DESIGN DESIGNATION

A.A.D.T. – 2022 = 38,170

A.A.D.T. – 2042 = 42,470

T = 28%

V = 70 M.P.H.

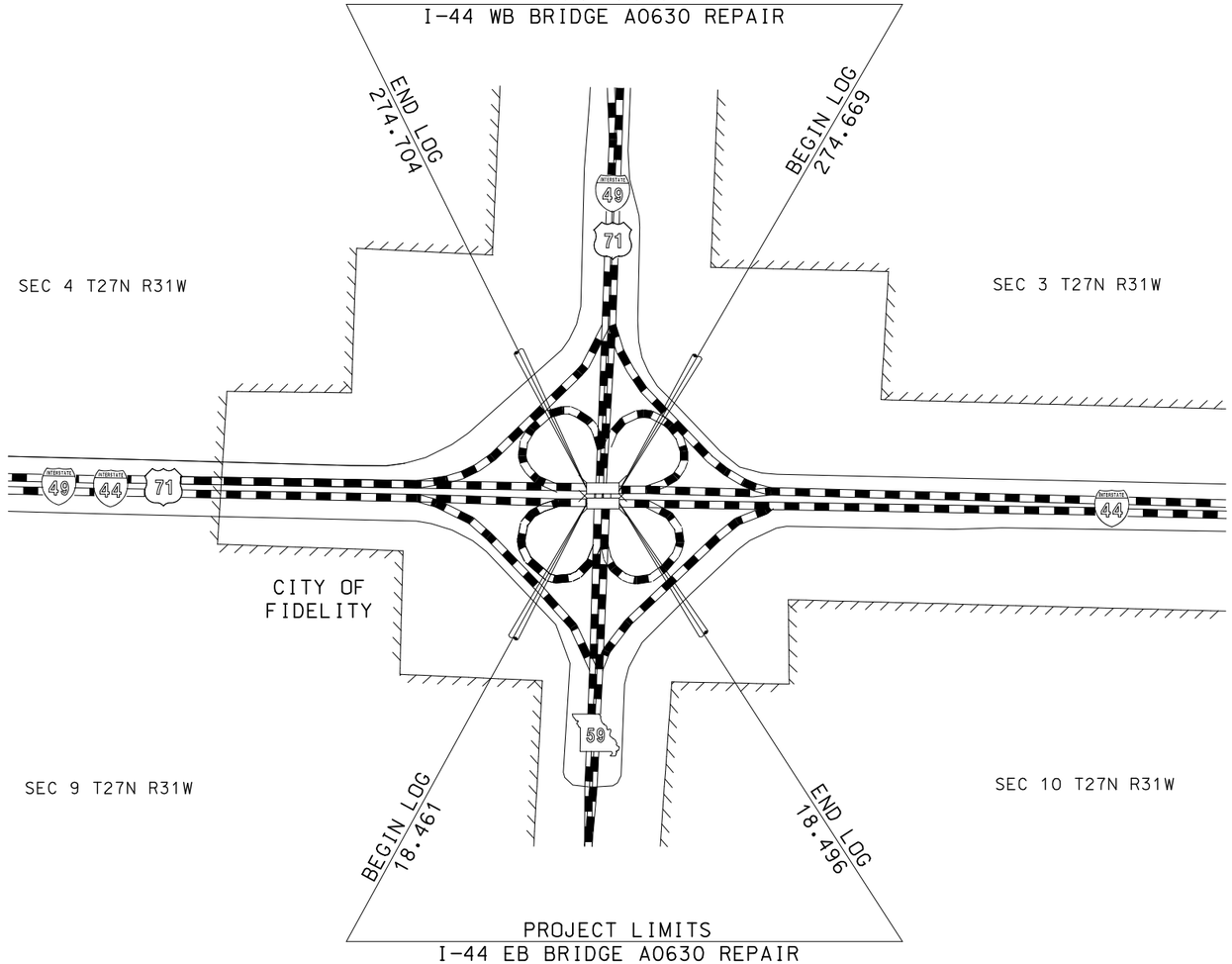
FUNCTIONAL CLASSIFICATION – INTERSTATE

NO NEW R/W REQUIRED

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY

JASPER COUNTY



NOT TO SCALE

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.

CONVENTIONAL SYMBOLS

(USED IN PLANS)

	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	
FIRE HYDRANT	HYD	
WATER VALVE	WV	
WATER METER	WM	
DROP INLET	DI	
DITCH BLOCK		
GROUND MOUNTED SIGN	SIGN	
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL	PED	
FENCE		
CHAIN LINK	-V-	
WOVEN WIRE	-X-	
GATE POST		
BENCHMARK	BM	

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

INDEX OF SHEETS

LENGTH OF PROJECT

LOG MILES FROM 2022 ARAN

EASTBOUND (EB)

BEGINNING OF PROJECT	LM 18.461	
END OF PROJECT	LM 18.496	
APPARENT LENGTH	184.80	FEET

WESTBOUND (WB)

BEGINNING OF PROJECT	LM 274.669	
END OF PROJECT	LM 274.704	
APPARENT LENGTH	184.80	FEET
EQUATIONS AND EXCEPTIONS:	NONE	
TOTAL CORRECTIONS	0.00	FEET
NET LENGTH OF PROJECT	369.60	FEET
STATE LENGTH	0.070	MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	0.0	ACRES

STATE OF MISSOURI
CRAIG ALAN SWITZER
NUMBER PE-2003015045
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
6/15/2023

ROUTE	STATE
I-44	MO
DISTRICT	SHEET NO.
SW	1

COUNTY
JASPER

JOB NO.
JSRM0043

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A0630

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

EFFECTIVE: 04-01-2023

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT ARROW)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT ARROW)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT ARROW)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT ARROW)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT ARROW)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT ARROW)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT ARROW)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT ARROW)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LT ARROWS)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RT ARROWS)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LT ARROWS)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RT ARROWS)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00	2	32				MERGE (ARROW SYMBOL)
WO4-1aR	48X48	16.00	2	32				MERGE (ARROW SYMBOL)
WO5-1	48X48	16.00	2	32				ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING (WITH FLAGS)
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL/LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17	48X48	16.00						SHOULDER DROP-OFF (SYMBOL)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
W012-2X	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
WO12-5	120X60	50.00						WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25						ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00	8	128				ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00						DETOUR AHEAD
WO20-3	48X48	16.00						ROAD CLOSED AHEAD
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD
WO20-5	48X48	16.00	4	64				RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00	2	32				2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00	2	32				RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00						FLAGGER (SYMBOL, WITH FLAGS)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00	2	32				SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00	4	24				WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00						END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT ARROW)
MO4-9R	48X36	12.00						DETOUR (RIGHT ARROW)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR (ARROW LEFT)
MO4-10R	48X18	6.00						DETOUR (ARROW RIGHT)
REGULATORY SIGNS								
R1-1	48X48	13.25						STOP
R1-2	48TRI.	6.93						YIELD
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)
R1-3P	30X12	2.50						ALL WAY (PLAQUE)
R2-1	36X48	12.00	10	120				SPEED LIMIT XX (2@50 mph, 4@60 mph, 4@70 mph)
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00						DO NOT PASS
R4-2	36X48	12.00						PASS WITH CARE
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00						STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00						ROAD CLOSED
R11-3a	60X30	12.50						ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50						ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00	4	128				POINT OF PRESENCE
CONST-7	48X24	8.00						RATE OUR WORK ZONE
CONST-7	72X36	18.00	4	72				RATE OUR WORK ZONE
CONST-8	48X36	12.00	8	96				WORK ZONE NO PHONE ZONE

616-10.05 CONSTRUCTION SIGNS	TOTAL
	824

616-10.10 RELOCATED SIGNS	TOTAL
	0

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6123000A	2	TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)
6161008	12	ADVANCED WARNING RAIL SYSTEM
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161025	200	CHANNELIZER (TRIM LINE)
6161030	10	TYPE III MOVEABLE BARRICADE
6161033	36	DIRECTION INDICATOR BARRICADE
6161040	2	FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A		CHANGEABLE MESSAGE SIGN W/O COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6161099	4	CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002	8	TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/RETAINED
6173602B		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/COMMISSION RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		TEMPORARY TRAFFIC BARRIER COMMISSION FURNISHED/RETAINED
6177000B		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION COMMISSION FURNISHED/RETAINED
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

MAINTENANCE OF COMMISSION-OWNED TRAFFIC CONTROL DEVICES
1 LUMP SUM

ADVANCE WARNING VEHICLE
1 EACH

MOBILIZATION
1 LUMP SUM

CONTRACTOR FURNISHED SURVEYING AND STAKING
1 LUMP SUM

SUMMARY OF QUANTITIES
SHEET 1 OF 1

STATE OF MISSOURI
CRAIG ALAN SWITZER
NUMBER PE-2003015045
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 6/15/2023
ROUTE: I-44 | STATE: MO
DISTRICT: SW | SHEET NO.: 2
COUNTY: JASPER
JOB NO.: JSRM0043
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A0630

DATE	DESCRIPTION

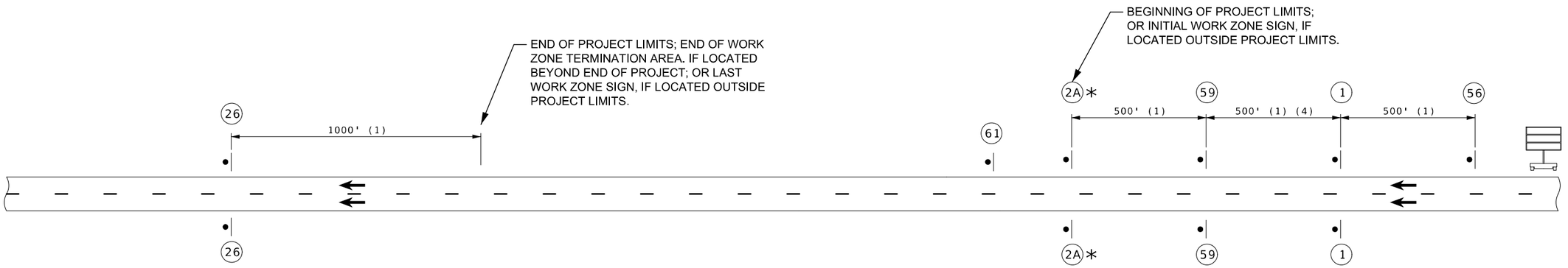
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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

REVISED: 4/18/2023

GENERAL NOTES:

1. ANY EXISTING SIGNS THAT CONFLICT WITH THE TRAFFIC CONTROL SIGNING SHALL BE COMPLETELY COVERED OR REMOVED.
2. TEMPORARY SIGNING SHOWN IS FOR WORK ON ONE SIDE OF THE ROAD. FOR WORK ON THE OTHER SIDE, REVERSE ORDER OF THE SIGNS AND CHANNELIZERS.
3. SIGNING SHOWN SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE.
4. ALTERNATE TRAFFIC CONTROL MAY BE USED AS NEEDED AT THE APPROVAL OF THE ENGINEER.
5. REFER TO STANDARD DRAWING 616.10, 619.10, AND 620.10 FOR ADDITIONAL DETAILS AND 903.03 FOR SIGN AND SIGN MOUNTING REQUIREMENTS.
6. SPEED LIMIT SIGNS INDICATING THE NORMAL SPEED LIMIT SHALL BE INSTALLED AT THE END OF THE WORK ZONE, PROVIDED NO FURTHER WORK ZONES WILL BE ENCOUNTERED WITHIN THE NEXT 1/2 MILE.
7. TEMPORARY SPEED LIMIT SIGNS SHALL BE COVERED OR REMOVED WHEN THE CONDITIONS REQUIRING REDUCED SPEEDS DO NOT EXIST.
8. NO DIRECT PAYMENT WILL BE MADE FOR THE RELOCATION OF CHANNELIZERS, CONSTRUCTION SIGNS, OR FLASHING ARROW PANEL.
9. ALL SIGNS, EXCEPT "RATE OUR WORK ZONES" SHALL BE PORTABLE MOUNT AND ARE TO BE MOVED AS WORK PROGRESSES, UNLESS OTHERWISE NOTED. ALL TRAFFIC CONTROL ITEMS SHALL BE REMOVED FROM THE ROADWAY DURING NON-WORKING HOURS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING PROPER TRAFFIC CONTROL SETUPS THROUGHOUT CONSTRUCTION AS DESCRIBED IN THESE PLANS OR AS APPROVED BY THE ENGINEER.
11. WHERE MINIMUM LANE WIDTHS CANNOT BE ACHIEVED ON THE SIDE STREETS, THE CONTRACTOR SHALL CLOSE HALF OF THE APPROACH AND POSITION A FLAGGER AT EACH END OF THE WORK AREA. LOCATION TO BE DETERMINED BY THE ENGINEER. ADVANCE FLAGGER SIGNING SHALL BE INSTALLED AS OUTLINED IN THE MUTCD.
12. THE CONTRACTOR SHALL MAINTAIN PUBLIC ACCESS TO ALL BUSINESSES AND STREETS. NO STREET OR ENTRANCE SHALL BE COMPLETELY BLOCKED.
13. SPACING & DISTANCES OF TRAFFIC CONTROL DEVICES ARE APPROXIMATE. THE EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD & APPROVED BY THE ENGINEER.
14. TRAFFIC CONTROL SHALL CONFORM TO THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
15. ADJUST ADVANCE WARNING SIGN SPACING TO AVOID SIGN PLACEMENT WITHIN THE LIMITS OF THE RAILROAD RIGHT OF WAY.



(1) DISTANCE MAY BE ADJUSTED ACCORDING TO FIELD CONDITIONS. WHERE TRAFFIC BACKUPS ARE EXPECTED BEYOND THE ADVANCE WARNING AREA, ADDITIONAL SIGNING MAY BE NEEDED.

(2) SIGN CONST-7-72 IS PLACED 500 FEET BEFORE THE BEGINNING OF PROJECT LIMITS OR THE ROAD WORK AHEAD SIGN OR ROAD WORK NEXT XX MILES SIGN. IF USED, WHEN THESE SIGNS ARE LOCATED OUTSIDE THE PROJECT LIMITS.

(3) CONST-5-96 SIGN IS PLACED IN A VISIBLE AREA WITHIN THE PROJECT LIMITS PROVIDED ITS PLACEMENT DOES NOT DISRUPT A SEQUENCE OF SIGNS. IF A VISIBLE LOCATION WITHIN THE PROJECT IS NOT AVAILABLE, THE SIGN MAY BE PLACED 500 FEET BEFORE SIGN CONST-7-72.

(4) THE "WORK ZONE NO PHONE ZONE" SIGN IS PLACED A MINIMUM OF 500 FEET BEFORE THE ROAD WORK AHEAD SIGN.

(5) CMS PLACEMENT SHALL BE APPROVED BY THE ENGINEER.

(6) SIGNS MAY BE OMITTED FOR WORK ZONES LESS THAN 2 MILES IN LENGTH.

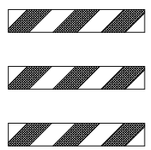
TYPICAL BEGINNING AND END OF PROJECT

(DIVIDED HIGHWAY)

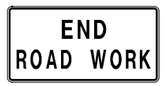
CONST-7-72

(56) (2)

WO20-1

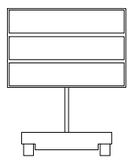


(2A) *



GO20-2

(26) (6)



(5)

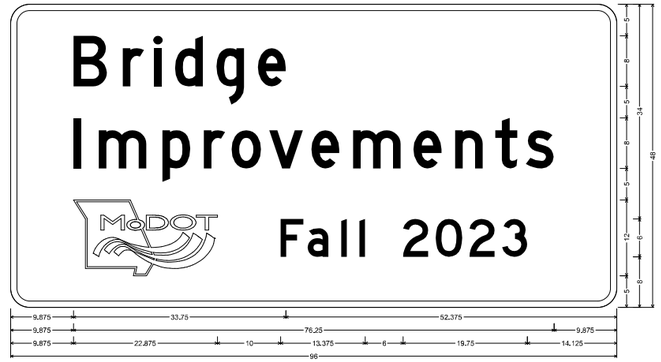
CONST-8

(59) (4)

GO20-1

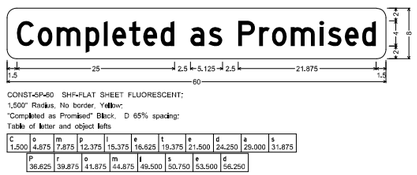
(1) (6)

* SIGN 2A WITH AWRS MUST BE GROUND OR SKID MOUNTED.



CONST-5-96

(61) (3)



NOT TO SCALE

TRAFFIC CONTROL SHEET 1 OF 6

STATE OF MISSOURI
CRAIG ALAN SWITZER
NUMBER PE-2003015045
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 6/15/2023

ROUTE	STATE
I-44	MO
DISTRICT	SHEET NO.
SW	3

COUNTY: JASPER

JOB NO.: JSRM0043

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A0630

DESCRIPTION	DATE

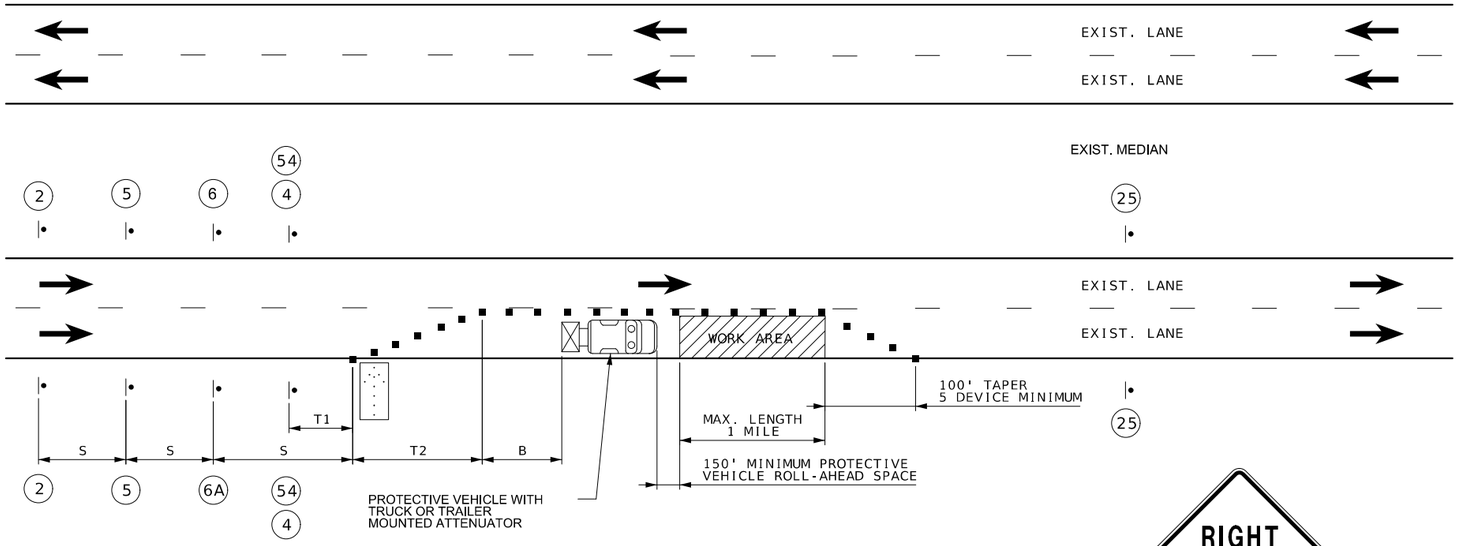
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

REVISED: 4/26/2023

OUTSIDE LANE CLOSURE



SPEED	SIGN SPACING (FT)	TAPER LENGTH (FT)		OPTIONAL	CHANNELIZER SPACING (FT)	
PERMANENT POSTED (MPH)	UNDIVIDED HIGHWAYS (S)	SHOULDER(1) (T1)	LANE(2) (T2)	BUFFER LENGTH (FT) (B)	TAPERS	BUFFER/ WORK AREAS
0-35	200	70	245	280	35	40
40-45	350	150	540	400	40	80
50-55	500	185	660	560	50	80
60-70	1000	235	840	840	60	120

NOTES:

(1) SHOULDER TAPER LENGTH BASED ON 10 FT. (STANDARD SHOULDER WIDTH) OFFSET.
(2) LANE TAPER LENGTH BASED ON 12 FT. (STANDARD LANE WIDTH) OFFSET.

SEE BEGIN/END OF PROJECT SIGNING SHEET FOR ADDITIONAL SIGNS.

IN TAPER SECTIONS, QUANTITY OF CHANNELIZERS IS DOUBLED WHEN COMPARED TO MAXIMUM CHANNELIZER SPACING IN CHART.

TEMPORARY PAVEMENT MARKING REQUIRED WITH LONG TERM CLOSURE, NO DIRECT PAY.

NO DIRECT PAYMENT WILL BE MADE FOR RELOCATION OF CHANNELIZERS, SIGNS, AND FLASHING ARROW PANEL.

FOR SHORT TERM OPERATIONS WHERE IT IS NOT FEASIBLE TO MODIFY PAVEMENT MARKING, DEVICE SPACING IS ONE-HALF SPACING SHOWN IN TABLE.

SPEED LIMIT SIGNS INDICATING NORMAL SPEED LIMIT SHALL BE INSTALLED AT END OF THE WORK ZONE, PROVIDED NO FURTHER WORK ZONES WILL BE ENCOUNTERED WITHIN THE NEXT 1/2 MILE.

ALL SIGNS, EXCEPT "RATE OUR WORK ZONE", "NO PHONE ZONE", AND "POINT OF PRESENCE", SHALL BE PORTABLE MOUNT AND ARE TO BE MOVED AS WORK PROGRESSES, UNLESS OTHERWISE NOTED. ALL TRAFFIC CONTROL ITEMS SHALL BE REMOVED FROM THE ROADWAY DURING NON-WORKING HOURS. SEE JOB SPECIAL PROVISIONS.

WORK WILL REQUIRE LANE CLOSURES UNLESS OTHERWISE APPROVED BY THE ENGINEER.

LAYOUT IS TYPICAL FOR EITHER DIRECTION.

SEE STANDARD DRAWING 616.10 FOR ADDITIONAL DETAILS.

WO20-6a
(6)

WO20-1
(2)

WO20-5
(5)

WO4-1aL
(6A)

GO20-5aP

R2-1
(54)
(4)

2 @ 60 mph (I-44 EB)
2 @ 60 mph (I-44 WB)
2 @ 50 mph (I-49 SB)
2 @ 50 mph (MO 59 NB)

R2-1
(25)
(NORMAL SPEED)

2 @ 70 mph (I-44 EB)
2 @ 70 mph (I-44 WB)
2 @ 60 mph (MO 59 SB)
2 @ 70 mph (I-49 NB)

NOT TO SCALE

TRAFFIC CONTROL
SHEET 2 OF 6

STATE OF MISSOURI
CRAIG ALAN SWITZER
NUMBER PE-2003015045
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
6/15/2023

ROUTE	STATE
I-44	MO
DISTRICT	SHEET NO.
SW	4

COUNTY
JASPER

JOB NO.
JSRM0043

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A0630

DESCRIPTION	DATE

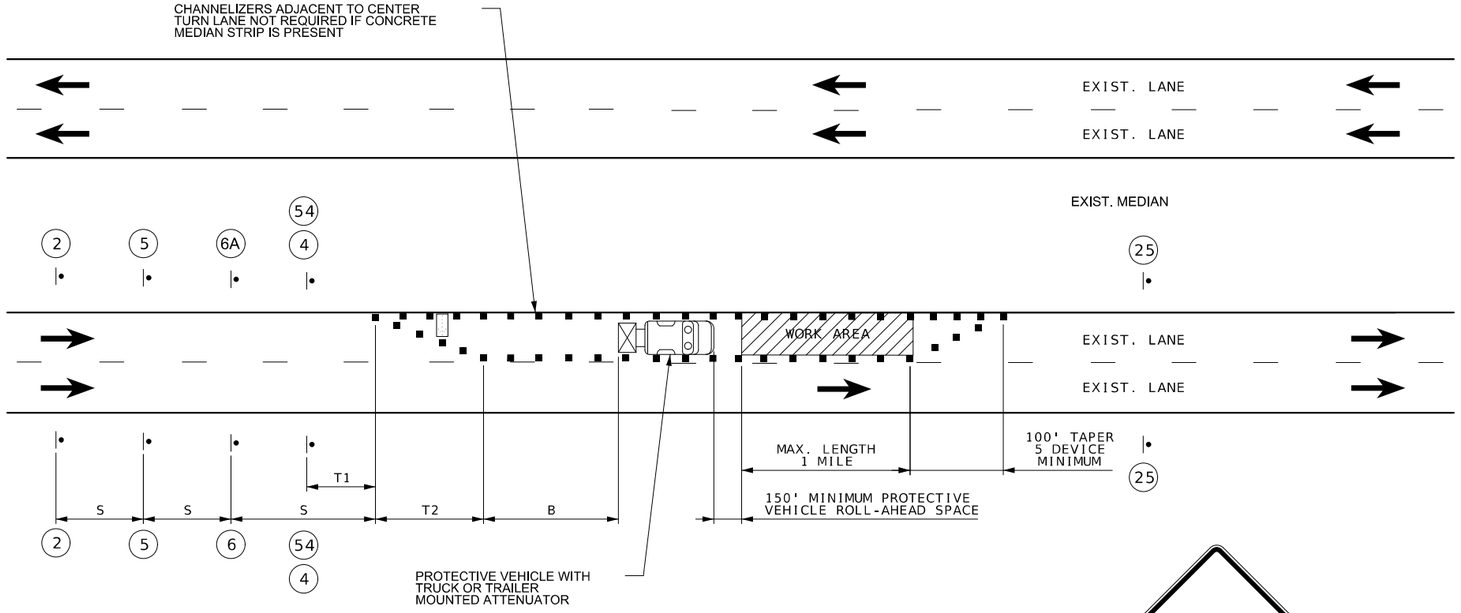
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

REVISED: 4/26/2023

PASSING LANE CLOSURE



SPEED	SIGN SPACING (FT)	TAPER LENGTH (FT)		OPTIONAL	CHANNELIZER SPACING (FT)	
PERMANENT POSTED (MPH)	UNDIVIDED HIGHWAYS (S)	SHOULDER(1) (T1)	LANE(2) (T2)	BUFFER LENGTH (FT) (B)	TAPERS	BUFFER/ WORK AREAS
0-35	200	70	245	280	35	40
40-45	350	150	540	400	40	80
50-55	500	185	660	560	50	80
60-70	1000	235	840	840	60	120

NOTES:

(1) SHOULDER TAPER LENGTH BASED ON 10 FT. (STANDARD SHOULDER WIDTH) OFFSET.
(2) LANE TAPER LENGTH BASED ON 12 FT. (STANDARD LANE WIDTH) OFFSET.

SEE BEGIN/END OF PROJECT SIGNING SHEET FOR ADDITIONAL SIGNS.

IN TAPER SECTIONS, QUANTITY OF CHANNELIZERS IS DOUBLED WHEN COMPARED TO MAXIMUM CHANNELIZER SPACING IN CHART.

TEMPORARY PAVEMENT MARKING REQUIRED WITH LONG TERM CLOSURE, NO DIRECT PAY.

NO DIRECT PAYMENT WILL BE MADE FOR RELOCATION OF CHANNELIZERS, SIGNS, AND FLASHING ARROW PANEL.

FOR SHORT TERM OPERATIONS WHERE IT IS NOT FEASIBLE TO MODIFY PAVEMENT MARKING, DEVICE SPACING IS ONE-HALF SPACING SHOWN IN TABLE.

SPEED LIMIT SIGNS INDICATING NORMAL SPEED LIMIT SHALL BE INSTALLED AT END OF THE WORK ZONE, PROVIDED NO FURTHER WORK ZONES WILL BE ENCOUNTERED WITHIN THE NEXT 1/2 MILE.

ALL SIGNS, EXCEPT "RATE OUR WORK ZONE", "NO PHONE ZONE", AND "POINT OF PRESENCE", SHALL BE PORTABLE MOUNT AND ARE TO BE MOVED AS WORK PROGRESSES, UNLESS OTHERWISE NOTED. ALL TRAFFIC CONTROL ITEMS SHALL BE REMOVED FROM THE ROADWAY DURING NON-WORKING HOURS. SEE JOB SPECIAL PROVISIONS.

WORK WILL REQUIRE LANE CLOSURES UNLESS OTHERWISE APPROVED BY THE ENGINEER.

LAYOUT IS TYPICAL FOR EITHER DIRECTION.

SEE STANDARD DRAWING 616.10 FOR ADDITIONAL DETAILS.

W04-1aR
6A

WO20-1
2

WO20-5
5

WO20-6a
6

GO20-5aP

R2-1
54
4

2 @ 60 mph (I-44 EB)
2 @ 60 mph (I-44 WB)
2 @ 50 mph (I-49 SB)
2 @ 50 mph (MO 59 NB)

R2-1
25
(NORMAL SPEED)

2 @ 70 mph (I-44 EB)
2 @ 70 mph (I-44 WB)
2 @ 60 mph (MO 59 SB)
2 @ 70 mph (I-49 NB)

NOT TO SCALE

TRAFFIC CONTROL
SHEET 3 OF 6

DATE PREPARED
6/15/2023

ROUTE	STATE
I-44	MO
DISTRICT	SHEET NO.
SW	5

COUNTY
JASPER

JOB NO.
JSRM0043

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A0630

DESCRIPTION	DATE

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

REVISED: 5/11/2023

SPEED	SIGN SPACING (FT)	TAPER LENGTH (FT)		OPTIONAL	CHANNELIZER SPACING (FT)	
PERMANENT POSTED (MPH)	DIVIDED HIGHWAYS (S)	SHOULDER(1) (T1)	LANE(2) (T2)	BUFFER LENGTH (FT) (B)	TAPERS	BUFFER/ WORK AREAS
0-35	200	70	245	280	35	40
40-45	500	150	540	400	40	80
50-55	1000	185	660	560	50	80
60-70	SA - 1000 SB - 1500 SC - 2640	235	840	840	60	120

NOTES:

(1) SHOULDER TAPER LENGTH BASED ON 10 FT. (STANDARD SHOULDER WIDTH) OFFSET.
(2) LANE TAPER LENGTH BASED ON 12 FT. (STANDARD LANE WIDTH) OFFSET.
(3) NEXT XX MILES SIGN NOT REQUIRED FOR NARROW LANE SECTIONS LESS THAN ONE MILE.

WO20-1

(2)

WO21-5

(21)

WO5-1

(3)

WO7-3a

(43) *

*OMIT SIGN 43 FOR NO TRAVELWAY ENCROACHMENT.

GO20-5aP

R2-1

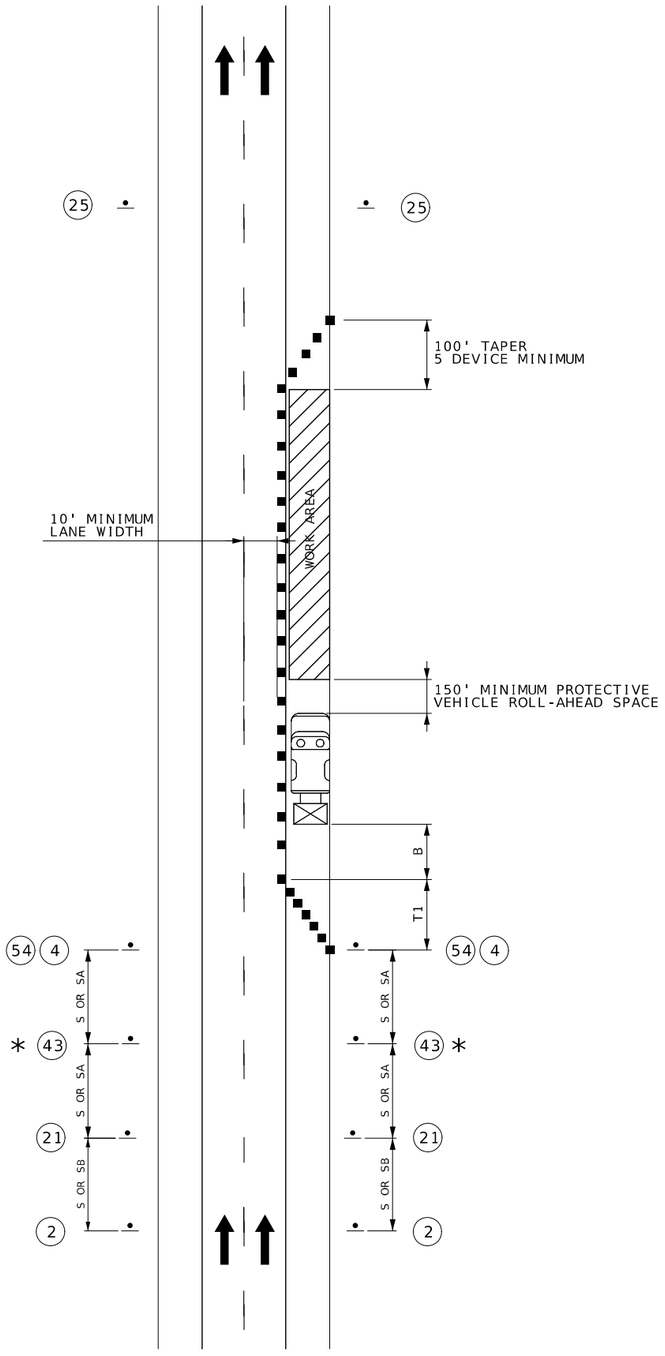
(54)
(4)

R2-1

(25)

(NORMAL SPEED)

SHOULDER WORK WITH MINOR TRAVELWAY ENCROACHMENT
(DIVIDED HIGHWAY)



NOT TO SCALE

TRAFFIC CONTROL
SHEET 4 OF 6

DATE PREPARED
6/15/2023

ROUTE	STATE
I-44	MO
DISTRICT	SHEET NO.
SW	6

COUNTY
JASPER

JOB NO.
JSRM0043

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A0630

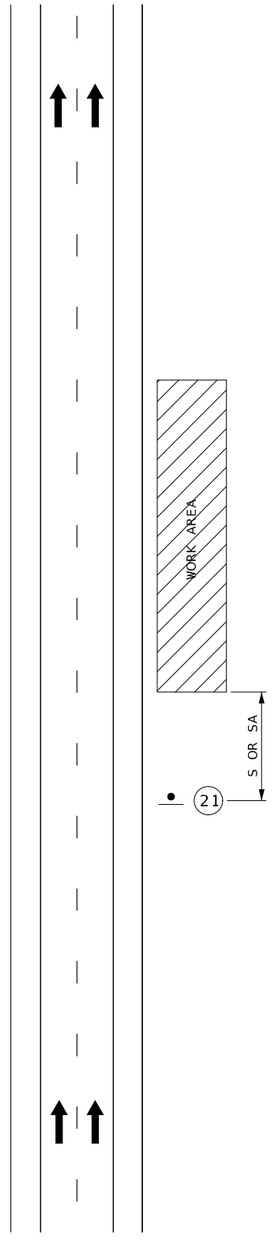
DESCRIPTION	DATE

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

REVISED: 4/26/2023

WORK BEYOND THE SHOULDER

(DIVIDED HIGHWAY)



SPEED	SIGN SPACING (FT) (1)
PERMANENT POSTED (MPH)	DIVIDED HIGHWAYS (S)
0-35	200
40-45	500
50-55	1000
60-70	SA - 1000 SB - 1500 SC - 2640

SPACING NOTES:

(1) SPACING BETWEEN SIGNS MAY BE ADJUSTED AS NECESSARY TO MEET FIELD CONDITIONS, AS APPROVED BY ENGINEER.

WO21-5

21

NOT TO SCALE

TRAFFIC CONTROL
SHEET 5 OF 6

STATE OF MISSOURI
CRAIG ALAN SWITZER
NUMBER PE-2003015045
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
6/15/2023

ROUTE	STATE
I-44	MO
DISTRICT	SHEET NO.
SW	7

COUNTY
JASPER

JOB NO.
JSRM0043

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A0630

DESCRIPTION	DATE

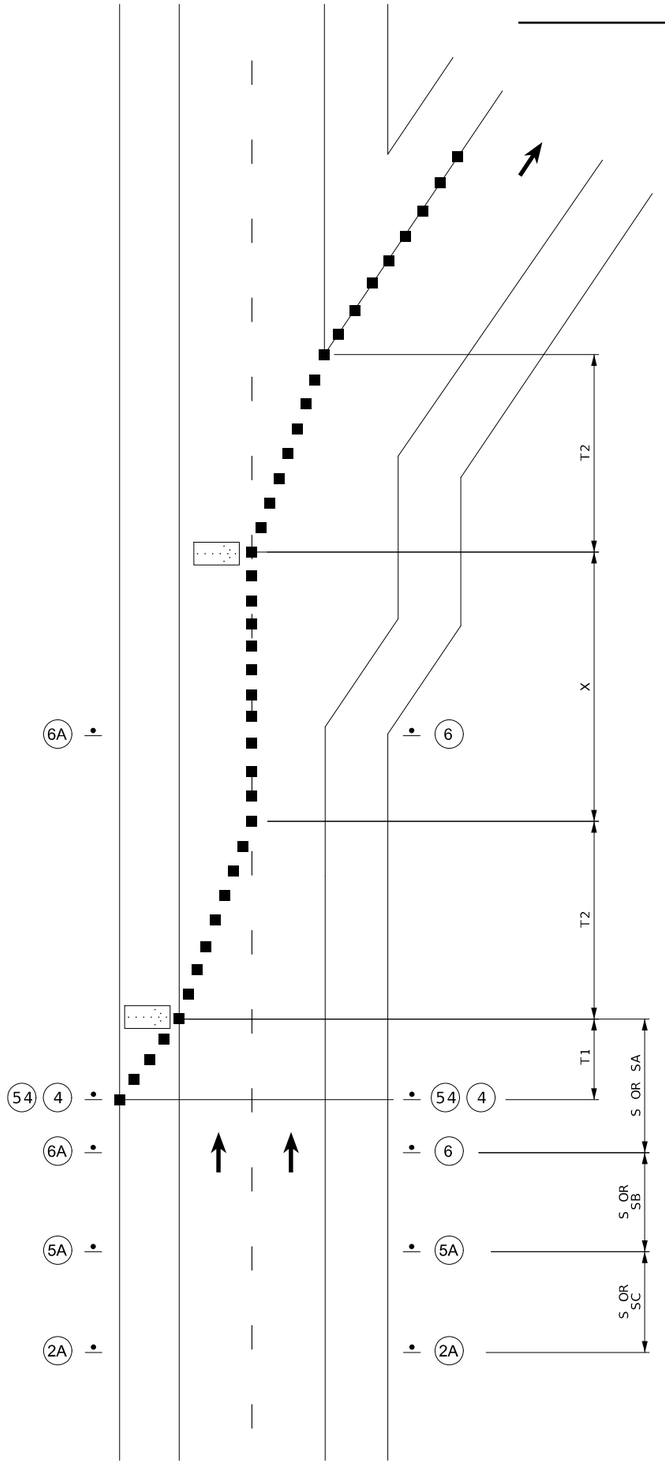
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

REVISED: 5/2/2023

CLOSURE AT EXIT RAMP



SPEED	SIGN SPACING (FT)	TAPER LENGTH (FT)		OPTIONAL	LONGI-TUDINAL TRANSITION (X)	CHANNELIZER SPACING (FT)	
PERMANENT POSTED (MPH)	DIVIDED HIGHWAYS (S)	SHOULDER(1) (T1)	LANE(2) (T2)	BUFFER LENGTH (FT) (B)		TAPERS	BUFFER/ WORK AREAS
0-35	200	70	245	280	490	35	40
40-45	500	150	540	400	1080	40	80
50-55	1000	185	660	560	1320	50	80
60-70	SA - 1000 SB - 1500 SC - 2640	235	840	840	1680	60	120

NOTES:

(1) SHOULDER TAPER LENGTH BASED ON 10 FT. (STANDARD SHOULDER WIDTH) OFFSET.
(2) LANE TAPER LENGTH BASED ON 12 FT. (STANDARD LANE WIDTH) OFFSET.
(3) 5 CHANNELIZER DEVICE MINIMUM.

REMOVE AND/OR MODIFY EXISTING PAVEMENT MARKING AS NEEDED.

TEMPORARY PAVEMENT MARKING REQUIRED WITH LONG TERM LANE CLOSURES.

RAMP NARROWS SIGN IS REQUIRED WHEN RAMP WIDTH IS REDUCED.

WO20-1

2A *

SIGN 2A WITH AWRS MUST BE GROUND OR SKID MOUNTED.

WO20-5a

5A *

SIGN 5A WITH AWRS MUST BE GROUND OR SKID MOUNTED.

WO20-6a

6 *

SIGN 6 WITH AWRS MUST BE GROUND OR SKID MOUNTED.

WO4-1aR

6A *

SIGN 6A WITH AWRS MUST BE GROUND OR SKID MOUNTED.

GO20-5aP

R2-1

54
4

2 @ 50 mph (I-49 SB)
2 @ 50 mph (MO 59 NB)

NOT TO SCALE

TRAFFIC CONTROL
SHEET 6 OF 6

STATE OF MISSOURI
CRAIG ALAN SWITZER
NUMBER PE-2003015045
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 6/15/2023

ROUTE	STATE
I-44	MO
DISTRICT	SHEET NO.
SW	8

COUNTY: JASPER

JOB NO.: JSRM0043

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A0630

DATE	DESCRIPTION

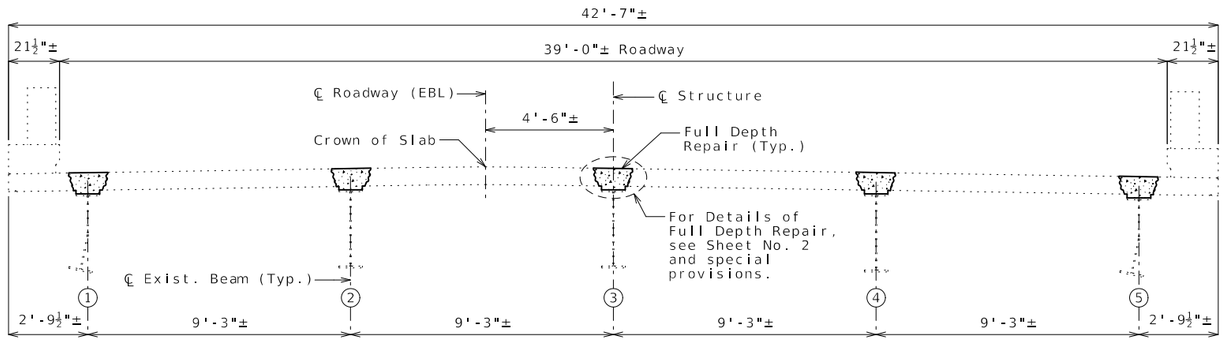
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

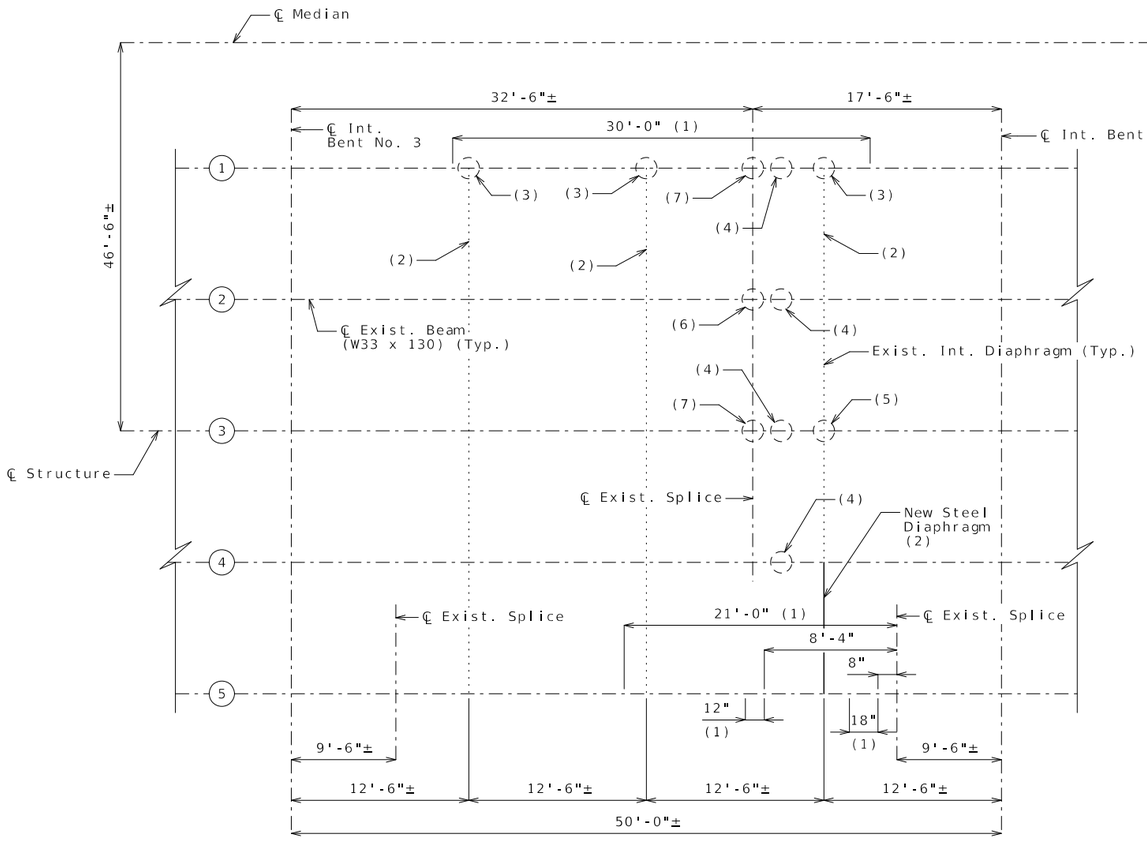
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

U.I.P. AND REPAIR COLLISION DAMAGED (42'-50'-50'-42') CONTINUOUS WIDE FLANGE BEAM SPANS

SEC/SUR 9 TWP 27N RGE 31W



SECITON THRU SLAB



PART PLAN OF STRUCTURAL STEEL

PHASES OF WORK

Prior to Heat Straightening:

1. Complete surface preparation of existing steel that will be subjected to Non-Destructive Testing (NDT) or heat from the heat straightening process.

2. Repair gouges and other deformities in collision damaged beams.

3. Remove the intermediate diaphragms and connection plates as indicated in the plans or directed by the engineer. As approved by the engineer, existing connection plates may be re-used. Non-Destructive Testing (NDT) of the connection plate welds are required to assure suitability for re-use; paint shall be removed prior to any NDT of welds. Existing connection plates not re-used shall be removed and the beams ground smooth.

4. Inspect beam in the area of repair for cracks by any non-destructive means. If cracks are identified, repair cracks as directed by the engineer.

Heat Straightening:

1. Heat straighten beams covering the length of the collision damaged beams. The beams shall be heat straightened to remove web and bottom flange twisting. See Special Provisions.

2. The shoulder and adjacent lane of I-44 shall remain closed, and no traffic shall be allowed over the beam(s) being straightened during the heat straightening process.

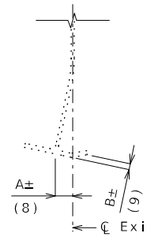
3. MoDOT has concerns about heat straightening through a splice location. Please consult your heat straightening subcontractor as you prepare your bid.

Post Heat Straightening:

1. Install new connection plates and diaphragms.

2 Recoat beams over the length of damage and where paint was removed during the heat straightening process with System G (Gray).

3. Paint new diaphragms and connection plates with System G (Gray).



(8) Approximate beam sweep at point of impact

(9) Approximate vertical distortion of bottom flange

DETAIL OF BEAM SHOWING IMPACT DAMAGE

Beam No.	Dim. A	Dim. B
1	6"	⅞"
5	1"	½" to ⅞"

(1) Approximate collision impact zone and limits of required heat straightening.

(2) Remove existing diaphragm prior to heat straightening.

(3) Remove and replace diaphragm connection plate.

(4) Bottom flange gouges.

(5) Bolt replacement of diaphragm connection plate.

(6) Bolt replacement of bottom flange splice plate.

(7) Remove and replace bolts in bottom flange splice plate and bottom 24 bolts in web splice plate. (2 maximum at a time). Bolt replacement shall be performed after all other repairs.

REPAIRS TO BRIDGE: ROUTE I-44 EB OVER ROUTE I-49

ROUTE I-44 EB FROM ROUTE 37 TO ROUTE 249
ABOUT 8.1 MILES WEST OF ROUTE 37
BEGINNING STATION 411+73.69± (Match Existing)

Detailed June 2023
Checked June 2023

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

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 6/15/2023
ROUTE I-44 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY JASPER
JOB NO. SRM0043
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A06304

DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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

GENERAL NOTES:

Design Specifications:

2002-AASHTO LFD (17th Ed.) Standard Specifications

Design Loading:

HS20 Modified (New Construction)
15lb/Sq. Ft. Wearing Surface
H20-S16-44 & Military 24,000 lb. Tandem Axle (1957)

Design Unit Stresses:

Structural Carbon Steel (ASTM A709 Grade 36) fy = 36,000 psi

Fabricated Steel Connections:

Field connections shall be made with 3/4" diameter ASTM F3125 Grade A325 Type 1 bolts and 13/16" diameter holes, except as noted.

Recoating Existing Steel:

Protective Coating: System G in accordance with Sec 1081.

Surface Preparation: Surface preparation of the existing steel shall be in accordance with Sec 1081 for Recoating of Structural Steel (System G). The cost of surface preparation will be considered completely covered by the contract lump sum price for Surface Preparation for Recoating Structural Steel.

Prime Coat: The cost of the prime coat will be considered completely covered by the contract lump sum price for Field Application of Inorganic Zinc Primer.

Field Coat(s): The color of the field coat(s) shall be Gray (Federal Standard #26373). The cost of the intermediate field coat will be considered completely covered by the contract lump sum price for Intermediate Field Coat (System G). The cost of the finish field coat will be considered completely covered by the contract lump sum price for Finish Field Coat (System G).

Limits of Paint Overlap: System G shall overlap the existing coating between 6 inches and 12 inches in order to achieve maximum coverage at the paint limit of each complete system. The final field coating shall be masked to provide crisp, straight lines and to prevent overspray beyond the overlap required.

Coating New Steel:

Protective Coating: System G in accordance with Sec 1081.

Prime Coat: The cost of the prime coat will be considered completely covered by the contract unit price for the fabricated structural steel.

Field Coat(s): The color of the field coat(s) shall be Gray (Federal Standard #26373). The cost of the intermediate field coat will be considered completely covered by the contract lump sum price for Intermediate Field Coat (System G). The cost of the finish field coat will be considered completely covered by the contract lump sum price for Finish Field Coat (System G).

At the option of the contractor, the intermediate field coat and finish field coat may be applied in the shop. The contractor shall exercise extreme care during all phases of loading, hauling, handling, erection and pouring of the slab to minimize damage and shall be fully responsible for all repairs and cleaning of the coating systems as required by the engineer.

Miscellaneous:

The existing vertical clearance shall be maintained during construction when Route I-49 is open to traffic.

Lane closures on Route I-44 and Route I-49 shall be in accordance with traffic control plans.

High strength bolts, nuts and washers will be sampled for quality assurance as specified in Sec 106.

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

The contractor shall verify all dimensions in field before ordering new material.

All existing dimensions shown were taken from as-built drawings, or limited field measurements.

All concrete repairs shall be in accordance with Sec 704, unless otherwise noted.

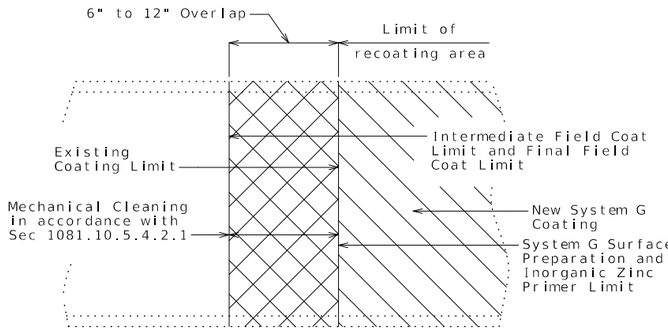
The contractor shall complete a non-destructive test on the connection plate welds at all beam(s) in damaged areas where connection plates will be re-used to confirm suitability of re-use before installing new diaphragm(s). The cost of this work will be considered completely covered by the contract lump sum price for Non-Destructive Testing. See Special Provisions. Required paint removal for this work will be considered completely covered by the lump sum price for Surface Preparation for Recoating Structural Steel.

The contractor shall heat straighten the damaged portions of beam(s). The cost of this work will be considered completely covered by the contract lump sum price for Heat Straightening. See Special Provisions.

Removal and reinstallation of sign and sign supports as needed will be considered completely covered by the contract lump sum price for Heat Straightening.

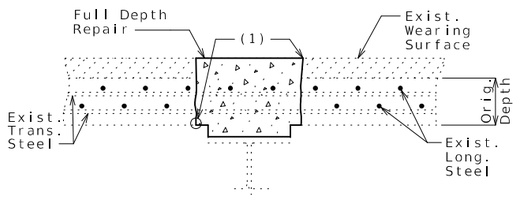
The contractor shall grind smooth surface deformities related to the damage such as gouges. The cost of this work will be considered completely covered by the contract lump sum price for Grind Surface Deformities. See Special Provisions.

The cost of removing loose and delaminated concrete and epoxy coating spalled concrete will be considered completely covered by the contract lump sum price for Cleaning and Epoxy Coating.



PART ELEVATION SHOWING
LIMITS OF PAINT OVERLAP

(Vertical or horizontal paint limit.
Horizontal limit shown)



FULL DEPTH REPAIR

(1) 1" vertical side shall be established outside the removal area.

Estimated Quantities

Item		Quantity
Removal of Diaphragm	each	4
Cleaning and Epoxy Coating	linear foot	40
Full Depth Repair of Haunch	sq. foot	40
Fabricated Structural Carbon Steel (Misc.)	pound	780
Surface Preparation for Recoating Structural Steel	lump sum	1
Field Application of Inorganic Zinc Primer	lump sum	1
Intermediate Field Coat (System G)	lump sum	1
Finish Field Coat (System G)	lump sum	1
Non-Destructive Testing	lump sum	1
Heat Straightening	lump sum	1
Grind Surface Deformities	lump sum	1

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 6/15/2023
ROUTE: I-44 | STATE: MO
DISTRICT: BR | SHEET NO.: 2
COUNTY: JASPER
JOB NO.: SRM0043
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A06304

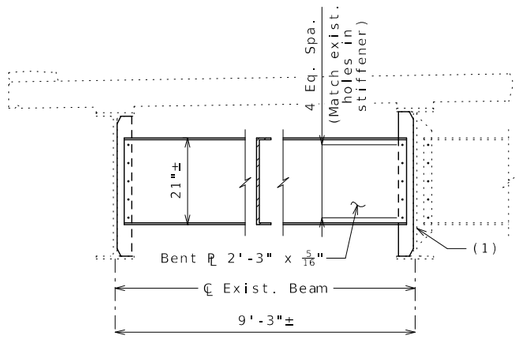
DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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

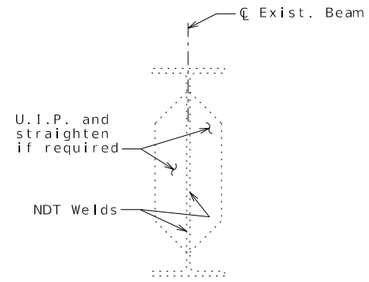
Detailed June 2023
Checked June 2023

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

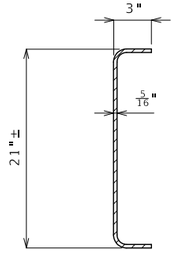


PART SECTION SHOWING NEW INTERMEDIATE DIAPHRAGM

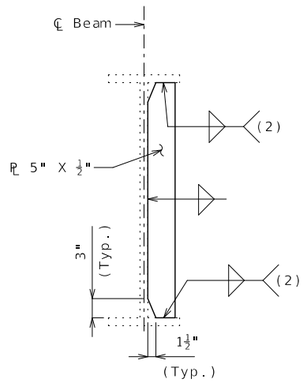
(1) NDT shall be performed on welds to confirm stability for re-use of exist. connection plate



TYPICAL DETAIL OF EXISTING DIAPHRAGM CONNECTION PLATES WITHIN THE LIMITS OF HEAT STRAIGHTENING

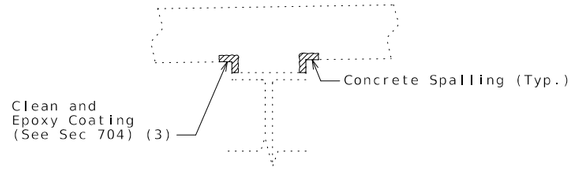


BENT PLATE DETAIL



(2) Tight fit

DETAIL OF NEW CONNECTION PLATES



DETAILS OF CLEANING AND EPOXY COATING

(3) Remove loose and delaminated concrete prior to applying epoxy coating.

Notes:

See Sheet No. 1 for phases of work.

Beams No. 1 & 5 shall be heat straightened to remove web and bottom flange twisting. Cost will be considered completely covered by the contract lump sum price for Heat Straightening. See Special Provisions.

Limits of collision damage vary by beam. Field verify locations and limits of collision damage requiring repairs.

Estimated limits of new System G Coating are equivalent to approximate limits of heat straightening and shall also include areas where only gouge repairs occur.

The cost of non-destructive testing for connection plate welds evaluated for re-use will be considered completely covered by the contract lump sum price for Non-Destructive Testing. All of the other non-destructive testing will be completely covered by the contract lump sum price for Heat Straightening.

Remove existing diaphragms and their connection plates to Beams No. 1 and 2 per the locations shown. Grind smooth remnants of plates and weldment.

The cost of removing existing diaphragms, connection plates and removal of weld metal with the process of grinding will be considered completely covered by the contract unit price for Removal of Diaphragm. See Special Provisions.

The cost of furnishing and installing new diaphragm and connection plates will be considered completely covered by the contract unit price for Fabricated Structural Carbon Steel (Misc.).

Contact surfaces shall be in accordance with Sec 1081 for surface preparation.

Contractor may field drill holes with the approval of the Engineer to facilitate construction.

All longitudinal dimensions are parallel to grade.

BEAM REPAIR DETAILS

Detailed June 2023
Checked June 2023

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

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

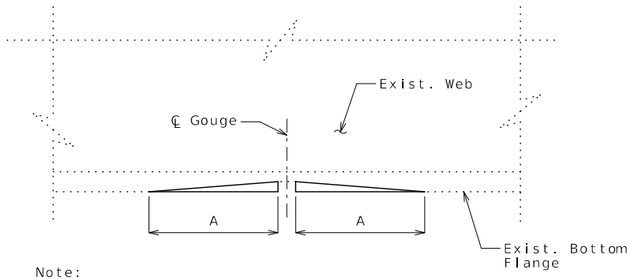
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DATE PREPARED: 6/15/2023
ROUTE: I-44 | STATE: MO
DISTRICT: BR | SHEET NO.: 3
COUNTY: JASPER
JOB NO.: SRM0043
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A06304

DESCRIPTION	DATE

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

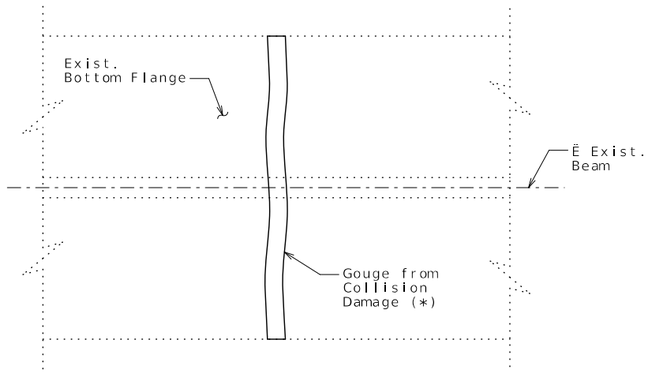
GOUGE REPAIR TYPE 1



Note:
Repairs by grinding shall have edges flared to the flange surface with a slope not exceeding 1 in 10.

GRIND DETAIL FOR FLANGE

DEPTH	A
< $\frac{3}{16}$"	$1\frac{7}{8}$"



PLAN OF GOUGE COLLISION DAMAGE

EVALUATION OF FLANGE GOUGE REPAIRS

If the length of gouge is less than or equal to 2" and depth of the gouge is 1/16" or less, then no repair is necessary.

If the length of the gouge is greater than 2" and the depth of the gouge is 3/16" or less, then use Gouge Repair Type 1.

If the depth of the gouge is greater than 3/16", then use Gouge Repair Type 2.

Payment for beam gouge repairs will be completely covered by Grind Surface Deformities. See Special Provisions.

(*) The beam bottom flange shall be repaired for gouging resulting from collision damage as directed by the Engineer. The Contractor shall not perform any repairs until the defects have been reviewed and categorized by the Engineer, as Type 1 or Type 2.

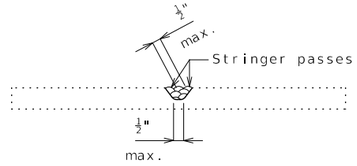
GOUGE REPAIR TYPE 2

Note:
Type 2 repairs shall consist of welding the gouge and grinding it smooth at the Engineer's discretion prior to coating. Welding shall be in accordance with AWS D1.5 standards.

WELD NOTES

(1) All welds shall be made using 1/8" or 5/32" E7018 electrodes only (Not E7028).

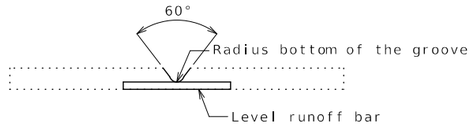
(2) Maximum weld size shall be 1/2" across the face of the weld on each pass. Stringer passes shall be used to achieve this dimension.



(3) Preheat shall be 250°F min. prior to any tacking or welding.

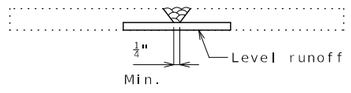
(4) All runoff bars and weld backing bars shall be 1/4" x 1 1/2" flat bar minimum, and shall extend 2" beyond the edge of the flange.

(5) The groove welds shall have a min. of 60° inclined angle.



(6) All welds shall be started 1" out on the runoff bar and continued toward the center of the flange. Runoff bars shall be level with the bottom of the groove.

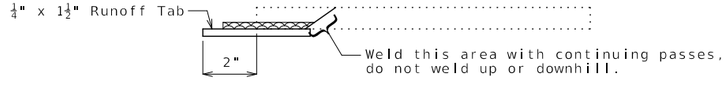
(7) 100% penetration welds shall have a min. 1/4" root opening and all welding shall be done from the top side.



(8) All runoff bars shall be burned off 1/8" min. beyond the edge of the flange and ground flush.

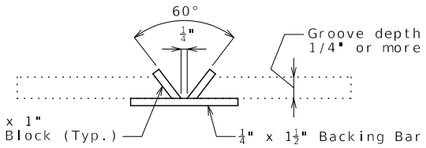
(9) All 100% groove weld backing bars shall be torched or arc gouged off to within 1/8" of the flange and then grind smooth. The bottom of the flange shall be ground smooth after welding.

(10) All welds shall be made in the falt position with no welding up or down on incline slope.



(11) Use 1/4" x 1" flat bar to support the edge of welds that are layered, anytime the groove depth exceeds 1/4".

GOUGE REPAIR TYPE 2 (CONT.)



Edge blocks shall extend 2" from edge of flange, and be removed after welding in the same manner as the backing bar. All welds shall be ground smooth.

Notes:
All Type 2 Repairs to beam flanges shall be Q.C. inspected by ultra-sonic testing. Acceptance or rejection of the repair welds shall be based on the requirements of Table 9.2 of AWS D1.5-95.

Welders shall be AWS Certified for overhead welding.

DETAILS OF BEAM GOUGE REPAIRS

Detailed June 2023
Checked June 2023

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

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TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
6/15/2023

ROUTE	STATE
I-44	MO
DISTRICT	SHEET NO.
BR	4

COUNTY
JASPER

JOB NO.
SRM0043

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A06304

DESCRIPTION	DATE

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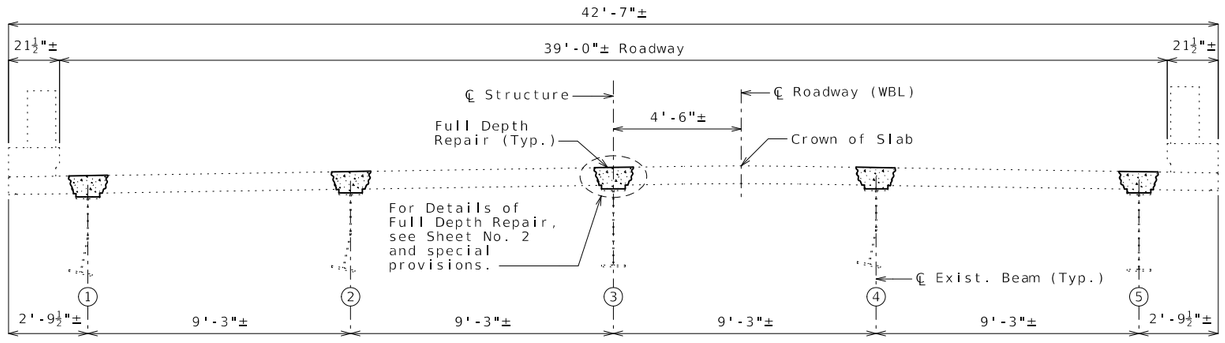
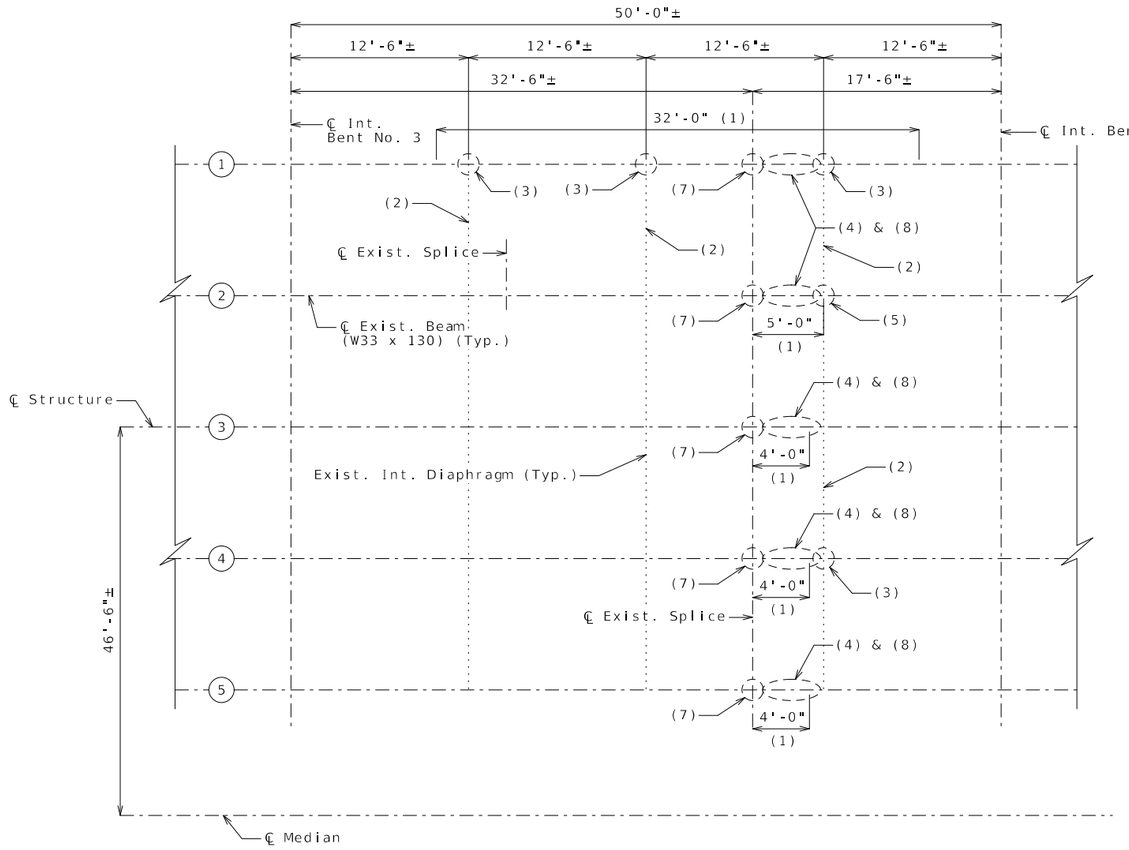
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

U.I.P. AND REPAIR COLLISION DAMAGED (42'-50'-50'-42') CONTINUOUS WIDE FLANGE BEAM SPANS

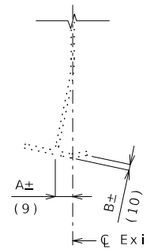
SEC/SUR 9 TWP 27N RGE 31W



SECITON THRU SLAB



PART PLAN OF STRUCTURAL STEEL



(9) Approximate beam sweep at point of impact

(10) Approximate vertical distortion of bottom flange

DETAIL OF BEAM SHOWING IMPACT DAMAGE

PHASES OF WORK

Prior to Heat Straightening:

1. Complete surface preparation of existing steel that will be subjected to Non-Destructive Testing (NDT) or heat from the heat straightening process.

2. Repair gouges and other deformities in collision damaged beams.

3. Remove the intermediate diaphragms and connection plates as indicated in the plans or directed by the engineer. As approved by the engineer, existing connection plates may be re-used. Non-Destructive Testing (NDT) of the connection plate welds are required to assure suitability for re-use; paint shall be removed prior to any NDT of welds. Existing connection plates not re-used shall be removed and the beams ground smooth.

4. Inspect beam in the area of repair for cracks by any non-destructive means. If cracks are identified, repair cracks as directed by the engineer.

Heat Straightening:

1. Heat straighten beams covering the length of the collision damaged beams. The beams shall be heat straightened to remove web and bottom flange twisting. See Special Provisions.

2. The shoulder and adjacent lane of I-44 shall remain closed, and no traffic shall be allowed over the beam(s) being straightened during the heat straightening process.

3. MoDOT has concerns about heat straightening through a splice location. Please consult your heat straightening subcontractor as you prepare your bid.

Post Heat Straightening:

1. Install new connection plates and diaphragms.

2 Recoat beams over the length of damage and where paint was removed during the heat straightening process with System G (Gray).

3. Paint new diaphragms and connection plates with System G (Gray).

Beam No.	Dim. A	Dim. B
1	11"	0"
2	½"	1¼" to 2¼"
3	0"	¾" to 1¼"
4	½"	1"
5	0"	⅞"

(1) Approximate collision impact zone and limits of required heat straightening.

(2) Remove existing diaphragm prior to heat straightening.

(3) Remove and replace diaphragm connection plate.

(4) Bottom flange gouges.

(5) Remove and replace bolts of diaphragm connection plate.

(6) Bolt replacement of bottom flange splice plate.

(7) Remove and replace bolts in bottom flange splice plate and bottom 24 bolts in web splice plate. (2 maximum at a time). Bolt replacement shall be performed after all other repairs.

(8) Add bottom flange cover plate, see Sheet No. 3 for details.

REPAIRS TO BRIDGE: ROUTE I-44 WB OVER ROUTE I-49

ROUTE I-44 WB FROM ROUTE 249 TO ROUTE 37
ABOUT 8.1 MILES WEST OF ROUTE 37
BEGINNING STATION 411+73.69± (Match Existing)

Detailed June 2023
Checked June 2023

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

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 6/15/2023
ROUTE I-44 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY JASPER
JOB NO. SRM0043
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A06305

DATE	DESCRIPTION

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

GENERAL NOTES:

Design Specifications:

2002-AASHTO LFD (17th Ed.) Standard Specifications

Design Loading:

HS20 Modified (New Construction)
15lb/Sq. Ft. Wearing Surface
H20-S16-44 & Military 24,000 lb. Tandem Axle (1957)

Design Unit Stresses:

Structural Carbon Steel (ASTM A709 Grade 36) fy = 36,000 psi

Fabricated Steel Connections:

Field connections shall be made with 3/4" diameter ASTM F3125 Grade A325 Type 1 bolts and 13/16" diameter holes, except as noted.

Recoating Existing Steel:

Protective Coating: System G in accordance with Sec 1081.

Surface Preparation: Surface preparation of the existing steel shall be in accordance with Sec 1081 for Recoating of Structural Steel (System G). The cost of surface preparation will be considered completely covered by the contract lump sum price for Surface Preparation for Recoating Structural Steel.

Prime Coat: The cost of the prime coat will be considered completely covered by the contract lump sum price for Field Application of Inorganic Zinc Primer.

Field Coat(s): The color of the field coat(s) shall be Gray (Federal Standard #26373). The cost of the intermediate field coat will be considered completely covered by the contract lump sum price for Intermediate Field Coat (System G). The cost of the finish field coat will be considered completely covered by the contract lump sum price for Finish Field Coat (System G).

Limits of Paint Overlap: System G shall overlap the existing coating between 6 inches and 12 inches in order to achieve maximum coverage at the paint limit of each complete system. The final field coating shall be masked to provide crisp, straight lines and to prevent overspray beyond the overlap required.

Coating New Steel:

Protective Coating: System G in accordance with Sec 1081.

Prime Coat: The cost of the prime coat will be considered completely covered by the contract unit price for the fabricated structural steel.

Field Coat(s): The color of the field coat(s) shall be Gray (Federal Standard #26373). The cost of the intermediate field coat will be considered completely covered by the contract lump sum price for Intermediate Field Coat (System G). The cost of the finish field coat will be considered completely covered by the contract lump sum price for Finish Field Coat (System G).

At the option of the contractor, the intermediate field coat and finish field coat may be applied in the shop. The contractor shall exercise extreme care during all phases of loading, hauling, handling, erection and pouring of the slab to minimize damage and shall be fully responsible for all repairs and cleaning of the coating systems as required by the engineer.

Miscellaneous:

The existing vertical clearance shall be maintained during construction when Route I-49 is open to traffic.

Lane closures on Route I-44 and Route I-49 shall be in accordance with traffic control plans.

High strength bolts, nuts and washers will be sampled for quality assurance as specified in Sec 106.

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

The contractor shall verify all dimensions in field before ordering new material.

All existing dimensions shown were taken from as-built drawings, or limited field measurements.

All concrete repairs shall be in accordance with Sec 704, unless otherwise noted.

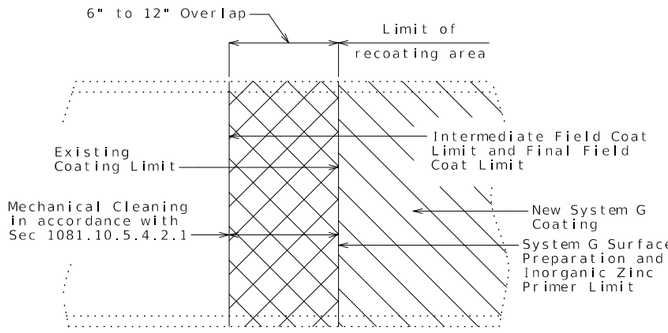
The contractor shall complete a non-destructive test on the connection plate welds at all beam(s) in damaged areas where connection plates will be re-used to confirm suitability of re-use before installing new diaphragm(s). The cost of this work will be considered completely covered by the contract lump sum price for Non-Destructive Testing. See Special Provisions. Required paint removal for this work will be considered completely covered by the lump sum price for Surface Preparation for Recoating Structural Steel.

The contractor shall heat straighten the damaged portions of beam(s). The cost of this work will be considered completely covered by the contract lump sum price for Heat Straightening. See Special Provisions.

Removal and reinstallation of sign and sign supports as needed will be considered completely covered by the contract lump sum price for Heat Straightening.

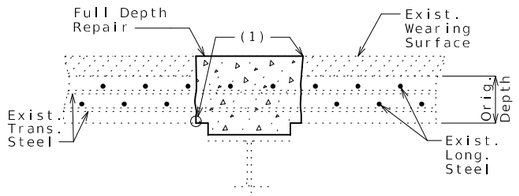
The contractor shall grind smooth surface deformities related to the damage such as gouges. The cost of this work will be considered completely covered by the contract lump sum price for Grind Surface Deformities. See Special Provisions.

The cost of removing loose and delaminated concrete and epoxy coating spalled concrete will be considered completely covered by the contract lump sum price for Cleaning and Epoxy Coating.



PART ELEVATION SHOWING
LIMITS OF PAINT OVERLAP

(Vertical or horizontal paint limit.
Horizontal limit shown)



FULL DEPTH REPAIR

(1) 1" vertical side shall be established outside the removal area.

Estimated Quantities		
Item		Quantity
Removal of Diaphragm	each	4
Cleaning and Epoxy Coating	linear foot	40
Full Depth Repair of Haunch	sq. foot	40
Fabricated Structural Carbon Steel (Misc.)	pound	1000
Surface Preparation for Recoating Structural Steel	lump sum	1
Field Application of Inorganic Zinc Primer	lump sum	1
Intermediate Field Coat (System G)	lump sum	1
Finish Field Coat (System G)	lump sum	1
Non-Destructive Testing	lump sum	1
Heat Straightening	lump sum	1
Grind Surface Deformities	lump sum	1

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
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DATE PREPARED: 6/15/2023
ROUTE: I-44 | STATE: MO
DISTRICT: BR | SHEET NO.: 2
COUNTY: JASPER
JOB NO.: SRM0043
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A06305

DESCRIPTION	DATE

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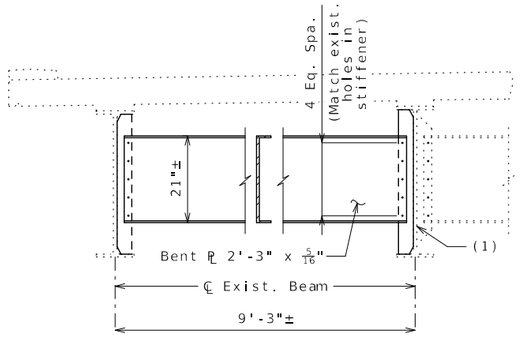
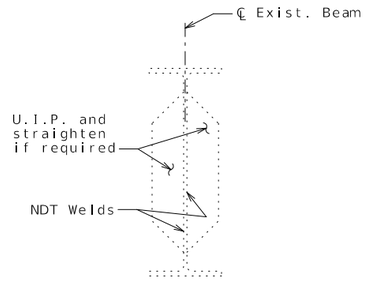
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

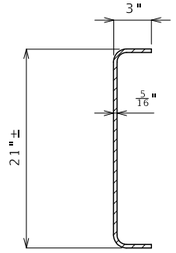


PART SECTION SHOWING NEW INTERMEDIATE DIAPHRAGM

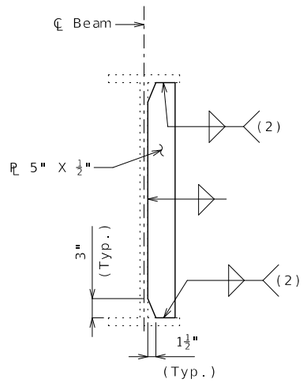
(1) NDT shall be performed on welds to confirm stability for re-use of exist. connection plate



TYPICAL DETAIL OF EXISTING DIAPHRAGM CONNECTION PLATES WITHIN THE LIMITS OF HEAT STRAIGHTENING

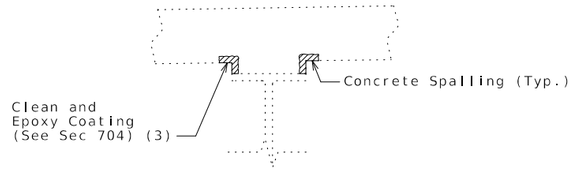


BENT PLATE DETAIL



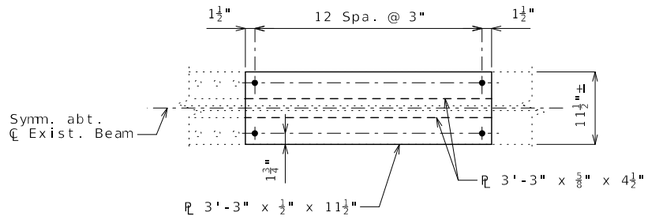
(2) Tight fit

DETAIL OF NEW CONNECTION PLATES



DETAILS OF CLEANING AND EPOXY COATING

(3) Remove loose and delaminated concrete prior to applying epoxy coating.



BOTTOM FLANGE COVER PLATE DETAIL

For location of bottom flange cover plate, see Sheet No. 1.

After heat straightening, grind bottom flange of beam smooth prior to painting steel and installing cover plate. The cost for this work will be considered completely covered by the contract lump sum price for Surface Preparation for Recoating Structural Steel.

The cost of furnishing and installing cover plates will be considered completely covered by the contract unit price for Fabricated Structural Carbon Steel (Misc.).

Notes:

See Sheet No. 1 for phases of work.

Beams No. 1 thru 5 shall be heat straightened to remove web and bottom flange twisting. Cost will be considered completely covered by the contract lump sum price for Heat Straightening. See Special Provisions.

Limits of collision damage vary by beam. Field verify locations and limits of collision damage requiring repairs.

Estimated limits of new System G Coating are equivalent to approximate limits of heat straightening and shall also include areas where only gouge repairs occur.

The cost of non-destructive testing for connection plate welds evaluated for re-use will be considered completely covered by the contract lump sum price for Non-Destructive Testing. All of the other non-destructive testing will be completely covered by the contract lump sum price for Heat Straightening.

Remove existing diaphragms and their connection plates to Beams No. 1 and 2 per the locations shown. Grind smooth remnants of plates and weldment.

The cost of removing existing diaphragms, connection plates and removal of weld metal with the process of grinding will be considered completely covered by the contract unit price for Removal of Diaphragm. See Special Provisions.

The cost of furnishing and installing new diaphragm and connection plates will be considered completely covered by the contract unit price for Fabricated Structural Carbon Steel (Misc.).

Contact surfaces shall be in accordance with Sec 1081 for surface preparation.

Contractor may field drill holes with the approval of the Engineer to facilitate construction.

All longitudinal dimensions are parallel to grade.

BEAM REPAIR DETAILS

Detailed June 2023
Checked June 2023

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

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PROFESSIONAL ENGINEER
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DATE PREPARED: 6/15/2023
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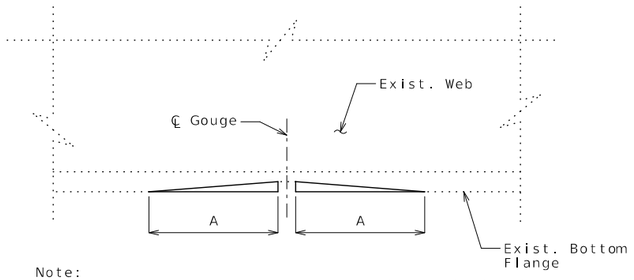
DISTRICT: BR | SHEET NO.: 3
COUNTY: JASPER
JOB NO.: SRM0043
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A06305

DESCRIPTION	DATE

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

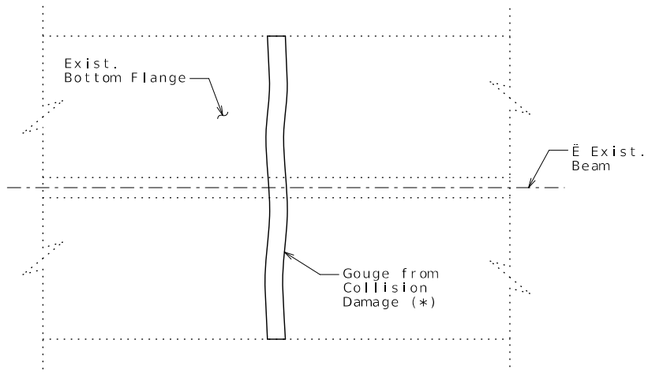
GOUGE REPAIR TYPE 1



Note:
Repairs by grinding shall have edges flared to the flange surface with a slope not exceeding 1 in 10.

GRIND DETAIL FOR FLANGE

DEPTH	A
< $\frac{3}{16}$"	$1\frac{7}{8}$"



PLAN OF GOUGE COLLISION DAMAGE

EVALUATION OF FLANGE GOUGE REPAIRS

If the length of gouge is less than or equal to 2" and depth of the gouge is 1/16" or less, then no repair is necessary.

If the length of the gouge is greater than 2" and the depth of the gouge is 3/16" or less, then use Gouge Repair Type 1.

If the depth of the gouge is greater than 3/16", then use Gouge Repair Type 2.

Payment for beam gouge repairs will be completely covered by Grind Surface Deformities. See Special Provisions.

(*) The beam bottom flange shall be repaired for gouging resulting from collision damage as directed by the Engineer. The Contractor shall not perform any repairs until the defects have been reviewed and categorized by the Engineer, as Type 1 or Type 2.

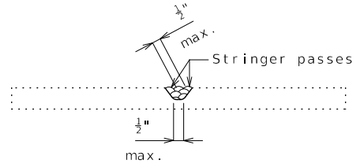
GOUGE REPAIR TYPE 2

Note:
Type 2 repairs shall consist of welding the gouge and grinding it smooth at the Engineer's discretion prior to coating. Welding shall be in accordance with AWS D1.5 standards.

WELD NOTES

(1) All welds shall be made using 1/8" or 5/32" E7018 electrodes only (Not E7028).

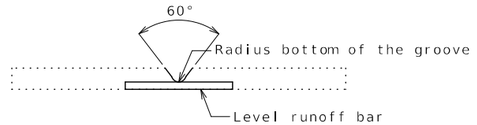
(2) Maximum weld size shall be 1/2" across the face of the weld on each pass. Stringer passes shall be used to achieve this dimension.



(3) Preheat shall be 250°F min. prior to any tacking or welding.

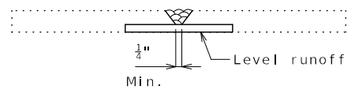
(4) All runoff bars and weld backing bars shall be 1/4" x 1 1/2" flat bar minimum, and shall extend 2" beyond the edge of the flange.

(5) The groove welds shall have a min. of 60° inclined angle.



(6) All welds shall be started 1" out on the runoff bar and continued toward the center of the flange. Runoff bars shall be level with the bottom of the groove.

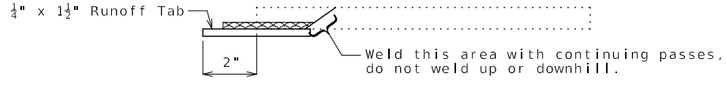
(7) 100% penetration welds shall have a min. 1/4" root opening and all welding shall be done from the top side.



(8) All runoff bars shall be burned off 1/8" min. beyond the edge of the flange and ground flush.

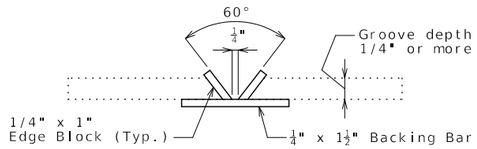
(9) All 100% groove weld backing bars shall be torched or arc gouged off to within 1/8" of the flange and then grind smooth. The bottom of the flange shall be ground smooth after welding.

(10) All welds shall be made in the falt position with no welding up or down on incline slope.



(11) Use 1/4" x 1" flat bar to support the edge of welds that are layered, anytime the groove depth exceeds 1/4".

GOUGE REPAIR TYPE 2 (CONT.)



Edge blocks shall extend 2" from edge of flange, and be removed after welding in the same manner as the backing bar. All welds shall be ground smooth.

Notes:
All Type 2 Repairs to beam flanges shall be Q.C. inspected by ultra-sonic testing. Acceptance or rejection of the repair welds shall be based on the requirements of Table 9.2 of AWS D1.5-95.

Welders shall be AWS Certified for overhead welding.

DETAILS OF BEAM GOUGE REPAIRS

Detailed June 2023
Checked June 2023

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

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
6/15/2023

ROUTE	STATE
I-44	MO
DISTRICT	SHEET NO.
BR	4

COUNTY
JASPER

JOB NO.
SRM0043

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A06305

DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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