
 * THYSYS *
 * TEXAS HYDRAULICS SYSTEM *

§ PROJECT: FM 740
 § CSJ NO.: 1014-03-033
 § STATION: 163+05
 §
 HYDRO DA 355ACRES
 METHOD USGS
 USGS REGION = 2
 ENDATA

10YR

SECTION SPECIFICATIONS FOR SECTION "4" AT STATION 560.00
 UPSTREAM
 DRAINAGE AREA RATIO 1.000

ANALYZE SINGLE OPENING BROKEN BACK CULVERT

CULVERT ID = 710 JOB NUMBER = FM 740
 INLET STATION = 0 ELEVATION = 471.84
 OUTLET STATION = 314 ELEVATION = 452.25

HYDRO
 USGS PROCEDURE
 REGION = 2
 FREQUENCY = 10 YR.
 DRAINAGE AREA = 355.00 ACRES
 SLOPE = 80.5 FEET PER MILE

COORDINATE INFORMATION

X	Y
.00	487.67
10.00	487.27
21.00	485.57
30.00	482.37
42.00	477.17
51.00	475.37
56.00	473.77
66.00	473.77
69.00	473.27
70.00	471.77
75.00	471.17
80.00	473.77
86.00	475.27
97.00	475.27
114.00	477.97
139.00	483.47
181.00	483.87
236.00	484.37

PROFILE	SHAPE	INLET TYPE	KE	MATERIAL	'N'
BROKN BK	BOX	NORMAL	.50	CONCRETE	.012

BROKEN BACK CULVERT CONFIGURATION

UNIT	SLOPE	LENGTH	UPSTREAM STA.	ELEV.	DOWNSTREAM STA.	ELEV.
1	.05465	140	0	471.84	140	464.17
2	.28324	28	140	464.17	168	456.16
3	.02688	145	168	456.16	314	452.25

CRITICAL SLOPE = .00000
 FLOW = 679.9 CFS FREQUENCY = 10 YEAR
 TAILWATER = 459.26

SECTION SPECIFICATIONS FOR SECTION "C" AT STATION 100.00
 DOWNSTREAM
 DRAINAGE AREA RATIO 1.000

'N' VALUE INFORMATION

FROM X	TO X	'N' BELOW	ELEVATION	'N' ABOVE
.00	236.00	.040	487.67	.040

COORDINATE INFORMATION

X	Y
.00	469.47
50.00	468.07
88.00	468.07
100.00	467.67
108.00	463.27
120.00	455.37
122.00	451.87
134.00	451.37
142.00	466.87
150.00	466.37
200.00	468.17

'N' VALUE INFORMATION

FROM X	TO X	'N' BELOW	ELEVATION	'N' ABOVE
.00	200.00	.060	469.47	.060

RESULTS OF TWO SECTION METHOD CALCULATIONS

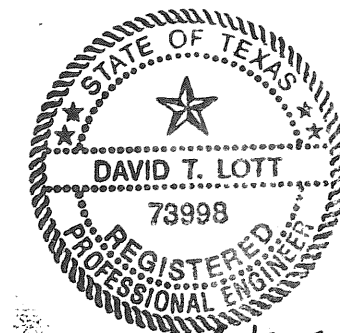
SECTION STATION	DOWNSTREAM "C"	UPSTREAM "4"	AT SITE
	100.00	560.00	175.00

DESIGN Q (CFS)	SLOPE (FT/FT)	VELOCITY (FT/SEC) DOWNSTREAM	UPSTREAM	WATER SURFACE ELEVATION AT SITE
680.	.04184	10.26	10.89	459.26
1311.	.03913	11.83	11.45	461.30

HUNDRED YEAR FLOOD ANALYSIS

CULVERT 710 1 - 0 X 0 X 314.08
 BASIC FLOOD APPLIED (100 YEAR FREQ) = 1311.4 CFS
 HUNDRED YEAR VELOCITY AT STRUCTURE OUTLET = 33.48
 HUNDRED YEAR TAILWATER ELEVATION = 461.30
 ELEVATION OF WATER SURFACE OVER ROAD = 483.02
 LOW ELEVATION OF ROAD PROFILE = 481.87
 GREATEST DEPTH OF FLOW OVER ROAD = 1.15
 PERCENTAGE OF BASIC FLOOD OVER ROAD = 36.35%

CULBRG	ANALYSIS	CULVERT	SINGLE
CLVRT 710	BROKEN BK	CONCRETE	NORMAL KE=0.50
CLVRT 710	OUTLT STA 314.08	INLET STA 0.00	EL 471.84
CLVRT 710	BREAK STA 140.35	BREAK STA 168.63	EL 456.16
CLVRT 710	DIMENSIONS	HIGH= 7 WIDE= 10	BARRELS= 1
RD PROFILEX	15500 Y 502.04 X	15600 Y 497.04 X	15700 Y 492.04
RD PROFILEX	15800 Y 487.48 X	15900 Y 484.25 X	16000 Y 482.38
RD PROFILEX	16100 Y 481.87 X	16200 Y 482.72 X	16300 Y 484.94
RD PROFILEX	16400 Y 488.52 X	16500 Y 492.60 X	16600 Y 495.24



David T. Lott, P.E.
 8/16/99

HYDRAULIC CALCULATIONS
 SHEET 5 OF 5

FED. AID DIST. NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	STP 99(413)99	88	
STATE	STATE DIST. NO.	COUNTY	
TEXAS	18	ROCKWALL	
CONTRACT	SECT.	JOB	HIGHWAY NO.
1014	03	033	FM 740