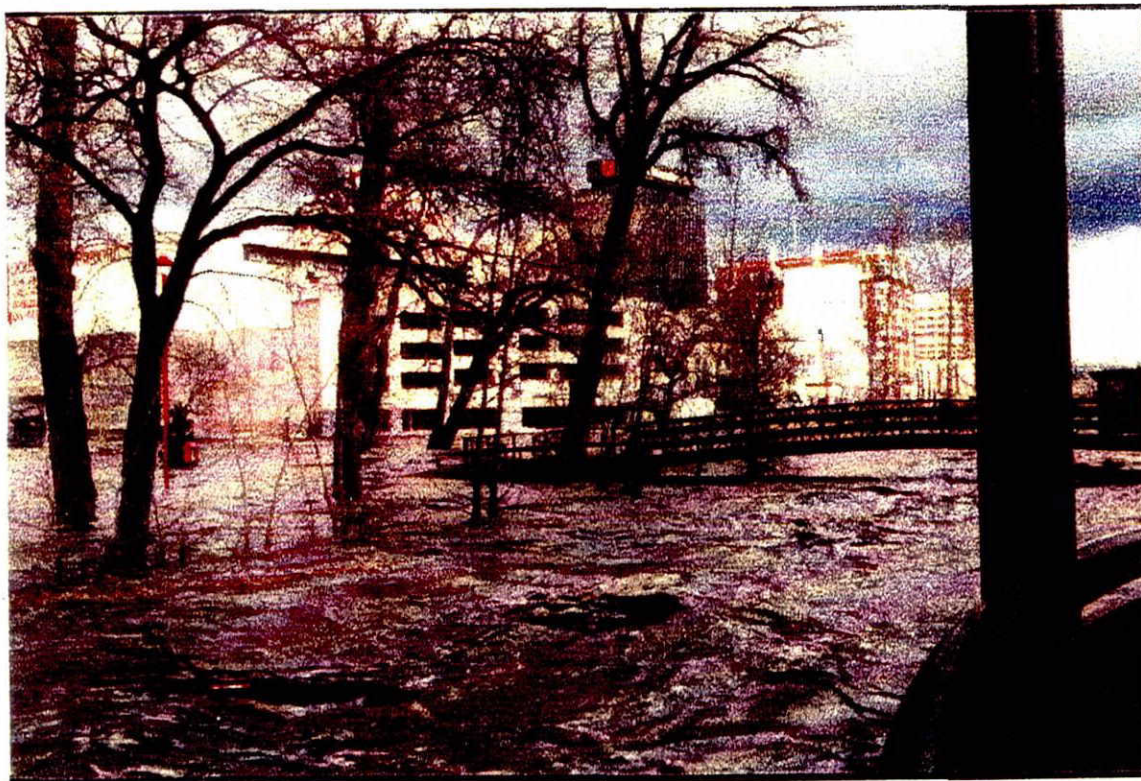


HYDRAULIC ANALYSIS OF JANUARY 1, 1997 FLOOD

DOWNTOWN RENO – BOOTH STREET TO KEITZKE LANE



Prepared for :
City of Reno Public Works Department
Reno Redevelopment Agency
Truckee River Water Management Council

Prepared by
Nimbus Engineers, 3785 Baker Lane, Suite 201, Reno, NV 89509

January 1998, revised March 1998



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April 28, 1998

HAND DELIVER

Ms. Dorene Soto
Reno Redevelopment Agency
PO Box 1900
Reno, NV 89505

RE: Analysis of 1997 Flood in Downtown Reno

Dear Ms. Soto:

Please find enclosed the copy of our study *Hydraulic Analysis of the January 1, 1997 Flood dated March 1998*. As we discussed, portions of the study were funded by City of Reno Public Works and the Truckee River Water Management Council. The remaining cost will be billed to your agency under separate cover. The report has been submitted by Public Works to the Corps of Engineers for their review and comment. Due to their internal processes we expect that we will receive their comments within 30 to 60 days.

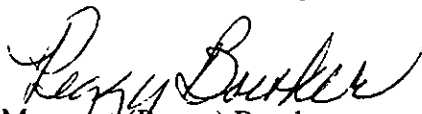
During the course of this study, we provided information to Chuck Davis from Oliver McMillan and to Bruce Ambo of your office. As you will note on our report Figure 2, if the theater is constructed or floodproofed to an elevation above 4501.5, it would be protected from an event equal to, or less than, the flood experienced in 1997. That event was about 1200 cfs greater than the 100 year event of 23,300 cfs currently estimated by the Corps of Engineers.

The future construction of Gasoline Alley and the Riverside block should be designed based upon a flood elevation of 4500. This elevation may lower up to 2 feet if the Virginia Street bridge is replaced. The Corps of Engineers will be evaluating the benefits of such a replacement within the scope of their General Reevaluation Report.

We have enjoyed working on this project with you, your staff and consultants. We hope that the report, in conjunction with this letter, is sufficient for your purposes. If you need further information or more details, please do not hesitate to contact me.

Sincerely,

NIMBUS ENGINEERS


Margaret (Peggy) Bowker
Principal

c. Bruce Ambo, Reno Redevelopment w/Enclosures
Chuck Davis, Oliver McMillan
Steve Varela, Reno Public Works

Hydraulic Analysis of January 1, 1997 Flood

Downtown Reno

From Booth Street to Keitzke Lane

Prepared for

City of Reno Public Works Department
Reno Redevelopment Agency
Truckee River Water Management Council

Prepared by
Nimbus Engineers
3785 Baker Lane, Suite 201
Reno, Nevada 89509
(702) 689-8630

January 1998, revised March 1998

Nimbus Job No. 9718

ESTIMATION OF PEAK FLOW VALUE FOR JANUARY 1997 FLOOD

1.0 Introduction

The January 1997 flood has been estimated by the Corps of Engineers to be the largest flood of record for the Truckee River. Flood heights in Reno exceeded previously estimated 100 year flood heights by as much as two feet in some areas. The analyses prepared for this report were developed for the purpose of determining an approximate peak flow to match high water marks noted during that flood in downtown Reno.

The current effective model for regulatory purposes was developed using HEC-2 in the early 1980s. Many changes have been made to the HEC-2 program since the date of that analysis and changes to the channel and floodplain areas exist in downtown Reno. It was felt by the City of Reno and Nimbus Engineers, that the best technique available in 1997 to simulate the flood was to develop a HEC-RAS model. The model was developed from upstream of U.S. 395 to upstream of Booth Street (see Figure 1, Vicinity Map).

The data used to create this model was compiled from various sources, including 1997 topography developed by the City of Reno and surveyed cross sections obtained by the Corps of Engineers in 1989 as part of their Truckee Meadows Project effort.

2.0 Analysis

Most of the cross-section geometry information was taken from the previously mentioned 1989 survey data (HEC-2 file name: TLOCUP.DAT). This is the most recent information for the channel bottom of the Truckee River. These cross-sections are referenced to the 1929 datum. The original TLOCUP.DAT model had uncalibrated n values, and no bridge codes.

New roughness values were estimated to reflect channel and overbank conditions as seen in field investigations. A roughness value of 0.038 was used for the channel, and 0.1-0.06 was used for the overbanks to reflect the density of development. Individual buildings were omitted from the analysis. The expansion and contraction coefficients used were 0.3 and 0.1, except the bridges where 0.5 and 0.3 were determined to be more appropriate.

The bridge coding information was compiled from various sources, such as previous HEC-2 models. The bridge information for East Second Street, and Lake Street was taken from the Center Street bridge replacement project done by CH2M Hill (HEC-2 file name: OTOP3SP.DAT). The bridge information for Center Street, Virginia Street, Sierra Street,

and Arlington Avenue was taken from the Nimbus Amphitheater model (HEC-2 file name: AMPHISB.DAT). The Booth Street bridge was taken from the NDOT HEC-2 model TWOSPAN.DAT.

Kietzke Lane, Wells Avenue, Kuenzli Street, and Keystone Avenue were developed from existing 1989 survey data points and field investigations done by Nimbus Engineers. The Wells Avenue crossing was supplemented by City of Reno bridge survey points. This combined HEC-2 model was then converted to HEC-RAS in order to more accurately model the bridges.

The starting water surface elevation used was 4446.40' which is the flood of 1997 surveyed high water mark for the starting cross-section. This starting water surface elevation was used for five different trial flows used in the HEC-RAS model. The flows used included 18,000 cfs, 23,300 cfs, 24,000 cfs, 24,500 cfs and 25,000 cfs.

The HEC-RAS model cross-sections were converted to river miles and drafted on the Reno Redevelopment Maps of the downtown area. These maps are in the 1988 datum. *Please note that the cross-sectional geometry used in the model is in the 1929 datum and is not from the redevelopment maps. Any of the cross sectional geometry which did not appear to coincide with the newer maps was modified to develop results as consistent as possible with the topographic information displayed as discussed below.*

The results of the modeling efforts are shown on Figure 2. In order to develop a more consistent presentation for the results, the water surface elevations shown have been converted to 1988 datum. The flow that matched the high water mark with most consistency in the straighter and deeper reaches was 24,500 cfs. We believe that flow as modeled best represents the January 1997 peak flow.

There is an approximate 3.5 foot difference in elevation in the City of Reno downtown area between the 1929 datum and the 1988 datum. If 3.5 feet is added to elevations in the HEC-RAS model, they should generally match the redevelopment maps and the elevations shown on them. In some areas, the redevelopment maps were used to extend cross-sections where the flow was not contained, or where the 1989 overbank survey data was distinctly different from the redevelopment map contours. Three and a half feet was subtracted from these elevations in order to match the 1929 datum of the 1989 survey cross-sections.

The enclosed Figure 2, sheets 1-6 show the flood of 1997 boundary as surveyed by the City of Reno and the Nimbus HEC-RAS model boundary using 24,500 cfs. This flow approximates water surface elevations that were experienced in the flood of 1997. Many factors affected conditions on the Truckee River during the flood, such as build up of

debris and sandbagging efforts, especially in the downtown area.. Differences between water surface elevations seen in the flood of 1997 and water surface elevations modeled in HEC-RAS are due to these factors, as well as a limited knowledge of their effects during the peak flow of the event.

3.0 Conclusion

After computing water surface elevations for five different flows, it was found that 24,500 cfs best matches the high water marks and flooding extents from the January 1997 flood. This appears to be a reasonable value, based upon Nimbus Engineer's inspection of previous modeling efforts and the high water marks and estimation of the February 1986 flood event. Further analyses of the downstream reaches of the Truckee are presently ongoing and should provide more information upon their completion.

The mapping presented on Figure 2, sheets 1 through 6, also appears to coincide very well with video tape of the flooding event. It is hoped that after this modeling is examined by appropriate parties that the flood of 1997 will be considered an event at least equal to or greater than the 100 year or 1% chance flood.

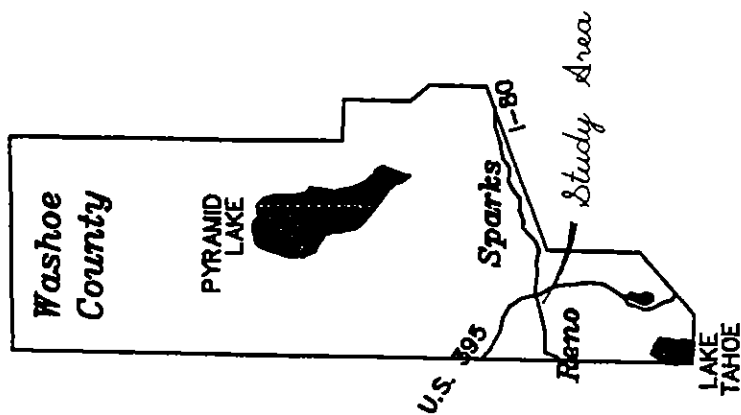
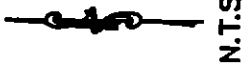
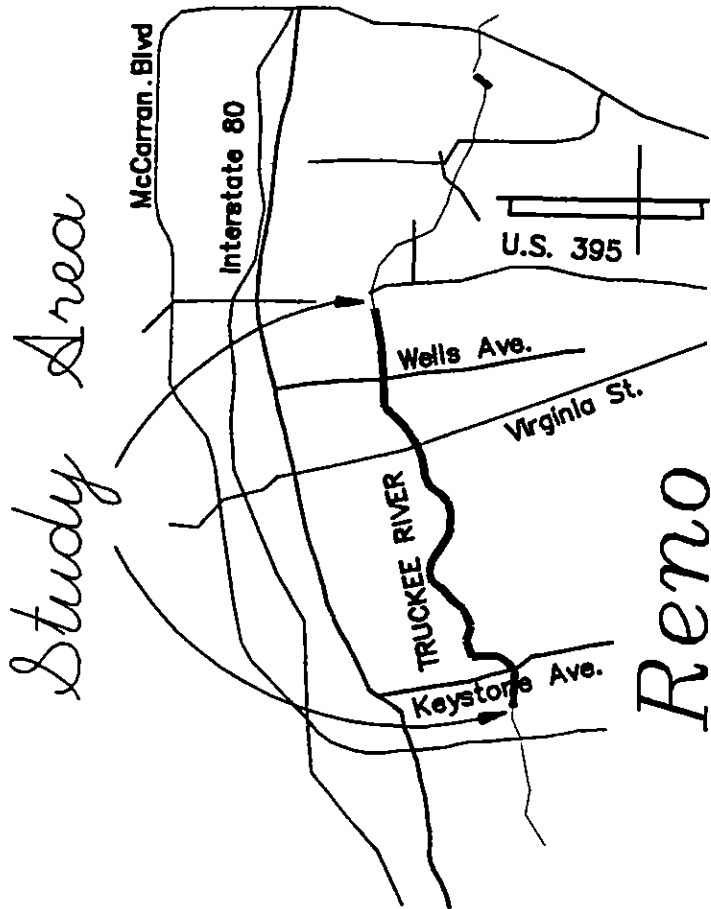


FIGURE 1
Vicinity Map



Nimbus Engineers

Job No.: 9718

Date: Jan. 1998

HEC-RAS Output

HEC-RAS Plan 96 River RIVER-1 Reach Reach-1

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)	Sta W.S. Lf (ft)	Sta W.S. Rgt (ft)
Reach-1	52.84	23300.00	4493.16	4511.74		4513.18	0.002394	1833.66	21466.34		612.49	270.89	883.37
Reach-1	52.84	24500.00	4493.16	4513.39		4514.40	0.001770	3351.24	21148.76		657.14	250.00	907.14
Reach-1	52.93	23300.00	4492.80	4510.54	4504.82	4512.76	0.002291		23300.00		346.09	1000.00	1346.09
Reach-1	52.93	24500.00	4492.80	4513.08	4505.17	4514.25	0.001142	2044.82	20963.46	1491.71	358.42	1000.00	1358.42
Reach-1	52.925	Bridge											
Reach-1	52.92	23300.00	4492.80	4509.32	4504.82	4511.91	0.002973		23300.00		307.61	1032.55	1340.16
Reach-1	52.92	24500.00	4492.80	4511.43	4505.17	4512.94	0.001638	1594.67	21539.84	1365.49	350.43	1000.00	1350.43
Reach-1	52.9	23300.00	4494.20	4509.25	4509.25	4511.37	0.003779	818.22	22481.78		432.73	431.81	864.55
Reach-1	52.9	24500.00	4494.20	4511.27	4511.27	4512.75	0.002268	1945.39	22554.61		749.61	116.73	866.34
Reach-1	52.86	23300.00	4494.21	4508.60	4508.60	4510.43	0.003335	993.05	22306.95		598.16	376.32	974.48
Reach-1	52.86	24500.00	4494.21	4511.03	4505.17	4512.12	0.001684	2793.75	21706.25		691.82	285.06	976.88
Reach-1	52.82	23300.00	4492.96	4508.10	4504.88	4509.72	0.003030	1708.71	21593.29		595.49	430.02	1025.50
Reach-1	52.82	24500.00	4492.96	4510.83	4505.17	4511.73	0.001457	3504.59	20995.41		809.64	224.73	1034.37
Reach-1	52.815	Bridge											
Reach-1	52.81	23300.00	4493.18	4506.98	4504.41	4509.13	0.003991	1011.46	22288.54		375.13	0.00	375.13
Reach-1	52.81	24500.00	4493.18	4507.25	4504.78	4509.49	0.004016	1202.12	23297.88		375.86	0.00	375.86
Reach-1	52.78	23300.00	4491.30	4506.05	4506.05	4508.22	0.003896	678.88	22621.14		524.00	275.68	799.69
Reach-1	52.78	24500.00	4491.30	4506.32	4506.32	4508.57	0.003950	843.62	23656.38		584.12	236.00	800.12
Reach-1	52.72	23300.00	4491.00	4505.62	4505.62	4507.24	0.002870	1328.18	21971.82		554.17	463.20	1017.37
Reach-1	52.72	24500.00	4491.00	4505.88	4505.88	4507.57	0.002931	1494.23	23005.77		595.75	422.05	1017.61
Reach-1	52.67	23300.00	4488.95	4504.22	4504.22	4506.32	0.003968	1623.95	21676.05		721.47	77.66	799.13
Reach-1	52.67	24500.00	4488.95	4504.51	4504.51	4506.65	0.003960	1954.23	22545.78		789.93	29.90	799.83
Reach-1	52.63	23300.00	4487.00	4503.84	4503.84	4505.45	0.003138	1701.90	21598.10		856.40	191.27	847.67
Reach-1	52.63	24500.00	4487.00	4504.15	4504.15	4505.77	0.003102	2047.58	22452.42		866.54	182.76	848.29
Reach-1	52.6	23300.00	4488.00	4502.03	4504.54	4504.54	0.005456	879.15	22420.85		525.81	190.43	716.24
Reach-1	52.6	24500.00	4488.00	4502.31	4504.87	4504.87	0.005422	1114.95	23385.05		541.24	175.46	716.69
Reach-1	52.66	23300.00	4487.00	4501.88	4503.50	4503.50	0.002906	785.64	22514.36		532.90	104.98	637.88
Reach-1	52.56	24500.00	4487.00	4502.15	4503.83	4503.83	0.002945	974.27	23525.73		544.54	94.04	638.59

HEC-RAS Plan: Plan 96 River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)	Sta W.S. Lf (ft)	Sta W.S. Rgt (ft)
Reach-1	52.52	23300 00	4487.98	4501.25		4502.75	0.003673	997.12	22302.88		634.13	259.38	893.50
Reach-1	52.52	24500 00	4487.98	4501.55		4503.07	0.003603	1219.00	23281.00		661.57	233.01	894.58
Reach-1	52.478*	23300 00	4487.59	4499.32		4501.53	0.005380	108.87	23191.13		458.17	256.23	717.11
Reach-1	52.478*	24500 00	4487.59	4499.54		4501.84	0.005477	178.31	24321.69		473.39	244.47	717.86
Reach-1	52.436	23300 00	4487.20	4499.35		4500.32	0.002163	103.70	17998.07	5198.23	730.52	121.95	852.47
Reach-1	52.436	24500 00	4487.20	4499.63		4500.61	0.002128	166.05	18619.95	5714.00	747.70	105.58	853.28
Reach-1	52.391	23300 00	4482.80	4499.33		4499.89	0.000796	99.50	20750.94	2448.56	834.56	329.96	1164.52
Reach-1	52.391	24500 00	4482.80	4499.60		4500.18	0.000809	152.82	21583.91	2763.27	856.31	308.67	1164.98
Reach-1	52.335	23300 00	4487.00	4499.19		4499.62	0.001289	356.41	19516.33	3427.25	886.29	400.20	1286.49
Reach-1	52.335	24500 00	4487.00	4499.47		4499.91	0.001276	417.53	20333.31	3749.16	930.75	357.30	1288.06
Reach-1	52.328	23300 00	4479.60	4499.17		4499.54	0.000902	200.59	21085.54	2013.88	872.05	396.12	1268.17
Reach-1	52.328	24500 00	4479.60	4499.45		4499.83	0.000905	266.08	22016.96	2216.97	891.53	376.92	1268.45
Reach-1	52.317	23300 00	4480.20	4499.97	4491.68	4499.35	0.004551	402.63	21985.77	911.60	1004.92	529.79	1534.71
Reach-1	52.317	24500 00	4480.20	4499.26	4491.96	4499.64	0.004419	552.47	22921.03	1026.51	1054.10	483.48	1537.58
Reach-1	52.309	Multi Open											
Reach-1	52.301	23300 00	4480.20	4498.09	4491.58	4498.61	0.003934	62.26	23148.13	89.61	798.40	614.86	1413.26
Reach-1	52.301	24500 00	4480.20	4498.38	4491.85	4498.91	0.003780	116.92	24271.87	111.21	865.17	552.19	1417.35
Reach-1	52.292	23300 00	4478.90	4498.00		4498.45	0.001318	17.93	23282.07		706.06	489.95	1196.01
Reach-1	52.292	24500 00	4478.90	4498.29		4498.75	0.001335	47.70	24452.27	0.03	754.87	442.59	1197.46
Reach-1	52.212	23300 00	4477.00	4497.42		4498.04	0.000735	521.11	22565.25	213.65	715.22	367.97	1083.19
Reach-1	52.212	24500 00	4477.00	4497.68		4498.33	0.000763	610.12	23637.57	252.31	750.46	341.92	1092.38
Reach-1	52.167	23300 00	4475.10	4498.41		4497.73	0.001394	450.86	21983.87	865.28	607.71	384.45	872.16
Reach-1	52.167	24500 00	4475.10	4496.59		4498.00	0.001478	527.28	23022.01	950.71	631.00	343.58	974.58
Reach-1	52.159	23300 00	4475.50	4496.38	4487.52	4497.63	0.001379	719.32	22016.30	562.38	713.54	482.54	1198.09
Reach-1	52.159	24500 00	4475.50	4496.56	4487.87	4497.89	0.001462	834.69	23028.19	637.13	740.09	339.90	1202.12
Reach-1	52.1535	Bridge											
Reach-1	52.148	23300 00	4475.50	4495.78	4487.53	4497.17	0.001565	489.84	22385.49	424.67	656.90	519.80	1176.70

HEC-RAS Plan 96 River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)
Reach-1	52.148	24500.00	4475.50	4496.15	4487.88	4497.59	0.001607	662.21	23302.29	535.50	692.20	496.58	1188.78
Reach-1	52.142	23300.00	4476.20	4495.72		4497.10	0.001877	309.40	22726.90	263.70	789.28	260.70	1028.98
Reach-1	52.142	24500.00	4476.20	4496.10		4497.51	0.001870	488.86	23658.45	352.69	834.59	214.29	1048.86
Reach-1	52.1195*	23300.00	4476.35	4495.65		4496.80	0.001300	237.84	22749.04	313.13	755.03	762.56	1517.61
Reach-1	52.1195*	24500.00	4476.35	4496.02		4497.21	0.001316	377.20	23734.68	388.13	832.78	718.83	1551.61
Reach-1	52.097	23300.00	4476.50	4495.63		4496.54	0.001059	210.13	22835.54	254.32	746.51	1258.71	2005.22
Reach-1	52.097	24500.00	4476.50	4496.00		4496.95	0.001089	330.86	23842.87	326.26	810.51	1216.39	2026.90
Reach-1	52.093	23300.00	4475.10	4495.35	4485.50	4496.46	0.001213	162.20	23012.48	125.32	714.89	1145.11	1660.00
Reach-1	52.093	24500.00	4475.10	4495.70	4485.82	4496.86	0.001247	264.94	24037.97	197.09	782.51	1091.84	1874.35
Reach-1	52.0655												
		Bridge											
Reach-1	52.078	23300.00	4475.10	4492.89		4494.40	0.001930		23300.00		140.00	1505.00	1645.00
Reach-1	52.078	24500.00	4475.10	4493.41		4494.99	0.001943		24500.00		140.00	1505.00	1645.00
Reach-1	52.072	23300.00	4474.70	4492.86		4494.32	0.001825	3.28	23296.72		201.01	620.92	821.63
Reach-1	52.072	24500.00	4474.70	4493.39		4494.90	0.001812	22.07	24477.93		266.12	555.84	821.96
Reach-1	52.0465*	23300.00	4474.85	4492.71		4494.01	0.001604	84.94	23205.06		449.59	379.84	829.43
Reach-1	52.0465*	24500.00	4474.85	4493.28		4494.57	0.001571	230.95	24289.05	0.00	528.60	303.19	831.79
Reach-1	52.021	23300.00	4475.00	4492.60		4493.70	0.001440	745.82	22547.18	6.99	857.84	58.56	916.41
Reach-1	52.021	24500.00	4475.00	4493.19		4494.25	0.001353	1208.07	23255.61	36.31	902.44	50.40	952.65
Reach-1	52	23300.00	4475.00	4492.51	4484.18	4493.66	0.001470	588.01	22706.66	5.33	637.62	134.30	771.93
Reach-1	52	24500.00	4475.00	4493.05	4484.49	4494.20	0.001428	902.81	23581.35	15.84	789.91	93.07	883.78
Reach-1	51.995												
		Bridge											
Reach-1	51.99	23300.00	4475.00	4490.70		4492.25	0.002162	6.54	23293.46		414.73	265.80	754.00
Reach-1	51.99	24500.00	4475.00	4490.92		4492.59	0.002283	33.16	24466.84		480.84	249.70	754.00
Reach-1	51.97	23300.00	4474.13	4490.64		4491.95	0.001538	586.13	22709.00	4.86	439.15	394.01	833.15
Reach-1	51.97	24500.00	4474.13	4490.86		4492.27	0.001718	660.57	23828.79	10.64	468.11	370.08	838.18
Reach-1	51.945*	23300.00	4473.17	4490.49		4491.70	0.001500	1066.63	22197.27	38.09	657.60	182.70	840.30
Reach-1	51.945*	24500.00	4473.17	4490.72		4491.99	0.001560	1251.47	23196.35	52.18	669.39	177.16	846.56

HEC-RAS Plan: Plan 96 River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)	Sia W.S. LR (ft)	Sia W.S. Rgt (ft)
Reach-1	51.92	23300.00	4472.20	4490.27	4482.76	4491.49	0.001506	549.92	22559.93	190.15	811.91	111.97	923.89
Reach-1	51.92	24500.00	4472.20	4490.48	4483.09	4491.78	0.001572	690.64	23572.75	236.61	833.01	105.60	938.61
Reach-1	51.915	Bridge											
Reach-1	51.91	23300.00	4471.10	4488.50	4482.34	4490.15	0.002170	24.02	23275.02	0.95	403.15	99.51	502.66
Reach-1	51.91	24500.00	4471.10	4488.93	4482.67	4490.63	0.002163	92.16	24397.93	9.91	490.68	56.59	547.27
Reach-1	51.895*	23300.00	4471.00	4488.15	4488.94	4489.94	0.002513	413.07	22866.03	20.90	563.58	106.59	670.17
Reach-1	51.895*	24500.00	4471.00	4488.67	4488.67	4490.45	0.002400	657.89	23773.46	68.64	605.22	74.02	679.24
Reach-1	51.88	23300.00	4470.90	4487.58	4489.67	4489.67	0.003079	314.24	22980.66	5.10	460.73	264.40	725.12
Reach-1	51.88	24500.00	4470.90	4488.10	4488.10	4490.19	0.002931	522.78	23948.61	28.61	522.08	232.75	754.83
Reach-1	51.85	23300.00	4467.43	4486.55	4488.94	4488.94	0.003825		23300.00		154.00	569.09	723.09
Reach-1	51.85	24500.00	4467.43	4486.98	4488.94	4489.44	0.003912		24500.00		158.74	565.21	723.95
Reach-1	51.81	23300.00	4468.43	4486.08	4481.34	4488.12	0.003052		23300.00		325.73	600.96	1180.00
Reach-1	51.81	24500.00	4468.43	4486.49	4481.67	4488.61	0.003088		24500.00		340.44	600.08	1180.00
Reach-1	51.77	23300.00	4470.14	4488.10	4488.35	4487.35	0.003113	14.45	23269.28	16.27	404.11	569.44	973.54
Reach-1	51.77	24500.00	4470.14	4488.61	4488.83	4487.83	0.002824	38.17	24418.66	42.97	451.21	547.28	998.49
Reach-1	51.73	23300.00	4469.60	4482.33	4481.08	4485.98	0.007154		23300.00		148.27	167.92	314.19
Reach-1	51.73	24500.00	4469.60	4482.70	4481.42	4486.44	0.007089		24500.00		148.86	167.64	314.50
Reach-1	51.725	Bridge											
Reach-1	51.72	23300.00	4469.70	4481.78	4480.99	4485.35	0.008273		23300.00		167.09	132.36	299.45
Reach-1	51.72	24500.00	4469.70	4482.20	4481.27	4485.81	0.007956		24500.00		167.92	131.56	299.49
Reach-1	51.71	23300.00	4467.45	4481.92	4484.67	4484.67	0.005652		23300.00		177.23	635.67	812.89
Reach-1	51.71	24500.00	4467.45	4482.35	4485.14	4485.14	0.005533		24500.00		179.82	633.82	813.64
Reach-1	51.69	23300.00	4468.90	4482.38	4478.04	4483.73	0.002408		23300.00		220.00	544.01	764.00
Reach-1	51.69	24500.00	4468.90	4482.81	4478.29	4484.20	0.002361		24500.00		220.00	544.01	764.00
Reach-1	51.685	Bridge											
Reach-1	51.68	23300.00	4468.90	4482.10	4478.04	4483.52	0.002611		23300.00		220.00	544.01	764.00
Reach-1	51.68	24500.00	4468.90	4482.54	4478.30	4484.00	0.002545		24500.00		220.00	544.01	764.00

HEC-RAS Plan 96 River RIVER-1 Reach Reach-1 (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)	Sta W.S. LR (ft)	Sta W.S. Rgt (ft)
Reach-1	51.67	23300.00	4466.36	4481.90		4483.37	0.002296	978.08	22276.93	45.00	369.07	438.16	807.23
Reach-1	51.67	24500.00	4466.36	4482.40		4483.86	0.002185	1221.81	23196.41	81.78	387.57	430.49	818.06
Reach-1	51.64	23300.00	4465.00	4479.04		4482.27	0.005354	69.92	23201.15	28.93	218.28	259.38	477.66
Reach-1	51.64	24500.00	4465.00	4479.45		4482.76	0.005259	142.18	24320.80	37.02	242.86	235.37	478.23
Reach-1	51.61	23300.00	4461.43	4479.00		4481.20	0.003286	16.31	23283.69		198.22	196.25	384.47
Reach-1	51.61	24500.00	4461.43	4479.42		4481.69	0.003278	46.20	24453.80		220.78	174.37	395.15
Reach-1	51.57	23300.00	4462.30	4478.62		4480.80	0.003007	96.54	23203.46		214.27	113.34	327.61
Reach-1	51.57	24500.00	4462.30	4479.06		4481.08	0.002975	149.00	24351.00		224.07	104.09	328.16
Reach-1	51.54	23300.00	4459.80	4478.77		4480.03	0.001865		23300.00		203.30	111.96	315.26
Reach-1	51.54	24500.00	4459.80	4479.21		4480.51	0.001876		24500.00		204.70	111.25	315.95
Reach-1	51.51	23300.00	4463.30	4477.88		4479.63	0.002900		23300.00		187.14	125.85	312.99
Reach-1	51.51	24500.00	4463.30	4478.32		4480.12	0.002871		24500.00		189.89	125.16	314.05
Reach-1	51.47	23300.00	4462.60	4477.66		4478.98	0.002196	0.85	23271.64	27.50	259.25	150.15	409.40
Reach-1	51.47	24500.00	4462.60	4478.13		4479.47	0.002121	7.82	24438.55	53.63	277.23	133.35	410.58
Reach-1	51.46	23300.00	4461.90	4477.71	4470.33	4478.63	0.001204	403.46	22732.73	163.81	493.82	598.69	1492.00
Reach-1	51.46	24500.00	4461.90	4478.18	4470.61	4479.12	0.001188	497.20	23786.41	216.38	610.88	595.88	1492.00
Reach-1	51.44	Bridge											
Reach-1	51.42	23300.00	4461.90	4475.38	4470.33	4476.74	0.002194	111.58	23162.64	25.78	273.60	619.68	1492.00
Reach-1	51.42	24500.00	4461.90	4475.84	4470.61	4477.23	0.002142	164.00	24290.26	45.74	295.66	612.91	1492.00
Reach-1	51.41	23300.00	4460.60	4475.30		4476.37	0.001872	0.00	22978.04	321.95	295.57	221.77	517.34
Reach-1	51.41	24500.00	4460.60	4475.76		4476.87	0.001631	0.11	24155.11	344.78	333.08	221.20	554.29
Reach-1	51.38	23300.00	4458.90	4473.59		4475.69	0.003342		22694.61	605.39	207.06	301.10	508.16
Reach-1	51.38	24500.00	4458.90	4474.05		4476.19	0.003277		23798.68	701.32	211.77	300.24	512.01
Reach-1	51.34	23300.00	4457.60	4472.69		4474.98	0.003414		23102.37	197.63	180.04	354.05	534.10
Reach-1	51.34	24500.00	4457.60	4473.13		4475.49	0.003380		24245.66	254.34	182.83	353.59	536.42
Reach-1	51.31	23300.00	4453.70	4470.82		4474.07	0.005179	2.33	23284.13	3.54	148.50	392.23	538.73
Reach-1	51.31	24500.00	4453.70	4471.21		4474.58	0.005165	5.61	24484.66	9.73	157.50	385.26	542.76
Reach-1	51.27	23300.00	4453.39	4470.58	4466.89	4472.95	0.003777	6.70	23283.30		181.65	397.88	579.52

HEC-RAS Plan Plan 96 River RIVER-1 Reach-1 (Continued)

Reach	River Sta	Q Total (cfs)	MIn Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/m)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)
Reach-1	51.27	24500.00	4453.39	4471.00	4467.23	4473.45	0.003741	26.11	24473.88		187.40	392.17	579.57
Reach-1	51.23	23300.00	4454.23	4487.19	4468.84	4471.67	0.009378		23300.00		139.30	472.29	611.59
Reach-1	51.23	24500.00	4454.23	4487.47	4467.17	4472.15	0.009563		24500.00		140.41	471.76	612.17
Reach-1	51.18	23300.00	4453.99	4485.78	4464.80	4469.09	0.007666		23300.00		177.37	479.96	657.33
Reach-1	51.18	24500.00	4453.99	4486.23	4465.10	4469.55	0.007303		24500.00		179.19	478.94	658.14
Reach-1	51.15	23300.00	4448.75	4486.76	4459.70	4467.90	0.001586	4.55	23295.45		209.70	511.46	721.16
Reach-1	51.15	24500.00	4448.75	4487.20	4460.02	4468.37	0.001584	6.94	24493.06		211.37	510.85	722.22
Reach-1	51.13	23300.00	4446.98	4486.64	4458.02	4467.69	0.001380		23300.00		203.08	538.50	741.58
Reach-1	51.13	24500.00	4446.98	4487.08	4458.38	4468.16	0.001402		24500.00		205.86	537.85	743.71
Reach-1	51.07	23300.00	4447.66	4481.73	4481.73	4468.48	0.009704	64.50	23235.50		184.18	563.50	734.86
Reach-1	51.07	24500.00	4447.66	4482.22	4482.22	4466.96	0.009688	126.70	24373.30		180.04	555.95	735.99
Reach-1	51.04	23300.00	4445.25	4459.20	4459.20	4464.23	0.010348		23300.00		129.17	605.87	735.05
Reach-1	51.04	24500.00	4445.25	4459.58	4459.58	4464.74	0.010270		24500.00		130.86	604.98	735.84
Reach-1	51	23300.00	4445.48	4458.79	4456.93	4461.89	0.005983		23300.00		156.99	592.37	749.36
Reach-1	51	24500.00	4445.48	4459.05	4457.28	4462.32	0.006133		24500.00		157.80	592.04	749.84
Reach-1	50.96	23300.00	4443.73	4458.07	4455.61	4460.69	0.004936		23300.00		169.15	588.92	758.08
Reach-1	50.88	24500.00	4443.73	4458.32	4455.92	4461.08	0.005095		24500.00		169.95	588.45	758.40
Reach-1	50.92	23300.00	4441.40	4457.99	4453.63	4459.73	0.002743		23004.10	295.90	293.68	577.98	871.66
Reach-1	50.92	24500.00	4441.40	4458.28	4453.95	4460.08	0.002818		24124.00	378.00	304.39	577.59	881.98
Reach-1	50.91	23300.00	4441.40	4456.94	4453.95	4459.13	0.004516		22578.75	721.25	311.12	567.72	878.84
Reach-1	50.91	24500.00	4441.40	4457.18	4454.30	4459.47	0.004565		23645.57	854.43	317.81	567.40	885.21
Reach-1	50.88	23300.00	4441.30	4455.86	4453.36	4458.35	0.006791		23270.91	29.09	290.73	549.44	840.17
Reach-1	50.88	24500.00	4441.30	4456.25	4455.06	4458.69	0.006665		24442.87	57.13	305.17	549.08	854.26
Reach-1	50.84	23300.00	4440.94	4455.77	4451.62	4457.09	0.003416		23300.00		309.70	464.22	773.82
Reach-1	50.84	24500.00	4440.94	4456.09	4451.96	4457.43	0.003396		24499.81	0.19	339.26	463.69	802.95
Reach-1	50.81	23300.00	4440.43	4455.67	4450.86	4456.59	0.002083		23280.29	19.71	439.44	456.28	895.72
Reach-1	50.81	24500.00	4440.43	4455.99	4451.10	4456.94	0.002050		24444.06	55.94	492.40	455.85	948.25
Reach-1	50.77	23300.00	4438.21	4455.64	4447.66	4456.18	0.000921		23059.65	240.35	535.82	488.22	1024.05

HEC-RAS Plan: Plan 96 River. RIVER-1 Reach Reach-1 (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slops (ft/ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)	Sta W.S. Lt (ft)	Sta W.S. Rgt (ft)
Reach-1	50.77	24500.00	4438.21	4455.97	4447.91	4456.53	0.000924		24170.35	329.65	557.25	487.25	1044.50
Reach-1	50.72	23300.00	4432.90	4454.40		4455.73	0.002298		23275.26	24.74	246.03	542.76	789.78
Reach-1	50.72	24500.00	4432.90	4454.66		4456.07	0.002384		24465.32	34.68	252.88	540.35	793.22
Reach-1	50.69	23300.00	4435.46	4454.27	4447.26	4455.38	0.002083		23300.00		286.04	503.13	809.92
Reach-1	50.69	24500.00	4435.46	4454.53	4447.73	4455.70	0.002134		24500.00		288.91	502.38	810.54
Reach-1	50.66	23300.00	4432.70	4453.70	4447.55	4455.00	0.002187		23300.00		527.77	123.50	737.50
Reach-1	50.68	24500.00	4432.70	4453.92	4447.93	4455.30	0.002287		24500.00		536.98	119.83	737.73
Reach-1	50.65	23300.00	4433.13	4453.63	4445.95	4454.74	0.001419		23300.00		188.61	105.16	293.76
Reach-1	50.65	24500.00	4433.13	4453.85	4446.26	4455.04	0.001503		24500.00		189.33	104.91	294.24
Reach-1	50.64												
		Bridge											
Reach-1	50.63	23300.00	4433.13	4448.99	4445.94	4451.28	0.004189		23300.00		173.03	110.40	283.43
Reach-1	50.83	24500.00	4433.13	4449.27	4446.27	4451.68	0.004293		24500.00		173.97	110.09	284.06
Reach-1	50.557	23300.00	4432.20	4447.33		4449.67	0.004657		23300.00		187.65	108.01	295.66
Reach-1	50.557	24500.00	4432.20	4447.44		4449.97	0.004997		24500.00		188.34	107.69	296.03
Reach-1	50.48	23300.00	4430.80	4446.40	4441.93	4447.96	0.002405	141.23	23140.75	18.03	695.38	617.38	1503.00
Reach-1	50.48	24500.00	4430.80	4446.40	4442.23	4448.12	0.002660	148.50	24332.54	18.96	695.38	617.38	1503.00

Plan: Plan 96 River: RIVER-1 Reach: Reach-1 Riv Sta: 52.925 Profile: PF#2 Opening: Bridge #1

E.G. US. (ft)	4514.25	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	4513.08	E.G. Elev (ft)	4514.24	4514.24
Q Total (cfs)	24500.00	W.S. Elev (ft)	4513.08	4513.08
Q Bridge (cfs)	18503.26	Crit W.S. (ft)	4505.17	4505.17
Q Weir (cfs)	5996.74	Max Chl Dpth (ft)	20.28	20.28
Weir Sta Lft (ft)	1000.00	Vel Total (ft/s)	9.99	9.99
Weir Sta Rgt (ft)	1364.03	Flow Area (sq ft)	2452.49	2452.49
Weir Submerg	0.13	Froude # Chl	0.41	0.41
Weir Max Depth (ft)	3.24	Specif Force (cu ft)	29559.18	29559.18
Min Top Rd (ft)	4511.00	Hydr Depth (ft)	6.84	6.84
Min El Prs (ft)	4515.00	W.P. Total (ft)	623.49	623.49
Delta EG (ft)	1.31	Conv. Total (cfs)		
Delta WS (ft)	1.65	Top Width (ft)	358.42	358.42
BR Open Area (sq ft)	1717.10	Frctn Loss (ft)		
BR Open Vel (ft/s)	10.78	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)		
Br Sel Mthd	Press/Weir	Power Total (lb/ft s)		

Plan. Plan 96 River RIVER-1 Reach Reach-1 Riv Sta: 52.815 Profile: PF#2 Opening: Bridge #1

E.G. US. (ft)	4511.73	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	4510.83	E.G. Elev (ft)	4511.73	4509.49
Q Total (cfs)	24500.00	W.S. Elev (ft)	4510.00	4507.25
Q Bridge (cfs)	24500.00	Crit W.S. (ft)	4505.51	4504.84
Q Weir (cfs)		Max Chl Dpth (ft)	17.04	14.07
Weir Sta Lft (ft)		Vel Total (ft/s)	7.18	9.90
Weir Sta Rgt (ft)		Flow Area (sq ft)	3413.99	2475.21
Weir Submerg		Froude # Chl	0.41	0.65
Weir Max Depth (ft)		Specif Force (cu ft)	26922.89	21743.44
Min Top Rd (ft)	4515.00	Hydr Depth (ft)		6.84
Min El Prs (ft)	4510.00	W.P. Total (ft)	753.51	390.17
Delta EG (ft)	2.24	Conv. Total (cfs)	331807.3	358031.4
Delta WS (ft)	3.57	Top Width (ft)		361.86
BR Open Area (sq ft)	3413.99	Frctn Loss (ft)		
BR Open Vel (ft/s)	7.18	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	1.54	1.85
Br Sel Mthd	Press Only	Power Total (lb/ft s)	11.07	18.36

Plan: Plan 96 River: RIVER-1 Reach: Reach-1 Riv Sta: 52.309 Profile: PF#2 Opening: Bridge #1

E.G. US. (ft)	4499.65	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	4499.49	E.G. Elev (ft)	4499.65	4499.65
Q Total (cfs)	7349.68	W.S. Elev (ft)	4499.49	4499.49
Q Bridge (cfs)	6642.70	Crit W.S. (ft)	4488.96	4488.82
Q Weir (cfs)	706.98	Max Chl Dpth (ft)	19.29	19.29
Weir Sta Lft (ft)	880.00	Vel Total (ft/s)	6.35	6.25
Weir Sta Rgt (ft)	1100.00	Flow Area (sq ft)	1045.62	1062.22
Weir Submerg	0.65	Froude # Chl	0.29	0.29
Weir Max Depth (ft)	3.31	Specif Force (cu ft)	13119.02	13383.50
Min Top Rd (ft)	4496.34	Hydr Depth (ft)		
Min El Prs (ft)	4492.70	W.P. Total (ft)	321.63	321.77
Delta EG (ft)	0.74	Conv. Total (cfs)	89728.9	92087.4
Delta WS (ft)	0.78	Top Width (ft)		
BR Open Area (sq ft)	1045.62	Frctn Loss (ft)		
BR Open Vel (ft/s)	6.35	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	1.36	1.31
Br Sel Mthd	Press/Weir	Power Total (lb/ft s)	8.65	8.21

Plan Plan 96 River. RIVER-1 Reach.Reach-1 Riv Sta: 52.1535 Profile PF#2 Opening: Bdrge #1

E.G. US. (ft)	4497.89	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	4496.56	E.G. Elev (ft)	4497.89	4497.62
Q Total (cfs)	24500.00	W.S. Elev (ft)	4496.56	4496.56
Q Bridge (cfs)	12011.21	Crit W.S. (ft)	4488.01	4488.01
Q Weir (cfs)	12488.79	Max Chl Dpth (ft)	21.06	21.06
Weir Sta Lft (ft)	228.14	Vel Total (ft/s)	8.43	8.43
Weir Sta Rgt (ft)	1248.57	Flow Area (sq ft)	2906.16	2906.16
Weir Submerg	0.50	Froude # Chl	0.34	0.34
Weir Max Depth (ft)	5.39	Specif Force (cu ft)	29313.74	29313.74
Min Top Rd (ft)	4493.00	Hydr Depth (ft)	3.93	3.93
Min El Prs (ft)	4489.80	W.P. Total (ft)	1053.10	1053.10
Delta EG (ft)	0.30	Conv. Total (cfs)		
Delta WS (ft)	0.41	Top Width (ft)	740.09	740.09
BR Open Area (sq ft)	1391.31	Frctn Loss (ft)		
BR Open Vel (ft/s)	8.63	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)		
Br Sel Mthd		Press/Weir Power Total (lb/ft s)		

Plan: Plan 96 River: RIVER-1 Reach: Reach-1 Riv Sta: 52.0855 Profile: PF#2 Opening: Bridge #1

E.G. US. (ft)	4496.86	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	4495.70	E.G. Elev (ft)	4496.86	4496.62
Q Total (cfs)	24500.00	W.S. Elev (ft)	4495.70	4495.70
Q Bridge (cfs)	18380.46	Crit W.S. (ft)	4486.03	4486.03
Q Weir (cfs)	6119.54	Max Chl Dpth (ft)	20.60	20.60
Weir Sta Lft (ft)	940.34	Vel Total (ft/s)	10.72	10.72
Weir Sta Rgt (ft)	1925.05	Flow Area (sq ft)	2285.13	2285.13
Weir Submerg	0.00	Froude # Chl	0.43	0.43
Weir Max Depth (ft)	3.06	Specif Force (cu ft)	31603.09	31603.09
Min Top Rd (ft)	4493.80	Hydr Depth (ft)	3.56	3.56
Min El Prs (ft)	4490.40	W.P. Total (ft)	983.47	983.47
Delta EG (ft)	1.88	Conv. Total (cfs)		
Delta WS (ft)	2.28	Top Width (ft)	642.51	642.51
BR Open Area (sq ft)	1510.75	Frctn Loss (ft)		
BR Open Vel (ft/s)	12.17	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)		
Br Sel Mthd	Press/Weir	Power Total (lb/ft s)		

Plan: Plan 96 River: RIVER-1 Reach: Reach-1 Riv Sta: 51.995 Profile: PF#2 Opening: Bridge #1

E.G. US. (ft)	4494.20	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	4493.05	E.G. Elev (ft)	4493.81	4493.02
Q Total (cfs)	24500.00	W.S. Elev (ft)	4491.38	4490.48
Q Bridge (cfs)	24156.26	Crit W.S. (ft)	4484.78	4484.77
Q Weir (cfs)		Max Chl Dpth (ft)	16.38	15.48
Weir Sta Lft (ft)		Vel Total (ft/s)	11.20	12.79
Weir Sta Rgt (ft)		Flow Area (sq ft)	2187.02	1915.33
Weir Submerg		Froude # Chl	0.49	0.57
Weir Max Depth (ft)		Specif Force (cu ft)	27944.52	26380.04
Min Top Rd (ft)	4491.00	Hydr Depth (ft)	5.64	
Min El Prs (ft)	4489.20	W.P. Total (ft)	757.89	367.50
Delta EG (ft)	1.61	Conv. Total (cfs)	227598.0	225134.8
Delta WS (ft)	2.13	Top Width (ft)	387.80	
BR Open Area (sq ft)	1915.33	Frctn Loss (ft)	0.76	0.00
BR Open Vel (ft/s)	12.61	C & E Loss (ft)	0.03	0.44
Coef of Q		Shear Total (lb/sq ft)	2.09	3.85
Br Sel Mthd	Energy only	Power Total (lb/ft s)	23.39	49.29

Plan: Plan 96 River: RIVER-1 Reach: Reach-1 Riv Sta: 51.915 Profile: PF#2 Opening: Bndge #1

E.G. US. (ft)	4491.78	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	4490.48	E.G. Elev (ft)	4491.77	4491.77
Q Total (cfs)	24500.00	W.S. Elev (ft)	4490.48	4490.48
Q Bridge (cfs)	13698.84	Crit W.S. (ft)	4482.43	4482.44
Q Weir (cfs)	10601.16	Max Chl Dpth (ft)	18.28	19.38
Weir Sta Lft (ft)	105.00	Vel Total (ft/s)	10.34	10.99
Weir Sta Rgt (ft)	1026.02	Flow Area (sq ft)	2368.57	2228.98
Weir Submerg	0.06	Froude # Chi	0.44	0.46
Weir Max Depth (ft)	4.27	Specif Force (cu ft)	27943.14	29047.62
Min Top Rd (ft)	4490.64	Hydr Depth (ft)	3.54	4.04
Min El Prs (ft)	4484.44	W.P. Total (ft)	1000.47	884.13
Delta EG (ft)	1.15	Conv. Total (cfs)		
Delta WS (ft)	1.55	Top Width (ft)	669.01	551.92
BR Open Area (sq ft)	1258.20	Frctn Loss (ft)		
BR Open Vel (ft/s)	11.05	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)		
Br Sel Mthd	Press/Weir	Power Total (lb/ft s)		

Plan: Plan 96 River: RIVER-1 Reach:Reach-1 Riv Sta: 51.725 Profile: PF#2 Opening: Bridge #1

E.G. US. (ft)	4486.44	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	4482.70	E.G. Elev (ft)	4486.44	4485.81
Q Total (cfs)	24500.00	W.S. Elev (ft)	4482.70	4482.20
Q Bridge (cfs)	24500.00	Crit W.S. (ft)	4481.41	4481.27
Q Weir (cfs)		Max Chl Dpth (ft)	13.10	12.50
Weir Sta Lft (ft)		Vel Total (ft/s)	15.53	15.25
Weir Sta Rgt (ft)		Flow Area (sq ft)	1578.02	1607.01
Weir Submerg		Froude # Chl	0.83	0.87
Weir Max Depth (ft)		Specif Force (cu ft)	20884.61	20195.63
Min Top Rd (ft)	4496.88	Hydr Depth (ft)	10.75	9.57
Min El Prs (ft)	4488.28	W.P. Total (ft)	154.09	175.85
Delta EG (ft)	0.63	Conv. Total (cfs)	290988.2	274671.5
Delta WS (ft)	0.50	Top Width (ft)	146.86	167.92
BR Open Area (sq ft)	2407.23	Frctn Loss (ft)	0.56	0.00
BR Open Vel (ft/s)	15.53	C & E Loss (ft)	0.06	0.00
Coef of Q		Shear Total (lb/sq ft)	4.53	4.54
Br Sel Mthd	Energy only	Power Total (lb/ft s)	70.36	69.20

Plan: Plan 96 River: RIVER-1 Reach:Reach-1 Riv Sta: 51.685 Profile: PF#2 Opening: Bridge #1

E.G. US. (ft)	4484.20	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	4482.81	E.G. Elev (ft)	4484.19	4484.01
Q Total (cfs)	24500.00	W.S. Elev (ft)	4482.76	4482.52
Q Bridge (cfs)	24500.00	Crit W.S. (ft)	4478.33	4478.34
Q Weir (cfs)		Max Chl Dpth (ft)	13.86	13.62
Weir Sta Lft (ft)		Vel Total (ft/s)	9.60	9.80
Weir Sta Rgt (ft)		Flow Area (sq ft)	2552.38	2500.44
Weir Submerg		Froude # Chi	0.49	0.51
Weir Max Depth (ft)		Specif Force (cu ft)	22846.89	22396.62
Min Top Rd (ft)	4494.00	Hydr Depth (ft)	11.71	11.47
Min El Prs (ft)	4490.00	W.P. Total (ft)	256.34	255.41
Delta EG (ft)	0.21	Conv. Total (cfs)	461933.3	447450.1
Delta WS (ft)	0.27	Top Width (ft)	218.00	218.00
BR Open Area (sq ft)	4130.65	Frctn Loss (ft)	0.16	0.00
BR Open Vel (ft/s)	9.80	C & E Loss (ft)	0.02	0.02
Coef of Q		Shear Total (lb/sq ft)	1.75	1.83
Br Sel Mthd	Energy only	Power Total (lb/ft s)	16.78	17.95

Plan: Plan 96 River: RIVER-1 Reach Reach-1 Riv Sta: 51.44 Profile: PF#2 Opening: Bridge #1

E.G. US. (ft)	4479.12	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	4478.18	E.G. Elev (ft)	4479.12	4479.12
Q Total (cfs)	24500.00	W.S. Elev (ft)	4478.18	4478.18
Q Bridge (cfs)	20696.91	Crit W.S. (ft)	4470.73	4470.73
Q Weir (cfs)	3803.09	Max Chl Dpth (ft)	16.28	16.28
Weir Sta Lft (ft)	592.62	Vel Total (ft/s)	10.70	10.70
Weir Sta Rgt (ft)	982.98	Flow Area (sq ft)	2288.77	2288.77
Weir Submerg	0.00	Froude # Chl	0.48	0.48
Weir Max Depth (ft)	2.56	Specif Force (cu ft)	28093.19	28093.19
Min Top Rd (ft)	4476.56	Hydr Depth (ft)	6.92	6.92
Min El Prs (ft)	4472.05	W.P. Total (ft)	768.15	768.15
Delta EG (ft)	1.89	Conv. Total (cfs)		
Delta WS (ft)	2.34	Top Width (ft)	610.88	610.88
BR Open Area (sq ft)	1777.61	Frctn Loss (ft)		
BR Open Vel (ft/s)	11.64	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)		
Br Sel Mthd		Press/Weir Power Total (lb/ft s)		

Plan: Plan 96 River: RIVER-1 Reach: Reach-1 Riv Sta: 50.64 Profile: PF#2 Opening: Bridge #1

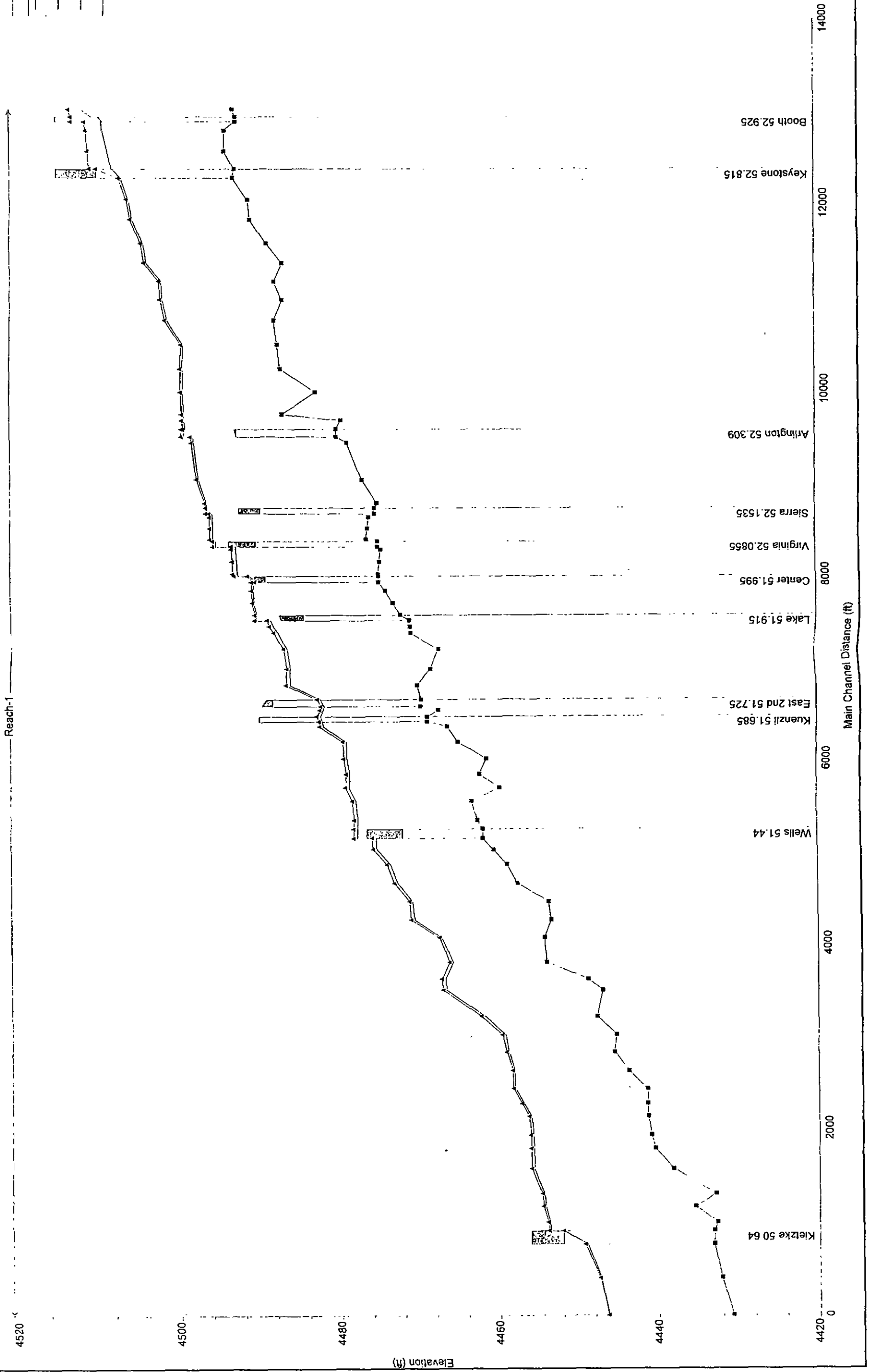
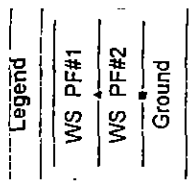
E.G. US. (ft)	4455.04	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	4453.85	E.G. Elev (ft)	4455.04	4451.68
Q Total (cfs)	24500.00	W.S. Elev (ft)	4452.00	4449.27
Q Bridge (cfs)	24500.00	Crit W.S. (ft)	4446.37	4446.36
Q Weir (cfs)		Max Chl Dpth (ft)	18.87	16.14
Weir Sta Lft (ft)		Vel Total (ft/s)	10.20	12.72
Weir Sta Rgt (ft)		Flow Area (sq ft)	2402.19	1926.36
Weir Submerg		Froude # Chl	0.49	0.67
Weir Max Depth (ft)		Specif Force (cu ft)	25706.67	21729.17
Min Top Rd (ft)	4456.10	Hydr Depth (ft)		11.33
Min El Prs (ft)	4452.00	W.P. Total (ft)	421.50	220.71
Delta EG (ft)	3.36	Conv. Total (cfs)	299703.0	319321.6
Delta WS (ft)	4.58	Top Width (ft)		169.97
BR Open Area (sq ft)	2402.19	Frctn Loss (ft)		
BR Open Vel (ft/s)	10.20	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	2.38	3.21
Br Sel Mthd	Press Only	Power Total (lb/ft s)	24.25	40.80

Profile/Cross Sections

Truckee River FINAL PLAN 4/3/98

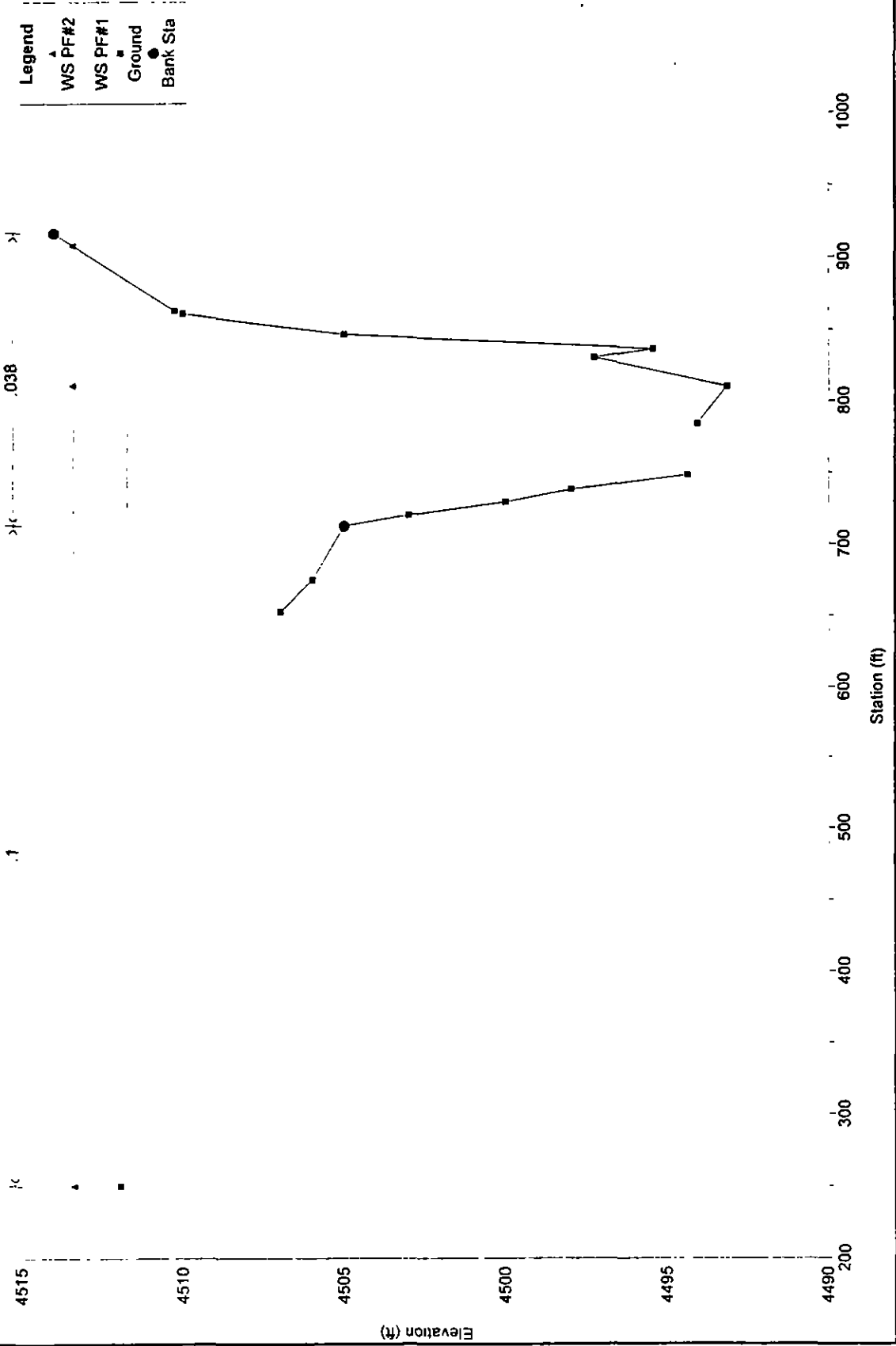
Flow: #1 = 23300, #2 = 24500 cfs

Reach-1



Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300 #2 = 24500 cfs
Cross Section 52.94 RS = 52.94



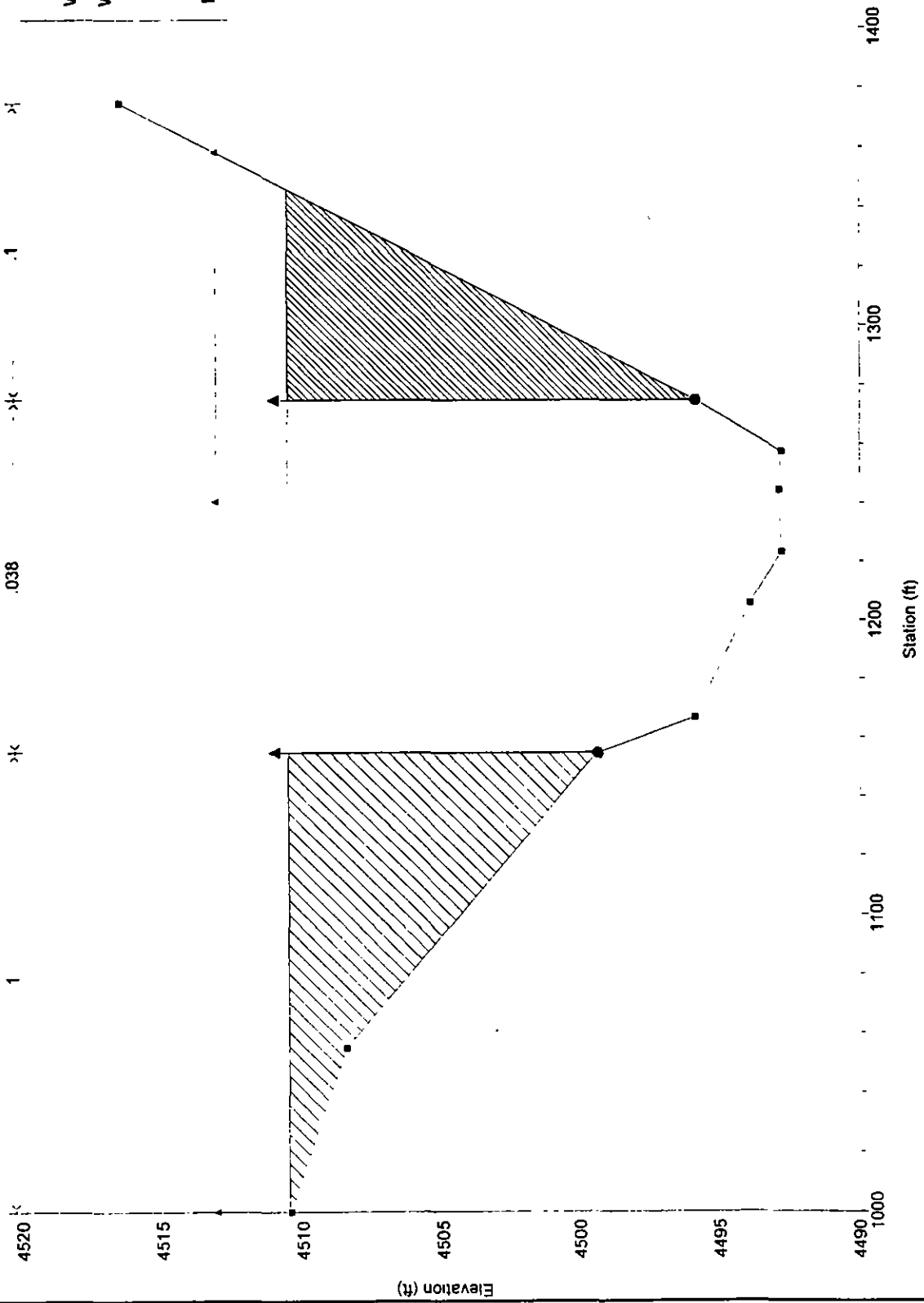
Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300, #2 = 24500 cfs

This is a REPEATED section. RS = 52.93

.038

- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Ineff
 - Bank Sta



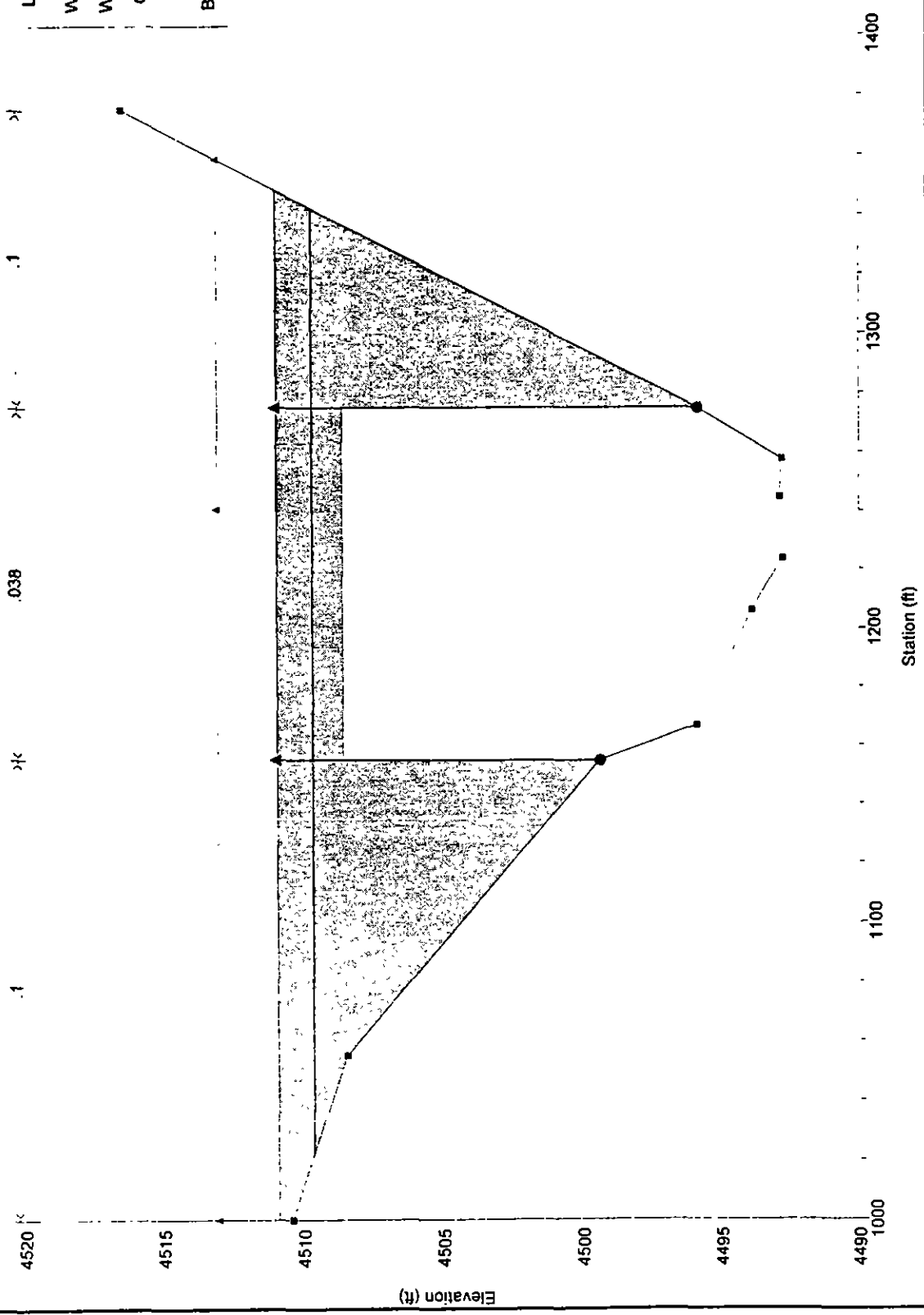
Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300, #2 = 24500 cfs

Booth Sl. RS = 52.925 BR U

.038

- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Ineff
 - Bank Sta



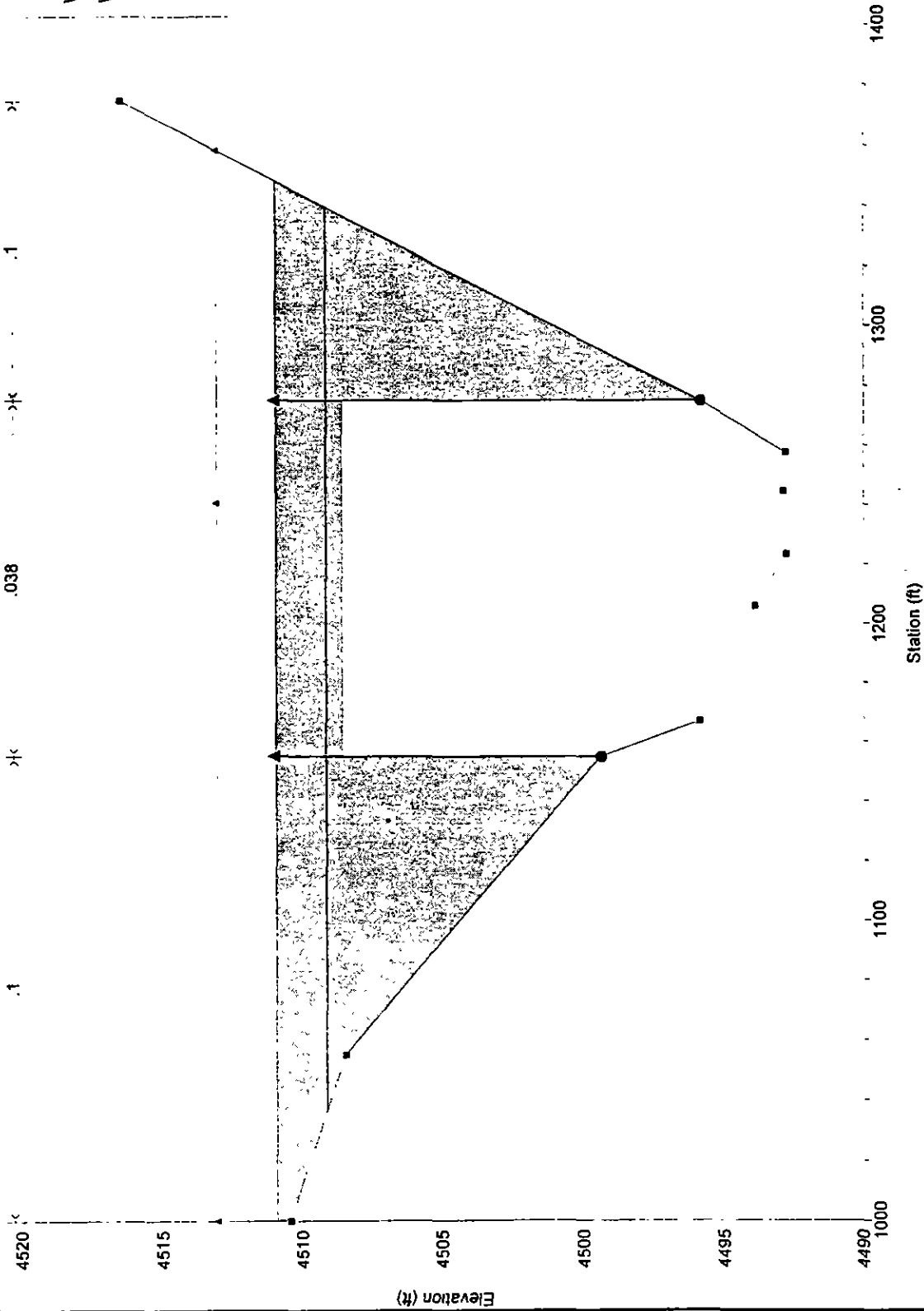
Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300, #2 = 24500 cfs
Booth St. RS = 52.925 BR D

.038

Legend

- WS PF#2
- WS PF#1
- Ground
- Ineff
- Bank Sta

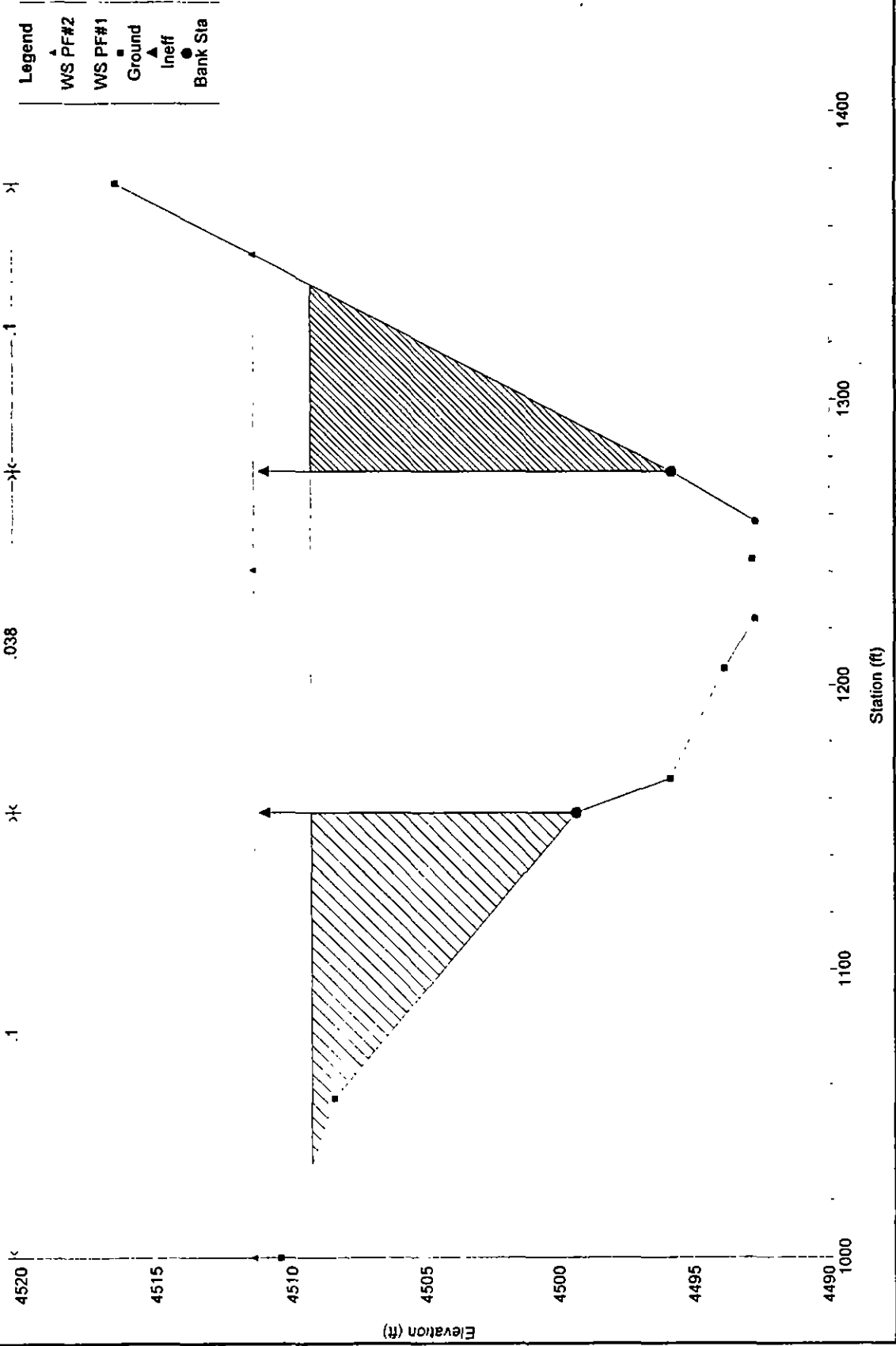


Truckee River FINAL PLAN 4/3/98

Plan #11-21309 P1 - 2400-LS

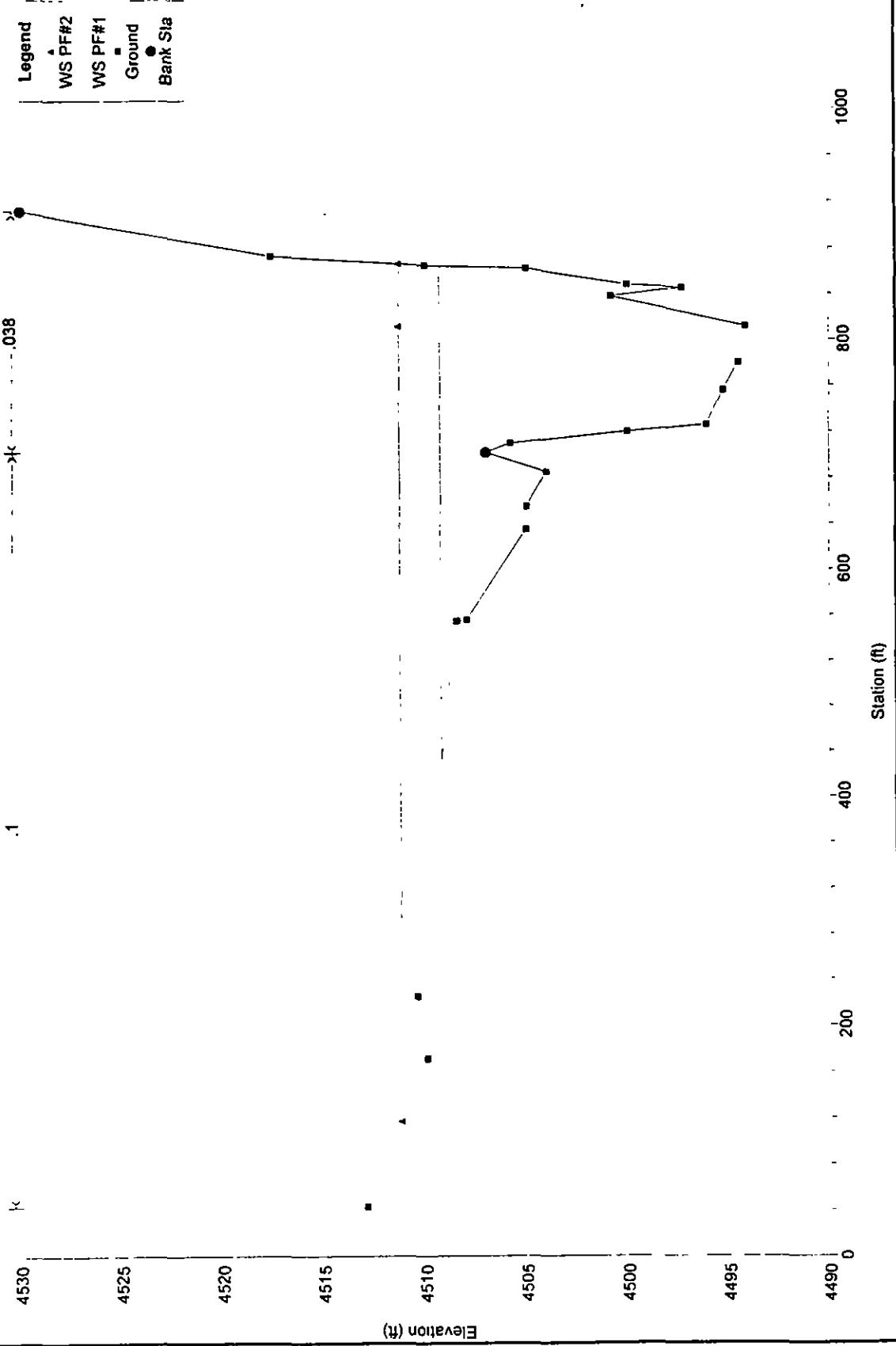
0.0128 31.000 14.87 12.97

0.5 52.97



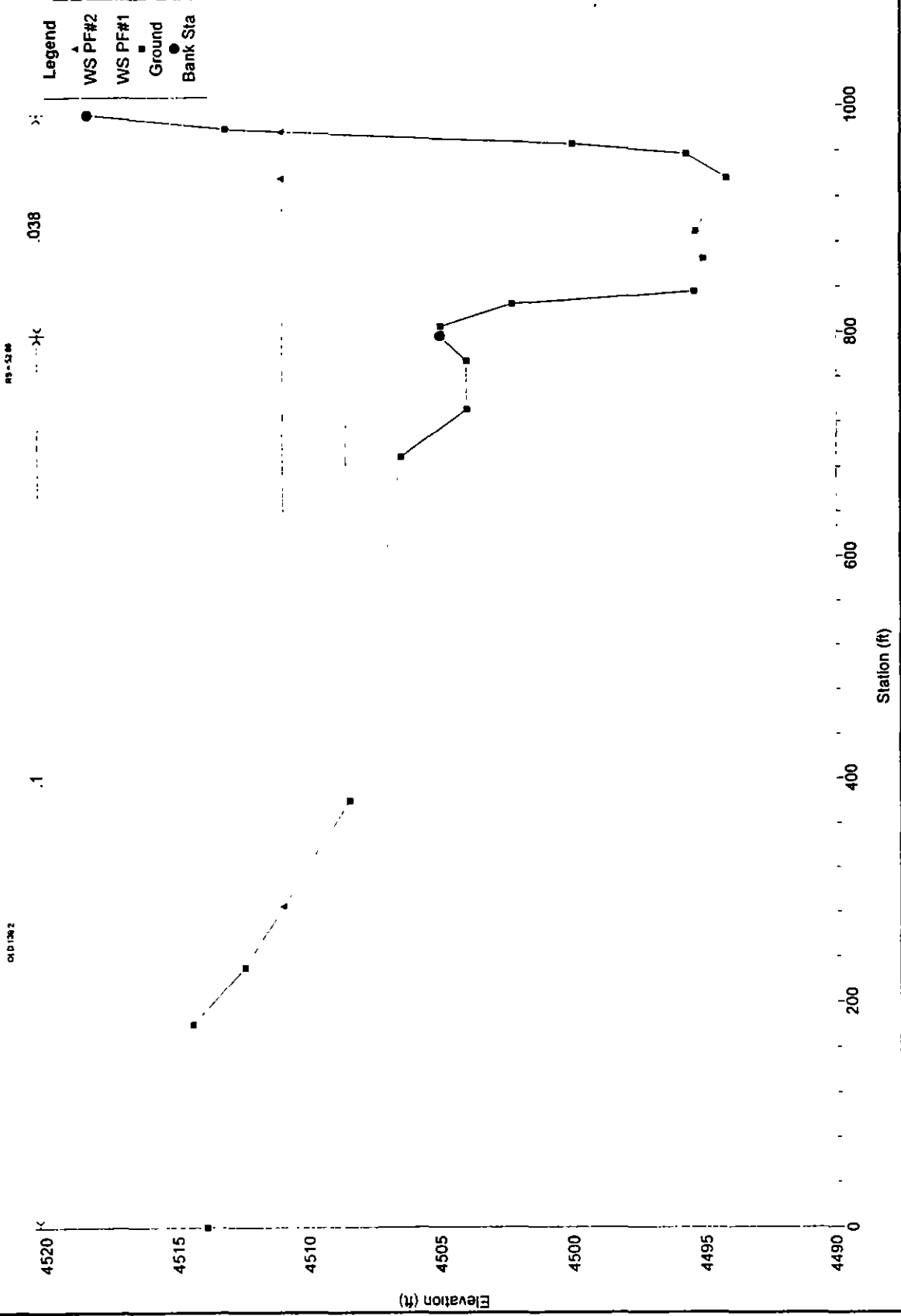
Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300 #2 = 24500 cfs
old 139.2 RS = 52.9



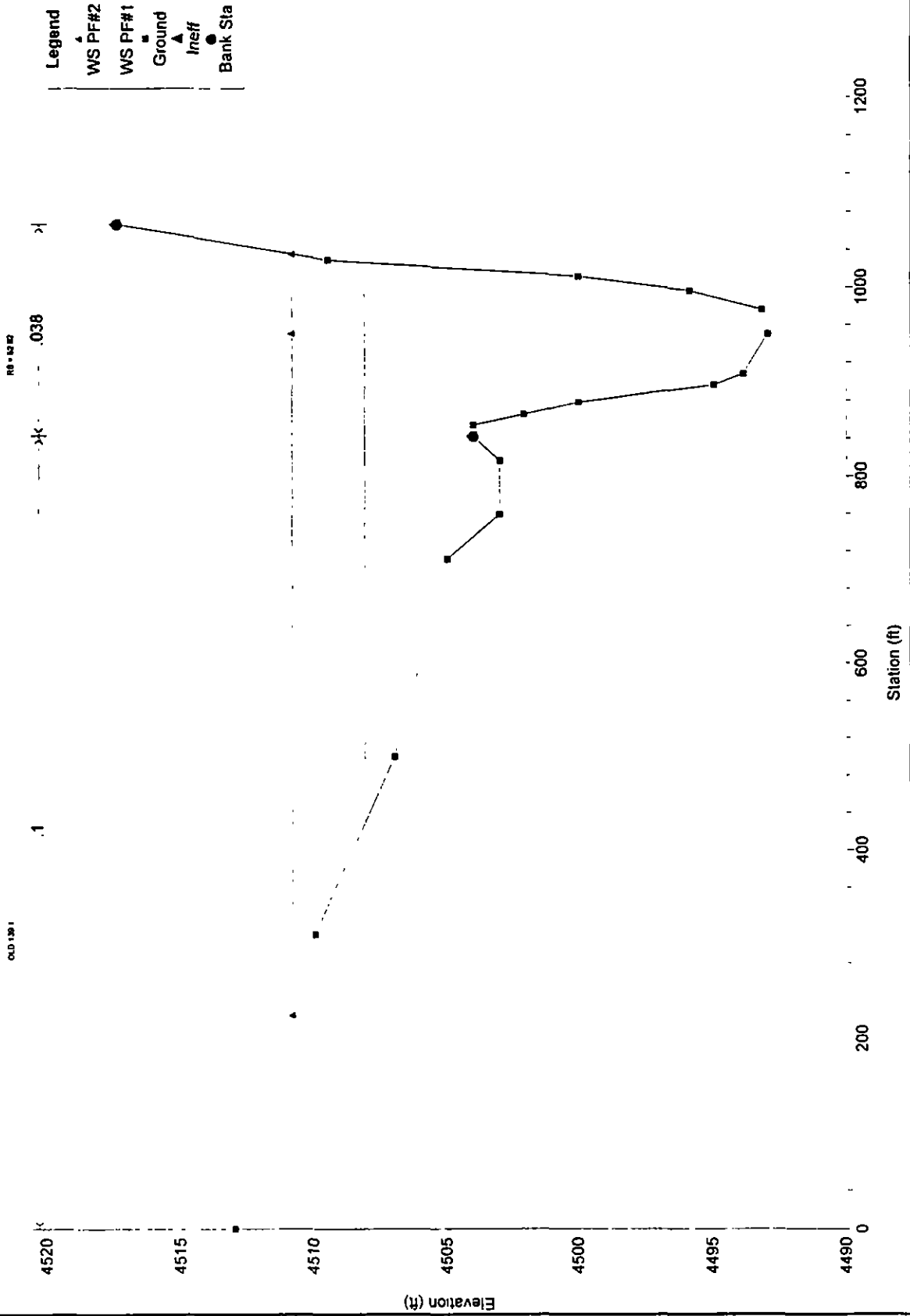
Truckee River FINAL PLAN 4/3/98

Plan #1 - 2000 (1 - 2000) ch



Truckee River FINAL PLAN 4/3/98

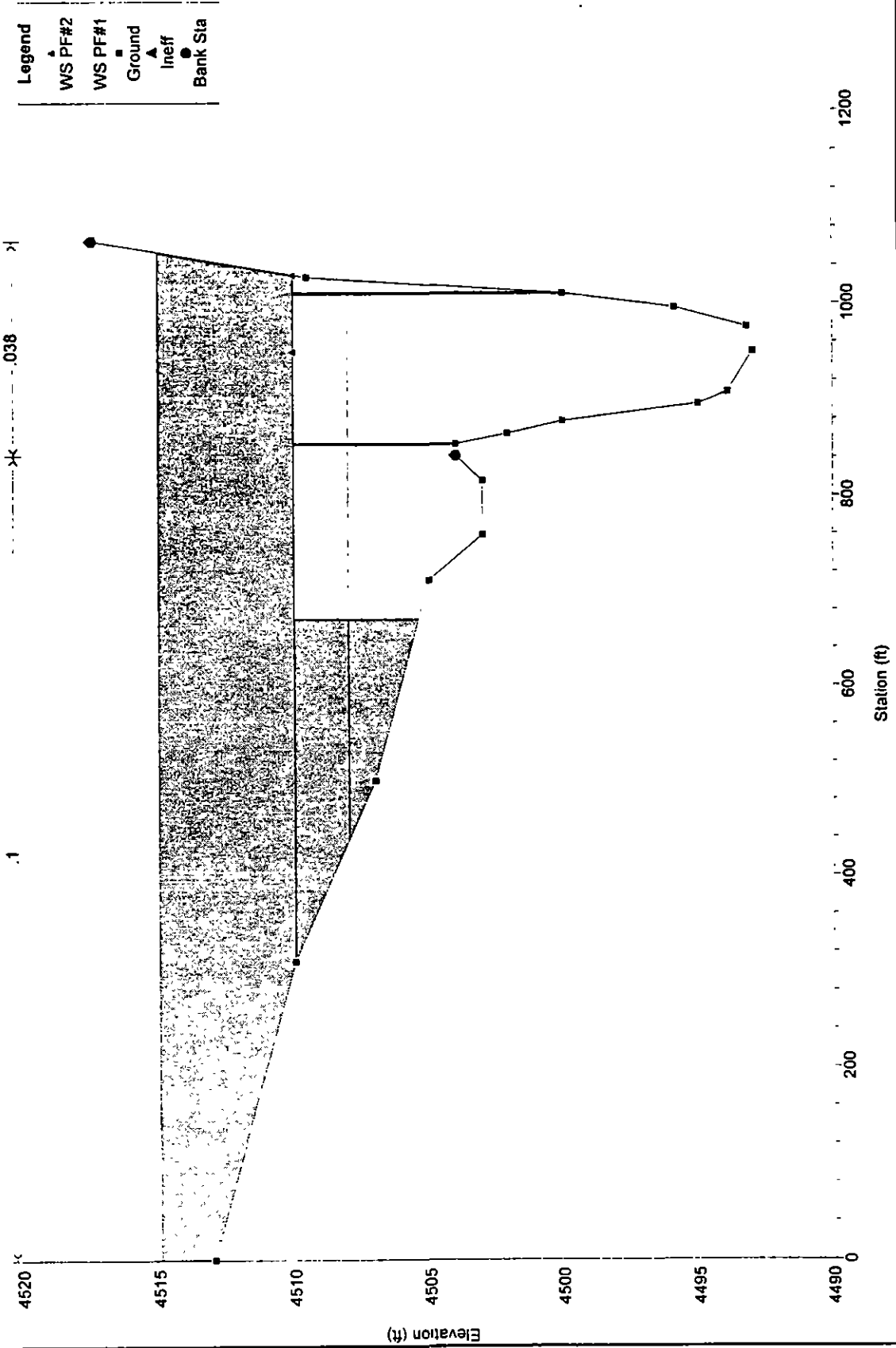
Plan #11-23300-01-24000/05



Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300 #2 = 24500 cfs

Keystone Ave. RS = 52.815 BR U



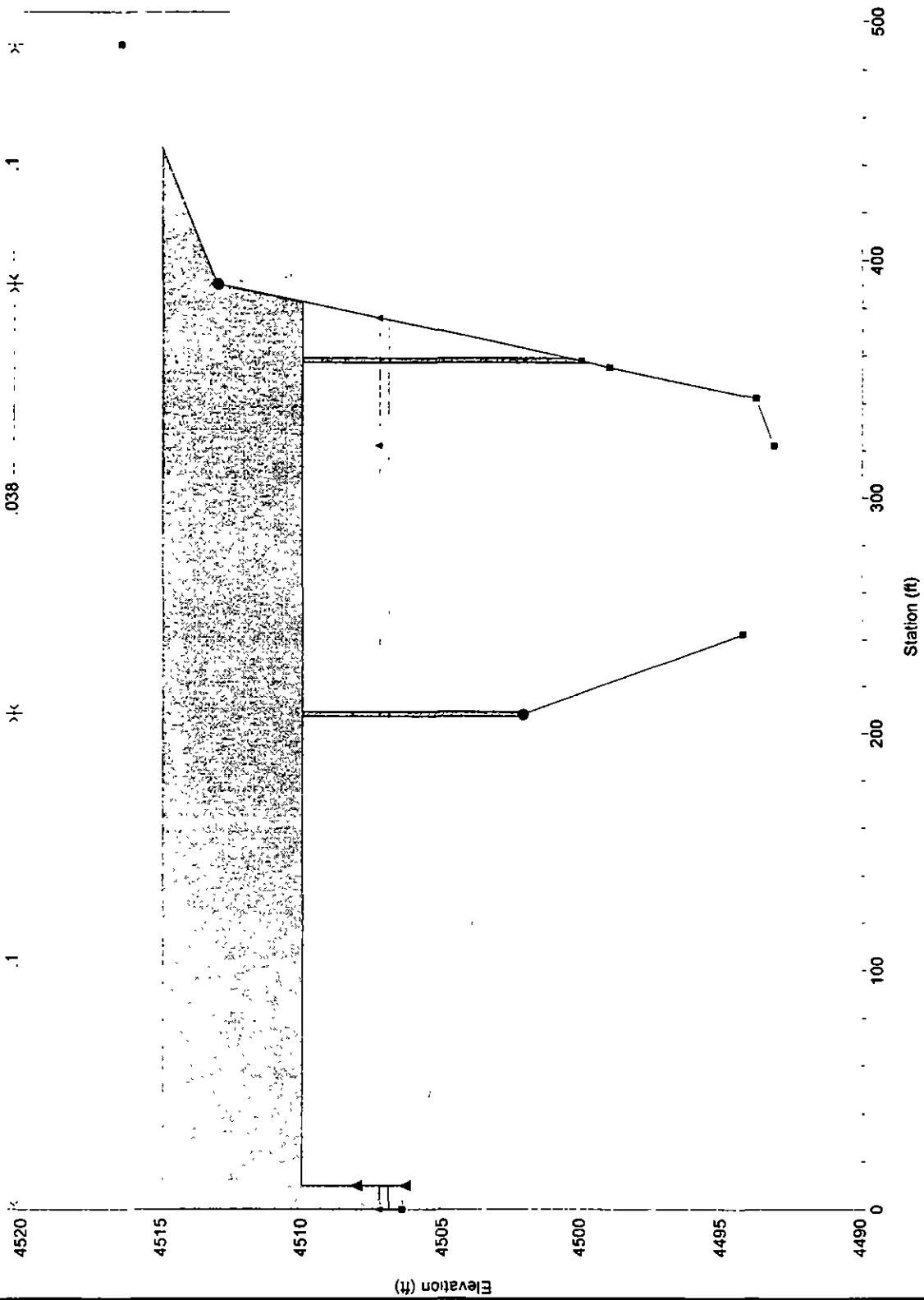
Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300, #2 = 24500 cfs

Keystone Ave. RS = 52.815 BR D

.038

- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Ineff
 - Bank Sta

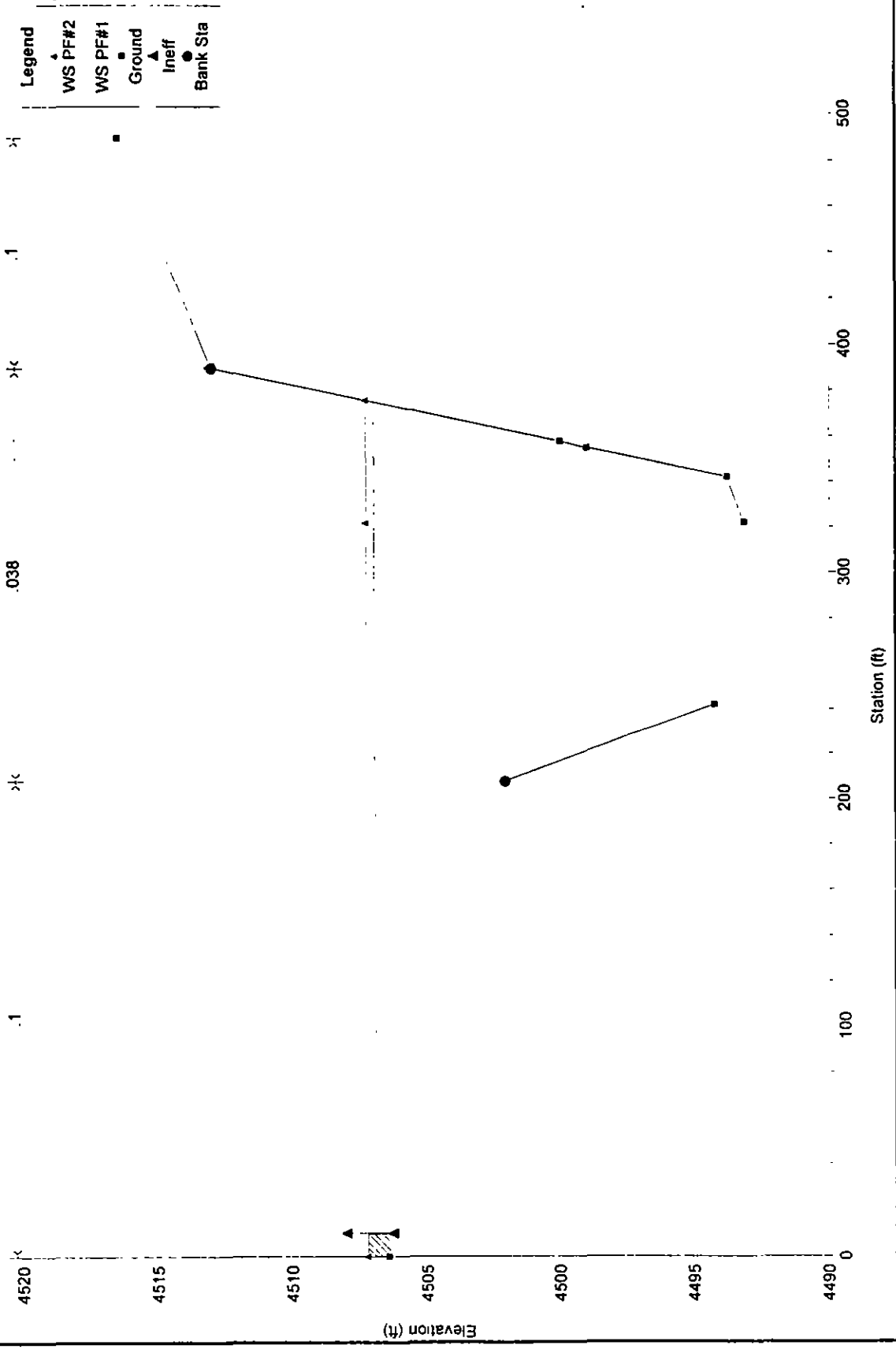


Truckee River FINAL PLAN 4/3/98

From #17 23300 42 + 24000 ch

OLD 13R03 (PNESTONE ST 5281)

RS = 52.81



Truckee River FINAL PLAN 4/3/98

Flow 31 = 2300 cfs @ 7450 cfs

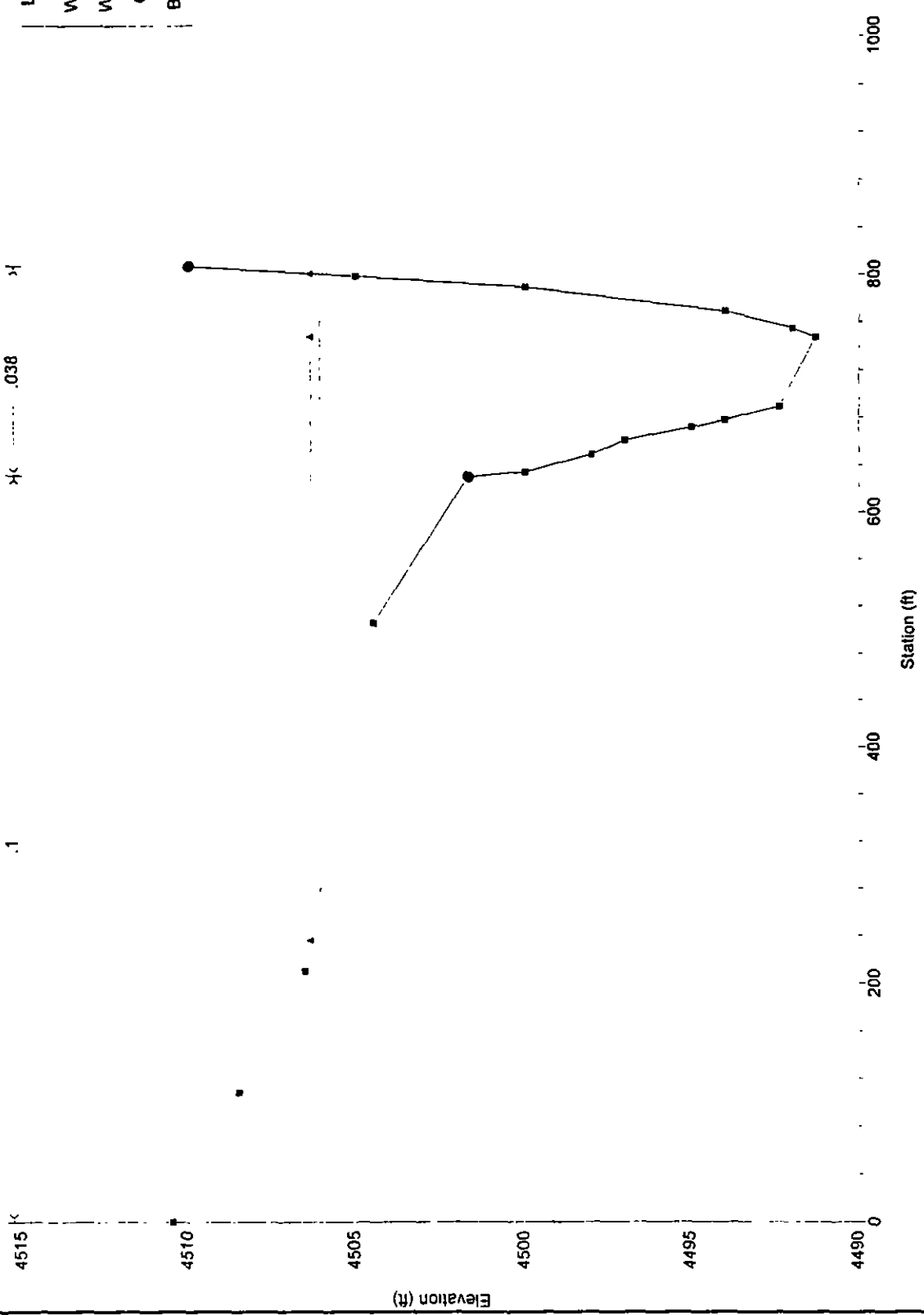
OLD 134.6

NS = 5276

.1

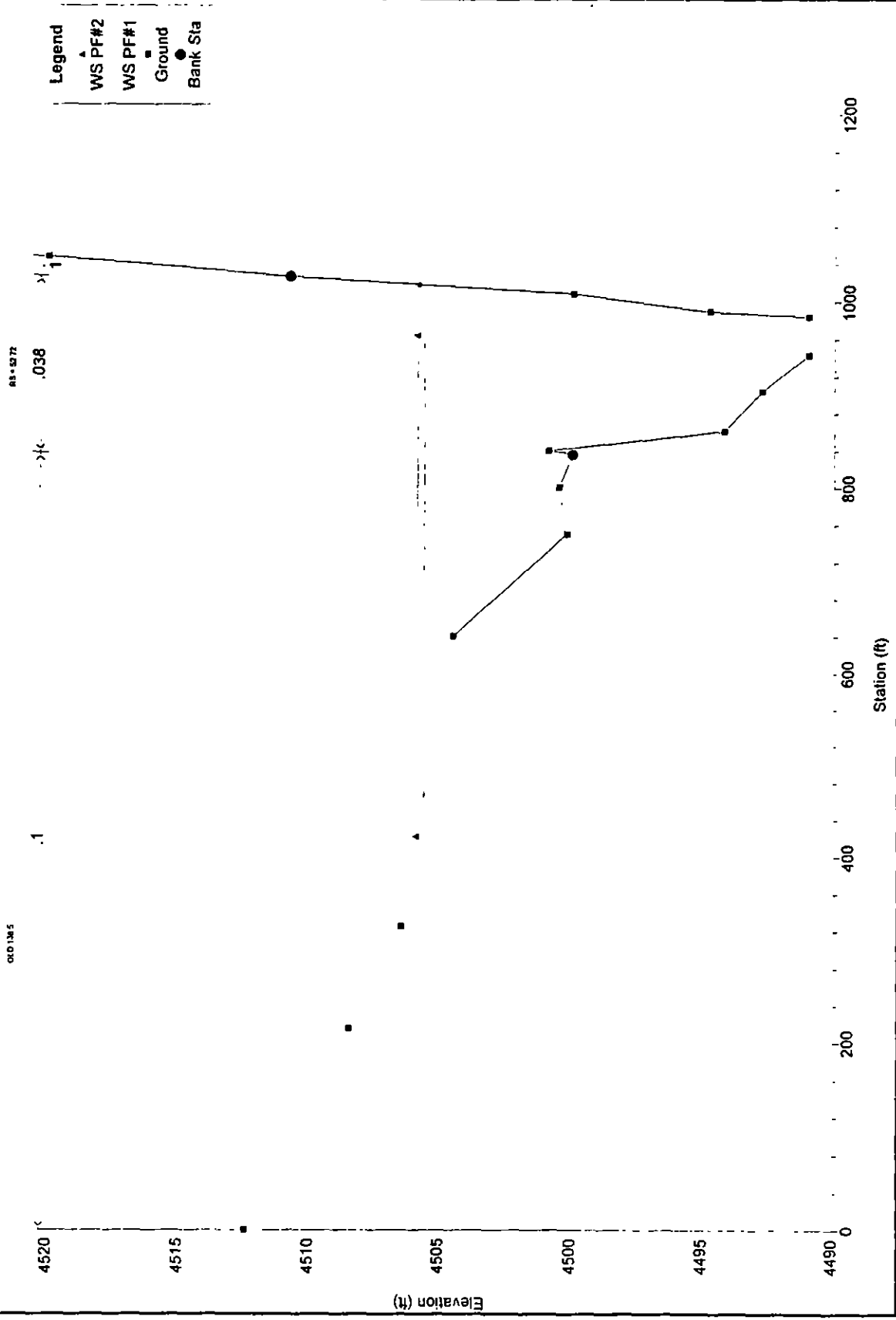
0.038

- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Bank Sta



Truckee River FINAL PLAN 4/3/98

Flow 811 - 2000 ft³ - 7600 cfs

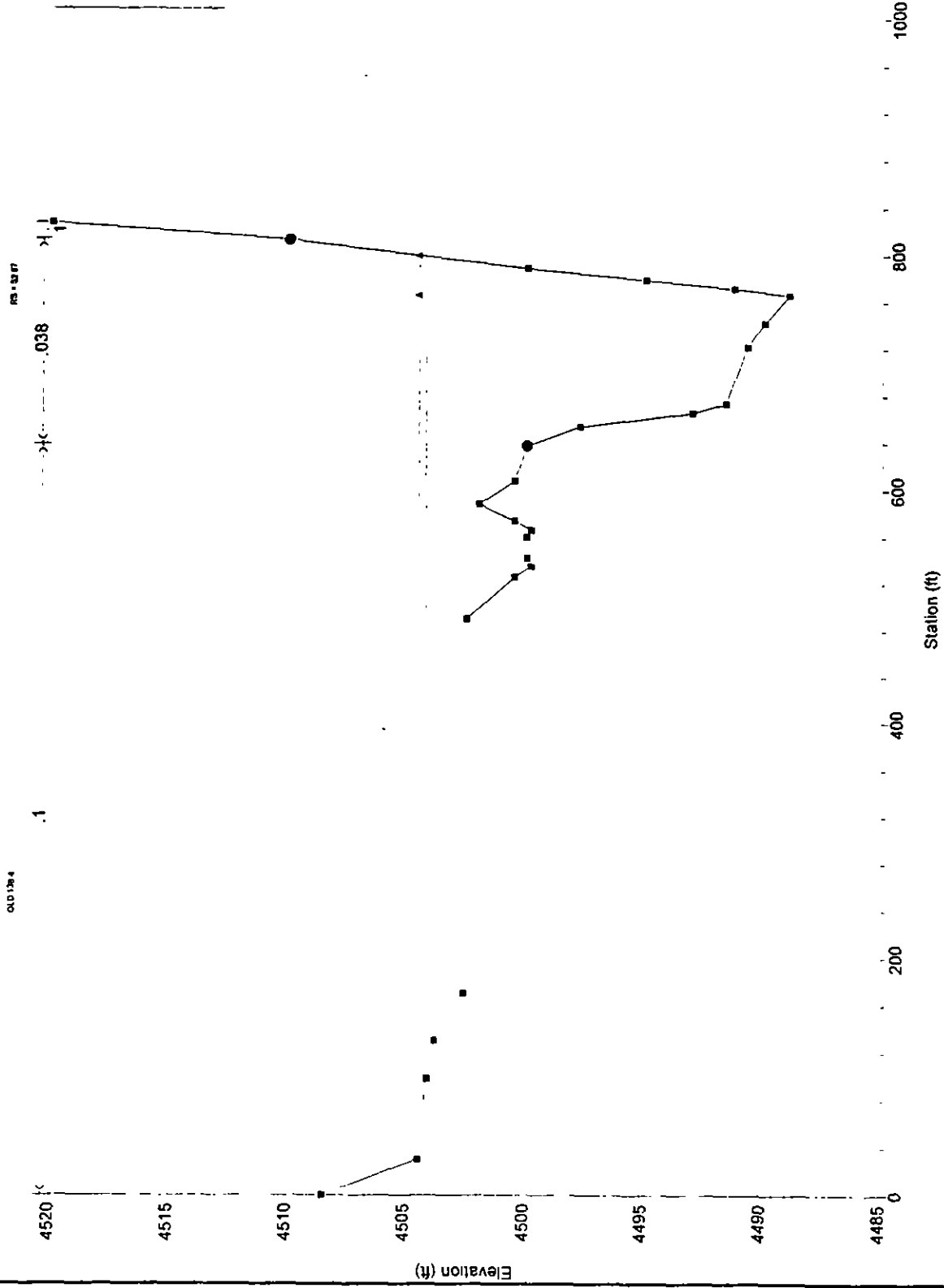


- Legend
- ▲ WS PF#2
 - WS PF#1
 - Ground
 - Bank Sta

Truckee River FINAL PLAN 4/3/98

File #1 - 7300.P2 - 2450.dwg

- Legend**
- WS PF#2
 - WS PF#1
 - Ground
 - Bank Sta



Truckee River FINAL PLAN 4/3/98

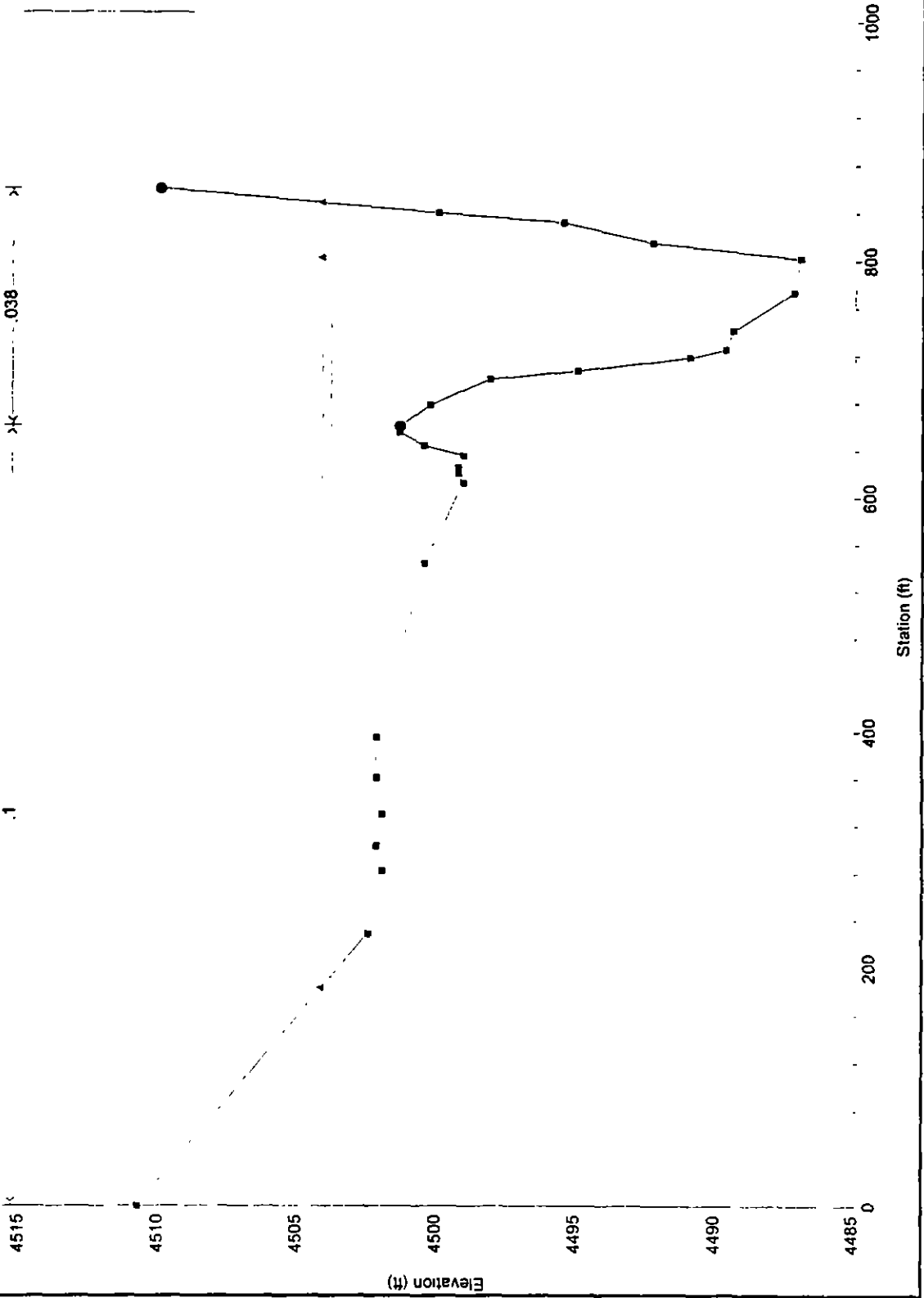
For #17-2300 (P)-2400 (S)

010.030

RS-1515

--->K<--- .038 --->K<---

- Legend
- ▲ WS PF#2
 - WS PF#1
 - Ground
 - Bank Sta



Truckee River FINAL PLAN 4/3/98

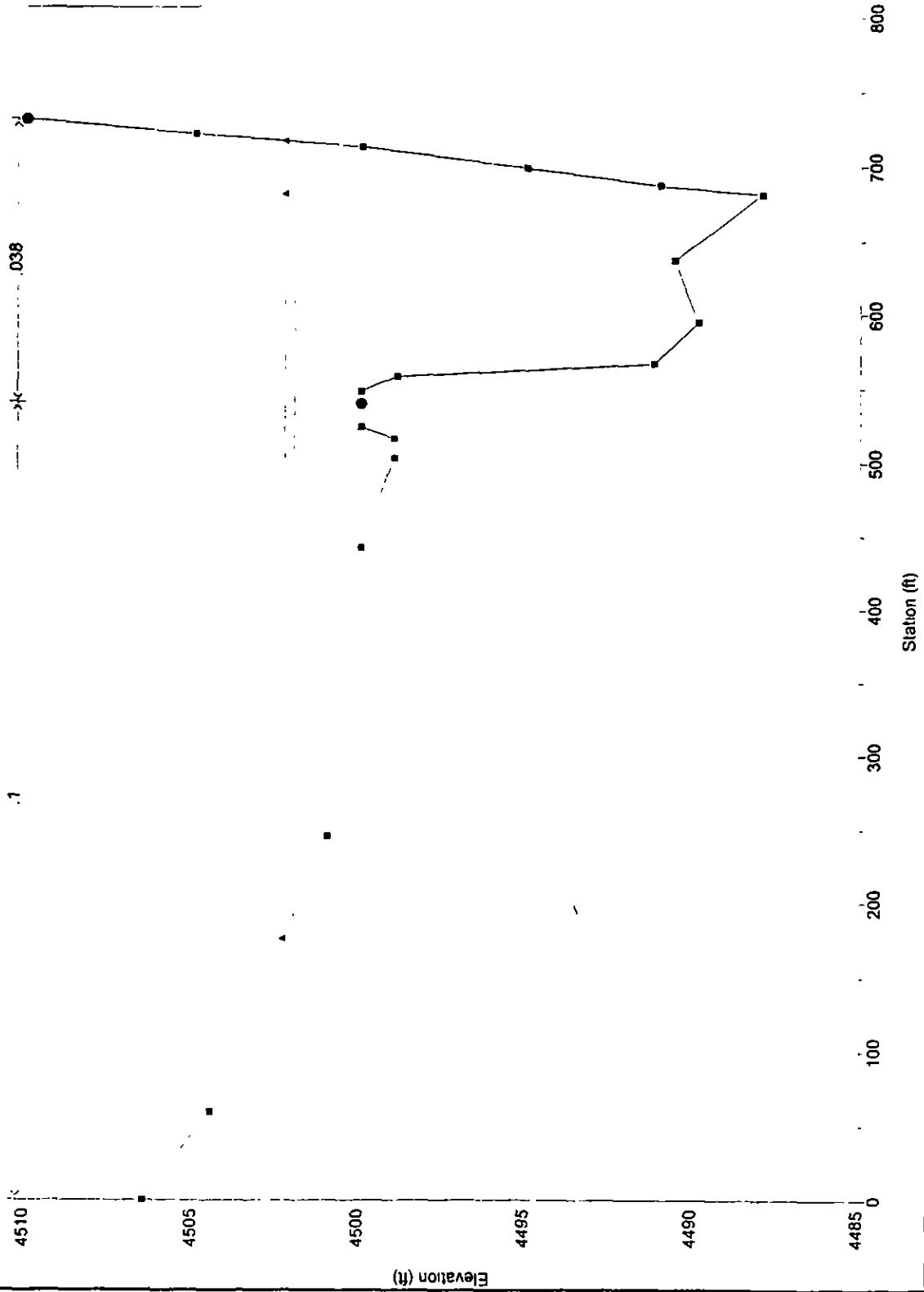
Flow 411-25300 82-74000 cfs

0.0142

RS-12.6

---K--- .038

- Legend
- ▲ WS PF#2
- WS PF#1
- Ground
- Bank Sta



Truckee River FINAL PLAN 4/3/98

(New #1 - 21,500 SF - 2,650 CH)

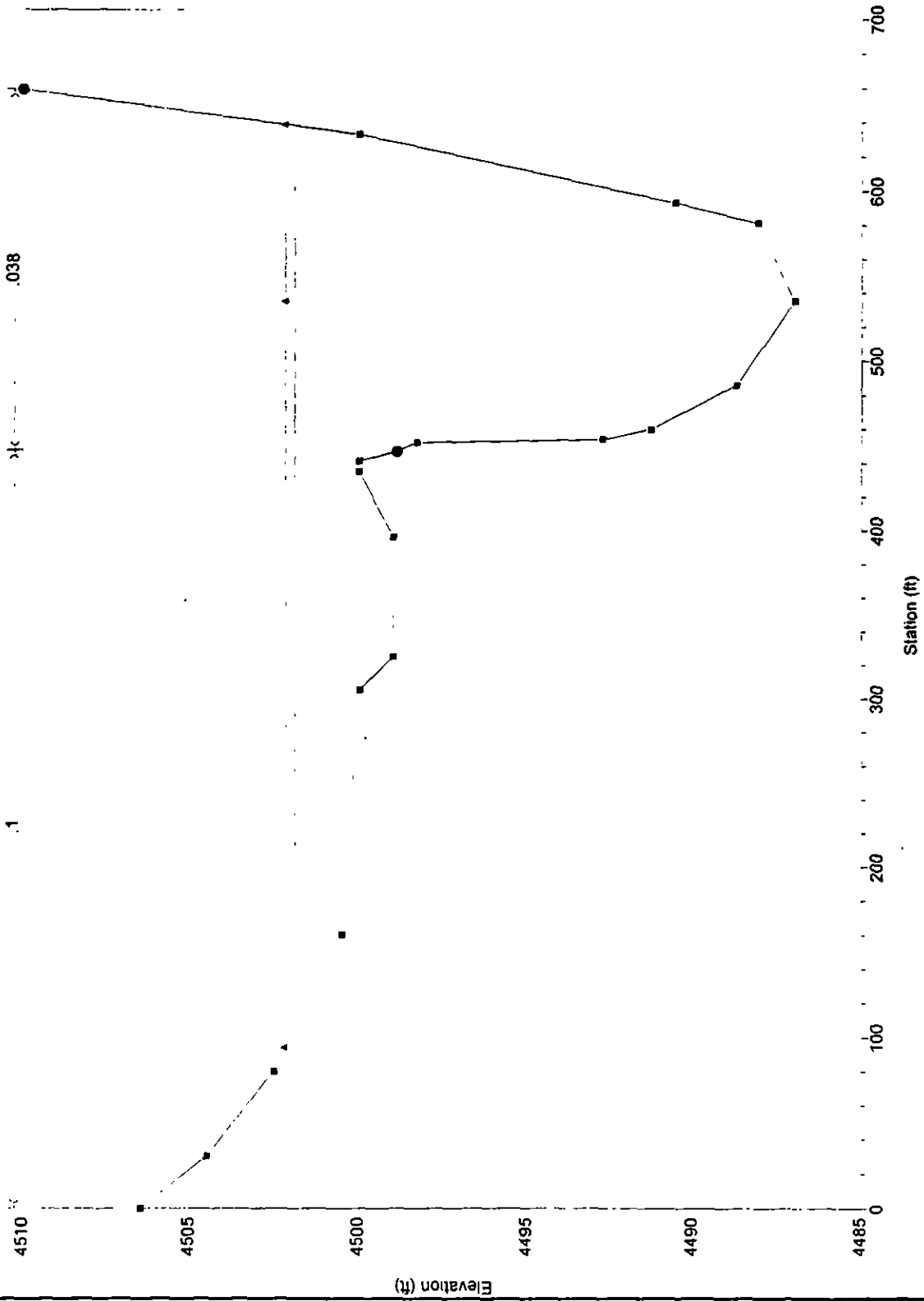
0.0138

.1

NS = 57.56

.038

- Legend**
- WS PF#2 ▲
 - WS PF#1 ■
 - Ground ●
 - Bank Sta ○

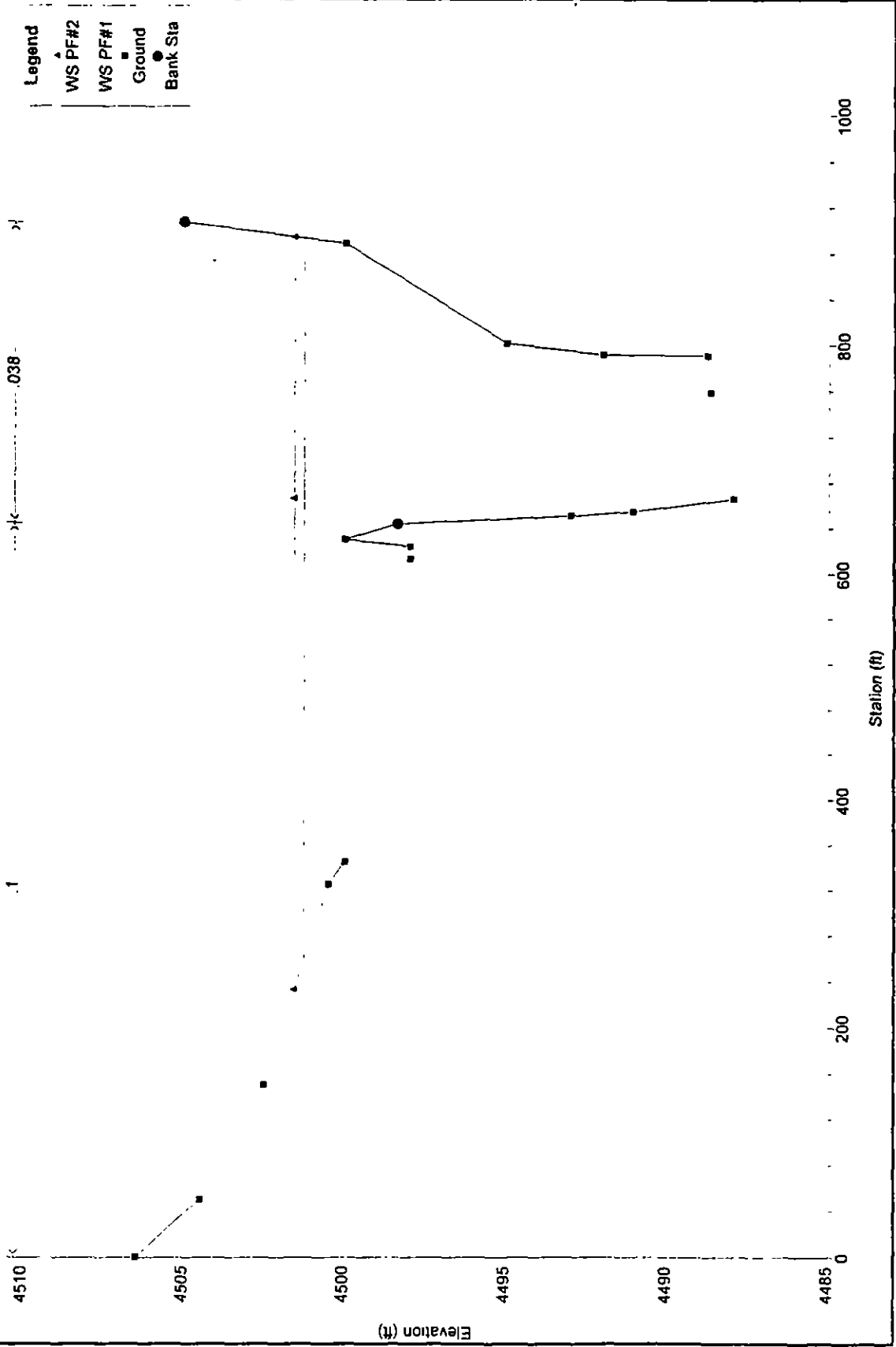


Truckee River FINAL PLAN 4/3/98

Flow #1 - 2500 #2 - 2400 cfs

0.01377

0.038



- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Bank Sta

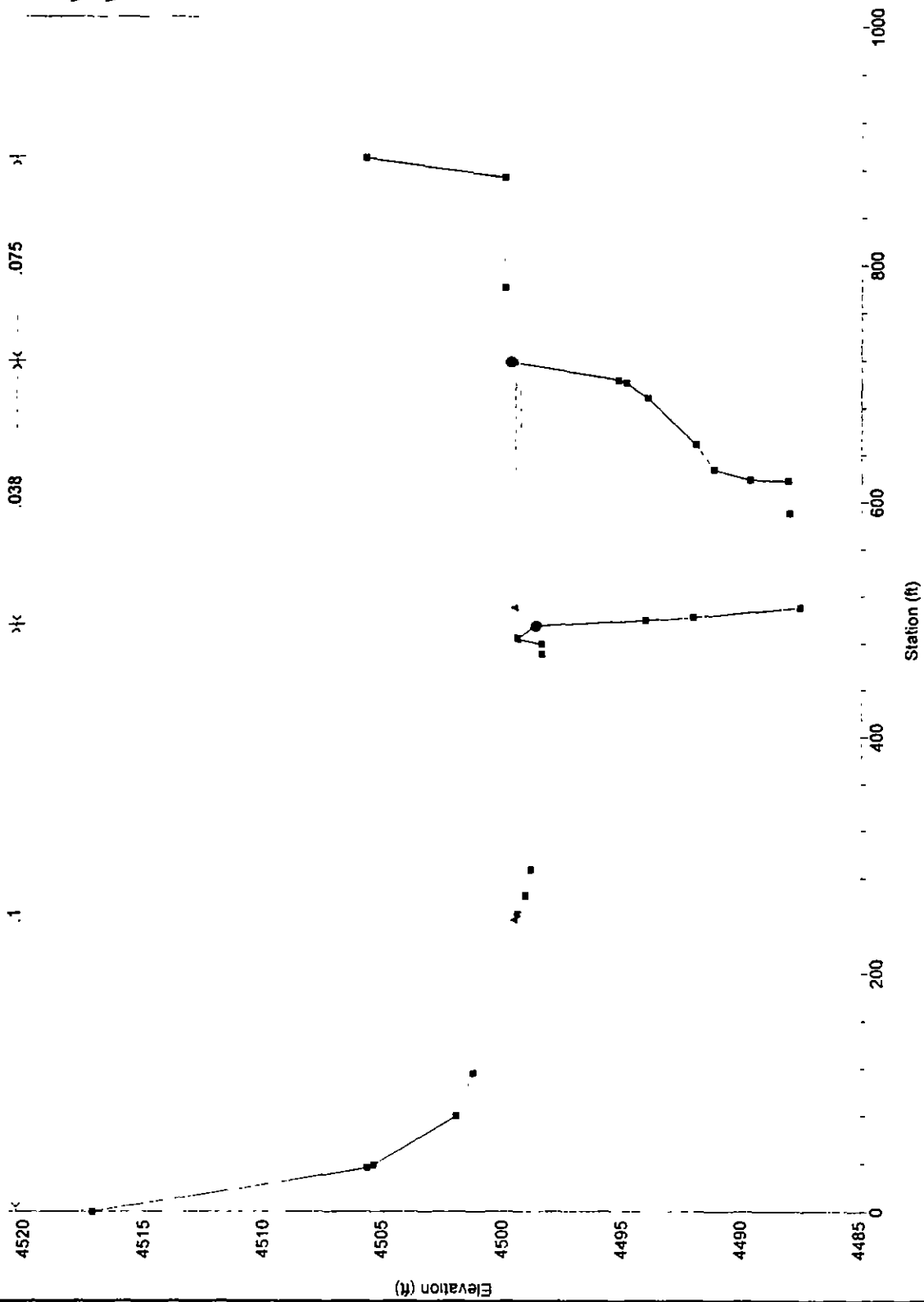
Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300, #2 = 24500 cfs

xsecn 52.489 taken out, interpolated xsecn added RS = 52.478°

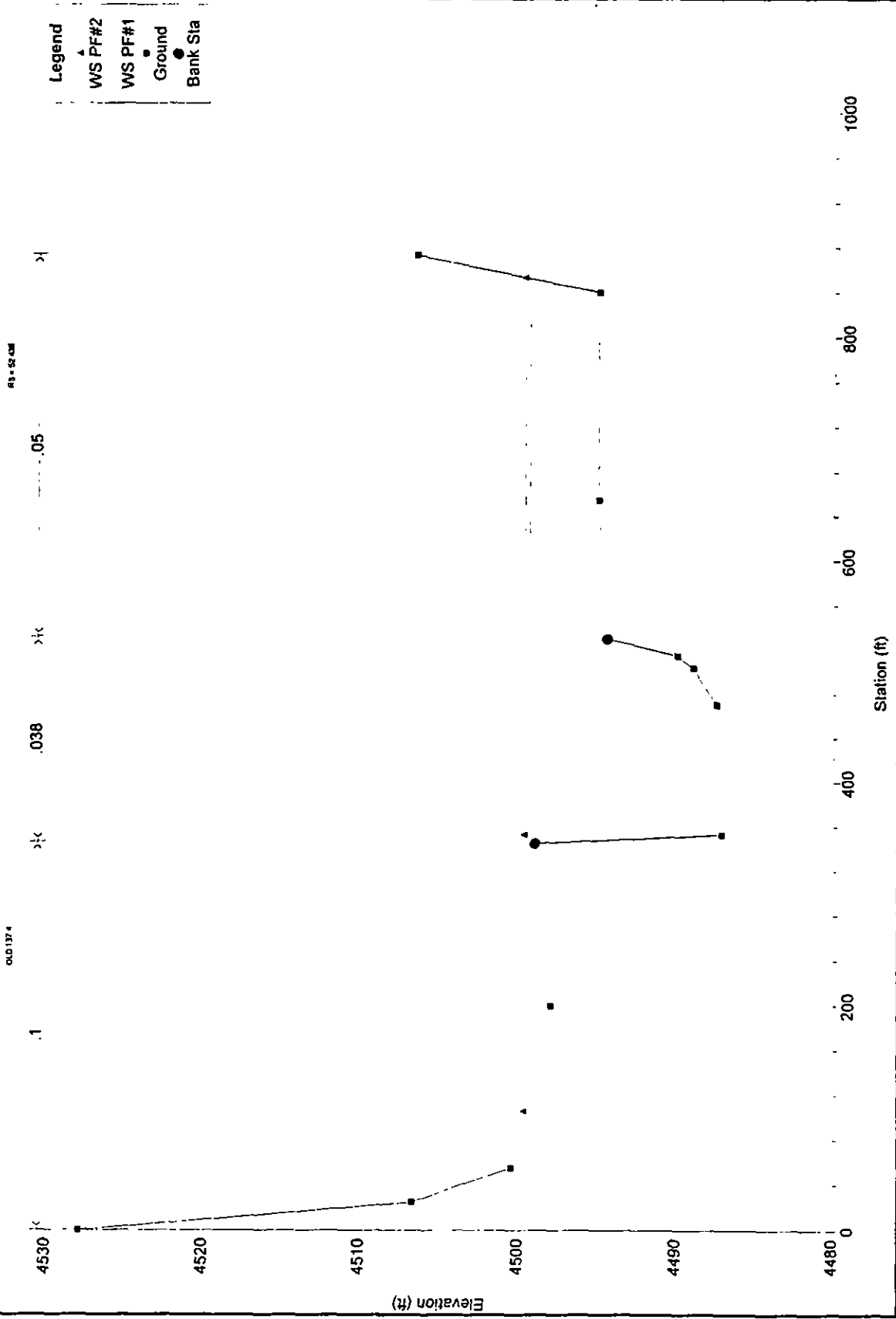
.1 x/c .038 x/c .075 x/c

- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Bank Sta



Truckee River FINAL PLAN 4/3/98

Flow #11-23300 SF = 26500.08



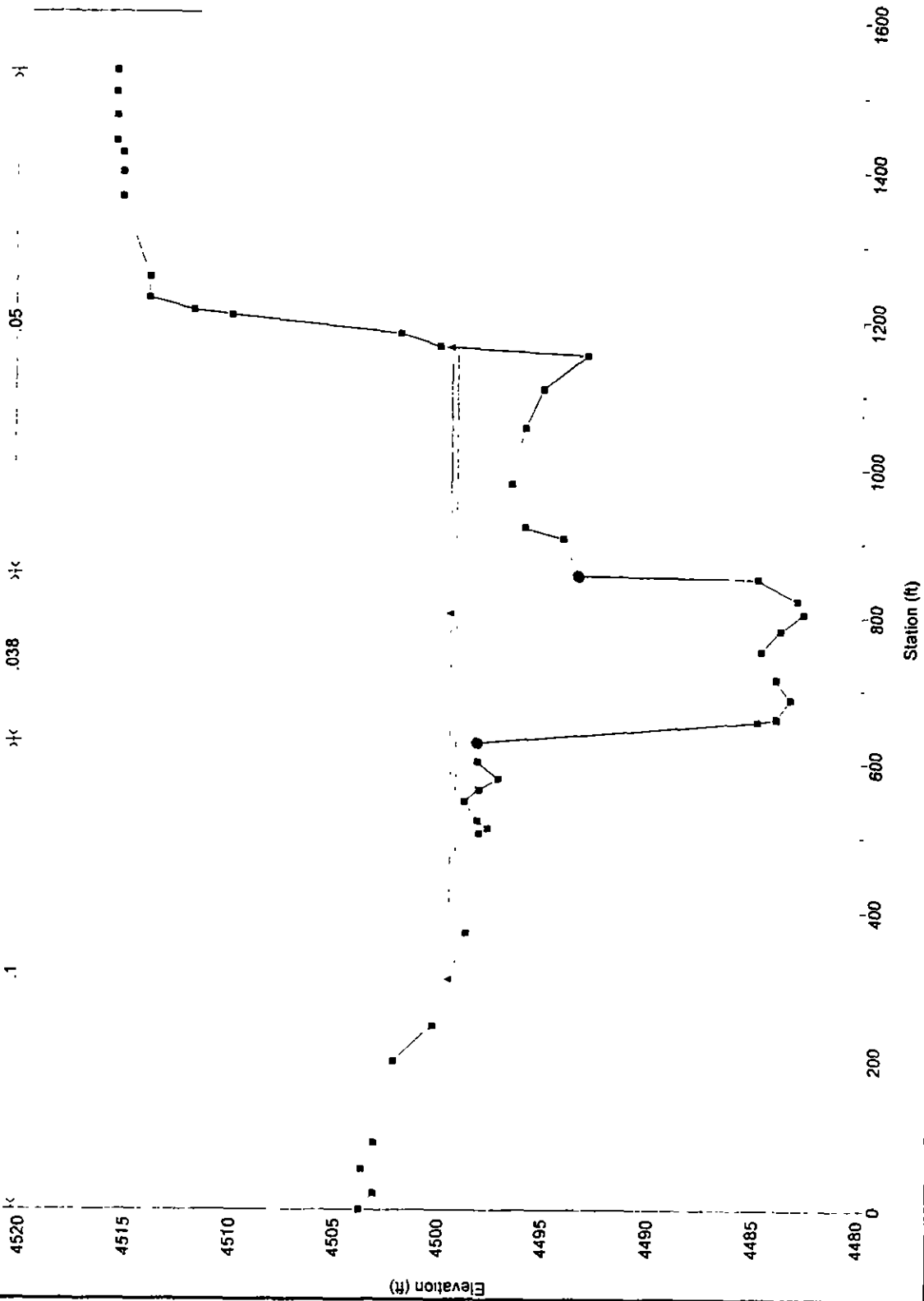
Truckee River FINAL PLAN 4/3/98

Flow. #1= 23300 #2 = 24500 cfs

RS = 52.391

.1 .038 .05

- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Bank Sta



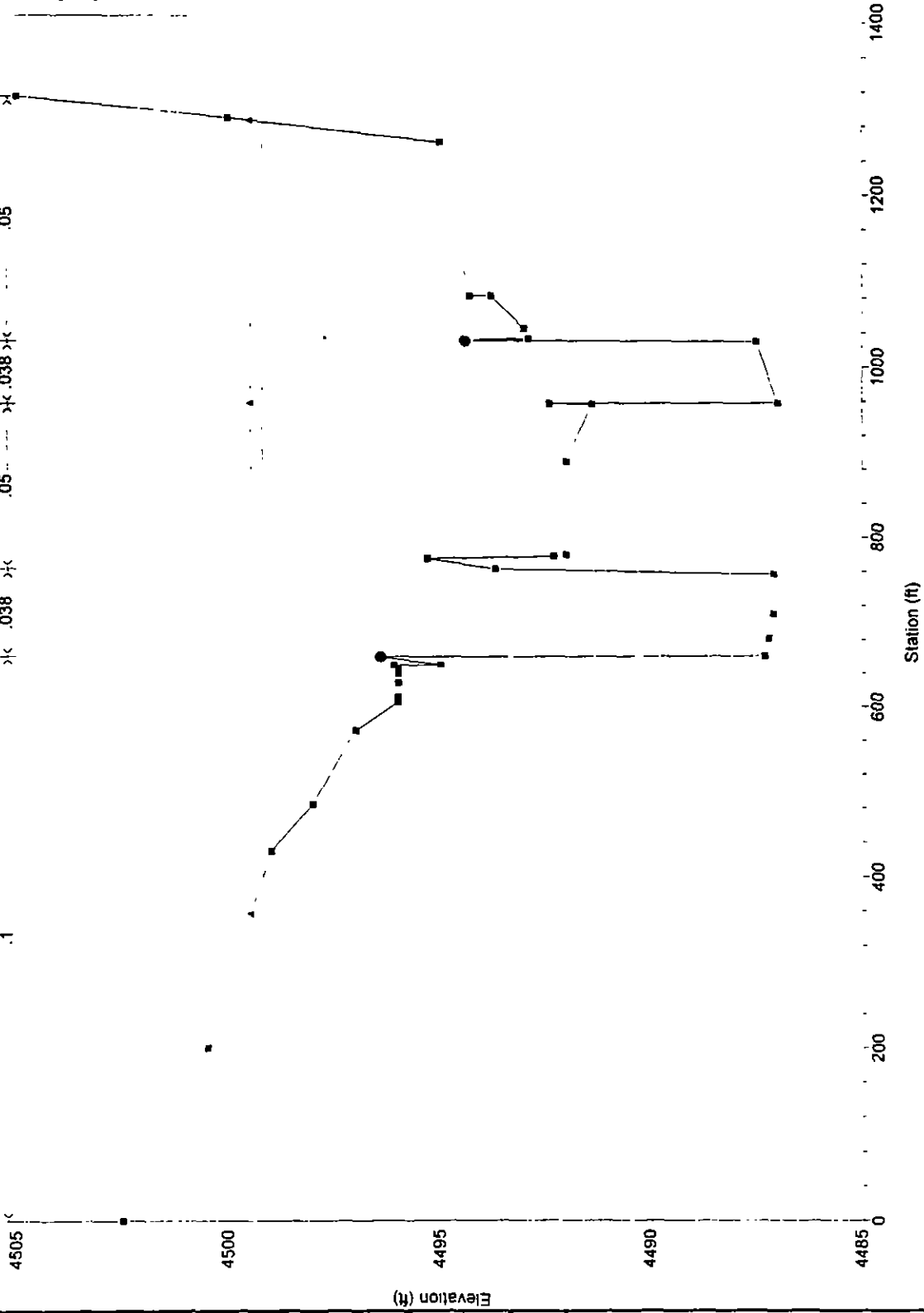
Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300, #2 = 24500 cfs

RS = 52.335

.1 >|< .038 >|< .05 >|< .038 >|< .05 >|< .05

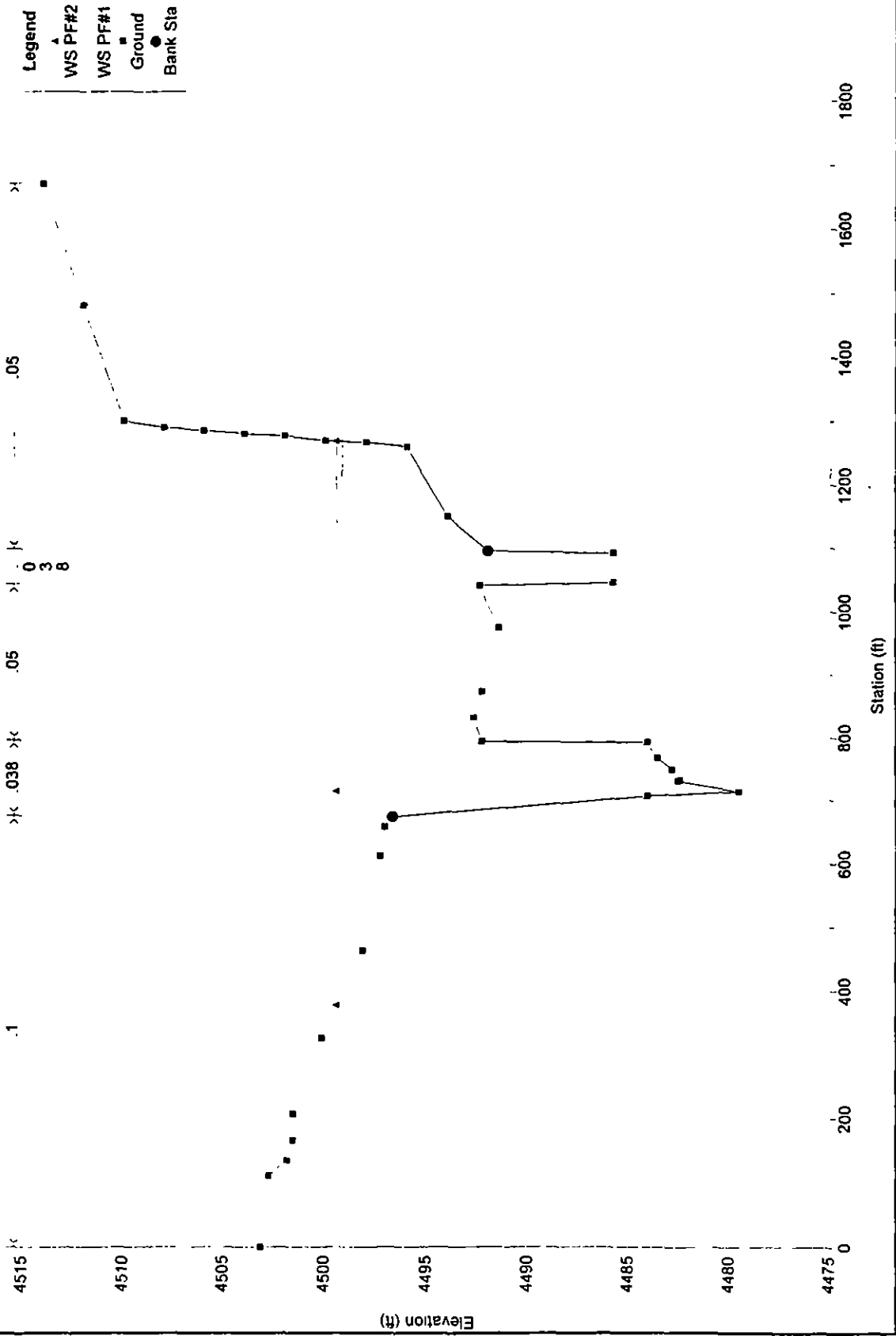
- Legend
- WS PF#2 (triangle)
 - WS PF#1 (square)
 - Ground (dotted line)
 - Bank Sta (circle)



Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300, #2 = 24500 cfs

RS = 52.326



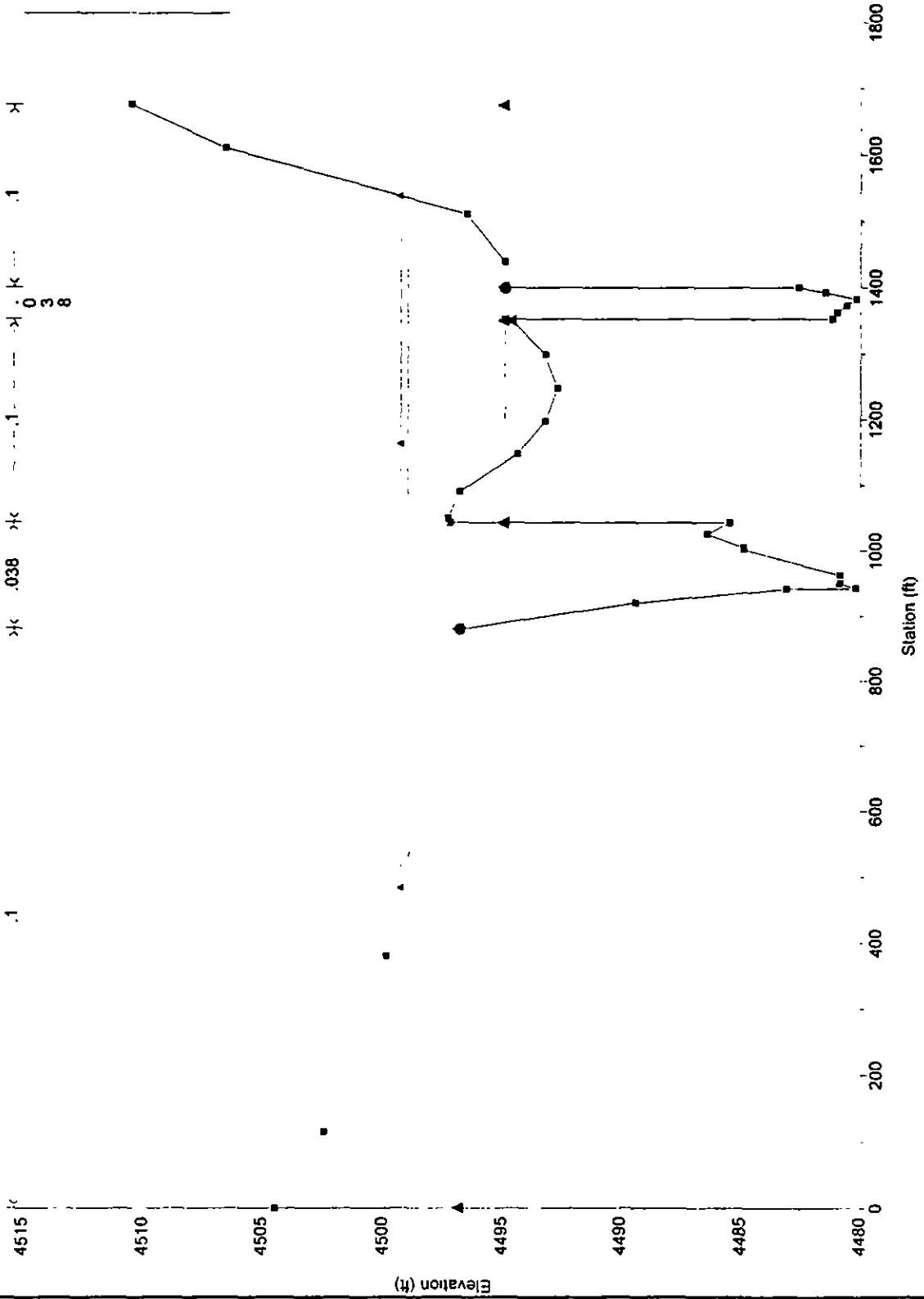
Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300, #2 = 24500 cfs

RS = 52.317

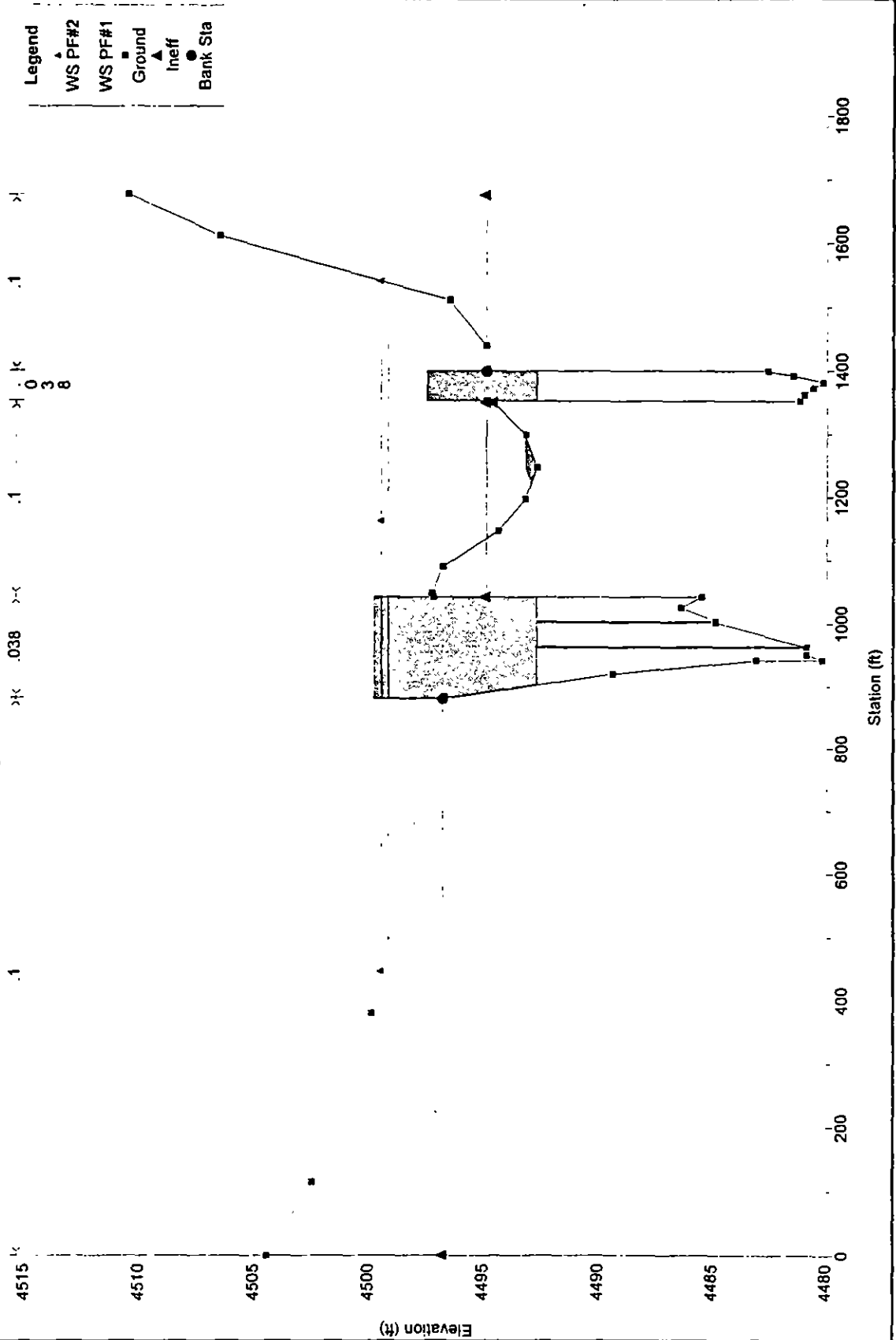
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- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Ineff
 - Bank Sta



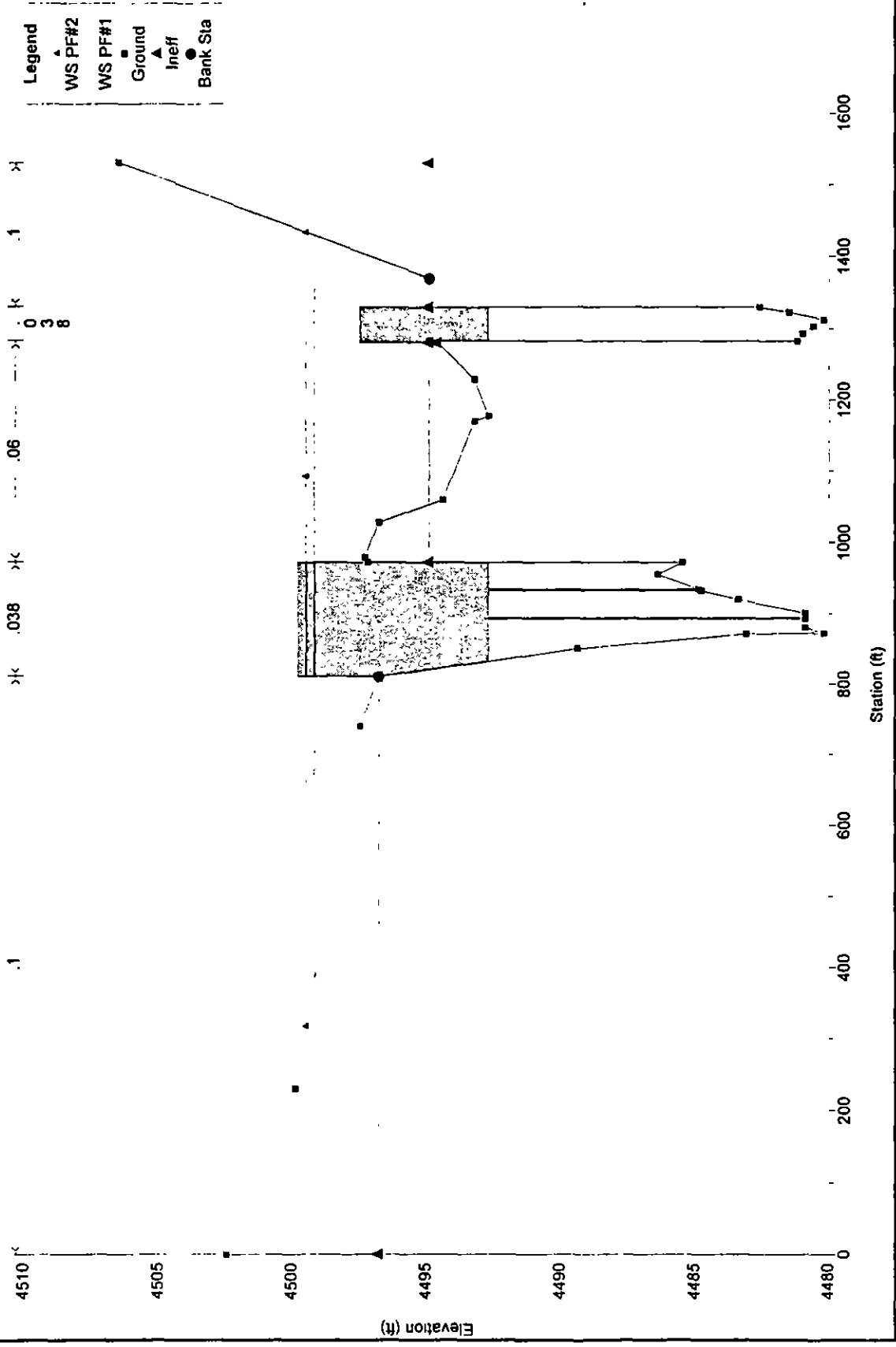
Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300 #2 = 24500 cfs
Arlington Ave RS = 52.309 MO U



Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300 #2 = 24500 cfs
Arlington Ave. RS = 52.309 MO D

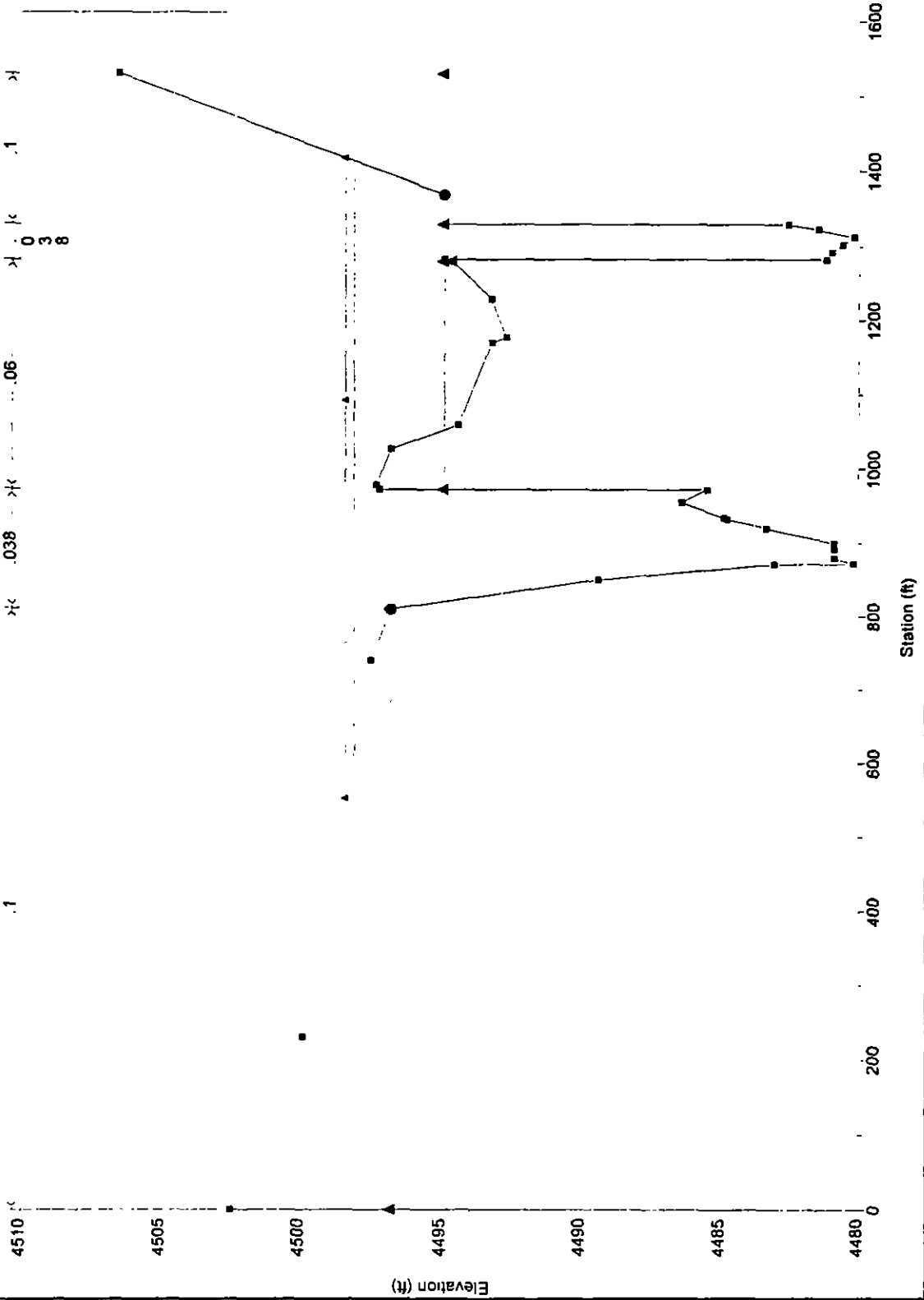


Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300 #2 = 24500 cfs

RS = 52.301

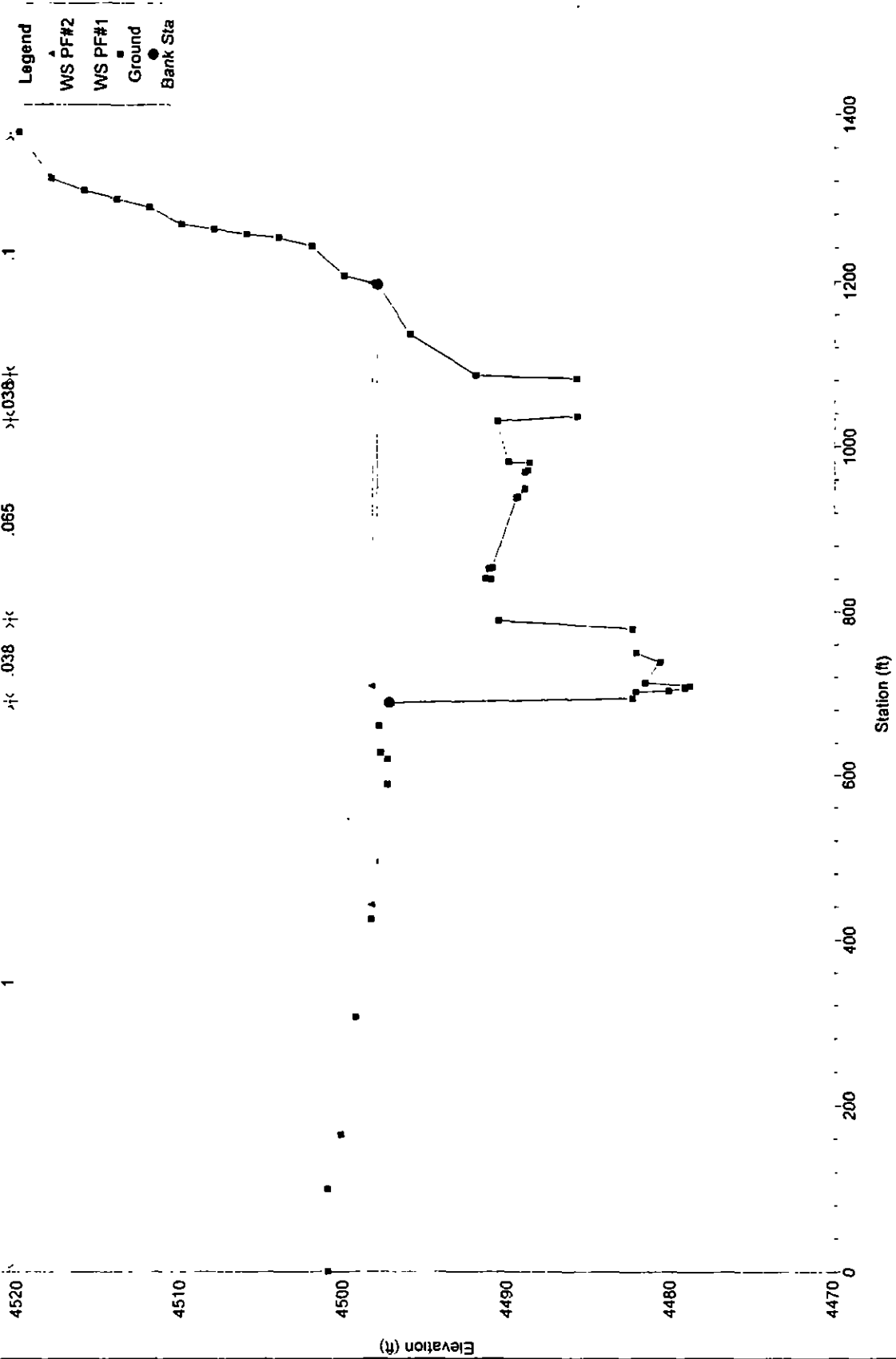
Legend
WS PF#2
WS PF#1
Ground
Ineff
Bank Sta



Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300 #2 = 24500 cfs

RS = 52.292



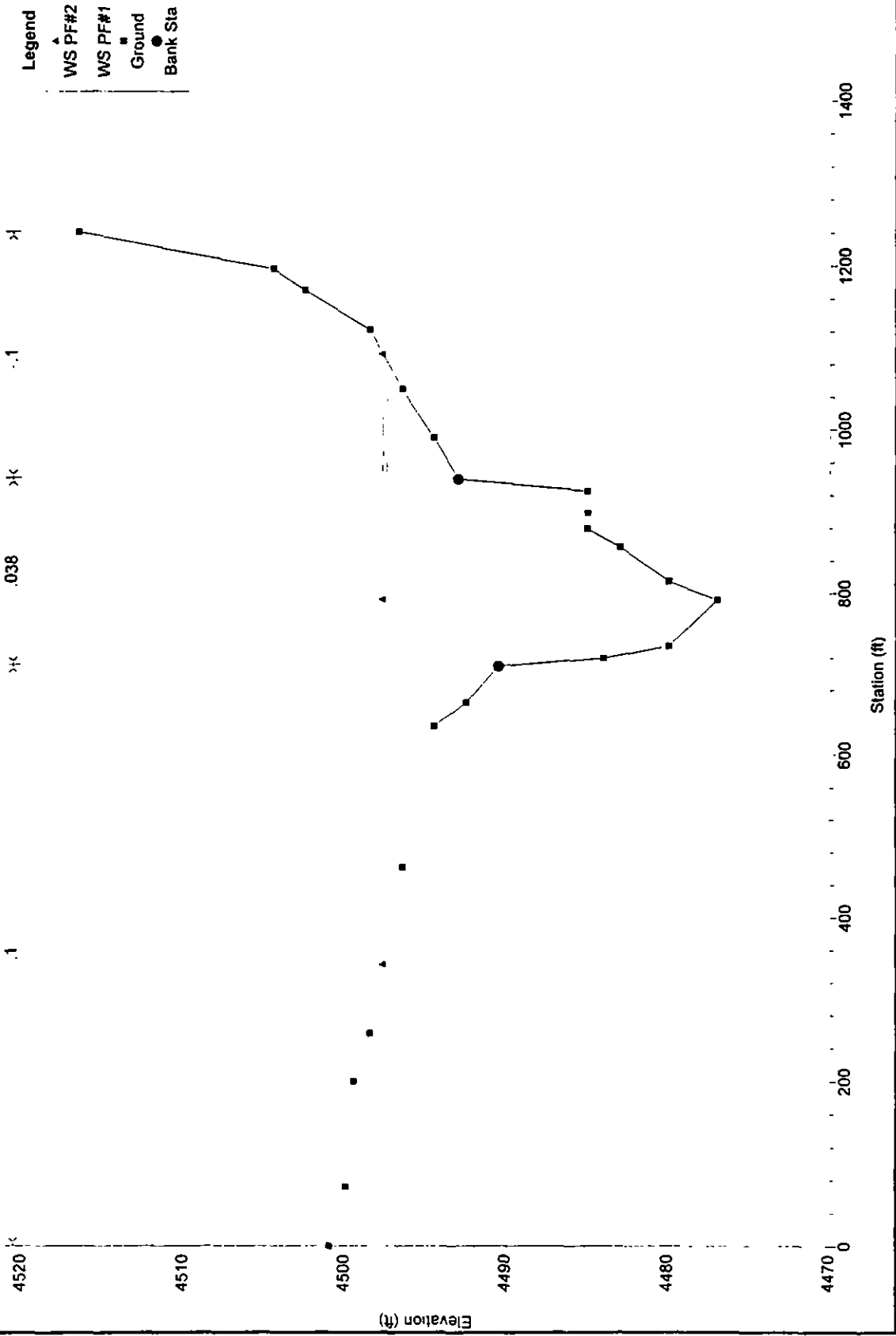
- Legend
- WS PF#2
- WS PF#1
- Ground
- Bank Sta

Truckee River FINAL PLAN 4/3/98

Flow #11-72300.R2 * 14500 cfs

0.0 134.5

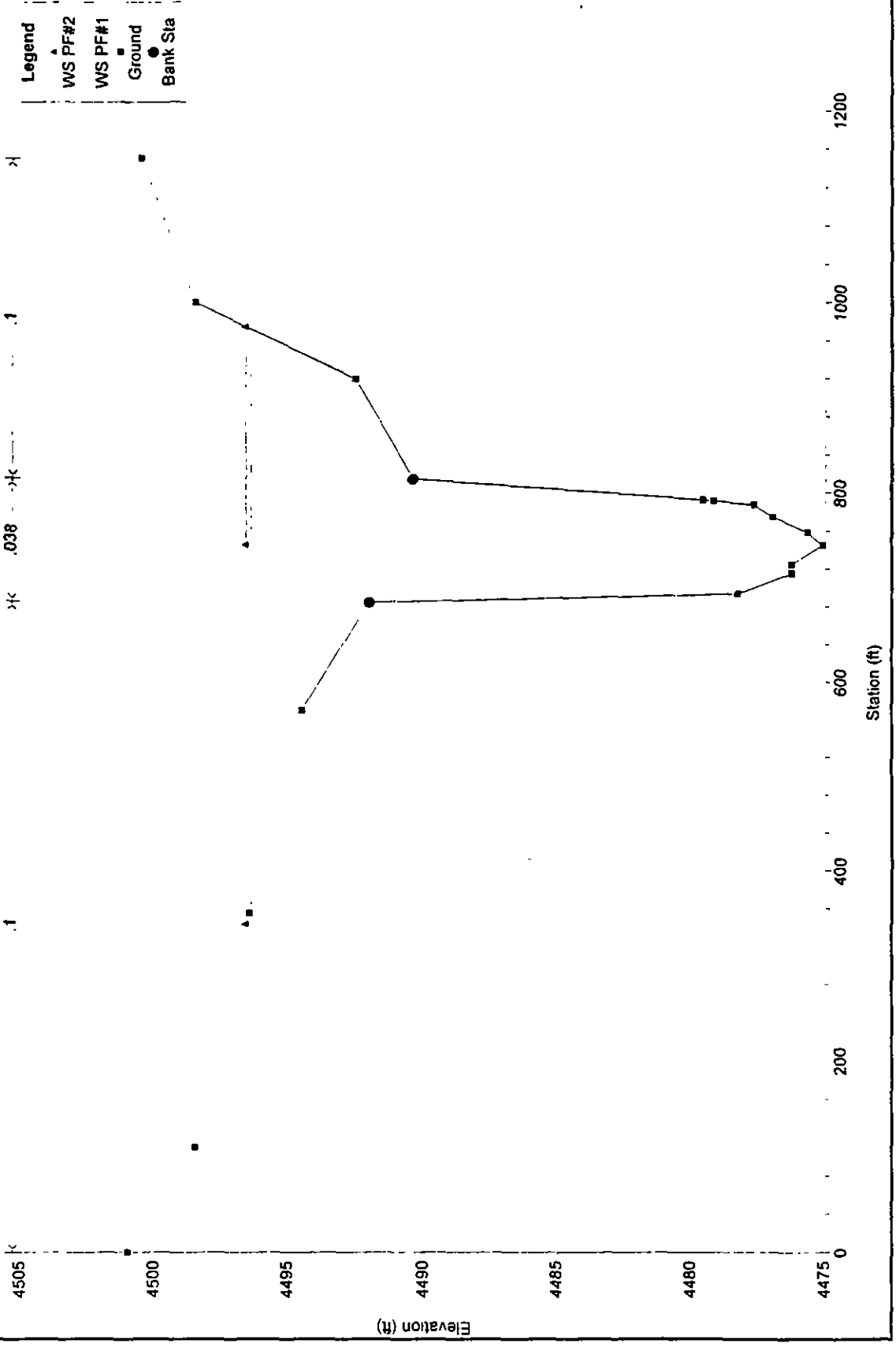
R0 - 45212



Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300 #2 = 24500 cfs

RS = 52.167

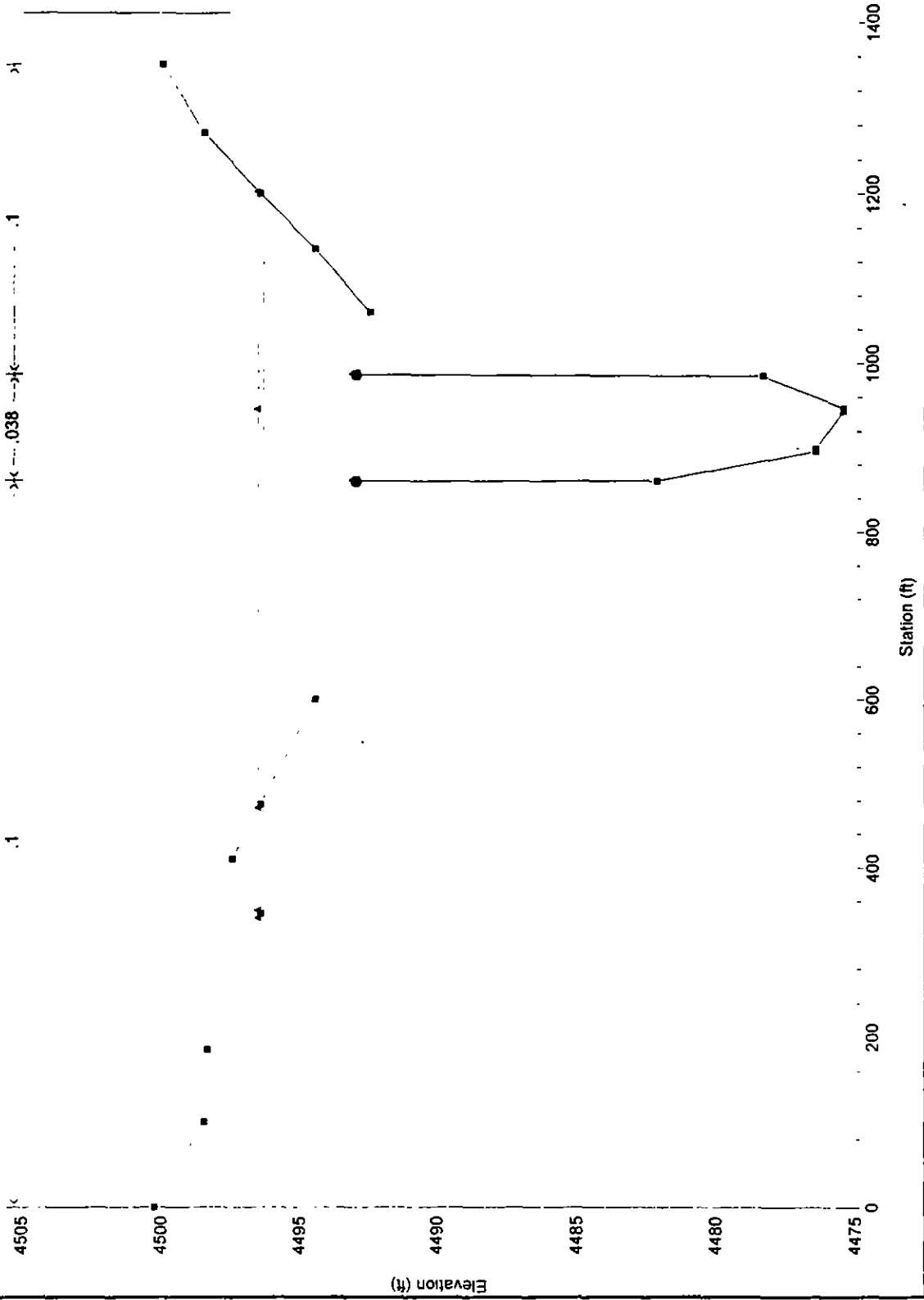


Truckee River FINAL PLAN 4/3/98

Flow 811-75300 #1 - 74600 US

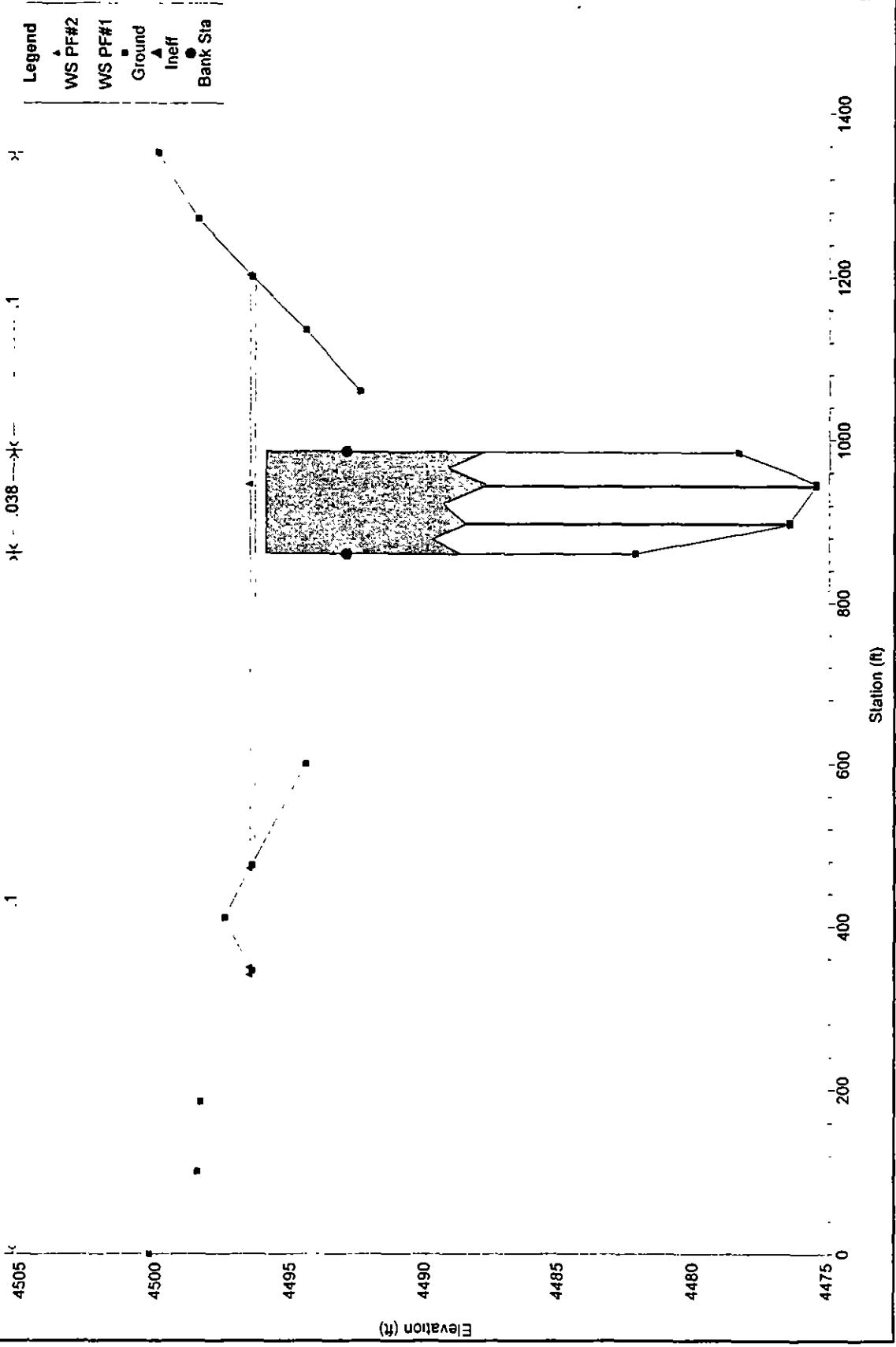
(PERMANENT)

85 = 52.156



Truckee River FINAL PLAN 4/3/98

Flow. #1= 23300 #2 = 24500 cfs
Sierra St. RS = 52.1535 BR U

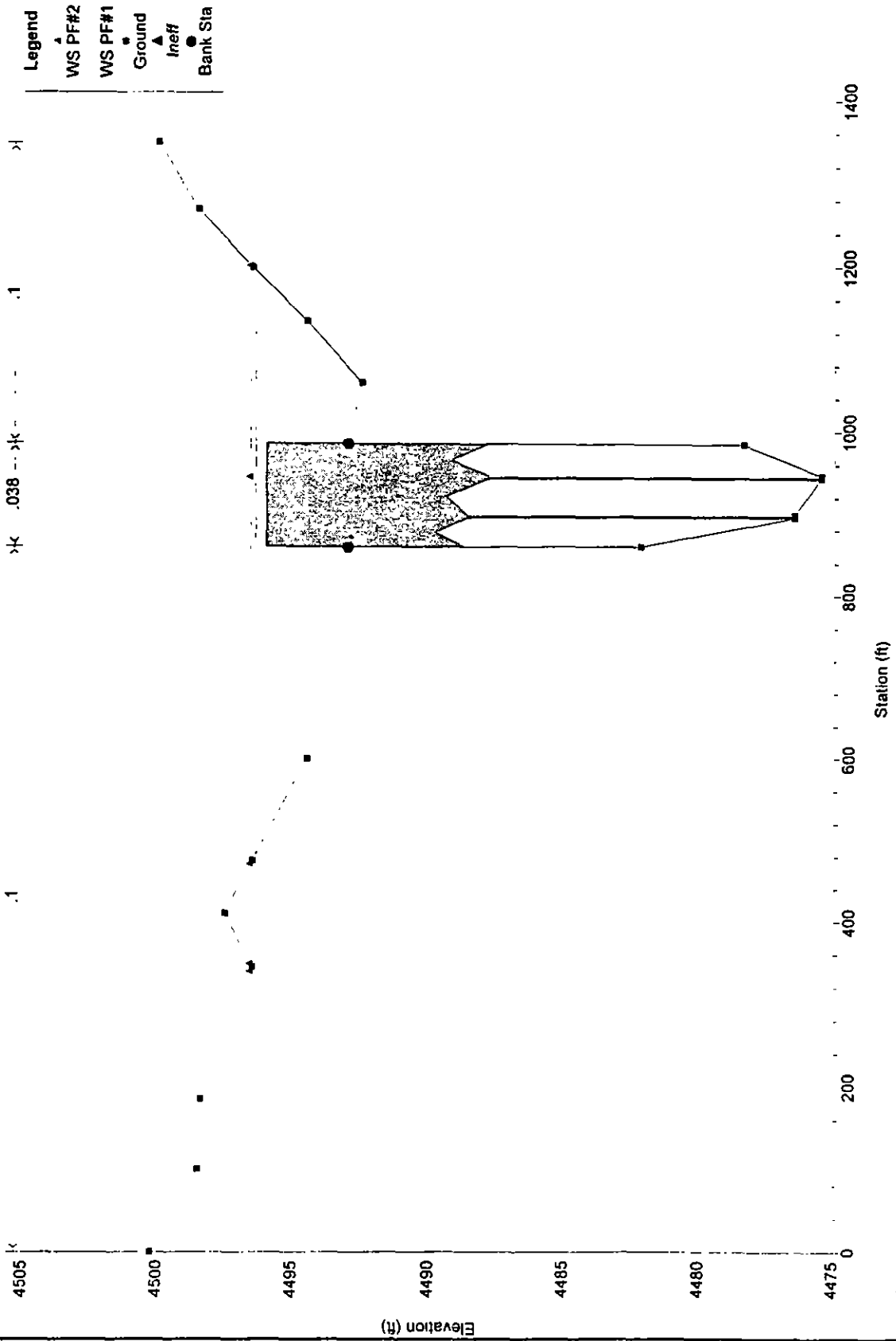


- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Ineff
 - Bank Sta

Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300 #2 = 24500 cfs

Sierra St. RS = 52.1535 BR D

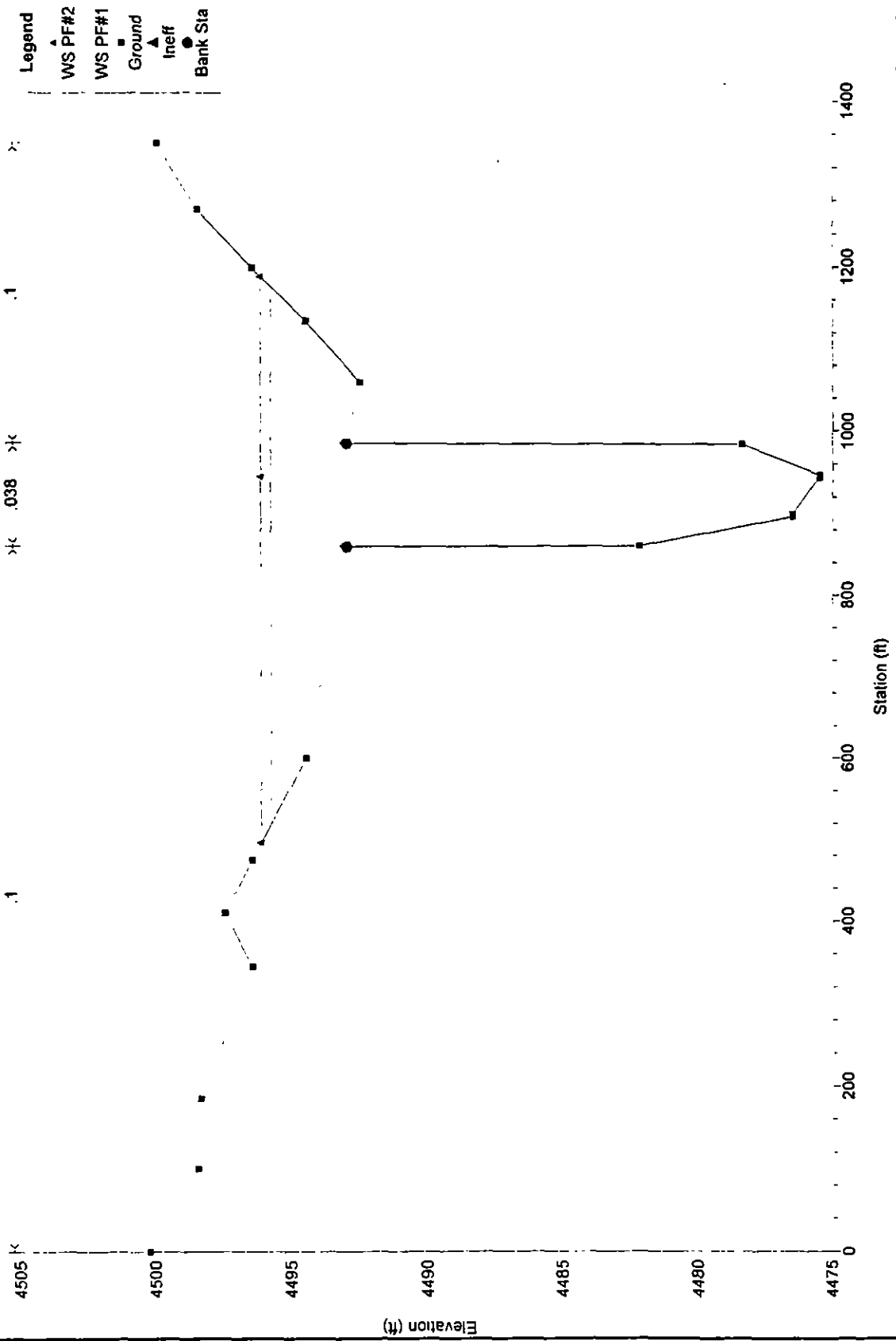


Truckee River FINAL PLAN 4/3/98

Plan 01-2300 of 2-6000.dwg

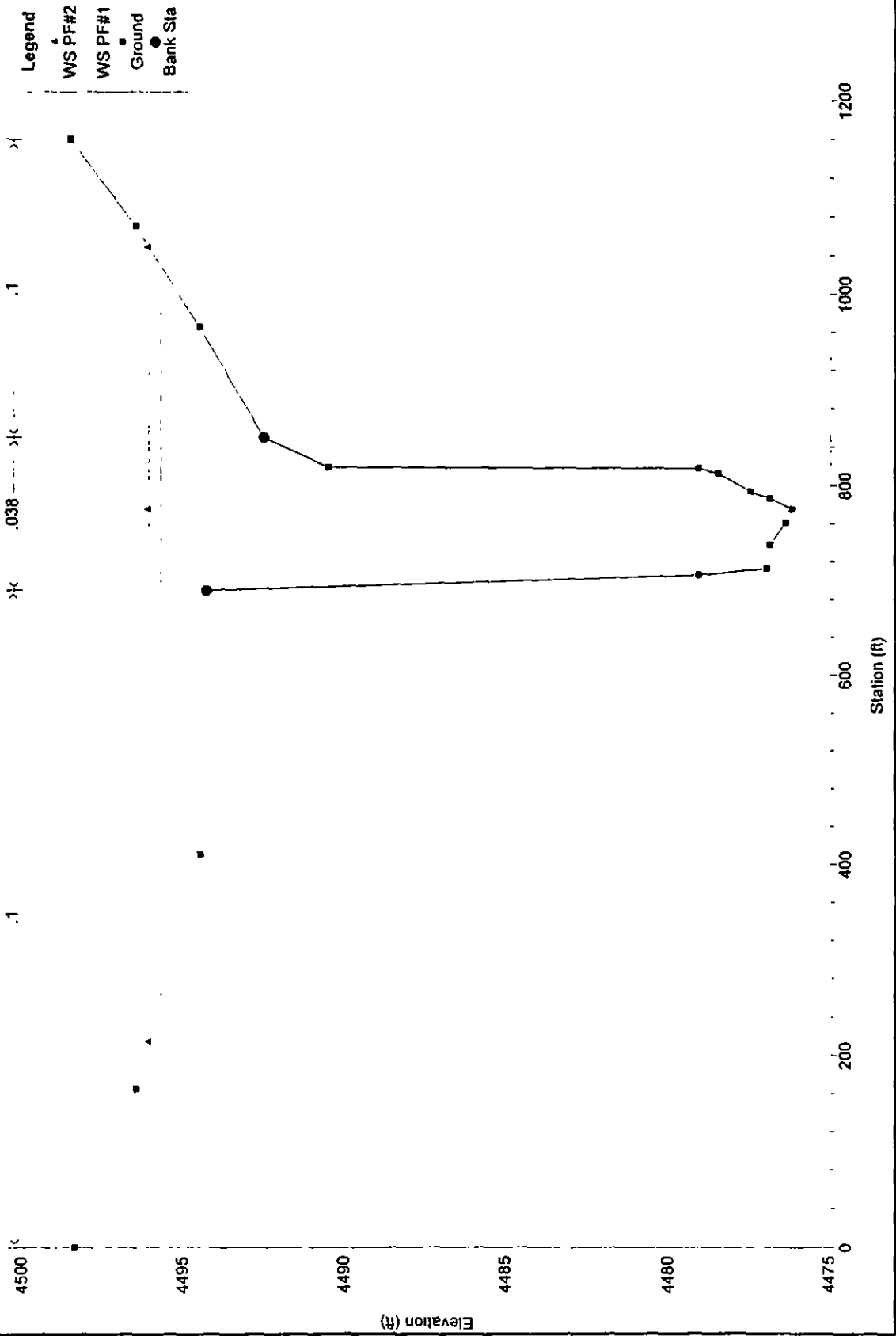
(SIERRA ST)

06-02146



Truckee River FINAL PLAN 4/3/98

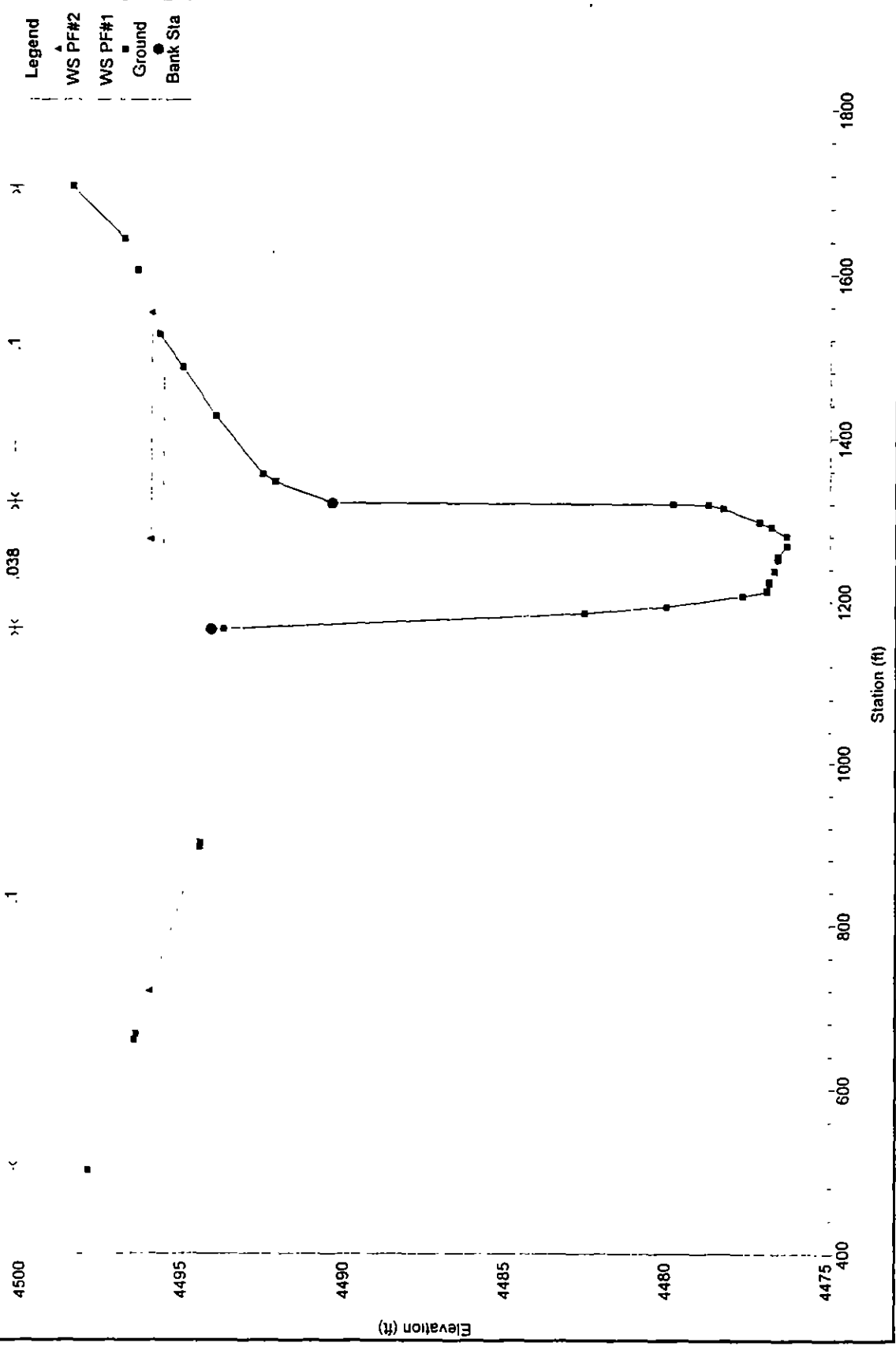
Flow: #1= 23300 , #2 = 24500 cfs
RS = 52.142



Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300 #2 = 24500 cfs

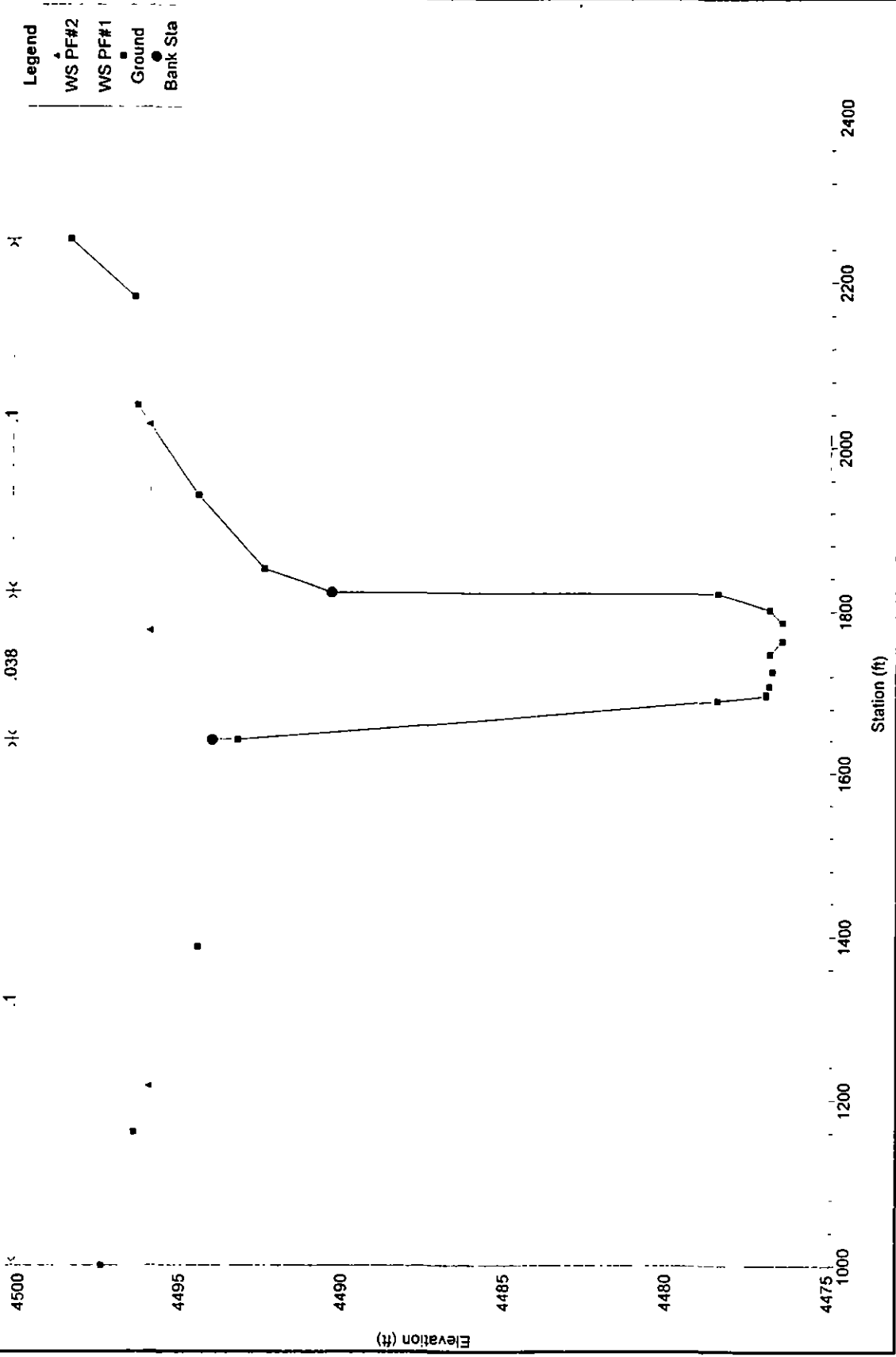
RS = 52.1195°



Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300, #2 = 24500 cfs

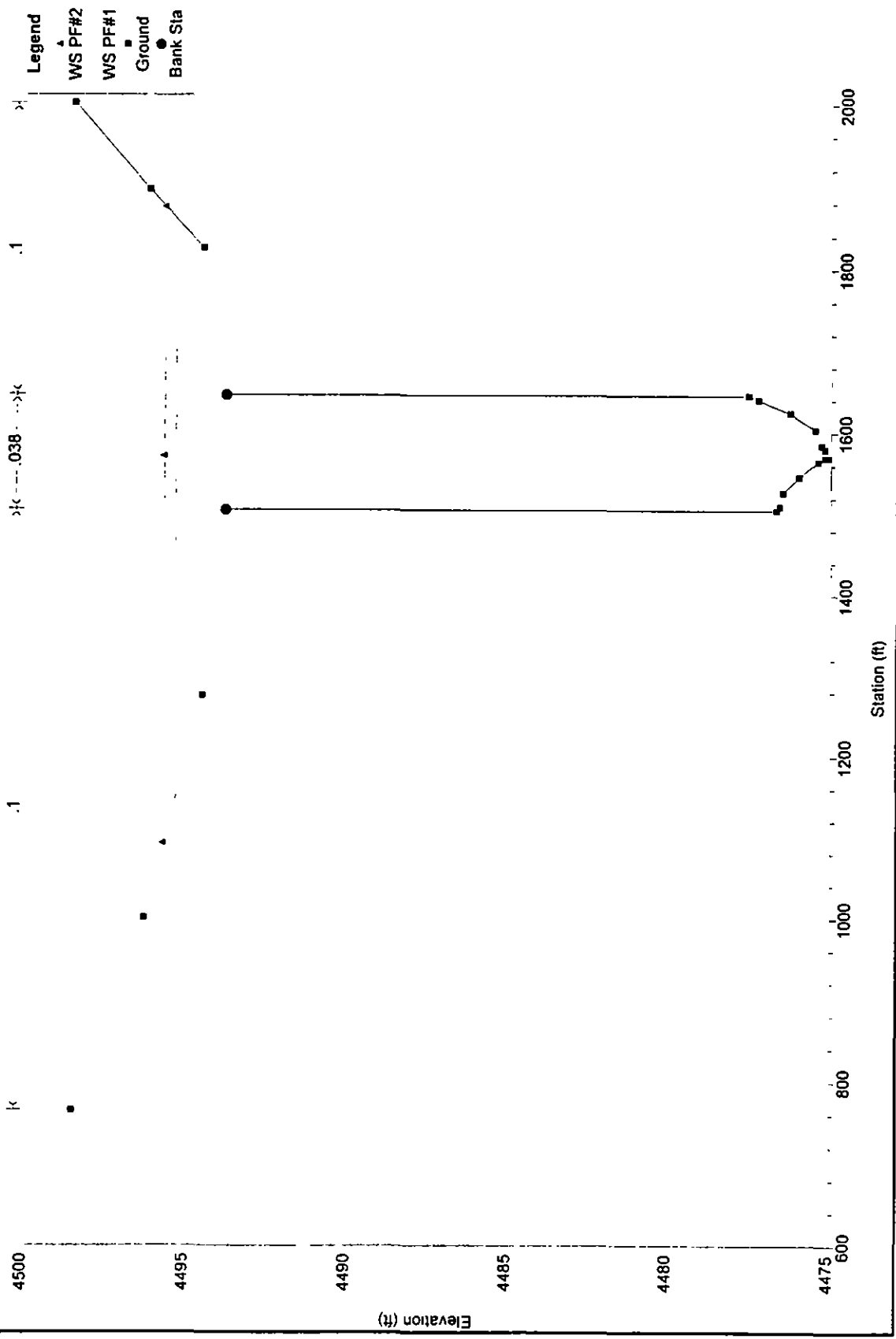
RS = 52.097



Truckee River FINAL PLAN 4/3/98

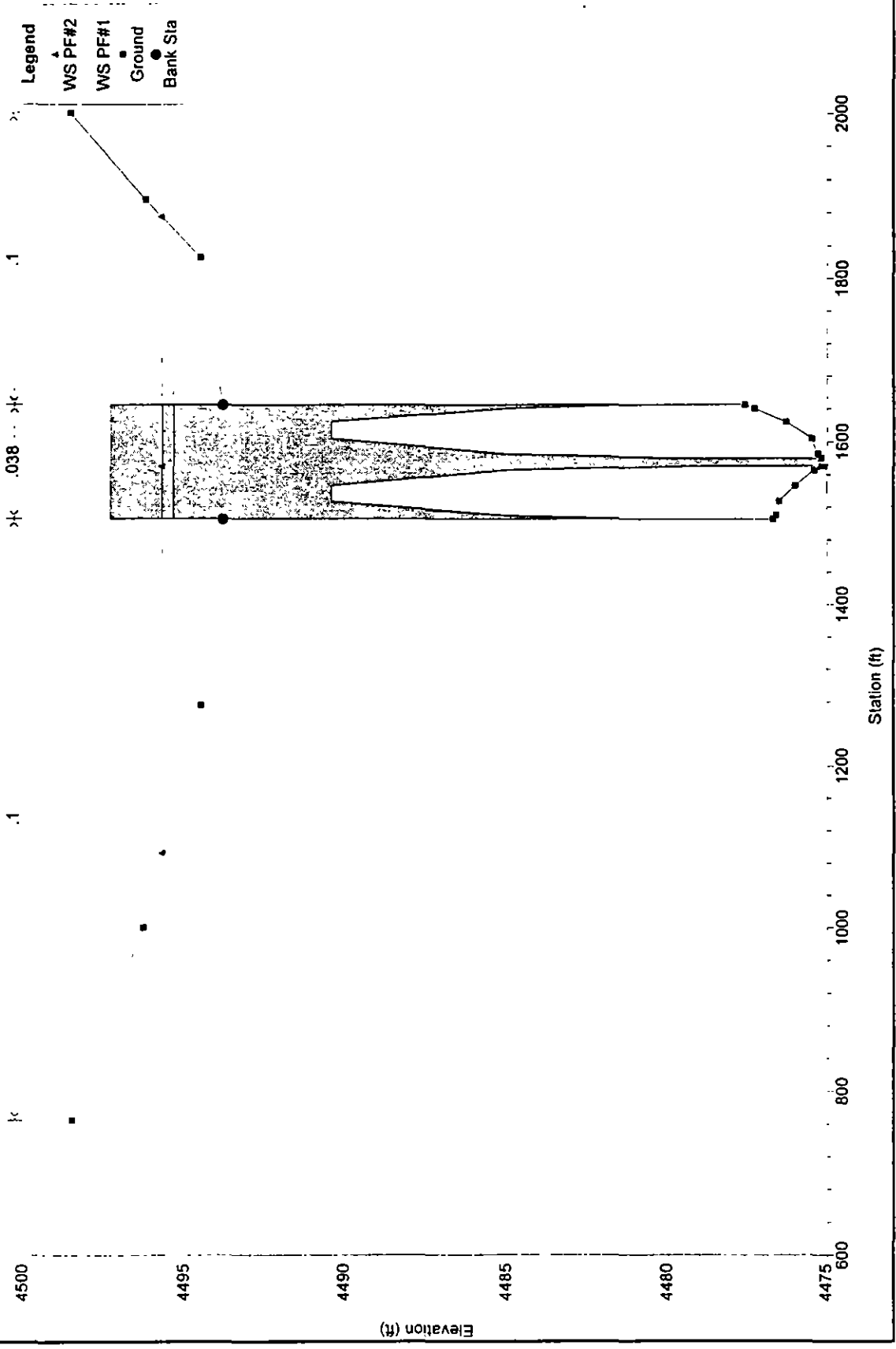
Flow: #1= 23300 ,#2 = 24500 cfs

This is a REPEATED section. RS = 52.093



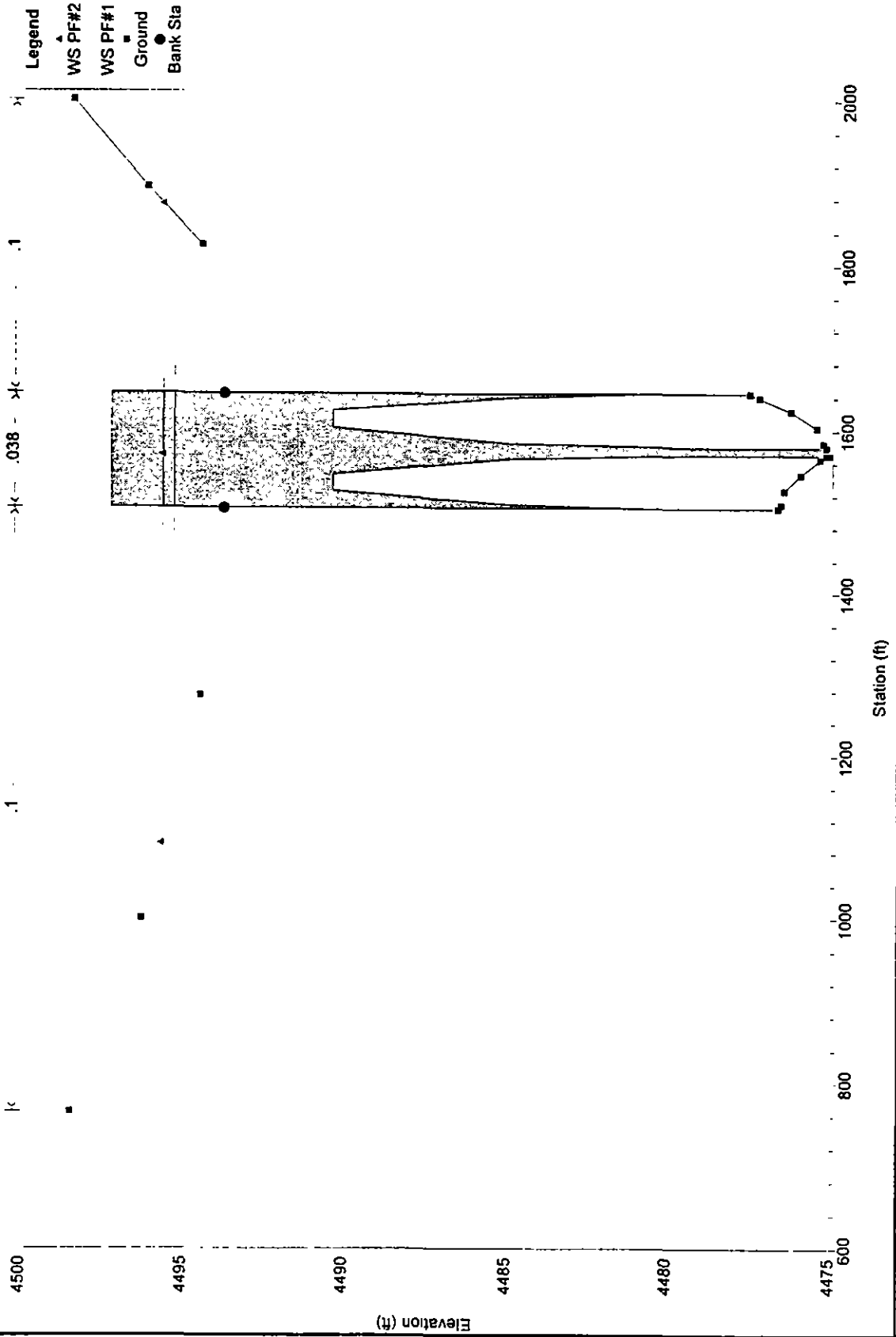
Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300, #2 = 24500 cfs
Virginia St. RS = 52 0855 BR U



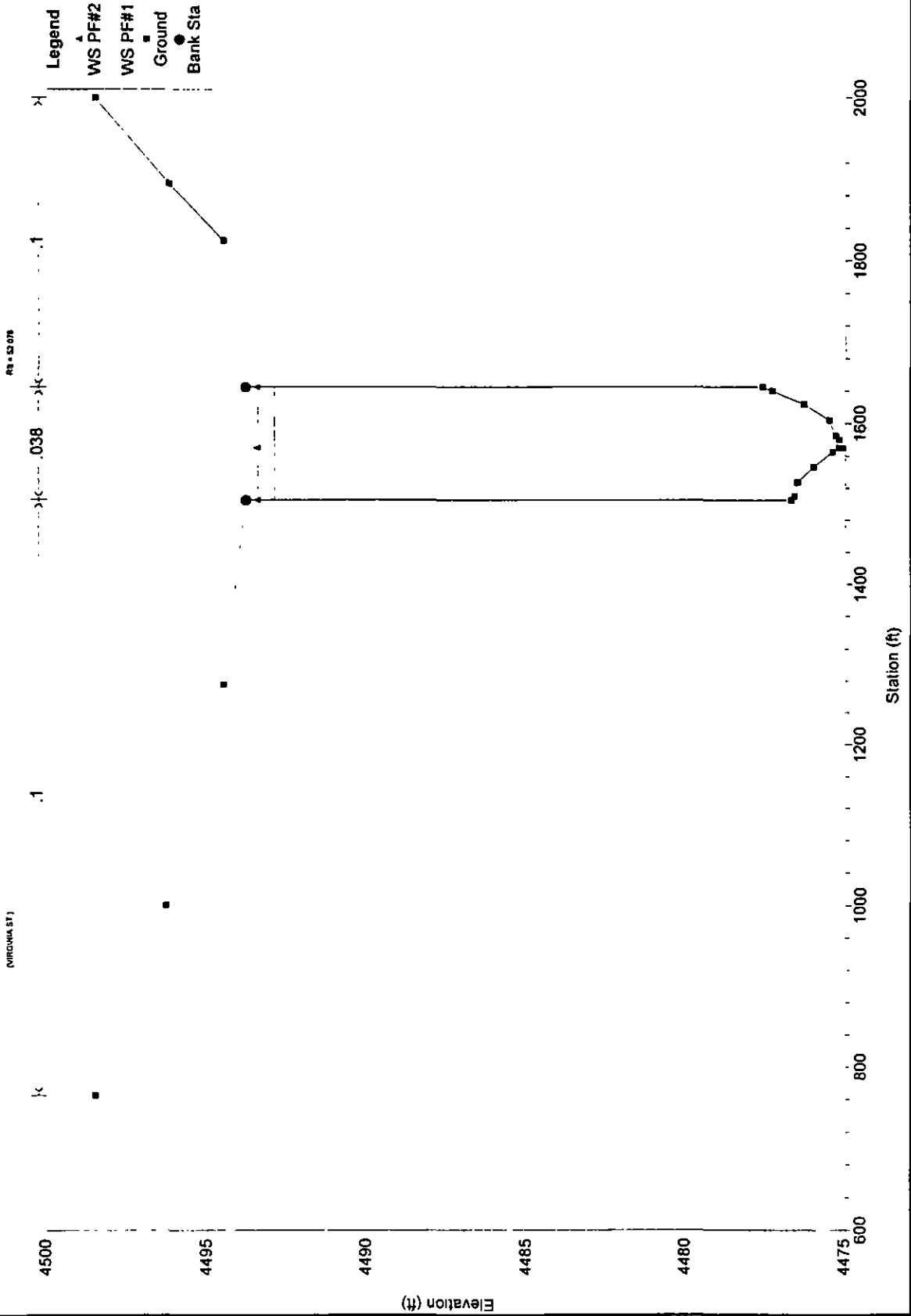
Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300 #2 = 24500 cfs
Virginia St. RS = 52.0855 BR D



Truckee River FINAL PLAN 4/3/98

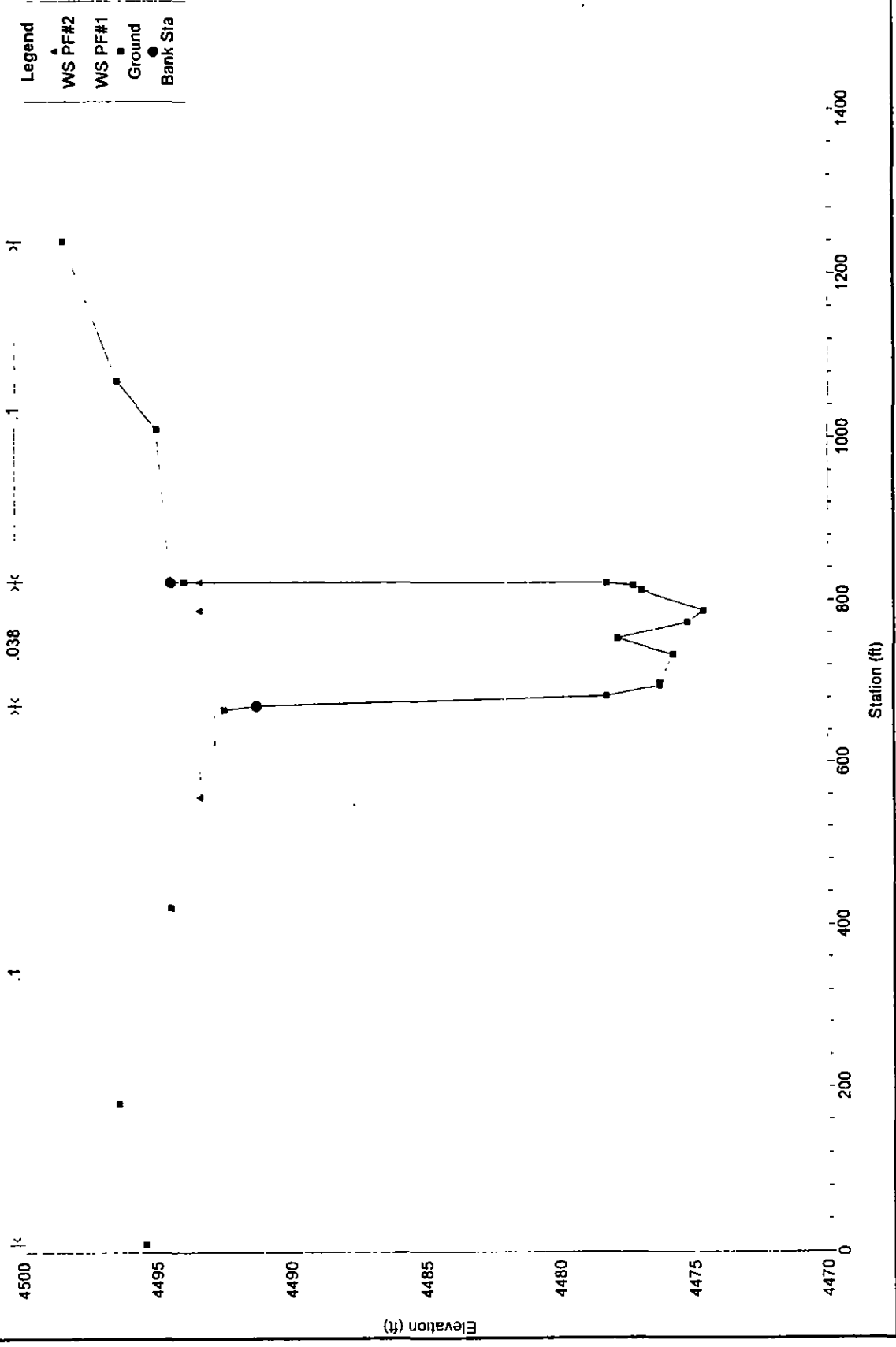
Plan #11-21300, P1-25000 (S)



Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300 #2 = 24500 cfs

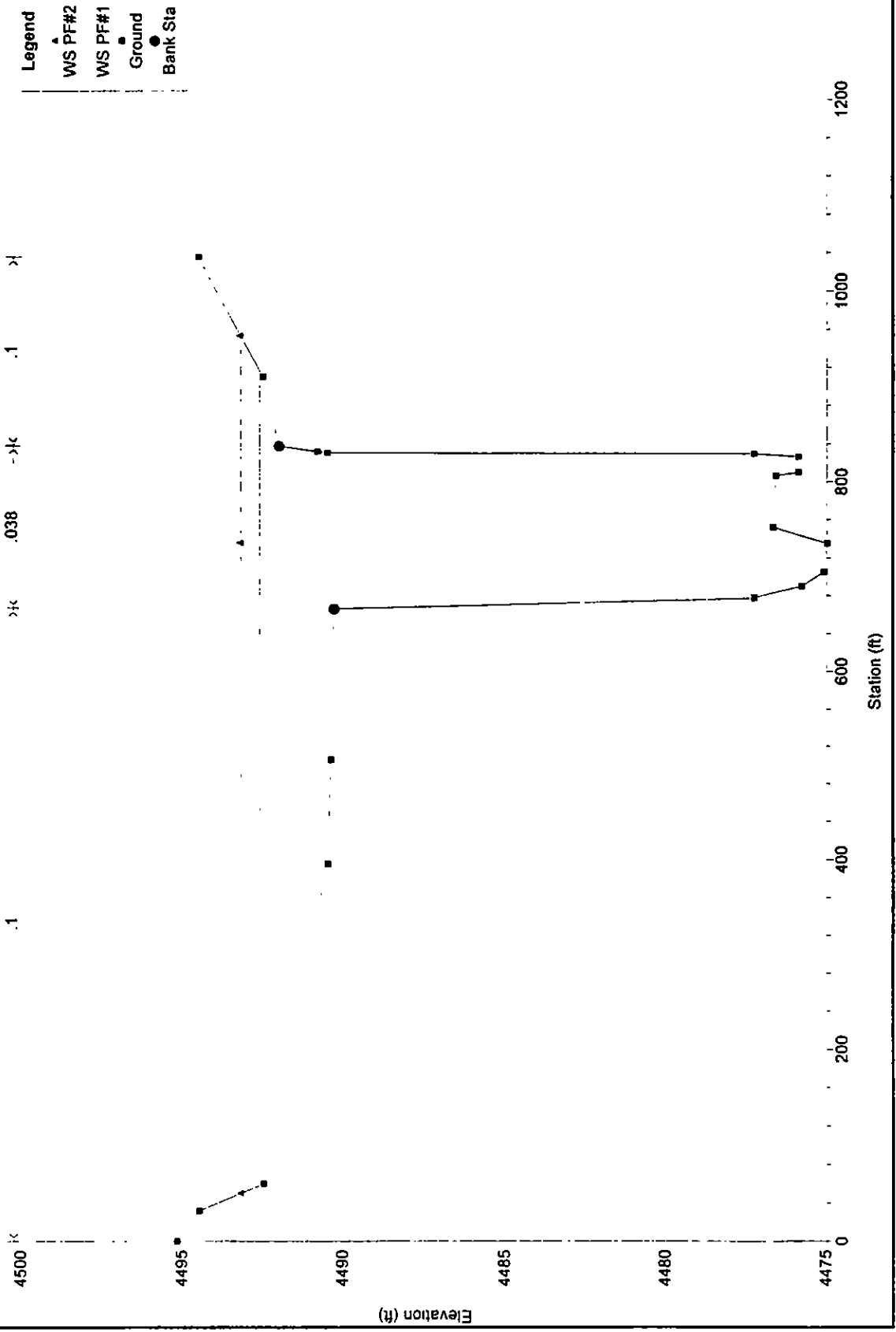
RS = 52.072



Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300 ,#2 = 24500 cfs

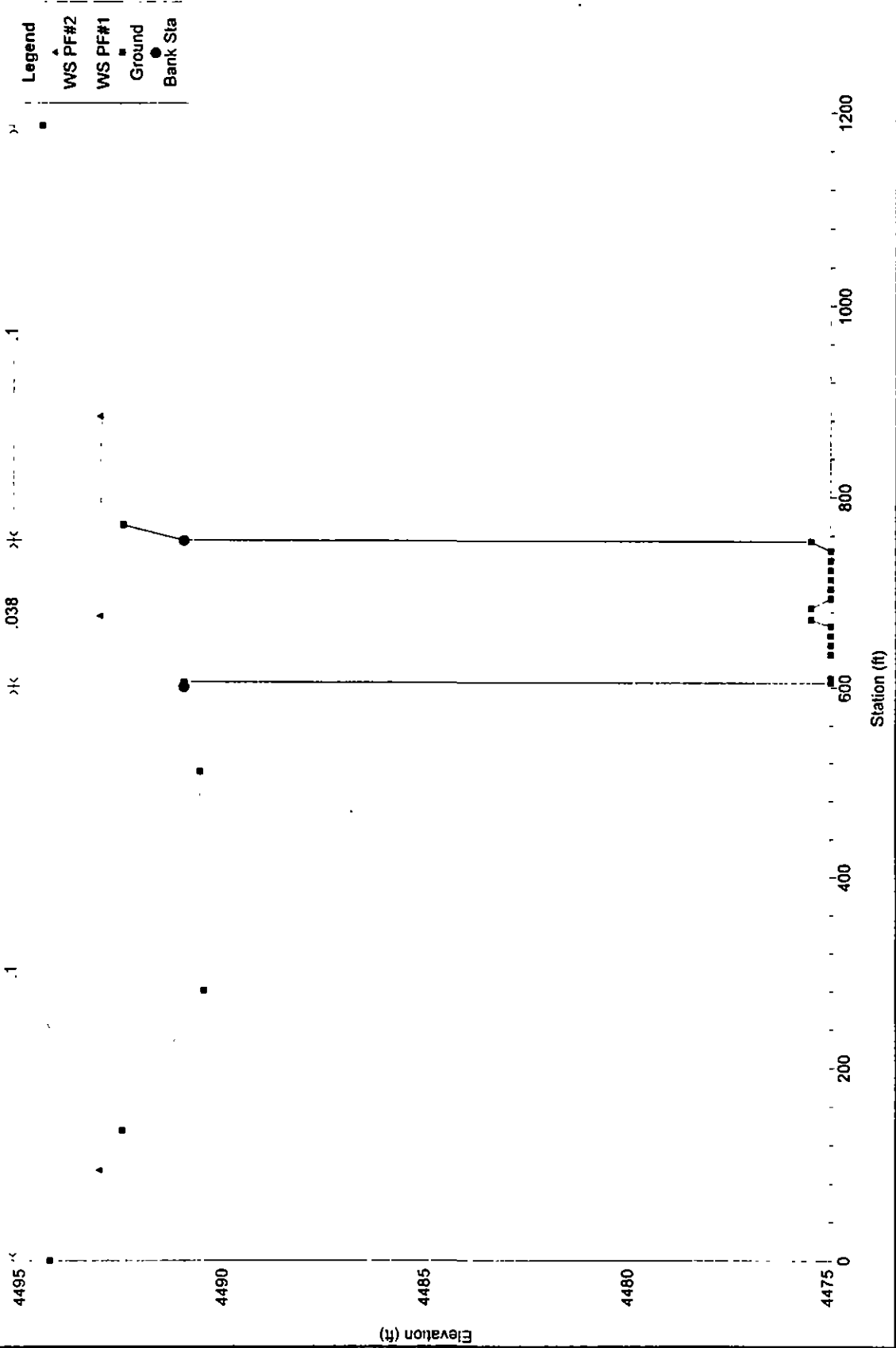
RS = 52.021



Truckee River FINAL PLAN 4/3/98

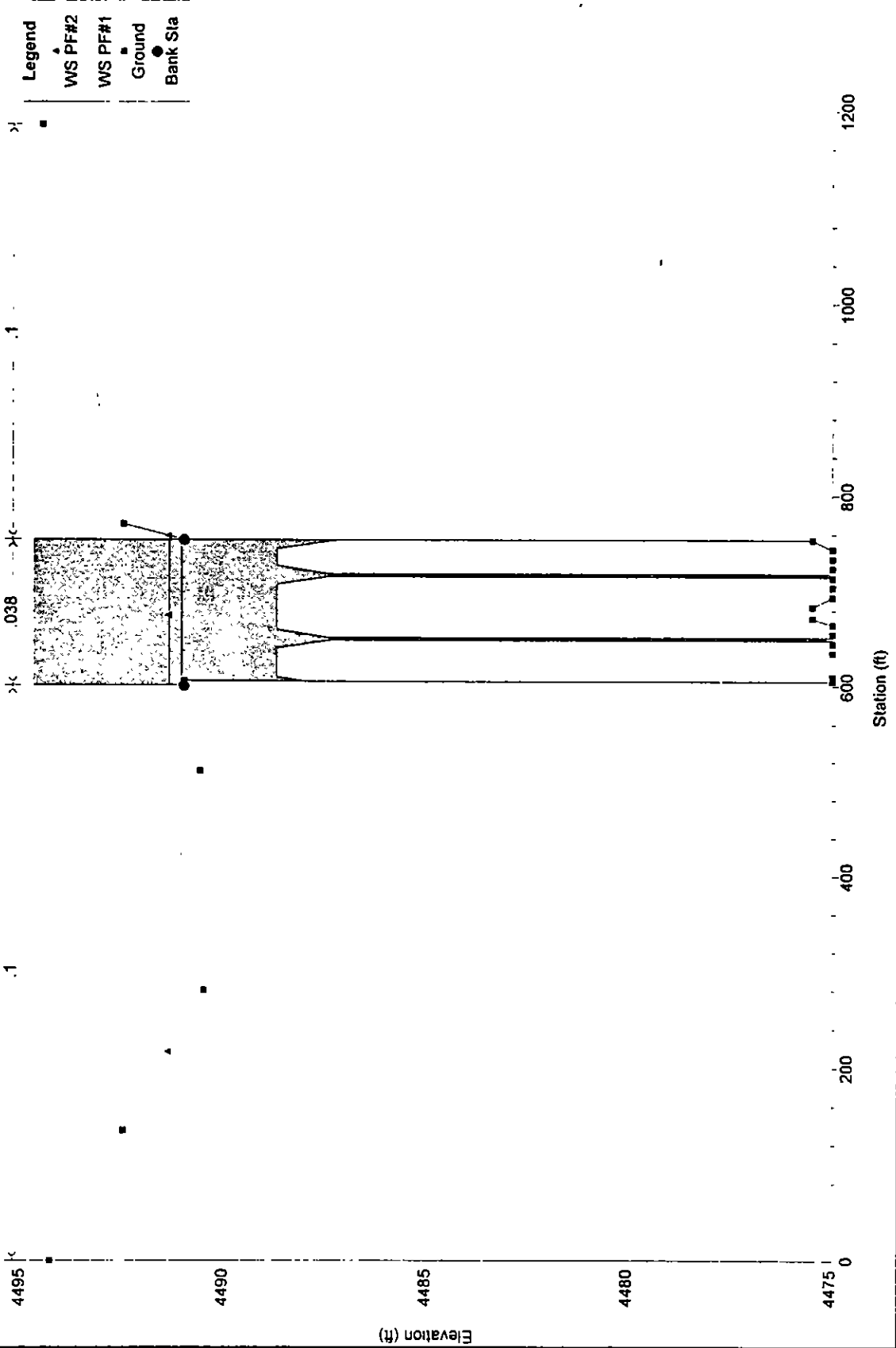
Flow: #1= 23300 #2 = 24500 cfs

This is a REPEATED section. RS = 52



Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300 #2 = 24500 cfs
Center St. RS = 51.995 BR U

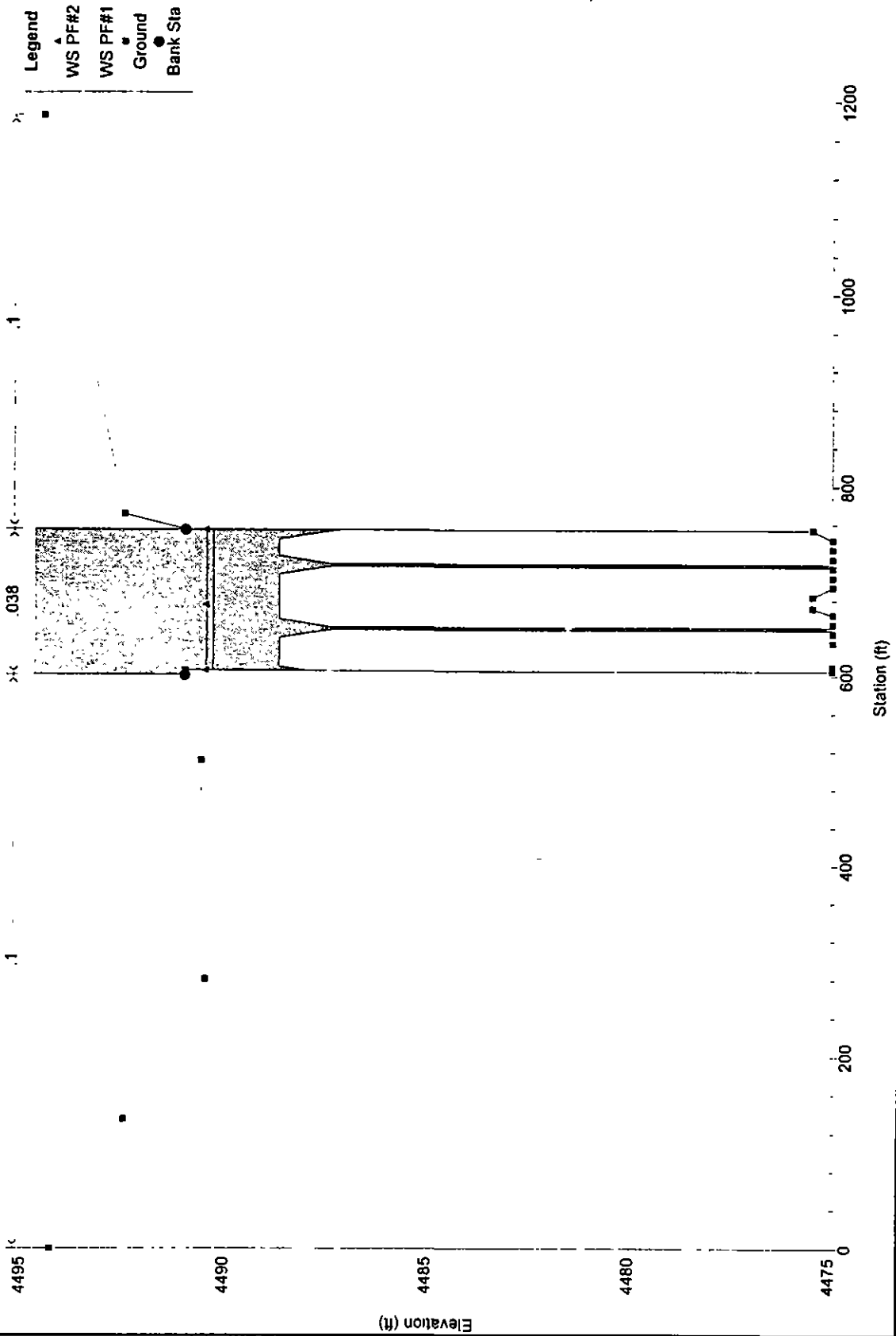


- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Bank Sta

Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300, #2 = 24500 cfs

Center St. RS = 51.995 BR D



Truckee River FINAL PLAN 4/3/98

Plan #1-23300-01-2600-04

OLD 18.00 (CENTER ST)

RB = 51.00

- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Bank Sta

0.1

0.038

0.1

4495

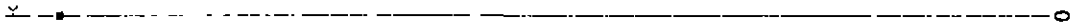
4490

4485

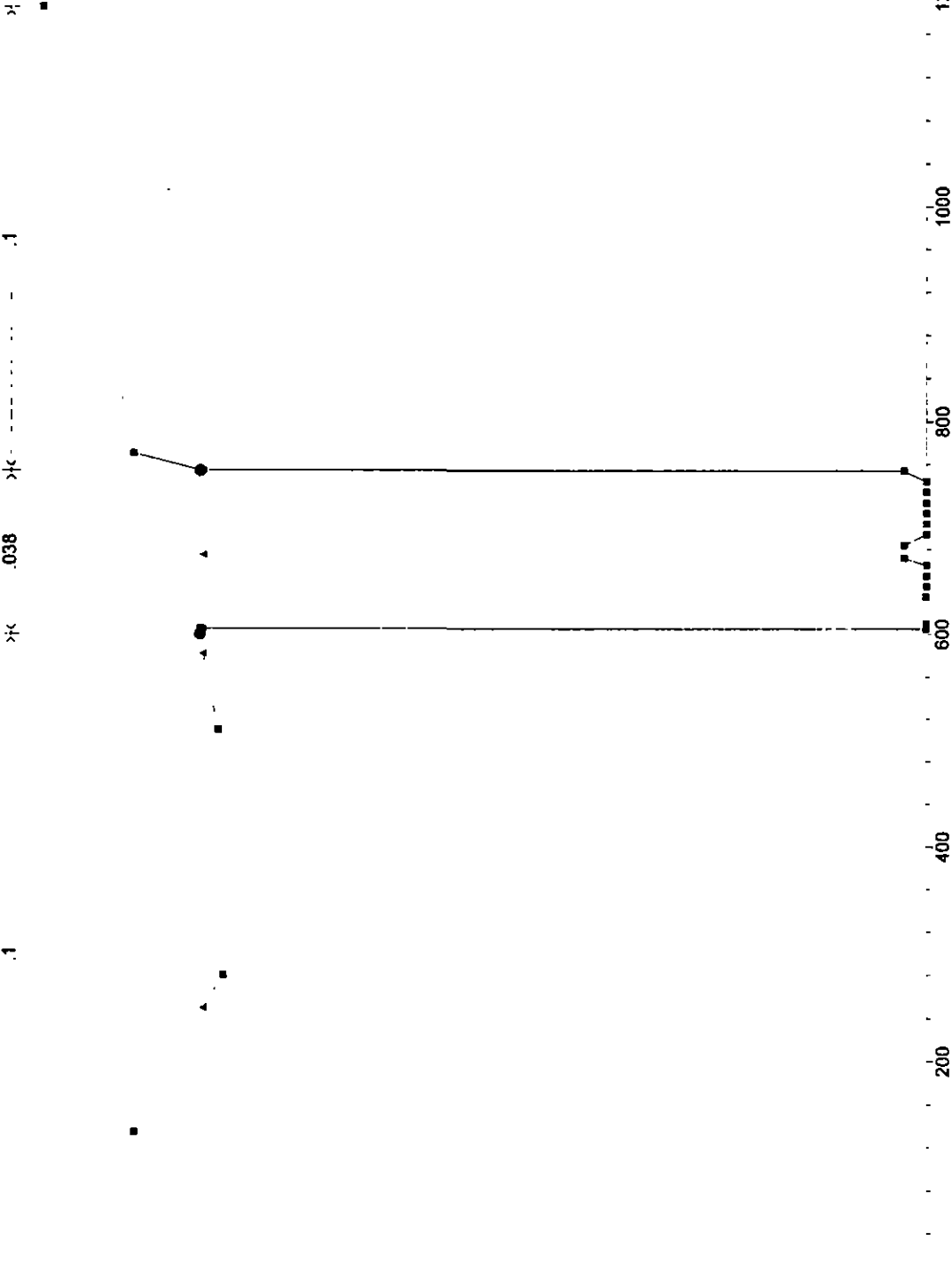
4480

4475

Elevation (ft)

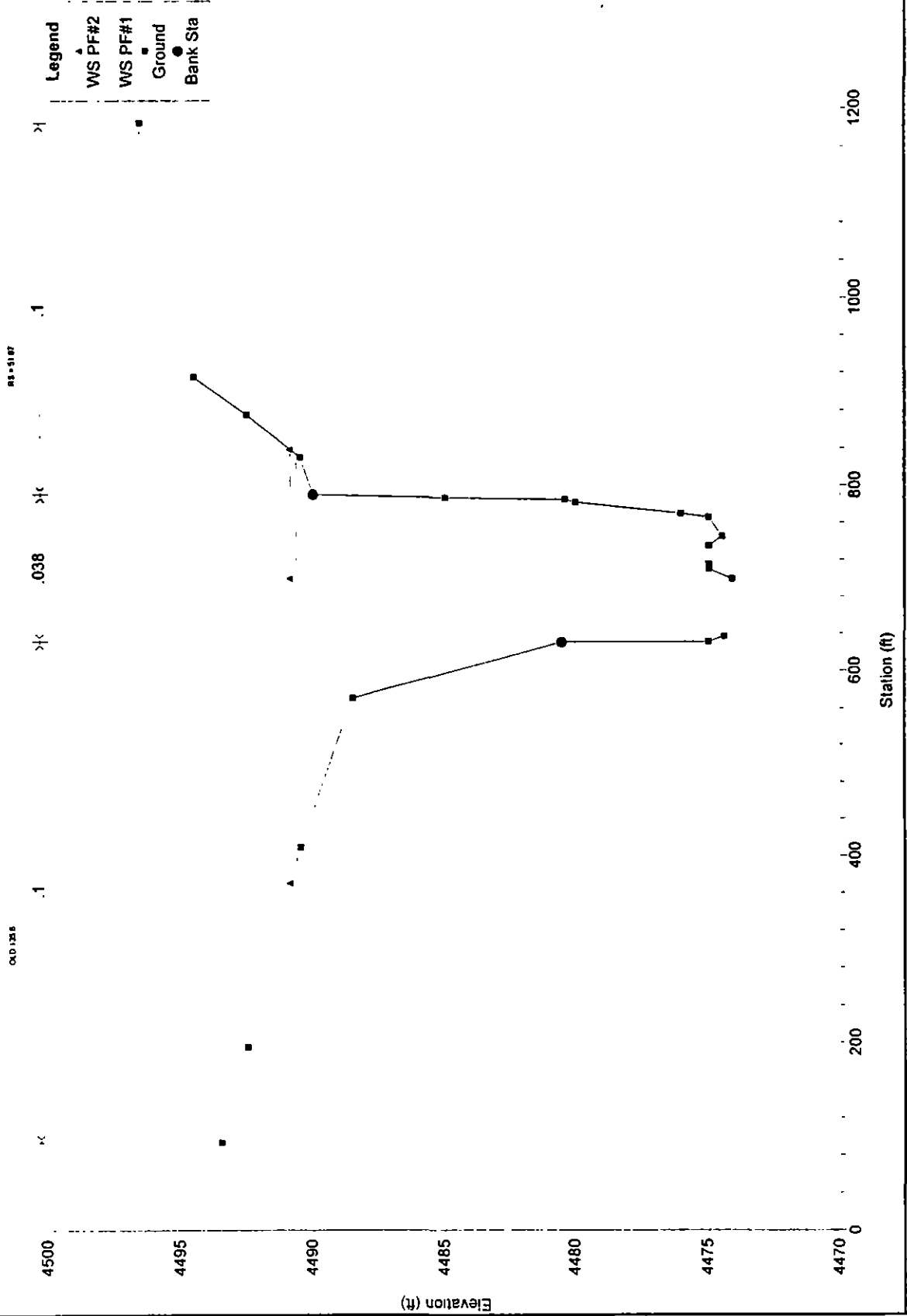


Station (ft)



Truckee River FINAL PLAN 4/3/98

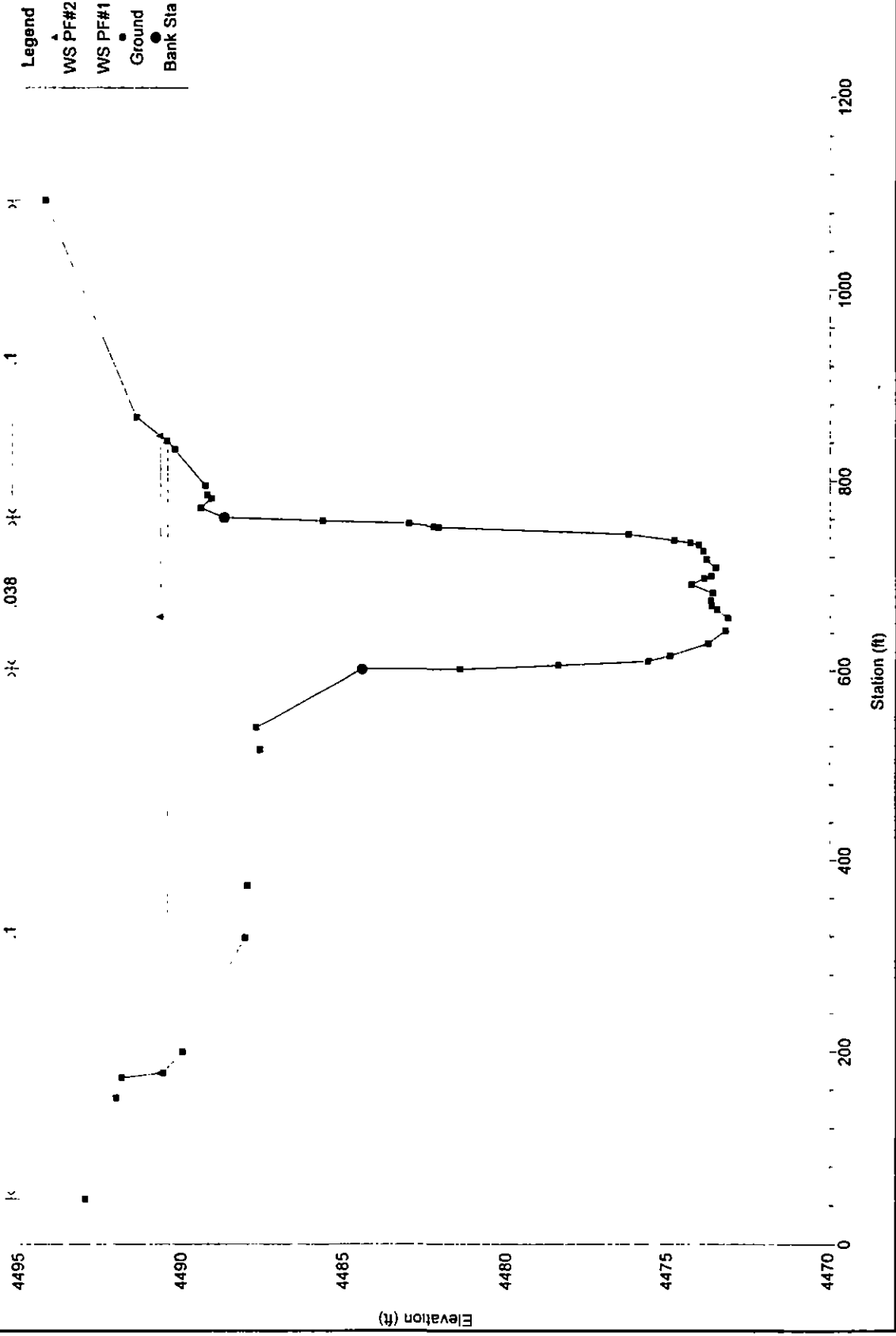
Flow 011-23200 #2 - 24500 cfs



Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300 , #2 = 24500 cfs

RS = 51.945°



Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300 #2 = 24500 cfs

RS = 51.92

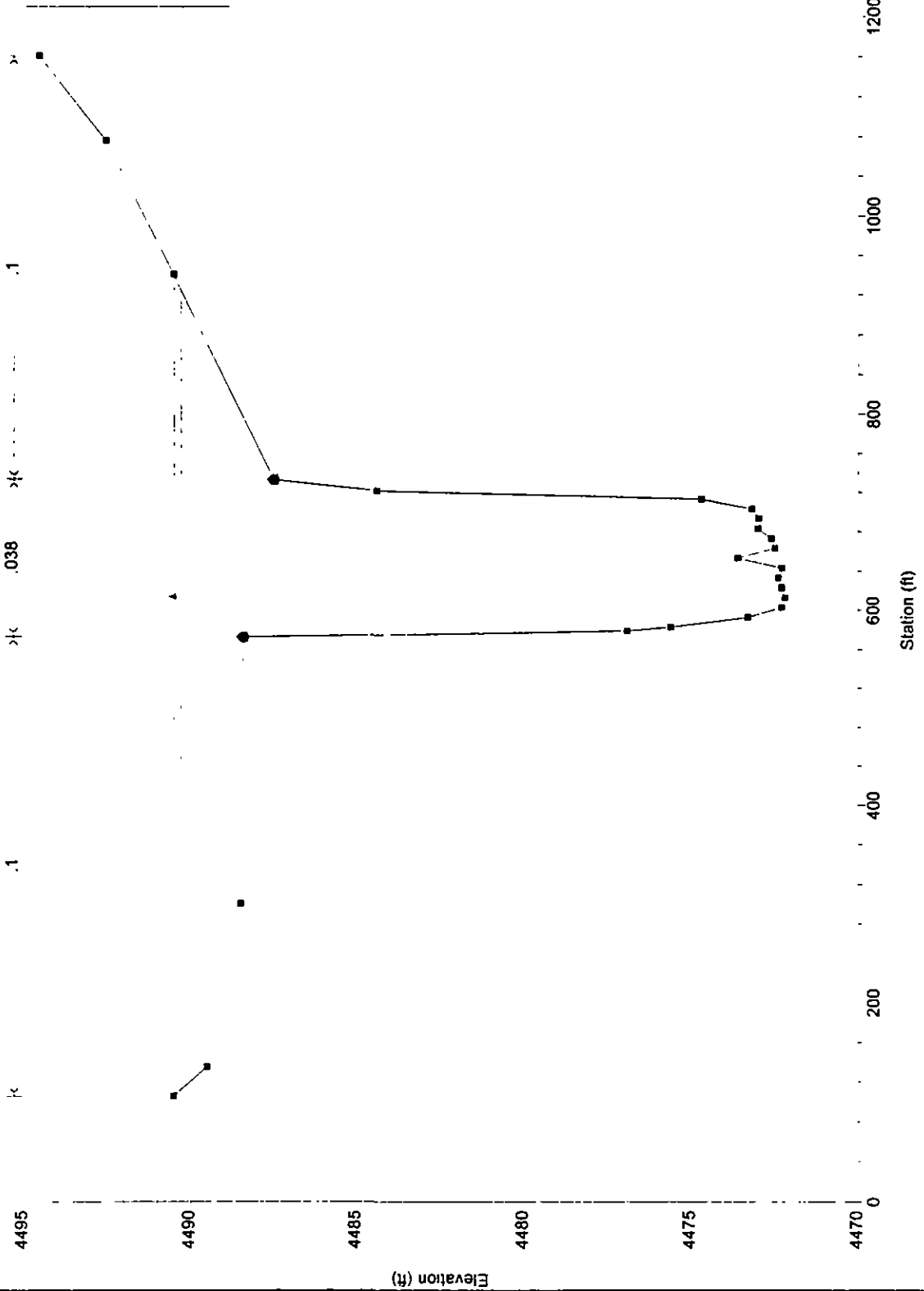
.038

.1

.1

.1

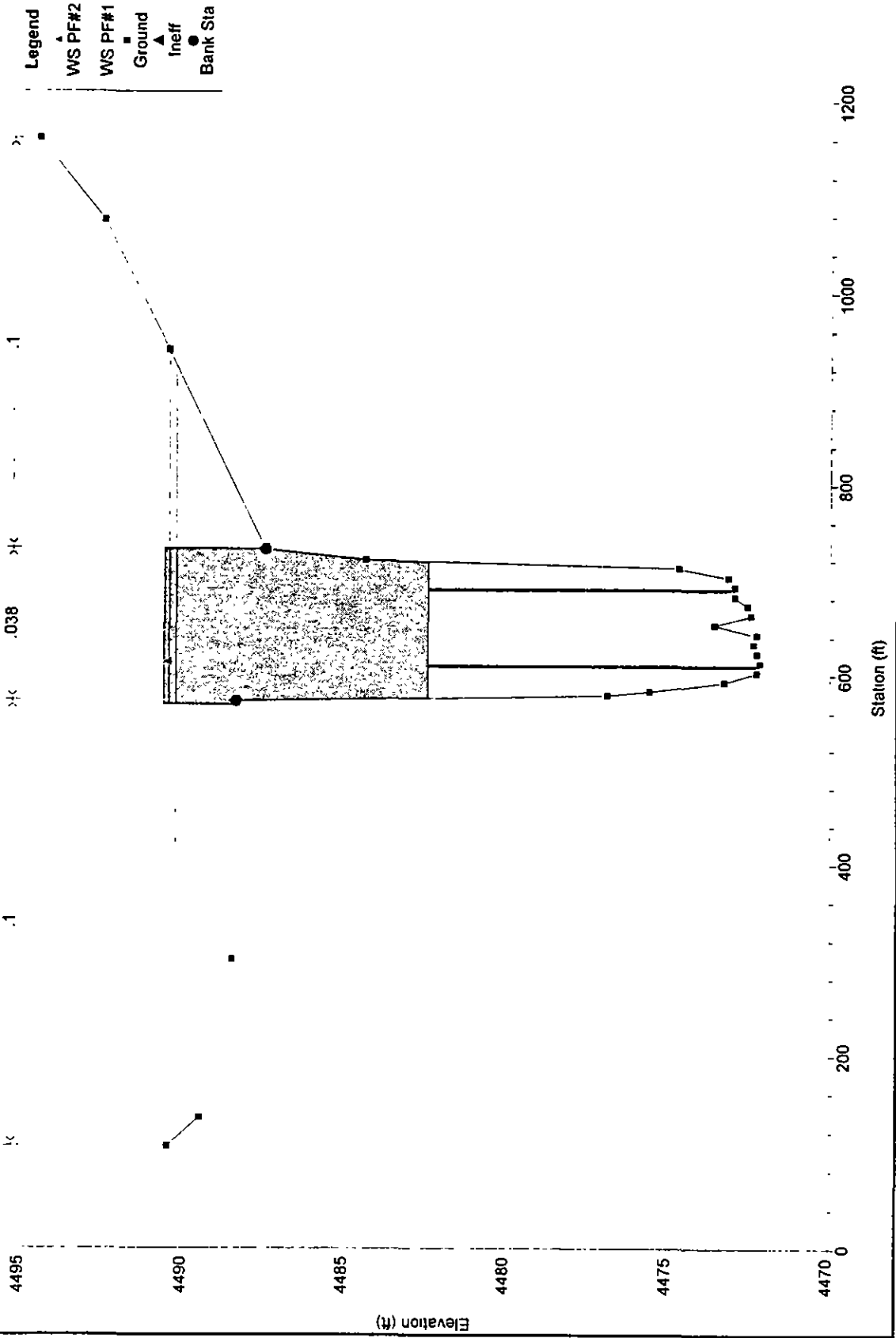
- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Ineff
 - Bank Sta



Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300, #2 = 24500 cfs

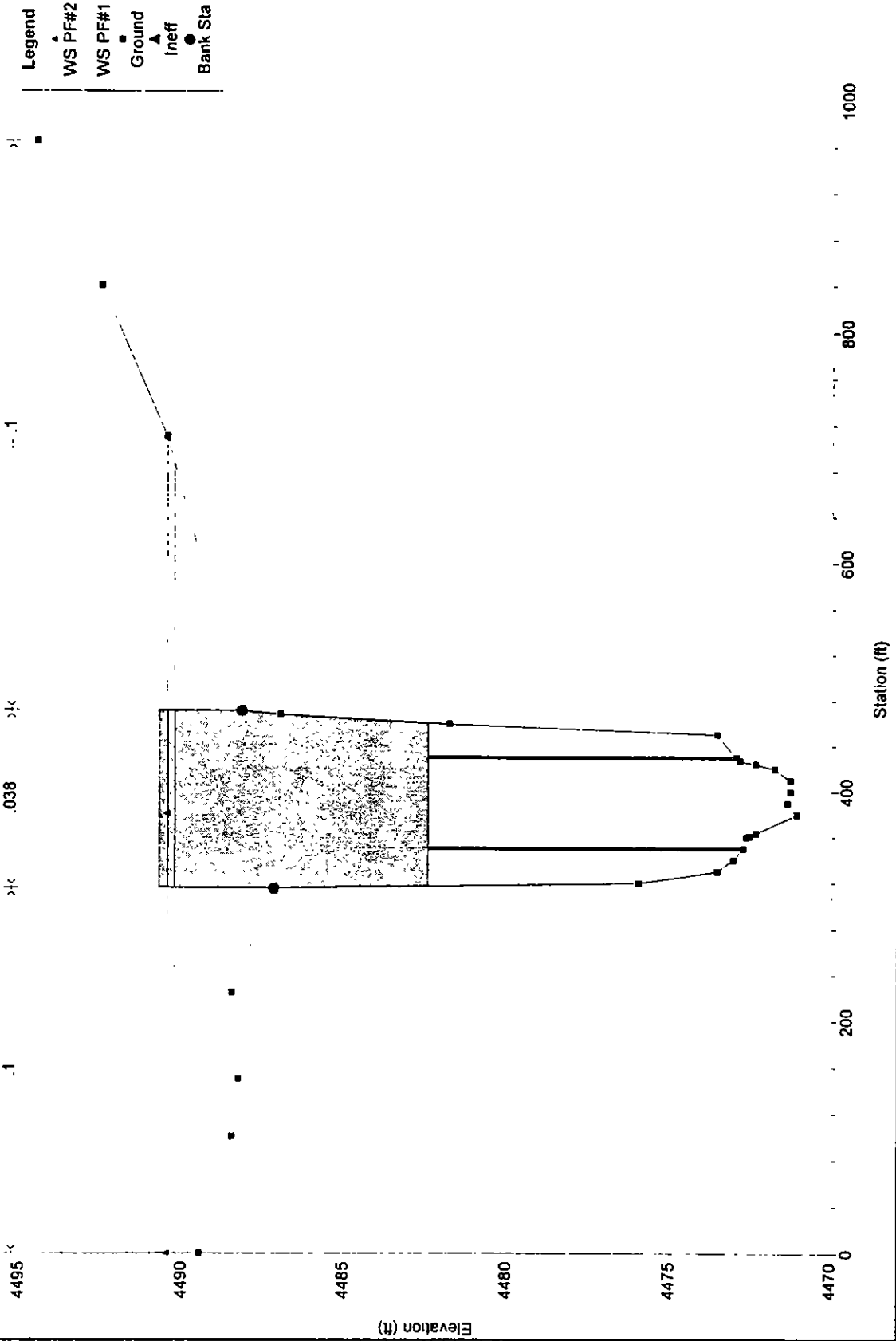
Lake St. RS = 51.915 BR U



Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300, #2 = 24500 cfs

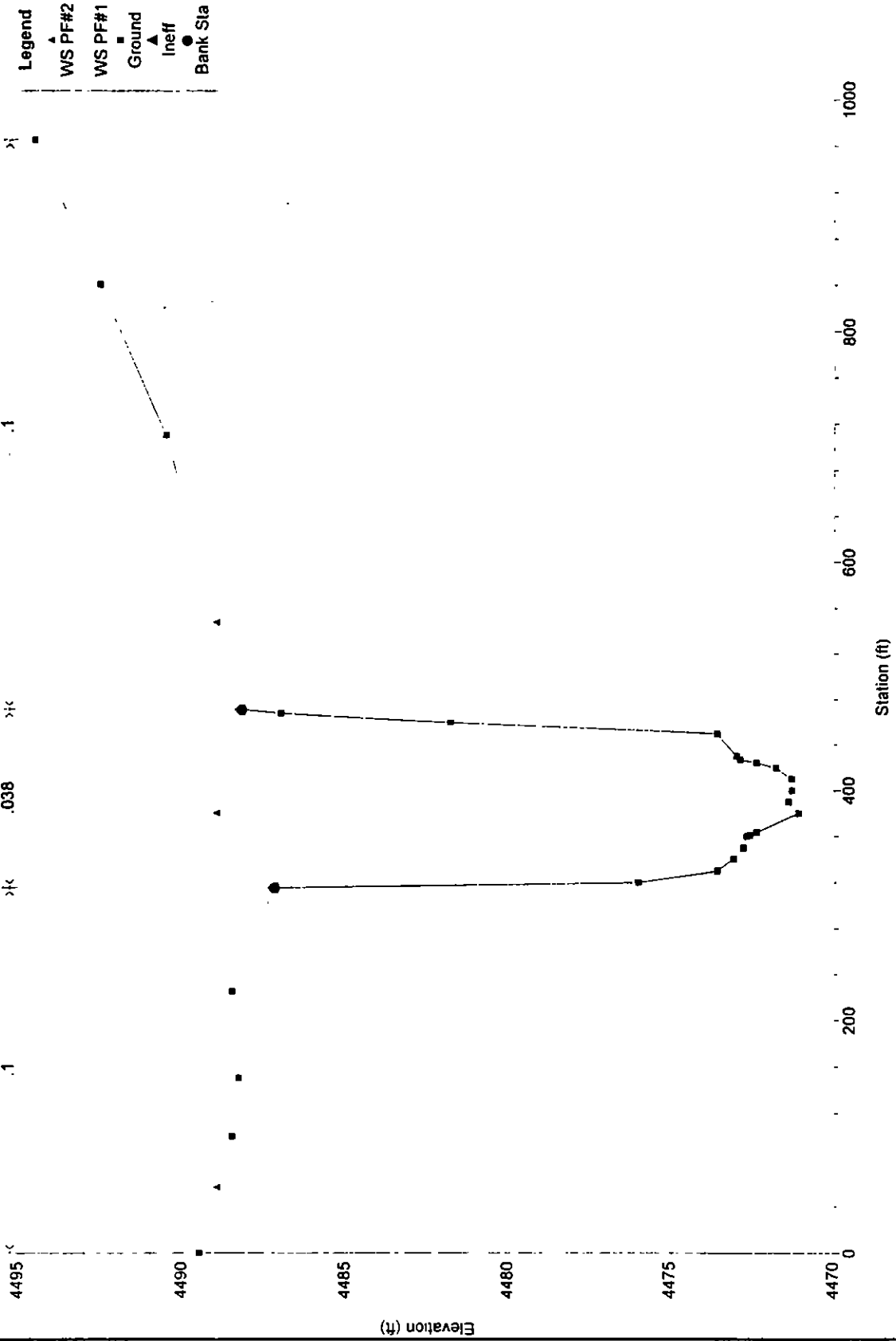
Lake St. RS = 51.915 BR D



Truckee River FINAL PLAN 4/3/98

Flow #1 = 2300 #2 = 2400 cfs

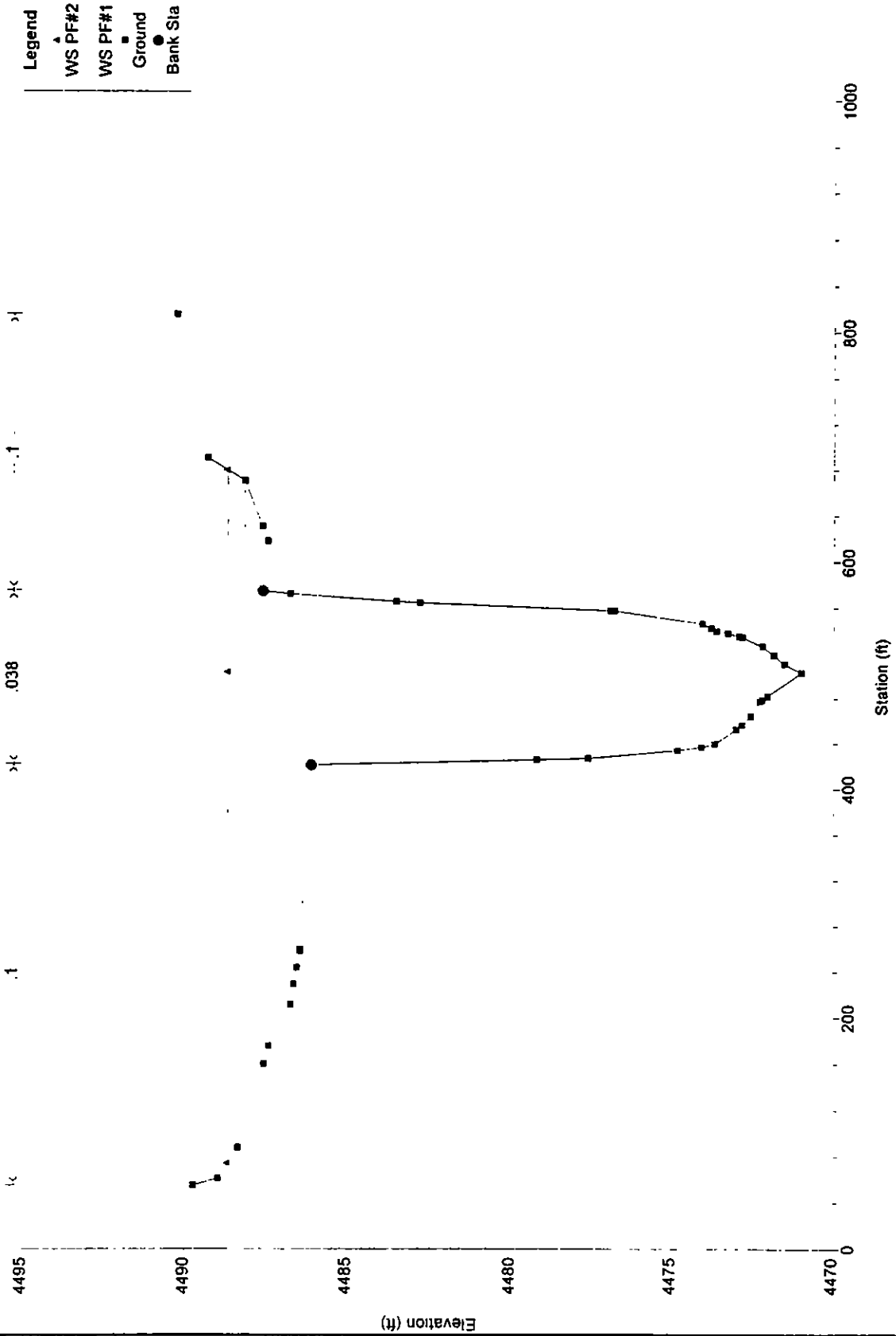
1:1 (LAME ST) OLD CROSS SECTION #9



Truckee River FINAL PLAN 4/3/98

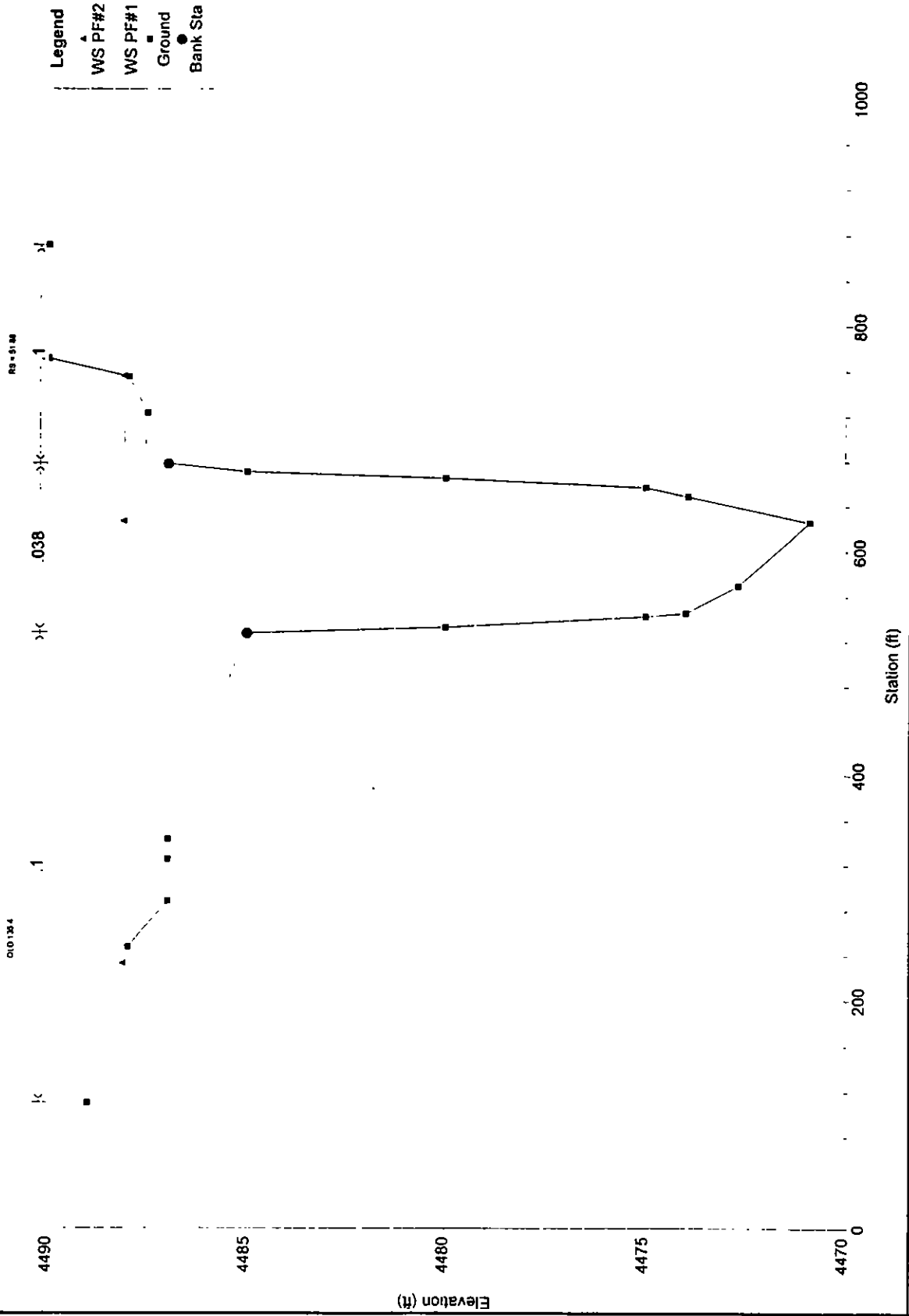
Flow. #1 = 23300, #2 = 24500 cfs

RS = 51.895°



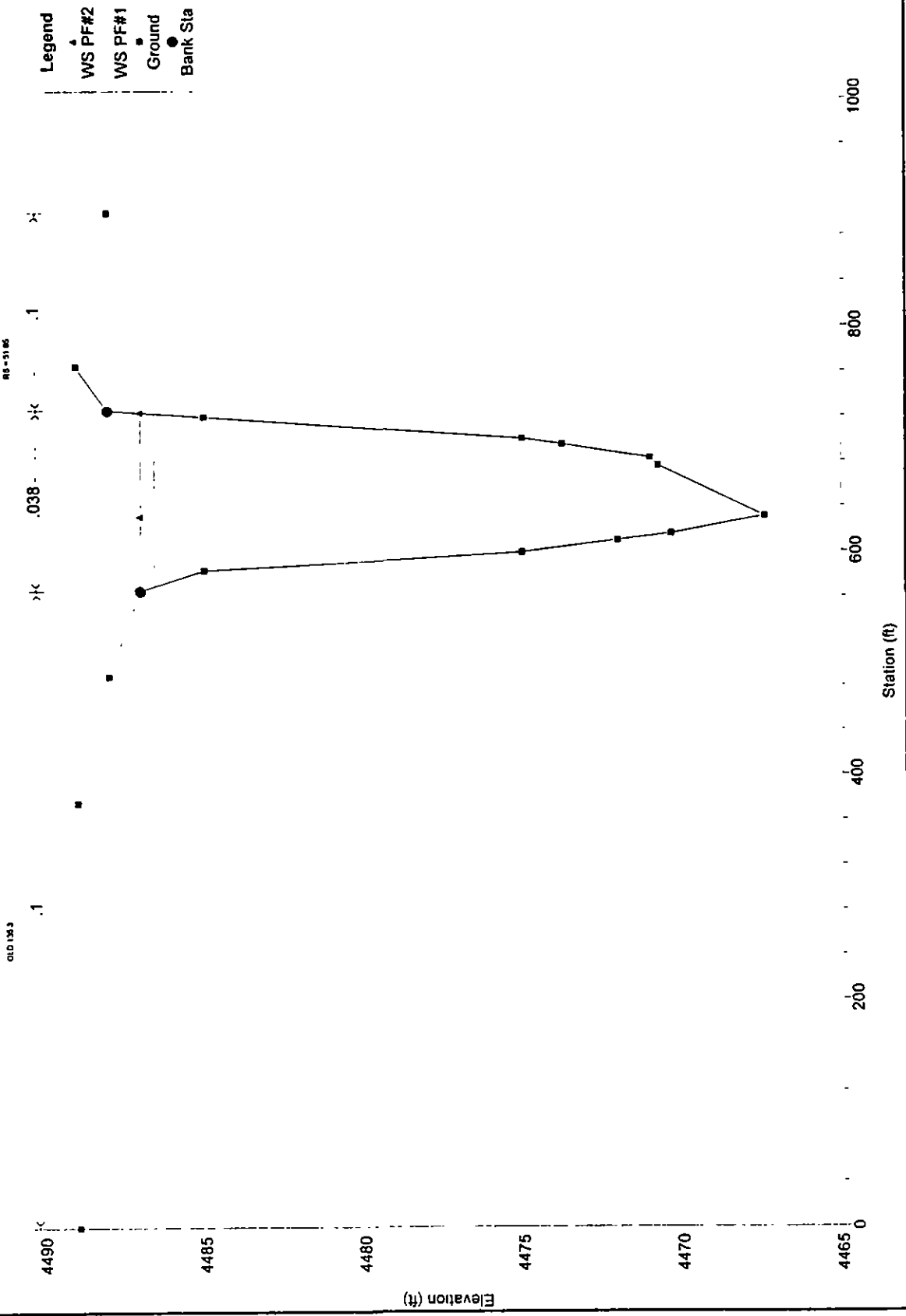
Truckee River FINAL PLAN 4/3/98

Plan #1-23300-21-2600-04



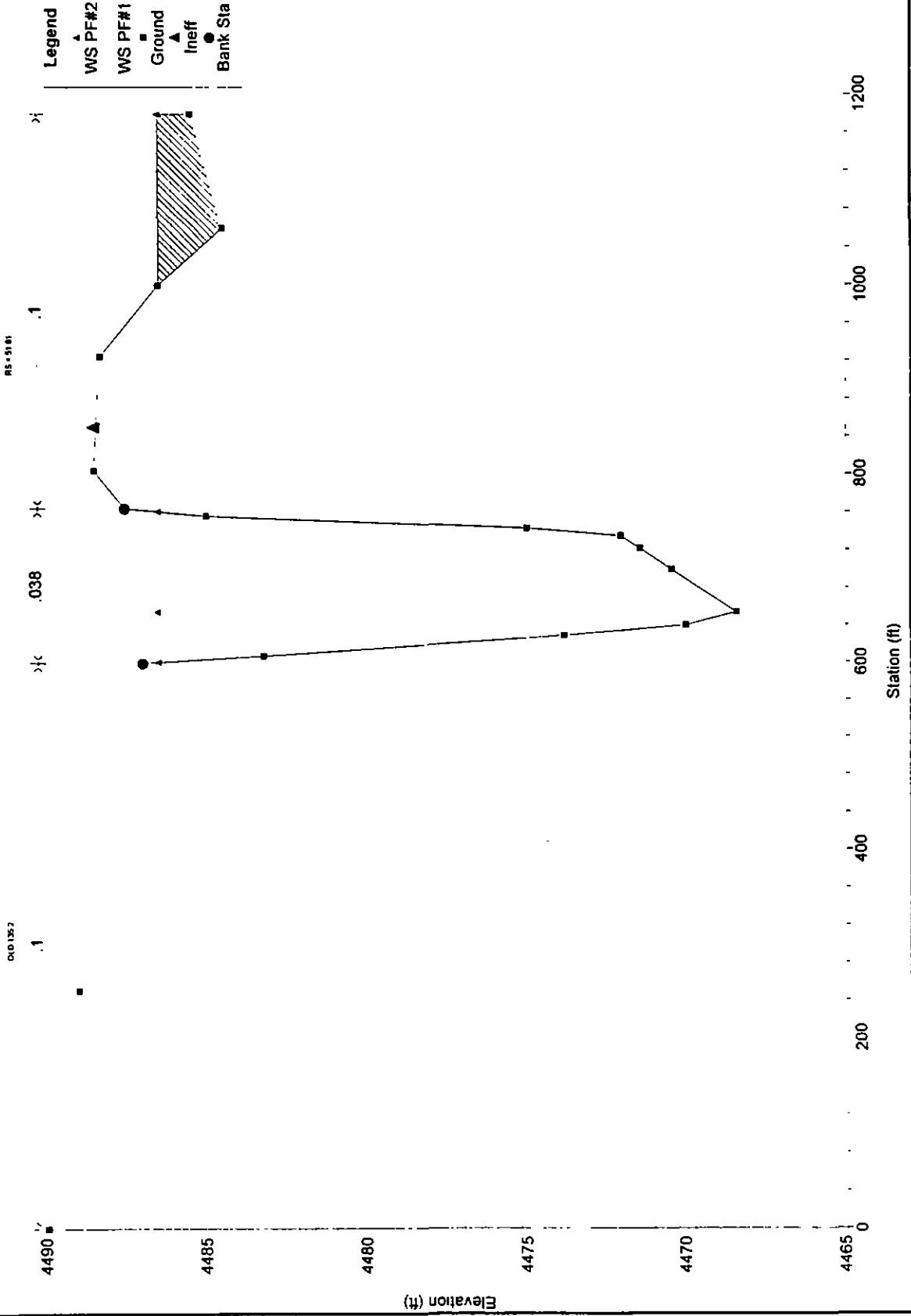
Truckee River FINAL PLAN 4/3/98

Plan #1 - 23300 02 - 2600 Ch



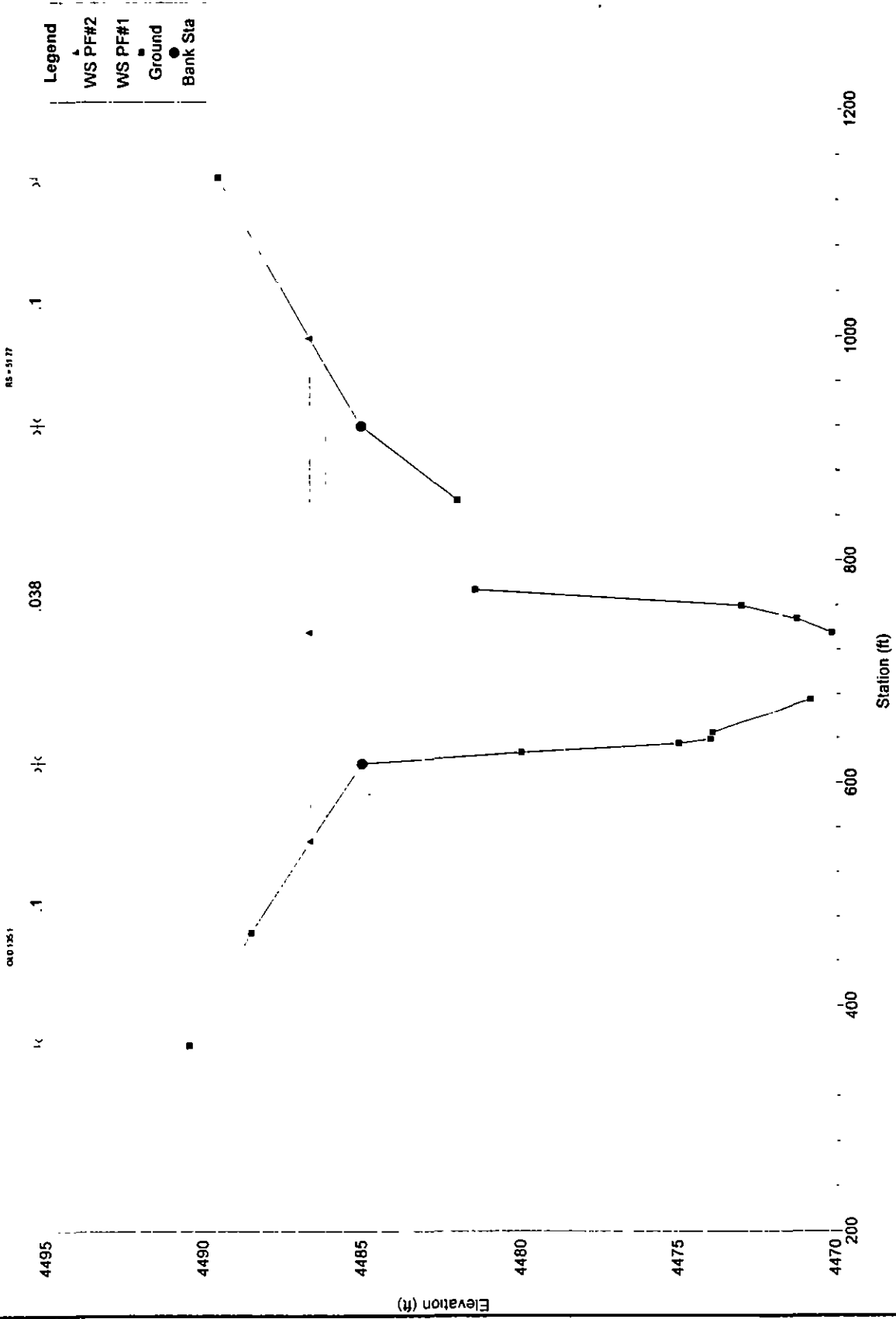
Truckee River FINAL PLAN 4/3/98

Plan #1-7300 P1-2400-4b



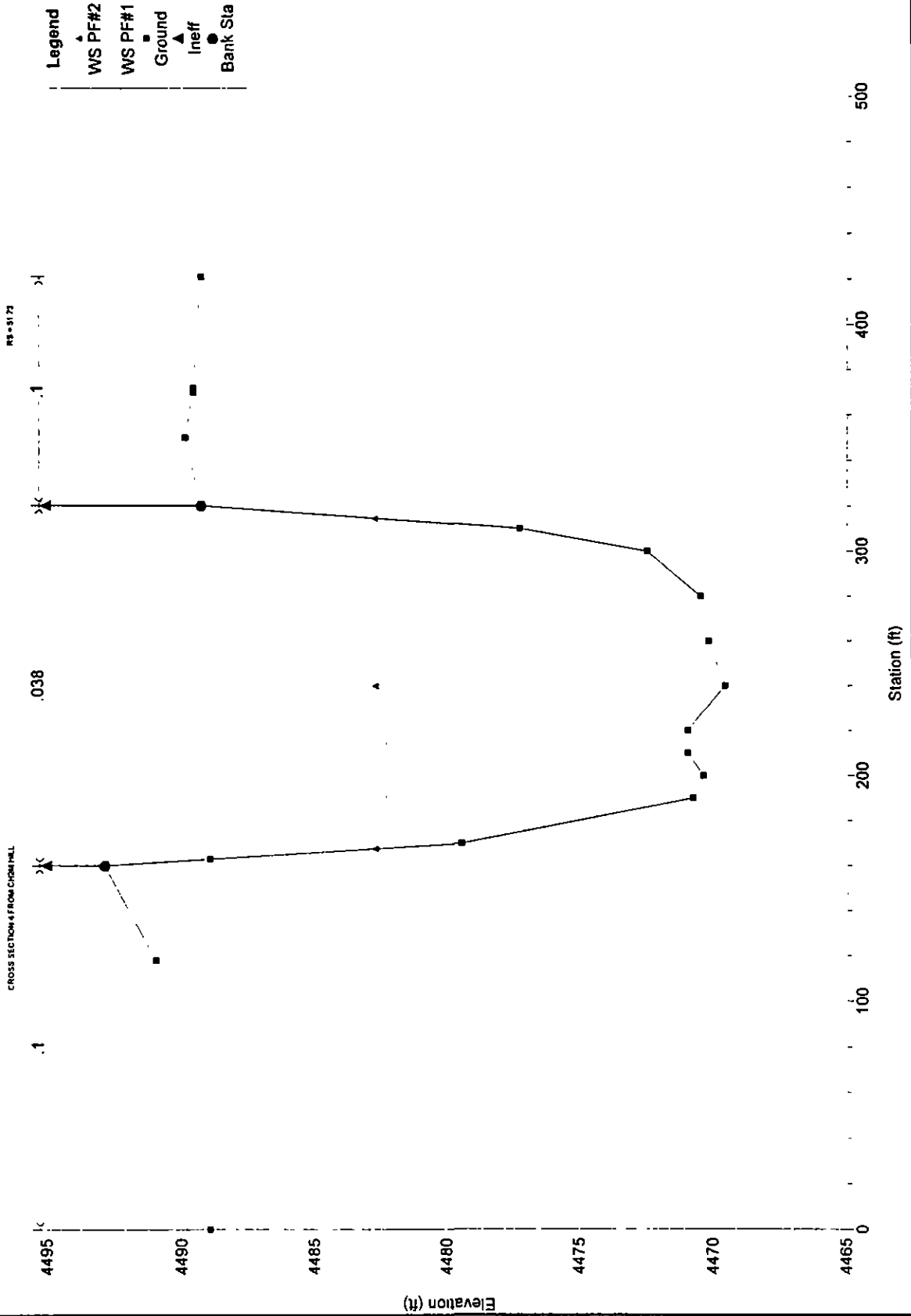
Truckee River FINAL PLAN 4/3/98

Flow #1 = 23,000 cfs @ 2.600 cfs



Truckee River FINAL PLAN 4/3/98

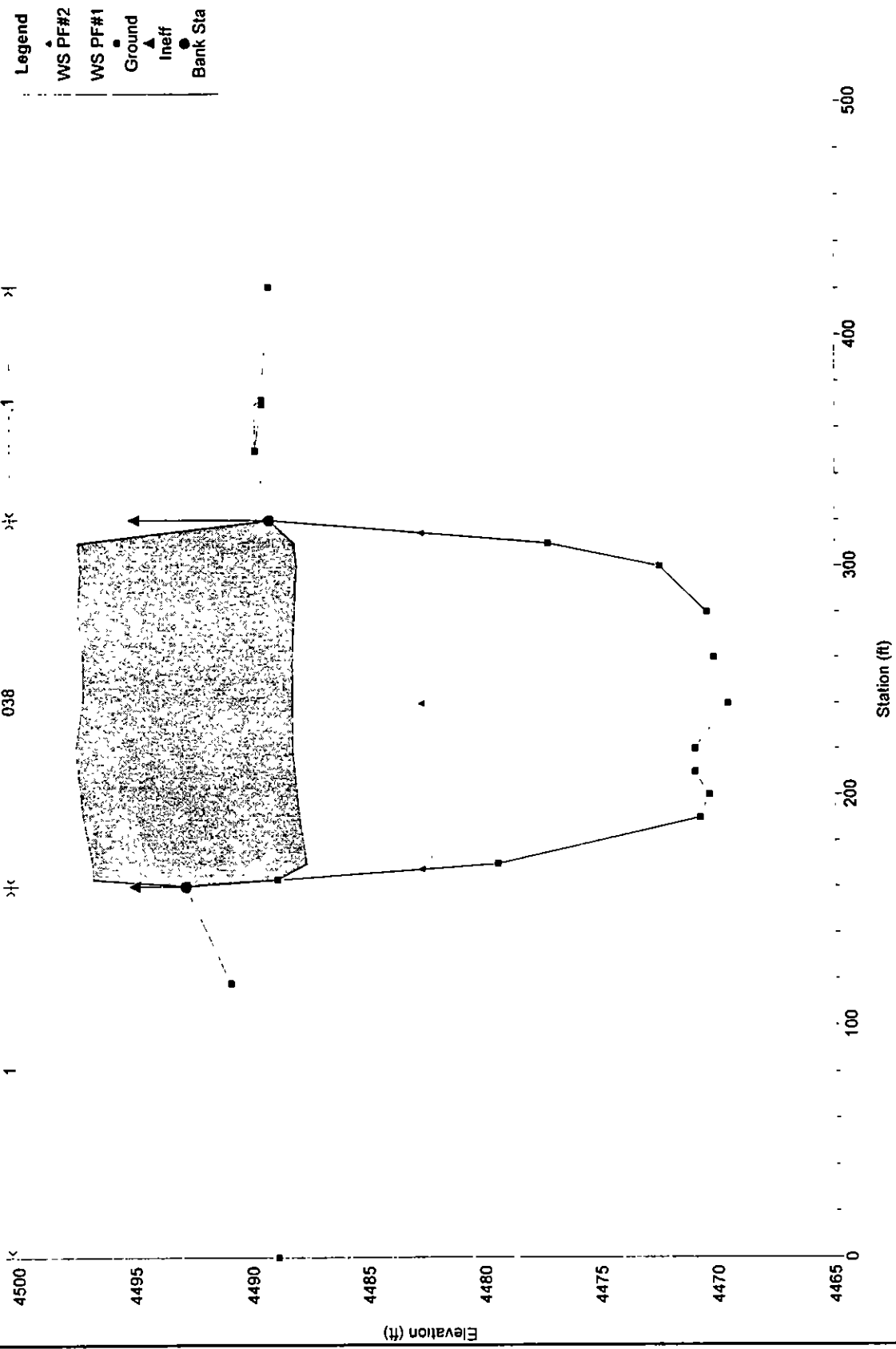
Plan # 11-31300-07-2000.cib



Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300 #2 = 24500 cfs

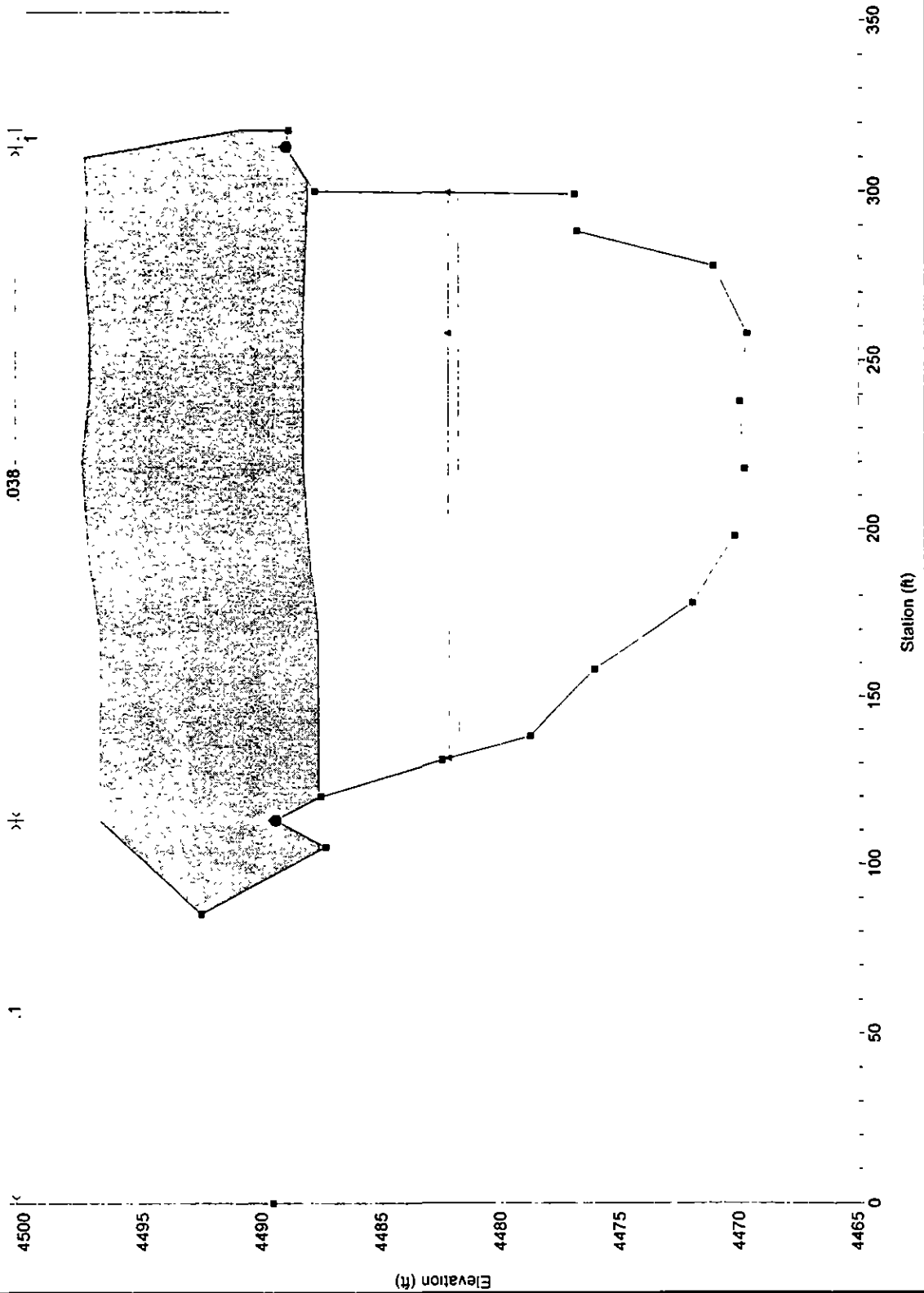
East Second St. RS = 51.725 BR U



Truckee River FINAL PLAN 4/3/98

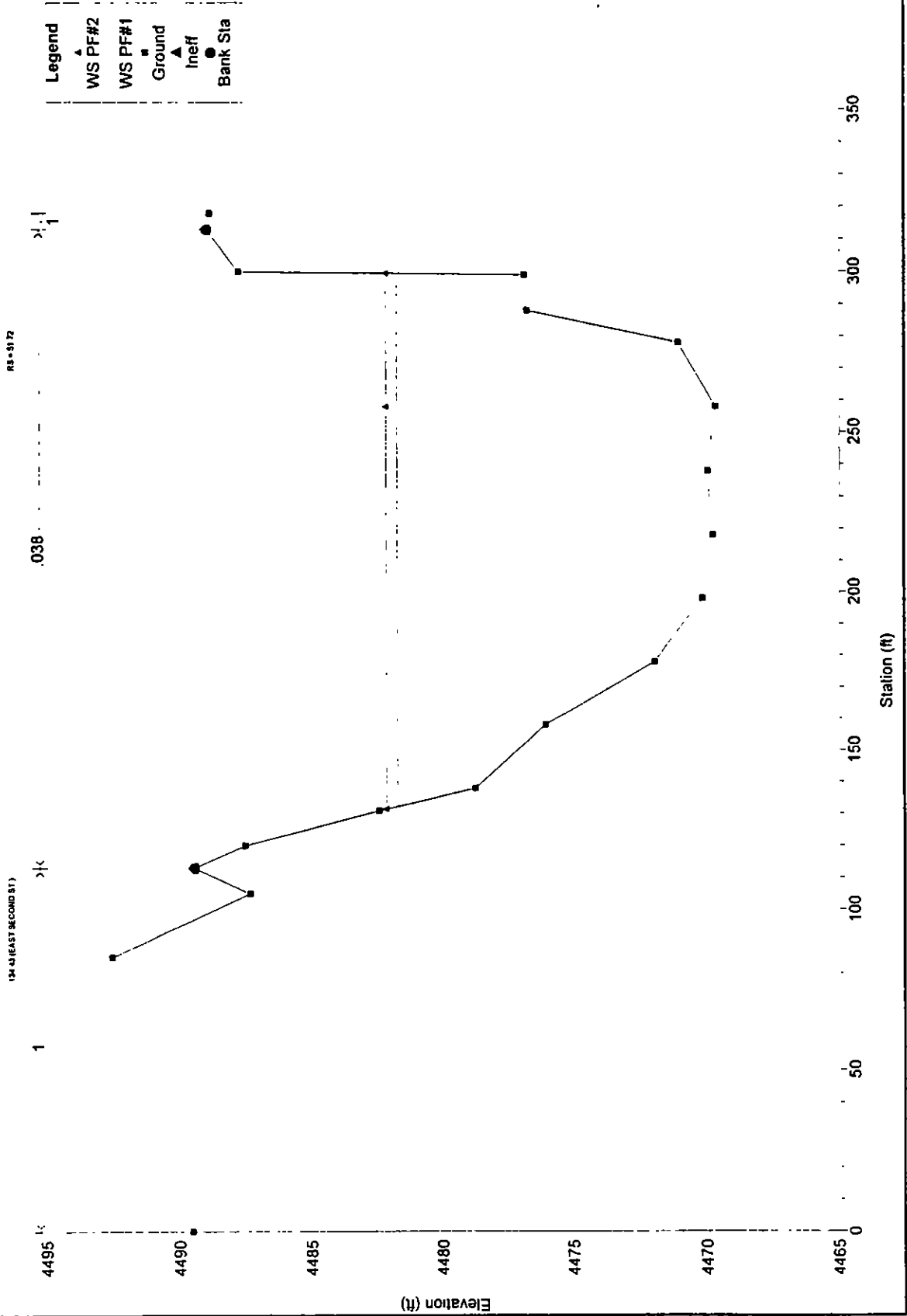
Flow: #1= 23300 #2 = 24500 cfs
East Second St. RS = 51.725 BR D

- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Ineff
 - Bank Sta



Truckee River FINAL PLAN 4/3/98

Flow #1 = 22,000, #2 = 2,450, #4 =

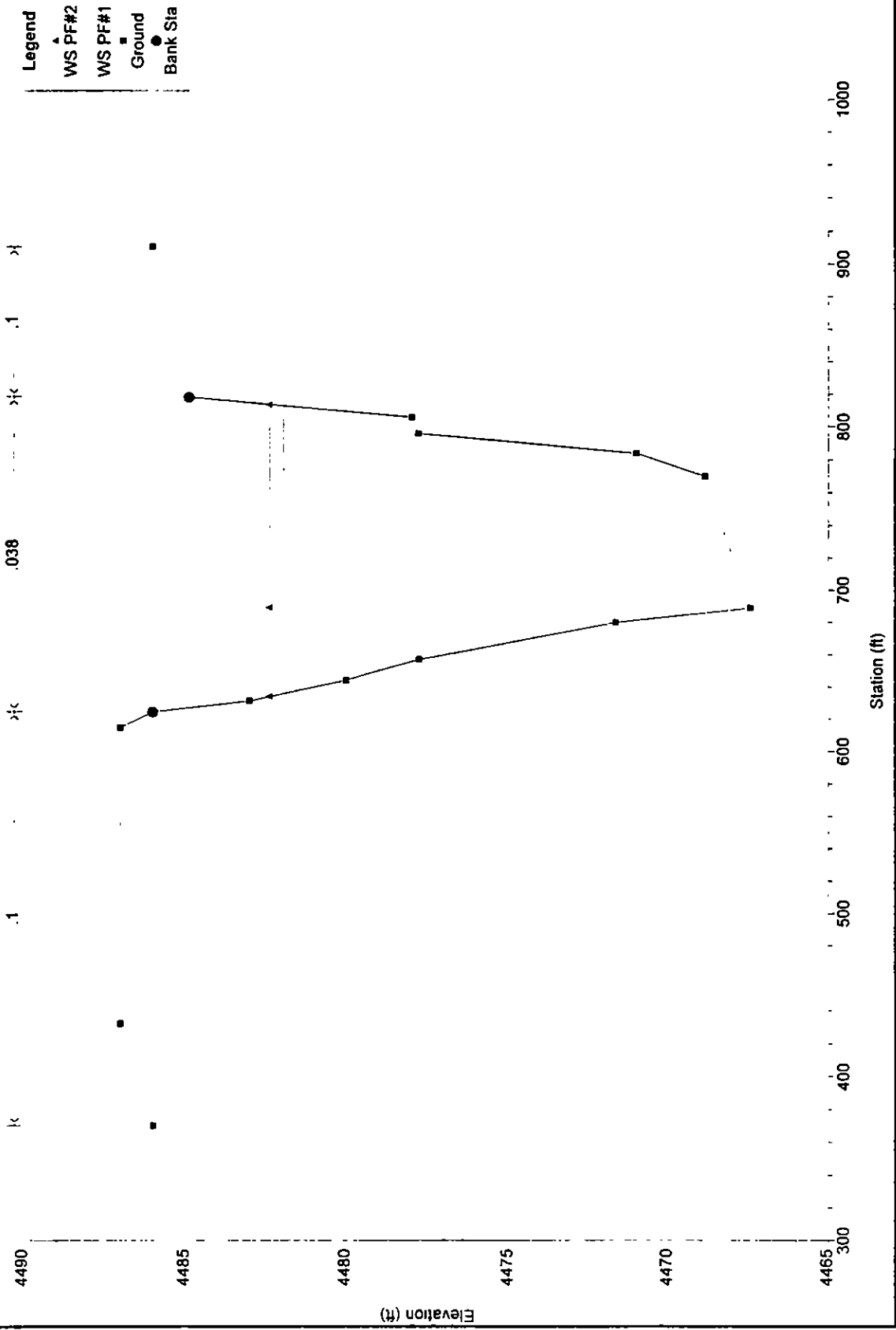


Truckee River FINAL PLAN 4/3/98

File #1-33300.P2-26502.dwg

OLD 1344

RS = 5171

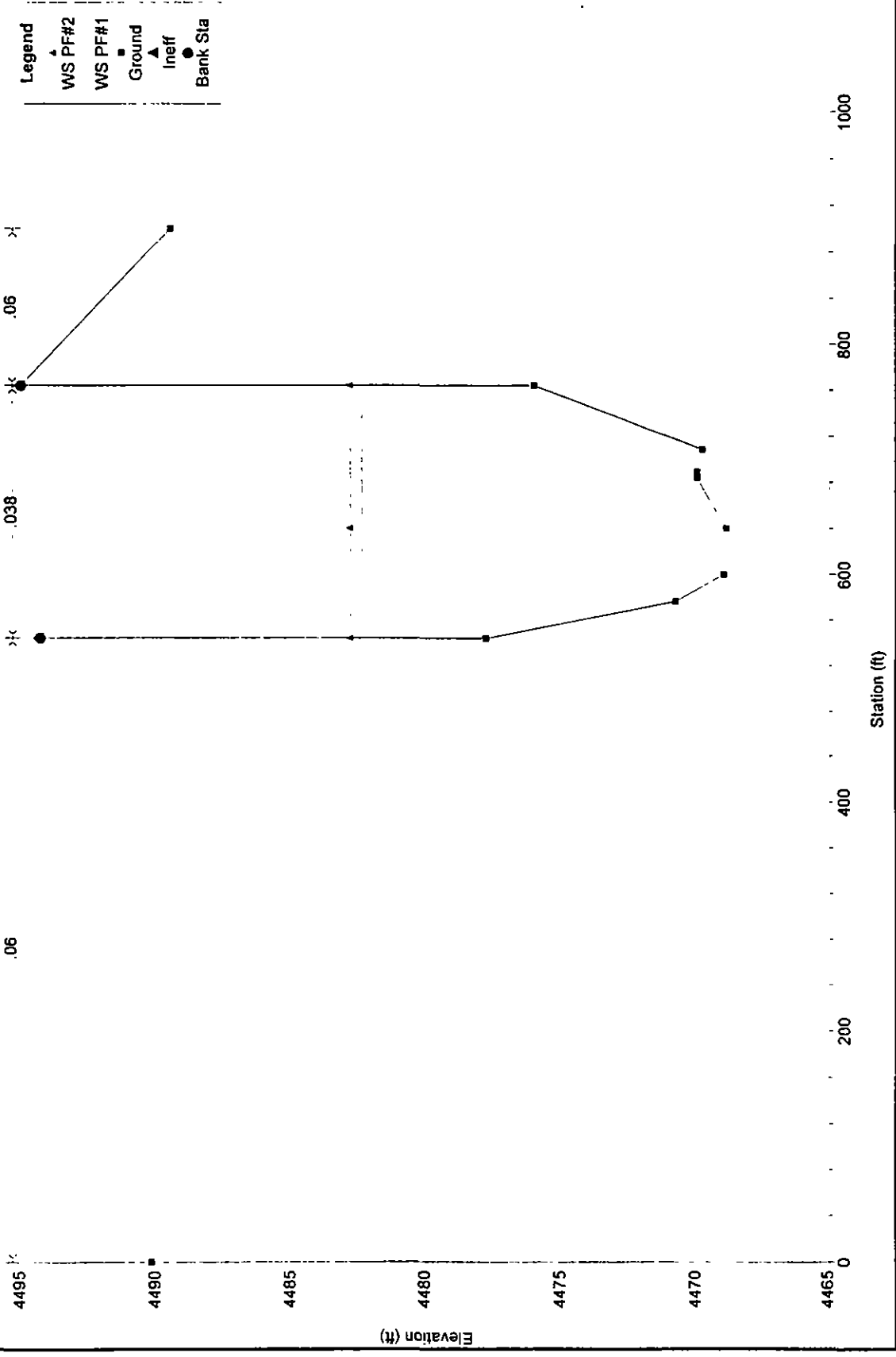


- Legend**
- WS PF#2
 - WS PF#1
 - Ground
 - Bank Sta

Truckee River FINAL PLAN 4/3/98

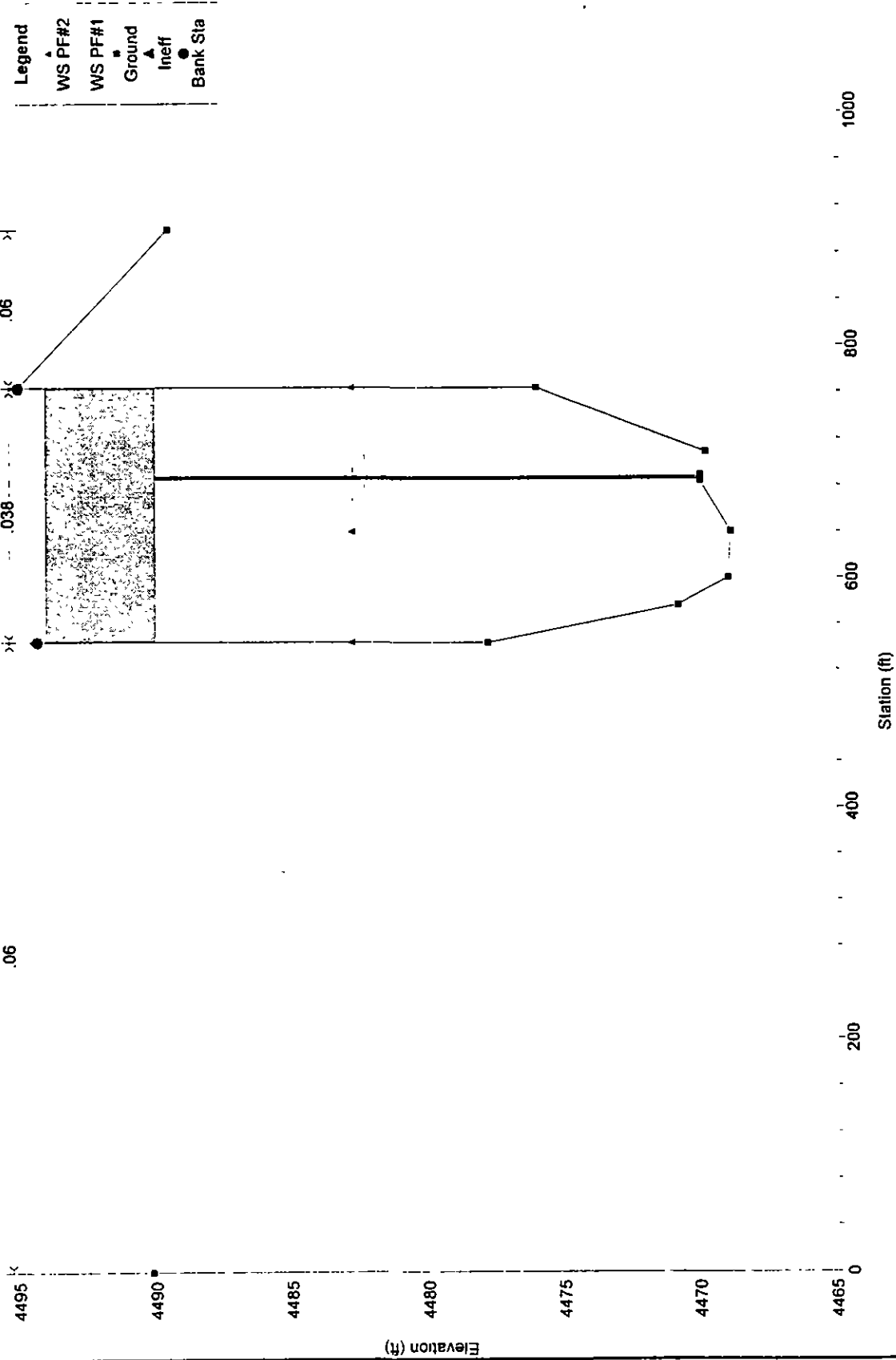
Flow: #1= 23300 #2 = 24500 cfs

This is a REPEATED section. RS = 51.69



Truckee River FINAL PLAN 4/3/98

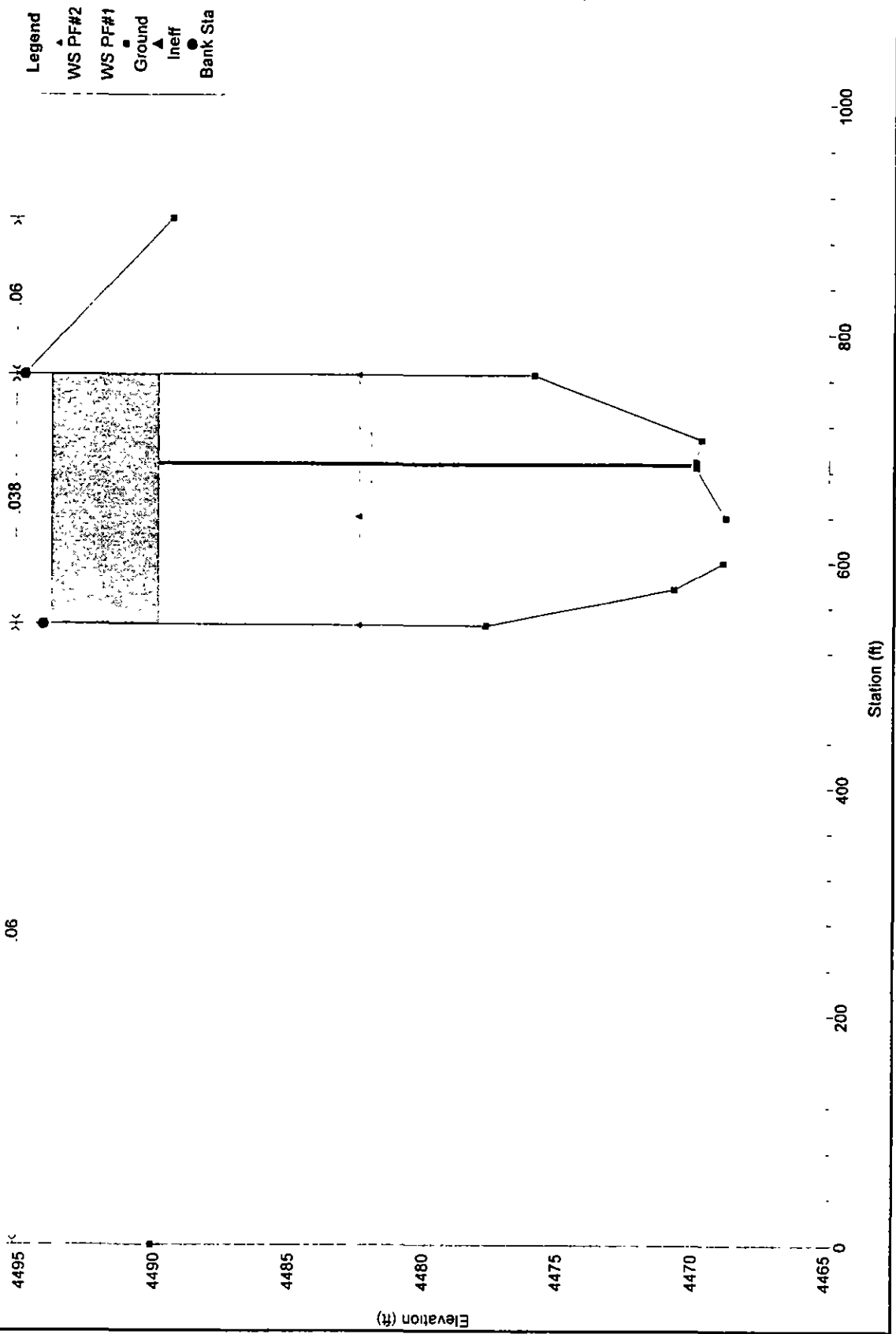
Flow: #1= 23300, #2 = 24500 cfs
Kuenzli St RS = 51.685 BR U



- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Ineff
 - Bank Sta

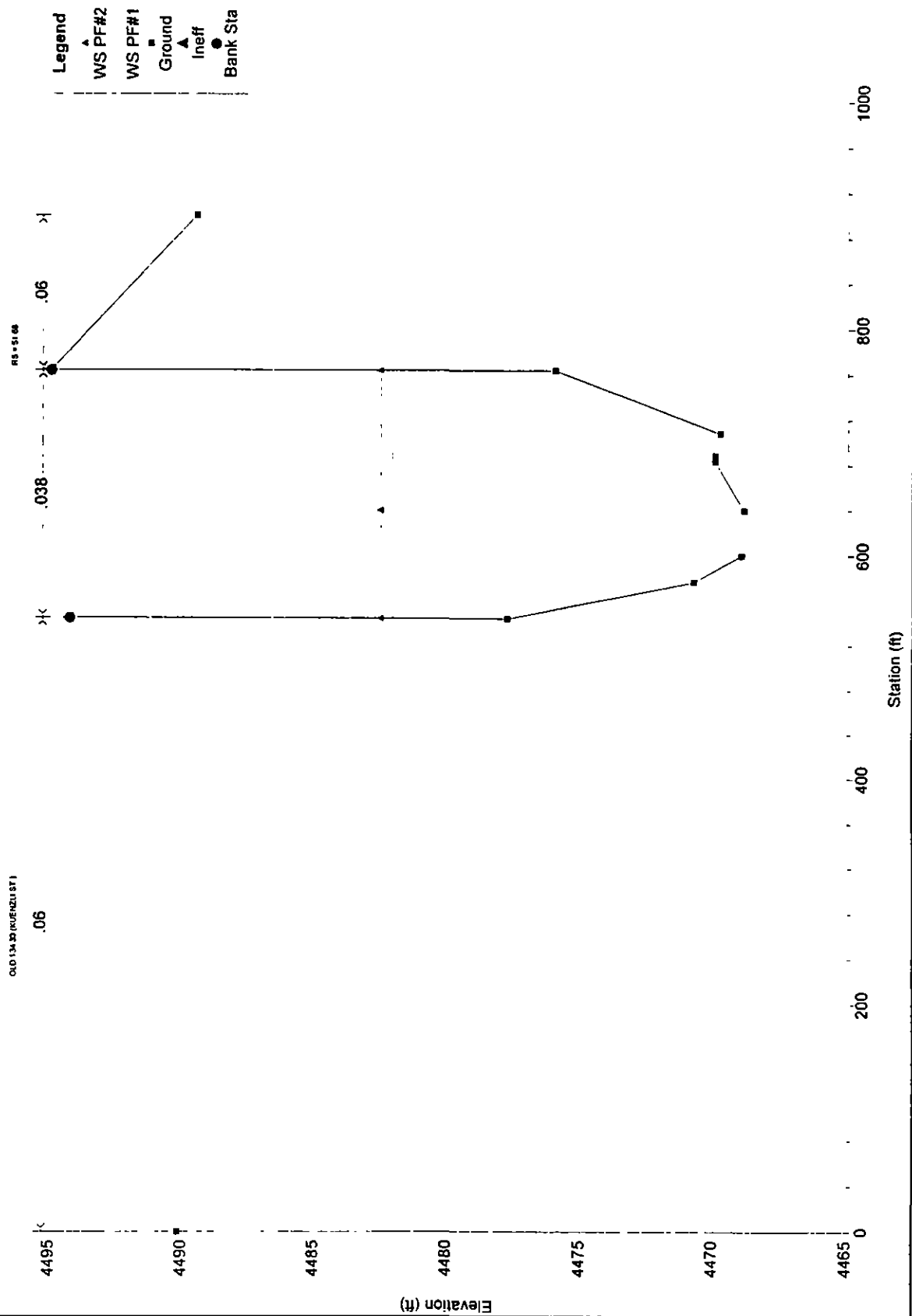
Truckee River FINAL PLAN 4/3/98

Flow: #1= 23300 ,#2 = 24500 cfs
Kuenzli St RS = 51.685 BR D



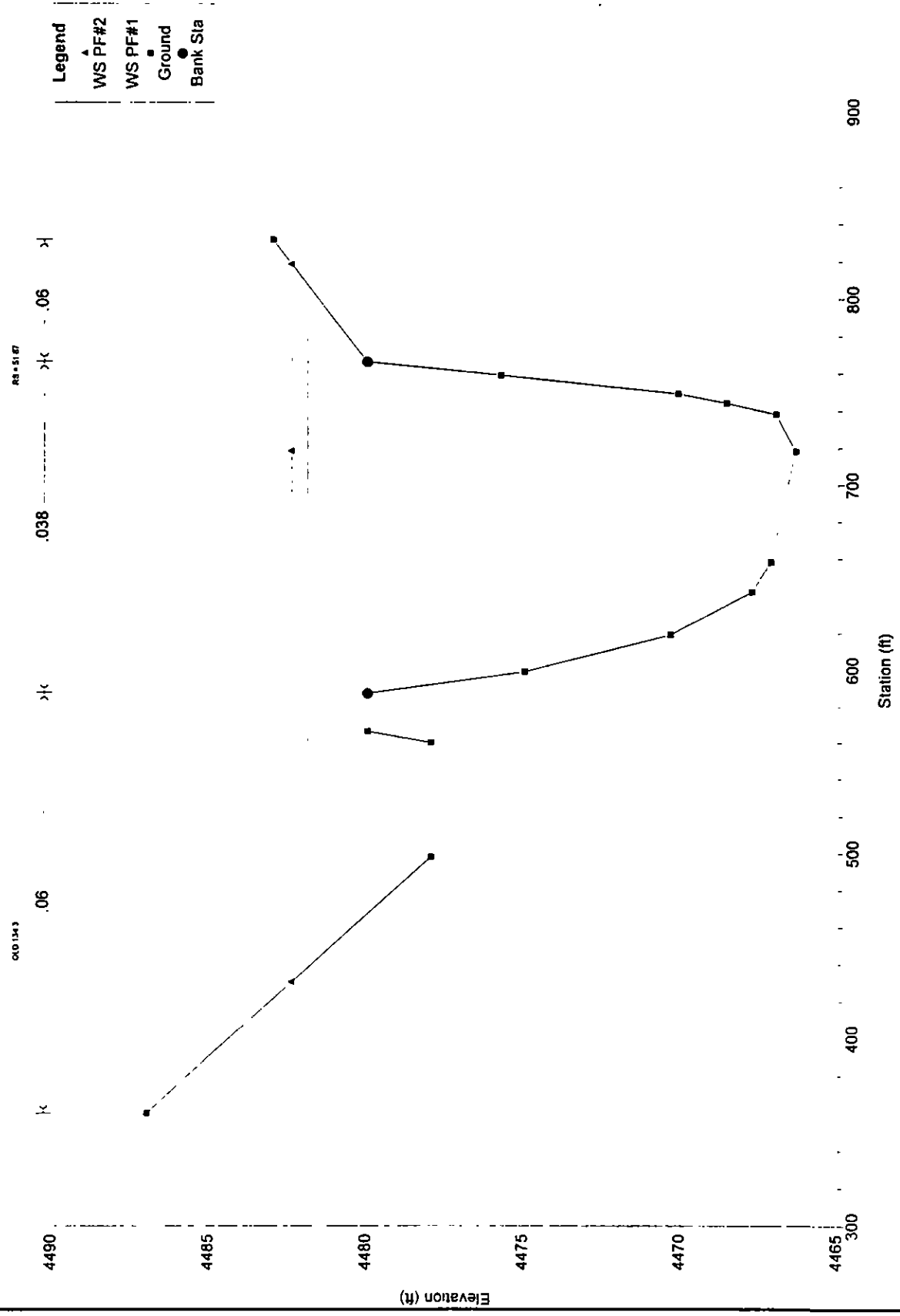
Truckee River FINAL PLAN 4/3/98

From 81+2300.00 to 2400.00



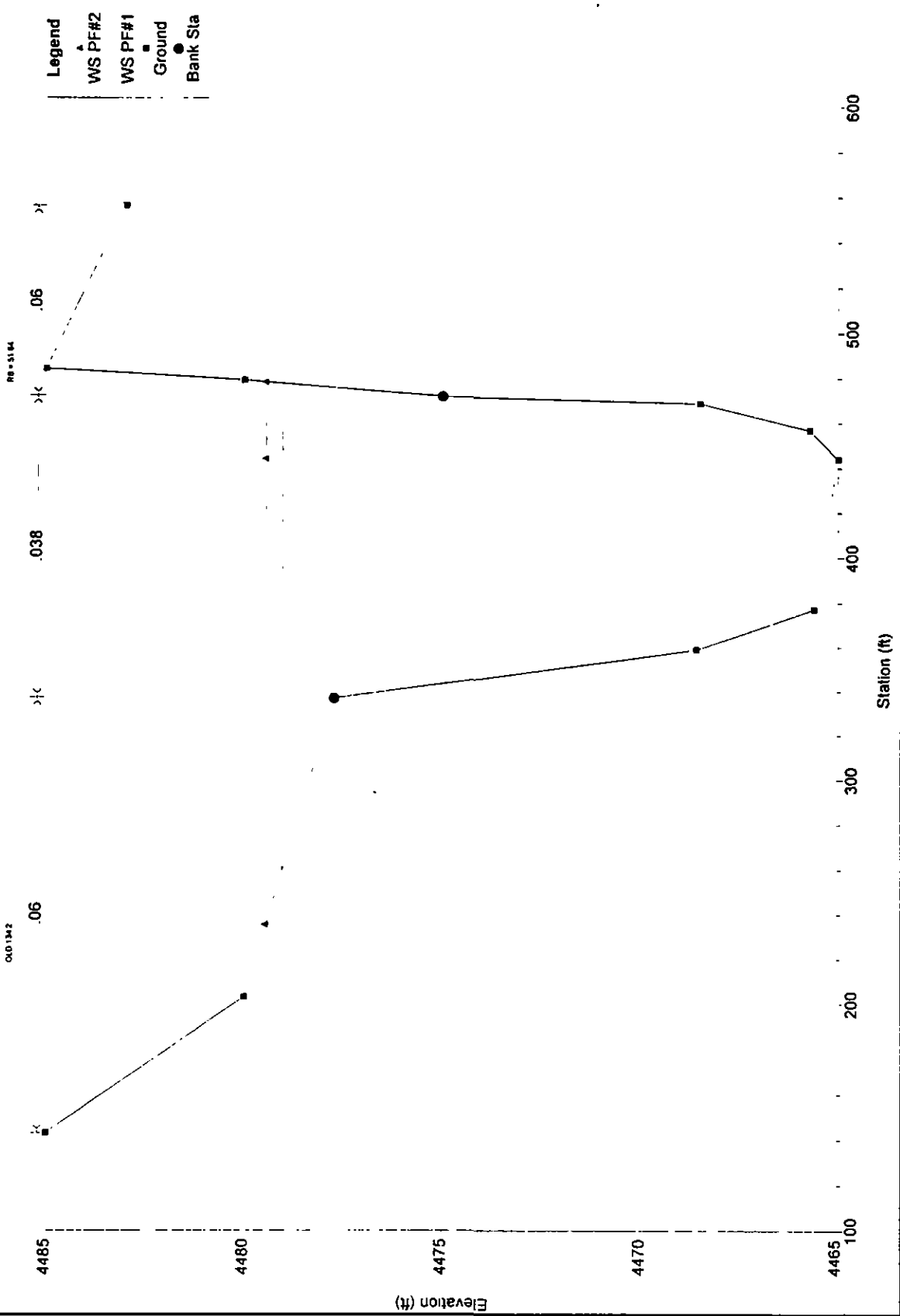
Truckee River FINAL PLAN 4/3/98

Flow #1 = 23,000 #2 = 24,500 cfs



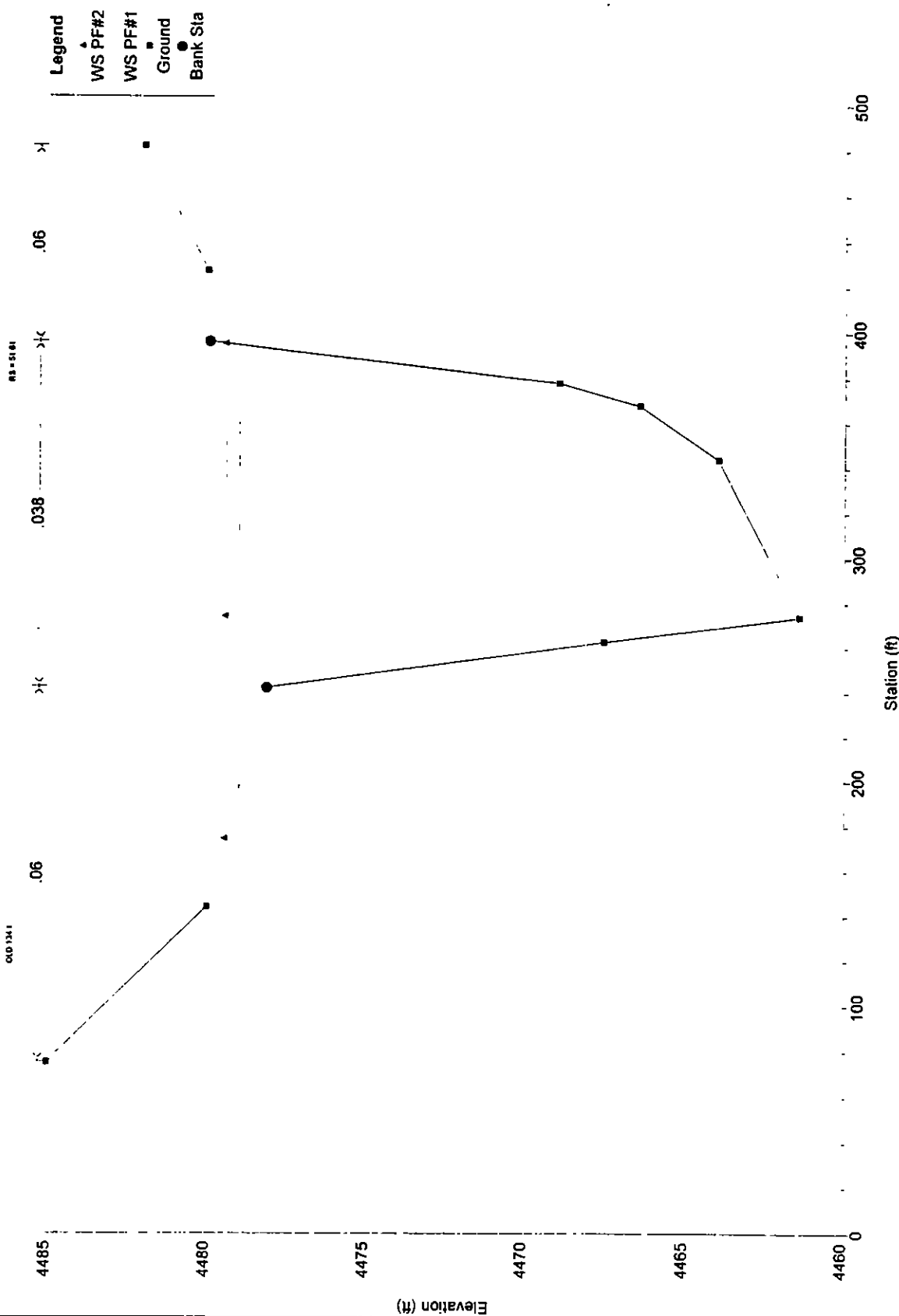
Truckee River FINAL PLAN 4/3/98

Plan #1-23300-97-26500-06



Truckee River FINAL PLAN 4/3/98

From 81+23.00 to 2+400.00



0.01341

0.03181

.06

.038

.06

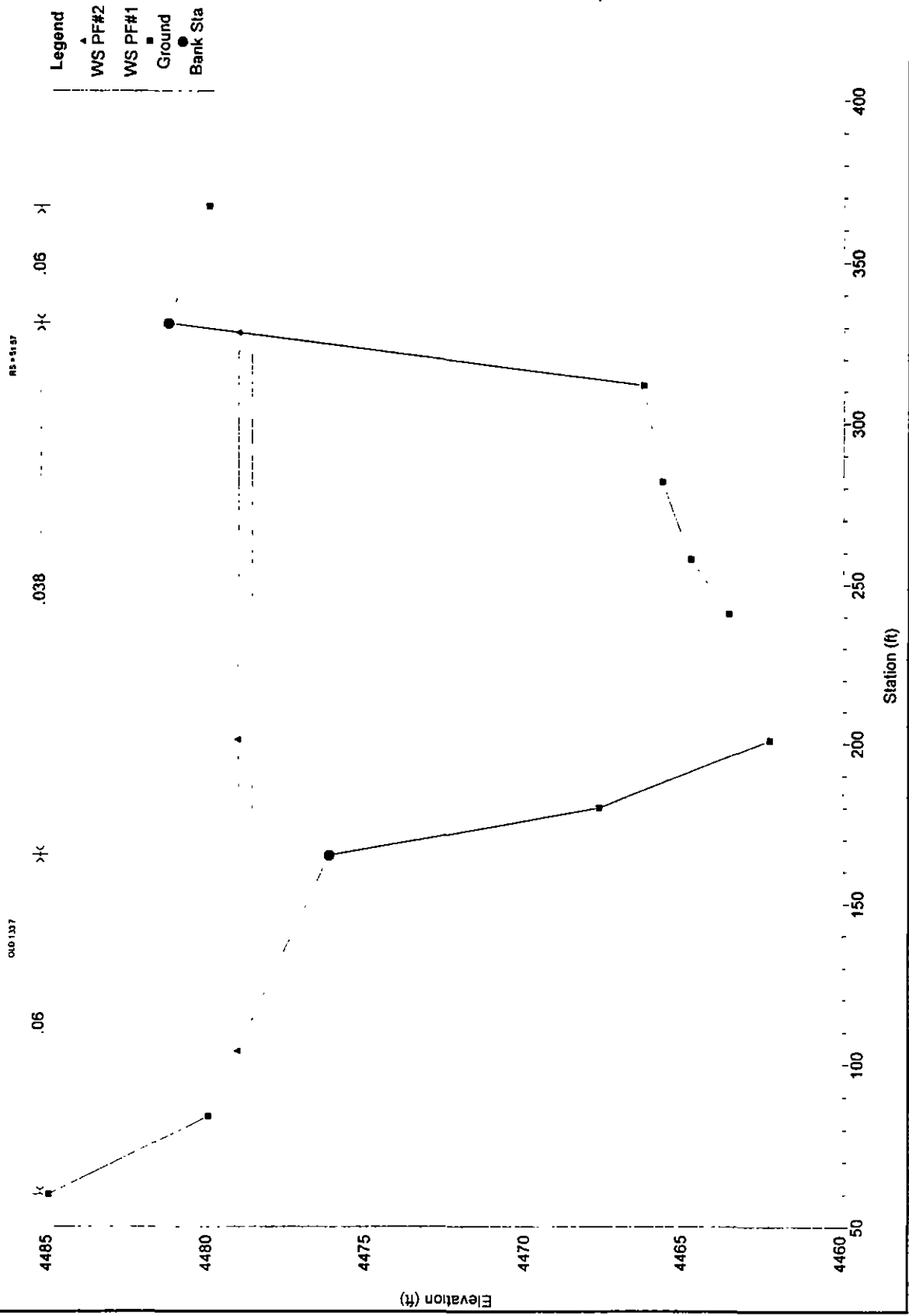
- Legend
- WS PF#2
- WS PF#1
- Ground
- Bank Sta

Station (ft)

Elevation (ft)

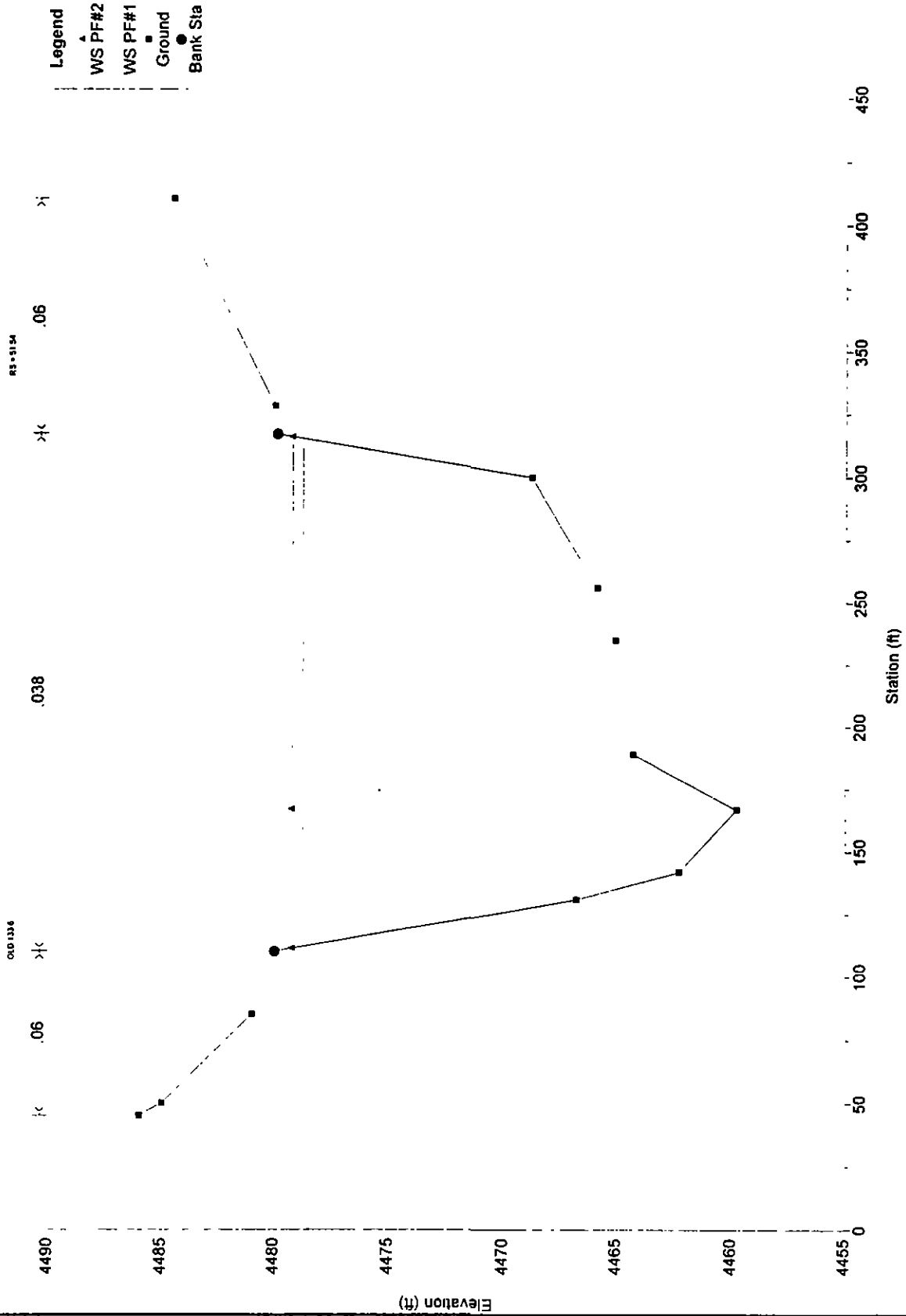
Truckee River FINAL PLAN 4/3/98

Draw #11-23500 271-24000.05



Truckee River FINAL PLAN 4/3/98

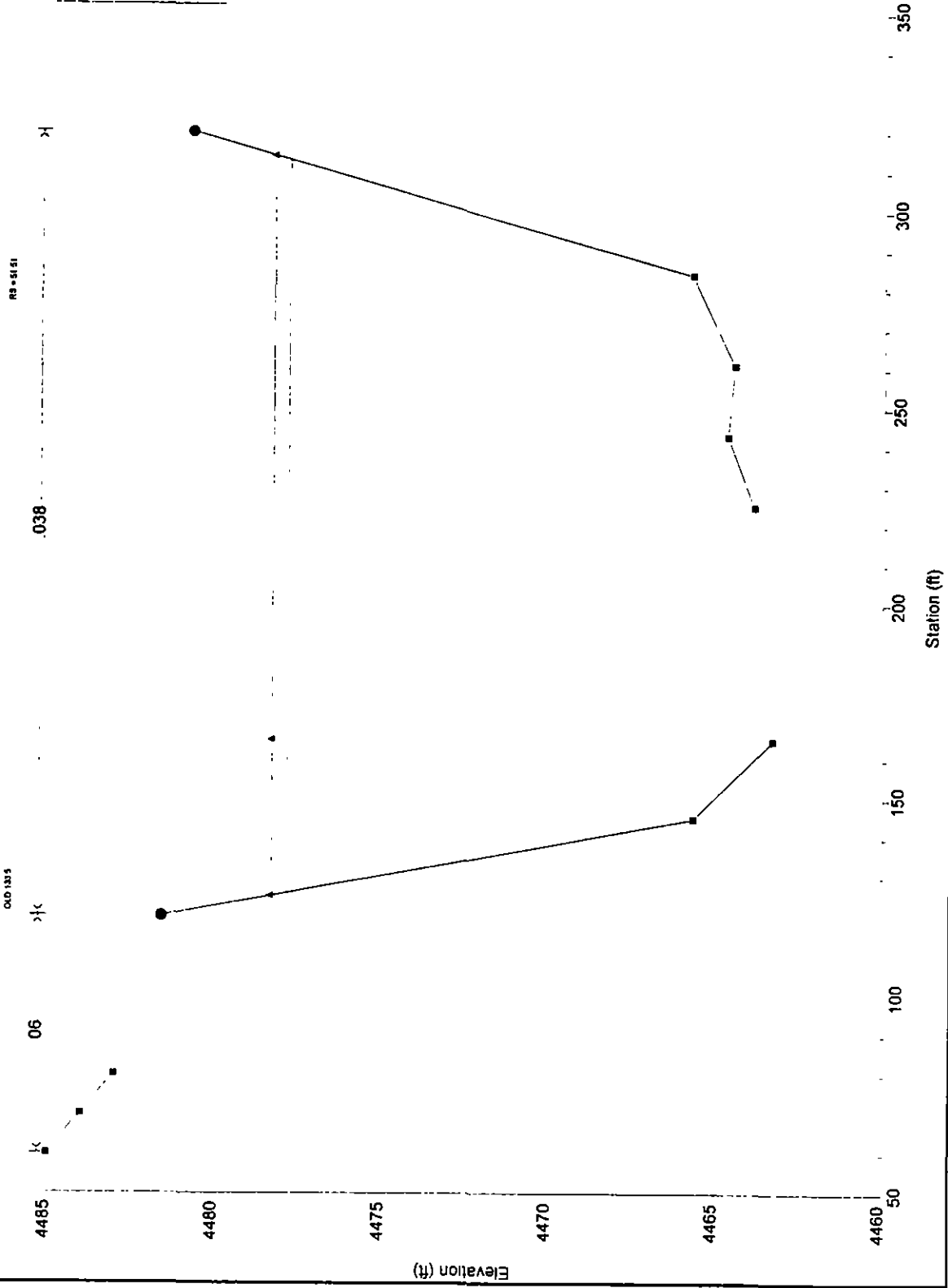
Plan # 13300.P1 - 24600.L6



Truckee River FINAL PLAN 4/3/98

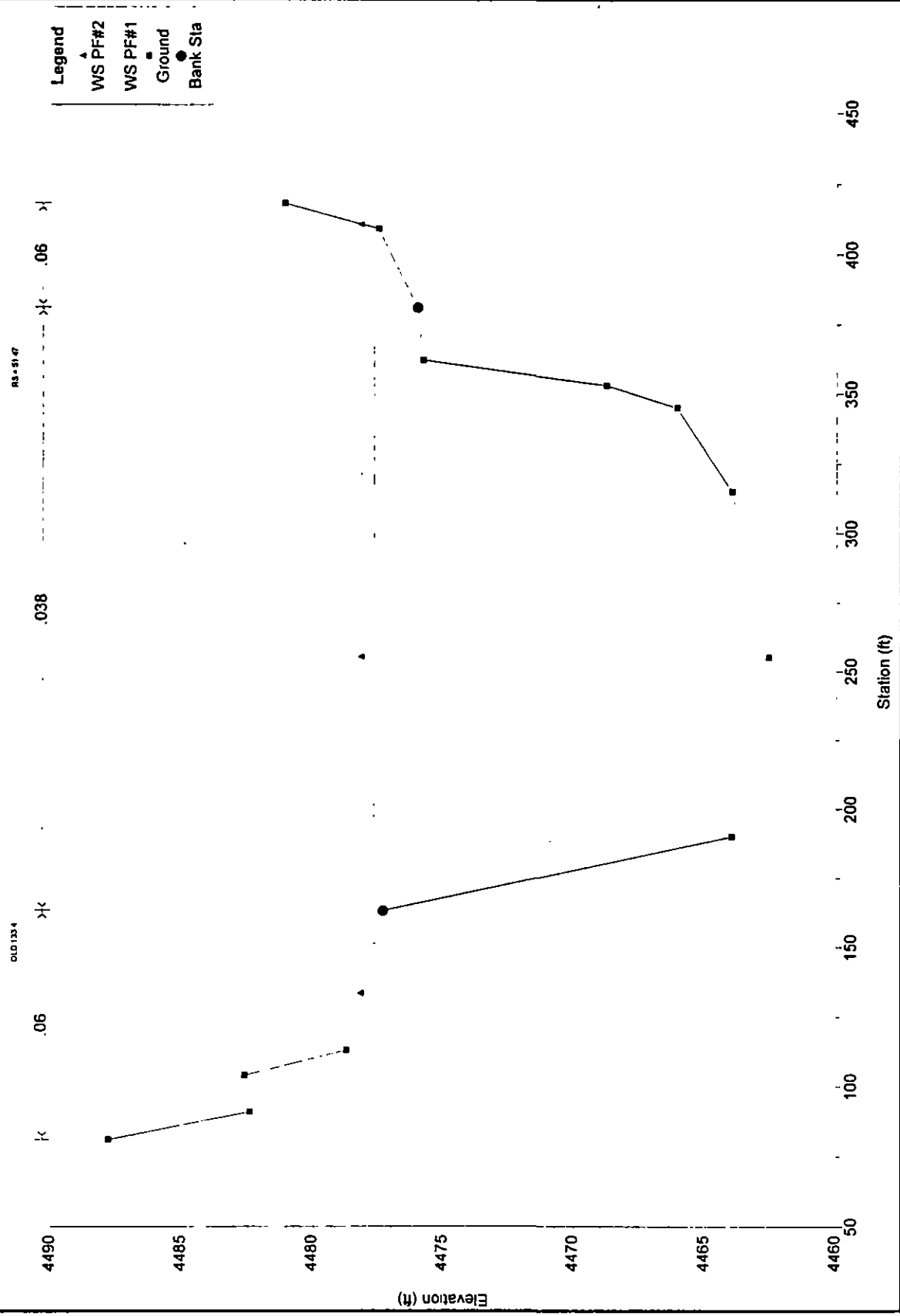
From 01+22.00 to 2+40.00 Sta.

- Legend
- WS PF#2
- WS PF#1
- Ground
- Bank Sta



Truckee River FINAL PLAN 4/3/98

Flow #1 = 23300 #2 = 24500 cfs

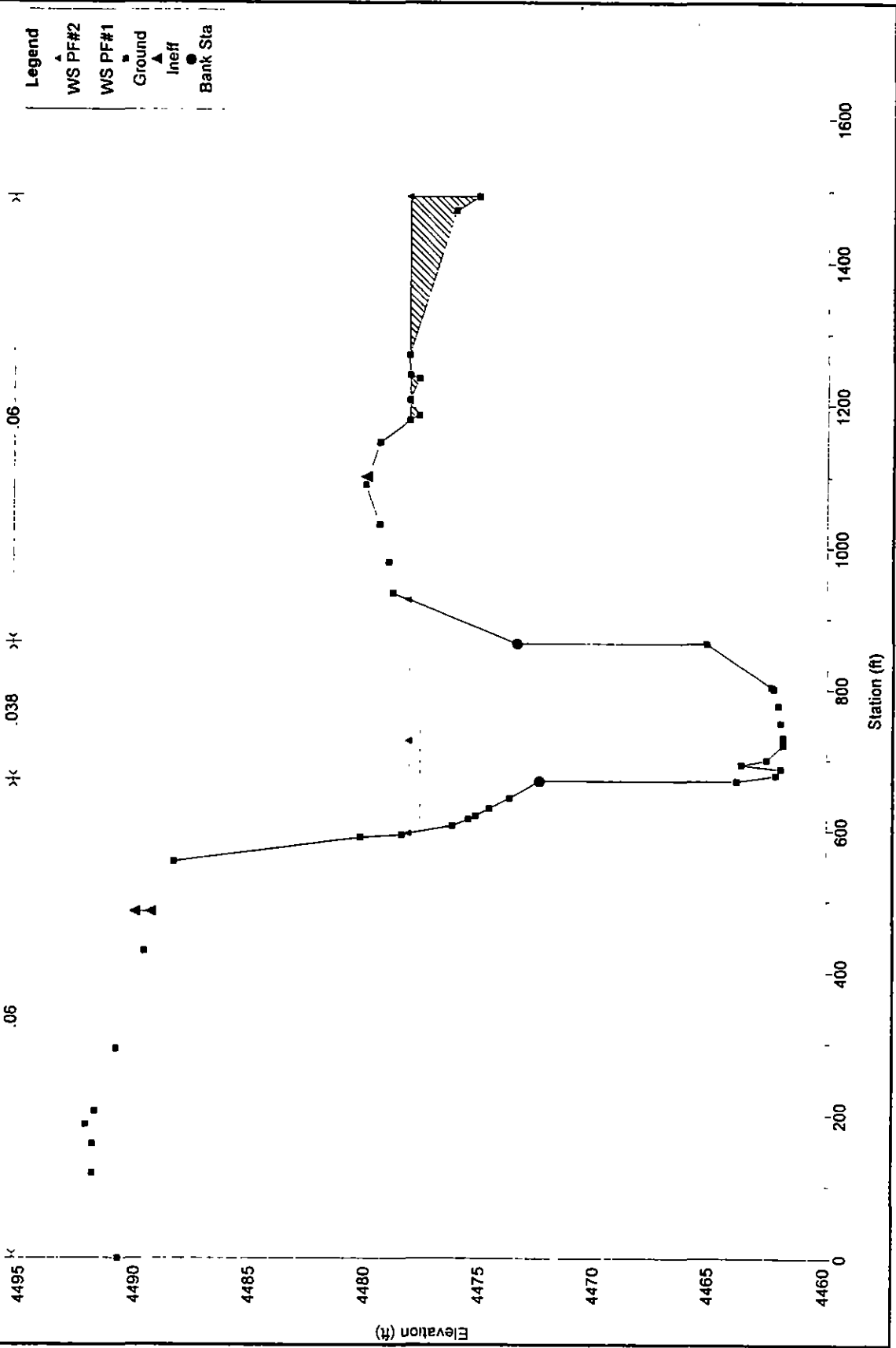


Legend
▲ WS PF#2
■ WS PF#1
□ Ground
● Bank Sta

Truckee River FINAL PLAN 4/3/98

From 81+23.000 to 2+2600.00

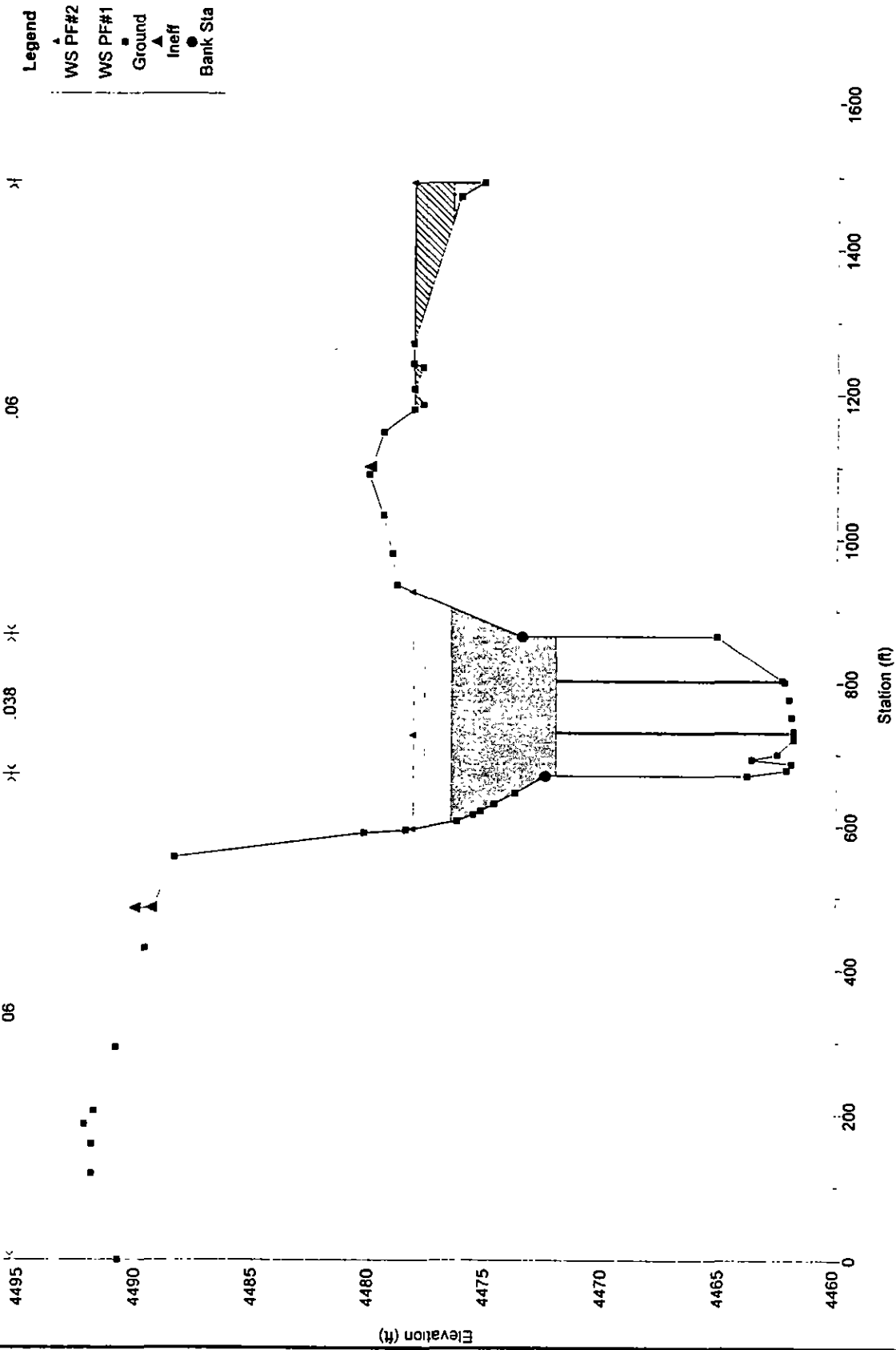
OLD 13324 (WELLS AVE 51-40)



Truckee River FINAL PLAN 4/3/98

Flow. #1 = 23300, #2 = 24500 cfs

Wells Ave. RS = 51.44 BR U



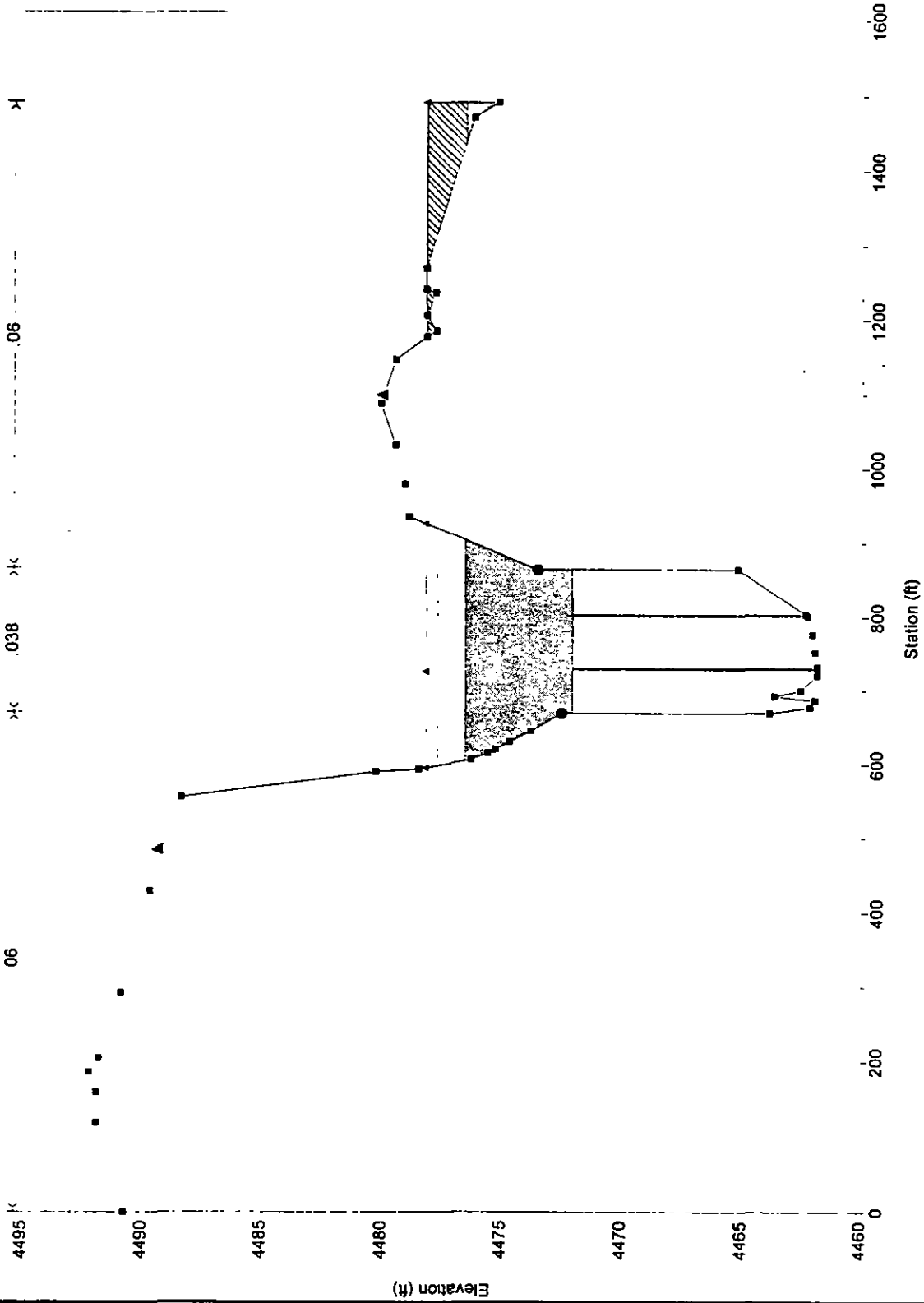
Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300, #2 = 24500 cfs

Wells Ave. RS = 51.44 BR D

06 .038 .06

- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Ineff
 - Bank Sta

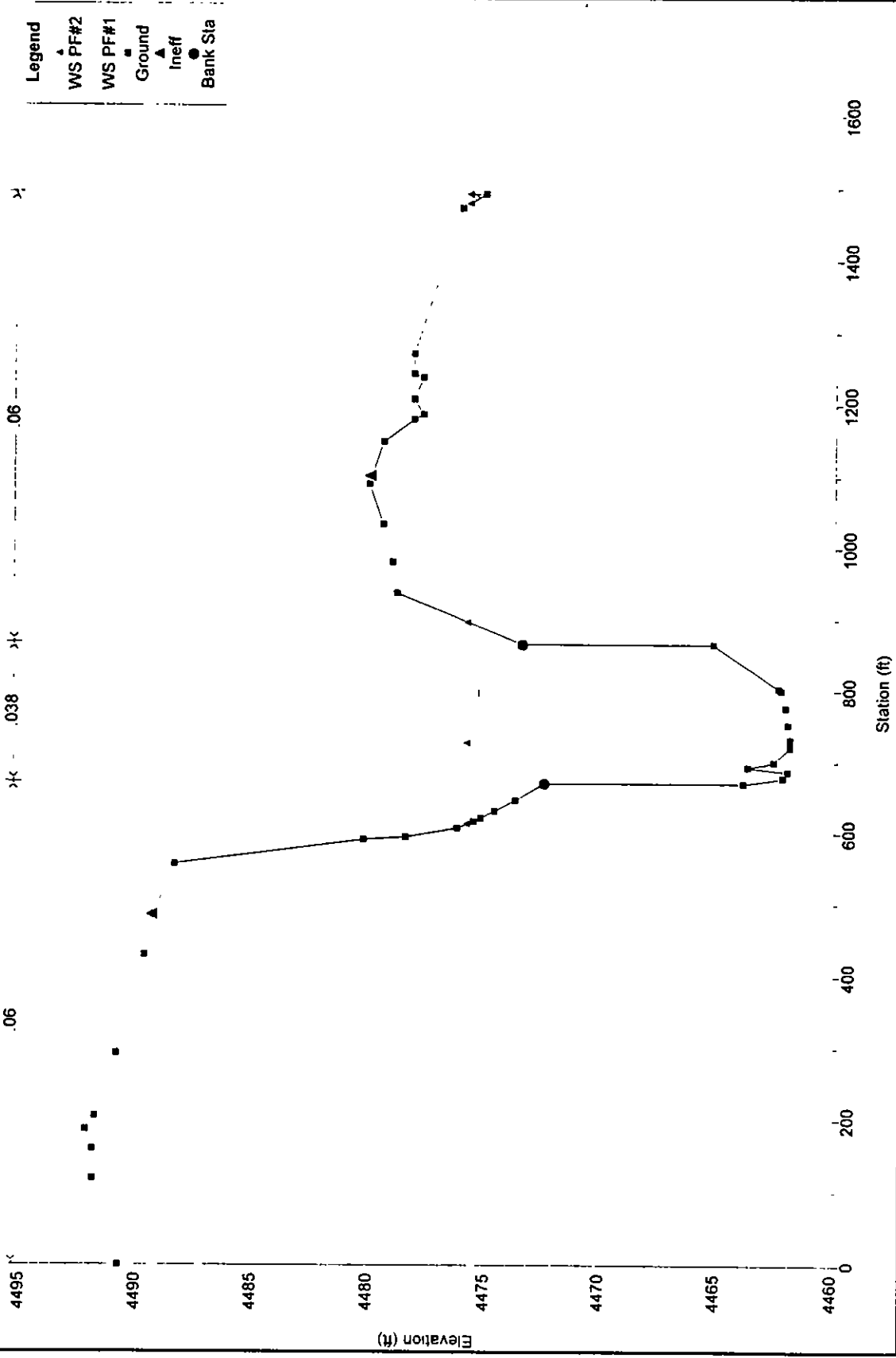


Truckee River FINAL PLAN 4/3/98

Flow 81 = 23300 cfs @ 26500 cfs

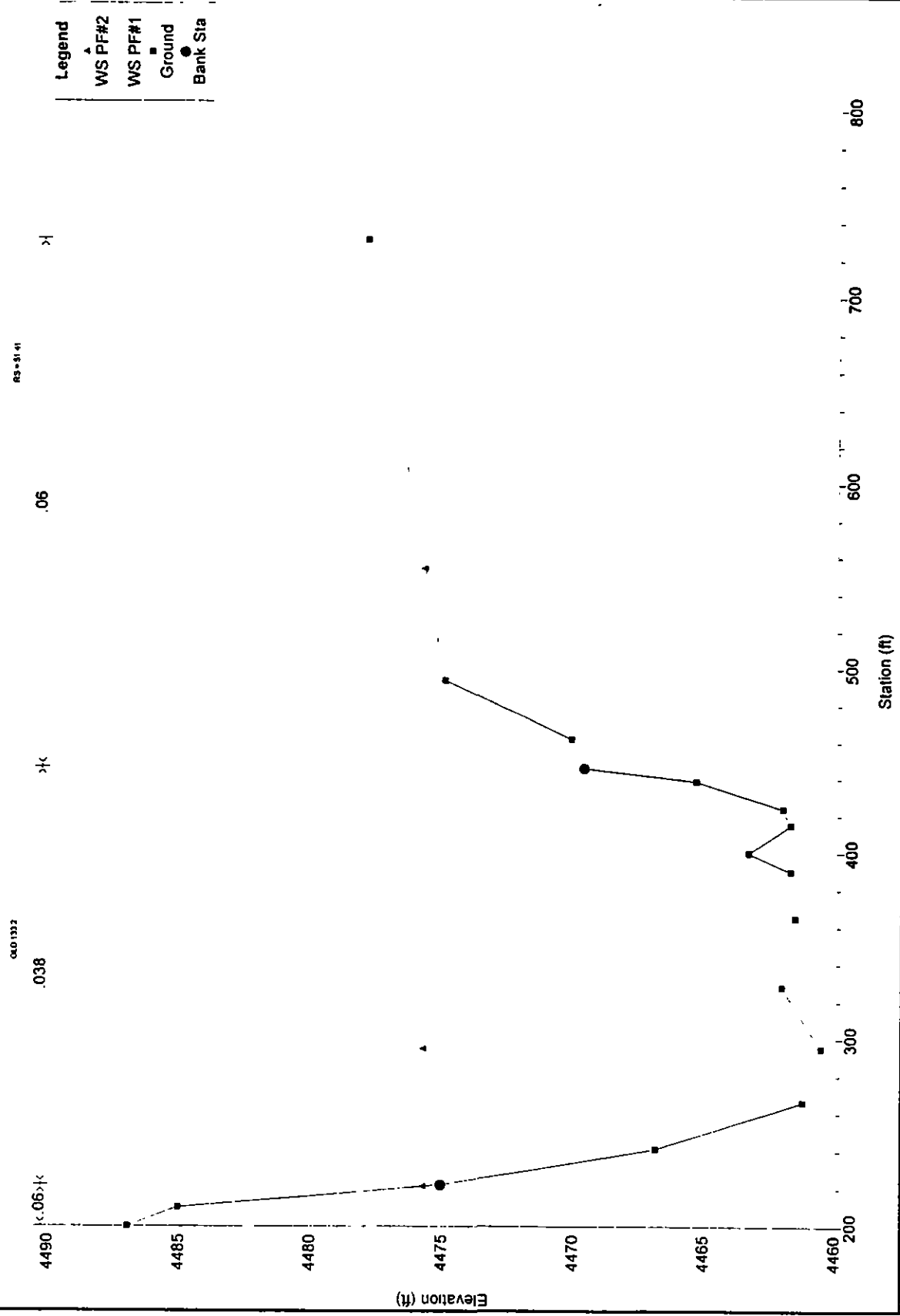
OLD 13324 (WELLS AVE 31' @)

RS = 51' @



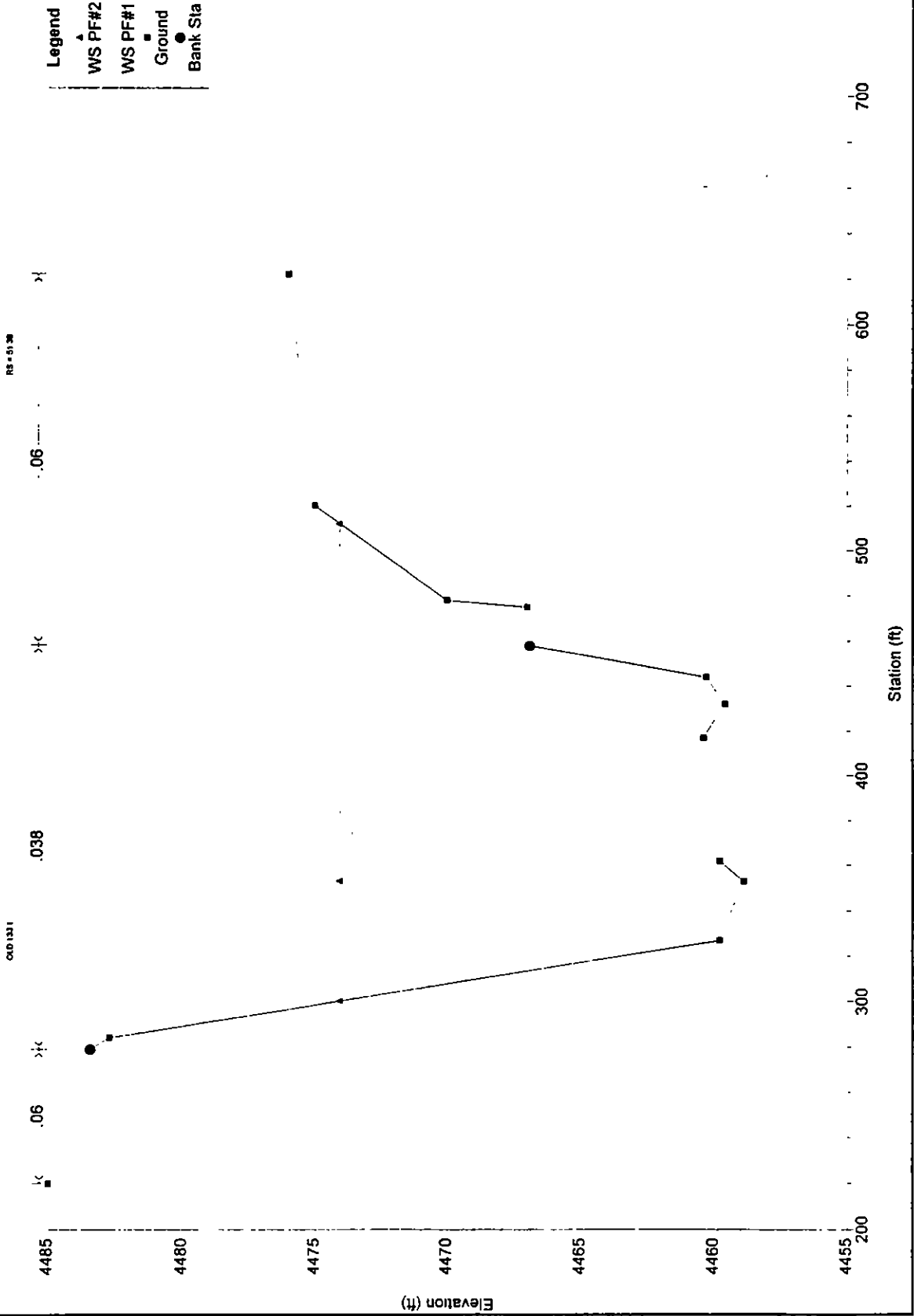
Truckee River FINAL PLAN 4/3/98

Flow #1 = 23000 cfs @ 24500 cfs



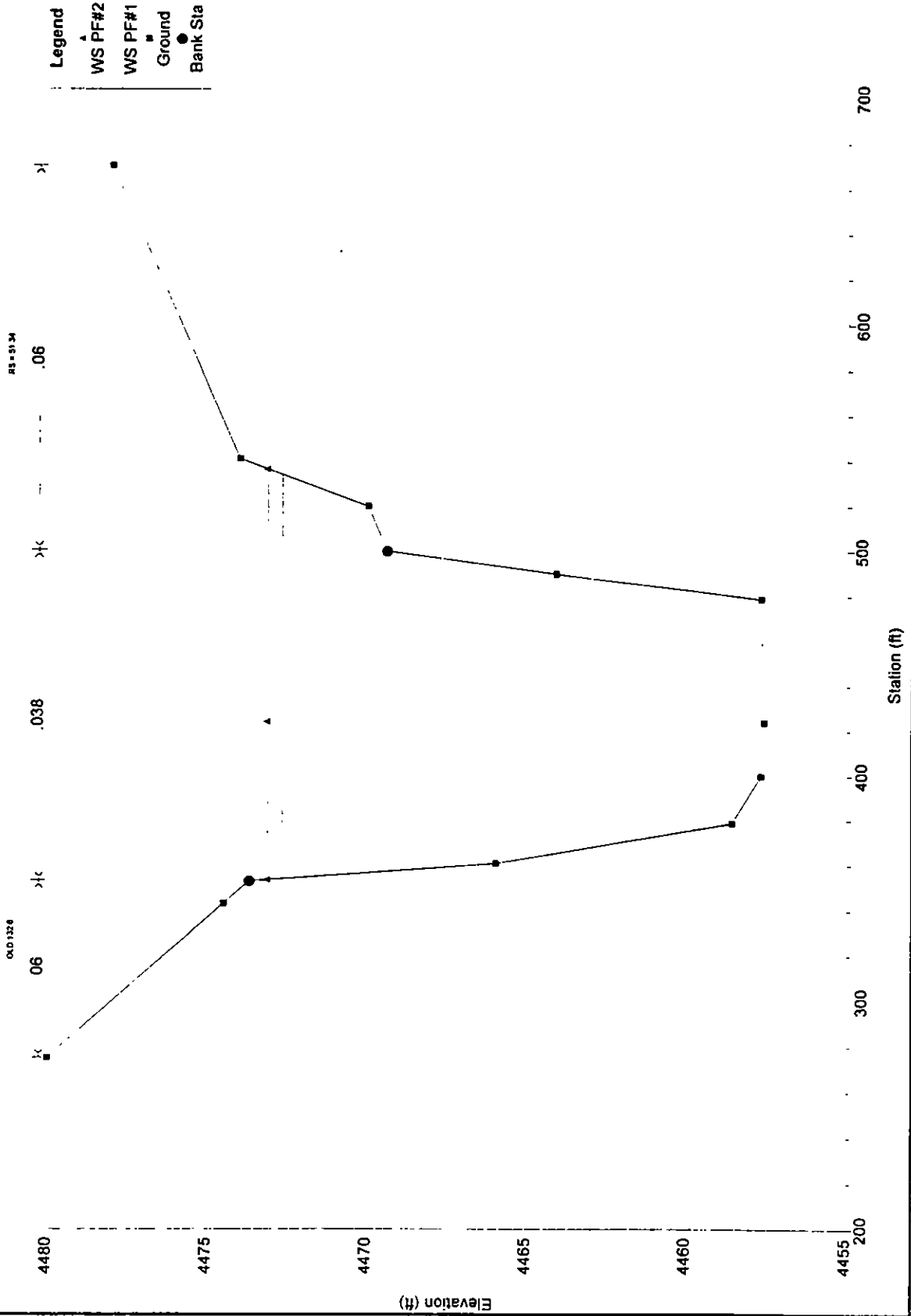
Truckee River FINAL PLAN 4/3/98

File #1-23300 (P) - 24500 (C)



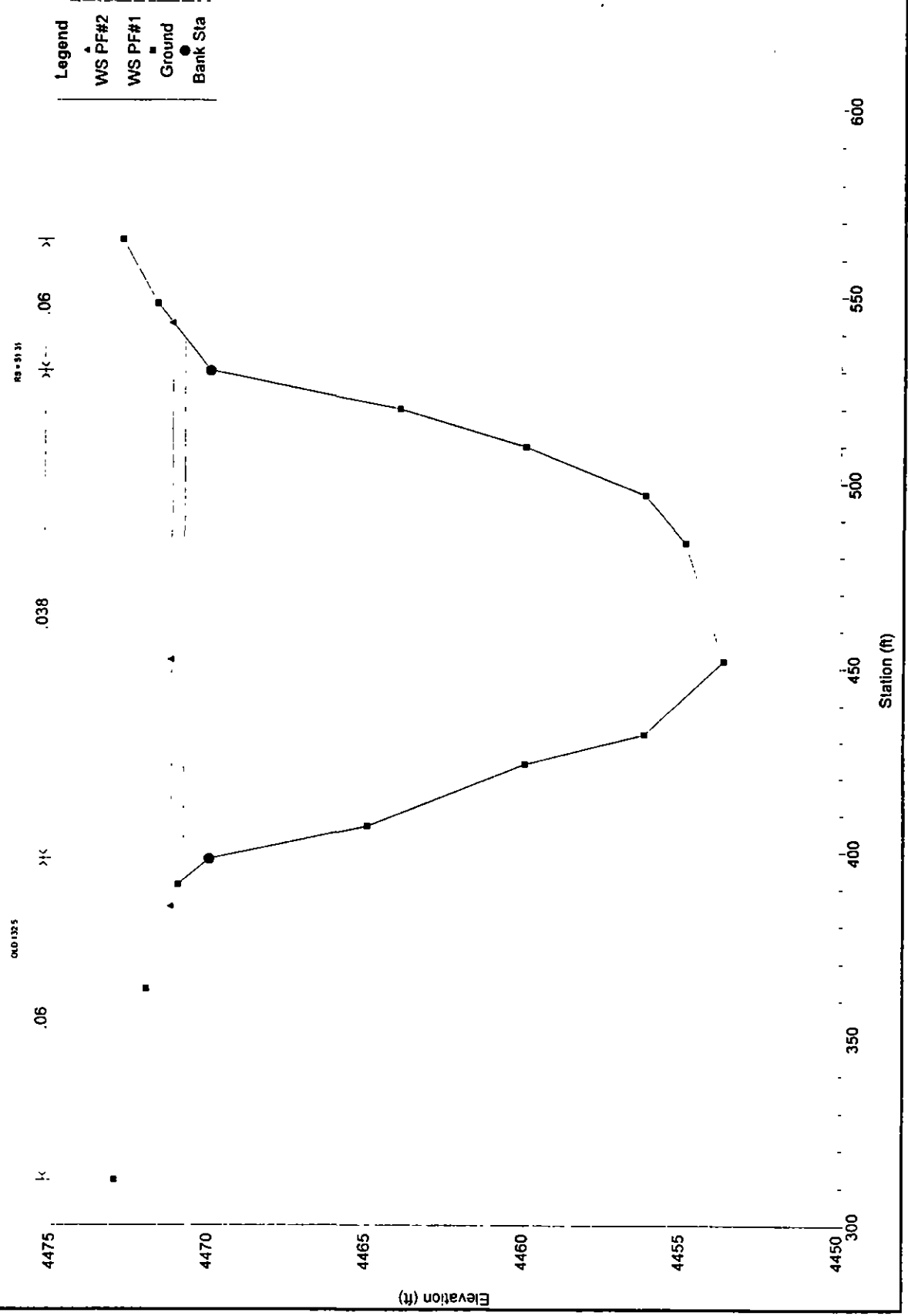
Truckee River FINAL PLAN 4/3/98

Plan #1: 23200 P2 = 24500.ch



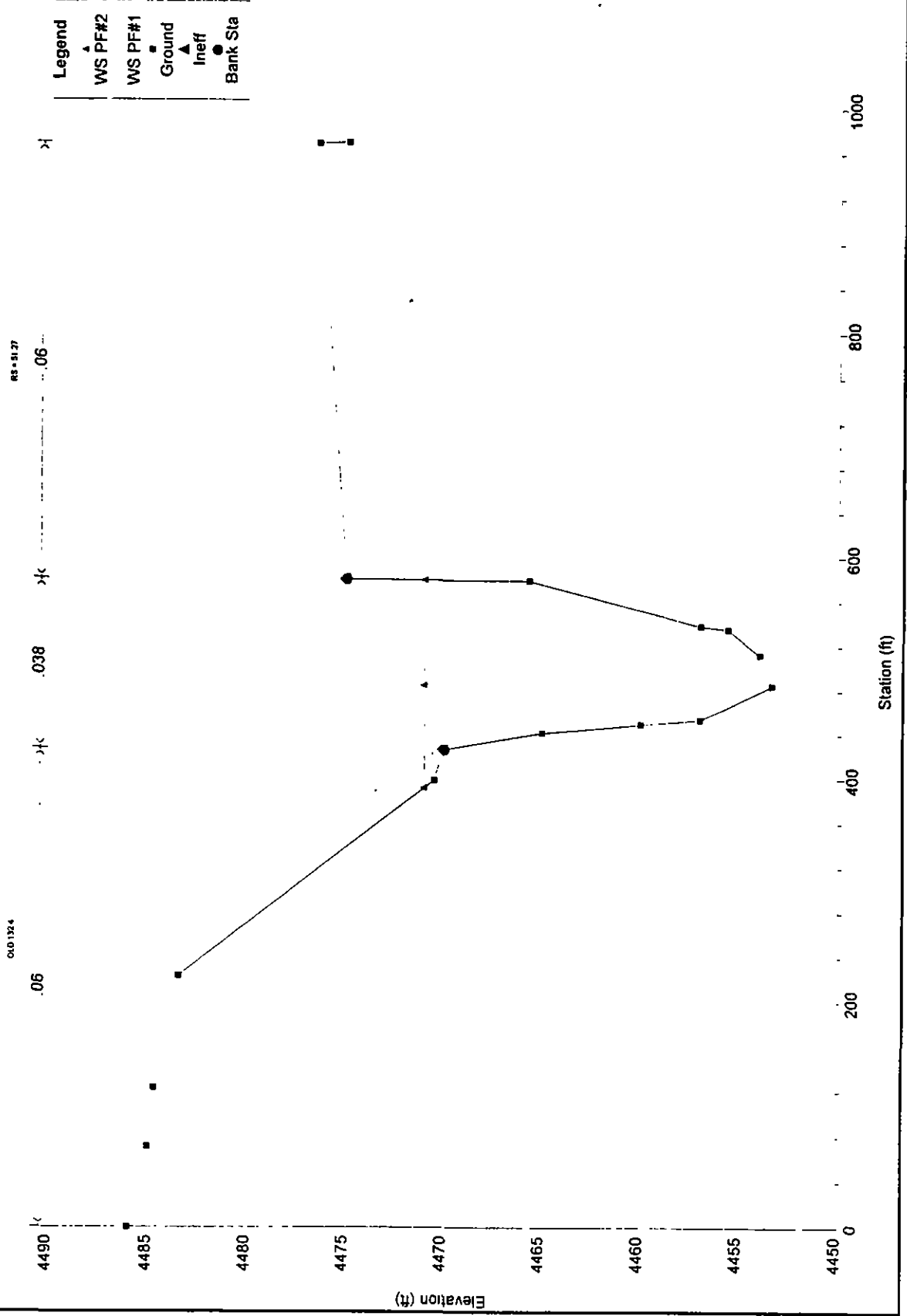
Truckee River FINAL PLAN 4/3/98

Flow 81 = 7300 cfs - 2400 cfs



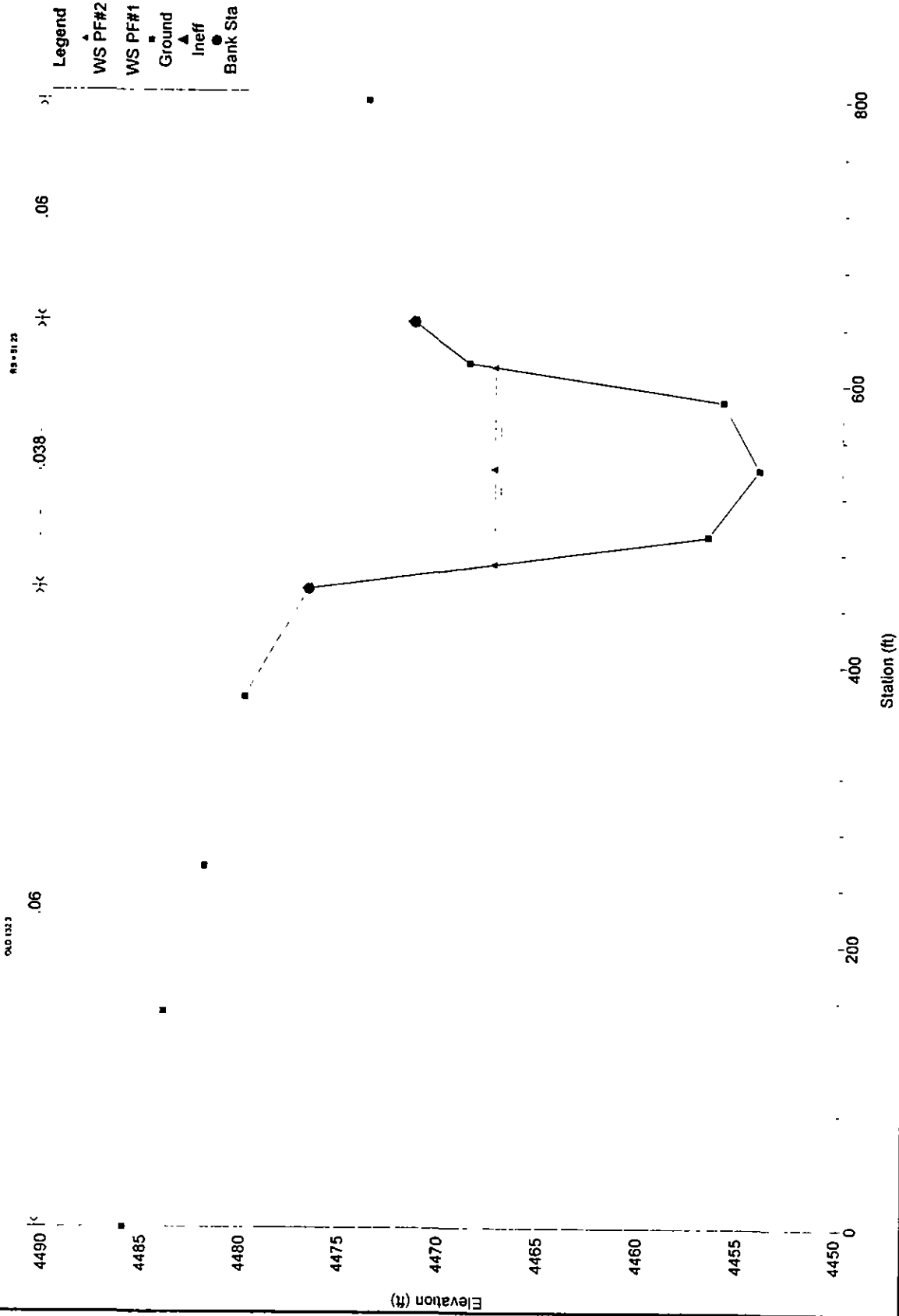
Truckee River FINAL PLAN 4/3/98

Plan #1 - 23200 #2 - 24500 ch



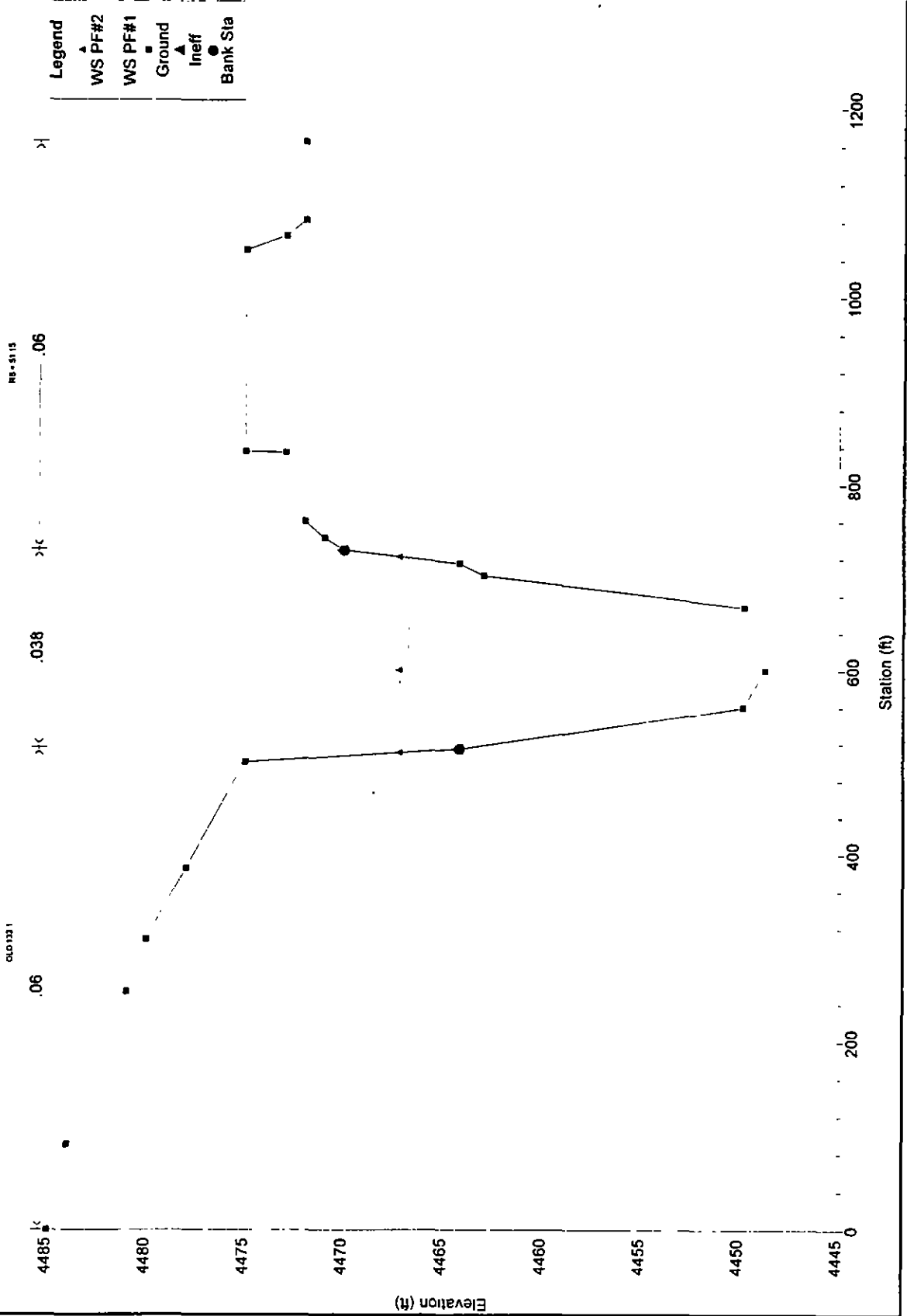
Truckee River FINAL PLAN 4/3/98

Plan #1=23300 #2=26500 ch



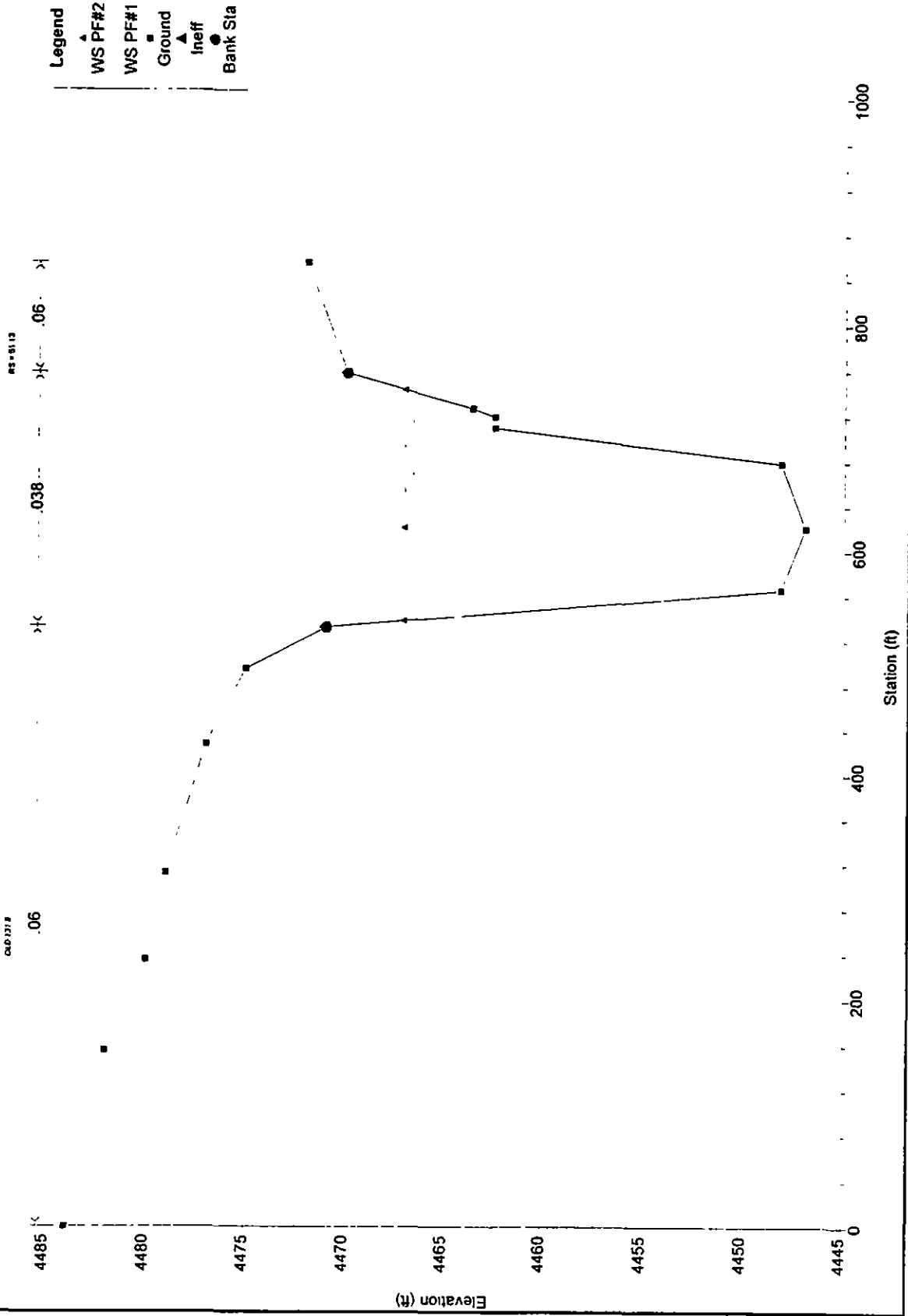
Truckee River FINAL PLAN 4/3/98

Plan #1 - 23300.P1 - 26501.06



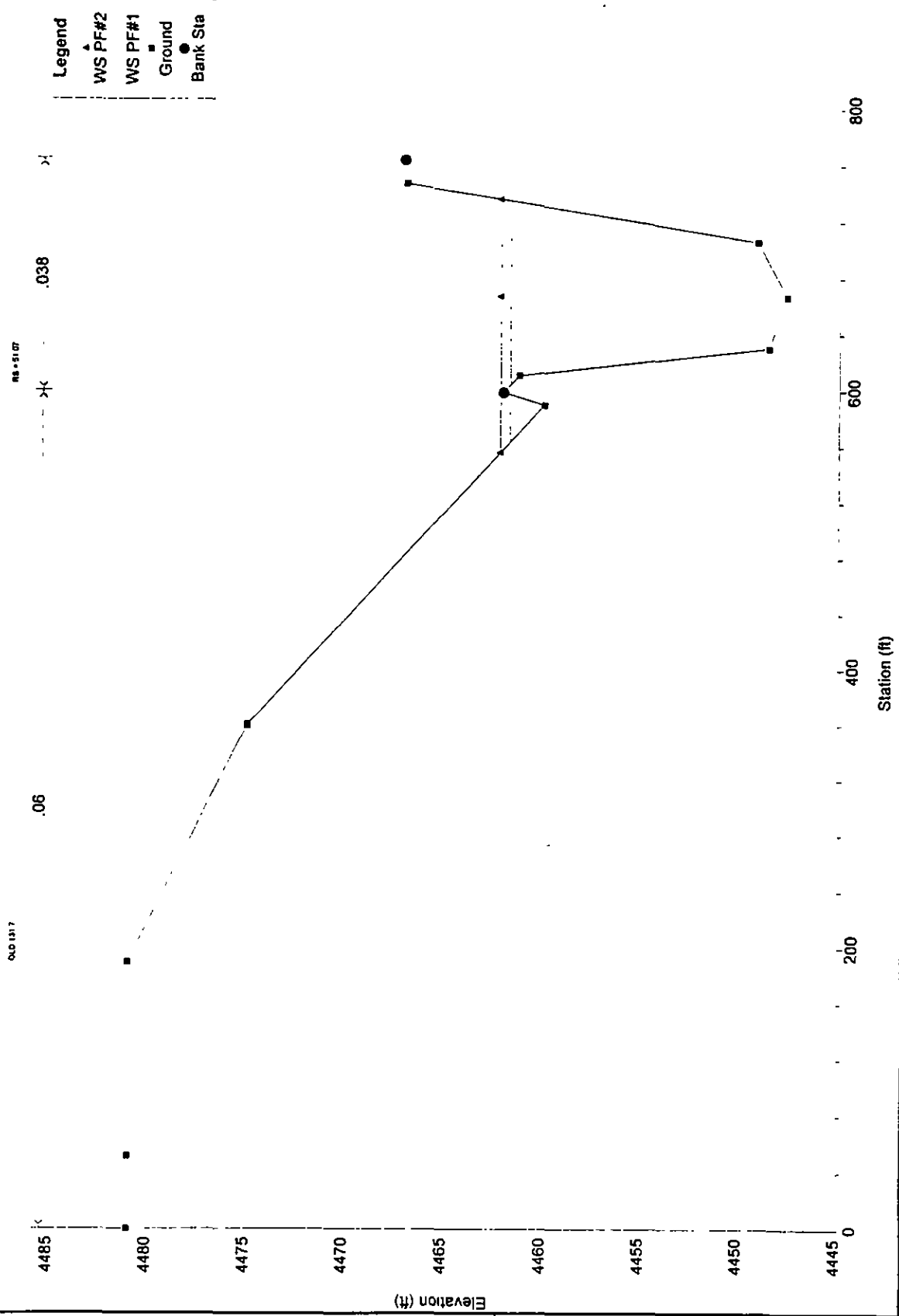
Truckee River FINAL PLAN 4/3/98

Plan #11-23300-07-24500.14



Truckee River FINAL PLAN 4/3/98

Plan #11-23300-97-2(600) (A)



Truckee River FINAL PLAN 4/3/98

Plan #1 - 20300 P2 - 24500 ch

OLD 131 E
06

RS = 51.04

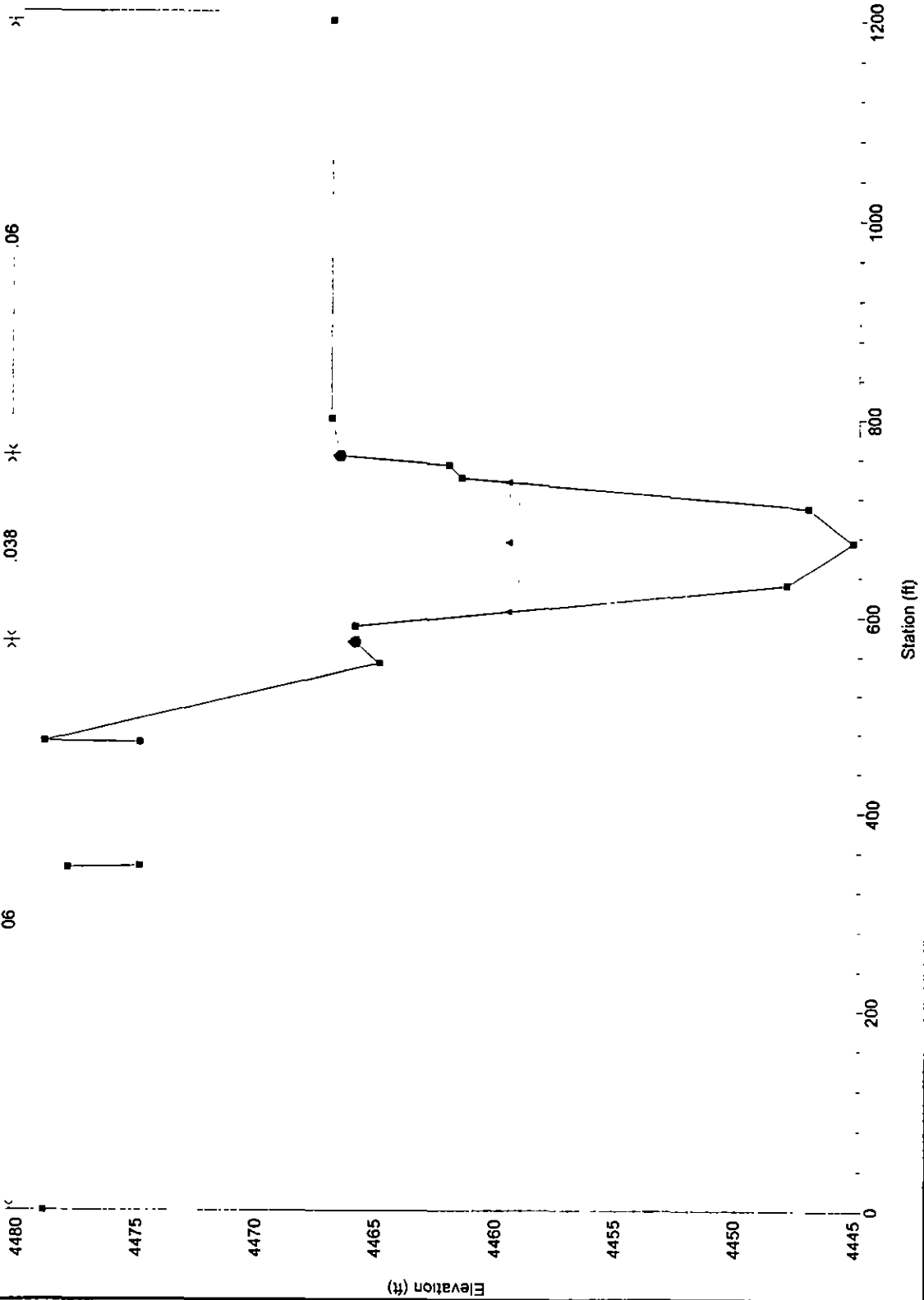
.06

.038

.06

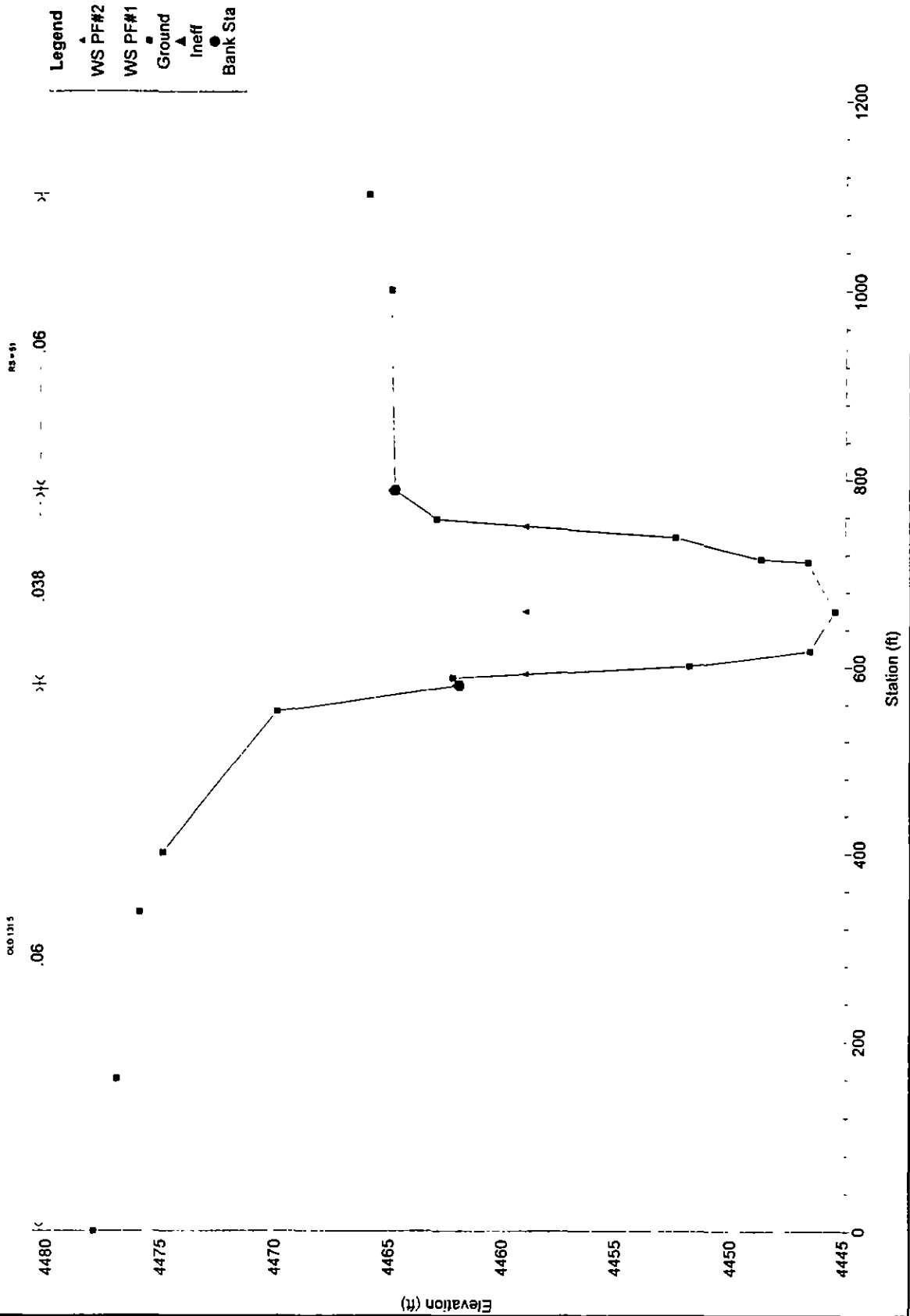
.06

- Legend**
- ▲ WS PF#2
 - WS PF#1
 - ▲ Ground
 - Ineff
 - Bank Sta



Truckee River FINAL PLAN 4/3/98

Flow #1 = 23200 cfs @ 2600 cfs

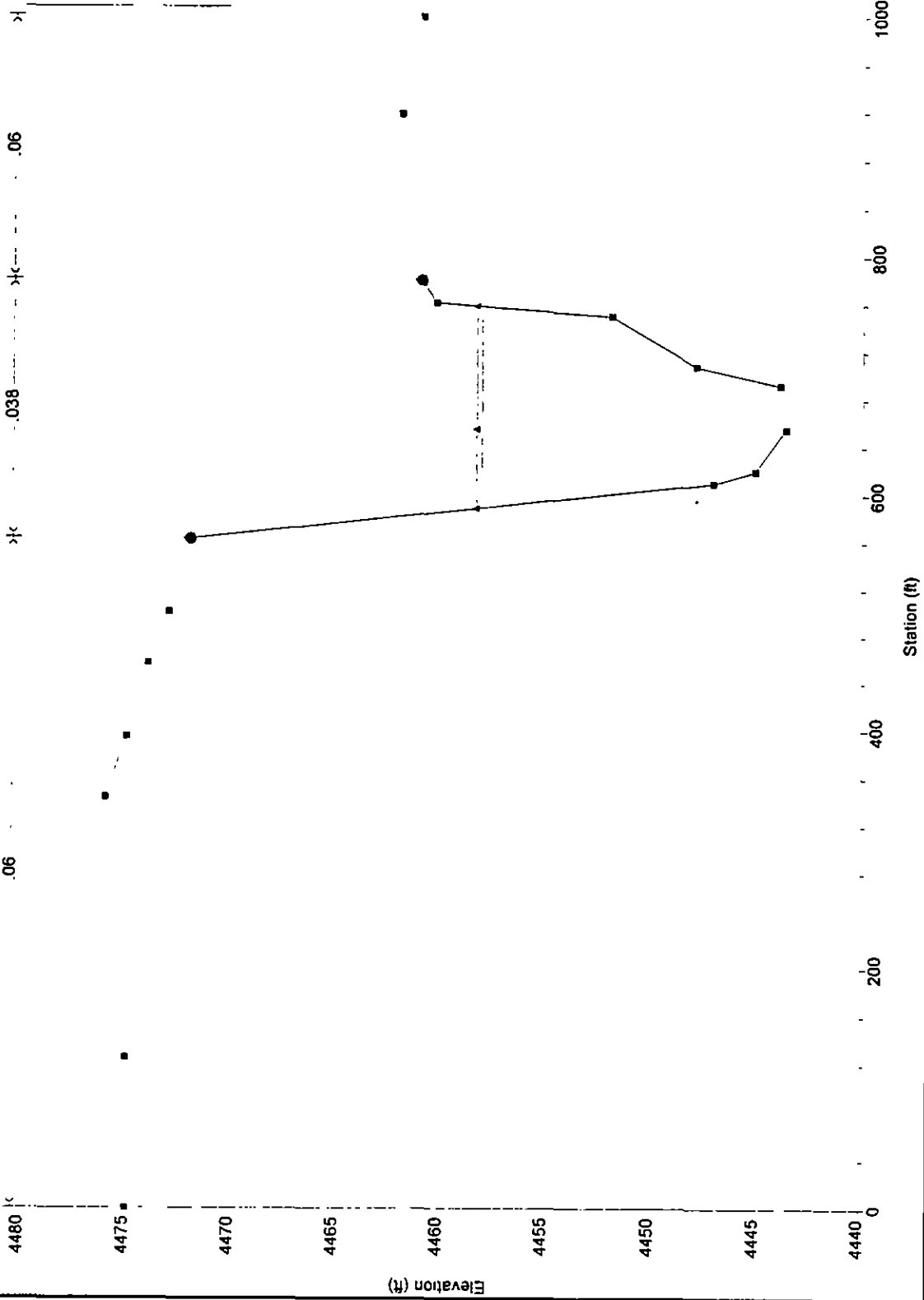


Truckee River FINAL PLAN 4/3/98

Flow #1 = 23300 cfs #2 = 24000 cfs

0.001314

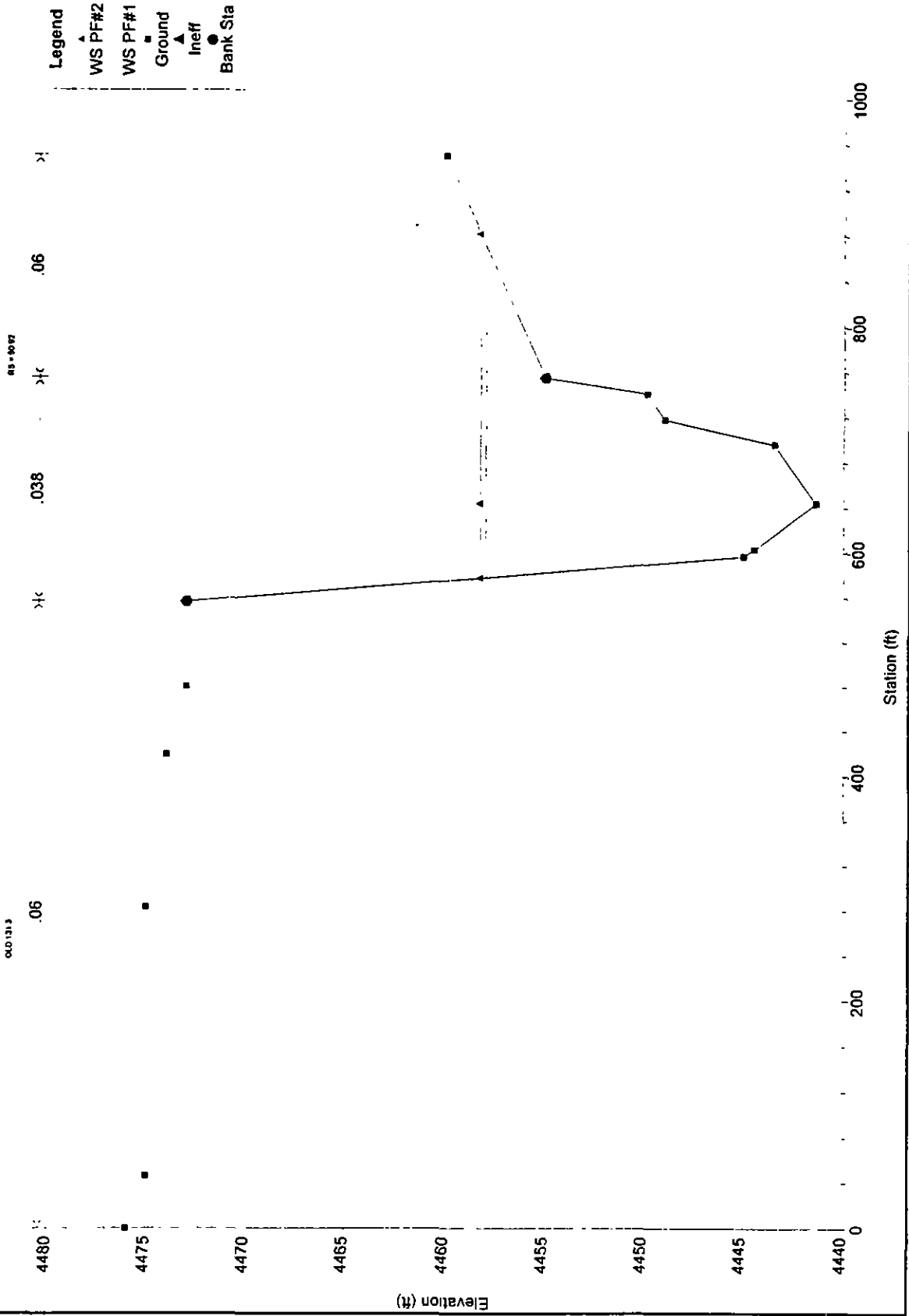
R/S = 50.00



- Legend**
- WS PF#2 (▲)
 - WS PF#1 (■)
 - Ground (▲)
 - Ineff (●)
 - Bank Sta (●)

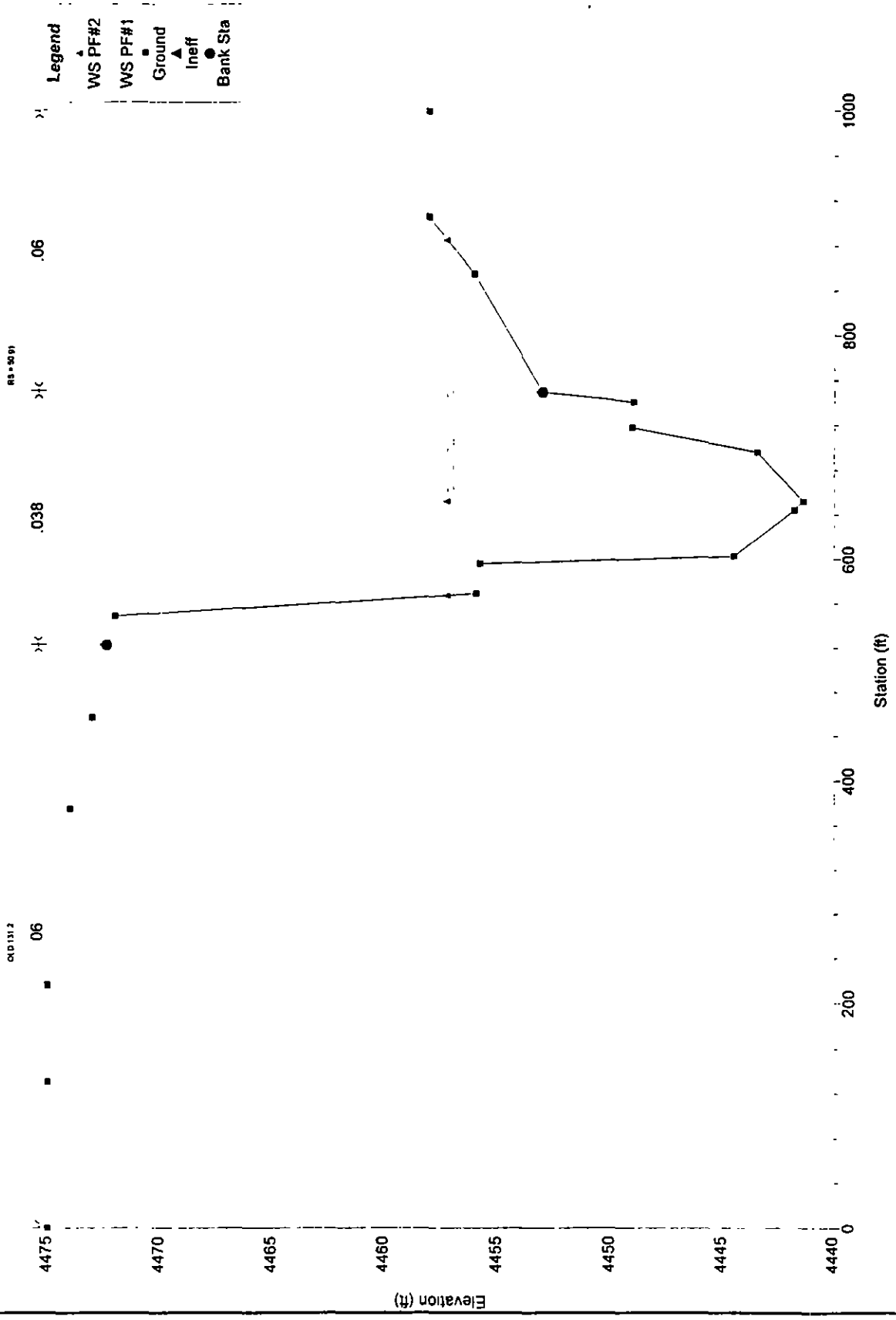
Truckee River FINAL PLAN 4/3/98

Plan #1-2320-91-2600-04



Truckee River FINAL PLAN 4/3/98

Flow #11-7300 #2 - 2400 cfs

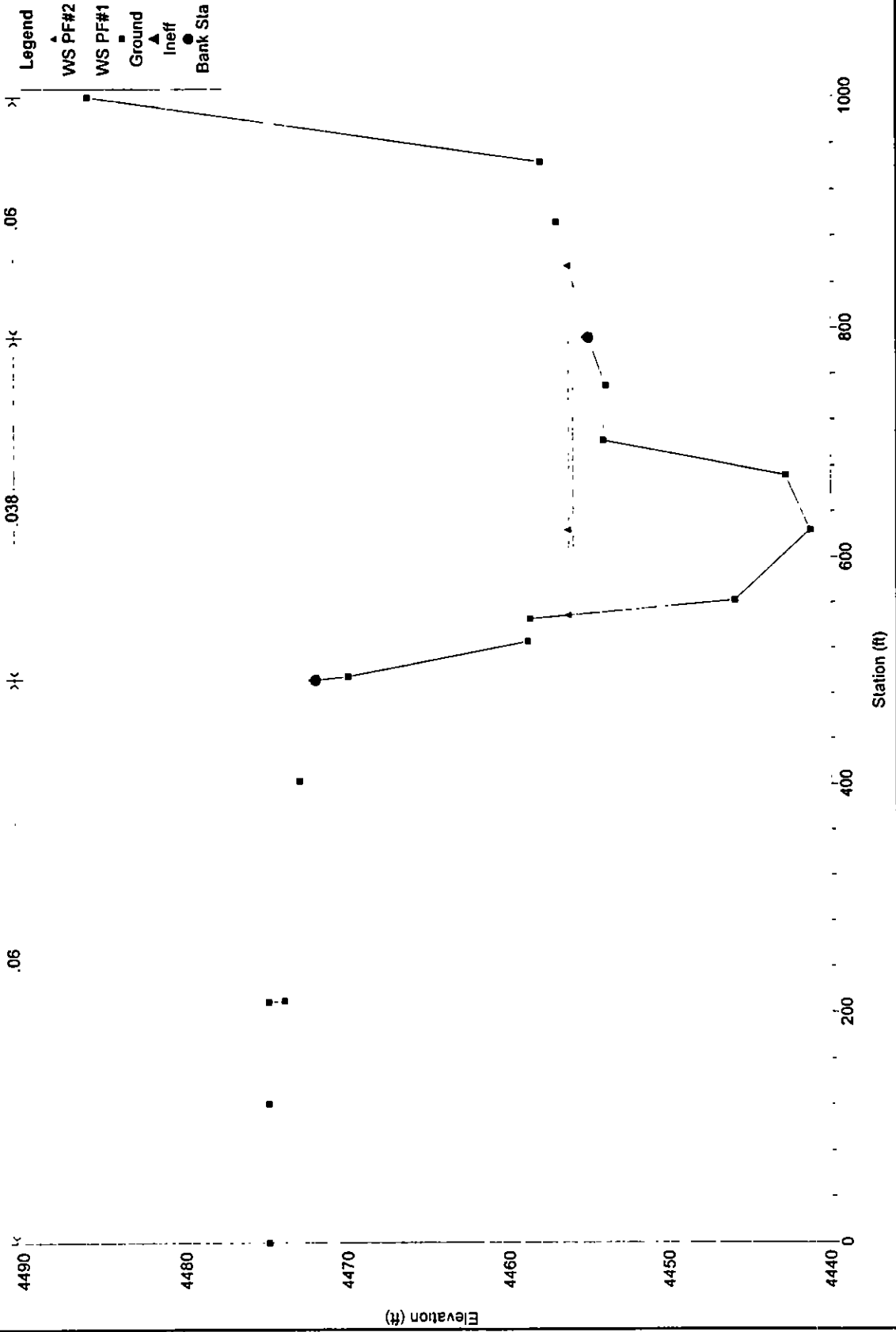


Truckee River FINAL PLAN 4/3/98

Plan #1 = 2000 FT x 2400 FT

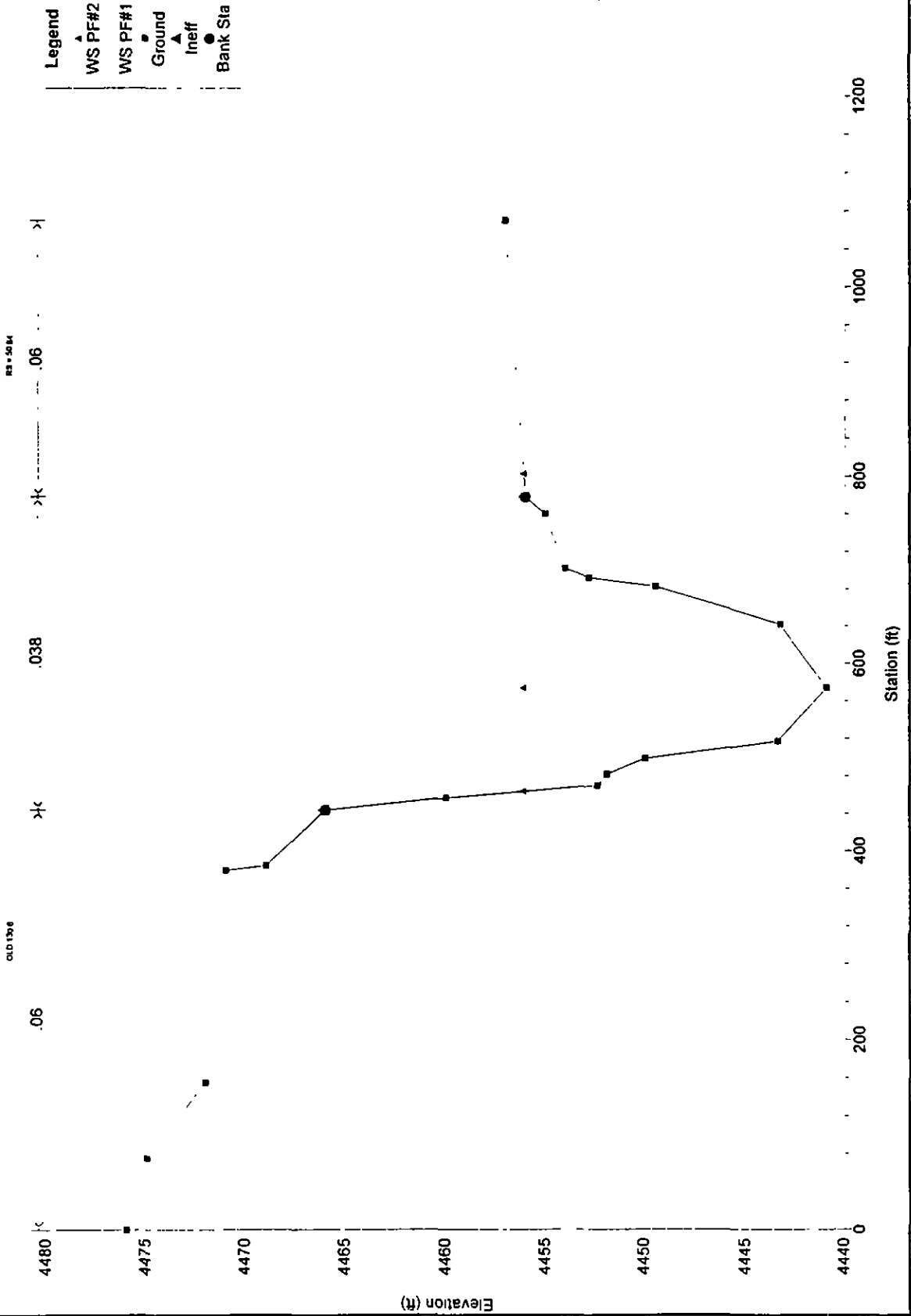
OLD 1311

RS = 50.00



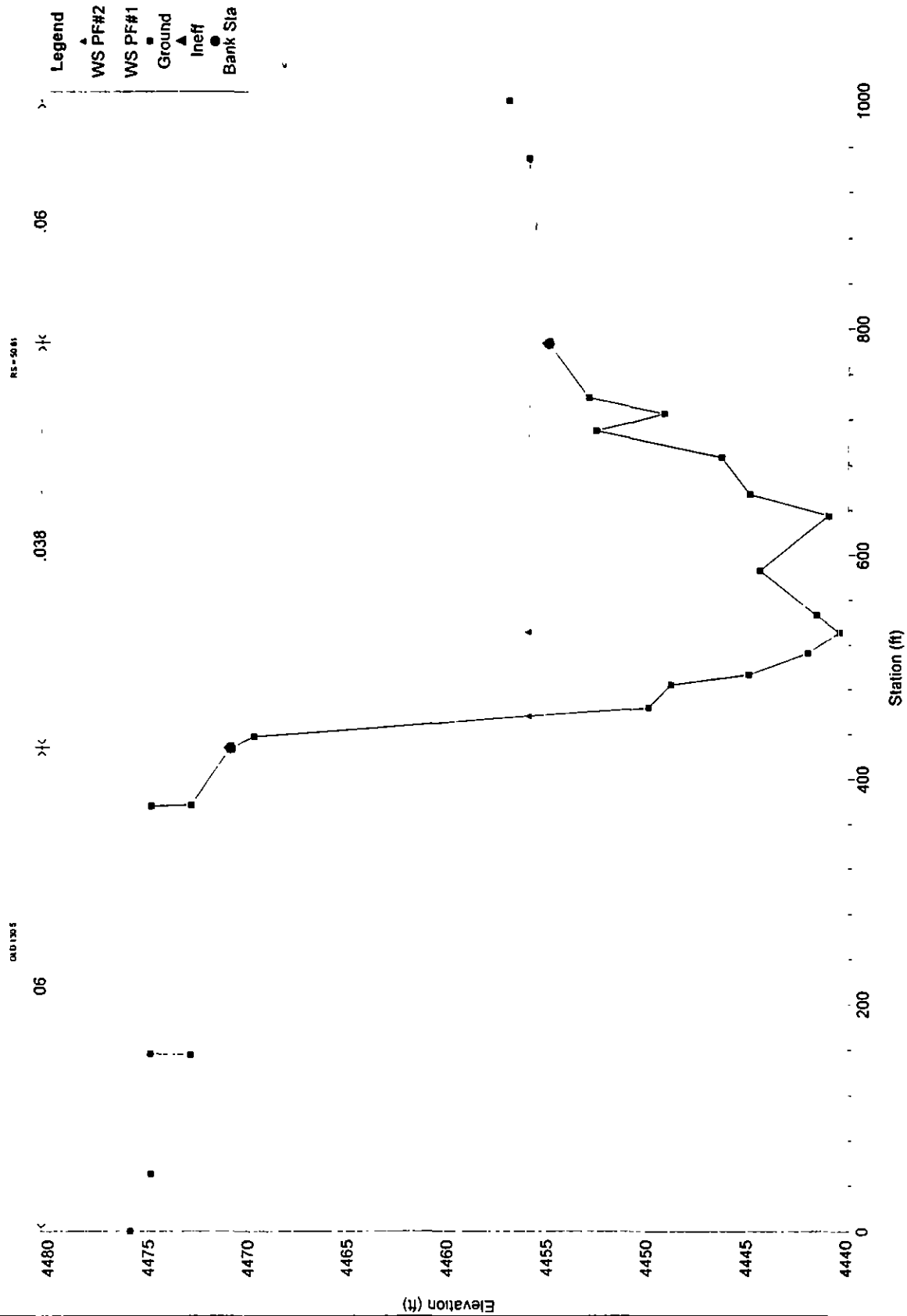
Truckee River FINAL PLAN 4/3/98

From 81+73.000 to 2+2600.00



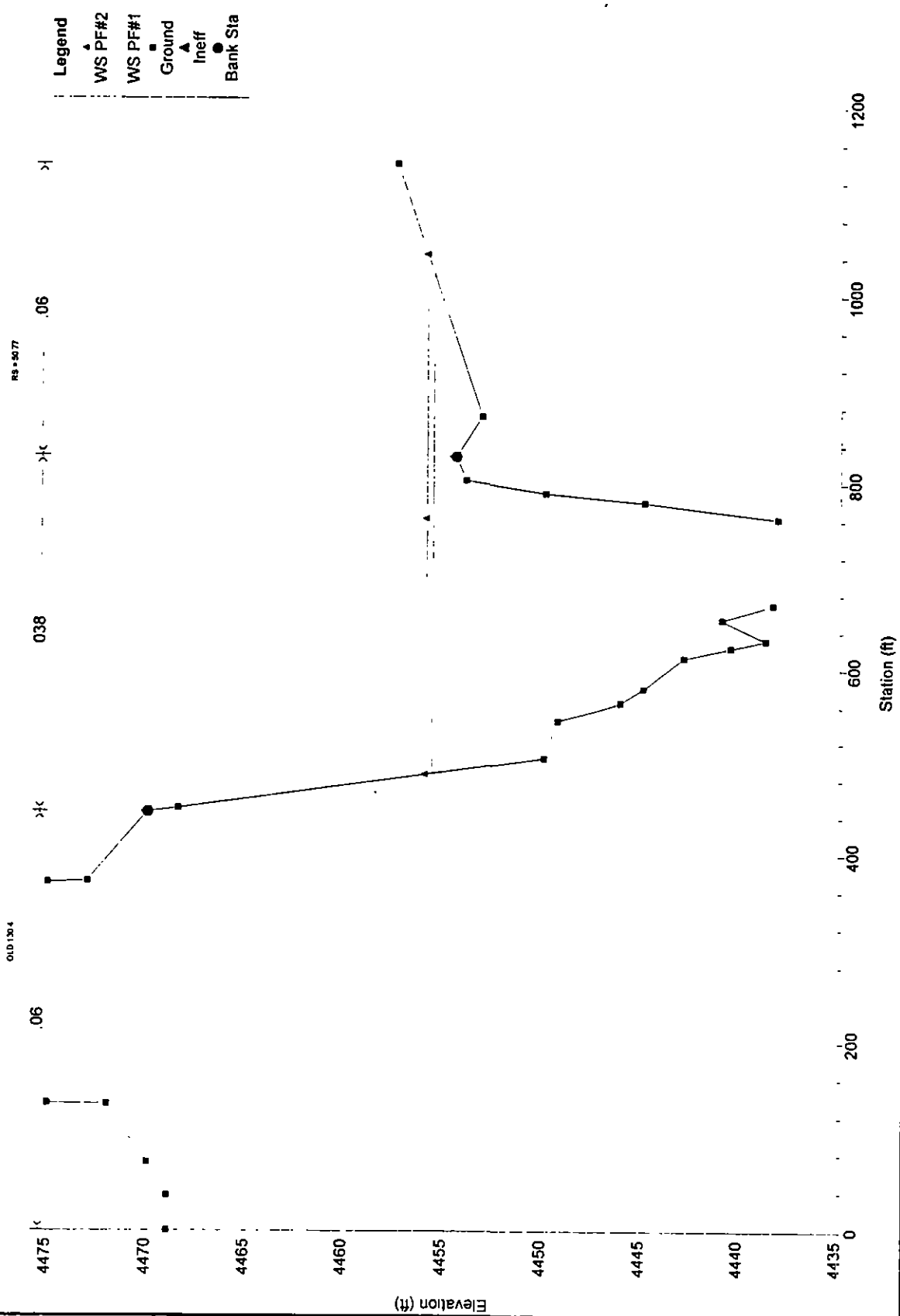
Truckee River FINAL PLAN 4/3/98

Job #17-21300.07 - 24500.cis



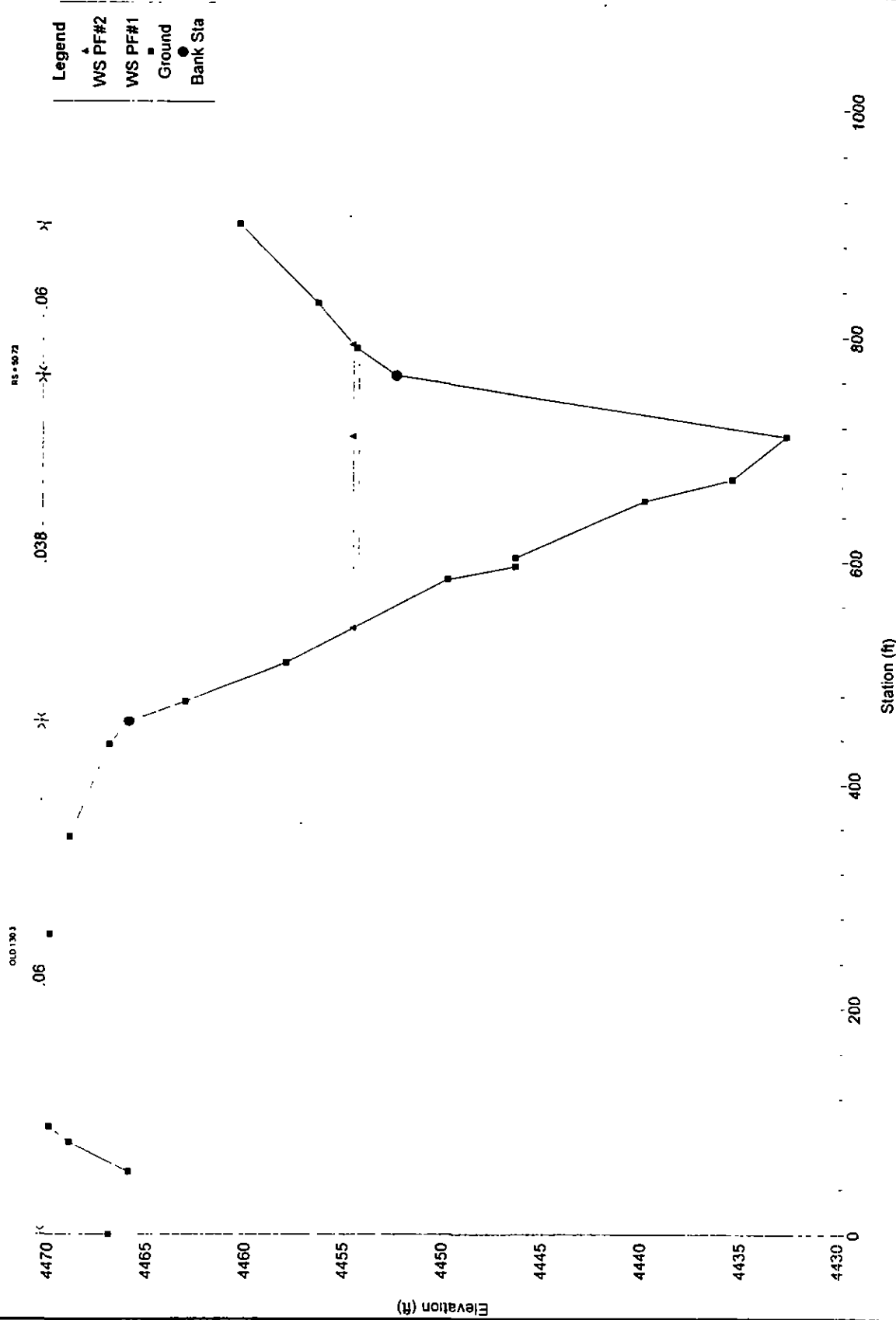
Truckee River FINAL PLAN 4/3/98

Form #1 = 23300 #2 = 24500 ch



Truckee River FINAL PLAN 4/3/98

Plan #1-2320 R7-2600CH



Truckee River FINAL PLAN 4/3/98

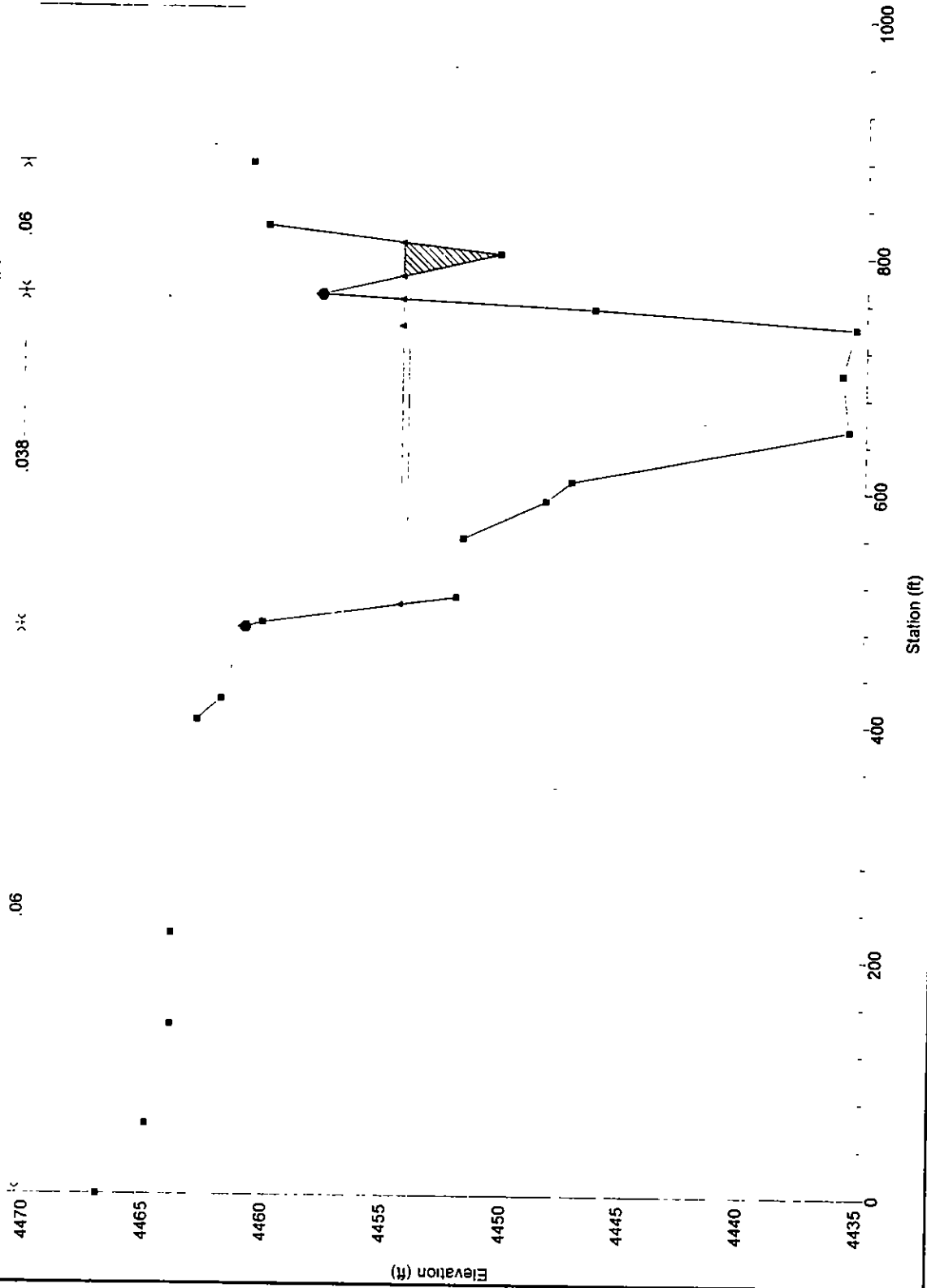
From #11-23200.JF-7-650.LA

0.01342
.06

RS = 50.00

.038 .06 >|

- Legend**
- ▲ WS PF#2
 - WS PF#1
 - ▲ Ground
 - ▲ Ineff
 - Bank Sta



Truckee River FINAL PLAN 4/3/98

File #17-23300 (2) 24500.dwg

0601301

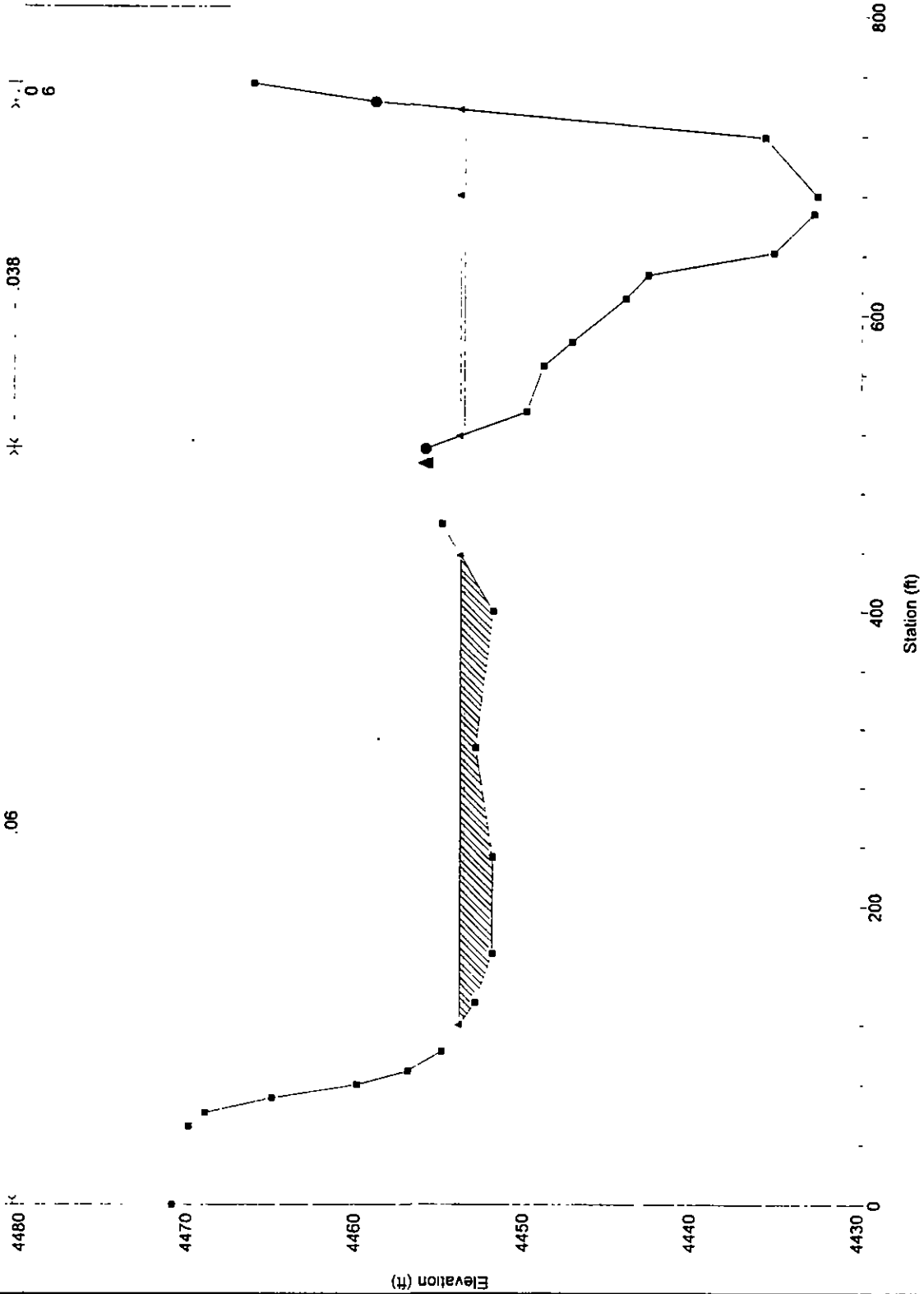
R3 = 50.05

.06

.038

0
6

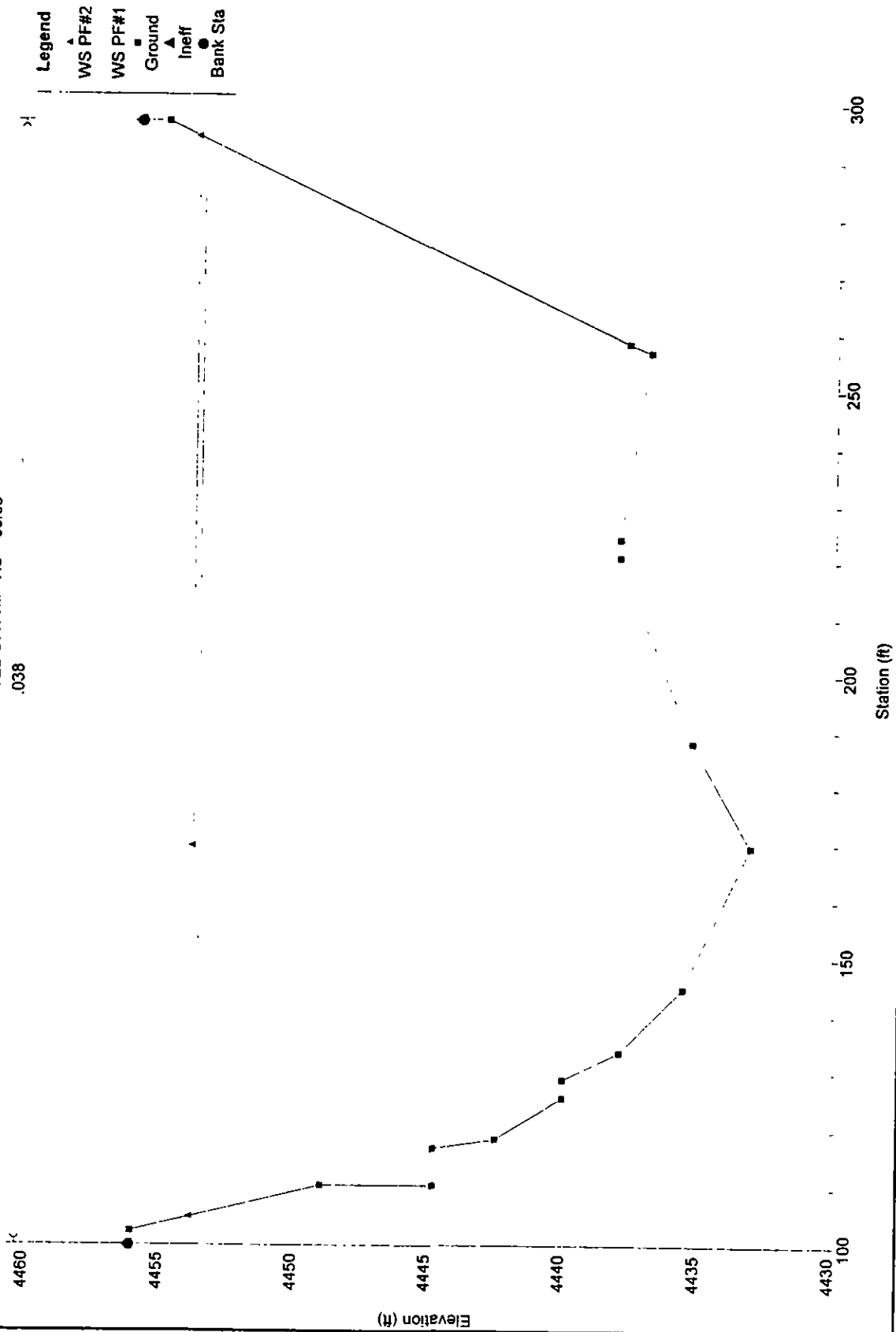
- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Ineff
 - Bank Sta



Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300, #2 = 24500 cfs

This is a REPEATED section. RS = 50.65
.038



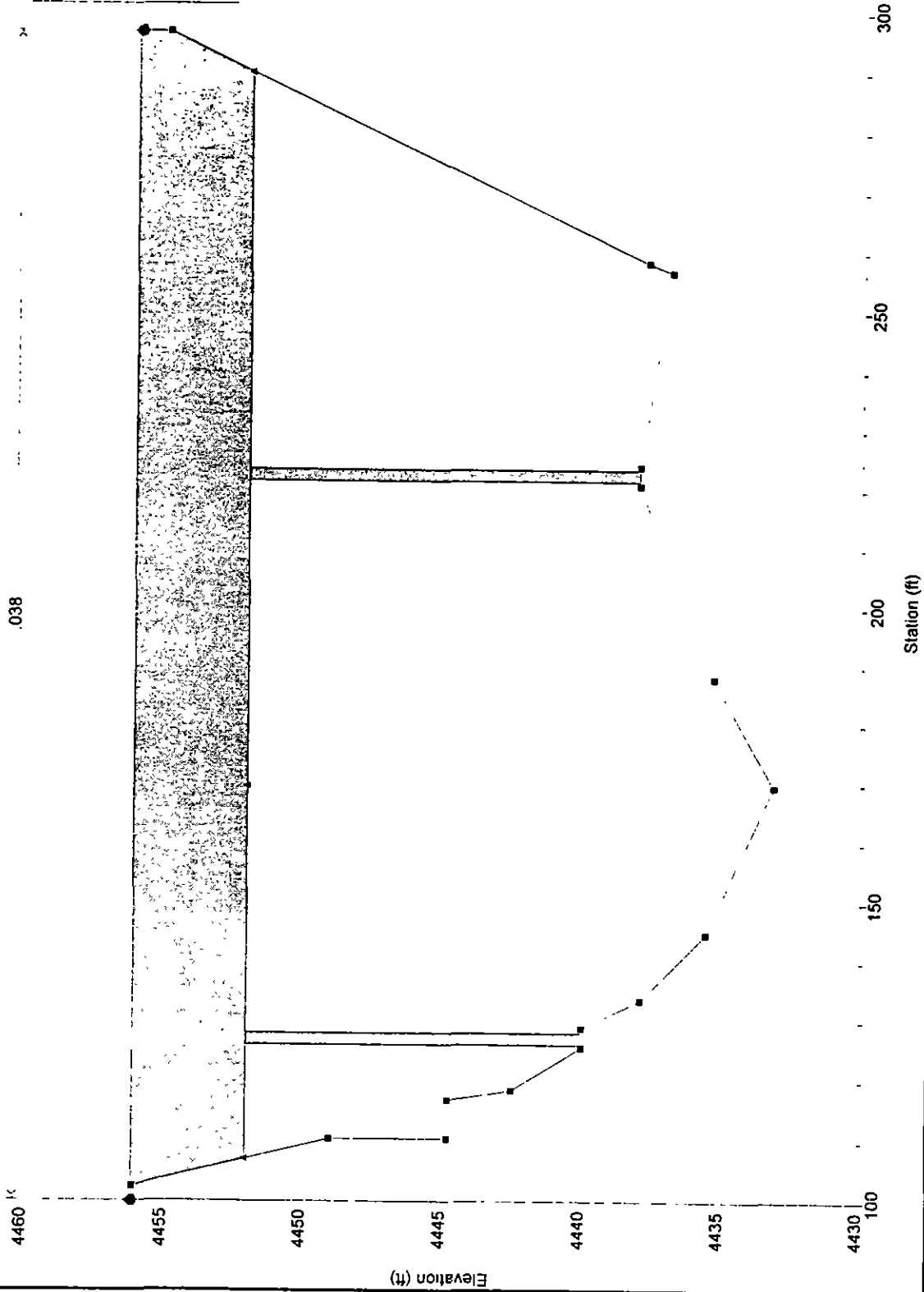
Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300 #2 = 24500 cfs

Kietzke Lane RS = 50.64 BR U

.038

- Legend
- WS PF#1 ▲
 - WS PF#2 ■
 - Ground ▨
 - Ineff ▲
 - Bank Sta ●



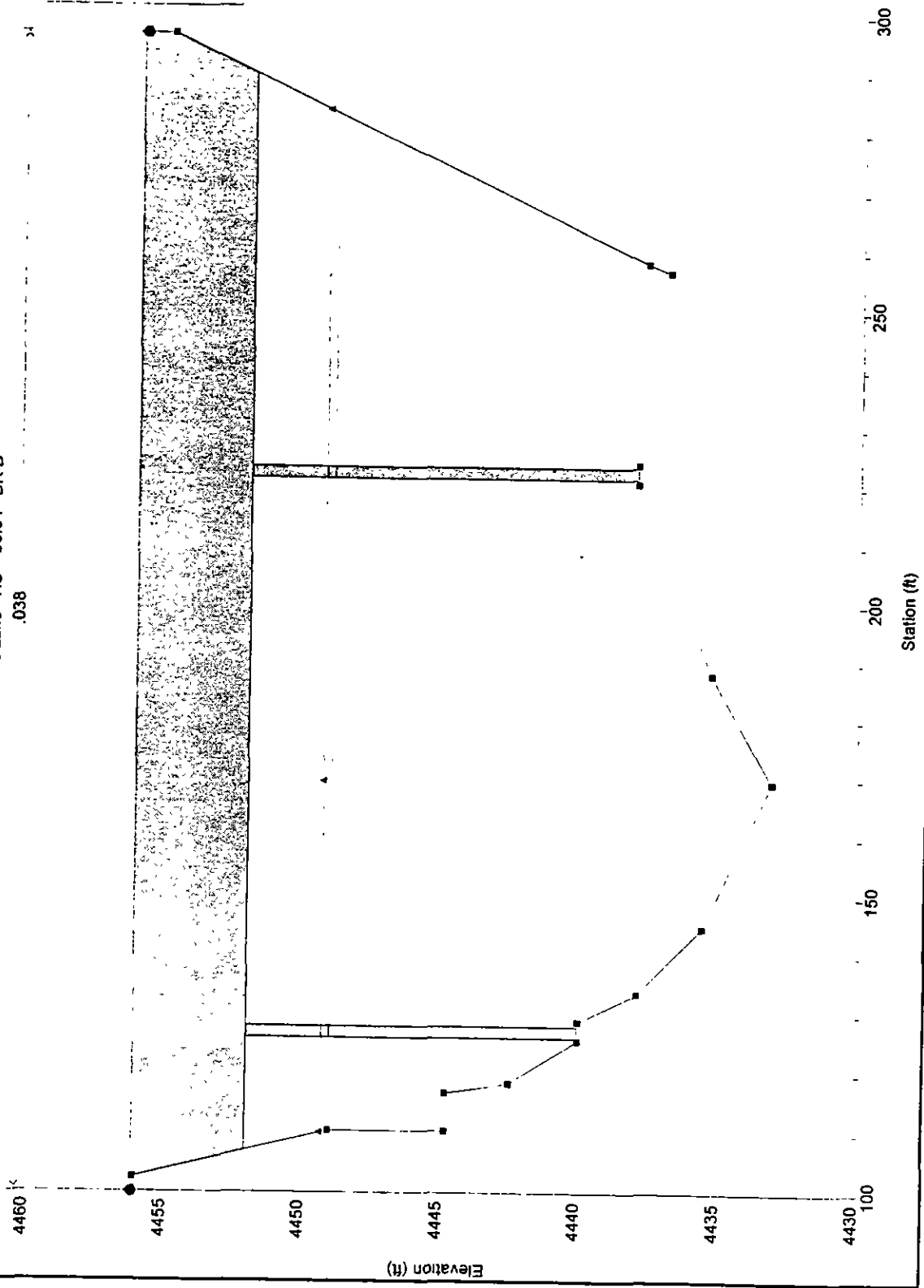
Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300 #2 = 24500 cfs

Kietzke Lane RS = 50.64 BR D

.038

- Legend
- WS PF#2
 - WS PF#1
 - Ground
 - Ineff
 - Bank Sta



Truckee River FINAL PLAN 4/3/98

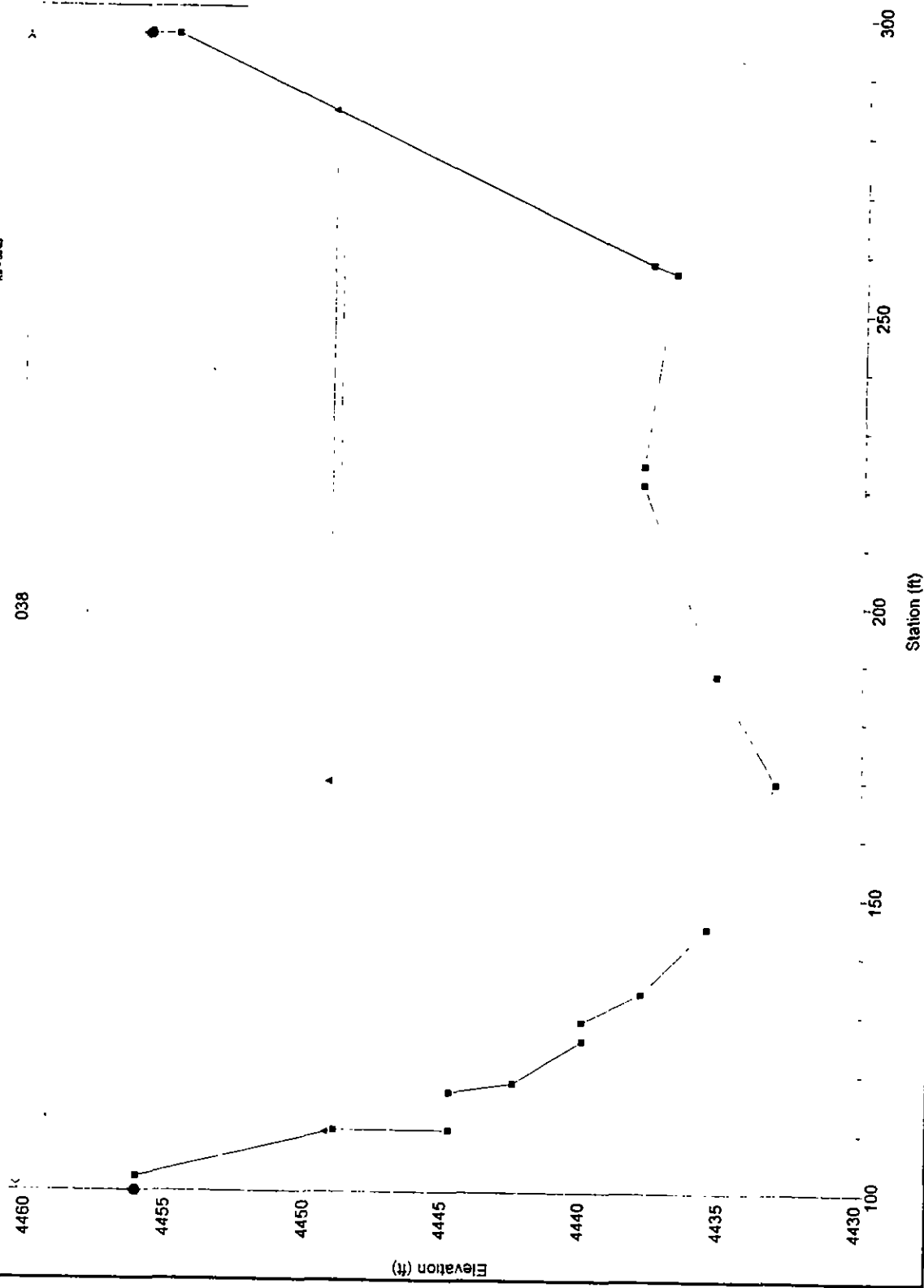
From #11-3320 #1 - 2,600' ch

OLD #1129 # (METZKE LANE)

038

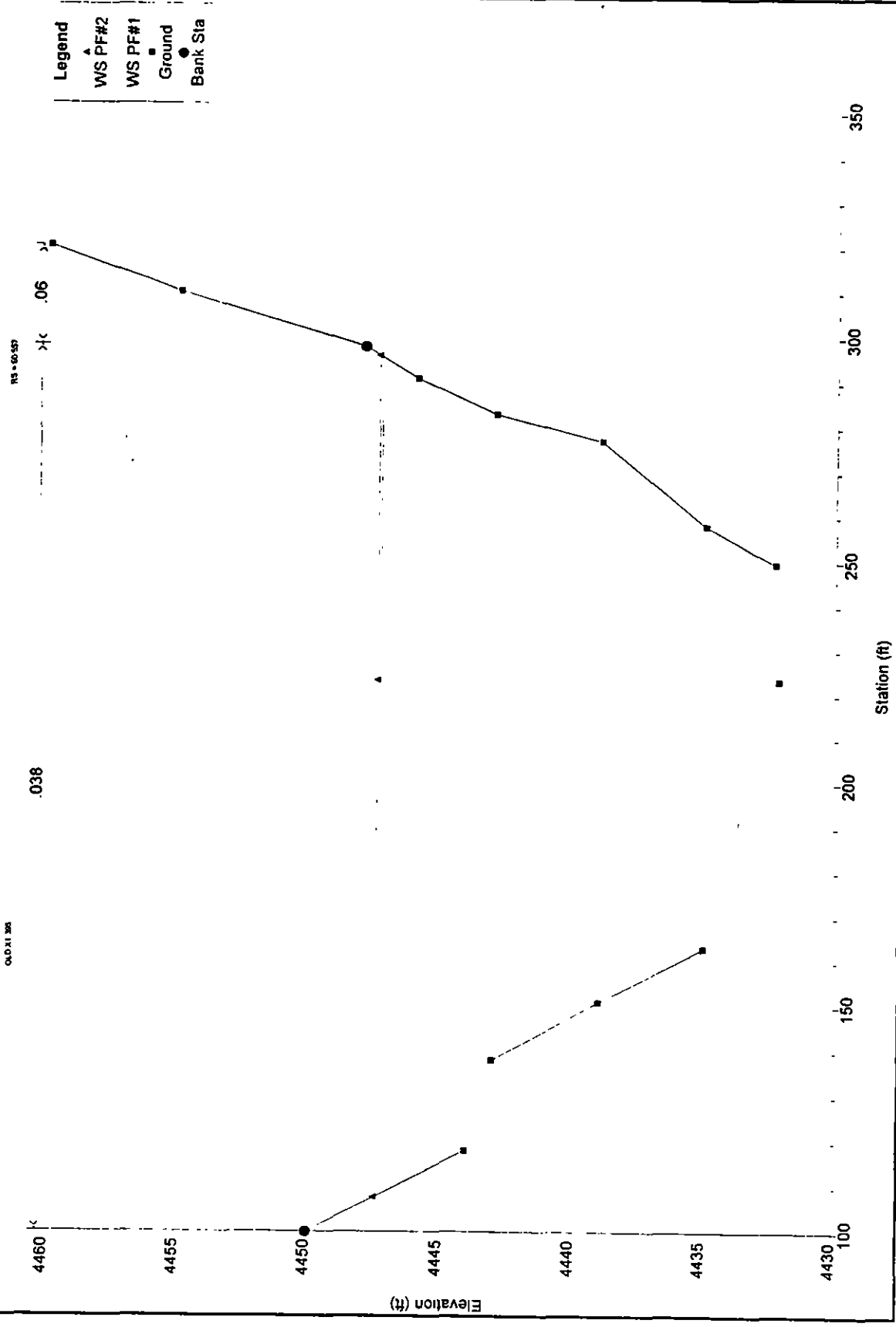
95-55-03

- Legend**
- WS PF#2 ▲
 - WS PF#1 ■
 - Ground ▲
 - Ineff ▲
 - Bank Sta ●



Truckee River FINAL PLAN 4/3/98

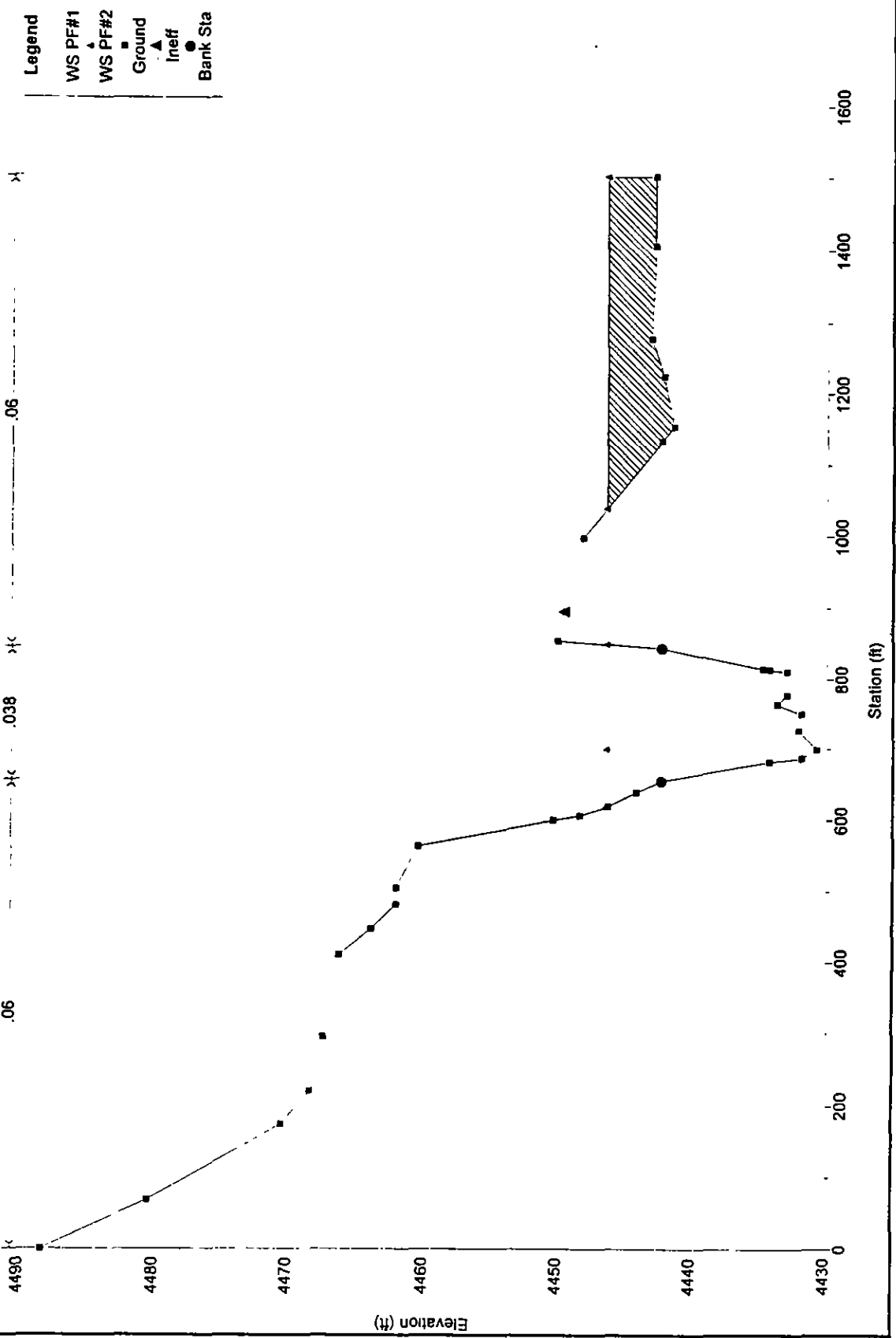
(For 811-27300, P2 - 24500, 4th)



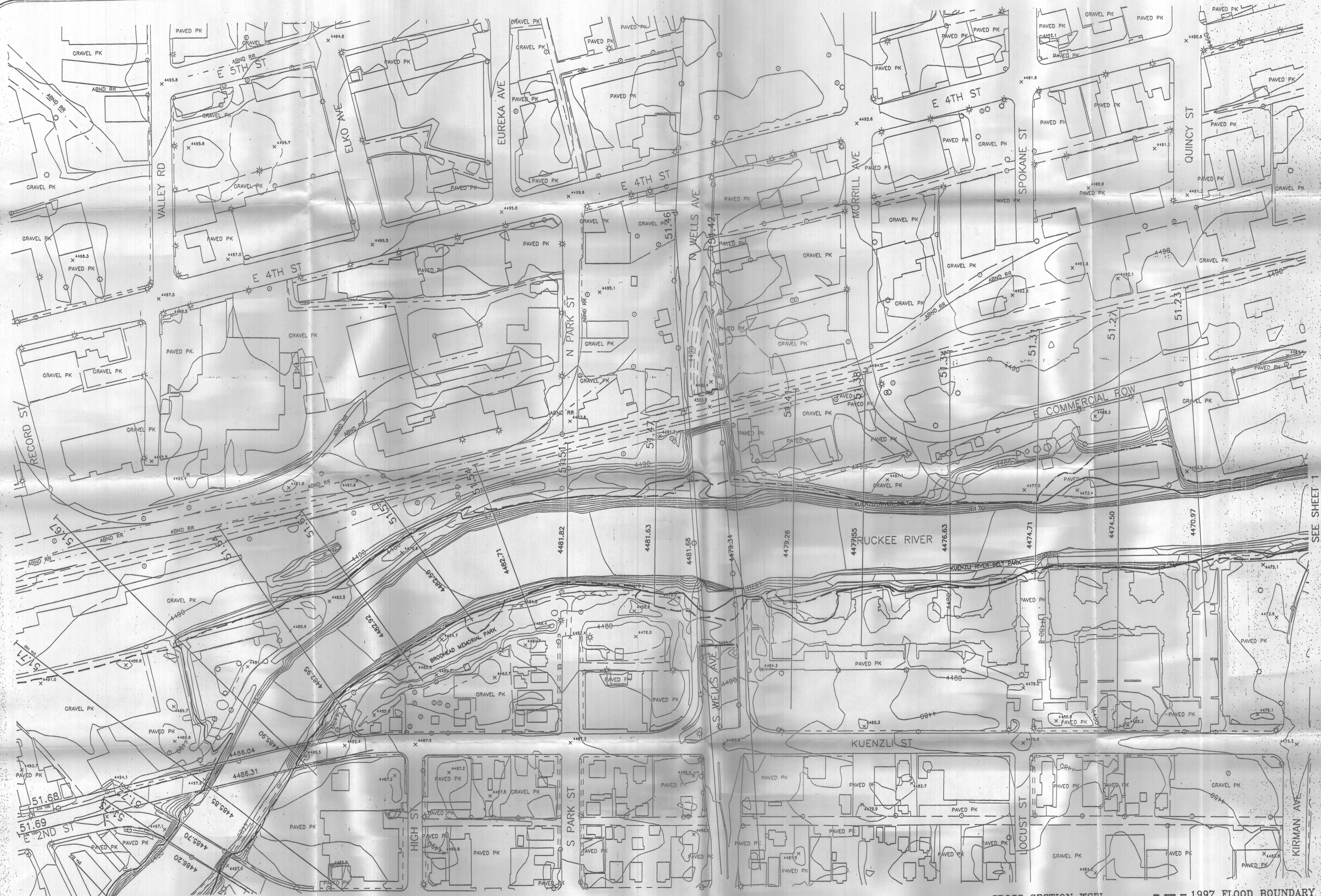
Truckee River FINAL PLAN 4/3/98

Flow: #1 = 23300, #2 = 24500 cfs

RS = 50.48



- Legend
- WS PF#1
 - WS PF#2
 - Ground
 - Ineff
 - Bank Sta



SEE SHEET 3

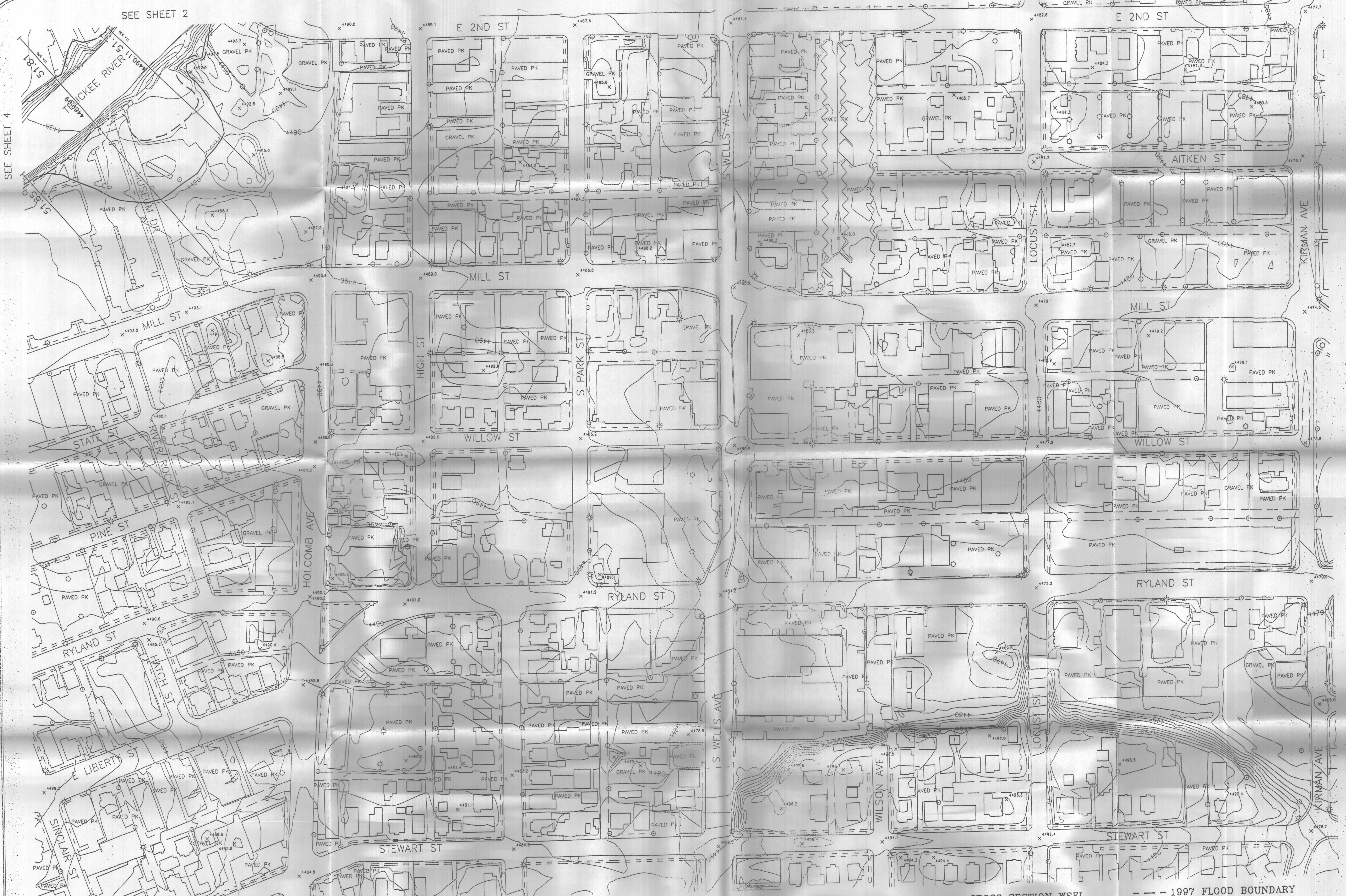
4400 CROSS SECTION WSEL
 50.00 CROSS SECTION NUMBER
 --- 1997 FLOOD BOUNDARY
 ——— HEC-RAS FLOODPLAIN

Nimbus Engineers
 3785 Baker Lane
 Reno NV 89509
 (702)689-8630

SCALE: 1" = 100'
 DATE: FEB 1998
 FILE: 279865T
 JOB NO.: 9718
 REVISIONS:

FIGURE 2
 CITY OF RENO FLOOD OF 1997
 TRUCKEE RIVER WORK MAP

SHEET NO. 2



SEE SHEET 2

SEE SHEET 4

Nimbus Engineers
3785 Baker Lane
Reno NV. 89509
(702)689-8630

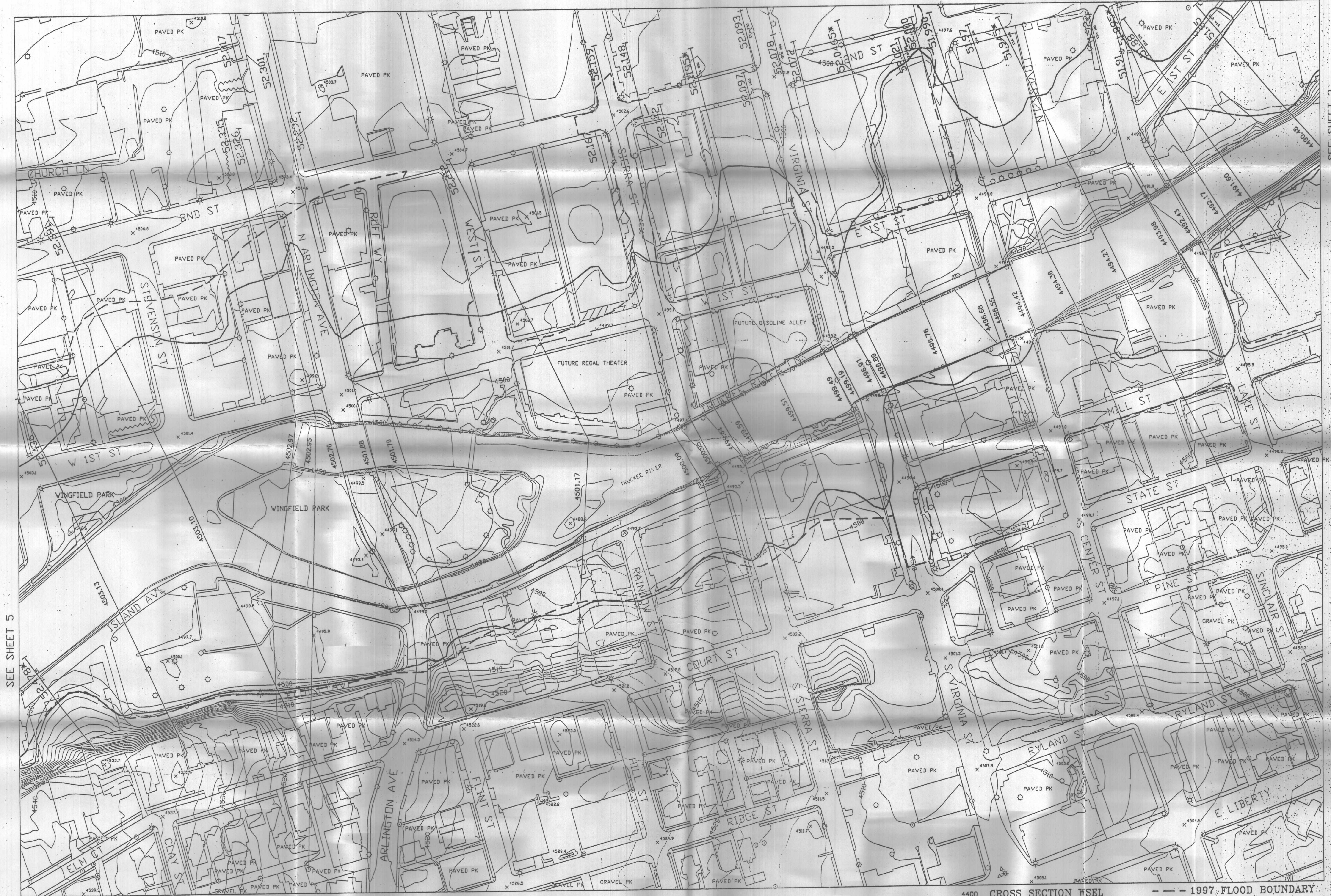
SCALE: 1"=100'
DATE: FEB 1998
FILE: 279863
JOB NO.: 9718
REVISIONS:

FIGURE 2
CITY OF RENO FLOOD OF 1997
TRUCKEE RIVER WORK MAP

SHEET NO.

3

4400 CROSS SECTION WSEL
50.00 CROSS SECTION NUMBER
--- 1997 FLOOD BOUNDARY
--- HEC-RAS FLOODPLAIN



SEE SHEET 5

SEE SHEET 3

FIGURE 2
CITY OF RENO FLOOD OF 1997
TRUCKEE RIVER WOT MAP

SHEET NO. 4

SCALE: 1"=100'
DATE: FEB 1998
FILE: 276863
JOB NO.: 9718
REVISIONS:

Nimbus Engineers
3785 Baker Lane
Reno NV, 89609
(702)689-9850



* INTERPOLATED CROSS SECTION
4400 CROSS SECTION WSEL
50.00 CROSS SECTION NUMBER
--- 1997 FLOOD BOUNDARY
— HEC-RAS FLOODPLAIN



4400 CROSS SECTION WSEL
 50.00 CROSS SECTION NUMBER

--- 1997 FLOOD BOUNDARY
 — HEC-RAS FLOODPLAIN

SEE SHEET 6

SEE SHEET 4

SHEET NO.

5

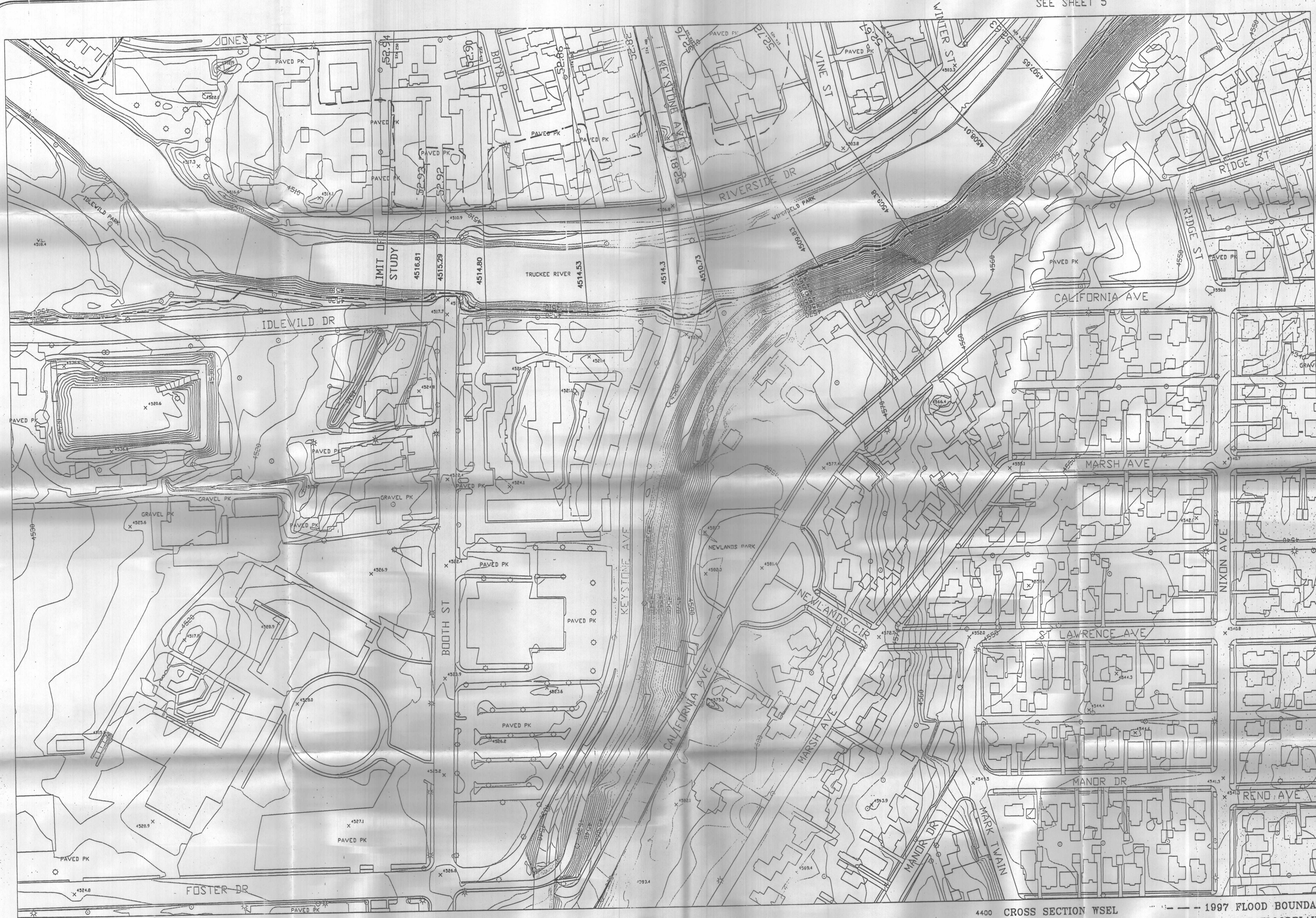
FIGURE 2
 CITY OF RENO FLOOD OF 1997
 TRUCKEE RIVER WORK

SCALE: 1" = 100'
 DATE: FEB 1998
 FILE: 273863
 JOB NO.: 9718
 REVISIONS:

Nimbus Engineers
 3785 Baker Lane
 Reno NV 89509
 (702) 689-8630



SEE SHEET 5



4400 CROSS SECTION WSEL
 50.00 CROSS SECTION NUMBER
 --- 1997 FLOOD BOUNDARY
 ——— HEC-RAS FLOODPLAIN

SHEET NO.

FIGURE 2
 CITY OF RENO FLOOD OF 1997
 TRUCKEE RIVER WORK MAP

SCALE: 1" = 100'
 DATE: FEB 1998
 FILE: 273861
 JOB NO.: 9718
 REVISIONS:

Nimbus Engineers
 3785 Baker Lane
 Reno NV. 89509
 (702)889-8830



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