

THE RANCH PLAN PLANNED COMMUNITY  
PLANNING AREAS 3 AND 4 RUNOFF MANAGEMENT PLAN

**Michael Baker**  
INTERNATIONAL

**TECHNICAL APPENDIX I.2**

**PA-4 Local Hydraulics - WSPGW**

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 4.000  
 CD 2 4 1 2.000  
 CD 3 4 1 2.500

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA3

HEADING LINE NO 2 IS -

Line E1

HEADING LINE NO 3 IS -

25YR-HC JANUARY 2019 CCHiu

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET \* \* \*  
 U/S DATA STATION INVERT SECT W S ELEV  
 1000.000 341.000 1 347.000

ELEMENT NO 2 IS A REACH \* \* \*  
 U/S DATA STATION INVERT SECT N RADIUS ANGLE ANG PT MAN H  
 1756.000 388.000 1 .013 .000 .000 .000 2

ELEMENT NO 3 IS A JUNCTION \* \* \* \* \*  
 U/S DATA STATION INVERT SECT LAT-1 LAT-2 N Q3 Q4 INVERT-3 INVERT-4 PHI 3 PHI 4  
 1762.000 389.000 1 1 2 .014 124.070 34.050 390.000 390.000 45.000 -45.000  
 RADIUS ANGLE  
 .000 .000

ELEMENT NO 4 IS A REACH \* \* \*  
 U/S DATA STATION INVERT SECT N RADIUS ANGLE ANG PT MAN H  
 2802.000 450.000 1 .013 .000 .000 .000 2

ELEMENT NO 5 IS A SYSTEM HEADWORKS \* \* \*  
 U/S DATA STATION INVERT SECT W S ELEV  
 2802.000 450.000 1 .000



RMV PA3

Line E1

25YR-HC JANUARY 2019 CChiu

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1000.000 | 341.000 | 2.383 | 343.383 | 238.00 | 30.49 | 14.44 | 357.82 | .00 | 3.92 | 3.93 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
63.680 | .0622 | | | | | | .0622 | 3.96 | 2.38 | 3.81 | 2.38 | .013 | .00 | .00 | PIPE
1063.679 | 344.959 | 2.383 | 347.342 | 238.00 | 30.49 | 14.44 | 361.78 | .00 | 3.92 | 3.93 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
340.059 | .0622 | | | | | | .0596 | 20.26 | 2.38 | 3.81 | 2.38 | .013 | .00 | .00 | PIPE
1403.739 | 366.100 | 2.452 | 368.552 | 238.00 | 29.47 | 13.49 | 382.04 | .00 | 3.92 | 3.90 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
133.788 | .0622 | | | | | | .0538 | 7.19 | 2.45 | 3.61 | 2.38 | .013 | .00 | .00 | PIPE
1537.527 | 374.418 | 2.554 | 376.971 | 238.00 | 28.10 | 12.26 | 389.23 | .00 | 3.92 | 3.84 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
69.589 | .0622 | | | | | | .0477 | 3.32 | 2.55 | 3.34 | 2.38 | .013 | .00 | .00 | PIPE
1607.116 | 378.744 | 2.662 | 381.406 | 238.00 | 26.79 | 11.15 | 392.55 | .00 | 3.92 | 3.77 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
45.450 | .0622 | | | | | | .0424 | 1.93 | 2.66 | 3.08 | 2.38 | .013 | .00 | .00 | PIPE
1652.567 | 381.570 | 2.778 | 384.348 | 238.00 | 25.55 | 10.13 | 394.48 | .00 | 3.92 | 3.68 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
32.712 | .0622 | | | | | | .0378 | 1.24 | 2.78 | 2.83 | 2.38 | .013 | .00 | .00 | PIPE
1685.279 | 383.603 | 2.904 | 386.507 | 238.00 | 24.36 | 9.21 | 395.72 | .00 | 3.92 | 3.57 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
24.766 | .0622 | | | | | | .0339 | .84 | 2.90 | 2.59 | 2.38 | .013 | .00 | .00 | PIPE
1710.046 | 385.143 | 3.040 | 388.183 | 238.00 | 23.22 | 8.38 | 396.56 | .00 | 3.92 | 3.42 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
19.259 | .0622 | | | | | | .0305 | .59 | 3.04 | 2.36 | 2.38 | .013 | .00 | .00 | PIPE
1729.305 | 386.340 | 3.191 | 389.531 | 238.00 | 22.14 | 7.61 | 397.15 | .00 | 3.92 | 3.21 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
15.093 | .0622 | | | | | | .0276 | .42 | 3.19 | 2.13 | 2.38 | .013 | .00 | .00 | PIPE

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RMV PA3

Line E1

25YR-HC JANUARY 2019 CChiu

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1744.397 | 387.279 | 3.361 | 390.640 | 238.00 | 21.11 | 6.92 | 397.56 | .00 | 3.92 | 2.93 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
11.603 | .0622 | | | | | .0254 | .29 | 3.36 | 1.90 | 2.38 | .013 | .00 | .00 | PIPE
1756.000 | 388.000 | 3.563 | 391.563 | 238.00 | 20.13 | 6.29 | 397.86 | .00 | 3.92 | 2.49 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR | .1667 | | | | | .0482 | .29 | 3.56 | 1.63 | .014 | .00 | .00 | PIPE
1762.000 | 389.000 | 1.304 | 390.303 | 79.88 | 22.47 | 7.84 | 398.14 | .00 | 2.71 | 3.75 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
623.525 | .0587 | | | | | .0587 | 36.57 | 1.30 | 4.07 | 1.30 | .013 | .00 | .00 | PIPE
2385.525 | 425.572 | 1.304 | 426.876 | 79.88 | 22.47 | 7.84 | 434.72 | .00 | 2.71 | 3.75 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
182.482 | .0587 | | | | | .0564 | 10.29 | 1.30 | 4.07 | 1.30 | .013 | .00 | .00 | PIPE
2568.007 | 436.275 | 1.331 | 437.607 | 79.88 | 21.83 | 7.40 | 445.01 | .00 | 2.71 | 3.77 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
79.673 | .0587 | | | | | .0508 | 4.05 | 1.33 | 3.91 | 1.30 | .013 | .00 | .00 | PIPE
2647.680 | 440.949 | 1.378 | 442.327 | 79.88 | 20.82 | 6.73 | 449.06 | .00 | 2.71 | 3.80 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
39.806 | .0587 | | | | | .0445 | 1.77 | 1.38 | 3.65 | 1.30 | .013 | .00 | .00 | PIPE
2687.486 | 443.283 | 1.427 | 444.711 | 79.88 | 19.85 | 6.12 | 450.83 | .00 | 2.71 | 3.83 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
25.734 | .0587 | | | | | .0390 | 1.00 | 1.43 | 3.41 | 1.30 | .013 | .00 | .00 | PIPE
2713.220 | 444.793 | 1.478 | 446.271 | 79.88 | 18.93 | 5.56 | 451.83 | .00 | 2.71 | 3.86 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
18.523 | .0587 | | | | | .0342 | .63 | 1.48 | 3.19 | 1.30 | .013 | .00 | .00 | PIPE
2731.743 | 445.879 | 1.532 | 447.411 | 79.88 | 18.05 | 5.06 | 452.47 | .00 | 2.71 | 3.89 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
14.119 | .0587 | | | | | .0300 | .42 | 1.53 | 2.98 | 1.30 | .013 | .00 | .00 | PIPE

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RMV PA3

Line E1

25YR-HC JANUARY 2019 CChiu

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2745.862 | 446.707 | 1.587 | 448.294 | 79.88 | 17.21 | 4.60 | 452.89 | .00 | 2.71 | 3.91 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
11.148 | .0587 | | | | | | .0263 | .29 | 1.59 | 2.78 | 1.30 | .013 | .00 | .00 | PIPE
2757.010 | 447.361 | 1.645 | 449.006 | 79.88 | 16.40 | 4.18 | 453.18 | .00 | 2.71 | 3.94 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
8.999 | .0587 | | | | | | .0231 | .21 | 1.64 | 2.60 | 1.30 | .013 | .00 | .00 | PIPE
2766.010 | 447.889 | 1.705 | 449.594 | 79.88 | 15.64 | 3.80 | 453.39 | .00 | 2.71 | 3.96 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
7.367 | .0587 | | | | | | .0203 | .15 | 1.70 | 2.43 | 1.30 | .013 | .00 | .00 | PIPE
2773.377 | 448.321 | 1.768 | 450.089 | 79.88 | 14.91 | 3.45 | 453.54 | .00 | 2.71 | 3.97 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
6.085 | .0587 | | | | | | .0179 | .11 | 1.77 | 2.26 | 1.30 | .013 | .00 | .00 | PIPE
2779.462 | 448.678 | 1.833 | 450.511 | 79.88 | 14.22 | 3.14 | 453.65 | .00 | 2.71 | 3.99 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
5.045 | .0587 | | | | | | .0157 | .08 | 1.83 | 2.11 | 1.30 | .013 | .00 | .00 | PIPE
2784.507 | 448.974 | 1.902 | 450.876 | 79.88 | 13.56 | 2.85 | 453.73 | .00 | 2.71 | 4.00 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
4.183 | .0587 | | | | | | .0138 | .06 | 1.90 | 1.97 | 1.30 | .013 | .00 | .00 | PIPE
2788.690 | 449.219 | 1.974 | 451.193 | 79.88 | 12.93 | 2.59 | 453.79 | .00 | 2.71 | 4.00 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
3.452 | .0587 | | | | | | .0122 | .04 | 1.97 | 1.83 | 1.30 | .013 | .00 | .00 | PIPE
2792.141 | 449.422 | 2.049 | 451.471 | 79.88 | 12.33 | 2.36 | 453.83 | .00 | 2.71 | 4.00 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
2.821 | .0587 | | | | | | .0107 | .03 | 2.05 | 1.71 | 1.30 | .013 | .00 | .00 | PIPE
2794.962 | 449.587 | 2.129 | 451.716 | 79.88 | 11.75 | 2.14 | 453.86 | .00 | 2.71 | 3.99 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
2.269 | .0587 | | | | | | .0094 | .02 | 2.13 | 1.59 | 1.30 | .013 | .00 | .00 | PIPE

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RMV PA3  
 Line E1  
 25YR-HC JANUARY 2019 CCHiu

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
2797.231	449.720	2.212	451.932	79.88	11.20	1.95	453.88	.00	2.71	3.98	4.000	.000	.00	1 .0
1.779	.0587					.0083	.01	2.21	1.47	1.30	.013	.00	.00	PIPE
2799.010	449.825	2.300	452.124	79.88	10.68	1.77	453.90	.00	2.71	3.95	4.000	.000	.00	1 .0
1.336	.0587					.0074	.01	2.30	1.37	1.30	.013	.00	.00	PIPE
2800.346	449.903	2.392	452.295	79.88	10.19	1.61	453.91	.00	2.71	3.92	4.000	.000	.00	1 .0
.928	.0587					.0065	.01	2.39	1.27	1.30	.013	.00	.00	PIPE
2801.274	449.957	2.490	452.448	79.88	9.71	1.46	453.91	.00	2.71	3.88	4.000	.000	.00	1 .0
.546	.0587					.0058	.00	2.49	1.18	1.30	.013	.00	.00	PIPE
2801.820	449.989	2.595	452.584	79.88	9.26	1.33	453.92	.00	2.71	3.82	4.000	.000	.00	1 .0
.180	.0587					.0051	.00	2.59	1.09	1.30	.013	.00	.00	PIPE
2802.000	450.000	2.707	452.707	79.88	8.83	1.21	453.92	.00	2.71	3.74	4.000	.000	.00	1 .0





WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING  
 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 PAGE 1

CD 1 4 1 2.000

W S P G W

PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA3

HEADING LINE NO 2 IS -

Line E2

HEADING LINE NO 3 IS -

25YR-HC January 2019 CCHIU

W S P G W

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	*	*	*								
U/S DATA	STATION	INVERT	SECT	W S ELEV											
1					1000.000	388.000	1	391.370							
2					1421.500	411.000	1		N	.013	RADIUS	ANGLE	ANG PT	MAN H	
											.000	.000	.000	2	
3					1843.000	435.000	1		N	.013	RADIUS	ANGLE	ANG PT	MAN H	
											.000	.000	.000	2	
4					1843.000	435.000	1				W S ELEV				
											.000				



RMV PA3

Line E2

25YR-HC January 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1000.000 | 388.000 | 1.168 | 389.168 | 34.05 | 17.87 | 4.96 | 394.13 | .00 | 1.91 | 1.97 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
294.935 | .0546 | | | | | | .0546 | 16.09 | 1.17 | 3.20 | 1.17 | .013 | .00 | .00 | PIPE
1294.935 | 404.094 | 1.168 | 405.262 | 34.05 | 17.87 | 4.96 | 410.22 | .00 | 1.91 | 1.97 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
126.565 | .0546 | | | | | | .0558 | 7.06 | 1.17 | 3.20 | 1.17 | .013 | .00 | .00 | PIPE
1421.500 | 411.000 | 1.152 | 412.152 | 34.05 | 18.17 | 5.13 | 417.28 | .00 | 1.91 | 1.98 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
143.709 | .0569 | | | | | | .0569 | 8.18 | 1.15 | 3.29 | 1.15 | .013 | .00 | .00 | PIPE
1565.209 | 419.183 | 1.152 | 420.335 | 34.05 | 18.17 | 5.13 | 425.46 | .00 | 1.91 | 1.98 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
126.803 | .0569 | | | | | | .0552 | 7.00 | 1.15 | 3.29 | 1.15 | .013 | .00 | .00 | PIPE
1692.012 | 426.403 | 1.175 | 427.578 | 34.05 | 17.73 | 4.88 | 432.46 | .00 | 1.91 | 1.97 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
60.690 | .0569 | | | | | | .0504 | 3.06 | 1.18 | 3.16 | 1.15 | .013 | .00 | .00 | PIPE
1752.702 | 429.858 | 1.223 | 431.082 | 34.05 | 16.91 | 4.44 | 435.52 | .00 | 1.91 | 1.95 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
28.723 | .0569 | | | | | | .0447 | 1.28 | 1.22 | 2.93 | 1.15 | .013 | .00 | .00 | PIPE
1781.425 | 431.494 | 1.274 | 432.768 | 34.05 | 16.12 | 4.04 | 436.80 | .00 | 1.91 | 1.92 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
18.061 | .0569 | | | | | | .0396 | .72 | 1.27 | 2.71 | 1.15 | .013 | .00 | .00 | PIPE
1799.487 | 432.522 | 1.328 | 433.850 | 34.05 | 15.37 | 3.67 | 437.52 | .00 | 1.91 | 1.89 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
12.702 | .0569 | | | | | | .0352 | .45 | 1.33 | 2.50 | 1.15 | .013 | .00 | .00 | PIPE
1812.189 | 433.246 | 1.386 | 434.632 | 34.05 | 14.66 | 3.34 | 437.97 | .00 | 1.91 | 1.85 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
9.434 | .0569 | | | | | | .0314 | .30 | 1.39 | 2.30 | 1.15 | .013 | .00 | .00 | PIPE

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RMV PA3  
 Line E2  
 25YR-HC January 2019 CCHIU

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
1821.623	433.783	1.448	435.231	34.05	13.97	3.03	438.26	.00	1.91	1.79	2.000	.000	.00	1 .0
7.206	.0569					.0281	.20	1.45	2.11	1.15	.013	.00	.00	PIPE
1828.829	434.193	1.516	435.709	34.05	13.32	2.76	438.47	.00	1.91	1.71	2.000	.000	.00	1 .0
5.546	.0569					.0253	.14	1.52	1.92	1.15	.013	.00	.00	PIPE
1834.375	434.509	1.591	436.100	34.05	12.70	2.51	438.61	.00	1.91	1.61	2.000	.000	.00	1 .0
4.207	.0569					.0229	.10	1.59	1.74	1.15	.013	.00	.00	PIPE
1838.582	434.748	1.676	436.424	34.05	12.11	2.28	438.70	.00	1.91	1.47	2.000	.000	.00	1 .0
2.984	.0569					.0210	.06	1.68	1.55	1.15	.013	.00	.00	PIPE
1841.565	434.918	1.776	436.694	34.05	11.55	2.07	438.77	.00	1.91	1.26	2.000	.000	.00	1 .0
1.435	.0569					.0199	.03	1.78	1.33	1.15	.013	.00	.00	PIPE
1843.000	435.000	1.912	436.912	34.05	11.01	1.88	438.79	.00	1.91	.82	2.000	.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	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		3.000															
CD	2	4	1		2.000															

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA3

HEADING LINE NO 2 IS -

Line E3

HEADING LINE NO 3 IS -

25-YR HC JANUARY 2019 CCHIU

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	1000.000	290.000	1	292.960							
ELEMENT NO 2	IS	A	REACH		U/S DATA	1753.000	360.000	1		.013	.000	.000	.000	2		
ELEMENT NO 3	IS	A	REACH		U/S DATA	1755.000	360.000	1		.013	3.820	-30.000	.000	0		
ELEMENT NO 4	IS	A	JUNCTION		U/S DATA	1761.000	361.000	1		.014	43.680	.000	362.000	.000	90.000	.000
ELEMENT NO 5	IS	A	REACH		U/S DATA	2339.000	385.000	1		.013	.000	.000	.000	.000	.000	1
ELEMENT NO 6	IS	A	SYSTEM	HEADWORKS	U/S DATA	2339.000	385.000	1		.000	.000					



RMV PA3  
Line E3  
25-YR HC JANUARY 2019 CCHIU

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
1000.000	290.000	1.438	291.438	94.64	28.25	12.40	303.83	.00	2.87	3.00	3.000	.000	.00	1 .0
279.203	.0930					.0930	25.96	1.44	4.71	1.44	.013	.00	.00	PIPE
1279.203	315.955	1.438	317.394	94.64	28.25	12.40	329.79	.00	2.87	3.00	3.000	.000	.00	1 .0
190.759	.0930					.0909	17.34	1.44	4.71	1.44	.013	.00	.00	PIPE
1469.962	333.688	1.457	335.146	94.64	27.78	11.98	347.13	.00	2.87	3.00	3.000	.000	.00	1 .0
109.773	.0930					.0835	9.17	1.46	4.59	1.44	.013	.00	.00	PIPE
1579.735	343.893	1.513	345.406	94.64	26.49	10.89	356.30	.00	2.87	3.00	3.000	.000	.00	1 .0
48.109	.0930					.0736	3.54	1.51	4.28	1.44	.013	.00	.00	PIPE
1627.844	348.365	1.571	349.936	94.64	25.26	9.90	359.84	.00	2.87	3.00	3.000	.000	.00	1 .0
29.875	.0930					.0649	1.94	1.57	3.98	1.44	.013	.00	.00	PIPE
1657.719	351.143	1.632	352.775	94.64	24.08	9.00	361.78	.00	2.87	2.99	3.000	.000	.00	1 .0
21.112	.0930					.0572	1.21	1.63	3.70	1.44	.013	.00	.00	PIPE
1678.831	353.105	1.696	354.802	94.64	22.96	8.19	362.99	.00	2.87	2.97	3.000	.000	.00	1 .0
15.947	.0930					.0506	.81	1.70	3.44	1.44	.013	.00	.00	PIPE
1694.779	354.588	1.764	356.352	94.64	21.89	7.44	363.79	.00	2.87	2.95	3.000	.000	.00	1 .0
12.533	.0930					.0447	.56	1.76	3.19	1.44	.013	.00	.00	PIPE
1707.312	355.753	1.836	357.589	94.64	20.87	6.76	364.35	.00	2.87	2.92	3.000	.000	.00	1 .0
10.098	.0930					.0396	.40	1.84	2.95	1.44	.013	.00	.00	PIPE



RMV PA3

Line E3

25-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1717.410 | 356.691 | 1.912 | 358.604 | 94.64 | 19.90 | 6.15 | 364.75 | .00 | 2.87 | 2.88 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
8.265 | .0930 | | | | | | .0351 | .29 | 1.91 | 2.73 | 1.44 | .013 | .00 | .00 | PIPE
1725.675 | 357.460 | 1.994 | 359.453 | 94.64 | 18.97 | 5.59 | 365.04 | .00 | 2.87 | 2.83 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
6.828 | .0930 | | | | | | .0313 | .21 | 1.99 | 2.52 | 1.44 | .013 | .00 | .00 | PIPE
1732.503 | 358.095 | 2.080 | 360.175 | 94.64 | 18.09 | 5.08 | 365.26 | .00 | 2.87 | 2.77 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
5.658 | .0930 | | | | | | .0279 | .16 | 2.08 | 2.32 | 1.44 | .013 | .00 | .00 | PIPE
1738.161 | 358.621 | 2.174 | 360.795 | 94.64 | 17.25 | 4.62 | 365.42 | .00 | 2.87 | 2.68 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
4.675 | .0930 | | | | | | .0249 | .12 | 2.17 | 2.12 | 1.44 | .013 | .00 | .00 | PIPE
1742.836 | 359.055 | 2.276 | 361.331 | 94.64 | 16.45 | 4.20 | 365.53 | .00 | 2.87 | 2.57 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
3.817 | .0930 | | | | | | .0224 | .09 | 2.28 | 1.94 | 1.44 | .013 | .00 | .00 | PIPE
1746.654 | 359.410 | 2.389 | 361.799 | 94.64 | 15.68 | 3.82 | 365.62 | .00 | 2.87 | 2.42 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
3.027 | .0930 | | | | | | .0203 | .06 | 2.39 | 1.75 | 1.44 | .013 | .00 | .00 | PIPE
1749.681 | 359.691 | 2.516 | 362.207 | 94.64 | 14.95 | 3.47 | 365.68 | .00 | 2.87 | 2.21 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
2.223 | .0930 | | | | | | .0186 | .04 | 2.52 | 1.56 | 1.44 | .013 | .00 | .00 | PIPE
1751.904 | 359.898 | 2.666 | 362.564 | 94.64 | 14.26 | 3.16 | 365.72 | .00 | 2.87 | 1.89 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
1.096 | .0930 | | | | | | .0177 | .02 | 2.67 | 1.34 | 1.44 | .013 | .00 | .00 | PIPE
1753.000 | 360.000 | 2.872 | 362.872 | 94.64 | 13.59 | 2.87 | 365.74 | 3.00 | 2.87 | 1.21 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
2.000 | .0000 | | | | | | .0184 | .04 | 3.00 | 1.00 | .00 | .013 | .00 | .00 | PIPE

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RMV PA3

Line E3

25-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1755.000 | 360.000 | 2.991 | 362.991 | 94.64 | 13.39 | 2.78 | 365.78 | .00 | 2.87 | .32 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR | .1667 | | | | | | .0145 | .09 | 2.99 | .50 | .014 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
1761.000 | 361.000 | 6.034 | 367.034 | 50.96 | 7.21 | .81 | 367.84 | .00 | 2.32 | .00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
54.353 | .0415 | | | | | | .0058 | .32 | 6.03 | .00 | 1.27 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
1815.353 | 363.257 | 4.095 | 367.352 | 50.96 | 7.21 | .81 | 368.16 | .00 | 2.32 | .00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
HYDRAULIC JUMP
| | | | | | | | | | | | | | | | |
1815.353 | 363.257 | 1.273 | 364.530 | 50.96 | 17.85 | 4.95 | 369.48 | .00 | 2.32 | 2.97 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
92.269 | .0415 | | | | | | .0415 | 3.83 | 1.27 | 3.21 | 1.27 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
1907.622 | 367.088 | 1.273 | 368.361 | 50.96 | 17.85 | 4.95 | 373.31 | .00 | 2.32 | 2.97 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
158.037 | .0415 | | | | | | .0412 | 6.51 | 1.27 | 3.21 | 1.27 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
2065.659 | 373.650 | 1.278 | 374.928 | 50.96 | 17.75 | 4.89 | 379.82 | .00 | 2.32 | 2.97 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
127.798 | .0415 | | | | | | .0384 | 4.91 | 1.28 | 3.18 | 1.27 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
2193.456 | 378.957 | 1.325 | 380.282 | 50.96 | 16.92 | 4.45 | 384.73 | .00 | 2.32 | 2.98 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
45.725 | .0415 | | | | | | .0338 | 1.54 | 1.33 | 2.97 | 1.27 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
2239.181 | 380.855 | 1.374 | 382.230 | 50.96 | 16.14 | 4.04 | 386.27 | .00 | 2.32 | 2.99 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
26.690 | .0415 | | | | | | .0297 | .79 | 1.37 | 2.77 | 1.27 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
2265.871 | 381.964 | 1.426 | 383.389 | 50.96 | 15.39 | 3.68 | 387.06 | .00 | 2.32 | 3.00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
18.187 | .0415 | | | | | | .0261 | .47 | 1.43 | 2.58 | 1.27 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |

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RMV PA3

Line E3

25-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2284.057 | 382.719 | 1.480 | 384.198 | 50.96 | 14.67 | 3.34 | 387.54 | .00 | 2.32 | 3.00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
13.343 | .0415 | | | | | | .0230 | .31 | 1.48 | 2.40 | 1.27 | .013 | .00 | .00 | PIPE
2297.400 | 383.273 | 1.536 | 384.809 | 50.96 | 13.99 | 3.04 | 387.85 | .00 | 2.32 | 3.00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
10.193 | .0415 | | | | | | .0203 | .21 | 1.54 | 2.24 | 1.27 | .013 | .00 | .00 | PIPE
2307.593 | 383.696 | 1.596 | 385.292 | 50.96 | 13.34 | 2.76 | 388.05 | .00 | 2.32 | 2.99 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
7.974 | .0415 | | | | | | .0179 | .14 | 1.60 | 2.08 | 1.27 | .013 | .00 | .00 | PIPE
2315.566 | 384.027 | 1.658 | 385.685 | 50.96 | 12.72 | 2.51 | 388.20 | .00 | 2.32 | 2.98 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
6.311 | .0415 | | | | | | .0158 | .10 | 1.66 | 1.93 | 1.27 | .013 | .00 | .00 | PIPE
2321.877 | 384.289 | 1.724 | 386.013 | 50.96 | 12.12 | 2.28 | 388.30 | .00 | 2.32 | 2.97 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
5.002 | .0415 | | | | | | .0139 | .07 | 1.72 | 1.79 | 1.27 | .013 | .00 | .00 | PIPE
2326.879 | 384.497 | 1.793 | 386.290 | 50.96 | 11.56 | 2.07 | 388.36 | .00 | 2.32 | 2.94 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
3.944 | .0415 | | | | | | .0123 | .05 | 1.79 | 1.66 | 1.27 | .013 | .00 | .00 | PIPE
2330.823 | 384.660 | 1.867 | 386.527 | 50.96 | 11.02 | 1.89 | 388.41 | .00 | 2.32 | 2.91 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
3.049 | .0415 | | | | | | .0109 | .03 | 1.87 | 1.54 | 1.27 | .013 | .00 | .00 | PIPE
2333.871 | 384.787 | 1.945 | 386.732 | 50.96 | 10.51 | 1.71 | 388.45 | .00 | 2.32 | 2.86 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
2.278 | .0415 | | | | | | .0097 | .02 | 1.95 | 1.42 | 1.27 | .013 | .00 | .00 | PIPE
2336.150 | 384.882 | 2.028 | 386.910 | 50.96 | 10.02 | 1.56 | 388.47 | .00 | 2.32 | 2.81 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
1.585 | .0415 | | | | | | .0086 | .01 | 2.03 | 1.31 | 1.27 | .013 | .00 | .00 | PIPE

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RMV PA3

Line E3

25-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2337.734 | 384.947 | 2.118 | 387.065 | 50.96 | 9.55 | 1.42 | 388.48 | .00 | 2.32 | 2.73 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
.944 | .0415 | | | | | | .0077 | .01 | 2.12 | 1.21 | 1.27 | .013 | .00 | .00 | PIPE
2338.679 | 384.987 | 2.215 | 387.202 | 50.96 | 9.11 | 1.29 | 388.49 | .00 | 2.32 | 2.64 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
.321 | .0415 | | | | | | .0069 | .00 | 2.21 | 1.10 | 1.27 | .013 | .00 | .00 | PIPE
2339.000 | 385.000 | 2.322 | 387.322 | 50.96 | 8.68 | 1.17 | 388.49 | .00 | 2.32 | 2.51 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
    
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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 3.000

W S P G W

PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA4

HEADING LINE NO 2 IS -

Line E4

HEADING LINE NO 3 IS -

25YR HC February 2019 CCHIU

W S P G W

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1 IS A	SYSTEM OUTLET	*	*	*													
		U/S DATA	STATION	INVERT	SECT													
			1000.000	361.000	1													
ELEMENT NO	2 IS A	REACH	*	*	*													
		U/S DATA	STATION	INVERT	SECT													
			1329.810	400.000	1													
ELEMENT NO	3 IS A	SYSTEM HEADWORKS	*	*	*													
		U/S DATA	STATION	INVERT	SECT													
			1329.810	400.000	1													



RMV PA4  
 Line E4  
 25YR HC February 2019 CCHIU

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
1000.000	361.000	.887	361.887	43.68	24.99	9.69	371.58	.00	2.15	2.74	3.000	.000	.00	1 .0
71.116	.1182					.1183	8.41	.89	5.51	.89	.013	.00	.00	PIPE
1071.116	369.409	.887	370.297	43.68	24.99	9.69	379.99	.00	2.15	2.74	3.000	.000	.00	1 .0
115.067	.1182					.1125	12.94	.89	5.51	.89	.013	.00	.00	PIPE
1186.182	383.016	.911	383.927	43.68	24.09	9.01	392.94	.00	2.15	2.76	3.000	.000	.00	1 .0
43.380	.1182					.1001	4.34	.91	5.24	.89	.013	.00	.00	PIPE
1229.563	388.146	.943	389.089	43.68	22.97	8.19	397.28	.00	2.15	2.79	3.000	.000	.00	1 .0
23.264	.1182					.0877	2.04	.94	4.90	.89	.013	.00	.00	PIPE
1252.827	390.897	.976	391.873	43.68	21.90	7.44	399.32	.00	2.15	2.81	3.000	.000	.00	1 .0
15.494	.1182					.0768	1.19	.98	4.58	.89	.013	.00	.00	PIPE
1268.321	392.729	1.010	393.739	43.68	20.88	6.77	400.51	.00	2.15	2.84	3.000	.000	.00	1 .0
11.369	.1182					.0673	.77	1.01	4.28	.89	.013	.00	.00	PIPE
1279.690	394.073	1.046	395.120	43.68	19.91	6.15	401.27	.00	2.15	2.86	3.000	.000	.00	1 .0
8.807	.1182					.0590	.52	1.05	4.00	.89	.013	.00	.00	PIPE
1288.497	395.115	1.084	396.198	43.68	18.98	5.59	401.79	.00	2.15	2.88	3.000	.000	.00	1 .0
7.058	.1182					.0517	.36	1.08	3.74	.89	.013	.00	.00	PIPE
1295.556	395.949	1.122	397.072	43.68	18.10	5.08	402.16	.00	2.15	2.90	3.000	.000	.00	1 .0
5.786	.1182					.0453	.26	1.12	3.50	.89	.013	.00	.00	PIPE



RMV PA4

Line E4

25YR HC February 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1301.341 | 396.634 | 1.163 | 397.796 | 43.68 | 17.25 | 4.62 | 402.42 | .00 | 2.15 | 2.92 | 3.000 | .000 | .00 | 1 | .0
  | | | | | | | | | | | | | | | | |
  4.819 | .1182 | | | | | .0398 | .19 | 1.16 | 3.27 | .89 | .013 | .00 | .00 | PIPE
1306.161 | 397.203 | 1.205 | 398.408 | 43.68 | 16.45 | 4.20 | 402.61 | .00 | 2.15 | 2.94 | 3.000 | .000 | .00 | 1 | .0
  | | | | | | | | | | | | | | | | |
  4.058 | .1182 | | | | | .0349 | .14 | 1.21 | 3.05 | .89 | .013 | .00 | .00 | PIPE
1310.219 | 397.683 | 1.249 | 398.932 | 43.68 | 15.69 | 3.82 | 402.75 | .00 | 2.15 | 2.96 | 3.000 | .000 | .00 | 1 | .0
  | | | | | | | | | | | | | | | | |
  3.441 | .1182 | | | | | .0307 | .11 | 1.25 | 2.85 | .89 | .013 | .00 | .00 | PIPE
1313.660 | 398.090 | 1.295 | 399.385 | 43.68 | 14.96 | 3.47 | 402.86 | .00 | 2.15 | 2.97 | 3.000 | .000 | .00 | 1 | .0
  | | | | | | | | | | | | | | | | |
  2.934 | .1182 | | | | | .0269 | .08 | 1.29 | 2.66 | .89 | .013 | .00 | .00 | PIPE
1316.594 | 398.437 | 1.343 | 399.780 | 43.68 | 14.26 | 3.16 | 402.94 | .00 | 2.15 | 2.98 | 3.000 | .000 | .00 | 1 | .0
  | | | | | | | | | | | | | | | | |
  2.505 | .1182 | | | | | .0237 | .06 | 1.34 | 2.48 | .89 | .013 | .00 | .00 | PIPE
1319.099 | 398.733 | 1.393 | 400.126 | 43.68 | 13.60 | 2.87 | 403.00 | .00 | 2.15 | 2.99 | 3.000 | .000 | .00 | 1 | .0
  | | | | | | | | | | | | | | | | |
  2.141 | .1182 | | | | | .0208 | .04 | 1.39 | 2.31 | .89 | .013 | .00 | .00 | PIPE
1321.241 | 398.987 | 1.445 | 400.432 | 43.68 | 12.96 | 2.61 | 403.04 | .00 | 2.15 | 3.00 | 3.000 | .000 | .00 | 1 | .0
  | | | | | | | | | | | | | | | | |
  1.825 | .1182 | | | | | .0183 | .03 | 1.45 | 2.15 | .89 | .013 | .00 | .00 | PIPE
1323.065 | 399.202 | 1.500 | 400.702 | 43.68 | 12.36 | 2.37 | 403.07 | .00 | 2.15 | 3.00 | 3.000 | .000 | .00 | 1 | .0
  | | | | | | | | | | | | | | | | |
  1.549 | .1182 | | | | | .0161 | .02 | 1.50 | 2.01 | .89 | .013 | .00 | .00 | PIPE
1324.614 | 399.386 | 1.557 | 400.943 | 43.68 | 11.78 | 2.16 | 403.10 | .00 | 2.15 | 3.00 | 3.000 | .000 | .00 | 1 | .0
  | | | | | | | | | | | | | | | | |
  1.304 | .1182 | | | | | .0142 | .02 | 1.56 | 1.87 | .89 | .013 | .00 | .00 | PIPE
  
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RMV PA4

Line E4

25YR HC February 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1325.918 | 399.540 | 1.618 | 401.158 | 43.68 | 11.24 | 1.96 | 403.12 | .00 | 2.15 | 2.99 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
1.085 | .1182 | | | | | | .0125 | .01 | 1.62 | 1.74 | .89 | .013 | .00 | .00 | PIPE
1327.004 | 399.668 | 1.681 | 401.349 | 43.68 | 10.71 | 1.78 | 403.13 | .00 | 2.15 | 2.98 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
.886 | .1182 | | | | | | .0111 | .01 | 1.68 | 1.61 | .89 | .013 | .00 | .00 | PIPE
1327.889 | 399.773 | 1.748 | 401.521 | 43.68 | 10.21 | 1.62 | 403.14 | .00 | 2.15 | 2.96 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
.705 | .1182 | | | | | | .0098 | .01 | 1.75 | 1.50 | .89 | .013 | .00 | .00 | PIPE
1328.595 | 399.856 | 1.819 | 401.675 | 43.68 | 9.74 | 1.47 | 403.15 | .00 | 2.15 | 2.93 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
.536 | .1182 | | | | | | .0087 | .00 | 1.82 | 1.39 | .89 | .013 | .00 | .00 | PIPE
1329.130 | 399.920 | 1.894 | 401.814 | 43.68 | 9.29 | 1.34 | 403.15 | .00 | 2.15 | 2.89 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
.378 | .1182 | | | | | | .0077 | .00 | 1.89 | 1.28 | .89 | .013 | .00 | .00 | PIPE
1329.509 | 399.964 | 1.974 | 401.939 | 43.68 | 8.85 | 1.22 | 403.16 | .00 | 2.15 | 2.85 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
.225 | .1182 | | | | | | .0068 | .00 | 1.97 | 1.19 | .89 | .013 | .00 | .00 | PIPE
1329.734 | 399.991 | 2.060 | 402.051 | 43.68 | 8.44 | 1.11 | 403.16 | .00 | 2.15 | 2.78 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
.076 | .1182 | | | | | | .0061 | .00 | 2.06 | 1.09 | .89 | .013 | .00 | .00 | PIPE
1329.810 | 400.000 | 2.153 | 402.153 | 43.68 | 8.05 | 1.01 | 403.16 | .00 | 2.15 | 2.70 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |

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WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING  
 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 7.000  
 CD 2 4 1 3.000  
 CD 3 4 1 1.500

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA4

HEADING LINE NO 2 IS -

Line F1

HEADING LINE NO 3 IS -

25-YR HC February 2019 cchiu

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	1000.000	329.000	1	335.000						
2	IS	A	REACH		1910.000	360.000	1		RADIUS	ANGLE	ANG PT	MAN H		
									.000	.000	.000	2		
3	IS	A	JUNCTION		1916.000	361.000	1						PHI 3	PHI 4
									.013	8.790	.000	362.000	.000	45.000
													.000	.000
4	IS	A	REACH		2768.000	416.000	1						ANG PT	MAN H
									.013				-30.000	2
5	IS	A	JUNCTION		2774.000	417.000	2							
									.014	585.230	16.610	418.000	418.000	.000
													.000	45.000
6	IS	A	REACH		3421.000	449.000	2							
									.013				.000	0
7	IS	A	JUNCTION		3427.000	450.000	2							
									.014	63.010	41.540	451.000	451.000	30.000
													.000	45.000
8	IS	A	REACH		4501.000	475.000	2							
									.013				.000	2

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	HEADWORKS	STATION	INVERT	SECT	W S ELEV
9	IS	A	SYSTEM	HEADWORKS	4501.000	475.000	2	.000



RMV PA4  
Line F1  
25-YR HC February 2019 cchiu

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
1000.000	329.000	3.899	332.899	717.90	32.58	16.49	349.39	.00	6.58	6.95	7.000	.000	.00	1 .0
	238.329	.0341				.0361	8.60	3.90	3.23	3.94	.013	.00	.00	PIPE
1238.329	337.119	3.849	340.968	717.90	33.11	17.02	357.99	.00	6.58	6.97	7.000	.000	.00	1 .0
	298.065	.0341				.0393	11.71	3.85	3.31	3.94	.013	.00	.00	PIPE
1536.394	347.273	3.705	350.977	717.90	34.72	18.72	369.70	.00	6.58	6.99	7.000	.000	.00	1 .0
	165.302	.0341				.0446	7.37	3.70	3.56	3.94	.013	.00	.00	PIPE
1701.696	352.904	3.567	356.471	717.90	36.42	20.60	377.07	.00	6.58	7.00	7.000	.000	.00	1 .0
	116.788	.0341				.0506	5.91	3.57	3.82	3.94	.013	.00	.00	PIPE
1818.484	356.882	3.436	360.319	717.90	38.20	22.65	382.97	.00	6.58	7.00	7.000	.000	.00	1 .0
	91.516	.0341				.0575	5.26	3.44	4.11	3.94	.013	.00	.00	PIPE
1910.000	360.000	3.311	363.311	717.90	40.06	24.92	388.23	.00	6.58	6.99	7.000	.000	.00	1 .0
JUNCT STR	.1667					.0614	.37	3.31	4.41		.013	.00	.00	PIPE
1916.000	361.000	3.280	364.280	709.11	40.06	24.92	389.20	.00	6.57	6.99	7.000	.000	.00	1 .0
	283.575	.0646				.0588	16.68	3.28	4.44	3.24	.013	.00	.00	PIPE
2199.575	379.306	3.372	382.678	709.11	38.66	23.20	405.88	.00	6.57	7.00	7.000	.000	.00	1 .0
	166.557	.0646				.0527	8.77	3.37	4.21	3.24	.013	.00	.00	PIPE
2366.132	390.058	3.500	393.557	709.11	36.86	21.09	414.65	.00	6.57	7.00	7.000	.000	.00	1 .0
	98.092	.0646				.0464	4.55	3.50	3.92	3.24	.013	.00	.00	PIPE

RMV PA4

Line F1

25-YR HC February 2019 cchiu

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2464.224 | 396.390 | 3.634 | 400.024 | 709.11 | 35.14 | 19.18 | 419.20 | .00 | 6.57 | 6.99 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
67.661 | .0646 | | | | | | .0409 | 2.77 | 3.63 | 3.65 | 3.24 | .013 | .00 | .00 | PIPE
2531.885 | 400.758 | 3.775 | 404.532 | 709.11 | 33.51 | 17.43 | 421.97 | .00 | 6.57 | 6.98 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
50.406 | .0646 | | | | | | .0361 | 1.82 | 3.77 | 3.39 | 3.24 | .013 | .00 | .00 | PIPE
2582.292 | 404.012 | 3.923 | 407.935 | 709.11 | 31.95 | 15.85 | 423.78 | .00 | 6.57 | 6.95 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
39.260 | .0646 | | | | | | .0318 | 1.25 | 3.92 | 3.15 | 3.24 | .013 | .00 | .00 | PIPE
2621.552 | 406.546 | 4.079 | 410.626 | 709.11 | 30.46 | 14.41 | 425.03 | .00 | 6.57 | 6.90 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
31.437 | .0646 | | | | | | .0282 | .88 | 4.08 | 2.92 | 3.24 | .013 | .00 | .00 | PIPE
2652.989 | 408.576 | 4.245 | 412.820 | 709.11 | 29.04 | 13.10 | 425.92 | .00 | 6.57 | 6.84 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
25.626 | .0646 | | | | | | .0249 | .64 | 4.24 | 2.71 | 3.24 | .013 | .00 | .00 | PIPE
2678.615 | 410.230 | 4.420 | 414.650 | 709.11 | 27.69 | 11.91 | 426.56 | .00 | 6.57 | 6.75 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
21.106 | .0646 | | | | | | .0221 | .47 | 4.42 | 2.51 | 3.24 | .013 | .00 | .00 | PIPE
2699.721 | 411.592 | 4.607 | 416.199 | 709.11 | 26.40 | 10.82 | 427.02 | .00 | 6.57 | 6.64 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
17.471 | .0646 | | | | | | .0196 | .34 | 4.61 | 2.31 | 3.24 | .013 | .00 | .00 | PIPE
2717.192 | 412.720 | 4.806 | 417.526 | 709.11 | 25.17 | 9.84 | 427.37 | .00 | 6.57 | 6.49 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
14.449 | .0646 | | | | | | .0175 | .25 | 4.81 | 2.13 | 3.24 | .013 | .00 | .00 | PIPE
2731.642 | 413.653 | 5.021 | 418.674 | 709.11 | 24.00 | 8.95 | 427.62 | .00 | 6.57 | 6.30 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
11.864 | .0646 | | | | | | .0157 | .19 | 5.02 | 1.95 | 3.24 | .013 | .00 | .00 | PIPE

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RMV PA4  
Line F1  
25-YR HC February 2019 cchiu

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
2743.506	414.419	5.254	419.673	709.11	22.89	8.13	427.81	.00	6.57	6.06	7.000	.000	.00	1 .0
9.564	.0646					.0141	.13	5.25	1.78	3.24	.013	.00	.00	PIPE
2753.070	415.036	5.510	420.547	709.11	21.82	7.39	427.94	.00	6.57	5.73	7.000	.000	.00	1 .0
7.415	.0646					.0127	.09	5.51	1.61	3.24	.013	.00	.00	PIPE
2760.485	415.515	5.798	421.313	709.11	20.81	6.72	428.03	.00	6.57	5.28	7.000	.000	.00	1 .0
5.207	.0646					.0116	.06	5.80	1.44	3.24	.013	.00	.00	PIPE
2765.692	415.851	6.133	421.984	709.11	19.84	6.11	428.09	.00	6.57	4.61	7.000	.000	.00	1 .0
2.308	.0646					.0109	.03	6.13	1.26	3.24	.013	.00	.00	PIPE
2768.000	416.000	6.566	422.566	709.11	18.91	5.55	428.12	.00	6.57	3.38	7.000	.000	.00	1 .0
JUNCT STR	.1667								6.57	1.00	.014	.00	.00	PIPE
2774.000	417.000	1.890	418.890	107.27	22.86	8.12	427.01	.00	2.92	2.90	3.000	.000	.00	1 .0
131.790	.0495					.0495	6.52	1.89	3.17	1.89	.013	.00	.00	PIPE
2905.791	423.518	1.890	425.409	107.27	22.86	8.12	433.52	.00	2.92	2.90	3.000	.000	.00	1 .0
235.531	.0495					.0482	11.35	1.89	3.17	1.89	.013	.00	.00	PIPE
3141.322	435.167	1.925	437.092	107.27	22.39	7.78	444.87	.00	2.92	2.88	3.000	.000	.00	1 .0
121.285	.0495					.0443	5.37	1.92	3.06	1.89	.013	.00	.00	PIPE
3262.607	441.166	2.007	443.173	107.27	21.34	7.07	450.25	.00	2.92	2.82	3.000	.000	.00	1 .0
55.244	.0495					.0394	2.18	2.01	2.82	1.89	.013	.00	.00	PIPE



RMV PA4  
Line F1  
25-YR HC February 2019 cchiu

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
3317.851	443.898	2.095	445.993	107.27	20.35	6.43	452.42	.00	2.92	2.75	3.000	.000	.00	1 .0
34.248	.0495					.0352	1.20	2.09	2.59	1.89	.013	.00	.00	PIPE
3352.099	445.592	2.190	447.782	107.27	19.40	5.85	453.63	.00	2.92	2.66	3.000	.000	.00	1 .0
23.809	.0495					.0315	.75	2.19	2.37	1.89	.013	.00	.00	PIPE
3375.908	446.770	2.293	449.063	107.27	18.50	5.31	454.38	.00	2.92	2.55	3.000	.000	.00	1 .0
17.452	.0495					.0283	.49	2.29	2.16	1.89	.013	.00	.00	PIPE
3393.360	447.633	2.408	450.041	107.27	17.64	4.83	454.87	.00	2.92	2.39	3.000	.000	.00	1 .0
13.020	.0495					.0257	.33	2.41	1.95	1.89	.013	.00	.00	PIPE
3406.380	448.277	2.538	450.815	107.27	16.82	4.39	455.21	.00	2.92	2.17	3.000	.000	.00	1 .0
9.448	.0495					.0237	.22	2.54	1.73	1.89	.013	.00	.00	PIPE
3415.827	448.744	2.694	451.438	107.27	16.04	3.99	455.43	.00	2.92	1.82	3.000	.000	.00	1 .0
5.173	.0495					.0228	.12	2.69	1.47	1.89	.013	.00	.00	PIPE
3421.000	449.000	2.920	451.920	107.27	15.29	3.63	455.55	.00	2.92	.97	3.000	.000	.00	1 .0
JUNCT STR	.1667							2.92	1.00		.014	.00	.00	PIPE
3427.000	450.000	.338	450.338	2.72	6.22	.60	450.94	.00	.51	1.90	3.000	.000	.00	1 .0
1015.308	.0233					.0233	23.64	.34	2.28	.34	.013	.00	.00	PIPE
4442.309	473.634	.338	473.971	2.72	6.22	.60	474.57	.00	.51	1.90	3.000	.000	.00	1 .0
29.333	.0233					.0222	.65	.34	2.28	.34	.013	.00	.00	PIPE

RMV PA4  
Line F1  
25-YR HC February 2019 cchiu

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
4471.642	474.317	.345	474.662	2.72	6.01	.56	475.22	.00	.51	1.92	3.000	.000	.00	1 .0
11.321	.0233					.0198	.22	.35	2.18	.34	.013	.00	.00	PIPE
4482.962	474.580	.357	474.937	2.72	5.73	.51	475.45	.00	.51	1.94	3.000	.000	.00	1 .0
5.732	.0233					.0173	.10	.36	2.04	.34	.013	.00	.00	PIPE
4488.694	474.714	.369	475.082	2.72	5.47	.46	475.55	.00	.51	1.97	3.000	.000	.00	1 .0
3.650	.0233					.0151	.05	.37	1.92	.34	.013	.00	.00	PIPE
4492.344	474.799	.381	475.179	2.72	5.21	.42	475.60	.00	.51	2.00	3.000	.000	.00	1 .0
2.532	.0233					.0131	.03	.38	1.80	.34	.013	.00	.00	PIPE
4494.876	474.857	.394	475.251	2.72	4.97	.38	475.63	.00	.51	2.03	3.000	.000	.00	1 .0
1.844	.0233					.0115	.02	.39	1.68	.34	.013	.00	.00	PIPE
4496.720	474.900	.407	475.307	2.72	4.74	.35	475.66	.00	.51	2.05	3.000	.000	.00	1 .0
1.372	.0233					.0100	.01	.41	1.58	.34	.013	.00	.00	PIPE
4498.092	474.932	.420	475.353	2.72	4.52	.32	475.67	.00	.51	2.08	3.000	.000	.00	1 .0
1.019	.0233					.0087	.01	.42	1.48	.34	.013	.00	.00	PIPE
4499.111	474.956	.434	475.390	2.72	4.31	.29	475.68	.00	.51	2.11	3.000	.000	.00	1 .0
.748	.0233					.0076	.01	.43	1.39	.34	.013	.00	.00	PIPE
4499.858	474.973	.449	475.422	2.72	4.11	.26	475.68	.00	.51	2.14	3.000	.000	.00	1 .0
.530	.0233					.0067	.00	.45	1.30	.34	.013	.00	.00	PIPE

RMV PA4

Line F1

25-YR HC February 2019 cchiu

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
4500.389 | 474.986 | .464 | 475.449 | 2.72 | 3.92 | .24 | 475.69 | .00 | .51 | 2.17 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | .346 | .0233 |      |      |      |      | .0058 | .00 | .46 | 1.22 | .34 | .013 | .00 | .00 | PIPE
4500.735 | 474.994 | .479 | 475.473 | 2.72 | 3.73 | .22 | 475.69 | .00 | .51 | 2.20 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | .202 | .0233 |      |      |      |      | .0051 | .00 | .48 | 1.14 | .34 | .013 | .00 | .00 | PIPE
4500.937 | 474.999 | .495 | 475.494 | 2.72 | 3.56 | .20 | 475.69 | .00 | .51 | 2.23 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
      | .063 | .0233 |      |      |      |      | .0044 | .00 | .50 | 1.07 | .34 | .013 | .00 | .00 | PIPE
4501.000 | 475.000 | .513 | 475.513 | 2.72 | 3.38 | .18 | 475.69 | .00 | .51 | 2.26 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  
```



WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

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		3.000														
----	---	---	---	--	-------	--	--	--	--	--	--	--	--	--	--	--	--	--	--

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA4

HEADING LINE NO 2 IS -

Line F2

HEADING LINE NO 3 IS -

25-YR HC JANUARY 2019 CCHIU

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	*	*	*												
			U/S DATA	STATION	INVERT	SECT													
1			1000.000	449.000	1														
2			1890.000	460.000	1														
3			1890.000	460.000	1														



RMV PA4  
Line F2  
25-YR HC JANUARY 2019 CCHIU

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
1000.000	449.000	2.124	451.124	63.01	11.77	2.15	453.28	.00	2.55	2.73	3.000	.000	.00	1 .0
665.829	.0124					.0124	8.23	2.12	1.48	2.12	.013	.00	.00	PIPE
1665.829	457.229	2.124	459.354	63.01	11.77	2.15	461.51	.00	2.55	2.73	3.000	.000	.00	1 .0
153.127	.0124					.0118	1.81	2.12	1.48	2.12	.013	.00	.00	PIPE
1818.956	459.122	2.200	461.322	63.01	11.34	2.00	463.32	.00	2.55	2.65	3.000	.000	.00	1 .0
47.702	.0124					.0107	.51	2.20	1.38	2.12	.013	.00	.00	PIPE
1866.658	459.712	2.305	462.016	63.01	10.81	1.82	463.83	.00	2.55	2.53	3.000	.000	.00	1 .0
18.335	.0124					.0097	.18	2.30	1.26	2.12	.013	.00	.00	PIPE
1884.992	459.938	2.420	462.359	63.01	10.31	1.65	464.01	.00	2.55	2.37	3.000	.000	.00	1 .0
5.008	.0124					.0088	.04	2.42	1.13	2.12	.013	.00	.00	PIPE
1890.000	460.000	2.554	462.554	63.01	9.83	1.50	464.05	.00	2.55	2.14	3.000	.000	.00	1 .0





WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

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		7.000															
----	---	---	---	--	-------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV-PA4

HEADING LINE NO 2 IS -

LINE F3

HEADING LINE NO 3 IS -

25-YR HC JNAUARY 2019 CCHIU

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										
1			1000.000	416.000	1					422.566										
ELEMENT NO	IS	A	REACH	*	*	*														
			U/S DATA	STATION	INVERT	SECT														
2			2336.000	430.000	1				N											
ELEMENT NO	IS	A	SYSTEM	HEADWORKS	*	*														
			U/S DATA	STATION	INVERT	SECT				W S ELEV										
3			2336.000	430.000	1					.000										







WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING  
 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 PAGE 1

CD 1 4 1 3.000

W S P G W

PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA4

HEADING LINE NO 2 IS -

Line F4

HEADING LINE NO 3 IS -

25-YR HC JANUARY 2019 CCHIU

W S P G W

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM OUTLET	U/S DATA	STATION	INVERT	SECT	W S ELEV						
1					1000.000	416.000	1	422.566						
2			REACH		1165.500	420.000	1		.013					
										RADIUS	ANGLE	ANG PT	MAN H	
										.000	.000	.000	3	
3			REACH		1331.000	420.000	1		.013					
										RADIUS	ANGLE	ANG PT	MAN H	
										.000	.000	.000	3	
4			SYSTEM HEADWORKS		1331.000	420.000	1							
										W S ELEV				
										.000				









WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

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		3.000														
----	---	---	---	--	-------	--	--	--	--	--	--	--	--	--	--	--	--	--	--

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA4

HEADING LINE NO 2 IS -

Line F5

HEADING LINE NO 3 IS -

25-YR HC JANUARY 2019 CCHIU

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS A	SYSTEM	OUTLET	*	*	*													
		U/S DATA	STATION	INVERT	SECT														
ELEMENT NO 1	IS A	SYSTEM	OUTLET	*	*	*													
		U/S DATA	STATION	INVERT	SECT														
			1000.000	329.000	1														
ELEMENT NO 2	IS A	REACH	*	*	*														
		U/S DATA	STATION	INVERT	SECT														
			2041.000	395.000	1														
ELEMENT NO 3	IS A	SYSTEM	HEADWORKS	*	*	*													
		U/S DATA	STATION	INVERT	SECT														
			2041.000	395.000	1														



RMV PA4  
Line F5  
25-YR HC JANUARY 2019 CCHIU

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
1000.000	329.000	6.000	335.000	52.58	7.44	.86	335.86	.00	2.36	.00	3.000	.000	.00	1 .0
20.913	.0634					.0062	.13	6.00	.00	1.15	.013	.00	.00	PIPE
1020.913	330.326	4.803	335.129	52.58	7.44	.86	335.99	.00	2.36	.00	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
1020.913	330.326	1.153	331.479	52.58	21.01	6.86	338.33	.00	2.36	2.92	3.000	.000	.00	1 .0
622.582	.0634					.0634	39.47	1.15	4.00	1.15	.013	.00	.00	PIPE
1643.495	369.798	1.153	370.951	52.58	21.01	6.86	377.81	.00	2.36	2.92	3.000	.000	.00	1 .0
148.035	.0634					.0626	9.27	1.15	4.00	1.15	.013	.00	.00	PIPE
1791.530	379.184	1.161	380.344	52.58	20.82	6.73	387.07	.00	2.36	2.92	3.000	.000	.00	1 .0
106.057	.0634					.0580	6.15	1.16	3.95	1.15	.013	.00	.00	PIPE
1897.587	385.908	1.203	387.110	52.58	19.85	6.12	393.23	.00	2.36	2.94	3.000	.000	.00	1 .0
41.082	.0634					.0509	2.09	1.20	3.69	1.15	.013	.00	.00	PIPE
1938.668	388.512	1.247	389.759	52.58	18.93	5.56	395.32	.00	2.36	2.96	3.000	.000	.00	1 .0
24.622	.0634					.0447	1.10	1.25	3.44	1.15	.013	.00	.00	PIPE
1963.290	390.073	1.292	391.366	52.58	18.05	5.06	396.42	.00	2.36	2.97	3.000	.000	.00	1 .0
17.080	.0634					.0393	.67	1.29	3.21	1.15	.013	.00	.00	PIPE
1980.370	391.156	1.340	392.496	52.58	17.21	4.60	397.09	.00	2.36	2.98	3.000	.000	.00	1 .0
12.746	.0634					.0345	.44	1.34	3.00	1.15	.013	.00	.00	PIPE

RMV PA4

Line F5

25-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1993.116 | 391.964 | 1.390 | 393.354 | 52.58 | 16.41 | 4.18 | 397.53 | .00 | 2.36 | 2.99 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
9.917 | .0634 | | | | | .0304 | .30 | 1.39 | 2.79 | 1.15 | .013 | .00 | .00 | PIPE
2003.034 | 392.593 | 1.442 | 394.035 | 52.58 | 15.64 | 3.80 | 397.83 | .00 | 2.36 | 3.00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
7.925 | .0634 | | | | | .0267 | .21 | 1.44 | 2.60 | 1.15 | .013 | .00 | .00 | PIPE
2010.959 | 393.095 | 1.497 | 394.592 | 52.58 | 14.91 | 3.45 | 398.05 | .00 | 2.36 | 3.00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
6.438 | .0634 | | | | | .0235 | .15 | 1.50 | 2.42 | 1.15 | .013 | .00 | .00 | PIPE
2017.397 | 393.504 | 1.554 | 395.058 | 52.58 | 14.22 | 3.14 | 398.20 | .00 | 2.36 | 3.00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
5.277 | .0634 | | | | | .0207 | .11 | 1.55 | 2.26 | 1.15 | .013 | .00 | .00 | PIPE
2022.674 | 393.838 | 1.615 | 395.453 | 52.58 | 13.56 | 2.85 | 398.31 | .00 | 2.36 | 2.99 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
4.347 | .0634 | | | | | .0183 | .08 | 1.61 | 2.10 | 1.15 | .013 | .00 | .00 | PIPE
2027.021 | 394.114 | 1.678 | 395.792 | 52.58 | 12.93 | 2.59 | 398.39 | .00 | 2.36 | 2.98 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
3.579 | .0634 | | | | | .0162 | .06 | 1.68 | 1.95 | 1.15 | .013 | .00 | .00 | PIPE
2030.600 | 394.341 | 1.745 | 396.086 | 52.58 | 12.33 | 2.36 | 398.44 | .00 | 2.36 | 2.96 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
2.927 | .0634 | | | | | .0143 | .04 | 1.74 | 1.81 | 1.15 | .013 | .00 | .00 | PIPE
2033.527 | 394.526 | 1.816 | 396.342 | 52.58 | 11.75 | 2.14 | 398.49 | .00 | 2.36 | 2.93 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
2.365 | .0634 | | | | | .0126 | .03 | 1.82 | 1.68 | 1.15 | .013 | .00 | .00 | PIPE
2035.892 | 394.676 | 1.891 | 396.567 | 52.58 | 11.20 | 1.95 | 398.52 | .00 | 2.36 | 2.90 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
1.869 | .0634 | | | | | .0112 | .02 | 1.89 | 1.55 | 1.15 | .013 | .00 | .00 | PIPE

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WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	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		5.000													

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA4

HEADING LINE NO 2 IS -

LINE F6

HEADING LINE NO 3 IS -

25-YR HC JANUARY 2019 CCHIU

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	1000.000	329.000	1	335.000				
ELEMENT NO 2	IS	A	REACH		U/S DATA	1652.000	347.000	1		.013	.000	.000	3
ELEMENT NO 3	IS	A	REACH		U/S DATA	2304.000	365.000	1		.013	.000	.000	3
ELEMENT NO 4	IS	A	SYSTEM	HEADWORKS	U/S DATA	2304.000	365.000	1	.000				





RMV PA4  
LINE F6  
25-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1000.000 | 329.000 | 2.664 | 331.664 | 240.62 | 22.62 | 7.95 | 339.61 | .00 | 4.36 | 4.99 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
273.217 | .0276 | | | | | | .0276 | 7.54 | 2.66 | 2.73 | 2.66 | .013 | .00 | .00 | PIPE
1273.217 | 336.543 | 2.664 | 339.207 | 240.62 | 22.62 | 7.95 | 347.15 | .00 | 4.36 | 4.99 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
378.783 | .0276 | | | | | | .0274 | 10.37 | 2.66 | 2.73 | 2.66 | .013 | .00 | .00 | PIPE
1652.000 | 347.000 | 2.677 | 349.677 | 240.62 | 22.48 | 7.85 | 357.52 | .00 | 4.36 | 4.99 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
107.420 | .0276 | | | | | | .0270 | 2.90 | 2.68 | 2.70 | 2.66 | .013 | .00 | .00 | PIPE
1759.420 | 349.966 | 2.688 | 352.653 | 240.62 | 22.37 | 7.77 | 360.42 | .00 | 4.36 | 4.99 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
252.705 | .0276 | | | | | | .0252 | 6.38 | 2.69 | 2.68 | 2.66 | .013 | .00 | .00 | PIPE
2012.125 | 356.942 | 2.793 | 359.735 | 240.62 | 21.33 | 7.06 | 366.80 | .00 | 4.36 | 4.97 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
99.632 | .0276 | | | | | | .0223 | 2.22 | 2.79 | 2.49 | 2.66 | .013 | .00 | .00 | PIPE
2111.757 | 359.693 | 2.905 | 362.597 | 240.62 | 20.34 | 6.42 | 369.02 | .00 | 4.36 | 4.93 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
58.934 | .0276 | | | | | | .0197 | 1.16 | 2.90 | 2.31 | 2.66 | .013 | .00 | .00 | PIPE
2170.690 | 361.320 | 3.022 | 364.342 | 240.62 | 19.39 | 5.84 | 370.18 | .00 | 4.36 | 4.89 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
39.920 | .0276 | | | | | | .0174 | .70 | 3.02 | 2.14 | 2.66 | .013 | .00 | .00 | PIPE
2210.611 | 362.422 | 3.147 | 365.569 | 240.62 | 18.49 | 5.31 | 370.88 | .00 | 4.36 | 4.83 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
28.817 | .0276 | | | | | | .0155 | .45 | 3.15 | 1.98 | 2.66 | .013 | .00 | .00 | PIPE
2239.428 | 363.217 | 3.279 | 366.497 | 240.62 | 17.63 | 4.82 | 371.32 | .00 | 4.36 | 4.75 | 5.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
21.411 | .0276 | | | | | | .0137 | .29 | 3.28 | 1.83 | 2.66 | .013 | .00 | .00 | PIPE

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RMV PA4

LINE F6

25-YR HC JANUARY 2019 CCHIU

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
2260.839	363.808	3.421	367.229	240.62	16.81	4.39	371.62	.00	4.36	4.65	5.000	.000	.00	1 .0
16.024	.0276					.0122	.20	3.42	1.69	2.66	.013	.00	.00	PIPE
2276.863	364.251	3.574	367.824	240.62	16.02	3.99	371.81	.00	4.36	4.52	5.000	.000	.00	1 .0
11.825	.0276					.0109	.13	3.57	1.55	2.66	.013	.00	.00	PIPE
2288.689	364.577	3.739	368.316	240.62	15.28	3.63	371.94	.00	4.36	4.34	5.000	.000	.00	1 .0
8.318	.0276					.0098	.08	3.74	1.41	2.66	.013	.00	.00	PIPE
2297.007	364.807	3.921	368.727	240.62	14.57	3.30	372.02	.00	4.36	4.11	5.000	.000	.00	1 .0
5.135	.0276					.0089	.05	3.92	1.28	2.66	.013	.00	.00	PIPE
2302.141	364.949	4.124	369.073	240.62	13.89	3.00	372.07	.00	4.36	3.80	5.000	.000	.00	1 .0
1.859	.0276					.0081	.02	4.12	1.15	2.66	.013	.00	.00	PIPE
2304.000	365.000	4.361	369.361	240.62	13.24	2.72	372.08	.00	4.36	3.34	5.000	.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 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															

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA4

HEADING LINE NO 2 IS -

Line F7

HEADING LINE NO 3 IS -

25-YR HC February 2019 CCHIU

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	1000.000	284.000	1	285.000				
ELEMENT NO 2	IS	A	REACH		U/S DATA	1180.000	316.000	1		.013	.000	-90.000	0
ELEMENT NO 3	IS	A	REACH		U/S DATA	2196.000	329.000	1		.013	.000	.000	2
ELEMENT NO 4	IS	A	SYSTEM	HEADWORKS	U/S DATA	2196.000	329.000	1	.000				



RMV PA4

Line F7

25-YR HC February 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1000.000 | 284.000 | 3.508 | 287.508 | 1007.40 | 47.51 | 35.05 | 322.56 | .00 | 7.53 | 7.94 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
26.540 | .1778 | | | | | | .0729 | 1.93 | 3.51 | 5.12 | 2.79 | .013 | .00 | .00 | PIPE
1026.540 | 288.718 | 3.625 | 292.343 | 1007.40 | 45.51 | 32.17 | 324.51 | .00 | 7.53 | 7.96 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
24.619 | .1778 | | | | | | .0645 | 1.59 | 3.62 | 4.81 | 2.79 | .013 | .00 | .00 | PIPE
1051.158 | 293.095 | 3.760 | 296.855 | 1007.40 | 43.39 | 29.24 | 326.10 | .00 | 7.53 | 7.99 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
20.791 | .1778 | | | | | | .0567 | 1.18 | 3.76 | 4.49 | 2.79 | .013 | .00 | .00 | PIPE
1071.949 | 296.791 | 3.902 | 300.693 | 1007.40 | 41.38 | 26.58 | 327.28 | .00 | 7.53 | 8.00 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
17.742 | .1778 | | | | | | .0499 | .89 | 3.90 | 4.18 | 2.79 | .013 | .00 | .00 | PIPE
1089.691 | 299.945 | 4.050 | 303.995 | 1007.40 | 39.45 | 24.17 | 328.16 | .00 | 7.53 | 8.00 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
15.256 | .1778 | | | | | | .0440 | .67 | 4.05 | 3.89 | 2.79 | .013 | .00 | .00 | PIPE
1104.947 | 302.657 | 4.206 | 306.863 | 1007.40 | 37.61 | 21.97 | 328.83 | .00 | 7.53 | 7.99 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
13.191 | .1778 | | | | | | .0388 | .51 | 4.21 | 3.62 | 2.79 | .013 | .00 | .00 | PIPE
1118.137 | 305.002 | 4.370 | 309.372 | 1007.40 | 35.86 | 19.97 | 329.34 | .00 | 7.53 | 7.97 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
11.446 | .1778 | | | | | | .0342 | .39 | 4.37 | 3.37 | 2.79 | .013 | .00 | .00 | PIPE
1129.584 | 307.037 | 4.543 | 311.580 | 1007.40 | 34.19 | 18.16 | 329.74 | .00 | 7.53 | 7.93 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
9.953 | .1778 | | | | | | .0302 | .30 | 4.54 | 3.13 | 2.79 | .013 | .00 | .00 | PIPE
1139.537 | 308.807 | 4.725 | 313.531 | 1007.40 | 32.60 | 16.51 | 330.04 | .00 | 7.53 | 7.87 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
8.660 | .1778 | | | | | | .0267 | .23 | 4.72 | 2.90 | 2.79 | .013 | .00 | .00 | PIPE

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RMV PA4

Line F7

25-YR HC February 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1148.197 | 310.346 | 4.917 | 315.263 | 1007.40 | 31.09 | 15.01 | 330.27 | .00 | 7.53 | 7.79 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
7.526 | .1778 | | | | | | | | | | | | | | | |
1155.723 | 311.684 | 5.122 | 316.806 | 1007.40 | 29.64 | 13.64 | 330.45 | .00 | 7.53 | 7.68 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
6.521 | .1778 | | | | | | | | | | | | | | | |
1162.243 | 312.843 | 5.340 | 318.183 | 1007.40 | 28.26 | 12.40 | 330.58 | .00 | 7.53 | 7.54 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
5.619 | .1778 | | | | | | | | | | | | | | | |
1167.862 | 313.842 | 5.573 | 319.416 | 1007.40 | 26.94 | 11.27 | 330.69 | .00 | 7.53 | 7.36 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
4.798 | .1778 | | | | | | | | | | | | | | | |
1172.660 | 314.695 | 5.825 | 320.520 | 1007.40 | 25.69 | 10.25 | 330.77 | .00 | 7.53 | 7.12 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
4.035 | .1778 | | | | | | | | | | | | | | | |
1176.694 | 315.412 | 6.100 | 321.512 | 1007.40 | 24.50 | 9.32 | 330.83 | .00 | 7.53 | 6.81 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
3.306 | .1778 | | | | | | | | | | | | | | | |
1180.000 | 316.000 | 6.404 | 322.404 | 1007.40 | 23.36 | 8.47 | 330.87 | .00 | 7.53 | 6.39 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
690.907 | .0128 | | | | | | | | | | | | | | | |
1870.907 | 324.840 | 6.643 | 331.483 | 1007.40 | 22.58 | 7.92 | 339.40 | .00 | 7.53 | 6.01 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
249.875 | .0128 | | | | | | | | | | | | | | | |
2120.782 | 328.038 | 7.029 | 335.067 | 1007.40 | 21.53 | 7.20 | 342.26 | .00 | 7.53 | 5.22 | 8.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
75.218 | .0128 | | | | | | | | | | | | | | | |
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RMV PA4

Line F7

25-YR HC February 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2196.000 | 329.000 | 7.532 | 336.532 | 1007.40 | 20.53 | 6.54 | 343.07 | .00 | 7.53 | 3.75 | 8.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
    
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WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING  
 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 PAGE 1

CD 1 4 1 4.000  
 CD 2 4 1 2.000  
 CD 3 4 1 2.500

W S P G W

PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA3

HEADING LINE NO 2 IS -

Line E1

HEADING LINE NO 3 IS -

100-YR HC JANUARY 2019 CCHIU

W S P G W

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET \* \* \*  
 U/S DATA STATION INVERT SECT W S ELEV  
 1000.000 341.000 1 347.000

ELEMENT NO 2 IS A REACH \* \* \*  
 U/S DATA STATION INVERT SECT N RADIUS ANGLE ANG PT MAN H  
 1756.000 388.000 1 .013 .000 .000 .000 2

ELEMENT NO 3 IS A JUNCTION \* \* \* \* \*  
 U/S DATA STATION INVERT SECT LAT-1 LAT-2 N Q3 Q4 INVERT-3 INVERT-4 PHI 3 PHI 4  
 1762.000 389.000 1 1 2 .014 161.680 44.300 390.000 390.000 45.000 -45.000  
 RADIUS ANGLE  
 .000 .000

ELEMENT NO 4 IS A REACH \* \* \*  
 U/S DATA STATION INVERT SECT N RADIUS ANGLE ANG PT MAN H  
 2802.000 450.000 1 .013 .000 .000 .000 2

ELEMENT NO 5 IS A SYSTEM HEADWORKS \* \* \*  
 U/S DATA STATION INVERT SECT W S ELEV  
 2802.000 450.000 1 .000





RMV PA3

Line E1

100-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1930.253 | 398.869 | 1.507 | 400.376 | 104.98 | 24.24 | 9.12 | 409.50 | .00 | 3.10 | 3.88 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
367.126 | .0587 | | | | | | .0587 | 21.53 | 1.51 | 4.04 | 1.51 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
2297.379 | 420.402 | 1.507 | 421.909 | 104.98 | 24.24 | 9.12 | 431.03 | .00 | 3.10 | 3.88 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
213.687 | .0587 | | | | | | .0568 | 12.15 | 1.51 | 4.04 | 1.51 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
2511.066 | 432.936 | 1.533 | 434.469 | 104.98 | 23.68 | 8.71 | 443.18 | .00 | 3.10 | 3.89 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
105.124 | .0587 | | | | | | .0517 | 5.43 | 1.53 | 3.91 | 1.51 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
2616.190 | 439.102 | 1.589 | 440.690 | 104.98 | 22.58 | 7.92 | 448.61 | .00 | 3.10 | 3.91 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
49.673 | .0587 | | | | | | .0453 | 2.25 | 1.59 | 3.65 | 1.51 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
2665.863 | 442.015 | 1.646 | 443.662 | 104.98 | 21.53 | 7.20 | 450.86 | .00 | 3.10 | 3.94 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
31.499 | .0587 | | | | | | .0398 | 1.25 | 1.65 | 3.41 | 1.51 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
2697.362 | 443.863 | 1.707 | 445.569 | 104.98 | 20.53 | 6.54 | 452.11 | .00 | 3.10 | 3.96 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
22.444 | .0587 | | | | | | .0350 | .78 | 1.71 | 3.18 | 1.51 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
2719.806 | 445.179 | 1.770 | 446.949 | 104.98 | 19.57 | 5.95 | 452.90 | .00 | 3.10 | 3.97 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
17.001 | .0587 | | | | | | .0307 | .52 | 1.77 | 2.97 | 1.51 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
2736.807 | 446.176 | 1.835 | 448.012 | 104.98 | 18.66 | 5.41 | 453.42 | .00 | 3.10 | 3.99 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
13.361 | .0587 | | | | | | .0270 | .36 | 1.84 | 2.77 | 1.51 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
2750.167 | 446.960 | 1.904 | 448.864 | 104.98 | 17.79 | 4.92 | 453.78 | .00 | 3.10 | 4.00 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
10.745 | .0587 | | | | | | .0238 | .26 | 1.90 | 2.58 | 1.51 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |

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RMV PA3

Line E1

100-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2760.912 | 447.590 | 1.976 | 449.566 | 104.98 | 16.96 | 4.47 | 454.04 | .00 | 3.10 | 4.00 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
8.766 | .0587 | | | | | | .0209 | .18 | 1.98 | 2.40 | 1.51 | .013 | .00 | .00 | PIPE
2769.679 | 448.104 | 2.052 | 450.156 | 104.98 | 16.17 | 4.06 | 454.22 | .00 | 3.10 | 4.00 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
7.211 | .0587 | | | | | | .0184 | .13 | 2.05 | 2.24 | 1.51 | .013 | .00 | .00 | PIPE
2776.890 | 448.527 | 2.131 | 450.658 | 104.98 | 15.42 | 3.69 | 454.35 | .00 | 3.10 | 3.99 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
5.952 | .0587 | | | | | | .0163 | .10 | 2.13 | 2.08 | 1.51 | .013 | .00 | .00 | PIPE
2782.842 | 448.876 | 2.214 | 451.091 | 104.98 | 14.70 | 3.36 | 454.45 | .00 | 3.10 | 3.98 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
4.906 | .0587 | | | | | | .0144 | .07 | 2.21 | 1.93 | 1.51 | .013 | .00 | .00 | PIPE
2787.748 | 449.164 | 2.302 | 451.466 | 104.98 | 14.02 | 3.05 | 454.52 | .00 | 3.10 | 3.95 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
4.018 | .0587 | | | | | | .0127 | .05 | 2.30 | 1.80 | 1.51 | .013 | .00 | .00 | PIPE
2791.766 | 449.400 | 2.395 | 451.795 | 104.98 | 13.37 | 2.77 | 454.57 | .00 | 3.10 | 3.92 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
3.246 | .0587 | | | | | | .0112 | .04 | 2.40 | 1.66 | 1.51 | .013 | .00 | .00 | PIPE
2795.012 | 449.590 | 2.493 | 452.084 | 104.98 | 12.75 | 2.52 | 454.61 | .00 | 3.10 | 3.88 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
2.565 | .0587 | | | | | | .0100 | .03 | 2.49 | 1.54 | 1.51 | .013 | .00 | .00 | PIPE
2797.577 | 449.741 | 2.598 | 452.338 | 104.98 | 12.15 | 2.29 | 454.63 | .00 | 3.10 | 3.82 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
1.945 | .0587 | | | | | | .0088 | .02 | 2.60 | 1.42 | 1.51 | .013 | .00 | .00 | PIPE
2799.521 | 449.855 | 2.709 | 452.564 | 104.98 | 11.59 | 2.08 | 454.65 | .00 | 3.10 | 3.74 | 4.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
1.373 | .0587 | | | | | | .0079 | .01 | 2.71 | 1.31 | 1.51 | .013 | .00 | .00 | PIPE

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RMV PA3

Line E1

100-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2800.894 | 449.935 | 2.829 | 452.764 | 104.98 | 11.05 | 1.90 | 454.66 | .00 | 3.10 | 3.64 | 4.000 | .000 | .00 | 1 | .0
      | .825 | .0587 |      |      |      |      | .0070 | .01 | 2.83 | 1.20 | 1.51 | .013 | .00 | .00 | PIPE
2801.719 | 449.984 | 2.959 | 452.942 | 104.98 | 10.53 | 1.72 | 454.67 | .00 | 3.10 | 3.51 | 4.000 | .000 | .00 | 1 | .0
      | .281 | .0587 |      |      |      |      | .0063 | .00 | 2.96 | 1.10 | 1.51 | .013 | .00 | .00 | PIPE
2802.000 | 450.000 | 3.102 | 453.102 | 104.98 | 10.04 | 1.57 | 454.67 | .00 | 3.10 | 3.34 | 4.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

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WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING  
 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 PAGE 1

CD 1 4 1 2.000

W S P G W

PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA3

HEADING LINE NO 2 IS -

Line E2

HEADING LINE NO 3 IS -

100-YR HC January 2019 CCHIU

W S P G W

PAGE NO 2

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			SYSTEM	OUTLET		1000.000	388.000	1	391.973				
2			REACH			1421.500	411.000	1		.000	.000	.000	2
3			REACH			1843.000	435.000	1		.000	.000	.000	2
4			SYSTEM	HEADWORKS		1843.000	435.000	1					
			SYSTEM	HEADWORKS		1843.000	435.000	1					



RMV PA3

Line E2

100-YR HC January 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1000.000 | 388.000 | 3.973 | 391.973 | 44.30 | 14.10 | 3.09 | 395.06 | .00 | 1.97 | .00 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
28.047 | .0546 | | | | | | .0383 | 1.08 | 3.97 | .00 | 1.40 | .013 | .00 | .00 | PIPE
1028.047 | 389.530 | 3.537 | 393.068 | 44.30 | 14.10 | 3.09 | 396.16 | .00 | 1.97 | .00 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
HYDRAULIC JUMP
1028.047 | 389.530 | 1.401 | 390.932 | 44.30 | 18.84 | 5.51 | 396.44 | .00 | 1.97 | 1.83 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
244.865 | .0546 | | | | | | .0546 | 13.36 | 1.40 | 2.93 | 1.40 | .013 | .00 | .00 | PIPE
1272.912 | 402.892 | 1.401 | 404.293 | 44.30 | 18.84 | 5.51 | 409.80 | .00 | 1.97 | 1.83 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
148.588 | .0546 | | | | | | .0558 | 8.28 | 1.40 | 2.93 | 1.40 | .013 | .00 | .00 | PIPE
1421.500 | 411.000 | 1.379 | 412.379 | 44.30 | 19.18 | 5.71 | 418.09 | .00 | 1.97 | 1.85 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
99.734 | .0569 | | | | | | .0569 | 5.68 | 1.38 | 3.02 | 1.38 | .013 | .00 | .00 | PIPE
1521.235 | 416.679 | 1.379 | 418.058 | 44.30 | 19.18 | 5.71 | 423.77 | .00 | 1.97 | 1.85 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
148.581 | .0569 | | | | | | .0557 | 8.28 | 1.38 | 3.02 | 1.38 | .013 | .00 | .00 | PIPE
1669.816 | 425.139 | 1.402 | 426.541 | 44.30 | 18.84 | 5.51 | 432.05 | .00 | 1.97 | 1.83 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
82.607 | .0569 | | | | | | .0516 | 4.27 | 1.40 | 2.93 | 1.38 | .013 | .00 | .00 | PIPE
1752.423 | 429.843 | 1.465 | 431.308 | 44.30 | 17.96 | 5.01 | 436.32 | .00 | 1.97 | 1.77 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
36.141 | .0569 | | | | | | .0463 | 1.67 | 1.47 | 2.68 | 1.38 | .013 | .00 | .00 | PIPE
1788.564 | 431.900 | 1.535 | 433.435 | 44.30 | 17.12 | 4.55 | 437.99 | .00 | 1.97 | 1.69 | 2.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
22.053 | .0569 | | | | | | .0417 | .92 | 1.53 | 2.44 | 1.38 | .013 | .00 | .00 | PIPE

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RMV PA3

Line E2

100-YR HC January 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1810.617 | 433.156 | 1.612 | 434.768 | 44.30 | 16.33 | 4.14 | 438.91 | .00 | 1.97 | 1.58 | 2.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
15.104 | .0569 | | | | | | .0378 | .57 | 1.61 | 2.20 | 1.38 | .013 | .00 | .00 | PIPE
1825.721 | 434.016 | 1.700 | 435.716 | 44.30 | 15.57 | 3.76 | 439.48 | .00 | 1.97 | 1.43 | 2.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
10.720 | .0569 | | | | | | .0349 | .37 | 1.70 | 1.94 | 1.38 | .013 | .00 | .00 | PIPE
1836.441 | 434.627 | 1.806 | 436.432 | 44.30 | 14.84 | 3.42 | 439.85 | .00 | 1.97 | 1.19 | 2.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
6.559 | .0569 | | | | | | .0342 | .22 | 1.81 | 1.65 | 1.38 | .013 | .00 | .00 | PIPE
1843.000 | 435.000 | 1.968 | 436.968 | 44.30 | 14.15 | 3.11 | 440.08 | .00 | 1.97 | .50 | 2.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
    
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WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING  
 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 PAGE 1

CD 1 4 1 3.000

W S P G W

PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA3

HEADING LINE NO 2 IS -

Line E3

HEADING LINE NO 3 IS -

100-YR HC JANUARY 2019 CCHIU

W S P G W

PAGE NO 2

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						1000.000	290.000	1	292.960				
2						1753.000	360.000	1		.000	.000	.000	2
3						1755.000	360.000	1		3.820	-30.000	.000	0
4						1761.000	361.000	1					
5						2339.000	385.000	1		.000	.000	.000	1
6						2339.000	385.000	1		.000			



RMV PA3

Line E3

100-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1000.000 | 290.000 | 1.694 | 291.694 | 124.22 | 30.20 | 14.16 | 305.85 | .00 | 2.96 | 2.97 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
198.647 | .0930 | | | | | | .0930 | 18.47 | 1.69 | 4.53 | 1.69 | .013 | .00 | .00 | PIPE
1198.647 | 308.466 | 1.694 | 310.160 | 124.22 | 30.20 | 14.16 | 324.32 | .00 | 2.96 | 2.97 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
223.390 | .0930 | | | | | | .0913 | 20.40 | 1.69 | 4.53 | 1.69 | .013 | .00 | .00 | PIPE
1422.037 | 329.233 | 1.713 | 330.946 | 124.22 | 29.78 | 13.77 | 344.72 | .00 | 2.96 | 2.97 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
139.183 | .0930 | | | | | | .0845 | 11.76 | 1.71 | 4.43 | 1.69 | .013 | .00 | .00 | PIPE
1561.220 | 342.172 | 1.782 | 343.954 | 124.22 | 28.39 | 12.52 | 356.47 | .00 | 2.96 | 2.95 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
58.413 | .0930 | | | | | | .0747 | 4.37 | 1.78 | 4.11 | 1.69 | .013 | .00 | .00 | PIPE
1619.633 | 347.602 | 1.855 | 349.457 | 124.22 | 27.07 | 11.38 | 360.84 | .00 | 2.96 | 2.91 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
35.790 | .0930 | | | | | | .0662 | 2.37 | 1.85 | 3.80 | 1.69 | .013 | .00 | .00 | PIPE
1655.423 | 350.929 | 1.932 | 352.861 | 124.22 | 25.81 | 10.35 | 363.21 | .00 | 2.96 | 2.87 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
25.105 | .0930 | | | | | | .0588 | 1.48 | 1.93 | 3.51 | 1.69 | .013 | .00 | .00 | PIPE
1680.528 | 353.263 | 2.015 | 355.278 | 124.22 | 24.61 | 9.41 | 364.68 | .00 | 2.96 | 2.82 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
18.854 | .0930 | | | | | | .0523 | .99 | 2.01 | 3.24 | 1.69 | .013 | .00 | .00 | PIPE
1699.382 | 355.016 | 2.103 | 357.119 | 124.22 | 23.47 | 8.55 | 365.67 | .00 | 2.96 | 2.75 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
14.728 | .0930 | | | | | | .0467 | .69 | 2.10 | 2.98 | 1.69 | .013 | .00 | .00 | PIPE
1714.110 | 356.385 | 2.199 | 358.583 | 124.22 | 22.37 | 7.77 | 366.36 | .00 | 2.96 | 2.65 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | | |
11.774 | .0930 | | | | | | .0418 | .49 | 2.20 | 2.73 | 1.69 | .013 | .00 | .00 | PIPE

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RMV PA3

Line E3

100-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1725.884 | 357.479 | 2.303 | 359.782 | 124.22 | 21.33 | 7.07 | 366.85 | .00 | 2.96 | 2.53 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
9.522 | .0930 | | | | | .0377 | .36 | 2.30 | 2.48 | 1.69 | .013 | .00 | .00 | PIPE
1735.406 | 358.364 | 2.419 | 360.783 | 124.22 | 20.34 | 6.42 | 367.21 | .00 | 2.96 | 2.37 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
7.696 | .0930 | | | | | .0342 | .26 | 2.42 | 2.23 | 1.69 | .013 | .00 | .00 | PIPE
1743.102 | 359.080 | 2.551 | 361.631 | 124.22 | 19.39 | 5.84 | 367.47 | .00 | 2.96 | 2.14 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
6.057 | .0930 | | | | | .0315 | .19 | 2.55 | 1.98 | 1.69 | .013 | .00 | .00 | PIPE
1749.159 | 359.643 | 2.710 | 362.353 | 124.22 | 18.49 | 5.31 | 367.66 | .00 | 2.96 | 1.77 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
3.841 | .0930 | | | | | .0309 | .12 | 2.71 | 1.67 | 1.69 | .013 | .00 | .00 | PIPE
1753.000 | 360.000 | 2.955 | 362.955 | 124.22 | 17.63 | 4.83 | 367.78 | 3.00 | 2.96 | .73 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
.460 | .0000 | | | | | .0328 | .02 | 3.00 | 1.00 | .00 | .013 | .00 | .00 | PIPE
1753.460 | 360.000 | 3.000 | 363.000 | 124.22 | 17.57 | 4.80 | 367.80 | 3.00 | 2.96 | .00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
1.540 | .0000 | | | | | .0344 | .05 | 3.00 | .00 | .00 | .013 | .00 | .00 | PIPE
1755.000 | 360.000 | 3.539 | 363.539 | 124.22 | 17.57 | 4.80 | 368.33 | .00 | 2.96 | .00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR | .1667 | | | | | .0259 | .16 | 3.54 | .00 | .014 | .00 | .00 | .00 | PIPE
1761.000 | 361.000 | 9.504 | 370.504 | 66.90 | 9.46 | 1.39 | 371.90 | .00 | 2.61 | .00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
154.981 | .0415 | | | | | .0101 | 1.56 | 9.50 | .00 | 1.49 | .013 | .00 | .00 | PIPE
1915.981 | 367.435 | 4.646 | 372.081 | 66.90 | 9.46 | 1.39 | 373.47 | .00 | 2.61 | .00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
HYDRAULIC JUMP

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WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

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 3.000

W S P G W

PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA4

HEADING LINE NO 2 IS -

Line E4

HEADING LINE NO 3 IS -

100-YR HC February 2019 CCHIU

W S P G W

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	*	*	*													
			U/S DATA	STATION	INVERT	SECT				W S ELEV										
1			1000.000	361.000	1					363.539										
ELEMENT NO	IS	A	REACH	*	*	*														
			U/S DATA	STATION	INVERT	SECT														
2			1329.810	400.000	1				N											
									.013											
ELEMENT NO	IS	A	SYSTEM	HEADWORKS	*	*														
			U/S DATA	STATION	INVERT	SECT				W S ELEV										
3			1329.810	400.000	1					.000										





RMV PA4

Line E4

100-YR HC February 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1301.232 | 396.621 | 1.379 | 398.000 | 57.32 | 18.07 | 5.07 | 403.07 | .00 | 2.45 | 2.99 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
5.040 | .1182 | | | | | .0371 | .19 | 1.38 | 3.09 | 1.02 | .013 | .00 | .00 | PIPE
1306.272 | 397.217 | 1.431 | 398.648 | 57.32 | 17.23 | 4.61 | 403.26 | .00 | 2.45 | 3.00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
4.260 | .1182 | | | | | .0326 | .14 | 1.43 | 2.88 | 1.02 | .013 | .00 | .00 | PIPE
1310.532 | 397.720 | 1.485 | 399.206 | 57.32 | 16.42 | 4.19 | 403.39 | .00 | 2.45 | 3.00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
3.621 | .1182 | | | | | .0287 | .10 | 1.49 | 2.68 | 1.02 | .013 | .00 | .00 | PIPE
1314.153 | 398.149 | 1.542 | 399.690 | 57.32 | 15.66 | 3.81 | 403.50 | .00 | 2.45 | 3.00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
3.083 | .1182 | | | | | .0253 | .08 | 1.54 | 2.50 | 1.02 | .013 | .00 | .00 | PIPE
1317.235 | 398.513 | 1.602 | 400.115 | 57.32 | 14.93 | 3.46 | 403.58 | .00 | 2.45 | 2.99 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
2.627 | .1182 | | | | | .0223 | .06 | 1.60 | 2.32 | 1.02 | .013 | .00 | .00 | PIPE
1319.863 | 398.824 | 1.664 | 400.488 | 57.32 | 14.24 | 3.15 | 403.64 | .00 | 2.45 | 2.98 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
2.233 | .1182 | | | | | .0197 | .04 | 1.66 | 2.16 | 1.02 | .013 | .00 | .00 | PIPE
1322.096 | 399.088 | 1.730 | 400.818 | 57.32 | 13.57 | 2.86 | 403.68 | .00 | 2.45 | 2.96 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
1.887 | .1182 | | | | | .0174 | .03 | 1.73 | 2.00 | 1.02 | .013 | .00 | .00 | PIPE
1323.983 | 399.311 | 1.800 | 401.111 | 57.32 | 12.94 | 2.60 | 403.71 | .00 | 2.45 | 2.94 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
1.581 | .1182 | | | | | .0154 | .02 | 1.80 | 1.86 | 1.02 | .013 | .00 | .00 | PIPE
1325.564 | 399.498 | 1.874 | 401.372 | 57.32 | 12.34 | 2.36 | 403.74 | .00 | 2.45 | 2.91 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
1.303 | .1182 | | | | | .0137 | .02 | 1.87 | 1.72 | 1.02 | .013 | .00 | .00 | PIPE

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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		7.000															
CD	2	4	1		3.000															
CD	3	4	1		1.500															

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA4

HEADING LINE NO 2 IS -

Line F1

HEADING LINE NO 3 IS -

100-YR HC February 2019 CCHI

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS A	SYSTEM	OUTLET	U/S DATA	STATION	INVERT	SECT	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4	MAN H
1	IS A	SYSTEM	OUTLET	U/S DATA	1000.000	329.000	1				335.000				
2	IS A	REACH		U/S DATA	1910.000	360.000	1	.013			.000	.000	.000	.000	2
3	IS A	JUNCTION		U/S DATA	1916.000	361.000	1	.013	12.010	.000	362.000	.000	45.000	.000	
4	IS A	REACH		U/S DATA	2768.000	416.000	1	.013			.000	.000	-30.000	.000	2
5	IS A	JUNCTION		U/S DATA	2774.000	417.000	1	.014	733.990	21.640	418.000	418.000	.000	45.000	
6	IS A	JUNCTION		U/S DATA	2774.000	417.000	1	.014	71.290	.000	418.000	.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  
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO	IS A	REACH	U/S DATA	STATION	INVERT	SECT	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4	MAN H
7	IS A	REACH	U/S DATA	3421.000	449.000	2	.013			.000	.000	.000	.000	0
8	IS A	JUNCTION	U/S DATA	3427.000	450.000	2	.014	82.400	54.230	451.000	451.000	30.000	45.000	

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS A	REACH	U/S DATA	STATION	INVERT	SECT	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4	MAN H
9	IS A	REACH	U/S DATA	4501.000	475.000	2	.013			.000	.000	.000	.000	2
10	IS A	SYSTEM	HEADWORKS											

U/S DATA	STATION	INVERT	SECT	W S ELEV
	4501.000	475.000	2	.000





RMV PA4

Line F1

100-YR HC February 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2406.617 | 392.671 | 4.322 | 396.994 | 967.07 | 38.77 | 23.34 | 420.33 | .00 | 6.86 | 6.80 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  94.027 | .0646 |      |      |      |      |      | .0439 | 4.13 | 4.32 | 3.57 | 3.89 | .013 | .00 | .00 | PIPE
2500.644 | 398.741 | 4.503 | 403.244 | 967.07 | 36.96 | 21.22 | 424.46 | .00 | 6.86 | 6.71 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  67.890 | .0646 |      |      |      |      |      | .0390 | 2.65 | 4.50 | 3.30 | 3.89 | .013 | .00 | .00 | PIPE
2568.534 | 403.124 | 4.695 | 407.818 | 967.07 | 35.24 | 19.29 | 427.10 | .00 | 6.86 | 6.58 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  51.789 | .0646 |      |      |      |      |      | .0347 | 1.80 | 4.69 | 3.04 | 3.89 | .013 | .00 | .00 | PIPE
2620.323 | 406.467 | 4.901 | 411.368 | 967.07 | 33.60 | 17.53 | 428.90 | .00 | 6.86 | 6.41 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  40.803 | .0646 |      |      |      |      |      | .0309 | 1.26 | 4.90 | 2.80 | 3.89 | .013 | .00 | .00 | PIPE
2661.127 | 409.101 | 5.123 | 414.224 | 967.07 | 32.04 | 15.94 | 430.16 | .00 | 6.86 | 6.20 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  32.741 | .0646 |      |      |      |      |      | .0277 | .91 | 5.12 | 2.56 | 3.89 | .013 | .00 | .00 | PIPE
2693.868 | 411.214 | 5.366 | 416.581 | 967.07 | 30.55 | 14.49 | 431.07 | .00 | 6.86 | 5.92 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  26.470 | .0646 |      |      |      |      |      | .0250 | .66 | 5.37 | 2.33 | 3.89 | .013 | .00 | .00 | PIPE
2720.337 | 412.923 | 5.635 | 418.559 | 967.07 | 29.13 | 13.17 | 431.73 | .00 | 6.86 | 5.55 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  21.274 | .0646 |      |      |      |      |      | .0227 | .48 | 5.64 | 2.10 | 3.89 | .013 | .00 | .00 | PIPE
2741.611 | 414.296 | 5.942 | 420.238 | 967.07 | 27.77 | 11.98 | 432.21 | .00 | 6.86 | 5.02 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
  16.502 | .0646 |      |      |      |      |      | .0209 | .34 | 5.94 | 1.86 | 3.89 | .013 | .00 | .00 | PIPE
2758.113 | 415.362 | 6.310 | 421.672 | 967.07 | 26.48 | 10.89 | 432.56 | .00 | 6.86 | 4.17 | 7.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
   9.887 | .0646 |      |      |      |      |      | .0203 | .20 | 6.31 | 1.58 | 3.89 | .013 | .00 | .00 | PIPE

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RMV PA4

Line F1

100-YR HC February 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2768.000 | 416.000 | 6.863 | 422.863 | 967.07 | 25.24 | 9.90 | 432.76 | .00 | 6.86 | 1.94 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR |.1667 | | | | | | | | | | | | | | | |
----- WARNING - Junction Analysis - Large Lateral Flow(s) -----
2774.000 | 417.000 | 3.796 | 420.796 | 211.44 | 9.92 | 1.53 | 422.32 | .00 | 3.80 | 6.97 | 7.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
JUNCT STR |.0000 | | | | | | | | | | | | | | | |
2774.000 | 417.000 | 5.315 | 422.315 | 140.15 | 19.83 | 6.10 | 428.42 | .00 | 2.97 | .00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
86.026 |.0495 | | | | | | | | | | | | | | | |
2860.026 | 421.255 | 4.857 | 426.112 | 140.15 | 19.83 | 6.10 | 432.22 | .00 | 2.97 | .00 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
HYDRAULIC JUMP
2860.026 | 421.255 | 2.322 | 423.577 | 140.15 | 23.87 | 8.85 | 432.42 | .00 | 2.97 | 2.51 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
78.142 |.0495 | | | | | | | | | | | | | | | |
2938.167 | 425.120 | 2.322 | 427.442 | 140.15 | 23.87 | 8.85 | 436.29 | .00 | 2.97 | 2.51 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
291.004 |.0495 | | | | | | | | | | | | | | | |
3229.171 | 439.512 | 2.423 | 441.935 | 140.15 | 22.91 | 8.15 | 450.09 | .00 | 2.97 | 2.36 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
100.512 |.0495 | | | | | | | | | | | | | | | |
3329.684 | 444.484 | 2.556 | 447.039 | 140.15 | 21.84 | 7.41 | 454.45 | .00 | 2.97 | 2.13 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
54.690 |.0495 | | | | | | | | | | | | | | | |

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RMV PA4

Line F1

100-YR HC February 2019 CCHIU

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
3384.374	447.189	2.716	449.904	140.15	20.83	6.74	456.64	.00	2.97	1.76	3.000	.000	.00	1 .0
36.626	.0495					.0397	1.46	2.72	1.88	2.32	.013	.00	.00	PIPE
3421.000	449.000	2.972	451.972	140.15	19.86	6.12	458.09	.00	2.97	.58	3.000	.000	.00	1 .0
JUNCT STR	.1667							2.97	1.00		.014	.00	.00	PIPE
3427.000	450.000	.382	450.382	3.52	6.72	.70	451.08	.00	.59	2.00	3.000	.000	.00	1 .0
1008.113	.0233					.0233	23.47	.38	2.31	.38	.013	.00	.00	PIPE
4435.113	473.466	.382	473.848	3.52	6.72	.70	474.55	.00	.59	2.00	3.000	.000	.00	1 .0
34.544	.0233					.0219	.76	.38	2.31	.38	.013	.00	.00	PIPE
4469.657	474.270	.393	474.664	3.52	6.44	.64	475.31	.00	.59	2.02	3.000	.000	.00	1 .0
11.413	.0233					.0193	.22	.39	2.18	.38	.013	.00	.00	PIPE
4481.069	474.536	.406	474.942	3.52	6.14	.59	475.53	.00	.59	2.05	3.000	.000	.00	1 .0
6.174	.0233					.0168	.10	.41	2.05	.38	.013	.00	.00	PIPE
4487.243	474.680	.420	475.100	3.52	5.85	.53	475.63	.00	.59	2.08	3.000	.000	.00	1 .0
4.010	.0233					.0147	.06	.42	1.92	.38	.013	.00	.00	PIPE
4491.253	474.773	.434	475.207	3.52	5.58	.48	475.69	.00	.59	2.11	3.000	.000	.00	1 .0
2.824	.0233					.0128	.04	.43	1.80	.38	.013	.00	.00	PIPE
4494.078	474.839	.448	475.287	3.52	5.32	.44	475.73	.00	.59	2.14	3.000	.000	.00	1 .0
2.070	.0233					.0112	.02	.45	1.69	.38	.013	.00	.00	PIPE





WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

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		3.000														
----	---	---	---	--	-------	--	--	--	--	--	--	--	--	--	--	--	--	--	--

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA4

HEADING LINE NO 2 IS -

Line F2

HEADING LINE NO 3 IS -

100-YR HC JANUARY 2019 CCHIU

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	*	*	*												
			U/S DATA	STATION	INVERT	SECT													
1			1000.000	449.000	1														
2			1890.000	460.000	1														
3			1890.000	460.000	1														



RMV PA4

Line F2

100-YR HC JANUARY 2019 CCHIU

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*****
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|      |      |      |      |      |      |      |      |      |      |      |      |      |
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1000.000 | 449.000 | 2.972 | 451.972 | 82.40 | 11.68 | 2.12 | 454.09 | .00 | 2.79 | .58 | 3.000 | .000 | .00 | 1 | .0
      | 11.073 | .0124 |      |      |      |      | .0143 | .16 | 2.97 | .59 | 3.00 | .013 | .00 | .00 | PIPE
1011.073 | 449.137 | 3.000 | 452.137 | 82.40 | 11.66 | 2.11 | 454.25 | .00 | 2.79 | .00 | 3.000 | .000 | .00 | 1 | .0
      | 878.927 | .0124 |      |      |      |      | .0149 | 13.09 | 3.00 | .00 | 3.00 | .013 | .00 | .00 | PIPE
1890.000 | 460.000 | 5.760 | 465.760 | 82.40 | 11.66 | 2.11 | 467.87 | .00 | 2.79 | .00 | 3.000 | .000 | .00 | 1 | .0
      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
    
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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		7.000															
----	---	---	---	--	-------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

W S P G W

PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV-PA4

HEADING LINE NO 2 IS -

LINE F3

HEADING LINE NO 3 IS -

100-YR HC JNAUARY 2019 CCHIU

W S P G W

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	*	*	*													
			U/S DATA	STATION	INVERT	SECT				W S ELEV										
1			1000.000	416.000	1					422.863										
ELEMENT NO	IS	A	REACH	*	*	*														
			U/S DATA	STATION	INVERT	SECT														
2			2336.000	430.000	1															
ELEMENT NO	IS	A	SYSTEM	HEADWORKS	*	*														
			U/S DATA	STATION	INVERT	SECT				W S ELEV										
3			2336.000	430.000	1					.000										







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 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		3.000															

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA4

HEADING LINE NO 2 IS -

Line F4

HEADING LINE NO 3 IS -

100-YR HC JANUARY 2019 CCHIU

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	1000.000	416.000	1	422.863				
ELEMENT NO 2	IS	A	REACH		U/S DATA	1165.500	420.000	1		.013	.000	.000	3
ELEMENT NO 3	IS	A	REACH		U/S DATA	1331.000	420.000	1		.013	.000	.000	3
ELEMENT NO 4	IS	A	SYSTEM	HEADWORKS	U/S DATA	1331.000	420.000	1	.000				



RMV PA4

Line F4

100-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1000.000 | 416.000 | 6.863 | 422.863 | 21.64 | 3.06 | .15 | 423.01 | .00 | 1.50 | .00 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
165.500 | .0242 | | | | | .0011 | .17 | 6.86 | .00 | .93 | .013 | .00 | .00 | PIPE
1165.500 | 420.000 | 3.059 | 423.059 | 21.64 | 3.06 | .15 | 423.20 | .00 | 1.50 | .00 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
165.500 | .0000 | | | | | .0011 | .17 | 3.06 | .00 | .00 | .013 | .00 | .00 | PIPE
1331.000 | 420.000 | 3.255 | 423.255 | 21.64 | 3.06 | .15 | 423.40 | .00 | 1.50 | .00 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
    
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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 3.000

W S P G W

PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA4

HEADING LINE NO 2 IS -

Line F5

HEADING LINE NO 3 IS -

100-YR HC JANUARY 2019 CCHIU

W S P G W

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1 IS A	SYSTEM	OUTLET	*	*	*												
		U/S DATA	STATION	INVERT	SECT													
			1000.000	329.000	1													
ELEMENT NO	2 IS A	REACH	*	*	*													
		U/S DATA	STATION	INVERT	SECT													
			2041.000	395.000	1													
ELEMENT NO	3 IS A	SYSTEM	HEADWORKS	*	*													
		U/S DATA	STATION	INVERT	SECT													
			2041.000	395.000	1													





RMV PA4

Line F5

100-YR HC JANUARY 2019 CCHIU

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
1000.000	329.000	6.000	335.000	68.64	9.71	1.46	336.46	.00	2.64	.00	3.000	.000	.00	1 .0
	7.257	.0634				.0106	.08	6.00	.00	1.34	.013	.00	.00	PIPE
1007.257	329.460	5.616	335.076	68.64	9.71	1.46	336.54	.00	2.64	.00	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
1007.257	329.460	1.336	330.796	68.64	22.56	7.91	338.70	.00	2.64	2.98	3.000	.000	.00	1 .0
	576.443	.0634				.0634	36.55	1.34	3.94	1.34	.013	.00	.00	PIPE
1583.700	366.007	1.336	367.342	68.64	22.56	7.91	375.25	.00	2.64	2.98	3.000	.000	.00	1 .0
	172.536	.0634				.0626	10.80	1.34	3.94	1.34	.013	.00	.00	PIPE
1756.236	376.946	1.345	378.291	68.64	22.35	7.75	386.05	.00	2.64	2.98	3.000	.000	.00	1 .0
	122.066	.0634				.0580	7.08	1.35	3.88	1.34	.013	.00	.00	PIPE
1878.302	384.685	1.396	386.080	68.64	21.31	7.05	393.13	.00	2.64	2.99	3.000	.000	.00	1 .0
	47.613	.0634				.0510	2.43	1.40	3.62	1.34	.013	.00	.00	PIPE
1925.916	387.704	1.448	389.152	68.64	20.32	6.41	395.56	.00	2.64	3.00	3.000	.000	.00	1 .0
	28.551	.0634				.0449	1.28	1.45	3.37	1.34	.013	.00	.00	PIPE
1954.467	389.514	1.503	391.017	68.64	19.37	5.83	396.84	.00	2.64	3.00	3.000	.000	.00	1 .0
	19.801	.0634				.0396	.78	1.50	3.14	1.34	.013	.00	.00	PIPE
1974.268	390.769	1.561	392.330	68.64	18.47	5.30	397.63	.00	2.64	3.00	3.000	.000	.00	1 .0
	14.752	.0634				.0349	.51	1.56	2.92	1.34	.013	.00	.00	PIPE

RMV PA4

Line F5

100-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1989.020 | 391.704 | 1.621 | 393.326 | 68.64 | 17.61 | 4.81 | 398.14 | .00 | 2.64 | 2.99 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
11.456 | .0634 | | | | | .0308 | .35 | 1.62 | 2.72 | 1.34 | .013 | .00 | .00 | PIPE
2000.476 | 392.431 | 1.685 | 394.116 | 68.64 | 16.79 | 4.38 | 398.49 | .00 | 2.64 | 2.98 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
9.128 | .0634 | | | | | .0272 | .25 | 1.69 | 2.52 | 1.34 | .013 | .00 | .00 | PIPE
2009.604 | 393.009 | 1.752 | 394.762 | 68.64 | 16.01 | 3.98 | 398.74 | .00 | 2.64 | 2.96 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
7.381 | .0634 | | | | | .0240 | .18 | 1.75 | 2.34 | 1.34 | .013 | .00 | .00 | PIPE
2016.985 | 393.477 | 1.823 | 395.301 | 68.64 | 15.26 | 3.62 | 398.92 | .00 | 2.64 | 2.93 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
6.016 | .0634 | | | | | .0213 | .13 | 1.82 | 2.17 | 1.34 | .013 | .00 | .00 | PIPE
2023.001 | 393.859 | 1.899 | 395.758 | 68.64 | 14.55 | 3.29 | 399.05 | .00 | 2.64 | 2.89 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
4.910 | .0634 | | | | | .0189 | .09 | 1.90 | 2.01 | 1.34 | .013 | .00 | .00 | PIPE
2027.911 | 394.170 | 1.979 | 396.149 | 68.64 | 13.88 | 2.99 | 399.14 | .00 | 2.64 | 2.84 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
3.989 | .0634 | | | | | .0168 | .07 | 1.98 | 1.85 | 1.34 | .013 | .00 | .00 | PIPE
2031.900 | 394.423 | 2.065 | 396.488 | 68.64 | 13.23 | 2.72 | 399.21 | .00 | 2.64 | 2.78 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
3.190 | .0634 | | | | | .0149 | .05 | 2.06 | 1.71 | 1.34 | .013 | .00 | .00 | PIPE
2035.090 | 394.625 | 2.157 | 396.783 | 68.64 | 12.61 | 2.47 | 399.25 | .00 | 2.64 | 2.70 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
2.483 | .0634 | | | | | .0134 | .03 | 2.16 | 1.56 | 1.34 | .013 | .00 | .00 | PIPE
2037.573 | 394.783 | 2.258 | 397.040 | 68.64 | 12.03 | 2.25 | 399.29 | .00 | 2.64 | 2.59 | 3.000 | .000 | .00 | 1 | .0
| | | | | | | | | | | | | | | | |
1.821 | .0634 | | | | | .0120 | .02 | 2.26 | 1.43 | 1.34 | .013 | .00 | .00 | PIPE

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RMV PA4

Line F5

100-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2039.394 | 394.898 | 2.368 | 397.267 | 68.64 | 11.47 | 2.04 | 399.31 | .00 | 2.64 | 2.45 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
1.169 | .0634 | | | | | |.0109 | .01 | 2.37 | 1.29 | 1.34 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
2040.563 | 394.972 | 2.493 | 397.465 | 68.64 | 10.93 | 1.86 | 399.32 | .00 | 2.64 | 2.25 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
.437 | .0634 | | | | | |.0099 | .00 | 2.49 | 1.15 | 1.34 | .013 | .00 | .00 | PIPE
| | | | | | | | | | | | | | | | |
2041.000 | 395.000 | 2.639 | 397.639 | 68.64 | 10.42 | 1.69 | 399.33 | .00 | 2.64 | 1.95 | 3.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
    
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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 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		5.000															

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA4

HEADING LINE NO 2 IS -

LINE F6

HEADING LINE NO 3 IS -

100-YR HC JANUARY 2019 CCHIU

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	1000.000	329.000	1	335.000				
ELEMENT NO 2	IS	A	REACH		U/S DATA	1652.000	347.000	1		.013	.000	.000	3
ELEMENT NO 3	IS	A	REACH		U/S DATA	2304.000	365.000	1		.013	.000	.000	3
ELEMENT NO 4	IS	A	SYSTEM	HEADWORKS	U/S DATA	2304.000	365.000	1	.000				



RMV PA4

LINE F6

100-YR HC JANUARY 2019 CCHIU

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
1000.000	329.000	3.190	332.190	318.70	24.10	9.02	341.21	.00	4.73	4.81	5.000	.000	.00	1 .0
210.074	.0276					.0276	5.80	3.19	2.56	3.19	.013	.00	.00	PIPE
1210.074	334.800	3.190	337.990	318.70	24.10	9.02	347.01	.00	4.73	4.81	5.000	.000	.00	1 .0
441.926	.0276					.0273	12.07	3.19	2.56	3.19	.013	.00	.00	PIPE
1652.000	347.000	3.214	350.214	318.70	23.89	8.86	359.08	.00	4.73	4.79	5.000	.000	.00	1 .0
282.094	.0276					.0260	7.33	3.21	2.52	3.19	.013	.00	.00	PIPE
1934.094	354.788	3.305	358.093	318.70	23.14	8.32	366.41	.00	4.73	4.73	5.000	.000	.00	1 .0
152.424	.0276					.0236	3.60	3.30	2.39	3.19	.013	.00	.00	PIPE
2086.518	358.996	3.448	362.444	318.70	22.07	7.56	370.01	.00	4.73	4.63	5.000	.000	.00	1 .0
80.941	.0276					.0210	1.70	3.45	2.20	3.19	.013	.00	.00	PIPE
2167.459	361.230	3.603	364.833	318.70	21.04	6.87	371.71	.00	4.73	4.49	5.000	.000	.00	1 .0
51.891	.0276					.0188	.98	3.60	2.02	3.19	.013	.00	.00	PIPE
2219.350	362.663	3.771	366.434	318.70	20.06	6.25	372.68	.00	4.73	4.31	5.000	.000	.00	1 .0
35.761	.0276					.0169	.60	3.77	1.84	3.19	.013	.00	.00	PIPE
2255.111	363.650	3.956	367.606	318.70	19.13	5.68	373.29	.00	4.73	4.06	5.000	.000	.00	1 .0
25.010	.0276					.0153	.38	3.96	1.66	3.19	.013	.00	.00	PIPE
2280.121	364.341	4.165	368.505	318.70	18.24	5.16	373.67	.00	4.73	3.73	5.000	.000	.00	1 .0
16.552	.0276					.0140	.23	4.16	1.48	3.19	.013	.00	.00	PIPE

RMV PA4

LINE F6

100-YR HC JANUARY 2019 CCHIU

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*****
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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
2296.672 | 364.798 | 4.409 | 369.207 | 318.70 | 17.39 | 4.69 | 373.90 | .00 | 4.73 | 3.23 | 5.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|
7.328 | .0276 | | | | | | .0132 | .10 | 4.41 | 1.29 | 3.19 | .013 | .00 | .00 | PIPE
2304.000 | 365.000 | 4.731 | 369.731 | 318.70 | 16.58 | 4.27 | 374.00 | .00 | 4.73 | 2.26 | 5.000 | .000 | .00 | 1 | .0
|-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-| |-|

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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 8.000

W S P G W

PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

RMV PA4

HEADING LINE NO 2 IS -

Line F7

HEADING LINE NO 3 IS -

100-YR HC February 2019 CCHIU

W S P G W

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM	OUTLET	U/S DATA	STATION	INVERT	SECT	W S ELEV						
1						1000.000	284.000	1	285.000						
2						1180.000	316.000	1		N	.013	RADIUS	ANGLE	ANG PT	MAN H
												.000	.000	-90.000	0
3						2196.000	329.000	1		N	.013	RADIUS	ANGLE	ANG PT	MAN H
												.000	.000	.000	2
4						2196.000	329.000	1				W S ELEV			
												.000			





RMV PA4  
 Line F7  
 100-YR HC February 2019 CCHIU

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*****
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|
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
1157.150 | 311.938 | 6.133 | 318.071 | 1353.70 | 32.74 | 16.64 | 334.71 | .00 | 7.85 | 6.77 | 8.000 | .000 | .00 | 1 | .0
      | 7.836 | .1778 |        |        |        |        | .0240 | .19 | 6.13 | 2.33 | 3.28 | .013 | .00 | .00 | PIPE
1164.985 | 313.331 | 6.441 | 319.772 | 1353.70 | 31.21 | 15.13 | 334.90 | .00 | 7.85 | 6.34 | 8.000 | .000 | .00 | 1 | .0
      | 6.571 | .1778 |        |        |        |        | .0218 | .14 | 6.44 | 2.10 | 3.28 | .013 | .00 | .00 | PIPE
1171.557 | 314.499 | 6.791 | 321.290 | 1353.70 | 29.76 | 13.75 | 335.04 | .00 | 7.85 | 5.73 | 8.000 | .000 | .00 | 1 | .0
      | 5.259 | .1778 |        |        |        |        | .0201 | .11 | 6.79 | 1.86 | 3.28 | .013 | .00 | .00 | PIPE
1176.815 | 315.434 | 7.212 | 322.646 | 1353.70 | 28.37 | 12.50 | 335.15 | .00 | 7.85 | 4.77 | 8.000 | .000 | .00 | 1 | .0
      | 3.185 | .1778 |        |        |        |        | .0196 | .06 | 7.21 | 1.58 | 3.28 | .013 | .00 | .00 | PIPE
1180.000 | 316.000 | 7.846 | 323.846 | 1353.70 | 27.05 | 11.36 | 335.21 | .00 | 7.85 | 2.20 | 8.000 | .000 | .00 | 1 | .0
      | 6.664 | .0128 |        |        |        |        | .0206 | .14 | 7.85 | 1.00 | 8.00 | .013 | .00 | .00 | PIPE
1186.664 | 316.085 | 8.000 | 324.085 | 1353.70 | 26.93 | 11.26 | 335.35 | .00 | 7.85 | .00 | 8.000 | .000 | .00 | 1 | .0
1009.336 | .0128 |        |        |        |        | .0217 | 21.90 | 8.00 | .00 | 8.00 | .013 | .00 | .00 | PIPE
2196.000 | 329.000 | 18.438 | 347.438 | 1353.70 | 26.93 | 11.26 | 358.70 | .00 | 7.85 | .00 | 8.000 | .000 | .00 | 1 | .0
      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
    
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