

CASE No. 1
60° SKEW

NOTE:
Deformed Reinforcing Steel
to be Eliminated from All Headwalls

ELEVATIONS

DIMENSIONS

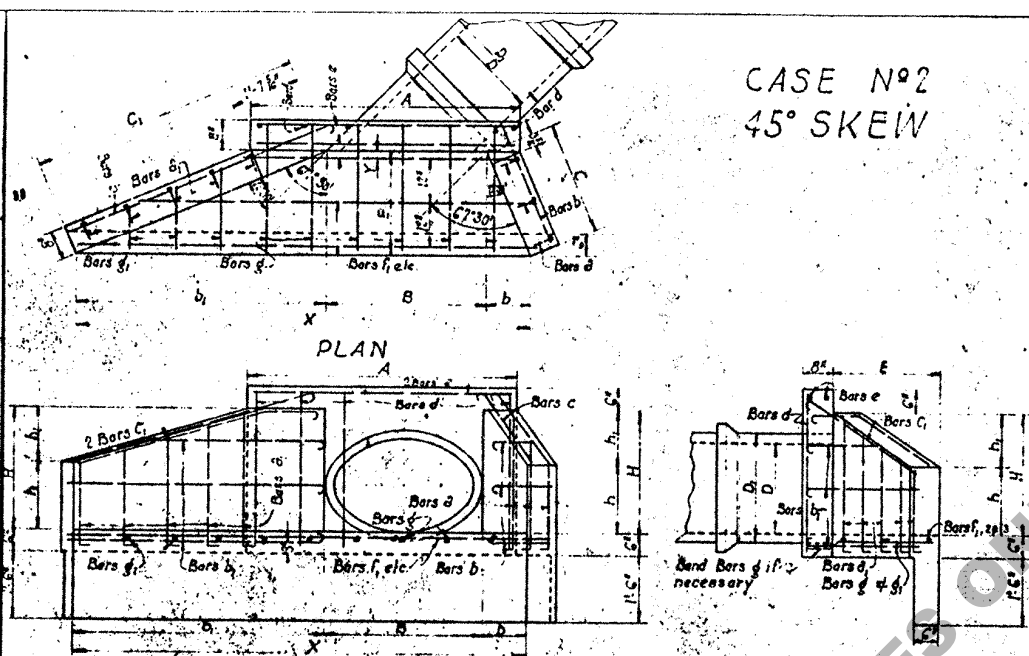
	12'	15'	18'	24'	30'	36'
D	12'	15'	18'	24'	30'	36'
A	3' - 5 1/2"	3' - 5 1/2"	4' - 5 1/2"	4' - 5 1/2"	5' - 5 1/2"	5' - 5 1/2"
C	1' - 8 1/2"	2' - 0"	2' - 3 1/2"	2' - 3 1/2"	3' - 5 1/2"	3' - 5 1/2"
G	3' - 0"	3' - 0"	3' - 0"	4' - 0"	4' - 0"	4' - 0"
B	1' - 4 1/2"	1' - 8 1/2"	2' - 1 1/2"	2' - 1 1/2"	3' - 5 1/2"	3' - 5 1/2"
b	0' - 10 1/2"	1' - 0 1/2"	1' - 1 1/2"	1' - 1 1/2"	2' - 2"	2' - 2"
b ₁	2' - 7 1/2"	3' - 0 1/2"	3' - 1 1/2"	4' - 0 1/2"	4' - 0 1/2"	4' - 0 1/2"
E	1' - 6"	1' - 9"	2' - 0"	2' - 0"	3' - 0"	3' - 0"
H	1' - 7"	1' - 11"	2' - 2"	2' - 2"	3' - 3"	3' - 3"
h	0' - 10"	1' - 0"	1' - 0"	1' - 0"	1' - 9"	2' - 0"
h ₁	0' - 9"	0' - 11"	1' - 0"	1' - 5"	1' - 6"	1' - 10"
X	4' - 3 1/2"	5' - 8 1/2"	6' - 8 1/2"	8' - 2 1/2"	10' - 4 1/2"	12' - 3 1/2"
Y	0' - 3"	0' - 5"	0' - 6"	0' - 8"	0' - 6"	0' - 6"

QUANTITIES FOR ONE HEADWALL

Size of Pipe	Cu. Yds.	Lbs. Concrete	Lbs. Reinf. Steel
12"	0.62	51.6	151.7
15"	0.93	77.5	224.5
18"	1.24	100.5	297.6
24"	1.73	157.6	467.2
30"	2.37	216.2	640.0

BILL OF MATERIAL FOR ONE HEADWALL

MARK	No.	12'	15'	18'	24'	30'	36'	LOCATION
a	Long Bar	1	2	3	4	5	6	Vertical in Short Wing
a	Short Bar	1	2	3	4	5	6	Vertical in Short Wing
a	Long Bar	1	2	3	4	5	6	Vertical in Long Wing
a	Short Bar	1	2	3	4	5	6	Vertical in Long Wing
b	Long Bar	2	3	4	5	6	7	Longitudinal in Short Wing
b	Short Bar	2	3	4	5	6	7	Longitudinal in Short Wing
b	Long Bar	2	3	4	5	6	7	Longitudinal in Long Wing
b	Short Bar	2	3	4	5	6	7	Longitudinal in Long Wing
c	Long Bar	2	3	4	5	6	7	Long Slope Short Wing
c	Short Bar	2	3	4	5	6	7	Long Slope Short Wing
d	Long Bar	2	3	4	5	6	7	Vertical in Back Wall
d	Short Bar	2	3	4	5	6	7	Vertical in Back Wall
e	Long Bar	1	2	3	4	5	6	Transverse in Apron
e	Short Bar	1	2	3	4	5	6	Transverse in Apron
f	Long Bar	1	2	3	4	5	6	Longitudinal
f	Short Bar	1	2	3	4	5	6	Longitudinal



CASE No. 2
45° SKEW

ELEVATIONS

DIMENSIONS

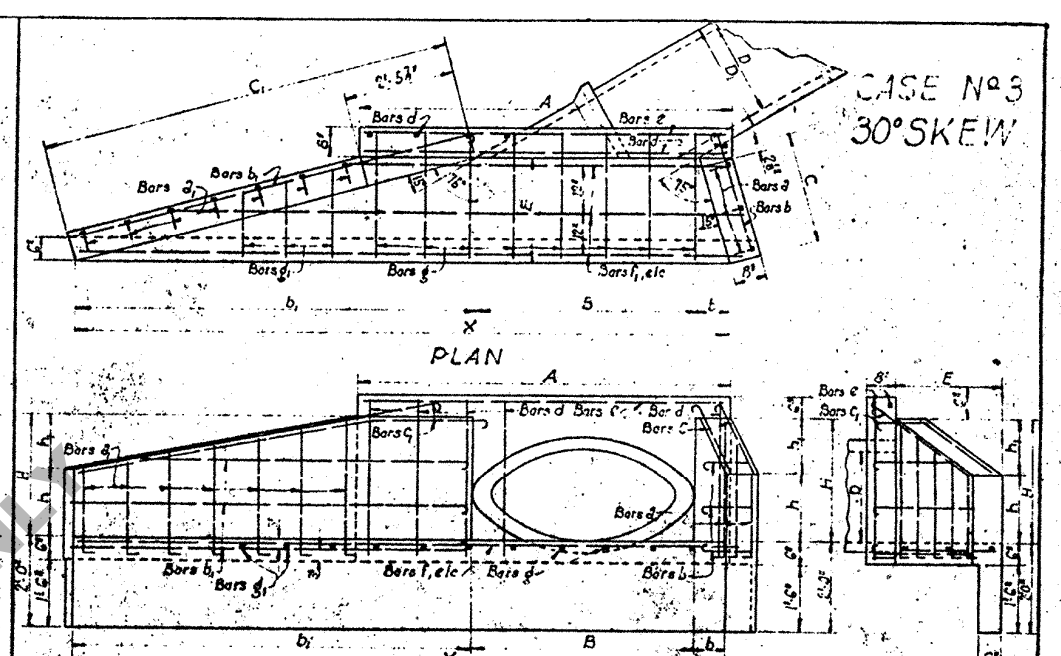
	12'	15'	18'	24'	30'	36'
D	12'	15'	18'	24'	30'	36'
A	4' - 1 1/2"	4' - 6 1/2"	5' - 0 1/2"	5' - 10 1/2"	6' - 8 1/2"	7' - 6 1/2"
C	1' - 7 1/2"	1' - 10 1/2"	2' - 0"	2' - 6 1/2"	3' - 3"	3' - 0 1/2"
G	3' - 1 1/2"	4' - 0 1/2"	5' - 2 1/2"	6' - 18"	7' - 10 1/2"	8' - 9 1/2"
B	1' - 7 1/2"	2' - 0 1/2"	2' - 7 1/2"	3' - 5"	4' - 2 1/2"	5' - 0 1/2"
b	0' - 7 1/2"	0' - 8 1/2"	0' - 10"	0' - 11 1/2"	1' - 2 1/2"	1' - 6 1/2"
b ₁	3' - 7 1/2"	4' - 2 1/2"	4' - 10"	5' - 7 1/2"	7' - 2 1/2"	8' - 0 1/2"
E	1' - 6"	1' - 9"	2' - 0"	2' - 4"	3' - 0"	3' - 3"
H	1' - 7"	1' - 11"	2' - 2"	2' - 5"	3' - 3"	3' - 10"
h	0' - 10"	1' - 0"	1' - 0"	1' - 6"	1' - 9"	2' - 0"
h ₁	0' - 9"	0' - 11"	1' - 0"	1' - 3"	1' - 6"	1' - 10"
X	5' - 10 1/2"	7' - 0 1/2"	8' - 3 1/2"	10' - 0 1/2"	12' - 8 1/2"	15' - 8"
Y	0' - 3"	0' - 5 1/2"	0' - 6"	0' - 8"	0' - 6"	0' - 6"

QUANTITIES FOR ONE HEADWALL

Size of Pipe	Cu. Yds.	Lbs. Concrete	Lbs. Reinf. Steel
12"	0.71	62.8	185.6
15"	0.90	72.9	216.0
18"	1.11	85.6	249.6
24"	1.48	120.0	336.0
30"	2.07	157.0	460.8
36"	2.84	216.9	624.0

BILL OF MATERIAL FOR ONE HEADWALL

MARK	No.	12'	15'	18'	24'	30'	36'	LOCATION
a	Long Bar	1	2	3	4	5	6	Vertical in Short Wing
a	Short Bar	1	2	3	4	5	6	Vertical in Short Wing
a	Long Bar	1	2	3	4	5	6	Vertical in Long Wing
a	Short Bar	1	2	3	4	5	6	Vertical in Long Wing
b	Long Bar	2	3	4	5	6	7	Longitudinal in Short Wing
b	Short Bar	2	3	4	5	6	7	Longitudinal in Short Wing
b	Long Bar	2	3	4	5	6	7	Longitudinal in Long Wing
b	Short Bar	2	3	4	5	6	7	Longitudinal in Long Wing
c	Long Bar	2	3	4	5	6	7	Long Slope Short Wing
c	Short Bar	2	3	4	5	6	7	Long Slope Short Wing
d	Long Bar	2	3	4	5	6	7	Vertical in Back Wall
d	Short Bar	2	3	4	5	6	7	Vertical in Back Wall
e	Long Bar	1	2	3	4	5	6	Transverse in Apron
e	Short Bar	1	2	3	4	5	6	Transverse in Apron
f	Long Bar	1	2	3	4	5	6	Longitudinal
f	Short Bar	1	2	3	4	5	6	Longitudinal



CASE No. 3
30° SKEW

ELEVATIONS

DIMENSIONS

	12'	15'	18'	24'	30'	36'
D	12'	15'	18'	24'	30'	36'
A	5' - 7 1/2"	5' - 7 1/2"	6' - 11 1/2"	8' - 7 1/2"	9' - 3 1/2"	10' - 5 1/2"
C	1' - 6 1/2"	1' - 9 1/2"	2' - 0 1/2"	2' - 5 1/2"	3' - 14"	3' - 12 1/2"
G	5' - 5 1/2"	6' - 3 1/2"	7' - 8 1/2"	9' - 0 1/2"	11' - 7 1/2"	14' - 5 1/2"
B	2' - 4"	2' - 11"	3' - 8"	4' - 10"	6' - 0"	7' - 2"
b	0' - 4 1/2"	0' - 5 1/2"	0' - 6 1/2"	0' - 7 1/2"	0' - 9 1/2"	1' - 0"
b ₁	5' - 7 1/2"	6' - 6 1/2"	7' - 5 1/2"	8' - 6 1/2"	11' - 2 1/2"	14' - 0"
E	1' - 6"	1' - 9"	2' - 0"	2' - 4"	3' - 0"	3' - 3"
H	1' - 7"	1' - 11"	2' - 2"	2' - 5"	3' - 3"	3' - 10"
h	0' - 10"	1' - 0"	1' - 0"	1' - 6"	1' - 9"	2' - 0"
h ₁	0' - 9"	0' - 11"	1' - 0"	1' - 3"	1' - 6"	1' - 10"
X	8' - 3"	9' - 11"	11' - 8"	14' - 8"	18' - 0"	22' - 2"
Y	0' - 3"	0' - 5"	0' - 6"	0' - 8"	0' - 6"	0' - 6"

QUANTITIES FOR ONE HEADWALL

Size of Pipe	Cu. Yds.	Lbs. Concrete	Lbs. Reinf. Steel
12"	0.87	50.3	155.2
15"	1.23	96.0	220.8
18"	1.51	111.1	270.4
24"	2.02	157.1	364.8
30"	2.82	209.0	500.8
36"	3.87	296.8	670.4

BILL OF MATERIAL FOR ONE HEADWALL

MARK	No.	12'	15'	18'	24'	30'	36'	LOCATION
a	Long Bar	1	2	3	4	5	6	Vertical in Short Wing
a	Short Bar	1	2	3	4	5	6	Vertical in Short Wing
a	Long Bar	1	2	3	4	5	6	Vertical in Long Wing
a	Short Bar	1	2	3	4	5	6	Vertical in Long Wing
b	Long Bar	2	3	4	5	6	7	Longitudinal in Short Wing
b	Short Bar	2	3	4	5	6	7	Longitudinal in Short Wing
b	Long Bar	2	3	4	5	6	7	Longitudinal in Long Wing
b	Short Bar	2	3	4	5	6	7	Longitudinal in Long Wing
c	Long Bar	2	3	4	5	6	7	Long Slope Short Wing
c	Short Bar	2	3	4	5	6	7	Long Slope Short Wing
d	Long Bar	2	3	4	5	6	7	Vertical in Back Wall
d	Short Bar	2	3	4	5	6	7	Vertical in Back Wall
e	Long Bar	1	2	3	4	5	6	Transverse in Apron
e	Short Bar	1	2	3	4	5	6	Transverse in Apron
f	Long Bar	1	2	3	4	5	6	Longitudinal
f	Short Bar	1	2	3	4	5	6	Longitudinal

SPECIFICATIONS & GENERAL NOTES

Louisiana Highway Commission Specifications to govern.

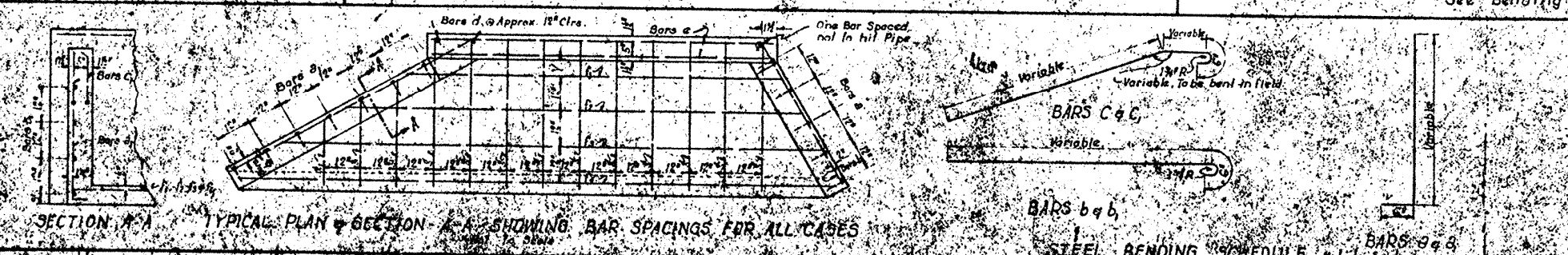
All concrete to be Class A.

All exposed corners to be chamfered.

All steel to be deformed bars.

All steel spacing dimensions are to center of bars.

All exposed surface to have rubber finish.



STANDARD PLAN
30° + 45° + 60° SKEW
FLARING TYPE HEADWALLS FOR
12'-15'-18'-24'-30'-36' CONCRETE

LOUISIANA HIGHWAY COMMISSION
BATON ROUGE, LA.