SMALLY, WELLFORD & NALVEN, INC.
CONSULTING ENGINEERS AND SURVEYORS
133 S. McINTOSH RD./7220 BENEVA RD.
SARASOTA, FLORIDA

SMALLY, WELLFORD & NALVEN, INC.
CONSULTING ENGINEERS AND SURVEYORS

7220 Beneva Road
Sarasota, Florida 34238
Telephone (813) 923-7744

April 15, 1988

Mr. R. Scott Confer
Palmer Venture
7184 Beneva Road
Sarasota, Florida 34238

Subject: Increment V Drainage Outfall to North Creek

Our Ref: 2338-20

Dear Scott:

I met with Pat Hurt of PBSJ and their drainage consultant, Tom Shoopman on April 8, 1988 to discuss conveyance of stormwater from Increment V through the Oaks to North Creek. Apparently, the Oaks received County approval to place 48" RCP's in South Trunk Ditch with their original approval which could severely restrict flow. Therefore, it would be unwise to count on this for a dependable outfall. As an alternative, relocating the outfall along Preymore Street and then south to North Creek was discussed. This would have the advantage of providing a more reliable outfall since it would not be in conflict with other land uses (i.e., golf course, road crossings, residential lots, etc.). I have attached an aerial overlay delineating these drainage patterns.

Upon platting of this phase of the Oaks, a public drainage right-of-way for South Trunk Ditch and 30 feet of road right-of-way for Preymore Street will be required.

In order to keep all options open, I would recommend that Palmer Ranch contact Arvida Corporation for the purpose of obtaining drainage easements for both alternatives at this time.

If you have any questions or if I can assist you any further, please do not hesitate to give me a call.

Very truly yours,

Stephen M. Suau

Stephen M. Suau, P.E.
Project Engineer

For: SMALLY, WELLFORD & NALVEN, INC.
Consulting Engineers and Surveyors

SMS:jk
Enclosure

SMALLY, WELLFORD & NALVEN, INC.
CONSULTING ENGINEERS AND SURVEYORS

7220 Beneva Road
Sarasota, Florida 34238
Telephone (813) 923-7744

September 15, 1988

Mr. Peter Putman, P.E.
Post, Buckley, Schuck & Jernigan, Inc.
1960 Landings Boulevard
Sarasota, Florida 34231

Subject: North Creek Lateral
Drainage Basin Management Plan
(Hydraulic Analysis)

Our Ref: 2338-6-3

Dear Pete:

This letter is written as a follow-up to our meeting of September 12, 1988 with Tom Shoopman - Sarasota County Drainage Consultant and Don Galloway - Deputy Director of Transportation regarding drainage conveyance through The Oaks.

To summarize, a cooperative basin management approach between The Oaks, Palmer Ranch, and Sarasota County was discussed with the objective of resolving existing flooding problems in The Oaks and Preymore Street by providing adequate culvert sizing to contain pre-development flow rates within the confines of the North Creek lateral.

It was agreed that a tailwater elevation of 4.0 MSL at the confluence of the Lateral with North Creek would constitute the downstream boundary conditions and that the hydrologic criteria would based upon the 25-year intermediate regional flood. As I recall, you had no objection to out-of-bank flooding within The Oaks during floods of less frequency (e.g., 100 year).

It was jointly agreed that The Oaks would provide adequate culvert sizing to convey off-site peak discharge rate referenced in the Master Drainage Calculations for the Township 38 Club (The Oaks) dated November 11, 1982 and prepared by Post, Buckley, Schuck & Jernigan, Inc..

It was further agreed that Palmer Ranch would provide adequate conveyance, and the associated additional cost for any incremental increase in the peak rate of flow determined from the hydrologic study of the off-site contributions from Palmer Ranch prepared by Small, Wellford & Nalven, Inc..

Off-site discharges from the 40 acre Glueck's site may need to be included in the analyses if site inspections indicate it discharges west to the Lateral.

Peter, I believe I have presented the contents and agreements of the meeting accurately. Please indicate if you recall any additional information. Your cooperation in this matter is appreciated and I will plan on coordinating our analyses with your office.

Very truly yours,

Stephen M. Suau

Stephen M. Suau, P.E.
Project Engineer

For: SMALLY, WELLFORD & NALVEN, INC.
Consulting Engineers and Surveyors

SMS:jk

cc: R. Scott Confer, Palmer Venture
Tom Shoopman, P.E.
D.J. Galloway, P.E.

SMALLY, WELLFORD & NALVEN, INC.
CONSULTING ENGINEERS AND SURVEYORS

7220 Beneva Road
Sarasota, Florida 34238
Telephone (813) 923-7744

September 20, 1988

Mr. Peter Putman, P.E.
Post, Buckley, Schuh & Jernigan, Inc.
1960 Landings Boulevard
Sarasota, Florida 34231

Subject: North Creek Lateral
Drainage Basin Management Plan
(Hydraulic Analysis)

Our Ref: 2338-6-3

Dear Pete:

I have enclosed the results of the culvert hydraulic analyses for the North Creek Lateral through The Oaks development for your review.

The results indicated that twin 48" RCP culverts throughout The Oaks would be required to convey the 25-year peak discharge rate of 166 cfs computed by this office. The system based upon the contributing peak discharge rates from the Master Drainage Calculations dated November 11, 1982 prepared by Post, Buckley, Schuck & Jernigan, Inc. was also analyzed. That analysis indicated that a 48" RCP and 36" RCP side by side would be required in all existing and proposed culvert locations to contain stormwater in the banks of the Lateral. As agreed at our meeting of September 12, 1988, the difference in cost between 635 linear feet of 36" RCP and a 48" RCP will be borne by the Palmer Ranch.

The criteria used in the analyses is summarized below:

Tailwater @ Confluence with North Creek = 4 MSL
Allowable Headwater @ Preymore Road = ±12 MSL

Contributing Area	Peak Flow			
Palmer Ranch (Off-Site)	89 cfs	(PBSJ)		
Glueck's Property (Off-Site)	25 cfs	(PBSJ)		
20 Acres Adjacent to Lateral (On-Site)	10 cfs	(PBSJ)		
Total Q =	124 cfs	(PBSJ)	166 cfs	(SWN)

Culvert Hydraulics were calculated with HEC-5 Manual
Open Channel Hydraulics were calculated with HEC-2 Computer Model

Please let me know if you or your staff concur with the technical information provided so we can expedite a joint resolution to the existing flooding problem in this area. Should you have any questions or wish to discuss this matter further, please do not hesitate to give me a call.

Very truly yours,

Stephen M. Suau

Stephen M. Suau, P.E.
Project Engineer

For: SMALLY, WELLFORD & NALVEN, INC.
Consulting Engineers and Surveyors

SMS:jk
Enclosures

cc: R. Scott Confer, w/enclosures
Tom Shoopman, P.E., w/enclosures
D.J. Galloway, P.E., w/enclosures

PBSJ
POST, BUCKLEY, SCHUH & JERNIGAN, INC.
1960 LANDINGS BOULEVARD, SUITE 302
SARASOTA, FLORIDA 34231
813/922-8424

2649-13

55

October 27, 1988

Mr. Stephen M. Suau, P.E.
Smally, Wellford & Nalven, Inc.
7220 Beneva Road
Sarasota, Florida 34238

Subject: Oaks II Drainage Master Plan

Dear Steve:

In response to your letters of September 12 and 20, 1988 concerning the off-site drainage crossing the Oaks II property and the drainage plan for the Oaks, we have had to research deeply into our files. Mr. Barry Bywalec, our project engineer for the Oaks II in 1983 has clarified some of the information needed.

The stormwater calculations dated November 11, 1982 were superseded by a HEC-1 analysis performed in June 1983. The revised calculations were a result of a request by the owner to delete the three ponds along the drainage route from Preymore Road to North Creek. Enclosed is a copy of the calculations with annotations explaining the data.

The revised calculations included the Palmer Ranch property, the Glueck property and the on site property adjacent to the drainage channel. As shown on the hydrograph provided and the runoff summary table at the back page of the printout, the peak runoff is 73cfs for the combined areas based upon a 25-year, 6 hour storm.

The revised master plan and the revised calculations were approved by Sarasota County as indicated by the attached correspondence. Although the criteria for the calculations may not meet current standards, the calculations served as the basis of approval and design for the existing drainage system and address all runoff through the site.

I apologize for the misinformation previously provided to you concerning the stormwater calculations. Our files concerning the Oaks II project are extensive and I was not aware of the revisions made to the plan.

As consultants for Arvida, PBS&J can agree to reasonable engineering criteria for analysis of the situation. However, any discussions regarding additional stormwater flows across the Oaks II property and associated costs will have to be with the Arvida Corporation directly.

REC...
OCT 28 1988
SMALLY WELLFORD &
NALVEN INC

Please don't hesitate to call should you need any further information or wish to discuss the matter further.

Sincerely,

POST, BUCKLEY, SCHUH & JERNIGAN, INC.

C. P. Putman, P.E.
Regional Manager

Enclosure

cc: Mr. Russ Luce, Arvida Corporation (w/attach)
Mr. R. Scott Confer, Palmer Venture
Mr. D. J. Galloway (w/attach)
Mr. Tom Shoopman (w/attach)

12-210.00
CPP5/PP

POST, BUCKLEY, SCHUH & JERNIGAN, INC.
130 NORTH TAMIAMI TRAIL
SARASOTA, FLORIDA 34236
(813) 954-4036

February 23, 1989

Mr. Scott Confer
The Bay Venture Corporation
7184 Beneva Road, South
Sarasota, Florida 34238

Subject: The Oaks II Offsite Drainage & Drainage Easement

Dear Scott:

Enclosed for your information is a copy of the proposed easement submitted to Sarasota for drainage from the North boundary of the Oaks property to North Creek. The plan for the easement includes the anticipated locations of additional drainage structures needed to carry the stormwater flows from north of Preymore Street to North Creek as indicated by Steve Suau of SWN. The purpose of the plan is to show the location of the public drainage easement to the County and is not presented as the final design for location of the additional drainage facilities. However the facilities shown should be adequate to handle the anticipated flows.

Please don't hesitate to call should you need any additional information.

Sincerely,

POST, BUCKLEY, SCHUH & JERNIGAN, INC.

C. P. Putman, P.E.
Regional Manager

Enclosure

RECEIVED
FEB 27 1989

RECEIVED
MAR 01 1989
SMALLY WELLFORD &
NALVEN INC

12-210.00
CPP6/y

SMALLY, WELLFORD & NALVEN, INC.
CONSULTING ENGINEERS AND SURVEYORS

7220 Beneva Road
Sarasota, Florida 34238
Telephone: (813) 923-7744

March 1, 1989

Mr. R. Scott Confer
Palmer Venture
7184 Beneva Road
Sarasota, Florida 34238

Subject: **PARCEL "R" OUTFALL THROUGH THE OAKS**

Our Ref: 2338-6-3

Dear Scott:

As requested, I have reviewed The Oaks drainage and easement plan prepared by Post, Buckley, Schuh & Jernigan, Inc. (PBS&J). Although no hydraulic calculations were provided to support the plan, I am confident that the plan as submitted will provide Parcel "R" with the needed legal and physical outfall through The Oaks.

An estimate of cost to replace the culvert at Preymore Street and the work to be done "by others" on the PBS&J plan would be in the neighborhood of $65,000. This estimate for construction costs and does not include any permit modification or application costs.

Although these off-site drainage improvements may be the most unglamorous feature of the Parcel "R" drainage system, the importance of securing an adequate outfall cannot be overstated. The alternative mitigation would be to provide additional, and excessive storage facilities in order to severely limit the project discharge.

Please do not hesitate to give me a call if you have any questions.

Very truly yours,

Stephen M. Suau

Stephen M. Suau, P.E.
Project Engineer

For: SMALLY, WELLFORD & NALVEN, INC.
Consulting Engineers and Surveyors

SMS:jk

EXISTING CONDITIONS

Conveyance Status:

The study area is ~~serviced by~~ a manmade ~~conveyance~~ ditch system which extends approximately ~~20,000~~ feet northward from its confluence with North Creek, to Preymore Street. This ditch is contained completely in the ~~This system is intercepted by the Catfish Creek outfall ditch~~ Oaks Development. approximately ~~7000 feet north of the confluence~~. Flows north of this ~~intersection outfall via Catfish Creek during low or normal flow conditions~~. However, during major floods, significant flows are diverted to North Creek. Analysis of this diversion indicates that approximately 125 cfs is diverted to the North Creek during the 25-year storm under existing conditions.

Two minor summits in the existing conveyance system have been identified. These summits act as basin ridge lines during the low flow conditions and check damns during flood conditions. These summits are at or slightly above elevation 11.0 MSL and are located approximately 5200 and 6600 feet upstream from the confluence with North Creek.

Structures:

Existing structures within the conveyance system south of Central Sarasota Parkway are located south of the AIDA V site and shown on EXHIBIT 1.

Flood Prone Areas:

Prolonged flooding has been observed downstream of Preymore Street in The Oaks development, and Preymore Street, itself has been submerged in the vicinity of its intersection with the North Creek lateral.

Legal Information:

Research of the County records indicates that an existing public right-of-way of 33 feet of width presently exists for the conveyance system from Preymore Street to North Creek. This document is recorded in Deed Book 79, Page 476.

LOCATION MAP OF STUDY AREA

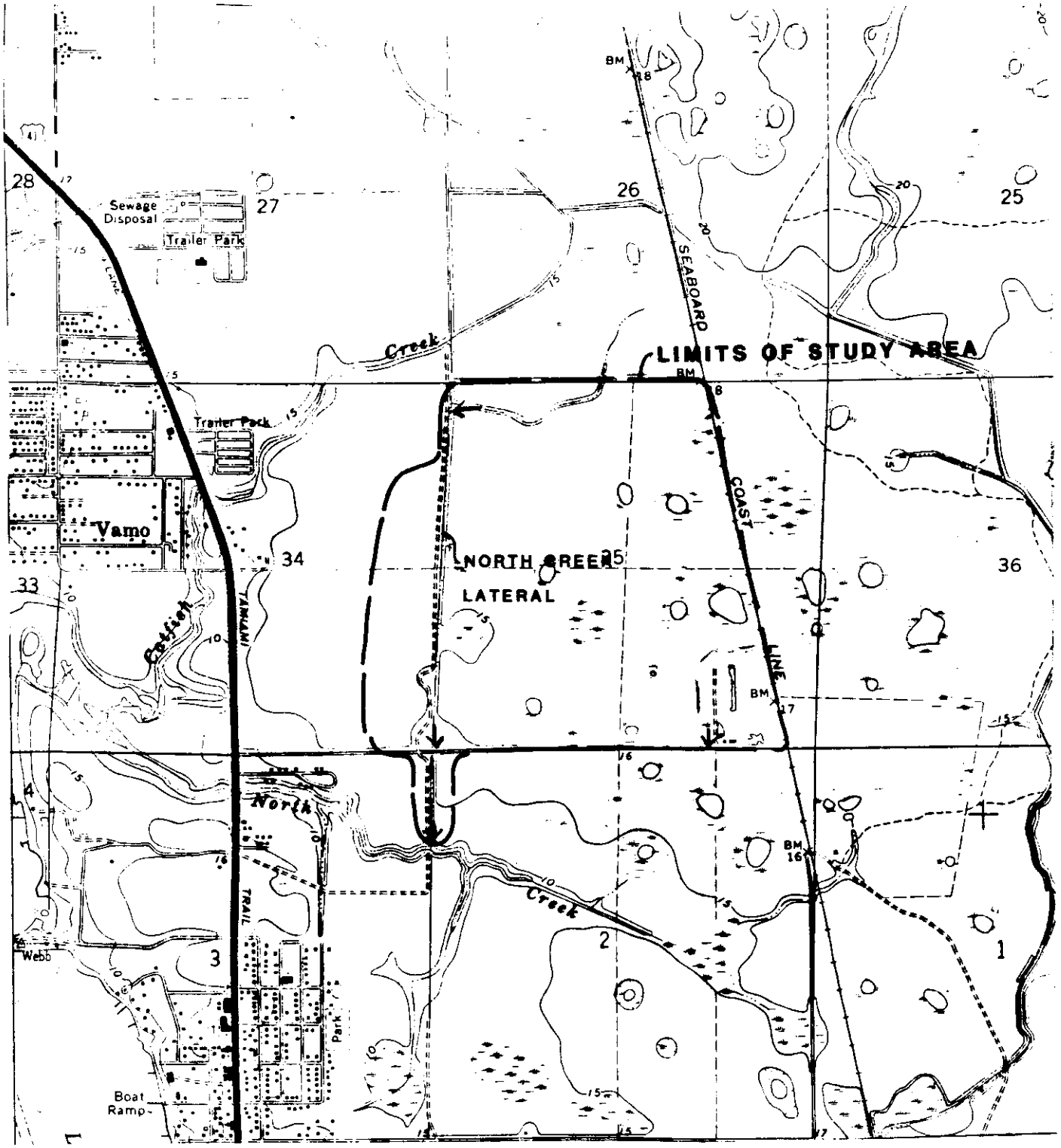


FIGURE 1

PROJECT: PALMER RANCH, AIDA V
DRAINAGE OUTFALL TO NORTH CREEK

DESIGNER: SMS

DATE: 8-30-88

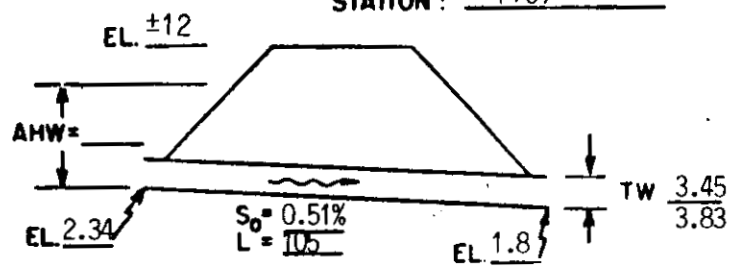
HYDROLOGIC AND CHANNEL INFORMATION

Q_1 = 127 TW_1 = 5.25
Q_2 = 166 TW_2 = 5.63

(Q_1 = DESIGN DISCHARGE, SAY Q_{25}
Q_2 = CHECK DISCHARGE, SAY Q_{50} OR Q_{100})

SKETCH

STATION: 1+07



MEAN STREAM VELOCITY = ____
MAX. STREAM VELOCITY = ____

CULVERT DESCRIPTION (ENTRANCE TYPE)	Q	SIZE	HEADWATER COMPUTATION: INLET CONT.		OUTLET CONTROL HW=H + h_o - LS_o								CONTROLLING HW	OUTLET VELOCITY	COST	COMMENTS HW ELEV.
			$\frac{HW}{D}$	HW	K_e	H	d_c	$\frac{d_c+D}{2}$	TW	h_o	LS_o	HW				
TWIN RCP	127	48"	0.9	3.6	.5	.75	2.4	3.2	3.45	3.45	0.54	3.66	3.66			6.00
TWIN RCP	166	48"	1.1	4.4	.5	1.3	2.8	3.4	3.83	3.83	0.54	4.59	4.59			6.93

SUMMARY & RECOMMENDATIONS: EXISTING CONDITIONS - 105' TWIN 48" RCP

TABLE 1

PROJECT: PALMER RANCH, AIDA V
DRAINAGE OUTFALL TO NORTH CREEK

DESIGNER: SMS

DATE: 8-30-88

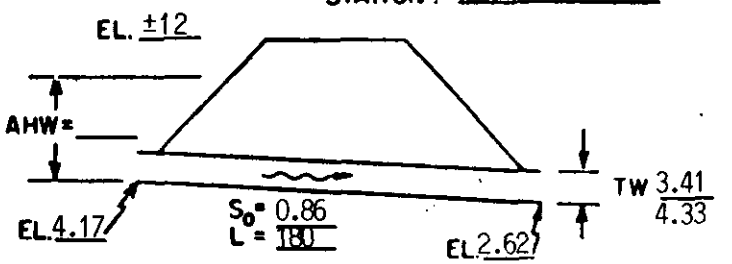
HYDROLOGIC AND CHANNEL INFORMATION

Q_1 = 127 TW_1 = 6.03
Q_2 = 166 TW_2 = 6.95

(Q_1 = DESIGN DISCHARGE, SAY Q_{25}
Q_2 = CHECK DISCHARGE, SAY Q_{50} OR Q_{100})

SKETCH

STATION: 2+82



MEAN STREAM VELOCITY = ____
MAX. STREAM VELOCITY = ____

CULVERT DESCRIPTION (ENTRANCE TYPE)	Q	SIZE	HEADWATER COMPUTATION										CONTROLLING HW	OUTLET VELOCITY	COST	COMMENTS HW ELEV.
			INLET CONT.		OUTLET CONTROL $HW=H+h_o-LS_o$											
			$\frac{HW}{D}$	HW	K_e	H	d_c	$\frac{d_c+D}{2}$	TW	h_o	LS_o	HW				
TWIN RCP	127	48"	0.9	3.6	.5	.9	2.4	3.2	3.41	3.41	1.55	2.76	3.6			7.77
TWIN RCP	166	48"	n/a	n/a	.5	1.5	2.8	3.4	4.33	4.33	1.55	4.28	4.28			8.45

SUMMARY & RECOMMENDATIONS: EXISTING CONDITIONS - 180' OF SINGLE 48" RCP
PROPOSED CONDITIONS - TWIN 48" RCP

TABLE 2

PROJECT: PALMER RANCH, AIDA V
DRAINAGE OUTFALL TO NORTH CREEK

DESIGNER: SMS

DATE: 8-30-88

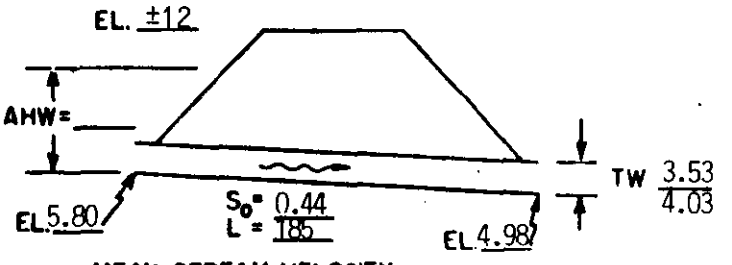
HYDROLOGIC AND CHANNEL INFORMATION

Q_1 = 122 TW_1 = 8.51
Q_2 = 156 TW_2 = 9.01

(Q_1 = DESIGN DISCHARGE, SAY Q_{25}
Q_2 = CHECK DISCHARGE, SAY Q_{50} OR Q_{100})

SKETCH

STATION: 9+94



MEAN STREAM VELOCITY = ____
MAX. STREAM VELOCITY = ____

CULVERT DESCRIPTION (ENTRANCE TYPE)	Q	SIZE	HEADWATER COMPUTATION										CONTROLLING HW	OUTLET VELOCITY	COST	COMMENTS HW ELEV.
			INLET CONT.		OUTLET CONTROL $HW = H + h_o - LS_o$											
			$\frac{HW}{D}$	HW	K_e	H	d_c	$\frac{d_c+D}{2}$	TW	h_o	LS_o	HW				
TWIN RCP	122	48"	.85	3.4	.5	.82	2.3	3.15	3.53	3.53	0.82	3.53	3.53			9.33
TWIN RCP	156	48"	1.0	4.0	.5	1.4	2.7	3.35	4.03	4.03	0.82	4.61	4.61			10.41

SUMMARY & RECOMMENDATIONS: EXISTING CONDITIONS - 185' OF SINGLE 48" RCP
PROPOSED CONDITIONS - TWIN 48" RCP

TABLE 3

PROJECT: PALMER RANCH, AIDA V
DRAINAGE OUTFALL TO NORTH CREEK

DESIGNER: SMS

DATE: 8-30-88

HYDROLOGIC AND CHANNEL INFORMATION

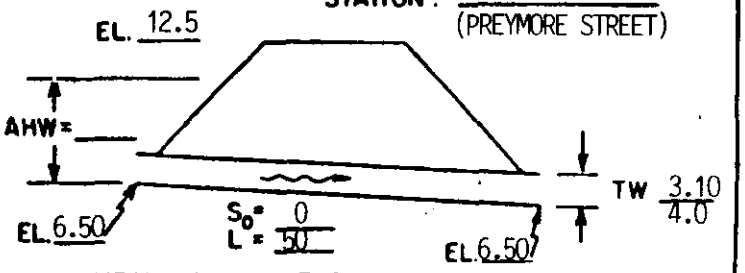
Q_1 = 110 TW_1 = 9.6

Q_2 = 136 TW_2 = 10.5

(Q_1 = DESIGN DISCHARGE, SAY Q_{25}
Q_2 = CHECK DISCHARGE, SAY Q_{50} OR Q_{100})

SKETCH

STATION: 13+79 (PREYMORE STREET)

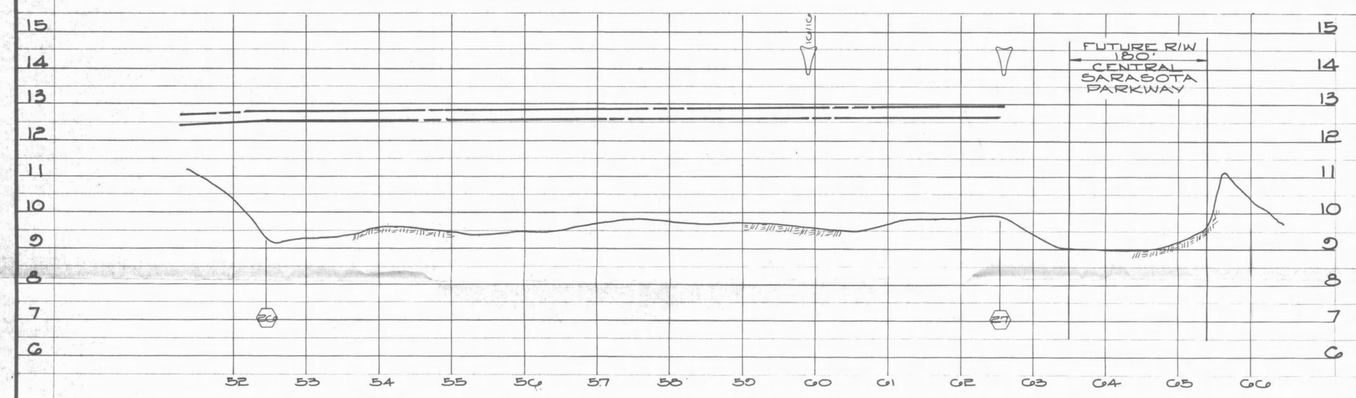


MEAN STREAM VELOCITY = ____
MAX. STREAM VELOCITY = ____

CULVERT DESCRIPTION (ENTRANCE TYPE)	Q	SIZE (in)	HEADWATER COMPUTATION: INLET CONT. $\frac{HW}{D}$	HW	OUTLET CONTROL $HW = H + h_o - LS_o$: K_e	H	d_c	$\frac{d_c+D}{2}$	TW	h_o	LS_o	HW	CONTROLLING HW	OUTLET VELOCITY	COST	COMMENTS HW ELEV.
TWIN RCP	110	76x48	.9	3.6	.5	.72	2.5	3.25	3.10	3.25	0	3.97				10.47
TWIN RCP	136	76x48	n/a	n/a	.5	1.1	2.8	3.40	4.0	4.0	0	5.1				11.60

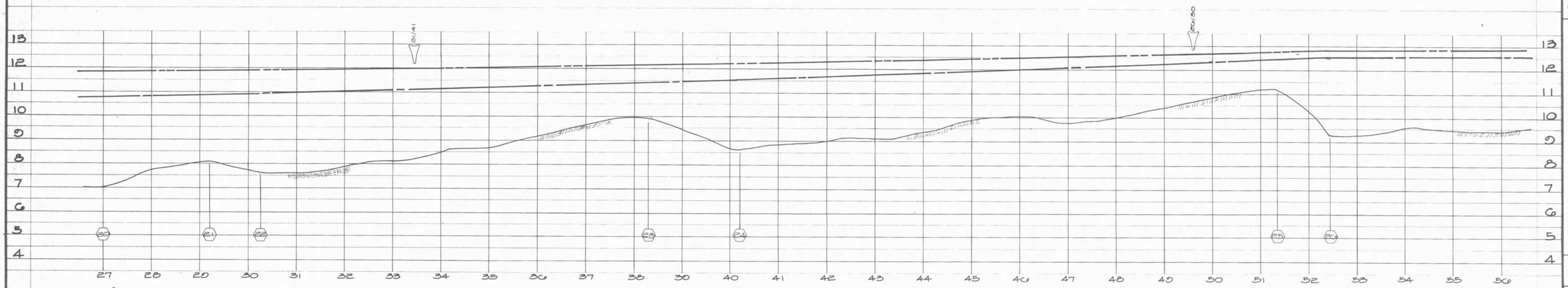
SUMMARY & RECOMMENDATIONS: EXISTING CONDITIONS - 41' OF 36" RCP
PROPOSED CONDITIONS - 50' OF 76" x 48" ERCP

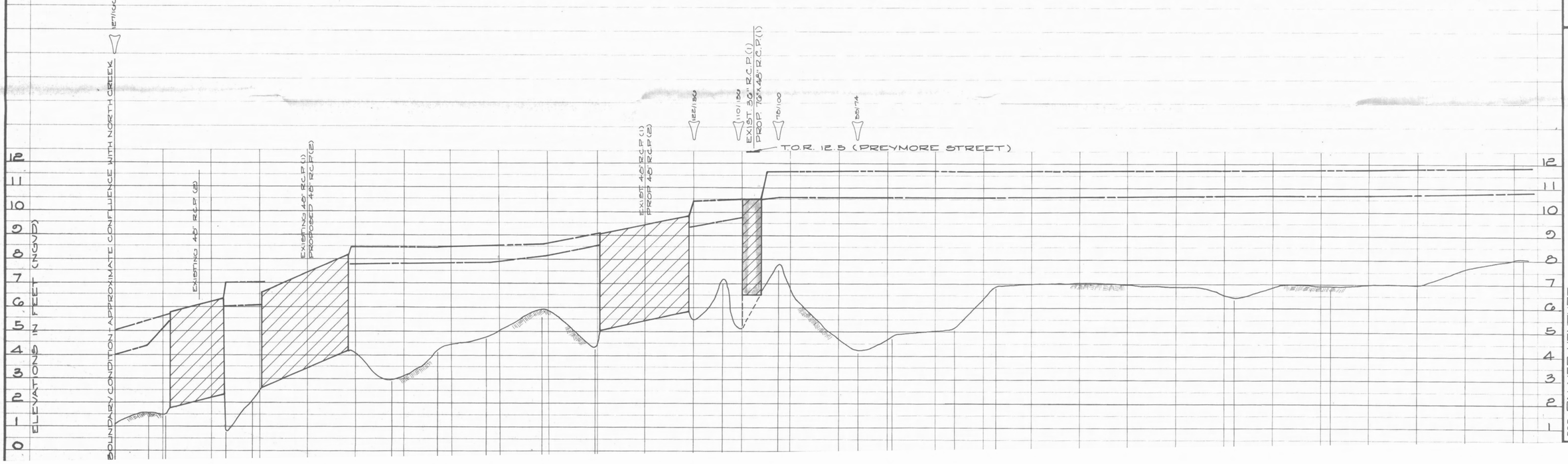
TABLE 4



LEGEND

- STANDARD PROJECT FLOOD OF REASONABLE EXPECTANCY
- INTERMEDIATE REGIONAL FLOOD OF REASONABLE EXPECTANCY
- STREAM BED
- CROSS SECTION LOCATION
- ACCUMULATED FLOWS INTERMEDIATE REGIONAL FLOOD DISCHARGE/ STANDARD PROJECT FLOOD DISCHARGE





LTR.	DATE	REVISION	BY

DESIGNED BY S.N.S.
DATE: 6/21/88
SCALE: HORZ. 1"=100' VERT. 1"=2'
DRAWN BY W.J.C.
CHECKED BY
PROJECT NO 2338 G.3

133 SOUTH McINTOSH RD. SARASOTA, FLA. 33582

CONSULTING ENGINEERS & SURVEYORS

FOR: PALMER VENTURE

PALMER RANCH, AIDA IV SUFFICIENCY RESPONSE
EXHIBIT 1 OF NORTH CREEK LATERAL
HYDROLOGIC/HYDROLIC ANALYSIS REPORT

...Y, WELLFORD & NALVEN, Inc.

G.3

EXHIBIT 2

```
*****************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****************

JOB TR-20                                   SUMMARY
TITLE 001 NORTH CREEK LATERAL HYDROLOGIC ANALYSIS
 3 STRUCT      05
 8                    13.0       0.0       0.0
 8                    13.5       0.1       3.2
 8                    14.0       4.71      6.4
 8                    14.5      13.32      9.6
 8                    15.0      24.47     12.8
 9 ENDTBL
 3 STRUCT      06
 8                    14.0       0.0       0.0
 8                    14.5       3.53      7.87
 8                    15.0       9.99     22.69
 8                    15.5      18.35     40.14
 8                    16.0      28.26     59.31
 9 ENDTBL
 3 STRUCT      07
 8                    14.5       0.0       0.0
 8                    15.0       2.94      8.16
 8                    15.5       8.34     17.57
 8                    16.0      15.29     36.28
 8                    16.5      23.54     57.84
 9 ENDTBL
 3 STRUCT      08
 8                    13.0       0.0       0.0
 8                    13.75      0.1       1.2
 8                    14.0       0.69      1.6
 8                    14.5       3.6       2.4
 8                    15.0       7.76      3.2
 8                    15.5      12.85      4.0
 9 ENDTBL
 3 STRUCT      09
 8                    12.5       0.0       0.0
 8                    13.5       0.1       5.70
 8                    14.0       2.94     11.45
 8                    14.5       8.32     17.2
 8                    15.0      15.29     22.95
 9 ENDTBL
 3 STRUCT      10
 8                    12.0       0.0       0.0
 8                    12.5       0.1       2.9
 8                    13.0       4.81      5.8
 8                    13.5      13.6       8.7
 8                    14.0      24.98     11.6
 9 ENDTBL
 3 STRUCT      11
```

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8                   12.5      0.0       0.0
8                   13.0      0.1       1.8
8                   13.5      0.78      3.6
8                   14.0      2.22      5.4
8                   14.5      4.08      7.2
8                   15.0      6.28      9.0
8                   15.5      8.78      10.8
9 ENDTBL
3 STRUCT      12
8                   14.0      0.0       0.0
8                   15.5      0.1       8.75
8                   16.0      14.13     22.37
8                   16.5      39.96     36.59
9 ENDTBL
3 STRUCT      13
8                   15.0      0.0       0.0
8                   15.5      9.42      3.6
8                   16.0      26.64     9.06
9 ENDTBL
3 STRUCT      14
8                   14.5      0.0       0.0
8                   15.0      12.17     2.9
8                   15.5      34.41     5.8
9 ENDTBL
3 STRUCT      15
8                   13.0      0.0       0.0
8                   14.0      0.1       7.9
8                   14.5      7.95      11.85
8                   15.0      22.48     15.8
8                   15.5      41.29     19.75
9 ENDTBL
3 STRUCT      16
9 ENDTBL
4 DIMHYD            .04
8         0.00      .2        .4        .6        .8
8         1.0       .942      .884      .826      .768
8         .71       .652      .594      .536      .478
8         .42       .362      .304      .246      .188
8         .13       .072      .014      0.0       0.0
9 ENDTBL
5 RAINFL 1          .5
8         0.0       0.005     0.01      .02       .03
8         .045      .06       .07       .09       .11
8         .12       .15       .16       .18       .20
8         .22       .24       .27       .3        .33
8         .36       .4        .44       .49       .54
```

```
8          .58        .61        .64        .67        .7
8          .73        .76        .78        .8         .82
8          .84        .86        .88        .90        .91
8          .93        .945       .96        .97        .98
8          .985       .99        .995       1.0        1.0
9 ENDTBL
5 RAINFL 2            .5
8          0.0        0.007      0.015      0.022      0.03
8          0.038      0.045      0.052      0.06       0.07
8          0.08       0.092      0.105      0.118      0.13
8          0.146      0.162      0.179      0.196      0.214
8          0.231      0.249      0.266      0.286      0.306
8          0.33       0.355      0.391      0.429      0.496
8          0.544      0.636      0.739      0.782      0.825
8          0.849      0.871      0.886      0.901      0.914
8          0.926      0.936      0.946      0.956      0.966
8          0.976      0.986      0.996      1.000      1.000
9 ENDTBL
6 RUNOFF 1    05     3 .061       79.1       .85
6 RESVOR 2    05 3   4 13.0
6 RUNOFF 1    06     5 .124       77.4       .95
6 RUNOFF 1    07     3 .164       79.7       1.13
6 RESVOR 2    07 3   1 14.5
6 ADDHYD 4    06 1 5 3
6 RESVOR 2    06 3   1 14.0
6 ADDHYD 4    06 4 1 5
6 REACH  3 001   5   2 1500.      0.12       1.58
6 RUNOFF 1    08     3 .0225      87.8       .75
6 RESVOR 2    08 3   1 13.0
6 RUNOFF 1    08     4 .006       78.1       1.13
6 ADDHYD 4    08 1 4 3
6 ADDHYD 4    08 2 3 1
6 REACH  3 002   1   2 2200.      0.12       1.58
6 RUNOFF 1    09     1 0.073      80.        1.0
6 RESVOR 2    09 1   3 12.5
6 ADDHYD 4    09 2 3 1
6 RUNOFF 1    10     2 0.06       81.        0.95
6 RESVOR 2    10 2   3 12.0
6 ADDHYD 4    10 1 3 2
6 REACH  3 003   2   1 1200.      0.12       1.58
6 RUNOFF 1    11     2 .038       82.        1.0
6 RESVOR 2    11 2   3 12.5
6 ADDHYD 4    11 3 1 2
6 RUNOFF 1    12     1 .156       77.        1.0
6 RESVOR 2    12 1   3 14.0
6 REACH  3 004   3   4 3400.      0.3        1.53
```

```
*********************80-80 LIST OF INPUT DATA (CONTINUED)*********************

 6 ADDHYD 4    12 4 2 1
 6 RUNOFF 1    13     2 .07        75.        0.75
 6 RESVOR 2    13 2   3 15.0
 6 RUNOFF 1    14     2 .029       88.        1.0
 6 ADDHYD 4    14 2 3 4
 6 RESVOR 2    14 4   5 14.5
 6 RUNOFF 1    15     6 .043       83.        0.95
 6 RUNOFF 1    15     4 .031       72.        0.5
 6 ADDHYD 4    15 5 6 2
 6 RESVOR 2    15 2   3 13.0
 6 ADDHYD 4    15 3 4 2
 6 ADDHYD 4    15 2 1 3
 6 RUNOFF 1    15     1 0.07       80.        0.5
 6 REACH  3    15 1   2 4000.      0.13       1.52
 6 ADDHYD 4    15 2 3 1
 6 REACH  3 005   1   2 1200.      0.12       1.58
 6 RUNOFF 1    16     3 0.03       72.        1.5
 6 ADDHYD 4    16 3 2 1                                1 1   1
   ENDATA
 7 INCREM 6            .25
 7 COMPUT 7    05    16 0.0        8.         1.         1 2  01  01
   ENDCMP 1
 7 COMPUT 7    05    16 0.0        8.0        1.0        2 2  01  02
   ENDCMP 1
   ENDJOB 2

****************************END OF 80-80 LIST****************************


EXECUTIVE CONTROL OPERATION INCREM    MAIN TIME INCREMENT =   .25 HOURS                                RECORD ID


EXECUTIVE CONTROL OPERATION COMPUT    FROM STRUCTURE  5  TO STRUCTURE 16                               RECORD ID
      STARTING TIME =   .00    RAIN DEPTH =  8.00    RAIN DURATION=  1.00    RAIN TABLE NO.= 1    ANT. MOIST. COND= 2
      ALTERNATE NO.= 1        STORM NO.= 1    MAIN TIME INCREMENT =   .25 HOURS

    *** WARNING - REACH   1 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT      6.93 CFS,  26.76 % OF PEAK.

    *** WARNING - REACH   2 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT      7.08 CFS,  22.63 % OF PEAK.

    ***  WARNING  REACH   3 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT  ***

    *** WARNING - REACH   3 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT      7.89 CFS,  15.63 % OF PEAK.

    ***  WARNING  REACH   5 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT  ***


OPERATION ADDHYD   STRUCTURE 16

          PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
             19.44                      127.39                        (NULL)

TIME(HRS)        FIRST HYDROGRAPH POINT =   .00 HOURS     TIME INCREMENT =  .25 HOURS     DRAINAGE AREA =    .98 SQ.MI.
   2.50   DISCHG        .00       .00       .00       .00       .00       .00       .00       .01       .07       .25
   5.00   DISCHG        .61      1.09      1.74      2.50      3.24      4.05      4.95      5.73      6.45      7.26
   7.50   DISCHG       8.12      9.02      9.95     10.89     12.04     13.42     14.94     16.68     18.51     20.32
  10.00   DISCHG      22.07     23.80     25.82     28.22     31.05     34.28     38.03     42.22     46.06     52.12
```

12.50	DISCHG	57.28	62.30	67.82	72.71	77.04	80.74	84.08	87.31	90.88	94.71
15.00	DISCHG	98.39	101.92	105.40	108.74	111.64	114.07	116.23	117.89	119.22	120.53
17.50	DISCHG	121.70	122.72	123.65	124.48	125.24	125.96	126.64	127.26	127.37	127.02

20.00	DISCHG	126.85	126.74	126.38	126.08	125.83	125.40	124.66	123.63	122.41	120.96
22.50	DISCHG	119.15	117.05	114.90	112.34	109.81	107.27	104.75	102.27	99.73	97.02
25.00	DISCHG	94.26	91.38	88.48	85.64	82.87	80.22	77.68	75.24	72.89	70.67
27.50	DISCHG	68.71	66.91	65.23	63.67	62.22	60.84	59.53	58.27	57.05	55.87
30.00	DISCHG	54.73	53.64	52.58	51.55	50.54	49.57	48.62	47.69	46.79	45.94
32.50	DISCHG	45.21	44.50	43.80	43.11	42.44	41.79	41.15	40.52	39.90	39.29
35.00	DISCHG	38.69	38.10	37.53	36.96	36.41	35.86	35.33	34.81	34.29	33.80
37.50	DISCHG	33.33	32.87	32.42	31.98	31.55	31.12	30.70	30.30	29.90	29.50
40.00	DISCHG	29.12	28.74	28.37	28.01	27.66	27.31	26.97	26.63	26.30	25.98
42.50	DISCHG	25.66	25.35	25.05	24.75	24.46	24.17	23.90	23.62	23.35	23.09
45.00	DISCHG	22.[illegible]	22.57	22.32	22.07	21.83	21.60	21.37	21.14	20.92	20.70
47.50	DISCHG	20.48	20.27	20.06	19.85	19.65	19.45	19.25	19.06	18.88	18.70
50.00	DISCHG	18.52	18.35	18.18	18.01	17.84	17.67	17.51	17.35	17.19	17.04
52.50	DISCHG	16.88	16.73	16.58	16.43	16.29	16.15	16.00	15.86	15.72	15.59
55.00	DISCHG	15.45	15.32	15.19	15.06	14.93	14.81	14.68	14.56	14.44	14.32
57.50	DISCHG	14.21	14.09	13.98	13.86	13.75	13.64	13.53	13.42	13.31	13.21
60.00	DISCHG	13.10	13.00	12.90	12.81	12.71	12.62	12.53	12.44	12.35	12.26
62.50	DISCHG	12.17	12.08	11.99	11.90	11.82	11.73	11.65	11.57	11.49	11.41
65.00	DISCHG	11.34	11.26	11.18	11.10	11.03	10.95	10.88	10.81	10.73	10.66
67.50	DISCHG	10.59	10.51	10.44	10.37	10.30	10.23	10.16	10.09	10.02	9.95
70.00	DISCHG	9.89	9.82	9.76	9.69	9.62	9.56	9.49	9.43	9.37	9.31
72.50	DISCHG	9.24	9.18	9.12	9.06	9.00	8.94	8.88	8.82	8.76	8.70

RUNOFF VOLUME ABOVE BASEFLOW = 4.44 WATERSHED INCHES, 2805.60 CFS-HRS, 231.85 ACRE-FEET; BASEFLOW = .00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP COMPUTATIONS COMPLETED FOR PASS 1 RECORD ID

EXECUTIVE CONTROL OPERATION COMPUT FROM STRUCTURE 5 TO STRUCTURE 16 RECORD ID
STARTING TIME = .00 RAIN DEPTH = 8.00 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT. MOIST. COND= 2
ALTERNATE NO.= 1 STORM NO.= 2 MAIN TIME INCREMENT = .25 HOURS

*** WARNING - REACH 1 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 7.21 CFS, 24.07 % OF PEAK.

*** WARNING - REACH 2 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 7.37 CFS, 17.71 % OF PEAK.

*** WARNING REACH 3 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

*** WARNING - REACH 3 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 8.19 CFS, 12.02 % OF PEAK.

*** WARNING REACH 5 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

OPERATION ADDHYD STRUCTURE 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
10.53	166.39	(NULL)

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .25 HOURS DRAINAGE AREA = .98 SQ.MI.

5.00	DISCHG	.00	.01	.05	.13	.24	.43	.71	1.06	1.46	1.89
7.50	DISCHG	2.36	2.85	3.40	4.04	4.73	5.46	6.21	6.95	7.71	8.46
10.00	DISCHG	9.19	9.89	10.58	11.23	11.84	12.43	13.08	13.76	14.48	15.29
12.50	DISCHG	16.25	17.37	18.59	20.02	21.88	24.33	27.23	30.69	35.06	40.21
15.00	DISCHG	46.19	53.30	62.50	74.11	88.26	104.44	118.59	130.33	141.61	149.93
17.50	DISCHG	156.07	160.54	163.57	165.64	166.39	165.94	164.59	162.48	159.88	157.06
20.00	DISCHG	154.14	151.27	148.40	145.48	142.58	139.72	136.95	134.34	131.92	129.66
22.50	DISCHG	127.53	125.50	123.58	121.75	120.00	118.30	116.39	114.18	111.62	108.58
25.00	DISCHG	105.28	101.78	98.23	94.80	91.60	88.53	85.57	82.74	80.03	77.45
27.50	DISCHG	75.02	72.72	70.61	68.72	66.98	65.36	63.85	62.42	61.07	59.77
30.00	DISCHG	58.51	57.30	56.13	55.00	53.91	52.85	51.81	50.81	49.83	48.87
32.50	DISCHG	47.94	47.03	46.14	45.38	44.67	43.97	43.28	42.61	41.95	41.31
35.00	DISCHG	40.68	40.06	39.46	38.86	38.27	37.70	37.13	36.58	36.04	35.50
37.50	DISCHG	34.96	34.47	33.97	33.49	33.03	32.58	32.14	31.71	31.29	30.87
40.00	DISCHG	30.47	30.07	29.68	29.29	28.92	28.55	28.18	27.83	27.48	27.14
42.50	DISCHG	26.81	26.46	26.16	25.85	25.54	25.23	24.94	24.65	24.36	24.08
45.00	DISCHG	23.81	23.54	23.27	23.01	22.76	22.51	22.27	22.03	21.79	21.56
47.50	DISCHG	21.34	21.12	20.90	20.68	20.47	20.26	20.06	19.86	19.66	19.46
50.00	DISCHG	19.27	19.08	18.91	18.73	18.55	18.38	18.21	18.05	17.88	17.72
52.50	DISCHG	17.56	17.40	17.25	17.09	16.94	16.79	16.65	16.50	16.36	16.21
55.00	DISCHG	16.07	15.94	15.80	15.66	15.53	15.40	15.27	15.14	15.02	14.90
57.50	DISCHG	14.78	14.66	14.54	14.42	14.31	14.19	14.07	13.96	13.85	13.74
60.00	DISCHG	13.63	13.53	13.42	13.31	13.21	13.10	13.00	12.91	12.81	12.72
62.50	DISCHG	12.63	12.54	12.45	12.36	12.27	12.18	12.09	12.01	11.92	11.84
65.00	DISCHG	11.76	11.68	11.60	11.52	11.44	11.37	11.29	11.21	11.14	11.06
67.50	DISCHG	10.99	10.91	10.84	10.76	10.69	10.62	10.55	10.48	10.40	10.33
70.00	DISCHG	10.27	10.19	10.13	10.06	9.99	9.92	9.86	9.79	9.73	9.66
72.50	DISCHG	9.60	9.53	9.47	9.41	9.34	9.28	9.22	9.16	9.10	9.04

RUNOFF VOLUME ABOVE BASEFLOW = 4.42 WATERSHED INCHES, 2792.77 CFS-HRS, 230.79 ACRE-FEET; BASEFLOW = .00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP COMPUTATIONS COMPLETED FOR PASS 2 RECORD ID

EXECUTIVE CONTROL OPERATION ENDJOB RECORD ID

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATION (HR)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 1 STORM 1													
STRUCTURE 5	RUNOFF	.06	1	2	.25	.0	8.00	24.00	5.52	---	12.42	23.38	383.3
STRUCTURE 5	RESVOR	.06	1	2	.25	.0	8.00	24.00	4.57	14.41	17.41	11.76	192.8
STRUCTURE 6	RUNOFF	.12	1	2	.25	.0	8.00	24.00	5.32	---	12.52	45.20	364.5
STRUCTURE 7	RUNOFF	.16	1	2	.25	.0	8.00	24.00	5.59	---	12.64	60.49	368.8
STRUCTURE 7	RESVOR	.16	1	2	.25	.0	8.00	24.00	4.88	15.97	22.91	14.88	90.7
STRUCTURE 6	ADDHYD	.29	1	2	.25	.0	8.00	24.00	5.07	17.20	12.64	51.96	180.4
STRUCTURE 6	RESVOR	.29	1	2	.25	.0	8.00	24.00	4.07	15.37	25.38	16.24	56.4
STRUCTURE 6	ADDHYD	.35	1	2	.25	.0	8.00	24.00	4.16	15.88	21.72	25.89	74.2
XSECTION 1	REACH	.35	1	2	.25	.0	8.00	24.00	4.14	---	22.13	25.87	74.1
STRUCTURE 8	RUNOFF	.02	1	2	.25	.0	8.00	24.00	6.54	---	12.28	10.05	446.5
STRUCTURE 8	RESVOR	.02	1	2	.25	.0	8.00	24.00	5.73	14.86	15.57	6.61	293.7
STRUCTURE 8	RUNOFF	.01	1	2	.25	.0	8.00	24.00	5.40	---	12.66	2.86	357.5
STRUCTURE 8	ADDHYD	.03	1	2	.25	.0	8.00	24.00	5.64	15.12	13.75	9.01	295.4
STRUCTURE 8	ADDHYD	.38	1	2	.25	.0	8.00	24.00	4.26	17.31	19.50	31.28	82.4
XSECTION 2	REACH	.38	1	2	.25	.0	8.00	24.00	4.25	---	20.72	31.25	82.3
STRUCTURE 9	RUNOFF	.07	1	2	.25	.0	8.00	24.00	5.62	---	12.54	27.75	380.1
STRUCTURE 9	RESVOR	.07	1	2	.25	.0	8.00	24.00	3.89	14.44	22.46	7.70	105.5
STRUCTURE 9	ADDHYD	.45	1	2	.25	.0	8.00	24.00	4.19	16.69	21.60	38.80	85.8
STRUCTURE 10	RUNOFF	.06	1	2	.25	.0	8.00	24.00	5.74	---	12.50	23.42	390.3
STRUCTURE 10	RESVOR	.06	1	2	.25	.0	8.00	24.00	4.88	13.47	16.88	13.07	217.8
STRUCTURE 10	ADDHYD	.51	1	2	.25	.0	8.00	24.00	4.27	15.12	19.83	50.45	98.4
XSECTION 3	REACH	.51	1	2	.25	.0	8.00	24.00	4.26	---	20.18	50.43	98.4
STRUCTURE 11	RUNOFF	.04	1	2	.25	.0	8.00	24.00	5.86	---	12.53	14.97	393.9
STRUCTURE 11	RESVOR	.04	1	2	.25	.0	8.00	24.00	4.65	14.73	21.77	5.09	134.0
STRUCTURE 11	ADDHYD	.55	1	2	.25	.0	8.00	24.00	4.29	24.83	20.46	55.41	100.7
STRUCTURE 12	RUNOFF	.16	1	2	.25	.0	8.00	24.00	5.27	---	12.56	55.91	358.4
STRUCTURE 12	RESVOR	.16	1	2	.25	.0	8.00	24.00	4.21	16.17	21.16	22.79	146.1
XSECTION 4	REACH	.16	1	2	.25	.0	8.00	24.00	4.20	---	21.68	22.75	145.8
STRUCTURE 12	ADDHYD	.71	1	2	.25	.0	8.00	24.00	4.27	17.24	21.15	78.03	110.4
STRUCTURE 13	RUNOFF	.07	1	2	.25	.0	8.00	24.00	5.04	---	12.37	25.10	358.6
STRUCTURE 13	RESVOR	.07	1	2	.25	.0	8.00	24.00	5.04	15.69	16.20	15.83	226.1
STRUCTURE 14	RUNOFF	.03	1	2	.25	.0	8.00	24.00	6.57	---	12.49	12.48	430.5

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATION (HR)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 1 STORM 1													
STRUCTURE 14	ADDHYD	.10	1	2	.25	.0	8.00	24.00	5.49	15.28	13.00	24.53	247.8
STRUCTURE 14	RESVOR	.10	1	2	.25	.0	8.00	24.00	5.49	15.25	16.51	23.07	233.1
STRUCTURE 15	RUNOFF	.04	1	2	.25	.0	8.00	24.00	5.98	---	12.48	17.36	403.8
STRUCTURE 15	RUNOFF	.03	1	2	.25	.0	8.00	24.00	4.69	---	12.16	10.88	351.1
STRUCTURE 15	ADDHYD	.14	1	2	.25	.0	8.00	24.00	5.64	15.33	15.67	34.77	244.8
STRUCTURE 15	RESVOR	.14	1	2	.25	.0	8.00	24.00	4.60	15.14	19.87	27.64	194.6
STRUCTURE 15	ADDHYD	.17	1	2	.25	.0	8.00	24.00	4.62	15.27	19.02	32.67	188.9
STRUCTURE 15	ADDHYD	.88	1	2	.25	.0	8.00	24.00	4.34	17.33	20.48	109.97	125.0
STRUCTURE 15	RUNOFF	.07	1	2	.25	.0	8.00	24.00	5.63	---	12.12	29.03	414.7
STRUCTURE 15	REACH	.07	1	2	.25	.0	8.00	24.00	5.62	15.09	13.08	25.75	367.9
STRUCTURE 15	ADDHYD	.95	1	2	.25	.0	8.00	24.00	4.43	17.65	19.26	122.33	128.8
XSECTION 5	REACH	.95	1	2	.25	.0	8.00	24.00	4.43	---	19.52	122.31	128.8
STRUCTURE 16	RUNOFF	.03	1	2	.25	.0	8.00	24.00	4.69	---	13.10	8.75	291.8
STRUCTURE 16	ADDHYD	.98	1	2	.25	.0	8.00	24.00	4.44	---	19.44	127.39	130.1
ALTERNATE 1 STORM 2													
STRUCTURE 5	RUNOFF	.06	2	2	.25	.0	8.00	24.00	5.52	---	16.29	44.19	724.4
STRUCTURE 5	RESVOR	.06	2	2	.25	.0	8.00	24.00	4.57	14.69	18.18	17.54	287.5
STRUCTURE 6	RUNOFF	.12	2	2	.25	.0	8.00	24.00	5.32	---	16.36	84.43	680.9
STRUCTURE 7	RUNOFF	.16	2	2	.25	.0	8.00	24.00	5.59	---	16.49	108.61	662.2
STRUCTURE 7	RESVOR	.16	2	2	.25	.0	8.00	24.00	4.85	16.01	23.69	15.43	94.1
STRUCTURE 6	ADDHYD	.29	2	2	.25	.0	8.00	24.00	5.05	19.30	16.40	93.72	325.4
STRUCTURE 6	RESVOR	.29	2	2	.25	.0	8.00	24.00	4.00	15.38	25.71	16.32	56.7
STRUCTURE 6	ADDHYD	.35	2	2	.25	.0	8.00	24.00	4.10	16.09	18.68	29.98	85.9
XSECTION 1	REACH	.35	2	2	.25	.0	8.00	24.00	4.09	---	19.14	29.88	85.6
STRUCTURE 8	RUNOFF	.02	2	2	.25	.0	8.00	24.00	6.54	---	16.21	18.67	829.8
STRUCTURE 8	RESVOR	.02	2	2	.25	.0	8.00	24.00	5.73	15.36	17.34	11.44	508.6
STRUCTURE 8	RUNOFF	.01	2	2	.25	.0	8.00	24.00	5.40	---	16.49	5.18	647.0
STRUCTURE 8	ADDHYD	.03	2	2	.25	.0	8.00	24.00	5.64	15.81	17.08	16.02	525.4
STRUCTURE 8	ADDHYD	.38	2	2	.25	.0	8.00	24.00	4.21	18.32	18.19	41.61	109.6
XSECTION 2	REACH	.38	2	2	.25	.0	8.00	24.00	4.20	---	18.75	41.14	108.4
STRUCTURE 9	RUNOFF	.07	2	2	.25	.0	8.00	24.00	5.62	---	16.39	50.75	695.2
STRUCTURE 9	RESVOR	.07	2	2	.25	.0	8.00	24.00	3.88	14.48	21.05	8.05	110.3
STRUCTURE 9	ADDHYD	.45	2	2	.25	.0	8.00	24.00	4.15	17.39	18.86	48.65	107.5
STRUCTURE 10	RUNOFF	.06	2	2	.25	.0	8.00	24.00	5.74	---	16.35	42.98	716.3
STRUCTURE 10	RESVOR	.06	2	2	.25	.0	8.00	24.00	4.88	13.79	18.13	20.20	336.7
STRUCTURE 10	ADDHYD	.51	2	2	.25	.0	8.00	24.00	4.23	15.00	19.61	69.20	120.4

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATION (HR)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 1 STORM 2													
XSECTION 3	REACH	.51	2	2	.25	.0	8.00	24.00	4.23	---	18.92	68.12	132.9
STRUCTURE 11	RUNOFF	.04	2	2	.25	.0	8.00	24.00	5.86	---	16.38	27.12	713.6
STRUCTURE 11	RESVOR	.04	2	2	.25	.0	8.00	24.00	4.63	14.68	19.81	5.76	151.5
STRUCTURE 11	ADDHYD	.55	2	2	.25	.0	8.00	24.00	4.25	28.50	18.95	73.78	134.0
STRUCTURE 12	RUNOFF	.16	2	2	.25	.0	8.00	24.00	5.27	---	16.40	103.60	665.4
STRUCTURE 12	RESVOR	.16	2	2	.25	.0	8.00	24.00	4.20	16.26	19.27	27.74	177.8
XSECTION 4	REACH	.16	2	2	.25	.0	8.00	24.00	4.20	---	19.93	27.54	176.5
STRUCTURE 12	ADDHYD	.71	2	2	.25	.0	8.00	24.00	4.24	17.67	19.17	100.43	142.2
STRUCTURE 13	RUNOFF	.07	2	2	.25	.0	8.00	24.00	5.04	---	16.23	49.57	708.2
STRUCTURE 13	RESVOR	.07	2	2	.25	.0	8.00	24.00	5.04	15.90	17.75	23.34	333.4
STRUCTURE 14	RUNOFF	.03	2	2	.25	.0	8.00	24.00	6.57	---	16.37	22.09	761.6
STRUCTURE 14	ADDHYD	.10	2	2	.25	.0	8.00	24.00	5.49	15.65	16.81	41.24	416.6
STRUCTURE 14	RESVOR	.10	2	2	.25	.0	8.00	24.00	5.49	15.47	18.22	33.11	334.5
STRUCTURE 15	RUNOFF	.04	2	2	.25	.0	8.00	24.00	5.98	---	16.35	31.58	734.3
STRUCTURE 15	RUNOFF	.03	2	2	.25	.0	8.00	24.00	4.69	---	16.09	23.20	748.5
STRUCTURE 15	ADDHYD	.14	2	2	.25	.0	8.00	24.00	5.64	15.88	16.93	55.49	390.8
STRUCTURE 15	RESVOR	.14	2	2	.25	.0	8.00	24.00	4.60	15.29	20.29	33.22	233.9
STRUCTURE 15	ADDHYD	.17	2	2	.25	.0	8.00	24.00	4.62	15.38	19.95	36.65	211.9
STRUCTURE 15	ADDHYD	.88	2	2	.25	.0	8.00	24.00	4.32	18.03	19.33	136.45	155.1
STRUCTURE 15	RUNOFF	.07	2	2	.25	.0	8.00	24.00	5.63	---	16.07	59.13	844.7
STRUCTURE 15	REACH	.07	2	2	.25	.0	8.00	24.00	5.62	15.71	16.84	49.38	705.4
STRUCTURE 15	ADDHYD	.95	2	2	.25	.0	8.00	24.00	4.41	18.55	18.54	156.19	164.5
XSECTION 5	REACH	.95	2	2	.25	.0	8.00	24.00	4.41	---	18.79	156.19	164.5
STRUCTURE 16	RUNOFF	.03	2	2	.25	.0	8.00	24.00	4.69	---	16.82	15.67	522.3
STRUCTURE 16	ADDHYD	.98	2	2	.25	.0	8.00	24.00	4.42	---	18.53	166.39	169.9

SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS
(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS, SEE PREVIOUS WARNINGS)

		HYDROGRAPH INFORMATION							ROUTING PARAMETERS									PEAK TRAVEL TIME	
		INFLOW		OUTFLOW		OUTFLOW+ INTERV.AREA						Q AND A EQUATION							
XSEC ID	REACH LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	BASE-FLOW (CFS)	VOLUME ABOVE BASE (IN)	MAIN TIME INCR (HR)	ITER-ATION #	COEFF (X)	POWER (M)	LENGTH FACTOR (K*)	PEAK RATIO Q/I (Q*)	S/Q @PEAK (K) (SEC)	ATT-KIN COEFF (C)	STOR-AGE (HR)	KINE-MATIC (HR)
ALTERNATE 1 STORM 1																			
1	1500	26	21.8	26	22.3	---	---	0	4.16*	.25	1	.120	1.58	.001	.999	1100	.58	.50	.31
2	2200	31	19.5	31	20.8	---	---	0	4.26*	.25	1	.120	1.58	.002	.999	1505	.46	1.25	.42
3	1200	50	19.8	50	20.3	---	---	0	4.27*	.25	1	.120	1.58	.001	1.000	689	.79?	.50	.19
4	3400	23	21.3	23	21.8	---	---	0	4.21	.25	1	.300	1.53	.007	.998	1653	.43	.50	.46
0	4000	29	12.0	26	13.0	---	---	0	5.63	.25	1	.130	1.52	.058	.891	3188	.25	.75	.90
5	1200	122	19.3	122	19.5	---	---	0	4.43	.25	1	.120	1.58	.001	1.000	498	.95?	.25	.14
ALTERNATE 1 STORM 2																			
1	1500	30	18.8	30	19.3	---	---	0	4.10*	.25	1	.120	1.58	.001	.996	1043	.60	.50	.29
2	2200	42	18.3	41	18.8	---	---	0	4.21*	.25	1	.120	1.58	.003	.989	1356	.50	.50	.38
3	1200	68	18.5	68	19.0	---	---	0	4.23*	.25	1	.120	1.58	.001	.999	617	.84?	.50	.17
4	3400	28	19.3	28	20.0	---	---	0	4.20	.25	1	.300	1.53	.008	.992	1544	.45	.75	.43
0	4000	59	16.0	49	16.8	---	---	0	5.63	.25	1	.130	1.52	.117	.835	2500	.31	.50	.72
5	1200	156	18.5	156	18.8	---	---	0	4.41	.25	1	.120	1.58	.001	1.000	455	.99?	.25	.13

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
STRUCTURE 16	.98		
ALTERNATE 1		127.39	166.39
STRUCTURE 15	.95		
ALTERNATE 1		122.33	156.19
STRUCTURE 14	.10		
ALTERNATE 1		23.07	33.11
STRUCTURE 13	.07		
ALTERNATE 1		15.83	23.34
STRUCTURE 12	.71		
ALTERNATE 1		78.03	100.43
STRUCTURE 11	.55		
ALTERNATE 1		55.41	73.78
STRUCTURE 10	.51		
ALTERNATE 1		50.45	68.22
STRUCTURE 9	.45		
ALTERNATE 1		38.80	48.65
STRUCTURE 8	.38		
ALTERNATE 1		31.28	41.61
STRUCTURE 7	.16		
ALTERNATE 1		14.88	15.43
STRUCTURE 6	.35		
ALTERNATE 1		25.89	29.98
STRUCTURE 5	.06		
ALTERNATE 1		11.76	17.54
XSECTION 1	.35		
ALTERNATE 1		25.87	29.88
XSECTION 2	.38		
ALTERNATE 1		31.25	41.14

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
XSECTION 3	.51		
ALTERNATE 1		50.43	68.12
XSECTION 4	.16		
ALTERNATE 1		22.75	27.54
XSECTION 5	.95		
ALTERNATE 1		122.31	156.19

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1*************************************************
 * WATER SURFACE PROFILES                        *
 * VERSION OF NOVEMBER 1976                      *
 * UPDATED MAY 1984                              *
 * IBM-PC-XT VERSION AUGUST 1985                 *
 * RUN DATE  08-30-88   TIME  02:38:23            *
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*************************************
 * U.S. ARMY CORPS OF ENGINEERS      *
 * THE HYDROLOGIC ENGINEERING CENTER *
 * 609 SECOND STREET, SUITE D        *
 * DAVIS, CALIFORNIA 95616           *
  * (916) 440-2105 (FTS) 448-2105     *
*************************************
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EXHIBIT 3

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X    X  XXXXXXX  XXXXX          XXXXX
X    X  X      X    X         X    X
X    X  X      X                   X
XXXXXXX  XXXX   X       XXXXX  XXXXX
X    X  X      X              X
X    X  X      X    X         X
X    X  XXXXXXX  XXXXX         XXXXXXX
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1

08-30-88 02:38:23 PAGE 1

THIS RUN EXECUTED 08-30-88

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*********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
*********************************************
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T1 NORTH CREEK LATERAL (FILE NAME = NORTHCR.DAT)
T2 HYDRAULIC ANALYSIS
T3 25 YEAR FLOOD - INTERMEDIATE REGIONAL FLOOD

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	.000000	.00	.0	0.	4.000	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

J5 LPRNT NUMSEC ********REQUESTED SECTION NUMBERS********

-10.000	-10.000	.000	.000	.000	.000	.000	.000	.000	.000

NC	.120	.120	.040	.100	.300	.000	.000	.000	.000	.000
QT	2.000	127.000	166.000	.000	.000	.000	.000	.000	.000	.000
X1	.000	5.000	.000	29.000	.000	.000	.000	.000	.000	.000
GR	7.500	.000	1.500	8.000	1.100	16.000	1.500	20.000	8.500	29.000
X1	.700	3.000	.000	38.000	70.000	70.000	70.000	.000	.000	.000
GR	8.100	.000	1.600	18.000	11.800	38.000	.000	.000	.000	.000
X1	1.070	4.000	.000	36.000	37.000	37.000	37.000	.000	.000	.000
	[illegible]	[illegible]	[illegible]	47.000	1.000	22.000	12.600	36.000	.000	.000

GR	8.000	.000	1.900	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
X1	2.320	7.000	20.000	64.000	125.000	125.000	125.000	.000	.000	.000
GR	11.300	.000	10.200	20.000	4.500	32.000	.800	42.000	4.800	52.000
GR	10.600	64.000	11.300	83.000	.000	.000	.000	.000	.000	.000
X1	2.820	6.000	17.000	60.000	53.000	48.000	58.000	.000	.000	.000
GR	10.400	.000	10.100	17.000	2.900	30.000	2.100	34.000	9.900	60.000
GR	10.000	76.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	5.720	8.000	13.000	99.000	287.000	287.000	287.000	.000	.000	.000
GR	13.000	.000	12.800	13.000	8.600	25.000	4.600	43.000	2.900	61.000
GR	7.100	80.000	10.000	99.000	10.100	127.000	.000	.000	.000	.000

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X1	6.680	8.000	17.000	81.000	96.000	96.000	96.000	.000	.000	.000
GR	13.200	.000	12.900	17.000	9.300	32.000	5.100	48.000	4.200	58.000
GR	5.100	67.000	9.400	81.000	12.000	114.000	.000	.000	.000	.000
X1	7.680	6.000	.000	36.000	100.000	100.000	100.000	.000	.000	.000
GR	14.500	.000	4.700	9.000	4.700	16.000	4.800	20.000	13.400	36.000
GR	13.800	60.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	8.840	7.000	21.000	57.000	116.000	116.000	116.000	.000	.000	.000
GR	13.500	.000	13.200	21.000	6.700	27.000	5.900	36.000	5.800	43.000
GR	14.100	57.000	14.300	70.000	.000	.000	.000	.000	.000	.000
X1	9.940	7.000	15.000	48.000	110.000	110.000	110.000	.000	.000	.000
GR	13.200	.000	12.200	15.000	7.900	22.000	7.500	26.000	4.300	33.000
GR	6.100	38.000	14.100	48.000	.000	.000	.000	.000	.000	.000
QT	2.000	122.000	156.000	.000	.000	.000	.000	.000	.000	.000
X1	12.040	6.000	8.000	41.000	210.000	210.000	210.000	.000	.000	.000
GR	14.100	.000	11.800	8.000	8.200	21.000	5.500	28.000	11.100	41.000
GR	11.500	57.000	.000	.000	.000	.000	.000	.000	.000	.000
QT	2.000	110.000	136.000	.000	.000	.000	.000	.000	.000	.000
X1	12.640	7.000	13.000	37.000	60.000	60.000	60.000	.000	.000	.000
GR	9.200	.000	8.800	13.000	7.700	22.000	7.200	25.000	8.200	29.000
GR	8.600	37.000	12.200	56.000	.000	.000	.000	.000	.000	.000
QT	2.000	78.000	100.000	.000	.000	.000	.000	.000	.000	.000
X1	13.790	5.000	.000	19.000	115.000	115.000	115.000	.000	.000	.000
GR	10.700	.000	7.800	7.000	7.600	10.000	7.900	13.000	9.700	19.000
QT	2.000	55.000	74.000	.000	.000	.000	.000	.000	.000	.000
X1	15.400	10.000	.000	32.000	165.000	165.000	165.000	.000	.000	.000
GR	12.200	.000	10.800	3.000	7.700	8.000	4.400	11.000	4.200	15.000
GR	4.400	20.000	7.900	25.000	10.300	27.000	12.300	32.000	14.200	43.000
X1	16.100	12.000	22.000	60.000	70.000	70.000	70.000	.000	.000	.000
GR	12.700	.000	12.600	12.000	12.500	22.000	10.800	29.000	7.900	33.000
GR	5.000	38.000	4.800	43.000	5.000	49.000	8.300	54.000	10.300	57.000
GR	11.700	60.000	12.400	67.000	.000	.000	.000	.000	.000	.000
X1	17.400	9.000	14.000	48.000	130.000	130.000	130.000	.000	.000	.000
GR	13.500	.000	13.300	14.000	9.000	19.000	8.200	22.000	5.100	30.000
GR	8.200	39.000	6.900	41.000	13.500	48.000	15.800	57.000	.000	.000
X1	18.280	9.000	.000	29.000	88.000	88.000	88.000	.000	.000	.000
GR	15.600	.000	10.000	6.000	8.000	9.000	6.900	13.000	6.900	16.000
GR	6.900	20.000	7.800	23.000	9.900	27.000	13.000	29.000	.000	.000

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X1	23.200	10.000	.000	38.000	492.000	492.000	492.000	.000	.000	.000
GR	15.500	.000	13.900	7.000	11.800	12.000	6.300	17.000	6.400	20.000
GR	6.400	24.000	6.400	27.000	8.400	29.000	11.700	34.000	13.600	38.000
X1	25.200	9.000	.000	37.000	200.000	200.000	200.000	.000	.000	.000
GR	15.300	.000	12.300	10.000	9.100	12.000	7.500	15.000	7.900	20.000
GR	7.400	25.000	9.200	30.000	13.500	34.000	14.500	37.000	.000	.000
X1	27.000	9.000	.000	33.000	182.000	182.000	182.000	.000	.000	.000
GR	17.500	.000	8.700	13.000	7.000	18.000	7.800	22.000	7.600	24.000
GR	9.000	28.000	10.000	29.000	15.000	31.000	15.900	33.000	.000	.000
X1	29.220	11.000	.000	35.000	220.000	220.000	220.000	.000	.000	.000
GR	17.900	.000	16.700	3.000	14.800	7.000	8.700	14.000	8.200	17.000
GR	8.000	20.000	8.300	22.000	9.000	26.000	12.200	29.000	13.900	32.000
GR	15.200	35.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	30.260	13.000	12.000	59.000	104.000	104.000	104.000	.000	.000	.000
GR	17.500	.000	17.400	12.000	11.100	21.000	9.600	23.000	7.700	27.000
GR	7.700	30.000	7.600	34.000	8.200	36.000	8.700	37.000	10.700	40.000
GR	14.300	46.000	16.600	51.000	19.200	59.000	.000	.000	.000	.000
QT	2.000	31.000	41.000	.000	.000	.000	.000	.000	.000	.000
X1	33.320	13.000	18.000	52.000	806.000	806.000	806.000	.000	.000	.000
GR	17.100	.000	17.000	8.000	16.100	13.000	14.400	18.000	11.400	22.000
GR	9.900	32.000	10.200	36.000	10.100	38.000	10.500	43.000	11.300	45.000
GR	15.200	48.000	16.400	49.000	18.000	52.000	.000	.000	.000	.000
X1	40.200	12.000	3.000	35.000	188.000	188.000	188.000	.000	.000	.000
GR	18.100	.000	17.400	3.000	15.600	5.000	11.100	13.000	9.000	19.000
GR	8.500	23.000	8.800	25.000	10.900	30.000	12.600	31.000	16.100	35.000
GR	17.300	38.000	20.700	49.000	.000	.000	.000	.000	.000	.000
QT	2.000	26.000	30.000	.000	.000	.000	.000	.000	.000	.000
NC	.100	.100	.100	.000	.000	.000	.000	.000	.000	.000
X1	51.380	7.000	.000	100.000	1118.000	1118.000	1118.000	.000	.000	.000
GR	15.400	.000	12.600	22.000	12.300	37.000	11.200	40.000	11.300	43.000
GR	13.400	68.000	16.700	100.000	.000	.000	.000	.000	.000	.000
NC	.125	.125	.040	.000	.000	.000	.000	.000	.000	.000
X1	52.450	11.000	5.000	25.000	107.000	107.000	107.000	.000	.000	.000
GR	17.000	.000	15.500	3.000	14.300	5.000	12.500	7.000	10.900	9.000
GR	9.400	12.000	9.300	14.000	9.800	17.000	10.500	19.000	13.000	23.000
GR	17.000	25.000	.000	.000	.000	.000	.000	.000	.000	.000
QT	2.000	16.000	16.000	.000	.000	.000	.000	.000	.000	.000
X1	62.600	10.000	4.000	30.000	1015.000	1015.000	1015.000	.000	.000	.000
GR	18.900	.000	15.600	4.000	11.900	7.000	9.900	14.000	10.100	16.000
GR	10.400	19.000	11.300	22.000	13.400	26.000	15.400	30.000	15.800	66.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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THIS RUN EXECUTED 08-30-88

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HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION AUGUST 1985

****

T1 NORTH CREEK LATERAL (FILE NAME = NORTHCR.DAT)
T2 HYDRAULIC ANALYSIS
T3 25 YEAR STORM - STANDARD PROJECT FLOOD

J1	IOMEGY	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	3.	0.	0.	.000000	.00	.0	0.	5.000	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

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08-30-88 02:38:23 PAGE 5

THIS RUN EXECUTED 08-30-88

****
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION AUGUST 1985
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

AR FLOOD - INTERMEDIATE

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	.000	.00	.00	.00	1.10	127.00	4.00	.00	4.15	28.11	3.13	40.58	23.95
	.000	.00	.00	.00	1.10	166.00	5.00	.00	5.12	15.57	2.75	60.44	42.08
*	.700	70.00	.00	.00	1.60	127.00	4.42	4.42	5.13	233.35	6.75	18.82	8.31
	.700	70.00	.00	.00	1.60	166.00	4.88	.00	5.54	178.36	6.52	25.45	12.43
	1.070	37.00	.00	.00	1.50	127.00	5.25	.00	5.39	23.39	2.92	43.54	26.26
	1.070	37.00	.00	.00	1.50	166.00	5.63	.00	5.79	26.07	3.25	51.02	32.51
	2.320	125.00	.00	.00	.80	127.00	5.52	.00	5.59	11.90	2.21	57.37	36.81
	2.320	125.00	.00	.00	.80	166.00	5.93	.00	6.02	13.14	2.47	67.23	46.79
	2.820	58.00	.00	.00	2.10	127.00	5.56	.00	5.73	36.00	3.28	38.68	21.17
	2.820	58.00	.00	.00	2.10	166.00	5.98	.00	6.17	35.30	3.49	47.58	27.94
	5.720	287.00	.00	.00	2.90	127.00	6.18	.00	6.23	9.70	1.72	73.71	40.78
	5.720	287.00	.00	.00	2.90	166.00	6.60	.00	6.65	9.24	1.82	91.05	54.61
	6.680	96.00	.00	.00	4.20	127.00	6.27	.00	6.47	65.70	3.56	35.64	15.67
	6.680	96.00	.00	.00	4.20	166.00	6.67	.00	6.86	50.53	3.52	47.15	23.35
	7.680	100.00	.00	.00	4.70	127.00	6.88	.00	7.16	67.70	4.24	29.96	15.43
	7.680	100.00	.00	.00	4.70	166.00	7.17	.00	7.52	74.18	4.75	34.97	19.27
	8.840	116.00	.00	.00	5.80	127.00	7.74	.00	8.02	82.61	4.24	29.94	13.97
	8.840	116.00	.00	.00	5.80	166.00	8.08	.00	8.39	76.56	4.52	36.70	18.97

9.940	110.00	.00	.00	4.30	127.00	8.42	.00	8.57	32.08	3.17	40.10	22.42
9.940	110.00	.00	.00	4.30	166.00	8.76	.00	8.95	34.61	3.53	47.04	28.22
12.040	210.00	.00	.00	5.50	122.00	9.20	.00	9.40	48.02	3.60	33.91	17.61
12.040	210.00	.00	.00	5.50	156.00	9.57	.00	9.79	45.83	3.75	41.65	23.04

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
12.640	60.00	.00	.00	7.20	110.00	9.54	.00	9.68	42.90	3.07	43.61	16.79
12.640	60.00	.00	.00	7.20	136.00	9.89	.00	10.02	29.79	2.96	58.20	24.92
13.790	115.00	.00	.00	7.60	78.00	10.01	.00	10.14	36.85	2.90	26.85	12.85
13.790	115.00	.00	.00	7.60	100.00	10.25	.00	10.41	39.35	3.21	31.14	15.94
15.400	165.00	.00	.00	4.20	55.00	10.18	.00	10.19	.49	.59	92.98	78.24
15.400	165.00	.00	.00	4.20	74.00	10.47	.00	10.48	.75	.74	99.64	85.44
16.100	70.00	.00	.00	4.80	55.00	10.19	.00	10.19	.43	.55	100.80	83.86
16.100	70.00	.00	.00	4.80	74.00	10.47	.00	10.48	.64	.68	108.68	92.82
17.400	130.00	.00	.00	5.10	55.00	10.19	.00	10.20	1.26	.78	70.39	48.92
17.400	130.00	.00	.00	5.10	74.00	10.48	.00	10.50	1.71	.95	77.86	56.56
18.280	88.00	.00	.00	6.90	55.00	10.20	.00	10.22	2.79	1.06	51.69	32.90
18.280	88.00	.00	.00	6.90	74.00	10.50	.00	10.52	3.60	1.28	58.03	39.02
23.200	492.00	.00	.00	6.30	55.00	10.32	.00	10.34	2.08	1.00	55.19	38.18
23.200	492.00	.00	.00	6.30	74.00	10.65	.00	10.68	2.77	1.20	61.65	44.44
25.200	200.00	.00	.00	7.00	55.00	10.37	.00	10.39	3.07	1.12	49.18	31.37
25.200	200.00	.00	.00	7.00	74.00	10.71	.00	10.74	3.77	1.32	56.14	38.10
27.020	182.00	.00	.00	7.00	55.00	10.43	.00	10.46	4.76	1.31	42.09	25.21
27.020	182.00	.00	.00	7.00	74.00	10.79	.00	10.83	5.58	1.51	48.89	31.33
29.220	220.00	.00	.00	8.00	55.00	10.57	.00	10.63	12.21	1.86	29.50	15.74
29.220	220.00	.00	.00	8.00	74.00	10.95	.00	11.01	12.95	2.08	35.49	20.57
30.260	104.00	.00	.00	7.60	55.00	10.68	.00	10.71	5.20	1.36	40.52	24.13
30.260	104.00	.00	.00	7.60	74.00	11.07	.00	11.10	5.84	1.54	48.06	30.61
38.320	806.00	.00	.00	9.90	31.00	11.30	.00	11.34	21.66	1.57	19.68	6.86
38.320	806.00	.00	.00	9.90	41.00	11.67	.00	11.70	12.48	1.45	28.21	11.61
40.200	188.00	.00	.00	8.50	31.00	11.45	.00	11.47	3.09	.94	33.03	17.62
40.200	188.00	.00	.00	8.50	41.00	11.80	.00	11.81	3.26	1.04	39.34	22.72
51.380	1118.00	.00	.00	11.20	26.00	12.44	.00	12.49	387.15	1.88	13.79	1.32
51.380	1118.00	.00	.00	11.20	30.00	12.69	.00	12.72	175.79	1.36	22.04	2.26
52.450	107.00	.00	.00	9.30	26.00	12.56	.00	12.57	1.94	.80	32.60	18.65
52.450	107.00	.00	.00	9.30	30.00	12.78	.00	12.79	1.98	.84	35.90	21.32
62.600	1015.00	.00	.00	9.90	16.00	12.70	.00	12.71	.84	.48	33.06	17.47
62.600	1015.00	.00	.00	9.90	16.00	12.91	.00	12.91	.61	.43	36.95	20.53

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08-30-88 02:38:23 PAGE 7

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.000	127.00	4.00	.00	.00	.00	18.56	.00
.000	166.00	5.00	1.00	.00	.00	21.17	.00
* .700	127.00	4.42	.00	.42	.00	13.34	70.00
.700	166.00	4.88	.46	-.12	.00	15.52	70.00
1.070	127.00	5.25	.00	.83	.00	19.20	37.00
1.070	166.00	5.63	.37	.75	.00	20.68	37.00
2.320	127.00	5.52	.00	.26	.00	23.42	125.00
2.320	166.00	5.93	.41	.30	.00	25.04	125.00
2.820	127.00	5.56	.00	.06	.00	20.36	58.00
2.820	166.00	5.98	.42	.05	.00	22.50	58.00
5.720	127.00	6.18	.00	.62	.00	39.95	287.00
5.720	166.00	6.60	.41	.62	.00	43.69	287.00
6.680	127.00	6.27	.00	.09	.00	27.27	96.00
6.680	166.00	6.67	.40	.08	.00	30.11	96.00
7.680	127.00	6.88	.00	.61	.00	16.87	100.00
7.680	166.00	7.17	.29	.50	.00	17.67	100.00
8.840	127.00	7.74	.00	.87	.00	20.24	116.00
8.840	166.00	8.08	.33	.91	.00	21.10	116.00
9.940	127.00	8.42	.00	.67	.00	19.73	110.00
9.940	166.00	8.76	.34	.68	.00	20.72	110.00
12.040	122.00	9.20	.00	.78	.00	19.13	210.00
12.040	156.00	9.57	.37	.81	.00	21.39	210.00
12.640	110.00	9.54	.00	.34	.00	41.95	60.00
12.640	136.00	9.89	.35	.32	.00	43.82	60.00
13.790	76.00	10.01	.00	.47	.00	17.33	115.00
13.790	100.00	10.25	.24	.36	.00	17.92	115.00
15.400	55.00	10.18	.00	.17	.00	22.91	165.00
15.400	74.00	10.47	.29	.22	.00	23.88	165.00
16.100	55.00	10.19	.00	.00	.00	26.98	70.00
16.100	74.00	10.47	.29	.01	.00	27.92	70.00
17.400	55.00	10.19	.00	.01	.00	25.35	130.00
17.400	74.00	10.48	.29	.01	.00	26.13	130.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
18.280	55.00	10.20	.00	.01	.00	21.41	88.00
18.280	74.00	10.50	.29	.01	.00	21.91	88.00
23.200	55.00	10.32	.00	.12	.00	18.55	492.00
23.200	74.00	10.65	.33	.16	.00	19.37	492.00

25.200	55.00	10.37	.00	.05	.00	19.88	200.00
25.200	74.00	10.71	.34	.06	.00	20.42	200.00
27.020	55.00	10.43	.00	.06	.00	18.72	182.00
27.020	74.00	10.79	.36	.08	.00	19.39	182.00
29.220	55.00	10.57	.00	.14	.00	15.62	220.00
29.220	74.00	10.95	.37	.16	.00	16.40	220.00
30.260	55.00	10.68	.00	.11	.00	18.38	104.00
30.260	74.00	11.07	.39	.12	.00	19.57	104.00
38.320	31.00	11.30	.00	.62	.00	22.35	806.00
38.320	41.00	11.67	.37	.60	.00	23.64	806.00
40.200	31.00	11.45	.00	.15	.00	17.95	188.00
40.200	41.00	11.80	.34	.12	.00	18.76	188.00
51.380	26.00	12.44	.00	.98	.00	26.40	1118.00
51.380	30.00	12.69	.25	.89	.00	38.14	1118.00
52.450	26.00	12.56	.00	.12	.00	15.36	107.00
52.450	30.00	12.78	.22	.09	.00	15.93	107.00
62.600	16.00	12.70	.00	.14	.00	18.32	1015.00
62.600	16.00	12.91	.21	.13	.00	18.89	1015.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION  SECNO=     .700  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     .700  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     .700  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
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THIS RUN EXECUTED 08-30-88

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*********************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
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1*************************************************
* WATER SURFACE PROFILES                        *
* VERSION OF NOVEMBER 1976                      *
* UPDATED MAY 1984                              *
* IBM-PC-XT VERSION AUGUST 1985                 *
* RUN DATE  08-30-88   TIME  02:17:18            *
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*********************************
* U.S. ARMY CORPS OF ENGINEERS  *
* THE HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET, SUITE D    *
* DAVIS, CALIFORNIA 95616       *
* (916) 440-2105 (FTS) 448-2105  *
*********************************
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EXHIBIT 4

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X    X  XXXXXXX  XXXXX          XXXXX
X    X  X      X    X         X    X
X    X  X      X                   X
XXXXXXX  XXXX   X       XXXXX  XXXXX
X    X  X      X              X
X    X  X      X    X         X
X    X  XXXXXXX  XXXXX         XXXXXXX
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 08-30-88    02:17:19                                                    PAGE   1


                                                    THIS RUN EXECUTED 08-30-88
 ***********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
 ***********************************************


 T1 NORTH CREEK LATERAL (FILE NAME = NORTHCR.DAT)
 T2 HYDRAULIC ANALYSIS
 T3 25 YEAR FLOOD - INTERMEDIATE REGIONAL FLOOD

 J1  ICHECK    INQ      NINV     IDIR     STRT    METRIC   HVINS    Q       WSEL     FQ

       0.       2.       0.       0.  .000000     .00      .0      0.     4.000    .000

 J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN      ALLDC    IBW     CHNIM    ITRACE

      .000     .000   -1.000     .000     .000    .000     .000    .000     .000     .000

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150.000    .000     .000     .000     .000    .000     .000    .000     .000     .000

 J5  LPRNT    NUMSEC                 ********REQUESTED SECTION NUMBERS********

    -10.000  -10.000    .000     .000     .000    .000     .000    .000     .000     .000

 NC      .120      .120      .040      .100      .300      .000      .000      .000      .000      .000
 QT     2.000   127.000   166.000      .000      .000      .000      .000      .000      .000      .000
 X1      .000     5.000      .000    29.000      .000      .000      .000      .000      .000      .000
 GR     7.500      .000     1.500     8.000     1.100    16.000     1.500    20.000     8.500    29.000

 X1      .700     3.000      .000    38.000    70.000    70.000    70.000      .000      .000      .000
 GR     8.100      .000     1.600    18.000    11.800    36.000      .000      .000      .000      .000
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X1	1.070	4.000	.000	36.000	37.000	37.000	37.000	.000	.000	.000
GR	8.000	.000	1.500	17.000	1.900	22.000	12.600	36.000	.000	.000
X1	2.320	7.000	20.000	64.000	125.000	125.000	125.000	.000	.000	.000
X5	2.000	6.000	6.930	.000	.000	.000	.000	.000	.000	.000
GR	11.300	.000	10.200	20.000	4.500	32.000	.800	42.000	4.800	52.000
GR	10.600	64.000	11.300	83.000	.000	.000	.000	.000	.000	.000
X1	2.830	6.000	17.000	60.000	53.000	48.000	58.000	.000	.000	.000
GR	10.400	.000	10.100	17.000	2.900	30.000	2.100	34.000	9.900	60.000
GR	10.000	76.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	5.720	8.000	13.000	99.000	287.000	287.000	287.000	.000	.000	.000
X5	2.000	7.730	8.460	.000	.000	.000	.000	.000	.000	.000
GR	13.000	.000	12.800	13.000	8.600	25.000	4.600	43.000	2.900	61.000
GR	7.100	80.000	10.000	99.000	10.100	127.000	.000	.000	.000	.000

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X1	6.680	8.000	17.000	81.000	96.000	96.000	96.000	.000	.000	.000
GR	13.200	.000	12.900	17.000	9.300	32.000	5.100	48.000	4.200	58.000
GR	5.100	67.000	9.400	81.000	12.000	114.000	.000	.000	.000	.000
X1	7.680	6.000	.000	36.000	100.000	100.000	100.000	.000	.000	.000
GR	14.500	.000	4.700	9.000	4.700	16.000	4.800	20.000	13.400	36.000
GR	13.200	60.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	8.840	7.000	21.000	57.000	116.000	116.000	116.000	.000	.000	.000
GR	13.500	.000	13.200	21.000	6.700	27.000	5.900	36.000	5.800	43.000
GR	14.100	57.000	14.300	70.000	.000	.000	.000	.000	.000	.000
X1	9.940	7.000	15.000	48.000	110.000	110.000	110.000	.000	.000	.000
GR	13.200	.000	12.200	15.000	7.900	22.000	7.500	26.000	4.300	33.000
GR	6.100	38.000	14.100	48.000	.000	.000	.000	.000	.000	.000
QT	2.000	122.000	156.000	.000	.000	.000	.000	.000	.000	.000
X1	12.040	6.000	8.000	41.000	210.000	210.000	210.000	.000	.000	.000
X5	2.000	9.330	10.410	.000	.000	.000	.000	.000	.000	.000
GR	14.100	.000	11.800	8.000	8.200	21.000	5.500	28.000	11.100	41.000
GR	11.500	57.000	.000	.000	.000	.000	.000	.000	.000	.000
QT	2.000	110.000	136.000	.000	.000	.000	.000	.000	.000	.000
X1	12.640	7.000	13.000	37.000	60.000	60.000	60.000	.000	.000	.000
GR	9.200	.000	8.800	13.000	7.700	22.000	7.200	25.000	8.200	29.000
GR	8.600	37.000	12.200	56.000	.000	.000	.000	.000	.000	.000
QT	2.000	78.000	100.000	.000	.000	.000	.000	.000	.000	.000
X1	13.790	5.000	.000	19.000	115.000	115.000	115.000	.000	.000	.000
X5	2.000	10.470	11.600	.000	.000	.000	.000	.000	.000	.000
GR	10.700	.000	7.800	7.000	7.600	10.000	7.900	13.000	9.700	19.000
QT	2.000	55.000	74.000	.000	.000	.000	.000	.000	.000	.000
X1	15.400	10.000	.000	32.000	165.000	165.000	165.000	.000	.000	.000
GR	12.200	.000	10.800	3.000	7.700	8.000	4.400	11.000	4.200	15.000
GR	4.400	20.000	7.800	25.000	10.300	27.000	12.300	32.000	14.200	43.000
X1	16.100	12.000	22.000	60.000	70.000	70.000	70.000	.000	.000	.000
GR	12.700	.000	12.600	12.000	12.500	22.000	10.800	29.000	7.900	33.000
GR	5.000	38.000	4.800	43.000	5.000	49.000	8.300	54.000	10.300	57.000
GR	11.700	60.000	12.400	67.000	.000	.000	.000	.000	.000	.000
X1	17.400	9.000	14.000	48.000	130.000	130.000	130.000	.000	.000	.000
GR	13.500	.000	13.300	14.000	9.000	19.000	8.200	22.000	5.100	30.000

X1	18.280	9.000	.000	29.000	88.000	88.000	88.000	.000	.000	.000
GR	15.600	.000	10.000	6.000	8.000	9.000	6.900	13.000	6.900	16.000
GR	6.900	20.000	7.800	23.000	9.900	27.000	13.000	29.000	.000	.000

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X1	23.200	10.000	.000	36.000	492.000	492.000	492.000	.000	.000	.000
GR	15.500	.000	13.900	7.000	11.800	12.000	6.300	17.000	6.400	20.000
GR	6.400	24.000	6.400	27.000	8.400	29.000	11.700	34.000	13.600	38.000
X1	25.200	9.000	.000	37.000	200.000	200.000	200.000	.000	.000	.000
GR	15.300	.000	12.300	10.000	9.100	12.000	7.500	15.000	7.000	20.000
GR	7.400	25.000	9.200	30.000	13.500	34.000	14.500	37.000	.000	.000
X1	27.020	9.000	.000	33.000	182.000	182.000	182.000	.000	.000	.000
GR	17.500	.000	8.700	13.000	7.000	18.000	7.800	22.000	7.600	24.000
GR	9.000	28.000	10.000	29.000	15.000	31.000	15.900	33.000	.000	.000
X1	29.220	11.000	.000	35.000	220.000	220.000	220.000	.000	.000	.000
GR	17.900	.000	16.700	3.000	14.800	7.000	8.700	14.000	8.200	17.000
GR	8.000	20.000	8.300	22.000	9.000	26.000	12.200	29.000	13.900	32.000
GR	15.200	35.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	30.260	13.000	12.000	59.000	104.000	104.000	104.000	.000	.000	.000
GR	17.500	.000	17.400	12.000	11.100	21.000	9.600	23.000	7.700	27.000
GR	7.700	30.000	7.600	34.000	8.200	36.000	8.700	37.000	10.700	40.000
GR	14.300	46.000	16.600	51.000	19.200	58.000	.000	.000	.000	.000
QT	2.000	31.000	41.000	.000	.000	.000	.000	.000	.000	.000
X1	38.320	13.000	18.000	52.000	806.000	806.000	806.000	.000	.000	.000
GR	17.100	.000	17.000	8.000	16.100	13.000	14.400	18.000	11.400	22.000
GR	9.900	32.000	10.200	36.000	10.100	38.000	10.500	43.000	11.300	45.000
GR	15.200	48.000	16.400	49.000	18.000	52.000	.000	.000	.000	.000
X1	40.200	12.000	3.000	35.000	188.000	188.000	188.000	.000	.000	.000
GR	18.100	.000	17.400	3.000	15.600	5.000	11.100	13.000	9.000	19.000
GR	8.500	23.000	8.800	25.000	10.900	30.000	12.600	31.000	16.100	35.000
GR	17.300	38.000	20.700	49.000	.000	.000	.000	.000	.000	.000
QT	2.000	26.000	30.000	.000	.000	.000	.000	.000	.000	.000
NC	.100	.100	.100	.000	.000	.000	.000	.000	.000	.000
X1	51.380	7.000	.000	100.000	1118.000	1118.000	1118.000	.000	.000	.000
GR	15.400	.000	12.600	22.000	12.300	37.000	11.200	40.000	11.300	43.000
GR	13.400	68.000	16.700	100.000	.000	.000	.000	.000	.000	.000
NC	.125	.125	.040	.000	.000	.000	.000	.000	.000	.000
X1	52.450	11.000	5.000	25.000	107.000	107.000	107.000	.000	.000	.000
GR	17.000	.000	15.500	3.000	14.300	5.000	12.500	7.000	10.900	9.000
GR	9.400	12.000	9.300	14.000	9.800	17.000	10.500	19.000	13.000	23.000
GR	17.000	25.000	.000	.000	.000	.000	.000	.000	.000	.000
QT	2.000	16.000	16.000	.000	.000	.000	.000	.000	.000	.000
X1	62.600	10.000	4.000	30.000	1015.000	1015.000	1015.000	.000	.000	.000
GR	18.000	.000	15.600	4.000	11.900	7.000	9.900	14.000	10.100	16.000
GR	10.400	19.000	11.300	22.000	13.400	26.000	15.400	30.000	15.800	66.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
*************************************************


T1 NORTH CREEK LATERAL (FILE NAME = NORTHCR.DAT)
T2 HYDRAULIC ANALYSIS
T3 25 YEAR STORM - STANDARD PROJECT FLOOD

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     -10.      3.       0.       0.   .000000     .00      .0       0.     5.000    .000

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    15.000    .000    -1.000    .000     .000     .000     .000     .000     .000     .000

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                                                                    THIS RUN EXECUTED 08-30-88
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 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST


AR FLOOD - INTERMEDIATE

SUMMARY PRINTOUT TABLE  150


      SECNO    XLCH    ELTRD    ELLC    ELMIN    Q       CWSEL    CRIWS    EG      10K*S    VCH     AREA    .01K

       .000     .00     .00      .00     1.10   127.00   4.00     .00     4.15    28.11    3.13    40.58   23.95
       .000     .00     .00      .00     1.10   166.00   5.00     .00     5.12    15.57    2.75    60.44   42.08

*      .700   70.00     .00      .00     1.60   127.00   4.42    4.42     5.13   233.35    6.75    18.82    8.31
       .700   70.00     .00      .00     1.60   166.00   4.88     .00     5.54   178.36    6.52    25.45   12.43

      1.070   37.00     .00      .00     1.50   127.00   5.25     .00     5.39    23.39    2.92    43.54   26.26
      1.070   37.00     .00      .00     1.50   166.00   5.63     .00     5.79    26.07    3.25    51.02   32.51

*     2.320  125.00     .00      .00      .80   127.00   6.00     .00     6.05     7.12    1.84    69.13   47.58
*     2.320  125.00     .00      .00      .80   166.00   6.93     .00     6.98     5.19    1.76    94.42   72.84

      2.820   58.00     .00      .00     2.10   127.00   6.03     .00     6.13    19.48    2.61    48.63   28.77
      2.820   58.00     .00      .00     2.10   166.00   6.95     .00     7.03    11.74    2.31    71.78   48.45

*     5.720  287.00     .00      .00     2.90   127.00   7.78     .00     7.79     1.43     .95   149.63  106.15
*     5.720  287.00     .00      .00     2.90   166.00   8.46     .00     8.47     1.30     .87   190.10  145.41

      6.680   96.00     .00      .00     4.20   127.00   7.79     .00     7.82     5.66    1.49    85.15   53.39
      6.680   96.00     .00      .00     4.20   166.00   8.47     .00     8.50     4.48    1.48   112.52   78.40
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	7.680	100.00	.00	.00	4.70	127.00	7.33	.00	7.94	18.61	2.69	47.14	29.44
	7.680	100.00	.00	.00	4.70	166.00	8.48	.00	8.60	15.64	2.73	60.74	41.98
	8.840	116.00	.00	.00	5.80	127.00	8.09	.00	8.27	43.05	3.41	37.19	19.36
	8.840	116.00	.00	.00	5.80	166.00	8.69	.00	8.86	30.08	3.30	50.31	30.27
	9.940	110.00	.00	.00	4.30	127.00	8.51	.00	8.66	27.92	3.02	42.08	24.03
	9.940	110.00	.00	.00	4.30	166.00	9.01	.00	9.17	25.46	3.17	52.36	32.90
*	12.040	210.00	.00	.00	5.50	122.00	9.33	.00	9.50	39.08	3.32	36.69	19.52
*	12.040	210.00	.00	.00	5.50	156.00	10.41	.00	10.51	16.28	2.53	61.72	38.66

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	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	DMSEL	DRTHS	EG	10K*S	VCH	AREA	.01K
	12.640	60.00	.00	.00	7.20	110.00	9.61	.00	9.73	36.18	2.91	46.56	18.29
	12.640	60.00	.00	.00	7.20	136.00	10.53	.00	10.59	9.97	2.10	88.09	43.08
*	13.790	115.00	.00	.00	7.60	78.00	10.47	.00	10.55	16.95	2.22	35.09	18.95
*	13.790	115.00	.00	.00	7.60	100.00	11.60	.00	11.65	6.71	1.77	56.50	38.59
	15.400	165.00	.00	.00	4.20	55.00	10.57	.00	10.58	.39	.54	102.23	88.15
	15.400	165.00	.00	.00	4.20	74.00	11.67	.00	11.67	.38	.56	131.48	119.56
	16.100	70.00	.00	.00	4.80	55.00	10.58	.00	10.58	.33	.49	111.61	96.15
	16.100	70.00	.00	.00	4.80	74.00	11.67	.00	11.68	.31	.51	145.68	131.97
	17.400	130.00	.00	.00	5.10	55.00	10.58	.00	10.59	.86	.68	80.48	59.30
	17.400	130.00	.00	.00	5.10	74.00	11.68	.00	11.68	.63	.67	110.95	93.49
	18.280	88.00	.00	.00	6.90	55.00	10.59	.00	10.60	1.79	.91	60.12	41.11
	18.280	88.00	.00	.00	6.90	74.00	11.68	.00	11.69	1.18	.87	85.25	68.19
	23.200	492.00	.00	.00	6.30	55.00	10.67	.00	10.68	1.52	.89	61.83	44.62
	23.200	492.00	.00	.00	6.30	74.00	11.74	.00	11.75	1.19	.88	83.92	67.70
	25.200	200.00	.00	.00	7.00	55.00	10.70	.00	10.72	2.11	.98	55.87	37.84
	25.200	200.00	.00	.00	7.00	74.00	11.76	.00	11.78	1.44	.94	78.31	61.64
	27.020	182.00	.00	.00	7.00	55.00	10.75	.00	10.77	3.23	1.14	48.12	30.62
	27.020	182.00	.00	.00	7.00	74.00	11.79	.00	11.81	2.06	1.07	69.30	51.56
	29.220	220.00	.00	.00	8.00	55.00	10.84	.00	10.86	8.27	1.63	33.75	19.13
	29.220	220.00	.00	.00	8.00	74.00	11.85	.00	11.88	4.64	1.45	50.92	34.36
	30.260	104.00	.00	.00	7.60	55.00	10.92	.00	10.94	3.88	1.22	44.98	27.92
	30.260	104.00	.00	.00	7.60	74.00	11.89	.00	11.91	2.53	1.14	65.12	46.52
	38.320	806.00	.00	.00	9.90	31.00	11.38	.00	11.42	16.68	1.44	21.53	7.59
	38.320	806.00	.00	.00	9.90	41.00	12.14	.00	12.16	4.35	1.04	39.58	19.67
	40.200	188.00	.00	.00	8.50	31.00	11.51	.00	11.52	2.82	.91	34.10	18.47
	40.200	188.00	.00	.00	8.50	41.00	12.20	.00	12.21	1.92	.87	47.24	29.56
	51.380	1118.00	.00	.00	11.20	26.00	12.41	.00	12.47	410.65	1.95	13.31	1.28
	51.380	1118.00	.00	.00	11.20	30.00	12.73	.00	12.76	132.24	1.23	24.30	2.61
	52.450	107.00	.00	.00	9.30	26.00	12.54	.00	12.55	1.99	.80	32.31	18.43
	52.450	107.00	.00	.00	9.30	30.00	12.81	.00	12.82	1.89	.82	36.52	21.83
	62.600	1015.00	.00	.00	9.90	16.00	12.68	.00	12.69	.86	.49	32.79	17.26
	62.600	1015.00	.00	.00	9.90	16.00	12.94	.00	12.94	.59	.43	37.38	20.88

AR FLOOD - INTERMEDIATE

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	.000	127.00	4.00	.00	.00	.00	18.55	.00
	.000	166.00	5.00	1.00	.00	.00	21.17	.00
*	.700	127.00	4.42	.00	.42	.00	13.34	70.00
	.700	166.00	4.88	.46	-.12	.00	15.52	70.00
	1.070	127.00	5.25	.00	.83	.00	19.20	37.00
	1.070	166.00	5.63	.37	.75	.00	20.68	37.00
*	2.320	127.00	6.00	.00	.75	.00	25.34	125.00
*	2.320	166.00	6.93	.93	1.30	.00	29.04	125.00
	2.820	127.00	6.03	.00	.03	.00	22.73	58.00
	2.820	166.00	6.95	.92	.02	.00	27.47	58.00
*	5.720	127.00	7.78	.00	1.75	.00	55.77	287.00
*	5.720	166.00	8.46	.68	1.51	.00	63.28	287.00
	6.680	127.00	7.79	.00	.01	.00	37.99	96.00
	6.680	166.00	8.47	.68	.01	.00	42.78	96.00
	7.680	127.00	7.83	.00	.04	.00	19.49	100.00
	7.680	166.00	8.48	.66	.02	.00	21.34	100.00
	8.840	127.00	8.09	.00	.27	.00	21.16	116.00
	8.840	166.00	8.69	.60	.21	.00	22.72	116.00
	9.940	127.00	8.51	.00	.42	.00	20.02	110.00
	9.940	166.00	9.01	.50	.32	.00	21.45	110.00
*	12.040	122.00	9.33	.00	.82	.00	19.97	210.00
*	12.040	156.00	10.41	1.08	1.40	.00	26.38	210.00
	12.640	110.00	9.61	.00	.28	.00	42.32	60.00
	12.640	136.00	10.53	.92	.12	.00	47.21	60.00
*	13.790	78.00	10.47	.00	.86	.00	18.44	115.00
*	13.790	100.00	11.60	1.13	1.07	.00	19.00	115.00
	15.400	55.00	10.57	.00	.10	.00	24.32	165.00
	15.400	74.00	11.67	1.09	.07	.00	29.28	165.00
	16.100	55.00	10.58	.00	.00	.00	28.29	70.00
	16.100	74.00	11.67	1.09	.00	.00	34.53	70.00
	17.400	55.00	10.58	.00	.00	.00	26.40	130.00
	17.400	74.00	11.68	1.09	.00	.00	29.34	130.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH

18.280	74.00	11.68	1.09	.00	.00	23.95	88.00
23.200	55.00	10.67	.00	.08	.00	19.39	492.00
23.200	74.00	11.74	1.07	.06	.00	22.00	492.00
25.200	55.00	10.70	.00	.03	.00	20.40	200.00
25.200	74.00	11.76	1.06	.02	.00	22.05	200.00
27.020	55.00	10.75	.00	.04	.00	19.31	182.00
27.020	74.00	11.79	1.04	.03	.00	21.27	182.00
29.220	55.00	10.84	.00	.09	.00	16.18	220.00
29.220	74.00	11.85	1.00	.05	.00	18.26	220.00
30.260	55.00	10.92	.00	.08	.00	19.09	104.00
30.260	74.00	11.89	.98	.05	.00	22.10	104.00
38.320	31.00	11.38	.00	.47	.00	22.96	806.00
38.320	41.00	12.14	.76	.25	.00	24.64	806.00
40.200	31.00	11.51	.00	.13	.00	18.09	188.00
40.200	41.00	12.20	.69	.06	.00	19.73	188.00
51.390	26.00	12.41	.00	.90	.00	25.26	1118.00
51.390	30.00	12.73	.32	.54	.00	39.29	1118.00
52.450	26.00	12.54	.00	.13	.00	15.31	107.00
52.450	30.00	12.81	.27	.08	.00	16.04	107.00
62.600	16.00	12.69	.00	.15	.00	18.28	1015.00
62.600	16.00	12.94	.25	.13	.00	18.95	1015.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION  SECNO=     .700  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     .700  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     .700  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

NOTE     SECNO=    2.320  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=    2.320  PROFILE= 2  WSEL BASED ON X5 CARD

NOTE     SECNO=    5.720  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=    5.720  PROFILE= 2  WSEL BASED ON X5 CARD

NOTE     SECNO=   12.040  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=   12.040  PROFILE= 2  WSEL BASED ON X5 CARD

NOTE     SECNO=   13.790  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=   13.790  PROFILE= 2  WSEL BASED ON X5 CARD
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THIS RUN EXECUTED 08-30-88

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HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984

ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION AUGUST 1985
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