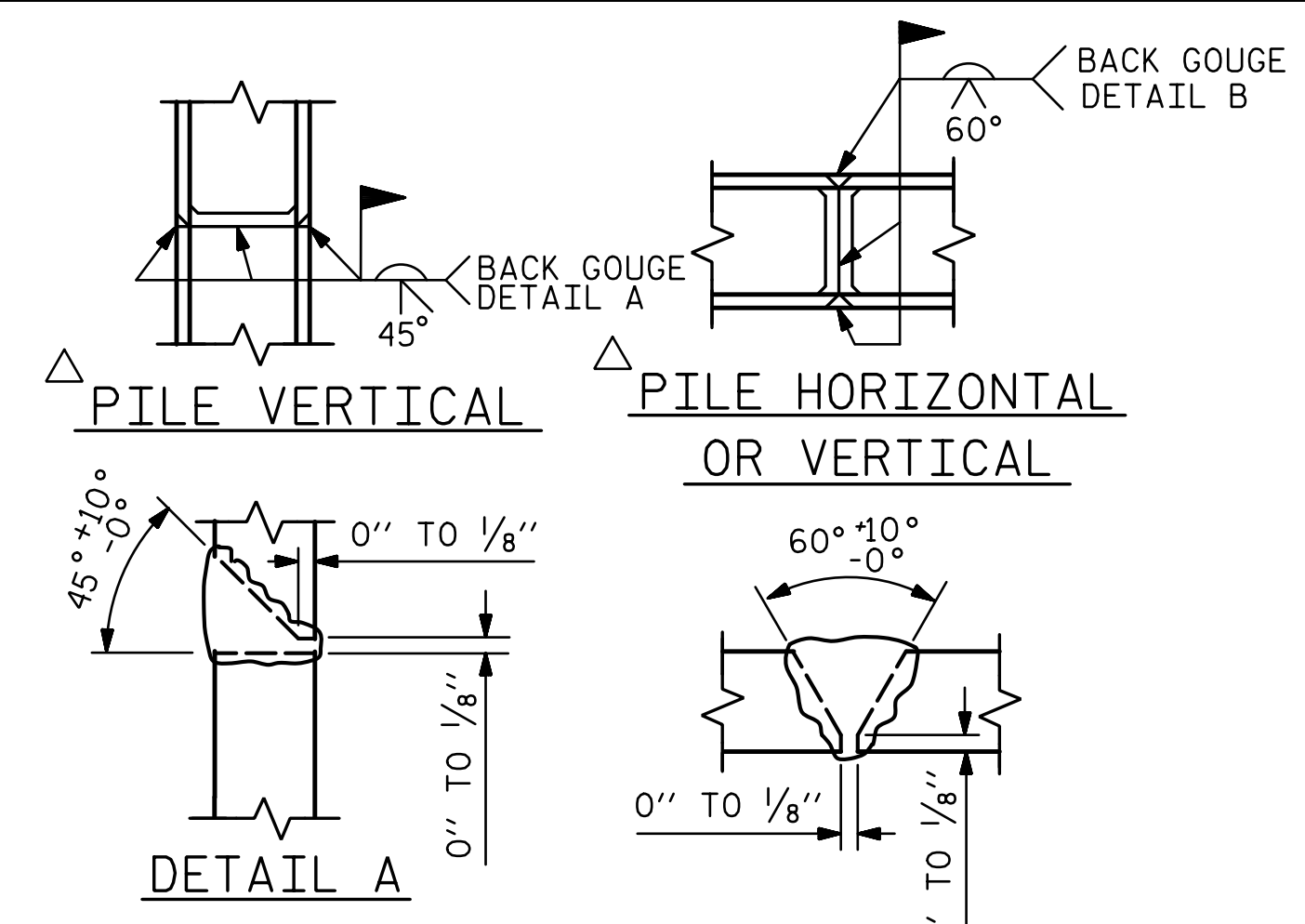


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

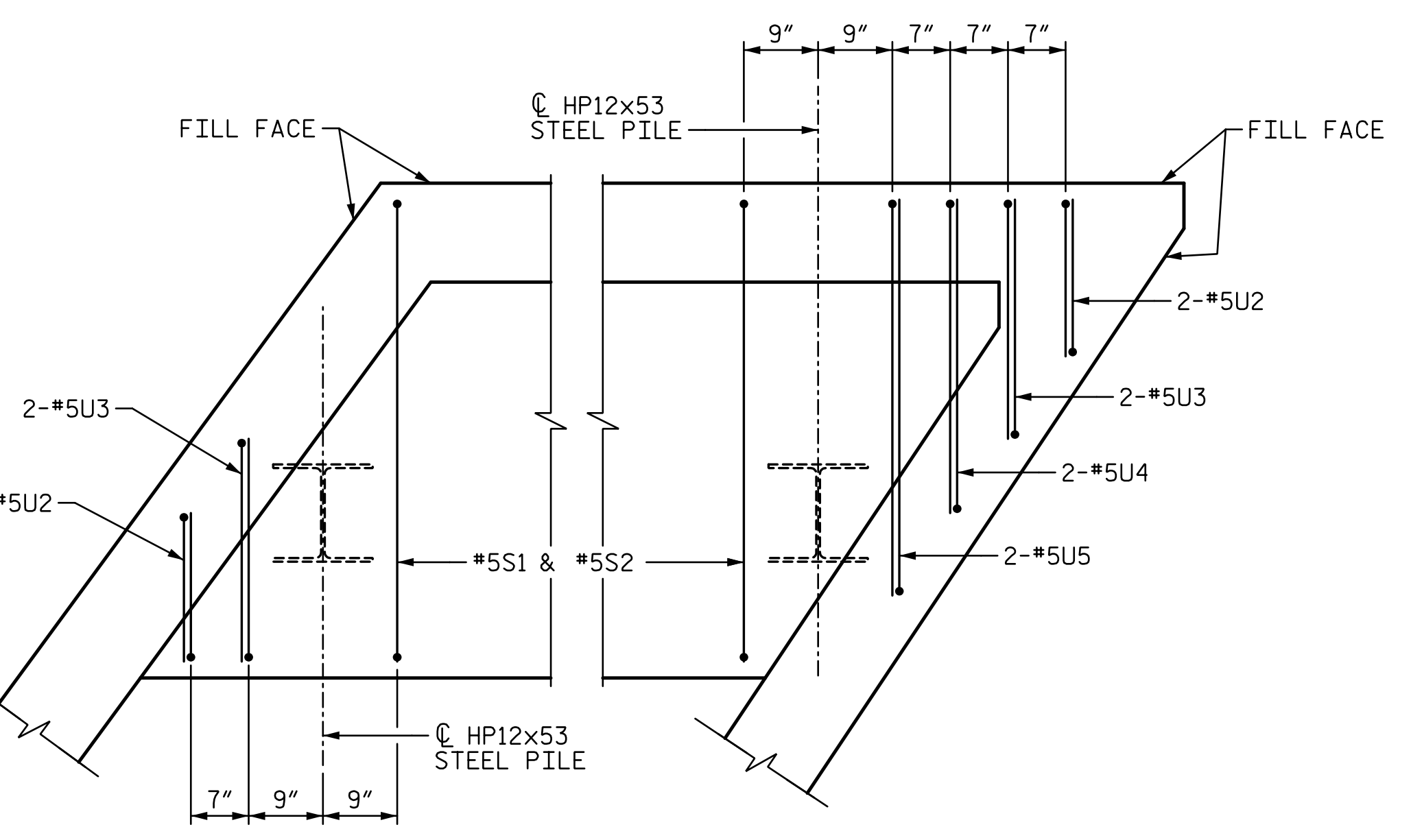
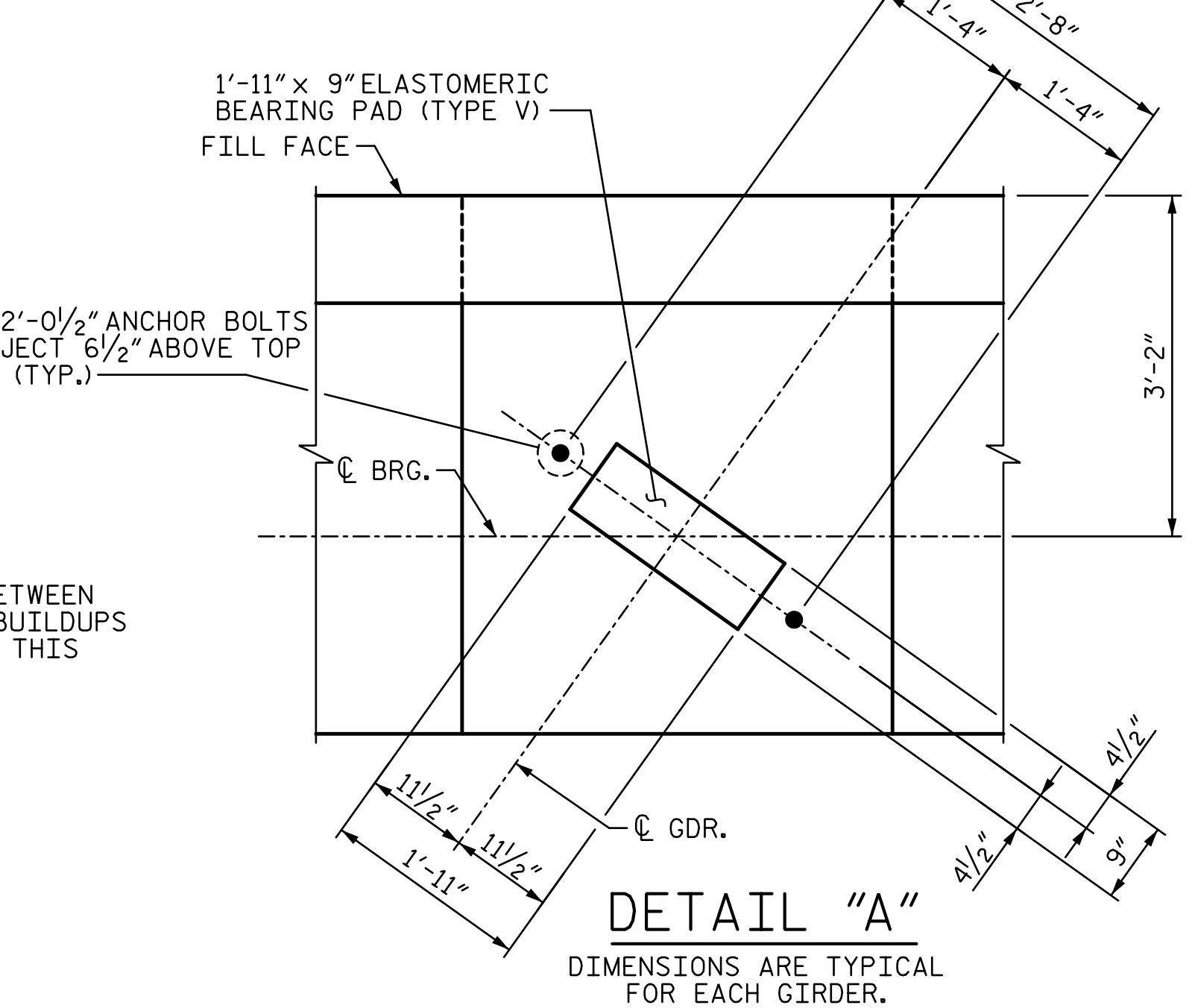
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

### TEMPORARY DRAINAGE AT END BENT



### PILE SPLICE DETAILS



**DETAIL "B"**  
("B" BARS, "V" BARS & END REINFORCEMENT NOT SHOWN FOR CLARITY)

**DETAIL "C"**  
("B" BARS, "V" BARS & END REINFORCEMENT NOT SHOWN FOR CLARITY)

### BAR TYPES

BAR	"A"	"B"
U1	8"	1'-6"
U2	3'-7 1/2"	1'-7 3/4"
U3	3'-7 1/2"	2'-5 3/4"
U4	3'-7 1/2"	3'-3 3/4"
U5	3'-7 1/2"	4'-2 3/4"

ALL BAR DIMENSIONS ARE OUT TO OUT.

### BILL OF REINFORCING

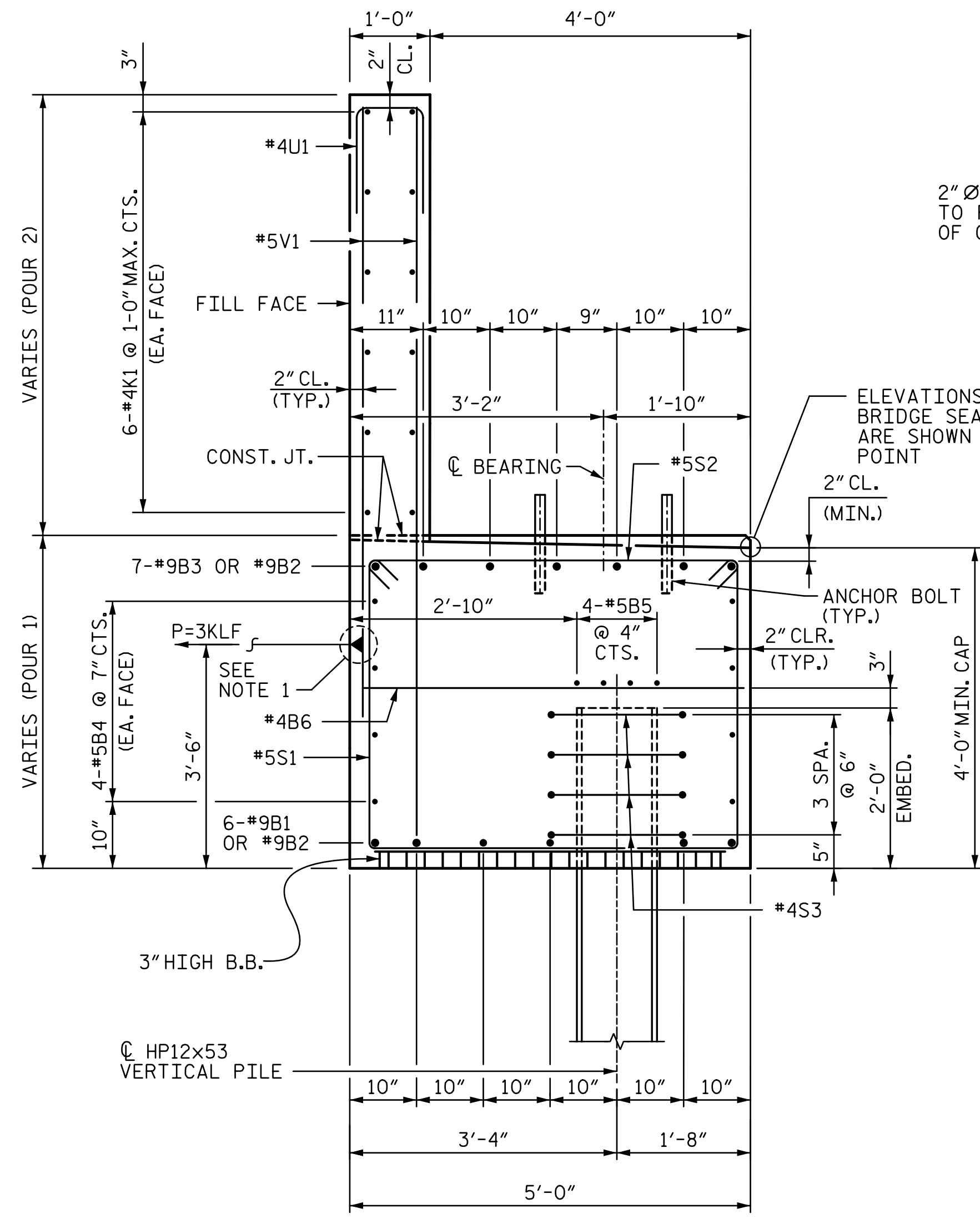
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#9	①	43'-3"	1,765
B2	13	#9	STR	60'-0"	2,652
B3	14	#9	①	45'-9"	2,178
B4	24	#5	STR	45'-10"	1,147
B5	12	#5	STR	45'-10"	574
B6	33	#4	STR	4'-8"	103
H1	30	#5	②	9'-6"	297
H2	30	#5	③	9'-3"	289
K1	60	#4	STR	28'-3"	1,132
K2	4	#4	STR	3'-1"	8
K3	4	#4	STR	3'-0"	8
S1	190	#5	④	12'-10"	2,543
S2	190	#5	⑤	5'-7"	1,106
S3	80	#4	⑥	6'-6"	347
U1	125	#4	⑦	3'-8"	306
U2	4	#5	⑦	6'-11"	29
U3	4	#5	⑦	8'-7"	36
U4	2	#5	⑦	10'-3"	21
U5	2	#5	⑦	12'-1"	25
V1	250	#5	STR	8'-7"	2,238
V2	26	#5	STR	10'-5"	282
V3	26	#5	STR	10'-1"	273

### QUANTITIES

REINFORCING STEEL	LBS.	17,359
CLASS A CONCRETE:		
POUR 1:		
CAP & LOWER WING	C.Y.	100.0
POUR 2:		
BACKWALL & UPPER WING	C.Y.	31.0
TOTAL	C.Y.	131.0
HP 12x53 STEEL PILES	NO.	20
	LIN. FEET	1,200
PILE SETUP FOR HP 12x53	EA.	20
PILE REDRIVES	EA.	10

**NOTES:**

- ABUTMENT RESTRAINTS (STRAPS) ARE REQUIRED ALONG THE CAP AS SHOWN. THE 3KLF LOAD PROVIDED IS A FACTORED LOAD. THE SPACING AND LENGTH OF STRAPS SHALL BE DETERMINED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA AND SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION. ANY ADDITIONAL CONSTRUCTION LOADS THAT WILL APPLY TO THE STRAPS (INCLUDING BUT NOT LIMITED TO CRANE LOADS) SHALL BE INCLUDED IN THE STRAP DESIGN AND SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO PLACING CONSTRUCTION LOADS ON THE APPROACH FILL. ALL COSTS ASSOCIATED WITH THE DESIGN AND INSTALLATION, INCLUDING LABOR AND INCIDENTALS, OF THE STRAPS SHALL BE INCLUDED IN THE VARIOUS CONTRACT BID ITEMS. NO ADDITIONAL PAYMENT WILL BE MADE.
- FOR ADDITIONAL NOTES, SEE SHEET 1 OF 3 AND "FOUNDATION LAYOUT" SHEET.



**SECTION A-A**

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DRAWN BY: <b>VMW</b>	DATE: <b>4-17</b>	DESIGN ENGINEER OF RECORD: <b>V. WU</b>	DATE: <b>5-17</b>
CHECKED BY: <b>TJT</b>	DATE: <b>4-17</b>		

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**STV** 100 years  
STV ENGINEERS, INC.  
900 West Trade St., Suite 715  
Charlotte, NC 28202  
NC License Number F-5991

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE  
END BENT 2**

REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

TOTAL SHEETS: 36

PROJECT NO. **U-4751**  
**NEW HANOVER** COUNTY  
STATION: **38+94.20 -L-**  
SHEET 3 OF 3