

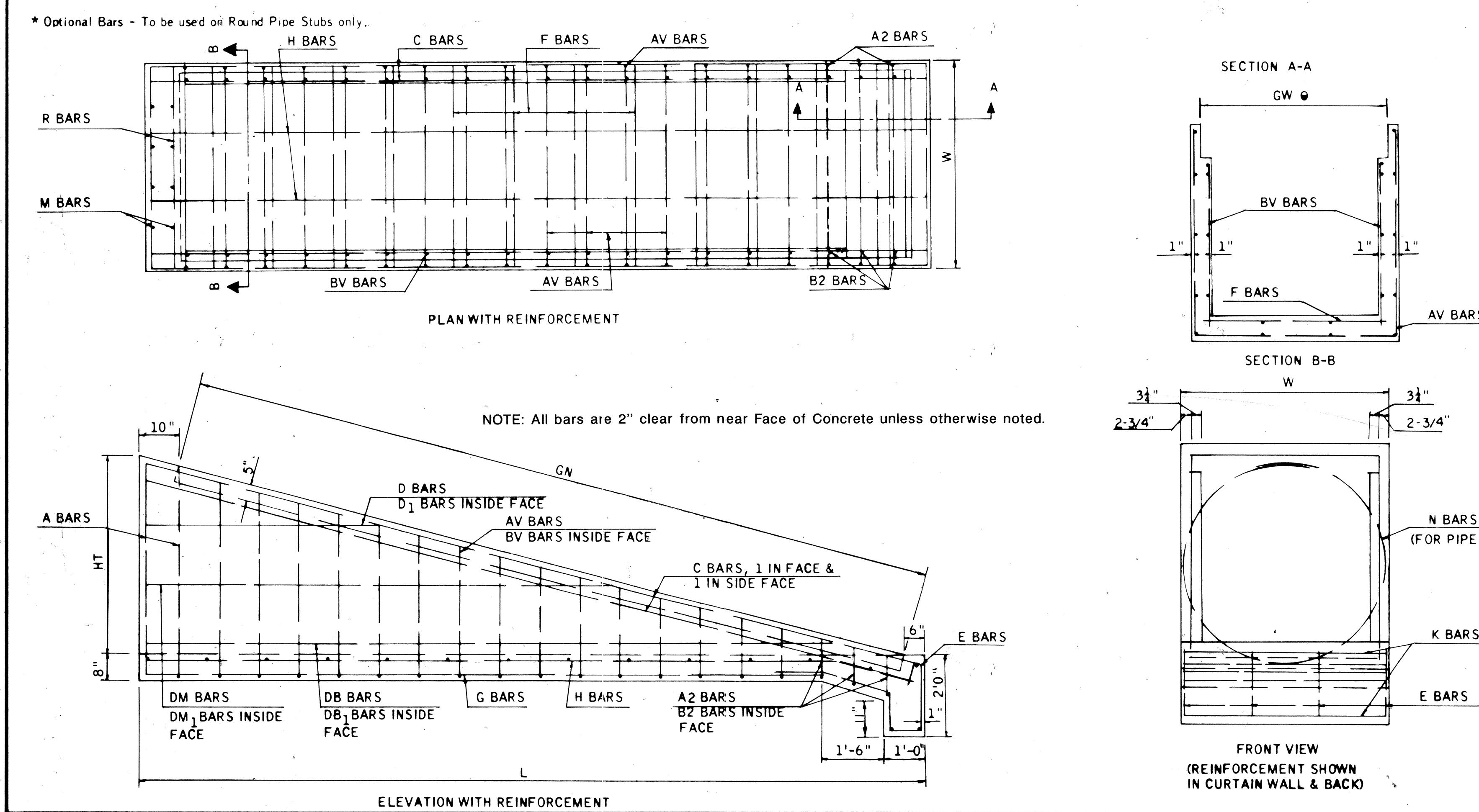
ACCOMMODATES -24" ROUND PIPE - 26" X 15 1/2" & 22" X 13" ARCHES & 2' X 2' R.C. BOX	BAR LIST													REQUIRES 4 - 30" SQ. GRATES		TOTAL LENGTH IN STR. 324'-3 1/2"					
DESIGN	BAR MARK													TOTAL WEIGHT							
4-1	A	AV	A ₂	BV	B ₂	C	D	D ₁	DM	DM ₁	DB	DB ₁	E	F	G	H	K	M	N*	R	
SPACING	As Shown	12" c/c	10" c/c	12" c/c	10" c/c	As Shown	As Shown	As Shown	As Shown	As Shown	As Shown	As Shown	20" c/c	18" c/c	17" c/c	20" c/c	On E of Flr.	As Shown	8 1/2" c/c	As Shown	As Shown
NUMBER	2	7	3	14	6	4	2	2			2	2	3	8	3	1	3	8	6	2	2
LENGTH EACH BAR	9'-0"	6'-11" Avg.	4'-7"	1'-7 1/2"	0'-5 3/4"	10'-11 1/2"	5'-3"	3'-10"			10'-8"	9'-3"	7'-0"	2'-10"	8'-6"	10'-6"	2'-10"	0'-7"	9'-8"	2'-10"	
TOTAL LENGTH OF BAR	18'-0"	48'-5"	13'-9"	22'-9"	2'-10 1/2"	43'-10"	10'-6"	7'-8"			21'-4"	18'-6"	21'-0"	22'-8"	25'-6"	10'-6"	8'-6"	3'-6"	19'-4"	5'-8"	

ACCOMMODATES - 30" ROUND PIPE - 29" X 18" & 30" X 19" ARCHES	BAR LIST													REQUIRES 4 - 36" SQ. GRATES		TOTAL LENGTH IN STR. 391'-7"				
DESIGN	BAR MARK													TOTAL WEIGHT						
4-2	A	AV	A ₂	BV	B ₂	C	D	D ₁	DM	DM ₁	DB	DB ₁	E	F	G	H	K	M	N*	R
SPACING	As Shown	12" c/c	10" c/c	12" c/c	10" c/c	As Shown	As Shown	As Shown	As Shown	As Shown	As Shown	As Shown	20" c/c	18" c/c	20" c/c	On E of Flr.	As Shown	13-3/8" c/c	As Shown	As Shown
NUMBER	2	9	3	18	6	4	2	2			2	2	3	9	3	1	3	6	2	2
LENGTH EACH BAR	10'-8"	7'-11" Avg.	5'-1"	1'-10 1/2" Avg.	0'-5 1/2"	13'-0"	5'-3"	3'-10"			10'-8"	9'-3"	7'-0"	3'-4"	10'-4"	12'-6"	3'-4"	0'-6 1/2"	11'-5"	3'-4"
TOTAL LENGTH OF BAR	21'-4"	71'-3"	15'-3"	33'-9"	2'-9"	52'-0"	10'-6"	7'-8"			21'-4"	18'-6"	21'-0"	30'-0"	31'-0"	12'-6"	10'-0"	3'-3"	22'-10"	6'-8"

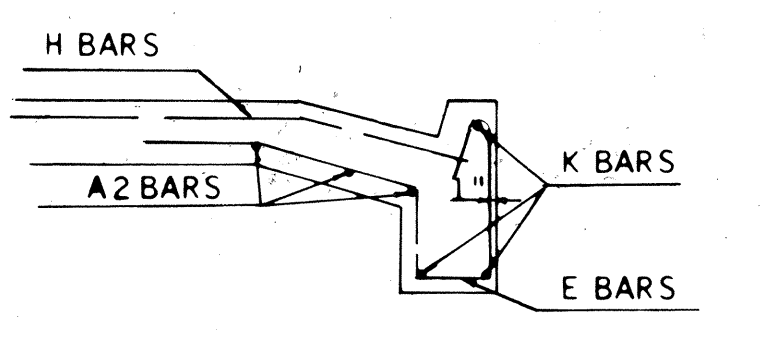
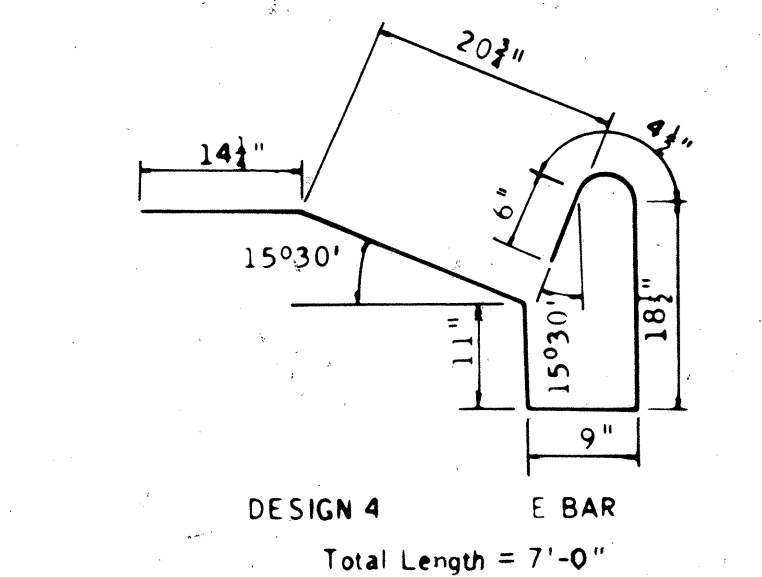
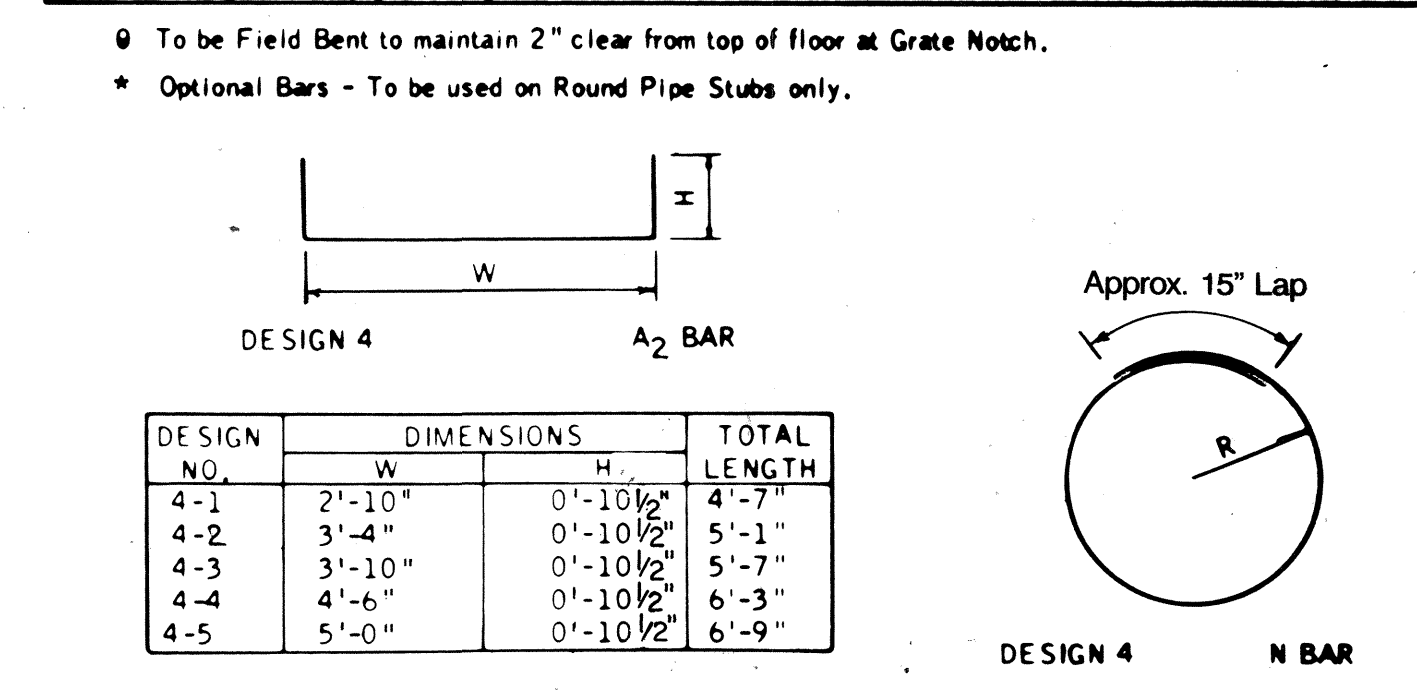
ACCOMMODATES 36" ROUND PIPE - 36" X 22" & 38" X 24" ARCHES & 3' X 3' R.C. BOX	BAR LIST													REQUIRES 4 - 42" SQ. GRATES		TOTAL LENGTH IN STR. 468'-6"				
DESIGN	BAR MARK													TOTAL WEIGHT						
4-3	A	AV	A ₂	BV	B ₂	C	D	D ₁	DM	DM ₁	DB	DB ₁	E	F	G	H	K	M	N*	R
SPACING	As Shown	12" c/c	10" c/c	12" c/c	10" c/c	As Shown	As Shown	As Shown	As Shown	As Shown	As Shown	As Shown	23" c/c	18" c/c	23" c/c	On E of Flr.	As Shown	9-3/8" c/c	As Shown	As Shown
NUMBER	2	11	3	22	6	4	2	2			2	2	3	10	3	1	3	8	2	2
LENGTH EACH BAR	12'-2"	8'-11" Avg.	5'-7"	2'-1 1/2" Avg.	0'-5 1/2"	15'-1"	5'-5"	3'-11"			10'-10"	9'-4"	7'-0"	3'-10	12'-4"	14'-6"	3'-10"	0'-6"	13'-3"	3'-10"
TOTAL LENGTH OF BAR	24'-4"	98'-1"	16'-9"	46'-9"	2'-9"	60'-4"	10'-10"	7'-10"			21'-8"	18'-8"	21'-0"	38'-4"	37'-0"	14'-6"	11'-6"	4'-0"	26'-6"	7'-8"

ACCOMMODATES -42" ROUND PIPE - 43" X 27 1/2" & 42" X 29" ARCHES	BAR LIST													REQUIRES 4 - 50" SQ. GRATES		TOTAL LENGTH IN STR. 688'-8"				
DESIGN	BAR MARK													TOTAL WEIGHT						
4-4	A	AV	A ₂	BV	B ₂	C	D	D ₁	DM	DM ₁	DB	DB ₁	E	F	G	H	K	M	N*	R
SPACING	As Shown	12" c/c	10" c/c	12" c/c	10" c/c	As Shown	As Shown	As Shown	As Shown	As Shown	As Shown	As Shown	18" c/c	18" c/c	18" c/c	18" c/c	As Shown	11" c/c	As Shown	As Shown
NUMBER	2	14	3	28	6	4	2	2			2	2	4	12	4	2	3	8	2	2
LENGTH EACH BAR	13'-10"	10'-2 1/2" Avg.	6'-3"	2'-5 1/4" Avg.	0'-5 1/2"	17'-7 1/2"	5'-8"	4'-1"	11'-4"	9'-9"	17'-0"	15'-2"	7'-0"	4'-6"	14'-10"	17'-0"	4'-6"	0'-5 1/2"	15'-2"	4'-6"
TOTAL LENGTH OF BAR	27'-8"	142'-11"	18'-9"	69'-3"	2'-9"	70'-6"	11'-4"	8'-2"	22'-8"	19'-6"	34'-0"	30'-4"	28'-0"	54'-0"	59'-4"	34'-0"	13'-6"	3'-8"	30'-4"	9'-0"

ACCOMMODATES - 48" ROUND PIPE - 50" X 31" & 53" X 34" ARCHES & 4' X 4' R.C. BOX	BAR LIST													REQUIRES 4 - 56" SQ. GRATES		TOTAL LENGTH IN STR. 786'-4"				
DESIGN	BAR MARK													TOTAL WEIGHT						
4-5	A	AV	A ₂	BV	B ₂	C	D	D ₁	DM	DM ₁	DB	DB ₁	E	F	G	H	K	M	N*	R
SPACING	As Shown	12" c/c	10" c/c	12" c/c	10" c/c	As Shown	As Shown	As Shown	As Shown	As Shown	As Shown	As Shown	20" c/c	18" c/c	20" c/c	20" c/c	As Shown	12" c/c	As Shown	As Shown
NUMBER	2	16	3	32	6	4	2	2			2	2	4	13	4	2	3	8	2	2
LENGTH EACH BAR	15'-4"	11'-2 1/2" Avg.	6'-9"	2'-8 1/2" Avg.	0'-5 1/2"	19'-8"	5'-8"	4'-1"	11'-4"	9'-10"	17'-1"	15'-6"	7'-0"	5'-0"	16'-10"	19'-0"	5'-0"	0'-5 1/2"	17'-0"	5'-0"
TOTAL LENGTH OF BAR	30'-8"	179'-4"	20'-3"	86'-8"	2'-9"	78'-8"	11'-4"	8'-2"	22'-8"	19'-8"	34'-2"	31'-0"	28'-0"	65'-0"	67'-4"	38'-0"	15'-0"	3'-8"	34'-0"	10'-0"



BAR LOCATION SCHEDULE			
BAR MARK	SHAPE	SIZE	LOCATION IN STRUCTURE
A	Bent	#4	BACK OUTSIDE VERTICAL BARS - U BEND
AV	Bent	#4	OUTSIDE VERTICAL BARS IN SLOPING WING - U BEND
A ₂	Bent	#4	OUTSIDE VERTICAL BARS AT FRONT - U BEND
BV	Str.	#4	INSIDE VERTICAL BARS IN SLOPING WINGS
B ₂	Str.	#4	INSIDE VERTICAL BARS AT FRONT OF STRUCTURE
C	Str.	#4	TOP OF SLOPING WING - LONGITUDINAL BAR (INSIDE & OUTSIDE FACES)
D	Str.	#4	OUTSIDE HORIZONTAL BAR IN WING (TOP)
D ₁	Str.	#4	INSIDE HORIZONTAL BAR IN WING (TOP)
DM	Str.	#4	OUTSIDE HORIZONTAL BAR IN WING (MIDDLE)
DM ₁	Str.	#4	INSIDE HORIZONTAL BAR IN WING (MIDDLE)
DB	Str.	#4	OUTSIDE HORIZONTAL BAR IN WING (BOTTOM)
DB ₁	Str.	#4	INSIDE HORIZONTAL BAR IN WING (BOTTOM)
E	Bent	#4	BAR IN CURTAIN WALL AND FLOOR AT FRONT
F	Str.	#4	TRANSVERSE HORIZONTAL BAR IN TOP OF FLOOR
G	Str.	#4	LONGITUDINAL HORIZONTAL BAR IN BOTTOM OF FLOOR
H	Str.	#4	LONGITUDINAL HORIZONTAL BAR IN TOP OF FLOOR
K	Str.	#4	TRANSVERSE HORIZONTAL BAR IN CURTAIN WALL
M	Str.	#4	VERTICAL BAR IN BACK OF STRUCTURE AT TOP
N*	Bent	#4	SPECIAL BENT BAR (OPTIONAL) AT BACK OF STRUCTURE
R	Str.	#4	TRANSVERSE HORIZONTAL BAR AT BACK TOP OF STRUCTURE



DESIGN NO.	DIMENSIONS R	TOTAL LENGTH
4-1	16"	9'-8"
4-2	19 1/2"	11'-5"
4-3	23"	13'-3"
4-4	26 1/2"	15'-2"
4-5	30"	17'-0"

CONCRETE QUANTITIES		
DESIGN NO.	CONC. C.Y.	AVG. TOTAL LENGTH
4-1	1.53	6'-11"
4-2	2.09	7'-11"
4-3	2.74	8'-11"
4-4	3.67	10'-2 1/2"
4-5	4.51	11'-2 1/2"

GENERAL NOTES

ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS.

NO EDGE CHAMFER IS REQUIRED.

ALL REBARS SHALL BE 2 INCHES CLEAR FROM NEAREST CONCRETE FACE UNLESS SHOWN OTHERWISE IN THE DRAWING.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
509.06(C)	CLASS A CONCRETE FOR SMALL STRUCTURES	C. Y.
511.06(A)	REINFORCING STEEL	LB.

FOR QUANTITIES OF CLASS A CONCRETE LESS THAN 10.0 C. Y. NOTE: USE IN CONJUNCTION WITH STANDARD WSG-(LATEST REVISION)

DESIGN NO.	DIMENSIONS			TOTAL LENGTH
	H. MAX.	H. MIN.	H. AVG.	
4-1	2'-11"	1'-2"	2'-0 1/2"	4'-7"
4-2	3'-5"	1'-2"	2'-3 1/2"	4'-7"
4-3	3'-11"	1'-2"	2'-6 1/2"	5'-1"
4-4	4'-7"	1'-1 1/2"	2'-10 1/4"	5'-7"
4-5	5'-1"	1'-1 1/2"	3'-1 1/4"	6'-9"

TABLE OF INLET DIMENSIONS				
DESIGN NO.	DIMENSION			
	L	HT	W	GN*
4-1	11'-0"	3'-0"	3'-0"	10'-1"
4-2	13'-0"	3'-6"	3'-6"	12'-1"
4-3	15'-0"	4'-0"	4'-0"	14'-1"
4-4	17'-6"	4'-6"	4'-8"	16'-9"
4-5	19'-6"	5'-0"	5'-2"	18'-9"

*Dimension GN is a minimum dimension - may be formed longer.

□ G.W. Dimension is 1/2" greater than "Grate No." size.

APPROVED BY

RURAL DES. ENGR. URBAN DES. ENGR. BRIDGE ENGINEER CONST. ENGINEER ASS'T. DIR. / DES.

DATE 12-16-88 DATE 11-8-88 DATE 12-5-88 DATE 12-17-88

DESIGN

DRAWN

CHECKED LGC 9/88

SQUAD ENG. SUPPLY BRANCH

RURAL/URBAN DESIGN

1988 SPECIFICATIONS

OKLAHOMA DEPT. OF TRANSPORTATION STANDARD

SLOPED AND GRATED WING WALLS (DESIGN 4:1)

SGWW-2-2