

STORM SEWER COMPUTATIONS
FOR
SILVER EAGLE
OFFSITE (CTH TT & CTH N)

SHEET 1 OF 1
DESIGN BY: JMS
PROJECT NUMBER: 1590.00A
DATE: 1/19/2022

DESIGN DATA

County: **Dane** Design Storm: **25** yr Storm Duration: **5 min** DESIGN INTENSITY (I): **8.33 in/hr**

STRUCTURE DATA			DRAINAGE AREA AND FLOW DATA				PIPE DATA				PIPE CAPACITY INFORMATION					ELEVATIONS		
Notes	Upstream Structure	Downstream Structure	Flow is determined by Rational Method Q = CIA				Length (ft)	Diameter (in)	Slope (%)	Manning Coefficient	Pipe capacity is determined by Manning's Equation Q = 1.486/n AR ^{2/3} S ^{1/2}					Rim/Toc Up	Invert Up	Invert Down
			Individual Acres A	Individual Coefficient C	Individual Flow Q (cfs)	Cumulative Flow (cfs)					Required Drop (ft)	Actual Drop (ft)	Percent Full (%)	Actual Velocity (fps)	Max. Capacity (cfs)			
DRIVEWAY A			3.99	0.44	14.62	14.62	130.00	24	0.40	0.012	0.46	0.52	83%	5.61	16.67		972.21	971.69
DRIVEWAY B			6.65	0.47	26.04	26.04	150.00	24	1.20	0.012	1.69	1.80	85%	9.74	28.88		940.80	939.00
DRIVEWAY C			INFILTRATION POND		4.35													
			1.67	0.78	10.85	15.20	120.00	24	1.50	0.012	0.46	1.80	50%	9.58	32.29		916.10	914.30
DRIVEWAY D			1.28	0.46	4.90	4.90	150.00	18	1.50	0.012	0.28	2.25	39%	7.20	14.99		925.80	923.55

STORM SEWER COMPUTATIONS
FOR
SILVER EAGLE
OFFSITE (CTH TT & CTH N)

DESIGN DATA

County: **Dane** Design Storm: **100** yr Storm Duration: **5 min** DESIGN INTENSITY (I): **10.5 in/hr**

STRUCTURE DATA			DRAINAGE AREA AND FLOW DATA				PIPE DATA				PIPE CAPACITY INFORMATION					ELEVATIONS		
Notes	Upstream Structure	Downstream Structure	Flow is determined by Rational Method Q = CIA				Length (ft)	Diameter (in)	Slope (%)	Manning Coefficient	Pipe capacity is determined by Manning's Equation Q = 1.486/n AR ^{2/3} S ^{1/2}					Rim/Toc Up	Invert Up	Invert Down
			Individual Acres A	Individual Coefficient C	Individual Flow Q (cfs)	Cumulative Flow (cfs)					Required Drop (ft)	Actual Drop (ft)	Percent Full (%)	Actual Velocity (fps)	Max. Capacity (cfs)			
DRIVEWAY A			3.99	0.44	18.43	18.43	130.00	24	0.40	0.012	0.74	0.52	Surcharge	---	16.67		972.21	971.69
											See attached culvert analysis for 100 year							
DRIVEWAY B			6.65	0.47	32.82	32.82	150.00	24	1.20	0.012	2.69	1.80	Surcharge	---	28.88		940.80	939.00
											See attached culvert analysis for 100 year							
DRIVEWAY C			INFILTRATION POND		9.21													
			1.67	0.78	13.68	22.89	120.00	24	1.50	0.012	1.05	1.80	69%	10.52	32.29		916.10	914.30
DRIVEWAY D			1.28	0.46	6.18	6.18	150.00	18	1.50	0.012	0.44	2.25	46%	7.65	14.99		925.80	923.55

Culvert Report

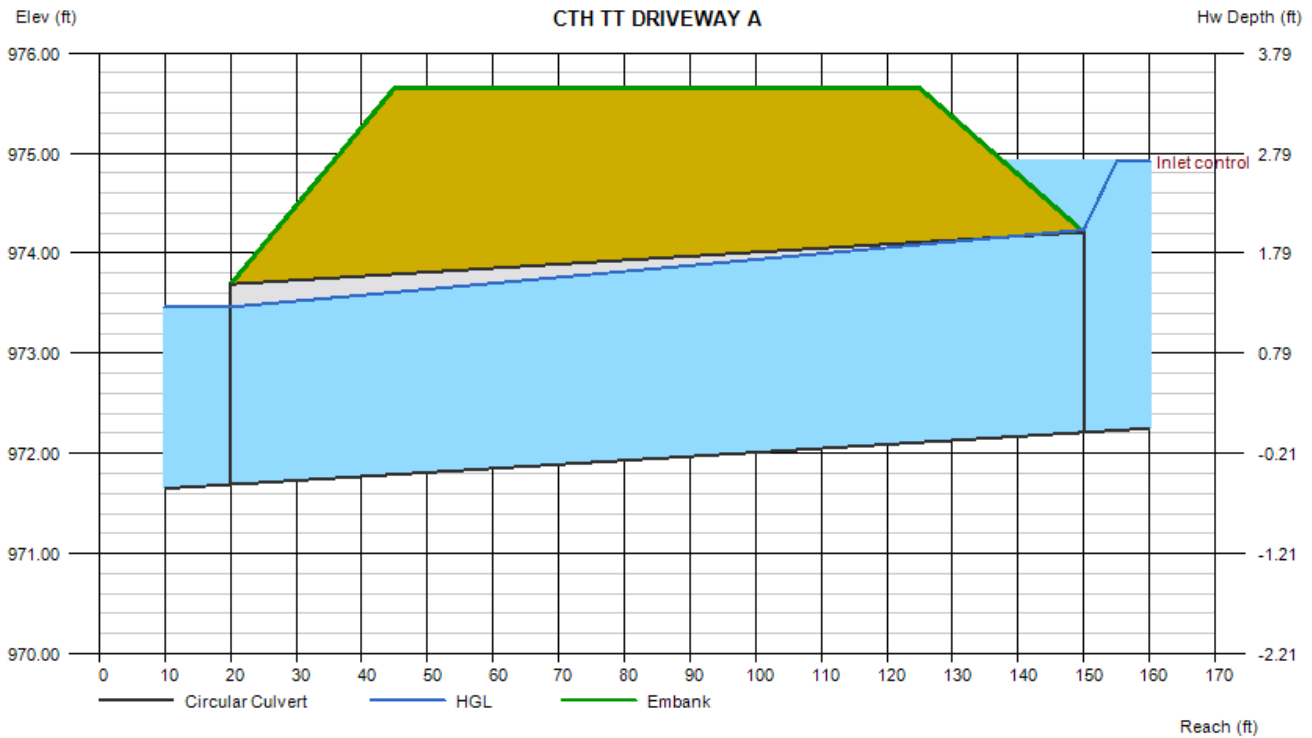
CTH TT DRIVEWAY A

Invert Elev Dn (ft)	=	971.69
Pipe Length (ft)	=	130.00
Slope (%)	=	0.40
Invert Elev Up (ft)	=	972.21
Rise (in)	=	24.0
Shape	=	Circular
Span (in)	=	24.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment	
Top Elevation (ft)	= 975.65
Top Width (ft)	= 80.00
Crest Width (ft)	= 70.00

Calculations	
Qmin (cfs)	= 18.43
Qmax (cfs)	= 18.43
Tailwater Elev (ft)	= (dc+D)/2

Highlighted	
Qtotal (cfs)	= 18.43
Qpipe (cfs)	= 18.43
Qovertop (cfs)	= 0.00
Veloc Dn (ft/s)	= 6.26
Veloc Up (ft/s)	= 5.87
HGL Dn (ft)	= 973.46
HGL Up (ft)	= 974.23
Hw Elev (ft)	= 974.92
Hw/D (ft)	= 1.35
Flow Regime	= Inlet Control



Culvert Report

CTH TT DRIVEWAY B

Invert Elev Dn (ft)	=	939.00
Pipe Length (ft)	=	150.00
Slope (%)	=	1.20
Invert Elev Up (ft)	=	940.80
Rise (in)	=	24.0
Shape	=	Circular
Span (in)	=	24.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment	
Top Elevation (ft)	= 947.59
Top Width (ft)	= 80.00
Crest Width (ft)	= 70.00

Calculations	
Qmin (cfs)	= 32.82
Qmax (cfs)	= 32.82
Tailwater Elev (ft)	= (dc+D)/2

Highlighted	
Qtotal (cfs)	= 32.82
Qpipe (cfs)	= 32.82
Qovertop (cfs)	= 0.00
Veloc Dn (ft/s)	= 10.52
Veloc Up (ft/s)	= 10.45
HGL Dn (ft)	= 940.95
HGL Up (ft)	= 943.51
Hw Elev (ft)	= 946.47
Hw/D (ft)	= 2.84
Flow Regime	= Inlet Control

