

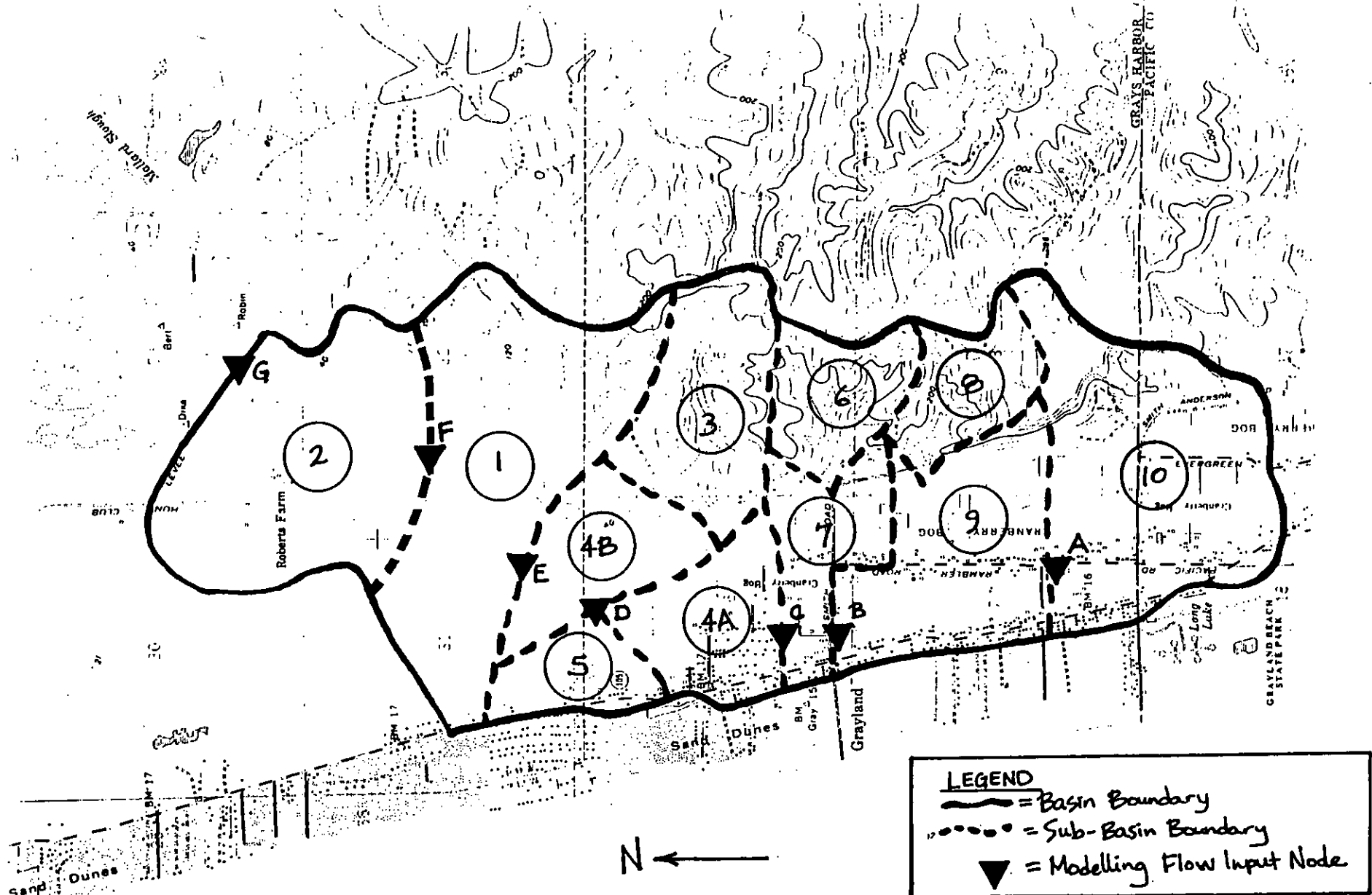
DRAINAGE SUB-BASIN CHARACTERISTICS for HEC-I Modelling

Area I.D.	Area (sq ft)	Area (sq mi)	Method	Tc (min)	CN
11a	10,509,000		scaled		
11b	707,400		planim.		
11c	603,881		planim.		
11d	1,244,032		planim.		
11e	801,352		planim.		
11f	513,671		planim.		
11g	1,160,022		planim.		
11h	637,200		scaled		
refinement	2,265,120				
TOTAL 11		0.66		145	78
9a	9,372,000		scaled		
9b	534,441		planim.		
9c	250,000		scaled		
9d	660,921		planim.		
9e	303,181		planim.		
9f	429,200		scaled		
9g	883,811		planim.		
9h	184,800		scaled		
9k	461,590		planim.		
9j	290,400		planim.		
refinement	1,800,000		scaled		
TOTAL 9		0.54		227	81
7a	5,494,600		scaled		
7b	301,940		planim.		
7c	160,890		planim.		
7d	635,811		planim.		
7e	465,311		planim.		
7f	339,761		planim.		
7g	168,640		planim.		
7h	1,290,900		scaled		
refinement	-1,800,000		scaled		
TOTAL 7		0.25		110	82
5a	1,530,000		scaled		
5b	1,220,800		scaled		
5c	875,800		scaled		
TOTAL 5		0.13		115	78

Area I.D.	Area (sq ft)	Area (sq mi)	Method	Tc (min)	CN
4a	5,825,110		scaled		
4b	552,111		planim.		
4c	681,175		planim.		
4d	578,151		planim.		
4e	688,200		scaled		
TOTAL 4A		0.30		230	84
4f	492,280		planim.		
4g	2,394,000		scaled		
4h	645,111		planim.		
4j	680,800		scaled		
4k	755,471		planim.		
4l	376,031		planim.		
TOTAL 4B		0.19		282	80
2a	6,224,400		scaled		
2b	825,850		scaled		
2c	1,017,732		planim.		
2d	431,750		scaled		
2e	957,282		planim.		
refinement	261,000		scaled		
total 2A		0.35			
total 1A		0.45	planim.*		
TOTAL "1"		0.80		179	76
2f	3,591,000		scaled		
2g	1,080,000		planim.		
2h	6,022,700		planim.		
2j	874,350		planim.		
2k	990,600		planim.		
2l	421,200		planim.		
2m	721,061		planim.		
2n	1,040,362		planim.		
2o	767,561		planim.		
2p	422,221		planim.		
2q	493,831		planim.		
refinement	-261,000		scaled		
total 2B		0.58			
total 1B		0.25	planim.*		
TOTAL "2"		0.83		86	87
TOTAL 3		0.40	planim.*	144	72
TOTAL 6		0.21	planim.*	66	69
TOTAL 8		0.18	planim.*	84	68

* These upland areas were planimetered from USGS Grayland Quad. (scale: 1" = 2000'). All other areas were planimetered or scaled from local topo sheets (scale: 1" = 200').

May 1995 refinements to Tc & CN included.



P A C I F I C

Representation of
Basin Boundary Worksheet
for HEC-I & HEC-II
Modelling Input Data



*FREE

ID FILENAME: GHC2.IN1
 ID GRAYLAND FLOOD HAZARD REDUCTION PLAN

ID 2-YR STORM FREQUENCY
 IT 5 1FEB95 0000 300

IN 10 1FEB95 0000

IO 5
 KK BASIN_11
 BA 0.66
 * 2-YR, 24-HR PRECIP IS APPROX. 3.3" (NOAA ATLAS)

PB 3.3

LS	0	78.0								
PC	0.004	0.008	0.012	0.016	0.020	0.024	0.028	0.032	0.036	0.040
PC	0.045	0.050	0.055	0.060	0.065	0.070	0.076	0.082	0.088	0.094
PC	0.100	0.106	0.113	0.120	0.127	0.134	0.141	0.148	0.156	0.164
PC	0.173	0.181	0.189	0.197	0.207	0.216	0.226	0.235	0.245	0.254
PC	0.268	0.281	0.294	0.312	0.330	0.364	0.418	0.445	0.463	0.477
PC	0.490	0.504	0.512	0.521	0.530	0.539	0.548	0.556	0.565	0.574
PC	0.583	0.592	0.600	0.609	0.616	0.624	0.631	0.638	0.645	0.652
PC	0.660	0.667	0.674	0.681	0.688	0.696	0.701	0.707	0.713	0.718
PC	0.724	0.730	0.736	0.741	0.747	0.753	0.758	0.764	0.769	0.774
PC	0.779	0.784	0.789	0.794	0.799	0.804	0.809	0.814	0.819	0.824
PC	0.828	0.832	0.836	0.840	0.844	0.848	0.852	0.856	0.860	0.864
PC	0.868	0.872	0.876	0.880	0.884	0.888	0.892	0.896	0.900	0.904
PC	0.908	0.912	0.916	0.920	0.924	0.928	0.932	0.936	0.940	0.944
PC	0.948	0.952	0.956	0.960	0.964	0.968	0.972	0.976	0.980	0.984
PC	0.988	0.992	0.996	1.000						

UD 1.45
 KO 1
 KK ROUTE BASIN_11 DOWNSTREAM TO NODE_B
 RT 0 1 8
 KK BASIN_9

BA 0.54
 LS 0 81.0
 UD 2.27
 KK BASIN_8
 BA 0.18
 LS 0 68.0
 UD 0.84
 KK ROUTE BASIN_8 FROM UPLANDS TO NODE_B
 RT 0 1 13
 KK BASIN_7
 BA 0.25
 LS 0 82.0
 UD 1.10
 KK NODE_B COMBINED HYDROGRAPH
 HC 4
 KO 1
 KK ROUTE NODE_B COMBINED HYDROGRAPH DOWNSTREAM TO NODE_C
 RT 0 1 1
 KO 1
 KK BASIN_6
 BA 0.21
 LS 0 69.0
 UD 0.66
 KO 1
 KK ROUTE BASIN_6 FROM UPLANDS TO NODE_C
 RT 0 1 10
 KO 1
 KK NODE_C COMBINED HYDROGRAPH
 HC 2
 KO 1
 KK ROUTE NODE_C COMBINED HYDROGRAPH DOWNSTREAM TO NODE_D
 RT 0 1 7
 KO 1
 KK BASIN_4A
 BA 0.30
 LS 0 84.0

UD 2.30
 KO 1
 KK BASIN_5
 BA 0.13
 LS 0 78.0
 UD 1.15
 KO 1
 KK NODE_D COMBINED HYDROGRAPH
 HC 3
 KO 1
 KK ROUTE NODE_D COMBINED HYDROGRAPH DOWNSTREAM TO NODE_E
 RT 0 1 3
 KK BASIN_4B
 BA 0.19
 LS 0 80.0
 UD 2.82
 KK BASIN_3
 BA 0.40
 LS 0 72.0
 UD 1.44
 KK ROUTE BASIN_3 FROM UPLANDS TO NODE_E
 RT 0 1 8
 KK NODE_E COMBINED HYDROGRAPH
 HC 3
 KK ROUTE NODE_E COMBINED HYDROGRAPH TO NODE_F
 RT 0 1 5
 KK BASIN_1
 BA 0.80
 LS 0 76.0
 UD 1.79
 KK NODE_F COMBINED HYDROGRAPH
 HC 2
 KK ROUTE NODE_F COMBINED HYDROGRAPH TO NODE_G
 RT 0 1 9
 KK BASIN_2
 BA 0.83

LS 0 87.0
UD 0.86
KK NODE_G COMBINED HYDROGRAPH
HC 2
ZZ

This input data file is representative of the input data used during the analysis of the following design storms:

- *10-Year Event (4.3" Precipitation in 24 Hours)*
- *25-Year Event (4.8" Precipitation in 24 Hours)*
- *100-Year Event (5.8" Precipitation in 24 Hours)*

```

1*****
*****
*
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* U.S. ARMY CORPS OF ENGINEERS *
* SEPTEMBER 1990 *
* HYDROLOGIC ENGINEERING CENTER *
* VERSION 4.0 *
* 609 SECOND STREET *
*
* DAVIS, CALIFORNIA 95616 *
* RUN DATE 06/08/1995 TIME 10:32:39 *
* (916) 756-1104 *
*
*
*****
*****

```

FILENAME: GHC2.IN1

GRAYLAND FLOOD HAZARD REDUCTION PLAN

2-YR STORM FREQUENCY

```

6 IO      OUTPUT CONTROL VARIABLES
          IPRNT          5 PRINT CONTROL
          IPLOT          0 PLOT CONTROL
          QSCAL          0. HYDROGRAPH PLOT SCALE

```

IT HYDROGRAPH TIME DATA

NMIN 5 MINUTES IN COMPUTATION INTERVAL
 IDATE 1FEB95 STARTING DATE
 ITIME 0000 STARTING TIME
 NQ 300 NUMBER OF HYDROGRAPH ORDINATES
 NDDATE 2FEB95 ENDING DATE
 NDTIME 0055 ENDING TIME
 ICENT 19 CENTURY MARK

COMPUTATION INTERVAL .08 HOURS
 TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS

DRAINAGE AREA SQUARE MILES
 PRECIPITATION DEPTH INCHES
 LENGTH, ELEVATION FEET
 FLOW CUBIC FEET PER SECOND
 STORAGE VOLUME ACRE-Feet
 SURFACE AREA ACRES
 TEMPERATURE DEGREES FAHRENHEIT

1

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

BASIN AREA	MAXIMUM OPERATION STAGE	TIME OF STATION MAX STAGE	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD		
					6-HOUR	24-HOUR	72-HOUR
	HYDROGRAPH AT						
	.66	BASIN_11	59.	8.67	46.	24.	23.
	ROUTED TO						
		ROUTE	59.	9.33	46.	24.	23.

	.66						
		HYDROGRAPH AT					
+			BASIN_9	48.	9.92	41.	22.
	.54						21.
		HYDROGRAPH AT					
+			BASIN_8	8.	8.17	7.	4.
	.18						4.
		ROUTED TO					
+			ROUTE	8.	9.25	7.	4.
	.18						4.
		HYDROGRAPH AT					
+			BASIN_7	34.	8.25	22.	11.
	.25						10.
		4 COMBINED AT					
+			NODE_B	137.	9.33	113.	60.
	1.63						58.
		ROUTED TO					
+			ROUTE	137.	9.42	113.	60.
	1.63						58.
		HYDROGRAPH AT					
+			BASIN_6	12.	7.92	9.	5.
	.21						5.
		ROUTED TO					
+			ROUTE	12.	8.75	9.	5.
	.21						5.
		2 COMBINED AT					
+			NODE_C	146.	9.33	122.	65.
							63.

1.84							
	ROUTED TO						
+		ROUTE	146.	9.92	122.	65.	62.
1.84							
	HYDROGRAPH AT						
+		BASIN_4A	32.	9.75	27.	14.	13.
.30							
	HYDROGRAPH AT						
+		BASIN_5	13.	8.33	9.	5.	5.
.13							
	3 COMBINED AT						
+		NODE_D	187.	9.92	157.	83.	80.
2.27							
	ROUTED TO						
+		ROUTE	187.	10.17	157.	83.	80.
2.27							
	HYDROGRAPH AT						
+		BASIN_4B	15.	10.92	13.	7.	7.
.19							
	HYDROGRAPH AT						
+		BASIN_3	22.	8.92	19.	11.	10.
.40							
	ROUTED TO						
+		ROUTE	22.	9.58	19.	11.	10.
.40							
	3 COMBINED AT						
+		NODE_E	222.	10.17	189.	101.	97.

2.86							
+	ROUTED TO						
		ROUTE	222.	10.58	189.	100.	96.
2.86							
+	HYDROGRAPH AT						
		BASIN_1	56.	9.33	48.	26.	25.
.80							
+	2 COMBINED AT						
		NODE_F	273.	10.50	235.	126.	122.
3.66							
+	ROUTED TO						
		ROUTE	273.	11.25	235.	124.	119.
3.66							
+	HYDROGRAPH AT						
		BASIN_2	168.	7.92	93.	45.	43.
.83							
+	2 COMBINED AT						
		NODE_G	345.	11.25	296.	168.	162.
4.49							

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