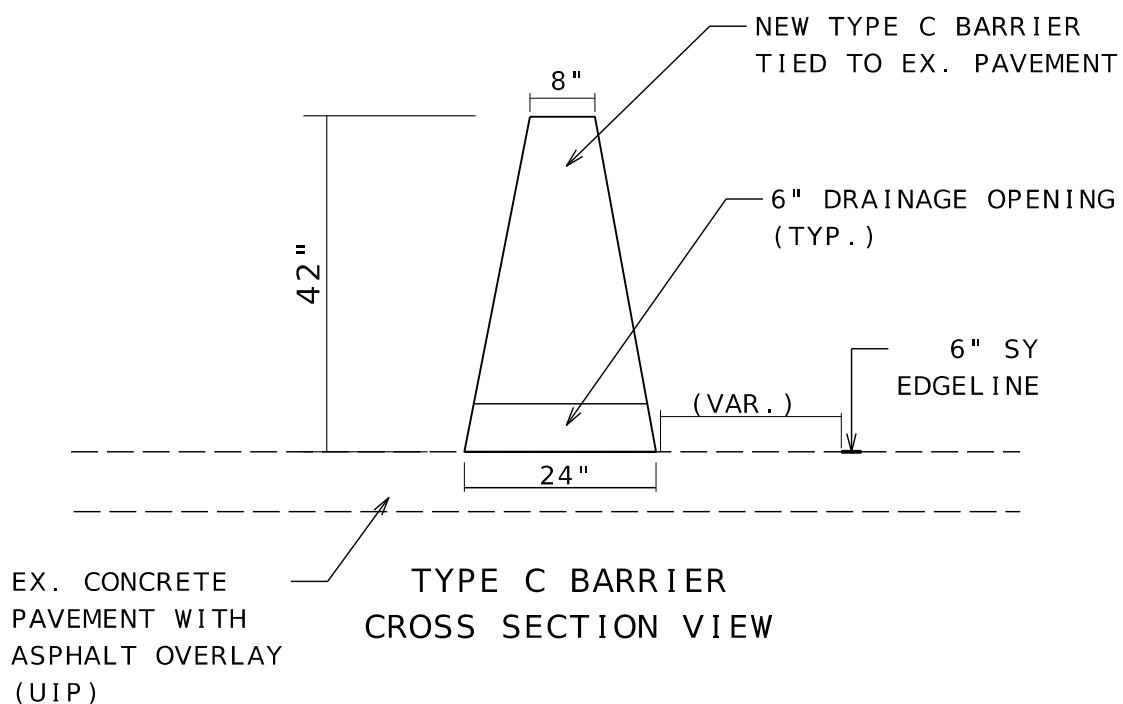
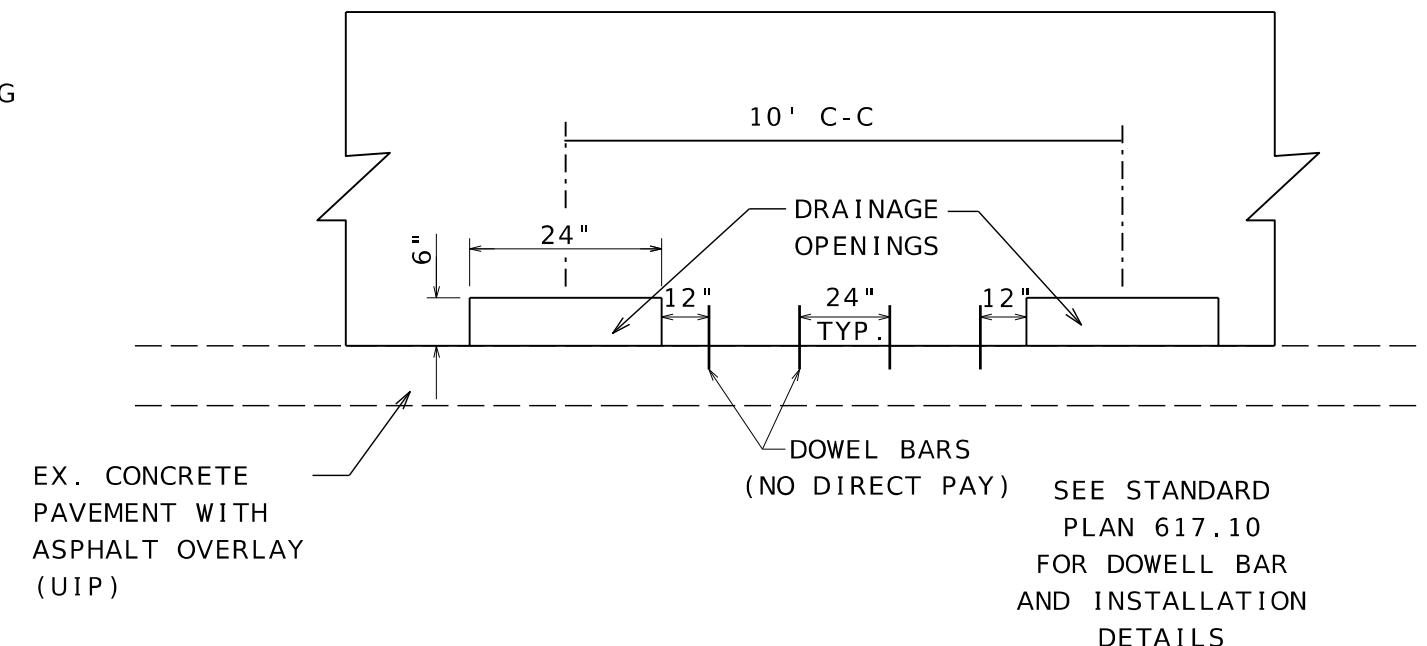


<p>DESIGN DESIGNATION ROUTE 141 AT S HIGHWAY DR/RAMP TO I-44 EB: A.A.D.T. - 2025 = 6810 A.A.D.T. - 2045 = 7520 D.H.V. = 11% T = 15% V = 45 M.P.H. D = 100%</p> <p>FUNCTIONAL CLASSIFICATION - MAJOR COLLECTOR ROUTE 21 AT HAYDEN ROAD: A.A.D.T. - 2025 = 19,060 A.A.D.T. - 2045 = 21,060 D.H.V. = 9% T = 6% V = 65 M.P.H. D = 52%</p> <p>FUNCTIONAL CLASSIFICATION - PRINCIPAL ARTERIAL NO RIGHT OF WAY ACQUIRED FOR THIS PROJECT.</p>	<p>MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION PLANS FOR PROPOSED STATE HIGHWAY ST. LOUIS COUNTY & JEFFERSON COUNTY</p> <p>NOT TO SCALE</p> <p>10/21/2025</p> <p>U.S. SURVEY 1983</p> <p>ST. LOUIS COUNTY</p> <p>T41N R4E SEC. 22 & 23</p> <p>JEFFERSON COUNTY</p> <p>DISCLAIMER THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEAR HEREON ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS PAGE, AND DISCLAIMS (PURSUANT TO SECTION 327.411 RSMO) SPECIFICATION, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS PAGE REFERS.</p> <p>THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. 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SUCH VERIFICATION INCLUDES DIRECT CONTACT WITH THE LISTED UTILITIES.</p> <p>CONVENTIONAL SYMBOLS (USED IN PLANS)</p> <table border="1"> <thead> <tr> <th></th> <th>EXISTING</th> <th>NEW</th> </tr> </thead> <tbody> <tr> <td>BUILDINGS AND STRUCTURES</td> <td></td> <td></td> </tr> <tr> <td>GUARD RAIL</td> <td>□</td> <td>■</td> </tr> <tr> <td>GUARD CABLE</td> <td>○○○○</td> <td>●●●●</td> </tr> <tr> <td>CONCRETE RIGHT-OF-WAY MARKER</td> <td>↑↑↑↑</td> <td>↓↓↓↓</td> </tr> <tr> <td>STEEL RIGHT-OF-WAY MARKER</td> <td>▽▽▽▽</td> <td>▽▽▽▽</td> </tr> <tr> <td>LOCATION SURVEY MARKER</td> <td>○</td> <td>○</td> </tr> <tr> <td>UTILITIES</td> <td></td> <td></td> </tr> <tr> <td>FIBER OPTICS</td> <td>- FO -</td> <td>- FO -</td> </tr> <tr> <td>OVERHEAD CABLE TV</td> <td>- OTV -</td> <td>- OTV -</td> </tr> <tr> <td>UNDERGROUND CABLE TV</td> <td>- UTV -</td> <td>- UTV -</td> </tr> <tr> <td>OVERHEAD TELEPHONE</td> <td>- OT -</td> <td>- OT -</td> </tr> <tr> <td>UNDERGROUND TELEPHONE</td> <td>- UT -</td> <td>- UT -</td> </tr> <tr> <td>OVERHEAD POWER</td> <td>- OE -</td> <td>- OE -</td> </tr> <tr> <td>UNDERGROUND POWER</td> <td>- UE -</td> <td>- UE -</td> </tr> <tr> <td>SANITARY SEWER</td> <td>- S -</td> <td>- S -</td> </tr> <tr> <td>STORM SEWER</td> <td>- SS -</td> <td>- SS -</td> </tr> <tr> <td>GAS</td> <td>- G -</td> <td>- G -</td> </tr> <tr> <td>WATER</td> <td>- W -</td> <td>- W -</td> </tr> <tr> <td>MANHOLE</td> <td>SAN</td> <td>HYD</td> </tr> <tr> <td>FIRE HYDRANT</td> <td>HYD</td> <td>WV</td> </tr> <tr> <td>WATER VALVE</td> <td>WV</td> <td>WM</td> </tr> <tr> <td>WATER METER</td> <td>WM</td> <td>DI</td> </tr> <tr> <td>DROP INLET</td> <td>DI</td> <td></td> </tr> <tr> <td>DITCH BLOCK</td> <td></td> <td></td> </tr> <tr> <td>GROUND MOUNTED SIGN</td> <td>SIGN</td> <td></td> </tr> <tr> <td>LIGHT POLE</td> <td></td> <td></td> </tr> <tr> <td>H-FRAME POWER POLE</td> <td>PED</td> <td></td> </tr> <tr> <td>TELEPHONE PEDESTAL</td> <td>△</td> <td></td> </tr> <tr> <td>FENCE</td> <td></td> <td></td> </tr> <tr> <td>CHAIN LINK</td> <td>V</td> <td></td> </tr> <tr> <td>WOVEN WIRE</td> <td></td> <td></td> </tr> <tr> <td>GATE POST</td> <td>X</td> <td></td> </tr> <tr> <td>BENCHMARK</td> <td>BM</td> <td>⊗</td> </tr> </tbody> </table> <p>NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES</p>		EXISTING	NEW	BUILDINGS AND STRUCTURES			GUARD RAIL	□	■	GUARD CABLE	○○○○	●●●●	CONCRETE RIGHT-OF-WAY MARKER	↑↑↑↑	↓↓↓↓	STEEL RIGHT-OF-WAY MARKER	▽▽▽▽	▽▽▽▽	LOCATION SURVEY MARKER	○	○	UTILITIES			FIBER OPTICS	- FO -	- FO -	OVERHEAD CABLE TV	- OTV -	- OTV -	UNDERGROUND CABLE TV	- UTV -	- UTV -	OVERHEAD TELEPHONE	- OT -	- OT -	UNDERGROUND TELEPHONE	- UT -	- UT -	OVERHEAD POWER	- OE -	- OE -	UNDERGROUND POWER	- UE -	- UE -	SANITARY SEWER	- S -	- S -	STORM SEWER	- SS -	- SS -	GAS	- G -	- G -	WATER	- W -	- W -	MANHOLE	SAN	HYD	FIRE HYDRANT	HYD	WV	WATER VALVE	WV	WM	WATER METER	WM	DI	DROP INLET	DI		DITCH BLOCK			GROUND MOUNTED SIGN	SIGN		LIGHT POLE			H-FRAME POWER POLE	PED		TELEPHONE PEDESTAL	△		FENCE			CHAIN LINK	V		WOVEN WIRE			GATE POST	X		BENCHMARK	BM	⊗	<p>INDEX OF SHEETS</p> <table border="1"> <thead> <tr> <th>DESCRIPTION</th> <th> SHEET NUMBER</th> </tr> </thead> <tbody> <tr> <td>TITLE SHEET -----</td> <td>1</td> </tr> <tr> <td>TYPICAL SECTIONS (TS) (1 SHEET)-----</td> <td>2</td> </tr> <tr> <td>QUANTITIES (QU) (2 SHEETS)-----</td> <td>3</td> </tr> <tr> <td>PLAN SHEETS (PL)-----</td> <td>4-5</td> </tr> <tr> <td>REFERENCE POINTS (RP)-----</td> <td>6</td> </tr> <tr> <td>COORDINATE POINTS (CP)-----</td> <td>7</td> </tr> <tr> <td>SPECIAL SHEETS (SS)-----</td> <td>8</td> </tr> <tr> <td>TRAFFIC CONTROL SHEETS (TC)-----</td> <td>9-11</td> </tr> <tr> <td>SIGNING SHEETS (SN)-----</td> <td>12</td> </tr> <tr> <td>BRIDGE DRAWINGS (B)</td> <td></td> </tr> <tr> <td>WALL A8377-----</td> <td>1</td> </tr> <tr> <td>WALL A7637-----</td> <td>1-2</td> </tr> </tbody> </table> <p>ROUTE 141 & 21 STATE HIGHWAY ST. LOUIS COUNTY & JEFFERSON COUNTY 10/21/2025</p> <p>NOT TO SCALE</p> <p>DATE PREPARED 10/21/2025</p> <p>ROUTES STATE 141&21 MO</p> <p>DISTRICT SHEET NO. SL 1</p> <p>COUNTY JOB NO. ST. LOUIS & JEFFERSON JSLM0071</p> <p>CONTRACT ID.</p> <p>PROJECT NO.</p> <p>BRIDGE NO.</p> <p>DESCRIPTION</p> <p>DATE</p> <p>MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)</p> <p>MODOT</p> <p>EFK-Moen Civil Engineering Design 13523 Barrett Parkway Dr. Suite 250 St. Louis, MO 63021 Phone 314-394-3100 Fax 314-394-3199 Missouri Certificate of Authority: 001578</p>	DESCRIPTION	SHEET NUMBER	TITLE SHEET -----	1	TYPICAL SECTIONS (TS) (1 SHEET)-----	2	QUANTITIES (QU) (2 SHEETS)-----	3	PLAN SHEETS (PL)-----	4-5	REFERENCE POINTS (RP)-----	6	COORDINATE POINTS (CP)-----	7	SPECIAL SHEETS (SS)-----	8	TRAFFIC CONTROL SHEETS (TC)-----	9-11	SIGNING SHEETS (SN)-----	12	BRIDGE DRAWINGS (B)		WALL A8377-----	1	WALL A7637-----	1-2
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SOUTH HIGHWAY DRIVE
STA. 5+61.71 TO STA. 6+76.07



TYPE C BARRIER ELEVATION VIEW

NOT TO SCALE
TYPICAL SECTION SHEET 1 OF 1

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10/21/2025 10:17:47 AM
Paul J. Kronlage - Civil
MO PE - 023328

DATE PREPARED
10/21/2025

ROUTES STATE
141&21 MO

DISTRICT SHEET NO.
SL 2

COUNTY
ST. LOUIS &
JEFFERSON
JOB NO.
JSLM0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



EFK-Moen
Civil Engineering Design
13523 Barrett Parkway Dr.
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578



Paul J. Kronlage
10/21/2025 10:18:10 AM
Paul J. Kronlage - Civil
MO PE - 023328

DATE PREPARED
10/21/2025

ROUTES STATE
141&21 MO

DISTRICT SHEET NO.
SL 3

COUNTY
ST LOUIS &
JEFFERSON

JOB NO.
JSLM0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

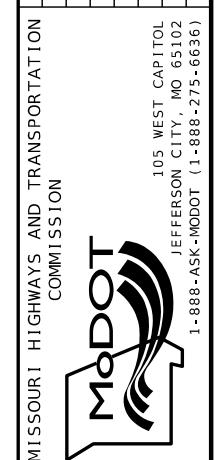
MOBILIZATION	1 LUMP SUM
CONTRACTOR FURNISHED SURVEYING AND STAKING	1 LUMP SUM
LUMP SUM TEMPORARY TRAFFIC CONTROL	1 LUMP SUM

GUTTER						
SHEET NO	ROADWAY	STA	STA	LOC	CONCRETE GUTTER	REMARKS
					TYPE B	
5	HAYDEN RD	9+88.5	10+23.5	RT	35	
					SUBTOTAL	
					PAY TOTAL	

REMOVAL OF IMPROVEMENTS							
SHEET NO	STA	STA	LOC	ROADWAY	L. F.	EACH	DESCRIPTIONS
4	5+60		LT	S HWY DRIVE	16		REMOVE EXISTING TYPE C CET
4	5+82		LT	S HWY DRIVE		1	REMOVE STEEL PLATE MOUNTED TO MSE WALL
4	6+05		LT	S HWY DRIVE		1	REMOVE STEEL PLATE MOUNTED TO MSE WALL
4	6+05		LT	S HWY DRIVE		1	REMOVE LARGE MODULAR WALL BLOCK
5	9+88.5	10+23.5	LT	HAYDEN RD.	35		REMOVE TYPE B GUTTER
				PAY TOTAL	1 LUMP SUM		

PERMANENT CONCRETE TRAFFIC BARRIER						
SHEET NO	ROADWAY	STA	STA	LOC	CONCRETE TRAFFIC BARRIER	REMARKS
					BARRIER, TYPE C	
4	S HWY DR	5+60	6+75	LT	135	
					SUBTOTAL	
					PAY TOTAL	

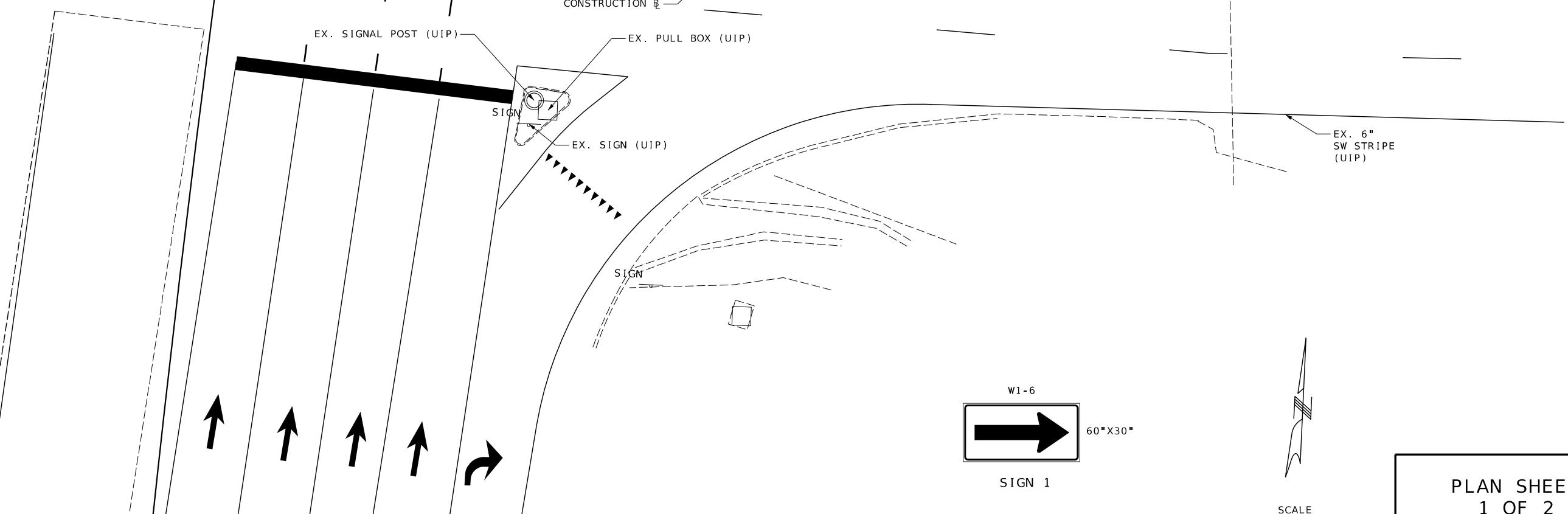
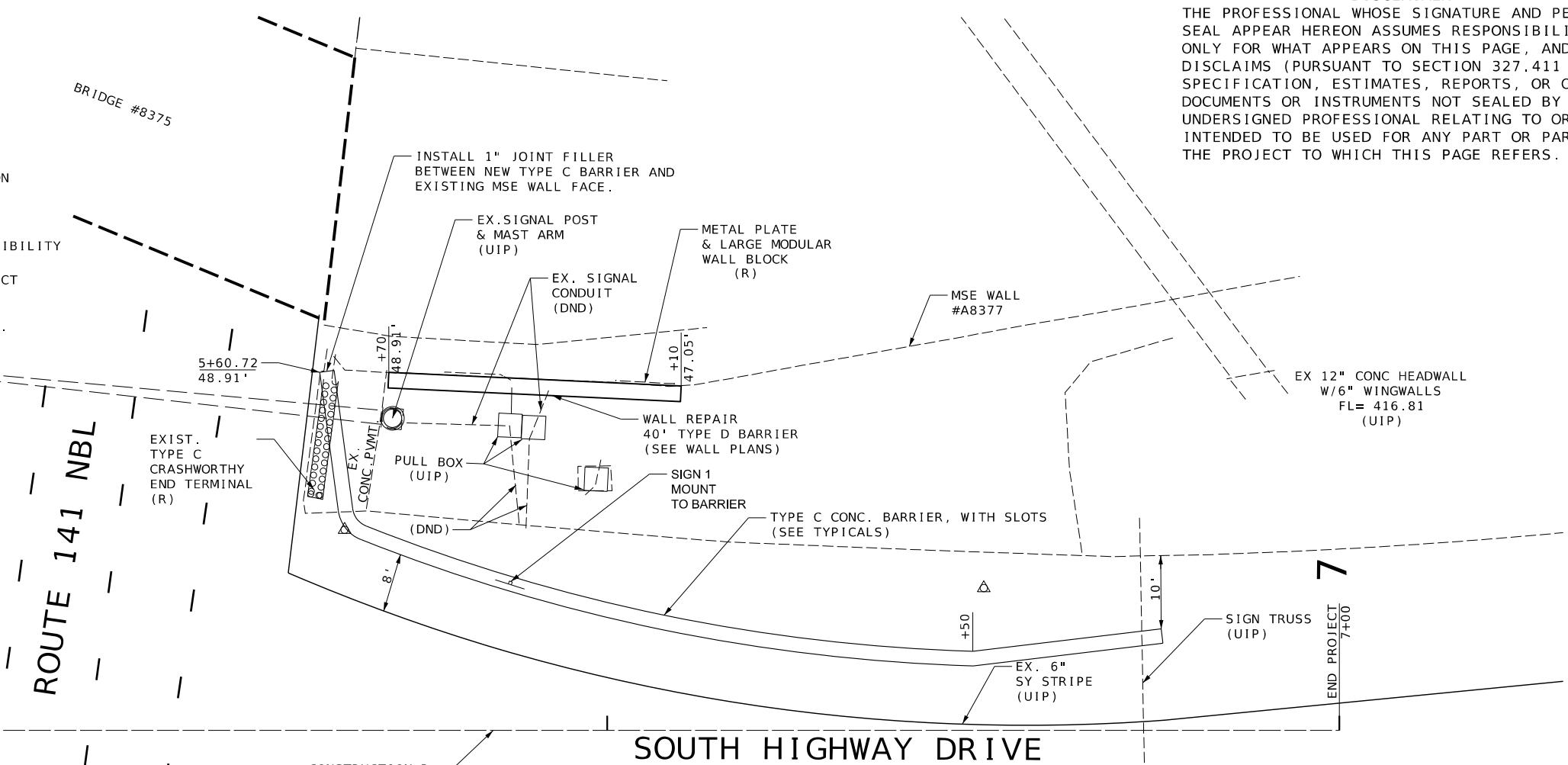
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REV. 1



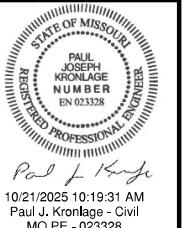
SUMMARY
OF QUANTITIES
SHEET 1 OF 2

GENERAL NOTES:

1. ANY WORK INDICATED ON THE PLANS THAT EXTENDS BEYOND THE PROJECT LIMITS IS CONSIDERED INCIDENTAL TO AND A PART OF THE CONSTRUCTION OF THIS PROJECT.
2. THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION. IT IS, THEREFORE, THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE, LOCATION AND STATUS OF ANY FACILITY. SUCH VERIFICATION INCLUDES DIRECT CONTACT WITH THE LISTED UTILITIES.
3. ALL BEARINGS BASED ON MISSOURI STATE PLANE, EASTERN ZONE.



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DATE PREPARED
10/21/2025

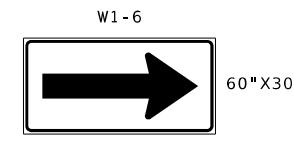
ROUTES 141&21 STATE MO
DISTRICT SL SHEET NO. 4
COUNTY ST. LOUIS & JEFFERSON
JOB NO. JSLM0071
CONTRACT ID.

PROJECT NO.
BRIDGE NO.

DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
MODOT 105 WEST CAPITOL JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

EFK-Moen Civil Engineering Design
13523 Barrett Parkway Dr. Suite 250 St. Louis, MO 63021 Phone 314-394-3100 Fax 314-394-3199 Missouri Certificate of Authority: 001578



SIGN 1



SCALE

PLAN SHEET
1 OF 2
ROUTE 141



Paul J. Krone
10/21/2025 10:21:14 AM
Paul J. Krone - Civil
MO PE - 023328

DATE PREPARED
10/21/2025

ROUTES STATE
141&21 MO

DISTRICT SHEET NO.
SL 7

COUNTY
ST LOUIS &
JEFFERSON

JOB NO.
JSLM0071

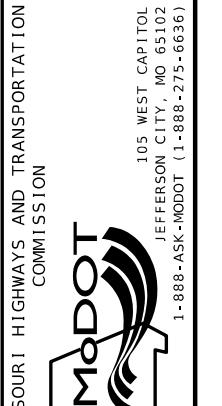
CONTRACT ID.

PROJECT NO.

BRIDGE NO.

COORDINATE POINT LISTING

SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND)			DESCRIPTION	GPK POINT ID
				NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)		
PROJECT CONTROL POINTS								
4	5+64.12	LEFT SOUTH HWY DR	27.41'	985001.046	821580.958	420.79		500
4	6+51.43	LEFT SOUTH HWY DR	19.46'	984997.161	821668.548	422.81		501
5	372+70.62	RIGHT ROUTE 21	156.53'	886904.765	804993.439	602.73		1
5	373+00.89	LEFT ROUTE 21	164.94'	886857.665	805312.885	582.81		2
5	372+96.68	RIGHT ROUTE 21	38.67'	886872.550	805109.771	595.09		3
ALIGNMENTS								
RTE. 21	368+00.00		CL	887366.522	805174.446		POT	
RTE. 21	372+83.85		CL	886883.338	805149.063		CL HAYDEN RD	
RTE. 21	375+00.00		CL	886667.485	805137.723		POT	
SOUTH HWY DR	5+00.00		BL	984972.580	821451.047		POT	
SOUTH HWY DR	7+00.00		BL	984979.985	821717.969		POT	
HAYDEN RD	5+04.92		BL	887024.425	804660.713		START	
HAYDEN RD	13+53.98		BL	886788.767	805476.404		END	



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COORDINATE POINTS
SHEET 1 OF 1

GENERAL NOTES:

1. ALL COORDINATES AND BEARINGS BASED ON MISSOURI STATE PLANE, EASTERN ZONE.
2. ALL LAYOUT MEASUREMENTS SHOWN ARE TO THE FRONT FACE OF TYPE C BARRIER.
3. SEE WALL PLANS FOR TYPE D BARRIER.

DISCLAIMER

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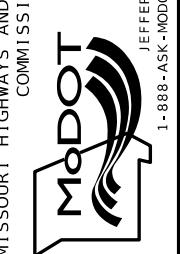
PAUL JOSEPH KRONLAGE
NUMBER EN 023328
10/21/2025 10:22:40 AM
Paul J. Kronlage - Civil
MO PE - 023328

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10/21/2025

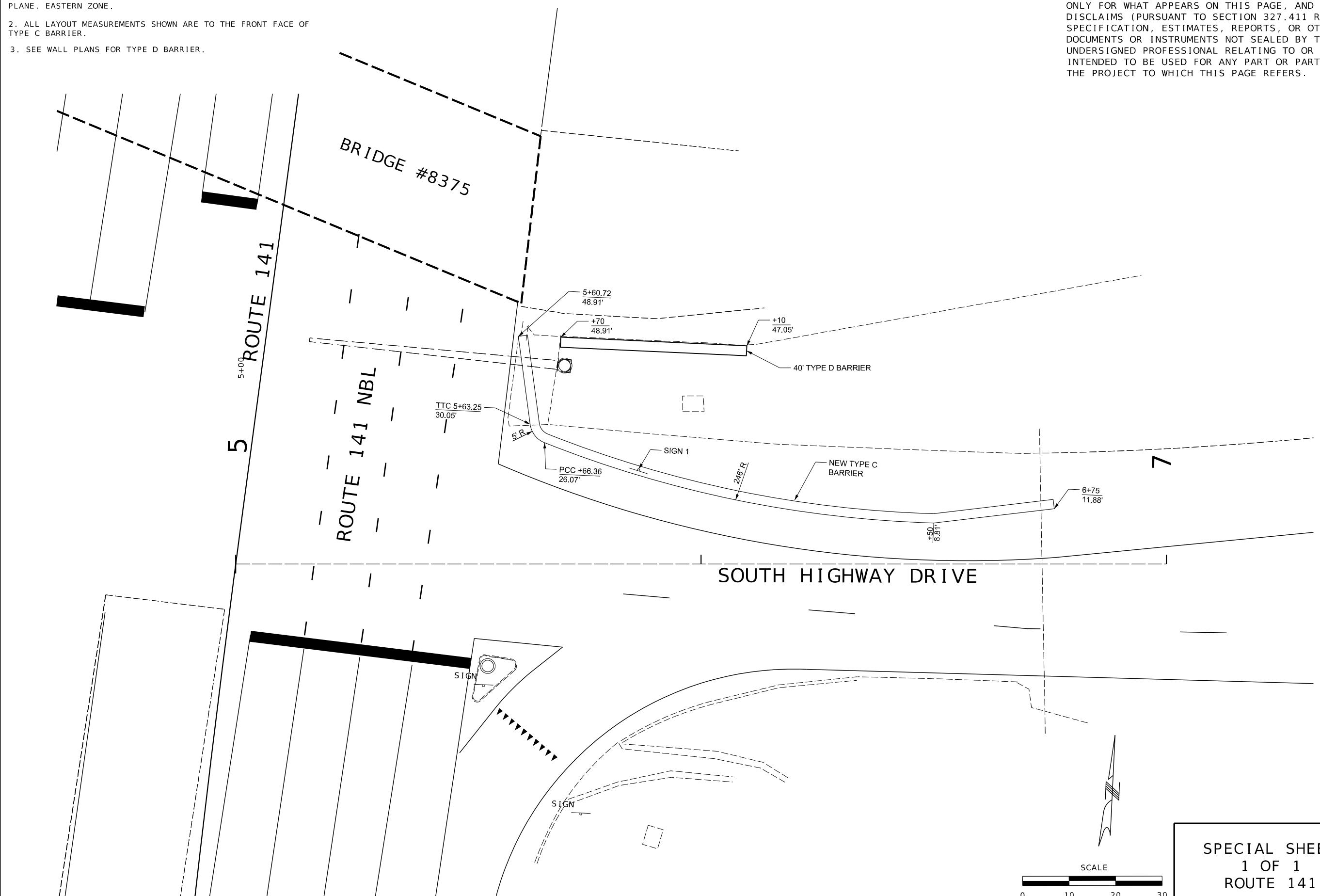
ROUTES STATE
141&21 MO
DISTRICT SHEET NO.
SL 8
COUNTY
ST. LOUIS &
JEFFERSON
JOB NO.
JSLM0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION
DATE
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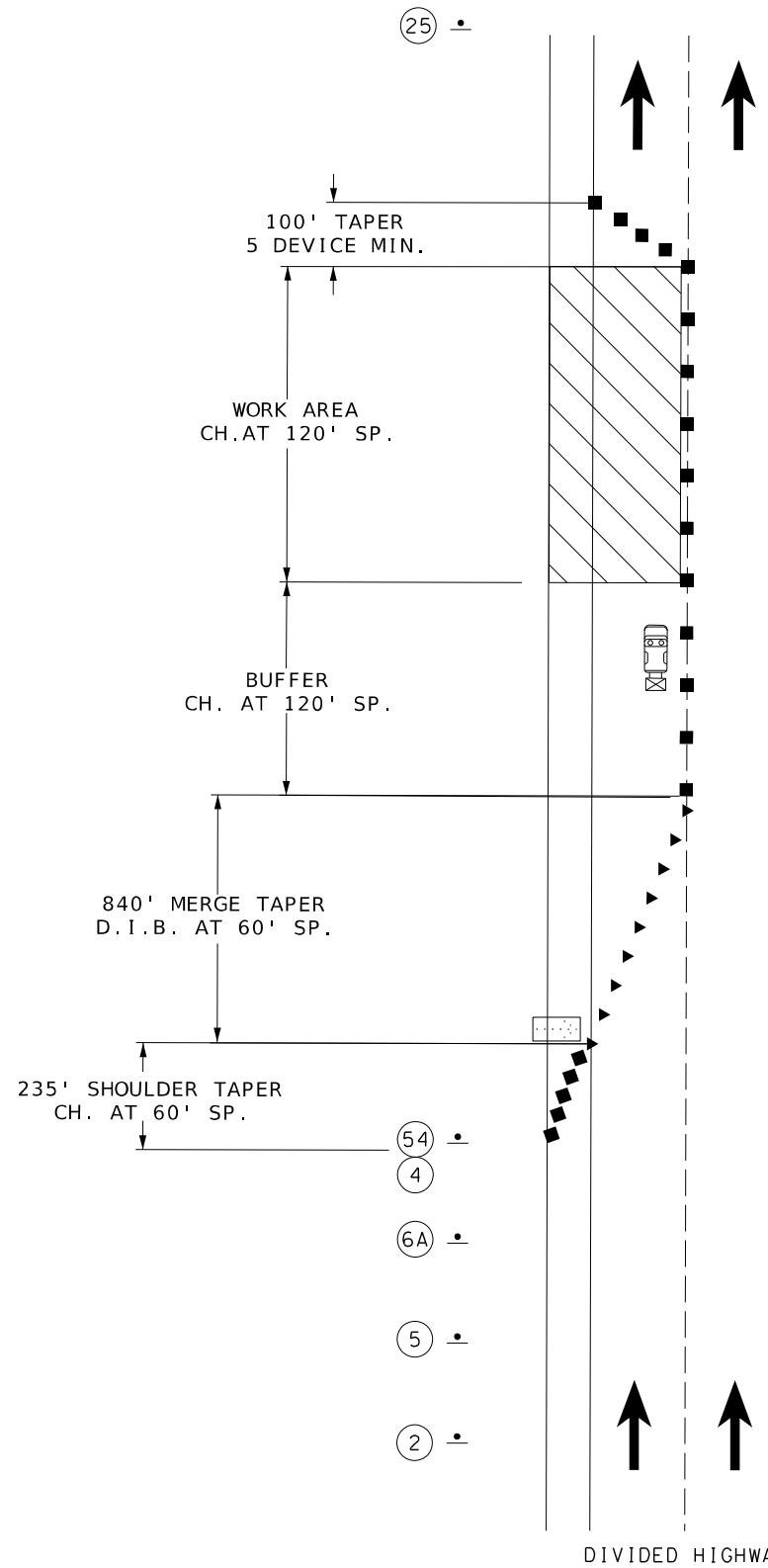
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SINGLE LANE CLOSURE
DIVIDED HIGHWAY



BRIDGE
OR
RAMP



CENTER LANE
OR
RIGHT LANE



CENTER
OR
RIGHT



TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- CHANNELIZER (TRIMLINES)
- ▲ DIRECTIONAL INDICATOR BARRICADES (DIB)
- ▢ TYPE III MOVABLE BARRICADES
- ▢ Flashing Arrow Panel
- ◆ TUBULAR MARKER
- WORK AREA
- ▢ TRUCK MOUNTED ATTENUATOR (TMA)
- ▢ CHANGEABLE MESSAGE SIGN (CMS)
- ▢ FLAGGER

NOTES:

THE CONTRACTOR SHALL COVER OR REMOVE ANY EXISTING SIGNING OR PAVEMENT MARKING THAT CONFLICTS WITH THE TEMPORARY TRAFFIC CONTROL SIGNING AND DEVICES.

THE CONTRACTOR SHALL PROVIDE SIGNS ON LEFT AND RIGHT SIDES OF DIVIDED HIGHWAYS.

SPEED	SIGN SPACING (ft.)		TAPER LENGTH (ft.)		OPTIONAL BUFFER LENGTH (ft.) (B)	CHANNELIZER SPACING (ft.)	
	Undivided (S)	Divided (S)	Shoulder (1) (T1)	Lane (2) (T2)		Tapers	Buffer/ Work Areas
Normal Posted (mph)							
0-35	200	200	70	245	280	35	40
40-45	350	500	150	540	400	40	80
50-55	500	1000	185	660	560	50	80
60-70	1000	SA - 1000 SB - 1500 SC - 2640	235	840	840	60	120

1. Shoulder taper length based on 10 ft. (standard shoulder width) offset. 2. Lane taper length based on 12 ft. (standard lane width) offset.

TRAFFIC
CONTROL SHEET
1 OF 3

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DISTRICT SHEET NO.
SL 9
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SHOULDER WORK (RIGHT)

STATE OF MISSOURI
PAUL JOSEPH KRONLAGE
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PROFESSIONAL ENGINEER
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MO PE - 023328

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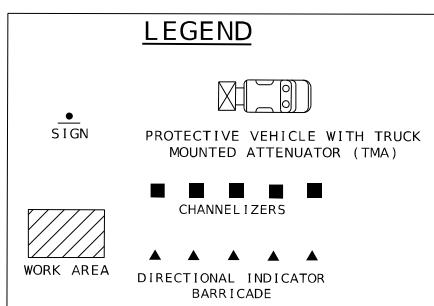
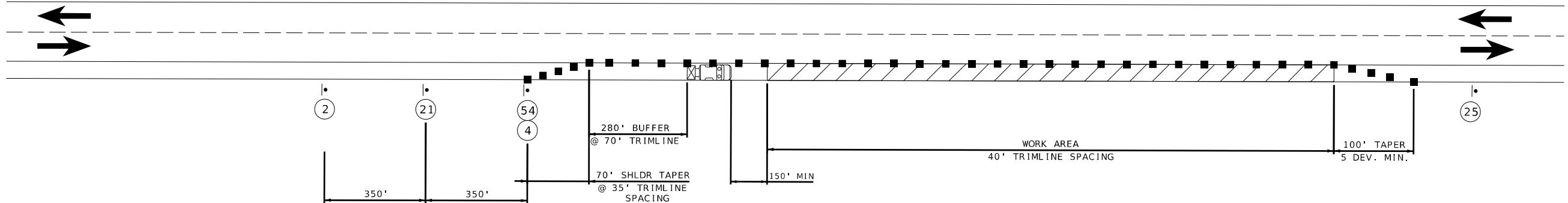
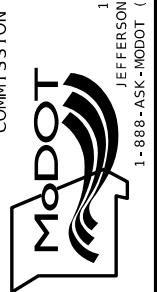
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BRIDGE NO.

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WO20-1

(2)



WO21-5

(21)



R2-1

(4)



GO20-5aP

(54)



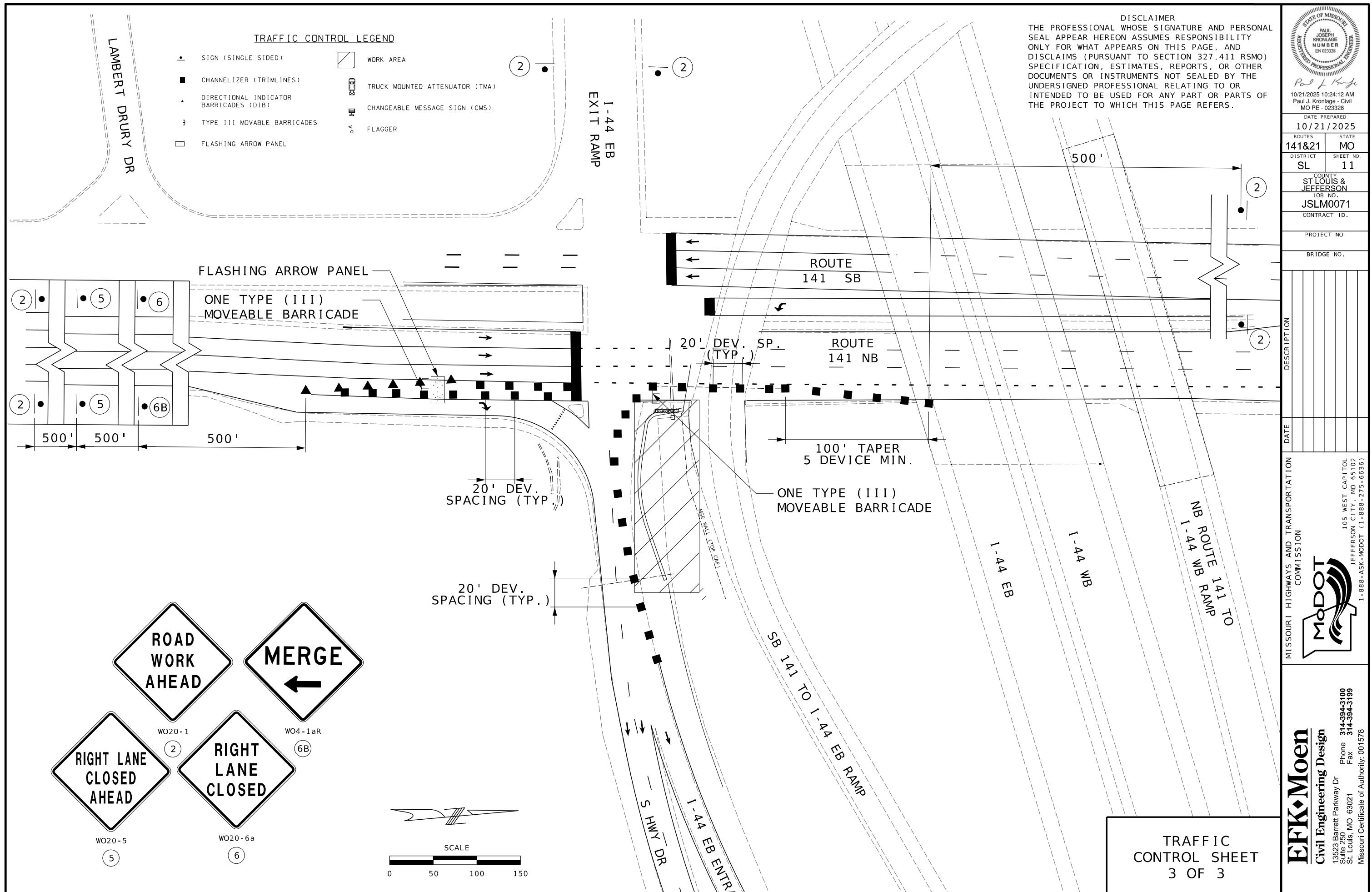
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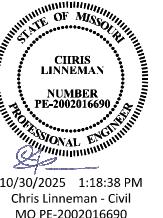
TRAFFIC
CONTROL SHEET
2 OF 3

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U.I.P. AND REHABILITATE EXISTING 267' MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL SYSTEM

SEC/SUR 23 TWP 41N RGE 4E

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Chris Linneman - Civil
MO PE-2002016690DATE PREPARED
10/30/2025

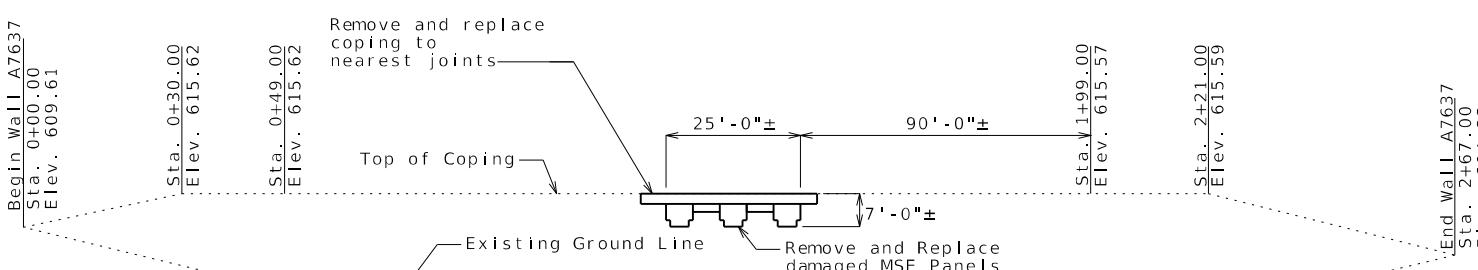
ROUTE 21 STATE MO
DISTRICT BR SHEET NO. 1
COUNTY JEFFERSON
JOB NO. JSLM0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A76371

DESCRIPTION

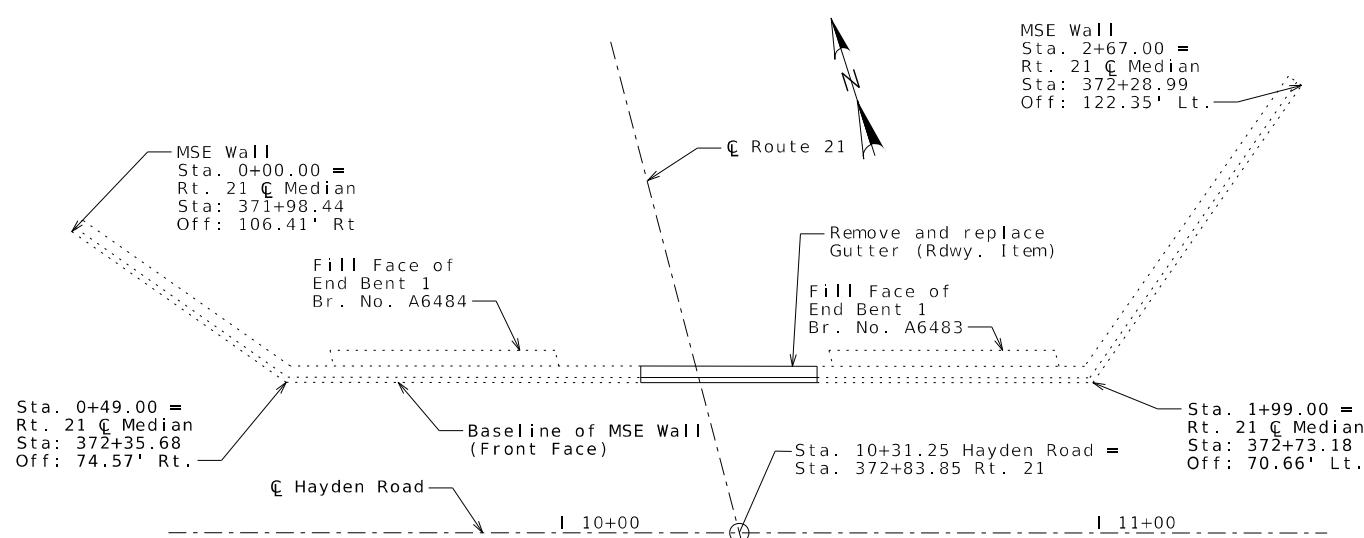
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REV. 10/30/2025



DEVELOPED ELEVATION



PLAN

General Notes:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications (Section 5 ASD Design)
Seismic Performance Category = B
Acceleration Coefficient = 0.10

Design Loading:

$\Phi_b = 35^\circ$ and Unit weight, $\gamma_b = 120$ pcf for retained backfill material to be retained by the mechanically stabilized earth wall system.

$\Phi_f = 32^\circ$ for unimproved foundation ground where wall is to bear.

Contractor shall include design Φ_r (actual $\Phi_r \geq 34^\circ$) and the total unit weight, γ_r , for the select granular backfill (reinforced backfill and wedge area backfill) for structural systems on shop drawings. Contractor shall identify source of select granular backfill material, submit proctor in accordance with AASHTO T 99 (ASTM D698) and gradation with the shop drawings. When backfill material is too coarse to develop a proctor curve the contractor shall determine the maximum dry density (relative density) in accordance with ASTM D4253 and ASTM D4254 and assume percent passing the 200 sieve for optimum water content.

Total unit weight, $\gamma_r = (95\% \text{ compaction}) \times (\text{maximum dry density}) \times (1 + \text{optimum water content})$

Design $\Phi_r = 34^\circ$ for the select granular backfill (reinforced backfill) only for structural systems.

Factor of safety shall be 2.0 for overturning and 1.5 for sliding.

For seismic design the factor of safety shall be 1.5 for overturning and 1.1 for sliding.

Use default values for the pullout friction factor, F^* , in accordance with AASHTO figure 5.8.5.2A and default value for scale effect correction factor, α , in accordance with AASHTO table 5.8.5.2A. For approved steel strips not shown in AASHTO figure 5.8.5.2A, use $F^* \leq 2.0$ at zero depth and $F^* \leq \tan \Phi_r$ at 20 feet depth and Φ_r design = 34° . F^* and α values shall be shown on the shop drawings.

Design Unit Stresses:

All concrete for coping shall be Class B or B-1 with $f'_c = 4000$ psi.

The minimum compressive strength of concrete for precast panel shall be 4,000 psi in accordance with Sec 1052.

Miscellaneous:

The MSE wall system shall be built vertical.

The MSE wall system shall be built in accordance with Sec 720.

The MSE wall system shall be a large block wall system.

The cost of the joint filler and joint seal, complete in place, will be considered completely covered by the contract unit price for Partial Remove and Replace MSE Wall.

Panel and coping (or capstone) reinforcement shall be epoxy coated.

A filter cloth meeting the requirements for a Separation Geotextile material shall be placed between the select granular backfill for structural systems and the backfill being retained by the mechanically stabilized earth wall system.

Coping shall be required on this structure. When CIP coping sections extend beyond the limits of a single panel, bond breaker (roofing felt or other approved alternate) between wall panel and coping is required. Coping joints shall use 3/4-inch chamfers and shall be sealed with 3/4-inch joint filler. Coping reinforcement shall terminate 1 1/2-inch minimum from face of coping joint.

Contractor shall verify all dimensions in field before finalizing the shop drawings.

Outline of existing work is indicated by light dashed lines. Heavy lines indicate new work.

RETAINING WALL ALONG ROUTE 21 OVER HAYDEN ROAD

ROUTE 21 FROM ROUTE A TO ROUTE M
ABOUT 1.4 MILES NORTH OF ROUTE A
TIE STATION 372+83.85±

Estimated Quantities	
Item	Total
Partial Remove and Replace MSE Wall	sq. foot 175

Detailed Sep. 2025
Checked Sep. 2025

Note: This drawing is not to scale. Follow dimensions.

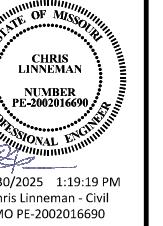
MSE Wall Systems Data Table					
Proprietary Wall Systems		Combination Wall Systems			
Manufacturer	System	Facing Unit Manufacturer	Facing Unit	Geogrid Manufacturer	Geogrid

MSE Wall Systems Data Table is to be completed by MoDOT construction personnel to record the manufacturer of the proprietary wall system or the manufacturers of the combination wall system that was used for constructing the MSE wall.

Sheet No. 1 of 2

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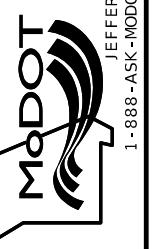
Chris Linneman - Civil

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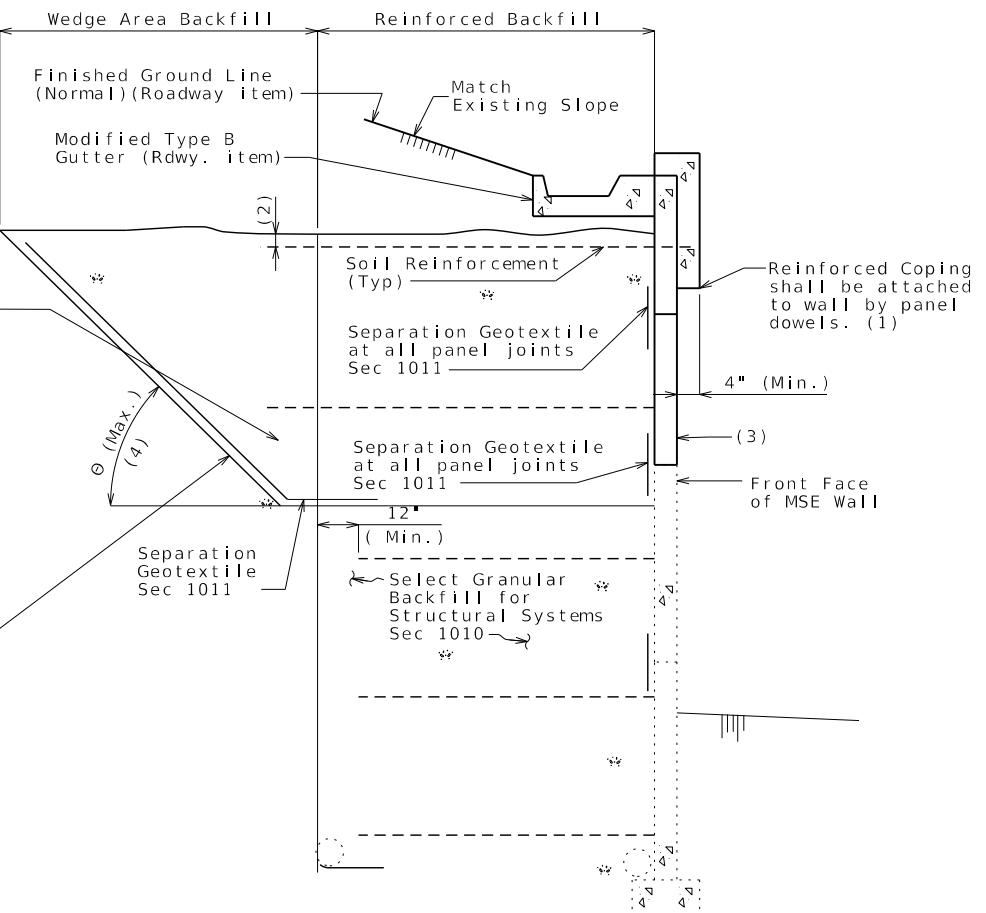
DATE PREPARED
10/30/2025

ROUTE 21	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY JEFFERSON	
JOB NO. JSLM0071	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A76371	

DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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TYPICAL SECTION THRU
LARGE BLOCK WALL SHOWING FILTER CLOTH

General Notes Cont.:

Minimum 18" wide Geotextile strips shall be centered at vertical and horizontal joints of panel. Geotextile material shall be adhered to back face of panel using an adhesive compound supplied by the manufacturer. All edges of each fabric strip shall provide a positive seal. A minimum 18" overlap shall be provided between spliced filter fabric.

Aluminized soil reinforcement shall have edges coated with coating material per manufacturer.

Soil reinforcement shall be spaced to avoid roadway drop inlet behind wall.

Upper two layers of soil reinforcement shall be extended 3 feet beyond the lower layers when wall height is greater than or equal to 10 feet.

All steel soil reinforcements shall be separated from other metallic elements by at least 3 inches.

The splay angle should be less than 15° and tensile capacity of splayed reinforcement shall be reduced by the cosine of the splay angle. Soil reinforcement shall clear the obstruction by at least 3 inches.

No reinforcement shall be left unconnected to the wall face or arbitrarily cut/bent in the field to avoid the obstruction.

Where interference between the vertical obstruction and the soil reinforcement is unavoidable, the design of the wall near the obstruction may be modified using one of the alternatives in FHWA-NHI-10-24, Section 5.4.2. Show detail layout on the drawings. For wall designs with horizontal obstructions in reinforced soil mass, see FHWA-NHI-10-024, Section 5.4.3.

DETAILS FOR GENERIC MSE WALL

- For $(45^\circ + \Phi_b/3) < \theta \leq 90^\circ$, properties for retained backfill shall be used for active force computations.

- For $\theta \leq (45^\circ + \Phi_b/3)$, contractor shall have the option to use select granular backfill, Φ_r , or better aggregate material, Φ_w for active force computations in the wedge area backfill. For active force computations, the angle of internal friction for wedge area backfill material, Φ_r or Φ_w , shall be limited to 34° unless determined otherwise in accordance with Section 1010. If Φ_r or $\Phi_w > 34^\circ$ is desired for wedge area backfill then test report shall be submitted with shop drawings. Φ_r or Φ_w shall not be greater than 40° for computations. Final configuration of this option shall be sent to Geotechnical Section for a new overall global stability analysis. Design Φ_w shall be shown on the shop drawings if used.

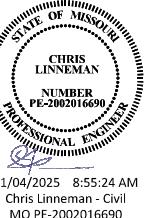
The slope excavation line shall be benched and separation geotextile shall be placed between the retained backfill and either select granular backfill or better aggregate material, and between the select granular backfill and better aggregate material.

Show range of acceptable theta (θ) angle on shop drawings which must be consistent with design computations and proposed construction of wall. Show active force computation properties on shop drawings and in design computations. Coordination between wall designer (manufacturer) and contractor is required before shop drawing submittal.

Material Properties Used in Design		
Reinf. Fill/Select Granular Backfill	Active Force Computations	Foundation
Φ°	γ (pcf)	Φ°

Note: MSE Wall designer shall include table on shop drawings and provide values used in the design computations. Effects of cohesion shall be ignored unless approved by the engineer.

(4) Select granular backfill shall extend a minimum of 12" beyond the end of all soil reinforcement. Where the angle, θ , between the retained backfill excavation/fill line and the horizontal is less than 90°, the wedge area backfill between θ and 90° shall be filled with select granular backfill for structural systems meeting the requirements of Section 1010.

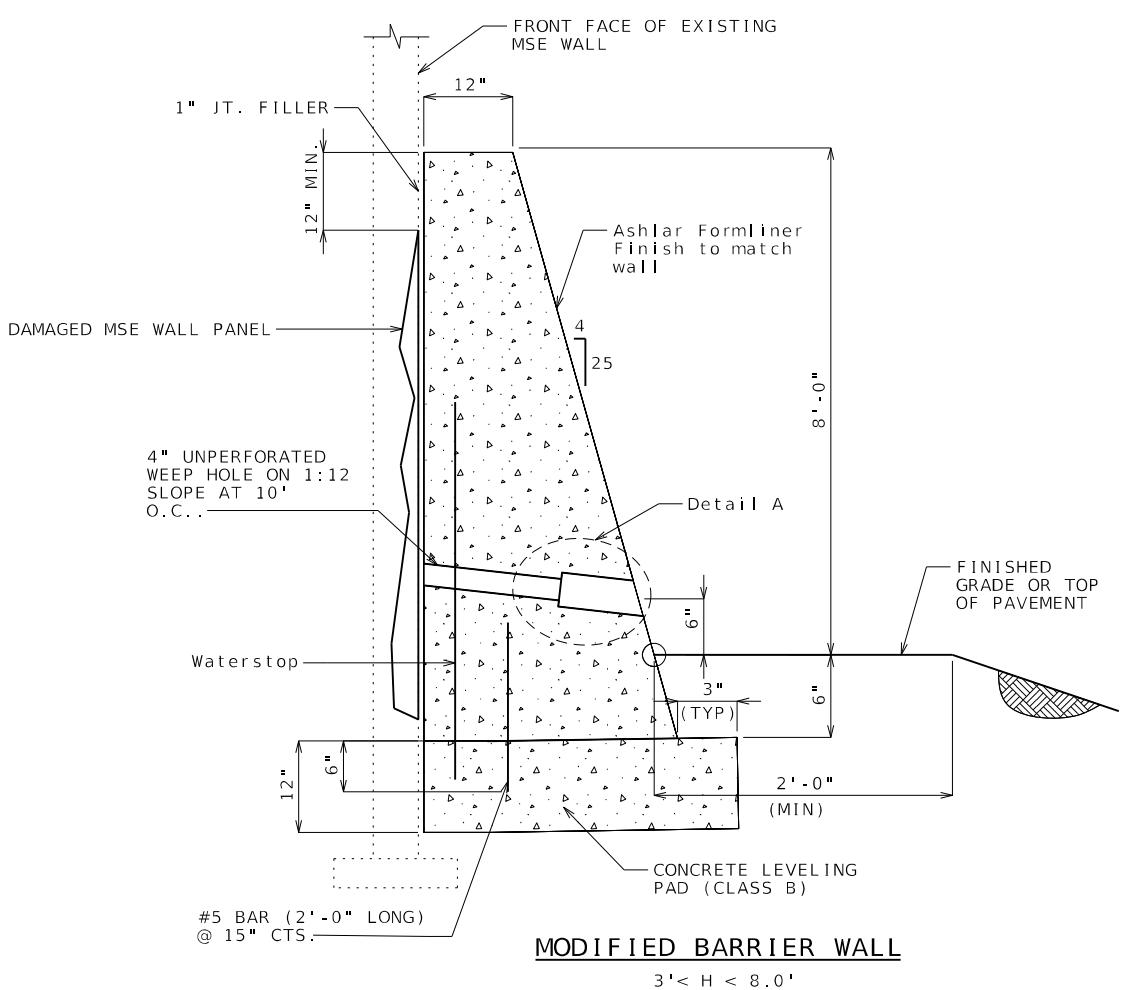
11/04/2025 8:55:24 AM
Chris Linneman - Civil
MO PE-200201690DATE PREPARED
8/28/2025

ROUTE 141	STATE MO
DISTRICT BR	SHEET NO. 1
COUNTY ST. LOUIS	JOB NO. JSLM0071
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A83771	

DESCRIPTION

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 REV. 11/4/2025



Sequence of MSE Wall Panel Repair:

1. All steps to be completed concurrently, in one day, to limit exposure of damaged MSE wall panels.
2. Excavate and prepare subgrade for modified barrier.
3. Remove steel plates from front face of damaged MSE Wall Panels
4. Install expanding foam fill materials to provide flat vertical wall facing.
5. Install joint filler, concrete leveling pad, and reinforcing steel. Leveling pad to be precast concrete blocks to facilitate construction.
6. Place concrete for modified Type D barrier.

General Notes:

Design Unit Stresses:
 Class B Concrete (Footing) $f'_c = 3,000$ psi
 Class B-1 Concrete (Barrier) $f'_c = 4,000$ psi
 Reinforcing Steel (ASTM A615 Grade 60) $fy = 60,000$ psi

Top of barrier shall be built parallel to grade with barrier joints normal to grade.

All exposed edges of barrier shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete in place, will be completely covered by the contract unit price for Type D Barrier (Modified) per linear foot.

Concrete in the barrier shall be Class B-1.

Measurement of barrier is to the nearest linear foot.

Joint sealant and backer rods shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

The backfill material shall be placed and compacted in accordance with Sec 206.

Minimum clearance to reinforcing steel shall be 2". Unless otherwise shown.

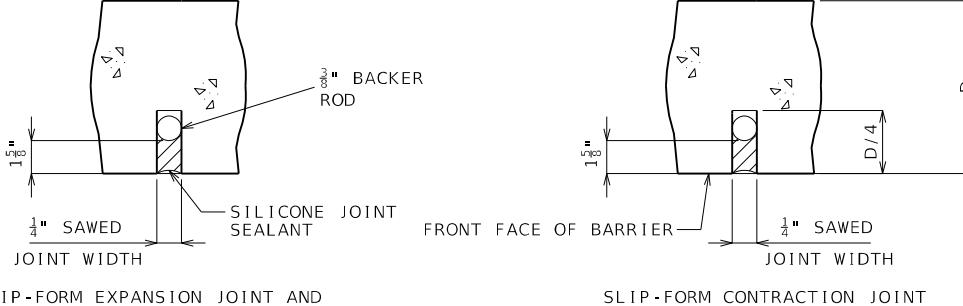
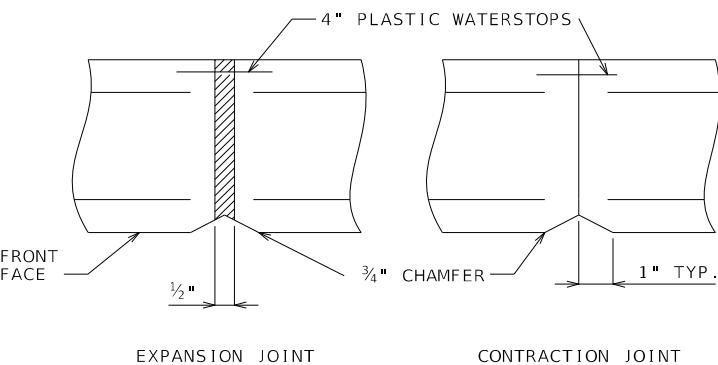
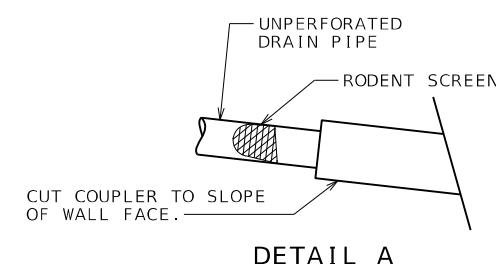
All joint filler shall be in accordance with Sec 1067 for preformed fiber expansion joint filler. Except as noted.

Place contraction joint every 20'. Expansion joint every 60'.

Return plate to MoDOT maintenance yard at: 2333 Barrett Station Rd #2275, Manchester, MO 63021.

See roadway plans for limits of barrier.

Quantity Table	
Item	Quantity
Type D Barrier (Modified)	Linear foot 40

JOINT DETAILSDETAIL ATYPE D BARRIER (MODIFIED)

Sheet No. 1 of 1

Detailed Sep. 2025
Checked Sep. 2025

Note: This drawing is not to scale. Follow dimensions.

RETAINING WALL ALONG ROUTE I-44 AT ROUTE 141

ROUTE I-44 FROM ROUTE 109 TO ROUTE I-270
 AT ROUTE 141 INTERCHANGE
 TIE STATION 19+8.62± @ RAMP 6

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