

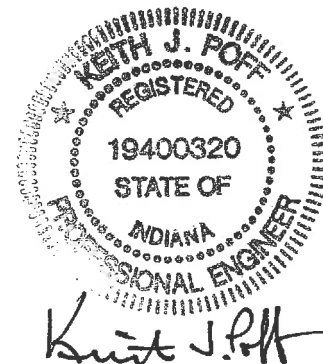
Preliminary  
DRAINAGE REPORT

FOR

**Hunter Chase Estates**

7445 N. Green River Road  
Vanderburgh County, Indiana  
for  
Dauby Properties & Investments LLC

Report by:  
**SITECON, Inc.**  
10335 Hedden Road, Suite 2  
Evansville, IN 47725  
(812) 868-0877  
February 17, 2008



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## **Hunter Chase Estates**

### **Preliminary Drainage Plan**

#### **Project Name and Location**

Hunter Chase Estates  
N. Green River Rd.  
Center Township, Section 36, T 5 S, R 10 W  
Vanderburgh County, Indiana

#### **Developer Name and Address**

Dauby Properties & Investments, L.L.C  
Ron Dauby, Managing Member  
6301 Kratzville Road  
Evansville, IN 47710

#### **Drainage Plan Preparer**

***SITECON, Inc.***  
10335 Hedden Road, Suite 2  
Evansville, IN 47725  
(812) 868-0877

**Site Location:**

The subject property is an 19.87-acre site located on N. Green River Rd. The property is part of the NW 1/4 of Section 36 of Center Township in Vanderburgh County. The project plans to provide access on its west side where there is approximately 656 feet of frontage along N. Green River Rd. The subject site has been cultivated field with the exception of an existing barn.

**Existing Site Conditions:**

The subject site is gradually sloping cultivated terrain. A ridge runs north and south thru the property. Approximately 40% of the property flows to the west, & the other 60% flows to the east and south. On the westside of the ridge the flow is captured at the west end of the property in a roadside ditch whereupon it flows due south approximately 830' into Firlick Creek. On the eastside of the ridge the runoff sheet flows to the east and south before concentrating into valleys to the south and east.

A portion of the property is shown to be within the 100-year flood zone (Zone A) as said property plots by scale on the Flood Insurance Rate Map (FIRM) Community Panel Number 180256 0025 C, dated August 5, 1991.

According to the Soil Survey of Vanderburgh County, Indiana, issued June, 1976, the site consists of Hosmer, Wakeland, & Iva silt loams (HoB, Wa, & Iv).

**Analysis Procedure:**

The Rational Method, valid for watershed areas up to 200 acres, was used for computations of storm water runoff. The post development controlled peak release rate of storm water runoff during a twenty-five (25) year return period storm from the developed project was designed to not exceed the peak release rate during a ten (10) year return period storm in its pre-developed condition.

**Proposed Design:**

There will be two retention basins on the site. The west retention basin will be located at the southwest corner of the property, and will collect and release the developed runoff for the modified areas on the western side of the existing ridge. The east retention basin will be located at the northeast corner of the property, and will collect and release the developed runoff for the modified areas on the eastern side of the existing ridge.

Conveyance to the west basin will be primarily from a storm pipe collection system in the street, and from the street will be allowed to flow in an open channel southerly to the basin. The west basin will release into the roadside ditch whereupon it will flow south into Firlick Creek.

On the eastside of the ridge drainage ditches will run along the northern, southern, and eastern property lines. These ditches along with storm pipe under the eastern ditch will convey the developed runoff to the eastern basin. The eastern basin will release onto a concrete lined swale until it reaches a defined flow path to the east.

The site's stormwater will be conveyed through the streets, storm pipes and rear yard swales whereupon it will flow into the retention basins. Both retention basins have restricted outflow conditions. Nearly all of the proposed runoff from the site will be detained.

The site drainage system will be a combination of reinforced concrete pipe (RCP) and high density polyethylene pipe (HDPE).

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**SUB-BASIN DRAINAGE CALCULATIONS - UNDEVELOPED FLOW FOR A 10 YEAR STORM**

**Siteon, Inc. Project: 602-07-3**

Job Name/Basin #:	East Watershed "A"		501,154 Total SF	11.50 AC
Structures	1 Total	3,233 SF	100 %	3,233 Total SF 0.07 AC
Drives	0 Total	0 SF		0 Total SF 0.00 AC
Pavement	0 Width (ft)	5,310 L (ft)		0 Total SF 0.00 AC
Patios	0 Total	120 SF		0 Total SF 0.00 AC
Sidewalks	0 Width (ft)			0 Total SF 0.00 AC
Impervious surfaces	C=0.92			
Terr 1 (0-2%) lawn	C=0.12	0 SF		0 Total SF 0.00 AC
Terr 2 (2-5%) lawn	C=0.24	0 SF		0 Total SF 0.00 AC
Terr 3 (5-10%) lawn	C=0.36	0 SF		0 Total SF 0.00 AC
Terr 4 (0-2%) woods	C=0.12	0 SF		0 Total SF 0.00 AC
Terr 5 (2-5%) woods	C=0.24	0 SF		0 Total SF 0.00 AC
Terr 6 (5-10%) woods	C=0.36	0 SF		0 Total SF 0.00 AC
Terr 7 (0-2%) cult	C=0.20	124,480 SF		124,480 Total SF 2.86 AC
Terr 8 (2-5%) cult	C=0.35	373,441 SF		373,441 Total SF 8.57 AC
Terr 9 (5-10%) cult	C=0.50	0 SF		0 Total SF 0.00 AC
Terr 10-Lakes	C=1.00	0 SF		0 Total SF 0.00 AC
	Wt'd C =	0.32		<b>501,154 Check</b>
	Wt'd N =	0.15		
	High Pt El =	396.00 ft		
	Inlet El =	384.00 ft		
	Length =	900.00 ft		
	Slope =	0.0133		
	tc =	22.34 min		
0 1	Is 5<tc<10?	i10 =	0.00 in/hr	
0 1	Is 10<tc<15?	i10 =	0.00 in/hr	
1 1	Is 15<tc<30?	i10 =	5.56 in/hr	
1 0	Is 30<tc<60?	i10 =	0.00 in/hr	
	<b>Q10 =</b>	<b>20.25 cfs</b>	<b>Date:</b>	<b>02/17/08</b>

**SUB-BASIN DRAINAGE CALCULATIONS - UNDEVELOPED FLOW FOR A 10 YEAR STORM**

**Siteon, Inc. Project: 602-07-4**

Job Name/Basin #:	West Watershed "B"		364,464 Total SF	8.37 AC
Structures	0 Total	3,200 SF	100 %	0 Total SF 0.00 AC
Drives	0 Total	0 SF		0 Total SF 0.00 AC
Pavement	10 Width (ft)	650 L (ft)	6,500 Total SF	0.15 AC
Patios	0 Total	120 SF	0 Total SF	0.00 AC
Sidewalks	0 Width (ft)		0 Total SF	0.00 AC
Impervious surfaces	C=0.92			
Terr 1 (0-2%) lawn	C=0.12	0 SF	0 Total SF	0.00 AC
Terr 2 (2-5%) lawn	C=0.24	0 SF	0 Total SF	0.00 AC
Terr 3 (5-10%) lawn	C=0.36	0 SF	0 Total SF	0.00 AC
Terr 4 (0-2%) woods	C=0.12	0 SF	0 Total SF	0.00 AC
Terr 5 (2-5%) woods	C=0.24	0 SF	0 Total SF	0.00 AC
Terr 6 (5-10%) woods	C=0.36	0 SF	0 Total SF	0.00 AC
Terr 7 (0-2%) cult	C=0.20	84,616 SF	84,616 Total SF	1.94 AC
Terr 8 (2-5%) cult	C=0.35	273,348 SF	273,348 Total SF	6.28 AC
Terr 9 (5-10%) cult	C=0.50	0 SF	0 Total SF	0.00 AC
Terr 10-Lakes	C=1.00	0 SF	0 Total SF	0.00 AC
	Wt'd C =	0.33	<b>364,464 Check</b>	
	Wt'd N =	0.15		
	High Pt El=	396.00 ft		
	Inlet El=	375.00 ft		
	Length=	1318.00 ft		
	Slope=	0.0159		
	tc=	25.70 min		
0 1	Is 5<tc<10?	i10=	0.00 in/hr	
0 1	Is 10<tc<15?	i10=	0.00 in/hr	
1 1	Is 15<tc<30?	i10=	5.27 in/hr	
1 0	Is 30<tc<60?	i10=	0.00 in/hr	

**Q10= 14.36 cfs**

**Date: 02/17/08**

**SUB-BASIN DRAINAGE CALCULATIONS - DEVELOPED BASIN COEFFICIENT**

**Siteon, Inc. Project: 602-07-4**

**Job Name/Basin #:** East Watershed "A" 415,865 Total SF      9.55 AC

**Exist. Impervious surfaces (2-5%) C=0.94**

Structures	0 Total	3,233 SF	0 Total SF	0.00 AC
Pavement	0 Width (ft.)	5,310 Lft	0 Total SF	0.00 AC
Stone	0 Total	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>

**Proposed Impervious surfaces (2-5%) C=0.94**

Structures	17.41 Total	6,235 SF	108,551 Total SF	2.49 AC
Drives	19.15 Total	2,745 SF	52,567 Total SF	1.21 AC
Pavement	24 Width (ft)	2,240 L (ft)	53,760 Total SF	1.23 AC
Patios	0 Total	0 SF	0 Total SF	0.00 AC
Sidewalks	0 Width (ft)		0 Total SF	0.00 AC
			<b>214,878 TOTAL</b>	<b>4.93 AC</b>

**Exist cultivated fields:**

0-2% slope	C=0.20	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.35	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.50	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.65	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>

**For lawn areas:**

0-2% slope	C=0.15	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.25	200,987 SF	200,987 Total SF	4.61 AC
5-10% slope	C=0.40	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.55	0 SF	0 Total SF	0.00 AC
			<b>200,987 TOTAL</b>	<b>4.61 AC</b>

**For woodland areas:**

0-2% slope	C=0.12	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.24	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.36	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.48	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>

Check      415,865 GT

Wtd C =      0.61

Date:      02/17/08



**Vanderburgh County Drainage Board  
Form 800**

**Computation Sheet for Detention Storage Using the Rational Method**

**Project:** East Basin **Date:** 02/17/08

Detention Facility Design Return Period 25 years

Release Rate Return Period 10 years

Watershed Area 11.50 acres  
 Undeveloped Time of Concentration 22.34 minutes  
 Undeveloped Rainfall Intensity (iu) 5.56 inches/hour  
 Weighted Undeveloped Runoff Coefficient (Cu) 0.32  
 Undeveloped Runoff Rate (O=Cu x iu x Au) 20.46 cfs  
 Developed Runoff Coefficient (Cd) 0.61

Storm Duration td	Rainfall Intensity id	Inflow Rate I(td) Cd x id x Ad	Outflow Rate O Cu x iu x Au	Storage Rate (I x td) - O	Required Storage [I(td)-O]x[td/12]
min	inches/hr	cfs	cfs	cfs	acre-ft
5	7.208	50.56	20.46	30.10	0.2091
10	5.925	41.56	20.46	21.10	0.2931
15	5.033	35.31	20.46	14.85	0.3093
20	4.571	32.07	20.46	11.60	0.3224
25	4.108	28.82	20.46	8.36	0.2902
30	3.646	25.58	20.46	5.12	0.2132
40	3.123	21.91	20.46	1.45	0.0804
50	2.601	18.25	20.46	-2.21	-0.1538
60	2.078	14.58	20.46	-5.88	-0.4903
90	1.578	11.07	20.46	-9.39	-1.1739

Required Storage = 0.3224 x 43,560 sf/ac = 14,044 cubic feet

**Vanderburgh County Drainage Board  
Form 800**

**Computation Sheet for Detention Storage Using the Rational Method**

**Project:** EAST Basin RESTRICT **Date:** 02/17/08

Detention Facility Design Return Period 25 years

Release Rate Return Period 10 years

Watershed Area	11.50 acres
Undeveloped Time of Concentration	22.34 minutes
Undeveloped Rainfall Intensity (iu)	5.56 inches/hour
Weighted Undeveloped Runoff Coefficient (Cu)	0.32
Undeveloped Runoff Rate (O=Cu x iu x Au)	20.46 cfs
Developed Runoff Coefficient (Cd)	0.61

Storm Duration td	Rainfall Intensity id	Inflow Rate I(td) Cd x id x Ad	Outflow Rate O Cu x iu x Au	Storage Rate (I x td) - O	Required Storage [I(td)-O]x[td/12]
min	inches/hr	cfs	cfs	cfs	acre-ft
5	7.208	50.56	15.00	35.56	0.2470
10	5.925	41.56	15.00	26.56	0.3689
15	5.033	35.31	15.00	20.31	0.4231
20	4.571	32.07	15.00	17.07	0.4740
25	4.108	28.82	15.00	13.82	0.4798
30	3.646	25.58	15.00	10.58	0.4407
40	3.123	21.91	15.00	6.91	0.3838
50	2.601	18.25	15.00	3.25	0.2254
60	2.078	14.58	15.00	-0.42	-0.0352
90	1.578	11.07	15.00	-3.93	-0.4913

Required Storage = 0.4798 x 43,560 sf/ac = 20,900 cubic feet

EAST BASIN  
 INLET CONTROL  
 NOMOGRAPH FOR PROJECTING CONCRETE PIPE  
 (Socket End)

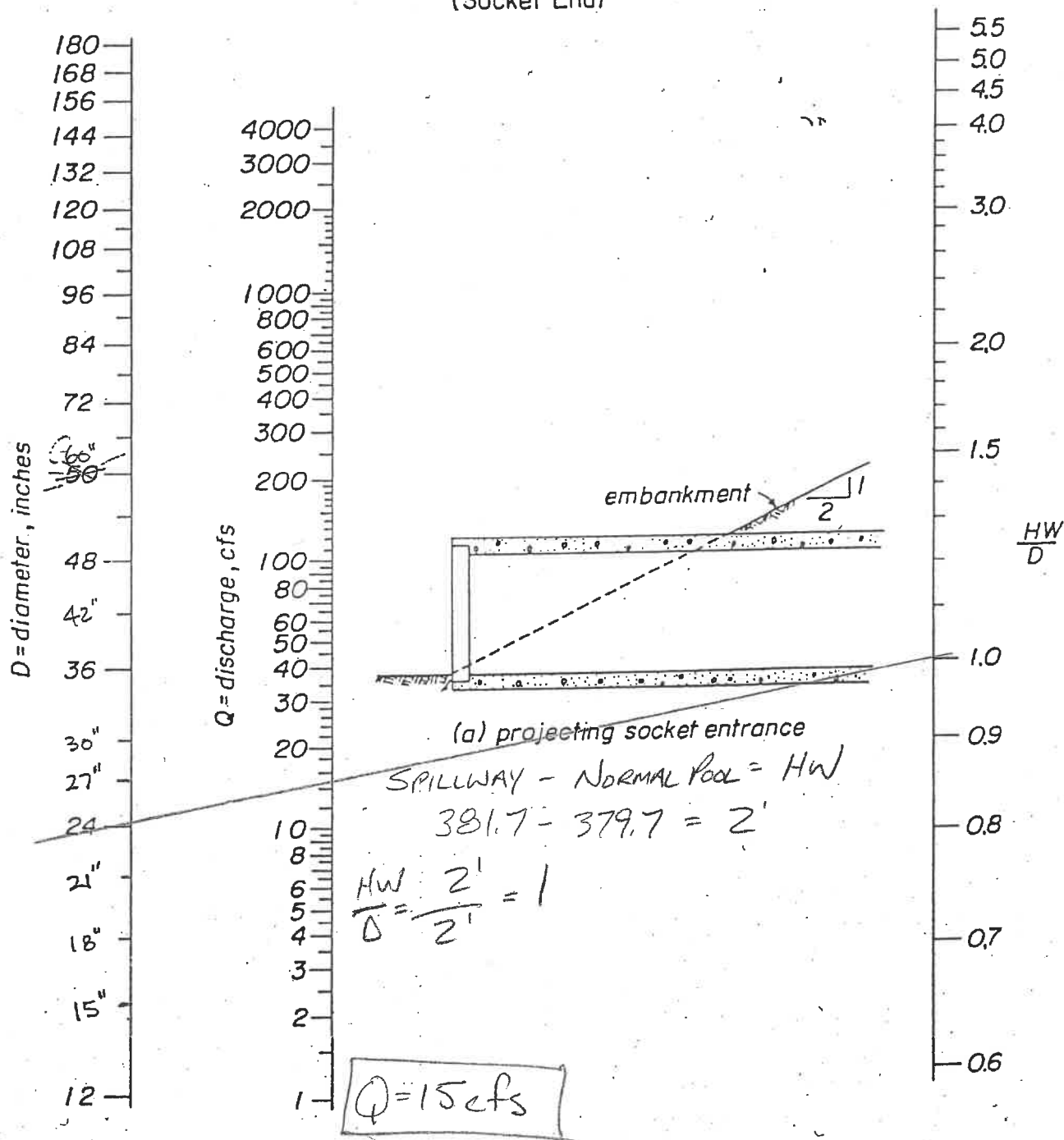


Fig. B-1

**TABLE 1**  
**DETENTION VOLUME REQUIREMENTS**

**Sitecon, Inc Project: 602-08-4**

**Date: 02-15-08**

	10 year Undev. Release Rate	Required Storage 25 year	Restricted	Available Storage
	<b>East Basin</b>	20.46 cfs	14,044 cf	20,900 cf

Retention Volume >>	381.7	Storage Pool Elevation (spillway elev.)
	-	Normal Pool Elevation
	379.70	
	2 feet (D)	

+	8,880	Storage Pool Area (SP)
	12,117	Normal Pool Area (NP)
	20,997 sq. ft.	

**Volume=(1/2x(SP+NP))xD= 20,997 cu. ft. available**

**SUB-BASIN DRAINAGE CALCULATIONS - DEVELOPED BASIN COEFFICIENT**

**Siteon, Inc. Project: 602-07-4**

<b>Job Name/Basin #:</b>	West Watershed "B"		449,753 Total SF	10.32 AC
Exist. Impervious surfaces (2-5%) C=0.94				
Structures	I Total	3,233 SF	3,233 Total SF	0.07 AC
Pavement	0 Width (ft.)	5,310 Lft	0 Total SF	0.00 AC
Stone	0 Total	0 SF	0 Total SF	0.00 AC
			<hr/>	
			3,233 <b>TOTAL</b>	0.07 AC
Proposed Impervious surfaces (2-5%) C=0.94				
Structures	15.33 Total	6,235 SF	95,583 Total SF	2.19 AC
Drives	14.16 Total	2,745 SF	38,869 Total SF	0.89 AC
Pavement	24 Width (ft)	2,000 L (ft)	48,000 Total SF	1.10 AC
Patios	0 Total	0 SF	0 Total SF	0.00 AC
Sidewalks	0 Width (ft)		0 Total SF	0.00 AC
			<hr/>	
			182,452 <b>TOTAL</b>	4.19 AC
Exist cultivated fields:				
0-2% slope	C=0.20	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.35	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.50	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.65	0 SF	0 Total SF	0.00 AC
			<hr/>	
			0 <b>TOTAL</b>	0.00 AC
For lawn areas:				
0-2% slope	C=0.15	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.25	264,068 SF	264,068 Total SF	6.06 AC
5-10% slope	C=0.40	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.55	0 SF	0 Total SF	0.00 AC
			<hr/>	
			264,068 <b>TOTAL</b>	6.06 AC
For woodland areas:				
0-2% slope	C=0.12	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.24	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.36	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.48	0 SF	0 Total SF	0.00 AC
			<hr/>	
			0 <b>TOTAL</b>	0.00 AC

Check 449,753 GT

Wt'd C = 0.53

Date: 02/17/08

**Vanderburgh County Drainage Board  
Form 800**

**Computation Sheet for Detention Storage Using the Rational Method**

**Project:** West Basin **Date:** 02/17/08

Detention Facility Design Return Period 25 years

Release Rate Return Period 10 years

Watershed Area 10.32 acres

Undeveloped Time of Concentration 25.70 minutes

Undeveloped Rainfall Intensity (iu) 5.27 inches/hour

Weighted Undeveloped Runoff Coefficient (Cu) 0.33

Undeveloped Runoff Rate (O=Cu x iu x Au) 17.95 cfs

Developed Runoff Coefficient (Cd) 0.53

<b>Storm Duration</b> td min	<b>Rainfall Intensity</b> id inches/hr	<b>Inflow Rate</b> I(td) Cd x id x Ad cfs	<b>Outflow Rate</b> O Cu x iu x Au cfs	<b>Storage Rate</b> (I x td) - O cfs	<b>Required Storage</b> [[I(td)-O]x[td/12]] acre-ft
5	7.208	39.42	17.95	21.48	0.1491
10	5.925	32.41	17.95	14.46	0.2008
15	5.033	27.53	17.95	9.58	0.1996
20	4.571	25.00	17.95	7.05	0.1959
25	4.108	22.47	17.95	4.52	0.1570
30	3.646	19.94	17.95	1.99	0.0831
40	3.123	17.08	17.95	-0.87	-0.0481
50	2.601	14.23	17.95	-3.72	-0.2584
60	2.078	11.37	17.95	-6.58	-0.5485
90	1.578	8.63	17.95	-9.32	-1.1646

Required Storage = 0.2008 x 43,560 sf/ac= 8,747 cubic feet

2/15/08

WEST BASIN  
 INLET CONTROL  
 NOMOGRAPH FOR PROJECTING CONCRETE PIPE  
 (Socket End)

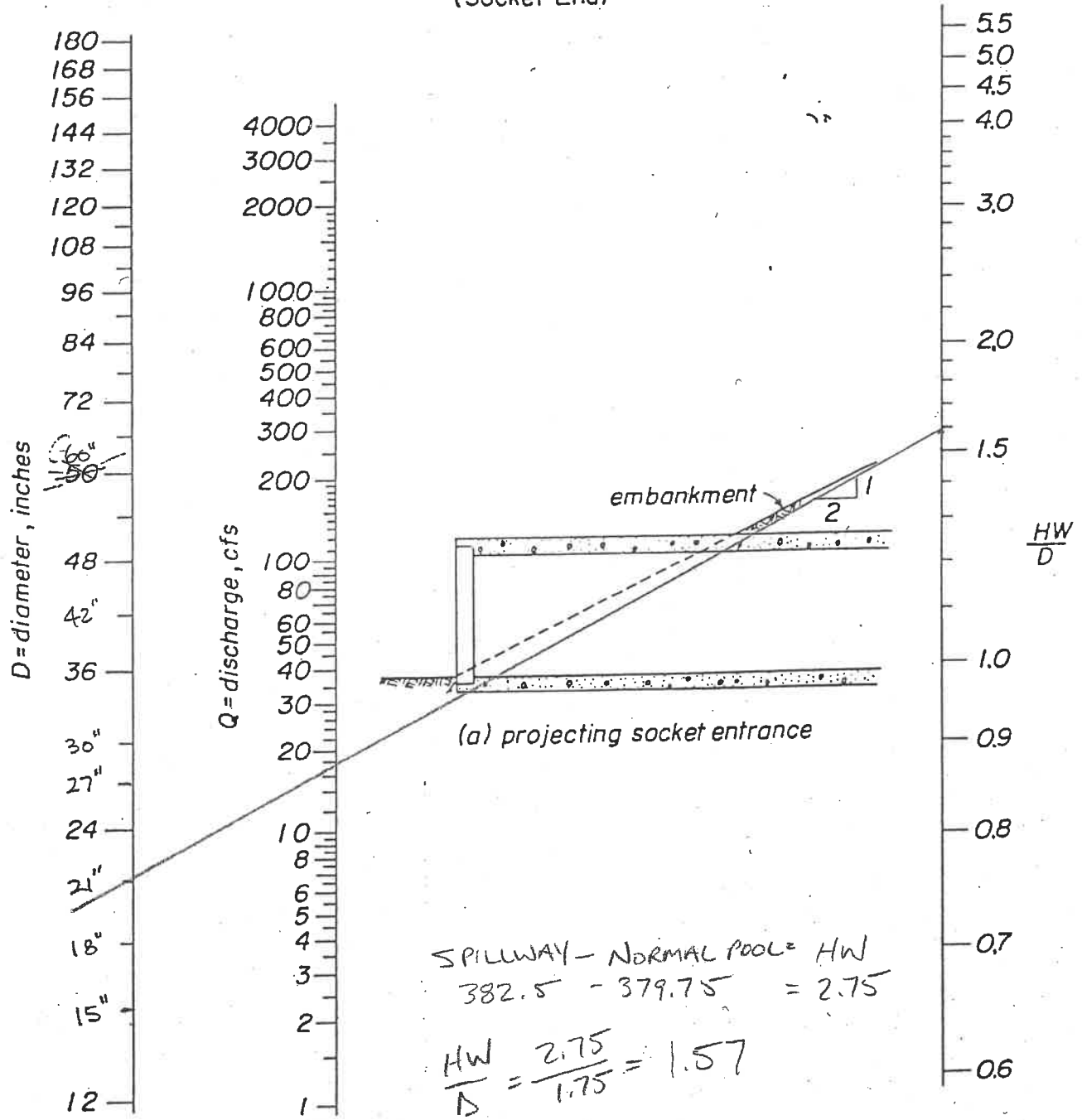


Fig. B-1

**TABLE 1  
DETENTION VOLUME REQUIREMENTS**

**Sitecon, Inc Project: 602-08-4**

**Date: 02-15-08**

	<b>10 year Undev. Release Rate</b>	<b>Required Storage 25 year</b>	<b>Restricted</b>	<b>Available Storage</b>
<b>West Basin</b>	17.95 cfs	8,747 cf	8,747 cf	19,927 cf

Retention Volume >>	382.5	Storage Pool Elevation (spillway elev.)
	- 379.75	Normal Pool Elevation
	<u>2.75 feet (D)</u>	

	5,383	Storage Pool Area (SP)
	+ 9,109	Normal Pool Area (NP)
	<u>14,492 sq. ft.</u>	

**Volume=(1/2x(SP+NP))xD= 19,927 cu. ft. available**



**DEVELOPED CALCULATIONS FLOW FOR A 25 YEAR STORM**

**Sitecon, Inc. Project: 602-07-4**

<b>Job Name/Basin #:</b>	HUNTER CHASE	Basin A-1	159,740 Total SF	3.67 AC
<b>Exist. Impervious surfaces (2-5%) C=0.94</b>				
Structures	0 Total	3,000 SF	0 Total SF	0.00 AC
Drives	0 Total	720 SF	0 Total SF	0.00 AC
Pavement	24 Width (ft)	0 L (ft)	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>
<b>Proposed Impervious surfaces (2-5%) C=0.94</b>				
Structures	9 Total	6,235 SF	56,116 Total SF	1.29 AC
Drives	8 Total	2,745 SF	21,960 Total SF	0.50 AC
Pavement	576 L (ft)	24 Width (ft)	13,824 Total SF	0.32 AC
Patios	0 Total	0 SF	0 Total SF	0.00 AC
Sidewalks	0 Width (ft)		0 Total SF	0.00 AC
			<b>91,900 TOTAL</b>	<b>2.11 AC</b>
<b>Exist cultivated fields:</b>				
0-2% slope	C=0.20	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.35	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.50	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.65	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>
<b>For lawn areas:</b>				
0-2% slope	C=0.15	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.25	67,840 SF	67,840 Total SF	1.56 AC
5-10% slope	C=0.40	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.55	0 SF	0 Total SF	0.00 AC
			<b>67,840 TOTAL</b>	<b>1.56 AC</b>
<b>For woodland areas:</b>				
0-2% slope	C=0.12	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.24	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.36	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.48	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>

Check 159,740 GT

Wtd C = 0.65  
Wtd N = 0.18  
High Pt El 394.00 ft  
Inlet El 385.20 ft  
Length 931.00 ft  
Slope 0.0095  
tc 26.95 min

0 1	Is 5<tc<10?	i 25=	0.00 in/hr
0 1	Is 10<tc<15?	i 25=	0.00 in/hr
1 1	Is 15<tc<30?	i 25=	3.93 in/hr
1 0	Is 30<tc<60?	i 25=	0.00 in/hr

**Q25= 9.32 cfs**

Date: 2/17/2008

**DEVELOPED CALCULATIONS FLOW FOR A 25 YEAR STORM**

**Sitecon, Inc. Project: 602-07-4**

<b>Job Name/Basin #:</b>	<b>HUNTER CHASE</b>	<b>Basin A-2</b>	<b>48,795 Total SF</b>	<b>1.12 AC</b>
<b>Exist. Impervious surfaces (2-5%) C=0.94</b>				
Structures	0 Total	3,000 SF	0 Total SF	0.00 AC
Drives	0 Total	720 SF	0 Total SF	0.00 AC
Pavement	24 Width (ft)	0 L (ft)	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>
<b>Proposed Impervious surfaces (2-5%) C=0.94</b>				
Structures	2 Total	7,015 SF	14,029 Total SF	0.32 AC
Drives	4 Total	2,745 SF	10,980 Total SF	0.25 AC
Pavement	680 L (ft)	24 Width (ft)	16,320 Total SF	0.37 AC
Patios	0 Total	0 SF	0 Total SF	0.00 AC
Sidewalks	0 Width (ft)		0 Total SF	0.00 AC
			<b>41,329 TOTAL</b>	<b>0.95 AC</b>
<b>Exist cultivated fields:</b>				
0-2% slope	C=0.20	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.35	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.50	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.65	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>
<b>For lawn areas:</b>				
0-2% slope	C=0.15	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.25	7,466 SF	7,466 Total SF	0.17 AC
5-10% slope	C=0.40	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.55	0 SF	0 Total SF	0.00 AC
			<b>7,466 TOTAL</b>	<b>0.17 AC</b>
<b>For woodland areas:</b>				
0-2% slope	C=0.12	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.24	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.36	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.48	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>

Check      48,795 GT

Wt'd C =            0.83  
Wt'd N =            0.08  
High Pt El        393.50 ft  
Inlet El            384.95 ft  
Length            562.29 ft  
Slope              0.0152  
tc                  12.86 min

0 1	Is 5<tc<10?	i 25=	0.00 in/hr
1 1	Is 10<tc<15?	i 25=	5.41 in/hr
1 0	Is 15<tc<30?	i 25=	0.00 in/hr
1 0	Is 30<tc<60?	i 25=	0.00 in/hr

Q25=            5.06 cfs

Date: 2/17/2008

**DEVELOPED CALCULATIONS FLOW FOR A 25 YEAR STORM**

**Sitecon, Inc. Project: 602-07-4**

<b>Job Name/Basin #:</b>	HUNTER CHASE	Basin B-1	81,966 Total SF	1.88 AC
<b>Exist. Impervious surfaces (2-5%) C=0.94</b>				
Structures	1 Total	3,233 SF	3,233 Total SF	0.07 AC
Drives	0 Total	720 SF	0 Total SF	0.00 AC
Pavement	24 Width (ft)	0 L (ft)	0 Total SF	0.00 AC
			<b>3,233 TOTAL</b>	<b>0.07 AC</b>
<b>Proposed Impervious surfaces (2-5%) C=0.94</b>				
Structures	18.5 Total	1,234 SF	22,829 Total SF	0.52 AC
Drives	0 Total	2,674 SF	0 Total SF	0.00 AC
Pavement	222 L (ft)	24 Width (ft)	5,328 Total SF	0.12 AC
Patios	0 Total	0 SF	0 Total SF	0.00 AC
Sidewalks	0 Width (ft)		0 Total SF	0.00 AC
			<b>28,157 TOTAL</b>	<b>0.65 AC</b>
<b>Exist cultivated fields:</b>				
0-2% slope	C=0.20	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.35	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.50	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.65	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>
<b>For lawn areas:</b>				
0-2% slope	C=0.15	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.25	50,576 SF	50,576 Total SF	1.16 AC
5-10% slope	C=0.40	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.55	0 SF	0 Total SF	0.00 AC
			<b>50,576 TOTAL</b>	<b>1.16 AC</b>
<b>For woodland areas:</b>				
0-2% slope	C=0.12	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.24	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.36	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.48	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>

Check 81,966 GT

W'd C = 0.51  
 W'd N = 0.25  
 High Pt El 394.00 ft  
 Inlet El 390.57 ft  
 Length 453.00 ft  
 Slope 0.0076  
 tc 23.74 min

0 1	Is 5<tc<10?	i 25=	0.00 in/hr
0 1	Is 10<tc<15?	i 25=	0.00 in/hr
1 1	Is 15<tc<30?	i 25=	4.22 in/hr
1 0	Is 30<tc<60?	i 25=	0.00 in/hr

**Q25= 4.09 cfs**

Date: 2/17/2008

**DEVELOPED CALCULATIONS FLOW FOR A 25 YEAR STORM**

**Sitecon, Inc. Project: 602-07-4**

**Job Name/Basin #:** HUNTER CHASE Basin B-2 93,340 Total SF 2.14 AC

Exist. Impervious surfaces (2-5%) C=0.94  
 Structures 0 Total 3,233 SF 0 Total SF 0.00 AC  
 Drives 0 Total 720 SF 0 Total SF 0.00 AC  
 Pavement 24 Width (ft) 0 L (ft) 0 Total SF 0.00 AC  
**0 TOTAL 0.00 AC**

Proposed Impervious surfaces (2-5%) C=0.94  
 Structures 8 Total 4,336 SF 34,686 Total SF 0.80 AC  
 Drives 8 Total 2,819 SF 22,548 Total SF 0.52 AC  
 Pavement 617 L (ft) 24 Width (ft) 14,808 Total SF 0.34 AC  
 Patios 0 Total 0 SF 0 Total SF 0.00 AC  
 Sidewalks 0 Width (ft) 0 Total SF 0.00 AC  
**72,042 TOTAL 1.65 AC**

Exist cultivated fields:  
 0-2% slope C=0.20 0 SF 0 Total SF 0.00 AC  
 2-5% slope C=0.35 0 SF 0 Total SF 0.00 AC  
 5-10% slope C=0.50 0 SF 0 Total SF 0.00 AC  
 10+% slope C=0.65 0 SF 0 Total SF 0.00 AC  
**0 TOTAL 0.00 AC**

For lawn areas:  
 0-2% slope C=0.15 0 SF 0 Total SF 0.00 AC  
 2-5% slope C=0.25 21,298 SF 21,298 Total SF 0.49 AC  
 5-10% slope C=0.40 0 SF 0 Total SF 0.00 AC  
 10+% slope C=0.55 0 SF 0 Total SF 0.00 AC  
**21,298 TOTAL 0.49 AC**

For woodland areas:  
 0-2% slope C=0.12 0 SF 0 Total SF 0.00 AC  
 2-5% slope C=0.24 0 SF 0 Total SF 0.00 AC  
 5-10% slope C=0.36 0 SF 0 Total SF 0.00 AC  
 10+% slope C=0.48 0 SF 0 Total SF 0.00 AC  
**0 TOTAL 0.00 AC**

Check 93,340 GT

Wt'd C = 0.78  
 Wt'd N = 0.11  
 High Pt El 394.00 ft  
 Inlet El 387.83 ft  
 Length 396.00 ft  
 Slope 0.0156  
 tc 12.56 min

0 1 Is 5<tc<10? i 25= 0.00 in/hr  
 1 1 Is 10<tc<15? i 25= 5.47 in/hr  
 1 0 Is 15<tc<30? i 25= 0.00 in/hr  
 1 0 Is 30<tc<60? i 25= 0.00 in/hr

**Q25= 9.17 cfs**

Date: 2/17/2008

**DEVELOPED CALCULATIONS FLOW FOR A 25 YEAR STORM**

**Sitecon, Inc. Project: 602-07-4**

<b>Job Name/Basin #:</b>	<b>HUNTER CHASE</b>	<b>Basin B-3</b>	<b>4,841</b>	<b>Total SF</b>	<b>0.11</b>	<b>AC</b>
<b>Exist. Impervious surfaces (2-5%) C=0.94</b>						
Structures	0 Total	3,233 SF	0 Total SF	0.00 AC		
Drives	0 Total	720 SF	0 Total SF	0.00 AC		
Pavement	24 Width (ft)	0 L (ft)	0 Total SF	0.00 AC		
			<b>0 TOTAL</b>	<b>0.00</b>	<b>AC</b>	
<b>Proposed Impervious surfaces (2-5%) C=0.94</b>						
Structures	0 Total	4,336 SF	0 Total SF	0.00 AC		
Drives	0 Total	2,819 SF	0 Total SF	0.00 AC		
Pavement	121 L (ft)	24 Width (ft)	2,904 Total SF	0.07 AC		
Patios	0 Total	0 SF	0 Total SF	0.00 AC		
Sidewalks	0 Width (ft)		0 Total SF	0.00 AC		
			<b>2,904 TOTAL</b>	<b>0.07</b>	<b>AC</b>	
<b>Exist cultivated fields:</b>						
0-2% slope	C=0.20	0 SF	0 Total SF	0.00 AC		
2-5% slope	C=0.35	0 SF	0 Total SF	0.00 AC		
5-10% slope	C=0.50	0 SF	0 Total SF	0.00 AC		
10+% slope	C=0.65	0 SF	0 Total SF	0.00 AC		
			<b>0 TOTAL</b>	<b>0.00</b>	<b>AC</b>	
<b>For lawn areas:</b>						
0-2% slope	C=0.15	0 SF	0 Total SF	0.00 AC		
2-5% slope	C=0.25	0 SF	0 Total SF	0.00 AC		
5-10% slope	C=0.40	1,937 SF	1,937 Total SF	0.04 AC		
10+% slope	C=0.55	0 SF	0 Total SF	0.00 AC		
			<b>1,937 TOTAL</b>	<b>0.04</b>	<b>AC</b>	
<b>For woodland areas:</b>						
0-2% slope	C=0.12	0 SF	0 Total SF	0.00 AC		
2-5% slope	C=0.24	0 SF	0 Total SF	0.00 AC		
5-10% slope	C=0.36	0 SF	0 Total SF	0.00 AC		
10+% slope	C=0.48	0 SF	0 Total SF	0.00 AC		
			<b>0 TOTAL</b>	<b>0.00</b>	<b>AC</b>	

Check **4,841 GT**

Wt'd C = 0.72  
 Wt'd N = 0.17  
 High Pt El 389.00 ft  
 Inlet El 386.70 ft  
 Length 107.00 ft  
 Slope 0.0215  
 tc 7.90 min

1 1	Is 5<tc<10?	i 25=	6.46 in/hr
1 0	Is 10<tc<15?	i 25=	0.00 in/hr
1 0	Is 15<tc<30?	i 25=	0.00 in/hr
1 0	Is 30<tc<60?	i 25=	0.00 in/hr

**Q25= 0.52 cfs**

Date: 2/17/2008

**DEVELOPED CALCULATIONS FLOW FOR A 25 YEAR STORM**

**Sitecon, Inc. Project: 602-07-4**

**Job Name/Basin #:** HUNTER CHASE Basin B-4 4,623 Total SF 0.11 AC

**Exist. Impervious surfaces (2-5%) C=0.94**

Structures	0 Total	3,233 SF	0 Total SF	0.00 AC
Drives	0 Total	720 SF	0 Total SF	0.00 AC
Pavement	24 Width (ft)	0 L (ft)	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>

**Proposed Impervious surfaces (2-5%) C=0.94**

Structures	1 Total	805 SF	805 Total SF	0.02 AC
Drives	0 Total	0 SF	0 Total SF	0.00 AC
Pavement	145 L (ft)	12 Width (ft)	1,743 Total SF	0.04 AC
Patios	0 Total	0 SF	0 Total SF	0.00 AC
Sidewalks	0 Width (ft)		0 Total SF	0.00 AC
			<b>2,548 TOTAL</b>	<b>0.06 AC</b>

**Exist cultivated fields:**

0-2% slope	C=0.20	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.35	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.50	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.65	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>

**For lawn areas:**

0-2% slope	C=0.15	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.25	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.40	2,075 SF	2,075 Total SF	0.05 AC
10+% slope	C=0.55	0 SF	0 Total SF	0.00 AC
			<b>2,075 TOTAL</b>	<b>0.05 AC</b>

**For woodland areas:**

0-2% slope	C=0.12	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.24	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.36	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.48	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>

Check 4,623 GT

Wt'd C = 0.70  
 Wt'd N = 0.19  
 High Pt El 392.00 ft  
 Inlet El 386.56 ft  
 Length 100.00 ft  
 Slope 0.0544  
 tc 6.46 min

1 1	Is 5<tc<10?	i 25=	6.83 in/hr
1 0	Is 10<tc<15?	i 25=	0.00 in/hr
1 0	Is 15<tc<30?	i 25=	0.00 in/hr
1 0	Is 30<tc<60?	i 25=	0.00 in/hr

Q25= 0.51 cfs

Date: 2/17/2008

**DEVELOPED CALCULATIONS FLOW FOR A 25 YEAR STORM**

**Sitecon, Inc. Project: 602-07-4**

<b>Job Name/Basin #:</b>	<b>HUNTER CHASE</b>	<b>Basin B-5</b>	<b>4,623 Total SF</b>	<b>0.11 AC</b>
<b>Exist. Impervious surfaces (2-5%) C=0.94</b>				
Structures	0 Total	3,233 SF	0 Total SF	0.00 AC
Drives	0 Total	720 SF	0 Total SF	0.00 AC
Pavement	24 Width (ft)	0 L (ft)	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>
<b>Proposed Impervious surfaces (2-5%) C=0.94</b>				
Structures	1 Total	805 SF	805 Total SF	0.02 AC
Drives	0 Total	0 SF	0 Total SF	0.00 AC
Pavement	145 L (ft)	12 Width (ft)	1,743 Total SF	0.04 AC
Patios	0 Total	0 SF	0 Total SF	0.00 AC
Sidewalks	0 Width (ft)		0 Total SF	0.00 AC
			<b>2,548 TOTAL</b>	<b>0.06 AC</b>
<b>Exist cultivated fields:</b>				
0-2% slope	C=0.20	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.35	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.50	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.65	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>
<b>For lawn areas:</b>				
0-2% slope	C=0.15	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.25	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.40	2,075 SF	2,075 Total SF	0.05 AC
10+% slope	C=0.55	0 SF	0 Total SF	0.00 AC
			<b>2,075 TOTAL</b>	<b>0.05 AC</b>
<b>For woodland areas:</b>				
0-2% slope	C=0.12	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.24	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.36	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.48	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>

Check      4,623 GT

Wt'd C =      0.70  
Wt'd N =      0.19  
High Pt El    392.00 ft  
Inlet El      386.56 ft  
Length        100.00 ft  
Slope         0.0544  
tc              6.46 min

1 1	Is 5<tc<10?	i 25=	6.83 in/hr
1 0	Is 10<tc<15?	i 25=	0.00 in/hr
1 0	Is 15<tc<30?	i 25=	0.00 in/hr
1 0	Is 30<tc<60?	i 25=	0.00 in/hr

**Q25=      0.51 cfs**

Date: 2/17/2008

**DEVELOPED CALCULATIONS FLOW FOR A 25 YEAR STORM**

**Sitecon, Inc. Project: 602-07-4**

<b>Job Name/Basin #:</b>	HUNTER CHASE	Basin C-1	113,967 Total SF	2.62 AC
<b>Exist. Impervious surfaces (2-5%) C=0.94</b>				
Structures	0 Total	3,200 SF	0 Total SF	0.00 AC
Drives	0 Total	720 SF	0 Total SF	0.00 AC
Pavement	24 Width (ft)	0 L (ft)	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>
<b>Proposed Impervious surfaces (2-5%) C=0.94</b>				
Structures	5 Total	8,598 SF	42,990 Total SF	0.99 AC
Drives	4 Total	2,897 SF	11,588 Total SF	0.27 AC
Pavement	550 L (ft)	24 Width (ft)	13,200 Total SF	0.30 AC
Patios	0 Total	0 SF	0 Total SF	0.00 AC
Sidewalks	0 Width (ft)		0 Total SF	0.00 AC
			<b>67,778 TOTAL</b>	<b>1.56 AC</b>
<b>Exist cultivated fields:</b>				
0-2% slope	C=0.20	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.35	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.50	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.65	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>
<b>For lawn areas:</b>				
0-2% slope	C=0.15	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.25	46,189 SF	46,189 Total SF	1.06 AC
5-10% slope	C=0.40	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.55	0 SF	0 Total SF	0.00 AC
			<b>46,189 TOTAL</b>	<b>1.06 AC</b>
<b>For woodland areas:</b>				
0-2% slope	C=0.12	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.24	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.36	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.48	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>

Check 113,967 GT

Wt'd C = 0.65  
 Wt'd N = 0.17  
 High Pt El 393.00 ft  
 Inlet El 384.17 ft  
 Length 529.00 ft  
 Slope 0.0167  
 tc 17.77 min

0 1	Is 5<tc<10?	i 25=	0.00 in/hr
0 1	Is 10<tc<15?	i 25=	0.00 in/hr
1 1	Is 15<tc<30?	i 25=	4.78 in/hr
1 0	Is 30<tc<60?	i 25=	0.00 in/hr

Q25= 8.12 cfs

Date: 2/17/2008



**DEVELOPED CALCULATIONS FLOW FOR A 25 YEAR STORM**

**Sitecon, Inc. Project: 602-07-4**

**Job Name/Basin #:** HUNTER CHASE Basin C-2 74,678 Total SF 1.71 AC

**Exist. Impervious surfaces (2-5%) C=0.94**

Structures	0 Total	3,200 SF	0 Total SF	0.00 AC
Drives	0 Total	720 SF	0 Total SF	0.00 AC
Pavement	24 Width (ft)	0 L (ft)	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>

**Proposed Impervious surfaces (2-5%) C=0.94**

Structures	3.15 Total	8,598 SF	27,084 Total SF	0.62 AC
Drives	2.33 Total	2,897 SF	6,750 Total SF	0.15 AC
Pavement	420 L (ft)	24 Width (ft)	10,080 Total SF	0.23 AC
Patios	0 Total	0 SF	0 Total SF	0.00 AC
Sidewalks	0 Width (ft)		0 Total SF	0.00 AC
			<b>43,914 TOTAL</b>	<b>1.01 AC</b>

**Exist cultivated fields:**

0-2% slope	C=0.20	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.35	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.50	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.65	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>

**For lawn areas:**

0-2% slope	C=0.15	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.25	30,764 SF	30,764 Total SF	0.71 AC
5-10% slope	C=0.40	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.55	0 SF	0 Total SF	0.00 AC
			<b>30,764 TOTAL</b>	<b>0.71 AC</b>

**For woodland areas:**

0-2% slope	C=0.12	0 SF	0 Total SF	0.00 AC
2-5% slope	C=0.24	0 SF	0 Total SF	0.00 AC
5-10% slope	C=0.36	0 SF	0 Total SF	0.00 AC
10+% slope	C=0.48	0 SF	0 Total SF	0.00 AC
			<b>0 TOTAL</b>	<b>0.00 AC</b>

Check 74,678 GT

Wtd C = 0.65  
 Wtd N = 0.18  
 High Pt El 391.00 ft  
 Inlet El 384.40 ft  
 Length 380.00 ft  
 Slope 0.0174  
 tc 15.19 min

0 1	Is 5<tc<10?	i 25=	0.00 in/hr
0 1	Is 10<tc<15?	i 25=	0.00 in/hr
1 1	Is 15<tc<30?	i 25=	5.02 in/hr
1 0	Is 30<tc<60?	i 25=	0.00 in/hr

**Q25= 5.59 cfs**

Date: 2/17/2008

**HUNTER CHASE**

Project: 602-08-4 Date: 02/17/08 Sheet: 1 of 1  
 Engineer: NRM Design Storm: 25 Year Manning's n: 0.011

Basin Number	Upstream Manhole	Downstream Manhole	Pipe Length (ft)	A (Acres)	C	A <sup>n</sup> C	Sum A <sup>n</sup> C	Inlet Time to (min)	t cum. (min)	i (in/hr)	Q (cfs)	Pipe Diameter (in)	Pipe Slope (%)	Pipe Capacity (cfs)	Pipe Capacity Check	Velocity (ft/s)	Travel Time (min)	Rim Elevation (Upstream)	Rim Elevation (Downstream)	Invert Elevation (Upstream)	Invert Elevation (Downstream)	Pipe Cover (Upstream)	Pipe Cover (Downstream)	Pipe Type
																		19	20	21	22	23	23	24
1	2	3	4	6	5	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	23	24
A-1	500	502	135.3	3.67	0.65	2.39	2.39	26.95	26.95	3.93	9.38	18	0.70	10.38	O.K.	5.87	0.38	385.20	384.35	382.70	381.75	1.00	1.10	RCP
A-2	501	502	118.3	1.12	0.83	0.93	0.93	12.86	12.86	5.41	5.03	15	0.46	5.17	O.K.	4.21	0.47	384.95	384.35	382.50	381.96	1.20	1.14	RCP
	502	503	325.3	-	-	3.32	3.32	27.33	27.33	5.30	17.57	24	0.44	17.83	O.K.	5.68	0.96	384.35	384.95	381.35	379.90	1.00	3.05	RCP
	503	504	42.7	-	-	3.32	3.32	28.29	28.29	5.25	17.43	24	0.50	18.99	O.K.	6.04	0.12	384.95	ES	379.92	379.70	3.03	ES	RCP
B-1	507	508	109.3	1.88	0.51	0.96	0.96	23.74	23.74	4.22	4.05	12	2.68	6.87	O.K.	8.75	0.21	390.57	387.83	388.32	385.40	1.25	1.43	RCP
B-2	508	509	113.3	2.14	0.78	1.67	2.63	12.56	23.95	4.21	11.05	18	1.10	13.01	O.K.	7.36	0.26	387.83	386.70	385.00	383.75	1.33	1.45	RCP
B-3	509	511	63.2	0.11	0.72	0.08	2.71	7.90	24.21	4.17	11.29	18	0.83	11.30	O.K.	6.40	0.16	386.70	386.68	383.75	383.23	1.45	1.85	RCP
B-4	510	511	25.0	0.11	0.70	0.08	0.08	6.46	6.46	6.83	0.53	12	1.71	5.50	O.K.	7.00	0.06	386.56	386.58	384.06	383.63	1.50	1.95	RCP
B-5	511	512	16.0	0.11	0.70	0.08	2.86	6.46	24.37	4.17	11.93	18	1.00	12.41	O.K.	7.02	0.04	386.58	386.75	383.23	383.07	1.65	2.18	RCP
	512	513	14.0	-	-	2.86	2.86	0.04	24.41	4.16	11.90	18	1.00	12.41	O.K.	7.02	0.03	386.75	ES	383.07	382.93	2.18	ES	RCP
C-1	514	515	36.0	2.62	0.65	1.70	1.70	17.77	17.77	4.78	8.14	18	0.60	9.61	O.K.	5.44	0.11	384.17	384.42	381.27	381.05	1.40	1.87	RCP
C-2	515	516	16.0	1.71	0.65	1.11	2.81	15.19	17.88	4.77	13.43	18	1.18	13.48	O.K.	7.63	0.03	384.42	ES	381.05	380.86	1.87	ES	RCP

# Typical Ditch Section "A"

Hunter Chase

## **Man Made Channels -- English Units**

*Civil Tools for Windows*

(02-17-2008, 12:58:25)

Flow Depth = 1.000 ft  
Flowrate = 14.090 cfs  
Channel Bottom Width = 1.000 ft  
Channel Side Slope = 4.000 ft/ft  
Channel Slope = 0.01000 ft/ft  
Channel Roughness = 0.035  
Wetted Area = 5.00 sf  
Wetted Perimeter = 9.25 ft  
Velocity = 2.82 fps  
Froude No. = 0.67  
Flow = Sub-Critical