STORM SEWER CALCULATIONS

RUNOFF COLLECTION POINT (INLET OR MANHOLE)			INCREMENTAL DRAINAGE AREA																				
Upstream Station	Downstream Station	Distance Between Collection Points	Area No.	Drainage Area "A" (Acres)	Runoff Coeff. "C"	Incremental "CA"	Accumulated "CA"	Time at Upstream Station (minutes)	Design Storm Frequency (yrs.)	Intensity "I" (inches/hr.)	Storm Water Runoff "Q" (c.f.s.)	Slope of Hydraulic Gradient "S" (ft./ft.)	Selected Storm Sewer Size	Velocity in Sewer between Collection Points "V" (f.p.s.)	Head Loss Coeff. "K"	Head Loss (feet)	Flow Time in Sewer Distance V x 60 (minutes)	Time at Downstream Station (minutes)	Upstream Flowline	Downstream Flowline	Upstream H.G.	Downstream H.G.	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
LAT. "A-1"																							
1+35.59	1+00.00	35.59	A-1 & A-2	1.03†	0.90	0.93	0.93	---	100	9.80	12.6††	0.0064	21" RCP	5.28	---	---	---	---	464.40	460.00	PARTIAL	465.47	
LAT. "A-2"																							
1+09.72	1+00.00	9.72	A-3 & A-4	0.86†	0.90	0.77	0.77	---	100	9.80	11.2††	0.0050	21" RCP	4.66	---	---	---	---	464.40	460.39	466.69	466.64	
LAT. "B-1"																							
1+99.31	1+17.00	82.31	B-1	0.40	0.90	0.36	0.36	---	100	9.80	3.5	0.0011	18" RCP	1.98	---	---	---	---	467.50	465.89	469.59	469.50	
1+17.00	1+00.00	17.00	B-2	0.18	0.90	0.16	0.52	---	100	9.80	5.1	0.0024	18" RCP	2.89	1.00	0.10	---	---	465.89	465.55	469.40	469.36	
LAT. "B-1A"																							
1+03.92	1+00.00	3.92	B-2	0.18	0.90	0.16	0.16	---	100	9.80	1.6	0.0002	18" RCP	0.91	---	---	---	---	467.80	465.89	469.63	469.53	
LINE "C"																							
1+30.00	1+00.00	30.00	OS-1	2.24	0.90	2.02	2.02	---	100	9.80	19.8	0.0077	24" RCP	6.30	---	---	---	---	459.80	459.50	463.84	463.61	
LINE "D"																							
1+38.00	1+00.00	38.00	N/A‡‡‡	---	---	---	---	---	100	9.80	64.2‡‡‡	0.0020	48" RCP	5.11	---	---	---	---	458.02	457.83	462.06	461.98	
LINE "E"																							
2+00.00	1+00.00	100.00	C-1‡‡	---	---	---	---	---	100	9.80	14.0‡‡	0.0038	24" RCP	4.46	---	---	---	---	459.50	458.00	462.36	461.98	

† VALUE REFLECTS FACT THAT AREAS "A-1" AND "A-3" GENERATE ENOUGH RUNOFF TO OVER-TOP THE CROWN OF PECAN VALLEY DRIVE, THUS CAUSING TOTAL RUNOFF FROM THESE TWO AREAS TO BE SPLIT EVENLY BETWEEN INLETS 1 AND 2.

†† VALUE INCLUDES CARRYOVER FLOW FROM UPSTREAM INLETS THAT IS NOT ACCOUNTED FOR IN COLUMN 8 (ACCUMULATED "CA")

††† FLOW FROM DRAINAGE AREA C-1 IS DETERMINED FROM ARKOMA DEVELOPMENT SQUABBLE CREEK TRIBUTARY D DRAINAGE STUDY PREPARED BY KIMLEY-HORN & ASSOCIATES, INC. DATED SEPTEMBER 5, 2007

†††† FLOW IN LINE "D" DETERMINED FROM "NORTH LAKESHORE DRIVE" PLANS PREPARED BY HUITT-ZOLLARS, DATED 08/31/2004

INLET DESIGN CALCULATIONS

INLET			AREA RUNOFF Q = CIA										SELECTED INLET		
No.	Location	Design Storm Frequency (yrs.)	Time of Conc. (min.)	Intensity "I" (inches/hr.)	Runoff Coeff. "C"	Area (ac.)	"Q" (c.f.s.)	Carryover from Upstream Inlet (c.f.s.)	Total Gutter Flow (c.f.s.)	Gutter Capacity (c.f.s.)	Gutter Slope (ft./100 ft.)	Crown Type	Length "Li" (feet)	Type	Carryover to Downstream Inlet (c.f.s.)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
*1	LAT. "A-1"	100	10	9.80	0.90	1.03**	9.1	3.6	12.6	22.5	SAG	PARABOLIC	10'	IA	N/A
*2	LAT. "A-2"	100	10	9.80	0.90	0.86**	7.6	3.6	11.2	22.5	SAG	PARABOLIC	10'	IA	N/A
3	LAT "B-1A"	100	10	9.80	0.90	0.18	1.6	0	1.6	22.5	SAG	---	5'	IA	N/A
4	LAT "B-1"	100	10	9.80	0.90	0.40	3.5	0	3.5	N/A	N/A	N/A	2'x2'	V	N/A
+5	FUTURE	100	10	9.80	0.90	1.12	9.9	0	9.9	6.3	0.6	PARABOLIC	10'	I	3.6
+6	FUTURE	100	10	9.80	0.90	1.12	9.9	0	9.9	6.3	0.6	PARABOLIC	10'	I	3.6

* INLETS 1 & 2 HAVE BEEN SIZED FOR ULTIMATE CONDITIONS.

** VALUE REFLECTS FACT THAT AREAS "A-1" AND "A-3" GENERATE ENOUGH RUNOFF TO OVER-TOP THE CROWN OF PECAN VALLEY DRIVE, THUS CAUSING TOTAL RUNOFF FROM THESE TWO AREAS TO BE SPLIT EVENLY BETWEEN INLETS 1 AND 2.

+ INLETS 5 & 6 ARE FUTURE INLETS ASSUMED TO BE 10' STANDARD CURB INLETS AT THE APPROXIMATE LOCATIONS SHOWN.

NOTE: DRAINAGE AREA B-1 WILL BE PICKED UP BY INLET 4. UPON DEVELOPMENT OF THIS AREA, D.A. B-1 WILL BE ROUTED THROUGH AN EXISTING 30" RCP UNDER QUAIL RUN ROAD PER NORTH LAKESHORE VALLEY DETENTION POND PLANS PREPARED BY KIMLEY-HORN & ASSOCIATES, INC. DATED MAY 31, 2007.

RECORD DRAWING
THIS RECORD DRAWING HEREIN REFLECTS TO THE BEST OF THE DESIGN ENGINEER'S KNOWLEDGE, THE APPROXIMATE LOCATION OF THE CONSTRUCTED WORK, USING INFORMATION AS PROVIDED BY THE CONTRACTORS AND SURVEYED GRADES.

No.	Date	Revisions	App.

Kimley-Horn and Associates, Inc.
5750 Genesis Court, Suite 200
Frisco, Texas 75034
Tel. No. (972) 335-3580
Fax No. (972) 335-3779

STATE OF TEXAS
PIETER D. KESSELS
87775
LICENSED
PROFESSIONAL ENGINEER
02-27-2008

Pecan Valley Drive and Quail Run Road
City of Rockwall, Texas

STORM SEWER AND INLET DESIGN CALCULATIONS

Scale: AS NOTED
Designed by: T.B.B.
Drawn by: J.J.D./B.B.P.
Checked by: P.D.K.
Date: Feb. 27, 2008
Project No. 068237002

SHEET
C-10
OF 47

IMAGES
XREFS
PLOTTED BY DONALDSON, JUSTIN 2/25/2008 5:45 PM
PLOT NAME C:\USERS\JUSTIN.DONALDSON\DESKTOP\PECAN VALLEY DRIVE\C10 STORM SWR_CALCS.DWG
LAST SAVED 11/1/2008 4:58 PM
XREF X-24x36.PYD