

BRIDGE PLANS ID	SHEET NO.	TOTAL SHEETS
P043529	1	18

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SHEET TOTAL		18



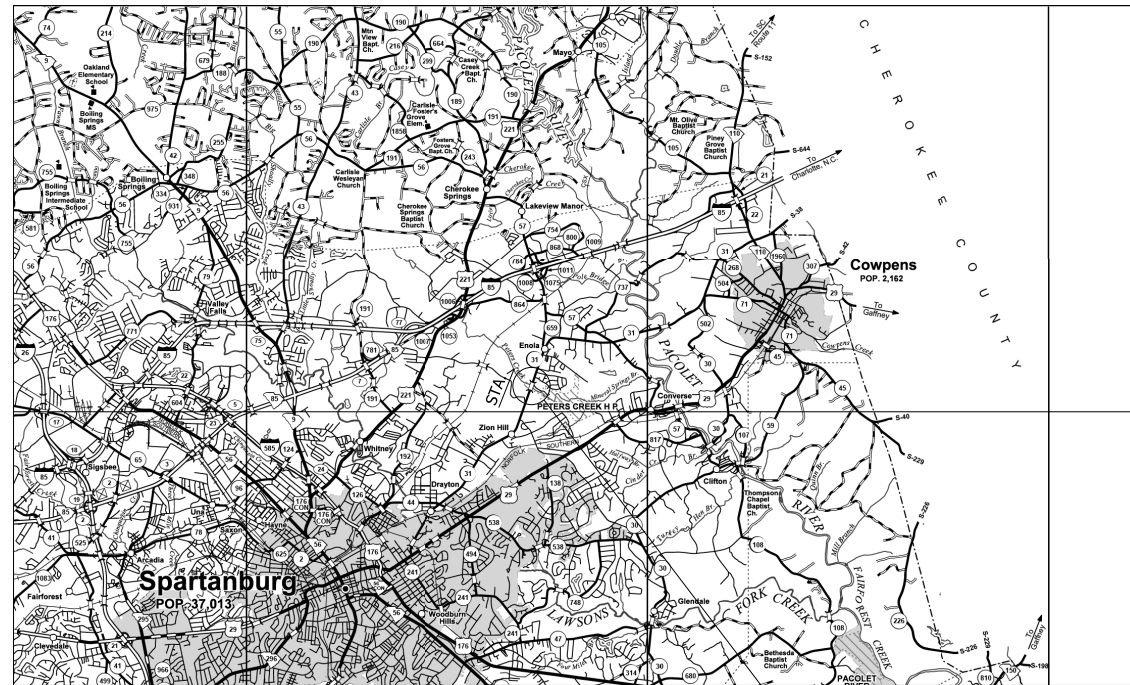
South Carolina Department of Transportation



PLANS FOR SPARTANBURG COUNTY PROJECT ID: P043529 S-42-31 (CANNONS CAMPGROUND ROAD) BRIDGE REPAIRS OVER PETERS CREEK

Submit Shop Plans to:
SCDOT
Bridge Maintenance Office
Attn: Sean Futch
955 Park Street
Columbia, SC 29201
Telephone: (803) 737-1353

Approximate Location of Bridge is
Latitude 34° - 59' - 53.53" N
Longitude 81° - 52' - 35.88" W



LAYOUT

BRIDGE 04212 OVER PETERS CREEK

ASSET ID: 04212

NET LENGTH OF ROADWAY	0.019	MILES
NET LENGTH OF BRIDGES	0.028	MILES
NET LENGTH OF PROJECT	0.047	MILES
LENGTH OF EXCEPTIONS	0.000	MILES
GROSS LENGTH OF PROJECT	0.047	MILES

3 DAYS BEFORE DIGGING IN
SOUTH CAROLINA

CALL 811

SOUTH CAROLINA 811 (SC811)
WWW.SC811.COM
ALL UTILITIES MAY NOT BE A MEMBER OF SC811

TRAFFIC DATA

2023 ADT 11,000 V.P.D.
ADT V.P.D.
TRUCKS 2%

NOTE: EXCEPT AS MAY OTHERWISE BE SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIALS AND WORKMANSHIP ON THIS PROJECT SHALL CONFORM TO THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2007 EDITION) AND THE STANDARD DRAWINGS FOR ROAD CONSTRUCTION IN EFFECT AT THE TIME OF LETTING.

SCDOT REVIEW	FOR CONSTRUCTION	
	INITIAL	DATE
STATE BRIDGE MAINTENANCE ENGINEER	SF	
BMO - DESIGN MANAGER	SF	
BMO - PROGRAM MANAGER	JW	

THE INITIALS ABOVE DO NOT RELIEVE THE ENGINEER OF RECORD OF THE RESPONSIBILITY TO DESIGN THIS PROJECT IN ACCORDANCE WITH ALL APPLICABLE CRITERIA.

FOR INFORMATION ONLY

NOT FOR CONSTRUCTION

REV.					SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
REV.					
REV.					
REV.					
QUAN.	SAB	DAA	05/24		TITLE SHEET S-42-31 OVER PETERS CREEK BRIDGE REPAIRS COUNTY SPARTANBURG
DR.	SAB	DAA	05/24		
DES.	SAB	DAA	05/24		
BY	CHK.	DATE			
					ROUTE S-42-31

ASSET ID: 04212 S-42-31 OVER PETERS CREEK			
SUMMARY OF ESTIMATED QUANTITIES			
ITEM NO.	ITEM NAME	UNIT	QTY
1031000	MOBILIZATION	LS	1
1032010	BONDS AND INSURANCE	LS	1
1071000	TRAFFIC CONTROL	LS	1
2028200	REMOVAL & DISPOSAL OF DESIGNATED PORTIONS OF EXISTING BRIDGE	LS	1
4011004	LIQUID ASPHALT BINDER PG64-22	TON	10.30 *
4013200	MILLING EXISTING ASPHALT PAVEMENT 2.0"	SY	334.00
4030320	HOT MIX ASPHALT SURFACE COURSE TYPE B	TON	170.00 *
6271010	4" WHITE SOLID LINES (PVT. EDGE LINES) THERMO.- 90 MIL.	LF	500
6271074	4" YELLOW SOLID LINES (PVT.EDGE LINES) THERMO-90 MIL.	LF	500
6301100	PERMANENT YELLOW PAVEMENT MARKERS BI-DIR.- 4"X4"	EA	8
7011400	CONC. FOR STRUCTURES - CLASS 4000	CY	476.70 *
7031200	REINF. STEEL FOR STRUCTURES (BRIDGE)	LB	33117 *
7048100	POST-TENSIONING FOR CONCRETE STRUCTURES	LS	1
7064100	TREATED TIMBER SWAY BRACES	LF	1047 *
7082000	HARDWARE	LB	1085 *
7120006	DRILLED SHAFT SET-UP	EA	5
7120142	DRILLED SHAFT WITH ROCK EXCAVATION - 36" DIAMETER	LF	45
7120151	DRILLED SHAFT WITH WET & DRY EXCAVATION - 42" DIAMETER	LF	73 *
7120155	CONSTRUCTION CASING - 42" DIAMETER	LF	73 *
7243150	ELASTOMERIC BEARING ASSEMBLY (FLAT SLAB)	EA	16
7260100	REMOVAL OF EPOXY, ASPHALT & FOREIGN OVERLAY	SY	617.00
7270010	CROSSHOLE SONIC LOGGING SETUP	EA	2
8990675	BRIDGE PILE WRAP	LF	65 *

NOTES:

- INDICATED REPAIRS ARE APPROXIMATELY LOCATED ACCORDING TO SPAN AND/OR JOINT DESCRIBED IN INSPECTION AND FIELD REPORTS. EXACT LOCATION TO BE DETERMINED IN THE FIELD.
- QUANTITIES DENOTED WITH AN ASTERISK (*) CONTAIN CONTINGENCY AND ARE PROVIDED FOR BIDDING PURPOSES ONLY. CONSTRUCTION QUANTITIES MAY VARY BASED UPON FIELD CONDITIONS ENCOUNTERED. FINAL QUANTITY FOR PAYMENT WILL BE THE CONSTRUCTION QUANTITIES, MEASURED IN ACCORDANCE WITH SPECIFICATIONS, APPROVED BY THE RCE/BMO, AND INSTALLED.
- ALL LABOR, MATERIALS, EQUIPMENT, AND TEMPORARY STORAGE SITE ASSOCIATED WITH THE TEMPORARY REMOVAL, STORAGE, AND REPLACEMENT OF THE BRIDGE SUPERSTRUCTURE, CURBS, AND BRIDGE RAILING ELEMENTS IN SPANS 4, 5, AND 6 SHALL BE INCLUDED UNDER ITEM 1031000 - MOBILIZATION.

FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

ASSET ID: 04212

REV.					SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION SUMMARY OF ESTIMATED QUANTITIES S-42-31 OVER PETERS CREEK BRIDGE REPAIRS
REV.					
REV.					
REVIEWED					
QUAN.	SAB	DAA	05/24		COUNTY SPARTANBURG
DR.	SAB	DAA	05/24		
DES.	SAB	DAA	05/24		
	BY	CHK.	DATE		
					ROUTE S-42-31

BRIDGE PLANS ID	SHEET NO.	TOTAL SHEETS
P043529	3	18

MATERIAL & WORKMANSHIP

PROVIDE ALL MATERIAL AND WORKMANSHIP IN ACCORDANCE WITH THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION 2007 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, WITH ALL APPLICABLE REVISIONS AND ADDENDA, UNLESS OTHERWISE SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS.

COORDINATION OF PLANS, SPECIFICATIONS, AND SPECIAL PROVISIONS

GENERALLY, IN CASE OF DISCREPANCY, THIS GENERAL NOTES SHEET GOVERNS OVER THE STANDARD SPECIFICATIONS BUT THE REMAINDER OF THE PLANS GOVERN OVER NOTES ON THIS SHEET AND SPECIAL PROVISIONS GOVERN OVER ALL. SEE SUBSECTION 105.4 OF THE STANDARD SPECIFICATIONS.

REINFORCING STEEL

ALL REINFORCING STEEL SHALL BE ASTM A 706 GRADE 60 IN ACCORDANCE WITH SECTION 703.2.1 OF THE STANDARD SPECIFICATIONS, AS AMENDED BY SECTION 703 SUPPLEMENTAL SPECIFICATION DATED JULY 1, 2020.

FABRICATE REINFORCING BARS IN ACCORDANCE WITH THE CURRENT C.R.S.I. MANUAL OF STANDARD PRACTICE EXCEPT FOR TIES, STIRRUPS, AND WELDED HOOPS.

PROVIDE ALL TIES AND STIRRUPS WITH 135° HOOKS THAT HAVE EXTENSIONS NOT LESS THAN THE LARGER OF TEN BAR DIAMETER OR SIX INCHES. THIS 135° HOOK REQUIREMENT DOES NOT APPLY TO STIRRUPS EXTENDING FROM PRESTRESSED CONCRETE BEAMS.

CONCRETE

PROVIDE THE CLASS OF CONCRETE AS NOTED IN THE CONTRACT DOCUMENTS. FOR CAST-IN-PLACE STRUCTURAL ELEMENTS, USE CLASS 4000 CONCRETE WHERE THE CLASS OF CONCRETE IS NOT SPECIFIED IN THE CONTRACT DOCUMENTS.

CHAMFER ALL EXPOSED EDGES 3/4" UNLESS OTHERWISE NOTED.

THE MINIMUM ACCEPTABLE CONCRETE COVER FOR REINFORCING STEEL IS 1/2" LESS THAN THE PLAN DIMENSIONS WHEN REQUIRED BY REINFORCING BAR FABRICATION TOLERANCES.

STRUCTURAL STEEL

ALL STRUCTURAL STEEL SHAPES (BEAMS, ANGLES, CHANNELS, PILES, ETC.) AND PLATES SHALL BE ASTM A 709 GRADE 50 OR AASHTO M 270 GRADE 50. ALL OTHER MISCELLANEOUS STEEL SHALL BE ASTM A 709 GRADE 36 OR AASHTO M 270 GRADE 36.

LAYOUT DIMENSIONS AND STANDARD LENGTHS OF BEAMS SHOWN ARE HORIZONTAL DIMENSIONS WHICH MUST BE INCREASED WHEN BRIDGE IS ON GRADE.

WHEN HOLES ARE PLACED IN WEBS TO ACCOMMODATE FALSEWORK, INSTALL HIGH STRENGTH BOLTS IN THE HOLES AFTER FALSEWORK IS REMOVED.

NOTIFY THE DEPARTMENT OF THE NAME AND ADDRESS OF THE FABRICATOR OF THE STRUCTURAL STEEL AS SOON AS THE FABRICATOR HAS BEEN GIVEN THE CONTRACT TO FABRICATE SO THAT THE INSPECTION PROCEDURE CAN BE SET UP.

DO NOT FIELD OR SHOP WELD ERECTION HARDWARE TO THE STRUCTURAL STEEL MEMBERS.

MAKE ALL BOLTED CONNECTIONS WITH 3/4" DIA. ASTM F3125, GRADE A325 BOLTS UNLESS OTHERWISE INDICATED. BOLTS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A153.

SHOP DRILLED HOLES SHALL BE 1/8" LARGER THAN THE BOLT DIAMETER. FIELD DRILLED HOLES SHALL BE 1/8" LARGER THAN THE BOLT DIAMETER. OVERSIZED HOLES 3/16" LARGER THAN THE BOLT DIAMETER MAY BE USED IF INDICATED ON THE PLANS. HARDENED WASHERS ARE REQUIRED UNDER DTIs ON OVERSIZED BOLT HOLES. IN EVERY CASE INSTALL A HARDENED WASHER UNDER THE ELEMENT TURNED FOR EACH BOLT OF A BOLTED CONNECTION. INDICATE ON THE SHOP PLANS WHICH HOLES ARE TO BE OVERSIZED AND WHERE HARDENED WASHERS ARE REQUIRED. NO ADDITIONAL PAYMENT IS MADE FOR THE COSTS ASSOCIATED WITH THE USE OF OVERSIZE HOLES AND FURNISHING ADDITIONAL HARDENED WASHERS AS NECESSARY.

PAINT FOR NEW STRUCTURAL STEEL

PAINT NEW STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 710 OF THE STANDARD SPECIFICATIONS, EXCEPT FAYING SURFACES. PREPARE FAYING SURFACES AND APPLY ONLY PRIMER IN ACCORDANCE WITH SECTION 710.4.1 OF THE STANDARD SPECIFICATIONS.

FIELD PAINTING OF EXISTING STRUCTURAL STEEL

CLEAN AND PAINT EXISTING STRUCTURAL STEEL AND EXISTING STEEL PILES AT THE LOCATIONS SPECIFIED IN THESE PLANS WITH CORROSION INHIBITING PAINT AS PER THE SPECIAL PROVISIONS.

CLEAN AND APPLY ALUMINUM EPOXY MASTIC PRIMER TO FAYING SURFACES OF EXISTING STRUCTURAL STEEL IN ACCORDANCE WITH SPECIAL PROVISIONS.

EXISTING PAINT SYSTEMS MAY CONTAIN LEAD. ALL ENVIRONMENTAL MONITORING AND CONTAINMENT IS THE RESPONSIBILITY OF THE CONTRACTOR.

FINAL FINISH OF EXPOSED CONCRETE SURFACES

APPLY THE FINAL SURFACE FINISH ON THE BRIDGE(S) ONLY TO THE FOLLOWING CHECKED AND DESIGNATED BRIDGE AREAS:

- A) ENTIRE SURFACE OF ALL BARRIER RAILS, PARAPET WALLS, APPROACH SLAB CURBS, CONCRETE UTILITY SUPPORTS, AND WING WALLS; OUTSIDE VERTICAL EDGE OF BRIDGE DECK SLABS AND SIDEWALKS.
- B) OUTSIDE FACE OF EXTERIOR PRESTRESSED GIRDERS.
- C) ENTIRE SURFACE OF DESIGNATED SUBSTRUCTURE UNITS, EXCEPT THE TOP OF BENT CAPS AND PIERS.
 - ALL UNITS
 - DESIGNATED UNITS
- D) NO FINAL SURFACE FINISH REQUIRED.

EXISTING UTILITIES

THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING AND MAINTAINING EXISTING UTILITY FACILITIES ALONG THE PROJECT CORRIDOR AT NO ADDITIONAL COST TO SCDOT. THIS INCLUDES, BUT IS NOT LIMITED TO: WATER, SEWER, GAS, POWER, TELECOMMUNICATIONS, LIGHTING, CONTROLS AND OTHER AGENCY MONITORING STATIONS. ANY BROKEN OR DAMAGED FACILITIES SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE. NO SEPARATE PAYMENT WILL BE MADE.

SEE SPECIAL PROVISIONS FOR UTILITY CONTACTS. PROVISION OF CONTACTS DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBLY FOR MAINTENANCE OF EXISTING FACILITIES AS DESCRIBED ABOVE.

REINFORCED CONCRETE REPAIRS

PROVIDE MATERIAL AND WORKSHIP IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PROVIDE REINFORCEMENT BARS CONFORMING TO THE REQUIREMENTS OF ASTM A 706 GRADE 60.

PROVIDE LAP SPLICE LENGTHS AND EMBEDMENT LENGTHS IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

CLEAN ALL EXISTING REINFORCEMENT BARS TO BE RETAINED WITH A WIRE BRUSH OR SAND BLAST, STRAIGHTEN AND COAT WITH AN APPROVED EPOXY PAINT FOR EPOXY COATED EXISTING REINFORCEMENT STEEL OR NEAT CEMENT FOR (NON EPOXY COATED) EXISTING REINFORCEMENT STEEL.

PROVIDE EPOXY COATED OR GALVANIZED REBARS AS REQUIRED, REMOVE AND REPLACE IN KIND (EXCEPT ALWAYS USE GALVANIZED BARS IN ACCORDANCE WITH SECTION 703 OF THE STANDARD SPECIFICATIONS OR EPOXY COATED REBARS) ALL PORTIONS OF DAMAGED OR HEAVILY CORRODED REINFORCEMENT BARS BY SATISFACTORILY SPLICING TO THE REMAINING REINFORCEMENT BARS.

APPLY AN EPOXY BONDING COMPOUND CONFORMING TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS 702.4.8 AND ASTM C881.

CONSTRUCTION, EQUIPMENT, SURFACE PREPARATION AND PATCHING MATERIAL FOR CONCRETE BRIDGE DECK REPAIR MUST CONFORM TO THE CONCRETE REPAIR SPECIFICATION.

TYPE OF REPAIRS DEPICTED IN THESE PLANS ASSUME THAT THE STRUCTURAL INTEGRITY OF THE BRIDGE IS NOT COMPROMISED BY THE EXTENT OF THE REPAIRS.

IF BRIDGE BEAMS ARE DAMAGED DURING DECK REPAIR, BEAMS MUST BE REPAIRED OR REPLACED AT NO EXPENSE TO THE DEPARTMENT.

SPECIFICATIONS

AASHTO 2020 LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION AND ALL APPLICABLE INTERIM REVISIONS.

ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE (LATEST EDITION) WITH ADDITIONS AND REVISIONS AS STATED IN THE STANDARD SPECIFICATIONS.

DESIGN DATA

LOAD AND RESISTANCE FACTOR DESIGN (LRFD) METHOD

LIVE LOAD: AASHTO HL-93 LOADING

EXISTING STRUCTURE

THE CONTRACTOR SHALL TAKE SPECIAL CARE TO PROTECT ANY PARTS OF THE STRUCTURE THAT ARE NOT TO BE REPAIRED. REPAIR OR REPLACE TO THE SATISFACTION OF THE RESIDENT CONSTRUCTION ENGINEER (RCE) AND BRIDGE MAINTENANCE OFFICE (BMO) AND AT THE CONTRACTOR'S EXPENSE ANY PORTION OF THE EXISTING STRUCTURE DAMAGED DUE TO CARELESSNESS OR NEGLIGENCE.

THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON LIMITED FIELD INSPECTION AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS TO CONSTRUCTION DETAILS AND WORK QUANTITIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY SCDOT OF ANY FIELD CONDITIONS THAT REQUIRE MODIFICATION TO THE WORK INDICATED.

ALL DIMENSIONS OF NEW CONSTRUCTION ON REHABILITATION PROJECTS ARE SUBJECT TO EXISTING CONDITIONS. IT IS REQUIRED THAT ALL DIMENSIONS WHICH MAY AFFECT MATERIALS AND QUANTITIES AS SHOWN ON THESE PLANS BE VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS AND COMMENCEMENT OF WORK.

THE RCE, BMO, AND THE CONTRACTOR ARE TO JOINTLY CONDUCT A FIELD INSPECTION TO DETERMINE AND DOCUMENT LOCATIONS, BOUNDARIES, AND QUANTITIES OF REPAIR WORK TO THE EXISTING STRUCTURE. SUBMIT TO THE RCE AND BMO ANY DIFFERENCES TO DETERMINE IF THEY WARRANT ADDITIONAL REPAIR WORK. IN ADDITION, THE RCE, BMO, AND THE CONTRACTOR ARE TO USE THE FIELD INSPECTION TO DETERMINE IF ANY OTHER REPAIR WORK IS NECESSARY.

ANY NECESSARY REPAIRS TO THE EXISTING STRUCTURE, IN THE OPINION OF THE BCE OR BMO, ARE TO BE PAID FOR AS EXTRA WORK IF SUCH WORK IS NOT CALLED FOR IN THESE PLANS OR IN THE SPECIAL PROVISIONS FOR THE PROJECT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING ALL REPAIR OPERATIONS.

HAZARDOUS MATERIALS

IF CHECKED, THE FOLLOWING HAZARDOUS MATERIALS HAVE BEEN IDENTIFIED AT THE PROJECT SITE:

- LEAD BASED PAINT
- ASBESTOS CONTAINING MATERIALS

REFER TO THE CONTRACT LETTING DOCUMENTS FOR HAZARDOUS MATERIAL TESTING REPORTS FOR MORE INFORMATION.

POLLUTION CONTROL

DO NOT ALLOW, AT ANY TIME, DISCHARGE OR MATERIALS TO FALL INTO THE CHANNEL. REMOVE ANY MATERIALS FALLING INTO THE WATER IMMEDIATELY AND DISPOSE OF MATERIALS PROPERLY.

EXCAVATIONS

MINOR SOIL EXCAVATIONS REQUIRED FOR SLOPE PROTECTION OR PILE WRAP INSTALLATIONS WITHIN 2FT OF EXISTING BRIDGE ELEMENTS SHALL BE CONDUCTED BY HAND. USE OF MECHANICAL EXCAVATION EQUIPMENT ADJACENT TO EXISTING BRIDGE ELEMENTS IS PROHIBITED.

BRIDGE WEIGHT RESTRICTIONS

THE CONTRACTOR SHALL TAKE NOTE THAT THE BRIDGE IS POSTED WITH LOAD RESTRICTIONS AT BOTH APPROACHES. ADHERE TO ALL POSTING RESTRICTIONS WHEN PERFORMING REPAIR OPERATIONS ON THE BRIDGE UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE AT ALL TIMES DURING REPAIR OPERATIONS.

FIELD ADJUSTMENTS TO PLAN ELEVATIONS

DUE TO THE EMERGENCY NATURE OF THIS REPAIR PROJECT, NO FIELD SURVEY HAS BEEN COMPLETED AS PART OF THE DESIGN PROCESS. THE CONTRACTOR SHALL BE REQUIRED TO PERFORM SURVEY TO RECORD EXISTING BRIDGE FINISHED GRADE ELEVATIONS ALONG THE DECK TOP AND EXISTING SUBSTRUCTURE ELEMENTS. THE CONTRACTOR SHALL REFERENCE AN EXISTING BENCHMARK OR ESTABLISH A TEMPORARY CONSTRUCTION BENCHMARKS FOR THE PURPOSE OF COMPARING COMPLETED BRIDGE ELEVATIONS TO PRE-REPAIR CONDITIONS.

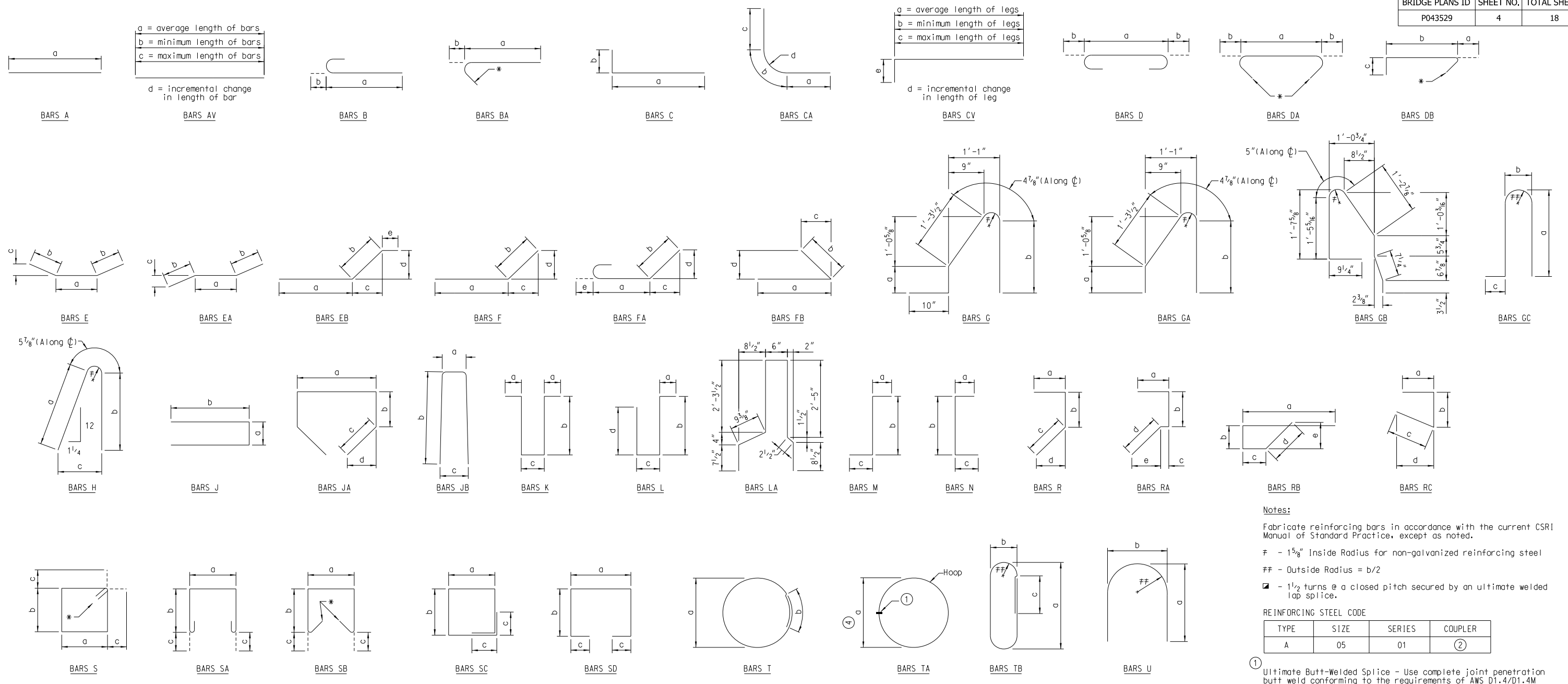
THE ELEVATIONS SHOWN IN THE PLANS ARE BASED ON CURSORY FIELD MEASUREMENTS AND ELEVATION DATA COLLECTED FROM HANDHELD GPS INSTRUMENTS. THE ELEVATIONS IN THE PLANS ARE INTENDED TO PROVIDE REFERENCE FOR THE REQUIRED BENT CAP, COLUMN, AND DRILLED SHAFT QUANTITIES. THE CONTRACTOR SHALL MODIFY THE TOP OF CAP ELEVATIONS AT BENTS 5 AND 6 SHOWN IN THE PLANS TO THOSE ESTABLISHED IN THE FIELD USING THE ABOVE NOTED CONSTRUCTION BENCHMARK. ALL OTHER ELEVATIONS NOTED IN THE PLANS FOR BENTS 5 AND 6 SHALL BE ADJUSTED BASED ON THE FIELD VERIFIED TOP OF CAP ELEVATIONS.

ASSET ID: 04212

REV.					SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
REV.					
REV.					
REV.					
QUAN.	SAB	DAA	05/24		GENERAL NOTES S-42-31 OVER PETERS CREEK BRIDGE REPAIRS
DR.	SAB	DAA	05/24		
DES.	SAB	DAA	05/24		
	BY	CHK.	DATE		
					COUNTY SPARTANBURG
					ROUTE S-42-31

FOR INFORMATION ONLY

NOT FOR CONSTRUCTION



a = average length of bars
b = minimum length of bars
c = maximum length of bars
d = incremental change in length of bar

a = average length of legs
b = minimum length of legs
c = maximum length of legs
d = incremental change in length of leg

Notes:
Fabricate reinforcing bars in accordance with the current CSRI Manual of Standard Practice, except as noted.
- 1 5/8" Inside Radius for non-galvanized reinforcing steel
- Outside Radius = b/2
☑ - 1 1/2 turns @ a closed pitch secured by an ultimate welded lap splice.

REINFORCING STEEL CODE

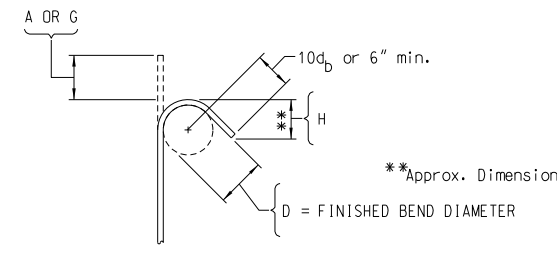
TYPE	SIZE	SERIES	COUPLER
A	05	01	②

- ① Ultimate Butt-Welded Splice - Use complete joint penetration butt weld conforming to the requirements of AWS D1.4/D1.4M Structural Welding Code - Reinforcing Steel (Latest Edition) and the Standard Specifications.
- ② If a mechanical coupler is required, the reinforcing steel code includes a designation of "S" for a service level coupler and a designation of "U" for an ultimate strength coupler. Unless noted otherwise, bar lengths shown in the Reinforcing Steel Schedules are to the center of the coupler. If necessary, adjust the length of the bars to maintain the required concrete cover.
- ③ Splice WS and WP bars with either ultimate welded lap splices or ultimate mechanical couplers. Use over and under lap splices, not side by side, to maintain bar clearances.
- ④ The fabrication tolerance for welded hoop diameter is ± 1/2 inch.
- ⑤ This 135° hook requirement does not apply to stirrups extending from prestressed concrete beams.

UNCOATED BARS - MINIMUM FINISHED BEND DIAMETER	
BAR SIZE AND USE	MINIMUM FINISHED BEND DIAMETER
#3 THROUGH #5 - GENERAL	6.0 d _n
#3 THROUGH #5 - STIRRUPS AND TIES	4.0 d _n
#6 THROUGH #8	6.0 d _n
#9, #10, AND #11	8.0 d _n
#14 AND #18	10.0 d _n ¹

GALVANIZED BARS - MINIMUM FINISHED BEND DIAMETER	
BAR SIZE AND USE	MINIMUM FINISHED BEND DIAMETER
#3 THROUGH #6	6.0 d _n
#7 THROUGH #8	8.0 d _n
#9, #10, AND #11	8.0 d _n
#14 AND #18	10.0 d _n ¹

d_n = nominal diameter of reinforcing bar (in.)
¹ Due to safety concerns CRSI does not recommend bending bars larger than #43 with grade designation of Grade 75 or higher



⑤ *STANDARD 135° SEISMIC HOOK (SEE TABLE BELOW FOR DIMENSIONS)

SIZE	STANDARD 135° HOOK DIMENSIONS					
	UNCOATED			GALVANIZED		
	D (IN)	A OR G (IN)	H (IN)	D (IN)	A OR G (IN)	H (IN)
#4	2.50	7.75	5.00	3.00	8.00	5.25
#5	3.25	8.50	5.50	3.75	9.00	5.50
#6	4.50	10.75	6.75	4.50	10.75	6.75

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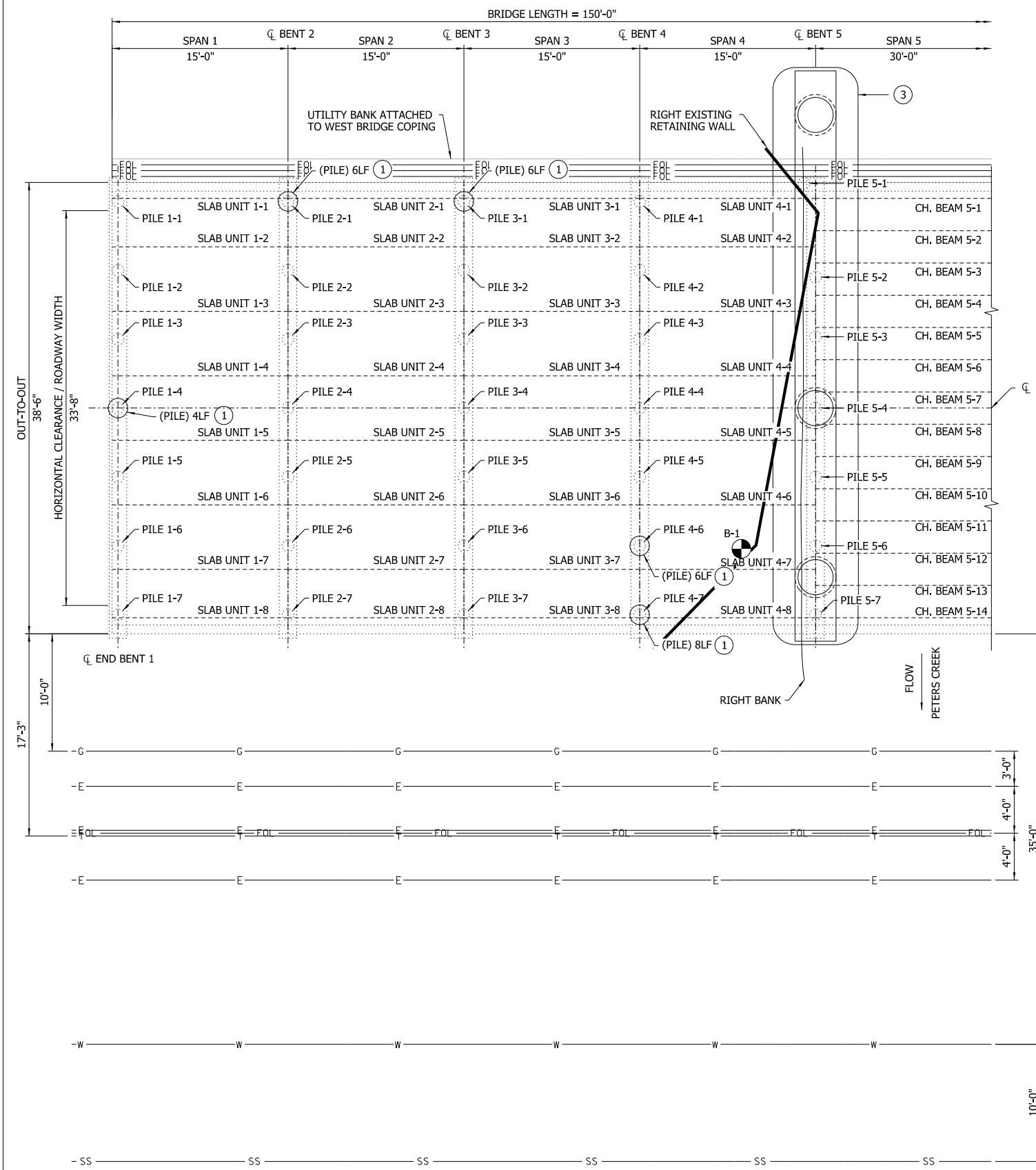
REV.			
REV.			
REV.			
QUAN.	SAB	DAA	05/24
DR.	SAB	DAA	05/24
DES.	SAB	DAA	05/24
BY	CHK.	DATE	

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

REINFORCING BENDING
DETAILS
S-42-31 OVER PETERS CREEK
BRIDGE REPAIRS

COUNTY SPARTANBURG

ROUTE S-42-31



← DIRECTION OF TRAVEL

→ DIRECTION OF TRAVEL

LEGEND:

- G — BURIED NATURAL GAS
- T — OVERHEAD TELECOMMUNICATION
- FOL — FIBER OPTIC LINE
- E — OVERHEAD ELECTRIC
- W — BURIED POTABLE WATER LINE
- SS — BURIED SANITARY SEWER
- REMOVE, STORE, AND REPLACE SUPERSTRUCTURE
- APPROXIMATE GEOTECHNICAL BORING LOCATION
- BRIDGE PILE WRAP

REPAIR ITEM LEGEND:

- ① BRIDGE PILE WRAP (BR1)
- ② REMOVE, STORE, AND REPLACE SUPERSTRUCTURE (BR2)
- ③ BENT REPLACEMENT (BR5 - BR7)
- ④ TIMBER BRACING REPLACEMENT (BR7 - BR10)
- ⑤ MILLING AND RESURFACING (KP4)
- ⑥ THERMOPLASTIC STRIPING (KP4)

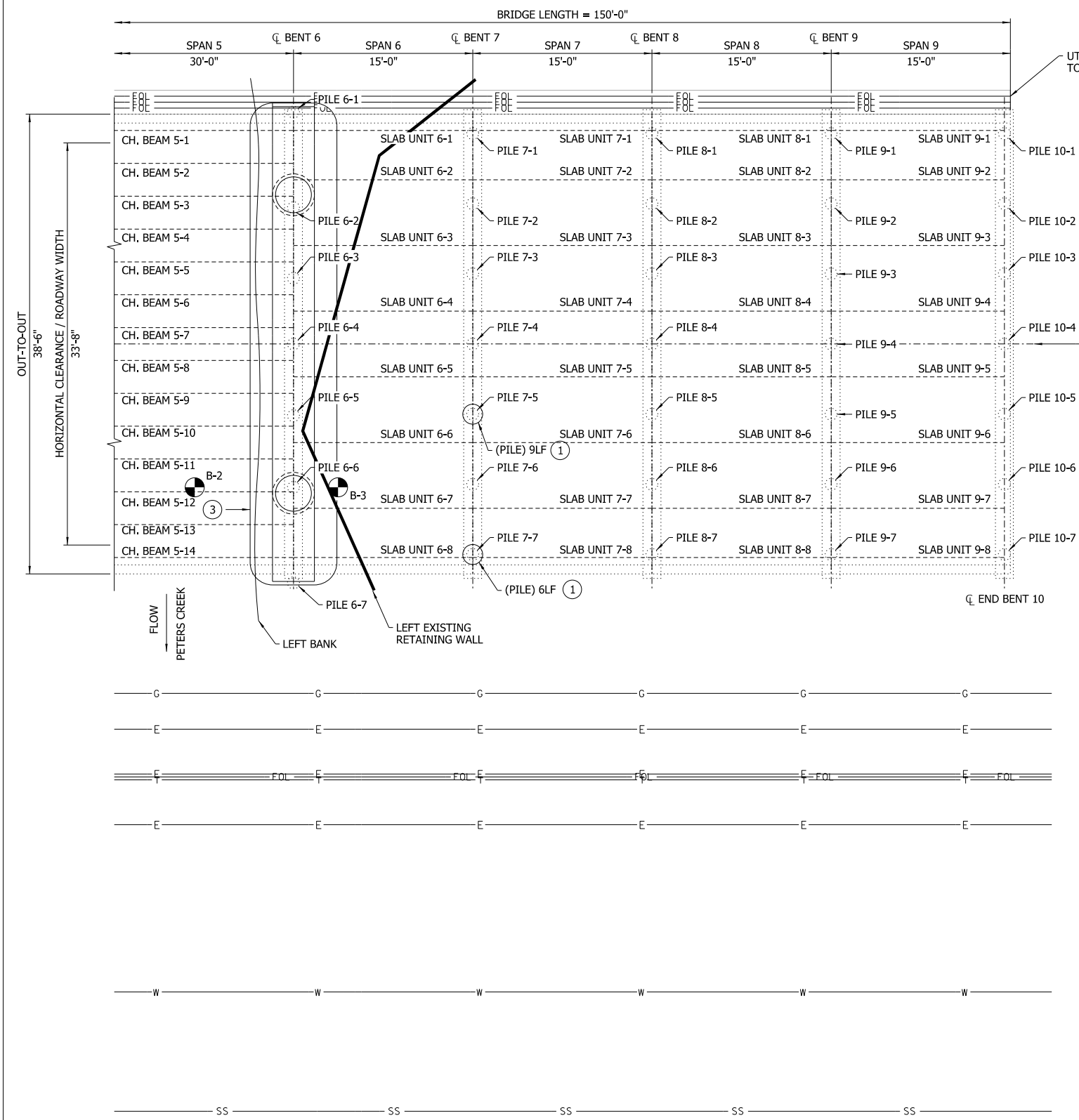
FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

NOTES:

1. THE INDICATED REPAIRS ON THESE KEY PLAN SHEETS ARE INTENDED TO DEPICT APPROXIMATE LOCATIONS OF SELECT WORK ITEMS AND MAY NOT COVER ALL REQUIRED WORK. REFER TO THE SPECIAL PROVISIONS, SCOPE OF WORK FOR A LIST OF ALL WORK ITEMS AND ASSOCIATED SECTIONS OF THE SPECIFICATIONS FOR ALL WORK ITEMS REQUIRED UNDER THIS PROJECT.
2. INDICATED REPAIRS ARE APPROXIMATELY LOCATED ACCORDING TO SPAN AND/OR JOINT DESCRIBED IN INSPECTION AND FIELD REPORTS. EXACT LOCATIONS TO BE DETERMINED IN THE FIELD.
3. THE QUANTITIES SHOWN ON THE KEY PLAN SHEETS ARE ANTICIPATED QUANTITIES AT EACH LOCATION BUT ARE NOT FOR BIDDING PURPOSES. FIELD MEASURE EACH DEFICIENCY IN ACCORDANCE WITH THE METHOD OF MEASUREMENT SPECIFIED IN THE SPECIFICATIONS.
4. RCE AND/OR BMO MAY APPROVE FIELD ADJUSTMENTS DUE TO IMPERFECT CONDITIONS ON SITE. CONTRACTOR IS RESPONSIBLE FOR FIELD MEASUREMENTS AND ALIGNMENT.
5. THE LOCATIONS OF UTILITIES SHOWN IN THESE PLANS ARE APPROXIMATE AND MAY NOT IDENTIFY ALL UTILITIES WITHIN THE PROJECT LIMITS. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN EXISTING UTILITY FACILITIES THAT REMAIN ALONG THE PROJECT CORRIDOR AT NO ADDITIONAL COST TO THE DEPARTMENT. REFER TO THE CONTRACT DOCUMENTS FOR UTILITIES WHICH ARE TO BE TEMPORARILY OR PERMANENTLY RELOCATED BY THE UTILITY OWNER.
- ③ ④ 6. ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE REMOVAL OF BRIDGE ELEMENTS SHALL BE INCLUDED UNDER ITEM 2028200 - REMOVAL & DISPOSAL OF DESIGNATED PORTIONS OF EXISTING BRIDGE. THESE BRIDGE ELEMENTS INCLUDE EXISTING CAPS AND PILES AT BENTS 5 AND 6, SELECT TIMBER SWAYBRACING, SASH BRACING, & LONGITUDINAL BRACING, AND SUPERSTRUCTURE TRANSVERSE TIE RODS IN SPANS 4, 5, AND 6.
- ② 7. ALL LABOR, MATERIALS, EQUIPMENT, AND TEMPORARY STORAGE SITE ASSOCIATED WITH THE TEMPORARY REMOVAL, STORAGE, AND REPLACEMENT OF THE BRIDGE SUPERSTRUCTURE, CURBS, AND BRIDGE RAILING ELEMENTS IN SPANS 4, 5, AND 6 SHALL BE INCLUDED UNDER ITEM 1031000 - MOBILIZATION.
- ④ 8. LOCATIONS OF TIMBER SWAYBRACING, SASH BRACING, AND LONGITUDINAL BRACING TO BE REMOVED AND REPLACED ARE NOT INCLUDED ON THESE KEY PLAN SHEETS. REFER TO THE TIMBER BRACING DETAILS SHEET (3 OF 3) FOR A DETAILED LIST OF LOCATIONS. THE CONTRACTOR AND RCE SHOULD FIELD VERIFY ALL LOCATIONS FOR REPLACEMENT PRIOR TO THE CONTRACTOR ORDERING MATERIALS.
- ⑤ 9. CONTRACTOR TO DETERMINE FINISHED GRADE ELEVATIONS OF THE EXISTING BRIDGE DECK TOP AND APPROACH ROADWAYS WITHIN 100FT. OF THE BRIDGE PRIOR TO PERFORMING ANY DEMOLITION OPERATIONS. FINISHED GRADES OF THE COMPLETED BRIDGE REHABILITATION WILL MATCH THE GRADES PRIOR TO BEGINNING REPAIRS. CONTRACTOR TO PROVIDE NECESSARY TRANSITIONS AT THE BRIDGE APPROACHES TO COMPLETE MILLING AND RESURFACING ON THE BRIDGE. APPROACH ROADWAY TRANSITIONS SHALL BE INCLUDED UNDER ITEM 4013200 - MILLING EXISTING ASPHALT PAVEMENT 2.0".
- ⑥ 10. UPON COMPLETION OF MILLING AND RESURFACING OPERATIONS, INSTALL THERMOPLASTIC PAVEMENT MARKINGS. THERMOPLASTIC PAVEMENT MARKINGS SHALL BE INSTALLED IN THE ORIENTATION AND ALIGNMENT OF THE EXISTING STRIPING PRIOR TO BEGINNING CONSTRUCTION OPERATIONS. COST OF DOCUMENTING AND MATCHING STRIPING ALIGNMENTS IS INCLUDED UNDER ITEMS 6271010 - 4" WHITE SOLID LINES (PVT. EDGE LINES) THERMO.- 90 MIL. AND 6271074 - 4" YELLOW SOLID LINES (PVT. EDGE LINES) THERMO-90 MIL.
11. THE APPROXIMATE LOCATIONS OF EXISTING TIMBER PILES SHOWN ARE TAKEN AT THE GROUNDLINE, NOT THE TOP OF CAP.

ASSET ID: 04212

REV.				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
REV.					
REV.				KEY PLAN - SUBSTRUCTURE (1 OF 2) S-42-31 OVER PETERS CREEK BRIDGE REPAIRS	
REVIEWED					
QUAN.	SAB	DAA	05/24	COUNTY SPARTANBURG	
DR.	SAB	DAA	05/24		
DES.	SAB	DAA	05/24		
BY	CHK.	DATE			
				ROUTE S-42-31	



- LEGEND:**
- G BURIED NATURAL GAS
 - T OVERHEAD TELECOMMUNICATION
 - FOL FIBER OPTIC LINE
 - E OVERHEAD ELECTRIC
 - W BURIED POTABLE WATER LINE
 - SS BURIED SANITARY SEWER
 - [Hatched Box] REMOVE, STORE, AND REPLACE SUPERSTRUCTURE
 - [Circle with Cross] APPROXIMATE GEOTECHNICAL BORING LOCATION
 - [Circle with Dot] BRIDGE PILE WRAP

- REPAIR ITEM LEGEND:**
- ① BRIDGE PILE WRAP (BR1)
 - ② REMOVE, STORE, AND REPLACE SUPERSTRUCTURE (BR2)
 - ③ BENT REPLACEMENT (BR5 - BR7)
 - ④ TIMBER BRACING REPLACEMENT (BR7 - BR10)
 - ⑤ MILLING AND RESURFACING (KP4)
 - ⑥ THERMOPLASTIC STRIPING (KP4)

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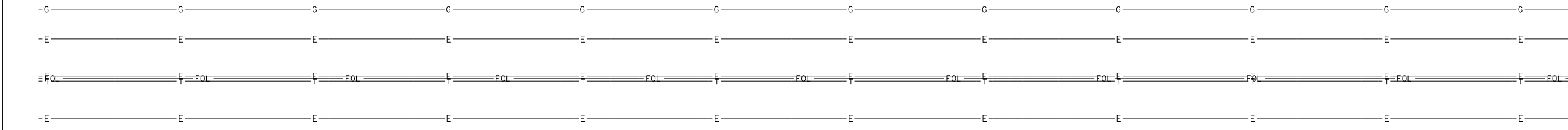
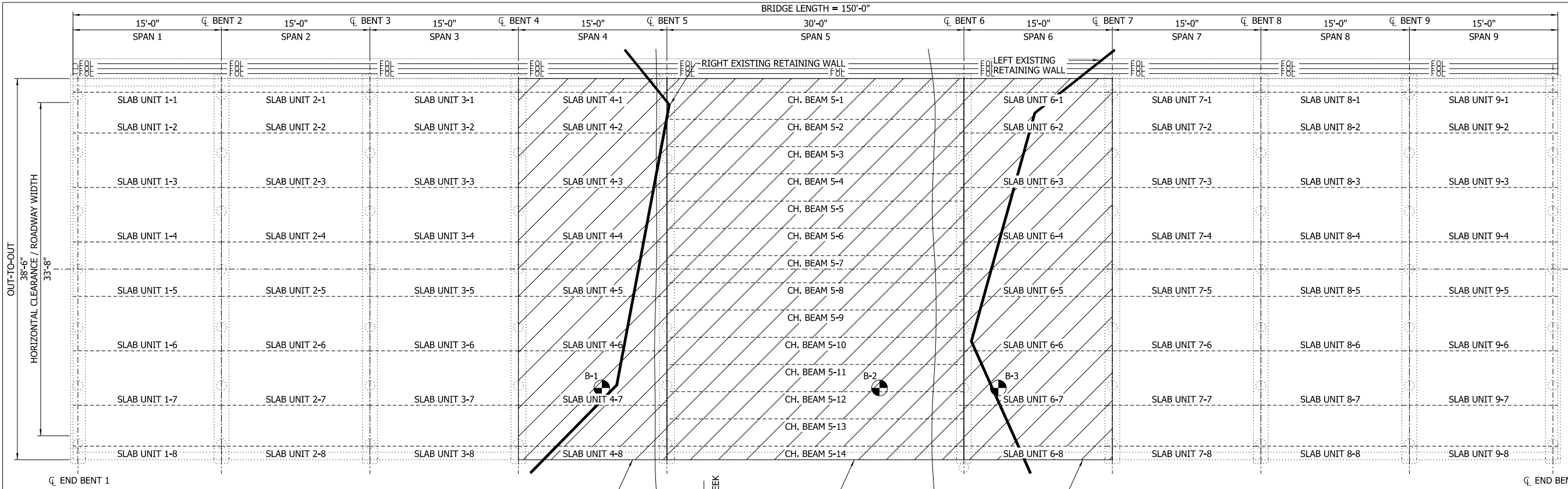
NOTE:
FOR KEY PLAN NOTES AND APPROXIMATE UTILITY OFFSETS, SEE KEY PLAN - SUBSTRUCTURE (1 OF 2).

ASSET ID: 04212

REV.				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION			
REV.				KEY PLAN - SUBSTRUCTURE (2 OF 2) S-42-31 OVER PETERS CREEK BRIDGE REPAIRS			
REV.							
QUAN.	SAB	DAA	05/24	COUNTY SPARTANBURG			
DR.	SAB	DAA	05/24				
DES.	SAB	DAA	05/24	ROUTE S-42-31			
BY	CHK.	DATE					

BRIDGE PLANS ID	SHEET NO.	TOTAL SHEETS
P043529	KP3	18

BRIDGE LENGTH = 150'-0"



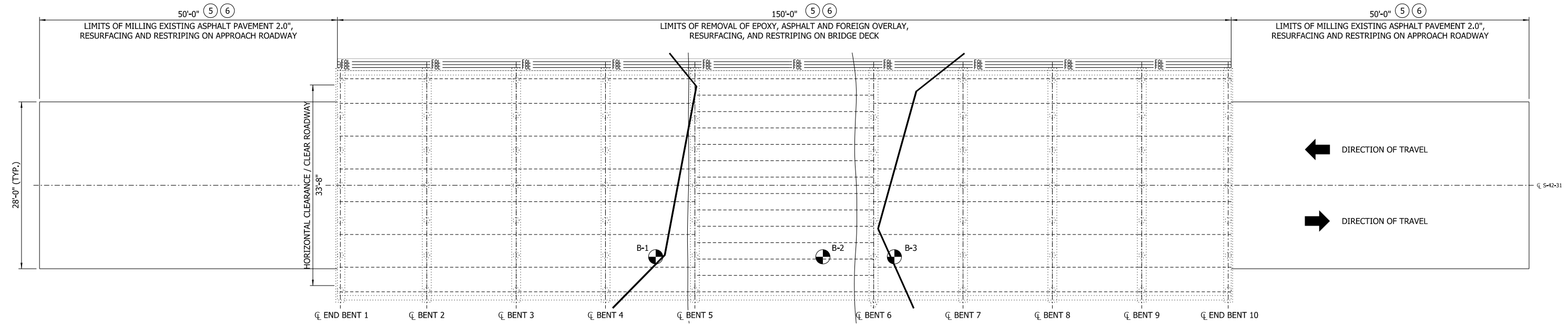
- LEGEND:**
- G — BURIED NATURAL GAS
 - T — OVERHEAD TELECOMMUNICATION
 - FOL — FIBER OPTIC LINE
 - E — OVERHEAD ELECTRIC
 - W — BURIED POTABLE WATER LINE
 - SS — BURIED SANITARY SEWER
 - REMOVE, STORE, AND REPLACE SUPERSTRUCTURE
 - APPROXIMATE GEOTECHNICAL BORING LOCATION
 - BRIDGE PILE WRAP

- REPAIR ITEM LEGEND:**
- ① BRIDGE PILE WRAP (BR1)
 - ② REMOVE, STORE, AND REPLACE SUPERSTRUCTURE (BR2)
 - ③ BENT REPLACEMENT (BR5 - BR7)
 - ④ TIMBER BRACING REPLACEMENT (BR7 - BR10)
 - ⑤ MILLING AND RESURFACING (KP4)
 - ⑥ THERMOPLASTIC STRIPING (KP4)

NOTE:
 FOR KEY PLAN NOTES AND APPROXIMATE UTILITY OFFSETS, SEE KEY PLAN - SUBSTRUCTURE (1 OF 2).
 PROPOSED BENT REPLACEMENT AT BENTS 5 AND 6 NOT SHOWN.
 ASSET ID: 04212

FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

REV.				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION			
REV.				KEY PLAN - SUPERSTRUCTURE S-42-31 OVER PETERS CREEK BRIDGE REPAIRS			
REV.							
REVIEWED				COUNTY SPARTANBURG			
QUAN.	SAB	DAA	05/24	ROUTE S-42-31			
DR.	SAB	DAA	05/24				
DES.	SAB	DAA	05/24				
BY	CHK.	DATE					



- LEGEND:**
- G — BURIED NATURAL GAS
 - T — OVERHEAD TELECOMMUNICATION
 - FOL — FIBER OPTIC LINE
 - E — OVERHEAD ELECTRIC
 - W — BURIED POTABLE WATER LINE
 - SS — BURIED SANITARY SEWER
 - REMOVE, STORE, AND REPLACE SUPERSTRUCTURE
 - APPROXIMATE GEOTECHNICAL BORING LOCATION
 - BRIDGE PILE WRAP

- REPAIR ITEM LEGEND:**
- ① BRIDGE PILE WRAP (BR1)
 - ② REMOVE, STORE, AND REPLACE SUPERSTRUCTURE (BR2)
 - ③ BENT REPLACEMENT (BR5 - BR7)
 - ④ TIMBER BRACING REPLACEMENT (BR7 - BR10)
 - ⑤ MILLING AND RESURFACING (KP4)
 - ⑥ THERMOPLASTIC STRIPING (KP4)

ITEMS INCLUDED WITH THIS REPAIR TYPE		
BID ITEM NO.	DESCRIPTION	UNIT
4011004	LIQUID ASPHALT BINDER PG64-22	TON
4013200	MILLING EXISTING ASPHALT PAVEMENT 2.0"	SY
4030320	HOT MIX ASPHALT SURFACE COURSE TYPE B	TON
6271010	4" WHITE SOLID LINES (PVT. EDGE LINES) THERMO.- 90 MIL.	LF
6271074	4" YELLOW SOLID LINES(PVT.EDGE LINES) THERMO-90 MIL.	LF
6301100	PERMANENT YELLOW PAVEMENT MARKERS BI-DIR.- 4"X4"	EA
7260100	REMOVAL OF EPOXY, ASPHALT & FOREIGN OVERLAY	SY

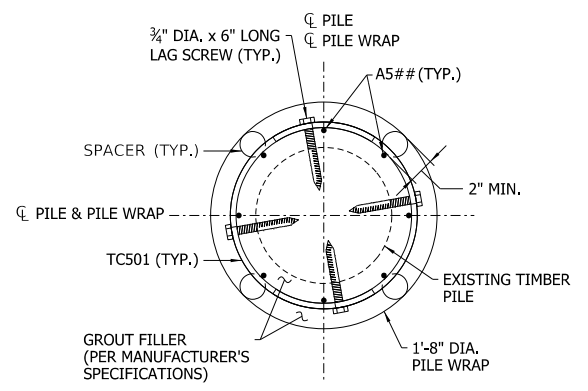
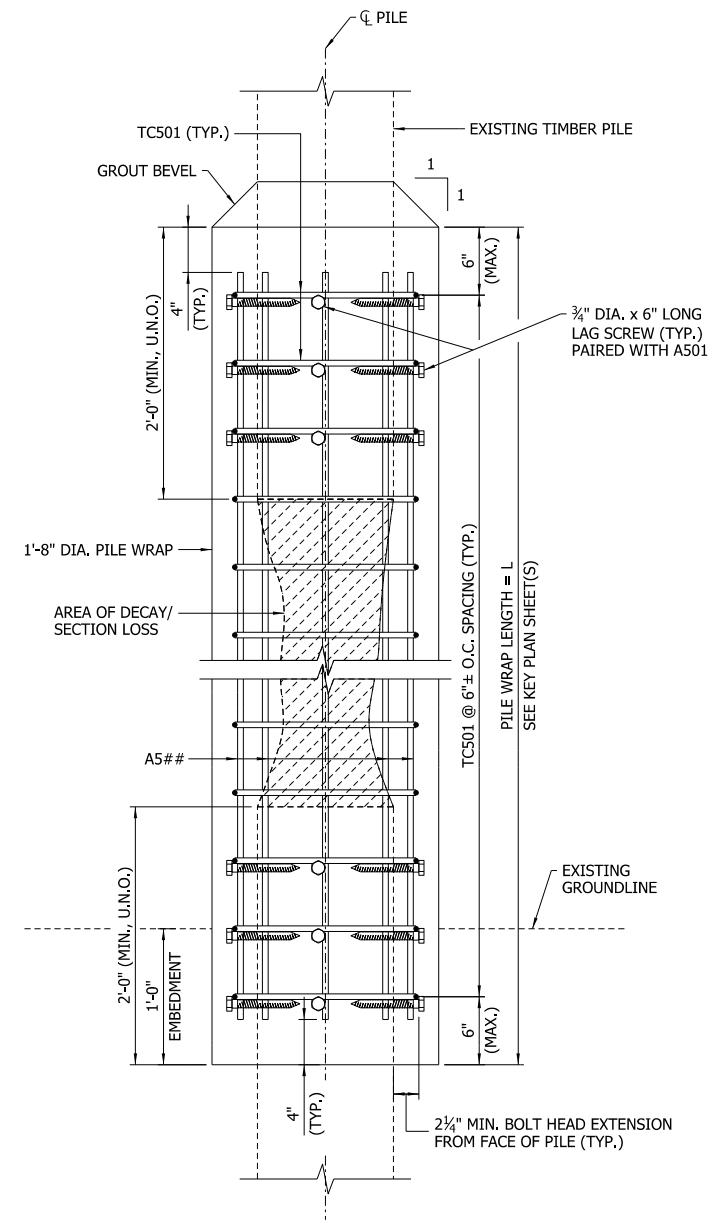
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NOTE:
FOR KEY PLAN NOTES AND APPROXIMATE UTILITY OFFSETS, SEE KEY PLAN - SUBSTRUCTURE (1 OF 2).

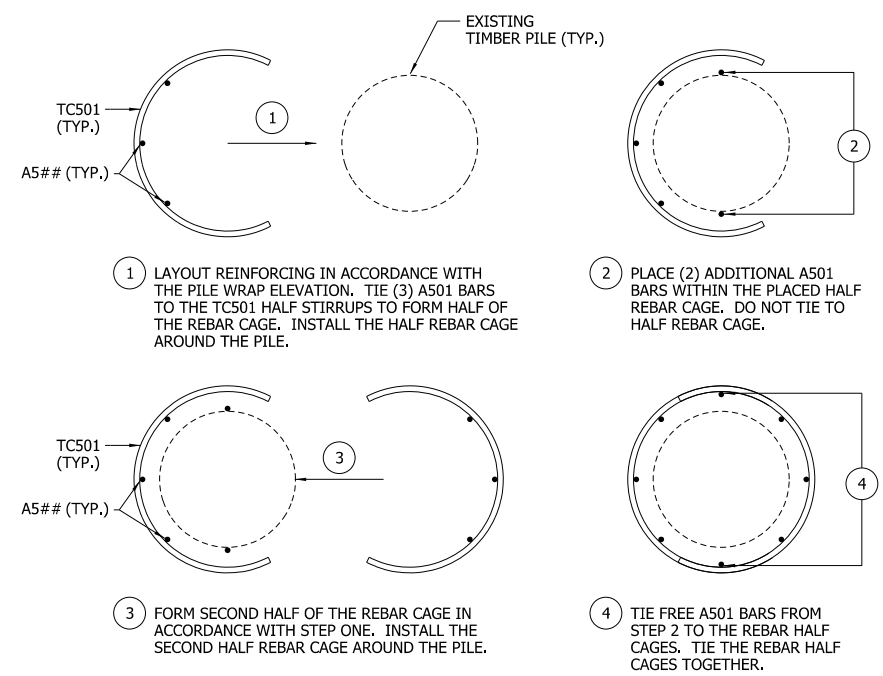
REV.				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION			
REV.				KEY PLAN - RESURFACING LIMITS S-42-31 OVER PETERS CREEK BRIDGE REPAIRS			
REV.							
QUAN.	SAB	DAA	05/24	COUNTY SPARTANBURG			
DR.	SAB	DAA	05/24				
DES.	SAB	DAA	05/24				
BY	CHK.	DATE		ROUTE S-42-31			

NOTES:

- COMPLETE ALL WORK IN ASSOCIATION WITH THIS PROJECT IN ACCORDANCE WITH THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION 2007 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION WITH ALL APPLICABLE ADDENDA AND REVISIONS UNLESS OTHERWISE NOTED IN THESE PLANS OR CORRESPONDING SPECIAL PROVISIONS.
- IF APPLICABLE, REMOVE EXISTING CONCRETE PILE ENCASEMENTS AT LOCATIONS NOTED IN THE KEY PLAN SHEETS FOR PILE WRAP INSTALLATION. EXCAVATION FOR PILE ENCASEMENT REMOVAL AND PILE WRAP INSTALLATION IS INCIDENTAL TO PAY ITEM 8990675 BRIDGE PILE WRAP.
- INSTALL THE PILE WRAPS IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISIONS AND MANUFACTURER'S SPECIFICATIONS.
- THE CONTRACTOR WILL USE A SACRIFICIAL PILE WRAP FORM SUCH AS SONOTUBE OR THIN WALLED CORRUGATED METAL PIPE, WHICH SHALL REMAIN RIGID DURING PILE WRAP INSTALLATION AND CURING OF FILLER MATERIALS. OUT OF TOLERANCE PILE WRAP CLEARANCES RESULTING FROM FAILED FORMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REMOVED AND REPLACED AT NO COST TO THE DEPARTMENT.
- PILE WRAPS SHALL EXTEND A MINIMUM OF 2' ABOVE AND BELOW THE AREAS OF EXISTING PILE SECTION LOSS, UNLESS OTHERWISE RESTRICTED BY THE UNDERSIDE OF IN-PLACE BENT CAPS. FOR EXISTING PILES WITH DETERIORATION LOCATED WITHIN 2' OF THE EXISTING GROUNDLINE, EXTEND THE PILE WRAPS TO PROVIDE A MINIMUM OF 1' EMBEDMENT INTO THE GROUND LINE OR 2' BELOW THE AREA OF EXISTING PILE SECTION LOSS, WHICHEVER IS GREATER.
- VERIFY ALL THE EXISTING BRIDGE DIMENSIONS AND ELEVATIONS SPECIFIED IN THE ORIGINAL DRAWINGS, IF AVAILABLE. PERFORM A FIELD REVIEW AND VERIFY PILE WRAP DIMENSIONS PRIOR TO ORDERING MATERIALS. NOTIFY THE RCE AND BMO OF ANY DISCREPANCIES AND PROCEED AS DIRECTED.
- ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A 706, GRADE 60.
- ALL LAG SCREWS SHALL BE 3/4" DIA. ASTM A449 GALVANIZED PER SECTION 708 OF THE SCDOT SPECIFICATIONS.
- PAYMENT FOR REINFORCING STEEL AND MISCELLANEOUS HARDWARE IS INCLUDED IN THE UNIT COST FOR BRIDGE PILE WRAP.
- PRIOR TO INSTALLATION OF THE REBAR CAGE AND PILE WRAP, THE CONTRACTOR WILL INSTALL 3/4" DIA. LAG SCREWS (3" MIN. EMBEDMENT) AS SHOWN IN THE TIMBER PILE WRAP ELEVATION AND PILE WRAP PLAN DETAILS ON THIS SHEET. LAG SCREWS WILL BE SPACED APPROXIMATELY 6" VERTICALLY, BEGINNING NOT GREATER THAN 6" FROM THE UPPER AND LOWER LIMITS OF THE PILE WRAPS. INSTALL 3 SETS OF LAG SCREWS AT THE TOP AND BOTTOM OF THE PILE WRAP TO ENGAGE SOUND MATERIAL OF THE EXISTING TIMBER PILE.
- ALL WORK ASSOCIATED WITH THE PILE WRAP IS CONSIDERED INCIDENTAL TO THE PAYMENT FOR THE CONTRACT UNIT LENGTH OF BRIDGE PILE WRAP UNLESS OTHERWISE SPECIFIED IN THESE PLANS OR IN THE PROJECT SPECIAL PROVISIONS.

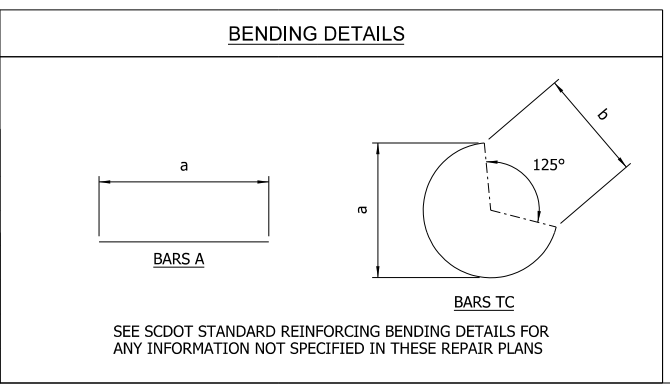


PILE WRAP PLAN
EQUALLY SPACE A1601 BARS AS SHOWN



REBAR CAGE ASSEMBLY DETAIL

REINFORCING STEEL SCHEDULE								
MARK	BAR SIZE	NO. REQ'D	DIMENSION				LENGTH	LOCATION
			"a"	"b"	"c"	"d"		
A501	5	8	3'-4"	---	---	---	L - 8"	PILE 1-4
A502	5	32	5'-4"	---	---	---	L - 8"	PILES 2-1, 3-1, 4-6, 7-7
A503	5	8	7'-4"	---	---	---	L - 8"	PILE 4-7
A504	5	8	8'-4"	---	---	---	L - 8"	PILE 7-5
TC501	5	83	1'-4"	1'-2 1/4"	---	---	2'-9"	ALL PILE WRAPS



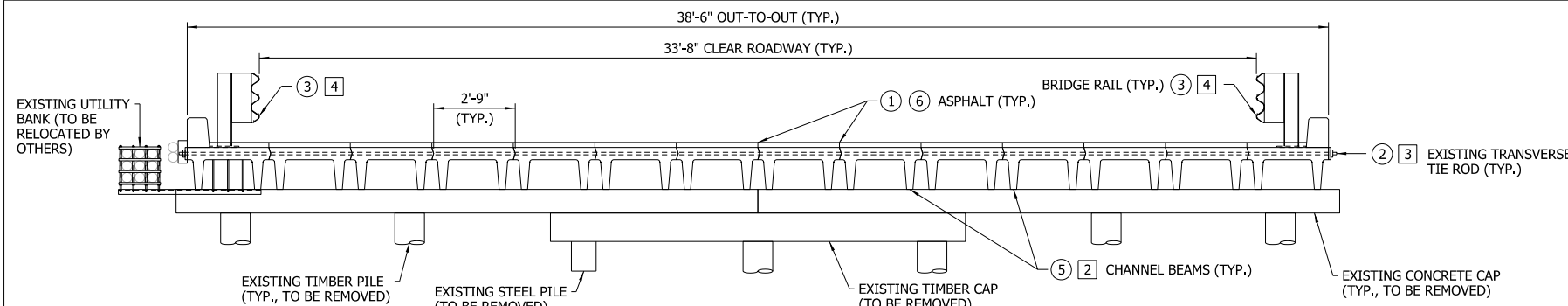
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ITEMS INCLUDED WITH THIS REPAIR TYPE		
BID ITEM NO.	DESCRIPTION	UNIT
8990675	BRIDGE PILE WRAP	LF

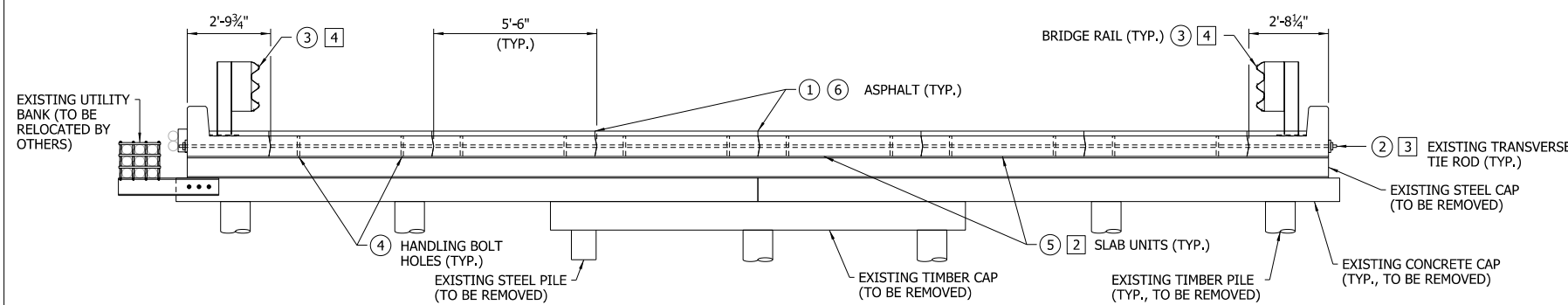
ASSET ID: 04212

REV.					<p align="center">SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION</p> <p align="center">① BRIDGE PILE WRAP</p> <p align="center">S-42-31 OVER PETERS CREEK BRIDGE REPAIRS</p>
REV.					
REV.					
REVIEWED					
QUAN.	SAB	DAA	05/24		
DR.	SAB	DAA	05/24		
DES.	SAB	DAA	05/24		
BY	CHK.	DATE			

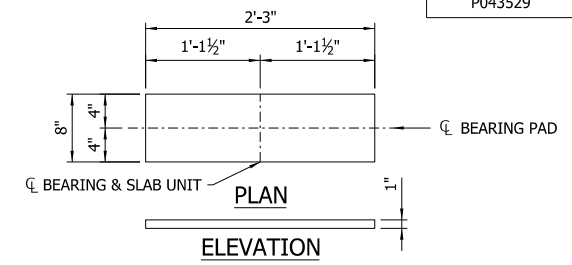
COUNTY SPARTANBURG ROUTE S-42-31



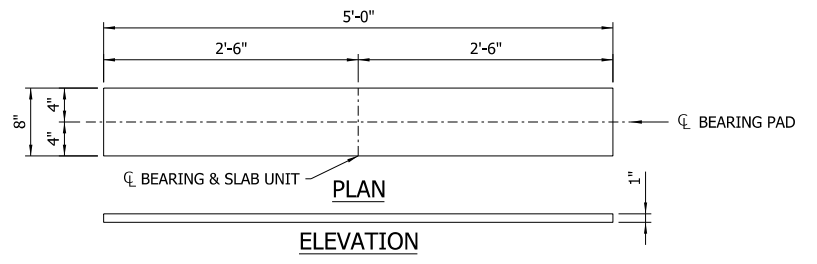
EXISTING TYPICAL SECTION - SPAN 5
(BENT 5 SHOWN; BENT 6 SIMILAR)



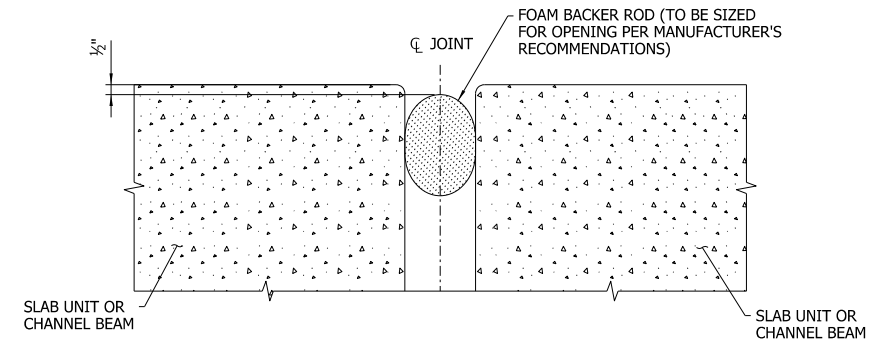
EXISTING TYPICAL SECTION - SPANS 4 & 6
(BENT 5 SHOWN; BENT 6 SIMILAR)



1 EXTERIOR SLAB BEARING PAD DETAILS
(4 REQUIRED)



1 INTERIOR SLAB BEARING PAD DETAILS
(12 REQUIRED)



5 PROPOSED JOINT
(ASPHALT OVERLAY NOT SHOWN)

SUPERSTRUCTURE REMOVAL, STORAGE, AND REINSTALLATION NOTES:

- FOR ORIGINAL SUPERSTRUCTURE REFERENCES AND DIMENSIONS NOT GIVEN IN THESE PLANS, REFER TO THE "H 10-44 PRECAST CONCRETE BRIDGE STANDARD 15' SPAN - 37' ROADWAY" DETAILS FOR SPANS 1 - 4 AND SPANS 6 - 9, REFER TO "PRESTRESSED CONCRETE CHANNEL BRIDGE" DETAILS FOR SPAN 5. THESE DOCUMENTS ARE REFERRED TO AS ORIGINAL PLANS ON THIS SHEET.
- REMOVE AND STORE THE EXISTING BRIDGE SUPERSTRUCTURE IN SPANS 4, 5, AND 6 IN ACCORDANCE WITH THE SUPERSTRUCTURE REMOVAL, STORAGE, AND REPLACEMENT BRIDGE REPAIR SPECIAL PROVISION.
- DO NOT ALLOW MILLING EQUIPMENT OR OTHER LIVE LOAD EXCEEDING THE LIMITS SPECIFIED IN THE PROJECT SPECIAL PROVISIONS ON SPANS 4, 5, AND 6.

SUPERSTRUCTURE REMOVAL AND STORAGE SEQUENCE:

- SAW CUT THE ASPHALT AT SPANS 4, 5, AND 6 LONGITUDINALLY OVER THE SUPERSTRUCTURE ELEMENT JOINTS AND TRANSVERSELY OVER BENTS 4, 5, 6, AND 7, ENSURING THAT EXISTING SLAB UNITS AND CHANNEL BEAMS ARE NOT DAMAGED.
- LOOSEN, REMOVE, AND DISPOSE OF TRANSVERSE TIE RODS AND TIE ROD ANCHORAGE DEVICES AT BENTS 4, 5, 6 AND 7 AND IN SPAN 5. REFER TO THE ORIGINAL PLANS FOR ADDITIONAL DETAILS ON EXISTING TRANSVERSE POST-TENSIONING SYSTEM.
- DISCONNECT, REMOVE, AND STORE BRIDGE RAIL PANELS AND CUSHION BLOCKS. AT THE CONTRACTOR'S OPTION, REMOVE BRIDGE RAIL POSTS AND CURBS. REMOVAL AND REINSTALLATION OF BRIDGE RAIL POSTS AND CURBS SHALL BE AT NO ADDITIONAL EXPENSE TO THE DEPARTMENT.
- REFER TO THE ORIGINAL PLANS FOR APPROXIMATE LOCATIONS OF SLAB PICK-UP BOLT HOLE LOCATIONS. THE CONTRACTOR MAY REDRILL PREVIOUS PICK-UP BOLT HOLES TO AID IN LIFTING OF EXISTING SLABS. ENSURE THAT ANY EXISTING CLIP ANGLES ATTACHED THE BOTTOM FACE OF THE SPAN 4 AND SPAN 6 SLAB UNITS ARE DISCONNECTED FROM THE BENT CAPS PRIOR TO BEGINNING LIFTING OPERATIONS.
- LABEL SUPERSTRUCTURE UNITS TO ENSURE THAT BRIDGE ELEMENTS ARE RETURNED TO THEIR ORIGINAL LOCATIONS UPON REINSTALLATION. REMOVE AND STORE SLAB UNIT AND CHANNEL BEAM SUPERSTRUCTURE FROM SPANS 4, 5, AND 6. OBTAIN APPROVAL FROM THE RCE/BMO PRIOR TO MOVING BRIDGE ELEMENTS FROM THE PROJECT SITE THAT ARE TO BE REINSTALLED. THE CONTRACTOR SHALL REPAIR DAMAGE TO SUPERSTRUCTURE ELEMENTS CAUSED BY REMOVAL AND STORAGE OPERATIONS AT NO ADDITIONAL COST TO THE DEPARTMENT.
- REMOVE REMAINING ASPHALT SURFACE FROM THE SPANS 4, 5, AND 6 SUPERSTRUCTURE ELEMENTS. PRICE AND PAYMENT FOR ASPHALT REMOVAL FROM THESE ELEMENTS SHALL BE INCLUDED AS PART OF ITEM 7260100 - REMOVAL OF EPOXY, ASPHALT & FOREIGN OVERLAY.

ELASTOMERIC BEARINGS:

PROVIDE PLAIN (UNREINFORCED) ELASTOMERIC BEARING PADS WITH A MINIMUM SHEAR MODULUS OF 110PSI AND 50 DUROMETER HARDNESS.

SUPERSTRUCTURE REINSTALLATION SEQUENCE:

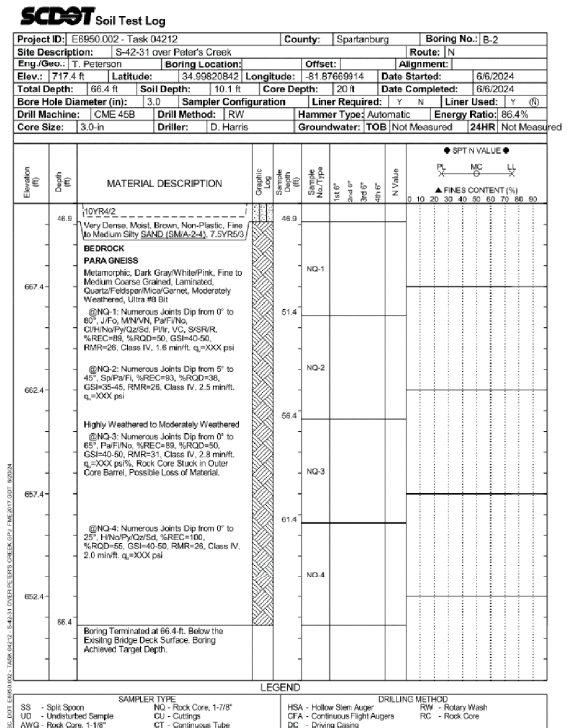
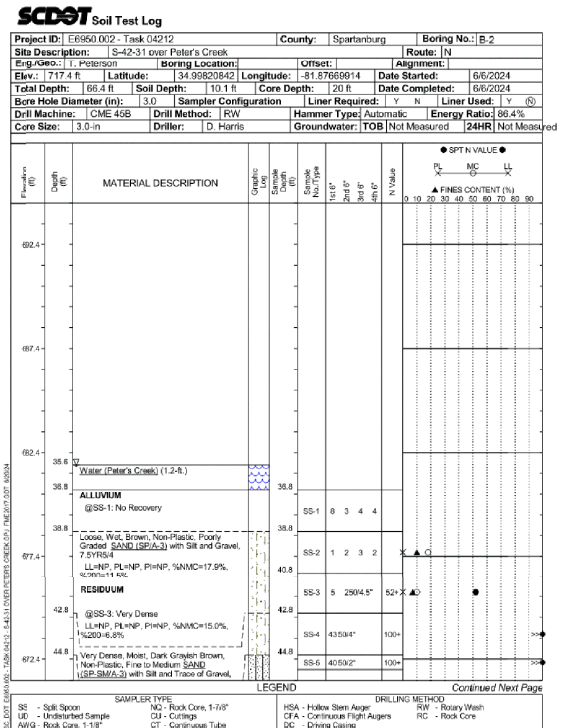
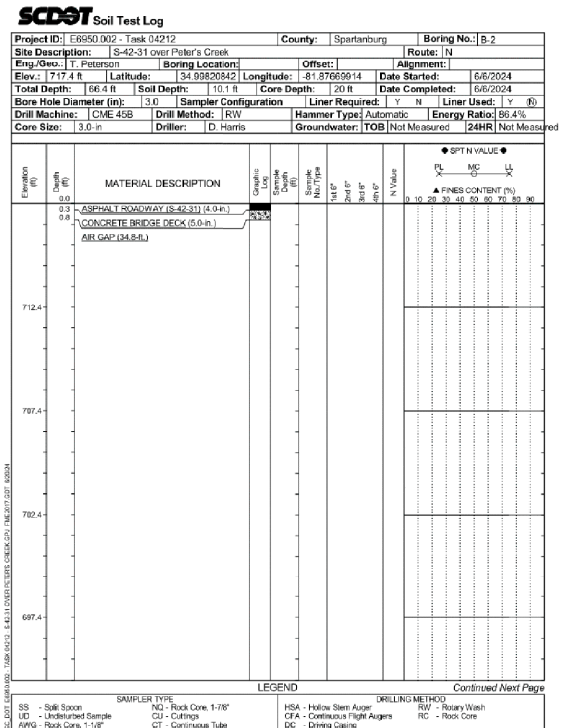
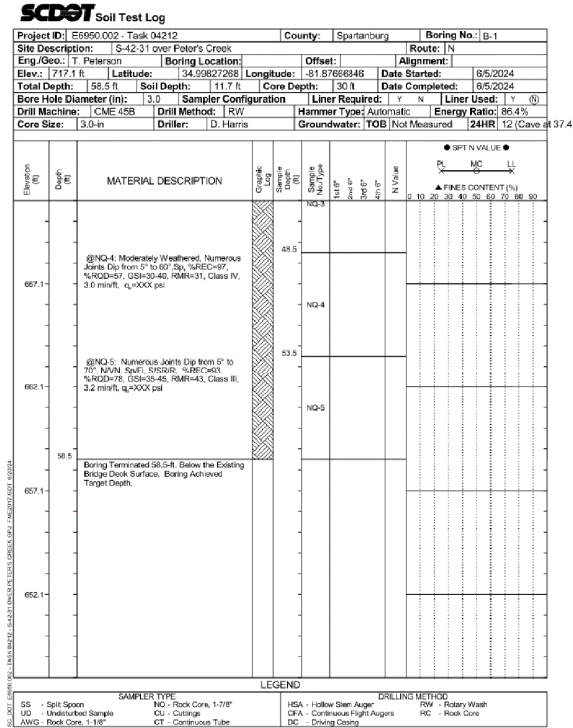
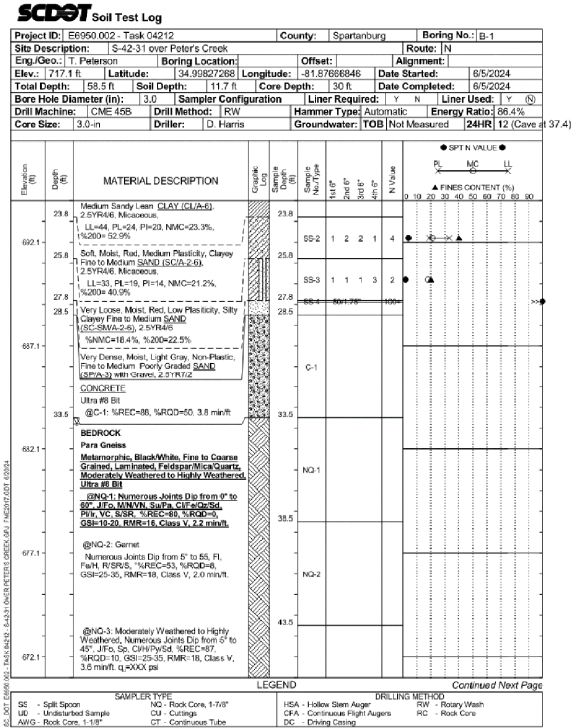
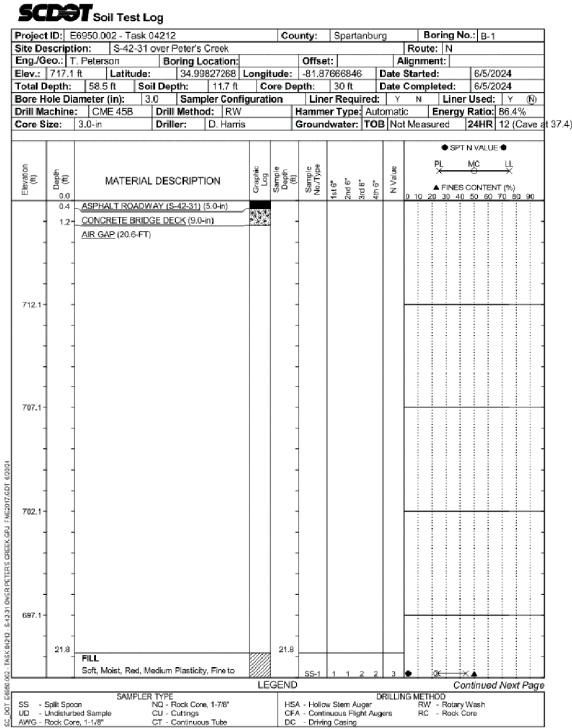
- UPON COMPLETION OF SUBSTRUCTURE REPLACEMENT OPERATIONS AT BENTS 5 AND 6, INSTALL PLAIN ELASTOMERIC BEARINGS AT BENTS 5 AND 6, CENTERED UNDER THE SPANS 4 AND 6 SLAB UNITS, IN ACCORDANCE WITH THIS SHEET. INSTALL TWO LAYERS OF 30LB ROOFING FELT OR COMPARABLE SINGLE LAYER PREMOLDED ASPHALT MEMBRANE AS DETAILED IN THE ORIGINAL PLANS BENEATH SPAN 4 AND 6 SLAB UNITS AT BENTS 4 AND 7. INSTALL TWO LAYERS OF 30LB ROOFING FELT BENEATH THE SPAN 5 CHANNEL BEAM STEMS AT BENTS 5 AND 6. ROOFING FELT OR ASPHALT MEMBRANE IS INCIDENTAL TO THE COST OF ITEM 7243150 - ELASTOMERIC BEARING ASSEMBLY (FLAT SLAB).
- REINSTALL SPANS 4, 5, AND 6 SUPERSTRUCTURE IN ACCORDANCE WITH THE SUPERSTRUCTURE REMOVAL, STORAGE, AND REPLACEMENT BRIDGE REPAIR SPECIAL PROVISION. REPLACE SUPERSTRUCTURE ELEMENTS IN THEIR ORIGINAL POSITION AND ORIENTATION AS LABELED IN STEP 5 OF THE SUPERSTRUCTURE REMOVAL PROCESS.
- INSTALL NEW TRANSVERSE TIE ROD POST-TENSIONING SYSTEMS AT LOCATIONS MATCHING THE ORIGINAL CONDITION AND IN ACCORDANCE WITH THE ORIGINAL PLANS. INSTALL TRANSVERSE POST-TENSIONING SYSTEM IN ACCORDANCE WITH SECTION 704.4.6.5 OF THE STANDARD SPECIFICATIONS, EXCEPT THAT EXISTING DUCTS MAY BE USED IN LIEU OF INSTALLING NEW POLYETHYLENE PIPE SLEEVE AND A TENSION FORCE OF 16,000 POUNDS SHALL BE USED IN LIEU OF 30,000 POUNDS.
- IF REMOVED AS PART OF STEP 3 OF THE SUPERSTRUCTURE REMOVAL PROCESS, REINSTALL THE BRIDGE RAIL POSTS TO THEIR ORIGINAL POSITION. REINSTALL BRIDGE RAIL CUSHION BLOCKS AND PANELS. THE CONTRACTOR MAY REUSE EXISTING BRIDGE RAIL HARDWARE. REPLACEMENT OF BRIDGE RAILING HARDWARE SHALL BE AT NO ADDITIONAL COST TO THE DEPARTMENT.
- INSTALL BACKER ROD IN BETWEEN CHANNEL BEAMS AND SLAB UNITS OVER BENTS 5 AND 6 IN ACCORDANCE WITH THE PLAN DETAIL. ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED FOR BACKER ROD INSTALLATION SHALL BE INCLUDED IN THE PRICE AND PAYMENT FOR ITEM 1031000 - MOBILIZATION.
- PERFORM RESURFACING OPERATIONS IN ACCORDANCE WITH KEY PLAN - RESURFACING LIMITS SHEET AND THE SCDOT STANDARD SPECIFICATIONS.

ITEMS INCLUDED WITH THIS REPAIR TYPE		
BID ITEM NO.	DESCRIPTION	UNIT
1031000	MOBILIZATION	LS
2028200	REMOVAL AND DISPOSAL OF DESIGNATED PORTIONS OF EXISTING BRIDGE	LS
7048100	POST-TENSIONING FOR CONCRETE STRUCTURES	LS
7243150	ELASTOMERIC BEARING ASSEMBLY (FLAT SLAB)	EA

ASSET ID: 04212

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REV.					<p align="center">SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION</p> <p align="center">② SUPERSTRUCTURE DETAILS</p> <p align="center">S-42-31 OVER PETERS CREEK BRIDGE REPAIRS</p> <p align="center">COUNTY SPARTANBURG</p> <p align="right">ROUTE 5-42-31</p>
REV.					
REV.					
QUAN.	SAB	DAA	05/24		
DR.	SAB	DAA	05/24		
DES.	SAB	DAA	05/24		
BY	CHK.	DATE			



ASSET ID: 04212

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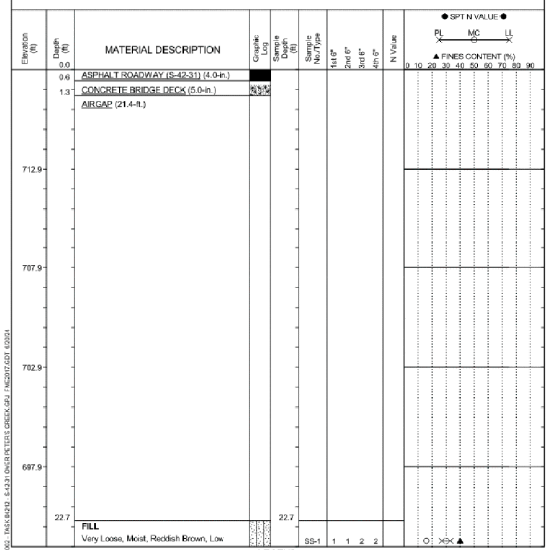
NOTE:
FOR APPROXIMATE BORING LOCATIONS, SEE KEY PLAN SHEETS.

REV.				<p align="center">SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION</p> <p align="center">BORING LOGS (1 OF 2)</p> <p align="center">S-42-31 OVER PETERS CREEK BRIDGE REPAIRS</p> <p align="right">COUNTY SPARTANBURG</p>	
REV.					
REV.					
REVIEWED					
QUAN.	SAB	DAA	05/24		
DR.	SAB	DAA	05/24		
DES.	SAB	DAA	05/24		
BY	CHK.	DATE			

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8/6/2024

SCDOT Soil Test Log

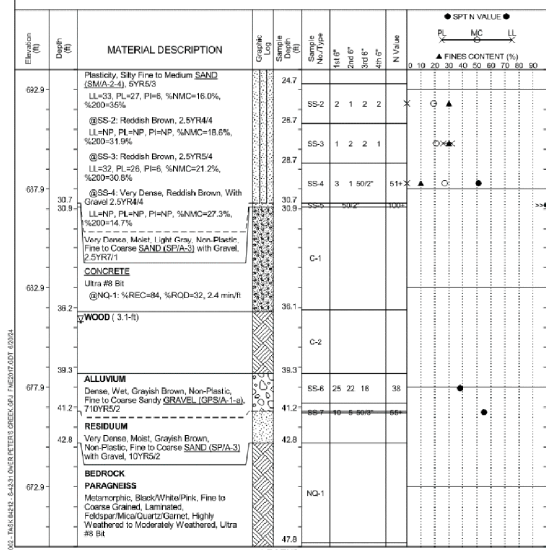
Project ID: E6950.002 - Task 04212 County: Spartanburg Boring No.: B-3
 Site Description: S-42-31 over Peter's Creek Route: IN
 Eng./Geo.: T. Peterson Boring Location: Offset: Alignment:
 Elev.: 717.9 ft. Latitude: 34.93815213 Longitude: -81.87672185 Date Started: 6/8/2024
 Total Depth: 62.8 ft. Soil Depth: 11.7 ft. Core Depth: 26.4 ft. Date Completed: 6/7/2024
 Bore Hole Diameter (in): 3.0 Sampler Configuration: Liner Required: Y N Liner Used: Y N
 Drill Machine: CME 45B Drill Method: RW Hammer Type: Automatic Energy Ratio: 86.4%
 Core Size: 3.0-in Driller: D. Harris Groundwater: TOB 14 (Cave at 15.3) 24HR Not Measured



LEGEND
 SS - Split Spoon ND - Rock Core, 1-7/8" HSA - Hollow Stem Auger RW - Rotary Wash
 UD - Undisturbed Sample CU - Cuttings CFA - Continuous Flight Augers RC - Rock Core
 AWS - Rock Core, 1-1/8" CT - Continuous Tube DC - Driving Caping

SCDOT Soil Test Log

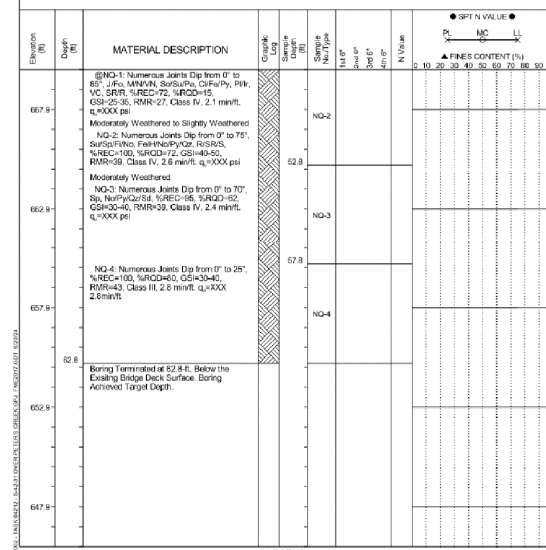
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 8/6/2024

FOR INFORMATION ONLY

NOTE:
 FOR APPROXIMATE BORING LOCATIONS, SEE KEY PLAN SHEETS.

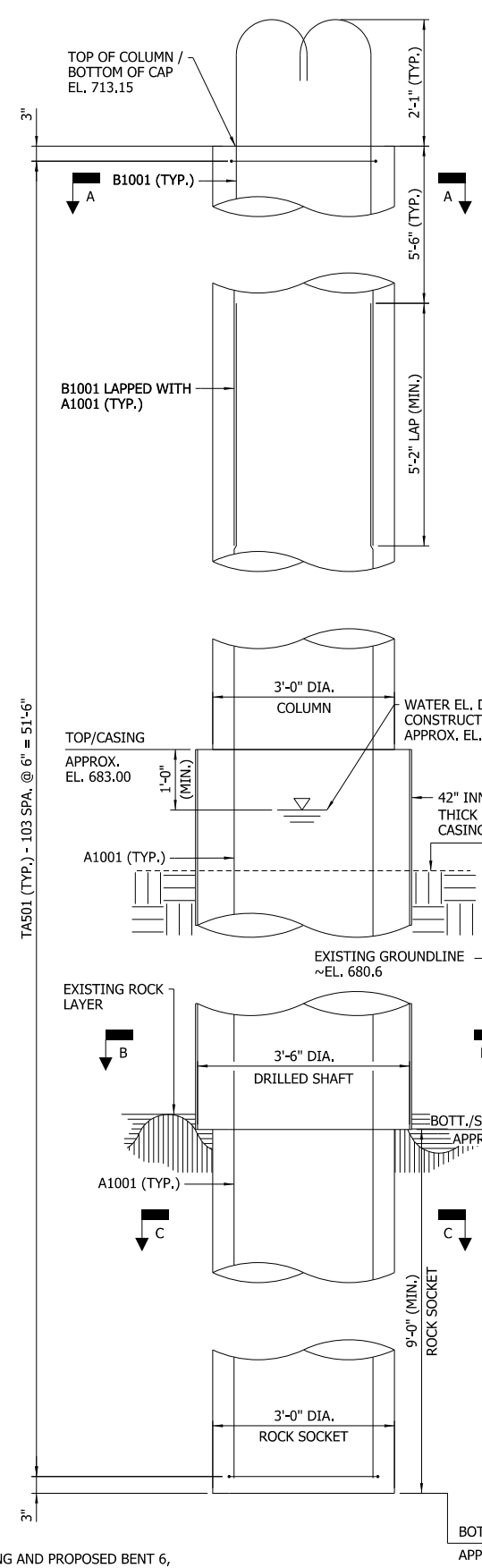
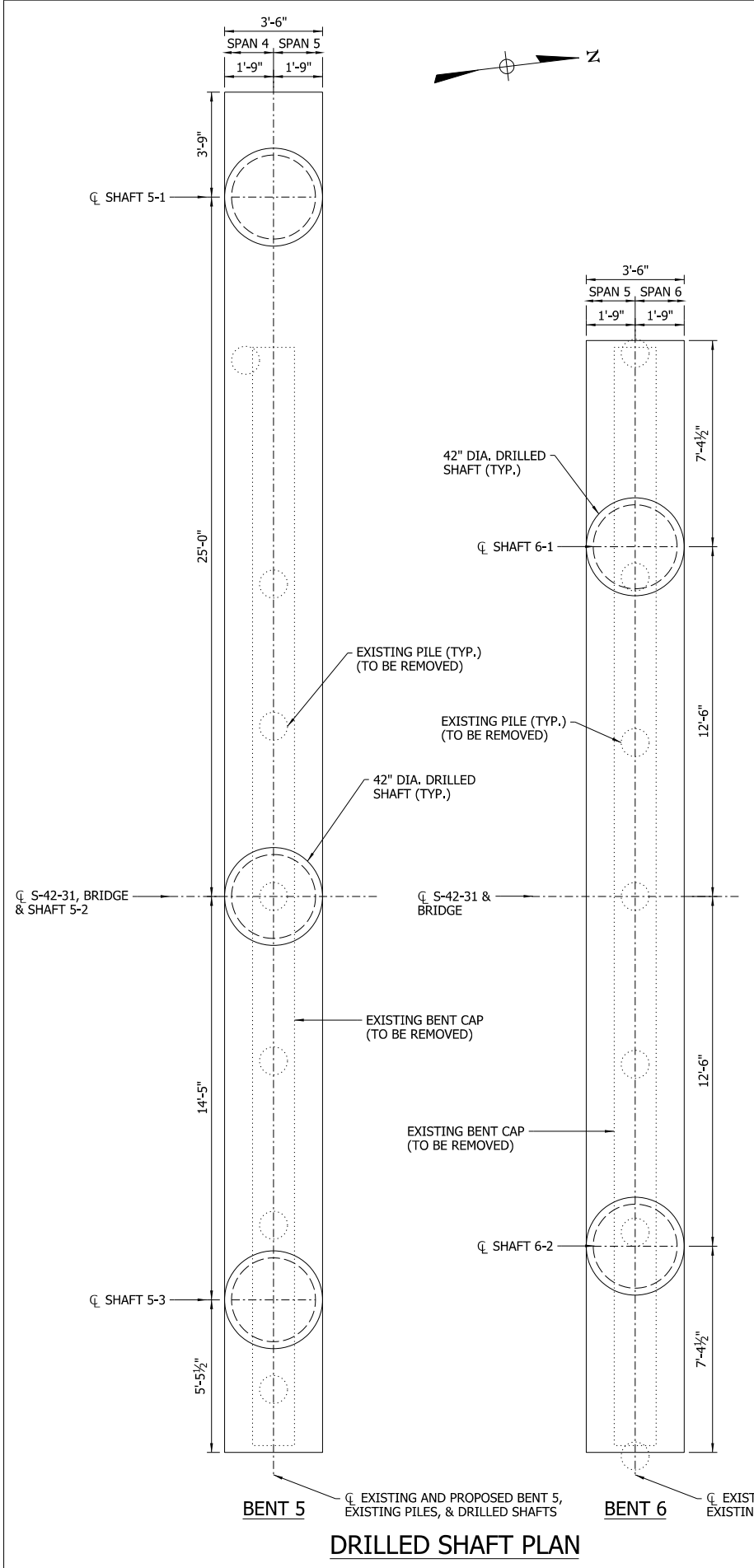
FOR INFORMATION ONLY

NOT FOR CONSTRUCTION

ASSET ID: 04212

REV.					SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION BORING LOGS (2 OF 2) S-42-31 OVER PETERS CREEK BRIDGE REPAIRS COUNTY SPARTANBURG
REV.					
REV.					
REVIEWED					
QUAN.	SAB	DAA	05/24		
DR.	SAB	DAA	05/24		
DES.	SAB	DAA	05/24		
BY	CHK.	DATE			

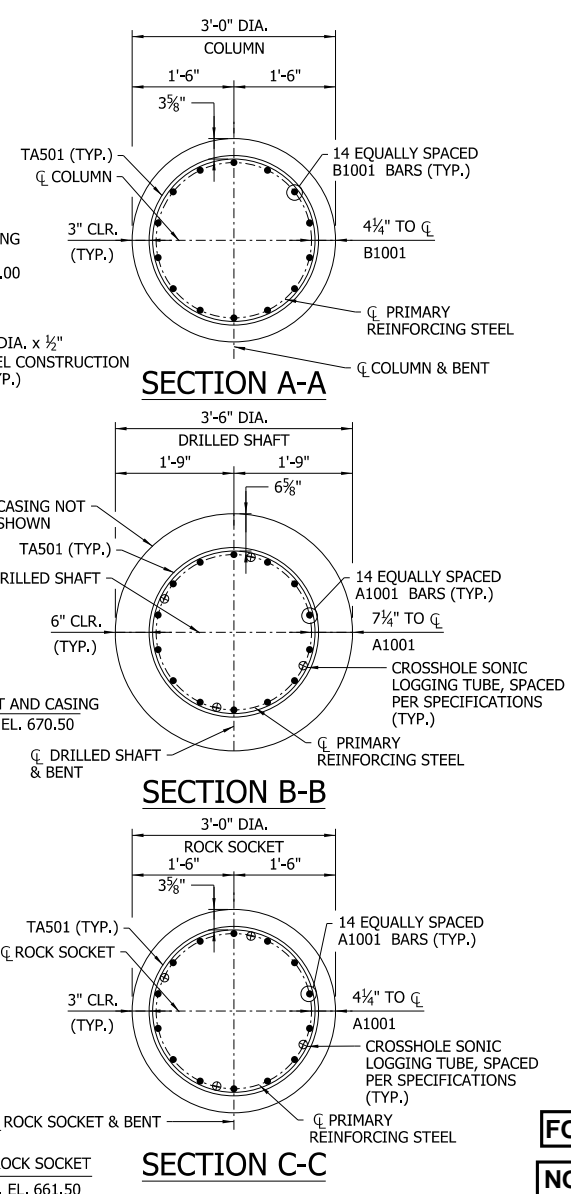
ROUTE
 S-42-31



DRILLED SHAFT RESISTANCE		
BENT ID	BENT 5	BENT 6
GOVERNING LIMIT STATE	STRENGTH (AXIAL)	STRENGTH (AXIAL)
FACTORED DESIGN LOAD	383 KIPS	353 KIPS
FACTORED RESISTANCE - SIDE	383 KIPS	353 KIPS
FACTORED RESISTANCE - END	0 KIPS	0 KIPS
GEOTECHNICAL RESISTANCE FACTOR - SIDE (ROCK)	0.50	0.50
GEOTECHNICAL RESISTANCE FACTOR - END (ROCK)	0.50	0.50
TOTAL NOMINAL RESISTANCE	766 KIPS	706 KIPS

DRILLED SHAFT ELEVATIONS		
BENT ID	BENT 5	BENT 6
ESTIMATED BOTTOM OF CASING EL. (FT-NAVD)	+670.5	+670.5
42" WET & DRY EXCAVATION PER SHAFT (FT)	12.5	12.5
36" ROCK EXCAVATION PER SHAFT	9	9
ESTIMATED SHAFT TIP EL. (FT-NAVD)	+661.5	+661.5

SUMMARY OF ROCK CORE COMPRESSIVE STRENGTH TESTING					
BORING NO.	RECOVERY (%)	RQD (%)	CORE NO.	DEPTH (FT.)	COMPRESSIVE STR. (PSI)
B-1	87	10	NQ-3	47.9 - 48.3	4,260
B-1	97	57	NQ-4	51.6 - 52.0	3,910
B-1	93	78	NQ-5	53.6 - 54.0	8,420
B-2	89	80	NQ-1	48.1 - 48.5	3,810
B-2	93	38	NQ-2	52.7 - 53.1	3,790
B-2	89	50	NQ-3	57.4 - 57.8	4,290
B-2	100	55	NQ-4	61.7 - 62.1	2,950
B-3	72	15	NQ-1	47.4 - 47.8	13,840
B-3	100	72	NQ-2	49.4 - 49.8	4,540
B-3	95	62	NQ-3	53.0 - 53.4	6,940
B-3	100	80	NQ-4	60.6 - 61.0	4,980



- NOTES:**
- THE ELEVATIONS PROVIDED WITHIN THIS SHEET ARE APPROXIMATE AND BASED ON PRELIMINARY FIELD MEASUREMENTS, REFER TO THE GENERAL NOTES SHEET FOR NOTES REGARDING THE CONTRACTOR'S RESPONSIBILITY FOR FIELD VERIFICATION OF EXISTING FINISHED GRADE ELEVATIONS AND MODIFICATIONS TO ELEVATIONS SHOWN IN THESE PLAN SHEETS.
 - NOTIFY THE RCE AND EOR AT LEAST 3 DAYS PRIOR TO THE ROCK EXCAVATION. THE LENGTH OF EXCAVATION MAY VARY DEPENDING UPON THE ROCK ELEVATIONS ENCOUNTERED.
 - ASSESS THE GROUND AND TOP OF WATER ELEVATIONS AT THE TIME OF CONSTRUCTION AND DETERMINE THE TOP OF CASING ELEVATION AND CASING LENGTH PRIOR TO ORDERING MATERIALS. PRIOR TO INSTALLING ANY PROPOSED CASINGS AT DIFFERENT ELEVATIONS FROM THAT SHOWN IN THE PLANS, OBTAIN APPROVAL IN WRITING FROM THE RCE/BMO.
 - THE ESTIMATED BOTTOM OF CASING ELEVATIONS AND THE ESTIMATED TIP ELEVATIONS ARE INDICATED IN THE "DRILLED SHAFT ELEVATIONS" TABLE. THE REFERENCED ROCK SOCKET PENETRATION DEPTHS FOR BENT 5 AND BENT 6 ARE UNCASSED LENGTHS, AND THE DEPTHS INDICATED ARE REQUIRED TO BE OBTAINED BELOW THE TOP OF CONTINUOUS ROCK. THE MINIMUM DIAMETER OF THE UNCASSED PORTIONS OF THE DRILLED SHAFTS IS 36 INCHES, AND THE MINIMUM DIAMETER OF THE CASSED PORTION OF THE DRILLED SHAFT IS 42 INCHES. SUPPORT THE TOP CASINGS TO MAINTAIN CONSTRUCTION TOLERANCES DURING CONSTRUCTION.
 - DURING CONSTRUCTION, THE BOTTOM ELEVATION OF THE SHAFT MAY VARY IF ROCK IS ENCOUNTERED AT A DIFFERENT ELEVATION THAN SHOWN IN THE PLANS. IF ROCK IS ENCOUNTERED LESS THAN 2 FEET HIGHER THAN THE ELEVATION SHOWN, EXTEND THE SOCKET TO THE TIP ELEVATION SHOWN. IF ROCK IS ENCOUNTERED LESS THAN 2 FEET LOWER THAN THE ELEVATION SHOWN, LOWER THE TIP ELEVATION AS NEEDED TO MAINTAIN THE REQUIRED DEPTH OF ROCK EXCAVATION. IF ROCK IS ENCOUNTERED MORE THAN 2 FEET HIGHER OR LOWER THAN THE ELEVATION SHOWN, IMMEDIATELY NOTIFY THE RCE. THE RCE WILL IMMEDIATELY NOTIFY THE BRIDGE CONSTRUCTION OFFICE.
 - PROVIDE EQUIPMENT THAT IS CAPABLE OF DRILLING THROUGH ROCK AT THE SITE THAT MAY BE TWENTY-FIVE PERCENT (25%) GREATER THAN THE STRENGTH INDICATED IN THE "SUMMARY OF ROCK CORE COMPRESSIVE STRENGTH TESTING" TABLE.
 - EXTEND THE CASING UNTIL THE FULL CIRCUMFERENCE OF THE CASING PENETRATES ROCK SUFFICIENT ENOUGH TO PRODUCE AN EFFECTIVE SEAL AGAINST OVERBURDEN MATERIAL FALLING INTO THE SHAFT. WATER MAY STILL ENTER THE SHAFT THROUGH SEAMS IN THE ROCK. IF THE WET METHOD IS USED, USE EITHER MINERAL SLURRY OR POTABLE WATER DURING EXCAVATION AND CONSTRUCTION OF THE SHAFTS. THE TOLERANCE FOR TESTING (INCLUDING TIME INTERVALS) AND MAINTAINING THE MINERAL SLURRY ARE INDICATED IN SECTION 712 OF THE SCDOT STANDARD SPECIFICATIONS.
 - REFERENCE THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION FOR DRILLED SHAFTS (SECTION 712) AND FOR CROSSHOLE SONIC LOGGING OF DRILLED SHAFTS (SECTION 727). NOTES INCLUDED IN THESE PLANS ARE IN ADDITION TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS.
 - MEASUREMENT FOR ITEM 7270010 CROSSHOLE SONIC LOGGING SETUP, EACH (EA) LOCATION, SHALL BE MEASURED AS EACH BENT. MULTIPLE PLATFORM SETUPS AT AN INDIVIDUAL BENT SHALL BE COUNTED AND PAID FOR AS THE SAME SETUP LOCATION.
 - CONSTRUCTION DEBRIS FROM A PREVIOUS BRIDGE WAS OBSERVED BENEATH THE EXISTING BRIDGE. THIS DEBRIS CONSISTED OF TIMBER AND CORABLE CAST IN PLACE CONCRETE. IF THE DRILLED SHAFT IS INSTALLED THROUGH THIS DEBRIS, THE CASING SHOULD BE EXTENDED THROUGH THE CONSTRUCTION DEBRIS.
 - THE A1001 & B1001 BARS IN THE DRILLED SHAFT AND COLUMN ARE DETAILED LONGER THAN NECESSARY TO ALLOW FOR THE DRILLED SHAFT TO BE LENGTHENED BASED ON FIELD CONDITIONS UP TO 2'-0" WITHOUT ADDITIONAL REINFORCING STEEL. IF THE DRILLED SHAFTS ARE NOT LENGTHENED, INCREASE THE DEPICTED LAP LENGTH TO MAINTAIN END COVER REQUIREMENTS. BARS TA501 SHOWN ARE BASED ON THE COLUMN/SHAFT LENGTHS SHOWN ON THIS SHEET. FOUR ADDITIONAL TA501 FOR EACH SHAFT ARE PROVIDED IN THE REINFORCING SCHEDULE TO ALLOW FOR DRILLED SHAFTS TO BE LENGTHENED UP TO 2'-0" WITHOUT ADDITIONAL STEEL.
 - SEE BENT DETAIL SHEETS FOR REINFORCING BAR LISTS AND APPLICABLE PAY ITEMS.

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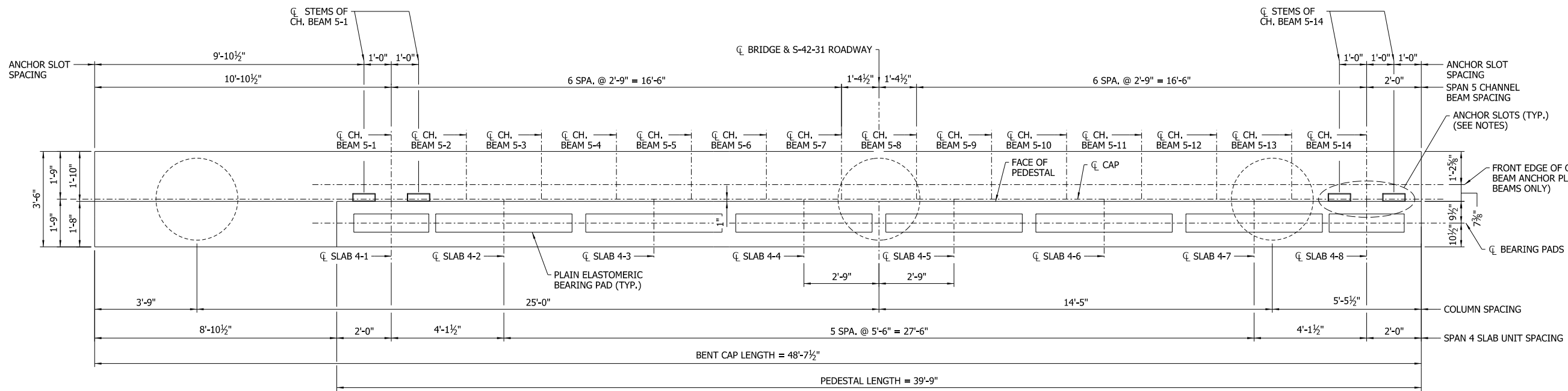
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QUAN.	SAB	DAA	05/24		
DR.	SAB	DAA	05/24		
DES.	SAB	DAA	05/24		
BY	CHK.	DATE			

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

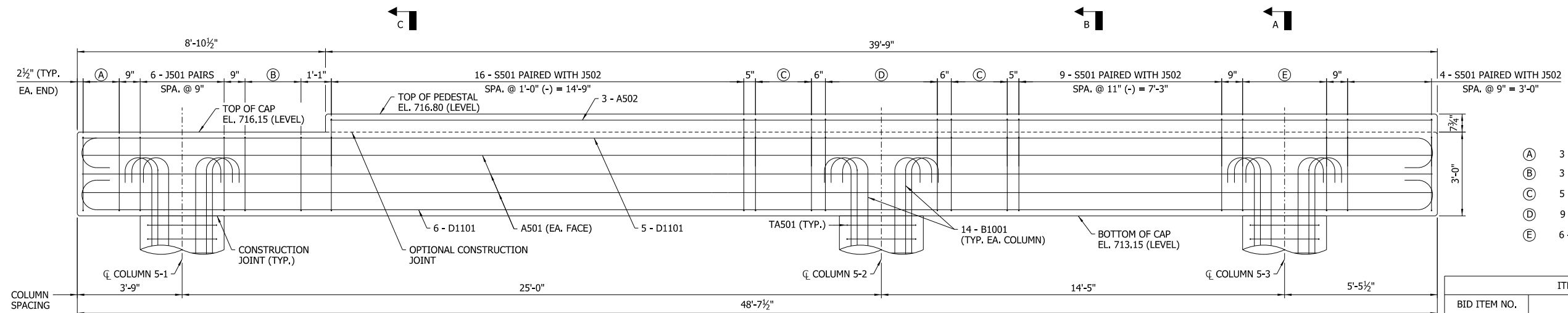
DRILLED SHAFT DETAILS

S-42-31 OVER PETERS CREEK BRIDGE REPAIRS

COUNTY SPARTANBURG ROUTE 5-42-31



PLAN



- (A) 3 - S501; SPA. @ 7 3/4" = 1'-3 1/2"
- (B) 3 - S501; SPA. @ 1'-0" = 2'-0"
- (C) 5 - S501, PAIRED WITH J502; SPA. @ 6" = 2'-0"
- (D) 9 - J501 PAIRS, PAIRED WITH J502; SPA. @ 6" = 4'-0"
- (E) 6 - J501 PAIRS, PAIRED WITH J502; SPA. @ 9" = 3'-0"

ITEMS INCLUDED WITH THIS REPAIR TYPE		
BID ITEM NO.	DESCRIPTION	UNIT
7011400	CONC. FOR STRUCTURES - CLASS 4000	CY
7031200	REINF. STEEL FOR STRUCTURES (BRIDGE)	LB
7120006	DRILLED SHAFT SET-UP	EA
7120142	DRILLED SHAFT WITH ROCK EXCAVATION - 36" DIAMETER	LF
7120151	DRILLED SHAFT WITH WET & DRY EXCAVATION - 42" DIAMETER	LF
7120155	CONSTRUCTION CASING - 42" DIAMETER	LF
7270010	CROSSHOLE SONIC LOGGING SETUP	EA

- NOTES:**
- THE ELEVATIONS PROVIDED WITHIN THIS SHEET ARE APPROXIMATE AND BASED ON PRELIMINARY FIELD MEASUREMENTS. REFER TO THE GENERAL NOTES SHEET FOR NOTES REGARDING THE CONTRACTOR'S RESPONSIBILITY FOR FIELD VERIFICATION OF EXISTING FINISHED GRADE ELEVATIONS AND MODIFICATIONS TO ELEVATIONS SHOWN IN THESE PLAN SHEETS.
 - FOR CAP SECTIONS AND ANCHOR SLOT DETAILS, SEE BENT 6 DETAILS SHEET.
 - FRONT EDGE OF CHANNEL BEAM ANCHOR PLATE LOCATIONS INDICATED IN THE PLANS ARE REFERENCED FOR THE EXTERIOR CHANNEL BEAMS ONLY. LEADING AND REAR ENDS OF ALL INTERIOR CHANNEL BEAMS SHALL BE ALIGNED WITH THE LEADING AND REAR ENDS OF THE EXTERIOR CHANNEL BEAMS. REFER TO THE "PRESTRESSED CONCRETE CHANNEL BRIDGE" (ORIGINAL PLANS) FOR ADDITIONAL DETAILS.
 - ROTATE HOOKED REINFORCING BARS AS NECESSARY TO MAINTAIN REQUIRED COVER AND FIT. HOOKED COLUMN REINFORCING BARS B1001 MAY BE ROTATED TOWARDS THE INTERIOR OR EXTERIOR OF THE COLUMN AS NECESSARY. PROVIDE MINIMUM EMBEDMENT OF BARS B1001 INTO THE CAP AS SHOWN IN THE DRILLED SHAFT DETAILS. EMBEDMENT OF BARS B1001 MAY BE INCREASED UP TO 1 1/2" INTO THE CAP TO ALLOW FOR ALL BARS TO BE ROTATED TOWARD THE COLUMN INTERIOR.
 - PAIR BARS J502 WITH BARS S501 AND PAIRED BARS J501 THROUGHOUT THE LENGTH OF THE CONCRETE PEDESTALS.

ELEVATION

BENT 5 REINFORCING STEEL SCHEDULE										
MARK	LOCATION	SIZE	NO. REQ.	BENDING DIMENSIONS						LENGTH
				A	B	C	D	E	F	
A501	CAP	5	6	48'-3 1/2"	-	-	-	-	-	48'-3 1/2"
A502	PEDESTAL	5	3	39'-5"	-	-	-	-	-	39'-5"
J501	CAP STIRRUP	5	42	2'-8"	2'-9"	-	-	-	-	8'-2"
J502	PEDESTAL & CAP	5	54	1'-4"	1'-9"	-	-	-	-	4'-10"
S501	CAP STIRRUP	5	45	3'-2"	2'-8"	8 1/2"	-	-	-	13'-1"
D1101	CAP MAIN STEEL	11	11	48'-3 1/2"	1'-9"	-	-	-	-	51'-9 1/2"
-	-	-	-	-	-	-	-	-	-	-
A1001	COL./SHAFT	10	42	47'-11"	-	-	-	-	-	47'-11"
B1001	TOP OF COL.	10	42	12'-9"	1'-7"	-	-	-	-	14'-4"
TA501	COL./SHAFT	5	324	2'-6"	-	-	-	-	-	7'-8 1/4"

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ASSET ID: 04212

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

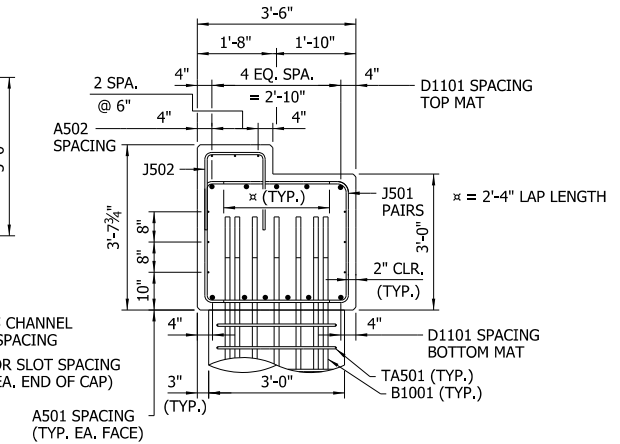
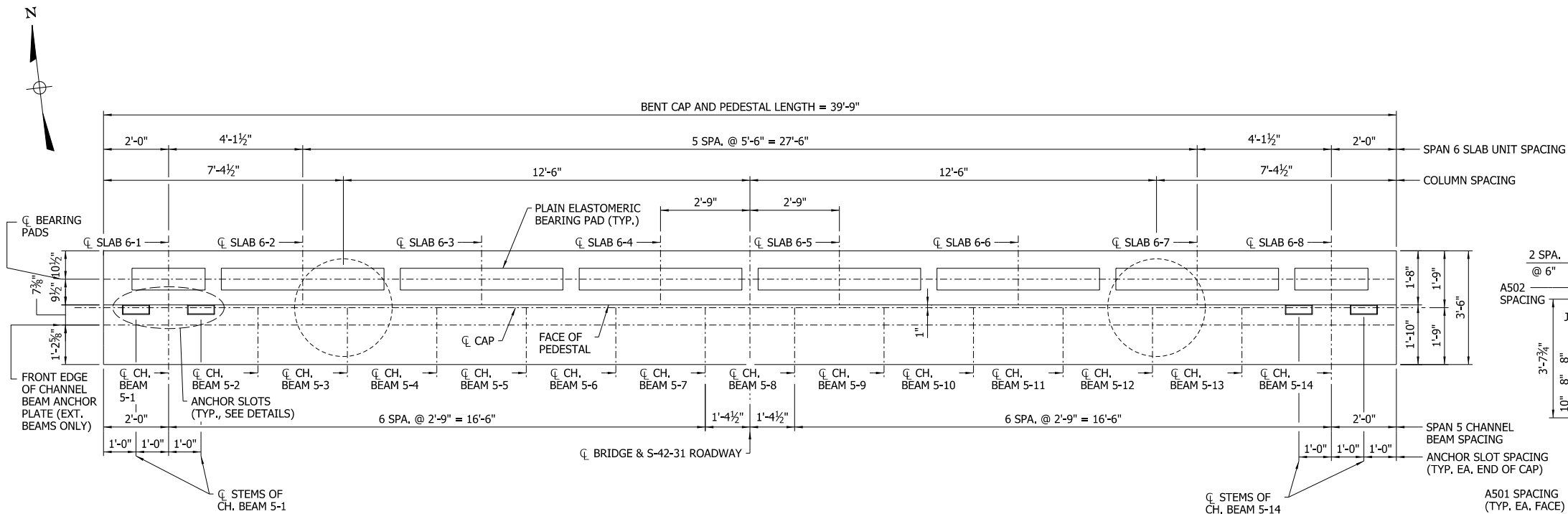
BENT 5 DETAILS

S-42-31 OVER PETERS CREEK
BRIDGE REPAIRS

COUNTY SPARTANBURG

ROUTE 5-42-31

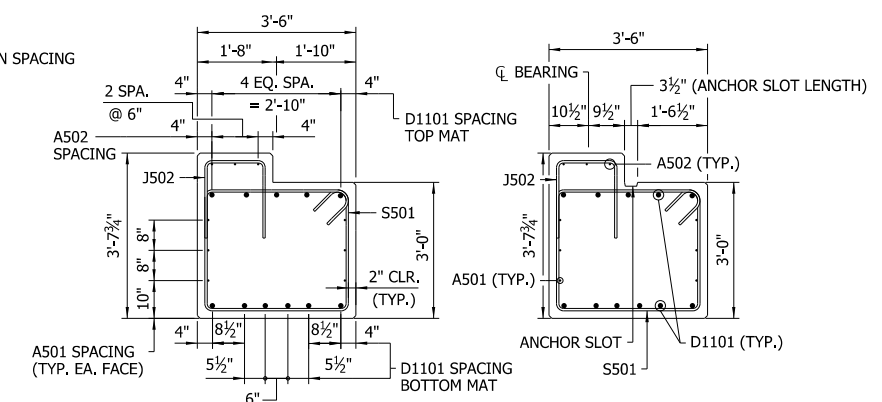
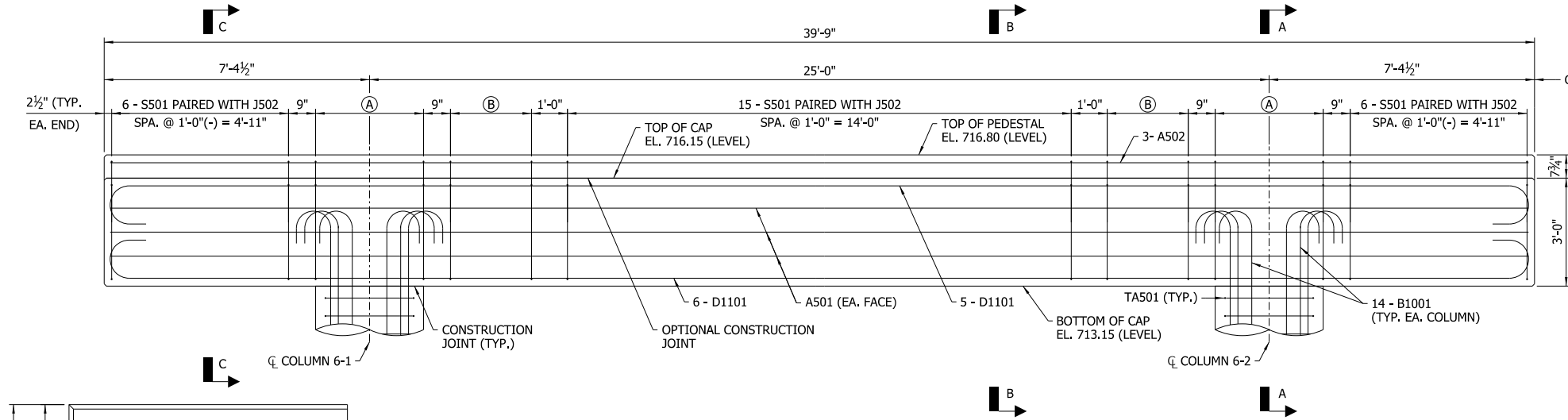
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QUAN.	SAB	DAA	05/24
DR.	SAB	DAA	05/24
DES.	SAB	DAA	05/24
BY	CHK.	DATE	



SECTION A-A
(SEE SECTION B-B FOR COMPLETE BOTTOM MAT D1101 SPACING)

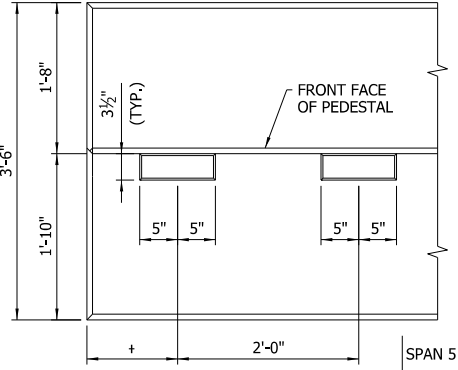
- (A) 5 - J501 PAIRS, PAIRED WITH J502; SPA. @ 9" = 3'-0"
- (B) 4 - S501, PAIRED WITH J502; SPA. @ 9" = 2'-3"

PLAN

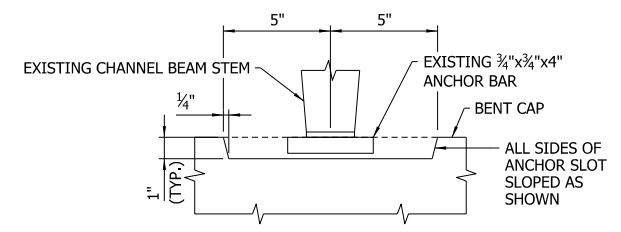


SECTION B-B
(SECTION C-C SIMILAR)

SECTION C-C
(REINFORCING DIMENSIONS NOT SHOWN FOR CLARITY)



ANCHOR SLOT PLAN
(BENT 6, LEFT SIDE SHOWN; OTHER LOCATIONS SIMILAR)



SECTION THROUGH ANCHOR SLOT
(SEE ORIGINAL BRIDGE PLANS FOR ADDITIONAL DETAILS)

BENT 6 REINFORCING STEEL SCHEDULE										
MARK	LOCATION	SIZE	NO. REQ.	BENDING DIMENSIONS						LENGTH
				A	B	C	D	E	F	
A501	CAP	5	6	39'-5"	-	-	-	-	-	39'-5"
A502	PEDESTAL	5	3	39'-5"	-	-	-	-	-	39'-5"
J501	CAP STIRRUP	5	20	2'-8"	2'-9"	-	-	-	-	8'-2"
J502	PEDESTAL & CAP	5	45	1'-4"	1'-9"	-	-	-	-	4'-10"
S501	CAP STIRRUP	5	35	3'-2"	2'-8"	8 1/2"	-	-	-	13'-1"
D1101	CAP MAIN STEEL	11	11	39'-5"	1'-9"	-	-	-	-	42'-11"
-	-	-	-	-	-	-	-	-	-	-
A1001	COL./SHAFT	10	28	47'-11"	-	-	-	-	-	47'-11"
B1001	TOP OF COL.	10	28	12'-9"	1'-7"	-	-	-	-	14'-4"
TA501	COL./SHAFT	5	216	2'-6"	-	-	-	-	-	7'-8 3/4"

NOTE:
SEE BENT 5 DETAILS SHEET FOR NOTES RELATED TO THE BENT CAPS.

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REV.			
REV.			
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QUAN.	SAB	DAA	05/24
DR.	SAB	DAA	05/24
DES.	SAB	DAA	05/24
BY	CHK.	DATE	

ASSET ID: 04212

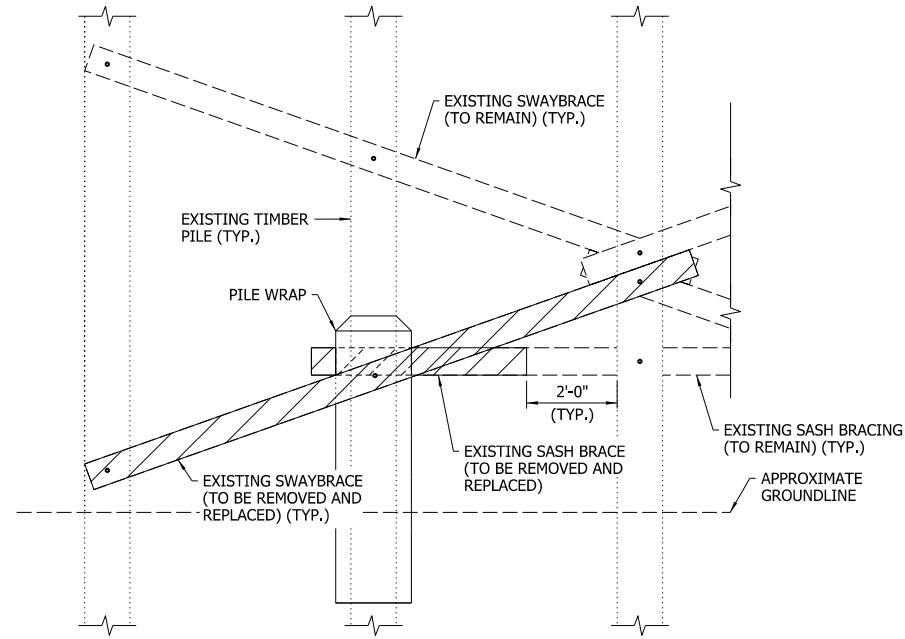
SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

(3)

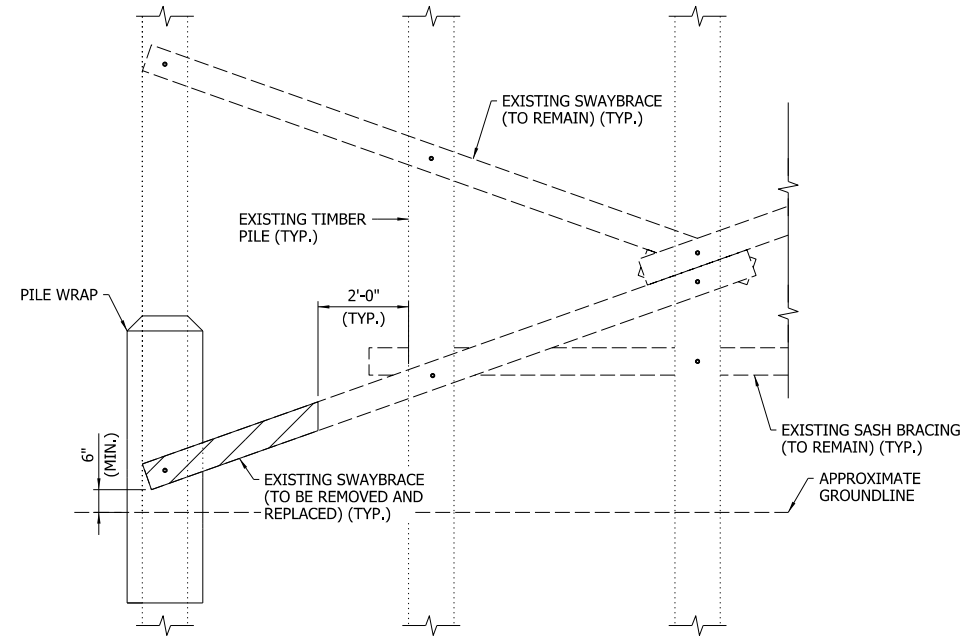
BENT 6 DETAILS
S-42-31 OVER PETERS CREEK
BRIDGE REPAIRS

COUNTY SPARTANBURG
ROUTE S-42-31

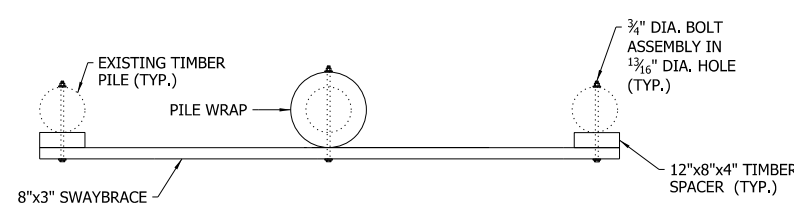
+ = 9'-10 1/2" @ BENT 5 LEFT
= 1'-0" @ ALL OTHER LOCATIONS



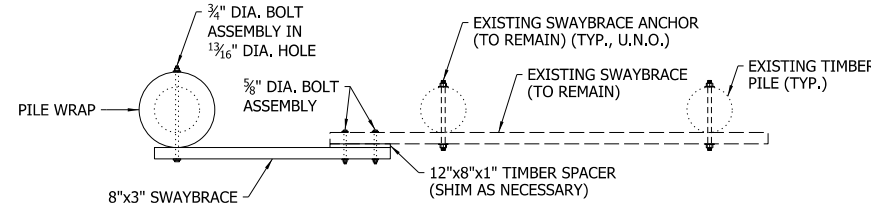
ELEVATION - REMOVAL



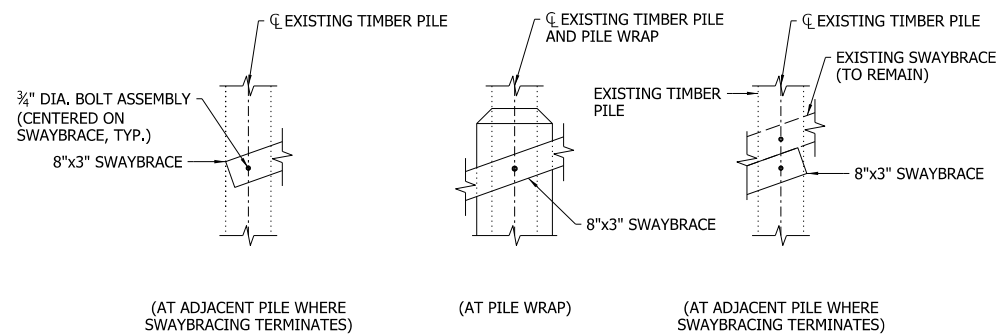
ELEVATION - REMOVAL



SWAYBRACE REPLACEMENT SECTION

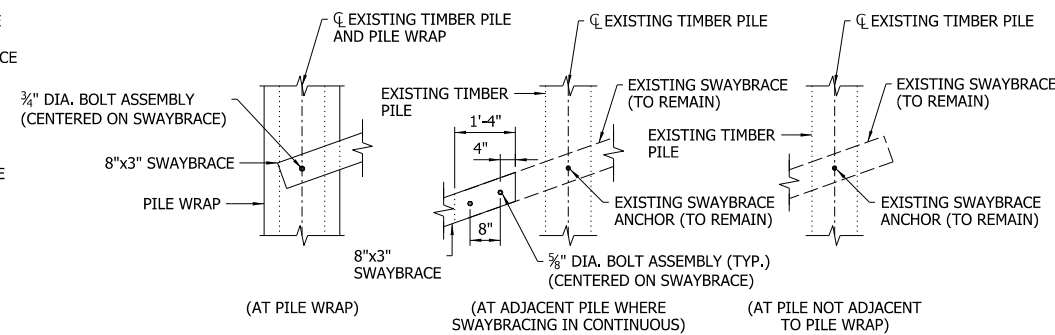


SWAYBRACE SPLICE SECTION



SWAYBRACE CONNECTION ELEVATION

SWAYBRACE REPLACEMENT DETAILS



SWAYBRACE CONNECTION ELEVATION

SWAYBRACE SPLICE DETAILS

LEGEND:
 LIMITS OF SWAYBRACE/SASH BRACE REMOVAL AND REPLACEMENT

- TIMBER BRACING NOTES:**
- THE DETAILS PROVIDED WITHIN THESE TIMBER BRACING DETAILS SHEETS ARE INTENDED TO BE SCHEMATIC AND PROVIDE GENERAL GUIDANCE FOR A VARIETY OF POSSIBLE SWAYBRACE ORIENTATIONS AND LAYOUTS. SWAYBRACE REPLACEMENT AND SPLICING DETAILS SUCH AS SWAYBRACE ORIENTATION, CONNECTION LOCATIONS, AND MEMBER LENGTHS SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE RCE. SHIM AS NECESSARY TO PROVIDE BEARING AT CONNECTIONS.
 - REFER TO THE TIMBER BRACING REPLACEMENT QUANTITIES TABLES ON TIMBER BRACING DETAILS (3 OF 3) FOR REQUIRED LOCATIONS OF FULL OR PARTIAL TIMBER SWAYBRACE, LONGITUDINAL BRACE AND SASH BRACE REPLACEMENT. QUANTITIES PROVIDED WITHIN THE TABLE ARE APPROXIMATE. FIELD VERIFY REQUIRED TIMBER BRACING LENGTHS, TIMBER SPACER NEEDS, AND CONNECTION HARDWARE PRIOR TO ORDERING MATERIALS.
 - AT LOCATIONS WHERE CONNECTIONS ARE INSTALLED THROUGH COMPLETED TIMBER PILE WRAPS, POSITION CONNECTIONS TO NOT IMPACT PILE WRAP REINFORCING. UTILIZE A PACOMETER OR OTHER MEANS OF DETERMINING REBAR LOCATION PRIOR TO INSTALLING CONNECTION HARDWARE.
 - MODIFICATIONS FOR SASH (HORIZONTAL) BRACING SHALL BE COMPLETED IN ACCORDANCE WITH THE DETAILS FOR SWAYBRACING ON THIS SHEET.
 - TIMBER BRACING CROSS SECTION DIMENSIONS SHOWN ARE NOMINAL DIMENSIONS UNLESS NOTED OTHERWISE.
 - AT LOCATIONS WHERE CONNECTION HARDWARE IS PERMANENTLY REMOVED FROM EXISTING TIMBER PILES, INSTALL TIMBER DOWELS OF EQUIVALENT DIAMETER TO PLUG THE CONNECTION HOLES. CUTOFF DOWELS FLUSH WITH THE FACES OF THE TIMBER PILES.
 - TIMBER BRACING ENDS SHALL EXTEND A MINIMUM OF 6" BEYOND CONNECTION HARDWARE.
 - TIMBER SPACERS ARE CONSIDERED INCIDENTAL TO THE COST OF ITEM 7064100 - TREATED TIMBER SWAY BRACES.

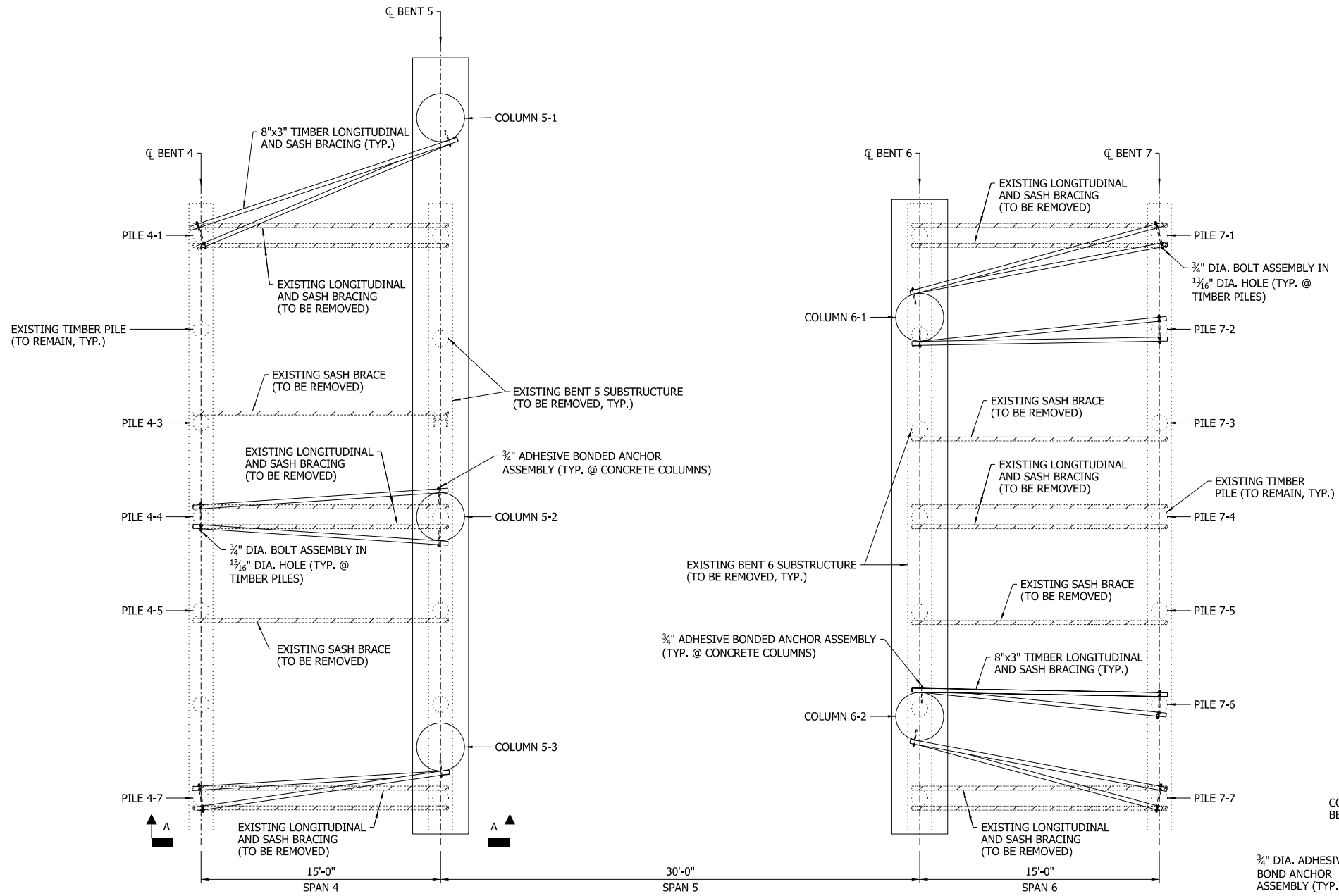
- TIMBER SWAYBRACING REPLACEMENT PROCESS:**
- AT LOCATIONS WHERE PROPOSED PILE WRAPS IMPACT EXISTING TIMBER BRACING LOCATIONS, DISCONNECT TIMBER BRACING TO ACCOMMODATE PILE WRAP INSTALLATION.
 - WHERE THE DISCONNECTED TIMBER SWAYBRACE IN STEP 1 TERMINATES AT A PILE ADJACENT TO THE PILE RECEIVING A TIMBER PILE WRAP, COMPLETELY REMOVE AND REPLACE THE TIMBER SWAYBRACE IN ACCORDANCE WITH THE SWAYBRACE REPLACEMENT DETAILS.
 - WHERE THE DISCONNECTED TIMBER SWAYBRACE IN STEP 1 IS CONTINUOUS AT A PILE ADJACENT TO THE PILE RECEIVING A TIMBER PILE WRAP, CUT OFF TIMBER SWAYBRACE AND INSTALL TIMBER SPLICE IN ACCORDANCE WITH THE SWAYBRACE SPLICE DETAILS.

ITEMS INCLUDED WITH THIS REPAIR TYPE		
BID ITEM NO.	DESCRIPTION	UNIT
2028200	REMOVAL & DISPOSAL OF DESIGNATED PORTIONS OF EXISTING BRIDGE	LS
7064100	TREATED TIMBER SWAY BRACES	LF
7082000	HARDWARE	LB

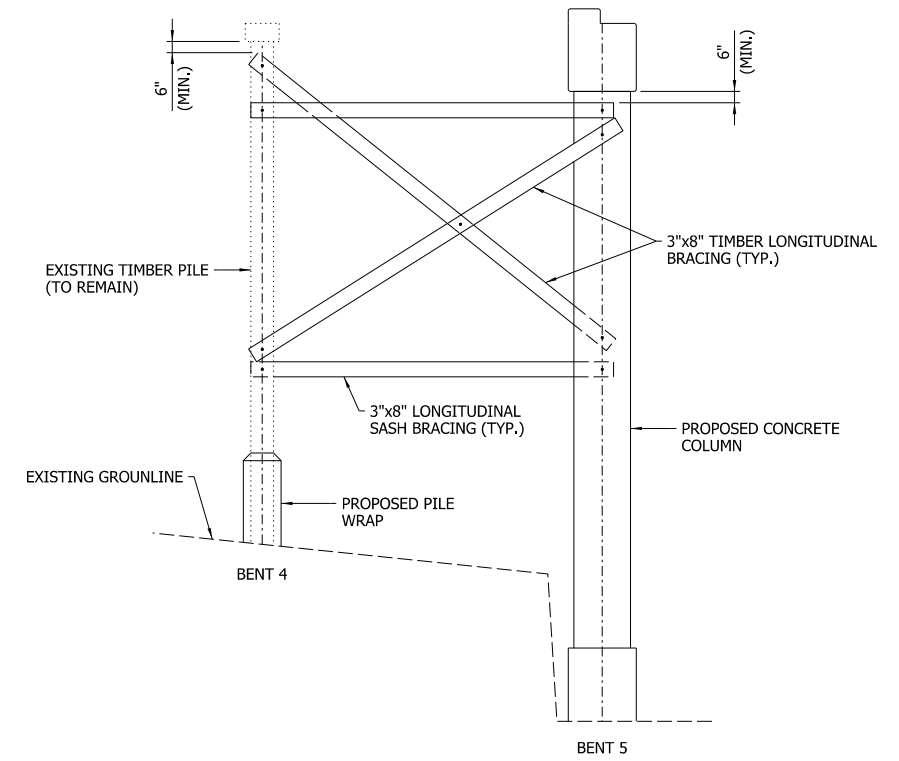
FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

REV.					<p align="center">SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION</p> <p align="center">④</p> <p align="center">TIMBER BRACING DETAILS (1 OF 3) S-42-31 OVER PETERS CREEK BRIDGE REPAIRS</p>
REV.					
REV.					
REVIEWED					
QUAN.	SAB	DAA	05/24		
DR.	SAB	DAA	05/24		
DES.	SAB	DAA	05/24		
BY	CHK.	DATE			

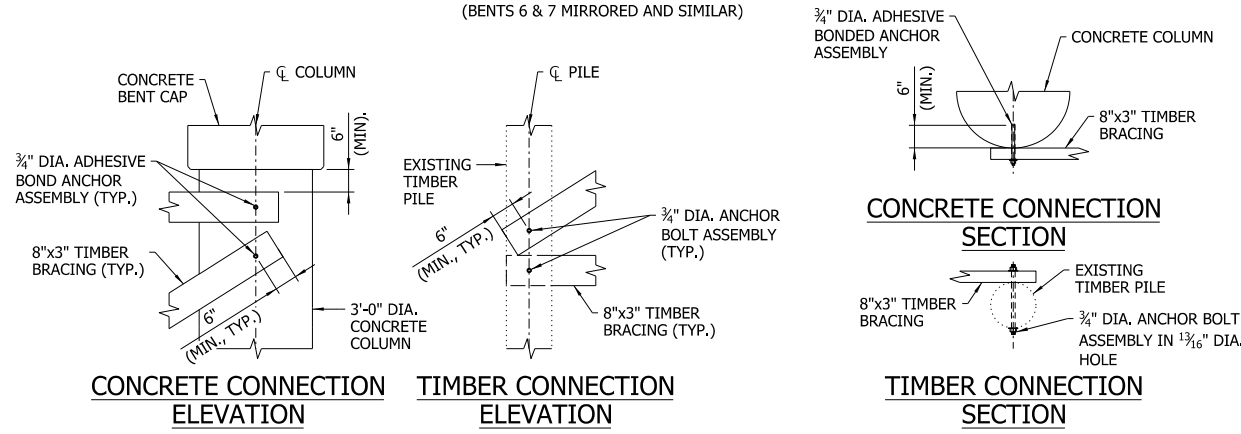
COUNTY SPARTANBURG ROUTE S-42-31



PLAN



SECTION A-A
(BENTS 6 & 7 MIRRORED AND SIMILAR)



BRACE CONNECTION DETAILS

LEGEND:
 LIMITS OF LONGITUDINAL BRACE AND SASH BRACE REMOVAL AND DISPOSAL

- TIMBER BRACING NOTES:**
1. THE LOCATIONS OF TIMBER LONGITUDINAL BRACING AND SASH BRACING SHOWN BETWEEN BENTS 4 AND 5 & BENTS 6 AND 7 ARE APPROXIMATE. POSITION LONGITUDINAL BRACING AND SASH BRACING TO MINIMIZE BRACING LENGTH BETWEEN CONNECTED SUBSTRUCTURE MEMBERS. LONGITUDINAL AND SASH BRACING SHALL BE POSITIONED AS TO BE AS CLOSE TO PERPENDICULAR TO THE CENTERLINE OF THE BENT CAPS (PARALLEL TO CENTERLINE OF ROADWAY) AS POSSIBLE.
 2. AT LOCATIONS WHERE CONNECTIONS ARE INSTALLED THROUGH COMPLETED CONCRETE COLUMNS OR PILE WRAPS, POSITION CONNECTIONS TO NOT IMPACT PILE REINFORCING. UTILIZE A PACOMETER OR OTHER MEANS OF DETERMINING REBAR LOCATION PRIOR TO INSTALLING TIMBER BRACING CONNECTION HARDWARE.
 3. MODIFICATIONS FOR LONGITUDINAL AND SASH BRACING SHALL BE IN ACCORDANCE WITH THE CONNECTION DETAILS ON THIS SHEET.

- TIMBER BRACING REPLACEMENT PROCESS:**
1. COMPLETE SUPERSTRUCTURE TEMPORARY REMOVAL OPERATIONS IN ACCORDANCE WITH THE SUPERSTRUCTURE DETAILS SHEET.
 2. REMOVE AND DISPOSE OF ALL TIMBER LONGITUDINAL AND SASH BRACING BETWEEN BENTS 4 AND 5 & BENTS 6 AND 7. REMOVE AND DISPOSE OF ALL TIMBER CROSS BRACING AT BENTS 5 AND 6.
 3. COMPLETE SUBSTRUCTURE REPLACEMENT OPERATIONS IN ACCORDANCE WITH THE DETAILS IN THESE PLANS.
 4. INSTALL NEW TIMBER SWAY, SASH, AND LONGITUDINAL BRACING IN ACCORDANCE WITH THESE DETAILS.
 5. AT LOCATIONS WHERE PROPOSED PILE WRAPS IMPACT THE PLACEMENT OF PROPOSED TIMBER BRACING, UTILIZE CONNECTION DETAILS IN ACCORDANCE WITH THE TIMBER BRACING DETAILS (1 OF 3) SHEET.

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REV.				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION			
REV.				4			
REV.				TIMBER BRACING DETAILS (2 OF 3)			
REVIEWED				S-42-31 OVER PETERS CREEK BRIDGE REPAIRS			
QUAN.	SAB	DAA	05/24	COUNTY SPARTANBURG			
DR.	SAB	DAA	05/24	ROUTE 5-42-31			
DES.	SAB	DAA	05/24				
BY	CHK.	DATE					

TIMBER BRACING REPLACEMENT QUANTITIES				
LOCATION (PILE #)	BRACING TYPE	ESTIMATED LENGTH (FT)	QUANTITY	NO. CONNECTIONS
2-1 TO 3-1	LONGITUDINAL CROSS	18	1	2
2-1 TO 3-1	LONGITUDINAL SASH	17	1	2
2-1 THRU 2-4	CROSS	8	1	3
3-1 TO 4-1	LONGITUDINAL CROSS	20	2	5
3-1 TO 4-1	LONGITUDINAL SASH	17	1	2
3-1 THRU 3-4	CROSS	9	2	6
3-1 THRU 3-4	SASH	20	1	4
3-7 TO 4-7	LONGITUDINAL CROSS	21	2	5
3-7 TO 4-7	LONGITUDINAL SASH	17	1	2
4-4 THRU 4-7	CROSS	15	1	3
4-1 TO 5-1	LONGITUDINAL CROSS	23	2	5
4-1 TO 5-1	LONGITUDINAL SASH	17	2	4
4-4 TO 5-2	LONGITUDINAL CROSS	23	2	5
4-4 TO 5-2	LONGITUDINAL SASH	17	2	4
4-7 TO 5-3	LONGITUDINAL CROSS	23	2	5
4-7 TO 5-3	LONGITUDINAL SASH	17	2	4
6-1 TO 7-1	LONGITUDINAL CROSS	23	2	5
6-1 TO 7-1	LONGITUDINAL SASH	17	2	4
6-1 TO 7-2	LONGITUDINAL CROSS	23	2	5
6-1 TO 7-2	LONGITUDINAL SASH	17	2	4
6-2 TO 7-6	LONGITUDINAL CROSS	23	2	5
6-2 TO 7-6	LONGITUDINAL SASH	17	2	4
6-2 TO 7-7	LONGITUDINAL CROSS	23	2	5
6-2 TO 7-7	LONGITUDINAL SASH	17	2	4
7-4 THRU 7-7	CROSS	22	2	8
7-4 THRU 7-7	SASH	20	1	4
7-7 TO 8-7	LONGITUDINAL CROSS	19	1	2
7-7 TO 8-7	LONGITUDINAL SASH	17	1	2

TOTAL EST. LENGTH	872 FT
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ASSET ID: 04212

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REV.					SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION TIMBER BRACING DETAILS (3 OF 3) S-42-31 OVER PETERS CREEK BRIDGE REPAIRS
REV.					
REV.					
REVIEWED					
QUAN.	SAB	DAA	05/24		COUNTY SPARTANBURG
DR.	SAB	DAA	05/24		
DES.	SAB	DAA	05/24		
	BY	CHK.	DATE		
					ROUTE S-42-31