SECTION M: PAVEMENT MARKING PLANS

FOR BIDDING PURPOSES ONLY

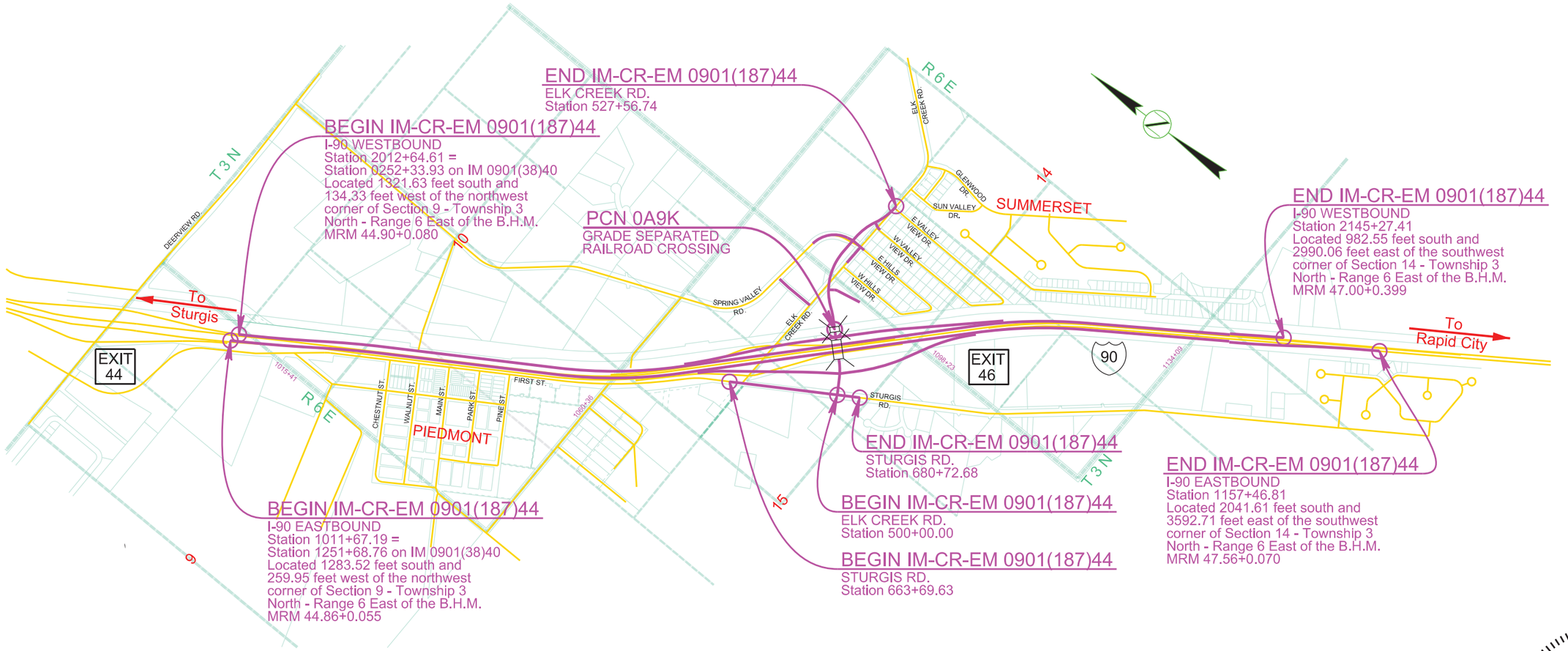
FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M1	M43

Plotting Date: 3/6/2026

Rev: 9/8/2025 BRC
Rev: 3/6/2026 MRM

INDEX OF SHEETS

M1	General Layout with Index
M2	Estimate of Quantities
M3-M5	General Notes & Tables
M6-M41	Pavement Marking Layouts
M42-M43	Standard Plates and Details



Plotted From - Marcus.Martinez

Plot Scale - 1:1400

File - ...\MEAD034J\Section\MittleM.dgn

LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
3-6-2026

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M2	M43

Plotting Date: 10/3/2025 Rev: 9/25/2025 BRC
Rev: 9/30/2025 BRC

SECTION M ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
633E0010	Cold Applied Plastic Pavement Marking, 4"	34,560	Ft
633E0019	Cold Applied Plastic Pavement Marking, 4" with Contrast Border	9,760	Ft
633E0025	Cold Applied Plastic Pavement Marking, 12"	3,480	Ft
633E0030	Cold Applied Plastic Pavement Marking, 24"	262	Ft
633E0040	Cold Applied Plastic Pavement Marking, Arrow	35	Each
633E0225	Preformed Thermoplastic Pavement Marking, 24"	412	Ft
633E1201	High Build Waterborne Pavement Marking Paint with Reflective Elements, White	132	Gal
633E1206	High Build Waterborne Pavement Marking Paint with Reflective Elements, Yellow	177	Gal
633E5000	Grooving for Cold Applied Plastic Pavement Marking, 4"	34,560	Ft
633E5004	Grooving for Cold Applied Plastic Pavement Marking, 4" with Contrast Border	9,760	Ft
633E5010	Grooving for Cold Applied Plastic Pavement Marking, 12"	3,480	Ft
633E5015	Grooving for Cold Applied Plastic Pavement Marking, 24"	674	Ft
633E5025	Grooving for Cold Applied Plastic Pavement Marking, Arrow	35	Each
633E5050	Surface Preparation for Pavement Marking	6,610	Ft
633E5100	Grooving for Durable Pavement Marking, 4"	51,970	Ft

LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plot Scale - 1:200

Plotted From - Marcus.Martinez

File - ...\Section\MCES_EOQ_Table.dgn

PAVEMENT MARKING PAINT

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

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

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

Marking 8-inch edge lines and gore areas will require the use of 2 spray nozzles to achieve the required width. Marking 12-inch gore lines will require the use of 3 spray nozzles to achieve the required width.

COLD APPLIED PLASTIC PAVEMENT MARKING

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

Cold Applied Plastic Pavement Markings will be 3M Stamark High Performance Tape Series 380 IES or an approved equal.

Cold Applied Plastic Pavement Markings with Contrast Border will be 3M Stamark High Performance Tape Series 380IES or an approved equal. Tape with a 4" white width would have a 1.5" black contrast width on each side.

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

For asphalt surface treatments:

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

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

For concrete surface treatments:

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

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

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

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

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

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

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

Initial readings:

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

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

RATES OF MATERIALS FOR 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.

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/m^2/lux for white and 170 mc/m^2/lux for yellow.

MARKINGS WITHIN SINUSOIDAL CENTERLINE RUMBLE STRIPES

Sinusoidal rumble stripes will receive an asphalt surface treatment to seal the centerline joint and minimize the depth of water held on centerline.

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.

GROOVING FOR COLD APPLIED PLASTIC PAVEMENT MARKING

The Contractor will establish a positive means for the removal of the grinding and/or grooving residue. Residue from dry grooving will be vacuumed. Solid residue will be removed from the pavement surfaces before being blown by traffic action or wind. The Contractor will conduct this work to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or nuisance to property owners. Residue from wet grooving will not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, will be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state. The cleaning of the residue for grooving will be to the satisfaction of the Engineer and may require more than one pass to adequately remove material. Grooving width shall be 1"-2" greater than width of pavement marking tape. All costs for removal of grinding and/or grooving residue will be included in the contract unit price per foot or square foot for "Grooving for Cold Applied Plastic Pavement Marking" contract items.

LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

GROOVING FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

The Contractor will establish a positive means for the removal of the grinding and/or grooving residue. Residue from dry grooving will be vacuumed. Solid residue will be removed from the pavement surfaces before being blown by traffic action or wind. The Contractor will conduct this work to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or nuisance to property owners. Residue from wet grooving will not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, will be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state. All costs for removal of grinding and/or grooving residue will be included in the contract unit price per foot for “Grooving for Durable Pavement Marking” contract item.

Unless otherwise specified in the plans, the Contractor will groove the surface for High Build Waterborne Pavement Marking Paint as specified in these plans and as per the manufacturer’s instructions.

The grooving will be completed within the following tolerances:

Description	Specification	Tolerance
Depth of Groove	Marking Thickness[1] + 15 mils	+ 5 mils
Width of Groove	5 to 6 inches	
Length of Skip Lines[2]	10 foot 6 inches	± 3 inch
Tapers at ends of lines	6 to 9 inches	
Between Double Lines	4 inches	± 1/2 inch

[1] Marking thickness will include the thickness of marking material and reflective media.
[2] Additional length may be required as specified in the plans.

The equipment will 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.
- Provide uniform alignment and depth.
- Moving continuously to permit a mobile traffic work operation.

If damage occurs, including, but not limited to, joints, joint sealant material, and backer rod, the grooving operation will be stopped, and modifications will be made to the grooving operation to prevent further damage. The Contractor will be required to use specially prepared circular diamond blade cutting heads to prevent damage at the joints. Damage caused will 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.

SURFACE PREPARATION FOR PAVEMENT MARKING

The Contractor will prepare the pavement surface prior to applying the durable pavement marking in accordance with the following.

In areas where the existing groove meets the required depth and existing markings are still in place, the Contractor will clean the existing groove without adding additional depth beyond the required depth for the new pavement marking, including reflective media as noted below.

Description	Specification	Tolerance
Depth of Groove	Marking Thickness[1] + 15 mils	+ 5 mils

[1] Marking thickness will include the thickness of marking material and reflective media.

The cleaning will result in the existing pavement marking being adequately scuffed, abraded, and removed by light grinding or abrasive blasting or both to allow proper adhesion of the new durable pavement marking as per the manufacturer’s recommendations to comply with product warranties.

Existing grooves not meeting the required depth will be re-grooved to the required depth for the new pavement marking, including reflective media. Equipment for grooving will 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.
- Provide uniform alignment and depth.
- Moving continuously to permit a mobile traffic work operation.

All costs associated with cleaning of the existing groove, including re-grooving, if needed, will be included in the contract unit price per foot for “Surface Preparation for Pavement Marking”. Surface preparation will be measured as 4” equivalent.

PREFORMED THERMOPLASTIC PAVEMENT MARKING

General

- Made of prefabricated retroreflective, resilient thermoplastic material;
- Contains glass beads uniformly distributed through the entire cross-sectional area;
- Capable of being affixed to bituminous or concrete pavement by heating;
- Resistant to deterioration due to exposure to sunlight, water, salt, and adverse weather conditions;
- Under traffic wear, shows no appreciable fading in accordance with the color requirements, lifting, or shrinkage throughout the life of the marking;
- Capable of conforming to pavement contours, breaks, and faults through the action of traffic at normal pavement temperatures;
- Possesses resealing characteristics, such that it is capable of fusing with itself and previous thermoplastic markings when heated; and
- Protected during shipment and in storage.

Apply the preformed thermoplastic pavement marking as recommended by the manufacturer to provide a neat, durable marking that will not flow, distort, or crack due to temperature if the pavement surface remains stable. Use equipment and application methods specified by the manufacturer. Primer as required by the manufacturer will be provided with the material.

Application of the markings will include the use of any manufacturer recommended sealers. Sealers may be required on concrete pavements, inside grooves, or on older asphalt pavements. Prior to placing any markings on new concrete, the Contractor will remove any curing compounds. Removal will be by sandblasting or other standard industry methods.

Any required primers or sealers will be included in the contract unit price for the various preformed thermoplastic pavement marking items.

Provide precut messages and symbols meeting the requirements of the MUTCD and the Standard Signs Manual in custom kits. Use separate pieces or segments to form individual letters or symbols only to the extent supplied by the manufacturer. Provide shapes, sizes, and colors as required by the contract.

Color

- Will meet the color specification limits and luminance factors for Cold Applied Plastic Pavement Marking and Legends (Section 983.2 D, Tables 1 and 2).

Glass Beads

- Ensure the preformed thermoplastic pavement marking contains a minimum 30% intermixed glass beads by weight and a minimum 80% true spheres.
- Ensure preformed thermoplastic pavement markings contain only clear beads.

Skid Resistance

- Ensure the surface of the preformed thermoplastic pavement marking provides a skid resistance value of at least 45 British Pendulum Number (BPN) when tested in accordance with ASTM E303.

Plotting Date: 10/2/2025
Rev: 9/25/2025 BRC
Rev: 9/30/2025 BRC

Retroreflectivity

- Provide preformed thermoplastic pavement marking meeting the minimum initial pavement marking retroreflectivity values using 30 m geometry and meeting the testing procedures of ASTM E1710:

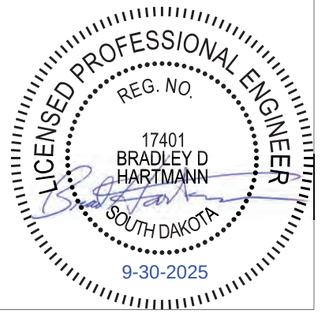
Minimum Initial Pavement Marking Retroreflectivity		
	White	**Yellow**
Thermoplastic	400 mcd/sq. ft./ft.	250 mcd/sq. ft./ft.
Thermoplastic, enhanced skid resistance (ESR)	250 d/sq. ft./ft.	150 d/sq. ft./ft.

Thickness

- A longitudinal marking is a minimum 90 mils thick at the edges, and a maximum 125 mils thick at the center of the stripe.
- Transverse markings and symbols are a minimum 125 mils thick at the edges, and a maximum 160 mils thick at the center.

Sample

- Prior to application, the Contractor will provide a sample of the preformed thermoplastic pavement marking to be used on the project to the Region Traffic Engineer for inspection and approval.
- Do not begin application of the preformed thermoplastic pavement marking prior to obtaining the Region Traffic Engineer's approval of the preformed thermoplastic pavement marking material. The Region Traffic Engineer's approval of the preformed thermoplastic pavement marking does not void other preformed thermoplastic pavement marking requirements specified.

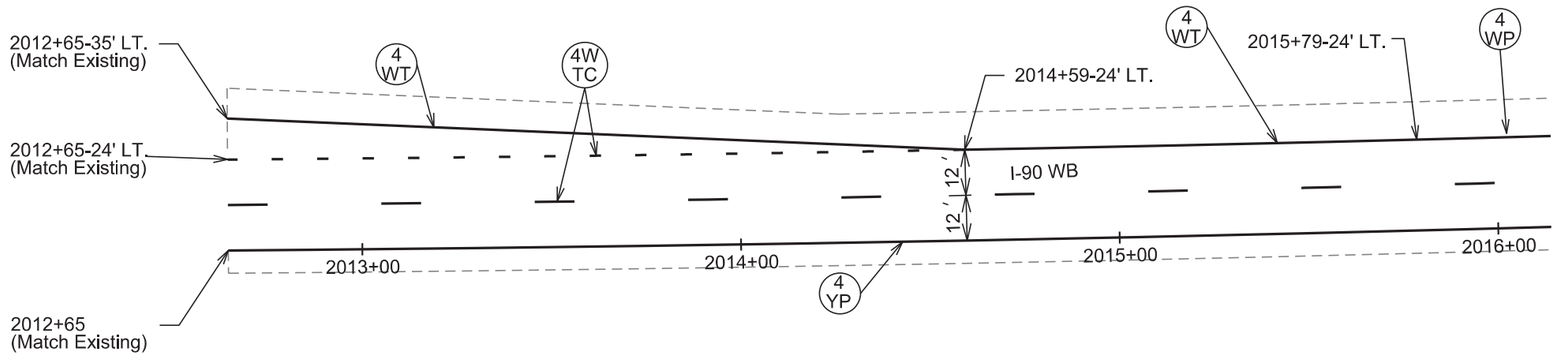


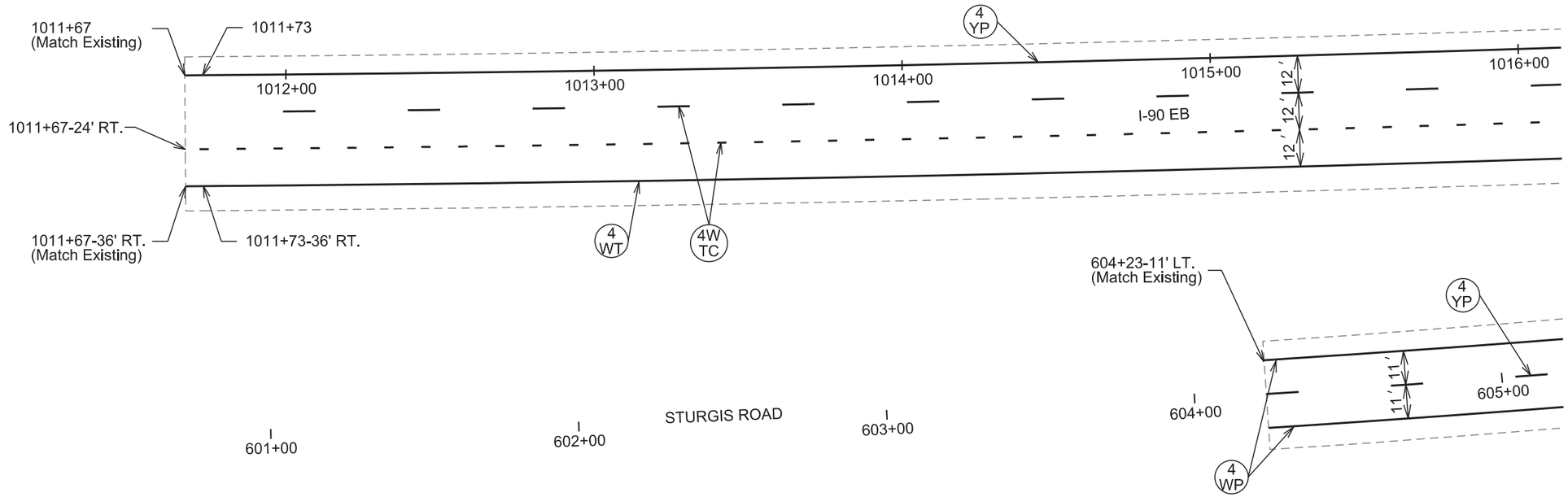
FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M6	M43

Plotting Date: 10/3/2025 Rev: 02/04/2025 LPZ
Rev: 9/30/2025 BRC

PAVEMENT MARKING LAYOUT
I-90 & STURGIS ROAD

KEY	ITEM	QUANTITY	UNIT
4WTC	4" White Tape with Contrast Border	9,760	Ft
4WT	4" White Tape	18,150	Ft
4YT	4" Yellow Tape	16,410	Ft
4WP	4" White Paint	132	Gal
4YP	4" Yellow Paint	177	Gal
12WT	12" White Tape	3,480	Ft
24WT	24" White Thermoplastic	412	Ft
24YT	24" Yellow Tape	262	Ft
	Arrow White Tape, Right	7	Ea
	Arrow White Tape, Left	28	Ea





LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plot Scale - 1:40

Plotted From - Marcus.Martinez

File - ...\MEAD0344\SectionM\1010pm.dgn

PAVEMENT MARKING LAYOUT
I-90 & STURGIS ROAD

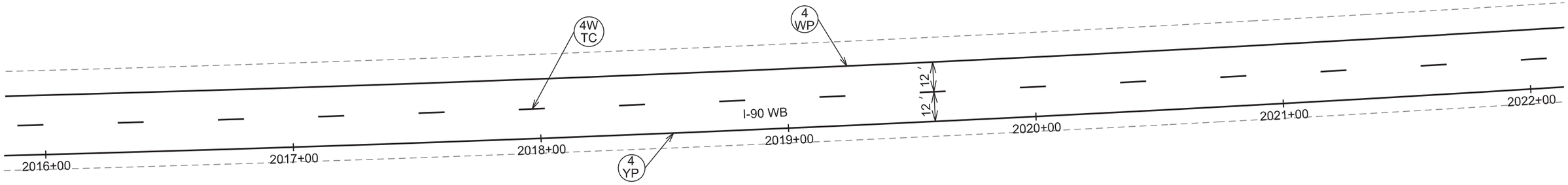
FOR BIDDING PURPOSES ONLY

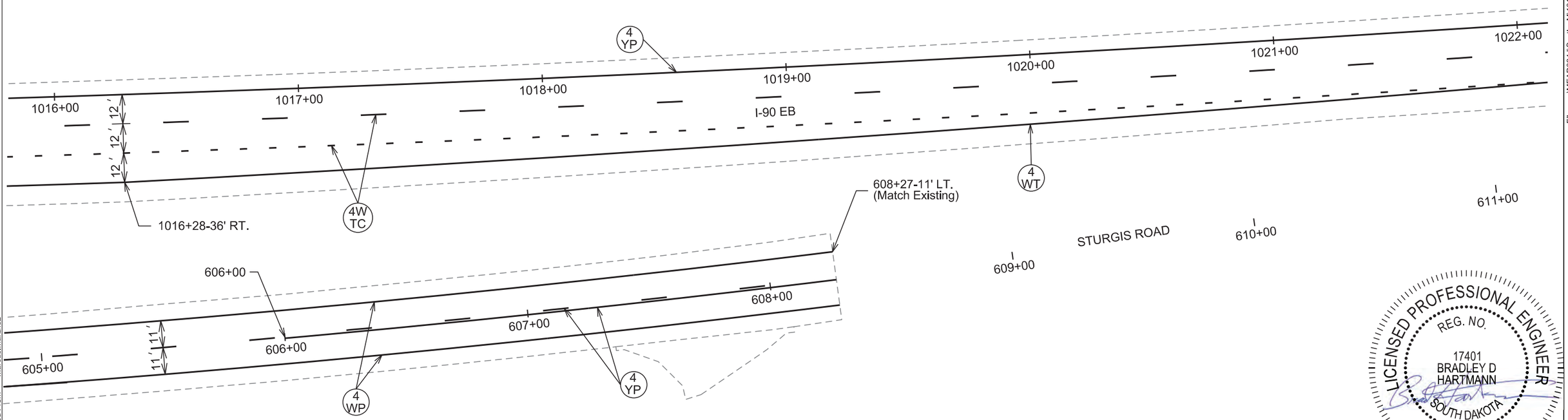
FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M7	M43

Plotting Date: 10/3/2025

Rev: 02/04/2025 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40





LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1016pm.dgn

PAVEMENT MARKING LAYOUT
I-90 & STURGIS ROAD

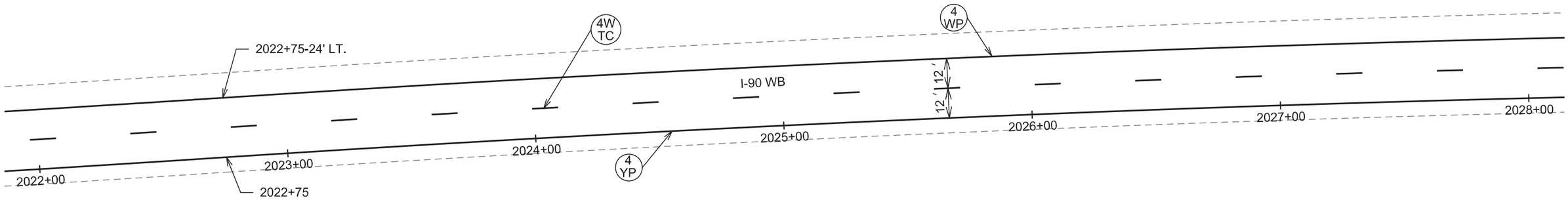
FOR BIDDING PURPOSES ONLY

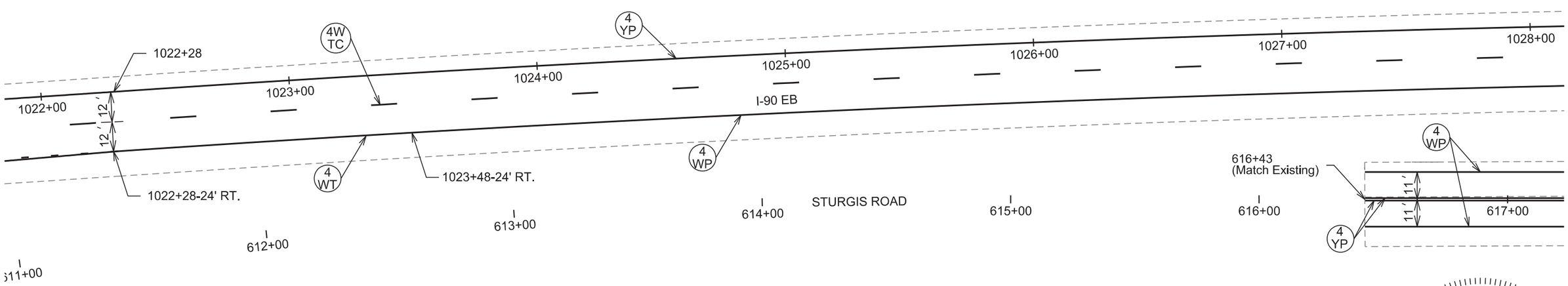
FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M8	M43

Plotting Date: 10/3/2025

Rev: 02/05/2025 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40





LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1022pm.dgn

PAVEMENT MARKING LAYOUT
I-90 & STURGIS ROAD

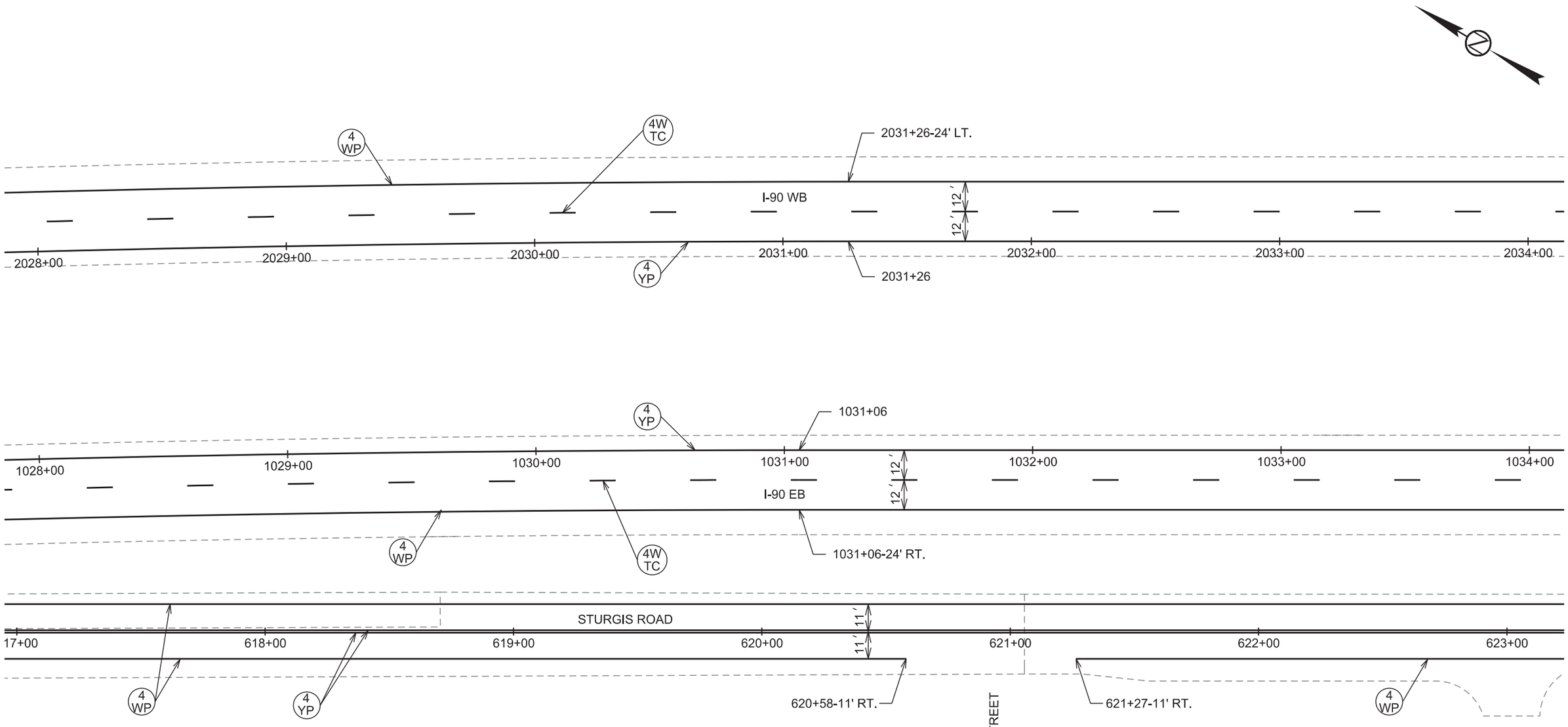
FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M9	M43

Plotting Date: 10/3/2025

Rev: 02/04/2025 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD0343\Section\M1028pm.dgn

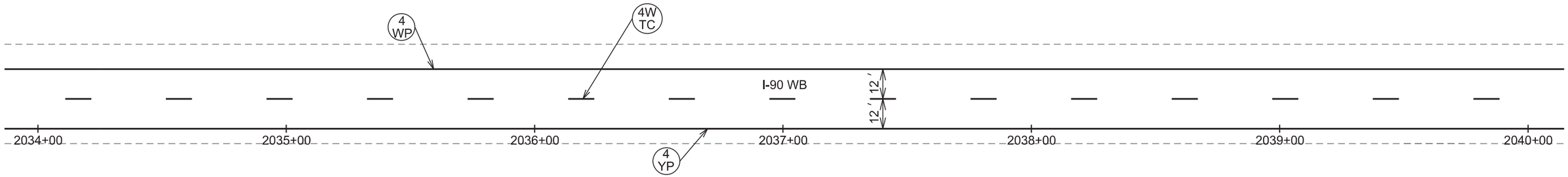
PAVEMENT MARKING LAYOUT
I-90 & STURGIS ROAD

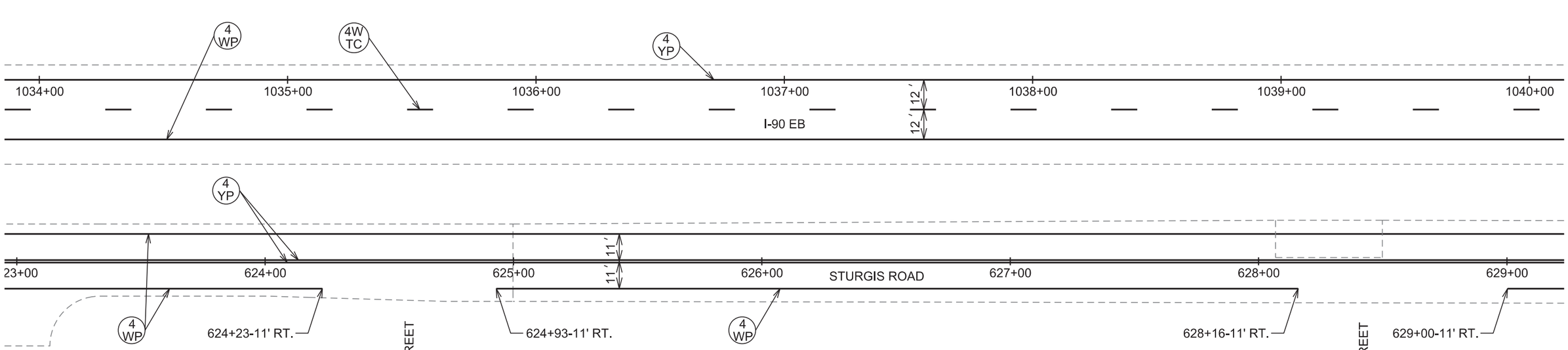
FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M10	M43

Plotting Date: 10/3/2025 Rev: 12/05/2024 LPZ Rev: 9/30/2025 BRC

Plot Scale - 1:40





LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD0034J\SectionMf\1034pm.dgn

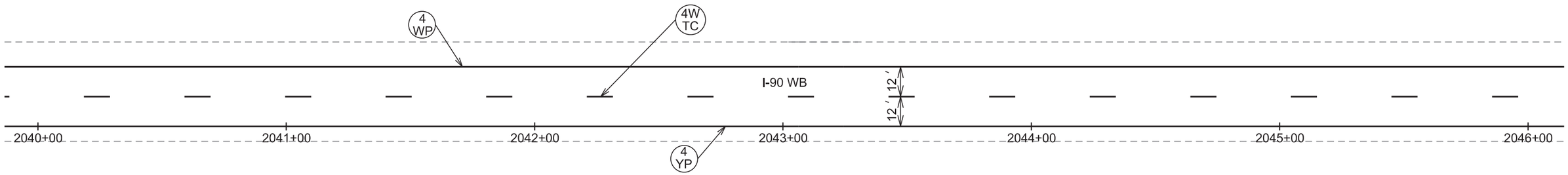
PAVEMENT MARKING LAYOUT
I-90 & STURGIS ROAD

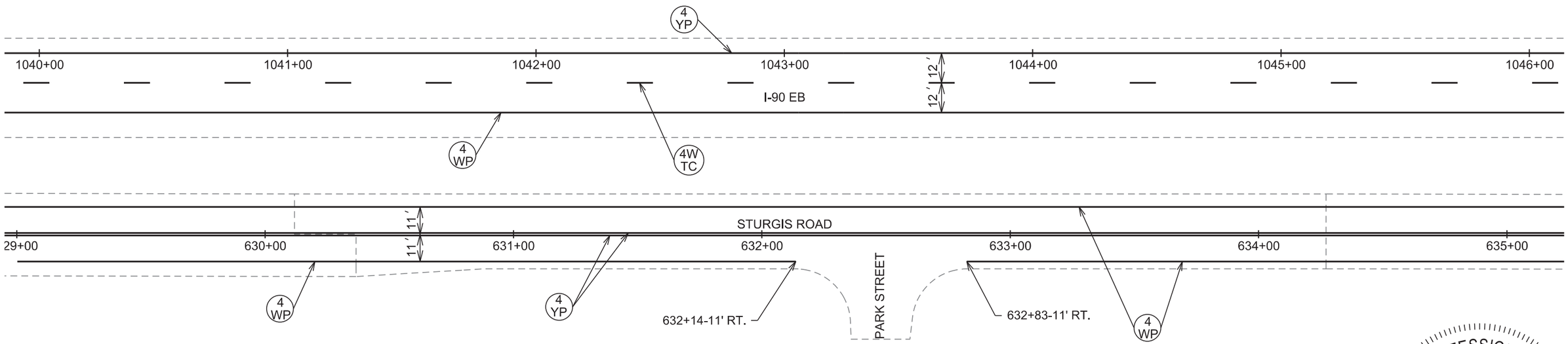
FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M11	M43

Plotting Date: 10/3/2025

Rev: 02/04/2025 LPZ
Rev: 9/30/2025 BRC

Plot Scale = 1:40





LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

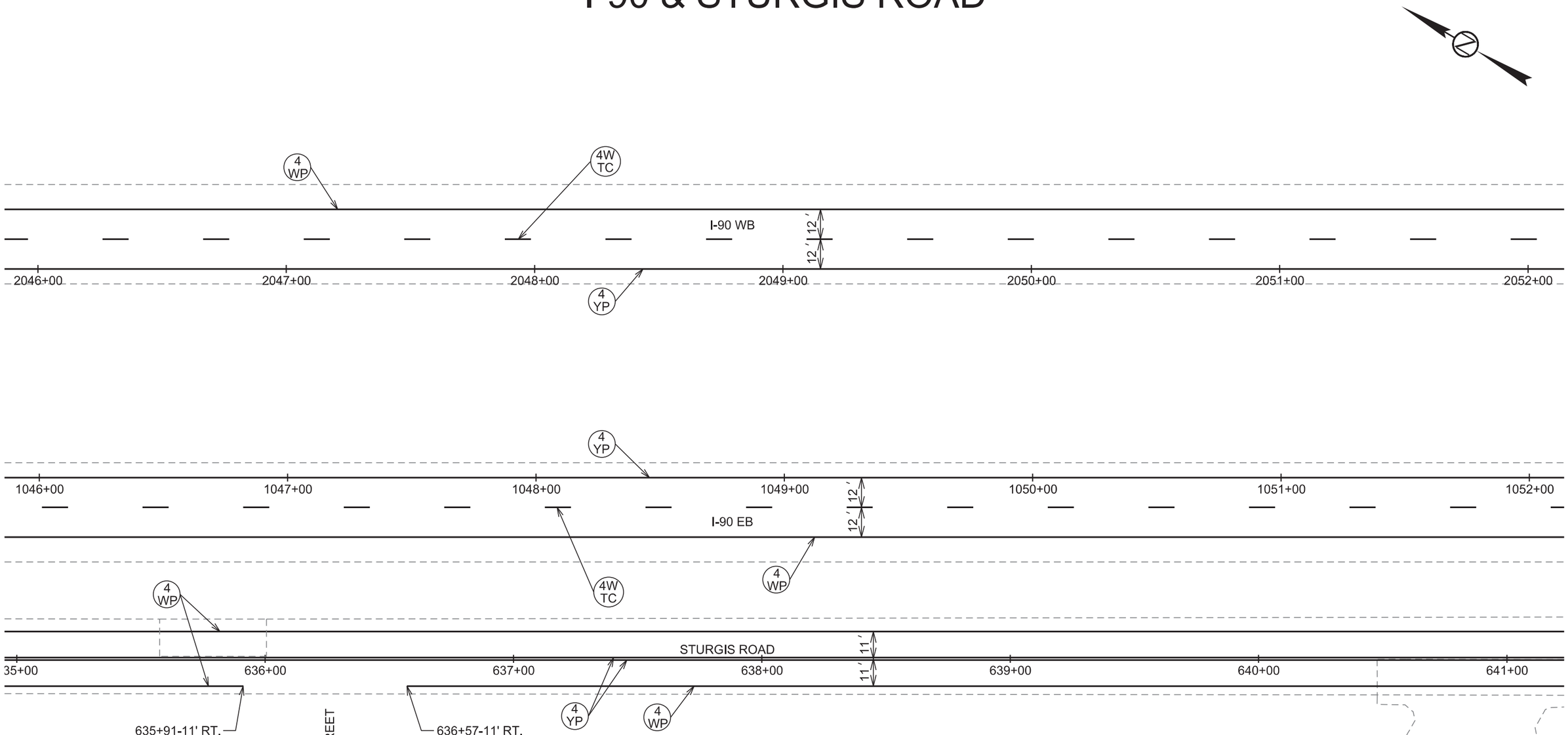
Plotted From - Marcus.Martinez

File - ...\MEAD0034J\Section\M1\1040pm.dgn

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M12	M43

Plotting Date: 10/3/2025 Rev: 02/04/2025 LPZ
Rev: 9/30/2025 BRC

PAVEMENT MARKING LAYOUT
I-90 & STURGIS ROAD



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plot Scale - 1:40

Plotted From - Marcus.Martinez

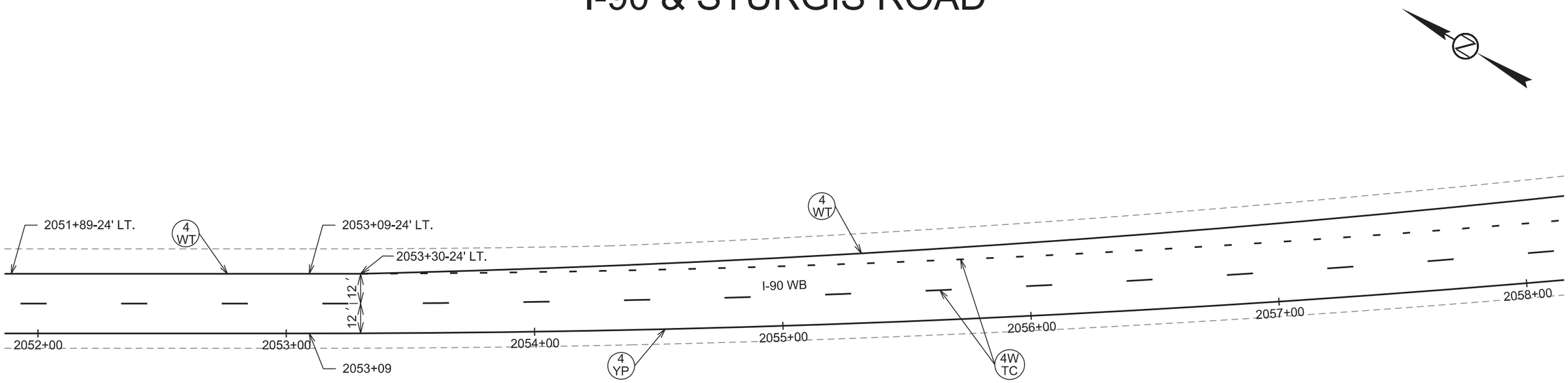
File - ...\MEAD034J\Section\M1\1046pm.dgn

Plotting Date: 10/3/2025

Rev: 02/04/2025 LPZ
Rev: 9/30/2025 BRC

PAVEMENT MARKING LAYOUT
I-90 & STURGIS ROAD

Plot Scale - 1:40



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1052pm.dgn

PAVEMENT MARKING LAYOUT
I-90

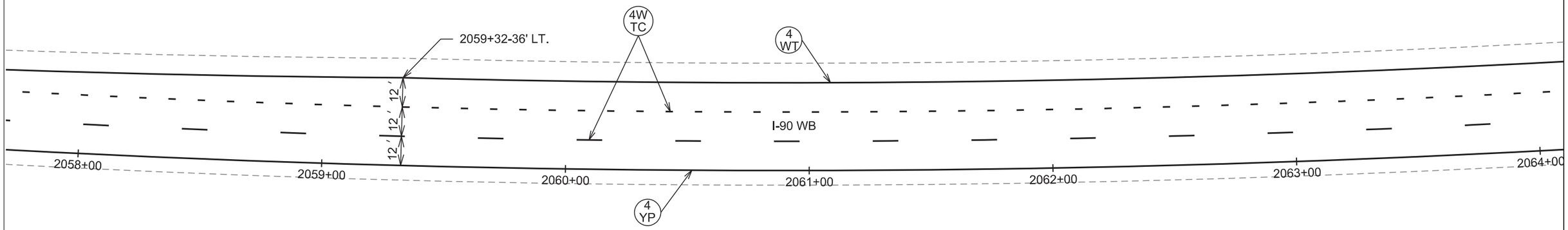
FOR BIDDING PURPOSES ONLY

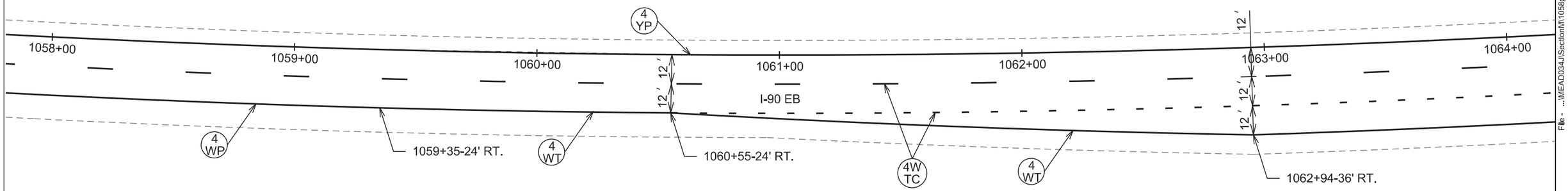
FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M14	M43

Plotting Date: 10/3/2025

Rev: 02/04/2025 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40





LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1058pm.dgn

PAVEMENT MARKING LAYOUT
I-90

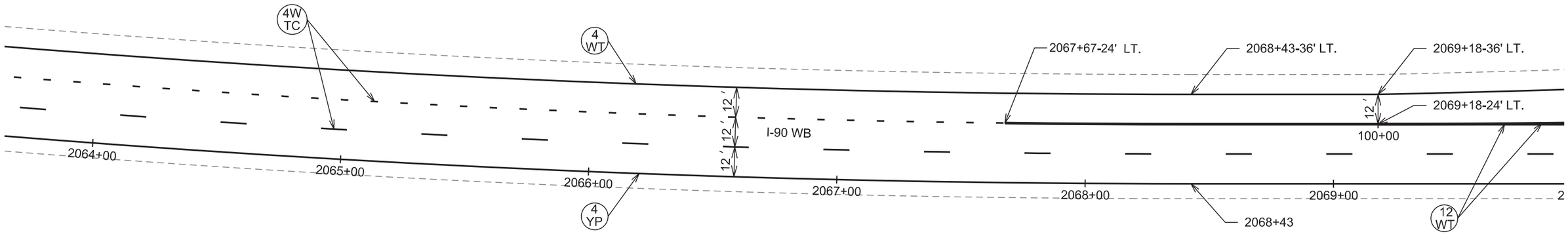
FOR BIDDING PURPOSES ONLY

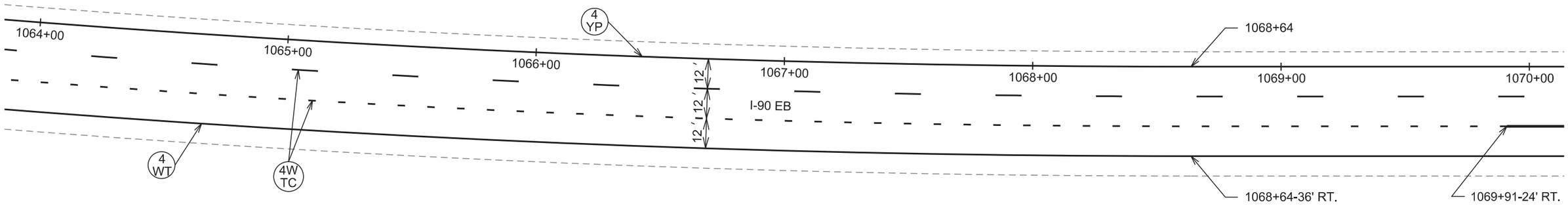
FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M15	M43

Plotting Date: 10/3/2025

Rev: 12/05/2024 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40





LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1064pm.dgn

PAVEMENT MARKING LAYOUT
I-90 & RAMPS

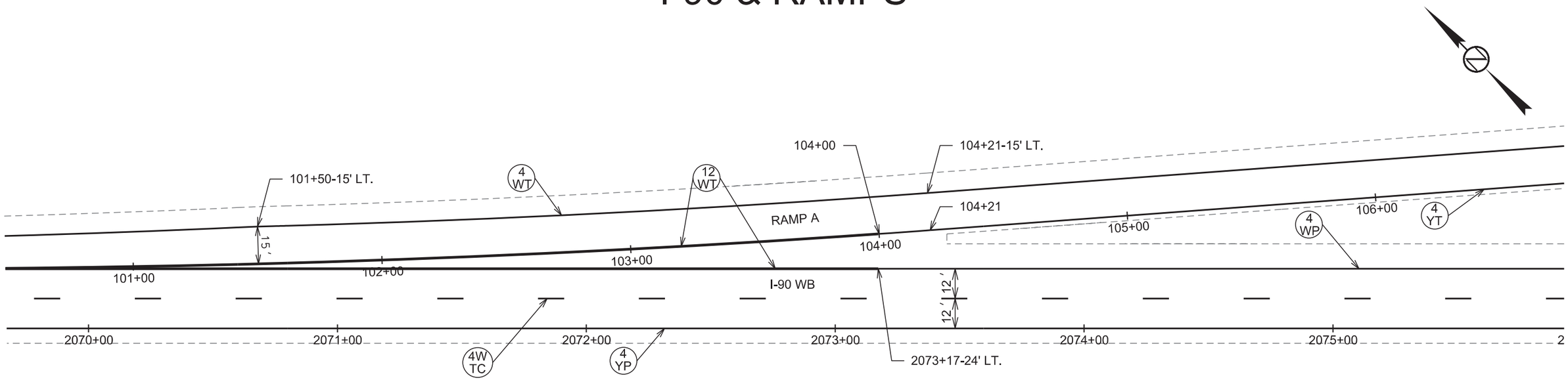
FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M16	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M\1070pm.dgn

PAVEMENT MARKING LAYOUT

I-90

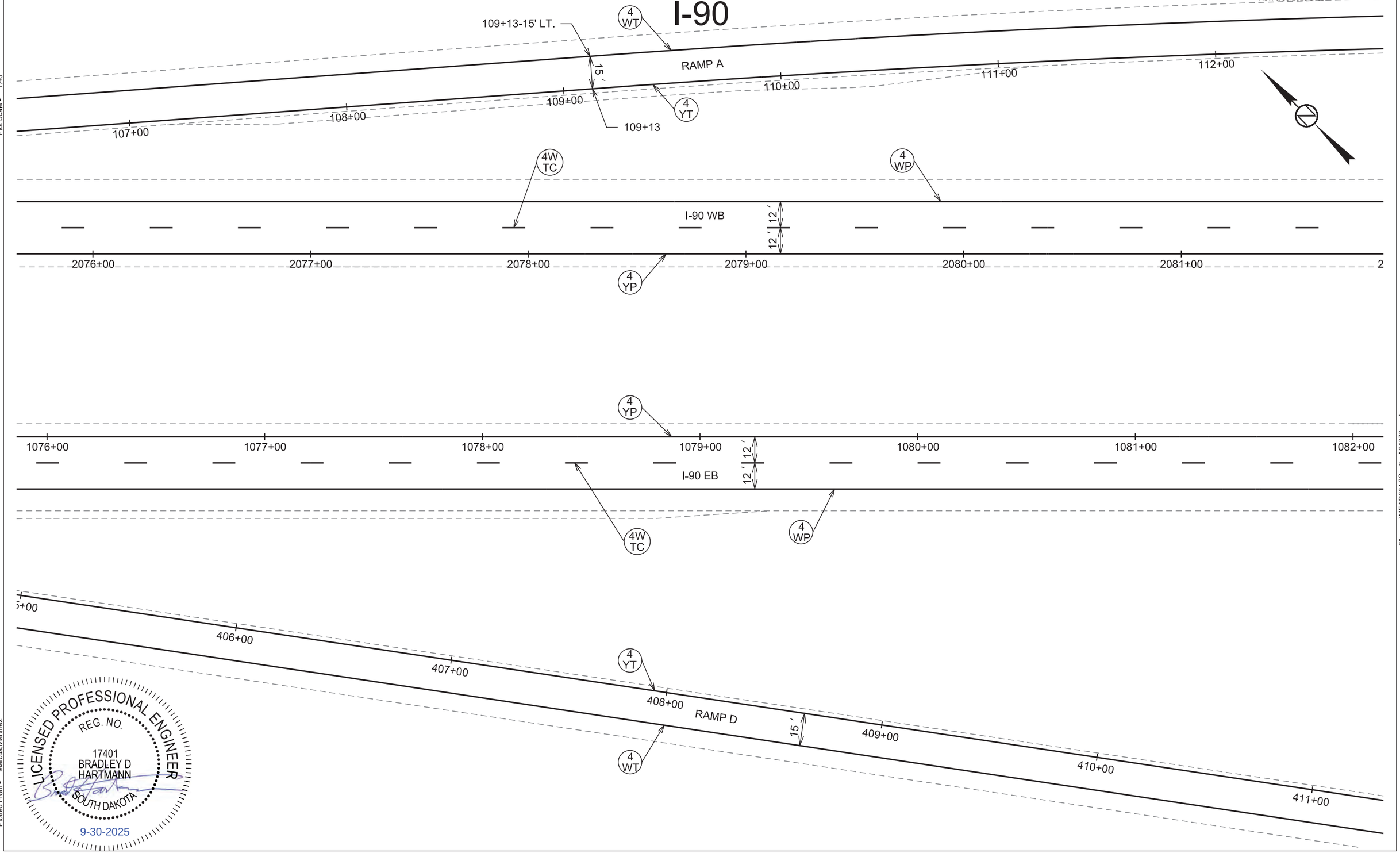
FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M17	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1076pm.dgn

PAVEMENT MARKING LAYOUT
I-90

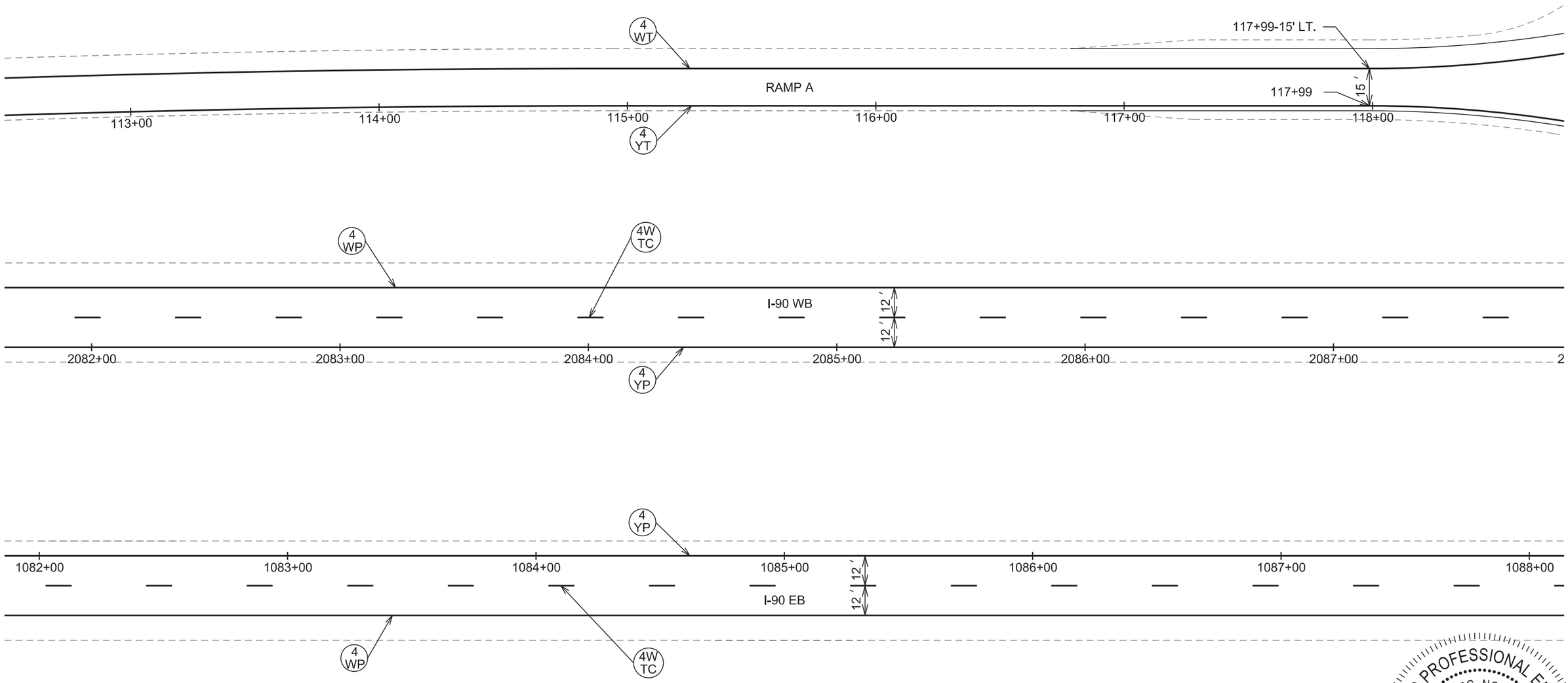
FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M18	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD034\Section\M1082npm.dgn

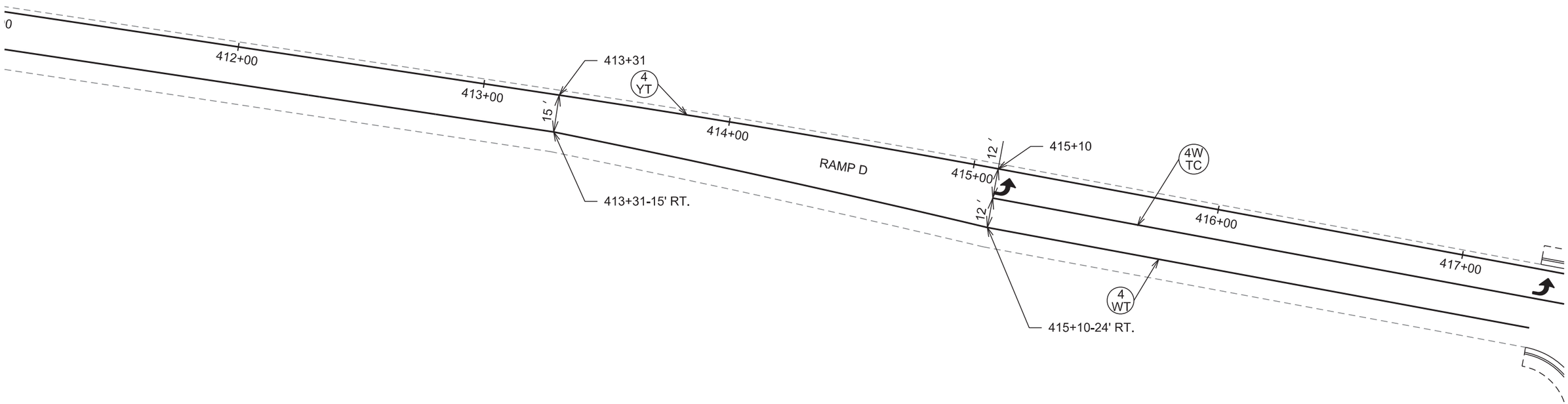
PAVEMENT MARKING LAYOUT
RAMP D

FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M19	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plot Scale - 1:40

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1082spm.dgn

PAVEMENT MARKING LAYOUT
I-90

FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M20	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 MRM

Plot Scale - 1:40

119+09-27' LT.
4 WT
200+44-24' LT.
200+44-12' LT.
4W TC
4 WT
203+28-24' LT.
12'
12'
RAMP B
119+00
119+44
201+00
202+00
203+00
204+00
205+00
4 YT
119+09-12' RT.
24 WT
200+34-12' RT.
4 YT
201+45
203+28
I 507+00
4 WP
4W TC
I-90 WB
12'
12'
2088+00
2089+00
2090+00
2091+00
2092+00
2093+00
2
4 YP
REFER TO ELK CREEK ROAD SHEETS FOR PAVEMENT MARKINGS ALONG BRIDGE
I 506+00
ELK CREEK ROAD
4 YP
1088+00
1089+00
1090+00
1091+00
1092+00
1093+00
1094+00
12'
12'
I-90 EB
4W TC
4 WP
+00

LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M\1088npm.dgn

PAVEMENT MARKING LAYOUT
I-90

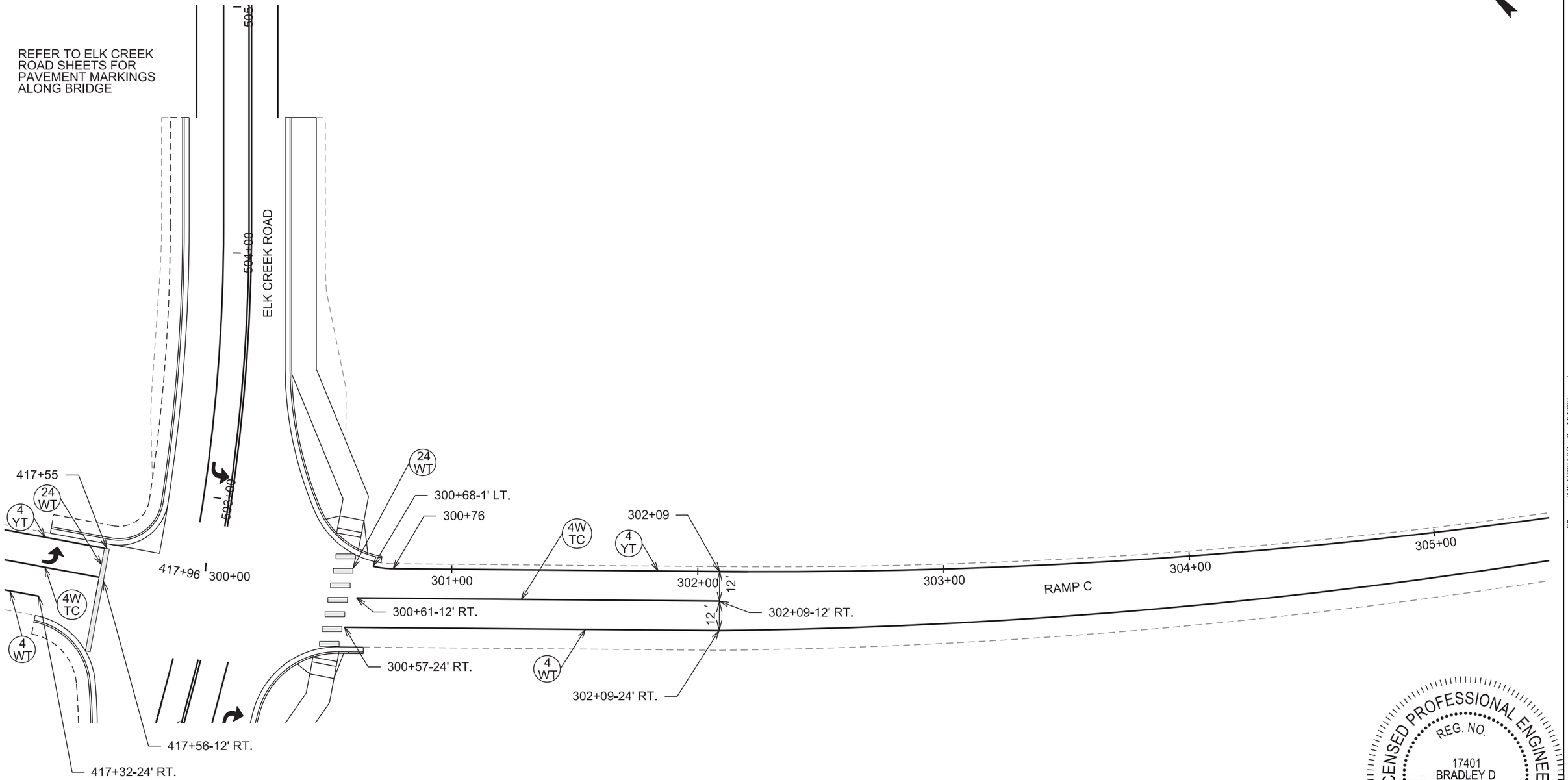
FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M21	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1068spm.dgn

PAVEMENT MARKING LAYOUT
I-90

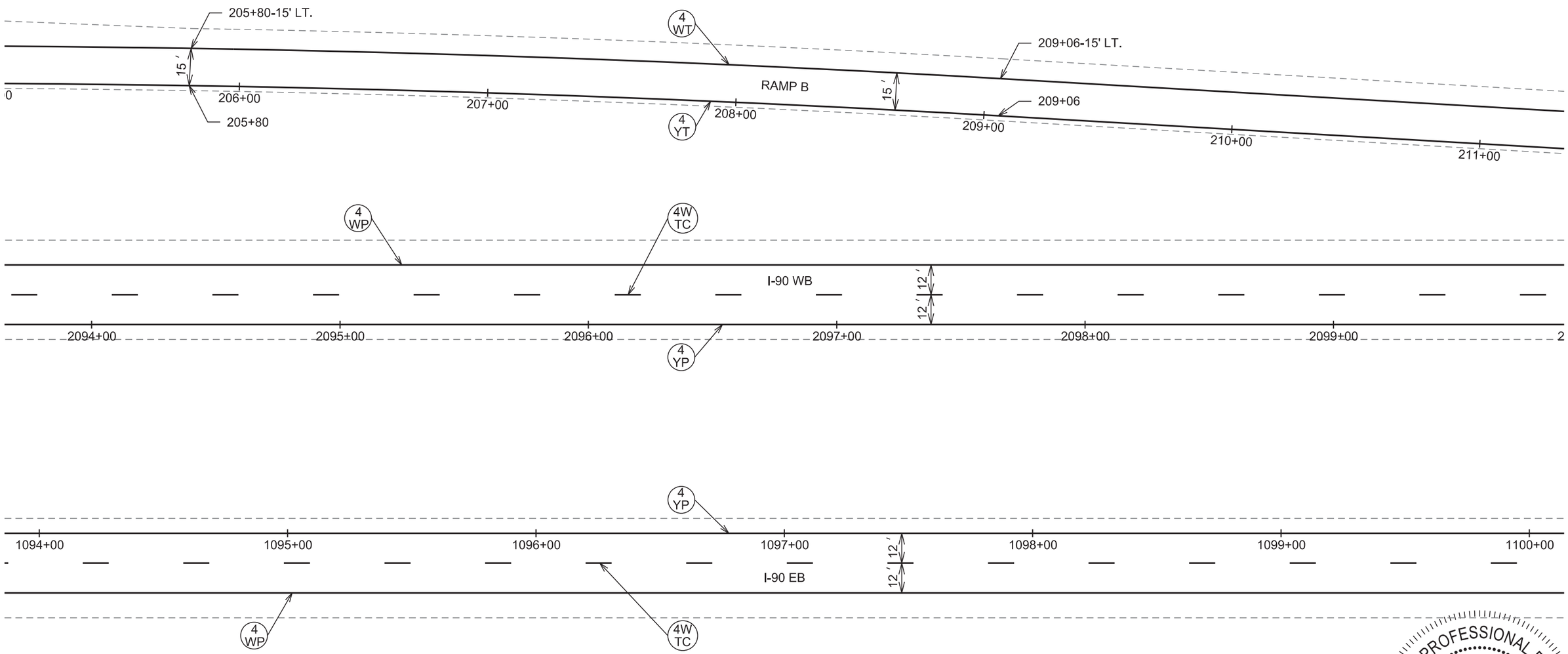
FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M22	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD0343\Section\M1094npm.dgn

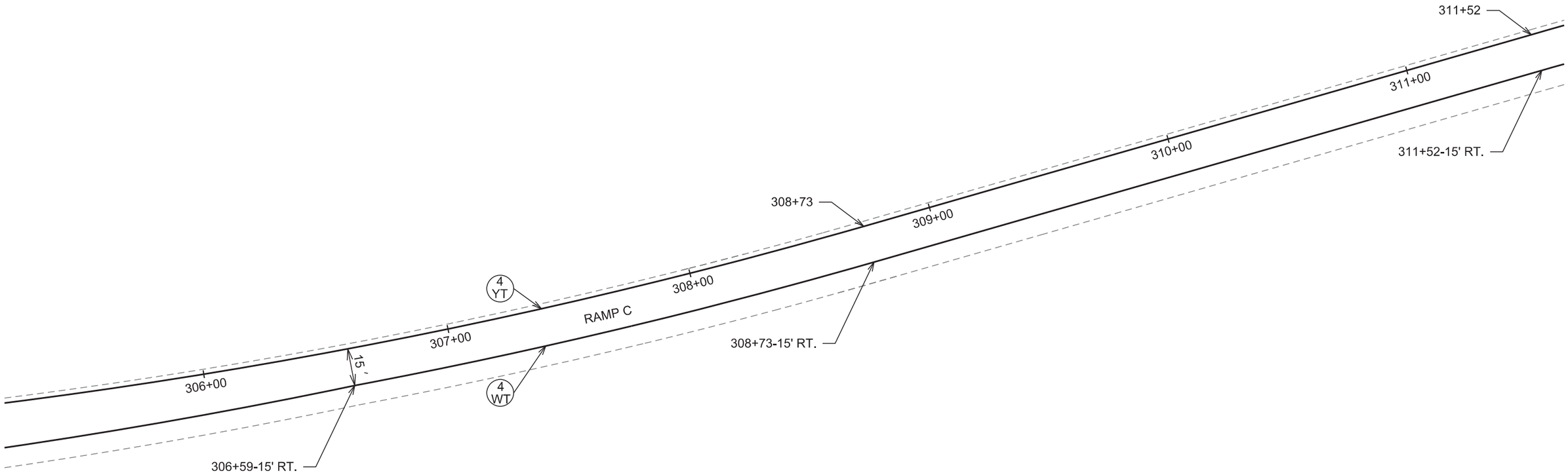
PAVEMENT MARKING LAYOUT
RAMP C

FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M23	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plot Scale - 1:40

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1094spm.dgn

PAVEMENT MARKING LAYOUT
I-90

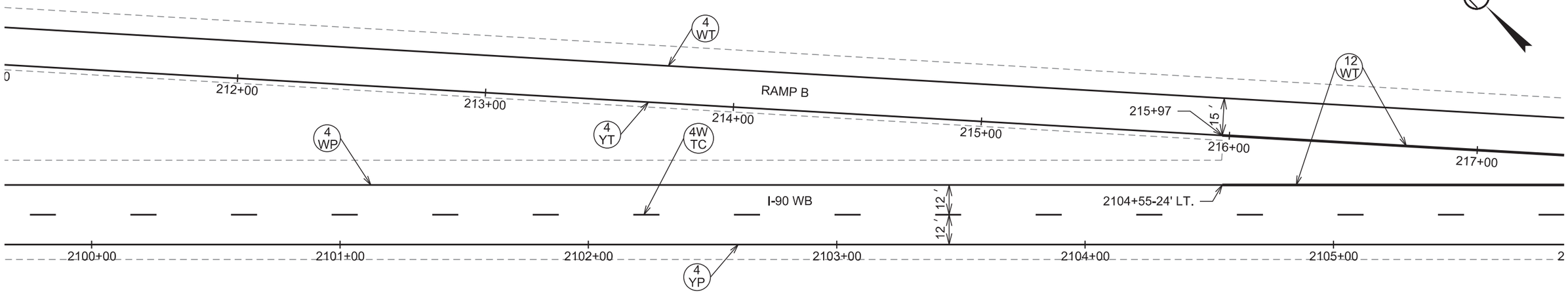
FOR BIDDING PURPOSES ONLY

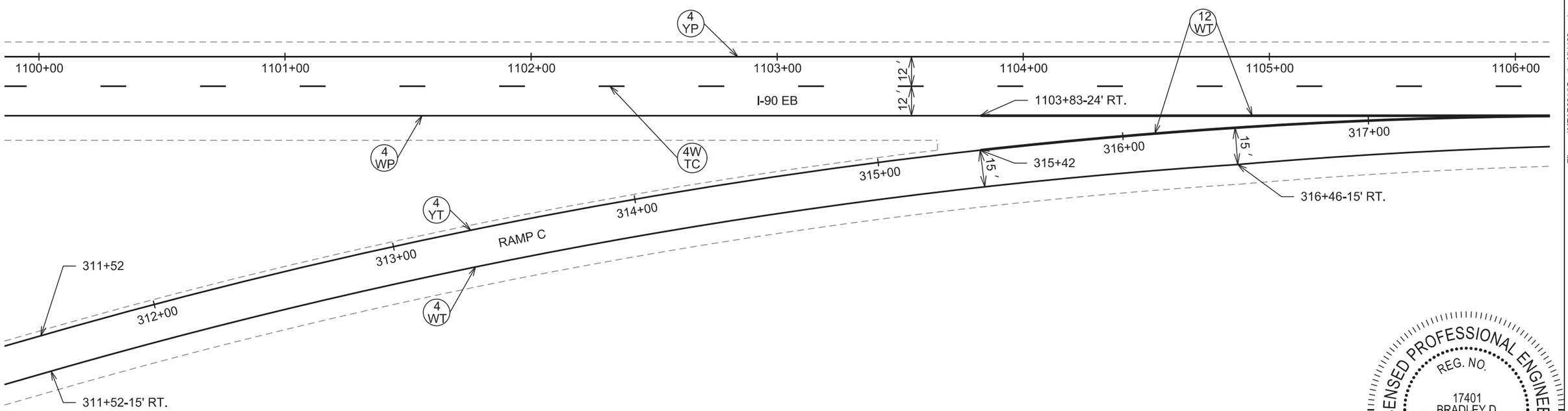
FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M24	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40





LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

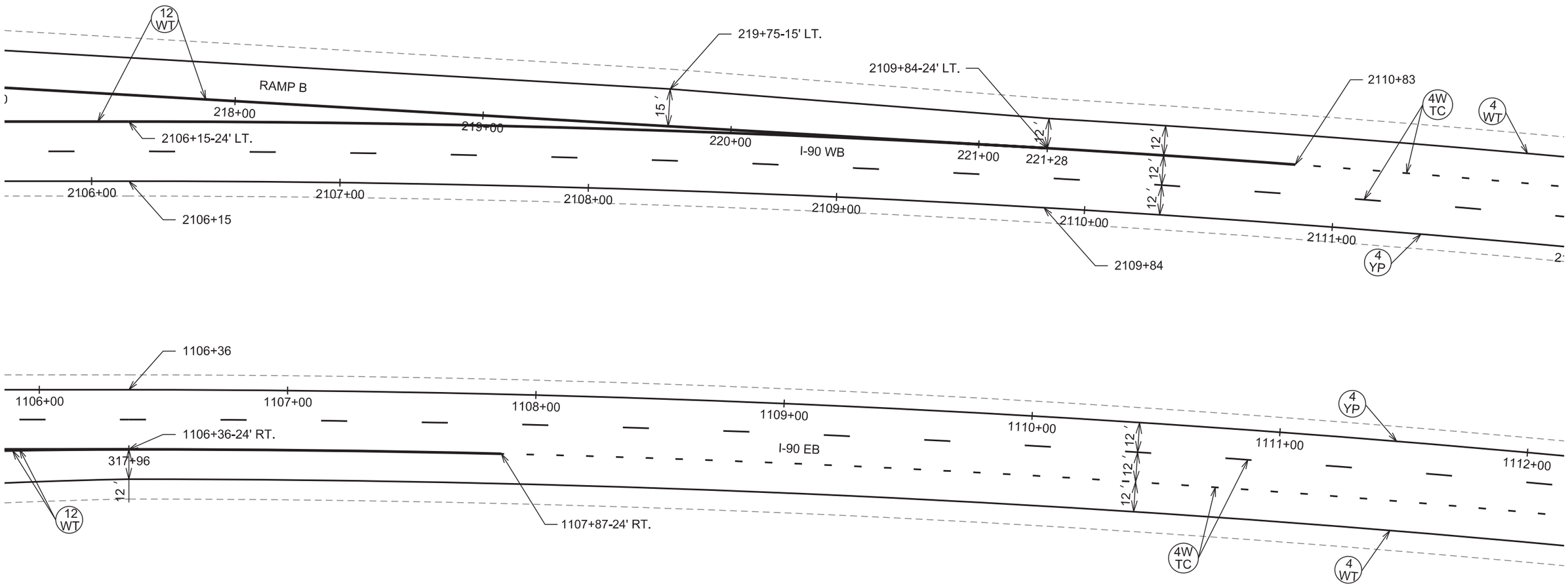
File - ...\MEAD034J\Section\M1100pm.dgn

FELSBURG HOLT & ULLEVIG | STATE OF SOUTH DAKOTA | PROJECT: IM-CR-EM 0901(187)44 | SHEET: M25 | TOTAL SHEETS: M43

FOR BIDDING PURPOSES ONLY

Plotting Date: 10/3/2025 Rev: 02/04/2025 LPZ Rev: 9/30/2025 BRC

PAVEMENT MARKING LAYOUT
I-90



LICENSED PROFESSIONAL ENGINEER
REG. NO. 17401
BRADLEY D HARTMANN
SOUTH DAKOTA
9-30-2025

Plot Scale - 1:40

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1106pm.dgn

PAVEMENT MARKING LAYOUT
I-90

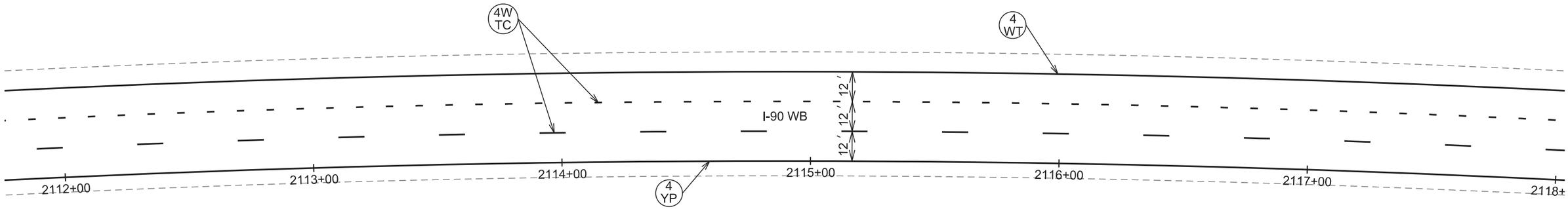
FOR BIDDING PURPOSES ONLY

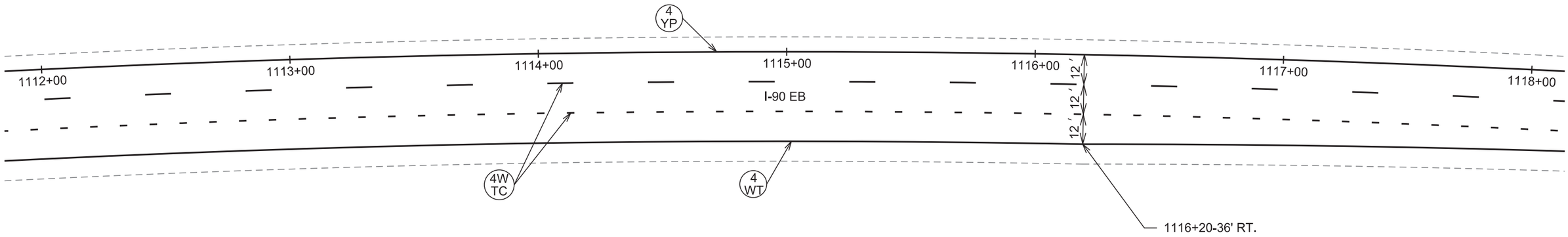
FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M26	M43

Plotting Date: 10/3/2025

Rev: 02/04/2025 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40





LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1112pm.dgn

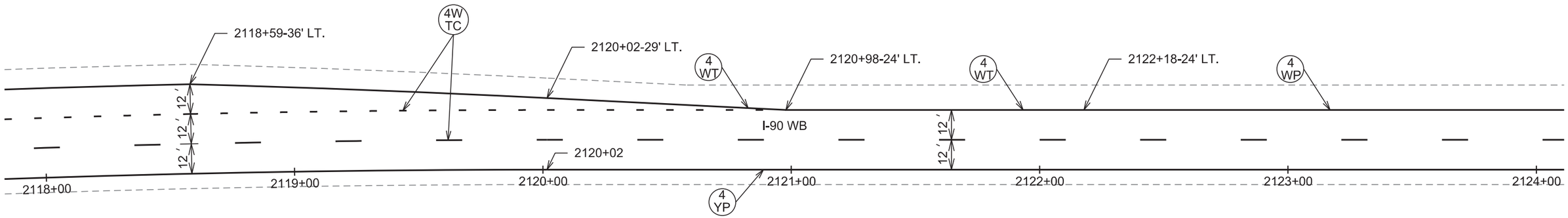
PAVEMENT MARKING LAYOUT
I-90

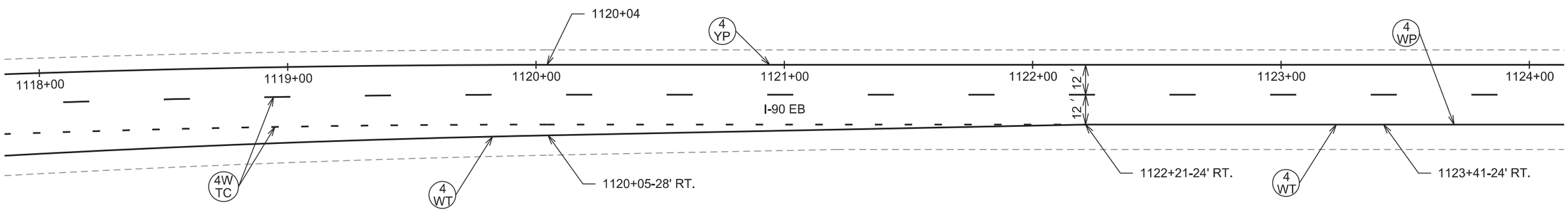
FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M27	M43

Plotting Date: 10/3/2025 Rev: 02/04/2025 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40





LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1118pm.dgn

PAVEMENT MARKING LAYOUT
I-90

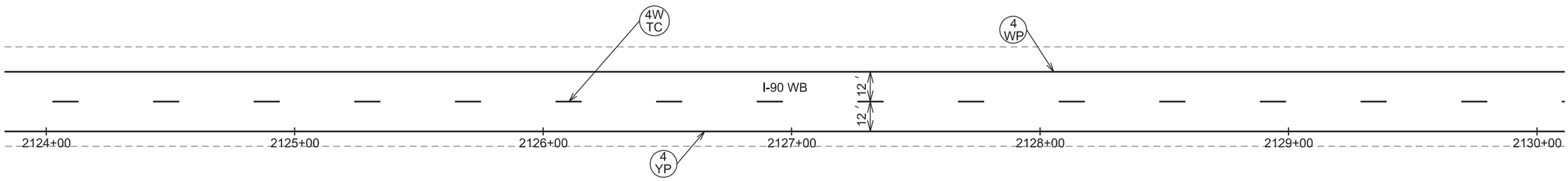
FOR BIDDING PURPOSES ONLY

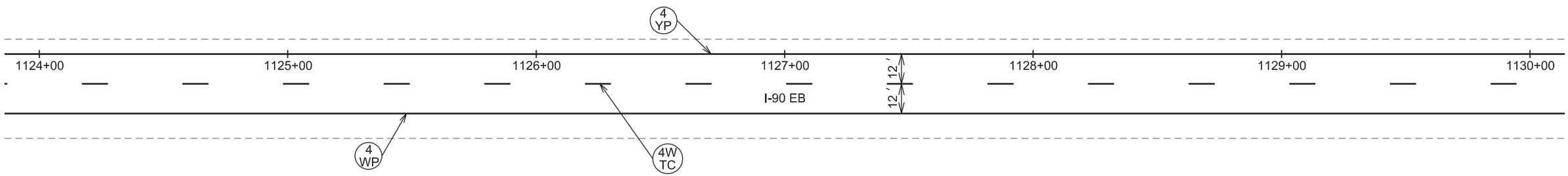
FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M28	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40





LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1124pm.dgn

PAVEMENT MARKING LAYOUT
I-90

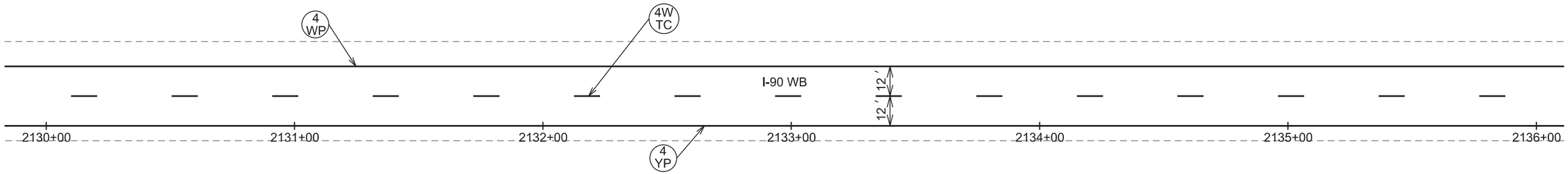
FOR BIDDING PURPOSES ONLY

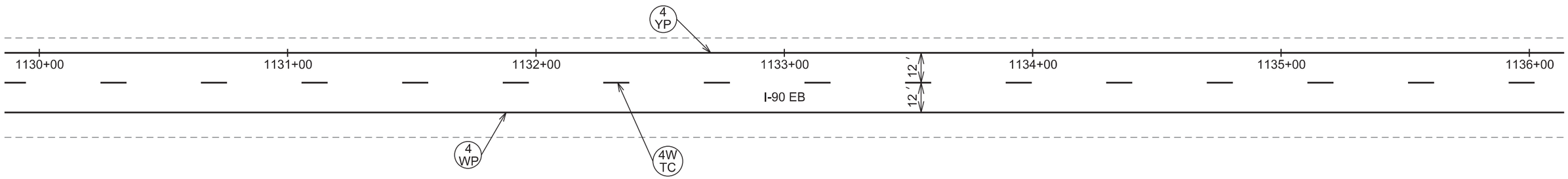
FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M29	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40





LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

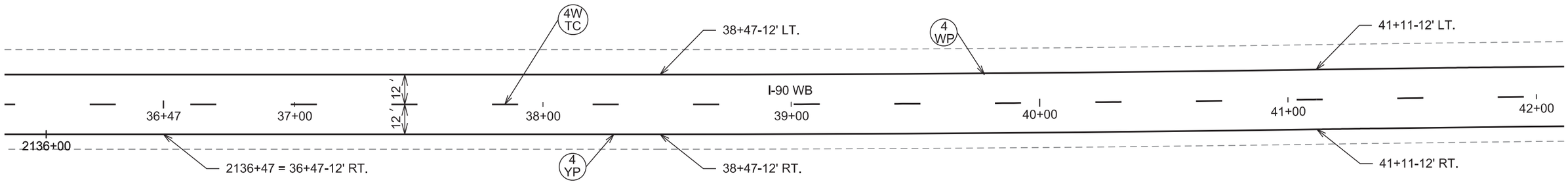
File - ...\MEAD034J\Section\M1130pm.dgn

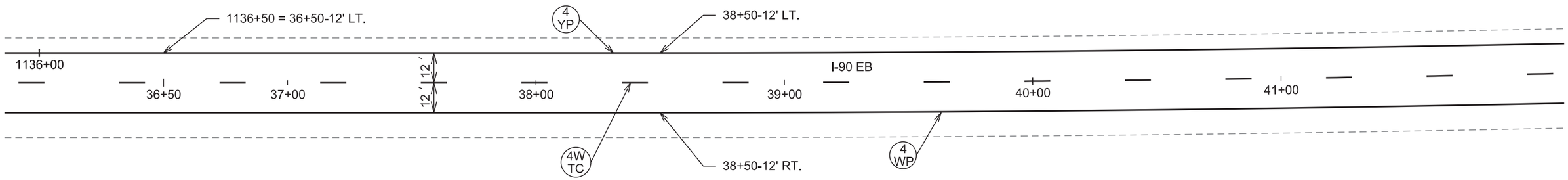
FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M30	M43

FOR BIDDING PURPOSES ONLY

Plotting Date: 10/3/2025 Rev: 10/11/2024 LPZ Rev: 9/30/2025 BRC

PAVEMENT MARKING LAYOUT
I-90





LICENSED PROFESSIONAL ENGINEER
REG. NO. 17401
BRADLEY D HARTMANN
SOUTH DAKOTA
9-30-2025

Plot Scale - 1:40

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1136pm.dgn

PAVEMENT MARKING LAYOUT
I-90

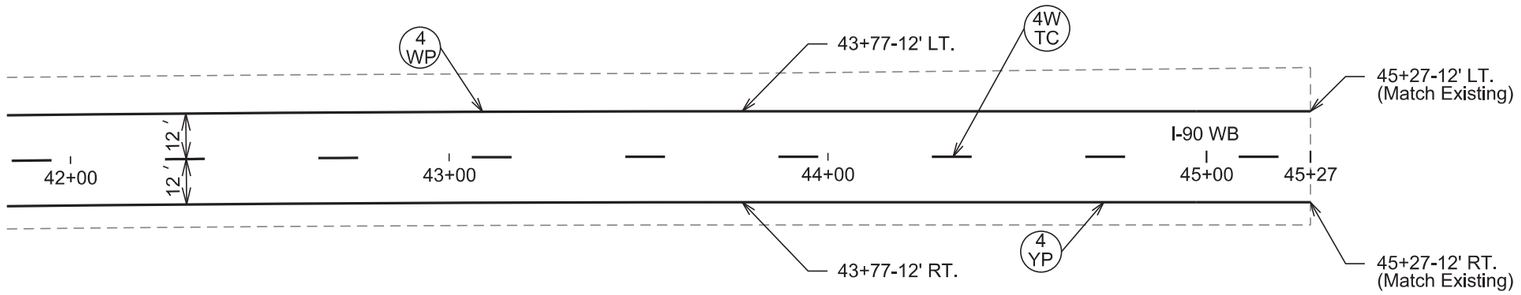
FOR BIDDING PURPOSES ONLY

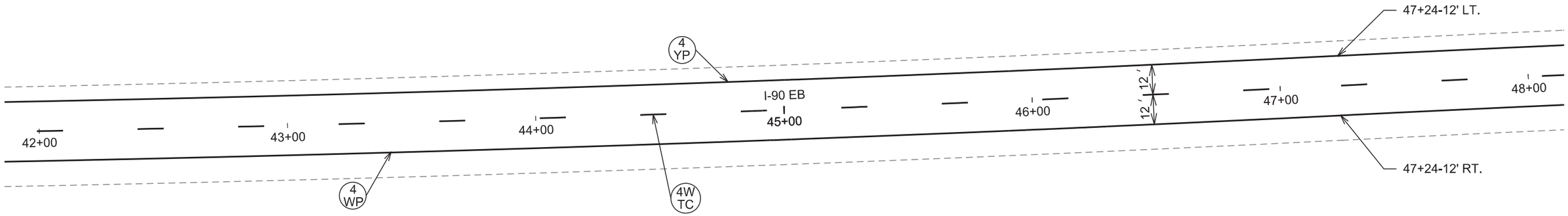
FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M31	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40





LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M1142pm.dgn

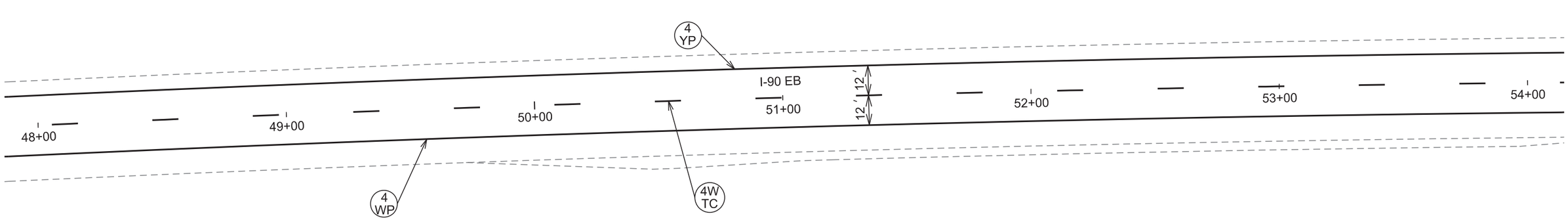
PAVEMENT MARKING LAYOUT
I-90

FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M32	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plot Scale - 1:40

Plotted From - Marcus.Martinez

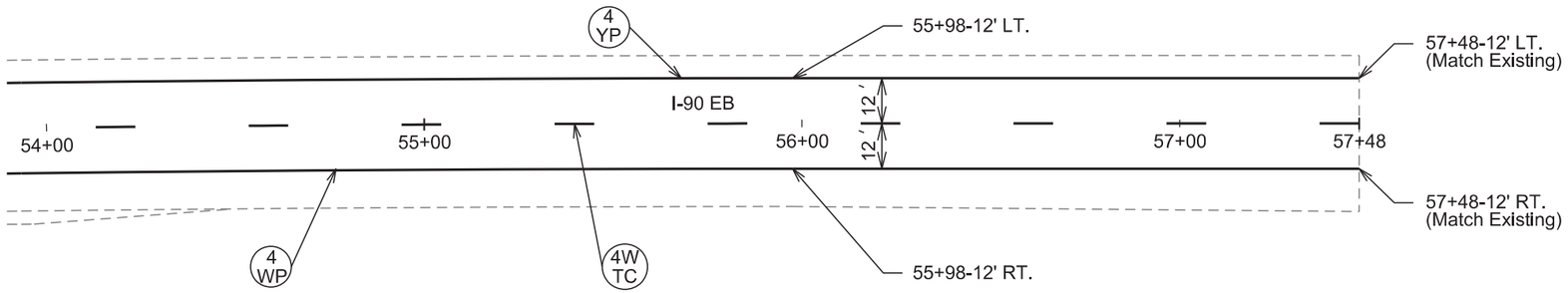
File - ...\MEAD0034\Section\M1148pm.dgn

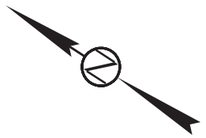
PAVEMENT MARKING LAYOUT
I-90

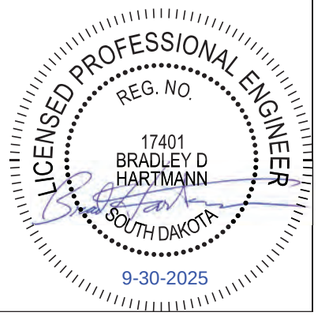
FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M33	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC







Plot Scale - 1:40

Plotted From - Marcus.Martinez

File - ...\MEAD0034\Section\M1154pm.dgn

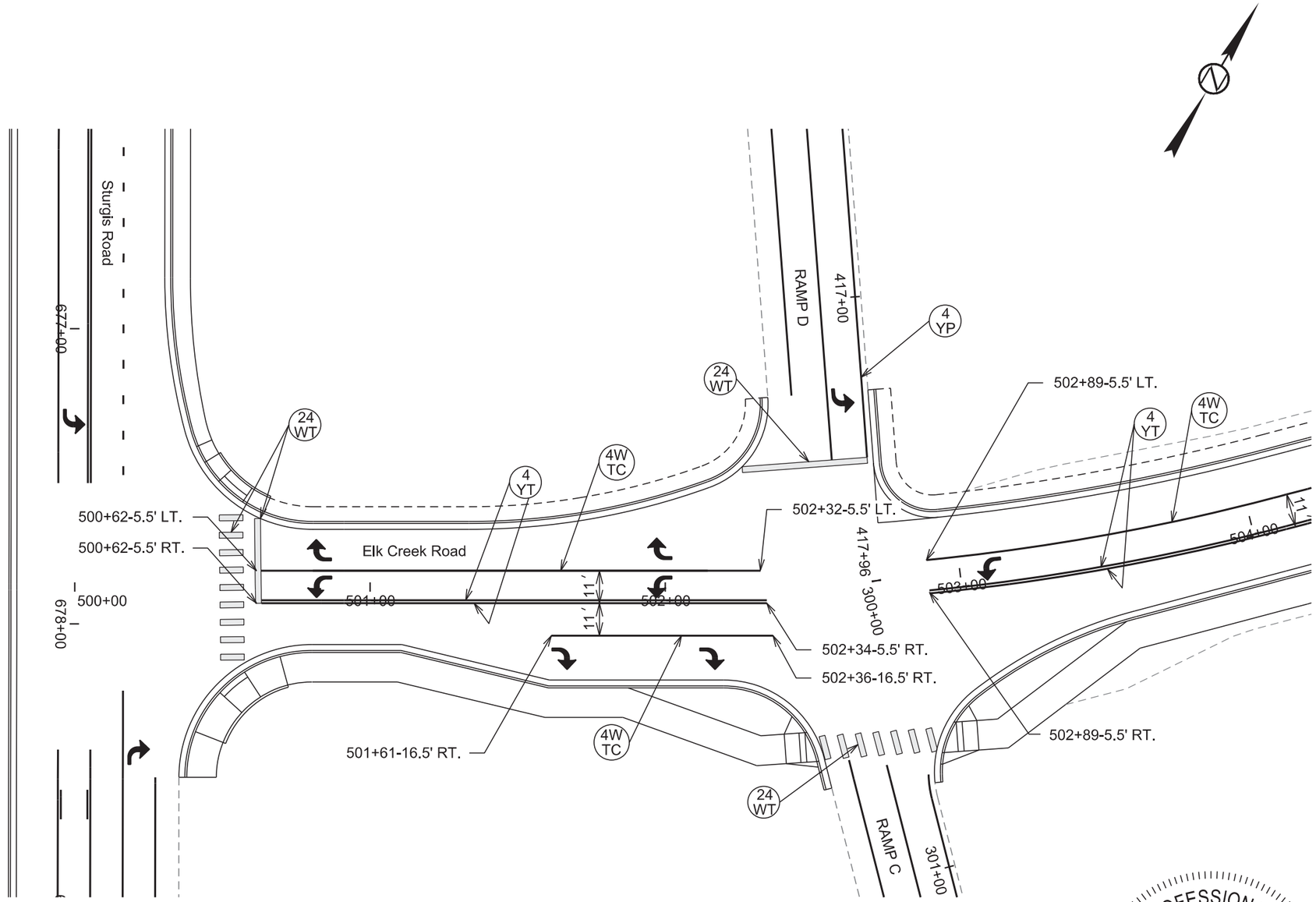
FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M34	M43

Plotting Date: 10/3/2025

Rev: 02/07/2025 LPZ
Rev: 9/30/2025 BRC

PAVEMENT MARKING LAYOUT
ELK CREEK ROAD



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plot Scale - 1:40

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M0500pm.dgn

PAVEMENT MARKING LAYOUT
ELK CREEK ROAD

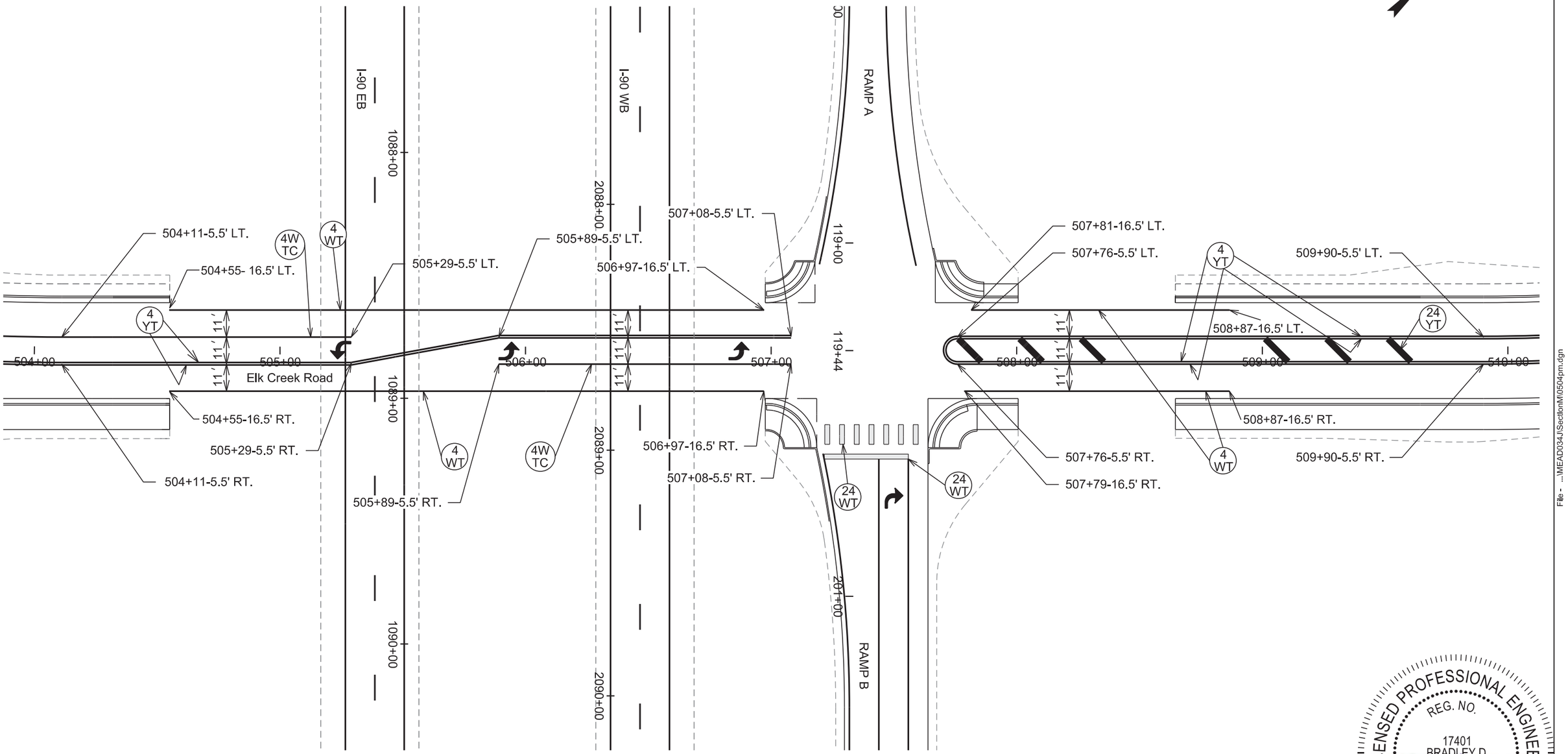
FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M35	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

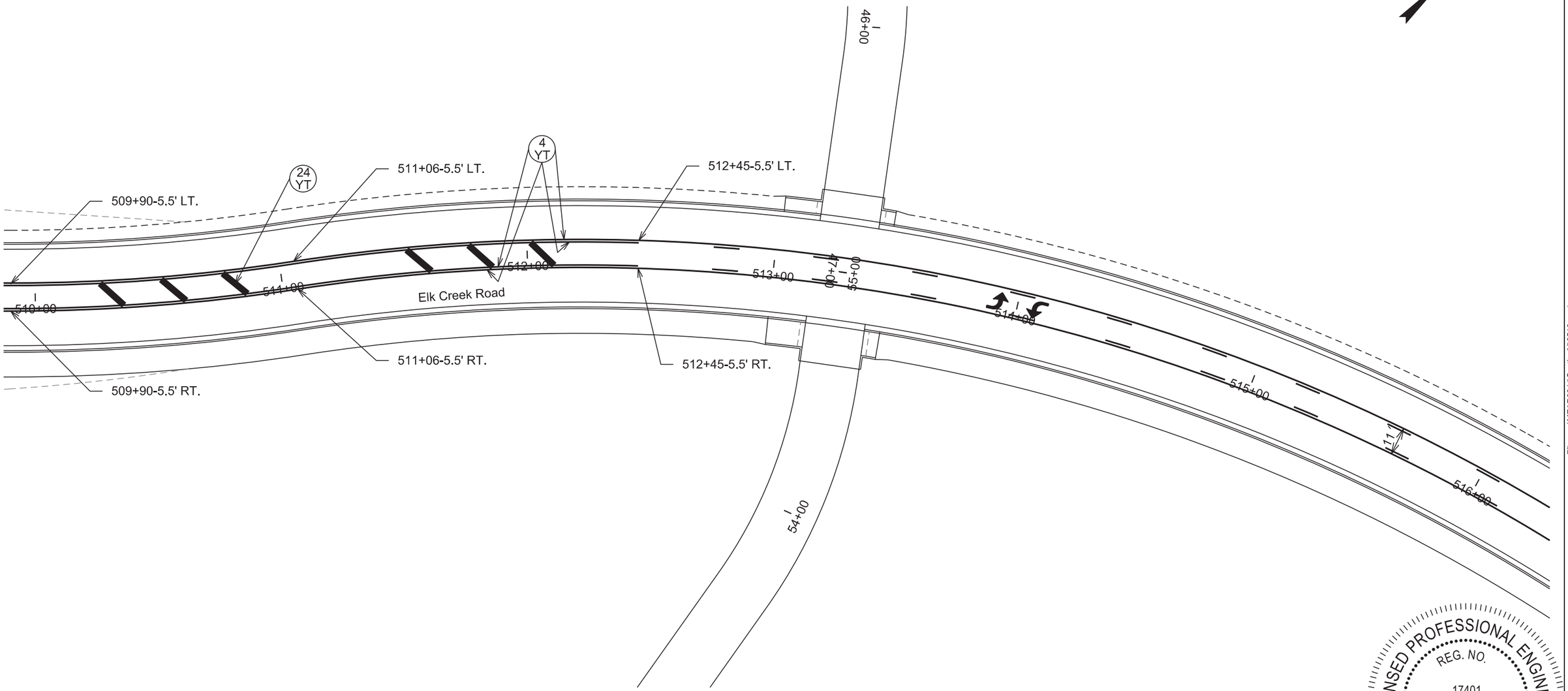
File - ...\MEAD034JSectionM0504pm.dgn

FELSBURG HOLT & ULLEVIG | STATE OF SOUTH DAKOTA | PROJECT: IM-CR-EM 0901(187)44 | SHEET: M36 | TOTAL SHEETS: M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC

PAVEMENT MARKING LAYOUT
ELK CREEK ROAD



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plot Scale - 1:40

Plotted From - Marcus.Martinez

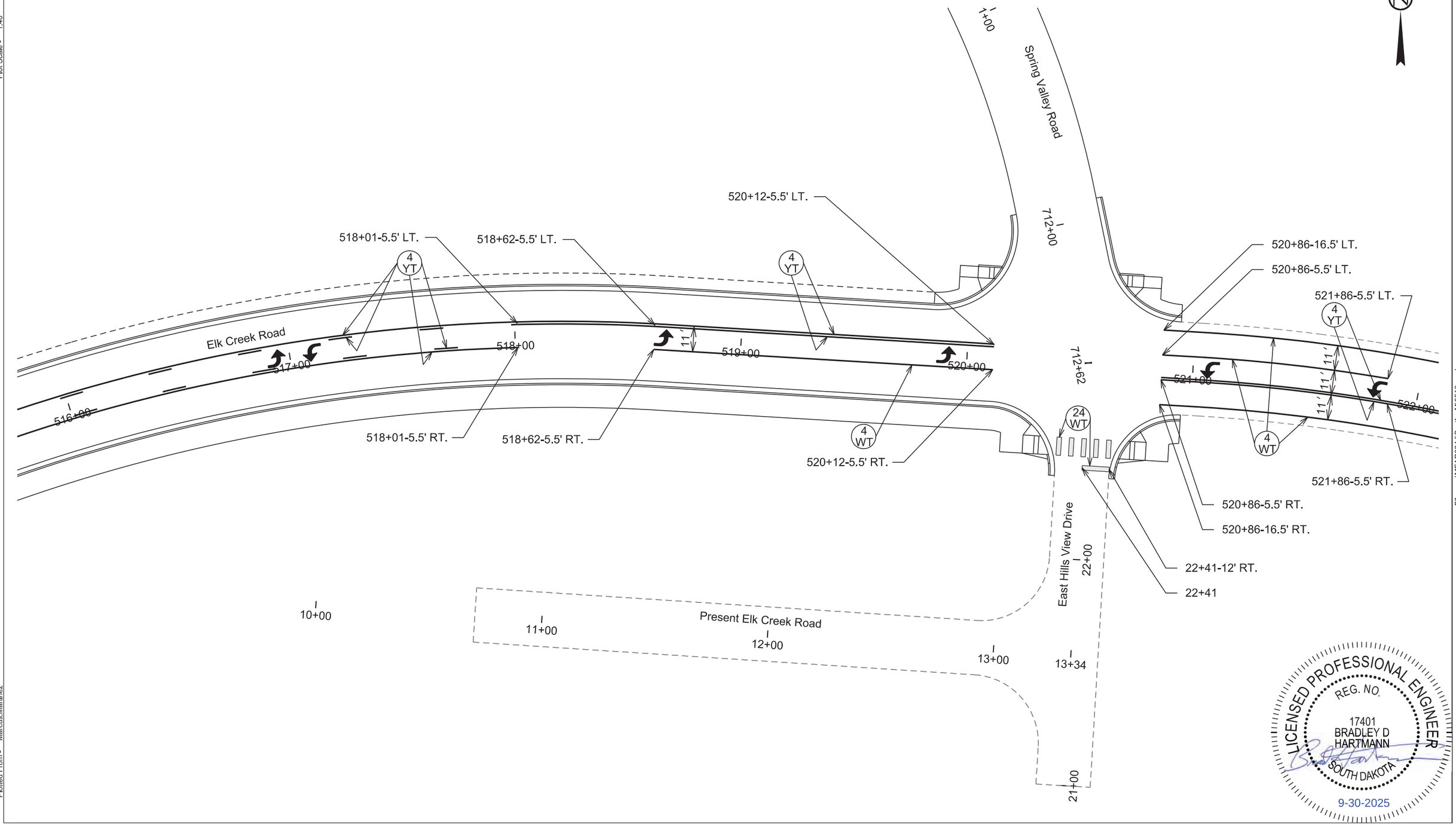
File - ...\MEAD0343\Section\M0510pm.dgn

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M37	M43

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC

PAVEMENT MARKING LAYOUT
ELK CREEK ROAD



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plot Scale - 1:40

Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M0516pm.dgn

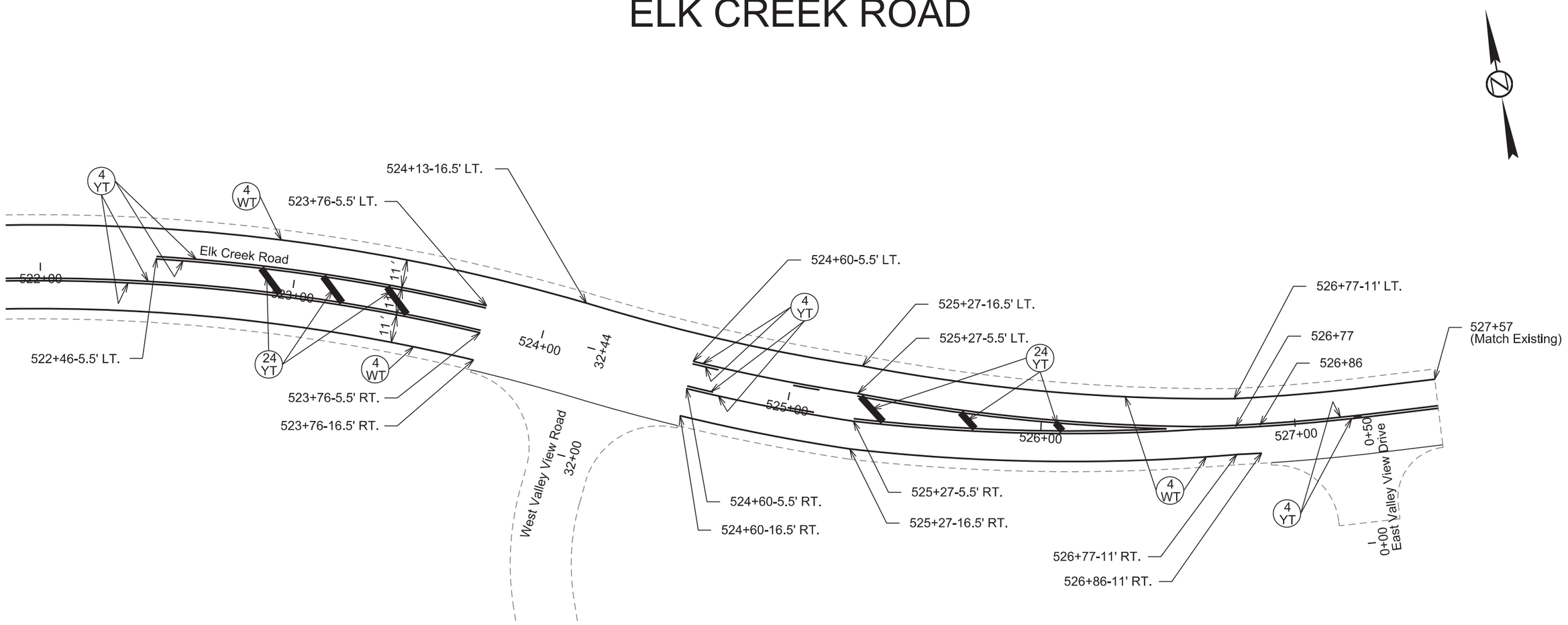
FELSBURG HOLT & ULLEVIG | STATE OF SOUTH DAKOTA | PROJECT: IM-CR-EM 0901(187)44 | SHEET: M38 | TOTAL SHEETS: M43

FOR BIDDING PURPOSES ONLY

Plotting Date: 10/3/2025

Rev: 02/07/2025 LPZ
Rev: 9/30/2025 BRC

PAVEMENT MARKING LAYOUT
ELK CREEK ROAD



LICENSED PROFESSIONAL ENGINEER
REG. NO. 17401
BRADLEY D HARTMANN
SOUTH DAKOTA
9-30-2025

Plot Scale - 1:40

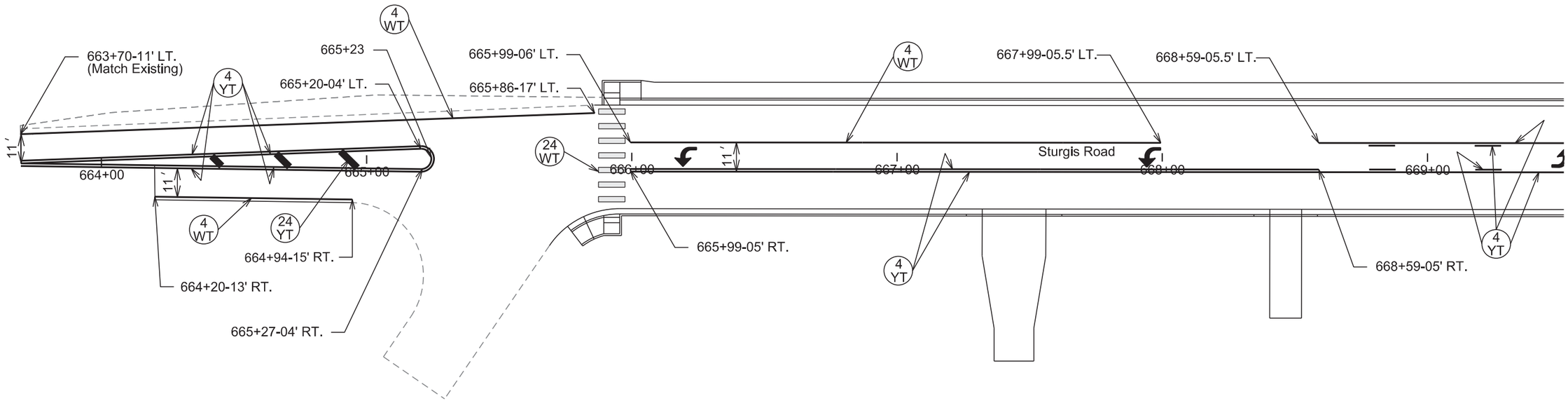
Plotted From - Marcus.Martinez

File - ...\MEAD0334J\Section\M0522pm.dgn

Plotting Date: 10/3/2025

Rev: 02/06/2025 LPZ
Rev: 9/30/2025 BRC

PAVEMENT MARKING LAYOUT
STURGIS ROAD



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plot Scale - 1:40

Plotted From - Marcus.Martinez

File - ...\MEAD0034J\Section\M\0664pm.dgn

PAVEMENT MARKING LAYOUT
STURGIS ROAD

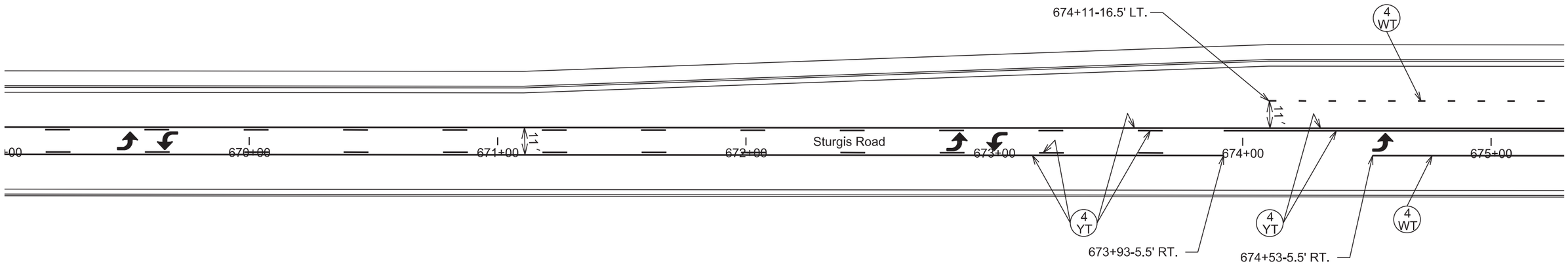
FOR BIDDING PURPOSES ONLY

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M40	M43

Plotting Date: 10/3/2025

Rev: 02/06/2025 LPZ
Rev: 9/30/2025 BRC

Plot Scale - 1:40



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

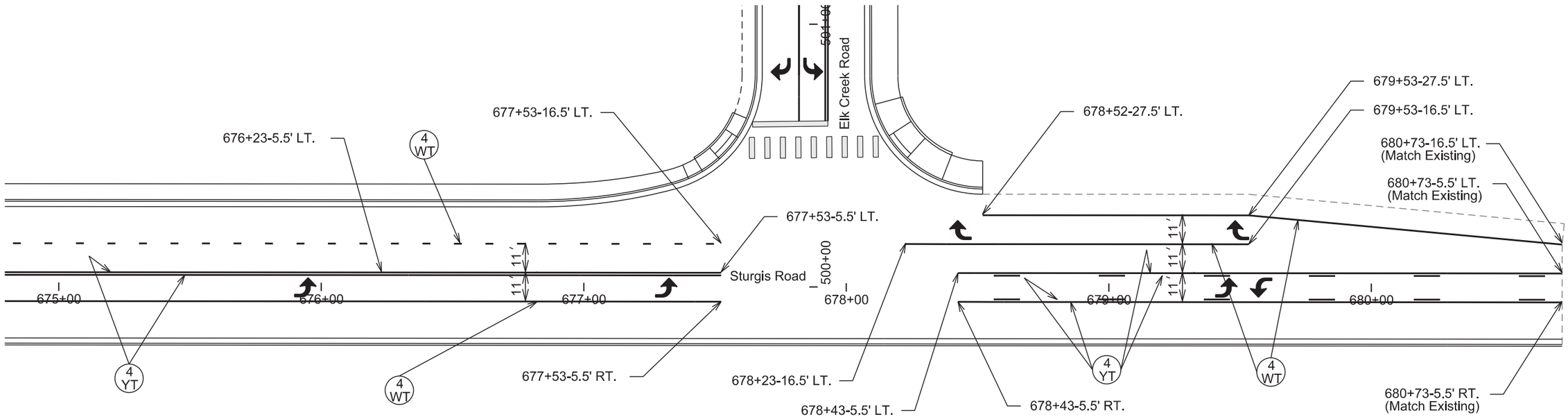
Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M\0670pm.dgn

Plotting Date: 10/3/2025

Rev: 10/11/2024 LPZ
Rev: 9/30/2025 BRC

PAVEMENT MARKING LAYOUT
STURGIS ROAD



LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plot Scale - 1:40

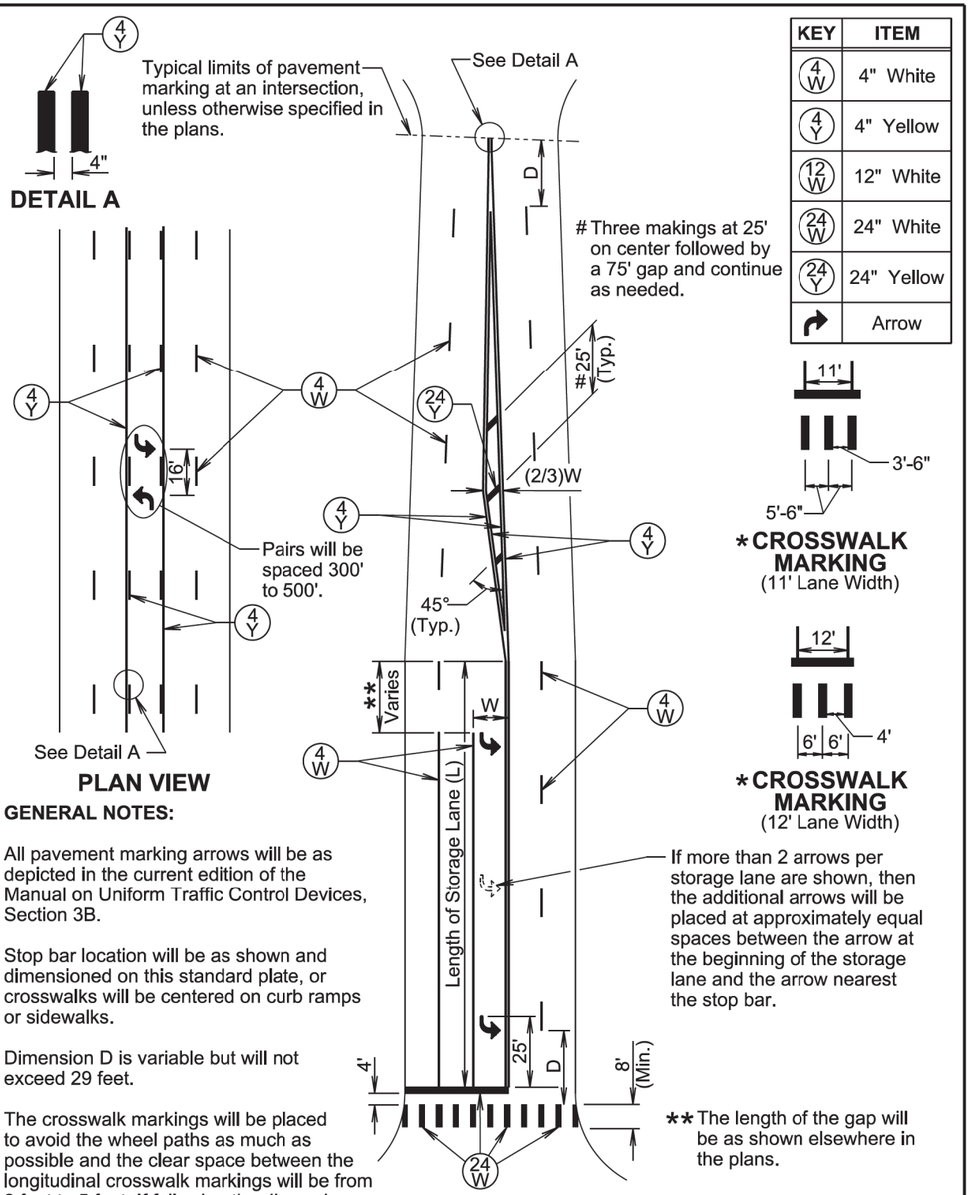
Plotted From - Marcus.Martinez

File - ...\MEAD034J\Section\M\0675pm.dgn

FELSBURG HOLT & ULLEVIG	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		IM-CR-EM 0901(187)44	M42	M43

Plotting Date: 10/3/2025 Rev: 9/11/2025 BRC Rev: 9/30/2025 BRC

Plot Scale - 1:200



KEY	ITEM
4W	4" White
4Y	4" Yellow
12W	12" White
24W	24" White
24Y	24" Yellow
	Arrow

GENERAL NOTES:

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

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

Dimension D is variable but will not exceed 29 feet.

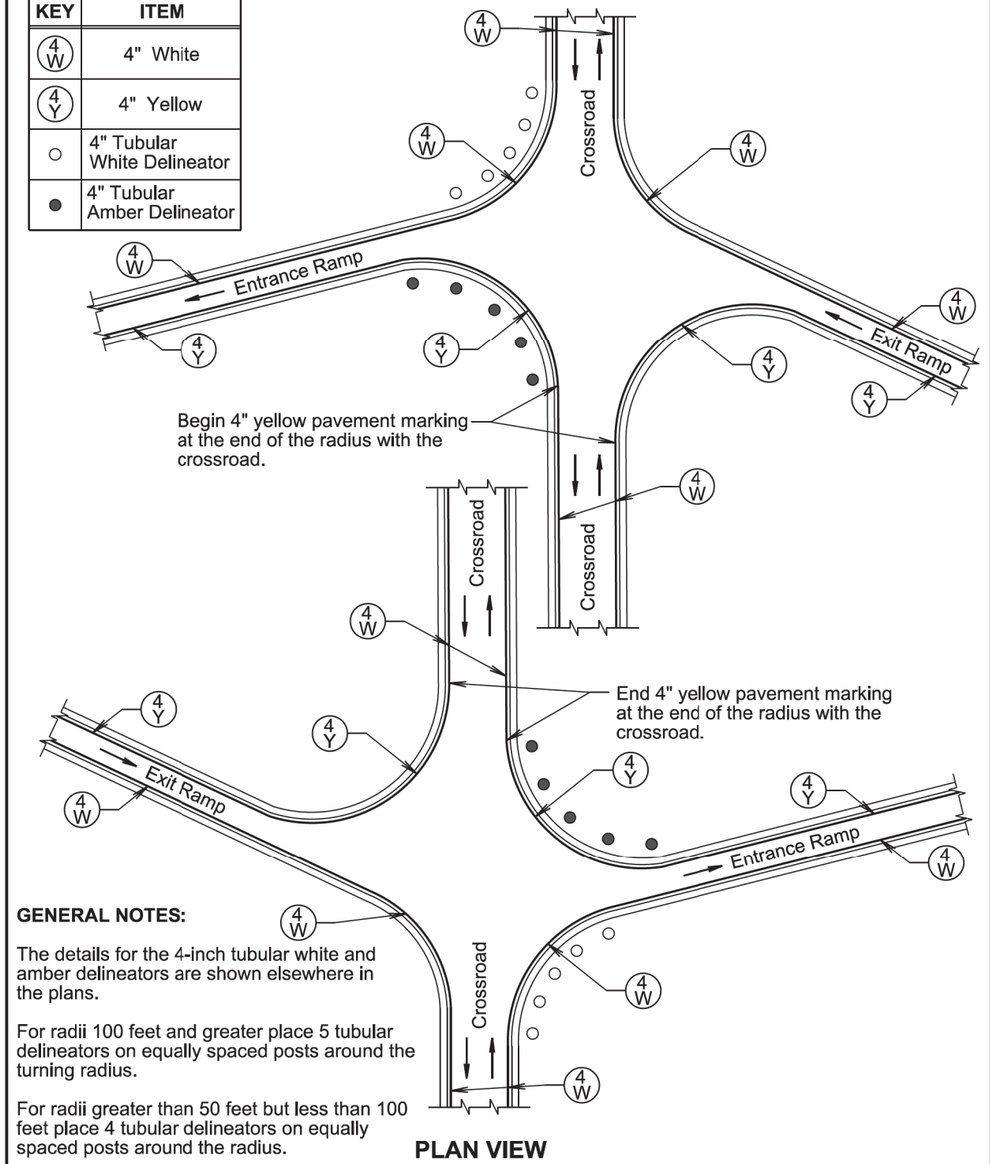
* The crosswalk markings will be placed to avoid the wheel paths as much as possible and the clear space between the longitudinal crosswalk markings will be from 2 feet to 5 feet. If following the dimensions shown, crosswalk markings will begin on a lane line or centerline.

If more than 2 arrows per storage lane are shown, then the additional arrows will be placed at approximately equal spaces between the arrow at the beginning of the storage lane and the arrow nearest the stop bar.

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

March 31, 2024

Published Date: 2026	SDDOT	PAVEMENT MARKINGS FOR ADJACENT INTERSECTIONS AND CENTER TURN LANE	PLATE NUMBER 633.01
			Sheet 1 of 1



KEY	ITEM
4W	4" White
4Y	4" Yellow
	4" Tubular White Delineator
	4" Tubular Amber Delineator

GENERAL NOTES:

The details for the 4-inch tubular white and amber delineators are shown elsewhere in the plans.

For radii 100 feet and greater place 5 tubular delineators on equally spaced posts around the turning radius.

For radii greater than 50 feet but less than 100 feet place 4 tubular delineators on equally spaced posts around the radius.

For radii 50 feet and less place 3 tubular delineators on equally spaced posts around the radius.

June 26, 2019

Published Date: 2026	SDDOT	PAVEMENT MARKINGS AND DELINEATION FOR JUNCTION OF INTERSTATE RAMPS AND CROSSROAD	PLATE NUMBER 633.07
			Sheet 1 of 1

- Plotted From - Marcus.Martinez

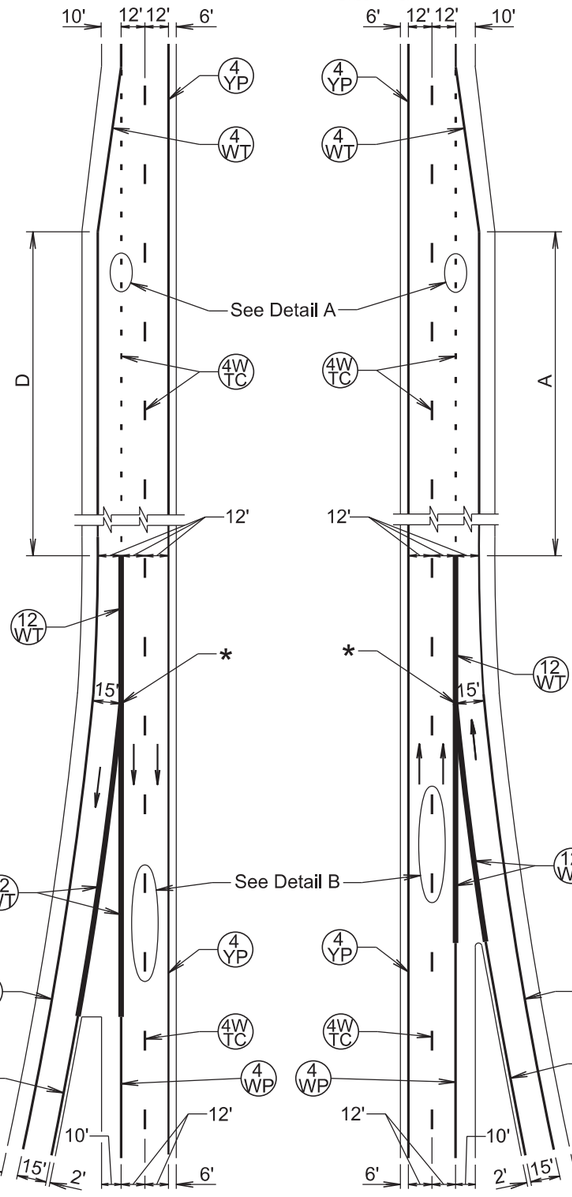
File - ...\034J_Section M_Standard Plates.dgn

Plotting Date: 10/3/2025 Rev: 02/04/2025 LPZ Rev: 9/30/2025 BRC

Plot Scale - 1:200

PAVEMENT MARKING LAYOUT FOR PARALLEL INTERSTATE RAMPS

Sheet 1 of 1



PLAN VIEW
PARALLEL DECELERATION LANE
(Off Ramp)

PLAN VIEW
PARALLEL ACCELERATION LANE
(On Ramp)

KEY	ITEM
4 WT	4" White Tape
4W TC	4" White Tape with Contrast Border
4 YP	4" Yellow Paint
4 YT	4" Yellow Tape
4 WP	4" White Paint
12 WT	12" White Tape

→ Traffic Direction

* Theoretical Gore Point

A= Length of Parallel Acceleration Lane

D= Length of Parallel Deceleration Lane

GENERAL NOTES:

When tying into existing ramps, striping will be adjusted to match existing lane configuration.

Shoulder widths might be different than shown.

DETAIL A
(Dotted Line)

DETAIL B
(Broken Line)

LICENSED PROFESSIONAL ENGINEER
REG. NO.
17401
BRADLEY D
HARTMANN
SOUTH DAKOTA
9-30-2025

Plotted From - Marcus.Martinez

File - ...\Detail-ParrallelInterstateRamps.dgn