STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

WINGWALLS, TOEWALLS AND PARAPETS FOR 75° SKEW

CLEAR HEIGHT	N BARS AT 1'-0" C. TO C.						P BARS AT 1'-0" C. TO C. - WING A						P BARS AT 1'-0" C. TO C. - WING B						R BARS AT 1'-0" C. TO C.				M BARS			U BARS			CLEAR HEIGHT
	SIZE	NO. (CONSTANT LENGTH)	* LENGTH	NO. (VARIABLE LENGTH)	LENGTH * SHORTEST	LENGTH * LONGEST	SIZE	NO. (CONSTANT LENGTH)	LENGTH	NO. (VARIABLE LENGTH)	LENGTH SHORTEST	LENGTH LONGEST	SIZE	NO. (CONSTANT LENGTH)	LENGTH	NO. (VARIABLE LENGTH)	LENGTH SHORTEST	LENGTH LONGEST	SIZE	NO. (VARIABLE LENGTH)	LENGTH ** SHORTEST	LENGTH ** LONGEST	SIZE	NO. (CONSTANT LENGTH)	LENGTH	SIZE	NO. (CONSTANT LENGTH)	LENGTH	
2'	#4	8	5'-5"	12	4'-4"	5'-2"	#4	10	4'-6"	2	2'-1"	2'-1"	#4	10	3'-5"	2	1'-3"	1'-3"	#6	40	3'-6"	3'-6"	#6	14	X_s+8"	#6	8	X_s+8"	2'
3'	#4	6	6'-8"	26	4'-4"	6'-7"	#4	10	8'-0"	4	2'-8"	5'-6"	#4	10	6'-0"	4	1'-9"	4'-0"	#6	64	3'-6"	3'-6"	#6	14	X_s+8"	#6	8	X_s+8"	3'
4'	#5	6	8'-2"	40	4'-5"	8'-0"	#4	10	12'-0"	6	4'-0"	9'-7"	#4	10	9'-3"	6	2'-10"	7'-4"	#6	92	3'-6"	3'-6"	#6	14	X_s+8"	#6	8	X_s+8"	4'
5'	#5	6	9'-2"	52	4'-5"	9'-2"	#4	10	14'-8"	8	3'-11"	12'-3"	#4	10	11'-7"	8	2'-9"	9'-7"	#6	116	3'-6"	3'-6"	#6	14	X_s+8"	#6	8	X_s+8"	5'
6'	#5	6	10'-2"	58	4'-11"	10'-2"	#4	10	16'-3"	10	4'-0"	15'-3"	#4	10	12'-11"	10	2'-10"	12'-1"	#6	128	3'-6"	3'-6"	#6	14	X_s+8"	#6	8	X_s+8"	6'
7'	#5	6	11'-3"	62	5'-5"	11'-3"	#4	12	17'-7"	10	4'-1"	14'-6"	#4	12	13'-11"	10	2'-10"	12'-0"	#6	136	3'-6"	4'-8"	#6	14	X_s+8"	#6	8	X_s+8"	7'
8'	#6	6	12'-5"	68	6'-0"	12'-5"	#4	12	19'-3"	14	1'-6"	18'-3"	#4	12	15'-2"	14	0'-9"	14'-4"	#6	148	3'-8"	5'-4"	#6	14	X_s+8"	#6	8	X_s+8"	8'
9'	#6	6	13'-5"	72	6'-6"	13'-4"	#4	14	20'-10"	14	1'-8"	18'-5"	#4	14	16'-6"	14	0'-11"	14'-7"	#6	160	3'-8"	5'-10"	#6	14	X_s+8"	#6	8	X_s+8"	9'
10'	#7	6	14'-7"	78	7'-2"	14'-7"	#4	14	22'-2"	16	1'-8"	21'-2"	#4	14	17'-8"	16	0'-11"	16'-10"	#6	168	3'-8"	6'-5"	#6	14	X_s+8"	#6	8	X_s+8"	10'
11'	#7	6	15'-7"	84	7'-8"	15'-6"	#4	16	23'-10"	16	1'-8"	21'-5"	#4	16	19'-1"	16	0'-11"	17'-1"	#6	180	3'-8"	6'-11"	#6	14	X_s+8"	#6	8	X_s+8"	11'
12'	#8	6	16'-8"	90	8'-3"	16'-7"	#4	16	25'-2"	18	1'-9"	24'-2"	#4	16	20'-1"	18	1'-0"	19'-3"	#6	192	3'-8"	7'-5"	#6	14	X_s+8"	#6	8	X_s+8"	12'

* LENGTH INCLUDES VERTICAL LEG, HORIZONTAL LEG AND 180° STANDARD HOOK.
** LENGTH INCLUDES 2 STANDARD 180° HOOKS.

X_s = TOTAL SKEWED BARREL WIDTH OUT TO OUT (DIMENSION "X" FROM CULVERT SHEET TIMES 1.035)
Y = TOTAL BARREL HEIGHT OUT TO OUT (DIMENSION "Y" FROM CULVERT SHEET)

DIMENSIONS AND QUANTITIES FOR 75° SKEW

CLEAR HEIGHT	H	W_1	W_2	S	M	N	Q	R	T_4	Z	CY CLASS AA CONCRETE	LB BAR REINF STEEL	CLEAR HEIGHT
2'	3'-1"	1'-1"	2'-0"	1'-1"	3'-0"	2'-8"	-	1'-0"	10"	-	4.0	335	2'
3'	4'-3½"	2'-3½"	2'-0"	2'-1½"	6'-6"	5'-3"	-	1'-0"	10"	-	7.1	570	3'
4'	5'-9"	3'-9"	2'-0"	2'-7"	10'-6"	8'-6"	-	1'-0"	10"	-	11.4	999	4'
5'	6'-9"	4'-9"	2'-0"	2'-7"	13'-2"	10'-10"	-	1'-0"	10"	-	14.7	1287	5'
6'	7'-9"	5'-3"	2'-6"	2'-7"	14'-9"	12'-2"	-	1'-0"	10"	-	18.2	1502	6'
7'	8'-9½"	5'-9½"	3'-0"	2'-7½"	16'-1"	13'-2"	1'-6"	2'-0"	10"	2'-6"	22.3	1808	7'
8'	9'-10½"	6'-4½"	3'-6"	2'-8½"	17'-9"	14'-5"	2'-0"	2'-6"	12"	3'-0"	30.3	2492	8'
9'	10'-11"	6'-11"	4'-0"	2'-9"	19'-4"	15'-9"	2'-0"	3'-0"	12"	3'-0"	35.9	2851	9'
10'	11'-11"	7'-5"	4'-6"	2'-9"	20'-8"	16'-11"	2'-6"	3'-6"	12"	3'-6"	39.4	3775	10'
11'	12'-11"	7'-11"	5'-0"	2'-9"	22'-4"	18'-4"	3'-0"	4'-0"	12"	4'-0"	48.3	4289	11'
12'	13'-11½"	8'-5½"	5'-6"	2'-9½"	23'-8"	19'-4"	3'-0"	4'-6"	12"	4'-6"	54.7	5611	12'

QUANTITIES SHOWN INCLUDE WINGWALLS, WINGWALL FOOTINGS, AND WINGWALL TOEWALL FOR BOTH ENDS.

WINGWALLS, TOEWALLS AND PARAPETS FOR 60° SKEW

CLEAR HEIGHT	N BARS AT 1'-0" C. TO C.						P BARS AT 1'-0" C. TO C. - WING C						P BARS AT 1'-0" C. TO C. - WING D						R BARS AT 1'-0" C. TO C.				M BARS			U BARS			CLEAR HEIGHT
	SIZE	NO. (CONSTANT LENGTH)	* LENGTH	NO. (VARIABLE LENGTH)	LENGTH * SHORTEST	LENGTH * LONGEST	SIZE	NO. (CONSTANT LENGTH)	LENGTH	NO. (VARIABLE LENGTH)	LENGTH SHORTEST	LENGTH LONGEST	SIZE	NO. (CONSTANT LENGTH)	LENGTH	NO. (VARIABLE LENGTH)	LENGTH SHORTEST	LENGTH LONGEST	SIZE	NO. (VARIABLE LENGTH)	LENGTH ** SHORTEST	LENGTH ** LONGEST	SIZE	NO. (CONSTANT LENGTH)	LENGTH	SIZE	NO. (CONSTANT LENGTH)	LENGTH	
2'	#4	8	5'-5"	12	4'-4"	5'-2"	#4	10	4'-6"	2	2'-1"	2'-1"	#4	10	3'-5"	2	1'-3"	1'-3"	#6	40	3'-6"	3'-6"	#6	14	X_s+10"	#6	8	X_s+10"	2'
3'	#4	6	6'-8"	26	4'-4"	6'-7"	#4	10	8'-0"	4	2'-9"	5'-6"	#4	10	6'-0"	4	1'-9"	4'-0"	#6	64	3'-6"	3'-6"	#6	14	X_s+10"	#6	8	X_s+10"	3'
4'	#5	6	8'-2"	40	4'-5"	8'-0"	#4	10	12'-0"	6	4'-0"	9'-7"	#4	10	9'-3"	6	2'-9"	7'-4"	#6	92	3'-6"	3'-6"	#6	14	X_s+10"	#6	8	X_s+10"	4'
5'	#5	6	9'-2"	52	4'-5"	9'-2"	#4	10	14'-8"	8	3'-11"	12'-3"	#4	10	11'-7"	8	2'-9"	9'-7"	#6	116	3'-6"	3'-6"	#6	14	X_s+10"	#6	8	X_s+10"	5'
6'	#5	6	10'-2"	62	4'-5"	10'-2"	#4	10	17'-7"	10	4'-0"	15'-2"	#4	10	13'-11"	10	2'-9"	11'-11"	#6	136	3'-6"	3'-6"	#6	14	X_s+10"	#6	8	X_s+10"	6'
7'	#5	6	11'-3"	72	4'-5"	11'-3"	#4	10	20'-6"	12	4'-1"	18'-1"	#4	10	16'-2"	12	2'-10"	14'-3"	#6	156	3'-6"	4'-8"	#6	14	X_s+10"	#6	8	X_s+10"	7'
8'	#6	6	12'-5"	80	4'-10"	12'-5"	#4	10	22'-6"	16	1'-6"	21'-0"	#4	10	17'-10"	16	0'-9"	16'-8"	#6	172	3'-8"	5'-4"	#6	14	X_s+10"	#6	8	X_s+10"	8'
9'	#6	6	13'-5"	86	5'-2"	13'-5"	#4	10	24'-6"	16	1'-8"	23'-11"	#4	10	19'-6"	16	0'-11"	19'-1"	#6	188	3'-8"	5'-10"	#6	14	X_s+10"	#6	8	X_s+10"	9'
10'	#7	6	14'-7"	94	5'-8"	14'-7"	#4	12	26'-5"	18	1'-8"	24'-0"	#4	12	21'-1"	18	0'-11"	19'-2"	#6	200	3'-8"	6'-5"	#6	14	X_s+10"	#6	8	X_s+10"	10'
11'	#7	6	15'-7"	102	6'-0"	15'-7"	#4	12	28'-5"	20	1'-8"	26'-11"	#4	12	22'-9"	20	0'-11"	21'-7"	#6	216	3'-8"	6'-11"	#6	14	X_s+10"	#6	8	X_s+10"	11'
12'	#8	8	16'-8"	108	6'-5"	16'-8"	#4	12	30'-5"	22	1'-9"	29'-10"	#4	12	24'-5"	22	1'-0"	24'-0"	#6	232	3'-8"	7'-5"	#6	14	X_s+10"	#6	8	X_s+10"	12'

* LENGTH INCLUDES VERTICAL LEG, HORIZONTAL LEG AND 180° STANDARD HOOK.
** LENGTH INCLUDES 2 STANDARD 180° HOOKS.

X_s = TOTAL SKEWED BARREL WIDTH OUT TO OUT (DIMENSION "X" FROM CULVERT SHEET TIMES 1.155)
Y = TOTAL BARREL HEIGHT OUT TO OUT (DIMENSION "Y" FROM CULVERT SHEET)

DIMENSIONS AND QUANTITIES FOR 60° SKEW

CLEAR HEIGHT	H	W_1	W_2	S	M	N	Q	R	T_4	Z	CY CLASS AA CONCRETE	LB BAR REINF STEEL	CLEAR HEIGHT
2'	3'-1"	1'-1"	2'-0"	1'-1"	3'-0"	2'-8"	-	1'-0"	10"	-	4.0	335	2'
3'	4'-3½"	2'-3½"	2'-0"	2'-1½"	6'-6"	5'-3"	-	1'-0"	10"	-	7.1	570	3'
4'	5'-9"	3'-9"	2'-0"	2'-7"	10'-6"	8'-6"	-	1'-0"	10"	-	11.4	999	4'
5'	6'-9"	4'-9"	2'-0"	2'-7"	13'-2"	10'-10"	-	1'-0"	10"	-	14.7	1287	5'
6'	7'-9"	5'-9"	2'-0"	2'-7"	16'-1"	13'-2"	-	1'-0"	10"	-	18.5	1574	6'
7'	8'-9½"	6'-9½"	2'-0"	2'-7½"	19'-0"	15'-5"	1'-6"	2'-0"	10"	2'-6"	24.5	2018	7'
8'	9'-10½"	7'-6½"	2'-4"	2'-8½"	21'-0"	17'-1"	2'-0"	2'-6"	12"	3'-0"	33.5	2794	8'
9'	10'-11"	8'-3"	2'-8"	2'-9"	23'-0"	18'-9"	2'-0"	3'-0"	12"	3'-0"	38.3	3200	9'
10'	11'-11"	8'-11"	3'-0"	2'-9"	24'-11"	20'-4"	2'-6"	3'-6"	12"	3'-6"	46.4	4295	10'
11'	12'-11"	9'-7"	3'-4"	2'-9"	26'-11"	22'-0	3'-0"	4'-0"	12"	4'-0"	53.8	4910	11'
12'	13'-11½"	10'-3½"	3'-8"	2'-9½"	28'-11"	23'-8"	3'-0"	4'-6"	12"	4'-6"	61.7	6466	12'

QUANTITIES SHOWN INCLUDE WINGWALLS, WINGWALL FOOTINGS, AND WINGWALL TOEWALL FOR BOTH ENDS.

DATE	DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
REVISION	STANDARD REINFORCED CONCRETE SKEWED WINGWALLS, TOEWALLS AND PARAPETS FOR 75° AND 60° SKEWS NO SCALE — SEPTEMBER 2017	
BY	DES. WEI (SUBMITTED) STATE DESIGN POLICY ENGINEER DRW. WEI TRA. ____ (APPROVED) Margaret B Pirkle CHIEF ENGINEER CHK. YSK	NUMBER 2405 SHEET 2 OF 3