BILLS OF REINFORCING STEEL — FOR 44' CLEAR WIDTH — BARRELS ONLY

2 SPANS 8' × 4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	65	129	156	156	64	109	25	12	19	4	36	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	–	16"	–	–	12"	12"
LENGTH	17'-4"	17'-2"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	17'-2"	4'-0"	9'-8"
WEIGHT	752	1480	712	425	200	340	753	361	572	46	96	297

2 SPANS 8' × 5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	64	109	25	24	19	4	36	62	46	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	–	15"	–	–	12"	18"	12"	12"
LENGTH	17'-7"	17'-5"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	17'-5"	4'-0"	4'-1"	3'-5"	10'-1"
WEIGHT	763	1501	816	425	200	340	753	722	572	47	96	204	105	336

2 SPANS 8' × 6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	64	121	25	24	19	4	36	62	46	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	18"	–	–	12"	18"	12"	12"
LENGTH	17'-7"	17'-5"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	17'-5"	4'-0"	5'-11"	3'-5"	12'-1"
WEIGHT	763	1501	920	425	200	377	753	722	572	47	96	245	105	397

2 SPANS 8' × 7'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	64	121	25	30	19	4	36	62	46	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	17"	–	–	12"	18"	12"	12"
LENGTH	17'-7"	17'-5"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	17'-5"	4'-0"	6'-11"	3'-5"	14'-1"
WEIGHT	763	1501	1024	425	200	377	753	903	572	47	96	287	105	458

3 SPANS 8' × 4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	65	129	156	156	128	218	38	18	28	4	54	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	–	16"	–	–	12"	12"
LENGTH	26'-1"	25'-8"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	25'-8"	4'-0"	9'-8"
WEIGHT	1132	2212	712	425	399	680	1144	542	843	69	144	594

3 SPANS 8' × 5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	128	218	38	32	28	4	54	62	92	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	–	15"	–	–	12"	18"	12"	12"
LENGTH	26'-5"	26'-0"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	26'-0"	4'-0"	4'-1"	3'-5"	10'-1"
WEIGHT	1147	2240	816	425	399	680	1144	963	843	69	144	204	210	671

3 SPANS 8' × 6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	128	242	38	32	28	4	54	62	92	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	18"	–	–	12"	18"	12"	12"
LENGTH	26'-5"	26'-0"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	26'-0"	4'-0"	5'-11"	3'-5"	12'-1"
WEIGHT	1147	2240	920	425	399	755	1144	963	843	69	144	245	210	794

3 SPANS 8' × 7'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	128	242	38	40	28	4	54	62	92	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	17"	–	–	12"	18"	12"	12"
LENGTH	26'-5"	26'-0"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	26'-0"	4'-0"	6'-11"	3'-5"	14'-1"
WEIGHT	1147	2240	1024	425	399	755	1144	1204	843	69	144	287	210	917

4 SPANS 8' × 4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	65	129	156	156	192	327	51	24	37	4	70	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	–	16"	–	–	12"	12"
LENGTH	34'-9"	34'-2"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	34'-2"	4'-0"	9'-8"
WEIGHT	1509	2944	712	425	599	1020	1535	722	1114	91	187	891

4 SPANS 8' × 5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	192	327	51	40	37	4	70	62	138	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	–	15"	–	–	12"	18"	12"	12"
LENGTH	35'-2"	34'-7"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	34'-7"	4'-0"	4'-1"	3'-5"	10'-1"
WEIGHT	1527	2980	816	425	599	1020	1535	1204	1114	92	187	204	315	1007

4 SPANS 8' × 6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	192	363	51	40	37	4	70	62	138	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	18"	–	–	12"	18"	12"	12"
LENGTH	35'-2"	34'-7"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	34'-7"	4'-0"	5'-11"	3'-5"	12'-1"
WEIGHT	1527	2980	920	425	599	1132	1535	1204	1114	92	187	245	315	1191

4 SPANS 8' × 7'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	192	363	51	50	37	4	70	62	138	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	17"	–	–	12"	18"	12"	12"
LENGTH	35'-2"	34'-7"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	34'-7"	4'-0"	6'-11"	3'-5"	14'-1"
WEIGHT	1527	2980	1024	425	599	1132	1535	1505	1114	92	187	287	315	1375

5 SPANS 8' × 4

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	65	129	156	156	256	436	64	30	46	4	88	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	–	16"	–	–	12"	12"
LENGTH	43'-6"	42'-8"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	42'-8"	4'-0"	9'-8"
WEIGHT	1889	3677	712	425	799	1360	1926	903	1385	114	235	1189

5 SPANS 8' × 5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	256	436	64	48	46	4	88	62	184	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	–	15"	–	–	12"	18"	12"	12"
LENGTH	44'-0"	43'-2"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	43'-2"	4'-0"	4'-1"	3'-5"	10'-1"
WEIGHT	1911	3720	816	425	799	1360	1926	1444	1385	115	235	204	420	1342

5 SPANS 8' × 6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	256	484	64	48	46	4	88	62	184	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	18"	–	–	12"	18"	12"	12"
LENGTH	44'-0"	43'-2"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	43'-2"	4'-0"	5'-11"	3'-5"	12'-1"
WEIGHT	1911	3720	920	425	799	1510	1926	1444	1385	115	235	245	420	1588

5 SPANS 8' × 7'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	256	484	64	60	46	4	88	62	184	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	17"	–	–	12"	18"	12"	12"
LENGTH	44'-0"	43'-2"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	43'-2"	4'-0"	6'-11"	3'-5"	14'-1"
WEIGHT	1911	3720	1024	425	799	1510	1926	1806	1385	115	235	287	420	1834

6 SPANS 8' × 4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	65	129	156	156	320	545	77	36	55	4	104	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	–	16"	–	–	12"	12"
LENGTH	52'-2"	51'-2"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	51'-2"	4'-0"	9'-8"
WEIGHT	2265	4409	712	425	998	1700	2318	1084	1656	137	278	1486

6 SPANS 8' × 5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	320	545	77	56	55	4	106	62	230	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	–	15"	–	–	12"	18"	12"	12"
LENGTH	52'-9"	51'-9"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	51'-9"	4'-0"	4'-1"	3'-5"	10'-1"
WEIGHT	2290	4459	816	425	998	1700	2318	1686	1656	138	283	204	525	1678

6 SPANS 8' × 6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	320	605	77	56	55	4	106	62	230	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	18"	–	–	12"	18"	12"	12"
LENGTH	52'-9"	51'-9"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	51'-9"	4'-0"	5'-11"	3'-5"	12'-1"
WEIGHT	2290	4459	920	425	998	1887	2318	1686	1656	138	283	245	525	1985

6 SPANS 8' × 7'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	320	605	77	70	55	4	106	62	230	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	17"	–	–	12"	18"	12"	12"
LENGTH	52'-9"	51'-9"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	51'-9"	4'-0"	6'-11"	3'-5"	14'-1"
WEIGHT	2290	4459	1024	425	998	1887	2318	2107	1656	138	283	287	525	2292

2 SPANS 8' × 8'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	182	182	64	121	25	30	19	4	36	62	46	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	6"	6"	8½"	4½"	–	19"	–	–	12"	18"	12"	12"
LENGTH	17'-10"	17'-8"	10'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	11'-8"	4'-0"	7'-11"	3'-5"	16'-1"
WEIGHT	774	1523	1317	496	200	377	753	903	572	47	96	328	105	520

3 SPANS 8' × 8'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	182	182	128	242	38	40	28	4	54	62	92	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	6"	6"	8½"	4½"	–	19"	–	–	12"	18"	12"	12"
LENGTH	26'-9"	26'-4"	10'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	26'-4"	4'-0"	7'-11"	3'-5"	16'-1"
WEIGHT	1161	2269	1317	496	399	755	1114	1204	843	70	144	328	210	1040

4 SPANS 8' × 8'

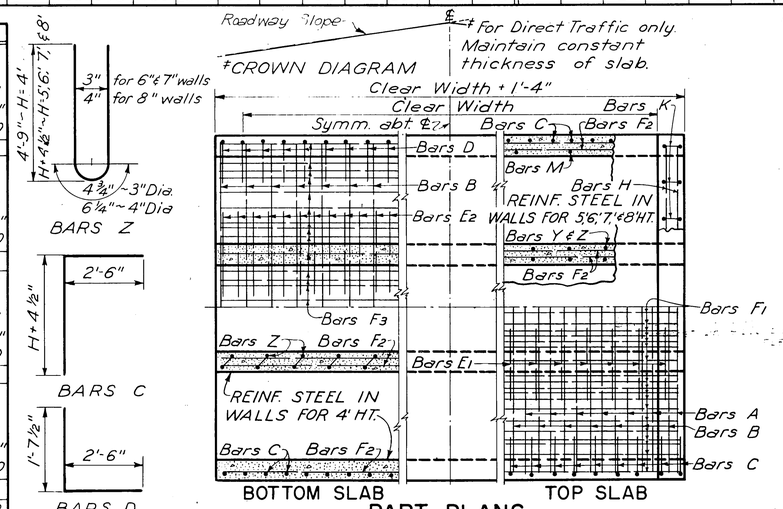
MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	182	182	192	363	51	50	37	4	72	62	138	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	6"	6"	8½"	4½"	–	19"	–	–	12"	18"	12"	12"
LENGTH	35'-7"	35'-0"	10'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	35'-0"	4'-0"	7'-11"	3'-5"	16'-1"
WEIGHT	1545	3016	1317	496	599	1132	1535	1505	1114	94	192	328	315	1560

5 SPANS 8' × 8'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	182	182	256	484	64	60	46	4	90	62	184	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	6"	6"	8½"	4½"	–	19"	–	–	12"	18"	12"	12"
LENGTH	44'-6"	43'-8"	10'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	43'-8"	4'-0"	7'-11"	3'-5"	16'-1"
WEIGHT	1932	3763	1317	496	799	1510	1926	1806	1385	117	240	328	420	2080

6 SPANS 8' × 8'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	182	182	320	605	77	70	55	4	106	62	230	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	6"	6"	8½"	4½"	–	19"	–	–	12"	18"	12"	12"
LENGTH	53'-4"	52'-4"	10'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	52'-4"	4'-0"	7'-11"	3'-5"	16'-1"
WEIGHT	2316	4510	1317	496	998	1887	2318	2107	1656	140	283	328	525	2600



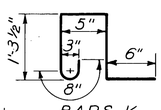
PART PLANS

NOTE: TOP & BOTTOM SLAB REINF. STEEL SIMILAR FOR CULVERT SIZES SHOWN ON THIS SHEET.

BARS Z

BARS C

BARS D



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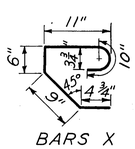

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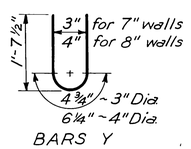
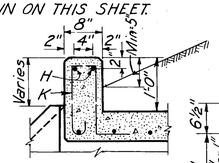
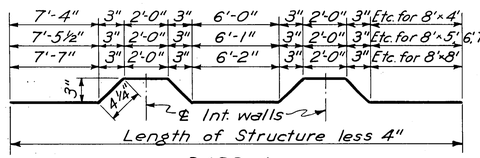


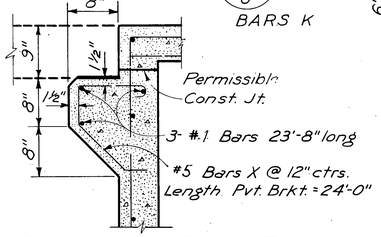
BARS Y



CURB SECTION

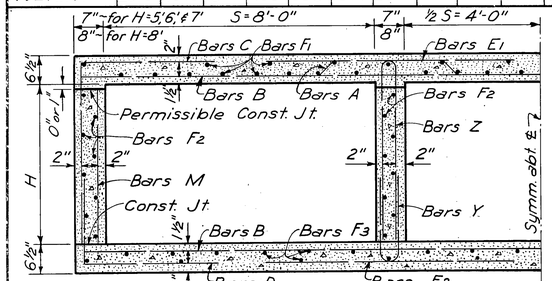


BARS A

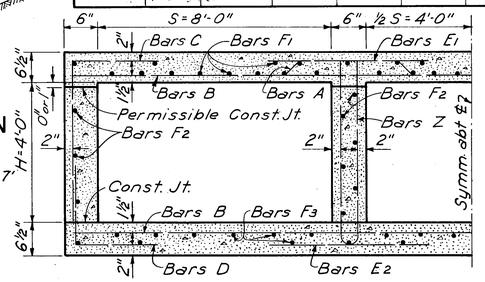


PAVEMENT BRACKET

To be used only when called for on plans.



TYPICAL HALF SEC.-HEIGHT = 5' & OVER



TYPICAL HALF SEC.-HEIGHT = 4'

BARREL QUANTITIES FOR 44' CLEAR WIDTH

CULV. SIZE S × H	NO. OF SPANS	LENGTH OF STRUCT.	*BARREL QUANTITIES CONC. Cu. Yds.	*BARREL QUANTITIES STEEL Lbs.	QUANTITIES P.L.F. BBL. CONC. Cu. Yds.	QUANTITIES P.L.F. BBL. STEEL Lbs.
8' × 4'	2	17'-6"	42.75	6034	0.924	129.47
	3	26'-0"	61.99	8896	1.339	190.80
	4	34'-6"	81.26	11749	1.755	252.05
	5	43'-0"	100.50	14614	2.170	313.38
	6	51'-6"	119.73	17468	2.585	374.63
8' × 5'	2	17'-9"	47.84	6880	1.036	147.99
	3	26'-4"	68.80	9955	1.489	214.00
	4	34'-11"	89.72	13025	1.941	279.94
	5	43'-6"	110.63	16102	2.393	345.96
	6	52'-1"	131.59	19176	2.846	411.90
8' × 6'	2	17'-9"	50.79	7123	1.101	153.33
	3	26'-4"	72.70	10298	1.575	221.52
	4	34'-11"	94.61	13466	2.049	289.62
	5	43'-6"	116.52	16643	2.523	357.81
	6	52'-1"	138.44	19815	2.997	425.91
8' × 7'	2	17'-9"	53.74	7511	1.166	161.86
	3	26'-4"	76.60	10808	1.661	232.72
	4	34'-11"	99.51	14097	2.157	303.49
	5	43'-6"	122.42	17397	2.653	374.35
	6	52'-1"	145.28	20689	3.148	445.13
8' × 8'	2	18'-0"	60.50	8011	1.315	172.78
	3	26'-8"	85.64	11350	1.860	245.21
	4	35'-4"	110.77	14748	2.405	317.56
	5	44'-0"	135.95	18119	2.951	389.98
	6	52'-8"	161.09	21481	3.496	462.33

* These quantities do not include toe walls, paving bracket or wings.

GENERAL NOTES:

Design Loading: H20- or H20 S16- in accordance with A.A.S.H.O. 1957 Standard Specifications

All concrete shall be Class C. Chamfer exposed corners ¾".

All dimensions relating to reinforcing steel are to centers of bars.

Quantities of reinforcing steel shown hereon are for 44'-0" clear width between headwalls.

CONSTRUCTION JOINT SHOWN AT THE FLOW LINE MAY BE RAISED A MAXIMUM OF 6" AT THE CONTRACTOR'S OPTION. BARS M MAY BE CUT OFF OR RAISED. BARS C & D MAY BE REVERSED (D ON TOP) AND BARS Y & Z MAY BE REVERSED (Y ON TOP).

PVT. BRKT. QUANT.

2-PVT. BRACKETS 24'-0" LONG	
CONC.	STEEL
Cu. Yd.	Lb.
1.19	264

TEXAS HIGHWAY DEPARTMENT

MULTIPLE BOX CULVERTS

SIZES 8'x4', 8'x5', 8'x6', 8'x7', 8'x8'

DIRECT TRAFFIC TO 2'-0" FILL

OAKS NORTH ADDITION MC8-1

DN. M.D.A.	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHT. NO.
CK. DN. W.H.	Original	JAN. 1958	6	TEXAS		
DW. K.M.	Rev. Jan. 1959		STATE DIST. NO.	COUNTY	HIGHWAY NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
CK. DW. M.D.A.	Rev. Nov. 1964					
TR. A.O.B.	Rev. Nov. 1967					
CK. TR. K.M.						

#10386

16/16