

CASCADE SURVEYING & ENGINEERING, INC.

ARLINGTON, WA
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**Surveyors
Engineers
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DRAINAGE CALCULATIONS FOR MARK THOMPSON LOT 001, TRACTS B & C MAY 13, 1996

Based on the site plan provided by the client, Tract B will have 39,708 square feet of impervious surface area and Tract C will have 51,588 square feet of impervious surface area.

A series of soil test holes were dug in the proposed infiltration trench location. Based on the soil logs a perc rate of 3 minutes per inch was established for the deeper soils (below 30 inches from the surface). For design purposes 6 minutes per inch will be used.

The inflow per square foot of impervious area was established from the intensity/duration curve for the area.

The outflow was established by:

Assuming a trench dimension of 2.4 feet wide by 2 feet deep.

Cross sectional trench area = 4.8 square feet.

Assume a 30% void area.

Cross sectional pipe area (6") = 0.20 square feet.

Storage volume = $(4.8 - .2) \cdot 3 + .2 = 1.58$

Half the wetted perimeter = 4.4 feet.

RECEIVED

MAY 15 1996

CITY OF ARLINGTON

96-2061



INFILTRATION

$$\frac{4.4 \text{ ft}^2}{\text{ft}} \times \frac{1 \text{ in}}{6 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr}} \times \frac{1 \text{ ft}}{12 \text{ in}} = 3.67 \text{ cf / ft / hr}$$

$$\text{OUTFLOW} = \left(\frac{\text{Time}}{60} \times 3.67 \right) + 1.58$$

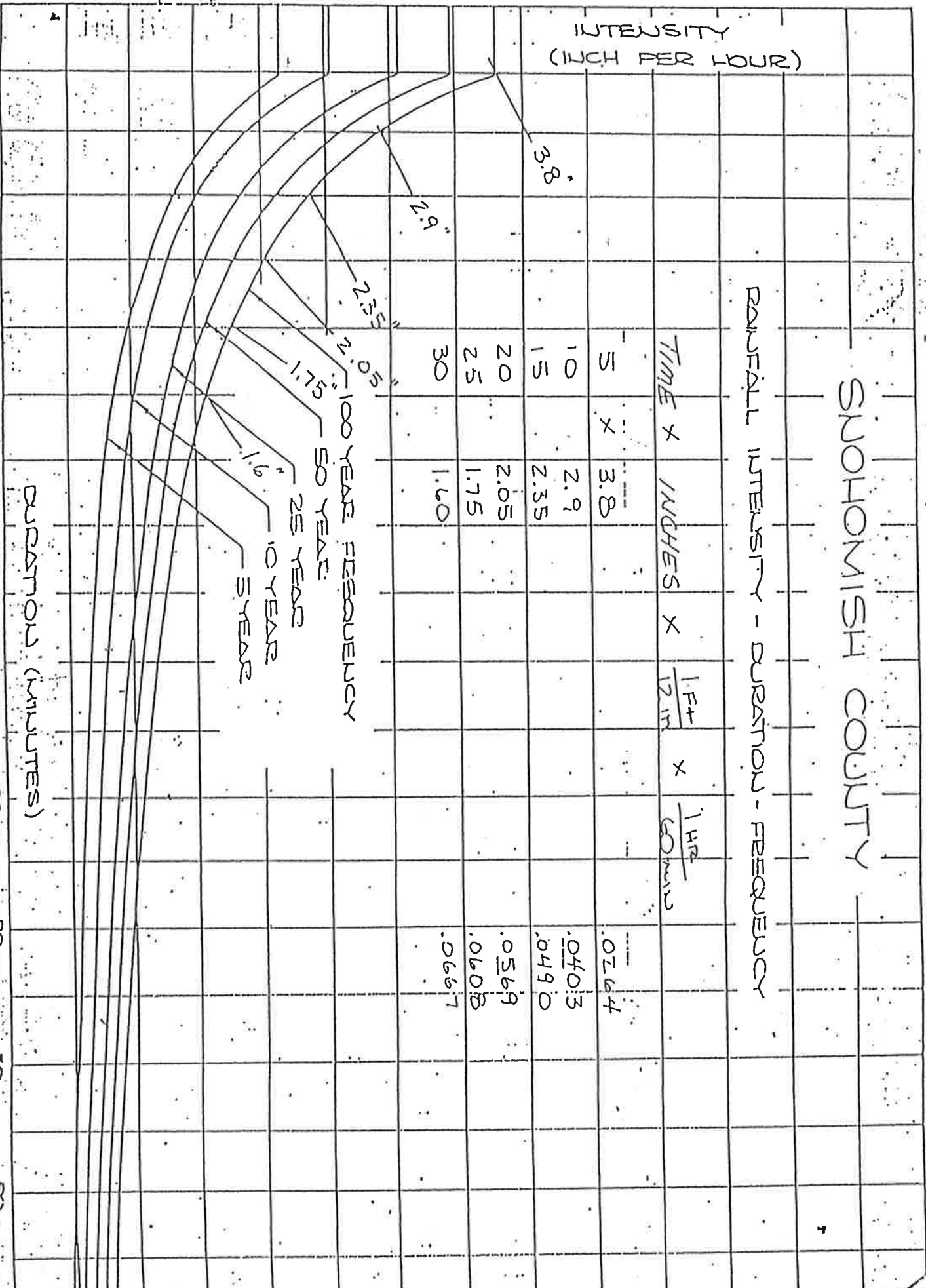
<u>Minutes</u>	<u>Outflow</u>
5	1.89
10	2.19
15	2.50
20	2.80
25	3.11
30	3.42

<u>Time</u>	<u>Inflow</u>	<u>Divided by</u>	<u>Outflow</u>		<u>Required Trench Length Per Sq. Ft. Of Impervious</u>
5	.0264		1.89	=	.01397
10	.0403		2.19	=	.01840
15	.0490		2.50	=	.01960
20	.0569		2.80	=	.02032 Peak
25	.0608		3.11	=	.01955
30	.0667		3.42	=	.01950

Based on this peak trench length, Tract B will require 807 linear feet of 2.4 feet wide by 2.0 feet deep trench (.02032 x 39708) and Tract C will require 1048 linear feet of the same trench (.02032 x 51588).

SUOHOMISH COUNTY

RAINFALL INTENSITY - DURATION - FREQUENCY



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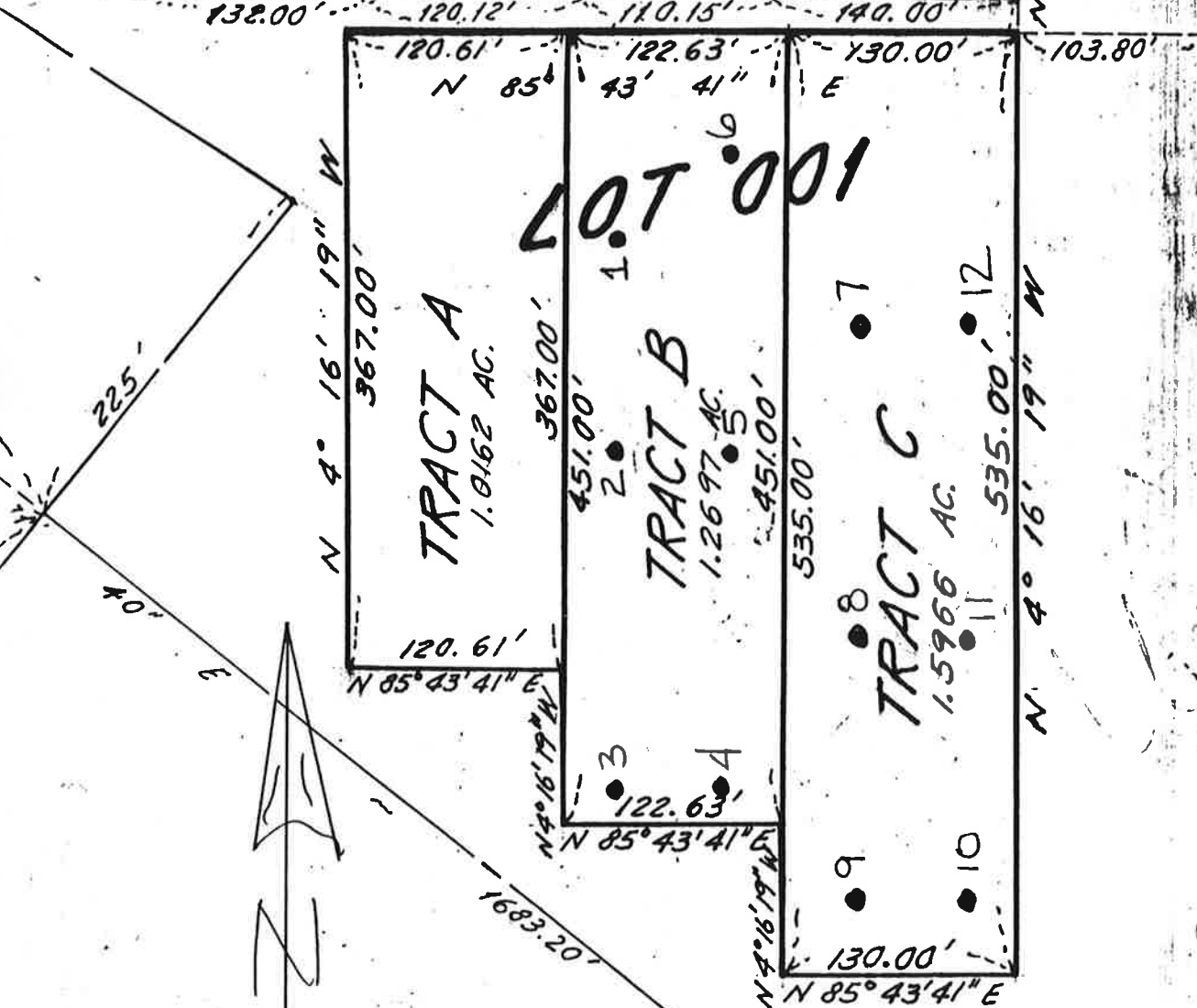
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MARK THOMPSON JOB 11811

SOIL LOG 1.	0-10"	Dark brown loamy sand	
	10-18"	Brown loamy sand	7 MPI
	18-72"+	Gray gravelly medium sand	3 MPI
SOIL LOG 2.	0-16"	Dark brown loamy sand	
	16-24"	Brown loamy sand	7 MPI
	24-84"+	Gray gravelly medium sand	3 MPI
SOIL LOG 3.	0-10"	Dark Brown loamy sand	
	10-18"	Brown loamy sand	7 MPI
	18-72"+	Gray gravelly medium sand	3 MPI
SOIL LOG 4.	0-16"	Dark brown loamy sand	
	16-28"	Brown loamy sand	7 MPI
	28-72"	Gray gravelly medium sand	3 MPI
	72-84"	Moist gray gravelly coarse sand	-----
		Water at 84"	
SOIL LOG 5.	0-30"	Brown loamy sand	7 MPI
	30-75"	Gray gravelly medium sand	3 MPI
SOIL LOG 6.	0-29"	Brown loamy sand	7 MPI
	29-75"	Gray gravelly medium sand	3 MPI
SOIL LOG 7.	0-24"	Brown loamy sand	7 MPI
	24-84"+	Gray gravelly medium sand	3 MPI
SOIL LOG 8.	0-18"	Brown loamy sand	7 MPI
	18-72"	Gray gravelly medium sand	3 MPI
	72-84"	Moist gray gravelly coarse sand	-----
		Water at 76"	

SOIL LOG 9.	0-16"	Brown loamy sand	
	16-28"	Gray gravelly tan loamy sand	7 MPI
	28-80"	Gray gravelly medium sand	3 MPI
	80-87"	Moist gray gravelly coarse sand	-----
SOIL LOG 10.	0-12"	Brown loamy sand	
	12-24"	Tan loamy sand	7 MPI
	24-80"	Gray gravelly medium sand	3 MPI
	80-90"	Moist gray gravelly coarse sand	-----
SOIL LOG 11.	0-24"	Brown loamy sand	7 MPI
	24-86"	Gray gravelly medium sand	3 MPI
	86-96"	Moist gray gravelly coarse sand	-----
		Water at 95"	
SOIL LOG 12.	0-30"	Brown loamy sand	
	30-95"	Gray gravelly medium sand	3 MPI
	95-103"	Moist gray gravelly coarse sand	-----
		Water at 103"	

Soil logs by Cascade Surveying & Engineering, Inc. on May 3, 1996. Soil descriptions based on U.S.D.A. Textual Triangle.



● DENOTES SOIL LOG LOCATION