

PUBLIC NOTICE

REQUEST FOR PERMISSION TO ALTER A U.S. ARMY CORPS OF ENGINEERS PROJECT UNDER SECTION 408

TITLE: Delaware Department of Transportation (DelDOT) – Replacement of SR36/Cedar Beach Road Bridge #3-164 over Cedar Creek, sited at the Cedar Creek Federal Civil Works Navigation Project, City of Milford, Sussex County, Delaware

PUBLIC NOTICE IDENTIFICATION NUMBER: NAP-2023-408-01

PUBLIC NOTICE COMMENT PERIOD:

Begins: **24 July 2023**

Expires: **23 August 2023**

Interested parties are hereby notified that an application has been received for a Department of the Army Section 408 permission for certain work at or near a federal project of the United States, as described below and shown on attached figures. Written comments are being solicited from anyone having an interest in the requested alteration. Comments will become part of the U.S. Army Corps of Engineers' (USACE's) administrative record and will be considered in determining whether to approve the request. Comments supporting, opposing, or identifying concerns that should be considered by the USACE in its decision process are all welcome.

This public notice is not a paid advertisement and is for public information only. Issuance of this notice does not imply USACE endorsement of the project as described.

1. REQUESTER: In compliance with 33 USC 408 (Section 14 of the Rivers and Harbors Act of 1899; hereinafter Section 408), the Delaware Department of Transportation (DelDOT) has requested permission to replace SR36/Cedar Beach Road Bridge #3-164 over Cedar Creek, which is sited at the Cedar Creek Federal Civil Works Navigation Project.

2. LOCATION: The SR36/Cedar Beach Road Bridge #3-164 is located at Cedar Creek in the City of Milford, Sussex County, Delaware (Approximate Center Coordinates: 38.935000, -75.323861).

3. LOCATION MAP(S)/DRAWING(S): Please see attached Project Plan Sheets 1 through 46.

4. REQUESTER'S PROPOSED ACTION: The proposed project entails replacing the existing bobtail swing movable bridge (to include drive systems, piers, abutments, pile fenders, and the control house) with a single leaf Dutch bascule span, which will allow for operating machinery to be located above the roadway level and out of the floodplain, and

reconstructing the approach spans as well as the approach roadway. The existing structure is three spans with an overall length of 77'-9". The center span is a 59'-0" bobtail swing span, which provides a 22'-0" wide navigation channel. The bridge provides one lane in each direction. There are no shoulders or sidewalks. The proposed structure will be on the same alignment and will have an overall length of 76'-3" with two 18'-6" precast slab spans and a 41'-0" Dutch bascule center span that will provide a 27'-0" navigation channel.

Replacement of the bridge will include demolition of the existing structure and substructures, pile driving, integral fender installation, and roadway approach reconstruction. There will be barge use, but not as the primary means of construction. The substructure work will be done within cofferdams. Construction of the proposed bridge will include new piers, abutments, fenders, a control house, towers, counterweight, counterweight arms, and associated electrical systems. Additional work will include the repaving of approach roadways, placement of riprap in the canal, and the installation of new traffic control equipment. The width of the new bridge structure will be increased to allow for 11' lanes and a 5' shared use shoulder/bike lane in each direction.

The proposed bridge replacement project is being evaluated for its potential to alter USACE's ability to maintain the Cedar Creek Federal Navigation Channel.

5. REGULATORY AUTHORITY: This request will be reviewed according to the provisions of Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408). A requestor has the responsibility to acquire all other permissions or authorizations required by federal, state, and local laws or regulations, including any required permits from the USACE Regulatory Program under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403), Section 404 of the Clean Water Act (33 USC Section 1344) and/or Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 USC 1413). Any Section 10/404/103 permit decision associated with the proposed alteration is separate from and will not be included in the Section 408 permission decision. An approval under Section 408 does not grant any property rights or exclusive privileges nor does it authorize any injury to the property or rights of others.

6. ENVIRONMENTAL COMPLIANCE: A decision on a Section 408 request is a federal action, and therefore subject to the National Environmental Policy Act (NEPA) and other environmental compliance requirements. While ensuring compliance is the responsibility of USACE, the requester is providing all information that the Philadelphia District identifies as necessary to satisfy all applicable federal laws, executive orders, regulations, policies, and ordinances. Based on information provided by the applicant to date, current Corps regulations governing NEPA implementation, and/or the contents of existing NEPA documentation if available, it is likely that the proposed action will be determined to be categorically excluded from the need to prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS). This determination will be finalized following completion of agency coordination and prior to issuance of the Section 408 Permission Decision.

7. EVALUATION: As part of its evaluation, USACE will first make a determination that the submittal from the requestor is complete. The Philadelphia District is working closely with the requestor to ensure that all required technical plans, maps, drawings, and specifications

are provided and are complete. Once the package is complete, a District-led review will be conducted to determine, in accordance with Engineering Circular (EC) 1165-2-216, whether the proposed alteration will impair the usefulness of the USACE Project or be injurious to the public interest, as follows:

- A. *Impair the Usefulness of the Project Determination.* The Philadelphia District's Section 408 review team will determine if the proposed alteration will limit the ability of the federally authorized project to function as authorized, or will compromise or change any authorized project conditions, purposes or outputs.
- B. *Injurious to the Public Interest Determination.* Proposed alterations will be reviewed to determine the probable impacts, including cumulative impacts, on the public interest. Evaluation of the probable impacts that the proposed alteration to the USACE project may have on the public interest requires a careful weighing of all those factors that are relevant in each particular case. Factors that may be relevant to the public interest depend upon the type of USACE project being altered and may include, but are not limited to, such things as conservation, economic development, historic properties, cultural resources, environmental impacts, water supply, water quality, flood hazards, floodplains, residual risk, induced damages, navigation, shore erosion or accretion, and recreation. The decision whether to approve an alteration will be determined by the consideration of whether benefits are commensurate with risks. If the potential detriments are found to outweigh the potential benefits, then it may be determined that the proposed alteration is injurious to the public interest.

8. SOLICITATION OF COMMENTS: The USACE is soliciting comments from the public; federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of the proposed activity. Any comments received will be considered by USACE to determine whether to issue, modify, condition, or deny a permission for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and other public interest factors listed above. Comments are considered in making a final determination whether the proposed action will be categorically excluded from the need to prepare further NEPA documentation. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

- A. It should be noted that materials submitted as part of the Section 408 request become part of the public record and are thus available to the general public under the procedures of the Freedom of Information Act (FOIA). Individuals may submit a written request to the Philadelphia District Corps of Engineers, Office of Counsel to obtain copies of said materials under the FOIA.
- B. It is presumed that all parties viewing this notice will wish to respond to this public notice; therefore, a lack of response will be interpreted as meaning that there is no objection to the project as described.

9. COMMENT SUBMISSION AND ADDITIONAL INFORMATION: Written comments on the described work should reference the USACE Public Notice Identification Number found on

the first page of this notice. Comments must reach this office no later than the stated expiration date of the Public Notice to become part of the record and be considered in the decision. Comments or requests for additional information should be mailed or emailed to the following address:

Email: JuanCarlos.Corona@usace.army.mil

Mailing Address:

U.S. Army Corps of Engineers









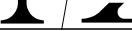








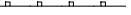



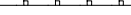


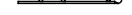

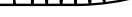
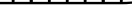













Philadelphia District

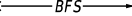
































Attn: Juan Carlos Corona








































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Philadelphia, PA 19103-2004












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MANMADE ROADSIDE FEATURES			
FEATURE DESCRIPTION	EXISTING	PROPOSED	ID
BOLLARD - STEEL POLE			
BOLLARD - WOOD POST			
CURB, TYPE 1 AND TYPE 3			
CURB, TYPE 2	CURB, TYPE "X"		
CURB & GUTTER, TYPE 1			
CURB & GUTTER, TYPE 2			
CURB & GUTTER, TYPE 3	C&G, TYPE "X"		
CURB OPENING - SUMP / ON GRADE			
CURB OPENING WITH SIDEWALK			
FENCE - CHAINLINK OR STRANDED			
FENCE - STOCKADE OR SPLIT RAIL			
FLAG POLE	F.P.		
GUARDRAIL - STEEL BEAM, TYPE 1			
GUARDRAIL - STEEL BEAM, TYPE 2			
GUARDRAIL - STEEL BEAM, TYPE 3			
GUARDRAIL - WIRE ROPE			
GUARDRAIL - END ANCHORAGE			
GUARDRAIL - END TREATMENT, TYPE 1			
GUARDRAIL - END TREATMENT, TYPE 2			
GUARDRAIL - END TREATMENT, TYPE 3			
GUARDRAIL - IMPACT ATTENUATOR			
LAMP AND POST - RESIDENTIAL	LAMP 		
MAILBOX	MB 	MB 	
PARKING METER AND POST	P.M. 		
PAVEMENT - FLEXIBLE			
PAVEMENT - RIGID			
PILE - BRIDGE			
PILLAR OR MISCELLANEOUS POST			
TRAFFIC SIGN AND POST			
WALL - BRICK OR BLOCK			
WALL - STONE			







DRAINAGE FEATURES			
FEATURE DESCRIPTION	EXISTING	PROPOSED	ID
BIOFILTRATION SWALE			
DITCH OR STREAM CENTERLINE			
DIRECTIONAL STREAM FLOW ARROW			
DRAINAGE INLET	C.B.  / D.I. 		
DRAINAGE JUNCTION BOX	J.B. 		
DRAINAGE MANHOLE			
DRAINAGE PIPE AND FLOW ARROW	SIZE/TYPE LABEL 		
DRAINAGE PIPE HEADWALL			
FLARED END SECTION			
RIPRAP - AREA FEATURE			
RIPRAP - LINEAR FEATURE			
SAFETY END SECTION			
UNDERDRAIN			
UNDERDRAIN OUTLET			
STONE INFILTRATION BMP			
TIDAL FLOW ARROW			




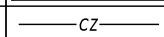

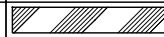


UTILITY FEATURES		
FEATURE DESCRIPTION	EXISTING	PROPOSED
CABLE TV DISTRIBUTION BOX		
COMMUNICATIONS - UNDERGROUND	COMM(A)	COMM
ELECTRIC - UNDERGROUND	E(A)	E
ELECTRIC MANHOLE		
ELECTRIC METER		
ELECTRIC TRANSFORMER		
GAS - UNDERGROUND	G(A)	G
GAS MANHOLE		
GAS METER	G.M. 	
GAS VALVE	G.V. 	
GAS PUMP - SERVICE STATION	G.P. 	
IRRIGATION - UNDERGROUND	IR(A)	IR
ITMS - UNDERGROUND	ITMS(A)	ITMS
LIGHTING - UNDERGROUND	LI(A)	LI
LUMINAIRE - POLE MOUNTED		
MANHOLE - UNDETERMINED OWNER		
RAILROAD TRACKS		
SANITARY - UNDERGROUND	SA(A)	S
SANITARY SEWER MANHOLE		
SANITARY SEWER VALVE	S.V. 	
SANITARY SEWER CLEANOUT OR VENT	S.C.O. 	
SEPTIC DRAIN FIELD	S.D.F.	
SIGNALIZATION - UNDERGROUND	SIG(A)	SIG
SOIL BORING LOCATION		
TELEPHONE BOOTH		
TELEPHONE MANHOLE		
TELEPHONE TEST POINT		
TRAFFIC - CONDUIT JUNCTION WELL	J.W. 	
TRAFFIC - LIGHT POLE AND BASE		
TRAFFIC - PEDESTRIAN POLE & BASE		
TRAFFIC - SIGNAL CABINET & BASE		
TRAFFIC - SIGNAL POLE AND BASE		
UTILITY BOX		
UTILITY POLE GUY WIRE ANCHOR		
UTILITY POLE		
UTILITY TEST HOLE LOCATION		
WATER - UNDERGROUND	W(A)	W
WATER - FIRE HYDRANT	F.H. 	F.H. 
WATER METER	W.M. 	
WATER VALVE	W.V. 	W.V. 
WELL HEAD	WELL 	

PAVEMENT SECTION(S)	
OVERLAY PAVEMENT - SEE TYPICAL SECTIONS FOR MATERIALS AND DEPTHS	
RECONSTRUCTED PAVEMENT - SEE TYPICAL SECTIONS FOR MATERIALS AND DEPTHS	
DRIVEWAY AND ENTRANCE PAVEMENT - SEE NOTES FOR MATERIALS AND DEPTHS	








NATURAL ROADSIDE FEATURES		
FEATURE DESCRIPTION	EXISTING	PROPOSED
HEDGEROW OR THICKET		
MARSH BOUNDARY LINE		
TREE - CONIFEROUS		
TREE - DECIDUOUS		
TREE STUMP		
SHRUBBERY		
WETLAND BOUNDARY - DELINEATED	WL 	
WOODS LINE BOUNDARY		

RIGHT-OF-WAY FEATURES		
FEATURE DESCRIPTION	EXISTING	PROPOSED
DENIAL OF ACCESS	DA	DA
EASEMENT - OTHERS	EASEMENT TYPE	
PERMANENT EASEMENT	PE	PE
PROPERTY LINE		
PROPERTY MARKER - CONCRETE	C.M. 	
PROPERTY MARKER - IRON PIPE	I.P. 	
RIGHT-OF-WAY BASELINE	100+00	100+00
RIGHT-OF-WAY LINE		R/W
RIGHT-OF-WAY & DENIAL OF ACCESS	R/W-DA	R/W-DA
RIGHT-TO-ENTER		RTE
TEMPORARY CONSTRUCTION EASEMENT		TCE

SURVEY CONTROL & MONUMENTATION	
FEATURE DESCRIPTION	EXISTING
POINT OF CURVATURE OR TANGENCY	
POINT OF INTERSECTING TANGENTS	
SURVEY BENCHMARK LOCATION	B.M. 
SURVEY NGS POINT LOCATION	
SURVEY TIE POINT LOCATION	T.P. 
SURVEY TRAVERSE POINT	

MISCELLANEOUS FEATURES	
FEATURE DESCRIPTION	PROPOSED
BARRIER, DOUBLE-FACED, PERMANENT	
BARRIER, SINGLE-FACED, PERMANENT, TEST LEVEL 4 / TEST LEVEL 5	
BRICK PATTERNED SURFACE	
BUTT JOINT	
CLEAR ZONE	CZ
CONSTRUCTION BASELINE	100+00
LATERAL OFFSET	LO
LIMIT OF CONSTRUCTION	LOC
PAVEMENT PATCH	
PAVEMENT REMOVAL - TOPSOIL, SEED AND MULCH	
P.C.C. SIDEWALK - 4"	
P.C.C. SIDEWALK - 6" (USE 8" DEPTH FOR CHANNELIZATION ISLANDS.)	

IDENTIFIERS	
FEATURE DESCRIPTION	ID
ABANDON BY CONTRACTOR	AB C
ABANDON BY OTHERS	AB O
ADJUST BY CONTRACTOR	A C
ADJUST BY OTHERS	A O
BEST MANAGEMENT PRACTICE	BMP XXX
BUS STOP PAD / TYPE	BSP X
BUS STOP WITH SHELTER PAD / TYPE	BSSP X
CONCRETE SAFETY BARRIER	B XXX
CONVERT TO JUNCTION BOX	CJB XXX
CONVERT TO DRAINAGE MANHOLE	CMB XXX
DO NOT DISTURB	DND
ENERGY DISSIPATOR	ED XXX
FILL WITH FLOWABLE FILL	FF C
LANDSCAPE PLANTINGS	LS XXX
PEDESTRIAN CONNECTION / TYPE	PC XX
PEDESTRIAN CONNECTION / TYPE WITHOUT DETECTABLE WARNING SYSTEM	PC-N XXX
RELOCATE BY CONTRACTOR	RL C
RELOCATE BY OTHERS	RL O
RELOCATE BY PROPERTY OWNER	RL PO
REMOVE BY CONTRACTOR	RM C
REMOVE BY OTHERS	RM O
REMOVE BY TRAFFIC CONTRACTOR	RM TC
RIGHT-OF-WAY MONUMENT	R XXX

ITMS	
FEATURE DESCRIPTION	PROPOSED
ITMS CONDUIT	ITMS-CON
CONDUIT JUNCTION WELL	
RWIS PUCK SENSOR	
MICROWAVE DETECTOR	
CCTV CAMERA	
POLE/POLE BASE	
ITMS CABINET	
RWIS	

ADDENDA / REVISIONS		NOT TO SCALE	REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD	CONTRACT	BRIDGE NO.	3-164	LEGEND	SECTION
				T202007301	DESIGNED BY: G. CORREALE			AEC
				COUNTY				SHEET NO.
				SUSSEX	CHECKED BY: G. PERDICK	3		

GENERAL NOTES

1. THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", DATED JUNE 2021 AND THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD CONSTRUCTION DETAILS", DATED 2021, INCLUDING ALL REVISIONS UP TO THE DATE OF ADVERTISEMENT.
2. ELECTRONIC PROJECT FILES THAT WILL BE MADE AVAILABLE TO THE AWARDED CONTRACTOR AT ADVERTISEMENT, INCLUDE:

()	NONE
(X)	ASCII DATA FILES WITH COORDINATES AND ELEVATIONS FOR PROPOSED POINTS AS SELECTED BY THE ENGINEER.
(X)	ALL PLAN SHEETS, IN PDF FORMAT.
()	EXISTING DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
()	PROPOSED DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
()	DESIGN FILE, IN .DGN FILE FORMAT, CONTAINING ONLY THE PROPOSED 3D TRIANGLES OF THE PROPOSED DIGITAL TERRAIN MODEL (DTM).

NOTE: THE DOCUMENT ENTITLED "RELEASE FOR DELIVERY OF DOCUMENTS IN ELECTRONIC FORM TO A CONTRACTOR" MUST BE SIGNED BY ALL PARTIES PRIOR TO THE DELIVERY OF ANY ELECTRONIC PROJECT FILES.

3. PROJECT FILES THAT WILL BE MADE AVAILABLE TO THE AWARDED CONTRACTOR, INCLUDE:

(X)	CROSS SECTIONS
(X)	RIGHT-OF-WAY PLANS

PROJECT NOTES

SECTION 100

1. ANY DAMAGE TO ITEMS NOTED TO BE RELOCATED OR RESET BY THE CONTRACTOR, AT THE DISCRETION OF THE ENGINEER, SHALL BE REPAIRED AND/OR REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
2. THE CONTRACTOR WILL CONTACT THE DELAWARE TMC AT 302-659-4600 PRIOR TO ANY UNMANNED AIRCRAFT VEHICLE (UAV) FLIGHTS. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE THE FOLLOWING INFORMATION: THE REGISTRATION NUMBER OF THE UAV, THE FLIGHT TIME, LOCATION OF THE FLIGHT, THE PILOT'S NAME AND THE PILOT'S CONTACT NUMBER DURING THE FLIGHT.
3. NIGHT WORK IS NOT PERMITTED ON THIS PROJECT UNLESS THE CONTRACTOR OBTAINS: APPROVAL FROM THE ENGINEER, ACCEPTABLE RESPONSES ON NIGHT WORK SURVEYS, AND ACCEPTANCE FROM THE MUNICIPALITY. METHOD AND FORMAT OF NIGHT WORK SURVEYS WILL BE PROVIDED BY THE ENGINEER UPON REQUEST. NIGHT WORK, SURVEYS, AND COORDINATION WITH MUNICIPALITIES IS NOT COMPENSABLE AND THE TIME TO COMPLETE THE SURVEYS IS NOT EXCUSABLE.

SECTION 200

4. THE CONTRACTOR SHALL REMOVE AND RESET ALL MAILBOXES TO MAINTAIN MAIL SERVICE AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL RELOCATE MAILBOXES AS REQUIRED BY THE PROPOSED GEOMETRICS AND AS DIRECTED BY THE ENGINEER. WHEN RELOCATING MAILBOXES IN CURBED SECTIONS, THE FACE OF THE MAILBOX SHALL BE FLUSH WITH THE BACK EDGE OF CURB. WHEN RELOCATING MAILBOXES IN OPEN SECTIONS, THE FACE OF THE MAILBOX SHALL SET BACK 8 INCHES FROM THE EDGE OF THE PAVED SHOULDER. THE BOTTOM OF THE MAILBOX SHALL BE POSITIONED IN ACCORDANCE WITH THE LATEST VERSION OF THE UNITED STATES POSTAL SERVICE GUIDELINES. MAILBOXES LOCATED AT DRIVEWAY ENTRANCES SHALL BE PLACED ON THE FAR SIDE OF THE DRIVEWAY IN THE DIRECTION OF TRAVEL. POSTS BEING RESET IN CONCRETE SIDEWALK SHALL BE IN AN APPROPRIATE SIZE PVC SLEEVE. ACCEPTABLE POSTS SHALL BE 4 INCH X 4 INCH OR 4 INCH DIAMETER WOOD POSTS, 4.5 INCH DIAMETER WOOD POSTS, AND 2 INCH DIAMETER STEEL PIPES. FOR RELOCATING MULTIPLE MAILBOXES TOGETHER ALL POSTS SHALL BE SEPARATED BY A DISTANCE OF NO LESS THAN 3/4 OF THEIR FULL HEIGHT ABOVE THE GROUND. MULTIPLE MAILBOXES ATTACHED TO A SINGLE HORIZONTAL BOARD SHALL NOT BE LOCATED INSIDE THE CLEAR ZONE. EACH MAIL BOX SHALL BE PLACED ON AN INDIVIDUAL POST MEETING THE CRITERIA ABOVE. ALL MAILBOXES SHALL BE SET NOT TO IMPEDE THE MINIMUM PAR (PEDESTRIAN ACCESS ROUTE) WIDTH AS DETERMINED BY THE CURRENT EDITION OF THE PEDESTRIAN ACCESSIBILITY STANDARDS FOR FACILITIES IN THE PUBLIC RIGHT OF WAY. IF MAILBOXES ARE NOT SET IN ACCORDANCE WITH THE ABOVE DIRECTIONS, RESETTING OF THE MAILBOXES WILL BE AT THE COST OF THE CONTRACTOR. COST FOR ALL WORK AND MATERIALS SHALL BE PAID UNDER ITEM 201000 - CLEARING AND GRUBBING.
5. ITEMS TO BE REMOVED UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
- a. POLES AND BASES.
- b. GUARDRAIL.
6. ITEMS TO BE REMOVED UNDER ITEM 211505 - REMOVAL OF EXISTING BRIDGE SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
- a. WOOD DECK.
- b. FENDERS.
- c. REMAINING BRIDGE COMPONENTS.
- d. CONTROL HOUSE.

7. UNLESS OTHERWISE NOTED AS DO NOT DISTURB OR ADJUST BY CONTRACTOR/OTHERS, ALL EXISTING FEATURES, INCLUDING TREES, WITHIN THE PROPOSED LOC SHALL BE REMOVED BY THE CONTRACTOR AND PAID FOR UNDER THE RESPECTIVE BID ITEM. REMOVAL OF EXISTING STORM DRAIN PIPE SHALL BE PAID UNDER ITEM 202000 UNLESS NOTED WITH A FLOWABLE FILL IDENTIFIER, REMOVAL OF TREES AND SHRUBS SHALL BE PAID FOR UNDER 201000, AND REMOVAL OF ADDITIONAL EXISTING FEATURES SHALL BE PAID FOR UNDER ITEM 210000 AS NOTED IN SECTION 200 OF THE PROJECT NOTES.
8. ONLY EXISTING FEATURES WITHIN THE LOC IDENTIFIED WITH REMOVE BY CONTRACTOR OR BY OTHER METHODS ARE TO BE REMOVED OR DISTRUBED.

SECTION 400

9. THE PAVEMENT SECTION FOR FLEXIBLE PAVEMENT RESIDENTIAL DRIVEWAYS SHALL BE 2" BITUMINOUS CONCRETE, TYPE 'C' OVER 8" GRADED AGGREGATE BASE COURSE, TYPE 'B', UNLESS OTHERWISE NOTED ON THE PLANS.

SECTION 600

10. STATION AND ELEVATION DATA GIVEN FOR DRAINAGE STRUCTURES ARE TO BE APPLIED TO THE CENTER OF THE GRATE FOR INLETS AND TO THE CENTER OF THE STRUCTURE FOR JUNCTION BOXES AND MANHOLES.

SECTION 700

11. ALL PAVED AREAS TO BE RECONSTRUCTED OR WIDENED SHALL BE SAWCUT AT THE POINT WHERE THE NEW PAVEMENT IS TO TIE INTO THE EXISTING PAVEMENT.

SECTION 900

12. THIS PROJECT IS COVERED UNDER AN NPDES GENERAL PERMIT FOR CONSTRUCTION. UNDER THE GENERAL PERMIT, COMPLIANCE WITH DELDOT'S APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLANS WILL CONSTITUTE COMPLIANCE WITH THE NPDES INDUSTRIAL PERMITTING REQUIREMENTS FOR THIS CONSTRUCTION PROJECT. A COPY OF THE NPDES GENERAL PERMIT AND NOI IS KEPT ON FILE IN EACH OF THE CONSTRUCTION OFFICES AND THE DEPARTMENT'S STORMWATER SECTION. A COPY OF THE GENERAL PERMIT OR THE NOI CAN BE OBTAINED UPON REQUEST FROM EITHER THE DEPARTMENT'S STORMWATER ENGINEER OR THE APPROPRIATE CONSTRUCTION ENGINEER.

MISCELLANEOUS

13. THE CONTRACTOR SHALL NOTIFY DART FIRST STATE AT DOT_DETOURS@DELAWARE.GOV AT LEAST 14 DAYS PRIOR TO THE START OF ANY DETOURS OR CONSTRUCTION, AND DOT_DTC_PROJECTDEVELOPMENT@DELAWARE.GOV AT SUCH TIME THE FACILITY IS COMPLETED AND OPERABLE FOR TRANSIT OPERATIONS. FOR EMERGENCY DETOUR INFORMATION ONLY, PLEASE CONTACT DTC'S CHIEF SCHEDULER AT 302-576-6019.
14. ALL DART SIGNS HAVE BEEN UPDATED TO A NEW DESIGN. THE DELDOT SIGN SHOP DOES NOT FABRICATE THE UPDATED SIGN OR ANY SUPPLEMENTAL PLAQUES TO ALLOW FOR ADDITIONAL ROUTE NUMBERS. ALL REQUESTS FOR FABRICATION OF THESE SIGNS MUST BE MADE THROUGH DART TRANSIT AT 302-576-6132.
15. ANY STAGING AND/OR STOCKPILE AREA(S) OUTSIDE THE PROJECT'S LIMIT OF CONSTRUCTION (LOC) THAT INDIVIDUALLY OR CUMULATIVELY ARE LARGER THAN 10,000 SQUARE FEET, MUST BE APPROVED BY DELDOT'S ARCHAEOLOGIST. CONTACT THE CONSTRUCTION AREA ENGINEER WHO WILL COORDINATE WITH DELDOT'S ARCHAEOLOGIST.

WITHIN 30 DAYS, DELDOT WILL:

1) APPROVE THE USE OF PROPOSED STAGING AND STOCKPILE AREA(S);

2) REJECT THE REQUEST; OR

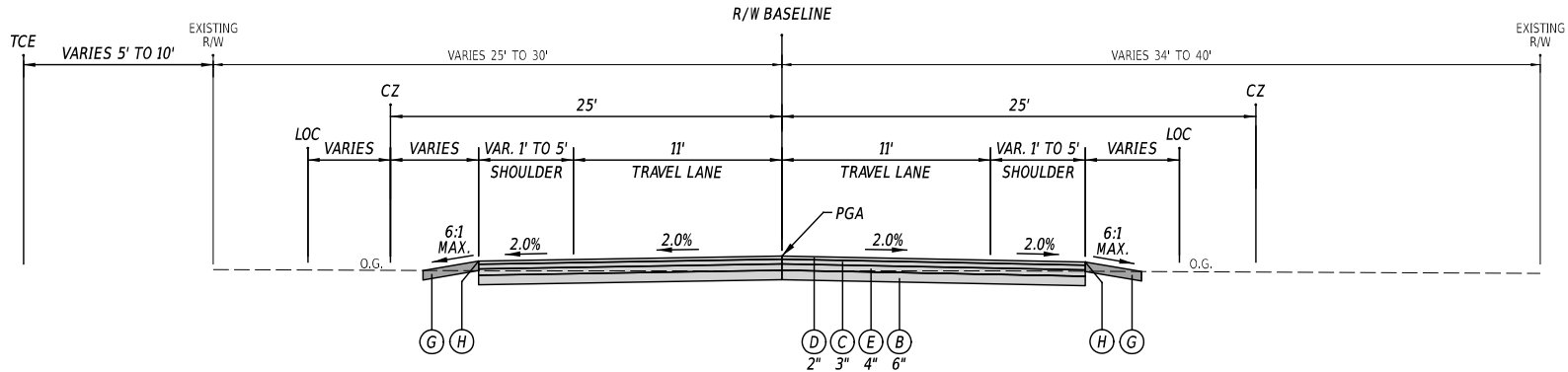
3) PERFORM AN ARCHAEOLOGICAL SURVEY TO DETERMINE WHETHER TO APPROVE OR REJECT THE REQUEST, WHICH MAY TAKE UP TO 3 MONTHS. IF AN ARCHAEOLOGICAL SURVEY IS NECESSARY, DELDOT OR A CONSULTANT ON ITS BEHALF WILL UNDERTAKE THE SURVEY.

EARTHWORK SUMMARY	
EXCAVATION	
EXCAVATION FROM CROSS SECTIONS	1567 C.Y.
ROCK EXCAVATION FOR ROADWAY AND TRENCHES	0 C.Y.
TOPSOIL STRIPPING	0 C.Y.
TOTAL EXCAVATION	1567 C.Y.
EXCAVATION AVAILABLE FOR EMBANKMENT	
EXCAVATION MEETING BORROW TYPE 'A'	0 C.Y.
EXCAVATION MEETING BORROW TYPE 'F'	0 C.Y.
EXCAVATION MEETING TOPSOIL	0 C.Y.
EMBANKMENT REQUIREMENTS	
BORROW TYPE 'A' REQUIRED (INCLUDING UNDERCUT)	+612 C.Y.
BORROW TYPE 'F' REQUIRED	11 C.Y.
TOPSOIL REQUIRED	200 C.Y.
MATERIAL BALANCE ("+"= EXCESS, "-"= NEED)	
BORROW TYPE 'A'	-612 C.Y.
BORROW TYPE 'F'	-11 C.Y.
TOPSOIL	-200 C.Y.
UNSUITABLE MATERIAL	+1567 C.Y.
NOTES:	
1) THE VALUES LISTED IN THE EARTHWORK SUMMARY ARE APPROXIMATE AND ARE NOT TO BE USED AS A BASIS OF PAYMENT. THE EARTHWORK SUMMARY IS CONSIDERED FOR INFORMATIONAL PURPOSES ONLY.	
2) OTHER SOURCES OF EXCAVATION MAY INCLUDE PIPE TRENCH EXCAVATION, STRUCTURE EXCAVATION, UNDERCUT EXCAVATION, STORMWATER MANAGEMENT POND EXCAVATION, ENVIRONMENTAL SITE EXCAVATION, MAINTENANCE OF TRAFFIC EXCAVATION, ETC.	
3) UNSUITABLE MATERIALS INCLUDE UNDERCUT SOILS, BITUMINOUS PAVEMENT, ETC.	

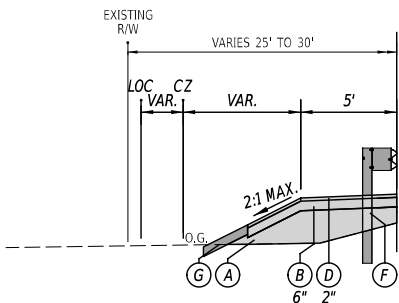
FINAL PLANS

ADDENDA / REVISIONS		NOT TO SCALE	REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD	CONTRACT	BRIDGE NO.	3-164	NOTES	SECTION
				T202007301	DESIGNED BY: G. CORREALE			AEC
				COUNTY	CHECKED BY: G. PERDICK			SHEET NO.
				SUSSEX				4

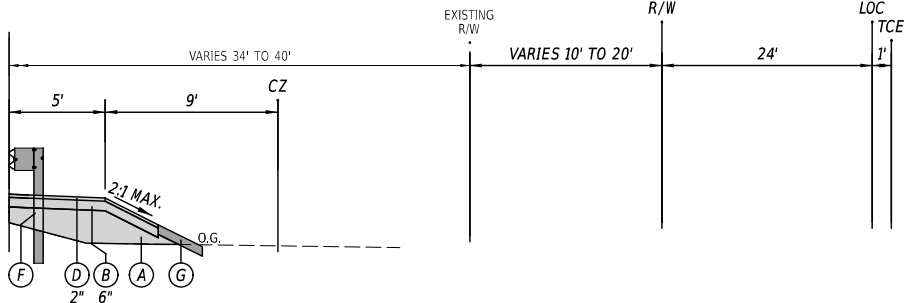
LEGEND			
(A)	ITEM 209006 - BORROW, TYPE F		
(B)	ITEM 301001 - GRADED AGGREGATE BASE COURSE, TYPE B		
(C)	ITEM 401014 - SUPERPAVE TYPE B, PG 64-22		
(D)	ITEM 401044 - SUPERPAVE TYPE C, PG 64-22 (NON-CARBONATE STONE)		
(E)	ITEM 401021 - SUPERPAVE TYPE BCB, PG 64-22		
(F)	ITEM 720037 - GALVANIZED STEEL BEAM GUARDRAIL, SEE CP SHEETS FOR TYPE		
(G)	ITEM 908001 - TOPSOIL		
(G)	ITEM 908014 - PERMANENT GRASS SEEDING, DRY GROUND		
(H)	ITEM 908020 - EROSION CONTROL BLANKET MULCH		
(H)	SAFETY EDGE FOR ROADWAY PAVEMENT		



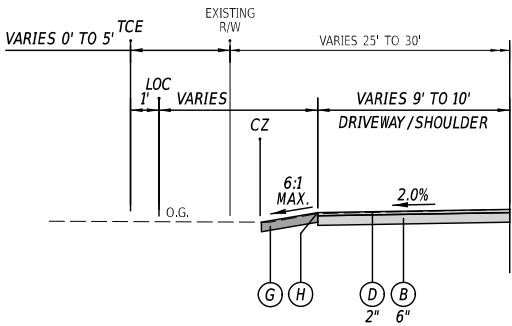
CEDAR BEACH RD
STATION 7+78 TO STATION 103+35
STATION 106+04 TO STATION 107+25



GUARDRAIL
STATION 103+28 TO STATION 104+36
STATION 105+27 TO STATION 105+79



GUARDRAIL
STATION 103+35 TO STATION 104+36
STATION 105+27 TO STATION 106+04



DRIVEWAY/SHOULDER
STATION 105+68 TO STATION 107+25

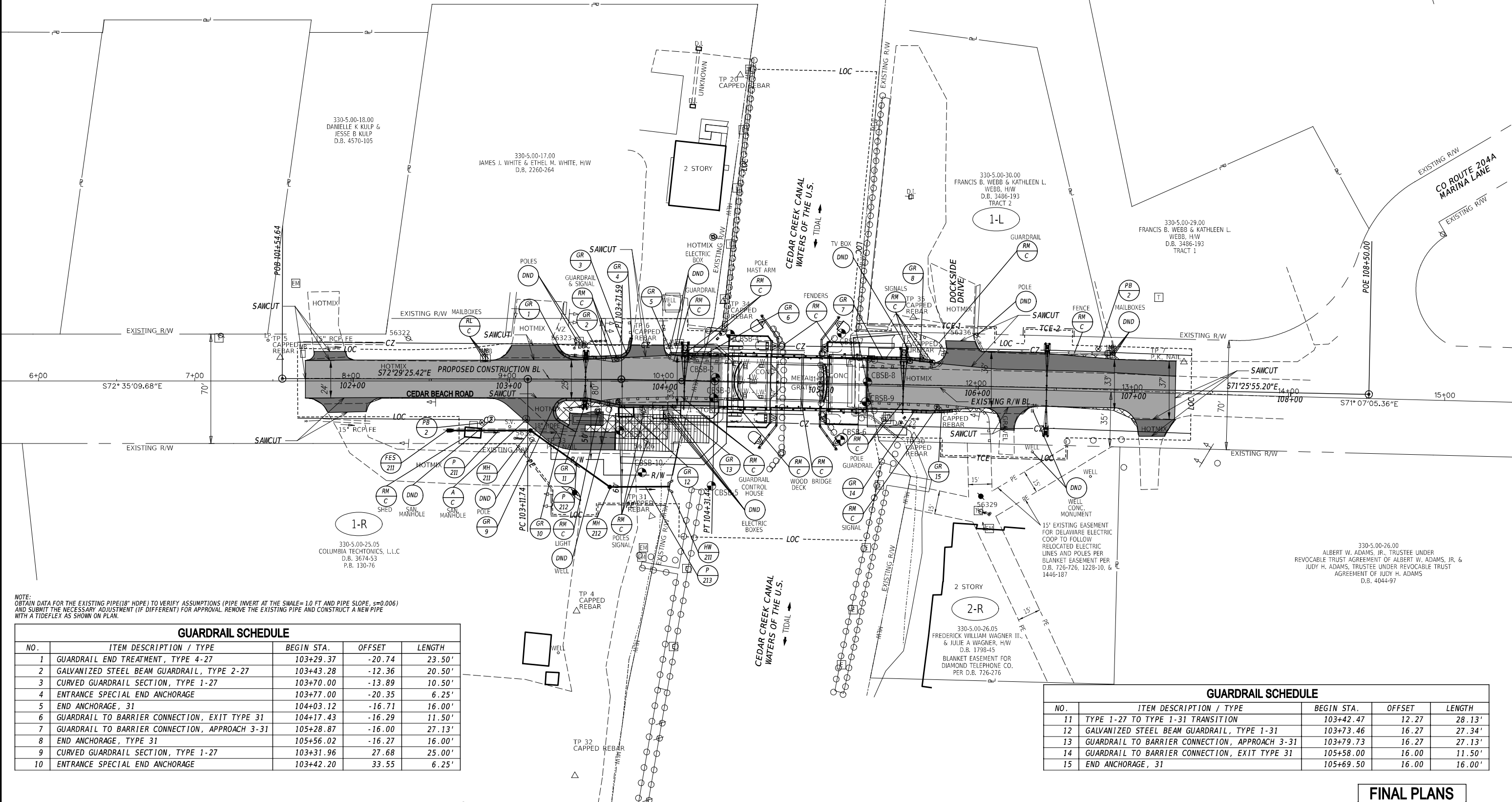
MATERIAL	BINDER GRADE	LIFT THICKNESS	
		MINIMUM	MAXIMUM
BITUMINOUS CONCRETE, TYPE C (4.75 mm mix)	ALL	1.25"	2"
BITUMINOUS CONCRETE, TYPE C (9.5 mm mix)	ALL	1.25"	2"
BITUMINOUS CONCRETE, TYPE C (12.5 mm mix)	ALL	1.25"	2"
BITUMINOUS CONCRETE, TYPE B (19 mm mix)	76-22, 70-22	2.25"	4"
BITUMINOUS CONCRETE, TYPE B (19 mm mix)	64-22	2.25"	6"
BITUMINOUS CONCRETE BASE COURSE	64-22	3"	6"
GRADED AGGREGATE BASE COURSE		4"	8"

				FINAL PLANS						
ADDENDA / REVISIONS				NOT TO SCALE	REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD	CONTRACT	BRIDGE NO.	3-164	TYPICAL SECTIONS	SECTION
						T202007301	DESIGNED BY:	G. CORREALE		AEC
						COUNTY	CHECKED BY:	G. PERDICK		SHEET NO.
						SUSSEX				5

DRAINAGE PIPE SCHEDULE						
NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INVERT EL.	DIS. EL.
211	18" RCP	IV	51.57	0.006	1.00	0.69
212	18" RCP	IV	57.93	0.006	0.69	0.34
213	18" RCP	IV	36.04	0.006	0.34	0.13

DRAINAGE MANHOLE SCHEDULE					
NO.	STATION	OFFSET	BOX SIZE	T.G. EL.	INV. EL.
211	103+44.23	32.78	48" x 30"	6.02	0.69
212	103+71.36	56.72	48" x 30"	3.37	0.34

FLARED END SECTION SCHEDULE			
NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
211	18" RCP	0.006	NO

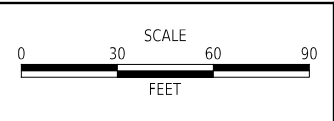


NOTE:
OBTAIN DATA FOR THE EXISTING PIPE(18" HDPE) TO VERIFY ASSUMPTIONS (PIPE INVERT AT THE SWALE= 1.0 FT AND PIPE SLOPE, s=0.006)
AND SUBMIT THE NECESSARY ADJUSTMENT (IF DIFFERENT) FOR APPROVAL. REMOVE THE EXISTING PIPE AND CONSTRUCT A NEW PIPE
WITH A TIDEFLEX AS SHOWN ON PLAN.

GUARDRAIL SCHEDULE				
NO.	ITEM DESCRIPTION / TYPE	BEGIN STA.	OFFSET	LENGTH
1	GUARDRAIL END TREATMENT, TYPE 4-27	103+29.37	-20.74	23.50'
2	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 2-27	103+43.28	-12.36	20.50'
3	CURVED GUARDRAIL SECTION, TYPE 1-27	103+70.00	-13.89	10.50'
4	ENTRANCE SPECIAL END ANCHORAGE	103+77.00	-20.35	6.25'
5	END ANCHORAGE, 31	104+03.12	-16.71	16.00'
6	GUARDRAIL TO BARRIER CONNECTION, EXIT TYPE 31	104+17.43	-16.29	11.50'
7	GUARDRAIL TO BARRIER CONNECTION, APPROACH 3-31	105+28.87	-16.00	27.13'
8	END ANCHORAGE, TYPE 31	105+56.02	-16.27	16.00'
9	CURVED GUARDRAIL SECTION, TYPE 1-27	103+31.96	27.68	25.00'
10	ENTRANCE SPECIAL END ANCHORAGE	103+42.20	33.55	6.25'

GUARDRAIL SCHEDULE				
NO.	ITEM DESCRIPTION / TYPE	BEGIN STA.	OFFSET	LENGTH
11	TYPE 1-27 TO TYPE 1-31 TRANSITION	103+42.47	12.27	28.13'
12	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	103+73.46	16.27	27.34'
13	GUARDRAIL TO BARRIER CONNECTION, APPROACH 3-31	103+79.73	16.27	27.13'
14	GUARDRAIL TO BARRIER CONNECTION, EXIT TYPE 31	105+58.00	16.00	11.50'
15	END ANCHORAGE, 31	105+69.50	16.00	16.00'

ADDENDA / REVISIONS	



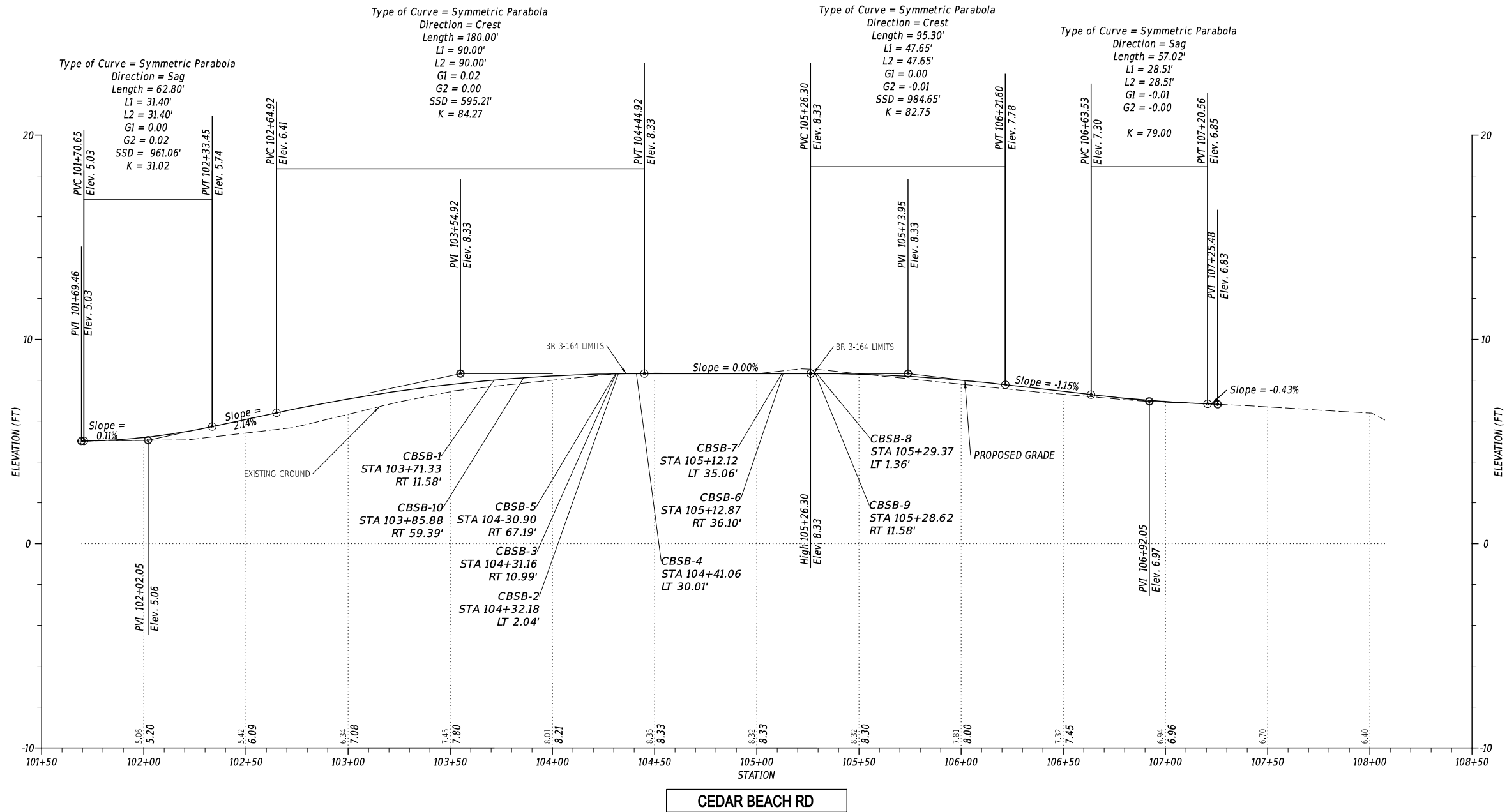
REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	G. CORREALE
COUNTY	CHECKED BY:	G. PERDICK
SUSSEX		

CONSTRUCTION PLAN	SECTION
	AEC
	SHEET NO. 7

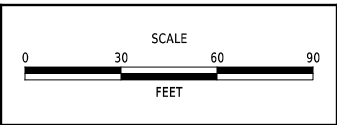
FINAL PLANS

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NOTE: SOIL BORING LOGS AND CLASSIFICATIONS CAN BE FOUND ON SHEETS 91-102.

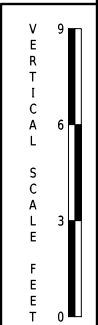
ADDENDA / REVISIONS	



REPLACEMENT OF BR 3-164 ON
S36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	G. CORREALE
COUNTY	CHECKED BY:	G. PERDICK
SUSSEX		

FINAL PLANS	
PROFILES	SECTION
	AEC
	SHEET NO.
	8



GENERAL NOTES

1.

THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", DATED JUNE 2021, THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD CONSTRUCTION DETAILS", DATED 2021, INCLUDING ALL REVISIONS UP TO THE DATE OF ADVERTISEMENT AND THE SPECIAL PROVISIONS.
2.

ELECTRONIC PROJECT FILES THAT WILL BE MADE AVAILABLE TO THE AWARDED CONTRACTOR AT ADVERTISEMENT, INCLUDE:

()	NONE
()	ASCII DATA FILES WITH COORDINATES AND ELEVATIONS FOR PROPOSED POINTS AS SELECTED BY THE ENGINEER.
(X)	ALL PLAN SHEETS, IN PDF FORMAT.
()	EXISTING DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
()	PROPOSED DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
()	DESIGN FILE, IN .DGN FILE FORMAT, CONTAINING ONLY THE PROPOSED 3D TRIANGLES OF THE PROPOSED DIGITAL TERRAIN MODEL (DTM).

NOTE: THE DOCUMENT ENTITLED "RELEASE FOR DELIVERY OF DOCUMENTS IN ELECTRONIC FORM TO A CONTRACTOR" MUST BE SIGNED BY ALL PARTIES PRIOR TO THE DELIVERY OF ANY ELECTRONIC PROJECT FILES.
3.

PROJECT FILES THAT WILL BE MADE AVAILABLE TO THE AWARDED CONTRACTOR, INCLUDE:

()	CROSS SECTIONS
()	RIGHT-OF-WAY PLANS

PROJECT NOTES

SECTION 200

1.

REMOVAL OF STRUCTURES AND OBSTRUCTIONS:
REMOVE AND PROPERLY DISPOSE OFF SITE THE FOLLOWING ITEMS UNDER ITEM #211505 - REMOVAL OF EXISTING BRIDGE ASSOCIATED WITH BRIDGE NUMBER 3164 036:
A. CONTROL HOUSE
B. SWING SPAN SUPERSTRUCTURE INCLUDING BRIDGE RAILING
C. SWING SPAN OPERATING MACHINERY
D. SWING SPAN ELECTRICAL SYSTEM
E. APPROACH SPAN SUPERSTRUCTURE INCLUDING BRIDGE RAILING
F. PIVOT PIER INCLUDING SUPPORTING PILES
G. REST PIER INCLUDING SUPPORTING PILES
H. FENDER SYSTEM INCLUDING SUPPORTING PILES
I. WEST AND EAST ABUTMENTS INCLUDING SUPPORTING PILES
J. PORTIONS OF WEST AND EAST BULKHEADS
2.

HAZARDOUS MATERIAL (timber):
BE ADVISED THAT THE EXISTING STRUCTURE OVER THE CEDAR CREEK CANAL MAY CONTAIN CREOSOTED TIMBER. HANDLE ALL HAZARDOUS MATERIALS (i.e. creosote timber) IN ACCORDANCE WITH SPECIAL PROVISION 202560. PAYMENT INCIDENTAL TO ITEM #211505 - REMOVAL OF EXISTING BRIDGE.
3.

HAZARDOUS MATERIAL (steel only):
BE ADVISED THAT THE EXISTING STRUCTURE OVER THE CEDAR CREEK CANAL DOES CONTAIN LEAD BASED PAINT. AS A RESULT, DETAIL METHODS OF CUTTING THE BEAMS AND/OR DIAPHRAGMS, IF REQUIRED, IN THE CONTRACTOR'S PROPOSED DEMOLITION PLAN AND HOW THOSE PERSONS PERFORMING SUCH WORK WILL BE PROTECTED IN ACCORDANCE WITH APPLICABLE OSHA REGULATIONS. ADDITIONALLY, DETAIL WHEN AND HOW THE LEAD BASED PAINT WILL BE REMOVED FROM THE STRUCTURAL STEEL AND ALL RELATED BRIDGE COMPONENTS. IF THE WORK IS PERFORMED ON SITE, THEN INCLUDE PROPER PROTECTION, CONTAINMENT, AND FINAL LEAD PAINT DISPOSAL IN THE PROPOSED PLAN. IF THE BEAMS WILL BE TRANSPORTED WITH THE PAINT STILL INTACT, THEN DETAIL HOW THE STRUCTURAL COMPONENTS WILL BE PROTECTED DURING TRANSPORT, WHERE AND HOW THE PAINT WILL BE REMOVED, AND THE LOCATION OF FINAL PAINT DISPOSAL, AGAIN IN ACCORDANCE WITH OSHA REGULATIONS. PROVIDE WRITTEN DOCUMENTATION TO THE ENGINEER, PRIOR TO FINAL CONTRACT ACCEPTANCE, NOTING WHEN AND WHERE THE LEAD BASED PAINT WAS REMOVED, AND THE LOCATION OF FINAL PAINT DISPOSAL. ALL COSTS INVOLVED WITH THE ABOVE LISTED WORK IS INCIDENTAL TO ITEM #211505 - REMOVAL OF EXISTING BRIDGE.
4.

SIGNING:
TO AVOID DAMAGE, SIGNS WITHIN PROJECT LIMITS MAY BE REMOVED DURING CONSTRUCTION IF NEEDED, BUT MUST BE REPLACED TO MATCH EXISTING CONDITIONS BEFORE REOPENING THE ROADWAY. INCLUDE PAYMENT FOR ALL WORK RELATED TO MOVING AND REINSTALLING THE SIGN IN ITEM #211505 - REMOVAL OF EXISTING BRIDGE . IF THE SIGN IS DAMAGED DURING CONSTRUCTION, REPLACE THE SIGN AT THE CONTRACTOR'S EXPENSE.
5.

TEMPORARILY REMOVE EXISTING RUBBLE RIP RAP AND/OR CONCRETE DEBRIS ON THE CHANNEL BOTTOM THAT INTERFERES WITH INSTALLATION OF NEW BRIDGE FOUNDATIONS AND/OR SHEET PILE BULKHEADS. REMOVED RUBBLE RIP RAP MAY BE REINSTALLED TOGETHER WITH NEW RUBBLE RIP RAP.
6.

SEE DEMOLITION PLAN FOR ADDITIONAL INFORMATION.

SECTION 600

7.

PORTLAND CEMENT CONCRETE:
USE PORTLAND CEMENT CONCRETE FOR CAST-IN-PLACE ELEMENTS AS FOLLOWS:
(f'c = 28-DAY COMPRESSIVE STRENGTH)
CLASS A - ABUTMENT CAPS, BASCULE PIER CAP, REST PIER CAP, MAINTENANCE PLATFORM SLABS, FENDER PILE CAPS
CONCRETE (f'c = 4.5 ksi)
CLASS B - STEEL PIPE PILE CONCRETE FILL (f'c = 3.0 ksi)
CLASS D - BRIDGE DECK, CURBS, COUNTERWEIGHT CONCRETE (f'c = 4.5 ksi)
UHPC - PRESTRESSED SOLID SLAB SHEAR KEYWAYS AND CAVITIES (f'c = 22.0 ksi)
- CHAMFER ALL EXPOSED EDGES 3/4" x 3/4" UNLESS NOTED OTHERWISE.
- SUPPLY THE CONCRETE FOR THE BRIDGE DECK AND CONCRETE CURBS THAT INCLUDES A SHRINKAGE-REDUCING/COMPENSATING ADMIXTURE. THE ADMIXTURE MAY BE SUPPLIED BY ONE PRODUCT THAT PROVIDES BOTH EXPANSION AND PORE WATER SURFACE TENSION OR TWO SEPARATE PRODUCTS EACH ADDED AT DOSAGE RECOMMENDED BY MANUFACTURER'S TECHNICAL DATA SHEETS AND HAVING THE FOLLOWING CHARACTERISTICS:

(A) DESIGNED TO PROVIDE BOTH OF THE FOLLOWING CHARACTERISTICS:
(i.) EXPANDS AT A RATE THAT CLOSELY COMPENSATES FOR THE SHRINKAGE OF THE CONCRETE MIX.
(ii.) REDUCES THE CAPILLARY SURFACE TENSION OF THE CONCRETE PORE WATER.
(B) PROVIDES AT LEAST 80% SHRINKAGE REDUCTION AS MEASURED AND DOCUMENTED BY FIELD PERFORMANCE.
(C) FORMULATED FOR USE IN FREEZING AND THAWING WEATHER.
- USE ADMIXTURES THAT ARE COMPATIBLE WITH ALL OTHER CONCRETE-MIX DESIGN CONSTITUENTS. CALCIUM CHLORIDE IS NOT PERMITTED; NO CHEMICAL ADMIXTURES WHICH CONTAIN MORE THAN 0.1% CHLORIDE BY WEIGHT, WILL BE PERMITTED FOR USE. DOSAGE RATE AND MIXING SEQUENCE WILL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
8.

PORTLAND CEMENT CONCRETE (CONTINUED):
USE PORTLAND CEMENT CONCRETE FOR PRECAST ELEMENTS AS FOLLOWS:
(f'c = 28-DAY COMPRESSIVE STRENGTH)
(f'ci = COMPRESSIVE STRENGTH AT INITIAL PRESTRESS)
FOR ALL PRESTRESSED CONCRETE SOLID SLAB BEAMS:
f'c = 8.0 ksi; f'ci = 6.4 ksi
THE PRESTRESSED CONCRETE SOLID SLAB BEAMS WERE DESIGNED FOR SEVERE CORROSIVE CONDITIONS AS PER A5.9.2.3.2b.
9.

DECK SLAB:
THE 5" DECK SLAB THICKNESS INCLUDES 1/2" INTEGRAL WEARING SURFACE.
10.

BAR REINFORCEMENT:
-PROVIDE REINFORCING STEEL CONFORMING TO AASHTO M31 (ASTM A615), GRADE 60.
-PROVIDE A 3" CLEAR COVER FOR ALL REINFORCING STEEL PLACED IN CONCRETE CAST AGAINST EARTH OR A 2" CLEAR COVER ELSEWHERE, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
-WHERE A SUFFIX IS INCLUDED IN BAR MARKS, PROTECT ALL REINFORCING STEEL WITH THE MATERIAL DENOTED.
SUFFIX 'E' DENOTES EPOXY COATED BAR REINFORCEMENT
SUFFIX 'G' DENOTES GALVANIZED BAR REINFORCEMENT
SUFFIX 'S' DENOTES STAINLESS STEEL BAR REINFORCEMENT

-WITH APPROVAL OF THE BRIDGE DESIGN ENGINEER, GALVANIZED REINFORCING STEEL MAY BE SUBSTITUTED FOR EPOXY-COATED REINFORCING STEEL AT NO ADDITIONAL COST TO THE DEPARTMENT.
11.

STRUCTURAL STEEL:
PROVIDE STRUCTURAL STEEL CONFORMING TO AASHTO M270, GRADE 50 (ASTM A709, GRADE 50) DESIGNATION, EXCEPT WHEN NOTED OTHERWISE. THE ADDITIONAL REQUIREMENTS FOR CHARPY V-NOTCH TESTING OF AASHTO M270 ARE MANDATORY FOR PRIMARY LOAD CARRYING MEMBERS. USE TESTING PARAMETERS FOR TEMPERATURE ZONE 2. PRIMARY LOAD CARRYING MEMBERS THAT SHALL BE SUBJECTED TO THE REQUIREMENTS FOR CHARPY V-NOTCH TESTING INCLUDE: ORTHOTROPIC STEEL DECK, FLOORBEAMS, KNEE BRACES, BASCULE GIRDERS, BALANCE FRAME GIRDERS, TRUNNION STRUT, CRANK ARM, TRUNNION TOWERS, CONNECTION PLATES, AND SPLICE PLATES.

STRUCTURAL MEMBERS LABELED WITH 'FCM' DENOTES FRACTURE CRITCIAL MEMBERS. ALL CONNECTION MATERIAL FOR THESE MEMBERS, INCLUDING SPLICE PLATES, CONNECTION PLATES AND ANGLES, AND STIFFENERS USED AS CONNECTION PLATES SHALL ALSO BE CONSIDERED FRACTURE CRITICAL MEMBERS. ALL MEMBERS DESIGNATED AS FCM SHALL MEET THE REQUIREMENTS FOR CHARPY V-NOTCH TESTING OF AASHTO M270. USE TESTING PARAMETERS FOR TEMPERATURE ZONE 2.

ALL FASTENERS ARE 7/8" DIAMETER ASTM F3125 HIGH STRENGTH BOLTS, TYPE 1 GRADE A325 UNLESS OTHERWISE NOTED.

HSS SHAPES (LINK ARMS, FORWARD STRUT, AND INTERMEDIATE STRUT) SHALL BE ASTM A1085 GRADE 50 (OR APPROVED EQUIVALENT). THE TRUNNION STRUT SHALL BE API 5L GRADE X46 PSL2 (OR APPROVED EQUIVALENT).
- REAM SUBDRILLED or SUBPUNCHED HOLES FOR END CONNECTIONS AND FIELD SPLICES IN THE FABRICATION SHOP.
- THE FAYING SURFACE CLASSIFICATION IS CLASS B.
- WELDING:
-MAKE TACK WELDS WITH THE SAME TYPE OF ELECTRODE AND INCORPORATE IN THE FINAL WELD. NO OTHER TACK WELDING WILL BE PERMITTED.
-OVERHEAD WELDING IS NOT PERMITTED IN THE FIELD UNLESS OTHERWISE SPECIFIED ON THE PLANS.
-DO NOT MAKE WELDS BY MANUAL SHIELDED METAL ARC PROCESS FOR PRIMARY GIRDER WELDS SUCH AS FLANGE TO WEB WELDS OR FOR SHOP SPLICES OF WEB AND FLANGES.

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FINAL PLANS

S-01

SECTION

H&H

SHEET NO.

10

BRIDGE PROJECT NOTES - 1

REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

NOT TO SCALE

ADDENDA / REVISIONS

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SECTION 600 (CONTINUED)

11. STRUCTURAL STEEL (CONTINUED):
SHOP ASSEMBLE AND ALIGN EACH ENTIRE STEEL BASCULE LEAF, BALANCE FRAME, AND A-FRAME SUBASSEMBLIES USING ERECTION PROCEDURES AND SUPPORT CONDITIONS THAT WILL ACHIEVE PROPER FIT-UP AND ALIGNMENT OF PRIOR TO DRILLING FROM SOLID OR REAMING SUBPUNCHED OR SUBDRILLED BOLT HOLES FOR SPLICES AND CONNECTION PLATES. SHOP ASSEMBLY OF THE ENTIRE BASCULE SPAN IS NOT REQUIRED (I.E., IT IS NOT REQUIRED TO SHOP ASSEMBLE THE BALANCE FRAME ON TOP OF THE A-FRAME TOWERS, SHOP CONNECT THE BASCULE LEAF TO THE A-FRAME TOWERS, OR CONNECT THE BASCULE LEAF TO THE BALANCE FRAME WITH THE LINK ARMS.)

SET ANCHOR BOLTS TO TEMPLATE OR IN PRE-FORMED HOLES. DO NOT DRILL UNLESS SPECIFICALLY INDICATED ON PLANS. FILL THE PRE-FORMED HOLES WITH NON-SHRINK GROUT. IN MASONRY PLATES, FILL THE CLEARANCE BETWEEN ANCHOR BOLTS AND HOLES WITH APPROVED NON-HARDENING CAULKING COMPOUND UNLESS OTHERWISE NOTED.

THE FOLLOWING PROTECTIVE COATING SYSTEMS SHALL BE UTILIZED FOR EACH OF THE VARIOUS STRUCTURAL STEEL MEMBERS:
-ORTHOTROPIC STEEL DECK = METALLIZED, SEAL COAT, AND TOP COAT
-BASCULE GIRDERS = METALLIZED, SEAL COAT, AND TOP COAT
-BALANCE ARMS & TRUNNION STRUT = METALLIZED, SEAL COAT, AND TOP COAT (TOP COAT EXTERIOR ONLY)
-COUNTERWEIGHT BOX = METALLIZED, SEAL COAT, AND TOP COAT (TOP COAT EXTERIOR ONLY)
-CRANK ARMS = METALLIZED, SEAL COAT, AND TOP COAT
-A-FRAME TOWERS = METALLIZED, SEAL COAT, AND TOP COAT (TOP COAT EXTERIOR ONLY)
-LINK ARMS = HOT-DIP GALVANIZED, INTERMEDIATE COAT, AND TOP COAT (INTERMEDIATE AND TOP COAT EXTERIOR ONLY)
-INTERMEDIATE STRUT = HOT-DIP GALVANIZED, INTERMEDIATE COAT, AND TOP COAT (INTERMEDIATE AND TOP COAT EXTERIOR ONLY)
-FORWARD STRUT = HOT-DIP GALVANIZED, INTERMEDIATE COAT, AND TOP COAT (INTERMEDIATE AND TOP COAT EXTERIOR ONLY)
-BRIDGE RAILING = HOT-DIP GALVANIZED
-STEEL CURB = HOT-DIP GALVANIZED

THE COLOR OF THE FINISHED PAINT COAT SHALL CONFORM TO FEDERAL STANDARD NO. 595 COLOR NO. 25183 (BLUE) UNLESS NOTED OTHERWISE. THE COLOR OF THE FINISHED PAINT COAT SHALL CONFORM TO FEDERAL STANDARD NO. 595B COLOR NO. 17925 (WHITE) FOR THE LINK ARMS, TRUNNION STRUT, CRANK ARMS, AND HYDRAULIC CYLINDERS. THE BRIDGE RAILING AND STEEL CURB SHALL NOT RECIEVE THE FINISHED PAINT COAT.

SECTION 800

12. MAINTENANCE OF TRAFFIC:
MAINTAIN TRAFFIC AS PER DETOUR PLAN. ALL MOT ITEMS, WITH THE EXCEPTION OF PORTABLE CHANGEABLE MESSAGE SIGNS (ITEM 803001) AND FLAGGERS WILL BE INCLUDED IN ITEM #801500 - MAINTENANCE OF TRAFFIC, ALL INCLUSIVE.

MISCELLANEOUS

13. DESIGN SPECIFICATIONS:
(A) DELDOT BRIDGE DESIGN MANUAL, 2021 EDITION
(B) AASHTO LRFD BRIDGE SPECIFICATIONS, 2020, 9TH EDITION, CUSTOMARY U.S. UNITS.
(C) AASHTO LRFD MOVABLE HIGHWAY BRIDGE DESIGN SPECIFICATIONS, 2007, 2ND EDITION, CUSTOMARY U.S. UNITS INCLUDING 2008, 2010, 2011, 2012, 2014, AND 2015 INTERIM REVISIONS.
(D) PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH THE DELDOT STANDARD SPECIFICATIONS, JUNE 2021.

14. LOADING:
-DEAD LOADS CONSERVATIVELY INCLUDE 25 PSF FOR FUTURE WEARING SURFACE ON DECK SLAB. THIS ADDITIONAL DEAD LOAD WAS NOT USED IN DETERMINING THE SPAN BALANCE.
-DESIGN LIVE LOADS INCLUDE HL-93 LOADING.
-FATIGUE DESIGN IS BASED ON THE FOLLOWING ONE DIRECTIONAL TRAFFIC VOLUMES: ADTT = 237 (2020).
-LIVE LOAD DISTRIBUTION FACTOR FOR BASCULE GIRDER IS 1.26.
-THERMAL LOADS AND MOVEMENTS ARE BASED ON THE MODERATE TEMPERATURE RANGE AS STIPULATED IN THE AASHTO LRFD DESIGN SPECIFICATIONS AS 0 TO 120 DEGREES FAHRENHEIT. THE NORMAL TEMPERATURE WILL BE CONSIDERED TO BE 68° F.
-LIVE LOAD DEFLECTION LIMIT IS L/800.
-FOR SEISMIC LOADS, CONSIDER SEISMIC PERFORMANCE ZONE 1, WITH A SITE CLASS = D AND OPERATIONAL CATEGORY = CRITICAL.
-TRAFFIC BARRIERS HAVE BEEN DESIGNED FOR MASH TEST LEVEL 4 (TL-4).

15. EXISTING CONDITIONS:
-ALL EXISTING DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON THE BEST AVAILABLE INFORMATION AND ARE APPROXIMATE ONLY. FIELD VERIFY ALL EXISTING DIMENSIONS, GEOMETRY, AND ELEVATIONS AS NECESSARY PRIOR TO ORDERING ANY MATERIALS AND COMMENCING CONSTRUCTION TO ENSURE PROPER FIT OF THE PROPOSED CONSTRUCTION. PAYMENT UNDER ITEM #763501 - CONSTRUCTION ENGINEERING.
-DO NOT CONSIDER ANY OF THE DATA ON THE EXISTING STRUCTURE SUPPLIED IN THE ORIGINAL DESIGN DRAWINGS OR MADE AVAILABLE BY THE DEPARTMENT OR ITS AUTHORIZED AGENTS AS ACCURATE REPRESENTATIONS OF ANY OF THE CONDITIONS THAT WILL BE ENCOUNTERED IN THE FIELD.

MISCELLANOUS (CONTINUED)

16. HYDRAULIC DATA:
DRAINAGE AREA: xxx sq. miles DESIGN FREQ.: (insert design storm year) YEARS
DESIGN DISCHARGE: xxxx cfs 100-YEAR DISCHARGE: xxxx cfs
EXISTING (DESIGN STORM) WSE: xx.xx ft PROPOSED (DESIGN STORM) WSE: xx.xx ft
EXISTING (DESIGN STORM) VELOCITY: xx.xx fps PROPOSED (DESIGN STORM) VELOCITY: xx.xx fps
EXISTING 100-YEAR WSE: xx.xx ft PROPOSED 100-YEAR WSE: xx.xx ft
EXISTING 100-YEAR VELOCITY: xx.xx fps PROPOSED 100-YEAR VELOCITY: xx.xx fps
EXISTING WATERWAY OPENING: xxx sq. ft PROPOSED WATERWAY OPENING: xxx sq. ft

MEAN HIGH WATER ELEVATION: 2.06 ft
MEAN LOW WATER ELEVATION: -2.57 ft
VERTICAL UNDER CLEARANCE: 4.04 ft (FROM MHW TO BASCULE LEAF)

17. SCOUR ANALYSIS:
SCOUR DESIGN FREQUENCY: xxx YEARS or OVERTOPPING
SCOUR DESIGN FLOOD DISCHARGE: xxx cfs
SCOUR DESIGN FLOOD VELOCITY: xx fps (AT BRIDGE OUTLET)
WATER SURFACE ELEVATION: xx ft (IMMEDIATELY UPSTREAM OF BRIDGE)
CALCULATED SCOUR DEPTH AT EACH SUBSTRUCTURE UNIT: xx ft

SCOUR COUNTERMEASURES HAVE BEEN DESIGNED FOR THE SCOUR DESIGN FLOOD IN ACCORDANCE WITH HEC 23 - BRIDGE SCOUR AND STREAM INSTABILITY COUNTERMEASURES and/or HEC 14 - HYDRAULIC DESIGN OF ENERGY DISSIPATORS FOR CULVERTS AND CHANNELS.

18. ROADWAY CLEARANCES:
MAINTAIN A MINIMUM OF 16'-6" ABOVE ALL ROADWAYS.

LOAD RATING SUMMARY					
VEHICLE TYPE	RATING FACTOR	RATING WEIGHT (TONS)	CONTROLLING MEMBER	CONTROLLING POINT	LOAD EFFECT
HL-93 TRUCK (INVENTORY)	1.40	50.49	EXTERIOR (SPAN 1)	106	SERVICE III
HL-93 TANDEM (INVENTORY)	1.16	28.96	EXTERIOR (SPAN 1)	105	SERVICE III
HS20 (INVENTORY)	1.66	59.73	EXTERIOR (SPAN 1)	106	SERVICE III
HL-93 TRUCK (OPERATING)	2.22	79.89	EXTERIOR (SPAN 1)	103	STRENGTH I
HL-93 TANDEM (OPERATING)	1.98	49.53	EXTERIOR (SPAN 1)	105	STRENGTH I
HS20 (OPERATING)	2.57	92.47	EXTERIOR (SPAN 1)	103	STRENGTH I
DE S220	2.42	48.34	EXTERIOR (SPAN 1)	106	SERVICE III
DE S335	1.25	43.60	EXTERIOR (SPAN 1)	105	SERVICE III
DE S437	1.19	43.58	EXTERIOR (SPAN 1)	105	SERVICE III
DE T330	2.24	67.21	EXTERIOR (SPAN 1)	105	SERVICE III
DE T435	1.68	58.85	EXTERIOR (SPAN 1)	105	SERVICE III
DE T540	1.60	63.96	EXTERIOR (SPAN 1)	105	SERVICE III
EV2	1.73	49.75	EXTERIOR (SPAN 1)	106	SERVICE III
EV3	1.08	46.65	EXTERIOR (SPAN 1)	105	SERVICE III
SU4	1.64	44.37	EXTERIOR (SPAN 1)	105	SERVICE III
SU5	1.51	46.71	EXTERIOR (SPAN 1)	105	SERVICE III
SU6	1.38	47.85	EXTERIOR (SPAN 1)	105	SERVICE III
SU7	1.33	51.57	EXTERIOR (SPAN 1)	105	SERVICE III
NOTE: LOAD RATING INCLUDES FUTURE WEARING SURFACE, SEE NOTE 14 THIS DRAWING.					

BRIDGE 3-164 QUANTITIES

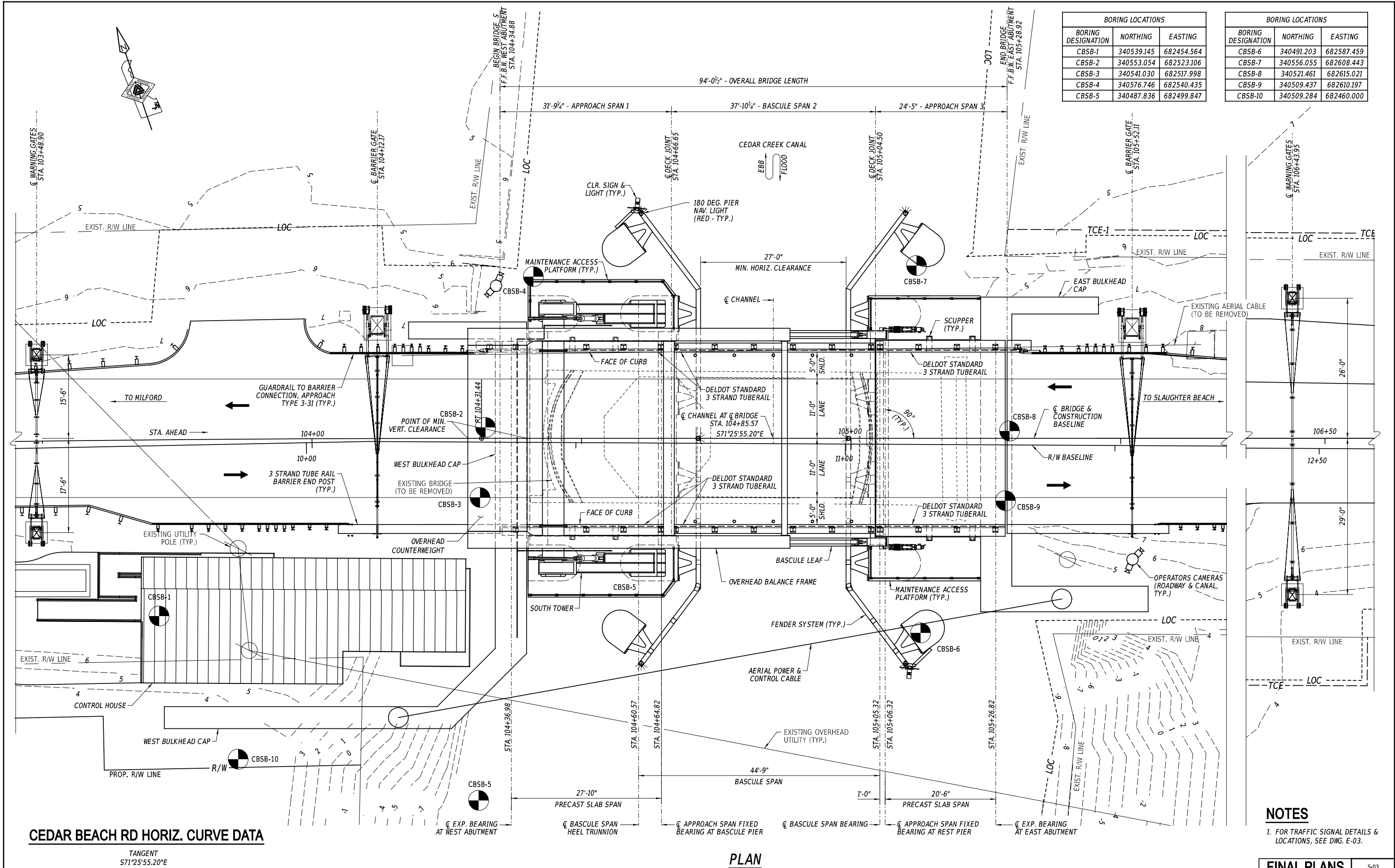
ITEM NO.	ITEM TITLE	UNIT	QUANTITY
211505	REMOVAL OF EXISTING BRIDGE	LS	1
605032	FURNISH STEEL PIPE PILE 36"	LF	240
60503X	FURNISH STEEL PIPE PILE 48"	LF	450
605132	INSTALL STEEL PIPE PILE 36"	LF	240
60513X	INSTALL STEEL PIPE PILE 48"	LF	450
605200	PILE RESTRIKE	EA	4
605201	DYNAMIC PILE TESTING BY CONTRACTOR FOR TEST PILE INITIAL DRIVE	EA	6
605202	DYNAMIC PILE TESTING BY CONTRACTOR FOR RE-STRIKE OR PRODUCTION PILE	EA	10
610005	PCC MASONRY, SUBSTRUCTURE, CLASS A	CY	100
610008	PCC MASONRY, PARAPET, CLASS A	CY	13
610017	PCC MASONRY, SUPERSTRUCTURE, CLASS D	CY	58
610018	PCC MASONRY, APPROACH SLAB, CLASS D	CY	26
610500	ULTRA HIGH PERFORMANCE CONCRETE	CF	105
611001	BAR REINFORCEMENT, EPOXY COATED	LB	86,297
612020	PRESTRESSED REINFORCED CONCRETE MEMBERS, SOLID SLAB	LS	1
612500	PRECAST CONCRETE PIER CAP	CY	64
612503	PRECAST CONCRETE BEAMS	LS	1
613003	HIGH MOLECULAR WEIGHT METHACRYLATE CONCRETE SEALER	SF	2,213
615000	STEEL STRUCTURES	LB	874,301
615503	BRIDGE MECHANICAL SYSTEM	LS	1
615504	BRIDGE ELECTRICAL SYSTEM	LS	1
615512	BRIDGE SCUPPERS	EA	8
624000	PREFABRICATED EXPANSION JOINT SYSTEM, 3"	LF	144
626010	ALUMINUM PEDESTRIAN RAILING	LF	165
626501	THREE STRAND TUBE RAIL PARAPET	LF	184
6XXXXX	INTEGRAL FENDER SYSTEM	LS	1
6XXXXX	COMBINED WALL SYSTEM	LS	1
707013	RIPRAP, R7	CY	360
763522	COAST GUARD SPECIFIC CONDITIONS	LS	1
909004	TURBIDITY CURTAIN, FLOATING	LF	1,345

ANCHOR BOLT PROPERTIES

LOCATION	DIA.	GRADE	FINISH	REQUIRED TENSTON (KIPS)
BARRIER GATE RECEIVER PLATE	¾"	ASTM F1554 GR. 105	GALVANIZED	10
3 STRAND TUBE RAIL	7⁄8"	ASTM F1554 GR. 105	GALVANIZED	15
CENTERING DEVICE	1"	ASTM F1554 GR. 105	GALVANIZED	20
BASCULE GIRDER BEARING	1⅛"	ASTM F1554 GR. 105	GALVANIZED	35
FORWARD TOWER BASEPLATE	1½"	ASTM F1554 GR. 105	GALVANIZED	50
REAR TOWER BASEPLATE	1½"	ASTM F1554 GR. 105	GALVANIZED	50
AERIAL CABLE POLE	2⅛"	ASTM F1554 GR. 105	GALVANIZED	105
PRECAST SLAB SPAN FIXED BEARING	1"	ASTM F593H TYPE 316	STAINLESS STEEL	10
PRECAST SLAB SPAN EXPANSION BEARING	1"	ASTM F593H TYPE 316	STAINLESS STEEL	10

FINAL PLANS

										FINAL PLANS		S-02			
ADDENDA / REVISIONS					NOT TO SCALE	REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD	CONTRACT		BRIDGE NO.		3-164		BRIDGE PROJECT NOTES - 2	SECTION	
							T202007301		DESIGNED BY:		D. NEELY			H&H	
							COUNTY		CHECKED BY:		G. PATTON			SHEET NO.	
							SUSSEX							11	



BORING LOCATIONS		
BORING DESIGNATION	NORTHING	EASTING
CBSB-1	340539.145	682454.564
CBSB-2	340553.054	682523.106
CBSB-3	340541.030	682517.998
CBSB-4	340576.746	682540.435
CBSB-5	340487.836	682499.847

BORING LOCATIONS		
BORING DESIGNATION	NORTHING	EASTING
CBSB-6	340491.203	682587.459
CBSB-7	340556.055	682608.443
CBSB-8	340521.461	682615.021
CBSB-9	340509.437	682610.197
CBSB-10	340509.284	682460.000

NOTES

1. FOR TRAFFIC SIGNAL DETAILS & LOCATIONS, SEE DWG. E-03.

FINAL PLANS

S-03

SECTION

H&H

SHEET NO.

12

BRIDGE GENERAL PLAN

BRIDGE NO. 3-164

DESIGNED BY: A. MILLER

CHECKED BY: D. NEELY

CONTRACT

T202007301

COUNTY

SUSSEX

REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

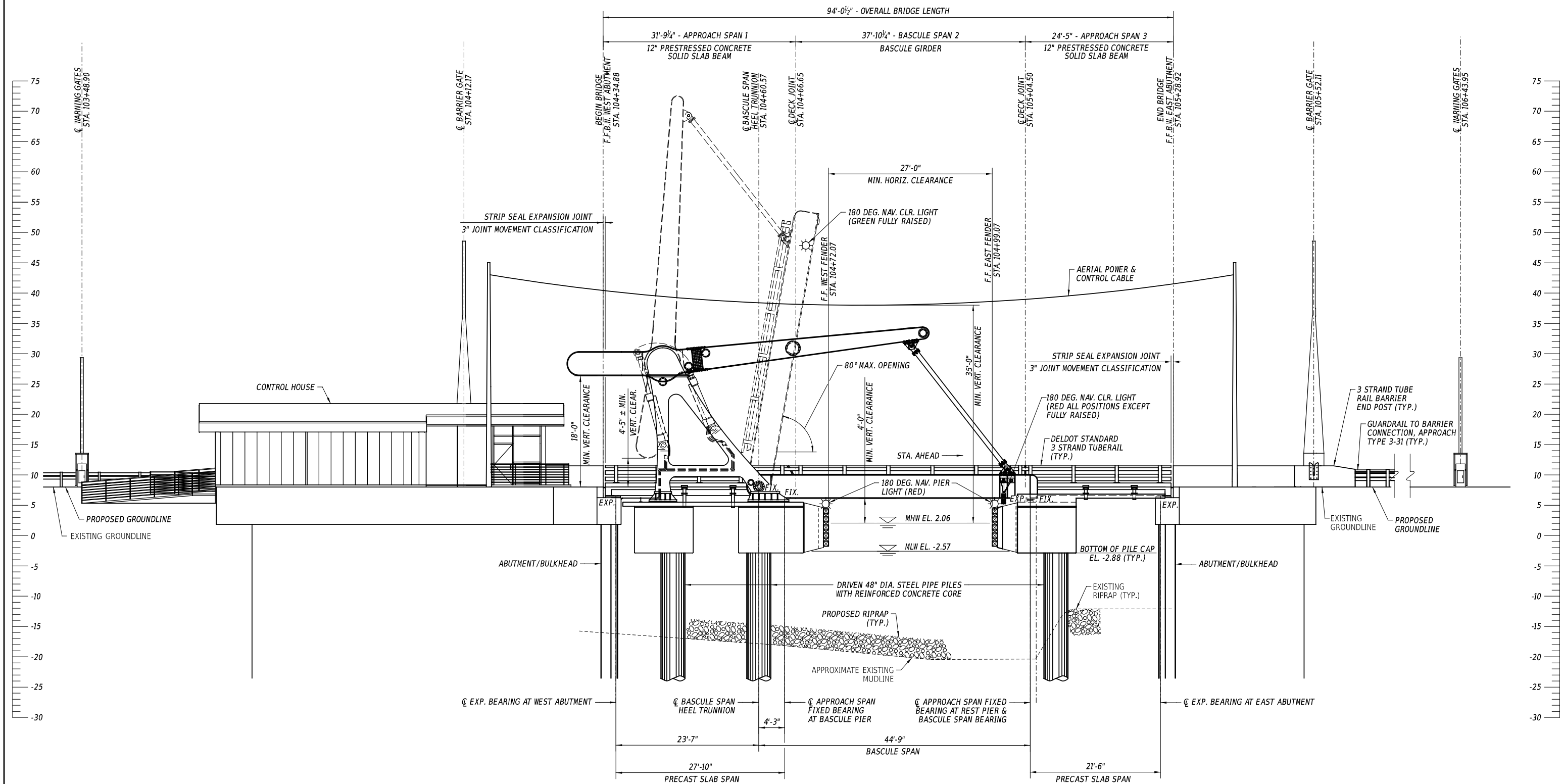
PLAN



ADDENDA / REVISIONS

CEDAR BEACH RD HORIZ. CURVE DATA

TANGENT
S71°25'55.20"E




CEDAR BEACH RD VERT. CURVE DATA



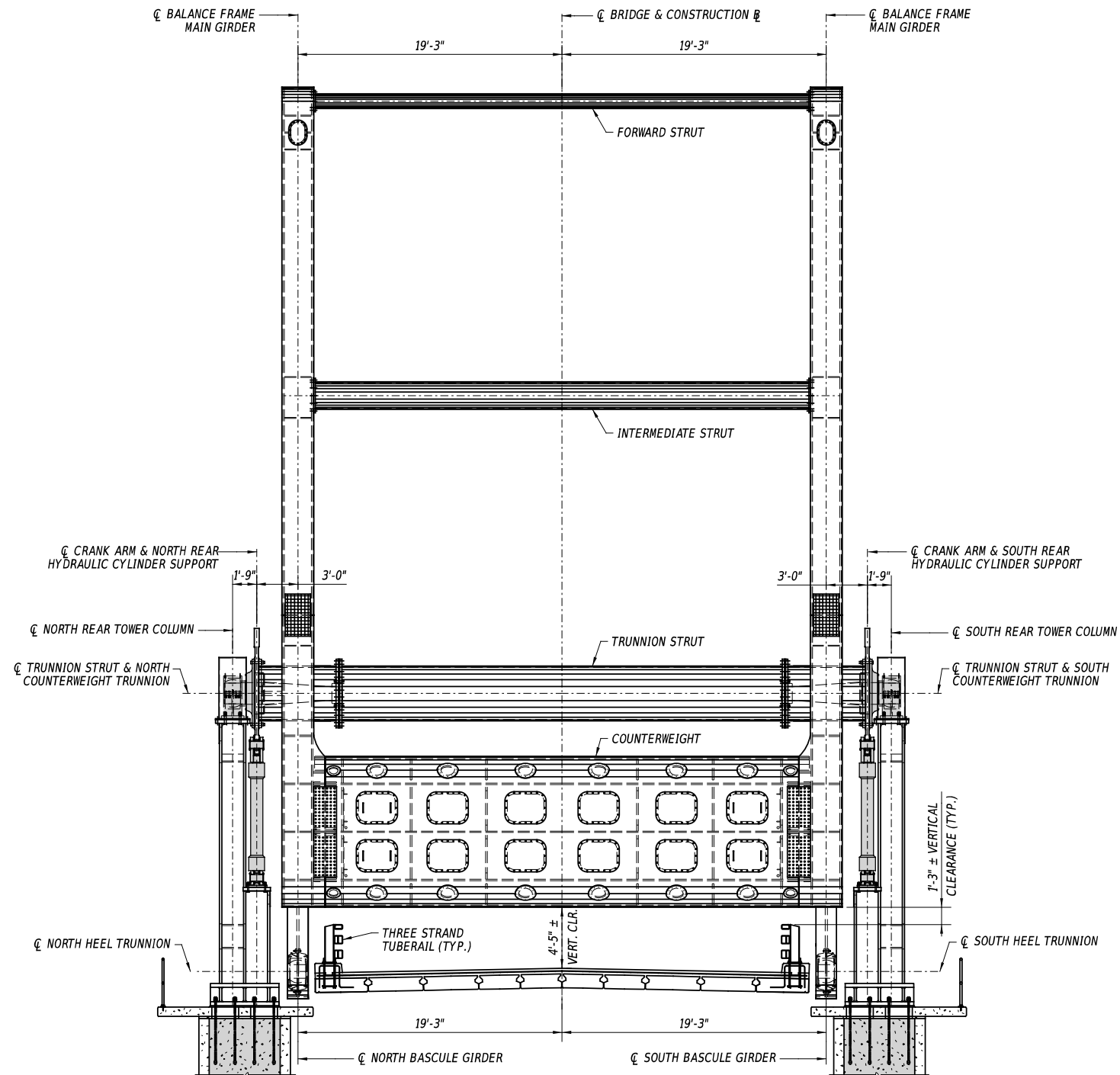
ELEVATION

NOTES

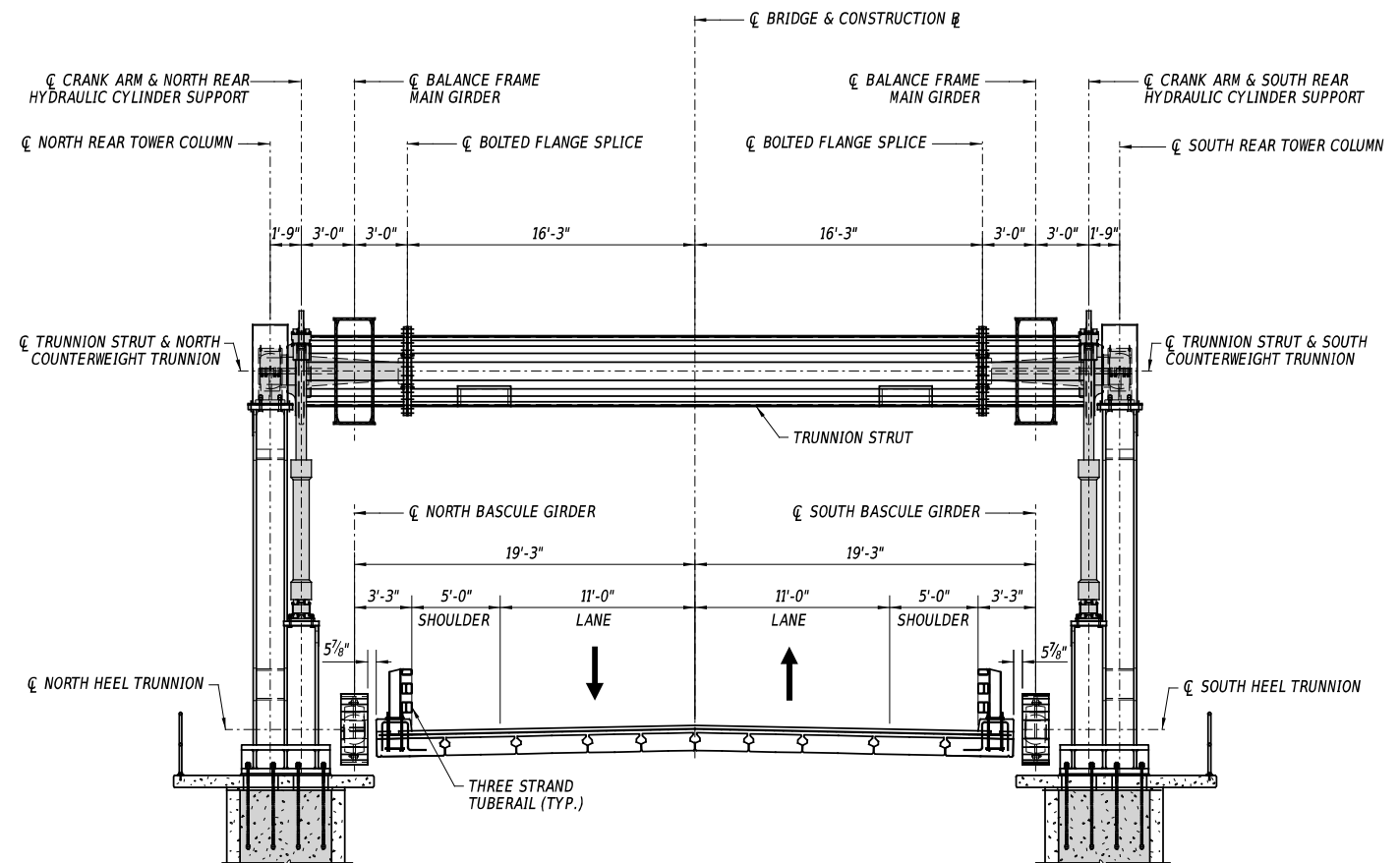
1. FOR TRAFFIC SIGNAL DETAILS & LOCATIONS, SEE DWG. E-03.
2. FOR PILE TIP ELEVATIONS, SEE DWG. S-14.

ELEV. 8.33		ELEVATION		FINAL PLANS			S-04			
ADDENDA / REVISIONS				REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD		CONTRACT	BRIDGE NO.	3-164	BRIDGE GENERAL ELEVATION	SECTION
		T202007301	DESIGNED BY:			A. MILLER	H&H			
		COUNTY	CHECKED BY:			D. NEELY	SHEET NO.			
		SUSSEX					13			

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SPAN OPEN TYPICAL SECTION

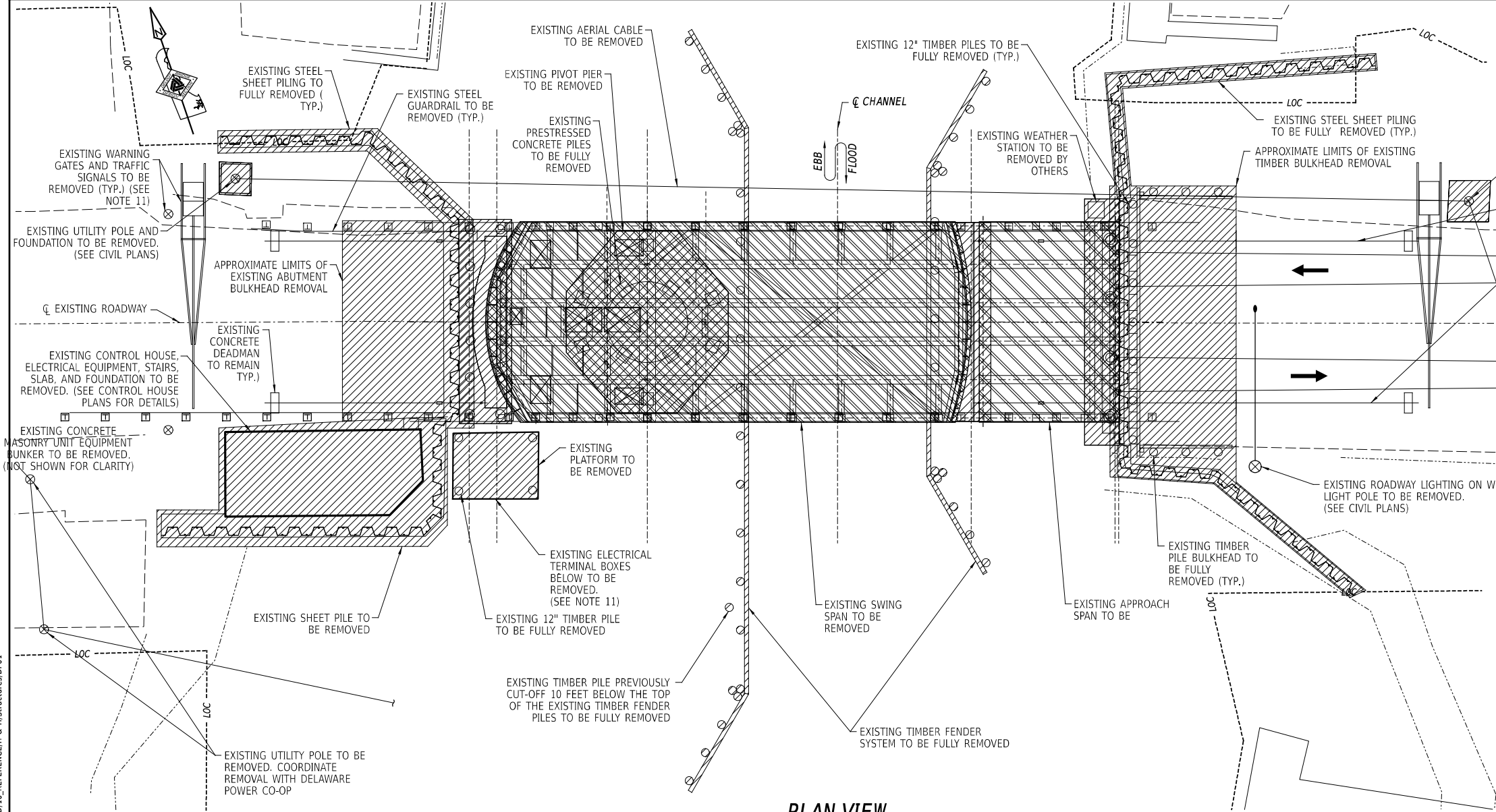


SPAN CLOSED TYPICAL SECTION

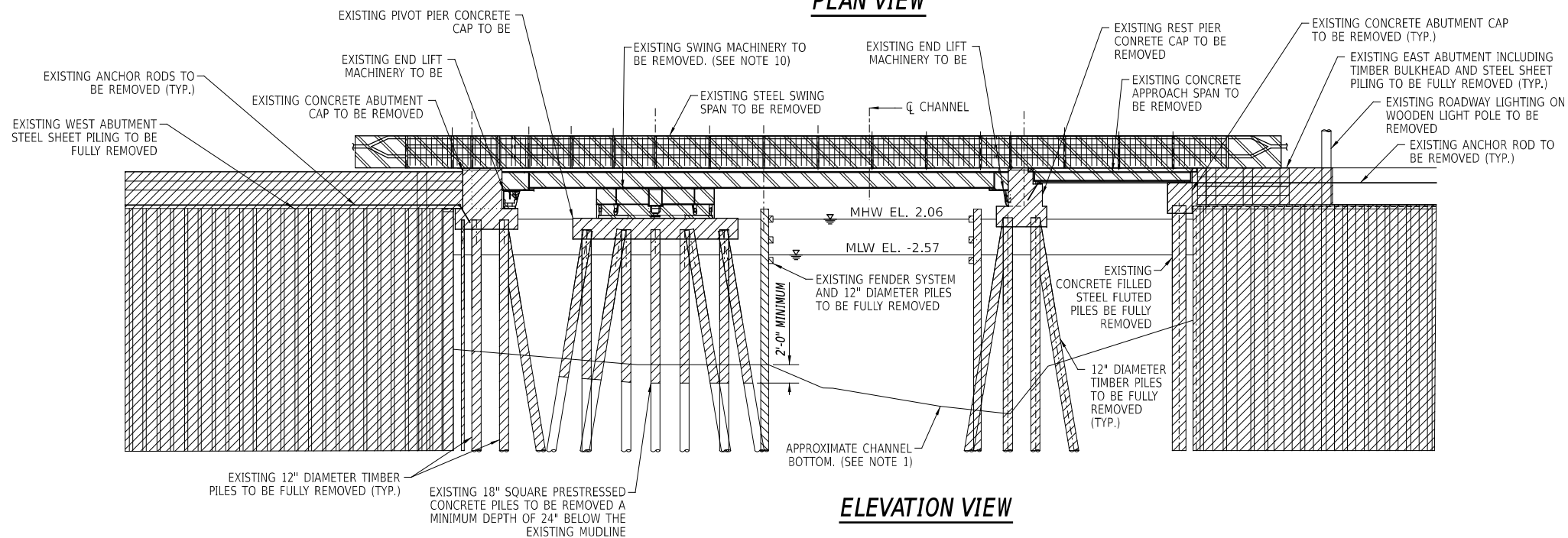
FINAL PLANS				S-05
BRIDGE TYPICAL SECTIONS				SECTION
				H&H
				SHEET NO.
				14

ADDENDA / REVISIONS		<div>064128192</div> <div>INCHES</div>	<div>REPLACEMENT OF BR 3-164 ON</div> <div>SR 36 CEDAR BEACH ROAD</div>	<div>CONTRACT</div> <div>T202007301</div> <div>COUNTY</div> <div>SUSSEX</div>	<div>BRIDGE NO.</div> <div>3-164</div> <div>DESIGNED BY:</div> <div>A. MILLER</div> <div>CHECKED BY:</div> <div>D. NEELY</div>	

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PLAN VIEW





ELEVATION VIEW

DEMOLITION NOTES

- CHANNEL BOTTOM SHOWN IS AN APPROXIMATION BASED ON THE AUGUST 25, 2020 UNDERWATER INSPECTION REPORT. FIELD VERIFY ALL BRIDGE ELEMENT DIMENSIONS AND LOCATIONS. THE CHANNEL BOTTOM AND EMBANKMENTS CONTAIN RUBBLE RIPRAP THAT MEASURE APPROXIMATELY ONE FOOT TO THREE FOOT IN DIAMETER AND RANDOM CONCRETE DEBRIS MEASURING UP TO TWO FEET IN DIMENSION.
- HATCHED AREAS SHOWN SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH SECTIONS 211 AND 207 OF THE DELDOT STANDARD SPECIFICATIONS. REFER TO EXISTING BRIDGE DRAWINGS FOR APPROXIMATE DIMENSIONS OF EXISTING STRUCTURES TO BE REMOVED.
- SUBMIT A BRIDGE DEMOLITION PLAN TO THE ENGINEER AT LEAST 30 DAYS PRIOR TO THE START OF REMOVAL OPERATIONS. THE DEMOLITION PLAN SHALL INCLUDE AS A MINIMUM THE INTENDED SEQUENCE OF DEMOLITION, PLANS FOR TURBIDITY CONTROL AND ENVIRONMENTAL PROTECTION AND DISPOSAL OF ANY HAZARDOUS MATERIALS AS PER DELDOT STANDARD 109.1.2, CONTAINMENT PLANS AND LOCATIONS, AND VIBRATION MONITORING AND CONTROL PLAN PER DELDOT STANDARD 210.5.2.
- IT IS ASSUMED THAT EXISTING TIMBER PILES CONTAIN CREOSOTE PRESERVATIVE TREATMENT AND THE EXISTING STRUCTURAL STEEL COATINGS CONTAIN HAZARDOUS LEVELS OF LEAD. REFER TO DRAWING S-01 AND DELDOT STANDARD SPECIFICATIONS FOR REMOVAL, HANDLING, STORAGE, TRANSPORTATION AND DISPOSAL REQUIREMENTS.
- REMOVAL OF THE EXISTING ABUTMENTS REQUIRES EXCAVATION. REFER TO DRAWING S-01 AND DELDOT STANDARD SPECIFICATIONS FOR EXCAVATION AND BACKFILL REQUIREMENTS.
- COORDINATE EXISTING ABUTMENT REMOVAL WITH NEW ABUTMENT WALL PLANS.
- REMOVAL OF EXISTING BRIDGE, INCLUDING THE DEMOLITION PLAN, TO BE PAID FOR IN ITEM 211505 REMOVAL OF EXISTING BRIDGE.
- SAW CUT AND REMOVE ALL EXISTING EMBEDDED CONDUIT WHERE IT INTERFERES WITH NEW WORK OR NEW CONDUIT RUNS.
- AS-BUILT AND PREVIOUS BRIDGE REHABILITATION PLANS ARE PROVIDED FOR CONTRACTOR'S USE IN DETERMINING EXISTING CONDITIONS AND INFORMATION THAT IS NOT SHOWN IN THESE CONTRACT DOCUMENTS.
- ALL EXISTING ELECTRICAL AND MECHANICAL EQUIPMENT IS TO BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. REFER TO SPECIAL PROVISIONS 615503 AND 615504 FOR DETAILS, LIMITS, AND METHOD OF PAYMENT.
- THE FOLLOWING ITEMS ARE TO BE SALVAGED FROM THE BRIDGE SITE BY THE CONTRACTOR AND TO BE PROVIDED TO DELDOT: EXISTING WARNING GATES, EXISTING AERIAL CABLE POLES, AND ALL TRAFFIC SIGNAL POLES WITH SIGNAL ASSEMBLIES. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING, PROTECTING, AND TRANSPORTING THESE ITEMS TO A LOCATION SPECIFIED BY DELDOT.
- REMOVAL OF ALL MATERIAL SHALL CONFORM TO SPECIAL PROVISION 202560 - CONTAMINATED MATERIAL.

HATCHING LEGEND

-  SUPERSTRUCTURE DEMOLITION - REMOVE AND DISCARD EXISTING SWING SPAN STRUCTURAL STEEL AND ALL MECHANICAL AND ELECTRICAL COMPONENTS
-  SUBSTRUCTURE DEMOLITION - REMOVE AND DISCARD EXISTING BRIDGE SUBSTRUCTURE, WEST AND EAST ABUTMENTS INCLUDING EXISTING TIMBER BULKHEAD AND STEEL SHEET PILING, PIVOT PIER, AND REST PIER CONCRETE

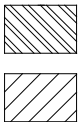
ADDENDA / REVISIONS				FINAL PLANS			
				CONTRACT	BRIDGE NO.	3-164	SECTION
				T202007301	DESIGNED BY:	D. WIGGINS	H&H
				COUNTY	CHECKED BY:	D. NEELY	SHEET NO.
				SUSSEX			16



REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

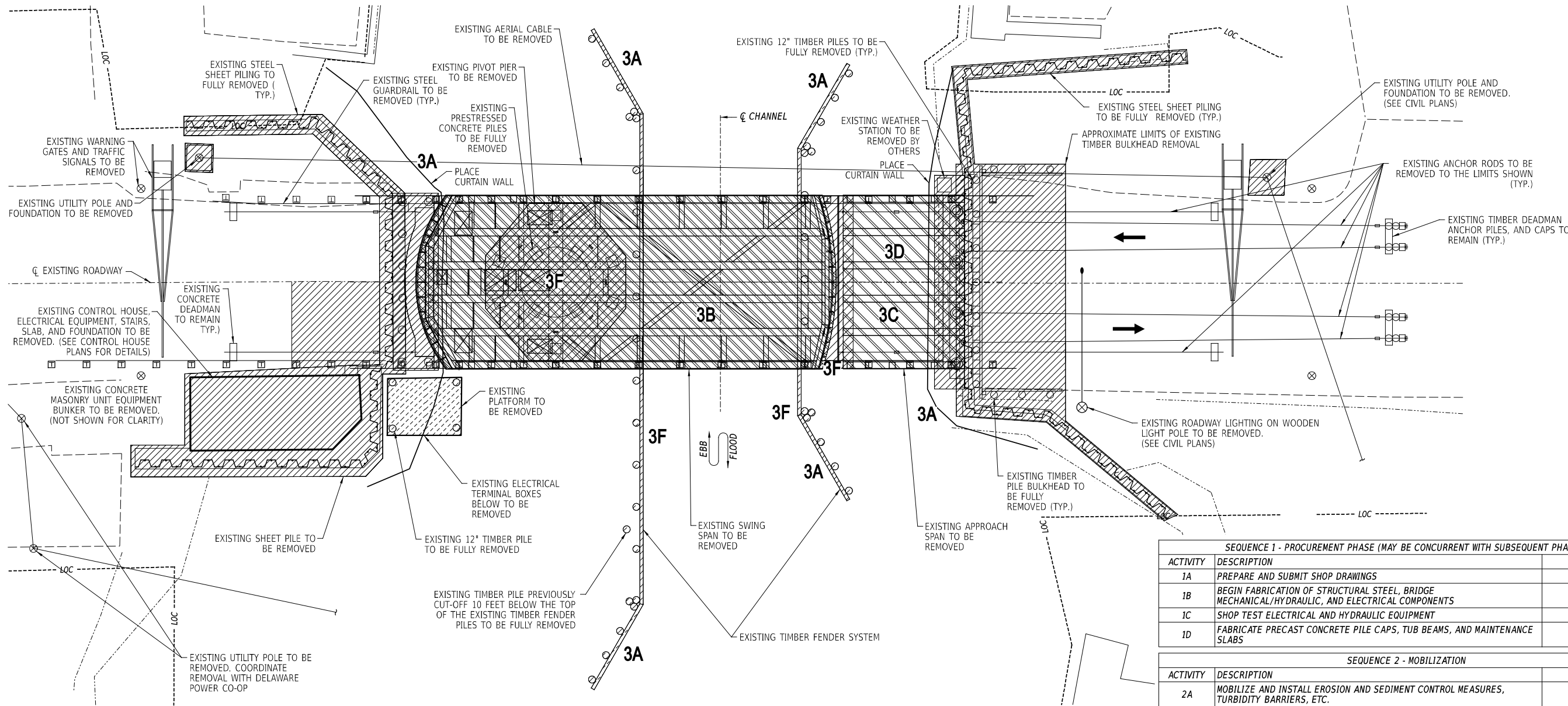


HATCHING LEGEND



SUPERSTRUCTURE DEMOLITION - REMOVE AND DISCARD EXISTING SWING SPAN STRUCTURAL STEEL AND ALL MECHANICAL AND ELECTRICAL COMPONENTS

SUBSTRUCTURE DEMOLITION - REMOVE AND DISCARD EXISTING BRIDGE SUBSTRUCTURE, WEST AND EAST ABUTMENTS INCLUDING EXISTING TIMBER BULKHEAD AND STEEL SHEET PILING, PIVOT PIER, AND REST PIER CONCRETE



CONSTRUCTION SEQUENCE 3 (PLAN VIEW)

SEQUENCE 1 - PROCUREMENT PHASE (MAY BE CONCURRENT WITH SUBSEQUENT PHASES)		
ACTIVITY	DESCRIPTION	DURATION
1A	PREPARE AND SUBMIT SHOP DRAWINGS	
1B	BEGIN FABRICATION OF STRUCTURAL STEEL, BRIDGE MECHANICAL/HYDRAULIC, AND ELECTRICAL COMPONENTS	
1C	SHOP TEST ELECTRICAL AND HYDRAULIC EQUIPMENT	
1D	FABRICATE PRECAST CONCRETE PILE CAPS, TUB BEAMS, AND MAINTENANCE SLABS	

SEQUENCE 2 - MOBILIZATION		
ACTIVITY	DESCRIPTION	DURATION
2A	MOBILIZE AND INSTALL EROSION AND SEDIMENT CONTROL MEASURES, TURBIDITY BARRIERS, ETC.	
2B	COMMISSION CONSTRUCTION TRAILERS	
2C	PERFORM CONTROL SURVEY AND ESTABLISH BENCHMARKS	
2D	RELOCATE UTILITIES THAT CONFLICT WITH BRIDGE CONSTRUCTION	

SEQUENCE 3 - DEMO BRIDGE		
ACTIVITY	DESCRIPTION	DURATION
3A	REMOVE PORTIONS OF FENDER SYSTEM	
3B	REMOVE SWING SPAN (POSSIBLE LIFT/FLOAT OUT OPERATION)	
3C	PARTIAL DEMO DECK IN EAST END SPAN	
3D	REMOVE DECK/GIRDERS IN EAST END SPAN	
3E	EXCAVATE BEHIND EXISTING ABUTMENTS TO REDUCE LATERAL LOADS	
3F	DEMO PIVOT PIER AND REST PIER CAPS	
3G	PULL/CUT-OFF PILES IN PIVOT PIER AND REST PIER	
3H	PULL/CUT-OFF REMAINING FENDER PILES AND PLATFORM AT CONTROL HOUSE	

NOTES

- EXISTING ELECTRICAL SERVICE UTILITIES, ROADWAY LIGHTING, AND POLES TO BE REMOVED. COORDINATE REMOVAL WITH DELAWARE POWER CO-OP.
- FOR ELEVATION VIEW OF CONSTRUCTION SEQUENCE 3, SEE DWG. S-08.

ADDENDA / REVISIONS



REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	D. NEELY / J. SOTO
COUNTY	CHECKED BY:	J. HEWKO / C. GRANADOS
SUSSEX		

CONSTRUCTION SEQUENCE
(1 OF 6)

FINAL PLANS

S-08

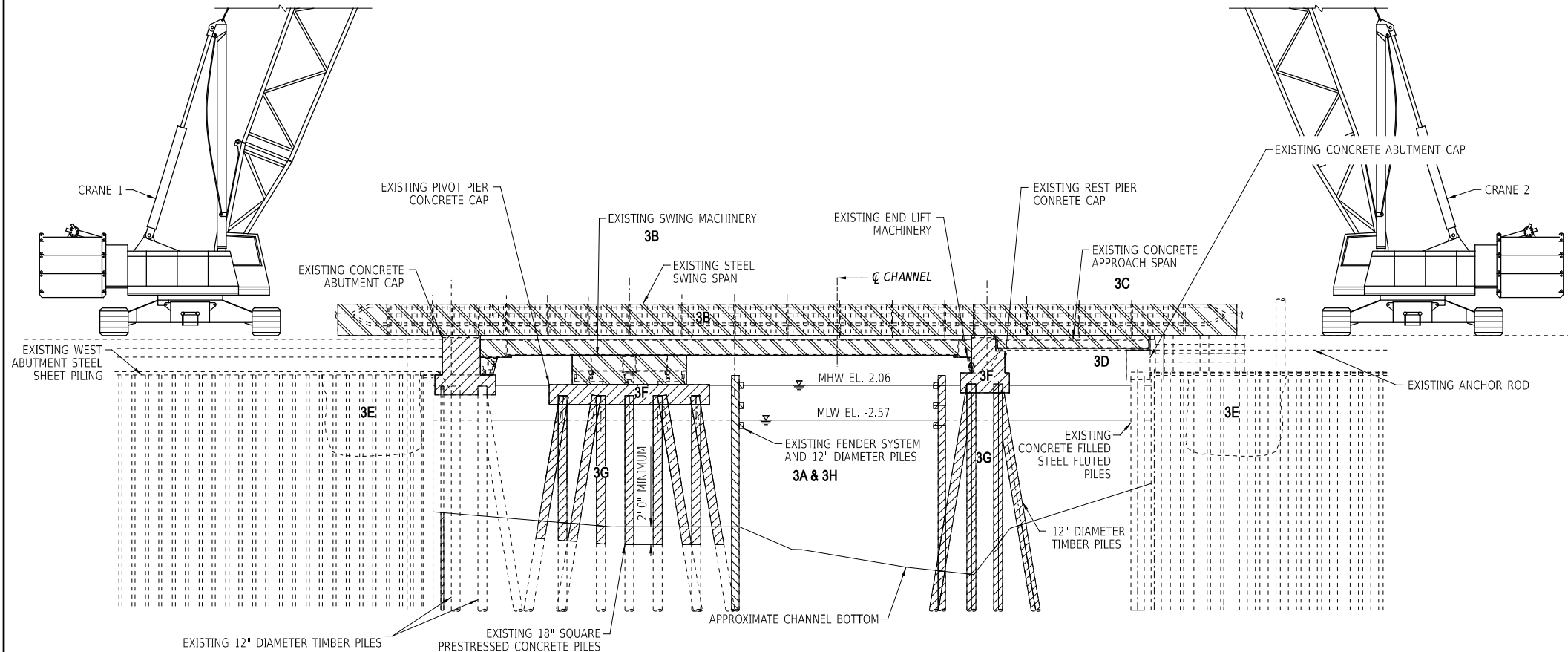
SECTION

H&H

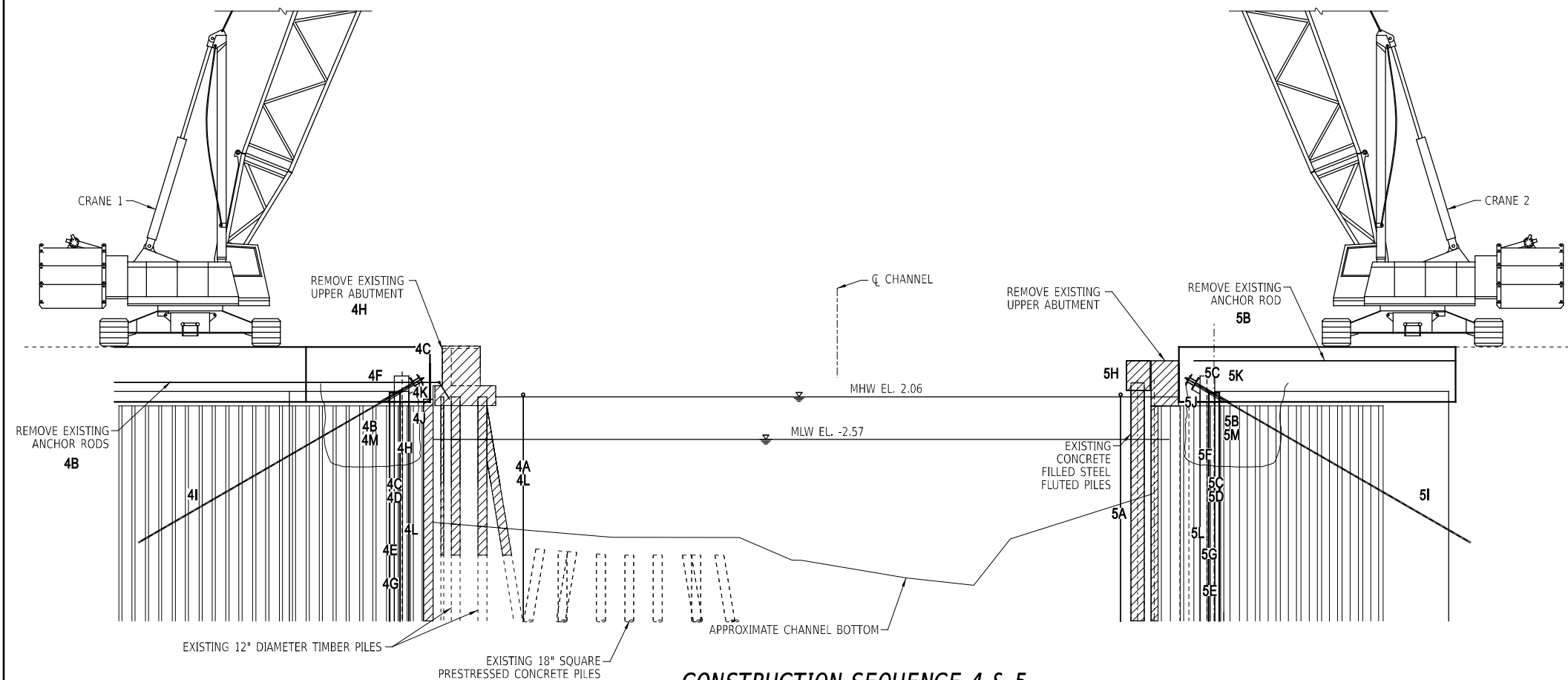
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CONSTRUCTION SEQUENCE 3 (ELEVATION VIEW)



CONSTRUCTION SEQUENCE 4 & 5

HATCHING LEGEND

	SUPERSTRUCTURE DEMOLITION - REMOVE AND DISCARD EXISTING SWING SPAN STRUCTURAL STEEL AND ALL MECHANICAL AND ELECTRICAL COMPONENTS
	SUBSTRUCTURE DEMOLITION - REMOVE AND DISCARD EXISTING BRIDGE SUBSTRUCTURE, WEST AND EAST ABUTMENTS INCLUDING EXISTING TIMBER BULKHEAD AND STEEL SHEET PILING, PIVOT PIER, AND REST PIER CONCRETE

SEQUENCE 3 - DEMO BRIDGE		
ACTIVITY	DESCRIPTION	DURATION
3A	REMOVE PORTIONS OF FENDER SYSTEM	
3B	REMOVE SWING SPAN (POSSIBLE LIFT/FLOAT OUT OPERATION)	
3C	PARTIAL DEMO DECK IN EAST END SPAN	
3D	REMOVE DECK/GIRDERS IN EAST END SPAN	
3E	EXCAVATE BEHIND EXISTING ABUTMENTS TO REDUCE LATERAL LOADS	
3F	DEMO PIVOT PIER AND REST PIER CAPS	
3G	PULL/CUT-OFF PILES IN PIVOT PIER AND REST PIER	
3H	PULL/CUT-OFF REMAINING FENDER PILES AND PLATFORM AT CONTROL HOUSE	

SEQUENCE 4 - CONSTRUCT WEST ABUTMENT		
ACTIVITY	DESCRIPTION	DURATION
4A	INSTALL TURBIDITY CURTAIN	
4B	CONTINUE EXCAVATION BEHIND WEST ABUTMENT, NW, SW CORNERS & AT CONTROL HOUSE. CUT EX. TIEBACKS	
4C	INSTALL PILE TEMPLATE AND DRIVE PPC TEST PILE. EVALUATE TEST PILE DATA TO ESTABLISH DRIVING CRITERIA	
4D	INSTALL REMAINING 14" PRESTRESSED, PRECAST CONCRETE PILES. REMOVE PILE TEMPLATE	
4E	INSTALL TEMPORARY COFFERDAMS / WALLS NEAR CORNERS OF EXISTING BRIDGE	
4F	INSTALL SHEETING TEMPLATE AND DRIVE NEW SHEETING FOR WEST ABUTMENT, NW, SW CORNERS & CONTROL HOUSE	
4G	REMOVE SHEETING TEMPLATE AND RESTRIKE PPC PILE	
4H	REMOVE UPPER PORTION OF EXISTING BRIDGE ABUTMENT INCLUDING EXISTING TIMBER PILES (IN FRONT OF NEW SHEETING)	
4I	INSTALL SOIL ANCHORS THRU NEW SHEETING ALONG THE FULL LENGTH OF THE WEST EMBANKMENT	
4J	INSTALL HORIZONTAL WALERS AND TEST/LOAD SOIL ANCHORS	
4K	CONSTRUCT NESTED CIP CONCRETE CAP ON WEST ABUTMENT, NW, SW CORNERS & ALONG CONTROL HOUSE (WITHOUT BACKWALL)	
4L	REMOVE COFFERDAMS / WALLS AND TURBIDITY CURTAIN	
4M	BAFCKFILL WEST ABUTMENT	

SEQUENCE 5 - CONSTRUCT EAST ABUTMENT		
ACTIVITY	DESCRIPTION	DURATION
5A	INSTALL TURBIDITY CURTAIN	
5B	EXCAVATE BEHIND EAST ABUTMENT & NE, SE CORNERS. CUT EX. TIEBACKS	
5C	INSTALL PILE TEMPLATE AND DRIVE PPC TEST PILE. EVALUATE TEST PILE DATA TO ESTABLISH DRIVING CRITERIA	
5D	INSTALL REMAINING 14" PRESTRESSED, PRECAST CONCRETE PILES. REMOVE PILE TEMPLATE	
5E	INSTALL TEMPORARY COFFERDAMS / WALLS NEAR CORNERS OF EXISTING BRIDGE	
5F	INSTALL SHEETING TEMPLATE AND DRIVE NEW SHEETING FOR EAST ABUTMENT, NE & SE CORNERS	
5G	REMOVE SHEETING TEMPLATE AND RESTRIKE PPC PILE	
5H	REMOVE UPPER PORTION OF EXISTING BRIDGE ABUTMENT INCLUDING EXISTING TIMBER PILES	
5I	INSTALL SOIL ANCHORS THRU NEW SHEETING ALONG THE FULL LENGTH OF THE EAST EMBANKMENT	
5J	INSTALL HORIZONTAL WALERS AND TEST/LOAD SOIL ANCHORS	
5K	CONSTRUCT NESTED CIP CONCRETE CAP ON EAST ABUTMENT, NE & SE CORNERS (WITHOUT BACKWALL)	
5L	REMOVE COFFERDAMS / WALLS AND TURBIDITY CURTAIN	
5M	BACKFILL EAST ABUTMENT	

FINAL PLANS

S-09

ADDENDA / REVISIONS	



REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T7202007301	DESIGNED BY:	D. NEELY / J. SOTO
COUNTY	CHECKED BY:	J. HEWKO / C. GRANADOS
SUSSEX		

CONSTRUCTION SEQUENCE
(2 OF 6)

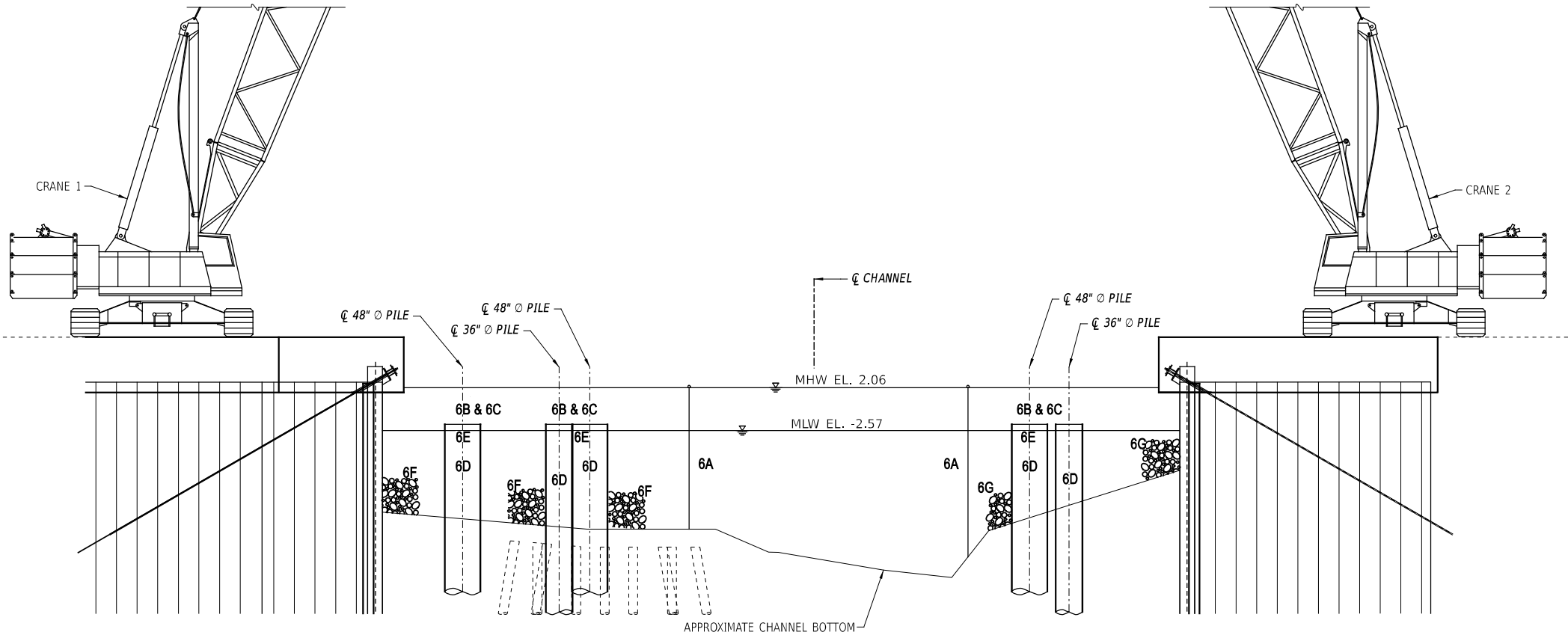
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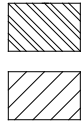
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CONSTRUCTION SEQUENCE 6

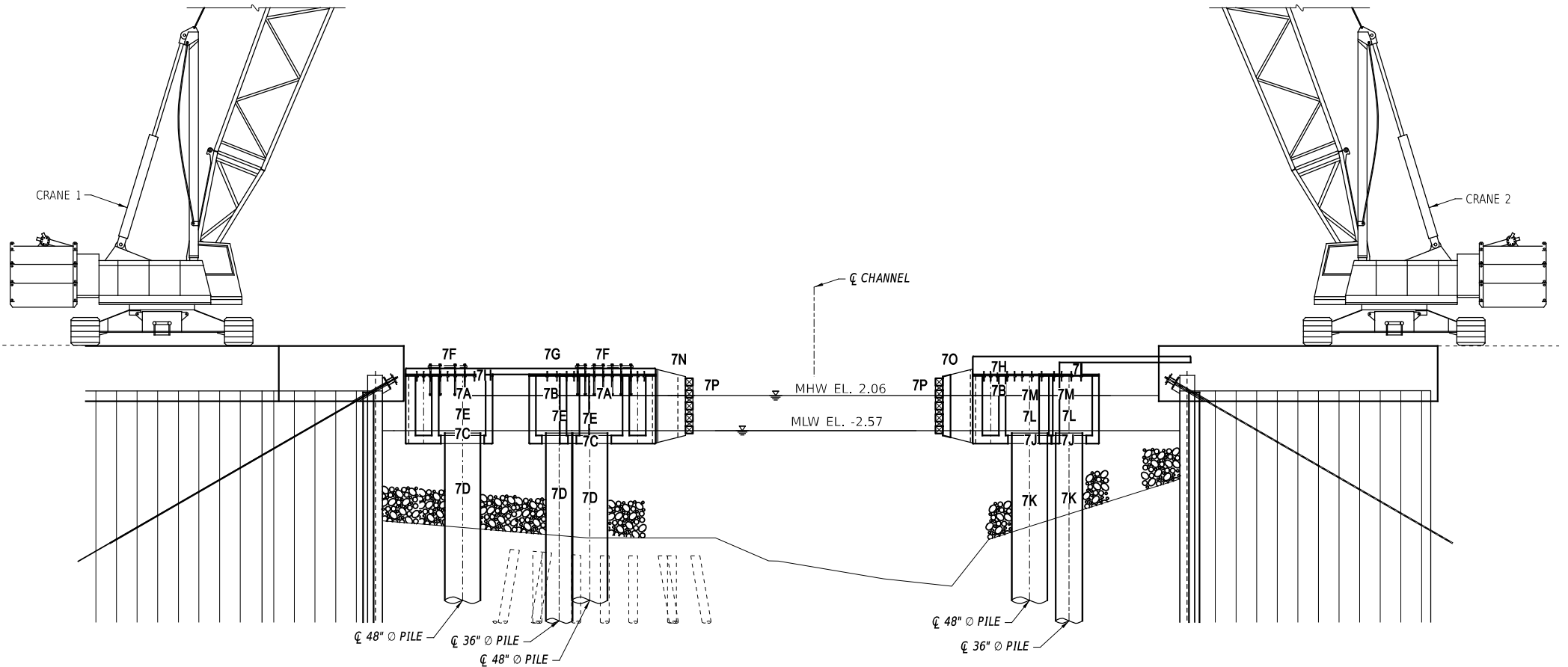
HATCHING LEGEND



SUPERSTRUCTURE DEMOLITION - REMOVE AND DISCARD EXISTING SWING SPAN STRUCTURAL STEEL AND ALL MECHANICAL AND ELECTRICAL COMPONENTS

SUBSTRUCTURE DEMOLITION - REMOVE AND DISCARD EXISTING BRIDGE SUBSTRUCTURE, WEST AND EAST ABUTMENTS INCLUDING EXISTING TIMBER BULKHEAD AND STEEL SHEET PILING, PIVOT PIER, AND REST PIER CONCRETE

SEQUENCE 6 - CONSTRUCT PIER FOUNDATION		
ACTIVITY	DESCRIPTION	DURATION
6A	INSTALL TURBIDITY CURTAIN AND REMOVE EXISTING RIP RAP AT PROPOSED PILE LOCATIONS	
6B	INSTALL PILE TEMPLATE / FRAME FOR 48" DIAMETER PIPE PILES (OPEN END, CONCRETE FILLED IN FINAL CONDITION)	
6C	INSTALL TEST PILES & EVALUATE PDA DATA TO ESTABLISH DRIVING CRITERIA	
6D	INSTALL REMAINING PILES WITH PDA FOR PIERS AND FENDER	
6E	MODIFY PILE DRIVING TEMPLATE TO ACCOMMODATE INSTALLATION AND SUPPORT OF PRECAST SUBSTRUCTURE UNIT	
6F	INSTALL RIP RAP ALONG WEST ABUTMENT AND BASCULE PIER	
6G	INSTALL RIP RAP ALONG EAST ABUTMENT AND REST PIER	



CONSTRUCTION SEQUENCE 7

SEQUENCE 7 - CONSTRUCT PIER SUBSTRUCTURE		
ACTIVITY	DESCRIPTION	DURATION
7A	INSTALL PRECAST CONCRETE SUBSTRUCTURE UNIT OVER THE BASCULE PIER PILES	
7B	INSTALL PRECAST CONCRETE SUBSTRUCTURE UNITS OVER THE WEST FENDER PILES	
7C	POUR SEAL SLAB AT ALL BASCULE PIER AND WEST FENDER PILE LOCATIONS AND DEWATER PRECAST UNITS	
7D	PLACE PILE REINFORCING AND CONCRETE 36" AND 48" PILES (BASCULE PIER/WEST FENDER)	
7E	PLACE REINFORCING CAGES IN PRECAST UNITS AND POUR BASCULE PIER/WEST FENDER SUBSTRUCTURE CONCRETE IN LIFTS	
7F	INSTALL TOWER ANCHOR BOLTS AND PRECAST ACCESS PLATFORMS ON BASCULE PIER	
7G	INSTALL PRECAST CONCRETE CAPS OVER THE WEST FENDER PILES	
7H	INSTALL PRECAST CONCRETE SUBSTRUCTURE UNIT OVER THE REST PIER PILES	
7I	INSTALL PRECAST CONCRETE SUBSTRUCTURE UNITS OVER THE EAST FENDER PILES	
7J	POUR SEAL SLAB AT ALL REST PIER/EAST FENDER PILE LOCATIONS AND DEWATER PRECAST UNITS	
7K	PLACE PILE REINFORCING AND CONCRETE 36" AND 48" AT REST PIER/EAST FENDER PILES	
7L	PLACE REINFORCING CAGES IN PRECAST UNITS AND POUR REST PIER/EAST FENDER SUBSTRUCTURE CONCRETE IN LIFTS	
7M	INSTALL PRECAST CONCRETE CAPS OVER THE EAST FENDER PILES	
7N	INSTALL ARCH FENDER AT BASCULE PIER	
7O	INSTALL ARCH FENDER AT REST PIER	
7P	INSTALL FENDER RAILS AT BOTH PIERS AND FENDER PILES	

ADDENDA / REVISIONS	



REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	D. NEELY / J. SOTO
COUNTY	CHECKED BY:	J. HEWKO / C. GRANADOS
SUSSEX		

CONSTRUCTION SEQUENCE
(3 OF 6)

FINAL PLANS

S-10

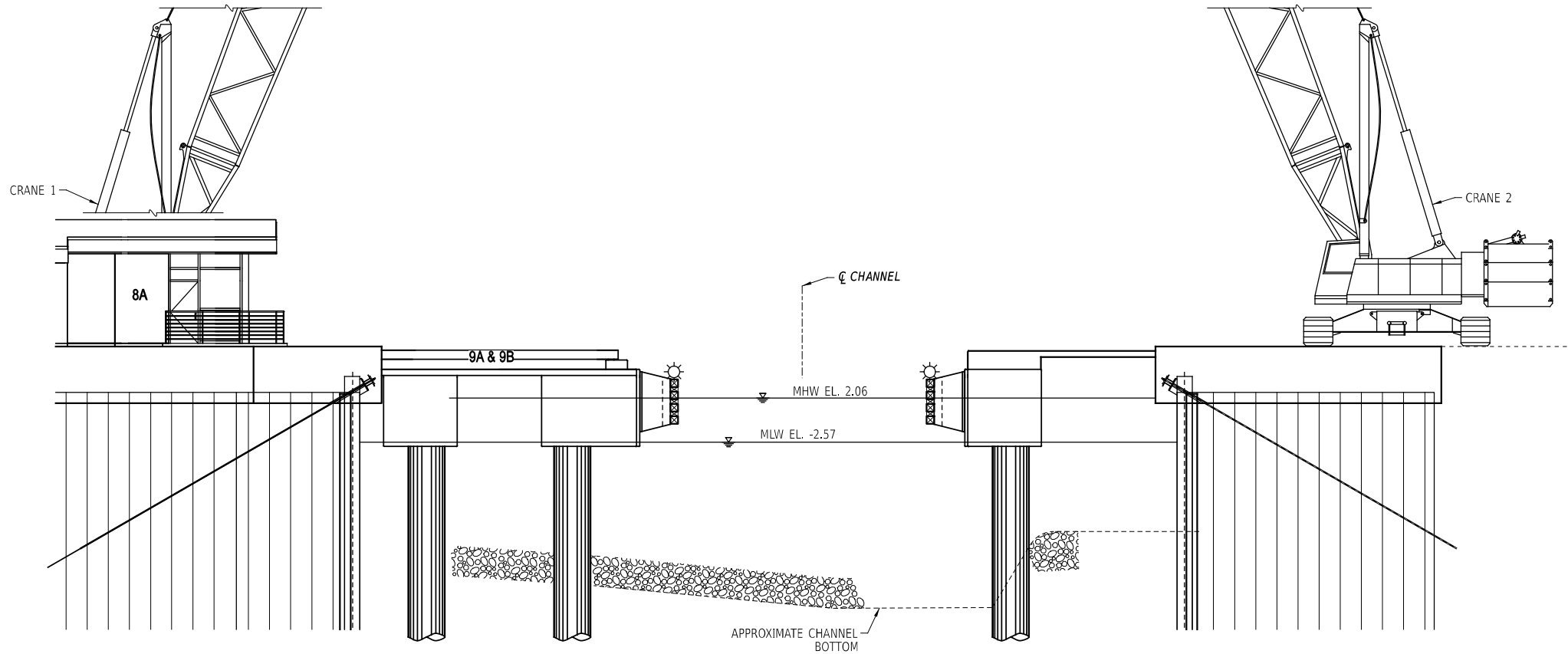
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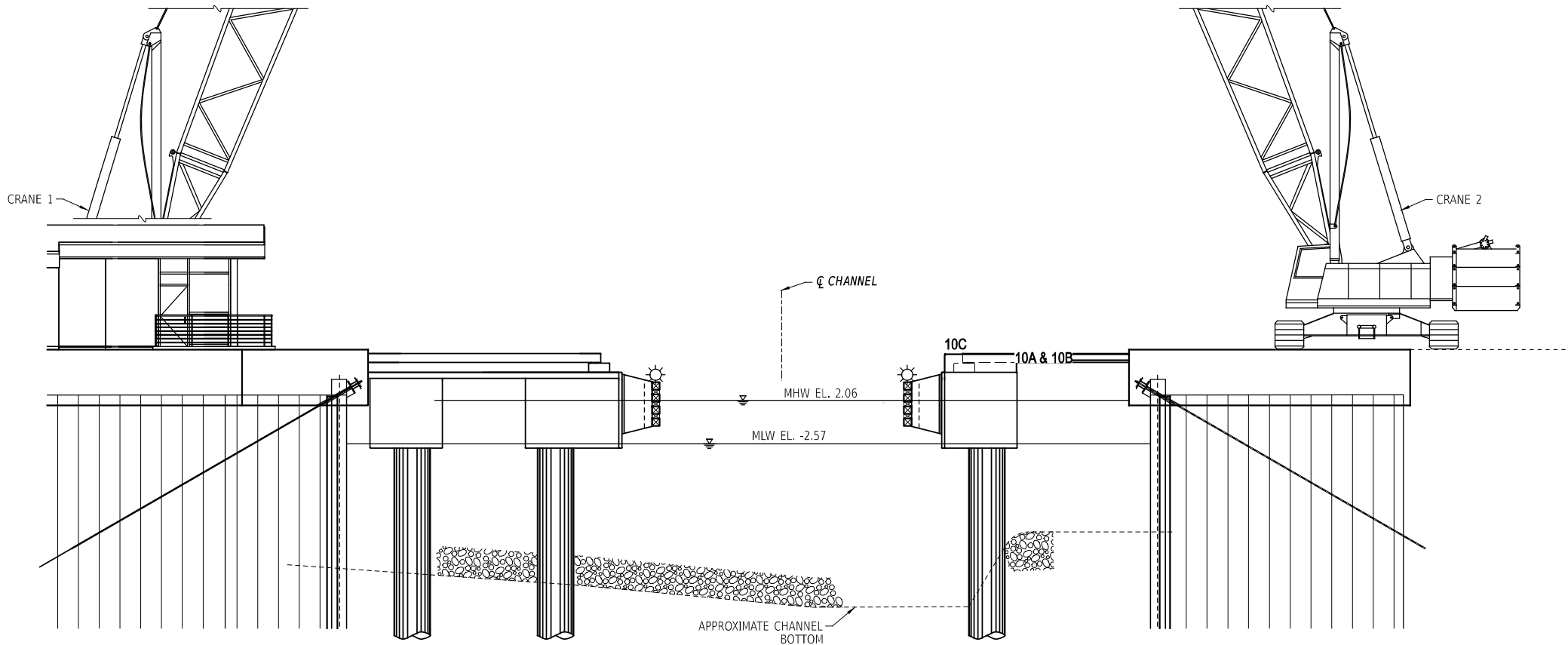
CONSTRUCTION SEQUENCE 8 & 9

HATCHING LEGEND

	SUPERSTRUCTURE DEMOLITION - REMOVE AND DISCARD EXISTING SWING SPAN STRUCTURAL STEEL AND ALL MECHANICAL AND ELECTRICAL COMPONENTS
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SEQUENCE 8 - CONSTRUCT NEW CONTROL HOUSE		
ACTIVITY	DESCRIPTION	DURATION
8A	CONSTRUCT NEW CONTROL HOUSE	

SEQUENCE 9 - CONSTRUCT SPAN 1 SUPERSTRUCTURE		
ACTIVITY	DESCRIPTION	DURATION
9A	INSTALL PRECAST, PRESTRESSED CONCRETE SOLID SLABS IN END SPAN	
9B	PLACE UHPC JOINTS BETWEEN SOLID SLAB UNITS	



CONSTRUCTION SEQUENCE 10

SEQUENCE 10 - CONSTRUCT SPAN 3 SUPERSTRUCTURE		
ACTIVITY	DESCRIPTION	DURATION
10A	INSTALL PRECAST, PRESTRESSED CONCRETE SOLID SLABS	
10B	PLACE UHPC JOINTS BETWEEN SOLID SLAB UNITS	
10C	CONSTRUCT SPAN LOCK ANCHORAGE	

ADDENDA / REVISIONS	

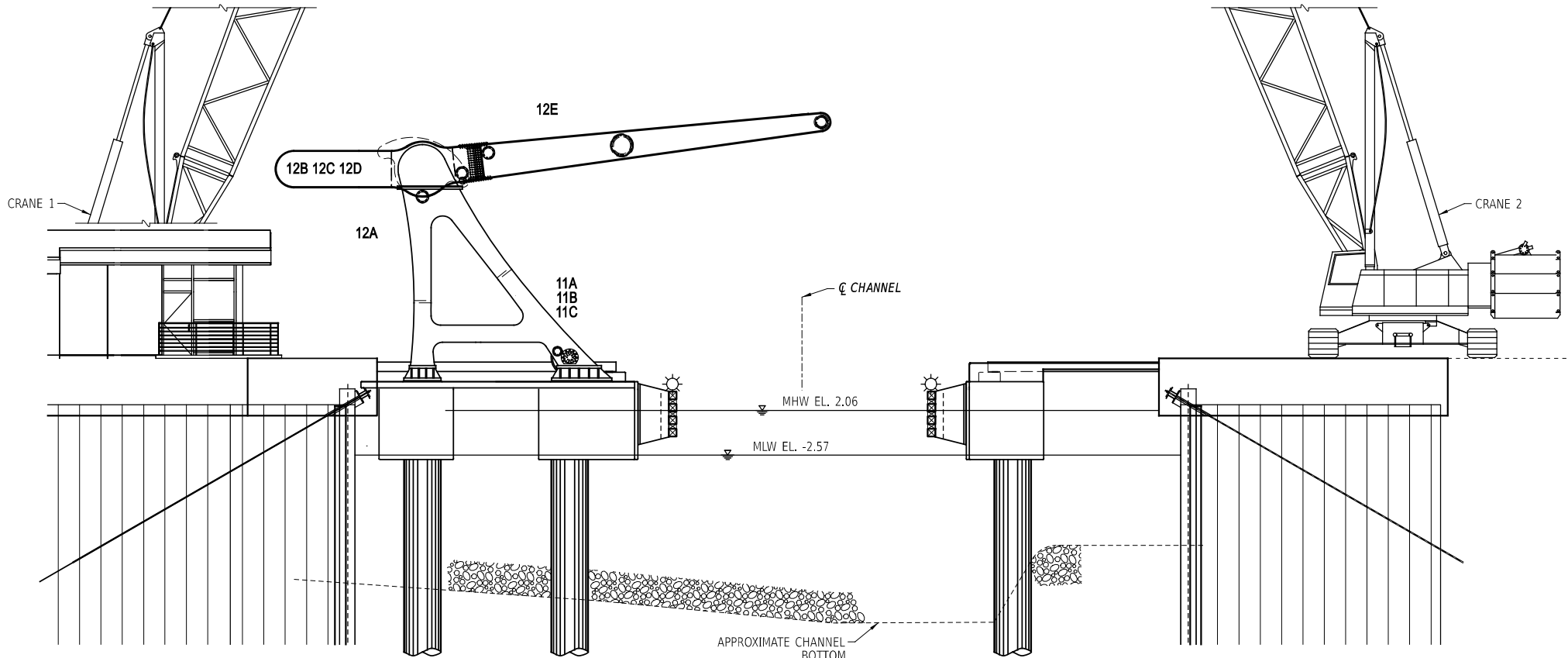


REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

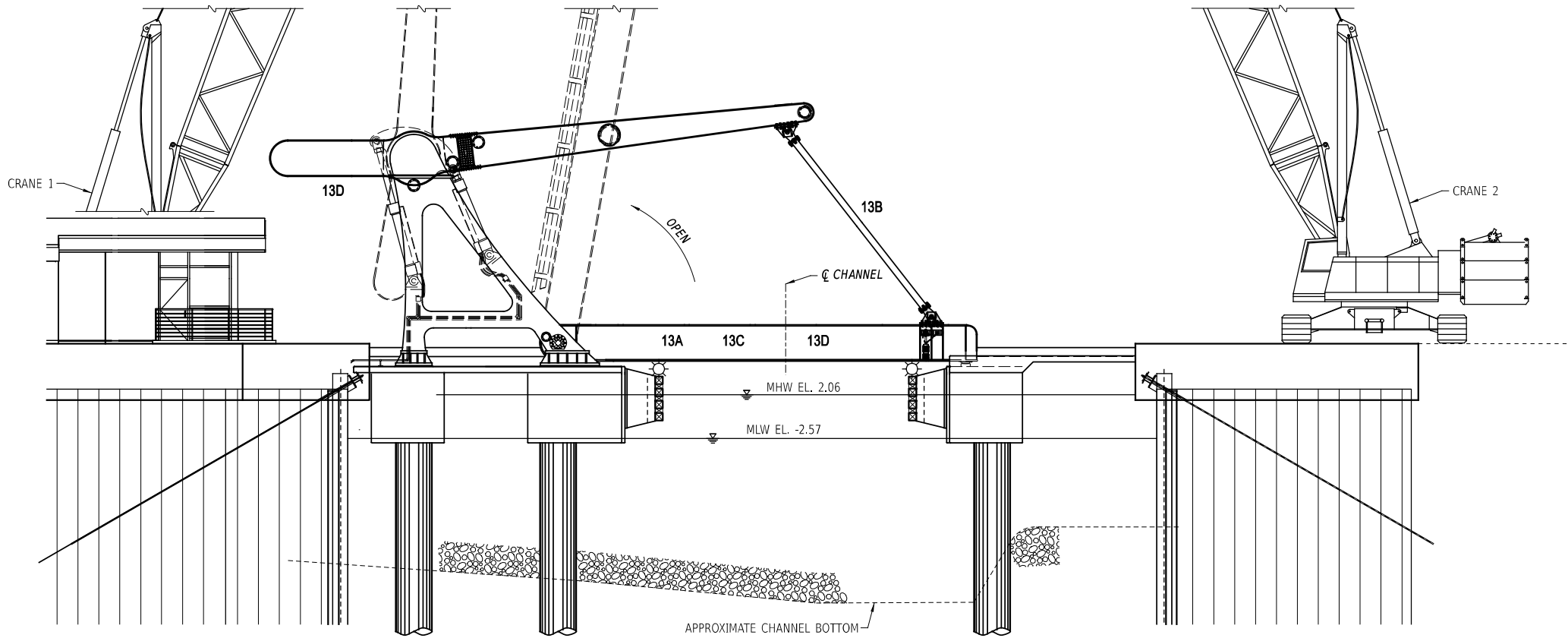
CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	D. NEELY / J. SOTO
COUNTY	CHECKED BY:	J. HEWKO / C. GRANADOS
SUSSEX		

FINAL PLANS	
CONSTRUCTION SEQUENCE (4 OF 6)	S-11 SECTION H&H SHEET NO. 20

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CONSTRUCTION SEQUENCE 11 & 12



CONSTRUCTION SEQUENCE 13

HATCHING LEGEND



SUPERSTRUCTURE DEMOLITION - REMOVE AND DISCARD EXISTING SWING SPAN STRUCTURAL STEEL AND ALL MECHANICAL AND ELECTRICAL COMPONENTS



SUBSTRUCTURE DEMOLITION - REMOVE AND DISCARD EXISTING BRIDGE SUBSTRUCTURE, WEST AND EAST ABUTMENTS INCLUDING EXISTING TIMBER BULKHEAD AND STEEL SHEET PILING, PIVOT PIER, AND REST PIER CONCRETE

SEQUENCE 11 - CONSTRUCT BASCULE TOWERS		
ACTIVITY	DESCRIPTION	DURATION
11A	INSTALL AND ALIGN SOUTH BASCULE TOWER - INCLUDES SURVEY, ADJUSTMENT, ANCHORING AND GROUTING	
11B	INSTALL AND ALIGN NORTH BASCULE TOWER - INCLUDES SURVEY, ADJUSTMENT, ANCHORING AND GROUTING	
11C	CLEAN AND PAINT (TOUCH UP) STEEL ELEMENTS	

SEQUENCE 12 - CONSTRUCT BALANCE FRAME		
ACTIVITY	DESCRIPTION	DURATION
12A	INSTALL TEMPORARY SUPPORT TOWERS AND JACKS	
12B	INSTALL AND ALIGN COUNTERWEIGHT BOX AND BALANCE FRAME	
12C	INSTALL COUNTERWIGHT CONCRETE AND LEAD BALLAST	
12D	INSTALL BALANCE BLOCKS	
12E	CLEAN AND PAINT (TOUCH UP) STEEL ELEMENTS	

SEQUENCE 13 - CONSTRUCT BASCULE LEAF		
ACTIVITY	DESCRIPTION	DURATION
13A	INSTALL AND CONNECT BASCULE LEAF (COMPLETE ASSEMBLY INCLUDING MAIN GIRDERS AND FLOOR SYSTEM)	
13B	INSTALL LINK ARMS	
13C	CLEAN AND PAINT STRUCTURAL STEEL (TOUCH UP)	
13D	INSTALL HYDRAULIC CYLINDERS ON A-FRAME TOWERS, CONNECT TO BALANCE FRAME CRANK ARMS, CONNECT TO HYDRAULIC POWER UNIT AND COMMISSION	
13E	PRELIMINARY BALANCE TESTING AND ADJUSTMENTS	

ADDENDA / REVISIONS	



REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	D. NEELY / J. SOTO
COUNTY	CHECKED BY:	J. HEWKO / C. GRANADOS
SUSSEX		

CONSTRUCTION SEQUENCE
(5 OF 6)

FINAL PLANS

S-12

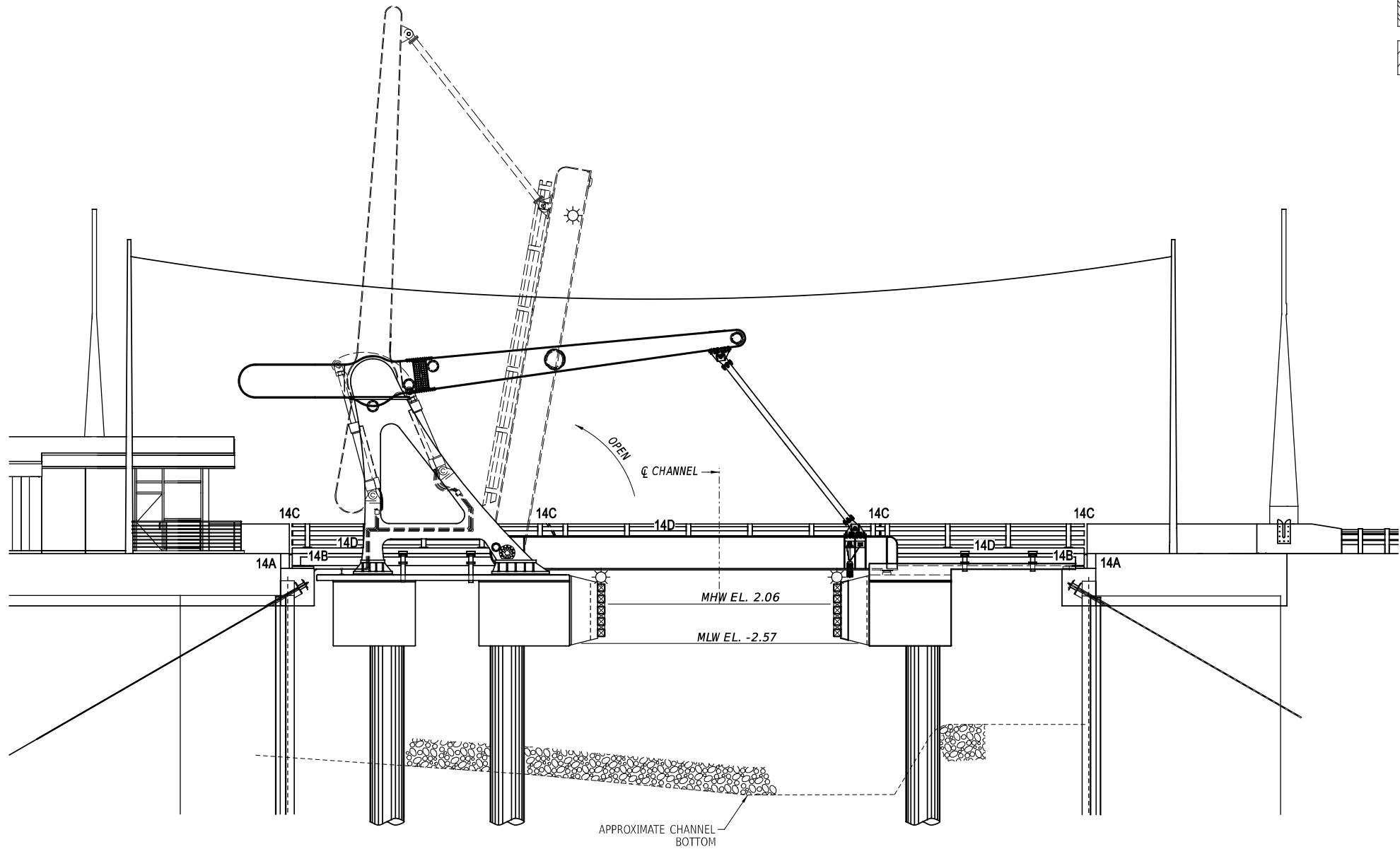
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CONSTRUCTION SEQUENCE 14

HATCHING LEGEND



SUPERSTRUCTURE DEMOLITION - REMOVE AND DISCARD EXISTING SWING SPAN STRUCTURAL STEEL AND ALL MECHANICAL AND ELECTRICAL COMPONENTS

SUBSTRUCTURE DEMOLITION - REMOVE AND DISCARD EXISTING BRIDGE SUBSTRUCTURE, WEST AND EAST ABUTMENTS INCLUDING EXISTING TIMBER BULKHEAD AND STEEL SHEET PILING, PIVOT PIER, AND REST PIER CONCRETE

SEQUENCE 14 - INSTALL JOINTS AND RAILING		
ACTIVITY	DESCRIPTION	DURATION
14A	CONSTRUCT BACKWALL AT ABUTMENTS (WEST AND EAST)	
14B	PLACE REBAR, 5" CONCRETE DECK, AND DECK OVERPOUR AT SPAN 1 AND SPAN 3	
14C	INSTALL DECK JOINT AT ABUTMENTS AND PIERS	
14D	CONSTRUCT CURB FOR TRAFFIC RAIL. INSTALL 3 TUBE RAILING	

SEQUENCE 15 - BASCULE SPAN COMMISSIONING AND TESTING		
ACTIVITY	DESCRIPTION	DURATION
15A	COMPLETE AND TEST ELECTRICAL INSTALLATION ON APPROACH SPANS, BASCULE SPAN, BASCULE PIER, REST PIER, AND ACROSS CHANNEL	
15B	COMPLETE AND TEST HYDRAULIC INSTALLATION AT BASCULE PIER	
15C	PERFORM PRELIMINARY OPERATIONAL TESTING	
15D	PERFORM FINAL BALANCE TESTING AND ADJUST SPAN BALANCE	
15E	PERFORM FUNCTIONAL ACCEPTANCE TESTING	

SEQUENCE 16 - BRIDGE APPROACH CONSTRUCTION AND DEMOBILIZATION		
ACTIVITY	DESCRIPTION	DURATION
16A	INSTALL NEW APPROACH ROADWAY BASE AND PAVEMENT	
16B	INSTALL GUARDRAIL WITH BARRIER GATE RECEIVERS, SIGNING, AND PAVEMENT MARKINGS	
16C	INSTALL AND TEST TRAFFIC SIGNALS, WARNING GATES AND BARRIER GATES	
16D	LANDSCAPE AS-NEEDED PER PLAN. REMOVE POLLUTION PREVENTION MEASURES	
16E	REMOVE SECURITY FENCING, CONSTRUCTION TRAILERS, MATERIALS AND EQUIPMENT. CLEAN SITE	
16F	REMOVE TRAFFIC CONTROL SIGNING ALONG DETOUR ROUTE AND BARRICADES AT BRIDGE. AND OPEN ROADWAY TO TRAFFIC	

ADDENDA / REVISIONS	



REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	D. NEELY / J. SOTO
COUNTY	CHECKED BY:	J. HEWKO / C. GRANADOS
SUSSEX		

CONSTRUCTION SEQUENCE
(6 OF 6)

FINAL PLANS

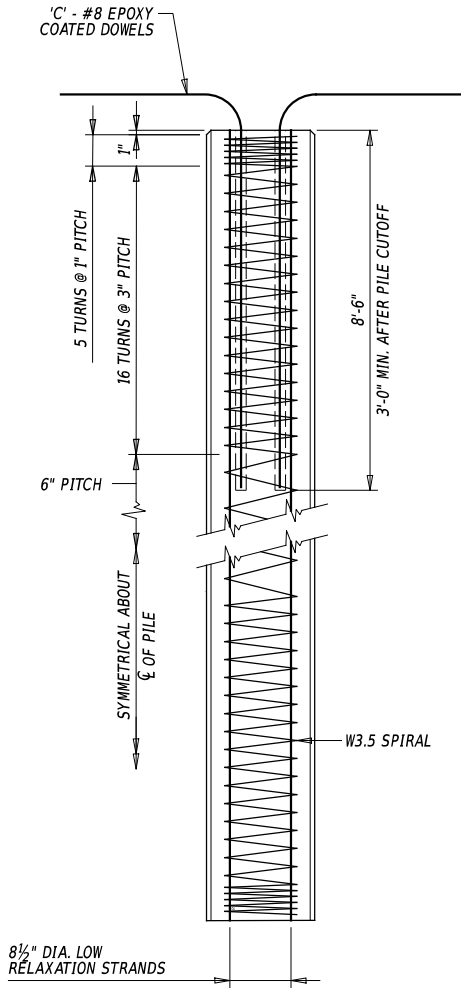
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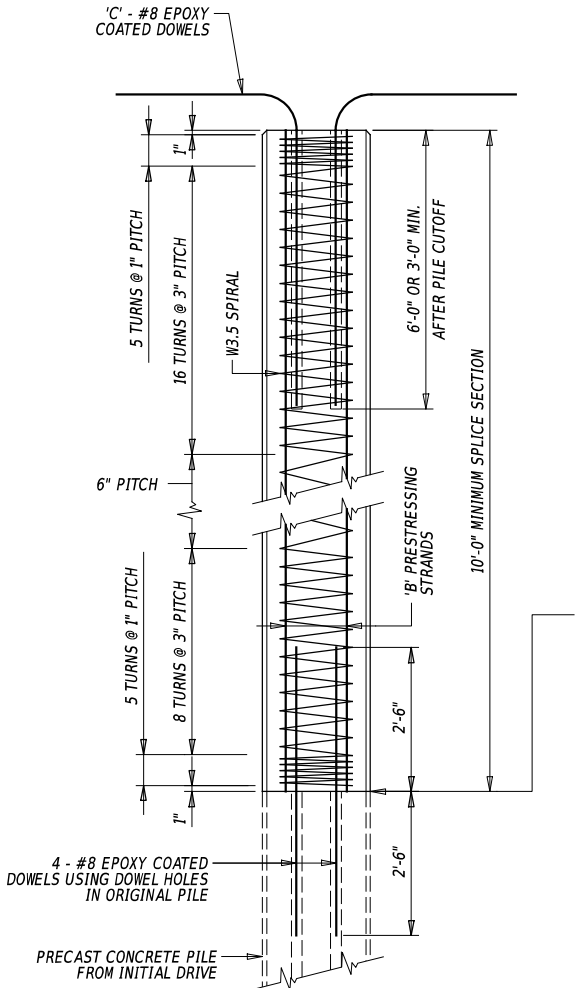
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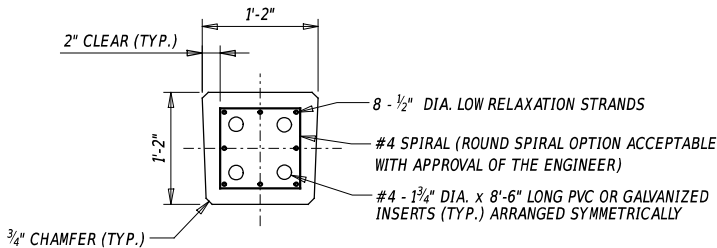
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PILE ELEVATION

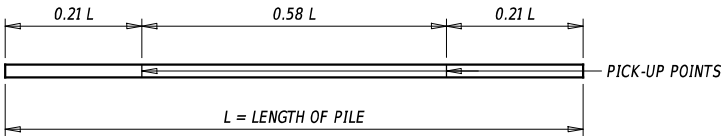


PILE BUILD-UP FOR DRIVING (PRECAST)

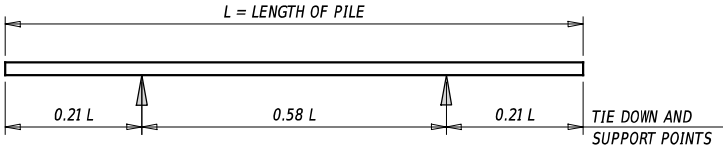


TYPICAL PRECAST PILE SECTION

PILE INSTALLATION DATA					
SUBSTRUCTURE UNIT	DESIGN DATA		ACTUAL FIELD DATA		
	MINIMUM TIP ELEVATION	ESTIMATED PILE TIP ELEVATION	ACTUAL MINIMUM TIP ELEVATION	ACTUAL AVERAGE TIP ELEVATION	ACTUAL MAXIMUM TIP ELEVATION
WEST ABUTMENT	-39	-32 FT.	TBD	TBD	TBD
EAST ABUTMENT	-39	-32 FT.	TBD	TBD	TBD



2-POINT PICK-UP DIAGRAMS



2-POINT SUPPORT DIAGRAMS FOR STORAGE AND TRANSPORTATION

PROJECT SPECIFIC PILE NOTES

- PILE TYPE:
THIS PROJECT SHALL UTILIZE 14" PRESTRESSED-PRECAST CONCRETE PILES.
- ESTIMATED PRODUCTION PILE LENGTH IS 50'.
- REQUIRED TEST PILE LENGTH IS 5' LONGER THAN THE ESTIMATED PRODUCTION PILE LENGTH.
- PILES SHALL BE DRIVEN TO A BEARING RESISTANCE OF 340 KIPS USING A RESISTANCE FACTOR OF 0.65.

GENERAL PILE NOTES

- FOR MORE INFORMATION REGARDING PILE DRIVING, INSTALLATION, MATERIALS, AND FABRICATION, REFER TO SECTION 605 - DRIVEN PILES OF THE STANDARD SPECIFICATIONS.
- EACH TEST PILE SHALL BE DYNAMICALLY TESTED BY THE CONTRACTOR IN ACCORDANCE WITH ITEM #605201 - DYNAMIC PILE TESTING BY CONTRACTOR. THE QUANTITY FOR DYNAMIC PILE TESTING SHALL INCLUDE ONE FOR THE INITIAL DRIVE AND ONE FOR THE RE-STRIKE OF EACH TEST PILE. THE NEED TO RESTRIKE EITHER A TEST PILE OR A PRODUCTION PILE SHALL BE THE SOLE DECISION OF THE ENGINEER.
- WAVE EQUATION ANALYSIS SHALL BE SUBMITTED BY THE CONTRACTOR FOR REVIEW BY THE ENGINEER (ELECTRONIC PREFERRED, OTHERWISE 8 COPIES MINIMUM).
- TEST PILES SHALL BE DRIVEN AT EACH LOCATION SHOWN ON THE PLANS. PRODUCTION PILES SHALL BE ORDERED BASED ON THE RESULTS OF THE TEST PILE DRIVING.

PRESTRESSED-PRECAST CONCRETE PILE NOTES

- DOWEL HOLES CAST IN THE TOP OF THE PILES SHALL BE CLEANED BY INSERTING A HIGH PRESSURE AIR HOSE TO THE BOTTOM AND BLOWING THE HOLE CLEAN FROM THE BOTTOM UPWARD PRIOR TO SETTING AND GROUTING THE DOWEL BARS. DOWELS SHALL BE SET WITH AN APPROVED NON-SHRINK EPOXY GROUT.
- IF, AFTER A PILE CUTOFF, THE PREFORMED HOLES IN THE TOP OF PRESTRESSED-PRECAST CONCRETE PILES ARE NOT LONG ENOUGH TO PROVIDE SUFFICIENT DOWEL EMBEDMENT, THEY SHALL BE DRILLED TO THE PROPER DEPTH AT NO ADDITIONAL COST TO THE DEPARTMENT. THE MINIMUM LENGTH OF THE DOWEL BAR EMBEDMENT IN THE HOLE SHALL BE 3'-0" FEET.
- EPOXY GROUT FOR GROUTING THE DOWEL BARS IN THE TOP OF THE PRESTRESSED-PRECAST CONCRETE PILE SHALL BE AN APPROVED NON-SHRINK EPOXY GROUT SPECIFICALLY DESIGNED AS A FAST SETTING COMPOUND THAT POURS EASILY TO FILL THE VOIDS. THE COST OF GROUTING THE DOWEL BARS SHALL BE INCIDENTAL TO THE UNIT BID ITEM FOR THAT RESPECTIVE PILE.
- THE WORKING DRAWINGS SHALL ALSO INCLUDE DESIGN AND DETAILS OF THE PROPOSED PICK-UP AND SUPPORT POINTS, AND LIFTING LOOPS FOR THE DEPARTMENT'S APPROVAL.
- THE CONTRACTOR MAY CONSIDER USING ALTERNATIVE PILE BUILD-UP DETAILS FOR BOTH DRIVING AND WITHOUT DRIVING. ALL ALTERNATIVE DETAILS FOR PILE BUILD-UPS SHALL BE SUBMITTED TO THE DEPARTMENT FOR APPROVAL.
- THE CONTRACTOR MAY CONSIDER USING ALTERNATIVE SPLICE JOINT DETAIL. ALL ALTERNATIVE DETAILS FOR SPLICE JOINT SHALL BE SUBMITTED TO THE DEPARTMENT FOR APPROVAL.

FINAL PLANS				S-15
SECTION				
SHEET NO.				
24				

PILE DETAILS		
CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	D. CASTILLO
COUNTY	CHECKED BY:	C. GRANADOS
SUSSEX		

REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD		
ADDENDA / REVISIONS		

0	8	16	24
FEET			

GENERAL NOTES

DESIGN SPECIFICATIONS:
SEE BRIDGE PROJECT NOTES.

DESIGN METHOD:
STRENGTH CASE USED TO DETERMINE COMPONENT DESIGNS. EMBEDMENT CASE AS PER AASHTO WITH A LOAD FACTOR OF 1.0 AND A PASSIVE RESISTANCE FACTOR OF 0.65.
SERVICE CASE USED TO DETERMINE WALL DEFLECTION.

LOAD AND RESISTANCE FACTORS USED FOR DESIGN ARE AS FOLLOWS:
STRENGTH LOAD FACTORS ACTIVE EARTH PRESSURE 1.5.
ACTIVE LIVE LOAD SURCHARGE 1.75.

RESISTANCE FACTORS STEEL SHEET PILE WALL):
PASSIVE SOIL PRESSURE (STRENGTH CASES = 0.75).
PASSIVE SOIL PRESSURE (EMBEDMENT CASE = 0.65).
FLEXURAL CAPACITY OF VERTICAL WALL ELEMENTS 0.9.

MATERIALS:
SHEET PILING: ASTM A 572 GRADE 50 KSI OR ASTM A690, GRADE 50 KSI.
STEEL PLATE: ASTM A572, GRADE 50.
SOIL ANCHORS OR TIE RODS: ASTM A722, GRADE 150 KSI THREADED ROD.

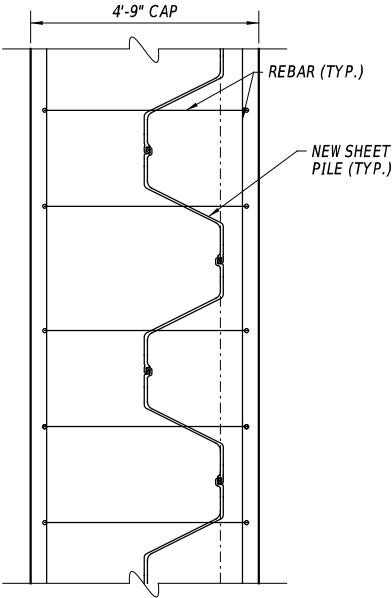
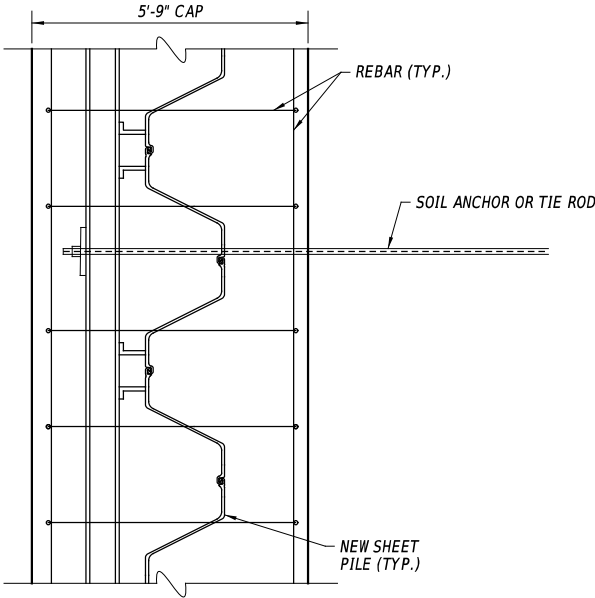
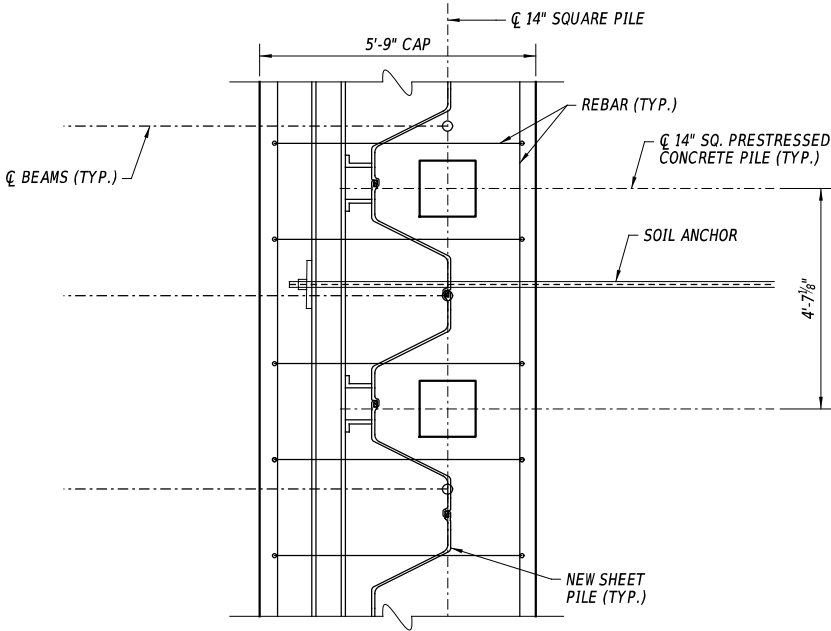
UTILITIES:
CONTRACTOR IS TO VERIFY LOCATIONS OF EXISTING UTILITIES AND STRUCTURES PRIOR TO BEGINNING OF WALL CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY CONFLICTS.

NOTES:

1. THE DESIGN PARAMETERS INDICATED IN THE TABLE WERE USED IN THE PILE WALL ANALYSIS. IF THE CONTRACTOR PLANS OPERATIONS, WHICH EXCEED THE DESIGN PARAMETERS SHOWN, THE CONTRACTOR'S SPECIALTY ENGINEER WILL REDESIGN THE WALL TO RESIST CONSTRUCTION LOADS AT A MAXIMUM DEFLECTION OF 1.5 INCHES AT THE TOP OF THE WALL.
2. ENVIRONMENTAL CLASSIFICATION IS EXTREMELY AGGRESSIVE.
3. DESIGN INCLUDES ALLOWANCE FOR ANTICIPATED LOSS IN STEEL THICKNESS OF 1/16" (BOTH SIDES) DUE TO CORROSION.
4. ALTERNATIVE PILING MEETING THE MINIMUM SECTION MODULUS AND MOMENT OF INERTIA REQUIREMENTS OF THE SHEET PILE WALL DATA TABLE MAY BE USED IN LIEU OF SYSTEM SHOWN BELOW.
5. COAT SURFACE OF STEEL WALL (BOTH SIDES) TO 5 FEET BELOW ELEVATION -17 WITH COAL TAR-EPOXY.
6. FABRICATION AND INSTALLATION OF SHEET PILE SHALL BE AS PER SECTION 608 OF DeLDOT STANDARD SPECIFICATIONS.

SHEET PILE WALL DATA TABLE										
CONSTRUCTION INFORMATION					DESIGN PARAMETERS					
WALL LOCATION	MINIMUM REQ'D * PLASTIC SECTION MODULUS (in³ /ft)	MINIMUM REQUIRED MOMENT OF INERTIA (in⁴/ft)	MINIMUM WALL TIP ELEVATION (ft)	WALL TOP ELEV. (ft)	SOIL ELEVATION		WATER ELEVATION		LRFD SERVICE DESIGN LIVE LOAD (psf)	LRFD FACTORED DESIGN LIVE LOAD (psf)
	A-572 (ksi) fy=50 ksi				APPROX. FRONT OF WALL (ft)	BACK OF WALL (ft)	FRONT OF WALL (ft)	BACK OF WALL (ft)		
ALL	90	772.5	**	**	**	8.33	-2.57	2.06	230	403

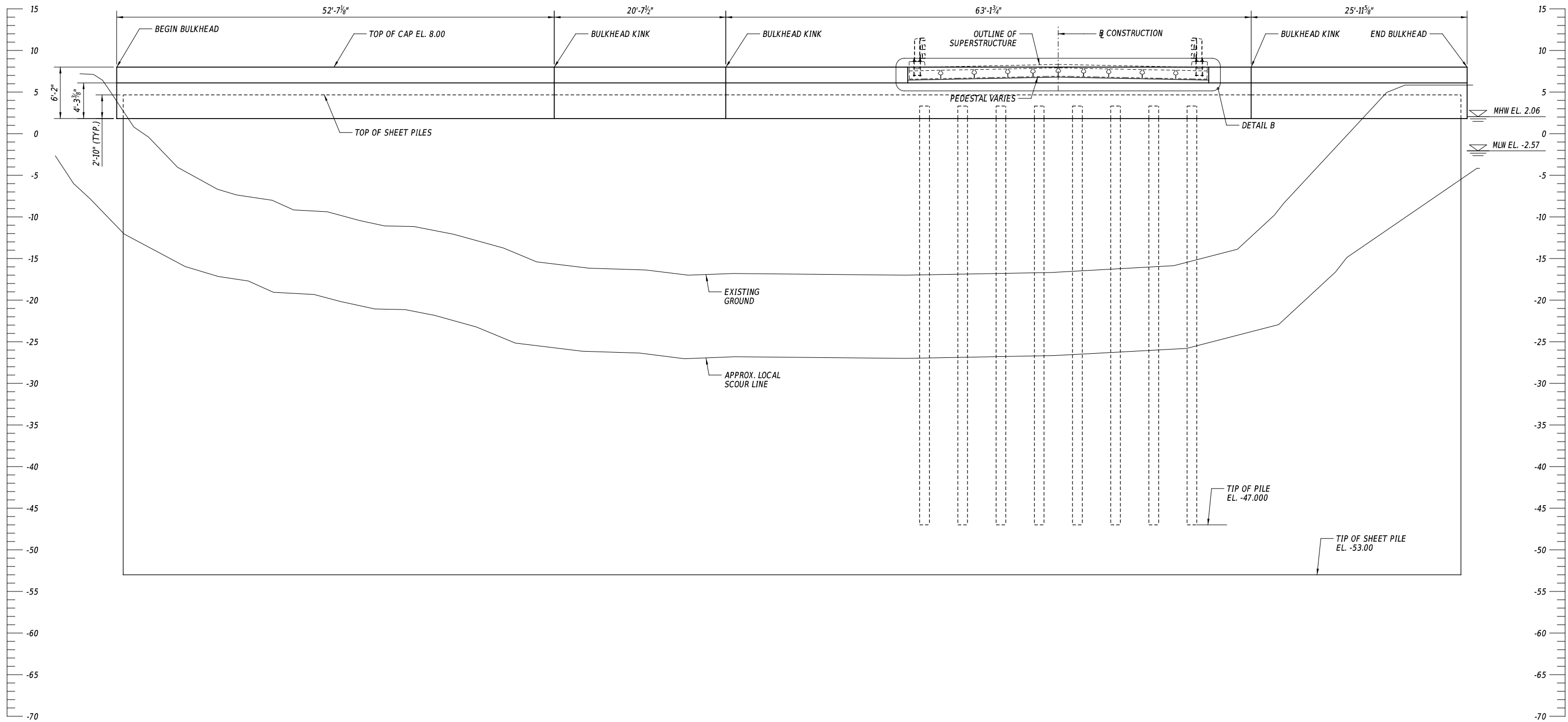
* MINIMUM SECTION MODULUS IS BASED ON HOT ROLLED SECTIONS.
** SEE WALL ELEVATIONS. SCOUR DEPTH 2.0'.



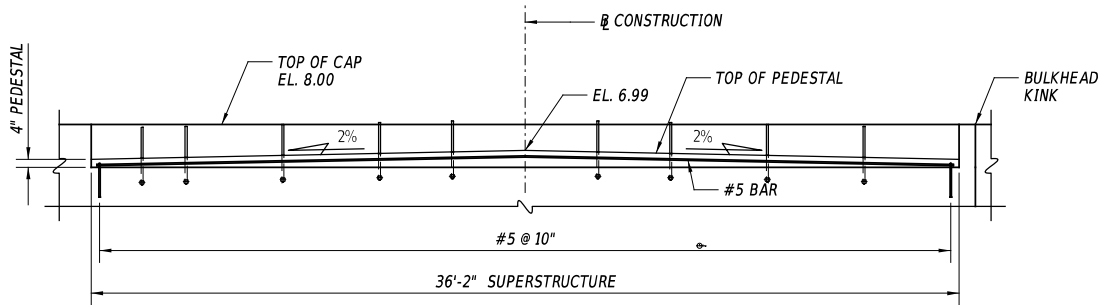
- NOTES:
1. SEE ABUTMENT CONTROL PLAN FOR SECTIONS.

										FINAL PLANS		S-16
ADDENDA / REVISIONS					REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD	CONTRACT	BRIDGE NO.	3-164		ABUTMENT AND WALLS GENERAL NOTES AND DATA TABLES	SECTION	
						T202007301	DESIGNED BY: J. SOTO		H&H			
						COUNTY	CHECKED BY: C. GRANADOS		SHEET NO.			
						SUSSEX			25			

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WEST ABUTMENT/BULKHEAD DEVELOPED ELEVATION



DETAIL B

FINAL PLANS				S-18
SECTION				H&H
SHEET NO.				27

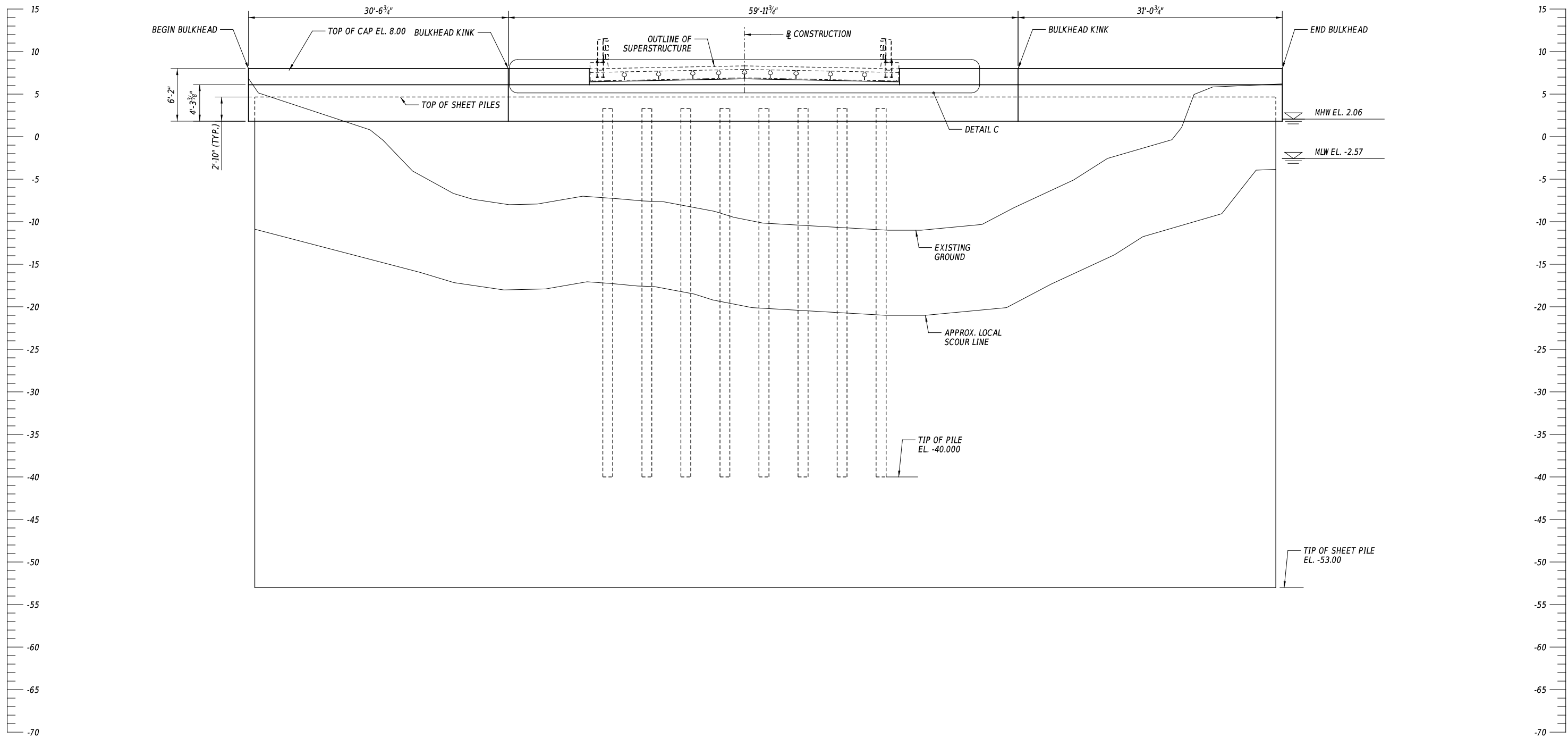
ADDENDA / REVISIONS		REVISIONS	

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	J. SOTO
COUNTY	CHECKED BY:	C. GRANADOS
SUSSEX		

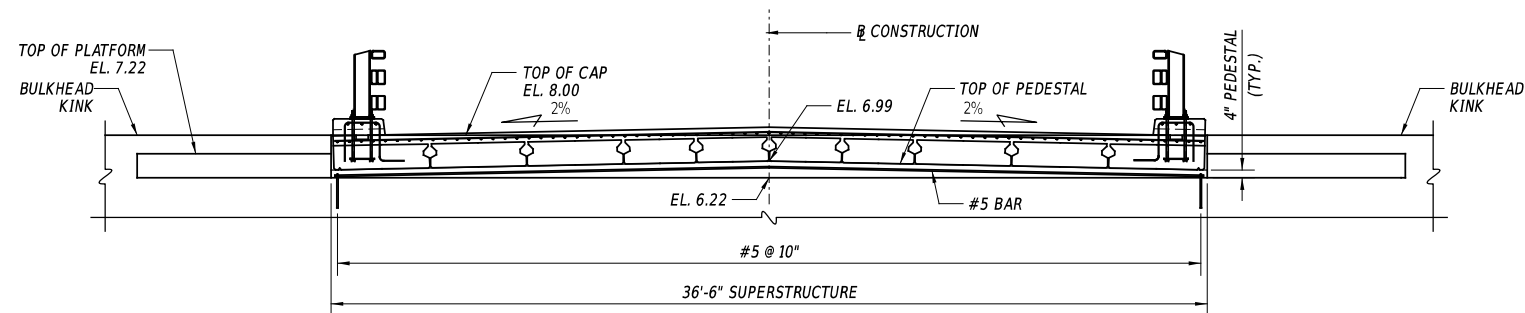
REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD
--

0 0.125 0.25 0.375 FEET


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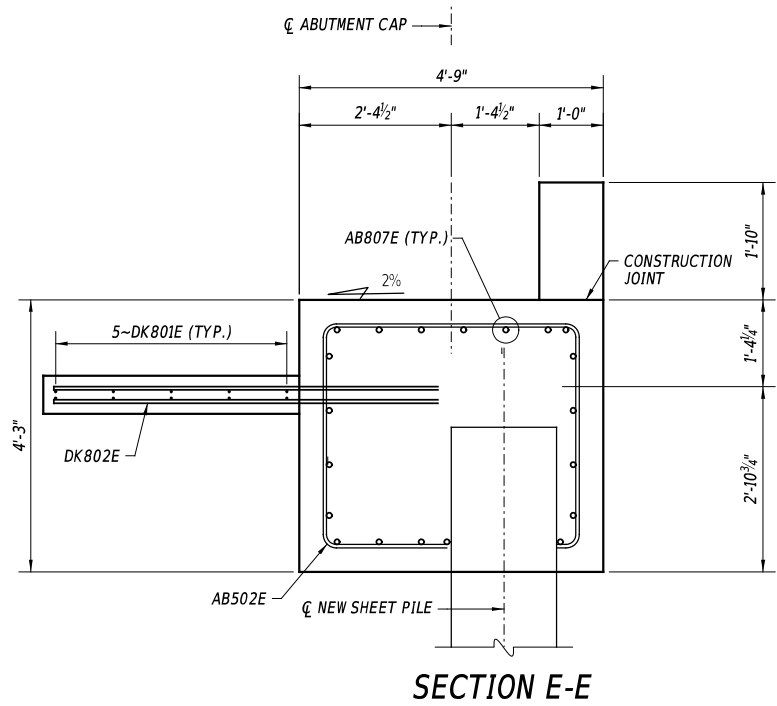
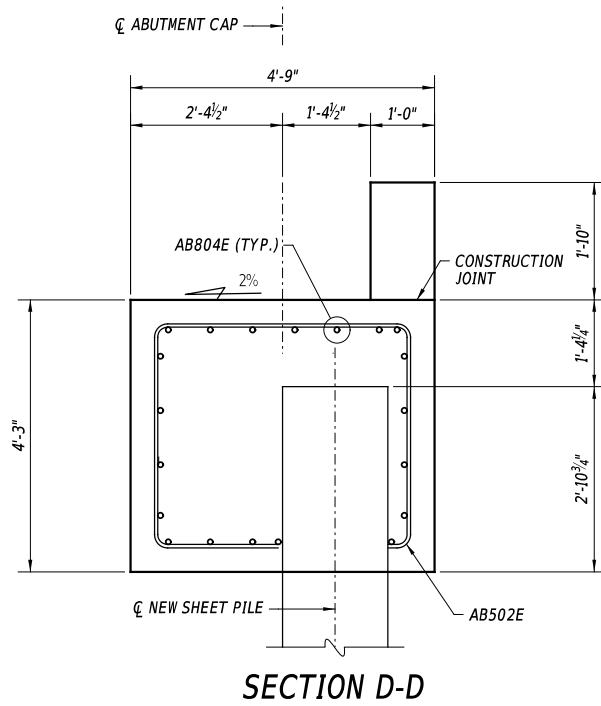
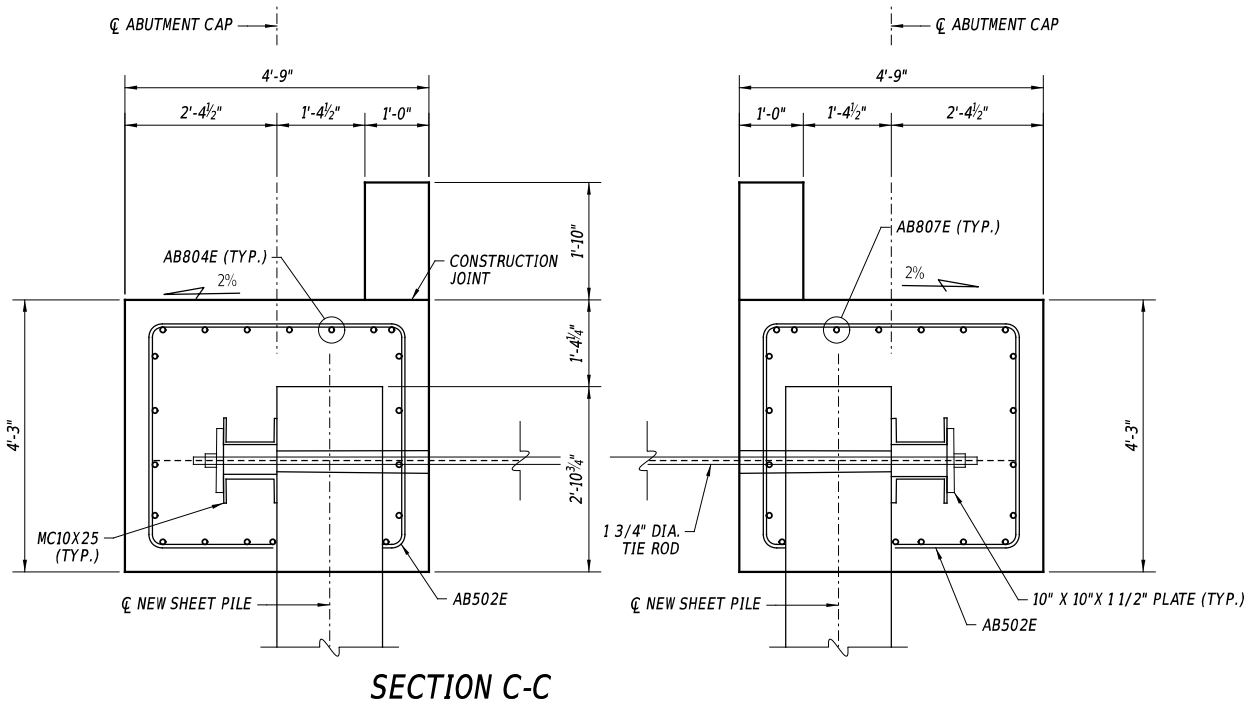
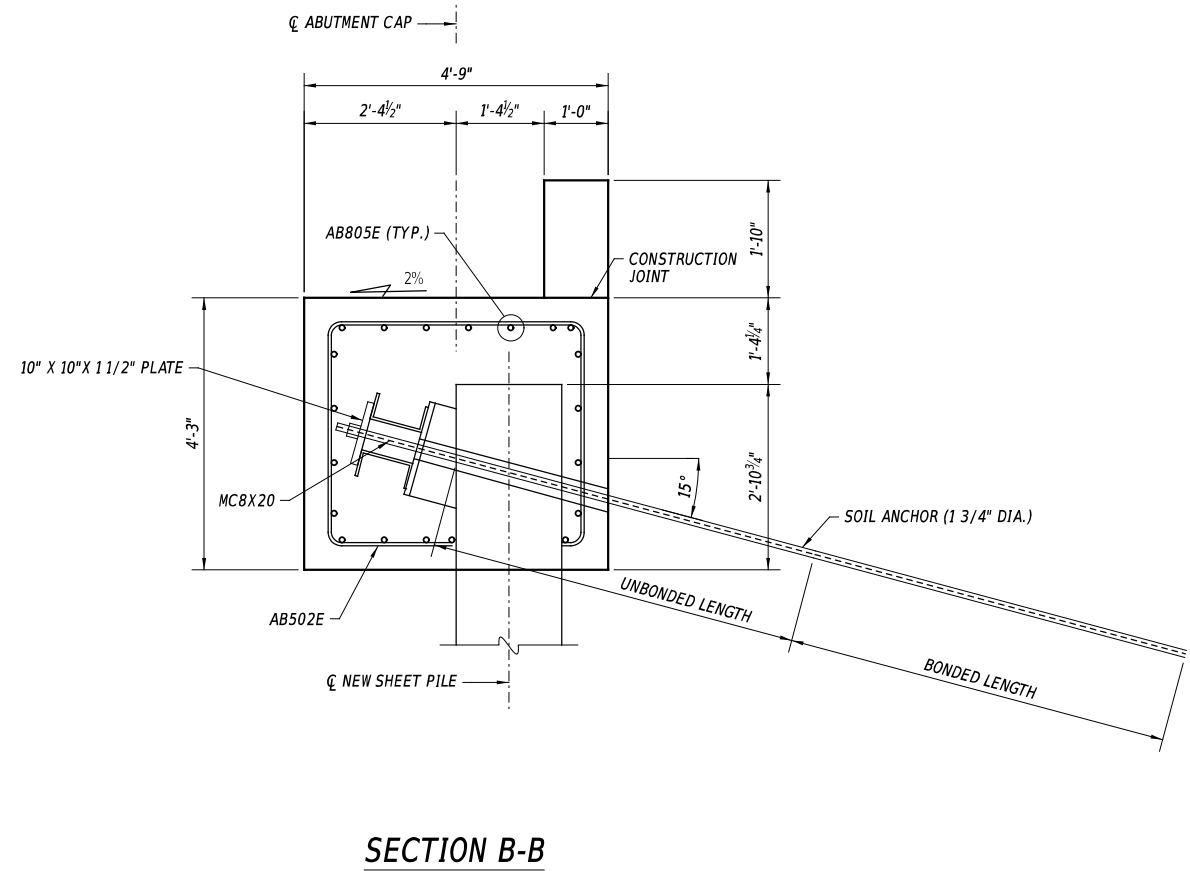
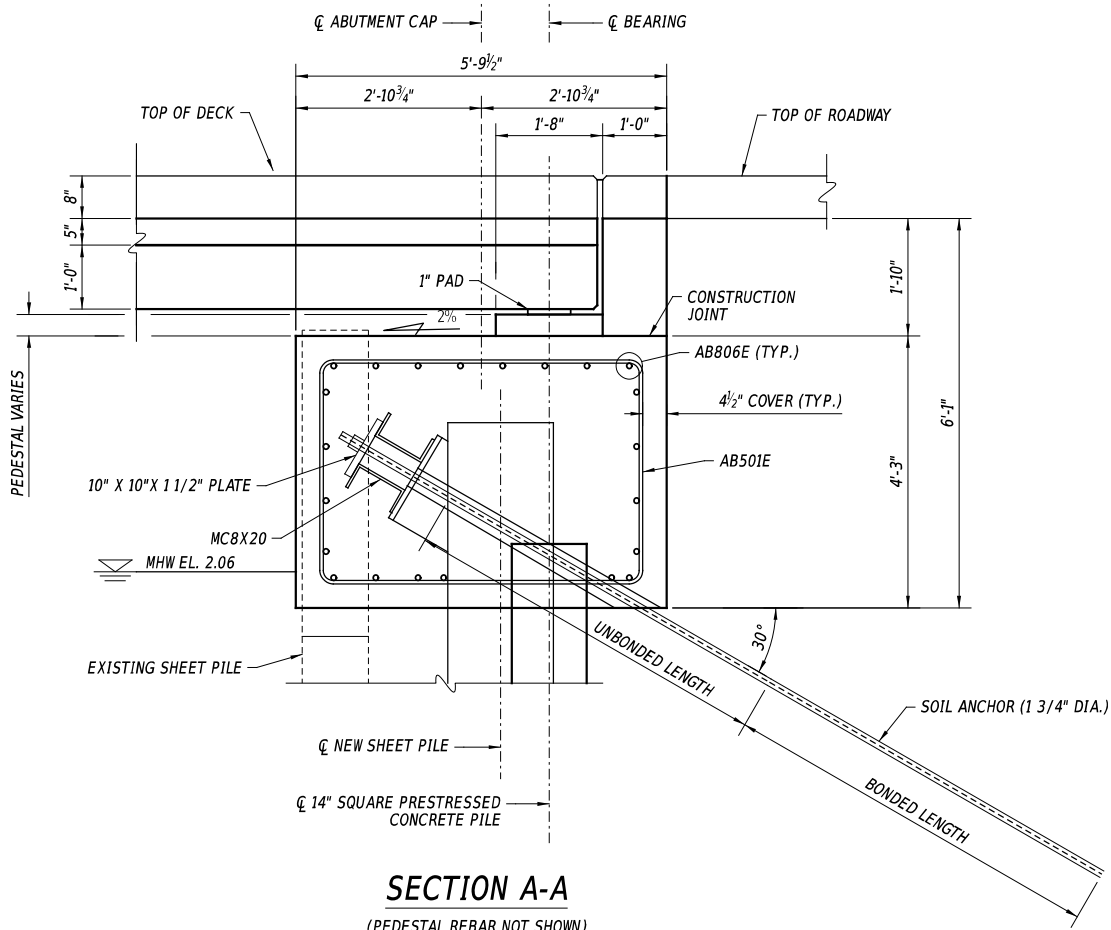


EAST ABUTMENT/BULKHEAD DEVELOPED ELEVATION



DETAIL C

										FINAL PLANS		S-19							
ADDENDA / REVISIONS												REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD		CONTRACT	BRIDGE NO.	3-164	EAST ABUTMENT DEVELOPED ELEVATIONS		SECTION
		T202007301	DESIGNED BY: J. SOTO		H&H														
		COUNTY	CHECKED BY: C. GRANADOS		SHEET NO.														
		SUSSEX			28														



- NOTES:
- FOR SECTIONS A-A, B-B, C-C, D-D, AND E-E, SEE SHEET NO. 26.
 - TOP PORTION OF BACK WALL SHALL NOT BE PLACED UNTIL ENTIRE BRIDGE DECK SLAB IS COMPLETED

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ADDENDA / REVISIONS				FINAL PLANS	
				S-20	SECTION
					H&H
					SHEET NO.
					29



REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	J. SOTO
COUNTY	CHECKED BY:	C. GRANADOS
SUSSEX		

ABUTMENT DETAILS (1 OF 2)

SOIL ANCHOR NOTES

1. THE CONTRACTOR SHALL DESIGN SOIL ANCHORS (OR GROUND ANCHORS) AS PER THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND SUBMIT FOR APPROVAL.
2. ALL SOIL ANCHORS SHALL BE INSTALLED AND EITHER PERFORMANCE OR PROOF TESTED AS PER THE LATEST LRFD BRIDGE CONSTRUCTION SPECIFICATIONS.
3. SOIL ANCHORS SHALL BE OF DOUBLE CORROSION PROTECTIONS.
4. PRIOR TO BIDDING, THE CONTRACTOR SHALL INSPECT THE PROJECT SITE TO BECOME FAMILIAR WITH WORKING CONDITIONS FOR SOIL ANCHORS INSTALLATION AND UNDERSTAND THE POTENTIAL CONSTRUCTION ACTIVITY EFFECTS ON THE ADJACENT BUILDINGS, STRUCTURES AND UTILITIES. NO ADDITIONAL COMPENSATION WILL BE MADE FOR INSTALLATION OF SOIL ANCHORS IN DIFFICULT WORKING CONDITIONS.
5. PRIOR TO INSTALLING ANY SOIL ANCHORS, THE CONTRACTOR SHALL VERIFY THE SOIL ANCHOR LOCATIONS IN FIELD AND ENSURE THE SOIL ANCHORS WILL NOT CONFLICT WITH ANY STRUCTURES, SUBSTRUCTURES, AND UTILITIES. IF ANY CONFLICT IS EXPECTED AND/OR OBSERVED, THE CONTRACTOR SHALL NOTICE THE ENGINEER IMMEDIATELY FOR RELOCATION. THE SOIL ANCHORS WITH POTENTIAL CONFLICTS SHALL NOT BE INSTALLED UNTIL THE RELOCATION IS APPROVED.
6. CONSTRUCTION OF SOIL ANCHORS SHALL BE COORDINATED WITH GENERAL CONSTRUCTION SEQUENCE OF THE PROJECT AND IN COMPLIANCE WITH PROJECT PERMITS AND/OR RESTRICTIONS (INCLUDING ENVIRONMENTAL PERMITS).
7. SOIL ANCHORS THAT ENCOUNTER EXISTING CONCRETE, MASONRY, TIMBER, METAL, BOULDERS OR OHER OBSTRUCTIONS SHALL BE DRILLED THROUGH THESE OBSTACLES TO ACHIEVE THE REQUIRED DESIGN RESISTANCE AT NO ADDITIONAL COST TO THE CLIENT.
8. GROUT SHALL HAVE A MINIMUM 3 DAY COMPRESSIVE STRENGTH OF 2000 PSI AND A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5000 PSI.
9. MINIMUM SOIL ANCHOR REQUIREMENTS ARE PROVIDED IN THE FOLLOWING TABLE.

WALL SECTION	INCLINATION ANGLE OF SOIL ANCHOR (DEG)	REQUIRED UNFACTORED RESISTANCE (KIPS/ANCHOR)	REQUIRED NOMINAL RESISTANCE (KIPS/ANCHOR)	TESTING 1.33 DESIGN LOAD (1.33 X DL) (KIPS/ANCHOR)	LOCK-OFF LOAD (KIPS/ANCHOR)	MIN. UNBONDED LENGTH (FT.)	ESTIMATED BOND ZONE DIAMETER (IN.)	ESTIMATED BOND LENGTH (FT.)
	30	59	104	104	59	50	6	30
	15	53	94	94	53	55	9	45

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ADDENDA / REVISIONS

00.1250.250.375

FEET

REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	J. SOTO
COUNTY	CHECKED BY:	C. GRANADOS
SUSSEX		

FINAL PLANS

S-21

SECTION

H&H

SHEET NO.

30

ABUTMENT DETAILS (2 OF 2)

- ① ANY MARK NUMBER WITH SUFFIX 'E' DENOTES EPOXY COATED REINFORCING STEEL.
- ② ALL MARK 'LOCATION PREFIXES' SHALL CONSIST OF TWO LETTERS AND ARE AS FOLLOWS: AB = ABUTMENT, AS = APPROACH SLAB, BC = BOX CULVERT, BW = BACKWALL, CL = COLUMN, DK = DECK, DL = DOWEL, FT = FOOTING, HW = HEADWALL, MS = MISC. BARS, PA = PARAPET, PR = PIER, SC = SHEETPILE CAP, SL = SLAB, TW = TOEWALL, WL = WALL (UNIQUE LOCATION), WW = WINGWALL

[illegible][illegible][illegible]

ASTM STANDARD ENGLISH REINFORCING BARS				RECOMMENDED END HOOKS, APPLICABLE TO ALL GRADES				STIRRUP AND TIE HOOKS, APPLICABLE TO ALL GRADES			
	NOMINAL DIMENSIONS				180° HOOKS		90° HOOKS		90° HOOK	135° HOOK	
BAR SIZE	DIAMETER (INCHES)	AREA² (INCHES)	WEIGHT (LBS./FT.)	D	A OR G	J	A OR G	D	A OR G	A OR G	A OR G
3	0.375	0.110	0.376	2¼"	5"	3"	6"	1½"	4"	4"	2½"
4	0.500	0.200	0.668	3"	6"	4"	8"	2"	4½"	4½"	3"
5	0.625	0.310	1.043	3¾"	7"	5"	10"	2½"	6"	5½"	3¾"
6	0.750	0.440	1.502	4½"	8"	6"	1-0"	4½"	1-0"	8"	4½"
7	0.875	0.600	2.044	5¼"	10"	7"	1-2"	5¼"	1-2"	9"	5¼"
8	1.000	0.790	2.670	6"	11"	8"	1-4"	6"	1-4"	10½"	6"
9	1.128	1.000	3.400	9½"	1-3"	11¾"	1-7"				
10	1.270	1.270	4.303	10¾"	1-5"	1-1¼"	1-10"				
11	1.410	1.560	5.313	1-0"	1-7"	1-2¾"	2-0"				
14	1.693	2.250	7.650	1-6¼"	2-3"	1-9¾"	2-7"				
18	2.257	4.000	13.600	2-0"	3-0"	2-4½"	3-5"				

1. FIGURES SHOWN IN CIRCLES REPRESENT BAR BEND TYPES.
2. STANDARD BAR BENDS INCLUDE ONLY THOSE TYPES BELOW, INDICATED AS SUCH.
3. ALL DIMENSIONS INTO-TO-OUT, EXCEPT "A" AND "G" ON STD. 180° AND 135° HOOKS.
4. "J" DIMENSIONS ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD 'ACI' HOOKS ARE TO BE USED.
5. WHERE "J" IS NOT SHOWN, "J" WILL BE KEPT EQUAL TO OR LESS THAN "H" ON TYPES 3, 5 AND 22. WHERE "J" CAN EXCEED "H", IT SHALL BE SHOWN.
6. "H" DIMENSIONS OF STIRRUPS TO BE SHOWN AS NEEDED TO FIT WITHIN THE CONCRETE.
7. UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR (EXCEPT FOR BEND TYPES 11 AND 13).
8. WHERE SLOPE DIFFERS FROM 45° OFFSET, "H" AND "K" MUST BE SHOWN.
9. WHERE BARS ARE TO BE BENT MORE ACCURATELY THAN STANDARD BENDING TOLERANCES, BENDING DIMENSIONS REQUIRING CLOSER FABRICATION SHOULD HAVE LIMITS INDICATED.
10. FOR RECOMMENDED DIAMETER "D", OF BENDS, HOOKS, ETC., REFER TO TABLE ABOVE, 'CRS1' OR 'ACI' TABLES WHERE APPLICABLE AND REQUIRED.
11. TYPE S1-S6, S11, T1-T3 AND T6-T9 APPLICABLE TO BAR SIZES #3 THROUGH #8.

STANDARD BAR BENDS									

STIRRUP AND TIE HOOKS

12d FOR #6, 7, 8
6d FOR #3, 4, 5

DETAILING DIMENSION

BEAM Q

HOOK

A OR G

D

d

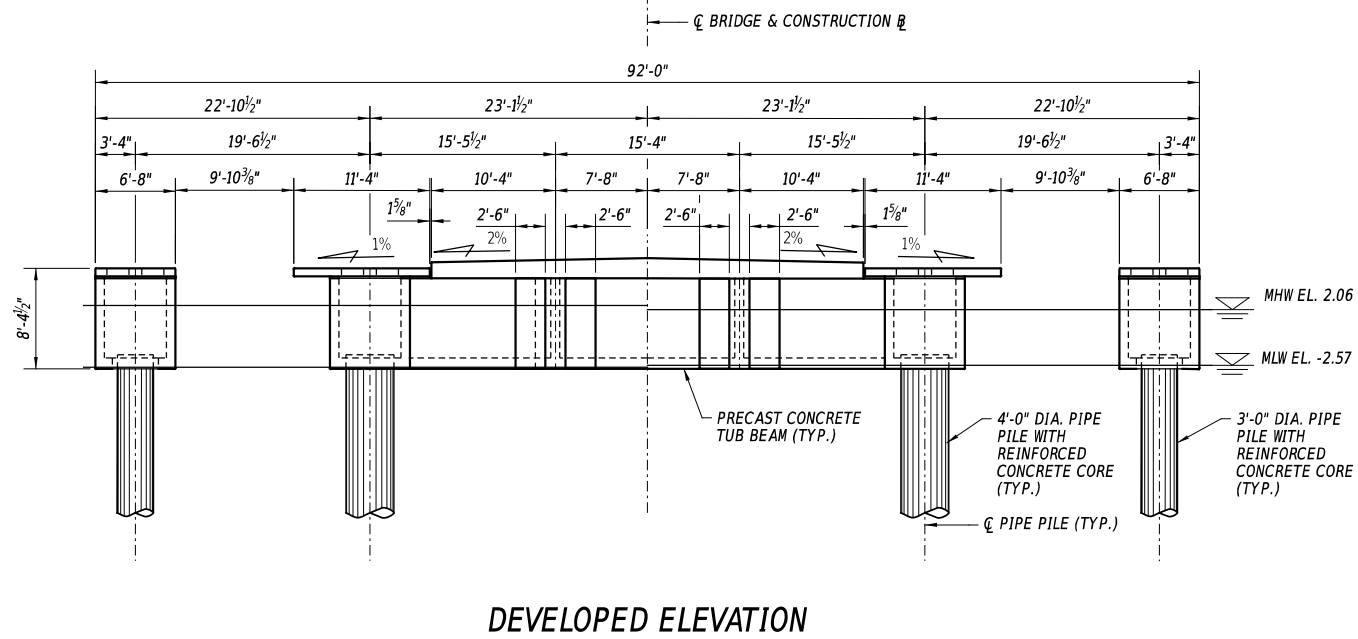
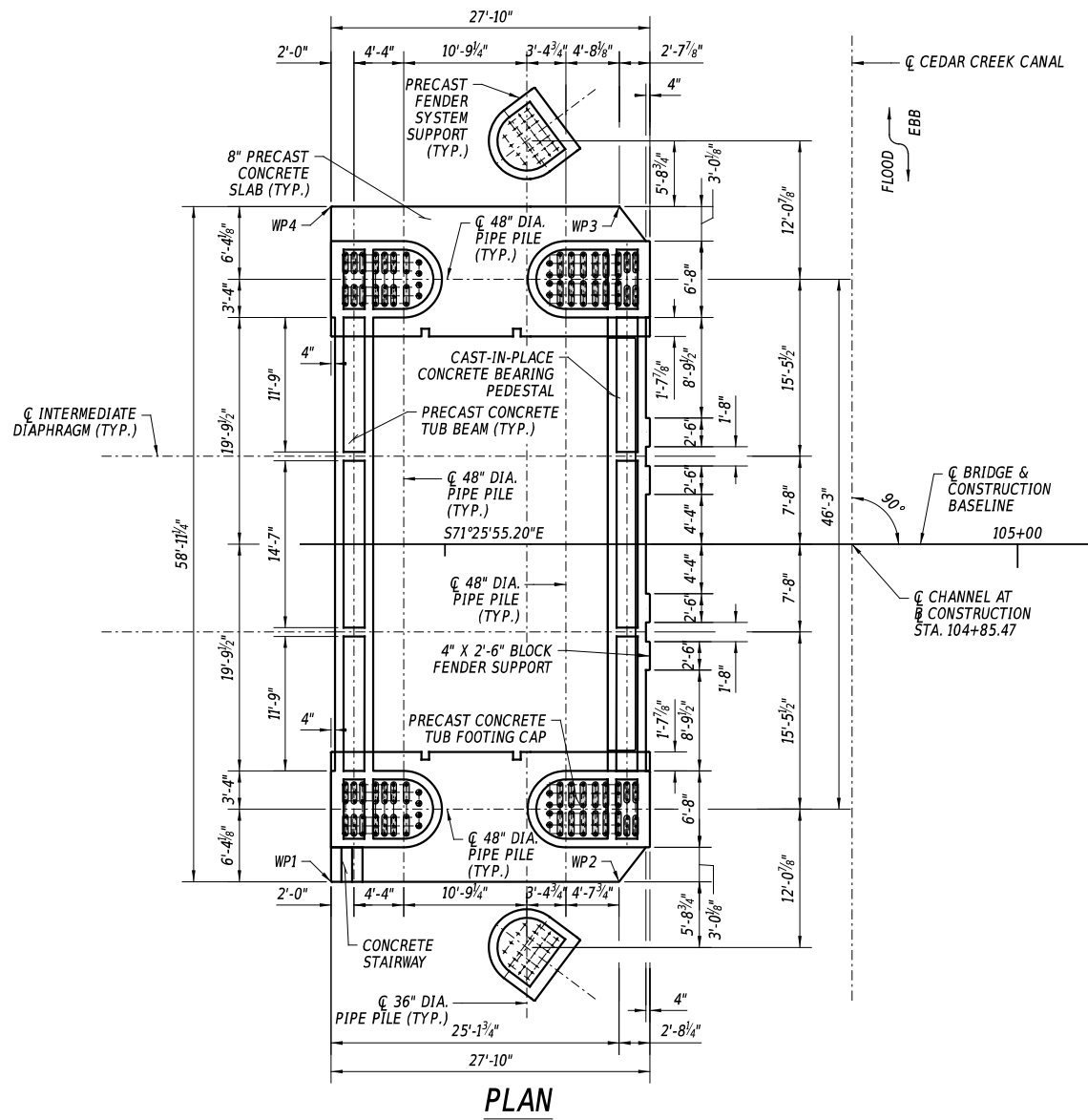
90°

135°

ENLARGED VIEW SHOWING BAR BENDING DETAILS

SPECIAL BAR BENDS									
(X)		<p>SPIRAL NOTES: J = TURNS AT 'F' SPACING K = EXTRA TURNS (HALF TOP & BOTTOM) (XL) PLAIN SPIRAL WITH SPACERS LOOSE (VM) PLAIN SPIRAL WITH SPACERS MOUNTED</p>	(HI)		(H3)		FINAL PLANS		S-22

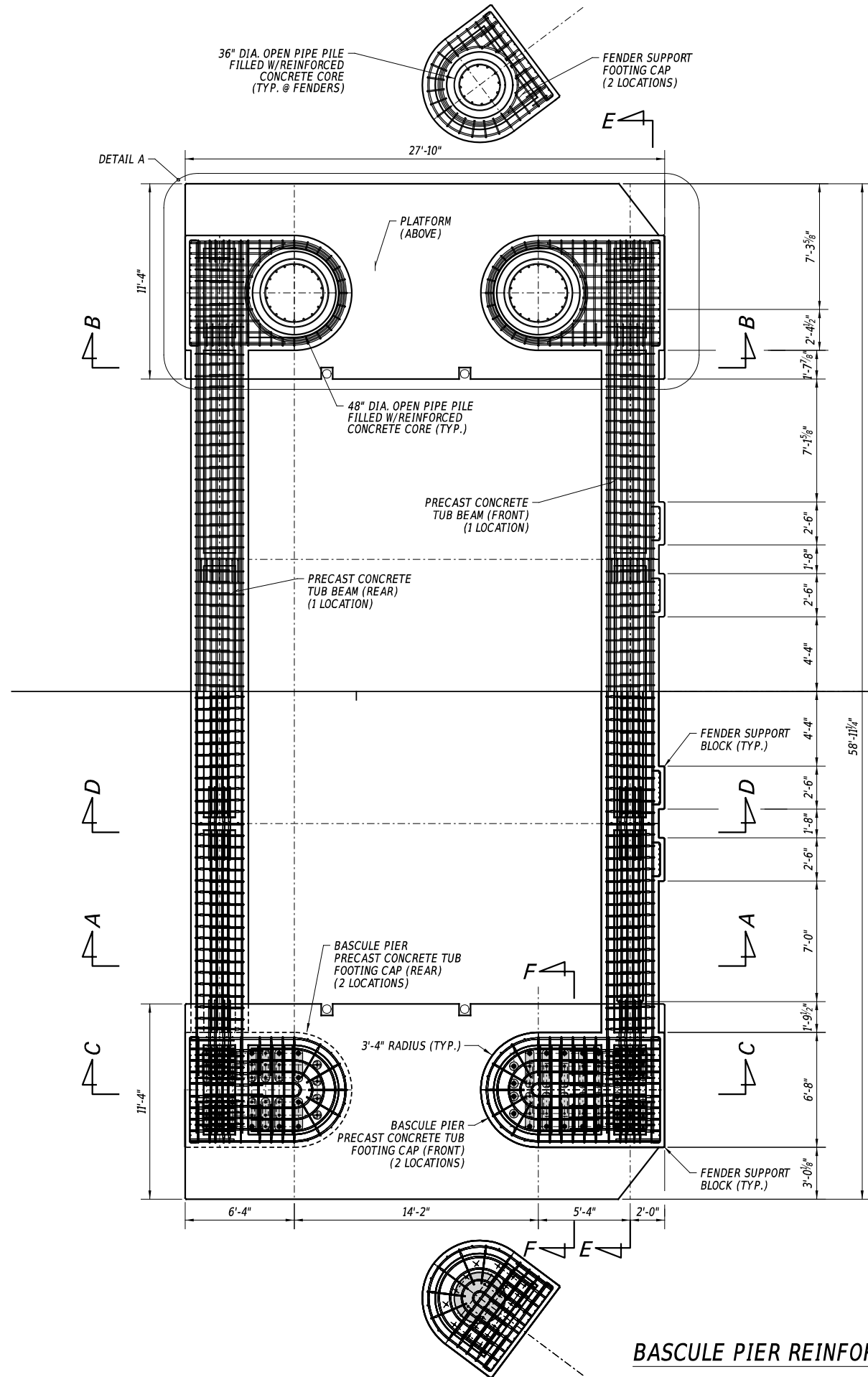
ADDENDA / REVISIONS		REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD	CONTRACT	BRIDGE NO.	3-164	ABUTMENT REINFORCING BAR LIST	SECTION
			T202007301	DESIGNED BY:	C. GRANADO		H&H
			COUNTY				SHEET NO.
			SUSSEX	CHECKED BY:	J. SOTO		31



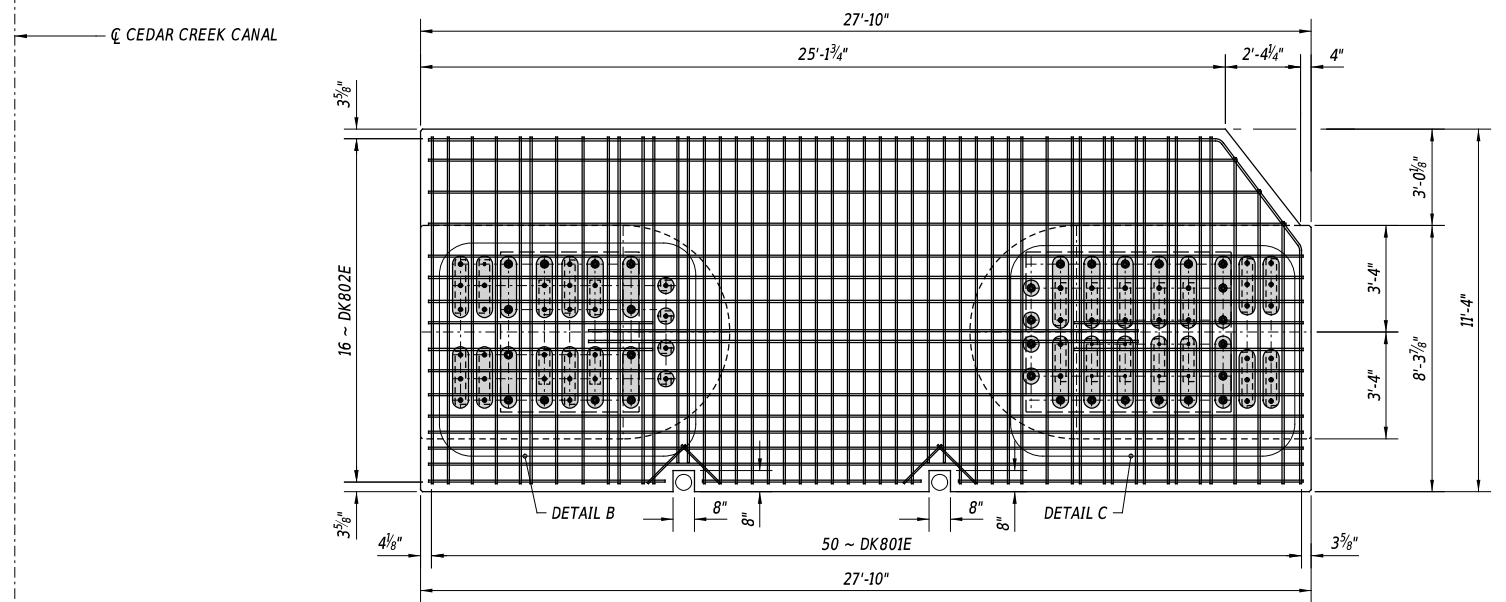
- NOTES:
1. FOR FENDER LAYOUT, SEE SHEET NO. S-36.

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FINAL PLANS				S-23
BASCULE PIER PLAN AND ELEVATION				SECTION
				SHEET NO.
				32
ADDENDA / REVISIONS		REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD		
		CONTRACT T202007301		BRIDGE NO. 3-164
		COUNTY SUSSEX		DESIGNED BY: J. SOTO
				CHECKED BY: C. GRANADOS

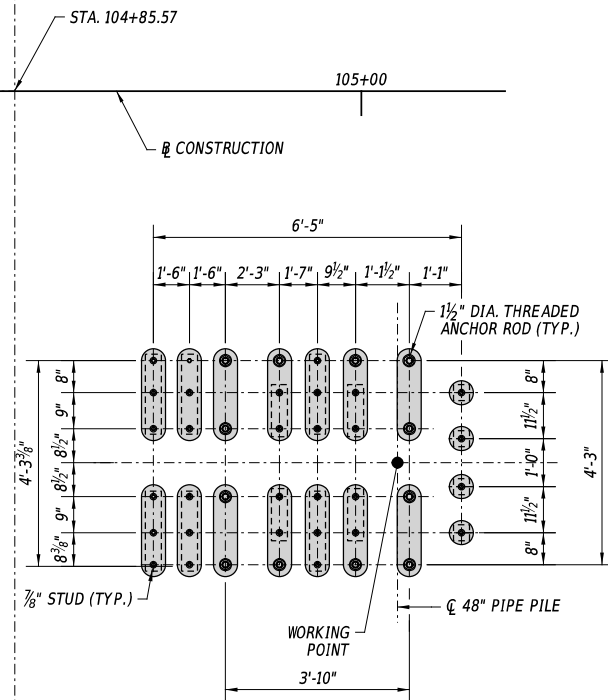


BASCULE PIER REINFORCEMENT PLAN

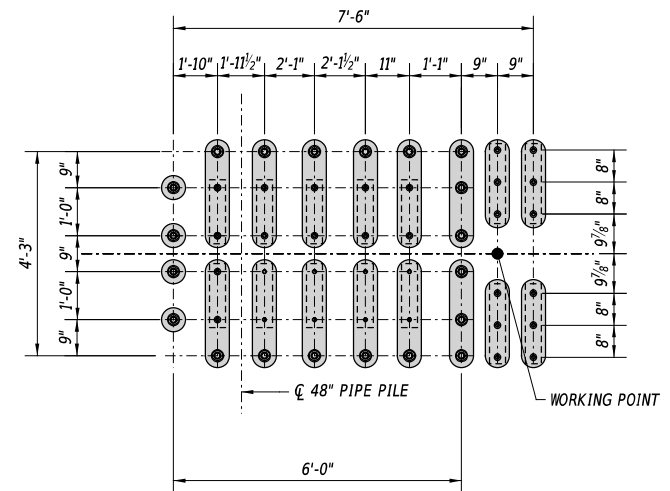


DETAIL A
MAINTANCE PLATFORM DETAIL

NOTE:
COORDINATE BAR SPACING WITH
MECHANICAL DRAWINGS. CUT BARS TO FIT.



DETAIL B



DETAIL C

ANCHOR BOLTS LAYOUT DETAIL

NOTES:
1. FOR SECTIONS A-A, B-B, C-C, D-D, E-E,
AND F-F, SEE DWG NOS. S-26 THRU S-28.



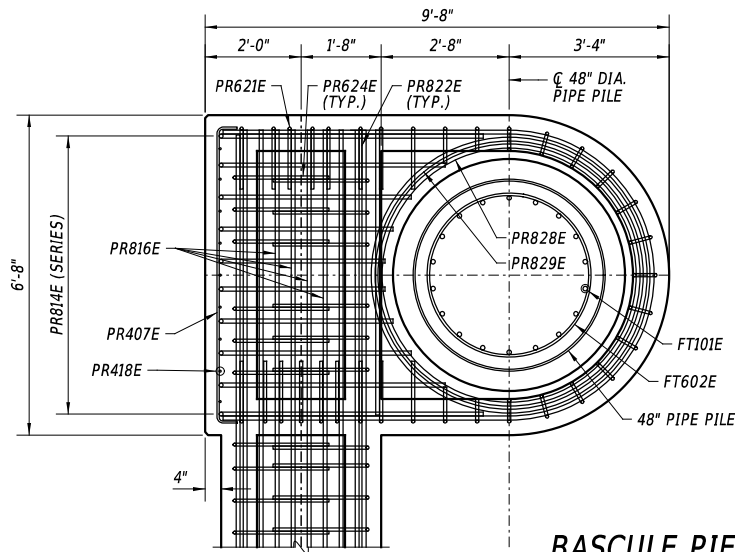
REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	J. SOTO
COUNTY	CHECKED BY:	C. GRANADOS
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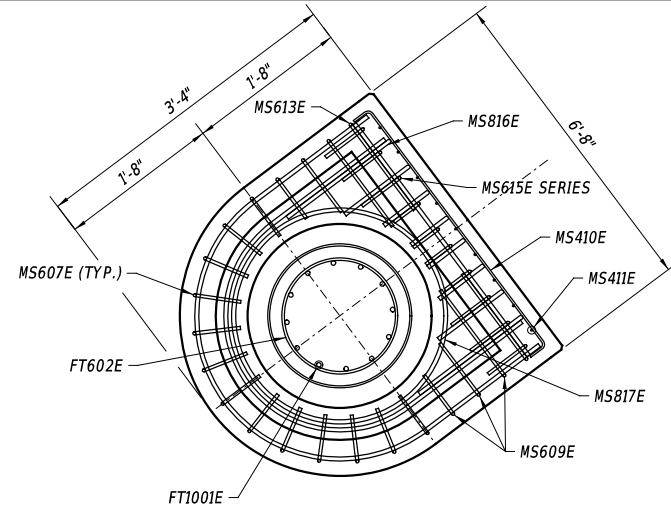
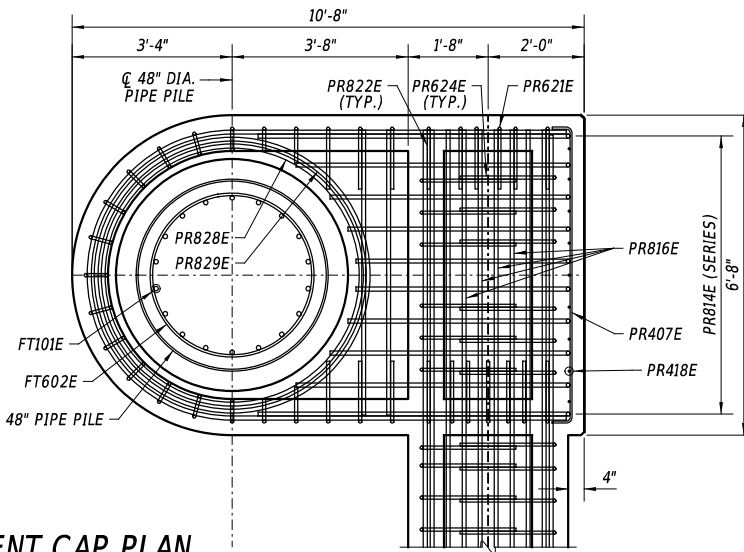
BASCULE PIER DETAILS - 1

FINAL PLANS

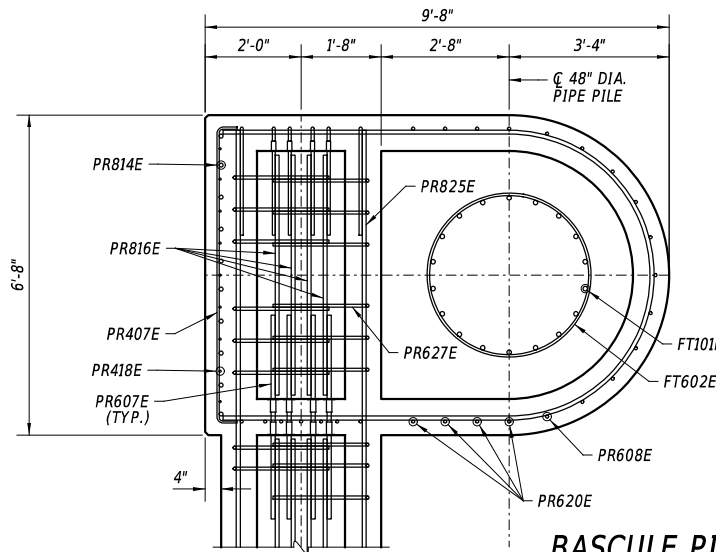
S-24
SECTION
H&H
SHEET NO.
33



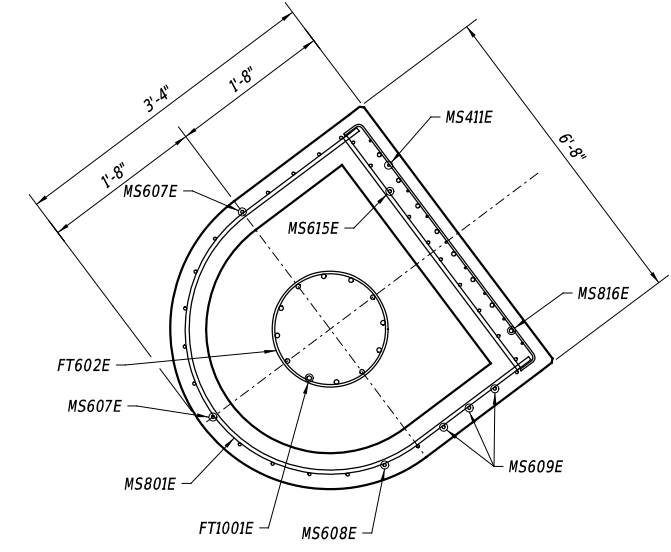
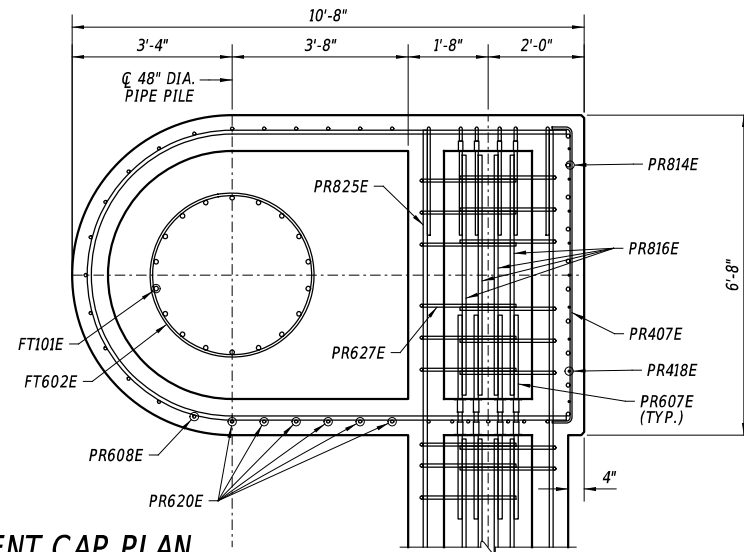
BASCULE PIER REINFORCEMENT CAP PLAN
(BOTTOM OF CAP SHOWN)



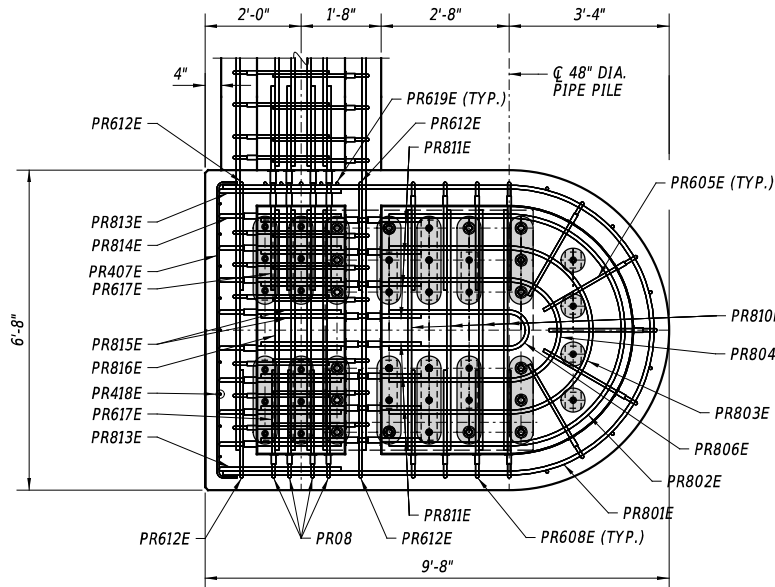
BASCULE PIER FENDER REINFORCEMENT CAP PLAN
(BOTTOM OF CAP SHOWN)



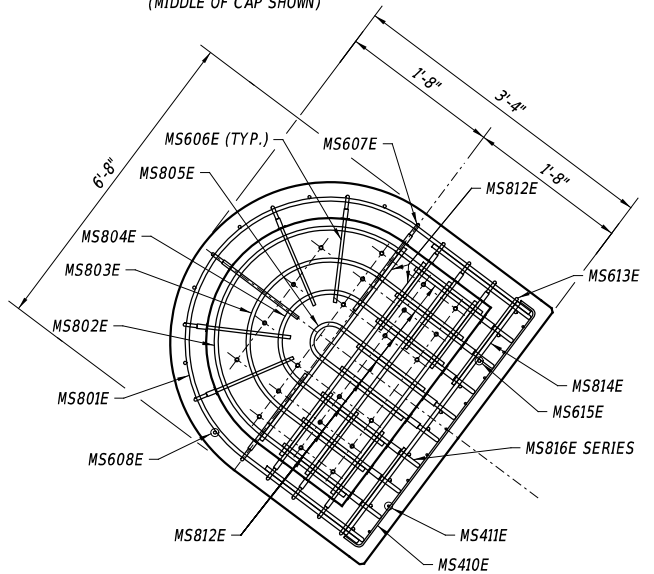
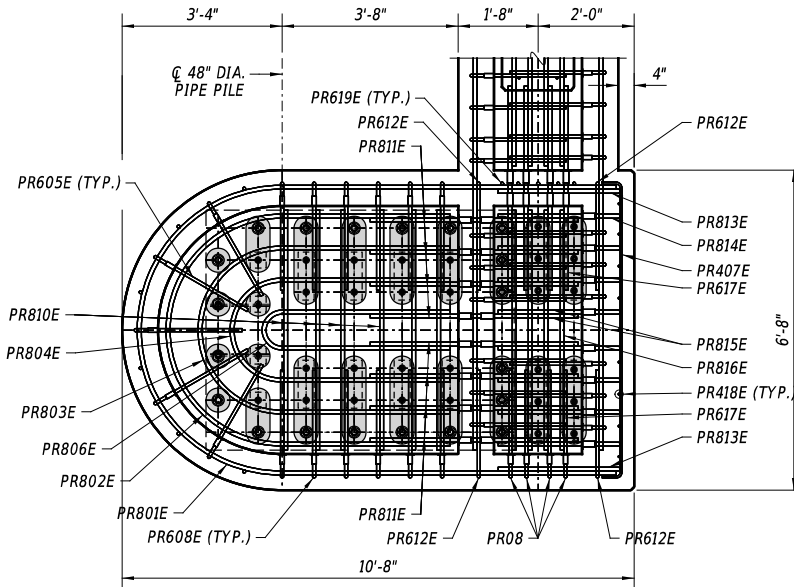
BASCULE PIER REINFORCEMENT CAP PLAN
(MIDDLE OF CAP SHOWN)



BASCULE PIER FENDER REINFORCEMENT CAP PLAN
(MIDDLE OF CAP SHOWN)



BASCULE PIER REINFORCEMENT CAP PLAN
(TOP OF CAP SHOWN)



BASCULE PIER FENDER REINFORCEMENT CAP PLAN
(TOP OF CAP SHOWN)

ADDENDA / REVISIONS	



**REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD**

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	J.SOTO
COUNTY	CHECKED BY:	C. GRANADOS
SUSSEX		

BASCULE PIER DETAILS - 2

FINAL PLANS

S-25

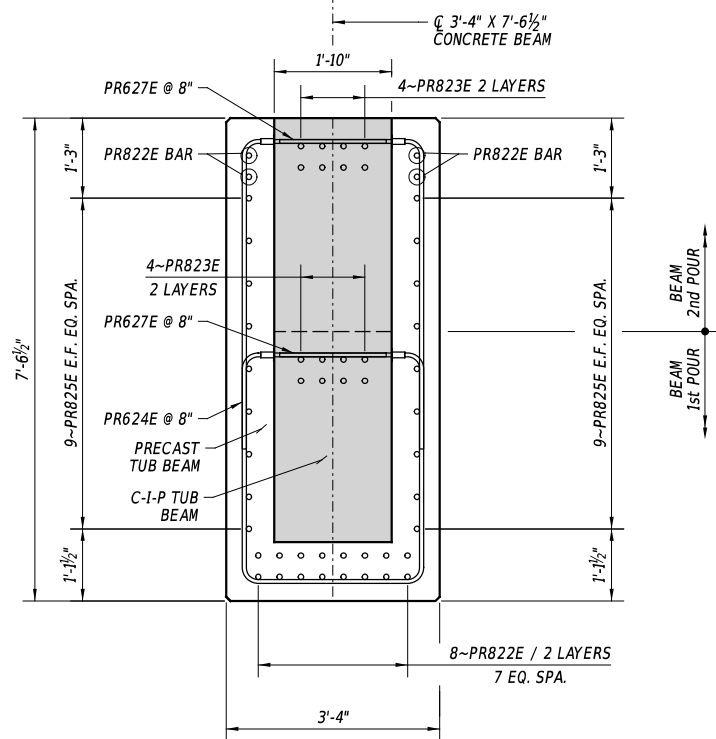
SECTION

H&H

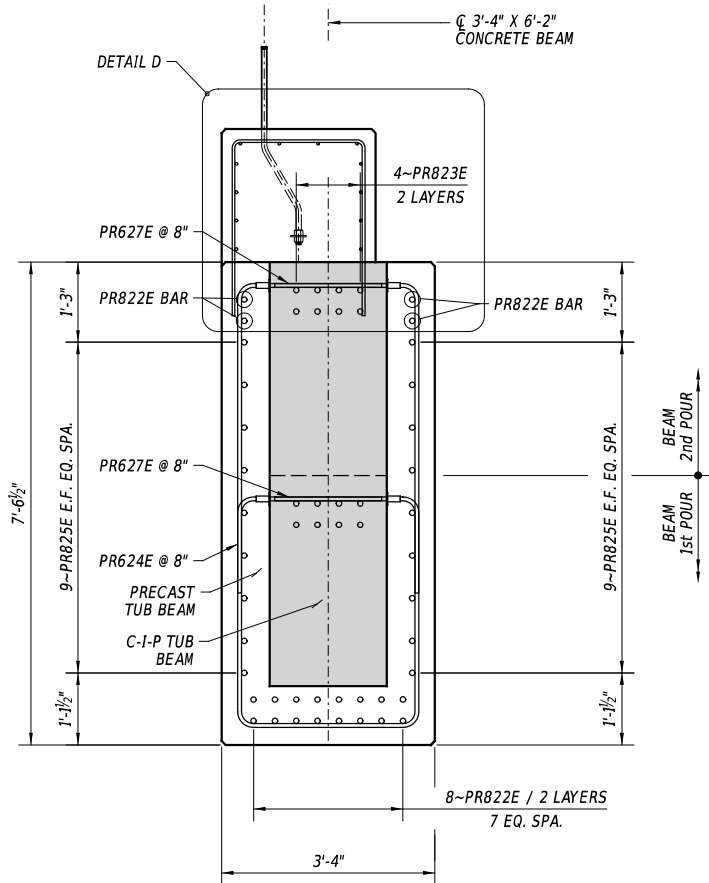
SHEET NO.

34

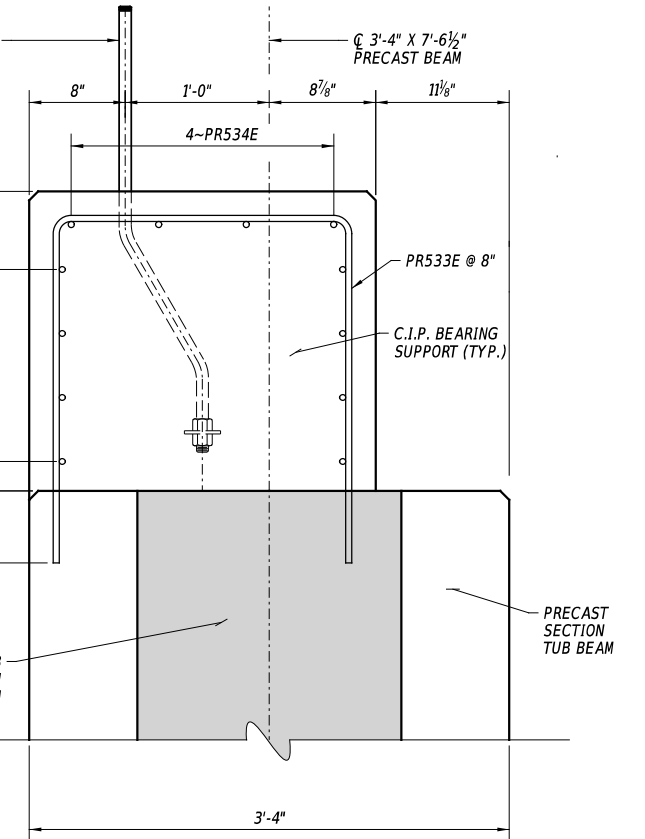
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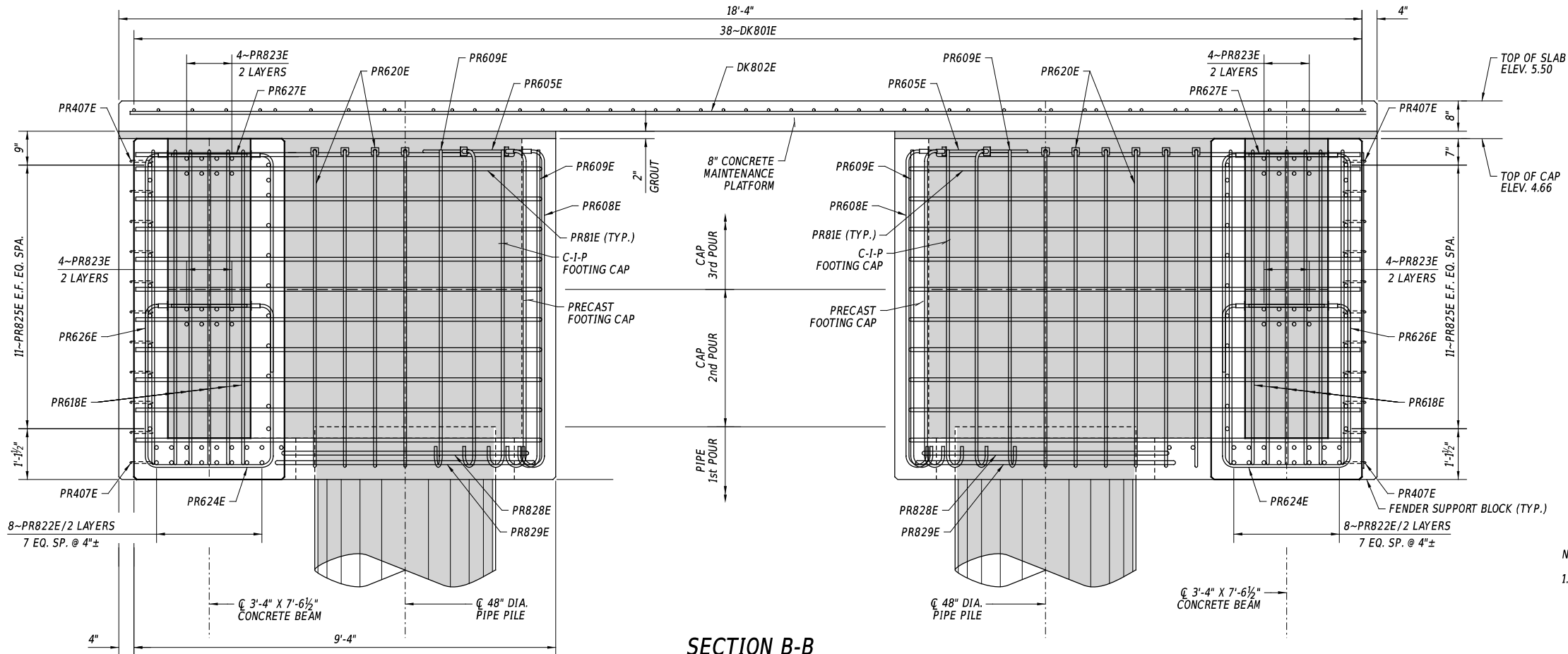
SECTION A-A
(THRU TUB BEAM)



1" DIA. ANCHOR BOLT (SEE SUPERSTRURE DETAILS)
(COORDINATE SPACING WITH PRESTRESSED PRECAST BEAM 2 1/2" DIA. DOWEL HOLE OPENINGS)



DETAIL D



SECTION B-B

LEGEND:

- PRECAST
- CAST IN PLACE

NOTES:

- FOR SECTIONS A-A AND B-B, SEE DWG. NO. S-24.

FINAL PLANS

S-26

SECTION

H&H

SHEET NO.

35

ADDENDA / REVISIONS



REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

CONTRACT

T202007301

COUNTY

SUSSEX

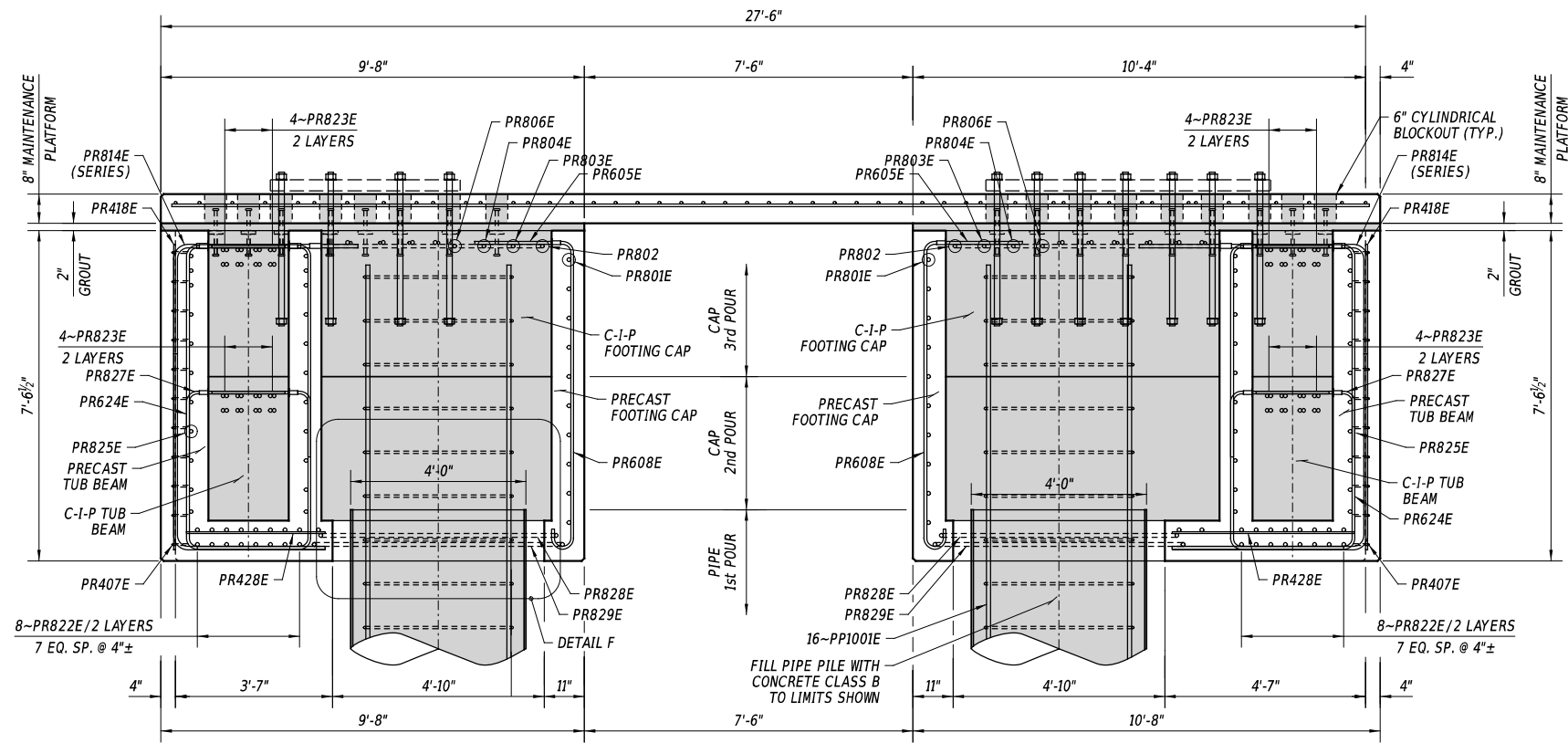
BRIDGE NO.

3-164

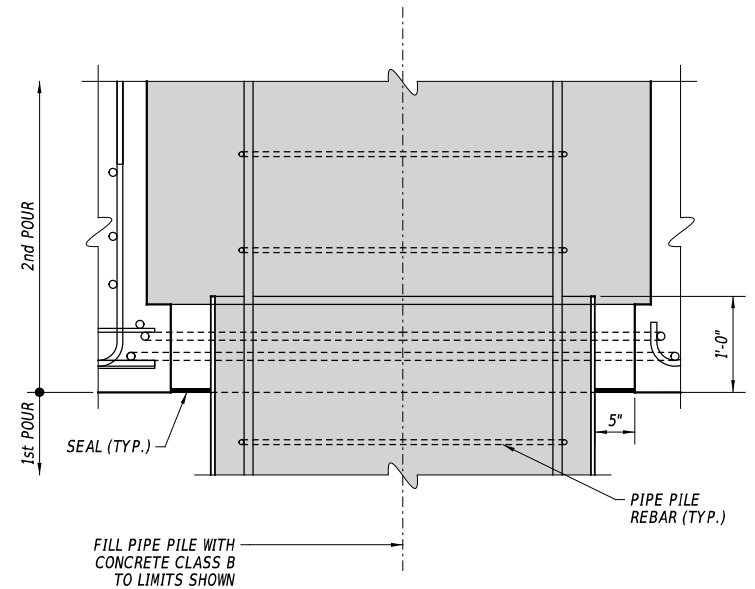
DESIGNED BY: J. SOTO

CHECKED BY: C. GRANADOS

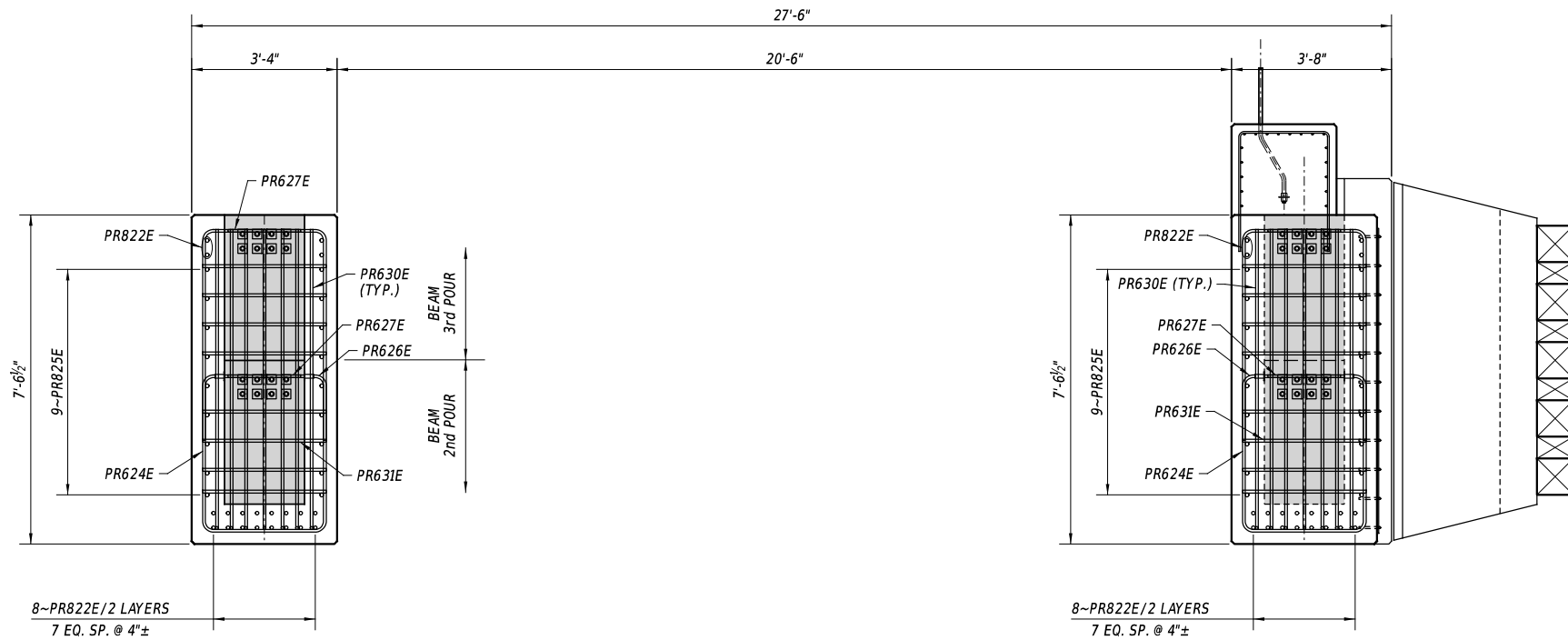
BASCULE PIER DETAILS - 3



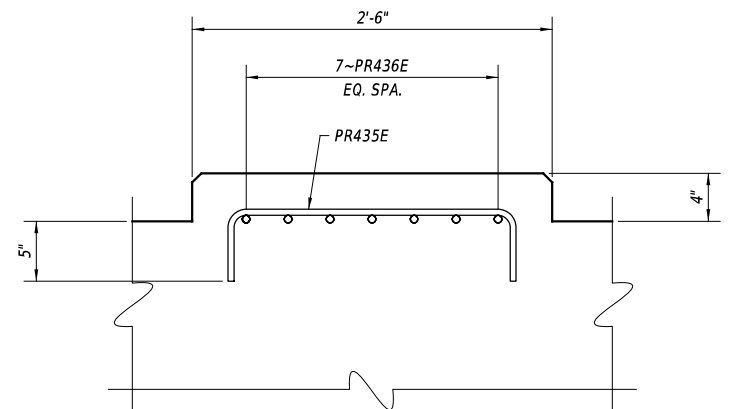
SECTION C-C
(THRU CENTER OF CAP)



DETAIL F



SECTION D-D
(THRU DIAPHRAGM)



SECTION THRU FENDER SUPPORT

- NOTES:
- COORDINATE ANCHOR BOLT LAYOUT WITH BASCULE PIER DETAILS 1 DWG. AND MECHANICAL DWGS.

LEGEND:

- PRECAST
CAST IN PLACE

- NOTES:
- FOR SECTIONS C-C AND D-D, SEE SHEET NO. S-24.
 - COORDINATE ANCHOR BOLT LAYOUT WITH DWG. NO. S-24 AND MECHANICAL DWGS.

ADDENDA / REVISIONS



**REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD**

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	J.SOTO
COUNTY	CHECKED BY:	C. GRANADOS
SUSSEX		

BASCULE PIER DETAILS - 4

FINAL PLANS

S-27

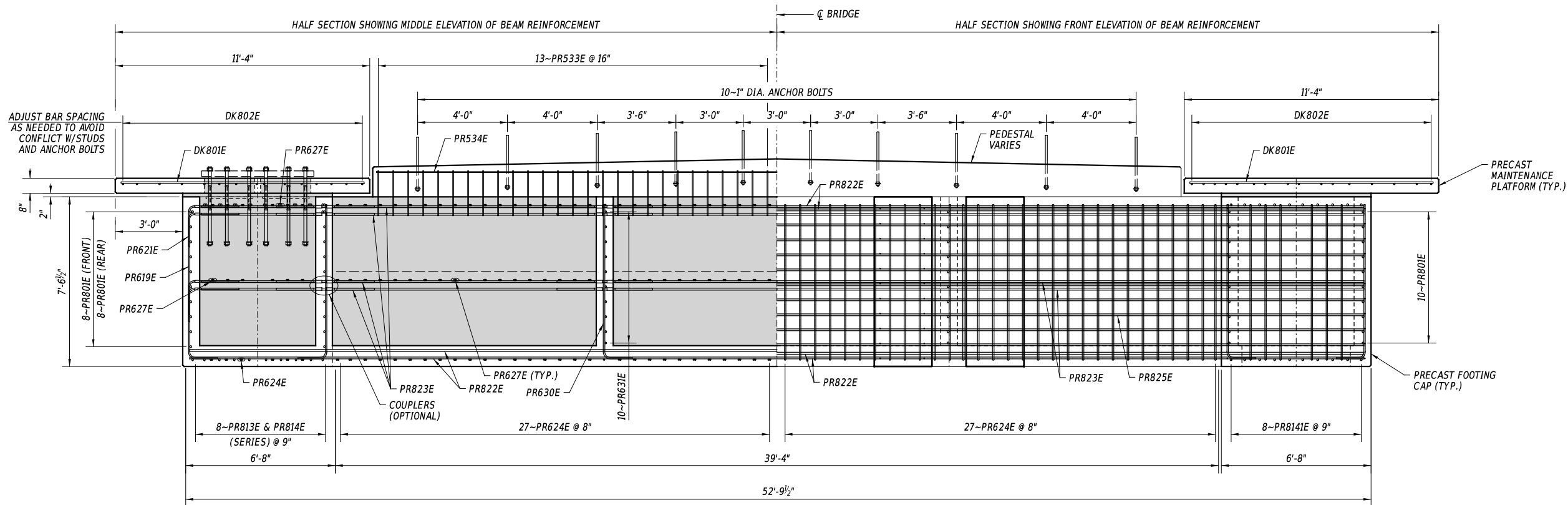
SECTION

H&H

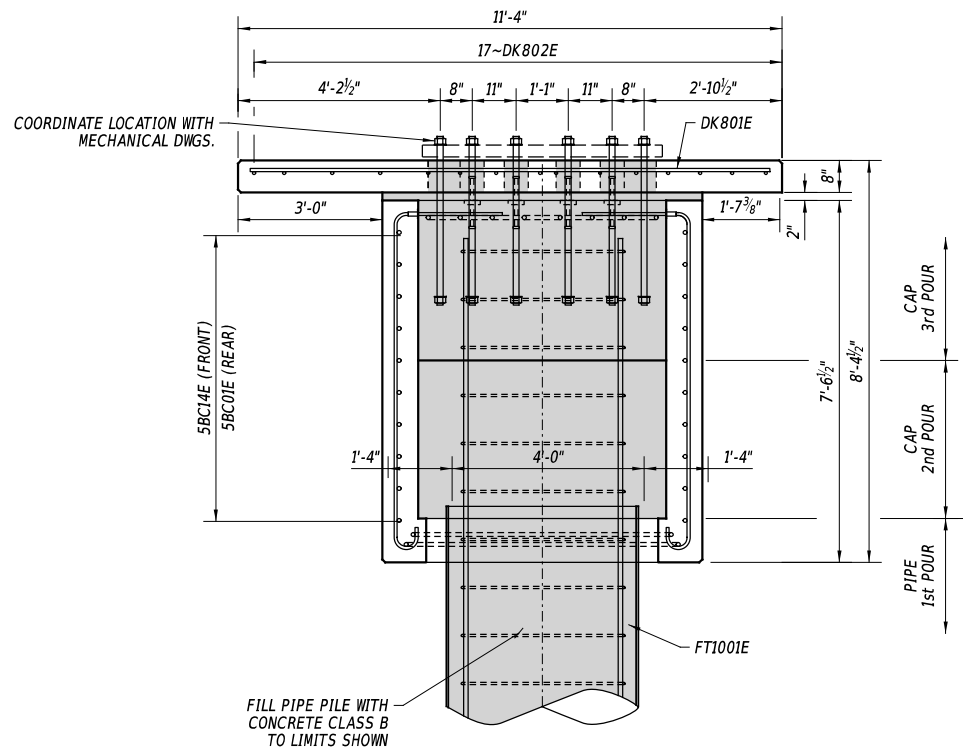
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36

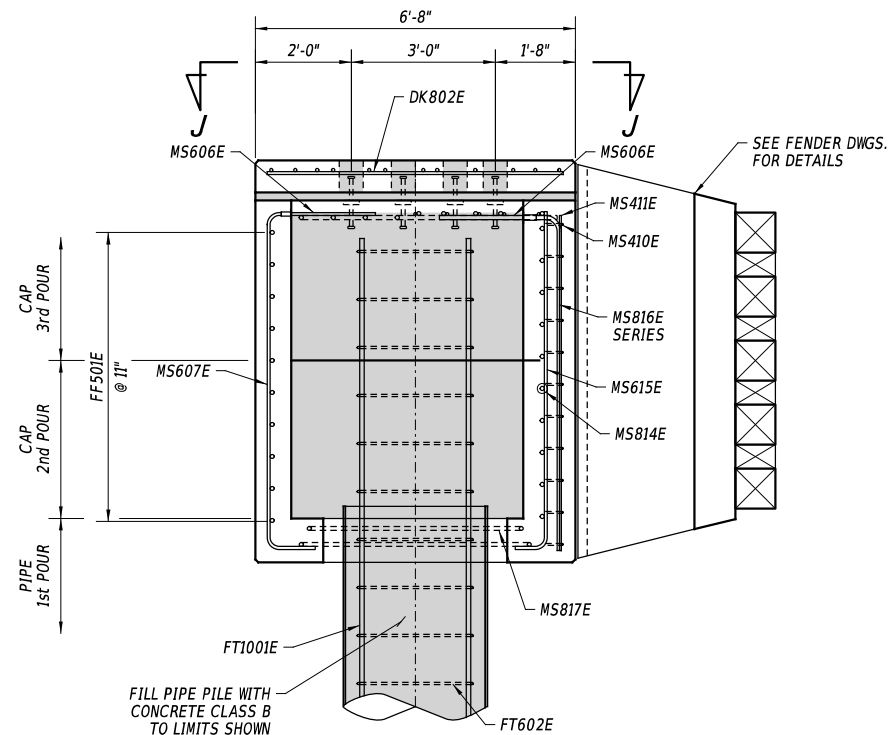
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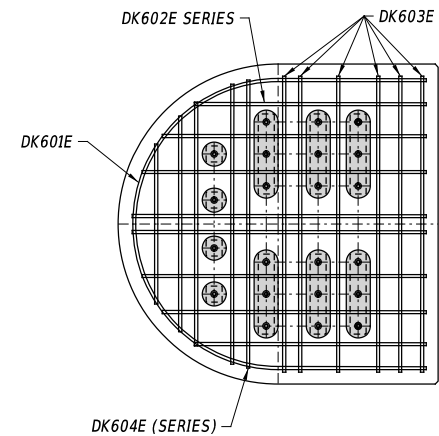
SECTION E-E



SECTION F-F



SECTION AT FENDER SUPPORT



SECTION J-J

- NOTES:
1. FOR SECTION E-E AND F-F, SEE DWG. NO. S-24.

LEGEND:

- PRECAST
- CAST IN PLACE

ADDENDA / REVISIONS	



REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	J. SOTO
COUNTY	CHECKED BY:	C. GRANADOS
SUSSEX		

BASCULE PIER DETAILS - 5

FINAL PLANS

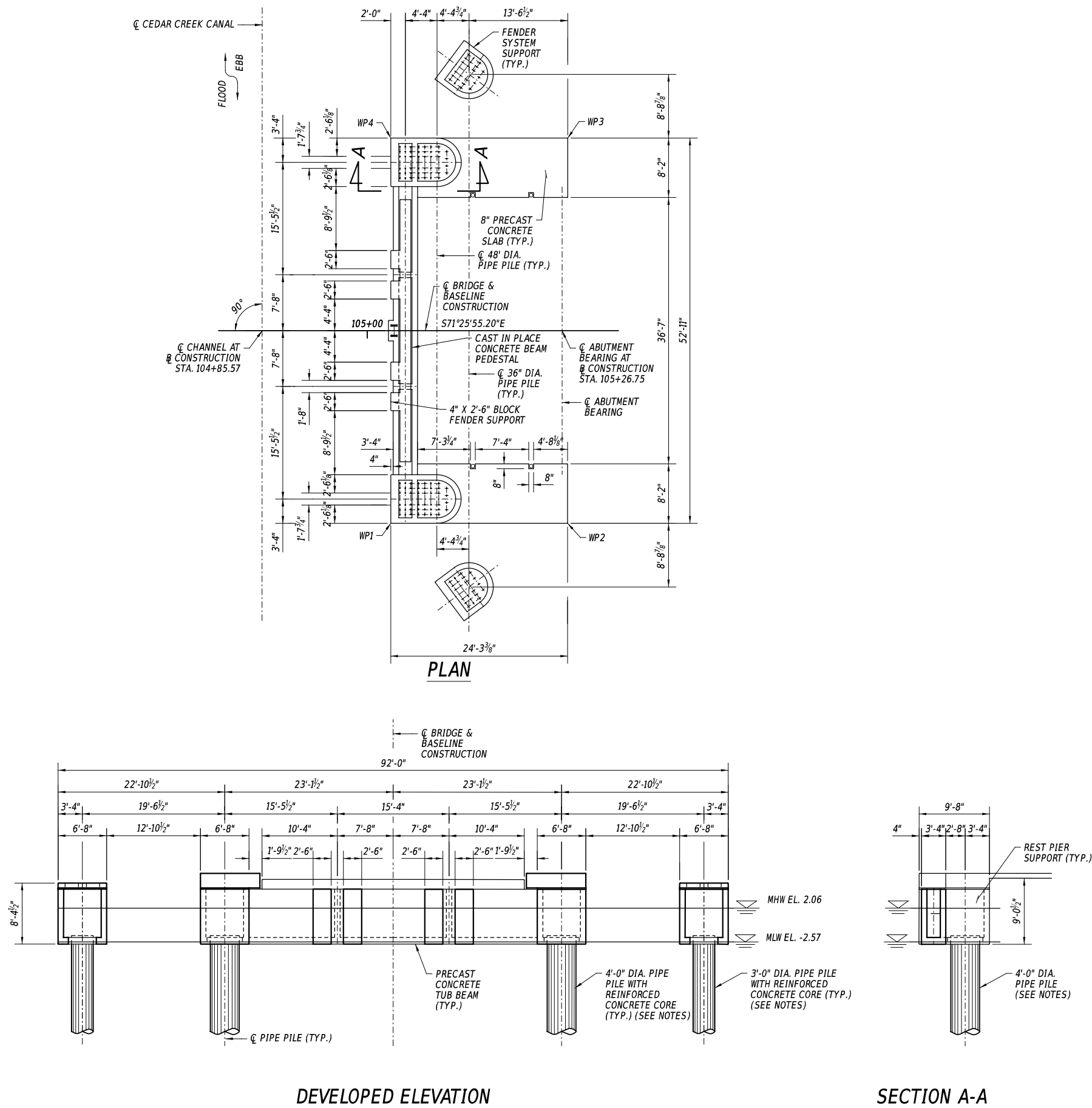
S-28

SECTION

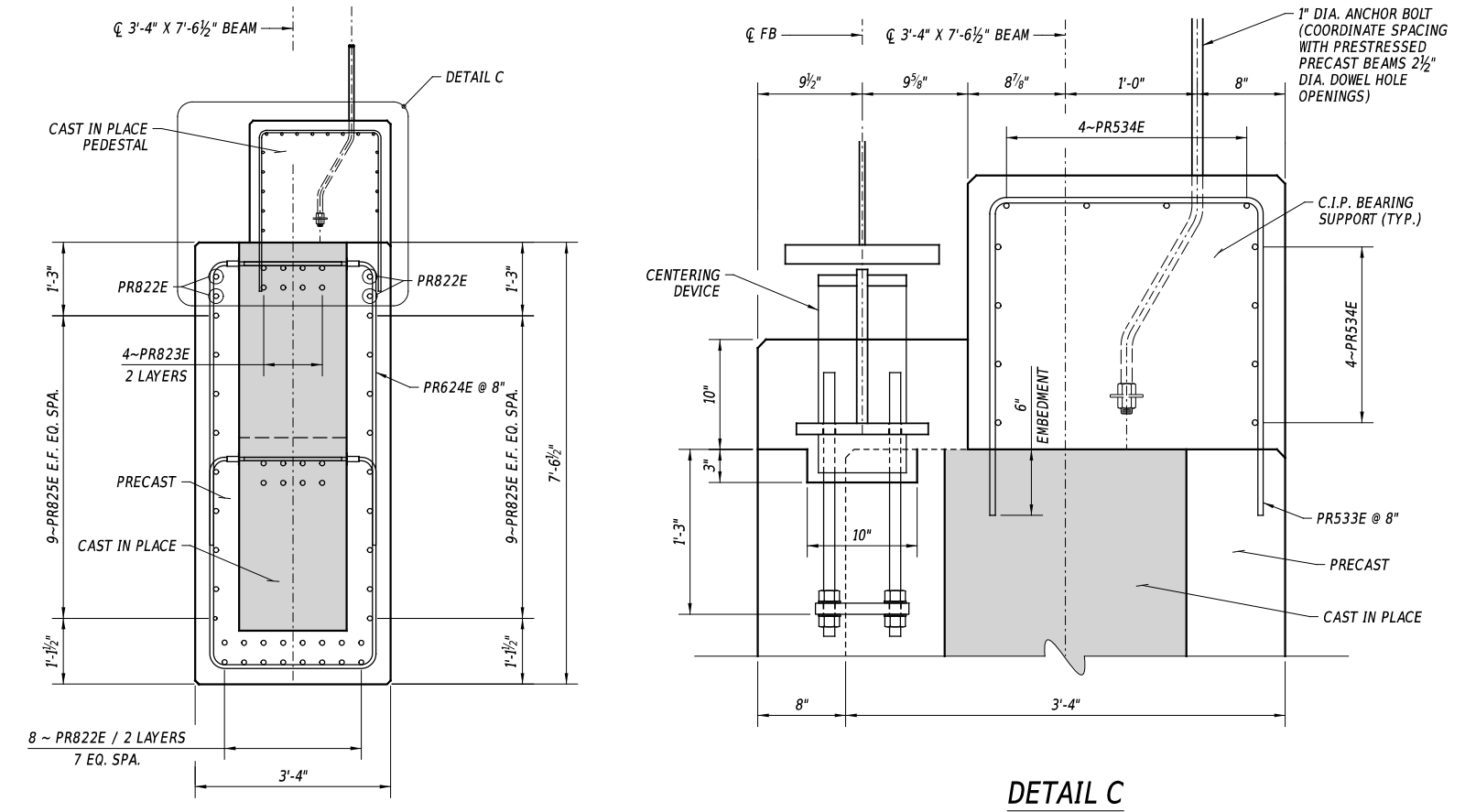
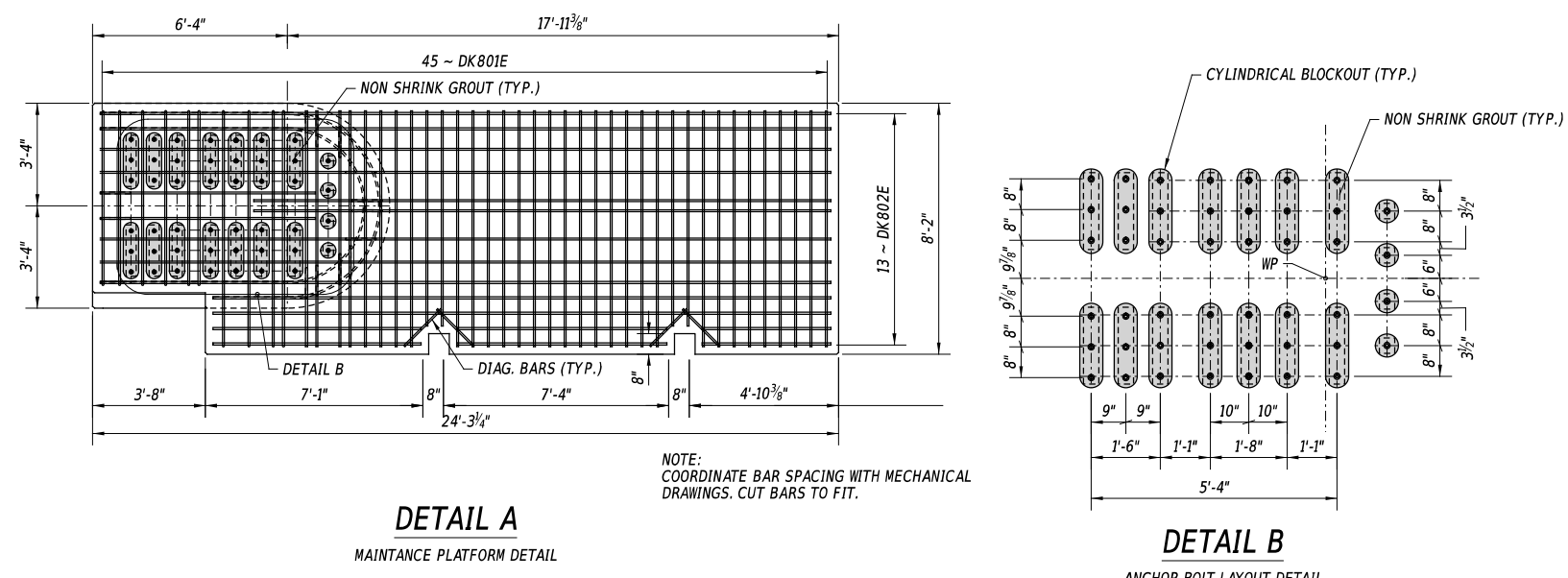
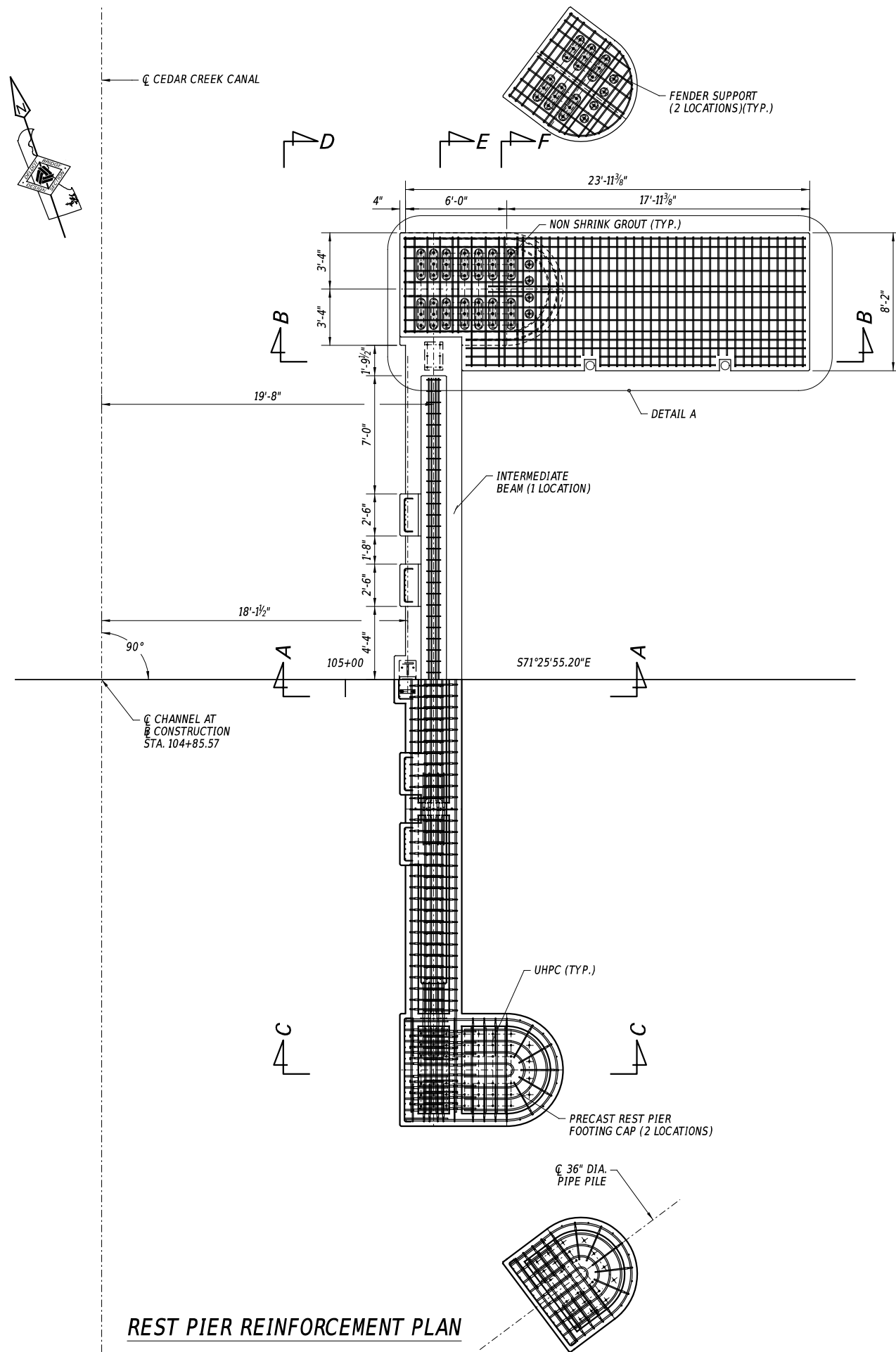
H&H

SHEET NO.


37




1. FOR FENDER LAYOUT, SEE DWG. NO. S-36.





LEGEND:

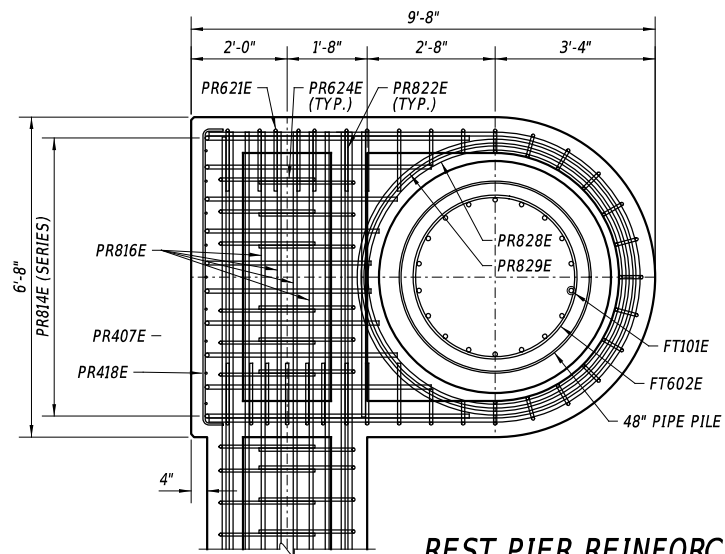
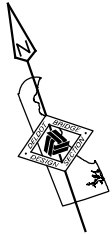
 PRECAST

 CAST IN PLACE

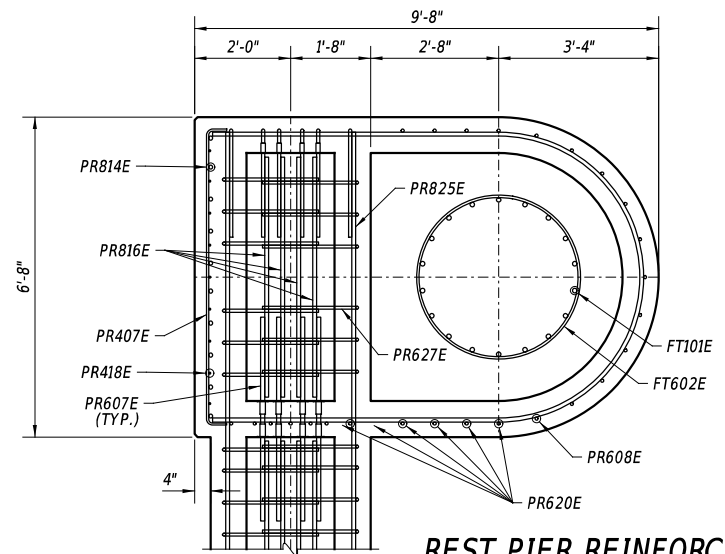
NOTES:

1. FOR SECTIONS B-B, C-C, D-D, E-E, AND F-F, SEE DWG. NOS. S-32 AND S-33.

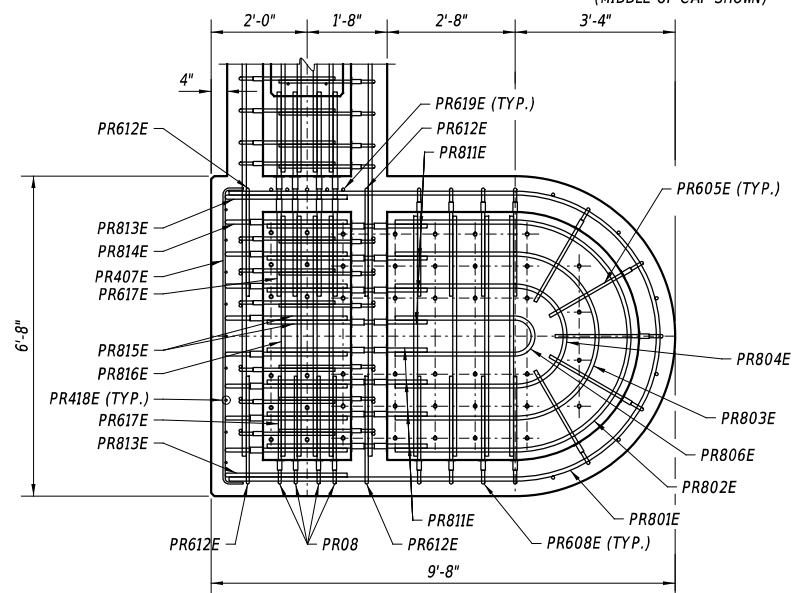
<div> <div>  </div> <div>  </div> </div>		<div> <div>REPLACEMENT OF BR 3-164 ON</div> <div>SR 36 CEDAR BEACH ROAD</div> </div>	<div>CONTRACT</div> <div>T202007301</div>	<div>BRIDGE NO.</div> <div>3-164</div>	<div>REST PIER DETAILS - 1</div>	<div>SECTION</div> <div>H&H</div>
<div>ADDENDA / REVISIONS</div>			<div>COUNTY</div> <div>SUSSEX</div>	<div>DESIGNED BY:</div> <div>D. CASTILLO</div>		<div>SHEET NO.</div> <div>39</div>
				<div>CHECKED BY:</div> <div>C. GRANADOS</div>		



REST PIER REINFORCEMENT PLAN
(BOTTOM OF CAP SHOWN)



REST PIER REINFORCEMENT PLAN
(MIDDLE OF CAP SHOWN)



REST PIER REINFORCEMENT PLAN
(TOP OF CAP SHOWN)

ADDENDA / REVISIONS



**REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD**

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	D. CASTILLO
COUNTY	CHECKED BY:	C. GRANADOS
SUSSEX		

REST PIER DETAILS - 2

FINAL PLANS

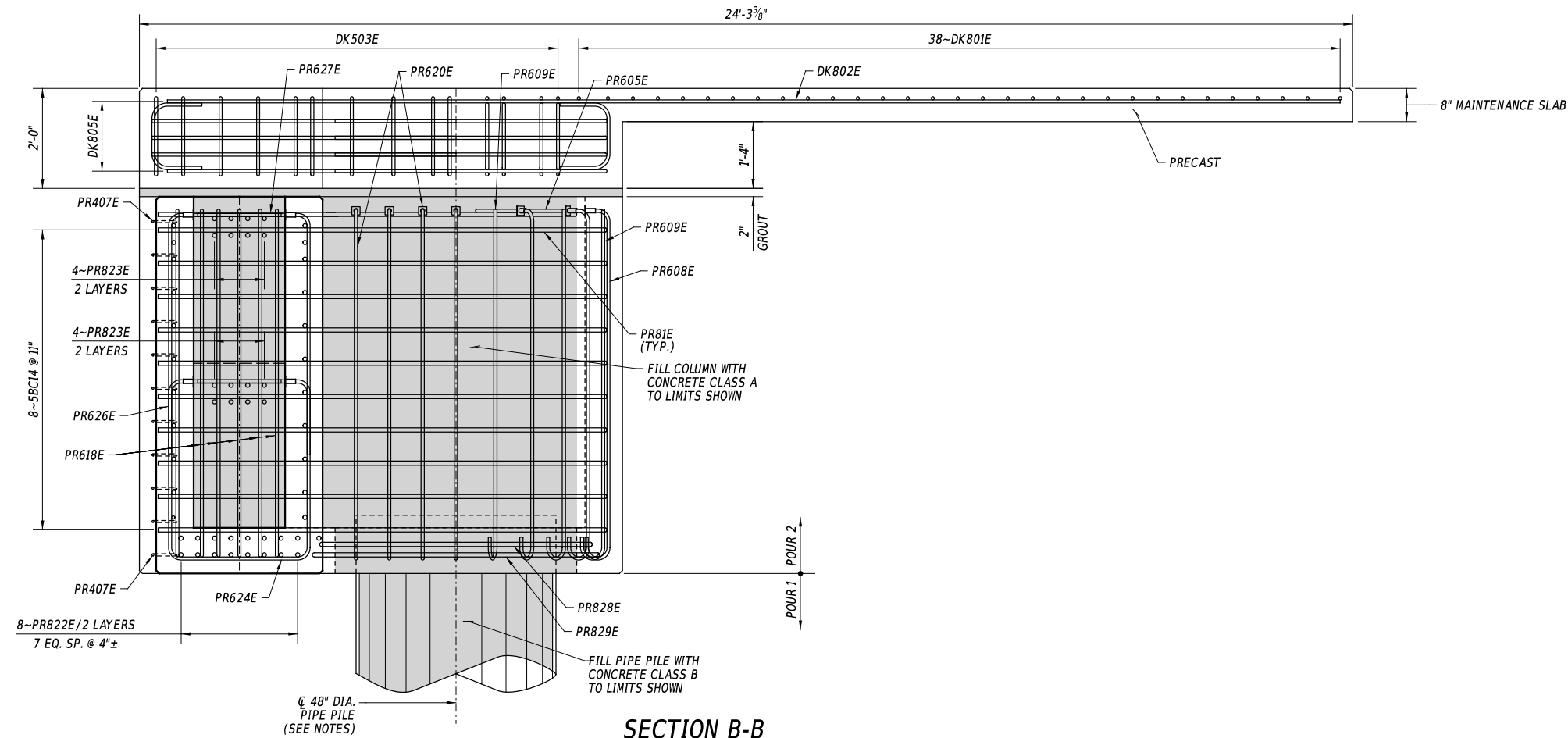
S-31

SECTION

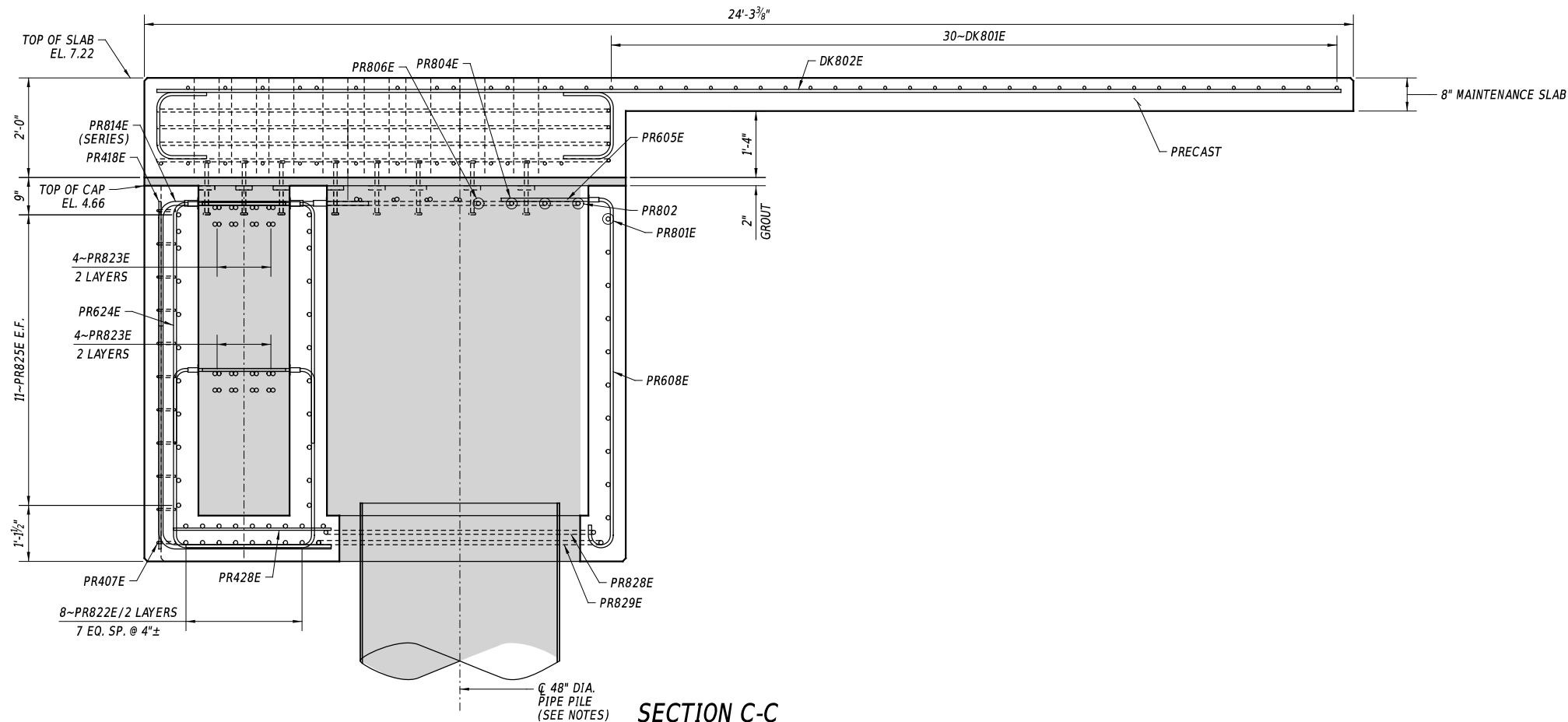
SHEET NO.

40

1-AUG-2022
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SECTION B-B



SECTION C-C

LEGEND:

- PRECAST
■ CAST IN PLACE

NOTES:

1. FOR SECTIONS B-B AND C-C, SEE DWG. NO. S-30.

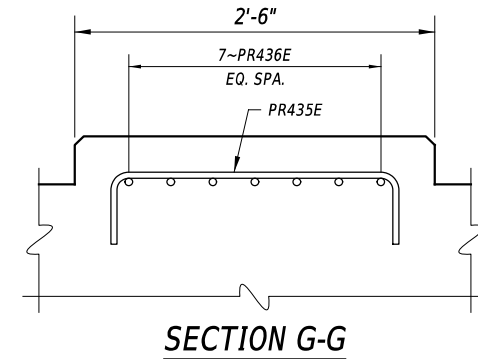
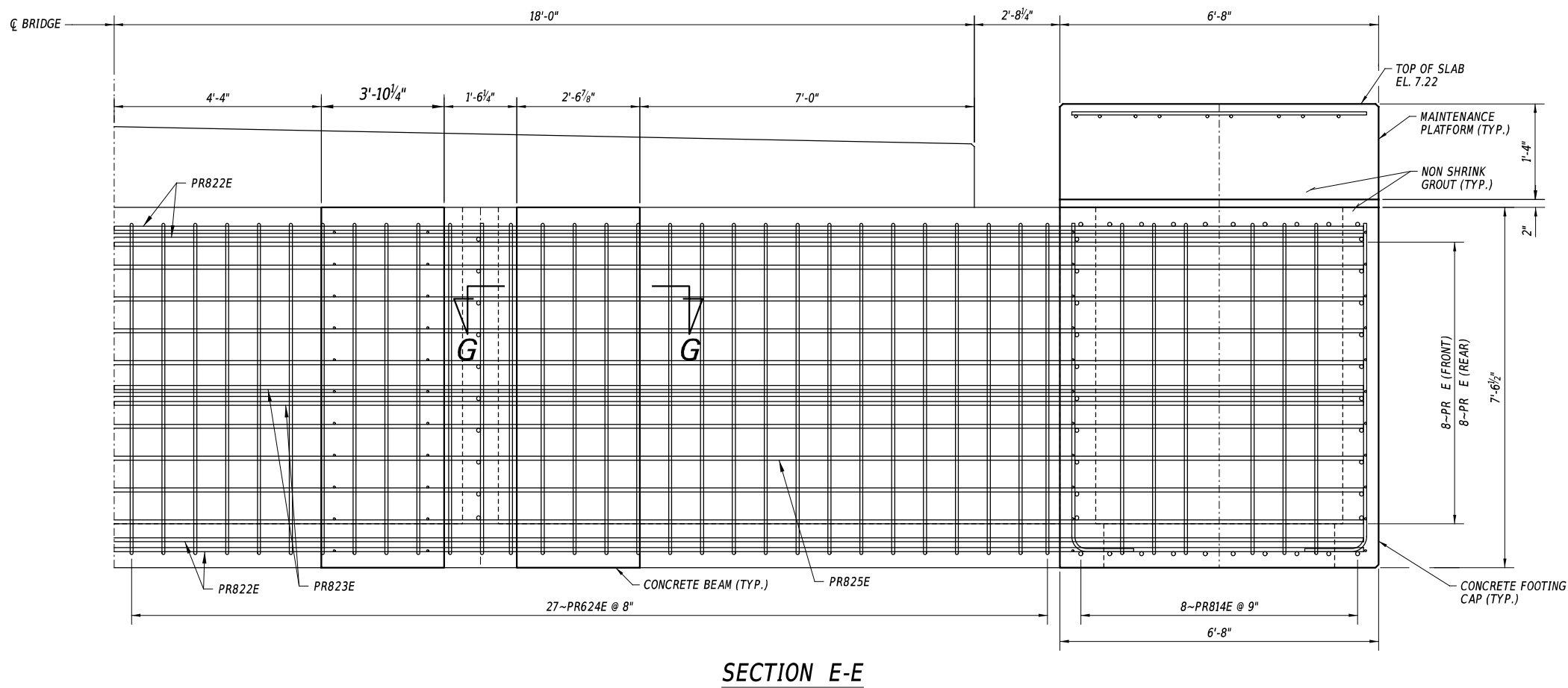
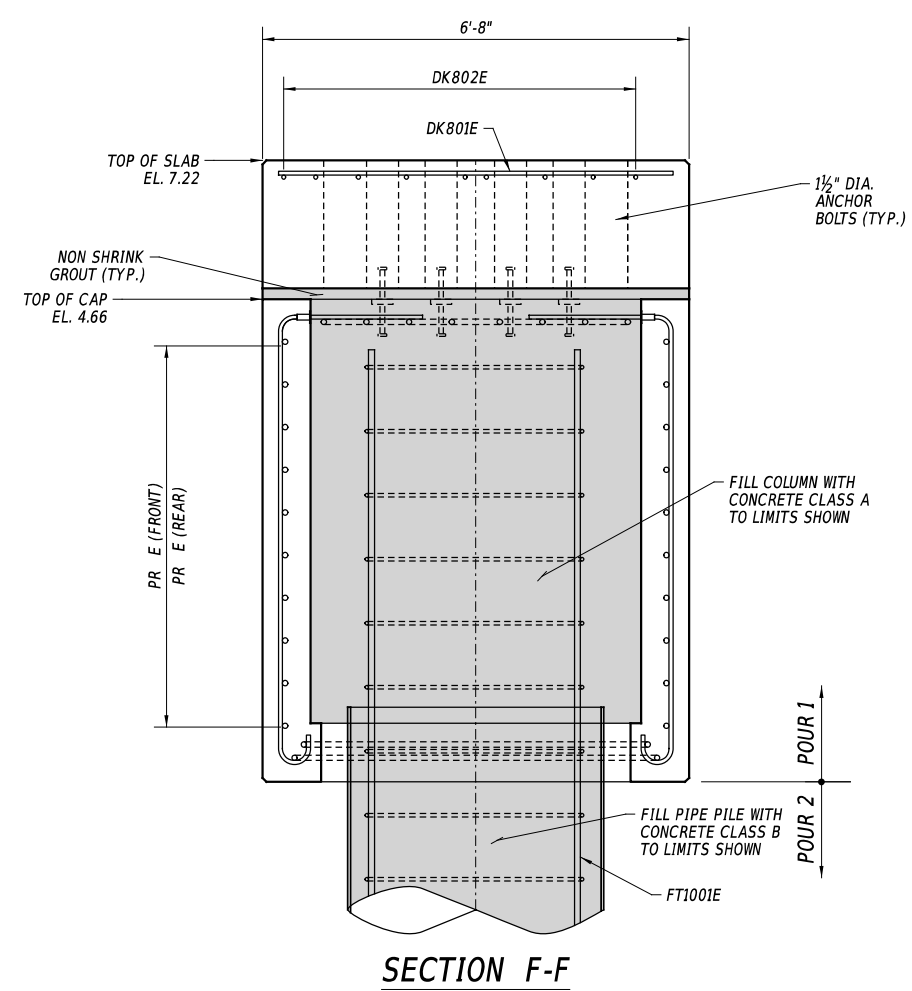
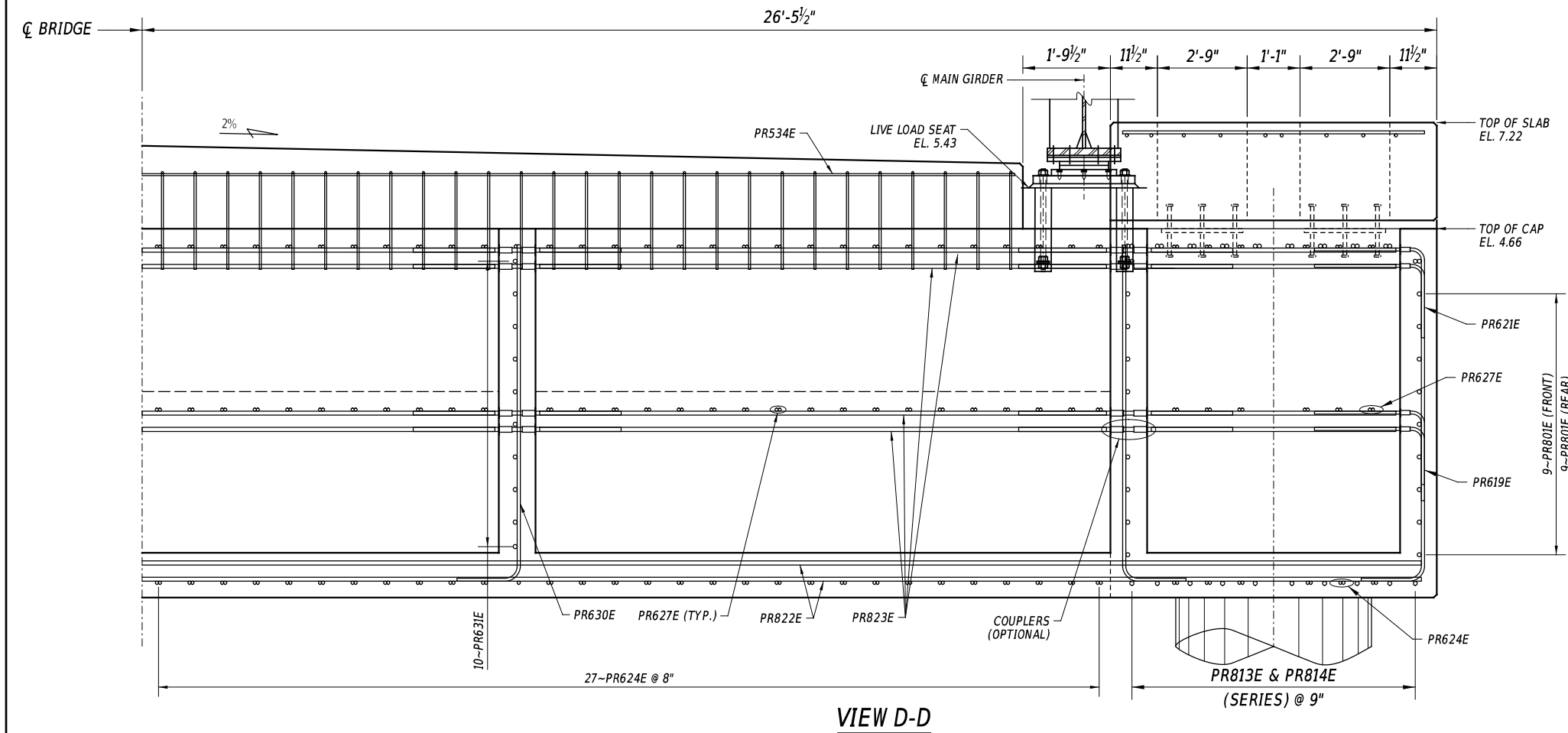
ADDENDA / REVISIONS	



REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

				FINAL PLANS		S-32	
CONTRACT		BRIDGE NO.	3-164	REST PIER DETAILS - 3			
T202007301							
COUNTY		DESIGNED BY: D. CASTILLO					
SUSSEX		CHECKED BY: C. GRANADOS					
						SECTION	
						H&H	
						SHEET NO.	
						41	

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- NOTES:
1. FOR VIEW D-D AND SECTIONS E-E AND F-F, SEE DWG. NO. S-30.

LEGEND:

- PRECAST
- CAST IN PLACE

FINAL PLANS				S-33
REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD				SECTION
REST PIER DETAILS - 4				SHEET NO.
				42

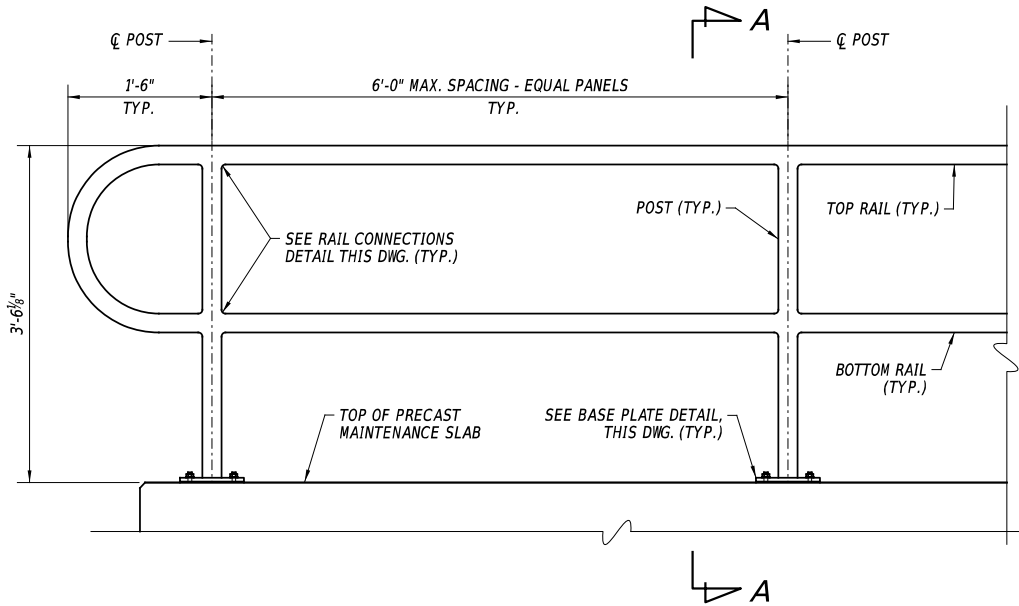
ADDENDA / REVISIONS	

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	D. CASTILLO
COUNTY	CHECKED BY:	C. GRANADOS
SUSSEX		

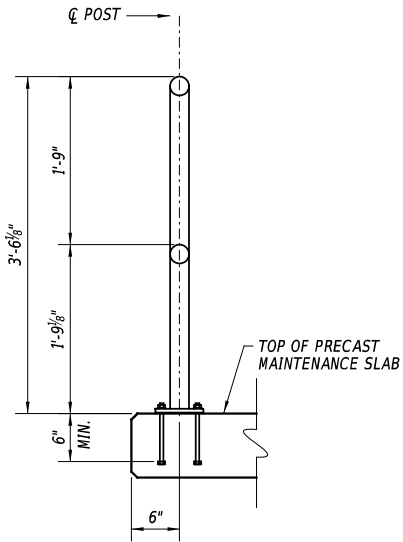
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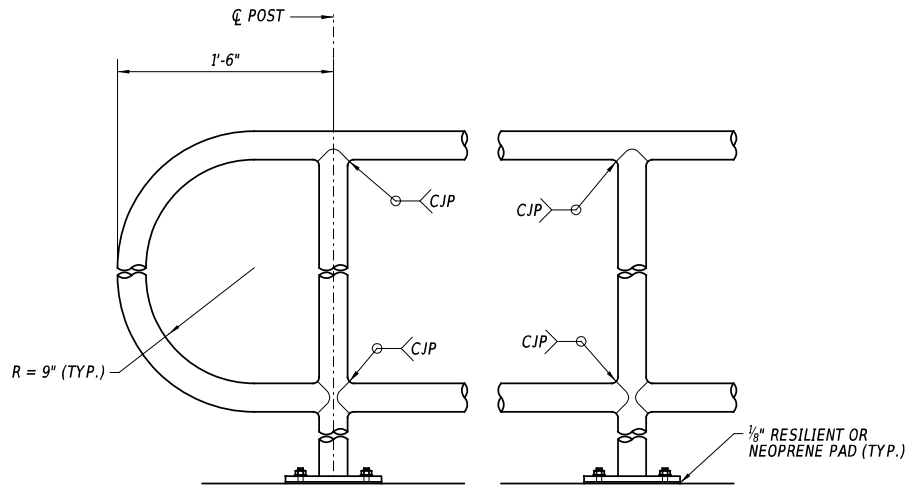
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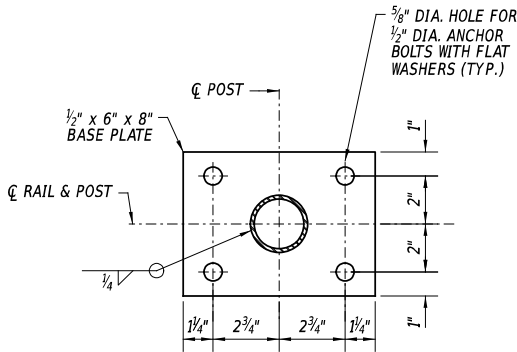
TYPICAL HANDRAIL DETAIL



SECTION A-A



RAIL CONNECTIONS DETAIL



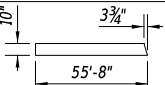
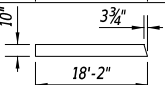
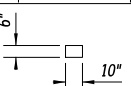
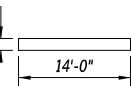
BASE PLATE DETAIL



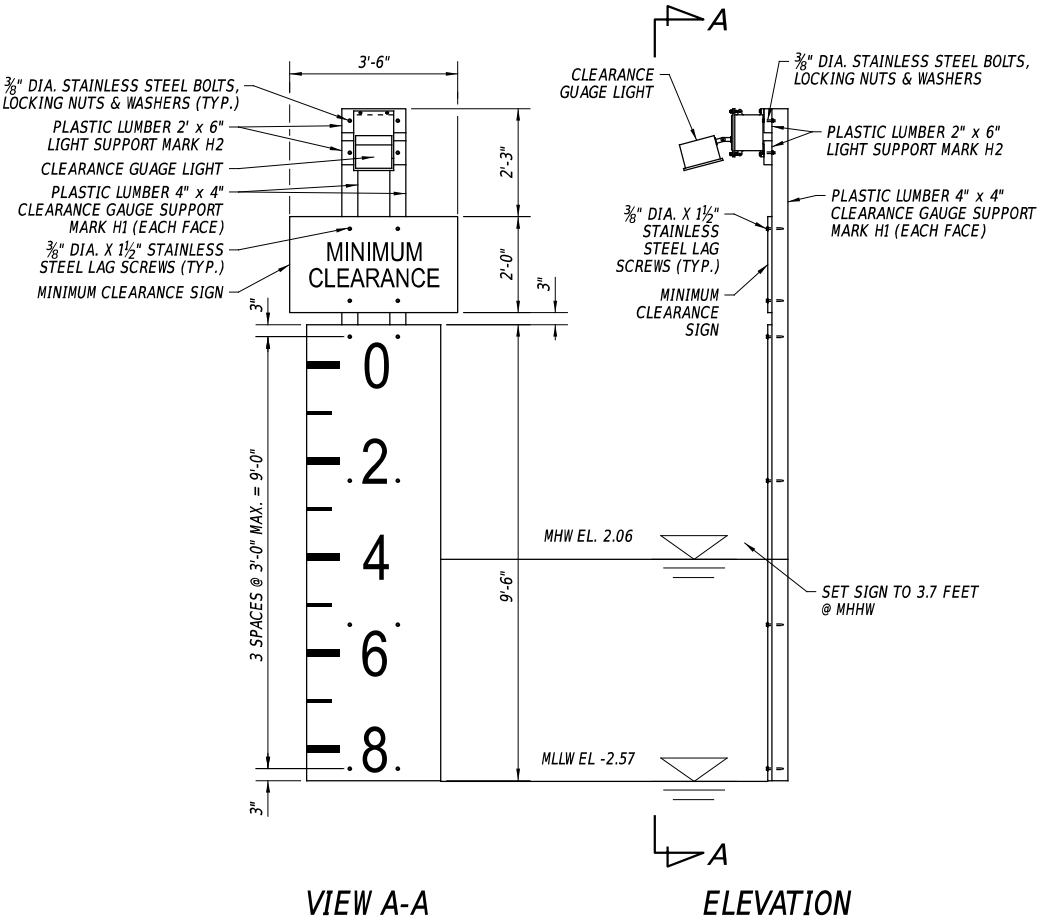
NOTES

1. POSTS AND RAILS SHALL BE 2" NOMINAL PIPE SIZE (SCH. 40) ASTM B221, ALLOY 6061-T6.
2. BASE PLATES SHALL BE ASTM B209, ALLOY 6061-T6.
3. ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36 WITH ASTM A563 HEX NUTS AND ASTM F436 FLAT WASHERS. ALL STEEL FASTENERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.
4. ALL HANDRAIL COMPONENTS AND FASTENERS SHALL BE PAID FOR UNDER ITEM #626010 - ALUMINUM PEDESTRIAN RAILING.

FINAL PLANS										S-34	
ADDENDA / REVISIONS				SCALE AS NOTED	REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD	CONTRACT	BRIDGE NO.	3-164		MAINTANCE SLAB ACCESS DETAILS	SECTION
						T202007301	DESIGNED BY: A. MILLER		H&H		
						COUNTY	CHECKED BY: D. NEELY		SHEET NO.		
						SUSSEX			43		

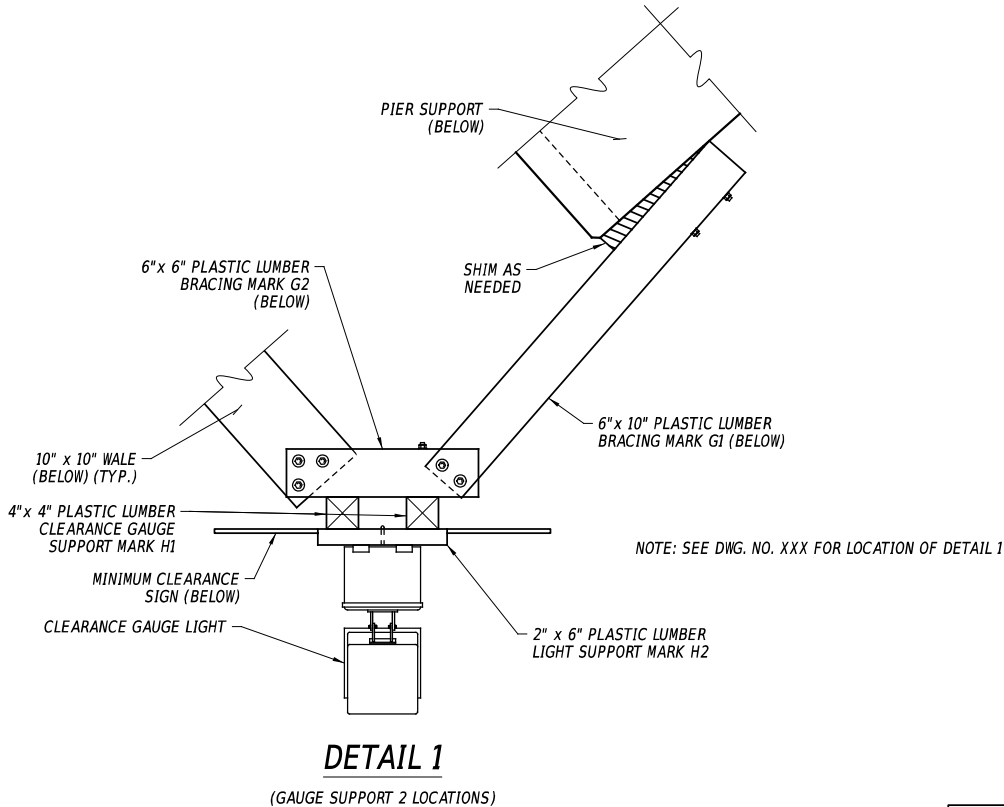
BILL OF COMPOSITE TIMBER			
MARK	SIZE (NOMINAL)	DIMENSIONS	QUANTITY
A1	ARCH FENDER	SEE SHEET NO. XXX	12 EA.
A2	10" x 10" PLASTIC LUMBER		8 EA.
A3	10" x 10" PLASTIC LUMBER		16 EA.
A4	SPACER BLOCKS (10"x6"x8")		96 EA.
G1	10" x 6" PLASTIC LUMBER	4'-6" (STRAIGHT)	8 EA.
G2	6" x 6" PLASTIC LUMBER	2'-0" (STRAIGHT)	8 EA.
H1	4" x 4" PLASTIC LUMBER		4 EA.
H2	2" x 6" PLASTIC LUMBER	1'-4" (STRAIGHT)	4 EA.

FENDER SYSTEM TABLE OF VARIABLES		
CONTROL POINTS	STATION	OFFSET LT. OR RT.
A	104+61.17	42.37' LT
B	104+72.07	0.00'
C	104+61.17	42.37' RT
D	105+09.97	42.37' LT
E	104+99.07	0.00'
F	105+09.97	42.37' RT
CLEAR CHANNEL WIDTH	27'-0"	
CHANNEL SKEW ANGLE	0.00°	
MHHW ELEVATION	2.48	
MLLW ELEVATION	-2.73	
NUMBER OF WALE ROWS	4	



CLEARANCE GAUGE DETAILS

(FENDER SYSTEM AND SUBSTRUCTURE NOT SHOWN FOR CLARITY)



FINAL PLANS

S-35

ADDENDA / REVISIONS	

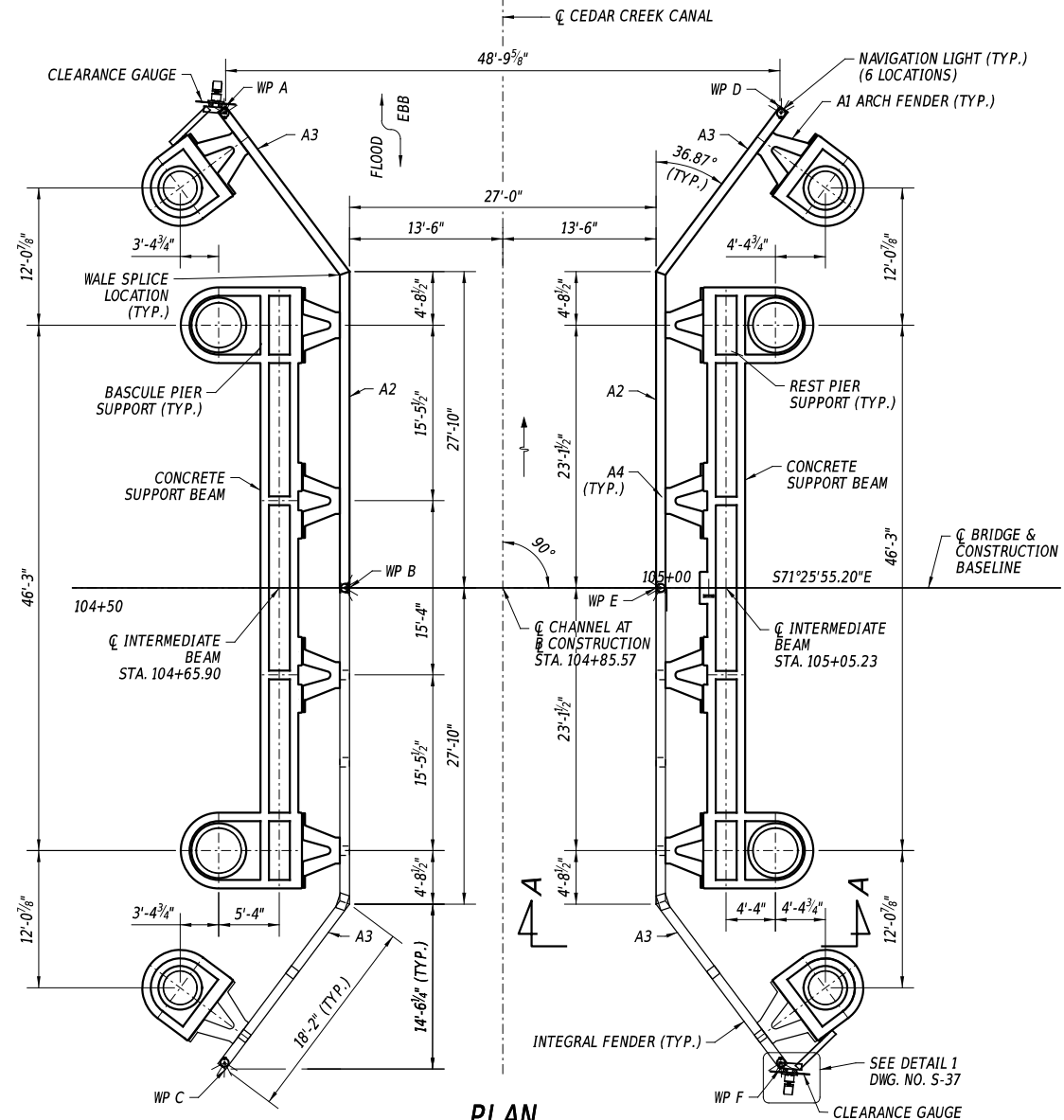


REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	C. GRANADOS
COUNTY	CHECKED BY:	J. SOTO
SUSSEX		

FENDER SYSTEM NOTES

SECTION
H&H
SHEET NO.
44



Technical drawing of a bridge structure, showing a plan view and a detail view.

Plan View Dimensions:

- Overall width: 18'-2"
- Navigation Light (Typ.) width: 19'-8"
- Arch Fender (Typ.) width: 14'-10"
- Arch Fender (Typ.) spacing: 4'-10"
- Arch Fender (Typ.) width: 15'-4"
- Arch Fender (Typ.) spacing: 15'-4"
- Arch Fender (Typ.) width: 15'-4"
- Arch Fender (Typ.) spacing: 15'-4"
- Arch Fender (Typ.) width: 15'-4"
- Arch Fender (Typ.) spacing: 4'-10"
- Arch Fender (Typ.) width: 14'-10"
- Arch Fender (Typ.) spacing: 19'-8"
- Overall width: 18'-2"
- Centerline Construction: 55'-8"

Plan View Components:

- Navigation Light (Typ.)
- Arch Fender (Typ.)
- A4 Spacer - Block (Typ.)
- A3 Plastic Lumber (Typ.)
- A2 Plastic Lumber (Typ.)
- Concrete Support Beam
- A3 Plastic Lumber (Typ.)
- 3'-0" DIA. PIPE PILE
- 4'-0" DIA. PIPE PILE
- 4'-0" DIA. PIPE PILE
- 3'-0" DIA. PIPE PILE

Detail View Dimensions:

- Navigation Light (Beyond) width: 3'-4"
- Navigation Light (Beyond) height: 9'-8"
- Detail A width: 10"
- Detail A height: 7'-8 1/2"
- 10" x 10" Plastic Wale (Typ.)
- Arch Fender
- Precast Concrete Tub Beam
- Precast Rest Pier/Bascule Pier Support (Typ.)
- 4'-0" DIA. PIPE PILE

Detail View Components:

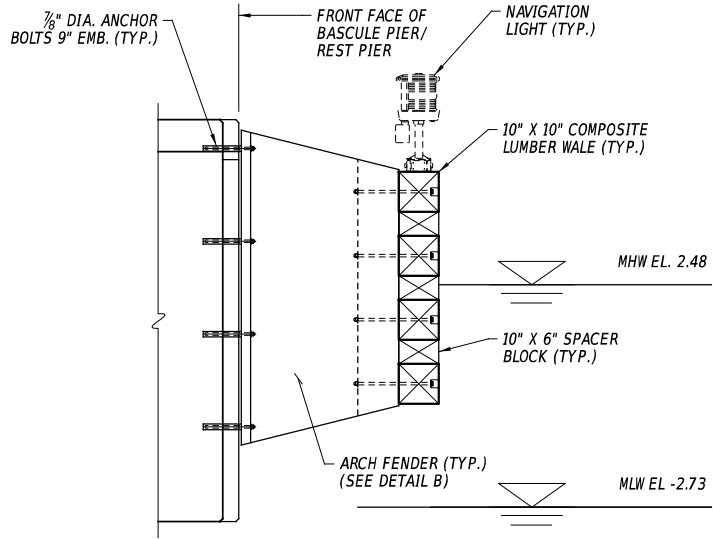
- Navigation Light (Beyond)
- Detail A
- 10" x 10" Plastic Wale (Typ.)
- Arch Fender
- Precast Concrete Tub Beam
- Precast Rest Pier/Bascule Pier Support (Typ.)
- 4'-0" DIA. PIPE PILE

Other Labels:

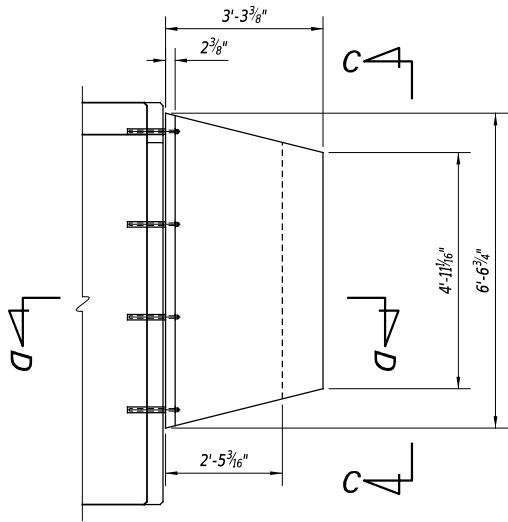
- CLEARANCE GAUGE
- MHW EL. 2.06
- MLW EL. -2.57
- PRECAST CONCRETE SLAB

(REST PIER SHOWN, BASCULE PIER SIMILAR)

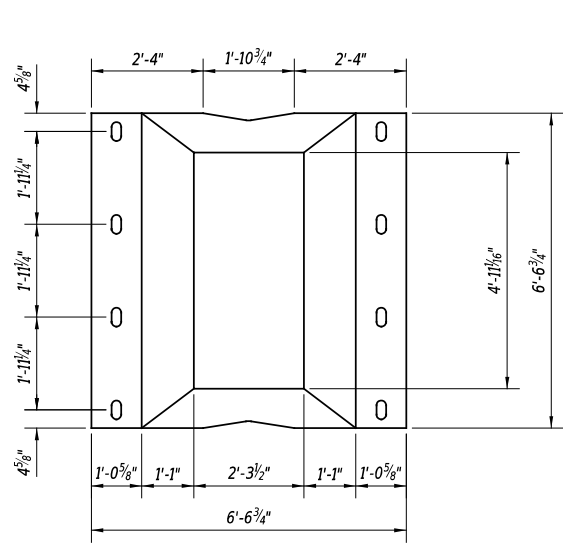
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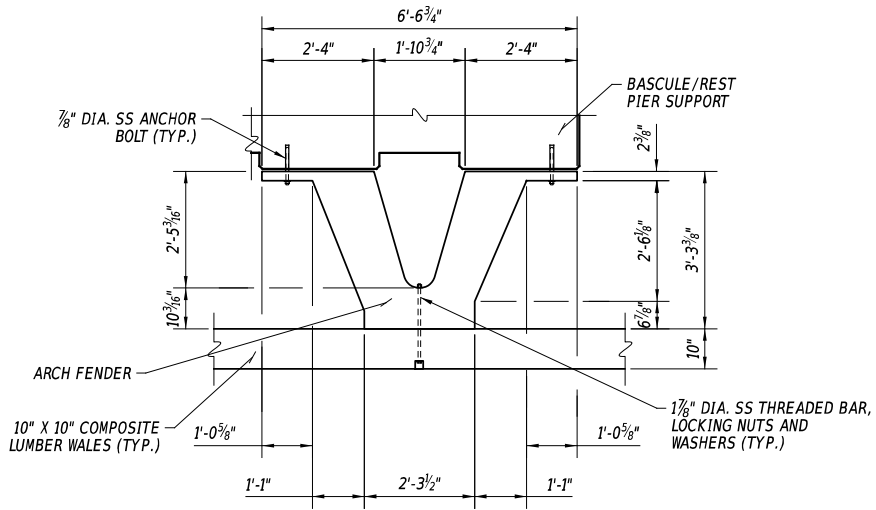
DETAIL A



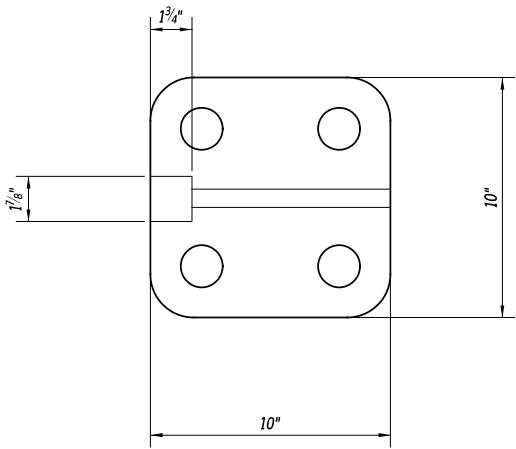
DETAIL B



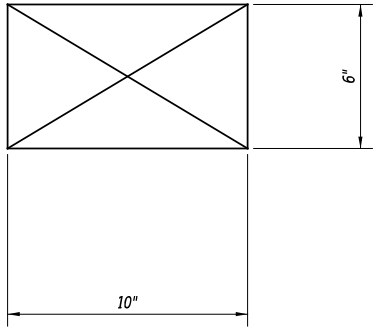
VIEW C-C



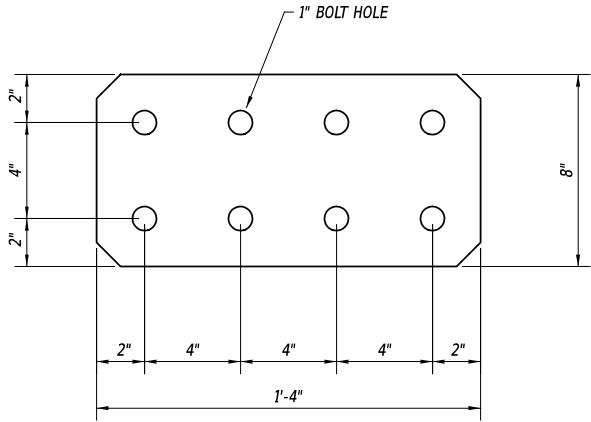
SECTION D-D



WALE DETAIL




SPACER BLOCK DETAIL



SPLICE PLATE DETAIL 1

WALE PROPERTIES								
NOMINAL SECTION	ACTUAL HEIGHT	ACTUAL WIDTH	REBAR QUANTITY	REBAR SIZE (IN)	M.O.R. PSI	FLEX. MODULUS PSI	FLEX. RIGIDITY LB-IN ²	MOMENT CAPACITY KIP-FT
10" X 10"	9 7/8"	9 7/8"	4	1 3/4"	9,790	560,000	4.13E+08	121.4
								37-45

- NOTES:
- SPLICE PLATES: FURNISH SPLICE PLATES IN ACCORDANCE WITH ASTM A240, TYPE 316.

										FINAL PLANS		S-37
ADDENDA / REVISIONS						REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD	CONTRACT	BRIDGE NO.	3-164		FENDER DETAILS	SECTION
				T202007301			DESIGNED BY:	C. GRANADOS		H&H		
				COUNTY			CHECKED BY:	J. SOTO		SHEET NO.		
				SUSSEX						46		



ENVIRONMENTAL COMPLIANCE NOTES

1. GENERAL NOTES:

A. THE PURPOSE OF THIS SHEET IS TO IDENTIFY THOSE ITEMS ASSOCIATED WITH ENVIRONMENTAL COMPLIANCE. IMPACT CALCULATIONS ARE FOR THE AGENCY PERMIT REPORTING PURPOSES ONLY AND ARE NOT TO BE USED FOR BIDDING PURPOSES.

B. IF A DEPARTURE FROM THE APPROVED PLANS (WHICH WOULD AFFECT ANY NATURAL AND/OR CULTURAL RESOURCES) IS NECESSARY, CONTACT THE ENVIRONMENTAL STUDIES SECTION AT (302-760-2264 OR DOT_ENVIRONMENTALSTUDIES@DELAWARE.GOV) TO ALLOW FOR COORDINATION WITH THE APPROPRIATE RESOURCE AGENCIES AND APPROVAL.

C. USE OF THIS SHEET DOES NOT ALLEVIATE THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL CONDITIONS SET FORTH IN THE ENVIRONMENTAL STATEMENT AND PERMITS.
2. NATURAL RESOURCE ISSUES:

A. PERMIT REQUIREMENTS/APPROVALS *: U.S. ARMY CORPS OF ENGINEERS (COE): NATIONWIDE PERMIT (NWP) 23 WITH PRECONSTRUCTION NOTIFICATION (PCN) AND SECTION 408 AUTHORIZATION** DNREC - WETLANDS & SUBAQUEOUS LANDS (WLSL): WETLANDS AND SUBAQUEOUS LANDS PERMIT** DNREC - WATER QUALITY (WQC) & COASTAL ZONE CONSISTENCY (CZM): ISSUED NWP 23 US COAST GUARD (USCG): US COAST GUARD BRIDGE PERMIT

* THE PERMITS/APPROVALS LISTED ARE THOSE REQUIRED FOR THIS PROJECT. THE ENVIRONMENTAL STUDIES SECTION IS RESPONSIBLE FOR COORDINATING AND/OR OBTAINING THESE APPROVALS.

** THE CONTRACTOR MUST ENSURE THAT THESE PERMITS/APPROVALS ARE IN THEIR POSSESSION PRIOR TO BEGINNING CONSTRUCTION IN THE PERMITTED AREA(S) AND ENSURE THEY ARE DISPLAYED ON-SITE DURING THE ENTIRE CONSTRUCTION PERIOD.

B. CONSTRUCTION RESTRICTIONS: FISHERIES - RESTRICT IN-STREAM WORK FROM MARCH 1-MAY 15 TO ALLOW UPSTREAM PASSAGE OF YOUNG AMERICAN EELS. ENDANGERED SPECIES - RESTRICT IN-STREAM WORK FROM MARCH 15-JUNE 30 TO PROVIDE SPawning HABITAT FOR ANADROMOUS SPECIES. MIGRATORY BIRDS - NONE
3. CULTURAL RESOURCE ISSUES:

A. NONE
4. STREAM RESTORATION AND RIPRAP TREATMENT:

A. FOLLOW THE SPECIAL PROVISION FOR ITEM 707500 - CHANNEL BED FILL IN REGARDS TO THE SALVAGING OF ON-SITE NATURAL STREAM BOTTOM MATERIAL OR THE FURNISHING OF OFFSITE MATERIAL. IF SUFFICIENT SOURCES FOR CHANNEL BED FILL DO NOT EXIST ON-SITE, ANY NEW MATERIAL MUST CONFORM TO THE REQUIREMENTS OF ITEM 707500 - CHANNEL BED FILL. RECESS ALL RIPRAP IN THE CHANNEL BOTTOM (I.E. BELOW THE WATER LINE) ONE FOOT BELOW STREAM BED ELEVATION AND CHOKE WITH BORROW TYPE 'B' SO THAT ALL OF THE VOIDS IN THE RIPRAP ARE FILLED WITH SPECIFIED MATERIAL. PAYMENT UNDER ITEM 209002 - BORROW, TYPE B. COVER THE RIPRAP WITH A MINIMUM OF 12" CHANNEL BED FILL. MATCH THE FINAL CHANNEL ELEVATIONS WITH EXISTING ELEVATIONS AT THE UPSTREAM AND DOWNSTREAM PROJECT LIMITS. THROUGH THE STRUCTURE, ELEVATIONS WILL BE AS NOTED ON THE PLANS. PAYMENT UNDER ITEM 707500 - CHANNEL BED FILL.

B. RESTORE OTHER AREAS OF THE CHANNEL BOTTOM AFFECTED BY CONSTRUCTION (INCLUDING, BUT NOT LIMITED TO, THE LOCATION OF SUMP PITS, STABILIZED OUTFALLS, TEMPORARY PIPES AND/OR SANDBAG DIKES AND DIVERSIONS) TO EXISTING CONDITIONS. FILL ANY CAVITIES OR SCOUR HOLES RESULTING FROM CONSTRUCTION ACTIVITIES WITH CHANNEL BED FILL. PAYMENT UNDER ITEM 707500 - CHANNEL BED FILL.

C. WHEN ALL EROSION AND SEDIMENT CONTROL MEASURES ARE REMOVED AND THE STREAM RETURNS TO ITS NATURAL FLOW CONDITIONS, THE FLOW MUST REMAIN ABOVE GROUND AND ABOVE THE RIPRAP (I.E. THE FLOW CANNOT BE "LOST" IN THE RIPRAP OR BENEATH THE STRUCTURE). IF THIS IS NOT ACHIEVED, THE CONTRACTOR WILL BE REQUIRED TO TAKE CORRECTIVE ACTION AT THE CONTRACTOR'S EXPENSE.

D. CHOKE ALL RIPRAP ON THE STREAM BANK, OUTSIDE THE CHANNEL BED, WITH DELAWARE #57 STONE. PLACE JUST ENOUGH CHOKE MATERIAL TO PREVENT THE LOSS OF TOPSOIL THROUGH THE RIPRAP, AND THEN FINISH FILLING THE VOIDS WITH TOPSOIL SO THAT THE RIPRAP PEAKS ARE BARELY VISIBLE. PLACE AN ADDITIONAL 6-INCH TOPSOIL LAYER ON TOP OF THE RIPRAP. SLOPE SEEDING WILL BE DONE WITH ITEM 908019- STREAMBANK SEED MIX, SEEDING. FOLLOWING THE SEEDING OPERATION, INSTALL ITEM 908020 - EROSION CONTROL BLANKET (ECB) MULCH, OR OTHER BLANKET AS SHOWN ON THE PLANS. ECB AT TOE OF SLOPE CAN BE EITHER TRENCHED IN OR STAPLED AT 6" ON CENTER. COMPLETE ALL WORK, STARTING WITH THE INITIAL CHOKING WITH TOPSOIL THROUGH THE SEEDING AND MULCHING PRIOR TO ANY RAIN EVENT. DELAWARE #57 STONE IS INCIDENTAL TO THE RIPRAP ITEM. ALL OTHER ITEMS WILL BE PAID FOR UNDER THEIR RESPECTIVE ITEMS.

1. BENEATH THE BRIDGE: AFTER PLACING DELAWARE #57 STONE, PERFORM A FINAL CHOKE OF CHANNEL BED FILL SO THAT THE RIPRAP PEAKS ARE BARELY VISIBLE. PAYMENT UNDER ITEM 707500 - CHANNEL BED FILL. DELAWARE #57 STONE IS INCIDENTAL TO THE RIPRAP ITEM.

2. ALL OTHER LOCATIONS: FINISH FILLING THE VOIDS WITH TOPSOIL SO THAT THE RIPRAP PEAKS ARE BARELY VISIBLE. PLACE AN ADDITIONAL 6-INCH TOPSOIL LAYER ON TOP OF THE RIPRAP. SLOPE SEEDING WILL BE DONE WITH ITEM 908019 - STREAMBANK SEED MIX, SEEDING. FOLLOWING THE SEEDING OPERATION, INSTALL ITEM 908020 - EROSION CONTROL BLANKET (ECB) MULCH, OR OTHER BLANKET AS SHOWN ON THE PLANS. ECB AT TOE OF SLOPE CAN BE EITHER TRENCHED IN OR STAPLED AT 6" ON CENTER. COMPLETE ALL WORK, STARTING WITH THE INITIAL CHOKING WITH TOPSOIL THROUGH THE SEEDING AND MULCHING PRIOR TO ANY RAIN EVENT. DELAWARE #57 STONE IS INCIDENTAL TO THE RIPRAP ITEM. ALL OTHER ITEMS WILL BE PAID FOR UNDER THEIR RESPECTIVE ITEMS.
5. PROTECTION OF RESOURCES:

A. KEEP CLEARING IN WETLAND AREAS TO A MINIMUM ABSOLUTELY NECESSARY FOR CONSTRUCTION ACCESS. SUPPORT ALL EQUIPMENT TRAVERSING WETLANDS AND SUBAQUEOUS LAND ON MATS. PAYMENT FOR MATS WILL BE MADE UNDER ITEM 621500 - TEMPORARY TIMBER MAT. IN WETLAND AREAS THAT ARE CLEARED, NO GRUBBING EXCEPT WHERE NECESSARY TO CONSTRUCT PROJECT COMPONENTS SUCH AS FOUNDATIONS AND RIPRAP PROTECTION IS PERMITTED. CUT VEGETATION FLUSH WITH THE GROUND (I.E. NO DISTURBANCE OF THE ROOT MAT). RESTORE TEMPORARILY DISTURBED WETLAND AREAS TO GRADE AND SEED WITH ITEM 908017 - TEMPORARY GRASS SEEDING (ANNUAL RYEGRASS).

B. USE SILT FENCE OR CONSTRUCTION SAFETY FENCE ALONG THE LIMITS OF CONSTRUCTION IN ALL AREAS WHERE WATER WETLANDS ARE BEING IMPACTED (AS SHOWN ON ENVIRONMENTAL COMPLIANCE SHEETS), AND ALSO IN ANY AREA WHERE WATER/WETLANDS EXIST WITHIN 20 FEET OF THE LIMIT OF CONSTRUCTION (AS SHOWN ON CONSTRUCTION PLAN SHEETS). ANY CONTRACTOR ACCESS BEYOND THE LIMIT OF CONSTRUCTION IS STRICTLY PROHIBITED.

C. USE SANDBAGS OR COMPOST FILTER LOG (CFL) TO SECURE SILT FENCE AT AREAS ADJACENT TO WOODED UPLANDS/ ALL WETLANDS IN LIEU OF TRENCHING UNLESS PROPER EROSION AND SEDIMENT CONTROL CANNOT BE MAINTAINED. REMOVE SANDBAGS AND CFL'S (AND CONTENTS) IN THEIR ENTIRETY WHEN NO LONGER NEEDED. SANDBAGS/CFLS USED TO SECURE THE SILT FENCE IS INCIDENTAL TO ITEM 905001 - SILT FENCE. THE ENVIRONMENTAL STUDIES SECTION (302-760-2259 OR DOT_ENVIRONMENTALSTUDIES@DELAWARE.GOV) CAN PROVIDE FURTHER GUIDANCE REGARDING THIS METHOD OF INSTALLATION.

D. CLEARLY MARK ALL TREES TO BE REMOVED WITH PAINT PRIOR TO THE EROSION AND SEDIMENT CONTROL MEETING.

WETLANDS DELINEATED BY VAN ADAMS ON 9/14/2022 IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND REGIONAL SUPPLEMENTS.

ORIGINAL SHEET PREPARED BY AECOM ON 1/31/2020. SHEET LAST UPDATED ON 6/19/23.

PERMANENT OPEN WATER IMPACT AREA SCHEDULE							
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION	LOSS VS. IMPACT	LOSS AREA (AC)
0-01	PIER INSTALLATION	426.15	0.0098	61.55	ACOE/DNREC	IMPACT	N/A
0-02	PIER INSTALLATION	466.28	0.0107	67.35	ACOE/DNREC	IMPACT	N/A
0-03	FENDER INSTALLATION	547.98	0.0126	79.15	ACOE/DNREC	IMPACT	N/A
0-04	FENDER INSTALLATION	633.77	0.0145	91.54	ACOE/DNREC	IMPACT	N/A
0-05	PIER INSTALLATION	466.28	0.0107	67.35	ACOE/DNREC	IMPACT	N/A
0-06	RIPRAP	49.58	0.0011	7.34	ACOE/DNREC	IMPACT	N/A
0-07	RIPRAP	326.25	0.0075	48.33	ACOE/DNREC	IMPACT	N/A
0-08	HEADWALL INSTALLATION	271.43	0.0062	149.39	ACOE/DNREC	IMPACT	N/A
0-09	ABUTMENT / FILL TYPE	182.92	0.0042	100.67	ACOE/DNREC	IMPACT	N/A
0-10	RIPRAP	1477.21	0.0339	218.85	ACOE/DNREC	IMPACT	N/A
0-11	RIPRAP	1045.34	0.0240	154.87	ACOE/DNREC	IMPACT	N/A
0-12	RIPRAP	2161.89	0.0496	320.28	ACOE/DNREC	IMPACT	N/A
0-13	RIPRAP	2525.35	0.0580	374.13	ACOE/DNREC	IMPACT	N/A
TOTAL PERMANENT OPEN WATER IMPACTS		10,580.43	0.2428	1740.80	ACOE/DNREC	IMPACT	N/A

TEMPORARY WETLAND IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
TW-01	WORK AREA / E&S CONTROLS	65.81	0.0015	9.75	ACOE/DNREC

TEMPORARY OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
OT-01	FENDER REMOVAL	483.95	0.0111	69.90	ACOE/DNREC
OT-02	FENDER REMOVAL	307.46	0.0071	44.41	ACOE/DNREC
OT-03	RIPRAP	547.98	0.0125	81.18	ACOE/DNREC
TOTAL TEMPORARY OPEN WATER IMPACT AREAS		1339.39	0.0307	195.49	XXXXXXXXXX

FINAL PLANS

EC-01

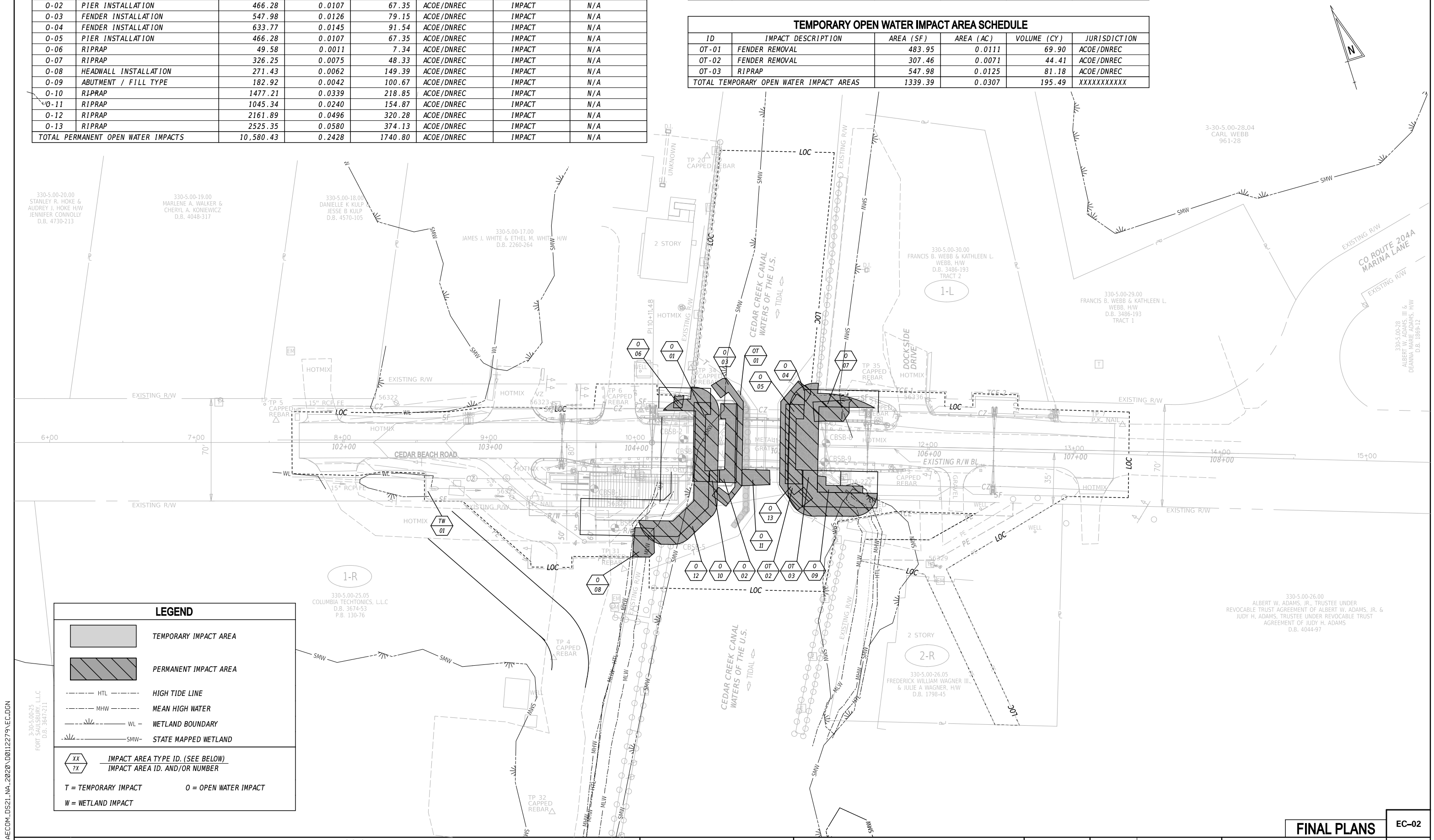
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ADDENDA / REVISIONS		NOT TO SCALE	REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD	CONTRACT	BRIDGE NO.	3-164	ENVIRONMENTAL COMPLIANCE PLAN	SECTION
				T202007301	DESIGNED BY: G. CORREALE			AEC
				COUNTY				SHEET NO.
				SUSSEX	CHECKED BY: G. PERDICK	167		

PERMANENT OPEN WATER IMPACT AREA SCHEDULE							
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0-07	RIPRAP	326.25	0.0075	48.33	ACOE/DNREC	IMPACT	N/A
0-08	HEADWALL INSTALLATION	271.43	0.0062	149.39	ACOE/DNREC	IMPACT	N/A
0-09	ABUTMENT / FILL TYPE	182.92	0.0042	100.67	ACOE/DNREC	IMPACT	N/A
0-10	RIPRAP	1477.21	0.0339	218.85	ACOE/DNREC	IMPACT	N/A
0-11	RIPRAP	1045.34	0.0240	154.87	ACOE/DNREC	IMPACT	N/A
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TOTAL PERMANENT OPEN WATER IMPACTS		10,580.43	0.2428	1740.80	ACOE/DNREC	IMPACT	N/A

TEMPORARY WETLAND IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
TW-01	WORK AREA / E&S CONTROLS	65.81	0.0015	9.75	ACOE/DNREC

TEMPORARY OPEN WATER IMPACT AREA SCHEDULE					
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OT-03	RIPRAP	547.98	0.0125	81.18	ACOE/DNREC
TOTAL TEMPORARY OPEN WATER IMPACT AREAS		1339.39	0.0307	195.49	XXXXXXXXXX



LEGEND

TEMPORARY IMPACT AREA

PERMANENT IMPACT AREA

HTL

HIGH TIDE LINE

MHW

MEAN HIGH WATER

WL

WETLAND BOUNDARY

SMW

STATE MAPPED WETLAND

XX

?

IMPACT AREA TYPE ID. (SEE BELOW)

IMPACT AREA ID. AND/OR NUMBER

T = TEMPORARY IMPACT

O = OPEN WATER IMPACT

W = WETLAND IMPACT

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3-30-5-00-25
FORT SAULSBURY, LLC
D.B. 3647-211

330-5.00-25.05
COLUMBIA TECHTONICS, L.L.C.
D.B. 3674-53
P.B. 130-76

330-5.00-26.00
ALBERT W. ADAMS, JR., TRUSTEE UNDER
REVOCABLE TRUST AGREEMENT OF ALBERT W. ADAMS, JR. &
JUDY H. ADAMS, TRUSTEE UNDER REVOCABLE TRUST
AGREEMENT OF JUDY H. ADAMS
D.B. 4044-97

330-5.00-28
ALBERT W. ADAMS, III &
DEANNA MARIE ADAMS, HW
D.B. 1865-12

CO ROUTE 204A
MARINA LANE

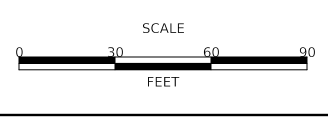
3-30-5.00-28.04
CARL WEBB
961-28

330-5.00-30.00
FRANCIS B. WEBB & KATHLEEN L.
WEBB, HW
D.B. 3486-193
TRACT 2

330-5.00-29.00
FRANCIS B. WEBB & KATHLEEN L.
WEBB, HW
D.B. 3486-193
TRACT 1

330-5.00-26.05
FREDERICK WILLIAM WAGNER III,
& JULIE A. WAGNER, HW
D.B. 1798-45

ADDENDA / REVISIONS	



REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	G. CORREALE
COUNTY	CHECKED BY:	G. PERDICK
SUSSEX		

ENVIRONMENTAL COMPLIANCE PLAN	

FINAL PLANS	EC-02
SECTION	AEC
SHEET NO.	168

GENERAL MOT NOTES

1. AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA) CERTIFIED TRAFFIC CONTROL SUPERVISOR REQUIREMENT FOR THIS PROJECT.

(X)	THE CONTRACTOR SHALL NOT BE REQUIRED TO HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT.
()	THE CONTRACTOR SHALL HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT. THE CONTRACTOR'S GENERAL SUPERINTENDENT FOR THIS PROJECT OR ANOTHER ATSSA CERTIFIED MEMBER OF THE CONTRACTOR'S PROJECT STAFF MAY BE THE ATSSA SUPERVISOR. PAYMENT FOR ATSSA SUPERVISOR IS INCIDENTAL TO ITEM 801000.

2. THE USE OF MILLINGS AND GRADED AGGREGATE BASE COURSE (GABC) IN THE TRAVEL WAY, TEMPORARY TRAVEL WAY, HIGH VOLUME ENTRANCES AND ACCESS RAMP FOR THE PURPOSE OF PROVIDING A TEMPORARY ROADWAY SURFACE, POT HOLE REPAIR, TAPERED EDGE FOR UTILITIES, BUTT JOINTS, AND LONGITUDINAL DROP-OFFS (MILLING AND PAVING OPERATIONS) IS PROHIBITED UNLESS IT IS OTHERWISE DESIGNATED TO BE USED IN THE CONTRACT PLANS. USE COLD PATCH, BITUMINOUS CONCRETE, BITUMINOUS CONCRETE WEDGE, OR TAPER MILL, AS NOTED IN THE CONTRACT DOCUMENTS OR APPROVED BY THE ENGINEER. PAYMENT FOR COLD PATCH, BITUMINOUS CONCRETE OR BITUMINOUS CONCRETE WEDGE SHALL BE PAID AS NOTED IN THE CONTRACT DOCUMENTS. TAPER MILL BITUMINOUS CONCRETE SHALL BE PAID UNDER THE BITUMINOUS CONCRETE MILLING ITEM. MILLINGS OR GABC SHALL BE USED AT THE FOLLOWING LOCATIONS WHERE ACCESS TO A BUSINESS, RESIDENCE, OR EDGE DROP OFF NEEDS TO BE MAINTAINED UNLESS OTHERWISE NOTED IN THE PLANS OR DIRECTED BY THE ENGINEER TO USE BITUMINOUS CONCRETE OR COLD PATCH. ALL MILLINGS AND GABC WILL BE ROLLED AND COMPACTED TO HELP PREVENT THE MATERIAL FROM UNRAVELLING:
- a. DRIVEWAYS
 - b. ENTRANCES
 - c. LOW VOLUME ACCESS RAMPS (IDENTIFIED IN THE CONTRACT DOCUMENTS)
 - d. EDGE DROP-OFFS ADJACENT TO LIVE ROADWAY (LANES AND SHOULDER) AND THE PROPOSED ROAD CONSTRUCTION
 - e. EDGE OF ROADWAY DROP-OFF

GRADING AND MAINTAINING BASE COURSE THAT IS BEING USED FOR ROADWAY WEDGE/FILLET BETWEEN TRAVEL LANES AND PAVEMENT BOX, EDGE OF TRAVELWAY, DRIVEWAY OR ENTRANCE ACCESS SHALL BE INCIDENTAL TO ITEM NO. 801000 - MAINTENANCE OF TRAFFIC. THE BASE COURSE MATERIAL SHALL BE PLACED AT NO GREATER THAN THE SLOPE SPECIFIED IN TABLE 6G-1 AND SHALL BE COMPACTED. EXCESS BASE COURSE MATERIAL SHALL BE PUSHED AHEAD AND USED IN THE NEXT SEGMENT AND SHALL BE INCIDENTAL TO THE PARTICULAR BASE COURSE PAY ITEM. NO SEPARATE PAYMENT SHALL BE MADE FOR MILLINGS OR GABC TEMPORARY ROADWAY MATERIAL (TRM) USED TO PROTECT EDGE DROP-OFFS, UNLESS THE MATERIAL IS EVENTUALLY UTILIZED AS PART OF A PERMANENT ROADWAY AT WHICH TIME THE MATERIAL WOULD BE PAID FOR UNDER THE RESPECTIVE CONTRACT MATERIAL ITEM.

VERTICAL DIFFERENCES SHALL BE CORRECTED IN ACCORDANCE WITH TABLE 6G-1 OF THE DELAWARE MUTCD.

3. THIS PROJECT IS CONSIDERED A SIGNIFICANT PROJECT AS DEFINED BY DELDOT'S WORK ZONE MOBILITY PROCEDURES AND GUIDELINES. A MODIFIED TYPE B TRANSPORTATION MANAGEMENT PLAN (TMP) HAS BEEN PREPARED AND IS AVAILABLE FOR VIEWING BY CONTACTING THE DEPARTMENT'S SAFETY PROGRAMS MANAGER AT (302)659-4060. ALL MONITORING REQUIREMENTS OF THE TMP SHALL BE CONDUCTED BY DELDOT FORCES UNLESS OTHERWISE DIRECTED BY THE ENGINEER. MODIFICATIONS TO THE TMP SHALL BE COMPLETED BY THE CONTRACTOR IF CHANGES TO THE TIME RESTRICTIONS OR THE TRAFFIC CONTROL PLAN ARE DESIRED. THE MODIFIED TMP SHALL BE PREPARED BY A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF DELAWARE.

EROSION AND SEDIMENT CONTROL NOTES

1. MAINTENANCE OF TRAFFIC DURING LANE CLOSURES SHALL CONFORM TO TYPICAL APPLICATION 20 OF THE DELAWARE MUTCD.

EROSION POTENTIAL FOR THIS PROJECT	CONTRACTOR EROSION AND SEDIMENT CONTROL SUPERVISOR REQUIREMENT
() INSIGNIFICANT	NONE
() MINOR	CONTRACTOR TRAINING PROGRAM, AS DEFINED IN SECTION 6.2 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
(X) MAJOR	CERTIFIED CONSTRUCTION REVIEWER (CCR), AS DEFINED IN SECTION 6.3 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.















3. THE SEDIMENT AND STORMWATER MANAGEMENT PLANS HAVE BEEN APPROVED BY DELDOT'S STORMWATER ENGINEER UNDER DELDOT'S DELEGATED AUTHORITY. THE SEDIMENT AND STORMWATER MANAGEMENT PLANS ARE VALID FOR A FIVE YEAR PERIOD, BEGINNING ON THE DATE THE STORMWATER ENGINEER SIGNED THE CONSTRUCTION TITLE SHEET. IF THE FINAL ACCEPTANCE OF THE PROJECT IS ANTICIPATED TO EXTEND BEYOND THE FIVE YEARS, THE CONTRACTOR WILL INFORM THE ENGINEER THREE MONTHS PRIOR TO THE EXPIRATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLANS. THE STORMWATER ENGINEER WILL REVIEW THE CURRENT SEDIMENT AND STORMWATER MANAGEMENT PLAN AND ISSUE AN EXTENSION WITH ANY APPROPRIATE MODIFICATIONS.

4. THE DISTURBED AREA FOR THIS PROJECT IS 0.810 ACRES.
















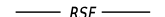












5. ADDITIONAL IMPERVIOUS AREA FOR THIS PROJECT IS 0.057 ACRES.

SEQUENCE OF CONSTRUCTION

- 1
- INSTALL MOT DEVICES IN ACCORDANCE WITH THE DETOUR PLAN AND CLOSE CEDAR BEACH ROAD.
- 2
- INSTALL E&S CONTROLS AS SHOWN ON THE PLANS.
- 3
- DEMOLISH EXISTING TO INCLUDE: BRIDGE, DRIVE SYSTEMS, PIERS, ABUTMENTS, PILES FENDERS, AND CONTROL HOUSE.
- 4
- FABRICATE AND INSTALL NEW PIERS, ABUTMENTS, AND FENDERS. TURBIDITY CURTAINS T-2 AND T-3 MAY BE REMOVED AFTER EXISTING FENDER DEMOLITION AND PIER INSTALLATIONS ARE COMPLETE AT THEIR RESPECTIVE LOCATION AS APPROVED BY THE ENGINEER.
- 5
- PLACE RIPRAP FOR PROTECTION OF CANAL BED.
- 6
- RELOCATE UTILITY POLES AND ANY RELATED UTILITY LINES. FURNISH AND INSTALL AERIAL CABLES.
- 7
- EXCAVATE PAVEMENT AND ROADWAY BASE WITHIN THE LIMITS SHOWN ON THE CP SHEET.
- 8
- CONSTRUCT NEW CONTROL HOUSE.
- 9
- FURNISH AND INSTALL INCOMING SERVICE UPGRADES, PROPANE TANK AND NEW STAND-BY GENERATOR.
- 10
- CAST AND ERECT NEW PRECAST SLAB FLANKING SPANS.
- 11
- FABRICATE AND ERECT NEW BASCULE SPAN, TOWERS, COUNTERWEIGHT ARMS, AND COUNTERWEIGHT. VERIFY SPAN BALANCE, ADJUST AS NEEDED TO ACHIEVE DESIRED BALANCE CONDITION.
- 12
- FURNISH AND INSTALL NEW ELECTRICAL SYSTEMS.
- 13
- INSTALL PROPOSED PAVEMENT AS SHOWN ON THE PLANS AND COMPLETE ANY OTHER REMAINING WORK INCLUDING ROADWAY STRIPING, AND GRADING. EXTEND PERIMETER CONTROLS TO THE ABUTMENT WALLS OR PAVEMENT AS INDICATED, SEED AND MULCH ALL DISTURBED AREAS DOWNSTREAM OF THE PERIMETER CONTROLS WITH ECB. REMOVE TURBIDITY CURTAINS T-1 AND T-4 AS APPROVED BY THE ENGINEER.
- 14
- FURNISH AND INSTALL NEW HYDRAULIC POWER UNIT, CYLINDER MOUNTS, CYLINDERS, AND SPAN LOCKS.
- 15
- FURNISH AND INSTALL TRAFFIC CONTROL EQUIPMENT.
- 16
- PERFORM COMMISSIONING AND TESTING OF NEW DRIVE SYSTEM.
- 17
- REMOVE ALL MOT DEVICES, NOTIFY TMC AND REOPEN CEDAR BEACH ROAD.
- 18
- REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AFTER FINAL VEGETATIVE STABILIZATION OF ALL DISTURBED AREAS IN ACCORDANCE WITH THESE PLANS AS DIRECTED BY THE ENGINEER.

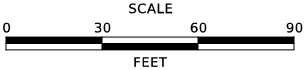
CONSTRUCTION PHASING & M.O.T	
	BARRICADE, TYPE 3
	CONCRETE SAFETY BARRIER - PORTABLE
	CONSTRUCTION SAFETY FENCE / LENGTH
	CONSTRUCTION SAFETY FENCE
	CONSTRUCTION WARNING SIGN LOCATION
	CONSTRUCTION WARNING SIGN
	CRASH CUSHION ARRAY
	DRUM - TRAFFIC CONTROL
	FLAGGER LOCATION
	PHASING TRAFFIC FLOW ARROW
	TEMPORARY CONSTRUCTION
	TEMPORARY PAVEMENT MARKING ARROW
	TRUCK WITH MOUNTED ATTENUATOR
	WORK AREA - ACTIVE PHASE

EROSION & SEDIMENT CONTROL

	COMPOST FILTER LOG
	COMPOST FILTER LOG / LENGTH
	DEWATERING BAG
	DEWATERING BASIN
	EARTH DIKE
	INLET SEDIMENT CONTROL
	PERIMETER DIKE/SWALE
	PORTABLE SEDIMENT TANK
	SANDBAG DIKE
	SANDBAG DIVERSION
	STONE CHECK DAM
	STABILIZED CONSTRUCTION ENTRANCE
	SILT FENCE / LENGTH
	SILT FENCE
	REINFORCED SILT FENCE / LENGTH
	REINFORCED SILT FENCE
	SUPER SILT FENCE / LENGTH
	SUPER SILT FENCE
	SUMP PIT
	SEDIMENT TRAP / NUMBER
	SEDIMENT TRAP
	SEDIMENT TRAP WITH INLET AS OUTLET
	SEDIMENT TRAP PIPE OUTLET
	STILLING WELL
	TEMPORARY SWALE
	TEMPORARY SLOPE DRAIN
	TURBIDITY CURTAIN / LENGTH
	TURBIDITY CURTAIN

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ADDENDA / REVISIONS	



REPLACEMENT OF BR 3-164 ON SR 36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY: G. CORREALE	
COUNTY	CHECKED BY: G. PERDICK	
SUSSEX		

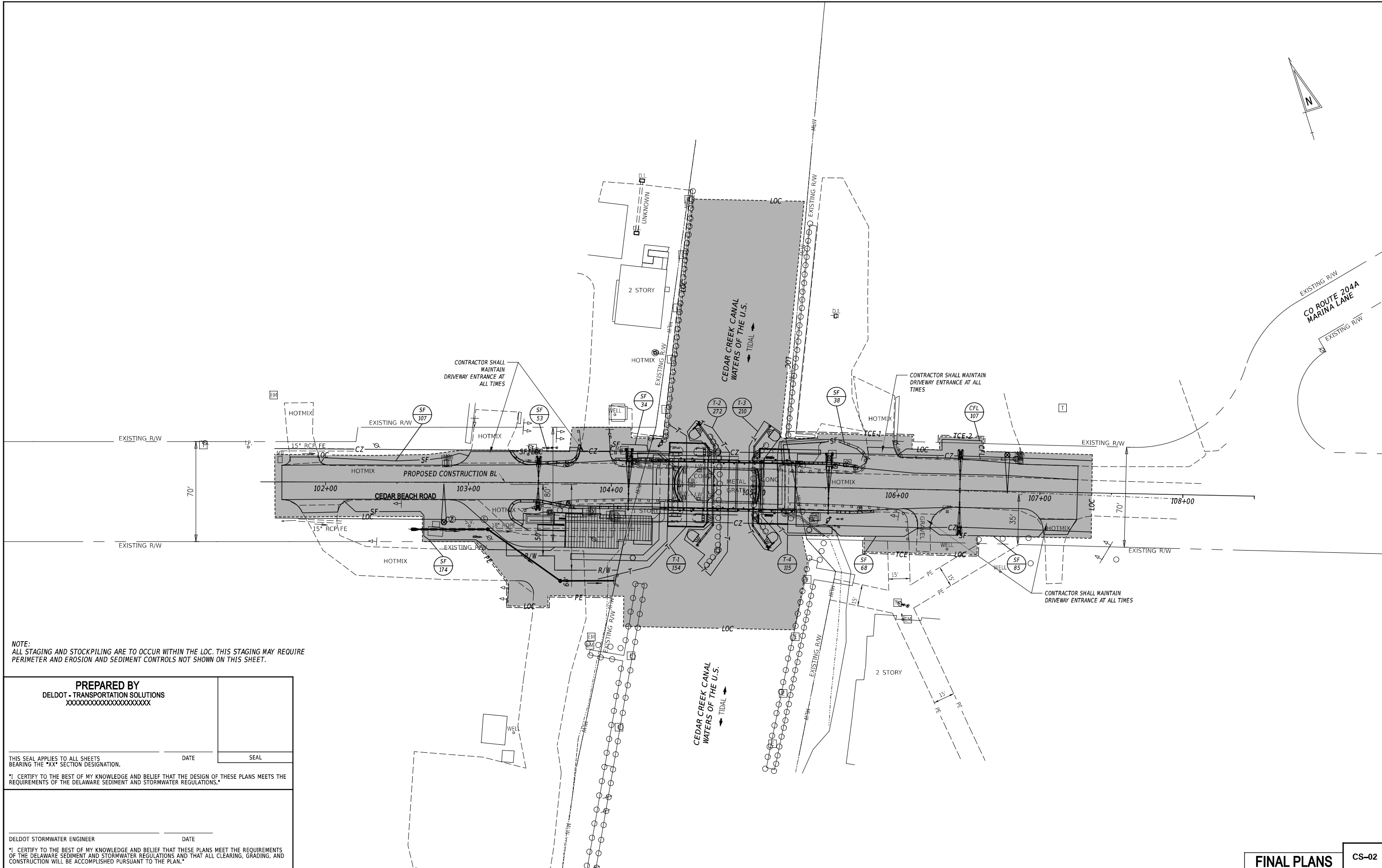
CONSTRUCTION PHASING, M.O.T., AND EROSION CONTROL PLAN

FINAL PLANS

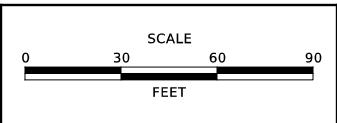
CS-01

SECTION
AEC
SHEET NO.
169

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ADDENDA / REVISIONS	



REPLACEMENT OF BR 3-164 ON
SR 36 CEDAR BEACH ROAD

CONTRACT	BRIDGE NO.	3-164
T202007301	DESIGNED BY:	G. CORREALE
COUNTY	CHECKED BY:	G. PERDICK
SUSSEX		

CONSTRUCTION PHASING, M.O.T., AND EROSION CONTROL PLAN	
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FINAL PLANS

CS-02
SECTION
AEC
SHEET NO.
170