

**PEAK**



**ENGINEERING, INC.**

**PRELIMINARY DRAINAGE REPORT,  
DOWNSTREAM ANALYSIS, AND  
EROSION RISK ASSESSMENT  
FOR  
CLARIDGE COURT II  
File #C-06- xx-xxx**

**RECEIVED**  
SEP 18 2006  
Utilities Div.

**Prepared By: Brian R Lindsay  
Peak Engineering, Inc.**

**September 11, 2006  
Peak Job # 813**

**Z-06-045-SP**

**RECEIVED**

SEP 15 2006

**COA PERMIT CENTER**

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CONSTRUCTION DRAINAGE REPORT, DOWNSTREAM ANALYSIS, AND EROSION RISK ASSESSMENT FOR CLARIDGE COURT Dated May 10, 2006 and revised August 10, 2006	
GEOTECHNICAL ENGINEERING STUDY Provided by Liu & Associates Inc. dated June 7, 2003 Addendum No. 1 dated June 30, 2003 Addendum No. 2 dated March 12, 2006	

## EXECUTIVE SUMMARY

The project proposes the construction a 9-lot plat, which will allow 8 new single-family detached structures plus associated access road and driveways and to retain an existing single-family residence on lot # 1. The development area within the city of Arlington encompasses an area of approximately 2.31 acres.

This project will satisfy the City of Arlington's drainage requirements by utilizing on-site infiltration for the 9 single-family detached structures and an offsite infiltration bed that will be constructed in Tract 997 of the Claridge Court plat. The soils on the site are well drained. The soil information is based on the geotechnical work provided by Liu & Associates, Inc, dated June 7, 2003 with Addendum No 1 dated June 30<sup>th</sup>, 2003 and Addendum No 2 dated March 12, 2006 and is attached to the appendix of this report.

Please refer to the body of the report, attached maps and calculations for additional information.

# SECTION I

## INTRODUCTION AND EXISTING CONDITIONS:

This site is approximately 2.31 acres is proposed to be subdivided into 9 single-family building lots. The project has a City of Arlington site address of 4201-188<sup>th</sup> ST NE. The site consists of an existing single-family residence that will remain on lot 1 and the garage & shop will be removed. The site slopes gently towards the north to the existing steep slope area identified just off site. Vegetation on site consists of native 2<sup>nd</sup> and 3<sup>rd</sup> growth trees, pasture and lawn.

Per the Snohomish County Soil Survey, soils on the developed area of the site are Everett gravelly sandy loam (hydrologic Group A). Everett soils found on glacial outwash plains, and are very deep and well drained. The permeability of Everett soils is rapid; runoff is slow and the hazard of water erosion is slight. The Geotech classifies the onsite soil as Marysville Sand. See the geotech report attached to the appendix of this report

## DEVELOPED CONDITIONS:

Storm water runoff from the proposed development will be infiltrated on the Claridge Court plat infiltration bed adjacent to this site. The system has been designed to infiltrate runoff generated up to the 100-year storm event under developed conditions. The planter strips between the curb and sidewalk have been included into the basin areas.

Each of the proposed building lots will have individual on site infiltration trenches. A maximum of 4,000 sf of impervious area is proposed for each building lot. The following table summarizes the trench dimensions for the proposed lots:

Infiltration Trenches			
<b>Impervious area (sf)</b>	<b>Length ft</b>	<b>Width ft</b>	<b>Depth ft</b>
4000	40	5	2.5

Runoff rates and volume calculations were performed using SBUH and SCS Curve Number methodologies in “StormSHED” by Engenious Systems and are included in the Section II of this report.

## UPSTREAM/DOWNSTREAM ANALYSIS:

The proposed project is located in an extremely flat area, and there is not expected to be any significant offsite runoff passing onto the proposed development. Runoff from the project site will be collected and infiltrated on site for up to the 100-year storm event. The proposed lot onsite infiltration areas will be placed greater than 25 ft from the top of bank. No adverse impacts to the upstream/downstream drainage course are anticipated by the Claridge Court II plat development.

**SECTION II  
CLARIDGE COURT II**

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**PRELIMINARY DESIGN:**

**SINGLE FAMILY RESIDENCES TRENCH SIZING:**

**RLPCOMPUTE [SFR RLP] SUMMARY**

100 yr Match Q: 0.0278 cfs Peak Out Q: 0.0278 cfs - Peak Stg: 102.35 ft - Active Vol: 164.39 cf

Running J:\REPORTS-DOCS\000 DOCS 2003\03465\Storm\SFR RLP Report.pgm on Wednesday, June 21, 2006

**Summary Report of all RLPool Data**

**BASLIST2**

[SFR 4000] Using [TYPE1A] As [100 yr]

**LSTEND**

BasinID	Peak Q (cfs)	Peak T (hrs)	Peak Vol (ac-ft)	Area ac	Method /Loss	Raintype	Event
SFR 4000	0.0897	8.00	0.0324	0.15	SBUH/SCS	TYPE1A	100 yr

**Drainage Area: SFR 4000**

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	0.0740 ac	80.00	0.17 hrs
Impervious	0.0740 ac	98.00	0.08 hrs
Total	0.1480 ac		

**Supporting Data:**

**Pervious CN Data:**

YARD 80.00 0.0740 ac

**Impervious CN Data:**

4000 SF IMPERVIOUS 98.00 0.0740 ac

**Pervious TC Data:**

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Fixed	TC	0.00 ft	0.00%	10.0000	10.00 min

**Impervious TC Data:**

Flow type:	Description:	Length:	Slope:	Coeff:	Travel Time
Fixed	TC	0.00 ft	0.00%	5.0000	5.00 min

**HYDLIST SUMMARY**

[MATCH] [SFR 100YR INF OUT]

**LSTEND**

HydID	Peak Q (cfs)	Peak T (hrs)	Peak Vol (ac-ft)	Cont Area (ac)
MATCH	0.03	1.83	0.0329	0.1480
SFR 100YR INF OUT	0.03	1.83	0.0329	0.1480

**Node ID: INF-SFR**

Desc: TYP. INFILTRATION TRENCH FOR SFR  
Start El: 100.0000 ft Max El: 105.0000 ft  
Contrib Basin: Contrib Hyd:  
Length Width Void Ratio  
40.0000 ft 5.0000 ft 35.00  
Bottom area only with infiltration

**Control Structure ID: SFR INFL - Infiltration control structure**

Descrip: INFILTRATION RATE 6"/hr  
Start El Max El Increment  
100.0000 ft 105.0000 ft 0.10  
Infil: 6.00 in/hr Multiplier: 1.00

# **SECTION III**

**OPERATION AND MAINTENANCE MANUAL  
(TO BE PROVIDED AT TIME OF CONSTRUCTION)**

**SECTION IV**  
**SWPPP**

(TO BE PROVIDED AT TIME OF CONSTRUCTION)

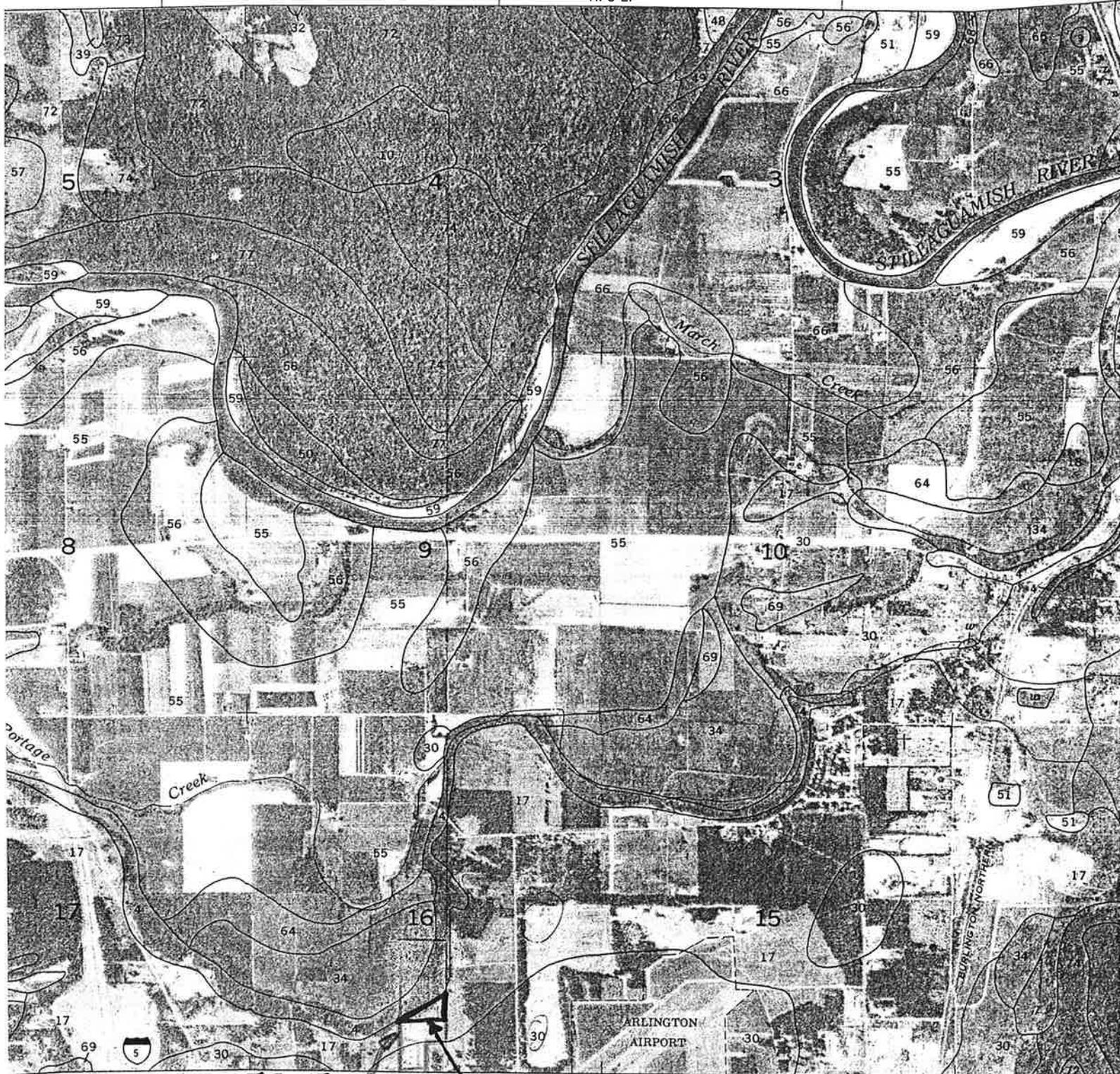
**CLARIDGE COURT II**  
**FILE #C-xx-xxx**  
**SWPPP**  
**RISK ASSESSMENT**  
**DECISION MATRIX**

	<u><b>LOW</b></u>	MED.	HIGH	VERY HIGH
<b>Winter grading proposed;</b>	NO	<u><b>MAY</b></u>	<u><b>MAYBE REQUIRES LEVEL III</b></u>	NOT ALLOWED
<b>Area Disturbed;</b>	LESSTHAN 1 acre	<u><b>1 to 5 acres</b></u>	5 to 20 acres	<u><b>MORETHAN 20 ACRES</b></u>
<b>Slope;</b>	<u><b>Average less than 8%</b></u>	Average more than 8% but all areas are less than 15%.	Average more than 8% but less than 15% no slope greater than 33%	Average more than 15%
<b>Soil erosion hazard per Appendix A POL-3044;</b>	<u><b>LOW SCS Soil type A (permeable soil)</b></u>	LOW A or type B	MEDIUM type C	HIGH type D
<b>Critical Areas down slope of downstream of discharge point;</b>	Greater than ¼ mile	Greater than ¼ mile	<u><b>Less than ¼ mile</b></u>	Less than ¼ mile flows directly to ESA stream
<b>Level SWPPP required;</b>	Level I	Level II	<u><b>Level III</b></u>	Level III

Note: **Bold** and **underlined** indicates category this project falls in.

# **APPENDIX**

R. 5 E.



CLARIDGE COURT SITE

CLARIDGE COURT II SITE #17 = Everett (gravelly Sandy Loam)  
#30 = Lynnwood (loamy sand)

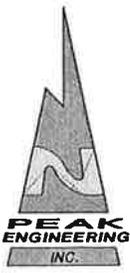
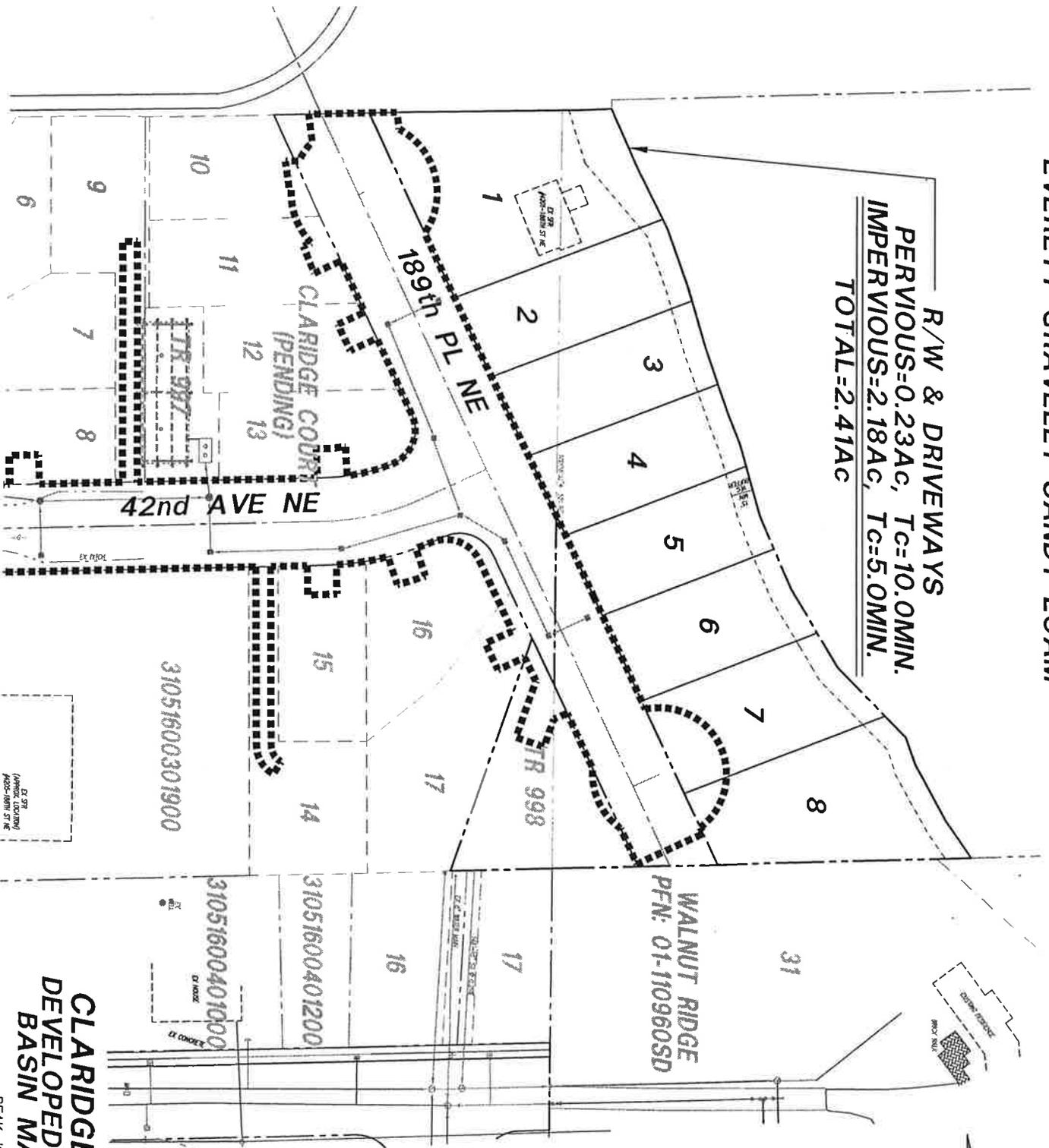
# SOIL MAP



SCALE 1:24 000

**SOILS:  
EVERETT GRAVELLY SANDY LOAM**

**R/W & DRIVEWAYS  
PERVIOUS=0.23AC, Tc=10.0MIN.  
IMPERVIOUS=2.18AC, Tc=5.0MIN.  
TOTAL=2.41AC**



1"=100'

**CLARIDGE COURT II  
DEVELOPED CONDITIONS  
BASIN MAP EXHIBIT**

PEAK JOB NO. 813