

DESIGN DESIGNATION

A.A.D.T. - 2017 = 277
A.A.D.T. - 2035 = 335
DESIGN SPEED = 30 MPH
POSTED SPEED = 30 MPH

FUNCTIONAL CLASSIFICATION - LOCAL ROAD

NORMAL RIGHT OF WAY TO BE ACQUIRED.

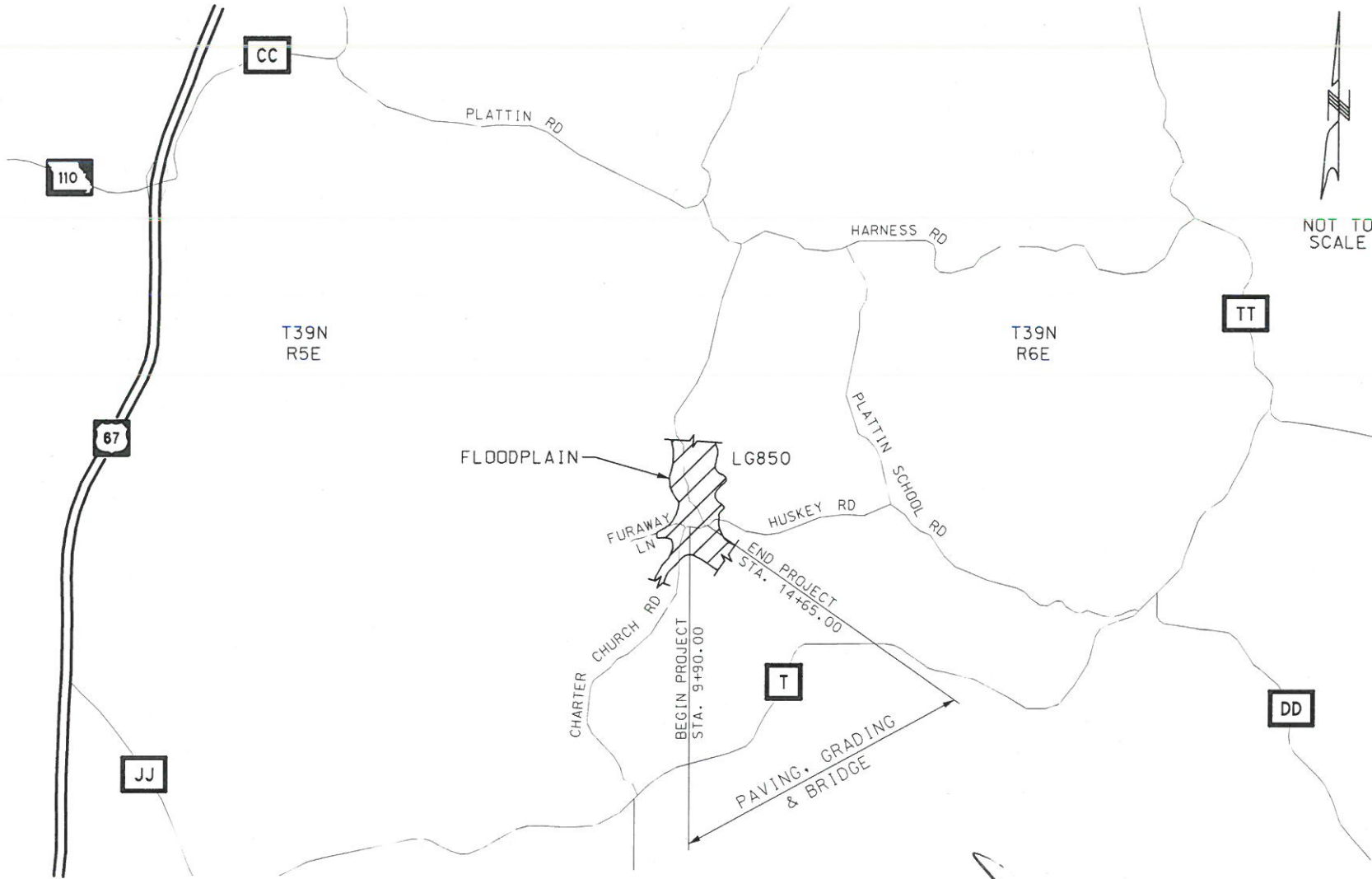
SPECIFICATIONS:
2017 MISSOURI STANDARD SPECIFICATIONS BOOK FOR
HIGHWAY CONSTRUCTION

CONVENTIONAL SYMBOLS
(USED IN PLANS)

	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
UTILITIES		
FIBER OPTICS		
OVERHEAD TELEPHONE		
UNDERGROUND TELEPHONE		
OVERHEAD POWER		
UNDERGROUND POWER		
GAS		
WATER		
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		
REMOVE		
REMOVE & RELOCATE		
REMOVE AND REPLACE		
USE IN PLACE		
ADJUST TO GRADE		
NO DIRECT PAY		

NOTE: DASHED OR OPEN SYMBOLS INDICATE
EXISTING FEATURES

JEFFERSON COUNTY, MISSOURI
CONSTRUCTION PLANS
PLANS FOR THE PROPOSED STRUCTURE REPLACEMENT OF
CHARTER CHURCH ROAD BRIDGE
REPLACEMENT NO. 34200011
STP-5403(661)



UTILITY CONTACTS

AT&T
GLENN HOGENMILLER
122 N. SECOND ST.
FESTUS, MO 63028
636-931-7525

TBM "A": ELEVATION 458.10
SET RAILROAD SPIKE IN THE NORTHWEST FACE OF A UTILITY POLE
WITH TRANSFORMER #406121 LOCATED 52 FEET SOUTH OF THE
CENTERLINE OF CHARTER CHURCH AND 115 FEET EAST OF THE
INTERSECTION OF CHARTER CHURCH ROAD AND FURAWAY ROAD.

TBM "B": ELEVATION 459.37
CUT "X" ON THE SOUTH FOOT PEG TURN UP OF MISSISSIPPI RIVER
TRANSMISSION PIPELINE CROSSING FENCE POST, 20 FEET NORTH OF
THE CENTERLINE OF HUSKEY ROAD AND 130 FEET EAST OF THE
INTERSECTION OF CHARTER CHURCH ROAD AND HUSKEY ROAD.

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.

LOCAL AGENCY APPROVAL:

Mr. Jason Joas, P.E.
Director of Public Works
Jefferson County, MO



INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (1 SHEET)	2
QUANTITIES (3 SHEETS)	2A-2C
PLAN & PROFILE	3
REFERENCE TIES	4
TRAFFIC CONTROL	5
EROSION CONTROL	6
CROSS SECTIONS	7-12
BRIDGE #34200011 PLANS	13-36

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 9+90.00
END OF PROJECT	STA. 14+65.00
APPARENT LENGTH	475.00 FEET

EQUATIONS AND EXCEPTIONS:

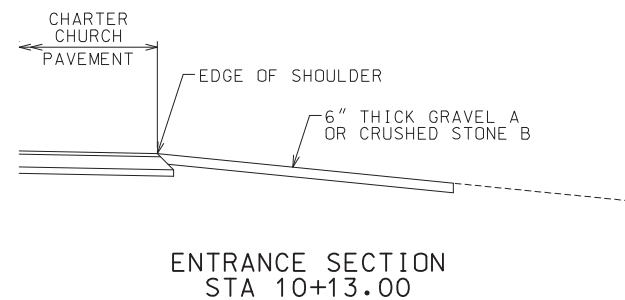
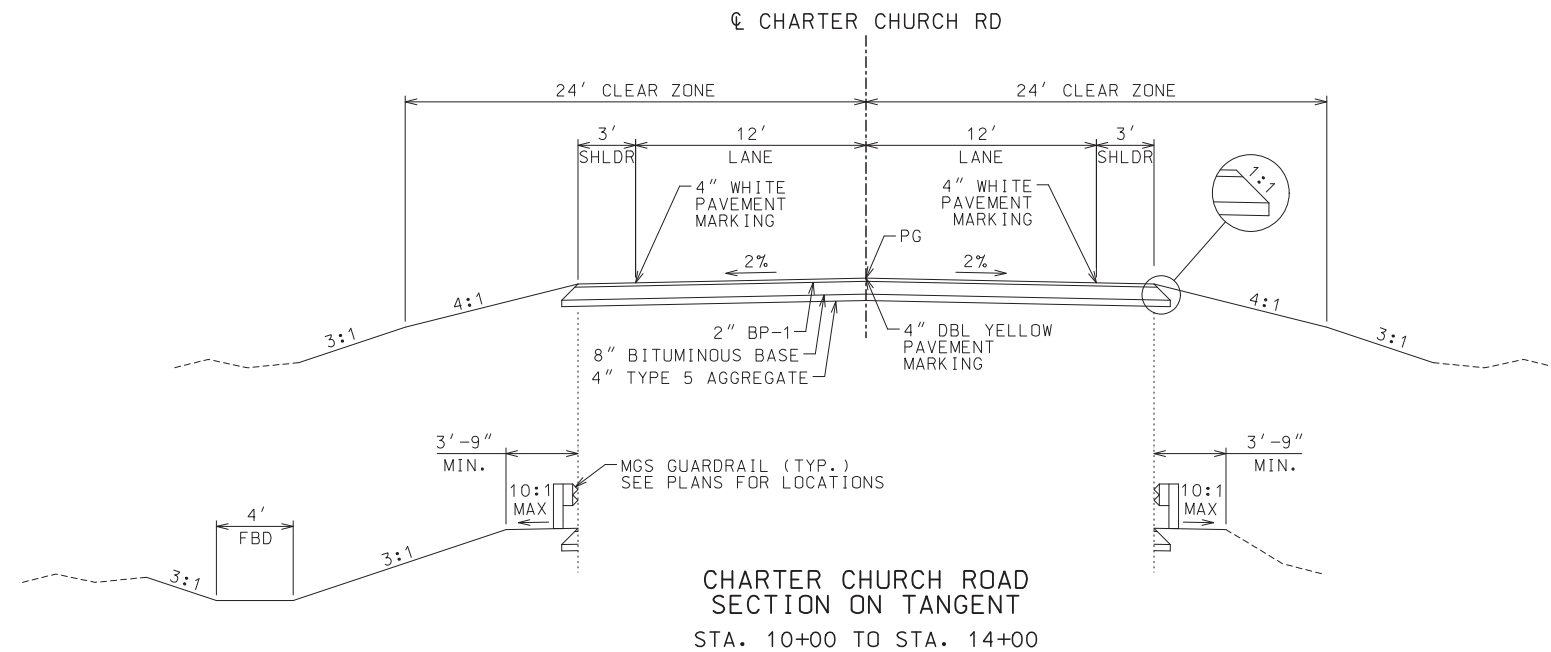
TOTAL CORRECTIONS	0 FEET
NET LENGTH OF PROJECT	475.00 FEET
STATE LENGTH	0.090 MILES



DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
1
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)
BRIDGE NO.
34200011

CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
775 Maple Street
Hillsboro, MO 65050

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



TYPICAL SECTION
SHEET 1 OF 1



THIS SHEET HAS BEEN
SIGNED, SEALED AND
DATED ELECTRONICALLY

DATE PREPARED
1/18/2018

STATE
MO

SHEET NO.
2

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
34200011

DATE	DESCRIPTION

CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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

REMOVAL OF IMPROVEMENTS								
PLAN SHEET	STA	STA	LOC	ROADWAY	LF	SF	EACH	DESCRIPTIONS
4	11+40		RT	CHARTER CHURCH			1	SIGNS, POST & FOOTING
4	11+42		RT	CHARTER CHURCH			1	SIGNS, POST & FOOTING
4	11+78		RT	CHARTER CHURCH			1	SIGNS, POST & FOOTING
4	11+80		RT	CHARTER CHURCH			1	SIGNS, POST & FOOTING
4	11+86		RT	CHARTER CHURCH			1	SIGNS, POST & FOOTING
4	11+88		RT	CHARTER CHURCH			1	SIGNS, POST & FOOTING
4	12+99		LT	CHARTER CHURCH			1	SIGNS, POST & FOOTING
4	13+00		RT	CHARTER CHURCH			1	SIGNS, POST & FOOTING
4	13+01		LT	CHARTER CHURCH			1	SIGNS, POST & FOOTING
4	13+09		LT	CHARTER CHURCH			1	SIGNS, POST & FOOTING
4	13+23		LT	CHARTER CHURCH			1	SIGNS, POST & FOOTING
4	13+96		RT	CHARTER CHURCH			1	SIGNS, POST & FOOTING
4	14+02		LT	CHARTER CHURCH			1	SIGNS, POST & FOOTING
4	10+00		LT&RT	CHARTER CHURCH	23			SAWCUT
4	14+00		LT&RT	CHARTER CHURCH	43			SAWCUT
PAY TOTAL					1 LUMP SUM			

EARTHWORK									
PLAN SHEET	ROADWAY	LOC.	STA	STA	CLASS A EXCAVATION	FILL	COMPACTING EMBANKMENT	COMPACTING IN CUT	REMARKS
					C.Y.	C.Y.	C.Y.	STA.	
4	CHARTER CHURCH	CL	10+00.00	14+00.00	995	719	719	2.4	INCLUDES PLATTIN CREEK GRADING
PAY TOTALS					995		719	2.4	

PAVEMENT								
PLAN SHEET	ROADWAY	STA	STA	LOC	2" PG64-22 BP-1	8" PG64-22 BIT BASE	4" TYPE 5 AGGREGATE	REMARKS
					TONS	TONS	S.Y.	
4	CHARTER CHURCH	10+00.00	11+38.97	LT&RT	51.4	213.4	489.5	
4	CHARTER CHURCH	13+32.05	14+00.00	LT&RT	26.9	111.3	255.0	
TOTALS					78.28	324.71	744.51	BP-1 PG64-22 : 1.987 TONS/CY
PAY TOTALS					78.3	324.7	744.5	BIT BASE PG64-22 : 2.005 TONS/CY

MGS GUARDRAIL								
PLAN SHEET	ROADWAY	STA	STA	LOC	MGS GUARDRAIL	MGS BRIDGE APPROACH TRANSITION (REGULAR / NO CURB)	TYPE A CRASHWORTHY TERMINAL END (MASH)	REMARKS
					L.F.	EA.	EA.	
4	CHARTER CHURCH	10+29.68	11+48.26	LT	25.0	1	1	
4	CHARTER CHURCH	10+31.89	11+50.88	RT	50.0	1	1	37.5' TYPE A CET (MASH)
4	CHARTER CHURCH	13+20.14	14+00.52	LT	12.5	1	1	37.5' TYPE A CET (MASH)
4	CHARTER CHURCH	13+22.76	14+10.25	RT		1	1	
TOTALS					87.5	4	4	
PAY TOTALS					88	4	4	

2'-0" THICK TYPE 2 ROCK BLANKET								
PLAN SHEET	ROADWAY	STA	STA	LOC	AREA	FURNISHING TYPE 2 ROCK BLANKET	PLACING TYPE 2 ROCK BLANKET	REMARKS
					S.F.	C.Y.	C.Y.	
4	CHARTER CHURCH	11+34	12+02	LT&RT	4887.55	473.8	473.8	
4	CHARTER CHURCH	12+30	12+40	LT&RT	327.91	24.3	24.3	
4	CHARTER CHURCH	12+76	13+36	LT&RT	4444.05	436.4	436.4	
					TOTALS	934.5	934.5	
					PAY TOTALS	935	935	

PAVEMENT MARKING							
PLAN SHEET	ROADWAY	STA	STA	LOC	STANDARD WATERBORNE TYPE P BEADS		REMARKS
					4 IN. WHITE	4 IN. YELLOW	
					L.F.	L.F.	
4	CHARTER CHRUCH	10+00	14+00	LT&RT	800	800	WHITE EDGE LINES DOUBLE YELLOW CENTER LINE
TOTALS					800	800	
PAY TOTALS					800	800	

EROSION CONTROL									
PLAN SHEET	ROADWAY	STA	STA	LOC	SILT FENCE	ROCK DITCH CHECK	TYPE C BERM	SEDIMENT REMOVAL	REMARKS
					L.F.	L.F.	L.F.	C.Y.	
7	CHARTER CHRUCH	10+00	14+00	LT&RT	540	46	430	9	
TOTALS					540	46	430	9	
PAY TOTALS					540	46	430	9	

GRAVEL A OR CRUSHED STONE B						
PLAN SHEET	ROADWAY	STA	LOC	AREA	6" THICK	REMARKS
				S.F.	TONS	
4	CHARTER CHURCH	10+13.00	RT	344.2	8.9	1.4 TONS/C.Y.
				TOTALS	8.9	
				PAY TOTALS	9	

MOBILIZATION	1 LUMP SUM
CONTRACTOR FURNISHED SURVEYING AND STAKING	1 LUMP SUM
SEEDING – COOL SEASON MIXTURES	0.5 ACRES
CLEARING AND GRUBBING	0.5 ACRES

SUMMARY OF
QUANTITIES
SHEET 2 OF 3

STATE OF MISSOURI

CHRIS LINNEMAN

NUMBER
PE-2002016690

PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN
SIGNED, SEALED AND
DATED ELECTRONICALLY

DATE PREPARED
1/18/2018

STATE
MO

SHEET NO.
2B

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
34200011

DESCRIPTION

DATE

CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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

REV.

Z:\15042 Charter Church Road\DCN\Design\Final\Plotsheets\002A_Quantity.dgn 12:10:06 PM 1/18/2018

EFFECTIVE: 03-07-2017																			
SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION	SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION	ITEM NUMBER	TOTAL QTY	DESCRIPTION	
WARNING SIGNS								W020-5a	48X48	16.00					2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD	6122008		IMPACT ATTENUATOR (8 SAND BARRELS)	
W01-1L	48X48	16.00					TURN (SYMBOL LEFT ARROW)									6122009		IMPACT ATTENUATOR (9 SAND BARRELS)	
W01-1R	48X48	16.00					TURN (SYMBOL RIGHT ARROW)	W020-6a	48X48	16.00					RIGHT/CENTER/LEFT LANE CLOSED	6122010		IMPACT ATTENUATOR (10 SAND BARRELS)	
W01-2L	48X48	16.00					CURVE (SYMBOL LEFT ARROW)	W020-7a	48X48	16.00					FLAGGER (SYMBOL) WITH FLAGS	6122012		IMPACT ATTENUATOR (12 SAND BARRELS)	
W01-2R	48X48	16.00					CURVE (SYMBOL RIGHT ARROW)	W021-2	36X36	9.00					FRESH OIL	6122014		IMPACT ATTENUATOR (14 SAND BARRELS)	
W01-3L	48X48	16.00					REVERSE TURN (SYMBOL LEFT ARROW)	W021-5	48X48	16.00					SHOULDER WORK AHEAD	6122017		IMPACT ATTENUATOR (17 SAND BARRELS)	
W01-3R	48X48	16.00					REVERSE TURN (SYMBOL RIGHT ARROW)	W021-5a	48X48	16.00					RIGHT/LEFT SHOULDER CLOSED	6122019		IMPACT ATTENUATOR (19 SAND BARRELS)	
W01-4L	48X48	16.00					REVERSE CURVE (SYMBOL LEFT ARROW)	W021-5b	48X48	16.00					RIGHT/LEFT SHOULDER CLOSED AHEAD	6122020		REPLACEMENT SAND BARREL	
W01-4R	48X48	16.00					REVERSE CURVE (SYMBOL RIGHT ARROW)	W022-3	42X36	10.50					END BLASTING ZONE	6122030		IMPACT ATTENUATOR (RELOCATION)	
W01-4bL	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)	W022-6e	21X15	2.19					WET PAINT (ARROW PIVOTS)	6123000A		TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)	
W01-4bR	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)	GUIDE SIGNS								6161007		SPEED LIMIT AND STROBE LIGHT ASSEMBLY	
W01-4cL	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)	SPECIAL	36X36	9.00					FRESH OIL/LOOSE GRAVEL	6161008		ADVANCED WARNING RAIL SYSTEM	
W01-4cR	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)	E05-1	36X48	12.00					GORE EXIT	6161009	3	FLAG ASSEMBLY	
W01-6	60X30	12.50					HORIZONTAL ARROW (SYMBOL)	E05-2	48X36	12.00					EXIT OPEN	6161020		CHANNELIZER (DRUM-LIKE)	
W01-6a	72X36	18.00					HORIZONTAL ARROW (SYMBOL ON PERMANENT BARRICADE)	E05-2a	48X36	12.00					EXIT CLOSED	6161022		CHANNELIZER (CONES)	
W01-7	60X30	12.50					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)	G020-1	60X24	10.00					ROAD WORK NEXT XX MILES	6161024		CHANNELIZER (TRIM LINE) WITH LIGHT	
W01-7a	72X36	18.00					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL ON PERMANENT BARRICADE)	G020-2	48X24	8.00					END ROAD WORK	6161025		CHANNELIZER (TRIM LINE)	
W01-8	18X24	3.00					CHEVRON (SYMBOL)	G020-4	36X18	4.50					PILOT CAR FOLLOW ME	6161026		CHANNELIZER (VERTICAL PANEL)	
W01-8a	30X36	7.50					CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)	SPECIAL	42X30	8.75					PLEASE WAIT FOR PILOT CAR	6161027		CHANNELIZER (VERTICAL PANEL) WITH LIGHT	
W03-1	48X48	16.00					STOP AHEAD (SYMBOL)	G020-5aP	36X24	6.00					WORK ZONE (PLAQUE)	6161028		CHANNELIZER	
W03-2	48X48	16.00					YIELD AHEAD (SYMBOL)	M04-8a	24X18	3.00	2	6			END DETOUR	6161030	9	TYPE III MOVEABLE BARRICADE	
W03-3	48X48	16.00					SIGNAL AHEAD (SYMBOL)	M04-9L	48X36	12.00					DETOUR (LEFT ARROW)	6161031		TYPE III MOVEABLE BARRICADE WITH LIGHT	
W03-4	48X48	16.00					BE PREPARED TO STOP	M04-9R	48X36	12.00					DETOUR (RIGHT ARROW)	6161033		DIRECTION INDICATOR BARRICADE	
W03-5	48X48	16.00					SPEED LIMIT AHEAD	M04-10L	48X18	6.00					DETOUR (ARROW LEFT)	6161034		DIRECTION INDICATOR BARRICADE, WITH LIGHT	
W04-1L	48X48	16.00					MERGE (SYMBOL FROM LEFT)	M04-10R	48X18	6.00					DETOUR (ARROW RIGHT)	6161040		FLASHING ARROW PANEL	
W04-1R	48X48	16.00					MERGE (SYMBOL FROM RIGHT)	M6-1	21X15	2.19					TURN ARROW	6161047		TYPE III OBJECT MARKER	
W05-1	48X48	16.00					ROAD/BRIDGE/RAMP NARROWS	REGULATORY SIGNS								6161051		WARNING LIGHT, TYPE A	
W05-3	48X48	16.00					ONE LANE BRIDGE	R1-1	48X48	13.25					STOP	6161052		WARNING LIGHT, TYPE B	
W05-5	48X48	16.00					NARROW LANES	R1-2	48 TRI.	6.93					YIELD	6161053		WARNING LIGHT, TYPE C	
W06-1	48X48	16.00					DIVIDED HIGHWAY (SYMBOL)	R1-2a	36X36	9.00					TO ONCOMING TRAFFIC (PLAQUE)	6161055		SEQUENTIAL FLASHING WARNING LIGHT	
W06-2	48X48	16.00					DIVIDED HIGHWAY END (SYMBOL)	R1-3	20X9	1.25					X-WAY (PLAQUE)	6161070		TUBULAR MARKER	
W06-3	48X48	16.00					TWO WAY TRAFFIC (SYMBOL)	R2-1	36X48	12.00					SPEED LIMIT XX	6161095		RADAR SPEED ADVISORY SYSTEM	
W07-3a	30X24	5.00					NEXT XX MILES (PLAQUE)	R3-1	48X48	16.00					NO RIGHT TURN (SYMBOL)	6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED	
W08-1	48X48	16.00					BUMP	R3-2	48X48	16.00					NO LEFT TURN (SYMBOL)	6161098A	3	CHANGEABLE MESSAGE SIGN WITHOUT COMMUNICATION INTERFACE, CONTRACTOR FURNISHED/RETAINED	
W08-2	48X48	16.00					DIP	R3-3	36X36	9.00					NO TURNS				
W08-3	48X48	16.00					PAVEMENT ENDS	R3-4	48X48	16.00					NO U-TURN (SYMBOL)				
W08-4	48X48	16.00					SOFT SHOULDER	R3-7L	30X30	6.25					LEFT LANE MUST TURN LEFT	6161099		CHANGEABLE MESSAGE SIGN NTCIP COMPLIANT, CONTRACTOR FURNISHED/RETAINED	
W08-5	48X48	16.00					SLIPPERY WHEN WET (SYMBOL)	R3-7R	30X30	6.25					RIGHT LANE MUST TURN RIGHT	6161099		NON-INTRUSIVE DETECTOR	
W08-6	48X48	16.00					TRUCK CROSSING WITH FLAGS	R4-1	36X48	12.00					DO NOT PASS	6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM	
W08-6c	48X48	16.00					TRUCK ENTRANCE	R4-2	36X48	12.00					PASS WITH CARE	6173600D		CONTRACTOR FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER	
W08-7	36X36	9.00					LOOSE GRAVEL	R4-7aL	36X48	12.00					KEEP LEFT (HORIZONTAL ARROW)	6173602B		CONTRACTOR FURNISHED/COMMISSION RETAINED TEMPORARY TRAFFIC BARRIER	
W08-9	48X48	16.00					LOW SHOULDER	R4-7a	36X48	12.00					KEEP RIGHT (HORIZONTAL ARROW)				
W08-11	48X48	16.00					UNEVEN LANES	R5-1	30X30	6.25					DO NOT ENTER	6174000A		TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION	
W08-12	48X48	16.00					NO CENTER LINE	R5-1a	36X24	6.00					WRONG WAY	6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER	
W10-1	42 RND.	9.62					RAILROAD CROSSING	R6-1L	48X18	6.00					ONE WAY ARROW (LEFT)	6176000B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER	
W012-1	24X24	4.00					DOUBLE DOWN ARROW (SYMBOL)	R6-1R	48X18	6.00					ONE WAY ARROW (RIGHT)	6177000B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION	
W012-2	48X48	16.00					LOW CLEARANCE (SYMBOL)	R6-2L	24X30	5.00					ONE WAY (LEFT)				
W012-2x	24X18	3.00					LOW CLEARANCE (PLAQUE)	R6-2R	24X30	5.00					ONE WAY (RIGHT)	6177000B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION	
W012-2a	84X24	14.00					OVERHEAD LOW CLEARANCE (FEET AND INCHES)	R10-6	24X36	6.00					STOP HERE ON RED (45° ARROW)	9019400		TEMPORARY LIGHTING	
W08-15	48X48	16.00					GROOVED PAVEMENT	R11-2	48X30	10.00	3	30			ROAD CLOSED	9029400		TEMPORARY TRAFFIC SIGNALS	
W08-15p	30X24	5.00					MOTORCYCLE (PLAQUE)	R11-3a	60X30	12.50	3	37.5			ROAD CLOSED 1,2 MILES AHEAD LOCAL TRAFFIC ONLY	9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING	
W08-17	48X48	16.00					SHOULDER DROP-OFF (SYMBOL)	R11-4	60X30	12.50					ROAD CLOSED TO THRU TRAFFIC				
W08-17p	30X24	5.00					SHOULDER DROP-OFF (PLAQUE)	S4-4	36X15	3.75					WHEN FLASHING				
SPECIAL	120X60	50.00					LOW CLEARANCE XX FT XX IN XX MILES AHEAD	CONST-3A	60X48	20.00					FINE SIGN				
SPECIAL	120X60	50.00					WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD	CONST-3X	56X12	4.67					SPEEDING/PASSING (PLATE)				
W013-1	30X30	6.25					ADVISORY SPEED (PLAQUE)	MISCELLANEOUS SIGNS								SUMMARY OF QUANTITIES SHEET 3 OF 3			
W016-2	30X24	5.00	3	15			200 FEET (PLAQUE)	SPECIAL	36X54	13.5	24	324			TRAILBLAZER				
W016-3	30X24	5.00					X MILE (PLAQUE)	W020-3a	84X36	21.00	5	105			CHARTER CHURCH CLOSED AT PLATIN CREEK				
W020-1	48X48	16.00					ROAD/BRIDGE/RAMP WORK AHEAD	SPECIAL	102X36	25.5	2	51			HUSKEY ROAD CLOSED AT CHARTER CHURCH				
W020-2	48X48	16.00					DETOUR AHEAD												
W020-3	48X48	16.00	48	48			ROAD CLOSED AHEAD												
W020-4	48X48	16.00					ONE LANE ROAD AHEAD												
W020-5	48X48	16.00					RIGHT/CENTER/LEFT LANE CLOSED AHEAD												
								616-10.05 CONSTRUCTION SIGNS TOTAL								617			
								616-10.10 RELOCATED SIGNS TOTAL											



DATE PREPARED
1/18/2018

STATE
MO

SHEET NO.
2C

COUNTY
JEFFERSON

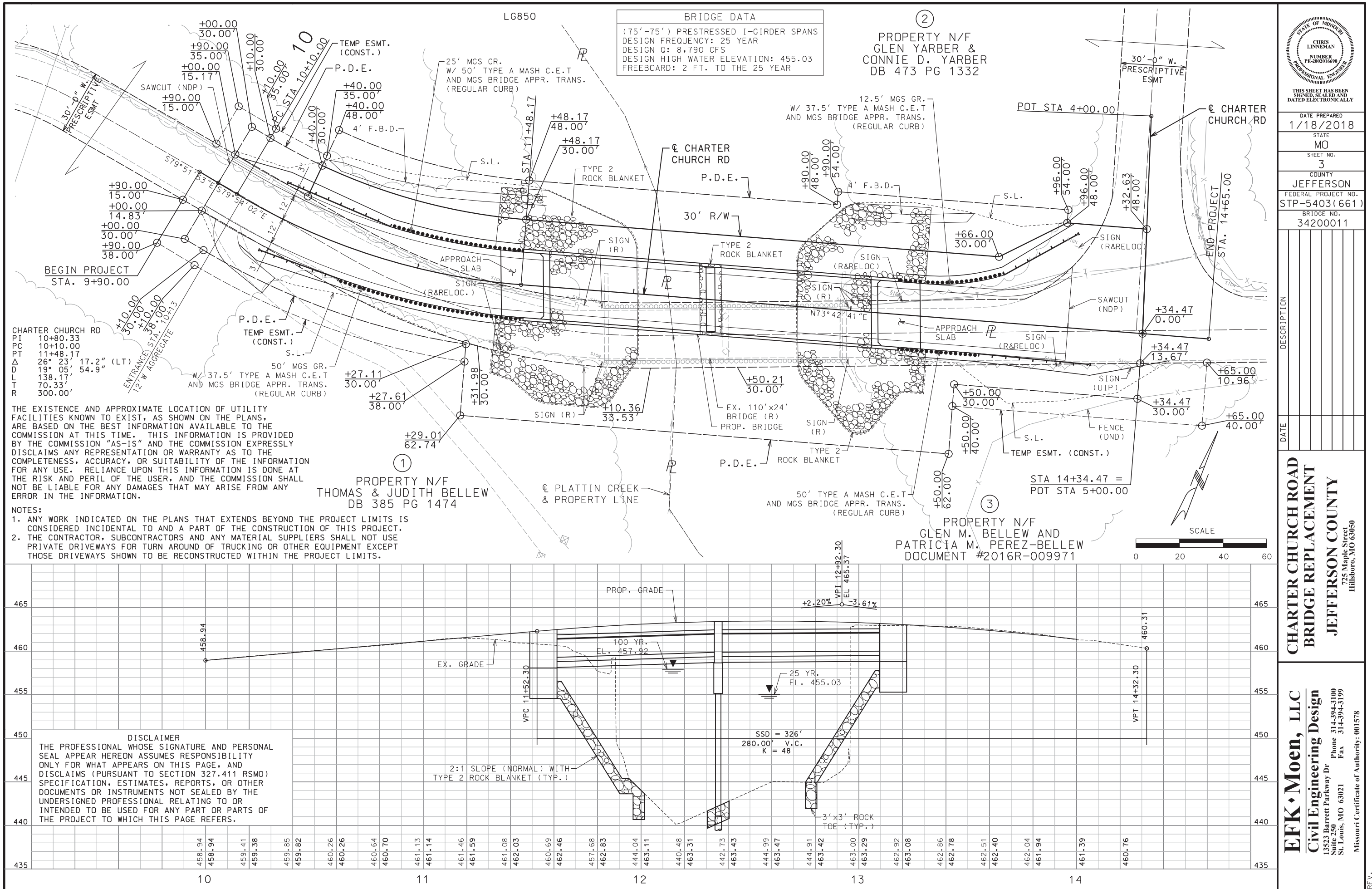
FEDERAL PROJECT NO.
STP-5403(661)

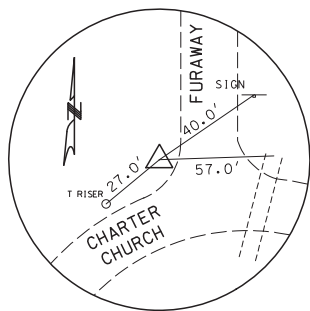
BRIDGE NO.
34200011

DESCRIPTION									
DATE									

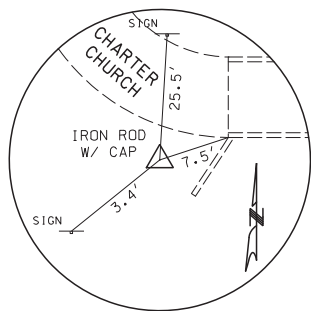
CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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

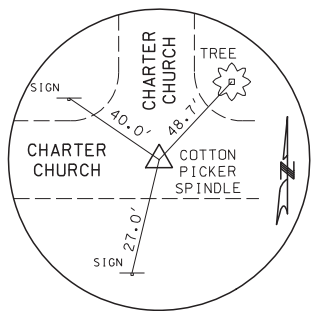




CONTROL POINT NO. 1
IRON ROD
N: 826668.5040
E: 844681.9340
EL: 456.67



CONTROL POINT NO. 2
IRON ROD
N: 826659.8510
E: 845081.9540
EL: 463.22



CONTROL POINT NO. 3
COTTON PICKER SPINDLE
N: 826769.9750
E: 845310.1370
EL: 460.06

LEGAL LAND CORNER:
FOUND 9" x 5" x 10" TALL STONE
WITH CROSS AT THE SOUTHEAST CORNER
OF U.S. SURVEY NO. 2138 AS REFERENCED
BY WILLIAM T. HURTGEN, L.S.-2141,
SHOWN ON DOCUMENT NUMBER 600-96424

PROPERTY N/F
GLEN YARBER & CONNIE D. YARBER, H/W
DOCUMENT #050032377

PROPERTY N/F
GLEN YARBER & CONNIE D. YARBER, H/W
DB 473 PG 1332

PROPERTY N/F
THOMAS & JUDITH BELLEW
DB 385 PG 1474

PROPERTY N/F
GLEN YARBER & CONNIE
D. YARBER, H/W
DB 473 PG 1332

PROPERTY N/F
GLEN M. BELLEW AND PATRICIA M. PEREZ-BELLEW
DOCUMENT #2016R-009971

COORDINATE POINT LISTING

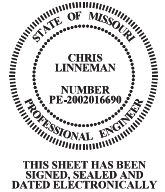
STATION	LOCATION	OFFSET	NORTHING	EASTING	DESCRIPTION
9+90.00	CHARTER CHURCH RD	0.00	826677.1100	844884.4712	P.O.T.
10+00.00	CHARTER CHURCH RD	0.00	826675.3502	844894.3152	P.O.T.
10+10.00	CHARTER CHURCH RD	0.00	826673.5967	844904.1602	P.C.
10+80.33	CHARTER CHURCH RD	0.00	826661.2636	844973.4019	P.I.
11+48.17	CHARTER CHURCH RD	0.00	826680.9900	845040.9104	P.T.
14+34.47	CHARTER CHURCH RD	0.00	826761.2912	845315.7200	P.I.
14+65.00	CHARTER CHURCH RD	0.00	826769.8544	845345.0251	P.O.T.
4+00.00	CHARTER CHURCH RD	0.00	826856.1342	845284.0214	P.O.T.

- COORDINATE SYSTEM BASED ON THE MISSOURI STATE PLANE COORDINATE SYSTEM OF 1983, EAST ZONE.
- HORIZONTAL CONTROL STATEMENT: STATE PLANE COORDINATES ON THIS PROJECT WERE ESTABLISHED UTILIZING THE MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION GLOBAL NAVIGATION SATELLITE REAL TIME NETWORK FOR CONTINUOUSLY OPERATING REFERENCE STATIONS DURING MAY 2013, AND ARE BASED ON THE MISSOURI COORDINATE SYSTEM OF 1983, EAST ZONE. THE AVERAGE COMBINED PROJECT GRID FACTOR IS 0.99991700 AS CALCULATED BY TRIMBLE GEOMATICS OFFICE.
- PROJECT COORDINATES ARE MODIFIED MISSOURI STATE PLANE COORDINATES AND WERE ESTABLISHED BY APPLYING THE INVERSE OF THE PROJECT GRID FACTOR (1.00008300) ABOUT THE ORIGIN (0,0).
- VERTICAL DATUM IS NAVD-88 ESTABLISHED BY GPS OBSERVATION UTILIZING THE MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION GLOBAL NAVIGATION SATELLITE REAL TIME NETWORK FOR CONTINUOUS OPERATING STATIONS DURING NOVEMBER, 2015.

REFERENCE TIES
SHEET 1 OF 1

CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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



DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
4
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)
BRIDGE NO.
34200011



DATE PREPARED
1/19/2018

STATE
MO

SHEET NO
6

COUNTY
FFFR

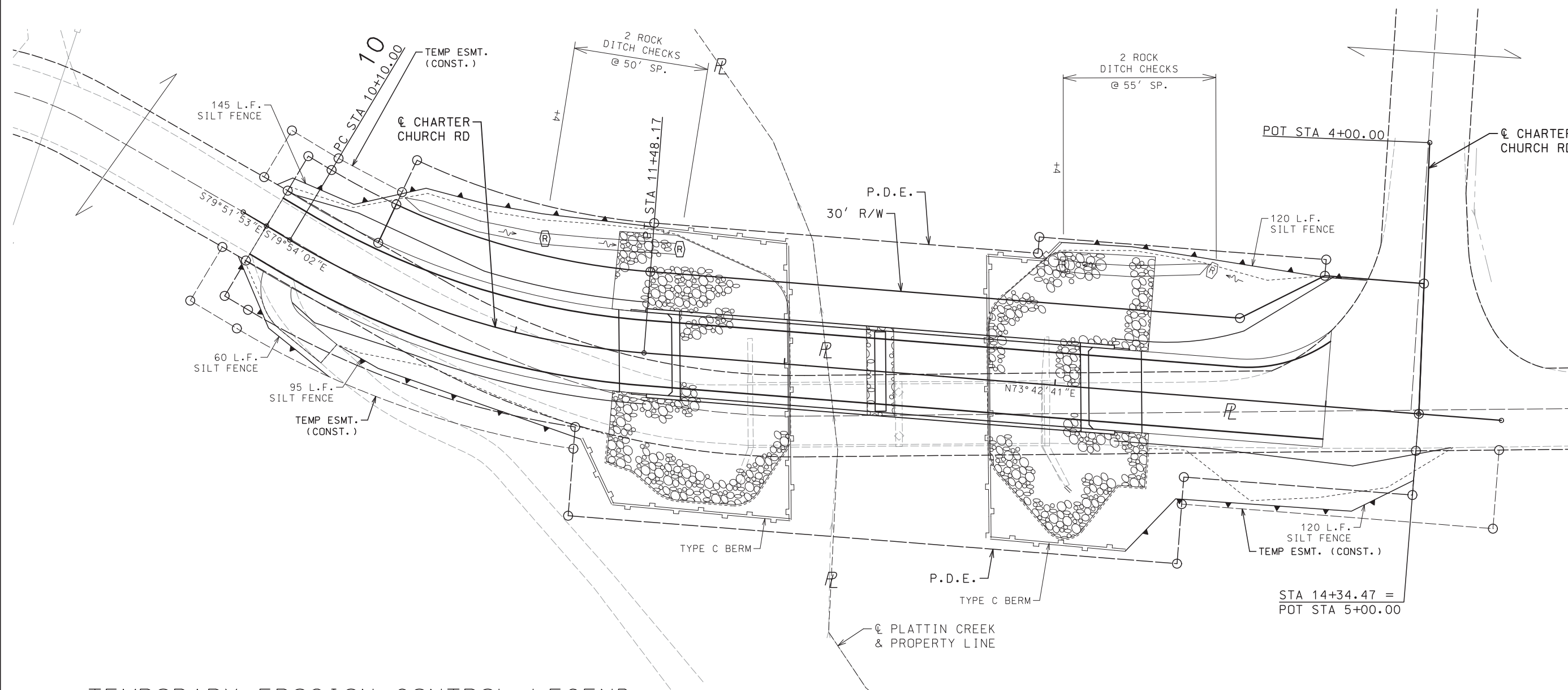
FEDERAL PROJECT NO.
STP-5403(661

BRIDGE NO.
34200011[illegible]

**CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY**
725 Maple Street
Hillsboro, MO 63050

EKK♦Moen, LLC
Civil Engineering Design
 3523 Barrett Parkway Dr
 Suite 250
 St. Louis, MO 63021
 Phone 314-394-3100
 Fax 314-394-3199
 Missouri Certificate of Authority: 001578

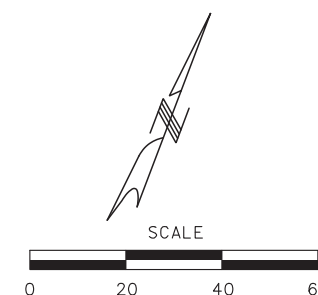
1

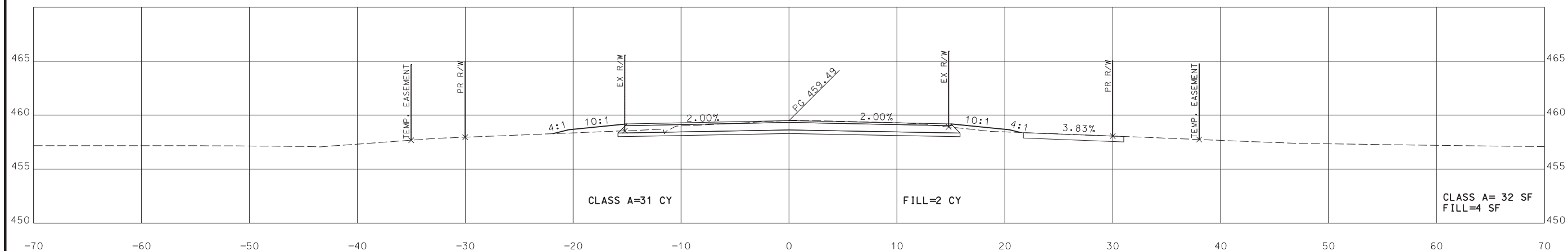


TEMPORARY EROSION CONTROL LEGEND

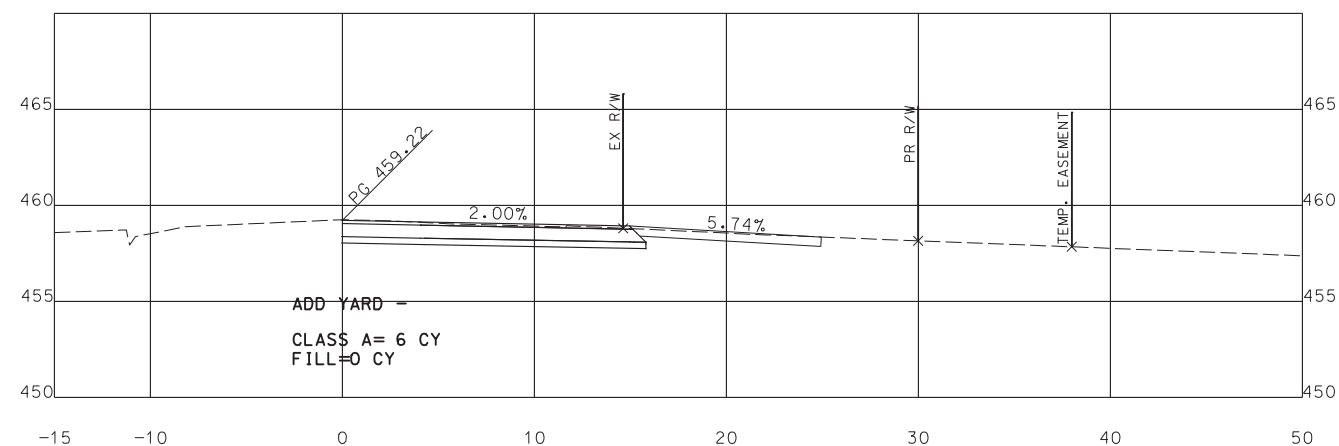


QUANTITIES:
18" ROCK DITCH CHECK: 46 L.F.
SILT FENCE: 540 L.F.
TYPE C BERM: 430 L.F.

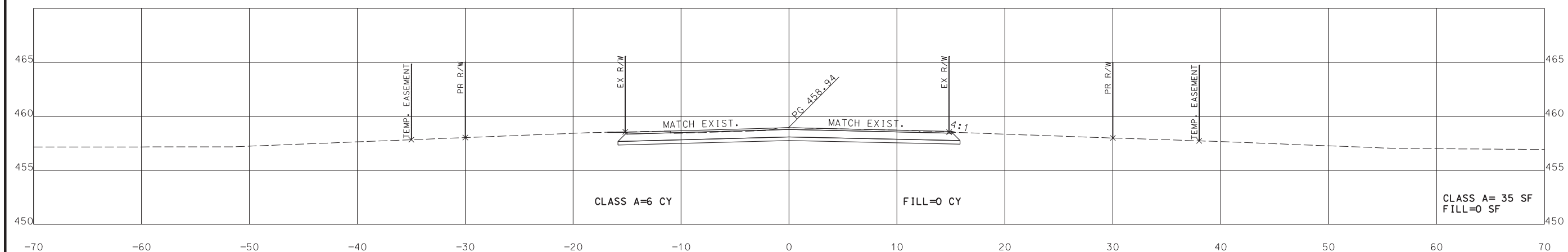




Sta. 10+25.00



Sta. 10+13.00



Sta. 10+00.00

CROSS SECTIONS
SHEET 1 OF 6



THIS SHEET HAS BEEN
SIGNED, SEALED AND
DATED ELECTRONICALLY

DATE PREPARED
1/18/2018

STATE
MO

SHEET NO.
7

COUNTY
JEFFERSON

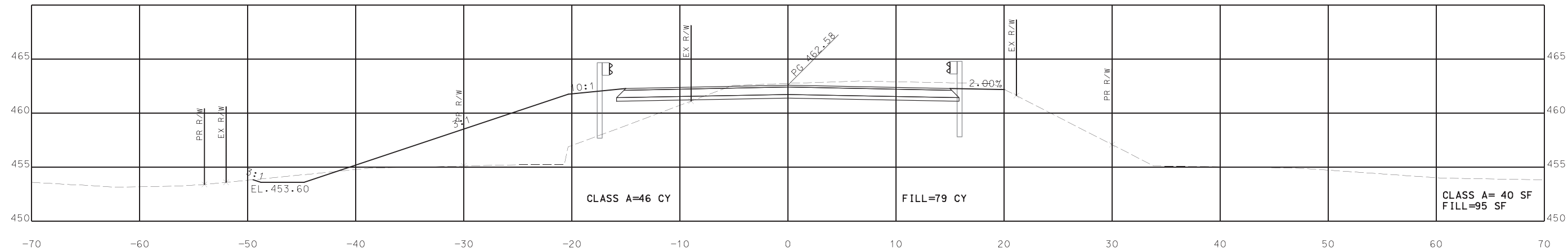
FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
34200011

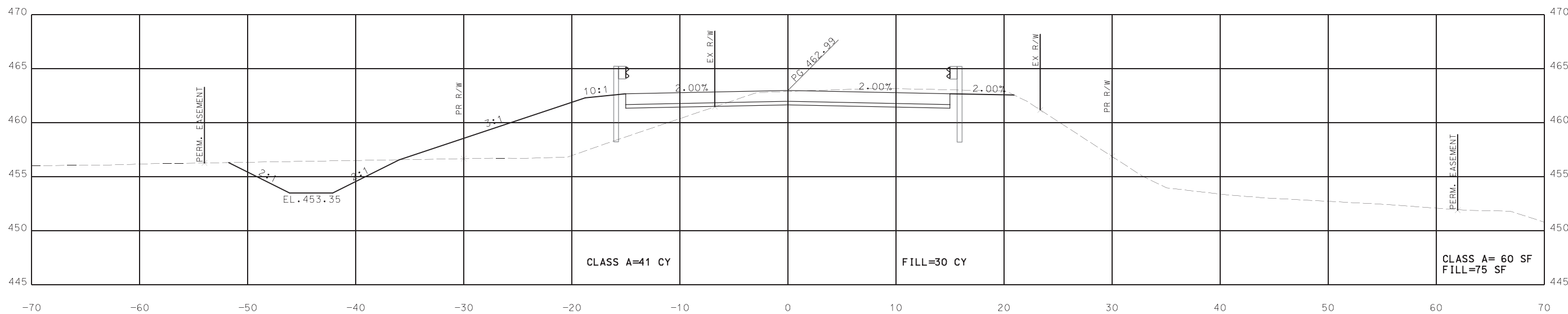
[illegible]

**CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY**
725 Maple Street
Jefferson, MO 64131

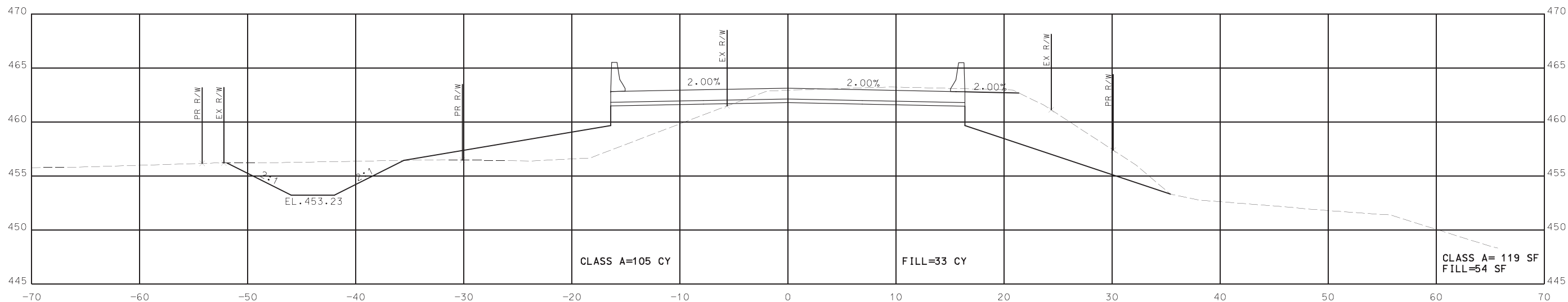
EFK♦Moen, LLC
Civil Engineering Design
13523 Barrett Parkway, Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578



Sta. 13+50.00

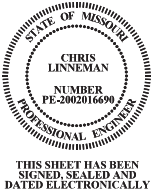


Sta. 13+25.00



Sta. 13+12.55

CROSS SECTIONS
SHEET 4 OF 6



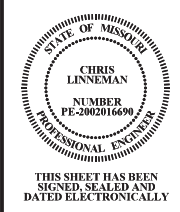
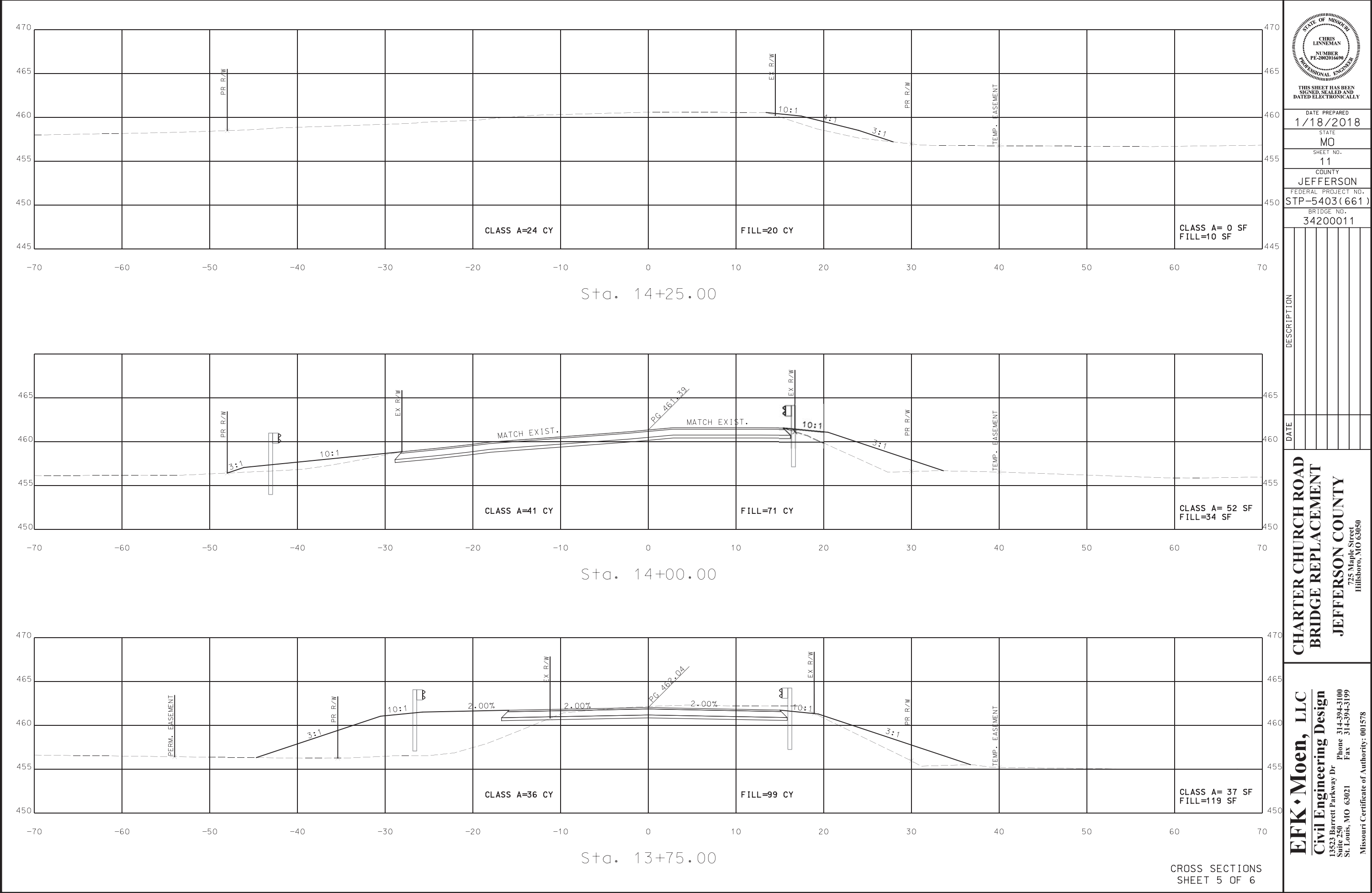
DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
10
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
TP-5403(661)
BRIDGE NO.
34200011

[illegible]

**CHARTER CHURCH ROAD
BRIDGE REPLACEMENT**

JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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



DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
11
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)
BRIDGE NO.
34200011

DATE	DESCRIPTION

**CHARTER CHURCH ROAD
BRIDGE REPLACEMENT**
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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

Estimated Quantities				
Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yd.	140		140
Cofferdams – Bent 2	lump sum	1		1
Removal of Bridges	lump sum		1	1
Bridge Approach Slab (Minor Road)	sq. yd.		146	146
Drilled Shafts (3 ft. 6 in. Dia.)	linear foot	30		30
Rock Sockets (3 ft. 0 in. Dia.)	linear foot	16		16
Supplementary Television Camera Inspection	each	2		2
Foundation Inspection Holes	linear foot	36		36
Sonic Logging Testing	each	2		2
Galvanized Structural Steel Piles (12 in.)	linear foot	324		324
Dynamic Pile Testing	each	2		2
Pile Point Reinforcement	each	12		12
Class B Concrete (Substructure)	cu. yd.	77.0		77.0
Slab on Concrete I-Girder	sq. yd.		556	556
* Safety Barrier Curb	linear foot		360	360
Type 4 (45 in.), Prestressed Concrete I-Girder	linear foot		605	605
Reinforcing Steel (Bridges)	pound		9,940	9,940
Conduit System on Structure	lump sum		1	1
Steel Intermediate Diaphragm for P/S Concrete Girders	each		12	12
Vertical Drain at End Bents	each			2
Plain Neoprene Bearing Pad	each		4	4
Laminated Neoprene Bearing Pad	each		8	8
Laminated Neoprene Bearing Pad (Tapered)	each		4	4

* Safety Barrier Curb shall be cast-in-place option or slip-form option.

All concrete above the construction joint in the end bents is included in the Estimated Quantities for Slab on Concrete I-Girder.

All reinforcement in the end bents is included in the Estimated Quantities for Slab on Concrete I-Girder.

All reinforcement in the intermediate bent concrete diaphragms except reinforcement embedded in the beam cap is included in the Estimated Quantities for Slab on Concrete I-Girder.

All concrete above the intermediate beam cap is included in the Estimated Quantities for Slab on Concrete I-Girder.

Estimated Quantities for Slab on Concrete I-Girder		
Item		Total
Class B-2 Concrete	cu. yard	144.9
Reinforcing Steel	pound	41,670

The table of Estimated Quantities for Slab on Concrete I-Girder represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard longitudinally from end of slab to end of slab and transversely from out to out of bridge slab (or with the horizontal dimensions as shown on the plan of slab). Payment for prestressed panels, conventional forms, all concrete and coated and uncoated reinforcing steel will be considered completely covered by the contract unit price for the slab. Variations may be encountered in the estimated quantities but the variations cannot be used for an adjustment in the contract unit price.

Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

The Estimated Quantity for Slab on Concrete I-Girder are based on skewed precast prestressed end panels.

Class B-2 Concrete quantity is based on minimum top flange thickness an minimum joint material thickness.

The prestressed panel quantities are not included in the table of Estimated Quantities for Slab on Concrete I-Girder.

Foundation Data				
Type	Design Data	Bent Number		
		1	2	3
Load Bearing Pile	Pile Type and Size	HP 12x53	---	HP 12x53
	Number	ea	6	6
	Approximate Length per Each	ft	27	27
	Pile Driving Verification Method		DT	DT
	Minimum Nominal Axial Compressive Resistance	kip	243	243
Rock Socket	Hammer Energy Required	ft-lb	8,000	8,000
	Number	ea	2	---
	Foundation Material		Limestone	---
	Elevation Range	ft	421-410	---
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	27.8	---
Rock Socket	Minimum Nominal Axial Compressive Resistance (Tip Resistance)	ksf	185	---

DT = Dynamic Testing

Load Bearing Piles: Minimum Nominal Axial Compressive Resistance = Maximum Factored Loads / Resistance Factor

Rock Socket (Drilled Shaft): Minimum Nominal Axial Compressive Resistance (Side Resistance + Tip Resistance) = Maximum Factored Loads / Resistance Factor

Manufactured pile point reinforcement shall be used on all piles in the structure.

Sonic logging testing shall be performed on all drilled shafts and rock sockets.

Detailed OCT 2017
Checked OCT 2017

Hydrologic Data
Drainage Area = 49.5 (sq. mi.)
Design Flood Frequency = 50 (year)
Design Flood Discharge = 10,290 (cfs)
Design High Water (D.F.) Elev. = 457.1
Base Flood (100-Year)
Base Flood Elevation = 457.9
Base Flood Discharge = 11,820 (cfs)
Estimated Backwater = 0 (ft)
Average Velocity thru Opening = 9.0 (ft/sec)
Freeboard (50-Year)
Freeboard = 2.9 (ft)
Roadway Overtopping
Overtopping Flood Discharge > 15,360 (cfs)
Overtopping Flood Frequency > 500 (year)

General Notes:

Design Specifications:

2012 AASHTO LRFD Bridge Design Specifications (6th Ed.) and
2013 Interim Revisions
2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design
(2nd Ed.) and 2014 Interim Revisions (Seismic Details)
Seismic Design Category = B

Design Loading:

Vehicular = HL-93
Future Wearing Surface = 35lb/sf
Earth = 120 lb/cf
Equivalent Fluid Pressure = 45 lb/cf (minimum)
Superstructure: Simply supported, Non-composite for dead load.
Continuous Composite for live load.

Design Unit Stresses:

Class B Concrete (Substructure, except
Drilled Shafts and Rock Socets)

f'c = 3,000 psi

Class B-1 Concrete (Safety Barrier Curb)

f'c = 4,000 psi

Class B-2 Concrete (Drilled Shafts &
Rock Sockets)

f'c = 4,000 psi

Class B-2 Concrete (Superstructure, except
Prestressed Girders and Safety Barrier Curb)

f'c = 4,000 psi

Reinforcing Steel (Grade 60)

fy = 60,000 psi

Structure Steel (ASTM A709 Grade 36)

fy = 36,000 psi

Steel Pile (ASTM A709 Grade 50)

fy = 50,000 psi

For Precast Prestressed Panel stresses, see Sheet No. 15.

For Prestressed Girder stresses, see Sheets No. 12.

Neoprene Pads:

Plain and Laminated Neoprene Bearing Pads shall be 60 durometer and shall be in accordance with Sec 716.

Joint Filler:

All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1½", unless otherwise shown.

All reinforcement shall be tied 100%. No guns unless heavy gauge.

Traffic Handling:

Structure to be closed during construction. Traffic to be maintained on other routes during construction. See roadway plans for traffic control.

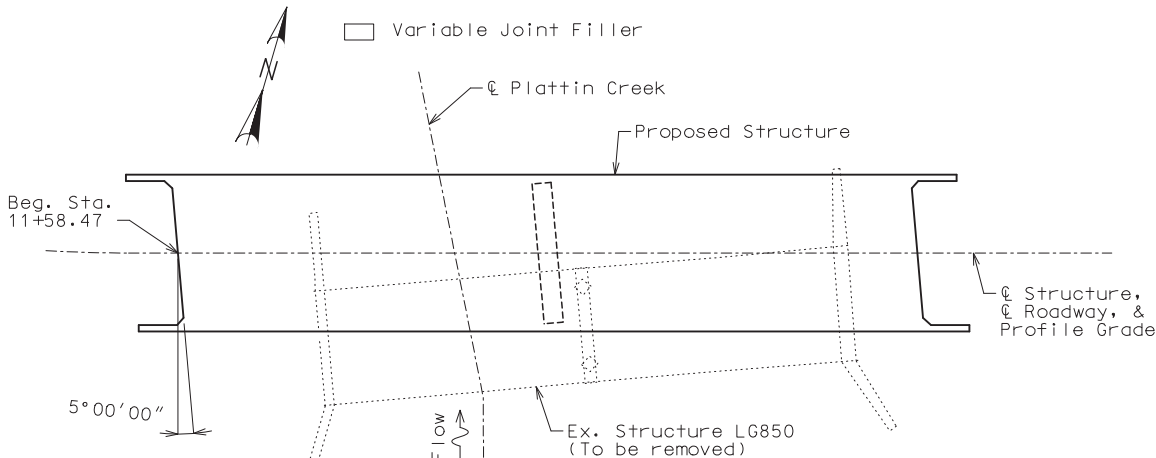
Miscellaneous:

Outline of old work is indicated by light dashed lines, Heavy lines indicated new work.

Construction personnel will indicate the type of joint filler option used under the precast panels for this structure:

☐ Constant Joint Filler

☐ Variable Joint Filler

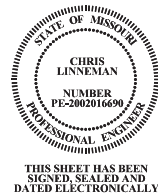


LOCATION SKETCH

GENERAL NOTES AND QUANTITIES

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

Sheet No. 2 of 28



DATE PREPARED
1/18/2018

STATE
MO

SHEET NO.
14

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
3420001

DESCRIPTION	DATE								

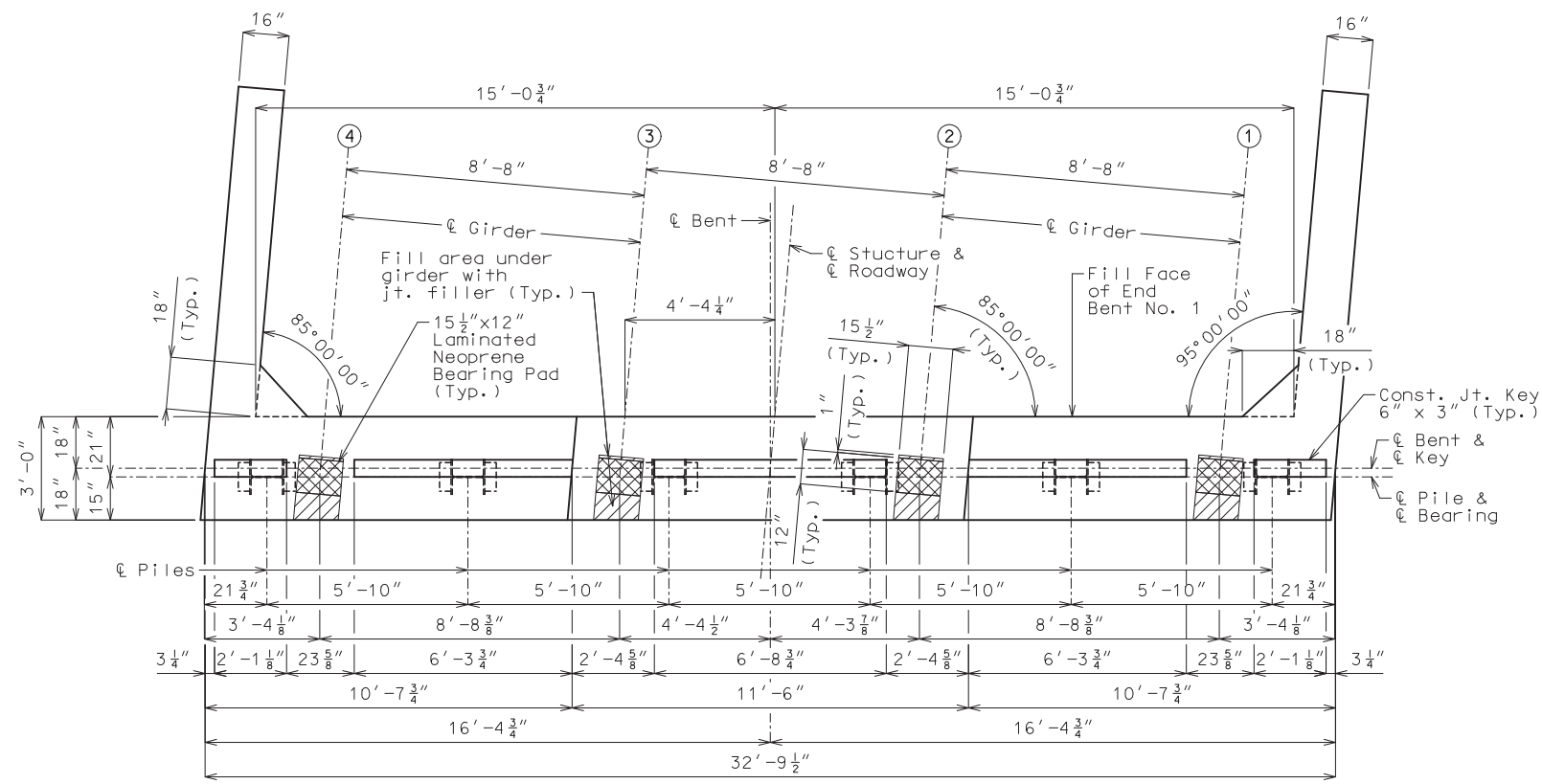
CHARTER CHURCH ROAD
BRIDGE REPLACEMENT

JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

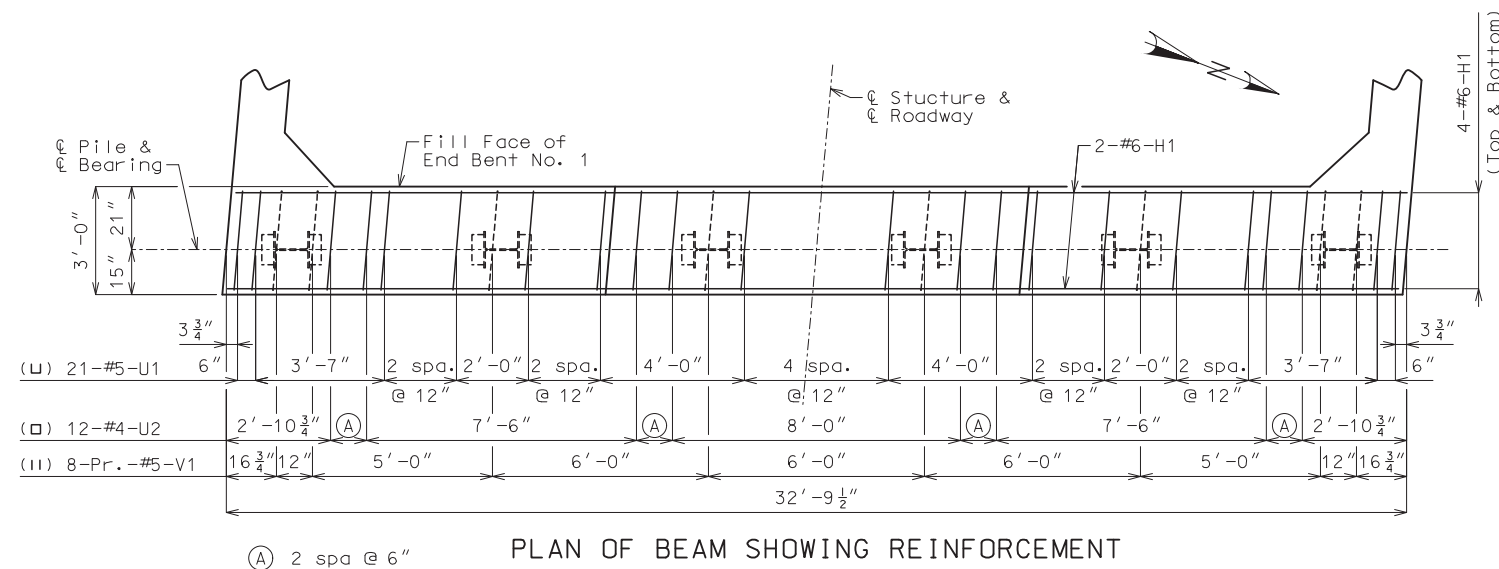
EFK • Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

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

REV.



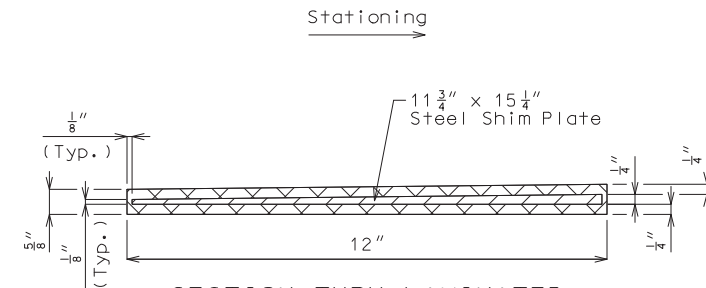
PLAN OF BEAM SHOWING DIMENSIONS



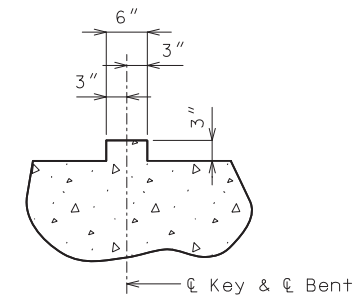
PLAN OF BEAM SHOWING REINFORCEMENT

Note: Keys not shown for clarity.

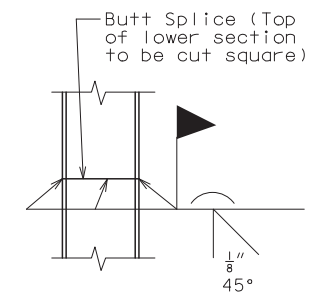
DETAILS OF END BENT NO. 1



SECTION THRU LAMINATED NEOPRENE BEARING PAD (TAPERED)



SECTION THRU KEY



STEEL PILE SPLICE (If required)

* Galvanization material shall be removed for a minimum of 1" around weld locations. The method used for removing galvanizing material shall be as approved by the Engineer.

Galvanizing shall be repaired per special provisions.

Notes:

For details of End Bent No. 1 not shown, see Sheets No. 4 & 5.

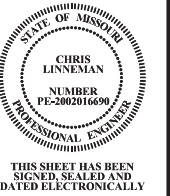
All U-bars and Pairs V-bars in End Bent are to be placed parallel to ℓ Roadway.

For Substructure Quantity Table for End Bent No. 1, see Sheet No. 5.

For details of Vertical Drain at End Bents, see Sheet No. 6.

Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2".

Reinforcement in wing in Plan of Beam not shown for clarity.



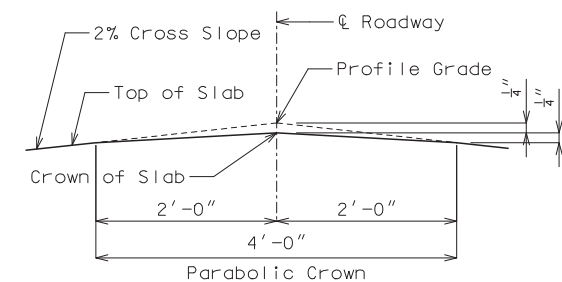
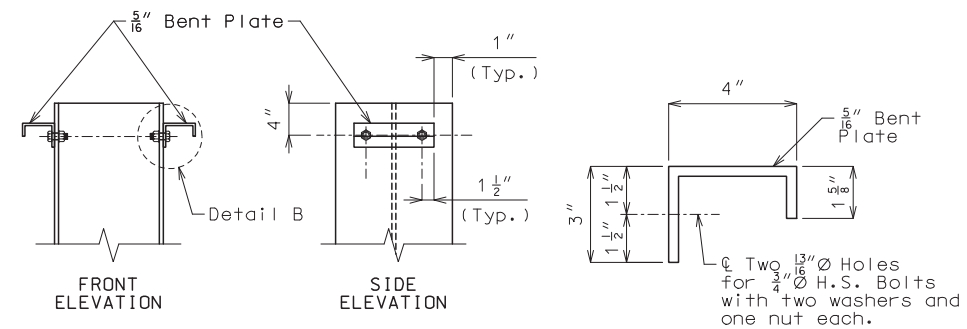
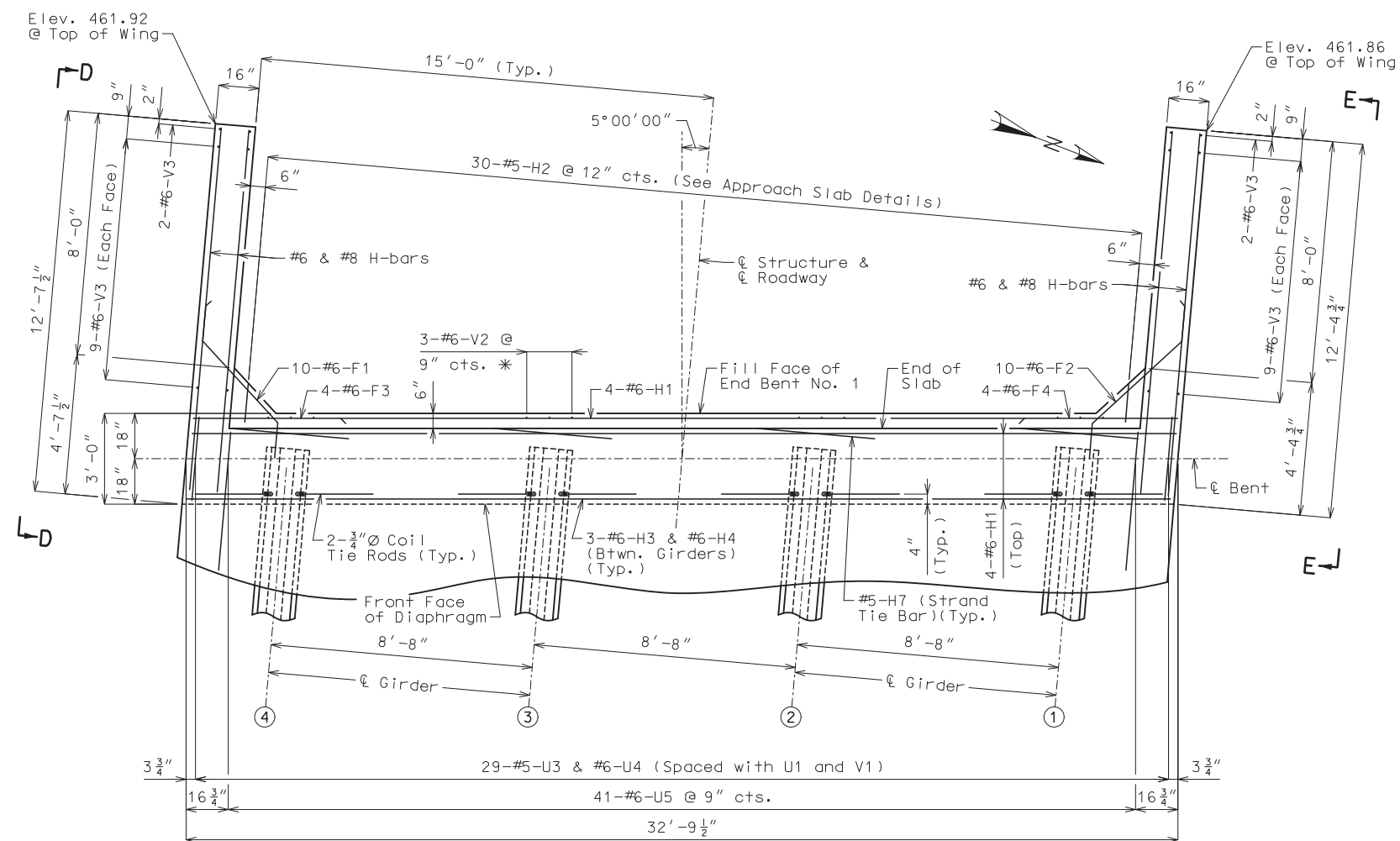
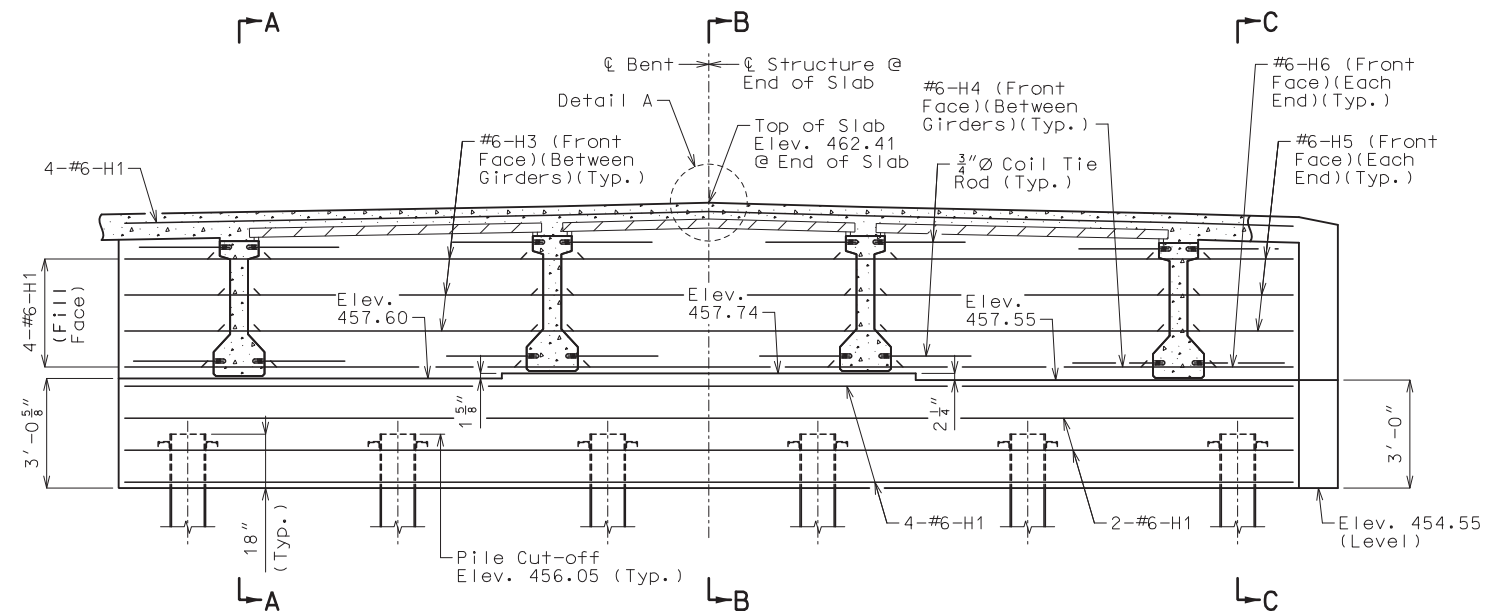
DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
15
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
3420001

DATE	DESCRIPTION

CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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



Notes:

For Elevations D-D & E-E, Sections A-A, B-B & C-C and Section Thru wings, see Sheet No. 5.

For details of End Bent No. 1 not shown, see Sheets No. 3 & 5.

For details of Vertical Drain at End Bents, see Sheet No. 6.

For details and reinforcement of Safety Barrier Curb, see
Sheets No. 19 thru 21.

The #6-F1 & #6-F2 Bars shall be bent in the field to clear girders.

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

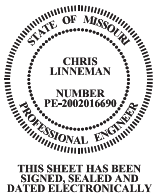
Strands at end of the girders shall be field bent or, if necessary, cut in field to maintain 1 1/2" minimum clearance to fill face of end bent.

For locations of Coil Tie Rods and #5-H7 (Strand Tie Bar), see Sheet No. 12.

For details of Bridge Approach Slab, see Sheet No. 23.

Substructure Quantity Table for End Bent No. 1		
Item		Total
Class 1 Excavation	cu. yd.	60
Galvanized Structural Steel Piles (12")	linear foot	162
Pile Point Reinforcement	each	6
Class B Concrete (Substructure)	cu. yd.	14.4

Note: These quantities are included in the Estimated Quantities Table on Sheet No. 2.



DATE PREPARED
1/18/2018

STATE
MO

SHEET NO.
16

16
COUNTY

JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)

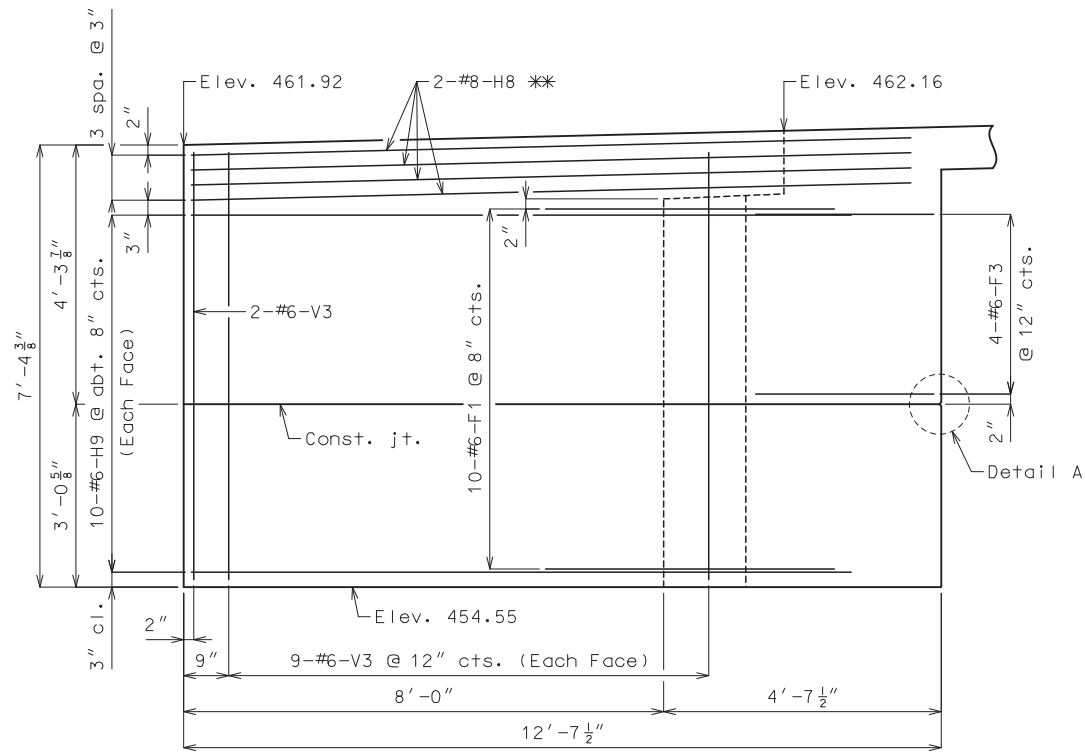
BRIDGE NO.
3420001

[illegible]

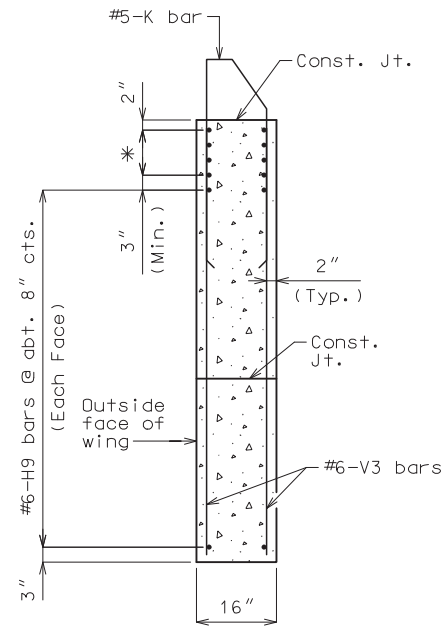
CHARTER CHURCH ROAD BRIDGE REPLACEMENT

JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

EFK•Moen, LLC
Civil Engineering Design
 3523 Barrett Parkway Dr
 Suite 250
 St. Louis, MO 63021
 Phone 314-394-3100
 Fax 314-394-3199
 Missouri Certificate of Authority: 001578

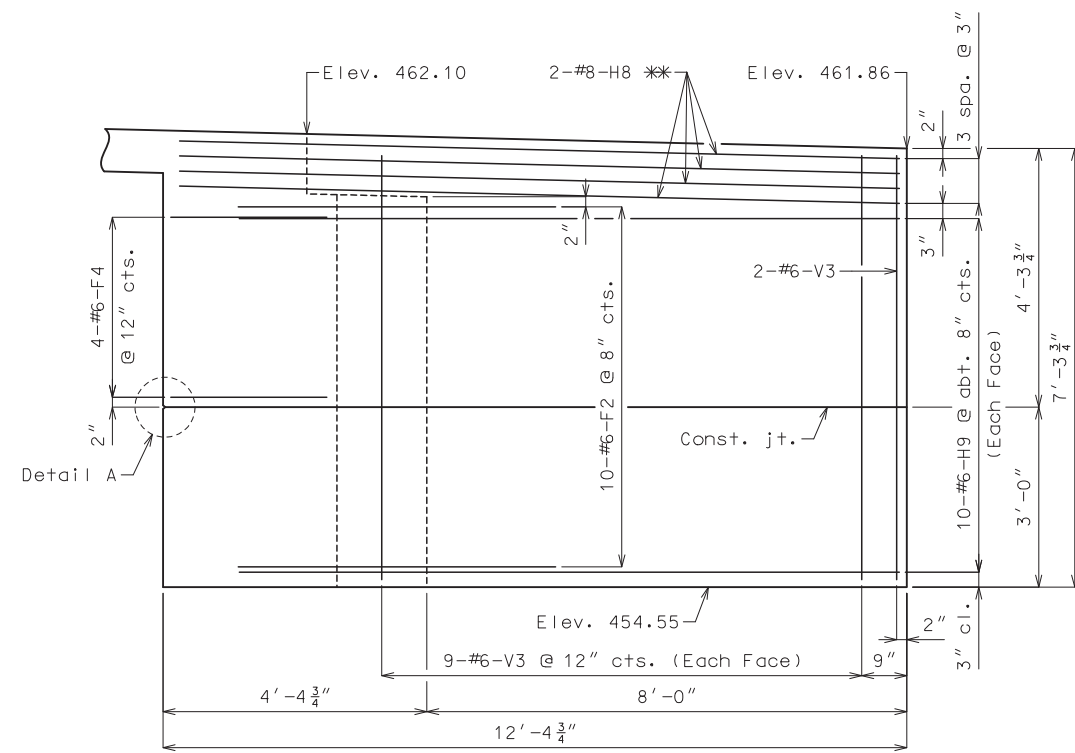


ELEVATION D-D

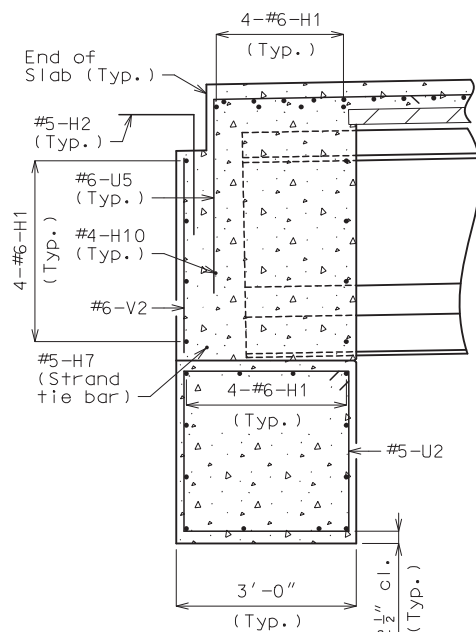


TYPICAL SECTION
THRU WING

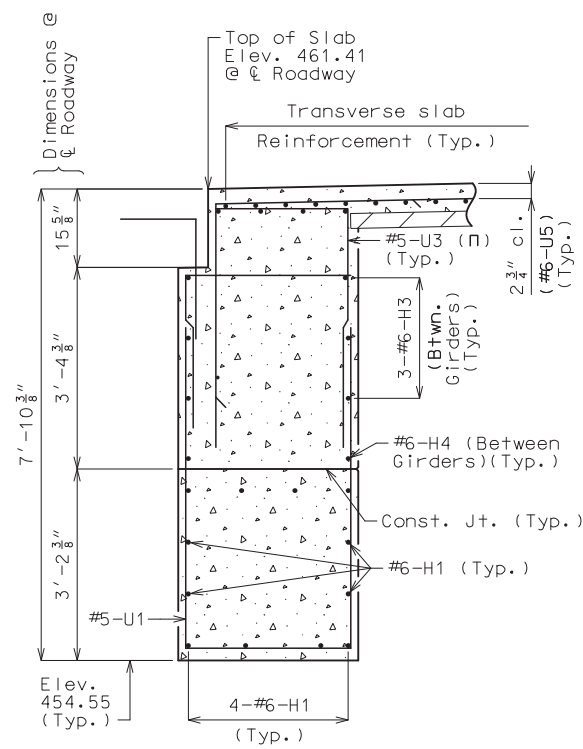
* #8-H Bars at 3" cts. (Each Face)
** Placed with grade



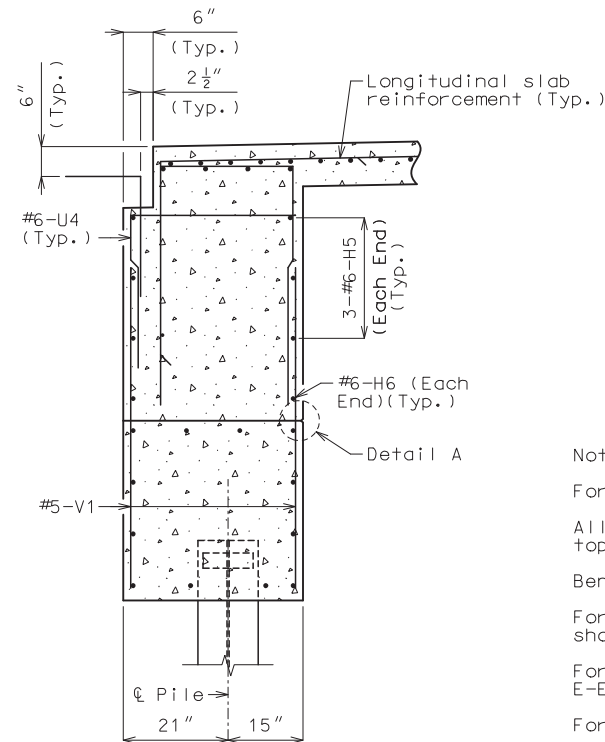
ELEVATION E-E



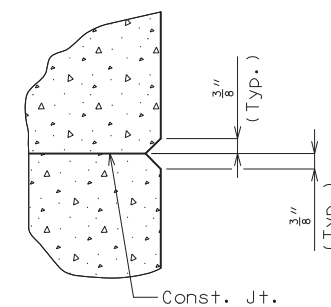
SECTION A-A



SECTION B-B



SECTION C-C



DETAIL A

Notes:

For details of End Bent No. 1 not shown, see Sheets No. 3 & 4.

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

Bend #6-F1 & #6-F2 bars in field to clear girders.

For Details and Reinforcement of the Safety Barrier Curb not shown, see Sheet No. 19 thru 21.

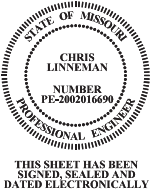
For location of Sections A-A, B-B, & C-C and Elevations D-D & E-E, see Sheet No. 4.

For details of Vertical Drain at End Bents, see Sheet No. 6.

For location of #5-H7 (Strand Tie Bar), see Sheet No. 12.

For details of Bridge Approach Slab, see Sheet No. 23.

For Substructure Quantity Table for End Bent No. 1, see Sheet No. 4.



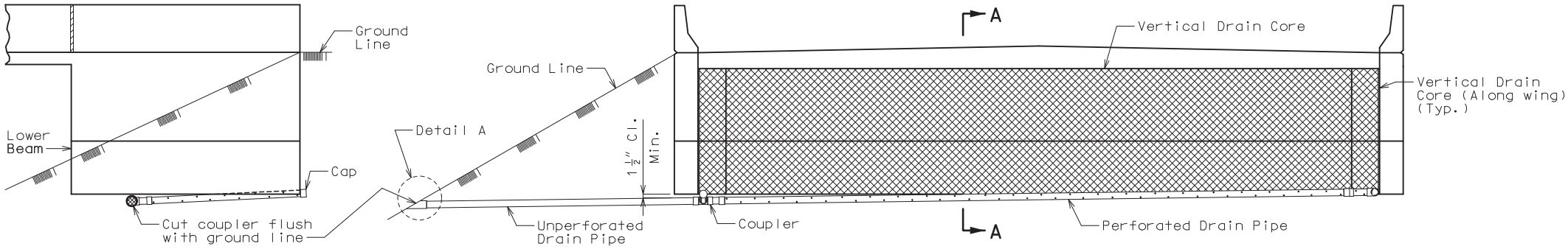
DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
17
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
3420001

DATE	DESCRIPTION

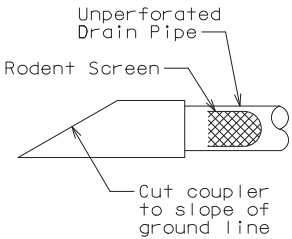
CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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

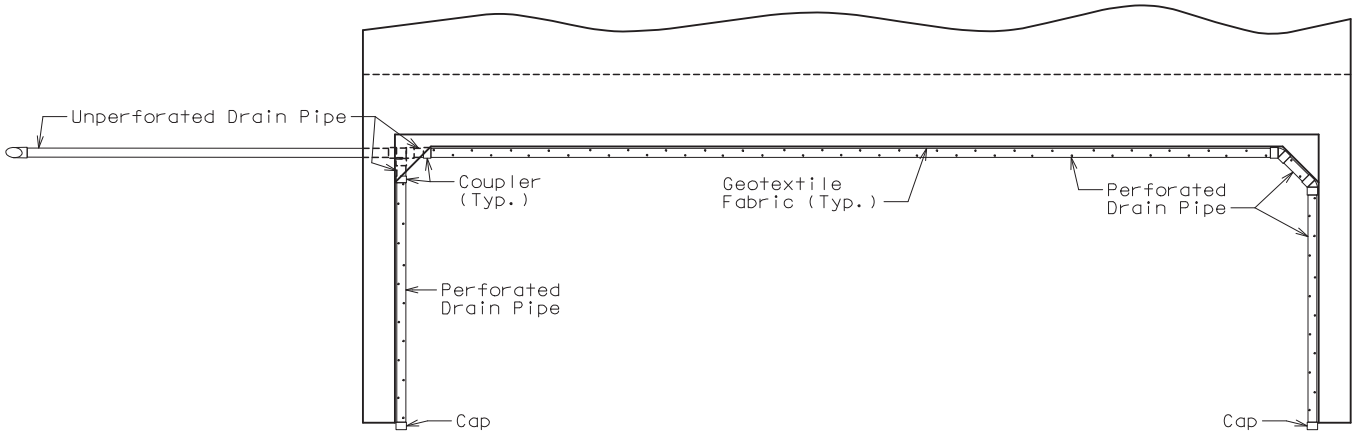


ELEVATION OF WING

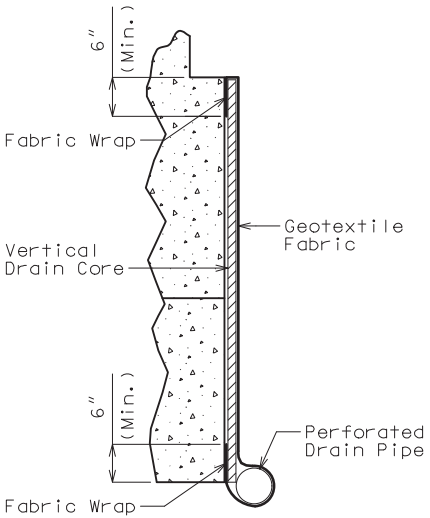
ELEVATION OF END BENT



DETAIL A



PLAN OF END BENT

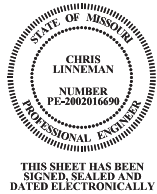


PART SECTION A-A
(Section thru wing similar)

VERTICAL DRAIN AT END BENTS
(Squared end bent shown, skewed end bent similar)

General Notes:

- All drain pipe shall be sloped 1 to 2 percent.
- Drain pipe may be either 6-inch diameter corrugated metallic-coated steel pipe underdrain, 4-inch diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4-inch diameter corrugated polyethylene (PE) drain pipe.
- Drain pipe shall be placed at fill face of end bent and inside face of wings. The pipe shall slope to lowest grade of ground line, also missing the lower beam of end bent by a minimum of 1 1/2 inches.
- Perforated pipe shall be placed at fill face side and inside face of wings at the bottom of end bent and plain pipe shall be used where the vertical drain ends to the exit at ground line.



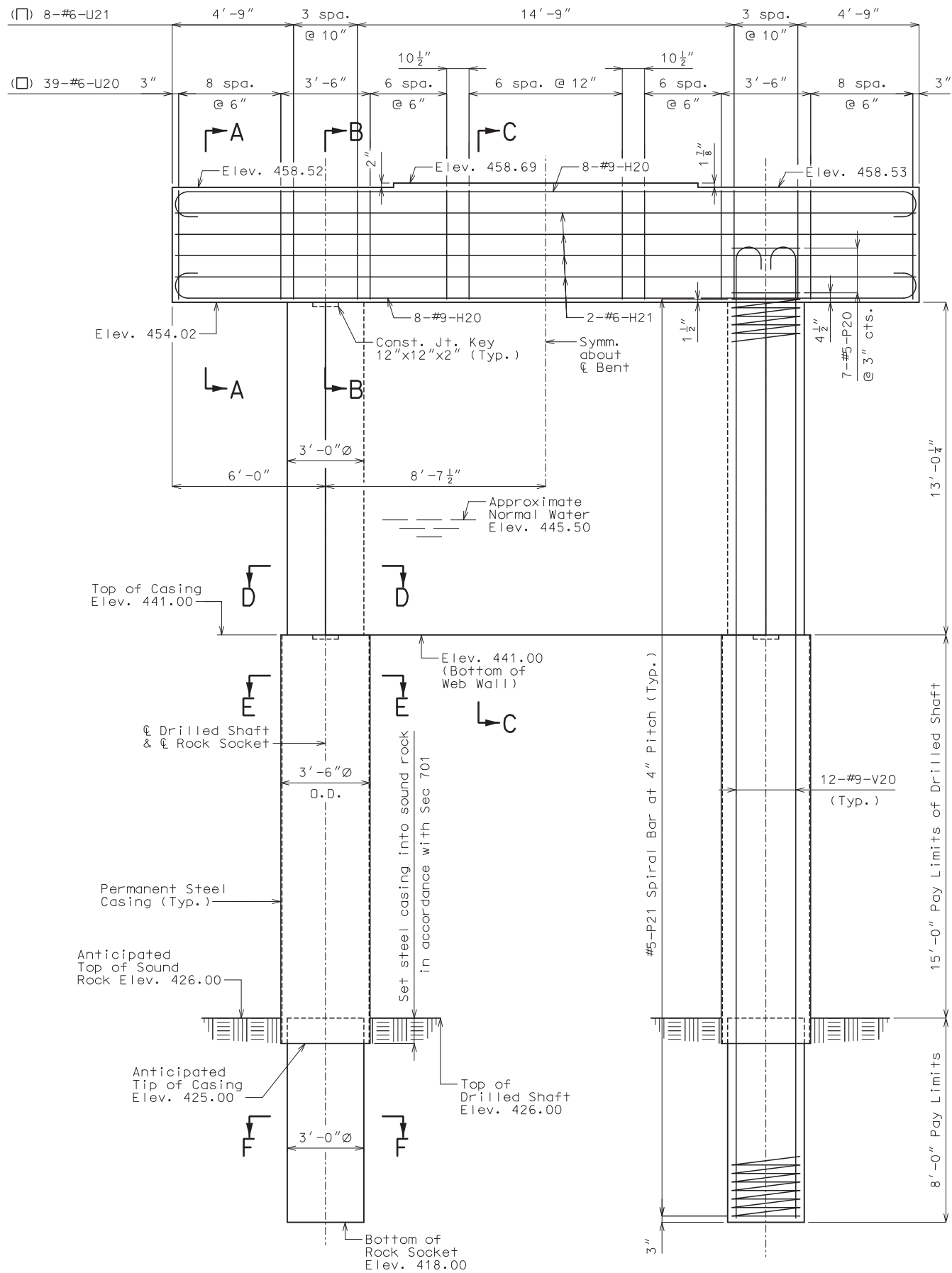
DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
18
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
3420001

DATE	DESCRIPTION
.	.
.	.
.	.
.	.
.	.
.	.

CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

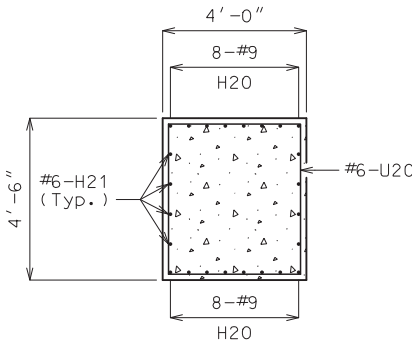
EFK • Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578



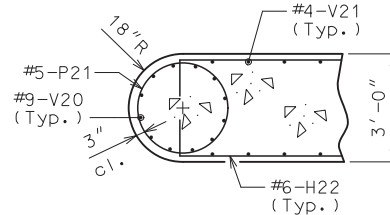
ELEVATION

Note: Keys not shown for clarity

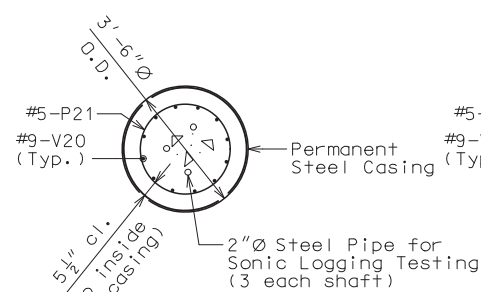
DETAILS OF INTERMEDIATE BENT NO. 2



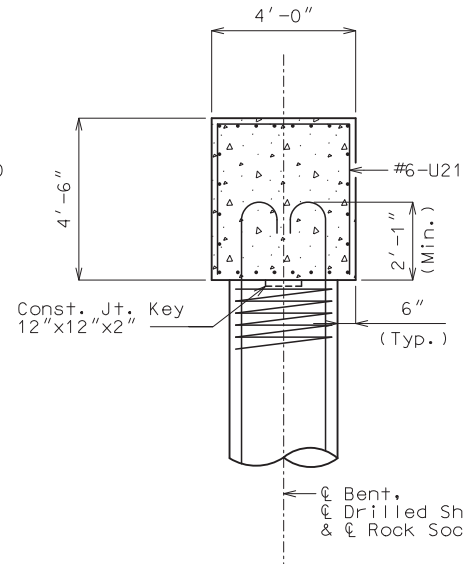
SECTION A-A



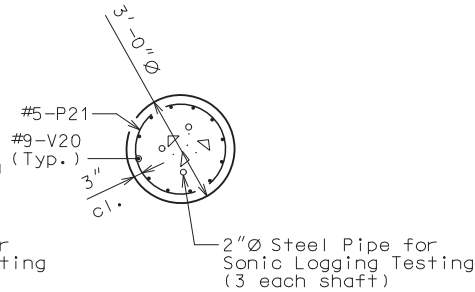
SECTION D-D



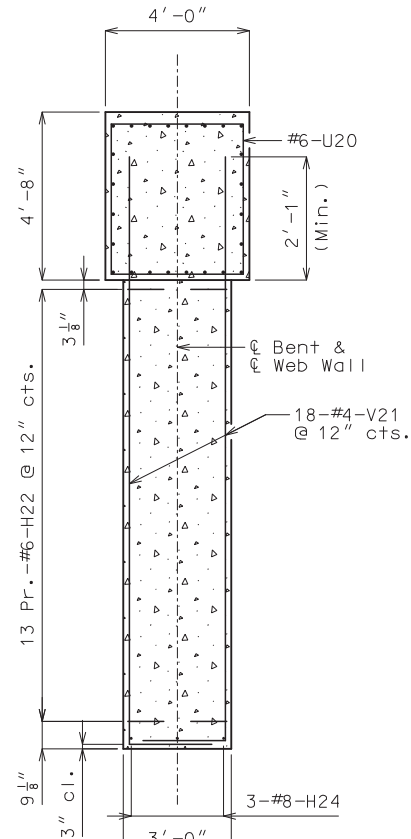
SECTION E-E



SECTION B-B



SECTION F-F



SECTION C-C

Notes:

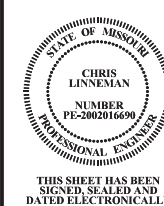
For details of Intermediate Bent No. 2 not shown, see Sheet No. 8.

An additional 4 feet has been added to the V20 and P21 bar lengths, if required, for possible change in drilled shaft or rock socket length. The additional bar lengths shall be cut off or included in the reinforcement lap if not required.

Sonic logging testing shall be performed on all drilled shafts and rock sockets.

Thickness of permanent steel casing shall be in accordance with Sec 701.

The cost of any required excavation to the top of the drilled shafts will be considered completely covered by the contract unit price for other items.



DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
19
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
3420001

DESCRIPTION

DATE

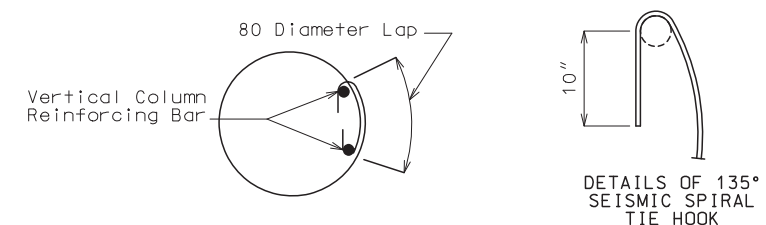
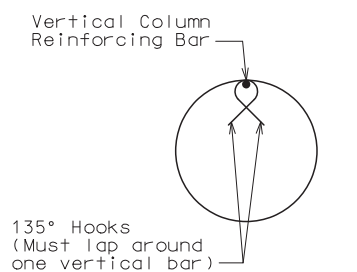
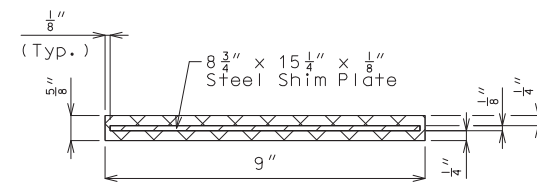
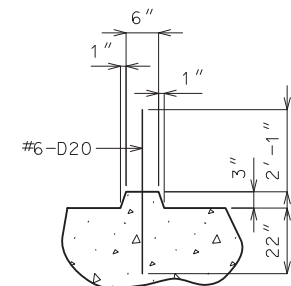
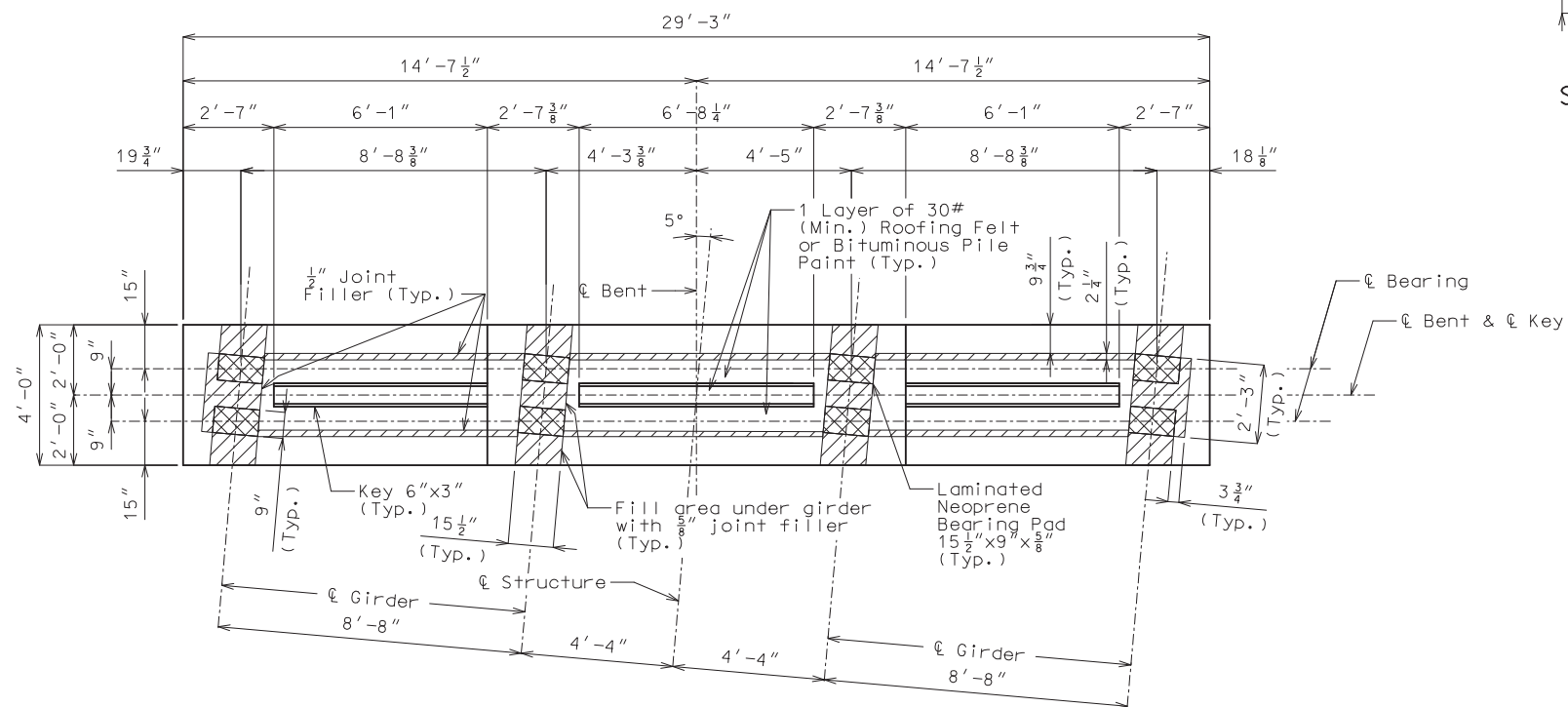
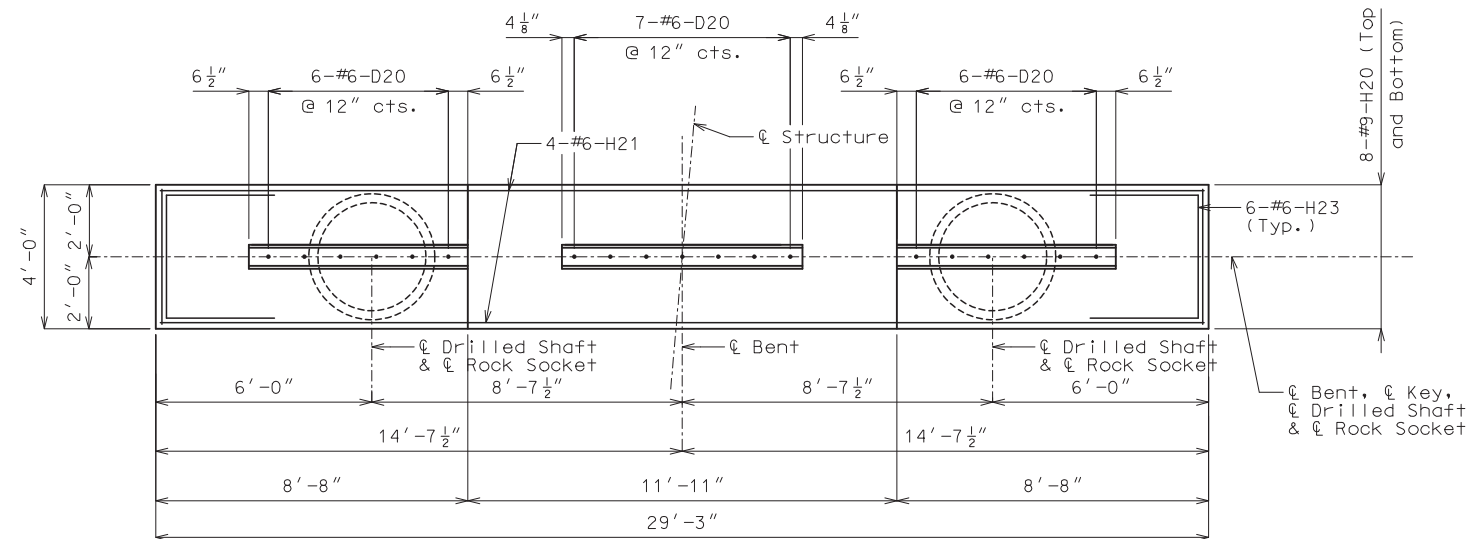
CHARTER CHURCH ROAD
BRIDGE REPLACEMENT

JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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

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

REV.



Substructure Quantity Table for Bent No. 2		
Item		Quantity
Cofferdams - Bent 2	lump sum	1
Drilled Shafts (3 ft. 6 in. Diameter)	linear foot	30
Rock Sockets (3 ft. 0 in. Diameter)	linear foot	16
Supplementary Television Camera Inspection	each	2
Foundation Inspection Holes	linear foot	36
Sonic Logging Testing	each	2
Class B Concrete (Substructure)	cu. yard	48.3
Reinforcing Steel (Bridges)	pounds	9,940

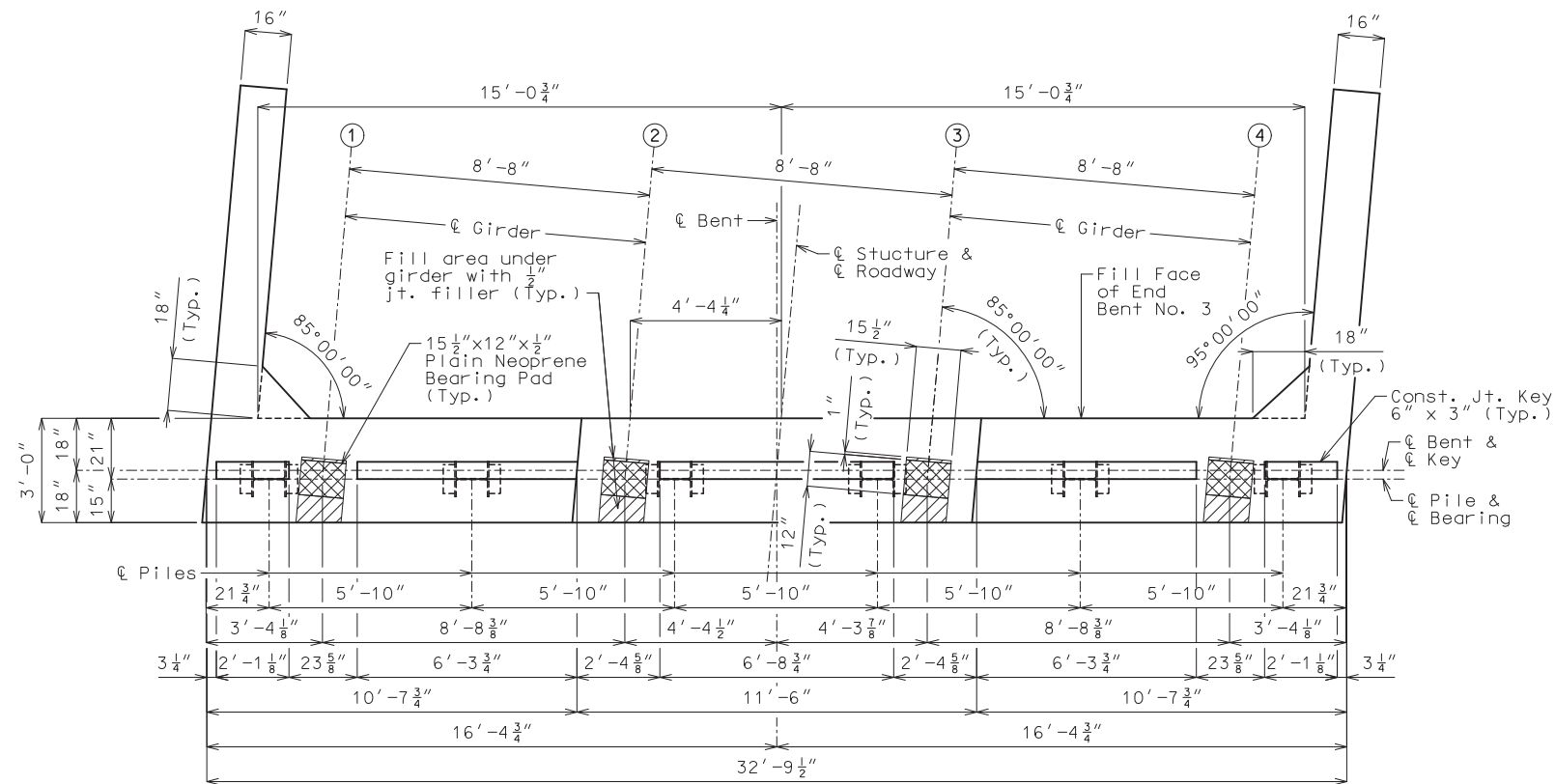
These quantities are included in the estimated quantities table on Sheet No. 2.

Notes:

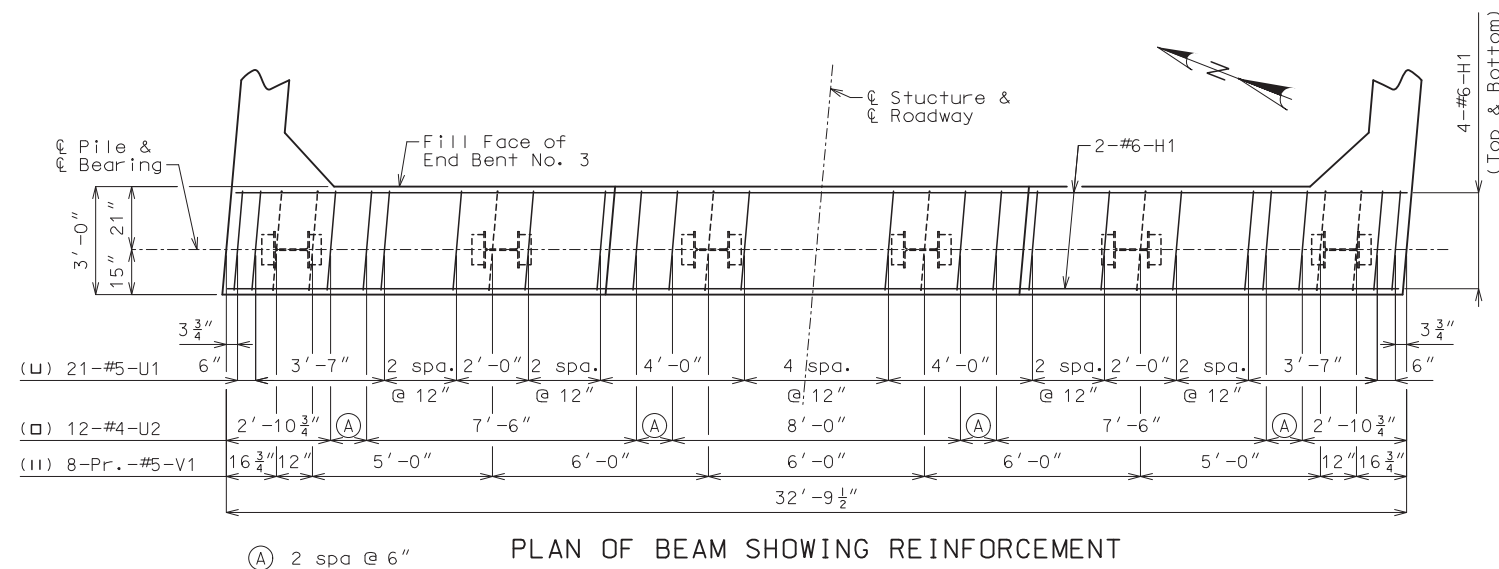
For steps 2" or more, use 2¼" x ½" joint filler up the vertical face.

For details of Intermediate Bent not shown, see Sheet No. 7.

DETAILS OF INTERMEDIATE BENT NO. 2



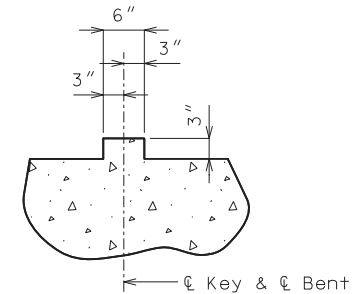
PLAN OF BEAM SHOWING DIMENSIONS



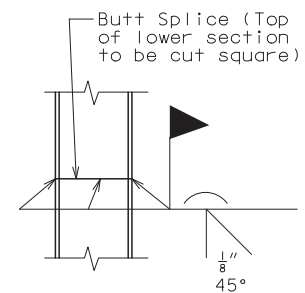
PLAN OF BEAM SHOWING REINFORCEMENT

Note: Keys not shown for clarity.

DETAILS OF END BENT NO. 3



SECTION THRU KEY



STEEL PILE SPLICE
(If required)

* Galvanization material shall be removed for a minimum of 1" around weld locations. The method used for removing galvanizing material shall be as approved by the Engineer.

Galvanizing shall be repaired per special provisions.

Notes:

For details of End Bent No. 3 not shown, see Sheets No. 10 & 11.

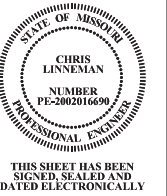
All U-bars and Pairs V-bars in End Bent are to be placed parallel to ℓ Roadway.

For Substructure Quantity Table for End Bent No. 3, see Sheet No. 10.

For details of Vertical Drain at End Bents, see Sheet No. 6.

Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2".

Reinforcement in wing in Plan of Beam not shown for clarity.



DATE PREPARED
1/18/2018

STATE
MO

SHEET NO.
21

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
3420001

DESCRIPTION

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

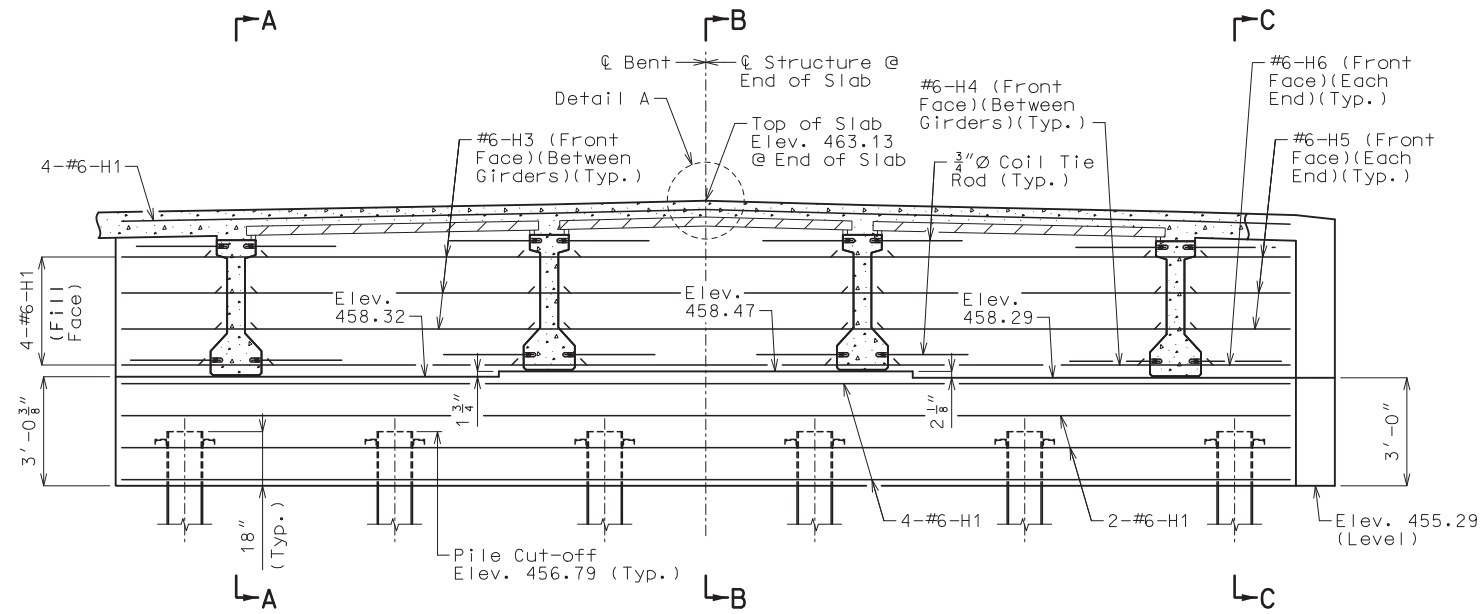
DATE

DATE

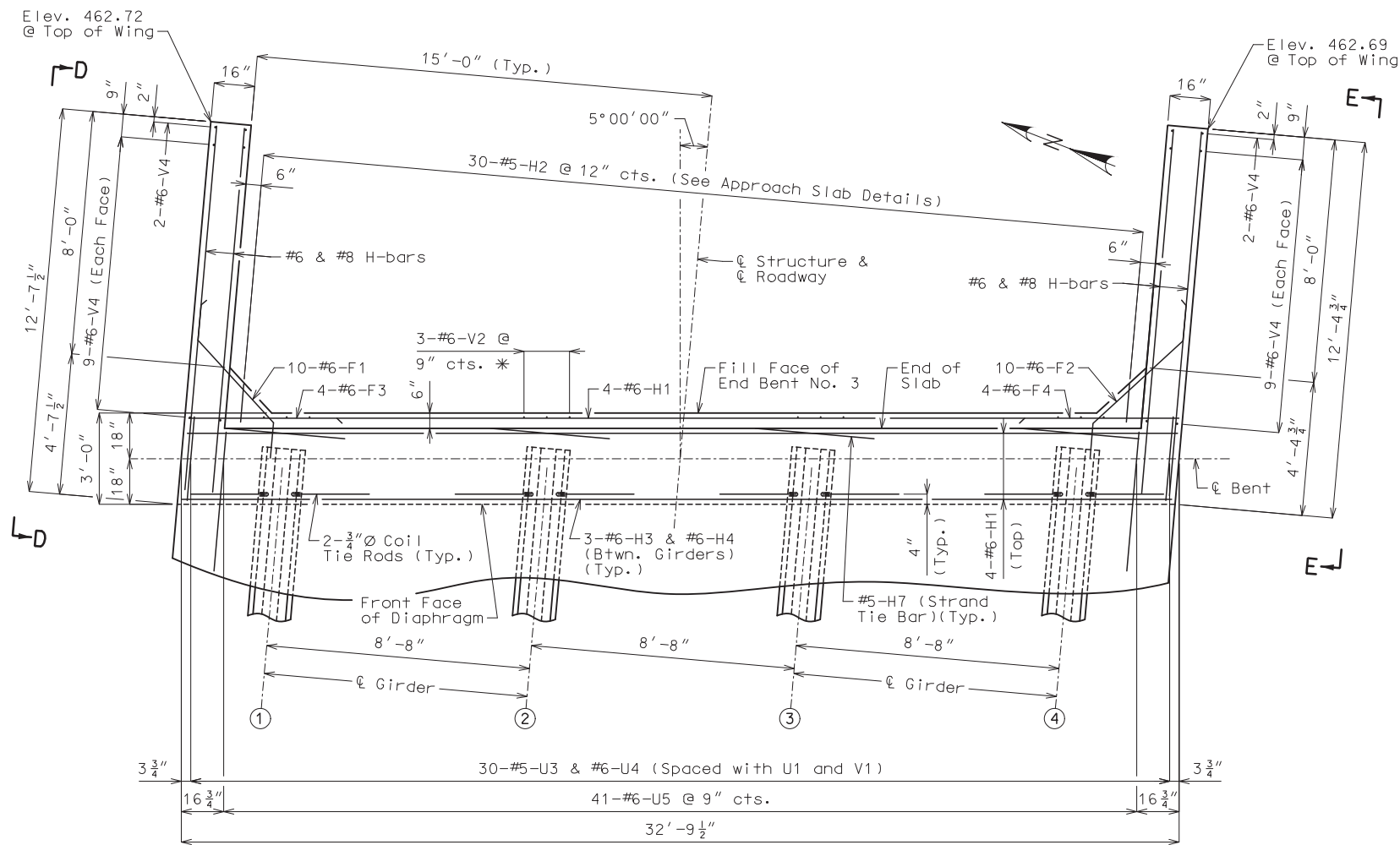
DATE

DATE

DATE



SECTION NEAR END BENT

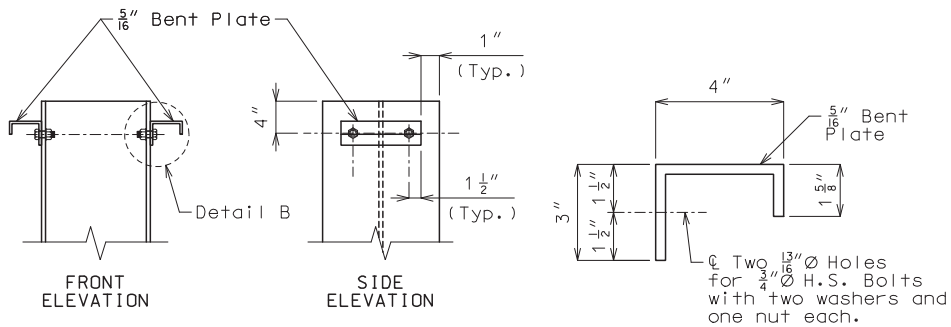


PART PLAN

DETAILS OF END BENT NO. 3

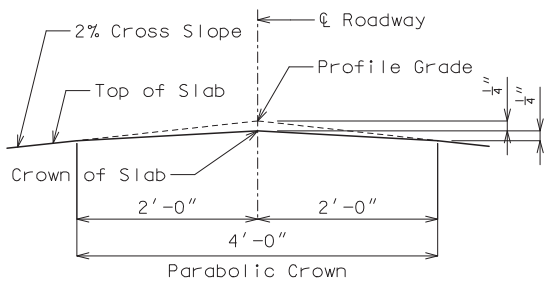
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 10 of 28



DETAILS OF PILE ANCHORS

DETAIL B

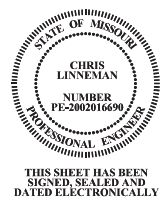


DETAIL A

- Notes:
- For Elevations D-D & E-E, Sections A-A, B-B & C-C and Section Thru wings, see Sheet No. 11.
 - For details of End Bent No. 3 not shown, see Sheets No. 9 & 11.
 - For details of Vertical Drain at End Bents, see Sheet No. 6.
 - For details and reinforcement of Safety Barrier Curb, see Sheets No. 19 thru 21.
 - The #6-F1 & #6 F2 Bars shall be bent in the field to clear girders.
 - All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
 - Strands at end of the girders shall be field bent or, if necessary, cut in field to maintain 1 1/2" minimum clearance to fill face of end bent.
 - For locations of Coil Tie Rods and #5-H7 (Strand Tie Bar), see Sheet No. 12.
 - For details of Bridge Approach Slab, see Sheet No. 23.

Substructure Quantity Table for End Bent No. 3		
Item		Total
Class 1 Excavation	cu. yd.	75
Galvanized Structural Steel Piles (12")	linear foot	162
Pile Point Reinforcement	each	6
Class B Concrete (Substructure)	cu. yd.	14.3

Note: These quantities are included in the Estimated Quantities Table on Sheet No. 2.



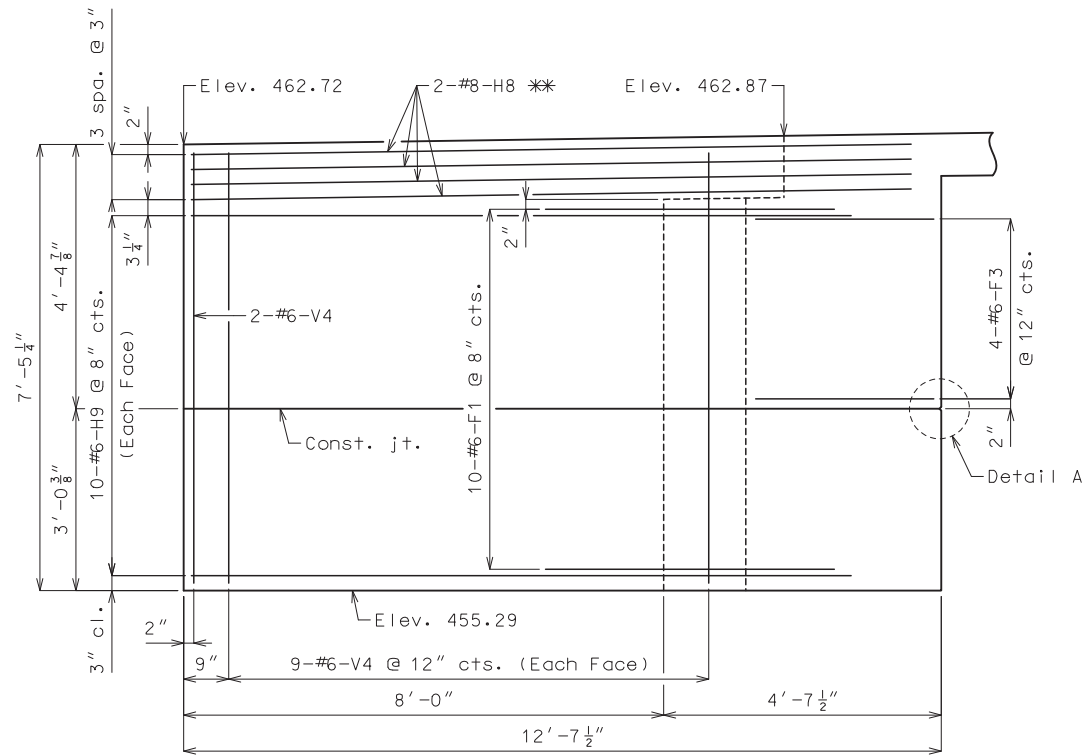
DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
22
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
3420001

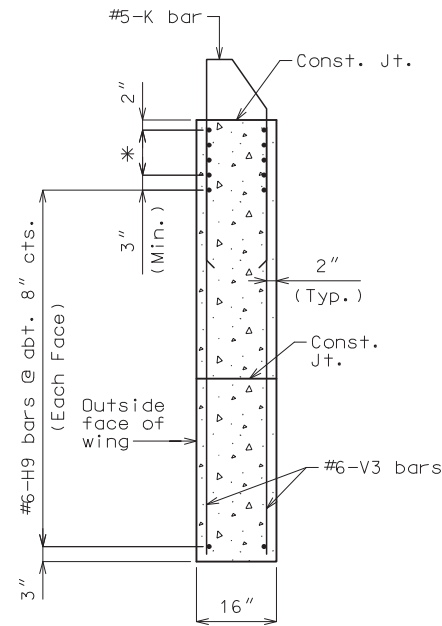
DATE	DESCRIPTION

**CHARTER CHURCH ROAD
BRIDGE REPLACEMENT**
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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

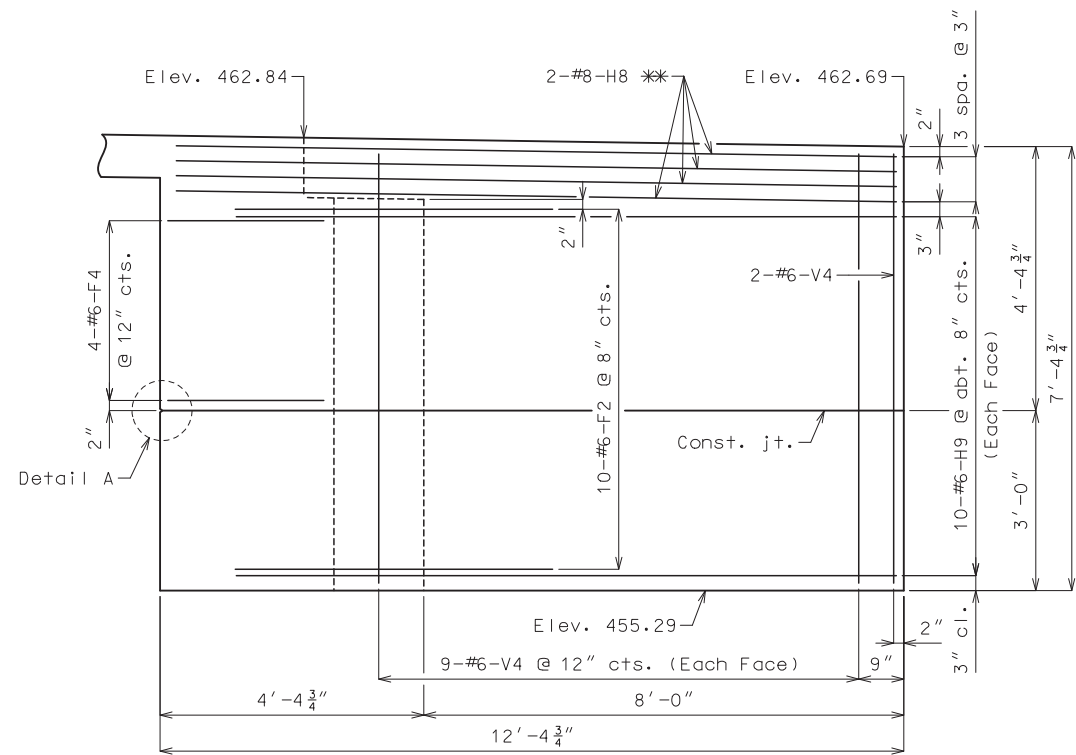


ELEVATION D-D

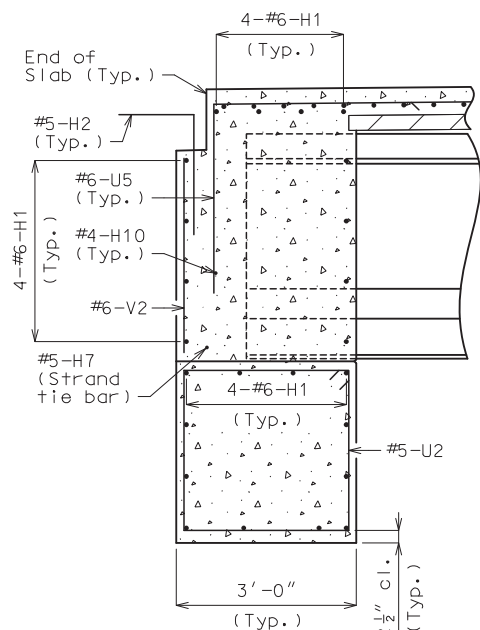


TYPICAL SECTION
THRU WING

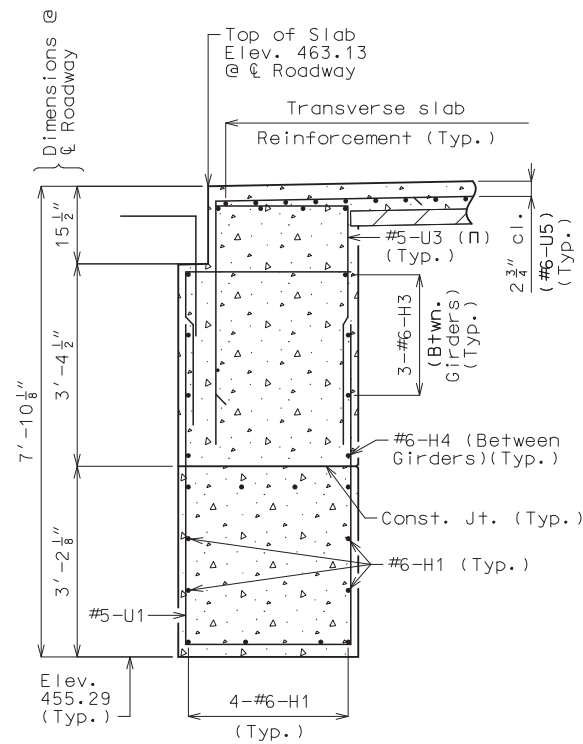
* #8-H Bars at 3" cts. (Each Face)
** Placed with grade



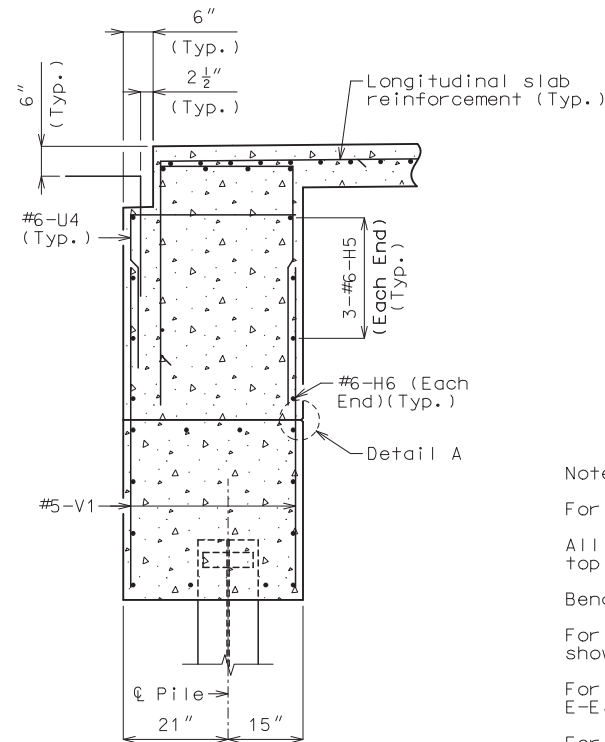
ELEVATION E-E



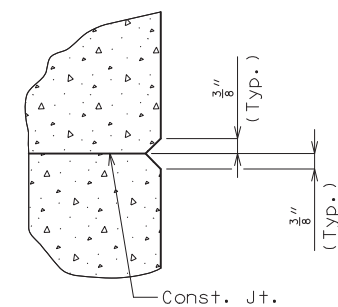
SECTION A-A



SECTION B-B



SECTION C-C



DETAIL A

Notes:

For details of End Bent No. 3 not shown, see Sheets No. 9 & 10.

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

Bend #6-F1 & #6-F2 bars in field to clear girders.

For Details and Reinforcement of the Safety Barrier Curb not shown, see Sheet No. 19 thru 21.

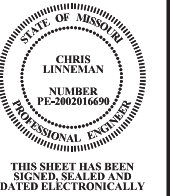
For location of Sections A-A, B-B, & C-C and Elevations D-D & E-E, see Sheet No. 10.

For details of Vertical Drain at End Bents, see Sheet No. 6.

For location of #5-H7 (Strand Tie Bar), see Sheet No. 12.

For details of Bridge Approach Slab, see Sheet No. 23.

For Substructure Quantity Table for End Bent No. 3, see Sheet No. 10.



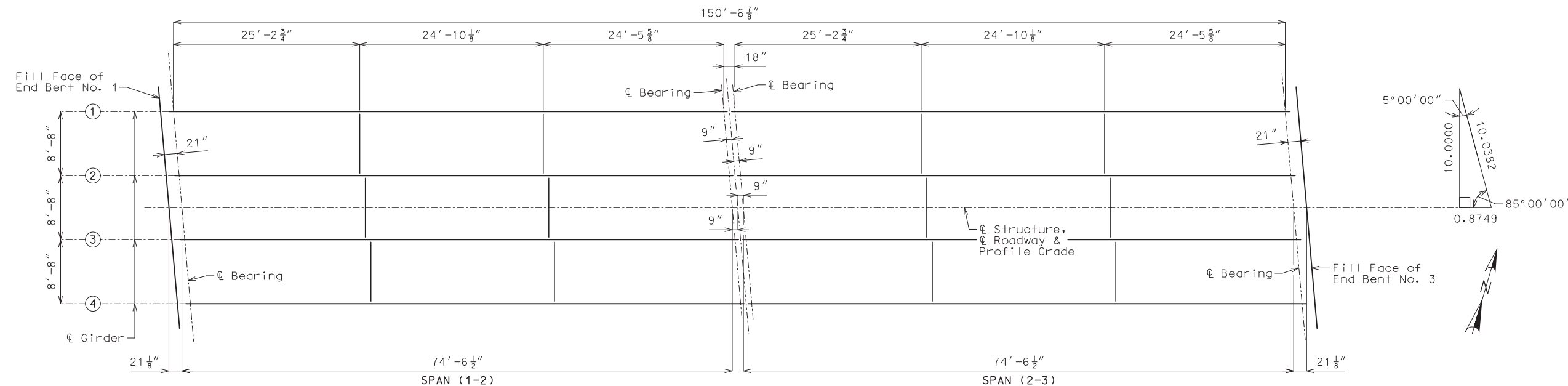
DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
23
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
3420001

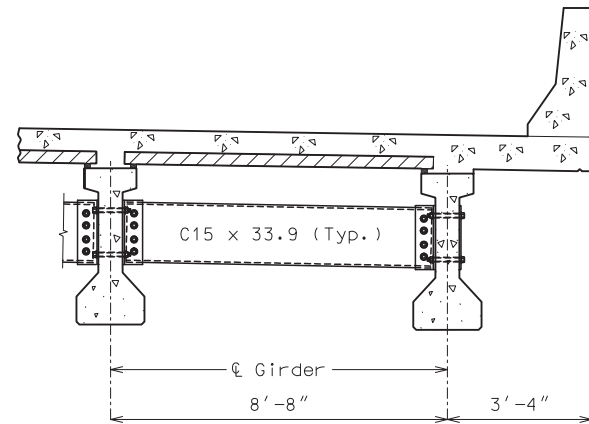
DATE	DESCRIPTION

CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

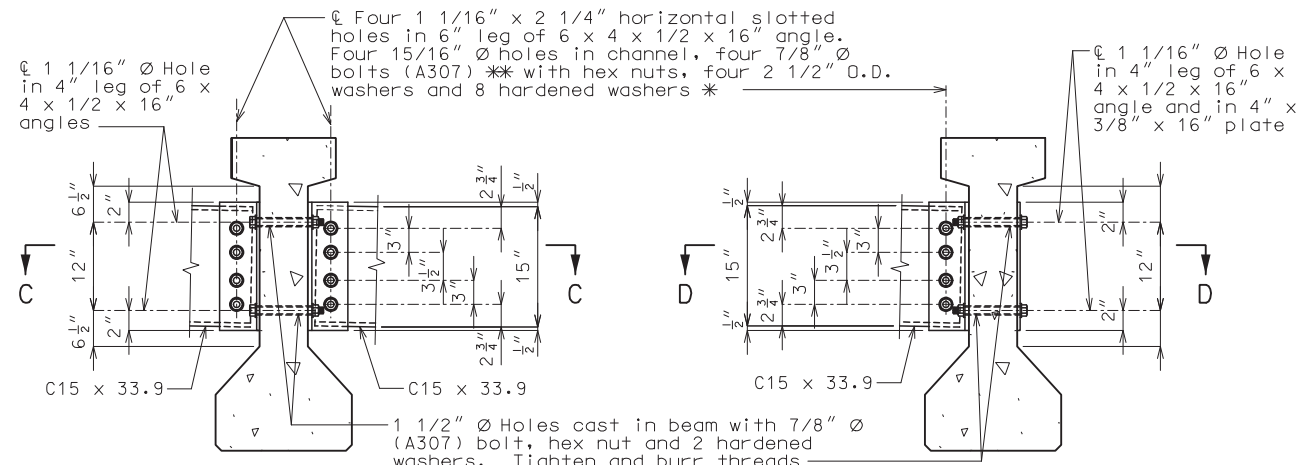
EFK Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578



PLAN SHOWING LOCATION OF STEEL INTERMEDIATE DIAPHRAGMS

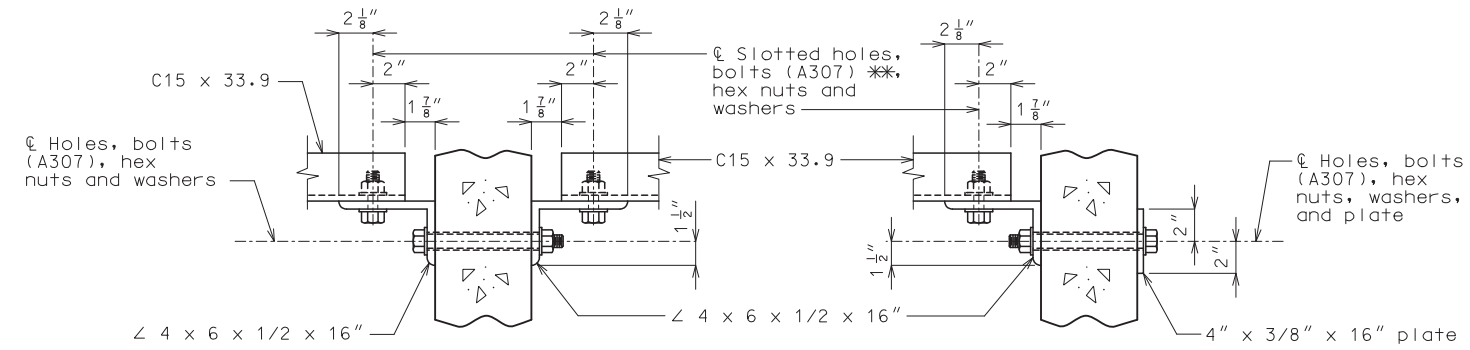


PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS



SECTION THRU INT. GIRDER AT DIAPHRAGM

SECTION THRU EXT. GIRDER AT DIAPHRAGM



SECTION C-C

SECTION D-D

STEEL DIAPHRAGM NOTES:

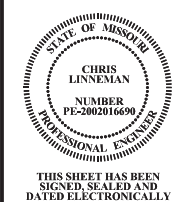
- * In lieu of 2 1/2" outside diameter washers, contractor may substitute a 3/16" (Min. thickness) plate with four 15/16" Ø holes and one hardened washer per bolt.
- ** Bolts shall be tightened to provide a tension of one-half that specified in Sec 712 for high strength bolt installation. A325 bolts may be substituted for and installed in accordance with the requirements for the specified A307 bolts.
- All diaphragm materials including bolts, nuts, and washers shall be galvanized.
- Fabricated structural steel shall be ASTM A709 Grade 36 except as noted.
- Payment for furnishing and installing steel intermediate diaphragms will be considered completely covered by the contract unit price for Steel Intermediate Diaphragm for P/S Concrete Girders.
- Shop drawings will not be required for steel intermediate diaphragms and angle connections.
- For location of intermediate diaphragms, see this Sheet.

STEEL INTERMEDIATE DIAPHRAGM DETAILS

Detailed OCT 2017
Checked OCT 2017

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

Sheet No. 13 of 28



DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
25
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)

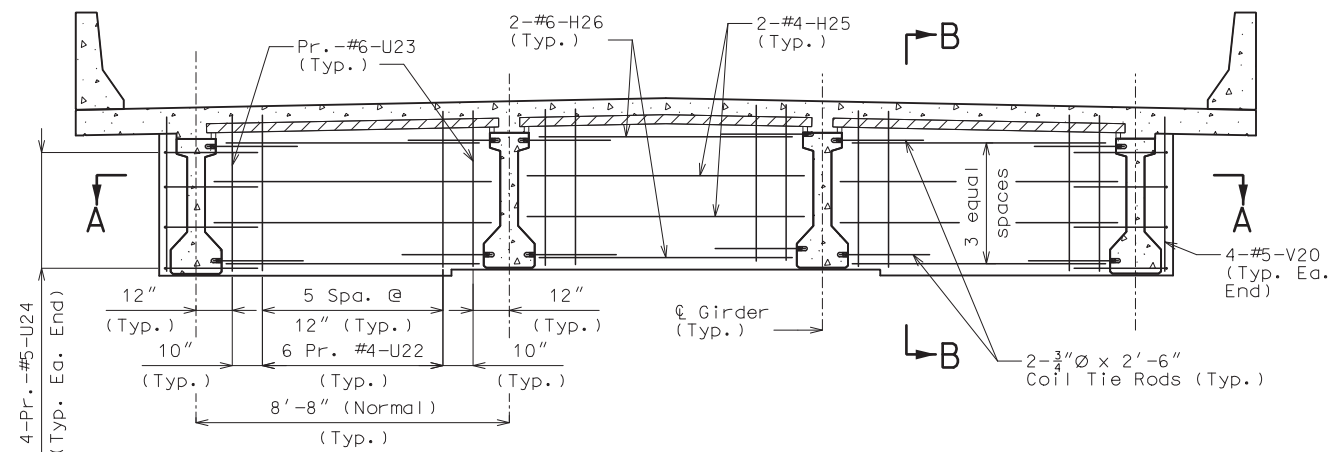
BRIDGE NO.
3420001

DATE	DESCRIPTION

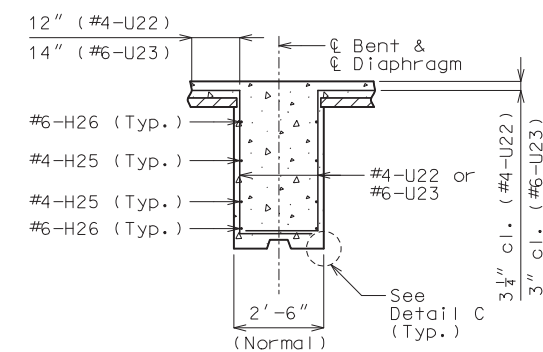
CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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

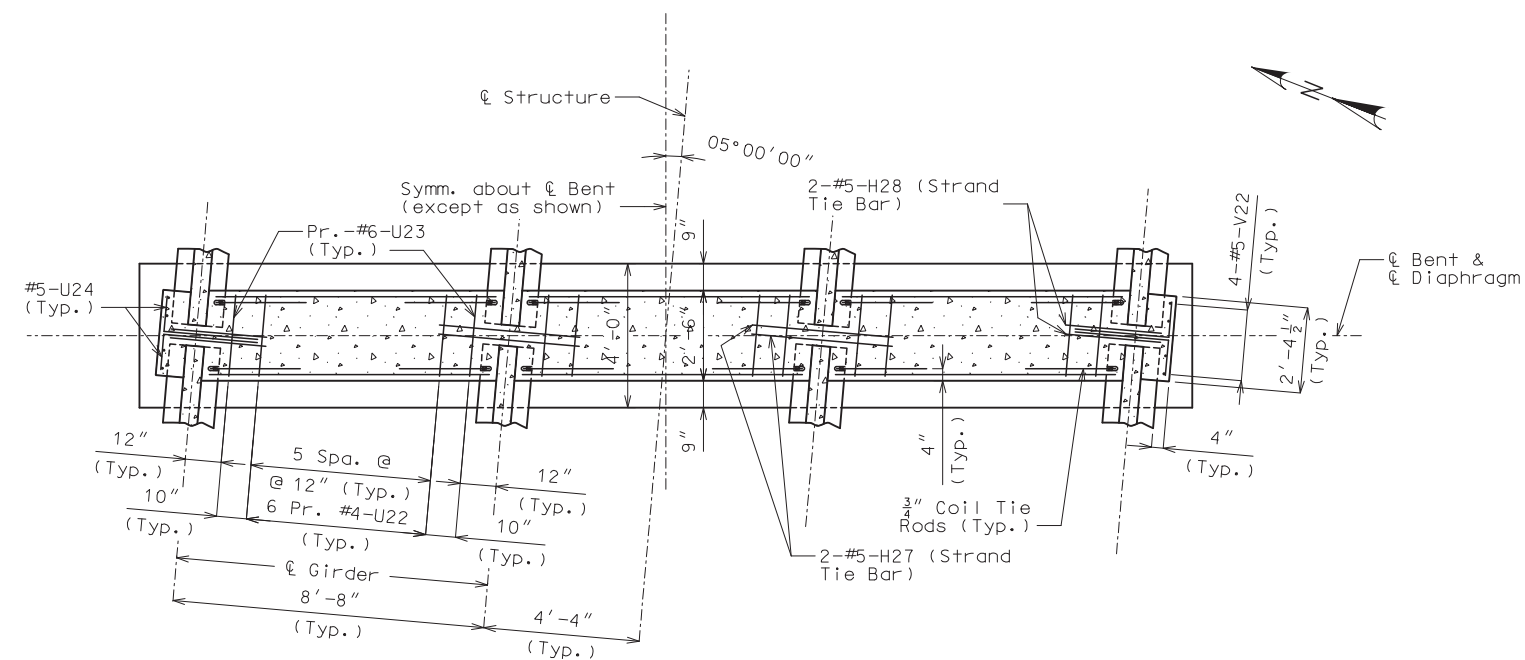
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED REV.



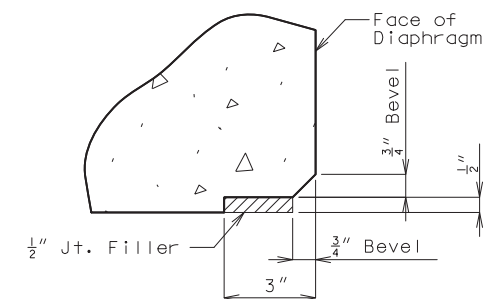
SECTION NEAR INTERMEDIATE BENT NO. 2



SECTION B-B



SECTION A-A



DETAIL C

Notes:

- For location of Strand Tie Bars and Coil Tie Rods, see Sheet No. 12.
- All U-Bars in diaphragm are to be placed parallel to ϕ Girders.
- Diaphragms at Intermediate Bents shall be built vertical.

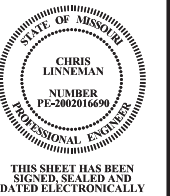
DETAILS OF CONCRETE DIAPHRAGM AT INTERMEDIATE BENT NO. 2

Detailed OCT 2017
Checked OCT 2017

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

Sheet No. 14 of 28

Z:\15042 Charter Church Road\DCN\Bridge\Final\Plotsheets\B_A1648_014_Int Bent_Diaphragm.dgn 1:43:45 PM 1/18/2018



DATE PREPARED
1/18/2018

STATE
MO

SHEET NO.
26

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
3420001

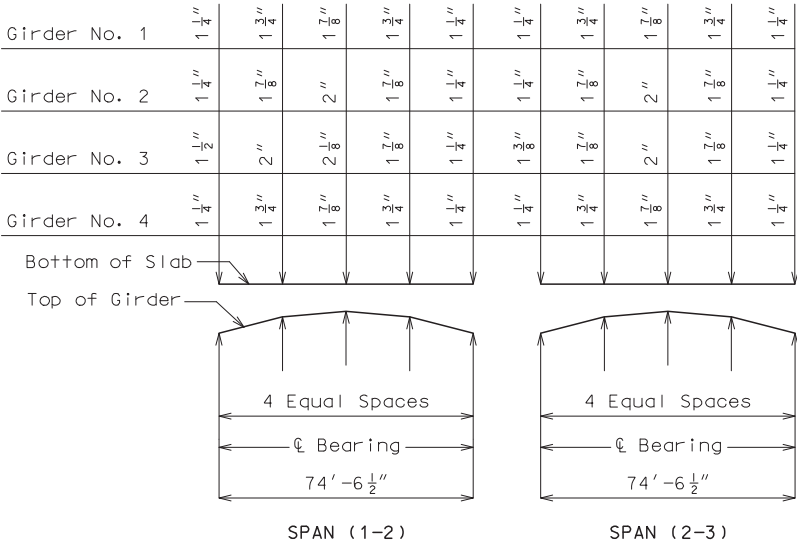
DATE	DESCRIPTION

CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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

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

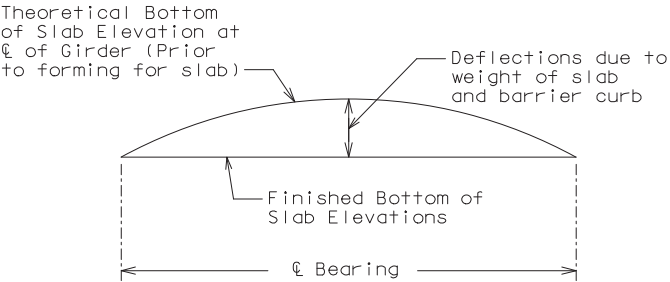
REV.



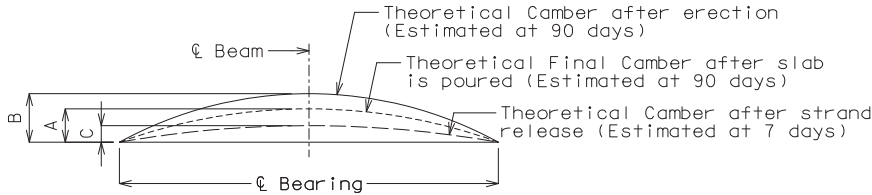
THEORETICAL SLAB HAUNCHING DIAGRAM

Theoretical Bottom of Slab Elevations at C/L of Girder (Prior to forming for slab) **										
Girder Number	Span (1-2) (74' - 6 1/2" C/L Brg. - C/L Brg.)					Span (2-3) (74' - 6 1/2" C/L Brg. - C/L Brg.)				
	C/L Brg.	.25	.50	.75	C/L Brg.	C/L Brg.	.25	.50	.75	C/L Brg.
1	461.47	461.89	462.20	462.37	462.42	462.43	462.46	462.58	462.46	462.21
2	461.65	462.09	462.40	462.56	462.60	462.61	462.75	462.76	462.63	462.38
3	461.67	462.10	462.41	462.57	462.60	462.61	462.75	462.76	462.63	462.37
4	461.51	461.93	462.23	462.39	462.43	462.44	462.57	462.57	462.44	462.19

** Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier curb.



TYPICAL SLAB ELEVATIONS DIAGRAM



Beam	Span (1-2)			Span (2-3)		
	A	B	C	A	B	C
Exterior	1 1/8"	2 1/2"	7/8"	1 1/8"	2 1/2"	7/8"
Interior	1"			1"		

BEAM CAMBER DIAGRAM

If beam camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness adjustment of the slab haunches, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete Beam.

Conversion factors for beam camber (estimated at 90 days)

0.25 pt. = 0.7125 x 0.5 pt.



DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
28
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)

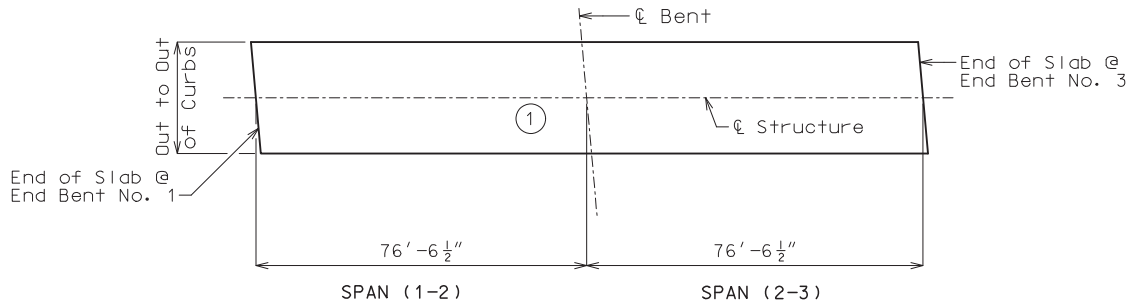
BRIDGE NO.
3420001

DESCRIPTION

DATE

CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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

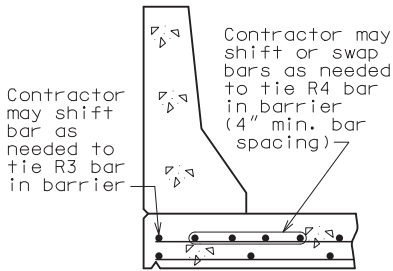


Basic Sequence	Sequence of Pours	Min. Rate of Pour Cu. Yds./Hr.
	Direction	With Retarder
	1 End to End	30

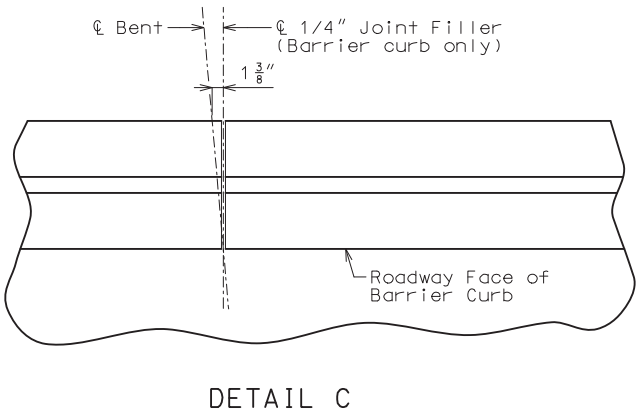
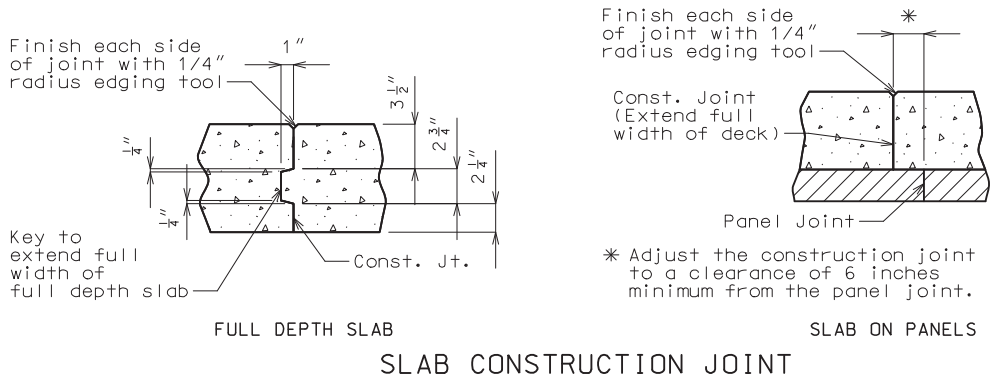
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

The concrete diaphragm at the intermediate bents and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

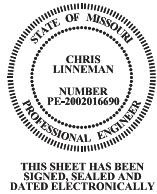
SLAB POURING SEQUENCE



OPTIONAL SHIFTING
TOP BARS AT BARRIER



- Notes:
- For Theoretical Bottom of Slab Elevations, Theoretical Slab Haunching Diagram and Girder Camber Diagram, see Sheet No. 16.
 - For details and reinforcement of safety barrier curb not shown, see Sheets No. 19 thru 21.
 - For Details of Precast Prestressed Panels, see Sheet No. 15.
 - For Plan of Slab Showing Reinforcement, see Sheet No. 17.



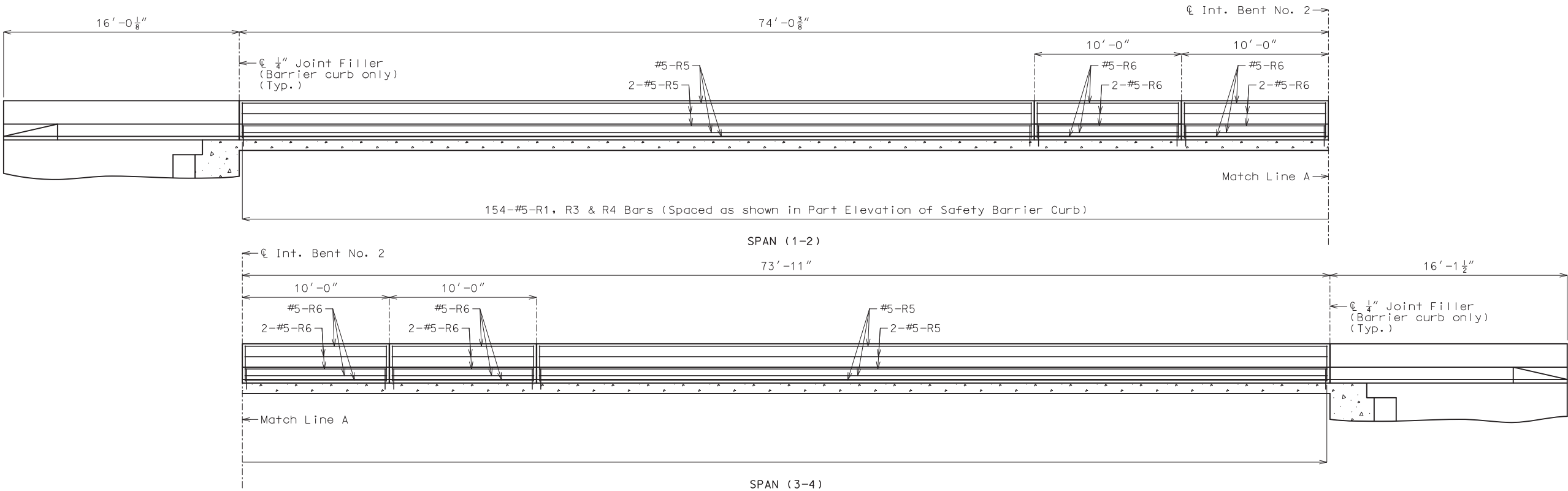
DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
30
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
3420001

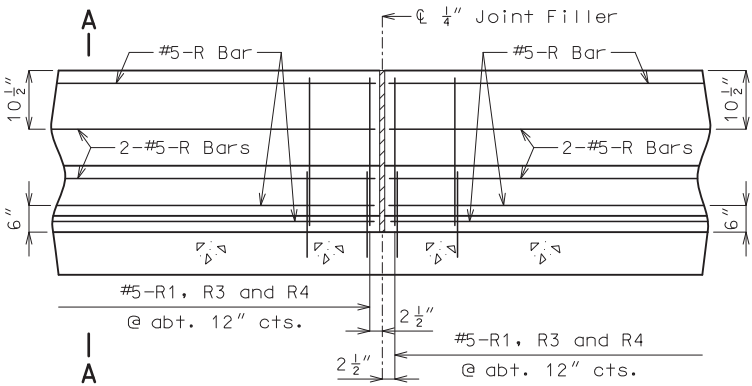
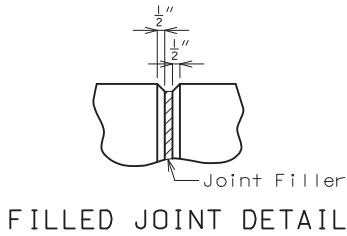
DATE	DESCRIPTION
.	.
.	.
.	.
.	.
.	.
.	.

CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

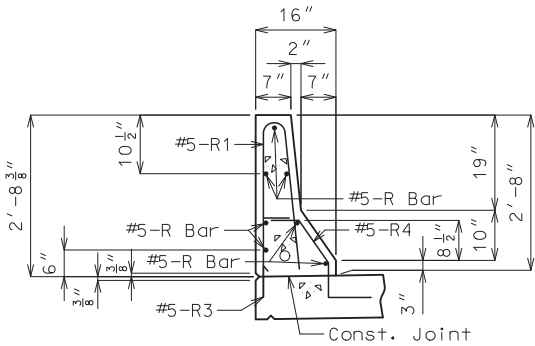
EFK • Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578



ELEVATION OF SAFETY BARRIER CURB
(Left barrier curb shown, right barrier curb similar)
Longitudinal dimensions are horizontal.

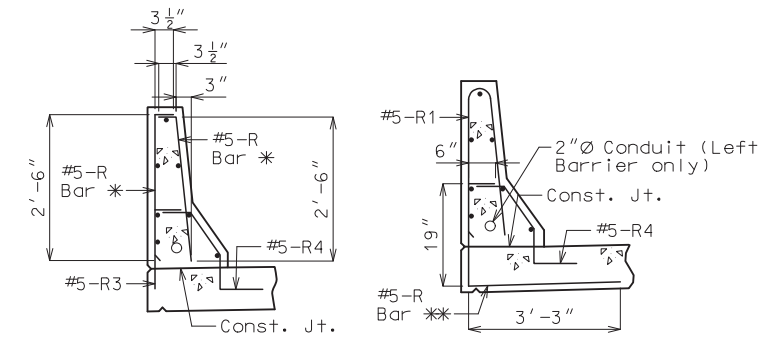


PART ELEVATION OF SAFETY BARRIER CURB
(CAST-IN-PLACE CONVENTIONAL FORMING)



SECTION A-A

Use a minimum lap of 3'-1" for #5 horizontal safety barrier curb bars.
The cross-sectional area above the slab = 2.27 sq. ft.



R-BAR PERMISSIBLE ALTERNATE SHAPE

* The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)
** The R3 bar and #5 bottom transverse slab bar in cantilever (P/S panels only) combination may be furnished as one bar as shown, at the contractor's option.

General Notes

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

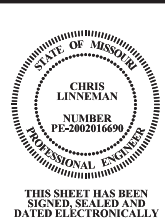
All exposed edges of safety barrier curb shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.



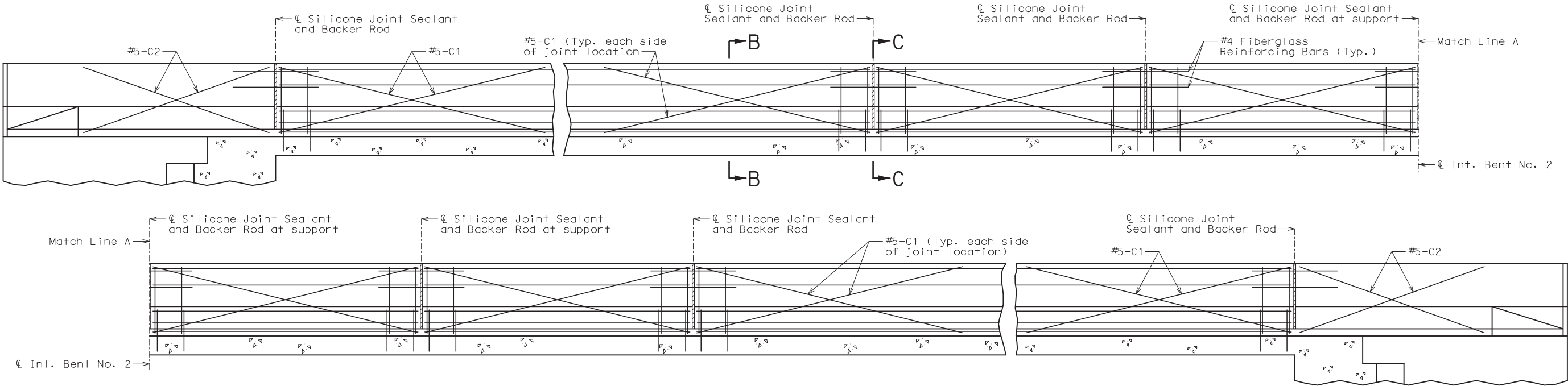
DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
31
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
3420001

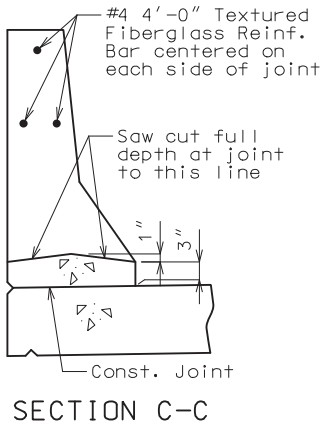
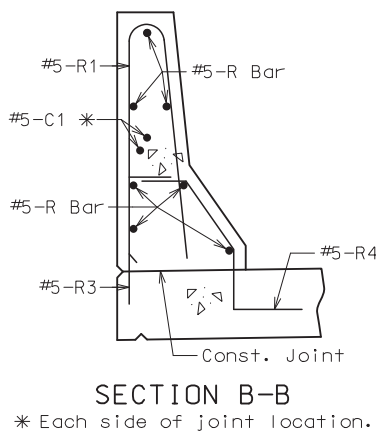
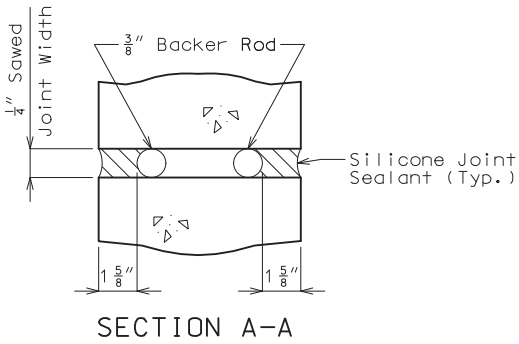
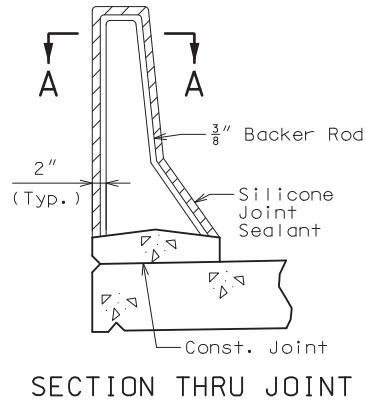
DATE	DESCRIPTION

CHARTER CHURCH ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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



TYPICAL ELEVATION OF SAFETY BARRIER CURB AT SUPPORT LOCATIONS



OPTIONAL SLIP-FORM SAFETY BARRIER CURB

General Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

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

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.

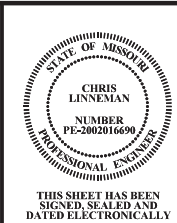
Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with slip-form option.

For slip-form option, all sides of the safety barrier curb shall have a vertically broomed finish and the curb top shall have a transversely broomed finish.

C bars (slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge safety barrier curb.

Cost of silicone joint sealant and backer rod, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb.



DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
33
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
3420001

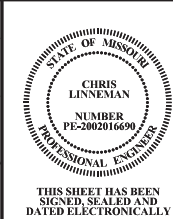
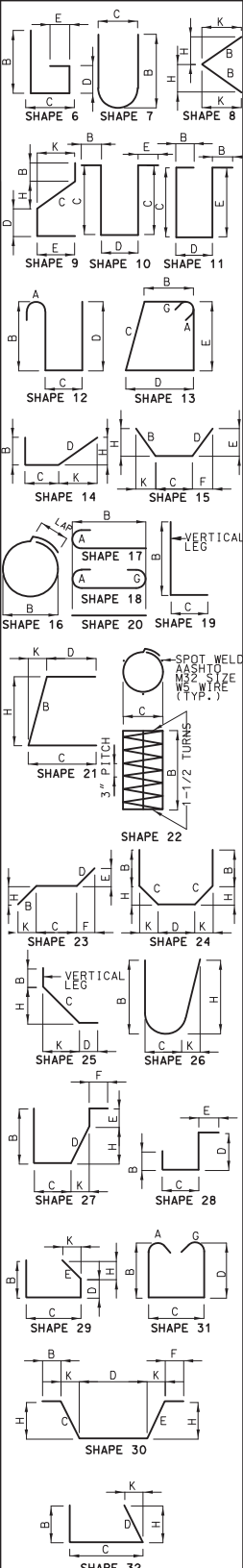
DATE	DESCRIPTION

**CHARTER CHURCH ROAD
BRIDGE REPLACEMENT**
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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

NO.	REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT						
										B		C		D		E					F		H		K	
										FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.	FT.	IN.	FT.	IN.
			SUBSTRUCTURE																							
			INT. BENT NO 2																							
19		6 D20	BEAM CAP		20	X				4	2.000						4	2	4	2	119					
16		9 H20	BEAM CAP		18	X				29	0.000						31	6	31	6	1714					
8		6 H21	BEAM CAP		20	X				29	0.000						29	0	29	0	348					
26		6 H22	WEB WALL	10	S	X					12.000	17	5.000				19	5	19	1	745					
12		6 H23	BEAM CAP	10	S	X				3	7.000	3	7.000				10	9	10	5	188					
3		8 H24	WEB WALL	20	X					17	3.000						17	3	17	3	138					
14		5 P20	BEAM CAP		34	X				2	6.000						8	9	8	9	128					
2		5 P21	COLUMN		35	X				2	6.000	4	4.000	35	10.750		872	7	872	7	1820					
39		6 U20	BEAM CAP		13	S	X			3	9.000	4	3.000	3	9.000	4	3.000					986				
8		6 U21	BEAM CAP		10	S	X				4	3.000	3	9.000			12	3	11	11	143					
24		9 V20	COLUMN		17	X				37	11.000						39	2	39	2	3196					
36		4 V21	WEB WALL		19	S	X			15	0.000	2	4.000				17	4	17	3	415					
			SUPERSTRUCTURE																							
			END BENTS 1 & 3																							
20		6 F1	WING BRACE	E	23					14.000	3	7.000	14.000	10.375	9.500	10.375	9.500	5	11	5	10	175				
20		6 F2	WING BRACE	E	23					14.000	3	11.000	14.000	9.500	10.375	9.500	10.375	6	3	6	2	185				
8		6 F3	DIAPHRAGM	E	21					2	6.000		4	11.000		2	5.875	2.625	7	5	7	3	87			
8		6 F4	DIAPHRAGM	E	32						5	1.000	2	6.000		2	5.875	2.625	7	7	7	5	89			
40		6 H1	DIAPHRAGM	E	20					32	6.000												1953			
60		5 H2	DIAPHRAGM	E	19					2	0.000	0	15.000				3	3	3	2			198			
18		6 H3	DIAPHRAGM	E	20					7	4.000						7	4	7	4			198			
6		6 H4	DIAPHRAGM	E	20					7	0.000						7	0	7	0			63			
12		6 H5	DIAPHRAGM	E	20					2	6.000						2	6	2	6			45			
4		6 H6	DIAPHRAGM	E	20					2	4.000						2	4	2	4			14			
8		5 H7	STRAND TIE	E	20					3	11.000						3	11	3	11			33			
32		8 H8																								

NO.	REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT				
										B	C	D	E	F	H	K							
										FT.	IN.	FT.	IN.	FT.	IN.	FT.				IN.	FT.	IN.	FT.
			INT. BENT DIAPHRAGM							7	8.000						7	8	7	8	61		
12	4	H25	DIAPHRAGM	E	20					7	0.000						7	0	7	0	126		
8	5	H27	DIAPHRAGM	E	20					3	11.000						3	11	3	11	33		
8	5	H28	DIAPHRAGM	E	20					2	8.000						2	8	2	8	22		
36	4	U22	DIAPHRAGM	E	10	S				12	0.000	4	3.000	2	0.000		7	3	7	1	170		
12	6	U23	DIAPHRAGM	E	10	S				14	0.000	4	3.000	2	2.000		7	7	7	3	131		
16	5	U24	DIAPHRAGM	E	19	S				11	0.000	2	8.000				3	7	3	5	57		
8	5	V22	DIAPHRAGM	E	20					4	3.000						4	3	4	3	35		
			SLAB																				
300	6	S1	SLAB	E	20					32	5.000						32	5	32	5	14607		
10	6	S2	SLAB	E	20			V	1	29	0.000						29	0	29	0	264		
			INCR. = 68 1/2 IN	E	20					6	2.000						6	2	6	2			
84	6	S3	SLAB	E	20					53	4.000						53	4	53	4	6729		
24	8	S4	SLAB	E	20					38	9.000						38	9	38	9	2483		
26	8	S5	SLAB	E	20					38	9.000						38	9	38	9	2690		
446	8	S6	SLAB	E	20					3	4.000						3	4	3	4	3969		
32	4	S7	SLAB	E	20					40	6.000						40	6	40	6	866		
			BARRIERS																				
124	5	K1	BARRIER	E	19	S				2	5.000	5	1.25				2	10	2	9	356		
124	5	K2	BARRIER	E	14	S				5	1.25	11	1.25	18	0.00		2	10	2	9	356		
80	5	K3	BARRIER	E	27	S				2	8.000	5	1.25	12	0.00	10	0.00	5	11	5	9	480	
44	5	K4	BARRIER	E	7					2	9.000	6	0.00				5	9	5	8	260		
4	5	K5	BARRIER	E	27	S				10	0.00	22	0.00	6	7.50	4	4.00	5	5.00	3	7	14	
4	5	K6	BARRIER	E	27	S				10	0.00	22	0.00	8	0.00	4	4.50	6	5.00	3	8	15	
4	5	K7	BARRIER	E	27	S				10	0.00	22	0.00	9	6.25		5	5.00	7	8.75	3	10	15
4	5	K8	BARRIER	E	27	S				10	0.00	22	0.00	11	2.50								



DATE PREPARED
1/18/2018

STATE	MO
SHEET NO.	36
COUNTY	JEFFERSON
FEDERAL PROJECT NO.	STP-5403(661

BRIDGE NO.	3420001
------------	---------

DESCRIPTION

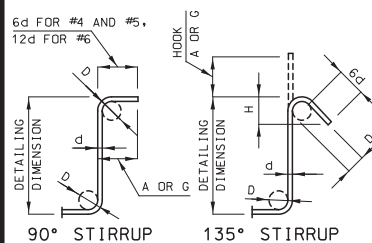
DATE _____

CHARTER CHURCH ROAD BRIDGE REPLACEMENT

EFK • Moen, LLC
Civil Engineering Design
3523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199

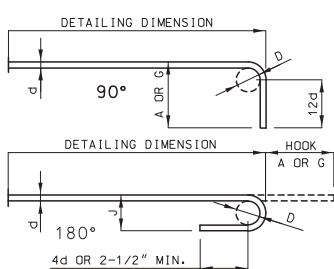
[illegible]

1



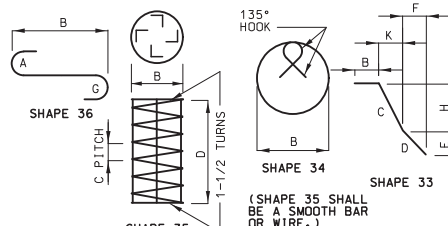
STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	APPROX. H
		H A OR G	H A OR G	
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	12"	8"	4-1/2"

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



END HOOK DIMENSIONS					
BAR SIZE	(D.)	ALL GRADES			
		180° HOOKS		90° HOOKS	
		A D R G	J	A D R G	J
#3	2-1/4"	5"	3"	6"	
#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"	2'-0"	
#14	18-1/4"	2'-3"	21-3/4"	2'-7"	

NOTE:
 ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH THE SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.
 HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
 E = EPOXY COATED REINFORCEMENT.
 S = STIRRUP.
 X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
 V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
 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 FABRICATOR'S USE (NEAREST INCH).
 ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
 PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
 FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.

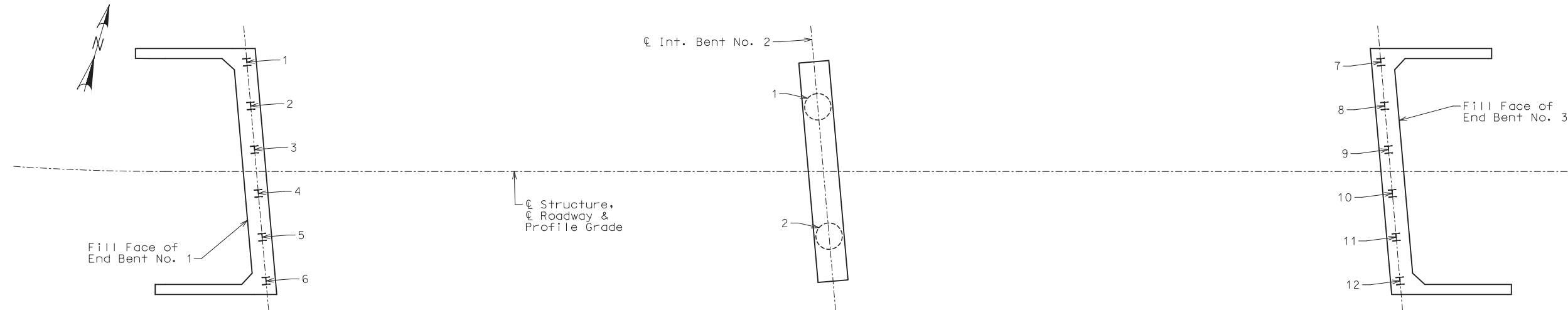


BENDING DIAGRAMS

Detailed OCT 2017
Checked OCT 2017

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

Sheet No. 24 of 28



PART PLAN SHOWING PILE & DRILLED SHAFT NUMBERING FOR RECORDING AS-BUILT PILE DATA & AS-BUILT DRILLED SHAFT DATA

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					END BENT NO. 1
1					
2					
3					
4					
5					
6					
					END BENT NO. 3
7					
8					
9					
10					
11					
12					

As-Built Drilled Shaft Data				
Shaft No.	Top of Sound Rock (Elev.)	Tip of Casing (Elev.)	Bottom of Rock Socket (Elev.)	Remarks
				INT. BENT NO. 2
1				
2				

Note:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal
D. PDA test pile
E. Minimum tip elevation controlled
(Use when actual blow count is less than PDA blow count due to minimum tip elevation requirement. A plus sign (+) shall be placed after the PDA nominal axial compressive resistance value indicating actual value is higher than PDA value.)

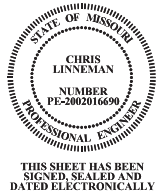
This sheet to be completed by County construction personnel.

AS-BUILT PILE AND DRILLED SHAFT DATA

Detailed OCT 2017
Checked OCT 2017

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

Sheet No. 26 of 28



DATE PREPARED
1/18/2018
STATE
MO
SHEET NO.
38
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
STP-5403(661)

BRIDGE NO.
3420001

DESCRIPTION

DATE

CHARTER CHURCH ROAD
BRIDGE REPLACEMENT

JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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

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

REV.

