

SECTION E1  
 CHANNEL 1. VALLEY 1.250. CHANNEL 1250. VALLEY AREA, SQ MI 142.23 DRAINAGE NO. 1 0.050 NO. 2 0.045 NO. 3 0.050 NO. 4 NO. 5 NO. 6

DISTANCES

ELEVATION	DOWNSTREAM		UPSTREAM		VALLEY	VALLEY	TOTAL	END AREA		
	CHANNEL	VALLEY	CHANNEL	VALLEY				SQ. FT.	NO. 2	NO. 3
291.00	664339.7	609620.2	609620.2	609620.2	1273960.0	7180.76	7180.76			
290.00	624617.1	519048.0	519048.0	519048.0	1143665.0	6561.58	6561.58			
289.00	586224.8	439566.3	439566.3	439566.3	1025791.1	5981.23	5981.23			
288.00	548485.1	364844.2	364844.2	364844.2	913329.2	5419.16	5419.16			
287.00	512024.9	298071.3	298071.3	298071.3	810096.2	4891.43	4891.43			
286.00	476545.8	237868.3	237868.3	237868.3	714414.2	4386.16	4386.16			
285.00	441721.0	182045.9	182045.9	182045.9	623766.8	3895.88	3895.88			
284.00	408570.9	137319.8	137319.8	137319.8	545890.7	3442.90	3442.90			
283.00	376064.3	97260.4	97260.4	97260.4	473324.8	3005.60	3005.60			
282.00	344523.2	64202.2	64202.2	64202.2	408725.5	2591.82	2591.82			
281.00	314522.1	40765.4	40765.4	40765.4	355287.5	2226.57	2226.57			
280.00	285469.4	24918.0	24918.0	24918.0	310387.5	1905.60	1905.60			
279.00	257374.1	14919.7	14919.7	14919.7	272293.9	1633.40	1633.40			
278.00	230579.8	8077.7	8077.7	8077.7	238657.5	1438.17	1438.17			
277.00	205029.1	3871.1	3871.1	3871.1	208900.3	1272.92	1272.92			
276.00	180677.0	1604.5	1604.5	1604.5	182281.6	1135.76	1135.76			
275.00	157527.6	537.4	537.4	537.4	158065.0	1020.68	1020.68			
274.00	135679.9	82.1	82.1	82.1	135762.0	920.66	920.66			
273.00	115374.3	2.4	2.4	2.4	115376.8	830.75	830.75			
272.00	97427.5	0.0	0.0	0.0	97427.5	744.90	744.90			
271.00	81151.7	0.0	0.0	0.0	81151.7	660.43	660.43			
270.00	66042.6	0.0	0.0	0.0	66042.6	577.27	577.27			
269.00	52155.4	0.0	0.0	0.0	52155.4	495.41	495.41			
268.00	39642.9	0.0	0.0	0.0	39642.9	414.93	414.93			
267.00	28462.4	0.0	0.0	0.0	28462.4	335.71	335.71			
266.00	18720.1	0.0	0.0	0.0	18720.1	257.73	257.73			
265.00	10770.6	0.0	0.0	0.0	10770.6	181.37	181.37			
264.00	5361.4	0.0	0.0	0.0	5361.4	111.60	111.60			
263.00	1955.7	0.0	0.0	0.0	1955.7	55.40	55.40			
262.00	322.7	0.0	0.0	0.0	322.7	14.90	14.90			
261.00	4.0	0.0	0.0	0.0	4.0	0.57	0.57			

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
219.03	1.70	264.26	337.08	1.93	264.90	519.13	2.25	265.65
799.33	2.63	266.58	1231.71	3.09	267.78	1897.34	3.61	269.36
2921.40	4.19	271.43	4500.15	4.88	274.00	6929.44	5.44	277.00
10672.93	5.36	280.29	16436.09	5.22	283.34	25311.24	5.44	286.54
38980.96	5.80	290.24	60031.00	7.35	292.54	92449.50	9.76	294.54

SECTION E2  
 DISTANCES  
 DOWNSTREAM CHANNEL VALLEY 1250.  
 UPSTREAM CHANNEL VALLEY 2000.  
 DRAINAGE AREA, SQ MI 141.77  
 'N' VALUE BY SEGMENTS  
 NO. 1 NO. 2 NO. 3 NO. 4 NO. 5 NO. 6  
 0.050 0.045 0.050 0.050 0.050 0.050

ELEVATION		CHANNEL		VALLEY		K-D VALUES		TOTAL		END AREA					
DOWNSTREAM	UPSTREAM	CHANNEL	VALLEY	CHANNEL	VALLEY	VALLEY	VALLEY	SO. FT.	SO. FT.	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
1250.	2000.	2000.	2000.	2000.	2000.	141.77	0.050	1279353.7	6297.44	0.050	0.045	0.050	0.050	0.050	0.050
292.00	853982.7	853982.7	425371.1	853982.7	425371.1	425371.1	1279353.7	6297.44	6297.44						
291.00	799622.5	799622.5	364295.6	799622.5	364295.6	364295.6	1163918.0	5843.84	5843.84						
290.00	746529.8	746529.8	307601.3	746529.8	307601.3	307601.3	1054131.2	5402.24	5402.24						
289.00	695090.5	695090.5	256372.7	695090.5	256372.7	256372.7	951463.1	4975.99	4975.99						
288.00	644601.6	644601.6	208246.7	644601.6	208246.7	208246.7	852848.2	4558.52	4558.52						
287.00	596289.1	596289.1	166959.2	596289.1	166959.2	166959.2	763248.3	4160.78	4160.78						
286.00	549216.7	549216.7	129391.1	549216.7	129391.1	129391.1	678607.8	3774.01	3774.01						
285.00	503384.8	503384.8	95542.5	503384.8	95542.5	95542.5	598927.3	3398.20	3398.20						
284.00	459701.1	459701.1	67914.2	459701.1	67914.2	67914.2	527615.3	3040.90	3040.90						
283.00	417401.0	417401.0	44575.7	417401.0	44575.7	44575.7	461976.7	2695.74	2695.74						
282.00	376481.2	376481.2	25662.7	376481.2	25662.7	25662.7	402144.0	2365.01	2365.01						
281.00	337681.1	337681.1	14199.4	337681.1	14199.4	14199.4	351880.5	2073.39	2073.39						
280.00	300581.3	300581.3	6588.1	300581.3	6588.1	6588.1	307169.4	1818.49	1818.49						
279.00	264909.0	264909.0	1853.3	264909.0	1853.3	1853.3	266762.2	1596.69	1596.69						
278.00	231353.3	231353.3	150.9	231353.3	150.9	150.9	231504.3	1420.69	1420.69						
277.00	202173.3	202173.3	13.7	202173.3	13.7	13.7	202187.0	1292.22	1292.22						
276.00	176030.0	176030.0	0.0	176030.0	0.0	0.0	176030.0	1175.02	1175.02						
275.00	151610.5	151610.5	0.0	151610.5	0.0	0.0	151610.5	1061.50	1061.50						
274.00	128696.9	128696.9	0.0	128696.9	0.0	0.0	128696.9	950.59	950.59						
273.00	107530.8	107530.8	0.0	107530.8	0.0	0.0	107530.8	842.71	842.71						
272.00	88045.9	88045.9	0.0	88045.9	0.0	0.0	88045.9	737.71	737.71						
271.00	70266.7	70266.7	0.0	70266.7	0.0	0.0	70266.7	635.60	635.60						
270.00	54138.8	54138.8	0.0	54138.8	0.0	0.0	54138.8	536.22	536.22						
269.00	39814.1	39814.1	0.0	39814.1	0.0	0.0	39814.1	439.75	439.75						
268.00	27424.3	27424.3	0.0	27424.3	0.0	0.0	27424.3	346.27	346.27						
267.00	17021.4	17021.4	0.0	17021.4	0.0	0.0	17021.4	255.71	255.71						
266.00	9222.8	9222.8	0.0	9222.8	0.0	0.0	9222.8	169.92	169.92						
265.00	3988.2	3988.2	0.0	3988.2	0.0	0.0	3988.2	95.69	95.69						
264.00	1069.0	1069.0	0.0	1069.0	0.0	0.0	1069.0	37.56	37.56						
263.00	40.9	40.9	0.0	40.9	0.0	0.0	40.9	3.34	3.34						
262.50	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.43	0.43						

CSM NO. 14 AND UP OVER EHI. ANSWERS BASED ON VERTICAL WALLS

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
218.65	1.58	265.59	336.49	1.80	266.20	518.23	2.07	266.94
797.94	2.40	267.84	1229.57	2.79	269.01	1894.04	3.20	270.55
2916.32	3.65	272.58	4492.33	4.16	275.16	6917.39	4.78	278.17
10654.38	4.85	281.41	16407.51	5.12	284.44	25267.24	5.70	287.68
38913.19	6.45	291.41	59926.64	7.93	294.67	92288.76	9.76	298.71

-----DISTANCES-----											
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E3	2000.	2000.	1330.	1330.	141.04	0.050	0.045	0.050			

-----KD VALUES-----					END AREA SQ. FT.
ELEVATION	CHANNEL	VALLEY	TOTAL		
294.00	721727.2	2430571.5	3152298.5	20669.32	
293.00	673753.2	2053843.7	2727597.0	18722.60	
292.00	627142.5	1711442.5	2338585.0	16812.08	
291.00	581440.5	1391927.5	1973367.7	14925.70	
290.00	537929.8	1103630.5	1641560.2	13094.75	
289.00	495318.5	842682.2	1338000.7	11281.70	
288.00	454056.0	622763.3	1076819.2	9495.50	
287.00	414642.5	438343.1	852985.6	7836.29	
286.00	376137.3	271779.5	647916.8	6217.57	
285.00	339416.4	141151.8	480568.2	4633.85	
284.00	304921.1	64443.0	369364.1	3253.62	
283.00	272747.0	19402.6	292149.5	2180.85	
282.00	243220.3	1647.5	244867.8	1493.06	
281.00	216712.0	470.7	217182.7	1321.53	
280.00	192118.7	0.0	192118.7	1191.40	
279.00	169478.8	0.0	169478.8	1090.33	
278.00	148187.8	0.0	148187.8	992.19	
277.00	128232.7	0.0	128232.7	896.97	
276.00	109928.5	0.0	109928.5	805.40	
275.00	92824.3	0.0	92824.3	716.51	
274.00	77104.8	0.0	77104.8	630.73	
273.00	62738.9	0.0	62738.9	547.99	
272.00	49727.9	0.0	49727.9	468.29	
271.00	37970.4	0.0	37970.4	391.39	
270.00	27788.8	0.0	27788.8	317.97	
269.00	18970.6	0.0	18970.6	247.46	
268.00	11477.4	0.0	11477.4	179.70	
267.00	6516.6	0.0	6516.6	119.25	
266.00	2966.6	0.0	2966.6	68.46	
265.00	789.2	0.0	789.2	27.95	
264.00	6.8	0.0	6.8	0.96	
263.80	6.8	0.0	6.8	0.96	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
218.04	1.62	267.26	335.56	1.88	267.97	516.80	2.22	268.78
795.73	2.63	269.78	1226.16	3.11	271.03	1888.80	3.63	272.64
2908.24	4.21	274.70	4479.88	4.83	277.30	6898.23	5.60	280.39
10624.86	3.79	283.66	16362.06	2.60	286.04	25197.23	2.27	288.87
38805.39	2.19	292.46	59760.61	2.40	296.11	92033.09	2.66	300.99

CSM NO. 14 AND UP OVER EHI. ANSWERS BASED ON VERTICAL WALLS

SECTION E4  
 DISTANCES  
 DOWNSTREAM CHANNEL 1330. VALLEY 1330. CHANNEL 1160. VALLEY 1160.  
 UPSTREAM CHANNEL 1160. VALLEY 1160. CHANNEL 140.25. DRAINAGE AREA, SQ MI 140.25

'N' VALUE BY SEGMENTS  
 NO. 2 NO. 3 NO. 4 NO. 5 NO. 6  
 0.045 0.050 0.050 0.050 0.050

ELEVATION		CHANNEL		VALLEY		TOTAL		END AREA	
DOWNSTREAM	UPSTREAM	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	SQ. FT.	SQ. FT.
298.00	807281.0	807281.0	954877.7	1762158.7	954877.7	1762158.7	9588.89	9588.89	9588.89
297.00	762527.6	762527.6	818794.7	1581322.2	818794.7	1581322.2	8777.53	8777.53	8777.53
296.00	719159.2	719159.2	697383.2	1416542.5	697383.2	1416542.5	7999.16	7999.16	7999.16
295.00	676497.1	676497.1	583974.6	1260471.7	583974.6	1260471.7	7238.15	7238.15	7238.15
294.00	634894.8	634894.8	482572.3	1117467.2	482572.3	1117467.2	6503.20	6503.20	6503.20
293.00	594650.2	594650.2	396199.0	990349.2	396199.0	990349.2	5811.69	5811.69	5811.69
292.00	555091.8	555091.8	317962.2	873054.0	317962.2	873054.0	5145.10	5145.10	5145.10
291.00	516920.8	516920.8	257246.4	774167.3	257246.4	774167.3	4534.74	4534.74	4534.74
290.00	479814.5	479814.5	211875.6	691690.1	211875.6	691690.1	4026.65	4026.65	4026.65
289.00	443417.9	443417.9	176735.8	620153.7	176735.8	620153.7	3586.73	3586.73	3586.73
288.00	408724.6	408724.6	142178.3	550903.0	142178.3	550903.0	3219.74	3219.74	3219.74
287.00	375008.8	375008.8	111909.9	486918.7	111909.9	486918.7	2879.47	2879.47	2879.47
286.00	342278.3	342278.3	85547.8	427826.1	85547.8	427826.1	2563.33	2563.33	2563.33
285.00	310884.0	310884.0	63372.9	374256.9	63372.9	374256.9	2272.42	2272.42	2272.42
284.00	280862.1	280862.1	47365.9	328228.0	47365.9	328228.0	2013.49	2013.49	2013.49
283.00	251838.7	251838.7	34594.6	286433.3	34594.6	286433.3	1783.05	1783.05	1783.05
282.00	224109.5	224109.5	24793.8	248903.4	24793.8	248903.4	1587.30	1587.30	1587.30
281.00	197625.5	197625.5	16711.5	214337.0	16711.5	214337.0	1407.30	1407.30	1407.30
280.00	172745.0	172745.0	12417.7	185162.8	12417.7	185162.8	1248.86	1248.86	1248.86
279.00	149614.5	149614.5	9240.6	158855.1	9240.6	158855.1	1112.16	1112.16	1112.16
278.00	128080.0	128080.0	6405.2	134485.2	6405.2	134485.2	986.02	986.02	986.02
277.00	108081.5	108081.5	4030.4	112111.9	4030.4	112111.9	866.68	866.68	866.68
276.00	89393.9	89393.9	2304.2	91698.1	2304.2	91698.1	753.01	753.01	753.01
275.00	72087.2	72087.2	1139.8	73227.0	1139.8	73227.0	644.98	644.98	644.98
274.00	56150.0	56150.0	421.4	56571.5	421.4	56571.5	542.28	542.28	542.28
273.00	41761.2	41761.2	79.1	41840.4	79.1	41840.4	445.22	445.22	445.22
272.00	29314.7	29314.7	3.1	29317.9	3.1	29317.9	354.46	354.46	354.46
271.00	18887.5	18887.5	0.0	18887.5	0.0	18887.5	268.13	268.13	268.13
270.00	10572.6	10572.6	0.0	10572.6	0.0	10572.6	185.25	185.25	185.25
269.00	4251.1	4251.1	0.0	4251.1	0.0	4251.1	105.50	105.50	105.50
268.00	986.6	986.6	0.0	986.6	0.0	986.6	38.17	38.17	38.17
267.00	28.1	28.1	0.0	28.1	0.0	28.1	2.50	2.50	2.50
266.60	4.4	4.4	0.0	4.4	0.0	4.4	0.62	0.62	0.62

CFS NO. 15 OVER EHI. ANSWER BASED ON VERTICAL WALLS

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
217.39	1.71	269.27	334.55	1.97	269.81	515.24	2.27	270.50
793.33	2.62	271.40	1222.46	3.00	272.57	1883.10	3.41	274.09
2899.47	3.81	276.06	4466.37	4.21	278.59	6877.43	4.49	281.68
10592.83	4.84	284.68	16312.72	5.58	287.12	25121.26	6.17	290.09
38688.38	6.16	293.68	59580.42	6.61	297.30	91755.59	6.73	302.76

SECTION ES  
 DISTANCES  
 DOWNSTREAM CHANNEL 1160. VALLEY 1160. UPSTREAM CHANNEL 825. VALLEY AREA, SQ MI 139.59  
 'N' VALUE BY SEGMENTS NO. 1 NO. 2 NO. 3 NO. 4 NO. 5 NO. 6  
 0.050 0.045 0.050 0.050 0.050

ELEVATION	DRAINAGE		KD VALUES		UPSTREAM		DOWNSTREAM		TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY		
298.00	718093.1	645355.6	825.	825.	1363448.7	7525.67				
297.00	673346.3	542852.3			1216198.7	6881.34				
296.00	630038.0	450797.6			1080835.7	6256.33				
295.00	587468.5	364088.9			951557.3	5641.12				
294.00	546416.3	288317.1			834733.5	5045.84				
293.00	506528.7	221797.5			728326.2	4466.83				
292.00	467417.6	161446.6			628864.2	3898.66				
291.00	430170.6	116140.3			546311.0	3371.80				
290.00	393993.6	83203.6			477197.2	2893.24				
289.00	358896.0	61665.2			420561.1	2483.49				
288.00	325262.0	52735.3			377997.3	2220.18				
287.00	293132.6	40697.7			333830.3	1989.97				
286.00	262098.1	29172.9			291271.0	1776.36				
285.00	232483.6	20106.5			252590.2	1579.10				
284.00	204236.0	13135.4			217371.5	1397.22				
283.00	177750.5	8421.7			186172.2	1234.58				
282.00	152723.2	5054.6			157777.8	1086.86				
281.00	129099.1	2754.9			131854.0	952.39				
280.00	107280.3	1418.6			108699.0	832.78				
279.00	87697.5	651.7			88349.2	723.70				
278.00	70072.9	228.2			70301.1	620.97				
277.00	53989.7	36.7			54026.5	523.10				
276.00	39709.7	0.0			39709.7	430.40				
275.00	28221.4	0.0			28221.4	342.85				
274.00	18373.0	0.0			18373.0	259.16				
273.00	10415.0	0.0			10415.0	179.74				
272.00	4359.5	0.0			4359.5	104.35				
271.00	1265.9	0.0			1265.9	42.51				
270.00	47.0	0.0			47.0	4.16				
269.60	7.4	0.0			7.4	1.04				

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
216.83	2.04	272.02	333.70	2.37	272.49	513.93	2.76	273.08
791.32	3.19	273.86	1219.36	3.64	274.90	1878.33	4.15	276.24
2892.12	4.68	277.97	4455.05	5.18	280.24	6860.00	5.50	283.07
10565.98	5.93	286.03	16271.38	6.73	288.74	25057.60	6.50	291.92
38590.33	6.59	295.35	59429.42	7.18	299.13	91523.06	7.26	305.64

CSM NO. 14 AND UP OVER EHI. ANSWERS BASED ON VERTICAL WALLS

SECTION	DISTANCES				DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E6	825.	825.	800.	800.	139.56	0.050	0.045	0.050			

ELEVATION	KD VALUES			TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	VALLEY		
295.00	862516.0	282394.7	1144910.7	6071.36	
294.00	810049.0	213935.2	1023984.1	5431.82	
293.00	758227.5	150152.7	908380.1	4801.89	
292.00	708267.1	112241.3	820508.3	4232.96	
291.00	659220.1	83021.6	742241.7	3718.74	
290.00	611965.8	62698.1	674663.8	3362.36	
289.00	566088.8	44751.5	610840.3	3036.63	
288.00	521130.1	28389.8	549520.0	2731.33	
287.00	478527.3	18370.4	496897.6	2475.89	
286.00	436831.8	10242.2	447074.1	2239.81	
285.00	396497.6	4951.6	401449.2	2032.80	
284.00	358340.3	2709.0	361049.3	1870.47	
283.00	321527.7	1207.3	322735.0	1723.17	
282.00	286296.4	348.7	286645.1	1588.95	
281.00	253804.7	87.3	253892.0	1466.90	
280.00	224376.1	11.6	224387.7	1351.49	
279.00	197645.0	0.0	197645.0	1240.27	
278.00	172911.5	0.0	172911.5	1131.93	
277.00	149599.7	0.0	149599.7	1025.99	
276.00	127715.0	0.0	127715.0	922.46	
275.00	107480.0	0.0	107480.0	821.68	
274.00	88763.1	0.0	88763.1	723.41	
273.00	71589.2	0.0	71589.2	627.65	
272.00	55992.7	0.0	55992.7	534.40	
271.00	42816.7	0.0	42816.7	444.65	
270.00	31727.6	0.0	31727.6	360.42	
269.00	22238.5	0.0	22238.5	282.00	
268.00	14378.4	0.0	14378.4	209.63	
267.00	8094.9	0.0	8094.9	143.18	
266.00	3500.9	0.0	3500.9	83.02	
265.00	713.9	0.0	713.9	29.26	
264.00	8.6	0.0	8.6	1.21	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
216.81	0.39	272.09	333.66	0.56	272.59	513.87	0.79	273.23
791.23	1.08	274.06	1219.22	1.45	275.17	1878.11	1.90	276.60
2891.79	2.45	278.42	4454.54	3.09	280.78	6859.21	3.78	283.64
10564.76	4.41	286.68	16269.50	5.06	289.57	25054.70	5.36	292.79
38585.86	5.51	296.38	59422.55	5.95	300.86	91512.46	6.18	308.06

CSM NO. 13 AND UP OVER EHI. ANSWERS BASED ON VERTICAL WALLS

SECTION	DISTANCES				DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	DOWNSTREAM CHANNEL	VALLEY	UPSTREAM CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E7	800.	800.	150.	150.	139.51	0.090	0.050	0.050			

KD VALUES				END AREA
ELEVATION	CHANNEL	VALLEY	TOTAL	SQ. FT.
302.00	829606.5	521971.1	1351577.5	7822.21
301.00	782055.2	471516.0	1253571.2	7336.75
300.00	735689.8	427405.5	1163095.2	6873.36
299.00	690113.3	381621.3	1071734.7	6420.66
298.00	645720.5	333326.4	979046.8	5984.03
297.00	602845.6	288629.9	891475.5	5557.66
296.00	560738.5	245896.7	806635.1	5136.41
295.00	520184.4	207419.0	727603.5	4725.39
294.00	480823.5	172129.4	652953.0	4322.04
293.00	442358.1	138965.3	581223.5	3923.80
292.00	405604.2	110822.1	516426.3	3537.54
291.00	370048.8	85917.3	455966.1	3158.98
290.00	335602.0	64334.5	399936.5	2791.82
289.00	302659.3	47405.8	350065.1	2449.79
288.00	271265.0	33976.7	305241.7	2137.11
287.00	240998.9	23156.4	264155.3	1851.28
286.00	212197.0	15505.2	227702.2	1606.80
285.00	184806.7	10127.3	194934.1	1410.59
284.00	159239.7	6362.0	165601.7	1249.15
283.00	136118.5	3577.9	139696.4	1102.80
282.00	115107.9	1572.3	116680.2	965.78
281.00	95999.5	402.0	96401.5	836.96
280.00	78760.1	24.7	78784.9	723.64
279.00	63624.5	0.0	63624.5	624.20
278.00	50136.4	0.0	50136.4	530.75
277.00	38140.5	0.0	38140.5	441.54
276.00	27815.4	0.0	27815.4	357.09
275.00	18875.2	0.0	18875.2	276.54
274.00	11506.4	0.0	11506.4	200.32
273.00	5683.7	0.0	5683.7	128.18
272.00	1900.7	0.0	1900.7	62.39
271.00	103.6	0.0	103.6	8.87
270.60	16.8	0.0	16.8	2.63

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
216.77	1.61	273.08	333.60	1.93	273.62	513.77	2.29	274.31
791.07	2.71	275.18	1218.99	3.18	276.31	1877.75	3.70	277.74
2891.23	4.27	279.54	4453.68	4.71	281.83	6857.88	5.09	284.59
10562.72	5.21	287.63	16266.36	5.37	290.65	25049.86	5.84	293.92
38578.42	6.67	297.52	59411.07	7.56	302.06	91494.79	7.74	309.99

CSM NO. 14 AND UP OVER EHI. ANSWERS BASED ON VERTICAL WALLS

## BRIDGE SECTION E8

COEFFICIENTS  
OPENING=0.899, ORIFICE=0.600, ROADWAY=0.800

-----DISTANCES-----

DOWNSTREAM		UPSTREAM	
CHANNEL	VALLEY	CHANNEL	VALLEY
150.0	150.0	150.0	150.0

ELEVATION	OPENING END AREA	Q CRIT.	ELEVATION	Q IN CFS ROADWAY
271.3000	0.00	0.00	302.2000	0.00
271.9875	17.50	61.90	302.3949	13.87
272.6750	58.25	325.53	302.5898	78.43
273.3625	102.12	737.27	302.7847	216.12
274.0500	147.62	1259.53	302.9796	443.62
274.7375	195.08	1880.57	303.1745	775.07
275.4250	244.76	2595.74	303.3694	1222.56
276.1125	296.21	3412.48	303.5643	1726.90
276.8000	348.62	4315.20	303.7592	2162.92
277.4875	403.29	5301.73	303.9541	2644.19
278.1750	460.39	6374.37	304.1490	3171.23
278.8625	519.91	7535.01	304.3439	3744.16
279.5500	582.66	8795.15	304.5388	4363.63
280.2375	649.19	10153.44	304.7337	5030.20
280.9250	719.50	11614.47	304.9286	5744.70
281.6125	793.61	13181.76	305.1235	6507.30
282.3000	871.50	14858.42	305.3184	7318.84
282.9875	952.57	16668.41	305.5133	8179.96
283.6750	1036.88	18615.86	305.7082	9091.62
284.3625	1127.54	20694.13	305.9031	10053.90
285.0500	1224.61	22912.35	306.0980	11067.74
285.7375	1326.67	25294.21	306.2929	12133.80
286.4250	1430.54	27814.69	306.4878	13253.09
287.1125	1536.13	30462.11	306.6827	14425.59
287.8000	1643.42	33232.56	306.8776	15652.28
288.4875	1752.43	36123.30	307.0725	16933.82
289.1750	1863.15	39132.32	307.2674	18271.30
289.8625	1975.58	42258.07	307.4623	19664.51
290.5500	2089.72	45499.35	307.6572	21114.51
291.2375	2205.57	48855.20	307.8521	22621.95
291.9250	2323.13	52324.89	308.0470	24187.95
292.6125	2442.40	55907.82	308.2419	25812.17
293.3000	2563.39	59603.53	308.4368	27495.71
293.9875	2686.08	63411.66	308.6317	29239.19
294.6750	2810.49	67331.96	308.8266	31043.81
295.3625	2936.60	71364.20	309.0215	32909.04
296.0500	3064.43	75508.29	309.2164	34836.05
296.7375	3193.97	79764.15	309.4113	36825.43
297.4250	3325.22	84131.75	309.6062	38877.80
298.1125	3456.91	88682.32	309.8011	40994.40
298.8000	3515.60	93702.51	310.0000	43220.25

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTIONS. A RATING CURVE IS NOT DEVELOPED SEPERATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.



WSP-1130, REV. 06/72 END RIVER-DURHAM CO. FLOOD INS. STUDY

RUN DATE-1/07/76

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---DISTANCES---

SECTION CHANNEL DOWNSREAM VALLEY CHANNEL VALLEY DRAINAGE AREA, SQ MI NO. 1 NO. 2 NO. 3 NO. 4 NO. 5 NO. 6  
 E9 150. 150. 1080. 1080. 139.47 0.075 0.075 0.050 0.075

ELEVATION		CHANNEL		VALLEY		TOTAL		END AREA	
DOWNSTREAM	UPSTREAM	CHANNEL	VALLEY	CHANNEL	VALLEY	DOWNSTREAM	UPSTREAM	SQ. FT.	SQ. FT.
302.00	720402.6	720402.6	491111.5	427616.7	1211514.2	8156.06	8156.06	7493.23	7493.23
301.00	677275.7	677275.7	427616.7	371508.8	1104892.5	6877.41	6877.41	6297.30	6297.30
300.00	635311.0	635311.0	371508.8	274228.3	1006819.7	5752.90	5752.90	5261.26	5261.26
299.00	594275.3	594275.3	274228.3	236525.6	914654.7	4791.36	4791.36	4358.51	4358.51
298.00	554168.8	554168.8	236525.6	201384.6	828397.1	3942.14	3942.14	3534.88	3534.88
297.00	515673.1	515673.1	201384.6	170030.0	752198.7	3145.98	3145.98	2776.20	2776.20
296.00	477906.0	477906.0	170030.0	138887.5	679290.7	2422.96	2422.96	2089.16	2089.16
295.00	441421.6	441421.6	138887.5	108462.0	611451.6	1780.38	1780.38	1514.38	1514.38
294.00	406253.0	406253.0	108462.0	83673.4	545140.5	1311.28	1311.28	1162.97	1162.97
293.00	371829.3	371829.3	83673.4	62541.4	480291.3	1027.27	1027.27	897.59	897.59
292.00	339033.9	339033.9	62541.4	44387.5	422707.3	773.33	773.33	668.18	668.18
291.00	307453.3	307453.3	44387.5	29525.2	369994.6	577.30	577.30	492.20	492.20
290.00	276928.9	276928.9	29525.2	18973.7	321316.4	410.80	410.80	333.66	333.66
289.00	247654.3	247654.3	18973.7	11582.0	277179.6	260.67	260.67	191.30	191.30
288.00	220037.0	220037.0	11582.0	7433.7	239010.7	126.19	126.19	65.09	65.09
287.00	193487.3	193487.3	7433.7	4675.8	205069.4	19.16	19.16	1.00	1.00
286.00	168326.9	168326.9	4675.8	2617.7	175760.7	0.40	0.40	0.00	0.00
285.00	144733.8	144733.8	2617.7	1160.4	149409.6	0.00	0.00	0.00	0.00
284.00	124617.6	124617.6	1160.4	262.1	127235.4	0.00	0.00	0.00	0.00
283.00	105959.8	105959.8	262.1	16.7	107120.2	0.00	0.00	0.00	0.00
282.00	88514.8	88514.8	16.7	0.0	88776.9	0.00	0.00	0.00	0.00
281.00	72791.4	72791.4	0.0	0.0	72808.1	0.00	0.00	0.00	0.00
280.00	59027.2	59027.2	0.0	0.0	59027.2	0.00	0.00	0.00	0.00
279.00	46815.5	46815.5	0.0	0.0	46815.5	0.00	0.00	0.00	0.00
278.00	35854.6	35854.6	0.0	0.0	35854.6	0.00	0.00	0.00	0.00
277.00	26327.2	26327.2	0.0	0.0	26327.2	0.00	0.00	0.00	0.00
276.00	18199.8	18199.8	0.0	0.0	18199.8	0.00	0.00	0.00	0.00
275.00	11317.6	11317.6	0.0	0.0	11317.6	0.00	0.00	0.00	0.00
274.00	5959.3	5959.3	0.0	0.0	5959.3	0.00	0.00	0.00	0.00
273.00	2102.9	2102.9	0.0	0.0	2102.9	0.00	0.00	0.00	0.00
272.00	409.2	409.2	0.0	0.0	409.2	0.00	0.00	0.00	0.00
271.00	9.4	9.4	0.0	0.0	9.4	0.00	0.00	0.00	0.00
270.70	2.5	2.5	0.0	0.0	2.5	0.00	0.00	0.00	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
216.73	2.00	273.72\$	333.55	2.34	274.25\$	513.69	2.74	274.94\$
790.95	3.73	275.30	1218.80	3.70	276.93\$	1877.46	4.27	278.35\$
2890.78	4.90	280.13\$	4452.99	5.43	282.38\$	6856.82	5.88	285.01
10561.08	5.76	288.17	16263.84	5.44	291.59	25045.98	5.51	295.43
38572.45	5.61	299.98	59401.89	4.80	307.79	91480.65	5.68	312.93

\* BRIDGE DID NOT CONTROL FLOW

SECTION E10  
 DOWNSTREAM CHANNEL 1080. VALLEY 1080. UPSTREAM CHANNEL 875. VALLEY AREA, SQ MI 134.12 DRAINAGE AREA, SQ MI 875.  
 'N' VALUE BY SEGMENTS NO. 1 0.075 NO. 2 0.050 NO. 3 0.075 NO. 4 0.075 NO. 5 0.075 NO. 6 0.075

DISTANCES		CHANNEL		VALLEY		UPSTREAM CHANNEL		VALLEY		DRAINAGE AREA, SQ MI		'N' VALUE BY SEGMENTS		END AREA			
ELEVATION	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	AREA	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
	1080.	1080.	875.	875.	875.	134.12	875.	875.	875.	134.12	0.075	0.050	0.075	0.075	0.075	0.075	0.075
304.00	1032119.3	190374.9	1222494.2	190374.9	1222494.2	190374.9	1222494.2	190374.9	1222494.2	190374.9	5726.55						
303.00	971208.6	170256.9	1141465.5	170256.9	1141465.5	170256.9	1141465.5	170256.9	1141465.5	170256.9	5441.01						
302.00	910675.2	150950.0	1061625.2	150950.0	1061625.2	150950.0	1061625.2	150950.0	1061625.2	150950.0	5156.77						
301.00	852753.5	133848.3	986601.7	133848.3	986601.7	133848.3	986601.7	133848.3	986601.7	133848.3	4882.34						
300.00	795837.2	117539.5	913376.7	117539.5	913376.7	117539.5	913376.7	117539.5	913376.7	117539.5	4611.60						
299.00	740429.0	102420.0	842849.0	102420.0	842849.0	102420.0	842849.0	102420.0	842849.0	102420.0	4346.41						
298.00	687078.3	88813.2	775891.5	88813.2	775891.5	88813.2	775891.5	88813.2	775891.5	88813.2	4088.59						
297.00	634769.2	75944.1	710713.2	75944.1	710713.2	75944.1	710713.2	75944.1	710713.2	75944.1	3834.47						
296.00	584569.2	64513.4	649082.6	64513.4	649082.6	64513.4	649082.6	64513.4	649082.6	64513.4	3587.73						
295.00	535890.1	54043.1	589933.2	54043.1	589933.2	54043.1	589933.2	54043.1	589933.2	54043.1	3346.18						
294.00	488710.8	44496.6	533207.5	44496.6	533207.5	44496.6	533207.5	44496.6	533207.5	44496.6	3109.71						
293.00	443475.1	36084.2	479559.3	36084.2	479559.3	36084.2	479559.3	36084.2	479559.3	36084.2	2879.70						
292.00	400236.3	28747.1	428983.4	28747.1	428983.4	28747.1	428983.4	28747.1	428983.4	28747.1	2656.15						
291.00	358525.2	22187.5	380712.8	22187.5	380712.8	22187.5	380712.8	22187.5	380712.8	22187.5	2437.44						
290.00	318357.2	16390.9	334748.1	16390.9	334748.1	16390.9	334748.1	16390.9	334748.1	16390.9	2223.59						
289.00	280652.0	11713.4	292365.3	11713.4	292365.3	11713.4	292365.3	11713.4	292365.3	11713.4	2017.23						
288.00	244825.1	7823.0	252648.2	7823.0	252648.2	7823.0	252648.2	7823.0	252648.2	7823.0	1816.41						
287.00	210925.1	4847.5	215772.7	4847.5	215772.7	4847.5	215772.7	4847.5	215772.7	4847.5	1622.32						
286.00	179005.5	2666.1	181671.6	2666.1	181671.6	2666.1	181671.6	2666.1	181671.6	2666.1	1435.84						
285.00	149080.2	1129.4	150209.6	1129.4	150209.6	1129.4	150209.6	1129.4	150209.6	1129.4	1257.68						
284.00	121536.1	378.3	121914.5	378.3	121914.5	378.3	121914.5	378.3	121914.5	378.3	1091.13						
283.00	96340.3	81.1	96421.5	81.1	96421.5	81.1	96421.5	81.1	96421.5	81.1	937.00						
282.00	73786.5	13.9	73800.4	13.9	73800.4	13.9	73800.4	13.9	73800.4	13.9	793.19						
281.00	53988.9	0.2	53989.2	0.2	53989.2	0.2	53989.2	0.2	53989.2	0.2	653.42						
280.00	37317.4	0.0	37317.4	0.0	37317.4	0.0	37317.4	0.0	37317.4	0.0	516.99						
279.00	23333.8	0.0	23333.8	0.0	23333.8	0.0	23333.8	0.0	23333.8	0.0	384.40						
278.00	12037.9	0.0	12037.9	0.0	12037.9	0.0	12037.9	0.0	12037.9	0.0	255.72						
277.00	4726.9	0.0	4726.9	0.0	4726.9	0.0	4726.9	0.0	4726.9	0.0	136.37						
276.00	2095.4	0.0	2095.4	0.0	2095.4	0.0	2095.4	0.0	2095.4	0.0	56.85						
275.00	688.1	0.0	688.1	0.0	688.1	0.0	688.1	0.0	688.1	0.0	24.05						
274.00	83.8	0.0	83.8	0.0	83.8	0.0	83.8	0.0	83.8	0.0	5.13						
273.20	2.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0	0.32						

CSM NO. 14 AND UP OVER EHI. ANSWERS BASED ON VERTICAL WALLS

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
212.21	1.71	276.89	326.58	1.93	277.28	502.97	2.20	277.78
774.44	2.61	278.32	1193.36	2.85	279.26	1838.27	3.21	280.40
2830.44	3.59	281.96	4360.04	4.00	283.99	6713.69	4.39	286.49
10340.63	4.87	289.50	15924.34	5.61	292.80	24523.16	6.55	296.62
37767.27	7.68	301.11	58161.90	8.07	308.93	89571.03	9.94	314.96

SECTION	DISTANCES				DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E11	875.	875.	1220.	1220.	134.09	0.075	0.050	0.075			

ELEVATION	CHANNEL	KD VALUES		TOTAL	END AREA SQ. FT.
		CHANNEL	VALLEY		
303.00	959993.8	565573.0	1525566.7	8724.69	
302.00	901753.1	504003.6	1405756.7	8216.30	
301.00	846038.0	448056.5	1294094.5	7721.37	
300.00	790824.5	393201.3	1184025.7	7229.06	
299.00	737618.3	342714.8	1080333.2	6747.21	
298.00	685862.1	295324.8	981186.8	6272.75	
297.00	635072.7	249999.4	885072.1	5803.20	
296.00	586759.3	209886.4	796645.7	5345.97	
295.00	539462.5	171896.1	711358.6	4893.66	
294.00	493690.5	137090.3	630780.7	4448.73	
293.00	449876.1	106378.8	556255.0	4013.04	
292.00	407491.0	78684.7	486175.7	3583.96	
291.00	366515.4	53981.8	420497.2	3161.34	
290.00	327958.2	34597.5	362555.7	2749.50	
289.00	290899.2	18875.9	309775.1	2345.19	
288.00	255318.4	7533.7	262852.2	1962.38	
287.00	221655.8	3942.8	225598.6	1645.40	
286.00	190285.7	1636.2	191921.9	1455.36	
285.00	162199.3	541.5	162740.9	1282.03	
284.00	136816.1	115.2	136931.3	1129.86	
283.00	113489.9	3.3	113493.3	994.05	
282.00	92115.0	0.0	92115.0	867.21	
281.00	72632.8	0.0	72632.8	743.58	
280.00	55389.8	0.0	55389.8	622.89	
279.00	40947.2	0.0	40947.2	507.03	
278.00	29252.9	0.0	29252.9	399.95	
277.00	19484.6	0.0	19484.6	301.83	
276.00	12102.9	0.0	12102.9	214.69	
275.00	7592.7	0.0	7592.7	143.50	
274.00	4030.1	0.0	4030.1	90.27	
273.00	1501.8	0.0	1501.8	45.85	
272.00	176.6	0.0	176.6	11.33	
271.40	8.9	0.0	8.9	1.39	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
212.18	0.69	277.03	326.55	0.93	277.49	502.91	1.23	278.08
774.35	1.61	278.76	1193.21	1.99	279.79	1838.05	2.46	281.03
2830.10	2.98	282.65	4359.51	3.52	284.74	6712.88	3.87	287.27
10339.37	3.58	290.32	15922.42	3.69	293.68	24520.19	4.02	297.63
37762.70	4.50	302.31	58154.86	4.63	310.38	89560.20	5.55	317.25

CSM NO. 14 AND UP OVER EHI. ANSWERS BASED ON VERTICAL WALLS

SECTION E12	DISTANCES				DRAINAGE AREA, SQ MI 134.06	'N' VALUE BY SEGMENTS					
	DOWNSTREAM CHANNEL 1220.	VALLEY 1220.	UPSTREAM CHANNEL 900.	VALLEY 900.		NO. 1 0.075	NO. 2 0.050	NO. 3 0.075	NO. 4 0.050	NO. 5 0.075	NO. 6

ELEVATION	KD VALUES				END AREA SQ. FT.
	CHANNEL	VALLEY	TOTAL		
305.00	1174201.0	948990.6	2123191.5	13732.39	
304.00	1091096.2	835705.5	1926801.5	12822.11	
303.00	1010766.0	728966.1	1739732.0	11924.24	
302.00	932031.3	626108.5	1558139.7	11033.24	
301.00	856955.6	532935.1	1389890.7	10156.20	
300.00	783836.5	444929.1	1228765.7	9286.44	
299.00	713049.5	363085.6	1076135.0	8425.31	
298.00	645640.8	290200.3	935841.1	7576.40	
297.00	580935.5	224574.0	805509.5	6736.99	
296.00	518584.1	165356.7	683941.0	5905.73	
295.00	459021.8	113833.2	572855.1	5083.98	
294.00	402899.0	72281.3	475180.3	4273.57	
293.00	349714.4	48636.7	398351.1	3582.14	
292.00	299518.4	31780.6	331299.0	2993.99	
291.00	252398.4	16302.9	268701.3	2473.05	
290.00	208560.1	5661.7	214221.9	1993.56	
289.00	169895.8	1312.5	171208.3	1598.55	
288.00	136052.0	407.8	136459.8	1331.12	
287.00	106704.7	71.1	106775.8	1115.26	
286.00	80927.7	0.1	80927.8	917.15	
285.00	59338.1	0.0	59338.1	735.24	
284.00	41170.8	0.0	41170.8	568.73	
283.00	26191.9	0.0	26191.9	421.73	
282.00	14599.7	0.0	14599.7	287.24	
281.00	6214.7	0.0	6214.7	164.29	
280.00	2060.0	0.0	2060.0	69.40	
279.00	307.3	0.0	307.3	16.82	
278.10	5.1	0.0	5.1	0.80	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
212.16	1.78	280.58	326.51	1.99	281.00	502.85	2.27	281.47
774.25	2.63	282.05	1193.07	3.00	282.82	1837.82	3.40	283.82
2829.75	3.72	285.14	4358.98	3.99	286.88	6712.07	4.15	289.06
10338.13	3.65	291.69	15920.50	3.25	294.76	24517.24	3.07	298.47
37758.14	3.15	303.04	58147.85	2.93	311.17	89549.39	3.30	318.44

CSM. NO. 14 AND UP OVER EHI. ANSWERS BASED ON VERTICAL WALLS

-----DISTANCES-----											
SECTION E13	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI 129.49	'N' VALUE BY SEGMENTS					
	CHANNEL 900.	VALLEY 900.	CHANNEL 1505.	VALLEY 1505.		NO. 1 0.075	NO. 2 0.050	NO. 3 0.075	NO. 4	NO. 5	NO. 6

-----KD VALUES-----				END AREA
ELEVATION	CHANNEL	VALLEY	TOTAL	SQ. FT.
319.00	706661.3	516018.4	1222679.7	6619.45
318.00	667520.6	473335.9	1140856.5	6284.99
317.00	629706.6	433686.1	1063392.7	5960.68
316.00	592195.0	394711.0	986905.8	5638.66
315.00	556077.3	358774.1	914851.5	5327.11
314.00	520704.3	324379.8	845084.1	5021.03
313.00	486075.8	291527.8	777603.6	4720.41
312.00	452817.0	261372.8	714189.8	4429.65
311.00	420177.7	232390.3	652568.1	4143.27
310.00	388628.9	205444.3	594073.2	3864.55
309.00	358127.0	180353.0	538480.0	3593.00
308.00	328503.0	156778.6	485281.6	3327.41
307.00	299880.6	134888.3	434768.9	3068.52
306.00	272578.8	115107.9	387686.8	2818.25
305.00	246178.0	96705.3	342883.4	2573.72
304.00	220675.5	79653.7	300329.2	2334.87
303.00	196469.7	64471.8	260941.5	2104.02
302.00	173496.6	50985.2	224481.8	1880.56
301.00	151649.0	38989.7	190638.7	1663.67
300.00	130955.2	28479.1	159434.4	1453.34
299.00	111407.5	19408.7	130816.2	1249.37
298.00	93222.5	12042.2	105264.8	1052.81
297.00	76360.7	6407.7	82768.4	864.57
296.00	60970.5	2682.1	63652.7	689.24
295.00	47230.5	957.9	48188.5	541.35
294.00	35078.6	451.0	35529.6	434.20
293.00	24633.8	77.8	24711.6	336.12
292.00	16305.0	0.1	16305.1	251.31
291.00	10104.9	0.0	10104.9	179.03
290.00	5490.9	0.0	5490.9	116.45
289.00	2168.0	0.0	2168.0	62.57
288.00	259.3	0.0	259.3	16.02
287.30	8.6	0.0	8.6	1.34

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
208.21	3.31	289.01	320.43	3.86	289.40	493.49	4.43	289.91
759.84	5.09	290.54	1170.87	5.82	291.32	1803.62	6.63	292.25
2777.10	7.50	293.35	4277.87	8.48	294.67	6587.16	8.87	296.32
10145.75	9.27	298.22	15624.23	9.99	300.53	24061.00	10.85	303.48
37055.51	11.83	307.24	57065.78	11.64	313.60	87882.98	12.38	320.40

CSM NO. 15 OVER EHI. ANSWER BASED ON VERTICAL WALLS

SECTION E14  
 DISTANCES  
 DOWNSTREAM CHANNEL VALLEY 1505.  
 UPSTREAM CHANNEL VALLEY 1400.  
 DRAINAGE AREA, SQ MI 129.38  
 'N' VALUE BY SEGMENTS  
 NO. 2 NO. 3 NO. 4 NO. 5 NO. 6  
 0.050 0.075 0.075 0.075 0.075

ELEVATION	CHANNEL		VALLEY		TOTAL		END AREA	
	DOWNSTREAM	UPSTREAM	DOWNSTREAM	UPSTREAM	DOWNSTREAM	UPSTREAM	DOWNSTREAM	UPSTREAM
321.00	1081749.5	1081749.5	406490.9	406490.9	1488240.2	1488240.2	7295.98	7295.98
320.00	1025845.5	1025845.5	368712.9	368712.9	1394558.5	1394558.5	6937.98	6937.98
319.00	971328.8	971328.8	333309.9	333309.9	1304638.7	1304638.7	6588.30	6588.30
318.00	917688.2	917688.2	299340.0	299340.0	1217028.2	1217028.2	6243.78	6243.78
317.00	865361.8	865361.8	267520.1	267520.1	1132882.0	1132882.0	5906.99	5906.99
316.00	814377.6	814377.6	237780.5	237780.5	1052158.2	1052158.2	5577.93	5577.93
315.00	764288.1	764288.1	209427.8	209427.8	973715.8	973715.8	5254.04	5254.04
314.00	716029.1	716029.1	183757.7	183757.7	899786.8	899786.8	4940.45	4940.45
313.00	668227.6	668227.6	158758.4	158758.4	826986.0	826986.0	4629.45	4629.45
312.00	622638.0	622638.0	136826.1	136826.1	759464.1	759464.1	4330.62	4330.62
311.00	577901.6	577901.6	116014.5	116014.5	693916.1	693916.1	4036.37	4036.37
310.00	534444.8	534444.8	96884.0	96884.0	631328.8	631328.8	3749.00	3749.00
309.00	492736.7	492736.7	79936.1	79936.1	572672.8	572672.8	3470.80	3470.80
308.00	451915.0	451915.0	64067.6	64067.6	515982.6	515982.6	3197.19	3197.19
307.00	412890.1	412890.1	50334.3	50334.3	463224.3	463224.3	2932.74	2932.74
306.00	375164.2	375164.2	38082.4	38082.4	413246.6	413246.6	2674.74	2674.74
305.00	338720.3	338720.3	27382.3	27382.3	366102.6	366102.6	2423.36	2423.36
304.00	303940.8	303940.8	18939.0	18939.0	322879.8	322879.8	2181.29	2181.29
303.00	270877.0	270877.0	12713.1	12713.1	283590.1	283590.1	1956.22	1956.22
302.00	239129.0	239129.0	7829.8	7829.8	246958.9	246958.9	1744.55	1744.55
301.00	208711.8	208711.8	4129.1	4129.1	212840.9	212840.9	1546.60	1546.60
300.00	180427.8	180427.8	1955.4	1955.4	182383.2	182383.2	1369.87	1369.87
299.00	153779.0	153779.0	680.1	680.1	154459.2	154459.2	1208.82	1208.82
298.00	128815.5	128815.5	130.0	130.0	128945.5	128945.5	1065.67	1065.67
297.00	106262.1	106262.1	0.1	0.1	106262.2	106262.2	938.23	938.23
296.00	86434.6	86434.6	0.0	0.0	86434.6	86434.6	820.92	820.92
295.00	68498.4	68498.4	0.0	0.0	68498.4	68498.4	706.18	706.18
294.00	52299.7	52299.7	0.0	0.0	52299.7	52299.7	593.79	593.79
293.00	37920.6	37920.6	0.0	0.0	37920.6	37920.6	483.74	483.74
292.00	25630.5	25630.5	0.0	0.0	25630.5	25630.5	376.51	376.51
291.00	16267.1	16267.1	0.0	0.0	16267.1	16267.1	275.93	275.93
290.00	8867.2	8867.2	0.0	0.0	8867.2	8867.2	183.91	183.91
289.00	3725.6	3725.6	0.0	0.0	3725.6	3725.6	102.49	102.49
288.00	1837.7	1837.7	0.0	0.0	1837.7	1837.7	49.49	49.49
287.00	949.0	949.0	0.0	0.0	949.0	949.0	26.46	26.46
286.00	293.6	293.6	0.0	0.0	293.6	293.6	10.95	10.95
285.00	32.8	32.8	0.0	0.0	32.8	32.8	2.13	2.13
284.20	0.8	0.8	0.0	0.0	0.8	0.8	0.13	0.13

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
208.11	1.12	290.02	320.28	1.36	290.57	493.26	1.63	291.27
759.49	1.95	292.11	1170.33	2.36	293.11	1802.79	2.86	294.31
2775.81	3.49	295.77	4275.89	4.27	297.52	6584.12	5.12	299.48
10141.07	5.97	301.75	15617.03	6.78	304.49	24049.90	7.63	307.82
37038.42	8.60	311.92	57039.46	9.23	317.80	87842.45	9.87	325.34

CSM NO. 15 OVER EHI. ANSWER BASED ON VERTICAL WALLS

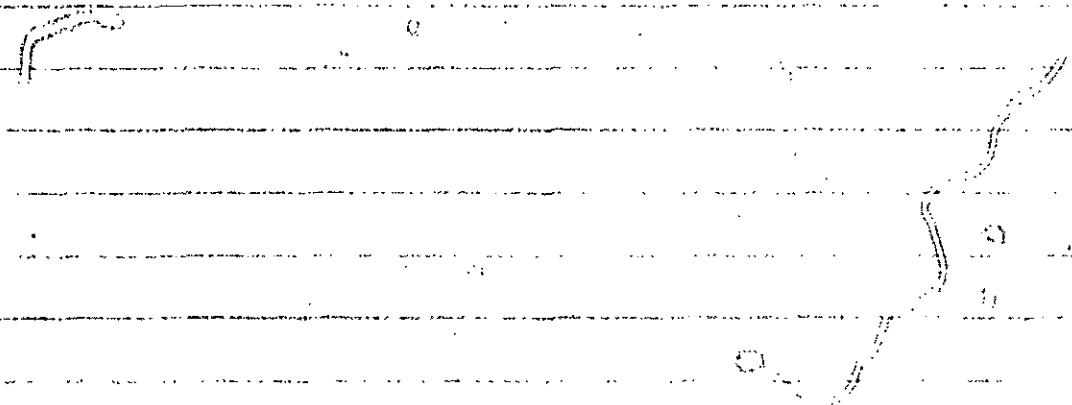
SECTION	DISTANCES				DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	DOWNSTREAM		UPSTREAM			NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E15	CHANNEL	VALLEY	CHANNEL	VALLEY	129.24	0.075	0.050	0.075			

ELEVATION	KD VALUES		TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY		
327.00	1182055.7	711475.6	1893531.2	9211.68
326.00	1128454.0	653444.7	1781898.5	8794.54
325.00	1076400.7	599253.1	1675653.7	8387.62
324.00	1024734.8	546021.3	1570756.2	7983.25
323.00	974606.6	496469.0	1471075.7	7588.83
322.00	924862.8	447836.6	1372699.5	7196.91
321.00	876974.6	403496.8	1280471.5	6816.77
320.00	829465.0	360004.4	1189469.5	6438.98
319.00	783469.5	319903.2	1103372.7	6070.63
318.00	738246.8	281480.5	1019727.2	5707.00
317.00	694183.7	245575.7	939759.3	5350.43
316.00	651239.2	212034.5	863273.7	5000.54
315.00	609040.6	180069.4	789110.0	4655.11
314.00	568635.2	152332.3	720967.5	4320.34
313.00	528963.6	127004.8	655968.3	3992.56
312.00	490392.5	105292.5	595685.1	3675.26
311.00	453324.6	87087.9	540412.6	3375.84
310.00	416993.5	70456.7	487450.2	3085.61
309.00	382107.2	56611.4	438718.6	2814.27
308.00	348604.1	45086.5	393690.6	2561.33
307.00	316156.8	35169.7	351326.6	2322.33
306.00	284775.0	26795.3	311570.2	2097.33
305.00	255220.3	20707.6	275928.0	1895.67
304.00	226714.5	15021.9	241736.4	1704.44
303.00	199573.6	10114.8	209688.5	1524.76
302.00	173958.6	6204.7	180163.3	1354.37
301.00	150452.4	3219.0	153671.4	1193.58
300.00	128849.0	1412.5	130261.5	1044.05
299.00	108443.1	410.0	108853.2	908.49
298.00	89470.5	57.0	89527.6	790.06
297.00	72512.2	1.7	72514.0	686.70
296.00	57527.3	0.0	57527.3	589.42
295.00	43997.7	0.0	43997.7	494.96
294.00	32207.7	0.0	32207.7	403.75
293.00	21950.7	0.0	21950.7	315.25
292.00	13508.3	0.0	13508.3	230.04
291.00	7237.3	0.0	7237.3	151.91
290.00	2685.6	0.0	2685.6	80.27
289.00	726.2	0.0	726.2	28.60
288.00	6.8	0.0	6.8	1.06
287.80	6.8	0.0	6.8	1.06

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
207.99	1.31	291.08	320.09	1.55	291.69	492.97	1.83	292.45
759.05	2.19	293.36	1169.64	2.62	294.47	1801.73	3.15	295.80
2774.19	3.79	297.44	4273.39	4.45	299.38	6580.26	5.09	301.61

10135.12	5.85	304.15	15607.86	6.60	307.19	24035.79	7.23	310.81
37016.68	7.88	315.12	57006.00	8.42	320.86	87790.90	9.00	328.29

CSM NO. 15 OVER EHI. ANSWER BASED ON VERTICAL WALLS





SECTION E16  
 DISTANCES  
 DOWNSTREAM CHANNEL VALLEY 1600.  
 UPSTREAM CHANNEL VALLEY 100.  
 DRAINAGE AREA, SQ MI 129.02  
 'N' VALUE BY SEGMENTS  
 NO. 1 NO. 2 NO. 3 NO. 4 NO. 5 NO. 6  
 0.075 0.050 0.075 0.075 0.075 0.075

ELEVATION	CHANNEL		VALLEY		TOTAL		END AREA	
	DOWNSTREAM	UPSTREAM	DOWNSTREAM	UPSTREAM	DOWNSTREAM	UPSTREAM	SQ. FT.	SQ. FT.
331.00	1112584.5	1112584.5	269172.8	269172.8	1381757.2	1381757.2	6643.16	6643.16
330.00	1050473.0	1050473.0	246488.7	246488.7	1296961.5	1296961.5	6293.93	6293.93
329.00	989088.0	989088.0	225307.3	225307.3	1214395.2	1214395.2	5953.32	5953.32
328.00	929710.8	929710.8	208370.0	208370.0	1138081.0	1138081.0	5636.16	5636.16
327.00	871318.2	871318.2	193497.6	193497.6	1064816.0	1064816.0	5330.36	5330.36
326.00	814855.8	814855.8	182641.6	182641.6	997497.5	997497.5	5046.59	5046.59
325.00	759872.6	759872.6	167201.6	167201.6	927074.2	927074.2	4772.68	4772.68
324.00	705875.6	705875.6	148705.4	148705.4	854581.0	854581.0	4505.35	4505.35
323.00	654401.3	654401.3	132055.2	132055.2	786456.6	786456.6	4245.54	4245.54
322.00	603896.1	603896.1	116075.0	116075.0	719971.1	719971.1	3988.54	3988.54
321.00	554844.2	554844.2	101099.9	101099.9	655944.1	655944.1	3735.78	3735.78
320.00	508108.9	508108.9	87638.9	87638.9	595747.8	595747.8	3489.61	3489.61
319.00	462798.8	462798.8	75058.8	75058.8	537857.6	537857.6	3247.38	3247.38
318.00	418927.0	418927.0	63350.6	63350.6	482277.6	482277.6	3009.10	3009.10
317.00	377008.3	377008.3	52781.5	52781.5	429789.8	429789.8	2776.08	2776.08
316.00	336954.2	336954.2	43240.5	43240.5	380194.7	380194.7	2547.96	2547.96
315.00	298695.5	298695.5	34650.5	34650.5	333346.0	333346.0	2324.44	2324.44
314.00	262236.0	262236.0	26976.4	26976.4	289212.5	289212.5	2105.44	2105.44
313.00	227618.4	227618.4	20205.4	20205.4	247823.8	247823.8	1890.95	1890.95
312.00	194888.8	194888.8	14327.2	14327.2	209216.1	209216.1	1680.97	1680.97
311.00	164398.6	164398.6	9466.6	9466.6	173865.2	173865.2	1476.17	1476.17
310.00	136019.3	136019.3	5586.7	5586.7	141606.0	141606.0	1276.10	1276.10
309.00	109832.5	109832.5	3081.2	3081.2	112913.8	112913.8	1085.32	1085.32
308.00	85934.5	85934.5	1430.7	1430.7	87365.2	87365.2	906.93	906.93
307.00	64595.0	64595.0	516.1	516.1	65111.1	65111.1	741.68	741.68
306.00	45713.6	45713.6	103.5	103.5	45817.1	45817.1	588.34	588.34
305.00	29670.7	29670.7	4.8	4.8	29675.6	29675.6	446.85	446.85
304.00	17452.2	17452.2	0.0	0.0	17452.2	17452.2	316.41	316.41
303.00	8236.2	8236.2	0.0	0.0	8236.2	8236.2	195.64	195.64
302.00	2576.1	2576.1	0.0	0.0	2576.1	2576.1	88.63	88.63
301.00	313.6	313.6	0.0	0.0	313.6	313.6	18.81	18.81
300.00	2.4	2.4	0.0	0.0	2.4	2.4	0.38	0.38

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
207.80	2.37	301.98	319.80	2.63	302.33	492.52	2.98	302.73
758.35	3.46	303.19	1168.56	4.00	303.80	1800.07	4.57	304.60
2771.62	5.25	305.58	4269.44	5.94	306.85	6574.18	6.63	308.47
10125.75	7.35	310.50	15593.44	8.18	313.06	24013.57	9.19	316.29
36982.46	10.39	320.27	56953.30	11.62	325.48	87709.75	11.87	333.01

CSM NO. 15 OVER EHI. ANSWER BASED ON VERTICAL WALLS

## BRIDGE SECTION E17

 COEFFICIENTS  
 OPENING=0.899, DRIFICE=0.600, ROADWAY=0.800

			DISTANCES			
			DOWNSTREAM		UPSTREAM	
			CHANNEL	VALLEY	CHANNEL	VALLEY
			100.0	100.0	140.0	140.0
OPENING			ROADWAY			
ELEVATION	END AREA	Q CRIT.	ELEVATION Q IN CFS			
300.8000	0.00	0.00			330.8000	0.00
301.4750	23.17	80.80			330.9924	23.22
302.1500	76.47	424.71			331.1848	91.15
302.8250	139.68	973.88			331.3772	211.23
303.4999	210.79	1731.29			331.5696	392.54
304.1749	286.53	2668.76			331.7620	642.67
304.8499	366.79	3768.28			331.9544	968.49
305.5248	451.55	5025.29			332.1468	1366.70
306.1998	540.74	6441.57			332.3392	1811.31
306.8748	632.90	8015.55			332.5316	2368.33
307.5497	727.67	9747.81			332.7240	3243.61
308.2247	824.22	11630.59			332.9164	4251.86
308.8997	922.67	13643.96			333.1088	5035.67
309.5746	1023.65	15788.33			333.3012	5893.47
310.2496	1127.18	18063.78			333.4936	6827.44
310.9246	1233.25	20469.55			333.6860	7765.11
311.5995	1341.84	23004.96			333.8784	8666.88
312.2745	1452.98	25670.16			334.0708	9615.13
312.9495	1566.67	28464.76			334.2632	10610.40
313.6245	1682.89	31388.71			334.4556	11652.29
314.2994	1801.58	34459.86			334.6480	12741.38
314.9744	1922.35	37680.82			334.8404	13878.31
315.6494	2045.10	41027.81			335.0328	15062.65
316.3243	2169.81	44500.16			335.2252	16295.07
316.9993	2296.52	48098.17			335.4176	17575.89
317.6743	2425.20	51821.18			335.6100	18905.84
318.3492	2555.86	55668.60			335.8024	20284.45
319.0242	2688.57	59679.31			335.9948	21712.44
319.6992	2823.50	63825.85			336.1872	23190.64
320.3741	2960.63	68098.39			336.3796	24718.48
321.0491	3099.99	72498.73			336.5720	26159.19
321.7241	3241.57	77027.17			336.7644	27619.71
322.3990	3385.35	81683.90			336.9568	29115.99
323.0740	3531.36	86470.31			337.1492	30647.06
323.7490	3679.59	91386.46			337.3416	32213.39
324.4240	3830.03	96432.84			337.5340	33815.52
325.0989	3982.68	101609.48			337.7264	35452.41
325.7739	4137.55	106917.82			337.9188	37124.62
326.4489	4276.00	112468.60			338.1112	38832.15
327.1238	4360.00	118501.21			338.3036	40575.61
327.8000	4388.94	125205.18			338.5000	42390.96

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTIONS. A RATING CURVE IS NOT DEVELOPED SEPERATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

-----DISTANCES-----											
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E18	140.	140.	750.	750.	128.97	0.075	0.050	0.075			

ELEVATION	-----KD VALUES-----			TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	VALLEY		
329.00	893875.7	226493.7	1120369.5	5805.57	
328.00	837852.5	208671.6	1046524.0	5431.00	
327.00	783018.0	191213.1	974231.0	5089.51	
326.00	729372.2	174118.3	903490.5	4781.10	
325.00	677914.8	155340.0	833254.7	4505.96	
324.00	627400.2	136719.3	764119.5	4236.92	
323.00	578518.2	118903.3	697421.5	3973.46	
322.00	531642.2	102765.2	634407.5	3716.36	
321.00	486130.8	87284.0	573415.0	3462.08	
320.00	441995.5	72550.7	514546.3	3210.29	
319.00	399969.7	60315.9	460285.6	2962.12	
318.00	359508.6	49611.6	409120.1	2719.98	
317.00	320779.1	40239.5	361018.6	2484.63	
316.00	283765.4	31928.6	315694.0	2255.99	
315.00	248505.3	24636.8	273142.1	2034.07	
314.00	215272.5	18436.5	233709.0	1819.70	
313.00	183959.6	13182.8	197142.4	1612.25	
312.00	154665.1	8850.6	163515.8	1411.87	
311.00	127441.1	5387.9	132829.0	1218.48	
310.00	102369.5	2818.2	105187.7	1032.61	
309.00	79526.3	1157.6	80683.9	856.08	
308.00	59170.6	354.0	59524.6	694.21	
307.00	41234.0	55.1	41289.1	546.76	
306.00	25986.5	1.4	25988.0	411.08	
305.00	14160.2	0.0	14160.2	280.99	
304.00	5636.8	0.0	5636.8	157.26	
303.00	1115.8	0.0	1115.8	51.19	
302.00	11.2	0.0	11.2	1.75	
301.90	11.2	0.0	11.2	1.75	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
207.76	2.13	303.48\$	319.73	2.43	303.78\$	492.42	2.83	304.14\$
758.19	3.30	304.59\$	1168.31	3.86	305.16\$	1799.69	4.51	305.91\$
2771.04	6.67	306.03	4268.54	7.04	307.42	6572.79	6.85	309.59\$
10123.61	7.83	311.38	15590.15	8.30	314.27	24008.51	8.81	318.01
36974.67	9.54	322.62	56941.29	9.83	328.96	87691.25	7.50	338.96

\$ BRIDGE DID NOT CONTROL FLOW

-----DISTANCES-----

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E19	750.	750.	1175.	1175.	128.34	0.075	0.050	0.075			

-----KD VALUES-----

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
335.00	1179546.5	384542.6	1564089.0	7889.50
334.00	1112702.2	345174.1	1457876.2	7467.04
333.00	1046439.7	306687.0	1353126.7	7048.00
332.00	982503.6	271726.3	1254230.0	6642.69
331.00	919690.5	238369.8	1158060.2	6243.87
330.00	858562.1	207419.9	1065982.0	5854.76
329.00	799596.8	179514.7	979111.5	5477.92
328.00	741725.8	153148.9	894874.7	5107.43
327.00	686068.6	129896.9	815965.5	4750.08
326.00	632114.5	108671.3	740785.7	4402.81
325.00	579295.7	88796.7	668092.3	4062.25
324.00	529208.0	71945.0	601153.0	3737.43
323.00	480691.6	56712.2	537403.8	3421.42
322.00	433761.3	43076.5	476837.8	3114.23
321.00	388985.6	31512.8	420498.4	2818.79
320.00	346431.5	21949.0	368380.5	2535.11
319.00	305497.5	13795.7	319293.2	2259.81
318.00	266669.1	7526.5	274195.6	1996.16
317.00	229873.5	3331.8	233205.3	1746.34
316.00	195710.2	1289.9	197000.1	1529.07
315.00	163883.6	334.2	164217.8	1338.69
314.00	134832.2	24.2	134856.4	1171.85
313.00	109417.9	0.0	109417.9	1021.74
312.00	86792.1	0.0	86792.1	877.65
311.00	66431.0	0.0	66431.0	737.45
310.00	48864.7	0.0	48864.7	601.88
309.00	34102.1	0.0	34102.1	473.42
308.00	22054.6	0.0	22054.6	353.84
307.00	12269.0	0.0	12269.0	241.55
306.00	5250.4	0.0	5250.4	138.40
305.00	979.2	0.0	979.2	47.14
304.00	235.2	0.0	235.2	9.95
303.00	7.9	0.0	7.9	0.79
302.60	1.2	0.0	1.2	0.19

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
207.20	1.79	305.76	318.88	2.12	306.12	491.11	2.50	306.57
756.17	2.96	307.12	1165.21	3.49	307.82	1794.91	4.12	308.69
2763.68	5.05	309.57	4257.20	5.84	310.93	6555.34	6.69	312.71
10096.73	7.93	314.64	15548.75	8.57	317.27	23944.76	8.78	320.68
36876.50	9.05	325.03	56790.10	9.10	330.99	87458.42	8.54	340.42

CSM NO. 15 OVER EHI. ANSWER BASED ON VERTICAL WALLS

DISTANCES

SECTION CHANNEL VALLEY CHANNEL VALLEY AREA, SQ MI DRAINAGE AREA, SQ MI 'N' VALUE BY SEGMENTS NO. 1 NO. 2 NO. 3 NO. 4 NO. 5 NO. 6  
 E20 1175. 1175. 1750. 1750. 128.27 1750. 0.075 0.075 0.050 0.075

ELEVATION		CHANNEL		VALLEY		TOTAL		END AREA	
DOWNSTREAM	UPSTREAM	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	SQ. FT.	SQ. FT.
337.00	678250.3	678250.3	207437.6	885687.8	4738.82				
336.00	638679.2	638679.2	184923.1	823602.3	4470.97				
335.00	599382.8	599382.8	162879.4	762262.2	4205.13				
334.00	561687.3	561687.3	143376.6	705064.0	3950.96				
333.00	524507.2	524507.2	124634.4	649141.6	3700.47				
332.00	488529.8	488529.8	107666.7	596196.6	3458.54				
331.00	453711.6	453711.6	92284.5	545996.2	3224.68				
330.00	419560.0	419560.0	77796.5	497356.6	2995.43				
329.00	386935.8	386935.8	65240.9	452176.7	2776.54				
328.00	355182.9	355182.9	53699.0	408881.9	2563.42				
327.00	324301.1	324301.1	43170.8	367472.0	2356.06				
326.00	294930.2	294930.2	34256.5	329186.8	2158.42				
325.00	265533.4	265533.4	26311.1	292844.5	1966.91				
324.00	239108.7	239108.7	19304.4	258413.1	1781.44				
323.00	213178.9	213178.9	13641.6	226820.5	1605.05				
322.00	188450.2	188450.2	9045.7	197495.9	1436.06				
321.00	164730.9	164730.9	5306.9	170037.8	1273.85				
320.00	142323.5	142323.5	2608.6	144932.2	1121.14				
319.00	121336.6	121336.6	880.7	122217.4	970.61				
318.00	102173.2	102173.2	177.5	102350.8	851.11				
317.00	85409.3	85409.3	0.3	85409.6	748.71				
316.00	70273.9	70273.9	0.0	70273.9	657.74				
315.00	56463.1	56463.1	0.0	56463.1	569.28				
314.00	43945.7	43945.7	0.0	43945.7	483.12				
313.00	32763.7	32763.7	0.0	32763.7	399.24				
312.00	22901.7	22901.7	0.0	22901.7	317.55				
311.00	14521.5	14521.5	0.0	14521.5	238.17				
310.00	8288.1	8288.1	0.0	8288.1	162.97				
309.00	4211.4	4211.4	0.0	4211.4	99.65				
308.00	1706.8	1706.8	0.0	1706.8	50.54				
307.00	524.6	524.6	0.0	524.6	19.91				
306.00	97.6	97.6	0.0	97.6	4.71				
305.00	6.0	6.0	0.0	6.0	0.53				
304.50	0.4	0.4	0.0	0.4	0.08				

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
207.14	2.12	308.96	318.79	2.45	309.50	490.96	2.85	310.13
755.95	3.33	310.85	1164.87	3.97	311.70	1794.38	4.70	312.78
2762.86	5.66	314.06	4255.94	6.75	315.69	6553.40	7.99	317.75
10093.74	8.96	320.03	15544.15	9.93	322.77	23937.67	10.98	326.11
36865.58	12.10	330.23	56773.29	13.00	335.60	87432.54	12.08	346.07

CSM NO. 15 OVER EHI. ANSWER BASED ON VERTICAL WALLS

SECTION E21  
 DISTANCES  
 DOWNSTREAM CHANNEL VALLEY 1750.  
 UPSTREAM CHANNEL VALLEY 1550.  
 DRAINAGE AREA, SQ MI 128.03  
 'N' VALUE BY SEGMENTS  
 NO. 1 NO. 2 NO. 3 NO. 4 NO. 5 NO. 6  
 0.075 0.050 0.075 0.075 0.075 0.075

ELEVATION		CHANNEL		VALLEY		TOTAL		END AREA	
								SQ. FT.	
341.00	861252.8	351444.3	1212697.2	6605.36					
340.00	813507.8	315159.5	1128667.5	6230.63					
339.00	765985.7	279377.6	1045363.2	5858.04					
338.00	720382.8	247732.4	968115.2	5503.66					
337.00	675517.7	217572.1	893089.7	5156.14					
336.00	631759.5	189639.2	821398.7	4818.89					
335.00	589508.3	164534.1	754042.5	4495.36					
334.00	548019.5	140806.5	688825.8	4178.67					
333.00	508073.0	119761.6	627834.6	3875.70					
332.00	469236.3	100503.1	569739.5	3582.37					
331.00	431493.3	82961.0	514454.4	3298.46					
330.00	395165.1	67521.1	462686.3	3026.55					
329.00	360287.0	54065.9	414352.8	2766.63					
328.00	326516.0	42039.9	368555.9	2515.71					
327.00	293862.0	31413.9	325275.8	2273.79					
326.00	262984.7	22908.2	285893.0	2045.95					
325.00	233457.3	15921.4	249378.8	1829.64					
324.00	205310.0	10305.1	215615.1	1625.03					
323.00	178575.5	5955.5	184531.0	1432.19					
322.00	153257.9	2774.1	156032.0	1250.88					
321.00	129651.9	877.3	130529.3	1084.32					
320.00	107926.5	125.8	108052.3	939.39					
319.00	88463.7	0.8	88464.5	820.18					
318.00	70674.6	0.0	70674.6	711.26					
317.00	54457.8	0.0	54457.8	603.26					
316.00	39811.5	0.0	39811.5	495.92					
315.00	26874.9	0.0	26874.9	389.23					
314.00	16131.0	0.0	16131.0	283.30					
313.00	7665.5	0.0	7665.5	178.36					
312.00	2253.1	0.0	2253.1	79.78					
311.00	222.4	0.0	222.4	13.33					
310.20	5.5	0.0	5.5	0.87					

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
206.93	1.57	312.54	318.46	1.81	312.97	490.46	2.12	313.50
755.18	2.50	314.17	1163.68	2.96	315.02	1792.55	3.49	316.16
2760.05	4.13	317.59	4251.61	4.88	319.43	6546.74	5.44	321.72
10083.48	6.00	324.28	15528.35	6.60	327.32	23913.33	7.26	330.98
36828.10	7.95	335.42	56715.57	8.61	340.94	87343.64	7.88	352.17

GSM NO. 15 OVER EHI. ANSWER BASED ON VERTICAL WALLS

-----DISTANCES-----

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E22	1550.	1550.	1550.	1550.	127.43	0.075	0.050	0.075			

-----KD VALUES-----

ELEVATION	CHANNEL		VALLEY		TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	CHANNEL	VALLEY		
341.00	756195.1	398938.3	1155133.5	6772.08		
340.00	713329.5	354654.0	1067983.5	6339.70		
339.00	671494.8	313626.0	985120.7	5922.58		
338.00	630347.7	274769.1	905116.7	5515.63		
337.00	590852.1	240753.3	831605.3	5132.60		
336.00	552031.2	208192.0	760223.1	4758.78		
335.00	514222.5	177812.4	692034.8	4398.77		
334.00	477793.9	150483.0	628276.8	4054.97		
333.00	442041.3	124673.4	566714.7	3718.97		
332.00	407613.1	101894.0	509507.1	3398.02		
331.00	374450.5	81826.3	456276.9	3091.12		
330.00	342252.8	63741.0	405993.8	2794.74		
329.00	311027.8	47612.5	358640.3	2508.90		
328.00	281467.2	34635.3	316102.5	2240.62		
327.00	252859.5	23312.4	276171.9	1981.87		
326.00	225490.0	14421.2	239911.3	1737.57		
325.00	199335.4	8053.0	207388.5	1511.34		
324.00	174422.3	3803.0	178225.3	1308.92		
323.00	151111.0	1573.7	152684.7	1140.78		
322.00	129013.6	416.8	129430.5	997.80		
321.00	108560.1	76.2	108636.4	883.10		
320.00	90007.2	7.3	90014.5	782.08		
319.00	73459.7	0.0	73459.7	685.88		
318.00	58415.1	0.0	58415.1	591.74		
317.00	44985.4	0.0	44985.4	499.70		
316.00	32960.0	0.0	32960.0	409.42		
315.00	22323.2	0.0	22323.2	320.79		
314.00	13558.3	0.0	13558.3	234.22		
313.00	6802.6	0.0	6802.6	150.56		
312.00	2226.3	0.0	2226.3	74.02		
311.00	62.5	0.0	62.5	7.67		
310.80	62.4	0.0	62.4	7.67		

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	FLEV.
206.40	1.13	313.38	317.65	1.39	313.93	489.21	1.70	314.61
753.26	2.09	315.44	1160.71	2.56	316.48	1787.98	3.11	317.81
2753.01	3.77	319.45	4240.77	4.53	321.48	6530.04	5.03	323.92
10057.77	5.29	326.67	15488.75	5.62	329.86	23852.35	6.06	333.64
36734.18	6.56	338.20	56570.94	6.76	344.30	87120.90	6.19	355.99

CSM NO. 14 AND UP OVER EHI. ANSWERS BASED ON VERTICAL WALLS

-----DISTANCES-----											
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ. MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E23	1550.	1550.	1470.	1470.	127.17	0.075	0.050	0.075			

-----KD VALUES-----				END AREA
ELEVATION	CHANNEL	VALLEY	TOTAL	SQ. FT.
348.00	620035.6	827972.1	1448007.7	8902.57
347.00	586766.8	755674.3	1342441.2	8405.33
346.00	554272.2	687129.3	1241401.5	7919.67
345.00	522292.1	620991.2	1143283.5	7441.59
344.00	491084.0	558463.7	1049547.7	6974.88
343.00	460864.5	500366.1	961230.6	6522.42
342.00	431144.5	444460.5	875605.0	6077.10
341.00	402433.8	392893.5	795327.3	5646.05
340.00	374497.4	344516.3	719013.7	5225.69
339.00	347077.1	298266.0	645343.1	4812.46
338.00	320894.1	256915.5	577809.7	4415.95
337.00	295420.4	218272.3	513692.7	4028.79
336.00	270661.7	182261.3	452923.0	3650.91
335.00	246871.7	149560.6	396432.4	3285.19
334.00	224075.8	121816.2	345892.1	2932.89
333.00	202002.2	97987.3	299989.6	2596.52
332.00	180864.4	78925.1	259789.5	2285.54
331.00	160625.8	62870.7	223496.5	2000.59
330.00	141543.2	50277.7	191820.9	1748.20
329.00	123414.5	42960.5	166375.0	1535.76
328.00	106201.3	34745.1	140946.5	1341.71
327.00	90075.7	25893.0	115968.8	1158.68
326.00	75032.7	18410.6	93443.4	984.71
325.00	61113.1	12246.5	73359.6	819.79
324.00	48290.7	7783.0	56073.7	665.52
323.00	36688.4	4827.0	41515.4	530.16
322.00	26538.5	2385.4	28924.0	407.05
321.00	17664.6	751.8	18416.5	290.57
320.00	10346.0	110.6	10456.7	190.66
319.00	4898.4	0.1	4898.5	114.44
318.00	1593.8	0.0	1593.8	53.37
317.00	136.7	0.0	136.7	10.03
316.60	32.3	0.0	32.3	3.99

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
206.18	2.21	318.67	317.30	2.55	319.13	488.67	2.93	319.71
752.42	3.30	320.40	1159.43	3.62	321.26	1786.00	3.98	322.34
2749.96	4.38	323.74	4236.07	4.69	325.51	6522.80	5.09	327.68
10046.61	5.42	330.41	15471.57	5.62	333.48	23825.89	5.90	337.02
36693.42	6.33	341.35	56508.18	6.70	347.05	87024.25	6.02	358.95

CSM NO. 15 OVER EHI. ANSWER BASED ON VERTICAL WALLS



PAGE 1

// JOB

LOG DRIVE	CART SPEC	CART AVAIL	PHY DRIVE
0000	0005	0005	0000

V2 M11 ACTUAL 8K CONFIG 8K

// XEQ WSPIN

ADP-2037 01-07-76 N. C.

DURHAM COUNTY

HUD-15

NEUSE RIVER PARTIAL

WSPIN DURHAM COUNTY FLOOD INSURANCE STUDY END RIVER 12-15-75

A SECTION E1

BANKS ARE AT 520. 606.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	207	625.	313.	86.	19.	418.	282.8 ✓	2915.	5.24
NO KD NEEDED IN RIGHT FLOODPLAIN									
0.5	410.	606.	110.		0.	196.	283.3 ✓	2434.	6.27
NO KD NEEDED IN RIGHT FLOODPLAIN									
1.0	456.	606.	64.		0.	150.	283.8 ✓	2269.	6.73
NO KD NEEDED IN RIGHT FLOODPLAIN									
2.0	499.	606.	21.		0.	107.	284.8 ✓	2059.	7.41

B SECTION E2

BANKS ARE AT 300. 420.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	86.	437.	214.	120.	17.	351.	283.9	3003.	5.07
NO KD NEEDED IN RIGHT FLOODPLAIN									
0.5	228.	420.	72.		0.	192.	284.4	2625.	5.80
NO KD NEEDED IN RIGHT FLOODPLAIN									
1.0	270.	420.	30.		0.	150.	284.9	2453.	6.21
CHANNEL WILL CARRY FLOW W/O FRICTION BUT MONT WITH									
2.0	300.	420.	0.		0.	120.	285.9	2358.	6.46

C SECTION E3

BANKS ARE AT 538. 648.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	98.	1687.	440.	110.	1039.	1588.	285.6	5578.	2.72
0.5	283.	1494.	255.		846.	1211.	286.1	5032.	3.02
1.0	353.	1304.	185.		656.	951.	286.6	4594.	3.31
2.0	446.	905.	92.		257.	459.	287.6	3649.	4.16

WSPIN DURHAM COUNTY FLOOD INSURANCE STUDY ENO RIVER 12-15-75

D SECTION E4

BANKS ARE AT 600. 690.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	489.	805.	111.	90.	115.	316.	286.7	2776.	5.45
0.5	579.	745.	21.		55.	166.	287.2	2421.	6.25
1.0	594.	729.	6.		39.	135.	287.7	2281.	6.63
NO RD NEEDED IN LEFT FLOODPLAIN									
2.0	600.	709.	0.		19.	109.	288.7	2134.	7.09

E SECTION E5

BANKS ARE AT 113. 208.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	56.	296.	57.	95.	88.	240.	288.2	2262.	6.67
0.5	94.	235.	19.		27.	141.	288.7	2026.	7.45
1.0	102.	223.	11.		15.	121.	289.2	1934.	7.80
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
2.0	113.	208.	0.		0.	95.	290.2	1770.	8.52

F SECTION E6

BANKS ARE AT 67. 181.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	32.	343.	35.	114.	162.	311.	289.0	3027.	4.98
0.5	63.	215.	4.		34.	152.	289.5	2679.	5.63
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
1.0	67.	181.	0.		0.	114.	290.0	2489.	6.06
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
2.0	67.	181.	0.		0.	114.	291.0	2603.	5.80

WSPIN DURHAM COUNTY FLOOD INSURANCE STUDY ENO RIVER 12-15-75

G SECTION E7

BANKS ARE AT 223. 330.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	46.	401.	177.	107.	71.	355.	290.0	2789.	5.41
0.5	179.	361.	44.		31.	182.	290.5	2386.	6.32
1.0	212.	353.	11.		23.	141.	291.0	2210.	6.82
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
2.0	223.	330.	0.		0.	107.	292.0	1993.	7.57

F SECTION E9

BANKS ARE AT 330. 430.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	134.	488.	196.	100.	58.	354.	290.6	2628.	5.74
0.5	241.	457.	89.		27.	216.	291.1	2307.	6.54
1.0	288.	446.	42.		16.	158.	291.6	2089.	7.22
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
2.0	330.	430.	0.		0.	100.	292.6	1808.	8.34

J SECTION E10

BANKS ARE AT 100. 240.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	43.	266.	57.	140.	26.	224.	292.4	2744.	5.36
NO KD NEEDED IN RIGHT FLOODPLAIN									
0.5	84.	240.	16.		0.	156.	292.9	2471.	5.95
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
1.0	100.	240.	0.		0.	140.	293.4	2388.	6.16
CHANNEL WILL CARRY THE FLOW									
2.0	100.	240.	0.		0.	140.	294.4	2528.	5.82

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WSPIN DURHAM COUNTY FLOOD INSURANCE STUDY END RIVER 12-15-75

K SECTION E11

BANKS ARE AT 315. 499.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	74.	505.	291.	134.	6.	431.	292.8	3925.	3.75
NO KD NEEDED IN RIGHT FLOODPLAIN									
0.5	194.	499.	171.		0.	305.	293.3	3507.	4.19
NO KD NEEDED IN RIGHT FLOODPLAIN									
1.0	268.	499.	97.		0.	231.	293.8	3188.	4.61
NO KD NEEDED IN RIGHT FLOODPLAIN									
2.0	348.	499.	17.		0.	151.	294.8	2731.	5.39

L SECTION E12

BANKS ARE AT 157. 800.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	130.	937.	27.	643.	137.	806.	294.0	4272.	3.44
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
0.5	157.	800.	0.		0.	643.	294.5	3900.	3.77
CHANNEL WILL CARRY THE FLOW									
1.0	157.	800.	0.		0.	643.	295.0	4221.	3.48
CHANNEL WILL CARRY THE FLOW									
2.0	157.	800.	0.		0.	643.	296.0	4864.	3.02

M SECTION E13

BANKS ARE AT 200. 285.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	87.	296.	111.	85.	11.	207.	300.0	1452.	9.91
NO KD NEEDED IN RIGHT FLOODPLAIN									
0.5	154.	285.	46.		0.	131.	300.5	1256.	11.46
NO KD NEEDED IN RIGHT FLOODPLAIN									
1.0	185.	285.	15.		0.	100.	301.0	1131.	12.72
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
2.0	200.	265.	0.		0.	85.	302.0	1092.	13.18

WSPIN DURHAM COUNTY FLOOD INSURANCE STUDY END RIVER 12-15-75

N SECTION E14

BANKS ARE AT 85. 204.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	58.	292.	27.	119.	88.	234.	303.9	2156.	6.67
NO KD NEEDED IN LEFT FLOODPLAIN									
0.5	85.	208.	0.		4.	123.	304.4	1846.	7.79
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
1.0	85.	204.	0.		0.	119.	304.9	1878.	7.66
CHANNEL WILL CARRY THE FLOW									
2.0	85.	204.	0.		0.	119.	305.9	1997.	7.20

O SECTION E15

BANKS ARE AT 280. 383.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	171.	394.	109.	103.	11.	223.	306.6	2228.	6.45
NO KD NEEDED IN RIGHT FLOODPLAIN									
0.5	255.	383.	25.		0.	128.	307.1	1941.	7.41
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
1.0	280.	383.	0.		0.	103.	307.6	1769.	8.13
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
2.0	280.	383.	0.		0.	103.	308.6	1872.	7.68

P SECTION E16

BANKS ARE AT 165. 300.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	110.	319.	55.	135.	19.	210.	312.5	1785.	8.04
NO KD NEEDED IN RIGHT FLOODPLAIN									
0.5	162.	300.	3.		0.	138.	313.0	1550.	9.26
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
1.0	165.	300.	0.		0.	135.	313.5	1594.	9.01
CHANNEL WILL CARRY THE FLOW									
2.0	165.	300.	0.		0.	135.	314.5	1729.	8.31

WSPIN DURHAM COUNTY FLOOD INSURANCE STUDY END RIVER 12-15-75

R SECTION E18

BANKS ARE AT 138. 270.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	74.	281.	64.	132.	11.	207.	313.5	1715.	8.37
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
0.5	138.	270.	0.		0.	132.	314.0	1467.	9.79
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
1.0	138.	270.	0.		0.	132.	314.5	1533.	9.37
CHANNEL WILL CARRY THE FLOW									
2.0	138.	270.	0.		0.	132.	315.5	1665.	8.62

S SECTION E19

BANKS ARE AT 60. 210.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	55.	280.	5.	150.	70.	226.	316.7	1677.	8.53
CHANNEL WILL CARRY THE FLOW									
0.5	60.	210.	0.		0.	150.	317.2	1649.	8.68
CHANNEL WILL CARRY THE FLOW									
1.0	60.	210.	0.		0.	150.	317.7	1724.	8.30
CHANNEL WILL CARRY THE FLOW									
2.0	60.	210.	0.		0.	150.	318.7	1874.	7.64

T SECTION E20

BANKS ARE AT 163. 257.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	99.	267.	64.	94.	10.	168.	322.2	1467.	9.77
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
0.5	163.	257.	0.		0.	94.	322.7	1283.	11.18
CHANNEL WILL CARRY THE FLOW									
1.0	163.	257.	0.		0.	94.	323.2	1330.	10.78
CHANNEL WILL CARRY THE FLOW									
2.0	163.	257.	0.		0.	94.	324.2	1424.	10.07

WSPIN DURHAM COUNTY FLOOD INSURANCE STUDY END RIVER 12-15-75

U SECTION E21

BANKS ARE AT 123. 233.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	72.	303.	51.	110.	70.	231.	326.7	2204.	6.48
0.5	108.	249.	15.		16.	141.	327.2	1950.	7.33
CHANNEL WILL CARRY FLOW W/D FRICTION BUT WONT WITH									
1.0	123.	233.	0.		0.	110.	327.7	1776.4	8.04
CHANNEL WILL CARRY THE FLOW									
2.0	123.	233.	0.		0.	110.	328.7	1886.	7.57

V SECTION E22

BANKS ARE AT 300. 397.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	154.	433.	146.	97.	36.	280.	329.2	2565.	5.55
0.5	233.	401.	67.		4.	168.	329.7	2247.	6.34
NO KD NEEDED IN RIGHT FLOODPLAIN									
1.0	267.	397.	33.		0.	130.	330.2	2049.	6.95
CHANNEL WILL CARRY FLOW W/D FRICTION BUT WONT WITH									
2.0	300.	397.	0.		0.	97.	331.2	1867.	7.63

W SECTION E23

BANKS ARE AT 325. 395.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	129.	446.	196.	70.	51.	317.	332.8	2528.	5.63
0.5	270.	419.	55.		24.	149.	333.3	2046.	6.95
1.0	280.	412.	45.		17.	132.	333.8	1950.	7.30
2.0	293.	403.	32.		8.	110.	334.8	1806.	7.88

IHC90J1 EXECUTION TERMINATING DUE TO ERROR COUNT FOR ERROR NUMBER 217

IHC2171 FIDCS - END OF DATA SET ON UNIT 5

TRACEBACK ROUTINE CALLED FROM ISN REG. 14 REG. 15 REG. 0 REG. 1

IBCOM 00187B00 00180768 00000033 00187810

HUD15 000279E0 01186B90 FD000008 00194FF8

ENTRY POINT= 01186B90



SUMMARY OF ERRORS FOR THIS JOB	ERROR NUMBER	NUMBER OF ERRORS
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	217	1
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NOCC	NOCC	NOCC	NOCC	END	JOB 152	6.01.01 AM	9 FEB 76	ORG RJ007	SCSF2171	NC-HUD15	NOCC NDC
NOCC	NOCC	NOCC	NOCC	END	JOB 152	6.01.01 AM	9 FEB 76	ORG RJ007	SCSF2171	NC-HUD15	NOCC NOC
NOCC	NOCC	NOCC	NOCC	END	JOB 152	6.01.01 AM	9 FEB 76	ORG RJ007	SCSF2171	NC-HUD15	NOCC NDC
NOCC	NOCC	NOCC	NOCC	END	JOB 152	6.01.01 AM	9 FEB 76	ORG RJ007	SCSF2171	NC-HUD15	NOCC NDC
NOCC	NOCC	NOCC	NOCC	END	JOB 152	6.01.01 AM	9 FEB 76	ORG RJ007	SCSF2171	NC-HUD15	NOCC NOC

Jpb 511

SCS 2171

OK

WSPIN DURHAM COUNTY FLOOD INSURANCE STUDY ENO RIVER 12-15-75

X SECTION E24

BANKS ARE AT 203. 340.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	121.	367.	82.	137.	27.	246.	336.8	2099.	6.75
NO KD NEEDED IN RIGHT FLOODPLAIN									
0.5	186.	340.	17.		0.	154.	337.3	1822.	7.78
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
1.0	203.	340.	0.		0.	137.	337.8	1768.	8.02
CHANNEL WILL CARRY THE FLOW									
2.0	203.	340.	0.		0.	137.	338.8	1905.	7.44

Y

SECTION E25

BANKS ARE AT 194. 300.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	129.	763.	65.	106.	463.	634.	339.8	3140.	4.47
0.5	178.	484.	16.		184.	306.	340.3	2534.	5.54
1.0	190.	399.	4.		99.	209.	340.8	2234.	6.28
NO KL NEEDED IN LEFT FLOODPLAIN									
2.0	194.	319.	0.		19.	125.	341.8	1845.	7.61

EZ

SECTION E26

BANKS ARE AT 102. 194.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	62.	351.	40.	92.	157.	289.	344.0	2266.	6.14
0.5	93.	252.	9.		58.	159.	344.5	1917.	7.26
NO KD NEEDED IN LEFT FLOODPLAIN									
1.0	102.	231.	0.		37.	129.	345.0	1764.	7.89
NO KD NEEDED IN LEFT FLOODPLAIN									
2.0	102.	196.	0.		2.	94.	346.0	1516.	9.17

WSPIN DURHAM COUNTY FLOOD INSURANCE STUDY END RIVER 12-15-75

AA SECTION E27

BANKS ARE AT 270. 386.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	124.	429.	146.	116.	43.	304.	346.6	2200.	6.32
0.5	223.	388.	47.		2.	165.	347.1	1853.	7.50
NO KD NEEDED IN RGHT FLOODPLAIN									
1.0	265.	386.	5.		0.	121.	347.6	1652.	8.41
CHANNEL WILL CARRY THE FLOW									
2.0	270.	386.	0.		0.	116.	348.6	1734.	8.02

AB SECTION E28

BANKS ARE AT 129. 277.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	82.	331.	47.	148.	54.	249.	349.9	2183.	6.37
0.5	118.	288.	11.		11.	170.	350.4	1936.	7.18
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
1.0	129.	277.	0.		0.	148.	350.9	1839.	7.56
CHANNEL WILL CARRY THE FLOW									
2.0	129.	277.	0.		0.	148.	351.9	1987.	6.99

HAC SECTION E29

BANKS ARE AT 272. 339.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	184.	352.	88.	67.	13.	168.	354.9	1708.	8.05
NO KD NEEDED IN RGHT FLOODPLAIN									
0.5	239.	339.	33.		0.	100.	355.4	1493.	9.22
NO KD NEEDED IN RGHT FLOODPLAIN									
1.0	256.	339.	16.		0.	83.	355.9	1395.	9.86
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
2.0	272.	339.	0.		0.	67.	356.9	1293.	10.64

WSPIN DURHAM COUNTY FLOOD INSURANCE STUDY ENO RIVER 12-15-75

I AD

SECTION E30

BANKS ARE AT 50. 138.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	31.	307.	19.	88.	169.	275.	358.1	2432.	5.65
NO KD NEEDED IN LEFT FLOODPLAIN									
0.5	50.	202.	0.		64.	152.	358.6	2054.	6.69
NO KD NEEDED IN LEFT FLOODPLAIN									
1.0	50.	178.	0.		40.	128.	359.1	1923.	7.15
NO KD NEEDED IN LEFT FLOODPLAIN									
2.0	50.	145.	0.		7.	95.	360.1	1683.	8.16

J AF

SECTION E32

BANKS ARE AT 59. 144.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	40.	355.	19.	85.	211.	315.	358.5	2814.	4.88
NO KD NEEDED IN LEFT FLOODPLAIN									
0.5	59.	222.	0.		78.	163.	359.0	2354.	5.83
NO KD NEEDED IN LEFT FLOODPLAIN									
1.0	59.	199.	0.		55.	140.	359.5	2220.	6.19
NO KD NEEDED IN LEFT FLOODPLAIN									
2.0	59.	165.	0.		21.	106.	360.5	1980.	6.94

AG

SECTION E33

BANKS ARE AT 90. 200.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	60.	310.	30.	110.	110.	250.	360.2	2462.	5.57
0.5	86.	253.	4.		53.	167.	360.7	2186.	6.27
NO KD NEEDED IN LEFT FLOODPLAIN									
1.0	90.	231.	0.		31.	141.	361.2	2028.	6.76
CHANNEL WILL CARRY FLOW W/O FRICTION BUT WONT WITH									
2.0	90.	200.	0.		0.	110.	362.2	1780.	7.70

IHC900I EXECUTION TERMINATING DUE TO ERROR COUNT FOR ERROR NUMBER 217

IHC217I FIOCS - END OF DATA SET ON UNIT 5

TRACEBACK ROUTINE CALLED FROM ISN REG. 14 REG. 15 REG. 0 REG. 1

IBCOM 00101300 001D6F68 00000033 001D1010

HUD 00027050 011D0390 00000008 001D6758

SUMMARY OF ERRORS FOR THIS JOB

ERROR NUMBER

NUMBER OF ERRORS

217

1

NOCC	NOCC	NOCC	NOCC	END	JOB 511	6.11.44 AM 10 FEB 76	ORG RJ007	SCSF2171	NC-HUD15	NOCC	NOC
NOCC	NOCC	NOCC	NOCC	END	JOB 511	6.11.44 AM 10 FEB 76	ORG RJ007	SCSF2171	NC-HUD15	NOCC	NOC
NOCC	NOCC	NOCC	NOCC	END	JOB 511	6.11.44 AM 10 FEB 76	ORG RJ007	SCSF2171	NC-HUD15	NOCC	NOC
NOCC	NOCC	NOCC	NOCC	END	JOB 511	6.11.44 AM 10 FEB 76	ORG RJ007	SCSF2171	NC-HUD15	NOCC	NOC
NOCC	NOCC	NOCC	NOCC	END	JOB 511	6.11.44 AM 10 FEB 76	ORG RJ007	SCSF2171	NC-HUD15	NOCC	NOC

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	N VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E1	1.	1.	1250.	1250.	142.23	0.050	0.045	0.050			

ELEVATION	KD VALUES			TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	VALLEY		
291.00	657039.7	603584.7	1260624.5	7180.76	
290.00	617753.5	513909.2	1131662.7	6561.58	
289.00	579783.1	435214.4	1014997.5	5981.23	
288.00	542458.0	361232.0	903690.0	5419.16	
287.00	506398.5	295120.1	801518.7	4891.43	
286.00	471309.4	235513.3	706822.7	4386.16	
285.00	436867.2	180243.5	617110.7	3895.88	
284.00	404081.3	135960.2	540041.6	3442.90	
283.00	371932.0	96297.5	468229.5	3005.60	
282.00	340737.5	63566.6	404304.1	2591.82	
281.00	311066.0	40361.8	351427.7	2226.57	
280.00	282332.5	24671.3	307003.8	1905.60	
279.00	254546.0	14772.0	269318.0	1633.40	
278.00	228046.1	7997.7	236043.8	1438.17	
277.00	202776.2	3832.8	206609.0	1272.92	
276.00	178691.7	1588.6	180280.4	1135.76	
275.00	155796.7	532.0	156328.7	1020.68	
274.00	134189.0	81.3	134270.3	920.66	
273.00	114106.6	2.4	114109.0	830.75	
272.00	96356.9	0.0	96356.9	744.90	
271.00	80260.0	0.0	80260.0	660.43	
270.00	65316.9	0.0	65316.9	577.27	
269.00	51582.3	0.0	51582.3	495.41	
268.00	39207.3	0.0	39207.3	414.93	
267.00	28149.6	0.0	28149.6	335.71	
266.00	18514.4	0.0	18514.4	257.73	
265.00	10652.3	0.0	10652.3	181.37	
264.00	5302.5	0.0	5302.5	111.60	
263.00	1934.2	0.0	1934.2	55.40	
262.00	319.2	0.0	319.2	14.90	
261.00	4.0	0.0	4.0	0.57	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
142.23	1.48	263.73	426.69	2.07	265.32	711.15	2.51	266.32
1422.30	3.23	268.31	2133.45	3.73	269.93	3555.75	4.45	272.61
4978.04	5.01	274.72	7111.50	5.40	277.27	10667.25	5.29	280.38
14223.00	5.17	282.38	21334.50	5.28	285.29	28446.00	5.48	287.55
35557.50	5.67	289.50	42669.00	5.84	291.20			



-----DISTANCES-----											
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E2	1250.	1250.	2000.	2000.	141.77	0.050	0.045	0.050			

ELEVATION	-----KD VALUES-----				TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	CHANNEL	VALLEY		
292.00	844598.7	421159.6			1265758.5	6297.44
291.00	790836.0	360688.8			1151524.7	5843.84
290.00	738326.8	304555.9			1042882.7	5402.24
289.00	687452.6	253834.5			941287.1	4975.99
288.00	637518.5	206185.0			843703.3	4558.52
287.00	589736.8	165306.2			755043.1	4160.78
286.00	543181.7	128110.1			671291.8	3774.01
285.00	497853.3	94596.5			592449.8	3398.20
284.00	454649.6	67241.9			521891.5	3040.90
283.00	412814.5	44134.3			456948.8	2695.74
282.00	372344.3	25408.7			397753.0	2365.01
281.00	333970.5	14058.8			348029.3	2073.39
280.00	297278.3	6522.9			303801.2	1818.49
279.00	261998.0	1834.9			263833.0	1596.69
278.00	228811.2	149.4			228960.6	1420.69
277.00	199951.7	13.5			199965.3	1292.22
276.00	174095.8	0.0			174095.8	1175.02
275.00	149944.5	0.0			149944.5	1061.50
274.00	127282.8	0.0			127282.8	950.59
273.00	106349.2	0.0			106349.2	842.71
272.00	87078.4	0.0			87078.4	737.71
271.00	69494.5	0.0			69494.5	635.60
270.00	53543.9	0.0			53543.9	536.22
269.00	39376.6	0.0			39376.6	439.75
268.00	27123.0	0.0			27123.0	346.27
267.00	16834.4	0.0			16834.4	255.71
266.00	9121.4	0.0			9121.4	159.92
265.00	3944.4	0.0			3944.4	95.69
264.00	1057.2	0.0			1057.2	37.56
263.00	40.5	0.0			40.5	3.34
262.50	3.0	0.0			3.0	0.43

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
141.98	1.39	265.08	425.94	1.93	266.60	709.91	2.30	267.57
1419.82	2.90	269.51	2129.74	3.29	271.10	3549.56	3.84	273.75
4969.39	4.27	275.88	7099.13	4.75	278.43	10648.70	4.81	281.48
14198.27	4.97	283.48	21297.40	5.42	286.41	28396.54	5.85	288.70
35495.67	6.23	290.66	42594.81	6.46	292.63			

CSM NO. 14 OVER EHI. ANSWER WAS EXTRAPOLATED.

-----DISTANCES-----

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E3	2000.	2000.	1330.	1330.	141.04	0.050	0.045	0.050			

-----KD VALUES-----

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
294.00	713796.3	2406507.5	3120303.5	20669.32
293.00	666349.7	2033509.7	2699859.5	18722.60
292.00	620251.1	1694498.2	2314749.5	16812.08
291.00	575051.2	1378146.7	1953197.7	14925.70
290.00	532018.7	1092704.0	1624722.5	13094.75
289.00	489875.6	834339.2	1324215.0	11281.70
288.00	449066.6	616597.6	1065664.2	9495.50
287.00	410086.3	434003.2	844089.6	7836.29
286.00	372004.2	269088.7	641093.0	6217.57
285.00	335686.7	139754.3	475441.0	4633.85
284.00	301570.5	63805.0	365375.6	3253.62
283.00	269749.9	19210.5	288960.4	2180.86
282.00	240547.7	1631.2	242178.9	1493.06
281.00	214330.6	466.0	214796.7	1321.53
280.00	190007.6	0.0	190007.6	1191.40
279.00	167616.5	0.0	167616.5	1090.33
278.00	146559.5	0.0	146559.5	992.19
277.00	126823.7	0.0	126823.7	896.97
276.00	108720.5	0.0	108720.5	805.40
275.00	91804.3	0.0	91804.3	716.51
274.00	76257.6	0.0	76257.6	630.73
273.00	62049.5	0.0	62049.5	547.99
272.00	49181.4	0.0	49181.4	468.29
271.00	37553.2	0.0	37553.2	391.39
270.00	27483.4	0.0	27483.4	317.97
269.00	18762.1	0.0	18762.1	247.46
268.00	11351.3	0.0	11351.3	179.70
267.00	6445.0	0.0	6445.0	119.25
266.00	2934.0	0.0	2934.0	68.46
265.00	780.6	0.0	780.6	27.95
264.00	6.7	0.0	6.7	0.96
263.80	6.7	0.0	6.7	0.96

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
141.58	1.41	266.65	424.76	2.05	268.40	707.94	2.51	269.49
1415.89	3.26	271.56	2123.84	3.76	273.20	3539.73	4.45	275.88
4955.62	4.97	278.04	7079.46	5.60	280.66	10619.20	3.79	283.66
14158.93	2.81	285.25	21238.40	2.36	287.70	28317.87	2.22	289.81
35397.34	2.17	291.70	42476.80	2.13	293.62			

-----DISTANCES-----

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E4	1330.	1330.	1160.	1160.	140.25	0.050	0.045	0.050			

-----KD VALUES-----

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
298.00	798410.3	945423.8	1743834.2	9588.89
297.00	754148.6	810688.2	1564836.7	8777.53
296.00	711256.8	690478.7	1401735.5	7999.16
295.00	669063.6	578192.8	1247256.5	7238.15
294.00	627918.5	477794.6	1105713.0	6503.20
293.00	588116.0	392276.4	980392.3	5811.69
292.00	548992.2	314814.2	863806.3	5145.10
291.00	511240.7	254699.6	765940.3	4534.74
290.00	474542.0	209778.0	684320.0	4026.65
289.00	438545.4	174986.0	613531.5	3586.73
288.00	404233.5	140770.6	545004.1	3219.74
287.00	370888.0	110801.9	481690.0	2879.47
286.00	338517.3	84700.8	423218.1	2563.33
285.00	307467.8	62745.5	370213.3	2272.42
284.00	277775.9	46896.9	324672.8	2013.49
283.00	249071.4	34252.1	283323.5	1783.05
282.00	221647.0	24548.3	246195.3	1587.30
281.00	195454.0	16546.0	212000.0	1407.30
280.00	170846.9	12294.8	183141.6	1248.86
279.00	147970.5	9149.1	157119.6	1112.16
278.00	126672.6	6341.8	133014.4	986.02
277.00	106893.8	3990.5	110884.4	866.68
276.00	88411.6	2281.4	90693.0	753.01
275.00	71295.0	1128.6	72423.6	644.98
274.00	55533.0	417.2	55950.3	542.28
273.00	41302.3	78.3	41380.7	445.22
272.00	28992.6	3.1	28995.7	354.46
271.00	18680.0	0.0	18680.0	258.13
270.00	10456.4	0.0	10456.4	185.25
269.00	4204.4	0.0	4204.4	105.50
268.00	975.7	0.0	975.7	38.17
267.00	27.8	0.0	27.8	2.50
266.60	4.3	0.0	4.3	0.62

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
141.16	1.53	268.82	423.48	2.13	270.16	705.81	2.51	271.14
1411.62	3.13	273.06	2117.43	3.50	274.61	3529.06	3.96	277.20
4940.68	4.27	279.33	7058.12	4.47	281.95	10587.18	4.83	284.70
14116.24	5.31	286.30	21174.36	5.98	288.86	28232.46	6.16	291.07
35290.60	6.11	292.94	42348.73	6.00	294.75			

-----DISTANCES-----

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E5	1160.	1160.	825.	825.	139.59	0.050	0.045	0.050			

-----KD VALUES-----

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
298.00	710202.5	638966.2	1349168.7	7525.67
297.00	665947.3	537477.8	1203425.2	6881.34
296.00	623114.8	446334.5	1069449.5	6256.33
295.00	581013.1	360484.2	941497.2	5641.12
294.00	540412.1	285462.6	825874.7	5045.84
293.00	500962.7	219601.6	720564.3	4466.83
292.00	462281.4	159848.2	622129.6	3898.66
291.00	425443.7	114990.4	540434.2	3371.80
290.00	389664.3	82379.8	472044.1	2893.24
289.00	354952.3	61054.6	416007.0	2483.49
288.00	321687.9	52213.2	373901.1	2220.18
287.00	289911.5	40294.8	330206.3	1989.97
286.00	259218.1	28884.0	288102.1	1776.36
285.00	229929.0	19907.5	249836.5	1579.10
284.00	201991.9	13005.3	214997.2	1397.22
283.00	175797.3	8338.3	184135.6	1234.58
282.00	151045.0	5004.5	156049.5	1086.86
281.00	127680.5	2727.6	130408.2	952.39
280.00	106101.5	1404.5	107506.1	832.78
279.00	86733.8	645.2	87379.1	723.70
278.00	69302.9	225.9	69528.9	620.97
277.00	53396.4	36.3	53432.8	523.10
276.00	39273.4	0.0	39273.4	430.40
275.00	27911.3	0.0	27911.3	342.85
274.00	18171.2	0.0	18171.2	259.16
273.00	10300.6	0.0	10300.6	179.74
272.00	4311.6	0.0	4311.6	104.35
271.00	1251.9	0.0	1251.9	42.51
270.00	46.5	0.0	46.5	4.16
269.60	7.3	0.0	7.3	1.04

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
140.80	1.81	271.62	422.41	2.59	272.78	704.02	3.06	273.63
1408.04	3.79	275.32	2112.07	4.27	276.69	3520.11	4.88	278.98
4928.16	5.24	280.90	7040.23	5.46	283.32	10560.35	5.90	286.06
14080.46	6.49	287.80	21120.70	6.58	290.69	28160.93	6.41	292.86
35201.17	6.48	294.64	42241.40	6.54	296.32			

-----DISTANCES-----										
SECTION E6	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI 139.56	'N' VALUE BY SEGMENTS				
	CHANNEL 825.	VALLEY 825.	CHANNEL 800.	VALLEY 800.		NO. 1 0.050	NO. 2 0.045	NO. 3 0.050	NO. 4	NO. 5
						-----KD VALUES-----				END AREA
		ELEVATION	CHANNEL	VALLEY	TOTAL	SQ. FT.				
		295.00	853038.3	279598.9	1132637.2	6071.36				
		294.00	801147.7	211817.1	1012964.8	5431.82				
		293.00	749895.7	148666.1	898561.8	4801.89				
		292.00	700484.2	111130.1	811614.2	4232.96				
		291.00	651976.2	82199.7	734175.8	3718.74				
		290.00	605241.2	62077.3	667318.5	3362.36				
		289.00	559868.5	44308.5	604177.0	3036.63				
		288.00	515403.7	28108.7	543512.5	2731.33				
		287.00	473269.0	18188.5	491457.5	2475.89				
		286.00	432031.7	10140.8	442172.6	2239.81				
		285.00	392140.7	4902.6	397043.3	2032.80				
		284.00	354402.7	2682.2	357085.0	1870.47				
		283.00	317994.6	1195.3	319190.0	1723.17				
		282.00	283150.5	345.2	283495.7	1588.95				
		281.00	251015.8	86.4	251102.3	1466.90				
		280.00	221910.6	11.5	221922.1	1351.49				
		279.00	195473.2	0.0	195473.2	1240.27				
		278.00	171011.5	0.0	171011.5	1131.93				
		277.00	147955.8	0.0	147955.8	1025.99				
		276.00	126311.7	0.0	126311.7	922.46				
		275.00	106299.0	0.0	106299.0	821.68				
		274.00	87787.7	0.0	87787.7	723.41				
		273.00	70802.5	0.0	70802.5	627.65				
		272.00	55377.5	0.0	55377.5	534.40				
		271.00	42346.2	0.0	42346.2	444.65				
		270.00	31379.0	0.0	31379.0	360.42				
		269.00	21994.1	0.0	21994.1	282.00				
		268.00	14220.4	0.0	14220.4	209.63				
		267.00	8005.9	0.0	8005.9	143.18				
		266.00	3462.4	0.0	3462.4	83.02				
		265.00	706.1	0.0	706.1	29.26				
		264.00	8.5	0.0	8.5	1.21				

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
140.78	0.27	271.68	422.36	0.68	272.91	703.94	0.99	273.82
1407.88	1.59	275.62	2111.82	2.04	277.07	3519.70	2.72	279.47
4927.59	3.23	281.45	7039.41	3.79	283.89	10559.13	4.39	286.71
14078.83	4.84	288.58	21118.26	5.30	291.54	28157.67	5.34	293.73
35197.10	5.27	295.93	42236.52	5.20	298.12			

CSM NO. 13 AND UP OVER EHI. ANSWERS WERE EXTRAPOLATED.

-----DISTANCES-----  
 SECTION DOWNSTREAM CHANNEL VALLEY CHANNEL VALLEY DRAINAGE  
 ET 800. 800. 150. 150. AREA, SQ MI ND. 1 ND. 2 ND. 3 ND. 4 ND. 5 ND. 6  
 139.51 0.090 0.050 0.050

-----KD VALUES-----

ELEVATION	CHANNEL	VALLEY	VALLEY	TOTAL	END AREA
302.00	821393.0	518053.3	1339446.2	7822.21	
301.00	774312.5	467960.8	1242273.2	7336.75	
300.00	728406.1	424157.1	1152563.2	6873.36	
299.00	683280.8	378701.3	1061982.2	6420.66	
298.00	639327.5	330767.0	970094.3	5984.03	
297.00	596877.2	286404.8	883282.0	5557.66	
296.00	555187.0	243991.2	799178.1	5136.41	
295.00	515034.3	205800.7	720835.1	4725.39	
294.00	476063.1	170774.3	646837.5	4322.04	
293.00	437879.5	137857.6	575737.2	3923.80	
292.00	401588.6	109924.8	511513.3	3537.54	
291.00	366385.3	85207.4	451592.7	3158.98	
290.00	332279.3	63789.1	396068.5	2791.82	
289.00	299662.8	46992.8	346655.6	2449.79	
288.00	268579.4	33671.3	302250.7	2137.11	
287.00	238612.8	22940.1	261553.0	1851.28	
286.00	210096.1	15355.9	225452.1	1606.80	
285.00	182977.1	10028.2	193005.3	1410.59	
284.00	157663.1	6299.2	163962.4	1249.15	
283.00	134770.8	3542.5	138313.3	1102.80	
282.00	113968.2	1556.7	115525.0	965.78	
281.00	95049.0	398.1	95447.1	836.96	
280.00	77980.3	24.5	78004.8	723.64	
279.00	62994.6	0.0	62994.6	624.20	
278.00	49640.0	0.0	49640.0	530.75	
277.00	37762.9	0.0	37762.9	441.54	
276.00	27540.1	0.0	27540.1	357.09	
275.00	18688.3	0.0	18688.3	276.54	
274.00	11392.5	0.0	11392.5	200.32	
273.00	5627.5	0.0	5627.5	128.18	
272.00	1881.9	0.0	1881.9	62.39	
271.00	102.5	0.0	102.5	8.87	
270.60	16.6	0.0	16.6	2.63	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
140.76	1.36	272.63	422.28	2.12	273.98	703.80	2.59	274.93
1407.61	3.34	276.76	2111.41	3.83	278.21	3519.03	4.49	280.57
4926.64	4.78	282.48	7038.06	5.08	284.83	10557.09	5.18	287.67
14076.12	5.28	289.62	21114.18	5.56	292.66	28152.24	6.02	294.87
35190.30	6.32	297.01	42228.36	6.52	299.12			

BRIDGE SECTION E8

COEFFICIENTS  
 OPENING=0.899, ORIFICE=0.600, ROADWAY=0.800

DISTANCES

ELEVATION	OPENING END AREA	Q CRIT.	DOWNSTREAM		UPSTREAM	
			CHANNEL 150.0	VALLEY 150.0	CHANNEL 150.0	VALLEY 150.0
			ROADWAY			
			ELEVATION		Q IN CFS	
271.30	0.00	0.00	302.20		0.00	
272.30	35.36	160.50	303.20		826.67	
273.30	98.06	695.00	304.20		3316.59	
274.30	164.62	1474.22	305.20		6819.89	
275.30	235.56	2458.86	306.20		11619.09	
276.30	310.36	3650.68	307.20		17802.26	
277.30	388.14	5024.19	308.20		25457.72	
278.30	471.03	6578.73	309.20		34671.31	
279.30	559.40	8325.88	310.00		43220.25	
280.30	655.42	10281.96				
281.30	759.46	12455.98				
282.30	871.50	14858.42				
283.30	990.13	17537.01				
284.30	1119.03	20499.57				
285.30	1261.46	23758.98				
286.30	1411.53	27346.84				
287.30	1565.22	31205.61				
288.30	1722.53	35323.11				
289.30	1883.46	39692.00				
290.30	2048.01	44307.40				
291.30	2216.18	49165.95				
292.30	2387.97	54265.21				
293.30	2563.39	59603.53				
294.30	2742.42	65179.73				
295.30	2925.07	70993.01				
296.30	3111.34	77042.95				
297.30	3301.22	83329.31				
298.30	3484.23	89982.53				
298.80	3515.60	93702.51				

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTIONS. A RATING CURVE IS NOT DEVELOPED SEPERATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

-----DISTANCES-----

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E9	150.	150.	1080.	1080.	139.47	0.075	0.050	0.075			

-----KD VALUES-----

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
302.00	713270.3	487859.4	1201129.7	8156.06
301.00	670570.3	424785.1	1095355.5	7493.23
300.00	629021.1	369048.7	998069.7	6877.41
299.00	588391.7	318257.8	906649.5	6297.30
298.00	548682.3	272412.3	821094.6	5752.90
297.00	510567.6	234959.3	745527.0	5261.26
296.00	473174.5	200051.1	673225.6	4791.36
295.00	437051.3	168904.0	605955.3	4358.51
294.00	402230.8	137967.8	540198.6	3942.14
293.00	368148.0	107743.8	475891.8	3534.88
292.00	335677.3	83119.3	418796.6	3145.98
291.00	304409.3	62127.2	366536.5	2776.20
290.00	274187.1	44093.6	318280.7	2422.96
289.00	245202.4	29329.7	274532.1	2089.16
288.00	217858.6	18848.0	236706.6	1780.38
287.00	191571.7	11505.3	203077.1	1514.38
286.00	166660.4	7384.5	174045.0	1311.28
285.00	143300.8	4644.8	147945.7	1162.97
284.00	123383.8	2600.4	125984.3	1027.27
283.00	104910.7	1152.7	106063.4	897.59
282.00	87638.5	260.3	87898.9	713.33
281.00	72070.7	16.6	72087.3	668.18
280.00	58442.8	0.0	58442.8	577.30
279.00	46352.0	0.0	46352.0	492.20
278.00	35499.7	0.0	35499.7	410.80
277.00	26066.5	0.0	26066.5	333.66
276.00	18019.6	0.0	18019.6	260.67
275.00	11205.5	0.0	11205.5	191.30
274.00	5900.3	0.0	5900.3	126.19
273.00	2082.1	0.0	2082.1	65.09
272.00	405.2	0.0	405.2	19.16
271.00	9.3	0.0	9.3	1.00
270.70	2.5	0.0	2.5	0.40

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
140.73	1.72	273.28	422.21	2.55	274.61	703.69	3.06	275.56
1407.39	3.88	277.38	2111.09	4.43	278.81	3518.48	5.16	281.14
4925.87	5.48	283.01	7036.97	5.82	285.31	10555.45	5.79	288.13
14073.94	5.72	290.11	21110.91	5.86	293.17	28147.89	6.19	295.42
35184.85	6.33	297.60	42221.83	6.29	299.73			



-----DISTANCES-----						'N' VALUE BY SEGMENTS					
SECTION E10	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI 134.12	NO. 1 0.075	NO. 2 0.050	NO. 3 0.075	NO. 4	NO. 5	NO. 6
	CHANNEL 1080.	VALLEY 1080.	CHANNEL 875.	VALLEY 875.							

-----KD VALUES-----				END AREA
ELEVATION	CHANNEL	VALLEY	TOTAL	SQ. FT.
304.00	1021900.7	189114.3	1211015.0	5726.55
303.00	961593.0	169129.5	1130722.5	5441.01
302.00	901658.8	149950.4	1051609.2	5156.77
301.00	844310.6	132962.0	977272.6	4882.34
300.00	787957.8	116761.1	904719.0	4611.60
299.00	733098.2	101741.8	834840.0	4346.41
298.00	680275.8	88225.1	768500.8	4088.59
297.00	628484.7	75441.2	703925.8	3834.47
296.00	578781.5	64086.2	642867.6	3587.73
295.00	530584.3	53685.2	584269.6	3346.18
294.00	483872.3	44201.9	528074.2	3109.71
293.00	439084.4	35845.2	474929.6	2879.70
292.00	396273.7	28556.8	424830.5	2656.15
291.00	354975.6	22040.6	377016.2	2437.44
290.00	315205.3	16282.4	331487.7	2223.59
289.00	277873.4	11635.8	289509.2	2017.23
288.00	242401.2	7771.2	250172.5	1816.41
287.00	208836.9	4815.4	213652.3	1622.32
286.00	177233.2	2648.5	179881.7	1435.84
285.00	147604.2	1121.9	148726.1	1257.68
284.00	120332.9	375.8	120708.7	1091.13
283.00	95386.5	80.6	95467.1	937.00
282.00	73056.0	13.8	73069.8	793.19
281.00	53454.4	0.2	53454.7	653.42
280.00	36947.9	0.0	36947.9	516.99
279.00	23102.8	0.0	23102.8	384.40
278.00	11918.7	0.0	11918.7	255.72
277.00	4680.1	0.0	4680.1	136.37
276.00	2074.6	0.0	2074.6	56.85
275.00	681.3	0.0	681.3	24.05
274.00	83.0	0.0	83.0	5.13
273.20	2.0	0.0	2.0	0.32

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
137.80	1.90	276.30	413.40	2.10	277.52	689.00	2.44	278.20
1378.01	2.96	279.61	2067.02	3.30	280.80	3445.03	3.76	282.85
4823.05	4.07	284.57	6890.07	4.37	286.76	10335.11	4.88	289.48
13780.15	5.43	291.46	20670.23	6.38	294.55	27560.31	7.23	296.89
34450.39	7.89	299.07	41340.47	8.40	301.14			

-----DISTANCES-----											
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	NO. VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E11	875.	875.	1220.	1220.	134.09	0.075	0.050	0.075			

ELEVATION	-----KD VALUES-----			TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	VALLEY		
303.00	950489.3	561827.8	1512317.2	8724.69	
302.00	892825.3	500666.1	1393491.5	8216.30	
301.00	837661.7	445089.5	1282751.2	7721.37	
300.00	782994.8	390597.5	1173592.2	7229.06	
299.00	730315.3	340445.3	1070760.7	6747.21	
298.00	679071.6	293369.2	972440.7	6272.75	
297.00	628785.1	248343.9	877129.0	5803.20	
296.00	580950.0	208496.5	789446.5	5345.97	
295.00	534121.5	170757.8	704879.2	4893.66	
294.00	488802.6	136182.5	624985.1	4448.73	
293.00	445422.1	105674.4	551096.6	4013.04	
292.00	403456.6	78163.7	481620.3	3583.96	
291.00	362886.7	53624.4	416511.1	3161.34	
290.00	324711.3	34368.4	359079.6	2749.50	
289.00	288019.1	18750.9	306770.1	2345.19	
288.00	252790.6	7483.9	260274.5	1962.38	
287.00	219461.3	3916.7	223378.0	1645.40	
286.00	188401.7	1625.4	190027.1	1455.36	
285.00	160593.5	537.9	161131.4	1282.03	
284.00	135461.5	114.4	135576.0	1129.86	
283.00	112366.3	3.3	112369.6	994.05	
282.00	91203.1	0.0	91203.1	867.21	
281.00	71913.7	0.0	71913.7	743.58	
280.00	54841.4	0.0	54841.4	622.89	
279.00	40541.8	0.0	40541.8	507.03	
278.00	28963.3	0.0	28963.3	399.95	
277.00	19291.7	0.0	19291.7	301.83	
276.00	11983.1	0.0	11983.1	214.69	
275.00	7517.6	0.0	7517.6	143.50	
274.00	3990.2	0.0	3990.2	90.27	
273.00	1486.9	0.0	1486.9	45.85	
272.00	174.8	0.0	174.8	11.33	
271.40	8.8	0.0	8.8	1.39	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
137.78	0.54	276.43	413.35	1.09	277.78	688.92	1.49	278.59
1377.84	2.13	280.18	2066.77	2.58	281.45	3444.62	3.22	283.57
4822.47	3.60	285.33	6889.24	3.79	287.54	10333.86	3.59	290.31
13778.49	3.68	292.36	20667.73	4.00	295.59	27556.98	4.36	298.10
34446.22	4.63	300.40	41335.47	4.85	302.57			

-----DISTANCES-----											
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE	'N' VALUE BY SEGMENTS					
E12	CHANNEL	VALLEY	CHANNEL	VALLEY	AREA, SQ MI	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
	1220.	1220.	900.	900.	134.06	0.075	0.050	0.075	0.050	0.075	

-----KD VALUES-----					END AREA
ELEVATION	CHANNEL	VALLEY	TOTAL	SQ. FT.	
305.00	1162575.7	942706.3	2105282.0	13732.39	
304.00	1080294.0	830171.5	1910465.2	12822.11	
303.00	1000758.8	724138.8	1724897.7	11924.24	
302.00	922803.8	621962.3	1544766.2	11033.24	
301.00	848471.2	529406.0	1377877.2	10156.20	
300.00	776076.1	441982.8	1218059.0	9286.44	
299.00	705989.8	360681.2	1066671.0	8425.31	
298.00	639248.6	288278.6	927527.1	7576.40	
297.00	575183.8	223087.0	798270.7	6736.99	
296.00	513449.8	164261.8	677711.6	5905.73	
295.00	454477.2	113079.4	567556.6	5083.98	
294.00	398910.1	71802.7	470712.8	4273.57	
293.00	346252.1	48314.6	394566.7	3582.14	
292.00	296553.0	31570.1	328123.1	2993.99	
291.00	249899.5	16194.9	266094.5	2473.05	
290.00	206495.3	5624.2	212119.5	1993.56	
289.00	168213.7	1303.8	169517.5	1598.55	
288.00	134705.0	405.1	135110.1	1331.12	
287.00	105648.2	70.7	105718.9	1115.26	
286.00	80126.5	0.1	80126.6	917.15	
285.00	58750.7	0.0	58750.7	735.24	
284.00	40763.2	0.0	40763.2	568.73	
283.00	25932.6	0.0	25932.6	421.73	
282.00	14455.2	0.0	14455.2	287.24	
281.00	6153.1	0.0	6153.1	164.29	
280.00	2039.6	0.0	2039.6	69.40	
279.00	304.3	0.0	304.3	16.82	
278.10	5.0	0.0	5.0	0.80	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
137.76	1.69	280.16	413.30	2.16	281.23	688.84	2.54	281.87
1377.68	3.13	283.12	2066.52	3.48	284.15	3444.20	3.83	285.89
4821.88	4.03	287.37	6888.41	4.05	289.28	10332.62	3.65	291.68
13776.82	3.47	293.60	20665.24	3.22	296.61	27553.65	3.25	299.04
34442.07	3.31	301.28	41330.48	3.36	303.41			

-----DISTANCES-----											
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E13	900.	900.	1505.	1505.	129.49	0.075	0.050	0.075			
					-----KD VALUES-----						
		ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA					
						SQ. FT.					
		319.00	699665.2	512601.3	1212266.5	6619.45					
		318.00	660911.8	470201.5	1131113.2	6284.99					
		317.00	623472.2	430814.2	1054286.5	5960.68					
		316.00	586331.8	392097.1	978428.8	5638.66					
		315.00	550571.8	356398.3	906970.1	5327.11					
		314.00	515549.0	322231.6	837780.7	5021.03					
		313.00	481263.5	289597.3	770860.8	4720.41					
		312.00	448333.9	259642.0	707976.0	4429.65					
		311.00	416017.7	230851.5	646869.2	4143.27					
		310.00	384781.2	204083.8	588865.1	3864.55					
		309.00	354581.2	179158.7	533740.0	3593.00					
		308.00	325250.6	155740.4	480991.0	3327.41					
		307.00	296911.6	133995.1	430906.7	3068.52					
		306.00	269880.1	114345.7	384225.8	2818.25					
		305.00	243740.7	96065.0	339805.7	2573.72					
		304.00	218490.6	79126.3	297617.0	2334.87					
		303.00	194524.5	64044.8	258569.4	2104.02					
		302.00	171778.9	50647.6	222426.5	1880.56					
		301.00	150147.5	38731.5	188879.1	1663.67					
		300.00	129658.7	28290.6	157949.3	1453.34					
		299.00	110304.5	19280.2	129584.7	1249.37					
		298.00	92299.6	11962.5	104262.1	1052.81					
		297.00	75604.7	6365.2	81969.9	864.57					
		296.00	60366.9	2664.4	63031.3	689.24					
		295.00	46762.9	951.6	47714.5	541.35					
		294.00	34731.3	448.0	35179.4	434.20					
		293.00	24389.9	77.3	24467.2	336.12					
		292.00	16143.6	0.1	16143.7	251.31					
		291.00	10004.8	0.0	10004.8	179.03					
		290.00	5436.5	0.0	5436.5	116.45					
		289.00	2146.5	0.0	2146.5	62.57					
		288.00	256.8	0.0	256.8	16.02					
		287.30	8.5	0.0	8.5	1.34					
		CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	
		135.20	2.87	288.68	405.61	4.18	289.66	676.02	4.92	290.35	
		1352.04	6.08	291.61	2028.06	6.87	292.53	3380.11	7.93	293.92	
		4732.16	8.64	295.05	6760.22	8.81	296.46	10140.34	9.23	298.24	
		13520.45	9.71	299.70	20280.68	10.59	302.15	27040.91	11.33	304.22	
		33801.14	11.90	306.08	40561.37	12.34	307.84				

-----DISTANCES-----						'N' VALUE BY SEGMENTS					
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E14	CHANNEL	VALLEY	CHANNEL	VALLEY	AREA, SQ MI						
	1505.	1505.	1400.	1400.	129.38	0.075	0.050	0.075			

-----KD VALUES-----					END AREA
ELEVATION	CHANNEL	VALLEY	TOTAL	SQ. FT.	
321.00	1071039.5	403799.1	1474838.5	7295.98	
320.00	1015689.0	366271.3	1381960.2	6937.98	
319.00	961712.1	331102.7	1292814.7	6588.30	
318.00	908602.6	297357.8	1205960.5	6243.78	
317.00	856794.2	265748.6	1122543.0	5906.99	
316.00	806314.7	236205.9	1042520.6	5577.93	
315.00	756721.2	208041.0	964762.2	5254.04	
314.00	708940.0	182540.9	891480.8	4940.45	
313.00	661611.8	157707.0	819318.8	4629.45	
312.00	616473.6	135920.1	752393.6	4330.62	
311.00	572180.0	115246.3	687426.2	4036.37	
310.00	529153.5	96242.5	625395.8	3749.00	
309.00	487858.3	79406.8	567265.2	3470.80	
308.00	447440.8	63643.4	511084.1	3197.19	
307.00	408802.3	50000.9	458803.2	2932.74	
306.00	371449.9	37830.2	409280.1	2674.74	
305.00	335366.8	27201.0	362567.8	2423.36	
304.00	300931.6	18813.5	319745.2	2181.29	
303.00	268195.1	12628.9	280824.1	1956.22	
302.00	236761.6	7778.0	244539.6	1744.55	
301.00	206645.5	4101.7	210747.2	1546.60	
300.00	178641.4	1942.5	180583.9	1369.87	
299.00	152256.5	675.6	152932.2	1208.82	
298.00	127540.2	129.1	127669.3	1065.67	
297.00	105210.1	0.1	105210.2	938.23	
296.00	85578.9	0.0	85578.9	820.92	
295.00	67820.2	0.0	67820.2	706.18	
294.00	51781.9	0.0	51781.9	593.79	
293.00	37545.2	0.0	37545.2	483.74	
292.00	25376.8	0.0	25376.8	376.51	
291.00	16106.1	0.0	16106.1	275.93	
290.00	8779.4	0.0	8779.4	183.91	
289.00	3688.8	0.0	3688.8	102.49	
288.00	1819.5	0.0	1819.5	49.49	
287.00	939.6	0.0	939.6	26.46	
286.00	290.7	0.0	290.7	10.95	
285.00	32.5	0.0	32.5	2.13	
284.20	0.8	0.0	0.8	0.13	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
135.14	0.93	289.52	405.42	1.50	290.93	675.71	1.86	291.86
1351.42	2.51	293.49	2027.13	3.01	294.69	3378.55	3.82	296.54
4729.97	4.44	297.98	6757.11	5.16	299.63	10135.66	5.96	301.77
13514.22	6.51	303.54	20271.33	7.28	306.42	27028.44	7.91	308.80
33785.55	8.43	310.89	40542.66	8.87	312.80			

DISTANCES		UPSTREAM		DRAINAGE		'N' VALUE BY SEGMENTS					
DOWNSTREAM	CHANNEL	CHANNEL	VALLEY	VALLEY	AREA, SQ MI	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
	1400.	1600.	1600.	129.24	0.075	0.075	0.050	0.075	0.075	0.075	0.075

ELEVATION	CHANNEL		VALLEY		TOTAL	END AREA	
	UPSTREAM	DOWNSTREAM	UPSTREAM	DOWNSTREAM		SQ. FT.	SQ. FT.
327.00	1170352.7	706764.3	1877117.0			9211.68	
326.00	1117281.5	649117.7	1766399.0			8794.54	
325.00	1065743.7	595284.8	1661028.5			8387.62	
324.00	1014589.3	542405.6	1556995.0			7983.25	
323.00	964957.3	493181.4	1458138.7			7588.83	
322.00	915706.0	444871.0	1360577.0			7196.91	
321.00	868292.0	400824.8	1269116.7			6816.77	
320.00	821252.6	357620.5	1178873.0			6438.98	
319.00	775712.7	317784.8	1093497.5			6070.63	
318.00	730937.8	279616.5	1010554.2			5707.00	
317.00	687310.8	243949.5	931260.2			5350.43	
316.00	644791.5	210630.5	855422.0			5000.54	
315.00	603010.7	178877.0	781887.7			4655.11	
314.00	563005.3	151323.5	714328.8			4320.34	
313.00	523726.5	126163.8	649890.3			3992.56	
312.00	485537.4	104595.2	590132.7			3675.26	
311.00	448836.4	86511.2	535347.7			3375.84	
310.00	412865.0	69990.1	482855.1			3085.61	
309.00	378324.1	56236.5	434560.6			2814.27	
308.00	345152.7	44787.9	389940.6			2551.33	
307.00	313026.8	34936.8	347963.6			2322.33	
306.00	281955.5	26617.8	308573.3			2097.33	
305.00	252693.5	20570.5	273264.0			1895.67	
304.00	224469.9	14922.5	239392.4			1704.44	
303.00	197597.7	10047.8	207645.6			1524.76	
302.00	172236.3	6163.6	178400.0			1354.37	
301.00	148962.8	3197.7	152160.5			1193.58	
300.00	127573.3	1403.1	128976.5			1044.05	
299.00	107369.5	407.3	107776.8			908.49	
298.00	88584.7	56.6	88641.4			790.08	
297.00	71794.3	1.7	71796.0			686.70	
296.00	56957.7	0.0	56957.7			589.42	
295.00	43562.1	0.0	43562.1			494.96	
294.00	31888.8	0.0	31888.8			403.75	
293.00	21733.4	0.0	21733.4			315.25	
292.00	13374.6	0.0	13374.6			230.04	
291.00	7165.6	0.0	7165.6			151.91	
290.00	2659.0	0.0	2659.0			80.27	
289.00	719.0	0.0	719.0			28.60	
288.00	6.7	0.0	6.7			1.06	
287.80	6.7	0.0	6.7			1.06	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
135.06	1.13	290.55	405.18	1.70	292.09	675.31	2.08	293.09
1350.62	2.78	294.89	2025.94	3.30	296.24	3376.57	4.09	298.30
4727.20	4.58	299.91	6753.14	5.12	301.78	10129.71	5.82	304.18

13506.29	6.33	306.16	20259.43	6.98	309.32	27012.58	7.40	311.91
33765.73	7.74	314.12	40518.87	8.04	316.10			

-----DISTANCES-----										
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS				
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5
E16	1600.	1600.	100.	100.	129.02	0.075	0.050	0.075		
-----KD VALUES-----										
ELEVATION					CHANNEL		VALLEY		TOTAL	END AREA
					CHANNEL	VALLEY			SQ. FT.	
	331.00		1101569.2		267390.3	1368959.5		6643.16		
	330.00		1040072.8		244856.5	1284929.2		6293.93		
	329.00		979295.5		223815.3	1203110.7		5953.32		
	328.00		920506.2		206990.1	1127496.5		5636.16		
	327.00		862691.7		192216.2	1054908.0		5330.36		
	326.00		806788.3		181432.1	988220.5		5046.59		
	325.00		752349.5		166094.4	918443.8		4772.68		
	324.00		698887.0		147720.6	846607.6		4505.35		
	323.00		647922.5		131180.8	779103.2		4245.54		
	322.00		597917.2		115306.4	713223.6		3988.54		
	321.00		549351.1		100430.5	649781.5		3735.78		
	320.00		503078.3		87058.6	590137.0		3489.61		
	319.00		458216.8		74561.7	532778.6		3247.38		
	318.00		414779.5		62931.1	477710.5		3009.10		
	317.00		373275.6		52432.0	425707.6		2776.08		
	316.00		333618.1		42954.1	376572.3		2547.96		
	315.00		295738.2		34421.0	330159.3		2324.44		
	314.00		259639.7		26797.8	286437.6		2105.44		
	313.00		225364.9		20071.6	245436.5		1890.95		
	312.00		192959.3		14232.3	207191.7		1680.97		
	311.00		162771.0		9403.9	172174.9		1476.17		
	310.00		134672.6		5549.7	140222.3		1276.10		
	309.00		108745.1		3060.8	111806.0		1085.32		
	308.00		85083.7		1421.2	86505.0		906.93		
	307.00		63955.4		512.6	64468.1		741.68		
	306.00		45261.0		102.8	45363.8		588.34		
	305.00		29376.9		4.8	29381.8		446.85		
	304.00		17279.4		0.0	17279.4		316.41		
	303.00		8154.7		0.0	8154.7		195.64		
	302.00		2550.6		0.0	2550.6		88.63		
	301.00		310.5		0.0	310.5		18.81		
	300.00		2.4		0.0	2.4		0.38		
-----										
CFS VELOCITY ELEV.			CFS VELOCITY ELEV.			CFS VELOCITY ELEV.				
	134.93	2.14	301.69	404.81	2.86	302.52	674.69	3.36	303.04	
	1349.38	4.19	304.04	2024.07	4.73	304.86	3373.45	5.55	306.13	
	4722.83	6.09	307.21	6746.90	6.66	308.59	10120.35	7.32	310.52	
	13493.80	7.85	312.18	20240.71	8.73	314.96	26987.61	9.46	317.32	
	33734.51	10.09	319.39	40481.42	10.65	321.25				



BRIDGE SECTION E17

COEFFICIENTS  
 OPENING=0.899, ORIFICE=0.600, ROADWAY=0.800

			DISTANCES			
			DOWNSTREAM		UPSTREAM	
			CHANNEL	VALLEY	CHANNEL	VALLEY
			100.0	100.0	140.0	140.0
OPENING			ROADWAY			
ELEVATION	END AREA	Q CRIT.			ELEVATION	Q IN. CFS
300.80	0.00	0.00			330.80	0.00
301.80	47.59	218.82			331.80	700.86
302.80	137.17	950.09			332.80	3634.22
303.80	243.91	2127.69			333.80	8293.93
304.80	360.71	3681.62			334.80	13635.65
305.80	487.41	5582.51			335.80	20267.09
306.80	622.57	7834.16			336.80	27894.19
307.80	763.30	10430.63			337.80	36088.06
308.80	907.98	13338.41			338.50	42390.96
309.80	1057.94	16533.66				
310.80	1213.48	20015.76				
311.80	1374.59	23783.12				
312.80	1541.27	27834.75				
313.80	1713.53	32170.31				
314.80	1890.96	36836.64				
315.80	2072.76	41791.90				
316.80	2258.90	47022.89				
317.80	2449.39	52528.48				
318.80	2644.25	58329.84				
319.80	2843.85	64456.07				
320.80	3048.31	70860.03				
321.80	3257.63	77544.62				
322.80	3471.83	84511.82				
323.80	3690.88	91763.37				
324.80	3914.80	99300.87				
325.80	4143.59	107125.90				
326.80	4326.74	115535.01				
327.80	4388.94	125205.18				

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTIONS. A RATING CURVE IS NOT DEVELOPED SEPERATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

SECTION	DISTANCES				DRAINAGE AREA, SQ MI	NO. 1	'N' VALUE BY SEGMENTS					
	DOWNSTREAM CHANNEL	VALLEY	UPSTREAM CHANNEL	VALLEY			NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	
E18	140.	140.	750.	750.	128.97	0.075	0.050	0.075				
		ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA						
		329.00	885026.0	224993.8	1110019.7	SQ. FT.						
		328.00	829557.3	207289.7	1036847.1	5805.57						
		327.00	775265.7	189946.9	965212.6	5431.00						
		326.00	722151.1	172965.2	895116.3	5089.51						
		325.00	671203.1	154311.3	825514.3	4781.10						
		324.00	621188.7	135814.0	757002.6	4505.96						
		323.00	572790.6	118115.9	690906.5	4236.92						
		322.00	526378.6	102084.7	628463.3	3973.46						
		321.00	481317.8	86706.1	568024.0	3716.36						
		320.00	437619.6	72070.3	509689.9	3462.08						
		319.00	396009.7	59916.5	455926.2	3210.29						
		318.00	355949.2	49283.0	405232.3	2952.12						
		317.00	317603.1	39973.1	357576.2	2719.98						
		316.00	280955.9	31717.1	312673.1	2484.63						
		315.00	246044.9	24473.6	270518.6	2255.99						
		314.00	213141.2	18314.4	231455.6	2034.07						
		313.00	182138.3	13095.5	195233.8	1819.70						
		312.00	153133.8	8792.0	161925.9	1612.25						
		311.00	126179.3	5352.2	131531.6	1411.87						
		310.00	101356.0	2799.5	104155.6	1218.48						
		309.00	78738.9	1149.9	79888.9	1032.61						
		308.00	58584.7	351.6	58936.4	856.08						
		307.00	40825.7	54.8	40880.5	694.21						
		306.00	25729.2	1.4	25730.7	546.76						
		305.00	14020.0	0.0	14020.0	411.08						
		304.00	5581.0	0.0	5581.0	280.99						
		303.00	1104.7	0.0	1104.7	157.26						
		302.00	11.1	0.0	11.1	51.19						
		301.90	11.1	0.0	11.1	1.75						
	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.			
	134.90	1.93	303.21	404.72	2.67	303.95	674.54	3.21	304.43			
	1349.09	4.09	305.38	2023.64	4.71	306.14	3372.74	5.65	307.35			
	4721.83	6.26	308.38	6745.48	6.88	309.71	10118.22	7.62	311.56			
	13490.96	8.18	313.17	20236.44	9.05	315.90	26981.92	9.70	318.25			
	33727.40	10.24	320.32	40472.88	10.76	322.17						

SECTION E19  
 DISTANCES  
 DOWNSTREAM CHANNEL VALLEY 750.  
 UPSTREAM CHANNEL VALLEY 1175.  
 DRAINAGE AREA, SQ MI 128.34  
 'N' VALUE BY SEGMENTS  
 NO. 1 NO. 2 NO. 3 NO. 4 NO. 5 NO. 6  
 0.075 0.050 0.075 0.075 0.075 0.075

ELEVATION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI		'N' VALUE BY SEGMENTS						END AREA SQ. FT.
	CHANNEL	VALLEY	CHANNEL	VALLEY	AREA	SQ MI	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	
335.00	1167868.2	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	7889.50
334.00	1101686.0	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	7467.04
333.00	1036079.5	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	7048.00
332.00	972776.2	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	6642.69
331.00	910585.0	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	6243.87
330.00	850061.8	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	5854.76
329.00	791680.5	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	5477.92
328.00	734382.2	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	5107.43
327.00	679276.2	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	4750.08
326.00	625856.1	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	4402.81
325.00	573560.2	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	4062.25
324.00	523968.5	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	3737.43
323.00	475932.5	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	3421.42
322.00	429466.8	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	3114.23
321.00	385134.5	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	2818.79
320.00	343001.6	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	2535.11
319.00	302472.9	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	2259.81
318.00	264028.8	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	1996.16
317.00	227597.7	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	1746.34
316.00	193772.6	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	1529.07
315.00	162261.1	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	1338.69
314.00	133497.2	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	1171.85
313.00	108334.6	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	1021.74
312.00	85932.8	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	877.65
311.00	65773.3	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	737.45
310.00	48380.9	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	601.88
309.00	33764.5	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	473.42
308.00	21836.2	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	353.84
307.00	12147.5	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	241.55
306.00	5198.4	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	138.40
305.00	969.5	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	47.14
304.00	232.9	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	9.95
303.00	7.8	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	0.79
302.60	1.2	1175.	1175.	1175.	128.34	128.34	0.075	0.050	0.075	0.075	0.075	0.075	0.19

K-D VALUES		VALLEY		TOTAL		CFS		VELOCITY		ELEV.	
VALLEY	SQ. FT.	VALLEY	SQ. FT.	TOTAL	SQ. FT.	VELOCITY	ELEV.	VELOCITY	ELEV.	VELOCITY	ELEV.
381996.2	1549864.2	381996.2	1549864.2	1549864.2	1549864.2	2.35	306.33	672.75	2.85	306.95	
342888.4	1444574.2	342888.4	1444574.2	1444574.2	1444574.2	4.30	308.96	3303.78	5.19	310.34	
304656.1	1340735.5	304656.1	1340735.5	1340735.5	1340735.5	6.73	312.84	10091.35	7.82	314.73	
269927.0	1242703.2	269927.0	1242703.2	1242703.2	1242703.2	8.93	318.99	26910.28	9.27	321.28	
236791.3	1147376.2	236791.3	1147376.2	1147376.2	1147376.2	9.79	325.17				
206046.3	1056108.2	206046.3	1056108.2	1056108.2	1056108.2						
178325.9	970006.3	178325.9	970006.3	970006.3	970006.3						
152134.8	886517.0	152134.8	886517.0	886517.0	886517.0						
129036.8	808313.0	129036.8	808313.0	808313.0	808313.0						
107951.7	733807.7	107951.7	733807.7	733807.7	733807.7						
88208.6	661768.8	88208.6	661768.8	661768.8	661768.8						
71468.6	595437.1	71468.6	595437.1	595437.1	595437.1						
56336.6	532269.1	56336.6	532269.1	532269.1	532269.1						
42791.2	472258.1	42791.2	472258.1	472258.1	472258.1						
31304.1	416438.6	31304.1	416438.6	416438.6	416438.6						
21803.7	354805.3	21803.7	354805.3	354805.3	354805.3						
13704.3	316177.2	13704.3	316177.2	316177.2	316177.2						
7476.7	271505.5	7476.7	271505.5	271505.5	271505.5						
3309.7	230907.4	3309.7	230907.4	230907.4	230907.4						
1281.3	195054.0	1281.3	195054.0	195054.0	195054.0						
332.0	162593.1	332.0	162593.1	162593.1	162593.1						
24.0	133521.3	24.0	133521.3	133521.3	133521.3						
0.0	108334.6	0.0	108334.6	108334.6	108334.6						
0.0	85932.8	0.0	85932.8	85932.8	85932.8						
0.0	65773.3	0.0	65773.3	65773.3	65773.3						
0.0	48380.9	0.0	48380.9	48380.9	48380.9						
0.0	33764.5	0.0	33764.5	33764.5	33764.5						
0.0	21836.2	0.0	21836.2	21836.2	21836.2						
0.0	12147.5	0.0	12147.5	12147.5	12147.5						
0.0	5198.4	0.0	5198.4	5198.4	5198.4						
0.0	969.5	0.0	969.5	969.5	969.5						
0.0	232.9	0.0	232.9	232.9	232.9						
0.0	7.8	0.0	7.8	7.8	7.8						
0.0	1.2	0.0	1.2	1.2	1.2						

311.00 308.08 2018.27 6727.57 20182.71 40365.42



SECTION E21	DISTANCES				DRAINAGE AREA, SQ MI 128.03	'N' VALUE BY SEGMENTS					
	DOWNSTREAM CHANNEL 1750.	VALLEY 1750.	UPSTREAM CHANNEL 1550.	VALLEY 1550.		NO. 1 0.075	NO. 2 0.050	NO. 3 0.075	NO. 4	NO. 5	NO. 6

ELEVATION	KD VALUES			TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	VALLEY		
341.00	852725.8	349117.0	1201843.0	6605.36	
340.00	805453.6	313072.5	1118526.2	6230.63	
339.00	758402.0	277527.6	1035929.5	5858.04	
338.00	713250.5	246092.0	959342.3	5503.66	
337.00	668829.6	216131.3	884960.8	5156.14	
336.00	625504.6	188383.5	813888.0	4818.89	
335.00	583671.8	163444.6	747116.3	4495.36	
334.00	542593.7	139874.1	682467.7	4178.67	
333.00	503042.7	118968.6	622011.3	3875.70	
332.00	464590.6	99837.6	564428.3	3582.37	
331.00	427221.3	82411.7	509633.0	3298.46	
330.00	391252.8	67074.0	458326.8	3026.55	
329.00	356720.0	53707.9	410427.8	2766.63	
328.00	323283.3	41761.6	365044.8	2515.71	
327.00	290952.6	31205.8	322158.5	2273.79	
326.00	260381.0	22756.5	283137.6	2045.95	
325.00	231146.0	15816.0	246962.0	1829.64	
324.00	203277.3	10236.9	213514.2	1625.03	
323.00	176807.5	5916.1	182723.5	1432.19	
322.00	151740.6	2755.7	154496.3	1250.88	
321.00	128368.3	871.5	129239.9	1084.32	
320.00	106857.9	125.0	106982.9	939.39	
319.00	87587.8	0.8	87588.7	820.18	
318.00	69974.9	0.0	69974.9	711.26	
317.00	53918.6	0.0	53918.6	603.26	
316.00	39417.4	0.0	39417.4	495.92	
315.00	26608.8	0.0	26608.8	389.23	
314.00	15971.3	0.0	15971.3	283.30	
313.00	7589.6	0.0	7589.6	178.36	
312.00	2230.8	0.0	2230.8	79.78	
311.00	220.2	0.0	220.2	13.33	
310.20	5.5	0.0	5.5	0.87	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
134.37	1.36	312.21	403.12	1.99	313.23	671.87	2.40	313.96
1343.74	3.12	315.38	2015.62	3.64	316.53	3359.37	4.44	318.41
4703.11	5.02	319.98	6718.74	5.45	321.88	10078.11	5.97	324.32
13437.48	6.37	326.28	20156.22	6.98	329.46	26874.96	7.45	332.07
33593.70	7.84	334.34	40312.44	8.16	336.35			

-----DISTANCES-----						'N' VALUE BY SEGMENTS					
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
	CHANNEL	VALLEY	CHANNEL	VALLEY							
E22	1550.	1550.	1550.	1550.	127.43	0.075	0.050	0.075			

-----KD VALUES-----				END AREA
ELEVATION	CHANNEL	VALLEY	TOTAL	SQ. FT.
341.00	748708.2	396296.5	1145004.7	6772.09
340.00	706267.1	352305.5	1058572.5	6339.70
339.00	664846.6	311549.1	976395.7	5922.58
338.00	624106.8	272949.6	897056.3	5515.63
337.00	585002.3	239159.1	824161.3	5132.60
336.00	546565.8	206813.3	753379.1	4758.78
335.00	509131.5	176635.0	685766.5	4398.77
334.00	473063.5	149486.5	622550.0	4054.97
333.00	437664.9	123847.8	561512.7	3718.97
332.00	403577.5	101219.2	504796.8	3398.02
331.00	370743.3	81284.5	452027.8	3091.12
330.00	338864.3	63318.9	402183.2	2794.74
329.00	307948.5	47297.2	355245.6	2508.90
328.00	278680.6	34406.0	313086.5	2240.62
327.00	250356.1	23158.0	273514.1	1981.87
326.00	223257.5	14325.7	237583.3	1737.57
325.00	197361.8	7999.7	205361.0	1511.34
324.00	172695.4	3777.9	176473.2	1308.92
323.00	149614.9	1563.3	151178.2	1140.78
322.00	127736.3	414.1	128150.4	997.80
321.00	107485.3	75.7	107561.1	883.10
320.00	89116.1	7.2	89123.4	782.08
319.00	72732.4	0.0	72732.4	685.88
318.00	57836.7	0.0	57836.7	591.74
317.00	44540.0	0.0	44540.0	499.70
316.00	32633.7	0.0	32633.7	409.42
315.00	22102.2	0.0	22102.2	320.79
314.00	13424.1	0.0	13424.1	234.22
313.00	6735.3	0.0	6735.3	150.56
312.00	2204.3	0.0	2204.3	74.02
311.00	61.8	0.0	61.8	7.67
310.80	61.8	0.0	61.8	7.67

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
134.03	0.92	312.92	402.09	1.55	314.28	670.16	1.98	315.19
1340.32	2.73	316.90	2010.48	3.27	318.24	3350.80	4.09	320.36
4691.12	4.65	322.07	6701.60	5.03	324.11	10052.41	5.26	326.71
13403.21	5.47	328.78	20104.82	5.86	332.09	26806.42	6.17	334.80
33508.03	6.45	337.15	40209.64	6.68	339.23			

-----DISTANCES-----

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E23	1550.	1550.	1470.	1470.	127.17	0.075	0.050	0.075			

-----KD VALUES-----

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
348.00	613897.0	822489.2	1436386.2	8902.57
347.00	580957.5	750670.2	1331627.7	8405.33
346.00	548784.6	682579.2	1231363.7	7919.67
345.00	517121.1	616879.0	1134000.0	7441.59
344.00	486222.0	554765.5	1040987.5	6974.88
343.00	456301.7	497052.6	953354.3	6522.42
342.00	426875.9	441517.2	868393.1	6077.10
341.00	398449.5	390291.7	788741.2	5646.05
340.00	370789.6	342234.9	713024.6	5225.69
339.00	343640.8	296290.9	639931.7	4812.46
338.00	317717.1	255214.3	572931.3	4415.95
337.00	292495.6	216826.9	509322.5	4028.79
336.00	267982.0	181054.4	449036.4	3650.91
335.00	244427.5	148570.3	392997.8	3285.19
334.00	221857.2	121009.6	342866.9	2932.89
333.00	200002.3	97338.4	297340.7	2596.52
332.00	179073.7	78402.5	257476.2	2285.54
331.00	159035.5	62454.4	221489.9	2000.59
330.00	140141.8	49944.8	190086.6	1748.20
329.00	122192.6	42676.0	164868.7	1535.76
328.00	105149.9	34515.1	139665.0	1341.71
327.00	89183.9	25721.6	114905.5	1158.68
326.00	74289.9	18288.7	92578.6	984.71
325.00	60508.0	12165.4	72673.5	819.79
324.00	47812.6	7731.4	55544.1	665.52
323.00	36325.2	4795.0	41120.2	530.16
322.00	26275.7	2369.6	28645.4	407.05
321.00	17489.7	746.9	18236.6	290.57
320.00	10243.6	109.9	10353.5	190.66
319.00	4849.9	0.1	4850.0	114.44
318.00	1578.0	0.0	1578.0	53.37
317.00	135.3	0.0	135.3	10.03
316.60	32.0	0.0	32.0	3.99

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
133.88	1.94	318.28	401.65	2.77	319.42	669.41	3.22	320.20
1338.83	3.73	321.59	2008.25	4.08	322.69	3347.08	4.48	324.54
4685.92	4.75	326.01	6694.17	5.09	327.86	10041.25	5.39	330.44
13388.34	5.52	332.45	20082.51	5.74	335.57	26776.69	5.99	338.13
33470.86	6.22	340.37	40155.03	6.43	342.37			

-----DISTANCES-----											
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E24	1470.	1470.	1430.	1430.	126.39	0.075	0.050	0.075			

-----KD VALUES-----					END AREA
ELEVATION	CHANNEL	VALLEY	TOTAL	SQ. FT.	
354.00	1087192.7	403009.4	1490202.0	7517.20	
353.00	1025651.3	366455.6	1392107.0	7137.47	
352.00	965995.6	332712.6	1298708.2	6769.17	
351.00	907090.7	299852.7	1206943.5	6405.22	
350.00	849937.6	269053.5	1118991.2	6051.39	
349.00	794469.2	240220.3	1034689.5	5706.14	
348.00	739969.1	212524.4	952493.5	5365.78	
347.00	687683.8	187479.5	875163.3	5036.28	
346.00	636658.7	163852.9	800511.6	4713.05	
345.00	586893.7	141644.6	728538.3	4395.81	
344.00	539308.3	121741.7	661050.0	4088.84	
343.00	493124.1	103247.3	596371.5	3788.33	
342.00	448336.8	86127.4	534464.3	3494.20	
341.00	405690.8	71009.3	476700.1	3209.66	
340.00	364758.3	57511.4	422269.7	2932.73	
339.00	325262.3	45326.0	370588.4	2662.39	
338.00	287627.7	34753.7	322381.4	2400.83	
337.00	251997.8	25722.8	277720.6	2148.58	
336.00	218437.6	18172.6	236610.3	1905.64	
335.00	186774.7	11900.3	198675.1	1670.97	
334.00	156959.4	6821.8	163781.3	1444.14	
333.00	129347.7	3410.0	132757.7	1228.19	
332.00	103922.7	1512.1	105434.9	1032.50	
331.00	81304.5	560.8	81865.4	862.61	
330.00	61512.1	143.9	61656.1	710.48	
329.00	44142.5	9.8	44152.3	570.55	
328.00	29264.7	0.0	29264.7	440.24	
327.00	17023.7	0.0	17023.7	313.67	
326.00	9464.2	0.0	9464.2	198.27	
325.00	4124.7	0.0	4124.7	111.23	
324.00	1254.9	0.0	1254.9	46.10	
323.00	78.4	0.0	78.4	6.37	
322.50	6.3	0.0	6.3	0.99	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
133.43	2.00	324.30	400.30	2.69	325.45	667.18	3.10	326.17
1334.36	3.69	327.38	2001.54	4.25	328.23	3335.90	5.00	329.70
4670.26	5.50	330.91	6671.81	5.97	332.46	10007.71	6.33	334.61
13343.62	6.69	336.37	20015.42	7.33	339.26	26687.24	7.84	341.67
33359.05	8.28	343.80	40030.85	8.65	345.72			



SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E25	1430.	1430.	1700.	1700.	124.45	0.075	0.050	0.075			

ELEVATION	CHANNEL		VALLEY		TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	CHANNEL	VALLEY		
357.00	932270.0	1638409.7	2570679.5	15478.60		
356.00	882706.7	1501004.7	2383711.5	14691.60		
355.00	834572.7	1370747.5	2205320.0	13915.71		
354.00	786798.5	1242277.7	2029076.0	13142.58		
353.00	740832.0	1122744.5	1863576.2	12383.22		
352.00	695446.5	1006056.1	1701502.5	11628.20		
351.00	651417.0	896005.8	1547422.7	10883.29		
350.00	608692.0	792285.8	1400977.7	10147.92		
349.00	566716.8	692199.3	1258916.2	9417.99		
348.00	526456.8	600394.1	1126851.0	8700.31		
347.00	487172.7	513295.5	1000468.2	7989.44		
346.00	448864.7	430903.4	879768.1	7285.37		
345.00	412244.6	356682.5	768927.1	6592.79		
344.00	376710.0	287852.9	664562.8	5907.49		
343.00	342257.6	224497.4	566755.1	5229.69		
342.00	309464.6	170063.7	479528.3	4565.36		
341.00	277999.4	122478.8	400478.2	3912.46		
340.00	247647.7	80764.9	328412.6	3269.02		
339.00	218738.8	47239.7	265978.6	2641.59		
338.00	191384.8	25777.0	217161.8	2062.86		
337.00	165636.0	15078.6	180714.6	1620.75		
336.00	141359.5	8929.2	150288.7	1329.85		
335.00	118517.1	4797.5	123314.7	1113.50		
334.00	97386.0	2019.3	99405.3	927.58		
333.00	77954.1	588.9	78543.0	770.03		
332.00	60780.0	80.5	60860.6	639.95		
331.00	46185.3	0.0	46185.3	530.65		
330.00	33738.9	0.0	33738.9	431.30		
329.00	23096.1	0.0	23096.1	336.55		
328.00	14257.3	0.0	14257.3	246.28		
327.00	7437.0	0.0	7437.0	150.97		
326.00	3045.3	0.0	3045.3	87.02		
325.00	537.7	0.0	537.7	27.13		
324.00	24.4	0.0	24.4	2.02		
323.50	1.9	0.0	1.9	0.31		

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
132.31	1.32	326.18	396.95	1.95	327.51	661.58	2.38	328.36
1323.16	3.16	329.86	1984.75	3.75	330.97	3307.92	4.54	332.71
4631.09	4.95	334.04	6615.84	5.24	335.70	9923.77	4.89	337.94
13231.69	4.43	339.55	19847.54	4.25	342.14	26463.39	4.29	344.37
33079.25	4.37	346.39	39695.09	4.47	348.25			

SECTION	DISTANCES		DRAINAGE		'N' VALUE BY SEGMENTS						
	CHANNEL	VALLEY	CHANNEL	VALLEY	AREA, SQ MI	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E26	1700.	1700.	1080.	1080.	122.72	0.075	0.050	0.075			

ELEVATION	KD VALUES		TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY		
357.00	641766.2	451044.8	1092811.3	6887.10
356.00	603067.5	409881.6	1012949.0	6446.84
355.00	565047.6	371558.2	936605.7	6022.18
354.00	528450.8	338936.0	867386.7	5629.63
353.00	492497.0	306308.1	798805.1	5249.82
352.00	457674.5	272188.8	729863.3	4891.45
351.00	424010.6	237527.8	661538.3	4541.15
350.00	391002.1	202993.4	593995.6	4195.23
349.00	359423.8	171688.7	531112.6	3857.52
348.00	328910.1	142749.5	471659.6	3525.77
347.00	299320.9	115854.5	415175.4	3199.12
346.00	270823.7	91363.2	362186.9	2878.43
345.00	243770.3	71502.4	315272.7	2567.92
344.00	217644.0	54420.0	272064.1	2269.64
343.00	192721.8	40465.0	233186.9	1989.05
342.00	168970.6	28793.9	197764.5	1726.02
341.00	146573.2	19541.8	166115.0	1482.76
340.00	125576.4	12660.2	138236.7	1261.23
339.00	105770.5	7509.6	113280.2	1061.17
338.00	87385.4	4064.8	91450.2	886.79
337.00	70606.4	1905.8	72512.2	736.61
336.00	55485.8	687.3	56173.2	605.53
335.00	41767.1	113.4	41880.5	489.59
334.00	29747.6	0.1	29747.8	390.32
333.00	20083.0	0.0	20083.0	301.54
332.00	11998.9	0.0	11998.9	216.57
331.00	5885.2	0.0	5885.2	136.30
330.00	1898.2	0.0	1898.2	64.14
329.00	503.3	0.0	503.3	20.80
328.00	14.1	0.0	14.1	1.52
327.70	3.8	0.0	3.8	0.60

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
131.31	1.62	330.25	393.93	2.32	331.42	656.55	2.78	332.23
1313.10	3.56	333.76	1969.65	4.10	334.91	3282.76	4.71	336.72
4595.86	5.07	338.11	6565.52	5.37	339.81	9848.28	5.69	342.01
13131.05	6.03	343.67	19696.57	6.60	346.33	26262.10	7.10	348.52
32827.63	7.52	350.48	39393.15	7.88	352.29			

SECTION E27	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI 122.59	'N' VALUE BY SEGMENTS					
	CHANNEL 1080.	VALLEY 1080.	CHANNEL 1275.	VALLEY 1275.		NO. 1 0.075	NO. 2 0.050	NO. 3 0.075	NO. 4	NO. 5	NO. 6
		ELEVATION	CHANNEL	VALLEY							END AREA SQ. FT.
		358.00	687042.8	370812.3							1057855.2
		357.00	641046.3	325860.0							966906.2
		356.00	595893.1	283018.5							878911.6
		355.00	552005.1	243343.0							795348.8
		354.00	509845.2	207730.1							717575.3
		353.00	468532.8	174048.0							642580.8
		352.00	428882.0	144031.8							572913.8
		351.00	390822.5	117315.9							508138.4
		350.00	353978.1	93022.0							447000.1
		349.00	318360.0	71123.7							389483.7
		348.00	284845.3	53448.9							338294.3
		347.00	252538.9	38405.6							290944.6
		346.00	221805.3	26333.0							248138.3
		345.00	192619.2	16641.6							209260.8
		344.00	165019.4	9177.9							174197.4
		343.00	139476.4	4260.8							143737.2
		342.00	115501.3	1197.1							116698.4
		341.00	93403.1	148.4							93551.6
		340.00	74510.3	3.2							74513.5
		339.00	58453.8	0.0							58453.8
		338.00	44220.4	0.0							44220.4
		337.00	32034.6	0.0							32034.6
		336.00	21592.6	0.0							21592.6
		335.00	12821.3	0.0							12821.3
		334.00	6383.6	0.0							6383.6
		333.00	2405.3	0.0							2405.3
		332.00	462.0	0.0							462.0
		331.00	3.3	0.0							3.3
		330.80	3.3	0.0							3.3

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
131.23	1.70	333.06	393.70	2.37	334.24	656.17	2.82	335.01
1312.34	3.57	336.47	1968.51	4.10	337.61	3280.86	4.87	339.43
4593.21	5.47	340.85	6561.73	5.76	342.50	9842.59	5.95	344.66
13123.46	6.17	346.35	19685.19	6.54	349.06	26246.92	6.87	351.27
32808.64	7.13	353.24	39370.38	7.35	355.04			



-----DISTANCES-----											
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E29	1800.	1800.	1525.	1525.	120.53	0.075	0.050	0.075			
-----KD VALUES-----											
ELEVATION		CHANNEL	VALLEY	TOTAL	END AREA						
					SQ. FT.						
	373.00	705127.3	430044.9	1135172.2	6333.98						
	372.00	672182.1	390628.3	1062810.5	5980.06						
	371.00	640034.6	354534.0	994568.5	5642.03						
	370.00	608229.2	319863.9	928093.1	5310.80						
	369.00	577468.2	289235.0	866703.2	4999.98						
	368.00	546941.7	259478.6	806420.3	4693.71						
	367.00	517480.0	233533.0	751013.0	4407.85						
	366.00	488380.4	208540.7	696921.1	4128.68						
	365.00	460126.1	185772.6	645898.7	3865.14						
	364.00	432453.8	163827.1	596281.0	3609.95						
	363.00	405363.6	142704.1	548067.7	3363.10						
	362.00	379280.8	124053.6	503334.3	3129.16						
	361.00	353653.1	106455.5	460108.6	2900.95						
	360.00	328826.3	90672.0	419498.3	2682.78						
	359.00	304819.1	76591.3	381410.4	2474.65						
	358.00	281275.6	63453.8	344729.4	2272.16						
	357.00	258744.1	52235.9	310980.0	2081.77						
	356.00	236965.5	42315.9	279281.4	1900.17						
	355.00	215840.6	33468.2	249308.8	1726.09						
	354.00	195488.2	25824.3	221312.6	1560.80						
	353.00	176156.5	19600.6	195757.2	1406.80						
	352.00	157480.0	14202.1	171682.2	1259.85						
	351.00	139654.3	9808.9	149463.2	1121.92						
	350.00	122655.9	6310.5	128966.5	992.62						
	349.00	106613.5	3773.9	110387.4	873.59						
	348.00	91559.8	2043.5	93603.3	765.30						
	347.00	77346.3	879.7	78226.0	665.87						
	346.00	64134.6	261.5	64396.2	576.67						
	345.00	51934.4	36.8	51971.2	498.04						
	344.00	41282.1	0.3	41282.4	428.59						
	343.00	31918.6	0.0	31918.6	362.75						
	342.00	23638.3	0.0	23638.3	298.49						
	341.00	16402.4	0.0	16402.4	235.70						
	340.00	10155.8	0.0	10155.8	174.21						
	339.00	5264.0	0.0	5264.0	114.53						
	338.00	1860.2	0.0	1860.2	58.28						
	337.00	415.6	0.0	415.6	18.59						
	336.00	9.9	0.0	9.9	1.08						
	335.70	2.7	0.0	2.7	0.43						
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CFS VELOCITY ELEV.			CFS VELOCITY ELEV.			CFS VELOCITY ELEV.					
	130.02	1.02	339.22	390.07	1.83	340.63	650.12	2.38	341.60		
	1300.25	3.35	343.37	1950.37	4.07	344.74	3250.62	5.09	346.70		
	4550.87	5.74	348.24	6501.24	6.44	350.13	9751.87	7.25	352.59		
	13002.49	7.84	354.59	19503.75	8.72	357.81	26004.99	9.38	360.40		
	32506.24	9.92	362.63	39007.50	10.37	364.61					

-----DISTANCES-----

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E30	1525.	1525.	100.	100.	120.37	0.075	0.050	0.075			

-----KD VALUES-----

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
373.00	774033.0	663473.0	1437506.0	9021.95
372.00	733130.8	594274.1	1327405.0	8445.82
371.00	692858.1	528209.3	1221067.5	7882.08
370.00	653738.0	467588.4	1121326.5	7340.69
369.00	615112.1	409301.2	1024413.2	6808.86
368.00	577914.8	357353.3	935268.1	6304.15
367.00	541334.5	308793.7	850128.1	5812.01
366.00	505822.6	266496.0	772318.6	5342.17
365.00	471402.7	228711.1	700113.8	4897.72
364.00	437610.5	193446.0	631056.6	4467.78
363.00	405255.3	163450.9	568706.2	4070.51
362.00	373666.6	136156.3	509822.9	3690.53
361.00	342991.1	112008.3	454999.4	3331.14
360.00	313635.5	91875.3	405510.8	3001.47
359.00	285332.7	74591.3	359924.0	2694.91
358.00	257945.0	59324.3	317269.3	2407.57
357.00	231639.5	45913.8	277553.4	2141.92
356.00	206663.0	34519.7	241182.8	1896.21
355.00	182816.9	24972.6	207789.5	1666.62
354.00	160115.6	17174.5	177290.1	1452.93
353.00	138586.8	10994.9	149581.8	1255.13
352.00	118247.7	6287.5	124535.2	1073.06
351.00	99321.4	3088.1	102409.5	909.21
350.00	81740.4	1189.3	82929.7	763.80
349.00	65558.4	273.3	65831.7	639.02
348.00	50921.4	8.9	50930.4	534.51
347.00	38880.6	0.0	38880.6	446.67
346.00	28511.8	0.0	28511.8	363.45
345.00	19502.2	0.0	19502.2	283.59
344.00	12038.2	0.0	12038.2	207.41
343.00	6235.2	0.0	6235.2	135.14
342.00	2430.7	0.0	2430.7	71.58
341.00	406.6	0.0	406.6	20.91
340.10	6.6	0.0	6.6	1.04

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
129.93	1.59	342.17	389.79	2.27	343.50	649.65	2.71	344.43
1299.30	3.43	346.18	1948.95	3.93	347.56	3248.26	4.56	349.58
4547.57	4.85	351.18	6496.52	5.07	353.13	9744.79	5.34	355.70
12993.05	5.53	357.78	19489.58	5.74	361.17	25936.11	5.87	363.88
32482.64	5.97	366.20	38979.17	6.06	368.24			

## BRIDGE SECTION E31

COEFFICIENTS  
 OPENING=0.899, ORIFICE=0.600, ROADWAY=0.800

			DISTANCES			
			DOWNSTREAM		UPSTREAM	
			CHANNEL	VALLEY	CHANNEL	VALLEY
			100.0	100.0	100.0	100.0
OPENING			ROADWAY			
ELEVATION	END AREA	Q CRIT.	ELEVATION	Q IN CFS		
339.90	0.00	0.00	369.50	0.00		
340.90	16.12	63.76	370.50	578.72		
341.90	67.57	406.00	371.50	2053.74		
342.90	134.44	1082.99	372.50	4670.32		
343.90	208.91	2016.42	373.50	8492.91		
344.90	288.69	3180.23	374.50	13689.50		
345.90	373.52	4555.29	375.50	19800.28		
346.90	463.39	6135.89	376.50	26484.91		
347.90	558.32	7919.40	377.50	34125.02		
348.90	658.26	9916.87	378.50	42529.13		
349.90	762.05	12157.76	379.50	51930.23		
350.90	869.12	14589.10	380.50	62356.69		
351.90	979.48	17208.59	381.50	73178.73		
352.90	1093.12	20014.46	382.50	84419.64		
353.90	1210.05	23005.46	383.50	96474.95		
354.90	1330.27	26180.87	384.50	109355.84		
355.90	1453.76	29540.27	385.50	123073.62		
356.90	1580.55	33083.58	386.50	137639.84		
357.90	1710.61	36810.94	387.00	145244.78		
358.90	1843.96	40722.68				
359.90	1980.66	44888.24				
360.90	2120.89	49268.49				
361.90	2264.65	53837.36				
362.90	2411.95	58597.37				
363.90	2563.10	63607.93				
364.90	2719.39	68858.65				
365.90	2880.94	74322.17				
366.90	3038.93	80041.45				
367.90	3168.73	86168.87				
368.90	3270.13	92836.81				
369.90	3342.25	100122.25				
370.90	3385.45	108104.32				
371.80	3397.94	115922.15				

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTIONS. A RATING CURVE IS NOT DEVELOPED SEPERATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

-----DISTANCES-----

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E32	100.	100.	1050.	1050.	120.26	0.075	0.050	0.075			

-----KD VALUES-----

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
379.00	1059620.2	1406265.2	2465885.5	13613.16
378.00	1014793.0	1296454.0	2311247.0	12974.41
377.00	970813.5	1191287.5	2162101.0	12345.22
376.00	927399.0	1089217.5	2016616.2	11722.41
375.00	884942.8	992290.8	1877233.7	11110.22
374.00	843125.6	898793.3	1741919.0	10505.11
373.00	802235.6	811000.7	1613236.2	9910.42
372.00	761964.0	727011.7	1488975.7	9322.66
371.00	722886.5	650538.8	1373425.2	8751.25
370.00	684107.7	575945.3	1260053.0	8183.93
369.00	646850.6	508947.5	1155798.0	7637.87
368.00	609904.1	443455.1	1053359.2	7096.05
367.00	574200.3	383986.3	958186.6	6571.25
366.00	539096.2	327350.0	866446.1	6054.48
365.00	504891.5	274962.9	779854.5	5549.76
364.00	471840.0	227921.4	699761.5	5060.15
363.00	439371.5	184747.0	624118.6	4579.90
362.00	408082.1	151698.3	559780.5	4121.96
361.00	377698.3	125630.1	503328.3	3705.89
360.00	347918.3	104215.9	452134.2	3317.72
359.00	319588.6	84395.0	403983.7	2980.71
358.00	292092.0	67191.3	359283.3	2666.31
357.00	265435.6	52380.1	317815.7	2374.33
356.00	239919.3	40159.9	280079.3	2111.73
355.00	215576.0	29459.8	245035.8	1869.94
354.00	192086.6	20141.4	212228.0	1641.88
353.00	169705.5	12747.8	182453.3	1430.54
352.00	148391.8	7043.3	155435.2	1234.95
351.00	128455.7	3275.3	131731.0	1059.05
350.00	109661.1	981.7	110642.9	898.89
349.00	92225.3	84.9	92310.3	772.62
348.00	76720.6	0.1	76720.8	679.63
347.00	62779.7	0.0	62779.7	596.33
346.00	50007.5	0.0	50007.5	514.35
345.00	38311.5	0.0	38311.5	433.57
344.00	27829.9	0.0	27829.9	354.08
343.00	19357.3	0.0	19357.3	277.12
342.00	13006.0	0.0	13006.0	207.11
341.00	8023.8	0.0	8023.8	146.23
340.00	4151.4	0.0	4151.4	93.04
339.00	1552.1	0.0	1552.1	47.84
338.00	127.7	0.0	127.7	9.90
337.60	20.5	0.0	20.5	3.24

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
129.86	0.58	342.22	389.59	1.20	343.61	649.32	1.62	344.57



1298.65	2.38	346.38	1947.98	2.93	347.80	3246.63	3.69	349.87
4545.29	3.96	351.50	6493.27	4.25	353.47	9739.91	4.58	356.05
12986.55	4.79	358.15	19479.83	4.96	361.57	25973.10	4.99	364.28
32466.38	5.10	366.60	38959.66	5.24	368.62			

-----DISTANCES-----

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
E33	1050.	1050.	1.	1.	119.83	0.075	0.050	0.075			

-----KD VALUES-----

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
373.00	777093.3	365693.2	1142786.5	6229.45
372.00	729742.1	333390.0	1063132.2	5881.23
371.00	683855.3	304489.2	988344.5	5551.46
370.00	638721.5	275726.8	914448.2	5228.73
369.00	594964.3	246405.1	841369.5	4917.61
368.00	552615.1	219061.7	771676.7	4613.85
367.00	511062.2	192824.0	703886.2	4314.23
366.00	471246.9	168906.3	640153.2	4023.49
365.00	432723.1	146629.2	579352.5	3739.19
364.00	395320.5	125741.6	521062.1	3460.41
363.00	359241.9	106455.2	465697.1	3188.07
362.00	324911.3	89180.3	414091.6	2924.01
361.00	291701.8	73146.2	364848.0	2665.15
360.00	259947.3	58683.7	318631.1	2412.93
359.00	229606.5	45698.2	275304.7	2167.01
358.00	200897.0	34359.8	235256.9	1928.20
357.00	173872.3	25476.2	199348.5	1698.60
356.00	148276.7	18229.6	166506.3	1480.26
355.00	124382.5	12529.0	136911.5	1275.79
354.00	102201.8	8110.1	110312.0	1084.86
353.00	81804.0	4836.5	86640.6	907.46
352.00	63134.7	2502.7	65637.4	742.65
351.00	46560.1	1081.2	47641.3	592.32
350.00	32192.9	349.6	32542.6	456.07
349.00	20078.6	43.2	20121.9	332.00
348.00	11554.9	0.0	11555.0	225.07
347.00	5696.0	0.0	5696.0	138.12
346.00	1400.2	0.0	1400.2	57.35
345.00	19.8	0.0	19.8	2.14
344.70	5.4	0.0	5.4	0.85

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
129.61	1.75	346.21	388.83	2.56	347.16	648.05	2.94	347.95
1296.11	3.47	349.34	1944.16	3.81	350.41	3240.28	4.22	352.15
4536.39	4.49	353.59	6480.56	4.78	355.40	9720.84	5.13	357.85
12961.13	5.45	359.85	19441.69	6.01	363.15	25922.26	6.53	365.80
32402.82	6.98	368.07	38883.39	7.40	370.07			