

CITY OF REDLANDS

MASTER PLAN OF DRAINAGE (MPD)



TECHNICAL APPENDIX B.1b

**WSPGW Hydraulic Calculations
- 25-yr Proposed Condition**

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING											PAGE 1									
CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)	
CD	1	4	1		7.000															
CD	2	4	1		8.000															
CD	3	4	1		2.000															
CD	4	4	1		8.000															
CD	5	4	1		7.000															
CD	6	4	1		2.000															
CD	7	4	1		7.000															
CD	8	4	1		2.000															
CD	9	4	1		7.000															
CD	10	4	1		6.000															
CD	11	4	1		4.500															

W S P G W
WATER SURFACE PROFILE - TITLE CARD LISTING

PAGE NO 1

HEADING LINE NO 1 IS - REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER STREET FLOW CALCULATIONS

HEADING LINE NO 2 IS - SD 4-5 ALABAMA ST

HEADING LINE NO 3 IS - FROM SANTA ANA RIVER TO ALMOND AVE NAD88 DATUM

W S P G W
WATER SURFACE PROFILE - ELEMENT CARD LISTING

PAGE NO 2

ELEMENT NO	IS	A	SYSTEM OUTLET	U/S DATA	STATION	INVERT	SECT	W S ELEV												
1	IS	A	SYSTEM OUTLET	U/S DATA	.000	1173.000	1	1180.000												
2	IS	A	REACH	U/S DATA	1130.550	1179.070	1		.013		.000	.000	.000	.000	.000	.000				
3	IS	A	TRANSITION	U/S DATA	1135.000	1179.270	2		.013		.000	.000								
4	IS	A	REACH	U/S DATA	1566.440	1195.200	2		.013		.000	.000	.000	.000	.000	.000				
5	IS	A	TRANSITION	U/S DATA	1575.180	1196.500	2		.013		.000	.000								
6	IS	A	REACH	U/S DATA	2694.490	1212.700	2		.013		.000	.000	.000	.000	.000	.000				
7	IS	A	REACH	U/S DATA	2798.510	1213.990	2		.013		.000	.000	.000	.000	.000	.000				
8	IS	A	JUNCTION	U/S DATA	2814.320	1213.990	4		.013	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4					
										410.000	.000	1214.500	.000	-45.000	.000					
												RADIUS	ANGLE							
												.000	.000							
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING																				
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING																				
9	IS	A	REACH	U/S DATA	4222.090	1218.240	4		.013		.000	.000	.000	.000	.000	.000				
10	IS	A	TRANSITION	U/S DATA	4236.640	1219.260	5		.013		.000	.000								

ELEMENT NO	11	IS A REACH	*	*	*													
		U/S DATA	STATION	INVERT	SECT		N			RADIUS	ANGLE	ANG PT	MAN H					
			4946.750	1220.000	5		.013			.000	.000	.000	0					
W S P G W																		
WATER SURFACE PROFILE - ELEMENT CARD LISTING																		
ELEMENT NO	12	IS A JUNCTION	*	*	*													
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4				
			4953.800	1220.020	7	6	0	.013	79.000	.000	1223.000	.000	-90.000	.000				
											RADIUS	ANGLE						
											.000	.000						
ELEMENT NO	13	IS A REACH	*	*	*													
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H				
			5707.430	1220.500	7			.013			.000	.000	.000	0				
ELEMENT NO	14	IS A JUNCTION	*	*	*													
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4				
			5726.370	1220.600	9	8	0	.013	48.000	.000	1224.000	.000	-90.000	.000				
											RADIUS	ANGLE						
											.000	.000						
ELEMENT NO	15	IS A REACH	*	*	*													
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H				
			5780.250	1220.700	9			.013			.000	.000	.000	0				
ELEMENT NO	16	IS A REACH	*	*	*													
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H				
			6222.580	1221.320	9			.013			.000	.000	.000	0				
ELEMENT NO	17	IS A TRANSITION	*	*	*													
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE						
			6543.170	1222.940	10			.013			.000	.000						
ELEMENT NO	18	IS A REACH	*	*	*													
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H				
			6594.010	1223.020	10			.013			.000	.000	.000	0				
ELEMENT NO	19	IS A REACH	*	*	*													
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H				
			7079.540	1225.670	10			.013			.000	.000	.000	0				
ELEMENT NO	20	IS A TRANSITION	*	*	*													
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE						
			7113.170	1227.490	11			.013			.000	.000						
ELEMENT NO	21	IS A REACH	*	*	*													
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H				
			7250.000	1227.500	11			.013			.000	.000	.000	0				
W S P G W																		
WATER SURFACE PROFILE - ELEMENT CARD LISTING																		
ELEMENT NO	22	IS A REACH	*	*	*													
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H				
			7364.230	1227.520	11			.013			72.721	-90.000	.000	0				
ELEMENT NO	23	IS A REACH	*	*	*													
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H				
			7729.770	1227.520	11			.013			.000	.000	.000	0				
ELEMENT NO	24	IS A SYSTEM HEADWORKS	*		*				*									
		U/S DATA	STATION	INVERT	SECT						W S ELEV							
			7729.770	1227.520	11						.000							

Program Package Serial Number: 1373
WATER SURFACE PROFILE LISTING
REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER STREET FLOW CALCULATIONS
SD 4-5 ALABAMA ST
FROM SANTA ANA RIVER TO ALMOND AVE NAD88 DATUM

Date: 4-14-2014 Time:11:10:53

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	No ZL	Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
.000	1173.000	7.000	1180.000	585.00	15.20	3.59	1183.59	.00	6.21	.00	7.000	.000	.00	1 .0
1095.284	.0054					.0084	9.18	7.00	.00	7.00	.013	.00	.00	PIPE
1095.284	1178.881	10.649	1189.530	585.00	15.20	3.59	1193.12	.00	6.21	.00	7.000	.000	.00	1 .0
HYDRAULIC JUMP														
1095.284	1178.881	3.675	1182.555	585.00	28.59	12.69	1195.24	.00	6.21	6.99	7.000	.000	.00	1 .0
35.266	.0054					.0299	1.06	3.67	2.94	7.00	.013	.00	.00	PIPE
1130.550	1179.070	3.570	1182.640	585.00	29.65	13.65	1196.29	.00	6.21	7.00	7.000	.000	.00	1 .0
HYDRAULIC DROP														
1130.550	1179.070	10.769	1189.839	585.00	15.20	3.59	1193.43	.00	6.21	.00	7.000	.000	.00	1 .0
TRANS STR .0450														
1135.000	1179.270	12.262	1191.532	585.00	11.64	2.10	1193.64	.00	6.16	.00	8.000	.000	.00	1 .0
36.761	.0369					.0041	.15	12.26	.00	3.18	.013	.00	.00	PIPE
1171.761	1180.627	11.074	1191.701	585.00	11.64	2.10	1193.80	.00	6.16	.00	8.000	.000	.00	1 .0
HYDRAULIC JUMP														
1171.761	1180.627	3.313	1183.940	585.00	29.75	13.74	1197.68	.00	6.16	7.88	8.000	.000	.00	1 .0
103.448	.0369					.0308	3.19	3.31	3.32	3.18	.013	.00	.00	PIPE
1275.209	1184.447	3.379	1187.826	585.00	28.98	13.04	1200.87	.00	6.16	7.90	8.000	.000	.00	1 .0
117.969	.0369					.0279	3.29	3.38	3.20	3.18	.013	.00	.00	PIPE

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time:11:10:53

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER STREET FLOW CALCULATIONS

SD 4-5 ALABAMA ST

FROM SANTA ANA RIVER TO ALMOND AVE NAD88 DATUM

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1393.178	1188.803	3.503	1192.306	585.00	27.63	11.86	1204.16	.00	6.16	7.94	8.000	.000	.00	1 .0
76.551	.0369					.0245	1.88	3.50	2.98	3.18	.013	.00	.00	PIPE
1469.729	1191.629	3.633	1195.262	585.00	26.35	10.78	1206.04	.00	6.16	7.97	8.000	.000	.00	1 .0
54.990	.0369					.0216	1.19	3.63	2.78	3.18	.013	.00	.00	PIPE
1524.719	1193.660	3.769	1197.429	585.00	25.12	9.80	1207.23	.00	6.16	7.99	8.000	.000	.00	1 .0
41.721	.0369					.0190	.79	3.77	2.59	3.18	.013	.00	.00	PIPE
1566.440	1195.200	3.911	1199.111	585.00	23.95	8.91	1208.02	.00	6.16	8.00	8.000	.000	.00	1 .0
TRANS STR	.1487					.0161	.14	3.91	2.42		.013	.00	.00	PIPE
1575.180	1196.500	4.155	1200.655	585.00	22.18	7.64	1208.29	.00	6.16	7.99	8.000	.000	.00	1 .0
64.533	.0145					.0145	.93	4.16	2.15	4.16	.013	.00	.00	PIPE
1639.713	1197.434	4.155	1201.589	585.00	22.18	7.64	1209.23	.00	6.16	7.99	8.000	.000	.00	1 .0
623.500	.0145					.0137	8.55	4.16	2.15	4.16	.013	.00	.00	PIPE
2263.213	1206.458	4.296	1210.754	585.00	21.27	7.03	1217.78	.00	6.16	7.98	8.000	.000	.00	1 .0
207.080	.0145					.0122	2.53	4.30	2.02	4.16	.013	.00	.00	PIPE
2470.293	1209.455	4.465	1213.920	585.00	20.28	6.39	1220.31	.00	6.16	7.95	8.000	.000	.00	1 .0
108.959	.0145					.0108	1.17	4.46	1.88	4.16	.013	.00	.00	PIPE
2579.252	1211.032	4.642	1215.674	585.00	19.34	5.81	1221.48	.00	6.16	7.90	8.000	.000	.00	1 .0
68.740	.0145					.0095	.65	4.64	1.74	4.16	.013	.00	.00	PIPE

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time:11:10:53

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER STREET FLOW CALCULATIONS

SD 4-5 ALABAMA ST

FROM SANTA ANA RIVER TO ALMOND AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
      | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope|      |      |      |      |      |      |      |      |      |      |      | ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2647.992 | 1212.027 | 4.830 | 1216.857 | 585.00 | 18.44 | 5.28 | 1222.14 | .00 | 6.16 | 7.83 | 8.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
46.498 | .0145 |      |      |      |      | .0084 | .39 | 4.83 | 1.61 | 4.16 | .013 | .00 | .00 | PIPE
2694.490 | 1212.700 | 5.029 | 1217.729 | 585.00 | 17.58 | 4.80 | 1222.53 | .00 | 6.16 | 7.73 | 8.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
31.640 | .0124 |      |      |      |      | .0076 | .24 | 5.03 | 1.49 | 4.35 | .013 | .00 | .00 | PIPE
2726.130 | 1213.092 | 5.163 | 1218.256 | 585.00 | 17.05 | 4.52 | 1222.77 | .00 | 6.16 | 7.65 | 8.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
34.655 | .0124 |      |      |      |      | .0069 | .24 | 5.16 | 1.42 | 4.35 | .013 | .00 | .00 | PIPE
2760.785 | 1213.522 | 5.384 | 1218.906 | 585.00 | 16.26 | 4.10 | 1223.01 | .00 | 6.16 | 7.51 | 8.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
21.849 | .0124 |      |      |      |      | .0062 | .13 | 5.38 | 1.31 | 4.35 | .013 | .00 | .00 | PIPE
2782.635 | 1213.793 | 5.621 | 1219.414 | 585.00 | 15.50 | 3.73 | 1223.15 | .00 | 6.16 | 7.31 | 8.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
12.049 | .0124 |      |      |      |      | .0055 | .07 | 5.62 | 1.20 | 4.35 | .013 | .00 | .00 | PIPE
2794.684 | 1213.943 | 5.877 | 1219.820 | 585.00 | 14.78 | 3.39 | 1223.21 | .00 | 6.16 | 7.06 | 8.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
3.826 | .0124 |      |      |      |      | .0049 | .02 | 5.88 | 1.10 | 4.35 | .013 | .00 | .00 | PIPE
2798.510 | 1213.990 | 6.158 | 1220.148 | 585.00 | 14.09 | 3.08 | 1223.23 | .00 | 6.16 | 6.74 | 8.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0000 |      |      |      |      |      |      |      | 6.16 | 1.00 | .013 | .00 | .00 | PIPE
2814.321 | 1213.990 | 3.263 | 1217.253 | 175.00 | 9.08 | 1.28 | 1218.53 | .00 | 3.30 | 7.86 | 8.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1022.335 | .0030 |      |      |      |      | .0030 | 3.09 | 3.26 | 1.02 | 3.26 | .013 | .00 | .00 | PIPE
3836.656 | 1217.077 | 3.263 | 1220.340 | 175.00 | 9.08 | 1.28 | 1221.62 | .00 | 3.30 | 7.86 | 8.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
47.757 | .0030 |      |      |      |      | .0031 | .15 | 3.26 | 1.02 | 3.26 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time:11:10:53

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER STREET FLOW CALCULATIONS

SD 4-5 ALABAMA ST

FROM SANTA ANA RIVER TO ALMOND AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****
3884.413 | 1217.221 | 3.201 | 1220.422 | 175.00 | 9.32 | 1.35 | 1221.77 | .00 | 3.30 | 7.84 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
51.371 | .0030 | | | | | .0035 | .18 | 3.20 | 1.06 | 3.26 | .013 | .00 | .00 | PIPE
3935.783 | 1217.376 | 3.089 | 1220.465 | 175.00 | 9.77 | 1.48 | 1221.95 | .00 | 3.30 | 7.79 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
44.052 | .0030 | | | | | .0039 | .17 | 3.09 | 1.14 | 3.26 | .013 | .00 | .00 | PIPE
3979.835 | 1217.509 | 2.982 | 1220.490 | 175.00 | 10.25 | 1.63 | 1222.12 | .00 | 3.30 | 7.74 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
40.431 | .0030 | | | | | .0045 | .18 | 2.98 | 1.22 | 3.26 | .013 | .00 | .00 | PIPE
4020.266 | 1217.631 | 2.879 | 1220.509 | 175.00 | 10.75 | 1.79 | 1222.30 | .00 | 3.30 | 7.68 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
37.932 | .0030 | | | | | .0051 | .19 | 2.88 | 1.30 | 3.26 | .013 | .00 | .00 | PIPE
4058.198 | 1217.745 | 2.779 | 1220.525 | 175.00 | 11.27 | 1.97 | 1222.50 | .00 | 3.30 | 7.62 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
35.952 | .0030 | | | | | .0059 | .21 | 2.78 | 1.39 | 3.26 | .013 | .00 | .00 | PIPE
4094.150 | 1217.854 | 2.684 | 1220.538 | 175.00 | 11.82 | 2.17 | 1222.71 | .00 | 3.30 | 7.55 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
34.223 | .0030 | | | | | .0067 | .23 | 2.68 | 1.49 | 3.26 | .013 | .00 | .00 | PIPE
4128.373 | 1217.957 | 2.593 | 1220.550 | 175.00 | 12.40 | 2.39 | 1222.94 | .00 | 3.30 | 7.49 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
32.639 | .0030 | | | | | .0076 | .25 | 2.59 | 1.59 | 3.26 | .013 | .00 | .00 | PIPE
4161.012 | 1218.056 | 2.505 | 1220.560 | 175.00 | 13.01 | 2.63 | 1223.19 | .00 | 3.30 | 7.42 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
31.203 | .0030 | | | | | .0087 | .27 | 2.50 | 1.70 | 3.26 | .013 | .00 | .00 | PIPE
4192.215 | 1218.150 | 2.420 | 1220.570 | 175.00 | 13.64 | 2.89 | 1223.46 | .00 | 3.30 | 7.35 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
29.875 | .0030 | | | | | .0100 | .30 | 2.42 | 1.82 | 3.26 | .013 | .00 | .00 | PIPE

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time:11:10:53

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER STREET FLOW CALCULATIONS

SD 4-5 ALABAMA ST

FROM SANTA ANA RIVER TO ALMOND AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
|-| Elev |-| (FT) |-| Elev |-| (CFS) |-| (FPS) |-| Head |-| Grd.El. |-| Elev |-| Depth |-| Width |-| Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope| | | | | | | | | | | | | | | | |
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
4222.090 | 1218.240 | 2.338 | 1220.578 | 175.00 | 14.31 | 3.18 | 1223.76 | .00 | 3.30 | 7.28 | 8.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
TRANS STR | .0701 | | | | | | | | | | | | | | | |
|.0069 | .10 | 2.34 | 1.94 | .013 | .00 | .00 | PIPE
4236.640 | 1219.260 | 3.439 | 1222.699 | 175.00 | 9.30 | 1.34 | 1224.04 | .00 | 3.44 | 7.00 | 7.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
4.575 | .0010 | | | | | | | | | | | | | | | |
|.0030 | .01 | 3.44 | 1.00 | 4.95 | .013 | .00 | .00 | PIPE
4241.215 | 1219.265 | 3.570 | 1222.834 | 175.00 | 8.87 | 1.22 | 1224.06 | .00 | 3.44 | 7.00 | 7.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
16.666 | .0010 | | | | | | | | | | | | | | | |
|.0026 | .04 | 3.57 | .93 | 4.95 | .013 | .00 | .00 | PIPE
4257.881 | 1219.282 | 3.707 | 1222.990 | 175.00 | 8.46 | 1.11 | 1224.10 | .00 | 3.44 | 6.99 | 7.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
34.071 | .0010 | | | | | | | | | | | | | | | |
|.0023 | .08 | 3.71 | .87 | 4.95 | .013 | .00 | .00 | PIPE
4291.952 | 1219.318 | 3.852 | 1223.170 | 175.00 | 8.06 | 1.01 | 1224.18 | .00 | 3.44 | 6.96 | 7.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
59.909 | .0010 | | | | | | | | | | | | | | | |
|.0021 | .12 | 3.85 | .80 | 4.95 | .013 | .00 | .00 | PIPE
4351.861 | 1219.380 | 4.005 | 1223.385 | 175.00 | 7.69 | .92 | 1224.30 | .00 | 3.44 | 6.93 | 7.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
100.165 | .0010 | | | | | | | | | | | | | | | |
|.0018 | .18 | 4.00 | .75 | 4.95 | .013 | .00 | .00 | PIPE
4452.025 | 1219.484 | 4.166 | 1223.650 | 175.00 | 7.33 | .83 | 1224.48 | .00 | 3.44 | 6.87 | 7.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
167.461 | .0010 | | | | | | | | | | | | | | | |
|.0016 | .27 | 4.17 | .69 | 4.95 | .013 | .00 | .00 | PIPE
4619.487 | 1219.659 | 4.336 | 1223.995 | 175.00 | 6.99 | .76 | 1224.75 | .00 | 3.44 | 6.80 | 7.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
293.190 | .0010 | | | | | | | | | | | | | | | |
|.0014 | .42 | 4.34 | .64 | 4.95 | .013 | .00 | .00 | PIPE
4912.677 | 1219.964 | 4.517 | 1224.482 | 175.00 | 6.66 | .69 | 1225.17 | .00 | 3.44 | 6.70 | 7.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
34.073 | .0010 | | | | | | | | | | | | | | | |
|.0013 | .05 | 4.52 | .59 | 4.95 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time:11:10:53

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER STREET FLOW CALCULATIONS

SD 4-5 ALABAMA ST

FROM SANTA ANA RIVER TO ALMOND AVE NAD88 DATUM

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/or I.D.	No ZL	Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
4946.750	1220.000	4.533	1224.533	175.00	6.64	.68	1225.22	.00	3.44	6.69	7.000	.000	.00	1 .0
JUNCT STR	.0028					.0008	.01	4.53	.59		.013	.00	.00	PIPE
4953.800	1220.020	5.447	1225.467	96.00	2.99	.14	1225.61	.00	2.51	5.82	7.000	.000	.00	1 .0
634.453	.0006					.0003	.17	5.45	.22	3.89	.013	.00	.00	PIPE
5588.253	1220.424	5.197	1225.621	96.00	3.13	.15	1225.77	.00	2.51	6.12	7.000	.000	.00	1 .0
119.177	.0006					.0003	.03	5.20	.25	3.89	.013	.00	.00	PIPE
5707.430	1220.500	5.152	1225.651	96.00	3.16	.16	1225.81	.00	2.51	6.17	7.000	.000	.00	1 .0
JUNCT STR	.0053					.0002	.00	5.15	.25		.013	.00	.00	PIPE
5726.370	1220.600	5.286	1225.886	48.00	1.54	.04	1225.92	.00	1.76	6.02	7.000	.000	.00	1 .0
53.880	.0019					.0001	.00	5.29	.12	1.98	.013	.00	.00	PIPE
5780.250	1220.700	5.189	1225.889	48.00	1.57	.04	1225.93	.00	1.76	6.13	7.000	.000	.00	1 .0
168.688	.0014					.0001	.01	5.19	.12	2.13	.013	.00	.00	PIPE
5948.938	1220.936	4.961	1225.897	48.00	1.65	.04	1225.94	.00	1.76	6.36	7.000	.000	.00	1 .0
156.334	.0014					.0001	.01	4.96	.14	2.13	.013	.00	.00	PIPE
6105.272	1221.156	4.751	1225.906	48.00	1.73	.05	1225.95	.00	1.76	6.54	7.000	.000	.00	1 .0
117.308	.0014					.0001	.01	4.75	.15	2.13	.013	.00	.00	PIPE
6222.580	1221.320	4.593	1225.913	48.00	1.79	.05	1225.96	.00	1.76	6.65	7.000	.000	.00	1 .0
TRANS STR	.0051					.0003	.10	4.59	.16		.013	.00	.00	PIPE

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time:11:10:53

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER STREET FLOW CALCULATIONS

SD 4-5 ALABAMA ST

FROM SANTA ANA RIVER TO ALMOND AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
        | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
6543.170 | 1222.940 | 2.968 | 1225.908 | 48.00 | 3.44 | .18 | 1226.09 | .00 | 1.84 | 6.00 | 6.000 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
50.840 | .0016 |      |      |      |      |      | .0006 | .03 | 2.97 | .40 | 2.19 | .013 | .00 | .00 | PIPE
6594.010 | 1223.020 | 2.906 | 1225.926 | 48.00 | 3.54 | .19 | 1226.12 | .00 | 1.84 | 6.00 | 6.000 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
17.742 | .0055 |      |      |      |      |      | .0006 | .01 | 2.91 | .41 | 1.59 | .013 | .00 | .00 | PIPE
6611.752 | 1223.117 | 2.801 | 1225.917 | 48.00 | 3.71 | .21 | 1226.13 | .00 | 1.84 | 5.99 | 6.000 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
16.681 | .0055 |      |      |      |      |      | .0007 | .01 | 2.80 | .44 | 1.59 | .013 | .00 | .00 | PIPE
6628.433 | 1223.208 | 2.700 | 1225.908 | 48.00 | 3.89 | .23 | 1226.14 | .00 | 1.84 | 5.97 | 6.000 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
15.601 | .0055 |      |      |      |      |      | .0008 | .01 | 2.70 | .48 | 1.59 | .013 | .00 | .00 | PIPE
6644.034 | 1223.293 | 2.603 | 1225.896 | 48.00 | 4.08 | .26 | 1226.16 | .00 | 1.84 | 5.95 | 6.000 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
14.583 | .0055 |      |      |      |      |      | .0009 | .01 | 2.60 | .51 | 1.59 | .013 | .00 | .00 | PIPE
6658.617 | 1223.373 | 2.511 | 1225.884 | 48.00 | 4.28 | .28 | 1226.17 | .00 | 1.84 | 5.92 | 6.000 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
13.531 | .0055 |      |      |      |      |      | .0010 | .01 | 2.51 | .55 | 1.59 | .013 | .00 | .00 | PIPE
6672.147 | 1223.447 | 2.423 | 1225.869 | 48.00 | 4.49 | .31 | 1226.18 | .00 | 1.84 | 5.89 | 6.000 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
12.479 | .0055 |      |      |      |      |      | .0012 | .01 | 2.42 | .59 | 1.59 | .013 | .00 | .00 | PIPE
6684.627 | 1223.515 | 2.338 | 1225.853 | 48.00 | 4.71 | .34 | 1226.20 | .00 | 1.84 | 5.85 | 6.000 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
11.391 | .0055 |      |      |      |      |      | .0013 | .02 | 2.34 | .63 | 1.59 | .013 | .00 | .00 | PIPE
6696.018 | 1223.577 | 2.257 | 1225.833 | 48.00 | 4.94 | .38 | 1226.21 | .00 | 1.84 | 5.81 | 6.000 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
10.220 | .0055 |      |      |      |      |      | .0015 | .02 | 2.26 | .67 | 1.59 | .013 | .00 | .00 | PIPE
*****
    
```

WATER SURFACE PROFILE LISTING
REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER STREET FLOW CALCULATIONS
SD 4-5 ALABAMA ST
FROM SANTA ANA RIVER TO ALMOND AVE NAD88 DATUM

Date: 4-14-2014 Time:11:10:53

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|ZL|Prs/Pip
L/Elem |Ch Slope| | | | | | | | | | | | | | | | | | | | | | | | | | | |
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
6706.238 | 1223.633 | 2.178 | 1225.811 | 48.00 | 5.18 | .42 | 1226.23 | .00 | 1.84 | 5.77 | 6.000 | .000 | .00 | 1 | .0
|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|
7.849 | .0055 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
.0017 | .01 | 2.18 | .72 | 1.59 | .013 | .00 | PIPE
6714.086 | 1223.675 | 2.103 | 1225.779 | 48.00 | 5.43 | .46 | 1226.24 | .00 | 1.84 | 5.73 | 6.000 | .000 | .00 | 1 | .0
|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|
HYDRAULIC JUMP
6714.086 | 1223.675 | 1.589 | 1225.264 | 48.00 | 8.01 | 1.00 | 1226.26 | .00 | 1.84 | 5.29 | 6.000 | .000 | .00 | 1 | .0
|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|
18.369 | .0055 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
.0055 | .10 | 1.59 | 1.33 | 1.59 | .013 | .00 | PIPE
6732.456 | 1223.776 | 1.589 | 1225.364 | 48.00 | 8.01 | 1.00 | 1226.36 | .00 | 1.84 | 5.29 | 6.000 | .000 | .00 | 1 | .0
|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|
118.777 | .0055 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
.0058 | .69 | 1.59 | 1.33 | 1.59 | .013 | .00 | PIPE
6851.233 | 1224.424 | 1.541 | 1225.965 | 48.00 | 8.36 | 1.09 | 1227.05 | .00 | 1.84 | 5.24 | 6.000 | .000 | .00 | 1 | .0
|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|
50.296 | .0055 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
.0066 | .33 | 1.54 | 1.41 | 1.59 | .013 | .00 | PIPE
6901.529 | 1224.698 | 1.490 | 1226.188 | 48.00 | 8.77 | 1.19 | 1227.38 | .00 | 1.84 | 5.18 | 6.000 | .000 | .00 | 1 | .0
|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|
33.586 | .0055 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
.0075 | .25 | 1.49 | 1.50 | 1.59 | .013 | .00 | PIPE
6935.116 | 1224.882 | 1.440 | 1226.322 | 48.00 | 9.20 | 1.31 | 1227.64 | .00 | 1.84 | 5.13 | 6.000 | .000 | .00 | 1 | .0
|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|
26.438 | .0055 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
.0086 | .23 | 1.44 | 1.61 | 1.59 | .013 | .00 | PIPE
6961.554 | 1225.026 | 1.393 | 1226.418 | 48.00 | 9.65 | 1.44 | 1227.86 | .00 | 1.84 | 5.07 | 6.000 | .000 | .00 | 1 | .0
|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|
22.342 | .0055 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
.0099 | .22 | 1.39 | 1.72 | 1.59 | .013 | .00 | PIPE
6983.896 | 1225.148 | 1.347 | 1226.495 | 48.00 | 10.12 | 1.59 | 1228.08 | .00 | 1.84 | 5.01 | 6.000 | .000 | .00 | 1 | .0
|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|-|
19.652 | .0055 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
.0113 | .22 | 1.35 | 1.83 | 1.59 | .013 | .00 | PIPE

```

Program Package Serial Number: 1373
WATER SURFACE PROFILE LISTING
REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER STREET FLOW CALCULATIONS
SD 4-5 ALABAMA ST
FROM SANTA ANA RIVER TO ALMOND AVE NAD88 DATUM

Date: 4-14-2014 Time:11:10:53

Table with columns: Station, Invert Elev, Depth (FT), Water Elev, Q (CFS), Vel (FPS), Vel Head, Energy Grd.El., Super Elev, Critical Depth, Flow Top Width, Height/Dia., Base Wt/I.D., No Prs/Pip, Wth Ch. Rows include station numbers (e.g., 7003.547, 7021.259) and flow characteristics.

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time:11:10:53

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER STREET FLOW CALCULATIONS

SD 4-5 ALABAMA ST

FROM SANTA ANA RIVER TO ALMOND AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
7129.317 | 1227.491 | 2.236 | 1229.727 | 48.00 | 6.08 | .57 | 1230.30 | .00 | 2.00 | 4.50 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
15.049 | .0001 |      |      |      |      |      | .0023 | .03 | 2.24 | .81 | 4.50 | .013 | .00 | .00 | PIPE
7144.367 | 1227.492 | 2.322 | 1229.814 | 48.00 | 5.80 | .52 | 1230.34 | .00 | 2.00 | 4.50 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
21.809 | .0001 |      |      |      |      |      | .0020 | .04 | 2.32 | .75 | 4.50 | .013 | .00 | .00 | PIPE
7166.175 | 1227.494 | 2.412 | 1229.905 | 48.00 | 5.53 | .48 | 1230.38 | .00 | 2.00 | 4.49 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
30.079 | .0001 |      |      |      |      |      | .0018 | .05 | 2.41 | .70 | 4.50 | .013 | .00 | .00 | PIPE
7196.254 | 1227.496 | 2.506 | 1230.002 | 48.00 | 5.27 | .43 | 1230.43 | .00 | 2.00 | 4.47 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
40.354 | .0001 |      |      |      |      |      | .0016 | .06 | 2.51 | .65 | 4.50 | .013 | .00 | .00 | PIPE
7236.608 | 1227.499 | 2.606 | 1230.105 | 48.00 | 5.03 | .39 | 1230.50 | .00 | 2.00 | 4.44 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
13.393 | .0001 |      |      |      |      |      | .0014 | .02 | 2.61 | .60 | 4.50 | .013 | .00 | .00 | PIPE
7250.000 | 1227.500 | 2.635 | 1230.135 | 48.00 | 4.96 | .38 | 1230.52 | .02 | 2.00 | 4.43 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
61.840 | .0002 |      |      |      |      |      | .0013 | .08 | 2.66 | .59 | 4.50 | .013 | .00 | .00 | PIPE
7311.840 | 1227.511 | 2.741 | 1230.252 | 48.00 | 4.73 | .35 | 1230.60 | .02 | 2.00 | 4.39 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
52.390 | .0002 |      |      |      |      |      | .0012 | .06 | 2.76 | .55 | 4.50 | .013 | .00 | .00 | PIPE
7364.230 | 1227.520 | 2.817 | 1230.337 | 48.00 | 4.58 | .33 | 1230.66 | .00 | 2.00 | 4.35 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
97.818 | .0000 |      |      |      |      |      | .0011 | .11 | 2.82 | .52 | .00 | .013 | .00 | .00 | PIPE
7462.048 | 1227.520 | 2.958 | 1230.478 | 48.00 | 4.33 | .29 | 1230.77 | .00 | 2.00 | 4.27 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
124.538 | .0000 |      |      |      |      |      | .0009 | .12 | 2.96 | .47 | .00 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time:11:10:53

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER STREET FLOW CALCULATIONS

SD 4-5 ALABAMA ST

FROM SANTA ANA RIVER TO ALMOND AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
      | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope|      |      |      |      |      |      | SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
7586.586 | 1227.520 | 3.106 | 1230.626 | 48.00 | 4.10 | .26 | 1230.89 | .00 | 2.00 | 4.16 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
143.184 | .0000 |      |      |      |      | .0008 | .12 | 3.11 | .43 | .00 | .013 | .00 | .00 | PIPE
7729.770 | 1227.520 | 3.250 | 1230.770 | 48.00 | 3.90 | .24 | 1231.01 | .00 | 2.00 | 4.03 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

```


WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE WIDTH	PIER WIDTH	HEIGHT 1	BASE DIAMETER	WIDTH	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)	
CD	2	2	0	.000		3.000	10.000				.00											
CD	3	4	1			7.000																
CD	4	4	1			3.500																
CD	5	4	1			7.000																
CD	6	4	1			3.500																
CD	7	4	1			6.000																
CD	8	4	1			3.250																
CD	10	4	1			6.000																
CD	11	4	1			6.000																
CD	12	4	1			6.000																
CD	13	4	1			3.500																
CD	15	4	1			2.500																
CD	16	4	1			6.000																

HEADING LINE NO 1 IS -
 HEADING LINE NO 2 IS -
 HEADING LINE NO 3 IS -

W S P G W
 WATER SURFACE PROFILE - TITLE CARD LISTING
 REDLANDS MASTERPLAN
 SD 4-7 LUGONIA ST
 FROM TENNESSEE ST TO NEW YORK AVE

W S P G W
 WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	U/S DATA	STATION	INVERT	SECT	W S ELEV	RADIUS	ANGLE	ANG PT	MAN H
1	IS	A	SYSTEM	OUTLET	U/S DATA	3306.240	1270.040	2	1273.600				
2	IS	A	REACH		U/S DATA	3416.820	1270.590	2		.000	.000	.000	0
3	IS	A	JUNCTION		U/S DATA	3423.320	1270.630	3		.000	.000	.000	.000
4	IS	A	REACH		U/S DATA	3557.230	1272.450	3		.000	.000	.000	0
5	IS	A	JUNCTION		U/S DATA	3567.230	1272.580	5		.000	.000	.000	.000
6	IS	A	REACH		U/S DATA	4222.330	1281.230	5		.000	.000	.000	1
7	IS	A	REACH		U/S DATA	4651.020	1286.800	5		.000	.000	.000	0
8	IS	A	JUNCTION		U/S DATA	4661.020	1286.930	7		.000	.000	.000	.000

W S P G W
 WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	9	IS	A	REACH	*	*	*														
				U/S DATA	STATION	INVERT	SECT					RADIUS	ANGLE	ANG PT	MAN H						
					4665.020	1286.990	7					.000	.000	.000	0						
ELEMENT NO	10	IS	A	REACH	*	*	*														
				U/S DATA	STATION	INVERT	SECT					RADIUS	ANGLE	ANG PT	MAN H						
					4803.880	1288.340	7					.000	.000	.000	0						
ELEMENT NO	11	IS	A	JUNCTION	*	*	*	*	*	*											
				U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4					
					4815.000	1288.480	10	8	0	.013	99.430	.000	1289.130	.000	45.000	.000					
												RADIUS	ANGLE								
												.000	.000								
ELEMENT NO	12	IS	A	REACH	*	*	*														
				U/S DATA	STATION	INVERT	SECT					RADIUS	ANGLE	ANG PT	MAN H						
					4900.000	1292.670	10					.000	.000	.000	1						
ELEMENT NO	13	IS	A	REACH	*	*	*														
				U/S DATA	STATION	INVERT	SECT					RADIUS	ANGLE	ANG PT	MAN H						
					5750.000	1301.090	10					.000	.000	.000	1						
ELEMENT NO	14	IS	A	TRANSITION	*	*	*														
				U/S DATA	STATION	INVERT	SECT					RADIUS	ANGLE								
					5760.750	1301.360	11					.000	.000								
ELEMENT NO	15	IS	A	REACH	*	*	*														
				U/S DATA	STATION	INVERT	SECT					RADIUS	ANGLE	ANG PT	MAN H						
					5915.000	1303.190	11					.000	.000	.000	0						
ELEMENT NO	16	IS	A	TRANSITION	*	*	*														
				U/S DATA	STATION	INVERT	SECT					RADIUS	ANGLE								
					5923.000	1303.420	12					.000	.000								
ELEMENT NO	17	IS	A	REACH	*	*	*														
				U/S DATA	STATION	INVERT	SECT					RADIUS	ANGLE	ANG PT	MAN H						
					5938.850	1303.500	12					.000	.000	.000	0						
ELEMENT NO	18	IS	A	REACH	*	*	*														
				U/S DATA	STATION	INVERT	SECT					RADIUS	ANGLE	ANG PT	MAN H						
					6013.310	1303.900	12					.000	.000	.000	0						
ELEMENT NO	19	IS	A	REACH	*	*	*														
				U/S DATA	STATION	INVERT	SECT					RADIUS	ANGLE	ANG PT	MAN H						
					6630.800	1306.980	12					.000	.000	.000	1						
ELEMENT NO	20	IS	A	JUNCTION	*	*	*	*	*	*											
				U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4					
					6638.800	1307.000	16	13	15	.013	143.290	143.290	1310.520	1311.150	60.000	-45.000					
												RADIUS	ANGLE								
												.000	.000								
W S P G W																					
															PAGE NO	4					
WATER SURFACE PROFILE - ELEMENT CARD LISTING																					
ELEMENT NO	21	IS	A	REACH	*	*	*														
				U/S DATA	STATION	INVERT	SECT					RADIUS	ANGLE	ANG PT	MAN H						
					6650.000	1307.080	16					.000	.000	.000	0						
ELEMENT NO	22	IS	A	SYSTEM HEADWORKS	*																
				U/S DATA	STATION	INVERT	SECT					W S ELEV									
					6650.000	1307.080	16					.000									

REDLANDS MASTERPLAN
SD 4-7 LUGONIA ST
FROM TENNESSEE ST TO NEW YORK AVE

Table with 18 columns: Station, Invert Elev, Depth (FT), Water Elev, Q (CFS), Vel (FPS), Vel Head, Energy Grd.El., Super Elev, Critical Depth, Flow Top Width, Height/Dia., Base Wt/or I.D., ZL, No Prs/Pip, Wth, Type Ch. The table lists data for various stations from 3306.240 to 655.100, including junctions and a warning about a change in channel type.

REDLANDS MASTERPLAN
SD 4-7 LUGONIA ST
FROM TENNESSEE ST TO NEW YORK AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
4222.330 | 1281.230 | 9.411 | 1290.641 | 628.73 | 16.34 | 4.14 | 1294.79 | .00 | 6.36 | .00 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
428.690 | .0130 | | | | | | | | | | | | | | | |
4651.020 | 1286.800 | 7.993 | 1294.793 | 628.73 | 16.34 | 4.14 | 1298.94 | .00 | 6.36 | .00 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR | .0130 | | | | | | | | | | | | | | | |
4661.020 | 1286.930 | 7.651 | 1294.582 | 529.30 | 18.72 | 5.44 | 1300.02 | .00 | 5.73 | .00 | 6.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
4.000 | .0150 | | | | | | | | | | | | | | | |
4665.020 | 1286.990 | 7.654 | 1294.644 | 529.30 | 18.72 | 5.44 | 1300.09 | .00 | 5.73 | .00 | 6.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
138.860 | .0097 | | | | | | | | | | | | | | | |
4803.880 | 1288.340 | 8.473 | 1296.813 | 529.30 | 18.72 | 5.44 | 1302.25 | .00 | 5.73 | .00 | 6.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR | .0126 | | | | | | | | | | | | | | | |
4815.000 | 1288.480 | 11.256 | 1299.736 | 429.87 | 15.20 | 3.59 | 1303.33 | .00 | 5.46 | .00 | 6.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
85.000 | .0493 | | | | | | | | | | | | | | | |
4900.000 | 1292.670 | 8.122 | 1300.792 | 429.87 | 15.20 | 3.59 | 1304.38 | .00 | 5.46 | .00 | 6.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
850.000 | .0099 | | | | | | | | | | | | | | | |
5750.000 | 1301.090 | 8.638 | 1309.728 | 429.87 | 15.20 | 3.59 | 1313.32 | .00 | 5.46 | .00 | 6.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
TRANS STR | .0251 | | | | | | | | | | | | | | | |
5760.750 | 1301.360 | 8.479 | 1309.839 | 429.87 | 15.20 | 3.59 | 1313.43 | .00 | 5.46 | .00 | 6.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
154.250 | .0119 | | | | | | | | | | | | | | | |

```

REDLANDS MASTERPLAN
SD 4-7 LUGONIA ST
FROM TENNESSEE ST TO NEW YORK AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
5915.000 | 1303.190 | 8.238 | 1311.428 | 429.87 | 15.20 | 3.59 | 1315.02 | .00 | 5.46 | .00 | 6.000 | .000 | .00 | 1 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
TRANS STR | .0288 |      |      |      |      |      | .0103 | .08 | 8.24 | .00 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
5923.000 | 1303.420 | 8.091 | 1311.511 | 429.87 | 15.20 | 3.59 | 1315.10 | .00 | 5.46 | .00 | 6.000 | .000 | .00 | 1 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 15.850 | .0050 |      |      |      |      | .0103 | .16 | 8.09 | .00 | 6.00 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
5938.850 | 1303.500 | 8.174 | 1311.674 | 429.87 | 15.20 | 3.59 | 1315.26 | .00 | 5.46 | .00 | 6.000 | .000 | .00 | 1 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 74.460 | .0054 |      |      |      |      | .0103 | .77 | .00 | .00 | 6.00 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6013.310 | 1303.900 | 9.257 | 1313.157 | 429.87 | 15.20 | 3.59 | 1316.75 | .00 | 5.46 | .00 | 6.000 | .000 | .00 | 1 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 617.490 | .0050 |      |      |      |      | .0103 | 6.36 | 9.26 | .00 | 6.00 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6630.800 | 1306.980 | 12.718 | 1319.698 | 429.87 | 15.20 | 3.59 | 1323.29 | .00 | 5.46 | .00 | 6.000 | .000 | .00 | 1 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0025 |      |      |      |      |      | .0057 | .05 | 12.72 | .00 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6638.800 | 1307.000 | 15.934 | 1322.934 | 143.29 | 5.07 | .40 | 1323.33 | .00 | 3.25 | .00 | 6.000 | .000 | .00 | 1 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 11.200 | .0071 |      |      |      |      | .0011 | .01 | 15.93 | .00 | 2.64 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6650.000 | 1307.080 | 15.867 | 1322.947 | 143.29 | 5.07 | .40 | 1323.35 | .00 | 3.25 | .00 | 6.000 | .000 | .00 | 1 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

```


WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)	
CD	1	4	1		4.000															
CD	2	4	1		2.000															
CD	3	4	1		4.000															
CD	4	4	1		2.000															
CD	5	4	1		4.000															
CD	6	4	1		2.000															
CD	7	4	1		4.000															
CD	9	4	1		2.000															
CD	10	4	1		2.000															
CD	11	4	1		4.000															

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS - REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

HEADING LINE NO 2 IS - SD 4-8 ORANGE ST

HEADING LINE NO 3 IS - FROM SANTA ANA RIVER TO SAN BERNARDINO AVE NAD88 DATUM

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	STATION	INVERT	SECT	W S ELEV													
1	IS	A	SYSTEM	OUTLET	100.000	1287.270	1	1295.000													
2	IS	A	REACH		620.070	1295.150	1		.013	.000	.000	.000	.000								
3	IS	A	REACH		1000.720	1310.030	1		.013	.000	.000	.000	.000								
4	IS	A	JUNCTION		1008.000	1310.050	3		.013	49.000	.000	1312.000	.000	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4		
											RADIUS	ANGLE	ANG PT	MAN H							
											.000	.000	.000								
5	IS	A	REACH		1534.850	1335.470	3		.013	.000	.000	.000	.000								
6	IS	A	REACH		2468.780	1345.920	3		.013	.000	.000	.000	.000								
7	IS	A	JUNCTION		2495.540	1346.100	7		.013	7.000	.000	1348.000	.000	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4		
											RADIUS	ANGLE	ANG PT	MAN H							
											.000	.000	.000								
8	IS	A	REACH		2575.800	1347.210	7		.013	.000	.000	.000	.000								
9	IS	A	REACH		3802.660	1353.290	7		.013	.000	.000	.000	.000								
10	IS	A	JUNCTION		3810.660	1353.720	11		.013	34.300	34.300	1355.000	1355.000	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4		
											RADIUS	ANGLE	ANG PT	MAN H							
											.000	.000	.000								

					W S P G W	.000	.000			
					WATER SURFACE PROFILE - ELEMENT CARD LISTING					PAGE NO 3
ELEMENT NO	11	IS A REACH	*	*	*					
		U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
			3850.000	1353.730	11	.013	.000	.000	.000	0
ELEMENT NO	12	IS A SYSTEM HEADWORKS			*					
		U/S DATA	STATION	INVERT	SECT	W S ELEV				
			3850.000	1353.730	11	.000				

WATER SURFACE PROFILE LISTING
 REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY
 SD 4-8 ORANGE ST

Date: 4-14-2014 Time: 8: 8: 1

FROM SANTA ANA RIVER TO SAN BERNARDINO AVE NAD88 DATUM

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/or I.D.	No ZL	Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
100.000	1287.270	7.730	1295.000	158.90	12.64	2.48	1297.48	.00	3.66	.00	4.000	.000	.00	1 .0
500.752	.0152					.0122	6.13	7.73	.00	2.96	.013	.00	.00	PIPE
600.752	1294.857	6.270	1301.128	158.90	12.64	2.48	1303.61	.00	3.66	.00	4.000	.000	.00	1 .0
HYDRAULIC JUMP														
600.752	1294.857	2.219	1297.076	158.90	22.20	7.65	1304.73	.00	3.66	3.98	4.000	.000	.00	1 .0
19.318	.0152					.0358	.69	2.22	2.92	2.96	.013	.00	.00	PIPE
620.070	1295.150	2.175	1297.325	158.90	22.75	8.04	1305.36	.00	3.66	3.98	4.000	.000	.00	1 .0
96.724	.0391					.0360	3.48	2.18	3.03	2.14	.013	.00	.00	PIPE
716.794	1298.931	2.213	1301.144	158.90	22.28	7.70	1308.85	.00	3.66	3.98	4.000	.000	.00	1 .0
99.861	.0391					.0330	3.29	2.21	2.93	2.14	.013	.00	.00	PIPE
816.655	1302.835	2.301	1305.135	158.90	21.24	7.00	1312.14	.00	3.66	3.95	4.000	.000	.00	1 .0
54.598	.0391					.0291	1.59	2.30	2.72	2.14	.013	.00	.00	PIPE
871.253	1304.969	2.393	1307.363	158.90	20.25	6.37	1313.73	.00	3.66	3.92	4.000	.000	.00	1 .0
36.100	.0391					.0258	.93	2.39	2.52	2.14	.013	.00	.00	PIPE
907.353	1306.380	2.492	1308.872	158.90	19.31	5.79	1314.66	.00	3.66	3.88	4.000	.000	.00	1 .0
25.970	.0391					.0228	.59	2.49	2.34	2.14	.013	.00	.00	PIPE
933.323	1307.396	2.596	1309.992	158.90	18.41	5.26	1315.25	.00	3.66	3.82	4.000	.000	.00	1 .0
19.522	.0391					.0203	.40	2.60	2.16	2.14	.013	.00	.00	PIPE

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 8: 8: 1

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-8 ORANGE ST

FROM SANTA ANA RIVER TO SAN BERNARDINO AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
952.845 | 1308.159 | 2.707 | 1310.866 | 158.90 | 17.55 | 4.78 | 1315.65 | .00 | 3.66 | 3.74 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
14.995 | .0391 |      |      |      |      | .0181 | .27 | 2.71 | 1.99 | 2.14 | .013 | .00 | .00 | PIPE
967.840 | 1308.745 | 2.827 | 1311.572 | 158.90 | 16.74 | 4.35 | 1315.92 | .00 | 3.66 | 3.64 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
11.579 | .0391 |      |      |      |      | .0161 | .19 | 2.83 | 1.83 | 2.14 | .013 | .00 | .00 | PIPE
979.419 | 1309.197 | 2.957 | 1312.154 | 158.90 | 15.96 | 3.95 | 1316.11 | .00 | 3.66 | 3.51 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
8.840 | .0391 |      |      |      |      | .0145 | .13 | 2.96 | 1.67 | 2.14 | .013 | .00 | .00 | PIPE
988.260 | 1309.543 | 3.098 | 1312.641 | 158.90 | 15.21 | 3.59 | 1316.24 | .00 | 3.66 | 3.34 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6.490 | .0391 |      |      |      |      | .0130 | .08 | 3.10 | 1.52 | 2.14 | .013 | .00 | .00 | PIPE
994.750 | 1309.797 | 3.256 | 1313.052 | 158.90 | 14.51 | 3.27 | 1316.32 | .00 | 3.66 | 3.11 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
4.263 | .0391 |      |      |      |      | .0119 | .05 | 3.26 | 1.36 | 2.14 | .013 | .00 | .00 | PIPE
999.013 | 1309.963 | 3.437 | 1313.400 | 158.90 | 13.83 | 2.97 | 1316.37 | .00 | 3.66 | 2.78 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1.707 | .0391 |      |      |      |      | .0110 | .02 | 3.44 | 1.20 | 2.14 | .013 | .00 | .00 | PIPE
1000.720 | 1310.030 | 3.660 | 1313.690 | 158.90 | 13.19 | 2.70 | 1316.39 | .00 | 3.66 | 2.23 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0027 |      |      |      |      | .0083 | .06 | 3.66 | 1.00 |      | .013 | .00 | .00 | PIPE
1008.000 | 1310.050 | 6.561 | 1316.611 | 109.90 | 8.75 | 1.19 | 1317.80 | .00 | 3.17 | .00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
11.047 | .0482 |      |      |      |      | .0059 | .06 | 6.56 | .00 | 1.63 | .013 | .00 | .00 | PIPE
1019.047 | 1310.583 | 6.093 | 1316.676 | 109.90 | 8.75 | 1.19 | 1317.86 | .00 | 3.17 | .00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
HYDRAULIC JUMP
    
```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 8: 8: 1

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-8 ORANGE ST

FROM SANTA ANA RIVER TO SAN BERNARDINO AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
|-| Elev |-| (FT) |-| Elev |-| (CFS) |-| (FPS) |-| Head |-| Grd.El. | Elev | Depth | Width | Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope| | | | | | | SF Ave| HF |SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1019.047 | 1310.583 | 1.629 | 1312.212 | 109.90 | 22.85 | 8.11 | 1320.32 | .00 | 3.17 | 3.93 | 4.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
7.539 | .0482 | | | | | | .0482 | .36 | 1.63 | 3.64 | 1.63 | .013 | .00 | .00 | PIPE
1026.586 | 1310.947 | 1.629 | 1312.576 | 109.90 | 22.85 | 8.11 | 1320.69 | .00 | 3.17 | 3.93 | 4.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
229.156 | .0482 | | | | | | .0465 | 10.67 | 1.63 | 3.64 | 1.63 | .013 | .00 | .00 | PIPE
1255.742 | 1322.003 | 1.662 | 1323.666 | 109.90 | 22.25 | 7.69 | 1331.35 | .00 | 3.17 | 3.94 | 4.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
104.002 | .0482 | | | | | | .0421 | 4.38 | 1.66 | 3.50 | 1.63 | .013 | .00 | .00 | PIPE
1359.744 | 1327.021 | 1.723 | 1328.745 | 109.90 | 21.21 | 6.99 | 1335.73 | .00 | 3.17 | 3.96 | 4.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
50.812 | .0482 | | | | | | .0370 | 1.88 | 1.72 | 3.27 | 1.63 | .013 | .00 | .00 | PIPE
1410.555 | 1329.473 | 1.787 | 1331.260 | 109.90 | 20.23 | 6.35 | 1337.61 | .00 | 3.17 | 3.98 | 4.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
32.481 | .0482 | | | | | | .0325 | 1.06 | 1.79 | 3.05 | 1.63 | .013 | .00 | .00 | PIPE
1443.036 | 1331.040 | 1.854 | 1332.894 | 109.90 | 19.29 | 5.78 | 1338.67 | .00 | 3.17 | 3.99 | 4.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
23.172 | .0482 | | | | | | .0286 | .66 | 1.85 | 2.84 | 1.63 | .013 | .00 | .00 | PIPE
1466.208 | 1332.158 | 1.923 | 1334.081 | 109.90 | 18.39 | 5.25 | 1339.33 | .00 | 3.17 | 4.00 | 4.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
17.521 | .0482 | | | | | | .0252 | .44 | 1.92 | 2.65 | 1.63 | .013 | .00 | .00 | PIPE
1483.729 | 1333.003 | 1.996 | 1335.000 | 109.90 | 17.53 | 4.77 | 1339.77 | .00 | 3.17 | 4.00 | 4.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
13.702 | .0482 | | | | | | .0222 | .30 | 2.00 | 2.47 | 1.63 | .013 | .00 | .00 | PIPE
1497.430 | 1333.665 | 2.073 | 1335.737 | 109.90 | 16.72 | 4.34 | 1340.08 | .00 | 3.17 | 4.00 | 4.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
10.937 | .0482 | | | | | | .0195 | .21 | 2.07 | 2.30 | 1.63 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 8: 8: 1

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-8 ORANGE ST

FROM SANTA ANA RIVER TO SAN BERNARDINO AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1508.368 | 1334.192 | 2.153 | 1336.345 | 109.90 | 15.94 | 3.94 | 1340.29 | .00 | 3.17 | 3.99 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
8.837 | .0482 | | | | | .0172 | .15 | 2.15 | 2.14 | 1.63 | .013 | .00 | .00 | PIPE
1517.205 | 1334.619 | 2.238 | 1336.856 | 109.90 | 15.20 | 3.59 | 1340.44 | .00 | 3.17 | 3.97 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
7.172 | .0482 | | | | | .0152 | .11 | 2.24 | 1.98 | 1.63 | .013 | .00 | .00 | PIPE
1524.377 | 1334.965 | 2.327 | 1337.291 | 109.90 | 14.49 | 3.26 | 1340.55 | .00 | 3.17 | 3.95 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
5.807 | .0482 | | | | | .0135 | .08 | 2.33 | 1.84 | 1.63 | .013 | .00 | .00 | PIPE
1530.184 | 1335.245 | 2.421 | 1337.666 | 109.90 | 13.82 | 2.96 | 1340.63 | .00 | 3.17 | 3.91 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
4.666 | .0482 | | | | | .0119 | .06 | 2.42 | 1.71 | 1.63 | .013 | .00 | .00 | PIPE
1534.850 | 1335.470 | 2.521 | 1337.991 | 109.90 | 13.17 | 2.69 | 1340.69 | .00 | 3.17 | 3.86 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
453.219 | .0112 | | | | | .0112 | 5.07 | 2.52 | 1.58 | 2.52 | .013 | .00 | .00 | PIPE
1988.069 | 1340.541 | 2.521 | 1343.062 | 109.90 | 13.17 | 2.69 | 1345.76 | .00 | 3.17 | 3.86 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
227.955 | .0112 | | | | | .0111 | 2.53 | 2.52 | 1.58 | 2.52 | .013 | .00 | .00 | PIPE
2216.024 | 1343.092 | 2.538 | 1345.630 | 109.90 | 13.07 | 2.65 | 1348.28 | .00 | 3.17 | 3.85 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
159.540 | .0112 | | | | | .0104 | 1.65 | 2.54 | 1.56 | 2.52 | .013 | .00 | .00 | PIPE
2375.565 | 1344.877 | 2.646 | 1347.523 | 109.90 | 12.46 | 2.41 | 1349.93 | .00 | 3.17 | 3.79 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
52.413 | .0112 | | | | | .0092 | .48 | 2.65 | 1.44 | 2.52 | .013 | .00 | .00 | PIPE
2427.977 | 1345.464 | 2.761 | 1348.224 | 109.90 | 11.88 | 2.19 | 1350.42 | .00 | 3.17 | 3.70 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
25.218 | .0112 | | | | | .0082 | .21 | 2.76 | 1.32 | 2.52 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 8: 8: 1

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-8 ORANGE ST

FROM SANTA ANA RIVER TO SAN BERNARDINO AVE NAD88 DATUM

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2453.196	1345.746	2.885	1348.630	109.90	11.33	1.99	1350.62	.00	3.17	3.59	4.000	.000	.00	1 .0
12.046	.0112					.0073	.09	2.88	1.21	2.52	.013	.00	.00	PIPE
2465.241	1345.880	3.019	1348.900	109.90	10.80	1.81	1350.71	.00	3.17	3.44	4.000	.000	.00	1 .0
3.539	.0112					.0066	.02	3.02	1.11	2.52	.013	.00	.00	PIPE
2468.780	1345.920	3.169	1349.089	109.90	10.29	1.65	1350.73	.00	3.17	3.25	4.000	.000	.00	1 .0
JUNCT STR	.0067					.0054	.14	3.17	1.00		.013	.00	.00	PIPE
2495.540	1346.100	3.842	1349.942	102.90	8.30	1.07	1351.01	.00	3.07	1.56	4.000	.000	.00	1 .0
3.185	.0138					.0045	.01	3.84	.52	2.25	.013	.00	.00	PIPE
2498.725	1346.144	3.801	1349.945	102.90	8.34	1.08	1351.03	.00	3.07	1.74	4.000	.000	.00	1 .0
HYDRAULIC JUMP														
2498.725	1346.144	2.450	1348.594	102.90	12.76	2.53	1351.12	.00	3.07	3.90	4.000	.000	.00	1 .0
9.769	.0138					.0105	.10	2.45	1.56	2.25	.013	.00	.00	PIPE
2508.493	1346.279	2.473	1348.752	102.90	12.61	2.47	1351.22	.00	3.07	3.89	4.000	.000	.00	1 .0
30.080	.0138					.0098	.29	2.47	1.53	2.25	.013	.00	.00	PIPE
2538.573	1346.695	2.576	1349.271	102.90	12.03	2.25	1351.52	.00	3.07	3.83	4.000	.000	.00	1 .0
18.339	.0138					.0087	.16	2.58	1.42	2.25	.013	.00	.00	PIPE
2556.912	1346.949	2.686	1349.635	102.90	11.47	2.04	1351.68	.00	3.07	3.76	4.000	.000	.00	1 .0
11.080	.0138					.0077	.09	2.69	1.31	2.25	.013	.00	.00	PIPE

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 8: 8: 1

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-8 ORANGE ST

FROM SANTA ANA RIVER TO SAN BERNARDINO AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2567.992 | 1347.102 | 2.804 | 1349.906 | 102.90 | 10.93 | 1.86 | 1351.76 | .00 | 3.07 | 3.66 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
5.954 | .0138 |      |      |      |      | .0069 | .04 | 2.80 | 1.20 | 2.25 | .013 | .00 | .00 | PIPE
2573.946 | 1347.184 | 2.932 | 1350.116 | 102.90 | 10.42 | 1.69 | 1351.80 | .00 | 3.07 | 3.54 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1.854 | .0138 |      |      |      |      | .0062 | .01 | 2.93 | 1.10 | 2.25 | .013 | .00 | .00 | PIPE
2575.800 | 1347.210 | 3.072 | 1350.282 | 102.90 | 9.94 | 1.53 | 1351.82 | .00 | 3.07 | 3.38 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
24.749 | .0050 |      |      |      |      | .0056 | .14 | 3.07 | 1.00 | 3.35 | .013 | .00 | .00 | PIPE
2600.549 | 1347.333 | 3.227 | 1350.559 | 102.90 | 9.47 | 1.39 | 1351.95 | .00 | 3.07 | 3.16 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
193.894 | .0050 |      |      |      |      | .0051 | .99 | 3.23 | .90 | 3.35 | .013 | .00 | .00 | PIPE
2794.443 | 1348.294 | 3.346 | 1351.639 | 102.90 | 9.17 | 1.30 | 1352.94 | .00 | 3.07 | 2.96 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1008.217 | .0050 |      |      |      |      | .0049 | 4.98 | 3.35 | .83 | 3.35 | .013 | .00 | .00 | PIPE
3802.660 | 1353.290 | 3.346 | 1356.636 | 102.90 | 9.17 | 1.30 | 1357.94 | .00 | 3.07 | 2.96 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0537 |      |      |      |      |      |      |      |      |      | .013 | .00 | .00 | PIPE
3810.660 | 1353.720 | 1.742 | 1355.462 | 34.30 | 6.53 | .66 | 1356.12 | .00 | 1.74 | 3.97 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1.338 | .0003 |      |      |      |      | .0035 | .00 | 1.74 | 1.00 | 4.00 | .013 | .00 | .00 | PIPE
3811.998 | 1353.720 | 1.807 | 1355.527 | 34.30 | 6.22 | .60 | 1356.13 | .00 | 1.74 | 3.98 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
4.585 | .0003 |      |      |      |      | .0030 | .01 | 1.81 | .93 | 4.00 | .013 | .00 | .00 | PIPE
3816.583 | 1353.722 | 1.874 | 1355.596 | 34.30 | 5.93 | .55 | 1356.14 | .00 | 1.74 | 3.99 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
8.604 | .0003 |      |      |      |      | .0027 | .02 | 1.87 | .87 | 4.00 | .013 | .00 | .00 | PIPE

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 8: 8: 1

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-8 ORANGE ST

FROM SANTA ANA RIVER TO SAN BERNARDINO AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
      | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope|      |      |      |      |      |      | SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
3825.188 | 1353.724 | 1.945 | 1355.668 | 34.30 | 5.66 | .50 | 1356.17 | .00 | 1.74 | 4.00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
13.677 | .0003 |      |      |      |      | .0024 | .03 | 1.94 | .81 | 4.00 | .013 | .00 | .00 | PIPE
3838.865 | 1353.727 | 2.019 | 1355.746 | 34.30 | 5.40 | .45 | 1356.20 | .00 | 1.74 | 4.00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
11.135 | .0003 |      |      |      |      | .0021 | .02 | 2.02 | .75 | 4.00 | .013 | .00 | .00 | PIPE
3850.000 | 1353.730 | 2.065 | 1355.795 | 34.30 | 5.24 | .43 | 1356.22 | .00 | 1.74 | 4.00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
    
```


WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE WIDTH	PIER WIDTH	HEIGHT 1	BASE DIAMETER	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)	
CD	1	4	1			6.000															
CD	2	4	1			1.500															
CD	3	4	1			5.250															
CD	4	4	1			1.500															
CD	6	4	1			1.500															
CD	7	4	1			5.250															
CD	8	4	1			1.500															
CD	9	4	1			1.500															
CD	10	4	1			5.250															
CD	11	4	1			6.500															
CD	12	4	1			3.000															
CD	13	4	1			1.500															
CD	14	4	1			6.000															
CD	15	4	1			1.500															
CD	16	4	1			6.000															
CD	17	4	1			3.000															
CD	18	4	1			1.500															
CD	19	4	1			5.500															
CD	20	4	1			5.250															
CD	21	4	1			3.000															
CD	22	4	1			5.000															
CD	23	4	1			4.000															

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
 HEADING LINE NO 2 IS -
 HEADING LINE NO 3 IS -

REDLANDS MASTERPLAN PROPOSED SD WITH Q25 PER HYDROLOGY
 CHURCH ST
 FROM SANTA ANA RIVER TO PENNSYLVANIA AVE NAD88 DATUM

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM OUTLET	U/S DATA	STATION	INVERT	SECT	W S ELEV	RADIUS	ANGLE	ANG PT	MAN H
1	IS	A	SYSTEM OUTLET					1339.170				
					-5270.100	1332.670	1					
2	IS	A	REACH									
					-4938.100	1359.070	1		.013	.000	.000	0
3	IS	A	JUNCTION									
					-4934.100	1359.360	3					
							2		56.000	.000	.000	.000
							0			1366.970	.000	.000
										.000	.000	.000
4	IS	A	REACH									
					-4823.100	1364.670	3		.013	.000	.000	0
5	IS	A	JUNCTION									
					-4815.100	1366.670	10					
							8		85.000	1368.150	1367.410	-45.000
							9			.000	.000	45.000
										.000	.000	
6	IS	A	REACH									
					-4221.100	1373.530	10		.013	.000	.000	0
7	IS	A	TRANSITION									

ELEMENT NO	IS	TYPE	U/S DATA	STATION	INVERT	SECT				RADIUS	ANGLE	ANG PT	MAN H		
			U/S DATA	-4215.600	1373.550	11				.000	.000				
8	IS	A REACH	*	*	*										
			U/S DATA	-3685.180	1375.660	11				.000	.000	.000	0		
9	IS	A JUNCTION	*	*	*			*	*	*	*	*	*		
			U/S DATA	-3030.010	1376.200	14	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
							12	13	.013	32.000	32.000	1377.410	1378.890	-45.000	45.000
											RADIUS	ANGLE			
											.000	.000			
W S P G W												PAGE NO	3		
WATER SURFACE PROFILE - ELEMENT CARD LISTING															
10	IS	A REACH	*	*	*										
			U/S DATA	-3024.510	1378.790	14				.000	.000	.000	2		
11	IS	A JUNCTION	*	*	*			*	*	*	*	*	*		
			U/S DATA	-3018.510	1378.830	16	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
							15	0	.013	32.000	.000	1381.540	.000	45.000	.000
											RADIUS	ANGLE			
											.000	.000			
12	IS	A REACH	*	*	*										
			U/S DATA	-2375.350	1381.400	16				.000	.000	.000	0		
13	IS	A JUNCTION	*	*	*			*	*	*	*	*	*		
			U/S DATA	-2367.350	1382.900	19	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
							17	18	.013	59.000	59.000	1382.900	1384.960	-45.000	45.000
											RADIUS	ANGLE			
											.000	.000			
14	IS	A REACH	*	*	*										
			U/S DATA	-1712.180	1384.560	19				.000	.000	.000	1		
15	IS	A TRANSITION	*	*	*										
			U/S DATA	-1706.680	1384.830	20				.000	.000				
16	IS	A REACH	*	*	*										
			U/S DATA	-1043.520	1387.480	20				.000	.000	.000	0		
17	IS	A JUNCTION	*	*	*			*	*	*	*	*	*		
			U/S DATA	-1035.520	1387.750	22	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
							21	0	.013	59.000	.000	1388.610	.000	60.000	.000
											RADIUS	ANGLE			
											.000	.000			
W S P G W												PAGE NO	4		
WATER SURFACE PROFILE - ELEMENT CARD LISTING															
18	IS	A REACH	*	*	*										
			U/S DATA	-950.000	1388.090	22				.000	.000	.000	2		
19	IS	A TRANSITION	*	*	*										
			U/S DATA	-945.000	1388.170	22				.000	.000				
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS															
20	IS	A REACH	*	*	*										
			U/S DATA	.000	1403.000	23				.000	.000	.000	2		
21	IS	A SYSTEM HEADWORKS	*	*	*			*	*	*	*	*	*		
			U/S DATA	.000	1403.000	23					W S ELEV				
											.000				

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 3:45: 7

REDLANDS MASTERPLAN PROPOSED SD WITH Q25 PER HYDROLOGY

CHURCH ST

FROM SANTA ANA RIVER TO PENNSYLVANIA AVE NAD88 DATUM

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/ I.D.	No ZL	Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-5270.101	1332.670	3.102	1335.772	558.00	37.84	22.23	1358.00	.00	5.78	6.00	6.000	.000	.00	1 .0
18.313	.0795					.0614	1.12	3.10	4.25	2.88	.013	.00	.00	PIPE
-5251.788	1334.126	3.121	1337.247	558.00	37.54	21.88	1359.13	.00	5.78	6.00	6.000	.000	.00	1 .0
83.660	.0795					.0572	4.78	3.12	4.20	2.88	.013	.00	.00	PIPE
-5168.128	1340.779	3.242	1344.021	558.00	35.79	19.89	1363.92	.00	5.78	5.98	6.000	.000	.00	1 .0
57.832	.0795					.0504	2.92	3.24	3.91	2.88	.013	.00	.00	PIPE
-5110.296	1345.377	3.370	1348.747	558.00	34.13	18.09	1366.83	.00	5.78	5.95	6.000	.000	.00	1 .0
43.178	.0795					.0446	1.92	3.37	3.63	2.88	.013	.00	.00	PIPE
-5067.118	1348.811	3.504	1352.315	558.00	32.54	16.44	1368.76	.00	5.78	5.91	6.000	.000	.00	1 .0
33.712	.0795					.0394	1.33	3.50	3.37	2.88	.013	.00	.00	PIPE
-5033.406	1351.491	3.646	1355.138	558.00	31.03	14.95	1370.08	.00	5.78	5.86	6.000	.000	.00	1 .0
27.065	.0795					.0349	.94	3.65	3.12	2.88	.013	.00	.00	PIPE
-5006.341	1353.644	3.797	1357.441	558.00	29.58	13.59	1371.03	.00	5.78	5.78	6.000	.000	.00	1 .0
22.126	.0795					.0309	.68	3.80	2.89	2.88	.013	.00	.00	PIPE
-4984.214	1355.403	3.958	1359.361	558.00	28.20	12.35	1371.71	.00	5.78	5.69	6.000	.000	.00	1 .0
18.289	.0795					.0275	.50	3.96	2.66	2.88	.013	.00	.00	PIPE
-4965.925	1356.857	4.129	1360.987	558.00	26.89	11.23	1372.22	.00	5.78	5.56	6.000	.000	.00	1 .0
15.200	.0795					.0245	.37	4.13	2.45	2.88	.013	.00	.00	PIPE

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 3:45: 7

REDLANDS MASTERPLAN PROPOSED SD WITH Q25 PER HYDROLOGY

CHURCH ST

FROM SANTA ANA RIVER TO PENNSYLVANIA AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
-4950.726 | 1358.066 | 4.314 | 1362.380 | 558.00 | 25.64 | 10.21 | 1372.59 | .00 | 5.78 | 5.39 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 12.625 | .0795 |      |      |      |      | .0219 | .28 | 4.31 | 2.25 | 2.88 | .013 | .00 | .00 | PIPE
-4938.100 | 1359.070 | 4.515 | 1363.585 | 558.00 | 24.45 | 9.28 | 1372.87 | .00 | 5.78 | 5.18 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | JUNCT STR | .0725 |      |      |      |      | .0258 | .10 | 4.51 | 2.05 | .013 | .00 | .00 | PIPE
-4934.100 | 1359.360 | 4.139 | 1363.499 | 502.00 | 27.42 | 11.68 | 1375.18 | .00 | 5.17 | 4.29 | 5.250 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 22.677 | .0478 |      |      |      |      | .0302 | .68 | 4.14 | 2.34 | 3.47 | .013 | .00 | .00 | PIPE
-4911.423 | 1360.445 | 4.233 | 1364.678 | 502.00 | 26.84 | 11.19 | 1375.86 | .00 | 5.17 | 4.15 | 5.250 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 40.125 | .0478 |      |      |      |      | .0282 | 1.13 | 4.23 | 2.23 | 3.47 | .013 | .00 | .00 | PIPE
-4871.297 | 1362.364 | 4.464 | 1366.828 | 502.00 | 25.59 | 10.17 | 1377.00 | .00 | 5.17 | 3.75 | 5.250 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 29.670 | .0478 |      |      |      |      | .0261 | .77 | 4.46 | 1.97 | 3.47 | .013 | .00 | .00 | PIPE
-4841.627 | 1363.784 | 4.742 | 1368.525 | 502.00 | 24.40 | 9.25 | 1377.77 | .00 | 5.17 | 3.10 | 5.250 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 18.527 | .0478 |      |      |      |      | .0255 | .47 | 4.74 | 1.67 | 3.47 | .013 | .00 | .00 | PIPE
-4823.100 | 1364.670 | 5.170 | 1369.840 | 502.00 | 23.26 | 8.40 | 1378.24 | .00 | 5.17 | 1.29 | 5.250 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | JUNCT STR | .2500 |      |      |      |      |      |      | 5.17 | 1.00 | .013 | .00 | .00 | PIPE
-4815.100 | 1366.670 | 4.530 | 1371.200 | 332.00 | 16.72 | 4.34 | 1375.54 | .00 | 4.88 | 3.61 | 5.250 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 72.162 | .0115 |      |      |      |      | .0115 | .83 | 4.53 | 1.26 | 4.53 | .013 | .00 | .00 | PIPE
-4742.938 | 1367.503 | 4.530 | 1372.034 | 332.00 | 16.72 | 4.34 | 1376.37 | .00 | 4.88 | 3.61 | 5.250 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 332.899 | .0115 |      |      |      |      | .0115 | 3.82 | 4.53 | 1.26 | 4.53 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 3:45: 7

REDLANDS MASTERPLAN PROPOSED SD WITH Q25 PER HYDROLOGY

CHURCH ST

FROM SANTA ANA RIVER TO PENNSYLVANIA AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
|-| Elev |-| (FT) |-| Elev |-| (CFS) |-| (FPS) |-| Head |-| Grd.El.|-| Elev |-| Depth |-| Width |-| Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope| | | | | | SF Ave| HF |SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
-4410.040 | 1371.348 | 4.567 | 1375.915 | 332.00 | 16.61 | 4.28 | 1380.20 | .00 | 4.88 | 3.53 | 5.250 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
188.939 | .0115 | | | | | | .0111 | 2.10 | 4.57 | 1.23 | 4.53 | .013 | .00 | .00 | PIPE
-4221.100 | 1373.530 | 4.879 | 1378.409 | 332.00 | 15.83 | 3.89 | 1382.30 | .00 | 4.88 | 2.69 | 5.250 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
TRANS STR | .0036 | | | | | | .0074 | .04 | 4.88 | 1.00 | .013 | .00 | .00 | PIPE
-4215.600 | 1373.550 | 7.525 | 1381.075 | 332.00 | 10.01 | 1.55 | 1382.63 | .00 | 4.89 | .00 | 6.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
530.420 | .0040 | | | | | | .0040 | 2.13 | 7.52 | .00 | 5.35 | .013 | .00 | .00 | PIPE
-3685.180 | 1375.660 | 7.542 | 1383.202 | 332.00 | 10.01 | 1.55 | 1384.76 | .00 | 4.89 | .00 | 6.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
JUNCT STR | .0008 | | | | | | .0040 | 2.63 | 7.54 | .00 | .013 | .00 | .00 | PIPE
-3030.010 | 1376.200 | 9.900 | 1386.100 | 268.00 | 9.48 | 1.40 | 1387.49 | .00 | 4.48 | .00 | 6.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
5.500 | .4709 | | | | | | .0040 | .02 | 9.90 | .00 | 1.23 | .013 | .00 | .00 | PIPE
-3024.510 | 1378.790 | 7.471 | 1386.261 | 268.00 | 9.48 | 1.40 | 1387.66 | .00 | 4.48 | .00 | 6.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
JUNCT STR | .0067 | | | | | | .0036 | .02 | 7.47 | .00 | .013 | .00 | .00 | PIPE
-3018.510 | 1378.830 | 7.766 | 1386.596 | 236.00 | 8.35 | 1.08 | 1387.68 | .00 | 4.21 | .00 | 6.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
643.160 | .0040 | | | | | | .0031 | 2.00 | 7.77 | .00 | 4.37 | .013 | .00 | .00 | PIPE
-2375.350 | 1381.400 | 7.193 | 1388.593 | 236.00 | 8.35 | 1.08 | 1389.67 | .00 | 4.21 | .00 | 6.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
JUNCT STR | .1875 | | | | | | .0022 | .02 | 7.19 | .00 | .013 | .00 | .00 | PIPE
-2367.350 | 1382.900 | 6.410 | 1389.310 | 118.00 | 4.97 | .38 | 1389.69 | .00 | 3.01 | .00 | 5.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
655.170 | .0025 | | | | | | .0012 | .81 | 6.41 | .00 | 3.38 | .013 | .00 | .00 | PIPE

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 3:45: 7

REDLANDS MASTERPLAN PROPOSED SD WITH Q25 PER HYDROLOGY

CHURCH ST

FROM SANTA ANA RIVER TO PENNSYLVANIA AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
-1712.180 | 1384.560 | 5.578 | 1390.138 | 118.00 | 4.97 | .38 | 1390.52 | .00 | 3.01 | .00 | 5.500 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
TRANS STR | .0491 | | | | | .0014 | .01 | 5.58 | .00 | .00 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
-1706.680 | 1384.830 | 5.253 | 1390.083 | 118.00 | 5.45 | .46 | 1390.54 | .00 | 3.06 | .00 | 5.250 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
1.266 | .0040 | | | | | .0016 | .00 | 5.25 | .00 | 3.02 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
-1705.414 | 1384.835 | 5.250 | 1390.085 | 118.00 | 5.45 | .46 | 1390.55 | .00 | 3.06 | .00 | 5.250 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
174.262 | .0040 | | | | | .0015 | .26 | 5.25 | .00 | 3.02 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
-1531.151 | 1385.531 | 4.763 | 1390.295 | 118.00 | 5.72 | .51 | 1390.80 | .00 | 3.06 | 3.04 | 5.250 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
90.496 | .0040 | | | | | .0014 | .13 | 4.76 | .39 | 3.02 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
-1440.655 | 1385.893 | 4.481 | 1390.374 | 118.00 | 6.00 | .56 | 1390.93 | .00 | 3.06 | 3.71 | 5.250 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
72.504 | .0040 | | | | | .0016 | .11 | 4.48 | .46 | 3.02 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
-1368.152 | 1386.183 | 4.248 | 1390.430 | 118.00 | 6.29 | .61 | 1391.04 | .00 | 3.06 | 4.13 | 5.250 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
62.366 | .0040 | | | | | .0017 | .11 | 4.25 | .52 | 3.02 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
-1305.786 | 1386.432 | 4.043 | 1390.475 | 118.00 | 6.60 | .68 | 1391.15 | .00 | 3.06 | 4.42 | 5.250 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
55.299 | .0040 | | | | | .0019 | .10 | 4.04 | .58 | 3.02 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
-1250.487 | 1386.653 | 3.860 | 1390.512 | 118.00 | 6.92 | .74 | 1391.26 | .00 | 3.06 | 4.63 | 5.250 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
49.927 | .0040 | | | | | .0021 | .11 | 3.86 | .64 | 3.02 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
-1200.559 | 1386.852 | 3.691 | 1390.544 | 118.00 | 7.26 | .82 | 1391.36 | .00 | 3.06 | 4.80 | 5.250 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
45.425 | .0040 | | | | | .0024 | .11 | 3.69 | .69 | 3.02 | .013 | .00 | .00 | PIPE
*****

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 3:45: 7

REDLANDS MASTERPLAN PROPOSED SD WITH Q25 PER HYDROLOGY

CHURCH ST

FROM SANTA ANA RIVER TO PENNSYLVANIA AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | | | | | | | | | | |
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
-932.755 | 1388.362 | 3.399 | 1391.761 | 59.00 | 5.18 | .42 | 1392.18 | .00 | 2.31 | 2.86 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
5.383 | .0157 | | | | | | | | | | | | | | | |
-927.371 | 1388.447 | 3.302 | 1391.749 | 59.00 | 5.32 | .44 | 1392.19 | .00 | 2.31 | 3.04 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
HYDRAULIC JUMP
-927.371 | 1388.447 | 1.576 | 1390.023 | 59.00 | 12.82 | 2.55 | 1392.58 | .00 | 2.31 | 3.91 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
521.862 | .0157 | | | | | | | | | | | | | | | |
-405.509 | 1396.636 | 1.576 | 1398.213 | 59.00 | 12.82 | 2.55 | 1400.77 | .00 | 2.31 | 3.91 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
182.649 | .0157 | | | | | | | | | | | | | | | |
-222.860 | 1399.503 | 1.595 | 1401.098 | 59.00 | 12.62 | 2.47 | 1403.57 | .00 | 2.31 | 3.92 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
105.524 | .0157 | | | | | | | | | | | | | | | |
-117.335 | 1401.159 | 1.653 | 1402.812 | 59.00 | 12.04 | 2.25 | 1405.06 | .00 | 2.31 | 3.94 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
43.569 | .0157 | | | | | | | | | | | | | | | |
-73.767 | 1401.842 | 1.714 | 1403.556 | 59.00 | 11.48 | 2.04 | 1405.60 | .00 | 2.31 | 3.96 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
25.494 | .0157 | | | | | | | | | | | | | | | |
-48.273 | 1402.242 | 1.777 | 1404.019 | 59.00 | 10.94 | 1.86 | 1405.88 | .00 | 2.31 | 3.98 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
16.793 | .0157 | | | | | | | | | | | | | | | |
-31.480 | 1402.506 | 1.843 | 1404.349 | 59.00 | 10.43 | 1.69 | 1406.04 | .00 | 2.31 | 3.99 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
11.610 | .0157 | | | | | | | | | | | | | | | |

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 3:45: 7

REDLANDS MASTERPLAN PROPOSED SD WITH Q25 PER HYDROLOGY
CHURCH ST

FROM SANTA ANA RIVER TO PENNSYLVANIA AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
-19.870 | 1402.688 | 1.912 | 1404.600 | 59.00 | 9.95 | 1.54 | 1406.14 | .00 | 2.31 | 4.00 | 4.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |
  8.113 | .0157 | | | | | | .0074 | .06 | 1.91 | 1.44 | 1.58 | .013 | .00 | .00 | PIPE
-11.757 | 1402.815 | 1.984 | 1404.800 | 59.00 | 9.48 | 1.40 | 1406.20 | .00 | 2.31 | 4.00 | 4.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |
  5.566 | .0157 | | | | | | .0065 | .04 | 1.98 | 1.34 | 1.58 | .013 | .00 | .00 | PIPE
-6.192 | 1402.903 | 2.060 | 1404.963 | 59.00 | 9.04 | 1.27 | 1406.23 | .00 | 2.31 | 4.00 | 4.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |
  3.591 | .0157 | | | | | | .0057 | .02 | 2.06 | 1.25 | 1.58 | .013 | .00 | .00 | PIPE
-2.601 | 1402.959 | 2.140 | 1405.099 | 59.00 | 8.62 | 1.15 | 1406.25 | .00 | 2.31 | 3.99 | 4.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |
  1.979 | .0157 | | | | | | .0051 | .01 | 2.14 | 1.16 | 1.58 | .013 | .00 | .00 | PIPE
-.622 | 1402.990 | 2.224 | 1405.214 | 59.00 | 8.22 | 1.05 | 1406.26 | .00 | 2.31 | 3.97 | 4.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |
  .622 | .0157 | | | | | | .0045 | .00 | 2.22 | 1.08 | 1.58 | .013 | .00 | .00 | PIPE
.000 | 1403.000 | 2.313 | 1405.313 | 59.00 | 7.83 | .95 | 1406.27 | .00 | 2.31 | 3.95 | 4.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |

```


WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE WIDTH	PIER WIDTH	HEIGHT 1	BASE DIAMETER	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)	
CD	1	4	1			8.000															
CD	2	4	1			3.000															
CD	3	4	1			8.000															
CD	4	4	1			2.000															
CD	5	4	1			2.000															
CD	6	4	1			8.000															
CD	7	4	1			2.000															
CD	8	4	1			7.000															
CD	9	4	1			2.000															
CD	10	4	1			2.000															
CD	11	4	1			7.000															
CD	12	4	1			2.000															
CD	13	4	1			1.500															
CD	14	4	1			6.000															

W S P G W

PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS - REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

HEADING LINE NO 2 IS - SD 4-10 JUDSON ST

HEADING LINE NO 3 IS - FROM PIONEER AVE TO LUGONIA AVE NAD88 DATUM

W S P G W

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	TYPE	U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4	RADIUS	ANGLE	ANG PT	MAN H	
1	IS	A	SYSTEM OUTLET													1433.500				
2	IS	A	REACH						N							.000	.000	.000	0	
3	IS	A	REACH						N							.000	.000	.000	0	
4	IS	A	JUNCTION						N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4					
			U/S DATA	-3671.000	1459.670	3	2	0	.013	58.270	.000	1464.640	.000	-45.000	.000	.000	.000			
5	IS	A	REACH						N							.000	.000	.000	0	
6	IS	A	JUNCTION						N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4					
			U/S DATA	-3598.000	1460.970	6	4	5	.013	58.270	58.270	1467.220	1467.220	-45.000	45.000	.000	.000			
7	IS	A	REACH						N							.000	.000	.000	0	
8	IS	A	JUNCTION						N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4					
			U/S DATA	-3286.620	1463.720	8	7	0	.013	58.270	.000	1469.950	.000	45.000	.000	.000	.000			

W S P G W

PAGE NO 3

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	9	IS	A	REACH	*	*	*													
		U/S DATA		STATION		INVERT	SECT		N			RADIUS	ANGLE	ANG PT	MAN H					
				-2272.000		1477.800	8		.013			.000	.000	.000	3					
ELEMENT NO	10	IS	A	JUNCTION	*	*	*	*	*											
		U/S DATA		STATION		INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4				
				-2268.000		1478.550	11	9	10	.013	40.440	40.440	1479.050	1479.050	-45.000	45.000				
													RADIUS	ANGLE						
													.000	.000						
ELEMENT NO	11	IS	A	REACH	*	*	*													
		U/S DATA		STATION		INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H				
				-1845.960		1482.940	11			.013			.000	.000	.000	1				
ELEMENT NO	12	IS	A	REACH	*	*	*													
		U/S DATA		STATION		INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H				
				-1651.010		1484.880	11			.013			.000	.000	.000	0				
ELEMENT NO	13	IS	A	JUNCTION	*	*	*	*	*											
		U/S DATA		STATION		INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4				
				-1641.500		1484.980	14	12	13	.013	138.770	138.770	1485.480	1485.480	45.000	45.000				
													RADIUS	ANGLE						
													.000	.000						
ELEMENT NO	14	IS	A	REACH	*	*	*													
		U/S DATA		STATION		INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H				
				-989.520		1491.740	14			.013			.000	.000	.000	3				
ELEMENT NO	15	IS	A	SYSTEM HEADWORKS			*				*									
		U/S DATA		STATION		INVERT	SECT						W S ELEV							
				-989.520		1491.740	14						.000							

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-15-2014 Time: 1:57:22

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-10 JUDSON ST

FROM PIONEER AVE TO LUGONIA AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
-5247.789 | 1430.000 | 3.597 | 1433.597 | 730.27 | 33.32 | 17.24 | 1450.84 | .00 | 6.80 | 7.96 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
106.460 | .0411 | | | | | .0362 | 3.86 | 3.60 | 3.54 | 3.49 | .013 | .00 | .00 | PIPE
-5141.329 | 1434.374 | 3.643 | 1438.017 | 730.27 | 32.77 | 16.68 | 1454.69 | .00 | 6.80 | 7.97 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
176.901 | .0411 | | | | | .0333 | 5.89 | 3.64 | 3.45 | 3.49 | .013 | .00 | .00 | PIPE
-4964.428 | 1441.642 | 3.780 | 1445.422 | 730.27 | 31.25 | 15.16 | 1460.58 | .00 | 6.80 | 7.99 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
104.678 | .0411 | | | | | .0293 | 3.07 | 3.78 | 3.22 | 3.49 | .013 | .00 | .00 | PIPE
-4859.750 | 1445.943 | 3.922 | 1449.866 | 730.27 | 29.79 | 13.78 | 1463.65 | .00 | 6.80 | 8.00 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
72.077 | .0411 | | | | | .0258 | 1.86 | 3.92 | 3.00 | 3.49 | .013 | .00 | .00 | PIPE
-4787.673 | 1448.905 | 4.072 | 1452.977 | 730.27 | 28.41 | 12.53 | 1465.51 | .00 | 6.80 | 8.00 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
53.447 | .0411 | | | | | .0227 | 1.21 | 4.07 | 2.79 | 3.49 | .013 | .00 | .00 | PIPE
-4734.226 | 1451.101 | 4.229 | 1455.330 | 730.27 | 27.08 | 11.39 | 1466.72 | .00 | 6.80 | 7.99 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
41.330 | .0411 | | | | | .0200 | .83 | 4.23 | 2.60 | 3.49 | .013 | .00 | .00 | PIPE
-4692.896 | 1452.799 | 4.394 | 1457.193 | 730.27 | 25.82 | 10.36 | 1467.55 | .00 | 6.80 | 7.96 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
32.779 | .0411 | | | | | .0177 | .58 | 4.39 | 2.41 | 3.49 | .013 | .00 | .00 | PIPE
-4660.117 | 1454.146 | 4.568 | 1458.714 | 730.27 | 24.62 | 9.41 | 1468.13 | .00 | 6.80 | 7.92 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
26.398 | .0411 | | | | | .0156 | .41 | 4.57 | 2.24 | 3.49 | .013 | .00 | .00 | PIPE
-4633.718 | 1455.230 | 4.751 | 1459.981 | 730.27 | 23.48 | 8.56 | 1468.54 | .00 | 6.80 | 7.86 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
21.404 | .0411 | | | | | .0138 | .30 | 4.75 | 2.08 | 3.49 | .013 | .00 | .00 | PIPE

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-15-2014 Time: 1:57:22

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-10 JUDSON ST

FROM PIONEER AVE TO LUGONIA AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
-4467.642 | 1458.760 | 7.877 | 1466.637 | 730.27 | 14.58 | 3.30 | 1469.94 | .00 | 6.80 | 1.97 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
20.649 | .0011 | | | | | .0060 | .12 | 7.88 | .51 | 8.00 | .013 | .00 | .00 | PIPE
-4446.992 | 1458.782 | 8.000 | 1466.782 | 730.27 | 14.53 | 3.28 | 1470.06 | .00 | 6.80 | .00 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
767.992 | .0011 | | | | | .0063 | 4.85 | 8.00 | .00 | 8.00 | .013 | .00 | .00 | PIPE
-3679.000 | 1459.620 | 12.086 | 1471.706 | 730.27 | 14.53 | 3.28 | 1474.98 | .00 | 6.80 | .00 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR | .0063 | | | | | .0059 | .05 | 12.09 | .00 | | | .013 | .00 | .00 | PIPE
-3671.000 | 1459.670 | 12.877 | 1472.547 | 672.00 | 13.37 | 2.78 | 1475.32 | .00 | 6.57 | .00 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
69.000 | .0099 | | | | | .0054 | .37 | 12.88 | .00 | 5.13 | .013 | .00 | .00 | PIPE
-3602.000 | 1460.350 | 12.572 | 1472.922 | 672.00 | 13.37 | 2.78 | 1475.70 | .00 | 6.57 | .00 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR | .1550 | | | | | .0046 | .02 | 12.57 | .00 | | | .013 | .00 | .00 | PIPE
-3598.000 | 1460.970 | 12.849 | 1473.819 | 555.46 | 11.05 | 1.90 | 1475.72 | .00 | 6.01 | .00 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
304.380 | .0089 | | | | | .0037 | 1.13 | 12.85 | .00 | 4.68 | .013 | .00 | .00 | PIPE
-3293.620 | 1463.680 | 11.268 | 1474.948 | 555.46 | 11.05 | 1.90 | 1476.84 | .00 | 6.01 | .00 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR | .0057 | | | | | .0049 | .03 | 11.27 | .00 | | | .013 | .00 | .00 | PIPE
-3286.620 | 1463.720 | 10.528 | 1474.248 | 497.19 | 12.92 | 2.59 | 1476.84 | .00 | 5.83 | .00 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
383.777 | .0139 | | | | | .0061 | 2.32 | 10.53 | .00 | 4.15 | .013 | .00 | .00 | PIPE
-2902.843 | 1469.046 | 7.674 | 1476.720 | 497.19 | 12.92 | 2.59 | 1479.31 | .00 | 5.83 | .00 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
HYDRAULIC JUMP

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-15-2014 Time: 1:57:22

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-10 JUDSON ST

FROM PIONEER AVE TO LUGONIA AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
      | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope|          |          |          |          | SF Ave| HF |SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
-2902.843 | 1469.046 | 4.232 | 1473.277 | 497.19 | 20.44 | 6.49 | 1479.76 | .00 | 5.83 | 6.85 | 7.000 | .000 | .00 | 1 | .0
      | 141.630 | .0139 |          |          |          | .0130 | 1.84 | 4.23 | 1.91 | 4.15 | .013 | .00 | .00 | PIPE
-2761.214 | 1471.011 | 4.260 | 1475.271 | 497.19 | 20.28 | 6.38 | 1481.66 | .00 | 5.83 | 6.83 | 7.000 | .000 | .00 | 1 | .0
      | 229.949 | .0139 |          |          |          | .0121 | 2.79 | 4.26 | 1.89 | 4.15 | .013 | .00 | .00 | PIPE
-2531.264 | 1474.202 | 4.436 | 1478.639 | 497.19 | 19.33 | 5.80 | 1484.44 | .00 | 5.83 | 6.74 | 7.000 | .000 | .00 | 1 | .0
      | 108.764 | .0139 |          |          |          | .0108 | 1.17 | 4.44 | 1.74 | 4.15 | .013 | .00 | .00 | PIPE
-2422.500 | 1475.712 | 4.624 | 1480.336 | 497.19 | 18.43 | 5.28 | 1485.61 | .00 | 5.83 | 6.63 | 7.000 | .000 | .00 | 1 | .0
      | 64.541 | .0139 |          |          |          | .0096 | .62 | 4.62 | 1.61 | 4.15 | .013 | .00 | .00 | PIPE
-2357.959 | 1476.607 | 4.825 | 1481.432 | 497.19 | 17.57 | 4.80 | 1486.23 | .00 | 5.83 | 6.48 | 7.000 | .000 | .00 | 1 | .0
      | 41.000 | .0139 |          |          |          | .0085 | .35 | 4.82 | 1.48 | 4.15 | .013 | .00 | .00 | PIPE
-2316.960 | 1477.176 | 5.041 | 1482.217 | 497.19 | 16.76 | 4.36 | 1486.58 | .00 | 5.83 | 6.28 | 7.000 | .000 | .00 | 1 | .0
      | 25.784 | .0139 |          |          |          | .0076 | .20 | 5.04 | 1.36 | 4.15 | .013 | .00 | .00 | PIPE
-2291.176 | 1477.534 | 5.276 | 1482.810 | 497.19 | 15.98 | 3.96 | 1486.77 | .00 | 5.83 | 6.03 | 7.000 | .000 | .00 | 1 | .0
      | 14.441 | .0139 |          |          |          | .0068 | .10 | 5.28 | 1.24 | 4.15 | .013 | .00 | .00 | PIPE
-2276.736 | 1477.734 | 5.535 | 1483.269 | 497.19 | 15.23 | 3.60 | 1486.87 | .00 | 5.83 | 5.70 | 7.000 | .000 | .00 | 1 | .0
      | 4.736 | .0139 |          |          |          | .0062 | .03 | 5.53 | 1.12 | 4.15 | .013 | .00 | .00 | PIPE
-2272.000 | 1477.800 | 5.827 | 1483.627 | 497.19 | 14.52 | 3.27 | 1486.90 | .00 | 5.83 | 5.23 | 7.000 | .000 | .00 | 1 | .0
JUNCT STR | .1875 |          |          |          |          |          |          | .00 | 5.83 | 1.00 | .013 | .00 | .00 | PIPE

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-15-2014 Time: 1:57:22

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-10 JUDSON ST

FROM PIONEER AVE TO LUGONIA AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
-1543.988 | 1485.991 | 2.340 | 1488.331 | 138.77 | 13.59 | 2.87 | 1491.20 | .00 | 3.19 | 5.85 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
 279.084 | .0104 |      |      |      |      | .0101 | 2.81 | 2.34 | 1.81 | 2.34 | .013 | .00 | .00 | PIPE
-1264.904 | 1488.885 | 2.380 | 1491.265 | 138.77 | 13.29 | 2.74 | 1494.01 | .00 | 3.19 | 5.87 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
 133.904 | .0104 |      |      |      |      | .0092 | 1.23 | 2.38 | 1.76 | 2.34 | .013 | .00 | .00 | PIPE
-1131.000 | 1490.273 | 2.467 | 1492.740 | 138.77 | 12.67 | 2.49 | 1495.23 | .00 | 3.19 | 5.90 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  58.445 | .0104 |      |      |      |      | .0080 | .47 | 2.47 | 1.64 | 2.34 | .013 | .00 | .00 | PIPE
-1072.556 | 1490.879 | 2.557 | 1493.436 | 138.77 | 12.08 | 2.27 | 1495.70 | .00 | 3.19 | 5.93 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  33.776 | .0104 |      |      |      |      | .0071 | .24 | 2.56 | 1.53 | 2.34 | .013 | .00 | .00 | PIPE
-1038.780 | 1491.229 | 2.651 | 1493.880 | 138.77 | 11.52 | 2.06 | 1495.94 | .00 | 3.19 | 5.96 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  21.286 | .0104 |      |      |      |      | .0062 | .13 | 2.65 | 1.43 | 2.34 | .013 | .00 | .00 | PIPE
-1017.494 | 1491.450 | 2.750 | 1494.200 | 138.77 | 10.98 | 1.87 | 1496.07 | .00 | 3.19 | 5.98 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  13.683 | .0104 |      |      |      |      | .0055 | .07 | 2.75 | 1.33 | 2.34 | .013 | .00 | .00 | PIPE
-1003.811 | 1491.592 | 2.853 | 1494.444 | 138.77 | 10.47 | 1.70 | 1496.15 | .00 | 3.19 | 5.99 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
   8.414 | .0104 |      |      |      |      | .0048 | .04 | 2.85 | 1.24 | 2.34 | .013 | .00 | .00 | PIPE
 -995.397 | 1491.679 | 2.961 | 1494.640 | 138.77 |  9.98 | 1.55 | 1496.19 | .00 | 3.19 | 6.00 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
   4.508 | .0104 |      |      |      |      | .0042 | .02 | 2.96 | 1.16 | 2.34 | .013 | .00 | .00 | PIPE
 -990.890 | 1491.726 | 3.074 | 1494.799 | 138.77 |  9.52 | 1.41 | 1496.21 | .00 | 3.19 | 6.00 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
   1.370 | .0104 |      |      |      |      | .0037 | .01 | 3.07 | 1.08 | 2.34 | .013 | .00 | .00 | PIPE
*****

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-15-2014 Time: 1:57:22

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-10 JUDSON ST

FROM PIONEER AVE TO LUGONIA AVE NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
      | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope |      |      |      |      | SF Ave| HF |SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
-989.520 | 1491.740 | 3.193 | 1494.933 | 138.77 | 9.07 | 1.28 | 1496.21 | .00 | 3.19 | 5.99 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

```


WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE WIDTH	PIER WIDTH	HEIGHT 1	BASE DIAMETER	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)	
CD	1	4	1			9.000															
CD	2	4	1			7.000															
CD	3	4	1			1.500															
CD	4	4	1			6.000															
CD	5	4	1			1.500															
CD	6	4	1			6.000															
CD	7	4	1			6.000															
CD	8	4	1			6.000															
CD	9	4	1			4.000															
CD	10	4	1			5.500															
CD	11	4	1			3.000															
CD	12	4	1			5.500															
CD	13	4	1			5.000															
CD	14	4	1			4.000															
CD	15	4	1			4.000															
CD	16	4	1			4.000															

W S P G W
WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS - REDLANDS MASTER PLAN PROPOSED SD
 HEADING LINE NO 2 IS - SD 4-17 LUGONIA ST
 HEADING LINE NO 3 IS - FROM BRYN MAWR TO MISSION CHANNEL

W S P G W
WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	U/S DATA	STATION	INVERT	SECT	W S ELEV	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 1	IS	A	SYSTEM	OUTLET	U/S DATA	5025.130	1096.860	1	1107.670				
ELEMENT NO 2	IS	A	REACH		U/S DATA	5168.750	1097.970	1		.013	.000	.000	0
ELEMENT NO 3	IS	A	REACH		U/S DATA	5839.090	1103.120	1		.013	.000	.000	0
ELEMENT NO 4	IS	A	JUNCTION		U/S DATA	5844.750	1103.660	2		.013	.000	.000	.000
ELEMENT NO 5	IS	A	REACH		U/S DATA	6023.130	1105.140	2		.013	.000	.000	0
ELEMENT NO 6	IS	A	JUNCTION		U/S DATA	6030.130	1105.190	4		.013	26.540	.000	1107.190
ELEMENT NO 7	IS	A	REACH		U/S DATA	6268.130	1106.360	4		.013	.000	.000	.000
ELEMENT NO 8	IS	A	REACH		U/S DATA	6848.380	1112.280	4		.013	.000	.000	.000
ELEMENT NO 9	IS	A	JUNCTION										

		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			6853.880	1112.340	6	5	0	.013	26.540	.000	1114.310	.000	60.000	.000
											RADIUS	ANGLE		
											.000	.000		
W S P G W														
												PAGE NO	3	
WATER SURFACE PROFILE - ELEMENT CARD LISTING														
ELEMENT NO	10	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			7850.780	1117.410	6			.013			.000	.000	.000	0
ELEMENT NO	11	IS A TRANSITION	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE		
			8655.110	1129.630	7			.013			.000	.000		
ELEMENT NO	12	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			8659.110	1129.700	7			.013			.000	.000	.000	0
ELEMENT NO	13	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			8669.930	1129.960	7			.013			13.776	45.000	.000	0
ELEMENT NO	14	IS A JUNCTION	*	*	*	*	*		*	*				
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			8676.640	1130.030	8	0	0	.013	.000	.000	.000	.000	.000	.000
											RADIUS	ANGLE		
											.000	.000		
ELEMENT NO	15	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			9338.580	1136.640	8			.013			.000	.000	.000	1
ELEMENT NO	16	IS A JUNCTION	*	*	*	*	*		*	*				
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			9351.750	1136.780	10	9	0	.013	61.480	.000	1137.460	.000	45.000	.000
											RADIUS	ANGLE		
											.000	.000		
ELEMENT NO	17	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			9485.150	1138.550	10			.013			.000	.000	.000	0
ELEMENT NO	18	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			9685.150	1143.250	10			.013			.000	.000	.000	0
ELEMENT NO	19	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			9947.930	1146.800	10			.013			.000	.000	.000	0
W S P G W														
												PAGE NO	4	
WATER SURFACE PROFILE - ELEMENT CARD LISTING														
ELEMENT NO	20	IS A JUNCTION	*	*	*	*	*		*	*				
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			9962.930	1146.920	12	11	0	.013	61.480	.000	1148.300	.000	45.000	.000
											RADIUS	ANGLE		
											.000	.000		
ELEMENT NO	21	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			10035.200	1147.850	12			.013			.000	.000	.000	0
ELEMENT NO	22	IS A TRANSITION	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE		
			10908.600	1159.620	13			.013			.000	.000		
ELEMENT NO	23	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			11338.600	1167.880	13			.013			.000	.000	.000	0
ELEMENT NO	24	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			11426.600	1169.140	13			.013			.000	.000	.000	1
ELEMENT NO	25	IS A REACH	*	*	*									

ELEMENT NO	IS A	DESCRIPTION	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
26	IS A	JUNCTION	12026.600	1176.820	13	.013	.000	.000	.000	1
U/S DATA			12598.600	1182.570	13	.013	144.880	.000	1190.020	.000
U/S DATA					5	0	Q3	Q4	INVERT-3	INVERT-4
U/S DATA					13	5	0	.000	90.000	.000
U/S DATA					13				PHI 3	PHI 4
U/S DATA					13					
27	IS A	REACH								
U/S DATA			12617.600	1182.730	13	.013	.000	.000	.000	0
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS										
28	IS A	REACH								
U/S DATA			12655.300	1183.340	14	.013	.000	.000	.000	0
29	IS A	TRANSITION								
U/S DATA			12714.600	1184.000	15	.013	.000	.000		
W S P G W										PAGE NO 5
WATER SURFACE PROFILE - ELEMENT CARD LISTING										
30	IS A	REACH								
U/S DATA			12718.600	1184.360	15	.013	.000	.000	.000	0
31	IS A	REACH								
U/S DATA			13451.700	1192.050	15	.013	.000	.000	.000	0
32	IS A	TRANSITION								
U/S DATA			13989.800	1202.520	16	.013	.000	.000		
33	IS A	REACH								
U/S DATA			15203.800	1221.010	16	.013	.000	.000	.000	3
34	IS A	REACH								
U/S DATA			15263.000	1224.670	16	.013	.000	.000	.000	0
35	IS A	SYSTEM HEADWORKS								
U/S DATA			15263.000	1224.670	16		W S ELEV	.000		

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 1:51:29

REDLANDS MASTER PLAN PROPOSED SD

SD 4-17 LUGONIA ST

FROM BRYN MAWR TO MISSION CHANNEL

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
|-| Elev |-| (FT) |-| Elev |-| (CFS) |-| (FPS) |-| Head |-| Grd.El. |-| Elev |-| Depth | Width | Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope| | | | | | | SF Ave| HF |SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
7850.780 | 1117.410 | 12.928 | 1130.338 | 415.12 | 14.68 | 3.35 | 1133.68 | .00 | 5.40 | .00 | 6.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
TRANS STR | .0152 | | | | | | | .0096 | 7.73 | 12.93 | .00 | .013 | .00 | .00 | PIPE
8655.110 | 1129.630 | 8.435 | 1138.065 | 415.12 | 14.68 | 3.35 | 1141.41 | .00 | 5.40 | .00 | 6.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
4.000 | .0175 | | | | | | | .0096 | .04 | 8.44 | .00 | 3.85 | .013 | .00 | .00 | PIPE
8659.110 | 1129.700 | 8.404 | 1138.104 | 415.12 | 14.68 | 3.35 | 1141.45 | .00 | 5.40 | .00 | 6.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
10.819 | .0240 | | | | | | | .0096 | .10 | .00 | .00 | 3.46 | .013 | .00 | .00 | PIPE
8669.930 | 1129.960 | 8.721 | 1138.681 | 415.12 | 14.68 | 3.35 | 1142.03 | .00 | 5.40 | .00 | 6.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
JUNCT STR | .0104 | | | | | | | .0096 | .06 | 8.72 | .00 | .013 | .00 | .00 | PIPE
8676.640 | 1130.030 | 8.716 | 1138.746 | 415.12 | 14.68 | 3.35 | 1142.09 | .00 | 5.40 | .00 | 6.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
661.940 | .0100 | | | | | | | .0096 | 6.36 | 8.72 | .00 | 4.82 | .013 | .00 | .00 | PIPE
9338.580 | 1136.640 | 8.633 | 1145.273 | 415.12 | 14.68 | 3.35 | 1148.62 | .00 | 5.40 | .00 | 6.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
JUNCT STR | .0106 | | | | | | | .0103 | .14 | 8.63 | .00 | .013 | .00 | .00 | PIPE
9351.750 | 1136.780 | 9.367 | 1146.147 | 353.64 | 14.88 | 3.44 | 1149.59 | .00 | 5.04 | .00 | 5.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
133.400 | .0133 | | | | | | | .0111 | 1.48 | 9.37 | .00 | 4.13 | .013 | .00 | .00 | PIPE
9485.150 | 1138.550 | 9.076 | 1147.626 | 353.64 | 14.88 | 3.44 | 1151.07 | .00 | 5.04 | .00 | 5.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
200.000 | .0235 | | | | | | | .0111 | 2.22 | 9.08 | .00 | 3.35 | .013 | .00 | .00 | PIPE
9685.150 | 1143.250 | 6.594 | 1149.844 | 353.64 | 14.88 | 3.44 | 1153.28 | .00 | 5.04 | .00 | 5.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
262.779 | .0135 | | | | | | | .0111 | 2.91 | 6.59 | .00 | 4.10 | .013 | .00 | .00 | PIPE

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 1:51:29

REDLANDS MASTER PLAN PROPOSED SD

SD 4-17 LUGONIA ST

FROM BRYN MAWR TO MISSION CHANNEL

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
11765.860 | 1173.482 | 4.111 | 1177.593 | 292.16 | 16.92 | 4.44 | 1182.04 | .00 | 4.64 | 3.82 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 214.949 | .0128 |      |      |      |      | .0120 | 2.58 | 4.11 | 1.40 | 4.06 | .013 | .00 | .00 | PIPE
11980.810 | 1176.234 | 4.344 | 1180.578 | 292.16 | 16.13 | 4.04 | 1184.62 | .00 | 4.64 | 3.38 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 45.792 | .0128 |      |      |      |      | .0112 | .51 | 4.34 | 1.23 | 4.06 | .013 | .00 | .00 | PIPE
12026.600 | 1176.820 | 4.639 | 1181.459 | 292.16 | 15.38 | 3.67 | 1185.13 | .00 | 4.64 | 2.59 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | JUNCT STR | .0101 |      |      |      |      | .0070 | 4.03 | 4.64 | 1.00 |      | .013 | .00 | .00 | PIPE
12598.600 | 1182.570 | 8.364 | 1190.934 | 147.28 | 7.50 | .87 | 1191.81 | .00 | 3.48 | .00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 19.000 | .0084 |      |      |      |      | .0032 | .06 | 8.36 | .00 | 2.84 | .013 | .00 | .00 | PIPE
12617.600 | 1182.730 | 8.264 | 1190.995 | 147.28 | 11.72 | 2.13 | 1193.13 | .00 | 3.57 | .00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 37.700 | .0162 |      |      |      |      | .0105 | .40 | 8.26 | .00 | 2.72 | .013 | .00 | .00 | PIPE
12655.300 | 1183.340 | 8.051 | 1191.391 | 147.28 | 11.72 | 2.13 | 1193.52 | .00 | 3.57 | .00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | TRANS STR | .0111 |      |      |      |      | .0105 | .62 | 8.05 | .00 |      | .013 | .00 | .00 | PIPE
12714.600 | 1184.000 | 8.014 | 1192.014 | 147.28 | 11.72 | 2.13 | 1194.15 | .00 | 3.57 | .00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 4.000 | .0900 |      |      |      |      | .0105 | .04 | 8.01 | .00 | 1.61 | .013 | .00 | .00 | PIPE
12718.600 | 1184.360 | 7.696 | 1192.056 | 147.28 | 11.72 | 2.13 | 1194.19 | .00 | 3.57 | .00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 733.101 | .0105 |      |      |      |      | .0105 | 7.71 | 7.70 | .00 | 3.28 | .013 | .00 | .00 | PIPE
13451.700 | 1192.050 | 7.713 | 1199.763 | 147.28 | 11.72 | 2.13 | 1201.90 | .00 | 3.57 | .00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | TRANS STR | .0195 |      |      |      |      |      |      | 7.71 | .00 |      | .013 | .00 | .00 | PIPE

```

REDLANDS MASTER PLAN PROPOSED SD

SD 4-17 LUGONIA ST

FROM BRYN MAWR TO MISSION CHANNEL

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
        | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
13989.800 | 1202.520 | 2.784 | 1205.304 | 147.28 | 15.78 | 3.86 | 1209.17 | .00 | 3.57 | 3.68 | 4.000 | .000 | .00 | 1 | .0
        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
        646.860 | .0152 |      |      |      |      | .0152 | 9.85 | 2.78 | 1.75 | 2.78 | .013 | .00 | .00 | PIPE
14636.660 | 1212.372 | 2.784 | 1215.156 | 147.28 | 15.78 | 3.86 | 1219.02 | .00 | 3.57 | 3.68 | 4.000 | .000 | .00 | 1 | .0
        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
        288.215 | .0152 |      |      |      |      | .0161 | 4.65 | 2.78 | 1.75 | 2.78 | .013 | .00 | .00 | PIPE
14924.870 | 1216.762 | 2.673 | 1219.434 | 147.28 | 16.51 | 4.23 | 1223.67 | .00 | 3.57 | 3.77 | 4.000 | .000 | .00 | 1 | .0
        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
        110.592 | .0152 |      |      |      |      | .0181 | 2.00 | 2.67 | 1.89 | 2.78 | .013 | .00 | .00 | PIPE
15035.470 | 1218.446 | 2.563 | 1221.009 | 147.28 | 17.31 | 4.65 | 1225.66 | .00 | 3.57 | 3.84 | 4.000 | .000 | .00 | 1 | .0
        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
        70.793 | .0152 |      |      |      |      | .0204 | 1.44 | 2.56 | 2.05 | 2.78 | .013 | .00 | .00 | PIPE
15106.260 | 1219.524 | 2.461 | 1221.985 | 147.28 | 18.16 | 5.12 | 1227.10 | .00 | 3.57 | 3.89 | 4.000 | .000 | .00 | 1 | .0
        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
        53.624 | .0152 |      |      |      |      | .0230 | 1.23 | 2.46 | 2.22 | 2.78 | .013 | .00 | .00 | PIPE
15159.880 | 1220.341 | 2.365 | 1222.706 | 147.28 | 19.04 | 5.63 | 1228.34 | .00 | 3.57 | 3.93 | 4.000 | .000 | .00 | 1 | .0
        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
        43.917 | .0152 |      |      |      |      | .0260 | 1.14 | 2.36 | 2.39 | 2.78 | .013 | .00 | .00 | PIPE
15203.800 | 1221.010 | 2.273 | 1223.284 | 147.28 | 19.97 | 6.19 | 1229.48 | .00 | 3.57 | 3.96 | 4.000 | .000 | .00 | 1 | .0
        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
        12.585 | .0618 |      |      |      |      | .0261 | .33 | 2.27 | 2.58 | 1.79 | .013 | .00 | .00 | PIPE
15216.390 | 1221.788 | 2.360 | 1224.148 | 147.28 | 19.09 | 5.66 | 1229.81 | .00 | 3.57 | 3.93 | 4.000 | .000 | .00 | 1 | .0
        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
        10.818 | .0618 |      |      |      |      | .0231 | .25 | 2.36 | 2.40 | 1.79 | .013 | .00 | .00 | PIPE
15227.200 | 1222.457 | 2.456 | 1224.913 | 147.28 | 18.21 | 5.15 | 1230.06 | .00 | 3.57 | 3.89 | 4.000 | .000 | .00 | 1 | .0
        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
        8.850 | .0618 |      |      |      |      | .0205 | .18 | 2.46 | 2.23 | 1.79 | .013 | .00 | .00 | PIPE
*****

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 1:51:29

REDLANDS MASTER PLAN PROPOSED SD

SD 4-17 LUGONIA ST

FROM BRYN MAWR TO MISSION CHANNEL

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
15236.050 | 1223.004 | 2.558 | 1225.562 | 147.28 | 17.36 | 4.68 | 1230.24 | .00 | 3.57 | 3.84 | 4.000 | .000 | .00 | 1 | .0
      | 7.256 | .0618 |      |      |      |      | .0182 | .13 | 2.56 | 2.06 | 1.79 | .013 | .00 | .00 | PIPE
15243.310 | 1223.453 | 2.666 | 1226.119 | 147.28 | 16.55 | 4.25 | 1230.37 | .00 | 3.57 | 3.77 | 4.000 | .000 | .00 | 1 | .0
      | 5.916 | .0618 |      |      |      |      | .0162 | .10 | 2.67 | 1.90 | 1.79 | .013 | .00 | .00 | PIPE
15249.230 | 1223.819 | 2.783 | 1226.602 | 147.28 | 15.78 | 3.87 | 1230.47 | .00 | 3.57 | 3.68 | 4.000 | .000 | .00 | 1 | .0
      | 4.764 | .0618 |      |      |      |      | .0144 | .07 | 2.78 | 1.75 | 1.79 | .013 | .00 | .00 | PIPE
15253.990 | 1224.113 | 2.909 | 1227.022 | 147.28 | 15.05 | 3.52 | 1230.54 | .00 | 3.57 | 3.56 | 4.000 | .000 | .00 | 1 | .0
      | 3.734 | .0618 |      |      |      |      | .0129 | .05 | 2.91 | 1.60 | 1.79 | .013 | .00 | .00 | PIPE
15257.720 | 1224.344 | 3.046 | 1227.390 | 147.28 | 14.35 | 3.20 | 1230.59 | .00 | 3.57 | 3.41 | 4.000 | .000 | .00 | 1 | .0
      | 2.771 | .0618 |      |      |      |      | .0116 | .03 | 3.05 | 1.46 | 1.79 | .013 | .00 | .00 | PIPE
15260.490 | 1224.515 | 3.197 | 1227.712 | 147.28 | 13.68 | 2.91 | 1230.62 | .00 | 3.57 | 3.20 | 4.000 | .000 | .00 | 1 | .0
      | 1.808 | .0618 |      |      |      |      | .0105 | .02 | 3.20 | 1.31 | 1.79 | .013 | .00 | .00 | PIPE
15262.300 | 1224.627 | 3.368 | 1227.995 | 147.28 | 13.04 | 2.64 | 1230.64 | .00 | 3.57 | 2.92 | 4.000 | .000 | .00 | 1 | .0
      | .698 | .0618 |      |      |      |      | .0097 | .01 | 3.37 | 1.17 | 1.79 | .013 | .00 | .00 | PIPE
15263.000 | 1224.670 | 3.573 | 1228.243 | 147.28 | 12.43 | 2.40 | 1230.64 | .00 | 3.57 | 2.47 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

```


WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE WIDTH	PIER WIDTH	HEIGHT 1	BASE DIAMETER	WIDTH	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)	
CD	1	2	0	.000		3.000	10.000				.00											
CD	2	4	1			5.000																
CD	3	4	1			2.500																
CD	4	4	1			5.000																
CD	5	4	1			2.000																
CD	6	4	1			5.000																
CD	7	4	1			4.500																
CD	11	4	1			3.000																
CD	12	4	1			4.500																
CD	13	4	1			1.500																
CD	14	4	1			1.500																
CD	15	4	1			1.500																
CD	16	4	1			4.000																
CD	17	4	1			2.500																
CD	18	4	1			3.500																
CD	19	4	1			2.500																
CD	20	4	1			3.000																

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
 HEADING LINE NO 2 IS -
 HEADING LINE NO 3 IS -

REDLANDS MASTERPLAN PROPOSED SD SIZE
 SD 4-18 REDLANDS BLVD AT CALIFORNIA ST
 FROM IOWA ST TO CALIFORNIA ST

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS A	SYSTEM	OUTLET	U/S DATA	STATION	INVERT	SECT	W S ELEV	RADIUS	ANGLE	ANG PT	MAN H
1	IS A	SYSTEM	OUTLET		.000	1160.000	1	1159.830				
2	IS A	REACH			1000.000	1162.650	1		.000	.000	.000	0
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS												
3	IS A	REACH			1330.610	1167.610	2		.000	.000	.000	1
4	IS A	JUNCTION			1338.680	1167.730	4					
5	IS A	REACH			1802.340	1174.690	4		.000	.000	.000	0
6	IS A	REACH			2197.670	1178.250	4		.000	.000	.000	0
7	IS A	JUNCTION			2202.330	1178.290	6					
8	IS A	REACH										

ELEMENT NO	9	IS A	JUNCTION	2603.420	1181.890	6			.013			.000	.000	.000	0
			U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
				2611.490	1182.420	7	0	0	.013	.000	.000	.000	.000	.000	.000
												RADIUS	ANGLE		
												.000	.000		

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	10	IS A	REACH						N			RADIUS	ANGLE	ANG PT	MAN H
			U/S DATA	STATION	INVERT	SECT						.000	.000	.000	0
				2650.000	1182.570	7			.013						
ELEMENT NO	11	IS A	JUNCTION						N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
				2650.020	1182.570	12	11	0	.013	15.110	.000	1180.650	.000	90.000	.000
												RADIUS	ANGLE		
												.000	.000		

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

ELEMENT NO	12	IS A	REACH						N			RADIUS	ANGLE	ANG PT	MAN H
			U/S DATA	STATION	INVERT	SECT						.000	.000	.000	0
				2710.500	1182.830	12			.013						
ELEMENT NO	13	IS A	JUNCTION						N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
				2716.500	1183.830	16	13	14	.013	15.110	15.110	1183.910	1182.760	-40.000	80.000
												RADIUS	ANGLE		
												.000	.000		

ELEMENT NO	14	IS A	REACH						N			RADIUS	ANGLE	ANG PT	MAN H
			U/S DATA	STATION	INVERT	SECT						.000	.000	.000	0
				2948.500	1188.280	16			.013						

ELEMENT NO	15	IS A	REACH						N			RADIUS	ANGLE	ANG PT	MAN H
			U/S DATA	STATION	INVERT	SECT						.000	.000	.000	0
				3050.000	1188.790	16			.013						

ELEMENT NO	16	IS A	REACH						N			RADIUS	ANGLE	ANG PT	MAN H
			U/S DATA	STATION	INVERT	SECT						45.000	43.940	.000	0
				3084.510	1188.960	16			.013						

ELEMENT NO	17	IS A	REACH						N			RADIUS	ANGLE	ANG PT	MAN H
			U/S DATA	STATION	INVERT	SECT						.000	.000	.000	0
				3101.660	1189.050	16			.013						

ELEMENT NO	18	IS A	REACH						N			RADIUS	ANGLE	ANG PT	MAN H
			U/S DATA	STATION	INVERT	SECT						.000	.000	.000	0
				3126.740	1189.310	16			.013						

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	19	IS A	REACH						N			RADIUS	ANGLE	ANG PT	MAN H
			U/S DATA	STATION	INVERT	SECT						45.000	-43.940	.000	0
				3161.250	1189.680	16			.013						

ELEMENT NO	20	IS A	REACH						N			RADIUS	ANGLE	ANG PT	MAN H
			U/S DATA	STATION	INVERT	SECT						.000	.000	.000	0
				3349.260	1191.940	16			.013						

ELEMENT NO	21	IS A	JUNCTION						N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
				3356.260	1192.180	18	17	0	.013	32.500	.001	189.650	.000	90.000	.000
												RADIUS	ANGLE		
												.000	.000		

ELEMENT NO	22	IS A	REACH						N			RADIUS	ANGLE	ANG PT	MAN H
			U/S DATA	STATION	INVERT	SECT						.000	.000	.000	1
				3959.950	1200.930	18			.013						

ELEMENT NO	23	IS A	JUNCTION						N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
				3967.950	1201.020	20	19	0	.013	19.710	.001	198.560	.000	90.000	.000

ELEMENT NO	24	IS A REACH	*	*	*			RADIUS	ANGLE		
		U/S DATA	STATION	INVERT	SECT	N		.000	.000		
			4461.500	1208.120	20	.013		RADIUS	ANGLE	ANG PT	MAN H
								.000	.000	.000	1
ELEMENT NO	25	IS A SYSTEM HEADWORKS			*		*				
		U/S DATA	STATION	INVERT	SECT			W S ELEV			
			4461.500	1208.120	20			.000			

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4- 9-2014 Time:12: 1:37

REDLANDS MASTERPLAN PROPOSED SD SIZE
SD 4-18 REDLANDS BLVD AT CALIFORNIA ST
FROM IOWA ST TO CALIFORNIA ST

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
.000 | 1160.000 | 2.777 | 1162.777 | 262.59 | 9.46 | 1.39 | 1164.17 | .00 | 2.78 | 10.00 | 3.000 | 10.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
11.928 | .0027 | | | | | .0034 | .04 | 2.78 | 1.00 | 3.11 | .014 | .00 | .00 | RECTANG
| | | | | | | | | | | | | | | | |
11.928 | 1160.032 | 2.913 | 1162.944 | 262.59 | 9.02 | 1.26 | 1164.21 | .00 | 2.78 | 10.00 | 3.000 | 10.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
79.062 | .0027 | | | | | .0030 | .24 | 2.91 | .93 | 3.11 | .014 | .00 | .00 | RECTANG
| | | | | | | | | | | | | | | | |
90.990 | 1160.241 | 3.055 | 1163.296 | 262.59 | 8.60 | 1.15 | 1164.44 | .00 | 2.78 | 10.00 | 3.000 | 10.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
222.966 | .0027 | | | | | .0027 | .61 | 3.05 | .87 | 3.11 | .014 | .00 | .00 | RECTANG
| | | | | | | | | | | | | | | | |
313.956 | 1160.832 | 3.113 | 1163.945 | 262.59 | 8.44 | 1.11 | 1165.05 | .00 | 2.78 | 10.00 | 3.000 | 10.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
686.044 | .0027 | | | | | .0026 | 1.82 | 3.11 | .84 | 3.11 | .014 | .00 | .00 | RECTANG
| | | | | | | | | | | | | | | | |
1000.000 | 1162.650 | 3.113 | 1165.763 | 262.59 | 8.44 | 1.11 | 1166.87 | .00 | 2.78 | 10.00 | 3.000 | 10.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
1000.000 | 1162.650 | 3.529 | 1166.179 | 262.59 | 17.73 | 4.88 | 1171.06 | .00 | 4.50 | 4.56 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
160.190 | .0150 | | | | | .0136 | 2.18 | 3.53 | 1.73 | 3.46 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
1160.190 | 1165.053 | 3.653 | 1168.707 | 262.59 | 17.08 | 4.53 | 1173.24 | .00 | 4.50 | 4.44 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
89.883 | .0150 | | | | | .0123 | 1.11 | 3.65 | 1.62 | 3.46 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
1250.073 | 1166.402 | 3.826 | 1170.228 | 262.59 | 16.29 | 4.12 | 1174.35 | .00 | 4.50 | 4.24 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
47.031 | .0150 | | | | | .0111 | .52 | 3.83 | 1.47 | 3.46 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
1297.104 | 1167.107 | 4.018 | 1171.125 | 262.59 | 15.53 | 3.74 | 1174.87 | .00 | 4.50 | 3.97 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
24.975 | .0150 | | | | | .0101 | .25 | 4.02 | 1.33 | 3.46 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
1322.079 | 1167.482 | 4.235 | 1171.717 | 262.59 | 14.81 | 3.40 | 1175.12 | .00 | 4.50 | 3.60 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
8.531 | .0150 | | | | | .0093 | .08 | 4.24 | 1.18 | 3.46 | .013 | .00 | .00 | PIPE

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4- 9-2014 Time:12: 1:37

REDLANDS MASTERPLAN PROPOSED SD SIZE
SD 4-18 REDLANDS BLVD AT CALIFORNIA ST
FROM IOWA ST TO CALIFORNIA ST

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
3016.374 | 1188.621 | 3.394 | 1192.015 | 108.45 | 9.54 | 1.41 | 1193.43 | .00 | 3.15 | 2.87 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
HYDRAULIC JUMP
3016.374 | 1188.621 | 2.916 | 1191.537 | 108.45 | 11.05 | 1.90 | 1193.43 | .00 | 3.15 | 3.56 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 9.625 | .0050 |      |      |      |      | .0075 | .07 | 2.92 | 1.17 | 3.59 | .013 | .00 | .00 | PIPE
3025.999 | 1188.669 | 2.865 | 1191.535 | 108.45 | 11.26 | 1.97 | 1193.50 | .00 | 3.15 | 3.61 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 24.001 | .0050 |      |      |      |      | .0081 | .20 | 2.87 | 1.21 | 3.59 | .013 | .00 | .00 | PIPE
3050.000 | 1188.790 | 2.743 | 1191.533 | 108.45 | 11.81 | 2.16 | 1193.70 | .18 | 3.15 | 3.71 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 9.861 | .0049 |      |      |      |      | .0088 | .09 | 2.92 | 1.32 | 4.00 | .013 | .00 | .00 | PIPE
3059.861 | 1188.839 | 2.696 | 1191.534 | 108.45 | 12.04 | 2.25 | 1193.78 | .19 | 3.15 | 3.75 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 24.649 | .0049 |      |      |      |      | .0096 | .24 | 2.88 | 1.37 | 4.00 | .013 | .00 | .00 | PIPE
3084.510 | 1188.960 | 2.585 | 1191.545 | 108.45 | 12.63 | 2.48 | 1194.02 | .00 | 3.15 | 3.82 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 17.150 | .0053 |      |      |      |      | .0105 | .18 | 2.59 | 1.48 | 3.45 | .013 | .00 | .00 | PIPE
3101.660 | 1189.050 | 2.516 | 1191.566 | 108.45 | 13.03 | 2.64 | 1194.20 | .00 | 3.15 | 3.86 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 25.080 | .0104 |      |      |      |      | .0110 | .28 | 2.52 | 1.56 | 2.56 | .013 | .00 | .00 | PIPE
3126.740 | 1189.310 | 2.504 | 1191.814 | 108.45 | 13.10 | 2.66 | 1194.48 | .46 | 3.15 | 3.87 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 34.510 | .0107 |      |      |      |      | .0112 | .39 | 2.96 | 1.58 | 2.53 | .013 | .00 | .00 | PIPE
3161.250 | 1189.680 | 2.493 | 1192.174 | 108.45 | 13.17 | 2.69 | 1194.87 | .00 | 3.15 | 3.88 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 48.587 | .0120 |      |      |      |      | .0110 | .54 | 2.49 | 1.59 | 2.44 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4- 9-2014 Time:12: 1:37

REDLANDS MASTERPLAN PROPOSED SD SIZE
SD 4-18 REDLANDS BLVD AT CALIFORNIA ST
FROM IOWA ST TO CALIFORNIA ST

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
3209.838 | 1190.264 | 2.525 | 1192.789 | 108.45 | 12.97 | 2.61 | 1195.40 | .00 | 3.15 | 3.86 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
73.378 | .0120 | | | | | .0102 | .75 | 2.53 | 1.55 | 2.44 | .013 | .00 | .00 | PIPE
3283.216 | 1191.146 | 2.632 | 1193.778 | 108.45 | 12.37 | 2.38 | 1196.15 | .00 | 3.15 | 3.80 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
34.866 | .0120 | | | | | .0091 | .32 | 2.63 | 1.43 | 2.44 | .013 | .00 | .00 | PIPE
3318.082 | 1191.565 | 2.746 | 1194.311 | 108.45 | 11.79 | 2.16 | 1196.47 | .00 | 3.15 | 3.71 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
18.808 | .0120 | | | | | .0081 | .15 | 2.75 | 1.32 | 2.44 | .013 | .00 | .00 | PIPE
3336.890 | 1191.791 | 2.868 | 1194.660 | 108.45 | 11.25 | 1.96 | 1196.62 | .00 | 3.15 | 3.60 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
9.508 | .0120 | | | | | .0072 | .07 | 2.87 | 1.21 | 2.44 | .013 | .00 | .00 | PIPE
3346.398 | 1191.906 | 3.002 | 1194.907 | 108.45 | 10.72 | 1.79 | 1196.69 | .00 | 3.15 | 3.46 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
2.862 | .0120 | | | | | .0065 | .02 | 3.00 | 1.11 | 2.44 | .013 | .00 | .00 | PIPE
3349.260 | 1191.940 | 3.149 | 1195.089 | 108.45 | 10.22 | 1.62 | 1196.71 | .00 | 3.15 | 3.27 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR | .0343 | | | | | .0059 | .04 | 3.15 | 1.00 | | | .013 | .00 | .00 | PIPE
3356.260 | 1192.180 | 4.512 | 1196.692 | 75.95 | 7.89 | .97 | 1197.66 | .00 | 2.73 | .00 | 3.500 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
106.189 | .0145 | | | | | .0057 | .61 | 4.51 | .00 | 2.01 | .013 | .00 | .00 | PIPE
3462.449 | 1193.719 | 3.586 | 1197.305 | 75.95 | 7.89 | .97 | 1198.27 | .00 | 2.73 | .00 | 3.500 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
HYDRAULIC JUMP
3462.449 | 1193.719 | 2.009 | 1195.728 | 75.95 | 13.29 | 2.74 | 1198.47 | .00 | 2.73 | 3.46 | 3.500 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
35.313 | .0145 | | | | | .0145 | .51 | 2.01 | 1.82 | 2.01 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4- 9-2014 Time:12: 1:37

REDLANDS MASTERPLAN PROPOSED SD SIZE
SD 4-18 REDLANDS BLVD AT CALIFORNIA ST
FROM IOWA ST TO CALIFORNIA ST

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
3497.762 | 1194.231 | 2.009 | 1196.240 | 75.95 | 13.29 | 2.74 | 1198.98 | .00 | 2.73 | 3.46 | 3.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
203.929 | .0145 |      |      |      |      |      | .0143 | 2.92 | 2.01 | 1.82 | 2.01 | .013 | .00 | .00 | PIPE
3701.691 | 1197.187 | 2.022 | 1199.209 | 75.95 | 13.19 | 2.70 | 1201.91 | .00 | 2.73 | 3.46 | 3.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
145.552 | .0145 |      |      |      |      |      | .0134 | 1.95 | 2.02 | 1.80 | 2.01 | .013 | .00 | .00 | PIPE
3847.243 | 1199.297 | 2.104 | 1201.401 | 75.95 | 12.57 | 2.45 | 1203.85 | .00 | 2.73 | 3.43 | 3.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
51.344 | .0145 |      |      |      |      |      | .0118 | .61 | 2.10 | 1.67 | 2.01 | .013 | .00 | .00 | PIPE
3898.588 | 1200.041 | 2.191 | 1202.231 | 75.95 | 11.99 | 2.23 | 1204.46 | .00 | 2.73 | 3.39 | 3.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
27.685 | .0145 |      |      |      |      |      | .0105 | .29 | 2.19 | 1.54 | 2.01 | .013 | .00 | .00 | PIPE
3926.272 | 1200.442 | 2.283 | 1202.724 | 75.95 | 11.43 | 2.03 | 1204.75 | .00 | 2.73 | 3.33 | 3.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
16.636 | .0145 |      |      |      |      |      | .0093 | .16 | 2.28 | 1.43 | 2.01 | .013 | .00 | .00 | PIPE
3942.908 | 1200.683 | 2.381 | 1203.064 | 75.95 | 10.90 | 1.84 | 1204.91 | .00 | 2.73 | 3.26 | 3.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
10.011 | .0145 |      |      |      |      |      | .0083 | .08 | 2.38 | 1.31 | 2.01 | .013 | .00 | .00 | PIPE
3952.919 | 1200.828 | 2.487 | 1203.315 | 75.95 | 10.39 | 1.68 | 1204.99 | .00 | 2.73 | 3.17 | 3.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
5.364 | .0145 |      |      |      |      |      | .0074 | .04 | 2.49 | 1.21 | 2.01 | .013 | .00 | .00 | PIPE
3958.284 | 1200.906 | 2.601 | 1203.507 | 75.95 | 9.91 | 1.52 | 1205.03 | .00 | 2.73 | 3.06 | 3.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1.666 | .0145 |      |      |      |      |      | .0066 | .01 | 2.60 | 1.10 | 2.01 | .013 | .00 | .00 | PIPE
3959.950 | 1200.930 | 2.727 | 1203.657 | 75.95 | 9.44 | 1.38 | 1205.04 | .00 | 2.73 | 2.90 | 3.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0112 |      |      |      |      |      | .0067 | .05 | 2.73 | 1.00 |      | .013 | .00 | .00 | PIPE

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4- 9-2014 Time:12: 1:37

REDLANDS MASTERPLAN PROPOSED SD SIZE
SD 4-18 REDLANDS BLVD AT CALIFORNIA ST
FROM IOWA ST TO CALIFORNIA ST

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
      | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope |      |      |      |      | SF Ave| HF |SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
4461.500 | 1208.120 | 2.431 | 1210.551 | 56.24 | 9.17 | 1.30 | 1211.86 | .00 | 2.43 | 2.35 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

```


WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING										PAGE 1										
CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE WIDTH	PIER WIDTH	HEIGHT 1	BASE DIAMETER	ZL WIDTH	ZR WIDTH	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	1			6.000														
CD	2	4	1			2.000														
CD	3	4	1			4.000														
CD	4	4	1			3.000														
CD	5	4	1			6.000														
CD	6	4	1			1.000														
CD	7	4	1			5.000														
CD	8	4	1			2.250														
CD	9	4	1			3.250														
CD	10	4	1			3.250														

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

REDLANDS MASTER PLAN PROPOSED SD

HEADING LINE NO 2 IS -

SD 4-19 ALABAMA ST

HEADING LINE NO 3 IS -

FROM INDUSTRIAL PARK AVE TO MISSION CHANNEL

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	U/S DATA	STATION	INVERT	SECT	W S ELEV	RADIUS	ANGLE	ANG PT	MAN H		
1	IS	A	SYSTEM	OUTLET	U/S DATA	172.600	1222.320	1	1226.770						
2	IS	A	REACH		U/S DATA	232.600	1222.380	1	.013	.000	.000	.000	0		
3	IS	A	REACH		U/S DATA	303.280	1222.450	1	.013	89.993	-45.000	.000	0		
4	IS	A	REACH		U/S DATA	1284.340	1223.440	1	.013	.000	.000	.000	2		
5	IS	A	REACH		U/S DATA	1315.790	1223.500	1	.013	.000	.000	.000	0		
6	IS	A	JUNCTION		U/S DATA	1315.800	1223.500	5	.013	80.060	.000	1224.240	.000	-90.000	.000
										RADIUS		ANGLE			
										.000		.000			
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING															
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING															
7	IS	A	REACH		U/S DATA	2200.000	1225.260	5	.013	.000	.000	.000	2		
8	IS	A	REACH		U/S DATA	2221.260	1225.300	5	.013	89.984	-13.537	.000	0		
9	IS	A	REACH		U/S DATA	2242.130	1225.340	5	.013	88.332	13.537	.000	0		
10	IS	A	REACH		U/S DATA	2602.670	1226.140	5	.013	.000	.000	.000	0		
11	IS	A	JUNCTION		U/S DATA										

		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			2607.340	1226.150	7	6	0	.013	98.820	.000	1227.170	.000	-90.000	.000
											RADIUS	ANGLE		
											.000	.000		
W S P G W														
PAGE NO 3														
WATER SURFACE PROFILE - ELEMENT CARD LISTING														
ELEMENT NO	12	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			2722.450	1226.610	7			.013			.000	.000	.000	0
ELEMENT NO	13	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			2780.720	1226.840	7			.013			89.992	37.099	.000	0
ELEMENT NO	14	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			2830.000	1227.040	7			.013			77.285	-36.534	.000	0
ELEMENT NO	15	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			3185.420	1228.480	7			.013			.000	.000	.000	0
ELEMENT NO	16	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			3220.830	1228.620	7			.013			22.500	90.171	.000	0
ELEMENT NO	17	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			3233.410	1228.670	7			.013			.000	.000	.000	0
ELEMENT NO	18	IS A JUNCTION	*	*	*	*	*		*	*				
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			3238.080	1228.690	10	8	9	.013	24.680	24.680	1226.470	1226.350	45.000	-45.000
											RADIUS	ANGLE		
											.000	.000		
ELEMENT NO	19	IS A SYSTEM HEADWORKS	*		*				*					
		U/S DATA	STATION	INVERT	SECT						W S ELEV			
			3238.080	1228.690	10						.000			

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time:11: 1:15

REDLANDS MASTER PLAN PROPOSED SD

SD 4-19 ALABAMA ST

FROM INDUSTRIAL PARK AVE TO MISSION CHANNEL

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1315.790 | 1223.500 | 8.073 | 1231.573 | 252.92 | 8.95 | 1.24 | 1232.82 | .00 | 4.36 | .00 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0000 |      |      |      |      |      | .0026 | .00 | 8.07 | .00 | .013 | .00 | .00 | PIPE
1315.800 | 1223.500 | 9.397 | 1232.897 | 172.86 | 6.11 | .58 | 1233.48 | .00 | 3.58 | .00 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
884.200 | .0020 |      |      |      |      |      | .0017 | 1.47 | 9.40 | .00 | 4.51 | .013 | .00 | .00 | PIPE
2200.000 | 1225.260 | 9.168 | 1234.428 | 172.86 | 6.11 | .58 | 1235.01 | .00 | 3.58 | .00 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
21.260 | .0019 |      |      |      |      |      | .0017 | .04 | .00 | .00 | 4.63 | .013 | .00 | .00 | PIPE
2221.260 | 1225.300 | 9.208 | 1234.508 | 172.86 | 6.11 | .58 | 1235.09 | .00 | 3.58 | .00 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
20.870 | .0019 |      |      |      |      |      | .0017 | .03 | .00 | .00 | 4.59 | .013 | .00 | .00 | PIPE
2242.130 | 1225.340 | 9.248 | 1234.588 | 172.86 | 6.11 | .58 | 1235.17 | .00 | 3.58 | .00 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
360.540 | .0022 |      |      |      |      |      | .0017 | .60 | 9.25 | .00 | 4.31 | .013 | .00 | .00 | PIPE
2602.670 | 1226.140 | 9.049 | 1235.189 | 172.86 | 6.11 | .58 | 1235.77 | .00 | 3.58 | .00 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0021 |      |      |      |      |      | .0012 | .01 | 9.05 | .00 | .013 | .00 | .00 | PIPE
2607.340 | 1226.150 | 10.053 | 1236.203 | 74.04 | 3.77 | .22 | 1236.42 | .00 | 2.43 | .00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
115.110 | .0040 |      |      |      |      |      | .0008 | .09 | 10.05 | .00 | 2.35 | .013 | .00 | .00 | PIPE
2722.450 | 1226.610 | 9.686 | 1236.296 | 74.04 | 3.77 | .22 | 1236.52 | .00 | 2.43 | .00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
58.270 | .0039 |      |      |      |      |      | .0008 | .05 | .00 | .00 | 2.36 | .013 | .00 | .00 | PIPE
2780.720 | 1226.840 | 9.531 | 1236.371 | 74.04 | 3.77 | .22 | 1236.59 | .00 | 2.43 | .00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
49.280 | .0041 |      |      |      |      |      | .0008 | .04 | .00 | .00 | 2.34 | .013 | .00 | .00 | PIPE

```


WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE WIDTH	PIER DIAMETER	HEIGHT 1	BASE WIDTH	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	2	0	.000	10.000	6.000				.00										
CD	2	2	0	.000	6.000	10.000				.00										
CD	3	2	0	.000	4.000	8.000				.00										
CD	4	2	0	.000	3.500	10.000				.00										
CD	5	2	0	.000	4.000	14.000				.00										
CD	6	2	0	.000	3.500	10.000				.00										
CD	7	2	0	.000	3.000	14.000				.00										
CD	8	4	1		7.000															
CD	9	4	1		2.000															
CD	10	4	1		7.000															

W S P G W
WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS - REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY
 HEADING LINE NO 2 IS - SD 4-22 GARDEN ST
 HEADING LINE NO 3 IS - FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

W S P G W
WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	STATION	INVERT	SECT	W S ELEV	RADIUS	ANGLE	ANG PT	MAN H
1	IS	A	SYSTEM	OUTLET	19.780	1472.870	1	1486.130				
2	IS	A	REACH		65.000	1473.120	1		28.788	90.000	.000	0
3	IS	A	REACH		100.000	1476.270	1		22.282	90.000	.000	0
4	IS	A	REACH		555.000	1483.220	1		.000	.000	.000	0
5	IS	A	JUNCTION		600.000	1487.680	2				.000	.000
6	IS	A	REACH		670.000	1491.110	2		.000	.000	.000	0
7	IS	A	REACH		684.900	1491.180	2		9.486	-90.000	.000	0
8	IS	A	JUNCTION		709.970	1493.870	3				.000	.000
9	IS	A	REACH		1325.470	1510.350	3		.000	.000	.000	0
10	IS	A	JUNCTION		1360.347	1510.670	4				.000	.000

W S P G W														
WATER SURFACE PROFILE - ELEMENT CARD LISTING														
ELEMENT NO	11	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			1647.870	1519.520	4	.014			1771.382	9.300	.000	0		
ELEMENT NO	12	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			1750.800	1522.450	4	.014			.000	.000	.000	0		
ELEMENT NO	13	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			2020.100	1529.840	4	.014			572.958	26.930	.000	0		
ELEMENT NO	14	IS A JUNCTION	*	*	*	*	*	*						
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			2099.100	1532.350	5	0	0	.030	.000	.000	.000	.000	.000	.000
											RADIUS	ANGLE		
											.000	.000		
ELEMENT NO	15	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			3077.620	1570.000	5	.030			.000	.000	.000	0		
ELEMENT NO	16	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			3197.570	1575.010	5	.030			152.725	45.000	.000	0		
ELEMENT NO	17	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			3455.440	1580.000	5	.030			.000	.000	.000	0		
ELEMENT NO	18	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			3786.590	1589.940	5	.030			210.817	-90.000	.000	0		
ELEMENT NO	19	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			4337.460	1605.370	5	.030			.000	.000	.000	0		
ELEMENT NO	20	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			4410.880	1609.880	5	.030			70.111	60.000	.000	0		
ELEMENT NO	21	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			5337.250	1639.950	5	.030			.000	.000	.000	0		
ELEMENT NO	22	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			5847.560	1659.950	5	.030			.000	.000	.000	0		

W S P G W														
WATER SURFACE PROFILE - ELEMENT CARD LISTING														
ELEMENT NO	23	IS A JUNCTION	*	*	*	*	*	*						
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			5899.040	1661.450	7	6	0	.014	241.250	.000	1661.670	.000	90.000	.000
											RADIUS	ANGLE		
											.000	.000		
ELEMENT NO	24	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			7972.930	1720.910	7	.014			.000	.000	.000	0		
ELEMENT NO	25	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			8069.530	1727.600	7	.014			122.994	-45.000	.000	0		
ELEMENT NO	26	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			8316.080	1739.170	7	.014			.000	.000	.000	0		
ELEMENT NO	27	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN H		
			8461.840	1745.170	7	.014			.000	.000	.000	0		

ELEMENT NO	28	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT						RADIUS	ANGLE	ANG PT	MAN H						
			8490.870	1746.170	7						89.909	18.500	.000	0						
ELEMENT NO	29	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT						RADIUS	ANGLE	ANG PT	MAN H						
			8558.080	1747.270	7						.000	.000	.000	0						
ELEMENT NO	30	IS A JUNCTION	*	*	*	*	*	*	*	*										
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2				INVERT-3	INVERT-4	PHI 3	PHI 4						
			8568.080	1747.680	8	0	0				.000	.000	.000	.000						
											RADIUS	ANGLE								
											.000	.000								
ELEMENT NO	31	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT						RADIUS	ANGLE	ANG PT	MAN H						
			9600.280	1789.870	8						.000	.000	.000	1						
ELEMENT NO	32	IS A JUNCTION	*	*	*	*	*	*	*	*										
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2				INVERT-3	INVERT-4	PHI 3	PHI 4						
			9610.280	1790.270	10	9	0				1790.670	.000	90.000	.000						
											RADIUS	ANGLE								
											.000	.000								
W S P G W																				
WATER SURFACE PROFILE - ELEMENT CARD LISTING																				
ELEMENT NO	33	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT						RADIUS	ANGLE	ANG PT	MAN H						
			9785.370	1797.110	10						.000	.000	.000	0						
ELEMENT NO	34	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT						RADIUS	ANGLE	ANG PT	MAN H						
			9935.290	1803.060	10						478.007	-17.970	.000	0						
ELEMENT NO	35	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT						RADIUS	ANGLE	ANG PT	MAN H						
			10648.790	1831.640	10						.000	.000	.000	2						
ELEMENT NO	36	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT						RADIUS	ANGLE	ANG PT	MAN H						
			10686.670	1832.940	10						90.432	-24.000	.000	0						
ELEMENT NO	37	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT						RADIUS	ANGLE	ANG PT	MAN H						
			11163.080	1849.670	10						.000	.000	73.500	1						
ELEMENT NO	38	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT						RADIUS	ANGLE	ANG PT	MAN H						
			11478.810	1859.170	10						.000	.000	73.500	1						
ELEMENT NO	39	IS A SYSTEM HEADWORKS	*		*					*										
		U/S DATA	STATION	INVERT	SECT						W S ELEV									
			11478.810	1859.170	10						.000									

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
19.780 | 1472.870 | 13.260 | 1486.130 | 615.47 | 7.74 | .93 | 1487.06 | .19 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
45.220 | .0055 |      |      |      |      |      | .0016 | .07 | 13.45 | .37 | 7.77 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
65.000 | 1473.120 | 13.055 | 1486.175 | 615.47 | 7.86 | .96 | 1487.13 | .52 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
5.799 | .0900 |      |      |      |      |      | .0018 | .01 | 13.57 | .38 | 2.59 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
70.799 | 1473.642 | 12.448 | 1486.090 | 615.47 | 8.24 | 1.05 | 1487.14 | .57 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
5.382 | .0900 |      |      |      |      |      | .0020 | .01 | 13.02 | .41 | 2.59 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
76.181 | 1474.126 | 11.868 | 1485.995 | 615.47 | 8.64 | 1.16 | 1487.15 | .62 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
4.969 | .0900 |      |      |      |      |      | .0022 | .01 | 12.49 | .44 | 2.59 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
81.150 | 1474.573 | 11.316 | 1485.890 | 615.47 | 9.06 | 1.28 | 1487.17 | .69 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
4.557 | .0900 |      |      |      |      |      | .0024 | .01 | 12.00 | .47 | 2.59 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
85.707 | 1474.984 | 10.789 | 1485.773 | 615.47 | 9.51 | 1.40 | 1487.18 | .76 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
4.145 | .0900 |      |      |      |      |      | .0027 | .01 | 11.55 | .51 | 2.59 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
89.852 | 1475.357 | 10.287 | 1485.644 | 615.47 | 9.97 | 1.54 | 1487.19 | .83 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1.910 | .0900 |      |      |      |      |      | .0029 | .01 | 11.12 | .55 | 2.59 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
91.762 | 1475.529 | 10.048 | 1485.577 | 615.47 | 10.21 | 1.62 | 1487.20 | .87 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
HYDRAULIC JUMP
91.762 | 1475.529 | 4.475 | 1480.004 | 615.47 | 22.92 | 8.16 | 1488.16 | 4.39 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
.913 | .0900 |      |      |      |      |      | .0212 | .02 | 8.87 | 1.91 | 2.59 | .014 | .00 | .00 | RECTANG

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
92.675 | 1475.611 | 4.500 | 1480.111 | 615.47 | 22.79 | 8.07 | 1488.18 | 4.34 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
7.325 | .0900 | | | | | | .0199 | .15 | 8.85 | 1.89 | 2.59 | .014 | .00 | .00 | RECTANG
100.000 | 1476.270 | 4.720 | 1480.990 | 615.47 | 21.73 | 7.33 | 1488.32 | .00 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
85.261 | .0153 | | | | | | .0195 | 1.66 | 4.72 | 1.76 | 5.11 | .014 | .00 | .00 | RECTANG
185.261 | 1477.572 | 4.561 | 1482.133 | 615.47 | 22.49 | 7.86 | 1489.99 | .00 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
89.640 | .0153 | | | | | | .0217 | 1.94 | 4.56 | 1.86 | 5.11 | .014 | .00 | .00 | RECTANG
274.901 | 1478.942 | 4.348 | 1483.290 | 615.47 | 23.59 | 8.64 | 1491.93 | .00 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
72.009 | .0153 | | | | | | .0245 | 1.76 | 4.35 | 1.99 | 5.11 | .014 | .00 | .00 | RECTANG
346.910 | 1480.041 | 4.146 | 1484.188 | 615.47 | 24.74 | 9.51 | 1493.69 | .00 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
61.271 | .0153 | | | | | | .0276 | 1.69 | 4.15 | 2.14 | 5.11 | .014 | .00 | .00 | RECTANG
408.181 | 1480.977 | 3.953 | 1484.930 | 615.47 | 25.95 | 10.46 | 1495.39 | .00 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
53.938 | .0153 | | | | | | .0312 | 1.69 | 3.95 | 2.30 | 5.11 | .014 | .00 | .00 | RECTANG
462.118 | 1481.801 | 3.769 | 1485.570 | 615.47 | 27.22 | 11.50 | 1497.07 | .00 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
48.538 | .0153 | | | | | | .0354 | 1.72 | 3.77 | 2.47 | 5.11 | .014 | .00 | .00 | RECTANG
510.656 | 1482.543 | 3.594 | 1486.136 | 615.47 | 28.54 | 12.65 | 1498.79 | .00 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
44.344 | .0153 | | | | | | .0400 | 1.78 | 3.59 | 2.65 | 5.11 | .014 | .00 | .00 | RECTANG
555.000 | 1483.220 | 3.427 | 1486.646 | 615.47 | 29.94 | 13.92 | 1500.56 | .00 | 6.89 | 6.00 | 10.000 | 6.000 | .00 | 0 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
JUNCT STR | .0991 | | | | | | .0421 | 1.89 | 3.43 | 2.85 | | .014 | .00 | .00 | RECTANG
*****
    
```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
600.000 | 1487.680 | 2.160 | 1489.840 | 615.47 | 28.50 | 12.61 | 1502.45 | .00 | 4.90 | 10.00 | 6.000 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
70.000 | .0490 |      |      |      |      | .0400 | 2.80 | 2.16 | 3.42 | 2.04 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
670.000 | 1491.110 | 2.221 | 1493.331 | 615.47 | 27.71 | 11.92 | 1505.26 | 25.14 | 4.90 | 10.00 | 6.000 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
14.900 | .0047 |      |      |      |      | .0398 | .59 | 27.36 | 3.28 | 4.69 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
684.900 | 1491.180 | 2.169 | 1493.349 | 615.47 | 28.37 | 12.50 | 1505.85 | .00 | 4.90 | 10.00 | 6.000 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .1073 |      |      |      |      | .0339 | .85 | 2.17 | 3.39 |      | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
709.970 | 1493.870 | 3.071 | 1496.941 | 615.47 | 25.05 | 9.75 | 1506.69 | .00 | 5.69 | 8.00 | 4.000 | 8.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
409.154 | .0268 |      |      |      |      | .0258 | 10.56 | 3.07 | 2.52 | 3.07 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1119.124 | 1504.825 | 3.146 | 1507.971 | 615.47 | 24.45 | 9.28 | 1517.26 | .00 | 5.69 | 8.00 | 4.000 | 8.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
206.346 | .0268 |      |      |      |      | .0234 | 4.83 | 3.15 | 2.43 | 3.07 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1325.470 | 1510.350 | 3.300 | 1513.650 | 615.47 | 23.31 | 8.44 | 1522.09 | .00 | 5.69 | 8.00 | 4.000 | 8.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0092 |      |      |      |      | .0255 | .89 | 3.38 | 2.26 |      | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1360.347 | 1510.670 | 2.441 | 1513.111 | 615.47 | 25.21 | 9.87 | 1522.98 | .11 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
137.198 | .0308 |      |      |      |      | .0284 | 3.90 | 2.55 | 2.84 | 2.40 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1497.545 | 1514.893 | 2.488 | 1517.381 | 615.47 | 24.74 | 9.50 | 1526.88 | .11 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
150.325 | .0308 |      |      |      |      | .0258 | 3.88 | 2.60 | 2.76 | 2.40 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1647.870 | 1519.520 | 2.609 | 1522.129 | 615.47 | 23.59 | 8.64 | 1530.77 | .00 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
102.930 | .0285 |      |      |      |      | .0227 | 2.33 | 2.61 | 2.57 | 2.46 | .014 | .00 | .00 | RECTANG

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1750.800 | 1522.450 | 2.723 | 1525.173 | 615.47 | 22.60 | 7.93 | 1533.11 | .28 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
30.313 | .0274 |      |      |      |      |      | .0208 | .63 | 3.00 | 2.41 | 2.49 | .014 | .00 | .00 | RECTANG
1781.113 | 1523.282 | 2.766 | 1526.048 | 615.47 | 22.25 | 7.69 | 1533.74 | .27 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
67.396 | .0274 |      |      |      |      |      | .0191 | 1.29 | 3.03 | 2.36 | 2.49 | .014 | .00 | .00 | RECTANG
1848.509 | 1525.131 | 2.901 | 1528.032 | 615.47 | 21.22 | 6.99 | 1535.02 | .24 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
45.789 | .0274 |      |      |      |      |      | .0167 | .76 | 3.14 | 2.20 | 2.49 | .014 | .00 | .00 | RECTANG
1894.298 | 1526.388 | 3.042 | 1529.430 | 615.47 | 20.23 | 6.36 | 1535.79 | .22 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
33.307 | .0274 |      |      |      |      |      | .0146 | .48 | 3.26 | 2.04 | 2.49 | .014 | .00 | .00 | RECTANG
1927.605 | 1527.302 | 3.191 | 1530.493 | 615.47 | 19.29 | 5.78 | 1536.27 | .20 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
25.110 | .0274 |      |      |      |      |      | .0127 | .32 | 3.39 | 1.90 | 2.49 | .014 | .00 | .00 | RECTANG
1952.715 | 1527.991 | 3.347 | 1531.338 | 615.47 | 18.39 | 5.25 | 1536.59 | .18 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
19.267 | .0274 |      |      |      |      |      | .0111 | .21 | 3.53 | 1.77 | 2.49 | .014 | .00 | .00 | RECTANG
1971.982 | 1528.520 | 3.510 | 1532.030 | 615.47 | 17.54 | 4.77 | 1536.80 | .17 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
14.855 | .0274 |      |      |      |      |      | .0098 | .14 | 3.68 | 1.65 | 2.49 | .014 | .00 | .00 | RECTANG
1986.838 | 1528.927 | 3.681 | 1532.608 | 615.47 | 16.72 | 4.34 | 1536.95 | .15 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
11.376 | .0274 |      |      |      |      |      | .0085 | .10 | 3.83 | 1.54 | 2.49 | .014 | .00 | .00 | RECTANG
1998.214 | 1529.239 | 3.861 | 1533.100 | 615.47 | 15.94 | 3.95 | 1537.05 | .14 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
8.538 | .0274 |      |      |      |      |      | .0075 | .06 | 4.00 | 1.43 | 2.49 | .014 | .00 | .00 | RECTANG

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2006.752 | 1529.474 | 4.049 | 1533.523 | 615.47 | 15.20 | 3.59 | 1537.11 | .13 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6.159 | .0274 |      |      |      |      | .0066 | .04 | 4.17 | 1.33 | 2.49 | .014 | .00 | .00 | RECTANG
2012.911 | 1529.643 | 4.247 | 1533.890 | 615.47 | 14.49 | 3.26 | 1537.15 | .11 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
4.117 | .0274 |      |      |      |      | .0058 | .02 | 4.36 | 1.24 | 2.49 | .014 | .00 | .00 | RECTANG
2017.029 | 1529.756 | 4.454 | 1534.210 | 615.47 | 13.82 | 2.96 | 1537.17 | .10 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
2.331 | .0274 |      |      |      |      | .0051 | .01 | 4.56 | 1.15 | 2.49 | .014 | .00 | .00 | RECTANG
2019.360 | 1529.820 | 4.672 | 1534.491 | 615.47 | 13.17 | 2.70 | 1537.19 | .09 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
.740 | .0274 |      |      |      |      | .0045 | .00 | 4.77 | 1.07 | 2.49 | .014 | .00 | .00 | RECTANG
2020.100 | 1529.840 | 4.901 | 1534.741 | 615.47 | 12.56 | 2.45 | 1537.19 | .00 | 4.90 | 10.00 | 3.500 | 10.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0318 |      |      |      |      |      |      |      |      |      |      |      |      |      |
2099.100 | 1532.350 | 2.834 | 1535.184 | 615.47 | 15.51 | 3.74 | 1538.92 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
896.112 | .0385 |      |      |      |      | .0385 | 34.48 | 2.83 | 1.62 | 2.83 | .030 | .00 | .00 | RECTANG
2995.212 | 1566.829 | 2.834 | 1569.663 | 615.47 | 15.51 | 3.74 | 1573.40 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
82.408 | .0385 |      |      |      |      | .0397 | 3.27 | 2.83 | 1.62 | 2.83 | .030 | .00 | .00 | RECTANG
3077.620 | 1570.000 | 2.774 | 1572.774 | 615.47 | 15.85 | 3.90 | 1576.67 | .72 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
49.401 | .0418 |      |      |      |      | .0399 | 1.97 | 3.49 | 1.68 | 2.76 | .030 | .00 | .00 | RECTANG
3127.021 | 1572.063 | 2.827 | 1574.890 | 615.47 | 15.55 | 3.76 | 1578.65 | .69 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
36.747 | .0418 |      |      |      |      | .0362 | 1.33 | 3.52 | 1.63 | 2.76 | .030 | .00 | .00 | RECTANG

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
3163.768 | 1573.598 | 2.965 | 1576.563 | 615.47 | 14.83 | 3.41 | 1579.98 | .63 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
16.134 | .0418 |      |      |      |      | .0315 | .51 | 3.59 | 1.52 | 2.76 | .030 | .00 | .00 | RECTANG
3179.902 | 1574.272 | 3.109 | 1577.382 | 615.47 | 14.14 | 3.10 | 1580.49 | .57 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
9.077 | .0418 |      |      |      |      | .0274 | .25 | 3.68 | 1.41 | 2.76 | .030 | .00 | .00 | RECTANG
3188.980 | 1574.651 | 3.261 | 1577.912 | 615.47 | 13.48 | 2.82 | 1580.73 | .52 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
5.434 | .0418 |      |      |      |      | .0239 | .13 | 3.78 | 1.32 | 2.76 | .030 | .00 | .00 | RECTANG
3194.414 | 1574.878 | 3.420 | 1578.299 | 615.47 | 12.85 | 2.57 | 1580.86 | .47 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
3.156 | .0418 |      |      |      |      | .0208 | .07 | 3.89 | 1.22 | 2.76 | .030 | .00 | .00 | RECTANG
3197.570 | 1575.010 | 3.587 | 1578.597 | 615.47 | 12.25 | 2.33 | 1580.93 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
144.862 | .0194 |      |      |      |      | .0194 | 2.80 | 3.59 | 1.14 | 3.59 | .030 | .00 | .00 | RECTANG
3342.432 | 1577.813 | 3.587 | 1581.401 | 615.47 | 12.25 | 2.33 | 1583.73 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
40.030 | .0194 |      |      |      |      | .0196 | .78 | 3.59 | 1.14 | 3.59 | .030 | .00 | .00 | RECTANG
3382.462 | 1578.588 | 3.558 | 1582.146 | 615.47 | 12.36 | 2.37 | 1584.52 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
37.082 | .0194 |      |      |      |      | .0213 | .79 | 3.56 | 1.15 | 3.59 | .030 | .00 | .00 | RECTANG
3419.544 | 1579.305 | 3.392 | 1582.698 | 615.47 | 12.96 | 2.61 | 1585.31 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
20.257 | .0194 |      |      |      |      | .0244 | .49 | 3.39 | 1.24 | 3.59 | .030 | .00 | .00 | RECTANG
3439.801 | 1579.697 | 3.235 | 1582.932 | 615.47 | 13.59 | 2.87 | 1585.80 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
15.639 | .0194 |      |      |      |      | .0281 | .44 | 3.23 | 1.33 | 3.59 | .030 | .00 | .00 | RECTANG

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
3455.440 | 1580.000 | 3.084 | 1583.084 | 615.47 | 14.25 | 3.16 | 1586.24 | .42 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
259.334 | .0300 |      |      |      |      |      | .0300 | 7.78 | 3.50 | 1.43 | 3.08 | .030 | .00 | .00 | RECTANG
3714.774 | 1587.784 | 3.084 | 1590.868 | 615.47 | 14.25 | 3.16 | 1594.02 | .42 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
71.816 | .0300 |      |      |      |      |      | .0290 | 2.08 | 3.50 | 1.43 | 3.08 | .030 | .00 | .00 | RECTANG
3786.590 | 1589.940 | 3.158 | 1593.098 | 615.47 | 13.92 | 3.01 | 1596.11 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
333.495 | .0280 |      |      |      |      |      | .0280 | 9.34 | 3.16 | 1.38 | 3.16 | .030 | .00 | .00 | RECTANG
4120.085 | 1599.281 | 3.158 | 1602.439 | 615.47 | 13.92 | 3.01 | 1605.45 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
69.637 | .0280 |      |      |      |      |      | .0280 | 1.95 | 3.16 | 1.38 | 3.16 | .030 | .00 | .00 | RECTANG
4189.722 | 1601.232 | 3.156 | 1604.387 | 615.47 | 13.93 | 3.01 | 1607.40 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
71.615 | .0280 |      |      |      |      |      | .0302 | 2.16 | 3.16 | 1.38 | 3.16 | .030 | .00 | .00 | RECTANG
4261.337 | 1603.238 | 3.009 | 1606.247 | 615.47 | 14.61 | 3.32 | 1609.56 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
28.652 | .0280 |      |      |      |      |      | .0347 | .99 | 3.01 | 1.48 | 3.16 | .030 | .00 | .00 | RECTANG
4289.990 | 1604.040 | 2.869 | 1606.909 | 615.47 | 15.32 | 3.65 | 1610.56 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
19.404 | .0280 |      |      |      |      |      | .0399 | .77 | 2.87 | 1.59 | 3.16 | .030 | .00 | .00 | RECTANG
4309.394 | 1604.584 | 2.735 | 1607.319 | 615.47 | 16.07 | 4.01 | 1611.33 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
15.248 | .0280 |      |      |      |      |      | .0460 | .70 | 2.74 | 1.71 | 3.16 | .030 | .00 | .00 | RECTANG
4324.641 | 1605.011 | 2.608 | 1607.619 | 615.47 | 16.86 | 4.41 | 1612.03 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
12.819 | .0280 |      |      |      |      |      | .0530 | .68 | 2.61 | 1.84 | 3.16 | .030 | .00 | .00 | RECTANG

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
4337.460 | 1605.370 | 2.487 | 1607.857 | 615.47 | 17.68 | 4.85 | 1612.71 | 1.94 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
37.027 | .0614 | | | | | .0531 | 1.97 | 4.42 | 1.98 | 2.42 | .030 | .00 | .00 | RECTANG
4374.487 | 1607.645 | 2.603 | 1610.247 | 615.47 | 16.89 | 4.43 | 1614.68 | 1.77 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
18.161 | .0614 | | | | | .0462 | .84 | 4.37 | 1.85 | 2.42 | .030 | .00 | .00 | RECTANG
4392.648 | 1608.760 | 2.730 | 1611.490 | 615.47 | 16.10 | 4.03 | 1615.52 | 1.61 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
10.952 | .0614 | | | | | .0402 | .44 | 4.34 | 1.72 | 2.42 | .030 | .00 | .00 | RECTANG
4403.600 | 1609.433 | 2.863 | 1612.296 | 615.47 | 15.36 | 3.66 | 1615.96 | 1.46 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
7.280 | .0614 | | | | | .0349 | .25 | 4.33 | 1.60 | 2.42 | .030 | .00 | .00 | RECTANG
4410.880 | 1609.880 | 3.003 | 1612.883 | 615.47 | 14.64 | 3.33 | 1616.21 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
799.173 | .0325 | | | | | .0325 | 25.94 | 3.00 | 1.49 | 3.00 | .030 | .00 | .00 | RECTANG
5210.053 | 1635.821 | 3.003 | 1638.824 | 615.47 | 14.64 | 3.33 | 1642.15 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
77.640 | .0325 | | | | | .0333 | 2.58 | 3.00 | 1.49 | 3.00 | .030 | .00 | .00 | RECTANG
5287.692 | 1638.341 | 2.954 | 1641.295 | 615.47 | 14.88 | 3.44 | 1644.73 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
49.558 | .0325 | | | | | .0366 | 1.82 | 2.95 | 1.53 | 3.00 | .030 | .00 | .00 | RECTANG
5337.250 | 1639.950 | 2.816 | 1642.766 | 615.47 | 15.61 | 3.78 | 1646.55 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
379.028 | .0392 | | | | | .0392 | 14.85 | 2.82 | 1.64 | 2.82 | .030 | .00 | .00 | RECTANG
5716.278 | 1654.805 | 2.816 | 1657.621 | 615.47 | 15.61 | 3.78 | 1661.40 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
80.667 | .0392 | | | | | .0369 | 2.97 | 2.82 | 1.64 | 2.82 | .030 | .00 | .00 | RECTANG

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
5796.945 | 1657.966 | 2.941 | 1660.907 | 615.47 | 14.95 | 3.47 | 1664.38 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
24.803 | .0392 | | | | | | .0323 | .80 | 2.94 | 1.54 | 2.82 | .030 | .00 | .00 | RECTANG
5821.748 | 1658.938 | 3.084 | 1662.022 | 615.47 | 14.25 | 3.15 | 1665.18 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
12.241 | .0392 | | | | | | .0281 | .34 | 3.08 | 1.43 | 2.82 | .030 | .00 | .00 | RECTANG
5833.989 | 1659.418 | 3.235 | 1662.653 | 615.47 | 13.59 | 2.87 | 1665.52 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
6.964 | .0392 | | | | | | .0244 | .17 | 3.23 | 1.33 | 2.82 | .030 | .00 | .00 | RECTANG
5840.953 | 1659.691 | 3.393 | 1663.084 | 615.47 | 12.96 | 2.61 | 1665.69 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
3.986 | .0392 | | | | | | .0213 | .08 | 3.39 | 1.24 | 2.82 | .030 | .00 | .00 | RECTANG
5844.939 | 1659.847 | 3.558 | 1663.405 | 615.47 | 12.35 | 2.37 | 1665.78 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
2.024 | .0392 | | | | | | .0185 | .04 | 3.56 | 1.15 | 2.82 | .030 | .00 | .00 | RECTANG
5846.963 | 1659.927 | 3.732 | 1663.658 | 615.47 | 11.78 | 2.15 | 1665.81 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
.597 | .0392 | | | | | | .0162 | .01 | 3.73 | 1.07 | 2.82 | .030 | .00 | .00 | RECTANG
5847.560 | 1659.950 | 3.915 | 1663.865 | 615.47 | 11.23 | 1.96 | 1665.82 | .00 | 3.92 | 14.00 | 4.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR | .0291 | | | | | | | | | | | | | | | | |
5899.041 | 1661.450 | 1.362 | 1662.813 | 374.22 | 19.62 | 5.98 | 1668.79 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
1429.373 | .0287 | | | | | | .0287 | 40.98 | 1.36 | 2.96 | 1.36 | .014 | .00 | .00 | RECTANG
7328.413 | 1702.431 | 1.362 | 1703.794 | 374.22 | 19.62 | 5.98 | 1709.77 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
236.844 | .0287 | | | | | | .0288 | 6.82 | 1.36 | 2.96 | 1.36 | .014 | .00 | .00 | RECTANG

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
7565.257 | 1709.222 | 1.359 | 1710.581 | 374.22 | 19.67 | 6.01 | 1716.59 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
211.782 | .0287 |      |      |      |      | .0312 | 6.61 | 1.36 | 2.97 | 1.36 | .014 | .00 | .00 | RECTANG
7777.039 | 1715.294 | 1.296 | 1716.590 | 374.22 | 20.63 | 6.61 | 1723.20 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
79.525 | .0287 |      |      |      |      | .0362 | 2.88 | 1.30 | 3.19 | 1.36 | .014 | .00 | .00 | RECTANG
7856.564 | 1717.574 | 1.236 | 1718.809 | 374.22 | 21.63 | 7.27 | 1726.08 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
50.007 | .0287 |      |      |      |      | .0421 | 2.10 | 1.24 | 3.43 | 1.36 | .014 | .00 | .00 | RECTANG
7906.571 | 1719.007 | 1.178 | 1720.186 | 374.22 | 22.69 | 7.99 | 1728.18 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
36.908 | .0287 |      |      |      |      | .0488 | 1.80 | 1.18 | 3.68 | 1.36 | .014 | .00 | .00 | RECTANG
7943.479 | 1720.066 | 1.123 | 1721.189 | 374.22 | 23.80 | 8.79 | 1729.98 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
29.451 | .0287 |      |      |      |      | .0568 | 1.67 | 1.12 | 3.96 | 1.36 | .014 | .00 | .00 | RECTANG
7972.930 | 1720.910 | 1.071 | 1721.981 | 374.22 | 24.96 | 9.67 | 1731.65 | 2.20 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
55.333 | .0693 |      |      |      |      | .0578 | 3.20 | 3.27 | 4.25 | 1.03 | .014 | .00 | .00 | RECTANG
8028.263 | 1724.742 | 1.110 | 1725.852 | 374.22 | 24.08 | 9.01 | 1734.86 | 2.05 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
41.267 | .0693 |      |      |      |      | .0507 | 2.09 | 3.16 | 4.03 | 1.03 | .014 | .00 | .00 | RECTANG
8069.530 | 1727.600 | 1.164 | 1728.764 | 374.22 | 22.96 | 8.19 | 1736.95 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
38.350 | .0469 |      |      |      |      | .0469 | 1.80 | 1.16 | 3.75 | 1.16 | .014 | .00 | .00 | RECTANG
8107.879 | 1729.400 | 1.164 | 1730.564 | 374.22 | 22.96 | 8.19 | 1738.75 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
208.201 | .0469 |      |      |      |      | .0455 | 9.48 | 1.16 | 3.75 | 1.16 | .014 | .00 | .00 | RECTANG

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
8316.080 | 1739.170 | 1.187 | 1740.357 | 374.22 | 22.52 | 7.88 | 1748.23 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
66.008 | .0412 |      |      |      |      |      | .0456 | 3.01 | 1.19 | 3.64 | 1.21 | .014 | .00 | .00 | RECTANG
8382.088 | 1741.887 | 1.164 | 1743.051 | 374.22 | 22.97 | 8.19 | 1751.24 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
79.752 | .0412 |      |      |      |      |      | .0508 | 4.05 | 1.16 | 3.75 | 1.21 | .014 | .00 | .00 | RECTANG
8461.840 | 1745.170 | 1.110 | 1746.280 | 374.22 | 24.09 | 9.01 | 1755.29 | 2.81 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
29.030 | .0344 |      |      |      |      |      | .0581 | 1.69 | 3.92 | 4.03 | 1.28 | .014 | .00 | .00 | RECTANG
8490.871 | 1746.170 | 1.067 | 1747.237 | 374.22 | 25.05 | 9.74 | 1756.98 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
3.690 | .0164 |      |      |      |      |      | .0626 | .23 | 1.07 | 4.27 | 1.63 | .014 | .00 | .00 | RECTANG
8494.562 | 1746.230 | 1.057 | 1747.288 | 374.22 | 25.28 | 9.92 | 1757.21 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
18.028 | .0164 |      |      |      |      |      | .0687 | 1.24 | 1.06 | 4.33 | 1.63 | .014 | .00 | .00 | RECTANG
8512.590 | 1746.526 | 1.008 | 1747.534 | 374.22 | 26.51 | 10.91 | 1758.45 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
16.452 | .0164 |      |      |      |      |      | .0799 | 1.31 | 1.01 | 4.65 | 1.63 | .014 | .00 | .00 | RECTANG
8529.042 | 1746.795 | .961 | 1747.756 | 374.22 | 27.81 | 12.01 | 1759.76 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
15.104 | .0164 |      |      |      |      |      | .0929 | 1.40 | .96 | 5.00 | 1.63 | .014 | .00 | .00 | RECTANG
8544.146 | 1747.042 | .917 | 1747.959 | 374.22 | 29.16 | 13.21 | 1761.16 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
13.934 | .0164 |      |      |      |      |      | .1081 | 1.51 | .92 | 5.37 | 1.63 | .014 | .00 | .00 | RECTANG
8558.080 | 1747.270 | .874 | 1748.144 | 374.22 | 30.59 | 14.53 | 1762.67 | .00 | 2.81 | 14.00 | 3.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0410 |      |      |      |      |      | .0706 | .71 | .87 | 5.77 | .013 | .00 | .00 | RECTANG

```

----- WARNING - Junction Analysis - Change in Channel Type -----

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
8568.080 | 1747.680 | 2.580 | 1750.260 | 374.22 | 29.06 | 13.11 | 1763.37 | .00 | 5.10 | 6.75 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
144.293 | .0409 |      |      |      |      |      | .0409 | 5.90 | 2.58 | 3.71 | 2.58 | .013 | .00 | .00 | PIPE
8712.373 | 1753.578 | 2.580 | 1756.158 | 374.22 | 29.06 | 13.11 | 1769.27 | .00 | 5.10 | 6.75 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
433.951 | .0409 |      |      |      |      |      | .0398 | 17.28 | 2.58 | 3.71 | 2.58 | .013 | .00 | .00 | PIPE
9146.324 | 1771.315 | 2.617 | 1773.932 | 374.22 | 28.51 | 12.62 | 1786.55 | .00 | 5.10 | 6.77 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
235.809 | .0409 |      |      |      |      |      | .0364 | 8.59 | 2.62 | 3.61 | 2.58 | .013 | .00 | .00 | PIPE
9382.133 | 1780.953 | 2.711 | 1783.664 | 374.22 | 27.18 | 11.47 | 1795.14 | .00 | 5.10 | 6.82 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
105.800 | .0409 |      |      |      |      |      | .0319 | 3.38 | 2.71 | 3.37 | 2.58 | .013 | .00 | .00 | PIPE
9487.933 | 1785.278 | 2.809 | 1788.087 | 374.22 | 25.92 | 10.43 | 1798.52 | .00 | 5.10 | 6.86 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
65.891 | .0409 |      |      |      |      |      | .0280 | 1.85 | 2.81 | 3.15 | 2.58 | .013 | .00 | .00 | PIPE
9553.823 | 1787.971 | 2.912 | 1790.883 | 374.22 | 24.71 | 9.48 | 1800.37 | .00 | 5.10 | 6.90 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
46.457 | .0409 |      |      |      |      |      | .0246 | 1.14 | 2.91 | 2.94 | 2.58 | .013 | .00 | .00 | PIPE
9600.280 | 1789.870 | 3.018 | 1792.888 | 374.22 | 23.56 | 8.62 | 1801.51 | .00 | 5.10 | 6.93 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0400 |      |      |      |      |      | .0312 | .31 | 3.02 | 2.74 | .013 | .00 | .00 | PIPE
9610.280 | 1790.270 | 2.427 | 1792.697 | 327.32 | 27.62 | 11.85 | 1804.55 | .00 | 4.76 | 6.66 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
175.090 | .0391 |      |      |      |      |      | .0396 | 6.93 | 2.43 | 3.65 | 2.43 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
9785.370 | 1797.110 | 2.419 | 1799.529 | 327.32 | 27.74 | 11.95 | 1811.48 | .33 | 4.76 | 6.66 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
149.920 | .0397 |      |      |      |      |      | .0399 | 5.99 | 2.75 | 3.67 | 2.42 | .013 | .00 | .00 | PIPE
9935.290 | 1803.060 | 2.416 | 1805.476 | 327.32 | 27.80 | 12.00 | 1817.48 | .00 | 4.76 | 6.66 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
28.521 | .0401 |      |      |      |      |      | .0401 | 1.14 | 2.42 | 3.68 | 2.42 | .013 | .00 | .00 | PIPE
9963.811 | 1804.203 | 2.416 | 1806.618 | 327.32 | 27.80 | 12.00 | 1818.62 | .00 | 4.76 | 6.66 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
402.159 | .0401 |      |      |      |      |      | .0395 | 15.89 | 2.42 | 3.68 | 2.42 | .013 | .00 | .00 | PIPE
10365.970 | 1820.311 | 2.433 | 1822.744 | 327.32 | 27.53 | 11.77 | 1834.51 | .00 | 4.76 | 6.67 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
282.820 | .0401 |      |      |      |      |      | .0366 | 10.35 | 2.43 | 3.63 | 2.42 | .013 | .00 | .00 | PIPE
10648.790 | 1831.640 | 2.520 | 1834.160 | 327.32 | 26.25 | 10.70 | 1844.86 | 1.59 | 4.76 | 6.72 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
37.880 | .0343 |      |      |      |      |      | .0342 | 1.29 | 4.11 | 3.40 | 2.52 | .013 | .00 | .00 | PIPE
10686.670 | 1832.940 | 2.520 | 1835.460 | 327.32 | 26.24 | 10.69 | 1846.15 | .00 | 4.76 | 6.72 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
253.717 | .0351 |      |      |      |      |      | .0327 | 8.31 | 2.52 | 3.39 | 2.50 | .013 | .00 | .00 | PIPE
10940.390 | 1841.850 | 2.579 | 1844.428 | 327.32 | 25.44 | 10.05 | 1854.48 | .00 | 4.76 | 6.75 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
143.923 | .0351 |      |      |      |      |      | .0294 | 4.23 | 2.58 | 3.25 | 2.50 | .013 | .00 | .00 | PIPE
11084.310 | 1846.904 | 2.671 | 1849.575 | 327.32 | 24.25 | 9.13 | 1858.71 | .00 | 4.76 | 6.80 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
78.770 | .0351 |      |      |      |      |      | .0258 | 2.03 | 2.67 | 3.03 | 2.50 | .013 | .00 | .00 | PIPE
11163.080 | 1849.670 | 2.768 | 1852.438 | 327.32 | 23.12 | 8.30 | 1860.74 | .00 | 4.76 | 6.85 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
25.188 | .0301 |      |      |      |      |      | .0238 | .60 | 2.77 | 2.83 | 2.61 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
11188.270 | 1850.428 | 2.791 | 1853.219 | 327.32 | 22.87 | 8.12 | 1861.34 | .00 | 4.76 | 6.85 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
78.390 | .0301 |      |      |      |      |      | .0220 | 1.72 | 2.79 | 2.79 | 2.61 | .013 | .00 | .00 | PIPE
11266.660 | 1852.786 | 2.892 | 1855.679 | 327.32 | 21.81 | 7.38 | 1863.06 | .00 | 4.76 | 6.89 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
52.321 | .0301 |      |      |      |      |      | .0193 | 1.01 | 2.89 | 2.60 | 2.61 | .013 | .00 | .00 | PIPE
11318.980 | 1854.361 | 2.998 | 1857.359 | 327.32 | 20.79 | 6.71 | 1864.07 | .00 | 4.76 | 6.93 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
37.990 | .0301 |      |      |      |      |      | .0169 | .64 | 3.00 | 2.43 | 2.61 | .013 | .00 | .00 | PIPE
11356.970 | 1855.504 | 3.109 | 1858.613 | 327.32 | 19.82 | 6.10 | 1864.71 | .00 | 4.76 | 6.96 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
28.883 | .0301 |      |      |      |      |      | .0149 | .43 | 3.11 | 2.27 | 2.61 | .013 | .00 | .00 | PIPE
11385.850 | 1856.373 | 3.225 | 1859.598 | 327.32 | 18.90 | 5.55 | 1865.14 | .00 | 4.76 | 6.98 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
22.551 | .0301 |      |      |      |      |      | .0131 | .30 | 3.22 | 2.11 | 2.61 | .013 | .00 | .00 | PIPE
11408.400 | 1857.052 | 3.346 | 1860.397 | 327.32 | 18.02 | 5.04 | 1865.44 | .00 | 4.76 | 6.99 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
17.865 | .0301 |      |      |      |      |      | .0115 | .21 | 3.35 | 1.97 | 2.61 | .013 | .00 | .00 | PIPE
11426.270 | 1857.589 | 3.473 | 1861.062 | 327.32 | 17.18 | 4.58 | 1865.65 | .00 | 4.76 | 7.00 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
14.237 | .0301 |      |      |      |      |      | .0101 | .14 | 3.47 | 1.84 | 2.61 | .013 | .00 | .00 | PIPE
11440.510 | 1858.017 | 3.605 | 1861.623 | 327.32 | 16.38 | 4.17 | 1865.79 | .00 | 4.76 | 7.00 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
11.317 | .0301 |      |      |      |      |      | .0089 | .10 | 3.61 | 1.71 | 2.61 | .013 | .00 | .00 | PIPE
11451.820 | 1858.358 | 3.745 | 1862.103 | 327.32 | 15.62 | 3.79 | 1865.89 | .00 | 4.76 | 6.98 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
8.904 | .0301 |      |      |      |      |      | .0079 | .07 | 3.74 | 1.59 | 2.61 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-14-2014 Time: 5:37:14

REDLANDS MASTER PLAN PROPOSED SD WITH Q25 PER HYDROLOGY

SD 4-22 GARDEN ST

FROM REDLANDS BLVD AT PALM AVE TO MARIPOSA DR NAD88 DATUM

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
11460.730 | 1858.626 | 3.892 | 1862.517 | 327.32 | 14.89 | 3.44 | 1865.96 | .00 | 4.76 | 6.96 | 7.000 | .000 | .00 | 1 | .0
      | 6.850 | .0301 | | | | | | .0070 | .05 | 3.89 | 1.48 | 2.61 | .013 | .00 | .00 | PIPE
11467.580 | 1858.832 | 4.046 | 1862.878 | 327.32 | 14.20 | 3.13 | 1866.01 | .00 | 4.76 | 6.91 | 7.000 | .000 | .00 | 1 | .0
      | 5.065 | .0301 | | | | | | .0062 | .03 | 4.05 | 1.37 | 2.61 | .013 | .00 | .00 | PIPE
11472.640 | 1858.984 | 4.210 | 1863.194 | 327.32 | 13.54 | 2.85 | 1866.04 | .00 | 4.76 | 6.85 | 7.000 | .000 | .00 | 1 | .0
      | 3.477 | .0301 | | | | | | .0054 | .02 | 4.21 | 1.27 | 2.61 | .013 | .00 | .00 | PIPE
11476.120 | 1859.089 | 4.383 | 1863.472 | 327.32 | 12.91 | 2.59 | 1866.06 | .00 | 4.76 | 6.77 | 7.000 | .000 | .00 | 1 | .0
      | 2.024 | .0301 | | | | | | .0048 | .01 | 4.38 | 1.18 | 2.61 | .013 | .00 | .00 | PIPE
11478.140 | 1859.150 | 4.567 | 1863.717 | 327.32 | 12.31 | 2.35 | 1866.07 | .00 | 4.76 | 6.67 | 7.000 | .000 | .00 | 1 | .0
      | .665 | .0301 | | | | | | .0043 | .00 | 4.57 | 1.09 | 2.61 | .013 | .00 | .00 | PIPE
11478.810 | 1859.170 | 4.765 | 1863.935 | 327.32 | 11.73 | 2.14 | 1866.07 | .00 | 4.76 | 6.53 | 7.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |

```


WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING										PAGE 1									
CARD	SECT	CHN	NO OF	AVE PIER	HEIGHT 1	BASE	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CODE	NO	TYPE	PIER/PIP	WIDTH	DIAMETER	WIDTH			DROP										
CD	1	4	1		5.500														
CD	2	4	1		2.000														
CD	3	4	1		5.000														
CD	4	4	1		1.500														
CD	5	4	1		5.000														
CD	6	4	1		4.000														
CD	7	4	1		3.250														
CD	8	4	1		3.000														

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

REDLANDS MASTER PLAN PROPOSED SD

HEADING LINE NO 2 IS -

SD 4-38 PARALLEL TO ALABAMA ST

HEADING LINE NO 3 IS -

FROM MORREY ARROYO TO BARTON ROAD

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS A	SYSTEM OUTLET	STATION	INVERT	SECT	W S ELEV						
1	IS A	SYSTEM OUTLET	.000	1230.000	1	1236.800						
2	IS A	REACH	463.000	1231.890	1		.013	.000	.000	.000	0	
3	IS A	JUNCTION	463.010	1231.890	3		82.120	.000	1231.950	.000	-60.000	.000
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING												
4	IS A	REACH	486.170	1232.180	3		.013	.000	.000	.000	0	
5	IS A	REACH	1288.350	1241.800	3		.013	.000	.000	.000	0	
6	IS A	JUNCTION	1288.360	1241.800	5		82.120	.000	1244.810	.000	-45.000	.000
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING												
7	IS A	REACH	1352.920	1245.710	5		.013	99.982	36.997	.000	1	
8	IS A	REACH	1461.510	1246.240	5		.013	.000	.000	.000	0	
9	IS A	REACH	1639.100	1250.620	5		.013	.000	.000	.000	0	

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 3:49: 7

REDLANDS MASTER PLAN PROPOSED SD

SD 4-38 PARALLEL TO ALABAMA ST

FROM MORREY ARROYO TO BARTON ROAD

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
.000 | 1230.000 | 6.800 | 1236.800 | 198.29 | 8.35 | 1.08 | 1237.88 | .00 | 3.94 | .00 | 5.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
463.000 | .0041 |      |      |      |      |      |      | 1.61 | 6.80 | .00 | 4.17 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
463.000 | 1231.890 | 6.524 | 1238.414 | 198.29 | 8.35 | 1.08 | 1239.50 | .00 | 3.94 | .00 | 5.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0000 |      |      |      |      |      |      | .00 | 6.52 | .00 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
463.010 | 1231.890 | 7.063 | 1238.953 | 116.17 | 5.92 | .54 | 1239.50 | .00 | 3.08 | .00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
23.160 | .0125 |      |      |      |      |      |      | .05 | 7.06 | .00 | 2.19 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
486.170 | 1232.180 | 6.819 | 1238.999 | 116.17 | 5.92 | .54 | 1239.54 | .00 | 3.08 | .00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
181.804 | .0120 |      |      |      |      |      |      | .36 | 6.82 | .00 | 2.22 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
667.974 | 1234.360 | 5.000 | 1239.360 | 116.17 | 5.92 | .54 | 1239.90 | .00 | 3.08 | .00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
40.244 | .0120 |      |      |      |      |      |      | .07 | 5.00 | .00 | 2.22 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
708.218 | 1234.843 | 4.537 | 1239.380 | 116.17 | 6.21 | .60 | 1239.98 | .00 | 3.08 | 2.90 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
20.559 | .0120 |      |      |      |      |      |      | .04 | 4.54 | .43 | 2.22 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
728.777 | 1235.090 | 4.267 | 1239.357 | 116.17 | 6.51 | .66 | 1240.01 | .00 | 3.08 | 3.54 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6.341 | .0120 |      |      |      |      |      |      | .01 | 4.27 | .51 | 2.22 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
735.119 | 1235.166 | 4.181 | 1239.347 | 116.17 | 6.62 | .68 | 1240.03 | .00 | 3.08 | 3.70 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
HYDRAULIC JUMP
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
735.119 | 1235.166 | 2.222 | 1237.387 | 116.17 | 13.78 | 2.95 | 1240.34 | .00 | 3.08 | 4.97 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
57.596 | .0120 |      |      |      |      |      |      | .69 | 2.22 | 1.86 | 2.22 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 3:49: 7

REDLANDS MASTER PLAN PROPOSED SD

SD 4-38 PARALLEL TO ALABAMA ST

FROM MORREY ARROYO TO BARTON ROAD

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
792.715 | 1235.856 | 2.222 | 1238.078 | 116.17 | 13.78 | 2.95 | 1241.03 | .00 | 3.08 | 4.97 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
257.258 | .0120 |      |      |      |      | .0116 | 2.98 | 2.22 | 1.86 | 2.22 | .013 | .00 | .00 | PIPE
1049.974 | 1238.941 | 2.268 | 1241.209 | 116.17 | 13.42 | 2.80 | 1244.00 | .00 | 3.08 | 4.98 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
111.946 | .0120 |      |      |      |      | .0105 | 1.17 | 2.27 | 1.79 | 2.22 | .013 | .00 | .00 | PIPE
1161.920 | 1240.284 | 2.353 | 1242.636 | 116.17 | 12.79 | 2.54 | 1245.18 | .00 | 3.08 | 4.99 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
51.311 | .0120 |      |      |      |      | .0092 | .47 | 2.35 | 1.67 | 2.22 | .013 | .00 | .00 | PIPE
1213.230 | 1240.899 | 2.441 | 1243.340 | 116.17 | 12.20 | 2.31 | 1245.65 | .00 | 3.08 | 5.00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
30.177 | .0120 |      |      |      |      | .0081 | .24 | 2.44 | 1.56 | 2.22 | .013 | .00 | .00 | PIPE
1243.408 | 1241.261 | 2.534 | 1243.795 | 116.17 | 11.63 | 2.10 | 1245.90 | .00 | 3.08 | 5.00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
19.286 | .0120 |      |      |      |      | .0071 | .14 | 2.53 | 1.45 | 2.22 | .013 | .00 | .00 | PIPE
1262.694 | 1241.492 | 2.632 | 1244.124 | 116.17 | 11.09 | 1.91 | 1246.03 | .00 | 3.08 | 4.99 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
12.472 | .0120 |      |      |      |      | .0063 | .08 | 2.63 | 1.35 | 2.22 | .013 | .00 | .00 | PIPE
1275.166 | 1241.642 | 2.734 | 1244.376 | 116.17 | 10.57 | 1.74 | 1246.11 | .00 | 3.08 | 4.98 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
7.742 | .0120 |      |      |      |      | .0056 | .04 | 2.73 | 1.25 | 2.22 | .013 | .00 | .00 | PIPE
1282.908 | 1241.735 | 2.842 | 1244.577 | 116.17 | 10.08 | 1.58 | 1246.16 | .00 | 3.08 | 4.95 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
4.160 | .0120 |      |      |      |      | .0049 | .02 | 2.84 | 1.16 | 2.22 | .013 | .00 | .00 | PIPE
1287.068 | 1241.785 | 2.956 | 1244.741 | 116.17 | 9.61 | 1.43 | 1246.18 | .00 | 3.08 | 4.92 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1.282 | .0120 |      |      |      |      | .0043 | .01 | 2.96 | 1.08 | 2.22 | .013 | .00 | .00 | PIPE
*****

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 3:49: 7

REDLANDS MASTER PLAN PROPOSED SD

SD 4-38 PARALLEL TO ALABAMA ST

FROM MORREY ARROYO TO BARTON ROAD

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
|-| Elev |-| (FT) |-| Elev |-| (CFS) |-| (FPS) |-| Head |-| Grd.El.|-| Elev |-| Depth |-| Width |-| Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope| | | | | | | SF Ave| HF |SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1288.350 | 1241.800 | 3.078 | 1244.878 | 116.17 | 9.16 | 1.30 | 1246.18 | .00 | 3.08 | 4.86 | 5.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
JUNCT STR | .0000 | | | | | | | .0021 | .00 | 3.20 | 1.00 | .013 | .00 | .00 | PIPE
1288.360 | 1241.800 | 4.326 | 1246.126 | 34.05 | 1.89 | .06 | 1246.18 | .00 | 1.62 | 3.42 | 5.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
3.729 | .0606 | | | | | | | .0002 | .00 | 4.33 | .14 | .78 | .013 | .00 | .00 | PIPE
1292.089 | 1242.026 | 4.095 | 1246.121 | 34.05 | 1.98 | .06 | 1246.18 | .00 | 1.62 | 3.85 | 5.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
3.212 | .0606 | | | | | | | .0002 | .00 | 4.10 | .16 | .78 | .013 | .00 | .00 | PIPE
1295.300 | 1242.220 | 3.895 | 1246.115 | 34.05 | 2.07 | .07 | 1246.18 | .01 | 1.62 | 4.15 | 5.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
2.858 | .0606 | | | | | | | .0002 | .00 | 3.90 | .18 | .78 | .013 | .00 | .00 | PIPE
1298.158 | 1242.393 | 3.716 | 1246.109 | 34.05 | 2.18 | .07 | 1246.18 | .01 | 1.62 | 4.37 | 5.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
2.588 | .0606 | | | | | | | .0002 | .00 | 3.72 | .20 | .78 | .013 | .00 | .00 | PIPE
1300.746 | 1242.550 | 3.552 | 1246.103 | 34.05 | 2.28 | .08 | 1246.18 | .01 | 1.62 | 4.54 | 5.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
2.368 | .0606 | | | | | | | .0002 | .00 | 3.56 | .22 | .78 | .013 | .00 | .00 | PIPE
1303.114 | 1242.694 | 3.402 | 1246.095 | 34.05 | 2.39 | .09 | 1246.18 | .01 | 1.62 | 4.66 | 5.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
2.181 | .0606 | | | | | | | .0003 | .00 | 3.41 | .24 | .78 | .013 | .00 | .00 | PIPE
1305.295 | 1242.826 | 3.261 | 1246.087 | 34.05 | 2.51 | .10 | 1246.18 | .01 | 1.62 | 4.76 | 5.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
2.019 | .0606 | | | | | | | .0003 | .00 | 3.27 | .26 | .78 | .013 | .00 | .00 | PIPE
1307.314 | 1242.948 | 3.130 | 1246.078 | 34.05 | 2.63 | .11 | 1246.19 | .01 | 1.62 | 4.84 | 5.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
1.876 | .0606 | | | | | | | .0004 | .00 | 3.14 | .28 | .78 | .013 | .00 | .00 | PIPE

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 3:49: 7

REDLANDS MASTER PLAN PROPOSED SD

SD 4-38 PARALLEL TO ALABAMA ST

FROM MORREY ARROYO TO BARTON ROAD

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1339.088 | 1244.872 | 1.046 | 1245.918 | 34.05 | 11.42 | 2.03 | 1247.94 | .16 | 1.62 | 4.07 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 3.447 | .0606 |      |      |      |      | .0174 | .06 | 1.21 | 2.35 | .78 | .013 | .00 | .00 | PIPE
1342.534 | 1245.081 | 1.081 | 1246.162 | 34.05 | 10.89 | 1.84 | 1248.00 | .15 | 1.62 | 4.12 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 2.880 | .0606 |      |      |      |      | .0152 | .04 | 1.23 | 2.20 | .78 | .013 | .00 | .00 | PIPE
1345.414 | 1245.255 | 1.118 | 1246.374 | 34.05 | 10.38 | 1.67 | 1248.05 | .14 | 1.62 | 4.17 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 2.415 | .0606 |      |      |      |      | .0133 | .03 | 1.26 | 2.06 | .78 | .013 | .00 | .00 | PIPE
1347.829 | 1245.402 | 1.156 | 1246.558 | 34.05 | 9.90 | 1.52 | 1248.08 | .13 | 1.62 | 4.22 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 2.019 | .0606 |      |      |      |      | .0116 | .02 | 1.28 | 1.93 | .78 | .013 | .00 | .00 | PIPE
1349.848 | 1245.524 | 1.196 | 1246.720 | 34.05 | 9.44 | 1.38 | 1248.10 | .12 | 1.62 | 4.27 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 1.683 | .0606 |      |      |      |      | .0102 | .02 | 1.31 | 1.81 | .78 | .013 | .00 | .00 | PIPE
1351.531 | 1245.626 | 1.237 | 1246.863 | 34.05 | 9.00 | 1.26 | 1248.12 | .11 | 1.62 | 4.32 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 1.389 | .0606 |      |      |      |      | .0089 | .01 | 1.35 | 1.69 | .78 | .013 | .00 | .00 | PIPE
1352.920 | 1245.710 | 1.280 | 1246.990 | 34.05 | 8.58 | 1.14 | 1248.13 | .00 | 1.62 | 4.36 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | .478 | .0049 |      |      |      |      | .0083 | .00 | 1.28 | 1.59 | 1.47 | .013 | .00 | .00 | PIPE
1353.398 | 1245.712 | 1.279 | 1246.991 | 34.05 | 8.59 | 1.15 | 1248.14 | .00 | 1.62 | 4.36 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 17.832 | .0049 |      |      |      |      | .0089 | .16 | 1.28 | 1.59 | 1.47 | .013 | .00 | .00 | PIPE
1371.230 | 1245.799 | 1.236 | 1247.035 | 34.05 | 9.01 | 1.26 | 1248.30 | .00 | 1.62 | 4.31 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | 15.979 | .0049 |      |      |      |      | .0102 | .16 | 1.24 | 1.70 | 1.47 | .013 | .00 | .00 | PIPE
*****

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 3:49: 7

REDLANDS MASTER PLAN PROPOSED SD

SD 4-38 PARALLEL TO ALABAMA ST

FROM MORREY ARROYO TO BARTON ROAD

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
        | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1387.209 | 1245.877 | 1.195 | 1247.072 | 34.05 | 9.45 | 1.39 | 1248.46 | .00 | 1.62 | 4.26 | 5.000 | .000 | .00 | 1 | .0
        |         |      |         |      |      |      |      |      |      |      |      |      |      |      |      |
14.607 | .0049 |      |         |      |      |      | .0117 | .17 | 1.20 | 1.81 | 1.47 | .013 | .00 | .00 | PIPE
1401.815 | 1245.949 | 1.156 | 1247.104 | 34.05 | 9.91 | 1.53 | 1248.63 | .00 | 1.62 | 4.22 | 5.000 | .000 | .00 | 1 | .0
        |         |      |         |      |      |      |      |      |      |      |      |      |      |      |      |
13.503 | .0049 |      |         |      |      |      | .0134 | .18 | 1.16 | 1.94 | 1.47 | .013 | .00 | .00 | PIPE
1415.319 | 1246.015 | 1.117 | 1247.132 | 34.05 | 10.40 | 1.68 | 1248.81 | .00 | 1.62 | 4.17 | 5.000 | .000 | .00 | 1 | .0
        |         |      |         |      |      |      |      |      |      |      |      |      |      |      |      |
12.609 | .0049 |      |         |      |      |      | .0153 | .19 | 1.12 | 2.07 | 1.47 | .013 | .00 | .00 | PIPE
1427.928 | 1246.076 | 1.081 | 1247.157 | 34.05 | 10.90 | 1.85 | 1249.00 | .00 | 1.62 | 4.12 | 5.000 | .000 | .00 | 1 | .0
        |         |      |         |      |      |      |      |      |      |      |      |      |      |      |      |
11.841 | .0049 |      |         |      |      |      | .0175 | .21 | 1.08 | 2.21 | 1.47 | .013 | .00 | .00 | PIPE
1439.769 | 1246.134 | 1.045 | 1247.179 | 34.05 | 11.44 | 2.03 | 1249.21 | .00 | 1.62 | 4.07 | 5.000 | .000 | .00 | 1 | .0
        |         |      |         |      |      |      |      |      |      |      |      |      |      |      |      |
11.167 | .0049 |      |         |      |      |      | .0200 | .22 | 1.05 | 2.36 | 1.47 | .013 | .00 | .00 | PIPE
1450.936 | 1246.188 | 1.011 | 1247.199 | 34.05 | 11.99 | 2.23 | 1249.43 | .00 | 1.62 | 4.02 | 5.000 | .000 | .00 | 1 | .0
        |         |      |         |      |      |      |      |      |      |      |      |      |      |      |      |
10.574 | .0049 |      |         |      |      |      | .0229 | .24 | 1.01 | 2.51 | 1.47 | .013 | .00 | .00 | PIPE
1461.510 | 1246.240 | .978 | 1247.218 | 34.05 | 12.58 | 2.46 | 1249.68 | .00 | 1.62 | 3.97 | 5.000 | .000 | .00 | 1 | .0
        |         |      |         |      |      |      |      |      |      |      |      |      |      |      |      |
91.822 | .0247 |      |         |      |      |      | .0237 | 2.18 | .98 | 2.68 | .98 | .013 | .00 | .00 | PIPE
1553.332 | 1248.505 | .992 | 1249.497 | 34.05 | 12.32 | 2.36 | 1251.85 | .00 | 1.62 | 3.99 | 5.000 | .000 | .00 | 1 | .0
        |         |      |         |      |      |      |      |      |      |      |      |      |      |      |      |
58.294 | .0247 |      |         |      |      |      | .0216 | 1.26 | .99 | 2.61 | .98 | .013 | .00 | .00 | PIPE
1611.626 | 1249.942 | 1.026 | 1250.968 | 34.05 | 11.75 | 2.14 | 1253.11 | .00 | 1.62 | 4.04 | 5.000 | .000 | .00 | 1 | .0
        |         |      |         |      |      |      |      |      |      |      |      |      |      |      |      |
27.474 | .0247 |      |         |      |      |      | .0188 | .52 | 1.03 | 2.44 | .98 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 3:49: 7

REDLANDS MASTER PLAN PROPOSED SD

SD 4-38 PARALLEL TO ALABAMA ST

FROM MORREY ARROYO TO BARTON ROAD

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1639.100 | 1250.620 | 1.061 | 1251.680 | 34.05 | 11.20 | 1.95 | 1253.63 | .16 | 1.62 | 4.09 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 9.874 | .0246 | | | | | | .0170 | .17 | 1.22 | 2.29 | .98 | .013 | .00 | .00 | PIPE
1648.974 | 1250.863 | 1.079 | 1251.942 | 34.05 | 10.93 | 1.85 | 1253.80 | .15 | 1.62 | 4.11 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 14.239 | .0246 | | | | | | .0154 | .22 | 1.23 | 2.21 | .98 | .013 | .00 | .00 | PIPE
1663.213 | 1251.214 | 1.116 | 1252.329 | 34.05 | 10.42 | 1.69 | 1254.01 | .14 | 1.62 | 4.16 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 10.285 | .0246 | | | | | | .0134 | .14 | 1.26 | 2.07 | .98 | .013 | .00 | .00 | PIPE
1673.498 | 1251.467 | 1.154 | 1252.621 | 34.05 | 9.93 | 1.53 | 1254.15 | .13 | 1.62 | 4.21 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 7.747 | .0246 | | | | | | .0117 | .09 | 1.28 | 1.94 | .98 | .013 | .00 | .00 | PIPE
1681.245 | 1251.658 | 1.193 | 1252.851 | 34.05 | 9.47 | 1.39 | 1254.24 | .12 | 1.62 | 4.26 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 5.972 | .0246 | | | | | | .0103 | .06 | 1.31 | 1.82 | .98 | .013 | .00 | .00 | PIPE
1687.217 | 1251.805 | 1.234 | 1253.039 | 34.05 | 9.03 | 1.27 | 1254.31 | .11 | 1.62 | 4.31 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 4.648 | .0246 | | | | | | .0090 | .04 | 1.34 | 1.70 | .98 | .013 | .00 | .00 | PIPE
1691.865 | 1251.919 | 1.277 | 1253.196 | 34.05 | 8.61 | 1.15 | 1254.35 | .10 | 1.62 | 4.36 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 3.617 | .0246 | | | | | | .0079 | .03 | 1.38 | 1.59 | .98 | .013 | .00 | .00 | PIPE
1695.482 | 1252.008 | 1.321 | 1253.329 | 34.05 | 8.21 | 1.05 | 1254.38 | .09 | 1.62 | 4.41 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 2.785 | .0246 | | | | | | .0069 | .02 | 1.41 | 1.49 | .98 | .013 | .00 | .00 | PIPE
1698.266 | 1252.077 | 1.366 | 1253.443 | 34.05 | 7.83 | .95 | 1254.39 | .08 | 1.62 | 4.46 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 2.100 | .0246 | | | | | | .0060 | .01 | 1.45 | 1.40 | .98 | .013 | .00 | .00 | PIPE
*****

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 3:49: 7

REDLANDS MASTER PLAN PROPOSED SD

SD 4-38 PARALLEL TO ALABAMA ST

FROM MORREY ARROYO TO BARTON ROAD

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1700.367 | 1252.129 | 1.414 | 1253.542 | 34.05 | 7.46 | .86 | 1254.41 | .08 | 1.62 | 4.50 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1.520 | .0246 |      |      |      |      |      | .0053 | .01 | 1.49 | 1.31 | .98 | .013 | .00 | .00 | PIPE
1701.886 | 1252.166 | 1.463 | 1253.629 | 34.05 | 7.12 | .79 | 1254.42 | .07 | 1.62 | 4.55 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1.018 | .0246 |      |      |      |      |      | .0046 | .00 | 1.53 | 1.22 | .98 | .013 | .00 | .00 | PIPE
1702.905 | 1252.191 | 1.514 | 1253.705 | 34.05 | 6.78 | .71 | 1254.42 | .07 | 1.62 | 4.59 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
.582 | .0246 |      |      |      |      |      | .0040 | .00 | 1.58 | 1.14 | .98 | .013 | .00 | .00 | PIPE
1703.486 | 1252.205 | 1.567 | 1253.772 | 34.05 | 6.47 | .65 | 1254.42 | .06 | 1.62 | 4.64 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
.184 | .0246 |      |      |      |      |      | .0035 | .00 | 1.63 | 1.07 | .98 | .013 | .00 | .00 | PIPE
1703.670 | 1252.210 | 1.623 | 1253.833 | 34.05 | 6.16 | .59 | 1254.42 | .00 | 1.62 | 4.68 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
4.528 | .0023 |      |      |      |      |      | .0031 | .01 | 1.62 | 1.00 | 1.79 | .013 | .00 | .00 | PIPE
1708.198 | 1252.220 | 1.681 | 1253.901 | 34.05 | 5.88 | .54 | 1254.44 | .00 | 1.62 | 4.72 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
25.140 | .0023 |      |      |      |      |      | .0027 | .07 | 1.68 | .93 | 1.79 | .013 | .00 | .00 | PIPE
1733.338 | 1252.277 | 1.740 | 1254.017 | 34.05 | 5.60 | .49 | 1254.50 | .00 | 1.62 | 4.76 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
99.093 | .0023 |      |      |      |      |      | .0024 | .24 | 1.74 | .87 | 1.79 | .013 | .00 | .00 | PIPE
1832.431 | 1252.502 | 1.790 | 1254.292 | 34.05 | 5.39 | .45 | 1254.74 | .00 | 1.62 | 4.79 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
HYDRAULIC JUMP
1832.431 | 1252.502 | 1.456 | 1253.959 | 34.05 | 7.16 | .80 | 1254.76 | .00 | 1.62 | 4.54 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
3.202 | .0023 |      |      |      |      |      | .0050 | .02 | 1.46 | 1.23 | 1.79 | .013 | .00 | .00 | PIPE

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 3:49: 7

REDLANDS MASTER PLAN PROPOSED SD

SD 4-38 PARALLEL TO ALABAMA ST

FROM MORREY ARROYO TO BARTON ROAD

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1930.106 | 1252.724 | 1.074 | 1253.799 | 34.05 | 11.00 | 1.88 | 1255.68 | .00 | 1.62 | 4.11 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 9.758 | .0023 | | | | | .0179 | .17 | 1.07 | 2.23 | 1.79 | .013 | .00 | .00 | PIPE
1939.864 | 1252.747 | 1.039 | 1253.786 | 34.05 | 11.53 | 2.07 | 1255.85 | .00 | 1.62 | 4.06 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 9.471 | .0023 | | | | | .0205 | .19 | 1.04 | 2.38 | 1.79 | .013 | .00 | .00 | PIPE
1949.335 | 1252.768 | 1.005 | 1253.773 | 34.05 | 12.10 | 2.27 | 1256.04 | .00 | 1.62 | 4.01 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 9.180 | .0023 | | | | | .0234 | .22 | 1.00 | 2.54 | 1.79 | .013 | .00 | .00 | PIPE
1958.515 | 1252.789 | .972 | 1253.761 | 34.05 | 12.69 | 2.50 | 1256.26 | .00 | 1.62 | 3.96 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 8.884 | .0023 | | | | | .0268 | .24 | .97 | 2.71 | 1.79 | .013 | .00 | .00 | PIPE
1967.399 | 1252.809 | .940 | 1253.749 | 34.05 | 13.31 | 2.75 | 1256.50 | .00 | 1.62 | 3.91 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 8.593 | .0023 | | | | | .0307 | .26 | .94 | 2.90 | 1.79 | .013 | .00 | .00 | PIPE
1975.992 | 1252.829 | .910 | 1253.738 | 34.05 | 13.96 | 3.02 | 1256.76 | .00 | 1.62 | 3.86 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 8.295 | .0023 | | | | | .0351 | .29 | .91 | 3.09 | 1.79 | .013 | .00 | .00 | PIPE
1984.286 | 1252.847 | .880 | 1253.727 | 34.05 | 14.64 | 3.33 | 1257.05 | .00 | 1.62 | 3.81 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 8.008 | .0023 | | | | | .0402 | .32 | .88 | 3.30 | 1.79 | .013 | .00 | .00 | PIPE
1992.294 | 1252.866 | .851 | 1253.717 | 34.05 | 15.35 | 3.66 | 1257.38 | .00 | 1.62 | 3.76 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 7.723 | .0023 | | | | | .0461 | .36 | .85 | 3.52 | 1.79 | .013 | .00 | .00 | PIPE
2000.017 | 1252.883 | .824 | 1253.707 | 34.05 | 16.10 | 4.02 | 1257.73 | .00 | 1.62 | 3.71 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
      | 7.443 | .0023 | | | | | .0528 | .39 | .82 | 3.76 | 1.79 | .013 | .00 | .00 | PIPE
*****

```


WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE WIDTH	PIER WIDTH	HEIGHT 1	BASE DIAMETER	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)	
CD	1	4	1			5.000															
CD	2	4	1			5.000															
CD	3	4	1			1.250															
CD	4	4	1			3.000															
CD	5	4	1			3.000															
CD	6	4	2			2.000															
CD	7	4	1			3.000															
CD	8	4	1			2.500															
CD	9	4	1			2.000															
CD	10	4	1			3.000															

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

REDLANDS MASTERPLAN PROPOSED SD

HEADING LINE NO 2 IS -

SD 4-38B PARALLEL TO KANSAS ST

HEADING LINE NO 3 IS -

FROM MORREY ARROYO TO MAGNOLIA AVE

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	U/S DATA	STATION	INVERT	SECT	W S ELEV	RADIUS	ANGLE	ANG PT	MAN H
1	IS	A	SYSTEM	OUTLET					1245.170				
2	IS	A	REACH										
3	IS	A	REACH										
4	IS	A	REACH										
5	IS	A	REACH										
6	IS	A	REACH										
7	IS	A	REACH										
8	IS	A	REACH										
9	IS	A	REACH										
10	IS	A	REACH										
11	IS	A	REACH										
12	IS	A	JUNCTION										

667.710	1257.320	1	0	0	.013	.000	.000	.000	.000	.000	.000	.000
								RADIUS	ANGLE			
								.000	.000			

W S P G W

PAGE NO 3

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	13	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H			
			753.980	1257.670	1	.013		.000	.000	.000	0			
ELEMENT NO	14	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H			
			856.250	1258.080	1	.013		300.002	-19.532	.000	0			
ELEMENT NO	15	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H			
			957.020	1258.480	1	.013		.000	.000	.000	0			
ELEMENT NO	16	IS A JUNCTION	*	*	*	*	*							
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			961.180	1258.980	2	0	0	.013	.000	.000	.000	.000	.000	.000
											RADIUS	ANGLE		
											.000	.000		
ELEMENT NO	17	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H			
			1126.100	1260.750	2	.013		.000	.000	.000	0			
ELEMENT NO	18	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H			
			1284.840	1263.290	2	.013		300.001	30.317	.000	0			
ELEMENT NO	19	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H			
			1296.630	1263.480	2	.013		.000	.000	.000	0			
ELEMENT NO	20	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H			
			1320.630	1265.880	2	.013		.000	.000	.000	0			
ELEMENT NO	21	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H			
			1538.460	1269.130	2	.013		.000	.000	.000	0			
ELEMENT NO	22	IS A JUNCTION	*	*	*	*	*							
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			1542.800	1269.700	4	3	0	.013	139.240	.000	1269.920	.000	-45.000	.000
											RADIUS	ANGLE		
											.000	.000		

W S P G W

PAGE NO 4

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	23	IS A REACH	*	*	*							
		U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H	
			1770.940	1273.840	4	.013		.000	.000	.000	0	
ELEMENT NO	24	IS A REACH	*	*	*							
		U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H	
			1865.770	1275.520	4	.013		1000.067	-5.433	.000	0	
ELEMENT NO	25	IS A REACH	*	*	*							
		U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H	
			1929.630	1276.680	4	.013		.000	.000	.000	0	
ELEMENT NO	26	IS A REACH	*	*	*							
		U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H	
			1967.630	1278.950	4	.013		.000	.000	.000	0	
ELEMENT NO	27	IS A REACH	*	*	*							
		U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H	
			2085.630	1281.760	4	.013		.000	.000	.000	3	
ELEMENT NO	28	IS A REACH	*	*	*							
		U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H	
			2246.110	1287.310	4	.013		.000	.000	.000	0	
ELEMENT NO	29	IS A REACH	*	*	*							

ELEMENT NO	IS	A	DESCRIPTION	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4	ANG PT	MAN H
			U/S DATA	2308.180	1289.470	4			.013			193.806	-18.350			.000	0
ELEMENT NO 30	IS	A	JUNCTION	*	*	*	*	*	*	*	*	*	*	*	*	*	*
			U/S DATA	2312.180	1289.570	5	0	0	.013	.000	.000	.000	.000	.000	.000	.000	.000
												RADIUS	ANGLE				
												.000	.000				
ELEMENT NO 31	IS	A	REACH	*	*	*											
			U/S DATA	2412.180	1290.470	5			.013			63.662	90.000			.000	0
ELEMENT NO 32	IS	A	JUNCTION	*	*	*	*	*	*	*	*	*	*	*	*	*	*
			U/S DATA	2417.180	1290.570	6	0	0	.013	.000	.000	.000	.000	.000	.000	.000	.000
												RADIUS	ANGLE				
												.000	.000				
W S P G W																	
WATER SURFACE PROFILE - ELEMENT CARD LISTING																	
ELEMENT NO 33	IS	A	REACH	*	*	*											
			U/S DATA	2509.180	1292.410	6			.013			.000	.000			.000	0
ELEMENT NO 34	IS	A	JUNCTION	*	*	*	*	*	*	*	*	*	*	*	*	*	*
			U/S DATA	2514.180	1292.910	7	0	0	.013	.000	.000	.000	.000	.000	.000	.000	.000
												RADIUS	ANGLE				
												.000	.000				
ELEMENT NO 35	IS	A	REACH	*	*	*											
			U/S DATA	2888.480	1303.270	7			.013			.000	.000			.000	1
ELEMENT NO 36	IS	A	REACH	*	*	*											
			U/S DATA	3039.960	1307.970	7			.013			72.326	-120.000			.000	0
ELEMENT NO 37	IS	A	JUNCTION	*	*	*	*	*	*	*	*	*	*	*	*	*	*
			U/S DATA	3044.960	1308.070	10	8	9	.013	15.630	15.630	1307.970	1307.970	-90.000	90.000	.000	.000
												RADIUS	ANGLE				
												.000	.000				
ELEMENT NO 38	IS	A	SYSTEM HEADWORKS			*				*							
			U/S DATA	3044.960	1308.070	10						W S ELEV					
												.000					

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 4:58:17

REDLANDS MASTERPLAN PROPOSED SD
SD 4-38B PARALLEL TO KANSAS ST
FROM MORREY ARROYO TO MAGNOLIA AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
.000  | 1237.690 | 7.480 | 1245.170 | 186.13 | 9.48 | 1.40 | 1246.57 | .00 | 3.90 | .00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
36.340 | .0151 |      |      |      |      | .0051 | .19 | .00 | .00 | 2.74 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
36.340 | 1238.240 | 7.313 | 1245.553 | 186.13 | 9.48 | 1.40 | 1246.95 | .00 | 3.90 | .00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
140.520 | .0141 |      |      |      |      | .0051 | .72 | 7.31 | .00 | 2.80 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
176.860 | 1240.219 | 6.089 | 1246.308 | 186.13 | 9.48 | 1.40 | 1247.70 | .00 | 3.90 | .00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
HYDRAULIC JUMP
176.860 | 1240.219 | 2.394 | 1242.613 | 186.13 | 20.04 | 6.24 | 1248.85 | .00 | 3.90 | 5.00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
40.321 | .0141 |      |      |      |      | .0250 | 1.01 | 2.39 | 2.59 | 2.80 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
217.181 | 1240.787 | 2.323 | 1243.110 | 186.13 | 20.84 | 6.74 | 1249.85 | .00 | 3.90 | 4.99 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
42.083 | .0141 |      |      |      |      | .0281 | 1.18 | 2.32 | 2.74 | 2.80 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
259.264 | 1241.380 | 2.240 | 1243.619 | 186.13 | 21.85 | 7.42 | 1251.03 | .00 | 3.90 | 4.97 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
36.946 | .0141 |      |      |      |      | .0320 | 1.18 | 2.24 | 2.94 | 2.80 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
296.210 | 1241.900 | 2.160 | 1244.060 | 186.13 | 22.92 | 8.16 | 1252.22 | .00 | 3.90 | 4.95 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
134.290 | .0352 |      |      |      |      | .0332 | 4.46 | 2.16 | 3.15 | 2.14 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
430.500 | 1246.630 | 2.190 | 1248.820 | 186.13 | 22.50 | 7.86 | 1256.68 | 1.73 | 3.90 | 4.96 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
36.940 | .0352 |      |      |      |      | .0321 | 1.18 | 3.92 | 3.07 | 2.14 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
467.440 | 1247.930 | 2.203 | 1250.133 | 186.13 | 22.33 | 7.74 | 1257.87 | .00 | 3.90 | 4.96 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
35.880 | .0351 |      |      |      |      | .0313 | 1.12 | 2.20 | 3.04 | 2.14 | .013 | .00 | .00 | PIPE
*****

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 4:58:17

REDLANDS MASTERPLAN PROPOSED SD
SD 4-38B PARALLEL TO KANSAS ST
FROM MORREY ARROYO TO MAGNOLIA AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
503.320 | 1249.190 | 2.220 | 1251.410 | 186.13 | 22.11 | 7.59 | 1259.00 | 1.68 | 3.90 | 4.97 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
33.780 | .0361 |      |      |      |      | .0303 | 1.02 | 3.90 | 2.99 | 2.12 | .013 | .00 | .00 | PIPE
537.100 | 1250.410 | 2.245 | 1252.655 | 186.13 | 21.79 | 7.37 | 1260.02 | .00 | 3.90 | 4.97 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
9.270 | .0324 |      |      |      |      | .0296 | .27 | 2.24 | 2.93 | 2.19 | .013 | .00 | .00 | PIPE
546.370 | 1250.710 | 2.248 | 1252.958 | 186.13 | 21.75 | 7.35 | 1260.30 | 5.00 | 3.90 | 4.97 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
35.340 | .0351 |      |      |      |      | .0289 | 1.02 | 5.00 | 2.92 | 2.14 | .013 | .00 | .00 | PIPE
581.710 | 1251.950 | 2.277 | 1254.227 | 186.13 | 21.38 | 7.10 | 1261.32 | .00 | 3.90 | 4.98 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
54.500 | .0354 |      |      |      |      | .0268 | 1.46 | 2.28 | 2.85 | 2.14 | .013 | .00 | .00 | PIPE
636.210 | 1253.880 | 2.348 | 1256.228 | 186.13 | 20.55 | 6.56 | 1262.79 | .00 | 3.90 | 4.99 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
2.295 | .1421 |      |      |      |      | .0245 | .06 | 2.35 | 2.69 | 1.48 | .013 | .00 | .00 | PIPE
638.505 | 1254.206 | 2.393 | 1256.599 | 186.13 | 20.05 | 6.24 | 1262.84 | .00 | 3.90 | 5.00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
3.982 | .1421 |      |      |      |      | .0223 | .09 | 2.39 | 2.59 | 1.48 | .013 | .00 | .00 | PIPE
642.487 | 1254.772 | 2.484 | 1257.255 | 186.13 | 19.12 | 5.68 | 1262.93 | .00 | 3.90 | 5.00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
3.438 | .1421 |      |      |      |      | .0196 | .07 | 2.48 | 2.41 | 1.48 | .013 | .00 | .00 | PIPE
645.925 | 1255.260 | 2.579 | 1257.839 | 186.13 | 18.23 | 5.16 | 1263.00 | .00 | 3.90 | 5.00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
2.960 | .1421 |      |      |      |      | .0173 | .05 | 2.58 | 2.25 | 1.48 | .013 | .00 | .00 | PIPE
648.885 | 1255.681 | 2.678 | 1258.359 | 186.13 | 17.38 | 4.69 | 1263.05 | .00 | 3.90 | 4.99 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
2.535 | .1421 |      |      |      |      | .0153 | .04 | 2.68 | 2.09 | 1.48 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 4:58:17

REDLANDS MASTERPLAN PROPOSED SD

SD 4-38B PARALLEL TO KANSAS ST

FROM MORREY ARROYO TO MAGNOLIA AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
651.419 | 1256.041 | 2.783 | 1258.824 | 186.13 | 16.57 | 4.26 | 1263.09 | .00 | 3.90 | 4.97 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
2.154 | .1421 |      |      |      |      | .0135 | .03 | 2.78 | 1.94 | 1.48 | .013 | .00 | .00 | PIPE
653.573 | 1256.347 | 2.894 | 1259.241 | 186.13 | 15.80 | 3.88 | 1263.12 | .00 | 3.90 | 4.94 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1.809 | .1421 |      |      |      |      | .0119 | .02 | 2.89 | 1.80 | 1.48 | .013 | .00 | .00 | PIPE
655.382 | 1256.604 | 3.011 | 1259.615 | 186.13 | 15.07 | 3.52 | 1263.14 | .00 | 3.90 | 4.89 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1.493 | .1421 |      |      |      |      | .0106 | .02 | 3.01 | 1.67 | 1.48 | .013 | .00 | .00 | PIPE
656.875 | 1256.816 | 3.135 | 1259.951 | 186.13 | 14.36 | 3.20 | 1263.16 | .00 | 3.90 | 4.84 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1.201 | .1421 |      |      |      |      | .0094 | .01 | 3.14 | 1.55 | 1.48 | .013 | .00 | .00 | PIPE
658.076 | 1256.987 | 3.267 | 1260.254 | 186.13 | 13.70 | 2.91 | 1263.17 | .00 | 3.90 | 4.76 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
.927 | .1421 |      |      |      |      | .0083 | .01 | 3.27 | 1.43 | 1.48 | .013 | .00 | .00 | PIPE
659.003 | 1257.119 | 3.408 | 1260.526 | 186.13 | 13.06 | 2.65 | 1263.17 | .00 | 3.90 | 4.66 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
.663 | .1421 |      |      |      |      | .0074 | .00 | 3.41 | 1.32 | 1.48 | .013 | .00 | .00 | PIPE
659.666 | 1257.213 | 3.559 | 1260.772 | 186.13 | 12.45 | 2.41 | 1263.18 | .00 | 3.90 | 4.53 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
.405 | .1421 |      |      |      |      | .0066 | .00 | 3.56 | 1.21 | 1.48 | .013 | .00 | .00 | PIPE
660.071 | 1257.270 | 3.723 | 1260.993 | 186.13 | 11.87 | 2.19 | 1263.18 | .00 | 3.90 | 4.36 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
.139 | .1421 |      |      |      |      | .0059 | .00 | 3.72 | 1.10 | 1.48 | .013 | .00 | .00 | PIPE
660.210 | 1257.290 | 3.904 | 1261.194 | 186.13 | 11.32 | 1.99 | 1263.18 | .00 | 3.90 | 4.14 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0040 |      |      |      |      | .0054 | .04 | 3.90 | 1.00 |      | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 4:58:17

REDLANDS MASTERPLAN PROPOSED SD
SD 4-38B PARALLEL TO KANSAS ST
FROM MORREY ARROYO TO MAGNOLIA AVE

```

*****
Station  | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
          | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem   | Ch Slope |      |      |      |      |      | HF  |SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
667.710 | 1257.320 | 4.048 | 1261.368 | 186.13 | 10.93 | 1.85 | 1263.22 | .00 | 3.90 | 3.93 | 5.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
57.190  | .0041 |      |      |      |      | .0050 | .29 | 4.05 | .92 | 5.00 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
724.900 | 1257.552 | 4.271 | 1261.823 | 186.13 | 10.42 | 1.69 | 1263.51 | .00 | 3.90 | 3.53 | 5.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
29.080  | .0041 |      |      |      |      | .0047 | .14 | 4.27 | .82 | 5.00 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
753.980 | 1257.670 | 4.326 | 1261.996 | 186.13 | 10.31 | 1.65 | 1263.65 | .02 | 3.90 | 3.41 | 5.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6.852  | .0040 |      |      |      |      | .0047 | .03 | 4.34 | .79 | 5.00 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
760.832 | 1257.698 | 4.336 | 1262.034 | 186.13 | 10.29 | 1.64 | 1263.68 | .02 | 3.90 | 3.39 | 5.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
HYDRAULIC JUMP
760.832 | 1257.698 | 3.496 | 1261.194 | 186.13 | 12.69 | 2.50 | 1263.70 | .04 | 3.90 | 4.59 | 5.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
7.682  | .0040 |      |      |      |      | .0074 | .06 | 3.53 | 1.25 | 5.00 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
768.514 | 1257.728 | 3.461 | 1261.189 | 186.13 | 12.84 | 2.56 | 1263.75 | .04 | 3.90 | 4.62 | 5.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
28.118 | .0040 |      |      |      |      | .0080 | .22 | 3.50 | 1.28 | 5.00 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
796.631 | 1257.841 | 3.317 | 1261.158 | 186.13 | 13.46 | 2.81 | 1263.97 | .04 | 3.90 | 4.73 | 5.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
29.583 | .0040 |      |      |      |      | .0090 | .27 | 3.36 | 1.39 | 5.00 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
826.214 | 1257.960 | 3.182 | 1261.141 | 186.13 | 14.12 | 3.10 | 1264.24 | .05 | 3.90 | 4.81 | 5.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
30.036 | .0040 |      |      |      |      | .0101 | .30 | 3.23 | 1.50 | 5.00 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
856.250 | 1258.080 | 3.055 | 1261.135 | 186.13 | 14.81 | 3.40 | 1264.54 | .00 | 3.90 | 4.88 | 5.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
13.758 | .0040 |      |      |      |      | .0110 | .15 | 3.06 | 1.63 | 5.00 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 4:58:17

REDLANDS MASTERPLAN PROPOSED SD

SD 4-38B PARALLEL TO KANSAS ST

FROM MORREY ARROYO TO MAGNOLIA AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
870.008 | 1258.135 | 2.999 | 1261.133 | 186.13 | 15.14 | 3.56 | 1264.69 | .00 | 3.90 | 4.90 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
29.593 | .0040 |      |      |      |      | .0121 | .36 | 3.00 | 1.68 | 5.00 | .013 | .00 | .00 | PIPE
899.601 | 1258.252 | 2.883 | 1261.135 | 186.13 | 15.88 | 3.91 | 1265.05 | .00 | 3.90 | 4.94 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
29.050 | .0040 |      |      |      |      | .0137 | .40 | 2.88 | 1.82 | 5.00 | .013 | .00 | .00 | PIPE
928.651 | 1258.367 | 2.773 | 1261.140 | 186.13 | 16.65 | 4.31 | 1265.45 | .00 | 3.90 | 4.97 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
28.369 | .0040 |      |      |      |      | .0155 | .44 | 2.77 | 1.96 | 5.00 | .013 | .00 | .00 | PIPE
957.020 | 1258.480 | 2.668 | 1261.148 | 186.13 | 17.46 | 4.74 | 1265.88 | .00 | 3.90 | 4.99 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
JUNCT STR | .1202 |      |      |      |      | .0151 | .06 | 2.67 | 2.11 |      | .013 | .00 | .00 | PIPE
961.180 | 1258.980 | 2.814 | 1261.794 | 186.13 | 16.35 | 4.15 | 1265.95 | .00 | 3.90 | 4.96 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
45.600 | .0107 |      |      |      |      | .0143 | .65 | 2.81 | 1.90 | 3.05 | .013 | .00 | .00 | PIPE
1006.780 | 1259.469 | 2.755 | 1262.224 | 186.13 | 16.78 | 4.37 | 1266.60 | .00 | 3.90 | 4.97 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
65.998 | .0107 |      |      |      |      | .0158 | 1.04 | 2.75 | 1.98 | 3.05 | .013 | .00 | .00 | PIPE
1072.778 | 1260.178 | 2.651 | 1262.829 | 186.13 | 17.60 | 4.81 | 1267.64 | .00 | 3.90 | 4.99 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
53.322 | .0107 |      |      |      |      | .0179 | .96 | 2.65 | 2.13 | 3.05 | .013 | .00 | .00 | PIPE
1126.100 | 1260.750 | 2.553 | 1263.303 | 186.13 | 18.46 | 5.29 | 1268.60 | .18 | 3.90 | 5.00 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
84.895 | .0160 |      |      |      |      | .0201 | 1.70 | 2.73 | 2.29 | 2.69 | .013 | .00 | .00 | PIPE
1210.995 | 1262.108 | 2.477 | 1264.585 | 186.13 | 19.18 | 5.71 | 1270.30 | .19 | 3.90 | 5.00 | 5.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
73.845 | .0160 |      |      |      |      | .0225 | 1.66 | 2.67 | 2.43 | 2.69 | .013 | .00 | .00 | PIPE

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 4:58:17

REDLANDS MASTERPLAN PROPOSED SD

SD 4-38B PARALLEL TO KANSAS ST

FROM MORREY ARROYO TO MAGNOLIA AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1284.840 | 1263.290 | 2.387 | 1265.677 | 186.13 | 20.12 | 6.29 | 1271.96 | .00 | 3.90 | 4.99 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
11.790 | .0161 |      |      |      |      | .0242 | .29 | 2.39 | 2.61 | 2.68 | .013 | .00 | .00 | PIPE
1296.630 | 1263.480 | 2.370 | 1265.850 | 186.13 | 20.30 | 6.40 | 1272.25 | .00 | 3.90 | 4.99 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
.358 | .1000 |      |      |      |      | .0245 | .01 | 2.37 | 2.64 | 1.62 | .013 | .00 | .00 | PIPE
1296.988 | 1263.516 | 2.374 | 1265.890 | 186.13 | 20.26 | 6.37 | 1272.26 | .00 | 3.90 | 4.99 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6.350 | .1000 |      |      |      |      | .0229 | .15 | 2.37 | 2.63 | 1.62 | .013 | .00 | .00 | PIPE
1303.338 | 1264.151 | 2.464 | 1266.615 | 186.13 | 19.31 | 5.79 | 1272.41 | .00 | 3.90 | 5.00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
5.419 | .1000 |      |      |      |      | .0202 | .11 | 2.46 | 2.45 | 1.62 | .013 | .00 | .00 | PIPE
1308.757 | 1264.693 | 2.558 | 1267.251 | 186.13 | 18.42 | 5.27 | 1272.52 | .00 | 3.90 | 5.00 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
4.622 | .1000 |      |      |      |      | .0178 | .08 | 2.56 | 2.28 | 1.62 | .013 | .00 | .00 | PIPE
1313.379 | 1265.155 | 2.657 | 1267.812 | 186.13 | 17.56 | 4.79 | 1272.60 | .00 | 3.90 | 4.99 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
3.929 | .1000 |      |      |      |      | .0157 | .06 | 2.66 | 2.12 | 1.62 | .013 | .00 | .00 | PIPE
1317.308 | 1265.548 | 2.761 | 1268.308 | 186.13 | 16.74 | 4.35 | 1272.66 | .00 | 3.90 | 4.97 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
3.322 | .1000 |      |      |      |      | .0138 | .05 | 2.76 | 1.97 | 1.62 | .013 | .00 | .00 | PIPE
1320.630 | 1265.880 | 2.870 | 1268.750 | 186.13 | 15.96 | 3.96 | 1272.71 | .00 | 3.90 | 4.94 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
26.432 | .0149 |      |      |      |      | .0128 | .34 | 2.87 | 1.83 | 2.75 | .013 | .00 | .00 | PIPE
1347.062 | 1266.274 | 2.894 | 1269.168 | 186.13 | 15.80 | 3.88 | 1273.04 | .00 | 3.90 | 4.94 | 5.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
78.468 | .0149 |      |      |      |      | .0119 | .94 | 2.89 | 1.80 | 2.75 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 4:58:17

REDLANDS MASTERPLAN PROPOSED SD

SD 4-38B PARALLEL TO KANSAS ST

FROM MORREY ARROYO TO MAGNOLIA AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1425.530 | 1267.445 | 3.011 | 1270.456 | 186.13 | 15.07 | 3.52 | 1273.98 | .00 | 3.90 | 4.89 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
44.940 | .0149 | | | | | .0106 | .47 | 3.01 | 1.67 | 2.75 | .013 | .00 | .00 | PIPE
1470.469 | 1268.115 | 3.135 | 1271.250 | 186.13 | 14.36 | 3.20 | 1274.45 | .00 | 3.90 | 4.84 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
28.650 | .0149 | | | | | .0094 | .27 | 3.14 | 1.55 | 2.75 | .013 | .00 | .00 | PIPE
1499.119 | 1268.543 | 3.267 | 1271.810 | 186.13 | 13.70 | 2.91 | 1274.72 | .00 | 3.90 | 4.76 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
18.757 | .0149 | | | | | .0083 | .16 | 3.27 | 1.43 | 2.75 | .013 | .00 | .00 | PIPE
1517.876 | 1268.823 | 3.408 | 1272.230 | 186.13 | 13.06 | 2.65 | 1274.88 | .00 | 3.90 | 4.66 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
11.878 | .0149 | | | | | .0074 | .09 | 3.41 | 1.32 | 2.75 | .013 | .00 | .00 | PIPE
1529.754 | 1269.000 | 3.559 | 1272.559 | 186.13 | 12.45 | 2.41 | 1274.97 | .00 | 3.90 | 4.53 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
6.599 | .0149 | | | | | .0066 | .04 | 3.56 | 1.21 | 2.75 | .013 | .00 | .00 | PIPE
1536.353 | 1269.099 | 3.723 | 1272.822 | 186.13 | 11.87 | 2.19 | 1275.01 | .00 | 3.90 | 4.36 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
2.107 | .0149 | | | | | .0059 | .01 | 3.72 | 1.10 | 2.75 | .013 | .00 | .00 | PIPE
1538.460 | 1269.130 | 3.904 | 1273.034 | 186.13 | 11.32 | 1.99 | 1275.02 | .00 | 3.90 | 4.14 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR | .1313 | | | | | | | | | | | | | | | | |
1542.800 | 1269.700 | 1.539 | 1271.239 | 46.89 | 12.85 | 2.56 | 1273.80 | .00 | 2.23 | 3.00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
65.603 | .0181 | | | | | .0181 | 1.19 | 1.54 | 2.05 | 1.54 | .013 | .00 | .00 | PIPE
1608.403 | 1270.890 | 1.539 | 1272.429 | 46.89 | 12.85 | 2.56 | 1274.99 | .00 | 2.23 | 3.00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
162.537 | .0181 | | | | | .0194 | 3.15 | 1.54 | 2.05 | 1.54 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 4:58:17

REDLANDS MASTERPLAN PROPOSED SD

SD 4-38B PARALLEL TO KANSAS ST

FROM MORREY ARROYO TO MAGNOLIA AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1770.940 | 1273.840 | 1.482 | 1275.322 | 46.89 | 13.47 | 2.82 | 1278.14 | .02 | 2.23 | 3.00 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
13.010 | .0177 |      |      |      |      | .0208 | .27 | 1.50 | 2.20 | 1.55 | .013 | .00 | .00 | PIPE
1783.950 | 1274.070 | 1.471 | 1275.542 | 46.89 | 13.60 | 2.87 | 1278.41 | .02 | 2.23 | 3.00 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
48.369 | .0177 |      |      |      |      | .0225 | 1.09 | 1.49 | 2.23 | 1.55 | .013 | .00 | .00 | PIPE
1832.319 | 1274.927 | 1.418 | 1276.345 | 46.89 | 14.26 | 3.16 | 1279.50 | .02 | 2.23 | 3.00 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
33.451 | .0177 |      |      |      |      | .0256 | .86 | 1.44 | 2.40 | 1.55 | .013 | .00 | .00 | PIPE
1865.770 | 1275.520 | 1.367 | 1276.887 | 46.89 | 14.96 | 3.47 | 1280.36 | .00 | 2.23 | 2.99 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
20.540 | .0182 |      |      |      |      | .0286 | .59 | 1.37 | 2.57 | 1.54 | .013 | .00 | .00 | PIPE
1886.310 | 1275.893 | 1.331 | 1277.224 | 46.89 | 15.49 | 3.72 | 1280.95 | .00 | 2.23 | 2.98 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
23.422 | .0182 |      |      |      |      | .0320 | .75 | 1.33 | 2.71 | 1.54 | .013 | .00 | .00 | PIPE
1909.733 | 1276.319 | 1.283 | 1277.602 | 46.89 | 16.24 | 4.10 | 1281.70 | .00 | 2.23 | 2.97 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
19.897 | .0182 |      |      |      |      | .0365 | .73 | 1.28 | 2.90 | 1.54 | .013 | .00 | .00 | PIPE
1929.630 | 1276.680 | 1.238 | 1277.918 | 46.89 | 17.04 | 4.51 | 1282.42 | .00 | 2.23 | 2.95 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
3.172 | .0597 |      |      |      |      | .0384 | .12 | 1.24 | 3.11 | 1.10 | .013 | .00 | .00 | PIPE
1932.802 | 1276.870 | 1.246 | 1278.115 | 46.89 | 16.89 | 4.43 | 1282.55 | .00 | 2.23 | 2.96 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
14.831 | .0597 |      |      |      |      | .0357 | .53 | 1.25 | 3.07 | 1.10 | .013 | .00 | .00 | PIPE
1947.634 | 1277.755 | 1.292 | 1279.047 | 46.89 | 16.11 | 4.03 | 1283.08 | .00 | 2.23 | 2.97 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
11.207 | .0597 |      |      |      |      | .0313 | .35 | 1.29 | 2.87 | 1.10 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 4:58:17

REDLANDS MASTERPLAN PROPOSED SD

SD 4-38B PARALLEL TO KANSAS ST

FROM MORREY ARROYO TO MAGNOLIA AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1958.841 | 1278.425 | 1.339 | 1279.764 | 46.89 | 15.36 | 3.66 | 1283.43 | .00 | 2.23 | 2.98 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      8.789 | .0597 |      |      |      |      | .0275 | .24 | 1.34 | 2.68 | 1.10 | .013 | .00 | .00 | PIPE
1967.630 | 1278.950 | 1.389 | 1280.339 | 46.89 | 14.64 | 3.33 | 1283.67 | .00 | 2.23 | 2.99 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      75.419 | .0238 |      |      |      |      | .0275 | 2.08 | 1.39 | 2.49 | 1.42 | .013 | .00 | .00 | PIPE
2043.049 | 1280.746 | 1.340 | 1282.086 | 46.89 | 15.35 | 3.66 | 1285.75 | .00 | 2.23 | 2.98 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      42.580 | .0238 |      |      |      |      | .0313 | 1.33 | 1.34 | 2.67 | 1.42 | .013 | .00 | .00 | PIPE
2085.630 | 1281.760 | 1.292 | 1283.052 | 46.89 | 16.10 | 4.03 | 1287.08 | .00 | 2.23 | 2.97 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      82.350 | .0346 |      |      |      |      | .0319 | 2.63 | 1.29 | 2.87 | 1.28 | .013 | .00 | .00 | PIPE
2167.979 | 1284.608 | 1.323 | 1285.931 | 46.89 | 15.60 | 3.78 | 1289.71 | .00 | 2.23 | 2.98 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      50.188 | .0346 |      |      |      |      | .0287 | 1.44 | 1.32 | 2.74 | 1.28 | .013 | .00 | .00 | PIPE
2218.167 | 1286.344 | 1.373 | 1287.716 | 46.89 | 14.87 | 3.44 | 1291.15 | .00 | 2.23 | 2.99 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      27.943 | .0346 |      |      |      |      | .0252 | .71 | 1.37 | 2.55 | 1.28 | .013 | .00 | .00 | PIPE
2246.110 | 1287.310 | 1.424 | 1288.734 | 46.89 | 14.18 | 3.12 | 1291.86 | .10 | 2.23 | 3.00 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      11.094 | .0348 |      |      |      |      | .0228 | .25 | 1.52 | 2.38 | 1.28 | .013 | .00 | .00 | PIPE
2257.204 | 1287.696 | 1.454 | 1289.150 | 46.89 | 13.81 | 2.96 | 1292.11 | .09 | 2.23 | 3.00 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      15.159 | .0348 |      |      |      |      | .0207 | .31 | 1.55 | 2.29 | 1.28 | .013 | .00 | .00 | PIPE
2272.363 | 1288.224 | 1.509 | 1289.733 | 46.89 | 13.17 | 2.69 | 1292.42 | .08 | 2.23 | 3.00 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      11.259 | .0348 |      |      |      |      | .0182 | .21 | 1.59 | 2.13 | 1.28 | .013 | .00 | .00 | PIPE
*****

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 4:58:17

REDLANDS MASTERPLAN PROPOSED SD

SD 4-38B PARALLEL TO KANSAS ST

FROM MORREY ARROYO TO MAGNOLIA AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2283.622 | 1288.615 | 1.567 | 1290.182 | 46.89 | 12.55 | 2.45 | 1292.63 | .08 | 2.23 | 3.00 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      8.620 | .0348 |      |      |      |      | .0161 | .14 | 1.64 | 1.98 | 1.28 | .013 | .00 | .00 | PIPE
2292.243 | 1288.915 | 1.628 | 1290.543 | 46.89 | 11.97 | 2.22 | 1292.77 | .07 | 2.23 | 2.99 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      6.695 | .0348 |      |      |      |      | .0142 | .09 | 1.70 | 1.84 | 1.28 | .013 | .00 | .00 | PIPE
2298.938 | 1289.148 | 1.692 | 1290.840 | 46.89 | 11.41 | 2.02 | 1292.86 | .06 | 2.23 | 2.98 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      5.216 | .0348 |      |      |      |      | .0125 | .07 | 1.75 | 1.71 | 1.28 | .013 | .00 | .00 | PIPE
2304.154 | 1289.330 | 1.760 | 1291.089 | 46.89 | 10.88 | 1.84 | 1292.93 | .06 | 2.23 | 2.95 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      4.026 | .0348 |      |      |      |      | .0111 | .04 | 1.82 | 1.59 | 1.28 | .013 | .00 | .00 | PIPE
2308.180 | 1289.470 | 1.831 | 1291.301 | 46.89 | 10.37 | 1.67 | 1292.97 | .00 | 2.23 | 2.93 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0250 |      |      |      |      | .0099 | .04 | 1.98 | 1.47 |      | .013 | .00 | .00 | PIPE
2312.180 | 1289.570 | 1.889 | 1291.459 | 46.89 | 10.00 | 1.55 | 1293.01 | .14 | 2.23 | 2.90 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      45.099 | .0090 |      |      |      |      | .0097 | .44 | 2.03 | 1.39 | 1.92 | .013 | .00 | .00 | PIPE
2357.279 | 1289.976 | 1.856 | 1291.832 | 46.89 | 10.21 | 1.62 | 1293.45 | .15 | 2.23 | 2.91 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      54.901 | .0090 |      |      |      |      | .0106 | .58 | 2.00 | 1.43 | 1.92 | .013 | .00 | .00 | PIPE
2412.180 | 1290.470 | 1.783 | 1292.253 | 46.89 | 10.71 | 1.78 | 1294.03 | .00 | 2.23 | 2.95 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0200 |      |      |      |      | .0189 | .09 | 1.78 | 1.55 |      | .013 | .00 | .00 | PIPE
2417.180 | 1290.570 | 1.157 | 1291.727 | 46.89 | 12.44 | 2.40 | 1294.13 | .00 | 1.72 | 1.98 | 2.000 | .000 | .00 | 2 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      22.435 | .0200 |      |      |      |      | .0283 | .63 | 1.16 | 1.59 | 1.27 | .013 | .00 | .00 | PIPE
    
```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 4:58:17

REDLANDS MASTERPLAN PROPOSED SD

SD 4-38B PARALLEL TO KANSAS ST

FROM MORREY ARROYO TO MAGNOLIA AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2439.615 | 1291.019 | 1.115 | 1292.134 | 46.89 | 13.02 | 2.63 | 1294.77 | .00 | 1.72 | 1.99 | 2.000 | .000 | .00 | 2 | .0
| | | | | | | | | | | | | | | | |
18.511 | .0200 | | | | | .0320 | .59 | 1.12 | 1.70 | 1.27 | .013 | .00 | .00 | PIPE
2458.126 | 1291.389 | 1.073 | 1292.462 | 46.89 | 13.66 | 2.90 | 1295.36 | .00 | 1.72 | 1.99 | 2.000 | .000 | .00 | 2 | .0
| | | | | | | | | | | | | | | | |
15.377 | .0200 | | | | | .0362 | .56 | 1.07 | 1.83 | 1.27 | .013 | .00 | .00 | PIPE
2473.503 | 1291.697 | 1.033 | 1292.729 | 46.89 | 14.32 | 3.19 | 1295.92 | .00 | 1.72 | 2.00 | 2.000 | .000 | .00 | 2 | .0
| | | | | | | | | | | | | | | | |
13.292 | .0200 | | | | | .0411 | .55 | 1.03 | 1.97 | 1.27 | .013 | .00 | .00 | PIPE
2486.796 | 1291.962 | .995 | 1292.957 | 46.89 | 15.02 | 3.50 | 1296.46 | .00 | 1.72 | 2.00 | 2.000 | .000 | .00 | 2 | .0
| | | | | | | | | | | | | | | | |
11.769 | .0200 | | | | | .0467 | .55 | .99 | 2.12 | 1.27 | .013 | .00 | .00 | PIPE
2498.565 | 1292.198 | .959 | 1293.156 | 46.89 | 15.76 | 3.85 | 1297.01 | .00 | 1.72 | 2.00 | 2.000 | .000 | .00 | 2 | .0
| | | | | | | | | | | | | | | | |
10.615 | .0200 | | | | | .0531 | .56 | .96 | 2.28 | 1.27 | .013 | .00 | .00 | PIPE
2509.180 | 1292.410 | .924 | 1293.334 | 46.89 | 16.53 | 4.24 | 1297.57 | .00 | 1.72 | 1.99 | 2.000 | .000 | .00 | 2 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR | .1000 | | | | | .0421 | .21 | .92 | 2.44 | | | .013 | .00 | .00 | PIPE
2514.180 | 1292.910 | 1.361 | 1294.271 | 46.89 | 15.04 | 3.51 | 1297.78 | .00 | 2.23 | 2.99 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
213.893 | .0277 | | | | | .0277 | 5.92 | 1.36 | 2.59 | 1.36 | .013 | .00 | .00 | PIPE
2728.073 | 1298.830 | 1.361 | 1300.191 | 46.89 | 15.04 | 3.51 | 1303.70 | .00 | 2.23 | 2.99 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
160.407 | .0277 | | | | | .0276 | 4.43 | 1.36 | 2.59 | 1.36 | .013 | .00 | .00 | PIPE
2888.480 | 1303.270 | 1.362 | 1304.632 | 46.89 | 15.02 | 3.50 | 1308.14 | .29 | 2.23 | 2.99 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
26.560 | .0310 | | | | | .0269 | .72 | 1.65 | 2.59 | 1.32 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 4:58:17

REDLANDS MASTERPLAN PROPOSED SD

SD 4-38B PARALLEL TO KANSAS ST

FROM MORREY ARROYO TO MAGNOLIA AVE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
2915.040	1304.094	1.381	1305.476	46.89	14.75	3.38	1308.85	.28	2.23	2.99	3.000	.000	.00	1 .0
40.260	.0310					.0247	.99	1.66	2.52	1.32	.013	.00	.00	PIPE
2955.301	1305.343	1.433	1306.777	46.89	14.06	3.07	1309.85	.25	2.23	3.00	3.000	.000	.00	1 .0
24.165	.0310					.0217	.52	1.69	2.35	1.32	.013	.00	.00	PIPE
2979.466	1306.093	1.488	1307.581	46.89	13.41	2.79	1310.37	.23	2.23	3.00	3.000	.000	.00	1 .0
16.545	.0310					.0191	.32	1.72	2.19	1.32	.013	.00	.00	PIPE
2996.011	1306.606	1.544	1308.151	46.89	12.78	2.54	1310.69	.21	2.23	3.00	3.000	.000	.00	1 .0
12.060	.0310					.0169	.20	1.75	2.04	1.32	.013	.00	.00	PIPE
3008.071	1306.981	1.604	1308.585	46.89	12.19	2.31	1310.89	.19	2.23	2.99	3.000	.000	.00	1 .0
9.093	.0310					.0149	.14	1.80	1.89	1.32	.013	.00	.00	PIPE
3017.163	1307.263	1.667	1308.930	46.89	11.62	2.10	1311.03	.17	2.23	2.98	3.000	.000	.00	1 .0
6.953	.0310					.0131	.09	1.84	1.76	1.32	.013	.00	.00	PIPE
3024.116	1307.478	1.733	1309.212	46.89	11.08	1.91	1311.12	.16	2.23	2.96	3.000	.000	.00	1 .0
5.320	.0310					.0116	.06	1.89	1.63	1.32	.013	.00	.00	PIPE
3029.437	1307.643	1.803	1309.447	46.89	10.57	1.73	1311.18	.14	2.23	2.94	3.000	.000	.00	1 .0
4.017	.0310					.0103	.04	1.94	1.52	1.32	.013	.00	.00	PIPE
3033.454	1307.768	1.877	1309.646	46.89	10.07	1.58	1311.22	.13	2.23	2.90	3.000	.000	.00	1 .0
2.940	.0310					.0091	.03	2.00	1.40	1.32	.013	.00	.00	PIPE

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE WIDTH	PIER WIDTH	HEIGHT 1	BASE DIAMETER	WIDTH	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)	
CD	1	4	1			6.000																
CD	2	4	1			4.500																
CD	3	4	1			4.500																
CD	4	4	1			3.000																
CD	5	4	1			4.000																
CD	6	4	1			1.500																
CD	7	4	1			3.500																
CD	8	4	1			4.000																
CD	9	4	1			5.000																
CD	10	4	1			5.000																
CD	11	4	1			1.500																
CD	12	4	1			3.500																
CD	13	4	1			3.500																
CD	14	4	1			3.500																
CD	15	4	1			1.500																
CD	16	4	1			1.500																
CD	17	4	1			3.000																
CD	18	4	1			3.000																
CD	19	4	1			3.000																
CD	20	4	1			3.000																
CD	21	4	1			2.000																
CD	22	4	1			2.500																

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS - REDLANDS MASTER PLAN PROPOSED SD
 HEADING LINE NO 2 IS - SD 4-39
 HEADING LINE NO 3 IS - FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	U/S DATA	STATION	INVERT	SECT	W S ELEV	RADIUS	ANGLE	ANG PT	MAN H
1	IS	A	SYSTEM	OUTLET		.000	1254.860	1	1263.500				
2	IS	A	REACH			53.530	1256.860	1		.013	.000	.000	1
3	IS	A	REACH			1000.000	1265.550	1		.013	.000	.000	0
4	IS	A	REACH			1008.140	1265.620	1		.013	10.364	-45.000	0
5	IS	A	REACH			1399.040	1275.770	1		.013	.000	.000	0
6	IS	A	REACH			1450.000	1275.920	1		.013	32.442	90.000	0
7	IS	A	JUNCTION			1455.000	1276.000	1		.013	138.150	.000	0

ELEMENT NO	8	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							
			1750.000	1276.930	1	.013			.000	.000	.000	0								
ELEMENT NO	9	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							
			1800.000	1277.700	1	.013			31.831	-90.000	.000	0								
ELEMENT NO	10	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							
			1842.470	1279.530	1	.013			.000	.000	.000	0								
ELEMENT NO	11	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							
			1900.000	1280.870	1	.013			.000	.000	45.000	0								
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS																				
ELEMENT NO	12	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							
			2305.690	1289.510	9	.013			.000	.000	.000	0								
											W S P G W									
											PAGE NO 3									
WATER SURFACE PROFILE - ELEMENT CARD LISTING																				
ELEMENT NO	13	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							
			2356.310	1290.590	9	.013			.000	.000	47.180	5								
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS																				
ELEMENT NO	14	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							
			2497.220	1293.590	10	.013			118.138	-68.340	.000	3								
ELEMENT NO	15	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							
			2763.690	1299.290	10	.013			.000	.000	.000	0								
ELEMENT NO	16	IS A JUNCTION	*	*	*	*	*	*												
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4						
			2767.690	1299.330	2	0	0	.013	.000	.000	.000	.000	.000	.000	.000					
											RADIUS		ANGLE							
											.000		.000							
ELEMENT NO	17	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							
			2935.340	1306.390	2	.013			.000	.000	.000	1								
ELEMENT NO	18	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							
			3015.370	1309.060	2	.013			90.531	-50.650	.000	0								
ELEMENT NO	19	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							
			3061.670	1310.630	2	.013			52.375	50.650	.000	0								
ELEMENT NO	20	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							
			3153.690	1313.720	2	.013			.000	.000	.000	1								
ELEMENT NO	21	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							
			3256.190	1317.170	2	.013			.000	.000	.000	0								
ELEMENT NO	22	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							
			3451.590	1321.410	2	.013			.000	.000	.000	0								
ELEMENT NO	23	IS A JUNCTION	*	*	*	*	*	*												
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4						
			3461.590	1321.430	3	0	0	.013	.000	.000	.000	.000	.000	.000	.000					
											RADIUS		ANGLE							
											.000		.000							
											PAGE NO 4									
WATER SURFACE PROFILE - ELEMENT CARD LISTING																				
ELEMENT NO	24	IS A REACH	*	*	*															
		U/S DATA	STATION	INVERT	SECT	N			RADIUS	ANGLE	ANG PT	MAN	H							

		3721.680	1324.670	3	.013		.000	.000	.000	4
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS										
ELEMENT NO	25 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		3787.500	1325.830	2	.013		.000	.000	.000	0
ELEMENT NO	26 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		3863.540	1327.620	2	.013		50.056	87.038	.000	1
ELEMENT NO	27 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		4141.590	1333.400	2	.013		.000	.000	.000	1
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS										
ELEMENT NO	28 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		4182.450	1334.250	5	.013		.000	.000	.000	1
ELEMENT NO	29 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		4320.110	1336.940	5	.013		.000	.000	.000	0
ELEMENT NO	30 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		4334.910	1337.350	5	.013		.000	.000	.000	0
ELEMENT NO	31 IS A JUNCTION	U/S DATA		STATION	INVERT	SECT	LAT-1	LAT-2	Q3	Q4
		4342.910	1337.350	5	.013		4	0	91.590	.000
									INVERT-3	INVERT-4
									1337.620	.000
									PHI 3	PHI 4
									45.000	.000
									RADIUS	ANGLE
									.000	.000
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING										
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING										
ELEMENT NO	32 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		4388.440	1338.310	5	.013		29.321	-88.970	.000	0
ELEMENT NO	33 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		4421.810	1338.980	5	.013		.000	.000	.000	0
ELEMENT NO	34 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		4496.630	1340.510	5	.013		65.619	65.330	.000	0
										W S P G W
										PAGE NO 5
WATER SURFACE PROFILE - ELEMENT CARD LISTING										
ELEMENT NO	35 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		4533.970	1341.230	5	.013		.000	.000	.000	0
ELEMENT NO	36 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		4637.540	1343.310	5	.013		111.188	-53.370	.000	1
ELEMENT NO	37 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		4968.540	1349.930	5	.013		.000	.000	.000	1
ELEMENT NO	38 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		5142.850	1354.100	5	.013		187.202	53.350	.000	0
ELEMENT NO	39 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		5338.690	1358.790	5	.013		.000	.000	.000	0
ELEMENT NO	40 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		5558.590	1364.030	5	.013		139.993	-90.000	.000	1
ELEMENT NO	41 IS A REACH	U/S DATA		STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
		5749.450	1366.830	5	.013		.000	.000	.000	1

ELEMENT NO	56	IS A JUNCTION	*	*	*	*	*	*	*	*	*	*	*	*
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			7070.950	1420.410	22	21	0	.013	30.080	.000	1421.160	.000	-45.000	.000
											RADIUS	ANGLE		
											.000	.000		
ELEMENT NO	57	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			7203.270	1428.690	22			.013			.000	.000	.000	0
ELEMENT NO	58	IS A SYSTEM HEADWORKS			*				*					
		U/S DATA	STATION	INVERT	SECT						W S ELEV			
			7203.270	1428.690	22						.000			

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 6:52: 0

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39

FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
.000 | 1254.860 | 8.640 | 1263.500 | 381.68 | 13.50 | 2.83 | 1266.33 | .00 | 5.25 | .00 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
53.530 | .0374 |      |      |      |      |      |      | .0081 | .43 | 8.64 | .00 | 2.88 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
53.530 | 1256.860 | 7.216 | 1264.076 | 381.68 | 13.50 | 2.83 | 1266.91 | .00 | 5.25 | .00 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
645.424 | .0092 |      |      |      |      |      |      | .0081 | 5.24 | 7.22 | .00 | 4.63 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
698.954 | 1262.786 | 6.533 | 1269.319 | 381.68 | 13.50 | 2.83 | 1272.15 | .00 | 5.25 | .00 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
HYDRAULIC JUMP
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
698.954 | 1262.786 | 4.026 | 1266.812 | 381.68 | 18.92 | 5.56 | 1272.37 | .00 | 5.25 | 5.64 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
38.769 | .0092 |      |      |      |      |      |      | .0133 | .51 | 4.03 | 1.76 | 4.63 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
737.723 | 1263.142 | 3.962 | 1267.104 | 381.68 | 19.27 | 5.77 | 1272.87 | .00 | 5.25 | 5.68 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
79.174 | .0092 |      |      |      |      |      |      | .0144 | 1.14 | 3.96 | 1.82 | 4.63 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
816.897 | 1263.869 | 3.801 | 1267.670 | 381.68 | 20.21 | 6.34 | 1274.01 | .00 | 5.25 | 5.78 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
68.151 | .0092 |      |      |      |      |      |      | .0163 | 1.11 | 3.80 | 1.97 | 4.63 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
885.048 | 1264.495 | 3.650 | 1268.145 | 381.68 | 21.20 | 6.98 | 1275.12 | .00 | 5.25 | 5.86 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
60.402 | .0092 |      |      |      |      |      |      | .0184 | 1.11 | 3.65 | 2.13 | 4.63 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
945.449 | 1265.049 | 3.508 | 1268.557 | 381.68 | 22.23 | 7.67 | 1276.23 | .00 | 5.25 | 5.91 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
54.551 | .0092 |      |      |      |      |      |      | .0208 | 1.13 | 3.51 | 2.30 | 4.63 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1000.000 | 1265.550 | 3.373 | 1268.923 | 381.68 | 23.32 | 8.44 | 1277.36 | 6.00 | 5.25 | 5.95 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
8.140 | .0086 |      |      |      |      |      |      | .0223 | .18 | 6.00 | 2.48 | 4.77 | .013 | .00 | .00 | PIPE

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 6:52: 0

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39

FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1008.140 | 1265.620 | 3.352 | 1268.971 | 381.68 | 23.50 | 8.58 | 1277.55 | .00 | 5.25 | 5.96 | 6.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |
      8.463 | .0260 | | | | | | .0225 | .19 | 3.35 | 2.51 | 3.21 | .013 | .00 | .00 | PIPE
1016.603 | 1265.839 | 3.357 | 1269.197 | 381.68 | 23.45 | 8.54 | 1277.74 | .00 | 5.25 | 5.96 | 6.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |
      132.034 | .0260 | | | | | | .0211 | 2.79 | 3.36 | 2.50 | 3.21 | .013 | .00 | .00 | PIPE
1148.637 | 1269.268 | 3.491 | 1272.759 | 381.68 | 22.36 | 7.76 | 1280.52 | .00 | 5.25 | 5.92 | 6.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |
      77.183 | .0260 | | | | | | .0187 | 1.44 | 3.49 | 2.32 | 3.21 | .013 | .00 | .00 | PIPE
1225.820 | 1271.272 | 3.632 | 1274.904 | 381.68 | 21.32 | 7.06 | 1281.96 | .00 | 5.25 | 5.87 | 6.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |
      52.041 | .0260 | | | | | | .0165 | .86 | 3.63 | 2.15 | 3.21 | .013 | .00 | .00 | PIPE
1277.861 | 1272.623 | 3.782 | 1276.405 | 381.68 | 20.33 | 6.42 | 1282.82 | .00 | 5.25 | 5.79 | 6.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |
      37.440 | .0260 | | | | | | .0146 | .55 | 3.78 | 1.99 | 3.21 | .013 | .00 | .00 | PIPE
1315.301 | 1273.595 | 3.942 | 1277.537 | 381.68 | 19.38 | 5.83 | 1283.37 | .00 | 5.25 | 5.70 | 6.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |
      27.782 | .0260 | | | | | | .0130 | .36 | 3.94 | 1.84 | 3.21 | .013 | .00 | .00 | PIPE
1343.083 | 1274.317 | 4.112 | 1278.429 | 381.68 | 18.48 | 5.30 | 1283.73 | .00 | 5.25 | 5.57 | 6.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |
      20.778 | .0260 | | | | | | .0116 | .24 | 4.11 | 1.69 | 3.21 | .013 | .00 | .00 | PIPE
1363.862 | 1274.856 | 4.296 | 1279.152 | 381.68 | 17.62 | 4.82 | 1283.97 | .00 | 5.25 | 5.41 | 6.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |
      15.331 | .0260 | | | | | | .0104 | .16 | 4.30 | 1.55 | 3.21 | .013 | .00 | .00 | PIPE
1379.192 | 1275.255 | 4.495 | 1279.749 | 381.68 | 16.80 | 4.38 | 1284.13 | .00 | 5.25 | 5.20 | 6.000 | .000 | .00 | 1 | .0
      | | | | | | | | | | | | | | | | |
      10.783 | .0260 | | | | | | .0093 | .10 | 4.49 | 1.42 | 3.21 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 6:52: 0

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39

FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	No ZL	Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1389.975	1275.535	4.713	1280.248	381.68	16.02	3.98	1284.23	.00	5.25	4.93	6.000	.000	.00	1 .0
6.660	.0260					.0084	.06	4.71	1.28	3.21	.013	.00	.00	PIPE
1396.634	1275.708	4.959	1280.666	381.68	15.27	3.62	1284.29	.00	5.25	4.54	6.000	.000	.00	1 .0
2.406	.0260					.0077	.02	4.96	1.15	3.21	.013	.00	.00	PIPE
1399.040	1275.770	5.245	1281.015	381.68	14.56	3.29	1284.31	.40	5.25	3.98	6.000	.000	.00	1 .0
15.428	.0029					.0072	.11	5.65	1.00	6.00	.013	.00	.00	PIPE
1414.468	1275.815	5.610	1281.425	381.68	13.88	2.99	1284.42	.27	5.25	2.96	6.000	.000	.00	1 .0
35.532	.0029					.0072	.26	5.88	.80	6.00	.013	.00	.00	PIPE
1450.000	1275.920	5.904	1281.824	381.68	13.55	2.85	1284.67	.00	5.25	1.51	6.000	.000	.00	1 .0
JUNCT STR	.0160					.0053	.03	5.90	.55		.013	.00	.00	PIPE
1455.000	1276.000	9.231	1285.231	243.53	8.61	1.15	1286.38	.00	4.27	.00	6.000	.000	.00	1 .0
295.000	.0032					.0033	.98	9.23	.00	5.06	.013	.00	.00	PIPE
1750.000	1276.930	9.277	1286.207	243.53	8.61	1.15	1287.36	.00	4.27	.00	6.000	.000	.00	1 .0
50.000	.0154					.0033	.17	.00	.00	2.87	.013	.00	.00	PIPE
1800.000	1277.700	8.902	1286.602	243.53	8.61	1.15	1287.75	.00	4.27	.00	6.000	.000	.00	1 .0
42.470	.0431					.0033	.14	8.90	.00	2.16	.013	.00	.00	PIPE
1842.470	1279.530	7.213	1286.743	243.53	8.61	1.15	1287.89	.00	4.27	.00	6.000	.000	.00	1 .0
57.530	.0233					.0033	.19	7.21	.00	2.55	.013	.00	.00	PIPE

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 6:52: 0

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39

FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1900.000 | 1280.870 | 6.234 | 1287.104 | 243.53 | 8.61 | 1.15 | 1288.26 | .00 | 4.27 | .00 | 6.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
1900.000 | 1280.870 | 2.910 | 1283.780 | 243.53 | 20.54 | 6.55 | 1290.33 | .00 | 4.38 | 4.93 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
17.476 | .0213 | | | | | | | | | | | | | | | |
388.214 | .0213 | | | | | | | | | | | | | | | |
1917.476 | 1281.242 | 2.910 | 1284.152 | 243.53 | 20.54 | 6.55 | 1290.70 | .00 | 4.38 | 4.93 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
388.214 | .0213 | | | | | | | | | | | | | | | |
2305.690 | 1289.510 | 2.852 | 1292.362 | 243.53 | 21.05 | 6.88 | 1299.24 | .00 | 4.38 | 4.95 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
50.620 | .0213 | | | | | | | | | | | | | | | |
2356.310 | 1290.590 | 2.835 | 1293.425 | 243.53 | 21.20 | 6.98 | 1300.40 | .59 | 4.38 | 4.95 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
140.910 | .0213 | | | | | | | | | | | | | | | |
2497.220 | 1293.590 | 2.759 | 1296.349 | 243.53 | 21.92 | 7.46 | 1303.81 | .00 | 4.38 | 4.97 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
24.640 | .0214 | | | | | | | | | | | | | | | |
2521.860 | 1294.117 | 2.741 | 1296.858 | 243.53 | 22.10 | 7.58 | 1304.44 | .00 | 4.38 | 4.98 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
107.612 | .0214 | | | | | | | | | | | | | | | |
2629.472 | 1296.419 | 2.638 | 1299.057 | 243.53 | 23.18 | 8.34 | 1307.40 | .00 | 4.38 | 4.99 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
75.303 | .0214 | | | | | | | | | | | | | | | |
2704.774 | 1298.030 | 2.540 | 1300.570 | 243.53 | 24.31 | 9.18 | 1309.75 | .00 | 4.38 | 5.00 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
58.916 | .0214 | | | | | | | | | | | | | | | |
2763.690 | 1299.290 | 2.447 | 1301.737 | 243.53 | 25.49 | 10.09 | 1311.83 | .00 | 4.38 | 5.00 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR | .0100 | | | | | | | | | | | | | | | |
.0376 | .15 | 2.45 | 3.25 | .013 | .00 | .00 | PIPE
    
```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 6:52: 0

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39

FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope|       |       |       |       |       | HF |SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2767.690 | 1299.330 | 2.613 | 1301.943 | 243.53 | 25.42 | 10.03 | 1311.98 | .00 | 4.25 | 4.44 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
86.835 | .0421 |      |      |      |      |      | .0362 | 3.14 | 2.61 | 3.05 | 2.52 | .013 | .00 | .00 | PIPE
2854.525 | 1302.987 | 2.678 | 1305.665 | 243.53 | 24.68 | 9.46 | 1315.12 | .00 | 4.25 | 4.42 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
80.815 | .0421 |      |      |      |      |      | .0328 | 2.65 | 2.68 | 2.91 | 2.52 | .013 | .00 | .00 | PIPE
2935.340 | 1306.390 | 2.788 | 1309.178 | 243.53 | 23.53 | 8.60 | 1317.77 | .83 | 4.25 | 4.37 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
80.030 | .0334 |      |      |      |      |      | .0302 | 2.41 | 3.62 | 2.69 | 2.72 | .013 | .00 | .00 | PIPE
3015.370 | 1309.060 | 2.830 | 1311.890 | 243.53 | 23.12 | 8.30 | 1320.19 | 1.38 | 4.25 | 4.35 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
46.300 | .0339 |      |      |      |      |      | .0289 | 1.34 | 4.21 | 2.62 | 2.70 | .013 | .00 | .00 | PIPE
3061.670 | 1310.630 | 2.871 | 1313.501 | 243.53 | 22.73 | 8.03 | 1321.53 | .00 | 4.25 | 4.33 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6.378 | .0336 |      |      |      |      |      | .0282 | .18 | 2.87 | 2.55 | 2.71 | .013 | .00 | .00 | PIPE
3068.048 | 1310.844 | 2.877 | 1313.722 | 243.53 | 22.68 | 7.99 | 1321.71 | .00 | 4.25 | 4.32 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
85.642 | .0336 |      |      |      |      |      | .0265 | 2.27 | 2.88 | 2.54 | 2.71 | .013 | .00 | .00 | PIPE
3153.690 | 1313.720 | 3.000 | 1316.720 | 243.53 | 21.62 | 7.26 | 1323.98 | .00 | 4.25 | 4.24 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
27.384 | .0337 |      |      |      |      |      | .0243 | .67 | 3.00 | 2.34 | 2.71 | .013 | .00 | .00 | PIPE
3181.074 | 1314.642 | 3.060 | 1317.701 | 243.53 | 21.15 | 6.95 | 1324.65 | .00 | 4.25 | 4.20 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
43.904 | .0337 |      |      |      |      |      | .0224 | .98 | 3.06 | 2.25 | 2.71 | .013 | .00 | .00 | PIPE
3224.979 | 1316.120 | 3.195 | 1319.315 | 243.53 | 20.16 | 6.31 | 1325.63 | .00 | 4.25 | 4.08 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
31.211 | .0337 |      |      |      |      |      | .0200 | .62 | 3.20 | 2.07 | 2.71 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 6:52: 0

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39

FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3256.190	1317.170	3.342	1320.512	243.53	19.23	5.74	1326.25	.00	4.25	3.93	4.500	.000	.00	1 .0
72.832	.0217					.0182	1.33	3.34	1.89	3.16	.013	.00	.00	PIPE
3329.022	1318.750	3.451	1322.201	243.53	18.61	5.38	1327.58	.00	4.25	3.81	4.500	.000	.00	1 .0
63.107	.0217					.0167	1.05	3.45	1.77	3.16	.013	.00	.00	PIPE
3392.129	1320.120	3.624	1323.743	243.53	17.74	4.89	1328.63	.00	4.25	3.56	4.500	.000	.00	1 .0
37.833	.0217					.0152	.57	3.62	1.59	3.16	.013	.00	.00	PIPE
3429.962	1320.941	3.821	1324.761	243.53	16.92	4.44	1329.21	.00	4.25	3.22	4.500	.000	.00	1 .0
21.628	.0217					.0140	.30	3.82	1.41	3.16	.013	.00	.00	PIPE
3451.590	1321.410	4.058	1325.468	243.53	16.13	4.04	1329.51	.00	4.25	2.68	4.500	.000	.00	1 .0
JUNCT STR	.0020					.0138	.14	4.06	1.20		.013	.00	.00	PIPE
3461.590	1321.430	3.874	1325.304	243.53	16.72	4.34	1329.65	.00	4.25	3.12	4.500	.000	.00	1 .0
34.868	.0125					.0144	.50	3.87	1.36	4.50	.013	.00	.00	PIPE
3496.458	1321.864	3.803	1325.667	243.53	16.99	4.48	1330.15	.00	4.25	3.26	4.500	.000	.00	1 .0
89.929	.0125					.0153	1.37	3.80	1.43	4.50	.013	.00	.00	PIPE
3586.387	1322.985	3.608	1326.593	243.53	17.82	4.93	1331.52	.00	4.25	3.59	4.500	.000	.00	1 .0
73.364	.0125					.0168	1.24	3.61	1.61	4.50	.013	.00	.00	PIPE
3659.752	1323.899	3.437	1327.335	243.53	18.69	5.42	1332.76	.00	4.25	3.82	4.500	.000	.00	1 .0
61.928	.0125					.0187	1.16	3.44	1.78	4.50	.013	.00	.00	PIPE

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 6:52: 0

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39

FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
3721.680 | 1324.670 | 3.282 | 1327.952 | 243.53 | 19.60 | 5.96 | 1333.92 | .00 | 4.25 | 4.00 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
65.820 | .0176 |      |      |      |      | .0202 | 1.33 | 3.28 | 1.96 | 3.44 | .013 | .00 | .00 | PIPE
3787.500 | 1325.830 | 3.226 | 1329.056 | 243.53 | 19.96 | 6.19 | 1335.24 | 1.00 | 4.25 | 4.06 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
76.040 | .0235 |      |      |      |      | .0199 | 1.51 | 4.23 | 2.03 | 3.06 | .013 | .00 | .00 | PIPE
3863.540 | 1327.620 | 3.323 | 1330.943 | 243.53 | 19.34 | 5.81 | 1336.75 | .00 | 4.25 | 3.96 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
82.877 | .0208 |      |      |      |      | .0187 | 1.55 | 3.32 | 1.91 | 3.21 | .013 | .00 | .00 | PIPE
3946.417 | 1329.343 | 3.392 | 1332.735 | 243.53 | 18.93 | 5.57 | 1338.30 | .00 | 4.25 | 3.88 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
98.153 | .0208 |      |      |      |      | .0173 | 1.70 | 3.39 | 1.83 | 3.21 | .013 | .00 | .00 | PIPE
4044.570 | 1331.383 | 3.559 | 1334.942 | 243.53 | 18.05 | 5.06 | 1340.00 | .00 | 4.25 | 3.66 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
53.400 | .0208 |      |      |      |      | .0157 | .84 | 3.56 | 1.66 | 3.21 | .013 | .00 | .00 | PIPE
4097.971 | 1332.493 | 3.746 | 1336.239 | 243.53 | 17.21 | 4.60 | 1340.84 | .00 | 4.25 | 3.36 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
30.893 | .0208 |      |      |      |      | .0144 | .44 | 3.75 | 1.48 | 3.21 | .013 | .00 | .00 | PIPE
4128.863 | 1333.135 | 3.965 | 1337.101 | 243.53 | 16.41 | 4.18 | 1341.28 | .00 | 4.25 | 2.91 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
12.727 | .0208 |      |      |      |      | .0135 | .17 | 3.97 | 1.28 | 3.21 | .013 | .00 | .00 | PIPE
4141.590 | 1333.400 | 4.254 | 1337.654 | 243.53 | 15.65 | 3.80 | 1341.46 | .00 | 4.25 | 2.05 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
4141.590 | 1333.400 | 3.928 | 1337.328 | 243.53 | 19.46 | 5.88 | 1343.21 | .00 | 3.93 | 1.06 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
4.099 | .0208 |      |      |      |      | .0267 | .11 | 3.93 | 1.00 | 4.00 | .013 | .00 | .00 | PIPE
4145.689 | 1333.485 | 4.000 | 1337.485 | 243.53 | 19.38 | 5.83 | 1343.32 | .00 | 3.93 | .00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
36.761 | .0208 |      |      |      |      | .0281 | 1.03 | 4.00 | .00 | 4.00 | .013 | .00 | .00 | PIPE

```

REDLANDS MASTER PLAN PROPOSED SD
SD 4-39

FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	No ZL	Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
4182.450	1334.250	4.554	1338.804	243.53	19.38	5.83	1344.64	.00	3.93	.00	4.000	.000	.00	1 .0
137.660	.0195					.0287	3.96	4.55	.00	4.00	.013	.00	.00	PIPE
4320.110	1336.940	5.821	1342.761	243.53	19.38	5.83	1348.59	.00	3.93	.00	4.000	.000	.00	1 .0
14.800	.0277					.0287	.43	5.82	.00	3.35	.013	.00	.00	PIPE
4334.910	1337.350	5.837	1343.187	243.53	19.38	5.83	1349.02	.00	3.93	.00	4.000	.000	.00	1 .0
JUNCT STR	.0000					.0200	.16	.00	.00		.013	.00	.00	PIPE
4342.910	1337.350	11.046	1348.396	151.94	12.09	2.27	1350.67	.00	3.61	.00	4.000	.000	.00	1 .0
45.530	.0211					.0112	.51	.00	.00	2.53	.013	.00	.00	PIPE
4388.440	1338.310	11.047	1349.357	151.94	12.09	2.27	1351.63	.00	3.61	.00	4.000	.000	.00	1 .0
33.370	.0201					.0112	.37	11.05	.00	2.58	.013	.00	.00	PIPE
4421.810	1338.980	10.750	1349.730	151.94	12.09	2.27	1352.00	.00	3.61	.00	4.000	.000	.00	1 .0
74.820	.0204					.0112	.84	.00	.00	2.56	.013	.00	.00	PIPE
4496.630	1340.510	10.444	1350.954	151.94	12.09	2.27	1353.22	.00	3.61	.00	4.000	.000	.00	1 .0
37.340	.0193					.0112	.42	10.44	.00	2.61	.013	.00	.00	PIPE
4533.970	1341.230	10.142	1351.372	151.94	12.09	2.27	1353.64	.00	3.61	.00	4.000	.000	.00	1 .0
103.570	.0201					.0112	1.16	.00	.00	2.58	.013	.00	.00	PIPE
4637.540	1343.310	9.684	1352.994	151.94	12.09	2.27	1355.26	.00	3.61	.00	4.000	.000	.00	1 .0
331.000	.0200					.0112	3.70	9.68	.00	2.58	.013	.00	.00	PIPE

SD 4-39
 FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
4968.540 | 1349.930 | 6.881 | 1356.811 | 151.94 | 12.09 | 2.27 | 1359.08 | .00 | 3.61 | .00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
153.552 | .0239 |      |      |      |      | .0112 | 1.72 | .00 | .00 | 2.43 | .013 | .00 | .00 | PIPE
5122.092 | 1353.603 | 5.233 | 1358.837 | 151.94 | 12.09 | 2.27 | 1361.11 | .00 | 3.61 | .00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
HYDRAULIC JUMP
5122.092 | 1353.603 | 2.444 | 1356.048 | 151.94 | 18.89 | 5.54 | 1361.59 | .23 | 3.61 | 3.90 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      | .0235 | .49 | 2.67 | 2.32 | 2.43 | .013 | .00 | .00 | PIPE
20.758 | .0239 |      |      |      |      |      |      |      |      |      |      |      |      |      |
5142.850 | 1354.100 | 2.444 | 1356.544 | 151.94 | 18.89 | 5.54 | 1362.08 | .00 | 3.61 | 3.90 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      | .0225 | 4.41 | 2.44 | 2.32 | 2.43 | .013 | .00 | .00 | PIPE
195.840 | .0239 |      |      |      |      |      |      |      |      |      |      |      |      |      |
5338.690 | 1358.790 | 2.512 | 1361.302 | 151.94 | 18.29 | 5.19 | 1366.50 | .29 | 3.61 | 3.87 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      | .0205 | 2.06 | 2.80 | 2.20 | 2.43 | .013 | .00 | .00 | PIPE
100.400 | .0238 |      |      |      |      |      |      |      |      |      |      |      |      |      |
5439.090 | 1361.182 | 2.607 | 1363.789 | 151.94 | 17.52 | 4.77 | 1368.56 | .26 | 3.61 | 3.81 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      | .0183 | 1.07 | 2.87 | 2.05 | 2.43 | .013 | .00 | .00 | PIPE
58.464 | .0238 |      |      |      |      |      |      |      |      |      |      |      |      |      |
5497.554 | 1362.576 | 2.719 | 1365.294 | 151.94 | 16.70 | 4.33 | 1369.63 | .23 | 3.61 | 3.73 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      | .0163 | .59 | 2.95 | 1.89 | 2.43 | .013 | .00 | .00 | PIPE
36.428 | .0238 |      |      |      |      |      |      |      |      |      |      |      |      |      |
5533.982 | 1363.444 | 2.840 | 1366.283 | 151.94 | 15.93 | 3.94 | 1370.22 | .20 | 3.61 | 3.63 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      | .0146 | .36 | 3.04 | 1.73 | 2.43 | .013 | .00 | .00 | PIPE
24.608 | .0238 |      |      |      |      |      |      |      |      |      |      |      |      |      |
5558.589 | 1364.030 | 2.970 | 1367.000 | 151.94 | 15.19 | 3.58 | 1370.58 | .00 | 3.61 | 3.50 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      | .0136 | .56 | 2.97 | 1.58 | 2.89 | .013 | .00 | .00 | PIPE
41.458 | .0147 |      |      |      |      |      |      |      |      |      |      |      |      |      |
    
```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 6:52: 0

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39

FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
5600.047 | 1364.638 | 3.000 | 1367.638 | 151.94 | 15.03 | 3.51 | 1371.15 | .00 | 3.61 | 3.46 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
91.430 | .0147 |      |      |      |      | .0128 | 1.17 | 3.00 | 1.55 | 2.89 | .013 | .00 | .00 | PIPE
5691.477 | 1365.979 | 3.147 | 1369.126 | 151.94 | 14.33 | 3.19 | 1372.31 | .00 | 3.61 | 3.28 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
40.375 | .0147 |      |      |      |      | .0116 | .47 | 3.15 | 1.40 | 2.89 | .013 | .00 | .00 | PIPE
5731.852 | 1366.572 | 3.311 | 1369.882 | 151.94 | 13.66 | 2.90 | 1372.78 | .00 | 3.61 | 3.02 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
17.599 | .0147 |      |      |      |      | .0106 | .19 | 3.31 | 1.25 | 2.89 | .013 | .00 | .00 | PIPE
5749.450 | 1366.830 | 3.502 | 1370.332 | 151.94 | 13.03 | 2.63 | 1372.97 | 4.00 | 3.61 | 2.64 | 4.000 | .000 | .00 | 1 | .0
JUNCT STR | .0130 |      |      |      |      | .0169 | .17 | 4.00 | 1.09 |      | .013 | .00 | .00 | PIPE
5759.450 | 1366.960 | 2.628 | 1369.588 | 141.40 | 18.25 | 5.17 | 1374.76 | .00 | 3.36 | 3.03 | 3.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
4.740 | .0426 |      |      |      |      | .0234 | .11 | 2.63 | 2.01 | 2.12 | .013 | .00 | .00 | PIPE
5764.190 | 1367.162 | 2.659 | 1369.820 | 141.40 | 18.03 | 5.05 | 1374.87 | .00 | 3.36 | 2.99 | 3.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
15.865 | .0426 |      |      |      |      | .0219 | .35 | 2.66 | 1.96 | 2.12 | .013 | .00 | .00 | PIPE
5780.055 | 1367.837 | 2.790 | 1370.628 | 141.40 | 17.19 | 4.59 | 1375.22 | .00 | 3.36 | 2.81 | 3.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
11.824 | .0426 |      |      |      |      | .0199 | .24 | 2.79 | 1.77 | 2.12 | .013 | .00 | .00 | PIPE
5791.879 | 1368.340 | 2.939 | 1371.280 | 141.40 | 16.39 | 4.17 | 1375.45 | .00 | 3.36 | 2.57 | 3.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
8.350 | .0426 |      |      |      |      | .0183 | .15 | 2.94 | 1.58 | 2.12 | .013 | .00 | .00 | PIPE
5800.229 | 1368.696 | 3.116 | 1371.812 | 141.40 | 15.63 | 3.79 | 1375.60 | .00 | 3.36 | 2.19 | 3.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
4.090 | .0426 |      |      |      |      | .0174 | .07 | 3.12 | 1.35 | 2.12 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 6:52: 0

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39

FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
5804.320	1368.870	3.359	1372.229	141.40	14.90	3.45	1375.68	3.50	3.36	1.38	3.500	.000	.00	1 .0
JUNCT STR	.0490					.0171	.17	3.50	1.00		.013	.00	.00	PIPE
5814.320	1369.360	3.957	1373.317	130.86	13.60	2.87	1376.19	.00	3.31	.00	3.500	.000	.00	1 .0
15.000	.0380					.0169	.25	3.96	.00	2.09	.013	.00	.00	PIPE
5829.320	1369.930	3.641	1373.571	130.86	13.60	2.87	1376.44	.00	3.31	.00	3.500	.000	.00	1 .0
JUNCT STR	.0380					.0156	.16	3.64	.00		.013	.00	.00	PIPE
5839.320	1370.310	4.305	1374.615	120.32	12.51	2.43	1377.04	.00	3.25	.00	3.500	.000	.00	1 .0
.670	.0446					.0143	.01	4.31	.00	1.89	.013	.00	.00	PIPE
5839.990	1370.340	4.285	1374.625	120.32	12.51	2.43	1377.05	.00	3.25	.00	3.500	.000	.00	1 .0
JUNCT STR	.0250					.0112	.11	4.29	.00		.013	.00	.00	PIPE
5849.990	1370.590	7.842	1378.432	60.16	8.51	1.12	1379.56	.00	2.50	.00	3.000	.000	.00	1 .0
114.735	.0387					.0081	.93	7.84	.00	1.43	.013	.00	.00	PIPE
5964.725	1375.031	4.332	1379.363	60.16	8.51	1.12	1380.49	.00	2.50	.00	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
5964.725	1375.031	1.426	1376.458	60.16	18.16	5.12	1381.58	.00	2.50	3.00	3.000	.000	.00	1 .0
53.327	.0387					.0387	2.06	1.43	3.04	1.43	.013	.00	.00	PIPE
6018.052	1377.096	1.426	1378.522	60.16	18.16	5.12	1383.64	.00	2.50	3.00	3.000	.000	.00	1 .0
174.988	.0387					.0397	6.95	1.43	3.04	1.43	.013	.00	.00	PIPE

SD 4-39
FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

```

*****
Station  | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
          | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem   | Ch Slope |      |      |      |      |      | HF | SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
6193.040 | 1383.870 | 1.405 | 1385.275 | 60.16 | 18.51 | 5.32 | 1390.60 | .00 | 2.50 | 2.99 | 3.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0400 |      |      |      |      |      | .0408 | .41 | 1.40 | 3.13 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6203.040 | 1384.270 | 1.404 | 1385.674 | 60.16 | 18.53 | 5.33 | 1391.01 | .00 | 2.50 | 2.99 | 3.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
105.468 | .0409 |      |      |      |      |      | .0409 | 4.31 | 1.40 | 3.14 | 1.40 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6308.508 | 1388.579 | 1.404 | 1389.983 | 60.16 | 18.53 | 5.33 | 1395.31 | .00 | 2.50 | 2.99 | 3.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
173.565 | .0409 |      |      |      |      |      | .0412 | 7.15 | 1.40 | 3.14 | 1.40 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6482.073 | 1395.670 | 1.397 | 1397.067 | 60.16 | 18.65 | 5.40 | 1402.47 | .00 | 2.50 | 2.99 | 3.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0300 |      |      |      |      |      | .0422 | .42 | 1.40 | 3.16 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6492.070 | 1395.970 | 1.384 | 1397.354 | 60.16 | 18.88 | 5.53 | 1402.89 | .00 | 2.50 | 2.99 | 3.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
156.274 | .0430 |      |      |      |      |      | .0430 | 6.71 | 1.38 | 3.22 | 1.38 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6648.344 | 1402.682 | 1.384 | 1404.066 | 60.16 | 18.88 | 5.53 | 1409.60 | .00 | 2.50 | 2.99 | 3.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
174.326 | .0430 |      |      |      |      |      | .0407 | 7.09 | 1.38 | 3.22 | 1.38 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6822.670 | 1410.170 | 1.430 | 1411.600 | 60.16 | 18.10 | 5.09 | 1416.69 | .00 | 2.50 | 3.00 | 3.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0040 |      |      |      |      |      | .0405 | .40 | 1.43 | 3.03 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6832.669 | 1410.210 | 1.388 | 1411.598 | 60.16 | 18.81 | 5.50 | 1417.09 | .00 | 2.50 | 2.99 | 3.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
91.132 | .0436 |      |      |      |      |      | .0415 | 3.78 | 1.39 | 3.21 | 1.38 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6923.801 | 1414.182 | 1.409 | 1415.591 | 60.16 | 18.45 | 5.28 | 1420.88 | .00 | 2.50 | 2.99 | 3.000 | .000 | .00 | 1 | .0
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
75.811 | .0436 |      |      |      |      |      | .0379 | 2.88 | 1.41 | 3.12 | 1.38 | .013 | .00 | .00 | PIPE
          |          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 6:52: 0

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39

FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
        | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
7175.021 | 1426.922 | 1.157 | 1428.079 | 30.08 | 13.54 | 2.85 | 1430.93 | .00 | 1.87 | 2.49 | 2.500 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
5.960 | .0626 |      |      |      |      | .0264 | .16 | 1.16 | 2.53 | .93 | .013 | .00 | .00 | PIPE
7180.981 | 1427.295 | 1.200 | 1428.495 | 30.08 | 12.91 | 2.59 | 1431.08 | .00 | 1.87 | 2.50 | 2.500 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
4.828 | .0626 |      |      |      |      | .0233 | .11 | 1.20 | 2.36 | .93 | .013 | .00 | .00 | PIPE
7185.809 | 1427.597 | 1.246 | 1428.843 | 30.08 | 12.31 | 2.35 | 1431.20 | .00 | 1.87 | 2.50 | 2.500 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
3.949 | .0626 |      |      |      |      | .0205 | .08 | 1.25 | 2.19 | .93 | .013 | .00 | .00 | PIPE
7189.758 | 1427.844 | 1.293 | 1429.137 | 30.08 | 11.74 | 2.14 | 1431.28 | .00 | 1.87 | 2.50 | 2.500 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
3.241 | .0626 |      |      |      |      | .0180 | .06 | 1.29 | 2.04 | .93 | .013 | .00 | .00 | PIPE
7192.999 | 1428.047 | 1.343 | 1429.390 | 30.08 | 11.19 | 1.95 | 1431.34 | .00 | 1.87 | 2.49 | 2.500 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
2.660 | .0626 |      |      |      |      | .0159 | .04 | 1.34 | 1.90 | .93 | .013 | .00 | .00 | PIPE
7195.659 | 1428.214 | 1.396 | 1429.610 | 30.08 | 10.67 | 1.77 | 1431.38 | .00 | 1.87 | 2.48 | 2.500 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
2.167 | .0626 |      |      |      |      | .0141 | .03 | 1.40 | 1.76 | .93 | .013 | .00 | .00 | PIPE
7197.826 | 1428.349 | 1.452 | 1429.801 | 30.08 | 10.17 | 1.61 | 1431.41 | .00 | 1.87 | 2.47 | 2.500 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
1.744 | .0626 |      |      |      |      | .0124 | .02 | 1.45 | 1.64 | .93 | .013 | .00 | .00 | PIPE
7199.570 | 1428.458 | 1.510 | 1429.969 | 30.08 | 9.70 | 1.46 | 1431.43 | .00 | 1.87 | 2.45 | 2.500 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
1.370 | .0626 |      |      |      |      | .0110 | .02 | 1.51 | 1.52 | .93 | .013 | .00 | .00 | PIPE
7200.939 | 1428.544 | 1.573 | 1430.117 | 30.08 | 9.25 | 1.33 | 1431.45 | .00 | 1.87 | 2.42 | 2.500 | .000 | .00 | 1 | .0
        | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
1.031 | .0626 |      |      |      |      | .0098 | .01 | 1.57 | 1.40 | .93 | .013 | .00 | .00 | PIPE
*****
    
```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 6:52: 0

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39

FROM MORREY ARROYO CHANNEL TO SUNNYSIDE AT CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
|-| Elev |-| (FT) |-| Elev |-| (CFS) |-| (FPS) Head | Grd.El. | Elev | Depth | Width | Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope| | | | | | SF Ave| HF |SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
7201.971 | 1428.609 | 1.639 | 1430.247 | 30.08 | 8.82 | 1.21 | 1431.46 | .00 | 1.87 | 2.38 | 2.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
.723 | .0626 | | | | | | .0087 | .01 | 1.64 | 1.30 | .93 | .013 | .00 | .00 | PIPE
7202.694 | 1428.654 | 1.710 | 1430.364 | 30.08 | 8.41 | 1.10 | 1431.46 | .00 | 1.87 | 2.32 | 2.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
.430 | .0626 | | | | | | .0077 | .00 | 1.71 | 1.19 | .93 | .013 | .00 | .00 | PIPE
7203.124 | 1428.681 | 1.786 | 1430.467 | 30.08 | 8.02 | 1.00 | 1431.46 | .00 | 1.87 | 2.26 | 2.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
.146 | .0626 | | | | | | .0069 | .00 | 1.79 | 1.10 | .93 | .013 | .00 | .00 | PIPE
7203.270 | 1428.690 | 1.870 | 1430.559 | 30.08 | 7.64 | .91 | 1431.47 | .00 | 1.87 | 2.17 | 2.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|

```


WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE WIDTH	PIER WIDTH	HEIGHT	1 BASE	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)	
CD	1	4	1			4.500															
CD	2	4	1			4.500															
CD	5	4	1			4.500															
CD	6	4	1			4.500															
CD	7	4	1			2.000															
CD	8	4	1			4.000															
CD	9	4	1			4.000															

W S P G W
WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
HEADING LINE NO 2 IS -
HEADING LINE NO 3 IS -

REDLANDS MASTER PLAN PROPOSED SD
SD 4-39A PARALLEL TO SAN MATEO
FROM BROOKSIDE AT TENNESSEE TO CYPRESS AVE

W S P G W
WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	U/S DATA	STATION	INVERT	SECT	W S ELEV	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 1	IS	A	SYSTEM	OUTLET	U/S DATA	STATION	INVERT	SECT	1285.230				
ELEMENT NO 2	IS	A	REACH		U/S DATA	STATION	INVERT	SECT					
ELEMENT NO 3	IS	A	REACH		U/S DATA	STATION	INVERT	SECT					
ELEMENT NO 4	IS	A	JUNCTION		U/S DATA	STATION	INVERT	SECT					
ELEMENT NO 5	IS	A	REACH		U/S DATA	STATION	INVERT	SECT					
ELEMENT NO 6	IS	A	REACH		U/S DATA	STATION	INVERT	SECT					
ELEMENT NO 7	IS	A	REACH		U/S DATA	STATION	INVERT	SECT					
ELEMENT NO 8	IS	A	JUNCTION		U/S DATA	STATION	INVERT	SECT					
ELEMENT NO 9	IS	A	REACH		U/S DATA	STATION	INVERT	SECT					
ELEMENT NO 10	IS	A	JUNCTION		U/S DATA	STATION	INVERT	SECT					

W S P G W
WATER SURFACE PROFILE - ELEMENT CARD LISTING

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 7:19:26

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39A PARALLEL TO SAN MATEO

FROM BROOKSIDE AT TENNESSEE TO CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
.000 | 1283.840 | 4.367 | 1288.207 | 287.46 | 18.23 | 5.16 | 1293.37 | .00 | 4.37 | 1.53 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
3.709 | .0075 |      |      |      |      | .0197 | .07 | 4.37 | 1.00 | 4.50 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
3.709 | 1283.868 | 4.500 | 1288.368 | 287.46 | 18.07 | 5.07 | 1293.44 | .00 | 4.37 | .00 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
50.981 | .0075 |      |      |      |      | .0209 | 1.07 | 4.50 | .00 | 4.50 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
54.690 | 1284.250 | 5.207 | 1289.457 | 287.46 | 18.07 | 5.07 | 1294.53 | .00 | 4.37 | .00 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
156.180 | .0074 |      |      |      |      | .0214 | 3.34 | 5.21 | .00 | 4.50 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
210.870 | 1285.410 | 8.138 | 1293.548 | 287.46 | 18.07 | 5.07 | 1298.62 | .00 | 4.37 | .00 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0240 |      |      |      |      | .0214 | .11 | 8.14 | .00 |      | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
215.870 | 1285.530 | 8.125 | 1293.655 | 287.46 | 18.07 | 5.07 | 1298.73 | .00 | 4.37 | .00 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
132.199 | .0372 |      |      |      |      | .0214 | 2.82 | 8.12 | .00 | 2.93 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
348.069 | 1290.446 | 6.332 | 1296.778 | 287.46 | 18.07 | 5.07 | 1301.85 | .00 | 4.37 | .00 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
HYDRAULIC JUMP
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
348.069 | 1290.446 | 3.251 | 1293.697 | 287.46 | 23.36 | 8.48 | 1302.17 | .00 | 4.37 | 4.03 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
43.922 | .0372 |      |      |      |      | .0271 | 1.19 | 3.25 | 2.36 | 2.93 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
391.991 | 1292.079 | 3.350 | 1295.429 | 287.46 | 22.64 | 7.96 | 1303.39 | .00 | 4.37 | 3.93 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
45.469 | .0372 |      |      |      |      | .0248 | 1.13 | 3.35 | 2.22 | 2.93 | .013 | .00 | .00 | PIPE
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
437.460 | 1293.770 | 3.512 | 1297.282 | 287.46 | 21.59 | 7.23 | 1304.52 | .00 | 4.37 | 3.73 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
13.714 | .0372 |      |      |      |      | .0231 | .32 | 3.51 | 2.01 | 2.93 | .013 | .00 | .00 | PIPE
*****

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 7:19:26

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39A PARALLEL TO SAN MATEO

FROM BROOKSIDE AT TENNESSEE TO CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width  | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF   | SE Dpth | Froude N | Norm Dp | "N"    | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
451.174 | 1294.280 | 3.579 | 1297.859 | 287.46 | 21.19 | 6.97 | 1304.83 | .00 | 4.37 | 3.63 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
28.516 | .0372 |      |      |      |      | .0216 | .62 | 3.58 | 1.93 | 2.93 | .013 | .00 | .00 | PIPE
479.690 | 1295.340 | 3.769 | 1299.109 | 287.46 | 20.21 | 6.34 | 1305.45 | .00 | 4.37 | 3.32 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
123.680 | .0216 |      |      |      |      | .0202 | 2.50 | 3.77 | 1.72 | 3.67 | .013 | .00 | .00 | PIPE
603.370 | 1298.010 | 3.864 | 1301.874 | 287.46 | 19.78 | 6.08 | 1307.95 | .00 | 4.37 | 3.14 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
HYDRAULIC DROP
603.370 | 1298.010 | 6.446 | 1304.456 | 287.46 | 18.07 | 5.07 | 1309.53 | .00 | 4.37 | .00 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR .0119 |      |      |      |      |      | .0214 | .11 | .00 | .00 | .013 | .00 | .00 | PIPE
608.400 | 1298.070 | 6.493 | 1304.563 | 287.46 | 18.07 | 5.07 | 1309.64 | .00 | 4.37 | .00 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
629.160 | .0184 |      |      |      |      | .0214 | 13.44 | .00 | .00 | 4.50 | .013 | .00 | .00 | PIPE
1237.560 | 1309.632 | 9.599 | 1319.231 | 287.46 | 18.07 | 5.07 | 1324.30 | .00 | 4.37 | .00 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
HYDRAULIC JUMP
1237.560 | 1309.632 | 2.617 | 1312.249 | 287.46 | 29.96 | 13.94 | 1326.19 | .09 | 4.37 | 4.44 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
23.402 | .0184 |      |      |      |      | .0543 | 1.27 | 2.71 | 3.59 | 4.50 | .013 | .00 | .00 | PIPE
1260.963 | 1310.062 | 2.551 | 1312.613 | 287.46 | 30.90 | 14.82 | 1327.44 | .10 | 4.37 | 4.46 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
33.087 | .0184 |      |      |      |      | .0603 | 1.99 | 2.65 | 3.77 | 4.50 | .013 | .00 | .00 | PIPE
1294.050 | 1310.670 | 2.454 | 1313.124 | 287.46 | 32.41 | 16.31 | 1329.43 | .00 | 4.37 | 4.48 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR .0400 |      |      |      |      |      | .0643 | .32 | 3.40 | 4.06 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 7:19:26

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39A PARALLEL TO SAN MATEO

FROM BROOKSIDE AT TENNESSEE TO CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
|-| Elev |-| (FT) |-| Elev |-| (CFS) |-| (FPS) |-| Head |-| Grd.El.|-| Elev |Depth |Width |Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope| | | | | | |SF Ave| HF |SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1299.050 | 1310.870 | 2.447 | 1313.317 | 287.46 | 32.53 | 16.43 | 1329.75 | .95 | 4.37 | 4.48 | 4.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
53.832 | .0867 | | | | | |.0609 | 3.28 | 3.40 | 4.08 | 2.24 | .013 | .00 | .00 | PIPE
1352.882 | 1315.536 | 2.542 | 1318.078 | 287.46 | 31.03 | 14.95 | 1333.03 | .86 | 4.37 | 4.46 | 4.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
38.256 | .0867 | | | | | |.0538 | 2.06 | 3.41 | 3.79 | 2.24 | .013 | .00 | .00 | PIPE
1391.138 | 1318.852 | 2.644 | 1321.496 | 287.46 | 29.58 | 13.59 | 1335.09 | .78 | 4.37 | 4.43 | 4.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
28.858 | .0867 | | | | | |.0476 | 1.37 | 3.42 | 3.52 | 2.24 | .013 | .00 | .00 | PIPE
1419.996 | 1321.354 | 2.752 | 1324.105 | 287.46 | 28.21 | 12.36 | 1336.46 | .70 | 4.37 | 4.39 | 4.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
22.660 | .0867 | | | | | |.0422 | .96 | 3.45 | 3.26 | 2.24 | .013 | .00 | .00 | PIPE
1442.656 | 1323.318 | 2.866 | 1326.184 | 287.46 | 26.89 | 11.23 | 1337.42 | .63 | 4.37 | 4.33 | 4.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
18.254 | .0867 | | | | | |.0374 | .68 | 3.49 | 3.02 | 2.24 | .013 | .00 | .00 | PIPE
1460.910 | 1324.900 | 2.987 | 1327.887 | 287.46 | 25.64 | 10.21 | 1338.10 | .00 | 4.37 | 4.25 | 4.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
.470 | .0461 | | | | | |.0352 | .02 | 2.99 | 2.78 | 2.72 | .013 | .00 | .00 | PIPE
1461.380 | 1324.922 | 2.988 | 1327.910 | 287.46 | 25.64 | 10.21 | 1338.12 | .00 | 4.37 | 4.25 | 4.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
61.828 | .0461 | | | | | |.0332 | 2.06 | 2.99 | 2.78 | 2.72 | .013 | .00 | .00 | PIPE
1523.209 | 1327.774 | 3.118 | 1330.893 | 287.46 | 24.44 | 9.28 | 1340.17 | .00 | 4.37 | 4.15 | 4.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
42.601 | .0461 | | | | | |.0296 | 1.26 | 3.12 | 2.56 | 2.72 | .013 | .00 | .00 | PIPE
1565.810 | 1329.740 | 3.259 | 1332.998 | 287.46 | 23.31 | 8.43 | 1341.43 | .09 | 4.37 | 4.02 | 4.500 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
51.455 | .0297 | | | | | |.0277 | 1.43 | 3.35 | 2.35 | 3.18 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 7:19:26

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39A PARALLEL TO SAN MATEO

FROM BROOKSIDE AT TENNESSEE TO CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev  | Depth  | Width  | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF      | SE Dpth | Froude N | Norm Dp | "N"     | X-Fall  | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1617.265 | 1331.266 | 3.281 | 1334.547 | 287.46 | 23.14 | 8.31 | 1342.86 | .09 | 4.37 | 4.00 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
168.223 | .0297 |      |      |      |      | .0261 | 4.39 | 3.37 | 2.31 | 3.18 | .013 | .00 | .00 | PIPE
1785.488 | 1336.254 | 3.436 | 1339.690 | 287.46 | 22.06 | 7.56 | 1347.25 | .08 | 4.37 | 3.82 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
83.442 | .0297 |      |      |      |      | .0235 | 1.96 | 3.51 | 2.11 | 3.18 | .013 | .00 | .00 | PIPE
1868.930 | 1338.729 | 3.607 | 1342.336 | 287.46 | 21.03 | 6.87 | 1349.21 | .06 | 4.37 | 3.59 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
51.459 | .0297 |      |      |      |      | .0213 | 1.10 | 3.67 | 1.90 | 3.18 | .013 | .00 | .00 | PIPE
1920.390 | 1340.255 | 3.802 | 1344.056 | 287.46 | 20.06 | 6.25 | 1350.30 | .05 | 4.37 | 3.26 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
33.368 | .0297 |      |      |      |      | .0196 | .65 | 3.86 | 1.69 | 3.18 | .013 | .00 | .00 | PIPE
1953.757 | 1341.244 | 4.034 | 1345.278 | 287.46 | 19.12 | 5.68 | 1350.96 | .04 | 4.37 | 2.74 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
17.053 | .0297 |      |      |      |      | .0188 | .32 | 4.07 | 1.44 | 3.18 | .013 | .00 | .00 | PIPE
1970.810 | 1341.750 | 4.367 | 1346.117 | 287.46 | 18.23 | 5.16 | 1351.28 | .00 | 4.37 | 1.53 | 4.500 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0960 |      |      |      |      | .0154 | .08 | 4.37 | 1.00 |      | .013 | .00 | .00 | PIPE
1975.810 | 1342.230 | 6.706 | 1348.936 | 156.82 | 12.48 | 2.42 | 1351.35 | .00 | 3.65 | .00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
99.354 | .0209 |      |      |      |      | .0119 | 1.18 | 6.71 | .00 | 2.60 | .013 | .00 | .00 | PIPE
2075.164 | 1344.306 | 5.914 | 1350.220 | 156.82 | 12.48 | 2.42 | 1352.64 | .00 | 3.65 | .00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
HYDRAULIC JUMP
2075.164 | 1344.306 | 2.288 | 1346.594 | 156.82 | 21.10 | 6.91 | 1353.51 | .00 | 3.65 | 3.96 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
14.566 | .0209 |      |      |      |      | .0311 | .45 | 2.29 | 2.71 | 2.60 | .013 | .00 | .00 | PIPE
    
```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 7:19:26

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39A PARALLEL TO SAN MATEO

FROM BROOKSIDE AT TENNESSEE TO CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2089.730 | 1344.610 | 2.269 | 1346.879 | 156.82 | 21.32 | 7.06 | 1353.94 | .00 | 3.65 | 3.96 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
5.820 | .0309 |      |      |      |      | .0315 | .18 | 2.27 | 2.76 | 2.28 | .013 | .00 | .00 | PIPE
2095.550 | 1344.790 | 2.268 | 1347.058 | 156.82 | 21.33 | 7.06 | 1354.12 | 1.08 | 3.65 | 3.96 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
34.740 | .0317 |      |      |      |      | .0315 | 1.09 | 3.35 | 2.76 | 2.26 | .013 | .00 | .00 | PIPE
2130.290 | 1345.890 | 2.269 | 1348.159 | 156.82 | 21.31 | 7.05 | 1355.21 | .00 | 3.65 | 3.96 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
49.140 | .0317 |      |      |      |      | .0314 | 1.54 | 2.27 | 2.76 | 2.26 | .013 | .00 | .00 | PIPE
2179.430 | 1347.450 | 2.271 | 1349.721 | 156.82 | 21.29 | 7.04 | 1356.76 | 1.10 | 3.65 | 3.96 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
60.780 | .0318 |      |      |      |      | .0313 | 1.90 | 3.37 | 2.75 | 2.26 | .013 | .00 | .00 | PIPE
2240.210 | 1349.380 | 2.276 | 1351.656 | 156.82 | 21.24 | 7.01 | 1358.66 | .00 | 3.65 | 3.96 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
154.990 | .0318 |      |      |      |      | .0305 | 4.73 | 2.28 | 2.74 | 2.26 | .013 | .00 | .00 | PIPE
2395.200 | 1354.310 | 2.307 | 1356.618 | 156.82 | 20.89 | 6.77 | 1363.39 | 1.07 | 3.65 | 3.95 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
30.440 | .0319 |      |      |      |      | .0296 | .90 | 3.38 | 2.67 | 2.26 | .013 | .00 | .00 | PIPE
2425.640 | 1355.280 | 2.319 | 1357.599 | 156.82 | 20.77 | 6.70 | 1364.29 | .00 | 3.65 | 3.95 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
32.170 | .0376 |      |      |      |      | .0284 | .91 | 2.32 | 2.65 | 2.15 | .013 | .00 | .00 | PIPE
2457.810 | 1356.490 | 2.370 | 1358.860 | 156.82 | 20.22 | 6.35 | 1365.21 | .00 | 3.65 | 3.93 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
173.851 | .0272 |      |      |      |      | .0278 | 4.83 | 2.37 | 2.54 | 2.38 | .013 | .00 | .00 | PIPE
2631.661 | 1361.213 | 2.350 | 1363.563 | 156.82 | 20.43 | 6.48 | 1370.04 | .00 | 3.65 | 3.94 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
194.528 | .0272 |      |      |      |      | .0300 | 5.84 | 2.35 | 2.58 | 2.38 | .013 | .00 | .00 | PIPE

```

Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 7:19:26

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39A PARALLEL TO SAN MATEO

FROM BROOKSIDE AT TENNESSEE TO CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2826.189 | 1366.497 | 2.260 | 1368.757 | 156.82 | 21.43 | 7.13 | 1375.89 | .00 | 3.65 | 3.97 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  91.777 | .0272 |      |      |      |      |      | .0340 | 3.12 | 2.26 | 2.78 | 2.38 | .013 | .00 | .00 | PIPE
2917.966 | 1368.990 | 2.174 | 1371.164 | 156.82 | 22.47 | 7.84 | 1379.01 | .00 | 3.65 | 3.98 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  61.834 | .0272 |      |      |      |      |      | .0385 | 2.38 | 2.17 | 2.99 | 2.38 | .013 | .00 | .00 | PIPE
2979.800 | 1370.670 | 2.093 | 1372.763 | 156.82 | 23.57 | 8.63 | 1381.39 | .00 | 3.65 | 4.00 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
 100.000 | .0420 |      |      |      |      |      | .0404 | 4.04 | 2.09 | 3.22 | 2.08 | .013 | .00 | .00 | PIPE
3079.800 | 1374.870 | 2.110 | 1376.980 | 156.82 | 23.33 | 8.45 | 1385.43 | .00 | 3.65 | 3.99 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0400 |      |      |      |      |      | .0399 | .20 | 2.11 | 3.17 |      | .013 | .00 | .00 | PIPE
3084.800 | 1375.070 | 2.110 | 1377.180 | 156.82 | 23.33 | 8.45 | 1385.63 | .00 | 3.65 | 3.99 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
 115.424 | .0398 |      |      |      |      |      | .0398 | 4.60 | 2.11 | 3.17 | 2.11 | .013 | .00 | .00 | PIPE
3200.224 | 1379.670 | 2.110 | 1381.779 | 156.82 | 23.33 | 8.45 | 1390.23 | .00 | 3.65 | 3.99 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  291.750 | .0398 |      |      |      |      |      | .0377 | 11.01 | 2.11 | 3.17 | 2.11 | .013 | .00 | .00 | PIPE
3491.974 | 1391.296 | 2.183 | 1393.479 | 156.82 | 22.36 | 7.76 | 1401.24 | .00 | 3.65 | 3.98 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  98.239 | .0398 |      |      |      |      |      | .0335 | 3.30 | 2.18 | 2.97 | 2.11 | .013 | .00 | .00 | PIPE
3590.213 | 1395.210 | 2.269 | 1397.479 | 156.82 | 21.32 | 7.06 | 1404.54 | .00 | 3.65 | 3.96 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  53.885 | .0398 |      |      |      |      |      | .0296 | 1.60 | 2.27 | 2.76 | 2.11 | .013 | .00 | .00 | PIPE
3644.099 | 1397.357 | 2.360 | 1399.717 | 156.82 | 20.33 | 6.41 | 1406.13 | .00 | 3.65 | 3.93 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  35.701 | .0398 |      |      |      |      |      | .0262 | .94 | 2.36 | 2.56 | 2.11 | .013 | .00 | .00 | PIPE
*****

```


Program Package Serial Number: 1373

WATER SURFACE PROFILE LISTING

Date: 4-10-2014 Time: 7:19:26

REDLANDS MASTER PLAN PROPOSED SD

SD 4-39A PARALLEL TO SAN MATEO

FROM BROOKSIDE AT TENNESSEE TO CYPRESS AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super |Critical|Flow Top|Height/|Base Wt| |No Wth
      | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT|or I.D.| ZL |Prs/Pip
L/Elem |Ch Slope|      |      |      |      |      | SF Ave| HF |SE Dpth|Froude N|Norm Dp | "N" | X-Fall| ZR |Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
4078.420 | 1408.970 | 3.645 | 1412.615 | 156.82 | 13.05 | 2.64 | 1415.26 | .00 | 3.65 | 2.28 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
4084.420 | 1408.970 | 3.645 | 1412.615 | 156.82 | 13.05 | 2.64 | 1415.26 | .00 | 3.65 | 2.28 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

```


WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE WIDTH	PIER DIAMETER	HEIGHT 1	BASE WIDTH	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	2	0	.000	5.000	14.000				.00										
CD	2	4	1		6.000															
CD	3	4	1		2.000															
CD	4	4	1		5.500															
CD	5	4	1		5.500															
CD	6	2	0	.000	7.000	10.000				.00										
CD	7	4	1		1.500															

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS - REDLANDS MASTER PLAN

HEADING LINE NO 2 IS - SD 4-40A and 4-40C

HEADING LINE NO 3 IS - FROM MORREY ARROYO TO PALM AVE

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	U/S DATA	STATION	INVERT	SECT	W S ELEV	RADIUS	ANGLE	ANG PT	MAN H	
1	IS	A	SYSTEM	OUTLET	U/S DATA	STATION	INVERT	SECT	1342.520					
2	IS	A	REACH		U/S DATA	STATION	INVERT	SECT						
3	IS	A	JUNCTION		U/S DATA	STATION	INVERT	SECT	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
4	IS	A	REACH		U/S DATA	STATION	INVERT	SECT						
5	IS	A	REACH		U/S DATA	STATION	INVERT	SECT						
6	IS	A	REACH		U/S DATA	STATION	INVERT	SECT						
7	IS	A	REACH		U/S DATA	STATION	INVERT	SECT						
8	IS	A	REACH		U/S DATA	STATION	INVERT	SECT						
9	IS	A	REACH		U/S DATA	STATION	INVERT	SECT						
10	IS	A	REACH		U/S DATA	STATION	INVERT	SECT						
11	IS	A	REACH		U/S DATA	STATION	INVERT	SECT						
12	IS	A	REACH		U/S DATA	STATION	INVERT	SECT						

WATER SURFACE PROFILE - ELEMENT CARD LISTING																	
ELEMENT NO	13	IS	A	JUNCTION	U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
						1269.200	1373.610	2	0	0	.013	.000	.000	.000	.000	.000	.000
														RADIUS	ANGLE		
														.000	.000		
ELEMENT NO	14	IS	A	REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
						1353.200	1374.800	2			.013			.000	.000	30.000	0
ELEMENT NO	15	IS	A	REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
						1587.650	1381.960	2			.013			.000	.000	.000	0
ELEMENT NO	16	IS	A	REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
						2359.260	1402.000	2			.013			.000	.000	-45.000	0
ELEMENT NO	17	IS	A	REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
						2526.290	1407.000	2			.013			.000	.000	.000	0
ELEMENT NO	18	IS	A	REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
						2610.350	1408.410	2			.013			.000	.000	.000	0
ELEMENT NO	19	IS	A	REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
						2690.380	1410.950	2			.013			.000	.000	.000	0
ELEMENT NO	20	IS	A	REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
						2754.160	1413.220	2			.013			182.716	-20.000	.000	0
ELEMENT NO	21	IS	A	REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
						2826.160	1417.120	2			.013			.000	.000	.000	0
ELEMENT NO	22	IS	A	REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
						2851.580	1417.800	2			.013			.000	.000	.000	0
ELEMENT NO	23	IS	A	REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
						2958.160	1422.270	2			.013			.000	.000	.000	0
ELEMENT NO	24	IS	A	REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
						3054.160	1424.920	2			.013			.000	.000	.000	0

WATER SURFACE PROFILE - ELEMENT CARD LISTING																	
ELEMENT NO	25	IS	A	REACH <th>U/S DATA</th> <th>STATION</th> <th>INVERT</th> <th>SECT</th> <th></th> <th></th> <th>N</th> <th></th> <th></th> <th>RADIUS</th> <th>ANGLE</th> <th>ANG PT</th> <th>MAN H</th>	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
						3223.580	1428.300	2			.013			.000	.000	.000	0
ELEMENT NO	26	IS	A	REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
						3274.160	1429.250	2			.013			.000	.000	.000	1
ELEMENT NO	27	IS	A	JUNCTION	U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
						3279.160	1429.450	4	3	0	.013	239.300	.000	1433.020	.000	90.000	.000
														RADIUS	ANGLE		
														.000	.000		
ELEMENT NO	28	IS	A	REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
						3424.240	1432.700	4			.013			615.739	13.500	.000	0
ELEMENT NO	29	IS	A	JUNCTION	U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
						3429.240	1432.880	5	0	0	.013	.000	.000	.000	.000	.000	.000
														RADIUS	ANGLE		
														.000	.000		

REDLANDS MASTER PLAN
 SD 4-40A and 4-40C
 FROM MORREY ARROYO TO PALM AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
.000 | 1337.520 | 2.010 | 1339.530 | 711.09 | 25.27 | 9.92 | 1349.45 | .00 | 4.31 | 14.00 | 5.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
347.885 | .0314 |      |      |      |      |      | .0298 | 10.38 | 2.01 | 3.14 | 2.01 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
347.885 | 1348.459 | 2.075 | 1350.534 | 711.09 | 24.48 | 9.31 | 1359.84 | .00 | 4.31 | 14.00 | 5.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
150.775 | .0314 |      |      |      |      |      | .0265 | 4.00 | 2.07 | 2.99 | 2.01 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
498.660 | 1353.200 | 2.176 | 1355.376 | 711.09 | 23.34 | 8.46 | 1363.84 | .00 | 4.31 | 14.00 | 5.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
JUNCT STR | .0380 |      |      |      |      |      | .0231 | .12 | 2.18 | 2.79 |      | .013 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
503.660 | 1353.390 | 1.903 | 1355.293 | 629.42 | 23.62 | 8.66 | 1363.96 | .00 | 3.97 | 14.00 | 5.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
161.120 | .0304 |      |      |      |      |      | .0278 | 4.48 | 1.90 | 3.02 | 1.87 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
664.780 | 1358.280 | 1.956 | 1360.236 | 629.42 | 22.98 | 8.20 | 1368.44 | .00 | 3.97 | 14.00 | 5.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
176.400 | .0268 |      |      |      |      |      | .0264 | 4.66 | 1.96 | 2.90 | 1.95 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
841.180 | 1363.010 | 1.965 | 1364.975 | 629.42 | 22.88 | 8.13 | 1373.10 | 1.43 | 3.97 | 14.00 | 5.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
62.580 | .0200 |      |      |      |      |      | .0276 | 1.73 | 3.39 | 2.88 | 2.15 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
903.760 | 1364.260 | 1.903 | 1366.163 | 629.42 | 23.63 | 8.67 | 1374.83 | .00 | 3.97 | 14.00 | 5.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
72.280 | .0242 |      |      |      |      |      | .0302 | 2.18 | 1.90 | 3.02 | 2.02 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
976.040 | 1366.010 | 1.852 | 1367.862 | 629.42 | 24.28 | 9.15 | 1377.01 | 2.76 | 3.97 | 14.00 | 5.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
36.490 | .0227 |      |      |      |      |      | .0325 | 1.19 | 4.61 | 3.14 | 2.06 | .014 | .00 | .00 | RECTANG
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
1012.530 | 1366.840 | 1.813 | 1368.653 | 629.42 | 24.80 | 9.55 | 1378.20 | .00 | 3.97 | 14.00 | 5.000 | 14.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
7.550 | .0168 |      |      |      |      |      | .0340 | .26 | 1.81 | 3.25 | 2.28 | .014 | .00 | .00 | RECTANG
    
```


REDLANDS MASTER PLAN
SD 4-40A and 4-40C
FROM MORREY ARROYO TO PALM AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1279.846 | 1373.761 | 4.578 | 1378.338 | 629.42 | 27.19 | 11.48 | 1389.82 | .00 | 5.86 | 5.10 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
73.354 | .0142 |      |      |      |      |      | .0270 | 1.98 | 4.58 | 2.25 | 6.00 | .013 | .00 | .00 | PIPE
1353.200 | 1374.800 | 4.371 | 1379.171 | 629.42 | 28.52 | 12.63 | 1391.80 | .00 | 5.86 | 5.34 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
234.450 | .0305 |      |      |      |      |      | .0273 | 6.40 | 4.37 | 2.47 | 4.25 | .013 | .00 | .00 | PIPE
1587.650 | 1381.960 | 4.534 | 1386.494 | 629.42 | 27.46 | 11.71 | 1398.20 | .00 | 5.86 | 5.16 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
232.745 | .0260 |      |      |      |      |      | .0262 | 6.09 | 4.53 | 2.30 | 4.54 | .013 | .00 | .00 | PIPE
1820.395 | 1388.005 | 4.522 | 1392.527 | 629.42 | 27.53 | 11.77 | 1404.30 | .00 | 5.86 | 5.17 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
538.865 | .0260 |      |      |      |      |      | .0278 | 14.97 | 4.52 | 2.31 | 4.54 | .013 | .00 | .00 | PIPE
2359.260 | 1402.000 | 4.321 | 1406.321 | 629.42 | 28.87 | 12.95 | 1419.27 | .00 | 5.86 | 5.39 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
167.030 | .0299 |      |      |      |      |      | .0291 | 4.86 | 4.32 | 2.53 | 4.28 | .013 | .00 | .00 | PIPE
2526.290 | 1407.000 | 4.347 | 1411.347 | 629.42 | 28.69 | 12.78 | 1424.13 | .00 | 5.86 | 5.36 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
5.784 | .0168 |      |      |      |      |      | .0290 | .17 | 4.35 | 2.50 | 6.00 | .013 | .00 | .00 | PIPE
2532.074 | 1407.097 | 4.334 | 1411.431 | 629.42 | 28.78 | 12.86 | 1424.29 | .00 | 5.86 | 5.37 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
78.276 | .0168 |      |      |      |      |      | .0308 | 2.41 | 4.33 | 2.51 | 6.00 | .013 | .00 | .00 | PIPE
2610.350 | 1408.410 | 4.148 | 1412.558 | 629.42 | 30.19 | 14.15 | 1426.71 | .00 | 5.86 | 5.54 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
80.030 | .0317 |      |      |      |      |      | .0327 | 2.62 | 4.15 | 2.74 | 4.19 | .013 | .00 | .00 | PIPE
2690.380 | 1410.950 | 4.135 | 1415.085 | 629.42 | 30.29 | 14.24 | 1429.33 | .87 | 5.86 | 5.55 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
63.780 | .0356 |      |      |      |      |      | .0325 | 2.07 | 5.00 | 2.76 | 4.01 | .013 | .00 | .00 | PIPE

```

REDLANDS MASTER PLAN
 SD 4-40A and 4-40C
 FROM MORREY ARROYO TO PALM AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2754.160 | 1413.220 | 4.165 | 1417.385 | 629.42 | 30.05 | 14.02 | 1431.40 | .00 | 5.86 | 5.53 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
33.814 | .0542 |      |      |      |      | .0310 | 1.05 | 4.17 | 2.72 | 3.48 | .013 | .00 | .00 | PIPE
2787.974 | 1415.052 | 4.296 | 1419.348 | 629.42 | 29.05 | 13.11 | 1432.45 | .00 | 5.86 | 5.41 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
38.186 | .0542 |      |      |      |      | .0282 | 1.08 | 4.30 | 2.56 | 3.48 | .013 | .00 | .00 | PIPE
2826.160 | 1417.120 | 4.495 | 1421.615 | 629.42 | 27.70 | 11.92 | 1433.53 | .00 | 5.86 | 5.20 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
25.420 | .0268 |      |      |      |      | .0266 | .68 | 4.50 | 2.34 | 4.49 | .013 | .00 | .00 | PIPE
2851.580 | 1417.800 | 4.495 | 1422.295 | 629.42 | 27.70 | 11.92 | 1434.21 | .00 | 5.86 | 5.20 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
28.284 | .0419 |      |      |      |      | .0259 | .73 | 4.50 | 2.34 | 3.79 | .013 | .00 | .00 | PIPE
2879.864 | 1418.986 | 4.603 | 1423.589 | 629.42 | 27.04 | 11.36 | 1434.95 | .00 | 5.86 | 5.07 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
44.729 | .0419 |      |      |      |      | .0240 | 1.07 | 4.60 | 2.22 | 3.79 | .013 | .00 | .00 | PIPE
2924.593 | 1420.862 | 4.834 | 1425.696 | 629.42 | 25.79 | 10.32 | 1436.02 | .00 | 5.86 | 4.75 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
33.567 | .0419 |      |      |      |      | .0218 | .73 | 4.83 | 2.00 | 3.79 | .013 | .00 | .00 | PIPE
2958.160 | 1422.270 | 5.097 | 1427.367 | 629.42 | 24.59 | 9.39 | 1436.75 | .00 | 5.86 | 4.29 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
40.352 | .0276 |      |      |      |      | .0204 | .82 | 5.10 | 1.77 | 4.43 | .013 | .00 | .00 | PIPE
2998.512 | 1423.384 | 5.247 | 1428.630 | 629.42 | 24.00 | 8.95 | 1437.58 | .00 | 5.86 | 3.98 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
55.648 | .0276 |      |      |      |      | .0196 | 1.09 | 5.25 | 1.65 | 4.43 | .013 | .00 | .00 | PIPE
3054.160 | 1424.920 | 5.612 | 1430.532 | 629.42 | 22.89 | 8.13 | 1438.67 | .00 | 5.86 | 2.95 | 6.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
169.420 | .0200 |      |      |      |      | .0194 | 3.28 | 5.61 | 1.32 | 5.26 | .013 | .00 | .00 | PIPE
    
```


REDLANDS MASTER PLAN
SD 4-40A and 4-40C
FROM MORREY ARROYO TO PALM AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
| Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
3587.381 | 1441.121 | 3.332 | 1444.453 | 390.12 | 25.91 | 10.42 | 1454.88 | .00 | 5.17 | 5.38 | 5.500 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
43.537 | .0339 | | | | | .0285 | 1.24 | 3.33 | 2.73 | 3.17 | .013 | .00 | .00 | PIPE
3630.918 | 1442.597 | 3.370 | 1445.966 | 390.12 | 25.57 | 10.15 | 1456.12 | .00 | 5.17 | 5.36 | 5.500 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
105.432 | .0339 | | | | | .0265 | 2.79 | 3.37 | 2.67 | 3.17 | .013 | .00 | .00 | PIPE
3736.350 | 1446.170 | 3.510 | 1449.680 | 390.12 | 24.38 | 9.23 | 1458.91 | 1.05 | 5.17 | 5.29 | 5.500 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
64.920 | .0262 | | | | | .0247 | 1.60 | 4.56 | 2.47 | 3.45 | .013 | .00 | .00 | PIPE
3801.270 | 1447.870 | 3.529 | 1451.399 | 390.12 | 24.22 | 9.11 | 1460.51 | .00 | 5.17 | 5.27 | 5.500 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
39.970 | .0200 | | | | | .0249 | .99 | 3.53 | 2.44 | 3.79 | .013 | .00 | .00 | PIPE
3841.240 | 1448.670 | 3.491 | 1452.161 | 390.12 | 24.53 | 9.34 | 1461.51 | .00 | 5.17 | 5.30 | 5.500 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR | .0399 | | | | | .0429 | .43 | 3.49 | 2.49 | | .014 | .00 | .00 | PIPE
----- WARNING - Junction Analysis - Change in Channel Type -----
3851.270 | 1449.070 | 1.438 | 1450.508 | 390.12 | 27.13 | 11.43 | 1461.94 | .00 | 3.62 | 10.00 | 7.000 | 10.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
70.288 | .0525 | | | | | .0475 | 3.34 | 1.44 | 3.99 | 1.40 | .013 | .00 | .00 | RECTANG
3921.558 | 1452.760 | 1.462 | 1454.221 | 390.12 | 26.69 | 11.06 | 1465.28 | .00 | 3.62 | 10.00 | 7.000 | 10.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
100.162 | .0525 | | | | | .0432 | 4.32 | 1.46 | 3.89 | 1.40 | .013 | .00 | .00 | RECTANG
4021.720 | 1458.017 | 1.533 | 1459.550 | 390.12 | 25.45 | 10.06 | 1469.61 | .00 | 3.62 | 10.00 | 7.000 | 10.000 | .00 | 0 | .0
| | | | | | | | | | | | | | | | |
55.534 | .0525 | | | | | .0374 | 2.08 | 1.53 | 3.62 | 1.40 | .013 | .00 | .00 | RECTANG

```

REDLANDS MASTER PLAN
SD 4-40A and 4-40C
FROM MORREY ARROYO TO PALM AVE

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
L/Elem | Ch Slope |      |      |      |      |      | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
4077.254 | 1460.932 | 1.608 | 1462.540 | 390.12 | 24.26 | 9.14 | 1471.68 | .00 | 3.62 | 10.00 | 7.000 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
37.429 | .0525 |      |      |      |      | .0324 | 1.21 | 1.61 | 3.37 | 1.40 | .013 | .00 | .00 | RECTANG
4114.684 | 1462.897 | 1.686 | 1464.583 | 390.12 | 23.14 | 8.31 | 1472.89 | .00 | 3.62 | 10.00 | 7.000 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
27.571 | .0525 |      |      |      |      | .0281 | .77 | 1.69 | 3.14 | 1.40 | .013 | .00 | .00 | RECTANG
4142.255 | 1464.344 | 1.769 | 1466.113 | 390.12 | 22.06 | 7.56 | 1473.67 | .00 | 3.62 | 10.00 | 7.000 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
21.340 | .0525 |      |      |      |      | .0243 | .52 | 1.77 | 2.92 | 1.40 | .013 | .00 | .00 | RECTANG
4163.595 | 1465.464 | 1.855 | 1467.319 | 390.12 | 21.03 | 6.87 | 1474.19 | .00 | 3.62 | 10.00 | 7.000 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
17.026 | .0525 |      |      |      |      | .0211 | .36 | 1.85 | 2.72 | 1.40 | .013 | .00 | .00 | RECTANG
4180.621 | 1466.358 | 1.945 | 1468.304 | 390.12 | 20.05 | 6.24 | 1474.55 | .00 | 3.62 | 10.00 | 7.000 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
13.847 | .0525 |      |      |      |      | .0184 | .25 | 1.95 | 2.53 | 1.40 | .013 | .00 | .00 | RECTANG
4194.468 | 1467.085 | 2.040 | 1469.125 | 390.12 | 19.12 | 5.68 | 1474.80 | .00 | 3.62 | 10.00 | 7.000 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
11.396 | .0525 |      |      |      |      | .0159 | .18 | 2.04 | 2.36 | 1.40 | .013 | .00 | .00 | RECTANG
4205.865 | 1467.683 | 2.140 | 1469.823 | 390.12 | 18.23 | 5.16 | 1474.98 | .00 | 3.62 | 10.00 | 7.000 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
9.442 | .0525 |      |      |      |      | .0139 | .13 | 2.14 | 2.20 | 1.40 | .013 | .00 | .00 | RECTANG
4215.307 | 1468.179 | 2.244 | 1470.423 | 390.12 | 17.38 | 4.69 | 1475.11 | .00 | 3.62 | 10.00 | 7.000 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
7.840 | .0525 |      |      |      |      | .0121 | .09 | 2.24 | 2.04 | 1.40 | .013 | .00 | .00 | RECTANG
4223.147 | 1468.590 | 2.354 | 1470.944 | 390.12 | 16.57 | 4.27 | 1475.21 | .00 | 3.62 | 10.00 | 7.000 | 10.000 | .00 | 0 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
6.498 | .0525 |      |      |      |      | .0105 | .07 | 2.35 | 1.90 | 1.40 | .013 | .00 | .00 | RECTANG

```


