

CONTACT INFORMATION

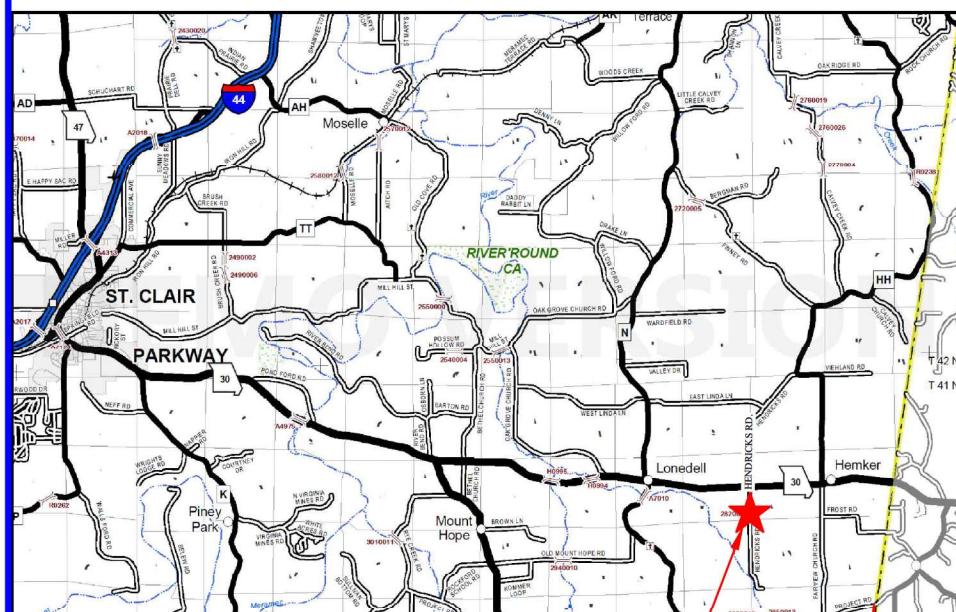
OWNER	MoDOT
FRANKLIN COUNTY	
REPRESENTATIVE: JIM GRUTSCH	REPRESENTATIVE: JOHN BRENDEL
ADDRESS: 400 E LOCUST	ADDRESS: 1590 WOODLAKE DRIVE
UNION, MISSOURI 63084	CHESTERFIELD, MISSOURI 63017-5712
PHONE: (636) 583-6361	PHONE: (314) 453-1831
ELECTRIC	TELEPHONE
AMEREN	AT&T
REPRESENTATIVE: DON KNOTTS	REPRESENTATIVE: TODD YENZER
ADDRESS: 500 E. INDEPENDENCE DRIVE	ADDRESS: 507 E. MAIN STREET
UNION, MISSOURI 63084	UNION, MISSOURI 63084
PHONE: (636) 583-7172	PHONE: (314) 439-4140
COCHRAN	
REPRESENTATIVE: B. BRADFORD DUNAGAN, P.E.	REPRESENTATIVE:
ADDRESS: 737 RUDDER ROAD	ADDRESS:
FENTON, MISSOURI 63026	
PHONE: (314) 842-4033	PHONE:
REPRESENTATIVE: _____	REPRESENTATIVE: _____
ADDRESS: _____	ADDRESS: _____
PHONE: _____	PHONE: _____

LOCATION INFORMATION

LENGTH OF PROJECT

QUADRANGLE/YEAR: LONDELL/1969
TOWNSHIP: 41N RANGE: 2E SECTION: 9 AND 10
ADDRESS: 2200 S. HENDRICKS ROAD, LONDELL, MO 63060
LATITUDE: 38.3002 LONGITUDE: -90.7999

START OF PROJECT: STA. 13+14.31
END OF PROJECT: STA. 16+00.00
PROJECT LENGTH: 285.69 FEET



VICINITY MAP
NOT TO SCALE

FRANKLIN COUNTY, MO PROJECT NUMBER STP-5490(616) HENDRICKS ROAD BRIDGE

BRIDGE NO. 26200061
over LITTLE MERAMEC RIVER TRIBUTARY



400 E. LOCUST
UNION, MO 63084
TELEPHONE (636) 583-6361



- Civil Engineering
- Site Development
- Land Surveying
- Master Planning
- Architecture
- General Consulting

737 RUDDER RD.
FENTON, MISSOURI 63026
TELEPHONE (314) 842-4033
FAX (314) 842-5957
www.cochraneng.com

COCHRAN PROJECT NO. SC20-1165
JUNE 2022

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STANDARD PLANS REFERENCE	
MGS GUARDRAIL	606.50D

DESIGN DESIGNATION

FUNCTIONAL CLASSIFICATION: LOCAL ROAD
CURRENT POSTED SPEED: 30 MPH
DESIGN SPEED: 30 MPH
CURRENT AADT: 190 (2019)
DESIGN AADT: 240 (2039)

ALL OSHA RULES & REGULATIONS ESTABLISHED FOR THE TYPE OF CONSTRUCTION REQUIRED BY THESE PLANS SHALL BE STRICTLY FOLLOWED (IE. TRENCHING, BLASTING, ETC.)

TWO WORKING DAYS PRIOR TO THE START OF ANY EXCAVATION ON THIS SITE, CONTRACTOR SHALL CALL 1-800-DIG-RITE FOR UTILITY LOCATION INFORMATION.

WHERE THE TERM "STANDARD SPECIFICATIONS" IS USED, SUCH REFERENCE SHALL MEAN THE 2022 EDITION OF THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EXCEPT AS OTHERWISE PROVIDED IN THE PROJECT MANUAL. IN CASE OF CONFLICT IN THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE REQUIREMENTS STATED IN THE PROJECT MANUAL, THE REQUIREMENTS IN THE PROJECT MANUAL SHALL PREVAIL.



6/14/2022
B. BRADFORD DUNAGAN
STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
FOR COCHRAN ENGINEERING, LLC,
DBA COCHRAN

THIS SHEET HAS BEEN SIGNED,
SEALED AND DATED ELECTRONICALLY.

THE PROFESSIONAL'S SEAL ATTACHED TO THIS SHEET APPLIES ONLY TO ITEMS
ON THIS SHEET. ALL DRAWINGS OR OTHER DOCUMENTS NOT EXHIBITING
THIS SEAL SHALL NOT BE CONSIDERED PREPARED BY THIS PROFESSIONAL.

ENGINEERING CERTIFICATE OF AUTHORITY NUMBER - 2007006939
LAND SURVEYING CERTIFICATE OF AUTHORITY NUMBER - 2007004529

FRANKLIN COUNTY
ACCEPTED BY:

JIM GRUTSCH
HIGHWAY ADMINISTRATOR

THIS SITE LIES WITHIN SEC 9 & 10, T41N, R2E

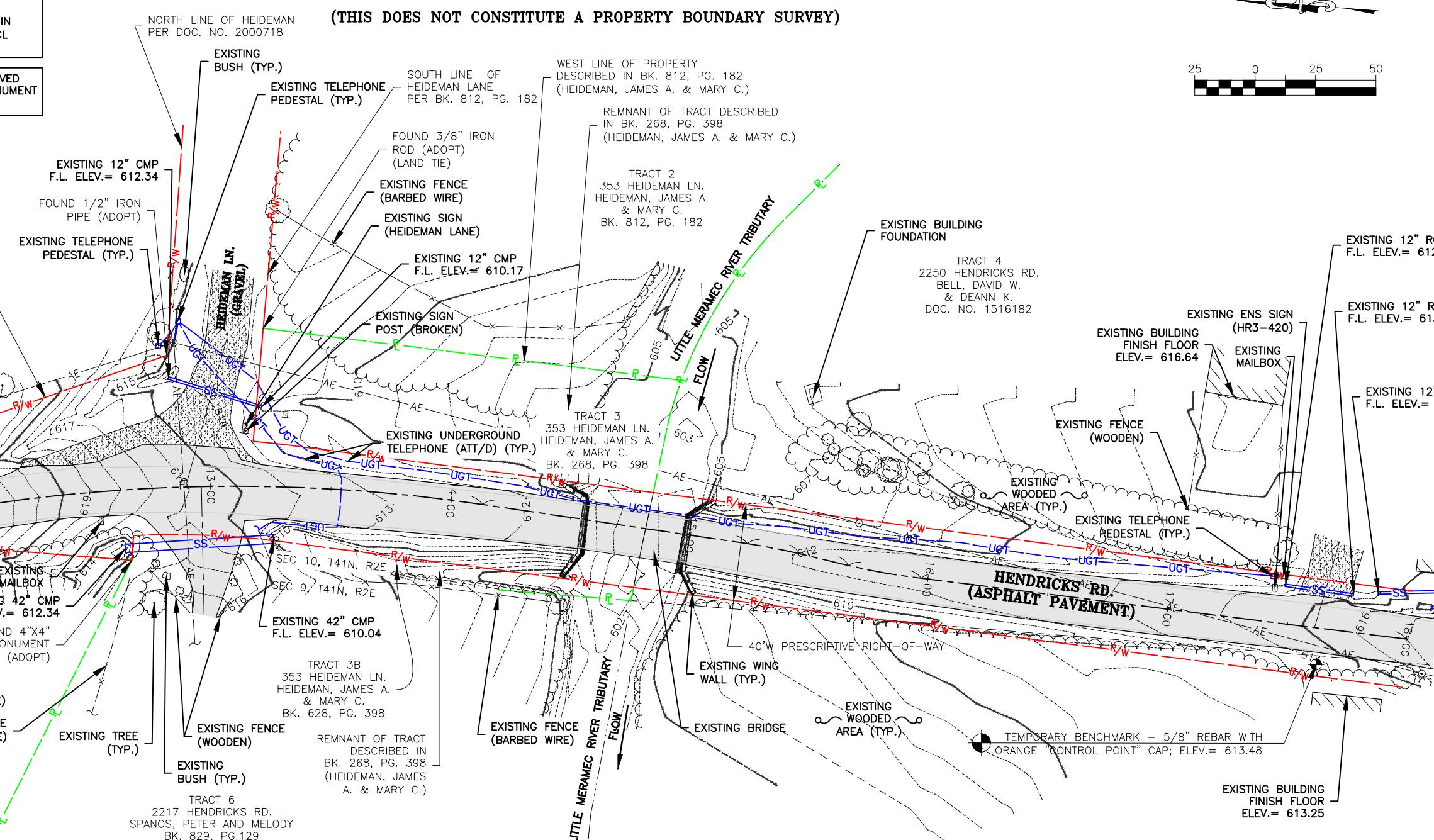
LAND TIE: FOUND 3/8" IRON ROD AT THE NW CORNER OF THE TRACT OF LAND AS DESCRIBED IN BK. 812, PG. 182 (S17°44'29"E - 329.59' OF CL OF ROAD AT STA. 10+00)

THIS PROJECT IS ORIENTED TO GRID NORTH DERIVED FROM GPS OBSERVATIONS OF MISSOURI GRS MONUMENT JE-02 USING MODOT'S RTK GPS NETWORK.

EAST LINE OF HENDRICKS ROAD PER DOC. NO. 2000718

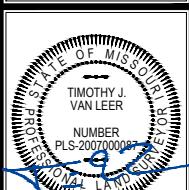
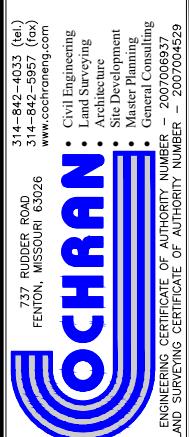
TRACT 1
2200 HENDRICKS RD.
JONES, JEWELL E.
& ROSE L.
DOC. NO. 2000718

EAST LINE OF HENDRICKS ROAD PER DOC. NO. 2000718



NOTES:

1. UNDERGROUND STRUCTURES, FACILITIES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN.
2. TEMPORARY BENCHMARK IS A 5/8" REBAR WITH ORANGE "CONTROL POINT" CAP ON THE WEST SIDE OF HENDRICKS ROAD AT APPROXIMATELY STA. 17+60 AS SHOWN ON SHEET TS-1, ELEV.= 613.48. SITE BENCHMARK IS GRS MONUMENT JE-02, ELEV.= 728.02 (NAVD 88).
3. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND ELEVATION OF ALL POTENTIAL UTILITY CONFLICTS PRIOR TO ORDERING MATERIALS FOR CONSTRUCTION. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. LOCATION, RELOCATION AND CONNECTION OF THE UTILITIES SHALL BE COORDINATED WITH THE UTILITY COMPANIES.
4. TOPOGRAPHIC INFORMATION AS SHOWN HEREON PER FIELD WORK PERFORMED BY Z.B.H. AND J.W.B. OF COCHRAN, DATED NOVEMBER 2020.
5. THIS PROJECT IS ORIENTED TO GRID NORTH DERIVED FROM GPS OBSERVATIONS OF MISSOURI GRS MONUMENT JE-02 USING MODOT'S RTK GPS NETWORK.
6. THIS SITE LIES WITHIN "ZONE X", AREAS OF MINIMAL FLOOD HAZARD; ALSO WITHIN "ZONE A" (AREAS OF 1% ANNUAL CHANCE FLOOD, NO BASE FLOOD ELEVATIONS); ALSO WITHIN "ZONE X" (AREAS OF 0.2% ANNUAL CHANCE OF FLOOD) PER FEMA FLOOD INSURANCE RATE MAP NUMBER 29071C0495E, EFFECTIVE DATED JUNE 5, 2020.
7. THIS TOPOGRAPHIC SURVEY DOES NOT CONSTITUTE A PROPERTY BOUNDARY SURVEY.



TIMOTHY J. VAN LEER
NO. PLS-2007000097
STATE OF MISSOURI
PROFESSIONAL LAND SURVEYOR
FOR SC ENGINEERS, LLC,
DBA COCHRAN

THIS SHEET HAS BEEN SIGNED,
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HENDRICKS ROAD BRIDGE OVER
LITTLE MERAMEC RIVER TRIBUTARY
FEDERAL PROJECT NO. STP-5490(616)
FRANKLIN COUNTY, MISSOURI

TOPOGRAPHIC SURVEY	DATE:	REVISION:
DRAWN BY:	Z.B.H.	APPD. BY:
DATE:	JUNE 2022	
SCALE:	1" = 50'	
PROJ. NO.:	SC20-1165	
DWG. NO.:	TS-1	

LEGEND AND GENERAL NOTES

LEGEND, GENERAL NOTES AND ABBREVIATIONS SHALL APPLY TO ALL SHEETS UNLESS OTHERWISE NOTED ON INDIVIDUAL SHEET

LEGEND

EXISTING	NEW	EXISTING	NEW
— 500 —	INDEX CONTOUR	— 500 —	TREE
— — — — —	INTERMEDIATE CONTOUR	— 498 —	TREELINE
— R/W —	RIGHT-OF-WAY	— R/W —	LIGHT
— — — — —	LOT LINE	— — — — —	COBRAHEAD LIGHT
— — — — —	PERMANENT EASEMENT	— PE —	LOAD CENTER
— AE — — —	AERIAL ELECTRIC	— AE —	HAND HOLE
— O —	UTILITY POLE	— O —	MAILBOX
— → —	GUY WIRE	— → —	SIGN
— — — UGE — —	UNDERGROUND ELECTRIC	— UGE —	CORING LOCATION
— — — CATV — —	UNDERGROUND CABLE TV	— CATV —	CONCRETE PAVEMENT
— — — UGT — —	UNDERGROUND TELEPHONE	— UGT —	ASPHALT PAVEMENT
— — — FO — —	UNDERGROUND FIBER OPTIC	— FO —	GRAVEL SURFACE
— — — SAN — —	SANITARY SEWER LINE	— SAN —	ROCK BLANKET/DITCH LINER
— — — FM — —	SANITARY FORCemain	— FM —	CONCRETE APPROACH
○	SANITARY SEWER MANHOLE	●	CONCRETE SIDEWALK
— — — SS — —	STORM SEWER LINE	— — —	CURB RAMP
○	STORM SEWER MANHOLE	●	ASPHALT DRIVEWAY
□	CURB/AREA INLET	■	AGGREGATE DRIVEWAY
■	GRATED INLET	■	PAVEMENT MILLING
■	GRATED INLET W/ SIDE INTAKE	■	APPROACH SLAB
►	FLARED END SECTION	►	BRIDGE
— ~ → —	SWALE	— ~ → —	RETAINING WALL
— — — G — —	GAS LINE	— G —	CONCRETE VERTICAL CURB
◎	GAS VALVE	◎	CONCRETE CURB AND GUTTER
GM	GAS METER	GM	CONSTRUCTION LIMITS
— — — W — —	WATER LINE	— W —	SILT FENCE
— ♀ —	FIRE HYDRANT	— ♀ —	INLET CHECK
— ⊗ —	WATER VALVE	— ⊗ —	DITCH CHECK
— WM —	WATER METER	— WM —	PROJECT BASELINE
— □ — □ — □ —	GUARDRAIL	— □ — □ —	TEMPORARY CONSTRUCTION EASEMENT
— × — × — × —	FENCE	— × — × —	T.C.E.

GENERAL NOTES

TOPOGRAPHIC SURVEY NOTES:

NOTES:

1. UNDERGROUND STRUCTURES, FACILITIES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN.
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7. THIS TOPOGRAPHIC SURVEY DOES NOT CONSTITUTE A PROPERTY BOUNDARY SURVEY.

DESIGN NOTES:

1. CONTRACTOR SHALL RELOCATE ALL EXISTING SIGNS, PLANTERS, MAILBOXES, AND PRIVATE LIGHTS AS NECESSARY FOR THE CONSTRUCTION OF THE IMPROVEMENTS. NEW LOCATIONS SHALL BE AS DIRECTED BY THE ENGINEER.
2. CONTRACTOR SHALL ADJUST TO GRADE ALL UTILITIES NECESSARY TO BRING THE UTILITY TO THE GRADE OF THE NEW CONSTRUCTION.
3. CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND ELEVATION OF ALL POTENTIAL UTILITY CONFLICTS PRIOR TO ORDERING STORM SEWER PIPE AND STRUCTURES.
4. EXISTING CULVERT PIPES, WHICH ARE UNDER DRIVEWAYS BEING REPLACED BY THE CONSTRUCTION OF IMPROVEMENTS, SHALL BE REMOVED.
4. ALL AREAS OF CLEARING, GRUBBING AND STRIPPING NOT SHOWN IN PLANS, CONTRACTOR SHALL CONDUCT CLEARING, GRUBBING AND STRIPPING TO A DEPTH OF 12 INCHES, OTHERWISE NOTED IN PLANS.

ABBREVIATIONS

AI	AREA INLET	MIN	MINIMUM
ARC	ARC LENGTH	NO	NUMBER
ATG	ADJUST TO GRADE	O/S	OFFSET
BF	BOTTOM OF FOOTING	OC	ON CENTER
BOP	BEGINNING OF PAVEMENT	PC	POINT OF CURVATURE
BW	BOTTOM OF WALL	PCC	POINT OF COMPOUND CURVATURE
CB	CHORD BEARING	PE	PERMANENT EASEMENT
CHD	CHORD LENGTH	PI	POINT OF INTERSECTION
CI	CURB INLET	PRC	POINT OF REVERSE CURVATURE
CMP	CORRUGATED METAL PIPE	PT	POINT OF TANGENCY
DCI	DOUBLE CURB INLET	R/W	RIGHT-OF-WAY
DGI	DOUBLE GRATED INLET	RAD	RADIUS
ELEV	ELEVATION	RCP	RE-INFORCED CONCRETE PIPE
EOP	END OF PAVEMENT	RT	RIGHT
FES	FLARED END SECTION	SSD	STOPPING SIGHT DISTANCE
FL	FLOW LINE	STA	STATION
GI	GRATED INLET	TBR	TO BE REMOVED
GIS	GRATED INLET WITH SIDE INTAKE	TBR&R	TO BE REMOVED AND REPLACED
HDPE	HIGH-DENSITY POLYETHYLENE	TCE	TEMPORARY CONSTRUCTION EASEMENT
JB	JUNCTION BOX	TW	TOP OF WALL
LF	LINEAR FEET	TYP	Typical
LT	LEFT	VPC	VERTICAL POINT OF CURVATURE
MAX	MAXIMUM	VPI	VERTICAL POINT OF INTERSECTION
MH	MANHOLE	VPT	VERTICAL POINT OF TANGENCY

Ø - DIAMETER
¢ - CENTERLINE
(1) KEYED NOTE

LEGEND AND GENERAL NOTES	
DATE:	REVISION:
DNW. BY: A.J.M.	APPD. BY: B.B.D.
SCALE:	JUNE 2022
NOT TO SCALE	
PROL. NO:	SC20-1165
DWG. NO:	
<i>LG-1</i>	

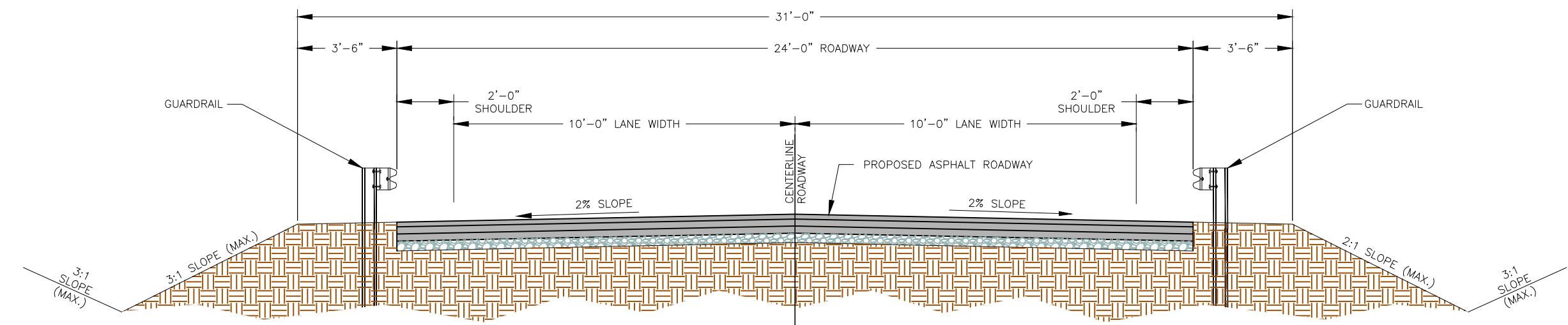
6/14/2022
B. BRADFORD DUNAGAN
NO. E-22970
STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
FOR SCAFFOLDING LLC
DBA COCHRAN

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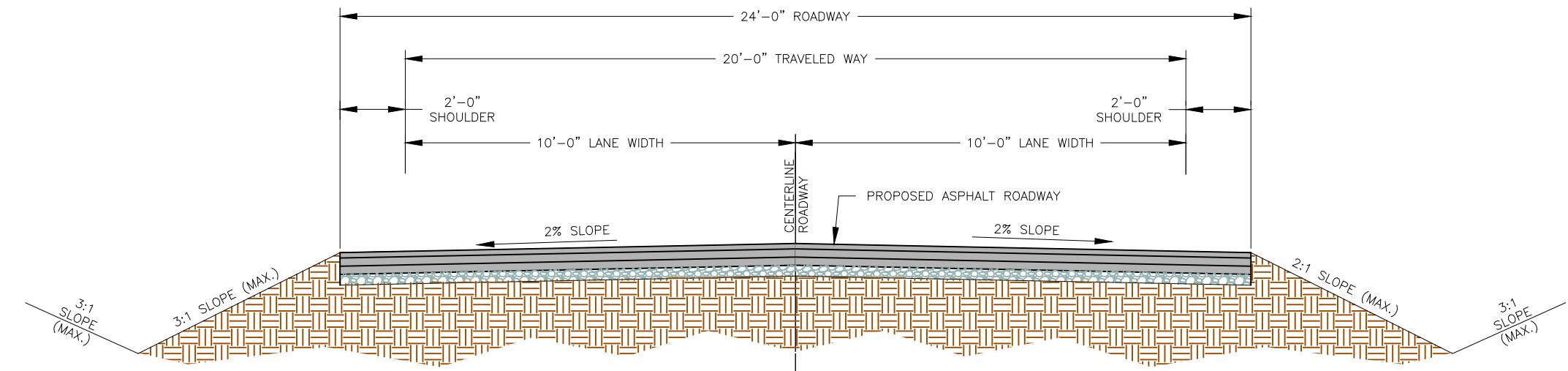
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THIS SEAL SHALL NOT BE CONSIDERED

**HENDRICKS ROAD BRIDGE OVER
LITTLE MERAMEC RIVER TRIBUTARY
FEDERAL PROJECT NO. STP-5490(616)
FRANKLIN COUNTY, MISSOURI**

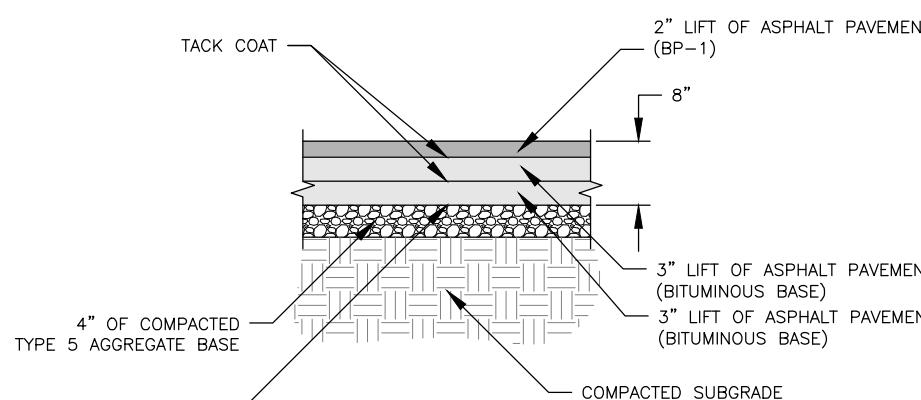
TYPICAL ROADWAY SECTIONS



TYPICAL ROADWAY CROSS SECTION WITH GUARDRAIL



TYPICAL ROADWAY CROSS SECTION



PROPOSED PAVEMENT SECTION

NO SCALE

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

TYPICAL ROADWAY SECTION	
DATE:	REVISION:
A.J.M.	B.B.D.
DATE: JUNE 2022	
SCALE: NOT TO SCALE	
PROJ. NO: SC20-1165	
DWG. NO: TXS-1	

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B. BRADLEY DUNAGAN
NO. E-23970
STATE OF MISSOURI
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FOR SC ENGINEERS LLC,
DBA COCHRAN

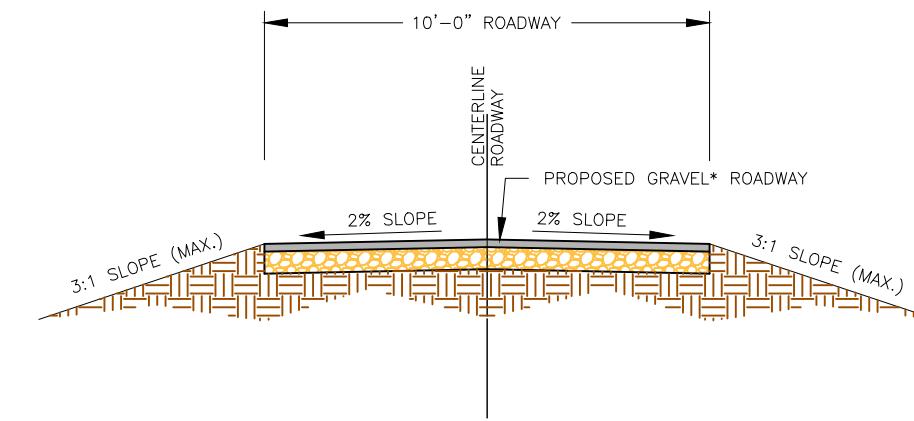
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ENGINEERING CERTIFICATE OF AUTHORITY NUMBER - 2007004529

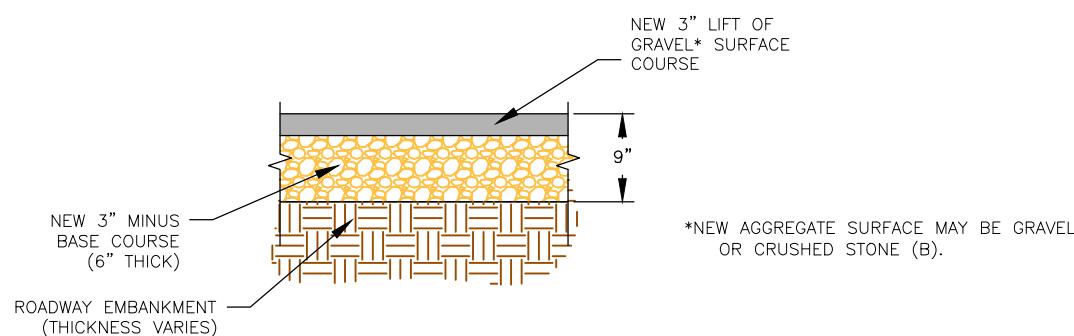
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TYPICAL ROADWAY SECTIONS



TYPICAL TEMPORARY BYPASS CROSS SECTION



PROPOSED ROADWAY SECTION
NO SCALE



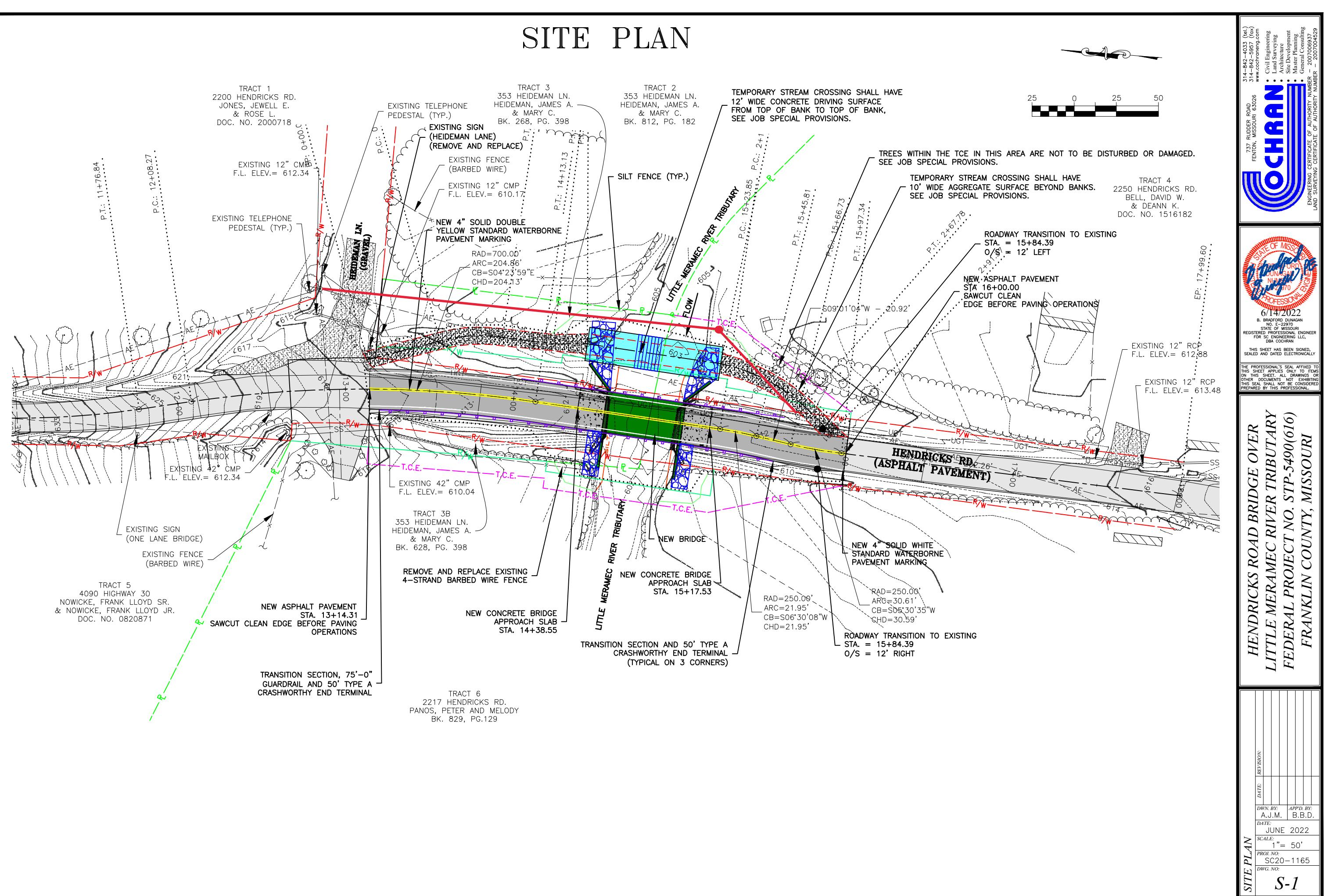
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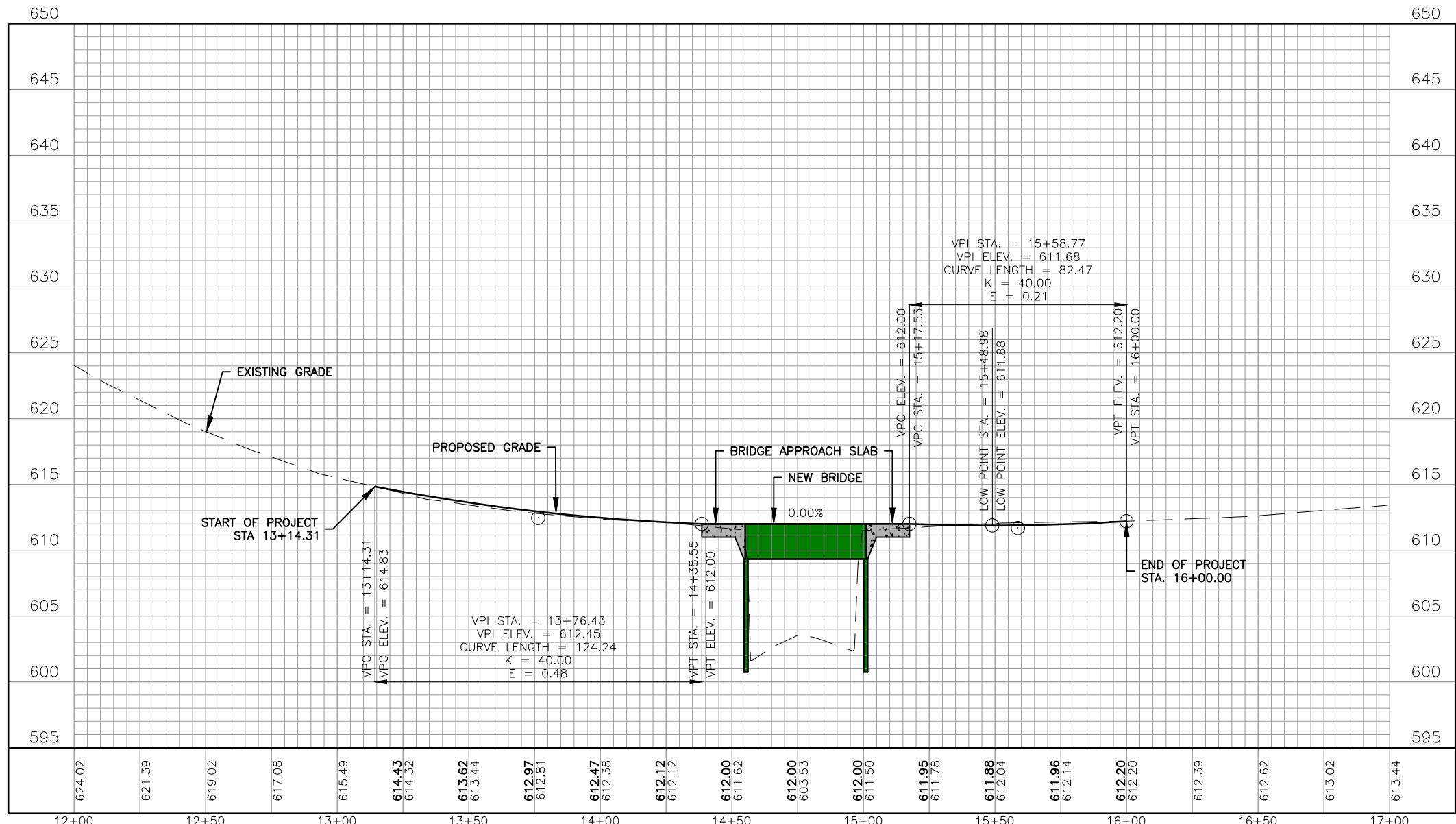
TYPICAL ROADWAY SECTIONS	
DATE:	REVISION:
A.J.M.	B.B.D.
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SCALE: NOT TO SCALE	
PROJ. NO.:	SC20-1165
DWG. NO.:	TXS-2

SITE PLAN



ROADWAY PROFILE

25 0 25 50



ROADWAY PROFILE
DATE: REL/REV: APPD. BY:
A.J.M. B.B.D.
DATE: JUNE 2021
SCALE: 1" = 50'
PROJ. NO.: SC20-1165
DWG. NO.: RD-1

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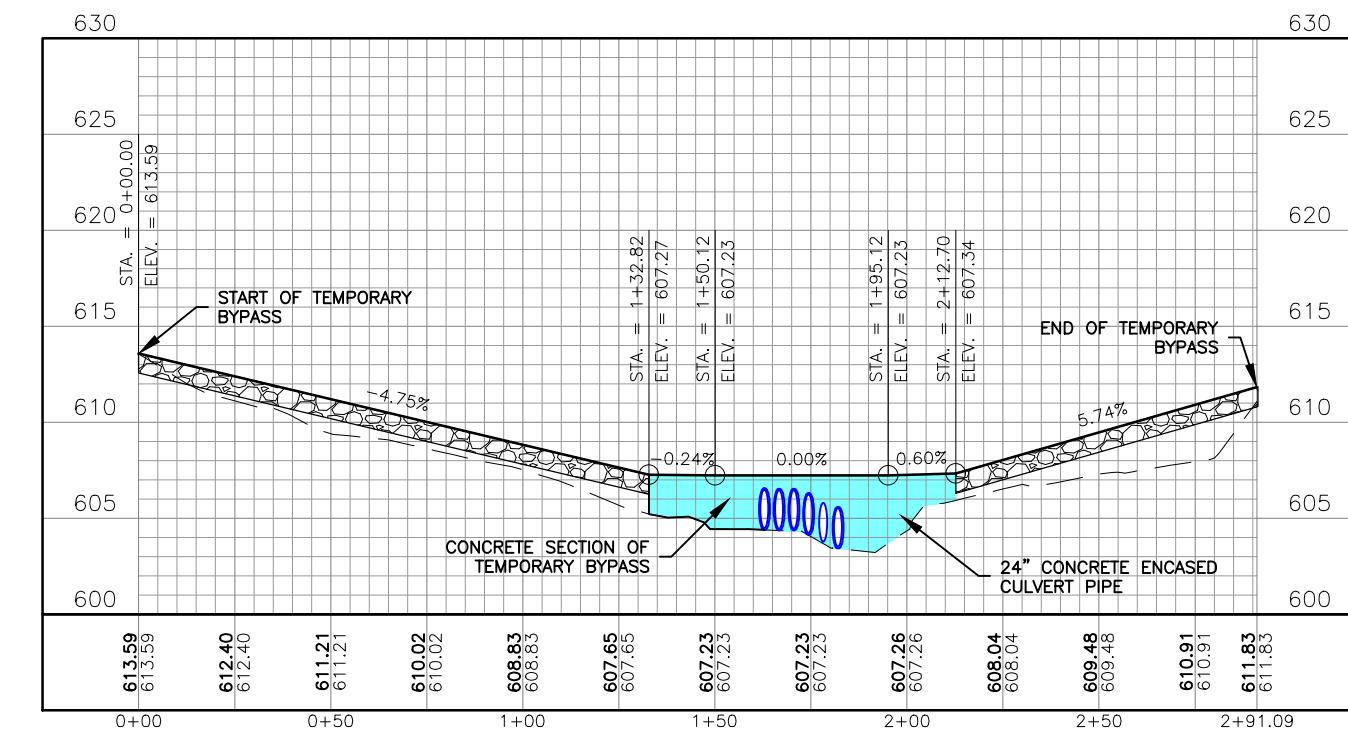
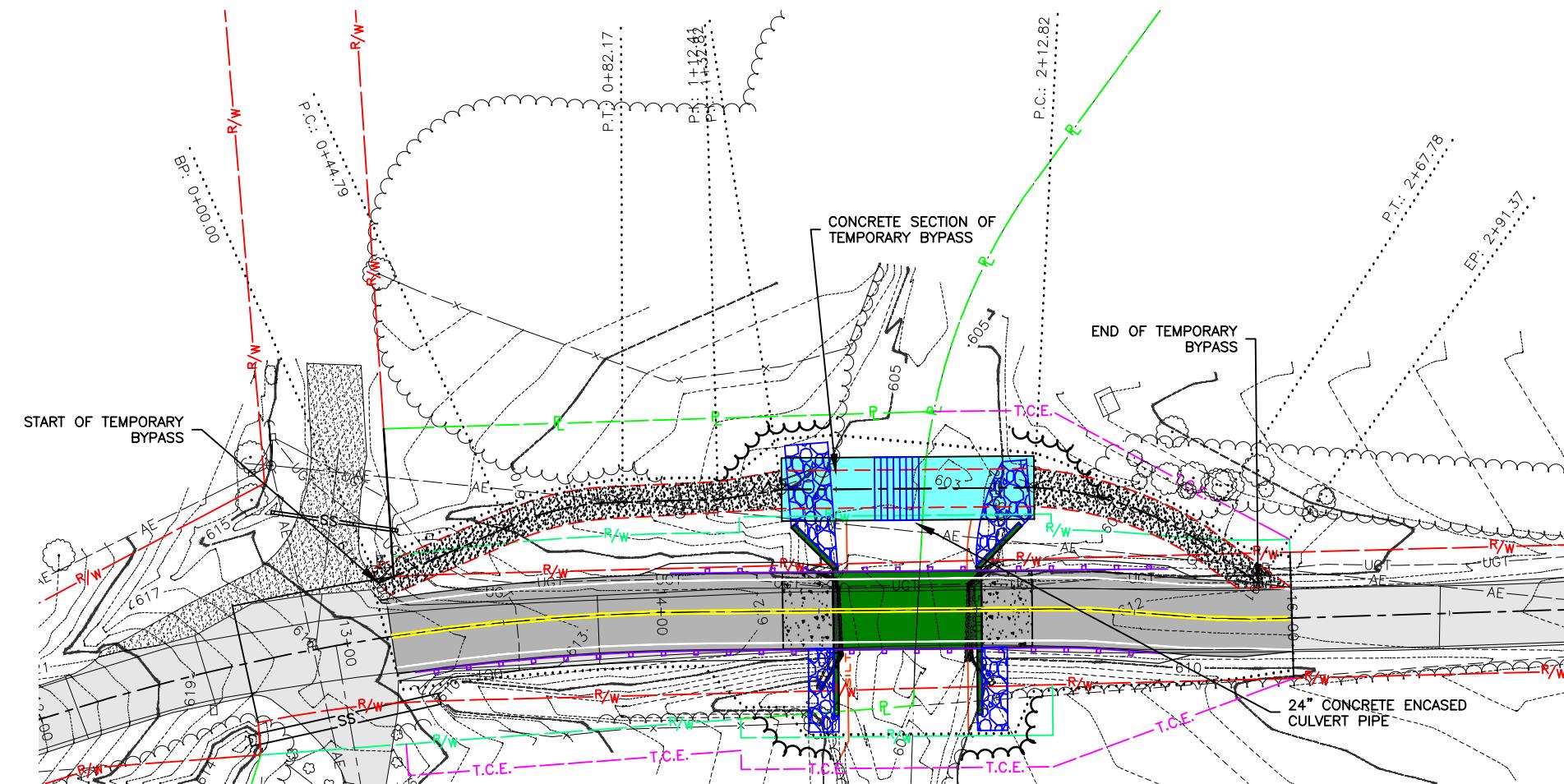
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314-842-4033 (tel.)
314-842-5957 (fax)
www.cochraneng.com
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Land Surveying
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Engineering Certificate of Authority Number - 2007066337
Land Surveying Certificate of Authority Number - 2007004529

HENDRICKS ROAD BRIDGE OVER
LITTLE MERAMEC RIVER TRIBUTARY
FEDERAL PROJECT NO. STP-5490(616)
FRANKLIN COUNTY, MISSOURI

TEMPORARY BYPASS PLAN AND PROFILE



TEMPORARY BYPASS PLAN AND PROFILE
REV/01
DATE: JUNE 2022
SCALE: 1" = 50'
PROJ. NO.: SC20-1165
DWG. NO.: RD-2

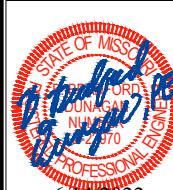
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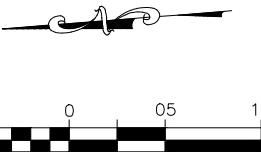
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LAND SURVEYING CERTIFICATE OF AUTHORITY NUMBER – 2007006337
ENGAGING CERTIFICATE OF AUTHORITY NUMBER – 2007004529



6/14/2022

TEMPORARY BYPASS DETAIL



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 FENTON, MISSOURI 63026
 (tel) 314-642-4033
 (fax) 314-642-5957
 www.cochraneeng.com
 Civil Engineering
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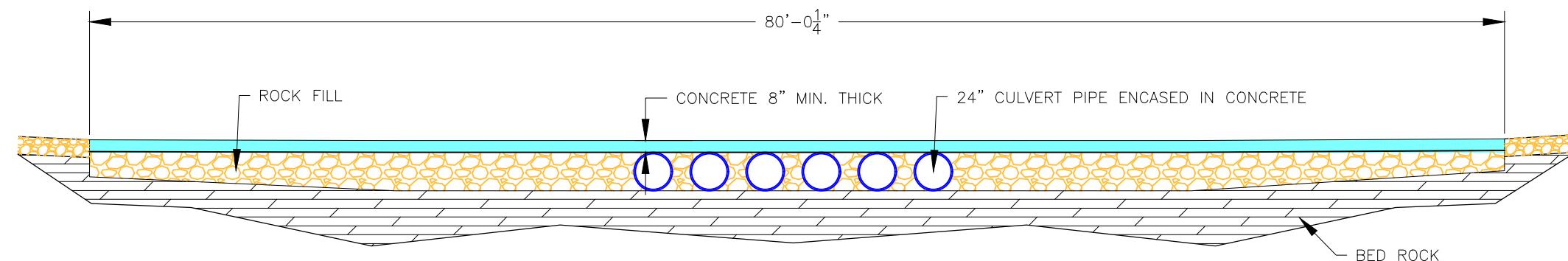
6/14/2022

B. BRUNAGAN
NO. E-23970
REGISTERED PROFESSIONAL ENGINEER
FOR SC ENGINEERS LLC,
DBA COCHRAN

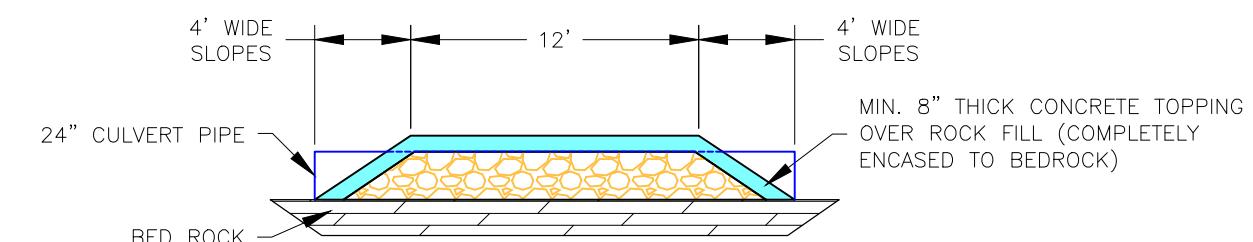
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HENDRICKS ROAD BRIDGE OVER
 LITTLE MERAMEC RIVER TRIBUTARY
 FEDERAL PROJECT NO. STP-5490(616)
 FRANKLIN COUNTY, MISSOURI



LONGITUDINAL SECTION



TRANSVERSE SECTION

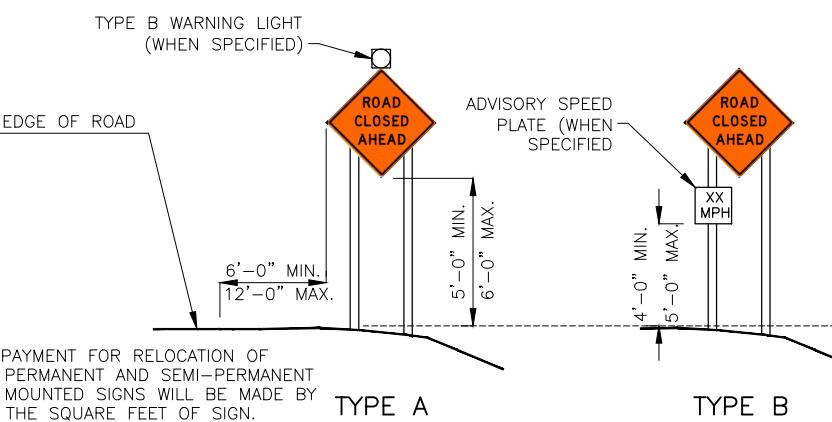
TEMPORARY BYPASS DETAIL	DATE:	REVISION:
A.J.M.	B.B.D.	
JUNE 2022		
SCALE: 1" = 10'		
PROJ. NO:		
SC20-1165		
DWG. NO:		
D-1		

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TRAFFIC CONTROL PLAN



① R11-3A
(12.5 SQUARE FEET)

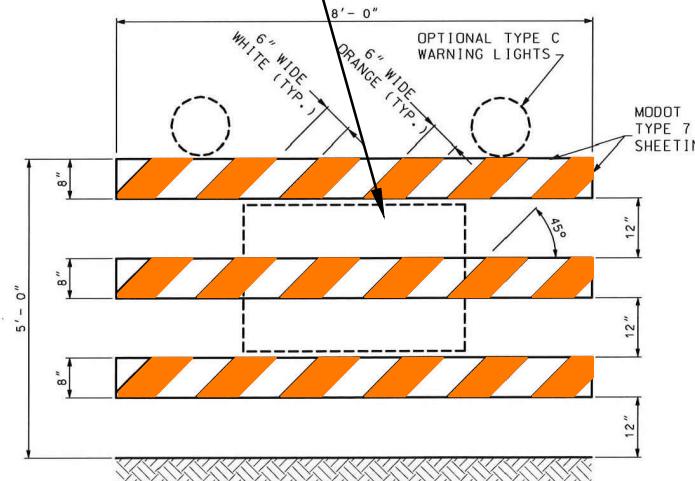


NOTE: 1. PAYMENT FOR RELOCATION OF PERMANENT AND SEMI-PERMANENT MOUNTED SIGNS WILL BE MADE BY THE SQUARE FEET OF SIGN.
2. TWO POSTS SHALL BE USED WHEN THE SIGN IS GREATER THAN 10 SQUARE FEET IN AREA.

HEIGHT AND LATERAL LOCATIONS PERMANENT AND SEMI-PERMANENT SIGN MOUNTING



② R11-2R
(10 SQUARE FEET)



TYPE III MOVABLE BARRICADE

ONE TYPE III MOVABLE BARRICADE WILL BE REQUIRED TO COMPLETELY CLOSE EACH 8' OF PAVEMENT. PAVED SHOULDERS SHALL BE INCLUDED IN THE AREA TO BE CLOSED.

SIGNS SHALL BE LIGHT WEIGHT (ROLL-UP OR PLASTIC) AND OBSCURE NO MORE THAN 50 PERCENT OF THE TOP 2 RAILS OR 33 PERCENT OF ALL THREE RAILS. SEE SIGN MOUNTING REQUIREMENTS IN TABLE A ON SHEET 1.

TYPE C WARNING LIGHTS SHALL BE LIGHT WEIGHT (3.3 LBS. OR LESS) OR HAVE BATTERY PACK MOUNTED NO HIGHER THAN 18-INCH AND SHALL NOT COVER ANY PORTION OF THE BARRICADED FACE.

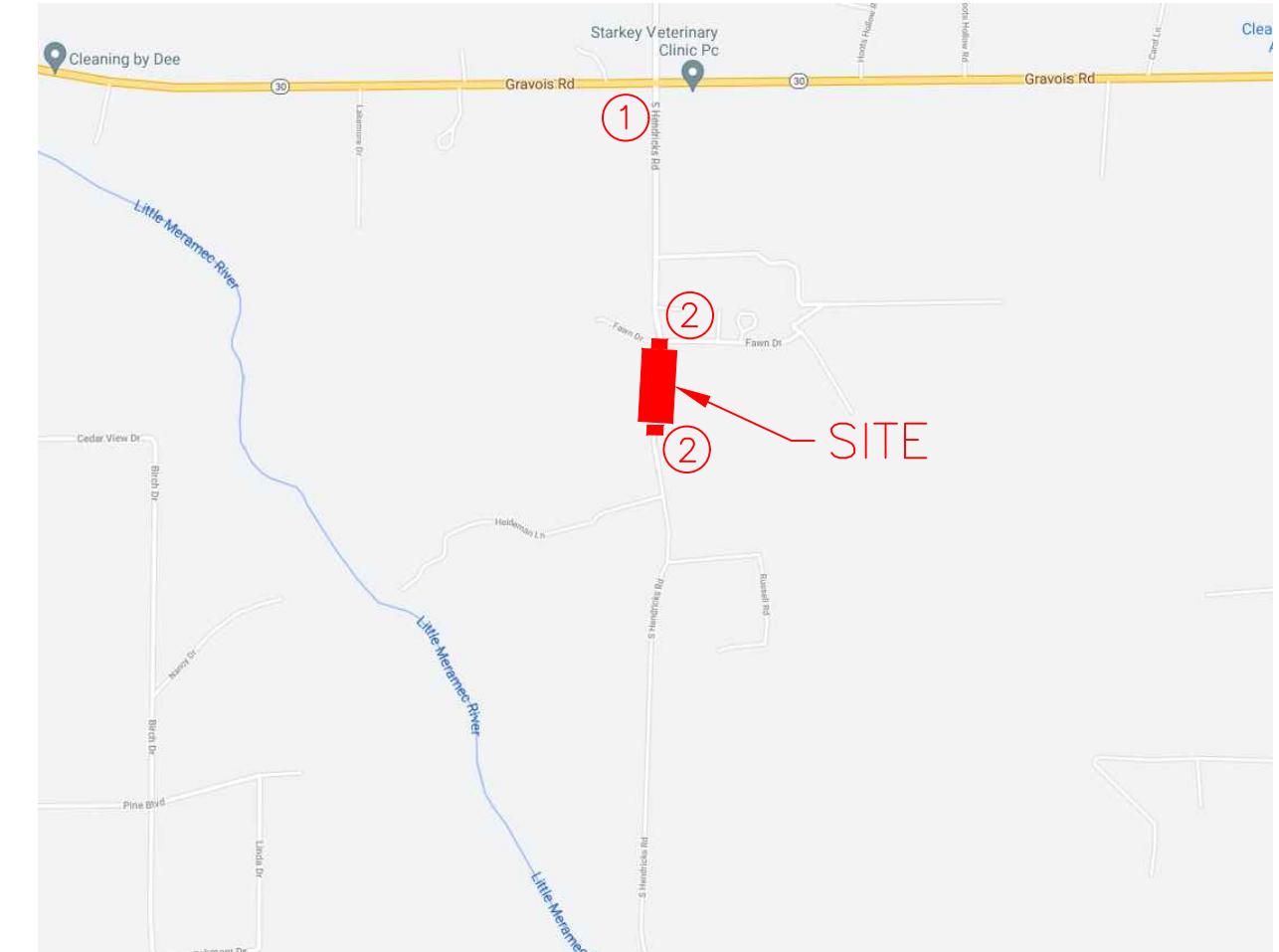
IF SIGNS OR LIGHTS CANNOT MEET THE ABOVE REQUIREMENTS, THEY SHALL BE MOUNTED ON SEPARATE CRASHWORTHY DEVICES, LOCATED 7 TO 10 FEET BEHIND THE BARRICADE.

WHERE A BARRICADE ARRAY EXTENDS ACROSS A ROADWAY, THE STRIPES SHALL SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN OR PASS.

WHERE BOTH RIGHT AND LEFT VEHICULAR MOVEMENTS ARE PROVIDED, THE STRIPES SHALL SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE ARRAY.

WHERE NO VEHICULAR MOVEMENTS ARE PROVIDED, THE STRIPES SHALL SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE ARRAY.

TYPE III MOVABLE BARRICADES SHALL BE ENTIRELY FREE STANDING AND PORTABLE. MARKING SHALL ONLY BE APPLIED TO THE FRONT OF EACH RAIL OR MAY BE APPLIED TO BOTH THE FRONT AND THE BACK OF EACH RAIL PROVIDED THE MARKING ON THE BACK DOES NOT CONFLICT WITH INTENDED OPPPOSING TRAFFIC MOVEMENT. WHERE MARKING IS NOT PROVIDED ON THE BACKSIDE, STRIPS OF 3" WIDE MODOT TYPE 7 ORANGE SHEETING MAY BE APPLIED TO THE ENDS OF EACH RAIL TO HELP DELINATE THE DEVICE.



TRAFFIC CONTROL LAYOUT
NO SCALE

TRAFFIC CONTROL SCHEDULE		
PLAN DESIGNATION	SIGN	COMMENTS
①	R11-3A	ROAD CLOSED 0.4 MILES AHEAD LOCAL TRAFFIC ONLY
②	R11-2R	THREE TYPE III MOVABLE BARRICADES WITH OPTIONAL TYPE C WARNING LIGHTS, AT EACH LOCATION

NOTE: ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

TRAFFIC CONTROL PLAN	DATE:	REVISION:	
DRAWN BY:	A.J.M.	APPROVED BY:	B.B.D.
DATE:	JUNE 2022		
SCALE:	NOT TO SCALE		
PROJ. NO.:	SC20-1165		
DWG. NO.:	TC-1		

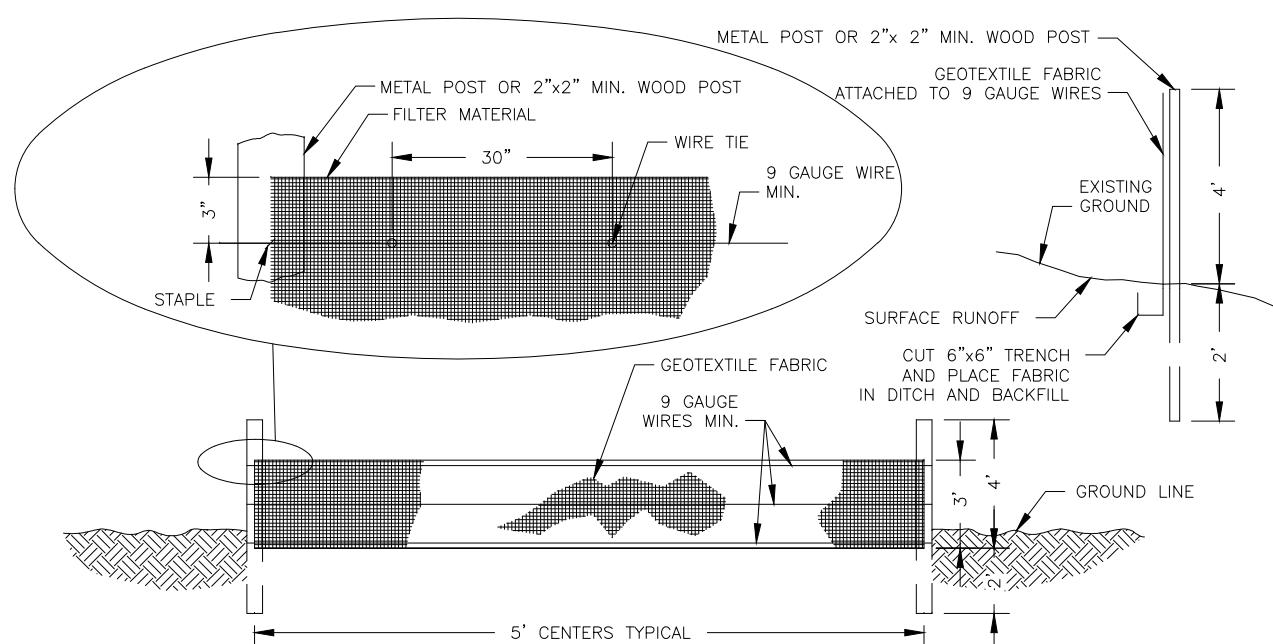
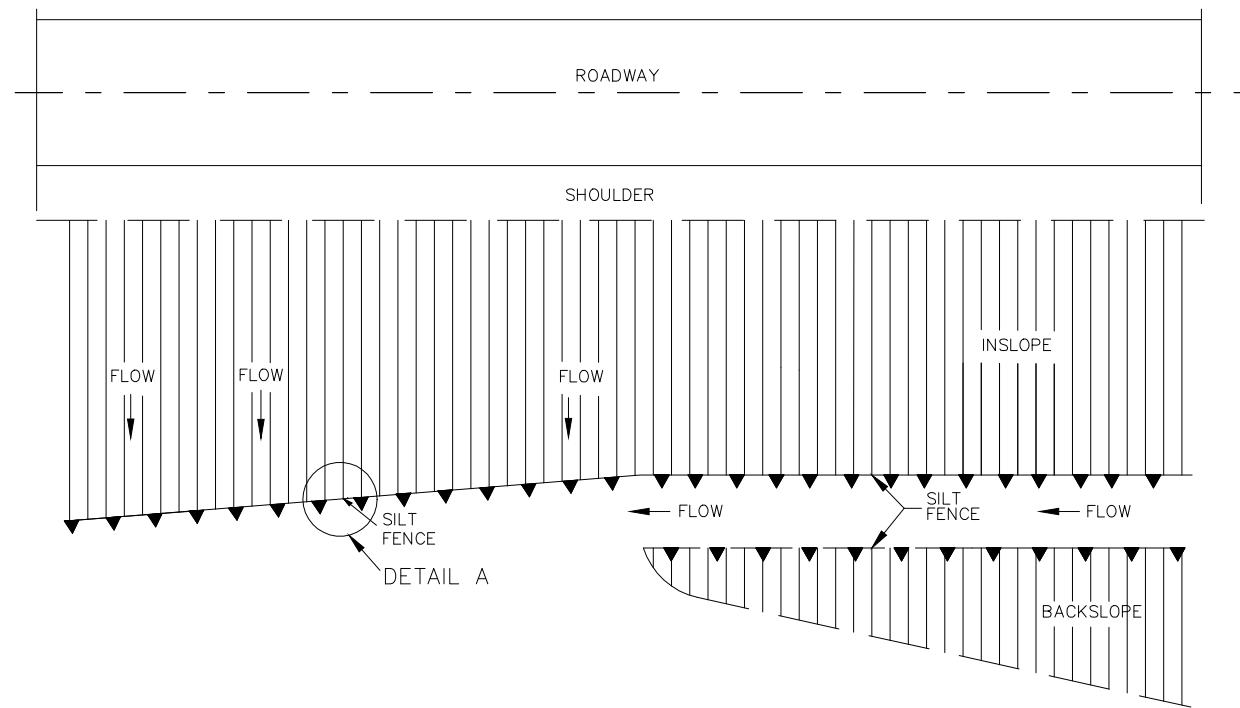
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FRANKLIN COUNTY, MISSOURI

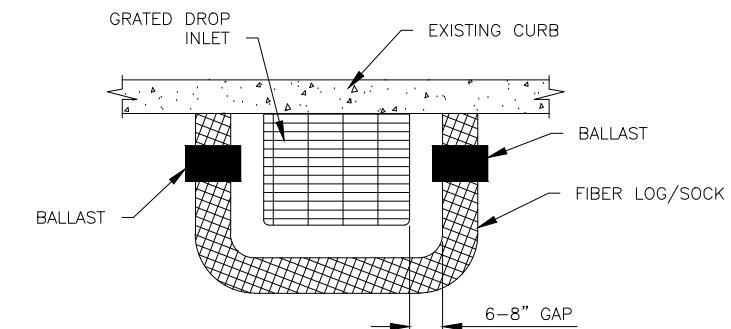
EROSION CONTROL



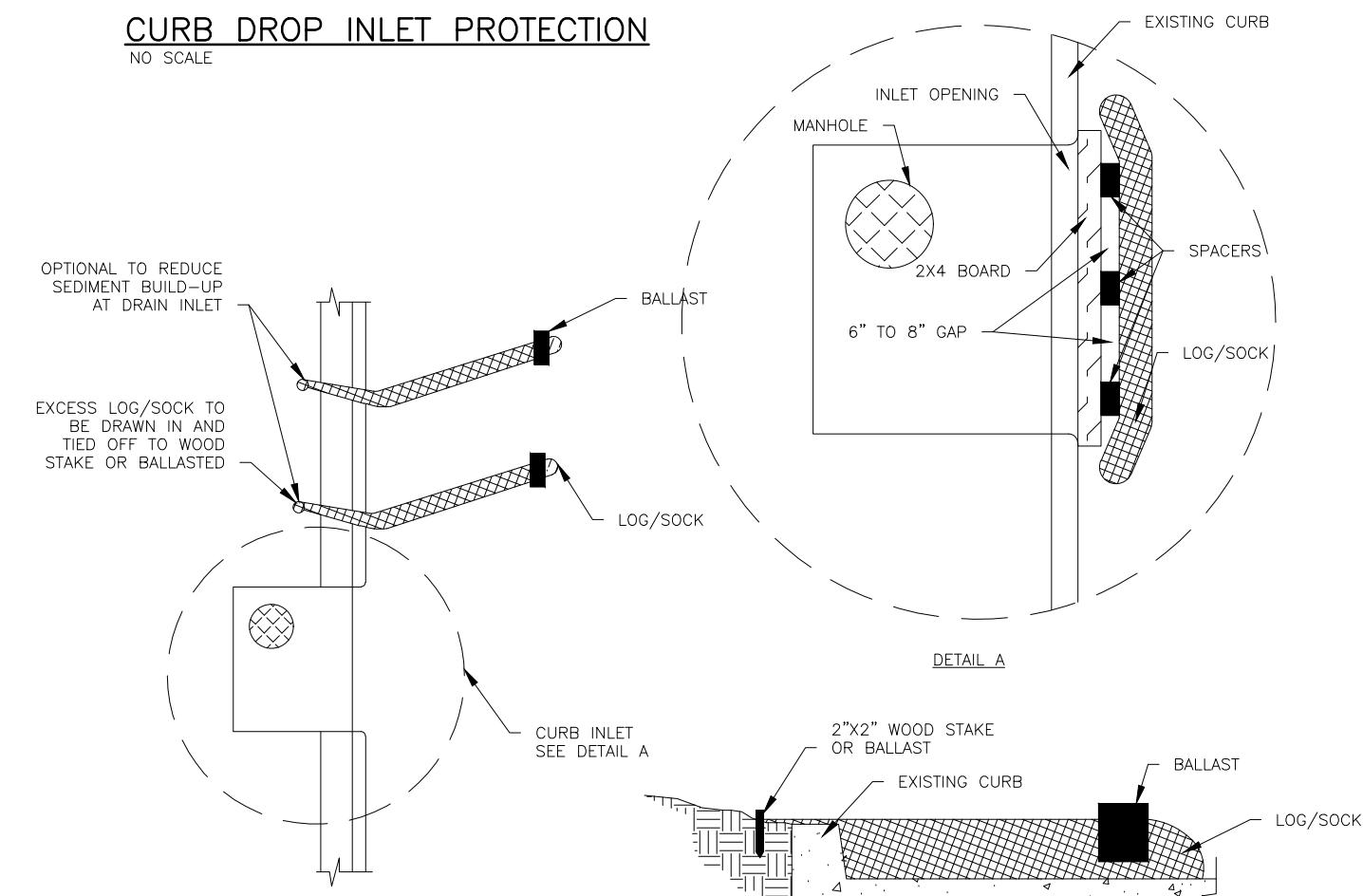
DETAIL A
SILTATION CONTROL DETAILS
NO SCALE

GENERAL NOTES:

1. SILTATION CONTROL DEVICES TO REMAIN IN PLACE UNTIL ADEQUATE VEGETATIVE GROWTH ENSURES NO FURTHER EROSION OF THE SOIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING THE SILT FENCE.
2. SILT FENCES SHALL BE INSPECTED PERIODICALLY FOR DAMAGE AND FOR THE AMOUNT OF SEDIMENTATION WHICH HAS ACCUMULATED. REMOVAL OF SEDIMENT WILL BE REQUIRED WHEN IT REACHES 1/2 OF THE HEIGHT OF THE SILT FENCE.
3. ATTACHMENT OF THE GEOTEXTILE FABRIC TO BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
4. SILTATION CONTROL SHALL BE INSTALLED AS NEEDED OR AS DIRECTED BY THE ENGINEER TO ENSURE THAT NO SILT LEAVES THE CONSTRUCTION AREA.
5. USE SILT FENCE FOR ALL SLOPES OVER 3 FEET IN HEIGHT.
6. FOR FABRIC SILT FENCE:
MINIMUM LONGITUDINAL SPLICE OVERLAP SHALL BE 2' WITH A POST AT EACH END.
SECURE FABRIC TO POSTS.
7. SILT FENCE SHALL NOT BE USED ACROSS DRAINAGE DITCHES AND DRAINS. DITCH CHECK SHALL BE USED AS SHOWN ON SHEET EC-2 OR AS DIRECTED BY ENGINEER.
8. CONTRACTOR SHALL USE INLET CHECK EROSION CONTROL DEVICES TO PREVENT ANY SILT OR DEBRIS FROM ENTERING ANY NEW OR EXISTING CURB INLETS DURING CONSTRUCTION.



CURB DROP INLET PROTECTION
NO SCALE



CURB INLET PROTECTION
NO SCALE

COCHRAN:
737 BUDDE ROAD
FENTON, MISSOURI 63026
(tel) 314-842-4033
(fax) 314-842-5957
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Land Surveying
Architecture
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B. BRADLEY MUNAGA
NO. E-23970
STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
FOR SC ENGINEERS, LLC,
DBA COCHRAN

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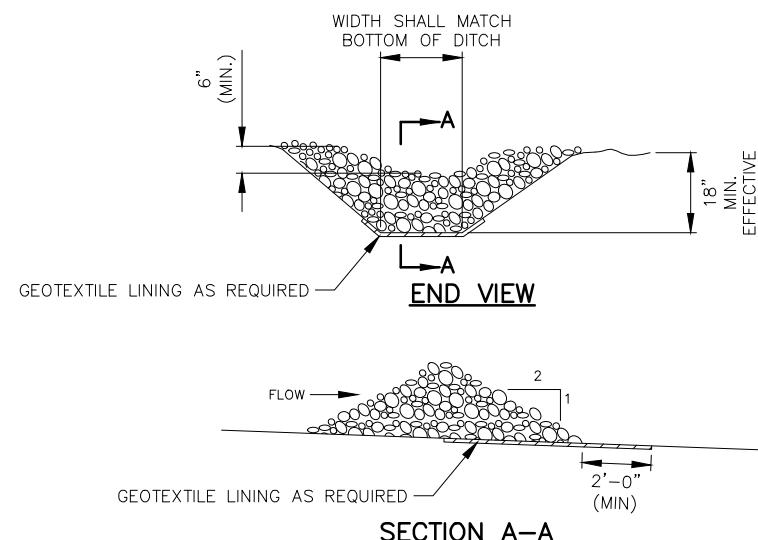
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**HENDRICKS ROAD BRIDGE OVER
LITTLE MERAMEC RIVER TRIBUTARY
FEDERAL PROJECT NO. STP-5490(616)
FRANKLIN COUNTY, MISSOURI**

EROSION CONTROL	DATE:	REVISION:

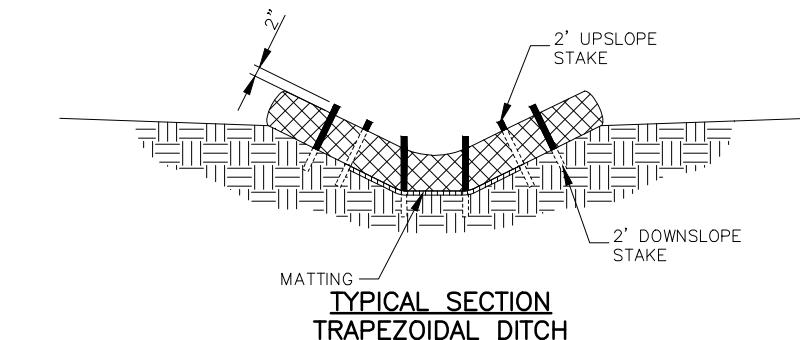
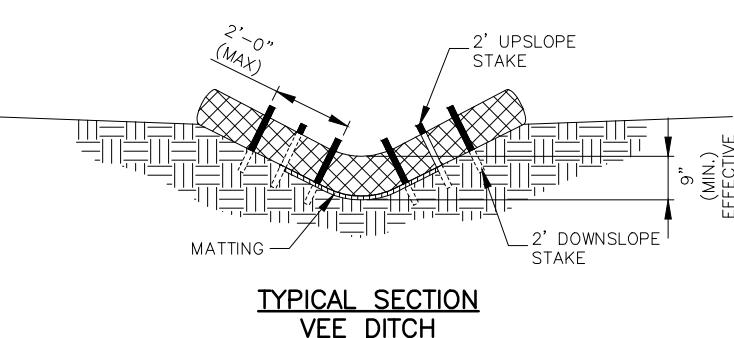
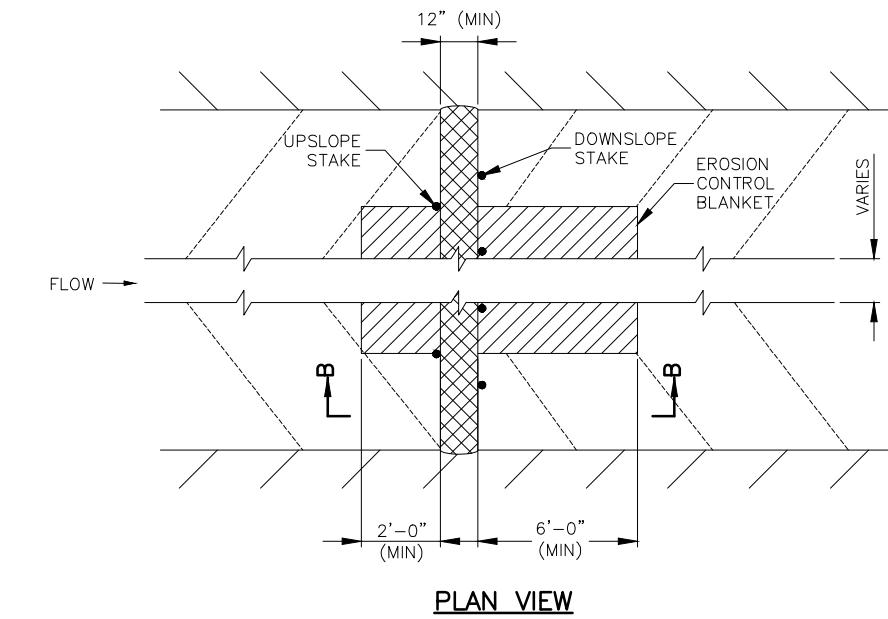
EC-1

EROSION CONTROL



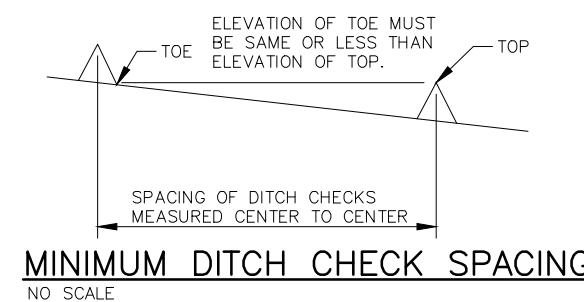
Plotted on: Jul 11, 2022 - 9:24am Plotted by: BDunigan

ROCK DITCH CHECK
NO SCALE



ALTERNATE DITCH CHECK
NO SCALE

EXAMPLE DITCH CHECK SPACING FOR STANDARD HEIGHTS (FT.)		
DITCH C SLOPE %	SPACING FOR 9" HEIGHT	SPACING FOR 18" HEIGHT
0.5	150	300
1.0	75	150
1.5	50	100
2.0	37	75
2.5	30	60
3.0	25	50
3.5	21	43
4.0	19	38
4.5	16	33
5.0	15	30
5.5	13	27
6.0	12	25
6.5	11	23
7.0	10	21
7.5	10	20
8.0	9	19
8.5	9	18
9.0	8	17
9.5	8	16
10.0	7	15



GENERAL NOTES:

1. OTHER PROPRIETARY DITCH CHECKS MAY BE SUBSTITUTED IN ACCORDANCE WITH SEC 806 OF THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION OR AS DIRECTED BY THE ENGINEER.
2. INSTALLATION OF PROPRIETARY DITCH CHECKS SHALL BE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
3. THE DITCH CHECK MAY BE REMOVED, AS DIRECTED BY THE ENGINEER, WHEN THE VEGETATION HAS SUFFICIENTLY MATURED TO PROTECT THE DITCH OR SWALE. ALL EROSION CONTROL MEASURES SHALL BE REMOVED PRIOR TO FINAL COMPLETION.
4. USE MINIMUM 12 IN. DIAMETER LOG/SOCK.
5. USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
6. INSTALL LOG/SOCK TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND LOG/SOCK AND SCOUR DITCH SLOPES OR AS DIRECTED BY ENGINEER.
7. INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE LOG/SOCK TO BOTTOM OF DITCH
8. EROSION CONTROL BLANKET SHALL BE ANCHORED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

BRIDGE NOTES

HYDRAULIC DATA

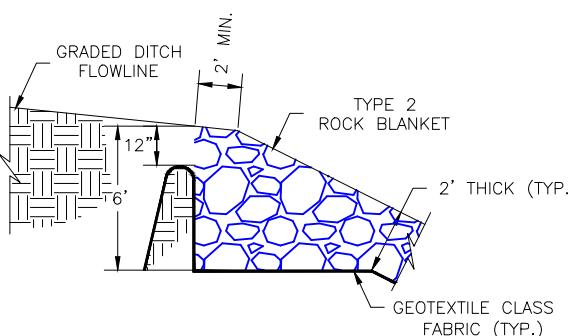
DRAINAGE AREA	3.09 SQUARE MILES
BASIN SLOPE	58.23 ft/mi
CHANNEL SLOPE IN THE VICINITY OF THE STRUCTURE	0.0085 ft/ft
DESIGN FREQUENCY	100 YEAR
DESIGN DISCHARGE	3103 CFS
DESIGN HIGH WATER ELEVATION AT THE STRUCTURE	611.62 FEET
MAXIMUM BACKWATER FOR DESIGN FREQUENCY	3.75 FEET
LOW ELEVATION OF STRUCTURE	609.30 FEET
100-YEAR DISCHARGE	3103 CFS
APPROACH ROADWAY OVERTOPPING FREQUENCY	100 YEAR

NOTE:

A PORTION OF THIS PROJECT AREA LIES WITHIN ZONE "A" OF THE FLOOD HAZARD AREA SUBJECT TO THE 1% ANNUAL CHANCE FLOOD AS SHOWN ON THE FEMA MAP FOR FRANKLIN COUNTY, MISSOURI AND INCORPORATED AREAS, MAP NUMBER 29071C0495D.

ESTIMATED QUANTITIES FOR SLAB ON STEEL OR CONCRETE BEAM

ITEM	TOTAL
CLASS B2 CONCRETE (SUPERSTRUCTURE), CY	36
REINFORCING STEEL, LBS	11,283



TYPICAL SECTION AT INTERSECTION OF GRADED DITCH AND TYPE 2 ROCK BLANKET

PROPOSED STRUCTURE

SINGLE SPAN (45'-0")
PRESTRESSED CONCRETE BOX GIRDERS
CURB-TO-CURB WIDTH = 24'-0"
OUT-TO-OUT WIDTH = 24'-8"
SKEW = 0.00°
GRADE = 0.00%

PROPOSED ROADWAY

TRAVELED WAY WIDTH = 20'-0"
ROADBED WIDTH = 24'-0"
SHOULDER WIDTH = 2'-0"
NORMAL CROWN = 2.00%

GENERAL NOTES:

DESIGN SPECIFICATIONS:
2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR HIGHWAY BRIDGES, 9TH EDITION.
2002 AASHTO LFD (17TH ED.) STANDARD SPECIFICATIONS (SEISMIC DETAILS)
SEISMIC PERFORMANCE CATEGORY 'A'

CONSTRUCTION SPECIFICATIONS:
MATERIALS AND CONSTRUCTION PROCEDURES SHALL CONFORM TO THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION 2022 AND CURRENT SUPPLEMENTAL SPECIFICATIONS AND REVISIONS, UNLESS MODIFIED BY THE PROJECT SPECIFICATIONS.

DESIGN LOADING:
HL-93 LOADING
FUTURE WEARING SURFACE 35 LBS./SQUARE FOOT
EARTH 120 LBS./CUBIC FOOT
EQUIVALENT FLUID PRESSURE= 60 LBS./CUBIC FT.

SUPERSTRUCTURE:
SIMPLY SUPPORTED AND NON-COMPOSITE FOR DEAD LOAD 1.
SIMPLY SUPPORTED AND COMPOSITE FOR DEAD LOAD 2 AND LIVE LOAD.

DESIGN UNIT STRESSES:
CLASS B-1 CONCRETE (SUBSTRUCTURE) $f'_c = 4,000$ p.s.i.
CLASS B-2 CONCRETE (SUPERSTRUCTURE) $f'_c = 4,000$ p.s.i.
REINFORCING STEEL (GRADE 60) $fy = 60,000$ p.s.i.
STRUCTURAL CARBON STEEL (ASTM A709 GRADE 36) $fy = 36,000$ p.s.i.
STEEL PILE (ASTM A709 GRADE 36) $fy = 36,000$ p.s.i.

ALL JOINT FILLER SHALL MEET THE REQUIREMENTS OF MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION SECTION 1057.7.4.

MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 2" UNLESS OTHERWISE SHOWN.

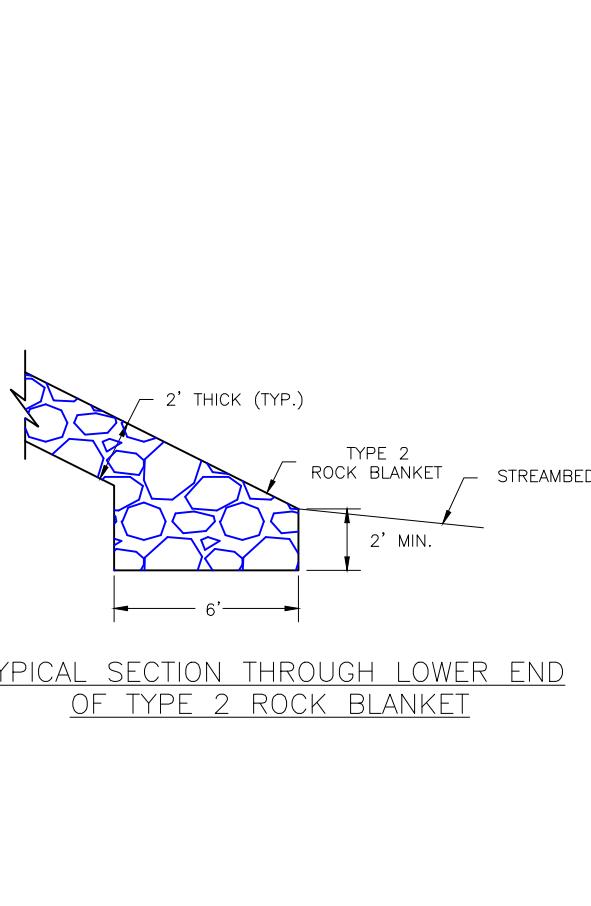
ALL BAR CHAIR SUPPORTS AND WIRE USED FOR TIEING THE REINFORCING STEEL SHALL BE EPOXY COATED OR PLASTIC COATED.

BEARINGS SHALL BE 60 DUROMETER NEOPRENE PADS.

QUANTITIES ARE BASED ON SAW-CUT IN ROCK AT NEAT LINES OF FOOTING. CONTRACTOR MAY BREAK ROCK WITHOUT SAW CUT, BUT OVERBREAK QUANTITIES AND CONCRETE TO FILL OVERBREAK SHALL BE AT THE EXPENSE OF THE CONTRACTOR.

IF 1" CLEAN ROCK IS USED FOR BACKFILL, THE WALLS MAY BE BACKFILLED BEFORE THE SLAB IS POURED.

THE PROJECT SHALL BE OPEN FOR INSPECTIONS OF THE WORK BY REPRESENTATIVES OF MODOT AND FHWA. THE CONTRACTOR SHALL GRANT ACCESS TO ALL PORTIONS OF THE WORK.



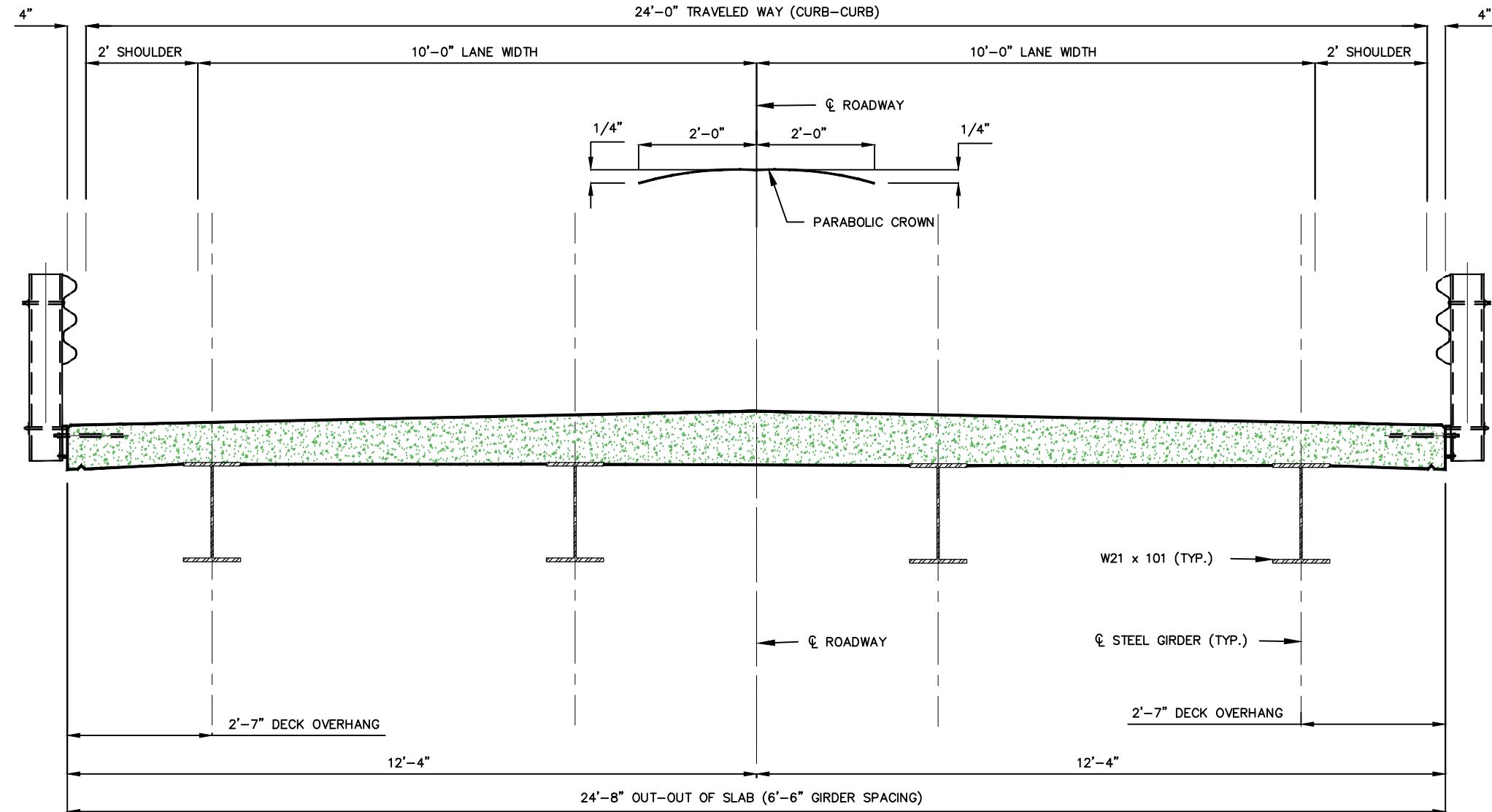
TYPICAL SECTION THROUGH LOWER END OF TYPE 2 ROCK BLANKET

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



TYPICAL BRIDGE SECTION

SUPERSTRUCTURE STEEL GIRDER OPTION



TYPICAL BRIDGE CROSS SECTION

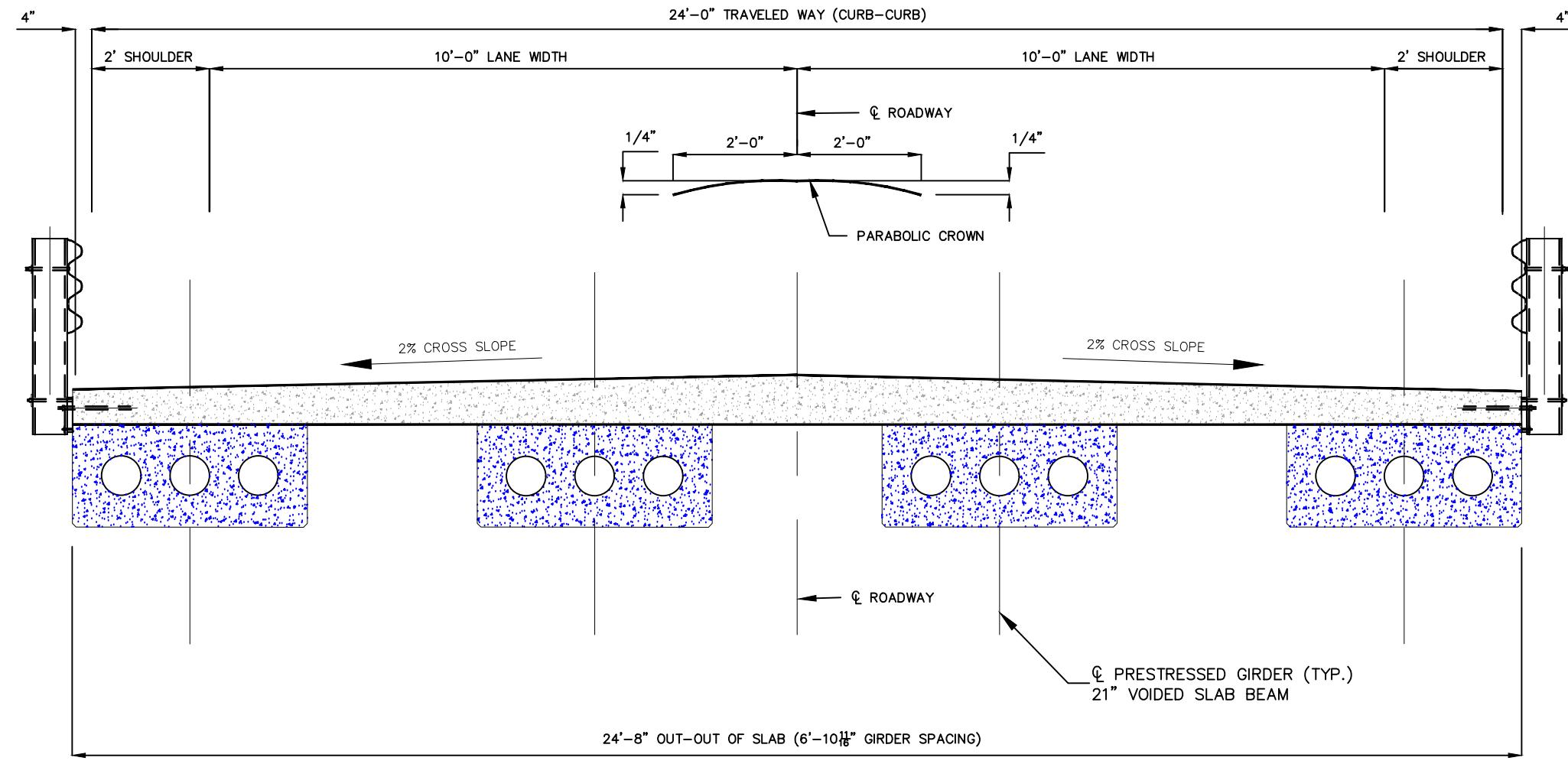
TYPICAL BRIDGE SECTION		DATE:	REVISION:
DRAWN BY:	A.J.M.	APPD. BY:	B.B.D.
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TYPICAL BRIDGE SECTION

SUPERSTRUCTURE CONCRETE PRESTRESSED GIRDER OPTION



TYPICAL BRIDGE CROSS SECTION

TYPICAL BRIDGE SECTION	
DATE:	REVISION:
A.J.M.	B.B.D.
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B-3



STATE OF MISSOURI
B. BRADFORD MCGOWAN
REGISTERED PROFESSIONAL ENGINEER
FOR SC ENGINEERS, LLC,
DBA COCHRAN

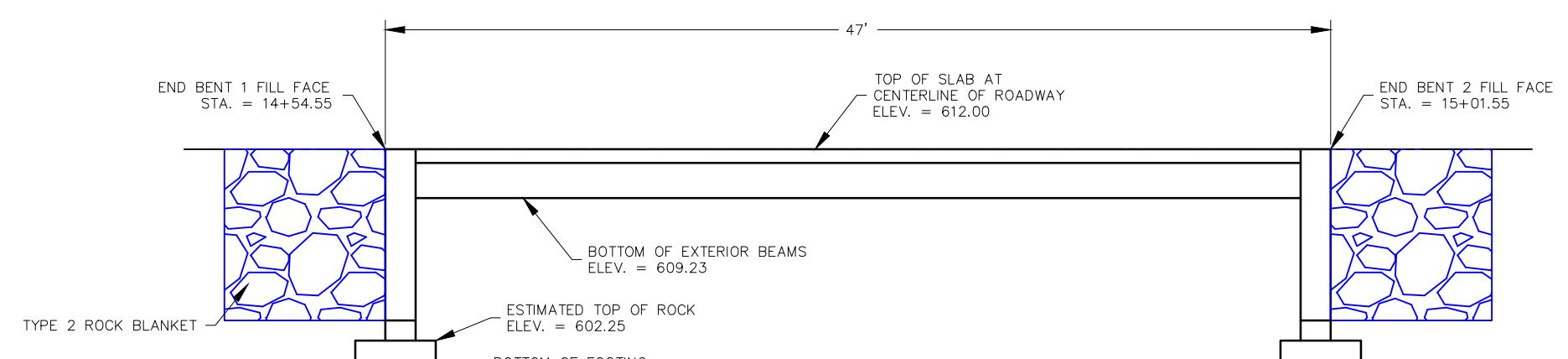
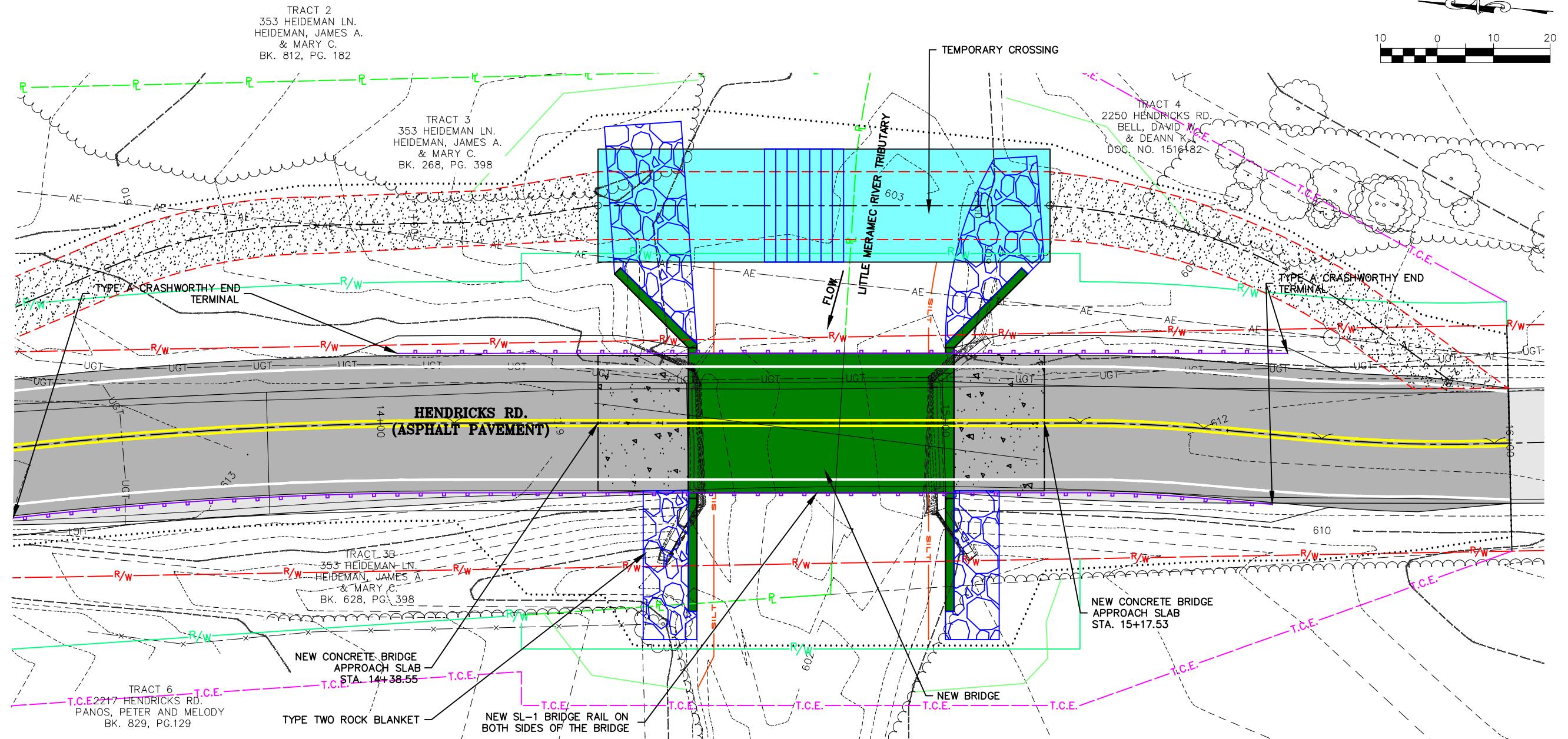
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BRIDGE PLAN AND ELEVATION



NOTE: ALL BACKFILL BEHIND END BENTS TO BE INCIDENTAL
TO CONSTRUCTION FOR CLASS 1 EXCAVATION.

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6/14/2022
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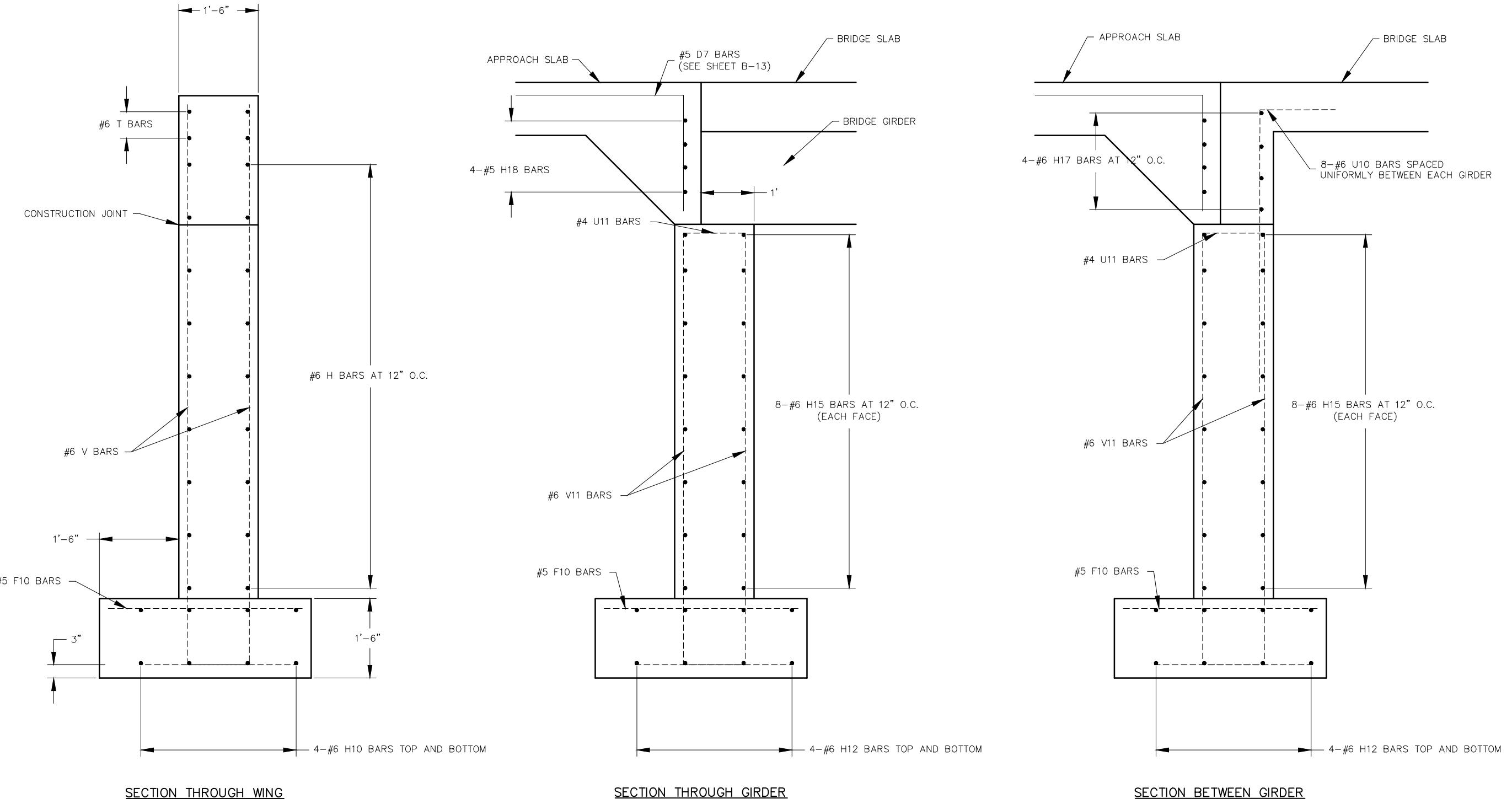
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BRIDGE PLAN AND ELEVATION	DATE:	REVISION:
DOWN BY:	A.J.M.	APPD. BY: B.B.D.
DATE:	JUNE 2022	
SCALE:	1" = 20'	
PROJ. NO.:	SC20-1165	
DWG. NO.:	DWG. NO.:	

B-4

END BENT SECTION DETAILS



NOTE: ALL CONCRETE AND REINFORCING STEEL IN THE SLAB AND DIAPHRAGM WILL BE PAID FOR IN THE UNIT BID PRICE FOR "SLAB ON STEEL" OR "SLAB ON CONCRETE BEAM"

NOTE: H17 BAR LENGTH WILL NEED TO BE MODIFIED FOR THE CONCRETE GIRDER OPTION.

END BENT SECTION DETAILS	
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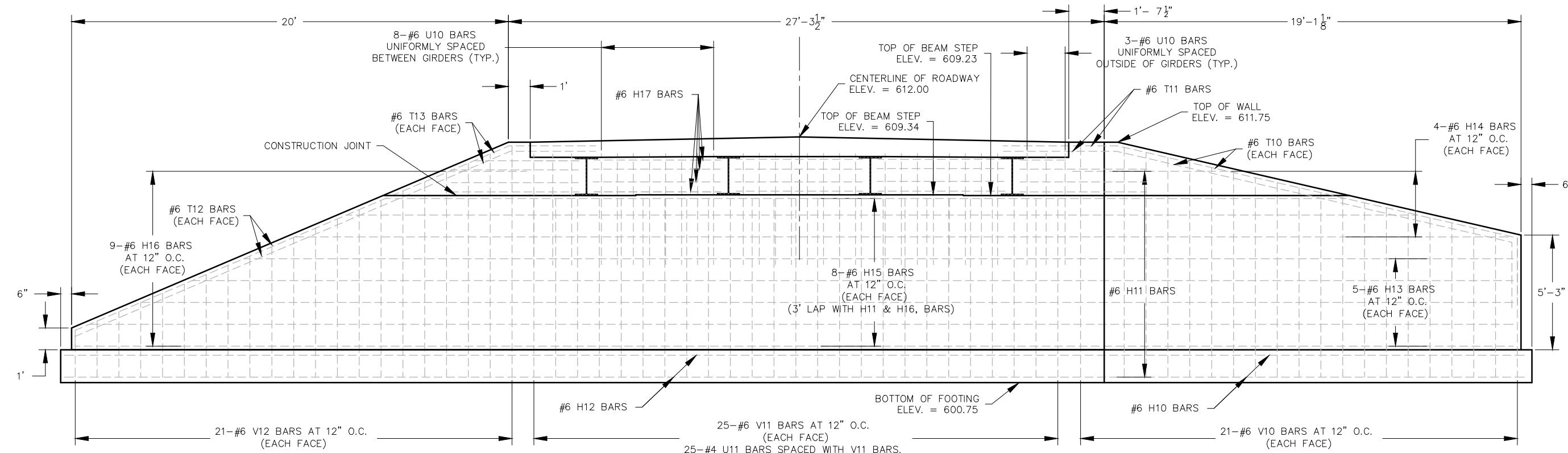
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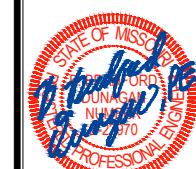
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END BENT 1 PLAN AND ELEVATION



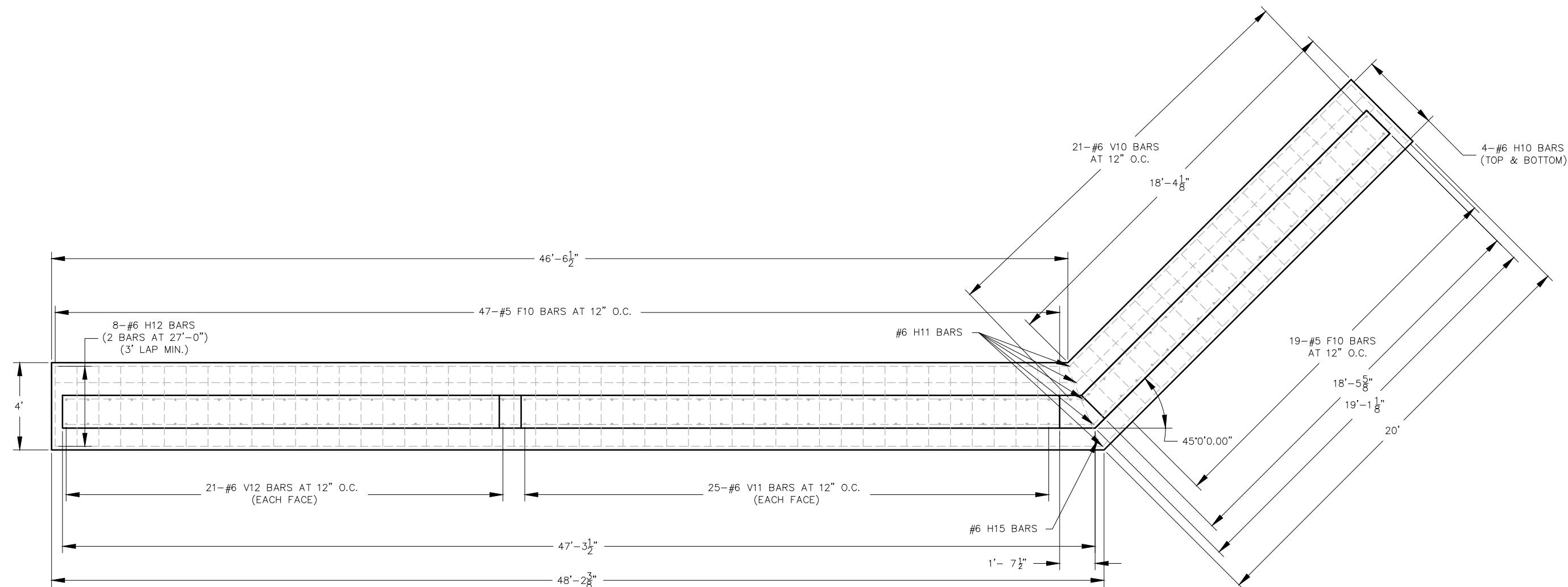
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SCALE:	DATE:
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PROJ. NO.:	SCALE:
SC20-1165	NOT TO SCALE
DWG. NO.:	PROJ. NO.:
B-6	SC20-1165

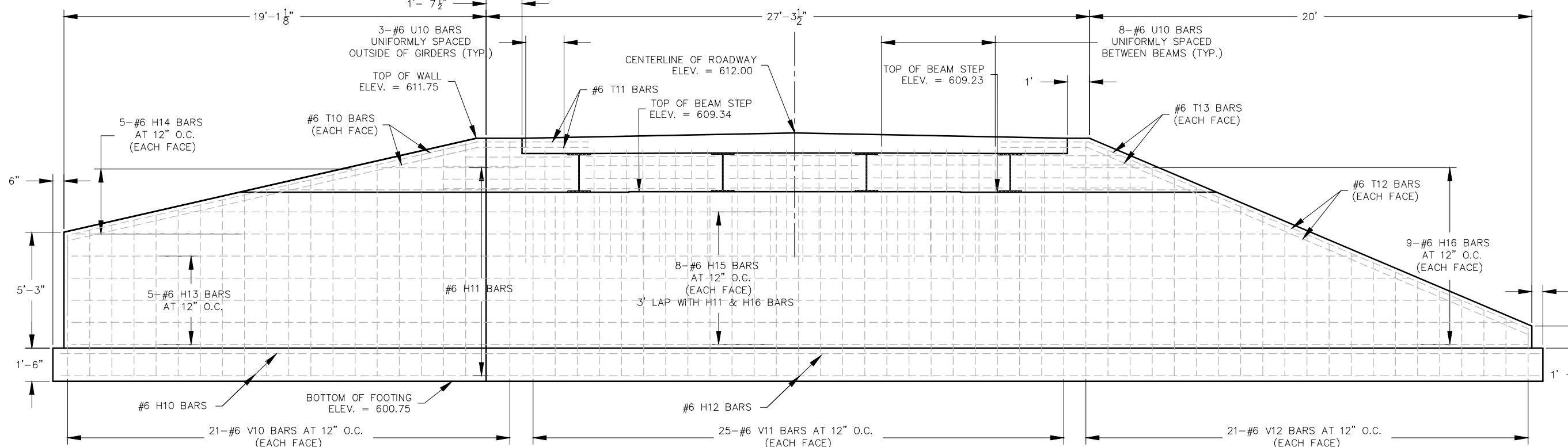


STATE OF MISSOURI
B. BRADFORD COCHRAN
P.O. BOX 22970
STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
FOR SC ENGINEERS LLC,
DBA COCHRAN
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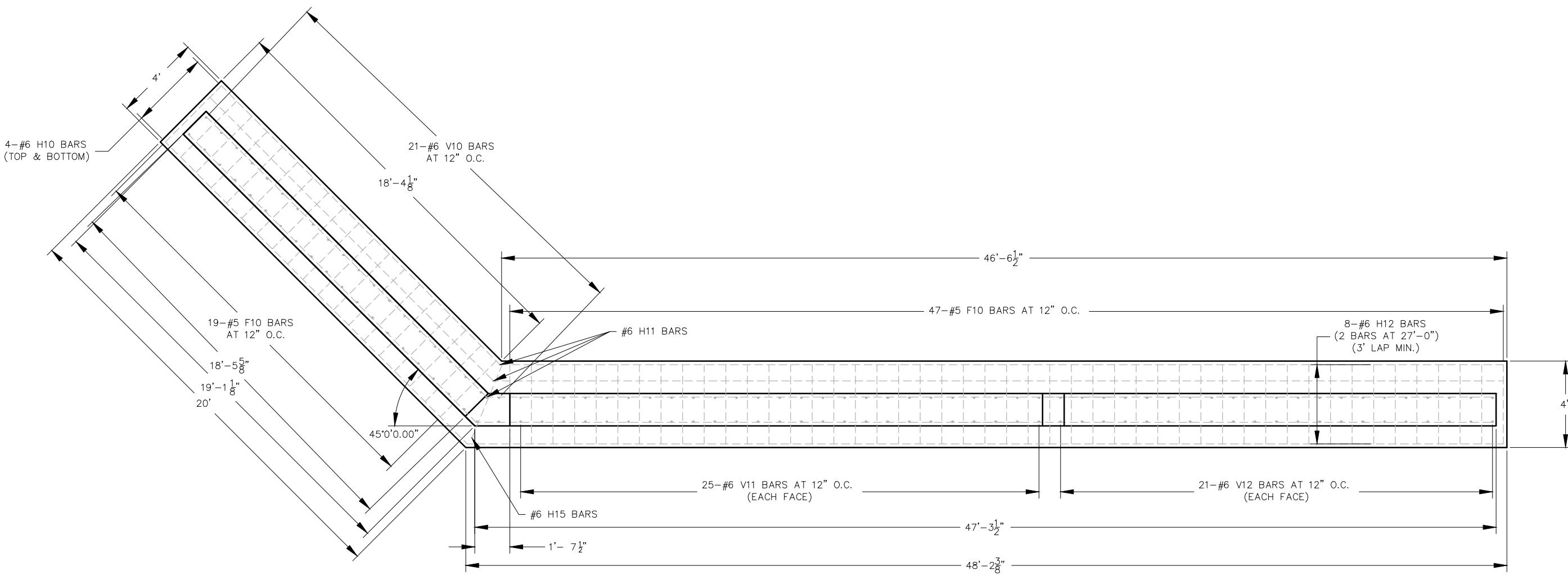
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END BENT 2 PLAN AND ELEVATION



Drawing name: j:\SC20-1165_Hendricks Rd_Bridge_Franklin County\AUTOCAD DRAWINGS\END BENTS.dwg
Plotted on: Jul 11, 2022 - 9:25am
Plotted by: BDunson
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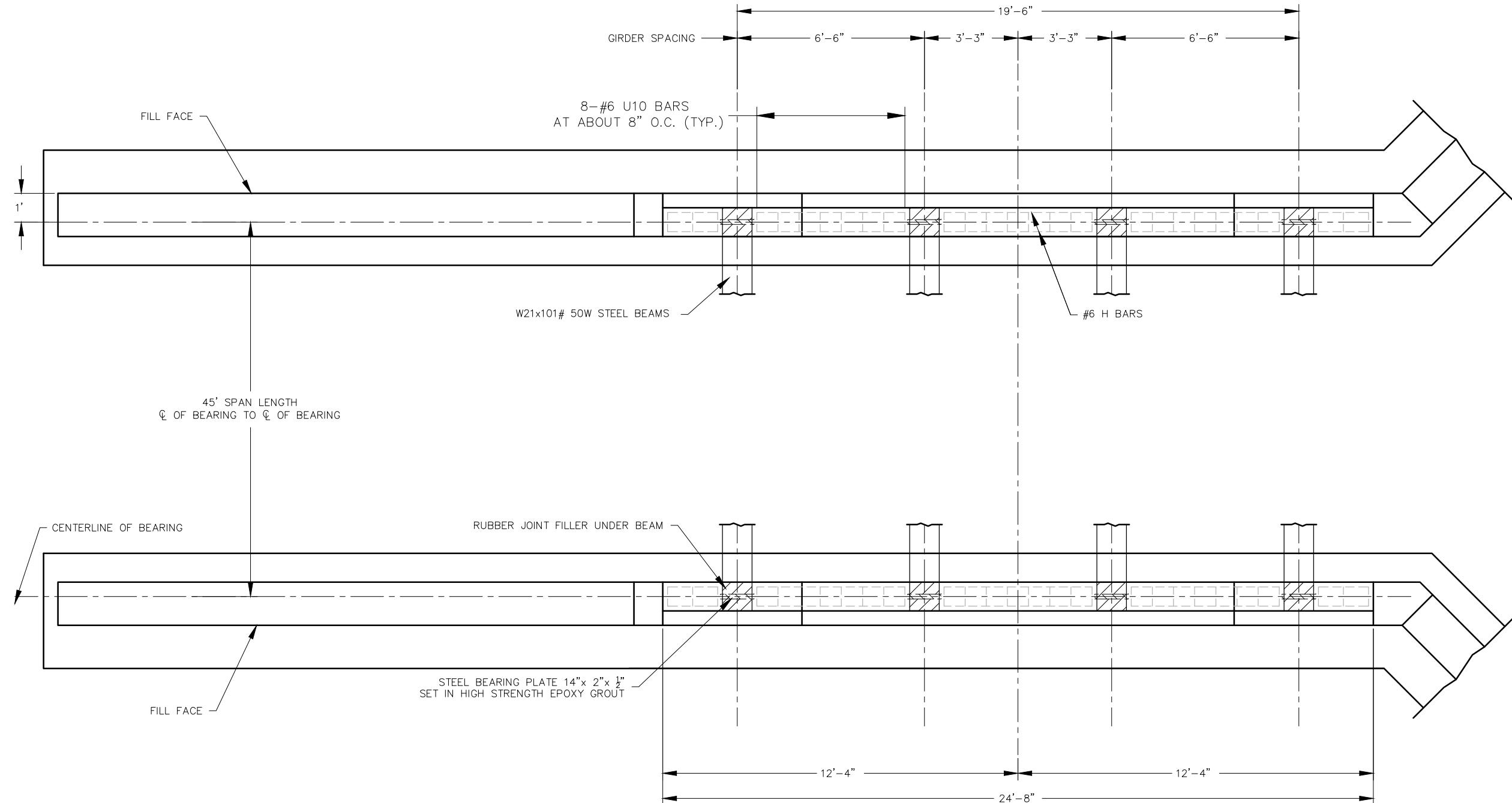
A circular red stamp with the text "STATE OF MISSOURI" at the top, "PROFESSIONAL ENGINEER" at the bottom, and "REGISTRATION NUMBER" in the center. The number "1234567890" is handwritten in blue ink over the registration number area.

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1. **What is the primary purpose of the study?**

END BENT PLAN IN DIAPHRAGM (STEEL GIRDERS)



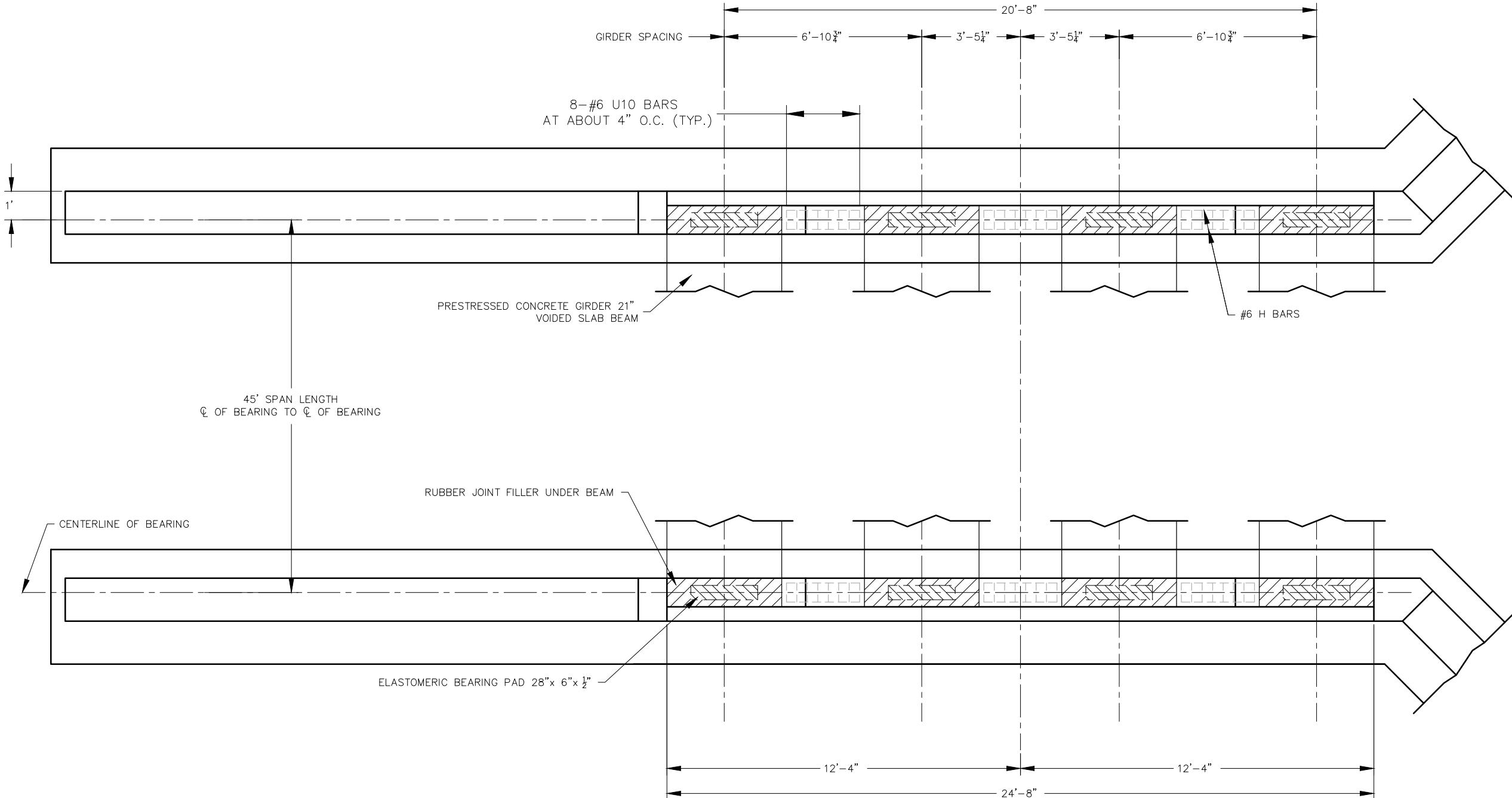
Drawing name: J:\SC20-1185_Hendricks Rd_Bridge_Franklin County\AUTOCAD DRAWINGS\END BENTS.dwg Tab: B-8 Plotted on: Jul 11, 2022 - 9:25am Plotted by: BDumigan

END BENT PLAN IN DIAPHRAGM	
REVISION:	
DATE:	
<i>DNW. BY:</i>	<i>APPD. BY:</i>
A.J.M.	B.B.D.
<i>DATE:</i>	JUNE 2022
<i>SCALE:</i>	NOT TO SCALE
<i>PROJ. NO.:</i>	SC20-1165
<i>DWG. NO.:</i>	
B-8	

*HENDRICKS ROAD BRIDGE OVER
LITTLE MERAMEC RIVER TRIBUTARY
FEDERAL PROJECT NO. STP-5490(616)
FRANKLIN COUNTY, MISSOURI*

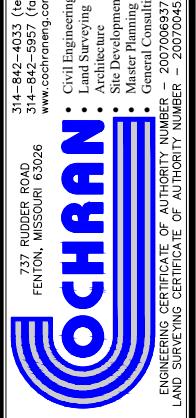
B-8

END BENT PLAN IN DIAPHRAGM (CONCRETE GIRDERS)



END BENT PLAN IN DIAPHRAGM	DATE:	REVISION:
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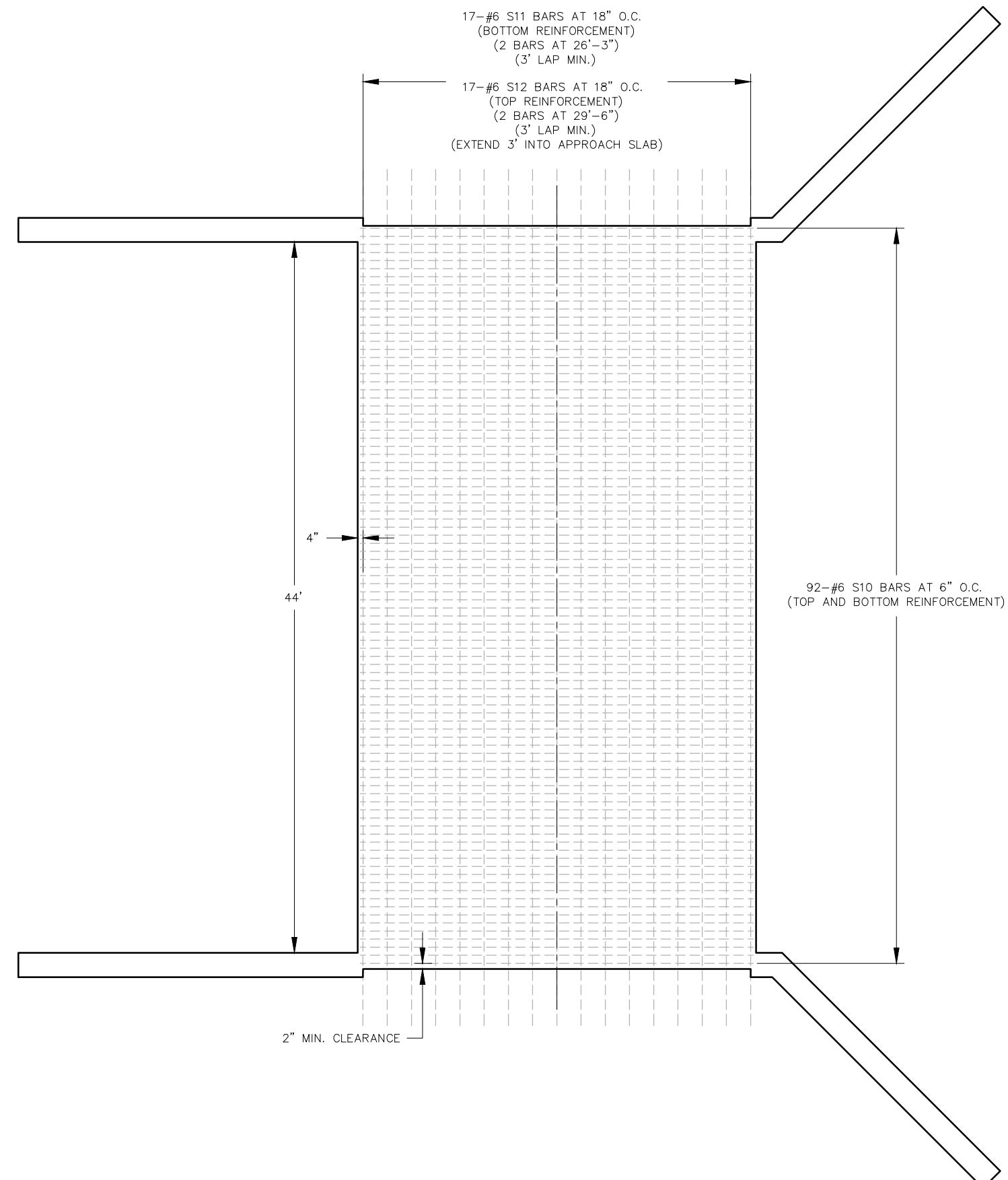
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DBA COCHRAN

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HENDRICKS ROAD BRIDGE OVER
LITTLE MERAMEC RIVER TRIBUTARY
FEDERAL PROJECT NO. STP-5490(616)
FRANKLIN COUNTY, MISSOURI

SLAB REINFORCEMENT



SLAB REINFORCEMENT	DATE:	REVISION:	DRAWN BY:	APPD. BY:
			A.J.M.	B.B.D.
	DATE:		JUNE 2022	
	SCALE:		NOT TO SCALE	
PROJ. NO.:			SC20-1165	
DWG. NO.:				



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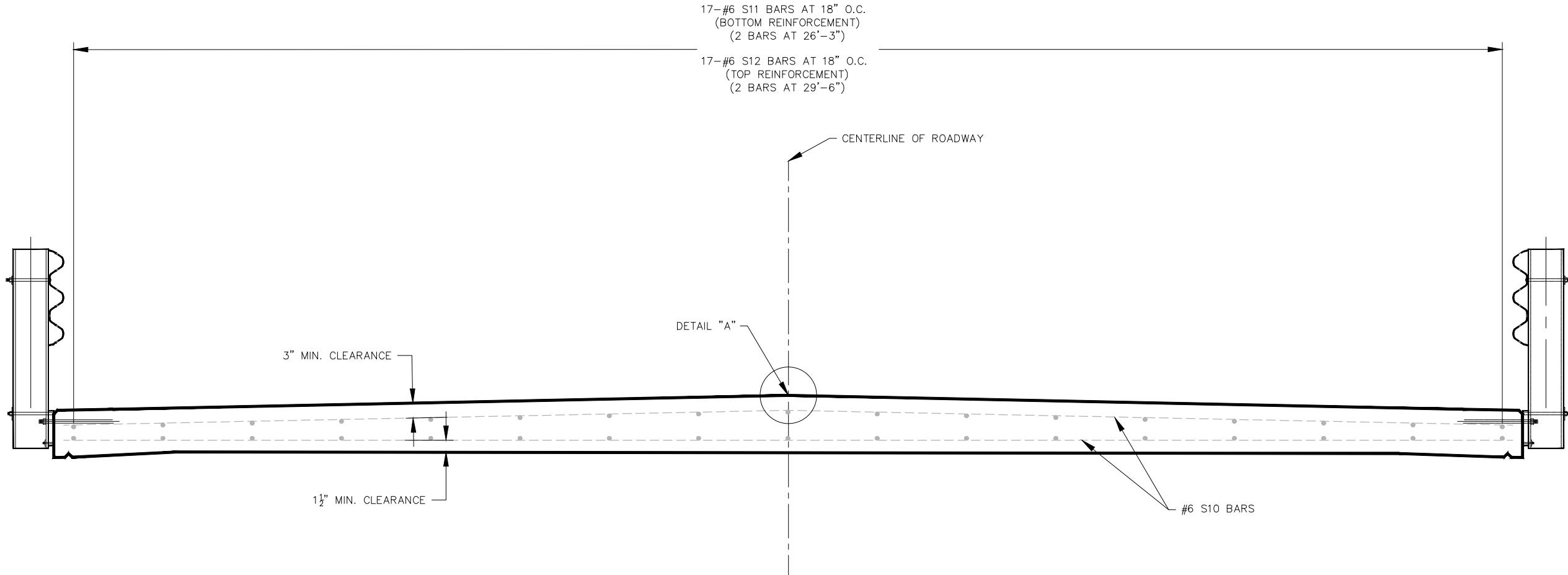
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FEDERAL PROJECT NO. STP-5490(616)
FRANKLIN COUNTY, MISSOURI

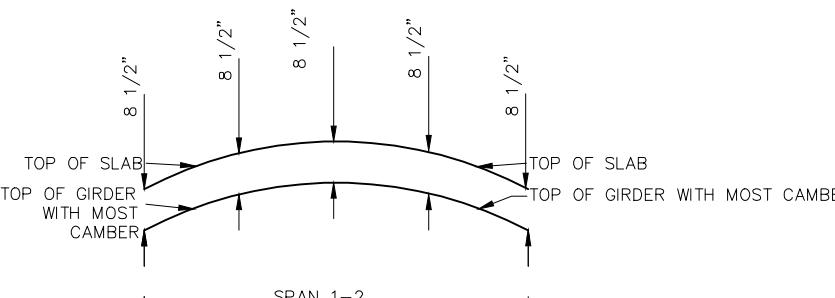
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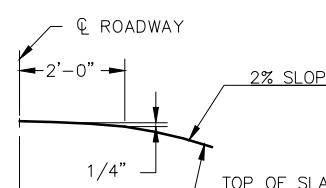
SLAB REINFORCEMENT



SECTION NEAR MIDSPAN



SLAB HAUNCH DIAGRAM



DETAIL "A"

NOTES:

1. THE SLAB SHALL BE POURED WITH A MINIMUM SLAB THICKNESS OF 8 1/2" ABOVE THE GIRDERS WITH THE MOST CAMBER. IF GIRDER CAMBER IS DIFFERENT FROM THAT SHOWN IN THE CAMBER DIAGRAM, IT SHALL BE NECESSARY TO ADJUST THE SLAB HAUNCHES, OR TO INCREASE THE SLAB THICKNESS. NO PAYMENT WILL BE MADE FOR ADDITIONAL LABOR OR MATERIALS REQUIRED FOR VARIATION IN HAUNCHING, SLAB THICKNESS OR GRADE ADJUSTMENT.
2. THE CONTRACTOR SHALL FURNISH AN APPROVED RETARDER TO RETARD THE SET OF CONCRETE TO 2.5 HOURS. THE RATE OF POUR MAY BE REDUCED TO NOT LESS THAN 25 CUBIC YARDS PER HOUR.
3. MACHINE FINISHING OF THE RIDING SURFACE WILL BE REQUIRED.
4. THE DIAPHRAGMS OF THE END BENTS SHALL BE POURED A MINIMUM OF 30 MINUTES AND A MAXIMUM OF 2 HOURS BEFORE THE SLAB IS POURED ACROSS THE DIAPHRAGM.
5. ALL SUPPORTS, BAR CHAIRS, AND WIRE USED FOR TIEING THE REINFORCING STEEL SHALL BE EPOXY COATED OR PLASTIC COATED.
6. THE CONCRETE SLAB SHALL BE CURED AND SEALED, MEETING THE REQUIREMENTS OF MISSOURI STANDARD SPECIFICATIONS 703.3.6 AND 703.3.8 RESPECTIVELY. THE SEALER SHALL ALSO BE APPLIED TO THE OUTSIDE EDGE OF THE SLAB AND THE BOTTOM OF THE SLAB OVERHANG. THIS WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR "SLAB ON CONCRETE BEAM".OR "SLAB ON STEEL".
7. SLAB CONCRETE SHALL BE CLASS B2.
8. USE SAME REINFORCEMENT FOR BOTH OPTIONS.

SLAB REINFORCEMENT

DATE: REVISION:

APP'D BY: A.J.M. B.B.D.

DATE: JUNE 2022

SCALE: NOT TO SCALE

PROJ. NO.: SC20-1165

DWG. NO.: B-11

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B. BRADFORD MCGOWAN

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FOR SC ENGINEERS LLC,

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314-842-4033 (tel)

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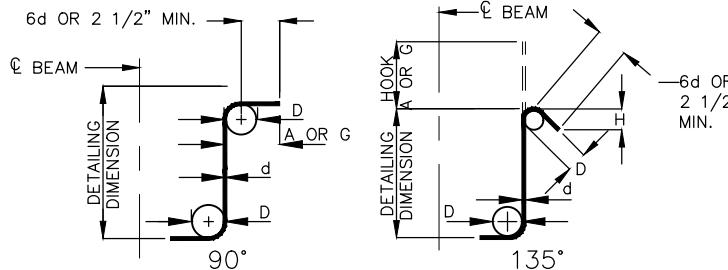
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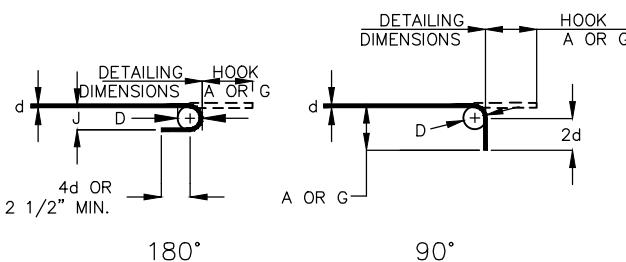
Site Development

BILL OF REINFORCING STEEL



STIRRUP HOOK DIMENSIONS				
GRADES 40-50-60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX. H
#3	1 1/2"	4"	4"	2 1/2"
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	8"	7"	4 1/2"

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



SIZE OF 180° HOOKS (GRADE 40)

SI) SIZE OF 90° HOOKS (ALL GRADES)
AND 180° HOOKS (GRADE 60 KSI)
D=6d FOR #3 THROUGH #8
D=8d FOR #9, #10 AND #11
D=10d FOR #14 AND #18

END HOOK DIMENSIONS												
180° HOOKS					90° HOOKS							
BAR SIZE	GRADE 40		GRADE 60		ALL GRADES							
	A	OR	G	J	A	OR	G	J	A	OR	G	
#3	5"			2 3/4"	5"			3"	5"	6"		
#4	6"			3 1/2"	6"			4"	6"	8"		
#5	7"			4 1/2"	7"			5"	7"	10"		
#6	8"			5 1/4"	8"			6"	8"	12"		
#7	9"			6 1/4"	10"			7"	9"	14"		
#8	10"			7"	11"			8"	11"	16"		
#9	12"			8"	15"			11 1/4"	14"	19"		
#10	13"			9"	17"			12 3/4"	16"	22"		
#11	14"			10"	19"			14 1/4"	18"	26"	2'-0"	
#14	2'-2"			20 1/2"	2'-2"			20 1/2"	22"	28"	2'-7"	
#18	2'-11"			2'-3"	2'-11"			2'-3"	2'-11"	3'-5"	3'-11"	

NOTE: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREES 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.

E = EPOXY COATED REINFORCEMENT

S = STIRR

X = BAR IS LOCATED IN THE SUBSTRUCT

V = BAR DIMENSIONS VARY IN EQUAL INCRE

DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE
NO. EACH = NUMBER OF BARS OF EACH LENGTH.

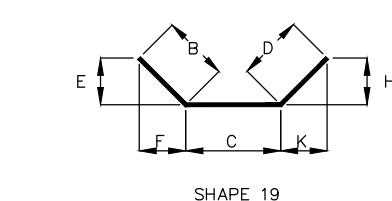
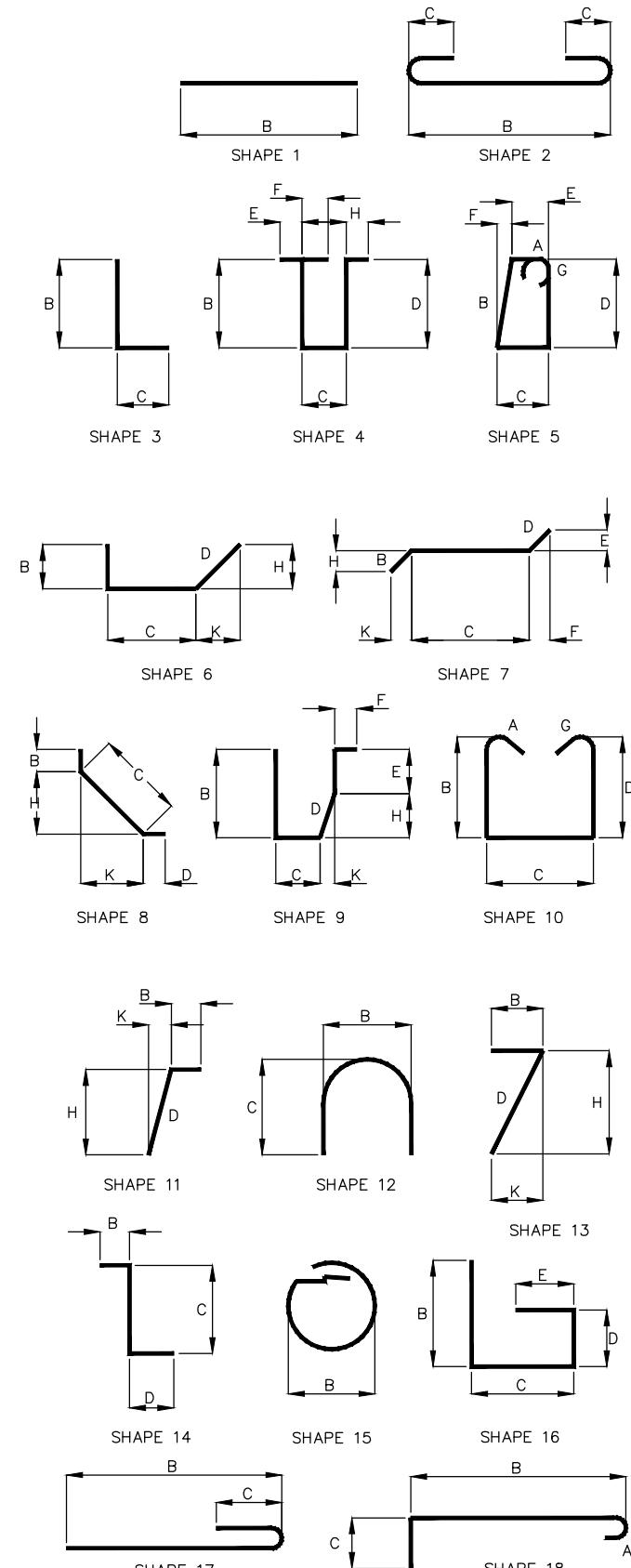
DIMENSIONS SHOWN ARE OUT TO OUT DIMENSIONS. LENGTH SHOWN IS
MEASURED ALONG CENTERLINE OF BAR.

LENGTHS AND QUANTITIES OF BARS SHOWN IN TABLE ARE FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL VERIFY ALL QUANTITIES AND

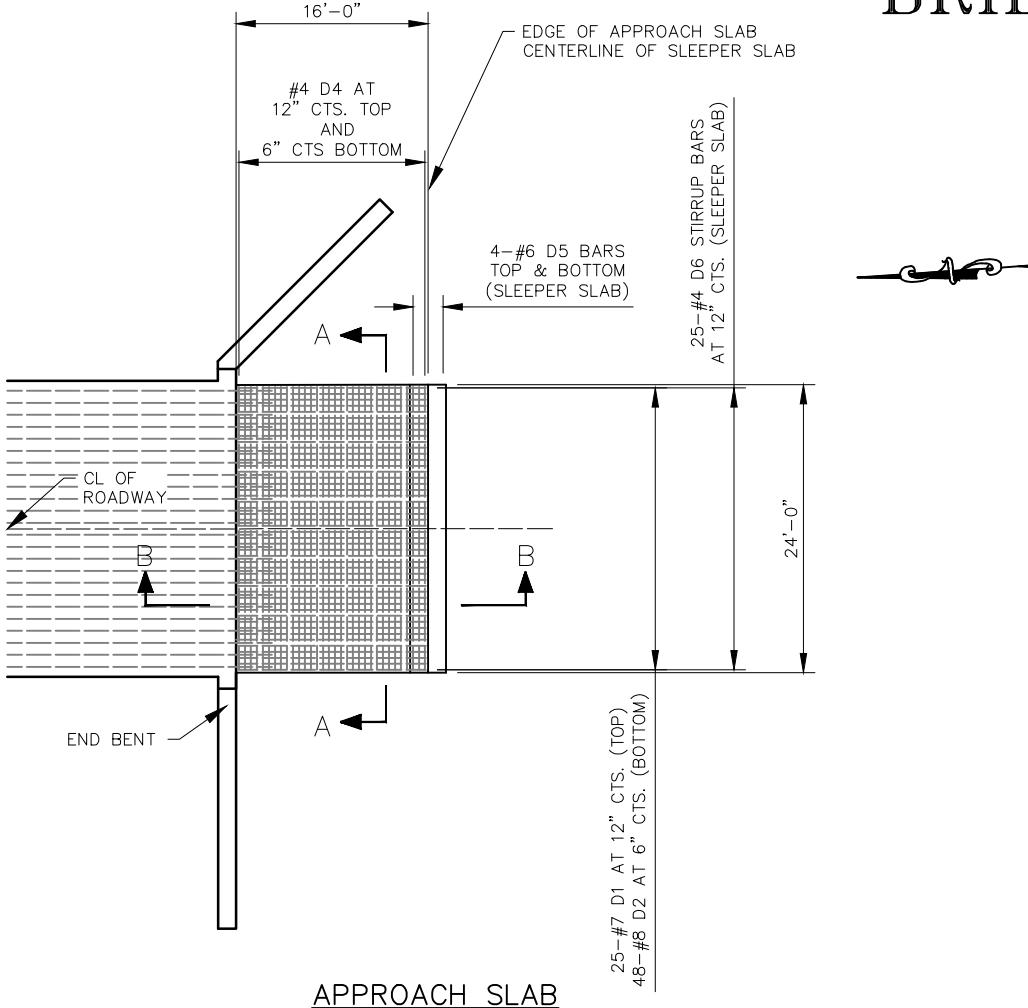
DIMENSIONS PRIOR TO FABRICATING STEEL.
FOR SHAPES 2 AND 17, USE STANDARD HOOK IF N

"C" DIMENSION IS GIVEN.
BARS IN THE ABOVE UNITS ARE TO BE BILLED AND TAGGED SEPARATELY

REINFORCING STEEL (GRADE 60) $f_y = 60,000$ PSI
ALL REINFORCEMENT SHALL BE EPOXY COATED



BRIDGE APPROACH SLAB



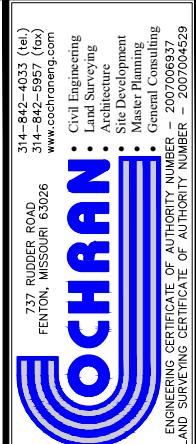
NOTES:

THE APPROACH SHALL BE POURED IN A CONTINUOUS UNIT USING STATIONARY SIDE FORMS.

ALL REINFORCING STEEL SHALL BE GRADE 60, EPOXY COATED.

APPROACH SLAB QUANTITIES ARE FOR REFERENCE ONLY. COST OF D BARS, CLASS B1 CONCRETE, SLEEPER SLAB, POLYETHYLENE SHEETING, MUD-JACK HOLES, AND COMPACTED TYPE 5 AGGREGATE FOR BASE, SHALL BE INCLUDED IN THE UNIT BID PRICE FOR "BRIDGE APPROACH SLAB", PER SQUARE YARD.

SEAL THE JOINT BETWEEN APPROACH SLAB AND THE BRIDGE WITH "SILICONE JOINT SEALANT FOR SAW CUT AND FORMED JOINTS" IN ACCORDANCE WITH SEC. 717.



**HENDRICKS ROAD BRIDGE OVER
LITTLE MERAMEC RIVER TRIBUTARY
FEDERAL PROJECT NO. STP-5490(616)
FRANKLIN COUNTY, MISSOURI**

BRIDGE APPROACH SLABS	
<i>DOWN BY:</i> A.J.M.	<i>APPD. BY:</i> B.B.D.
<i>DATE:</i> JUNE 2022	
<i>SCALE:</i> NOT TO SCALE	
<i>PROJ. NO.:</i> SC20-1165	
<i>DWG. NO.:</i>	
B-13	

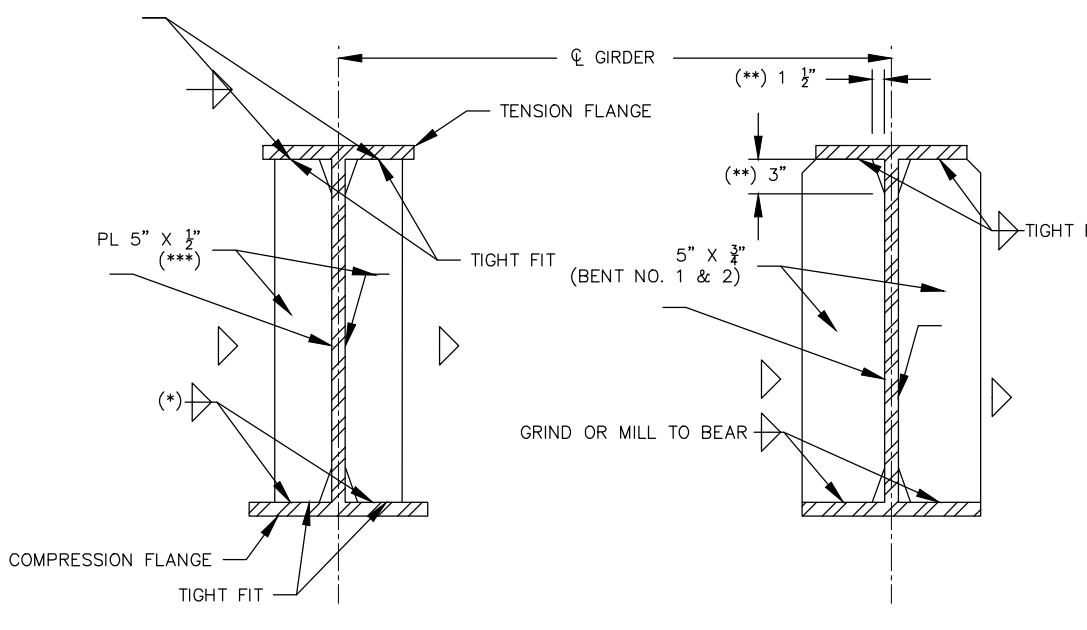
SECTION A-A

SECTION B-B

ONE LAYER OF POLYETHYLENE SHEETING (PLACED BETWEEN BRIDGE APPROACH SLAB AND COMPACTED BASE) SHALL COMPLY WITH THE REQUIREMENTS OF AASHTO M171.

name: J:\SC20-1165_Hendricks_Rd_Bridge, Franklin County\AUTOCAD DRAWINGS\BRIDGE_APPROACH SLABS.dwg Tab: B-13 Plotted on: Jul 11, 2022 - 9:25am Plotted by: BDunagan

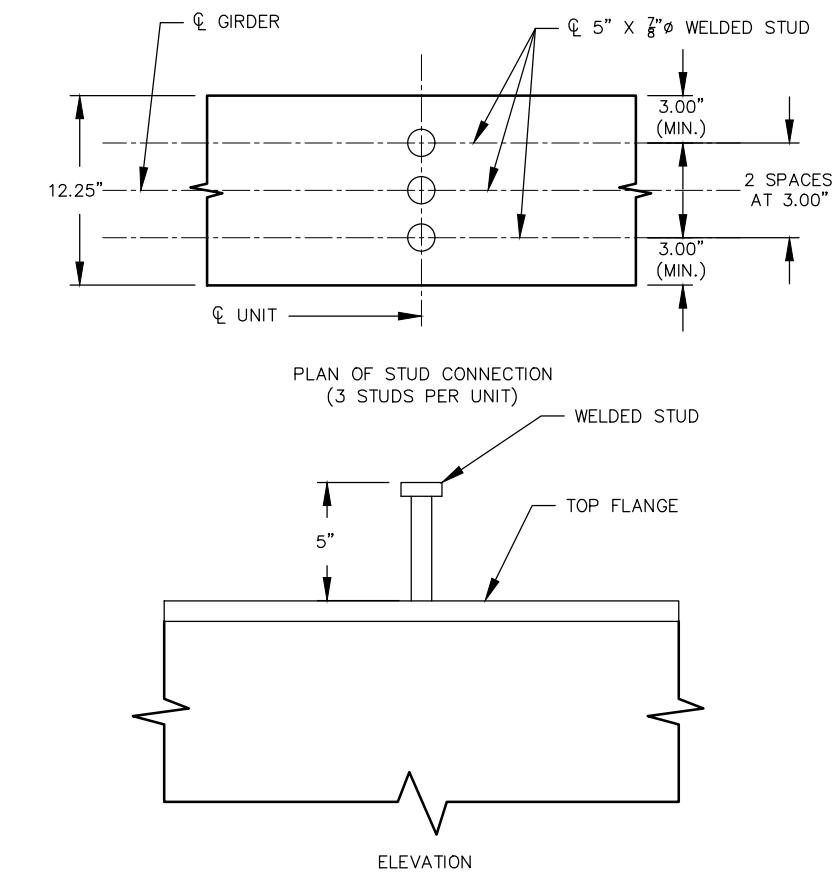
STEEL CONNECTION DETAILS



INTERMEDIATE DIAPHRAGM CONNECTION PLATE

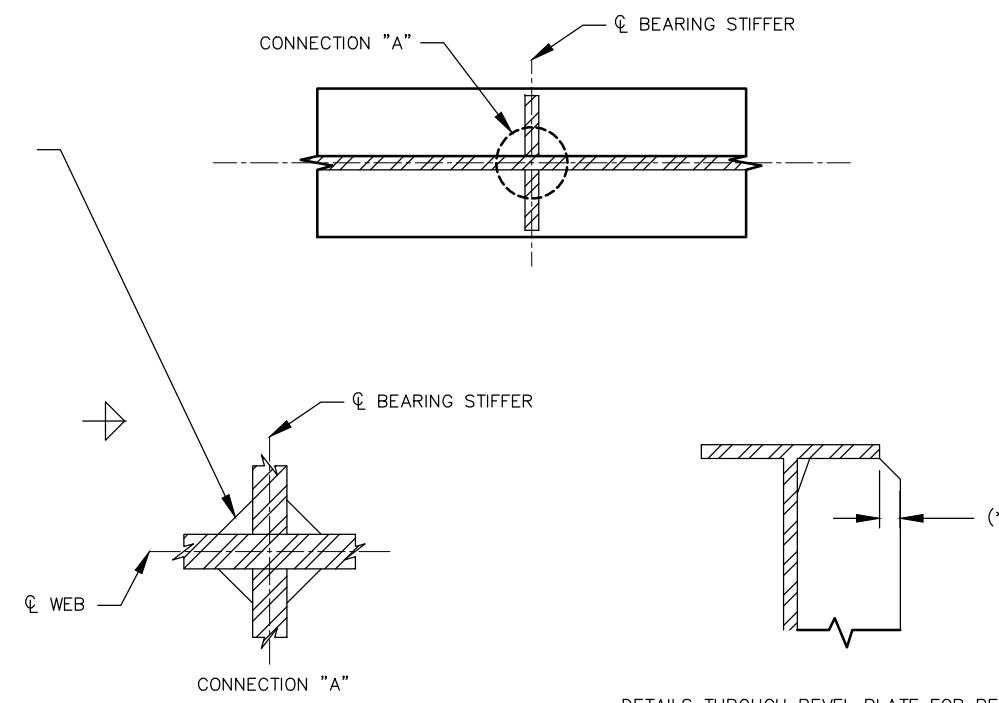
END & INTERMEDIATE BEARING STIFFER

NOTE: (*): WELD TO TENSION FLANGE AS LOCATED ON ELEVATION OF GIRDER.
 (**): $1\frac{1}{2}$ " X 3" TYPICAL FOR INTERMEDIATE DIAPHRAGM CONNECTION PLATE AND BEARING STIFFER.
 (***): EXTERIOR GIRDERS REQUIRE ONLY ONE 5" X $\frac{1}{2}$ " ON THE INTERIOR SIDE OF GIRDER.



DETAILS OF SHEAR CONNECTORS

NOTE: WEIGHT OF 757 LBS. OF SHEAR CONNECTORS IS INCLUDED IN THE WEIGHT OF FABRICATED STRUCTURAL CARBON STEEL.
 SHEAR CONNECTORS SHALL BE A-709 GRADE 50 STEEL.



WELDING DETAILS

NOTE: (**): WHEN DIMENSIONS EXCEEDS $\frac{1}{2}$ ", BEVEL STIFFENER PLATE AT 1:1.

STEEL CONNECTION DETAILS	
DATE:	REVISION:
A.J.M.	B.B.D.
DATE:	APPD. BY:
JUNE 2022	
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DWG. NO.:	

B-15

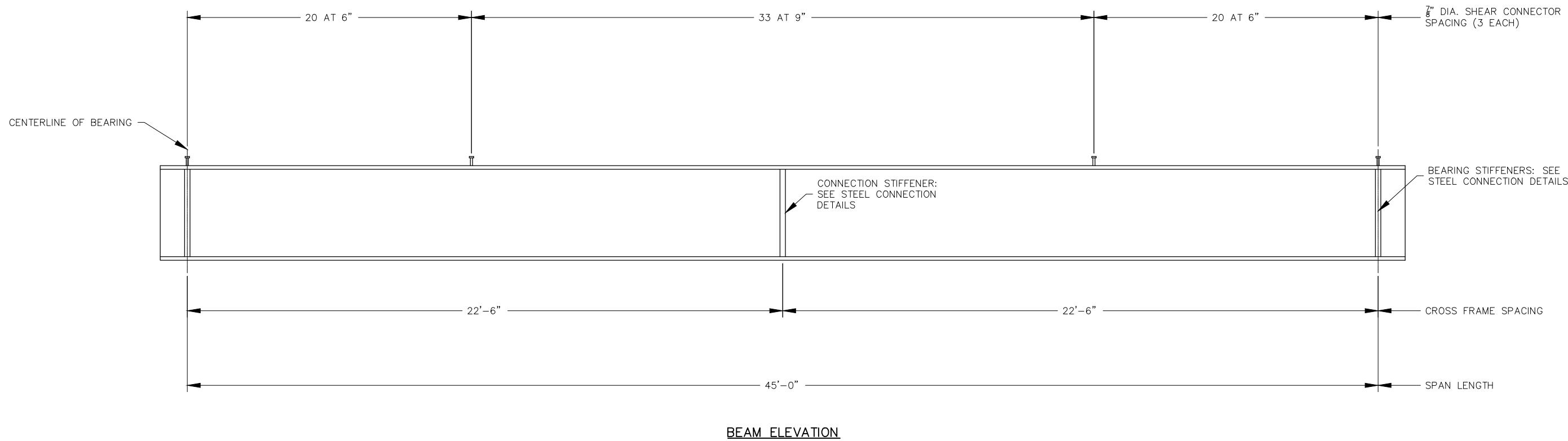
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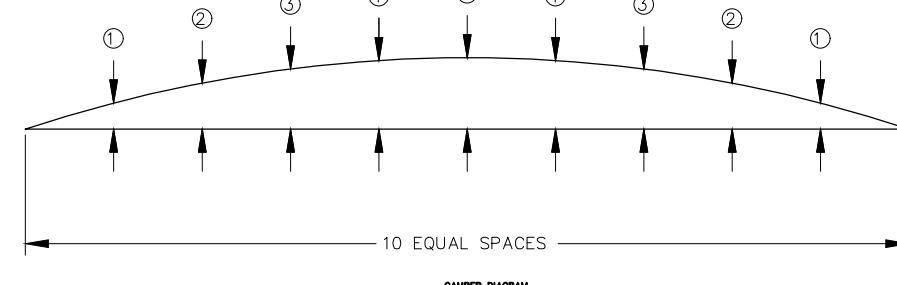
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 STATE OF MISSOURI
 REGISTERED PROFESSIONAL ENGINEER
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HENDRICKS ROAD BRIDGE OVER
 LITTLE MERAMEC RIVER TRIBUTARY
 FEDERAL PROJECT NO. STP-5490(616)
 FRANKLIN COUNTY, MISSOURI

STEEL BEAM DETAILS



STEEL D.L. CAMBER - IN.					TOTAL STEEL D.L. CAMBER - IN.				
①	②	③	④	⑤	①	②	③	④	⑤
0.032"	0.061"	0.083"	0.097"	0.102"	0.273"	0.516"	0.707"	0.827"	0.869"



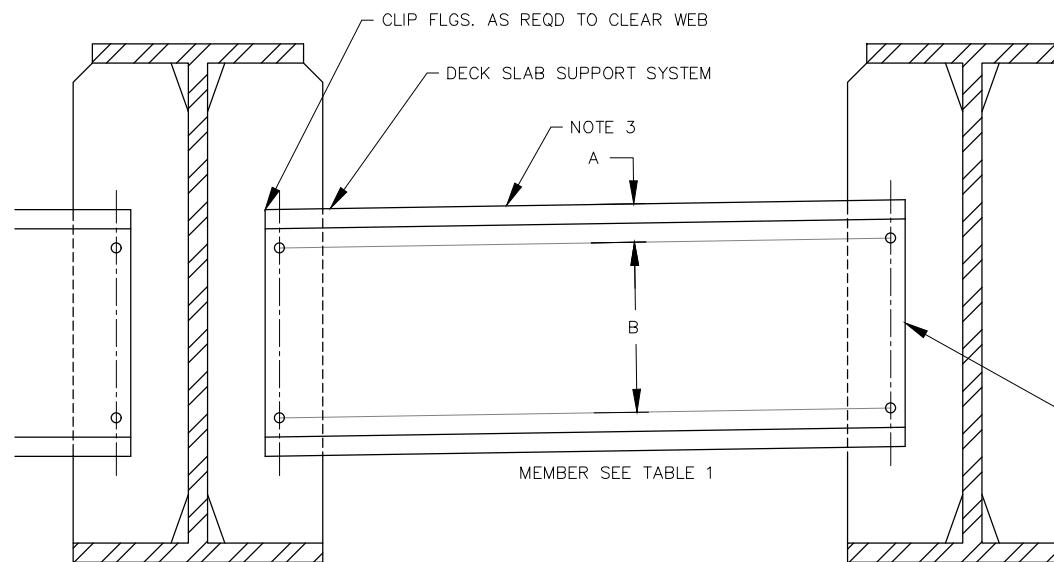
STEEL BEAM DETAILS
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SCALE: NOT TO SCALE
PROJ. NO: SC20-1165
DWG. NO: B-16

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LITTLE MERAMEC RIVER TRIBUTARY
FEDERAL PROJECT NO. STP-5490(616)
FRANKLIN COUNTY, MISSOURI

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LAND SURVEYING CERTIFICATE OF AUTHORITY NUMBER - 200704529
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STEEL DIAPHRAGM DETAILS

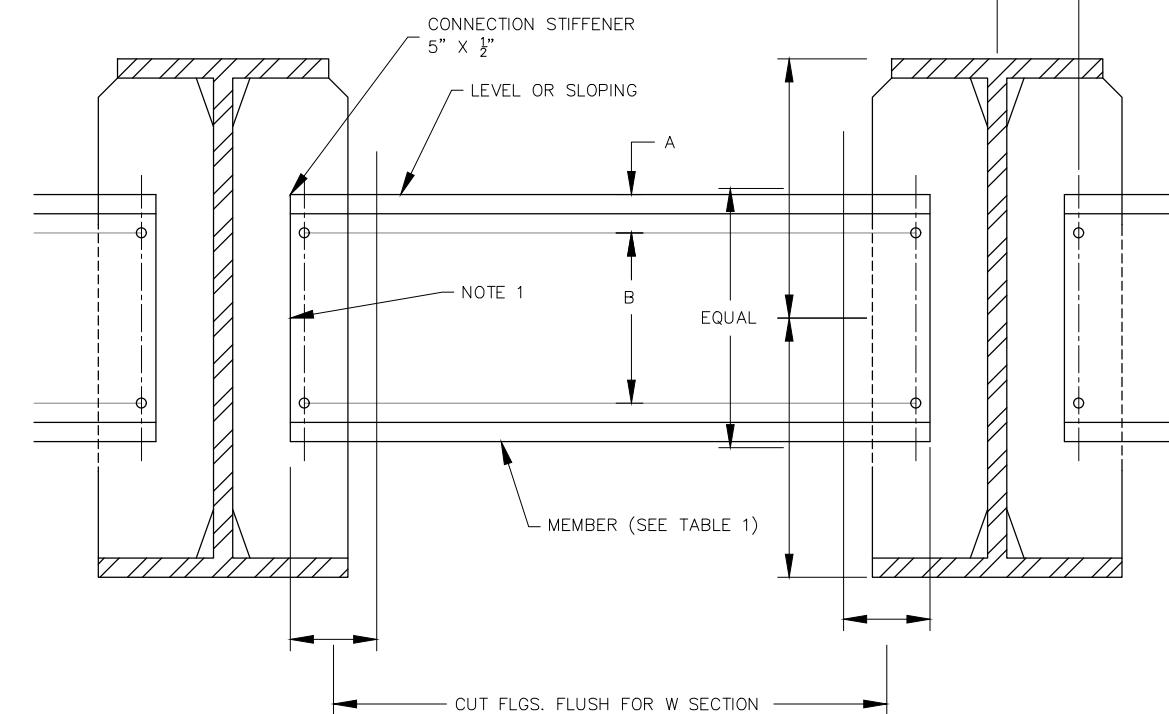


BEARING STIFFENER 5" x $\frac{3}{4}$ "

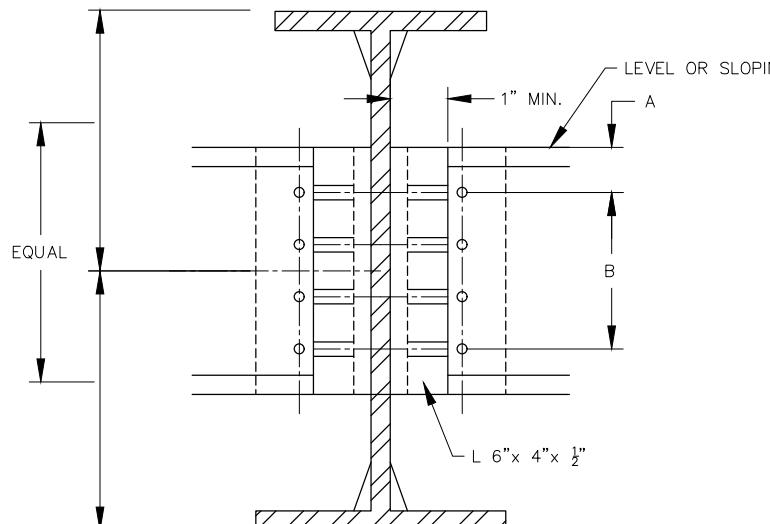
NOTE 1

MEMBER SEE TABLE 1

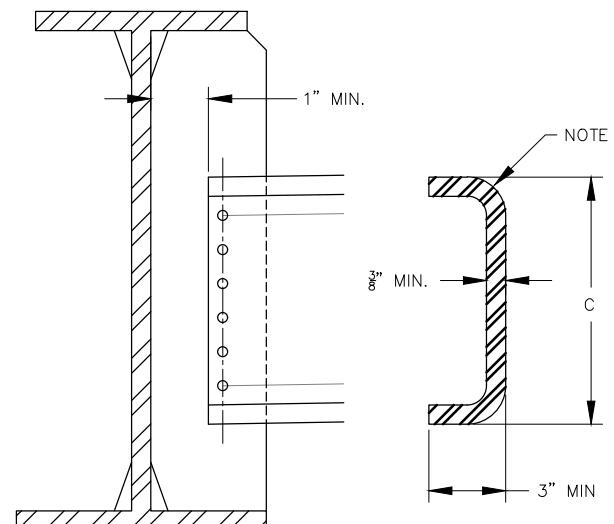
END DIAPHRAGM



INTERMEDIATE DIAPHRAGM



INTERMEDIATE DIAPHRAGM ALTERNATE DETAIL



OPTIONAL BENT PLATE DIAPHRAGM

NOTES:

1. SLOPE DIAPHRAGM AND KEEP HOLES VERTICAL IN STIFFENER AT CONSTANT DIMENSIONS (TO KEEP ALL STIFFENERS THE SAME) AND CUT ENDS OF DIAPHRAGM SQUARE.
2. MINIMUM RADIUS AS PER AASHTO/NSBA FABRICATION S2.1 TABLE 4.3.2-1. PER SECTION 4.3.2, IF THE BEND IS PARALLEL TO DIRECTION OF ROLLING, MULTIPLY THE MINIMUM RADII BY 1.5.
3. ALL HOLES TO BE $\frac{15}{16}$ " DIA. FOR $\frac{7}{8}$ " DIA. HS BOLTS, ASTM A325 TYPE 3 W/ F436-3 WASHERS (RCT).
4. THREADS EXCLUDED FROM SHEAR PLANE.
5. BOTTOM FLANGES SHALL BE BRACED ACROSS ENTIRE WIDTH OF BRIDGE (OUTSIDE GIRDER - OUTSIDE GIRDER) AT EACH OVERHANG BRACKET DURING CONSTRUCTION

DEPTH OF STRINGER OR GIRDER WEB	DIAPHRAGM SIZE	DIMENSIONS		
		A	B	C
< 30"	C15x33.9	3"	3 AT 3"	15"

STEEL DIAPHRAGM DETAILS	DATE:	REVISION:
DRAWN BY: A.J.M.	APPD. BY: B.B.D.	
DATE: JUNE 2022	SCALE: NOT TO SCALE	
PROJ. NO.: SC20-1165	PROJ. NO.: SC20-1165	
DWG. NO.: B-17	DWG. NO.: B-17	

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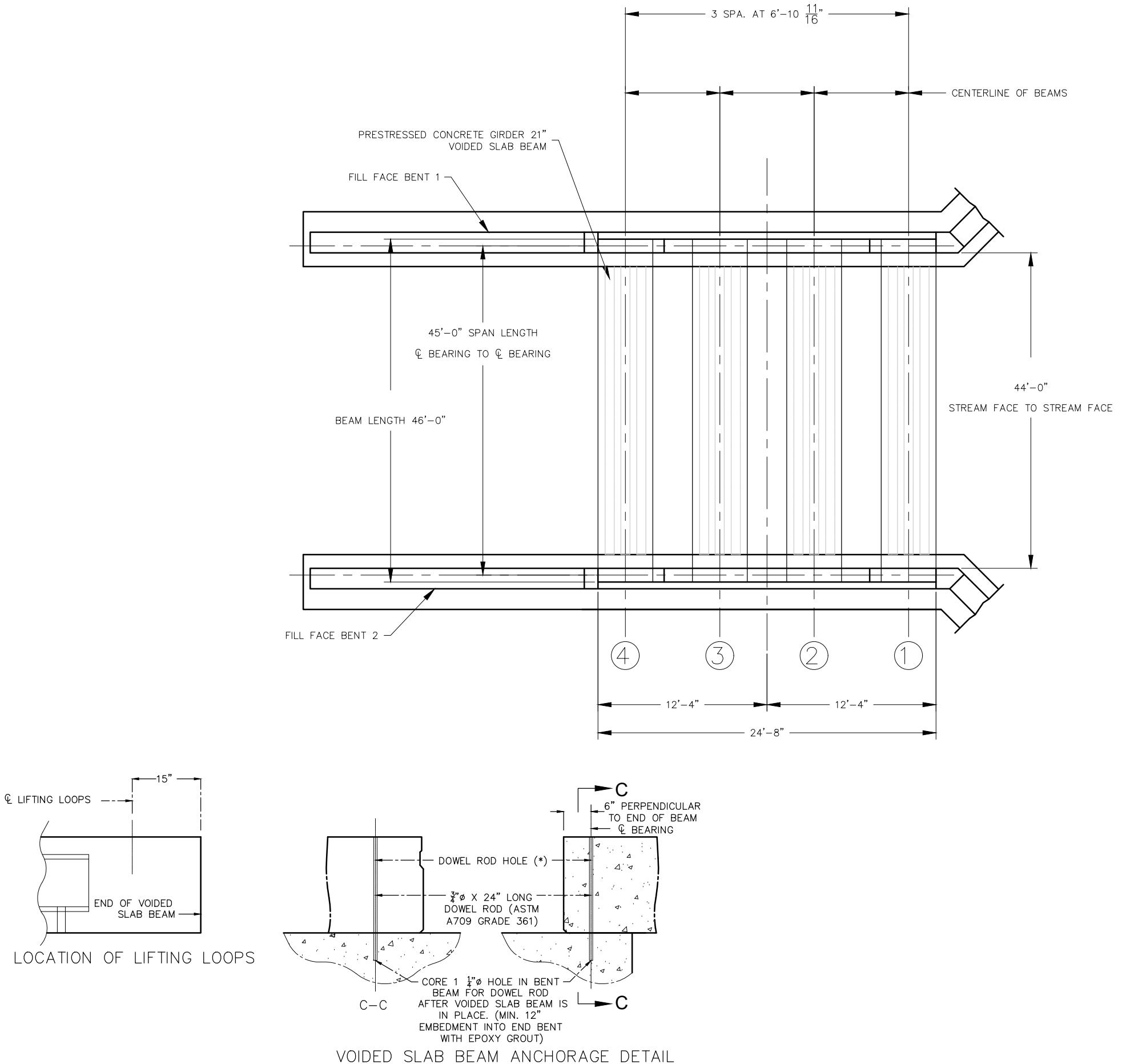
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CONCRETE SLAB BEAM PLACEMENT



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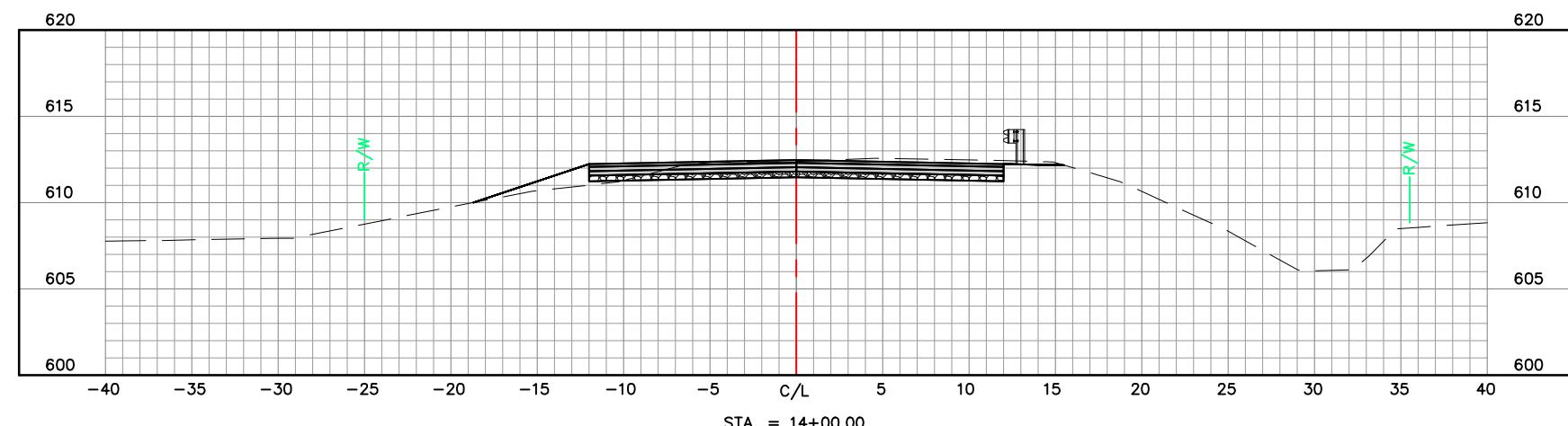
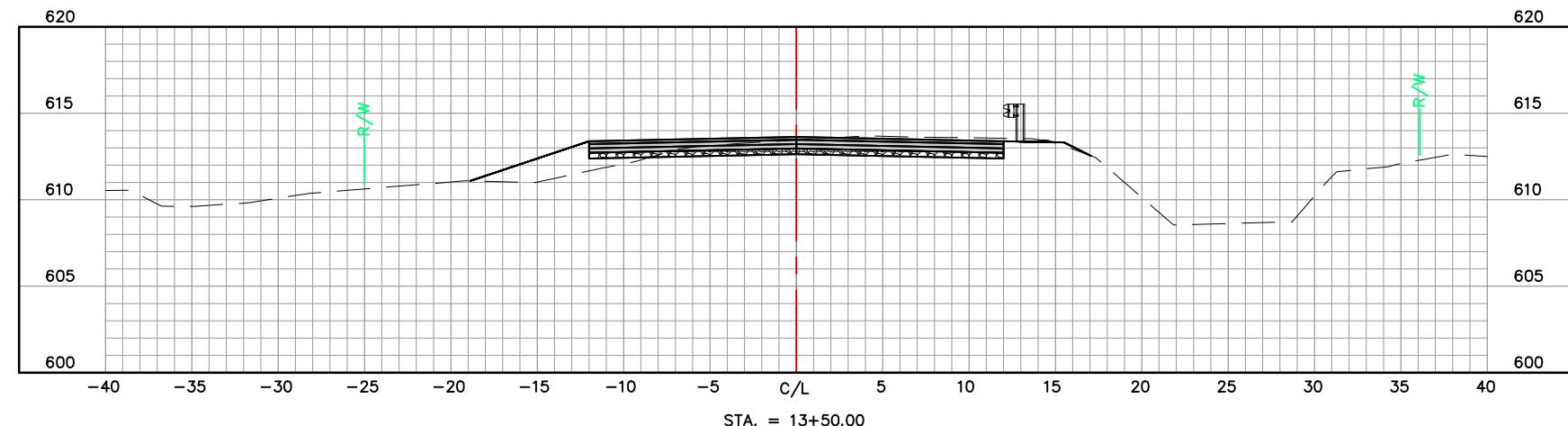
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HENDRICKS ROAD BRIDGE OVER
LITTLE MERAMEC RIVER TRIBUTARY
FEDERAL PROJECT NO. STP-5490(616)
FRANKLIN COUNTY, MISSOURI

CONCRETE SLAB BEAM PLACEMENT
DATE: REVISION:
DWN. BY: APPD. BY:
A.J.M. B.B.D.
DATE: JUNE 2021
SCALE: NOT TO SCALE
PROJ. NO.: SC20-1165
DWG. NO.:
B-19

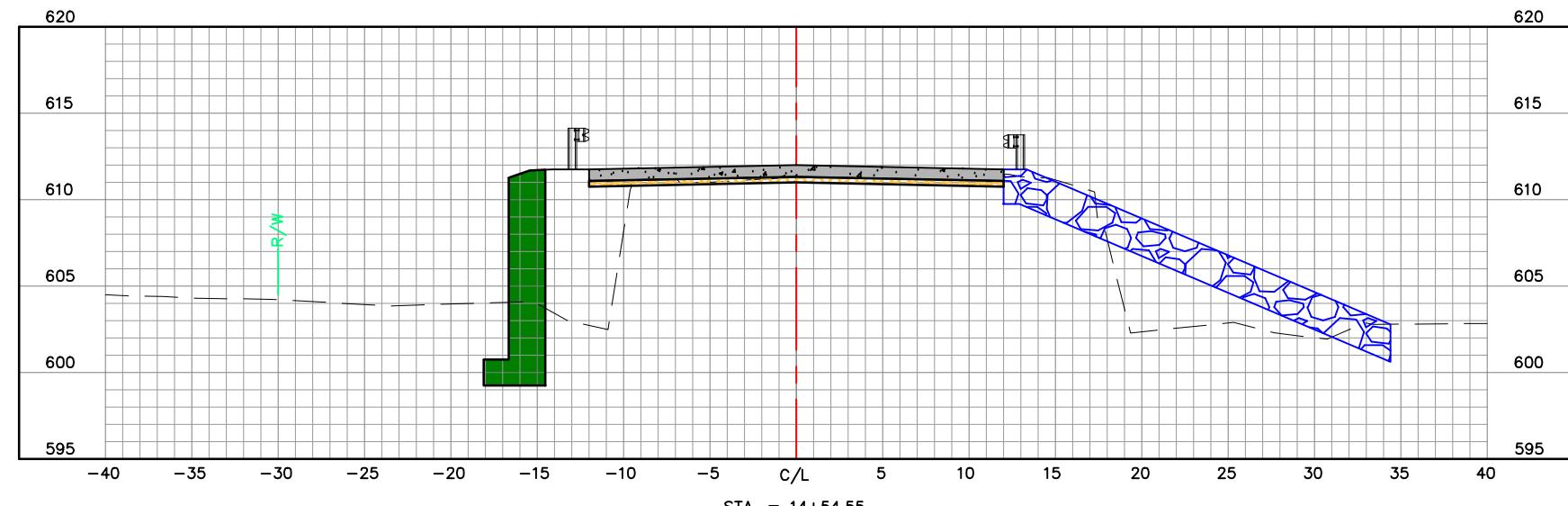
CROSS SECTIONS



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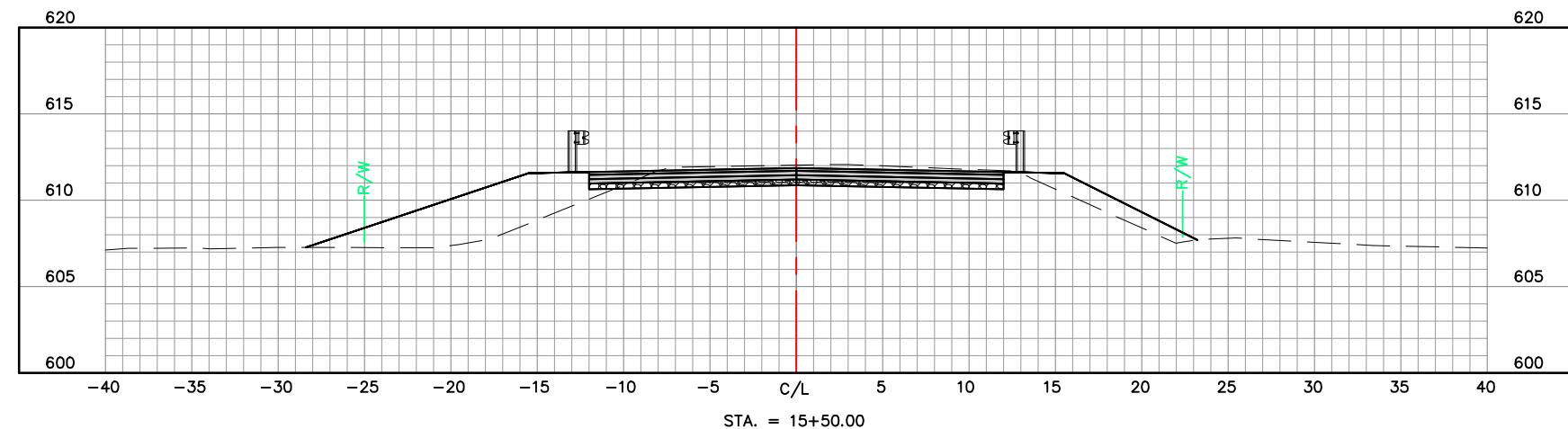
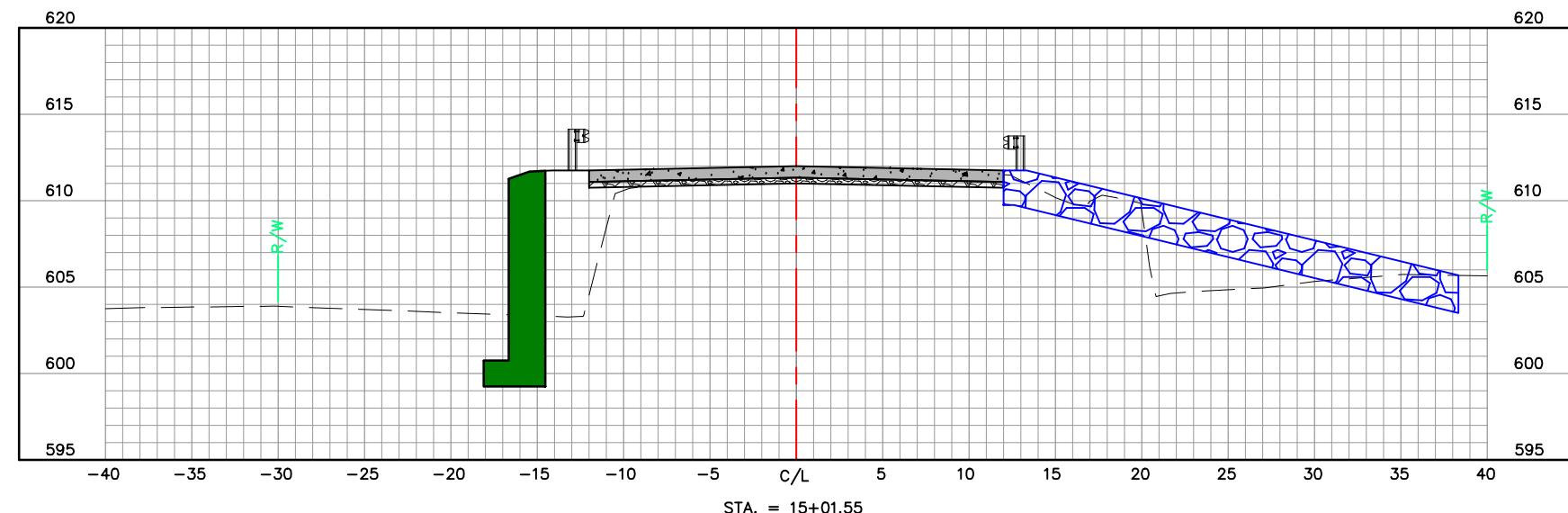
CROSS SECTION
DWG. BY: A.J.M. APPD. BY: B.B.D.
DATE: JUNE 2021
SCALE: 1" = 10'
PROJ. NO.: SC20-1165
DWG. NO.: XS-1

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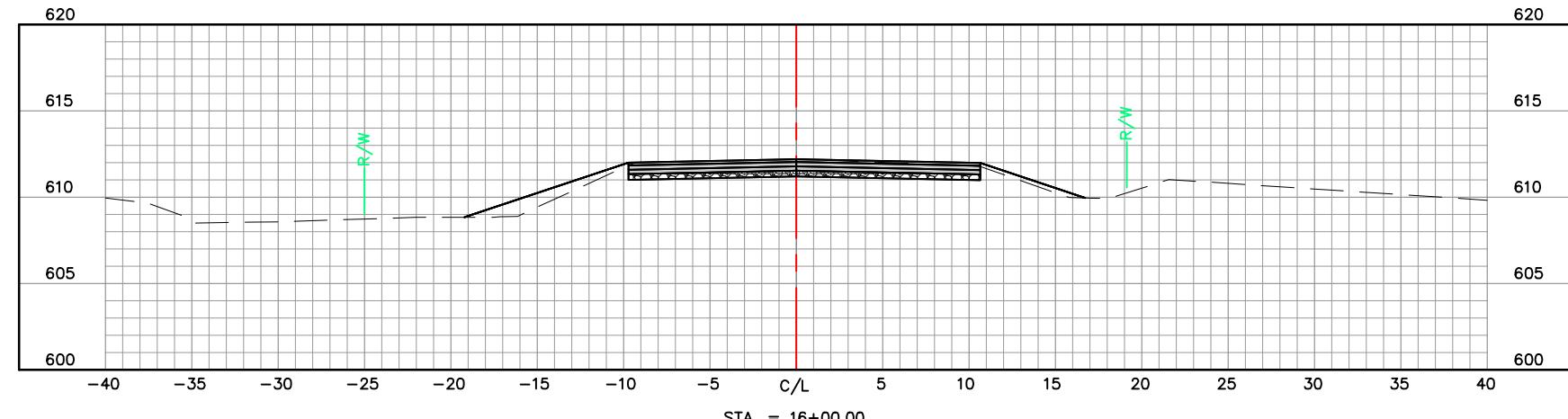


HENDRICKS ROAD BRIDGE OVER
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FEDERAL PROJECT NO. STP-5490(616)
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CROSS SECTIONS



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SCALE: 1" = 10'
PROJ. NO.: SC20-1165
DWG. NO.: XS-2

DATE: JUNE 2021
DRAWN BY: A.J.M. APPD. BY: B.B.D.
DATE: JUNE 2021
PROJ. NO.: SC20-1165
DWG. NO.: XS-2

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