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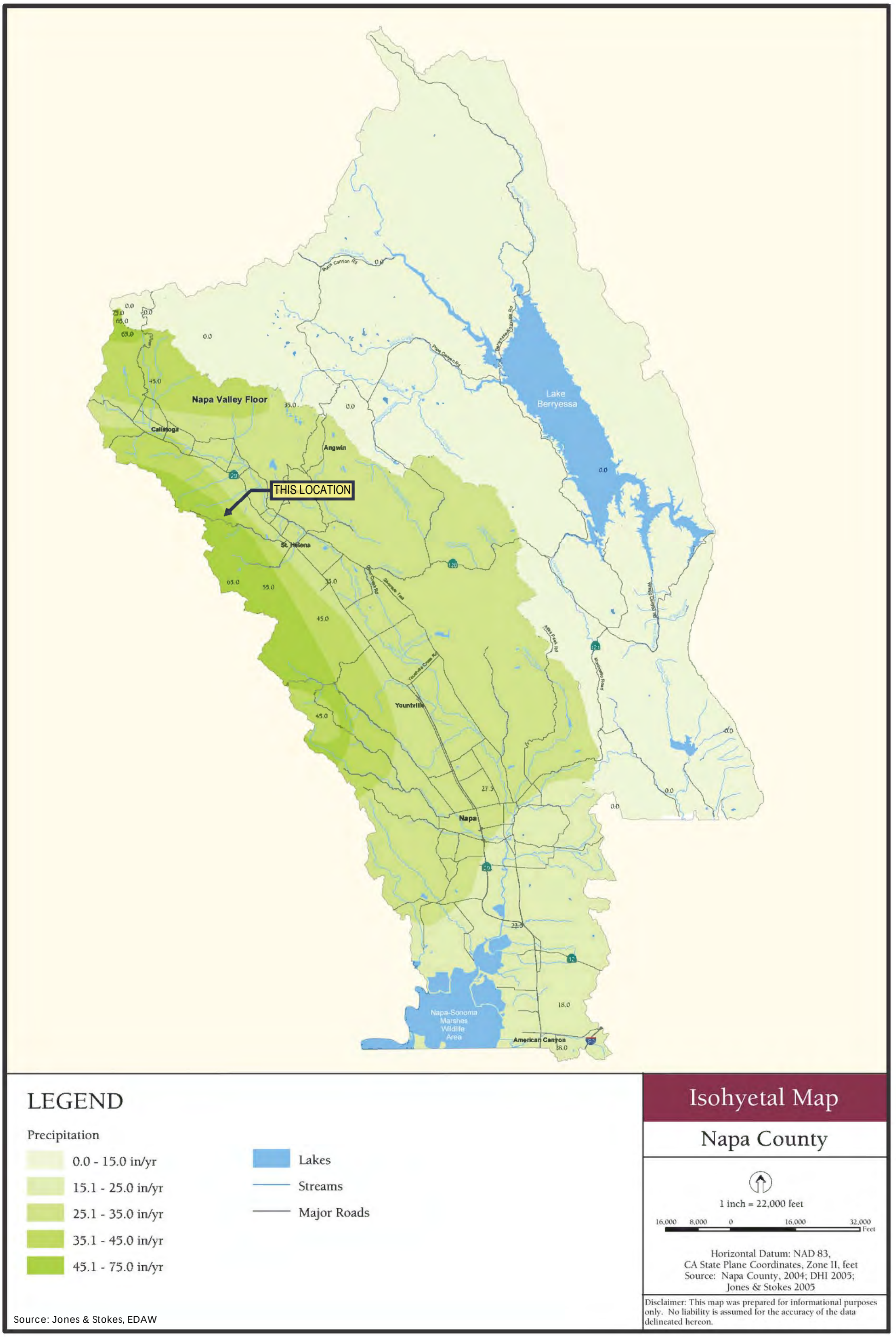
J. Soil Loss Analysis (USLE)



Source: Jones & Stokes, EDAW

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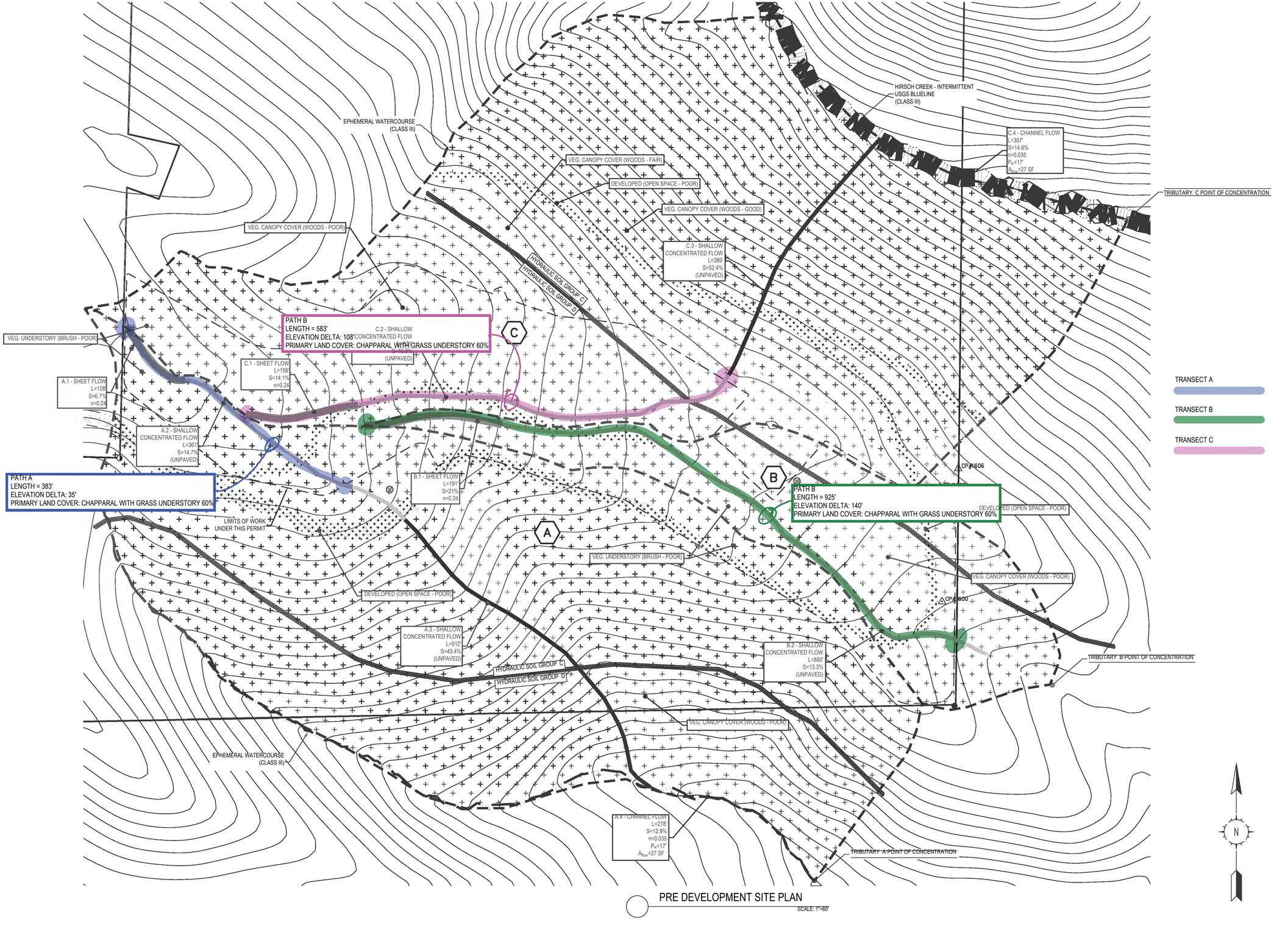
FIGURE 4.11-2
ISOHYETAL MAP

PMC



PRE DEVELOPMENT SITE PLAN

SCALE: 1"=60'

TRUNORTH

VINEYARD ECP

OWNER INFORMATION:

LANDS OF MISTY MOUNTAIN PROPERTIES LLC

SITE INFORMATION:

SPRING MOUNTAIN RD.
ST. HELENA, CA
APN:022-140-054-000

PUBLISHED: 8/19/2025

SHEET TITLE:

USLE EXHIBIT - PRE

SHEET NUMBER:

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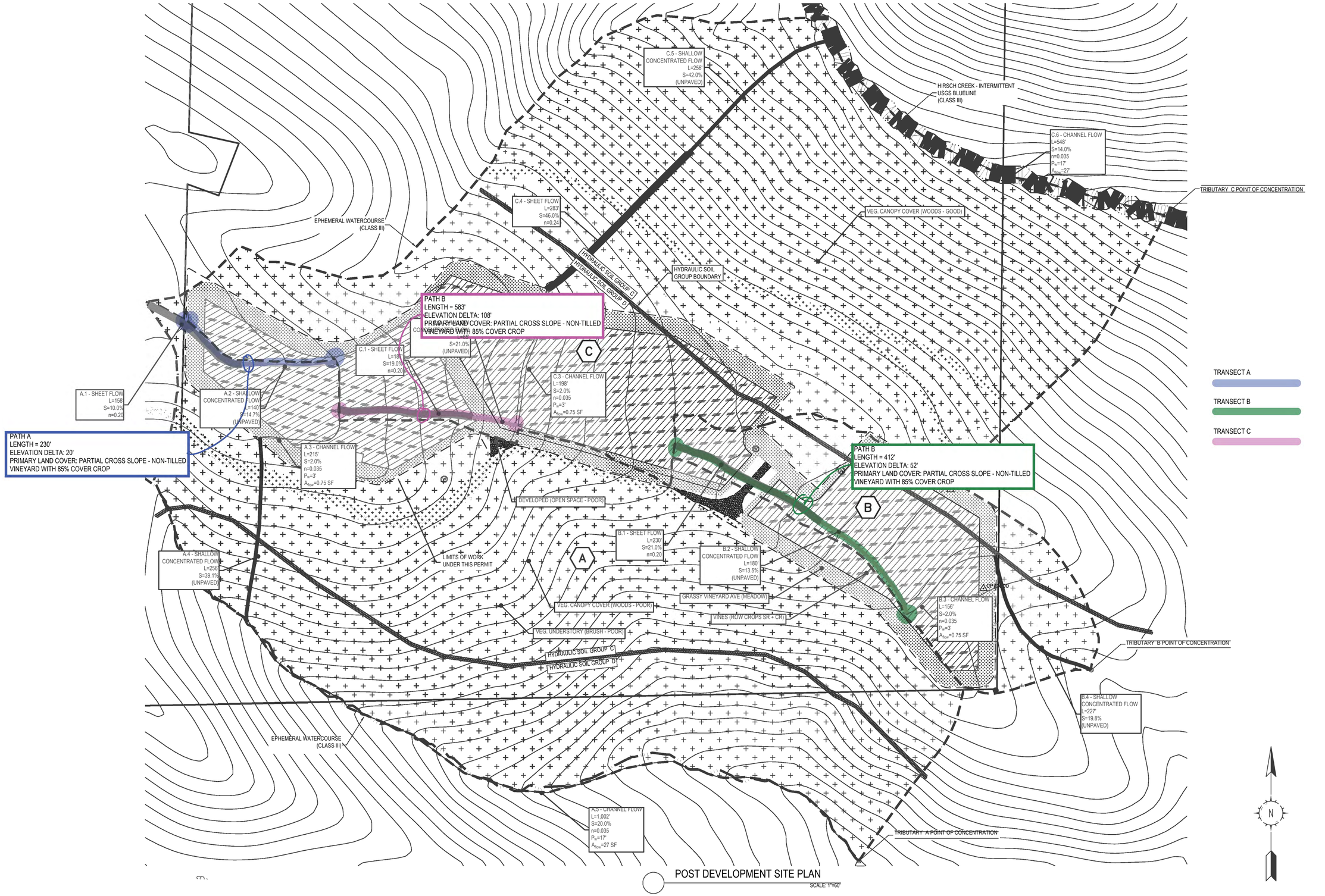

POST DEVELOPMENT SITE PLAN

SCALE: 1"=60'

TRUNORTH

VINEYARD ECP

OWNER INFORMATION:

LANDS OF MISTY MOUNTAIN PROPERTIES LLC

SITE INFORMATION:

SPRING MOUNTAIN RD.
ST. HELENA, CA
APN:022-140-054-000

PUBLISHED: 8/18/2025

SHEET TITLE:

USLE EXHIBIT - POST

SHEET NUMBER:

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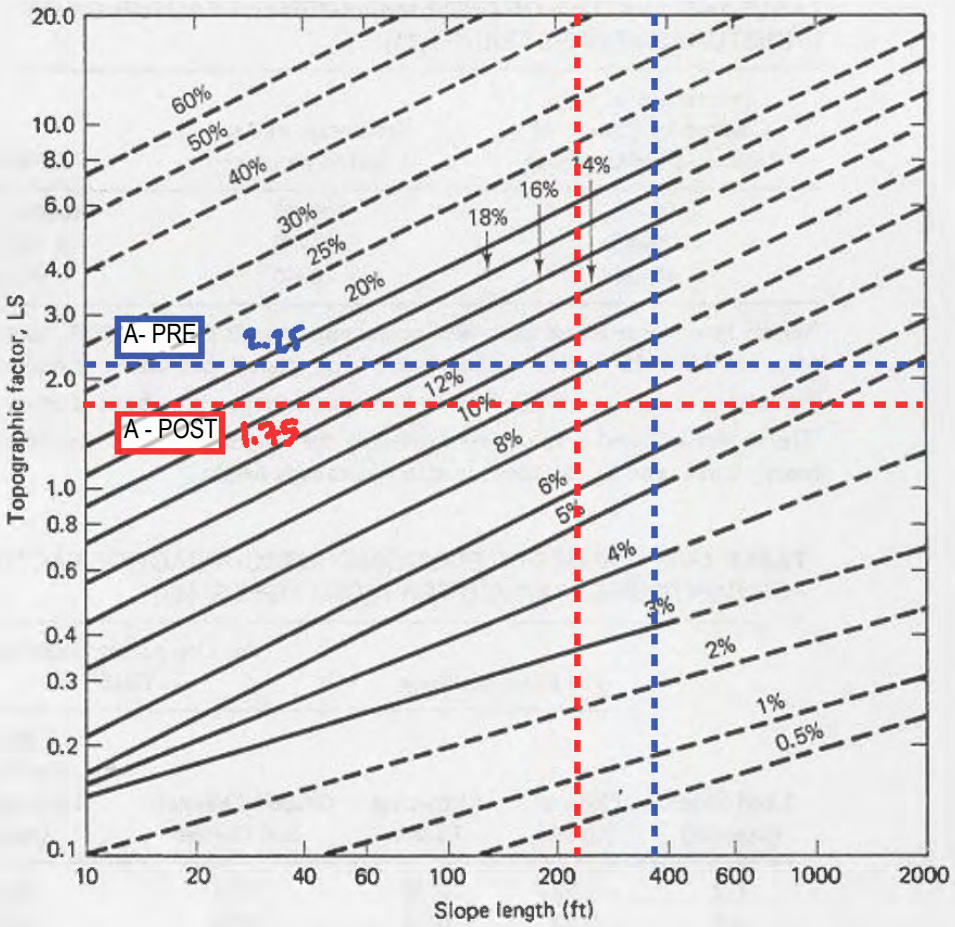
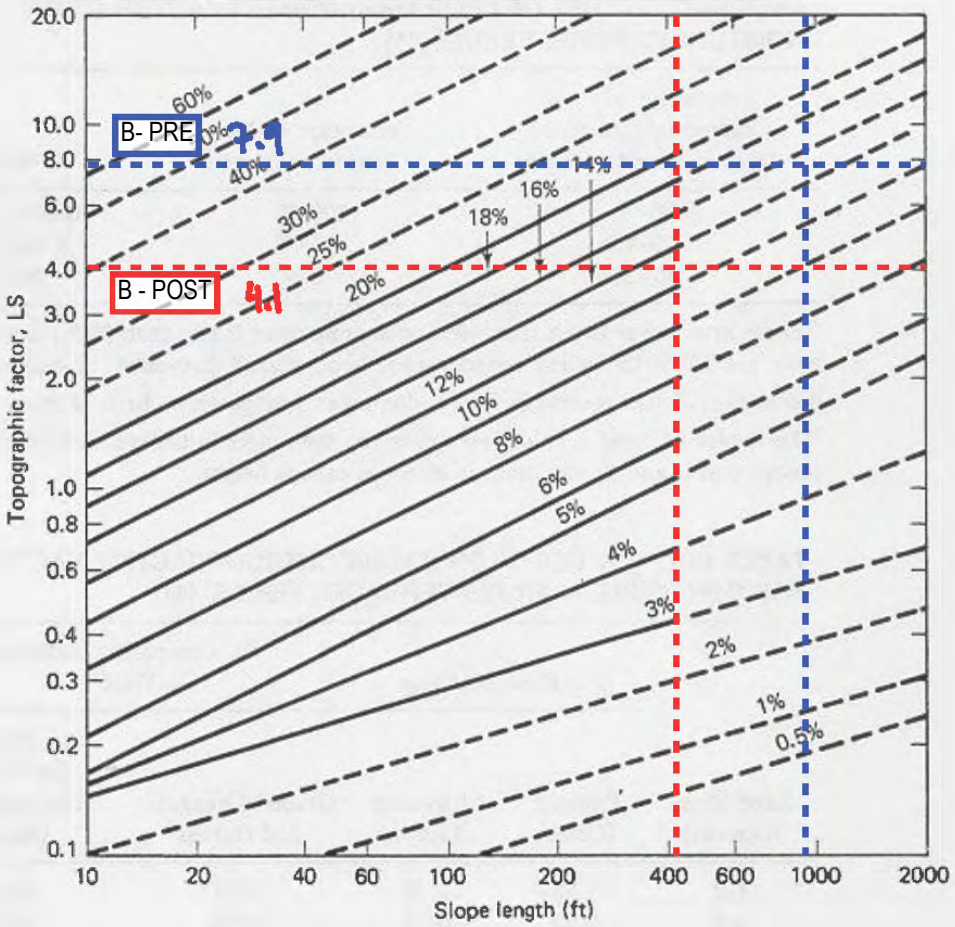


*The dashed lines represent estimates for slope dimensions beyond the range of lengths and steepnesses for which data are available.

Figure 15-3 Topographic factor LS in the universal soil loss equation [41].

Reference
Ponce, V. M., 1989. Engineering Hydrology, Principles and Practices, Prentice Hall, pages 538-543.

LS Factor



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LS Factor

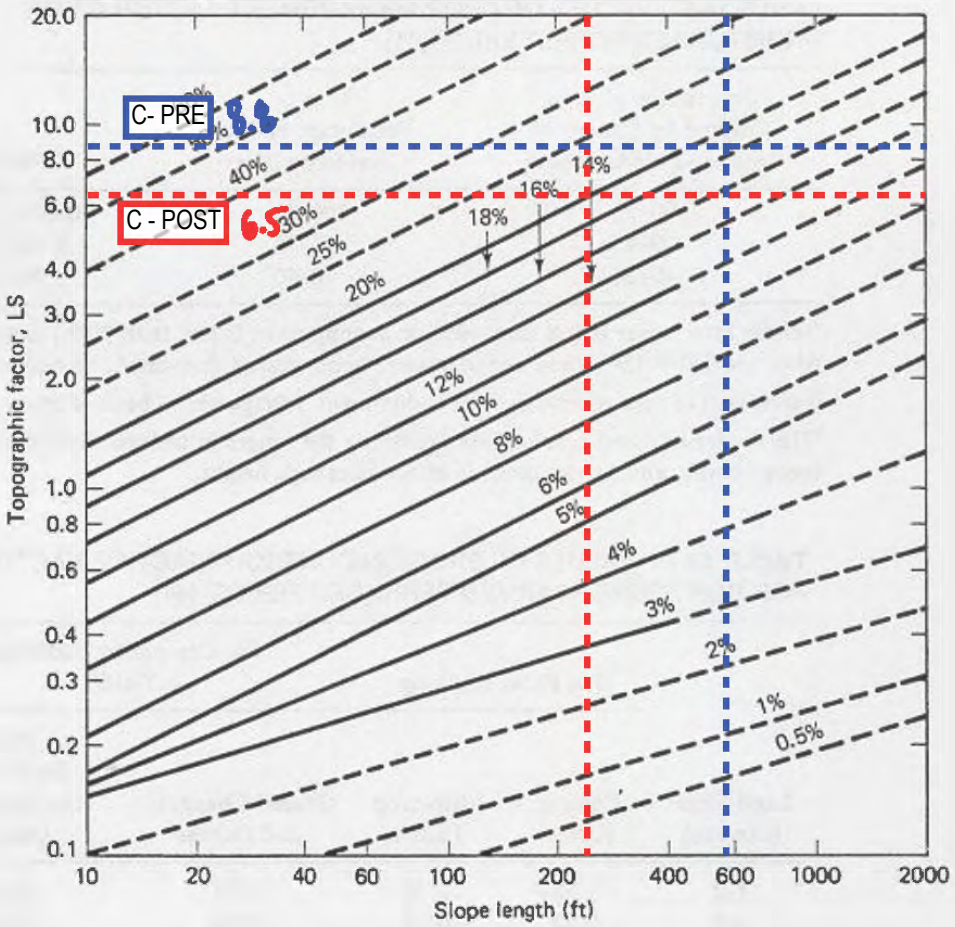

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Figure 15-3 Topographic factor LS in the universal soil loss equation [41].

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Ponce, V. M., 1989. Engineering Hydrology, Principles and Practices, Prentice Hall, pages 538-543.

LS Factor

Vegetation Factor (C) Values

TABLE 15-5 VALUES OF CROP-MANAGEMENT FACTOR *C* FOR PERMANENT PASTURE, GRAZED FOREST LAND, RANGE AND IDLE LAND [41]

Vegetative Canopy		Cover That Contacts the Soil Surface						
			Percent Ground Cover					
Type and Height[2]	% Cover[3]	Type[4]	0	20	40	60	80	100
No appreciable canopy		G	0.45	0.20	0.10	0.042	0.013	0.003
		W	0.45	0.24	0.15	0.091	0.043	0.011
Tall grass, weeds or short brush with average drop fall of 20 in. or less	25	G	0.36	0.17	0.09	0.038	0.013	0.003
		W	0.36	0.20	0.13	0.083	0.041	0.011
	50	G	0.26	0.13	0.07	0.035	0.012	0.003
		W	0.26	0.16	0.11	0.076	0.039	0.011
	75	G	0.17	0.10	0.06	0.032	0.011	0.003
		W	0.17	0.12	0.09	0.068	0.038	0.011
Appreciable brush or bushes, with average drop fall height of 6.5 ft	25	G	0.40	0.18	0.09	0.040	0.013	0.003
		W	0.40	0.22	0.14	0.087	0.042	0.011
	50	G	0.34	0.16	0.08	0.038	0.012	0.003
		W	0.34	0.19	0.13	0.082	0.041	0.011
	75	G	0.28	0.14	0.08	0.036	0.012	0.003
		W	0.28	0.17	0.12	0.078	0.040	0.011
Trees, but no appreciable low brush. Average drop fall height of 13 ft	25	G	0.42	0.19	0.10	0.041	0.013	0.003
		W	0.42	0.23	0.14	0.089	0.042	0.011
	50	G	0.39	0.18	0.09	0.040	0.013	0.003
		W	0.39	0.21	0.14	0.087	0.042	0.011
	75	G	0.36	0.17	0.09	0.039	0.012	0.003
		W	0.36	0.20	0.13	0.084	0.041	0.011

[1]The listed *C* values require that the vegetation and mulch be randomly distributed over the entire area. For grazed forest land, multiply these values by 0.7.

[2]Canopy height is measured as the average fall height of water drops falling from canopy to ground. Canopy effect is inversely proportional to drop fall height and is negligible if fall height exceeds 33 ft.

[3]Portion of total area surface that would be hidden from view by canopy in a vertical projection.

[4]G: cover at surface is grass, grasslike plants, decaying compacted duff, or litter. W: cover at surface is mostly broadleaf herbaceous plants (weeds) or undecayed residues or both.

Vineyard Cover Factor (C_f)					
Vine Row Tilled Ground Cover (%) Winterization Months					
0%	20%	40%	60%	80%	95%
0.85	**0.39**	**0.20**	**0.088**	**0.028**	**0.007**
Vine Row Non-Tilled Ground Cover (%) Winterization Months					
0%	20%	40%	60%	80%	95%
0.68	**0.31**	**0.16**	**0.070**	**0.022**	**0.006**

Erosion Control Practice Factor (P)

Slope	Vineyard Practices – P Factor				
	Up and Down Hill	**Cross-Slope[27] with Tilling**	**Terrace[28] with Tilling**	**Cross-Slope, No Tilling**	**Terrace, No Tilling**
2 – 7%	1	0.75	0.5	0.37	0.25
7.1 – 12%	1	0.8	0.6	0.45	0.3
12.1 – 18%	1	0.9	0.8	~~0.6~~ 0.8 USED	0.4
18.1 - 24%	1	0.95	0.9	0.67	0.45

VINEROWS VARY, BUT PRIMARILY ARE CROSS SLOPE AT 45 DEGREES OR MORE FROM FALL LINE. THEREFORE P FACTOR OF 0.8 WAS USED, AVERAGING IN UP AND DOWN HILL WITH CROSS SLOPE WITH NO TILLING.

[27] Must be near perpendicular to fall line to qualify.

[28] Terraces assumed to be cut or graded, not disked.

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SOIL LOSS/SEDIMENT DELIVERY CALCULATIONS										
SOIL LOSS ANALYSIS (USLE) - Tributary A										
	RAINFALL EROSIVITY FACTOR, R	**LENGTH**	**DELTA ELEVATION**	**SLOPE**	**SOIL ERODIBILTY VALUE, K**	**TOPO FACTOR, LS**	**VEGITATION FACTOR, C**	**EROSION CONTROL FACTOR, P**	**ANNUAL SOIL LOSS, A (T/AC)**	
PRE	50	383	35	9.1%	0.24	2.25	0.032	1	0.86	SOIL LOSS RATIO
POST	50	230	20	8.7%	0.24	1.75	0.022	0.8	0.37	0.43

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SOIL LOSS/SEDIMENT DELIVERY CALCULATIONS										
SOIL LOSS ANALYSIS (USLE) - Tributary B										
	RAINFALL EROSIVITY FACTOR, R	**LENGTH**	**DELTA ELEVATION**	**SLOPE**	**SOIL ERODIBILTY VALUE, K**	**TOPO FACTOR, LS**	**VEGITATION FACTOR, C**	**EROSION CONTROL FACTOR, P**	**ANNUAL SOIL LOSS, A (T/AC)**	
PRE	50	925	140	**15.1%**	0.24	7.9	0.032	1	**3.03**	SOIL LOSS RATIO
POST	**50**	412	52	**12.6%**	**0.24**	4.1	0.022	0.8	**0.87**	0.29

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SOIL LOSS/SEDIMENT DELIVERY CALCULATIONS										
SOIL LOSS ANALYSIS (USLE) - Tributary C										
	RAINFALL EROSIVITY FACTOR, R	**LENGTH**	**DELTA ELEVATION**	**SLOPE**	**SOIL ERODIBILTY VALUE, K**	**TOPO FACTOR, LS**	**VEGITATION FACTOR, C**	**EROSION CONTROL FACTOR, P**	**ANNUAL SOIL LOSS, A (T/AC)**	
PRE	50	583	108	18.5%	0.24	8.8	0.032	1	3.38	SOIL LOSS RATIO
POST	50	252	50	19.8%	0.24	6.5	0.022	0.8	1.37	0.41