

Ritchie North Webb Road Industrial Park - Hydrology/Detention Routings - Revised 3-18-02

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* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   MAY 1991                       *
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* HYDROLOGIC ENGINEERING CENTER *
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

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HEC-1 INPUT

PAGE 1

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	ID	RITCHIE NORTH WEBB ROAD INDUSTRIAL PARK									
2	ID	WEST BASIN									
3	ID	SCS Method - 2,5,10,25,50, & 100 YR Storm Event									
4	IT	5	11	JAN02	0000	300				2000	
5	IO	3		0							
6	JR	PREC	1.0000	1.3143	1.5143	1.7714	2.0000	2.2286			
		*Diagram									
		*									
7	KK	B1									
8	KM	West Basin (Exist.)									
9	BA	.0315									
10	PB	3.5									
11	IN	60									
12	PC	0	0.011	0.022	0.035	0.048	0.063	0.080	0.098	0.120	0.147
13	PC	0.181	0.235	0.663	0.772	0.820	0.854	0.880	0.902	0.921	0.937
14	PC	0.952	0.965	0.978	0.989	1.000					
15	UD	.25									
16	LS	0	84								
		*									
17	KK	B1									
18	KM	West Basin (Developed)									
19	BA	.0347									
20	UD	.15									
21	LS	0	91								
		*									
22	KK	Pond									
23	KM	Detention Pond									
24	RS	1	ELEV	214.5							
25	SA	1	1.1	1.2	1.3	1.4	1.5				
26	SE	214.5	215	216	217	218	219				



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FOR PLAN 1, RATIO = 1.77

TOTAL RAINFALL = 6.20, TOTAL LOSS = 1.82, TOTAL EXCESS = 4.38

PEAK FLOW + (CFS)	TIME (HR)	(CFS)	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
45.	12.00	12.	4.	4.	4.	
		(INCHES)	3.476	4.384	4.384	4.384
		(AC-FT)	6.	7.	7.	7.

CUMULATIVE AREA = 0.03 SQ MI

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HYDROGRAPH AT STATION B1  
FOR PLAN 1, RATIO = 2.00

TOTAL RAINFALL = 7.00, TOTAL LOSS = 1.86, TOTAL EXCESS = 5.14

PEAK FLOW + (CFS)	TIME (HR)	(CFS)	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
52.	12.00	14.	4.	4.	4.	
		(INCHES)	4.058	5.140	5.140	5.140
		(AC-FT)	7.	9.	9.	9.

CUMULATIVE AREA = 0.03 SQ MI

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HYDROGRAPH AT STATION B1  
FOR PLAN 1, RATIO = 2.23

TOTAL RAINFALL = 7.80, TOTAL LOSS = 1.90, TOTAL EXCESS = 5.90

PEAK FLOW + (CFS)	TIME (HR)	(CFS)	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
59.	12.00	16.	5.	5.	5.	
		(INCHES)	4.641	5.903	5.903	5.903
		(AC-FT)	8.	10.	10.	10.

CUMULATIVE AREA = 0.03 SQ MI

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\* \*  
\* B1 \*  
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West Basin (Developed)

SUBBASIN RUNOFF DATA

19 BA SUBBASIN CHARACTERISTICS  
TAREA 0.03 SUBBASIN AREA

PRECIPITATION DATA

10 PB STORM 3.50 BASIN TOTAL PRECIPITATION

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+	29.	12.00	8.	2.	2.	2.
			(INCHES) 2.010	2.541	2.541	2.541
			(AC-FT) 4.	5.	5.	5.

CUMULATIVE AREA = 0.03 SQ MI

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HYDROGRAPH AT STATION                    B1  
FOR PLAN 1, RATIO = 1.31

TOTAL RAINFALL = 4.60, TOTAL LOSS = 1.01, TOTAL EXCESS = 3.59

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW		
(CFS)	(HR)			24-HR	72-HR	24.92-HR
+	40.	12.00	(CFS)			
			(INCHES) 10.	3.	3.	3.
			(AC-FT) 2.813	3.595	3.595	3.595
				7.	7.	7.

CUMULATIVE AREA = 0.03 SQ MI

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HYDROGRAPH AT STATION                    B1  
FOR PLAN 1, RATIO = 1.51

TOTAL RAINFALL = 5.30, TOTAL LOSS = 1.03, TOTAL EXCESS = 4.27

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW		
(CFS)	(HR)			24-HR	72-HR	24.92-HR
+	47.	12.00	(CFS)			
			(INCHES) 12.	4.	4.	4.
			(AC-FT) 3.323	4.274	4.274	4.274
				8.	8.	8.

CUMULATIVE AREA = 0.03 SQ MI

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HYDROGRAPH AT STATION                    B1  
FOR PLAN 1, RATIO = 1.77

TOTAL RAINFALL = 6.20, TOTAL LOSS = 1.05, TOTAL EXCESS = 5.15

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW		
(CFS)	(HR)			24-HR	72-HR	24.92-HR
+	56.	12.00	(CFS)			
			(INCHES) 15.	5.	5.	5.
			(AC-FT) 3.978	5.153	5.153	5.153
				10.	10.	10.

CUMULATIVE AREA = 0.03 SQ MI

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HYDROGRAPH AT STATION                    B1  
FOR PLAN 1, RATIO = 2.00

TOTAL RAINFALL = 7.00, TOTAL LOSS = 1.06, TOTAL EXCESS = 5.94

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW		
(CFS)	(HR)			24-HR	72-HR	24.92-HR
+						

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OUTFLOW	0.00	0.00	8.04	8.59	9.22	9.95	10.81	11.82	13.05	14.56
ELEVATION	214.50	215.25	215.97	216.07	216.19	216.35	216.55	216.80	217.14	217.60
OUTFLOW	14.83	15.91	18.39	22.84	29.82	39.91	53.67	71.69	94.52	122.75
ELEVATION	217.62	217.67	217.74	217.84	217.97	218.12	218.30	218.51	218.74	219.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.52	0.80	1.64	1.67	1.76	1.91	2.10	2.34	2.67
OUTFLOW	0.00	0.00	0.00	8.04	8.22	8.59	9.22	9.95	10.81	11.82
ELEVATION	214.50	215.00	215.25	215.97	216.00	216.07	216.19	216.35	216.55	216.80
STORAGE	2.92	3.10	3.72	3.75	3.82	3.92	4.06	4.23	4.27	4.45
OUTFLOW	12.56	13.05	14.56	14.83	15.91	18.39	22.84	29.82	31.68	39.91
ELEVATION	217.00	217.14	217.60	217.62	217.67	217.74	217.84	217.97	218.00	218.12
STORAGE	4.70	5.00	5.34	5.72						
OUTFLOW	53.67	71.69	94.52	122.75						
ELEVATION	218.30	218.51	218.74	219.00						

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HYDROGRAPH AT STATION      Pond  
FOR PLAN 1, RATIO = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)	(CFS)	6-HR	24-HR	72-HR	24.92-HR
10.	12.33	6.	2.	2.	2.	2.
		(INCHES)	1.676	2.080	2.080	2.080
		(AC-FT)	3.	4.	4.	4.
PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	24.92-HR
2.	12.33	2.	1.	1.	1.	1.
PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	24.92-HR
216.42	12.33	215.87	215.14	215.12	215.12	215.12
CUMULATIVE AREA =			0.03 SQ MI			

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HYDROGRAPH AT STATION      Pond  
FOR PLAN 1, RATIO = 1.31

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)	(CFS)	6-HR	24-HR	72-HR	24.92-HR
13.	12.42	9.	3.	3.	3.	3.
		(INCHES)	2.515	3.124	3.124	3.124
		(AC-FT)	5.	6.	6.	6.
PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	24.92-HR
3.	12.42	2.	1.	1.	1.	1.
PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	24.92-HR
217.16	12.42	216.37	215.32	215.29	215.29	215.29
CUMULATIVE AREA =			0.03 SQ MI			

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PEAK STAGE	TIME	6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
218.20	12.17	217.07	215.61	215.57	215.57

CUMULATIVE AREA = 0.03 SQ MI

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HYDROGRAPH AT STATION Pond  
FOR PLAN 1, RATIO = 2.23

PEAK FLOW	TIME	6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
57.	12.17	18.	6.	6.	6.
	(INCHES)	4.735	6.229	6.229	6.229
	(AC-FT)	9.	12.	12.	12.

PEAK STORAGE	TIME	6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
5.	12.17	3.	1.	1.	1.

PEAK STAGE	TIME	6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
218.34	12.17	217.18	215.67	215.63	215.63

CUMULATIVE AREA = 0.03 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS  
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES  
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION					
					RATIO 1	RATIO 2	RATIO 3	RATIO 4	RATIO 5	RATIO 6
					1.00	1.31	1.51	1.77	2.00	2.23
HYDROGRAPH AT										
+ B1	0.03	1	FLOW	20.	30.	36.	45.	52.	59.	
			TIME	12.08	12.00	12.00	12.00	12.00	12.00	12.00
HYDROGRAPH AT										
+ B1	0.03	1	FLOW	29.	40.	47.	56.	64.	72.	
			TIME	12.00	12.00	12.00	12.00	12.00	12.00	12.00
ROUTED TO										
+ Pond	0.03	1	FLOW	10.	13.	15.	31.	46.	57.	
			TIME	12.33	12.42	12.42	12.25	12.17	12.17	
			** PEAK STAGES IN FEET **							
			1 STAGE	216.42	217.16	217.63	217.99	218.20	218.34	
			TIME	12.33	12.42	12.42	12.25	12.17	12.17	

\*\*\* NORMAL END OF HEC-1 \*\*\*