Convergence Point Cross Sections

Pt. A (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. A
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.049000	ft/ft
Left Side Slope	2.500000	H : V
Right Side Slope	2.000000	H : V
Bottom Width	4.00	ft
Discharge	670.00	cfs

Results		
Depth	3.87	ft
Flow Area	49.19	ft²
Wetted Perimeter	23.08	ft
Top Width	21.42	ft
Critical Depth	4.80	ft
Critical Slope	0.018397	ft/ft
Velocity	13.62	ft/s
Velocity Head	2.88	ft
Specific Energy	6.75	ft
Froude Number	1.58	
Flow is supercritical.		

Pt. A (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. A
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.049000	ft/ft
Left Side Slope	2.500000	H : V
Right Side Slope	2.000000	H : V
Bottom Width	4.00	ft
Discharge	955.00	cfs

Results		
Depth	4.52	ft
Flow Area	64.10	ft²
Wetted Perimeter	26.29	ft
Top Width	24.35	ft
Critical Depth	5.64	ft
Critical Slope	0.017575	ft/ft
Velocity	14.90	ft/s
Velocity Head	3.45	ft
Specific Energy	7.97	ft
Froude Number	1.62	
Flow is supercritical.		

Pt. B (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. B
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.049000	ft/ft
Left Side Slope	11.000000	H : V
Right Side Slope	11.000000	H : V
Bottom Width	5.00	ft
Discharge	905.00	cfs

Results		
Depth	2.61	ft
Flow Area	87.82	ft^2
Wetted Perimeter	62.60	ft
Top Width	62.36	ft
Critical Depth	3.13	ft
Critical Slope	0.019748	ft/ft
Velocity	10.31	ft/s
Velocity Head	1.65	ft
Specific Energy	4.26	ft
Froude Number	1.53	
Flow is supercritical.		

Pt. B (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. B
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.049000	ft/ft
Left Side Slope	11.000000	H : V
Right Side Slope	11.000000	H : V
Bottom Width	5.00	ft
Discharge	1,295.00	cfs

Results		
Depth	3.01	ft
Flow Area	114.86	ft^2
Wetted Perimeter	71.54	ft
Top Width	71.27	ft
Critical Depth	3.64	ft
Critical Slope	0.018825	ft/ft
Velocity	11.27	ft/s
Velocity Head	1.98	ft
Specific Energy	4.99	ft
Froude Number	1.57	
Flow is supercritical.		

Pt. C (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. C
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.032000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	10.000000	H : V
Bottom Width	10.00	ft
Discharge	1,186.00	cfs

Results		
Depth	3.31	ft
Flow Area	115.57	ft^2
Wetted Perimeter	60.22	ft
Top Width	59.72	ft
Critical Depth	3.74	ft
Critical Slope	0.018256	ft/ft
Velocity	10.26	ft/s
Velocity Head	1.64	ft
Specific Energy	4.95	ft
Froude Number	1.30	
Flow is supercritical.		

Pt. C (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. C
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.032000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	10.000000	H : V
Bottom Width	10.00	ft
Discharge	1,693.00	cfs

Results		
Depth	3.87	ft
Flow Area	150.69	ft^2
Wetted Perimeter	68.55	ft
Top Width	67.98	ft
Critical Depth	4.40	ft
Critical Slope	0.017401	ft/ft
Velocity	11.23	ft/s
Velocity Head	1.96	ft
Specific Energy	5.83	ft
Froude Number	1.33	
Flow is supercritical.		

Pt. D (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. D
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.032000	ft/ft
Left Side Slope	10.000000	H : V
Right Side Slope	10.000000	H : V
Bottom Width	15.00	ft
Discharge	2,279.00	cfs

Results		
Depth	3.81	ft
Flow Area	202.22	ft^2
Wetted Perimeter	91.56	ft
Top Width	91.18	ft
Critical Depth	4.35	ft
Critical Slope	0.017289	ft/ft
Velocity	11.27	ft/s
Velocity Head	1.97	ft
Specific Energy	5.78	ft
Froude Number	1.33	
Flow is supercritical.		

Pt. D (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. D
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.032000	ft/ft
Left Side Slope	10.000000	H : V
Right Side Slope	10.000000	H : V
Bottom Width	15.00	ft
Discharge	3,297.00	cfs

Results		
Depth	4.46	ft
Flow Area	266.33	ft²
Wetted Perimeter	104.74	ft
Top Width	104.30	ft
Critical Depth	5.14	ft
Critical Slope	0.016448	ft/ft
Velocity	12.38	ft/s
Velocity Head	2.38	ft
Specific Energy	6.85	ft
Froude Number	1.37	
Flow is supercritical.		

Pt. E (25-yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. E
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.069000	ft/ft
Left Side Slope	8.000000	H : V
Right Side Slope	8.000000	H : V
Bottom Width	2.00	ft
Discharge	186.00	cfs

Results		
Depth	1.53	ft
Flow Area	21.81	ft²
Wetted Perimeter	26.68	ft
Top Width	26.49	ft
Critical Depth	1.90	ft
Critical Slope	0.023477	ft/ft
Velocity	8.53	ft/s
Velocity Head	1.13	ft
Specific Energy	2.66	ft
Froude Number	1.66	
Flow is supercritical.		

Pt. E (100-yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. E
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.069000	ft/ft
Left Side Slope	8.000000	H : V
Right Side Slope	8.000000	H : V
Bottom Width	2.00	ft
Discharge	266.00	cfs

Results		
Depth	1.77	ft
Flow Area	28.51	ft²
Wetted Perimeter	30.49	ft
Top Width	30.27	ft
Critical Depth	2.21	ft
Critical Slope	0.022383	ft/ft
Velocity	9.33	ft/s
Velocity Head	1.35	ft
Specific Energy	3.12	ft
Froude Number	1.70	
Flow is supercritical.		

Pt. F (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. F
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.030000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	10.00	ft
Discharge	1,125.00	cfs

Results		
Depth	3.66	ft
Flow Area	103.68	ft²
Wetted Perimeter	47.35	ft
Top Width	46.62	ft
Critical Depth	4.12	ft
Critical Slope	0.017628	ft/ft
Velocity	10.85	ft/s
Velocity Head	1.83	ft
Specific Energy	5.49	ft
Froude Number	1.28	
Flow is supercritical.		

Pt. F (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. F
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.030000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	10.00	ft
Discharge	1,584.00	cfs

Results		
Depth	4.27	ft
Flow Area	133.70	ft^2
Wetted Perimeter	53.51	ft
Top Width	52.67	ft
Critical Depth	4.84	ft
Critical Slope	0.016831	ft/ft
Velocity	11.85	ft/s
Velocity Head	2.18	ft
Specific Energy	6.45	ft
Froude Number	1.31	
Flow is supercritical.		

Pt. G (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. G
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.025000	ft/ft
Left Side Slope	8.000000	H : V
Right Side Slope	8.000000	H : V
Bottom Width	10.00	ft
Discharge	1,397.00	cfs

Results		
Depth	3.68	ft
Flow Area	145.30	ft^2
Wetted Perimeter	69.38	ft
Top Width	68.92	ft
Critical Depth	3.95	ft
Critical Slope	0.017965	ft/ft
Velocity	9.61	ft/s
Velocity Head	1.44	ft
Specific Energy	5.12	ft
Froude Number	1.17	
Flow is supercritical.		

Pt. G (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. G
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.025000	ft/ft
Left Side Slope	8.000000	H : V
Right Side Slope	8.000000	H : V
Bottom Width	10.00	ft
Discharge	1,969.00	cfs

Results		
Depth	4.26	ft
Flow Area	187.74	ft²
Wetted Perimeter	78.68	ft
Top Width	78.15	ft
Critical Depth	4.61	ft
Critical Slope	0.017154	ft/ft
Velocity	10.49	ft/s
Velocity Head	1.71	ft
Specific Energy	5.97	ft
Froude Number	1.19	
Flow is supercritical.		

Pt. H (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. H
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.041000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	20.00	ft
Discharge	1,896.00	cfs

Results		
Depth	3.64	ft
Flow Area	139.23	ft²
Wetted Perimeter	57.15	ft
Top Width	56.43	ft
Critical Depth	4.54	ft
Critical Slope	0.016525	ft/ft
Velocity	13.62	ft/s
Velocity Head	2.88	ft
Specific Energy	6.53	ft
Froude Number	1.53	
Flow is supercritical.		

Pt. H (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. H
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.041000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	20.00	ft
Discharge	2,677.00	cfs

Results		
Depth	4.31	ft
Flow Area	179.13	ft²
Wetted Perimeter	63.96	ft
Top Width	63.11	ft
Critical Depth	5.41	ft
Critical Slope	0.015750	ft/ft
Velocity	14.94	ft/s
Velocity Head	3.47	ft
Specific Energy	7.78	ft
Froude Number	1.56	
Flow is supercritical.		

Pt. I (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. I
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.070000	ft/ft
Left Side Slope	3.000000	H : V
Right Side Slope	3.000000	H : V
Bottom Width	2.00	ft
Discharge	170.00	cfs

Results		
Depth	2.02	ft
Flow Area	16.23	ft²
Wetted Perimeter	14.75	ft
Top Width	14.10	ft
Critical Depth	2.57	ft
Critical Slope	0.022003	ft/ft
Velocity	10.47	ft/s
Velocity Head	1.70	ft
Specific Energy	3.72	ft
Froude Number	1.72	
Flow is supercritical.		

Pt. I (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. I
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.070000	ft/ft
Left Side Slope	3.000000	H : V
Right Side Slope	3.000000	H : V
Bottom Width	2.00	ft
Discharge	240.00	cfs

Results		
Depth	2.33	ft
Flow Area	21.01	ft²
Wetted Perimeter	16.76	ft
Top Width	16.00	ft
Critical Depth	3.00	ft
Critical Slope	0.021027	ft/ft
Velocity	11.43	ft/s
Velocity Head	2.03	ft
Specific Energy	4.36	ft
Froude Number	1.76	
Flow is supercritical.		

Pt. J (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. J
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.020000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	30.00	ft
Discharge	2,167.00	cfs

Results		
Depth	4.07	ft
Flow Area	204.58	ft²
Wetted Perimeter	71.46	ft
Top Width	70.65	ft
Critical Depth	4.28	ft
Critical Slope	0.016380	ft/ft
Velocity	10.59	ft/s
Velocity Head	1.74	ft
Specific Energy	5.81	ft
Froude Number	1.10	
Flow is supercritical.		

Pt. J (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. J
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.020000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	30.00	ft
Discharge	3,060.00	cfs

Results		
Depth	4.84	ft
Flow Area	262.44	ft^2
Wetted Perimeter	79.37	ft
Top Width	78.41	ft
Critical Depth	5.15	ft
Critical Slope	0.015577	ft/ft
Velocity	11.66	ft/s
Velocity Head	2.11	ft
Specific Energy	6.95	ft
Froude Number	1.12	
Flow is supercritical.		

Pt. K (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. K
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.058000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	5.00	ft
Discharge	488.00	cfs

Results		
Depth	2.48	ft
Flow Area	43.10	ft²
Wetted Perimeter	30.27	ft
Top Width	29.78	ft
Critical Depth	3.13	ft
Critical Slope	0.019682	ft/ft
Velocity	11.32	ft/s
Velocity Head	1.99	ft
Specific Energy	4.47	ft
Froude Number	1.66	
Flow is supercritical.		

Pt. K (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. K
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.058000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	5.00	ft
Discharge	699.00	cfs

Results		
Depth	2.89	ft
Flow Area	56.35	ft²
Wetted Perimeter	34.51	ft
Top Width	33.94	ft
Critical Depth	3.68	ft
Critical Slope	0.018758	ft/ft
Velocity	12.40	ft/s
Velocity Head	2.39	ft
Specific Energy	5.29	ft
Froude Number	1.70	
Flow is supercritical.		

Pt. L (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. L
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.061000	ft/ft
Left Side Slope	3.000000	H : V
Right Side Slope	3.000000	H : V
Bottom Width	2.00	ft
Discharge	156.00	cfs

Results		
Depth	2.00	ft
Flow Area	16.02	ft^2
Wetted Perimeter	14.66	ft
Top Width	14.01	ft
Critical Depth	2.48	ft
Critical Slope	0.022254	ft/ft
Velocity	9.74	ft/s
Velocity Head	1.47	ft
Specific Energy	3.47	ft
Froude Number	1.60	
Flow is supercritical.		

Pt. L (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. L
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.061000	ft/ft
Left Side Slope	3.000000	H : V
Right Side Slope	3.000000	H : V
Bottom Width	2.00	ft
Discharge	237.00	cfs

Results		
Depth	2.39	ft
Flow Area	21.91	ft^2
Wetted Perimeter	17.11	ft
Top Width	16.34	ft
Critical Depth	2.98	ft
Critical Slope	0.021062	ft/ft
Velocity	10.82	ft/s
Velocity Head	1.82	ft
Specific Energy	4.21	ft
Froude Number	1.65	
Flow is supercritical.		

Pt. M (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. M
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.034000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	15.00	ft
Discharge	548.00	cfs

Results		
Depth	2.26	ft
Flow Area	59.43	ft²
Wetted Perimeter	38.04	ft
Top Width	37.60	ft
Critical Depth	2.59	ft
Critical Slope	0.019588	ft/ft
Velocity	9.22	ft/s
Velocity Head	1.32	ft
Specific Energy	3.58	ft
Froude Number	1.29	
Flow is supercritical.		

Pt. M (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. M
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.034000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	15.00	ft
Discharge	786.00	cfs

Results		
Depth	2.71	ft
Flow Area	77.19	ft^2
Wetted Perimeter	42.59	ft
Top Width	42.06	ft
Critical Depth	3.14	ft
Critical Slope	0.018606	ft/ft
Velocity	10.18	ft/s
Velocity Head	1.61	ft
Specific Energy	4.32	ft
Froude Number	1.32	
Flow is supercritical.		

Pt. N (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. N
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.027000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	30.00	ft
Discharge	3,195.00	cfs

Results		
Depth	4.59	ft
Flow Area	242.90	ft²
Wetted Perimeter	76.79	ft
Top Width	75.88	ft
Critical Depth	5.27	ft
Critical Slope	0.015480	ft/ft
Velocity	13.15	ft/s
Velocity Head	2.69	ft
Specific Energy	7.28	ft
Froude Number	1.30	
Flow is supercritical.		

Pt. N (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. N
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.027000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	30.00	ft
Discharge	4,514.00	cfs

Results		
Depth	5.45	ft
Flow Area	312.14	ft²
Wetted Perimeter	85.59	ft
Top Width	84.51	ft
Critical Depth	6.32	ft
Critical Slope	0.014736	ft/ft
Velocity	14.46	ft/s
Velocity Head	3.25	ft
Specific Energy	8.70	ft
Froude Number	1.33	
Flow is supercritical.		

Pt. O (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. O
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.024000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	35.00	ft
Discharge	4,887.00	cfs

Results		
Depth	5.55	ft
Flow Area	348.51	ft²
Wetted Perimeter	91.63	ft
Top Width	90.53	ft
Critical Depth	6.28	ft
Critical Slope	0.014621	ft/ft
Velocity	14.02	ft/s
Velocity Head	3.06	ft
Specific Energy	8.61	ft
Froude Number	1.26	
Flow is supercritical.		

Pt. O (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. O
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.024000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	35.00	ft
Discharge	6,968.00	cfs

Results		
Depth	6.62	ft
Flow Area	451.00	ft²
Wetted Perimeter	102.53	ft
Top Width	101.22	ft
Critical Depth	7.56	ft
Critical Slope	0.013902	ft/ft
Velocity	15.45	ft/s
Velocity Head	3.71	ft
Specific Energy	10.33	ft
Froude Number	1.29	
Flow is supercritical.		

Pt. P (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. P
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.024000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	40.00	ft
Discharge	7,270.00	cfs

Results		
Depth	6.48	ft
Flow Area	468.95	ft^2
Wetted Perimeter	106.06	ft
Top Width	104.78	ft
Critical Depth	7.42	ft
Critical Slope	0.013858	ft/ft
Velocity	15.50	ft/s
Velocity Head	3.73	ft
Specific Energy	10.21	ft
Froude Number	1.29	
Flow is supercritical.		

Pt. P (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. P
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.024000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	40.00	ft
Discharge	10,356.00	cfs

Results		
Depth	7.72	ft
Flow Area	606.58	ft²
Wetted Perimeter	118.71	ft
Top Width	117.18	ft
Critical Depth	8.92	ft
Critical Slope	0.013181	ft/ft
Velocity	17.07	ft/s
Velocity Head	4.53	ft
Specific Energy	12.25	ft
Froude Number	1.32	
Flow is supercritical.		

Pt. Q (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. Q
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.050000	ft/ft
Left Side Slope	8.000000	H : V
Right Side Slope	8.000000	H : V
Bottom Width	10.00	ft
Discharge	997.00	cfs

Results		
Depth	2.74	ft
Flow Area	87.28	ft²
Wetted Perimeter	54.13	ft
Top Width	53.79	ft
Critical Depth	3.39	ft
Critical Slope	0.018802	ft/ft
Velocity	11.42	ft/s
Velocity Head	2.03	ft
Specific Energy	4.76	ft
Froude Number	1.58	
Flow is supercritical.		

Pt. Q (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. Q
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.050000	ft/ft
Left Side Slope	8.000000	H : V
Right Side Slope	8.000000	H : V
Bottom Width	10.00	ft
Discharge	1,549.00	cfs

Results		
Depth	3.32	ft
Flow Area	121.18	ft²
Wetted Perimeter	63.48	ft
Top Width	63.07	ft
Critical Depth	4.14	ft
Critical Slope	0.017717	ft/ft
Velocity	12.78	ft/s
Velocity Head	2.54	ft
Specific Energy	5.86	ft
Froude Number	1.63	
Flow is supercritical.		

Pt. R (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. R
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.065000	ft/ft
Left Side Slope	6.000000	H : V
Right Side Slope	6.000000	H : V
Bottom Width	5.00	ft
Discharge	396.00	cfs

Results		
Depth	2.10	ft
Flow Area	36.86	ft^2
Wetted Perimeter	30.51	ft
Top Width	30.16	ft
Critical Depth	2.68	ft
Critical Slope	0.020593	ft/ft
Velocity	10.74	ft/s
Velocity Head	1.79	ft
Specific Energy	3.89	ft
Froude Number	1.71	
Flow is supercritical.		

Pt. R (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. R
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.065000	ft/ft
Left Side Slope	6.000000	H : V
Right Side Slope	6.000000	H : V
Bottom Width	5.00	ft
Discharge	596.00	cfs

Results		
Depth	2.50	ft
Flow Area	50.00	ft^2
Wetted Perimeter	35.41	ft
Top Width	35.00	ft
Critical Depth	3.22	ft
Critical Slope	0.019495	ft/ft
Velocity	11.92	ft/s
Velocity Head	2.21	ft
Specific Energy	4.71	ft
Froude Number	1.76	
Flow is supercritical.		

Pt. S (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. S
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.032000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	15.00	ft
Discharge	1,162.00	cfs

Results		
Depth	3.32	ft
Flow Area	105.02	ft²
Wetted Perimeter	48.88	ft
Top Width	48.22	ft
Critical Depth	3.83	ft
Critical Slope	0.017614	ft/ft
Velocity	11.06	ft/s
Velocity Head	1.90	ft
Specific Energy	5.22	ft
Froude Number	1.32	
Flow is supercritical.		

Pt. S (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. S
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.032000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	15.00	ft
Discharge	1,794.00	cfs

Results		
Depth	4.08	ft
Flow Area	144.54	ft²
Wetted Perimeter	56.63	ft
Top Width	55.82	ft
Critical Depth	4.75	ft
Critical Slope	0.016590	ft/ft
Velocity	12.41	ft/s
Velocity Head	2.39	ft
Specific Energy	6.48	ft
Froude Number	1.36	
Flow is supercritical.		

Pt. T (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. T
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.032000	ft/ft
Left Side Slope	4.000000	H : V
Right Side Slope	4.000000	H : V
Bottom Width	25.00	ft
Discharge	2,119.00	cfs

Results		
Depth	3.94	ft
Flow Area	160.72	ft^2
Wetted Perimeter	57.51	ft
Top Width	56.54	ft
Critical Depth	4.70	ft
Critical Slope	0.016064	ft/ft
Velocity	13.18	ft/s
Velocity Head	2.70	ft
Specific Energy	6.64	ft
Froude Number	1.38	
Flow is supercritical.		

Pt. T (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. T
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.032000	ft/ft
Left Side Slope	4.000000	H : V
Right Side Slope	4.000000	H : V
Bottom Width	25.00	ft
Discharge	3,139.00	cfs

Results		
Depth	4.82	ft
Flow Area	213.31	ft^2
Wetted Perimeter	64.73	ft
Top Width	63.55	ft
Critical Depth	5.80	ft
Critical Slope	0.015187	ft/ft
Velocity	14.72	ft/s
Velocity Head	3.37	ft
Specific Energy	8.18	ft
Froude Number	1.42	
Flow is supercritical.		

Pt. U (25-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. U
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.065000	ft/ft
Left Side Slope	4.000000	H : V
Right Side Slope	4.000000	H : V
Bottom Width	10.00	ft
Discharge	594.00	cfs

Results		
Depth	2.38	ft
Flow Area	46.46	ft²
Wetted Perimeter	29.63	ft
Top Width	29.04	ft
Critical Depth	3.20	ft
Critical Slope	0.018892	ft/ft
Velocity	12.78	ft/s
Velocity Head	2.54	ft
Specific Energy	4.92	ft
Froude Number	1.78	
Flow is supercritical.		

Pt. U (100-Yr, 24-Hr)
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\trw site.fm2
Worksheet	Pt. U
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.040	
Channel Slope	0.065000	ft/ft
Left Side Slope	4.000000	H : V
Right Side Slope	4.000000	H : V
Bottom Width	10.00	ft
Discharge	852.00	cfs

Results		
Depth	2.84	ft
Flow Area	60.51	ft²
Wetted Perimeter	33.38	ft
Top Width	32.68	ft
Critical Depth	3.84	ft
Critical Slope	0.017983	ft/ft
Velocity	14.08	ft/s
Velocity Head	3.08	ft
Specific Energy	5.92	ft
Froude Number	1.82	
Flow is supercritical.		