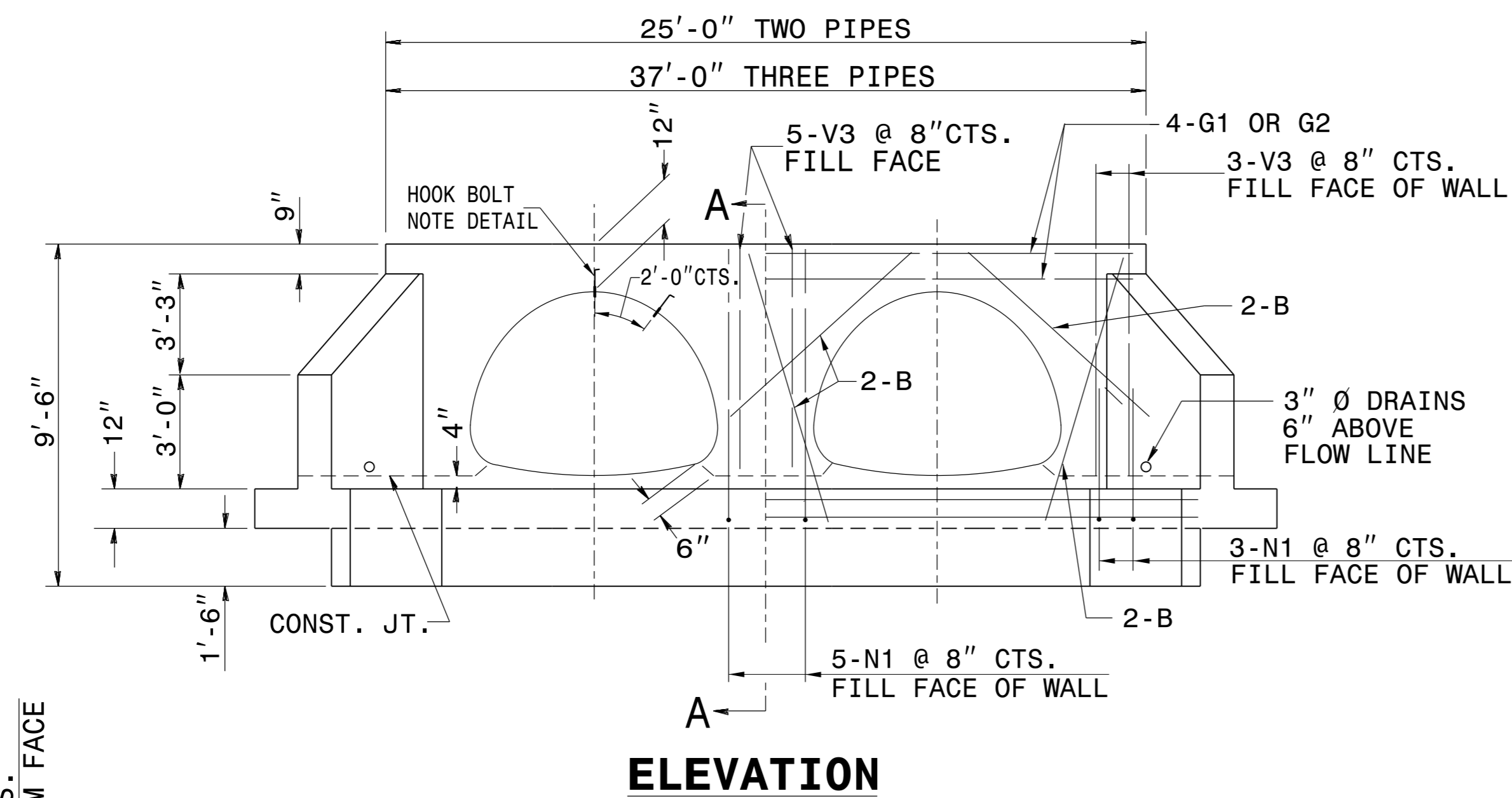
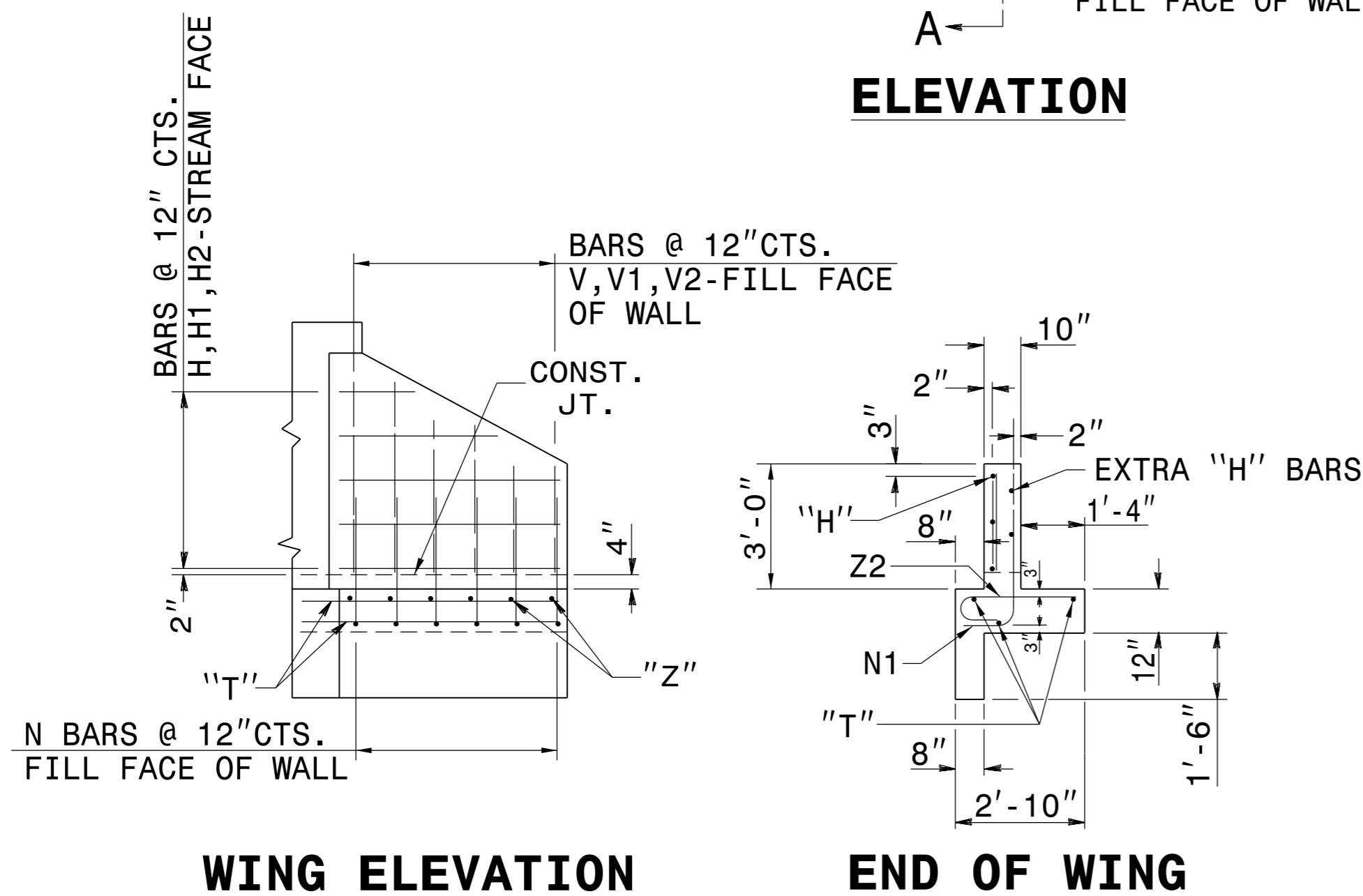


**PLAN**

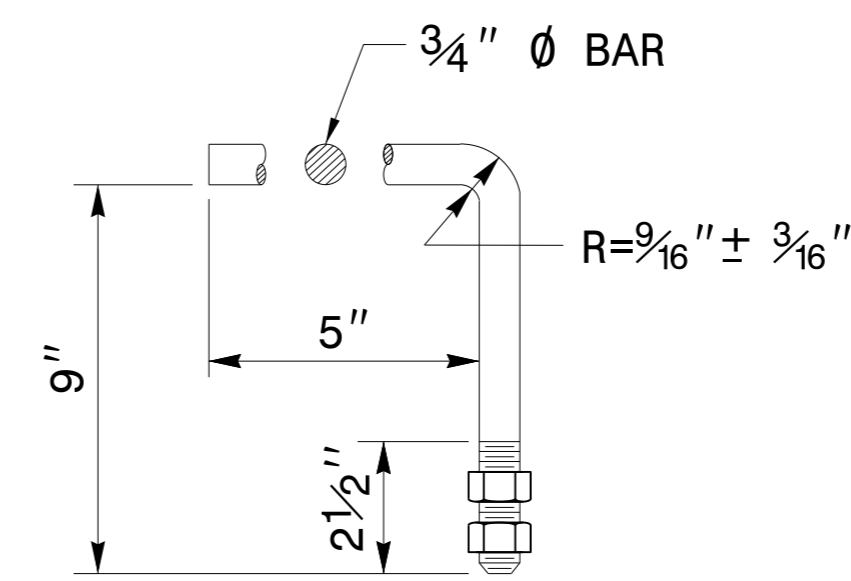


**ELEVATION**



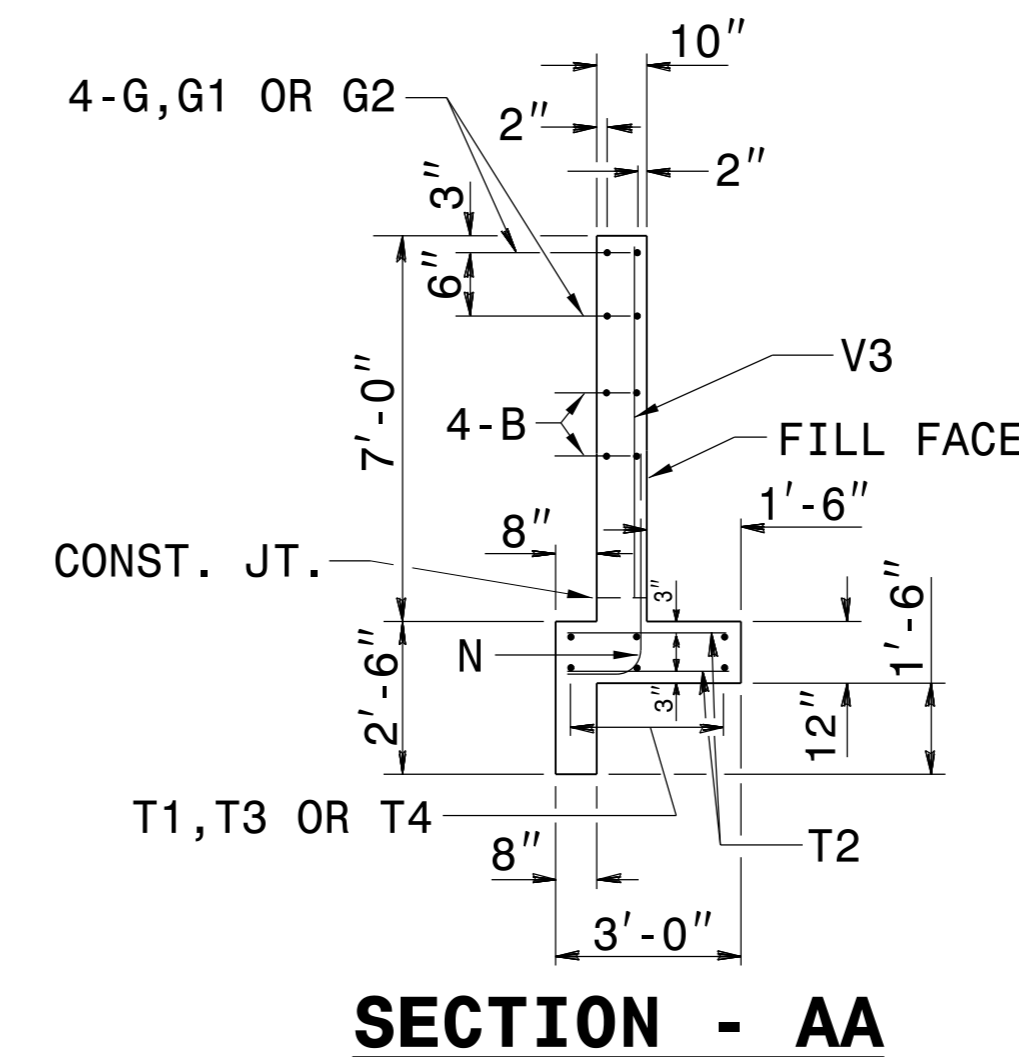
**WING ELEVATION**

**END OF WING**

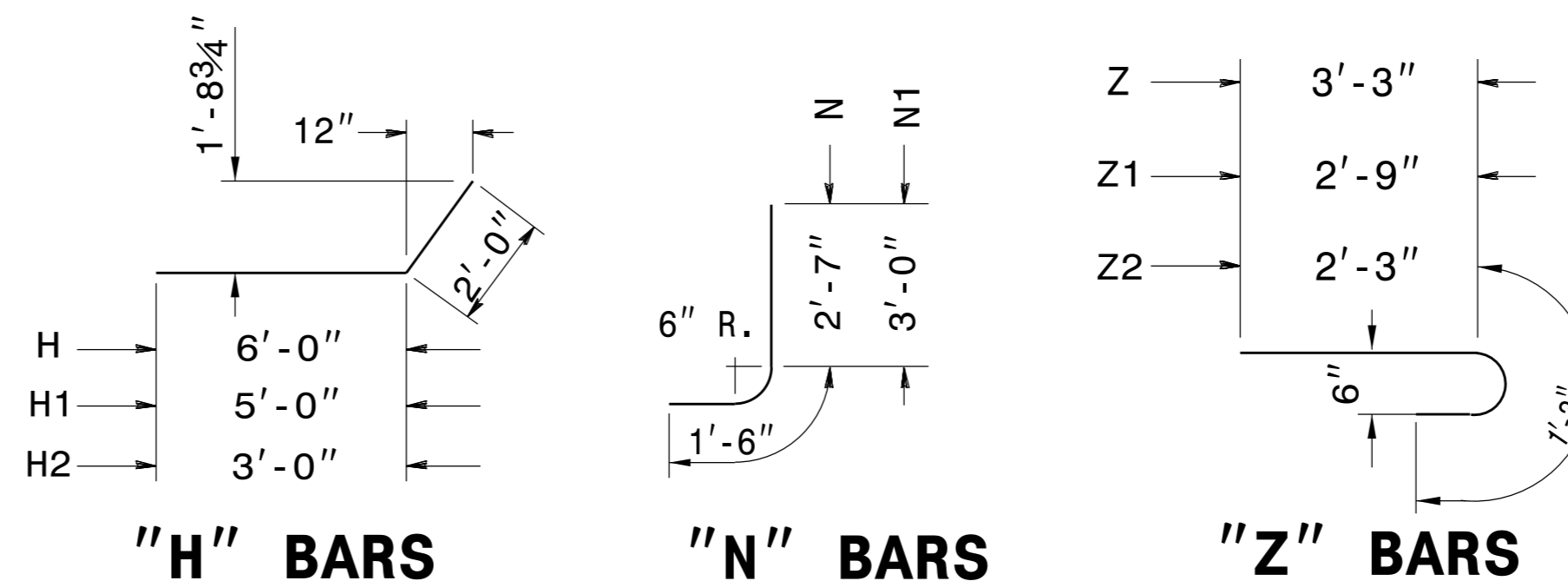


**HOOK BOLT**

NOTE: CONSTRUCT HOOK BOLTS (ANCHORS) AT 2'-0" CTS. ALONG THE CIRCUMFERENCE OF THE 103"X 71" CSPA. EMBED THE HOOK BOLTS 6" IN DEPTH. THE GALVANIZED 3/4" DIA. HOOK BOLTS MUST MEET ASTM A-307 OR ASTM A-836. BOTH BOLTS AND NUTS MUST BE IN ACCORDANCE WITH ASTM A-153 FOR GALVANIZING.



**SECTION - AA**



**"H" BARS**

**"N" BARS**

**"Z" BARS**

"H", "N", & "Z" BAR DIMENSIONS ARE OUT TO OUT.

**DESIGN DATA**

Specifications  
Steel in tension 20,000 LBS. PER SQ. IN.  
Concrete in compression 1,200 LBS. PER SQ. IN.  
Class "A" Concrete SEE A.A.S.H.T.O.  
Equiv. fluid pressure of earth 30 LBS. PER CU. FT.

**NOTES:**

- ALL CONCRETE TO BE CLASS "A".
- ALL REINFORCING STEEL SHALL BE ASTMA615-GRADE 60.
- ALL REINFORCING STEEL SHALL BE DEFORMED BARS. WHERE SPLICING OF REINFORCEMENT IS NECESSARY, BARS ARE TO BE LAPPED 45 DIAMETERS. ALL DIMENSIONS RELATIVE TO REINFORCEMENT ARE TO CENTERS OF BARS.
- THE FOOTING, CURTAIN WALL AND 4" OF WALL ARE TO BE POURED IN ONE OPERATION ALLOWING NO TIME FOR INITIAL SET TO TAKE PLACE BETWEEN THEM. THE REMAINING WALL SHALL THEN BE POURED IN ONE OPERATION.
- ALL EXPOSED CORNERS ARE TO BE CHAMFERED 1".
- 3" DIAMETER DRAINS SHALL BE PLACED IN WALL AS SHOWN AND BE 6" ABOVE NORMAL FLOW LINE.
- ALL MATERIAL AND WORKMANSHIP AS PER N.C. DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
- THE EXTRA BARS ARE PROVIDED FOR HOLDING REINFORCING STEEL IN CORRECT POSITION IN WING.

**BILL OF MATERIAL FOR ENDWALL**

REINF. STEEL		1 PIPES		2 PIPES		3 PIPES		
BAR	SIZE	LENGTH	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT
B	#4	6'-6"	8	35	16	69	24	104
G	#5	12'-9"	4	53	-	-	-	-
G1	#5	13'-6"	-	-	8	113	-	-
G2	#5	19'-6"	-	-	-	-	8	163
H	#4	8'-0"	10	53	10	53	10	53
H1	#4	7'-0"	2	9	2	9	2	9
H2	#4	5'-0"	4	13	4	13	4	13
N	#4	4'-1"	12	33	12	33	12	33
N1	#5	4'-6"	6	28	11	52	16	75
T	#4	6'-0"	6	24	6	24	6	24
T1	#4	16'-0"	6	64	-	-	-	-
T2	#4	2'-9"	6	11	10	18	14	26
T3	#4	15'-0"	-	-	12	120	-	-
T4	#4	21'-0"	-	-	-	-	12	168
V	#4	4'-10"	6	19	6	19	6	19
V1	#4	3'-8"	6	15	6	15	6	15
V2	#4	2'-6"	4	7	4	7	4	7
V3	#4	6'-6"	6	26	11	48	16	69
Z	#4	4'-6"	4	19	4	19	4	19
Z1	#4	4'-0"	4	11	4	11	4	11
Z2	#4	3'-6"	4	9	4	9	4	9
REINF. STEEL LBS.				429		632		817
CON./R.C. CU. YDS				7.0		10.1		13.1

2/4/2015



**CONTRACT STANDARDS AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**DETAIL OF REINFORCED CONCRETE ENDWALL FOR 103"X 71" (Pipe Arch)-90°**

ORIGINAL BY: KKEMPF DATE: 8/2/10  
MODIFIED BY: DATE:  
CHECKED BY: DATE:  
FILE SPEC.: KKEMPF\ENGLISH\852D0601.DGN