DETENTION-1 CALCULATIONS (5 year)

AREA TO BE DETAINED P1-P16 5.8 AC
DETENTION AREA (I)
REFEREN TECHNICAL PAPER 40
ALLOWABLE STORMWATER FLOW FROM DETENTION: 12.69 CFS

STORM DURATION DATA:

MIN	I-5YR	C	AREA	TOTAL CFS	TOTAL FLOW	OUTFLOW	STORAGE
10	6.10	0.90	5.800	31.84	19105	7616	11490
15	5.50	0.90	5.800	28.71	25839	9520	16319
20	4.90	0.90	5.800	25.58	30694	11423	19270
30	4.10	0.90	5.800	21.40	38524	15231	23292
40	3.40	0.90	5.800	17.75	42595	19039	23556
50	2.80	0.90	5.800	14.62	43848	22847	21001
60	2.60	0.90	5.800	13.57	48859	26655	22204
70	2.40	0.90	5.800	12.53	52618	30463	22155
80	2.30	0.90	5.800	12.01	57629	34270	23358
90	2.10	0.90	5.800	10.96	59195	38078	21116
100	1.90	0.90	5.800	9.92	59508	41886	17622
110	1.80	0.90	5.800	9.40	62014	45694	16320
							23556

DETENTION-1 CALCULATIONS (10 year)

AREA TO BE DETAINED P1-P16 5.8 AC
DETENTION AREA (I)
REFEREN TECHNICAL PAPER 40
ALLOWABLE STORMWATER FLOW FROM DETENTION: 15.28 CFS

STORM DURATION DATA:

MIN	I-10YR	C	AREA	TOTAL CFS	TOTAL FLOW	OUTFLOW	STORAGE
10	7.10	0.90	5.800	37.06	22237	9170	13067
15	6.50	0.90	5.800	33.93	30537	11462	19075
20	5.90	0.90	5.800	30.80	36958	13755	23203
30	4.80	0.90	5.800	25.06	45101	18340	26761
40	4.00	0.90	5.800	20.88	50112	22925	27187
50	3.50	0.90	5.800	18.27	54810	27510	27300
60	3.00	0.90	5.800	15.66	56376	32095	24281
70	2.80	0.90	5.800	14.62	61387	36680	24708
80	2.60	0.90	5.800	13.57	65146	41264	23881
90	2.50	0.90	5.800	13.05	70470	45849	24621
100	2.40	0.90	5.800	12.53	75168	50434	24734
110	2.30	0.90	5.800	12.01	79240	55019	24220
							27300

DETENTION-1 CALCULATIONS (25 year)

AREA TO BE DETAINED P1-P16 5.8 AC
DETENTION AREA (I)
REFEREN TECHNICAL PAPER 40
ALLOWABLE STORMWATER FLOW FROM DETENTION: 17.10 CFS

STORM DURATION DATA:

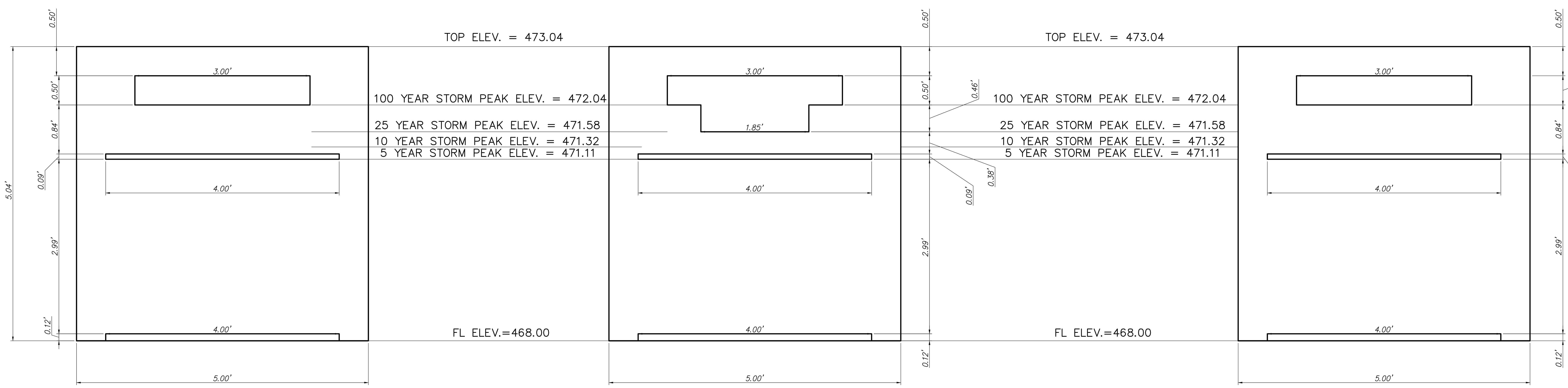
MIN	I-25YR	C	AREA	TOTAL CFS	TOTAL FLOW	OUTFLOW	STORAGE
10	8.30	0.90	5.800	43.33	25996	10258	15738
15	7.50	0.90	5.800	39.15	35235	12822	22413
20	6.60	0.90	5.800	34.45	41342	15387	25956
30	5.50	0.90	5.800	28.71	51678	20516	31162
40	4.60	0.90	5.800	24.01	57629	25645	31984
50	4.00	0.90	5.800	20.88	62640	30773	31867
60	3.50	0.90	5.800	18.27	65772	35902	29870
70	3.30	0.90	5.800	17.23	72349	41031	31318
80	3.10	0.90	5.800	16.18	77674	46160	31513
90	2.90	0.90	5.800	15.14	81745	51289	30456
100	2.70	0.90	5.800	14.09	84564	56418	28146
110	2.50	0.90	5.800	13.05	86130	61547	24583
							31984

DETENTION-1 CALCULATIONS (100 year)

AREA TO BE DETAINED P1-P16 5.8 AC
DETENTION AREA (I)
REFEREN TECHNICAL PAPER 40
ALLOWABLE STORMWATER FLOW FROM DETENTION: 21.50 CFS

STORM DURATION DATA:

MIN	I-100YR	C	AREA	TOTAL CFS	TOTAL FLOW	OUTFLOW	STORAGE
10	9.80	0.90	5.800	51.16	30694	12900	17794
15	9.00	0.90	5.800	46.98	42282	16125	26157
20	8.30	0.90	5.800	43.33	51991	19350	32641
30	6.90	0.90	5.800	36.02	64832	25800	39032
40	5.80	0.90	5.800	30.28	72662	32250	40412
50	5.00	0.90	5.800	26.10	78300	38700	39600
60	4.50	0.90	5.800	23.49	84564	45150	39414
70	4.00	0.90	5.800	20.88	87696	51600	36096
80	3.70	0.90	5.800	19.31	92707	58050	34657
90	3.50	0.90	5.800	18.27	98658	64500	34158
100	3.40	0.90	5.800	17.75	106488	70950	35538
110	3.20	0.90	5.800	16.70	110246	77400	32846
							40412



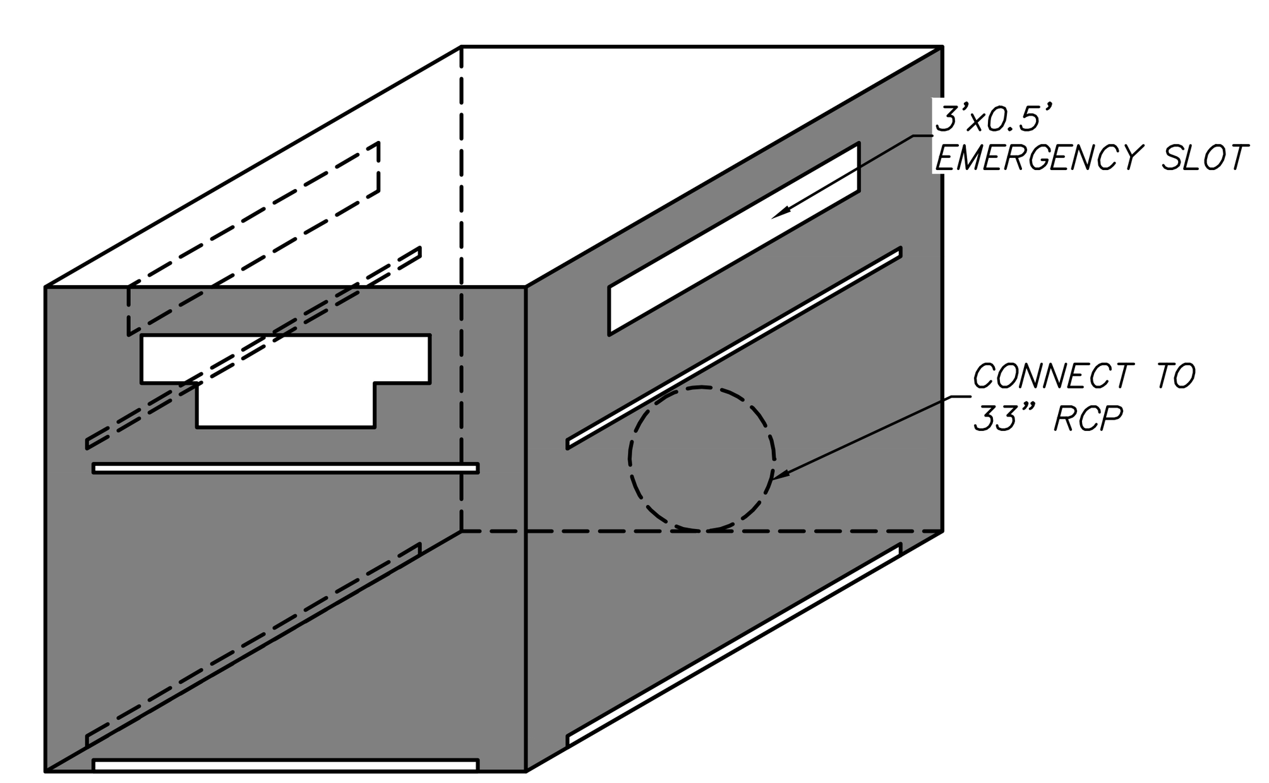
5'x5' DROP INLET
(OUTLET STRUCTURE)

SCALE: 1" = 10'

3 REFER TO TXDOT DETAIL JB-1-02 (FW) FOR REINFORCING SIZES & WALL THICKNESS. (SHEET C-15.06)

RATING TABLE			
ELEVATION	OUTFLOW	AREA	STORAGE
(FT)	(CFS)	(SF)	(CF)
474.00	32.84	28981.29	88394.47
473.00	27.92	24267.35	61770.15
472.00	21.06	20124.94	39574.00
471.00	12.46	15816.59	21603.24
470.00	10.12	11669.03	7860.43
469.00	7.04	2025.91	1012.96

5 YEAR STORM AT WS ELEVATION= 471.11 FT
MAX RELEASE= 12.69 CFS
STORAGE VOLUME= 23556 CF
10 YEAR STORM AT WS ELEVATION= 471.32 FT
MAX RELEASE= 15.28 CFS
STORAGE VOLUME= 27300 CF
25 YEAR STORM AT WS ELEVATION= 471.58 FT
MAX RELEASE= 17.10 CFS
STORAGE VOLUME= 31984 CF
100 YEAR STORM AT WS ELEVATION 472.04 FT
MAX RELEASE= 21.50 CFS
STORAGE VOLUME= 40412 CF
PROVIDED STORAGE= 88,394 CF



NOT TO SCALE

AS-BUILT

THIS RECORD DRAWING IS COMPILATION OF A COPY OF THE SEALED ENGINEERING DRAWING FOR THIS PROJECT; MODIFIED BY ADDENDA, CHANGE ORDERS, AND INFORMATION FURNISHED BY THE CONTRACTOR. THE INFORMATION SHOWN ON THE RECORD DRAWINGS IS PROVIDED BASED ON SURVEYING AT THE SITE AND INFORMATION PROVIDED BY THE CONTRACTOR OR OTHERS NOT ASSOCIATED WITH THE DESIGN ENGINEER. THE ORIGINAL SEALED DRAWING ARE ON FILE AT THE OFFICES OF WINKELMANN AND ASSOCIATES, INC.

Maria L. Bonilla — 10-19-2016
WINKELMANN AND ASSOCIATES, INC. — DATE

No.	DATE	REVISION	APPROV.
6.			
5.			
4.	03/25/2016	RESPONSE TO RFI 032	M.B.
3.	12/28/2015	BULLETIN #2	M.B.
2.	12/18/2015	ISSUE FOR CONSTRUCTION	M.B.
1.	12/09/2015	BULLETIN #1	M.B.

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Texas Engineers Registration No. 89
Texas Surveyors Registration No. 100866-00

STATE OF TEXAS — MARIA C. BONILLA-NICHOLLS — 100106 — LICENSED PROFESSIONAL ENGINEER

10-19-2016

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MARIA C. BONILLA-NICHOLLS P.E. # 100106

DETENTION POND 1 CALCULATIONS

SEC N. GOLIAD ST. AND E.QUAIL RUN RD.
ROCKWALL, TEXAS

C-11.19

DAL574