DESIGN DESIGNATION

A.A.D.T. - 2023 = NA
A.A.D.T. - 2043 = NA
D.H.V. = NA
T = NA
V = NA
D = NA

FUNCTIONAL CLASSIFICATION-NA

NO NEW RIGHT OF WAY
TO BE ACQUIRED ON PROJECT

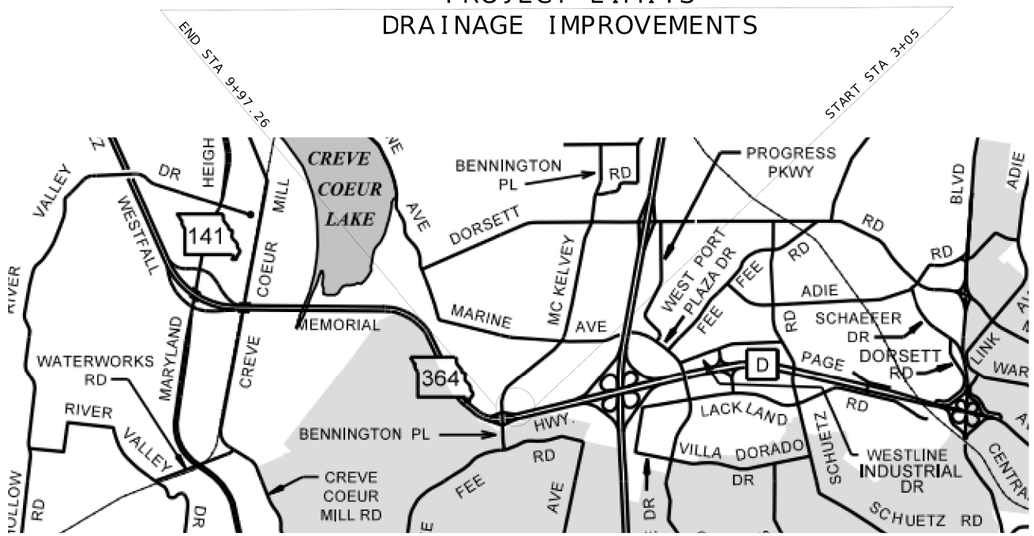
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
PLANS FOR PROPOSED
DRAINAGE IMPROVEMENT

ST. LOUIS

TOWNSHIP 46 NORTH, RANGE 5 EAST
NE QUADRANT OF 364 & BENNINGTON INTERCHANGE

JSL0093

PROJECT LIMITS
DRAINAGE IMPROVEMENTS



KEY MAP
SHOWING LOCATION OF
ST. LOUIS COUNTY

0 1 2 3 4
SCALE IN MILES

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		
FIRE HYDRANT		
WATER VALVE		
WATER METER		
DROP INLET		
DITCH BLOCK		
GROUND MOUNTED SIGN		
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL		
FENCE		
CHAIN LINK		
WOVEN WIRE		
GATE POST		
BENCHMARK		
PERMANENT DRAINAGE EASEMENT	P.D.E.	
PERMANENT UTILITY EASEMENT	P.U.E.	
TEMPORARY CONSTRUCTION EASEMENT	T.C.E.	

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

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.

INDEX OF SHEETS

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 2+05	
END OF PROJECT	STA. 9+97.26	
APPARENT LENGTH	792.26	FEET
EQUATIONS AND EXCEPTIONS:	NONE	
TOTAL CORRECTIONS	0	FEET
NET LENGTH OF PROJECT	792.26	FEET
STATE LENGTH	0.15	MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	0.95	ACRES

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

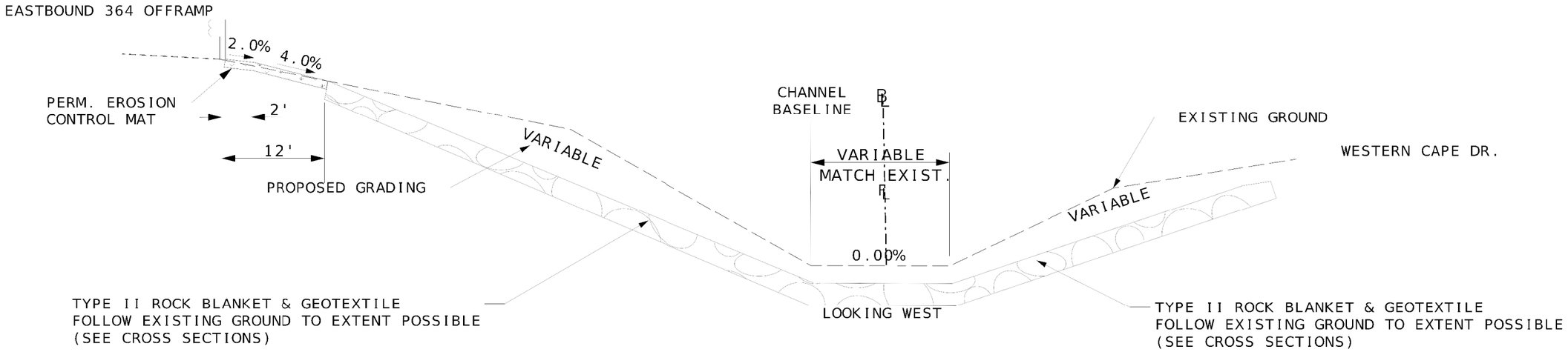
DATE PREPARED 12/28/23
ROUTE 364 | STATE MO
DISTRICT SL | SHEET NO. 1
COUNTY ST. LOUIS
JOB NO. JSL0093
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION	DATE

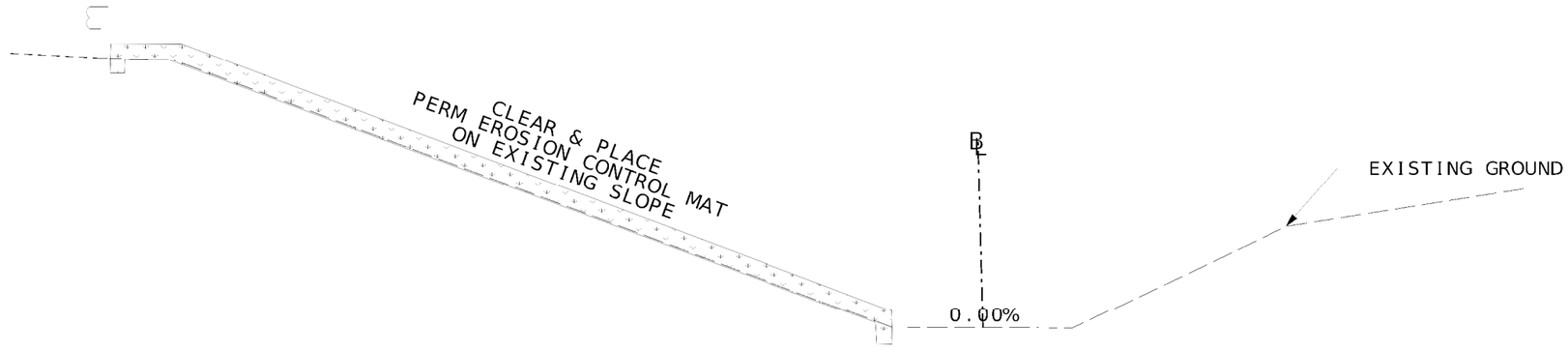
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632



PROPOSED DITCH GRADING
STA. 7+55 TO STA. 8+55.53



PROPOSED SLOPE
STA. 0+36 TO STA. 7+55

DRAWING NOT TO SCALE.
FOLLOW DIMENSIONS

TYPICAL SECTION
SHEET 1 OF 1

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
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: 01/08/2024
ROUTE: 364 | STATE: MO
DISTRICT: SL | SHEET NO.: 2
COUNTY: ST. LOUIS
JOB NO.: JSL0093
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)

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028844
Phone: 573-222-5632

REMOVAL OF IMPROVEMENTS

SHEET	STA	LOCATION	DESCRIPTION
4	0+37	LT	FENCE
4	8+55	LT & RT	60 CY ROCK BLANKET
4	8+55.35	CL	REMOVE GRATE FROM EXISTING 7'X7' BOX CULVERT
4	8+60.15	RT	FLARED END SECTION
4	8+60.15	RT	17.3' - 42" RCP EXCAVATION INCLUDED WITH REMOVAL
4	9+91	LT & RT	140 SF SIDEWALK
4	9+97.26	LT & RT	36 FT CURB

LOCATIONS AND QUANTITIES ARE APPROXIMATE FOLLOW SEC 202.30 NO DIRECT PAYMENT WILL BE MADE FOR SAW CUTS REQUIRED FOR REMOVAL

LUMP SUM - 1

CLEARING AND GRUBBING

SHEET	STA	STA	LOC	ACRES	REMARKS
4	0+36	7+55	LT	0.97	AREA OF PERM. EROSION CONTROL MAT
4	7+55	8+77	LT &RT	0.23	AREA OF ROCK BLANKET
	TOTAL			1.2	
	PAY TOTAL			1.0	

EFFORTS WILL BE MADE TO REMOVE VEGETATION WITH MINIMAL GROUND DISTURBANCE. CAUTION SHOULD BE TAKEN IN THE REMOVAL OF STUMPS SO AS NOT TO DESTABILIZE THE SLOPE.

CONTRACTOR FURNISHED SURVEYING AND STAKING

LUMP SUM - 1

ENTRANCE

SHEET	STA	LOCATION	TYPE 5 AGGREGATE FOR BASE (4"THICK) (S.Y.)	PAVED APPROACH, 7" (S.Y.)	GRAVEL A OR CRUSHED STONE B (TON)	CONCRETE SIDEWALK, 4" (SQYD)	REMARKS
6 & 7	325+20.4	BENNINGTON DR	48	28	12	20	
		PAY TOTALS	48	28	12	20	

MOBILIZATION

LUMP SUM -1

POTHOLING

20 - EACH

CULVERT EXTENSION

SHEET	STA	SIZE	LENGTH (FT)	CL B-1 CONC (CY)	REINFORCED STEEL (LBS)	GRATES & BEARING PLATES 5' X 7'7" (EACH)	GRATES & BEARING PLATES 1' X 7'7" (EACH)	CLASS 4 EXCAVATION (CY)	DEWATERING (LS)	REMARKS
17-19	8+55.35	7' X 7'	34.9	18.3	2820	6	2	29.6	1	
			TOTAL	18.3	2820	6	2	30	1	

PERMANENT EROSION CONTROL

SHEET	STA	STA	TYPE 2 ROCK BLANKET			PERMANENT EROSION CONTROL GEOTEXTILE	PERMANENT EROSION CONTROL MAT	DESCRIPTION
			THICKNESS (FT)	FURNISHING (CY)	PLACING (CY)	(SY)	(SY)	
14-16	7+55	8+75	2	548	548	822		NORTH AND SOUTH SLOPES
14-16	0+36	7+55					4685	SOUTH SLOPE
14-16	7+55	8+50					124	12' BEHIND GUARDRAIL
		TOTAL		548	548	822	4809	

EARTHWORK

SHEET	BEGIN STATION	END STATION	CLASS A EXCAVATION CY	COMPACTING EMBANKMENT CY	REMARKS
4	7+00	8+74.34	401	26	
4	8+26	8+69	122		EST. QUANTITY FOR UNDERGRADING
	TOTAL		523	26	

FENCING

SHEET	STA	STA	LOC	CHAIN LINK FENCE (60 IN) (FT)	DRIVE GATE (EA)	DESCRIPTION
5	7+54.51	9+60.21	LT & RT	305.5		
5	8+92		RT		1	15' Gate
5	9+83.45		CL		1	15' Gate
			TOTAL	306	2	

SEEDING

SHEET	STA	STA	LOCATION	SEEDING COOL SEASON GRASSES (ACRE)	MULCH (ACRE)	DESCRIPTION
4	0+36	8+50	LT	1		
4	8+50	9+97.26	LT & RT	0.2	0.2	
		TOTAL		1.2	0.2	PAY PLAN QUANTITY

DRAINAGE

SHEET	STA	STA	LOC	48" GROUP B PIPE (FT)	PRECAST CONCRETE DROP INLET 5'x3' (FT)	GRATE AND BEARING PLATE (5'X3') (EACH)	CLASS 3 EXCAVATION (CY)	CULVERT CLEANOUT (EACH)	DESCRIPTION
20	8+74.34	0	RT		11	1	20		
20	8+54.52	8+73.85		20			29	1	
4	8+55.35		LT					1	7' X 7' BOX CULVERT
	TOTALS			20	11	1	49	2	
	PAY TOTALS			20	11	1	49	2	

EROSION CONTROL

SHEET	STA	STA	LOCATION	ROCK DITCH CHECK (LF)	SILT FENCE (LF)	SEDIMENT REMOVAL (CY)	DESCRIPTION
13	0+36	8+75	LT & RT		1024	11	
13	7+55		LT & RT	40		2	
		TOTAL		40	1024	13	

SUMMARY OF QUANTITIES
SHEET 1 OF 2

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 02/07/2024
ROUTE 364 | STATE MO
DISTRICT SL | SHEET NO. 3
COUNTY ST LOUIS
JOB NO. JSL0093
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

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

DESCRIPTION | DATE

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: P2007028844
Phone: 573-222-5632

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						MERGE (ARROW SYMBOL)
WO4-1aR	48X48	16.00						MERGE (ARROW SYMBOL)
WO5-1	48X48	16.00	1	16			43	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	2	32			9	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)
WO12-2X	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	4	64			2	ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00						DETOUR AHEAD
WO20-3	48X48	16.00						ROAD CLOSED AHEAD (500FT)
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD
WO20-5	48X48	16.00	1	16			5	RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00	2	32			6	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			21	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						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						SPEED LIMIT XX
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	2	4			R9	SIDEWALK CLOSED
R9-11L	24X18	3.00	1	3			11L	SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00	1	3			11R	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						POINT OF PRESENCE
CONST-7	48X24	8.00						RATE OUR WORK ZONE
CONST-7	72X36	18.00						RATE OUR WORK ZONE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
SPECIAL	96X48	32.00						
SPECIAL	36X78	19.50						
W4-2R	48X48	16.00	1	16			15a	LANE DROP/MERGE LEFT

616-10.05 CONSTRUCTION SIGNS	TOTAL	218
616-10.10 RELOCATED SIGNS **	TOTAL	

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		TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)
6161008	4	ADVANCED WARNING RAIL SYSTEM
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161025	25	CHANNELIZER (TRIM LINE)
6161030	2	TYPE III MOVEABLE BARRICADE
6161033	8	DIRECTION INDICATOR BARRICADE
6161040	1	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		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		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

NOTE:

ALL TRAFFIC CONTROL ITEMS ARE INCLUDED IN PAY ITEM 6169901, TEMPORARY TRAFFIC CONTROL, LUMP SUM, UNLESS OTHERWISE NOTED IN THE PLANS. THESE QUANTITIES ARE ONLY AN ESTIMATE AND ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS AND CONTRACTOR'S TRAFFIC CONTROL OPERATIONS.

SIGN AND DEVICE LOCATIONS WILL BE FIELD VERIFIED AND APPROVED BY THE ENGINEER.

* NOT INCLUDED IN TEMPORARY TRAFFIC CONTROL LUMP SUM

** NO DIRECT PAYMENT WILL BE MADE FOR RELOCATION OF CONSTRUCTION SIGNS AND DEVICES.

TEMPORARY TRAFFIC CONTROL
LUMP SUM -1

SUMMARY OF QUANTITIES
SHEET 2 OF 2

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 01/31/2024
ROUTE 364 | STATE MO
DISTRICT SL | SHEET NO. 3
COUNTY ST. LOUIS
JOB NO. JSL0093
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

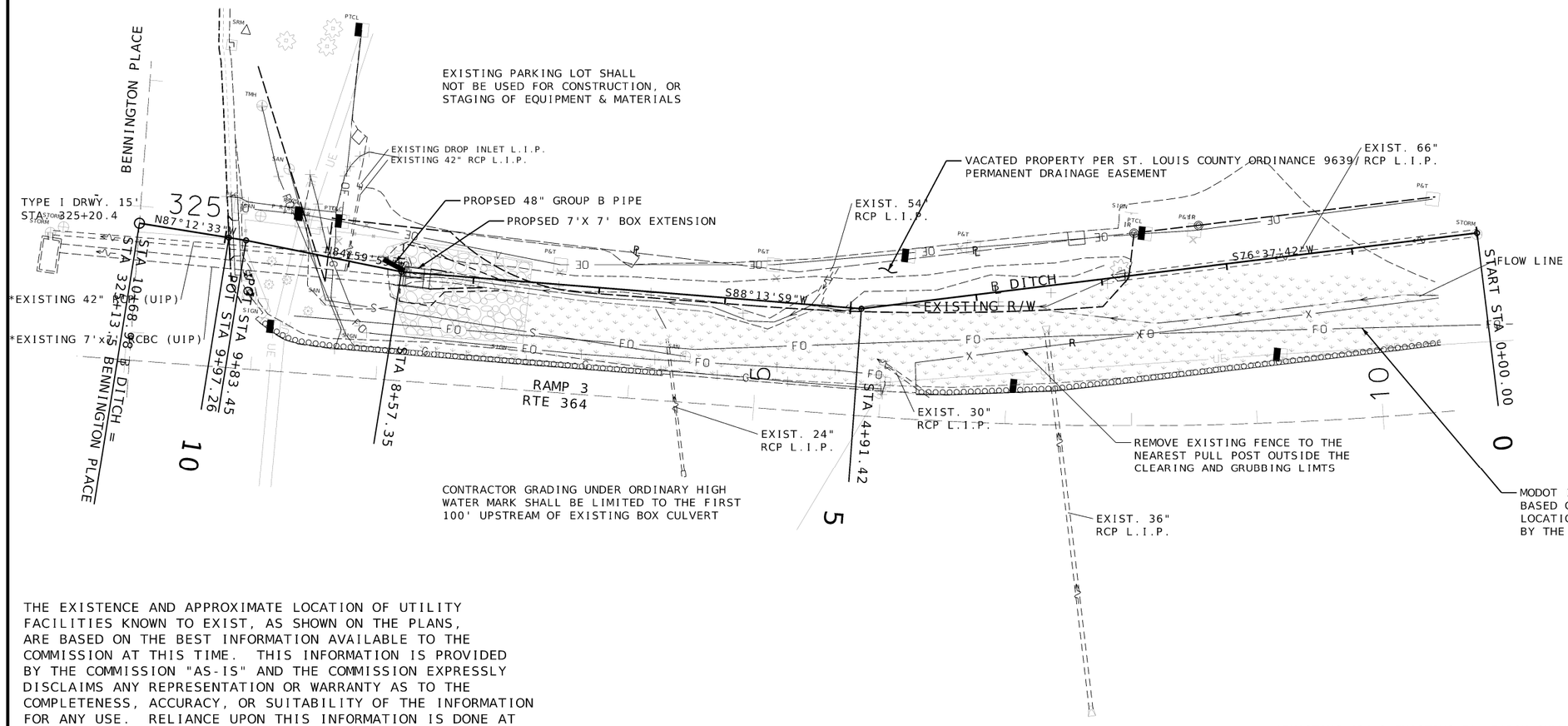
NO.	DESCRIPTION	DATE

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

BACON | FARMER | WORKMAN ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

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

$FILE$ $TIME$ $DATE$



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.

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

SCALE
0 50 100 150

*EXISTING 42" & EXISTING 7'x 7'BOX CULVERT DRAIN INTO EXISTING UNDERGROUND DETENTION POND LOCATED IN THE NORTHWEST QUADRANT OF THE INTERCHANGE

LEGEND

PERMANENT EROSION CONTROL MAT

TYPE 2 ROCK BLANKET

PLAN SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
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
01/09/2024

ROUTE	STATE
364	MO
DISTRICT	SHEET NO.
SL	4

COUNTY
ST. LOUIS

JOB NO.
JSL0093

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)

BACON|FARMER|WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-225-2652

004_PP_JSL0093_1100.dgn 9:59:34 AM 4/10/2024

ALL PROJECT COORDINATES HAVE BEEN PROJECTED FROM THE MISSOURI STATE PLANE COORDINATE (SPC) SYSTEM OF 1983 USING AN AVERAGE PROJECT PROJECTION (GRID TO GROUND) FACTOR. TO GET BACK TO STATE PLANE COORDINATES MULTIPY THE PROJECT COORDINATES BY THE AVERAGE GRID FACTOR AS SHOWN IN THE "REFERENCE CONTROL INFORMATION" PORTION OF THIS TABLE.

PROJECT COORDINATE INFORMATION

COORDINATE SYSTEM	MODIFIED STATE PLANE (GROUND)
HORIZONTAL DATUM	NAD 83 (2011) EPOCH 2010.0
VERTICAL DATUM	NAVD 88: GNSS DERIVED
GEOID MODEL	GEOID18
ELEVATIONS DETERMINED BY	AVERAGED GNSS OBSERVATIONS
PROJECT PROJECTION FACTOR	1.00008780

REFERENCE CONTROL INFORMATION

COORDINATE SYSTEM	MO COORDINATE SYSTEM OF 1983
CONTROL STATION	MISSOURI CORS
DESIGNATION	MODOT OFALLON CORS ARP
CORS_ID	MOOF
PID	DM4688
LATITUDE	N 38° 45' 14.06179"
LONGITUDE	W 90° 41' 44.78025"
NORTHING (M)	324131.153
EASTING (M)	232983.488
ZONE	EAST
PROJECT AVERAGE GRID FACTOR	0.9999122

EXAMPLE OF PROJECT COORDINATE TO S.P.C.

PROJECT NORTHING X AVERAGE GRID FACTOR
= STATE PLANE NORTHING
PROJECT EASTING X AVERAGE GRID FACTOR
= STATE PLANE EASTING

EXAMPLE: CONTROL POINT #100
N 1042514.693 X 0.9999122 = N 1042423.16
E 830344.454 X 0.9999122 = E 830271.5498

LINEAR UNIT CONVERSION

1 METER = 3.280833333 US SURVEY FEET (USFT)

COORDINATE POINT LISTING

SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)	DESCRIPTION	GPK POINT ID
PROJECT CONTROL POINTS								
4				1042514.693	830344.454	523.675	WP#100-BENNINGTON	
4				1042035.785	830340.833	563.595	WP#101-BENNINGTON	
ALIGNMENTS								
4	0+00.00	℄	0.00	1042697.997	831364.353			
4	4+91.419	℄	0.00	1042584.347	830886.257			
4	8+57.349	℄	0.00	1042573.011	830520.503			
4	9+83.453	℄	0.00	1042584.002	830394.878			
4	9+97.262	℄	0.00	1042584.675	830381.085			

COORDINATE POINT SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 2/1/2024

ROUTE	STATE
364	MO
DISTRICT	SHEET NO.
SL	5

COUNTY: ST. LOUIS
JOB NO.: JSL0093
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)

BACON | FARMER | WORKMAN ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007029644
Phone: 573-222-5532

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

EXISTING DROP INLET L.I.P.

EXISTING 42" RCP L.I.P.

PROPOSED PAVED APPROACH
REMOVE EXISTING CURB AND SIDEWALK

PROPOSED 60" CHAIN LINK FENCE

PROPOSED 15' GATE

9+86.88

PROPOSED 15' GATE

TYPE I DRWY. 15'
STA. 325+20.4

POT STA 9+97.26

POT STA 9+83.45

EXISTING 42" RCP L.I.P.

*(L.I.P.)

EXISTING 7'x7' BOX

*(L.I.P.)

*(L.I.P.)

*(L.I.P.)

EXIST 7'X7' BOX
W/TRASH GRATE (REMOVE)

2-7'X7' BOX EXTENSION
W/TRASH GRATE

N84°59'59"W

PROPOSED 5'X3' PRECAST CI

EXISTING 42" RCP
REMOVE FES & 17.3'
OF PIPE

PROPOSED 48" GROUP B PIPE

7+54.51

STA 8+57.35

9+60.21

EXISTING DRAINAGE STRUCTURES DRAIN
TO UNDERGROUND DETENTION POND IN THE
N.W. QUADRANT OF RTE 364/BENNINGTON
PLACE INTERCHANGE.

EDGE OF PROPOSED DITCH

*LEAVE IN PLACE SHRUBS/BUSHES
NEAR SIGNAL CONTROL BOX/INTERSECTION

SCALE
0 10 20 30

SPECIAL SHEET
SHEET 1 OF 2

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
02/05/2024

ROUTE	STATE
364	MO
DISTRICT	SHEET NO.
SL	6

COUNTY
ST LOUIS

JOB NO.
JSL0093

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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)

BACON|FARMER|WORKMAN
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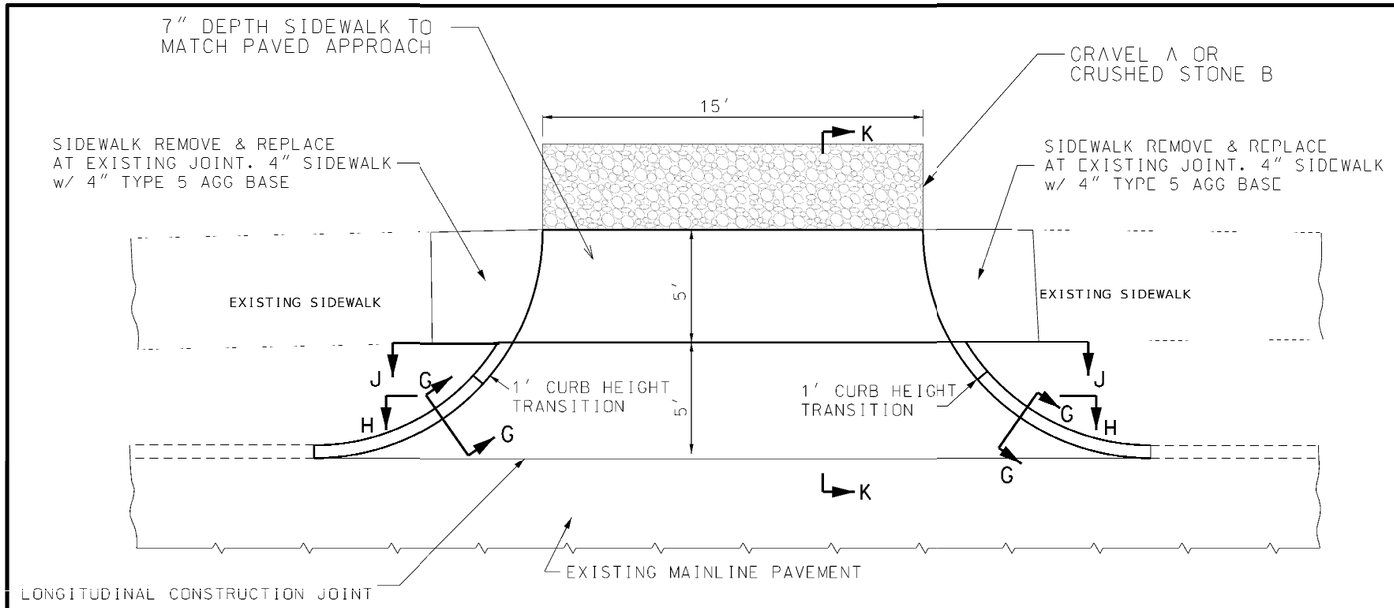
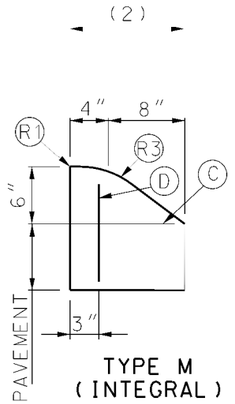
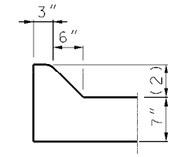
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority #2007026644
Phone: 573-222-2632

$FILE$ $TIME$ $DATE$

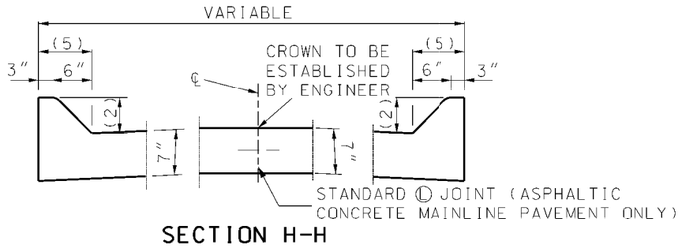




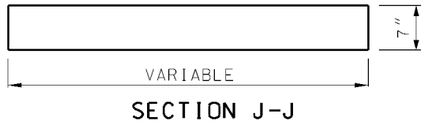
TYPE M
(INTEGRAL)



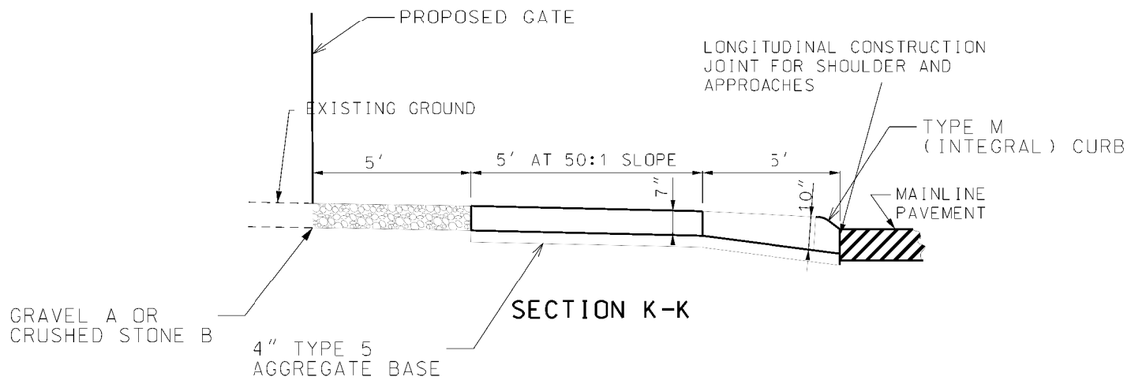
SECTION G-G



SECTION H-H



SECTION J-J



SECTION K-K

PAVED APPROACH

GENERAL NOTES:

STANDARD PLAN FOR PAVED APPROACH:
608.00L SHEET 2 OF 2

(2) 6" - EXCEPT WHERE VARIED TO MEET EXISTING IMPROVEMENTS.

(5) VARY TO MEET EXISTING IMPROVEMENTS.

STANDARD PLAN FOR CURB: 609.00Q
SHEET 2 OF 2

SIDEWALK TO BE REMOVED AND REPLACED AT AN EXISTING JOINT

CRUSHED STONE A OR AGGREGATE B TO BE PLACED BETWEEN PAVED APPROACH AND PROPOSED GATE

C PERMISSIBLE CONSTRUCTION JOINT, IF CONSTRUCTED IN THIS MANNER TIE BARS MUST BE USED.

D #4 Ø TIE BAR AT 24" CENTERS LENGTH OF THE TIE BARS EQUALS THICKNESS OF PAVEMENT PLUS HEIGHT OF CURB, LESS 3 INCHES.

R1 ROUND TO 1/4" RADIUS (EXCEPT FOR SAWED JOINTS)

R3 CONSTRUCT TO 9" RADIUS.

NOT TO SCALE FOLLOW DIMENSIONS

SPECIAL SHEET
SHEET 2 OF 2

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
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
02/07/2024

ROUTE	STATE
364	MO
DISTRICT	SHEET NO.
SL	7

COUNTY
ST. LOUIS

JOB NO.
JSL0093

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)

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

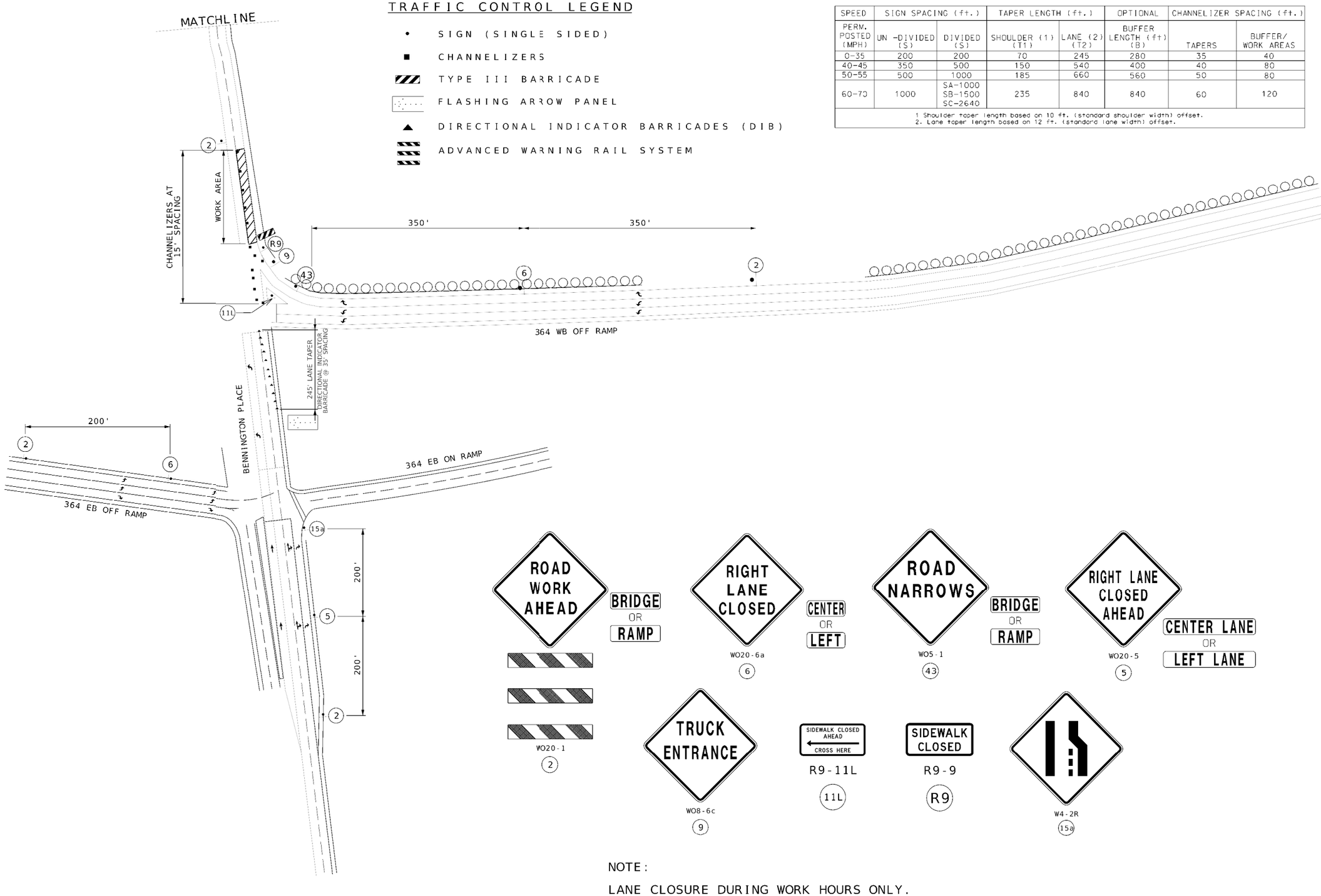
$FILE$ $TIME$ $DATE$

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- CHANNELIZERS
- TYPE III BARRICADE
- FLASHING ARROW PANEL
- DIRECTIONAL INDICATOR BARRICADES (DIB)
- ADVANCED WARNING RAIL SYSTEM

SPEED	SIGN SPACING (ft.)		TAPER LENGTH (ft.)		OPTIONAL	CHANNELIZER SPACING (ft.)	
PERM. POSTED (MPH)	UN-DIVIDED (S)	DIVIDED (S)	SHOULDER (1) (T1)	LANE (2) (T2)	BUFFER LENGTH (ft) (B)	TAPERS	BUFFER/ WORK AREAS
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.



NOTE:

LANE CLOSURE DURING WORK HOURS ONLY.

DRAWING NOT TO SCALE.
FOLLOW DIMENSIONS.

TRAFFIC CONTROL SHEET
SHEET 1 OF 5

$FILE$ $TIME$ $DATE$

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
02/07/2024

ROUTE	STATE
364	MO
DISTRICT	SHEET NO.
SL	8

COUNTY
ST. LOUIS

JOB NO.
JSL0093

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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

DESCRIPTION	DATE

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

BACON | FARMER | WORKMAN
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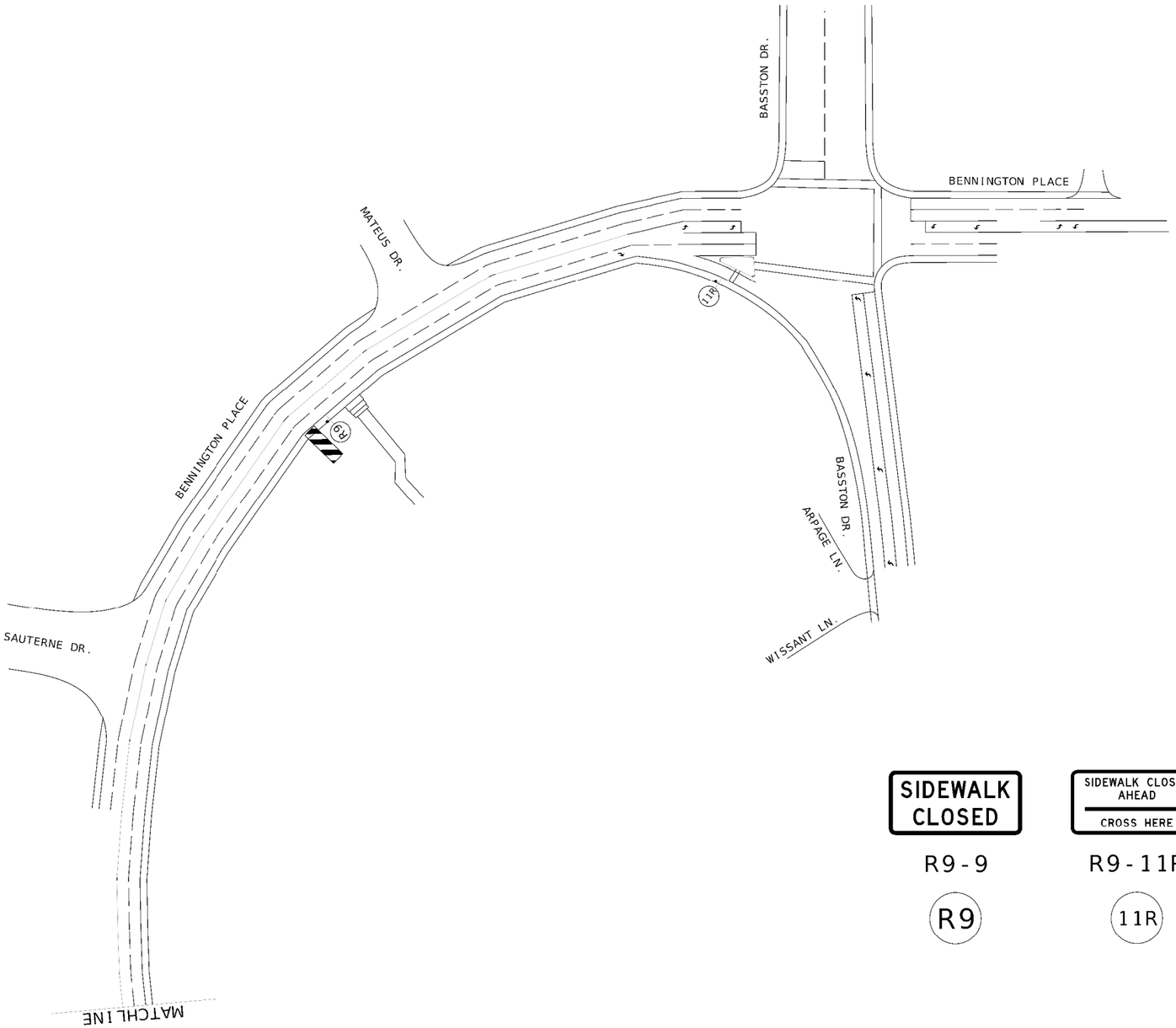
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5832



R9-9

R9-11R

R9

11R

DRAWING NOT TO SCALE.
FOLLOW DIMENSIONS.

TRAFFIC CONTROL SHEET
SHEET 2 OF 5

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
02/07/2024

ROUTE	STATE
364	MO
DISTRICT	SHEET NO.
SL	9

COUNTY
ST. LOUIS

JOB NO.
JSL0093

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

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105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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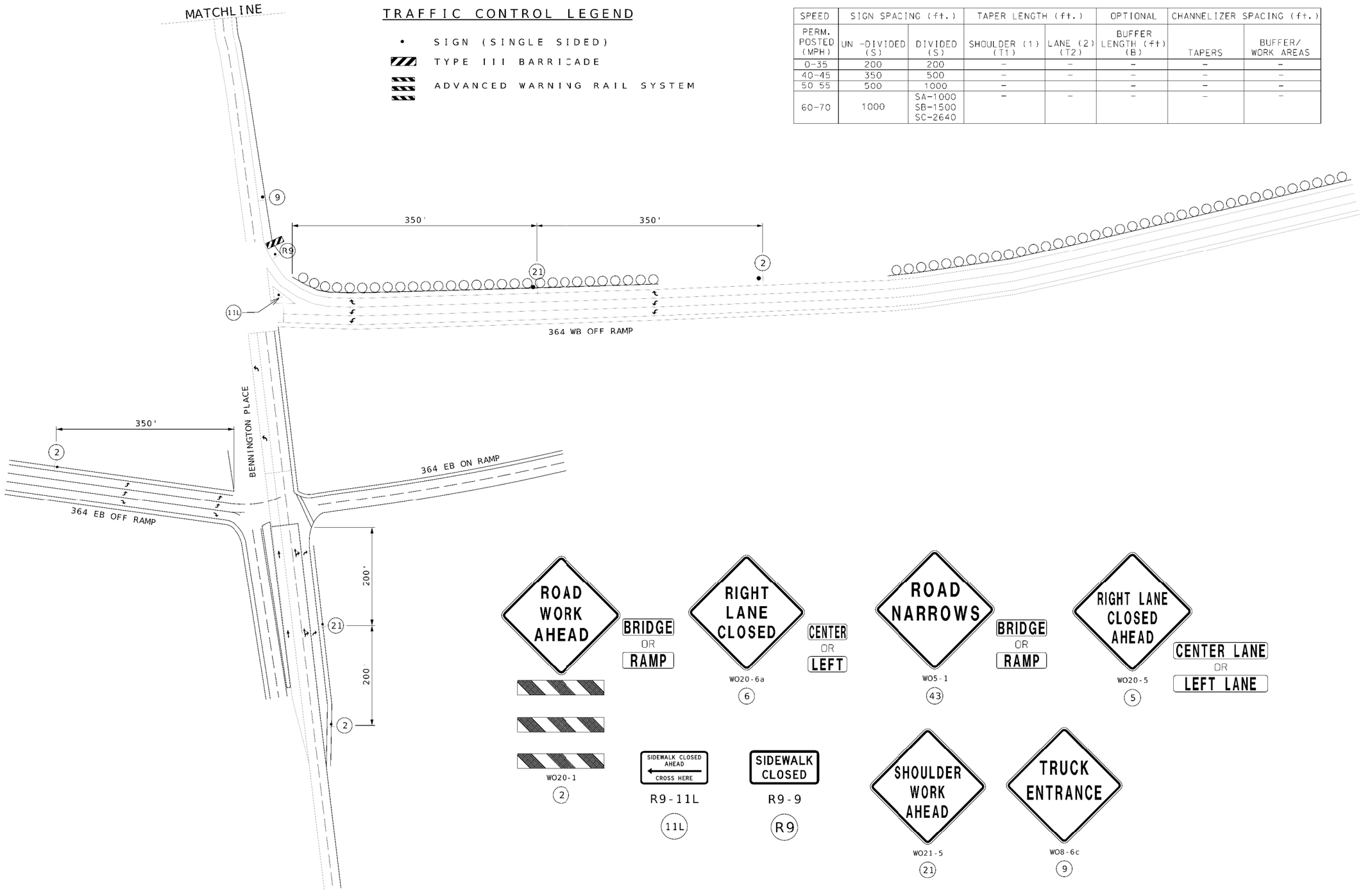
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F-2007028644
Phone: 573-222-5632

$FILE$ $TIME$ $DATE$

TRAFFIC CONTROL LEGEND

- • SIGN (SINGLE SIDED)
- TYPE III BARRICADE
- ADVANCED WARNING RAIL SYSTEM

SPEED	SIGN SPACING (ft.)		TAPER LENGTH (ft.)		OPTIONAL	CHANNELIZER SPACING (ft.)	
PERM. POSTED (MPH)	UN-DIVIDED (S)	DIVIDED (S)	SHOULDER (1) (T1)	LANE (2) (T2)	BUFFER LENGTH (ft) (B)	TAPERS	BUFFER/ WORK AREAS
0-35	200	200	–	–	–	–	–
40-45	350	500	–	–	–	–	–
50 55	500	1000	–	–	–	–	–
60-70	1000	SA-1000 SB-1500 SC-2640	–	–	–	–	–



DRAWING NOT TO SCALE.
FOLLOW DIMENSIONS.

NOTE:

BEGIN/END PROJECT SIGNING

TRAFFIC CONTROL SHEET
SHEET 3 OF 5

$FILE$ $TIME$ $DATE$

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 02/12/2024
ROUTE: 364 | STATE: MO
DISTRICT: SL | SHEET NO.: 10
COUNTY: ST. LOUIS
JOB NO.: JSL0093
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

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

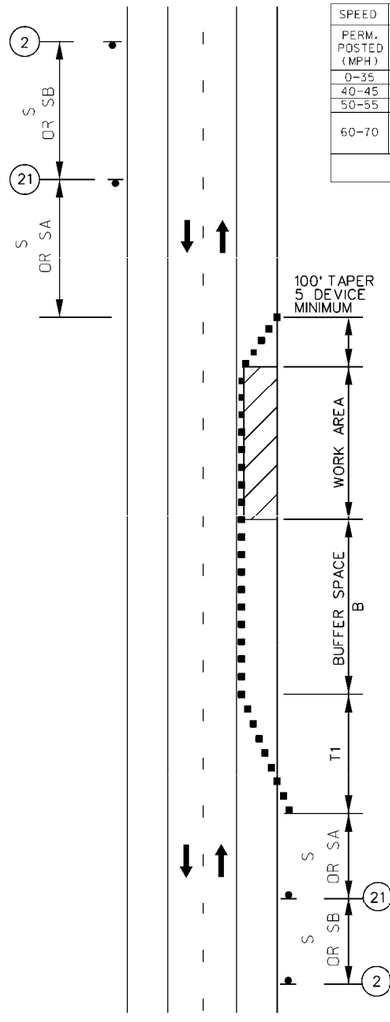
DESCRIPTION	DATE

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: P2007028644
Phone: 573-222-5632

SPEED	SIGN SPACING (ft.)		TAPER LENGTH (ft.)		OPTIONAL	CHANNELIZER SPACING (ft.)	
PERM. POSTED (MPH)	UN-DIVIDED (S)	DIVIDED (S)	SHOULDER (1) (T1)	LANE (2) (T2)	BUFFER LENGTH (ft) (B)	TAPERS	BUFFER/ WORK AREAS
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

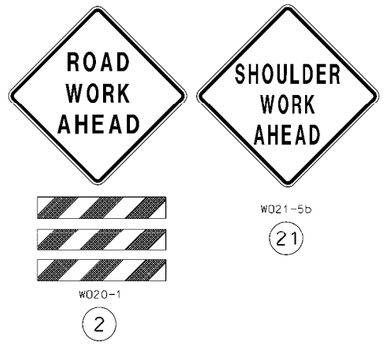
1 Shoulder taper length based on 10 ft. (standard shoulder width) offset.
2. Lane taper length based on 12 ft. (standard lane width) offset.



WORK ON THE SHOULDER
ON DIVIDED AND UNDIVIDED
HIGHWAYS

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- CHANNELIZER (TRIM-LINE)
- WORK AREA



NOTES:

PROVIDE SIGNS ON LEFT AND RIGHT SIDES OF DIVIDED HIGHWAYS.

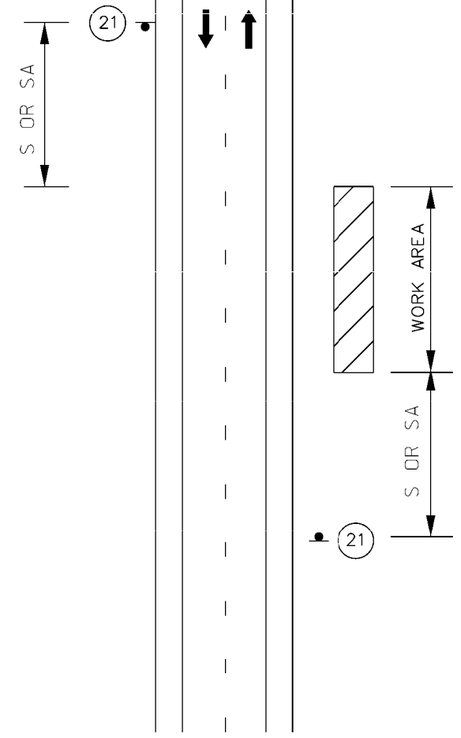
ROAD WORK AHEAD SIGN NOT NEEDED IF SHOULDER WORK IS LOCATED WITHIN THE LIMITS OF AN ACTIVITY AREA WHERE ANOTHER ROAD WORK AHEAD SIGN IS ALREADY USED.

SEE EPG 616.12 WORK ZONE SPEED LIMITS FOR SPEED LIMIT GUIDELINES.

VEHICLE HAZARD WARNING SIGNALS SHALL NOT BE USED INSTEAD OF THE VEHICLE'S ROTATING BEACONS OR STROBE LIGHTS.

WHEN PAVED SHOULDERS HAVING A WIDTH OF 8 FEET OR MORE ARE CLOSED, AT LEAST ONE ADVANCE WARNING SIGN SHALL BE USED. IN ADDITION, CHANNELIZING DEVICES SHALL BE USED TO CLOSE THE SHOULDER IN ADVANCE OF THE BEGINNING OF THE WORK SPACE AND DIRECT VEHICULAR TRAFFIC TO REMAIN WITHIN THE TRAVELED WAY.

SPEED	SIGN SPACING (ft.)		TAPER LENGTH (ft.)		OPTIONAL	CHANNELIZER SPACING (ft.)	
PERM. POSTED (MPH)	UN-DIVIDED (S)	DIVIDED (S)	SHOULDER (1) (T1)	LANE (2) (T2)	BUFFER LENGTH (ft) (B)	TAPERS	BUFFER/ WORK AREAS
0-35	200	200	-	-	-	-	-
40-45	350	500	-	-	-	-	-
50-55	500	1000	-	-	-	-	-
60-70	1000	SA-1000 SB-1500 SC-2640	-	-	-	-	-



SHOULDER WORK
WORK BEYOND THE SHOULDER
DIVIDED AND UNDIVIDED

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- WORK AREA

NOTES:

ONLY APPLICABLE WHEN WORK IS WITHIN THE CLEAR ZONE.

ON MULTI-LANE, DIVIDED HIGHWAYS, SIGNS ADVISING OF THE SHOULDER WORK OR THE CONDITION OF THE SHOULDER SHOULD BE PLACED ONLY ON THE SIDE OF THE AFFECTED SHOULDER.

VEHICLE HAZARD WARNING SIGNALS SHALL NOT BE USED INSTEAD OF THE VEHICLE'S HIGH-INTENSITY ROTATING, FLASHING, OSCILLATING, OR STROBE LIGHTS.

NOTE: THIS DRAWING IS NOT SCALE. FOLLOW THE DIMENSIONS.

TRAFFIC CONTROL SHEET
SHEET 4 OF 5

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 02/27/2024
ROUTE: 364 | STATE: MO
DISTRICT: SL | SHEET NO.: 11
COUNTY: ST. LOUIS
JOB NO.: JSL0093
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

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)

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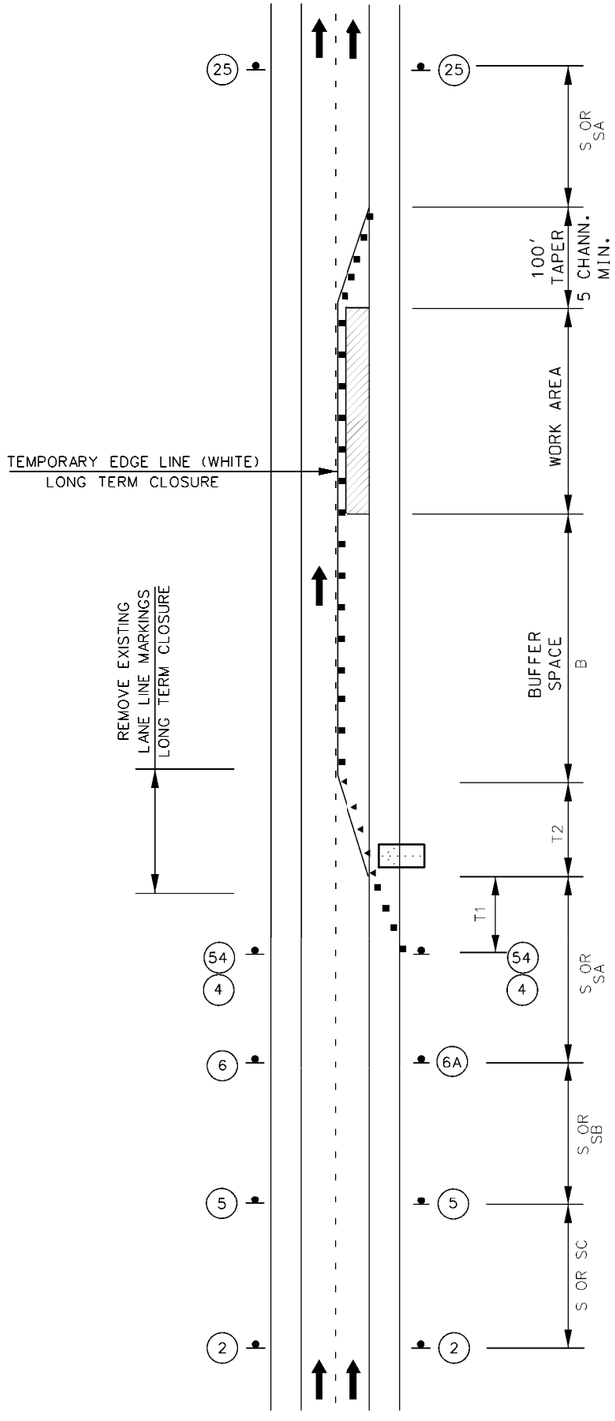
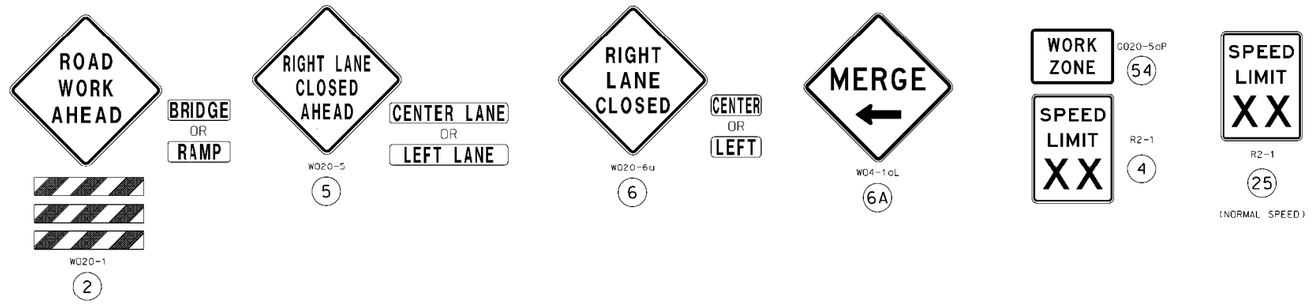
Phone: 573-222-5632

$FILE$ $TIME$ $DATE$



STATIONARY LANE CLOSURE
ON A DIVIDED HIGHWAY



NOTES:

SEE EPG 616.12 WORK ZONE SPEED LIMITS FOR SPEED LIMIT GUIDELINES.

TEMPORARY PAVEMENT MARKING REQUIRED WITH LONG TERM CLOSURES.

REMOVE AND/OR MODIFY ANY EXISTING PAVEMENT MARKING AS NEEDED.

THIS INFORMATION ALSO SHALL BE USED WHEN WORK IS BEING PERFORMED IN THE LANE ADJACENT TO THE MEDIAN ON A DIVIDED HIGHWAY. IN THIS CASE, THE LEFT LANE CLOSED SIGNS AND THE CORRESPONDING MERGE OR LANE ENDS SIGNS SHALL BE SUBSTITUTED.

WHEN A SIDE ROAD INTERSECTS THE HIGHWAY WITHIN THE TTC ZONE, ADDITIONAL TTC DEVICES SHALL BE PLACED AS NEEDED.

TEMPORARY TRAFFIC BARRIERS, IF USED, SHALL COMPLY WITH THE PROVISIONS IN EPG 616.6.85 TEMPORARY TRAFFIC BARRIER AND REVIEW EPG 616.8.34 (TA-34) LANE CLOSURE WITH A TEMPORARY TRAFFIC BARRIER.

REVIEW EPG 616.8.34A (TA-34A) LANE CLOSURE WITH WIDTH AND LANE RESTRICTIONS - DE/CM FOR A LANE CLOSURE WITH WIDTH RESTRICTION.

REVIEW EPG 616.6.83 WARNING LIGHTS WHEN SEQUENTIAL OR WARNING LIGHTS SHOULD BE USED ON NIGHTTIME OPERATIONS.

IF RUMBLE STRIPS ARE USED, REVIEW EPG 616.6.87 RUMBLE STRIPS.

FOR FLAGS AND ADVANCE WARNING RAIL SYSTEMS, REFER TO EPG 616.6.2.2 FLAGS AND ADVANCE WARNING RAIL SYSTEM.

REVIEW EPG 616.6.63 CHANNELIZING DEVICES FOR DIFFERENT TYPES AND GUIDELINES FOR THE DEVICES.

NOT TO SCALE

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- DIRECTIONAL INDICATOR BARRICADE
- CHANNELIZER (TRIM-LINE)
- WORK AREA
- FLASHING ARROW PANEL
- ADVANCE WARNING RAILS

SPEED	SIGN SPACING (ft.)		TAPER LENGTH (ft.)		OPTIONAL	CHANNELIZER SPACING (ft.)	
PERM. POSTED (MPH)	UN -DIVIDED (S)	DIVIDED (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

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
SHEET 5 OF 5

$FILE$ $TIME$ $DATE$

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
02/27/2024

ROUTE	STATE
364	MO
DISTRICT	SHEET NO.
SL	12

COUNTY
ST. LOUIS

JOB NO.
JSL0093

CONTRACT ID.

PROJECT NO.

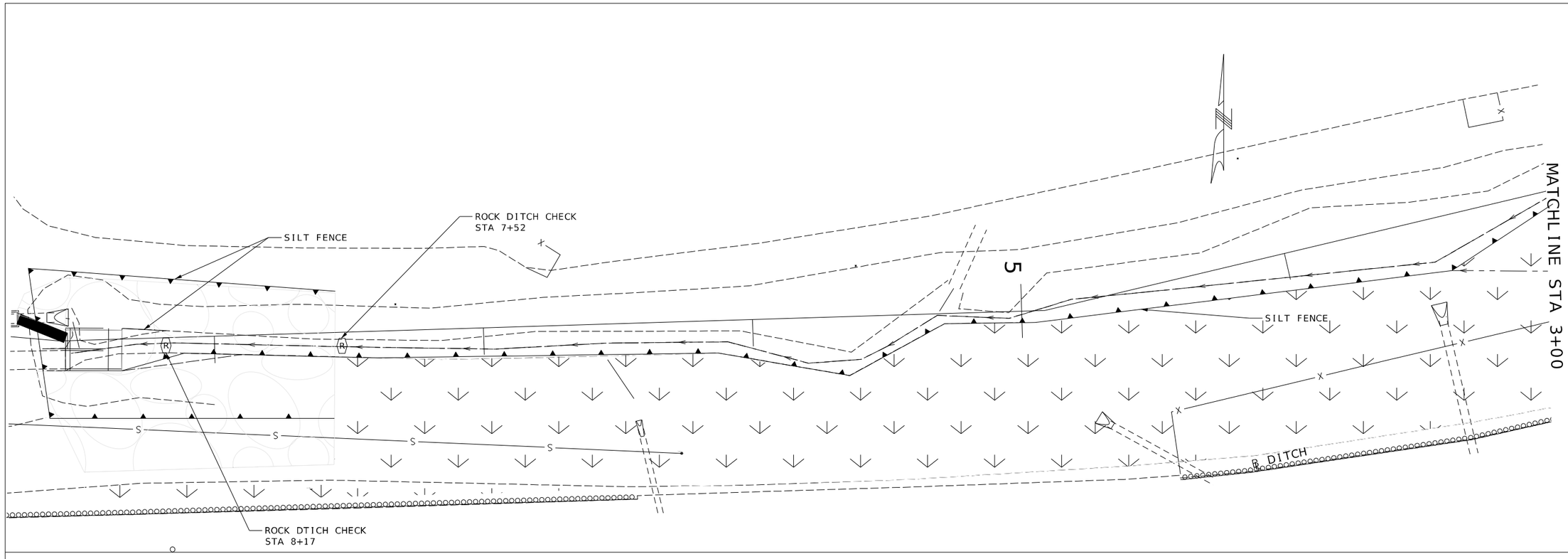
BRIDGE NO.

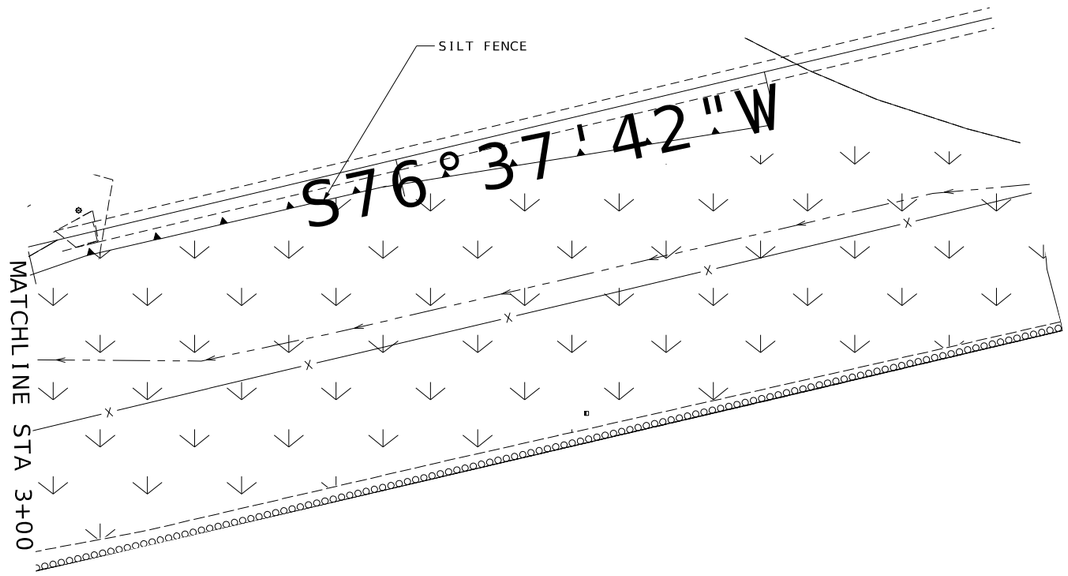
DESCRIPTION	DATE

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)

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028844
Phone: 573-222-5632





TEMPORARY EROSION CONTROL LEGEND

(R) ROCK DITCH CHECK

SILT FENCE

SCALE

0 20 40 60

EROSION CONTROL SHEET
SHEET 1 OF 4

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
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DATE PREPARED
02/07/2024

ROUTE	STATE
364	MO
DISTRICT	SHEET NO.
SL	13

COUNTY
ST LOUIS

JOB NO.
JSL0093

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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105 WEST CAPITOL
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Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

SCALE

0 10 20 30

EROSION CONTROL SHEET
SHEET 2 OF 4

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER

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DATE PREPARED
02/01/2024

ROUTE	STATE
364	MO

DISTRICT	SHEET NO.
SL	14

COUNTY
ST. LOUIS

JOB NO.
JSL0093

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

BACON|FARMER|WORKMAN ENGINEERING & TESTING, INC.
3427 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5932

$FILE$ $TIME$ $DATE$

SCALE

0 20 40 60

EROSION CONTROL SHEET
SHEET 3 OF 4

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
2/07/2024

ROUTE	STATE
364	MO
DISTRICT	SHEET NO.
SL	15

COUNTY
ST. LOUIS

JOB NO.
JSL0093

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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)

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3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028544
Phone: 573-222-5652

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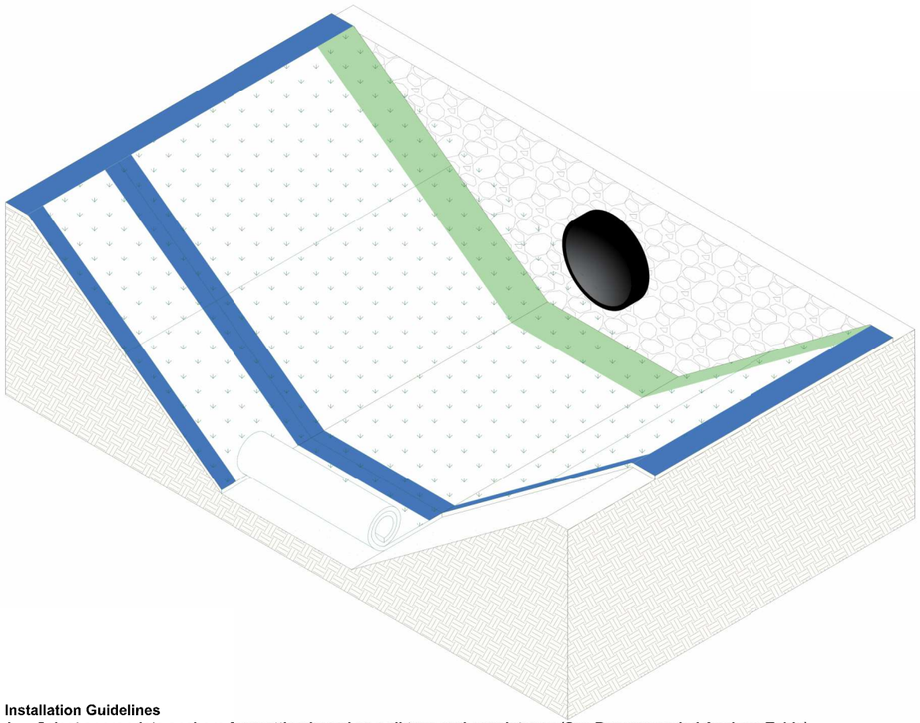
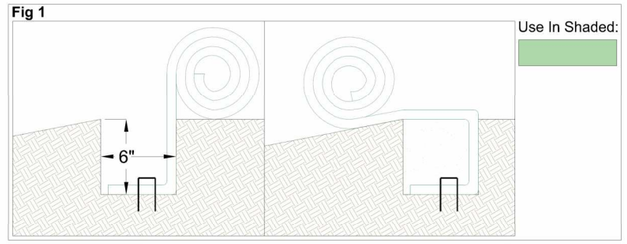
ShearForce10 Hybrid Turf Instant Armor Mat Installation Guide for Channels, Downchutes, and Spillways (Not To Scale)

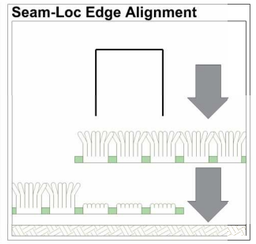


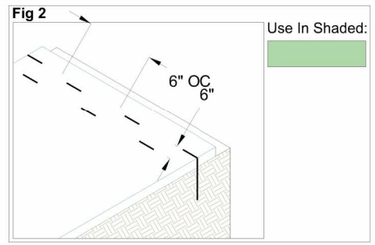
ShearForce10 Recommended Anchors

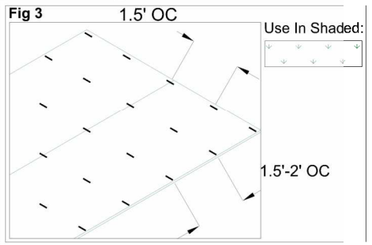
Soil Type	*Minimum Anchor	Alternate Anchors
Cohesive, well compacted or undisturbed	8"x2"x8" wire U-staple	12" Fabric Pin, 8" Plastic Stake
Cohesive, loose	12"x2"x12" wire U-staple	18" Fabric Pin, 12" Plastic Stake
Non-Cohesive, well compacted or undisturbed	12"x2"x12", $\frac{3}{8}$" Rebar U-staple	24" Fabric Pin, 18" Earth Anchor
Non-Cohesive, loose	18"x2"x18", $\frac{3}{8}$" Rebar U-staple	36" Percussion Earth Anchor

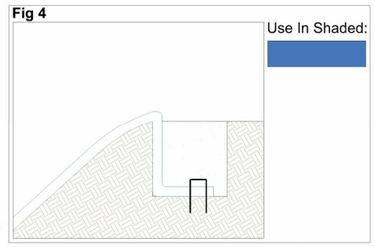
*U-shaped anchors are recommended as they can be shared between adjacent rolls when seaming, reducing total anchors needed during installation.

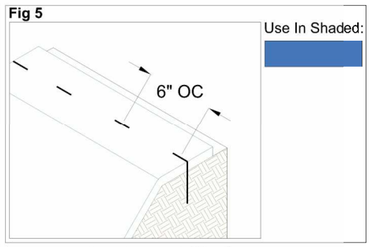












Installation Guidelines

1. **Select appropriate anchors for matting based on soil type and consistency (See Recommended Anchors Table).**
2. **Prepare seedbed,** create a smooth soil surface and eliminate any existing rills, soil clods, sticks or rocks larger than 2-inches in diameter. Any soil used to fill rills or low spots must be adequately compacted before seedbed preparation.
3. **Apply seed, fertilizer,** and other amendments at the specified rates, either by broadcasting, drilling, or hydro-seeding.
4. **Position and anchor leading edge of mats at in-flow end of channel** with one of the following acceptable methods:
   - 4.1. **6-inch Covered Anchor Trench (Figure 1)**
     Construct a 6-inch wide by 6-inch deep anchor trench across the top width of the channel. Position the leading edge of the mats in the bottom of the trench, with the topside (simulated turf surface) facing down. Make sure mat rolls are properly aligned with channel direction. Position any adjacent rolls according to Step 5 (to ensure proper overlap), and anchor leading edges of all mats into bottom of trench on 1-foot centers. Backfill trench, compact soil and apply additional seed to compacted soil surface. Unroll material over compacted anchor trench (Fig 1).
   - 4.2. **Double Row Anchor Check (Figure 2)**
     Where trenching is not practical or desired, an anchor check may be used to secure the leading edges of the mats. Position the leading edges of the mats with the topside (simulated turf surface) facing up, ensuring that the mat rolls are properly aligned with channel direction. Position adjacent rolls according to Step 5 (to ensure proper overlap). Secure leading edges of mats with a row of anchors spaced 6-inches apart, with a second staggered row of anchors spaced 6-inches apart, approximately 6-inches behind the first row. (Fig 2).
5. **Seam adjacent rolls. (Seam-Loc Edge Detail)**, Unroll material down channel grade, slightly stretch and relax each mat to remove any wrinkles. Let unrolled mats rest in sunlight for a minimum of 15 minutes to normalize surface temperature before anchoring. Overlap roll edges by placing full-turf roll edges on top of nubbed Seam-Loc edges (2-inch inset) of adjacent rolls. If necessary, simply step on overlaps to flatten and snap Seam-Loc edges together.
6. **Anchor mats to soil. (Figure 3)**, Starting at the in-flow end of channel and working down the channel gradient, fasten mats with a row of anchors spaced 1.5-feet apart across the mat width, and anchor rows spaced 1.5-2.0-feet apart down the mat length, making sure all overlaps and factory pre-fabricated seams (6-ft wide rolls only) are secured, according to Fig. 3. Installation on non-cohesive sandy soils and/or in channels where immediate flow velocities are expected to exceed 12 ft/sec, should use the 1.5-foot row spacing along mat length. Use additional anchors as necessary to smooth any remaining wrinkles and ensure that mats are in intimate contact with the underlying soil surface.
7. **Anchor mat edges at top of side-slopes** with one of two acceptable methods:
   - 7.1. **6-inch Anchor Trench (Figure 4)**
     Construct a 6-inch wide by 6-inch deep anchor trench at the top or over the crest of each side-slope and fasten the full length edge of mats into the bottom, with anchors spaced 1.5-feet apart. Backfill trench, compact soil and apply additional seed to compacted soil surface (Fig 4).
   - 7.2. **Single Row Anchor Check (Figure 5)**
     Where trenching is not practical or desired, an anchor check may be used alternatively to secure the side-slope mat edges. Anchor side-slope edges of mats with a single row of anchors spaced 6-inches apart (Fig 5).
8. **Seaming consecutive roll ends.** Butt together (no overlap) consecutive roll ends and securely fasten top edge of downslope rolls with a Double Row Anchor Check as described in Step 4.2 (see Fig 2).
9. **Terminal channel roll ends.** Anchor roll ends at the terminal outfall of channel by constructing a 6-inch Anchor Trench (Fig 4) or with a Single Row Anchor Check (Fig 5)- NOTE: Single Row Anchor Checks are acceptable only if channel terminates into a non-erodable area.

Additional Tips for Fast & Effective Installation

- Install mat with simulated turf on top and fabric backing against soil surface.
- For best vegetative results, do not install on top of any additional erosion control blanket, TRM, or fabric.
- Overlap adjacent rolls by placing full-turf roll edges on top of nubbed Seam-Loc roll edges (2-inch turf inset). Ensure that all overlaps and seams are properly anchored and secure. If necessary, simply step on overlaps to flatten and snap Seam-Loc edges together.
- Continuous fabric contact with the underlying soil surface is very important for effective product performance. Unroll mat and let rest in sunlight for a minimum of 15 minutes to normalize surface temperature before anchoring the mat body. Work out any wrinkles in the material before anchoring. If wrinkles remain, additional anchors may be necessary to ensure good fabric-to-soil contact.
- In channel bends or reaches that are not straight, miter cut roll joints to prevent wrinkles in material.
- Use a heavy-duty utility knife or commercial-grade shears to cut material as necessary.
- When seaming cut roll ends or edges, DO NOT OVERLAP. Simply butt together cut ends or edges and seam together with a single row of anchors, spaced 6-inches apart.

Effective Date: MAY 2020

EROSION CONTROL SHEET
SHEET 4 OF 4

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 02/07/2024
ROUTE 364 | STATE MO
DISTRICT SL | SHEET NO. 16
COUNTY SAINT LOUIS
JOB NO. JSL0093
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION | DATE

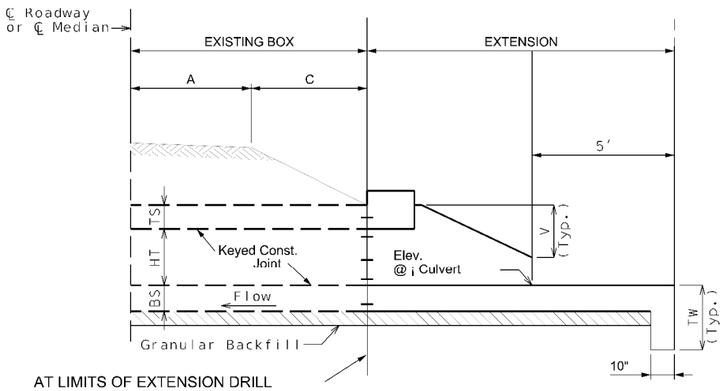
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

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

$FILE$ $TIME$ $DATE$

2(7'x 7') CONCRETE BOX CULVERT EXTENSION AT UPPER FLOWLINE

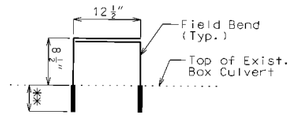


GENERAL ELEVATION A-A

Construction joint key not shown for clarity, see standard plans for details.

If any part of the barrel is exposed, the roadway fill shall be warped to provide 12 inches minimum cover. (Roadway Item)

If unsuitable material is encountered, excavation of unsuitable material and furnishing and placing of granular backfill shall be in accordance with Sec 206.



DETAIL OF RESIN ANCHOR SYSTEM

** Manufacturer's recommended embedment length (10" min.)

(8 req'd per Shear Block)
(32 req'd total for End Bent No. 1)
(32 req'd total for End Bent No. 5)

See Sheet No. 6 for notes regarding to Resin Anchor System.

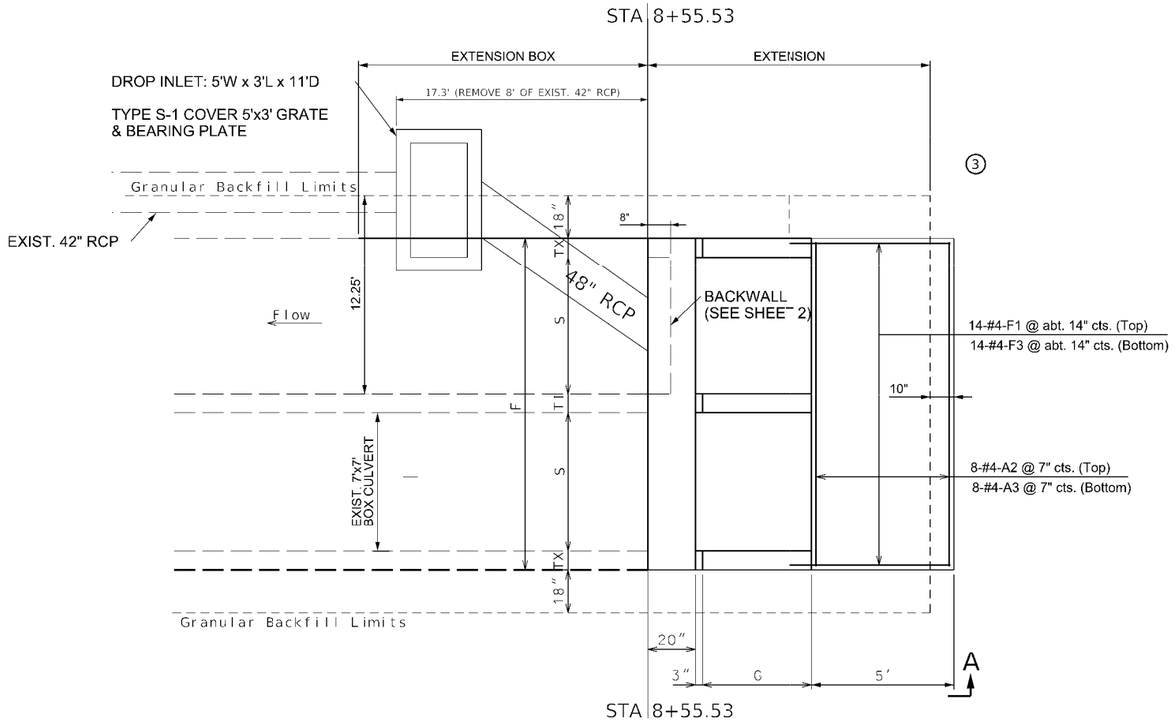
System A
(404 Req'd.)
DETAILS OF RESIN ANCHOR SYSTEM
* Manufacturer's recommended embedment length (5" min.)

Layout Dimensions								
Var.	Equation	Dim.	Var.	Equation	Dim.	Var.	Equation	Dim.
S	- - -	7'	TI	- - -	8"	F	2S + 2TX + TI	16'
HT	- - -	7'	A	- - -	N/A	G	2V	14'
TS	- - -	12"	B	- - -	N/A	V	HT + TS - 12"	7'
BS	- - -	9"	C	- - -	N/A	W	2A + B + C + 2E	E
TX	- - -	8"	E	G + 23" + 5'	20.92'	TW	Max{3'-4' or (BS + 12")}	3'-4"

Elevations
Upstream (Elev. 1) = 495.29'
Downstream (Elev. 2) = N/A

Fill Height
Design = 4 ft

Estimated Quantities		Plan	Final
Class 4 Excavation	cu. yard	29.6	
Class B-1 Concrete (Culverts-Bridge)	cu. yard	18.3	
Reinforcing Steel (Culverts-Bridge)	pound	2,820	
Grates and Bearing Plates 5' x 7'7"	each	6	
Grates and Bearing Plates 1' x 7'7"	each	2	



PLAN OF LAYOUT DIMENSIONS

Designed ____ ____
Detailed ____ ____
Checked ____ ____

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

General Notes:

Design Specifications:
2010 AASHTO LRFD Bridge Design Specifications
Interim Revisions

Design Loadings:
Vehicular = HL-93 minus land load, Earch = 120 lb/cf
Equivalent Fluid Pressure = 30 lb/cf (min.), 60 lb/cf (max).

Design Unit Stresses:
Class B-1 Concrete (Box Culvert) f'c = 4,000 psi
Reinforcing Steel (Grade 60)fy = 60,000 psi.

Standard Plans for Box:
614,10U, 703.40H, 703.46(Back Wall),
703.47A(8 of 27), 703.60E

Standard Plans for D.I.:
614.10U(See Next Sheet), 731.10S

Traffic Handling:
Traffic to be maintained on Bennington Place during construction. See roadway plans for traffic control.

Miscellaneous:
Channel bottom shall be graded within the right of way for transition of channel to culvert openings. Channel banks shall be tapered to match culvert openings. (Roadway Item)

EXTEND EXIST. 7'X7' BOX CULVERT AT STA 8+55.53

CULVERT SHEET
SHEET 1 OF 4

$FILE$ $TIME$ $DATE$

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
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DATE PREPARED 01/19/24
ROUTE 364 STATE MO
DISTRICT SL SHEET NO. 17
COUNTY ST. LOUIS
JOB NO. JSL0093
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

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DESCRIPTION	DATE

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
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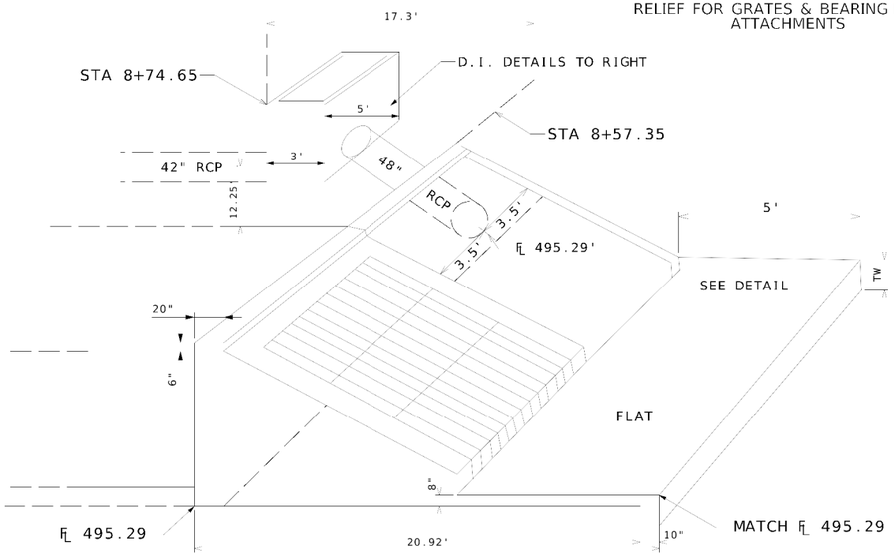
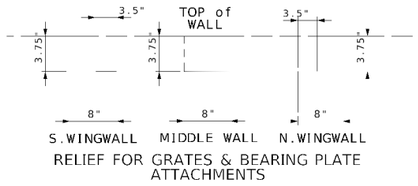
Certificate of Authority: F2007029644
Phone: 573-222-5632
BFW

ISOMETRIC VIEW



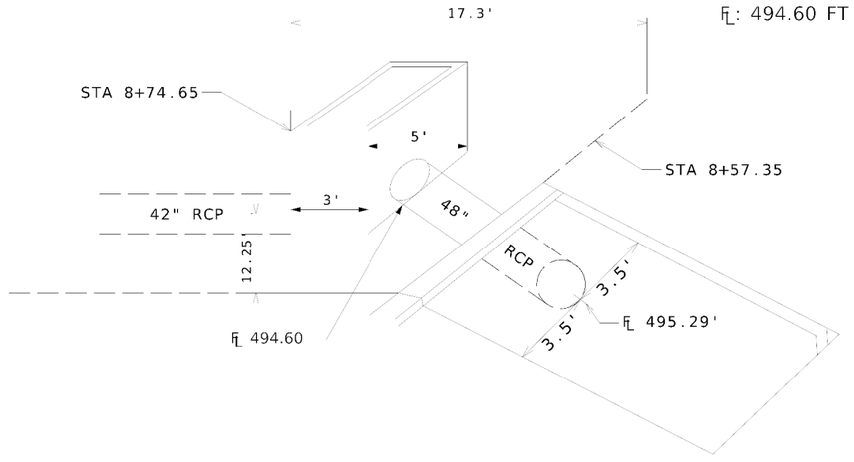


RELIEF FOR GRATES & BEARING PLATE ATTACHMENTS

D.I. DETAILS:

PRECAST D.I. @ STA 8+74.65
USE STDS: 731.10S, 614.10U
5'x3' D.I. D=11 FT
TYPE S-1 COVER w/ GRATE & BEARING PLATES

1-42" OPENING
1-48" OPENING
℄: 494.60 FT

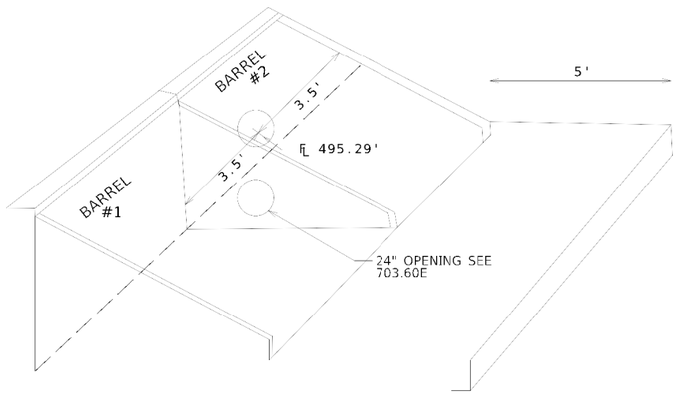


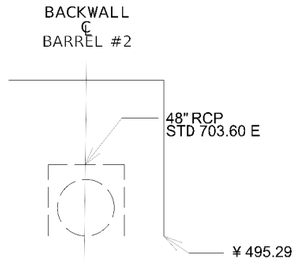
CULVERT EXTENSION BARREL #2(NORTH) BACKWALL 48" RCP w/ CONC. BOX CULVERT PIPE INLET (STD 703.60E)

BACKWALL INCLUDED IN CONCRETE CULVERT QUANTITIES ON SHEET #1

REINFORCE BACKWALL (I.E., BARREL #2) AS AN EXTERIOR WALL WITH J, B, AND F BARS IN ACCORDANCE WITH 703.40H. SEE BILLBAR SHEET FOR BARS DETAIL.

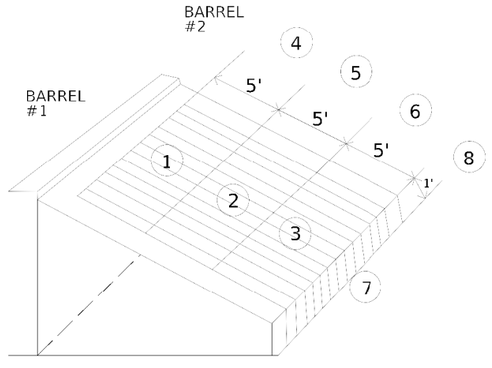
PROVIDE BLOCK-OUT IN THE BACKWALL AND INTERIOR WING AS PER 703.60E.

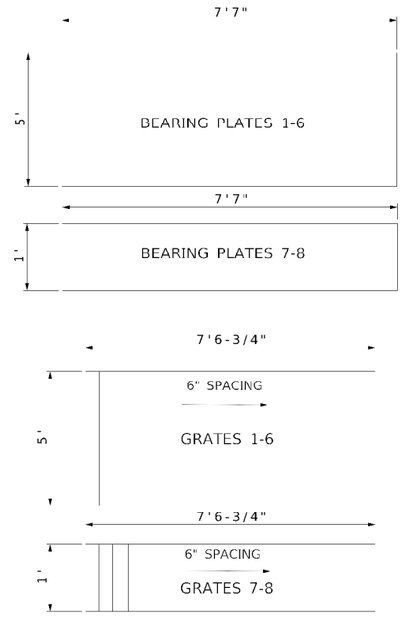




GRATE & BEARING PLATES ASSEMBLY DETAILS

SEE STD PLANS 614.10U FOR DETAILS OF 5x3 w/ FOLLOWING EXCEPTIONS:





NOTE:
ALL GRATES & BEARING PLATES ARE GALVANIZED AFTER WELDING

DRAWING NOT TO SCALE
FOLLOW DIMENSIONS

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

CULVERT DETAIL SHEET
SHEET 2 OF 4

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 01/25/2024
ROUTE 364 | STATE MO
DISTRICT SL | SHEET NO. 18
COUNTY ST. LOUIS
JOB NO. JSL0093
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

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)

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028844
Phone: 573-222-5632

$FILE$ $TIME$ $DATE$

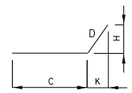
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	SHAPE NO.	STIRRUP (S)	EPOXY (E)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	C FT.	D or F FT.	E FT.	H FT.	K FT.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			BOX CULVERT																
3	5	A1	TOP SLAB	20					15 9.000						15	9	15	9	49
36	4	A2	APRON (TOP BARS)	20					15 9.000						15	9	15	9	379
9	4	A3	APRON (BOTT. BARS)	20					15 9.000						15	9	15	9	95
4	5	B1	SLAB/INT. WALL	10						12.000	8 4.000				10	4	10	1	42
4	5	B2	SLAB/EXT. WALLS	10						12.000	8 4.000				10	4	10	1	42
7	5	B3	BLOCK WALL	10						12.000	8 4.000				10	4	10	1	74
2	8	D1	HEADWALL	20					15 9.000						15	9	15	9	84
12	5	E1	BASEKEY	20					2 11.000						2	11	2	11	37
14	4	F1	APRON (TOP BARS)	20					20 8.000						20	8	20	8	193
7	4	F2	APRON (BOTT. BARS)	20					15 10.000						15	10	15	10	74
14	4	F3	APRON (BOTT. BARS)	20					7 0.000						7	0	7	0	65
20	4	F4	WINGS	20			V	4	5 0.500						5	1	5	1	130
			INCR. = 28.000 INCH						14 4.500						14	5	14	5	
7	4	F5	BLOCK WALL	20					8 0.000						8	0	8	0	37
56	5	G1	WINGS	20			V	4	20.250							20		20	287
			INCR. = 6.000 INCH						8 2.250						8	2	8	2	
28	5	H3	APRON	20					6 4.000						6	4	6	4	185
12	7	J1	WINGS	15						15 6.125	20.500		9.125	18.375	17	3	17	2	421
6	5	J3	TOP SLAB/EXT. WALLS	19					2 4.000	3 5.000					5	9	5	7	35
6	4	J4	BOTT. SLAB/EXT. WALLS	19					7 5.000	4 4.000					11	9	11	8	47
54	4	J5	WINGS	19			V	2	16.250	4 4.000					5	8	5	7	329
			INCR. = 3.250 INCH						8 4.750	4 4.000					12	9	12	8	
13	4	J6	BLOCK WALL	19					8 4.000	4 4.000					12	8	12	7	109
16	5	R1	HEADWALL	27	S				17.000	10.750	6.000	12.750	4.250	4.250	3	11	3	8	61
16	5	R2	HEADWALL	10	S					10.500	15.000				3	0	2	9	46
			TOTALS																
	4																		1459
	5																		858
	6																		0
	7																		421
	8																		84
			TOTAL																2822

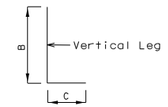
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	SHAPE NO.	STIRRUP (S)	EPOXY (E)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	C FT.	D or F FT.	E FT.	H FT.	K FT.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.

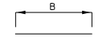
SHAPE 10



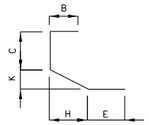
SHAPE 15



SHAPE 19



SHAPE 20

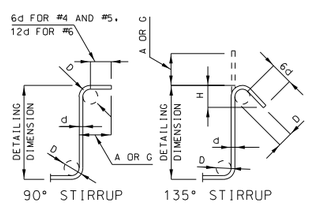


SHAPE 27

SPLICE LENGTH	
BAR SIZE	NON-EPOXY
#4	21 IN.
#5	26 IN.
#6	31 IN.
#7	39 IN.
#8	51 IN.
#9	65 IN.
#10	82 IN.
#11	101 IN.

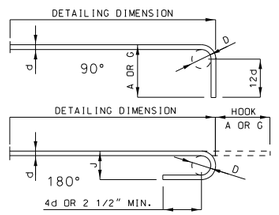
MAX BAR LENGTH	
BAR SIZE	NON-EPOXY
#4	60 FT.
#5	60 FT.
#6	60 FT.
#7	60 FT.
#8	60 FT.
#9	60 FT.
#10	60 FT.
#11	60 FT.

NOTE:
THE BAR LIST IS BASED ON THE MISSOURI STANDARD PLANS.
THIS BAR LIST IS FOR QUANTITY ESTIMATION PURPOSE ONLY AND SHALL BE VERIFIED OR MODIFIED BY THE CONTRACTOR.



STIRRUP HOOK DIMENSIONS				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	GRADE 60		
		180° HOOKS		90° HOOKS
		A OR G	J	A OR G
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	24"

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
FB = BARS MAY BE BENT IN FIELD TO FIT.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE. A BLANK IN THE SECOND LINE REPRESENTS THE SAME BAR DIMENSION AS THAT IN THE FIRST LINE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADD A SPLICE LENGTH TO A BAR LENGTH WHICH EXCEEDS ITS MAXIMUM ALLOWABLE LENGTH.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.

Detailed ____ ____
Checked ____ ____

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

CULVERT SHEET
SHEET 3 OF 4

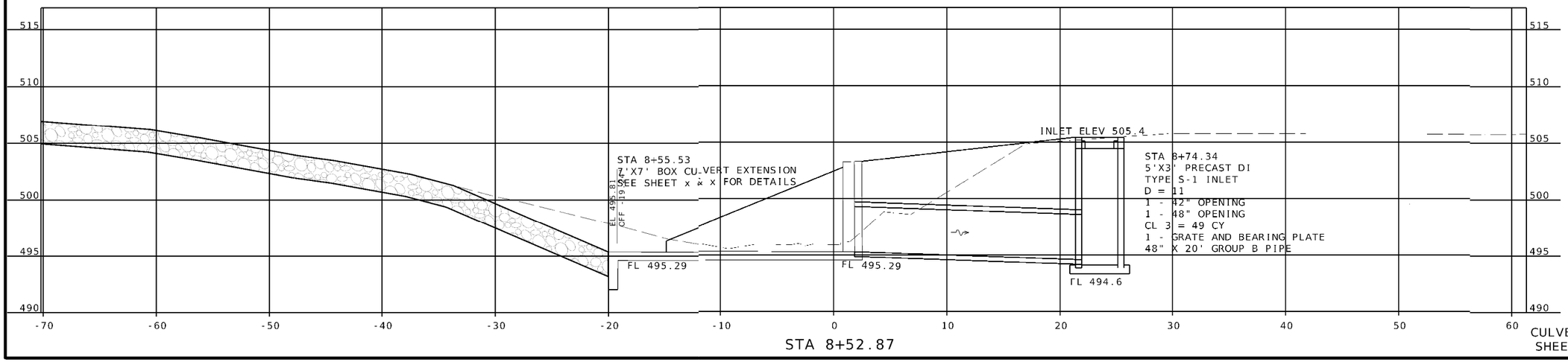
STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED 02-28-2024
ROUTE 364 | STATE MO
DISTRICT SL | SHEET NO. 19
COUNTY ST. LOUIS
JOB NO. JSL0093
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)

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3055 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F-2007028644
Phone: 573-222-5502



CULVERT SHEET
SHEET 4 OF 4

$FILE$ $TIME$ $DATE$

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
2/22/2023

ROUTE	STATE
364	MO
DISTRICT	SHEET NO.
SL	20

COUNTY
ST LOUIS

JOB NO.
JSL0093

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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
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BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: P2007028644
Phone: 573-222-5532