

M10 /
Vista Manzano

PERMANENT EASEMENT

Grant of Permanent Easement, between Empire Southwest LTD. Co. ("Grantor"), whose address is 6121 Indian School Rd. Suite 200. Albuquerque, NM 87110 and the City of Albuquerque, a New Mexico municipal corporation ("City"), whose address is PO Box 1293, Albuquerque, New Mexico, 87103.

Grantor grants to the City an exclusive, permanent easement ("Easement") in, over, upon and across the real property described on Exhibit "A" attached hereto ("Property") for the construction, installation, maintenance, repair, modification, replacement and operation of **PERMANENT PUBLIC STORM DRAINAGE IMPROVEMENTS, CITY PROJECT # 620781**, together with the right to remove trees, bushes, undergrowth and any other obstacles upon the Property if the City determines they interfere with the appropriate use of this Easement.

In the event Grantor constructs any improvements within the easement, the City has the right to enter upon Grantors property at any time and perform whatever inspection, installation, maintenance, repair modification or removal ("Work") it deems appropriate without liability to the City. If the work effects any improvements of Encroachments made by the Grantor, the City will not be financially or otherwise responsible for rebuilding or repairing of improvements or Encroachments. If in the opinion of the City, the Work to be performed by the City could endanger the structural integrity or otherwise damage the improvements of Encroachments, the Grantor shall, at its own expense, take whatever protective measures are required to safeguard the improvements or Encroachments.

Grantor covenants and warrants that Grantor is the owner in fee simple of the Property, that Grantor has a good lawful right to convey the Property or any part thereof and that Grantor will forever warrant and defend the title to the Property against all claims from all persons or entities.

The grant and other provisions of this Easement constitute covenants running with the land for the benefit of the City and its successors and assigns until terminated.

WITNESS my hand and seal this 9th day of September, 1997.

GRANTOR:

(Individual)

GRANTOR: EMPIRE Southwest LTD Co.

BY: Philip C. [Signature]
ITS: Designated Agent

(Corporation or Partnership)

INDIVIDUAL

STATE OF _____)
) SS.
COUNTY OF _____)

This instrument was acknowledged before me on _____ day of _____,
19____, by _____.

Notary Public

My Commission Expires:

CORPORATION

STATE OF New Mexico)
) SS.
COUNTY OF Bernalillo)

This instrument was acknowledged before me on 9 day of SEPT.,
19 99, by Phillip C. Ward, of EMPIRE SOUTHWEST LTD.,
a New Mexico LLC Corporation, on behalf of the corporation.

Timothy J. Mac-Sue
Notary Public

My Commission Expires:

8/12/00

PARTNERSHIP

STATE OF _____)
) SS.
COUNTY OF _____)

This instrument was acknowledged before me on _____ day of _____,
19____, by _____, partner(s), on behalf of _____,
a partnership.

Notary Public

My Commission Expires:

(EXHIBIT "A" ATTACHED)



Judy D. Woodward

Bern. Co.

EASE

R 11.00

1999118170

5279664

Page: 2 of 3

09/13/1999 01:41P

Bk-9912 Pg-7799

JOBEL SUBDIVISION
(5/24/71, C8-11)

BLOCK 1

BLOCK 2

Street, S.W.

LOT 8

LOT 7

Sage Road, S.W.
(R.O.W. VARIES)

FOUND 1/2" IRON PIPE

FOUND NO. 4 REBAR (BENT)

N 83°59'12" E

110.13'

S 06°00'48" E

6.44'

N 13°37'04" W

7.47'

S 83°59'12" W

4.46'

N 06°02'22" W

49.88'

N 13°37'04" W

48.06'

S 83°57'38" W

94.27'

S 10°23'39" E

46.13'

S 06°02'22" E

50.82'

S 06°00'48" E

6.44'

S 10°23'39" E

46.13'

S 06°00'48" E

6.44'

S 10°23'39" E

46.13'

S 06°00'48" E

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S 10°23'39" E

46.13'

S 06°00'48" E

6.44'

S 10°23'39" E

46.13'

S 06°00'48" E

6.44'

A.C.S. MONUMENT "12-L11"
STANDARD A.C.S. ALUMINUM CAP
(FOUND IN PLACE)
NEW MEXICO STATE PLANE COORDINATES
(CENTRAL ZONE-N.A.D. 1927)
X= 362,793.28
Y=1,478,583.63
GRID TO GROUND FACTOR=0.99968209
DELTA ALPHA ANGLE=-0°15'48"

PUBLIC WATER, SEWER AND
PUBLIC ACCESS EASEMENT

TOWN OF ATRISCO GRANT
UNIT 3
(UNRECORDED)

TOWN OF ATRISCO GRANT
ESTATE OF JOSE F. GARCIA
(8/11/79, B11-170)

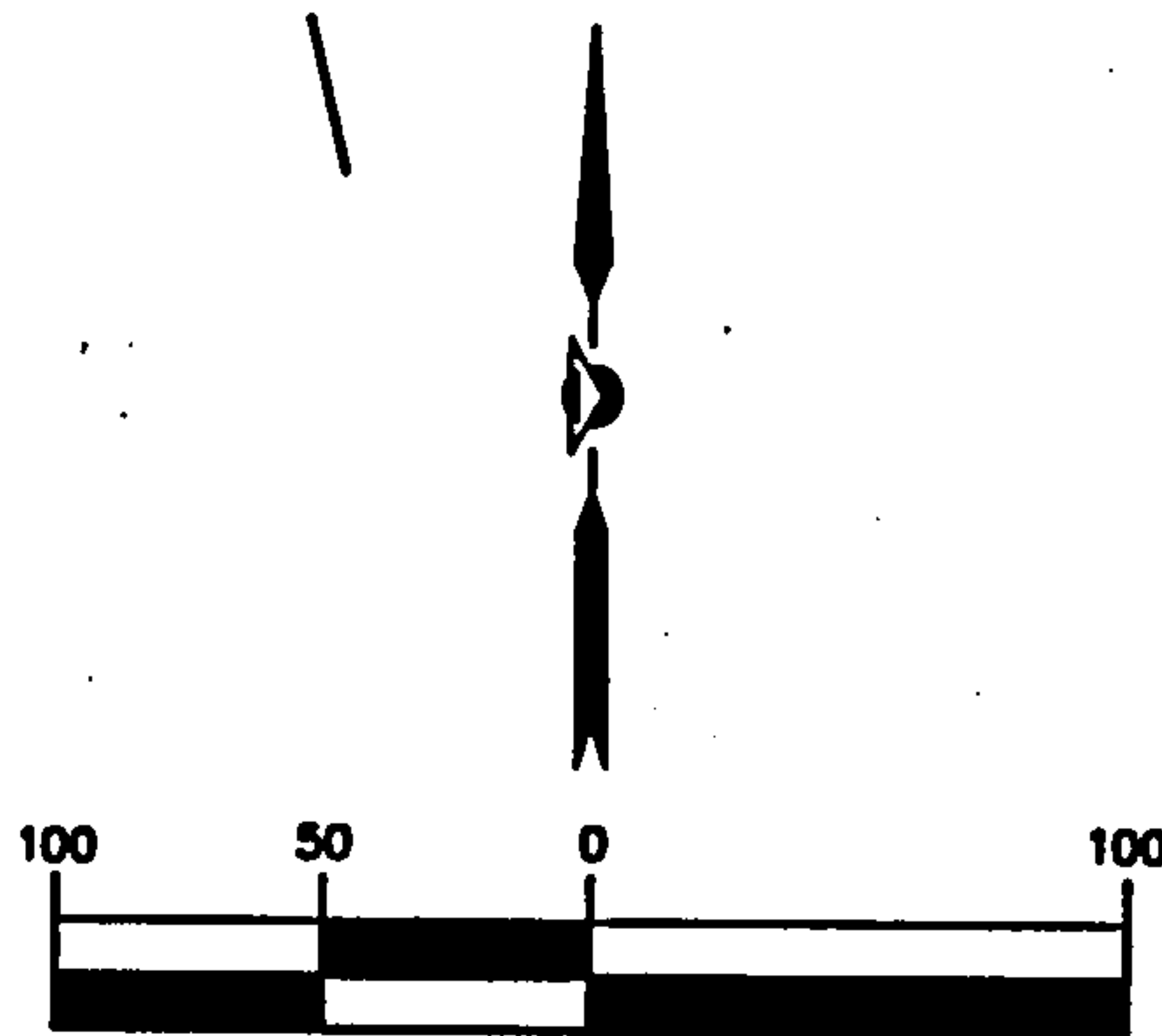
PORTION OF TRACT 413

PORTION OF TRACT 414

PORTION OF TRACT 415



1999118169
5278863
Page: 3 of 3
89/13/1999 01:41P
Bk-9912 Pg-7798



(IN FEET)
1 inch = 100 ft.

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	1100.00'	45.75'	22.88'	45.75'	N 82°47'42" E	02°22'59"
C2	25.00'	38.24'	23.99'	34.62'	S 37°46'29" W	87°37'42"
C3	25.00'	39.27'	25.00'	35.36'	S 51°02'22" E	90°00'00"
C4	25.00'	30.17'	17.23'	28.38'	N 28°32'15" E	69°09'14"
C5	25.00'	38.98'	24.71'	35.15'	N 50°42'35" W	89°20'27"

SURVEYOR'S CERTIFICATE

I, LARRY W. MEDRANO LICENSED UNDER THE LAWS OF THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT THIS EASEMENT SURVEY WAS PREPARED BY ME OR UNDER MY DIRECTION FROM NOTES OF AN ACTUAL FIELD SURVEY, AND THE SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

LARRY W. MEDRANO
N.M.L.S. NO. 11993

8/27/99
DATE



PRECISION SURVEYS

8414-D JEFFERSON STREET NE PHONE 505 856 5700
ALBUQUERQUE, NEW MEXICO 87113 FAX 505 856 7900

997069ex



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 13, 1999

Fred C. Arfman, P.E.
Isaacson & Arfman
128 Monroe Street NE
Albuquerque, New Mexico 87108

***RE: Grading and Drainage Certification for Desert Flower Subdivision Unit Two,
(M10/D12D), Engineer's Certification Stamp Dated 12/21/98.***

Dear Mr. Arfman:

The above referenced Engineer's Certification for Desert Flower Subdivision Unit Two is adequate to satisfy the Grading and Drainage certification requirement for the release of the Subdivision Improvements Agreement per the Infrastructure List dated June 23, 1998, and revised on September 1, 1998.

If you have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Terri Martin, City Project # 5739.83
Bo Johnson, P.E., Curb Inc.
File

DRAINAGE INFORMATION SHEET

PROJECT: Desert Flower Unit Two

ZONE ATLAS/DRNG. M1012B
FILE#: M101D12B

DRB # 98-5

EPC # _____

WORK ORDER # 5739.83

LEGAL DESCRIPTION: Desert Flower Subdivision Unit Two

CITY ADDRESS: _____

ENGINEERING FIRM: Isaacson & Arfman, P.A.

CONTACT: Fred Arfman

ADDRESS: 128 Monroe Street NE

PHONE: 268-8828

CITY, STATE: Albuquerque, NM

ZIP CODE: 87108

OWNER: Curb Inc.

CONTACT: BO Johnson

ADDRESS: 6301 Indian School Rd Ste 680

PHONE: 881-9190

CITY, STATE: ABQ NM

ZIP CODE: 87110

ARCHITECT: NA

CONTACT: _____

ADDRESS: _____

PHONE: _____

CITY, STATE: _____

ZIP CODE: _____

SURVEYOR: Walker Surveying

CONTACT: _____

ADDRESS: 424 Shirk Lane SW

PHONE: 266-6209

CITY, STATE: ABQ NM

ZIP CODE: 87105

CONTRACTOR: NA

CONTACT: _____

ADDRESS: _____

PHONE: _____

CITY, STATE: _____

ZIP CODE: _____

6-23-98

TYPE OF SUBMITTAL:

9-1-98

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☒ ENGINEER'S CERTIFICATION
- ☐ OTHER

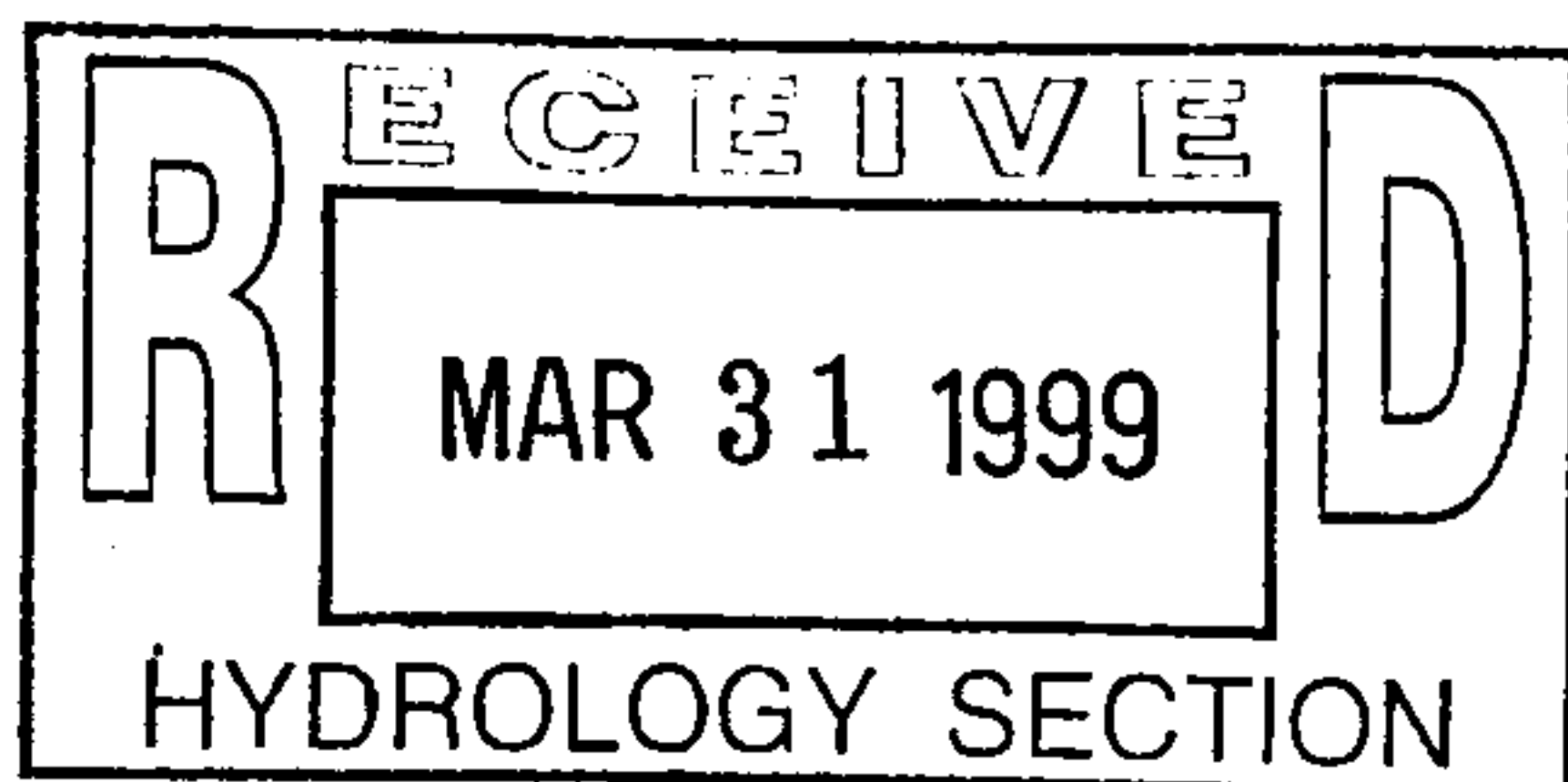
CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SKETCH PLAT APPROVAL
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S.DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S.DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY APPROVAL
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ S.A.D. DRAINAGE REPORT
- ☒ DRAINAGE REQUIREMENTS
- ☐ OTHER (SPECIFY) G&D Certification

PRE-DESIGN MEETING:

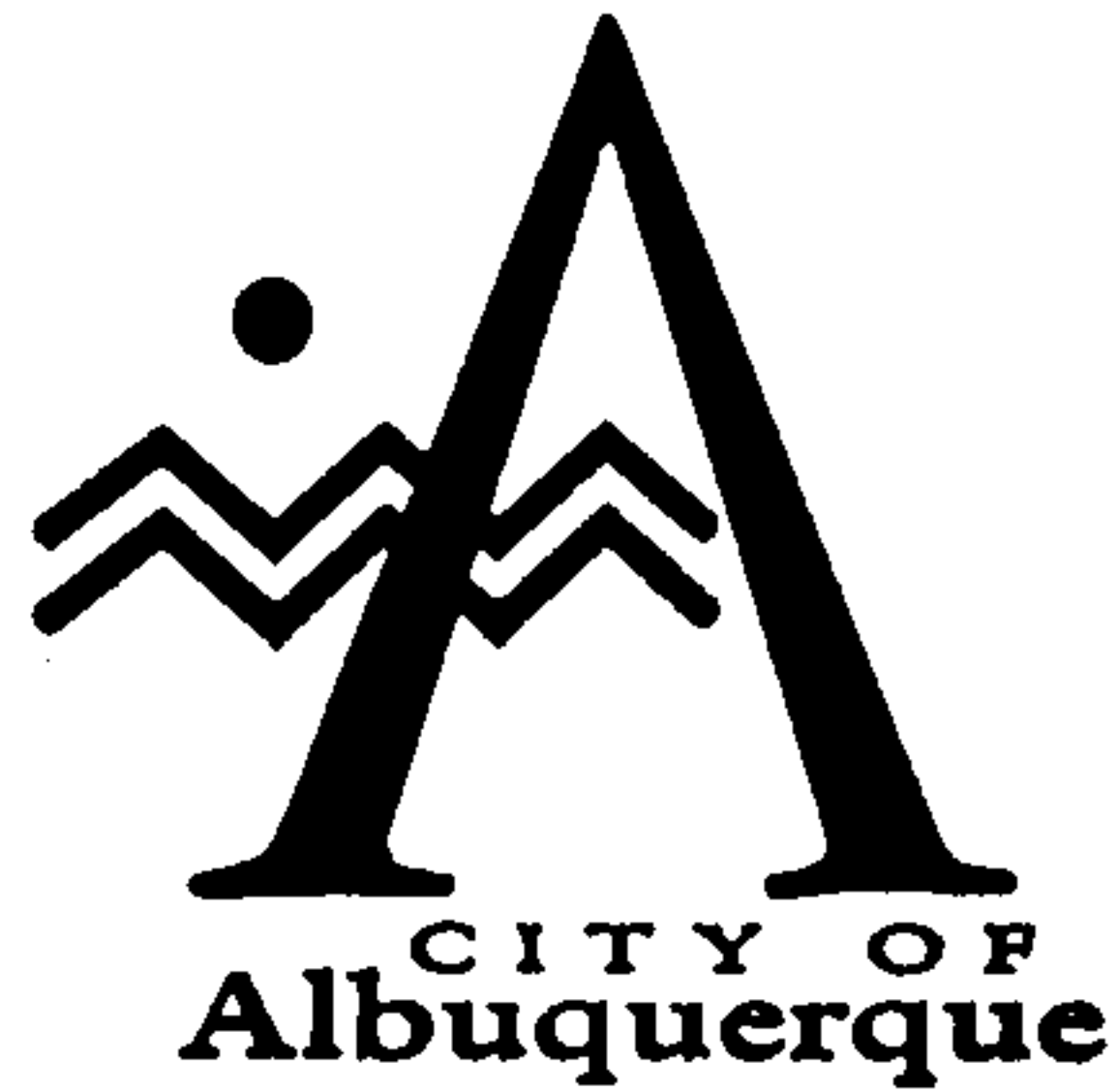
☒ YES
☐ NO

☐ COPY PROVIDED



DATE SUBMITTED: 3/30/99

BY: Fred Arfman by MJC
FOR ISAACSON & ARFMAN, P.A.



June 16, 1998

Fred C. Arfman, P.E.
Isaacson & Arfman
128 Monroe Street NE
Albuquerque, New Mexico 87108

RE: Revised Drainage Report for Desert Flower Subdivision, Unit Two, Dated 5/18/98, and Grading and Drainage Plan, Dated 6/9/98, (M10/D12B) Submitted for Preliminary and Final Plat and Work Order Approval.

Dear Mr. Arfman:

Based on the information provided in the submittal of May 21, 1998, along with the additional information provided today, the above referenced Report and Grading and Drainage Plan are approved for Preliminary Plat of Unit Two.

Details showing how the runoff from Spring Canyon Drive gets into the earthen channels will be required at DRC. Before sign-off of the Work Order plans, a public drainage easement must be in place for the temporary drainage channels and pond located on Unit 5. Also, the Agreement and Covenant for the pond must be filed. The SIA must be in place prior to Final plat sign-off.

As you are aware, the Grading and Drainage Certification of the plan approved by the DRB is required prior to release of Financial Guarantees for this Unit.

If you have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Fred Aguirre, DRB 98-5
Bo Johnson, Curb Inc.
File

Good for You, Albuquerque!



DRAINAGE INFORMATION SHEET

p 012

PROJECT Desert Flower Unit Two ZONE ATLAS/DRNG. M-10
 FILE#:

DRP # 96-532, 98-5 EPC # _____ WORK ORDER # _____

LEGAL DESCRIPTION: Tract B1, Desert Flower SD

CITY ADDRESS: _____

ENGINEERING FIRM: Isaacson & Arfman, P.A. CONTACT: Melissa Combs

ADDRESS: 128 Monroe Street NE PHONE: 268-8828

CITY, STATE: Albuquerque, NM ZIP CODE: 87108

OWNER: Curb Inc CONTACT: BO Johnson

ADDRESS: 6301 Indian School Rd, Suite 680 PHONE: 881-9190

CITY, STATE: Albuquerque NM ZIP CODE: 87110

ARCHITECT: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: Aldrich Land Surveying CONTACT: Tim Aldrich

ADDRESS: PO Box 30701 PHONE: 884-1990

CITY, STATE: Albuquerque NM ZIP CODE: 87190

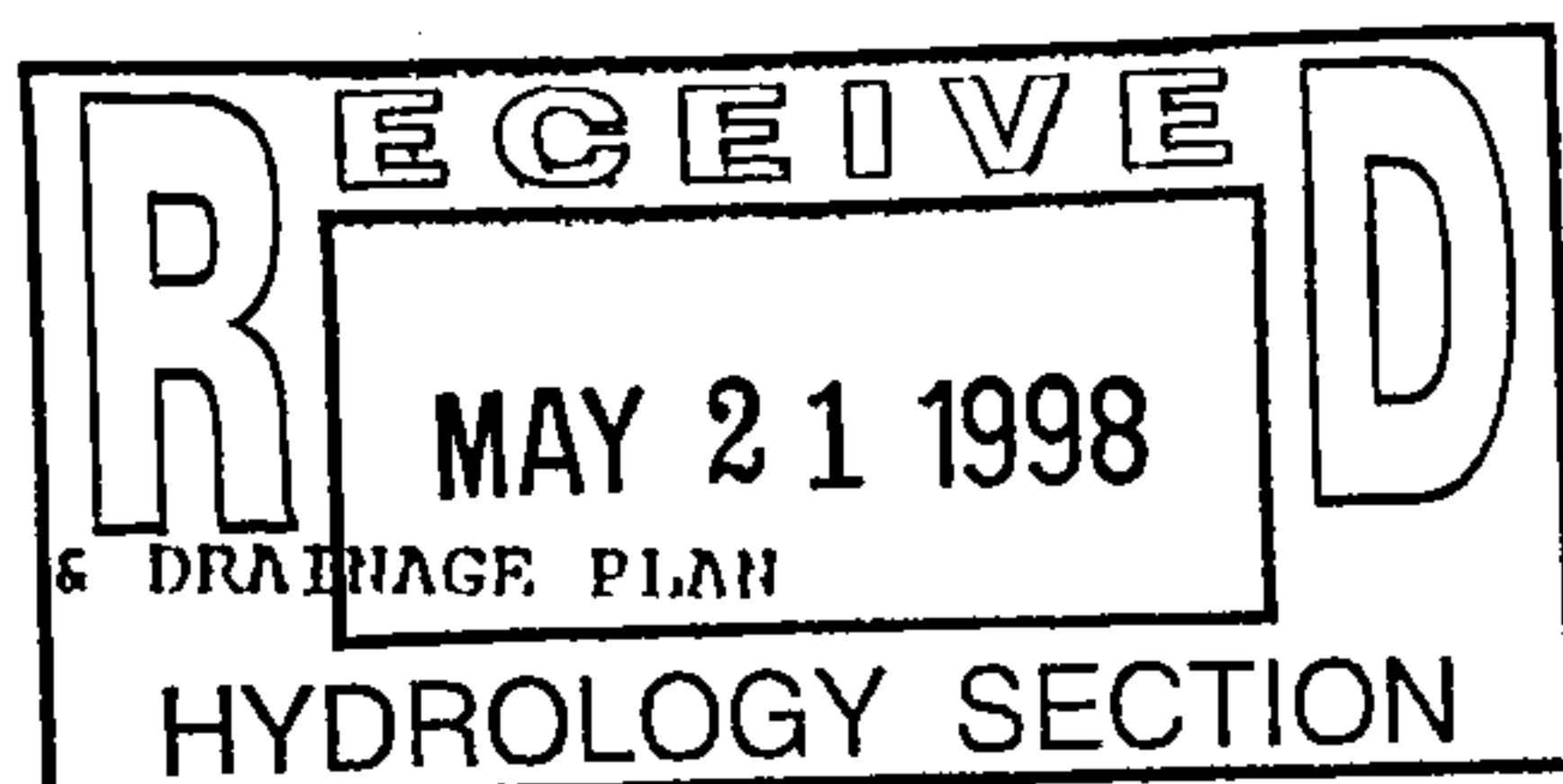
CONTRACTOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:

- ☒ DRAINAGE REPORT
- ☐ DRAINAGE PLAN
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION
- ☐ OTHER



CHECK TYPE OF APPROVAL SOUGHT:

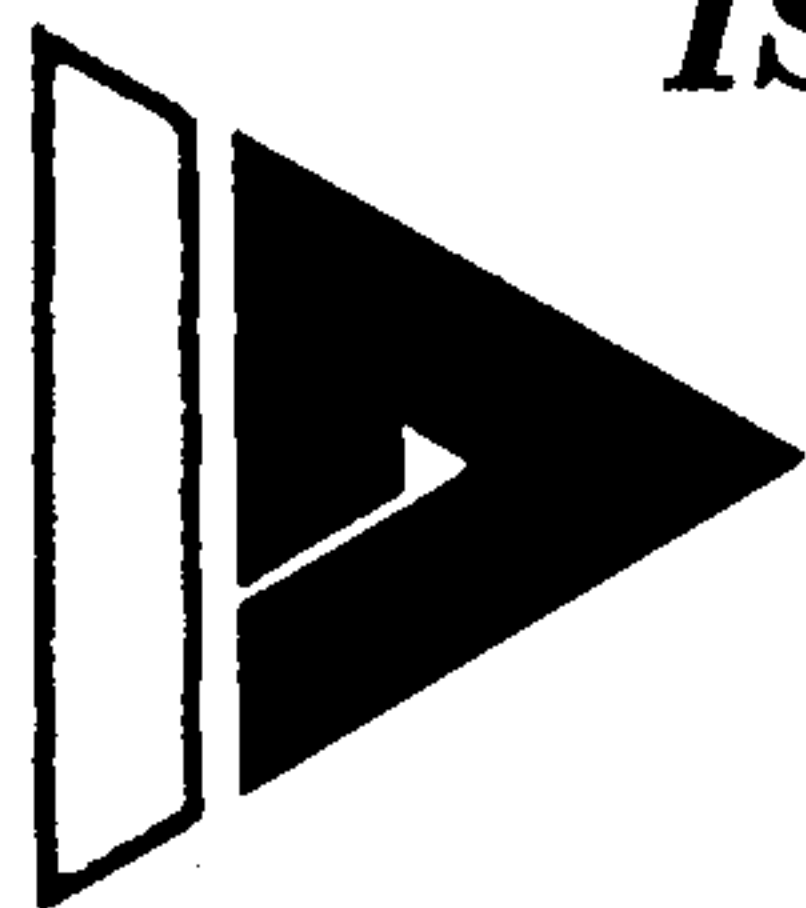
- ☐ SKETCH PLAT APPROVAL
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S.DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S.DEV. PLAN FOR BLDG. PERMIT APPROVAL
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- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY APPROVAL
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ S.A.D. DRAINAGE REPORT
- ☐ DRAINAGE REQUIREMENTS
- ☒ OTHER (SPECIFY) Work Order Plans

PRE-DESIGN MEETING:

- ☐ YES
- ☐ NO
- ☐ COPY PROVIDED

DATE SUBMITTED: 5/21/98

BY: Melissa Combs
 FOR ISAACSON & ARFMAN, P.A.



ISAACSON & ARFMAN, P.A.

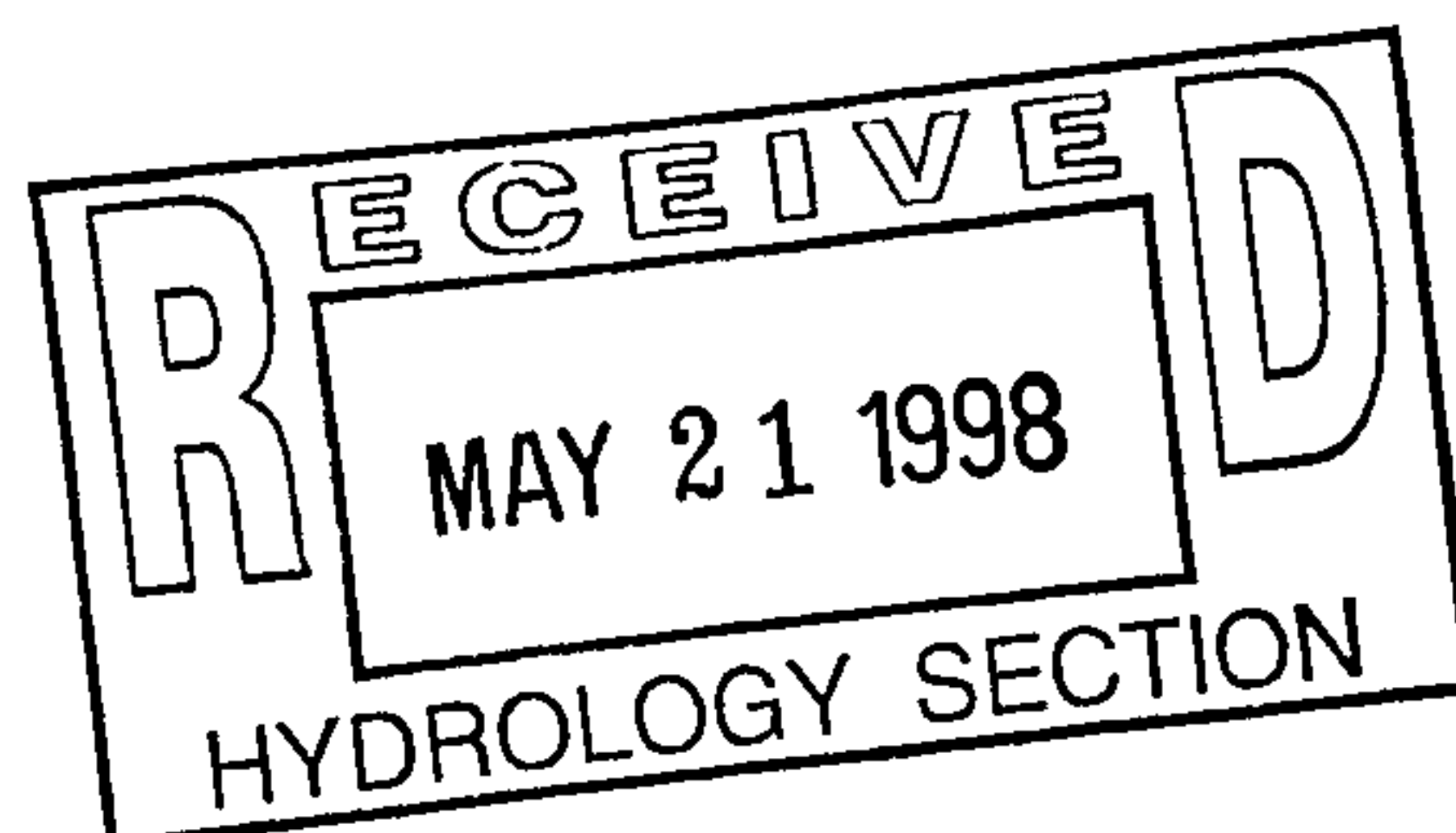
Consulting Engineering Associates

Albuquerque, NM

REVISED DRAINAGE REPORT
FOR
DESERT FLOWER SUBDIVISION
UNIT TWO

**A 76 LOT SINGLE FAMILY
RESIDENTIAL SUBDIVISION**

ALBUQUERQUE NEW MEXICO
MAY 1998



Prepared by:

ISAACSON & ARFMAN, P.A.
128 Monroe Street, NE
Albuquerque, NM 87108
(505) 268-8828

Fred C. Arfman P.E.

Date



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Vicinity Map

- I. Project Information**
- II. Site Characteristics**

Conclusion & Recommendations

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Appendices

**Appendix A: Onsite AHYMO Summary & Detailed Output
100-Year Storm**

Pockets

Figure 1: Master Drainage Plan

Figure 2: Unit Two Grading Plan

INTRODUCTION

Desert Flower Unit Two is the second phase of a multiple phase subdivision. It is located to the east of Desert Flower Unit One and west of the Amole del Norte Diversion Channel. It will have 76 single family lots, and will be constructed with utilities and paving improvements according to the City of Albuquerque Development Standards and Guidelines. Desert Flower Unit Two was addressed previously in the Desert Flower Master Drainage Report. This report will provide a more in-depth drainage and grading solution for the area.

I. PROJECT INFORMATION

LEGAL DESCRIPTION: Tract B1, Desert Flower Subdivision filed
March 11, 1998, Volume 98C, Page 66

ENGINEER: Isaacson & Arfman, P.A.
128 Monroe Street NE
Albuquerque, NM 87108
Attn: Fred C. Arfman, P.E.
(505) 268-8828

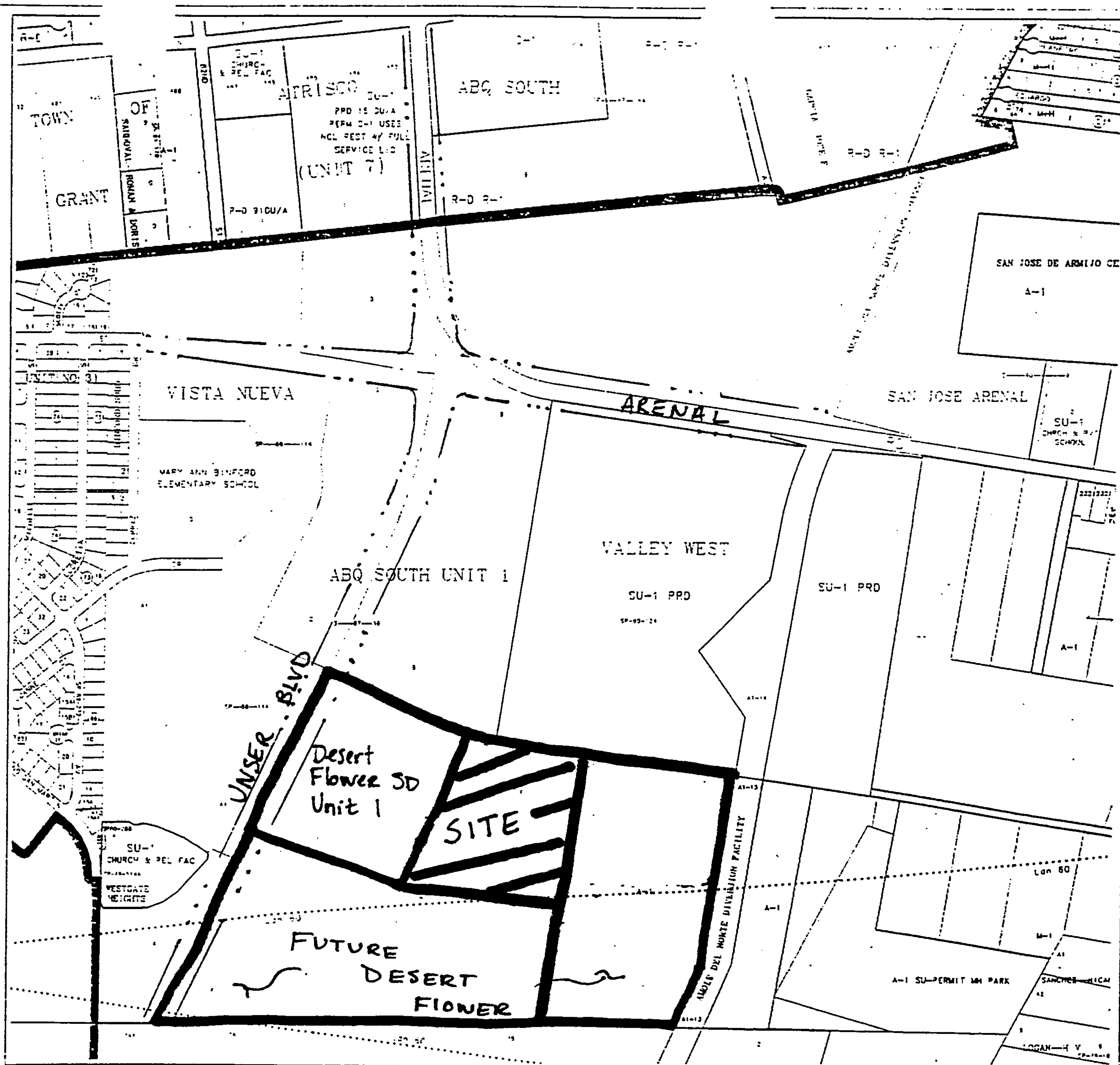
SURVEYOR: Aldrich Land Surveying, Inc.
Attn: Tim Aldrich, NMPLS No. 7719
(505) 884-1990

BENCHMARK: ACS Monument "1-M10" located at the southeast quadrant
of Sage Road and Unser Blvd. SW.
Elevation: 5079.88

ZONING: RLT

NUMBER OF EXISTING TRACTS: 1

NUMBER OF PROPOSED LOTS:
Unit One: 76



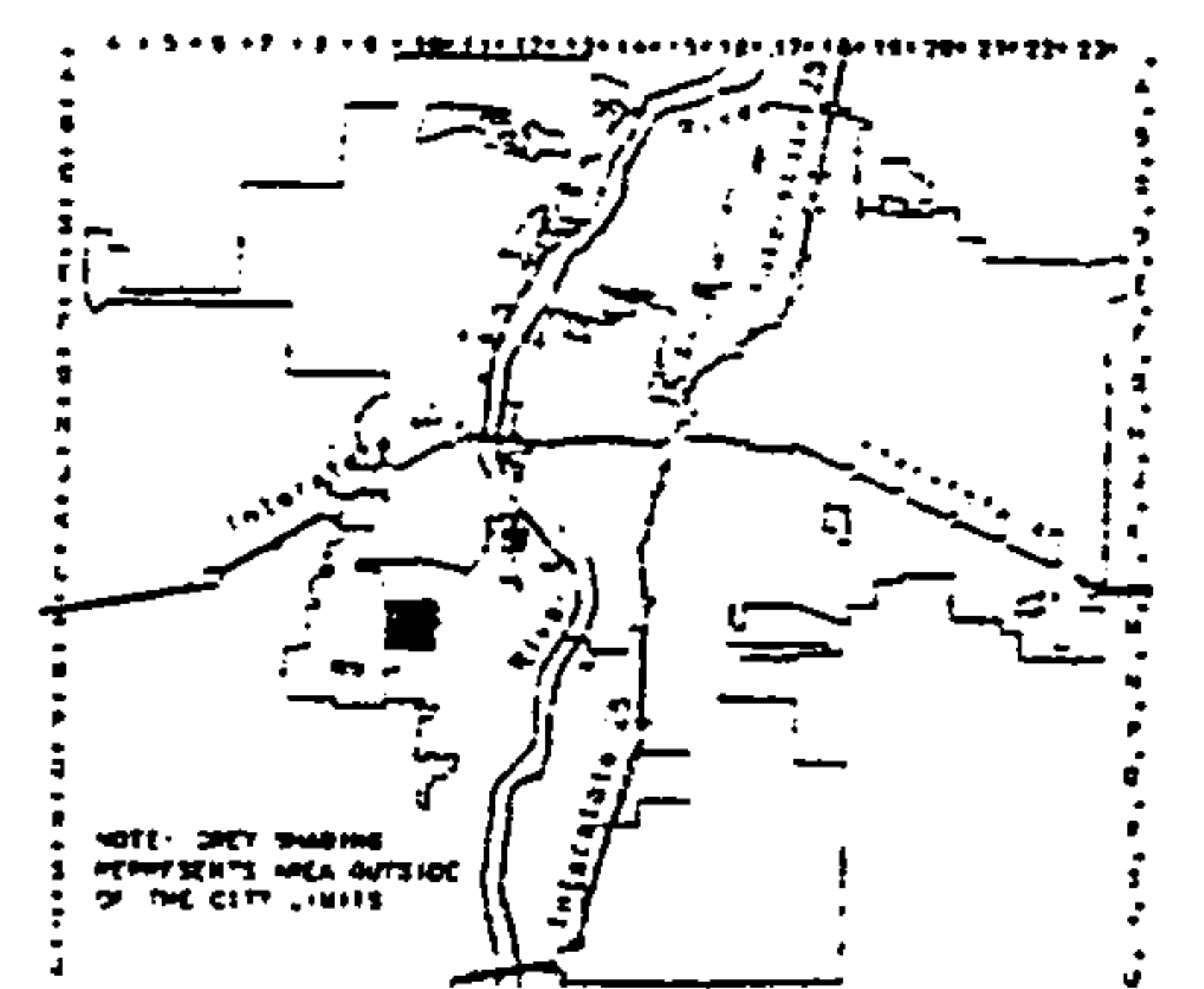
SCALE IN FEET
 0 500 1000

PHOTOCOPY--NOT TO SCALE



A G I S
 ALBUQUERQUE

© Planning Department
 Map Amended through June 15, 1994



LEGAL DESCRIPTION
 T10N
 R2E
 SEC 24

UNIFORM PROPERTY CODE
 1-010-055

M-10-Z

TOTAL AREA: 14.1 AC
613,584 Sq. Ft.

II. SITE CHARACTERISTICS

FLOOD HAZARD: No part of this development is affected nor contributes to a flood hazard area as determined by Map No. 35001C0336D and 35001C0337D of the September 20, 1996 Edition of the F.E.M.A. Maps.

EXISTING CONDITIONS: This site is currently undeveloped and mostly undisturbed with native ground cover, typical of the City's west side. The site slopes downward toward the east ranging from 1 to 2 percent. It abuts Desert Flower Unit One to the west, future Desert Flower Units Three and Four to the south, future Desert Springs Subdivision to the north, and future Desert Flower Unit Five to the east. Storm water generated from Desert Flower Unit One currently enters a temporary detention pond at the west end of Unit Two. Unit Two runoff flows east onto unplatted land, and then into the Amole del Norte Diversion Channel. Offsite flows to the north and south of Unit Two travel east overland to the Amole del Norte Diversion Channel.

PROPOSED CONDITIONS: Unit Two will be developed with 76 lots and will not require construction of a storm drain system. The temporary retention pond used to capture Unit One runoffs will be removed. Flows from Unit One will enter Unit Two along Purple Cone Road and Purple Fringe Road. Unit Two runoff generated along Purple Cone Road and Purple Fringe Road will combine with Unit One flows and will be conveyed via street flow both at a depth of .54 feet (see Table 2). Runoff from April Flower Place will flow south along Spring Canyon Drive and combine with the discharge from Purple Cone Road.

Interim: Temporary earthen rundowns will be constructed along the future street alignments of Purple Cone and Purple Fringe to convey these flows to the Amole del Norte Diversion Channel (refer to the attached Flowmaster sheets for rundown characteristics). Discharge from Saltbrush Road will also be conveyed via an earthen channel, except this channel will be offset from the future street alignment to keep the existing sanitary sewer line from being compromised. Prior to entering the Amole del Norte Diversion Channel, all of the developed flows will pass through a desiltation pond (refer to Pond & Weir Calculation sheet).

Ultimate: Once Desert Flower Unit Five is developed, the pond and rundowns will be removed and the flows will continue east along the future continuation of Purple Fringe and Purple Cone Roads. Flows will be captured in Unit Five by a future storm drain system and will enter the Amole del Norte Diversion Channel via a hard lined connection.

CONCLUSIONS & RECOMMENDATIONS

The Drainage Study for Desert Flower Unit Two is consistent with the Desert Flower Subdivision Revised Master Drainage Report (MDR) previously submitted to the Hydrology Division, P.W.D., City of Albuquerque. Desert Flower Subdivision Unit One is currently under construction and conforms to the previously approved Desert Flower Subdivision MDR. The individual recommendations for Unit Two are presented below:

UNIT TWO:

1. Temporary earthen rundowns will be constructed along the continuations of Purple Fringe, Purple Cone, and Saltbrush Roads. All developed flows will pass through a desiltation pond prior to discharging to the Amole del Norte Diversion Channel. The pond shall be covered by a City of Albuquerque Covenant and Maintenance Agreement signed by the underlying land owner.

2. No rear yard ponding shall be allowed in this portion of the development (see Typical Lot Grading Detail).
3. Adjacent lots may share a common lot line drainage swale (see Typical Lot Grading Detail).
4. No overland storm water flows from the north or south shall enter onto this subdivision phase.

SUMMARY TABLES

TABLE 1
ONSITE BASIN SUMMARY

Basin ID	Area (Sq. Mi.)	Contributing Basins	Cummulative Area (Sq. Mi.)	% A	% B	% C	% D	Basin Q (cfs)	Cummulative Q (cfs)
100	0.00608	100	0.00608	0	29	29	42	12.7	12.7
101	0.00432	100,101	0.0104	0	29	29	42	9.0	20.9
102	0.00728	101*,102	0.01768	0	29	29	42	15.2	35.6
103	0.00347	102*,103	0.02116	0	29	29	42	7.2	42.7
104	0.00470	103*,104	0.00779	0	29	29	42	16.2	58.8
105	0.00400	105	0.00400	0	29	29	42	8.33	8.33
106	0.00390	105*,106	0.00790	0	29	29	42	8.1	16.1
107	0.00417	106*,107	0.01207	0	29	29	42	8.69	24.7
108	0.00738	108	0.00738	0	29	29	42	15.4	15.4
109	0.00672	108,109	0.0141	0	29	29	42	14.0	29.4
110	0.01450	110	0.01450	0	29	29	42	30.2	30.2
111	0.00315	111	0.00315	33	19	19	29	5.2	5.2
112	0.00292	111*,112	0.00606	0	29	29	42	6.1	11.0
113	0.00627	109*,112*,113	0.02643	0	29	29	42	13.0	52.7
114	0.00737	110*,114	0.02187	0	29	29	42	15.3	45.2
115	0.0063	115	0.0063	0	29	29	42	13.2	13.2
116	0.0052	113*,115,116,117	0.03929	0	29	29	42	10.95	78.8
117	0.00127	117	0.00127	0	29	29	42	2.7	2.7
118	0.0052	114*,119	0.02899	0	29	29	42	10.95	59.7
119	0.00186	119	0.00186	0	29	29	42	3.9	3.9
120	0.0044	107*	0.01651	0	29	29	42	9.3	33.8
121	0.00220	120*	0.01871	0	29	29	42	4.6	38.0
122	0.00784	104*,118*,121*	0.12378	0	29	29	42	16.3	250.6

*Cumulative Q of basin

TABLE 2 Flow Depth at Key Locations						
Street	Location	Street Width	Curb Type	Slope (ft/ft)	Q100(cfs)	Depth (ft)
Unit 2						
April Flower Pl	@Spring Canyon	28	MTB	0.018	10.96	0.33
Purple Cone Rd	@Spring Canyon	28	STD	0.014	41.7	0.54
Purple Fringe Rd	@Spring Canyon	28	STD	0.016	45.2	0.54
Saltbrush Rd	@Spring Canyon	28	STD	0.0156	24.7	0.44

* Flowrates listed are full street flows

PURPLE CONE RUNDOWN
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\dtfwrev.fm2
Worksheet	Purple Cone Rundown
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.022
Channel Slope	1.30 %
Left Side Slope	8.00 H : V
Right Side Slope	8.00 H : V
Bottom Width	50.00 ft
Discharge	41.70 cfs

Results		
Depth	0.26	ft
Flow Area	13.61	ft ²
Wetted Perimeter	54.21	ft
Top Width	54.18	ft
Critical Depth	0.27	ft
Critical Slope	0.011012	ft/ft
Velocity	3.06	ft/s
Velocity Head	0.15	ft
Specific Energy	0.41	ft
Froude Number	1.08	
Flow is supercritical.		

Notes:

SLOPE OF THE CHANNEL LISTED IS THE AVERAGE SLOPE

PURPLE FRINGE RUNDOWN
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\dtfwrev.fm2
Worksheet	Purple Fringe Rundown
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.022
Channel Slope	1.20 %
Left Side Slope	8.00 H : V
Right Side Slope	8.00 H : V
Bottom Width	50.00 ft
Discharge	45.20 cfs

Results		
Depth	0.28	ft
Flow Area	14.66	ft ²
Wetted Perimeter	54.53	ft
Top Width	54.49	ft
Critical Depth	0.29	ft
Critical Slope	0.010827	ft/ft
Velocity	3.08	ft/s
Velocity Head	0.15	ft
Specific Energy	0.43	ft
Froude Number	1.05	
Flow is supercritical.		

Notes:

SLOPE OF THE CHANNEL LISTED IS THE AVERAGE SLOPE

SALTBRUSH RD RUNDOWN

Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\dtfwrev.fm2
Worksheet	Saltbrush Rd Rundown
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.022
Channel Slope	1.00 %
Left Side Slope	8.00 H : V
Right Side Slope	8.00 H : V
Bottom Width	50.00 ft
Discharge	24.70 cfs

Results		
Depth	0.21	ft
Flow Area	10.68	ft ²
Wetted Perimeter	53.33	ft
Top Width	53.31	ft
Critical Depth	0.19	ft
Critical Slope	0.012302	ft/ft
Velocity	2.31	ft/s
Velocity Head	0.08	ft
Specific Energy	0.29	ft
Froude Number	0.91	
Flow is subcritical.		

Notes:

SLOPE OF THE CHANNEL LISTED IS THE AVERAGE SLOPE

50' bottom
8:1
side slopes

channels
wide, deep
Look @
grading

Revised by
Fred Arfman
6-16-98 w/
3:1 side slopes

Desiltation Pond Volume

Pond Elevation (ft)	Storage (Ac.Ft)
5000	0
5001	0.315
5002	0.94
5003	<u>2.14</u>

- CALCULATE The MAX FLOW OVER THE WEIR @ Flow Depth of 0.6 ft *

* The water surface elevation can reach 5003 before the pond overtops in an area other than the weir location

$$Q = C L H^{1.5} = 3.09 (170) (0.6)^{1.5} = 244.14 \text{ CFS}$$

170' $\angle$
weir

- CALCULATE The Developed FlowRATE WHICH WON'T BE CONTAINED BY THE POND

CONTRIBUTING BASINS: 105-114 — *under basins in Unit 5?*
AREA: 38.6 AC
WGT E: 1.3 IN (Based on 42% D, 29% B, 29% C)

$$V_{360} = \frac{1.30 \times 38.6}{12} = \underline{4.18 \text{ Ac.Ft}}$$

$$V_{\text{NOT CONTAINED BY THE POND}} = 4.18 - 2.14 = 2.04 \text{ Ac.Ft}$$

$$\text{Area} = 2.04 (12) / 1.3 = 18.9 \text{ AC} —$$

$$\text{FROM AHYMO THE AVERAGE CFS/AC} = \underline{3.29} \therefore Q_{\text{MAX}} = 62.18 \text{ CFS}$$

- CALCULATE THE MAX FLOW DEPTH OVER THE WEIR BASED ON $Q = 62.18 \text{ CFS}$

WEIR CALCULATIONS (CONT)

$$Q = C L H^{1.5}$$

$$\therefore H = \sqrt[1.5]{\frac{62.18}{3.09 (170)}} = .24 \text{ ft}$$

Therefore the flows over the weir are well under the capacity provided by the pond.

APPENDIX A

ONSITE AHYMO SUMMARY & DETAILED OUTPUT 100-YEAR STORM

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
*S	DESERT FLOWER SUBDIVISION - 100 YR POST DEVELOPMENT										
*S	DSTmesa2.DAT										
*S	REVISED BY: mjc 5/05/98										
START											
RAINFALL TYPE= 1											TIME=.00 RAIN6= 2.200
*S BASIN 100: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES											
COMPUTE NM HYD	100.00	-	1	.00608	12.66	.421	1.29860	1.500	3.253	PER IMP=	42.00
*S ** ROUTE BASIN 100 THROUGH 101											
ROUTE	100.10	1	2	.00608	12.22	.421	1.29863	1.533	3.141		
*S BASIN 101: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES											
COMPUTE NM HYD	101.00	-	3	.00432	9.00	.299	1.29860	1.500	3.255	PER IMP=	42.00
*S COMBINE BASINS 100 AND 101 TOGETHER											
ADD HYD	101.10	2& 3	4	.01040	20.93	.720	1.29854	1.533	3.144		
*S BASIN 102: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES											
COMPUTE NM HYD	102.00	-	5	.00728	15.16	.504	1.29860	1.500	3.252	PER IMP=	42.00
*S COMBINE BASIN 102 TO HYDROGRAPH NO 101.1											
ADD HYD	102.10	4& 5	6	.01769	35.60	1.225	1.29855	1.533	3.146		
*S BASIN 103: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES											
COMPUTE NM HYD	103.00	-	7	.00347	7.23	.240	1.29860	1.500	3.256	PER IMP=	42.00
*S COMBINE BASINS 103 AND HYDROGRAPH NO. 102.1 TOGETHER											
ADD HYD	103.10	6& 7	8	.02116	42.71	1.465	1.29854	1.500	3.155		
*S ** ROUTE BASIN 103.1 THROUGH 104											
ROUTE	103.20	8	9	.02116	43.08	1.465	1.29857	1.533	3.182		
*S BASIN 104: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES											
COMPUTE NM HYD	140.00	-	10	.00779	16.21	.540	1.29860	1.500	3.252	PER IMP=	42.00
*S COMBINE BASIN 104 AND HYDROGRAPH 103.2 TOGETHER											
ADD HYD	104.10	9&10	30	.02895	58.77	2.005	1.29855	1.533	3.172		
*S BASIN 105: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES											
COMPUTE NM HYD	105.00	-	13	.00400	8.33	.277	1.29860	1.500	3.255	PER IMP=	42.00
*S ** ROUTE BASIN 105 THROUGH 106											
ROUTE	105.10	13	14	.00400	8.22	.277	1.29865	1.533	3.210		
*S BASIN 106: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES											
COMPUTE NM HYD	106.10	-	15	.00390	8.13	.270	1.29860	1.500	3.255	PER IMP=	42.00
*S COMBINE BASINS 106 AND 105.1 TOGETHER											
ADD HYD	106.10	15&14	16	.00790	16.08	.547	1.29853	1.533	3.181		
*S ** ROUTE BASIN 106.1 THROUGH 107											
ROUTE	106.20	16	17	.00790	16.26	.547	1.29859	1.533	3.217		
*S BASIN 107: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES											
COMPUTE NM HYD	107.00	-	18	.00417	8.69	.289	1.29860	1.500	3.255	PER IMP=	42.00
*S COMBINE HYDROGRAPH NO 106.2 AND 107 TOGETHER											
ADD HYD	107.10	18&17	20	.01207	24.67	.836	1.29853	1.533	3.193		
*S BASIN 108: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES											
COMPUTE NM HYD	108.00	-	1	.00738	15.37	.511	1.29860	1.500	3.252	PER IMP=	42.00
*S BASIN 109: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES											
COMPUTE NM HYD	109.00	-	2	.00672	13.99	.465	1.29860	1.500	3.252	PER IMP=	42.00
*S COMBINE BASINS 108 AND 109 TOGETHER											
ADD HYD	109.10	1& 2	3	.01410	29.36	.977	1.29855	1.500	3.252		
*S ** ROUTE BASIN 109.1 THROUGH 113											
ROUTE	109.20	3	4	.01410	29.20	.977	1.29859	1.533	3.235		
*S BASIN 110: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES											

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
COMPUTE NM HYD	110.00	-	5	.01450	30.16	1.004	1.29860	1.500	3.250	PER IMP=	42.00
*S ** ROUTE BASIN 110 THROUGH	110.10	5	6	.01450	30.00	1.004	1.29861	1.533	3.232		
ROUTE	111.00	-	7	.00315	5.20	.169	1.00753	1.500	2.579	PER IMP=	29.00
*S BASIN 111: PARK	111.10	7	8	.00315	5.08	.169	1.00760	1.533	2.519		
COMPUTE NM HYD	112.00	-	9	.00292	6.08	.202	1.29860	1.500	3.257	PER IMP=	42.00
*S ** ROUTE BASIN 111 THROUGH	112.10	8& 9	10	.00606	10.96	.371	1.14736	1.533	2.823		
ROUTE	112.20	10	21	.00606	10.87	.371	1.14745	1.533	2.802		
*S BASIN 112: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES	113.00	-	12	.00627	13.04	.434	1.29860	1.500	3.253	PER IMP=	42.00
COMPUTE NM HYD	113.10	21&12	13	.01233	23.49	.805	1.22419	1.533	2.978		
*S COMBINE BASINS 111.1 AND 112 TOGETHER	113.20	13& 4	14	.02643	52.69	1.782	1.26387	1.533	3.115		
ADD HYD	114.00	-	16	.00737	15.34	.510	1.29860	1.500	3.252	PER IMP=	42.00
*S BASIN 113: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES	114.10	16& 6	17	.02187	45.17	1.515	1.29857	1.500	3.227		
COMPUTE NM HYD	115.00	-	18	.00633	13.18	.438	1.29860	1.500	3.253	PER IMP=	42.00
*S ** ROUTE BASIN 112.1 THROUGH	113.30	14	19	.02643	52.85	1.782	1.26391	1.533	3.124		
ROUTE	116.00	-	22	.00526	10.95	.364	1.29860	1.500	3.254	PER IMP=	42.00
*S BASIN 114: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES	116.10	19&22	1	.03169	63.45	2.146	1.26965	1.533	3.128		
COMPUTE NM HYD	116.20	1&18	2	.03802	76.21	2.584	1.27446	1.533	3.132		
*S COMBINE BASINS 116.1 AND 115 TOGETHER	117.00	-	3	.00127	2.66	.088	1.29860	1.500	3.268	PER IMP=	42.00
ADD HYD	117.10	2& 3	4	.03929	78.78	2.672	1.27523	1.533	3.133		
*S BASIN 115: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES	114.20	17	5	.02187	45.29	1.515	1.29859	1.533	3.236		
COMPUTE NM HYD	118.00	-	6	.00526	10.95	.364	1.29860	1.500	3.254	PER IMP=	42.00
*S ** ROUTE BASIN 114.1 THROUGH	118.10	6& 5	7	.02713	55.89	1.879	1.29857	1.533	3.219		
ROUTE	119.00	-	8	.00186	3.88	.129	1.29860	1.500	3.263	PER IMP=	42.00
*S BASIN 116: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES	118.20	8& 7	9	.02899	59.65	2.008	1.29856	1.533	3.215		
COMPUTE NM HYD	107.30	20	10	.01207	24.80	.836	1.29858	1.533	3.211		
*S COMBINE BASINS 116.2 AND 117 TOGETHER	120.00	-	11	.00444	9.25	.308	1.29860	1.500	3.255	PER IMP=	42.00
ADD HYD											
*S BASIN 117: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES											
COMPUTE NM HYD											
*S ** ROUTE BASIN 114.2 THROUGH											
ROUTE											
*S BASIN 118: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES											
COMPUTE NM HYD											
*S COMBINE BASINS 118.1 AND 119 TOGETHER											
ADD HYD											
*S BASIN 119: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES											
COMPUTE NM HYD											
*S COMBINE BASINS 120 AND 107.2 TOGETHER											

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
ADD HYD	120.10	11	10	12	.01651	33.75	1.143	1.29854	1.533	3.194
*S ** ROUTE BASIN 120.1 THROUGH 121										
ROUTE	120.20	12	13	.01651	33.52	1.144	1.29857	1.533	3.173	
*S BASIN 121: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	121.00	-	14	.00220	4.59	.152	1.29860	1.500	3.260	PER IMP= 42.00
*S COMBINE BASINS 121 AND 120.2 TOGETHER										
ADD HYD	121.10	14	13	15	.01871	37.97	1.296	1.29853	1.533	3.171
*S ** ROUTE BASIN 104.1 THROUGH 122										
ROUTE	104.20	30	23	.02895	58.43	2.005	1.29857	1.533	3.154	
*S BASIN 122: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	122.00	-	16	.00784	16.32	.543	1.29860	1.500	3.252	PER IMP= 42.00
*S COMBINE BASINS 122 AND 121.1 TOGETHER										
ADD HYD	122.10	16	15	17	.02655	53.76	1.839	1.29854	1.533	3.164
*S COMBINE BASINS 122.1 AND 118.2 TOGETHER										
ADD HYD	122.20	17	9	18	.05554	113.41	3.847	1.29855	1.533	3.190
*S COMBINE BASINS 122.2 AND 117.1 TOGETHER										
ADD HYD	122.30	18	4	19	.09483	192.18	6.519	1.28889	1.533	3.166
*S COMBINE BASINS 122.3 AND 104.2 TOGETHER										
ADD HYD	122.40	19	23	20	.12378	250.61	8.524	1.29115	1.533	3.164
*S OFFSITE BASINS: UNSER BLVD										
*S BASIN 201.1: OFFSITE: UNSER BLVD. (FROM MEDIAN CURB TO R/W)										
COMPUTE NM HYD	201.10	-	1	.00073	1.70	.059	1.50556	1.500	3.630	PER IMP= 60.00
*S BASIN 201.2: OFFSITE: UNSER BLVD. (FROM MEDIAN CURB TO R/W)										
COMPUTE NM HYD	201.20	-	2	.00281	6.49	.226	1.50556	1.500	3.606	PER IMP= 60.00
*S BASIN 201.3: OFFSITE: UNSER BLVD. MEDIAN AREA										
COMPUTE NM HYD	201.30	-	3	.00215	4.96	.172	1.50556	1.500	3.608	PER IMP= 60.00
FINISH										

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 05/07/1998
START TIME (HR:MIN:SEC) = 10:37:32 USER NO.= ISCARFNM.I01
INPUT FILE = dstmesa2.dat

*S DESERT FLOWER SUBDIVISION - 100 YR POST DEVELOPMENT
*S DSRTmesa.DAT
*S REVISED BY: mjc 5/05/98
*
START RAINFALL BEGINS AT 0.0 HRS
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.87
RAIN SIX=2.20 RAIN DAY=2.66 DT=0.03333HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT = .033330 HOURS END TIME = 5.999400 HOURS

.0000	.0016	.0033	.0050	.0067	.0085	.0103
.0122	.0141	.0160	.0180	.0201	.0222	.0243
.0266	.0289	.0312	.0337	.0362	.0388	.0415
.0443	.0472	.0502	.0534	.0567	.0601	.0637
.0675	.0715	.0758	.0809	.0865	.0924	.1050
.1334	.1771	.2398	.3254	.4379	.5814	.7600
.9780	1.1804	1.2649	1.3363	1.3997	1.4575	1.5106
1.5600	1.6061	1.6493	1.6900	1.7284	1.7646	1.7989
1.8314	1.8623	1.8915	1.9193	1.9456	1.9518	1.9576
1.9630	1.9682	1.9732	1.9780	1.9825	1.9869	1.9912
1.9953	1.9993	2.0031	2.0068	2.0104	2.0140	2.0174
2.0207	2.0240	2.0272	2.0303	2.0333	2.0363	2.0392
2.0420	2.0448	2.0475	2.0502	2.0528	2.0554	2.0580
2.0605	2.0629	2.0653	2.0677	2.0700	2.0723	2.0746
2.0768	2.0790	2.0812	2.0833	2.0855	2.0875	2.0896
2.0916	2.0936	2.0956	2.0976	2.0995	2.1014	2.1033
2.1051	2.1070	2.1088	2.1106	2.1124	2.1141	2.1159
2.1176	2.1193	2.1210	2.1227	2.1244	2.1260	2.1276
2.1292	2.1308	2.1324	2.1340	2.1355	2.1371	2.1386
2.1401	2.1416	2.1431	2.1446	2.1460	2.1475	2.1489
2.1504	2.1518	2.1532	2.1546	2.1560	2.1573	2.1587
2.1600	2.1614	2.1627	2.1640	2.1654	2.1667	2.1680
2.1692	2.1705	2.1718	2.1731	2.1743	2.1756	2.1768
2.1780	2.1792	2.1804	2.1817	2.1829	2.1840	2.1852
2.1864	2.1876	2.1887	2.1899	2.1910	2.1922	2.1933
2.1944	2.1956	2.1967	2.1978	2.1989	2.2000	

*S BASIN 100: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD ID=1 HYD NO=100.00 AREA=0.00608 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.082 CFS UNIT VOLUME = .9982 B = 526.28 P60 = 1.8700
AREA = .002554 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 9.3826 CFS UNIT VOLUME = .9991 B = 354.67 P60 = 1.8700
 AREA = .003526 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00

RUNOFF VOLUME = 1.29860 INCHES = .4211 ACRE-FEET
 PEAK DISCHARGE RATE = 12.66 CFS AT 1.500 HOURS BASIN AREA = .0061 SQ. MI.

*S ** ROUTE BASIN 100 THROUGH 101

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1

MIN ELEV=100.00 FT MAX ELEV=100.67 FT
 CH SLP=.02 FP SLP=.02 N=.017 DIST=32 FT
 DIST ELEV DIST ELEV DIST ELEV
 0 100.67 0.1 100.00 16 100.32
 31.9 100.00 32.0 100.67

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.04	.06	.05	3.51
100.07	.25	.33	7.03
100.11	.56	.96	10.54
100.14	.99	2.07	14.06
100.18	1.55	3.75	17.57
100.21	2.23	6.10	21.09
100.25	3.04	9.20	24.60
100.28	3.97	13.13	28.12
100.32	5.02	17.98	31.63
100.35	6.14	25.01	31.91
100.39	7.27	33.05	31.92
100.42	8.40	41.95	31.93
100.46	9.52	51.67	31.94
100.49	10.65	62.16	31.95
100.53	11.77	73.40	31.96
100.56	12.90	85.36	31.97
100.60	14.03	98.01	31.98
100.63	15.16	111.33	31.99
100.67	16.28	125.31	32.00

COMPUTE TRAVEL TIME ID=2 REACH NO=1 NO VS=1 L=410 FT
 SLP=.016

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.1376
.071	.248	.33	.0867
.106	.558	.96	.0661
.141	.992	2.07	.0546
.176	1.549	3.75	.0471
.212	2.231	6.10	.0417
.247	3.037	9.20	.0376
.282	3.966	13.13	.0344
.317	5.020	17.98	.0318
.353	6.144	25.01	.0280
.388	7.269	33.05	.0250
.423	8.395	41.95	.0228
.458	9.521	51.67	.0210
.494	10.647	62.16	.0195
.529	11.774	73.40	.0183
.564	12.901	85.36	.0172
.599	14.029	98.01	.0163
.635	15.157	111.33	.0155
.670	16.285	125.31	.0148

ROUTE ID=2 HYD NO=100.1 INFLOW ID=1 DT=0.0 HR
PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 100.10

RUNOFF VOLUME = 1.29863 INCHES = .4211 ACRE-FEET
PEAK DISCHARGE RATE = 12.22 CFS AT 1.533 HOURS BASIN AREA = .0061 SQ. MI.

*S BASIN 101: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD ID=3 HYD NO=101.00 AREA=0.004321 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 7.1650 CFS UNIT VOLUME = .9978 B = 526.28 P60 = 1.8700
AREA = .001815 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 6.6681 CFS UNIT VOLUME = .9984 B = 354.67 P60 = 1.8700
AREA = .002506 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 101.00

RUNOFF VOLUME = 1.29860 INCHES = .2993 ACRE-FEET
 PEAK DISCHARGE RATE = 9.00 CFS AT 1.500 HOURS BASIN AREA = .0043 SQ. MI.

*S COMBINE BASINS 100 AND 101 TOGETHER
 ADD HYD ID=4 HYD NO=101.1 ID=2 ID=3
 PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.29854 INCHES = .7203 ACRE-FEET
 PEAK DISCHARGE RATE = 20.93 CFS AT 1.533 HOURS BASIN AREA = .0104 SQ. MI.

*S BASIN 102: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
 COMPUTE NM HYD ID=5 HYD NO=102.00 AREA=0.007284 SQ MI
 PER A=0 PER B=29 PER C=29 PER D=42
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 12.078 CFS UNIT VOLUME = .9984 B = 526.28 P60 = 1.8700
 AREA = .003059 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 11.241 CFS UNIT VOLUME = .9993 B = 354.67 P60 = 1.8700
 AREA = .004225 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=5 CODE=1

PARTIAL HYDROGRAPH 102.00

RUNOFF VOLUME = 1.29860 INCHES = .5045 ACRE-FEET
 PEAK DISCHARGE RATE = 15.16 CFS AT 1.500 HOURS BASIN AREA = .0073 SQ. MI.

*S COMBINE BASIN 102 TO HYDROGRAPH NO 101.1
 ADD HYD ID=6 HYD NO=102.1 ID=4 ID=5
 PRINT HYD ID=6 CODE=1

PARTIAL HYDROGRAPH 102.10

RUNOFF VOLUME = 1.29855 INCHES = 1.2248 ACRE-FEET
 PEAK DISCHARGE RATE = 35.60 CFS AT 1.533 HOURS BASIN AREA = .0177 SQ. MI.

*S BASIN 103: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
 COMPUTE NM HYD ID=7 HYD NO=103.00 AREA=0.00347 SQ MI
 PER A=0 PER B=29 PER C=29 PER D=42
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 5.7539 CFS UNIT VOLUME = .9973 B = 526.28 P60 = 1.8700
 AREA = .001457 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 5.3549 CFS UNIT VOLUME = .9980 B = 354.67 P60 = 1.8700
 AREA = .002013 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=7 CODE=1

PARTIAL HYDROGRAPH 103.00

RUNOFF VOLUME = 1.29860 INCHES = .2403 ACRE-FEET
 PEAK DISCHARGE RATE = 7.23 CFS AT 1.500 HOURS BASIN AREA = .0035 SQ. MI.

*S COMBINE BASINS 103 AND HYDROGRAPH NO. 102.1 TOGETHER
 ADD HYD ID=8 HYD NO=103.1 ID=6 ID=7
 PRINT HYD ID=8 CODE=1

PARTIAL HYDROGRAPH 103.10

RUNOFF VOLUME = 1.29854 INCHES = 1.4651 ACRE-FEET
 PEAK DISCHARGE RATE = 42.71 CFS AT 1.500 HOURS BASIN AREA = .0212 SQ. MI.

*S ** ROUTE BASIN 103.1 THROUGH 104
 COMPUTE TRAVEL TIME ID=9 REACH NO=1 NO VS=1 L=520 FT
 SLP=.0171

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.1745
.071	.248	.33	.1099
.106	.558	.96	.0839
.141	.992	2.07	.0692
.176	1.549	3.75	.0597
.212	2.231	6.10	.0528
.247	3.037	9.20	.0477
.282	3.966	13.13	.0436
.317	5.020	17.98	.0403
.353	6.144	25.01	.0355
.388	7.269	33.05	.0318
.423	8.395	41.95	.0289
.458	9.521	51.67	.0266
.494	10.647	62.16	.0247
.529	11.774	73.40	.0232
.564	12.901	85.36	.0218
.599	14.029	98.01	.0207
.635	15.157	111.33	.0197
.670	16.285	125.31	.0188

ROUTE
PRINT HYD

ID=9 HYD NO=103.2 INFLOW ID=8 DT=0.0 HR
ID=9 CODE=1

PARTIAL HYDROGRAPH 103.20

RUNOFF VOLUME = 1.29857 INCHES = 1.4651 ACRE-FEET
PEAK DISCHARGE RATE = 43.08 CFS AT 1.533 HOURS BASIN AREA = .0212 SQ. MI.

*S BASIN 104: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD

ID=10 HYD NO=140.00 AREA=0.00779 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 12.917 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.8700
AREA = .003272 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 12.021 CFS UNIT VOLUME = .9993 B = 354.67 P60 = 1.8700
AREA = .004518 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD

ID=10 CODE=1

PARTIAL HYDROGRAPH 140.00

RUNOFF VOLUME = 1.29860 INCHES = .5395 ACRE-FEET
PEAK DISCHARGE RATE = 16.21 CFS AT 1.500 HOURS BASIN AREA = .0078 SQ. MI.

*S COMBINE BASIN 104 AND HYDROGRAPH 103.2 TOGETHER
ADD HYD ID=30 HYD NO=104.1 ID=9 ID=10
PRINT HYD ID=30 CODE=1

PARTIAL HYDROGRAPH 104.10

RUNOFF VOLUME = 1.29855 INCHES = 2.0046 ACRE-FEET
PEAK DISCHARGE RATE = 58.77 CFS AT 1.533 HOURS BASIN AREA = .0289 SQ. MI.

*S BASIN 105: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD ID=13 HYD NO=105.00 AREA=0.004 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.6327 CFS UNIT VOLUME = .9976 B = 526.28 P60 = 1.8700
AREA = .001680 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 6.1728 CFS UNIT VOLUME = .9982 B = 354.67 P60 = 1.8700
AREA = .002320 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD

ID=13 CODE=1

PARTIAL HYDROGRAPH 105.00

RUNOFF VOLUME = 1.29860 INCHES = .2770 ACRE-FEET
PEAK DISCHARGE RATE = 8.33 CFS AT 1.500 HOURS BASIN AREA = .0040 SQ. MI.

*S ** ROUTE BASIN 105 THROUGH 106
 COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=100.00 FT MAX ELEV=100.67 FT
 CH SLP=.02 FP SLP=.02 N=.017 DIST=28 FT
 DIST ELEV DIST ELEV DIST ELEV
 0 100.67 0.1 100.00 14 100.28
 27.9 100.00 28.0 100.67

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.04	.06	.05	3.51
100.07	.25	.33	7.02
100.11	.56	.96	10.53
100.14	.99	2.07	14.05
100.18	1.55	3.75	17.56
100.21	2.23	6.09	21.07
100.25	3.03	9.19	24.58
100.28	3.96	13.18	27.88
100.32	4.95	19.05	27.89
100.35	5.93	25.73	27.91
100.39	6.91	33.18	27.92
100.42	7.90	41.35	27.93
100.46	8.88	50.21	27.94
100.49	9.87	59.73	27.95
100.53	10.85	69.89	27.96
100.56	11.84	80.66	27.97
100.60	12.83	92.01	27.98
100.63	13.81	103.94	27.99
100.67	14.80	116.42	28.00

COMPUTE TRAVEL TIME ID=14 REACH NO=1 NO VS=1 L=260 FT
 SLP=.019

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.0872
.071	.248	.33	.0550
.106	.557	.96	.0419
.141	.991	2.07	.0346
.176	1.548	3.75	.0298
.212	2.229	6.09	.0264
.247	3.034	9.19	.0238
.282	3.962	13.18	.0217
.317	4.946	19.05	.0188
.353	5.930	25.73	.0166
.388	6.914	33.18	.0151

.423	7.898	41.35	.0138
.458	8.883	50.21	.0128
.494	9.869	59.73	.0119
.529	10.854	69.89	.0112
.564	11.841	80.66	.0106
.599	12.827	92.01	.0101
.635	13.814	103.94	.0096
.670	14.801	116.42	.0092

ROUTE ID=14 HYD NO=105.1 INFLOW ID=13 DT=0.0 HR
 PRINT HYD ID=14 CODE=1

PARTIAL HYDROGRAPH 105.10

RUNOFF VOLUME = 1.29865 INCHES = .2770 ACRE-FEET
 PEAK DISCHARGE RATE = 8.22 CFS AT 1.533 HOURS BASIN AREA = .0040 SQ. MI.

*S BASIN 106: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
 COMPUTE NM HYD ID=15 HYD NO=106.10 AREA=0.0039 SQ MI
 PER A=0 PER B=29 PER C=29 PER D=42
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 6.4669 CFS UNIT VOLUME = .9976 B = 526.28 P60 = 1.8700
 AREA = .001638 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 6.0185 CFS UNIT VOLUME = .9982 B = 354.67 P60 = 1.8700
 AREA = .002262 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=15 CODE=1

PARTIAL HYDROGRAPH 106.10

RUNOFF VOLUME = 1.29860 INCHES = .2701 ACRE-FEET
 PEAK DISCHARGE RATE = 8.13 CFS AT 1.500 HOURS BASIN AREA = .0039 SQ. MI.

*S COMBINE BASINS 106 AND 105.1 TOGETHER
 ADD HYD ID=16 HYD NO=106.1 ID=15 ID=14
 PRINT HYD ID=16 CODE=1

PARTIAL HYDROGRAPH 106.10

RUNOFF VOLUME = 1.29853 INCHES = .5471 ACRE-FEET
 PEAK DISCHARGE RATE = 16.08 CFS AT 1.533 HOURS BASIN AREA = .0079 SQ. MI.

*S ** ROUTE BASIN 106.1 THROUGH 107
 COMPUTE TRAVEL TIME ID=17 REACH NO=1 NO VS=1 L=260 FT
 SLP=.017

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.0872
.071	.248	.33	.0550
.106	.557	.96	.0419
.141	.991	2.07	.0346
.176	1.548	3.75	.0298
.212	2.229	6.09	.0264
.247	3.034	9.19	.0238
.282	3.962	13.18	.0217
.317	4.946	19.05	.0188
.353	5.930	25.73	.0166
.388	6.914	33.18	.0151
.423	7.898	41.35	.0138
.458	8.883	50.21	.0128
.494	9.869	59.73	.0119
.529	10.854	69.89	.0112
.564	11.841	80.66	.0106
.599	12.827	92.01	.0101
.635	13.814	103.94	.0096
.670	14.801	116.42	.0092

ROUTE ID=17 HYD NO=106.2 INFLOW ID=16 DT=0.0 HR
 PRINT HYD ID=17 CODE=1

PARTIAL HYDROGRAPH 106.20

RUNOFF VOLUME = 1.29859 INCHES = .5471 ACRE-FEET
 PEAK DISCHARGE RATE = 16.26 CFS AT 1.533 HOURS BASIN AREA = .0079 SQ. MI.

*S BASIN 107: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
 COMPUTE NM HYD ID=18 HYD NO=107.0 AREA=0.004171 SQ MI
 PER A=0 PER B=29 PER C=29 PER D=42
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.9163 CFS UNIT VOLUME = .9978 B = 526.28 P60 = 1.8700
AREA = .001752 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 6.4367 CFS UNIT VOLUME = .9984 B = 354.67 P60 = 1.8700
AREA = .002419 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=18 CODE=1

PARTIAL HYDROGRAPH 107.00

RUNOFF VOLUME = 1.29860 INCHES = .2889 ACRE-FEET
PEAK DISCHARGE RATE = 8.69 CFS AT 1.500 HOURS BASIN AREA = .0042 SQ. MI.

*S COMBINE HYDROGRAPH NO 106.2 AND 107 TOGETHER
ADD HYD ID=20 HYD NO=107.1 ID=18 ID=17
PRINT HYD ID=20 CODE=1

PARTIAL HYDROGRAPH 107.10

RUNOFF VOLUME = 1.29853 INCHES = .8360 ACRE-FEET
PEAK DISCHARGE RATE = 24.67 CFS AT 1.533 HOURS BASIN AREA = .0121 SQ. MI.

*S BASIN 108: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD ID=1 HYD NO=108.0 AREA=0.007383 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 12.242 CFS UNIT VOLUME = .9984 B = 526.28 P60 = 1.8700
AREA = .003101 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 11.393 CFS UNIT VOLUME = .9993 B = 354.67 P60 = 1.8700
AREA = .004282 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 108.00

RUNOFF VOLUME = 1.29860 INCHES = .5113 ACRE-FEET
 PEAK DISCHARGE RATE = 15.37 CFS AT 1.500 HOURS BASIN AREA = .0074 SQ. MI.

*S BASIN 109: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
 COMPUTE NM HYD ID=2 HYD NO=109.0 AREA=0.00672 SQ MI
 PER A=0 PER B=29 PER C=29 PER D=42
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 11.143 CFS UNIT VOLUME = .9984 B = 526.28 P60 = 1.8700
 AREA = .002822 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 10.370 CFS UNIT VOLUME = .9992 B = 354.67 P60 = 1.8700
 AREA = .003898 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 109.00

RUNOFF VOLUME = 1.29860 INCHES = .4654 ACRE-FEET
 PEAK DISCHARGE RATE = 13.99 CFS AT 1.500 HOURS BASIN AREA = .0067 SQ. MI.

*S COMBINE BASINS 108 AND 109 TOGETHER
 ADD HYD ID=3 HYD NO=109.1 ID=1 ID=2
 PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 109.10

RUNOFF VOLUME = 1.29855 INCHES = .9767 ACRE-FEET
 PEAK DISCHARGE RATE = 29.36 CFS AT 1.500 HOURS BASIN AREA = .0141 SQ. MI.

*S ** ROUTE BASIN 109.1 THROUGH 113
 COMPUTE TRAVEL TIME ID=4 REACH NO=1 NO VS=1 L=260 FT
 SLP=.014

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.0872
.071	.248	.33	.0550
.106	.557	.96	.0419
.141	.991	2.07	.0346
.176	1.548	3.75	.0298
.212	2.229	6.09	.0264
.247	3.034	9.19	.0238
.282	3.962	13.18	.0217
.317	4.946	19.05	.0188
.353	5.930	25.73	.0166
.388	6.914	33.18	.0151
.423	7.898	41.35	.0138
.458	8.883	50.21	.0128
.494	9.869	59.73	.0119
.529	10.854	69.89	.0112
.564	11.841	80.66	.0106
.599	12.827	92.01	.0101
.635	13.814	103.94	.0096
.670	14.801	116.42	.0092

ROUTE
PRINT HYD

ID=4 HYD NO=109.2 INFLOW ID=3 DT=0.0 HR
ID=4 CODE=1

PARTIAL HYDROGRAPH 109.20

RUNOFF VOLUME = 1.29859 INCHES = .9767 ACRE-FEET
PEAK DISCHARGE RATE = 29.20 CFS AT 1.533 HOURS BASIN AREA = .0141 SQ. MI.

*S BASIN 110: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD

ID=5 HYD NO=110.0 AREA=0.0145 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 24.044 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.8700
AREA = .006090 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 22.376 CFS UNIT VOLUME = .9999 B = 354.67 P60 = 1.8700
AREA = .008410 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD

ID=5 CODE=1

PARTIAL HYDROGRAPH 110.00

RUNOFF VOLUME = 1.29860 INCHES = 1.0042 ACRE-FEET
PEAK DISCHARGE RATE = 30.16 CFS AT 1.500 HOURS BASIN AREA = .0145 SQ. MI.

*S ** ROUTE BASIN 110 THROUGH 114
COMPUTE TRAVEL TIME ID=6 REACH NO=1 NO VS=1 L=260 FT
SLP=.0155

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.0872
.071	.248	.33	.0550
.106	.557	.96	.0419
.141	.991	2.07	.0346
.176	1.548	3.75	.0298
.212	2.229	6.09	.0264
.247	3.034	9.19	.0238
.282	3.962	13.18	.0217
.317	4.946	19.05	.0188
.353	5.930	25.73	.0166
.388	6.914	33.18	.0151
.423	7.898	41.35	.0138
.458	8.883	50.21	.0128
.494	9.869	59.73	.0119
.529	10.854	69.89	.0112
.564	11.841	80.66	.0106
.599	12.827	92.01	.0101
.635	13.814	103.94	.0096
.670	14.801	116.42	.0092

ROUTE
PRINT HYD

ID=6 HYD NO=110.1 INFLOW ID=5 DT=0.0 HR
ID=6 CODE=1

PARTIAL HYDROGRAPH 110.10

RUNOFF VOLUME = 1.29861 INCHES = 1.0043 ACRE-FEET
PEAK DISCHARGE RATE = 30.00 CFS AT 1.533 HOURS BASIN AREA = .0145 SQ. MI.

*S BASIN 111: PARK

COMPUTE NM HYD

ID=7 HYD NO=111.0 AREA=0.003149 SQ MI
PER A=33 PER B=19 PER C=19 PER D=29
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.6054 CFS UNIT VOLUME = .9961 B = 526.28 P60 = 1.8700
AREA = .000913 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .139463HR TP = .133300HR K/TP RATIO = 1.046235 SHAPE CONSTANT, N = 3.374403
UNIT PEAK = 5.2171 CFS UNIT VOLUME = .9973 B = 311.05 P60 = 1.8700
AREA = .002236 SQ MI IA = .52958 INCHES INF = 1.33282 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD

ID=7 CODE=1

PARTIAL HYDROGRAPH 111.00

RUNOFF VOLUME = 1.00753 INCHES = .1692 ACRE-FEET
PEAK DISCHARGE RATE = 5.20 CFS AT 1.500 HOURS BASIN AREA = .0031 SQ. MI.

*S ** ROUTE BASIN 111 THROUGH 112

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1

MIN ELEV=100.00 FT MAX ELEV=100.33 FT
CH SLP=.02 FP SLP=.02 N=.017 DIST=28 FT
DIST ELEV DIST ELEV DIST ELEV
0 100.33 0.1 100.00 14 100.28
27.9 100.00 28.0 100.33

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.02	.02	.01	1.74
100.03	.06	.05	3.47
100.05	.14	.15	5.21
100.07	.24	.31	6.94
100.09	.38	.57	8.68
100.10	.54	.93	10.41
100.12	.74	1.40	12.15
100.14	.96	2.00	13.88
100.16	1.22	2.73	15.62
100.17	1.51	3.62	17.35
100.19	1.82	4.67	19.09
100.21	2.17	5.88	20.82
100.23	2.55	7.28	22.56

100.24	2.95	8.88	24.29
100.26	3.39	10.67	26.03
100.28	3.86	12.67	27.77
100.30	4.34	15.35	27.98
100.31	4.83	18.31	27.99
100.33	5.32	21.46	28.00

COMPUTE TRAVEL TIME ID=8 REACH NO=1 NO VS=1 L=300 FT
SLP=.018

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.017	.015	.01	.1611
.035	.060	.05	.1015
.052	.136	.15	.0775
.069	.241	.31	.0639
.087	.377	.57	.0551
.104	.543	.93	.0488
.122	.739	1.40	.0440
.139	.965	2.00	.0403
.156	1.221	2.73	.0372
.174	1.507	3.62	.0347
.191	1.824	4.67	.0326
.208	2.171	5.88	.0307
.226	2.547	7.28	.0291
.243	2.954	8.88	.0277
.261	3.391	10.67	.0265
.278	3.859	12.67	.0254
.295	4.345	15.35	.0236
.313	4.831	18.31	.0220
.330	5.317	21.46	.0206

ROUTE ID=8 HYD NO=111.1 INFLOW ID=7 DT=0.0 HR
PRINT HYD ID=8 CODE=1

PARTIAL HYDROGRAPH 111.10

RUNOFF VOLUME = 1.00760 INCHES = .1692 ACRE-FEET
PEAK DISCHARGE RATE = 5.08 CFS AT 1.533 HOURS BASIN AREA = .0031 SQ. MI.

*S BASIN 112: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD ID=9 HYD NO=112.0 AREA=0.002915 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 4.8336 CFS UNIT VOLUME = .9969 B = 526.28 P60 = 1.8700
 AREA = .001224 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 4.4984 CFS UNIT VOLUME = .9975 B = 354.67 P60 = 1.8700
 AREA = .001691 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=9 CODE=1

PARTIAL HYDROGRAPH 112.00

RUNOFF VOLUME = 1.29860 INCHES = .2019 ACRE-FEET
 PEAK DISCHARGE RATE = 6.08 CFS AT 1.500 HOURS BASIN AREA = .0029 SQ. MI.

*S COMBINE BASINS 111.1 AND 112 TOGETHER
 ADD HYD ID=10 HYD NO=112.1 ID=8 ID=9
 PRINT HYD ID=10 CODE=1

PARTIAL HYDROGRAPH 112.10

RUNOFF VOLUME = 1.14736 INCHES = .3711 ACRE-FEET
 PEAK DISCHARGE RATE = 10.96 CFS AT 1.533 HOURS BASIN AREA = .0061 SQ. MI.

*S ** ROUTE BASIN 112.1 THROUGH 113
 COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=100.00 FT MAX ELEV=100.67 FT
 CH SLP=.02 FP SLP=.02 N=.017 DIST=32 FT
 DIST ELEV DIST ELEV DIST ELEV
 0 100.67 0.1 100.00 16 100.32
 31.9 100.00 32.0 100.67

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.04	.06	.05	3.51
100.07	.25	.33	7.03
100.11	.56	.96	10.54
100.14	.99	2.07	14.06
100.18	1.55	3.75	17.57
100.21	2.23	6.10	21.09

100.25	3.04	9.20	24.60
100.28	3.97	13.13	28.12
100.32	5.02	17.98	31.63
100.35	6.14	25.01	31.91
100.39	7.27	33.05	31.92
100.42	8.40	41.95	31.93
100.46	9.52	51.67	31.94
100.49	10.65	62.16	31.95
100.53	11.77	73.40	31.96
100.56	12.90	85.36	31.97
100.60	14.03	98.01	31.98
100.63	15.16	111.33	31.99
100.67	16.28	125.31	32.00

COMPUTE TRAVEL TIME ID=21 REACH NO=1 NO VS=1 L=260 FT
SLP=.006

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.0872
.071	.248	.33	.0550
.106	.558	.96	.0419
.141	.992	2.07	.0346
.176	1.549	3.75	.0298
.212	2.231	6.10	.0264
.247	3.037	9.20	.0238
.282	3.966	13.13	.0218
.317	5.020	17.98	.0202
.353	6.144	25.01	.0177
.388	7.269	33.05	.0159
.423	8.395	41.95	.0145
.458	9.521	51.67	.0133
.494	10.647	62.16	.0124
.529	11.774	73.40	.0116
.564	12.901	85.36	.0109
.599	14.029	98.01	.0103
.635	15.157	111.33	.0098
.670	16.285	125.31	.0094

ROUTE ID=21 HYD NO=112.2 INFLOW ID=10 DT=0.0 HR
PRINT HYD ID=21 CODE=1

PARTIAL HYDROGRAPH 112.20

RUNOFF VOLUME = 1.14745 INCHES = .3711 ACRE-FEET
PEAK DISCHARGE RATE = 10.87 CFS AT 1.533 HOURS BASIN AREA = .0061 SQ. MI.

*S BASIN 113: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD ID=12 HYD NO=113.0 AREA=0.006265 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.389 CFS UNIT VOLUME = .9982 B = 526.28 P60 = 1.8700
AREA = .002631 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 9.6681 CFS UNIT VOLUME = .9991 B = 354.67 P60 = 1.8700
AREA = .003634 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=12 CODE=1

PARTIAL HYDROGRAPH 113.00

RUNOFF VOLUME = 1.29860 INCHES = .4339 ACRE-FEET
PEAK DISCHARGE RATE = 13.04 CFS AT 1.500 HOURS BASIN AREA = .0063 SQ. MI.

*S COMBINE BASINS 113 AND 112.2 TOGETHER
ADD HYD ID=13 HYD NO=113.1 ID=21 ID=12
PRINT HYD ID=13 CODE=1

PARTIAL HYDROGRAPH 113.10

RUNOFF VOLUME = 1.22419 INCHES = .8050 ACRE-FEET
PEAK DISCHARGE RATE = 23.49 CFS AT 1.533 HOURS BASIN AREA = .0123 SQ. MI.

*S COMBINE BASINS 113 AND 109.2 TOGETHER
ADD HYD ID=14 HYD NO=113.2 ID=13 ID=4
PRINT HYD ID=14 CODE=1

PARTIAL HYDROGRAPH 113.20

RUNOFF VOLUME = 1.26387 INCHES = 1.7817 ACRE-FEET
PEAK DISCHARGE RATE = 52.69 CFS AT 1.533 HOURS BASIN AREA = .0264 SQ. MI.

*S BASIN 114: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD ID=16 HYD NO=114.0 AREA=0.00737 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 12.221 CFS UNIT VOLUME = .9984 B = 526.28 P60 = 1.8700
AREA = .003095 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 11.373 CFS UNIT VOLUME = .9993 B = 354.67 P60 = 1.8700
AREA = .004275 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=16 CODE=1

PARTIAL HYDROGRAPH 114.00

RUNOFF VOLUME = 1.29860 INCHES = .5104 ACRE-FEET
PEAK DISCHARGE RATE = 15.34 CFS AT 1.500 HOURS BASIN AREA = .0074 SQ. MI.

*S COMBINE BASINS 110.1 AND 114 TOGETHER
ADD HYD ID=17 HYD NO=114.1 ID=16 ID=6
PRINT HYD ID=17 CODE=1

PARTIAL HYDROGRAPH 114.10

RUNOFF VOLUME = 1.29857 INCHES = 1.5146 ACRE-FEET
PEAK DISCHARGE RATE = 45.17 CFS AT 1.500 HOURS BASIN AREA = .0219 SQ. MI.

*S BASIN 115: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD ID=18 HYD NO=115.0 AREA=0.00633 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.496 CFS UNIT VOLUME = .9982 B = 526.28 P60 = 1.8700
AREA = .002659 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 9.7684 CFS UNIT VOLUME = .9991 B = 354.67 P60 = 1.8700
AREA = .003671 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=18 CODE=1

PARTIAL HYDROGRAPH 115.00

RUNOFF VOLUME = 1.29860 INCHES = .4384 ACRE-FEET
PEAK DISCHARGE RATE = 13.18 CFS AT 1.500 HOURS BASIN AREA = .0063 SQ. MI.

*S ** ROUTE BASIN 113.2 THROUGH 116

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1

MIN ELEV=100.00 FT MAX ELEV=100.67 FT
CH SLP=.02 FP SLP=.02 N=.017 DIST=32 FT
DIST ELEV DIST ELEV DIST ELEV
0 100.67 0.1 100.00 16 100.32
31.9 100.00 32.0 100.67

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.04	.06	.05	3.51
100.07	.25	.33	7.03
100.11	.56	.96	10.54
100.14	.99	2.07	14.06
100.18	1.55	3.75	17.57
100.21	2.23	6.10	21.09
100.25	3.04	9.20	24.60
100.28	3.97	13.13	28.12
100.32	5.02	17.98	31.63
100.35	6.14	25.01	31.91
100.39	7.27	33.05	31.92
100.42	8.40	41.95	31.93
100.46	9.52	51.67	31.94
100.49	10.65	62.16	31.95
100.53	11.77	73.40	31.96
100.56	12.90	85.36	31.97
100.60	14.03	98.01	31.98
100.63	15.16	111.33	31.99
100.67	16.28	125.31	32.00

COMPUTE TRAVEL TIME ID=19 REACH NO=1 NO VS=1 L=550 FT
SLP=.0125

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.1846
.071	.248	.33	.1163
.106	.558	.96	.0887
.141	.992	2.07	.0732
.176	1.549	3.75	.0631
.212	2.231	6.10	.0559
.247	3.037	9.20	.0504
.282	3.966	13.13	.0461
.317	5.020	17.98	.0427
.353	6.144	25.01	.0375
.388	7.269	33.05	.0336
.423	8.395	41.95	.0306
.458	9.521	51.67	.0282
.494	10.647	62.16	.0262
.529	11.774	73.40	.0245
.564	12.901	85.36	.0231
.599	14.029	98.01	.0219
.635	15.157	111.33	.0208
.670	16.285	125.31	.0199

ROUTE

PRINT HYD

ID=19 HYD NO=113.3 INFLOW ID=14 DT=0.0 HR
ID=19 CODE=1

PARTIAL HYDROGRAPH 113.30

RUNOFF VOLUME = 1.26391 INCHES = 1.7817 ACRE-FEET
PEAK DISCHARGE RATE = 52.85 CFS AT 1.533 HOURS BASIN AREA = .0264 SQ. MI.

*S BASIN 116: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES

COMPUTE NM HYD ID=22 HYD NO=116.0 AREA=0.00526 SQ MI

PER A=0 PER B=29 PER C=29 PER D=42

TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.7220 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.8700
AREA = .002209 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 8.1172 CFS UNIT VOLUME = .9988 B = 354.67 P60 = 1.8700
AREA = .003051 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD

ID=22 CODE=1

PARTIAL HYDROGRAPH 116.00

RUNOFF VOLUME = 1.29860 INCHES = .3643 ACRE-FEET
PEAK DISCHARGE RATE = 10.95 CFS AT 1.500 HOURS BASIN AREA = .0053 SQ. MI.

*S COMBINE BASINS 116 AND 113.3 TOGETHER

ADD HYD ID=1 HYD NO=116.1 ID=19 ID=22

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 116.10

RUNOFF VOLUME = 1.26965 INCHES = 2.1460 ACRE-FEET
PEAK DISCHARGE RATE = 63.45 CFS AT 1.533 HOURS BASIN AREA = .0317 SQ. MI.

*S COMBINE BASINS 116.1 AND 115 TOGETHER

ADD HYD ID=2 HYD NO=116.2 ID=1 ID=18

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 116.20

RUNOFF VOLUME = 1.27446 INCHES = 2.5844 ACRE-FEET
PEAK DISCHARGE RATE = 76.21 CFS AT 1.533 HOURS BASIN AREA = .0380 SQ. MI.

*S BASIN 117: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES

COMPUTE NM HYD ID=3 HYD NO=117.0 AREA=0.00127 SQ MI

PER A=0 PER B=29 PER C=29 PER D=42

TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 2.1059 CFS UNIT VOLUME = .9941 B = 526.28 P60 = 1.8700
AREA = .000533 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 1.9599 CFS UNIT VOLUME = .9937 B = 354.67 P60 = 1.8700
AREA = .000737 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD

ID=3 CODE=1

PARTIAL HYDROGRAPH 117.00

RUNOFF VOLUME = 1.29860 INCHES = .0880 ACRE-FEET
 PEAK DISCHARGE RATE = 2.66 CFS AT 1.500 HOURS BASIN AREA = .0013 SQ. MI.

*S COMBINE BASINS 116.2 AND 117 TOGETHER
 ADD HYD ID=4 HYD NO=117.1 ID=2 ID=3
 PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 117.10

RUNOFF VOLUME = 1.27523 INCHES = 2.6723 ACRE-FEET
 PEAK DISCHARGE RATE = 78.78 CFS AT 1.533 HOURS BASIN AREA = .0393 SQ. MI.

*S ** ROUTE BASIN 114.1 THROUGH 118
 COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=100.00 FT MAX ELEV=100.67 FT
 CH SLP=.02 FP SLP=.02 N=.017 DIST=32 FT
 DIST ELEV DIST ELEV DIST ELEV
 0 100.67 0.1 100.00 16 100.32
 31.9 100.00 32.0 100.67

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.04	.06	.05	3.51
100.07	.25	.33	7.03
100.11	.56	.96	10.54
100.14	.99	2.07	14.06
100.18	1.55	3.75	17.57
100.21	2.23	6.10	21.09
100.25	3.04	9.20	24.60
100.28	3.97	13.13	28.12
100.32	5.02	17.98	31.63
100.35	6.14	25.01	31.91
100.39	7.27	33.05	31.92
100.42	8.40	41.95	31.93
100.46	9.52	51.67	31.94
100.49	10.65	62.16	31.95
100.53	11.77	73.40	31.96
100.56	12.90	85.36	31.97
100.60	14.03	98.01	31.98
100.63	15.16	111.33	31.99
100.67	16.28	125.31	32.00

COMPUTE TRAVEL TIME ID=5 REACH NO=1 NO VS=1 L=550 FT
SLP=.0052

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.1846
.071	.248	.33	.1163
.106	.558	.96	.0887
.141	.992	2.07	.0732
.176	1.549	3.75	.0631
.212	2.231	6.10	.0559
.247	3.037	9.20	.0504
.282	3.966	13.13	.0461
.317	5.020	17.98	.0427
.353	6.144	25.01	.0375
.388	7.269	33.05	.0336
.423	8.395	41.95	.0306
.458	9.521	51.67	.0282
.494	10.647	62.16	.0262
.529	11.774	73.40	.0245
.564	12.901	85.36	.0231
.599	14.029	98.01	.0219
.635	15.157	111.33	.0208
.670	16.285	125.31	.0199

ROUTE ID=5 HYD NO=114.2 INFLOW ID=17 DT=0.0 HR
PRINT HYD ID=5 CODE=1

PARTIAL HYDROGRAPH 114.20

RUNOFF VOLUME = 1.29859 INCHES = 1.5147 ACRE-FEET
PEAK DISCHARGE RATE = 45.29 CFS AT 1.533 HOURS BASIN AREA = .0219 SQ. MI.

*S BASIN 118: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES

COMPUTE NM HYD ID=6 HYD NO=118.0 AREA=0.00526 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.7220 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.8700
AREA = .002209 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 8.1172 CFS UNIT VOLUME = .9988 B = 354.67 P60 = 1.8700
AREA = .003051 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=6 CODE=1

PARTIAL HYDROGRAPH 118.00

RUNOFF VOLUME = 1.29860 INCHES = .3643 ACRE-FEET
PEAK DISCHARGE RATE = 10.95 CFS AT 1.500 HOURS BASIN AREA = .0053 SQ. MI.

*S COMBINE BASINS 118 AND 114.2 TOGETHER

ADD HYD ID=7 HYD NO=118.1 ID=6 ID=5
PRINT HYD ID=7 CODE=1

PARTIAL HYDROGRAPH 118.10

RUNOFF VOLUME = 1.29857 INCHES = 1.8789 ACRE-FEET
PEAK DISCHARGE RATE = 55.89 CFS AT 1.533 HOURS BASIN AREA = .0271 SQ. MI.

*S BASIN 119: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES

COMPUTE NM HYD ID=8 HYD NO=119.0 AREA=0.00186 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.0842 CFS UNIT VOLUME = .9955 B = 526.28 P60 = 1.8700
AREA = .000781 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 2.8703 CFS UNIT VOLUME = .9958 B = 354.67 P60 = 1.8700
AREA = .001079 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=8 CODE=1

PARTIAL HYDROGRAPH 119.00

RUNOFF VOLUME = 1.29860 INCHES = .1288 ACRE-FEET
PEAK DISCHARGE RATE = 3.88 CFS AT 1.500 HOURS BASIN AREA = .0019 SQ. MI.

*S COMBINE BASINS 118.1 AND 119 TOGETHER
 ADD HYD ID=9 HYD NO=118.2 ID=8 ID=7
 PRINT HYD ID=9 CODE=1

PARTIAL HYDROGRAPH 118.20

RUNOFF VOLUME = 1.29856 INCHES = 2.0077 ACRE-FEET
 PEAK DISCHARGE RATE = 59.65 CFS AT 1.533 HOURS BASIN AREA = .0290 SQ. MI.

*S ** ROUTE BASIN 107.2 THROUGH 120
 COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=100.00 FT MAX ELEV=100.67 FT
 CH SLP=.02 FP SLP=.02 N=.017 DIST=32 FT
 DIST ELEV DIST ELEV DIST ELEV
 0 100.67 0.1 100.00 16 100.32
 31.9 100.00 32.0 100.67

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.04	.06	.05	3.51
100.07	.25	.33	7.03
100.11	.56	.96	10.54
100.14	.99	2.07	14.06
100.18	1.55	3.75	17.57
100.21	2.23	6.10	21.09
100.25	3.04	9.20	24.60
100.28	3.97	13.13	28.12
100.32	5.02	17.98	31.63
100.35	6.14	25.01	31.91
100.39	7.27	33.05	31.92
100.42	8.40	41.95	31.93
100.46	9.52	51.67	31.94
100.49	10.65	62.16	31.95
100.53	11.77	73.40	31.96
100.56	12.90	85.36	31.97
100.60	14.03	98.01	31.98
100.63	15.16	111.33	31.99
100.67	16.28	125.31	32.00

COMPUTE TRAVEL TIME ID=10 REACH NO=1 NO VS=1 L=250 FT
 SLP=.005

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.0839
.071	.248	.33	.0528
.106	.558	.96	.0403
.141	.992	2.07	.0333
.176	1.549	3.75	.0287
.212	2.231	6.10	.0254
.247	3.037	9.20	.0229
.282	3.966	13.13	.0210
.317	5.020	17.98	.0194
.353	6.144	25.01	.0171
.388	7.269	33.05	.0153
.423	8.395	41.95	.0139
.458	9.521	51.67	.0128
.494	10.647	62.16	.0119
.529	11.774	73.40	.0111
.564	12.901	85.36	.0105
.599	14.029	98.01	.0099
.635	15.157	111.33	.0095
.670	16.285	125.31	.0090

ROUTE
PRINT HYD

ID=10 HYD NO=107.3 INFLOW ID=20 DT=0.0 HR
ID=10 CODE=1

PARTIAL HYDROGRAPH 107.30

RUNOFF VOLUME = 1.29858 INCHES = .8360 ACRE-FEET
PEAK DISCHARGE RATE = 24.80 CFS AT 1.533 HOURS BASIN AREA = .0121 SQ. MI.

*S BASIN 120: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES

COMPUTE NM HYD ID=11 HYD NO=120.0 AREA=0.00444 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 7.3623 CFS UNIT VOLUME = .9978 B = 526.28 P60 = 1.8700
AREA = .001865 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 6.8518 CFS UNIT VOLUME = .9984 B = 354.67 P60 = 1.8700
AREA = .002575 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD

ID=11 CODE=1

PARTIAL HYDROGRAPH 120.00

RUNOFF VOLUME = 1.29860 INCHES = .3075 ACRE-FEET
PEAK DISCHARGE RATE = 9.25 CFS AT 1.500 HOURS BASIN AREA = .0044 SQ. MI.

*S COMBINE BASINS 120 AND 107.2 TOGETHER
ADD HYD ID=12 HYD NO=120.1 ID=11 ID=10
PRINT HYD ID=12 CODE=1

PARTIAL HYDROGRAPH 120.10

RUNOFF VOLUME = 1.29854 INCHES = 1.1435 ACRE-FEET
PEAK DISCHARGE RATE = 33.75 CFS AT 1.533 HOURS BASIN AREA = .0165 SQ. MI.

*S ** ROUTE BASIN 120.1 THROUGH 121
COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=100.00 FT MAX ELEV=100.67 FT
CH SLP=.02 FP SLP=.02 N=.017 DIST=32 FT
DIST ELEV DIST ELEV DIST ELEV
0 100.67 0.1 100.00 16 100.32
31.9 100.00 32.0 100.67

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.04	.06	.05	3.51
100.07	.25	.33	7.03
100.11	.56	.96	10.54
100.14	.99	2.07	14.06
100.18	1.55	3.75	17.57
100.21	2.23	6.10	21.09
100.25	3.04	9.20	24.60
100.28	3.97	13.13	28.12
100.32	5.02	17.98	31.63
100.35	6.14	25.01	31.91
100.39	7.27	33.05	31.92
100.42	8.40	41.95	31.93
100.46	9.52	51.67	31.94
100.49	10.65	62.16	31.95
100.53	11.77	73.40	31.96
100.56	12.90	85.36	31.97
100.60	14.03	98.01	31.98

100.63 15.16 111.33 31.99
 100.67 16.28 125.31 32.00
 COMPUTE TRAVEL TIME ID=13 REACH NO=1 NO VS=1 L=325 FT
 SLP=.005

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.1091
.071	.248	.33	.0687
.106	.558	.96	.0524
.141	.992	2.07	.0433
.176	1.549	3.75	.0373
.212	2.231	6.10	.0330
.247	3.037	9.20	.0298
.282	3.966	13.13	.0273
.317	5.020	17.98	.0252
.353	6.144	25.01	.0222
.388	7.269	33.05	.0199
.423	8.395	41.95	.0181
.458	9.521	51.67	.0166
.494	10.647	62.16	.0155
.529	11.774	73.40	.0145
.564	12.901	85.36	.0136
.599	14.029	98.01	.0129
.635	15.157	111.33	.0123
.670	16.285	125.31	.0117

ROUTE ID=13 HYD NO=120.2 INFLOW ID=12 DT=0.0 HR
 PRINT HYD ID=13 CODE=1

PARTIAL HYDROGRAPH 120.20

RUNOFF VOLUME = 1.29857 INCHES = 1.1435 ACRE-FEET
 PEAK DISCHARGE RATE = 33.52 CFS AT 1.533 HOURS BASIN AREA = .0165 SQ. MI.

*S BASIN 121: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
 COMPUTE NM HYD ID=14 HYD NO=121.0 AREA=0.0022 SQ MI
 PER A=0 PER B=29 PER C=29 PER D=42
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 3.6480 CFS UNIT VOLUME = .9961 B = 526.28 P60 = 1.8700
 AREA = .000924 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 3.3950 CFS UNIT VOLUME = .9966 B = 354.67 P60 = 1.8700
 AREA = .001276 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=14 CODE=1

PARTIAL HYDROGRAPH 121.00

RUNOFF VOLUME = 1.29860 INCHES = .1524 ACRE-FEET
 PEAK DISCHARGE RATE = 4.59 CFS AT 1.500 HOURS BASIN AREA = .0022 SQ. MI.

*S COMBINE BASINS 121 AND 120.2 TOGETHER
 ADD HYD ID=15 HYD NO=121.1 ID=14 ID=13
 PRINT HYD ID=15 CODE=1

PARTIAL HYDROGRAPH 121.10

RUNOFF VOLUME = 1.29853 INCHES = 1.2958 ACRE-FEET
 PEAK DISCHARGE RATE = 37.97 CFS AT 1.533 HOURS BASIN AREA = .0187 SQ. MI.

*S ** ROUTE BASIN 104.1 THROUGH 122
 COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=100.00 FT MAX ELEV=100.67 FT
 CH SLP=.02 FP SLP=.02 N=.017 DIST=32 FT
 DIST ELEV DIST ELEV DIST ELEV
 0 100.67 0.1 100.00 16 100.32
 31.9 100.00 32.0 100.67

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.04	.06	.05	3.51
100.07	.25	.33	7.03
100.11	.56	.96	10.54
100.14	.99	2.07	14.06
100.18	1.55	3.75	17.57
100.21	2.23	6.10	21.09
100.25	3.04	9.20	24.60
100.28	3.97	13.13	28.12
100.32	5.02	17.98	31.63
100.35	6.14	25.01	31.91
100.39	7.27	33.05	31.92
100.42	8.40	41.95	31.93

	100.46	9.52	51.67	31.94
	100.49	10.65	62.16	31.95
	100.53	11.77	73.40	31.96
	100.56	12.90	85.36	31.97
	100.60	14.03	98.01	31.98
	100.63	15.16	111.33	31.99
	100.67	16.28	125.31	32.00

COMPUTE TRAVEL TIME ID=23 REACH NO=1 NO VS=1 L=480 FT
SLP=.0184

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.1611
.071	.248	.33	.1015
.106	.558	.96	.0774
.141	.992	2.07	.0639
.176	1.549	3.75	.0551
.212	2.231	6.10	.0488
.247	3.037	9.20	.0440
.282	3.966	13.13	.0403
.317	5.020	17.98	.0372
.353	6.144	25.01	.0328
.388	7.269	33.05	.0293
.423	8.395	41.95	.0267
.458	9.521	51.67	.0246
.494	10.647	62.16	.0228
.529	11.774	73.40	.0214
.564	12.901	85.36	.0202
.599	14.029	98.01	.0191
.635	15.157	111.33	.0182
.670	16.285	125.31	.0173

ROUTE ID=23 HYD NO=104.2 INFLOW ID=30 DT=0.0 HR
PRINT HYD ID=23 CODE=1

PARTIAL HYDROGRAPH 104.20

RUNOFF VOLUME = 1.29857 INCHES = 2.0046 ACRE-FEET
PEAK DISCHARGE RATE = 58.43 CFS AT 1.533 HOURS BASIN AREA = .0289 SQ. MI.

*S BASIN 122: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD ID=16 HYD NO=122.0 AREA=0.00784 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 13.000 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.8700
AREA = .003293 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 12.099 CFS UNIT VOLUME = .9993 B = 354.67 P60 = 1.8700
AREA = .004547 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=16 CODE=1

PARTIAL HYDROGRAPH 122.00

RUNOFF VOLUME = 1.29860 INCHES = .5430 ACRE-FEET
PEAK DISCHARGE RATE = 16.32 CFS AT 1.500 HOURS BASIN AREA = .0078 SQ. MI.

*S COMBINE BASINS 122 AND 121.1 TOGETHER
ADD HYD ID=17 HYD NO=122.1 ID=16 ID=15
PRINT HYD ID=17 CODE=1

PARTIAL HYDROGRAPH 122.10

RUNOFF VOLUME = 1.29854 INCHES = 1.8388 ACRE-FEET
PEAK DISCHARGE RATE = 53.76 CFS AT 1.533 HOURS BASIN AREA = .0266 SQ. MI.

*S COMBINE BASINS 122.1 AND 118.2 TOGETHER
ADD HYD ID=18 HYD NO=122.2 ID=17 ID=9
PRINT HYD ID=18 CODE=1

PARTIAL HYDROGRAPH 122.20

RUNOFF VOLUME = 1.29855 INCHES = 3.8465 ACRE-FEET
PEAK DISCHARGE RATE = 113.41 CFS AT 1.533 HOURS BASIN AREA = .0555 SQ. MI.

*S COMBINE BASINS 122.2 AND 117.1 TOGETHER
ADD HYD ID=19 HYD NO=122.3 ID=18 ID=4
PRINT HYD ID=19 CODE=1

PARTIAL HYDROGRAPH 122.30

RUNOFF VOLUME = 1.28889 INCHES = 6.5188 ACRE-FEET
PEAK DISCHARGE RATE = 192.18 CFS AT 1.533 HOURS BASIN AREA = .0948 SQ. MI.

*S COMBINE BASINS 122.3 AND 104.2 TOGETHER
ADD HYD ID=20 HYD NO=122.4 ID=19 ID=23
PRINT HYD ID=20 CODE=1

PARTIAL HYDROGRAPH 122.40

RUNOFF VOLUME = 1.29115 INCHES = 8.5235 ACRE-FEET
PEAK DISCHARGE RATE = 250.61 CFS AT 1.533 HOURS BASIN AREA = .1238 SQ. MI.

*S OFFSITE BASINS: UNSER BLVD
*S BASIN 201.1: OFFSITE: UNSER BLVD. (FROM MEDIAN CURB TO R/W)
COMPUTE NM HYD ID=1 HYD NO=201.1 AREA=0.00073 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.7292 CFS UNIT VOLUME = .9933 B = 526.28 P60 = 1.8700
AREA = .000438 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = .77692 CFS UNIT VOLUME = .9831 B = 354.67 P60 = 1.8700
AREA = .000292 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.10

RUNOFF VOLUME = 1.50556 INCHES = .0586 ACRE-FEET
PEAK DISCHARGE RATE = 1.70 CFS AT 1.500 HOURS BASIN AREA = .0007 SQ. MI.

*S BASIN 201.2: OFFSITE: UNSER BLVD. (FROM MEDIAN CURB TO R/W)
COMPUTE NM HYD ID=2 HYD NO=201.2 AREA=0.002814 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.6659 CFS UNIT VOLUME = .9976 B = 526.28 P60 = 1.8700
AREA = .001688 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 2.9949 CFS UNIT VOLUME = .9958 B = 354.67 P60 = 1.8700
AREA = .001126 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 201.20

RUNOFF VOLUME = 1.50556 INCHES = .2260 ACRE-FEET
PEAK DISCHARGE RATE = 6.49 CFS AT 1.500 HOURS BASIN AREA = .0028 SQ. MI.

*S BASIN 201.3: OFFSITE: UNSER BLVD. MEDIAN AREA
COMPUTE NM HYD ID=3 HYD NO=201.3 AREA=0.002147 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 5.0859 CFS UNIT VOLUME = .9973 B = 526.28 P60 = 1.8700
AREA = .001288 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 2.2850 CFS UNIT VOLUME = .9948 B = 354.67 P60 = 1.8700
AREA = .000859 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 201.30

RUNOFF VOLUME = 1.50556 INCHES = .1724 ACRE-FEET
PEAK DISCHARGE RATE = 4.96 CFS AT 1.500 HOURS BASIN AREA = .0021 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 10:37:34

**ISAACSON & ARFMAN, P.A.****Consulting Engineering Associates**Thomas G. Isaacson, PE & LE • Fred C. Arfman, PE
Scott M. McGee, PE**FAX NO. (505) 268-2632******* FAX COVER SHEET *****

TO: Susan Calongrie DATE: 6/19/98
COA Hydrology
FAX #: 924-3864

REFERENCE: Desert Flower Unit 2 Drainage Report

TOTAL NUMBER OF PAGES,
INCLUDING THIS PAGE: 4

☐ Hard copy to follow via mail.

If you do not receive any of these pages, please call (505) 268-8828.

MESSAGE:

Susan-
Please find attached the Channel worksheets
(for the earthen rundowns)
with the revised side slopes for incorporation
into the Desert Flower 2 Drainage Report.
Please let me know if you have any further
questions. Thx.

FROM: Melissa Combs

SALTBRUSH RD RUNDOWN
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\dtfwrev.fm2
Worksheet	Saltbrush Rd Rundown
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.022
Channel Slope	1.00 %
Left Side Slope	3.00 H : V
Right Side Slope	3.00 H : V
Bottom Width	50.00 ft
Discharge	24.70 cfs

Results		
Depth	0.21	ft
Flow Area	10.52	ft ²
Wetted Perimeter	51.31	ft
Top Width	51.25	ft
Critical Depth	0.20	ft
Critical Slope	0.012214	ft/ft
Velocity	2.35	ft/s
Velocity Head	0.09	ft
Specific Energy	0.29	ft
Froude Number	0.91	
Flow is subcritical.		

Notes:

SLOPE OF THE CHANNEL LISTED IS THE AVERAGE SLOPE

PURPLE CONE RUNDOWN
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\dtfwrev.fm2
Worksheet	Purple Cone Rundown
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.022
Channel Slope	1.30 %
Left Side Slope	3.00 H : V
Right Side Slope	3.00 H : V
Bottom Width	50.00 ft
Discharge	41.70 cfs

Results		
Depth	0.28	ft
Flow Area	13.35	ft ²
Wetted Perimeter	51.66	ft
Top Width	51.58	ft
Critical Depth	0.28	ft
Critical Slope	0.010903	ft/ft
Velocity	3.12	ft/s
Velocity Head	0.15	ft
Specific Energy	0.41	ft
Froude Number	1.08	
Flow is supercritical.		

Notes:

SLOPE OF THE CHANNEL LISTED IS THE AVERAGE SLOPE

PURPLE FRINGE RUNDOWN
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\dtfwrev.fm2
Worksheet	Purple Fringe Rundown
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.022
Channel Slope	1.20 %
Left Side Slope	3.00 H : V
Right Side Slope	3.00 H : V
Bottom Width	50.00 ft
Discharge	45.20 cfs

Results		
Depth	0.28	ft
Flow Area	14.98	ft ²
Wetted Perimeter	51.79	ft
Top Width	51.69	ft
Critical Depth	0.29	ft
Critical Slope	0.010714	ft/ft
Velocity	3.15	ft/s
Velocity Head	0.15	ft
Specific Energy	0.44	ft
Froude Number	1.05	
Flow is supercritical.		

Notes:

SLOPE OF THE CHANNEL LISTED IS THE AVERAGE SLOPE

*** RX REPORT ***

RECEPTION OK

TX/RX NO	8280	
CONNECTION TEL		505 268 2632
SUBADDRESS		
CONNECTION ID		
ST. TIME	06/19 09:06	
USAGE T	01'33	
PGS.	4	
RESULT	OK	



January 27, 1998

Fred C. Arfman, P.E.
Isaacson & Arfman
128 Monroe Street NE
Albuquerque, New Mexico 87108

RE: Drainage Report Dated 11/24/97 and Grading and Drainage Plan for Desert Flower Subdivision, Unit Two, (M10/D12) Submitted for Preliminary and Final Plat and Work Order Approval, Engineer's Stamp Dated 12/19/97.

Dear Mr. Arfman:

Based on the information provided in the submittal of December 22, 1997, the above referenced Report and Grading and Drainage Plan are approved for Preliminary Plat action for Unit Two.

Before sign-off of the Final Plat, a public drainage easement must be in place for the temporary detention pond located to the east of the site. Prior to Work Order approval, the Agreement and Covenant for this pond must be filed.

As you are aware, the Grading and Drainage plan which is approved by the DRB must be certified prior to release of Financial Guarantees for this Unit.

If you have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Fred Aguirre, DRB 96-532
Bo Johnson, Curb Inc.
File

Good for You, Albuquerque!



DRAINAGE INFORMATION SHEET

NW 12

PROJECT Desert Flower, Unit Two
TITLE: _____

ZONE ATLAS/DRNG. M-10
FILE#: _____

DRB # 96-532

EPC # _____

WORK ORDER # _____

LEGAL DESCRIPTION: Tract B, Desert Flower Subdivision

CITY ADDRESS: N/A

ENGINEERING FIRM: Isaacson & Arfman, P.A.

CONTACT: Fred C. Arfman

ADDRESS: 128 Monroe Street NE

PHONE: 268-8828

CITY, STATE: Albuquerque, NM

ZIP CODE: 87108

OWNER: Curb, Inc.

CONTACT: Bo Johnson

ADDRESS: 6301 Indian School Road, Suite 680

PHONE: 881-9190

CITY, STATE: Albuquerque, NN

ZIP CODE: 87110

ARCHITECT: N/A

CONTACT: _____

ADDRESS: _____

PHONE: _____

CITY, STATE: _____

ZIP CODE: _____

SURVEYOR: Aldrich Land Surveying

CONTACT: Tim Aldrich

ADDRESS: P.O. Box 30701

PHONE: 884-1990

CITY, STATE: Albuquerque, NM

ZIP CODE: 87190

CONTRACTOR: N/A

CONTACT: _____

ADDRESS: _____

PHONE: _____

CITY, STATE: _____

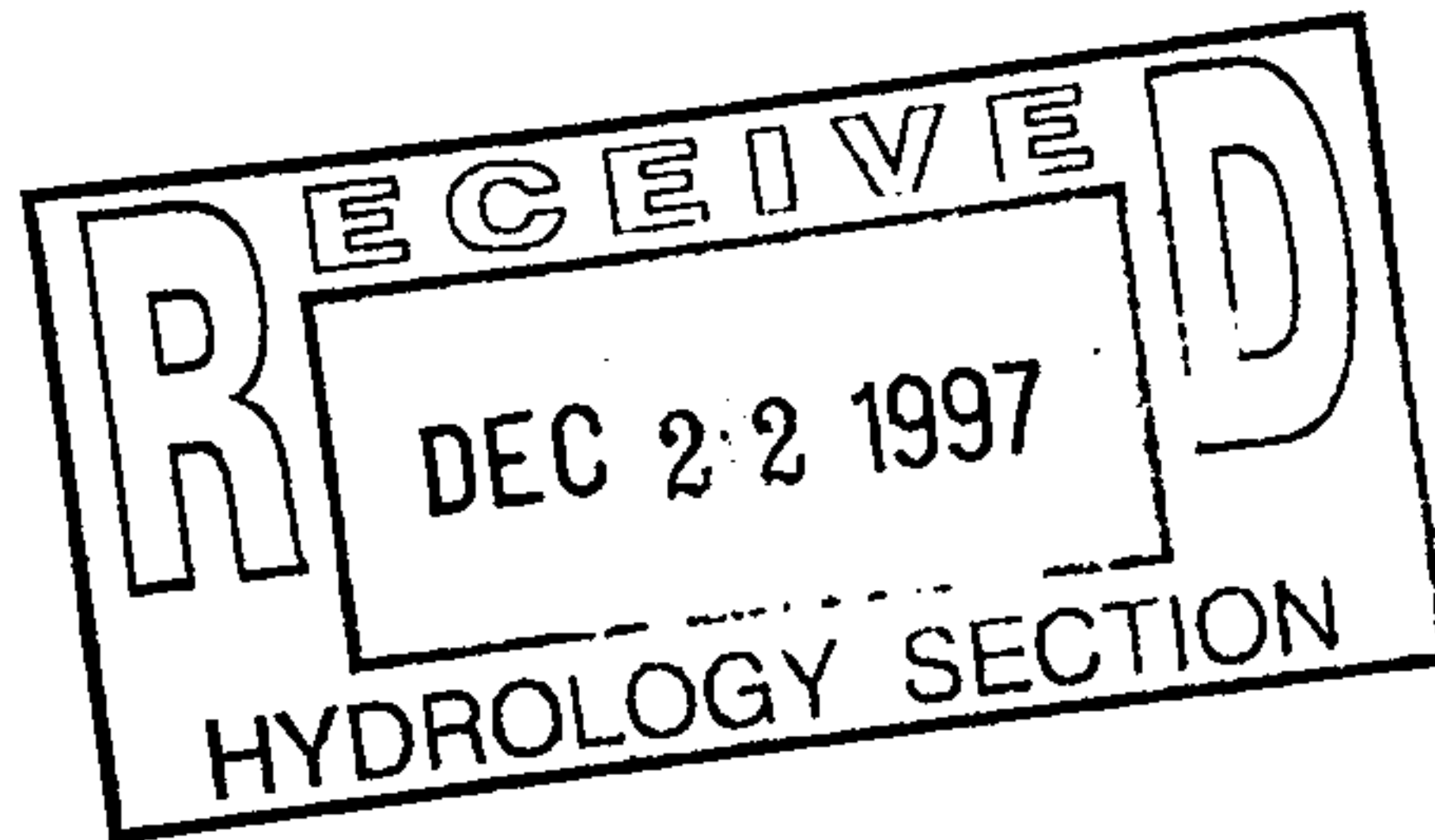
ZIP CODE: _____

TYPE OF SUBMITTAL:

- ☒ DRAINAGE REPORT
- ☒ DRAINAGE PLAN
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☒ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION
- ☐ OTHER

PRE-DESIGN MEETING:

- ☐ YES
- ☐ NO
- ☐ COPY PROVIDED

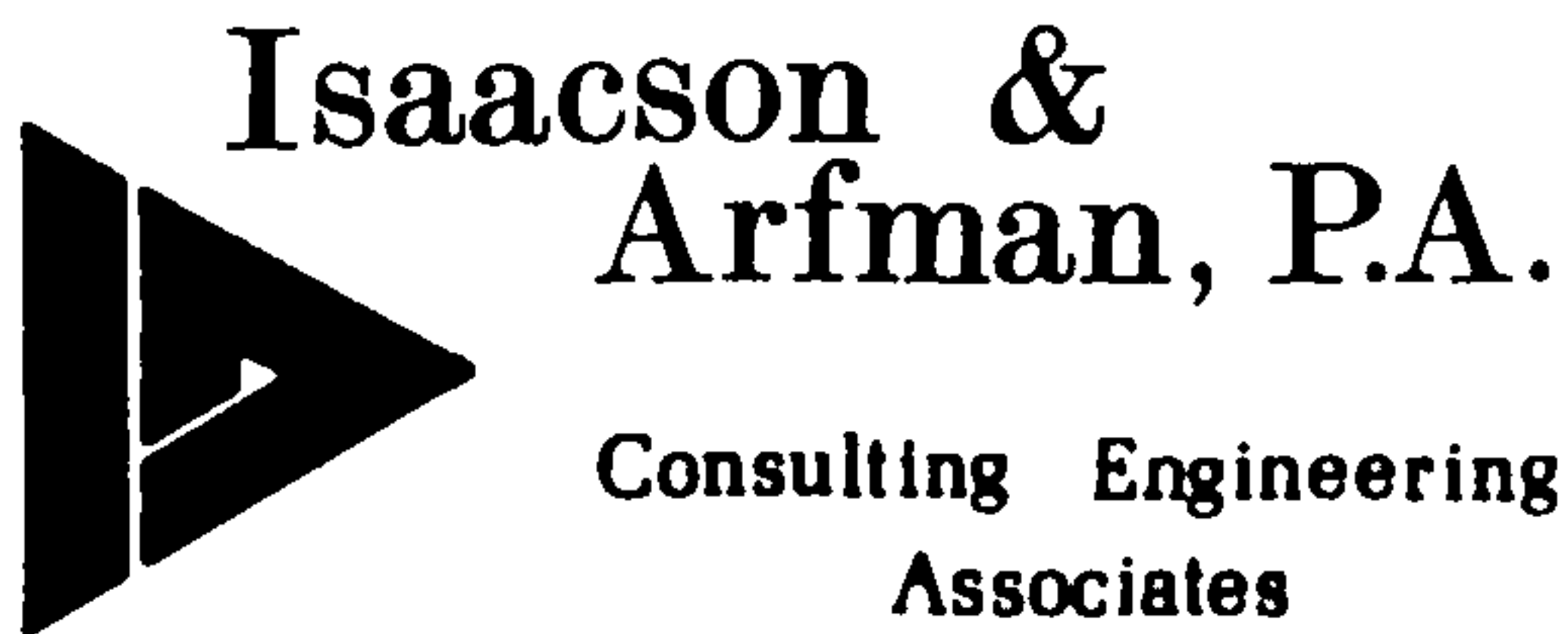


CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SKETCH PLAT APPROVAL
- ☒ PRELIMINARY PLAT APPROVAL
- ☐ S.DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S.DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☒ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY APPROVAL
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ S.A.D. DRAINAGE REPORT
- ☐ DRAINAGE REQUIREMENTS
- ☒ OTHER (SPECIFY) Work Order Approval

DATE SUBMITTED: 12.22.97

BY: Melissa Combs
FOR ISAACSON & ARFMAN, P.A.



Letter of Transmittal

To COA Hydrology Date 12.22.97

Job No. 986

Attn: _____

Reference Desert Flower Unit 2

Gentlemen:

We transmit to you _____ copy(ies) of the following

- | | |
|--|--|
| ☐ _____ Plats | ☐ Shop Drawings |
| ☐ _____ Plans | ☐ Submittals |
| ☐ Specifications | ☐ Material Specifications |
| ☒ <u>DRAINAGE</u> Report | ☐ Copy of Letter |
| ☐ _____ | |
| ☐ _____ | |

This information is transmitted:

- | | |
|--|---|
| ☐ As per your request | ☐ For your files |
| ☒ For your review & approval | ☐ For your use |
| ☐ For your information | ☐ Please review & return |
| ☐ For your attention | ☐ For return to your files |
| ☐ For your signature | ☐ Please advise |
| ☐ _____ | |
| ☐ _____ | |

Remarks: _____

By: Melissa Combs Copies To _____

FORM DRWS: DRAINAGE REPORT / WATER & SEWER AVAILABILITY

THIS FORM IS REQUIRED WITH THE DEVELOPMENT REVIEW BOARD APPLICATION FOR MAJOR SUBDIVISIONS AND SITE DEVELOPMENT PLANS.

PROJECT NAME Desert Flower Unit 2 (Desert Flower Subdivision, Unit 2)

AGIS MAP # M-10

LEGAL DESCRIPTION Desert Flower Subdivision, Tract B



DRAINAGE REPORT

A drainage report, as per the Drainage Ordinance, was submitted to the City of Albuquerque Public Works Department, Hydrology Division (2nd floor Plaza del Sol) on 12-22-97 [date].

Melissa Conley

Applicant / Agent

12-22-97

Date

Frank J. [Signature]

Hydrology Division Representative

12-22-97

Date

WATER AND SEWER AVAILABILITY STATEMENT

A Water and Sewer Availability Statement for this project was requested from the City of Albuquerque Utilities Development Division (2nd floor Plaza del Sol) on _____ [date].

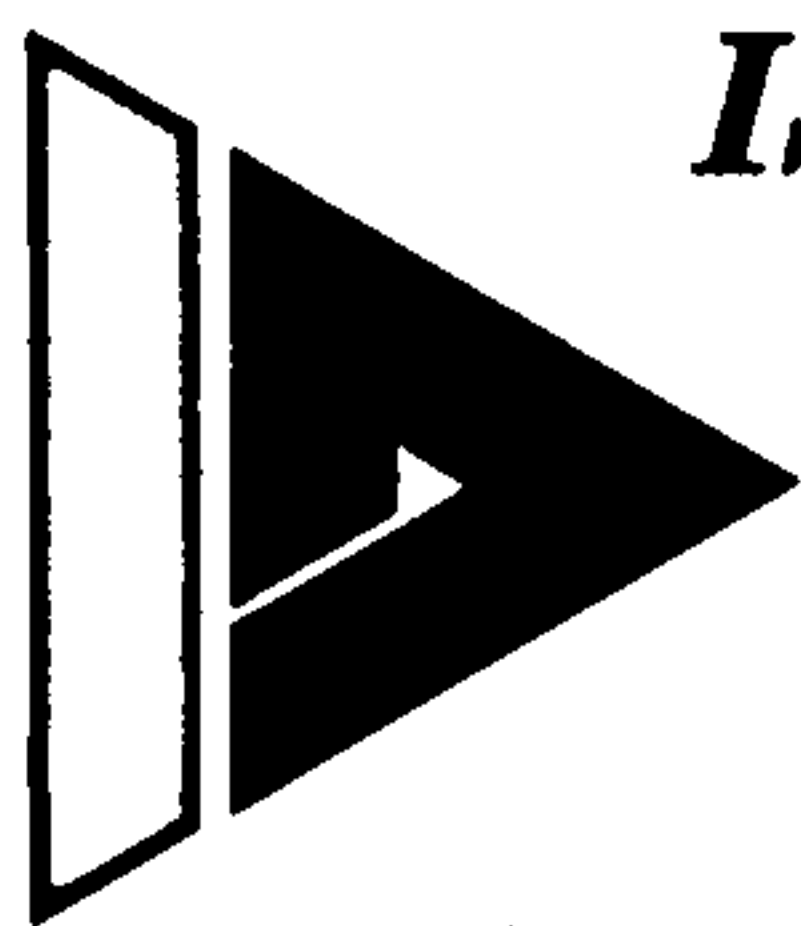
Applicant / Agent

Date

Utilities Division Representative

Date

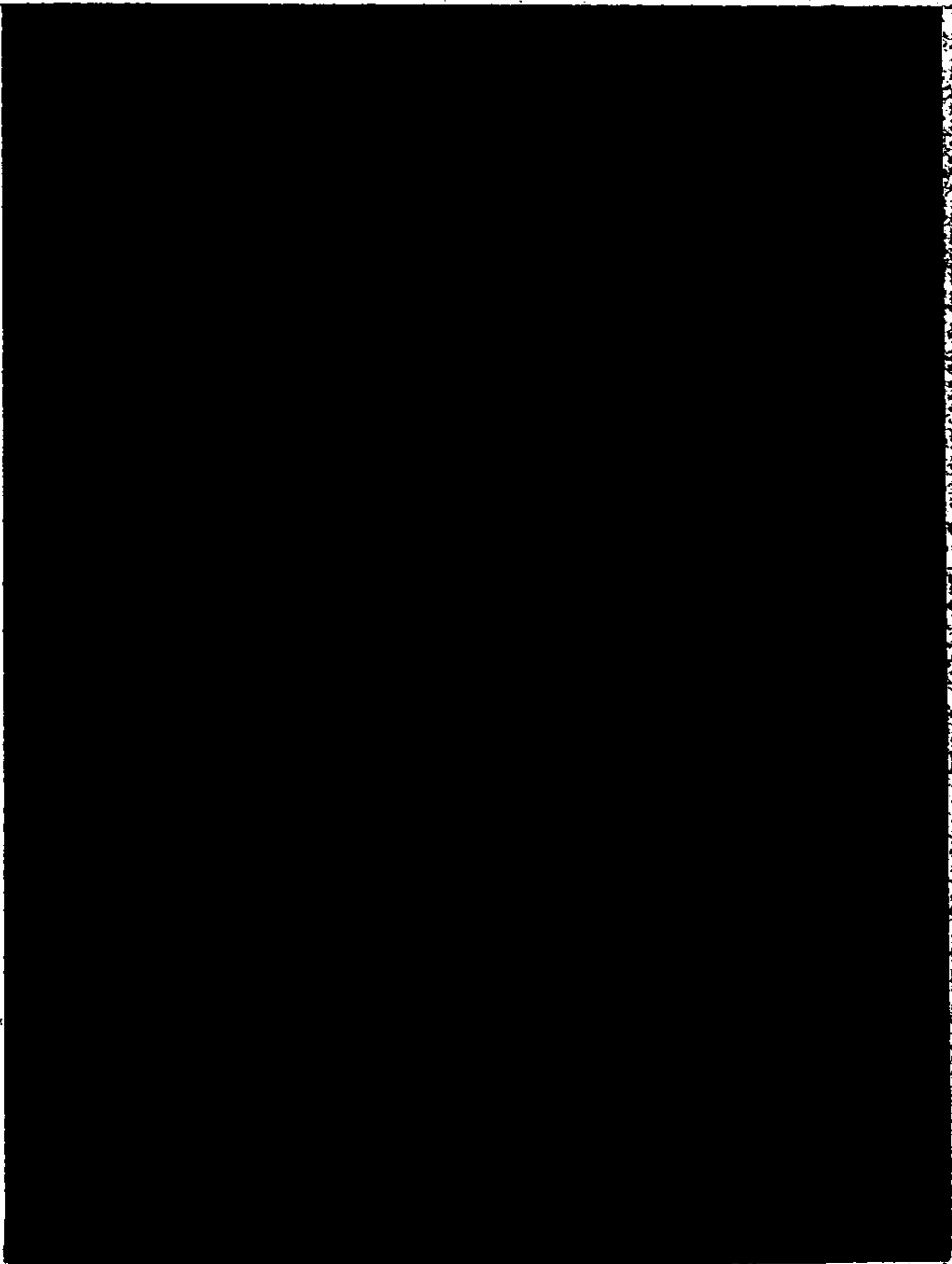
DRB# _____



ISAACSON & ARFMAN, P.A.

Consulting Engineering Associates

Albuquerque, NM



RECEIVED
DEC 22 1997
HYDROLOGY SECTION

DRAINAGE REPORT

FOR

**DESERT FLOWER SUBDIVISION
UNIT TWO**

**A 76 LOT SINGLE
FAMILY RESIDENTIAL SUBDIVISION**

**ALBUQUERQUE NEW MEXICO
OCTOBER 1997**

Prepared by:

ISAACSON & ARFMAN, P.A.

128 Monroe Street, NE

Albuquerque, NM 87108

(505) 268-8828



Fred C. Arfman, P.E.

Date

Fred C. Arfman 11/24/97

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Appendix B: Offsite AHYMO Summary & Detailed Output

Appendix C: FlowMaster Calculation Sheets

Pockets

Figure 1: Master Drainage Plan of June 1997

Figure 2: Offsite Drainage Plan of June 1997

Figure 3: Unit Two Grading Plan

INTRODUCTION

Desert Flower Unit Two is the second phase of a multiple phase subdivision. It is located to the east of Desert Flower Unit One and west of the Amole del Norte Channel. It will have 76 single family lots, and will be constructed with utilities, paving, and storm drainage improvements according to the City of Albuquerque Development Standards and Guidelines. Desert Flower Unit Two was addressed previously in the approved Desert Flower Master Drainage Report. This report will provide a more in-depth drainage and grading solution for the area.

I. PROJECT INFORMATION

LEGAL DESCRIPTION: A portion of Tract B, Desert Flower Subdivision filed June 5, 1997, Volume 97C, Folio 175 (consisting of 14.1 acres).

ENGINEER: Isaacson & Arfman, P.A.
128 Monroe Street NE
Albuquerque, NM 87108
Attn: Fred C. Arfman, P.E.
(505) 268-8828

SURVEYOR: Aldrich Land Surveying, Inc.
Attn: Tim Aldrich, NMPLS No. 7719
(505) 884-1990

BENCHMARK: ACS Monument "1-M10" located at the southeast quadrant of Sage Road and Unser Blvd. SW.
Elevation: 5079.88

ZONING: RLT

NUMBER OF EXISTING TRACTS: 1

NUMBER OF PROPOSED LOTS:
Unit One: 76

TOTAL AREA: 14.1 AC
613,584 Sq. Ft.

II. SITE CHARACTERISTICS

FLOOD HAZARD: No part of this development is affected nor contributes to a flood hazard area as determined by Map No. 35001C0336D and 35001C0337D of the September 20, 1996 Edition of the F.E.M.A. Maps.

EXISTING CONDITIONS: This site is currently undeveloped and mostly undisturbed with native ground cover, typical of the City's west side. The site slopes downward toward the east ranging from 1 to 2 percent. It abuts Desert Flower Unit One to the west, future Desert Flower Units Three and Four to the south, future Desert Springs Subdivision to the north, and unplatted land to the east. Storm water generated from Desert Flower Unit One currently enters a temporary detention pond at the west end of Unit Two. Unit Two runoff flows east onto unplatted land, and then into the Amole del Norte Channel. Offsite flows to the north and south of Unit Two travel east overland to the Amole del Norte Channel. Storm waters generated along Unser Blvd., and from Units Two and Three of Sunrise Estates are conveyed by a combination of street flow and storm drain to an offsite detention pond located at the corner of Arenal Road and Unser Blvd. Flows are slowly released from the pond and are allowed to flow to the Amole del Norte Diversion Channel.

PROPOSED CONDITIONS:

Unit Two will be developed with 76 lots and will require construction, of a storm drain system to the Amole del Norte Channel: This system was identified in the previously mentioned Desert Flower Subdivision Drainage Management Plan, on file with the City Hydrology Division. The temporary retention pond used to capture Unit One runoffs will be removed. Flows from Unit One will enter Unit Two along Purple Cone Road and Purple Fringe Road. The storm drain has the following hydraulic and hydrological characteristics:

- A. Northern Terminus (Purple Cone and Spring Canyon Dr.): Four Type 'A' inlets located along Purple Cone Road have the capacity of accepting 30 cfs into a 36" diameter RCP (refer to Appendix C).

Remaining flows ($Q = 22.7$ cfs) will be carried by Spring Canyon Drive at a depth of .50 feet (EGL = .60 ft).

- B. Purple Fringe Road: Four Type 'A' inlets will accept 28 cfs of the flow generated along Purple Fringe Road. The storm drain along Spring Canyon Drive will increase in size to a 42" diameter capable of conveying 58 cfs at a projected slope of .6% (see FlowMaster sheets, Appendix C). The remaining 5.13 cfs will combine with the 22.7 cfs in Spring Canyon Drive ($Q_{TOT} = 27.83$ cfs) and will be conveyed at a flow depth of .54 feet (EGL = 0.69 ft).

- C. Spring Canyon Drive and Saltbrush Road: A battery of Type 'A' inlets will be located along both Spring Canyon Drive and Saltbrush Road.

Interim: Two Type 'A' inlets will be added to both the westside of Spring Canyon Drive and the northside of Saltbrush Road to catch most of the street flows. These flows will then flow via a 54" diameter and 60" diameter storm drain to the Amole del Norte Channel. A 42" diameter stub will be continued west up Saltbrush Road for 130 feet. A small temporary detention pond will be added at the east terminus of Saltbrush Road to catch the remaining street flows.

Ultimate: Additional inlets will be added to the south and east sides of Saltbrush Road and Spring Canyon Drive respectively. They will capture the remaining street flows in Spring Canyon Drive (12.5 cfs) and future flows in Saltbrush Road from Desert Flower Unit Four. The catch basins will ultimately capture a total of 62 cfs. The temporary detention pond will be removed.

CONCLUSIONS & RECOMMENDATIONS

The Drainage Study for Desert Flower Unit Two is consistent with the Desert Flower Subdivision Drainage Management Plan previously submitted and on file at the Hydrology Division, P.W.D., City of Albuquerque. Desert Flower Subdivision Unit One is currently under construction and conforms to the same DMP. The individual recommendations for Unit One are presented below:

Unit One:

1. A portion of the Saltbrush Road and Spring Canyon Drive storm drains should be constructed as part of the Unit One improvements.
2. The offsite storm drain connection to the Amole del Norte Channel shall be completed with this unit. The developer should have a hard lined connection to the Amole del Norte Diversion Channel.
3. A temporary detention pond will be constructed at the southeast property corner. The pond shall be covered by a City of Albuquerque Covenant and Maintenance Agreement. *easement for pond?*
4. No rear yard ponding shall be allowed in this portion of the development (see Typical Lot Grading Detail).
5. Adjacent lots may share a common lot line drainage swale (see Typical Lot Grading Detail).

SUMMARY TABLES

TABLE 1
ONSITE BASIN SUMMARY

Basin ID	Area (Sq. Mi.)	Contributing Basins	Cummulative Area (Sq. Mi.)	% A	% B	% C	% D	Basin Q (cfs)
100	0.00608	100	0.00608	0	29	29	42	12.7
101	0.00432	100,101	0.0104	0	29	29	42	9.0
102	0.00728	101,102	0.01768	0	29	29	42	15.2
103	0.00953	102,103	0.02721	0	29	29	42	19.8
104	0.00470	103,104	0.03191	0	29	29	42	9.8
105	0.00503	104,105	0.03694	0	29	29	42	10.5
106	0.00390	105,106	0.04084	0	29	29	42	8.1
107	0.00623	106,107	0.04707	0	29	29	42	13.0
108	0.00738	108	0.00738	0	29	29	42	15.4
109	0.00672	108,109	0.0141	0	29	29	42	14.0
110	0.00844	109,110	0.02254	0	29	29	42	17.6
111	0.00315	110,111	0.02569	33	19	19	29	5.2
112	0.00292	111,112	0.02861	0	29	29	42	6.1
113	0.00627	112,113	0.03488	0	29	29	42	13.0
114	0.00737	107,113,114	0.08932	0	29	29	42	15.3

TABLE 2
Flow Depth at Key Locations

Street	Location	Street Width	Curb Type	Slope (ft/ft)	Q100(cfs)	Depth (ft)	EG (ft)
Spring Canyon Dr	@Purple Fringe	32	STD	0.006	27.07	0.53	0.65
Spring Canyon Dr	@Purple Cone	32	STD	0.006	22.7	0.50	0.62
April Flower PL	@Spring Canyon Dr	28	MTBL	0.018	10.96	0.33	0.45
Saltbrush Road	@termination	28	STD	0.0157	31.49	0.48	0.60
Purple Fringe Rd	@Spring Canyon Dr	28	STD	0.016	32.37	0.48	0.60
Purple Cone Rd	@Spring Canyon Drive	28	STD	0.014	41.73	0.54	0.66

APPENDIX A

ONSITE AHYMO SUMMARY & DETAILED OUTPUT 100-YEAR STORM

RUN DATE (MON/DAY/YR) =11/19/1997
USER NO.= ISCARFNM.T01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S	DESERT FLOWER SUBDIVISION - 100 YR POST DEVELOPMENT									
*S	DESRT100.DAT									
*S	REVISED BY: mjc 11/14/97									
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.200
*S BASIN 100: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	100.00	-	1	.00608	12.66	.421	1.29860	1.500	3.253	PER IMP= 42.00
*S ** ROUTE BASIN 100 THROUGH 101										
ROUTE	100.10	1	2	.00608	12.22	.421	1.29863	1.533	3.141	
*S BASIN 101: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	101.00	-	3	.00432	9.00	.299	1.29860	1.500	3.255	PER IMP= 42.00
*S COMBINE BASINS 100 AND 101 TOGETHER										
ADD HYD	101.10	2& 3	4	.01040	20.93	.720	1.29854	1.533	3.144	
*S BASIN 102: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	102.00	-	5	.00728	15.16	.504	1.29860	1.500	3.252	PER IMP= 42.00
*S COMBINE BASIN 102 TO HYDROGRAPH NO 101.1										
ADD HYD	102.10	4& 5	6	.01769	35.60	1.225	1.29855	1.533	3.146	
*S BASIN 103: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	103.00	-	7	.00953	19.83	.660	1.29860	1.500	3.251	PER IMP= 42.00
*S COMBINE BASINS 103 AND HYDROGRAPH NO. 102.1 TOGETHER										
ADD HYD	103.10	6& 7	8	.02722	55.31	1.885	1.29856	1.500	3.176	
*S ** ROUTE BASIN 103.1 THROUGH 104										
ROUTE	103.20	8	9	.02722	55.76	1.885	1.29858	1.533	3.201	
*S BASIN 104: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	140.00	-	10	.00470	9.79	.325	1.29860	1.500	3.254	PER IMP= 42.00
*S COMBINE BASIN 104 AND HYDROGRAPH 103.2 TOGETHER										
ADD HYD	104.10	9&10	11	.03191	65.23	2.210	1.29856	1.533	3.194	
*S ** ROUTE BASIN 104.1 THROUGH 107										
ROUTE	104.20	11	12	.03191	63.73	2.210	1.29857	1.567	3.120	
*S BASIN 105: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	105.00	-	13	.00503	10.47	.348	1.29860	1.500	3.254	PER IMP= 42.00
*S ** ROUTE BASIN 105 THROUGH 106										
ROUTE	105.10	13	14	.00503	10.35	.348	1.29864	1.533	3.215	
*S BASIN 106: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	106.10	-	15	.00390	8.13	.270	1.29860	1.500	3.255	PER IMP= 42.00
*S COMBINE BASINS 106 AND 105.1 TOGETHER										
ADD HYD	106.10	15&14	16	.00893	18.21	.618	1.29854	1.533	3.187	
*S ** ROUTE BASIN 106.1 THROUGH 107										
ROUTE	106.20	16	17	.00893	18.51	.618	1.29859	1.533	3.238	
*S BASIN 107: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	107.00	-	18	.00623	12.98	.432	1.29860	1.500	3.253	PER IMP= 42.00
*S COMBINE BASIN 107 AND HYDROGRAPH NO 104.2 TOGETHER										
ADD HYD	107.10	18&12	19	.03815	76.01	2.642	1.29856	1.533	3.113	
*S COMBINE HYDROGRAPH NO 106.2 AND 107.1 TOGETHER										
ADD HYD	107.20	19&17	20	.04708	94.52	3.260	1.29855	1.533	3.137	
*S BASIN 108: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	108.00	-	1	.00738	15.37	.511	1.29860	1.500	3.252	PER IMP= 42.00
*S BASIN 109: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	109.00	-	2	.00672	13.99	.465	1.29860	1.500	3.252	PER IMP= 42.00
*S COMBINE BASINS 108 AND 109 TOGETHER										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2 NOTATION
ADD HYD	109.10	1& 2	3	.01410	29.36	.977	1.29855	1.500	3.252	
*S ** ROUTE BASIN 109.1 THROUGH 113										
ROUTE	109.20	3	4	.01410	29.20	.977	1.29859	1.533	3.235	
*S BASIN 110: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	110.00	-	5	.00844	17.56	.584	1.29860	1.500	3.252	PER IMP= 42.00
*S ** ROUTE BASIN 110 THROUGH 114										
ROUTE	110.10	5	6	.00844	17.51	.584	1.29862	1.533	3.244	
*S BASIN 111: PARK										
COMPUTE NM HYD	111.00	-	7	.00315	5.20	.169	1.00753	1.500	2.579	PER IMP= 29.00
*S ** ROUTE BASIN 111 THROUGH 112										
ROUTE	111.10	7	8	.00315	5.08	.169	1.00760	1.533	2.519	
*S BASIN 112: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	112.00	-	9	.00292	6.08	.202	1.29860	1.500	3.257	PER IMP= 42.00
*S COMBINE BASINS 111.1 AND 112 TOGETHER										
ADD HYD	112.10	8& 9	10	.00606	10.96	.371	1.14736	1.533	2.823	
*S ** ROUTE BASIN 112.1 THROUGH 113										
ROUTE	112.20	10	11	.00606	10.87	.371	1.14745	1.533	2.802	
*S BASIN 113: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	113.00	-	12	.00627	13.04	.434	1.29860	1.500	3.253	PER IMP= 42.00
*S COMBINE BASINS 113 AND 112.2 TOGETHER										
ADD HYD	113.10	11&12	13	.01233	23.49	.805	1.22419	1.533	2.978	
*S COMBINE BASINS 113 AND 109.2 TOGETHER										
ADD HYD	113.20	13& 4	14	.02643	52.69	1.782	1.26387	1.533	3.115	
*S ** ROUTE BASIN 113.1 THROUGH 114										
ROUTE	113.20	14	15	.02643	53.47	1.782	1.26391	1.533	3.161	
*S BASIN 114: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES										
COMPUTE NM HYD	114.00	-	16	.00737	15.34	.510	1.29860	1.500	3.252	PER IMP= 42.00
*S COMBINE BASINS 110.1 AND 114 TOGETHER										
ADD HYD	114.10	16& 6	17	.01581	32.37	1.095	1.29856	1.500	3.200	
*S COMBINE HYDROGRAPH NO 113.2 AND 114.1 TOGETHER										
ADD HYD	114.20	17&15	18	.04224	85.83	2.876	1.27687	1.533	3.175	
*S COMBINE HYDROGRAPH NO 107.2 AND 114.2 TOGETHER										
ADD HYD	114.30	18&20	19	.08932	180.35	6.137	1.28830	1.533	3.155	
*S Divide HYD to get the right flows into the temporary detention pond										
DIVIDE HYD	114.40	18	2	.04111	73.33	2.800	1.27687	1.500	2.787	
	114.50	AND	3	.00113	12.50	.077	1.27687	1.533	17.345	
*S DESIGN A TEMPORARY POND TO CAPTURE REMAINING STREET FLOWS										
*S OUTFALL PIPE IS A 6"										
ROUTE RESERVOIR	401.10	3	4	.00113	2.41	.077	1.27687	1.600	3.338	AC-FT= .057
*S BASIN 120.1: OFFSITE: UNSER BLVD. (FROM MEDIAN CURB TO R/W)										
COMPUTE NM HYD	120.10	-	5	.00073	1.70	.059	1.50556	1.500	3.630	PER IMP= 60.00
*S BASIN 120.2: OFFSITE: UNSER BLVD. (FROM MEDIAN CURB TO R/W)										
COMPUTE NM HYD	120.20	-	6	.00281	6.49	.226	1.50556	1.500	3.606	PER IMP= 60.00
*S BASIN 120.3: OFFSITE: UNSER BLVD. MEDIAN AREA										
COMPUTE NM HYD	120.30	-	7	.00215	4.96	.172	1.50556	1.500	3.608	PER IMP= 60.00
FINISH										

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 11/19/1997
START TIME (HR:MIN:SEC) = 14:24:43 USER NO.= ISCARFNM.I01
INPUT FILE = DSRT100A.DAT

*S DESERT FLOWER SUBDIVISION - 100 YR POST DEVELOPMENT
*S DESRT100.DAT
*S REVISED BY: mjc 11/14/97
*
START RAINFALL BEGINS AT 0.0 HRS
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.87
RAIN SIX=2.20 RAIN DAY=2.66 DT=0.03333HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT = .033330 HOURS END TIME = 5.999400 HOURS

.0000	.0016	.0033	.0050	.0067	.0085	.0103
.0122	.0141	.0160	.0180	.0201	.0222	.0243
.0266	.0289	.0312	.0337	.0362	.0388	.0415
.0443	.0472	.0502	.0534	.0567	.0601	.0637
.0675	.0715	.0758	.0809	.0865	.0924	.1050
.1334	.1771	.2398	.3254	.4379	.5814	.7600
.9780	1.1804	1.2649	1.3363	1.3997	1.4575	1.5106
1.5600	1.6061	1.6493	1.6900	1.7284	1.7646	1.7989
1.8314	1.8623	1.8915	1.9193	1.9456	1.9518	1.9576
1.9630	1.9682	1.9732	1.9780	1.9825	1.9869	1.9912
1.9953	1.9993	2.0031	2.0068	2.0104	2.0140	2.0174
2.0207	2.0240	2.0272	2.0303	2.0333	2.0363	2.0392
2.0420	2.0448	2.0475	2.0502	2.0528	2.0554	2.0580
2.0605	2.0629	2.0653	2.0677	2.0700	2.0723	2.0746
2.0768	2.0790	2.0812	2.0833	2.0855	2.0875	2.0896
2.0916	2.0936	2.0956	2.0976	2.0995	2.1014	2.1033
2.1051	2.1070	2.1088	2.1106	2.1124	2.1141	2.1159
2.1176	2.1193	2.1210	2.1227	2.1244	2.1260	2.1276
2.1292	2.1308	2.1324	2.1340	2.1355	2.1371	2.1386
2.1401	2.1416	2.1431	2.1446	2.1460	2.1475	2.1489
2.1504	2.1518	2.1532	2.1546	2.1560	2.1573	2.1587
2.1600	2.1614	2.1627	2.1640	2.1654	2.1667	2.1680
2.1692	2.1705	2.1718	2.1731	2.1743	2.1756	2.1768
2.1780	2.1792	2.1804	2.1817	2.1829	2.1840	2.1852
2.1864	2.1876	2.1887	2.1899	2.1910	2.1922	2.1933
2.1944	2.1956	2.1967	2.1978	2.1989	2.2000	

*S BASIN 100: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD ID=1 HYD NO=100.00 AREA=0.00608 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.082 CFS UNIT VOLUME = .9982 B = 526.28 P60 = 1.8700
AREA = .002554 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 9.3826 CFS UNIT VOLUME = .9991 B = 354.67 P60 = 1.8700
AREA = .003526 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00

RUNOFF VOLUME = 1.29860 INCHES = .4211 ACRE-FEET
PEAK DISCHARGE RATE = 12.66 CFS AT 1.500 HOURS BASIN AREA = .0061 SQ. MI.

*S ** ROUTE BASIN 100 THROUGH 101

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1

MIN ELEV=100.00 FT MAX ELEV=100.67 FT
CH SLP=.02 FP SLP=.02 N=.017 DIST=32 FT
DIST ELEV DIST ELEV DIST ELEV
0 100.67 0.1 100.00 16 100.32
31.9 100.00 32.0 100.67

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.04	.06	.05	3.51
100.07	.25	.33	7.03
100.11	.56	.96	10.54
100.14	.99	2.07	14.06
100.18	1.55	3.75	17.57
100.21	2.23	6.10	21.09
100.25	3.04	9.20	24.60
100.28	3.97	13.13	28.12
100.32	5.02	17.98	31.63
100.35	6.14	25.01	31.91
100.39	7.27	33.05	31.92
100.42	8.40	41.95	31.93
100.46	9.52	51.67	31.94
100.49	10.65	62.16	31.95
100.53	11.77	73.40	31.96
100.56	12.90	85.36	31.97
100.60	14.03	98.01	31.98
100.63	15.16	111.33	31.99
100.67	16.28	125.31	32.00

COMPUTE TRAVEL TIME ID=2 REACH NO=1 NO VS=1 L=410 FT
SLP=.016

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.1376
.071	.248	.33	.0867
.106	.558	.96	.0661
.141	.992	2.07	.0546
.176	1.549	3.75	.0471
.212	2.231	6.10	.0417
.247	3.037	9.20	.0376
.282	3.966	13.13	.0344
.317	5.020	17.98	.0318
.353	6.144	25.01	.0280
.388	7.269	33.05	.0250
.423	8.395	41.95	.0228
.458	9.521	51.67	.0210
.494	10.647	62.16	.0195
.529	11.774	73.40	.0183
.564	12.901	85.36	.0172
.599	14.029	98.01	.0163
.635	15.157	111.33	.0155
.670	16.285	125.31	.0148

ROUTE
PRINT HYD

ID=2 HYD NO=100.1 INFLOW ID=1 DT=0.0 HR
ID=2 CODE=1

PARTIAL HYDROGRAPH 100.10

RUNOFF VOLUME = 1.29863 INCHES = .4211 ACRE-FEET
PEAK DISCHARGE RATE = 12.22 CFS AT 1.533 HOURS BASIN AREA = .0061 SQ. MI.

*S BASIN 101: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD ID=3 HYD NO=101.00 AREA=0.004321 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 7.1650 CFS UNIT VOLUME = .9978 B = 526.28 P60 = 1.8700
AREA = .001815 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 6.6681 CFS UNIT VOLUME = .9984 B = 354.67 P60 = 1.8700
AREA = .002506 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD

ID=3 CODE=1

PARTIAL HYDROGRAPH 101.00

RUNOFF VOLUME = 1.29860 INCHES = .2993 ACRE-FEET
PEAK DISCHARGE RATE = 9.00 CFS AT 1.500 HOURS BASIN AREA = .0043 SQ. MI.

*S COMBINE BASINS 100 AND 101 TOGETHER

ADD HYD ID=4 HYD NO=101.1 ID=2 ID=3
PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.29854 INCHES = .7203 ACRE-FEET
PEAK DISCHARGE RATE = 20.93 CFS AT 1.533 HOURS BASIN AREA = .0104 SQ. MI.

*S BASIN 102: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES

COMPUTE NM HYD ID=5 HYD NO=102.00 AREA=0.007284 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 12.078 CFS UNIT VOLUME = .9984 B = 526.28 P60 = 1.8700
AREA = .003059 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 11.241 CFS UNIT VOLUME = .9993 B = 354.67 P60 = 1.8700
AREA = .004225 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=5 CODE=1

PARTIAL HYDROGRAPH 102.00

RUNOFF VOLUME = 1.29860 INCHES = .5045 ACRE-FEET
PEAK DISCHARGE RATE = 15.16 CFS AT 1.500 HOURS BASIN AREA = .0073 SQ. MI.

*S COMBINE BASIN 102 TO HYDROGRAPH NO 101.1

ADD HYD ID=6 HYD NO=102.1 ID=4 ID=5
PRINT HYD ID=6 CODE=1

PARTIAL HYDROGRAPH 102.10

RUNOFF VOLUME = 1.29855 INCHES = 1.2248 ACRE-FEET
PEAK DISCHARGE RATE = 35.60 CFS AT 1.533 HOURS BASIN AREA = .0177 SQ. MI.

*S BASIN 103: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
 COMPUTE NM HYD ID=7 HYD NO=103.00 AREA=0.00953 SQ MI
 PER A=0 PER B=29 PER C=29 PER D=42
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 15.802 CFS UNIT VOLUME = .9987 B = 526.28 P60 = 1.8700
 AREA = .004003 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 14.707 CFS UNIT VOLUME = .9995 B = 354.67 P60 = 1.8700
 AREA = .005527 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=7 CODE=1

PARTIAL HYDROGRAPH 103.00

RUNOFF VOLUME = 1.29860 INCHES = .6600 ACRE-FEET
 PEAK DISCHARGE RATE = 19.83 CFS AT 1.500 HOURS BASIN AREA = .0095 SQ. MI.

*S COMBINE BASINS 103 AND HYDROGRAPH NO. 102.1 TOGETHER
 ADD HYD ID=8 HYD NO=103.1 ID=6 ID=7
 PRINT HYD ID=8 CODE=1

PARTIAL HYDROGRAPH 103.10

RUNOFF VOLUME = 1.29856 INCHES = 1.8848 ACRE-FEET
 PEAK DISCHARGE RATE = 55.31 CFS AT 1.500 HOURS BASIN AREA = .0272 SQ. MI.

*S ** ROUTE BASIN 103.1 THROUGH 104
 COMPUTE TRAVEL TIME ID=9 REACH NO=1 NO VS=1 L=520 FT
 SLP=.0171

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.1745
.071	.248	.33	.1099
.106	.558	.96	.0839
.141	.992	2.07	.0692
.176	1.549	3.75	.0597
.212	2.231	6.10	.0528
.247	3.037	9.20	.0477

.282	3.966	13.13	.0436
.317	5.020	17.98	.0403
.353	6.144	25.01	.0355
.388	7.269	33.05	.0318
.423	8.395	41.95	.0289
.458	9.521	51.67	.0266
.494	10.647	62.16	.0247
.529	11.774	73.40	.0232
.564	12.901	85.36	.0218
.599	14.029	98.01	.0207
.635	15.157	111.33	.0197
.670	16.285	125.31	.0188

ROUTE
PRINT HYD

ID=9 HYD NO=103.2 INFLOW ID=8 DT=0.0 HR
ID=9 CODE=1

PARTIAL HYDROGRAPH 103.20

RUNOFF VOLUME = 1.29858 INCHES = 1.8848 ACRE-FEET
PEAK DISCHARGE RATE = 55.76 CFS AT 1.533 HOURS BASIN AREA = .0272 SQ. MI.

*S BASIN 104: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES

COMPUTE NM HYD ID=10 HYD NO=140.00 AREA=0.004699 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 7.7918 CFS UNIT VOLUME = .9978 B = 526.28 P60 = 1.8700
AREA = .001974 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 7.2515 CFS UNIT VOLUME = .9986 B = 354.67 P60 = 1.8700
AREA = .002725 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=10 CODE=1

PARTIAL HYDROGRAPH 140.00

RUNOFF VOLUME = 1.29860 INCHES = .3254 ACRE-FEET
PEAK DISCHARGE RATE = 9.79 CFS AT 1.500 HOURS BASIN AREA = .0047 SQ. MI.

*S COMBINE BASIN 104 AND HYDROGRAPH 103.2 TOGETHER

ADD HYD ID=11 HYD NO=104.1 ID=9 ID=10
PRINT HYD ID=11 CODE=1

PARTIAL HYDROGRAPH 104.10

RUNOFF VOLUME = 1.29856 INCHES = 2.2102 ACRE-FEET
PEAK DISCHARGE RATE = 65.23 CFS AT 1.533 HOURS BASIN AREA = .0319 SQ. MI.

*S ** ROUTE BASIN 104.1 THROUGH 107
COMPUTE TRAVEL TIME ID=12 REACH NO=1 NO VS=1 L=670 FT
SLP=.01

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.2248
.071	.248	.33	.1416
.106	.558	.96	.1081
.141	.992	2.07	.0892
.176	1.549	3.75	.0769
.212	2.231	6.10	.0681
.247	3.037	9.20	.0614
.282	3.966	13.13	.0562
.317	5.020	17.98	.0520
.353	6.144	25.01	.0457
.388	7.269	33.05	.0409
.423	8.395	41.95	.0372
.458	9.521	51.67	.0343
.494	10.647	62.16	.0319
.529	11.774	73.40	.0299
.564	12.901	85.36	.0281
.599	14.029	98.01	.0266
.635	15.157	111.33	.0253
.670	16.285	125.31	.0242

ROUTE ID=12 HYD NO=104.2 INFLOW ID=11 DT=0.0 HR
PRINT HYD ID=12 CODE=1

PARTIAL HYDROGRAPH 104.20

RUNOFF VOLUME = 1.29857 INCHES = 2.2103 ACRE-FEET
PEAK DISCHARGE RATE = 63.73 CFS AT 1.567 HOURS BASIN AREA = .0319 SQ. MI.

*S BASIN 105: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD ID=13 HYD NO=105.00 AREA=0.00503 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.3407 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.8700
AREA = .002113 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 7.7623 CFS UNIT VOLUME = .9988 B = 354.67 P60 = 1.8700
AREA = .002917 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=13 CODE=1

PARTIAL HYDROGRAPH 105.00

RUNOFF VOLUME = 1.29860 INCHES = .3484 ACRE-FEET
PEAK DISCHARGE RATE = 10.47 CFS AT 1.500 HOURS BASIN AREA = .0050 SQ. MI.

*S ** ROUTE BASIN 105 THROUGH 106

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1

MIN ELEV=100.00 FT MAX ELEV=100.67 FT
CH SLP=.02 FP SLP=.02 N=.017 DIST=28 FT
DIST ELEV DIST ELEV DIST ELEV
0 100.67 0.1 100.00 14 100.28
27.9 100.00 28.0 100.67

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.04	.06	.05	3.51
100.07	.25	.33	7.02
100.11	.56	.96	10.53
100.14	.99	2.07	14.05
100.18	1.55	3.75	17.56
100.21	2.23	6.09	21.07
100.25	3.03	9.19	24.58
100.28	3.96	13.18	27.88
100.32	4.95	19.05	27.89
100.35	5.93	25.73	27.91
100.39	6.91	33.18	27.92
100.42	7.90	41.35	27.93
100.46	8.88	50.21	27.94
100.49	9.87	59.73	27.95
100.53	10.85	69.89	27.96
100.56	11.84	80.66	27.97
100.60	12.83	92.01	27.98
100.63	13.81	103.94	27.99
100.67	14.80	116.42	28.00

COMPUTE TRAVEL TIME ID=14 REACH NO=1 NO VS=1 L=260 FT
SLP=.019

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.0872
.071	.248	.33	.0550
.106	.557	.96	.0419
.141	.991	2.07	.0346
.176	1.548	3.75	.0298
.212	2.229	6.09	.0264
.247	3.034	9.19	.0238
.282	3.962	13.18	.0217
.317	4.946	19.05	.0188
.353	5.930	25.73	.0166
.388	6.914	33.18	.0151
.423	7.898	41.35	.0138
.458	8.883	50.21	.0128
.494	9.869	59.73	.0119
.529	10.854	69.89	.0112
.564	11.841	80.66	.0106
.599	12.827	92.01	.0101
.635	13.814	103.94	.0096
.670	14.801	116.42	.0092

ROUTE ID=14 HYD NO=105.1 INFLOW ID=13 DT=0.0 HR
 PRINT HYD ID=14 CODE=1

PARTIAL HYDROGRAPH 105.10

RUNOFF VOLUME = 1.29864 INCHES = .3484 ACRE-FEET
 PEAK DISCHARGE RATE = 10.35 CFS AT 1.533 HOURS BASIN AREA = .0050 SQ. MI.

*S BASIN 106: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
 COMPUTE NM HYD ID=15 HYD NO=106.10 AREA=0.0039 SQ MI
 PER A=0 PER B=29 PER C=29 PER D=42
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 6.4669 CFS UNIT VOLUME = .9976 B = 526.28 P60 = 1.8700
 AREA = .001638 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 6.0185 CFS UNIT VOLUME = .9982 B = 354.67 P60 = 1.8700
 AREA = .002262 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=15 CODE=1

PARTIAL HYDROGRAPH 106.10

RUNOFF VOLUME = 1.29860 INCHES = .2701 ACRE-FEET
PEAK DISCHARGE RATE = 8.13 CFS AT 1.500 HOURS BASIN AREA = .0039 SQ. MI.

*S COMBINE BASINS 106 AND 105.1 TOGETHER
ADD HYD ID=16 HYD NO=106.1 ID=15 ID=14
PRINT HYD ID=16 CODE=1

PARTIAL HYDROGRAPH 106.10

RUNOFF VOLUME = 1.29854 INCHES = .6184 ACRE-FEET
PEAK DISCHARGE RATE = 18.21 CFS AT 1.533 HOURS BASIN AREA = .0089 SQ. MI.

*S ** ROUTE BASIN 106.1 THROUGH 107
COMPUTE TRAVEL TIME ID=17 REACH NO=1 NO VS=1 L=260 FT
SLP=.017

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.0872
.071	.248	.33	.0550
.106	.557	.96	.0419
.141	.991	2.07	.0346
.176	1.548	3.75	.0298
.212	2.229	6.09	.0264
.247	3.034	9.19	.0238
.282	3.962	13.18	.0217
.317	4.946	19.05	.0188
.353	5.930	25.73	.0166
.388	6.914	33.18	.0151
.423	7.898	41.35	.0138
.458	8.883	50.21	.0128
.494	9.869	59.73	.0119
.529	10.854	69.89	.0112
.564	11.841	80.66	.0106
.599	12.827	92.01	.0101
.635	13.814	103.94	.0096
.670	14.801	116.42	.0092

ROUTE ID=17 HYD NO=106.2 INFLOW ID=16 DT=0.0 HR
PRINT HYD ID=17 CODE=1

PARTIAL HYDROGRAPH 106.20

RUNOFF VOLUME = 1.29859 INCHES = .6185 ACRE-FEET
PEAK DISCHARGE RATE = 18.51 CFS AT 1.533 HOURS BASIN AREA = .0089 SQ. MI.

*S BASIN 107: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES

COMPUTE NM HYD ID=18 HYD NO=107.0 AREA=0.006234 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.337 CFS UNIT VOLUME = .9982 B = 526.28 P60 = 1.8700
AREA = .002618 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 9.6203 CFS UNIT VOLUME = .9991 B = 354.67 P60 = 1.8700
AREA = .003616 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=18 CODE=1

PARTIAL HYDROGRAPH 107.00

RUNOFF VOLUME = 1.29860 INCHES = .4318 ACRE-FEET
PEAK DISCHARGE RATE = 12.98 CFS AT 1.500 HOURS BASIN AREA = .0062 SQ. MI.

*S COMBINE BASIN 107 AND HYDROGRAPH NO 104.2 TOGETHER

ADD HYD ID=19 HYD NO=107.1 ID=18 ID=12
PRINT HYD ID=19 CODE=1

PARTIAL HYDROGRAPH 107.10

RUNOFF VOLUME = 1.29856 INCHES = 2.6420 ACRE-FEET
PEAK DISCHARGE RATE = 76.01 CFS AT 1.533 HOURS BASIN AREA = .0381 SQ. MI.

*S COMBINE HYDROGRAPH NO 106.2 AND 107.1 TOGETHER

ADD HYD ID=20 HYD NO=107.2 ID=19 ID=17
PRINT HYD ID=20 CODE=1

PARTIAL HYDROGRAPH 107.20

RUNOFF VOLUME = 1.29855 INCHES = 3.2604 ACRE-FEET
PEAK DISCHARGE RATE = 94.52 CFS AT 1.533 HOURS BASIN AREA = .0471 SQ. MI.

*S BASIN 108: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES

COMPUTE NM HYD ID=1 HYD NO=108.0 AREA=0.007383 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 12.242 CFS UNIT VOLUME = .9984 B = 526.28 P60 = 1.8700
AREA = .003101 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 11.393 CFS UNIT VOLUME = .9993 B = 354.67 P60 = 1.8700
AREA = .004282 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 108.00

RUNOFF VOLUME = 1.29860 INCHES = .5113 ACRE-Feet
PEAK DISCHARGE RATE = 15.37 CFS AT 1.500 HOURS BASIN AREA = .0074 SQ. MI.

*S BASIN 109: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD ID=2 HYD NO=109.0 AREA=0.00672 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 11.143 CFS UNIT VOLUME = .9984 B = 526.28 P60 = 1.8700
AREA = .002822 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 10.370 CFS UNIT VOLUME = .9992 B = 354.67 P60 = 1.8700
AREA = .003898 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 109.00

RUNOFF VOLUME = 1.29860 INCHES = .4654 ACRE-Feet
PEAK DISCHARGE RATE = 13.99 CFS AT 1.500 HOURS BASIN AREA = .0067 SQ. MI.

*S COMBINE BASINS 108 AND 109 TOGETHER
ADD HYD ID=3 HYD NO=109.1 ID=1 ID=2
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 109.10

RUNOFF VOLUME = 1.29855 INCHES = .9767 ACRE-FEET
PEAK DISCHARGE RATE = 29.36 CFS AT 1.500 HOURS BASIN AREA = .0141 SQ. MI.

*S ** ROUTE BASIN 109.1 THROUGH 113
COMPUTE TRAVEL TIME ID=4 REACH NO=1 NO VS=1 L=260 FT
SLP=.014

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.0872
.071	.248	.33	.0550
.106	.557	.96	.0419
.141	.991	2.07	.0346
.176	1.548	3.75	.0298
.212	2.229	6.09	.0264
.247	3.034	9.19	.0238
.282	3.962	13.18	.0217
.317	4.946	19.05	.0188
.353	5.930	25.73	.0166
.388	6.914	33.18	.0151
.423	7.898	41.35	.0138
.458	8.883	50.21	.0128
.494	9.869	59.73	.0119
.529	10.854	69.89	.0112
.564	11.841	80.66	.0106
.599	12.827	92.01	.0101
.635	13.814	103.94	.0096
.670	14.801	116.42	.0092

ROUTE ID=4 HYD NO=109.2 INFLOW ID=3 DT=0.0 HR
PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 109.20

RUNOFF VOLUME = 1.29859 INCHES = .9767 ACRE-FEET
PEAK DISCHARGE RATE = 29.20 CFS AT 1.533 HOURS BASIN AREA = .0141 SQ. MI.

*S BASIN 110: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES
COMPUTE NM HYD ID=5 HYD NO=110.0 AREA=0.008436 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 13.988 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.8700
AREA = .003543 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 13.018 CFS UNIT VOLUME = .9994 B = 354.67 P60 = 1.8700
 AREA = .004893 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=5 CODE=1

PARTIAL HYDROGRAPH 110.00

RUNOFF VOLUME = 1.29860 INCHES = .5843 ACRE-FEET
 PEAK DISCHARGE RATE = 17.56 CFS AT 1.500 HOURS BASIN AREA = .0084 SQ. MI.

*S ** ROUTE BASIN 110 THROUGH 114
 COMPUTE TRAVEL TIME ID=6 REACH NO=1 NO VS=1 L=260 FT
 SLP=.0155

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.0872
.071	.248	.33	.0550
.106	.557	.96	.0419
.141	.991	2.07	.0346
.176	1.548	3.75	.0298
.212	2.229	6.09	.0264
.247	3.034	9.19	.0238
.282	3.962	13.18	.0217
.317	4.946	19.05	.0188
.353	5.930	25.73	.0166
.388	6.914	33.18	.0151
.423	7.898	41.35	.0138
.458	8.883	50.21	.0128
.494	9.869	59.73	.0119
.529	10.854	69.89	.0112
.564	11.841	80.66	.0106
.599	12.827	92.01	.0101
.635	13.814	103.94	.0096
.670	14.801	116.42	.0092

ROUTE ID=6 HYD NO=110.1 INFLOW ID=5 DT=0.0 HR
 PRINT HYD ID=6 CODE=1

PARTIAL HYDROGRAPH 110.10

RUNOFF VOLUME = 1.29862 INCHES = .5843 ACRE-FEET
 PEAK DISCHARGE RATE = 17.51 CFS AT 1.533 HOURS BASIN AREA = .0084 SQ. MI.

*S BASIN 111: PARK
 COMPUTE NM HYD ID=7 HYD NO=111.0 AREA=0.003149 SQ MI
 PER A=33 PER B=19 PER C=19 PER D=29
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 3.6054 CFS UNIT VOLUME = .9961 B = 526.28 P60 = 1.8700
 AREA = .000913 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .139463HR TP = .133300HR K/TP RATIO = 1.046235 SHAPE CONSTANT, N = 3.374403
 UNIT PEAK = 5.2171 CFS UNIT VOLUME = .9973 B = 311.05 P60 = 1.8700
 AREA = .002236 SQ MI IA = .52958 INCHES INF = 1.33282 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=7 CODE=1

PARTIAL HYDROGRAPH 111.00

RUNOFF VOLUME = 1.00753 INCHES = .1692 ACRE-FEET
 PEAK DISCHARGE RATE = 5.20 CFS AT 1.500 HOURS BASIN AREA = .0031 SQ. MI.

*S ** ROUTE BASIN 111 THROUGH 112
 COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=100.00 FT MAX ELEV=100.33 FT
 CH SLP=.02 FP SLP=.02 N=.017 DIST=28 FT
 DIST ELEV DIST ELEV DIST ELEV
 0 100.33 0.1 100.00 14 100.28
 27.9 100.00 28.0 100.33

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.02	.02	.01	1.74
100.03	.06	.05	3.47
100.05	.14	.15	5.21
100.07	.24	.31	6.94
100.09	.38	.57	8.68
100.10	.54	.93	10.41
100.12	.74	1.40	12.15
100.14	.96	2.00	13.88
100.16	1.22	2.73	15.62
100.17	1.51	3.62	17.35
100.19	1.82	4.67	19.09
100.21	2.17	5.88	20.82
100.23	2.55	7.28	22.56
100.24	2.95	8.88	24.29
100.26	3.39	10.67	26.03
100.28	3.86	12.67	27.77

100.30	4.34	15.35	27.98
100.31	4.83	18.31	27.99
100.33	5.32	21.46	28.00

COMPUTE TRAVEL TIME ID=8 REACH NO=1 NO VS=1 L=300 FT
SLP=.018

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.017	.015	.01	.1611
.035	.060	.05	.1015
.052	.136	.15	.0775
.069	.241	.31	.0639
.087	.377	.57	.0551
.104	.543	.93	.0488
.122	.739	1.40	.0440
.139	.965	2.00	.0403
.156	1.221	2.73	.0372
.174	1.507	3.62	.0347
.191	1.824	4.67	.0326
.208	2.171	5.88	.0307
.226	2.547	7.28	.0291
.243	2.954	8.88	.0277
.261	3.391	10.67	.0265
.278	3.859	12.67	.0254
.295	4.345	15.35	.0236
.313	4.831	18.31	.0220
.330	5.317	21.46	.0206

ROUTE ID=8 HYD NO=111.1 INFLOW ID=7 DT=0.0 HR
PRINT HYD ID=8 CODE=1

PARTIAL HYDROGRAPH 111.10

RUNOFF VOLUME = 1.00760 INCHES = .1692 ACRE-Feet
PEAK DISCHARGE RATE = 5.08 CFS AT 1.533 HOURS BASIN AREA = .0031 SQ. MI.

*S BASIN 112: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES

COMPUTE NM HYD ID=9 HYD NO=112.0 AREA=0.002915 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 4.8336 CFS UNIT VOLUME = .9969 B = 526.28 P60 = 1.8700
AREA = .001224 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 4.4984 CFS UNIT VOLUME = .9975 B = 354.67 P60 = 1.8700
 AREA = .001691 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=9 CODE=1

PARTIAL HYDROGRAPH 112.00

RUNOFF VOLUME = 1.29860 INCHES = .2019 ACRE-FEET
 PEAK DISCHARGE RATE = 6.08 CFS AT 1.500 HOURS BASIN AREA = .0029 SQ. MI.

*S COMBINE BASINS 111.1 AND 112 TOGETHER

ADD HYD ID=10 HYD NO=112.1 ID=8 ID=9
 PRINT HYD ID=10 CODE=1

PARTIAL HYDROGRAPH 112.10

RUNOFF VOLUME = 1.14736 INCHES = .3711 ACRE-FEET
 PEAK DISCHARGE RATE = 10.96 CFS AT 1.533 HOURS BASIN AREA = .0061 SQ. MI.

*S ** ROUTE BASIN 112.1 THROUGH 113

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1

MIN ELEV=100.00 FT MAX ELEV=100.67 FT
 CH SLP=.02 FP SLP=.02 N=.017 DIST=32 FT
 DIST ELEV DIST ELEV DIST ELEV
 0 100.67 0.1 100.00 16 100.32
 31.9 100.00 32.0 100.67

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.04	.06	.05	3.51
100.07	.25	.33	7.03
100.11	.56	.96	10.54
100.14	.99	2.07	14.06
100.18	1.55	3.75	17.57
100.21	2.23	6.10	21.09
100.25	3.04	9.20	24.60
100.28	3.97	13.13	28.12
100.32	5.02	17.98	31.63
100.35	6.14	25.01	31.91
100.39	7.27	33.05	31.92
100.42	8.40	41.95	31.93
100.46	9.52	51.67	31.94
100.49	10.65	62.16	31.95
100.53	11.77	73.40	31.96

100.56	12.90	85.36	31.97
100.60	14.03	98.01	31.98
100.63	15.16	111.33	31.99
100.67	16.28	125.31	32.00

COMPUTE TRAVEL TIME ID=11 REACH NO=1 NO VS=1 L=260 FT
SLP=.006

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.0872
.071	.248	.33	.0550
.106	.558	.96	.0419
.141	.992	2.07	.0346
.176	1.549	3.75	.0298
.212	2.231	6.10	.0264
.247	3.037	9.20	.0238
.282	3.966	13.13	.0218
.317	5.020	17.98	.0202
.353	6.144	25.01	.0177
.388	7.269	33.05	.0159
.423	8.395	41.95	.0145
.458	9.521	51.67	.0133
.494	10.647	62.16	.0124
.529	11.774	73.40	.0116
.564	12.901	85.36	.0109
.599	14.029	98.01	.0103
.635	15.157	111.33	.0098
.670	16.285	125.31	.0094

ROUTE ID=11 HYD NO=112.2 INFLOW ID=10 DT=0.0 HR
PRINT HYD ID=11 CODE=1

PARTIAL HYDROGRAPH 112.20

RUNOFF VOLUME = 1.14745 INCHES = .3711 ACRE-FEET
PEAK DISCHARGE RATE = 10.87 CFS AT 1.533 HOURS BASIN AREA = .0061 SQ. MI.

*S BASIN 113: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES

COMPUTE NM HYD ID=12 HYD NO=113.0 AREA=0.006265 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.389 CFS UNIT VOLUME = .9982 B = 526.28 P60 = 1.8700
AREA = .002631 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 9.6681 CFS UNIT VOLUME = .9991 B = 354.67 P60 = 1.8700
AREA = .003634 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=12 CODE=1

PARTIAL HYDROGRAPH 113.00

RUNOFF VOLUME = 1.29860 INCHES = .4339 ACRE-FEET
PEAK DISCHARGE RATE = 13.04 CFS AT 1.500 HOURS BASIN AREA = .0063 SQ. MI.

*S COMBINE BASINS 113 AND 112.2 TOGETHER
ADD HYD ID=13 HYD NO=113.1 ID=11 ID=12
PRINT HYD ID=13 CODE=1

PARTIAL HYDROGRAPH 113.10

RUNOFF VOLUME = 1.22419 INCHES = .8050 ACRE-FEET
PEAK DISCHARGE RATE = 23.49 CFS AT 1.533 HOURS BASIN AREA = .0123 SQ. MI.

*S COMBINE BASINS 113 AND 109.2 TOGETHER
ADD HYD ID=14 HYD NO=113.2 ID=13 ID=4
PRINT HYD ID=14 CODE=1

PARTIAL HYDROGRAPH 113.20

RUNOFF VOLUME = 1.26387 INCHES = 1.7817 ACRE-FEET
PEAK DISCHARGE RATE = 52.69 CFS AT 1.533 HOURS BASIN AREA = .0264 SQ. MI.

*S ** ROUTE BASIN 113.1 THROUGH 114
COMPUTE TRAVEL TIME ID=15 REACH NO=1 NO VS=1 L=250 FT
SLP=.006

TRAVEL TIME TABLE REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.05	.0839
.071	.248	.33	.0528
.106	.558	.96	.0403
.141	.992	2.07	.0333
.176	1.549	3.75	.0287
.212	2.231	6.10	.0254

.247	3.037	9.20	.0229
.282	3.966	13.13	.0210
.317	5.020	17.98	.0194
.353	6.144	25.01	.0171
.388	7.269	33.05	.0153
.423	8.395	41.95	.0139
.458	9.521	51.67	.0128
.494	10.647	62.16	.0119
.529	11.774	73.40	.0111
.564	12.901	85.36	.0105
.599	14.029	98.01	.0099
.635	15.157	111.33	.0095
.670	16.285	125.31	.0090

ROUTE ID=15 HYD NO=113.2 INFLOW ID=14 DT=0.0 HR
 PRINT HYD ID=15 CODE=1

PARTIAL HYDROGRAPH 113.20

RUNOFF VOLUME = 1.26391 INCHES = 1.7817 ACRE-FEET
 PEAK DISCHARGE RATE = 53.47 CFS AT 1.533 HOURS BASIN AREA = .0264 SQ. MI.

*S BASIN 114: POSTDEVELOPMENT CONDITIONS WITH SINGLE FAMILY RESIDENTIAL HOMES

COMPUTE NM HYD ID=16 HYD NO=114.0 AREA=0.00737 SQ MI
 PER A=0 PER B=29 PER C=29 PER D=42
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 12.221 CFS UNIT VOLUME = .9984 B = 526.28 P60 = 1.8700
 AREA = .003095 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 11.373 CFS UNIT VOLUME = .9993 B = 354.67 P60 = 1.8700
 AREA = .004275 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=16 CODE=1

PARTIAL HYDROGRAPH 114.00

RUNOFF VOLUME = 1.29860 INCHES = .5104 ACRE-FEET
 PEAK DISCHARGE RATE = 15.34 CFS AT 1.500 HOURS BASIN AREA = .0074 SQ. MI.

*S COMBINE BASINS 110.1 AND 114 TOGETHER

ADD HYD ID=17 HYD NO=114.1 ID=16 ID=6
 PRINT HYD ID=17 CODE=1

PARTIAL HYDROGRAPH 114.10

RUNOFF VOLUME = 1.29856 INCHES = 1.0947 ACRE-FEET
PEAK DISCHARGE RATE = 32.37 CFS AT 1.500 HOURS BASIN AREA = .0158 SQ. MI.

*S COMBINE HYDROGRAPH NO 113.2 AND 114.1 TOGETHER
ADD HYD ID=18 HYD NO=114.2 ID=17 ID=15
PRINT HYD ID=18 CODE=1

PARTIAL HYDROGRAPH 114.20

RUNOFF VOLUME = 1.27687 INCHES = 2.8764 ACRE-FEET
PEAK DISCHARGE RATE = 85.83 CFS AT 1.533 HOURS BASIN AREA = .0422 SQ. MI.

*S COMBINE HYDROGRAPH NO 107.2 AND 114.2 TOGETHER
ADD HYD ID=19 HYD NO=114.3 ID=18 ID=20
PRINT HYD ID=19 CODE=1

PARTIAL HYDROGRAPH 114.30

RUNOFF VOLUME = 1.28830 INCHES = 6.1368 ACRE-FEET
PEAK DISCHARGE RATE = 180.35 CFS AT 1.533 HOURS BASIN AREA = .0893 SQ. MI.

*S Divide HYD to get the right flows into the temporary detention pond
DIVIDE HYD ID=18 Q=73.33 ID=2 HYD=114.4
ID=3 HYD=114.5
PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 114.40

RUNOFF VOLUME = 1.27687 INCHES = 2.7997 ACRE-FEET
PEAK DISCHARGE RATE = 73.33 CFS AT 1.500 HOURS BASIN AREA = .0411 SQ. MI.

PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 114.50

RUNOFF VOLUME = 1.27687 INCHES = .0767 ACRE-FEET
PEAK DISCHARGE RATE = 12.50 CFS AT 1.533 HOURS BASIN AREA = .0011 SQ. MI.

*S DESIGN A TEMPORARY POND TO CAPTURE REMAINING STREET FLOWS
 *S OUTFALL PIPE IS A 6"
 ROUTE RESERVOIR ID=4 HYD NO=401.1 INFLOW ID=3 CODE=1
 OUTFLOW(CFS) STORAGE(AF) ELEV(FT)

0	0	0
1.72	.013	.5
2.04	.028	1
2.32	.048	1.5
2.57	.073	2
2.80	.10	2.5
3.02	.14	3

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.03	.00	.00	.000	.00
.07	.00	.00	.000	.00
.10	.00	.00	.000	.00
.13	.00	.00	.000	.00
.17	.00	.00	.000	.00
.20	.00	.00	.000	.00
.23	.00	.00	.000	.00
.27	.00	.00	.000	.00
.30	.00	.00	.000	.00
.33	.00	.00	.000	.00
.37	.00	.00	.000	.00
.40	.00	.00	.000	.00
.43	.00	.00	.000	.00
.47	.00	.00	.000	.00
.50	.00	.00	.000	.00
.53	.00	.00	.000	.00
.57	.00	.00	.000	.00
.60	.00	.00	.000	.00
.63	.00	.00	.000	.00
.67	.00	.00	.000	.00
.70	.00	.00	.000	.00
.73	.00	.00	.000	.00
.77	.00	.00	.000	.00
.80	.00	.00	.000	.00
.83	.00	.00	.000	.00
.87	.00	.00	.000	.00
.90	.00	.00	.000	.00
.93	.00	.00	.000	.00
.97	.00	.00	.000	.00
1.00	.00	.00	.000	.00
1.03	.00	.00	.000	.00
1.07	.00	.00	.000	.00
1.10	.00	.00	.000	.00
1.13	.00	.00	.000	.00
1.17	.00	.00	.000	.00
1.20	.00	.00	.000	.00
1.23	.00	.00	.000	.00

1.27	.00	.00	.000	.00
1.30	.00	.00	.000	.00
1.33	.00	.00	.000	.00
1.37	.00	.00	.000	.00
1.40	.00	.00	.000	.00
1.43	.00	.00	.000	.00
1.47	.00	.00	.000	.00
1.50	9.95	.45	.012	1.53
1.53	12.50	1.24	.037	2.17
1.57	5.39	1.65	.056	2.40
1.60	.00	1.67	.057	2.41
1.63	.00	1.54	.050	2.34
1.67	.00	1.39	.044	2.26
1.70	.00	1.24	.038	2.17
1.73	.00	1.09	.032	2.09
1.77	.00	.94	.026	2.00
1.80	.00	.76	.021	1.88
1.83	.00	.59	.016	1.78

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
---------------	-----------------	----------------	-------------------	------------------

1.87	.00	.43	.011	1.48
1.90	.00	.30	.008	1.02
1.93	.00	.21	.005	.71
1.97	.00	.14	.004	.49
2.00	.00	.10	.003	.34
2.03	.00	.07	.002	.23
2.07	.00	.05	.001	.16
2.10	.00	.03	.001	.11
2.13	.00	.02	.001	.08
2.17	.00	.02	.000	.05
2.20	.00	.01	.000	.04
2.23	.00	.01	.000	.03
2.27	.00	.01	.000	.02
2.30	.00	.00	.000	.01
2.33	.00	.00	.000	.01
2.37	.00	.00	.000	.01
2.40	.00	.00	.000	.00

PEAK DISCHARGE = 2.405 CFS - PEAK OCCURS AT HOUR 1.60
 MAXIMUM WATER SURFACE ELEVATION = 1.671
 MAXIMUM STORAGE = .0565 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=4 CODE=1

HYDROGRAPH FROM AREA 401.10

RUNOFF VOLUME = 1.27687 INCHES = .0767 ACRE-FEET
 PEAK DISCHARGE RATE = 2.41 CFS AT 1.600 HOURS BASIN AREA = .0011 SQ. MI.

*S BASIN 120.1: OFFSITE: UNSER BLVD. (FROM MEDIAN CURB TO R/W)
COMPUTE NM HYD ID=5 HYD NO=120.1 AREA=0.00073 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.7292 CFS UNIT VOLUME = .9933 B = 526.28 P60 = 1.8700
AREA = .000438 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = .77692 CFS UNIT VOLUME = .9831 B = 354.67 P60 = 1.8700
AREA = .000292 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=5 CODE=1

PARTIAL HYDROGRAPH 120.10

RUNOFF VOLUME = 1.50556 INCHES = .0586 ACRE-FEET
PEAK DISCHARGE RATE = 1.70 CFS AT 1.500 HOURS BASIN AREA = .0007 SQ. MI.

*S BASIN 120.2: OFFSITE: UNSER BLVD. (FROM MEDIAN CURB TO R/W)
COMPUTE NM HYD ID=6 HYD NO=120.2 AREA=0.002814 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.6659 CFS UNIT VOLUME = .9976 B = 526.28 P60 = 1.8700
AREA = .001688 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 2.9949 CFS UNIT VOLUME = .9958 B = 354.67 P60 = 1.8700
AREA = .001126 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=6 CODE=1

PARTIAL HYDROGRAPH 120.20

RUNOFF VOLUME = 1.50556 INCHES = .2260 ACRE-FEET
PEAK DISCHARGE RATE = 6.49 CFS AT 1.500 HOURS BASIN AREA = .0028 SQ. MI.

*S BASIN 120.3: OFFSITE: UNSER BLVD. MEDIAN AREA
COMPUTE NM HYD ID=7 HYD NO=120.3 AREA=0.002147 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 5.0859 CFS UNIT VOLUME = .9973 B = 526.28 P60 = 1.8700
AREA = .001288 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 2.2850 CFS UNIT VOLUME = .9948 B = 354.67 P60 = 1.8700
AREA = .000859 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=7 CODE=1

PARTIAL HYDROGRAPH 120.30

RUNOFF VOLUME = 1.50556 INCHES = .1724 ACRE-FEET
PEAK DISCHARGE RATE = 4.96 CFS AT 1.500 HOURS BASIN AREA = .0021 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 14:24:45

APPENDIX B

OFFSITE AHYMO SUMMARY & DETAILED OUTPUT

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 INPUT FILE = DESRTOFF.DAT

RUN DATE (MON/DAY/YR) =06/28/1997
 USER NO.= ISCARFNM.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S	DESERT FLOWER SUBDIVISION - 100 YR POST DEVELOPMENT									
*S	REVISED BY: JMN 6/27/97									
*S										
START										
RAINFALL TYPE= 1	TIME=.00 RAIN6= 2.200									
*S BASIN 100 IS CURRENTLY UNDEVELOPED, ASSUME FUTURE DEVELOPMENT WILL										
*S BE @ A DENSITY OF 4 DU/AC										
COMPUTE NM HYD	100.00	-	1	.07150	148.70	4.952	1.29860	1.500	3.250 PER IMP=	42.00
*S BASIN 101 IS FULLY DEVELOPED WITH SINGLE FAMILY RESIDENTIAL HOMES										
*S WITH A DENSITY OF 4 DU/AC										
COMPUTE NM HYD	101.00	-	2	.03700	60.90	1.988	1.00753	1.500	2.572 PER IMP=	29.00
ADD HYD	101.01	1& 2	3	.10850	209.60	6.940	1.19933	1.500	3.018	
*S **AREA 102 IS A MIDDLE SCHOOL (ONSITE DETENTION TO REDUCE RUNOFF)										
COMPUTE NM HYD	102.00	-	4	.04000	33.21	.937	.43925	1.533	1.297 PER IMP=	.00
*S ROUTE THE SCHOOL'S RUNOFF IN A 28' F-F RESIDENTIAL STREET, S=2%										
*S ASSUME SECTION EXTENDS TO THE ROW LINE ON BOTH SIDES										
ROUTE	102.10	4	5	.04000	32.41	.937	.43927	1.567	1.266	
*S ADD THE ROUTED FLOW FROM 102 TO THE EARLIER TOTAL										
ADD HYD	102.30	3& 5	6	.14850	236.14	7.877	.99460	1.500	2.485	
*S **BASIN 103 IS COMPLETELY DEVELOPED										
COMPUTE NM HYD	103.00	-	7	.04400	72.42	2.364	1.00753	1.500	2.572 PER IMP=	29.00
*S ADD 103 TO TOTAL										
ADD HYD	103.10	6& 7	8	.19250	308.56	10.242	.99755	1.500	2.505	
*S **ASSUME FLOW IS ROUTED IN 28' STREET AS EARLIER										
ROUTE	103.20	8	9	.19250	293.93	10.242	.99756	1.533	2.386	
*S **AREA 104 IS FULLY DEVELOPED										
COMPUTE NM HYD	104.00	-	10	.04400	72.42	2.364	1.00753	1.500	2.572 PER IMP=	29.00
*S ADD THE FLOW TO THE TOTAL										
ADD HYD	104.01	9&10	11	.23650	364.94	12.606	.99941	1.533	2.411	
*S AREA 105 IS A PARK & COA WELL SITE										
COMPUTE NM HYD	105.00	-	12	.02100	29.05	.849	.75825	1.500	2.161 PER IMP=	7.00
ADD HYD	105.10	11&12	13	.25750	393.90	13.455	.97974	1.533	2.390	
*S ROUTE THE FLOW TO THE EXISTING END OF SAPPHIRE ST.										
ROUTE	105.20	13	14	.25750	364.47	13.455	.97974	1.567	2.212	
*S AREA 106 IS FULLY DEVELOPED										
COMPUTE NM HYD	106.00	-	15	.02177	35.84	1.170	1.00753	1.500	2.572 PER IMP=	29.00
*S BASIN 300.1 IS CURRENTLY UNDEVELOPED, ASSUME FUTURE DEVELOPMENT WILL BE @										
*S A DENSITY OF 4 DU/AC										
COMPUTE NM HYD	300.10	-	16	.01560	32.45	1.080	1.29860	1.500	3.250 PER IMP=	42.00
*S **ADD THE FLOWS FROM BASINS 106 AND 300.1										
ADD HYD	106.10	15&16	17	.03737	68.29	2.250	1.12902	1.500	2.855	
*S **TOTAL FLOW IN SAPPHIRE ST AT ANALYSIS POINT A										
ADD HYD	106.15	14&17	18	.29487	423.63	15.705	.99866	1.567	2.245	
*S **BASIN 401.12, 401.14, 401.17, 300.2 AND 400.2 DRAINS TO SAPPHIRE ST.										
*S **BASIN 401.12 IS PART OF SUNRISE ESTATES UNIT 1										
COMPUTE NM HYD	401.12	-	19	.01126	23.43	.780	1.29860	1.500	3.251 PER IMP=	42.00
*S **ADD THE FLOWS FROM HYDROGRAPH NO 401.12 AND 106.15										
ADD HYD	401.13	19&18	20	.30613	443.65	16.485	1.00969	1.567	2.264	

*S **BASIN 300.2 IS CURRENTLY UNDEVELOPED, ASSUME FUTURE DEVELOPMENT WILL BE
 *S @ A DENSITY OF 4 DU/AC

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
COMPUTE NM HYD	300.20	-	1	.01180	24.55	.817	1.29859	1.500	3.251	PER IMP=	42.00
*S ** BASIN 401.14 IS PART OF SUNRISE ESTATES UNIT 1											
COMPUTE NM HYD	401.14	-	2	.01117	23.24	.774	1.29860	1.500	3.251	PER IMP=	42.00
*S **ADD FLOWS FROM HYDROGRAPH NO 401.14 AND 300.2											
ADD HYD	401.15	1& 2	3	.02297	47.79	1.591	1.29857	1.500	3.251		
*S **ADD FLOWS FROM HYDROGRAPH NO 401.15 AND 401.13											
ADD HYD	401.16	3&20	4	.32910	484.48	18.076	1.02985	1.567	2.300		
*S **BASIN 401.17 IS PART OF SUNRISE ESTATES UNIT 1											
COMPUTE NM HYD	401.17	-	5	.00661	13.76	.458	1.29860	1.500	3.252	PER IMP=	42.00
*S **ADD FLOWS FROM HYDROGRAPH NO 401.16 AND 401.17											
ADD HYD	401.18	4& 5	6	.33571	496.23	18.534	1.03514	1.567	2.310		
*S ** BASIN 405 DRAINS TO SAPPHIRE ST.											
COMPUTE NM HYD	405.00	-	7	.01393	29.33	.982	1.32159	1.500	3.289	PER IMP=	44.00
*S **ADD FLOWS FROM HYDROGRAPH NO 401.18 AND 405											
ADD HYD	405.10	6& 7	8	.34964	521.25	19.516	1.04656	1.567	2.329		
*S ** BASIN 403 DRAINS TO SAPPHIRE ST.											
COMPUTE NM HYD	403.00	-	9	.01480	30.79	1.025	1.29860	1.500	3.250	PER IMP=	42.00
*S **ADD FLOWS FROM HYDROGRAPH NO 405.1 AND 403											
ADD HYD	405.15	8& 9	10	.36444	547.55	20.541	1.05679	1.567	2.348		
*S ** BASIN 400.2 IS CURRENTLY UNDEVELOPED, ASSUME FUTURE DEVELOPMENT WILL BE											
*S @ A DENSITY OF 4 DU/AC											
COMPUTE NM HYD	400.20	-	11	.03222	67.80	2.271	1.32159	1.500	3.288	PER IMP=	44.00
*S **ADD FLOWS FROM HYDROGRAPH NO 405.15 AND 400.2 TOGETHER TO GET THE FLOW											
*S IN SAPPHIRE ST. @ ANALYSIS PT B											
ADD HYD	405.16	10&11	12	.39666	607.35	22.812	1.07830	1.533	2.392		
*S*****											
*S*****											
*S **BASINS 200,201, & 202 DRAIN TO KIMELA DR											
COMPUTE NM HYD	200.00	-	13	.05300	87.23	2.848	1.00753	1.500	2.572	PER IMP=	29.00
*S **ROUTE FLOW TO THE END OF KIMELA DR.											
ROUTE	200.10	13	14	.05300	86.94	2.848	1.00753	1.533	2.563		
COMPUTE NM HYD	201.00	-	15	.02600	42.80	1.397	1.00753	1.500	2.572	PER IMP=	29.00
ADD HYD	201.10	15&14	16	.07900	128.91	4.245	1.00752	1.533	2.550		
*S **BASIN 202 IS AN ELEMENTARY SCHOOL (ONSITE DETENTION TO REDUCE RUNOFF)											
COMPUTE NM HYD	202.00	-	17	.00925	7.69	.217	.43925	1.533	1.298	PER IMP=	.00
*S **BASIN 202.05 IS THE ELEMENTARY SCHOOL PARKING LOT THAT WILL DRAIN TO KIMELA											
COMPUTE NM HYD	202.05	-	18	.00375	10.49	.393	1.96548	1.500	4.373	PER IMP=	100.00
*S **ADD THE BASINS OF THE ELEMENTARY SCHOOL AND PARKING LOT											
ADD HYD	202.06	17&18	19	.01300	18.01	.610	.87913	1.500	2.164		
*S **ADD THE BASINS TOGETHER TO GET THE FLOW IN KIMELA DR @ ANALYSIS PT C											
ADD HYD	202.10	16&19	20	.09200	146.56	4.855	.98938	1.533	2.489		
*S*****											
*S*****											
*S **BASINS 402 THRU 404 ARE CURRENTLY UNDEVELOPED, FOR PURPOSES											
*S OF THIS REPORT, ASSUME ALL BASINS WILL BE BUILT OUT @ THEIR CURRENT											

*S ZONING

*S **BASIN 402 IS UNIT 2 OF SUNRISE ESTATES

COMPUTE NM HYD	402.00	-	6	.05200	108.14	3.601	1.29860	1.500	3.249 PER IMP=	42.00
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*S **ADD BASIN 402 TO THE TOTAL FLOW @ THE END OF EXTENDED KIMELA

ADD HYD	402.10	20& 6	7	.14400	251.21	8.456	1.10104	1.533	2.726	
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*S **COMPUTE HYDROGRAPH FOR BASIN 404

COMPUTE NM HYD	404.00	-	8	.01080	22.47	.748	1.29860	1.500	3.251 PER IMP=	42.00
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*S **ADD FLOW TO THAT IN KIMELA DR

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
ADD HYD	404.10	7& 8	9	.15480	272.95	9.204	1.11482	1.533	2.755	
*S **COMPUTE HYDROGRAPH FOR BASIN 408A										
COMPUTE NM HYD	408A	-	10	.01175	24.45	.814	1.29860	1.500	3.251 PER IMP=	42.00
*S **COMBINE FLOWS FROM HYDROGRAPH NO. 404.1 AND 408A										
ADD HYD	408.10	9&10	11	.16655	296.74	10.018	1.12778	1.500	2.784	
*S **ADD TO FLOW IN SAPPHIRE ST @ ANALYSIS PT D										
ADD HYD	404.20	11&12	13	.56321	903.96	32.829	1.09293	1.533	2.508	
*S DESIGN A RETENTION FACILITY TO REDUCE TO FLOW TO THAT WHICH WILL										
*S FIT IN A 48" RCP @ S=1.8%										
ROUTE RESERVOIR	405.40	13	14	.56321	192.06	32.829	1.09293	2.000	.533 AC-FT=	18.722
*S ROUTE FLOW FROM THE DETENTION POND TO THE AMOLE DEL NORTE CHANNEL										
ROUTE	405.30	14	15	.56321	192.05	32.829	1.09293	2.000	.533	
*S*****										
*S*****										
*S **CALC BASIN 406										
COMPUTE NM HYD	406.00	-	16	.05743	117.49	3.920	1.27968	1.500	3.196 PER IMP=	42.00
*S **CALC BASIN 407										
COMPUTE NM HYD	407.00	-	17	.05040	104.81	3.491	1.29860	1.500	3.249 PER IMP=	42.00
*S **CALC BASIN 408B										
COMPUTE NM HYD	408B	-	18	.09501	197.65	6.580	1.29860	1.500	3.250 PER IMP=	42.00
*S **CALC BASIN 408C										
COMPUTE NM HYD	408C	-	19	.05060	105.23	3.504	1.29860	1.500	3.249 PER IMP=	42.00
*S **COMBINE FLOWS FROM BASIN 408B AND 408C										
ADD HYD	408.20	18&19	20	.14561	302.87	10.085	1.29859	1.500	3.250	
*S*****										
*S*****										
*S **BASIN 500 IS UNIT ONE OF THE PROPOSED LONGFORD SD										
COMPUTE NM HYD	500.00	-	1	.02491	51.80	1.725	1.29860	1.500	3.250 PER IMP=	42.00
*S **BASIN 501 IS THE AREA PROPOSED AS FUTURE LONGFORD SD DRAINING										
*S **DIRECTLY TO THE AMOLE CHANNEL										
COMPUTE NM HYD	501.00	-	2	.03663	76.18	2.537	1.29860	1.500	3.249 PER IMP=	42.00
*S **COMBINE BASINS 500 AND 501 TOGETHER TO REPRESENT THE NORTHERN PART OF THE										
*S **LONGFORD SD										
ADD HYD	501.10	1& 2	3	.06154	127.98	4.262	1.29859	1.500	3.250	
*S **BASIN 502 IS THE SOUTHERN PART OF THE LONGFORD SD										
COMPUTE NM HYD	502.00	-	4	.05788	121.79	4.080	1.32159	1.500	3.288 PER IMP=	44.00
*S **BASIN 503 IS CURRENTLY UNDEVELOPED, ASSUME FUTURE DEVELOPMENT WILL BE @										
*S **A DENSITY OF 4 DU/AC. THE DISCHARGE FROM THIS BASIN DRAINS TO THE AMOLE										
*S DEL NORTE CHANNEL AND DOES NOT AFFECT THE ARENAL/UNSER DRAINAGE MANAGEMENT										

*S SITE.
 COMPUTE NM HYD 503.00 - 5 .03752 78.03 2.599 1.29860 1.500 3.249 PER IMP= 42.00
 *S*****
 *S **BASIN 504 IS CURRENTLY UNDEVELOPED, ASSUME FUTURE DEVELOPMENT WILL BE @
 *S **A DENSITY OF 4 DU/AC. THE DISCHARGE FROM THIS BASIN TRAVEL ALONG SAGE RD.
 *S AND ENTERS THE AMOLE DEL NORTE CHANNEL, DOES NOT AFFECT THE ARENAL/UNSER
 *S DRAINAGE MANAGEMENT SITE.
 COMPUTE NM HYD 504.00 - 6 .03667 77.16 2.585 1.32159 1.500 3.288 PER IMP= 44.00
 *S **BASIN 505 IS FULLY DEVELOPED AND DRAINS SOUTH TO BLAKE RD..DISCHARGE FROM
 *S THIS BASIN DOES NOT AFFECT THE ARENAL/UNSER DRAINAGE MANAGEMENT SITE.
 COMPUTE NM HYD 505.00 - 7 .02618 43.10 1.407 1.00753 1.500 2.572 PER IMP= 29.00
 FINISH

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 06/28/1997
START TIME (HR:MIN:SEC) = 14:22:36 USER NO.= ISCARFNM.I01
INPUT FILE = DESRTOFF.DAT

*S DESERT FLOWER SUBDIVISION - 100 YR POST DEVELOPMENT
*S REVISED BY: JMN 6/27/97
*S
START RAINFALL BEGINS AT 0.0 HRS
TYPE=1 RAIN QUARTER=0 RAIN ONE=1.87
RAIN SIX=2.20 RAIN DAY=2.66 DT=0.03333HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.

DT =	.033330 HOURS	END TIME =	5.999400 HOURS
.0000	.0016	.0033	.0050
.0122	.0141	.0160	.0180
.0266	.0289	.0312	.0337
.0443	.0472	.0502	.0534
.0675	.0715	.0758	.0809
.1334	.1771	.2398	.3254
.9780	1.1804	1.2649	1.3363
1.5600	1.6061	1.6493	1.6900
1.8314	1.8623	1.8915	1.9193
1.9630	1.9682	1.9732	1.9780
1.9953	1.9993	2.0031	2.0068
2.0207	2.0240	2.0272	2.0303
2.0420	2.0448	2.0475	2.0502
2.0605	2.0629	2.0653	2.0677
2.0768	2.0790	2.0812	2.0833
2.0916	2.0936	2.0956	2.0976
2.1051	2.1070	2.1088	2.1106
2.1176	2.1193	2.1210	2.1227
2.1292	2.1308	2.1324	2.1340
2.1401	2.1416	2.1431	2.1446
2.1504	2.1518	2.1532	2.1546
2.1600	2.1614	2.1627	2.1640
2.1692	2.1705	2.1718	2.1731
2.1780	2.1792	2.1804	2.1817
2.1864	2.1876	2.1887	2.1899
2.1944	2.1956	2.1967	2.1978

*S BASIN 100 IS CURRENTLY UNDEVELOPED, ASSUME FUTURE DEVELOPMENT WILL

*S BE @ A DENSITY OF 4 DU/AC

COMPUTE NM HYD ID=1 HYD NO=100.00 AREA=0.07150 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072801HR TP = .133300HR K/TP RATIO = .546145 SHAPE CONSTANT, N = 7.087329
UNIT PEAK = 118.36 CFS UNIT VOLUME = .9992 B = 525.38 P60 = 1.8700
AREA = .030030 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118190HR TP = .133300HR K/TP RATIO = .886648 SHAPE CONSTANT, N = 4.001119
UNIT PEAK = 110.52 CFS UNIT VOLUME = 1.000 B = 355.24 P60 = 1.8700
AREA = .041470 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00

RUNOFF VOLUME = 1.29860 INCHES = 4.9519 ACRE-FEET
PEAK DISCHARGE RATE = 148.70 CFS AT 1.500 HOURS BASIN AREA = .0715 SQ. MI.

*S BASIN 101 IS FULLY DEVELOPED WITH SINGLE FAMILY RESIDENTIAL HOMES

*S WITH A DENSTIY OF 4 DU/AC

COMPUTE NM HYD ID=2 HYD NO=101.00 AREA=0.03700 SQ MI
PER A=33 PER B=19 PER C=19 PER D=29
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 42.363 CFS UNIT VOLUME = .9991 B = 526.28 P60 = 1.8700
AREA = .010730 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .139463HR TP = .133300HR K/TP RATIO = 1.046235 SHAPE CONSTANT, N = 3.374403
UNIT PEAK = 61.299 CFS UNIT VOLUME = .9998 B = 311.05 P60 = 1.8700
AREA = .026270 SQ MI IA = .52958 INCHES INF = 1.33282 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 101.00

RUNOFF VOLUME = 1.00753 INCHES = 1.9882 ACRE-FEET
PEAK DISCHARGE RATE = 60.90 CFS AT 1.500 HOURS BASIN AREA = .0370 SQ. MI.

ADD HYD ID=3 HYD NO=101.01 ID=1 ID=2
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 101.01

RUNOFF VOLUME = 1.19933 INCHES = 6.9401 ACRE-FEET
PEAK DISCHARGE RATE = 209.60 CFS AT 1.500 HOURS BASIN AREA = .1085 SQ. MI.

*S **AREA 102 IS A MIDDLE SCHOOL (ONSITE DETENTION TO REDUCE RUNOFF)
 COMPUTE NM HYD ID=4 HYD NO=102.00 AREA=0.04000 SQ MI
 PER A=100 PER B=0 PER C=0 PER D=0
 TP=-0.1333 HR MASS RAIN=-1

K = .163684HR TP = .133300HR K/TP RATIO = 1.227936 SHAPE CONSTANT, N = 2.899764
 UNIT PEAK = 82.084 CFS UNIT VOLUME = .9995 B = 273.54 P60 = 1.8700
 AREA = .040000 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 102.00

RUNOFF VOLUME = .43925 INCHES = .9371 ACRE-FEET
 PEAK DISCHARGE RATE = 33.21 CFS AT 1.533 HOURS BASIN AREA = .0400 SQ. MI.

*S ROUTE THE SCHOOL'S RUNOFF IN A 28' F-F RESIDENTIAL STREET, S=2%
 *S ASSUME SECTION EXTENDS TO THE ROW LINE ON BOTH SIDES
 COMPUTE RATING CURVE CID=1 VS NO=1 NO SEG=1 MIN EL=100.00 MAX EL=101.00
 CH SLOPE=0.02 FP SLOPE=0.02 N=0.017 DIST=48.0
 DIST ELEV DIST ELEV DIST ELEV DIST ELEV
 0 101.00 10.0 100.67 10.1 100.00 24.0 100.28
 38.0 100.00 38.1 100.67 48.0 101.00

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.05	.14	.15	5.26
100.11	.55	.95	10.52
100.16	1.25	2.80	15.78
100.21	2.22	6.03	21.04
100.26	3.46	10.94	26.30
100.32	4.92	18.84	27.99
100.37	6.39	29.08	28.01
100.42	7.87	41.00	28.03
100.47	9.34	54.46	28.04
100.53	10.82	69.37	28.06
100.58	12.30	85.66	28.07
100.63	13.78	103.24	28.09
100.68	15.26	119.89	28.96
100.74	16.87	132.52	32.13
100.79	18.64	147.34	35.31
100.84	20.59	164.39	38.48
100.89	22.69	183.72	41.66
100.95	24.97	205.41	44.83
101.00	27.41	229.56	48.00

COMPUTE TRAVEL TIME ID=5 REACH NO=1 NO VS=1 L=650 FT SLP=0.02

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.053	.138	.15	.1670
.105	.554	.95	.1052
.158	1.246	2.80	.0803
.211	2.215	6.03	.0663
.263	3.461	10.94	.0571
.316	4.920	18.84	.0472
.368	6.394	29.08	.0397
.421	7.869	41.00	.0347
.474	9.344	54.46	.0310
.526	10.821	69.37	.0282
.579	12.298	85.66	.0259
.632	13.776	103.24	.0241
.684	15.261	119.89	.0230
.737	16.869	132.52	.0230
.790	18.644	147.34	.0228
.842	20.586	164.39	.0226
.895	22.695	183.72	.0223
.947	24.971	205.41	.0219
1.000	27.414	229.56	.0216

ROUTE ID=5 HYD NO=102.1 INFLOW ID=4 DT=0.0
PRINT HYD ID=5 CODE=1

PARTIAL HYDROGRAPH 102.10

RUNOFF VOLUME = .43927 INCHES = .9371 ACRE-FEET
PEAK DISCHARGE RATE = 32.41 CFS AT 1.567 HOURS BASIN AREA = .0400 SQ. MI.

*S ADD THE ROUTED FLOW FROM 102 TO THE EARLIER TOTAL
ADD HYD ID=6 HYD NO=102.3 ID=3 ID=5
PRINT HYD ID=6 CODE=1

PARTIAL HYDROGRAPH 102.30

RUNOFF VOLUME = .99460 INCHES = 7.8772 ACRE-FEET
PEAK DISCHARGE RATE = 236.14 CFS AT 1.500 HOURS BASIN AREA = .1485 SQ. MI.

*S **BASIN 103 IS COMPLETELY DEVELOPED
 COMPUTE NM HYD ID=7 HYD NO=103.00 AREA=0.04400 SQ MI
 PER A=33 PER B=19 PER C=19 PER D=29
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 50.377 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.8700
 AREA = .012760 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .139463HR TP = .133300HR K/TP RATIO = 1.046235 SHAPE CONSTANT, N = 3.374403
 UNIT PEAK = 72.896 CFS UNIT VOLUME = .9999 B = 311.05 P60 = 1.8700
 AREA = .031240 SQ MI IA = .52958 INCHES INF = 1.33282 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=7 CODE=1

PARTIAL HYDROGRAPH 103.00

RUNOFF VOLUME = 1.00753 INCHES = 2.3643 ACRE-FEET
 PEAK DISCHARGE RATE = 72.42 CFS AT 1.500 HOURS BASIN AREA = .0440 SQ. MI.

*S ADD 103 TO TOTAL
 ADD HYD ID=8 HYD NO=103.1 ID=6 ID=7
 PRINT HYD ID=8 CODE=1

PARTIAL HYDROGRAPH 103.10

RUNOFF VOLUME = .99755 INCHES = 10.2415 ACRE-FEET
 PEAK DISCHARGE RATE = 308.56 CFS AT 1.500 HOURS BASIN AREA = .1925 SQ. MI.

*S **ASSUME FLOW IS ROUTED IN 28' STREET AS EARLIER
 COMPUTE RATING CURVE CID=1 VS NO=1 NO SEG=1 MIN EL=100.00 MAX EL=101.00
 CH SLOPE=0.02 FP SLOPE=0.02 N=0.017 DIST=48.0
 DIST ELEV DIST ELEV DIST ELEV DIST ELEV
 0 101.00 10.0 100.67 10.1 100.00 24.0 100.28
 38.0 100.00 38.1 100.67 48.0 101.00

RATING CURVE VALLEY SECTION 1.0			
WATER	FLOW	FLOW	TOP
SURFACE	AREA	RATE	WIDTH
ELEV	SQ FT	CFS	FT
100.00	.00	.00	.00
100.05	.14	.15	5.26
100.11	.55	.95	10.52

100.16	1.25	2.80	15.78
100.21	2.22	6.03	21.04
100.26	3.46	10.94	26.30
100.32	4.92	18.84	27.99
100.37	6.39	29.08	28.01
100.42	7.87	41.00	28.03
100.47	9.34	54.46	28.04
100.53	10.82	69.37	28.06
100.58	12.30	85.66	28.07
100.63	13.78	103.24	28.09
100.68	15.26	119.89	28.96
100.74	16.87	132.52	32.13
100.79	18.64	147.34	35.31
100.84	20.59	164.39	38.48
100.89	22.69	183.72	41.66
100.95	24.97	205.41	44.83
101.00	27.41	229.56	48.00

COMPUTE TRAVEL TIME ID=9 REACH NO=1 NO VS=1 L=900 FT SLP=0.02

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.053	.138	.15	.2312
.105	.554	.95	.1457
.158	1.246	2.80	.1112
.211	2.215	6.03	.0918
.263	3.461	10.94	.0791
.316	4.920	18.84	.0653
.368	6.394	29.08	.0550
.421	7.869	41.00	.0480
.474	9.344	54.46	.0429
.526	10.821	69.37	.0390
.579	12.298	85.66	.0359
.632	13.776	103.24	.0334
.684	15.261	119.89	.0318
.737	16.869	132.52	.0318
.790	18.644	147.34	.0316
.842	20.586	164.39	.0313
.895	22.695	183.72	.0309
.947	24.971	205.41	.0304
1.000	27.414	229.56	.0299

ROUTE ID=9 HYD NO=103.2 INFLOW ID=8 DT=0.0
 TRAVEL TIME TABLE EXCEEDED
 PRINT HYD ID=9 CODE=1

PARTIAL HYDROGRAPH 103.20

RUNOFF VOLUME = .99756 INCHES = 10.2415 ACRE-FEET
PEAK DISCHARGE RATE = 293.93 CFS AT 1.533 HOURS BASIN AREA = .1925 SQ. MI.

*S **AREA 104 IS FULLY DEVELOPED

COMPUTE NM HYD ID=10 HYD NO=104.00 AREA=0.04400 SQ MI
PER A=33 PER B=19 PER C=19 PER D=29
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 50.377 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.8700
AREA = .012760 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .139463HR TP = .133300HR K/TP RATIO = 1.046235 SHAPE CONSTANT, N = 3.374403
UNIT PEAK = 72.896 CFS UNIT VOLUME = .9999 B = 311.05 P60 = 1.8700
AREA = .031240 SQ MI IA = .52958 INCHES INF = 1.33282 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=10 CODE=1

PARTIAL HYDROGRAPH 104.00

RUNOFF VOLUME = 1.00753 INCHES = 2.3643 ACRE-FEET
PEAK DISCHARGE RATE = 72.42 CFS AT 1.500 HOURS BASIN AREA = .0440 SQ. MI.

*S ADD THE FLOW TO THE TOTAL

ADD HYD ID=11 HYD NO=104.01 ID=9 ID=10
PRINT HYD ID=11 CODE=1

PARTIAL HYDROGRAPH 104.01

RUNOFF VOLUME = .99941 INCHES = 12.6058 ACRE-FEET
PEAK DISCHARGE RATE = 364.94 CFS AT 1.533 HOURS BASIN AREA = .2365 SQ. MI.

*S AREA 105 IS A PARK & COA WELL SITE

COMPUTE NM HYD ID=12 HYD NO=105.00 AREA=0.021 SQ MI
PER A=31 PER B=31 PER C=31 PER D=7
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 5.8036 CFS UNIT VOLUME = .9973 B = 526.28 P60 = 1.8700
AREA = .001470 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .133514HR TP = .133300HR K/TP RATIO = 1.001607 SHAPE CONSTANT, N = 3.524575
 UNIT PEAK = 47.194 CFS UNIT VOLUME = 1.000 B = 322.12 P60 = 1.8700
 AREA = .019530 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=12 CODE=1

PARTIAL HYDROGRAPH 105.00

RUNOFF VOLUME = .75825 INCHES = .8492 ACRE-FEET
 PEAK DISCHARGE RATE = 29.05 CFS AT 1.500 HOURS BASIN AREA = .0210 SQ. MI.

ADD HYD ID=13 HYD NO=105.1 ID=11 ID=12
 PRINT HYD ID=13 CODE=1

PARTIAL HYDROGRAPH 105.10

RUNOFF VOLUME = .97974 INCHES = 13.4550 ACRE-FEET
 PEAK DISCHARGE RATE = 393.90 CFS AT 1.533 HOURS BASIN AREA = .2575 SQ. MI.

*S ROUTE THE FLOW TO THE EXISTING END OF SAPPHIRE ST.
 COMPUTE RATING CURVE CID=1 VS NO=1 NO SEG=1 MIN EL=100.00 MAX EL=101.00
 CH SLOPE=0.02 FP SLOPE=0.02 N=0.017 DIST=48.0
 DIST ELEV DIST ELEV DIST ELEV DIST ELEV
 0 101.00 10.0 100.67 10.1 100.00 24.0 100.28
 38.0 100.00 38.1 100.67 48.0 101.00

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.05	.14	.15	5.26
100.11	.55	.95	10.52
100.16	1.25	2.80	15.78
100.21	2.22	6.03	21.04
100.26	3.46	10.94	26.30
100.32	4.92	18.84	27.99
100.37	6.39	29.08	28.01
100.42	7.87	41.00	28.03
100.47	9.34	54.46	28.04
100.53	10.82	69.37	28.06
100.58	12.30	85.66	28.07
100.63	13.78	103.24	28.09
100.68	15.26	119.89	28.96
100.74	16.87	132.52	32.13

100.79	18.64	147.34	35.31
100.84	20.59	164.39	38.48
100.89	22.69	183.72	41.66
100.95	24.97	205.41	44.83
101.00	27.41	229.56	48.00

COMPUTE TRAVEL TIME ID=14 REACH NO=1 NO VS=1 L=1200 FT SLP=0.02

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.053	.138	.15	.3083
.105	.554	.95	.1942
.158	1.246	2.80	.1482
.211	2.215	6.03	.1223
.263	3.461	10.94	.1054
.316	4.920	18.84	.0871
.368	6.394	29.08	.0733
.421	7.869	41.00	.0640
.474	9.344	54.46	.0572
.526	10.821	69.37	.0520
.579	12.298	85.66	.0479
.632	13.776	103.24	.0445
.684	15.261	119.89	.0424
.737	16.869	132.52	.0424
.790	18.644	147.34	.0422
.842	20.586	164.39	.0417
.895	22.695	183.72	.0412
.947	24.971	205.41	.0405
1.000	27.414	229.56	.0398

ROUTE ID=14 HYD NO=105.2 INFLOW ID=13 DT=0.0
 TRAVEL TIME TABLE EXCEEDED
 PRINT HYD ID=14 CODE=1

PARTIAL HYDROGRAPH 105.20

RUNOFF VOLUME = .97974 INCHES = 13.4550 ACRE-FEET
 PEAK DISCHARGE RATE = 364.47 CFS AT 1.567 HOURS BASIN AREA = .2575 SQ. MI.

*S AREA 106 IS FULLY DEVELOPED

COMPUTE NM HYD ID=15 HYD NO=106.00 AREA=0.02177 SQ MI
 PER A=33 PER B=19 PER C=19 PER D=29
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 24.925 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.8700
AREA = .006313 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .139463HR TP = .133300HR K/TP RATIO = 1.046235 SHAPE CONSTANT, N = 3.374403
UNIT PEAK = 36.067 CFS UNIT VOLUME = .9997 B = 311.05 P60 = 1.8700
AREA = .015457 SQ MI IA = .52958 INCHES INF = 1.33282 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=15 CODE=1

PARTIAL HYDROGRAPH 106.00

RUNOFF VOLUME = 1.00753 INCHES = 1.1698 ACRE-FEET
PEAK DISCHARGE RATE = 35.84 CFS AT 1.500 HOURS BASIN AREA = .0218 SQ. MI.

*S BASIN 300.1 IS CURRENTLY UNDEVELOPED, ASSUME FUTURE DEVELOPMENT WILL BE @

*S A DENSITY OF 4 DU/AC

COMPUTE NM HYD ID=16 HYD NO=300.1 AREA=0.0156 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 25.868 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.8700
AREA = .006552 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 24.074 CFS UNIT VOLUME = .9999 B = 354.67 P60 = 1.8700
AREA = .009048 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=16 CODE=1

HYDROGRAPH FROM AREA 300.10

RUNOFF VOLUME = 1.29860 INCHES = 1.0804 ACRE-FEET
PEAK DISCHARGE RATE = 32.45 CFS AT 1.500 HOURS BASIN AREA = .0156 SQ. MI.

*S **ADD THE FLOWS FROM BASINS 106 AND 300.1

ADD HYD ID=17 HYD NO=106.1 ID=15 ID=16

PRINT HYD ID=17 CODE=1

PARTIAL HYDROGRAPH 106.10

RUNOFF VOLUME = 1.12902 INCHES = 2.2502 ACRE-FEET
 PEAK DISCHARGE RATE = 68.29 CFS AT 1.500 HOURS BASIN AREA = .0374 SQ. MI.

*S **TOTAL FLOW IN SAPPHIRE ST AT ANALYSIS POINT A
 ADD HYD ID=18 HYD NO=106.15 ID=14 ID=17
 PRINT HYD ID=18 CODE=1

PARTIAL HYDROGRAPH 106.15

RUNOFF VOLUME = .99866 INCHES = 15.7052 ACRE-FEET
 PEAK DISCHARGE RATE = 423.63 CFS AT 1.567 HOURS BASIN AREA = .2949 SQ. MI.

*S **BASIN 401.12, 401.14, 401.17, 300.2 AND 400.2 DRAINS TO SAPPHIRE ST.

*S **BASIN 401.12 IS PART OF SUNRISE ESTATES UNIT 1
 COMPUTE NM HYD ID=19 HYD NO=401.12 AREA=0.01126 SQ MI
 PER A=0 PER B=29 PER C=29 PER D=42
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 18.671 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700
 AREA = .004729 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 17.376 CFS UNIT VOLUME = .9997 B = 354.67 P60 = 1.8700
 AREA = .006531 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=19 CODE=1

HYDROGRAPH FROM AREA 401.12

RUNOFF VOLUME = 1.29860 INCHES = .7798 ACRE-FEET
 PEAK DISCHARGE RATE = 23.43 CFS AT 1.500 HOURS BASIN AREA = .0113 SQ. MI.

*S **ADD THE FLOWS FROM HYDROGRAPH NO 401.12 AND 106.15
 ADD HYD ID=20 HYD NO=401.13 ID=19 ID=18
 PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA 401.13

RUNOFF VOLUME = 1.00969 INCHES = 16.4850 ACRE-FEET
PEAK DISCHARGE RATE = 443.65 CFS AT 1.567 HOURS BASIN AREA = .3061 SQ. MI.

*S **BASIN 300.2 IS CURRENTLY UNDEVELOPED, ASSUME FUTURE DEVELOPMENT WILL BE

*S @ A DENSITY OF 4 DU/AC

COMPUTE NM HYD ID=1 HYD NO=300.2 AREA=0.0118 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 19.567 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700
AREA = .004956 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 18.210 CFS UNIT VOLUME = .9997 B = 354.67 P60 = 1.8700
AREA = .006844 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 300.20

RUNOFF VOLUME = 1.29859 INCHES = .8172 ACRE-FEET
PEAK DISCHARGE RATE = 24.55 CFS AT 1.500 HOURS BASIN AREA = .0118 SQ. MI.

*S ** BASIN 401.14 IS PART OF SUNRISE ESTATES UNIT 1

COMPUTE NM HYD ID=2 HYD NO=401.14 AREA=0.01117 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 18.522 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700
AREA = .004691 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 17.237 CFS UNIT VOLUME = .9997 B = 354.67 P60 = 1.8700
AREA = .006479 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 401.14

RUNOFF VOLUME = 1.29860 INCHES = .7736 ACRE-FEET
PEAK DISCHARGE RATE = 23.24 CFS AT 1.500 HOURS BASIN AREA = .0112 SQ. MI.

*S **ADD FLOWS FROM HYDROGRAPH NO 401.14 AND 300.2
ADD HYD ID=3 HYD NO=401.15 ID=1 ID=2
PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 401.15

RUNOFF VOLUME = 1.29857 INCHES = 1.5908 ACRE-FEET
PEAK DISCHARGE RATE = 47.79 CFS AT 1.500 HOURS BASIN AREA = .0230 SQ. MI.

*S **ADD FLOWS FROM HYDROGRAPH NO 401.15 AND 401.13
ADD HYD ID=4 HYD NO=401.16 ID=3 ID=20
PRINT HYD ID=4 CODE=1

HYDROGRAPH FROM AREA 401.16

RUNOFF VOLUME = 1.02985 INCHES = 18.0759 ACRE-FEET
PEAK DISCHARGE RATE = 484.48 CFS AT 1.567 HOURS BASIN AREA = .3291 SQ. MI.

*S **BASIN 401.17 IS PART OF SUNRISE ESTATES UNIT 1
COMPUTE NM HYD ID=5 HYD NO=401.17 AREA=0.00661 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.961 CFS UNIT VOLUME = .9984 B = 526.28 P60 = 1.8700
AREA = .002776 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 10.201 CFS UNIT VOLUME = .9992 B = 354.67 P60 = 1.8700
AREA = .003834 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=5 CODE=1

HYDROGRAPH FROM AREA 401.17

RUNOFF VOLUME = 1.29860 INCHES = .4578 ACRE-FEET
PEAK DISCHARGE RATE = 13.76 CFS AT 1.500 HOURS BASIN AREA = .0066 SQ. MI.

*S **ADD FLOWS FROM HYDROGRAPH NO 401.16 AND 401.17
ADD HYD ID=6 HYD NO=401.18 ID=4 ID=5
PRINT HYD ID=6 CODE=1

HYDROGRAPH FROM AREA 401.18

RUNOFF VOLUME = 1.03514 INCHES = 18.5337 ACRE-FEET
PEAK DISCHARGE RATE = 496.23 CFS AT 1.567 HOURS BASIN AREA = .3357 SQ. MI.

*S ** BASIN 405 DRAINS TO SAPPHIRE ST.
COMPUTE NM HYD ID=7 HYD NO=405.0 AREA=0.013934 SQ MI
PER A=0 PER B=28 PER C=28 PER D=44
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 24.205 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.8700
AREA = .006131 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 20.761 CFS UNIT VOLUME = .9998 B = 354.67 P60 = 1.8700
AREA = .007803 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=7 CODE=1

HYDROGRAPH FROM AREA 405.00

RUNOFF VOLUME = 1.32159 INCHES = .9821 ACRE-FEET
PEAK DISCHARGE RATE = 29.33 CFS AT 1.500 HOURS BASIN AREA = .0139 SQ. MI.

*S **ADD FLOWS FROM HYDROGRAPH NO 401.18 AND 405
ADD HYD ID=8 HYD NO=405.1 ID=6 ID=7
PRINT HYD ID=8 CODE=1

HYDROGRAPH FROM AREA 405.10

RUNOFF VOLUME = 1.04656 INCHES = 19.5158 ACRE-FEET
PEAK DISCHARGE RATE = 521.25 CFS AT 1.567 HOURS BASIN AREA = .3496 SQ. MI.

*S ** BASIN 403 DRAINS TO SAPPHIRE ST.
COMPUTE NM HYD ID=9 HYD NO=403.0 AREA=0.0148 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 24.541 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.8700
AREA = .006216 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 22.839 CFS UNIT VOLUME = .9999 B = 354.67 P60 = 1.8700
AREA = .008584 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=9 CODE=1

HYDROGRAPH FROM AREA 403.00

RUNOFF VOLUME = 1.29860 INCHES = 1.0250 ACRE-FEET
PEAK DISCHARGE RATE = 30.79 CFS AT 1.500 HOURS BASIN AREA = .0148 SQ. MI.

*S **ADD FLOWS FROM HYDROGRAPH NO 405.1 AND 403
ADD HYD ID=10 HYD NO=405.15 ID=8 ID=9
PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA 405.15

RUNOFF VOLUME = 1.05679 INCHES = 20.5408 ACRE-FEET
PEAK DISCHARGE RATE = 547.55 CFS AT 1.567 HOURS BASIN AREA = .3644 SQ. MI.

*S ** BASIN 400.2 IS CURRENTLY UNDEVELOPED, ASSUME FUTURE DEVELOPMENT WILL BE
*S @ A DENSITY OF 4 DU/AC
COMPUTE NM HYD ID=11 HYD NO=400.2 AREA=0.032215 SQ MI
PER A=0 PER B=28 PER C=28 PER D=44
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 55.962 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.8700
AREA = .014175 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 48.000 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
AREA = .018040 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=11 CODE=1

HYDROGRAPH FROM AREA 400.20

RUNOFF VOLUME = 1.32159 INCHES = 2.2707 ACRE-FEET
PEAK DISCHARGE RATE = 67.80 CFS AT 1.500 HOURS BASIN AREA = .0322 SQ. MI.

*S **ADD FLOWS FROM HYDROGRAPH NO 405.15 AND 400.2 TOGETHER TO GET THE FLOW
*S IN SAPPHIRE ST. @ ANALYSIS PT B
ADD HYD ID=12 HYD NO=405.16 ID=10 ID=11
PRINT HYD ID=12 CODE=1

HYDROGRAPH FROM AREA 405.16

RUNOFF VOLUME = 1.07830 INCHES = 22.8114 ACRE-FEET
PEAK DISCHARGE RATE = 607.35 CFS AT 1.533 HOURS BASIN AREA = .3967 SQ. MI.

*S*****
*S*****
*S **BASINS 200,201, & 202 DRAIN TO KIMELA DR
COMPUTE NM HYD ID=13 HYD NO=200.00 AREA=0.053 SQ MI
PER A=33 PER B=19 PER C=19 PER D=29
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 60.682 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.8700
AREA = .015370 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .139463HR TP = .133300HR K/TP RATIO = 1.046235 SHAPE CONSTANT, N = 3.374403
UNIT PEAK = 87.807 CFS UNIT VOLUME = .9999 B = 311.05 P60 = 1.8700
AREA = .037630 SQ MI IA = .52958 INCHES INF = 1.33282 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=13 CODE=1

PARTIAL HYDROGRAPH 200.00

RUNOFF VOLUME = 1.00753 INCHES = 2.8479 ACRE-FEET
 PEAK DISCHARGE RATE = 87.23 CFS AT 1.500 HOURS BASIN AREA = .0530 SQ. MI.

*S **ROUTE FLOW TO THE END OF KIMELA DR.

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEG=1 MIN EL=100.00 MAX EL=101.00
 CH SLOPE=0.02 FP SLOPE=0.02 N=0.017 DIST=48.0
 DIST ELEV DIST ELEV DIST ELEV DIST ELEV
 0 101.00 10.0 100.67 10.1 100.00 24.0 100.28
 38.0 100.00 38.1 100.67 48.0 101.00

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.05	.14	.15	5.26
100.11	.55	.95	10.52
100.16	1.25	2.80	15.78
100.21	2.22	6.03	21.04
100.26	3.46	10.94	26.30
100.32	4.92	18.84	27.99
100.37	6.39	29.08	28.01
100.42	7.87	41.00	28.03
100.47	9.34	54.46	28.04
100.53	10.82	69.37	28.06
100.58	12.30	85.66	28.07
100.63	13.78	103.24	28.09
100.68	15.26	119.89	28.96
100.74	16.87	132.52	32.13
100.79	18.64	147.34	35.31
100.84	20.59	164.39	38.48
100.89	22.69	183.72	41.66
100.95	24.97	205.41	44.83
101.00	27.41	229.56	48.00

COMPUTE TRAVEL TIME ID=14 REACH NO=1 NO VS=1 L=800 FT SLP=0.02

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.053	.138	.15	.2055
.105	.554	.95	.1295
.158	1.246	2.80	.0988
.211	2.215	6.03	.0816
.263	3.461	10.94	.0703
.316	4.920	18.84	.0580
.368	6.394	29.08	.0489
.421	7.869	41.00	.0427

.474	9.344	54.46	.0381
.526	10.821	69.37	.0347
.579	12.298	85.66	.0319
.632	13.776	103.24	.0297
.684	15.261	119.89	.0283
.737	16.869	132.52	.0283
.790	18.644	147.34	.0281
.842	20.586	164.39	.0278
.895	22.695	183.72	.0275
.947	24.971	205.41	.0270
1.000	27.414	229.56	.0265

ROUTE ID=14 HYD NO=200.1 INFLOW ID=13 DT=0.0
 PRINT HYD ID=14 CODE=1

PARTIAL HYDROGRAPH 200.10

RUNOFF VOLUME = 1.00753 INCHES = 2.8479 ACRE-FEET
 PEAK DISCHARGE RATE = 86.94 CFS AT 1.533 HOURS BASIN AREA = .0530 SQ. MI.

COMPUTE NM HYD ID=15 HYD NO=201.00 AREA=0.026 SQ MI
 PER A=33 PER B=19 PER C=19 PER D=29
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 29.768 CFS UNIT VOLUME = .9990 B = 526.28 P60 = 1.8700
 AREA = .007540 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .139463HR TP = .133300HR K/TP RATIO = 1.046235 SHAPE CONSTANT, N = 3.374403
 UNIT PEAK = 43.075 CFS UNIT VOLUME = .9997 B = 311.05 P60 = 1.8700
 AREA = .018460 SQ MI IA = .52958 INCHES INF = 1.33282 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=15 CODE=1

PARTIAL HYDROGRAPH 201.00

RUNOFF VOLUME = 1.00753 INCHES = 1.3971 ACRE-FEET
 PEAK DISCHARGE RATE = 42.80 CFS AT 1.500 HOURS BASIN AREA = .0260 SQ. MI.

ADD HYD ID=16 HYD NO=201.1 ID=15 ID=14
 PRINT HYD ID=16 CODE=1

PARTIAL HYDROGRAPH 201.10

RUNOFF VOLUME = 1.00752 INCHES = 4.2450 ACRE-FEET
PEAK DISCHARGE RATE = 128.91 CFS AT 1.533 HOURS BASIN AREA = .0790 SQ. MI.

*S **BASIN 202 IS AN ELEMENTARY SCHOOL (ONSITE DETENTION TO REDUCE RUNOFF)

COMPUTE NM HYD ID=17 HYD NO=202.00 AREA=0.009253 SQ MI
PER A=100 PER B=0 PER C=0 PER D=0
TP=-0.1333 HR MASS RAIN=-1

K = .163684HR TP = .133300HR K/TP RATIO = 1.227936 SHAPE CONSTANT, N = 2.899764
UNIT PEAK = 18.988 CFS UNIT VOLUME = .9989 B = 273.54 P60 = 1.8700
AREA = .009253 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=17 CODE=1

PARTIAL HYDROGRAPH 202.00

RUNOFF VOLUME = .43925 INCHES = .2168 ACRE-FEET
PEAK DISCHARGE RATE = 7.69 CFS AT 1.533 HOURS BASIN AREA = .0093 SQ. MI.

*S **BASIN 202.05 IS THE ELEMENTARY SCHOOL PARKING LOT THAT WILL DRAIN TO KIMELA

COMPUTE NM HYD ID=18 HYD NO=202.05 AREA=0.003747 SQ MI
PER A=0 PER B=0 PER C=0 PER D=100
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 14.793 CFS UNIT VOLUME = .9987 B = 526.28 P60 = 1.8700
AREA = .003747 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=18 CODE=1

PARTIAL HYDROGRAPH 202.05

RUNOFF VOLUME = 1.96548 INCHES = .3928 ACRE-FEET
PEAK DISCHARGE RATE = 10.49 CFS AT 1.500 HOURS BASIN AREA = .0037 SQ. MI.

*S **ADD THE BASINS OF THE ELEMENTARY SCHOOL AND PARKING LOT

ADD HYD ID=19 HYD NO=202.06 ID I=17 ID II=18
PRINT HYD ID=19 CODE=1

PARTIAL HYDROGRAPH 202.06

RUNOFF VOLUME = .87913 INCHES = .6095 ACRE-FEET
PEAK DISCHARGE RATE = 18.01 CFS AT 1.500 HOURS BASIN AREA = .0130 SQ. MI.

*S **ADD THE BASINS TOGETHER TO GET THE FLOW IN KIMELA DR @ ANALYSIS PT C
ADD HYD ID=20 HYD NO=202.1 ID=16 ID=19
PRINT HYD ID=20 CODE=1

PARTIAL HYDROGRAPH 202.10

RUNOFF VOLUME = .98938 INCHES = 4.8545 ACRE-FEET
PEAK DISCHARGE RATE = 146.56 CFS AT 1.533 HOURS BASIN AREA = .0920 SQ. MI.

*S*****
*S*****
*S **BASINS 402 THRU 404 ARE CURRENTLY UNDEVELOPED, FOR PURPOSES
*S OF THIS REPORT, ASSUME ALL BASINS WILL BE BUILT OUT @ THEIR CURRENT
*S ZONING
*S **BASIN 402 IS UNIT 2 OF SUNRISE ESTATES
COMPUTE NM HYD ID=6 HYD NO=402.00 AREA=0.052 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 86.225 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.8700
AREA = .021840 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 80.246 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
AREA = .030160 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=6 CODE=1

HYDROGRAPH FROM AREA 402.00

RUNOFF VOLUME = 1.29860 INCHES = 3.6014 ACRE-FEET
PEAK DISCHARGE RATE = 108.14 CFS AT 1.500 HOURS BASIN AREA = .0520 SQ. MI.

*S **ADD BASIN 402 TO THE TOTAL FLOW @ THE END OF EXTENDED KIMELA
ADD HYD ID=7 HYD NO=402.1 ID=20 ID=6
PRINT HYD ID=7 CODE=1

HYDROGRAPH FROM AREA 402.10

RUNOFF VOLUME = 1.10104 INCHES = 8.4559 ACRE-FEET
 PEAK DISCHARGE RATE = 251.21 CFS AT 1.533 HOURS BASIN AREA = .1440 SQ. MI.

*S **COMPUTE HYDROGRAPH FOR BASIN 404

COMPUTE NM HYD ID=8 HYD NO=404.00 AREA=0.0108 SQ MI
 PER A=0 PER B=29 PER C=29 PER D=42
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 17.908 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700
 AREA = .004536 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 16.666 CFS UNIT VOLUME = .9997 B = 354.67 P60 = 1.8700
 AREA = .006264 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=8 CODE=1

HYDROGRAPH FROM AREA 404.00

RUNOFF VOLUME = 1.29860 INCHES = .7480 ACRE-FEET
 PEAK DISCHARGE RATE = 22.47 CFS AT 1.500 HOURS BASIN AREA = .0108 SQ. MI.

*S **ADD FLOW TO THAT IN KIMELA DR

ADD HYD ID=9 HYD NO=404.1 ID=7 ID=8
 PRINT HYD ID=9 CODE=1

HYDROGRAPH FROM AREA 404.10

RUNOFF VOLUME = 1.11482 INCHES = 9.2039 ACRE-FEET
 PEAK DISCHARGE RATE = 272.95 CFS AT 1.533 HOURS BASIN AREA = .1548 SQ. MI.

*S **COMPUTE HYDROGRAPH FOR BASIN 408A

COMPUTE NM HYD ID=10 HYD NO=408A AREA=0.01175 SQ MI
 PER A=0 PER B=29 PER C=29 PER D=42
 TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 19.484 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700
AREA = .004935 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 18.133 CFS UNIT VOLUME = .9997 B = 354.67 P60 = 1.8700
AREA = .006815 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA 408A

RUNOFF VOLUME = 1.29860 INCHES = .8138 ACRE-FEET
PEAK DISCHARGE RATE = 24.45 CFS AT 1.500 HOURS BASIN AREA = .0118 SQ. MI.

*S **COMBINE FLOWS FROM HYDROGRAPH NO. 404.1 AND 408A
ADD HYD ID=11 HYD NO=408.1 ID=9 ID=10
PRINT HYD ID=11 CODE=1

HYDROGRAPH FROM AREA 408.10

RUNOFF VOLUME = 1.12778 INCHES = 10.0177 ACRE-FEET
PEAK DISCHARGE RATE = 296.74 CFS AT 1.500 HOURS BASIN AREA = .1666 SQ. MI.

*S **ADD TO FLOW IN SAPPHIRE ST @ ANALYSIS PT D
ADD HYD ID=13 HYD NO=404.2 ID=11 ID=12
PRINT HYD ID=13 CODE=1

HYDROGRAPH FROM AREA 404.20

RUNOFF VOLUME = 1.09293 INCHES = 32.8291 ACRE-FEET
PEAK DISCHARGE RATE = 903.96 CFS AT 1.533 HOURS BASIN AREA = .5632 SQ. MI.

*S DESIGN A RETENTION FACILITY TO REDUCE TO FLOW TO THAT WHICH WILL
*S FIT IN A 48" RCP @ S=1.8%
ROUTE RESERVOIR ID=14 HYD NO=405.4 INFLOW ID=13 CODE=1

OUTFLOW(CFS)	STORAGE(AF)	ELEV(FT)
0	0	0
46.2	0.77	0.5
104.75	1.91	1

120.95	3.93	2
135.23	6.06	3
148.14	8.30	4
160.00	10.66	5
171.05	13.14	6
181.43	15.74	7
191.24	18.47	8
200.58	21.33	9
209.50	24.32	10
218.05	27.44	11

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.03	.00	.00	.000	.00
.07	.00	.00	.000	.00
.10	.00	.00	.000	.00
.13	.00	.00	.000	.00
.17	.00	.00	.000	.00
.20	.00	.00	.000	.00
.23	.00	.00	.000	.00
.27	.00	.00	.000	.00
.30	.00	.00	.000	.00
.33	.00	.00	.000	.00
.37	.00	.00	.000	.00
.40	.00	.00	.000	.00
.43	.00	.00	.000	.00
.47	.00	.00	.000	.00
.50	.00	.00	.000	.00
.53	.00	.00	.000	.00
.57	.00	.00	.000	.00
.60	.00	.00	.000	.00
.63	.00	.00	.000	.00
.67	.00	.00	.000	.00
.70	.00	.00	.000	.00
.73	.00	.00	.000	.00
.77	.00	.00	.000	.00
.80	.00	.00	.000	.00
.83	.00	.00	.000	.00
.87	.00	.00	.000	.00
.90	.00	.00	.000	.00
.93	.00	.00	.000	.00
.97	.00	.00	.000	.00
1.00	.00	.00	.000	.00
1.03	.00	.00	.000	.00
1.07	.00	.00	.000	.00
1.10	.00	.00	.000	.00
1.13	.04	.00	.000	.00
1.17	.77	.00	.001	.06

1.20	5.15	.01	.008	.51
1.23	16.56	.02	.035	2.09
1.27	36.33	.06	.097	5.81
1.30	66.30	.14	.213	12.75
1.33	114.81	.27	.411	24.63
1.37	201.14	.49	.750	44.99
1.40	342.69	.75	1.333	75.13
1.43	535.28	1.19	2.291	107.80
1.47	720.78	1.89	3.708	119.17
1.50	856.38	2.75	5.535	131.71
1.53	903.96	3.68	7.579	143.99
1.57	873.35	4.56	9.616	154.75
1.60	798.66	5.33	11.480	163.65
1.63	711.18	5.98	13.099	170.87
1.67	623.41	6.51	14.459	176.31
1.70	552.69	6.94	15.587	180.82
1.73	471.38	7.28	16.494	184.14
1.77	404.17	7.53	17.190	186.64
1.80	351.19	7.72	17.713	188.52
1.83	308.64	7.86	18.101	189.91

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
1.87	273.30	7.97	18.378	190.91
1.90	243.58	8.03	18.563	191.54
1.93	219.44	8.07	18.673	191.90
1.97	200.05	8.09	18.721	192.06
2.00	184.17	8.09	18.722	192.06
2.03	170.67	8.07	18.681	191.93
2.07	156.33	8.05	18.604	191.68
2.10	138.59	8.00	18.482	191.28
2.13	119.00	7.94	18.311	190.67
2.17	100.73	7.86	18.089	189.87
2.20	85.81	7.76	17.825	188.92
2.23	74.12	7.65	17.526	187.85
2.27	64.97	7.54	17.202	186.68
2.30	57.75	7.41	16.858	185.45
2.33	51.96	7.28	16.500	184.16
2.37	47.13	7.14	16.131	182.84
2.40	42.97	7.01	15.754	181.48
2.43	39.31	6.86	15.369	179.95
2.47	36.02	6.71	14.979	178.39
2.50	33.05	6.56	14.585	176.82
2.53	30.43	6.40	14.188	175.23
2.57	28.11	6.25	13.788	173.64
2.60	26.01	6.09	13.386	172.03
2.63	24.09	5.94	12.984	170.35
2.67	22.35	5.77	12.581	168.56
2.70	20.77	5.61	12.179	166.77
2.73	19.31	5.45	11.777	164.98
2.77	17.97	5.29	11.376	163.19

2.80	16.75	5.13	10.977	161.41
2.83	15.63	4.97	10.580	159.60
2.87	14.60	4.80	10.184	157.61
2.90	13.63	4.63	9.792	155.64
2.93	12.74	4.47	9.402	153.68
2.97	11.93	4.30	9.015	151.74
3.00	11.18	4.14	8.632	149.81
3.03	10.49	3.98	8.252	147.86
3.07	9.89	3.81	7.876	145.69
3.10	9.32	3.64	7.504	143.55
3.13	8.78	3.48	7.136	141.43
3.17	8.30	3.32	6.773	139.34
3.20	7.87	3.16	6.414	137.27
3.23	7.47	3.00	6.060	135.23
3.27	7.12	2.84	5.711	132.89
3.30	6.79	2.67	5.367	130.58
3.33	6.47	2.52	5.029	128.32
3.37	6.19	2.36	4.696	126.08
3.40	5.93	2.21	4.368	123.89
3.43	5.69	2.05	4.046	121.73
3.47	5.47	1.90	3.729	119.34
3.50	5.26	1.75	3.419	116.85
3.53	5.07	1.60	3.115	114.41
3.57	4.89	1.45	2.816	112.02
3.60	4.73	1.30	2.524	109.68
3.63	4.59	1.16	2.238	107.38
3.67	4.47	1.02	1.958	105.14
3.70	4.34	.91	1.696	93.77

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
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3.73	4.21	.81	1.466	81.94
3.77	4.09	.72	1.266	71.67
3.80	3.99	.64	1.092	62.73
3.83	3.90	.57	.941	54.96
3.87	3.82	.52	.809	48.21
3.90	3.75	.45	.696	41.74
3.93	3.67	.39	.599	35.94
3.97	3.60	.34	.517	31.01
4.00	3.54	.29	.447	26.82
4.03	3.49	.25	.388	23.26
4.07	3.43	.22	.337	20.24
4.10	3.39	.19	.294	17.67
4.13	3.36	.17	.258	15.49
4.17	3.32	.15	.227	13.63
4.20	3.28	.13	.201	12.05
4.23	3.23	.12	.179	10.71
4.27	3.18	.10	.159	9.56
4.30	3.16	.09	.143	8.59
4.33	3.14	.08	.129	7.76
4.37	3.12	.08	.118	7.05

4.40	3.09	.07	.107	6.45
4.43	3.08	.06	.099	5.94
4.47	3.05	.06	.092	5.50
4.50	3.03	.06	.085	5.12
4.53	3.02	.05	.080	4.80
4.57	3.01	.05	.075	4.53
4.60	3.00	.05	.072	4.30
4.63	2.99	.04	.068	4.10
4.67	2.98	.04	.065	3.93
4.70	2.98	.04	.063	3.78
4.73	2.99	.04	.061	3.66
4.77	3.00	.04	.059	3.56
4.80	3.00	.04	.058	3.47
4.83	3.00	.04	.057	3.40
4.87	2.99	.04	.056	3.34
4.90	2.99	.04	.055	3.29
4.93	2.99	.04	.054	3.24
4.97	2.99	.03	.053	3.20
5.00	3.01	.03	.053	3.17
5.03	3.02	.03	.052	3.15
5.07	3.04	.03	.052	3.13
5.10	3.06	.03	.052	3.12
5.13	3.09	.03	.052	3.11
5.17	3.09	.03	.052	3.11
5.20	3.09	.03	.052	3.11
5.23	3.10	.03	.052	3.10
5.27	3.13	.03	.052	3.11
5.30	3.16	.03	.052	3.11
5.33	3.18	.03	.052	3.12
5.37	3.20	.03	.052	3.13
5.40	3.21	.03	.052	3.14
5.43	3.22	.03	.053	3.15
5.47	3.23	.03	.053	3.16
5.50	3.25	.03	.053	3.17
5.53	3.30	.03	.053	3.19
5.57	3.32	.03	.053	3.21

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
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5.60	3.33	.03	.054	3.23
5.63	3.34	.04	.054	3.24
5.67	3.37	.04	.054	3.26
5.70	3.40	.04	.055	3.28
5.73	3.42	.04	.055	3.30
5.77	3.44	.04	.055	3.32
5.80	3.47	.04	.056	3.34
5.83	3.50	.04	.056	3.36
5.87	3.52	.04	.056	3.39
5.90	3.55	.04	.057	3.41
5.93	3.58	.04	.057	3.43
5.97	3.62	.04	.058	3.46

6.00	3.64	.04	.058	3.48
6.03	3.66	.04	.058	3.51
6.07	3.54	.04	.059	3.52
6.10	3.20	.04	.058	3.50
6.13	2.72	.04	.057	3.42
6.17	2.26	.04	.055	3.27
6.20	1.88	.03	.052	3.09
6.23	1.59	.03	.048	2.88
6.27	1.37	.03	.044	2.67
6.30	1.20	.03	.041	2.46
6.33	1.07	.02	.038	2.26
6.37	.96	.02	.034	2.07
6.40	.87	.02	.032	1.89
6.43	.79	.02	.029	1.73
6.47	.71	.02	.026	1.58
6.50	.65	.02	.024	1.44
6.53	.59	.01	.022	1.32
6.57	.53	.01	.020	1.20
6.60	.49	.01	.018	1.10
6.63	.44	.01	.017	1.00
6.67	.40	.01	.015	.91
6.70	.37	.01	.014	.83
6.73	.34	.01	.013	.76
6.77	.31	.01	.012	.69
6.80	.28	.01	.011	.63
6.83	.26	.01	.010	.58
6.87	.23	.01	.009	.53
6.90	.21	.01	.008	.48
6.93	.19	.00	.007	.44
6.97	.17	.00	.007	.40
7.00	.16	.00	.006	.36
7.03	.15	.00	.006	.33
7.07	.13	.00	.005	.30
7.10	.12	.00	.005	.27
7.13	.11	.00	.004	.25
7.17	.10	.00	.004	.23
7.20	.09	.00	.003	.21
7.23	.08	.00	.003	.19
7.27	.08	.00	.003	.17
7.30	.07	.00	.003	.16
7.33	.06	.00	.002	.14
7.37	.06	.00	.002	.13
7.40	.05	.00	.002	.12
7.43	.05	.00	.002	.11

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
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7.47	.04	.00	.002	.10
7.50	.04	.00	.002	.09
7.53	.04	.00	.001	.08
7.57	.03	.00	.001	.08

7.60	.03	.00	.001	.07
7.63	.03	.00	.001	.06
7.67	.02	.00	.001	.06
7.70	.02	.00	.001	.05
7.73	.02	.00	.001	.05
7.77	.02	.00	.001	.04
7.80	.02	.00	.001	.04
7.83	.01	.00	.001	.04
7.87	.01	.00	.001	.03
7.90	.01	.00	.000	.03
7.93	.01	.00	.000	.03
7.97	.01	.00	.000	.02
8.00	.01	.00	.000	.02
8.03	.01	.00	.000	.02
8.07	.01	.00	.000	.02
8.10	.01	.00	.000	.02
8.13	.01	.00	.000	.01
8.17	.01	.00	.000	.01
8.20	.00	.00	.000	.01
8.23	.00	.00	.000	.01
8.27	.00	.00	.000	.01
8.30	.00	.00	.000	.01
8.33	.00	.00	.000	.01
8.37	.00	.00	.000	.01
8.40	.00	.00	.000	.01
8.43	.00	.00	.000	.01
8.47	.00	.00	.000	.01
8.50	.00	.00	.000	.01
8.53	.00	.00	.000	.00

PEAK DISCHARGE = 192.062 CFS - PEAK OCCURS AT HOUR 2.00
 MAXIMUM WATER SURFACE ELEVATION = 8.088
 MAXIMUM STORAGE = 18.7216 AC-FT INCREMENTAL TIME= .033330HRS

*S ROUTE FLOW FROM THE DETENTION POND TO THE AMOLE DEL NORTE CHANNEL
 COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLOPE=0.0180
 DIA=4.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.21	.25	1.01	1.78
.42	.69	4.39	2.44
.63	1.25	10.20	2.91
.83	1.90	18.35	3.25
1.04	2.60	28.65	3.51
1.25	3.36	40.88	3.71
1.46	4.15	54.76	3.85
1.67	4.96	70.02	3.94
1.88	5.79	86.31	3.99
2.08	6.62	103.30	4.00

2.29	7.45	120.60	4.00
2.50	8.27	137.80	4.00
2.71	9.06	154.44	4.00
2.92	9.82	170.03	4.00
3.13	10.54	183.98	4.00
3.34	11.20	195.59	4.00
3.54	11.77	203.89	4.00
3.75	12.24	207.31	4.00
4.00	12.57	207.31	4.00

COMPUTE TRAVEL TIME ID=15 REACH NO=1 NO VS=1 L=1150 FT SLP=0.018

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.208	.250	1.01	.0789
.417	.695	4.39	.0506
.625	1.255	10.20	.0393
.834	1.898	18.35	.0330
1.042	2.604	28.65	.0290
1.251	3.358	40.88	.0262
1.459	4.146	54.76	.0242
1.668	4.960	70.02	.0226
1.876	5.788	86.31	.0214
2.084	6.621	103.30	.0205
2.293	7.451	120.60	.0197
2.501	8.267	137.80	.0192
2.710	9.062	154.44	.0187
2.918	9.823	170.03	.0185
3.127	10.539	183.98	.0183
3.335	11.195	195.59	.0183
3.544	11.773	203.89	.0184
3.752	12.243	207.31	.0189
4.000	12.566	207.31	.0194

ROUTE
PRINT HYD

ID=15 HYD NO=405.3 INFLOW ID=14 DT=0.0
ID=15 CODE=1

HYDROGRAPH FROM AREA 405.30

RUNOFF VOLUME = 1.09293 INCHES = 32.8291 ACRE-FEET
PEAK DISCHARGE RATE = 192.05 CFS AT 2.000 HOURS BASIN AREA = .5632 SQ. MI.

*S*****
*S*****
*S **CALC BASIN 406

COMPUTE NM HYD ID=16 HYD NO=406.00 AREA=0.057434 SQ MI
PER A=4 PER B=27 PER C=27 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 95.236 CFS UNIT VOLUME = .9993 B = 526.28 P60 = 1.8700
AREA = .024122 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .121550HR TP = .133300HR K/TP RATIO = .911856 SHAPE CONSTANT, N = 3.883611
UNIT PEAK = 86.799 CFS UNIT VOLUME = 1.000 B = 347.33 P60 = 1.8700
AREA = .033312 SQ MI IA = .44052 INCHES INF = 1.08345 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=16 CODE=1

HYDROGRAPH FROM AREA 406.00

RUNOFF VOLUME = 1.27968 INCHES = 3.9198 ACRE-Feet
PEAK DISCHARGE RATE = 117.49 CFS AT 1.500 HOURS BASIN AREA = .0574 SQ. MI.

*S **CALC BASIN 407

COMPUTE NM HYD ID=17 HYD NO=407.00 AREA=0.0504 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 83.572 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.8700
AREA = .021168 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 77.777 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
AREA = .029232 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=17 CODE=1

HYDROGRAPH FROM AREA 407.00

RUNOFF VOLUME = 1.29860 INCHES = 3.4906 ACRE-Feet
PEAK DISCHARGE RATE = 104.81 CFS AT 1.500 HOURS BASIN AREA = .0504 SQ. MI.

*S **CALC BASIN 408B

COMPUTE NM HYD ID=18 HYD NO=408B AREA=0.09501 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .073200HR TP = .133300HR K/TP RATIO = .549137 SHAPE CONSTANT, N = 7.037955
UNIT PEAK = 156.58 CFS UNIT VOLUME = .9993 B = 523.05 P60 = 1.8700
AREA = .039904 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .117566HR TP = .133300HR K/TP RATIO = .881962 SHAPE CONSTANT, N = 4.023900
UNIT PEAK = 147.48 CFS UNIT VOLUME = 1.000 B = 356.76 P60 = 1.8700
AREA = .055106 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=18 CODE=1

HYDROGRAPH FROM AREA 408B

RUNOFF VOLUME = 1.29860 INCHES = 6.5802 ACRE-FEET
PEAK DISCHARGE RATE = 197.65 CFS AT 1.500 HOURS BASIN AREA = .0950 SQ. MI.

*S **CALC BASIN 408C

COMPUTE NM HYD ID=19 HYD NO=408C AREA=0.0506 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 83.904 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.8700
AREA = .021252 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 78.086 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
AREA = .029348 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=19 CODE=1

HYDROGRAPH FROM AREA 408C

RUNOFF VOLUME = 1.29860 INCHES = 3.5045 ACRE-FEET
PEAK DISCHARGE RATE = 105.23 CFS AT 1.500 HOURS BASIN AREA = .0506 SQ. MI.

*S **COMBINE FLOWS FROM BASIN 408B AND 408C
ADD HYD ID=20 HYD NO=408.2 ID=18 ID=19
PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA 408.20

RUNOFF VOLUME = 1.29859 INCHES = 10.0846 ACRE-FEET
PEAK DISCHARGE RATE = 302.87 CFS AT 1.500 HOURS BASIN AREA = .1456 SQ. MI.

*S*****
*S*****

*S **BASIN 500 IS UNIT ONE OF THE PROPOSED LONGFORD SD
COMPUTE NM HYD ID=1 HYD NO=500.00 AREA=0.024905 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 41.297 CFS UNIT VOLUME = .9991 B = 526.28 P60 = 1.8700
AREA = .010460 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 38.433 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
AREA = .014445 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=1 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 500.00

RUNOFF VOLUME = 1.29860 INCHES = 1.7249 ACRE-FEET
PEAK DISCHARGE RATE = 51.80 CFS AT 1.500 HOURS BASIN AREA = .0249 SQ. MI.

*S **BASIN 501 IS THE AREA PROPOSED AS FUTURE LONGFORD SD DRAINING
*S **DIRECTLY TO THE AMOLE CHANNEL

COMPUTE NM HYD ID=2 HYD NO=501.00 AREA=0.03663 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 60.739 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.8700
AREA = .015385 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 56.527 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
AREA = .021245 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=2 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 501.00

RUNOFF VOLUME = 1.29860 INCHES = 2.5369 ACRE-FEET
PEAK DISCHARGE RATE = 76.18 CFS AT 1.500 HOURS BASIN AREA = .0366 SQ. MI.

*S **COMBINE BASINS 500 AND 501 TOGETHER TO REPRESENT THE NORTHERN PART OF THE

*S **LONGFORD SD

ADD HYD ID=3 HYD NO=501.1 ID I=1 ID II=2

PRINT HYD ID=3 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 501.10

RUNOFF VOLUME = 1.29859 INCHES = 4.2618 ACRE-FEET
PEAK DISCHARGE RATE = 127.98 CFS AT 1.500 HOURS BASIN AREA = .0615 SQ. MI.

*S **BASIN 502 IS THE SOUTHERN PART OF THE LONGFORD SD

COMPUTE NM HYD ID=4 HYD NO=502.00 AREA=0.05788 SQ MI

PER A=0 PER B=28 PER C=28 PER D=44

TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 100.55 CFS UNIT VOLUME = .9993 B = 526.28 P60 = 1.8700
AREA = .025467 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 86.240 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
AREA = .032413 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=4 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 502.00

RUNOFF VOLUME = 1.32159 INCHES = 4.0796 ACRE-FEET
PEAK DISCHARGE RATE = 121.79 CFS AT 1.500 HOURS BASIN AREA = .0579 SQ. MI.

*S **BASIN 503 IS CURRENTLY UNDEVELOPED, ASSUME FUTURE DEVELOPMENT WILL BE @
*S **A DENSITY OF 4 DU/AC. THE DISCHARGE FROM THIS BASIN DRAINS TO THE AMOLE
*S DEL NORTE CHANNEL AND DOES NOT AFFECT THE ARENAL/UNSER DRAINAGE MANAGEMENT
*S SITE.

COMPUTE NM HYD ID=5 HYD NO=503.00 AREA=0.03752 SQ MI
PER A=0 PER B=29 PER C=29 PER D=42
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 62.215 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.8700
AREA = .015758 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 57.901 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
AREA = .021762 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=5 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 503.00

RUNOFF VOLUME = 1.29860 INCHES = 2.5986 ACRE-FEET
PEAK DISCHARGE RATE = 78.03 CFS AT 1.500 HOURS BASIN AREA = .0375 SQ. MI.

*S*****

*S **BASIN 504 IS CURRENTLY UNDEVELOPED, ASSUME FUTURE DEVELOPMENT WILL BE @
*S **A DENSITY OF 4 DU/AC. THE DISCHARGE FROM THIS BASIN TRAVEL ALONG SAGE RD.
*S AND ENTERS THE AMOLE DEL NORTE CHANNEL, DOES NOT AFFECT THE ARENAL/UNSER
*S DRAINAGE MANAGEMENT SITE.

COMPUTE NM HYD ID=6 HYD NO=504.00 AREA=0.036668 MI
PER A=0 PER B=28 PER C=28 PER D=44
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 63.698 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.8700
AREA = .016134 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 54.635 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
AREA = .020534 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=6 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 504.00

RUNOFF VOLUME = 1.32159 INCHES = 2.5845 ACRE-FEET
PEAK DISCHARGE RATE = 77.16 CFS AT 1.500 HOURS BASIN AREA = .0367 SQ. MI.

*S **BASIN 505 IS FULLY DEVELOPED AND DRAINS SOUTH TO BLAKE RD..DISCHARGE FROM
*S THIS BASIN DOES NOT AFFECT THE ARENAL/UNSER DRAINAGE MANAGEMENT SITE.

COMPUTE NM HYD ID=7 HYD NO=505.00 AREA=0.02618 SQ MI
PER A=33 PER B=19 PER C=19 PER D=29
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 29.974 CFS UNIT VOLUME = .9990 B = 526.28 P60 = 1.8700
AREA = .007592 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .139463HR TP = .133300HR K/TP RATIO = 1.046235 SHAPE CONSTANT, N = 3.374403
UNIT PEAK = 43.373 CFS UNIT VOLUME = .9997 B = 311.05 P60 = 1.8700
AREA = .018588 SQ MI IA = .52958 INCHES INF = 1.33282 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=7 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 505.00

RUNOFF VOLUME = 1.00753 INCHES = 1.4068 ACRE-FEET
PEAK DISCHARGE RATE = 43.10 CFS AT 1.500 HOURS BASIN AREA = .0262 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 14:22:43

APPENDIX C

FLOWMASTER CALCULATION SHEETS

Purple Cone Rd

$$Q = 41.73 \text{ cfs}$$

$$D = .54' \text{ (per Table 2)}$$

$$S = .014$$

Per DPM plate 22.3 D-5

$$Q_{\text{inlet}} = 7.5 \text{ cfs (use 4 Type A)}_{S6}$$

$$\therefore \text{PASS Through flow} = 41.73 - 30 = 11.73 \text{ cfs}$$

$$Q \text{ total Spring Canyon Dr} = 11.73 + 10.96 = 22.7 \text{ cfs}$$

Purple Fringe Rd

$$Q = 32.37 \text{ cfs}$$

$$D = .48' \text{ (per Table 2)}$$

$$S = .016$$

$$\text{Per DPM plate D-5 22.3 } Q_{\text{inlet}} = 7 \text{ cfs (use 4 Type A)}_{S6}$$

$$\therefore \text{PASS Through flow} = 32.37 - 28 = 4.37 \text{ cfs}$$

$$Q \text{ total Spring Canyon Dr} = 4.37 + 22.7 = 27.07 \text{ cfs}$$

Spring Canyon Dr @ Saltbrush

$$Q = 27.07 \text{ cfs}$$

$$d = .53' \text{ (per Table 2)}$$

$$S = .006$$

$$\text{Per DPM plate 22.3 D-6: } Q_{\text{inlet}} = 7.5 \text{ cfs (use 2 DG Type A each side)}$$

$$\therefore \text{ultimate pass through flow} = 0$$

$$\text{Phase 2 phase through flow} = 27.07 - 15 = 12.07 \text{ cfs}$$

2 inlets in
row - when
will other 2
go in?

Saltbrush @ East Terminus

$$Q = 31.99 \text{ cfs}$$

$$d = .48' \text{ (per Table 2)}$$

$$S = .0157$$

$$\text{per DPM plate 22.3 D-6: } Q_{\text{inlet}} = 8 \text{ cfs (use 2 DG Type A each side)}$$

$$\therefore \text{pass through flow} = 0$$

Amole del Norte Channel to MH #8
Worksheet for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\dsrtflwr.fm2
Worksheet	amole to mh#8
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Pressure at 1

Input Data	
Pressure at 2	5.00 feet H2O
Elevation at 1	4,997.28 ft
Elevation at 2	4,995.00 ft
Length	228.00 ft
C Coefficient	105.0
Diameter	60.00 in
Discharge	285.58 cfs

Results		
Pressure at 1	5.43	feet H2O
Headloss	2.71	ft
Energy Grade at 1	5,006.00	ft
Energy Grade at 2	5,003.29	ft
Hydraulic Grade at 1	5,002.71	ft
Hydraulic Grade at 2	5,000.00	ft
Flow Area	19.63	ft ²
Wetted Perimeter	15.71	ft
Velocity	14.54	ft/s
Velocity Head	3.29	ft
Friction Slope	0.011887	ft/ft

MH #8 to MH #7
Worksheet for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\dsrtflwr.fm2
Worksheet	mh#8 to mh #7
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Pressure at 1

Input Data	
Pressure at 2	5.51 feet H2O
Elevation at 1	4,998.47 ft
Elevation at 2	4,997.38 ft
Length	217.00 ft
C Coefficient	105.0
Diameter	60.00 in
Discharge	206.60 cfs

Results		
Pressure at 1	5.84	feet H2O
Headloss	1.42	ft
Energy Grade at 1	5,006.03	ft
Energy Grade at 2	5,004.61	ft
Hydraulic Grade at 1	5,004.31	ft
Hydraulic Grade at 2	5,002.89	ft
Flow Area	19.63	ft ²
Wetted Perimeter	15.71	ft
Velocity	10.52	ft/s
Velocity Head	1.72	ft
Friction Slope	0.006527	ft/ft

MH # 7 to MH #6
Worksheet for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\dsrtflwr.fm2
Worksheet	mh7 to mh6
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Pressure at 1

Input Data	
Pressure at 2	5.93 feet H2O
Elevation at 1	4,999.84 ft
Elevation at 2	4,998.56 ft
Length	256.00 ft
C Coefficient	105.0
Diameter	60.00 in
Discharge	190.80 cfs

Results		
Pressure at 1	6.09	feet H2O
Headloss	1.44	ft
Energy Grade at 1	5,007.40	ft
Energy Grade at 2	5,005.96	ft
Hydraulic Grade at 1	5,005.93	ft
Hydraulic Grade at 2	5,004.49	ft
Flow Area	19.63	ft ²
Wetted Perimeter	15.71	ft
Velocity	9.72	ft/s
Velocity Head	1.47	ft
Friction Slope	0.005633	ft/ft

MH #6 to MH #5
Worksheet for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\dsrtflwr.fm2
Worksheet	mh6 to mh5
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Pressure at 1

Input Data	
Pressure at 2	6.17 feet H2O
Elevation at 1	5,001.27 ft
Elevation at 2	4,999.94 ft
Length	133.00 ft
C Coefficient	105.0
Diameter	54.00 in
Discharge	180.35 cfs

Results		
Pressure at 1	5.97	feet H2O
Headloss	1.13	ft
Energy Grade at 1	5,009.24	ft
Energy Grade at 2	5,008.11	ft
Hydraulic Grade at 1	5,007.24	ft
Hydraulic Grade at 2	5,006.11	ft
Flow Area	15.90	ft ²
Wetted Perimeter	14.14	ft
Velocity	11.34	ft/s
Velocity Head	2.00	ft
Friction Slope	0.008478	ft/ft

MH #5 to MH #4

Worksheet for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\dsrtflwr.fm2
Worksheet	mh5 to mh4
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Pressure at 1

Input Data	
Pressure at 2	5.15 feet H2O
Elevation at 1	5,002.07 ft
Elevation at 2	5,001.77 ft
Length	50.00 ft
C Coefficient	105.0
Diameter	48.00 in
Discharge	85.83 cfs

Results		
Pressure at 1	5.04	feet H2O
Headloss	0.19	ft
Energy Grade at 1	5,007.83	ft
Energy Grade at 2	5,007.64	ft
Hydraulic Grade at 1	5,007.11	ft
Hydraulic Grade at 2	5,006.92	ft
Flow Area	12.57	ft ²
Wetted Perimeter	12.57	ft
Velocity	6.83	ft/s
Velocity Head	0.72	ft
Friction Slope	0.003804	ft/ft

MH #5 to MH #1
Worksheet for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\dsrtflwr.fm2
Worksheet	mh5 to mh1
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Pressure at 1

Input Data	
Pressure at 2	5.65 feet H2O
Elevation at 1	5,003.72 ft
Elevation at 2	5,001.77 ft
Length	130.00 ft
C Coefficient	105.0
Diameter	42.00 in
Discharge	63.07 cfs

Results		
Pressure at 1	4.24	feet H2O
Headloss	0.54	ft
Energy Grade at 1	5,008.62	ft
Energy Grade at 2	5,008.09	ft
Hydraulic Grade at 1	5,007.96	ft
Hydraulic Grade at 2	5,007.42	ft
Flow Area	9.62	ft ²
Wetted Perimeter	11.00	ft
Velocity	6.56	ft/s
Velocity Head	0.67	ft
Friction Slope	0.004120	ft/ft

MH #4 to MH #3
Worksheet for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\dsrtflwr.fm2
Worksheet	mh4 to mh3
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Pressure at 1

Input Data	
Pressure at 2	4.75 feet H2O
Elevation at 1	5,003.87 ft
Elevation at 2	5,002.67 ft
Length	200.00 ft
C Coefficient	105.0
Diameter	42.00 in
Discharge	58.00 cfs

Results		
Pressure at 1	4.26	feet H2O
Headloss	0.71	ft
Energy Grade at 1	5,008.69	ft
Energy Grade at 2	5,007.98	ft
Hydraulic Grade at 1	5,008.13	ft
Hydraulic Grade at 2	5,007.42	ft
Flow Area	9.62	ft ²
Wetted Perimeter	11.00	ft
Velocity	6.03	ft/s
Velocity Head	0.56	ft
Friction Slope	0.003528	ft/ft

MH #3 to MH #2
Worksheet for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\dsrtflwr.fm2
Worksheet	mh3 to mh2
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Pressure at 1

Input Data	
Pressure at 2	3.94 feet H2O
Elevation at 1	5,005.90 ft
Elevation at 2	5,004.37 ft
Length	255.00 ft
C Coefficient	105.0
Diameter	36.00 in
Discharge	30.00 cfs

Results		
Pressure at 1	2.97	feet H2O
Headloss	0.56	ft
Energy Grade at 1	5,009.15	ft
Energy Grade at 2	5,008.59	ft
Hydraulic Grade at 1	5,008.87	ft
Hydraulic Grade at 2	5,008.31	ft
Flow Area	7.07	ft ²
Wetted Perimeter	9.42	ft
Velocity	4.24	ft/s
Velocity Head	0.28	ft
Friction Slope	0.002205	ft/ft