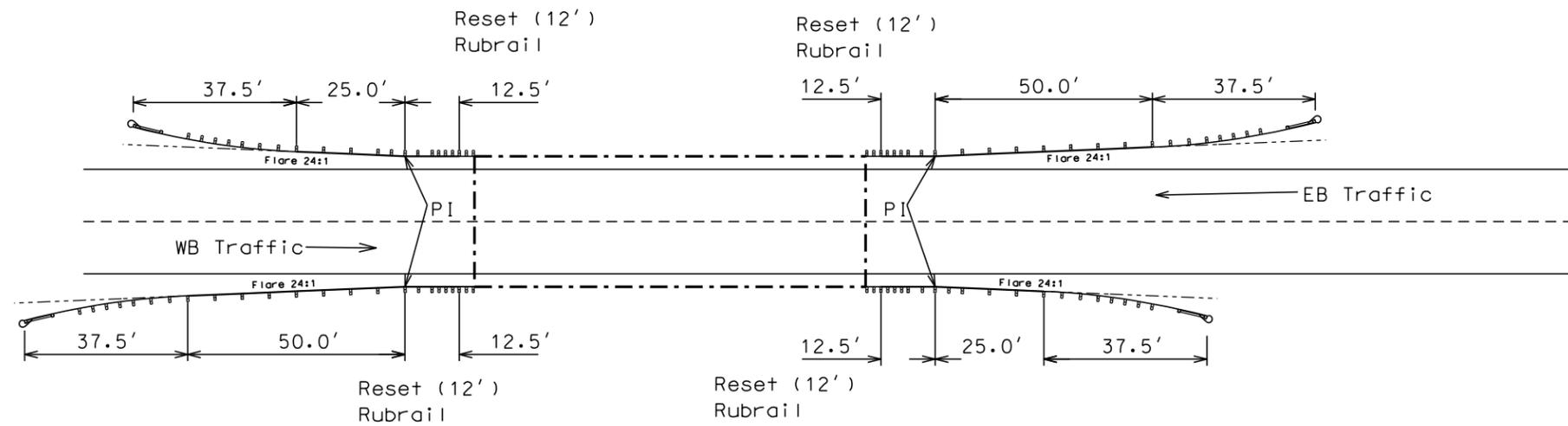
Reset (25')
W Beam Rail

Reset (12.5') Double
W Beam Rail

Reset (12.5') Double
W Beam Rail

Reset (50')
W Beam Rail

Reset (1) W Beam
Guardrail Flared
End Terminal



Reset (1) W Beam
Guardrail Flared
End Terminal

Reset (50')
W Beam Rail

Reset (12.5') Double
W Beam Rail

Reset (12.5') Double
W Beam Rail

Reset (25')
W Beam Rail

Reset (1) W Beam
Guardrail Flared
End Terminal

PLOT SCALE - 1:36.45

PLOT NAME - 16

FILE - ... \CUST04EG\DESIGN\17-254-067.DGN

PLOTTED FROM - TRRC12508

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	39	106

Plotting Date: 02/23/2016

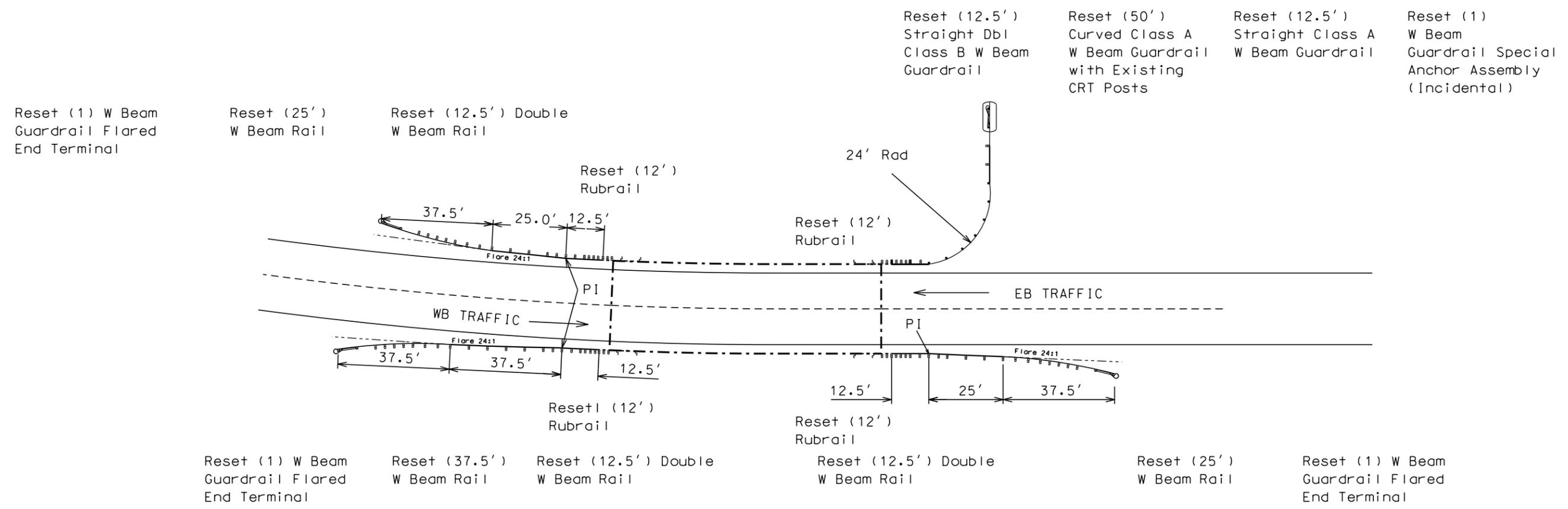
GUARDRAIL LAYOUT

STR. NO. 17 - 256 - 066

HIGHWAY 16A - MRM 25.22

PLOT SCALE - 1:36.45

PLOT NAME - 17



PLOTTED FROM - TRRC12508

FILE - ... \CUST04EG\DESIGN\17-256-066.DGN

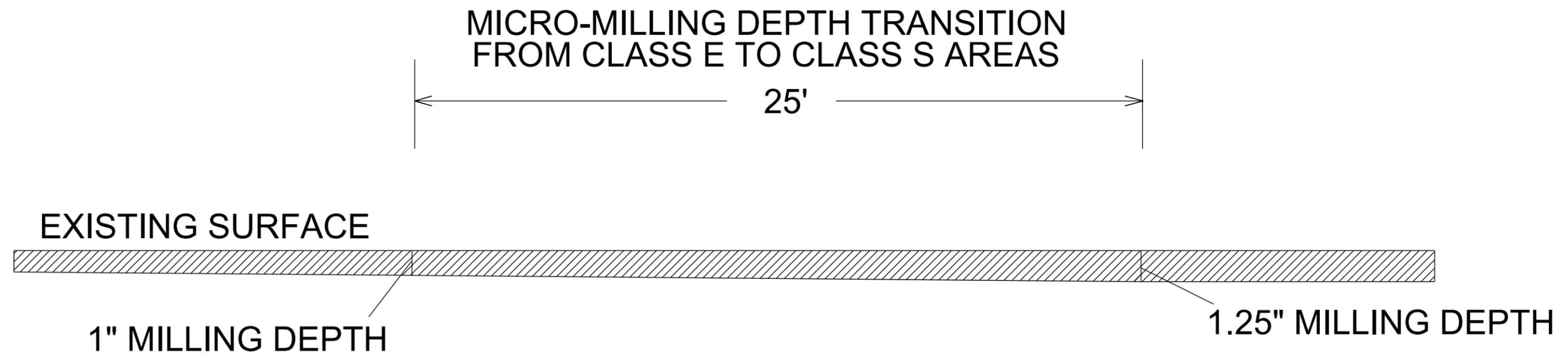
PLOT SCALE - 1:200

PLOTTED FROM - TRRC11951

STATE OF SOUTH DAKOTA	PROJECT NH 0016(85)22 & P 016A(09)22	SHEET 40	TOTAL SHEETS 106
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Plotting Date: 02/26/2016
Revised date: 2/26/16 jpr

MICRO-MILLING ASPHALT CONCRETE TO TRANSITION FROM TYPE S TO TYPE E ASPHALT SURFACING



PLOT NAME - 18

FILE - ... \CUST04EG\DESIGN\COLDMILL.DGN

FIXED LOCATION SIGNS

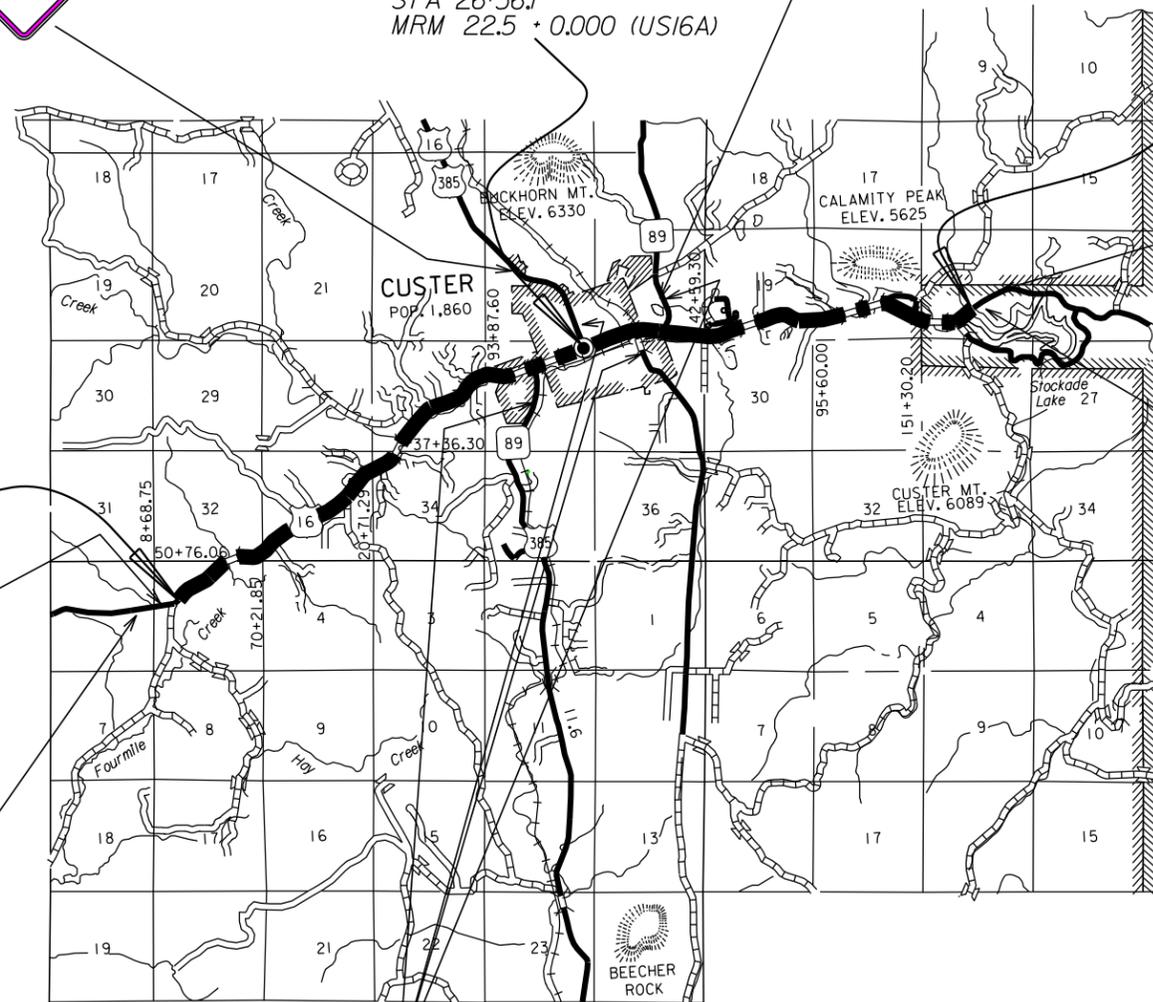
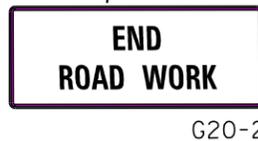
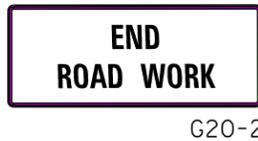
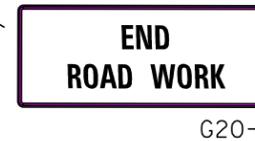
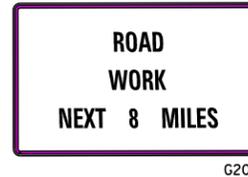
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	41	106
Plotting Date: 02/23/2016			
Revise Date: - -			
Initials:			



END PROJECT
P 016A(09)22
STA 171+50
MRM 26.156 + 0.000

END PROJECT
NH 0016(85)22
STA 26+56.1
MRM 26.8 + 0.164 (US16)

BEGIN PROJECT
P 016A(09)22
STA 26+56.1
MRM 22.5 + 0.000 (US16A)



PLOT SCALE - 1:200

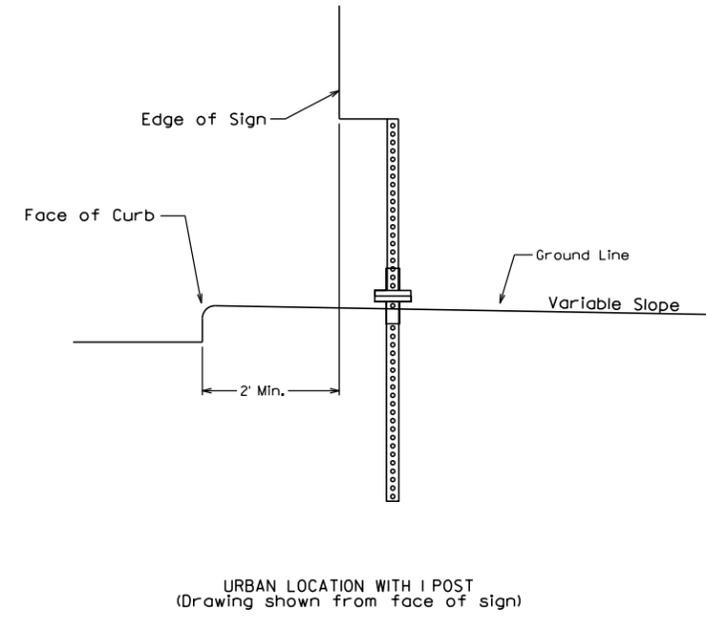
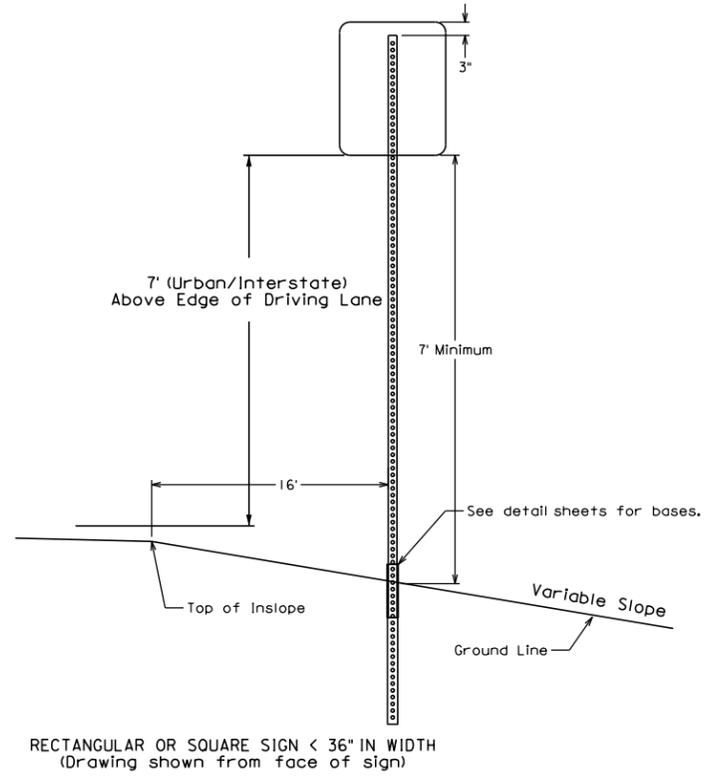
PLOTTED FROM - IRRC12608

PLOT NAME - 20

FILE - ...FIXED SIGN LAYOUT 2 LANE.DGN

SHEET OF SHEETS

Plot Scale - 1:200



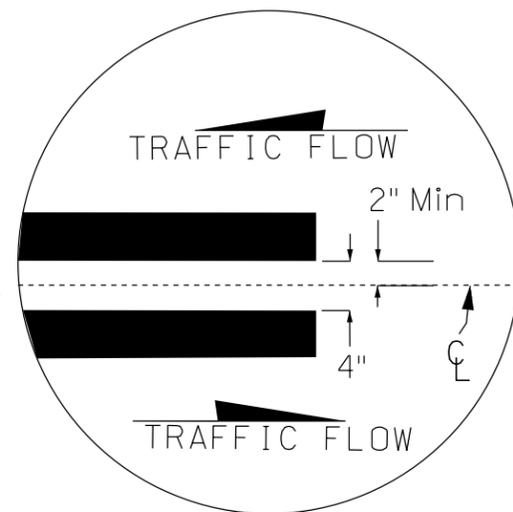
Plotted From - TRRC12608

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	43	106

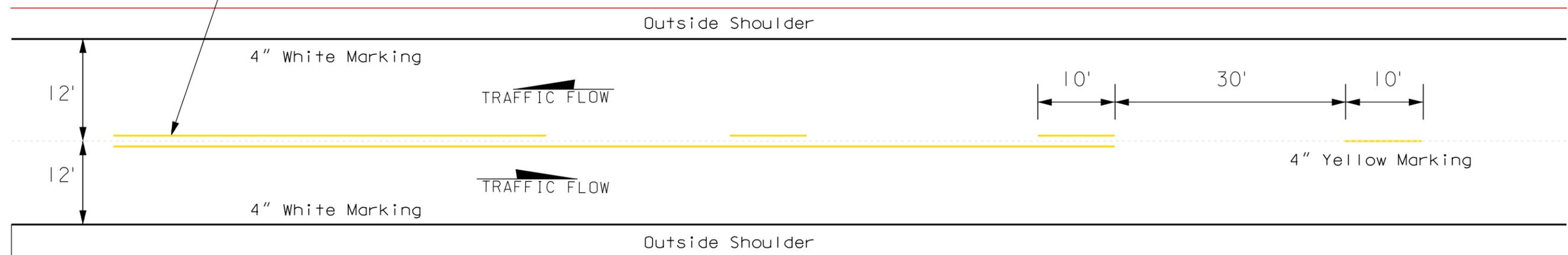
Plotting Date: 02/23/2016
Revised 2/23/16 GDS

Pavement Marking Layout

Follow Typical 2-lane layout from beginning of project at MRM 22.15 to the 3 lane transition at MRM 23.006.



(TYPICAL 2-LANE)



Pavement Marking Layout

2 to 3 lane transition.

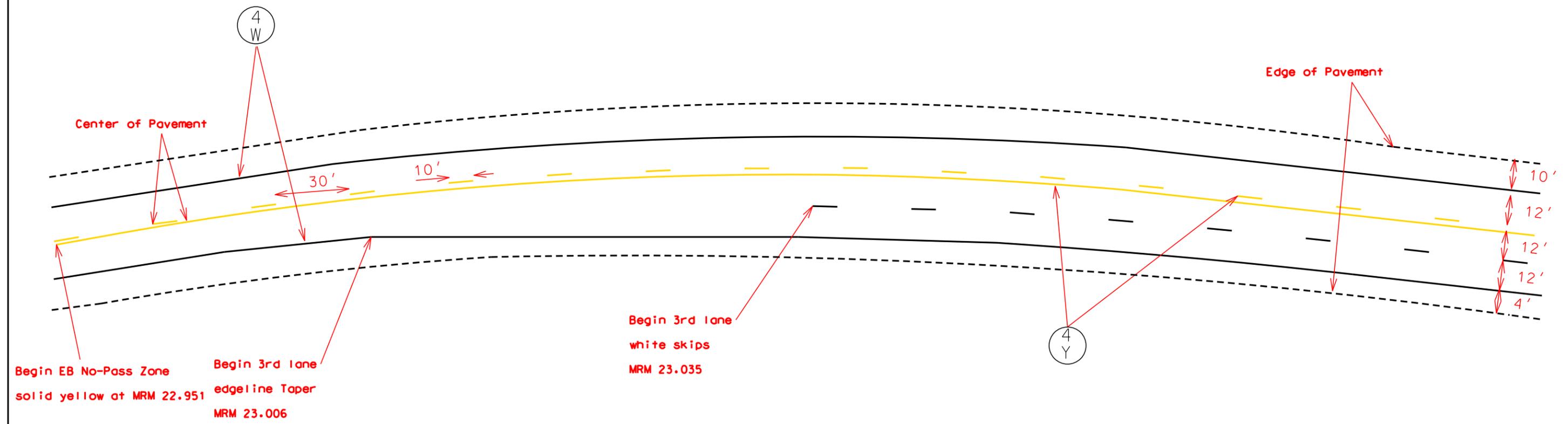
LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow

Plot Scale - 1"=40'

Plotted From - TRRC12608

File - ...\plan1 046E.dgn

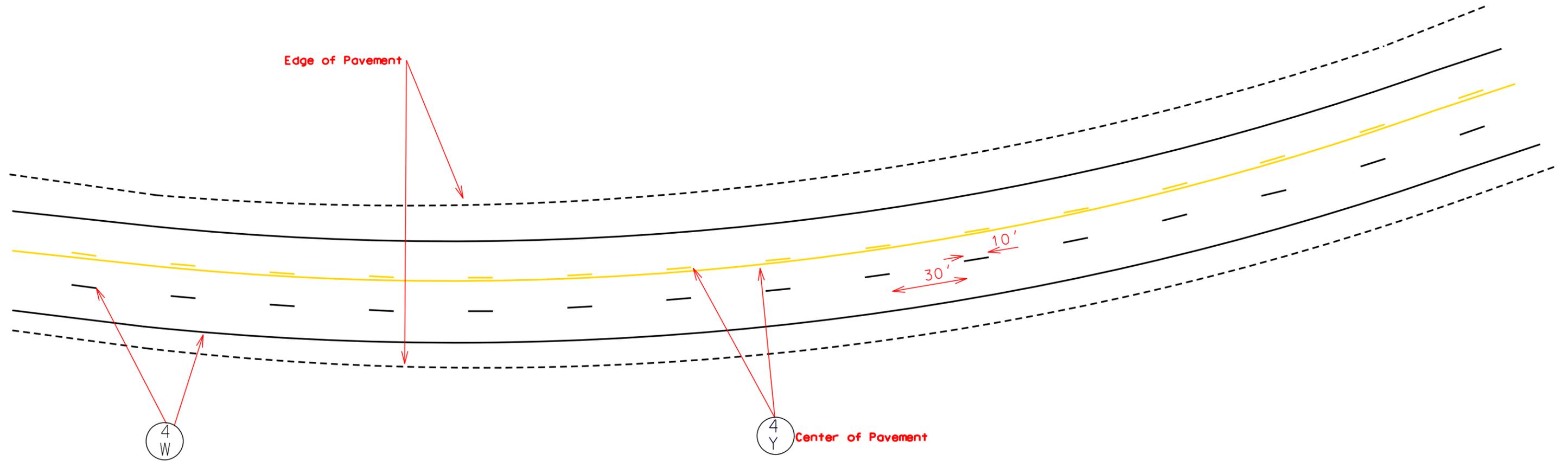


Pavement Marking Layout

3 lane

LEGEND

KEY	ITEM
Ⓞ 4 W	4" White
Ⓞ 4 Y	4" Yellow
Ⓞ 8 W	8" White
Ⓞ 24 W	24" White
Ⓞ 24 Y	24" Yellow

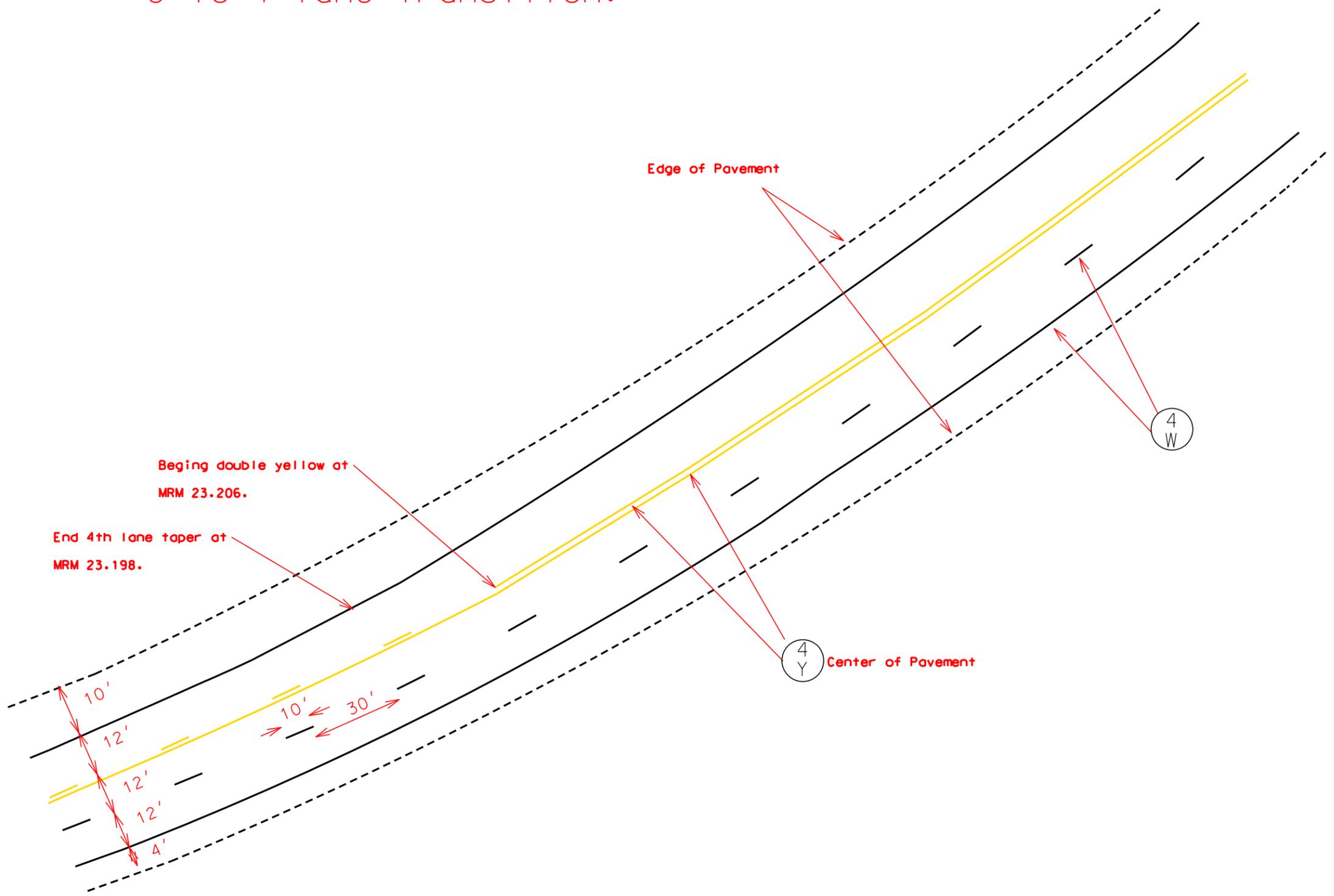


Pavement Marking Layout

3 to 4 lane transition.

LEGEND

KEY	ITEM
(4 W)	4" White
(4 Y)	4" Yellow
(8 W)	8" White
(24 W)	24" White
(24 Y)	24" Yellow



Plotted From: TRRC12608 Plot Scale: 1:40

File: ...\plan3 046E.dgn

Pavement Marking Layout

LEGEND

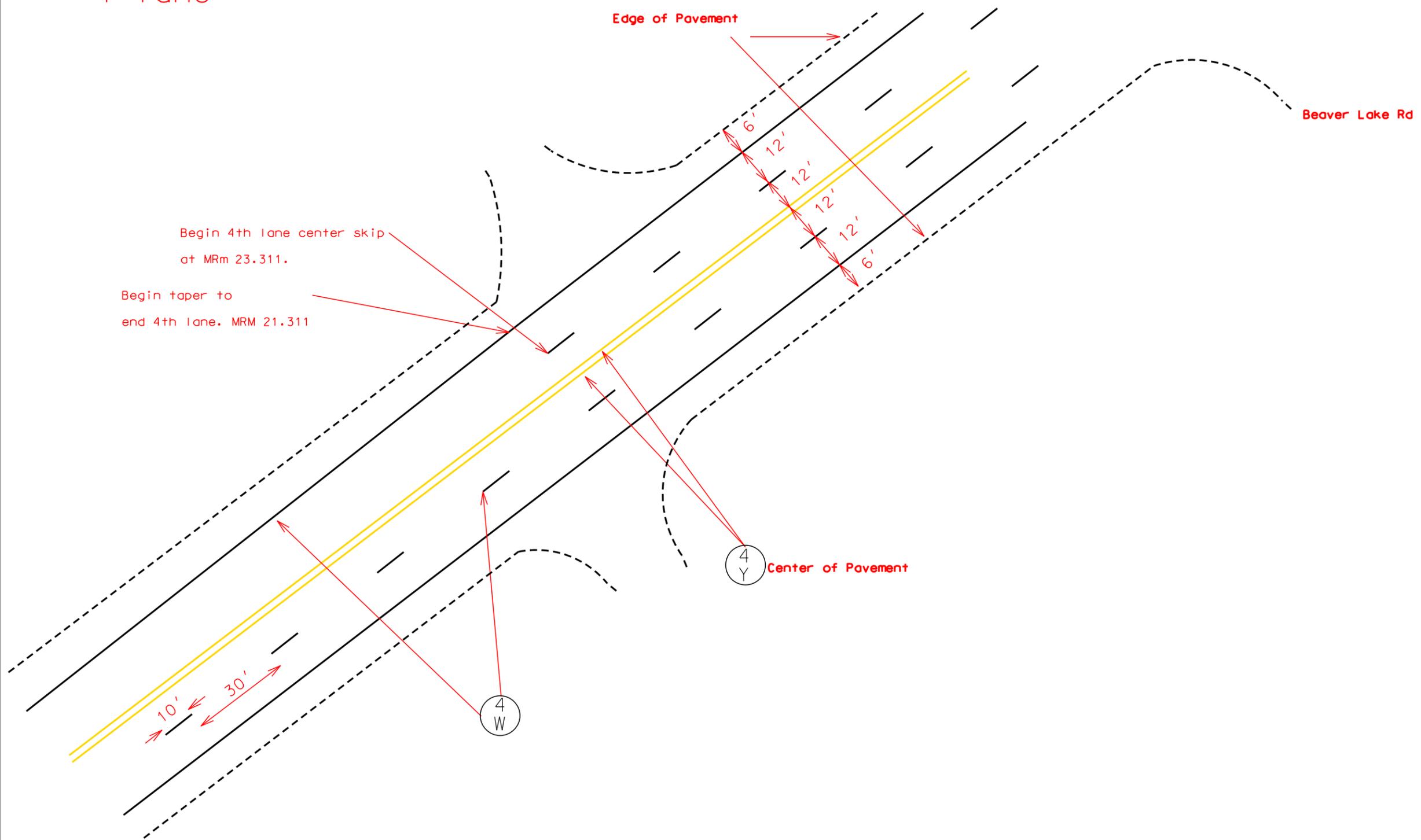
KEY	ITEM
Ⓞ 4 W	4" White
Ⓞ 4 Y	4" Yellow
Ⓞ 8 W	8" White
Ⓞ 24 W	24" White
Ⓞ 24 Y	24" Yellow

4 lane

Plot Scale - 1:40

Plotted From - TRRC12608

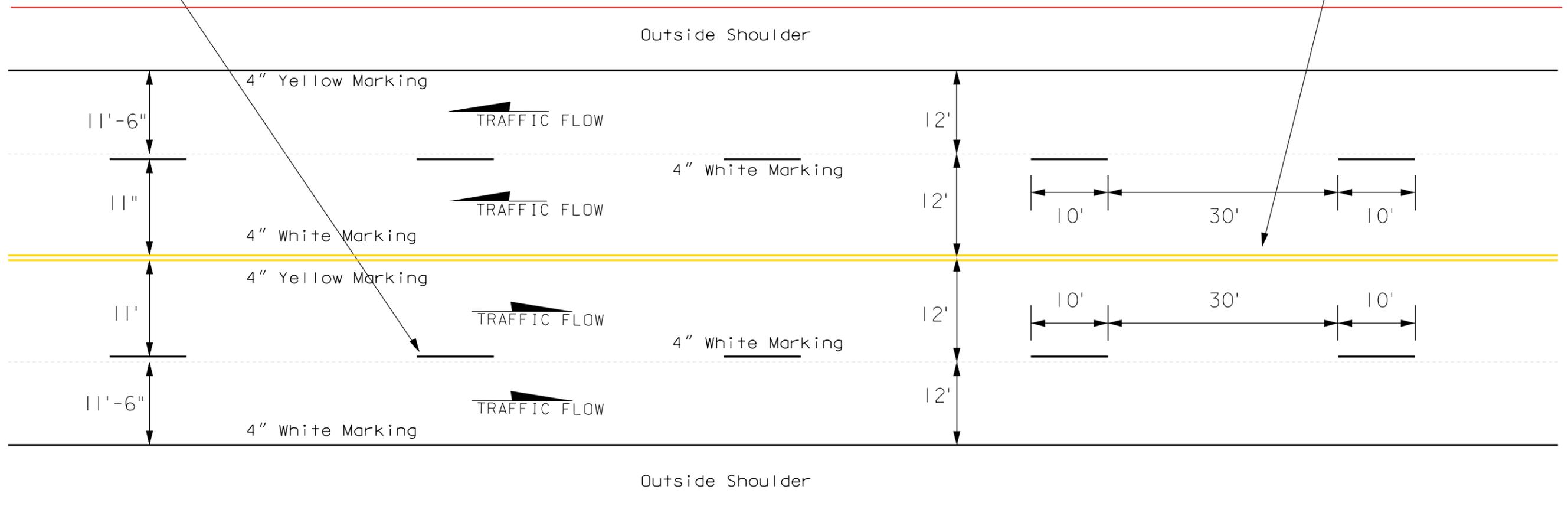
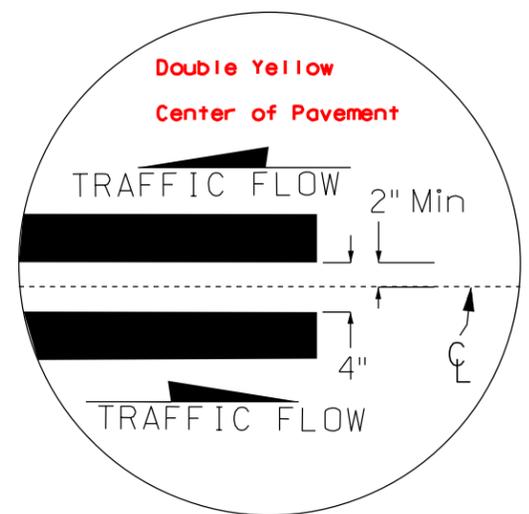
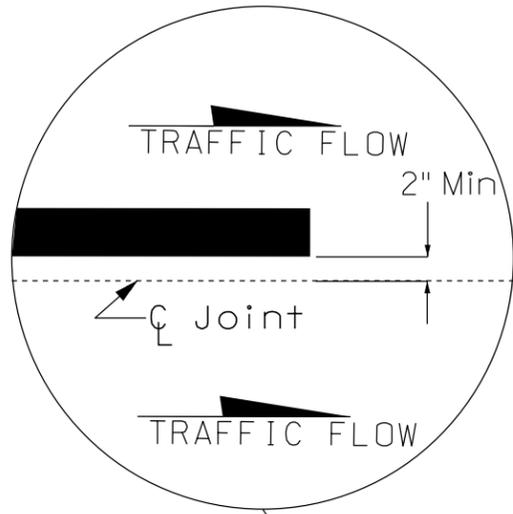
File - ...\plan4 048E.dgn



Pavement Marking Layout

4 lane
Continue 4 lane until MRM 23.700
then start 3 lane transition.

(TYPICAL 4-LANE)



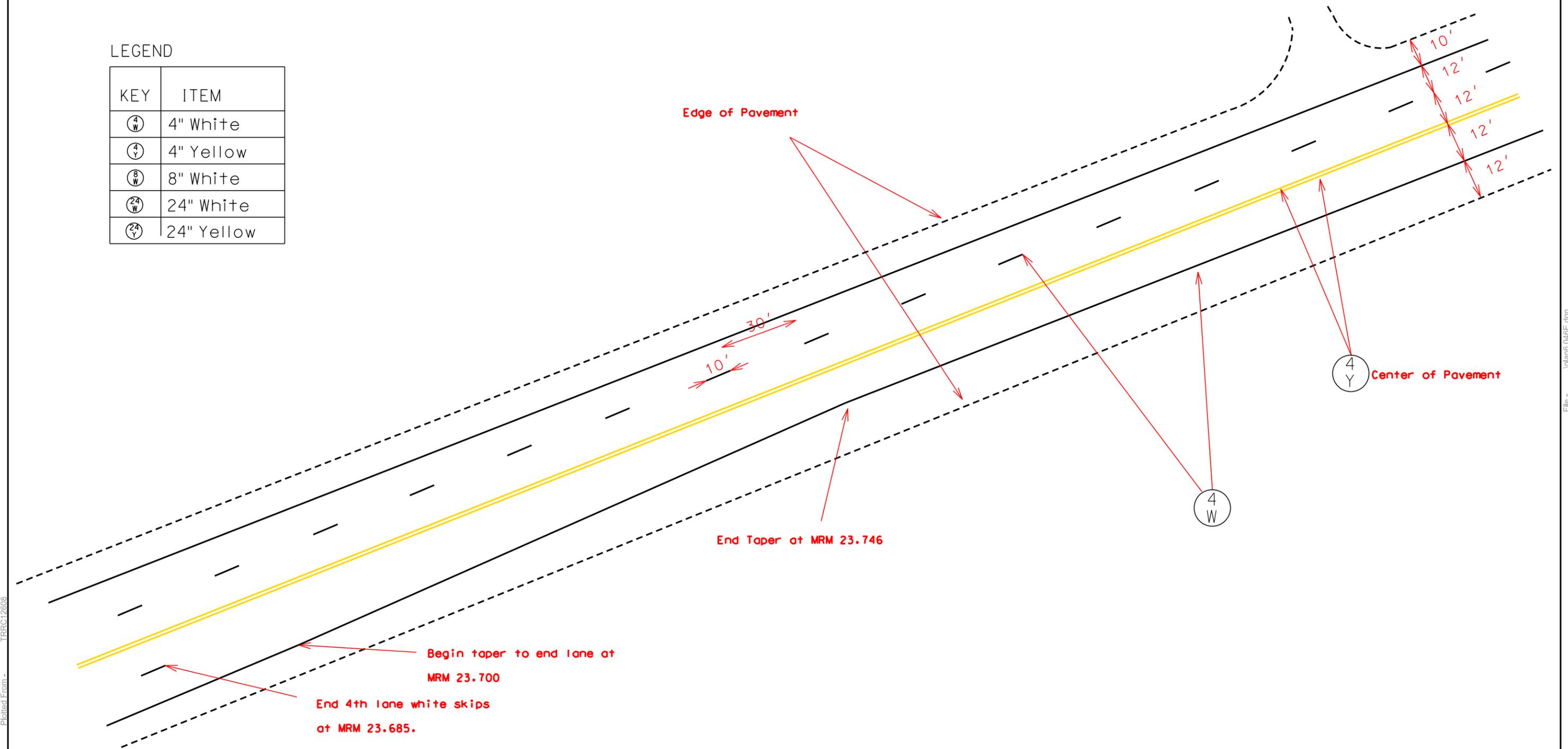
Plotted From: TRRC12608 Plot Scale: 1/40 File: ...:\plans\046E.dgn

Pavement Marking Layout

3 lane transition.
Continue 3 lane until MRM 24.415
then start 2 lane transition.

LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow

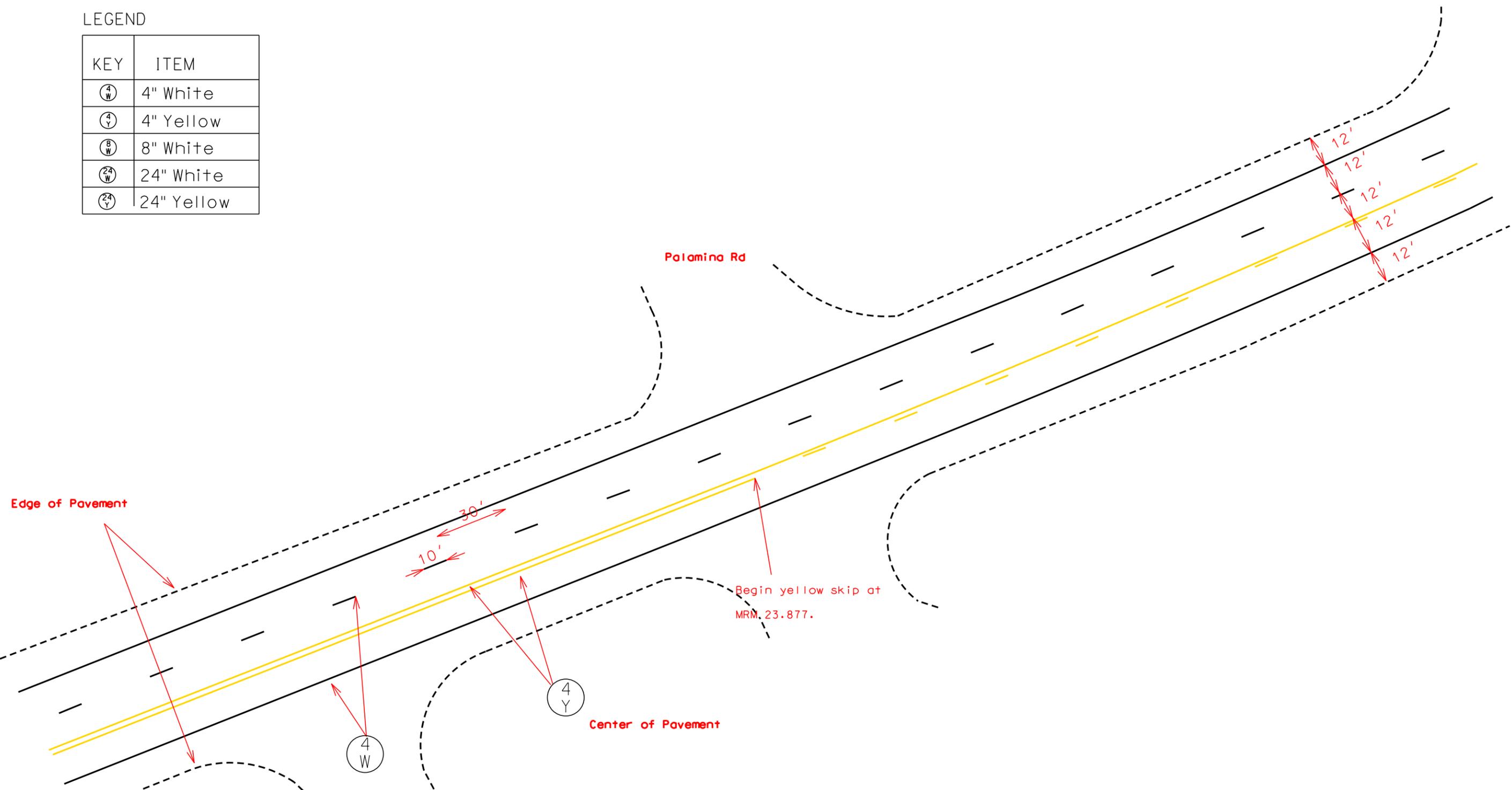


Pavement Marking Layout

3 lane

LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow



Plot Scale - 1:40

Plotted From - TRRC12608

Plotted From -

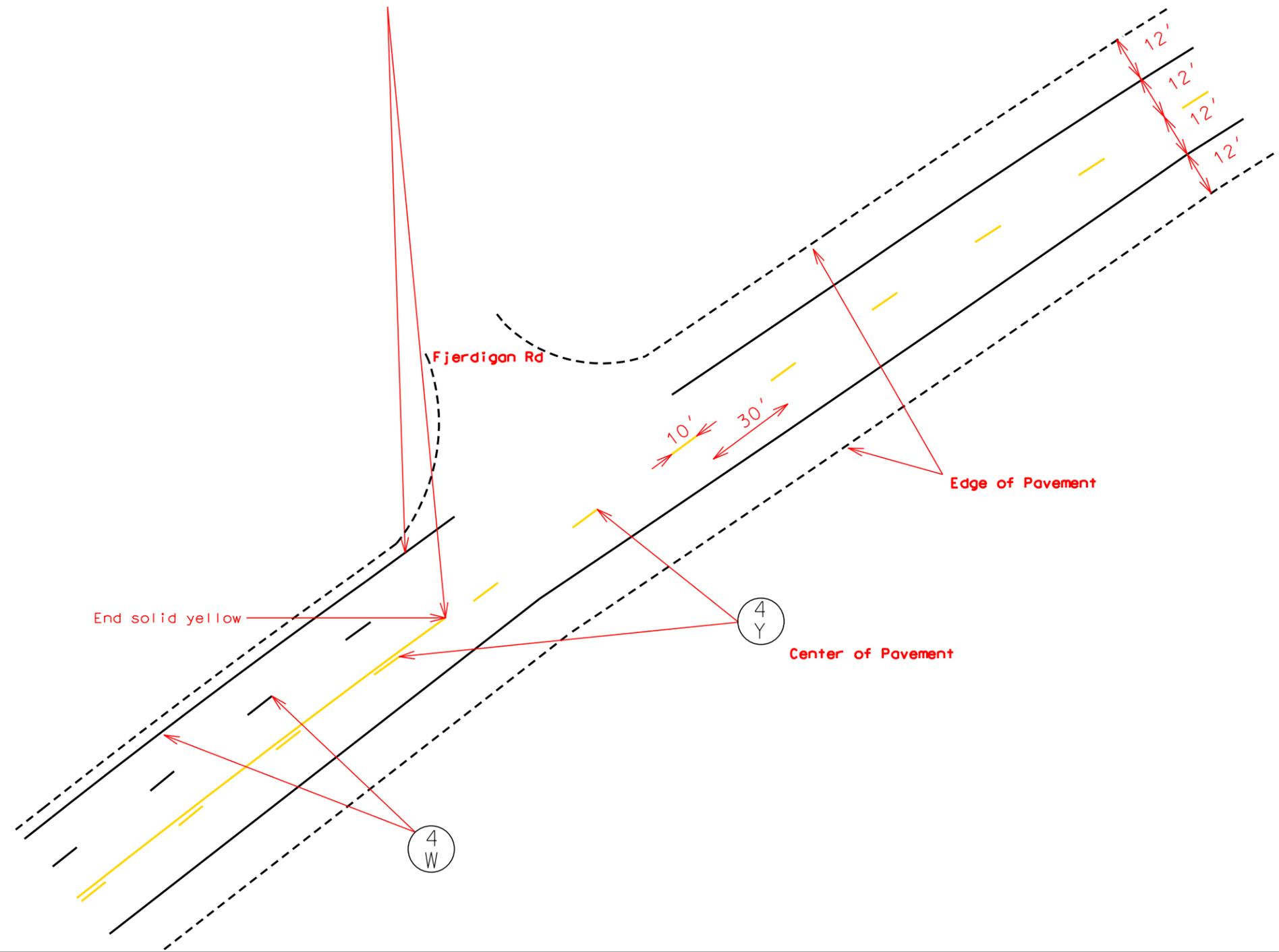
File - ...\plan7 046E.dgn

Pavement Marking Layout

3 lane to 2 lane transition to begin at
MRM 24.415.

LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow



Plot Scale - 1:40

Plotted From - TRRC12608

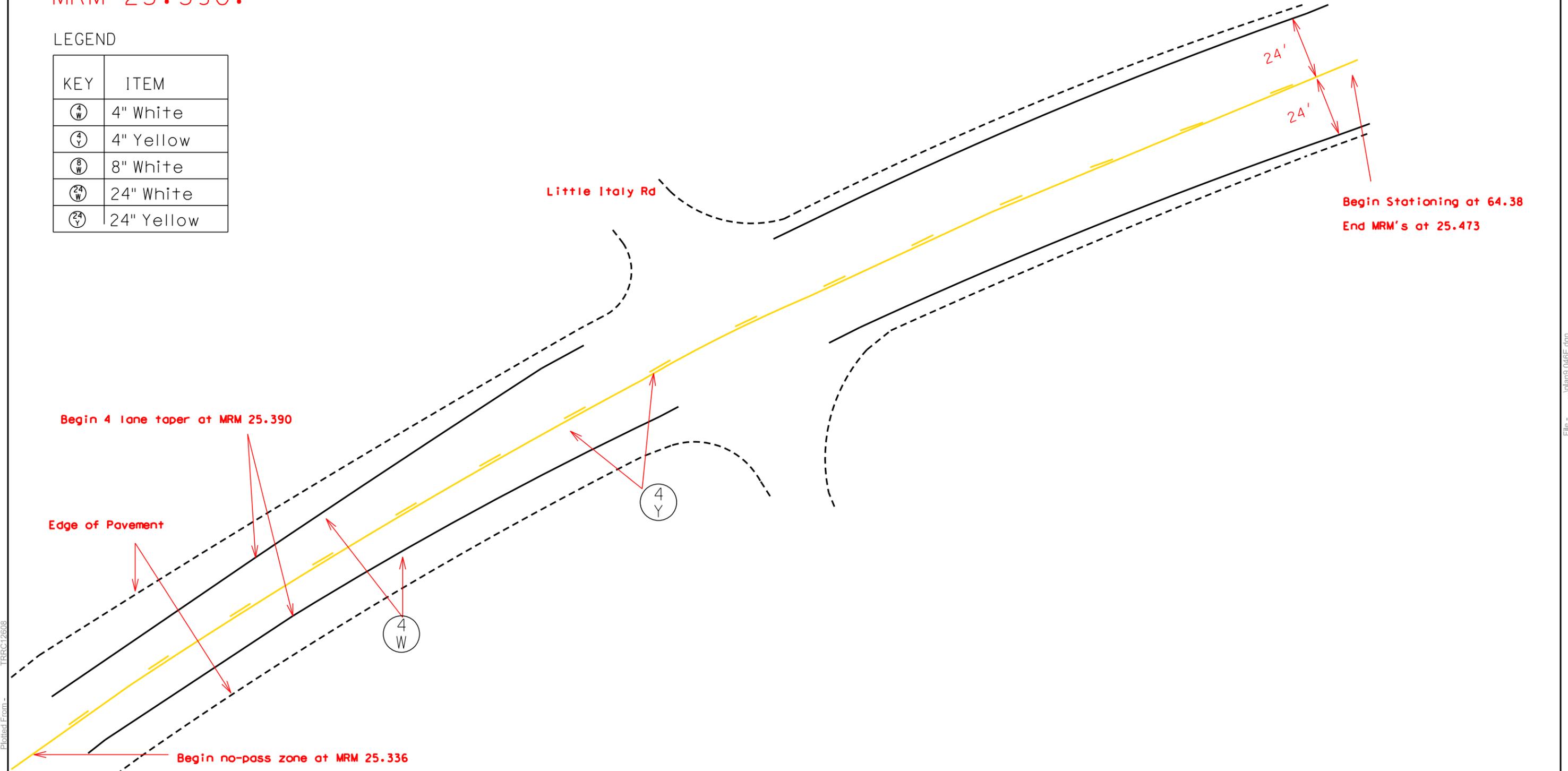
File - ...\plan8 048E.dgn

Pavement Marking Layout

2 lane to 4 lane transition to begin at MRM 25.390.

LEGEND

KEY	ITEM
(4 W)	4" White
(4 Y)	4" Yellow
(8 W)	8" White
(24 W)	24" White
(24 Y)	24" Yellow



Plot Scale - 1:40

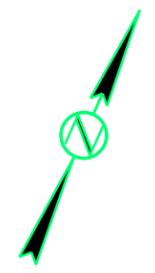
Plotted From - TRR012608

File - ...\plan9 046E.dgn

Pavement Marking Layout

LEGEND

KEY	ITEM
Ⓞ 4 W	4" White
Ⓞ 4 Y	4" Yellow
Ⓞ 8 W	8" White
Ⓞ 24 W	24" White
Ⓞ 24 Y	24" Yellow

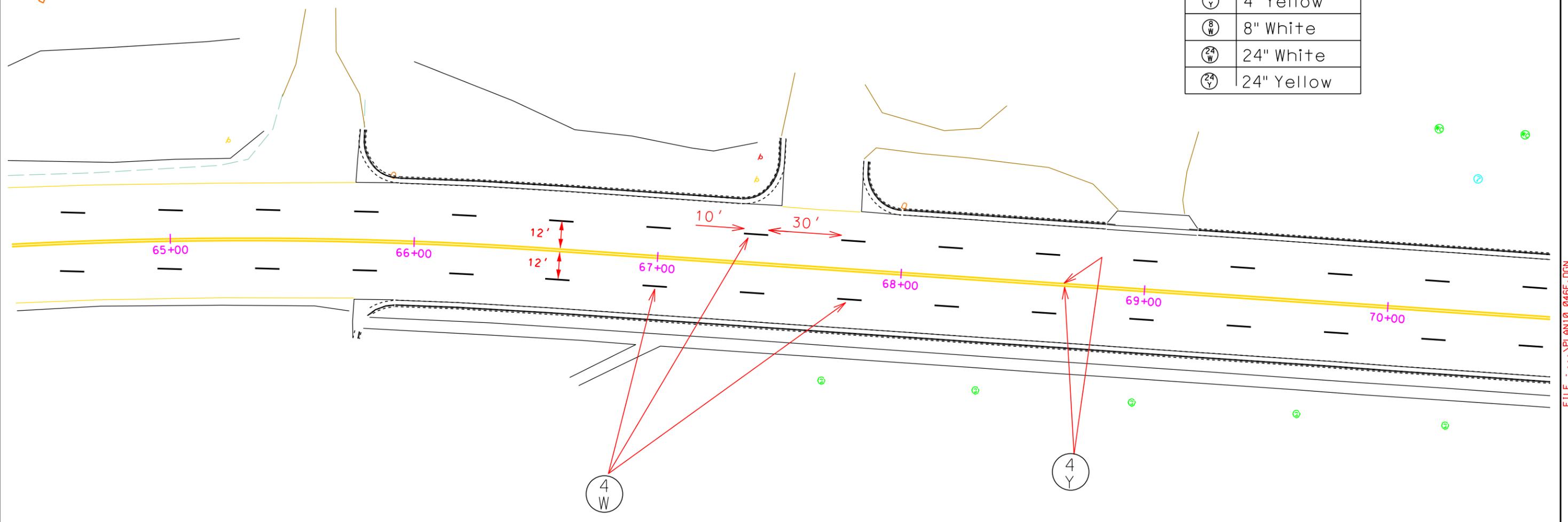


PLOT SCALE - 1:40

PLOT NAME - 32

FILE - ... \PLAN10_046E.DGN

PLOTTED FROM - TRRC12508



Pavement Marking Layout

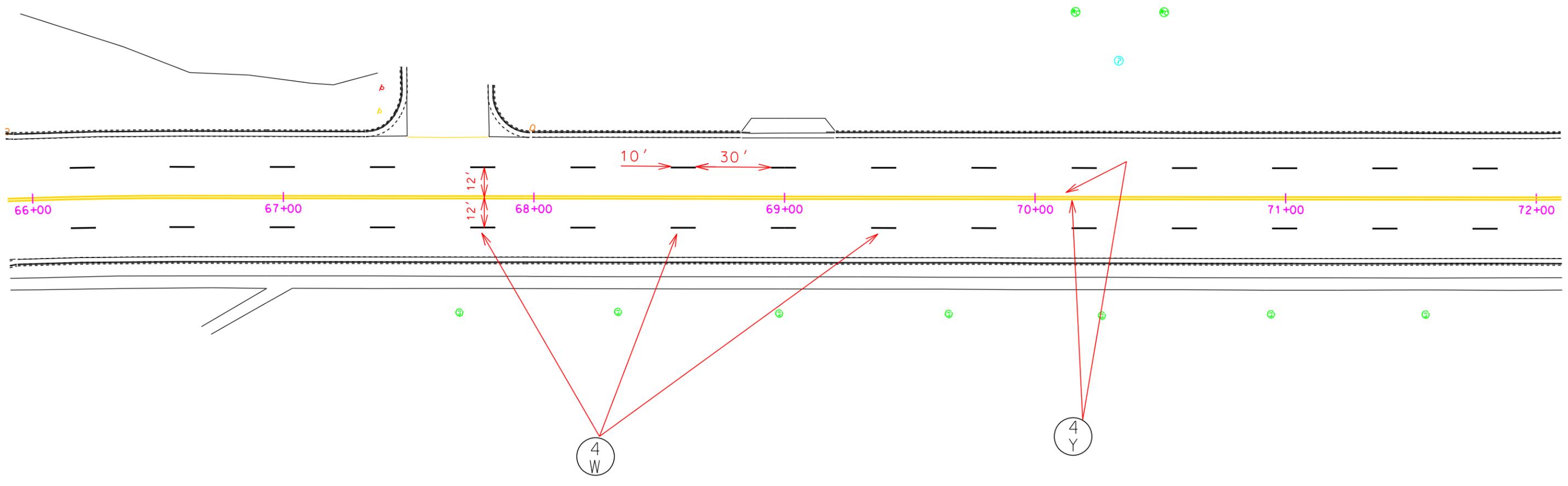
LEGEND

KEY	ITEM
Ⓞ 4 W	4" White
Ⓞ 4 Y	4" Yellow
Ⓞ 8 W	8" White
Ⓞ 24 W	24" White
Ⓞ 24 Y	24" Yellow



PLOT SCALE - 1:40

PLOT NAME - 33



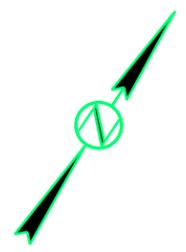
PLOTTED FROM - TRRC12508

FILE - ... \PLAN11 048E.DGN

Pavement Marking Layout

LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow

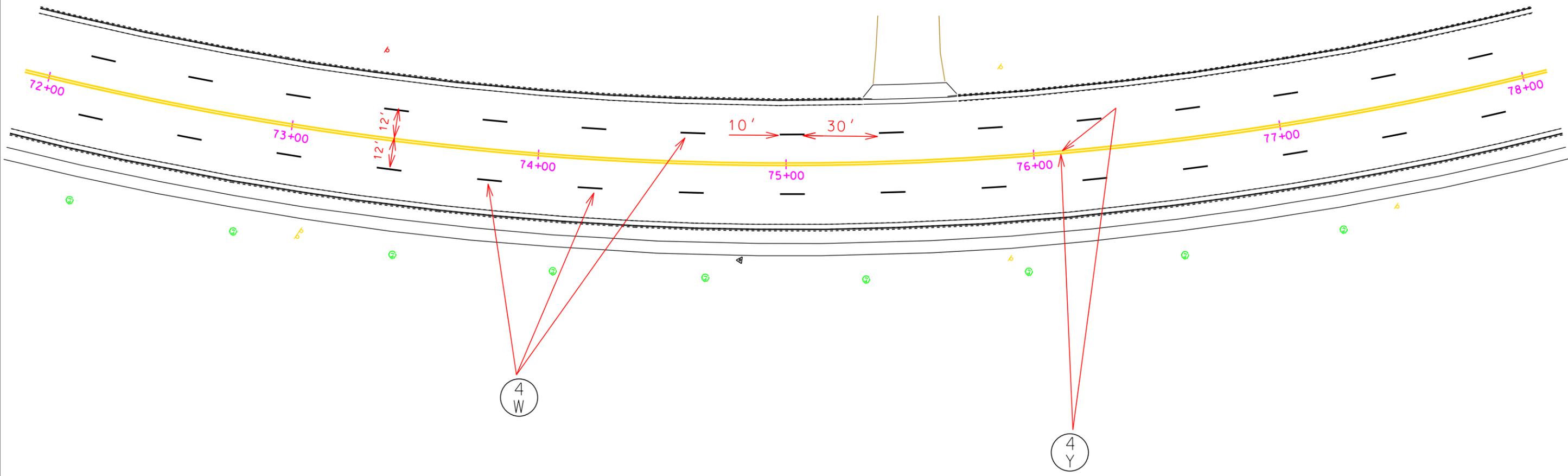


PLOT SCALE - 1"=40'

PLOT NAME - 34

PLOTTED FROM - TRRC12508

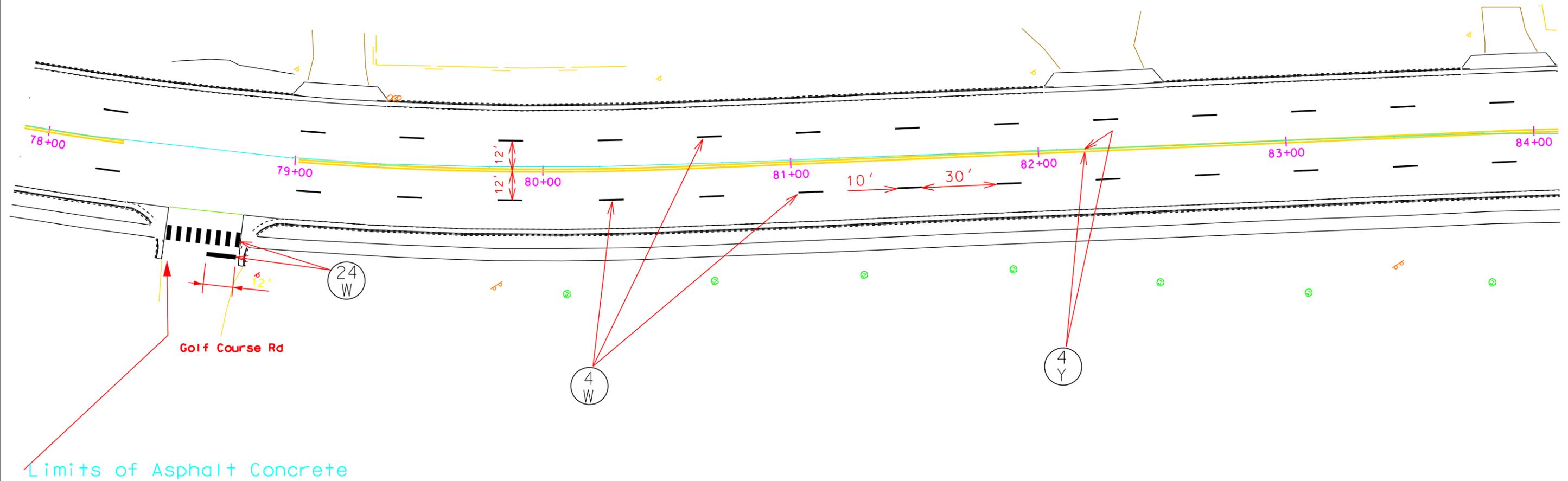
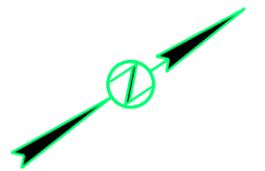
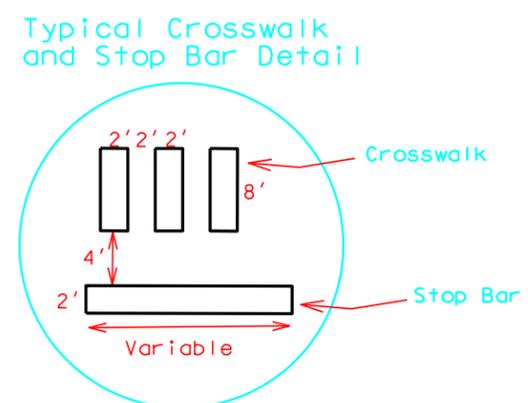
FILE - ...\PLAN12 046E.DGN



Pavement Marking Layout

LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow



PLOT SCALE - 1"=40'

PLOTTED FROM - TRRC12508

PLOT NAME - 35

FILE - ... \PLAN13 046E.DGN

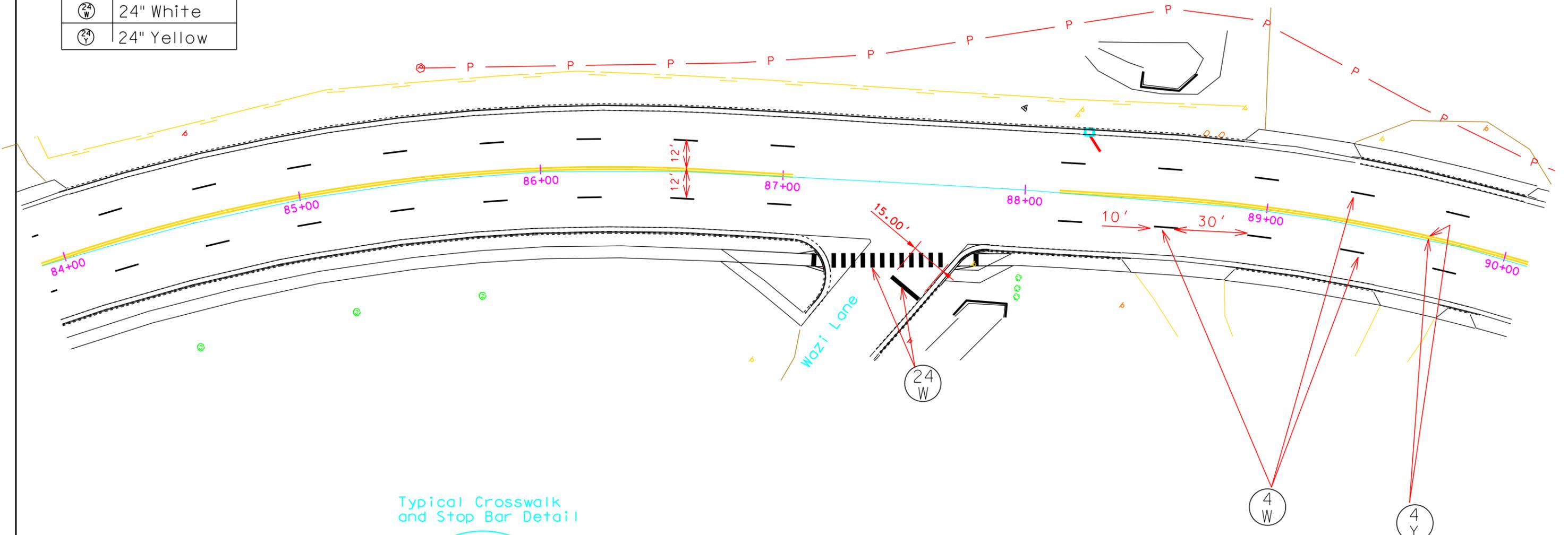
Pavement Marking Layout

LEGEND

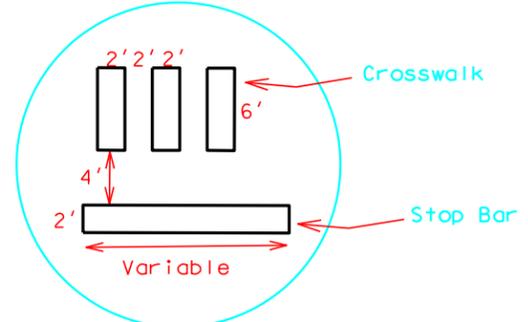
KEY	ITEM
(4 W)	4" White
(4 Y)	4" Yellow
(8 W)	8" White
(24 W)	24" White
(24 Y)	24" Yellow

PLOT SCALE - 1:40

PLOT NAME - 36



Typical Crosswalk and Stop Bar Detail



PLOTTED FROM - TRRC12508

FILE - ... \PLAN14 048E.DGN

Pavement Marking Layout

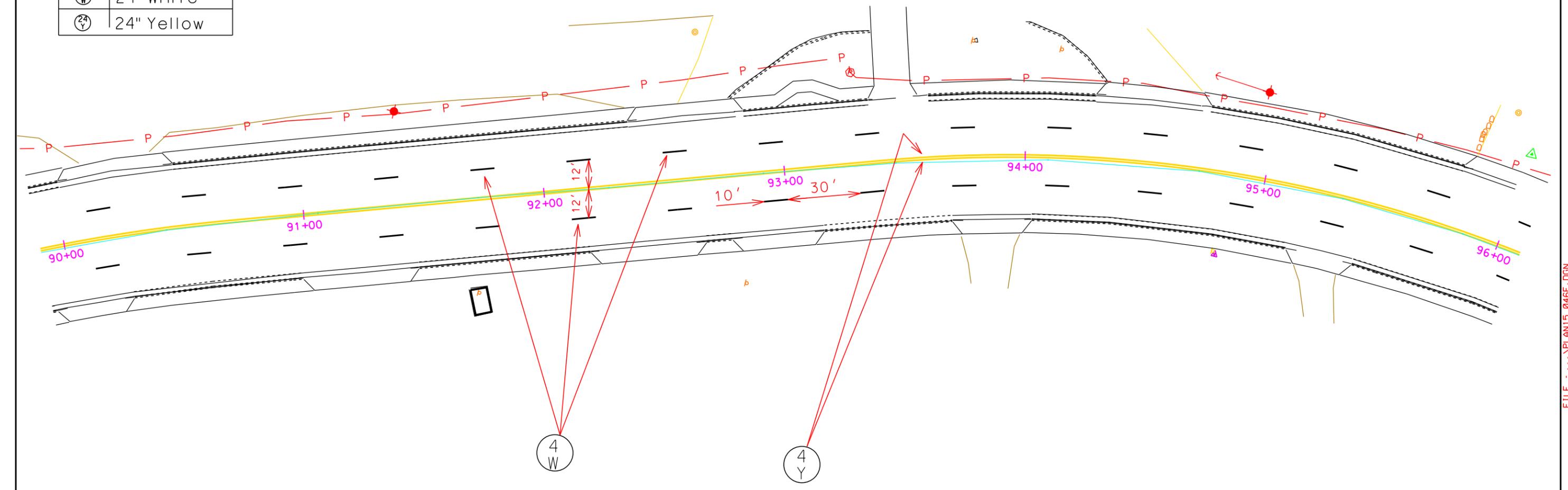
LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow



PLOT SCALE - 1:40

PLOT NAME - 37



PLOTTED FROM - TRRC12508

FILE - ... \PLAN15 046E.DGN

Pavement Marking Layout

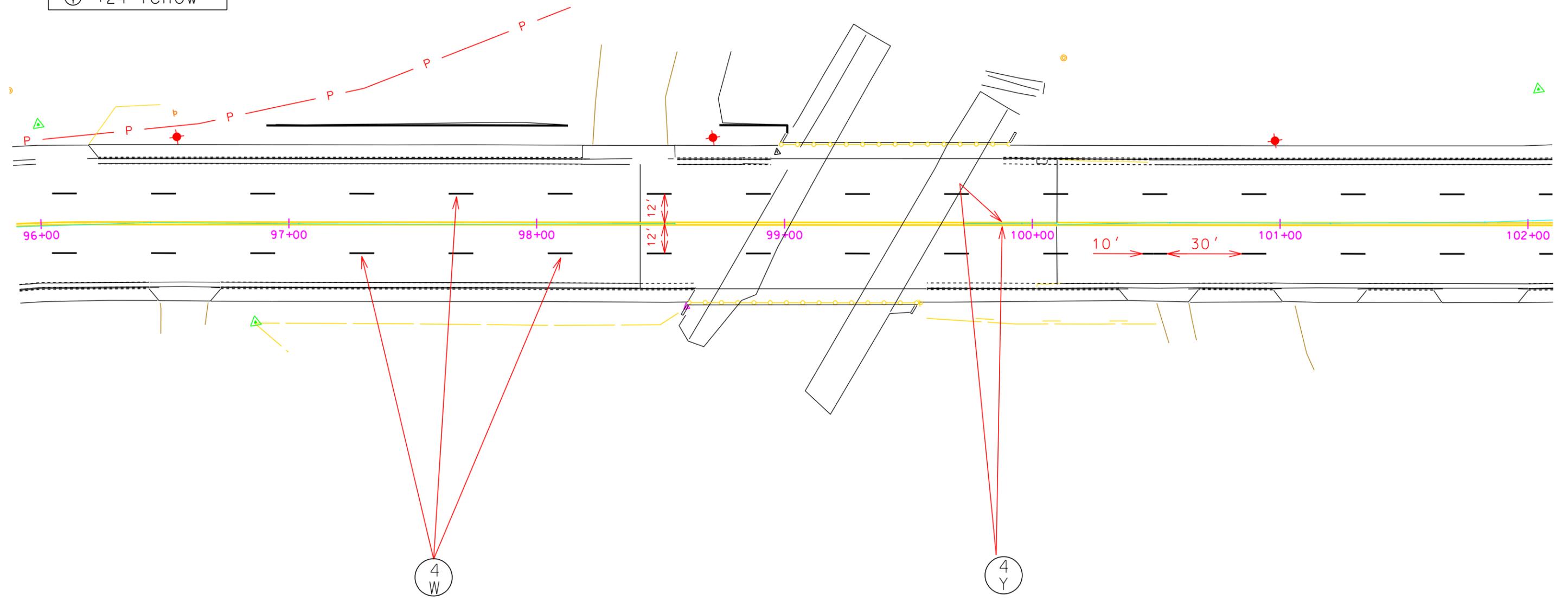
LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow

PLOT SCALE - 1:40

PLOT NAME - 38

FILE - ... \PLAN16_046E.DGN



PLOTTED FROM - TRRC12508

Pavement Marking Layout

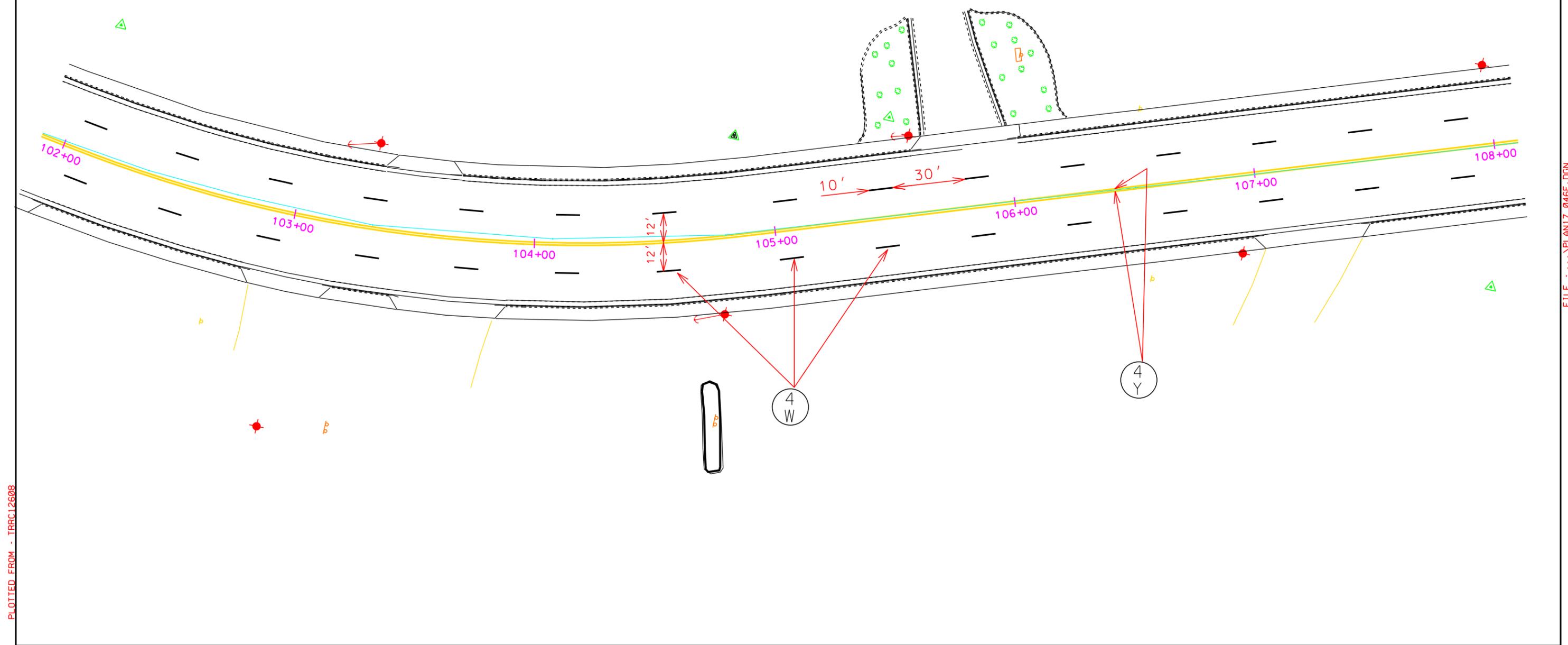
LEGEND

KEY	ITEM
⊙ ₄ W	4" White
⊙ ₄ Y	4" Yellow
⊙ ₈ W	8" White
⊙ ₂₄ W	24" White
⊙ ₂₄ Y	24" Yellow



PLOT SCALE - 1:40

PLOT NAME - 39



PLOTTED FROM - ITRC12508

FILE - ... \PLAN17 046E.DGN

Pavement Marking Layout

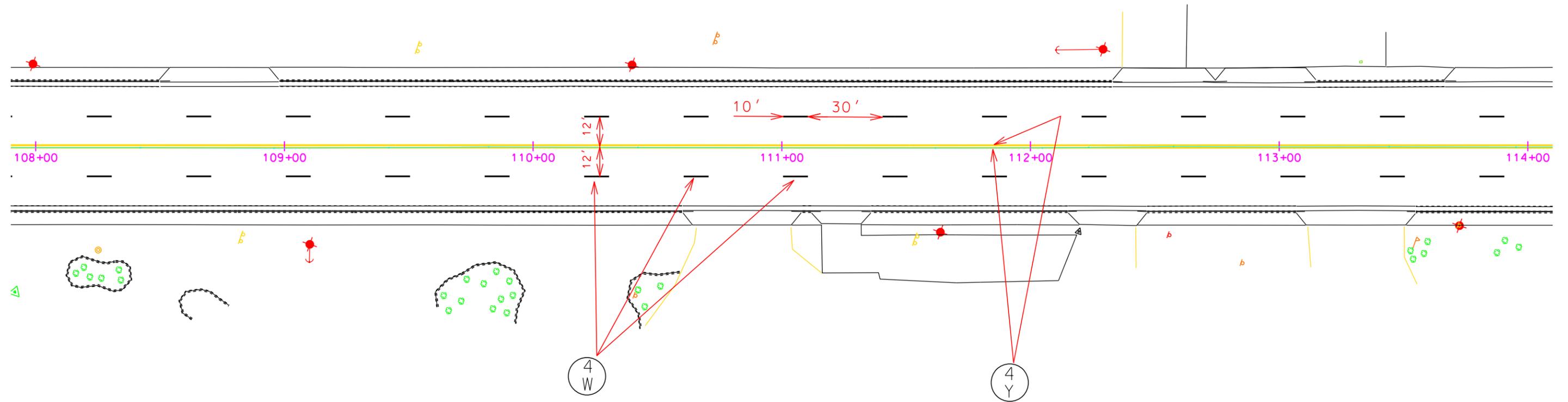
LEGEND

KEY	ITEM
⊙ ₄ _W	4" White
⊙ ₄ _Y	4" Yellow
⊙ ₈ _W	8" White
⊙ ₂₄ _W	24" White
⊙ ₂₄ _Y	24" Yellow



PLOT SCALE - 1:40

PLOT NAME - 40

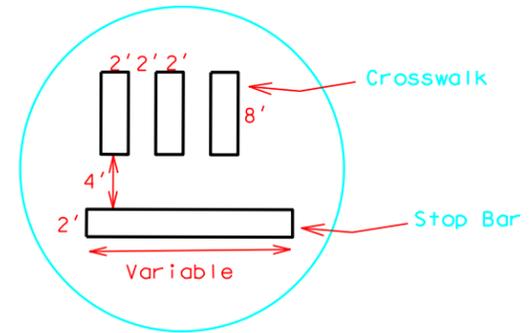


PLOTTED FROM - TRRC12508

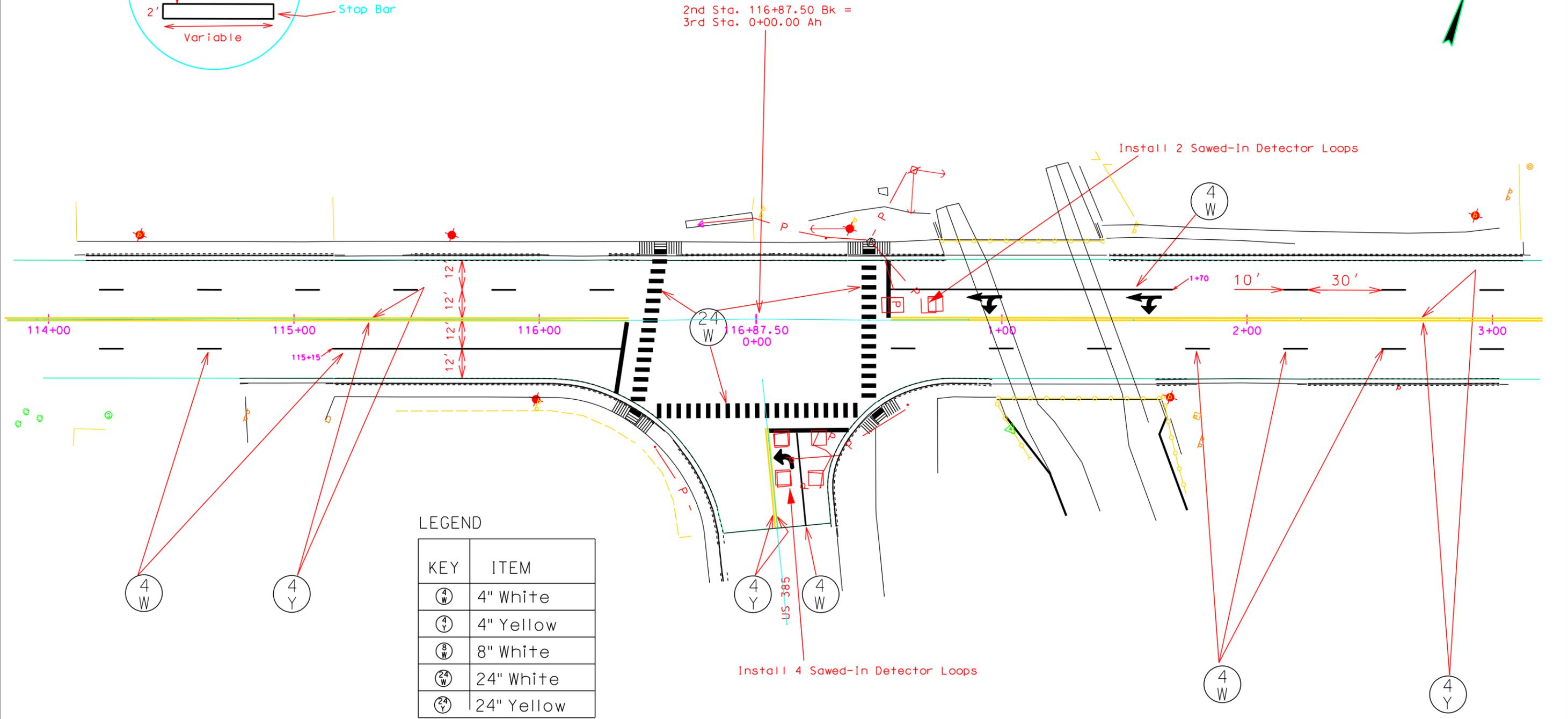
FILE - ... \PLAN18 048E.DGN

Pavement Marking Layout

Typical Crosswalk and Stop Bar Detail



2nd Sta. 116+87.50 Bk =
3rd Sta. 0+00.00 Ah



LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow

PLOT SCALE - 1"=40'

PLOT NAME - 41

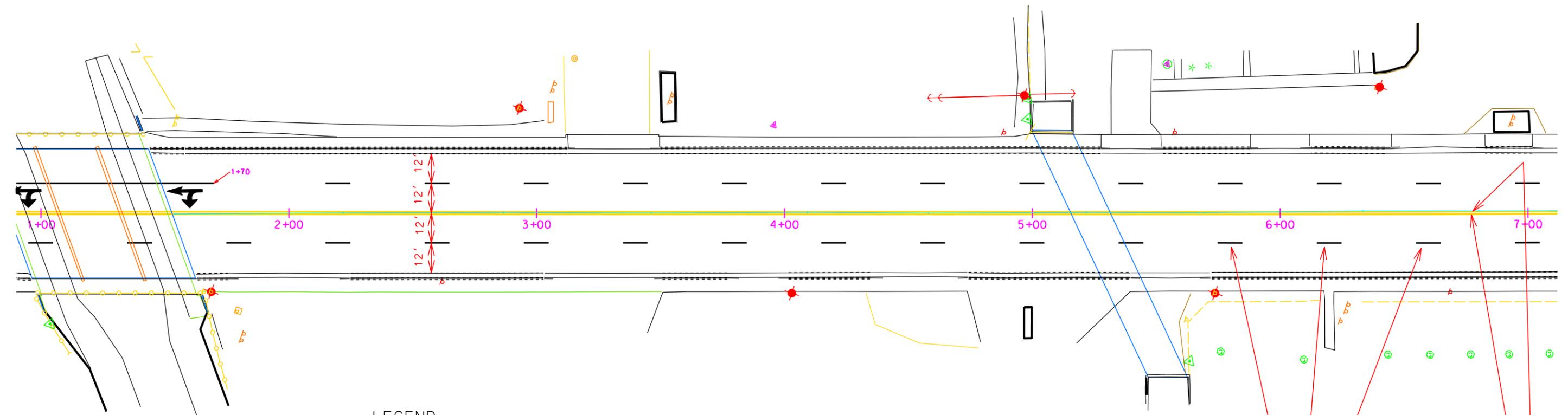
PLOTTED FROM - TRRC12608

FILE - ... \PLAN19_046E.DGN

Pavement Marking Layout

PLOT SCALE - 1:40

PLOT NAME - 42



LEGEND

KEY	ITEM
⊙ ₄ W	4" White
⊙ ₄ Y	4" Yellow
⊙ ₈ W	8" White
⊙ ₂₄ W	24" White
⊙ ₂₄ Y	24" Yellow

⊙₄W

⊙₄Y

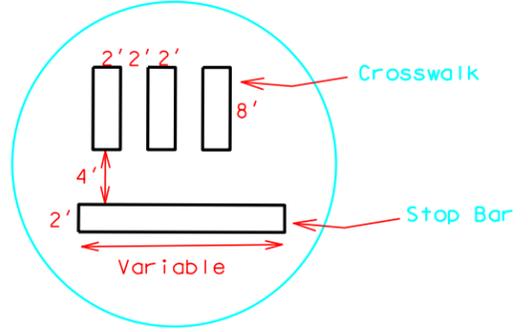
PLOTTED FROM - TRRC12508

FILE - ... \PLAN20 048E.DGN

Plotting Date: 02/23/2016
Revised 2/23/2016 GDS

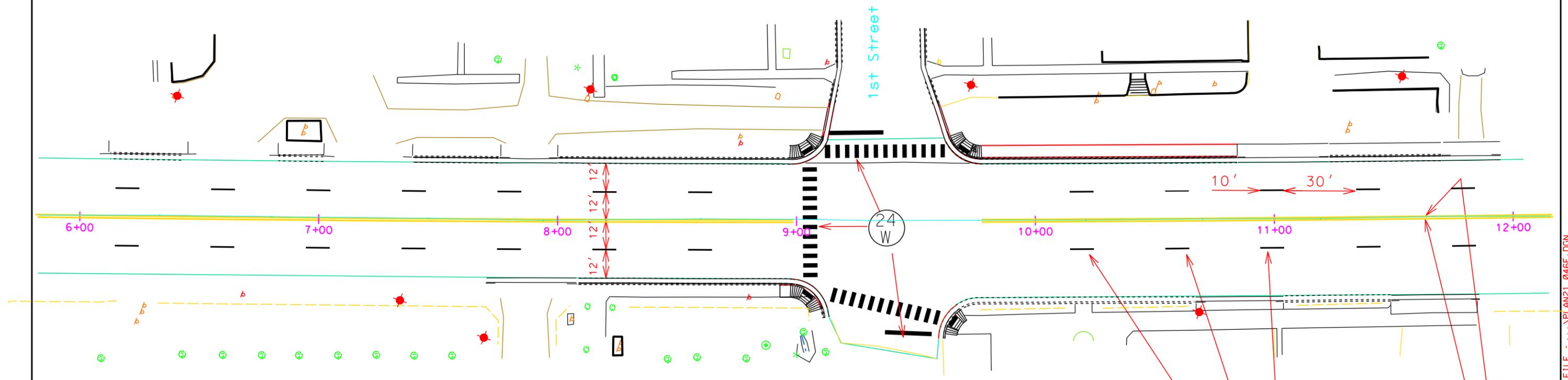
Pavement Marking Layout

Typical Crosswalk and Stop Bar Detail



PLOT SCALE - 1:40

PLOT NAME - 43



LEGEND

KEY	ITEM
(4 W)	4" White
(4 Y)	4" Yellow
(8 W)	8" White
(24 W)	24" White
(24 Y)	24" Yellow

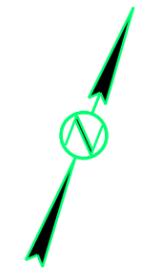
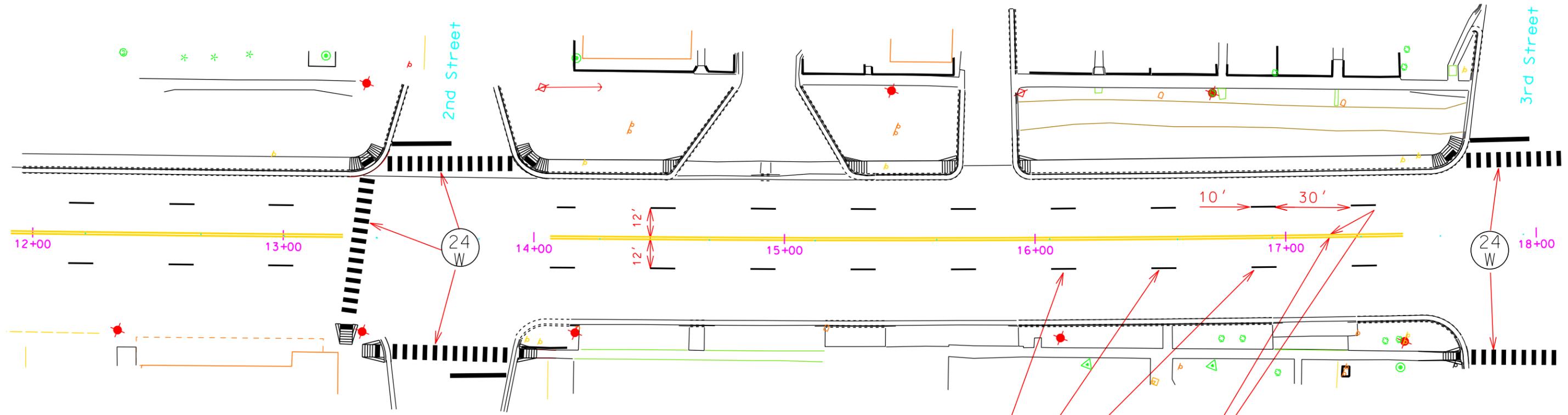
PLOTTED FROM - TRRC12508

FILE - ... \PLAN21_048E.DGN

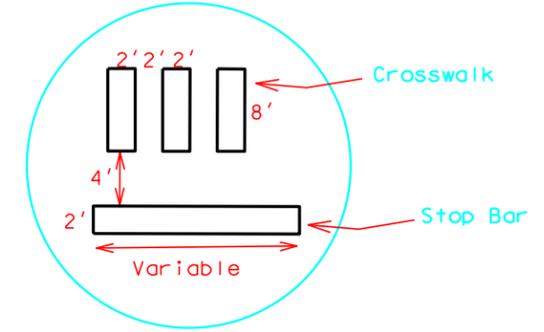
Pavement Marking Layout

LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow



Typical Crosswalk and Stop Bar Detail



④
W

④
Y

PLOT SCALE - 1:40

PLOTTED FROM - ITRC12508

PLOT NAME - 44

FILE - ... \PLAN22_046E.DGN

Pavement Marking Layout

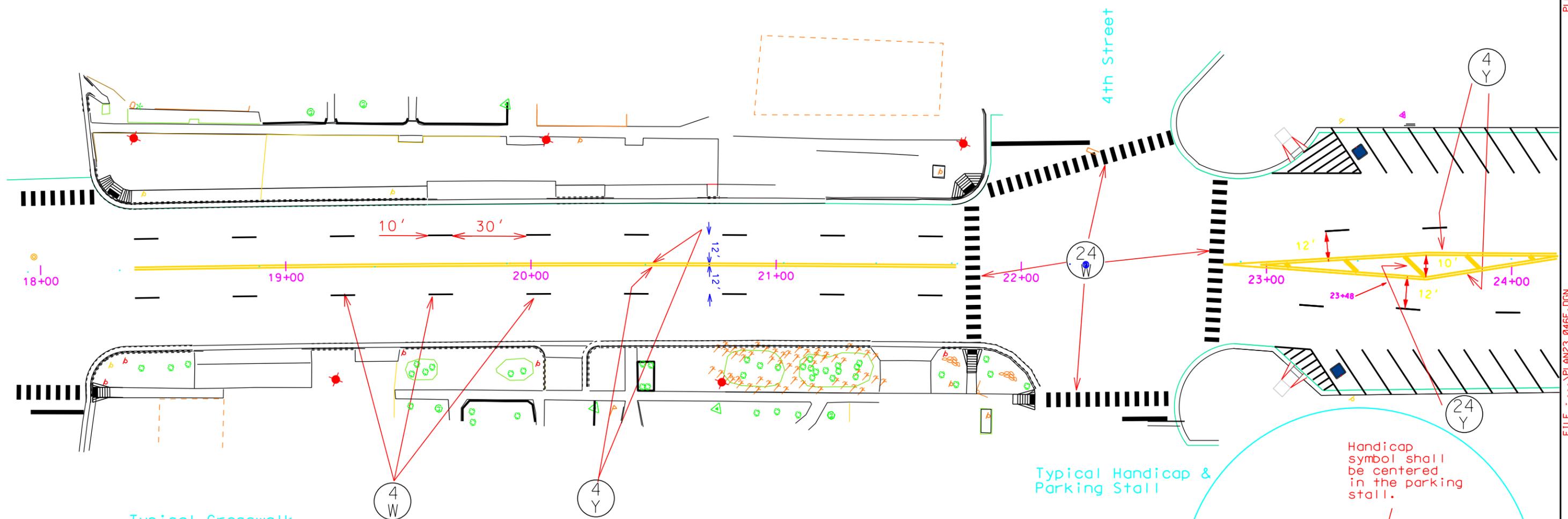
PLOT SCALE - 1:40

PLOT NAME - 45

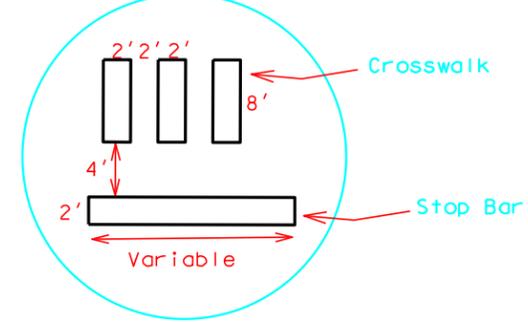
FILE - ... \PLAN23_046E.DGN

Station 23+18 - L
Install Type 1
Sidewalk Ramp

Station 23+18 - R
Install Type 1
Sidewalk Ramp



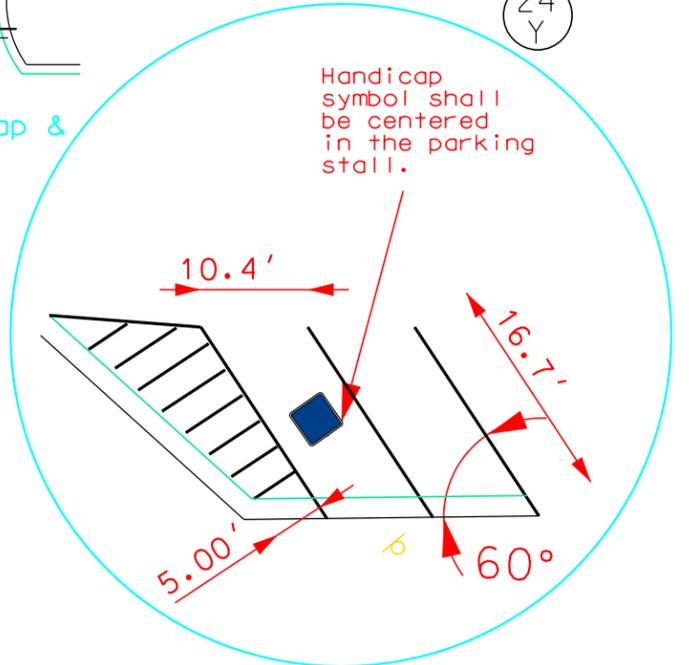
Typical Crosswalk and Stop Bar Detail



LEGEND

KEY	ITEM
(4 W)	4" White
(4 Y)	4" Yellow
(8 W)	8" White
(24 W)	24" White
(24 Y)	24" Yellow

Typical Handicap & Parking Stall



PLOTTED FROM - ITRC12508

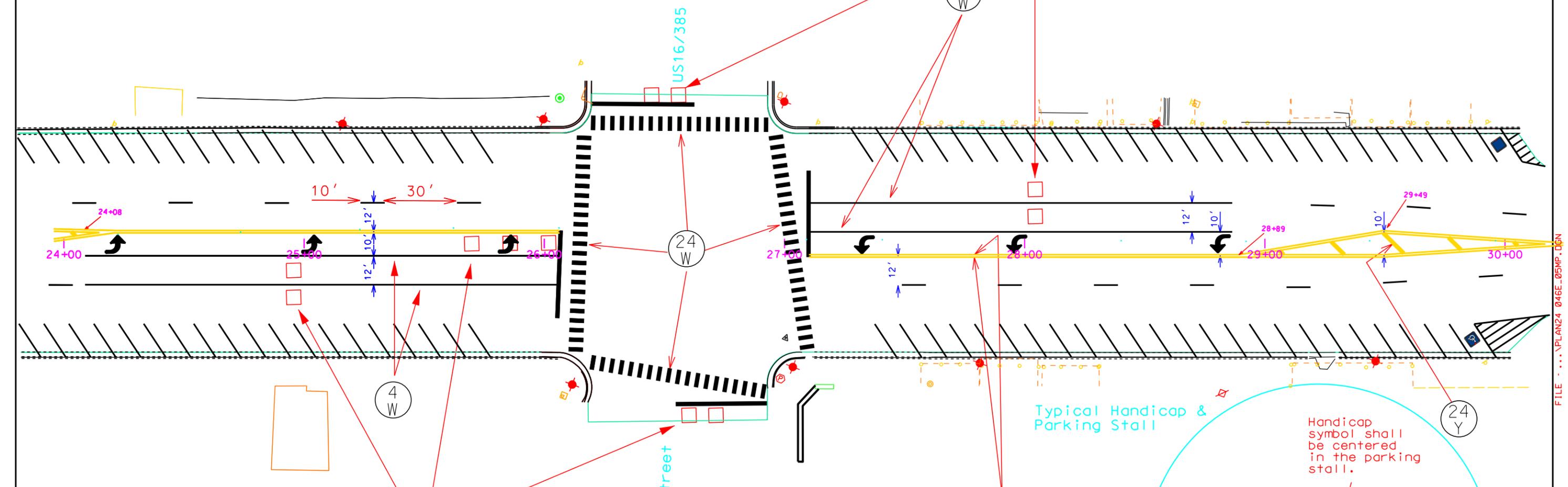
Pavement Marking Layout

PLOT SCALE - 1:40

PLOT NAME - 46

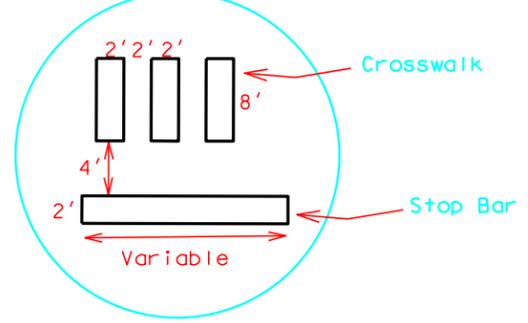
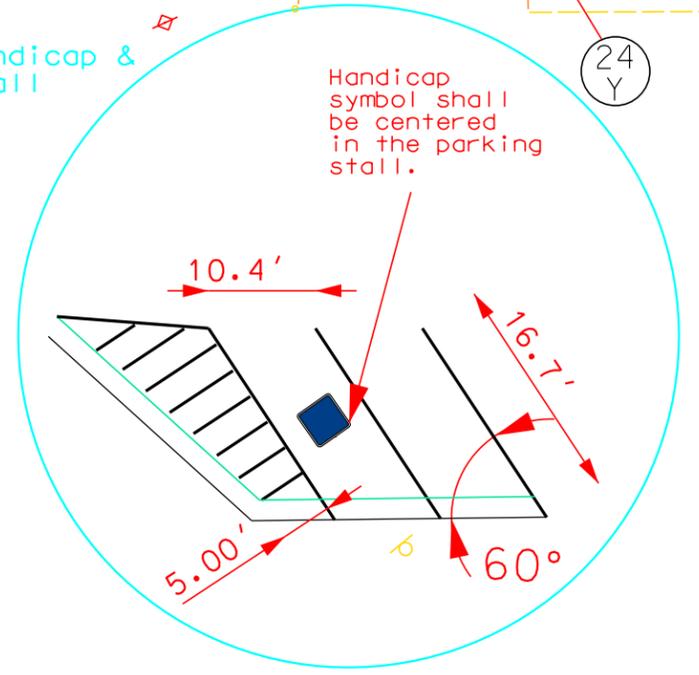
CUST 04E6
End at Hwy 16A

CUST 05MP
Begin at Hwy 16A



Typical Handicap & Parking Stall

Typical Crosswalk and Stop Bar Detail



LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow

PLOTTED FROM - TRRC12508

FILE - ... \PLAN24_046E_05MP.dgn

Pavement Marking Layout

PLOT SCALE - 1"=40'

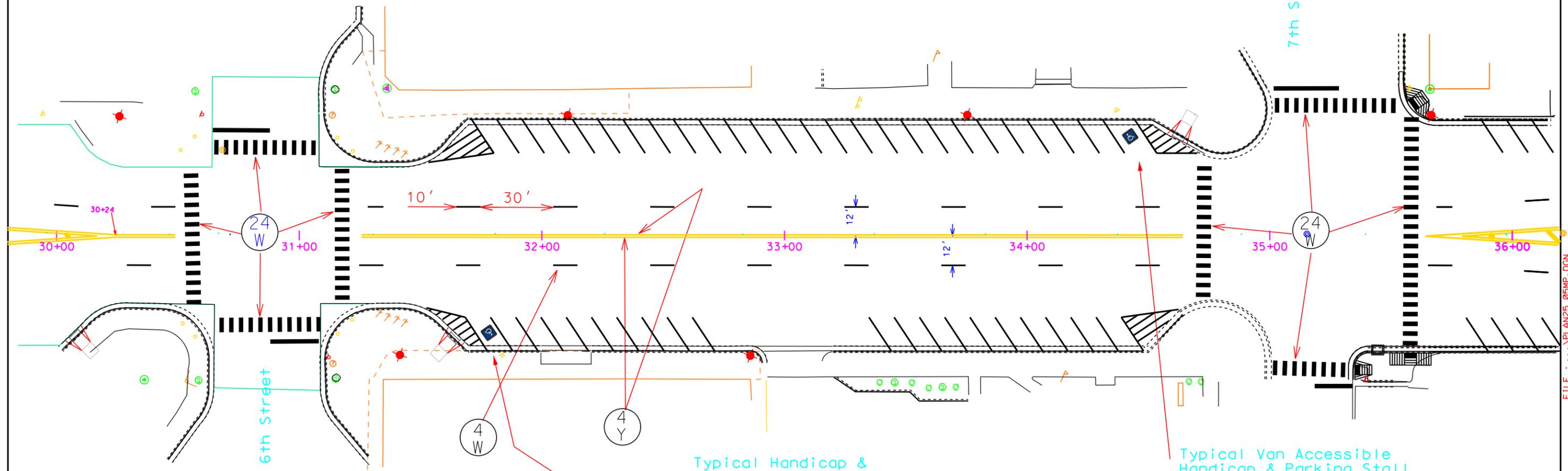
PLOT NAME - 46



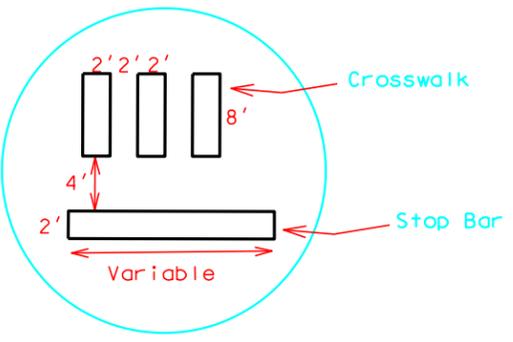
Station 30+10 - R
Install Type 1
Sidewalk Ramp

Station 31+65 - R
Install Type 1
Sidewalk Ramp

Station 34+55 - L
Install Type 1
Sidewalk Ramp



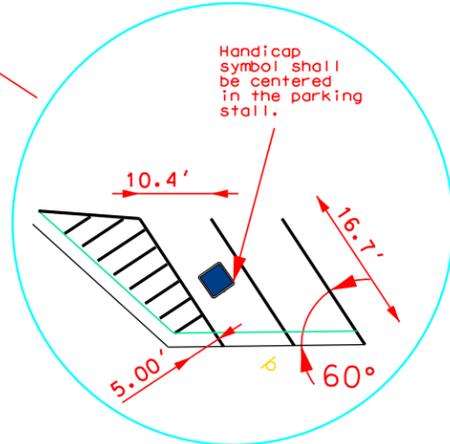
Typical Crosswalk and Stop Bar Detail



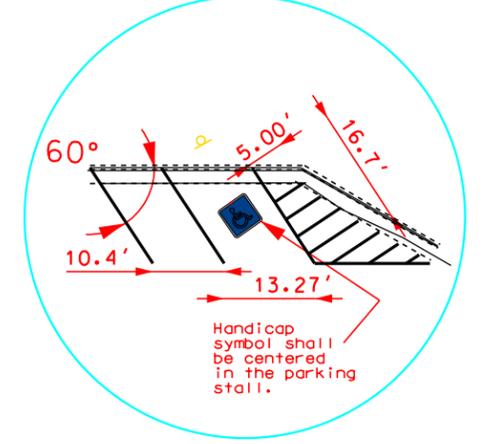
LEGEND

KEY	ITEM
(4 W)	4" White
(4 Y)	4" Yellow
(8 W)	8" White
(24 W)	24" White
(24 Y)	24" Yellow

Typical Handicap & Parking Stall



Typical Van Accessible Handicap & Parking Stall



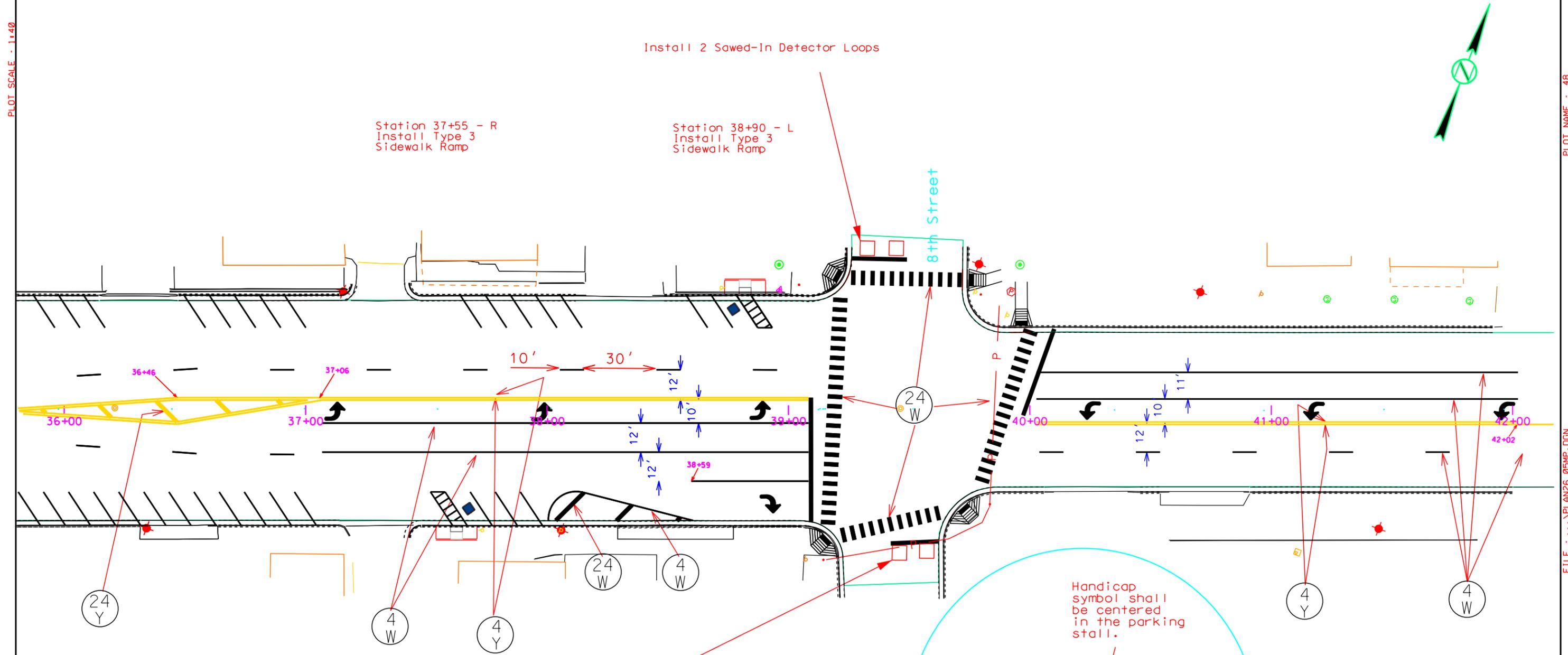
PLOTTED FROM - ITRC12508

FILE - ... \PLAN25 05MP.DGN

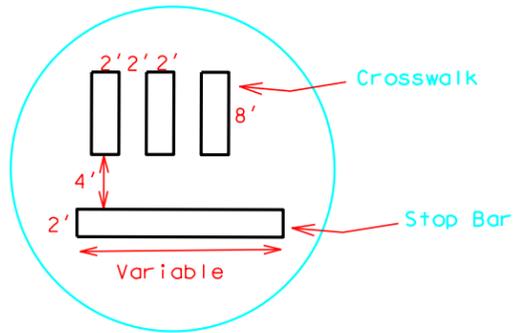
Pavement Marking Layout

PLOT SCALE - 1:40

PLOT NAME - 48

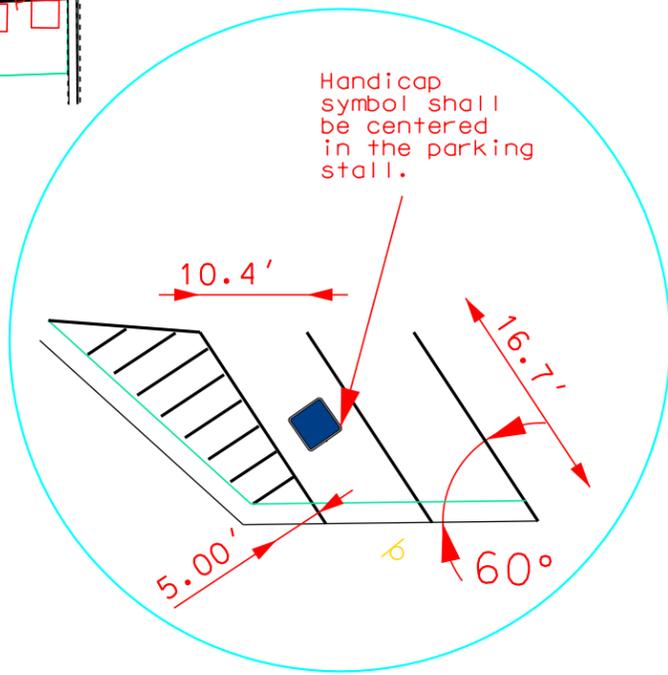


Typical Crosswalk and Stop Bar Detail



Install 2 Sawed-In Detector Loops

Typical Handicap & Parking Stall



Handicap symbol shall be centered in the parking stall.

LEGEND

KEY	ITEM
(4) W	4" White
(4) Y	4" Yellow
(8) W	8" White
(24) W	24" White
(24) Y	24" Yellow

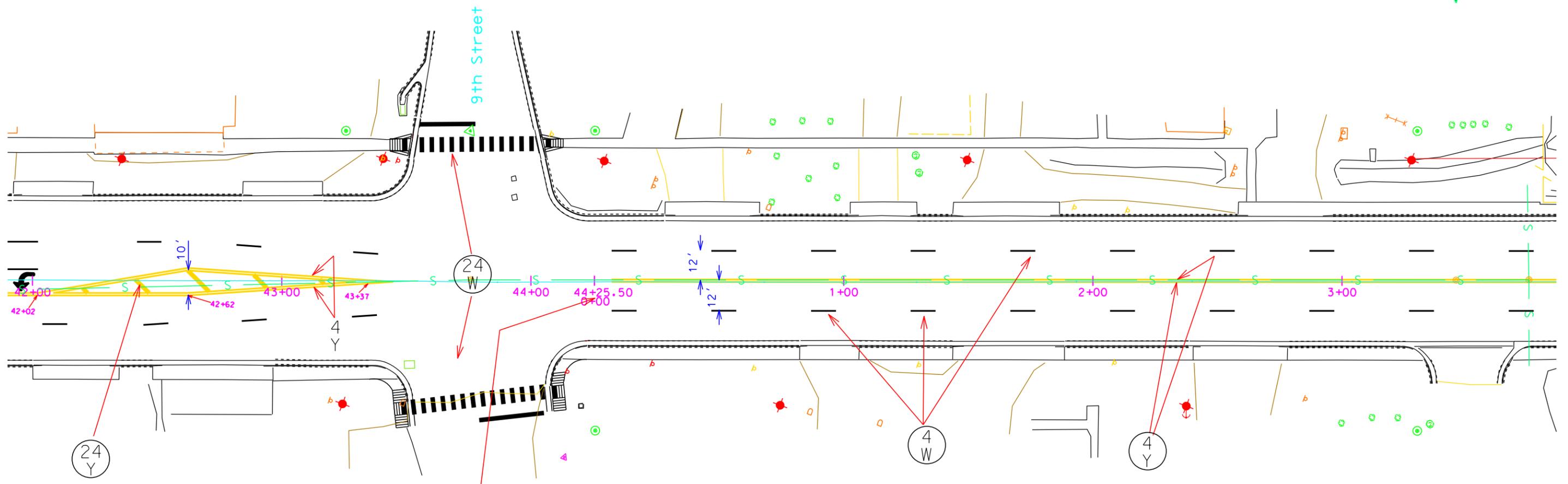
PLOTTED FROM - ITRC12508

FILE - ... \PLAN26 05MP.DGN

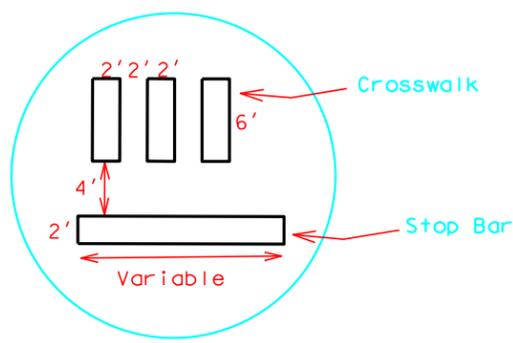
Pavement Marking Layout

PLOT SCALE - 1:40

PLOT NAME - 49



Typical Crosswalk and Stop Bar Detail



3rd Sta. 44+25.50 Bk=
4th Sta. 0+00.00 Ah

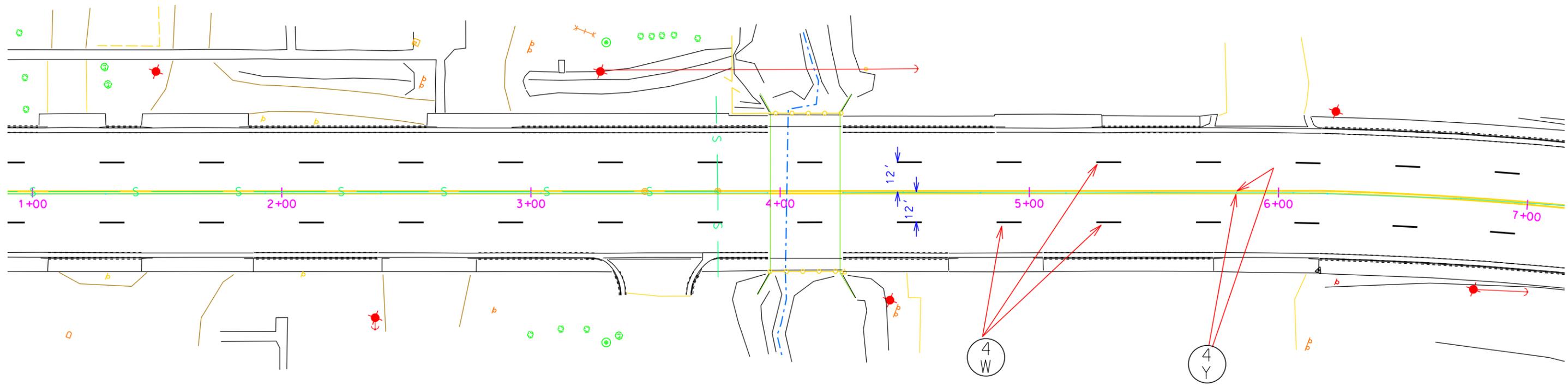
LEGEND

KEY	ITEM
⊙ (4)	4" White
⊙ (4)	4" Yellow
⊙ (8)	8" White
⊙ (24)	24" White
⊙ (24)	24" Yellow

PLOTTED FROM - TRRC12508

FILE - ... \PLAN27_05MP.DGN

Pavement Marking Layout



LEGEND

KEY	ITEM
⓪ ₄ W	4" White
⓪ ₄ Y	4" Yellow
⓪ ₈ W	8" White
⓪ ₂₄ W	24" White
⓪ ₂₄ Y	24" Yellow

PLOT SCALE - 1:40

PLOT NAME - 50

FILE - ... \PLAN28_05MP.DGN

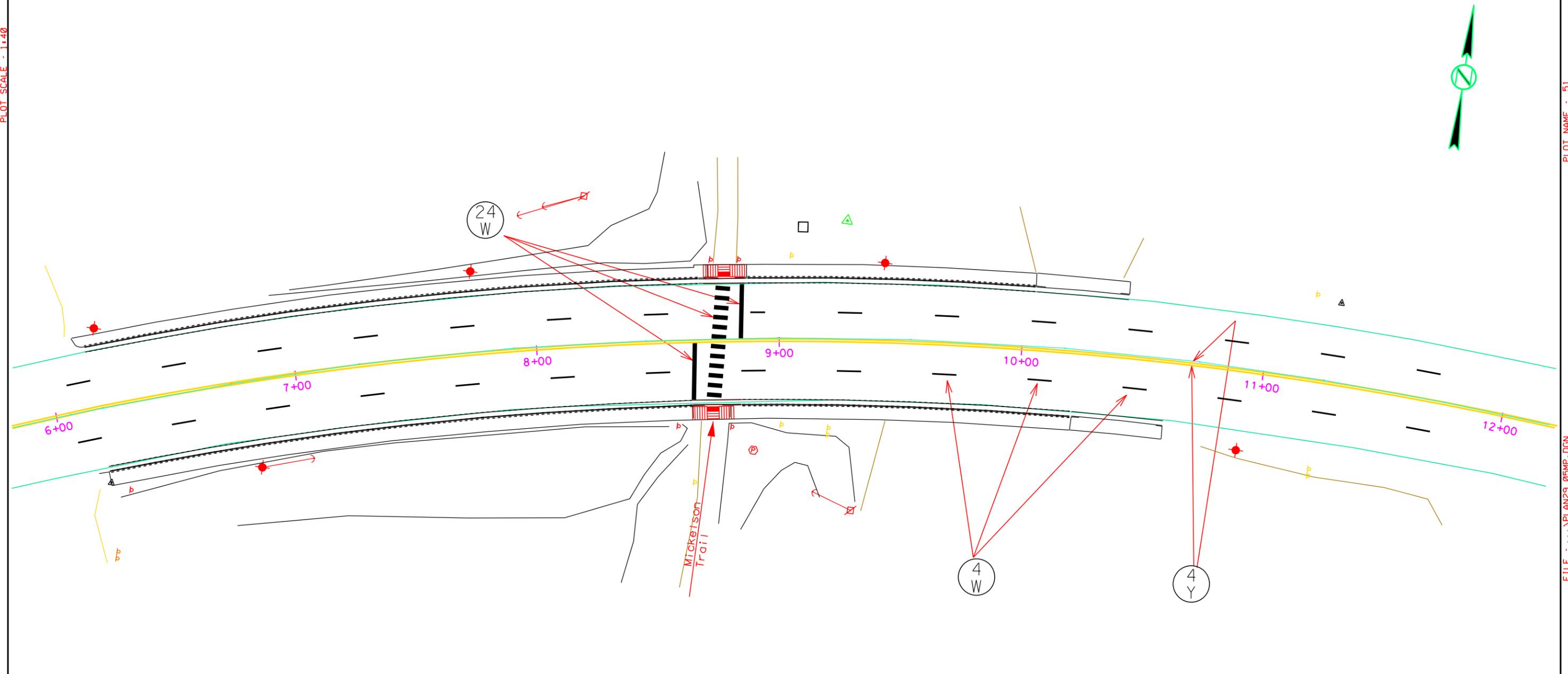
PLOTTED FROM - TRRC12508

Pavement Marking Layout

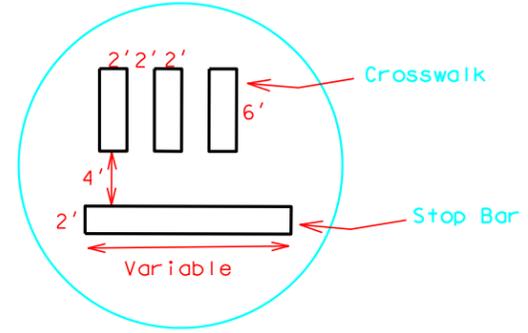
PLOT SCALE - 1:40

PLOT NAME - 51

FILE - ... \PLAN29_05MP.DGN



Typical Crosswalk and Stop Bar Detail



LEGEND

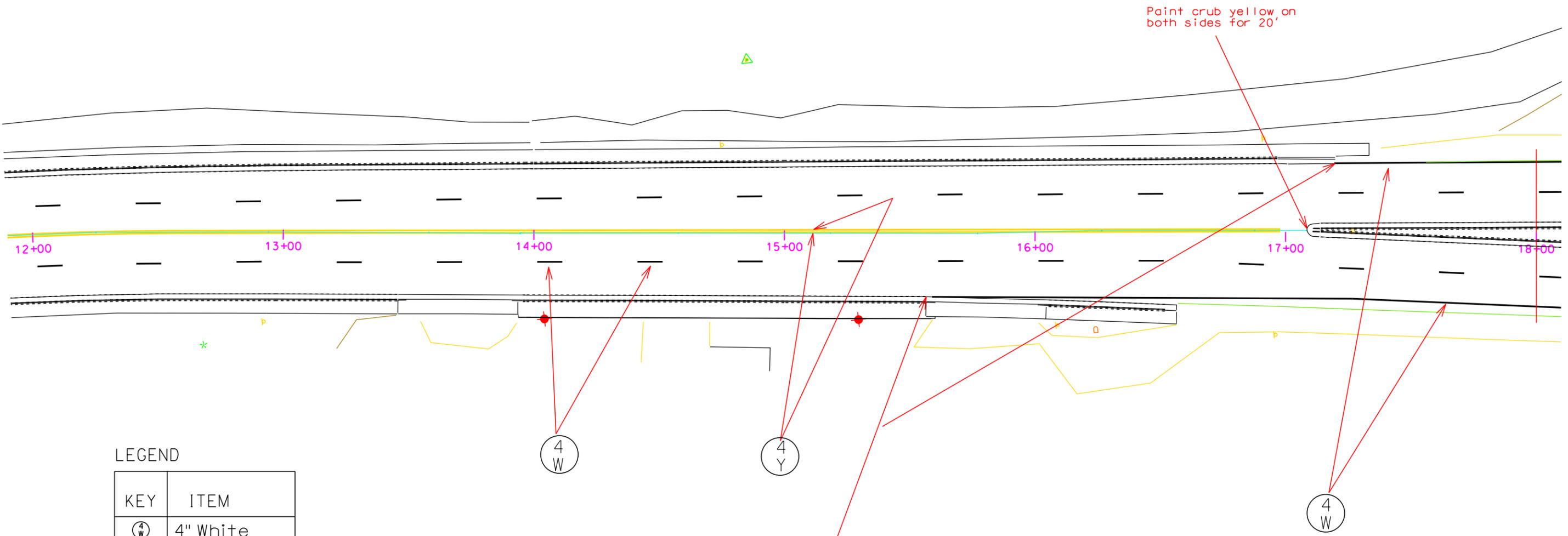
KEY	ITEM
Ⓞ	4" White
Ⓢ	4" Yellow
Ⓢ	8" White
Ⓢ	24" White
Ⓢ	24" Yellow

PLOTTED FROM - ITRC12508

Pavement Marking Layout

PLOT SCALE - 1:40

PLOT NAME - 52



Paint curb yellow on both sides for 20'

Begin 4" Edgelines

LEGEND

KEY	ITEM
(4 W)	4" White
(4 Y)	4" Yellow
(8 W)	8" White
(24 W)	24" White
(24 Y)	24" Yellow

(4 W)

(4 Y)

(4 W)

PLOTTED FROM - TRRC12508

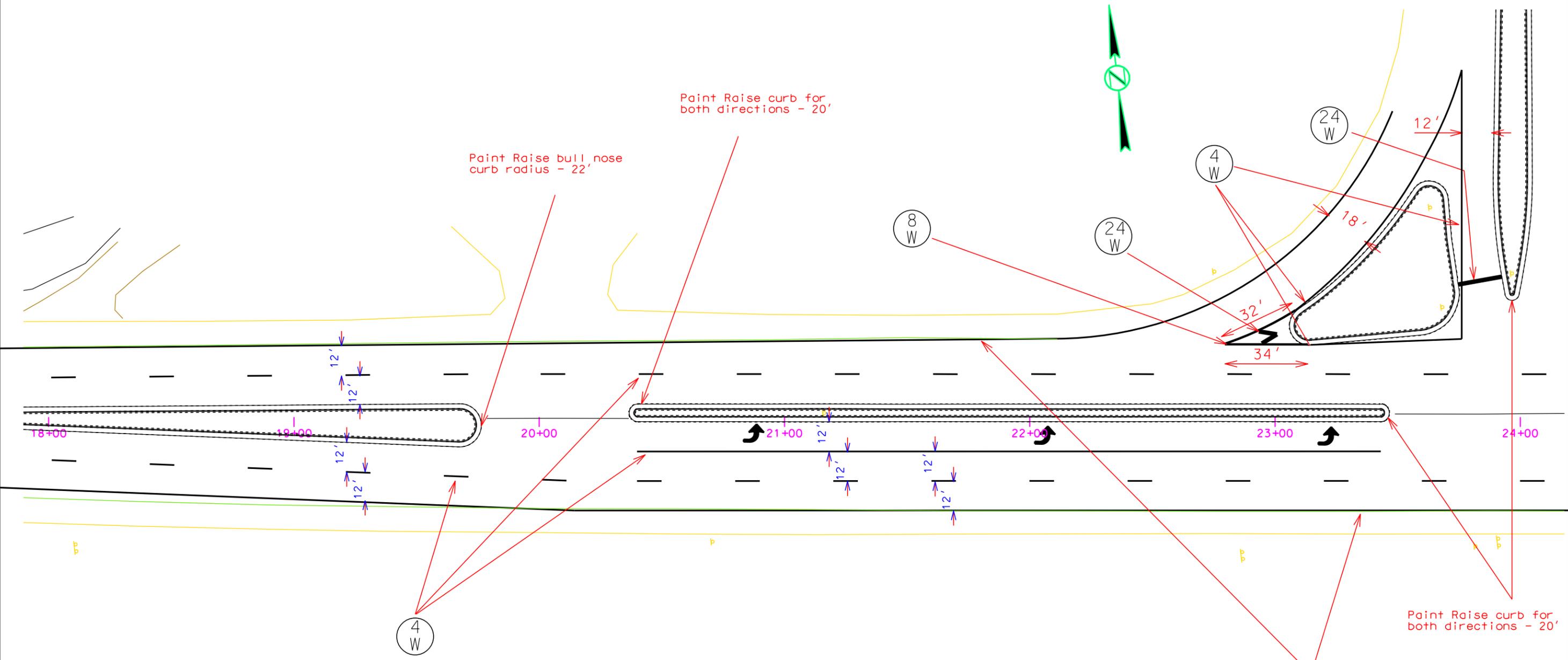
FILE - ... \PLAN30 05MP.DGN

Pavement Marking Layout

PLOT SCALE - 1:40

PLOT NAME - 53

FILE - ... \PLAN31_05MP.DGN



LEGEND

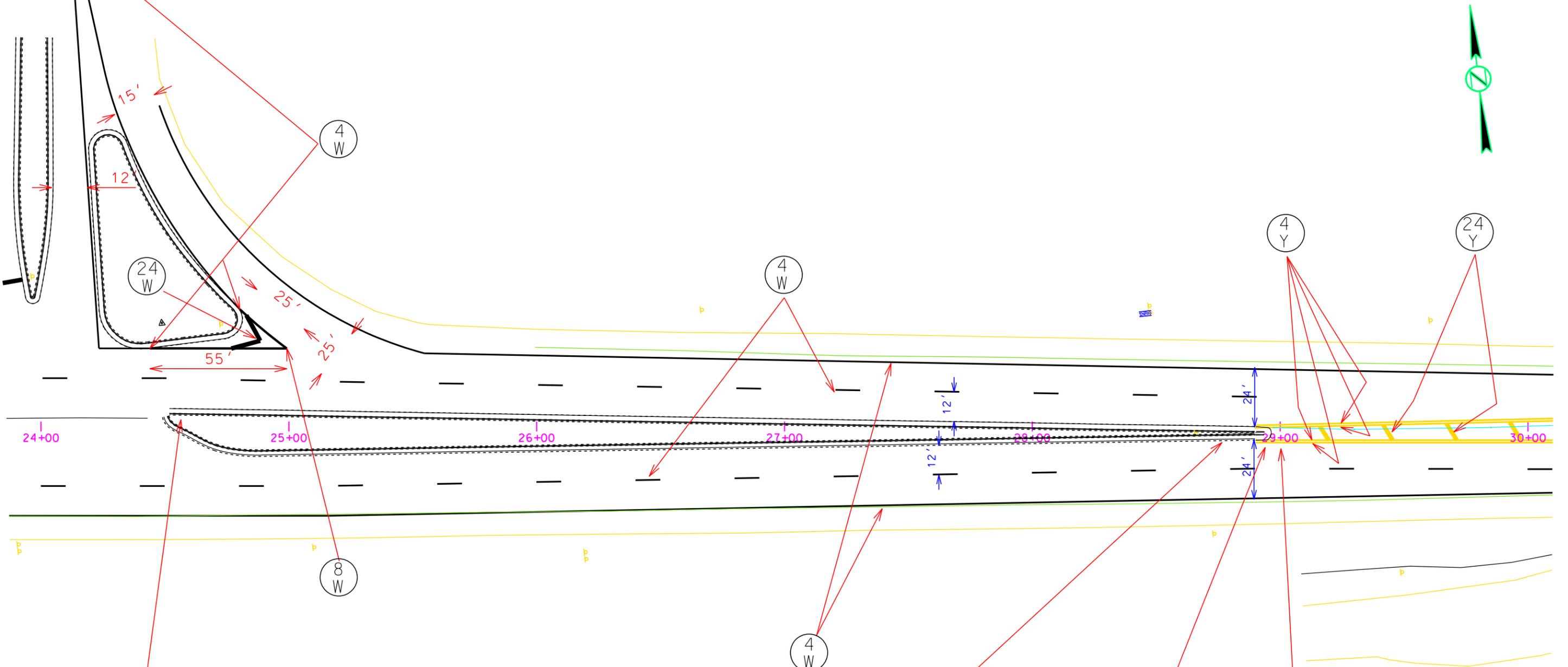
KEY	ITEM
Ⓞ ₄ W	4" White
Ⓞ ₄ Y	4" Yellow
Ⓞ ₈ W	8" White
Ⓞ ₂₄ W	24" White
Ⓞ ₂₄ Y	24" Yellow

PLOTTED FROM - TRRC12508

Pavement Marking Layout

PLOT SCALE - 1:40

PLOT NAME - 54



Paint raised curb -
14' for WB direction and
34' for EB direction

LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow

Paint raised curb
20' for both directions

MRM 23.382
at edge of
raised island

Station 29

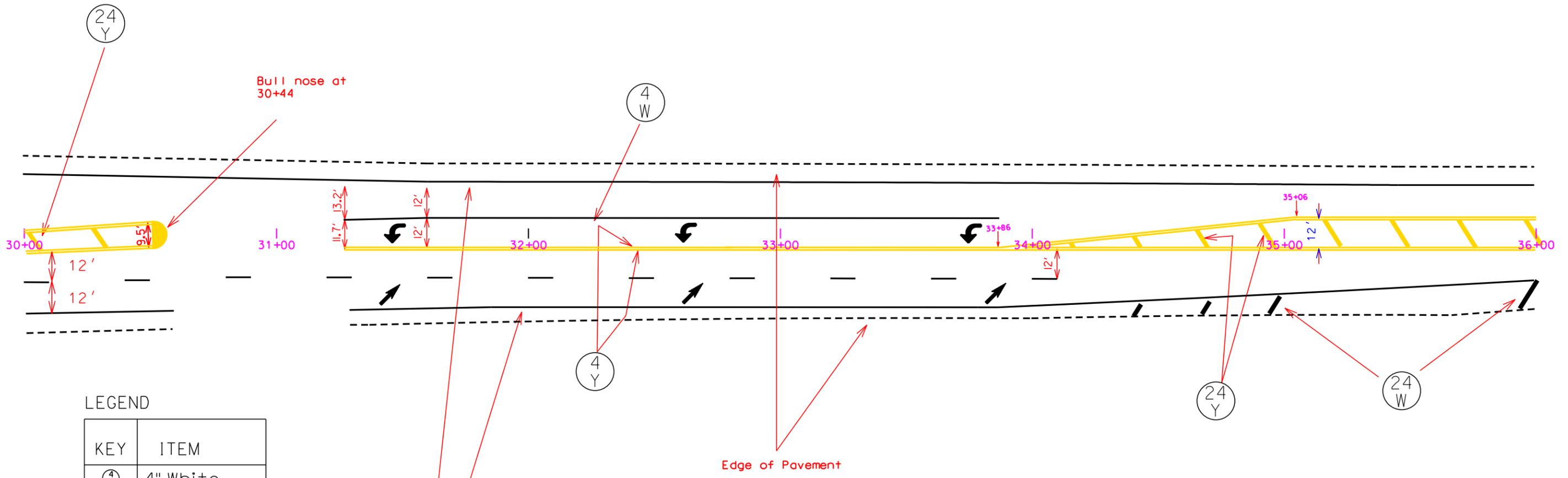
PLOTTED FROM - TRRC12508

FILE - ... \PLAN32 05MP.DGN

Pavement Marking Layout

PLOT SCALE - 1:40

PLOT NAME - 55



LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow

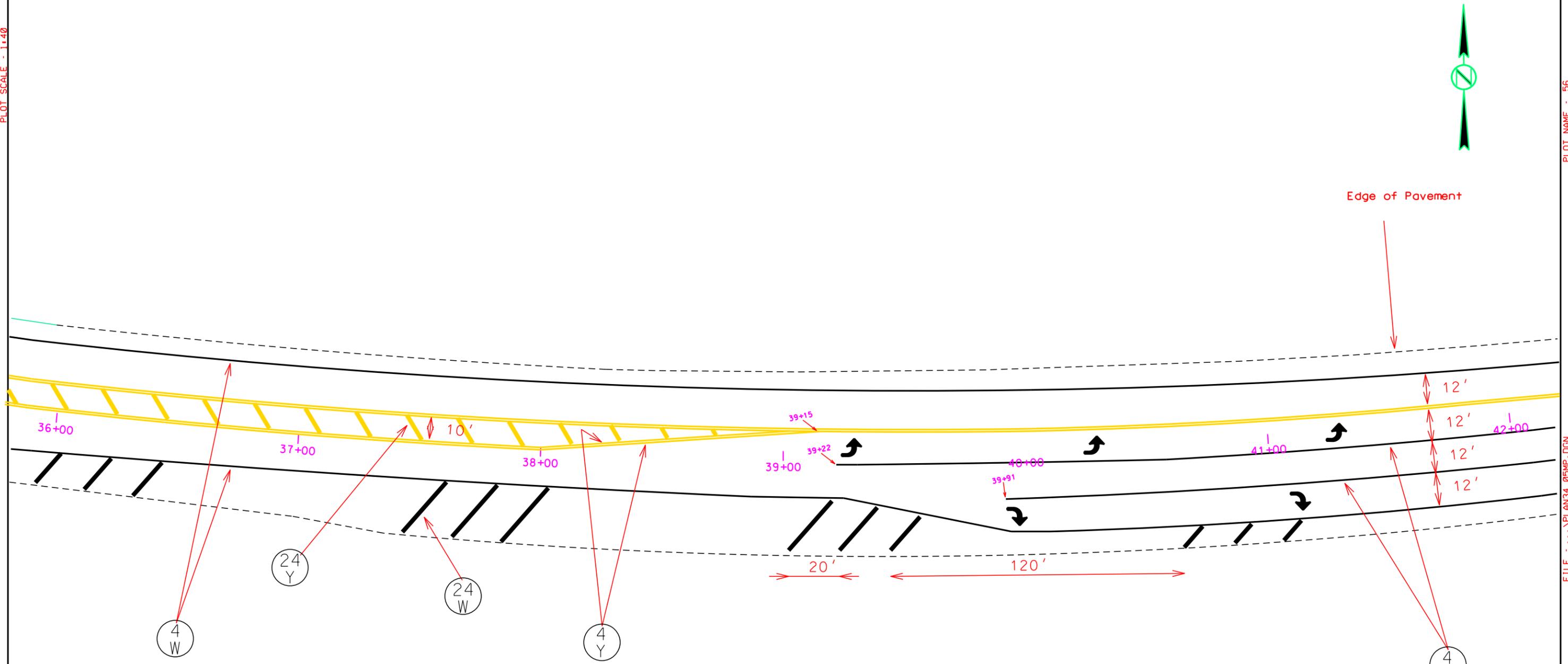
PLOTTED FROM - TRRC12508

FILE - ... \PLAN33 05MP.DGN

Pavement Marking Layout

PLOT SCALE - 1:40

PLOT NAME - 56



LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow

PLOTTED FROM - TRRC12508

FILE - ... \PLAN34 05MP.DGN

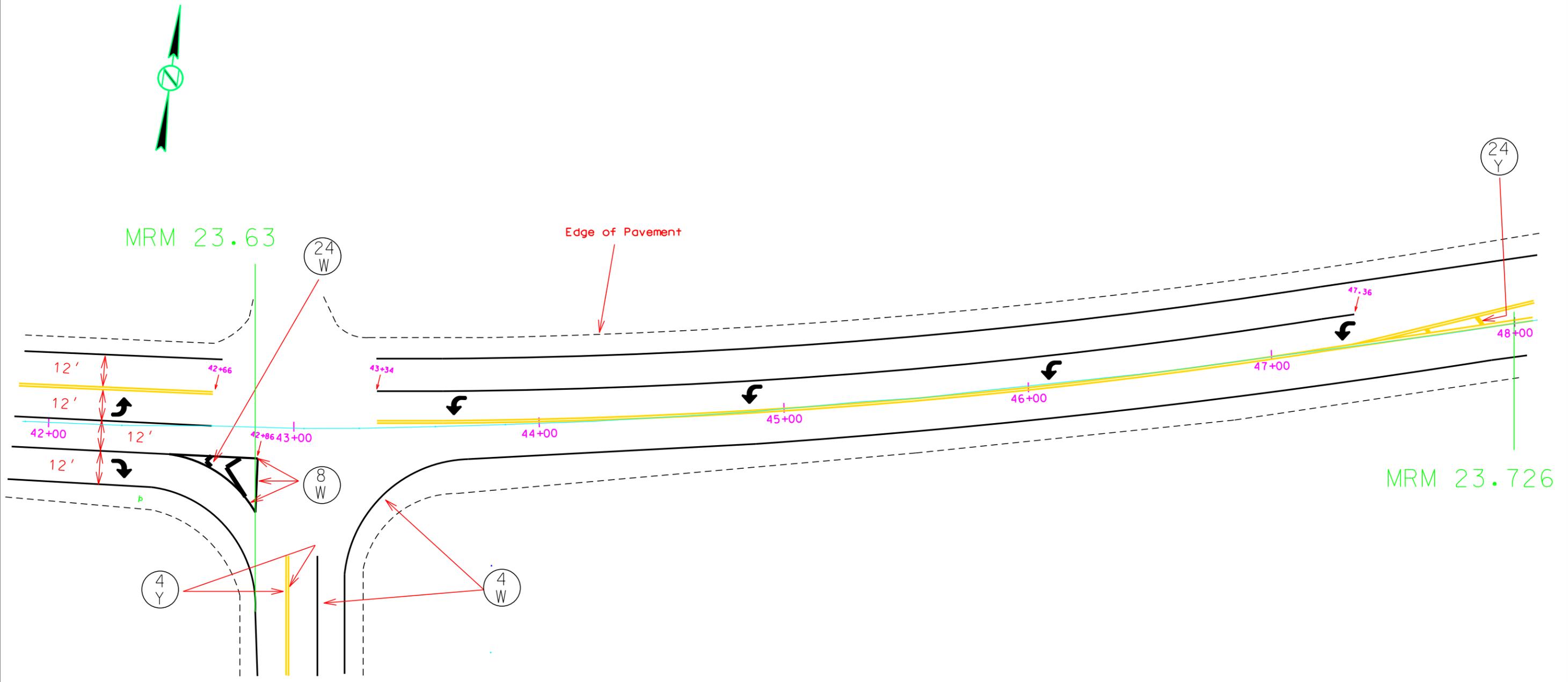
Pavement Marking Layout



PLOT SCALE - 1:40

PLOT NAME - 57

FILE - ... \PLAN35 05MP.DGN



LEGEND

KEY	ITEM
Ⓞ _W	4" White
Ⓞ _Y	4" Yellow
Ⓞ _W	8" White
Ⓞ _W	24" White
Ⓞ _Y	24" Yellow

PLOTTED FROM - TRRC12508

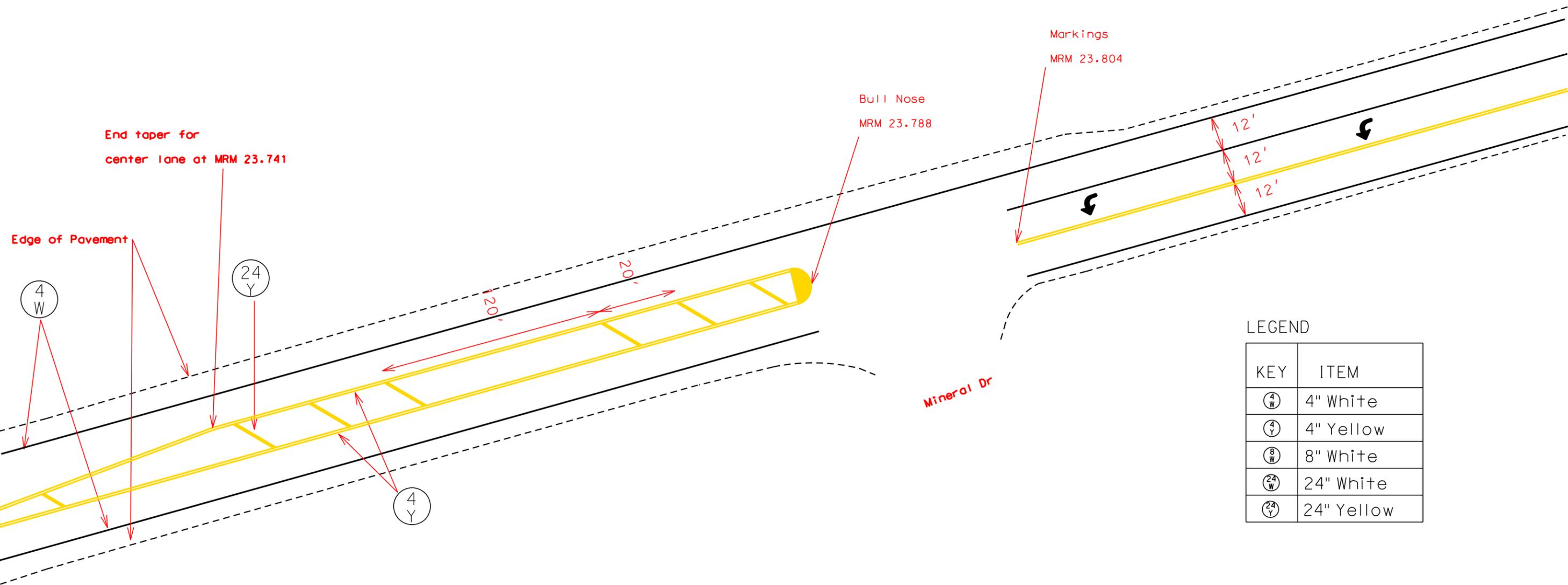
Pavement Marking Layout

2 lane with center
turn lane

Plot Scale - 1:40

Plotted From - TRR012608

File - ...iplans36 05MIP.dgn



LEGEND

KEY	ITEM
(4 W)	4" White
(4 Y)	4" Yellow
(8 W)	8" White
(24 W)	24" White
(24 Y)	24" Yellow

Pavement Marking Layout

2 lane with center turn lane and 3 to 2 lane transition

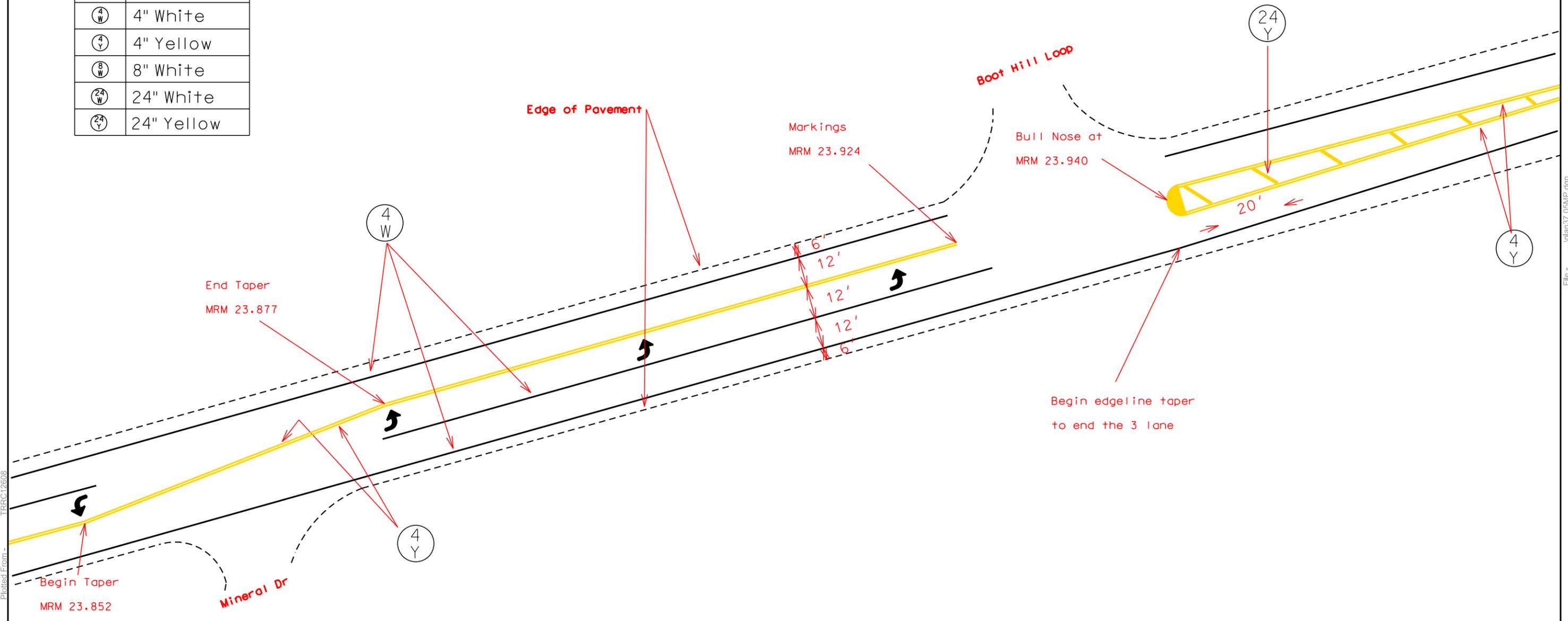
LEGEND

KEY	ITEM
④ W	4" White
④ Y	4" Yellow
⑧ W	8" White
②④ W	24" White
②④ Y	24" Yellow

Plot Scale - 1:40

Plotted From - TRRC12608

File - ...\plans\37_05\MP.dgn



Pavement Marking Layout

3 to 2 lane transition
then 2 lane

LEGEND

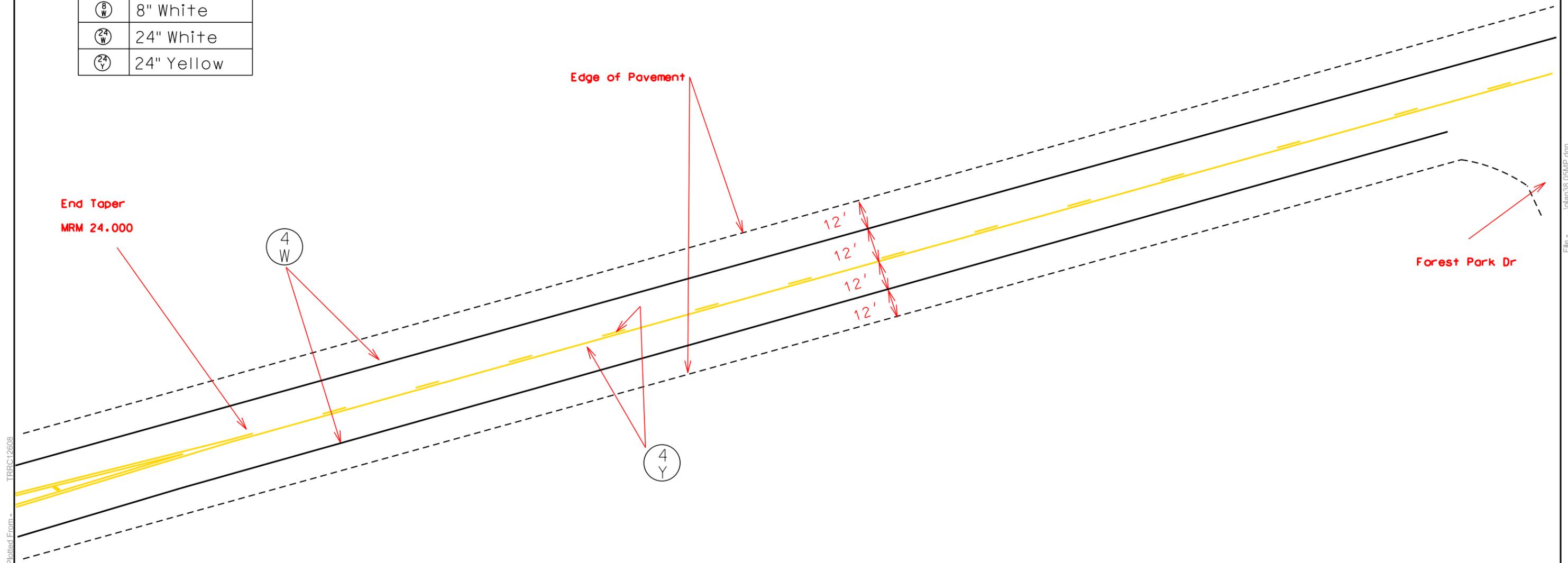
KEY	ITEM
Ⓞ ₄ W	4" White
Ⓞ ₄ Y	4" Yellow
Ⓞ ₈ W	8" White
Ⓞ ₂₄ W	24" White
Ⓞ ₂₄ Y	24" Yellow

Plot Scale - 1:40

Plotted From - TRRC12608

Plotted From -

File - ...\plan38_05MIP.dgn

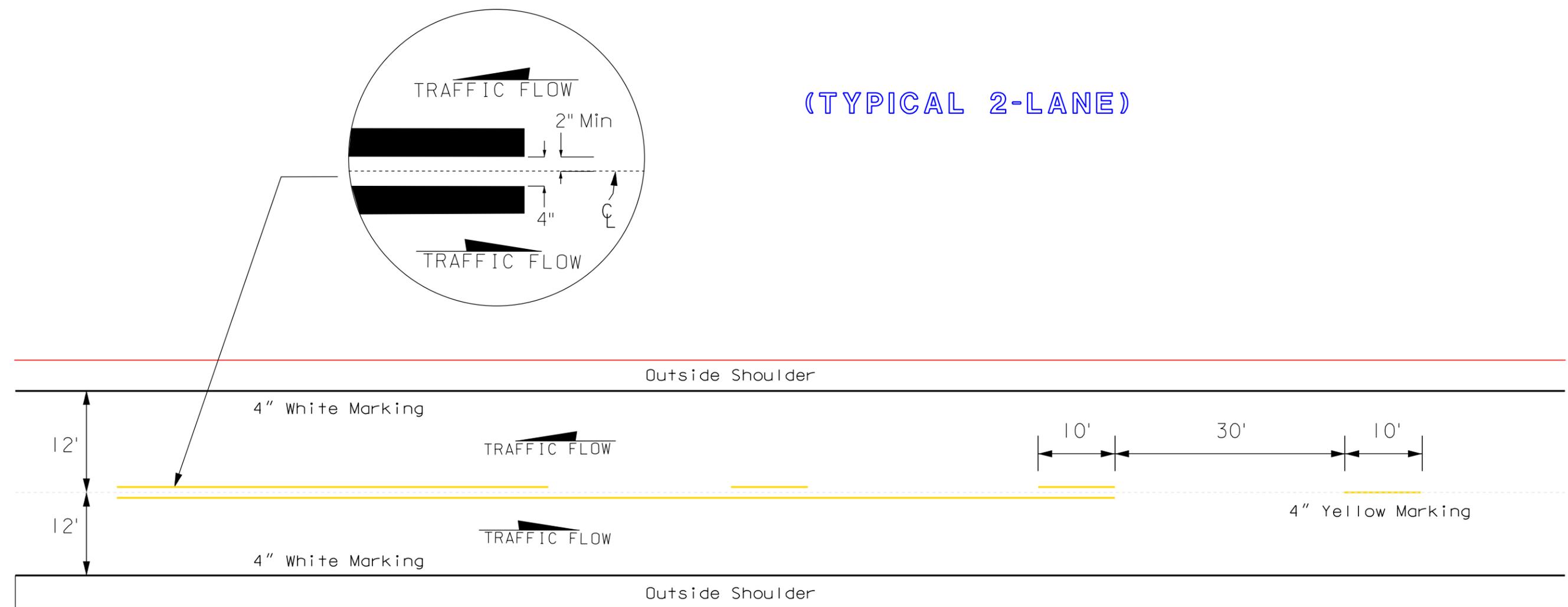


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0016(85)22 & P 016A(09)22	82	106
Plotting Date: 02/23/2016			

Pavement Marking Layout

From MRM 24.000 to 24.337
follow 2 lane typical

(TYPICAL 2-LANE)



Plot Scale - 1:40

Plotted From - TRRC12608

File - ...\plans39 05MIP.dgn

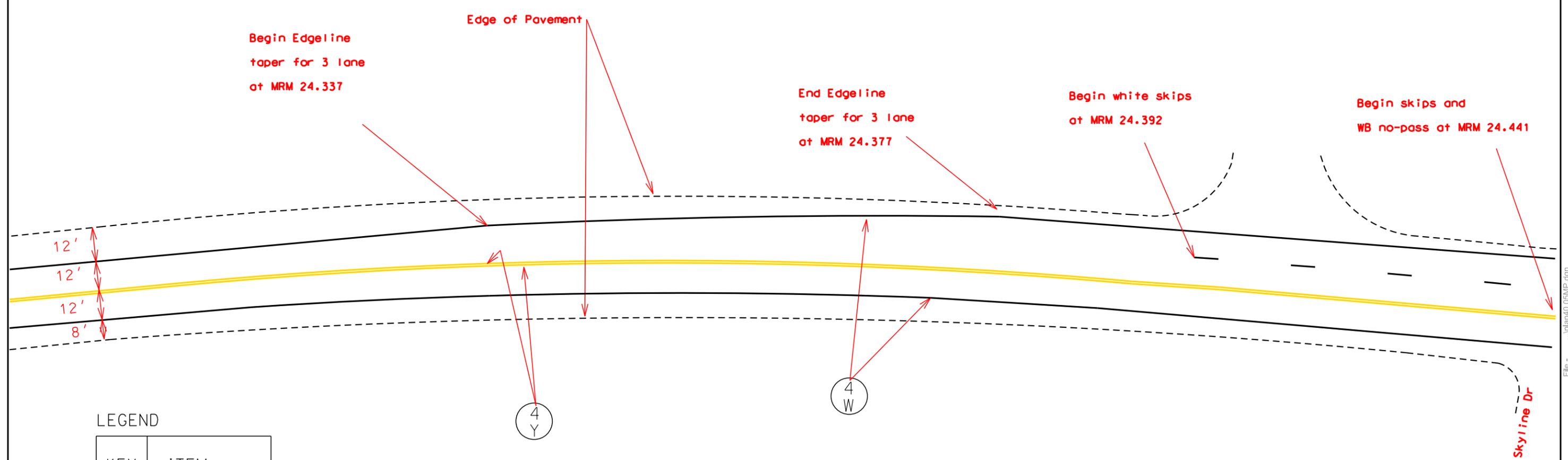
Pavement Marking Layout

2 to 3 lane transition
begin at MRM 24.337

Plot Scale - 1:40

Plotted From - TRR012608

File - ...\plan40.05MIP.dgn

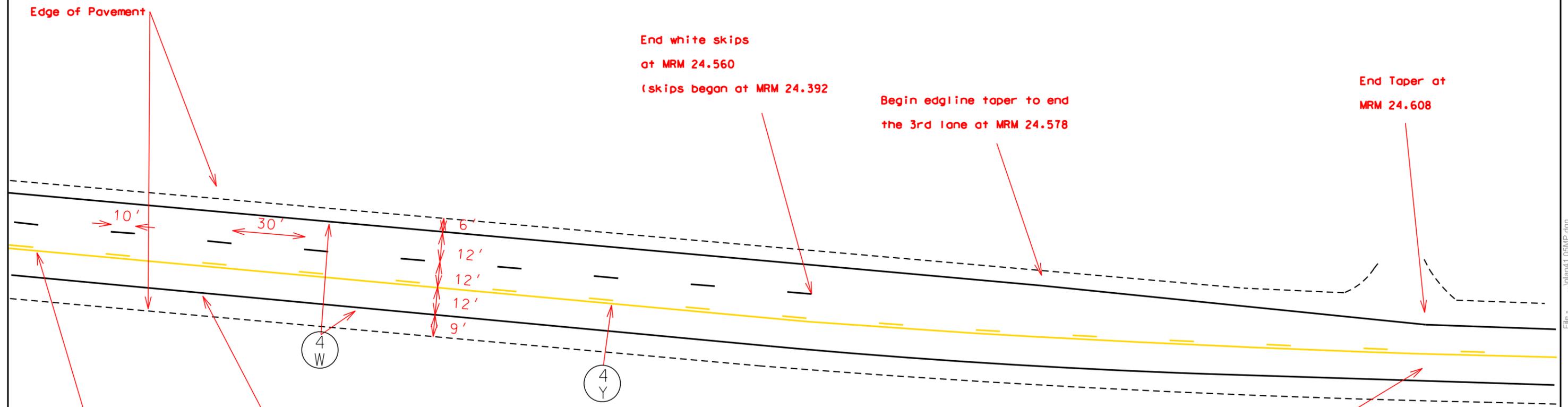


LEGEND

KEY	ITEM
Ⓞ _W	4" White
Ⓞ _Y	4" Yellow
Ⓞ _{8W}	8" White
Ⓞ _{24W}	24" White
Ⓞ _{24Y}	24" Yellow

Pavement Marking Layout

3 to 2 lane transition follow 2 lane typical to the end of the project at MRM 26.133



Skips and no-pass zone continued from MRM 24.441

Edgeline continued from MRM 24.392

LEGEND

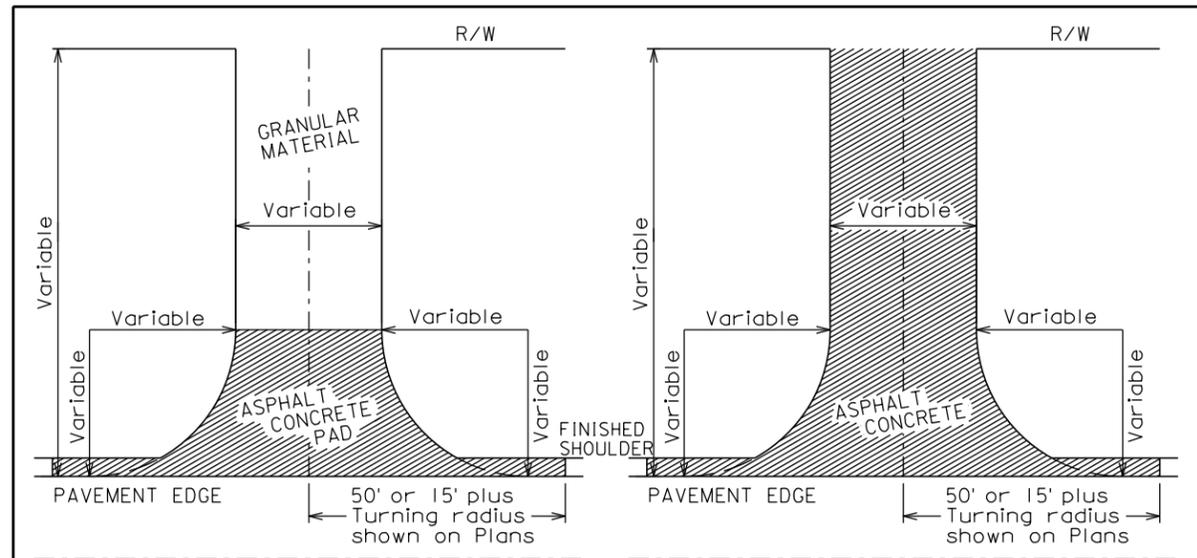
KEY	ITEM
Ⓞ ₄ W	4" White
Ⓞ ₄ Y	4" Yellow
Ⓞ ₈ W	8" White
Ⓞ ₂₄ W	24" White
Ⓞ ₂₄ Y	24" Yellow

From MRM 24.608 to the end of the project at MRM 26.133 follow 2 lane typical

Plot Scale - 1:40

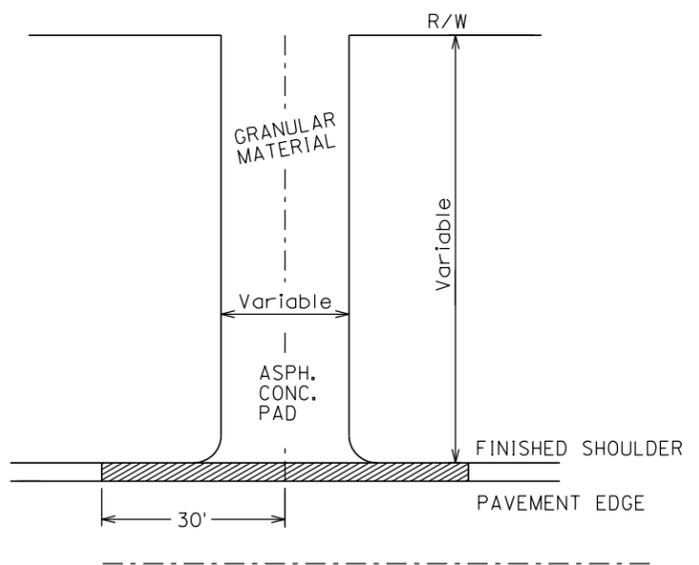
Plotted From - TRR012608

File - ...:\plan41 05MP.dgn



INTERSECTING ROAD
NO ASPHALT CONCRETE SURFACING
BEYOND R/W

INTERSECTING ROAD
ASPHALT CONCRETE SURFACING
BEYOND R/W



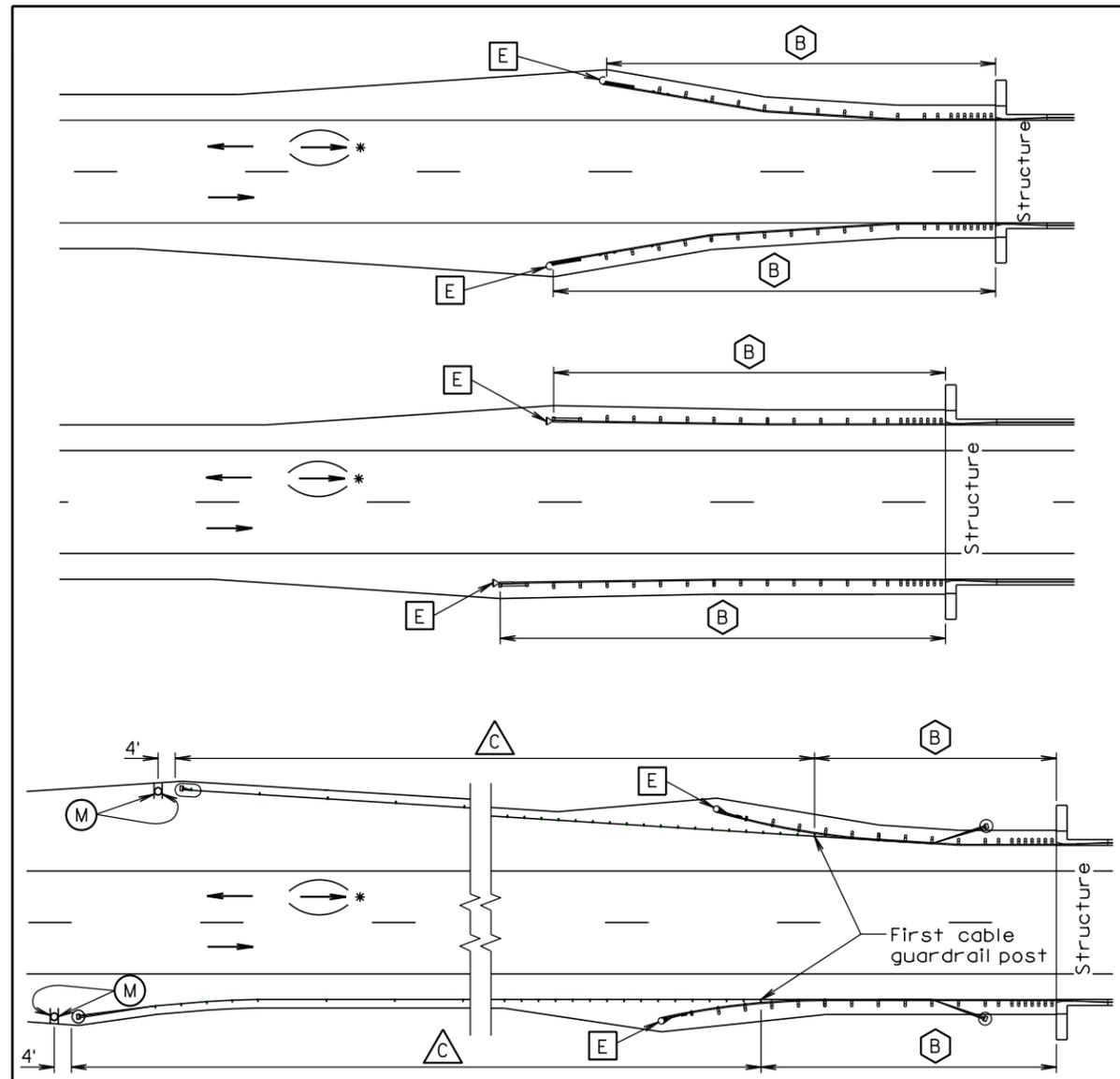
ENTRANCE

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

ROADWAY WITH SHOULDER

March 31, 2000

Published Date: 1st Qtr. 2016	S D D O T	RESURFACING OF INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 320.12
			Sheet 1 of 1



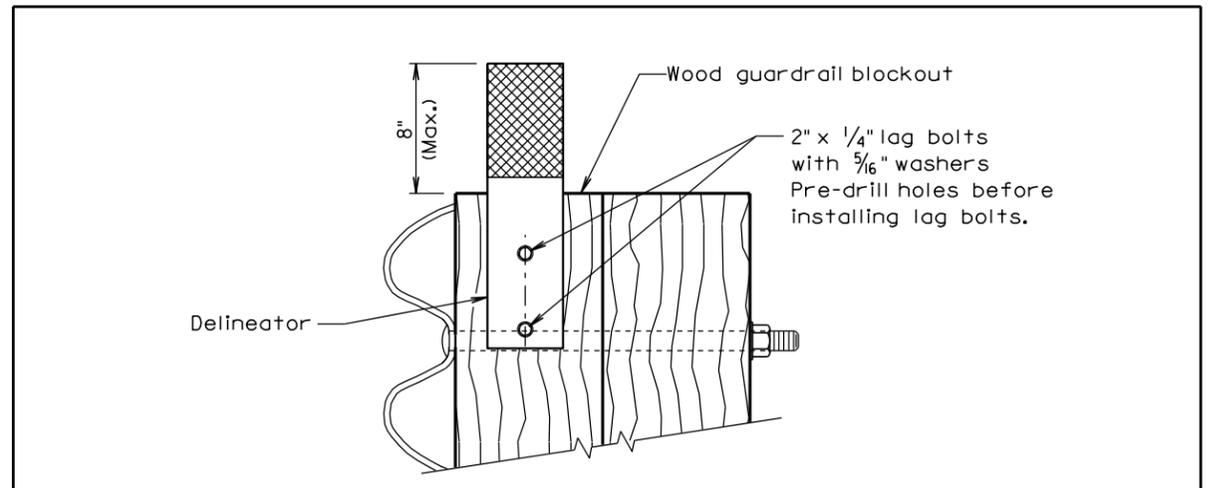
TYPICAL GUARDRAIL LAYOUTS

- (B) Steel Beam Guardrail Delineation
- (E) Guardrail Terminal End Object Marker
- (C) 3 Cable Guardrail Delineation
- (M) Type 2 Object Marker

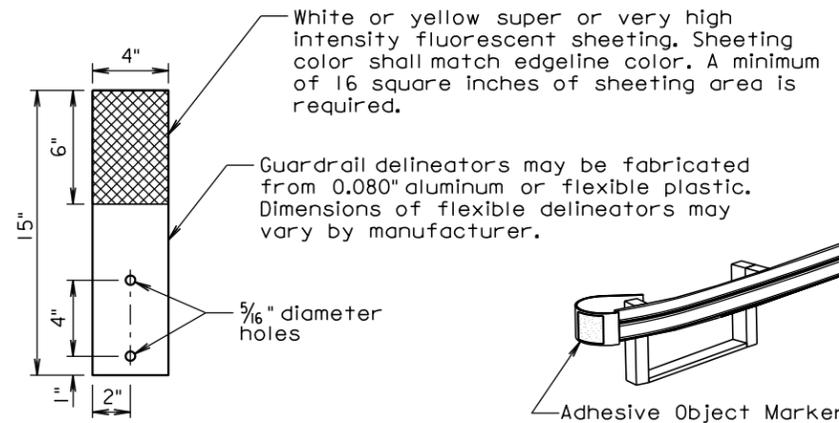
*For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

June 26, 2011

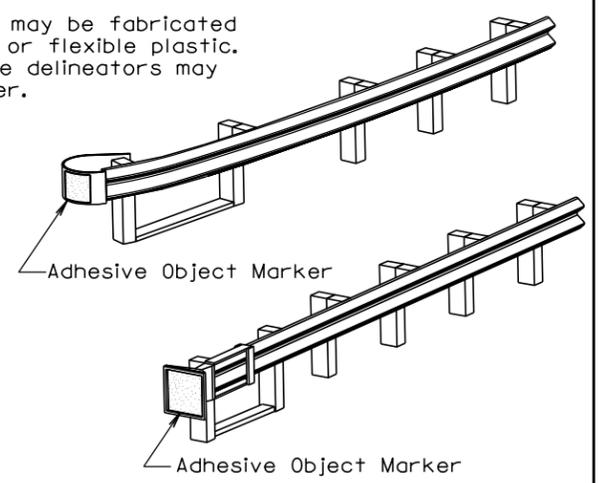
Published Date: 1st Qtr. 2016	S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
			Sheet 1 of 4



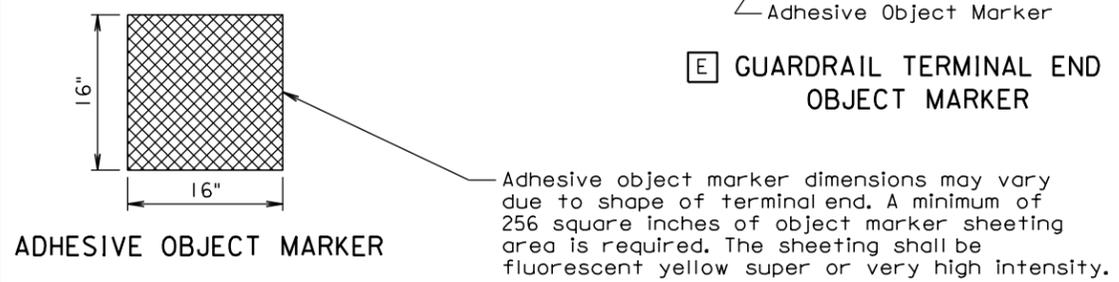
(B) STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)



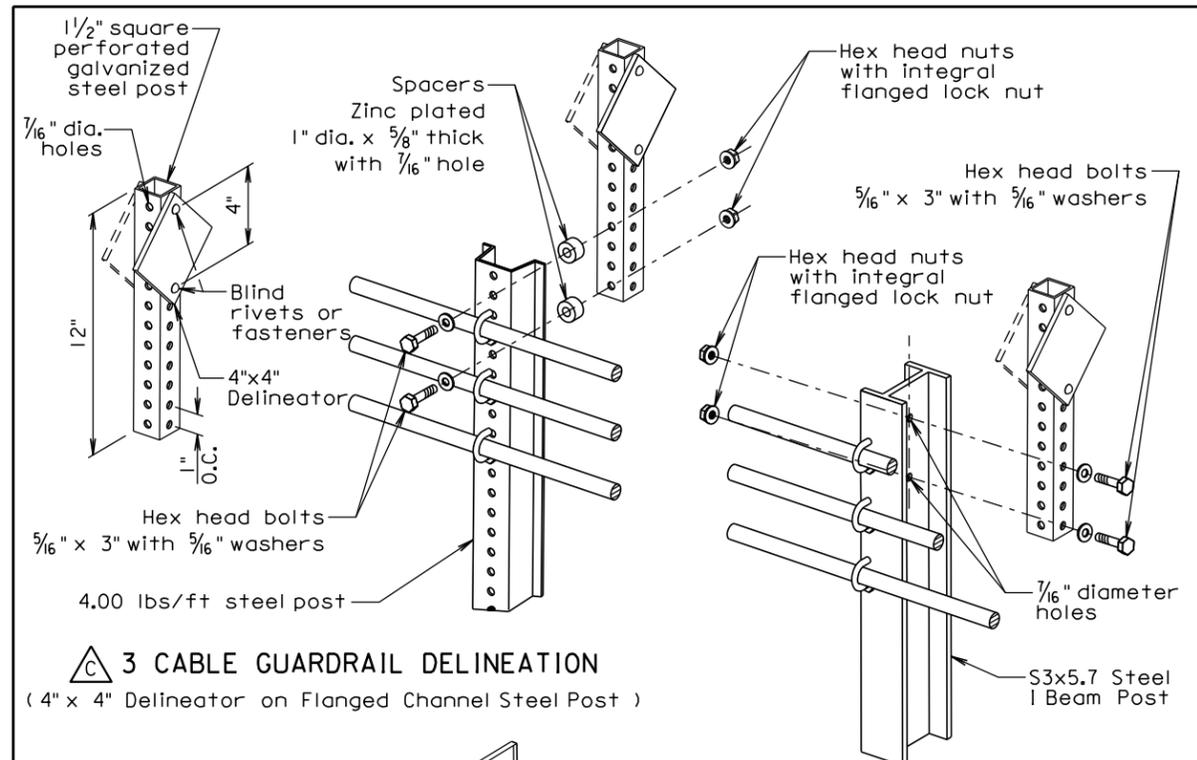
(E) GUARDRAIL TERMINAL END OBJECT MARKER



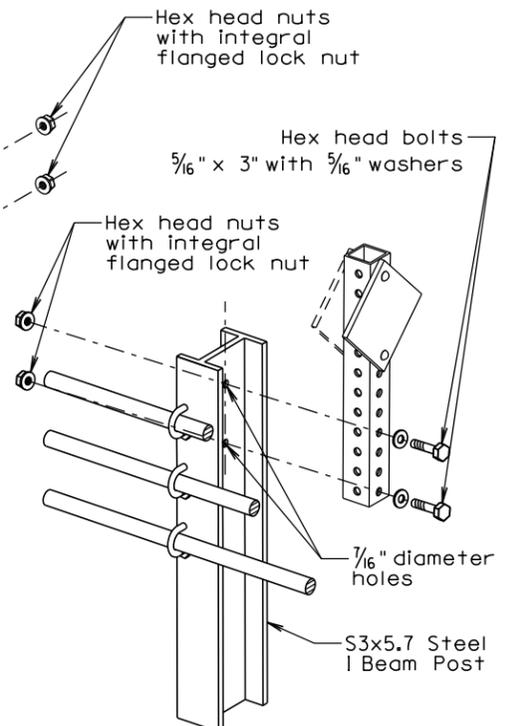
ADHESIVE OBJECT MARKER

June 26, 2011

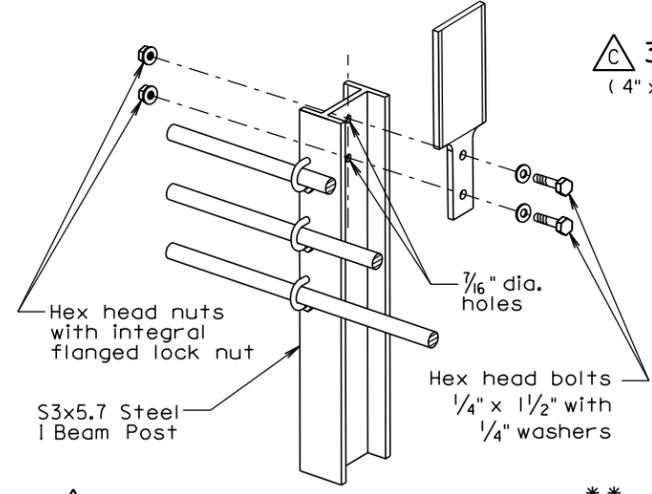
Published Date: 1st Qtr. 2016	S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
			Sheet 2 of 4



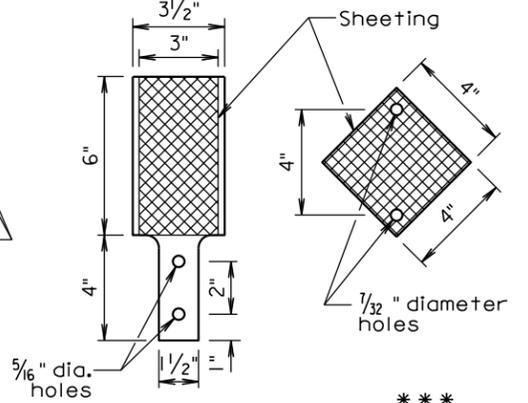
3 CABLE GUARDRAIL DELINEATION
(4" x 4" Delineator on Flanged Channel Steel Post)



3 CABLE GUARDRAIL DELINEATION
(4" x 4" Delineator on I Beam Steel Post)



3 CABLE GUARDRAIL DELINEATION**
(Flexible 3" x 6" Delineator on I Beam Post)

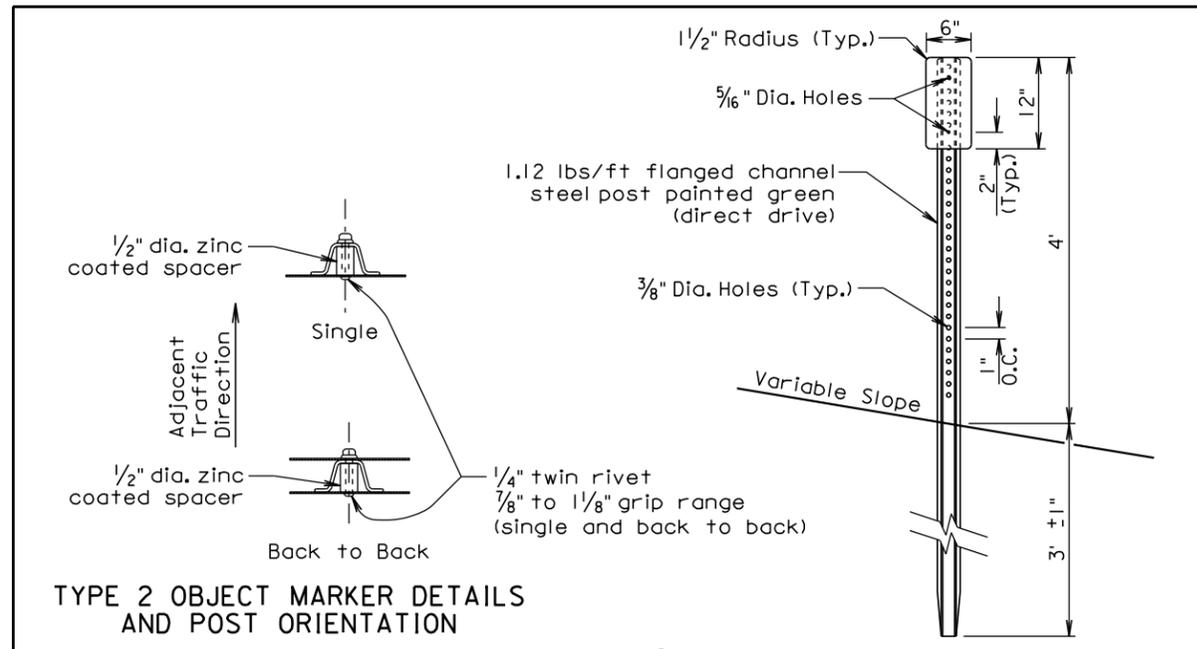


DELINEATORS***
(For 3 Cable Guardrail)

** Flexible delineators may be attached to post with manufacturer approved adhesive instead of bolts.
*** Dimensions of flexible delineators may vary by manufacturer. A minimum of 16 square inches of sheeting area is required. The sheeting shall be white or yellow super or very high intensity fluorescent sheeting. The sheeting color shall match the edgeline color.

June 26, 2011

Published Date: 1st Qtr. 2016	S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
			Sheet 3 of 4



TYPE 2 OBJECT MARKER DETAILS AND POST ORIENTATION

TYPE 2 OBJECT MARKER
(For Marking 3 Cable Guardrail Anchor)

GENERAL NOTES:

The delineators shall be covered with a minimum of 16 square inches of reflective sheeting. The reflective sheeting shall be of either very high intensity or super high intensity material. For bridges along two-way roadways the sheeting shall be on both sides of the delineator and shall be white in color. For one-way roadways the sheeting will only be required on the side facing traffic and the color will be the same as the nearest pavement marking, yellow on the left side of the roadway and white on the right side.

The first delineator shall be attached to the post nearest the bridge with additional delineators spaced in advance of the bridge at approximately 50 foot intervals. At bridges with short lengths of guardrail, less than 200 feet, a minimum of 4 delineators shall be placed in addition to the yellow object marker. The spacing between the delineators shall be approximately one third of the length of the guardrail. This will provide for a shorter spacing. At bridges with longer lengths of guardrail, greater than 200 feet, including bridges that have cable guardrail transitioning into the steel beam guardrail, the delineators will be placed at a spacing of approximately 50 feet. Delineation shall extend throughout the length of the guardrail system.

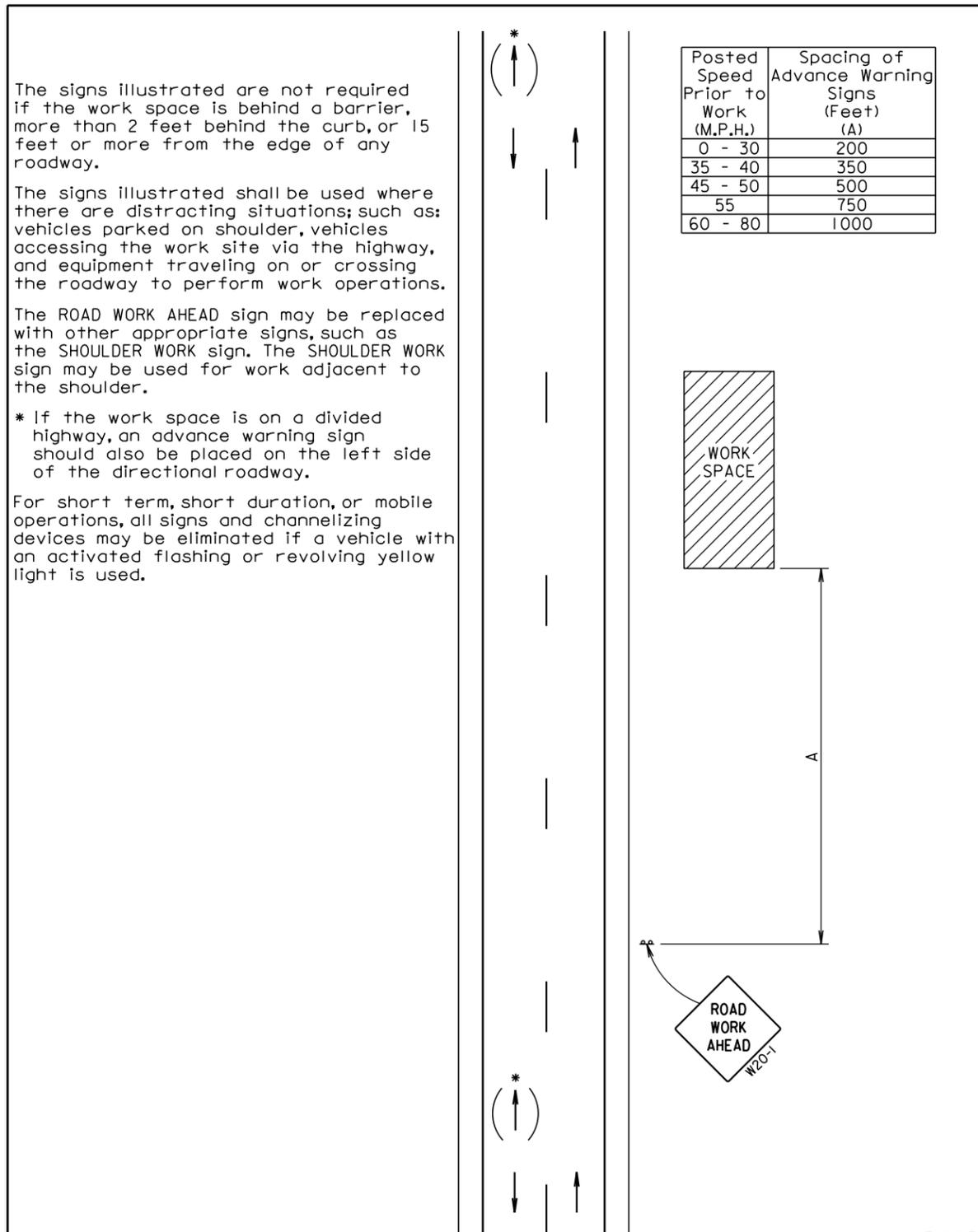
All costs for furnishing and installing single or back to back guardrail delineation shall be included in the contract unit price per each for "Guardrail Delineator".

An adhesive object marker shall be placed on the end of the W beam guardrail end terminal. The adhesive object marker dimensions may vary due to the shape of the terminal end. A minimum of 256 square inches of object marker reflective sheeting area is required. The reflective sheeting shall be fluorescent yellow super or very high intensity. All costs for furnishing and installing the adhesive object marker shall be incidental to various contract items.

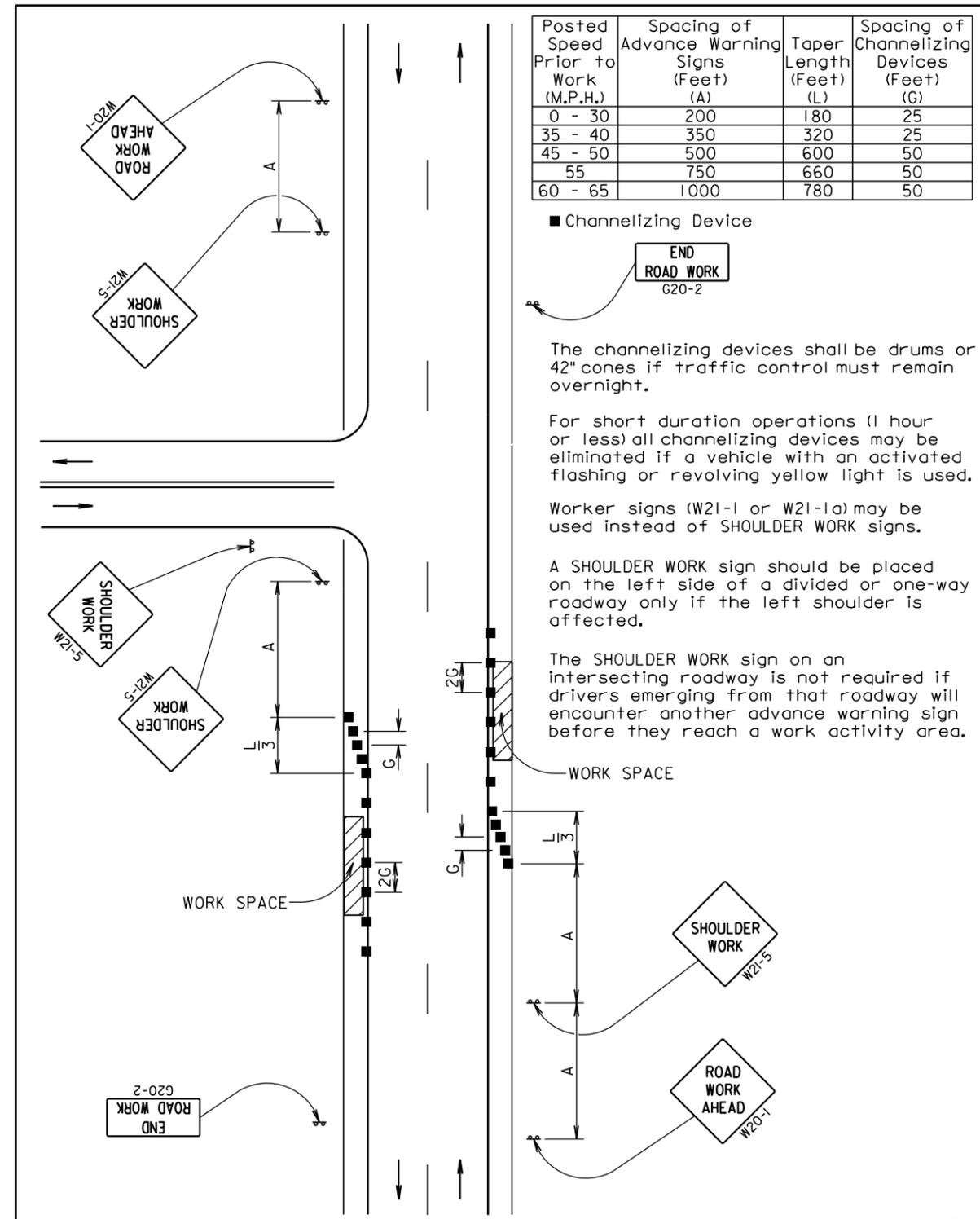
A type 2 object marker shall be placed adjacent to the 3 cable guardrail anchor at the location noted on sheet 1 of this standard plate. The type 2 object marker (6" x 12") shall have a fluorescent yellow very high or super high intensity reflective sheeting. All costs for furnishing and installing the type 2 object marker including the steel post, 6" x 12" reflective panel, and hardware shall be included in the contract unit price per each for "Type 2 Object Marker" for single-sided and "Type 2 Object Marker Back to Back" for back to back type 2 object markers.

June 26, 2011

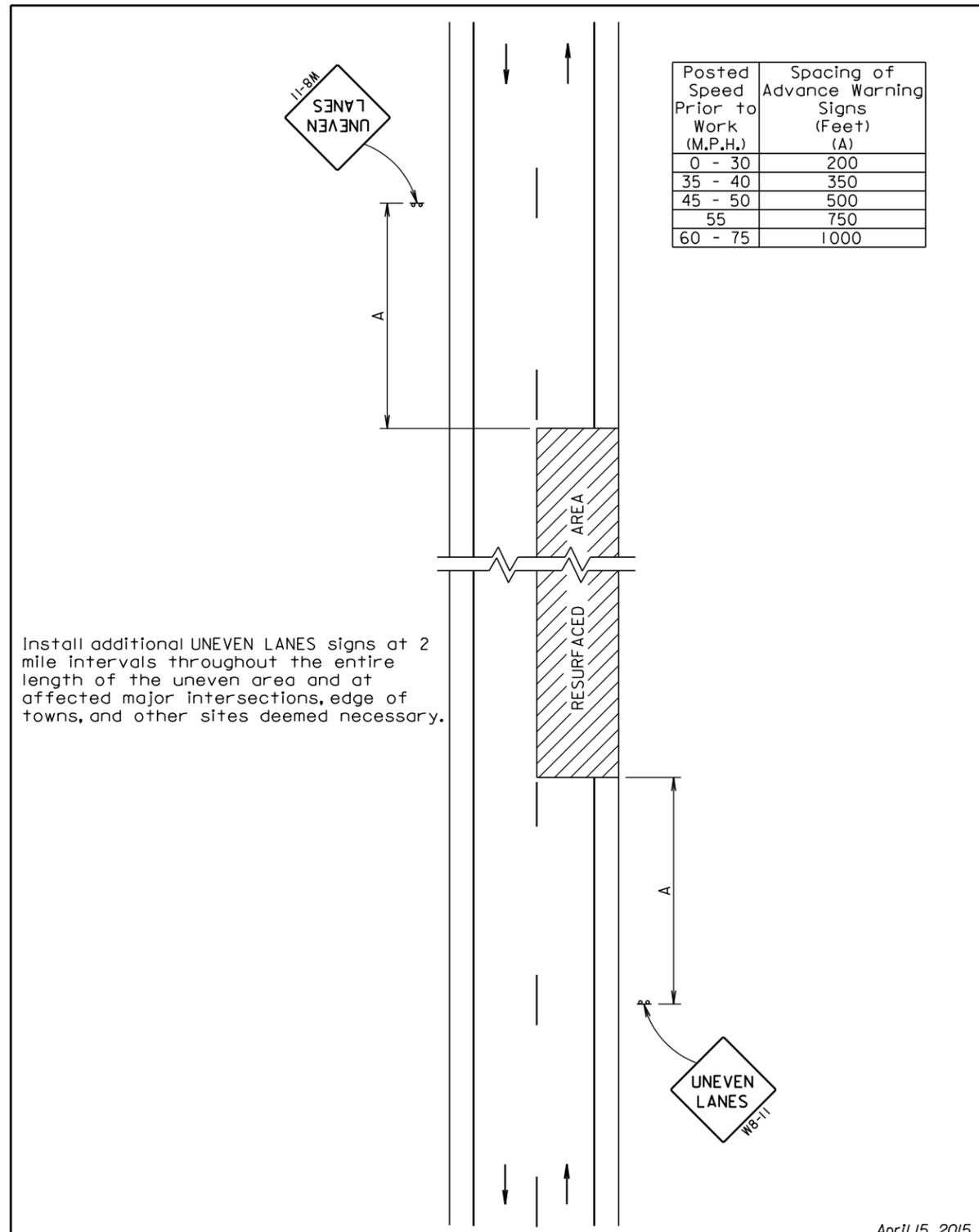
Published Date: 1st Qtr. 2016	S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
			Sheet 4 of 4



April 15, 2015

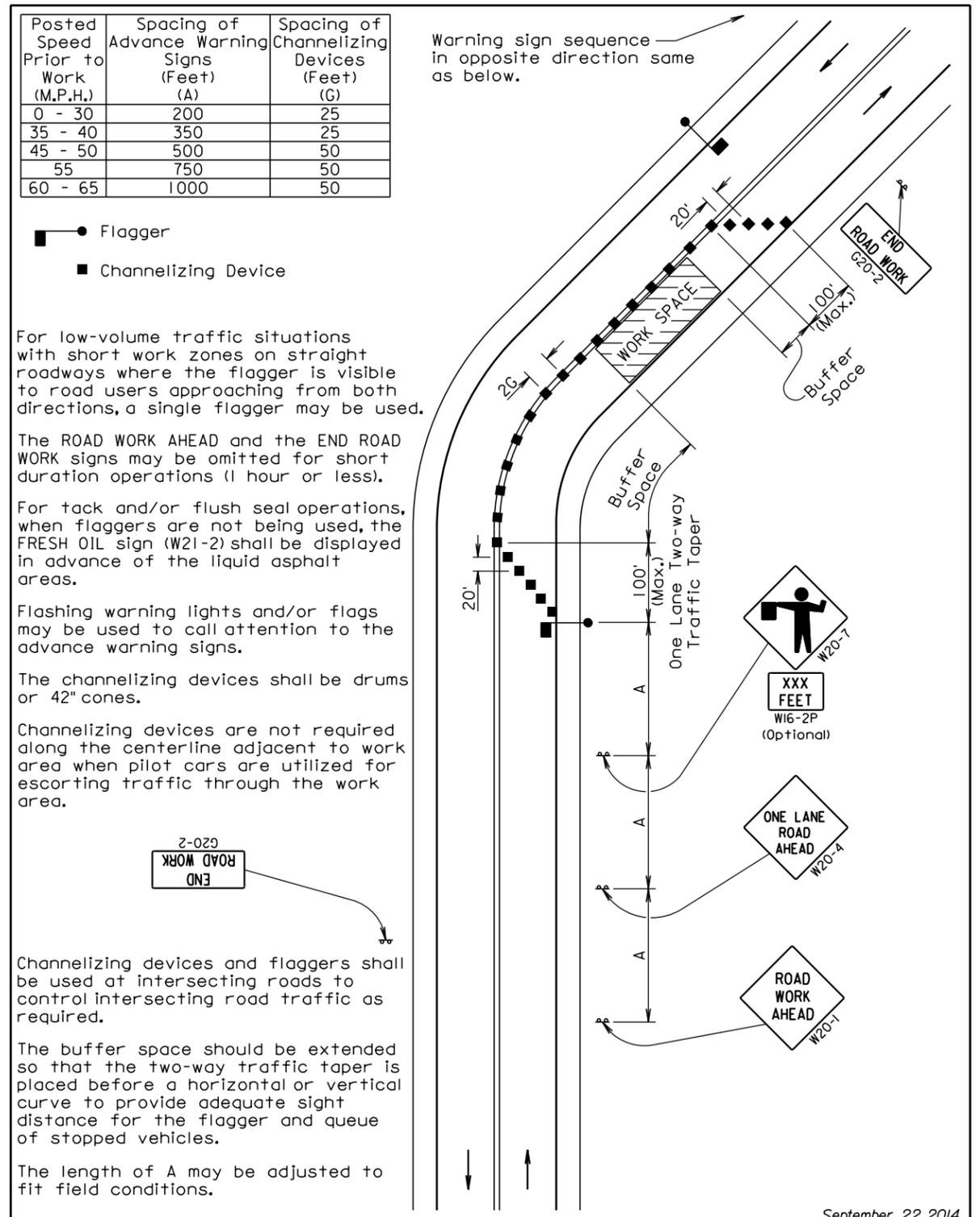


September 22, 2014



Install additional UNEVEN LANES signs at 2 mile intervals throughout the entire length of the uneven area and at affected major intersections, edge of towns, and other sites deemed necessary.

April 15, 2015



For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices shall be drums or 42" cones.

Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

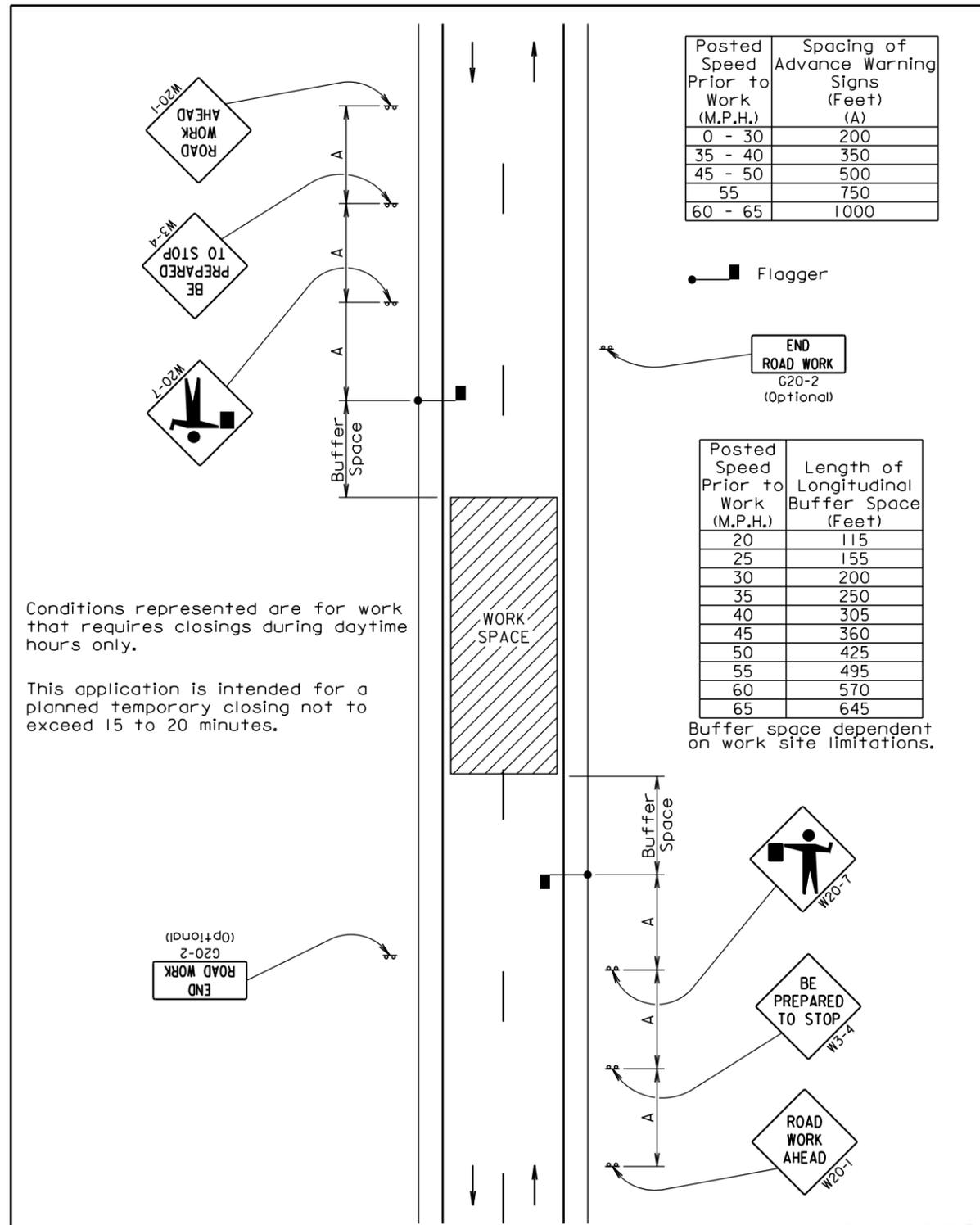
Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

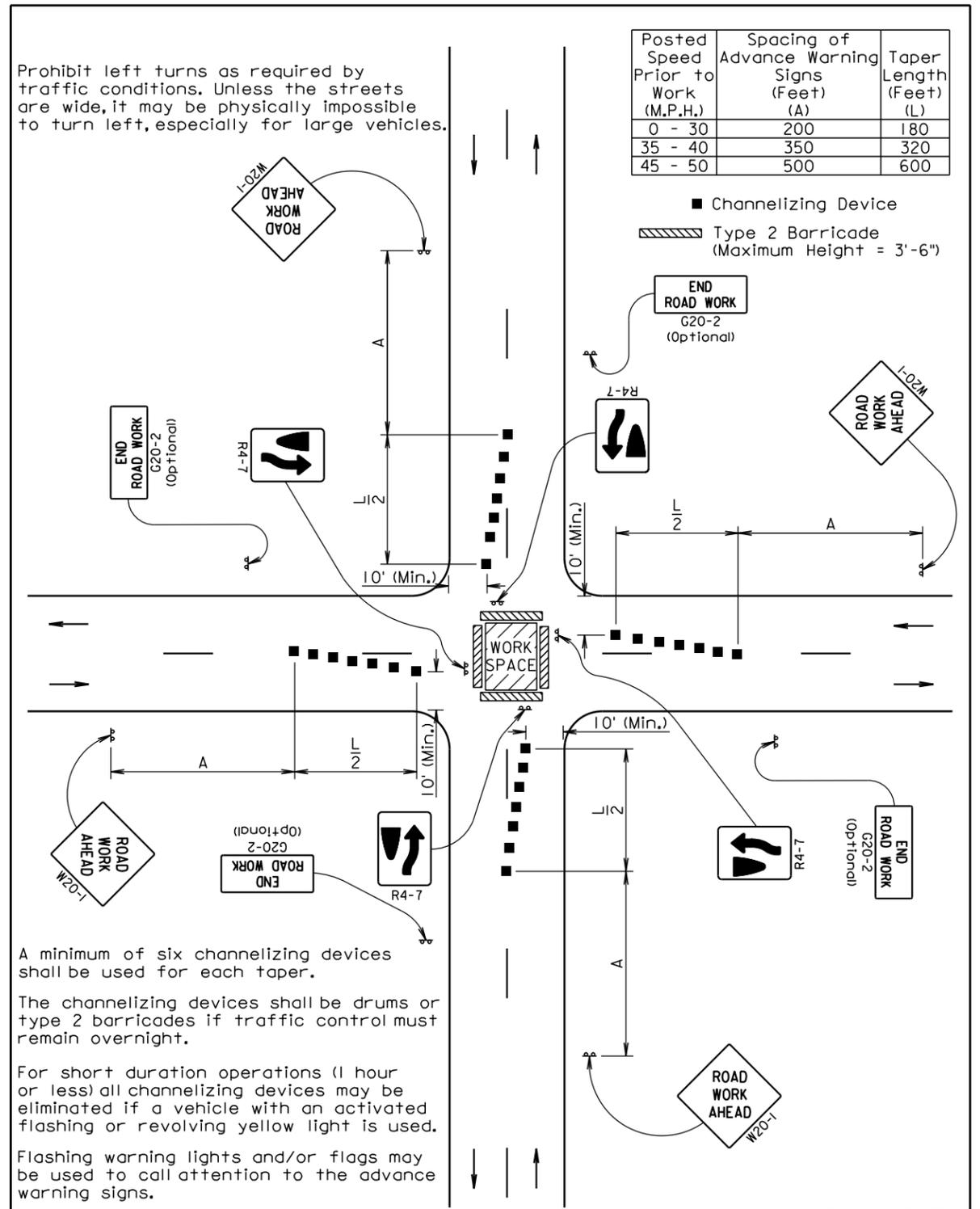
The length of A may be adjusted to fit field conditions.

Warning sign sequence in opposite direction same as below.

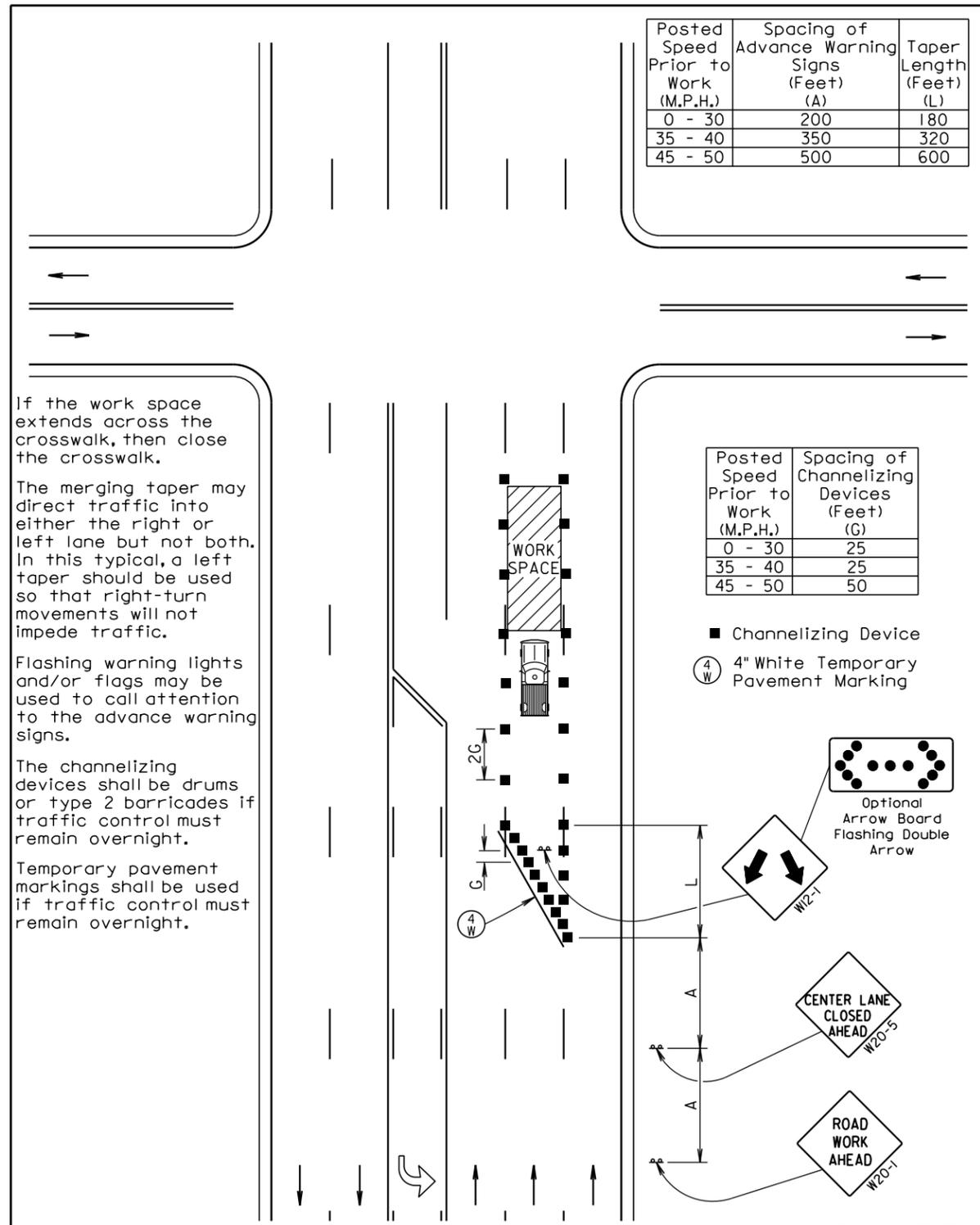
September 22, 2014



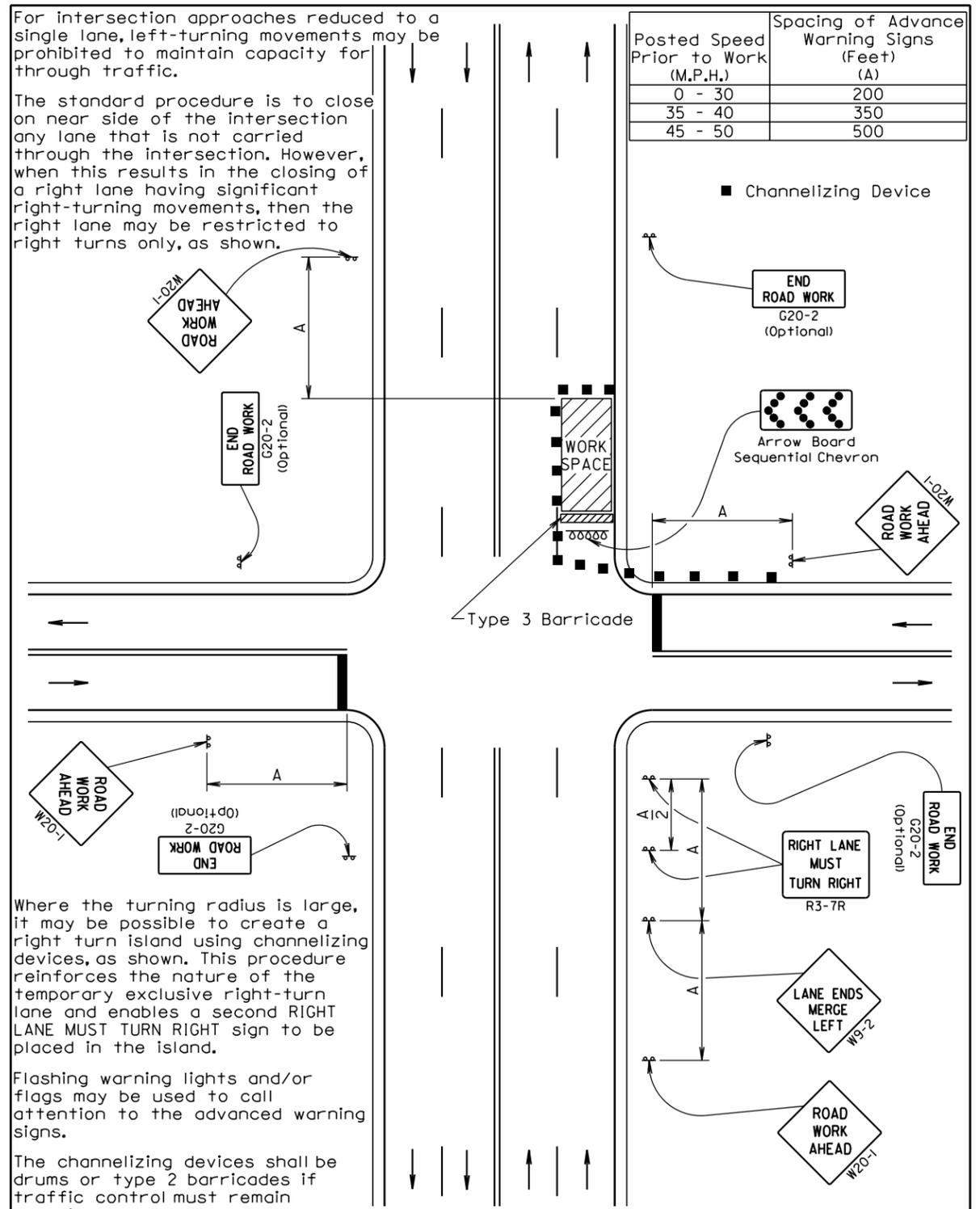
September 6, 2015



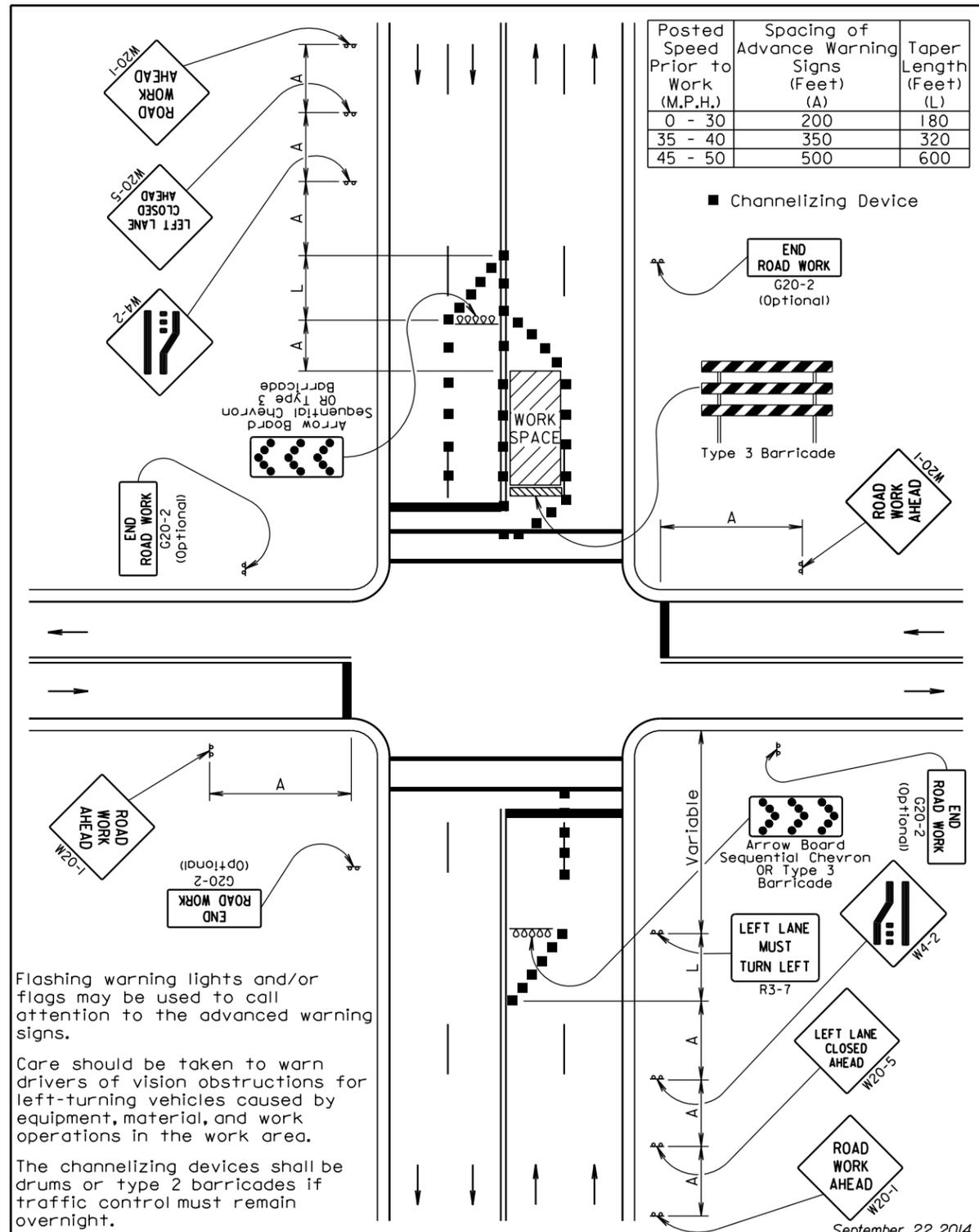
September 22, 2014



September 22, 2014



September 22, 2014

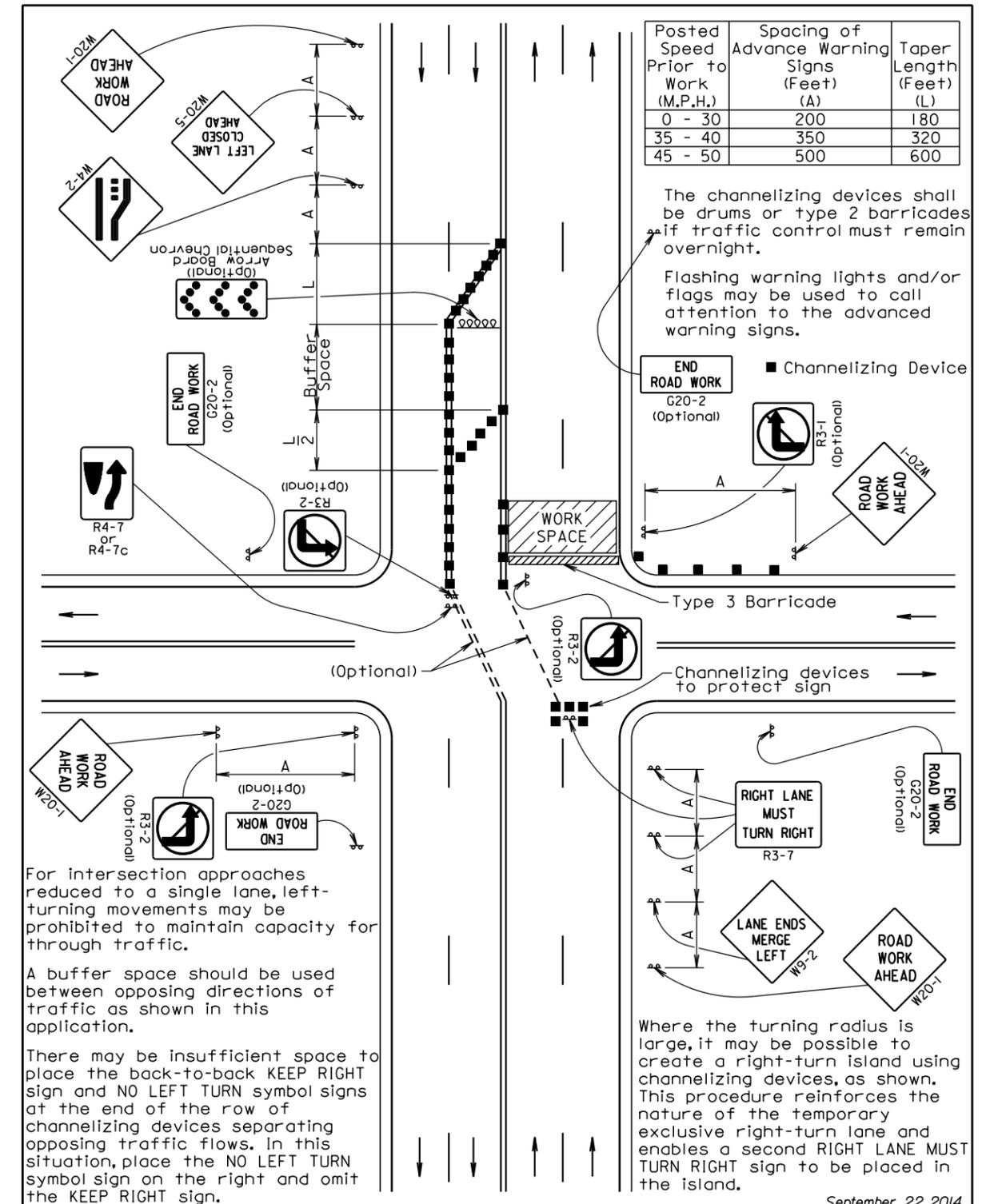


Flashing warning lights and/or flags may be used to call attention to the advanced warning signs.

Care should be taken to warn drivers of vision obstructions for left-turning vehicles caused by equipment, material, and work operations in the work area.

The channelizing devices shall be drums or type 2 barricades if traffic control must remain overnight.

September 22, 2014



For intersection approaches reduced to a single lane, left-turning movements may be prohibited to maintain capacity for through traffic.

A buffer space should be used between opposing directions of traffic as shown in this application.

There may be insufficient space to place the back-to-back KEEP RIGHT sign and NO LEFT TURN symbol signs at the end of the row of channelizing devices separating opposing traffic flows. In this situation, place the NO LEFT TURN symbol sign on the right and omit the KEEP RIGHT sign.

Where the turning radius is large, it may be possible to create a right-turn island using channelizing devices, as shown. This procedure reinforces the nature of the temporary exclusive right-turn lane and enables a second RIGHT LANE MUST TURN RIGHT sign to be placed in the island.

September 22, 2014

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45 - 50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *

* Spacing is 40' for 42" cones.

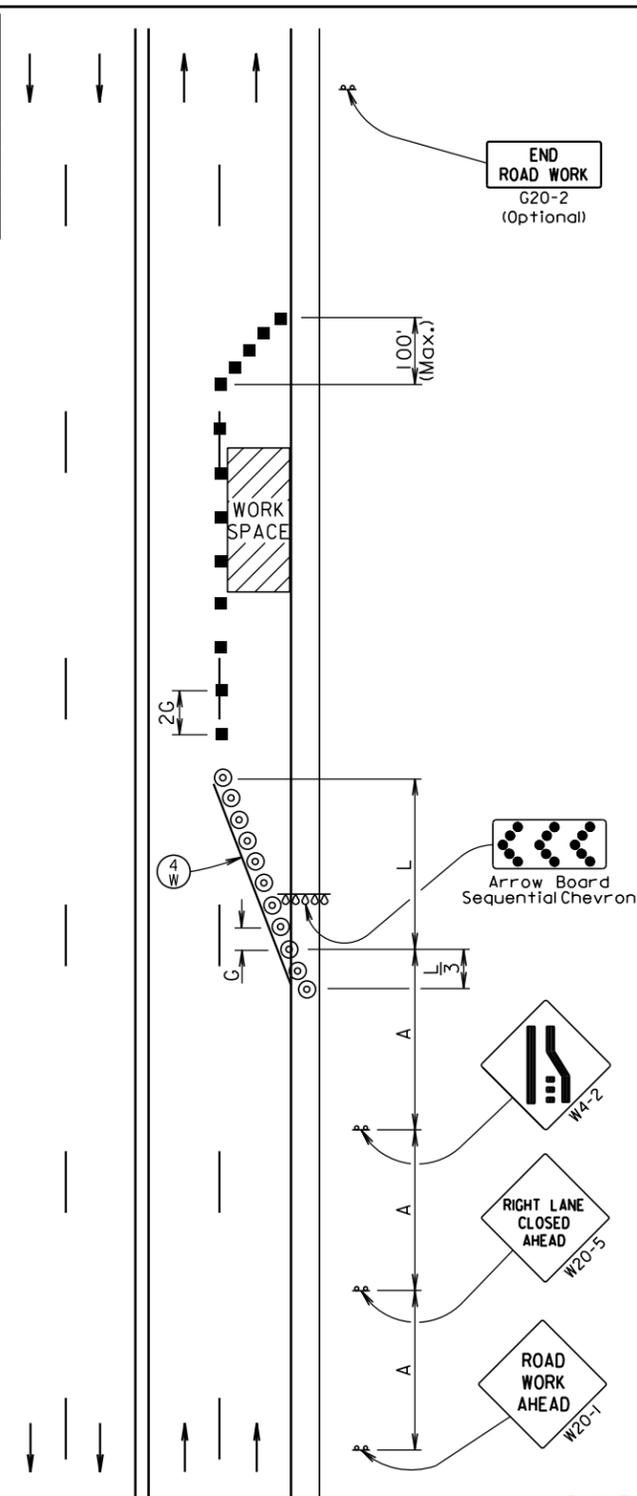
- ⊙ Reflectorized Drum
- Channelizing Device
- Ⓞ 4" White Temporary Pavement Marking

The channelizing devices shall be 42" cones or drums.

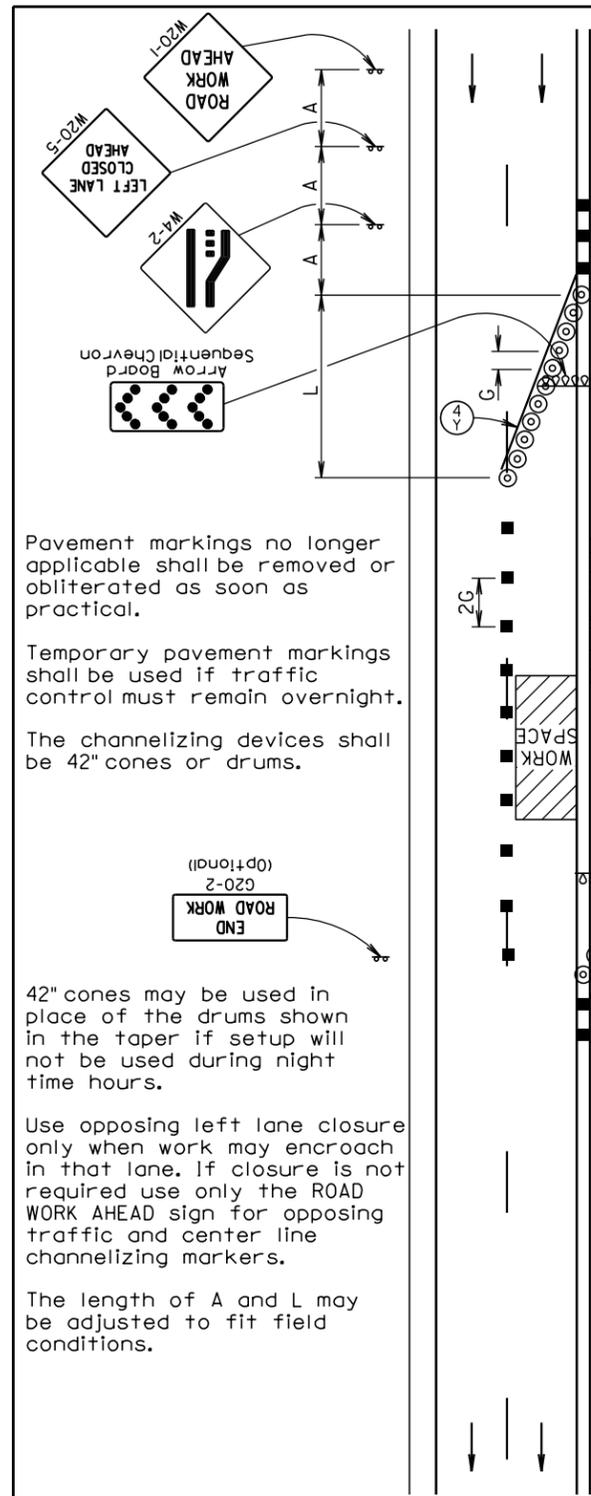
42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

Temporary pavement markings shall be used if traffic control must remain overnight.

The length of A and L may be adjusted to fit field conditions.



April 15, 2015



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45 - 50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *

* Spacing is 40' for 42" cones.

- ⊙ Reflectorized Drum
- Channelizing Device
- Ⓞ 4" Yellow Temporary Pavement Marking

Pavement markings no longer applicable shall be removed or obliterated as soon as practical.

Temporary pavement markings shall be used if traffic control must remain overnight.

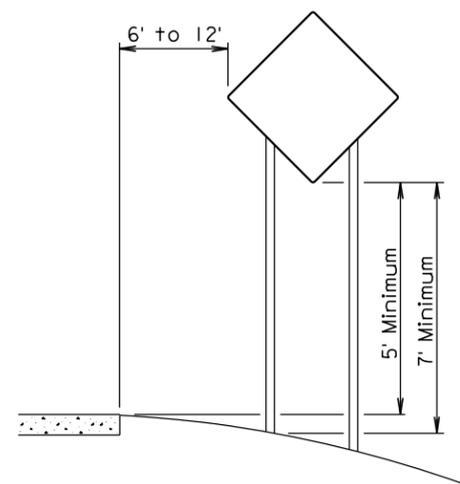
The channelizing devices shall be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

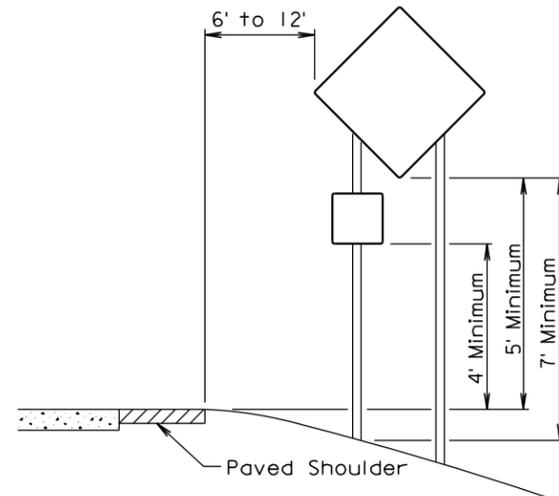
Use opposing left lane closure only when work may encroach in that lane. If closure is not required use only the ROAD WORK AHEAD sign for opposing traffic and center line channelizing markers.

The length of A and L may be adjusted to fit field conditions.

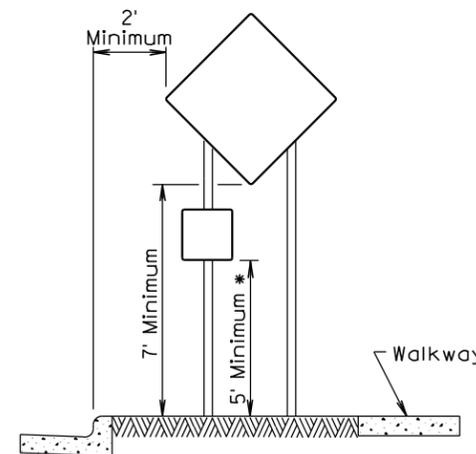
April 15, 2015



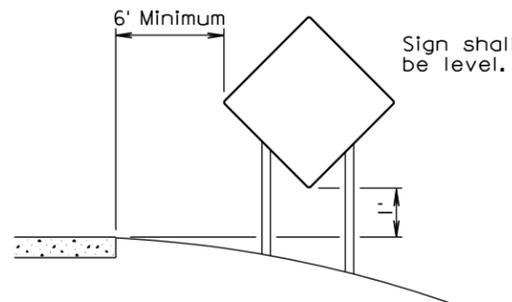
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT



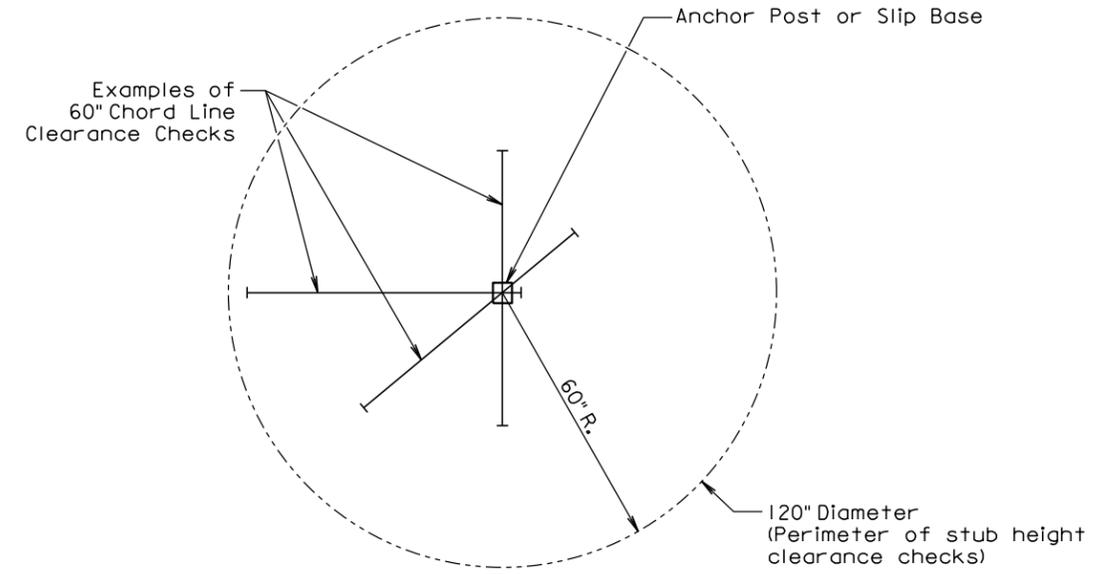
RURAL DISTRICT
3 DAY MAXIMUM

(Not applicable to regulatory signs)

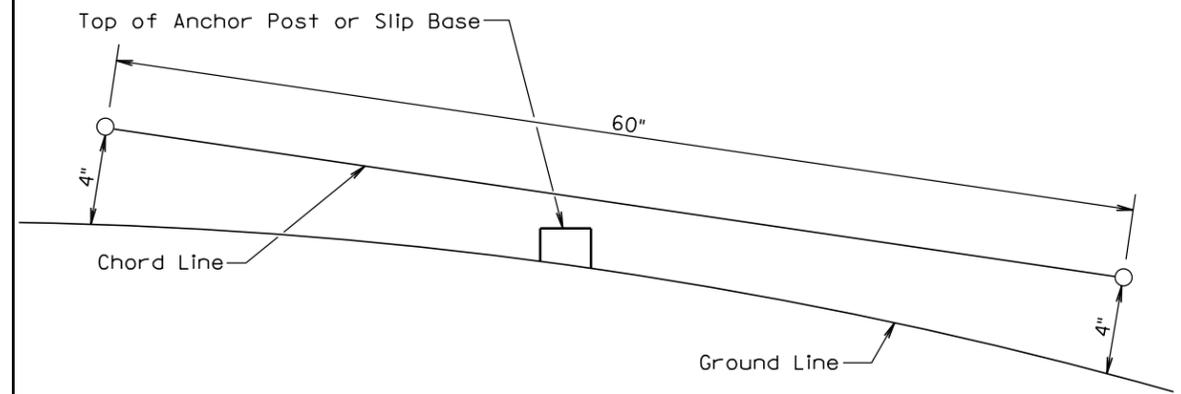
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

September 22, 2014

Published Date: 1st Qtr. 2016	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)



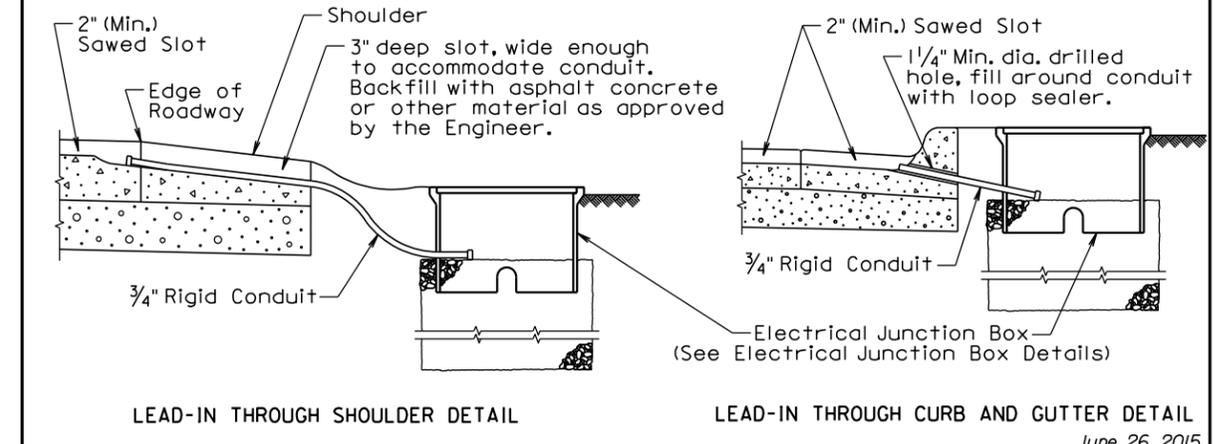
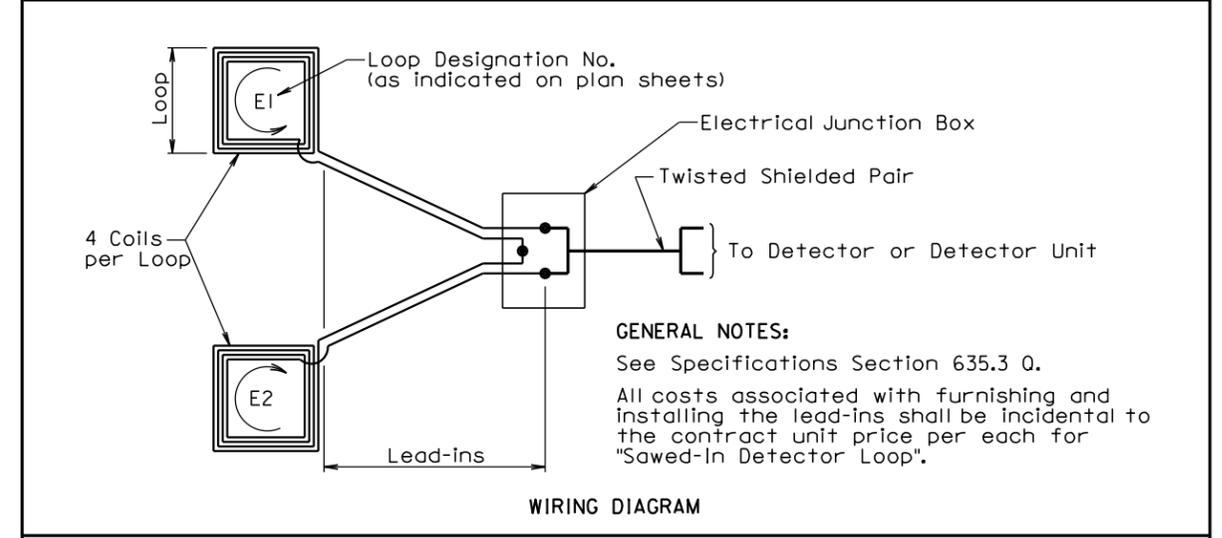
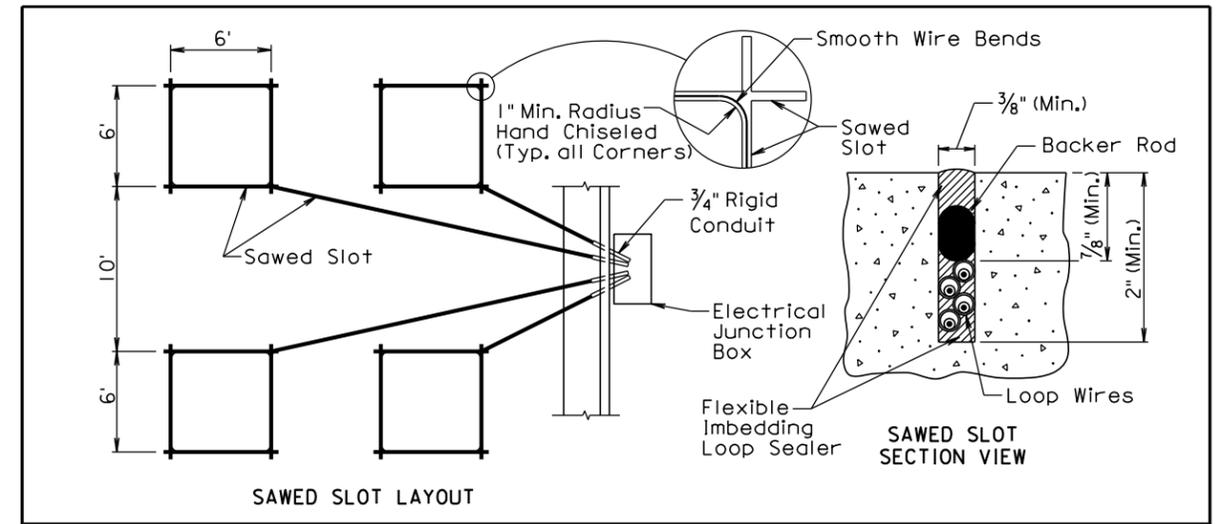
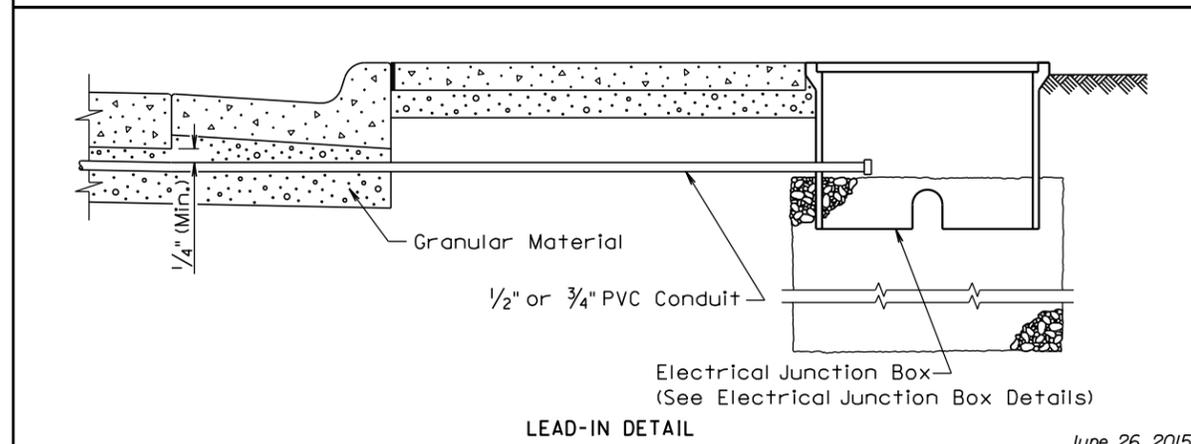
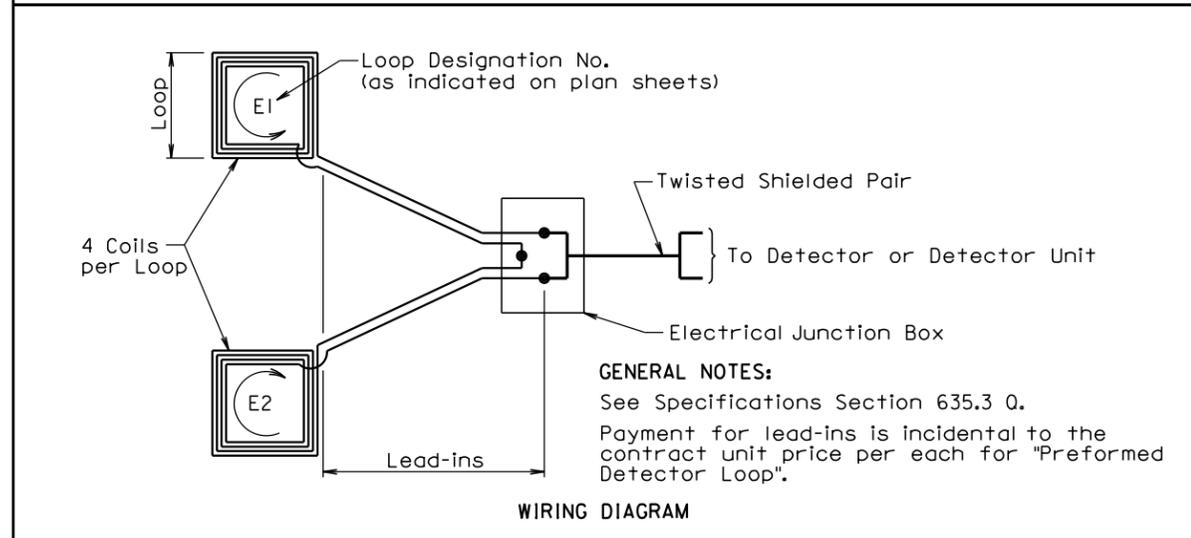
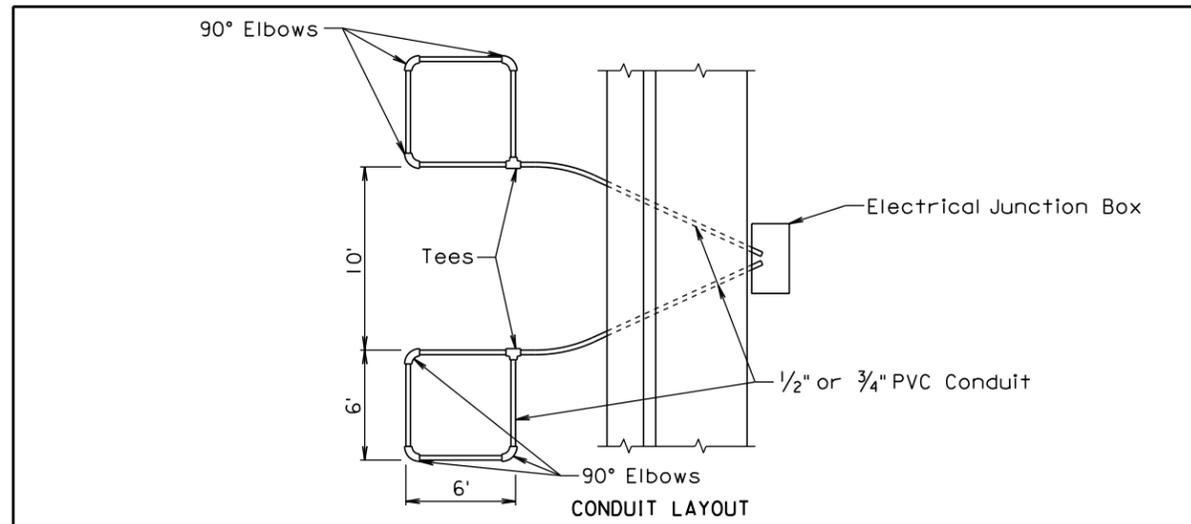
ELEVATION VIEW

GENERAL NOTES:

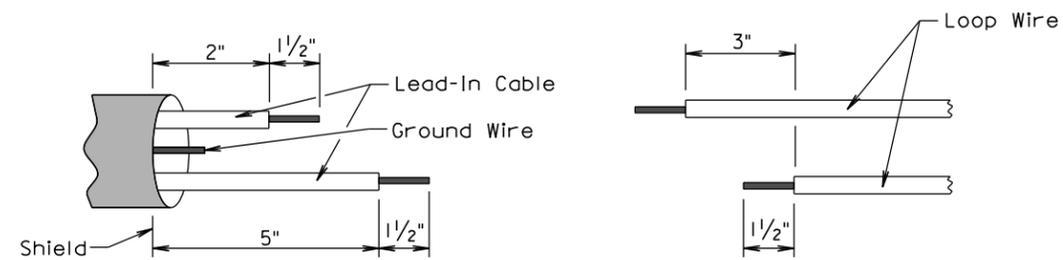
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.
 At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.
 The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 1st Qtr. 2016	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

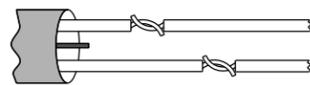


Step 1. Strip loop wires and lead-in cable.

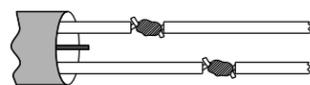


Step 2. Connect and solder.

Twist bare conductors together

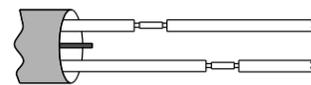


and solder with 60/40 (tin/lead) resin solder

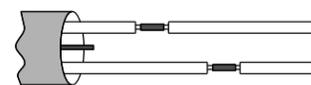


OR

Crimp bare conductors together with an uninsulated butt connector

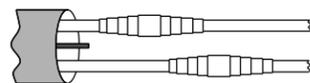


and solder with 60/40 (tin/lead) resin solder



Step 3. Insulate each solder joint separately.

Electrical Tape



OR

Shrink Tube



Step 4. Environmentally seal total splice against weather, moisture and abrasion. Methods for environmentally sealing the splice include heat-shrinkable tubing, special sealing kits, special forms to be filled by sealant, and tape and coating.



June 20, 2000

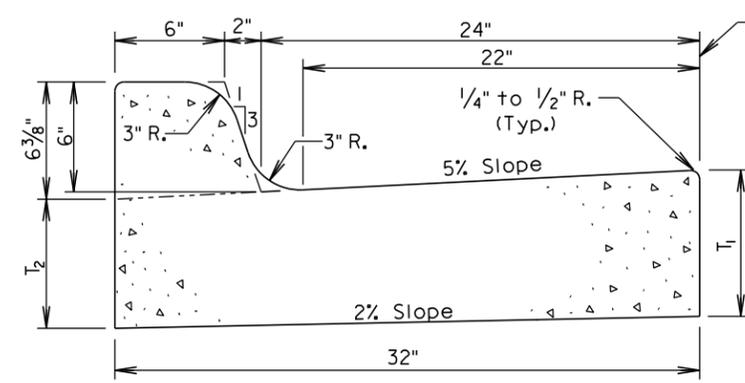
Published Date: 1st Qtr. 2016

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DETECTOR LOOP WIRE SPLICING

PLATE NUMBER
635.77

Sheet 1 of 1



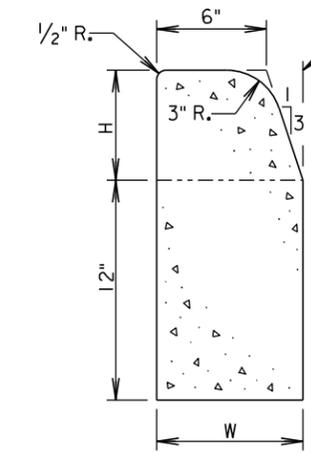
Type	T ₁ (Inches)	T ₂ (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
B66	6	5 ¹ / ₁₆	0.057	17.7
B67	7	6 ¹ / ₁₆	0.065	15.4
B68	8	7 ¹ / ₁₆	0.073	13.7
B68.5	8.5	7 ⁹ / ₁₆	0.077	13.0
B69	9	8 ¹ / ₁₆	0.081	12.3
B69.5	9.5	8 ⁹ / ₁₆	0.085	11.7
B610	10	9 ¹ / ₁₆	0.090	11.2
B610.5	10.5	9 ⁹ / ₁₆	0.094	10.7
B611	11	10 ¹ / ₁₆	0.098	10.2
B611.5	11.5	10 ⁹ / ₁₆	0.102	9.8
B612	12	11 ¹ / ₁₆	0.106	9.4

GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.
See Standard Plate 650.90 for expansion and contraction joints in the curb and gutter.

September 6, 2008

Published Date: 1st Qtr. 2016	S D D O T	TYPE B CONCRETE CURB AND GUTTER	PLATE NUMBER 650.01
			Sheet 1 of 1



Type	H (Inches)	W (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
B6	6	8	0.0353	28.4
B7	7	8 ³ / ₈	0.0383	26.1
B8	8	8 ⁵ / ₈	0.0414	24.1
B9	9	9	0.0449	22.3
B10	10	9 ³ / ₈	0.0485	20.6

GENERAL NOTES:

The concrete for the Type B Concrete Curb shall comply with the requirements of the Specifications for Class M6 Concrete.

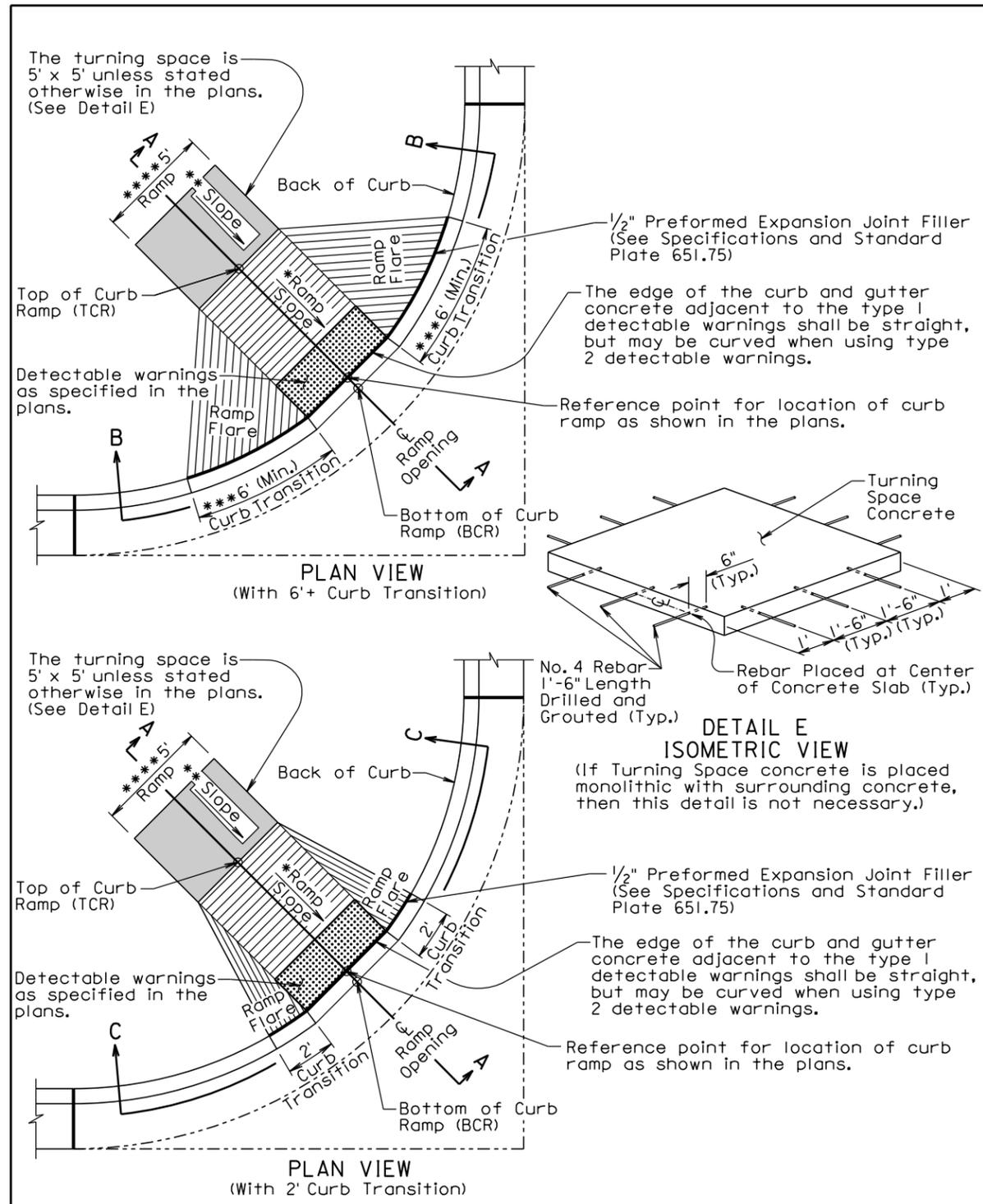
A 1/2" preformed expansion joint filler shall be placed transversely in the curb at the following locations:

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

See Standard Plate 650.90 for contraction joints in the curb.

June 26, 2015

Published Date: 1st Qtr. 2016	S D D O T	TYPE B CONCRETE CURB	PLATE NUMBER 650.02
			Sheet 1 of 1



Curb ramp slopes are designed at 7.5% unless stated otherwise in the plans. The curb ramp may have a maximum slope of 8.3% and shall not exceed 15' in length unless stated otherwise in the plans.

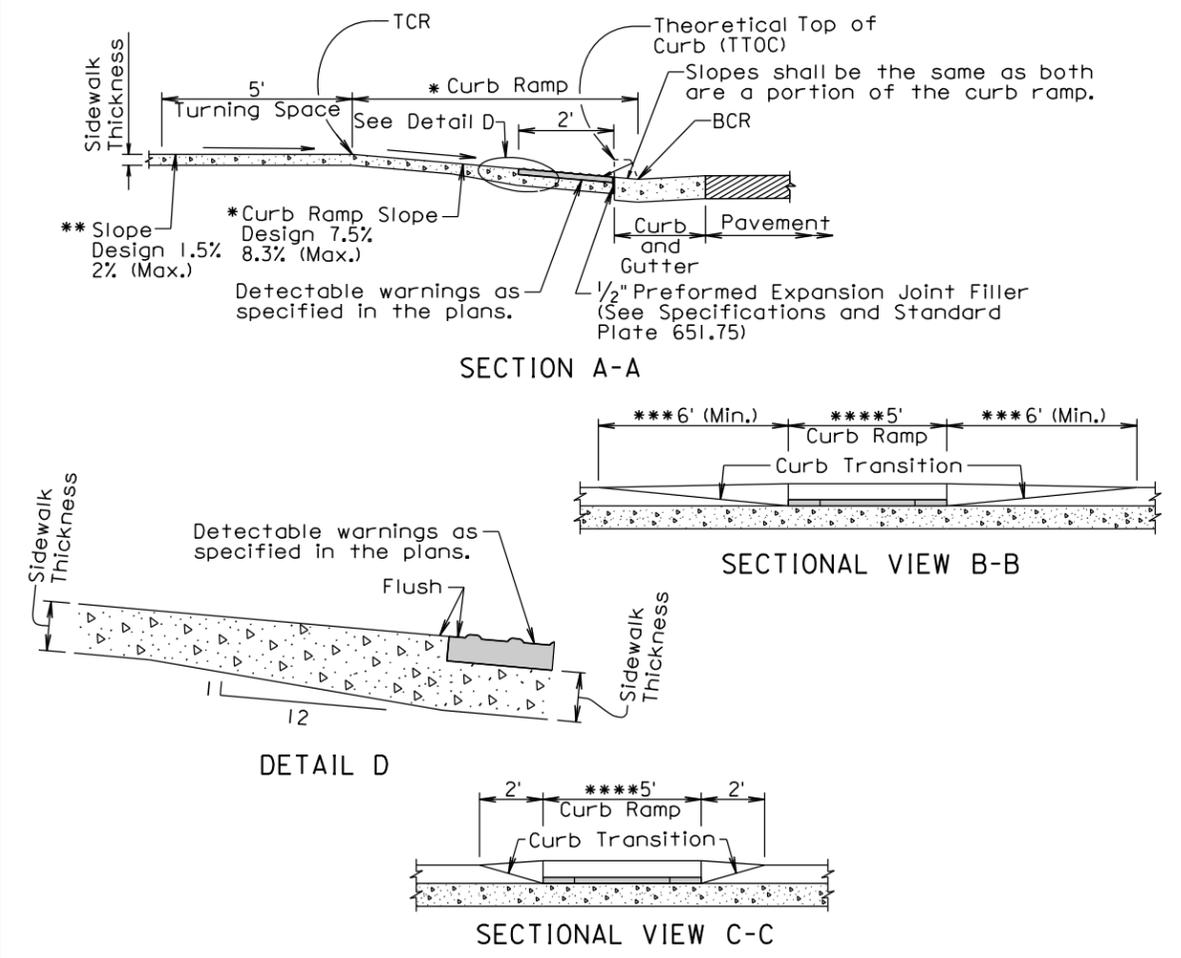
The curb ramp length may be computed based on the intersection of a continuous 1.5% theoretical slope from theoretical top of curb (TTOC) with the curb ramp using a continuous 7.5% curb ramp slope. The elevation of point TCR shall always be higher than the elevation of point TTOC unless specified otherwise in the plans. The curb ramp length dimension as shown in the plans shall be adjusted as necessary to meet all slope and length requirements based on field geometrics.

The cross slope of the ramp shall not be steeper than 2%. Plans are designed using a 1.5% slope unless stated otherwise in the plans.

** The slope in the turning space shall not be steeper than 2% in any direction of pedestrian travel. Plans are designed using a 1.5% slope unless stated otherwise in the plans.

*** The curb transition shall be a minimum of 6' long, a maximum of 10' long, and the curb transition slope shall not be steeper than 10% unless stated otherwise in the plans. The curb transition length shall be adjusted as necessary to meet slope and length requirements based on field geometrics.

**** The ramp width is 5' unless stated otherwise in the plans.



GENERAL NOTES:

For illustrative purpose only, type 1 detectable warnings are shown in the drawings.

For illustrative purpose only, PCC fillet sections are shown in the drawings. The curb ramp depicted on this standard plate may be used with a PCC fillet section or curb and gutter.

For illustrative purpose only, the curb ramp location is shown at the center of a PCC fillet section. The curb ramp shall be placed at the location stated in the plans.

Sidewalk shall not be placed adjacent to the curb ramp flares when a 2' curb transition is used unless shown otherwise in the plans.

* Care shall be taken to ensure a uniform grade on the curb ramp, free of sags and short grade changes.

Surface texture of the curb ramp shall be obtained by coarse brooming transverse to the slope of the curb ramp.

The normal gutter line profile shall be maintained through the area of the ramp opening.

Joints shall be sawed or tooled into the concrete adjacent to the detectable warnings to alleviate possible corner cracking.

Care shall be taken to ensure that the surface of the detectable warnings are clean and maintains a uniform color.

The detectable warnings shall be cut as necessary to fit the plan specified limits of the detectable warnings. Cost for cutting the detectable warnings shall be incidental to the corresponding detectable warning bid item.

There will be no separate payment for curb ramps. The curb ramp shall be measured and paid for at the contract unit price per square foot for the corresponding concrete sidewalk bid item. The square foot area of the detectable warnings shall be included in the measured and paid for quantity of sidewalk.

If rebar is placed in the Turning Space as depicted in DETAIL E, the cost of the materials, labor, and equipment to furnish and install the rebar shall be incidental to the contract unit price per square foot for the corresponding concrete sidewalk bid item.

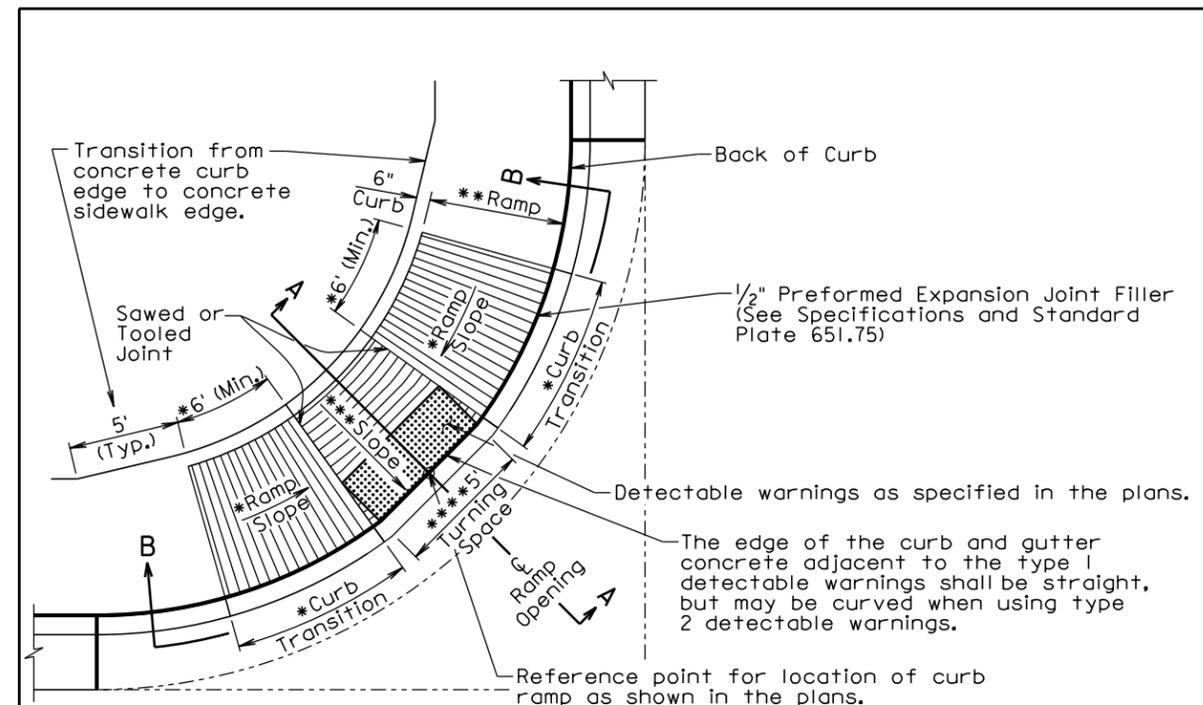
The curb transitions and ramp opening shall be measured and paid for at the contract unit price per foot for the corresponding curb and gutter bid item when curb and gutter is used. The curb transitions and ramp opening shall be measured and paid for at the contract unit price per square yard for the corresponding PCC fillet section bid item when a PCC fillet section is used.

The type 1 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 1 detectable warnings including labor, equipment, materials, and incidentals shall be paid for at the contract unit price per square foot for "Type 1 Detectable Warnings".

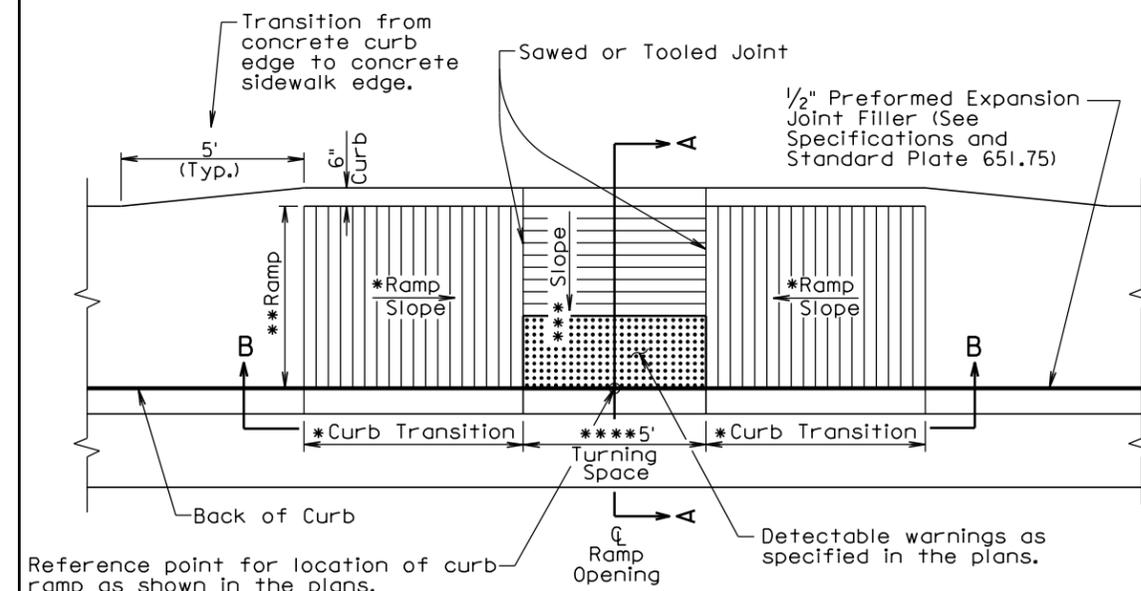
The type 2 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding shall be paid for at the contract unit price per square foot for "Type 2 Detectable Warnings".

September 6, 2015

Published Date: 1st Qtr. 2016	S D D O T	TYPE 1 CURB RAMP (PERPENDICULAR CURB RAMP)	PLATE NUMBER 651.01
			Sheet 3 of 3



PLAN VIEW
(With Curved Curb and Gutter)

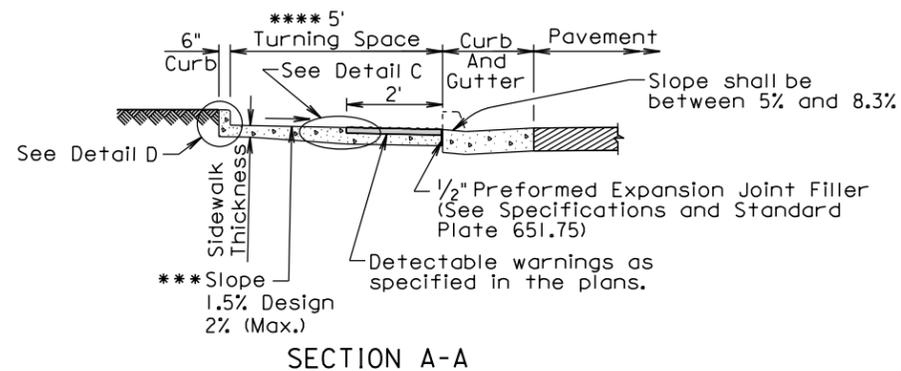


PLAN VIEW
(With Straight Curb and Gutter)

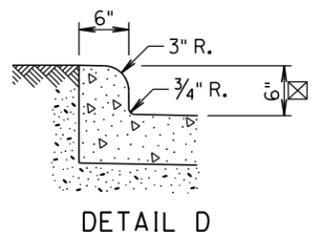
September 6, 2015

Published Date: 1st Qtr. 2016	S D D O T	TYPE 3 CURB RAMP (PARALLEL CURB RAMP)	PLATE NUMBER 651.03
			Sheet 1 of 3

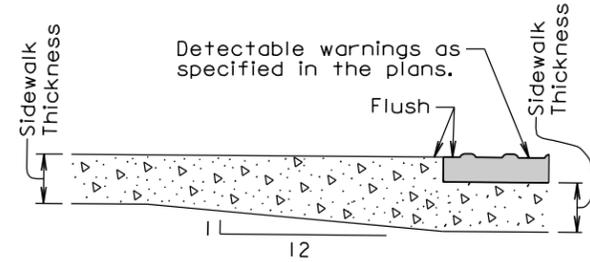
- * The curb transition slope shall match the curb ramp slope. Curb ramp slopes are designed at 7.5% unless stated otherwise in the plans. The curb ramp may have a maximum slope of 8.3% at any location of the curb ramp and shall not exceed 15' in length unless stated otherwise in the plans. The curb transitions and curb ramp lengths shall be adjusted as necessary to meet all slope and length requirements based on field geometrics.
- ** The cross slope of the ramp shall not be steeper than 2% and the ramp width is 5' unless stated otherwise in the plans. Plans are designed using a 1.5% cross slope for the ramp unless stated otherwise in the plans.
- *** The slope in the turning space shall not be steeper than 2% in any direction of pedestrian travel. Plans are designed using a 1.5% slope unless stated otherwise in the plans.
- **** The turning space is 5' x 5' unless stated otherwise in the plans.
- ☒ The curb height shall be 6" unless stated otherwise in the plans.



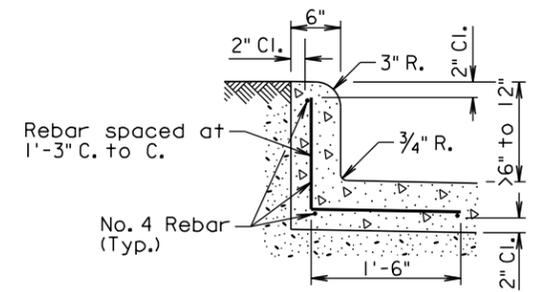
SECTION A-A



DETAIL D

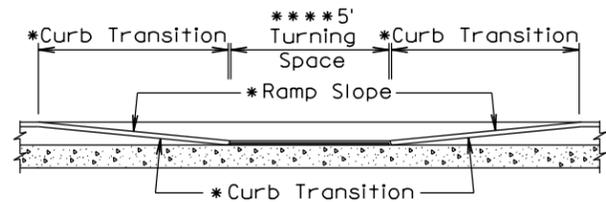


DETAIL C



DETAIL D

(Use this detail when the curb height is greater than 6" and less than 12")



SECTIONAL VIEW B-B

September 6, 2015

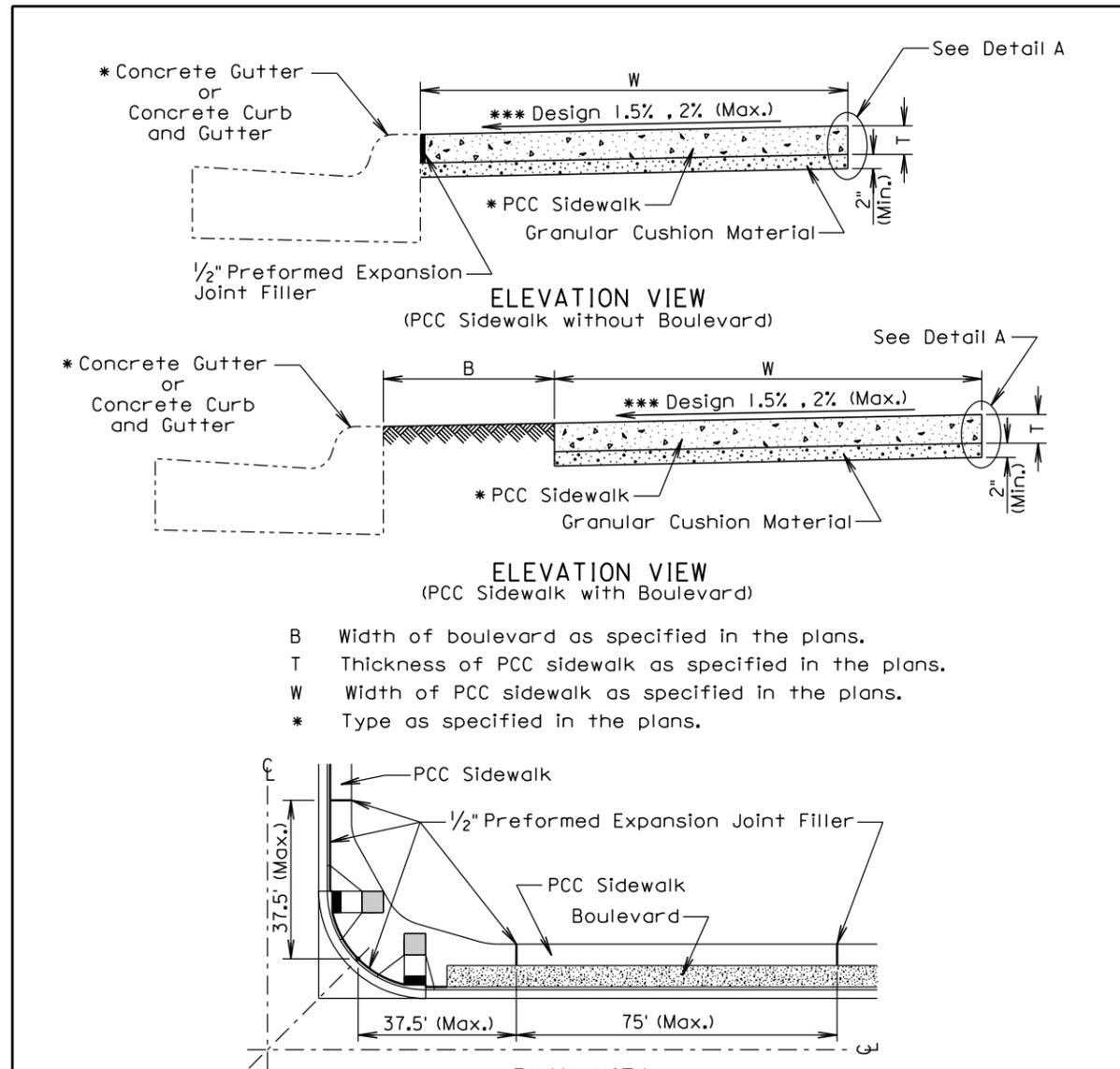
Published Date: 1st Qtr. 2016	S D D O T	TYPE 3 CURB RAMP (PARALLEL CURB RAMP)	PLATE NUMBER 651.03
			Sheet 2 of 3

GENERAL NOTES:

- For illustrative purpose only, type 1 detectable warnings are shown in the drawings.
- For illustrative purpose only, a PCC fillet section is shown in one of the drawings. The curb ramp depicted on this standard plate may be used with a PCC fillet section or with curb and gutter.
- The curb ramp shall be placed at the location stated in the plans.
- Sidewalk adjacent to the curb ramp shall be as shown in the plans.
- Care shall be taken to ensure a uniform grade on the curb ramp, free of sags and short grade changes.
- Surface texture of the curb ramp shall be obtained by coarse brooming transverse to the slope of the curb ramp.
- The normal gutter line profile shall be maintained through the area of the ramp opening.
- Joints shall be sawed or tooled into the concrete adjacent to the detectable warnings to alleviate possible corner cracking (see plan view for joint location).
- Care shall be taken to ensure that the surface of the detectable warnings are clean and maintains a uniform color.
- The detectable warnings shall be cut as necessary to fit the plan specified limits of the detectable warnings. Cost for cutting the detectable warnings shall be incidental to the corresponding detectable warning bid item.
- When curb height is greater than 6" and less than 12", reinforcing steel is required in accordance with the detail on sheet 2 of 3. The reinforcing steel shall conform to ASTM A615, Grade 60. Cost for furnishing and installing the reinforcing steel shall be incidental to the contract unit price per square foot for the corresponding concrete sidewalk bid item.
- There will be no separate payment for curb ramps. The curb ramp shall be measured and paid for at the contract unit price per square foot for the corresponding concrete sidewalk bid item. The square foot area of the detectable warnings and the curb along the short radius shall be included in the measured and paid for quantity of sidewalk.
- The curb transitions and ramp opening shall be measured and paid for at the contract unit price per foot for the corresponding curb and gutter bid item when curb and gutter is used. The curb transitions and ramp opening shall be measured and paid for at the contract unit price per square yard for the corresponding PCC fillet section bid item when a PCC fillet section is used.
- The type 1 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 1 detectable warnings including labor, equipment, materials, and incidentals shall be paid for at the contract unit price per square foot for "Type 1 Detectable Warnings".
- The type 2 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding shall be paid for at the contract unit price per square foot for "Type 2 Detectable Warnings".

September 6, 2015

Published Date: 1st Qtr. 2016	S D D O T	TYPE 3 CURB RAMP (PARALLEL CURB RAMP)	PLATE NUMBER 651.03
			Sheet 3 of 3



- B Width of boulevard as specified in the plans.
- T Thickness of PCC sidewalk as specified in the plans.
- W Width of PCC sidewalk as specified in the plans.
- * Type as specified in the plans.

GENERAL NOTES:

The PCC sidewalk shall be constructed in accordance with Section 65I of the Specifications.

***The cross slope of the sidewalk is designed at 1.5% and the maximum slope allowed is 2% unless specified otherwise in the plans.

The maximum length between expansion joints in PCC sidewalk is 75 feet.

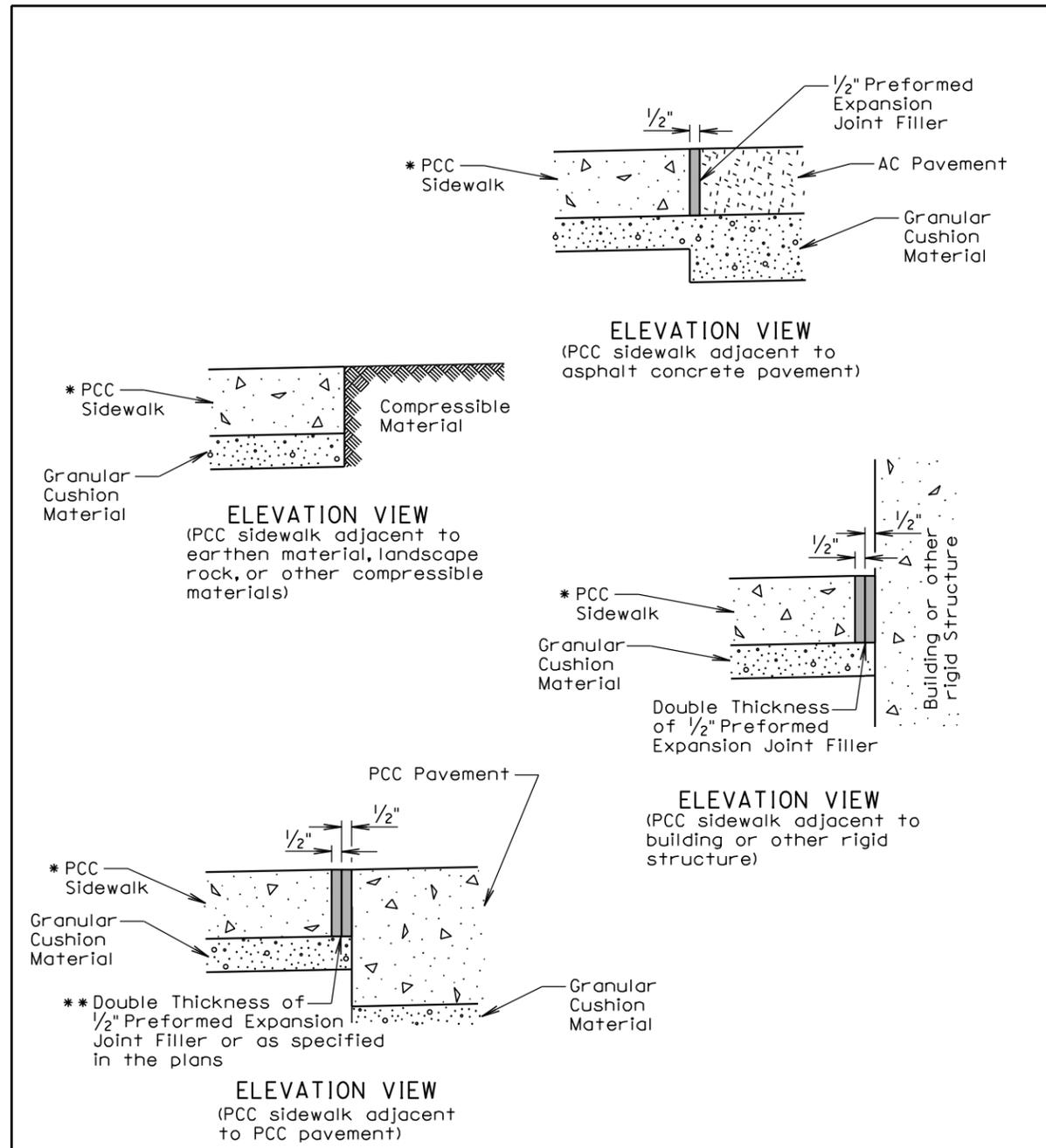
PCC sidewalk placed adjacent to intersection of roadways shall have an expansion joint placed transversely a maximum of 37.5 feet from the intersection. See PLAN VIEW.

An expansion joint in PCC sidewalk shall consist of a 1/2 inch thick preformed expansion joint filler material placed full depth and width of the PCC sidewalk.

* Large areas of PCC pavement adjacent to PCC sidewalk may require a different joint treatment than shown in the detail. If a different joint detail is necessary, plans will contain the joint detail and the Contractor shall construct the joint treatment in accordance with the plans.

September 6, 2015

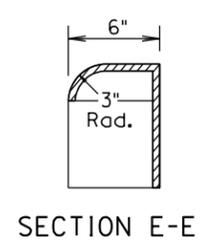
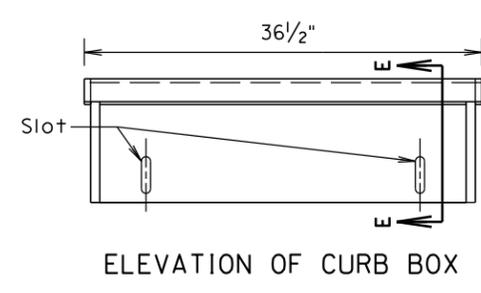
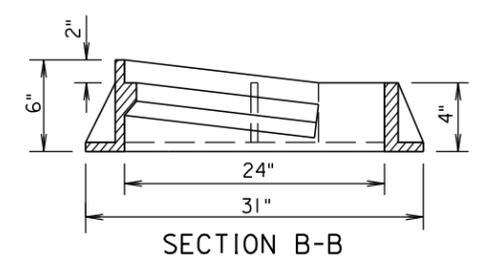
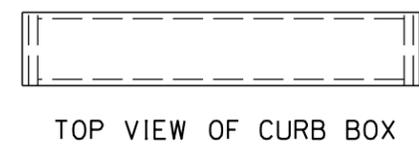
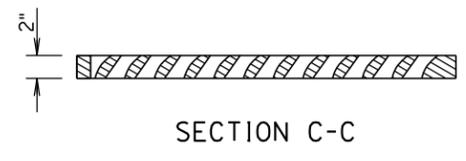
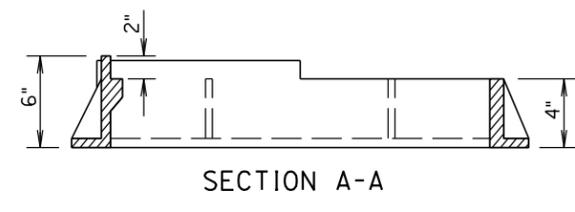
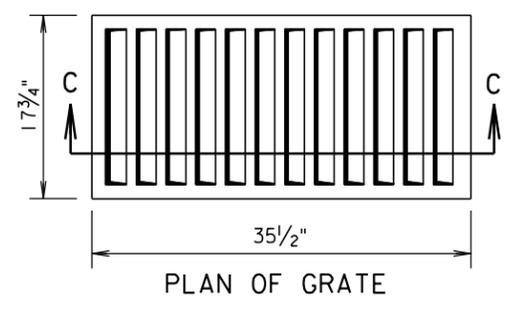
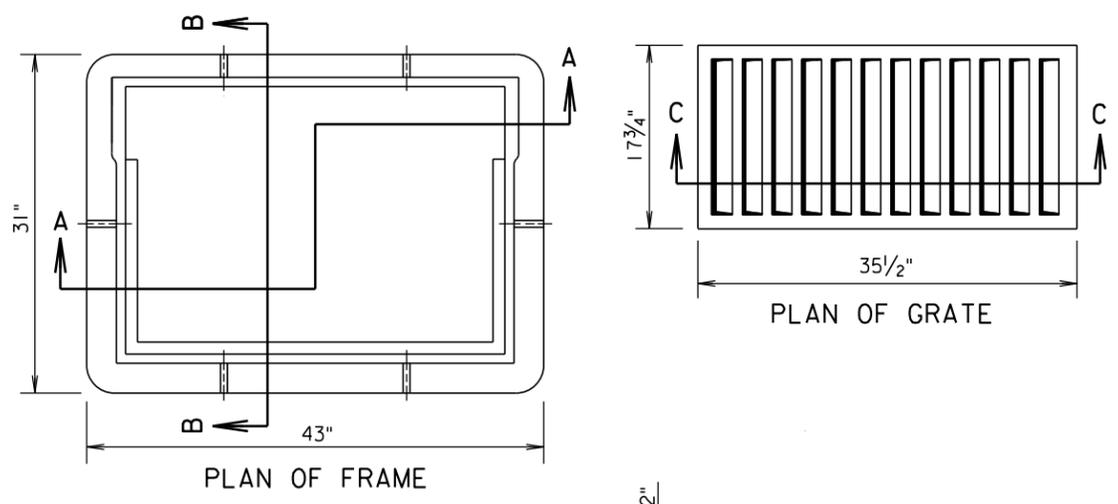
Published Date: 1st Qtr. 2016	S D D O T	PCC SIDEWALK	PLATE NUMBER 65I.75
			Sheet 1 of 2



Detail A
(Use Appropriate Detail(s))

September 6, 2015

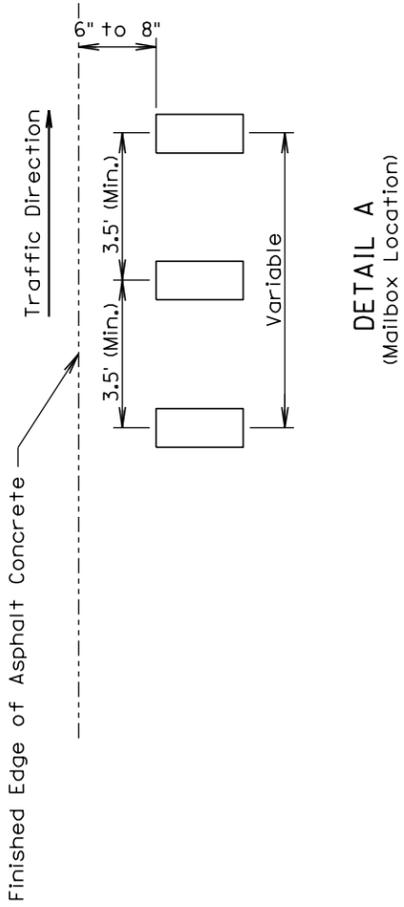
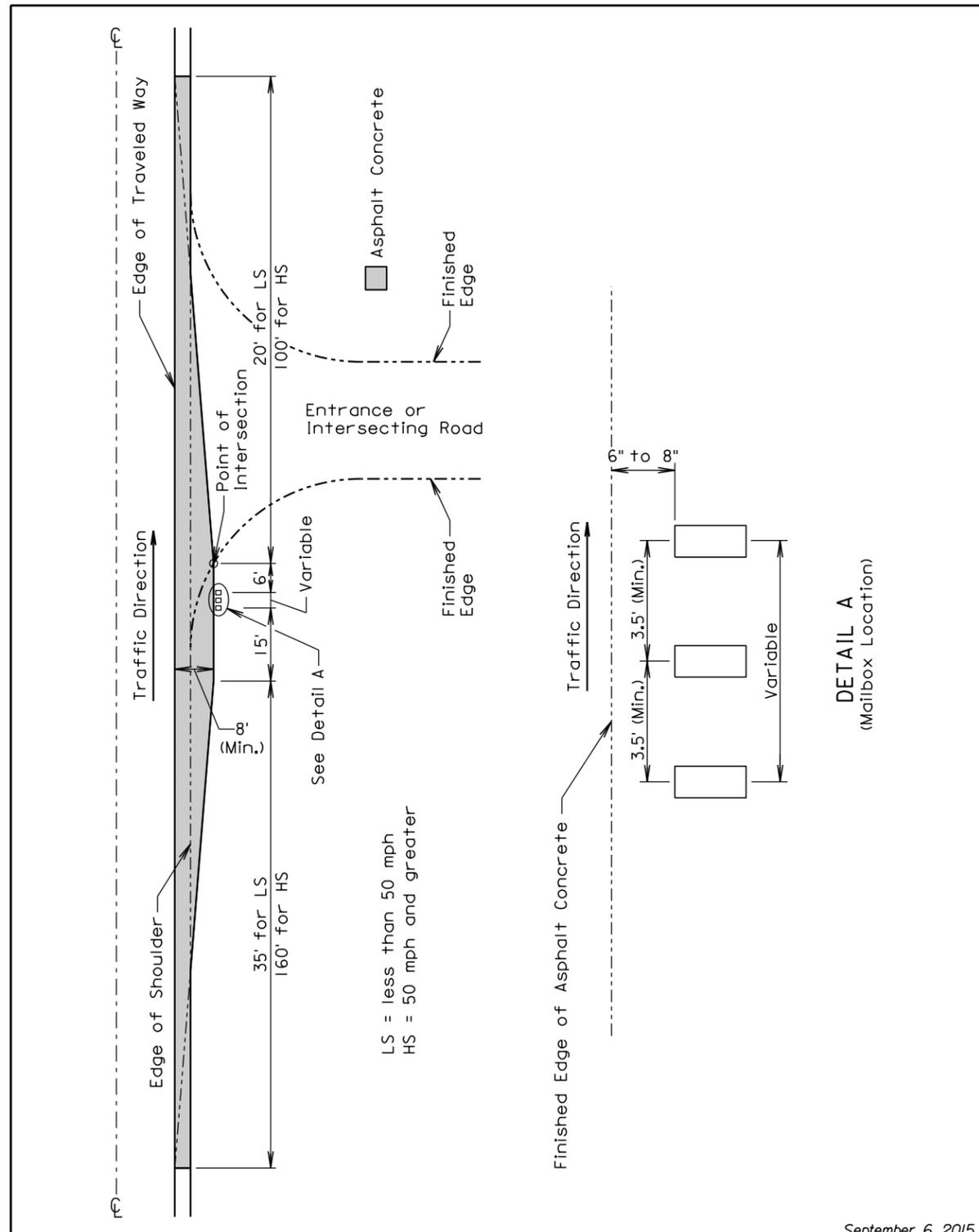
Published Date: 1st Qtr. 2016	S D D O T	PCC SIDEWALK	PLATE NUMBER 65I.75
			Sheet 2 of 2



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

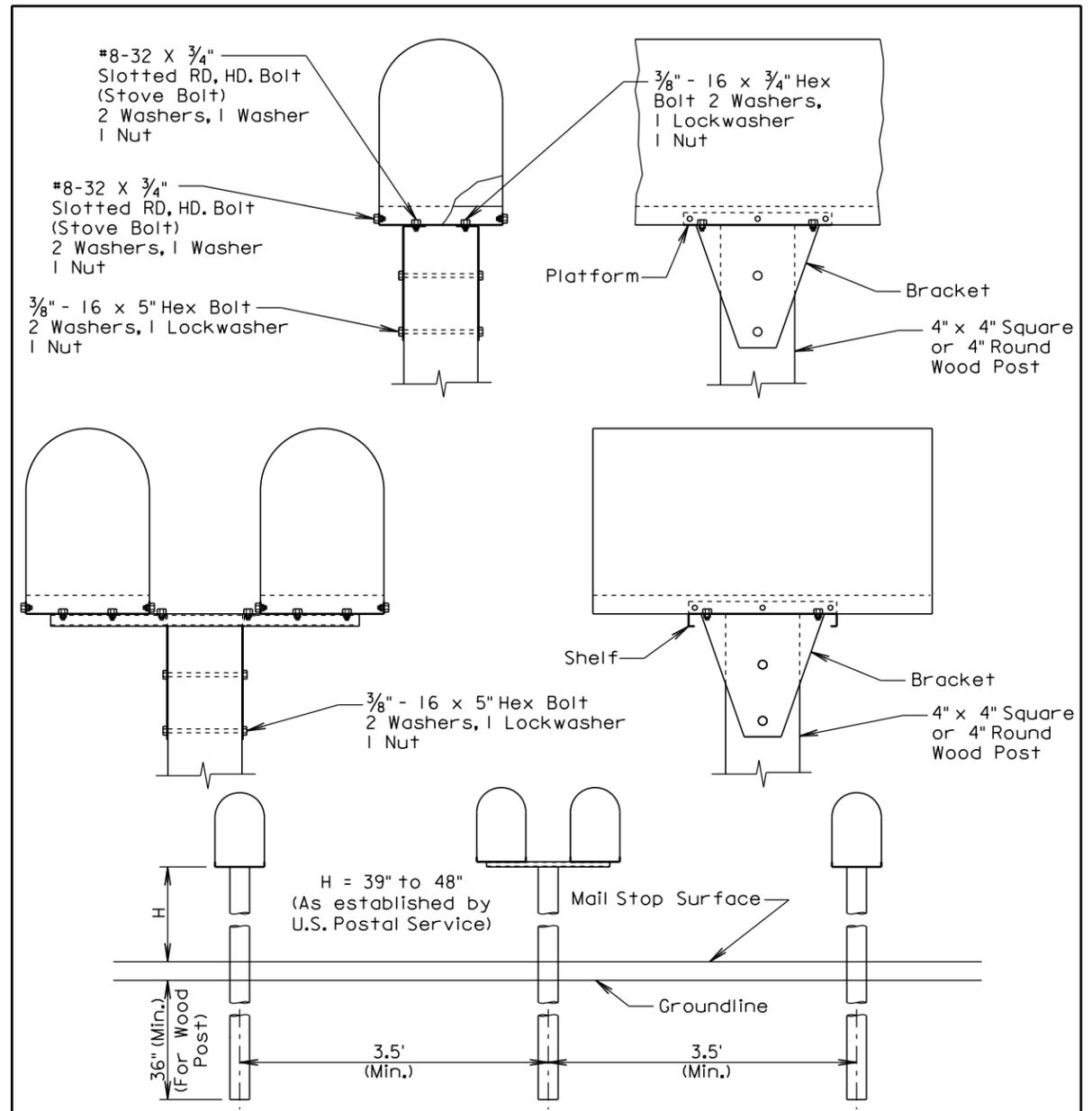
March 31, 2000

Published Date: 1st Qtr. 2016	S D D O T	TYPE B FRAME AND GRATE ASSEMBLY	PLATE NUMBER 670.80
			Sheet 1 of 1



September 6, 2015

Published Date: 1st Qtr. 2016	S D D O T	MAILBOX TURNOUT	PLATE NUMBER 900.01
			Sheet 1 of 1



GENERAL NOTES:

SPACING FOR MULTIPLE POST INSTALLATION

The post support assemblies provided should be consistent throughout the project. Single and double mailboxes may be in any sequence.

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

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

September 6, 2013

Published Date: 1st Qtr. 2016	S D D O T	SINGLE AND DOUBLE MAILBOX ASSEMBLIES	PLATE NUMBER 900.02
			Sheet 1 of 1

