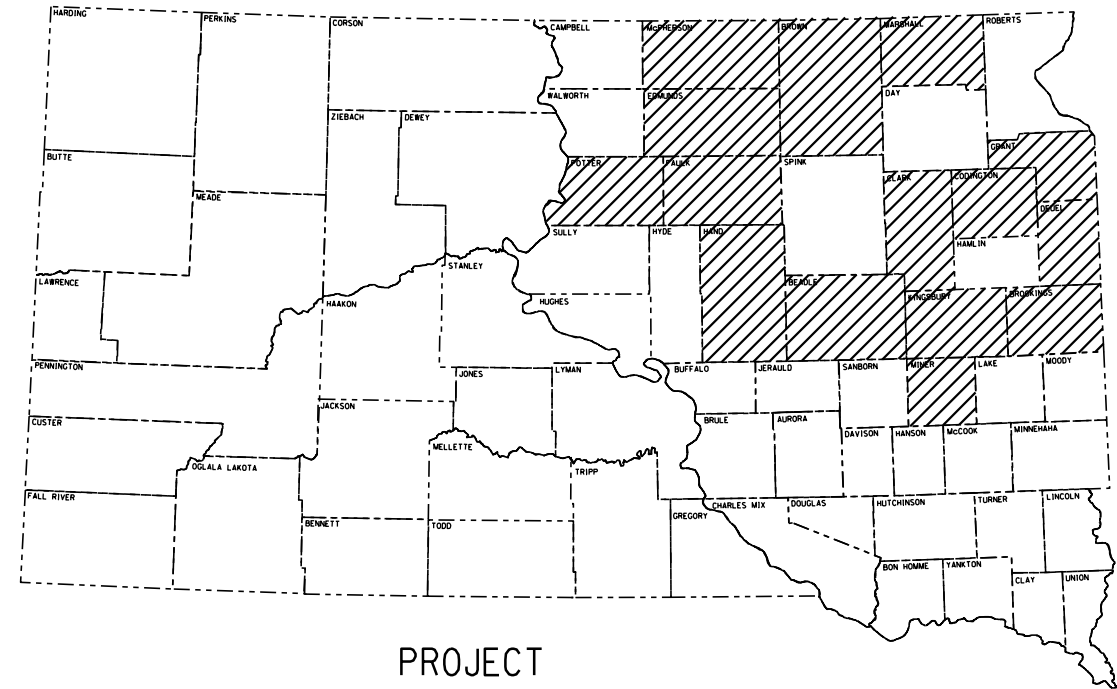


PLOT SCALE - 1:128841

PLOTTED FROM - TRAB17882

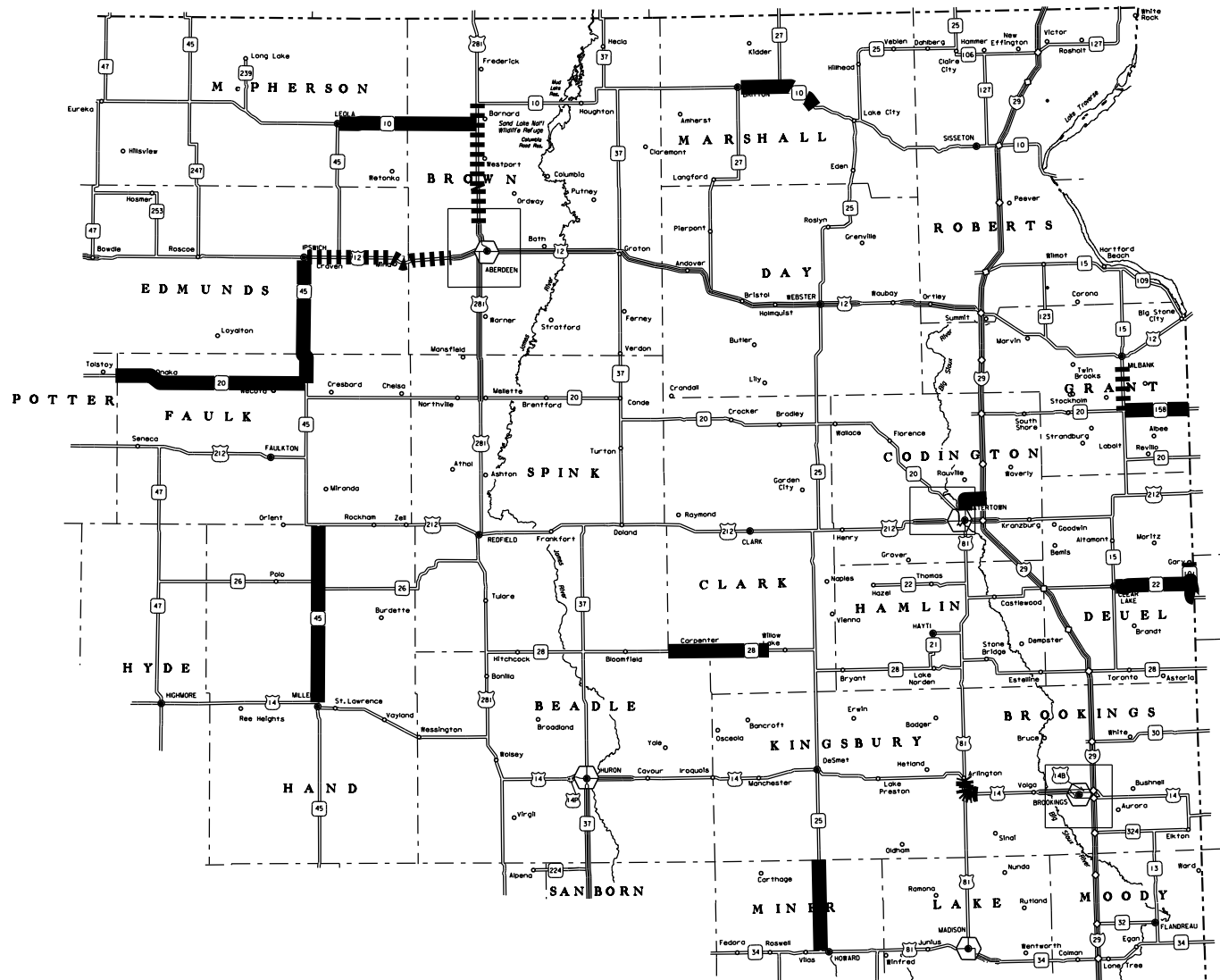


STORM WATER PERMIT
(NONE REQUIRED)

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT 000P-169 & 000N-169
U.S. HIGHWAY 12, 14, 81 & 281
S.D. HIGHWAYS 10, 15, 20,
22, 25, 26, 28, 45, 101, & 158
BEADLE, BROOKINGS, BROWN, CLARK,
CODINGTON, DEUEL, EDMUNDS, FAULK, GRANT,
HAND, KINGSBURY, McPHERSON, MARSHALL,
MINER, & POTTER COUNTIES

Waterborne Pavement Marking Paint
PCN i7EJ & i7EK



000P-169, PCN i7EJ
000N-169, PCN i7EK

See Sheet 2 for a larger
and more detailed map

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	1	52
Plotting Date: 02/18/2024			

INDEX OF SHEETS

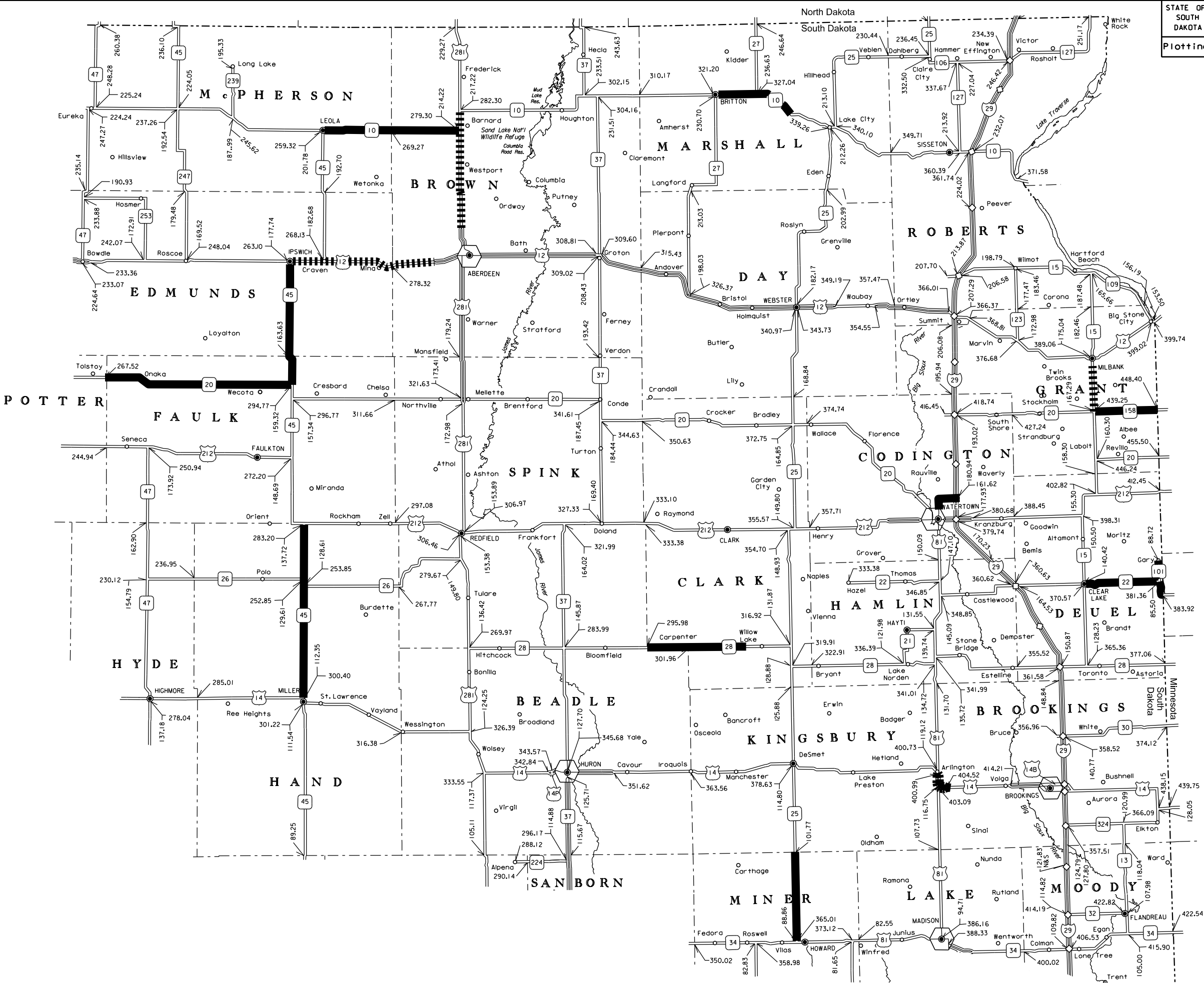
- Sheet 1 Title Sheet and Layout Map
- Sheet 2 Enlarged Layout Map
- Sheet 3-4 Estimate of Quantities and
Environmental Commitments
- Sheet 5 Table of Pavement Markings
- Sheet 6-7 Plan Notes
- Sheet 8 Traffic Control Standard Plates
- Sheet 9-10 Pavement Marking Details
- Sheet 11 Pavement Marking Standard Plate
- Sheet 12-47 Pavement Marking Layout for US 12 from
Ipswich East
- Sheet 48-52 Pavement Marking Layouts for
US 14 & US 81 Jct South of Arlington

PLOT NAME - 1

FILE - ... \BROK17EK\17EJ TITLE SHEET.DGN

PLOT SCALE - 1:73560.3

PLOTTED FROM - TRAB17882



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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000P-169, PCN i7EJ

000N-169, PCN i7EK

ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-169 & 000N-169	3	52

Project 000P-169, PCN i7EJ

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
633E1200	High Build Waterborne Pavement Marking Paint, White	1,374	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	350	Gal
633E1206	High Build Waterborne Pavement Marking Paint with Reflective Elements, Yellow	680	Gal
634E0010	Flagging	5.0	Hour
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

Project 000N-169, PCN i7EK

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
633E1200	High Build Waterborne Pavement Marking Paint, White	7,432	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	2,081	Gal
633E1206	High Build Waterborne Pavement Marking Paint with Reflective Elements, Yellow	320	Gal
634E0010	Flagging	5.0	Hour
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <<https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf> >

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

COMMITMENT 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 pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

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

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

Action Taken/Required:

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

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at: < <https://sdleastwanted.sd.gov/maps/default.aspx> >

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

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

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

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06. Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

State Historic Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

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

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

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

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

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

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

Action Taken/Required:

The Contractor will adhere to the “Special Provision for Fire Plan”.

																				STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS																										
000P-169 & 000N-169	5	52																																															
Table of Pavement Markings																																																	
Route	MRM	+ Displace- ment	to	MRM	+ Displace- ment	Starting Mileage	Ending Mileage	Segment Length (Miles)	High Build Waterborne Pavement Marking Paint, White		High Build Waterborne Pavement Marking Paint, Yellow		High Build Waterborne Pavement Marking Paint with Reflective Elements, Yellow	Paint Rates (Gal/Mile)					Counties	Location	Markings Required	Comments																											
									Solid Edge Line or Lane Line (Gal)	CL Skips (Gal)	Solid Line (Gal)	CL Skips & No Passing Zones (Gal)		CL Skips & No Passing Zones (Gal)	Solid White Edge Line or Lane Line	CL White Skips	Solid Yellow Edge or Center Turn Lane Line	Yellow CL Skip and No Passing Zone					Yellow CL Skip and No Passing Zone with reflective elements																										
Project 000P-169, PCN I7EJ																																																	
US 12	263.10	0.525		283.88	0.000	179.025	199.251	20.226	920	5			374	22.5	6.2			18.5	Edmunds, Brown	From end of PCCP on the East edge of Ipswich to the beginning of the divided highway west of Aberdeen.	#Yellow Centerline White Edgelines White Skips in auxiliary lane segments	6 turn lane locations and 5 passing lane locations Refer to pavement marking layout sheets included in the plans.																											
US 14 EB	401.00	0.294		404.00	0.284	14.442	17.308	2.866	67	18	129			22.5	6.2	22.5			Kingsbury, Brookings	From end of PCCP on the South edge of Arlington to the end of the divided highway Southeast of Arlington.	White Centerline White & Yellow Edgeline	Includes Turn Lanes at the US 81 Jct. Refer to pavement marking layout sheets included in the plans.																											
US 14 WB	401.00	0.287		404.00	0.278	14.240	17.093	2.853	67	18	128			22.5	6.2	22.5			Kingsbury, Brookings	From end of PCCP on the South edge of Arlington to the end of the divided highway Southeast of Arlington.	White Centerline White & Yellow Edgeline	Includes Turn Lanes at the US 81 Jct. Refer to pavement marking layout sheets included in the plans.																											
US 281	200.68	0.000		217.22	0.000	133.250	149.791	16.541					306					18.5	Brown	From the End of the divided highway North of Aberdeen to the North SD 10.	\$Yellow Centerline Only	Includes Left Turn Lanes at the South and North SD 10 Junctions.																											
SD 15	167.29	0.000		173.00	0.500	27.152	33.360	6.208	279			93		22.5			15.0		Grant	From the North SD 15/SD 20 Jct to the beginning of the PCC Pavement on the south edge of Milbank.	Yellow Centerline White Edgelines	Includes Left Turn Lanes at the SD 20/158 Jct, Left Turn Lanes at 153rd Street, and Left Turn Lanes at 151st Street near Milbank.																											
Total for Project 000P-169, PCN I7EJ:									1374		350		680																																				
Project 000N-169, PCN I7EK																																																	
US 81	158.00	0.385		161.71	0.000	151.175	154.474	3.299	148			49		22.5			15.0		Codington	From the North edge of Watertown North and East to the East side of I-29.	Yellow Centerline White Edgelines	Includes Gore area and beginning of Center Turn Lane at the beginning of the segment.																											
SD10	259.32	0.000		279.30	0.000	66.800	86.740	19.940	897			299		22.5			15.0		McPherson, Brown	From the East edge of Leola to US 281.	Yellow Centerline White Edgelines	-																											
SD 10	321.20	0.516		332.00	0.751	126.140	137.320	11.180	503			168		22.5			15.0		Marshall	From the East edge of Britton, East and South 11.2 miles.	Yellow Centerline White Edgelines	Includes 1 Gore at the the beginning of the segment, 1 Left Turn Lane at 424th Ave, & 1 Left Turn Lane at the SD 27 Jct.																											
SD 20	267.00	0.344		294.77	0.000	215.174	242.588	27.414	1234			411		22.5			15.0		Potter, Faulk	From just West of the Potter/Faulk County Line to SD 45.	Yellow Centerline White Edgelines	Includes Right Hand Turn Lane as the SD45 Jct.																											
SD 22	370.57	0.000		338.92	0.000	35.206	48.539	13.333	600			200		22.5			15.0		Deuel	From Clear Lake to the Minnesota State Line.	Yellow Centerline White Edgelines	Includes 1 Left Turn Lane at the SD 101 Jct.																											
SD 25	88.86	0.000		101.77	0.217	46.684	59.799	13.115	590			197		22.5			15.0		Miner, Kingsbury	From SD 34 near Howard to North of the Miner/Kingsbury County Line.	Yellow Centerline White Edgelines	-																											
SD26	252.85	0.000		253.85	0.000	22.728	23.728	1.000	45				19	22.5				18.5	Hand	From the South Jct of SD 45 to the North Jct of SD 45. (Within limits of the SD45 Hand County segment.)	%Yellow Centerline White Edgelines	-																											
SD 28	295.98	0.000		307.00	0.957	25.946	37.902	11.956	538			179		22.5			15.0		Clark	From the Spink/Clark County Line (Carpenter) east 12 miles.	Yellow Centerline White Edgelines	-																											
SD 45	112.35	0.000		128.61	0.000	79.534	95.781	16.247	731				301	22.5				18.5	Hand	From the North US14 Jct in Miller to South SD 26 Jct.	%Yellow Centerline White Edgelines	Includes 1 Left Turn Lane at beginning of segment in Miller.																											
SD 45	129.61	0.000		137.72	0.000	95.781	103.890	8.109	365			122		22.5			15.0		Hand	From the North SD 26 Jct to US 212.	Yellow Centerline White Edgelines																												
SD 45	159.32	0.000		177.74	0.000	112.411	130.632	18.221	820			273		22.5			15.0		Faulk, Edmunds	From the North SD 45/20 Jct to US12 in Ipswich.	Yellow Centerline White Edgelines	Includes auxiliary lanes at the SD20 Jct.																											
SD 101	85.50	0.000		88.72	0.000	0.000	3.048	3.048	137			46		22.5			15.0		Deuel	From SD 22 to Gary.	Yellow Centerline White Edgelines	-																											
SD 158	439.25	0.000		448.40	0.000	0.000	9.150	9.150	824			137		45.0			15.0		Grant	From SD15 to the Minnesota State Line.	Yellow Centerline **White Edgelines	-																											
Total for Project 000N-169, PCN I7EK:									7432		2081		320																																				
Total for BOTH Projects:									8806		2431		1000																																				
** 8" White Edge Lines																				# Centerline Sinusoidal Rumble Stripes for a majority of the route, except for most turn lanes and auxiliary lanes.										% Centerline Sinusoidal and traditional centerline rumble stripes from US 14 Jct to north SD 26 Jct.										\$Centerline Sinusoidal Rumble Stripes.									

SEQUENCE OF OPERATIONS

The Contractor will submit a route marking schedule indicating the order in which routes will be marked. This schedule will need to be submitted at least 1 business day prior to the preconstruction meeting. The Contractor will provide prompt updates to the schedule if changes occur.

GENERAL TRAFFIC CONTROL

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

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

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

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

GENERAL PAVEMENT MARKING NOTES

The in-place pavement markings will be duplicated when striping. The Contractor will take the necessary action to retain widths, locate tapers, and to be able to reproduce those that are in-place. Quantities of paint are included in the Estimate of Quantities and the cost of this work will be incidental to the contract unit price per gallon for “High Build Waterborne Pavement Marking Paint, White”, High Build Waterborne Pavement Marking Paint with Reflective Elements, Yellow and “High Build Waterborne Pavement Marking Paint, Yellow”.

The intent of this project is to mark existing 4” width centerlines, edge lines, and lane lines. No marking of parking stalls, crosswalks, stop bars, railroad crossings, arrows or 24” diagonal hash marks for gore areas will be required on this project.

The Comments column on the Table of Pavement Markings indicates locations of turn lanes and auxiliary lane that are present. This listing may not include all unique items that are present and require additional time and effort to mark.

The pavement will be cleaned of dirt, loose stones, and other foreign material before the paint is applied. Sweeping will be incidental to painting.

PAVEMENT MARKING LAYOUTS

Existing pavement markings layouts for US12 from Ipswich East and for the US 14 & US 81 Jct are contained at the end of this plan set. These locations have more complex and unique pavement markings layouts, therefore the existing pavement marking layouts have been included in the plans.

COORDINATION OR WORK

The following projects are known to be occurring on the segment routes that require painting.
-Bridge replacement on US12 @ MRM 278.45 (Brown/Edmunds County Line)
An onsite detour will be provided.

PAVEMENT MARKING NOTES FOR US12, US281, SD26 & SD45 WHERE THERE ARE CENTERLINE RUMBLE STRIPES AND PAINT WITH REFLECTIVE ELEMENTS ARE TO BE APPLIED

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

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

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

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

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

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

Initial readings:

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

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

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

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

Centerline Yellow pavement markings on 2 lane roadways are calculated based upon an average rate of 15 gallons per mile. This rate could vary significantly on some route.

MARKINGS WITHIN SINUSOIDAL CENTERLINE RUMBLE STRIPES

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

PAVEMENT MARKING NOTES FOR ALL MARKINGS, OTHER THAN MARKINGS PLACED WHERE THERE ARE CENTERLINE RUMBLE STRIPES WHERE REFLECTIVE ELEMENTS ARE REQUIRED.

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

Reflective media will consist of glass beads.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

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

Centerline Yellow pavement markings on 2 lane roadways are calculated based upon an average rate of 15 gallons per mile. This rate could vary significantly on some route.

RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT

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

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

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

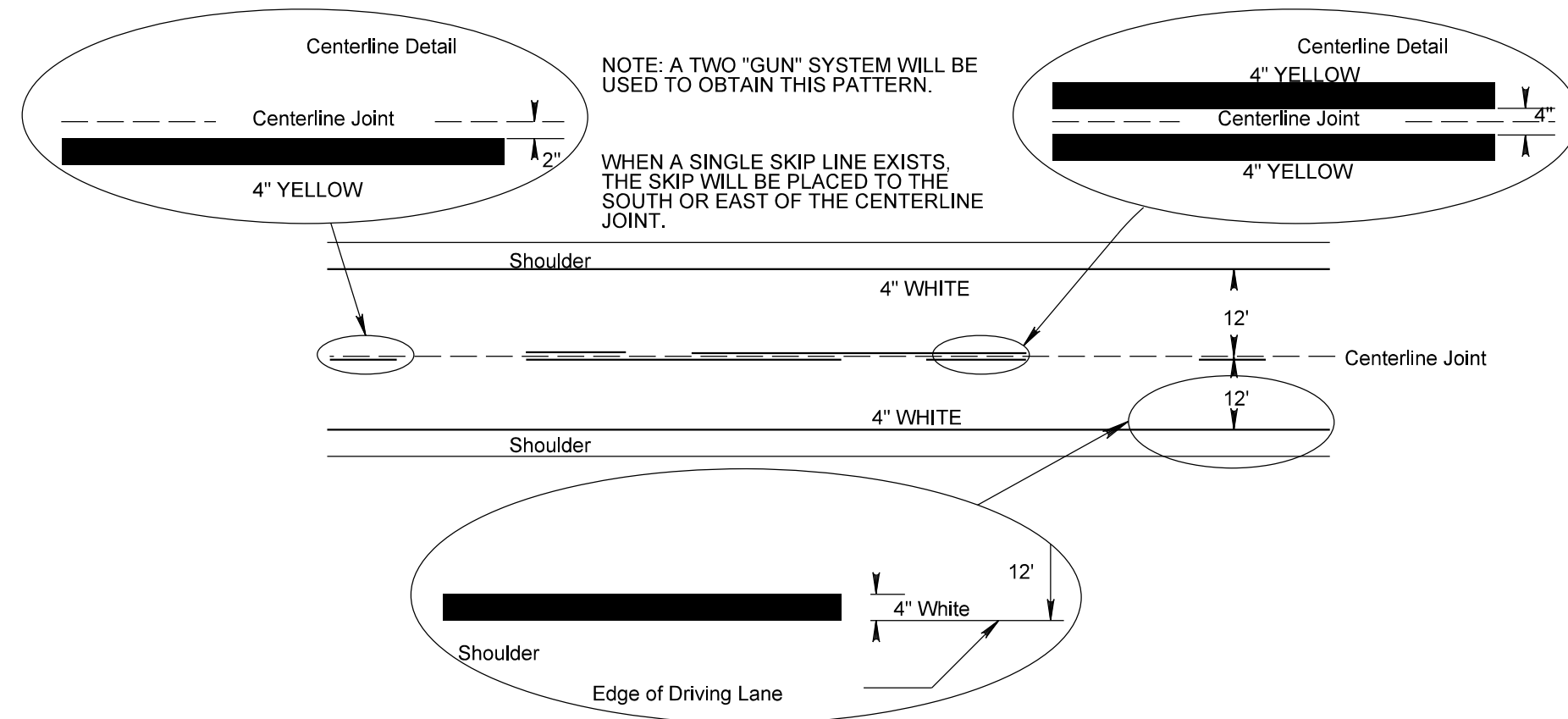
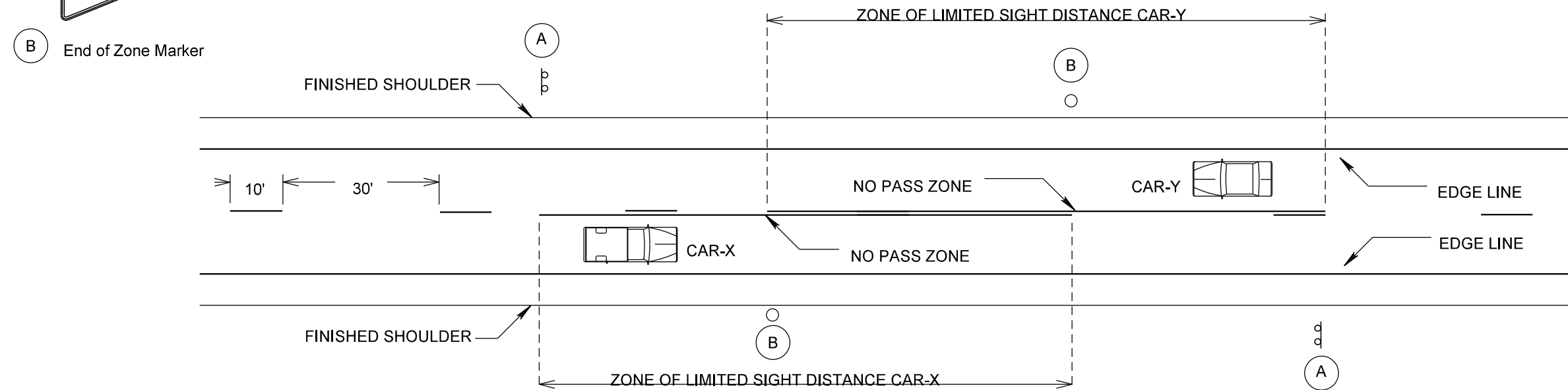
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TYPICAL PAVEMENT MARKING LAYOUT

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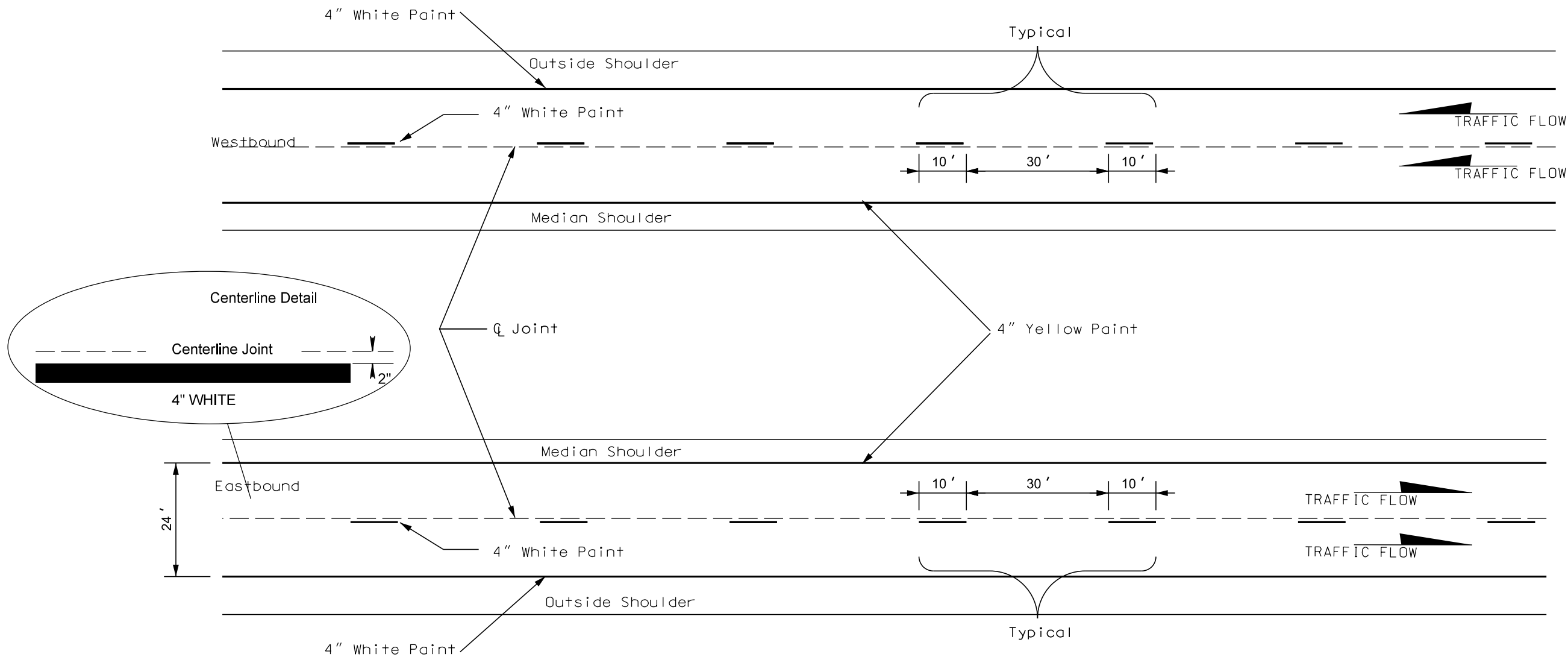
(B) End of Zone Marker



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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TYPICAL PAVEMENT MARKING LAYOUT

(US 14 EB and US 14 WB in Kingsbury & Brookings Counties)



* Messages on signs will vary depending on the operation being conducted.

Vehicle-mounted signs will be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs will be covered or turned from view when work is not in progress.

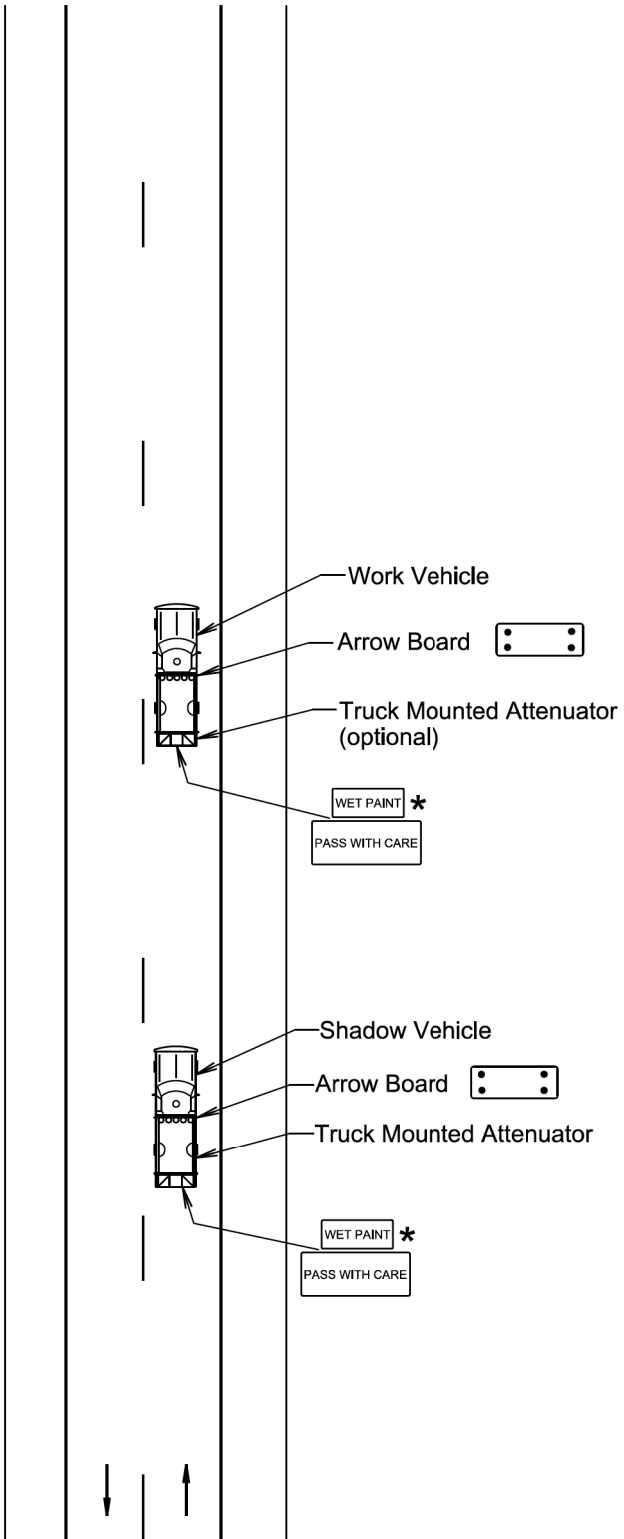
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

Vehicle hazard warning signals will not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

When an arrow board is used, it will be used in the caution mode. Marching Diamonds are acceptable.

Arrow boards will, as a minimum, be Type B, with a size of 60" x 30".

All costs associated with the traffic control for mobile operation including signs, arrow boards and equipment will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".



January 22, 2021

Published Date: 2024	S D D O T	MOBILE OPERATIONS ON 2-LANE ROAD	PLATE NUMBER
			634.06
			Sheet 1 of 1

* Messages on signs will vary depending on the operation being conducted.

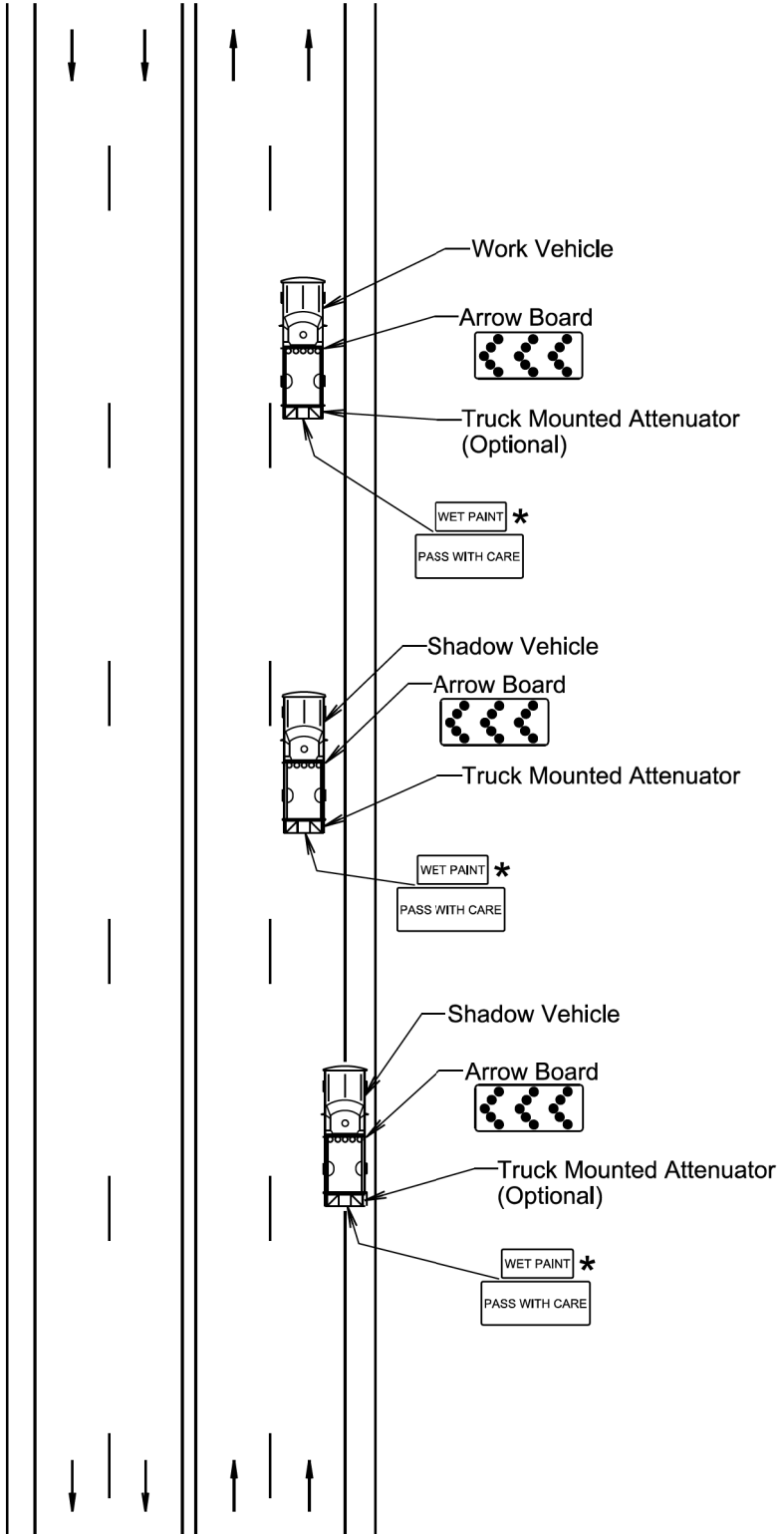
Vehicle-mounted signs will be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs will be covered or turned from view when work is not in progress.

Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

Vehicle hazard warning signals will not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

Arrow boards will, as a minimum, be Type B, with a size of 60" x 30".

All costs associated with the traffic control for mobile operation including signs, arrow boards and equipment will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".



January 22, 2021

Published Date: 2024	S D D O T	MOBILE OPERATIONS ON MULTI-LANE HIGHWAYS	PLATE NUMBER
			634.08
			Sheet 1 of 1

PLOT SCALE - 1:141.165

PLOTTED FROM - TRAB17882

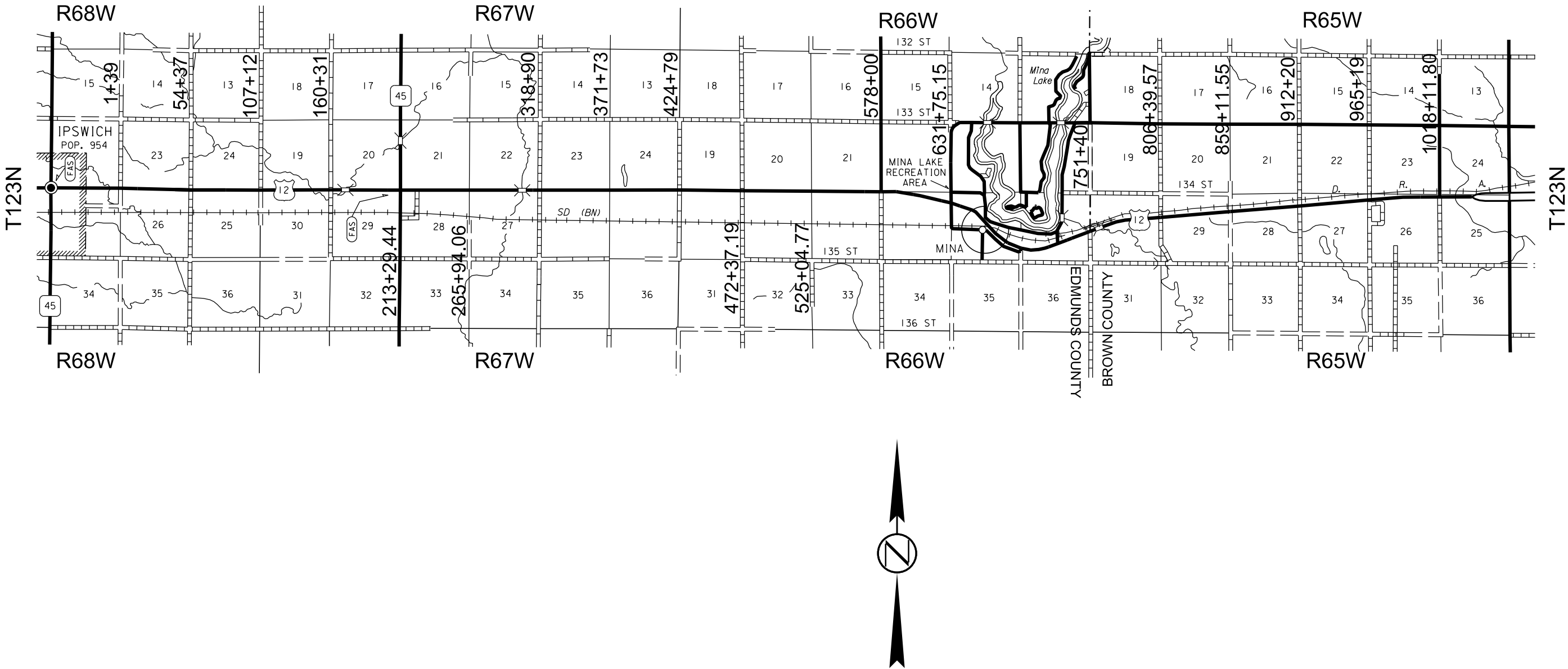
PAVEMENT MARKING LAYOUT

U.S. HWY 12

TITLE SHEET SHOWING STATIONING

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	12	52
Plotting Date: 02/06/2024			

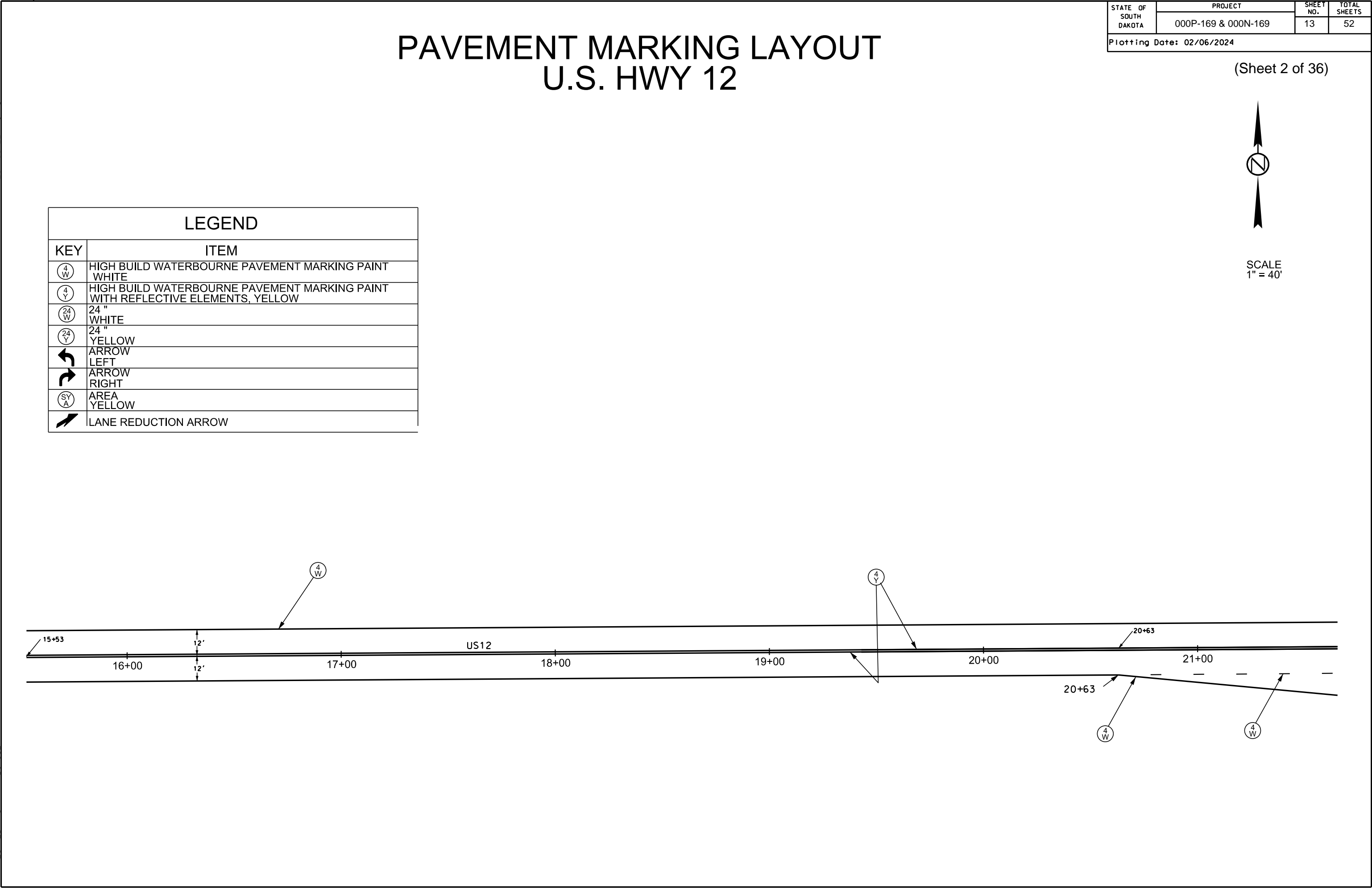
(Sheet 1 of 36)



FILE - ... \TITLE SHEET FOR US 12 PVMT MARKINGS.DGN PLOT NAME - 1

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882



PLOT NAME - 2

FILE - ... \US12 PWT MARKING\1621PM.DGN

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

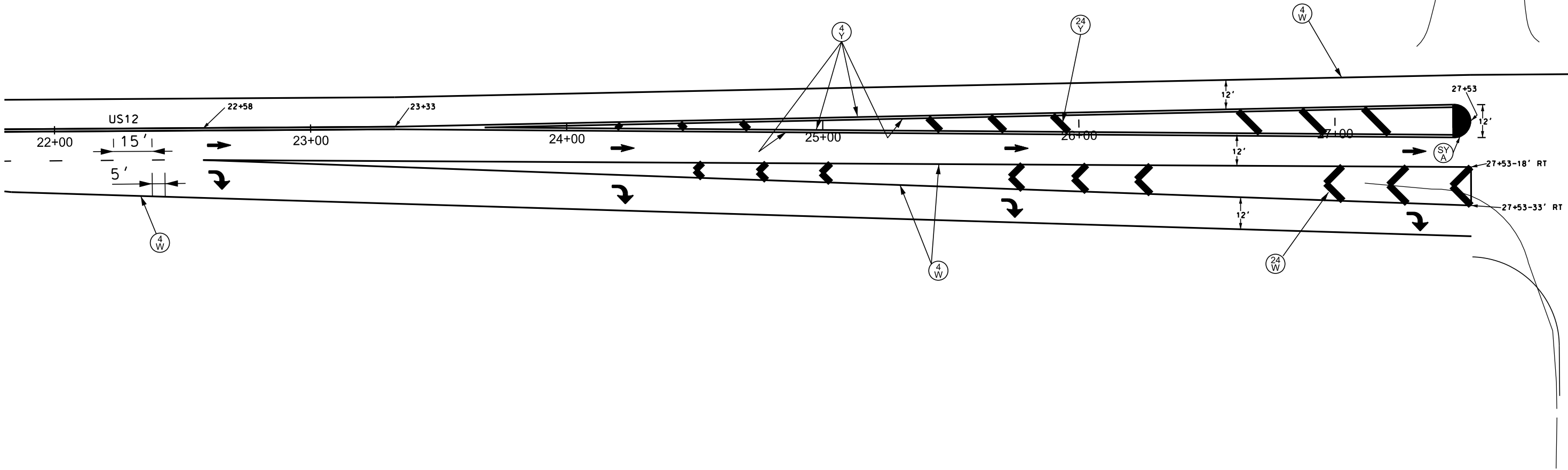
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	14	52
Plotting Date: 02/06/2024			

PAVEMENT MARKING LAYOUT U.S. HWY 12

(Sheet 3 of 36)



SCALE
1" = 40'



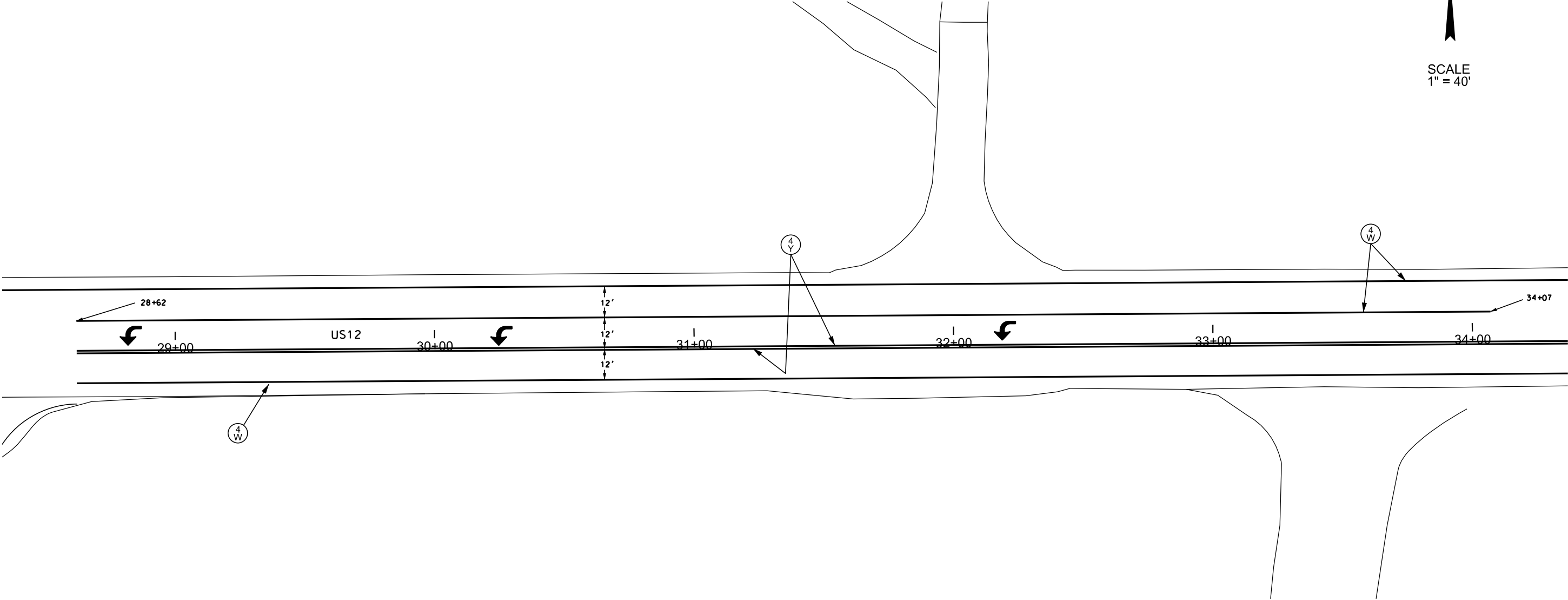
PAVEMENT MARKING LAYOUT
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	15	52
Plotting Date: 02/06/2024			

(Sheet 4 of 36)



SCALE
1" = 40'



PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PLOT NAME - 4

FILE - ... \US12 PAVT MARKING\2834PM.DGN

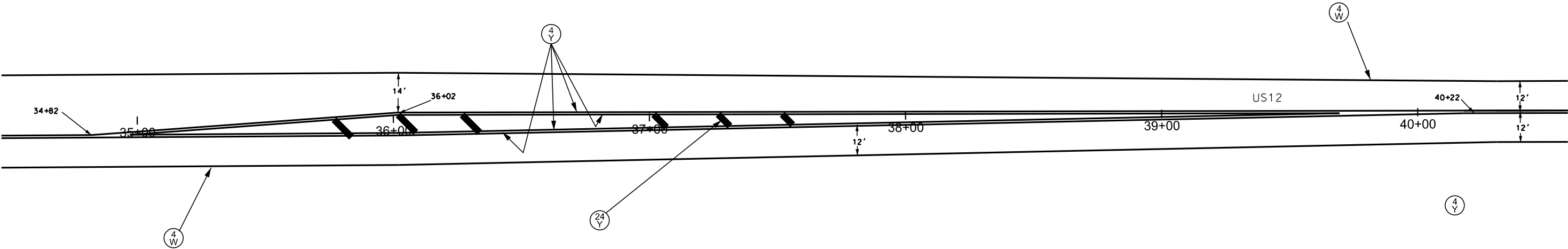
PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	16	52
Plotting Date: 02/06/2024			

PAVEMENT MARKING LAYOUT
U.S. HWY 12

(Sheet 5 of 36)



PLOT NAME - 5

FILE - ... \US12 PVMT MARKING\3540PM.DGN

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PAVEMENT MARKING LAYOUT

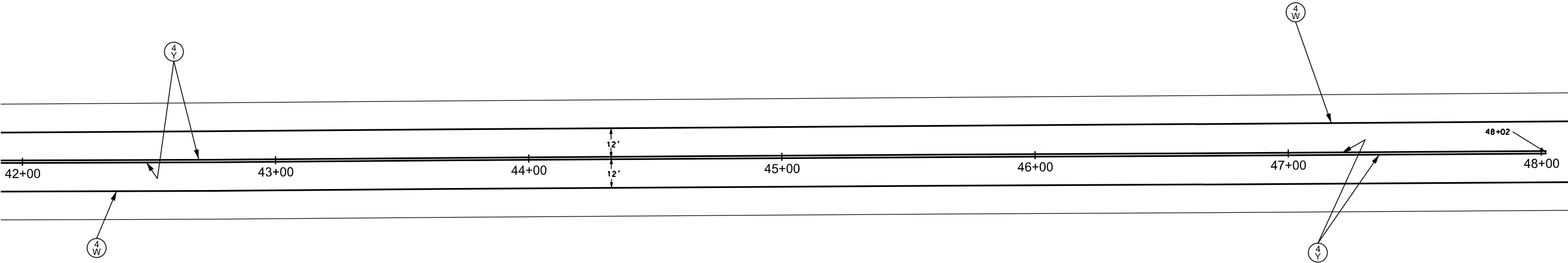
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	17	52
Plotting Date: 02/06/2024			

(Sheet 6 of 36)



SCALE
1" = 40'



PLOT NAME - 6

FILE - ... \US12 PVMT MARKING\4248PM.DGN

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PAVEMENT MARKING LAYOUT

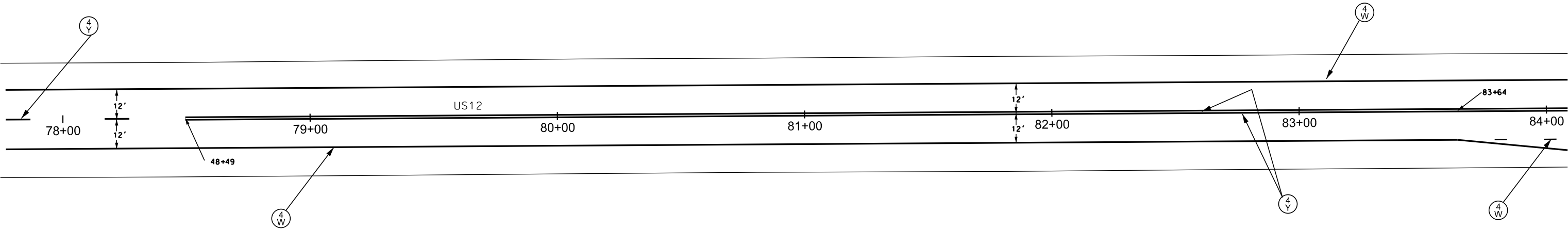
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	18	52
Plotting Date: 02/06/2024			

(Sheet 7 of 36)



SCALE
1" = 40'



FILE - ... \US12 PVMT MARKING\7884PM.DGN

PLOT NAME - 7

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

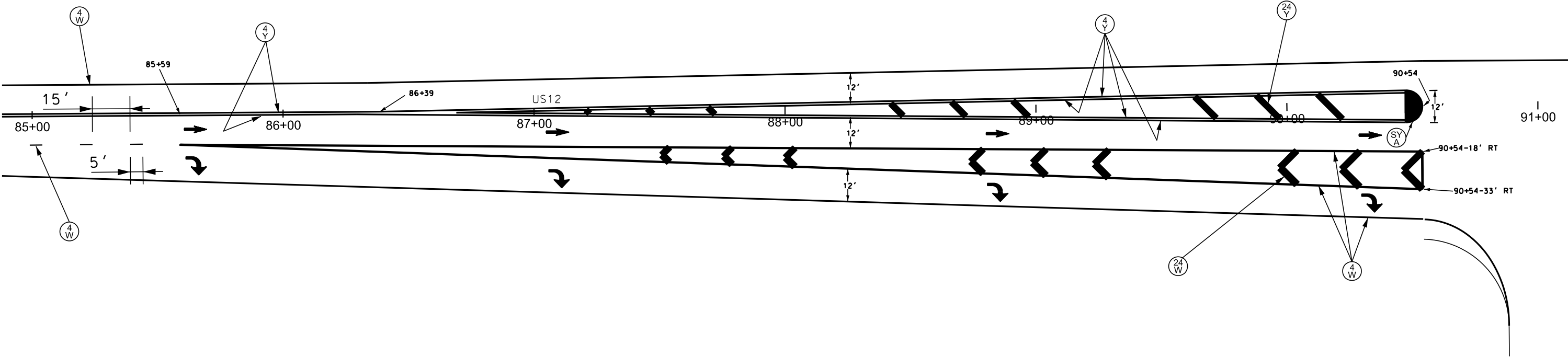
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	19	52
Plotting Date: 02/06/2024			

PAVEMENT MARKING LAYOUT
U.S. HWY 12

(Sheet 8 of 36)



SCALE
1" = 40'



FILE - ... \US12 PAVT MARKING\8591PM.DGN

PLOT NAME - 8

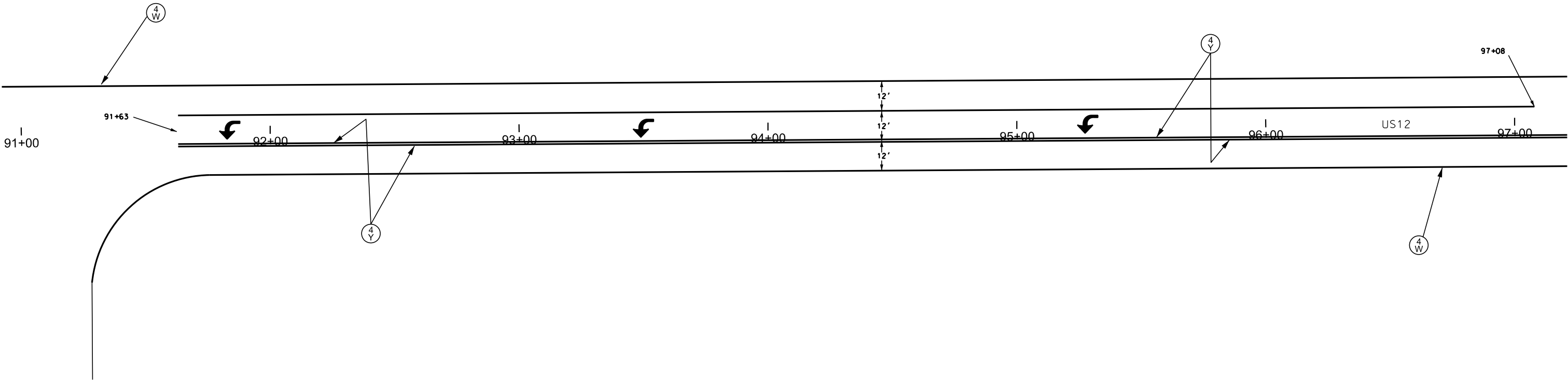
PAVEMENT MARKING LAYOUT
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	20	52
Plotting Date: 02/06/2024			

(Sheet 9 of 36)



SCALE
1" = 40'



PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PLOT NAME - 9

FILE - ... \US12 PAVT MARKING\9297PM.DGN

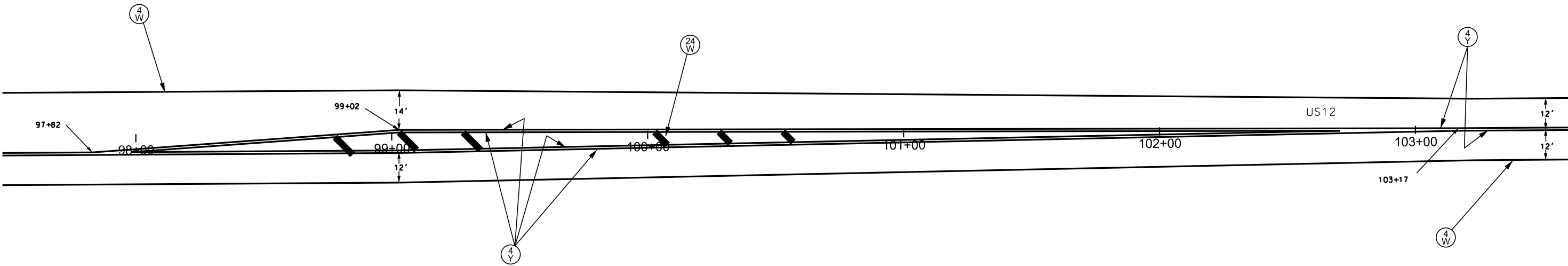
PAVEMENT MARKING LAYOUT
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	21	52
Plotting Date: 02/06/2024			

(Sheet 10 of 36)



SCALE
1" = 40'



PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PLOT NAME - 10

FILE - ... \US12 PWT MARKING\98103PM.DGN

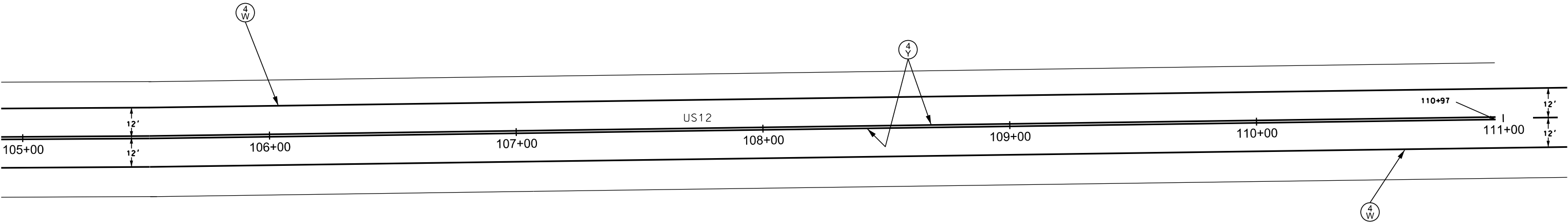
PAVEMENT MARKING LAYOUT
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	22	52
Plotting Date: 02/06/2024			

(Sheet 11 of 36)



SCALE
1" = 40'



PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PLOT NAME - 11

FILE - ... \US12 PAVT MARKING\105111PH.DGN

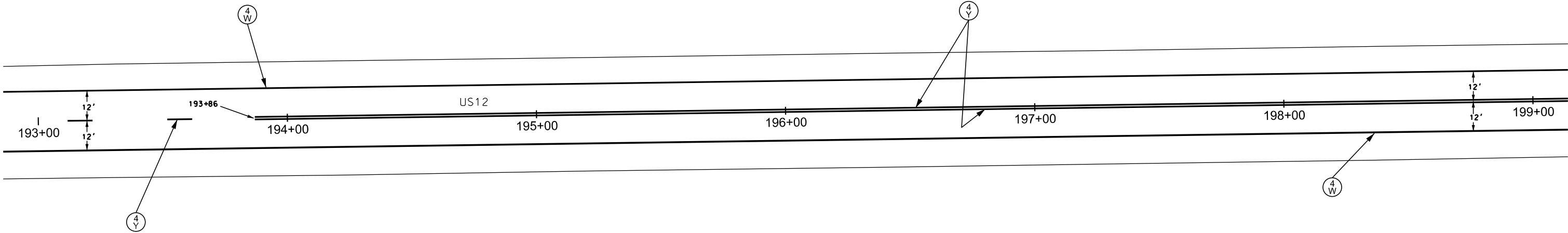
PAVEMENT MARKING LAYOUT
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	23	52
Plotting Date: 02/06/2024			

(Sheet 12 of 36)



SCALE
1" = 40'



PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PLOT NAME - 12

FILE - ... \US12 PAVT MARKING\193199PH.DGN

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

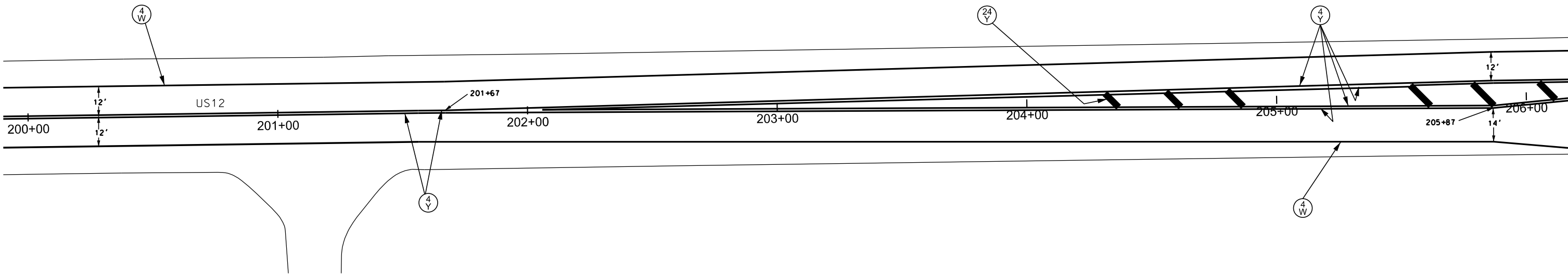
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	24	52
Plotting Date: 02/06/2024			

PAVEMENT MARKING LAYOUT
U.S. HWY 12

(Sheet 13 of 36)



SCALE
1" = 40'



PLOT NAME - 13

FILE - ... \US12 PAVT MARKING\200206PH.DGN

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	25	52
Plotting Date: 02/06/2024			

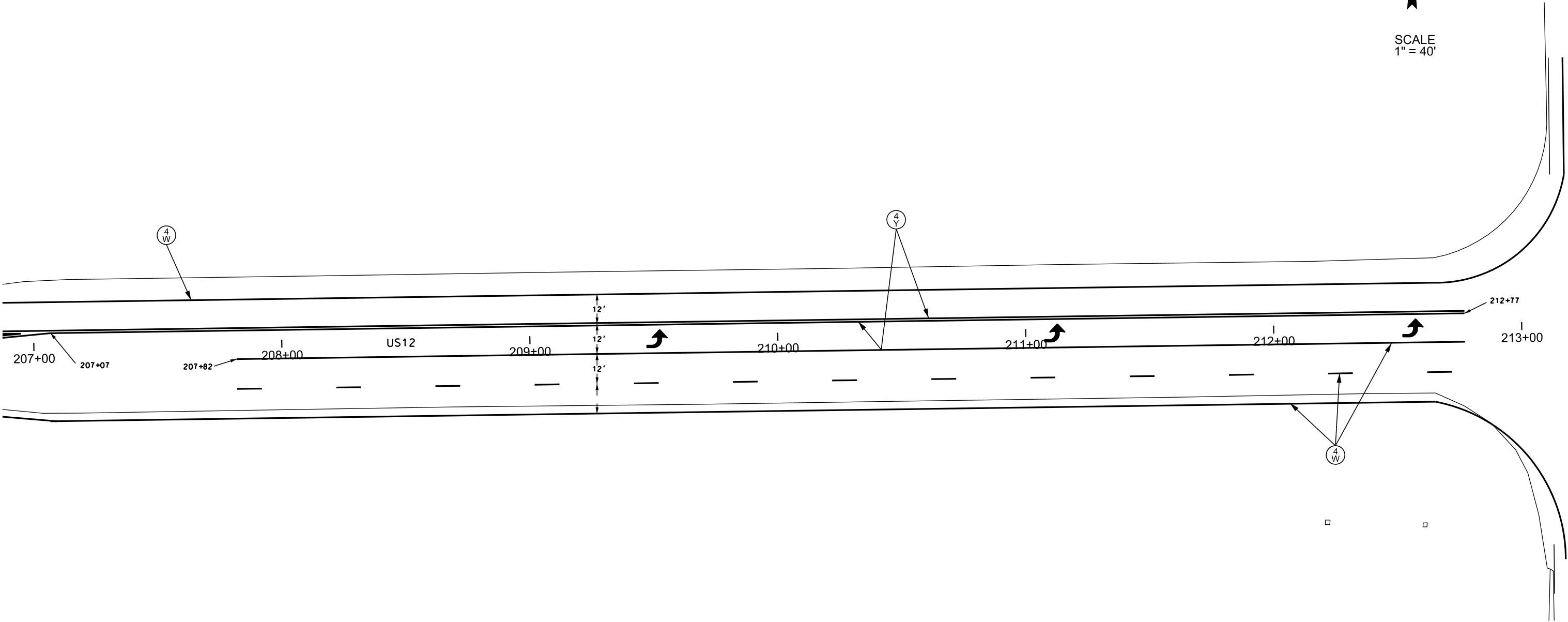
PAVEMENT MARKING LAYOUT

U.S. HWY 12

(Sheet 14 of 36)



SCALE
1" = 40'



FILE - ... \US12 PVMT MARKING\207213PH.DGN PLOT NAME - 14

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	26	52
Plotting Date: 02/06/2024			

(Sheet 15 of 36)

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

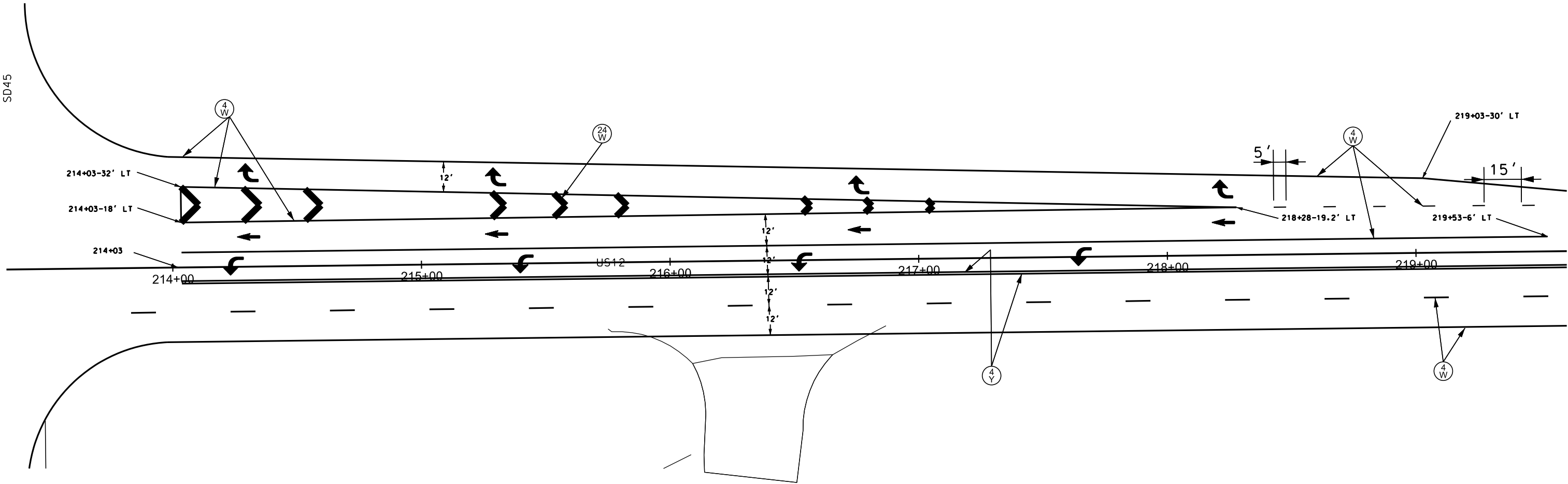
PLOT NAME - 15

FILE - ... \US12 PWT MARKING\214219.DGN

PAVEMENT MARKING LAYOUT U.S. HWY 12

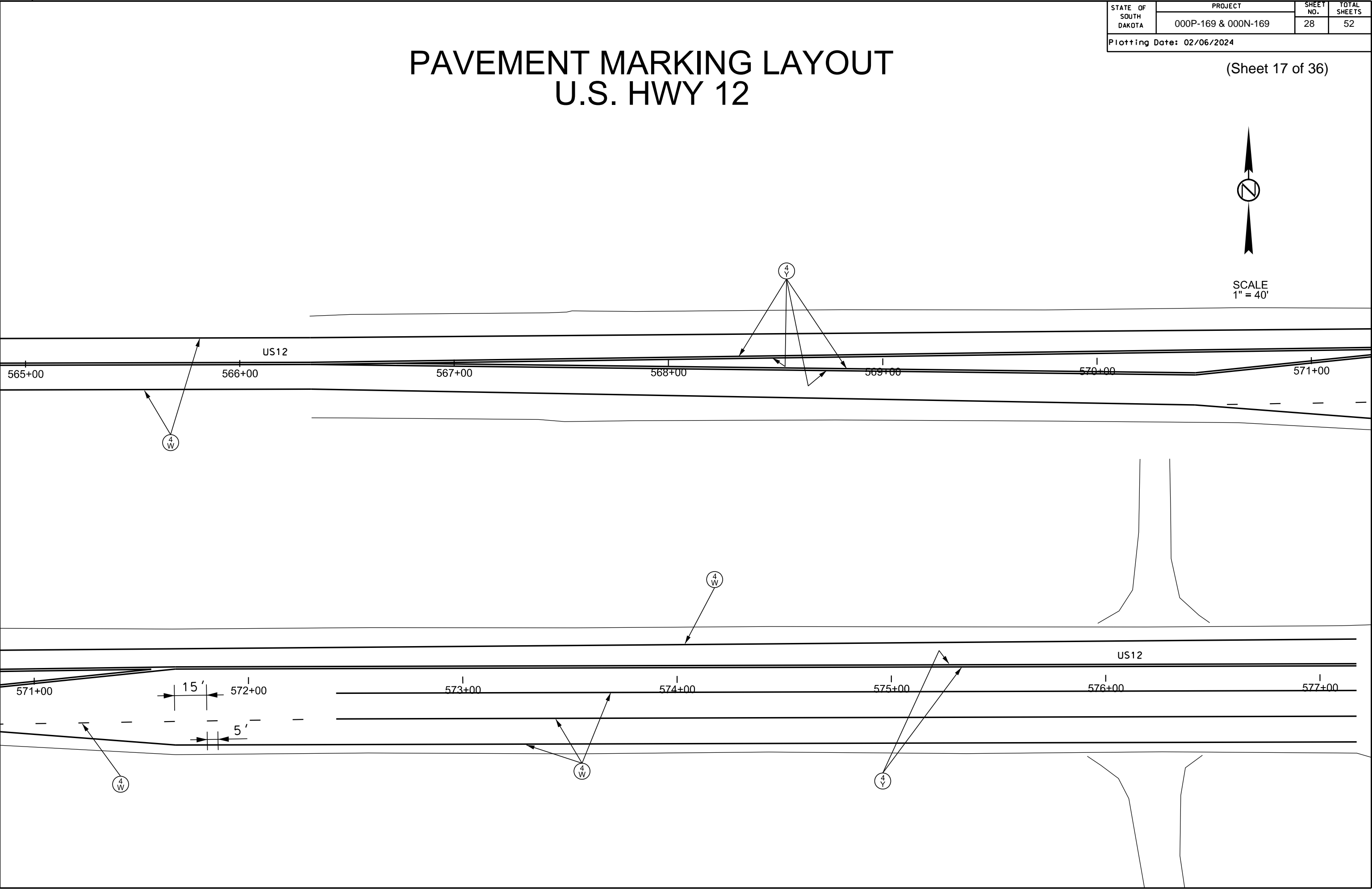


SCALE
1" = 40'



PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882



PLOT NAME - 17

FILE - ... \US12 PAVT MARKING\565577PH.DGN

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

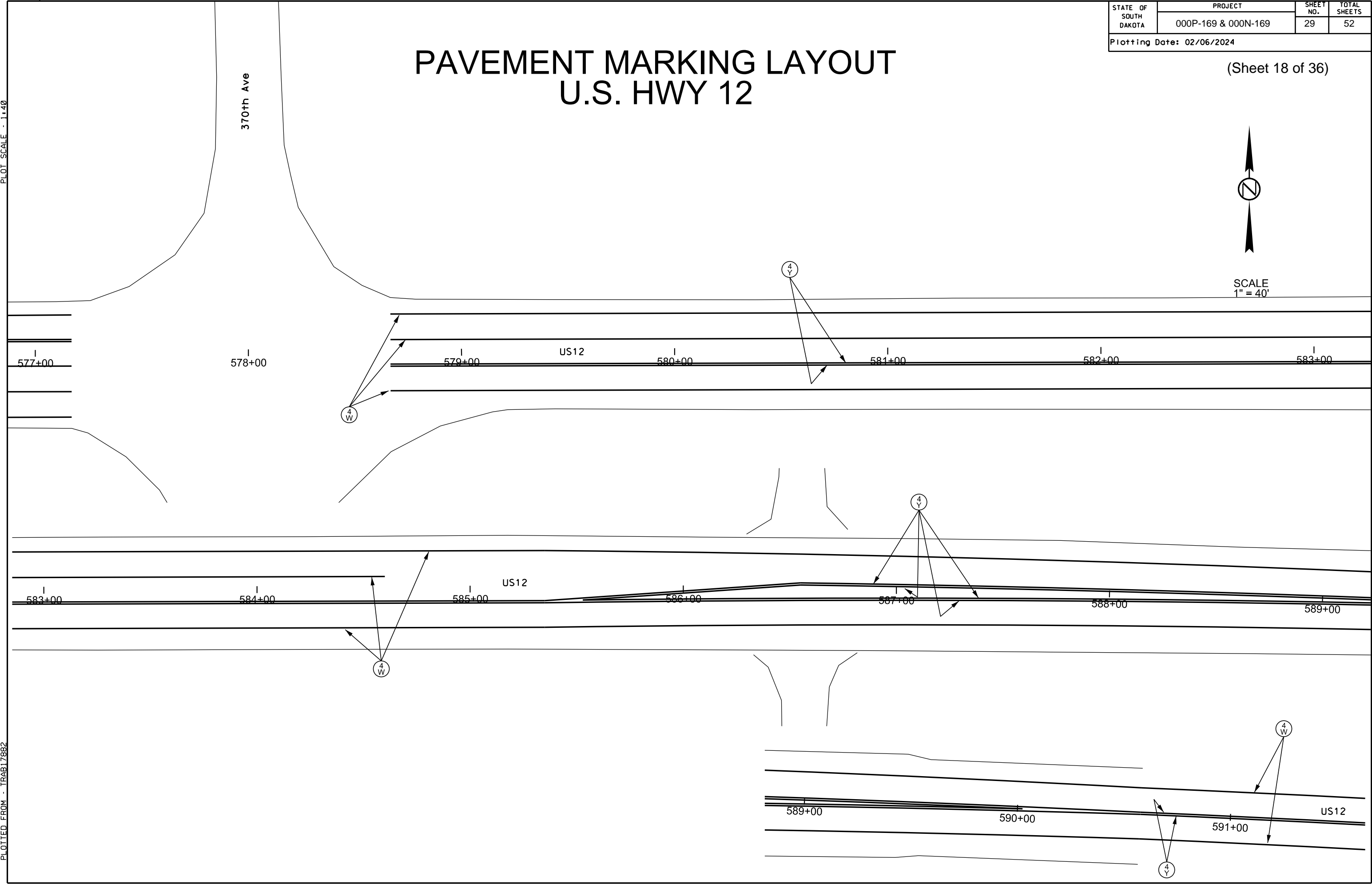
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	29	52
Plotting Date: 02/06/2024			

PAVEMENT MARKING LAYOUT
U.S. HWY 12

(Sheet 18 of 36)



SCALE
1" = 40'



FILE - ... \US12 PVMT MARKING\577591PH.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	30	52
Plotting Date: 02/06/2024			

PAVEMENT MARKING LAYOUT
U.S. HWY 12

(Sheet 19 of 36)



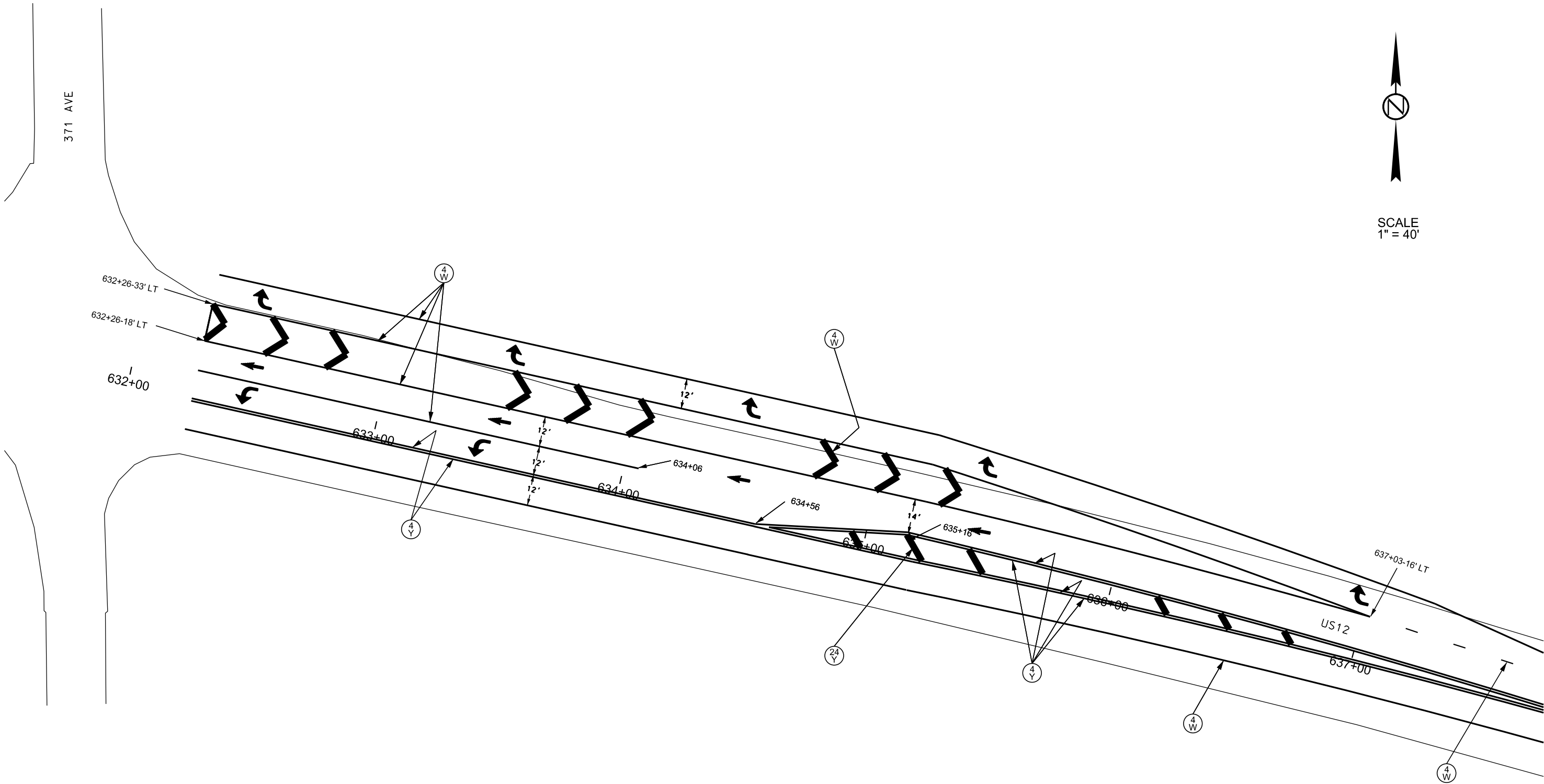
SCALE
1" = 40'

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PLOT NAME - 19

FILE - ... \US12 PVMT MARKING\632637PH.DGN



PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PAVEMENT MARKING LAYOUT

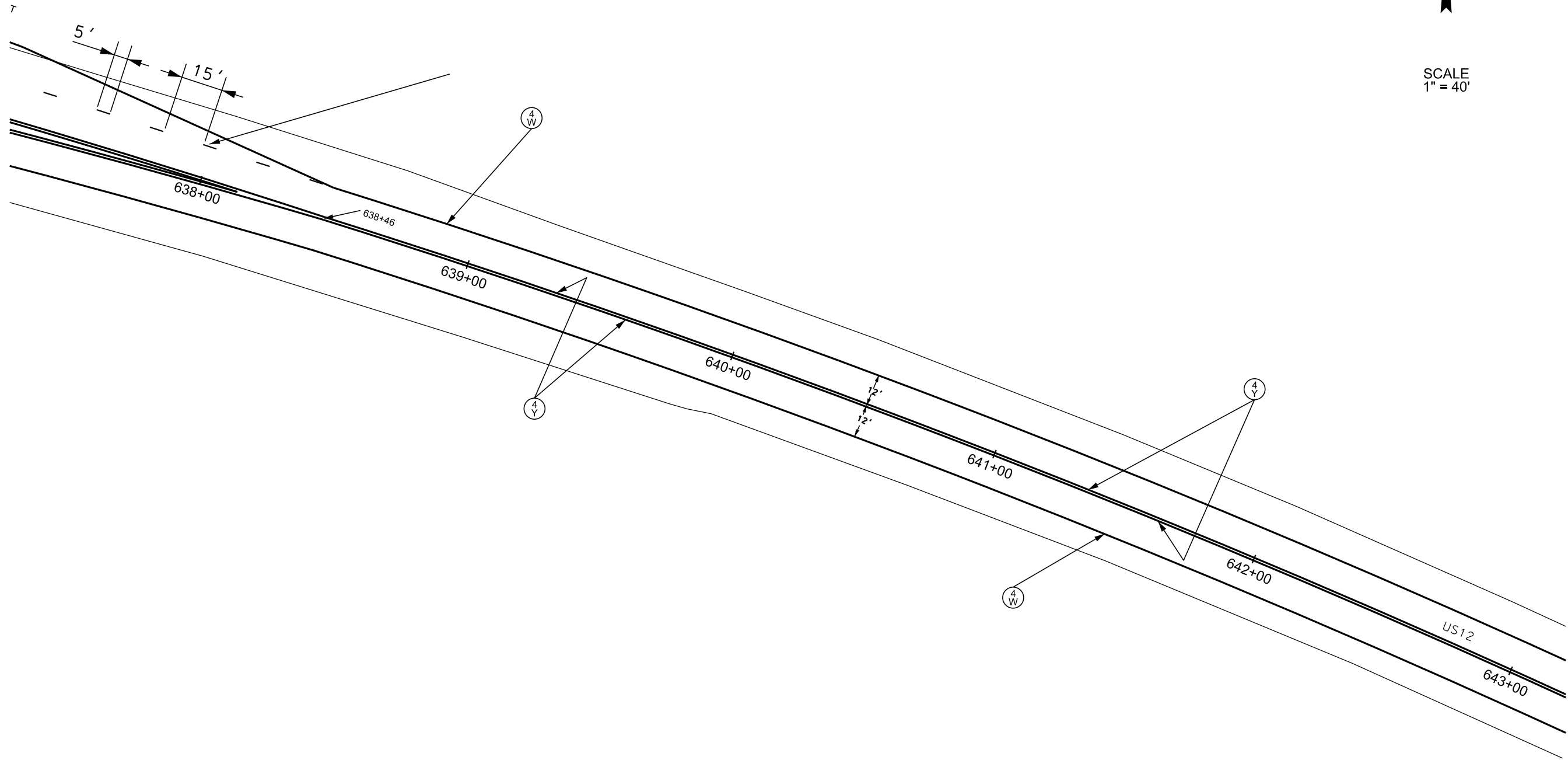
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	31	52
Plotting Date: 02/06/2024			

(Sheet 20 of 36)



SCALE
1" = 40'



PLOT NAME - 20

FILE - ... \US12 PVMT MARKING\638643PH.DGN

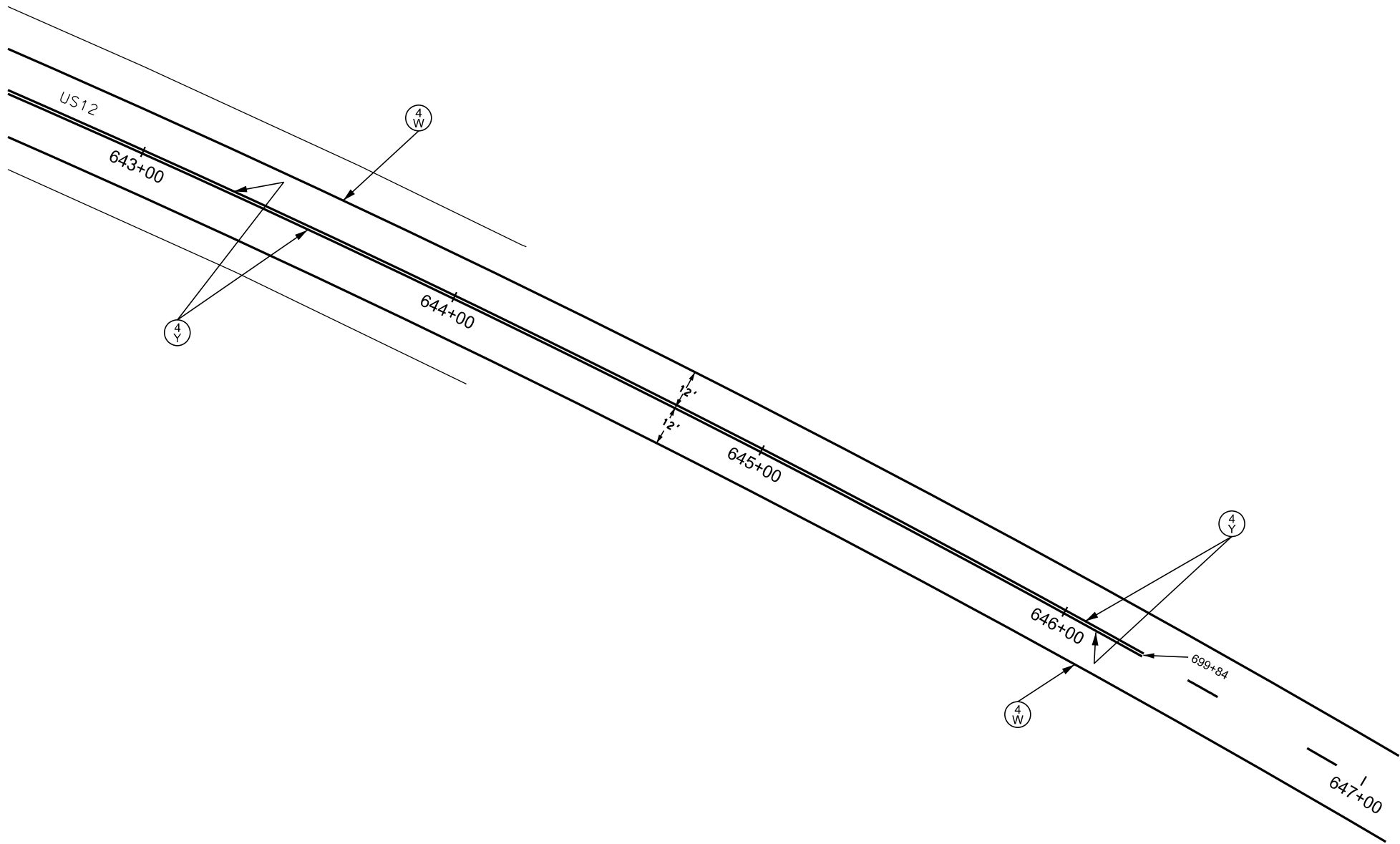
PAVEMENT MARKING LAYOUT
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	32	52
Plotting Date: 02/06/2024			

(Sheet 21 of 36)



SCALE
1" = 40'



PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PLOT NAME - 21

FILE - ... \US12 PVMT MARKING\644647PH.DGN

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PAVEMENT MARKING LAYOUT

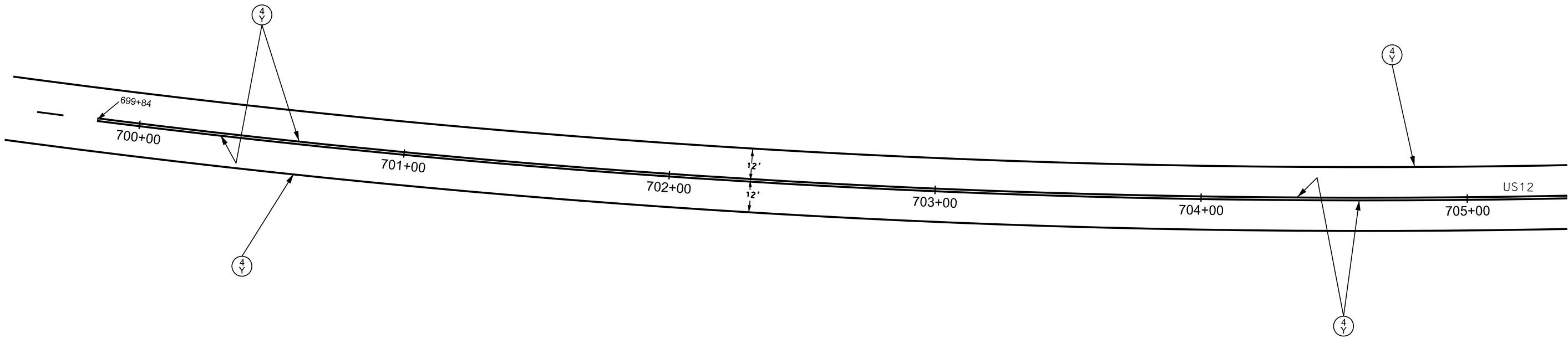
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	33	52
Plotting Date: 02/06/2024			

(Sheet 22 of 36)



SCALE
1" = 40'



PLOT NAME - 22

FILE - ... \US12 PVMT MARKING\700705PH.DGN

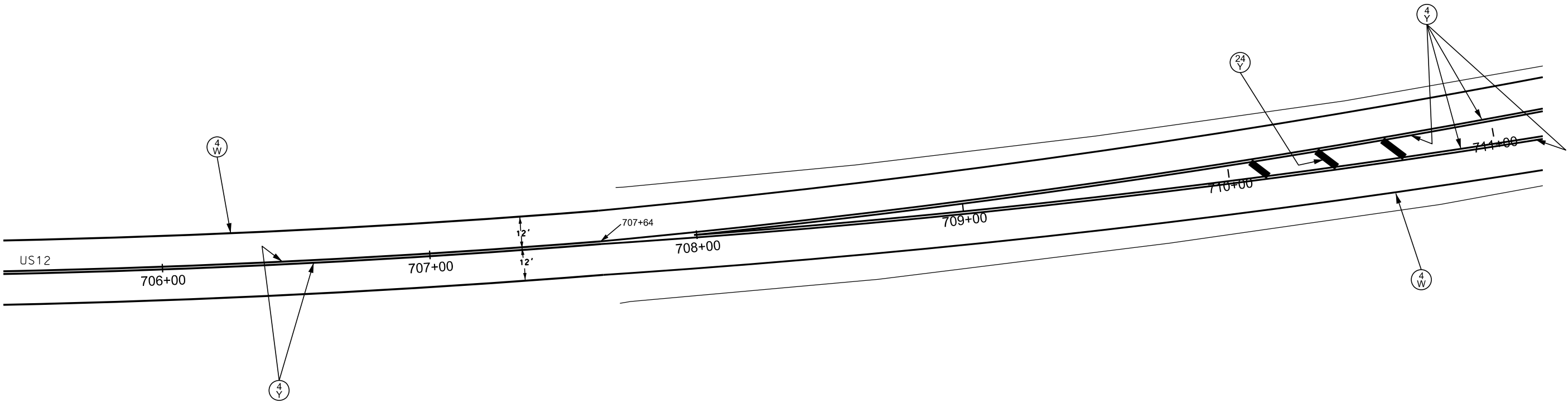
PAVEMENT MARKING LAYOUT
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	34	52
Plotting Date: 02/06/2024			

(Sheet 23 of 36)



SCALE
1" = 40'



PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PLOT NAME - 23

FILE - ... \US12 PAVT MARKING\706710PH.DGN

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	35	52
Plotting Date: 02/06/2024			

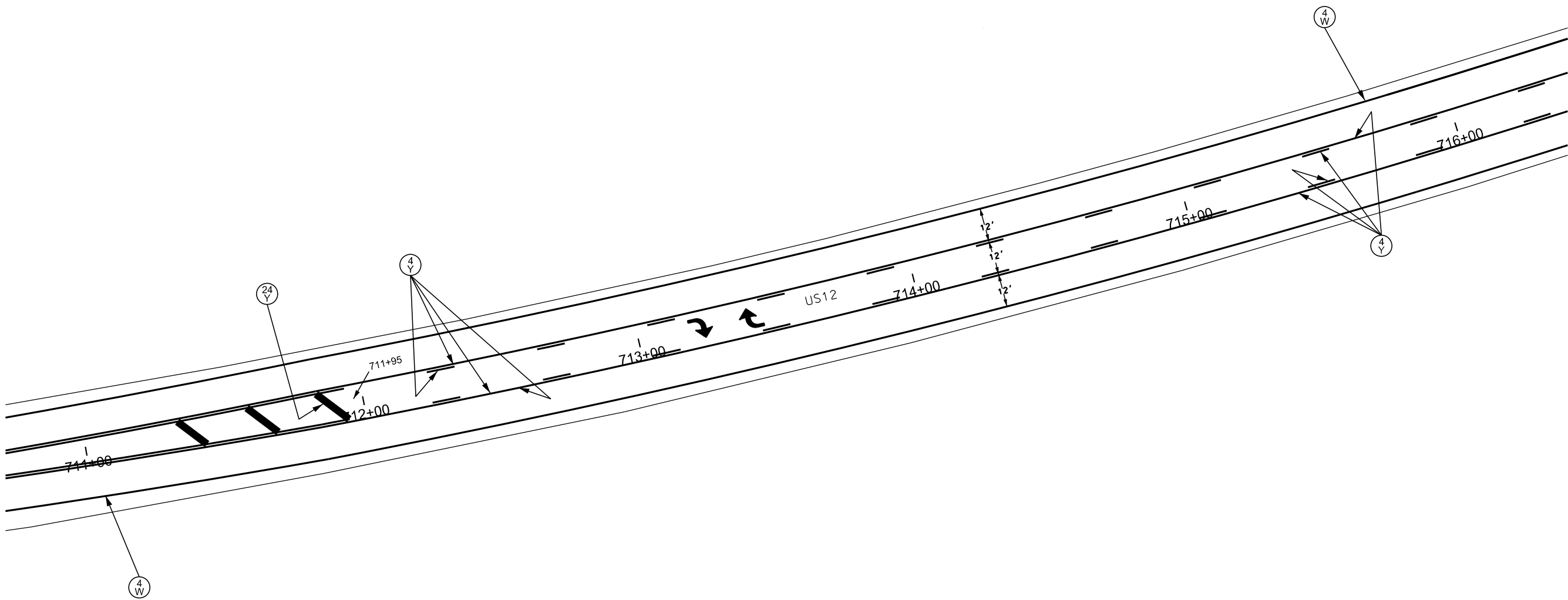
PAVEMENT MARKING LAYOUT

U.S. HWY 12

(Sheet 24 of 36)



SCALE
1" = 40'



PLOT NAME - 24

FILE - ... \US12 PVMT MARKING\711716PM.DGN

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PAVEMENT MARKING LAYOUT

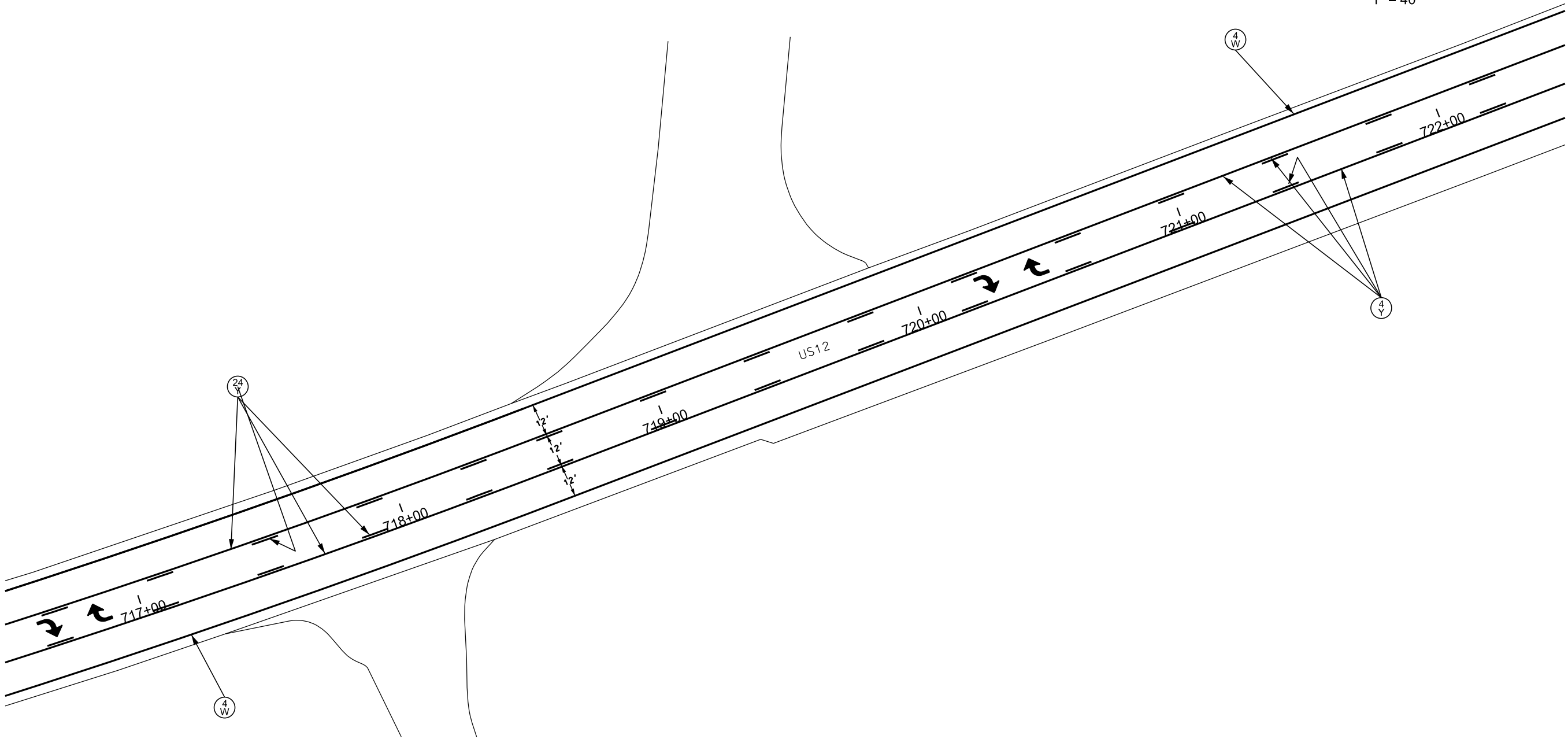
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	36	52
Plotting Date: 02/06/2024			

(Sheet 25 of 36)



SCALE
1" = 40'



FILE - ... \US12 PAVT MARKING\717722PH.DGN PLOT NAME - 25

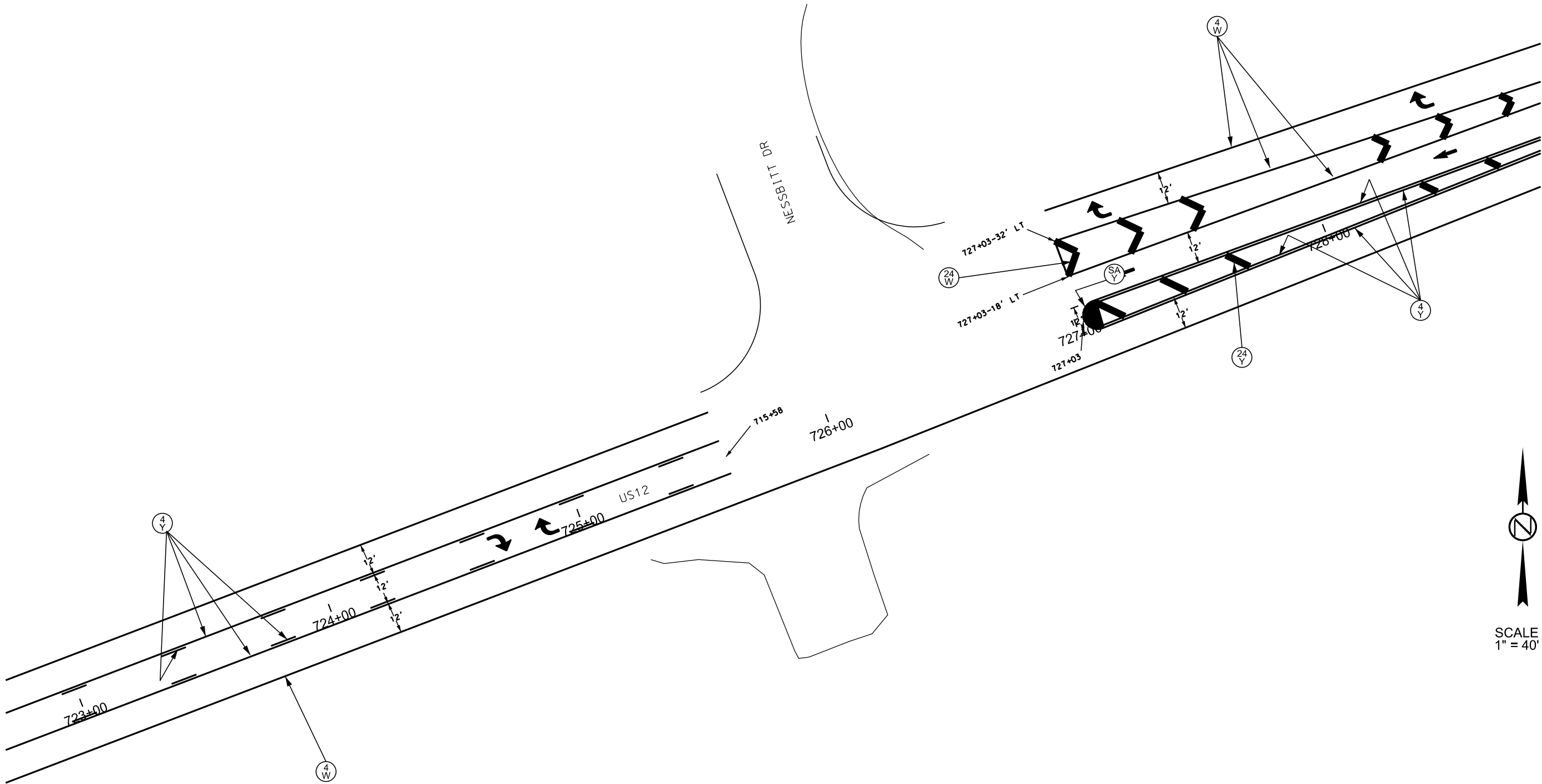
PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PAVEMENT MARKING LAYOUT U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	37	52
Plotting Date: 02/06/2024			

(Sheet 26 of 36)



SCALE
1" = 40'

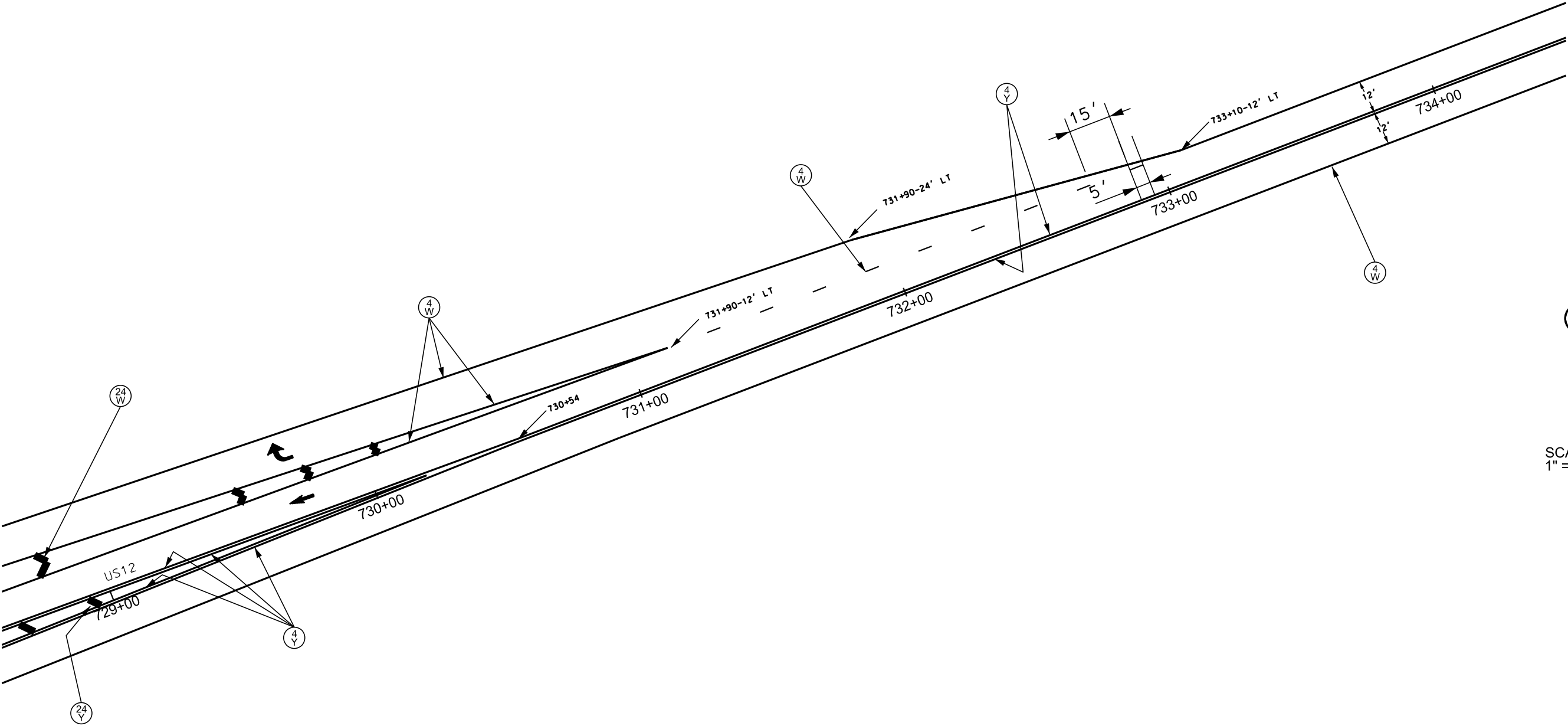
PLOT NAME - 26

FILE - ... \US12 PAVT MARKING\723728PH.DGN

PAVEMENT MARKING LAYOUT
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	38	52
Plotting Date: 02/06/2024			

(Sheet 27 of 36)



PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PLOT NAME - 27

FILE - ... \US12 PAVT MARKING\729734PH.DGN

PLOT SCALE - 1"=40'

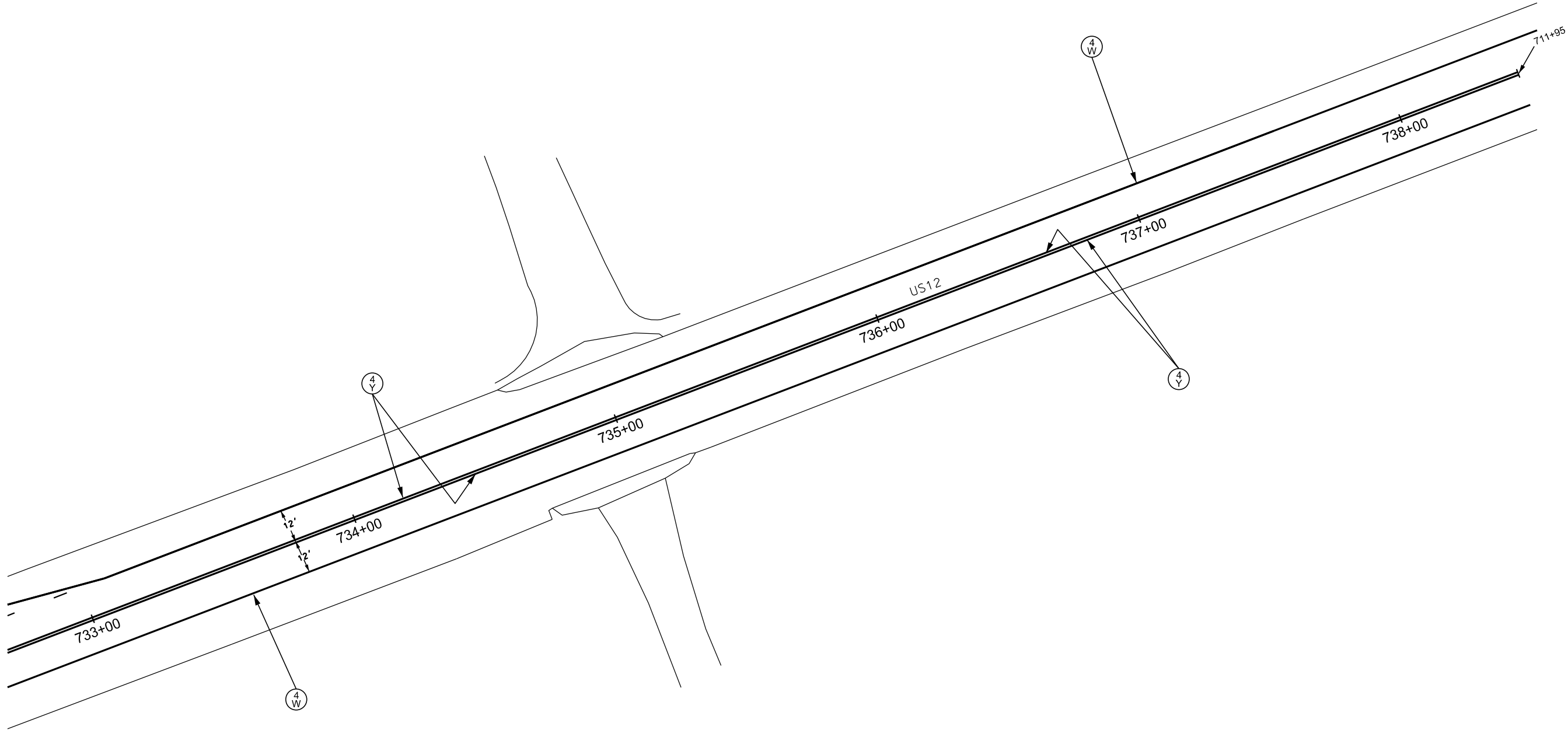
PLOTTED FROM - TRAB17882

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	39	52
Plotting Date: 02/06/2024			

(Sheet 28 of 36)

PAVEMENT MARKING LAYOUT

U.S. HWY 12



SCALE
1" = 40'

PLOT NAME - 28

FILE - ... \US12 PWT MARKING\735738PH.DGN

PAVEMENT MARKING LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	41	52
Plotting Date: 02/06/2024			

(Sheet 30 of 36)



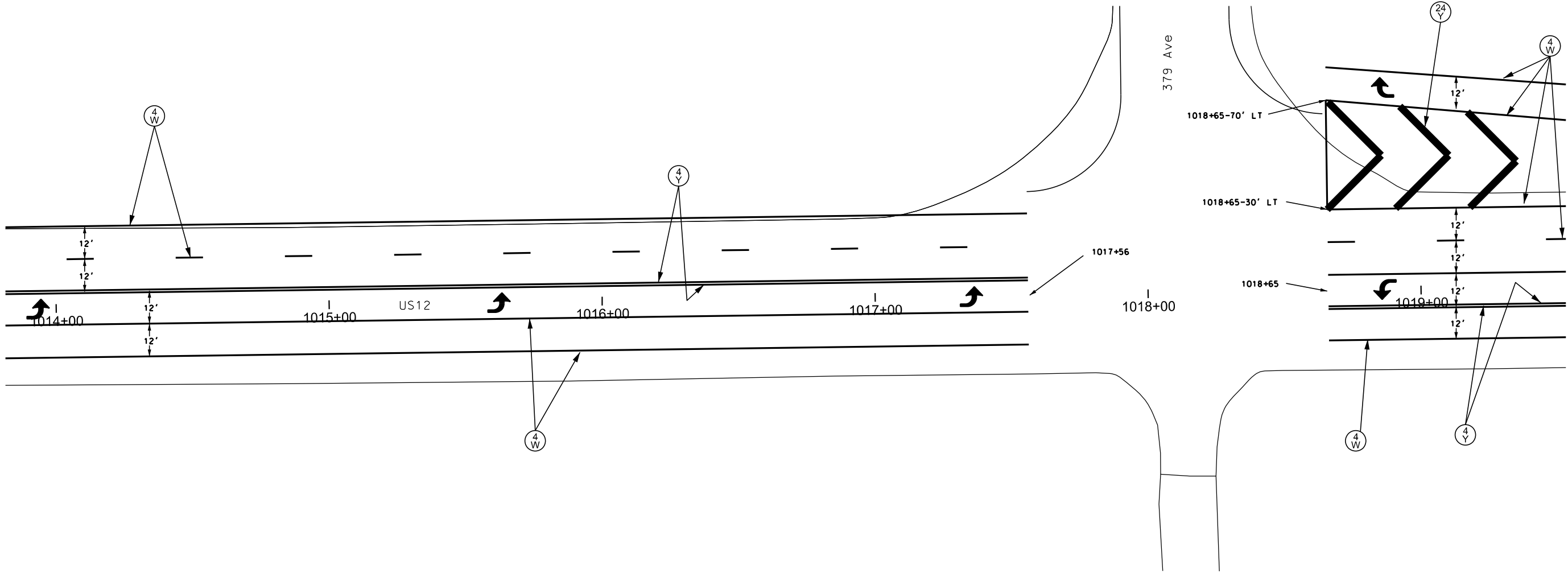
SCALE
1" = 40'

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PLOT NAME - 30

FILE - ... \10141019PM.DGN



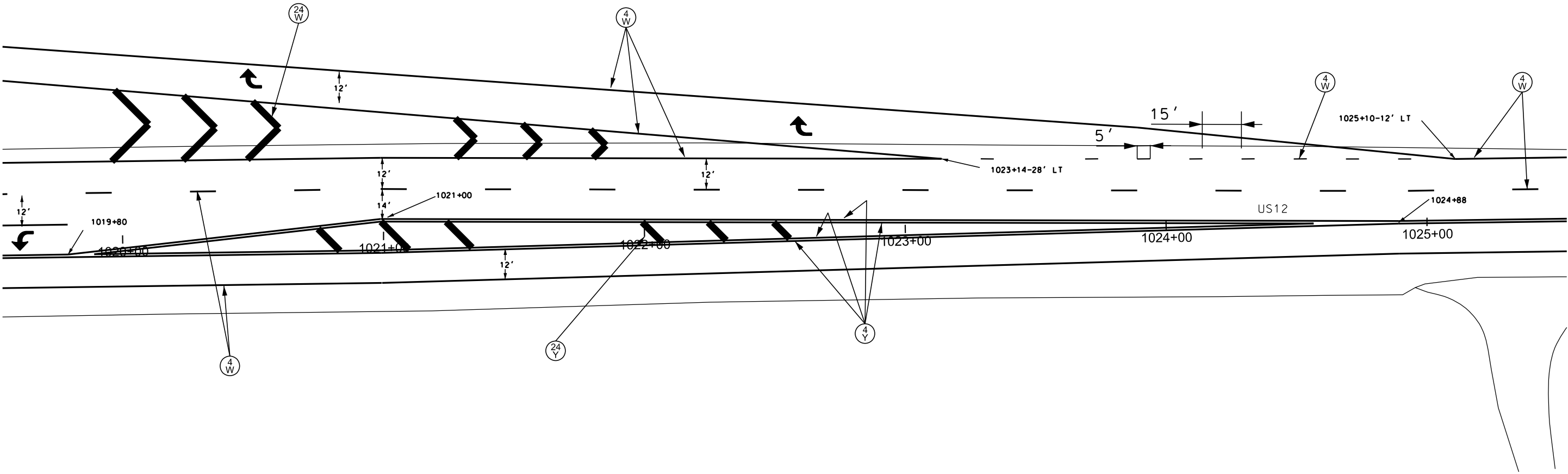
PAVEMENT MARKING LAYOUT
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	42	52
Plotting Date: 02/06/2024			

(Sheet 31 of 36)



SCALE
1" = 40'



PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PLOT NAME - 31

FILE - ... \10201025PM.DGN

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PAVEMENT MARKING LAYOUT

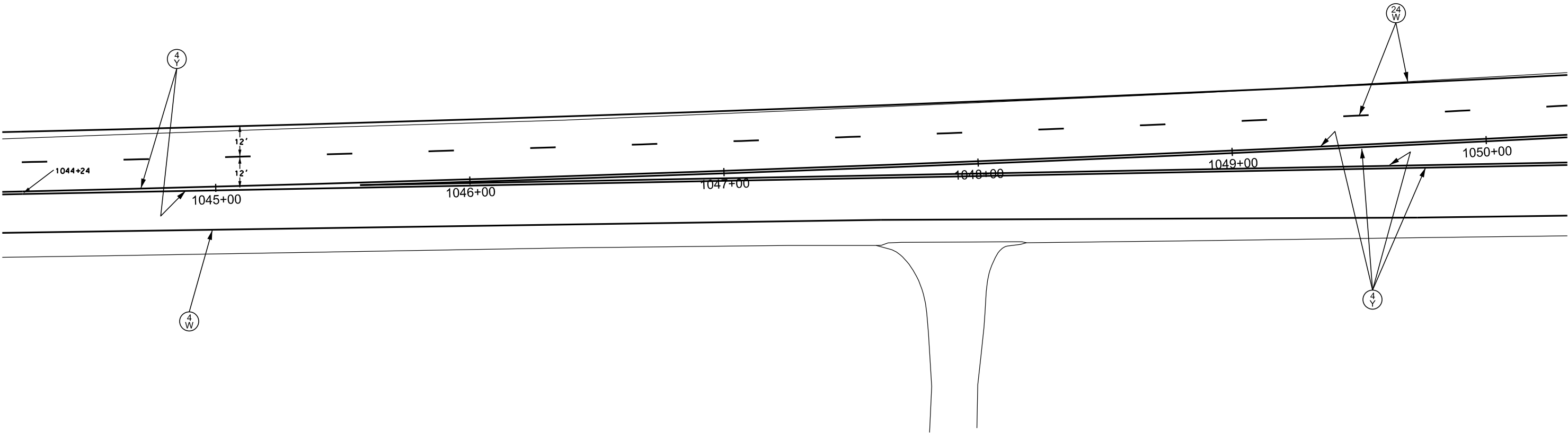
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	43	52
Plotting Date: 02/06/2024			

(Sheet 32 of 36)



SCALE
1" = 40'



PLOT NAME - 32

FILE - ... \10451050PM.DGN

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PAVEMENT MARKING LAYOUT

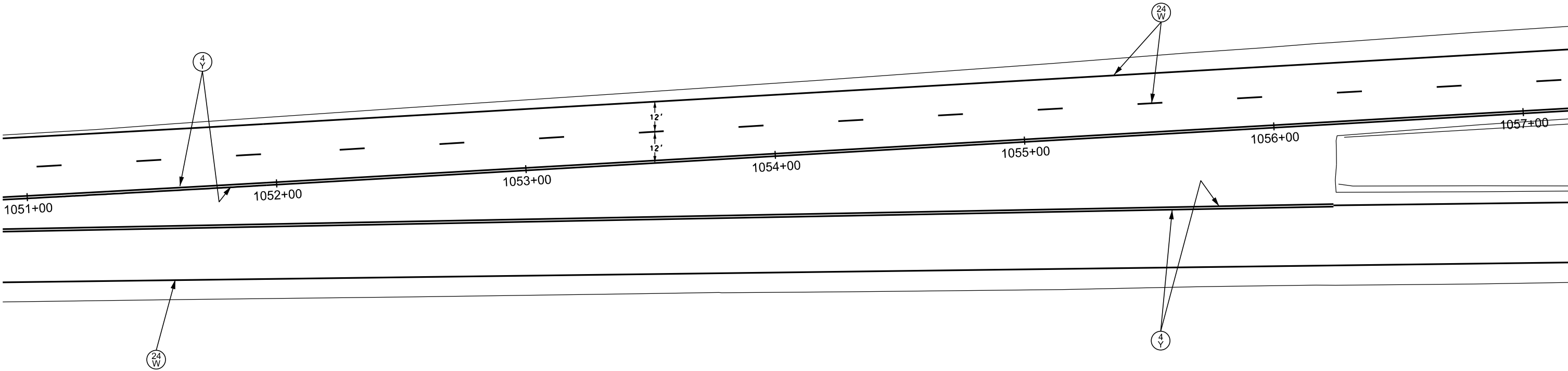
U.S. HWY 12

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	44	52
Plotting Date: 02/06/2024			

(Sheet 33 of 36)



SCALE
1" = 40'



FILE - ... \10501057PM.DGN

PLOT NAME - 33

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

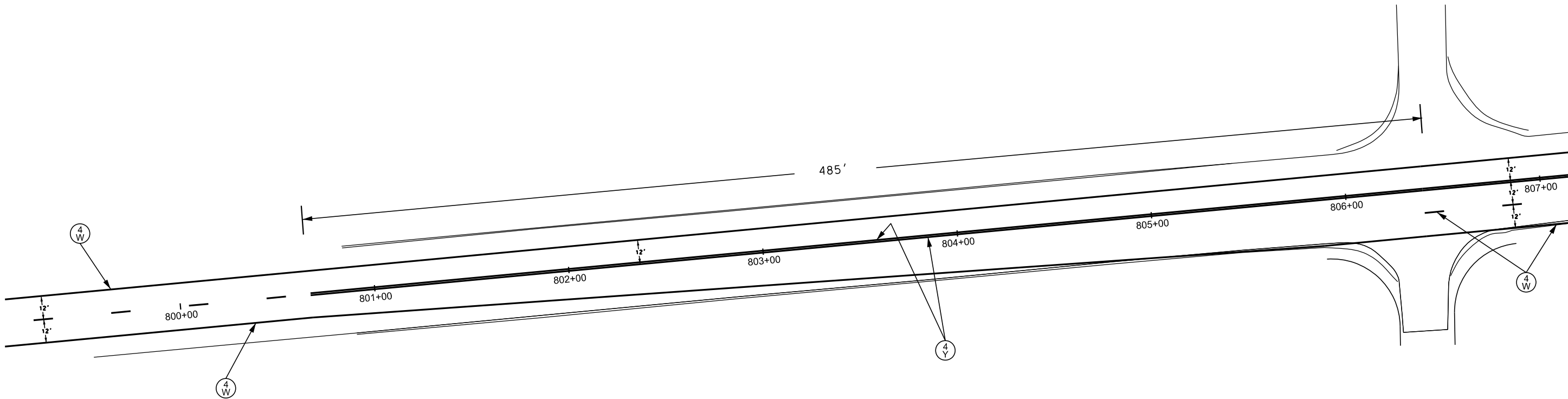
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	45	52
Plotting Date: 02/06/2024			

PAVEMENT MARKING LAYOUT
U.S. HWY 12
TYPICAL LANE ADDITION

(Sheet 34 of 36)



NOT TO SCALE



PLOT NAME - 34

FILE - ...US12 PAVT MARKING\ADD LANE.DGN

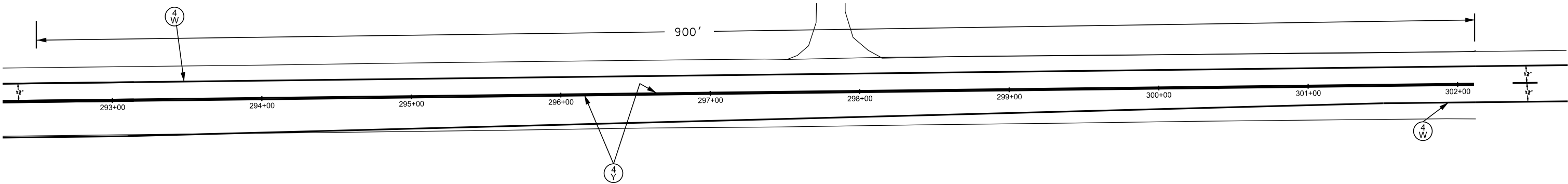
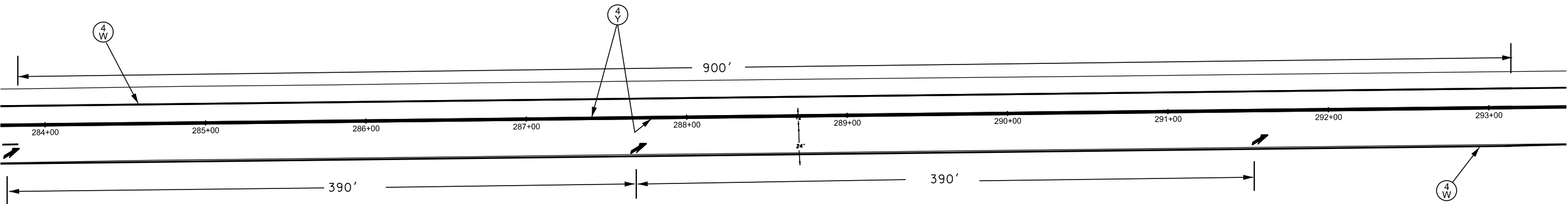
PAVEMENT MARKING LAYOUT
U.S. HWY 12
TYPICAL LANE REDUCTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	46	52
Plotting Date: 02/06/2024			

(Sheet 35 of 36)



NOT TO SCALE



PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PLOT NAME - 35

FILE - ... \LANE DROP.DGN

PLOT SCALE - 1"=40'

PLOTTED FROM - TRAB17882

PAVEMENT MARKING LAYOUT U.S. HWY 12

TYPICAL EASTBOUND PASSING LANE

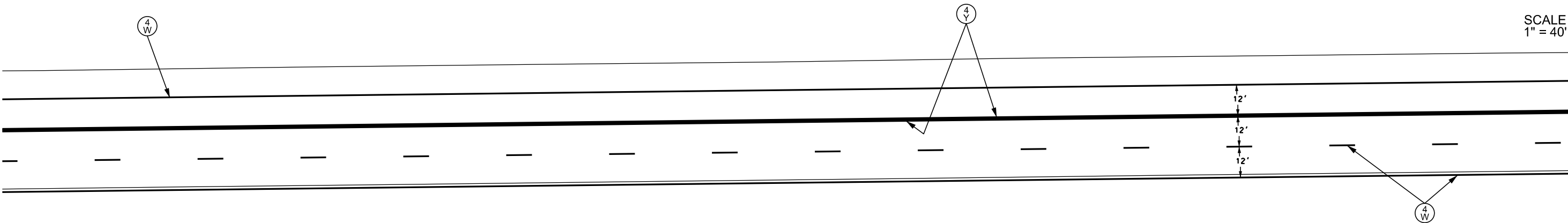
224+96 to 283+84
806+38 to 853+30

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	47	52
Plotting Date: 02/06/2024			

(Sheet 36 of 36)

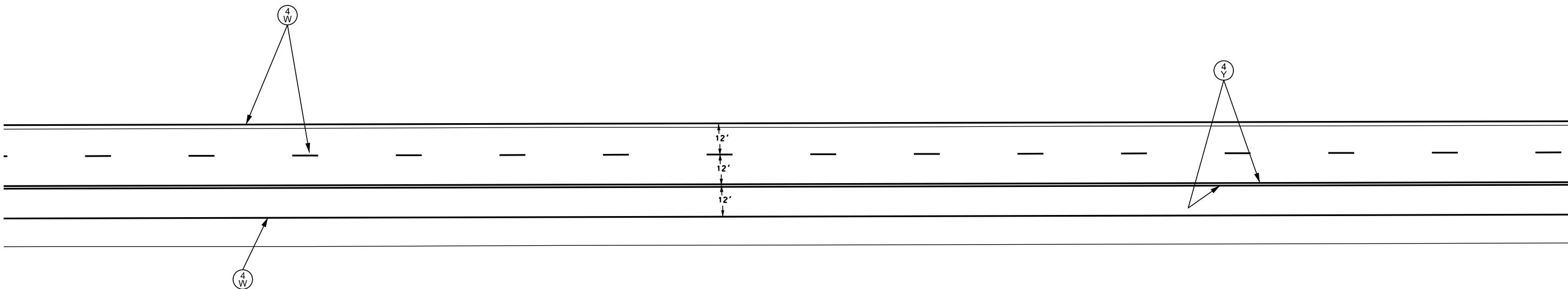


SCALE
1" = 40'



TYPICAL WESTBOUND PASSING LANE

477+88 to 525+54
1000+05 to 1006+94
1025+10 to 1044+24



FILE - ... \TYPICAL PASSING LANE.DGN

PLOT SCALE - 1:40

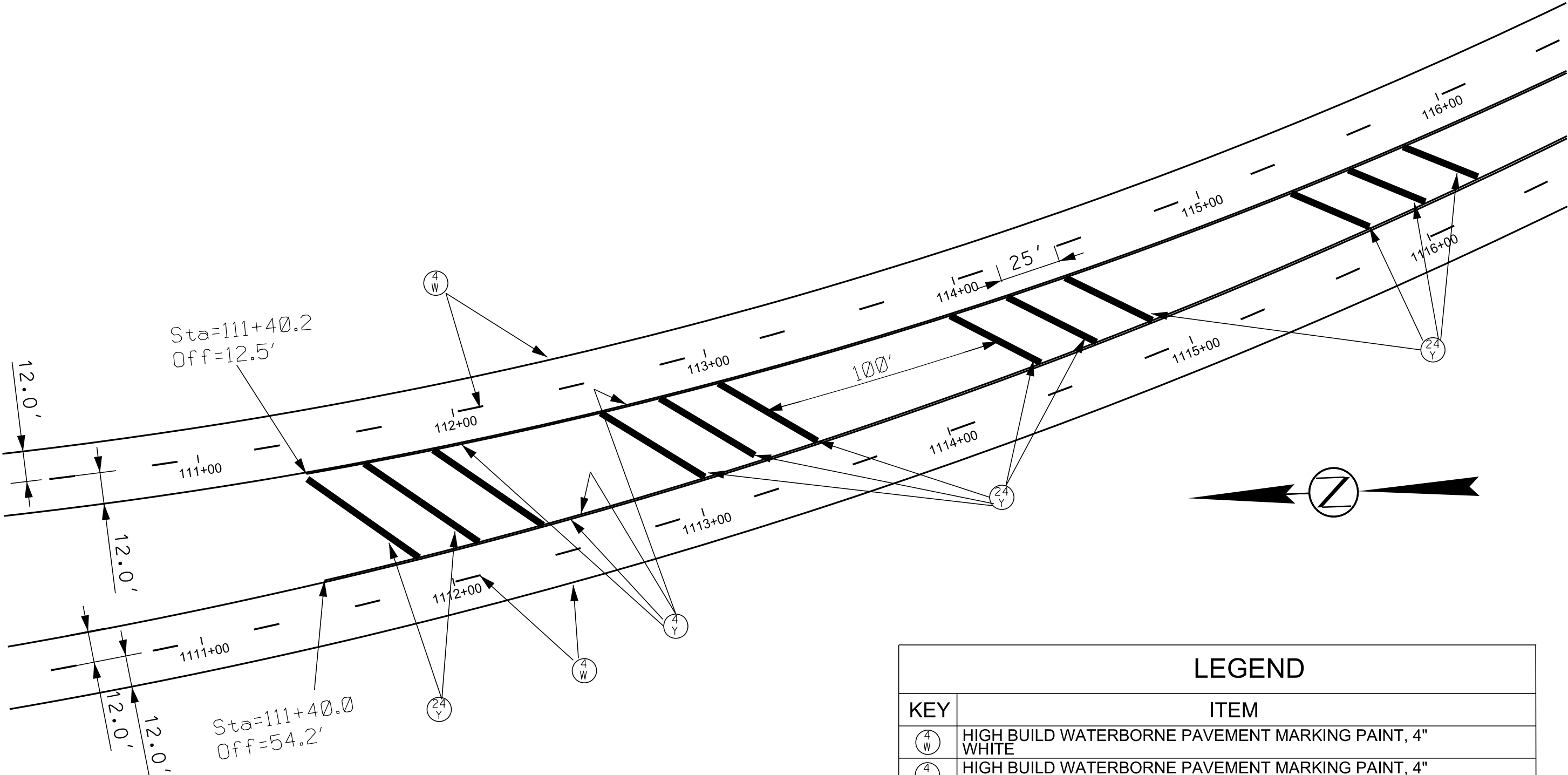
PLOTTED FROM - TRAB17882

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	48	52
Plotting Date: 02/02/2024			

(Sheet 1 of 5)

PAVEMENT MARKING LAYOUT

US HWY 14 & US 81 JCT



LEGEND	
KEY	ITEM
(4 W)	HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT, 4" WHITE
(4 Y)	HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT, 4" YELLOW
(24 Y)	24" YELLOW
↩	ARROW LEFT

PLOT NAME - 1

FILE - ...\\111PM.DGN

PLOT SCALE - 1"=40'

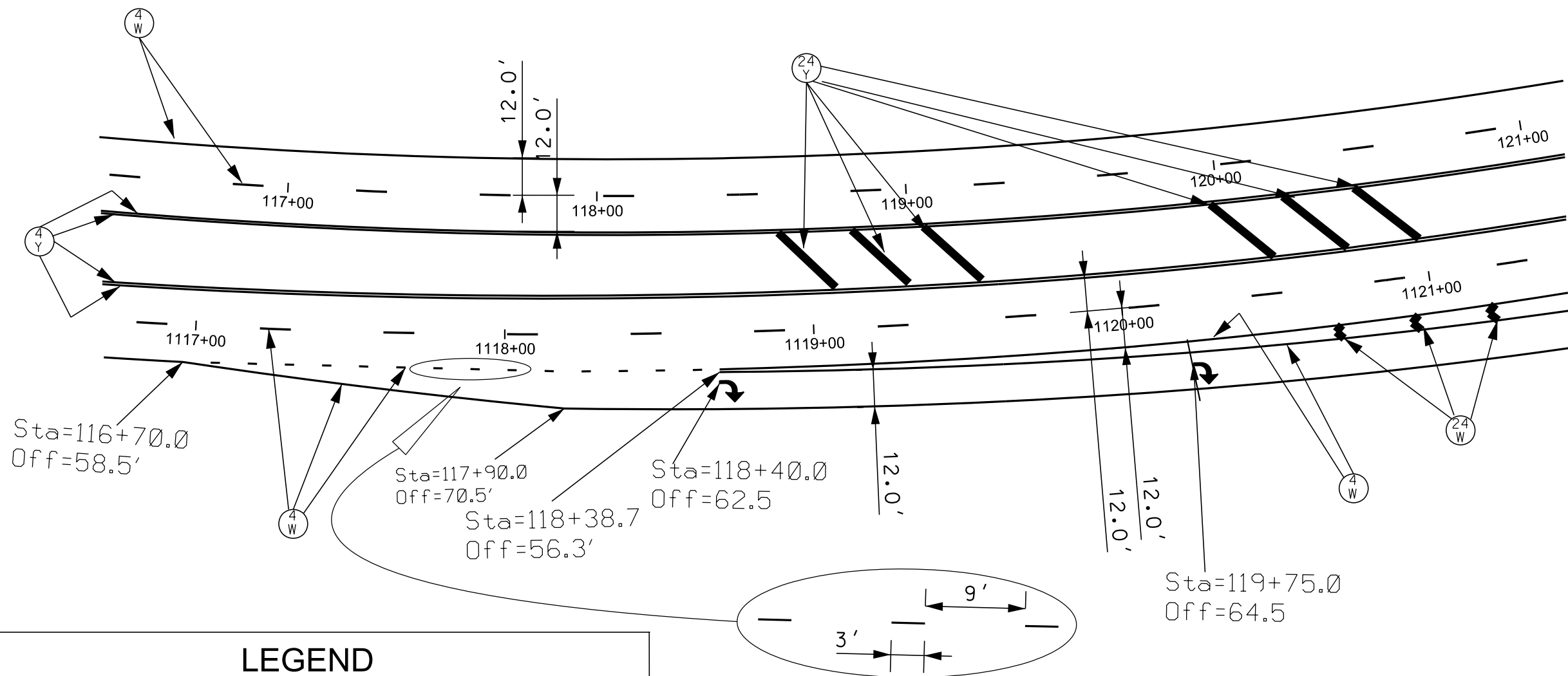
PLOTTED FROM - TRAB17882

PAVEMENT MARKING LAYOUT

US HWY 14 & US 81 JCT

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	49	52
Plotting Date: 02/02/2024			

(Sheet 2 of 5)

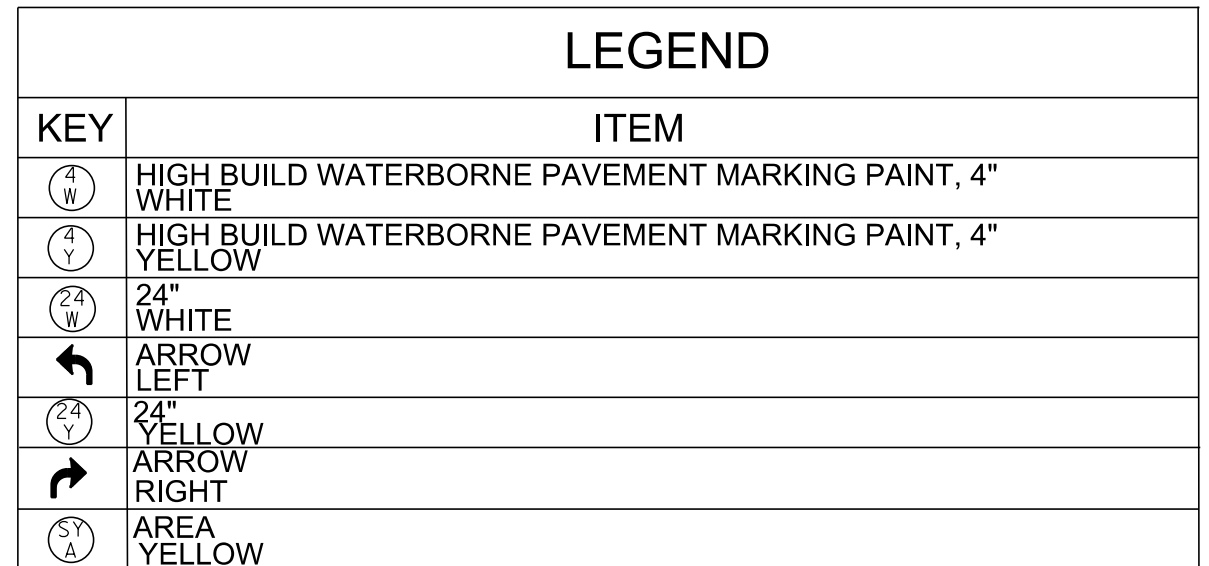


PLOT NAME - 2

FILE - ...\\117PM.DGN

US HWY 14 & US HWY 81 JCT

(Sheet 3 of 5)



PLOTTED FROM - TRAB17882

FILE - ... \121PM.DGN

PLOT SCALE - 1"=40'

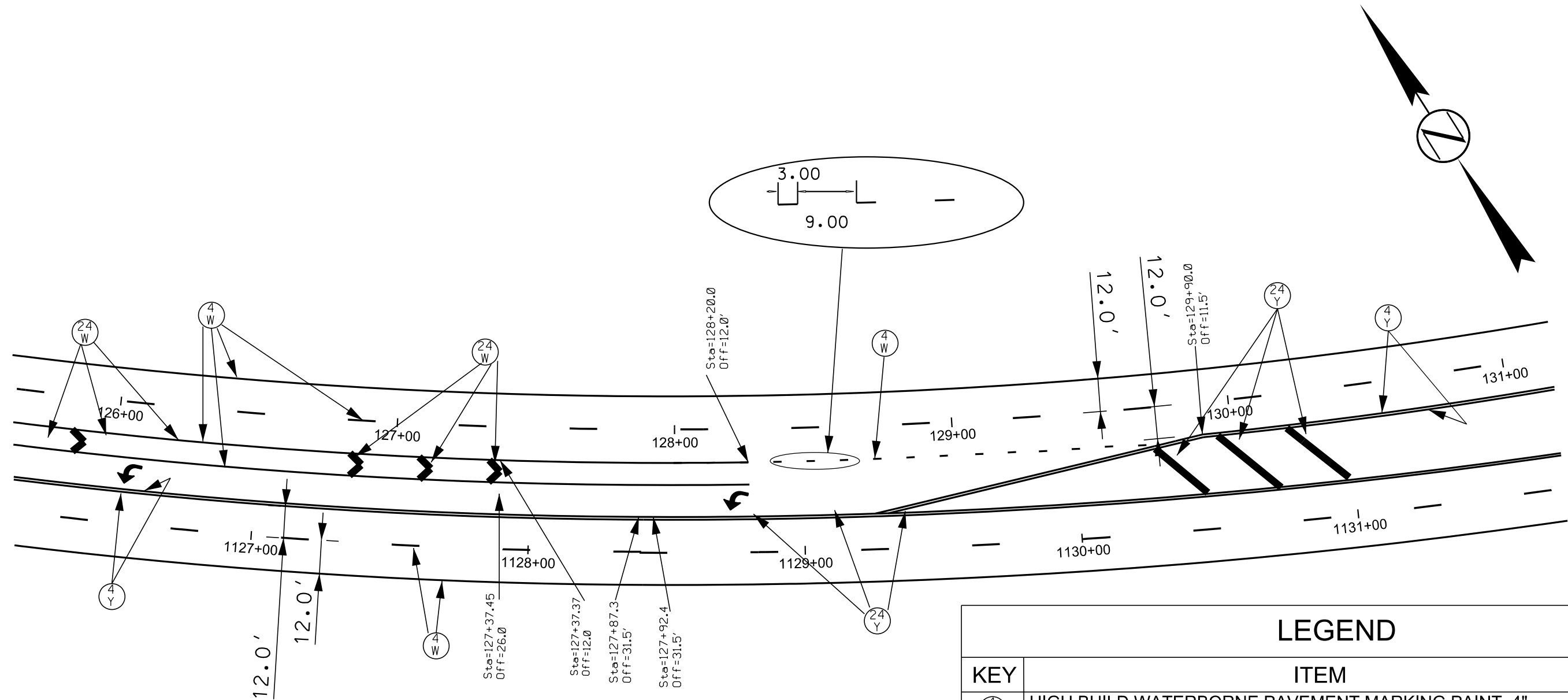
PLOTTED FROM - TRAB17882

PAVEMENT MARKING LAYOUT

US HWY 14 & US HWY 81 JCT

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	51	52
Plotting Date: 02/02/2024			

(Sheet 4 of 5)



LEGEND	
KEY	ITEM
(4 W)	HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT, 4" WHITE
(4 Y)	HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT, 4" YELLOW
(24 W)	24" WHITE
↩	ARROW LEFT
(24 Y)	24" YELLOW

PLOT NAME - 4

FILE - ... \126PM.DGN

PLOT SCALE - 1"=40'

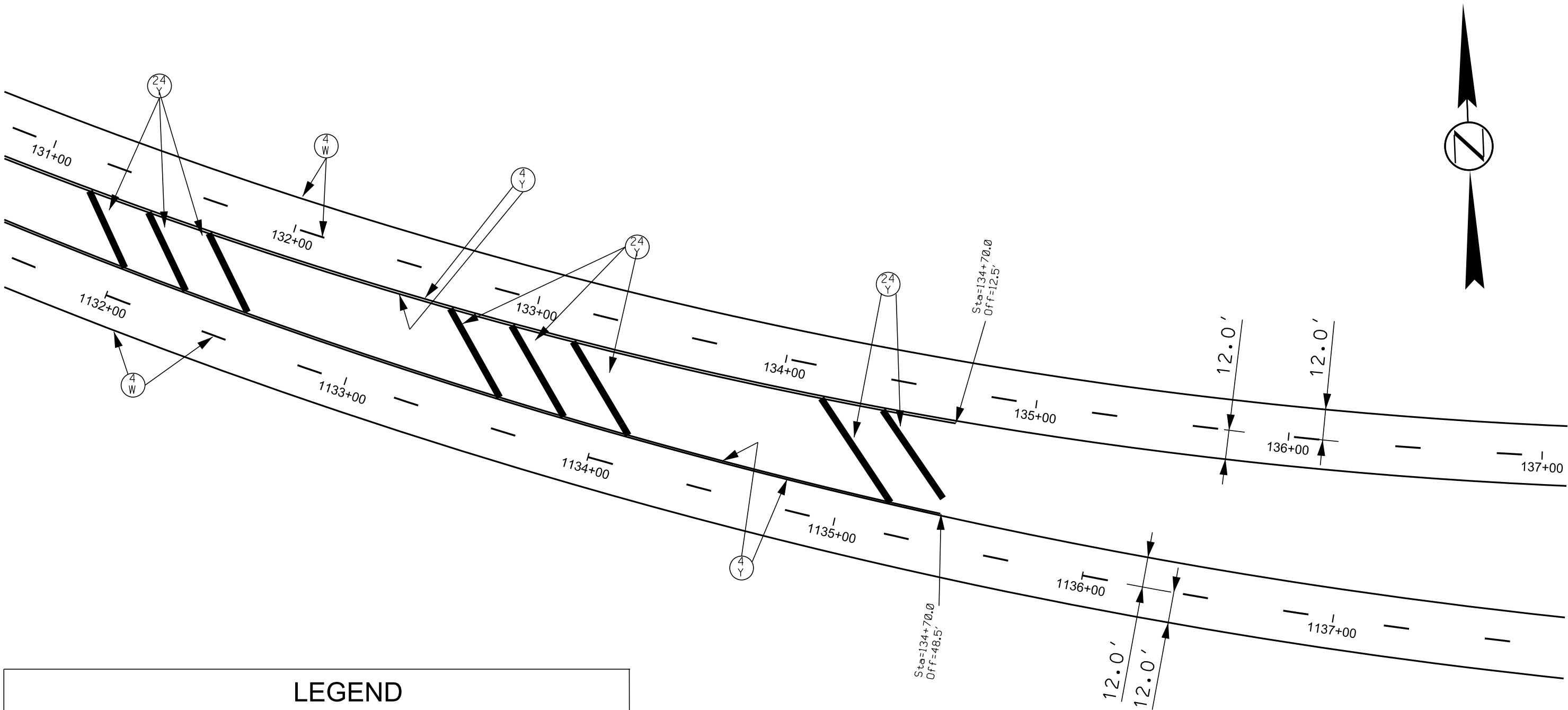
PLOTTED FROM - TRAB17882

PAVEMENT MARKING LAYOUT

US HWY 14 & US HWY 81 JCT

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-169 & 000N-169	52	52
Plotting Date: 02/02/2024			

(Sheet 5 of 5)



LEGEND

KEY	ITEM
(4W)	HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT, 4" WHITE
(4Y)	HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT, 4" YELLOW
(24Y)	24" YELLOW
↩	ARROW LEFT

PLOT NAME - 5

FILE - ... \131PM.DGN