

EXPIRES: 01/01/04

Prepared by:
Jacob Dahl E.I.T.

Job #15126

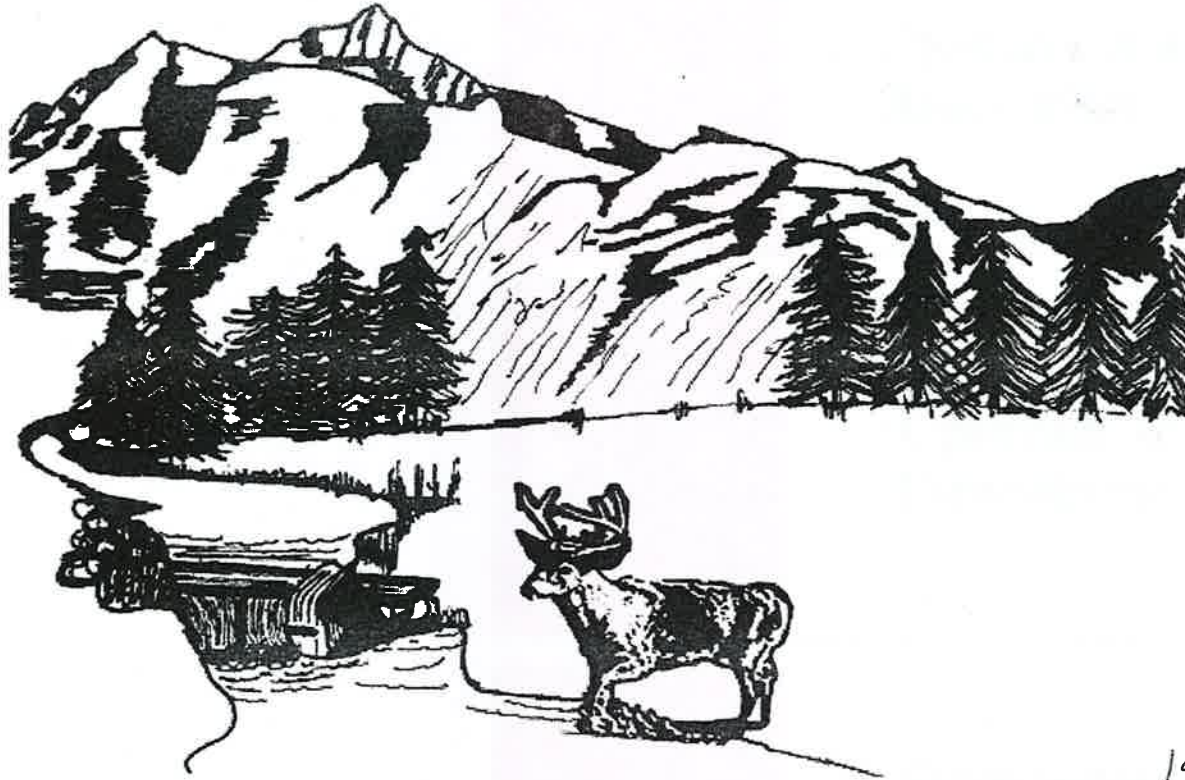
Drainage Report For:

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DEC 31 2003

NW Land Development: Plat of Trellis Court
File Number –

Utilities Div.

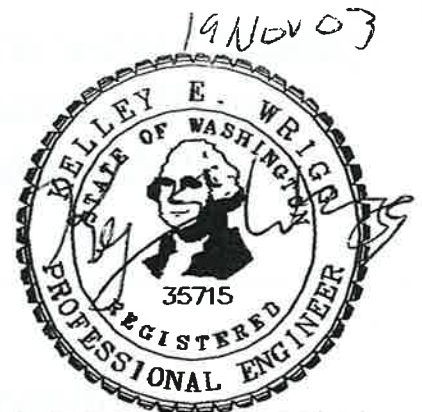
November 19, 2003



C-03-076-LP
Trellis Court Preliminary Plat

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Project Summary

PROPERTY DESCRIPTION

The site of proposed development is located in the NW ¼ of Section 21, Township 31 N, Range 5 E, W.M. The property is 3.34-acres in size and is located near the SE corner of the intersection of 35th Ave NE and 188th St. NE. The project site is identified by tax account numbers 310521-002-007-00 and 310521-002-002-00. (See Vicinity Map below).

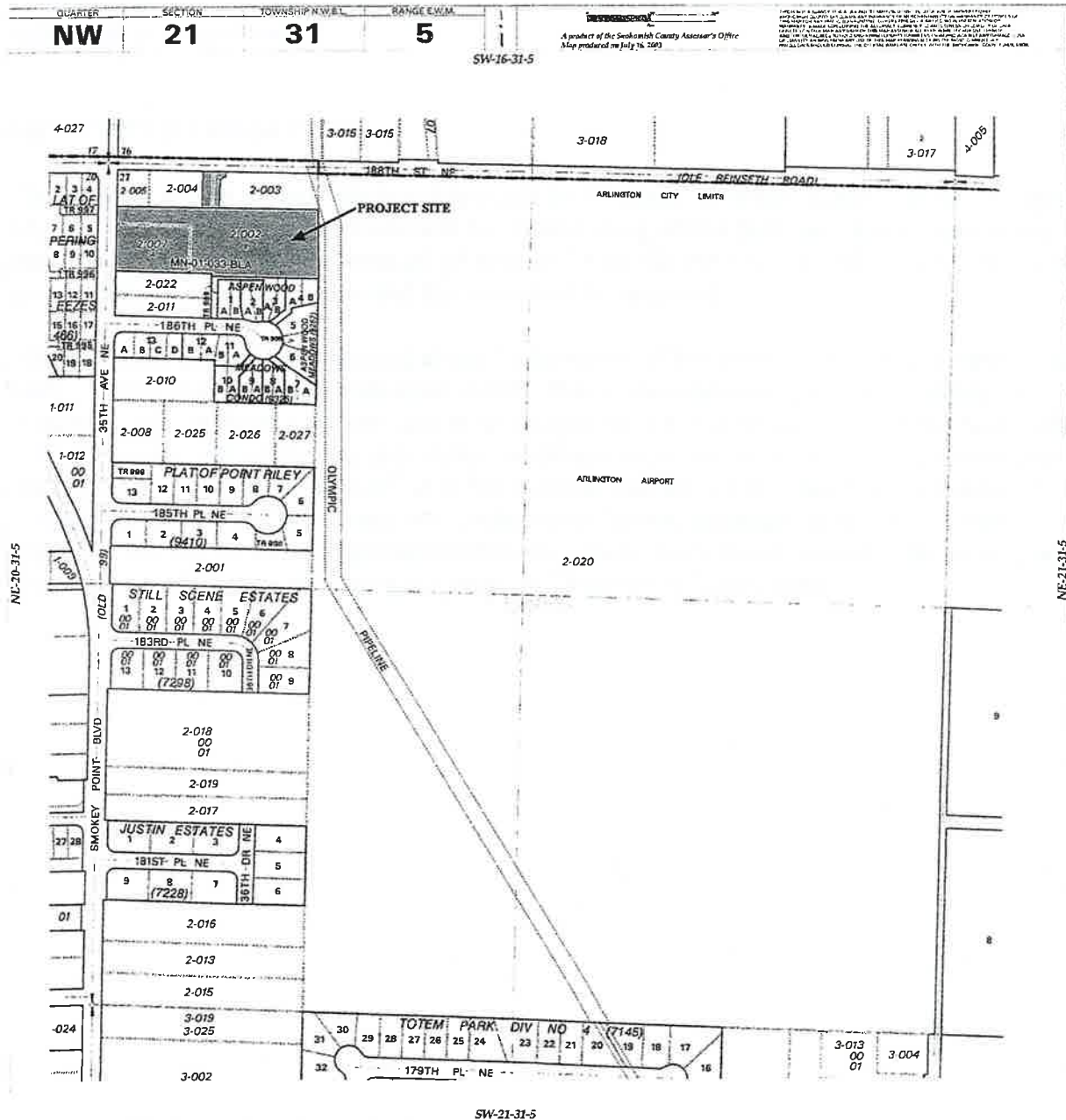


Figure 1: Vicinity Map. Not to scale.

EXISTING CONDITIONS

The proposed area of development is made up of two adjacent lots. Within the smaller lot to the west is an 1,800-sf home and a 600-sf garage. The property is accessed by a gravel driveway off of 35th Ave NE. The remaining property is undeveloped. The project area is mostly vegetated by lawn. A few second growth evergreen trees are located throughout the site as well. Site topography is generally flat, slightly falling off to the north at a grade ranging from 0-1.50%. An onsite soils investigation performed on September 12, 2003 revealed the upper soil layer to be loamy sand followed by a layer of medium sand. To the west, loamy sand was found below the medium sand layer to a depth at least 15-ft below the surface. To the east, medium sand was found as deep as 18-ft below the surface (See soil log information on pg. 39). No drainage facilities and or conveyance systems are located onsite. Site drainage consists of onsite infiltration to groundwater.

DEVELOPED CONDITIONS

The proposal for the project site is to subdivide the land into 12-single family lots and 1-duplex lot. In addition, two drainage tracts will be created along with a park area and an open space tract. Access to the plat will come off of both 35th Ave NE and 188th St. NE. As a result of this development, the existing home and driveway will be removed.

All stormwater generated onsite and along the frontages of the property will be infiltrated onsite. Each lot will have a rooftop infiltration trench. Due to the relatively flat slopes and highly permeable soil conditions, all pervious areas of each lot, i.e., lawns and landscaping, will surface infiltrate onsite. All driveways, sidewalks, landscape strips, the roads and sidewalks fronting the property along 188th St NE and 35th Ave NE and plat roadways will drain to an in-road catch and conveyance system that will direct stormwater runoff to two drainage tracts. Within each drainage tract will be an underground infiltration trench. Each trench will provide water quality treatment via infiltration through a minimum of 18-inches of loamy sand.

Risk Assessment Analysis And Erosion Control

Slope: Site slopes are 0-1.5 %, risk is low

Critical Areas: None

Soils: Soils consist of loamy sands at the surface and medium sands below it.

Ground Movement Potential: none.

Source of Water Erosion: Rainfall.

Measures Proposed to Prevent/Minimize Erosion:

During Construction: Temporary construction BMP's (see T.E.S.C. construction plan)

After Construction: Seeding and planting of exposed soils

Nearest Downstream body of water other than road ditches: Portage Creek (1/2-mile)

Nearest fish bearing water: Portage Creek (1/2-mile)

Conclusion: Potential for significant erosion/siltation impact onsite is **Low**.

Because of the following reason:

1. Flat site with high infiltrating soils.

Erosion Sedimentation Control Notes

- (1)
 - (a) Erosion On-and Off-Site. During and after construction, all persons engaging in developing activities shall prevent or minimize erosion and sedimentation on-site and shall protect properties and water courses downstream from the site from erosion due to increases, in the volume, velocity and peak flow rate of storm water runoff from the site:
 - (b) Transport of Sediment onto Adjacent Properties. The applicant shall prevent the transport of sediment onto adjacent properties.
 - (c) Transport of Sediment onto Paved Surfaces. The applicant shall apply BMP's from the Snohomish County Drainage Manual or as approved by their director to prevent or minimize the transport of sediment onto paved surfaces during construction, and if sediment is transported onto a paved surface, to clean the paved surface at the end of each day.
 - (d) Stabilizing Exposed soil. The applicant shall stabilize denuded areas and soil stockpiles as follows:
Between the dates of October 1 and March 31 all open projects shall be closed up and no more than ¼ acre of property, or 50 cubic yards of soil, whichever represents the least amount of disturbance, may be cleared, moved or graded at any one time before that portion of the project is closed up. The clearing and/or grading of individual building lots in a finalized plat shall be phased, with no more than ten (10) lots being cleared or graded in a plat at any one time. Before additional lots can be cleared or graded, the previously graded lots shall be hydro-seeded and mulched, sodded, or otherwise protected. The Public Works director may allow grading or clearing in excess of these limits during these times if, in his opinion, the site, adjoining properties, and any Environmentally Critical Areas can be adequately protected, an approved Temporary Erosion and Siltation Control plan is implemented and properly maintained, and the weather is favorable.
 - (e) Removal of Temporary Erosion and Sedimentation Control Measures. The applicant may remove all temporary erosion and sedimentation control BMP's within 30 days after final site stabilization or after they are no longer necessary.
 - (f) Permanent Vegetative Cover. Before construction acceptance by the County, the applicant shall establish a permanent vegetative ground cover to control soil erosion and to survive severe weather conditions on all areas of land disturbance not otherwise permanently stabilized by impervious surfaces or other means.
 - (g) Maintenance and Repair of Erosion and Sedimentation Control Measures. The applicant shall maintain and repair as necessary all temporary and permanent erosion and sedimentation control BMP's to assure their continued performance through construction acceptance and extending to the release of all associated warranty security and maintenance security.
 - (h) Field Marking. Before performing any grading or clearing, the applicant shall mark, in the filed, the limits of all proposed clearing and grading, critical areas and their buffers, trees to be retained, and drainage courses.
 - (i) Protecting Storm Sewer Inlets. The applicant shall protect storm sewer inlets receiving storm water runoff during construction so that water will not enter the inlet without first being filtered or otherwise treated to minimize the amount of sediment entering the inlet.
 - (j) Sediment Retention. The applicant shall route storm water runoff from disturbed areas of the site through sediment ponds, traps or other sediment retention BMP's prior to discharge from the site. The BMP's shall be installed as the first step in grading, and shall be in operation before any other site disturbance occurs. The applicant shall stabilize temporary earth structures within the time period specified in subparagraph (1)(d). If site conditions warrant, the director may require additional sediment controls, including but not limited to, preserving a vegetated buffer strip around the lower perimeter of the site.

- (k) Design of Temporary Sediment Ponds and Traps. The applicant shall design and construct all temporary sediment ponds and sediment traps in accordance with the Engineering Design and Development Standards to accommodate the peak discharge from the 10-year, 24-hour design storm based on the post development site conditions. Periodic removal of trapped sediments shall be performed as necessary, however trapped sediment may also be permanently stabilized onsite.
- (l) Temporary Conveyance Systems. The applicant shall design and construct all temporary stormwater conveyance systems to withstand, without erosion, the peak discharge from the 2-year, 24-hour design storm. The peak discharge shall be calculated on the basis of post development site conditions.
- (m) Prevention of Erosion. The applicant shall design and construct temporary and permanent BMP are adequate to prevent erosion of outlets, adjacent stream banks, slopes and downstream reaches.
- (n) Additional Requirements for Utilities. The installation of underground utility lines shall be subject to the following additional requirements.
 - (i) Between October 1 and March 31, no more than 500 feet of continuous trench may remain open at one time unless check dams to reduce flow velocities and prevent erosion are installed in accordance with the Snohomish County Drainage Manual.
 - (ii) Excavated material shall be placed on the uphill side of trenches, unless inconsistent with safety or site constraints.
- (o) Discharge from De-watering Devices. Water from a de-watering device shall discharge into a sediment-retention BMP.
- (2) The applicant shall implement fully the erosion and sedimentation control plan at each stage of site development.

Upstream & Downstream Analysis

UPSTREAM ANALYSIS

Because the surrounding area is relatively flat and has good infiltrating soils, no stormwater runoff drains onto the project site from the upstream.

DOWNSTREAM ANALYSIS

Since infiltration is being proposed for this site there is no downstream receiving water. If the system fails water will overflow the lowest CB on the system, CB 1 for TRACT 998 and CB 3 for TRACT 999, both of these CB's are located at the existing lows. The overflow water will flow down the road, as it does now, and infiltrate into the ground at the edge of the road.

Stormwater Quantity Control & Water Quality B.M.P.'s

STORMWATER QUANTITY CONTROL BMP

The stormwater quantity control BMP specified for this site is infiltration to groundwater. All rooftops will drain to individual lot infiltration trenches. All pervious lot areas will infiltrate on site. Runoff generated by the remaining roadways, driveways, landscaping strips and sidewalks will be directed to one of two infiltration trenches located within drainage tracts on site.

TRACT 998 INFILTRATION TRENCH

The infiltration trench in Tract 998 will be 12-ft wide X 7.50-ft deep X 50-ft long. Within the trench will be a 79-inch wide X 62.50-inch tall perforated steel arch pipe for storage purposes. The arch pipe will be perforated 360-degrees around with thirty 3/8-inch diameter holes per square foot of pipe surface. The trench will be back filled with drain rock. A 50% voids for the trench was used based on 30% void space for drain rock and 100% void space for the arch pipe. The trench will be sized to retain the 100-yr storm runoff generated by the respective drainage basin. In modeling the storm drainage facility, an infiltration rate of 1.205in/hr (half the D.O.E. rate for loamy sand 2.41 in/hr) was used for the native loamy sand soils.

TRACT 999 INFILTRATION TRENCH

The infiltration trench in Tract 999 will consist of two infiltration trenches stacked vertically, separated by 18-inches a loamy sand. The purpose of this design is to provide water quality treatment for storm events as large as the 6-month 24-hour storm by infiltrating the runoff through a minimum of 18-inches of loamy sand. When the upper trench (the water quality trench) becomes full, water will spill into overflow risers at each end of the trench and into an overflow trench located directly below. The overflow trench will allow larger runoffs to bypass the water quality trench and infiltrate into the ground through the native medium sand which has a higher infiltration rate.

The water quality trench will be 14-ft wide X 2-ft deep X 75-ft long. Within the trench will be three 6-inch diameter perforated pipes for storage and dispersion purposes. The trench will be back filled with drain rock. A 31% voids for the trench was used based on 30% void space for drain rock and 100% void space for the pipes. The trench will be sized to retain the 6 month storm runoff generated by the respective drainage basin. In modeling the storm drainage facility, an infiltration rate of 1.205in/hr (half the D.O.E. rate for loamy sand 2.41 in/hr) was used for the loamy sand soil.

The overflow trench will be 14-ft wide X 4.5-ft deep X 75-ft long. Within the trench will be two 30-inch diameter perforated pipes for storage and dispersion purposes. The 30-inch pipes will be perforated 360-degrees around with thirty 3/8-inch diameter holes per square foot of pipe surface. The trench will be back filled with drain rock. A 45% voids for the trench was used based on 35% void space for drain rock and 100% void space for the pipes. The trench will be sized to retain the 100-yr storm runoff generated by the respective drainage basin. In modeling

the storm drainage facility, an infiltration rate of 4.135-in/hr (half the D.O.E. rate for sand 8.27-in/hr) was used for the native medium sand soil.

WATER QUALITY BMP

The water quality BMP proposed for this site is infiltration. Both the Tract 998 and 999 infiltration systems will be infiltrating through a minimum of 18-inches of loamy sand soils. Since loamy sand has a cation exchange capacity of 5 milliequivalents / 100 grams, each infiltration system will be capable of providing water quality treatment.

DRAINAGE MODEL SUMMARY

The storm drainage modeling software used is StormSHED Rel. 6.1.6.8. The following table summarizes the results of the drainage model.

WATER QUALITY TRENCH			
STORM EVENT	TRENCH BOTTOM/TOP	STAGE	STORAGE VOLUME
	FT	FT	CF
6-MONTH	117 /119	118.93	627
100-YR	117 /119	119.00	709
OVERFLOW TRENCH			
STORM EVENT	TRENCH BOTTOM/TOP	STAGE	STORAGE VOLUME
	FT	FT	CF
6-MONTH	111 /115.5	111.06	30
100-YR	111 /115.5	115.48	2,116
TRACT 998 TRENCH			
STORM EVENT	TRENCH BOTTOM/TOP	STAGE	STORAGE VOLUME
	FT	FT	CF
6-MONTH	111 /120.5	113.84	254
100-YR	111 /120.5	120.42	2,226

Table 1: Calculations Summary. Refer to drainage model calculations (pp. 12-38) for more detail.

Appendix



NW 1/4 OF SEC 21, TWP 31 N, RGE 5 E, W. M.

TRACT 998 AREAS:

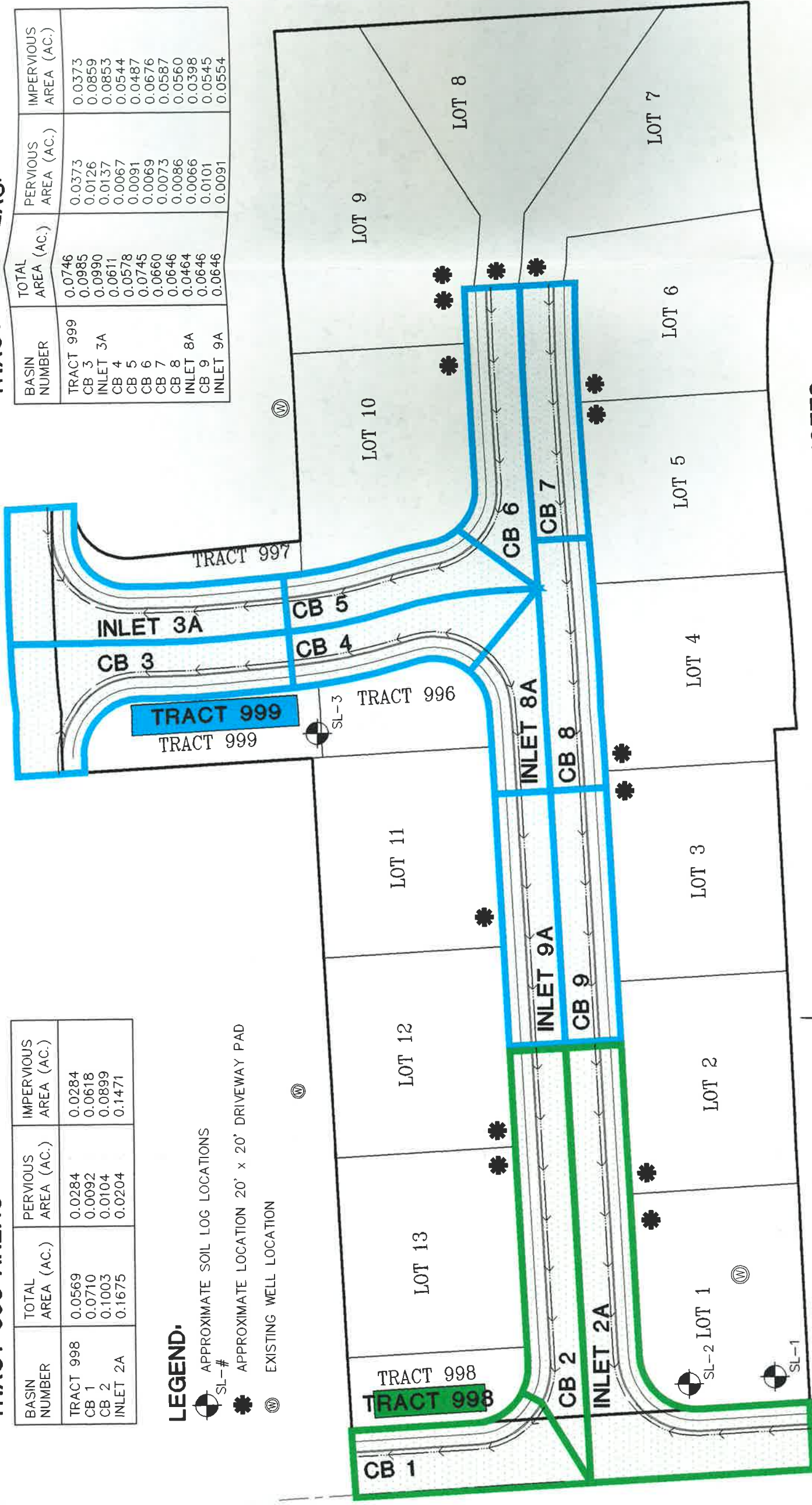
BASIN NUMBER	TOTAL AREA (AC.)	PERVIOUS AREA (AC.)	IMPERVIOUS AREA (AC.)
TRACT 998	0.0569	0.0284	0.0284
CB 1	0.0710	0.0092	0.0618
CB 2	0.1003	0.0104	0.0899
INLET 2A	0.1675	0.0204	0.1471

LEGEND:

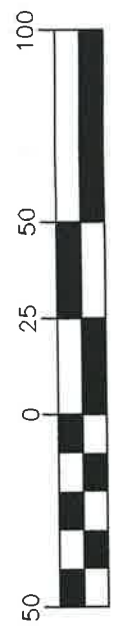
- APPROXIMATE SOIL LOG LOCATIONS
- APPROXIMATE LOCATION 20' x 20' DRIVEWAY PAD
- EXISTING WELL LOCATION

TRACT 999 AREAS:

BASIN NUMBER	TOTAL AREA (AC.)	PERVIOUS AREA (AC.)	IMPERVIOUS AREA (AC.)
TRACT 999	0.0746	0.0373	0.0373
CB 3	0.0985	0.0126	0.0859
INLET 3A	0.0990	0.0137	0.0853
CB 4	0.0611	0.0067	0.0544
CB 5	0.0578	0.0091	0.0487
CB 6	0.0745	0.0069	0.0676
CB 7	0.0660	0.0073	0.0587
CB 8	0.0646	0.0086	0.0560
INLET 8A	0.0464	0.0066	0.0398
CB 9	0.0646	0.0101	0.0545
INLET 9A	0.0646	0.0091	0.0554



GRAPHIC SCALE



BASIS OF BEARINGS: ASSUMED MAGNETIC NORTH

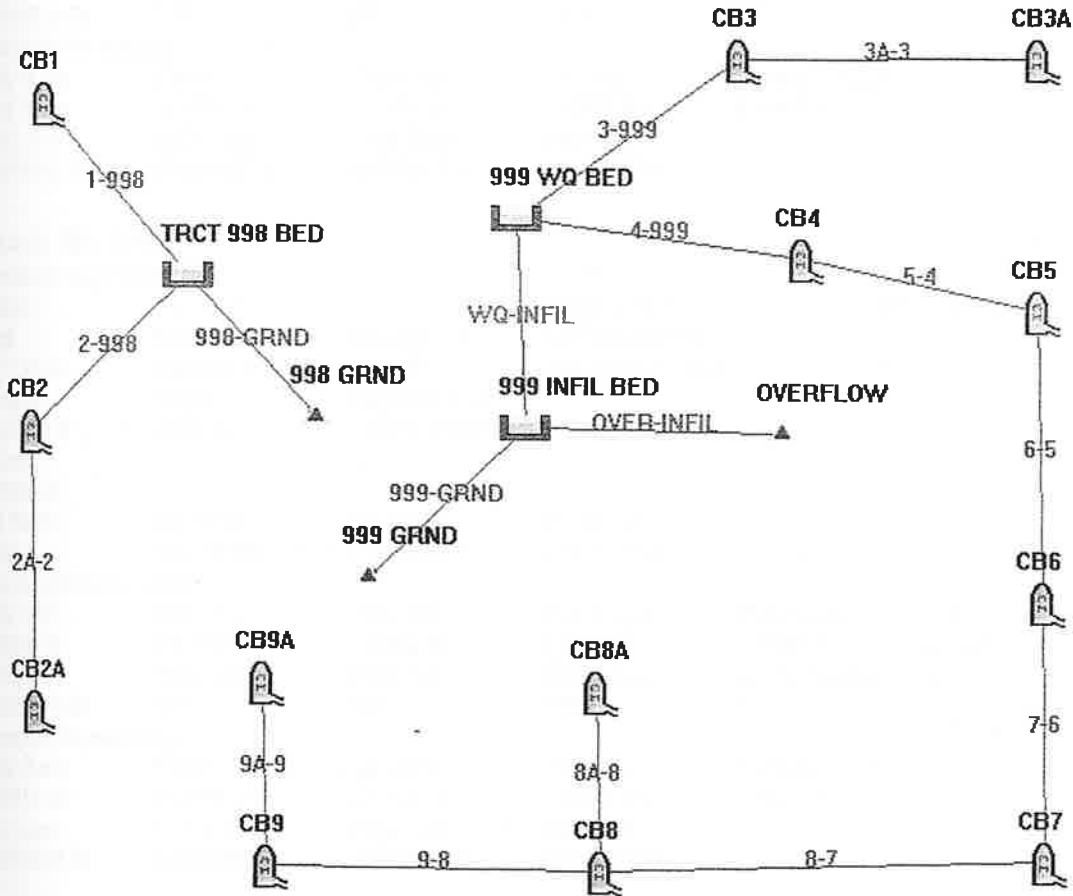
DRAINAGE BASINS

- TRACT 999
- TRACT 998

NOTES:
EACH LOT TO HAVE ITS OWN INFILTRATION TRENCH.

PLAT OF TRELIS COURT
15126

DRAINAGE MODEL REPORT



Project Precip

[6-mo]	1.16 in
[2 yr]	1.80 in
[10 yr]	2.75 in
[25 yr]	3.20 in
[100 yr]	3.75 in

Reach Records

Reach ID: 1-998

Section Properties:

Shape:	Circular	Routing Method:	Travel Time Translation
Size	Material	Mannings n	Hyd params By
12" Diam	Smooth CDEP	0.0120	Mannings Formula
Length	Slope	Entrance Loss	
26.0000 ft	0.50 %	Square Edge w/Headwall	
Diam			
1.0000 ft			
Up Node	Dn Node	Up Invert	Dn Invert
CB1	TRCT 998 BED	119.1300 ft	119.0000 ft

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.0710 ac	0.0575 cf	2.7366 cf	1.4003 ft/s	0.1003 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.000042 ft	0.000083 ft	0.000057 ft	120.4187 ft	

Reach ID: 2-998**Section Properties:**

Shape:	Circular		Routing Method:	Travel Time Translation
Size	Material	Mannings n	Hyd params By	
12" Diam	Smooth CDEP	0.0120	Mannings Formula	
Length	Slope	Entrance Loss		
20.0000 ft	0.50 %	Square Edge w/Headwall		

Diam				
1.0000 ft				
Up Node	Dn Node	Up Invert	Dn Invert	
CB2	TRCT 998 BED	119.1000 ft	119.0000 ft	

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.3092 ac	0.2598 cf	2.7366 cf	2.1946 ft/s	0.2081 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.000849 ft	0.001699 ft	0.000901 ft	120.4187 ft	

Reach ID: 2A-2**Section Properties:**

Shape:	Circular		Routing Method:	Travel Time Translation
Size	Material	Mannings n	Hyd params By	
12" Diam	Smooth CDEP	0.0120	Mannings Formula	
Length	Slope	Entrance Loss		
14.0000 ft	0.50 %	Square Edge w/Headwall		

Diam				
1.0000 ft				
Up Node	Dn Node	Up Invert	Dn Invert	
CB2A	CB2	118.2900 ft	118.2200 ft	

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.1859 ac	0.1546 cf	2.7366 cf	1.8824 ft/s	0.1614 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.000301 ft	0.000602 ft	0.000223 ft	120.4218 ft	

Reach ID: 3-999**Section Properties:**

Shape:	Circular		Routing Method:	Travel Time Translation	
Size	Material	Mannings n	Hyd params By		
12" Diam	Smooth CDEP	0.0120	Mannings Formula		
Length	Slope	Entrance Loss			
26.0000 ft	0.50 %	Square Edge w/Headwall			
Diam					
1.0000 ft					
Up Node	Dn Node	Up Invert	Dn Invert		
CB3	999 WQ BED	119.1300 ft	119.0000 ft		

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.2518 ac	0.2071 cf	2.7366 cf	2.0528 ft/s	0.1862 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.032717 ft	0.065434 ft	0.000744 ft	119.1865 ft	

Reach ID: 3A-3**Section Properties:**

Shape:	Circular		Routing Method:	Travel Time Translation	
Size	Material	Mannings n	Hyd params By		
8" Diam	Smooth CDEP	0.0120	Mannings Formula		
Length	Slope	Entrance Loss			
38.0000 ft	0.50 %	Square Edge w/Headwall			
Diam					
0.6667 ft					
Up Node	Dn Node	Up Invert	Dn Invert		
CB3A	CB3	118.6500 ft	118.4600 ft		

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.0990 ac	0.0789 cf	0.9282 cf	1.6215 ft/s	0.1313 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.000396 ft	0.000793 ft	0.001372 ft	119.3798 ft	

Reach ID: 4-999**Section Properties:**

Shape:	Circular		Routing Method:	Travel Time Translation	
Size	Material	Mannings n	Hyd params By		
12" Diam	Smooth CDEP	0.0120	Mannings Formula		
Length	Slope	Entrance Loss			
30.0000 ft	1.00 %	Square Edge w/Headwall			
Diam					
1.0000 ft					
Up Node	Dn Node	Up Invert	Dn Invert		
CB4	999 WQ BED	118.3000 ft	118.0000 ft		

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.5961 ac	0.4969 cf	3.8701 cf	3.3883 ft/s	0.2420 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.003108 ft	0.006216 ft	0.004945 ft	119.1772 ft	

Reach ID: 5-4**Section Properties:**

Shape:	Circular	Routing Method:	Travel Time Translation
Size	Material	Mannings n	Hyd params By
12" Diam	Smooth CDEP	0.0120	Mannings Formula
Length	Slope	Entrance Loss	
28.0000 ft	0.89 %	Square Edge w/Headwall	

Diam	Up Node	Dn Node	Up Invert	Dn Invert
1.0000 ft	CB5	CB4	118.5500 ft	118.3010 ft

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.5304 ac	0.4423 cf	3.6510 cf	3.1429 ft/s	0.2350 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.076693 ft	0.153385 ft	0.003656 ft	119.0411 ft	

Reach ID: 6-5**Section Properties:**

Shape:	Circular	Routing Method:	Travel Time Translation
Size	Material	Mannings n	Hyd params By
12" Diam	Smooth CDEP	0.0120	Mannings Formula
Length	Slope	Entrance Loss	
90.0000 ft	0.94 %	Square Edge w/Headwall	

Diam	Up Node	Dn Node	Up Invert	Dn Invert
1.0000 ft	CB6	CB5	119.4000 ft	118.5540 ft

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.4726 ac	0.3967 cf	3.7522 cf	3.1045 ft/s	0.2196 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.074831 ft	0.149662 ft	0.009455 ft	119.2715 ft	

Reach ID: 7-6**Section Properties:**

Shape:	Circular		Routing Method:	Travel Time Translation	
Size	Material	Mannings n	Hyd params By		
12" Diam	Smooth CDEP	0.0120	Mannings Formula		
Length	Slope	Entrance Loss			
110.0000 ft	0.50 %	Square Edge w/Headwall			
Diam					
1.0000 ft					
Up Node	Dn Node	Up Invert	Dn Invert		
CB7	CB6	120.3300 ft	119.7800 ft		

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.3613 ac	0.2997 cf	2.7366 cf	2.2880 ft/s	0.2234 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.040643 ft	0.081287 ft	0.006594 ft	120.0053 ft	

Reach ID: 8-7**Section Properties:**

Shape:	Circular		Routing Method:	Travel Time Translation	
Size	Material	Mannings n	Hyd params By		
12" Diam	Smooth CDEP	0.0120	Mannings Formula		
Length	Slope	Entrance Loss			
27.0000 ft	0.50 %	Square Edge w/Headwall			
Diam					
1.0000 ft					
Up Node	Dn Node	Up Invert	Dn Invert		
CB8	CB7	118.6400 ft	118.5050 ft		

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.2677 ac	0.2192 cf	2.7366 cf	2.0880 ft/s	0.1914 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.000605 ft	0.001210 ft	0.000866 ft	120.6336 ft	

Reach ID: 8A-8**Section Properties:**

Shape:	Circular		Routing Method:	Travel Time Translation	
Size	Material	Mannings n	Hyd params By		
8" Diam	Smooth CDEP	0.0120	Mannings Formula		
Length	Slope	Entrance Loss			
28.0000 ft	0.50 %	Square Edge w/Headwall			
Diam					
0.6667 ft					
Up Node	Dn Node	Up Invert	Dn Invert		
CB8A	CB8	120.8000 ft	120.6600 ft		

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.0464 ac	0.0373 cf	0.9282 cf	1.2978 ft/s	0.0913 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.013078 ft	0.026155 ft	0.000227 ft	120.7513 ft	

Reach ID: 9-8**Section Properties:**

Shape:	Circular	Routing Method:	Travel Time Translation
Size	Material	Mannings n	Hyd params By
12" Diam	Smooth CDEP	0.0120	Mannings Formula
Length	Slope	Entrance Loss	
110.0000 ft	0.50 %	Square Edge w/Headwall	

Diam	Up Node	Dn Node	Up Invert	Dn Invert
1.0000 ft	CB9	CB8	120.8800 ft	120.3300 ft

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.1475 ac	0.1207 cf	2.7366 cf	1.7492 ft/s	0.1431 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.023755 ft	0.047509 ft	0.001070 ft	120.6363 ft	

Reach ID: 998-GRND**Section Properties:**

Shape:	Circular	Routing Method:	Travel Time Translation
Size	Material	Mannings n	Hyd params By
48" Diam	Smooth CDEP	0.0120	Mannings Formula
Length	Slope	Entrance Loss	
0.0010 ft	100.00 %	Square Edge w/Headwall	

Diam	Up Node	Dn Node	Up Invert	Dn Invert
4.0000 ft	TRCT 998 BED	998 GRND	113.0000 ft	112.9990 ft

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.4370 ac	0.0424 cf	1560.3243 cf	6.5556 ft/s	0.0181 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.333661 ft	0.667322 ft	0.000000 ft	113.0576 ft	

Reach ID: 999-GRND**Section Properties:**

Shape:	Circular		Routing Method:	Travel Time Translation	
Size	Material	Mannings n	Hyd params By		
48" Diam	Smooth CDEP	0.0120	Mannings Formula		
Length	Slope	Entrance Loss			
0.0010 ft	100.00 %	Square Edge w/Headwall			
Diam					
4.0000 ft					
Up Node	Dn Node	Up Invert	Dn Invert		
999 INFIL BED	999 GRND	111.0000 ft	110.9990 ft		

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.9225 ac	0.1768 cf	1560.3243 cf	10.0841 ft/s	0.0352 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.789504 ft	1.579008 ft	0.000000 ft	111.1191 ft	

Reach ID: 9A-9**Section Properties:**

Shape:	Circular		Routing Method:	Travel Time Translation	
Size	Material	Mannings n	Hyd params By		
12" Diam	Smooth CDEP	0.0120	Mannings Formula		
Length	Slope	Entrance Loss			
28.0000 ft	0.50 %	Square Edge w/Headwall			
Diam					
1.0000 ft					
Up Node	Dn Node	Up Invert	Dn Invert		
CB9A	CB9	121.3500 ft	121.2100 ft		

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.0737 ac	0.0607 cf	2.7366 cf	1.4240 ft/s	0.1029 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.015743 ft	0.031487 ft	0.000069 ft	121.3129 ft	

Reach ID: OVER-INFIL**Section Properties:**

Shape:	Circular		Routing Method:	Travel Time Translation	
Size	Material	Mannings n	Hyd params By		
12" Diam	Smooth CDEP	0.0120	Mannings Formula		
Length	Slope	Entrance Loss			
8.0000 ft	100.00 %	Square Edge w/Headwall			
Diam					
1.0000 ft					
Up Node	Dn Node	Up Invert	Dn Invert		
OVERFLOW	999 INFIL BED	119.0000 ft	111.0000 ft		

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.5891 ac	0.7267 cf	38.7009 cf	19.1432 ft/s	0.0951 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.006648 ft	0.013295 ft	0.002820 ft	115.4773 ft	

Reach ID: WQ-INFIL**Section Properties:**

Shape:	Circular	Routing Method:	Travel Time Translation
Size	Material	Hyd params By	
12" Diam	Smooth CDEP	Mannings Formula	
Length	Slope	Entrance Loss	
0.0010 ft	100.00 %	Square Edge w/Headwall	

Diam			
1.0000 ft			
Up Node	Dn Node	Up Invert	Dn Invert
999 WQ BED	999 INFIL BED	117.0000 ft	116.9990 ft

Conduit Constraints:

Min Vel	Max Vel	Min Cov	Min Slope	Max Slope	Min drop
2.0000 ft	15.0000 ft	3.0000 ft	0.5000 ft	2.0000 ft	0.0000 ft
In/Exfil	Hold Up	Hold Dn	Match Inv	Allow Smaller	
0.0000 in/hr	NO	NO	YES	NO	

Conduit Summary:

Trib Area	Flow	Capacity	Velocity	Normal Depth
0.3334 ac	0.0401 cf	38.7009 cf	7.9421 ft/s	0.0244 ft
Ent Loss	Exit Loss	Frict Loss	Start TW	
0.489725 ft	0.979450 ft	0.000000 ft	117.0771 ft	

Node Records

Node ID: 998 GRND

Start El:	113.0000 ft	Max El:	120.5000 ft
Contrib Basin:		Contrib Hyd:	
Hgl Elev:	113.0576 ft		

Node ID: 999 GRND

Start El:	111.0000 ft	Max El:	124.0000 ft
Contrib Basin:		Contrib Hyd:	
Hgl Elev:	111.1191 ft		

Node ID: 999 INFIL BED

Start El:	111.0000 ft	Max El:	124.0000 ft
Contrib Basin:		Contrib Hyd:	
Hgl Elev:	115.4773 ft		
Storage Id:	999 INFIL STORE	Discharge Id:	999 MED SAND

Node ID: 999 INFIL STORE

Start El:	111.0000 ft	Max El:	115.5000 ft
Contrib Basin:		Contrib Hyd:	
	Length	Width	Void Ratio
	75.0000 ft	14.0000 ft	45.00

Control Structure ID: 999 MED SAND - Infiltration control structure

Start El	Max El	Increment	
111.0000 ft	112.0000 ft	0.10	
Infil:	4.14 in/hr		Multiplier: 1.00

Node ID: 999 WQ BED

Start El:	117.0000 ft	Max El:	124.0000 ft
Contrib Basin:	TRACT 999	Contrib Hyd:	
Hgl Elev:	119.1772 ft		
Storage Id:	999 WQ STORE	Discharge Id:	COMBO

Node ID: 999 WQ STORE

Start El:	117.0000 ft	Max El:	119.0000 ft
Contrib Basin:		Contrib Hyd:	
	Length	Width	Void Ratio
	75.0000 ft	14.0000 ft	31.00

Control Structure ID: COMBO - Combination Control Structure

Start El	Max El	Increment
117.0000 ft	124.0000 ft	0.10
ID List:	18" LMY SND	OVERFLOW
Split:	Split OutHyd into component hydrographs.	

Control Structure ID: 18" LMY SND - Infiltration control structure

Start El	Max El	Increment	
117.0000 ft	124.0000 ft	0.10	
Infil:	1.21 in/hr		Multiplier: 1.00

Control Structure ID: OVERFLOW - Overflow riser

Start El	Max El	Increment			
119.0000 ft	124.0000 ft	0.10			
Riser Dia:	12.00 in	Orif Coeff:	3.78	Weir Coeff:	9.74

Node ID: CB1

Start El:	119.1300 ft	Max El:	121.5000 ft
Contrib Basin:	CB1	Contrib Hyd:	
Hgl Elev:	120.4189 ft		
Struct Type:	CB-TYPE 1L	Classification	Catch Basin
Ke Descrip:	CONC: Headwall: square edge;ke=0.5		
Catch Depth:	1.0000 ft	Bot Area:	6.2200 sf
Condition:	No particular shape.	Status:	Proposed Structure
Approach Credit:	0.0000 ft		

Node ID: CB2

Start El:	119.1000 ft	Max El:	121.5600 ft
Contrib Basin:	CB2	Contrib Hyd:	
Hgl Elev:	120.4218 ft		
Struct Type:	CB-TYPE 1L	Classification	Catch Basin
Ke Descrip:	CONC: Headwall: square edge;ke=0.5		
Catch Depth:	1.0000 ft	Bot Area:	6.2200 sf
Condition:	No particular shape.	Status:	Proposed Structure
Approach Credit:	0.0006 ft		

Node ID: CB2A

Start El:	119.6200 ft	Max El:	121.5600 ft
Contrib Basin:	CB2A	Contrib Hyd:	
Hgl Elev:	120.4230 ft		
Struct Type:	AREA INLET- 24	Classification	Catch Basin
Ke Descrip:	CONC: Headwall: square edge;ke=0.5		
Catch Depth:	0.0000 ft	Bot Area:	3.1416 sf
Condition:	No particular shape.	Status:	Proposed Structure
Approach Credit:	0.0000 ft		

Node ID: CB3

Start El:	118.1300 ft	Max El:	120.9300 ft
Contrib Basin:	CB3	Contrib Hyd:	
Hgl Elev:	119.3798 ft		
Struct Type:	CB-TYPE 1L	Classification	Catch Basin
Ke Descrip:	CONC: Headwall: square edge;ke=0.5		
Catch Depth:	1.0000 ft	Bot Area:	6.2200 sf
Condition:	No particular shape.	Status:	Proposed Structure
Approach Credit:	0.0000 ft		

Node ID: CB3A

Start El:	118.6500 ft	Max El:	120.9700 ft
Contrib Basin:	CB3A	Contrib Hyd:	
Hgl Elev:	119.3823 ft		
Struct Type:	AREA INLET- 24	Classification	Catch Basin
Ke Descrip:	CONC: Headwall: square edge;ke=0.5		
Catch Depth:	0.0000 ft	Bot Area:	3.1416 sf
Condition:	No particular shape.	Status:	Proposed Structure
Approach Credit:	0.0000 ft		

Node ID: CB4

Start El:	118.3000 ft	Max El:	123.0300 ft
Contrib Basin:	CB4	Contrib Hyd:	
Hgl Elev:	119.0411 ft		
Struct Type:	CB-TYPE 1L	Classification	Catch Basin
Ke Descrip:	CONC: Headwall: square edge;.ke=0.5		
Catch Depth:	1.0000 ft	Bot Area:	6.2200 sf
Condition:	No particular shape.	Status:	Proposed Structure
Approach Credit:	0.1534 ft		

Node ID: CB5

Start El:	118.5500 ft	Max El:	123.0300 ft
Contrib Basin:	CB5	Contrib Hyd:	
Hgl Elev:	119.2715 ft		
Struct Type:	CB-TYPE 1	Classification	Catch Basin
Ke Descrip:	CONC: Headwall: square edge;.ke=0.5		
Catch Depth:	1.4160 ft	Bot Area:	3.9700 sf
Condition:	No particular shape.	Status:	Proposed Structure
Approach Credit:	0.1497 ft		

Node ID: CB6

Start El:	119.4000 ft	Max El:	124.0100 ft
Contrib Basin:	CB6	Contrib Hyd:	
Hgl Elev:	119.7506 ft		
Struct Type:	CB-TYPE 1	Classification	Catch Basin
Ke Descrip:	CONC: Headwall: square edge;.ke=0.5		
Catch Depth:	1.4160 ft	Bot Area:	3.9700 sf
Condition:	No particular shape.	Status:	Proposed Structure
Approach Credit:	0.0000 ft		

Node ID: CB7

Start El:	119.7800 ft	Max El:	124.7300 ft
Contrib Basin:	CB7	Contrib Hyd:	
Hgl Elev:	120.6336 ft		
Struct Type:	CB-TYPE 1	Classification	Catch Basin
Ke Descrip:	CONC: Headwall: square edge;.ke=0.5		
Catch Depth:	1.4160 ft	Bot Area:	3.9700 sf
Condition:	No particular shape.	Status:	Proposed Structure
Approach Credit:	0.0000 ft		

Node ID: CB8

Start El:	120.3300 ft	Max El:	124.1500 ft
Contrib Basin:	CB8	Contrib Hyd:	
Hgl Elev:	120.6363 ft		
Struct Type:	CB-TYPE 1	Classification	Catch Basin
Ke Descrip:	CONC: Headwall: square edge;.ke=0.5		
Catch Depth:	1.4160 ft	Bot Area:	3.9700 sf
Condition:	No particular shape.	Status:	Proposed Structure
Approach Credit:	0.0000 ft		

Node ID: CB8A

Start El:	120.8000 ft	Max El:	124.1500 ft
Contrib Basin:	CB8A	Contrib Hyd:	
Hgl Elev:	120.9305 ft		
Struct Type:	AREA INLET- 24	Classification	Catch Basin
Ke Descrip:	CONC: Headwall: square edge;.ke=0.5		
Catch Depth:	0.0000 ft	Bot Area:	3.1416 sf
Condition:	No particular shape.	Status:	Proposed Structure
Approach Credit:	0.0000 ft		

Node ID: CB9

Start El:	120.8800 ft	Max El:	123.6000 ft
Contrib Basin:	CB9	Contrib Hyd:	
Hgl Elev:	121.0944 ft		
Struct Type:	CB-TYPE 1	Classification	Catch Basin
Ke Descrip:	CONC: Headwall: square edge;.ke=0.5		
Catch Depth:	1.4160 ft	Bot Area:	3.9700 sf
Condition:	No particular shape.	Status:	Proposed Structure
Approach Credit:	0.0000 ft		

Node ID: CB9A

Start El:	121.3500 ft	Max El:	123.6000 ft
Contrib Basin:	CB9A	Contrib Hyd:	
Hgl Elev:	121.5001 ft		
Struct Type:	AREA INLET- 24	Classification	Catch Basin
Ke Descrip:	CONC: Headwall: square edge;.ke=0.5		
Catch Depth:	0.0000 ft	Bot Area:	3.1416 sf
Condition:	No particular shape.	Status:	Proposed Structure
Approach Credit:	0.0000 ft		

Node ID: OVERFLOW

Start El:	119.0000 ft	Max El:	124.0000 ft
Contrib Basin:		Contrib Hyd:	
Hgl Elev:	118.9949 ft		

Node ID: TRCT 998 BED

Start El:	113.0000 ft	Max El:	120.5000 ft
Contrib Basin:	TRACT 998	Contrib Hyd:	
Hgl Elev:	120.4187 ft		
Storage Id:	998 STORAGE	Discharge Id:	998 LOAMY SAND

Node ID: 998 STORAGE

Start El:	113.0000 ft	Max El:	120.5000 ft
Contrib Basin:		Contrib Hyd:	
	Length	Width	Void Ratio
	50.0000 ft	12.0000 ft	50.00

Control Structure ID: 998 LOAMY SAND - Infiltration control structure

Start El	Max El	Increment	
113.0000 ft	124.0000 ft	0.10	
Infil:	1.21 in/hr		Multiplier: 1.00

Contributing Drainage Areas

Drainage Area: CB1

Hyd Method:	SBUH Hyd	Loss Method:	SCS CN Number
Peak Factor:	484.00	SCS Abs:	0.20
Storm Dur:	24.00 hrs	Intv:	10.00 min
	Area	CN	TC
Pervious	0.0092 ac	68.00	0.03 hrs
Impervious	0.0618 ac	98.00	0.02 hrs
Total	0.0710 ac		

Supporting Data:

Pervious CN Data:
 LANDSCAPE STRIP 68.00 0.0092 ac

Impervious CN Data:
 ROAD/CURB/GUTTER/SIDEWALK 98.00 0.0618 ac

Pervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	GRASS	4.00 ft	2.00%	0.1500	0.99 min
Shallow	GUTTER	89.00 ft	1.00%	27.0000	0.55 min

Impervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	ROAD	15.00 ft	2.00%	0.0110	0.35 min
Shallow	GUTTER	89.00 ft	1.00%	27.0000	0.55 min

Drainage Area: CB2

Hyd Method:	SBUH Hyd	Loss Method:	SCS CN Number
Peak Factor:	484.00	SCS Abs:	0.20
Storm Dur:	24.00 hrs	Intv:	10.00 min
	Area	CN	TC
Pervious	0.0104 ac	68.00	0.05 hrs
Impervious	0.1129 ac	98.00	0.02 hrs
Total	0.1233 ac		

Supporting Data:

Pervious CN Data:
 LANDSCAPE STRIP 68.00 0.0104 ac

Impervious CN Data:
 ROAD/CURB/GUTTER/SIDEWALK 98.00 0.0899 ac

TRACT 998 10 X 20 DRIVE 98.00 0.0046 ac
 LOT 13 20 X 20 DRIVE 98.00 0.0092 ac
 LOT 12 20 X 20 DRIVE 98.00 0.0092 ac

Pervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	GRASS	4.00 ft	2.00%	0.1500	0.99 min
Shallow	GUTTER	158.00 ft	0.50%	27.0000	1.83 min

Impervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	ROAD	20.00 ft	2.00%	0.0110	0.45 min
Shallow	GUTTER	158.00 ft	1.00%	27.0000	0.98 min

Drainage Area: CB2A

Hyd Method:	SBUH Hyd	Loss Method:	SCS CN Number
Peak Factor:	484.00	SCS Abs:	0.20
Storm Dur:	24.00 hrs	Intv:	10.00 min
	Area	CN	TC
Pervious	0.0204 ac	68.00	0.05 hrs
Impervious	0.1655 ac	98.00	0.04 hrs

Total 0.1859 ac

Supporting Data:

Pervious CN Data:

LANDSCAPE STRIP 68.00 0.0204 ac

Impervious CN Data:

ROAD/CURB/GUTTER/SIDEWALK 98.00 0.1471 ac

LOT 1 20 X 20 DRIVE 98.00 0.0092 ac

LOT 2 20 X 20 DRIVE 98.00 0.0092 ac

Pervious TC Data:

Flow type: Description: Length: Slope: Coeff: Travel Time

Sheet GRASS 4.00 ft 2.00% 0.1500 0.99 min

Shallow GUTTER 157.00 ft 0.50% 27.0000 1.82 min

Impervious TC Data:

Flow type: Description: Length: Slope: Coeff: Travel Time

Sheet ROAD 15.00 ft 2.00% 0.0110 0.35 min

Shallow GUTTER 157.00 ft 0.50% 27.0000 1.82 min

Drainage Area: CB3

Hyd Method: SBUH Hyd

Peak Factor: 484.00

Storm Dur: 24.00 hrs

Area CN

Pervious 0.0126 ac 68.00

Impervious 0.1402 ac 98.00

Total 0.1528 ac

Loss Method: SCS CN Number

SCS Abs: 0.20

Intv: 10.00 min

TC

0.02 hrs

0.01 hrs

Supporting Data:

Pervious CN Data:

LANDSCAPE STRIP 68.00 0.0126 ac

Impervious CN Data:

ROAD/CURB/GUTTER/SIDEWALK 98.00 0.0859 ac

TRACT 999 DETENTION 98.00 0.0497 ac

TRACT 999 10 X 10 DRIVE 98.00 0.0046 ac

Pervious TC Data:

Flow type: Description: Length: Slope: Coeff: Travel Time

Sheet GRASS 4.00 ft 2.00% 0.1500 0.99 min

Shallow GUTTER 87.00 ft 2.63% 27.0000 0.33 min

Impervious TC Data:

Flow type: Description: Length: Slope: Coeff: Travel Time

Sheet ROAD 15.00 ft 2.00% 0.0110 0.35 min

Shallow GUTTER 87.00 ft 2.63% 27.0000 0.33 min

Drainage Area: CB3A

Hyd Method: SBUH Hyd

Peak Factor: 484.00

Storm Dur: 24.00 hrs

Area CN

Pervious 0.0137 ac 68.00

Impervious 0.0853 ac 98.00

Total 0.0990 ac

Loss Method: SCS CN Number

SCS Abs: 0.20

Intv: 10.00 min

TC

0.02 hrs

0.01 hrs

Supporting Data:

Pervious CN Data:

LANDSCAPE STRIP 68.00 0.0137 ac

Impervious CN Data:

ROAD/CURB/GUTTER/SIDEWALK 98.00 0.0853 ac

Pervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	GRASS	4.00 ft	2.00%	0.1500	0.99 min
Shallow	GUTTER	84.00 ft	2.63%	27.0000	0.32 min
Impervious TC Data:					
Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	ROAD	15.00 ft	2.00%	0.0110	0.35 min
Shallow	GUTTER	87.00 ft	2.63%	27.0000	0.33 min

Drainage Area: CB4

Hyd Method:	SBUH Hyd	Loss Method:	SCS CN Number
Peak Factor:	484.00	SCS Abs:	0.20
Storm Dur:	24.00 hrs	Intv:	10.00 min
	Area	CN	TC
Pervious	0.0067 ac	68.00	0.03 hrs
Impervious	0.0590 ac	98.00	0.02 hrs
Total	0.0657 ac		

Supporting Data:

Pervious CN Data:			
LANDSCAPE STRIP	68.00	0.0067 ac	
Impervious CN Data:			
ROAD/CURB/GUTTER/SIDEWALK	98.00	0.0544 ac	
TRACT 996 20 X 10 DRIVE	98.00	0.0046 ac	

Pervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	GRASS	4.00 ft	2.00%	0.1500	0.99 min
Shallow	GUTTER	89.00 ft	1.00%	27.0000	0.55 min

Impervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	ROAD	15.00 ft	2.00%	0.0110	0.35 min
Shallow	GUTTER	89.00 ft	1.00%	27.0000	0.55 min

Drainage Area: CB5

Hyd Method:	SBUH Hyd	Loss Method:	SCS CN Number
Peak Factor:	484.00	SCS Abs:	0.20
Storm Dur:	24.00 hrs	Intv:	10.00 min
	Area	CN	TC
Pervious	0.0091 ac	68.00	0.03 hrs
Impervious	0.0487 ac	98.00	0.01 hrs
Total	0.0578 ac		

Supporting Data:

Pervious CN Data:			
LANDSCAPE STRIP	68.00	0.0091 ac	
Impervious CN Data:			
ROAD/CURB/GUTTER/SIDEWALK	98.00	0.0487 ac	

Pervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	GRASS	4.00 ft	2.00%	0.1500	0.99 min
Shallow	GUTTER	88.00 ft	1.00%	27.0000	0.54 min

Impervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	ROAD	15.00 ft	2.00%	0.0110	0.35 min
Shallow	GUTTER	88.00 ft	1.00%	27.0000	0.54 min

Drainage Area: CB6

Hyd Method:	SBUH Hyd	Loss Method:	SCS CN Number
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Peak Factor:	484.00	SCS Abs:	0.20
Storm Dur:	24.00 hrs	Intv:	10.00 min
	Area	CN	TC
Pervious	0.0069 ac	68.00	0.04 hrs
Impervious	0.1044 ac	98.00	0.03 hrs
Total	0.1113 ac		

Supporting Data:

Pervious CN Data:
LANDSCAPE STRIP 68.00 0.0069 ac

Impervious CN Data:
ROAD/CURB/GUTTER/SIDEWALK 98.00 0.0676 ac
LOT 10 20 X 20 DRIVE 98.00 0.0092 ac
LOT 9 20 X 40 DRIVE 98.00 0.0184 ac
LOT 8 20 X 20 DRIVE 98.00 0.0092 ac

Pervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	GRASS	4.00 ft	2.00%	0.1500	0.99 min
Shallow	GUTTER	117.00 ft	0.50%	27.0000	1.36 min

Impervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	ROAD	15.00 ft	2.00%	0.0110	0.35 min
Shallow	GUTTER	117.00 ft	0.50%	27.0000	1.36 min

Drainage Area: CB7

Hyd Method:	SBUH Hyd	Loss Method:	SCS CN Number
Peak Factor:	484.00	SCS Abs:	0.20
Storm Dur:	24.00 hrs	Intv:	10.00 min
	Area	CN	TC
Pervious	0.0073 ac	68.00	0.04 hrs
Impervious	0.0863 ac	98.00	0.03 hrs
Total	0.0936 ac		

Supporting Data:

Pervious CN Data:
LANDSCAPE STRIP 68.00 0.0073 ac

Impervious CN Data:
ROAD/CURB/GUTTER/SIDEWALK 98.00 0.0587 ac
LOT 5 20 X 20 DRIVE 98.00 0.0092 ac
LOT 6 20 X 20 DRIVE 98.00 0.0092 ac
LOT 7 20 X 20 DRIVE 98.00 0.0092 ac

Pervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	GRASS	4.00 ft	2.00%	0.1500	0.99 min
Shallow	GUTTER	114.00 ft	0.50%	27.0000	1.32 min

Impervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	ROAD	15.00 ft	2.00%	0.0110	0.35 min
Shallow	GUTTER	114.00 ft	0.50%	27.0000	1.32 min

Drainage Area: CB8

Hyd Method:	SBUH Hyd	Loss Method:	SCS CN Number
Peak Factor:	484.00	SCS Abs:	0.20
Storm Dur:	24.00 hrs	Intv:	10.00 min
	Area	CN	TC
Pervious	0.0086 ac	68.00	0.04 hrs
Impervious	0.0652 ac	98.00	0.03 hrs

Shallow	GUTTER	110.00 ft	0.50%	27.0000	1.28 min
Impervious TC Data:					
Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	ROAD	15.00 ft	2.00%	0.0110	0.35 min
Shallow	GUTTER	110.00 ft	0.50%	27.0000	1.28 min

Drainage Area: CB9A

Hyd Method:	SBUH Hyd	Loss Method:	SCS CN Number
Peak Factor:	484.00	SCS Abs:	0.20
Storm Dur:	24.00 hrs	Intv:	10.00 min
	Area	TC	
Pervious	0.0091 ac	68.00	0.04 hrs
Impervious	0.0646 ac	98.00	0.03 hrs
Total	0.0737 ac		

Supporting Data:

Pervious CN Data:			
LANDSCAPE STRIP	68.00	0.0091 ac	
Impervious CN Data:			
ROAD/CURB/GUTTER/SIDEWALK	98.00	0.0554 ac	
LOT 11 20 X 20 DRIVE	98.00	0.0092 ac	

Pervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	GRASS	4.00 ft	2.00%	0.1500	0.99 min
Shallow	GUTTER	110.00 ft	0.50%	27.0000	1.28 min

Impervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	ROAD	15.00 ft	2.00%	0.0110	0.35 min
Shallow	GUTTER	110.00 ft	0.50%	27.0000	1.28 min

Drainage Area: TRACT 998

Hyd Method:	SBUH Hyd	Loss Method:	SCS CN Number
Peak Factor:	484.00	SCS Abs:	0.20
Storm Dur:	24.00 hrs	Intv:	10.00 min
	Area	TC	
Pervious	0.0284 ac	68.00	0.00 hrs
Impervious	0.0284 ac	100.00	0.00 hrs
Total	0.0568 ac		

Supporting Data:

Pervious CN Data:			
LANDSCAPE	68.00	0.0284 ac	
Impervious CN Data:			
DETENTION AREA	100.00	0.0284 ac	

Pervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	GRASS	0.00 ft	1.00%	0.1500	0.00 min

Impervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	GRASS	0.00 ft	1.00%	0.1500	0.00 min

Drainage Area: TRACT 999

Hyd Method: SBUH Hyd
 Peak Factor: 484.00
 Storm Dur: 24.00 hrs
 Area CN
 Pervious 0.0373 ac 68.00
 Impervious 0.0373 ac 100.00
 Total 0.0746 ac

Loss Method: SCS CN Number
 SCS Abs: 0.20
 Intv: 10.00 min
 TC
 0.00 hrs
 0.00 hrs

Supporting Data:

Pervious CN Data:
 LANDSCAPING 68.00 0.0373 ac

Impervious CN Data:
 DETENTION AREA 100.00 0.0373 ac

Pervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	GRASS	0.00 ft	1.00%	0.1500	0.00 min

Impervious TC Data:

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Sheet	GRASS	0.00 ft	1.00%	0.1500	0.00 min

Hydrograph ID: 999 GRND - 6-mo

Area: 0.9225 ac		Hyd Int: 10.00 min		Base Flow:	
Pending t translation: 0.00 min		Peak Flow: 0.1013 cfs		Peak Time: 15.33 hrs	
Time	Flow	Time	Flow	Time	Flow
hr	cfs	hr	cfs	hr	cfs
0.50	0.0000	9.00	0.1013	17.33	0.0000
0.67	0.0000	9.17	0.0000	17.50	0.1010
0.83	0.0000	9.33	0.1007	17.67	0.0000
1.00	0.0000	9.50	0.0000	17.83	0.0000
1.17	0.0000	9.67	0.0000	18.00	0.1011
1.33	0.0000	9.83	0.1011	18.17	0.0000
1.50	0.0000	10.00	0.0000	18.33	0.1005
1.67	0.0000	10.17	0.1006	18.50	0.0000
1.83	0.0000	10.33	0.0000	18.67	0.0000
2.00	0.0000	10.50	0.0000	18.83	0.1010
2.17	0.0000	10.67	0.1011	19.00	0.0000
2.33	0.0000	10.83	0.0000	19.17	0.0000
2.50	0.0000	11.00	0.1006	19.33	0.1011
2.67	0.1007	11.17	0.0000	19.50	0.0000
2.83	0.0000	11.33	0.0000	19.67	0.0000
3.00	0.0000	11.50	0.1011	19.83	0.1011
3.17	0.0000	11.67	0.0000	20.00	0.0000
3.33	0.0000	11.83	0.1006	20.17	0.0000
3.50	0.1007	12.00	0.0000	20.33	0.1012
3.67	0.0000	12.17	0.0000	20.50	0.0000
3.83	0.0000	12.33	0.1011	20.67	0.0000
4.00	0.0000	12.50	0.0000	20.83	0.1012
4.17	0.0000	12.67	0.1006	21.00	0.0000
4.33	0.1007	12.83	0.0000	21.17	0.0000
4.50	0.0000	13.00	0.0000	21.33	0.1012
4.67	0.0000	13.17	0.1011	21.50	0.0000
4.83	0.0000	13.33	0.0000	21.67	0.0000
5.00	0.1007	13.50	0.1006	21.83	0.1012
5.17	0.0000	13.67	0.0000	22.00	0.0000
5.33	0.0000	13.83	0.0000	22.17	0.0000
5.50	0.1007	14.00	0.1011	22.33	0.1012
5.67	0.0000	14.17	0.0000	22.50	0.0000
5.83	0.0000	14.33	0.1005	22.67	0.0000
6.00	0.1007	14.50	0.0000	22.83	0.1011
6.17	0.0000	14.67	0.0000	23.00	0.0000
6.33	0.0000	14.83	0.1010	23.17	0.0000
6.50	0.1007	15.00	0.0000	23.33	0.1010
6.67	0.0000	15.17	0.0000	23.50	0.0000
6.83	0.0000	15.33	0.1013	23.67	0.0000
7.00	0.1007	15.50	0.0000	23.83	0.1009
7.17	0.0000	15.67	0.1007	24.00	0.0000
7.33	0.0000	15.83	0.0000	24.17	0.0000
7.50	0.1008	16.00	0.0000	24.33	0.1008
7.67	0.0000	16.17	0.1010	24.50	0.0000
7.83	0.0000	16.33	0.0000	24.67	0.0000
8.00	0.1009	16.50	0.0000	24.83	0.1008
8.17	0.0000	16.67	0.1012	25.00	0.0000
8.33	0.0000	16.83	0.0000	25.17	0.0000
8.50	0.1010	17.00	0.1006	25.33	0.1007
8.67	0.0000	17.17	0.0000	25.50	0.0000
8.83	0.0000	17.33	0.0000	25.67	0.0000

Hydrograph ID: 998 GRND - 6-mo

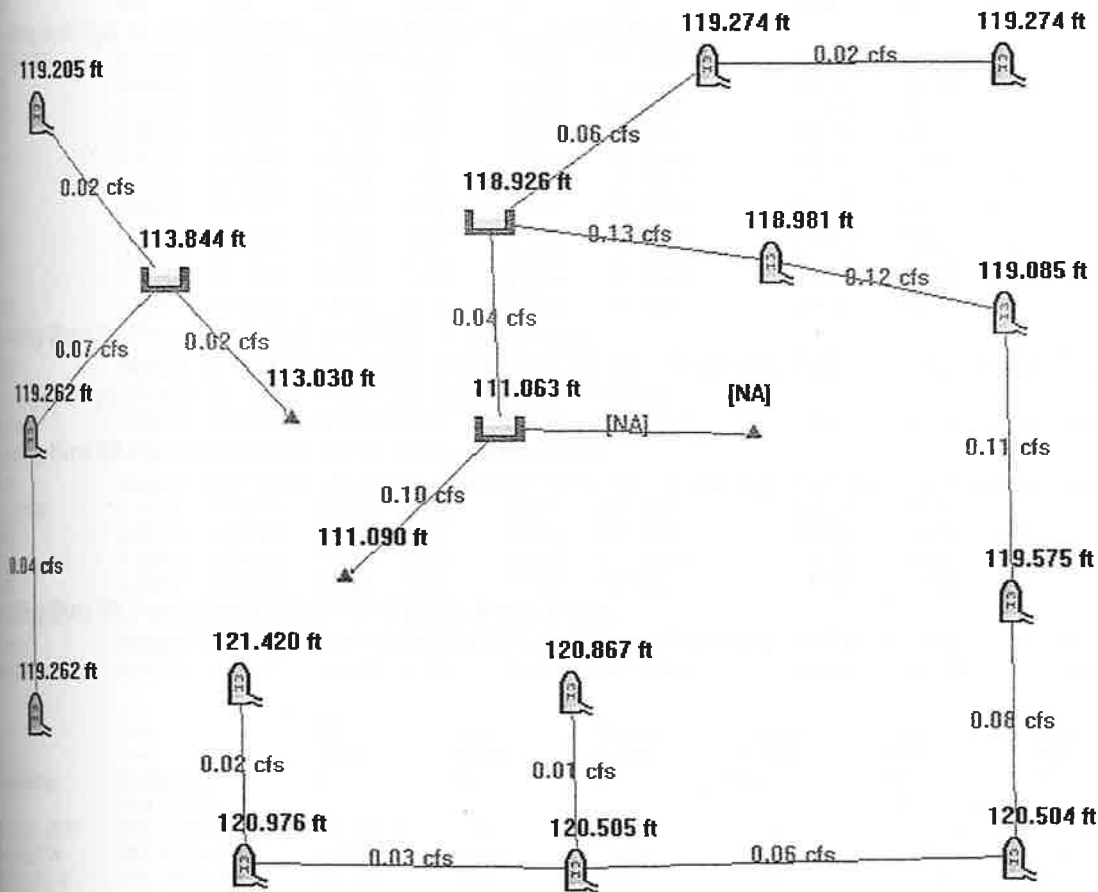
Time	Flow	Peak Time:	Flow	Hyd Vol:	Flow
hr	cfs	hr	cfs	hr	cfs
0.33	0.0000	8.50	0.0191	16.33	0.0186
0.60	0.0000	8.67	0.0193	16.50	0.0186
0.87	0.0000	8.83	0.0194	16.67	0.0185
1.13	0.0000	9.00	0.0195	16.83	0.0185
1.40	0.0000	9.17	0.0195	17.00	0.0185
1.67	0.0000	9.33	0.0196	17.17	0.0184
1.93	0.0000	9.50	0.0196	17.33	0.0184
2.20	0.0000	9.67	0.0196	17.50	0.0183
2.47	0.0000	9.83	0.0196	17.67	0.0183
2.73	0.0167	10.00	0.0196	17.83	0.0182
3.00	0.0000	10.17	0.0197	18.00	0.0182
3.27	0.0000	10.33	0.0197	18.17	0.0181
3.53	0.0000	10.50	0.0197	18.33	0.0181
3.80	0.0167	10.67	0.0196	18.50	0.0180
4.07	0.0000	10.83	0.0196	18.67	0.0180
4.33	0.0000	11.00	0.0196	18.83	0.0179
4.60	0.0167	11.17	0.0196	19.00	0.0179
4.87	0.0000	11.33	0.0196	19.17	0.0178
5.13	0.0000	11.50	0.0196	19.33	0.0178
5.40	0.0168	11.67	0.0196	19.50	0.0177
5.67	0.0000	11.83	0.0195	19.67	0.0177
5.93	0.0167	12.00	0.0195	19.83	0.0176
6.20	0.0000	12.17	0.0195	20.00	0.0176
6.47	0.0167	12.33	0.0195	20.17	0.0175
6.73	0.0000	12.50	0.0194	20.33	0.0175
7.00	0.0168	12.67	0.0194	20.50	0.0174
7.27	0.0000	12.83	0.0194	20.67	0.0174
7.53	0.0168	13.00	0.0194	20.83	0.0173
7.80	0.0168	13.17	0.0193	21.00	0.0173
8.07	0.0167	13.33	0.0193	21.17	0.0172
8.33	0.0000	13.50	0.0193	21.33	0.0172
8.60	0.0168	13.67	0.0192	21.50	0.0171
8.87	0.0168	13.83	0.0192	21.67	0.0171
9.13	0.0168	14.00	0.0192	21.83	0.0170
9.40	0.0168	14.17	0.0191	22.00	0.0170
9.67	0.0168	14.33	0.0191	22.17	0.0169
9.93	0.0168	14.50	0.0191	22.33	0.0169
10.20	0.0168	14.67	0.0190	22.50	0.0168
10.47	0.0169	14.83	0.0190	22.67	0.0168
10.73	0.0169	15.00	0.0189	22.83	0.0000
11.00	0.0170	15.17	0.0189	23.00	0.0168
11.27	0.0170	15.33	0.0189	23.17	0.0000
11.53	0.0171	15.50	0.0188	23.33	0.0168
11.80	0.0172	15.67	0.0188	23.50	0.0167
12.07	0.0175	15.83	0.0187	23.67	0.0000
12.33	0.0179	16.00	0.0187	23.83	0.0168
12.60	0.0184	16.17	0.0187	24.00	0.0000
12.87	0.0188	16.33	0.0186	24.17	0.0167
13.13	0.0190	16.50	0.0186	24.33	0.0000

Hydrograph ID: 998 GRND - 100 yr

Area: 0.4370 ac Hyd Int: 10.00 min Base Flow:
 Pending tt translation: 0.00 min
 Peak Flow: 0.0424 cfs Peak Time: 17.67 hrs Hyd Vol: 0.0823 acft
 Time Flow Time Flow Time Flow
 hr cfs hr cfs hr cfs

Time hr	Flow cfs	Time hr	Flow cfs	Time hr	Flow cfs
0.0000	0.0000	10.17	0.0386	19.67	0.0422
0.0000	0.0000	10.33	0.0388	19.83	0.0421
0.0000	0.0000	10.50	0.0391	20.00	0.0421
0.0168	0.0168	10.67	0.0393	20.17	0.0421
0.0000	0.0000	10.83	0.0394	20.33	0.0420
0.0168	0.0168	11.00	0.0396	20.50	0.0420
0.0168	0.0168	11.17	0.0398	20.67	0.0420
0.0168	0.0168	11.33	0.0400	20.83	0.0419
0.0169	0.0169	11.50	0.0401	21.00	0.0419
0.0169	0.0169	11.67	0.0403	21.17	0.0419
0.0170	0.0170	11.83	0.0404	21.33	0.0418
0.0171	0.0171	12.00	0.0405	21.50	0.0418
0.0172	0.0172	12.17	0.0407	21.67	0.0418
0.0173	0.0173	12.33	0.0408	21.83	0.0417
0.0174	0.0174	12.50	0.0409	22.00	0.0417
0.0175	0.0175	12.67	0.0410	22.17	0.0416
0.0177	0.0177	12.83	0.0411	22.33	0.0416
0.0178	0.0178	13.00	0.0412	22.50	0.0415
0.0179	0.0179	13.17	0.0413	22.67	0.0415
0.0181	0.0181	13.33	0.0413	22.83	0.0414
0.0182	0.0182	13.50	0.0414	23.00	0.0414
0.0184	0.0184	13.67	0.0415	23.17	0.0413
0.0185	0.0185	13.83	0.0416	23.33	0.0413
0.0187	0.0187	14.00	0.0417	23.50	0.0412
0.0189	0.0189	14.17	0.0417	23.67	0.0412
0.0191	0.0191	14.33	0.0418	23.83	0.0411
0.0193	0.0193	14.50	0.0419	24.00	0.0411
0.0196	0.0196	14.67	0.0419	24.17	0.0409
0.0198	0.0198	14.83	0.0420	24.33	0.0407
0.0200	0.0200	15.00	0.0420	24.50	0.0404
0.0203	0.0203	15.17	0.0420	24.67	0.0401
0.0206	0.0206	15.33	0.0421	24.83	0.0399
0.0209	0.0209	15.50	0.0421	25.00	0.0396
0.0212	0.0212	15.67	0.0422	25.17	0.0393
0.0215	0.0215	15.83	0.0422	25.33	0.0390
0.0218	0.0218	16.00	0.0422	25.50	0.0388
0.0222	0.0222	16.17	0.0422	25.67	0.0385
0.0226	0.0226	16.33	0.0423	25.83	0.0382
0.0230	0.0230	16.50	0.0423	26.00	0.0380
0.0235	0.0235	16.67	0.0423	26.17	0.0377
0.0240	0.0240	16.83	0.0423	26.33	0.0374
0.0246	0.0246	17.00	0.0424	26.50	0.0372
0.0252	0.0252	17.17	0.0424	26.67	0.0369
0.0258	0.0258	17.33	0.0424	26.83	0.0367
0.0270	0.0270	17.50	0.0424	27.00	0.0364
0.0289	0.0289	17.67	0.0424	27.17	0.0362
0.0310	0.0310	17.83	0.0424	27.33	0.0359
0.0326	0.0326	18.00	0.0424	27.50	0.0357
0.0335	0.0335	18.17	0.0424	27.67	0.0354
0.0344	0.0344	18.33	0.0424	27.83	0.0352
0.0351	0.0351	18.50	0.0424	28.00	0.0349
0.0357	0.0357	18.67	0.0423	28.17	0.0347
0.0362	0.0362	18.83	0.0423	28.33	0.0345
0.0367	0.0367	19.00	0.0423	28.50	0.0342
0.0371	0.0371	19.17	0.0423	28.67	0.0340
0.0374	0.0374	19.33	0.0422	28.83	0.0338
0.0378	0.0378	19.50	0.0422	29.00	0.0335
0.0381	0.0381	19.67	0.0422	29.17	0.0333
0.0383	0.0383	19.83	0.0421	29.33	0.0331

MONTH CALCULATIONS



ROUTE HYD [] THRU [developed plat] USING TYPE1A AND [6-mo] NOTZERO RELATIVE

Reach	Area ac	Flow cfs	Full Q cfs	% Full ratio	nDepth ft	Size ---	nVel ft/s	fVel ft/s	CBasin / Hyd -----
Routing spit hyd [6-mo-OVERFLOW-OutHyd] through OVER-INFIL									
OVER-INFIL	0.0000	0.0000	38.7009	0.00	0.0000	12" Diam	19.1432	49.2756	
1A-3	0.0990	0.0213	0.9282	0.02	0.0697	8" Diam	1.0972	2.6590	CB3A
1A-6	0.2518	0.0562	2.7366	0.02	0.0992	12" Diam	1.3904	3.4843	CB3
1A-8	0.0464	0.0101	0.9282	0.01	0.0488	8" Diam	0.8752	2.6590	CB8A
1A-9	0.0737	0.0164	2.7366	0.01	0.0554	12" Diam	0.9583	3.4843	CB9A
1A-10	0.1475	0.0326	2.7366	0.01	0.0767	12" Diam	1.1776	3.4843	CB9
1A-11	0.2677	0.0591	2.7366	0.02	0.1017	12" Diam	1.4119	3.4843	CB8
1A-12	0.3613	0.0810	2.7366	0.03	0.1182	12" Diam	1.5525	3.4843	CB7
1A-13	0.4726	0.1075	3.7522	0.03	0.1163	12" Diam	2.1075	4.7774	CB6
1A-14	0.5304	0.1198	3.6510	0.03	0.1241	12" Diam	2.1347	4.6486	CB5
1A-15	0.5961	0.1346	3.8701	0.03	0.1276	12" Diam	2.3041	4.9276	CB4

Routing thru RLPool Node 999 WQ BED; 6-mo event

Match Q: 0.0000 cfs Peak Out Q: 0.0388 cfs - Peak Stg: 118.93 ft - Active Vol: 626.87 cf

Routing spit hyd [6-mo-18" LMY SND-OutHyd] through WQ-INFIL

WQ-INFIL 0.9225 0.0388 38.7009 0.00 0.0244 12" Diam 7.6948 49.2756 TRACT 999

Routing thru RLPool Node 999 INFIL BED; 6-mo event

Match Q: 0.0000 cfs Peak Out Q: 0.1013 cfs - Peak Stg: 111.06 ft - Active Vol: 29.87 cf

999-GRND	0.9225	0.1013	1560.32	0.00	0.0271	48" Diam	8.5328	124.1667	
999-8	0.0710	0.0155	2.7366	0.01	0.0542	12" Diam	0.9384	3.4843	CB1
1A-2	0.1859	0.0418	2.7366	0.02	0.0862	12" Diam	1.2731	3.4843	CB2A
999-8	0.3092	0.0704	2.7366	0.03	0.1105	12" Diam	1.4892	3.4843	CB2

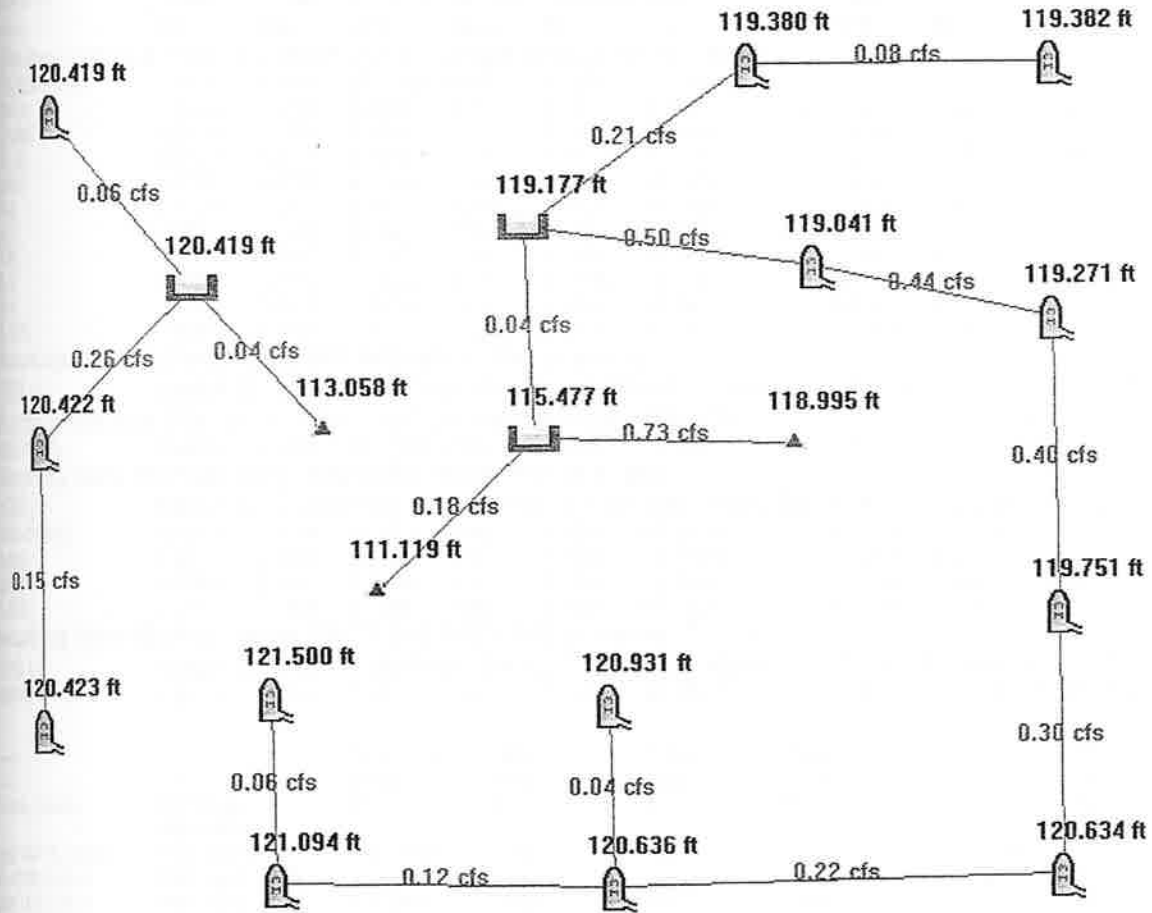
Routing thru RLPool Node TRCT 998 BED; 6-mo event

Match Q: 0.0000 cfs Peak Out Q: 0.0197 cfs - Peak Stg: 113.84 ft - Active Vol: 253.08 cf

999-GRND 0.4370 0.0197 1560.32 0.00 0.0127 48" Diam 5.1575 124.1667 TRACT 998

From Node	To Node	Rch Loss ft	App Head ft	Bend Loss ft	Junct Loss ft	HW Elev ft	Max El/ Rim El ft
	999 GRND					111.0898	
999 INFIL BED	999 GRND	109.1211	--na--	--na--	--na--	111.0632	124.0000
OVERFLOW	999 INFIL BED	0.0000	--na--	--na--	--na--	0.0000	124.0000
999 WQ BED	999 INFIL BED	116.6072	--na--	--na--	--na--	118.9259	124.0000
999-8	999 WQ BED	119.2743	---	---	---	119.2743	120.9300
999-8A	CB3	119.2745	---	---	---	119.2745	120.9700
999-8B	999 WQ BED	119.0499	0.0708	0.0014	---	118.9805	123.0300
999-8C	CB4	119.0869	0.0690	0.0674	---	119.0854	123.0300
999-8D	CB5	119.5751	---	---	---	119.5751	124.0100
999-8E	CB6	120.5043	---	---	---	120.5043	124.7300
999-8F	CB7	120.5045	---	---	---	120.5045	124.1500
999-8G	CB8	120.8667	---	---	---	120.8667	124.1500
999-8H	CB8	120.9760	---	---	---	120.9760	123.6000
999-8I	CB9	121.4200	---	---	---	121.4200	123.6000
TRCT 998 BED	998 GRND	111.0590	--na--	--na--	--na--	113.8436	120.5000
999-8J	TRCT 998 BED	119.2047	---	---	---	119.2047	121.5000
999-8K	TRCT 998 BED	119.2621	0.0000	0.0000	---	119.2621	121.5600
999-8L	CB2	119.2622	---	---	---	119.2622	121.5600

100-YR CALCULATIONS



TEHYD [THRU [developed plat] USING TYPE1A AND [100 yr] NOTZERO RELATIVE

	Area ac	Flow cfs	Full Q cfs	% Full ratio	nDepth ft	Size ----	nVel ft/s	fVel ft/s	CBasin / Hyd -----
ing spit hyd [100 yr-OVERFLOW-OutHyd] through OVER-INFIL									
INFIL	0.5891	0.7267	38.7009	0.02	0.0951	12" Diam	19.1432	49.2756	
	0.0990	0.0789	0.9282	0.08	0.1313	8" Diam	1.6215	2.6590	CB3A
	0.2518	0.2071	2.7366	0.08	0.1862	12" Diam	2.0528	3.4843	CB3
	0.0464	0.0373	0.9282	0.04	0.0913	8" Diam	1.2978	2.6590	CB8A
	0.0737	0.0607	2.7366	0.02	0.1029	12" Diam	1.4240	3.4843	CB9A
	0.1475	0.1207	2.7366	0.04	0.1431	12" Diam	1.7492	3.4843	CB9
	0.2677	0.2192	2.7366	0.08	0.1914	12" Diam	2.0880	3.4843	CB8
	0.3613	0.2997	2.7366	0.11	0.2234	12" Diam	2.2880	3.4843	CB7
	0.4726	0.3967	3.7522	0.11	0.2196	12" Diam	3.1045	4.7774	CB6
	0.5304	0.4423	3.6510	0.12	0.2350	12" Diam	3.1429	4.6486	CB5
	0.5961	0.4969	3.8701	0.13	0.2420	12" Diam	3.3883	4.9276	CB4

ing thru RLPool Node 999 WQ BED; 100 yr event

Match Q: 0.0000 cfs Peak Out Q: 0.7668 cfs - Peak Stg: 119.18 ft - Active Vol: 708.67 cf

ing spit hyd [100 yr-18" LMY SND-OutHyd] through WQ-INFIL

INFIL	0.3334	0.0401	38.7009	0.00	0.0244	12" Diam	7.9421	49.2756	TRACT 999
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ing thru RLPool Node 999 INFIL BED; 100 yr event

Match Q: 0.0000 cfs Peak Out Q: 0.1768 cfs - Peak Stg: 115.48 ft - Active Vol: 2115.51 cf

GRND	0.9225	0.1768	1560.32	0.00	0.0352	48" Diam	10.0841	124.1667	
	0.0710	0.0575	2.7366	0.02	0.1003	12" Diam	1.4003	3.4843	CB1
	0.1859	0.1546	2.7366	0.06	0.1614	12" Diam	1.8824	3.4843	CB2A
	0.3092	0.2598	2.7366	0.09	0.2081	12" Diam	2.1946	3.4843	CB2

ing thru RLPool Node TRCT 998 BED; 100 yr event

Match Q: 0.0000 cfs Peak Out Q: 0.0424 cfs - Peak Stg: 120.42 ft - Active Vol: 2225.62 cf

GRND	0.4370	0.0424	1560.32	0.00	0.0181	48" Diam	6.5556	124.1667	TRACT 998
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	To Node	Rch Loss ft	App Head ft	Bend Loss ft	Junct Loss ft	HW Elev ft	Max EI/ Rim El ft
Node	999 GRND					111.1191	
INFIL BED	999 GRND	109.1602	-na-	-na-	-na-	115.4773	124.0000
OVERFLOW	999 INFIL BED	118.9949	-na-	-na-	-na-	118.9949	124.0000
WQ BED	999 INFIL BED	116.6091	-na-	-na-	-na-	119.1772	124.0000
	999 WQ BED	119.3798	----	----	----	119.3798	120.9300
	CB3	119.3823	----	----	----	119.3823	120.9700
	999 WQ BED	119.1914	0.1534	0.0030	----	119.0411	123.0300
	CB4	119.2748	0.1497	0.1463	----	119.2715	123.0300
	CB5	119.7506	----	----	----	119.7506	124.0100
	CB6	120.6336	----	----	----	120.6336	124.7300
	CB7	120.6363	----	----	----	120.6363	124.1500
	CB8	120.9305	----	----	----	120.9305	124.1500
	CB8	121.0944	----	----	----	121.0944	123.6000
	CB9	121.5001	----	----	----	121.5001	123.6000
TRCT 998 BED	998 GRND	111.0783	-na-	-na-	-na-	120.4187	120.5000
	TRCT 998 BED	120.4189	----	----	----	120.4189	121.5000
	TRCT 998 BED	120.4222	0.0006	0.0002	----	120.4218	121.5600
	CB2	120.4229	----	----	----	120.4230	121.5600

SOIL LOGS

SOIL LOGS			
SOIL LOGS PERFORMED ON SEPT. 12, 2003			
SL-1	0'-5'	BROWN LOAMY SAND	
	5'-9'	TAN LOAMY SAND	
	9'-15'+	GRAY GRAVELLY MEDIUM SAND	
ROOTS 9-FT, NO HARD PAN OR WATER FOUND			
SL-2	0'-5'	BROWN LOAMY SAND	
	5'-7'	GRAY GRAVELLY MEDIUM SAND	
	7'-15'+	TAN LOAMY SAND	
ROOTS 10-FT, NO HARD PAN OR WATER FOUND			
SL-3	0'-2'	BROWN LOAMY SAND	
	2'-10'	GRAY GRAVELLY MEDIUM SAND	
	10'-11'	GRAY GRAVELLY FINE SAND	
	11'-18'+	GRAY GRAVELLY MEDIUM SAND	
ROOTS 12-FT, NO HARD PAN OR WATER FOUND			

- FOR SOIL LOG LOCATIONS, SEE DRAINAGE BASIN MAP PG. 11