

STORM DRAIN CALCULATIONS:

RUNOFF COLLECTION POINT (Inlet or Manhole)			INCREMENTAL DRAINAGE AREA			Incoming CA (from wye or manhole, link to DS lateral DS Accum. CA)	Accumulated "CA"	Time at Upstream Station (minutes)	Design Storm Frequency (yrs.)	Intensity "I" (in/hr)	Storm Water Runoff "Q" (c.f.s.)	Slope of Hydraulic Gradient "S" (ft./ft.)	Selected Storm Sewer Size SPAN for RCB (feet) DIA for pipe (inches)	RISE ONLY FOR RCB (feet)	Velocity In Sewer Between Collection Points "V" (ft/sec)	Standard DS Junction Loss k	Minor Loss Coeff. K _j	Velocity Head (V ² /2g) (feet)	Flow Time in Sewer Distance V x 60 (minutes)	Hydraulic Grade					
DRAINAGE AREA	UPSTREAM STATION	DOWNSTREAM STATION	Distance Between Collection Points	Drainage Area "A" (Acres)	Combined Runoff Coeff. C*C _f															Incremental "CA"	DS Hyd. Grade	Friction Losses	Hyd. Grade After Friction Loss	Junction Losses	Minor Losses
LINE A																									
A-6	7+76.99	7+67.67	9.32	2.78	0.90	2.50	0.00	2.50	10.00	100	9.80	24.5	0.0117	24	7.80		1.50	0.95	0.02	541.26	0.11	541.37	0.00	1.42	542.79
45° BEND	7+67.67	7+54.23	13.44		0.00	0.00	0.00	2.50	10.02	100	9.79	24.5	0.0117	24	7.80	0.35		0.94	0.03	541.22	0.16	541.38	0.61	0.00	541.99
45° BEND	7+54.23	7+44.96	9.27		0.00	0.00	0.00	2.50	10.05	100	9.78	24.5	0.0117	24	7.79	0.35		0.94	0.02	541.05	0.11	541.16	0.61	0.00	541.77
Pipe Size Change	7+44.96	7+40.96	4.00		0.00	0.00	0.00	2.50	10.07	100	9.77	24.4	0.0117	24	7.78			0.94	0.01	541.22	0.05	541.26	0.00	0.00	541.26
45° WYE LAT A-5	7+40.96	6+90.51	50.45		0.90	0.00	0.34	2.84	10.08	100	9.76	27.8	0.0046	30	5.66	0.60		0.50	0.15	541.05	0.23	541.29	-0.07	0.00	541.22
60° WYE LAT A-4	6+90.51	6+21.23	69.28		0.90	0.00	0.09	2.93	10.23	100	9.70	28.5	0.0048	30	5.80	0.60		0.52	0.20	540.50	0.33	540.83	0.22	0.00	541.05
PIPE SLOPE CHANGE	6+21.23	5+14.87	106.36		0.00	0.00	0.00	2.93	10.42	100	9.61	28.5	0.0048	30	5.81			0.52	0.31	539.98	0.51	540.50	0.00	0.00	540.50
5' DIA MH	5+14.87	0+00.00	514.87		0.00	0.00	0.00	2.93	10.73	100	9.47	28.5	0.0048	30	5.81	0.05		0.52	1.48	537.00	2.49	539.49	0.50	0.00	539.98
LATERAL A-4																									
INLET A-4	0+09.53	0+00.00	9.53	0.10	0.90	0.09		0.09	10.00	100	9.80	0.9	0.0006	12	1.12		1.50	0.02	0.14	541.05	0.01	541.06	0.00	0.03	541.09
LATERAL A-5																									
INLET A-5	0+76.38	0+71.37	5.01	0.38	0.90	0.34		0.34	10.00	100	9.80	3.4	0.0002	24	1.07		1.50	0.02	0.08	541.26	0.00	541.27	0.00	0.03	541.29
45° BEND	0+71.37	0+64.81	6.56			0.00		0.34	10.00	100	9.80	3.4	0.0002	24	1.07	0.35		0.02	0.10	541.25	0.00	541.25	0.01	0.00	541.26
45° BEND	0+64.81	0+45.30	19.51			0.00		0.34	10.00	100	9.80	3.4	0.0002	24	1.07	0.35		0.02	0.30	541.24	0.00	541.24	0.01	0.00	541.25
Pipe slope change	0+45.30	0+29.99				0.00			10.00	100															
45° BEND	0+29.99	0+00.00	29.99			0.00		0.34	10.00	100	9.80	3.4	0.0002	24	1.07	0.35		0.02	0.47	541.22	0.01	541.22	0.01	0.00	541.24

INLET CALCULATIONS:


Inlet ID	Flow To Inlet (Q)	Length of Inlet Opening (L)	Depth of Water (head at inlet) (y)	Q Allowable	Q Actual
	(cfs)	(ft)	(ft)	(cfs)	(cfs)
A-6	25.31	5'X5', L=20	0.6	28.69	25.31
A-5	3.53	4'X4', L=16	0.5	17.46	3.53

DROP INLET FLOW EQUATION: $Q = 3.087Ly^{3/2}$

DROP INLET LENGTH EQUATION: $L = Q/3.087y^{3/2}$

RECORD DRAWING

TO THE BEST OF OUR KNOWLEDGE HALFF ASSOCIATES, INC. HEREBY STATES THAT THIS PLAN IS A RECORD DRAWING. THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED ON INFORMATION PROVIDED BY THE GENERAL CONTRACTOR, MEDCO CONSTRUCTION L.L.C. DURING MAY 2018, FIELD OBSERVATIONS, ON 05/09/2018, AND FIELD SURVEY WORK CONDUCTED AT THE SITE. THIS INFORMATION INCLUDES MODIFICATIONS BY ADDENDA AND CHANGE ORDERS. THE ORIGINAL SEALED CONSTRUCTION DRAWINGS ARE ON FILE AT THE OFFICES OF HALFF ASSOCIATES, INC., TBPE FIRM #312

ENGINEER OF RECORD:

 DANIEL W. WARFIELD, P.E. 95947
 HALFF ASSOC. TBPE FIRM #312
 DATE 06/11/2018



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Revision No.	Date	Description
2	10/03/2017	ISSUING, CHECKED FOR BIDDING TO AND STORM DRAINAGE
3	06/11/2018	RECORD DRAWINGS