NOTE: THE DESIGN OF CULVERT SHALL BE DETERMINED BY THE MAXIMUM HEIGHT OF FILL WITH ONLY A SINGLE DESIGN BEING USED FOR THE ENTIRE INSTALLATION.

NOTE: BEND LONGITUDINAL BARS INTO WINGS AND PARAPETS SIMILAR TO STANDARDS. IF CULVERT IS SKEWED CUT TRANSVERSE STEEL AND BEND 12" INTO PARAPET OR TOEWALL AND HOOK.

STATE	PROJECT NUMBER	SHEET No.	TOTAL SHEETS
GA.	CSNHS-M003-00(340)	264	414

DATA CHART

DESIGN	4-4-10	4-4-20	4-4-30	4-4-40	4-4-50	4-4-60	4-4-70	4-4-80	4-4-90 (4)
CLEAR SPAN "S"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"
CLEAR HEIGHT "H"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"
T_1	6"	7"	9"	11"	13"	15"	16"	17"	18"
T_2	8"	8"	9"	9"	10"	12"	12"	12"	13"
BARS "A"	501 AT 12"	501 AT 12"	503 AT 12"	503 AT 12"	506 AT 12"	601 AT 12"	601 AT 12"	601 AT 12"	658 AT 12"
BARS "B"	401 AT 12"	502 AT 12"	504 AT 12"	505 AT 12"	507 AT 12"	510 AT 12"	580 AT 12"	581 AT 12"	599 AT 12"
BARS "C"	402 AT 12"	405 AT 12"	408 AT 12"	411 AT 12"	508 AT 12"	511 AT 12"	511 AT 12"	511 AT 12"	511 AT 12"
NO. BARS "D" IN 2 SLABS	22	22	22	22	22	22	22	22	22
BARS "E"	403 AT 12"	406 AT 12"	409 AT 12"	412 AT 12"	414 AT 12"	415 AT 12"	415 AT 12"	415 AT 12"	488 AT 12"
NO. BARS "F" IN 2 WALLS	6 AT 16"	6 AT 16"	6 AT 16"	6 AT 16"	6 AT 16"	6 AT 16"	6 AT 16"	6 AT 16"	6 AT 16"
NO. BARS "G" IN 2 WALLS	4 AT 16"	4 AT 16"	4 AT 16"	4 AT 16"	4 AT 16"	4 AT 16"	4 AT 16"	4 AT 16"	4 AT 16"
BARS "H"	404 AT 12"	407 AT 12"	410 AT 12"	413 AT 12"	509 AT 12"	512 AT 12"	512 AT 12"	512 AT 12"	512 AT 12"
NO. BARS "J" PER CORNER	0	0	0	0	0	0	0	0	0
CU. YDS. CONCRETE PER FT.	0.404	0.437	0.537	0.605	0.711	0.861	0.898	0.935	1.015
LBS. REINF. STEEL PER FT.	61.64	69.85	72.70	74.63	85.84	95.31	95.48	95.66	97.7
HEIGHT OF FILL OVER TOP	10'	20'	30'	40'	50'	60'	70'	80'	90'

DESIGN	4-5-10	4-5-20	4-5-35	4-5-40 (1)	4-5-50 (1)	4-5-60 (1)	4-5-70 (1)	4-5-80 (1)
CLEAR SPAN "S"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"
CLEAR HEIGHT "H"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"
T_1	6"	7"	9"	9"	9"	9"	9½"	10"
T_2	8"	9"	9"	9"	9"	10"	11½"	12½"
BARS "A"	444 AT 12"	409 AT 12"	503 AT 12"	503 AT 12"	647 AT 12"	506 AT 9"	583 AT 10"	584 AT 12"
BARS "B"	445 AT 12"	416 AT 12"	515 AT 12"	646 AT 12"	646 AT 12"	650 AT 9"	653 AT 10"	709 AT 12"
BARS "C"	446 AT 12	513 AT 12"	516 AT 12"	516 AT 12"	648 AT 12"	651 AT 9"	707 AT 10"	901 AT 12"
NO. BARS "D" IN 2 SLABS	22	22	22	22	22	22	22	22
BARS "E"	424 AT 12"	414 AT 12"	415 AT 12"	415 AT 12"	415 AT 12"	415 AT 12"	460 AT 12"	461 AT 12"
NO. BARS "F" IN 2 WALLS	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"
NO. BARS "G" IN 2 WALLS	6 AT 14"	6 AT 14"	6 AT 14"	6 AT 14"	6 AT 14"	6 AT 14"	6 AT 14"	6 AT 14"
BARS "H"	447 AT 12"	514 AT 12"	517 AT 12"	582 AT 12"	649 AT 12"	652 AT 9"	708 AT 10"	902 AT 12"
NO. BARS "J" PER CORNER	0	0	0	1	2 AT 5"	2 AT 5"	2 AT 3½"	3 AT 2½"
CU. YDS. CONCRETE PER FT.	0.454	0.525	0.593	0.593	0.593	0.633	0.701	0.781
LBS. REINF. STEEL PER FT.	64.57	74.04	87.20	104.87	125.08	151.94	162.59	212.07
HEIGHT OF FILL OVER TOP	10'	20'	35'	40'	50'	60'	70'	80'

DESIGN	4-6-10	4-6-20	4-6-30	4-6-40	4-6-50	4-6-60
CLEAR SPAN "S"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"
CLEAR HEIGHT "H"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"
T_1	6"	7"	8½"	11"	13"	15"
T_2	9"	9"	9"	10"	10"	12"
BARS "A"	409 AT 14"	409 AT 12"	409 AT 12"	423 AT 11"	423 AT 12"	424 AT 12"
BARS "B"	440 AT 14"	520 AT 12"	523 AT 12"	567 AT 11"	629 AT 12"	633 AT 12"
BARS "C"	518 AT 14"	521 AT 12"	565 AT 12"	568 AT 11"	630 AT 12"	634 AT 12"
NO. "D" BARS IN 2 SLABS	22	22	22	22	22	22
BARS "E"	417 AT 14"	433 AT 12"	436 AT 12"	418 AT 11"	631 AT 12"	635 AT 12"
NO. BARS "F" IN 2 WALLS	10 AT 14"	10 AT 14"	10 AT 14"	10 AT 14"	10 AT 14"	10 AT 14"
NO. BARS "G" IN 2 WALLS	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"
BARS "H"	519 AT 14"	522 AT 12"	566 AT 12"	569 AT 11"	632 AT 12"	636 AT 12"
NO. BARS "J" PER CORNER	0	0	0	0	0	0
CU. YDS. CONCRETE PER FT.	0.546	0.580	0.631	0.764	0.834	1.009
LBS. REINF. STEEL PER FT.	73.18	89.34	91.41	100.61	132.73	138.68
HEIGHT OF FILL OVER TOP	10'	20'	30'	40'	50'	60'

DESIGN	4-4-10	4-4-20	4-4-30	4-4-40	4-4-50	4-4-60	4-4-70 (1)	4-4-80 (1)	4-4-110* (7)
CLEAR SPAN "S"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"
CLEAR HEIGHT "H"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"
T_1	7"	8½"	10"	12"	15"	18"	18"	18"	18"
T_2	9"	9"	9"	9"	12"	12"	12"	12"	13½"
BARS "A"	415 AT 12"	524 AT 12"	602 AT 12"	602 AT 12"	605 AT 11"	605 AT 12"	719 AT 12"	803 AT 12"	720 AT **
BARS "B"	419 AT 12"	525 AT 12"	603 AT 12"	604 AT 12"	532 AT 11"	606 AT 12"	606 AT 12"	606 AT 12"	598 AT 12"
BARS "C"	420 AT 12"	526 AT 12"	528 AT 12"	530 AT 12"	426 AT 11"	533 AT 12"	533 AT 12"	533 AT 12"	487 AT 12"
NO. "D" BARS IN 2 SLABS	22	22	22	22	22	22	22	22	22
BARS "E"	406 AT 12"	422 AT 12"	423 AT 12"	424 AT 12"	415 AT 11"	417 AT 12"	417 AT 12"	417 AT 12"	486 AT 12"
NO. BARS "F" IN 2 WALLS	6 AT 16"	6 AT 16"	6 AT 16"	6 AT 16"	6 AT 16"	6 AT 16"	6 AT 16"	6 AT 16"	6 AT 16"
NO. BARS "G" IN 2 WALLS	4 AT 16"	4 AT 16"	4 AT 16"	4 AT 16"	4 AT 16"	4 AT 16"	4 AT 16"	4 AT 16"	4 AT 16"
BARS "H"	421 AT 12"	527 AT 12"	529 AT 12"	531 AT 12"	426 AT 11"	534 AT 12"	534 AT 12"	534 AT 12"	485 AT 12"
NO. BARS "J" PER CORNER	0	0	0	0	0	0	0	1	1
CU. YDS. CONCRETE PER FT.	0.512	0.572	0.833	0.713	0.954	1.083	1.083	1.083	1.1482
LBS. REINF. STEEL PER FT.	62.79	86.06	104.08	106.89	97.95	118.96	126.19	140.62	133.31
HEIGHT OF FILL OVER TOP	10'	20'	30'	40'	50'	60'	70'	80'	90'

*USE THIS DESIGN FOR FILL HEIGHTS GREATER THAN 80 FT. UP TO 110 FT.

** PLACE 2 BARS EQUALLY SPACED BETWEEN BARS B.

DESIGN	5-5-10	5-5-20	5-5-30	5-5-40	5-5-50	5-5-60	5-5-70	5-5-80
CLEAR SPAN "S"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"
CLEAR HEIGHT "H"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"
T_1	7"	8½"	10"	12"	15"	18"	19"	20"
T_2	9"	9"	9"	10"	12"	12"	14"	14"
BARS "A"	524 AT 13"	524 AT 13"	602 AT 12"	607 AT 13"	605 AT 13"	605 AT 12"	641 AT 12"	641 AT 12"
BARS "B"	427 AT 13"	535 AT 13"	537 AT 12"	608 AT 13"	609 AT 13"	610 AT 12"	642 AT 12"	706 AT 12"
BARS "C"	428 AT 13"	536 AT 13"	538 AT 12"	540 AT 13"	542 AT 13"	544 AT 12"	643 AT 12"	644 AT 12"
NO. BARS "D" IN 2 SLABS	22	22	22	22	22	22	22	22
BARS "E"	414 AT 13"	430 AT 13"	431 AT 12"	417 AT 13"	432 AT 13"	437 AT 12"	459 AT 12"	563 AT 12"
NO. BARS "F" IN 2 WALLS	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"
NO. BARS "G" IN 2 WALLS	6 AT 14"	6 AT 14"	6 AT 14"	6 AT 14"	6 AT 14"	6 AT 14"	6 AT 14"	6 AT 14"
BARS "H"	429 AT 13"	529 AT 13"	539 AT 12"	541 AT 13"	543 AT 13"	545 AT 12"	623 AT 12"	645 AT 12"
NO. BARS "J" PER CORNER	0	0	0	0	0	0	1	1
CU. YDS. CONCRETE PER FT.	0.568	0.628	0.688	0.812	1.028	1.157	1.301	1.347
LBS. REINF. STEEL PER FT.	70.24	87.38	99.53	106.47	112.41	125.23	152.50	175.85
HEIGHT OF FILL OVER TOP	10'	20'	30'	40'	50'	60'	70'	80'

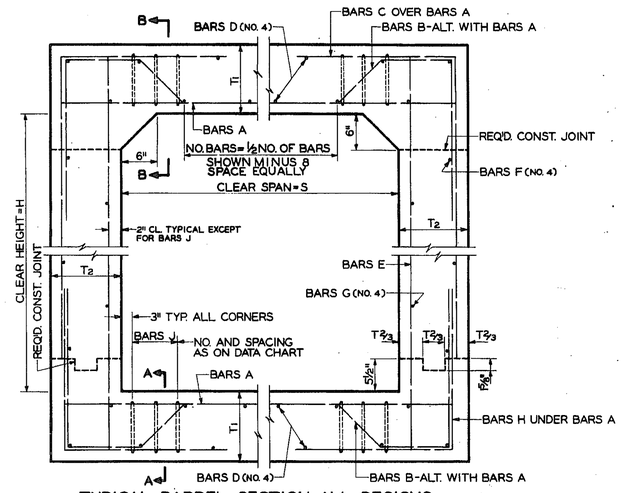
DESIGN	5-6-10	5-6-20	5-6-30	5-6-40	5-6-50	5-6-60
CLEAR SPAN "S"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"
CLEAR HEIGHT "H"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"
T_1	6½"	8"	9"	10"	11"	12"
T_2	8"	9"	9"	10"	11"	13"
BARS "A"	448 AT 16"	415 AT 11½"	415 AT 9"	431 AT 8"	431 AT 9"	433 AT 10"
BARS "B"	449 AT 16"	451 AT 11½"	453 AT 9"	456 AT 8"	577 AT 9"	611 AT 10"
BARS "C"	572 AT 16"	574 AT 11½"	454 AT 9"	457 AT 8"	576 AT 9"	579 AT 10"
NO. BARS "D" IN 2 SLABS	22	22	22	22	22	22
BARS "E"	450 AT 16"	452 AT 11½"	432 AT 9"	434 AT 8"	418 AT 9"	437 AT 10"
NO. BARS "F" IN 2 WALLS	10 AT 14"	10 AT 14"	10 AT 14"	10 AT 14"	10 AT 14"	10 AT 14"
NO. BARS "G" IN 2 WALLS	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"
BARS "H"	573 AT 16"	575 AT 11½"	455 AT 9"	458 AT 8"	578 AT 9"	546 AT 10"
NO. BARS "J" PER CORNER	0	0	1	1	1	2 AT 6"
CU. YDS. CONCRETE PER FT.	0.560	0.664	0.704	0.791	0.881	1.022
LBS. REINF. STEEL PER FT.	86.53	86.77	95.75	106.13	122.31	128.38
HEIGHT OF FILL OVER TOP	10'	20'	30'	40'	50'	60'

DESIGN	6-6-10L	6-6-20	6-6-30	6-6-40	6-6-50	6-6-60	6-6-70	6-6-80
CLEAR SPAN "S"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"
CLEAR HEIGHT "H"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"
T_1	7½"	9"	12"	15"	18"	21"	23"	25"
T_2	9"	9"	9"	10"	12"	12"	14"	14"
BARS "A"	547 AT 11"	616 AT 12"	547 AT 8"	557 AT 8"	561 AT 9"	561 AT 10"	638 AT 12"	702 AT 12"
BARS "B"	548 AT 11"	551 AT 12"	554 AT 8"	558 AT 8"	617 AT 9"	619 AT 10"	701 AT 12"	703 AT 12"
BARS "C"	549 AT 11"	552 AT 12"	555 AT 8"	559 AT 8"	637 AT 9"	620 AT 10"	639 AT 12"	704 AT 12"
NO. BARS "D" IN 2 SLABS	24	24	24	24	24	24	24	24
BARS "E"	435 AT 11"	432 AT 12"	437 AT 8"	438 AT 8"	439 AT 9"	570 AT 10"	571 AT 12"	640 AT 12"
NO. BARS "F" IN 2 WALLS	10 AT 14"	10 AT 14"	10 AT 14"	10 AT 14"	10 AT 14"	10 AT 14"	10 AT 14"	10 AT 14"
NO. BARS "G" IN 2 WALLS	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"	8 AT 14"
BARS "H"	550 AT 11"	553 AT 12"	556 AT 8"	560 AT 8"	618 AT 9"	621 AT 10"	623 AT 12"	705 AT 12"
NO. BARS "J" PER CORNER	0	0	0	0	0	0	1	1
CU. YDS. CONCRETE PER FT	0.690	0.759	0.898	1.089	1.343	1.491	1.711	1.814
LBS. REINF. STEEL PER FT.	113.81	114.25	152.67	158.89	189.64	187.96	200.73	242.08
HEIGHT OF FILL OVER TOP	10'	20'	30'	40'	50'	60'	70'	80'

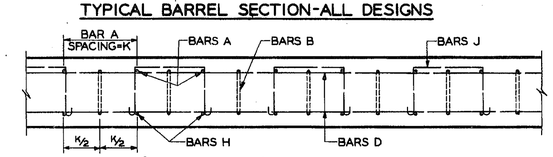
DESIGN (S-H-HT. OF FILL)	6-8-20	6-8-35	6-8-53
CLEAR SPAN "S"	6'-0"	6'-0"	6'-0"
CLEAR HEIGHT "H"	8'-0"	8'-0"	8'-0"
T_1	10"	13"	18"
T_2	12"	12"	14"
BARS "A"	561 AT 12"	561 AT 12"	563 AT 8"
BARS "B"	562 AT 12"	624 AT 12"	564 AT 8"
BARS "C"	622 AT 12"	625 AT 12"	627 AT 8"
NO. BARS "D" IN 2 SLABS	24	24	24
BARS "E"	441 AT 12"	442 AT 12"	443 AT 8"
NO. BARS "F" IN 2 WALLS	12 AT 16"	12 AT 16"	12 AT 16"
NO. BARS "G" IN 2 WALLS	10 AT 16"	10 AT 16"	10 AT 16"
BARS "H"	618 AT 12"	626 AT 12"	628 AT 8"
NO. BARS "J" PER CORNER	0	0	0
CU. YDS. CONCRETE PER FT.	1.096	1.244	1.636
LBS. REINF. STEEL FT.	141.52	159.23	215.71
HEIGHT OF FILL OVER TOP	20'	35'	53'

FOR 6' x 8' CULVERT, USE WINGWALLS & PARAPETS DESIGN FOR A 6'x6' WITH THE PARAPETS & K BARS REDUCED BY 2 FT. IN LENGTH. CONCRETE AND STEEL (FOR BOTH PARAPETS) SHALL BE REDUCED BY 0.64 CU.YDS. AND 17 LBS. RESPESTIVELY. FOR SKEWED ENDS, DIVIDE THE REDUCTION BY THE SINE OF THE SKEW ANGLE.

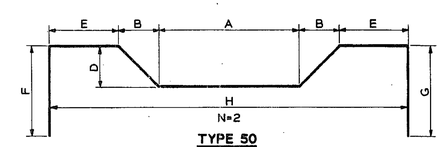
(See Special Design Box Culvert Sheets #2 & #3 for 5'x5')



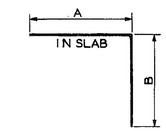
TYPICAL BARREL SECTION-ALL DESIGNS



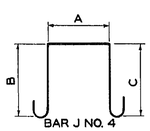
SECTION A-A



TYPE 50



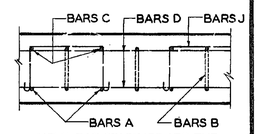
TYPE 3



TYPE 36

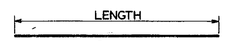
NOTE: NUMBER OF J BARS SHOWN IN DATA CHART IS THE NUMBER PER CORNER IN ANY ONE PLANE. THE TOTAL NUMBER OF J BARS REQUIRED DEPENDS UPON THE LENGTH OF THE SECTION. A=BAR C SPACING PLUS DIAMETER OF BAR C PLUS 1" B AND C=SLAB DEPTH LESS 3½".

NOTE: FOR BAR DIMENSIONS SEE BAR REINFORCEMENT DETAILS. (5)



NOTE: BAR SPACINGS ARE THE SAME AS IN SECTION A-A.

SECTION B-B



TYPE 1

BAR TYPES

ADD FILL HT. NOTE (1) 10-23-87
INCREASE S14 TO 110 FT. (2) 6-7-89
Rem. 5 x 5 (3) 5-22-91
RWU DELETED REF. to STD. 3900 (4) 5/11/92
R25 (5)

BY	REVISIONS	DATE
R.J.S.	ADDED 5 X 4 & 4 X 5 DESIGNS	JAN. 1972
R.J.S.	INCREASED fill TO 30' FILL	FEB. 1981
S.L.W.	INCREASED 3'x5' TO 80' FILL	MAR. 1975
R.J.S.	DELETE BAR INCREASE 10%	2-28-80

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SHEET 1 OF 3
SPECIAL DESIGN BOX CULVERTS
4-4; 4-5; 4-6; 5-4; 5-5; 5-6; 6-6; 6-8

NO SCALE

DESIGNED E.E.L. TRACED
DRAWN H.R. CHECKED E.E.L.
REVIEWED R.K.J.
APPROVED