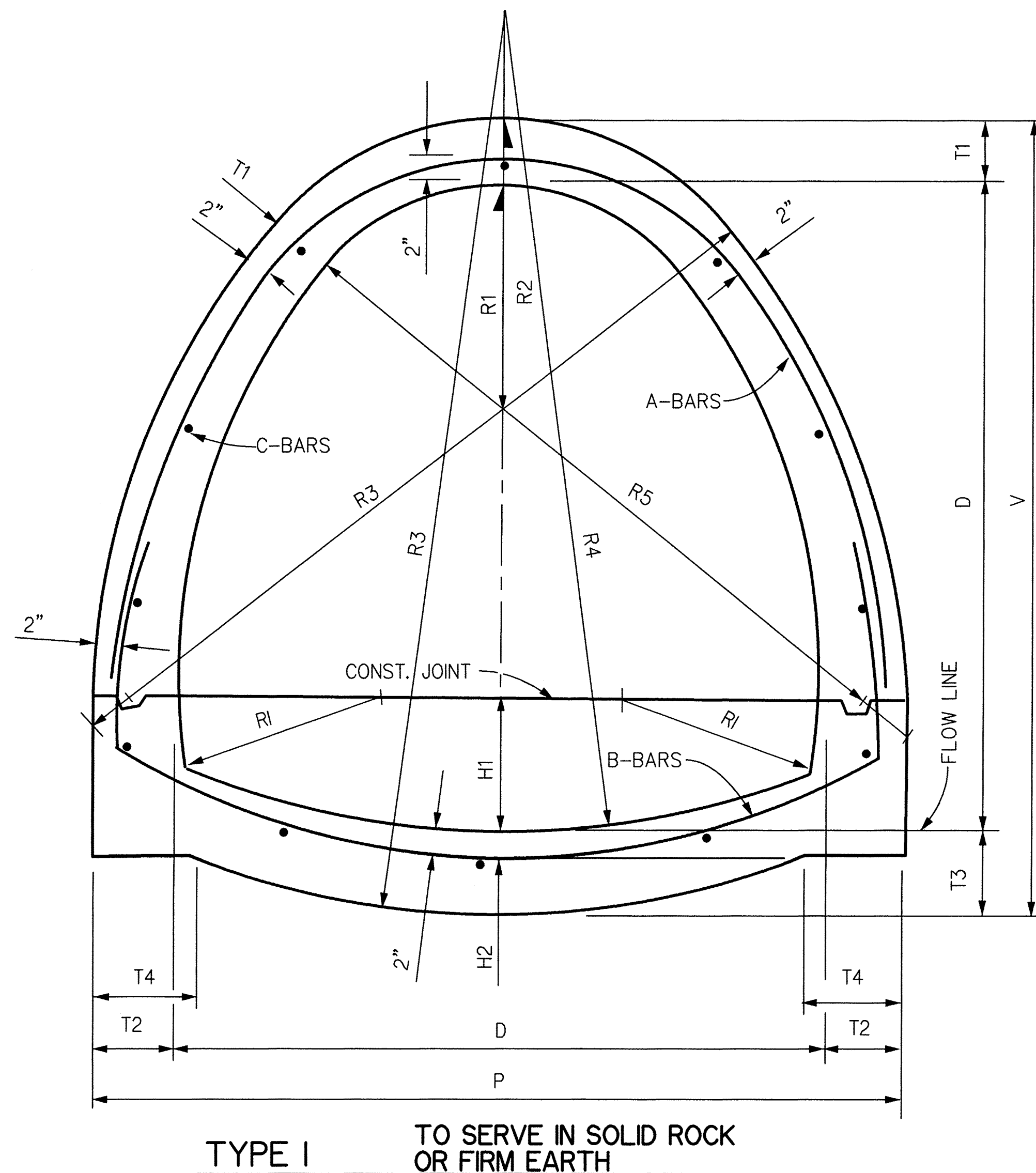


DEPTH OF BACKFILL NOT TO EXCEED 5'														REINFORCING STEEL						QUANTITIES (PER L.F.)								
SIZE	T1	T2	T3	H2	P	V	R1	R2	R3	R4	R5	H1	T4	S1	S2	A-BARS		B-BARS		C-BARS		CONCRETE			STEEL	AREA OF WATERWAY		SIZE
																SIZE & SPACING	LENGTH	SIZE & SPACING	LENGTH	NUMBER & SIZE	LENGTH	ENTIRE SECTION	BELOW CONST. JT.	EXCAVATION BELOW FLOWLINE		C.Y.	C.Y.	
36"	5"	6"	6"	-4	4'-0"	3'-11"	1'-0"	1'-5"	4'-0"	4'-6"	3'-1 1/2"	0'-7 1/2"	0'-9"			1/2" @ 18"	6'-9"	1/2" @ 18"	8'-0"	10 - 1/2"	1'-0"	0.204	0.091	0.059	13.49	7.05	36"	
42"	5"	6"	6"	-3	4'-6"	4'-5"	1'-2"	1'-7"	4'-6"	5'-0"	3'-7 3/4"	0'-8 3/4"	0'-8"			1/2" @ 18"	7'-6"	1/2" @ 18"	9'-0"	10 - 1/2"	1'-0"	0.232	0.101	0.061	14.28	9.59	42"	
48"	5"	6 1/2"	6 1/2"	-3 1/2"	5'-1"	4'-11 1/2"	1'-4"	1'-9"	5'-1"	5'-7 1/2"	4'-2"	0'-10"	0'-9 1/2"			1/2" @ 15"	8'-6"	1/2" @ 15"	9'-6"	10 - 1/2"	1'-0"	0.274	0.124	0.072	16.59	12.53	48"	
54"	5"	7"	7"	-2 1/2"	5'-8"	5'-6"	1'-6"	1'-11"	5'-8"	6'-3"	4'-8 1/4"	0'-11 1/4"	0'-8 1/2"			1/2" @ 15"	9'-6"	1/2" @ 15"	10'-6"	10 - 1/2"	1'-0"	0.317	0.146	0.082	17.68	15.85	54"	
60"	5 1/2"	7 1/2"	7 1/2"	-2 1/2"	6'-3"	6'-1"	1'-8"	2'-11 1/2"	6'-3"	6'-10 1/2"	5'-2 1/2"	1'-0 1/2"	0'-9"			1/2" @ 12"	10'-6"	1/2" @ 12"	11'-0"	10 - 1/2"	1'-0"	0.384	0.175	0.098	21.42	19.58	60"	
66"	5 1/2"	8"	8"	-2 1/2"	6'-10"	6'-7 1/2"	1'-10"	2'-3 1/2"	6'-10"	7'-6"	5'-8 3/4"	1'-0 3/4"	0'-10"			1/2" @ 12"	11'-6"	1/2" @ 12"	12'-0"	10 - 1/2"	1'-0"	0.435	0.205	0.112	22.78	23.69	66"	
72"	6"	8 1/2"	8"	-2 1/2"	7'-5"	7'-2"	2'-0"	2'-6"	7'-5"	8'-1"	6'-3"	1'-3"	1'-0"			1/2" @ 12"	12'-6"	1/2" @ 12"	13'-0"	10 - 1/2"	1'-0"	0.493	0.228	0.119	24.14	28.20	72"	
76"	6 1/2"	9"	8"	-2"	8'-0"	7'-8 1/2"	2'-2"	2'-8 1/2"	8'-0"	8'-8"	6'-9 1/4"	1'-4 1/4"	1'-1"			1/2" @ 12"	14'-0"	1/2" @ 12"	13'-0"	12 - 1/2"	1'-0"	0.564	0.249	0.123	26.52	33.10	76"	
84"	7"	9"	8"	-1"	8'-6"	8'-3"	2'-4"	2'-11"	8'-6"	9'-2"	7'-3 1/2"	1'-5 1/2"	1'-1"			1/2" @ 12"	15'-0"	1/2" @ 12"	14'-0"	12 - 1/2"	1'-0"	0.628	0.265	0.118	27.88	38.40	84"	
90"	7"	9 1/2"	8"	+0"	9'-1"	8'-9"	2'-6"	3'-1"	9'-0"	9'-9"	7'-9 3/4"	1'-6 3/4"	1'-0"			1/2" @ 12"	16'-0"	1/2" @ 12"	14'-6"	12 - 1/2"	1'-0"	0.669	0.285	0.120	28.90	44.05	90"	
96"	7 1/2"	10"	8"	+0"	9'-8"	9'-3 1/2"	2'-8"	3'-3 1/2"	9'-8"	10'-4"	8'-4"	1'-8"	1'-2"			1/2" @ 10"	17'-0"	1/2" @ 12"	15'-0"	12 - 1/2"	1'-0"	0.755	0.312	0.125	32.23	50.10	96"	
102"	7 1/2"	10"	8"	+0"	10'-2"	9'-9 1/2"	2'-10"	3'-5 1/2"	10'-2"	10'-10"	8'-10 1/4"	1'-9 1/4"	1'-4"			5/8" @ 15"	18'-0"	5/8" @ 15"	16'-0"	12 - 1/2"	1'-0"	0.795	0.337	0.128	36.99	56.60	102"	
108"	7 1/2"	10 1/2"	8"	+1"	10'-9"	10'-3 1/2"	3'-0"	3'-7 1/2"	10'-9"	11'-5"	9'-4 1/2"	1'-10 1/2"	1'-4"			5/8" @ 14"	19'-0"	5/8" @ 14"	17'-0"	12 - 1/2"	1'-0"	0.847	0.350	0.129	40.86	63.40	108"	
114"	8"	12"	8"	+2"	11'-6"	10'-10"	3'-2"	3'-10"	11'-6"	12'-2"	9'-10 3/4"	1'-11 3/4"	1'-4"			5/8" @ 12"	20'-0"	5/8" @ 12"	18'-0"	12 - 1/2"	1'-0"	0.952	0.385	0.138	48.44	70.70	114"	
120"	8"	12"	8"	+0"	12'-0"	11'-4"	3'-4"	4'-0"	11'-9"	12'-8"	10'-5"	2'-1"	1'-11"			5/8" @ 11"	21'-6"	5/8" @ 12"	18'-6"	12 - 1/2"	1'-0"	1.044	0.423	0.134	52.63	78.30	120"	
126"	8"	13"	8"	+0"	12'-8"	11'-10"	3'-6"	4'-2"	12'-8"	13'-4"	10'-11 1/2"	2'-2 1/4"	2'-2"			5/8" @ 11"	22'-6"	5/8" @ 12"	19'-0"	12 - 1/2"	1'-0"	1.108	0.654	0.138	54.32	86.30	126"	
132"	8"	13 1/2"	8"	+0"	13'-3"	12'-4"	3'-8"	4'-4"	13'-3"	13'-11"	11'-5 1/4"	2'-3 1/2"	2'-4"			5/8" @ 11"	23'-6"	5/8" @ 12"	20'-0"	12 - 1/2"	1'-0"	1.196	0.504	0.141	56.54	94.75	132"	
138"	8 1/2"	14"	8"	+3"	13'-10"	12'-10 1/2"	3'-10"	4'-6 1/2"	13'-10"	14'-6"	11'-11 3/4"	2'-4 3/4"	1'-10"			5/8" @ 10"	25'-0"	5/8" @ 12"	20'-0"	12 - 1/2"	1'-0"	1.258	0.493	0.103	61.16	103.50	138"	
144"	9"	15"	8"	+3"	14'-6"	13'-5"	4'-0"	4'-9"	14'-5"	15'-2"	12'-6"	2'-6"	2'-1"			5/8" @ 10"	26'-0"	5/8" @ 12"	21'-0"	12 - 1/2"	1'-0"	1.378	0.522	0.103	63.49	112.75	144"	



NOTE:  
ASSUMED LIVE LOAD = A 20 TON TRUCK

*[Signature]*  
CITY ENGINEER

*[Signature]*  
DESIGN MANAGER

CITY OF TULSA, OKLAHOMA  
ENGINEERING SERVICES DEPARTMENT

TYPE 1 SEMI-ELLIPTICAL STORM SEWER  
DEPTH OF BACKFILL NOT TO EXCEED 5'  
(FOR REHAB AND REFERENCE ONLY)

DATE: OCTOBER 2013 STD. 781A

REVISION	BY	DATE