

APPROVED BY: DATE: 6/22/2023
ERIC J. WENGER, P.E.
CITY ENGINEER
THESE STANDARD DRAWINGS AND ASSOCIATED CALCULATIONS HAVE BEEN PREPARED BY CEC CORPORATION UNDER CONTRACT WITH THE CITY OF OKLAHOMA CITY

R.C.B. CULVERTS - END SECTION DETAILS
SINGLE CELL - 11' HEIGHT - 0° SKEW
SHEET NO. 1 OF 2

Drawing Number
RCB-032

APRON AND HEADWALL BAR LIST								
MARK	SIZE	FORM	11' SPAN			12' SPAN		
			NO.	LENGTH	LENGTH VARIATION	NO.	LENGTH	LENGTH VARIATION
ABD1	#4	STR.	26	4'-3"		28	4'-3"	
ABD2	#4	BNT.	4	5'-0"		4	5'-0"	
AD	#4	STR.	4	41'-0"		4	41'-0"	
AL1	#4	STR.	26	36'-7"		28	36'-7"	
AL2	#4	STR.	80	18'-7" AVG.	2'-3" TO 34'-11"	80	18'-7" AVG.	2'-3" TO 34'-11"
AT1	#4	STR.	4	53'-10"		4	54'-10"	
AT2	#4	STR.	36	32'-11" AVG.	12'-8" TO 53'-2"	36	33'-11" AVG.	13'-8" TO 54'-2"
AT3	#5	STR.	36	32'-11" AVG.	12'-8" TO 53'-2"	36	33'-11" AVG.	13'-8" TO 54'-2"
CH	#4	STR.	4	12'-8"		4	13'-8"	
CL1	#4	BNT.	15	4'-4"		16	4'-4"	
CL2	#4	BNT.	15	4'-4"		16	4'-4"	

①

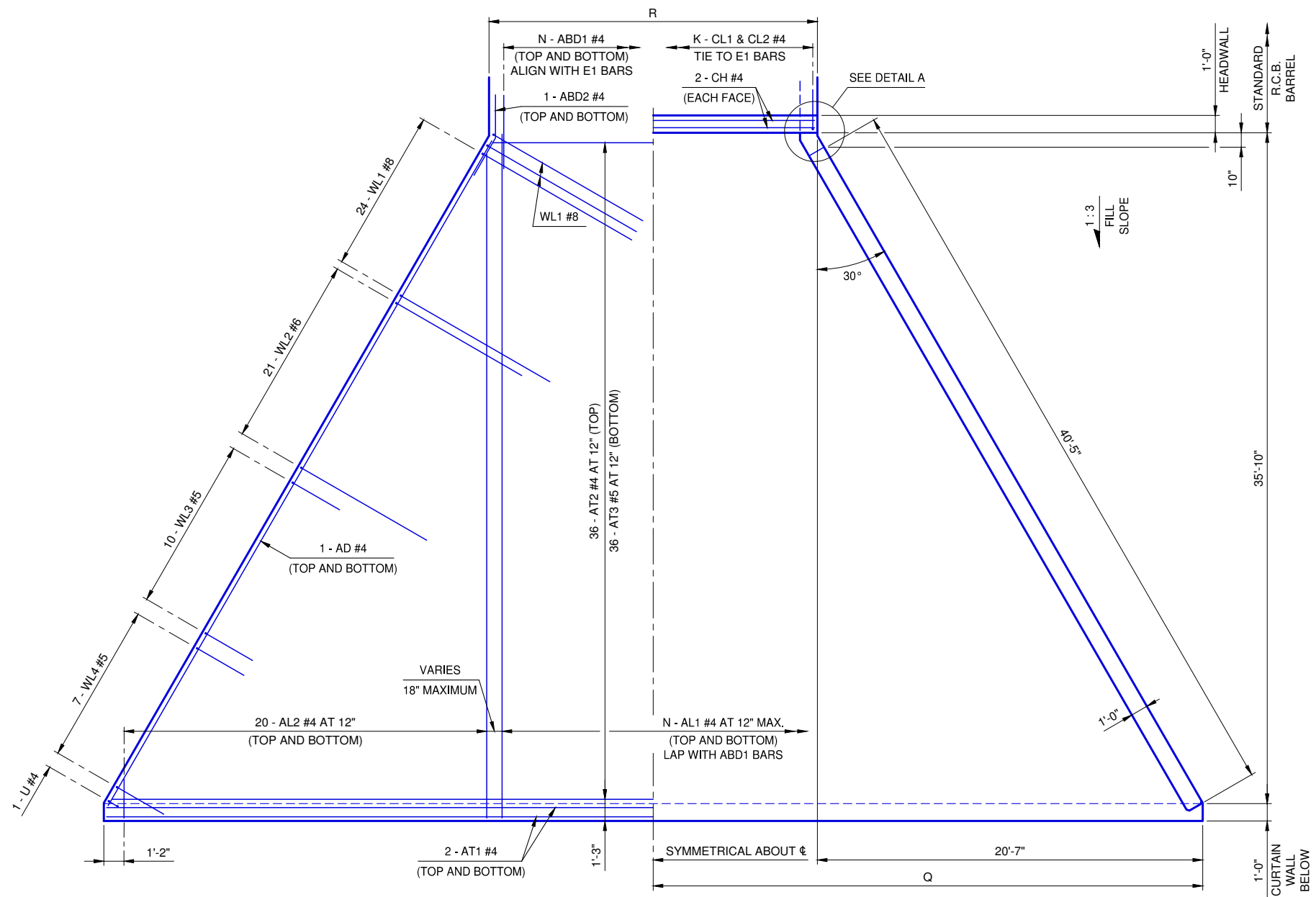
① 4 SETS OF 20 BARS

NOTE:
QUANTITIES ARE FOR ONE END SECTION WHICH INCLUDES ONE HEADWALL, ONE APRON AND TWO WINGWALLS. PIPE RAILING IS BASED ON PLAN DIMENSION AT CENTERLINE OF RAILING.

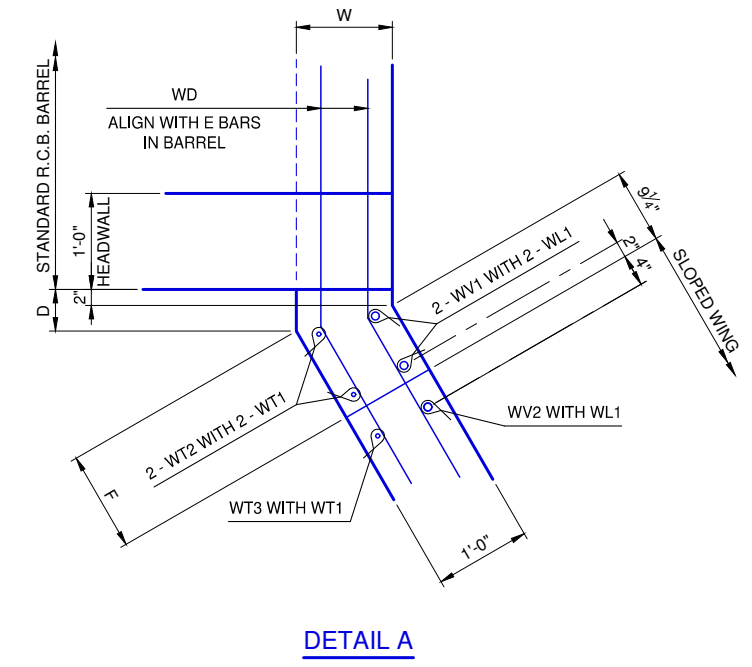
QUANTITIES				
ITEM	UNIT	11' SPAN	12' SPAN	
CLASS AA CONCRETE	C.Y.	78.1	79.8	
REINFORCING STEEL	LB.	10,980	11,110	
PIPE RAILING	L.F.	95	96	

APRON VARIABLES				
SPAN	DIMENSIONS		NO. OF BARS	
	R	Q	K	N
11'	13'-0"	27'-1"	15	13
12'	14'-0"	27'-7"	16	14

WINGWALL DIMENSIONS			
SPAN	W	D	F
11'	12"	5 3/16"	1'-0 7/16"
12'	12"	5 3/16"	1'-0 7/16"

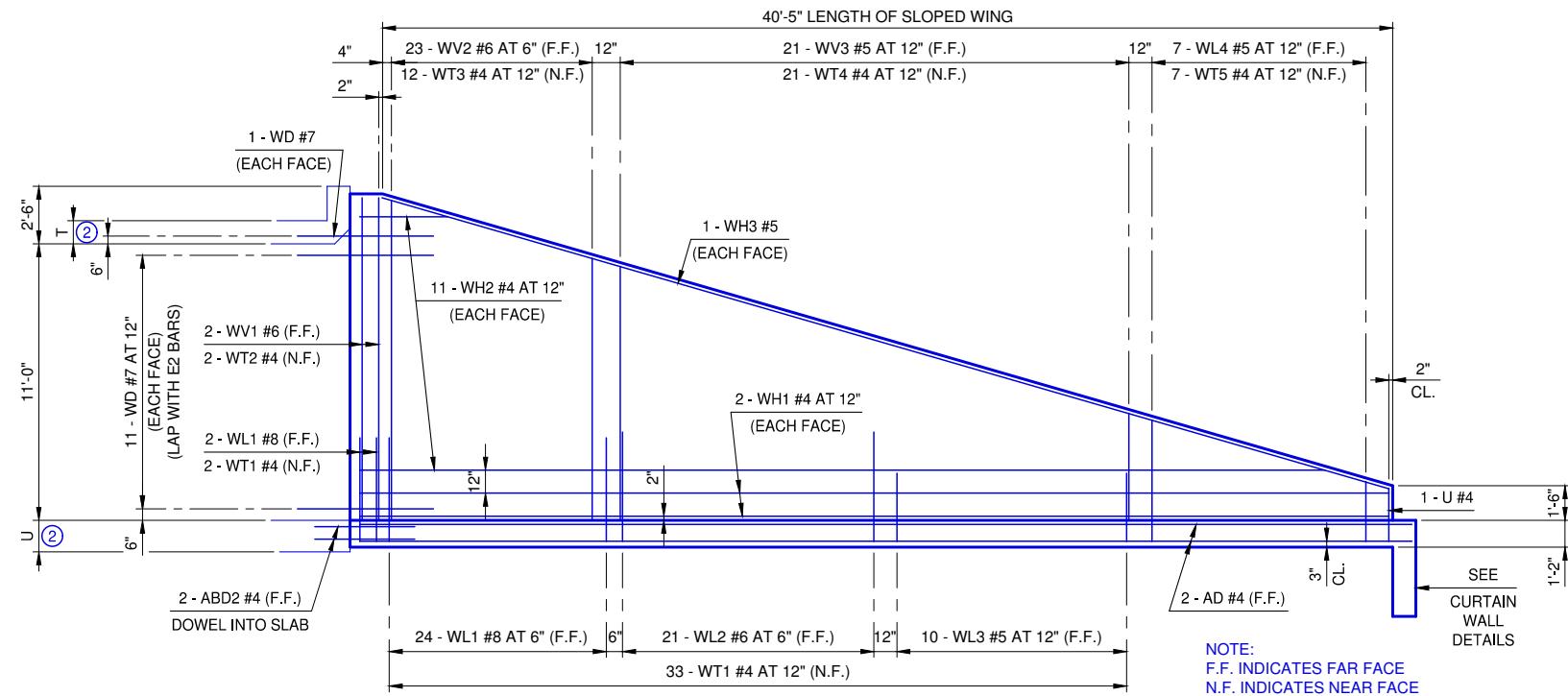


APRON PLAN



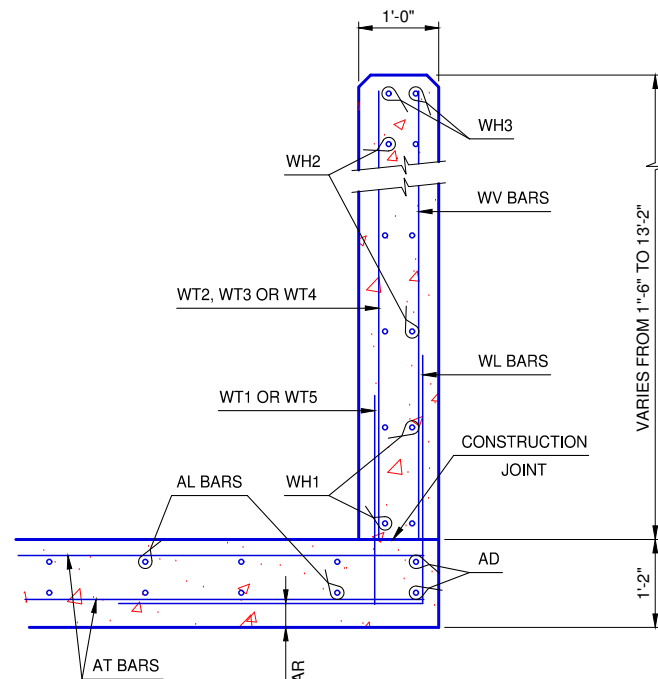
DETAIL A

REVISION NO.
DATE

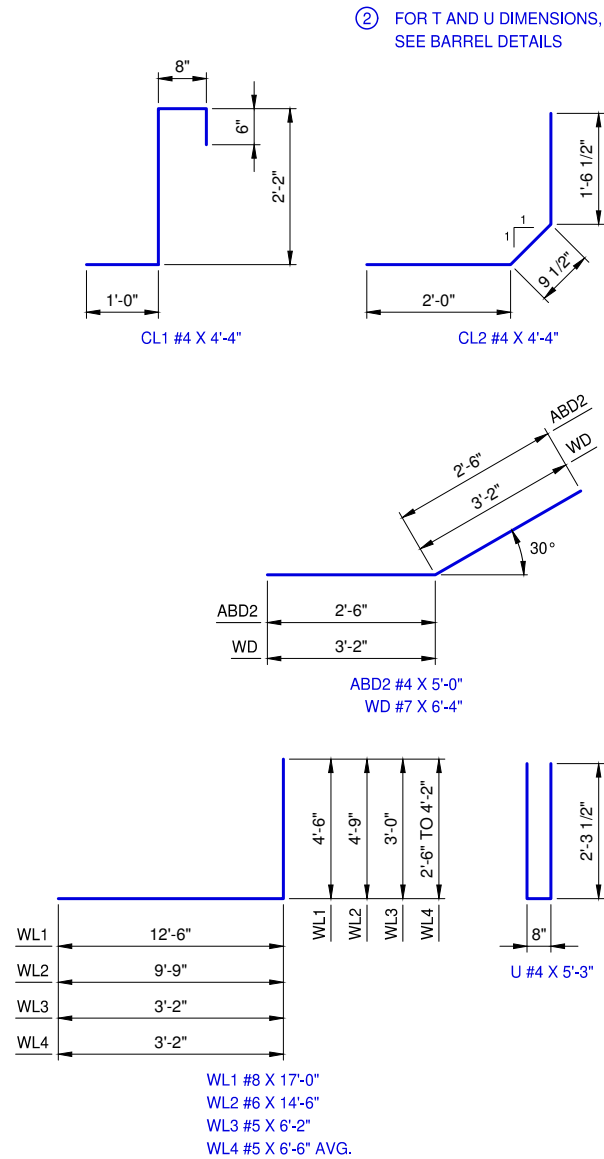


WINGWALL ELEVATION

SEE STD. RCB-015 PipeRailing FOR DETAILS OF RAIL REQUIRED ON TOP OF HEADWALL AND WINGS



TYPICAL SECTION THRU WING



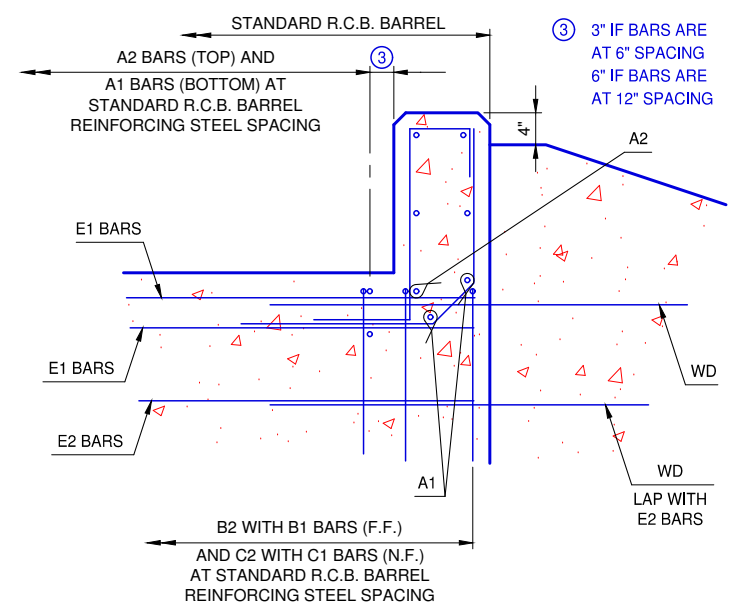
ADJUSTMENT IN NUMBER OF BARREL BARS IN END SECTION

SPAN	BAR MARKS					
	A1	A2	B1	B2	C1	C2
11'					+2	+2
12'					+2	+2

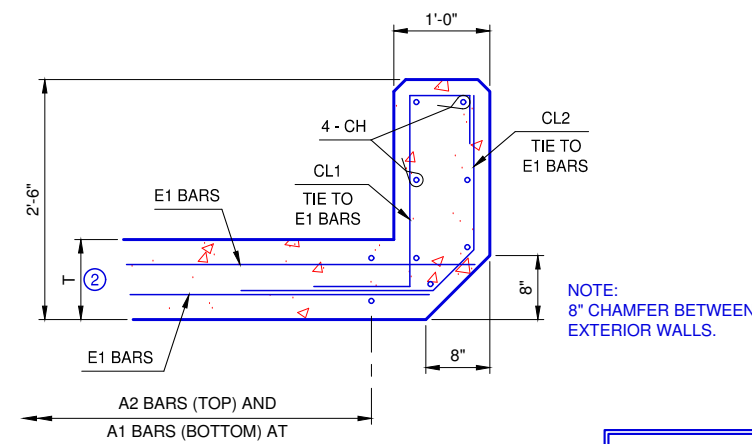
NOTE: TO CONSTRUCT ONE END SECTION AS SHOWN, THE NUMBER OF BARS SHOWN NEED TO BE ADDED TO OR SUBTRACTED FROM THE TOTAL WEIGHT OF REINFORCING FOR THE BARREL. THIS WEIGHT ADJUSTMENT IS INCLUDED IN THE END SECTION QUANTITY. SEE BARREL DETAILS FOR BAR LENGTHS, SIZES AND BENDS.

WINGWALL BAR LIST					
ONE WINGWALL SHOWN, TWO REQUIRED					
MARK	SIZE	NO.	FORM	LENGTH	LENGTH VARIATION
WD	#7	24	BNT.	6'-4"	
WH1	#4	4	STR.	41'-3"	
WH2	#4	22	STR.	21'-1" AVG.	3'-9" TO 38'-5"
WH3	#5	2	STR.	41'-11"	
WL1	#8	26	BNT.	17'-0"	
WL2	#6	21	BNT.	14'-6"	
WL3	#5	10	BNT.	6'-2"	
WL4	#5	7	BNT.	6'-6" AVG.	5'-8" TO 7'-4"
WT1	#4	35	STR.	2'-7"	
WT2	#4	2	STR.	13'-0"	
WT3	#4	12	STR.	11'-3" AVG.	9'-8" TO 12'-10"
WT4	#4	21	STR.	6'-6" AVG.	3'-7" TO 9'-5"
WT5	#4	7	STR.	3'-4" AVG.	2'-6" TO 4'-2"
WV1	#6	2	STR.	13'-0"	
WV2	#6	23	STR.	11'-3" AVG.	9'-8" TO 12'-10"
WV3	#5	21	STR.	6'-6" AVG.	3'-7" TO 9'-5"
U	#4	1	BNT.	5'-3"	

① 2 SETS OF 11 BARS



HEADWALL DETAIL AT EXTERIOR WALL



HEADWALL DETAIL AT MIDSPAN

NOTE: 8" CHAMFER BETWEEN EXTERIOR WALLS.

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SINGLE CELL - 11' HEIGHT - 0° SKEW

SHEET NO. 2 OF 2

Drawing Number
RCB-033

The City of
Oklahoma City
Public Works Department
Engineering Division

