City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 16, 2002

James D Hughes, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

Re: West Ridge Subdivision Drainage Report
Engineer's Stamp dated 9-27-02 (H9/D16)

Dear Mr. Hughes,

Based upon the information provided in your submittal dated 9-30-02, the above referenced report cannot be approved for Preliminary Plat until the following comments are addressed.

- I will need concurrence from Glen Jurgensen of Storm Drain Maintenance to maintain the channel on Tract 5A1-B (GE Capital Modular). Otherwise, the pipe must extend to Ouray. I have a call in to him to inspect this channel and should expect a resolution by this week. If that is how the outfall will go, prior to Final Plat or Work Order, the existing storm drain easements must become public easements. It may be prudent to work on these easements early.

- Please specify 3:1 slopes on the pond since it will be a permanent publicly maintained facility. Also add volume required and water surface elevation to the grading plan. Low-flow channels will also be required on your infrastructure list.

- Your report should mention that the Old Ouray R/W is being vacated so you won't have to provide design grades or drainage calculations for a road there.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Planning Dept.
Development and Building Services

C: file

New Mexico
State Highway & Transportation Department

INTRA-DEPARTMENTAL CORRESPONDENCE

SUBJECT: West Ridge Subdivision, Albuquerque

DATE: March 12, 2003

FILE REFERENCE: H-9/D16

TO: Kathy Trujillo
Traffic Engineer, District 3

FROM: Reza Afaghpour R.A.
Drainage Development Engineer

I have received and reviewed the plans for the development of West Ridge subdivision driveway on NM 345 in Albuquerque. The following are my comments.

The site does not contribute any drainage to NM 345, therefore, I don't see a drainage concern for the Department's structures on NM 345 (Unser Blvd.).

If you have any further questions, please contact me at 827-5329.

xc: Max Valerio
Rae Van Hoven
Brad Bingham, City of Albuquerque
James D. Hughes, Mark Goodwin & Associates
File

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02d RUN DATE (MON/DAY/YR) =04/10/2002
INPUT FILE = C:\AHYMO\01512-C.TXT USER NO.= AHYMO-I-9702c01000T35-AH

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	NOTATION	
START											
RAINFALL TYPE= 1										TIME=	.00
										RAIN6=	2.200
COMPUTE NM HYD	A.EX	-	1	.01002	8.32	.235	.43925	1.533	1.298	PER IMP=	.00
COMPUTE NM HYD	B.EX	-	2	.00239	1.99	.056	.43925	1.533	1.301	PER IMP=	.00
COMPUTE NM HYD	C.EX	-	3	.01798	14.93	.421	.43925	1.533	1.297	PER IMP=	.00
COMPUTE NM HYD	D.EX	-	4	.00670	5.57	.157	.43925	1.533	1.298	PER IMP=	.00
COMPUTE NM HYD	E.EX	-	5	.00903	7.50	.212	.43925	1.533	1.298	PER IMP=	.00
COMPUTE NM HYD	F.EX	-	6	.00625	16.35	.598	1.79461	1.500	4.088	PER IMP=	85.00
COMPUTE NM HYD	G.EX	-	7	.00463	12.12	.443	1.79461	1.500	4.089	PER IMP=	85.00
COMPUTE NM HYD	A.DEV	-	8	.01002	26.20	.959	1.79461	1.500	4.086	PER IMP=	85.00
COMPUTE NM HYD	B.DEV	-	9	.00239	6.26	.229	1.79461	1.500	4.094	PER IMP=	85.00
COMPUTE NM HYD	C.DEV	-	10	.01798	47.01	1.721	1.79461	1.500	4.085	PER IMP=	85.00
COMPUTE NM HYD	D.DEV	-	11	.00627	16.41	.600	1.79461	1.500	4.088	PER IMP=	85.00
COMPUTE NM HYD	E.DEV	-	12	.00903	23.62	.864	1.79461	1.500	4.087	PER IMP=	85.00
ADD HYD	B&C.EX	2& 3	13	.02037	16.92	.477	.43925	1.533	1.298		
ADD HYD	B&C&D.DEV	11&13	14	.02664	32.96	1.078	.75835	1.500	1.933		
ROUTE RESERVOIR	POND'D'.OUT	14	15	.02664	18.25	1.078	.75835	1.667	1.070	AC-FT=	.314
ROUTE RESERVOIR	POND'E'.OUT	12	16	.00903	9.65	.864	1.79458	1.733	1.670	AC-FT=	.346
ROUTE RESERVOIR	POND'F'.OUT	6	17	.00625	7.33	.598	1.79456	1.700	1.832	AC-FT=	.199
ROUTE RESERVOIR	POND'G'.OUT	7	18	.00463	3.74	.443	1.79455	1.866	1.262	AC-FT=	.210
FINISH											

RECEIVED
SEP 1 8 2002
PWD/DESIGN REVIEW

D. Mark Goodwin and Associates, P.A.
Consulting Engineers

P.O. Box 90606 ❖ Albuquerque, NM 87199
(505) 828-2200 ❖ (505) 797-9539 fax
e-mail: dmg@swcp.com

LETTER OF TRANSMITTAL

TO: Brad Bingham
City of Albuquerque

DATE: September 18, 2002

West Ridge

We are sending:

Quantity	Date	Description
2		1985 Masterplan Volcano Business Park
1		1999 Grading & Drainage Plan (as-built)
1		2002 Plat
3		2002 G E Expansion Grading Plan
		2002 AHYMO Summary

_____ For your approval _____ For your records

_____ As you requested _____ For your comments

_____ Pre-Design Meeting

Note:

Project Engineer: James P. Hughes, PE

RECEIVED
SEP 1 8 2002
PWD/DESIGN REVIEW

SIGNED: Bernadette Mares
Bernadette Mares

f:\\forms\transmittal letter

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV.1/11/2002)

H-9/D16

PROJECT TITLE: West Ridge Subdivision — ZONE MAP/DRB.FILE#: ~~G9 & 10 & H9 & 10~~

DRB#: _____ EPC# _____ WORK ORDER#: _____

LEGAL DESCRIPTION: _____

CITY ADDRESS: Unser Blvd. between Old Ouray Rd. & New Ourary Rd.

ENGINEERING FIRM:	Mark Goodwin & Associates, PA	CONTACT:	James D. Hughes
ADDRESS:	P.O. Box 90606 Albuquerque NM 87119	PHONE:	828-2200
CITY, STATE:	Albuquerque NM	ZIP CODE:	87199
OWNER:	K.B. HOME New Mexico Inc.	CONTACT:	Greg Breedlove
ADDRESS:	4921 Alexander NE Suite B	PHONE:	344-9400
CITY, STATE:	Albuquerque, New Mexico	ZIP CODE:	87107
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	Aldrich Land Surveying	CONTACT:	Tim Alrdich
ADDRESS:	P.O. Box 30701	PHONE:	884-1990
CITY, STATE:	Albuquerque, NM 87190-0701	ZIP CODE:	
CONTRACTOR:		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 (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEER'S CERTIFICATION (TCL)
- ___ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
- ___ OTHER

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ✓ YES Meeting is with Brad Bingham
- ___ NO
- No COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SIA / FINANCIAL GUARANTY RELEASE
- ✓ PRELIMINARY PLAT APRROVAL
- ___ 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 (PERM)
- ___ CERTIFICATE OF OCCUPANCY (TEMP)
- ✓ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ WORK ORDER APPROVAL
- ___ OTHER (SPECIFY)

RECEIVED SEP 30 2002 HYDROLOGY SECTION

DATE SUBMITTED: _____ BY: James Hughes, PE

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of to the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5).
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5).
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

ALSO SCE

9/20/02

SUBMITTAL!!

1 Academy Reprographics

DEVELOPMENT & BUILDING SERVICE CENTER
ONE STOP SHOP
600 SECOND ST. N.W.
ATTENTION: HYDROLOGY
505-924-3900

Records Withdrawal Form

Project No. H9 - D16 **Date:** 3-28-05

Project Title: WESTRIDGE SUBDIVISION

a. File b. Mylars c. Redlines/Comments
d. Other _____

Requested by: JARROD LIKAR HUITT-ZOLLARS **Phone No.:** 892-5141
Name and Company

Comments: 1 COPY EACH OF STORM DRAIN AS-BUILTS

Anticipated Return Date: _____

I hereby accept full responsibility for the security of the above noted records/plans until return receipt acknowledgement is completed. Records/plans will be returned to the Development and Building Services Center on or before the indicted anticipated return date.

Delivery Picked Up By:

Name: RONALD BLADES **Organization:** _____
Print

Signed: [signature] **Date:** 3-28-05

Office Use Only

Return Acknowledged:

Received By: BS **Date:** 3-29-05
Print

CITY OF ALBUQUERQUE

THREE HUNDRED YEARS 1706 • 2006
ALBUQUERQUE
Making History

August 19, 2004

Mr. James D. Hughes, PE
MARK GOODWIN & ASSOCIATES
P.O. Box 90606
Albuquerque, NM 87119

RE: WEST RIDGE SUBDIVISION, UNIT 1 (H-9/D016)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 01/02/2003
Engineers Certification dated 08/11/2004

Dear Doug:

Based upon the information provided in your Engineer's Certification Submittal dated 08/19/2004, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

If you have any questions, you can contact me at 924-3982

Sincerely,

Arlene V. Portillo

Arlene V. Portillo
Plan Checker, Planning Dept.- Hydrology
Development and Building Services

C: Marilyn Maldonado, COA#708281
File

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

CITY OF ALBUQUERQUE

THREE HUNDRED YEARS
1706 • 2006
ALBUQUERQUE
Making History

August 19, 2004

Mr. James D. Hughes, PE
MARK GOODWIN & ASSOCIATES
P.O. Box 90606
Albuquerque, NM 87119

RE: WEST RIDGE SUBDIVISION, UNIT-2 (H-9/D016)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 01/02/2003
Engineers Certification dated 08/11/2004

Dear Doug:

Based upon the information provided in your Engineer's Certification Submittal dated 08/13/2004, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

If you have any questions, you can contact me at 924-3982

Sincerely,

Arlene V. Portillo

Arlene V. Portillo
Plan Checker, Planning Dept.- Hydrology
Development and Building Services
BVB

C: Marilyn Maldonado, COA#708282
File

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

H-9/D016
~~K-9/D006A~~

PROJECT TITLE: West Ridge Subdivision, Units ~~1&3~~ 1&2
DRB #: 1001932 EPC#: _____

ZONE MAP/DRG. FILE #: ~~H9 & 10~~
WORK ORDER#: 708282 & 708281
~~708281~~

LEGAL DESCRIPTION: _____
CITY ADDRESS: Unser Blvd between Old Ouray and New Ouray

ENGINEERING FIRM: Mark Goodwin & Associates, PA
ADDRESS: PO Box 90606
CITY, STATE: Albuquerque, NM

CONTACT: James D. Hughes, PE
PHONE: 828-2200
ZIP CODE: 87199

OWNER: KB HOME New Mexico, Inc.
ADDRESS: 4921 Alexander NE, Suite B
CITY, STATE: Albuquerque, NM

CONTACT: Larry Erwin
PHONE: 344-9400
ZIP CODE: 87107

ARCHITECT: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE:
ZIP CODE: _____

SURVEYOR: ALS, Inc.
ADDRESS: PO Box 30701
CITY, STATE: Albuquerque, NM

CONTACT: Tim Aldrich
PHONE: 884-1990
ZIP CODE: 87190

CONTRACTOR: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☒ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEERS CERTIFICATION (TCL)
- ☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ☐ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ☒ SIA / FINANCIAL GUARANTEE RELEASE
- ☐ 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 (PERM.)
- ☐ CERTIFICATE OF OCCUPANCY (TEMP.)
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY)

RECEIVED
AUG 13 2004
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
- ☐ NO
- ☐ COPY PROVIDED

8/13/04: Need Agmt w/PNM to construct slope instead of wall. Contacted Doug Hughes.

8/19/04 Rec'd Agmt via fax. AHP

DATE SUBMITTED: August 11, 2004 BY: Mark Goodwin

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

facsimile
TRANSMITTAL

to:	Bob Coleman Brad Bingham
fax #	344-5700 924-3864
re:	West Ridge Units 1 & 2
date:	August 19, 2004
pages:	10, including this cover sheet.

PNM Encroachment agreements for pond and slope that replaced well.

Please call me if you have any questions.

From the desk of.....

John M. MacKenzie, PE
Vice President

Mark Goodwin & Associates, PA
PO Box 90606
Albuquerque, NM 87199

(505) 828-2200
fax (505) 797-9539
beth@goodwinengineers.com

PNM JOB NO. R3853

PNM Electric Services

Alvarado Square, Albuquerque, New Mexico 87158

EASEMENT ENCROACHMENT AGREEMENT

THIS INFORMATION TO BE PROVIDED BY TITLE COMPANY

This Easement Encroachment Agreement made this 7th day of May, 2003

by and between (BUYER/BORROWER, OWNER) KB Home New Mexico, Inc.

whose address is 4921 Alexander, NE, Suite B, Albuquerque, NM 87107

(hereinafter called "First Party"), (his) (her) (their) (its) heirs, successors and assigns, and PUBLIC SERVICE COMPANY OF NEW MEXICO, A New Mexico Corporation for it's Electric Services Division, (hereinafter called ("PNM") ("Parties"),

WITNESSETH:

WHEREAS, PNM is the Grantee of a certain easement within the hereinafter described property,

WHEREAS, First Party desires to encroach upon the Easement as more particularly specified hereinafter, and WHEREAS, PNM has agreed to said encroachment: NOW THEREFORE, for and in consideration of the sum of One and No/100 ($1.00) DOLLAR, in hand paid, and other valuable consideration, the receipt of which is hereby acknowledged, PNM does hereby grant First Party the right to encroach upon the Easement only to the extent of, and for the purposes set forth below:

PNM USE ONLY FOR LEGAL DESCRIPTION

Encroachment of a dirt slope within a tract of land (Tract) situate in Section 10, T10N, R2E, NMPM, Bernalillo County, New Mexico. Said Tract described in that document filed for record in the office of the County Clerk, Bernalillo County in Deed Book A16, pages 1224 on March 1, 2001. Said Tract is referenced on that Plat of EL RANCHO ATRISCO, PHASE II, Tracts A-1 and B-1 filed for record in the office of the County Clerk, Bernalillo County in Plat Book C-32, Page 185 on February 12, 1987.

Encroachment is more particularly shown on "Exhibit A" attached and made a part of this document.

2003100599
5003817
Page: 1 of 3
06/12/2003 02:02P
Mary Herrera Bern. Co. AGRE R 13.00 Bk-A50 Pg-381

By granting the aforesaid right to encroach PNM does not waive or relinquish any rights that it may have under or by reason of the Easement, including, but not limited to the right to build, rebuild, construct, reconstruct, locate, relocate, change, modify, renew, operate and maintain its electric lines (including underground lines), poles, guy wires and other electric equipment, fixtures and structures that are now located, or may in the future be located, through, on, within, or under the Easement. First Party, at its sole cost and expense, agrees to remove or relocate its encroachment upon the written request of PNM within 90 days of such written request. First Party appoints PNM its agent to accomplish said removal or relocation at First Party's expense if First Party fails to remove or relocate such encroachment within such time period.

03 220

03 220

[redacted]

In consideration of PNM granting First Party the right to encroach upon the Easement, First Party hereby agrees to indemnify and hold harmless PNM, its agents and employees, from any and all claims whatsoever for personal injuries or damages to property when such injuries or damages directly or indirectly arise out of the existence, construction, maintenance, repair, condition, use or presence of the encroachment upon the Easement, regardless of the cause of said injuries or damages; provided, however, that notwithstanding anything to the contrary in this paragraph, First Party shall not be required to indemnify PNM for liability, claims, damages, losses or expenses, arising out of (a) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by PNM, or the agents or employees of PNM; or (b) the giving of or the failure to give directions or instructions by PNM, or the agents or employees of PNM, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

In consideration of PNM permitting First Party to encroach upon the Easement, First Party agrees that PNM shall not be responsible for any damage caused to facilities, equipment, structures or other property of First Party if damaged by reason of PNM's use of Easement.

First Party shall comply with all applicable laws, ordinances, rules and regulations enacted or promulgated by any federal, state or local governmental body having jurisdiction over First Party's encroachment.

The provisions hereof shall inure to the benefit of and bind the heirs, executors, administrators, personal representatives, successors and assigns of the Parties hereto; provided, however, that no such heir, executor, administrator, personal representative, successor or assign of First Party shall have the right to use, alter or modify the encroachment in a manner which will increase the burden of the encroachment on the Easement.

IN WITNESS WHEREOF, the Parties have executed this Agreement on the day and year first above written.

BUYER/BORROWER, OWNER (First Party):

Signature: _____

~~President~~ Director of Land, KB Homes New Mexico, Inc.

PUBLIC SERVICE COMPANY OF NEW MEXICO

By: _____

PNM USE ONLY

STATE OF NEW MEXICO

COUNTY OF Bernalillo) SS

This instrument was acknowledged before me on June 4, 2003

by Edward W. Halpin

of the Public Service Company of New Mexico, a New Mexico corporation, for it's Electric Services Division on behalf of said corporation.

OFFICIAL SEAL
Douglas F. Hendren
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires:

Douglas F. Hendren
NOTARY PUBLIC

My Commission Expires: 6-22-2005

STATE OF NEW MEXICO

COUNTY OF Bernalillo) SS

This instrument was acknowledged before me on May 7 2003

by Greg Breedlove

Director of Land

~~President~~ KB Homes New Mexico, Inc.

OFFICIAL SEAL
KIMBERLY SWARTZ
NOTARY PUBLIC-STATE OF NEW MEXICO
My commission expires: 12/19/06

NOTARY PUBLIC

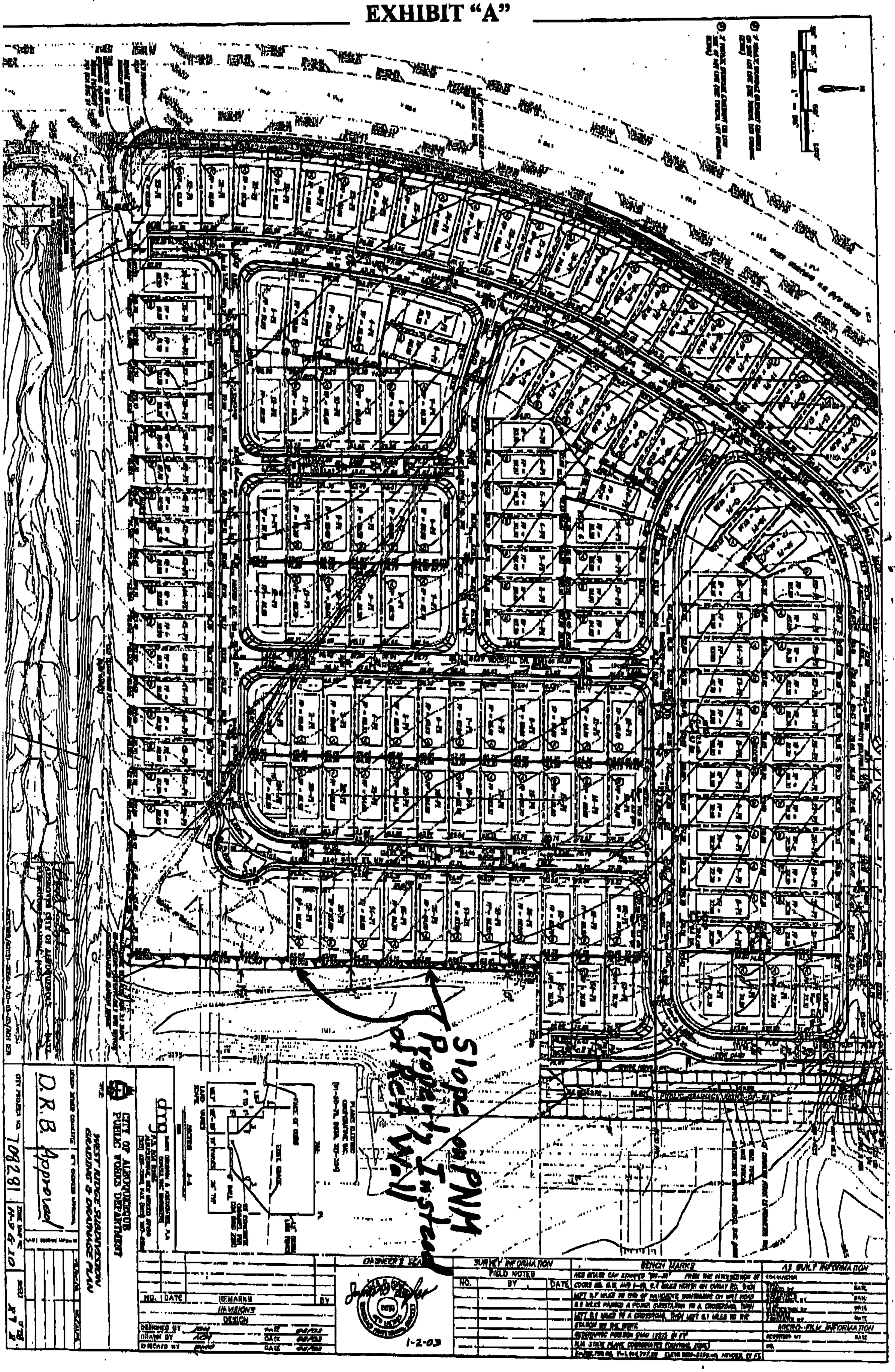
My Commission Expires: 12/19/06

FOR RECORDER'S USE ONLY

2003100589
588317
Page 2 of 3
08/12/2003 02:02P
Bk-A58 Pg-381

Mary Herrera Bern. Co. AGRE R 13.00

EXHIBIT "A"



2003100599
5003017
Page: 3 of 3
08/12/2003 02:02P
Bk-A58 Pg-391
Mary Herrera Bern. Co. AGRE R 13.00

PNM JOB NO. R3853

PNM Electric Services
Alvarado Square, Albuquerque, New Mexico 87158

EASEMENT ENCROACHMENT AGREEMENT

THIS INFORMATION TO BE PROVIDED BY TITLE COMPANY

This Easement Encroachment Agreement made this 2nd day of April, 2003

by and between (BUYER/BORROWER, OWNER) Westland Development Company

whose address is 401 Coors Boulevard, NW, Albuquerque, NM 87121

(hereinafter called "First Party"), (his) (her) (their) (its) heirs, successors and assigns, and PUBLIC SERVICE COMPANY OF NEW MEXICO, A New Mexico Corporation for it's Electric Services Division, (hereinafter called ("PNM") ("Parties").

WITNESSETH:

WHEREAS, PNM is the Grantee of a certain easement within the hereinafter described property.

WHEREAS, First Party desires to encroach upon the Easement as more particularly specified hereinafter, and WHEREAS, PNM has agreed to said encroachment: NOW THEREFORE, for and in consideration of the sum of One and No/100 ($1.00) DOLLAR, in hand paid, and other valuable consideration, the receipt of which is hereby acknowledged, PNM does hereby grant First Party the right to encroach upon the Easement only to the extent of, and for the purposes set forth below:

PNM USE ONLY FOR LEGAL DESCRIPTION

Encroachment of a street referred to as Twin Oaks Drive, NW within a sixty (60) foot wide easement situate in Section 10, T10N, R2E, NMPM, Bernalillo County, New Mexico. Said easement described in that document filed for record in the office of the County Clerk, Bernalillo County in Misc. Book 571A, page 394 through 400 on December 23, 1987. Said easement is shown on that Plat of EL RANCHO ATRISCO, PHASE II, Tract B-1 filed for record in the office of the County Clerk, Bernalillo County in Plat Book C-32, Page 185 on February 12, 1987.

Encroachment is more particularly shown on "Exhibit A" attached and made a part of this document.

By granting the aforesaid right to encroach PNM does not waive or relinquish any rights that it may have under or by reason of the Easement, including, but not limited to the right to build, rebuild, construct, reconstruct, locate, relocate, change, modify, renew, operate and maintain its electric lines (including underground lines), poles, guy wires and other electric equipment, fixtures and structures that are now located, or may in the future be located, through, on, within, or under the Easement. First Party, at its sole cost and expense, agrees to remove or relocate its encroachment upon the written request of PNM within 90 days of such written request. First Party appoints PNM its agent to accomplish said removal or relocation at First Party's expense if First Party fails to remove or relocate such encroachment within such time period.

Mary Herrera Bern. Co. EASE R 13.00 2003073852 Page: 1 of 3 05/02/2003 11:34A Bk-A55 Pg-3848

PNM 487 3/96

In consideration of PNM granting First Party the right to encroach upon the Easement, First Party hereby agrees to indemnify and hold harmless PNM, its agents and employees, from any and all claims whatsoever for personal injuries or damages to property when such injuries or damages directly or indirectly arise out of the existence, construction, maintenance, repair, condition, use or presence of the encroachment upon the Easement, regardless of the cause of said injuries or damages; provided, however, that notwithstanding anything to the contrary in this paragraph, First Party shall not be required to indemnify PNM for liability, claims, damages, losses or expenses, arising out of (a) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by PNM, or the agents or employees of PNM; or (b) the giving of or the failure to give directions or instructions by PNM, or the agents or employees of PNM, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

In consideration of PNM permitting First Party to encroach upon the Easement, First Party agrees that PNM shall not be responsible for any damage caused to facilities, equipment, structures or other property of First Party if damaged by reason of PNM's use of Easement.

First Party shall comply with all applicable laws, ordinances, rules and regulations enacted or promulgated by any federal, state or local governmental body having jurisdiction over First Party's encroachment.

The provisions hereof shall inure to the benefit of and bind the heirs, executors, administrators, personal representatives, successors and assigns of the Parties hereto; provided, however, that no such heir, executor, administrator, personal representative, successor or assign of First Party shall have the right to use, alter or modify the encroachment in a manner which will increase the burden of the encroachment on the Easement.

IN WITNESS WHEREOF, the Parties have executed this Agreement on the day and year first above written.

BUYER/BORROWER, OWNER (First Party):

Signature: Barbara Page, Pres & CEO

Westland Development Company

PUBLIC SERVICE COMPANY OF NEW MEXICO

By: _____

PNM USE ONLY

STATE OF NEW MEXICO

COUNTY OF Bernalillo) SS

This instrument was acknowledged before me on April 28, 2003

by Rob Roberts

of the Public Service Company of New Mexico, a New Mexico corporation, for it's Electric Services Division on behalf of said corporation

OFFICIAL SEAL
Douglas F. Hendren
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires:

Douglas F. Hendren
NOTARY PUBLIC

My Commission Expires: 6-22-2005

STATE OF NEW MEXICO

COUNTY OF Bernalillo) SS

This instrument was acknowledged before me on APRIL 8 2003

by BARBARA PAGE,

CEO President, Westland Development Company

Linda J. Blair
NOTARY PUBLIC

My Commission Expires:

My Commission Expires 8/5/05

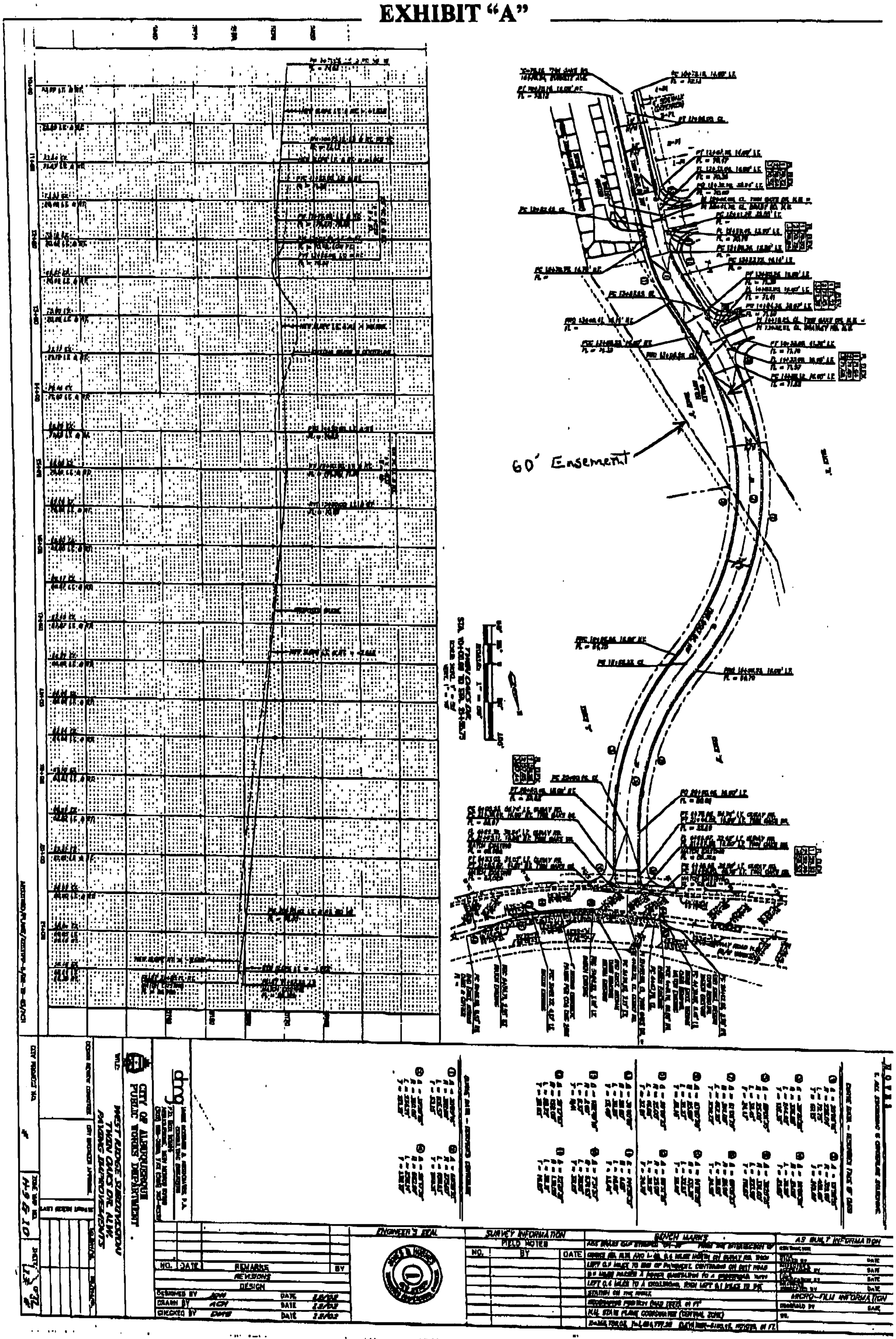
FOR RECORDER'S USE ONLY

2003073992
Page: 2 of 3
05/02/2003 11:34A
Bk-A55 Pg-3848

Mary Herrera Bern. Co. EASE R 13.00

PNM 467 3/96

EXHIBIT "A"



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Mary Herrera Bern. Co. EASE R 13.00

PNM JOB NO. R3853

PNM Electric Services
Alvarado Square, Albuquerque, New Mexico 87158

EASEMENT ENCROACHMENT AGREEMENT

THIS INFORMATION TO BE PROVIDED BY TITLE COMPANY

This Easement Encroachment Agreement made this 2nd day of April, 2003

by and between (BUYER/BORROWER, OWNER) KB Home New Mexico, Inc.

whose address is 4921 Alexander, NE, Suite B, Albuquerque, NM 87107

(hereinafter called "First Party"), (his) (her) (their) (its) heirs, successors and assigns, and PUBLIC SERVICE COMPANY OF NEW MEXICO. A New Mexico Corporation for it's Electric Services Division, (hereinafter called ("PNM") ("Parties").

WITNESSETH:

WHEREAS, PNM is the Grantee of a certain easement within the hereinafter described property.

WHEREAS, First Party desires to encroach upon the Easement as more particularly specified hereinafter, and WHEREAS, PNM has agreed to said encroachment; NOW THEREFORE, for and in consideration of the sum of One and No/100 ($1.00) DOLLAR, in hand paid, and other valuable consideration, the receipt of which is hereby acknowledged, PNM does hereby grant First Party the right to encroach upon the Easement only to the extent of, and for the purposes set forth below:

PNM USE ONLY FOR LEGAL DESCRIPTION

Encroachment of a ponding area within a sixty (60) foot wide easement situate in Section 10, T10N, R2E, NMPM, Bernalillo County, New Mexico. Said easement described in that document filed for record in the office of the County Clerk, Bernalillo County in Misc. Book 571A, page 394 through 400 on December 23, 1987. Said easement is shown on that Plat of EL RANCHO ATRISCO, PHASE II, Tract B-1 filed for record in the office of the County Clerk, Bernalillo County in Plat Book C-32, Page 185 on February 12, 1987.

Encroachment is more particularly shown on "Exhibit A" attached and made a part of this document.

By granting the aforesaid right to encroach PNM does not waive or relinquish any rights that it may have under or by reason of the Easement, including, but not limited to the right to build, rebuild, construct, reconstruct, locate, relocate, change, modify, renew, operate and maintain its electric lines (including underground lines), poles, guy wires and other electric equipment, fixtures and structures that are now located, or may in the future be located, through, on, within, or under the Easement. First Party, at its sole cost and expense, agrees to remove or relocate its encroachment upon the written request of PNM within 90 days of such written request. First Party appoints PNM its agent to accomplish said removal or relocation at First Party's expense if First Party fails to remove or relocate such encroachment within such time period.

2003073993
Page: 1 of 3
05/02/2003 11:34A
Bk-A55 Pg-3847
Mary Herrera Bern. Co. EASE R 13.00

In consideration of PNM granting First Party the right to encroach upon the Easement, First Party hereby agrees to indemnify and hold harmless PNM, its agents and employees, from any and all claims whatsoever for personal injuries or damages to property when such injuries or damages directly or indirectly arise out of the existence, construction, maintenance, repair, condition, use or presence of the encroachment upon the Easement, regardless of the cause of said injuries or damages; provided, however, that notwithstanding anything to the contrary in this paragraph, First Party shall not be required to indemnify PNM for liability, claims, damages, losses or expenses, arising out of (a) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by PNM, or the agents or employees of PNM; or (b) the giving of or the failure to give directions or instructions by PNM, or the agents or employees of PNM, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

In consideration of PNM permitting First Party to encroach upon the Easement, First Party agrees that PNM shall not be responsible for any damage caused to facilities, equipment, structures or other property of First Party if damaged by reason of PNM's use of Easement.

First Party shall comply with all applicable laws, ordinances, rules and regulations enacted or promulgated by any federal, state or local governmental body having jurisdiction over First Party's encroachment.

The provisions hereof shall inure to the benefit of and bind the heirs, executors, administrators, personal representatives, successors and assigns of the Parties hereto; provided, however, that no such heir, executor, administrator, personal representative, successor or assign of First Party shall have the right to use, alter or modify the encroachment in a manner which will increase the burden of the encroachment on the Easement.

IN WITNESS WHEREOF, the Parties have executed this Agreement on the day and year first above written.

BUYER/BORROWER, OWNER (First Party):

Signature: _____

KB Home New Mexico, Inc.

PUBLIC SERVICE COMPANY OF NEW MEXICO

By: _____

PNM USE ONLY

STATE OF NEW MEXICO

COUNTY OF Bernalillo } SS

This instrument was acknowledged before me on April 28, 2003,

by Rob Roberts

of the Public Service Company of New Mexico, a New Mexico corporation, for it's Electric Services Division on behalf of said corporation

OFFICIAL SEAL
Douglas F. Hendren
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires:

Douglas F. Hendren
NOTARY PUBLIC

My Commission Expires: 6-22-2005

STATE OF NEW MEXICO

COUNTY OF Bernalillo } SS

This instrument was acknowledged before me on April 16, 2003,

by Greg Breedlove,

President, KB Homes New Mexico, Inc.

Kimberly Swartz
NOTARY PUBLIC

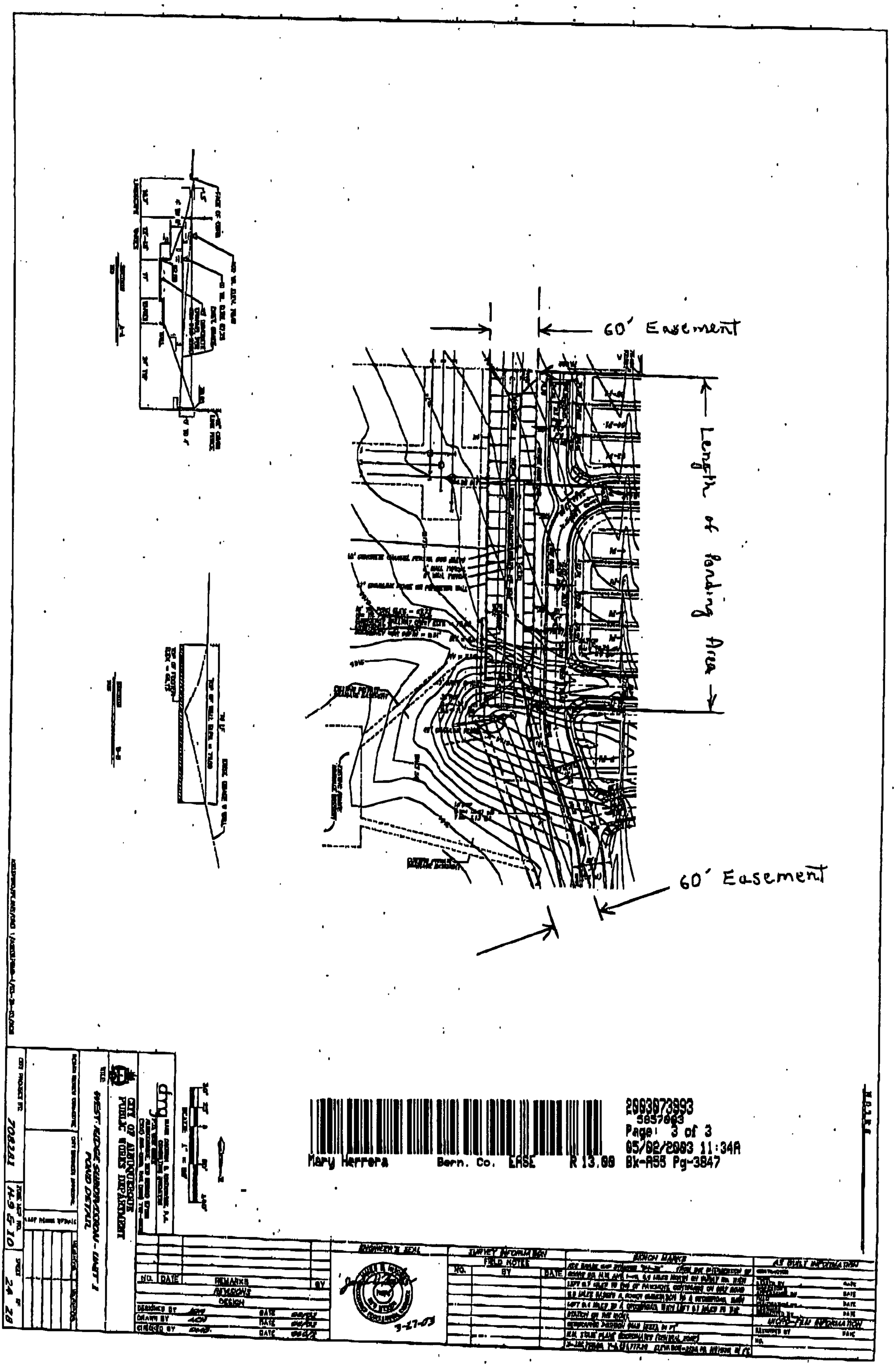
OFFICIAL SEAL
KIMBERLY SWARTZ
NOTARY PUBLIC-STATE OF NEW MEXICO
My commission expires: 12/19/06

My Commission Expires: 12/19/06

FOR RECORDER'S USE ONLY

Mary Herrera Bern. Co. EASE R 13.00 2003073893 5857003 Page: 2 of 3 05/02/2003 11:34A Bk-R55 Pg-3847

EXHIBIT "A"


60' Easement
Length of Ponding Area
60' Easement
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
WEST RIDGE SUBDIVISION - UNIT 1
POND DETAIL
ENGINEER'S SEAL
SURVEY INFORMATION
FIELD NOTES
BENCH MARKS
AS BUILT INFORMATION
MICRO-FILM INFORMATION
REMARKS
REVISIONS
DESIGN
DESIGNED BY
DRAWN BY
CHECKED BY
DATE
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BY
SHEET 24 OF 28
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Page: 3 of 3
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Mary Herrera Bern. Co. EASE R 13.00 Bk-A55 Pg-3847

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 8, 2003

James D Hughes, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

Re: West Ridge Subdivision Drainage Report
Engineer's Stamp dated 1-2-03 (H9/D16)

Dear Mr. Hughes,

Based upon the information provided in your submittal dated 1-6-03, the above referenced report is approved for Preliminary Plat action by the DRB. Upon approval by that board, please provide a mylar copy for my signature in order to obtain a Rough Grading Permit.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Planning Dept.
Development and Building Services

C: file

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV.1/11/2002)

H-9/D16

PROJECT TITLE: West Ridge Subdivision ZONE MAP/DRB.FILE#: ~~(H9/D16)~~,

DRB#: EPC# WORK ORDER#:

LEGAL DESCRIPTION:

CITY ADDRESS: Unser Blvd. between Old Ouray Rd. & New Ourary Rd.

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: James D. Hughes

ADDRESS: P.O. Box 90606 Albuquerque NM 87119 PHONE: 828-2200

CITY, STATE: Albuquerque NM ZIP CODE: 87199

OWNER: K.B. HOME New Mexico Inc. CONTACT: Greg Breedlove

ADDRESS: 4921 Alexander NE Suite B PHONE: 344-9400

CITY, STATE: Albuquerque, New Mexico ZIP CODE: 87107

ARCHITECT: CONTACT:

ADDRESS: PHONE:

CITY, STATE: ZIP CODE:

SURVEYOR: Aldrich Land Surveying CONTACT: Tim Alrdich

ADDRESS: P.O. Box 30701 PHONE: 884-1990

CITY, STATE: Albuquerque, NM 87190-0701 ZIP CODE:

CONTRACTOR: 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 (HYDROLOGY)
___ CLOMR/LOMR
___ TRAFFIC CIRCULATION LAYOUT (TCL)
___ ENGINEER'S CERTIFICATION (TCL)
___ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
___ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

___ SIA / FINANCIAL GUARANTY RELEASE
✔ 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 (PERM)
___ CERTIFICATE OF OCCUPANCY (TEMP)
✔ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ WORK ORDER APPROVAL
___ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

✔ YES Meeting is with Brad Bingham
___ NO
No COPY PROVIDED

DATE SUBMITTED: BY: James Hughes, PE

RECEIVED JAN 0 6 2003 HYDROLOGY SECTION

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of to the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5).
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5).
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

[redacted]

MARK GOODWIN & ASSOCIATES
CONSULTING ENGINEERS

DRAINAGE REPORT
for
WEST RIDGE SUBDIVISION

Prepared For

KB HOME New Mexico Inc.
4921 Alexander NE, Suite B
Albuquerque, NM 87107

Prepared By

Mark Goodwin & Associates, PA
PO Box 90606
Albuquerque, NM 87199

JAMES D. WITHEY
11674
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER

1-02-03

September 2002

Revision January 2003

TABLE OF CONTENTS

Report

- Cover Page
- Drainage Information Sheet
- Vicinity Map (A-11)
- Purpose
- Existing Conditions
- Proposed Management Plan
- Methodology

Calculations and Data

- Table 1 — Summary of Hydrology
- Table 2 — Street Drainage Capacities
- Basin Map (Fold Out)
- Capacity of Inlets
- AHYMO 100-Year Summary
- AHYMO 100-Year Detail Outpost
- Street Capacity Plate 22.3 D-1
- Grate Capacity Plate 22.3 D-6
- Chart 5 Head for Concrete Pipes Flowing Full

Attachments

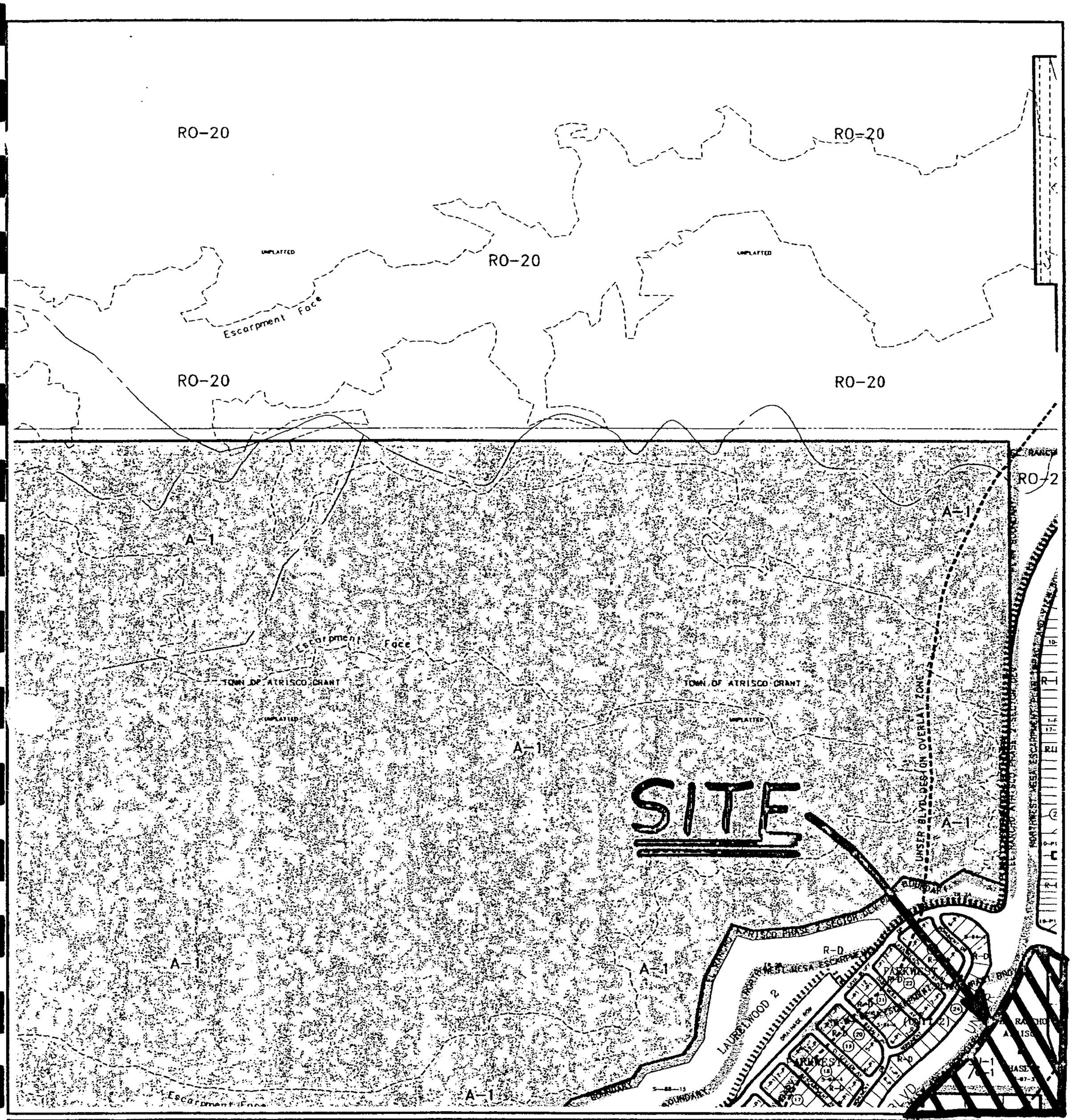
- Grading & Drainage Plan Sheets 1 and 2

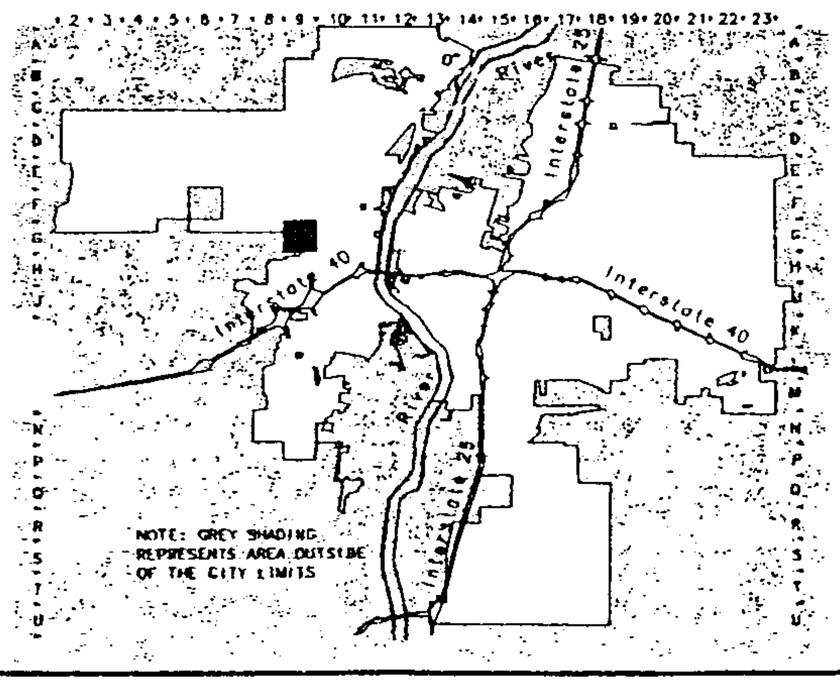
Appendix A

- May 1995 " Review of Results " Table — A-1
- AHYMO Summary — A-3
- Orifice Calculations — A-6
- AHYMO Detailed Output — A-8
- Pond Outlet Structure — A-58
- Concrete Pipe Culverts Flowing Full — A-59
- Storm Plus — A-60
- Duplicated Effective Storm Plus — A-68
- May 95 AHYMO Summary — A-79
- Offsite Basin Map — A-81
- Pond volume & Calculations — A-82

Map Pockets

- Parkwest Preliminary Basin Map
- Rinc Pointe Unit 1 & 2 Basin
- Ouray Rd. Profiles
- Twin Peak Dirve Profile





CITY OF
Albuquerque

Albuquerque Geographic Information System
PLANNING DEPARTMENT

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GRAPHIC SCALE IN FEET

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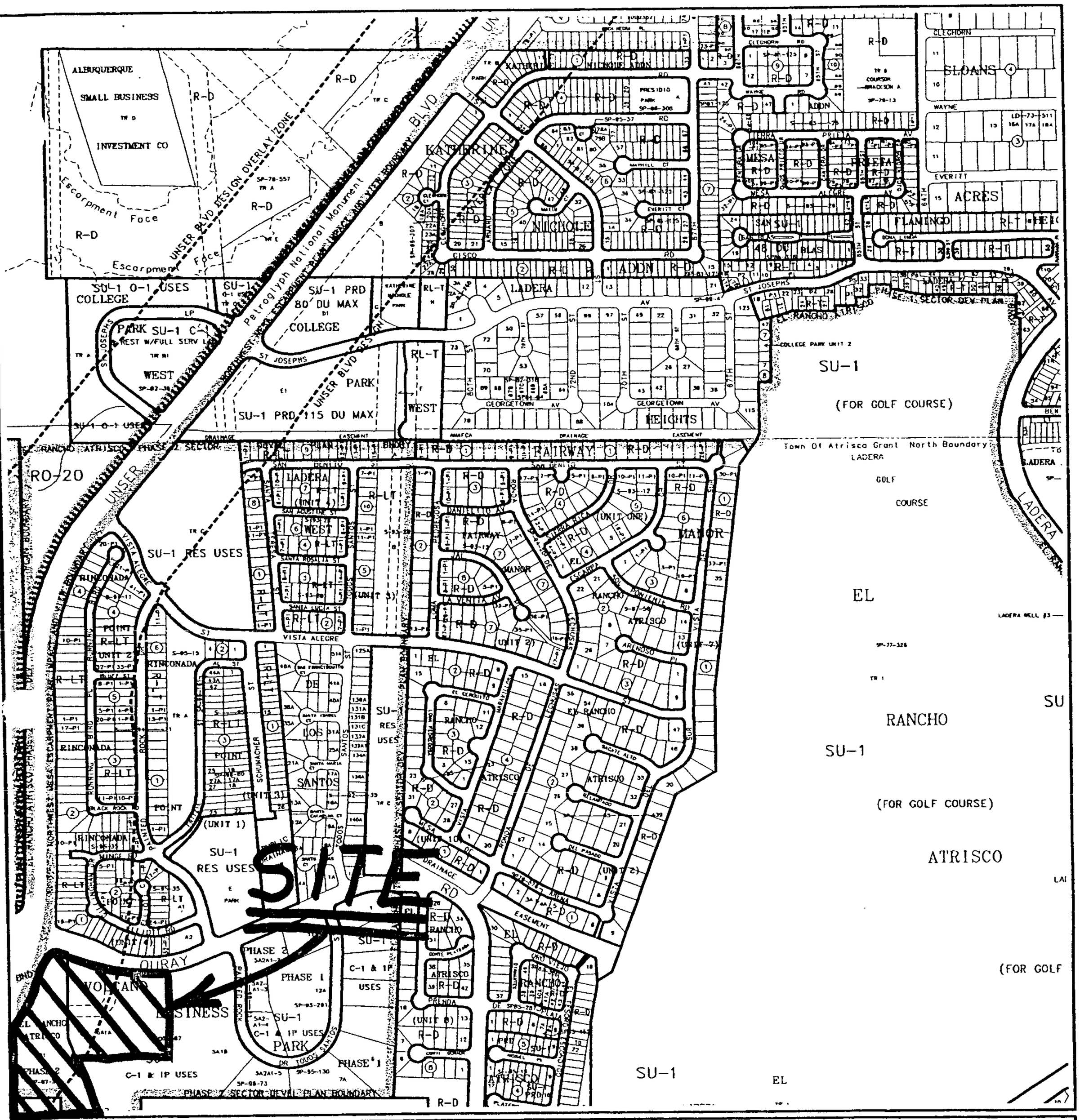
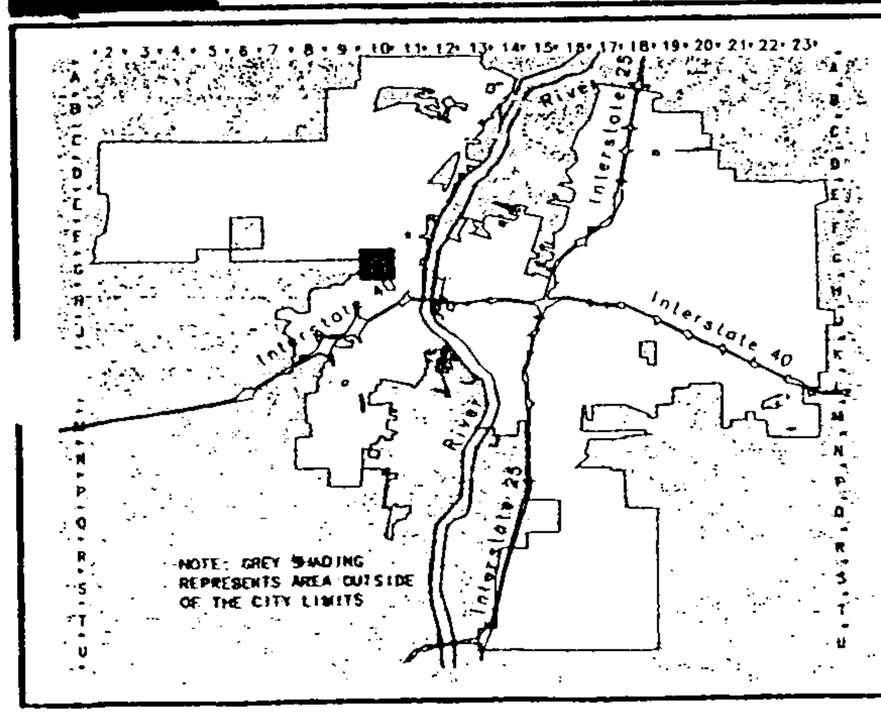
Zone Atlas Page

G-9-Z

Map Amended through April 03, 2002





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Zone Atlas Page

G-10-Z

Map Amended through April 03, 2002

Escarpment Face

Escarpment Face

A-1

Petroglyph National Monument

WESTLAND SECTOR DEV. PLAN BOUNDARY

COLLEGE ZONE ZW RESERVOIR SITE

SU-2 FOR PDA FOR RESIDENTIAL RESORT

WESTLAND NORTH

NORTHWEST MESA ESCARPMENT PLAN BOUNDARY

98TH ST

LAS LOMITAS (UNIT 2A)

LAS LOMITAS (UNIT 2B)

THE CROSSING

SU-2/R-LT

TIERRA PINTADA ST

TIERRA OESTE (UNIT 3)

UNSER BLVD DESIGN OVERLAY ZONE

INDUSTRIAL CENTER

SU-1 LIGHT INDUST

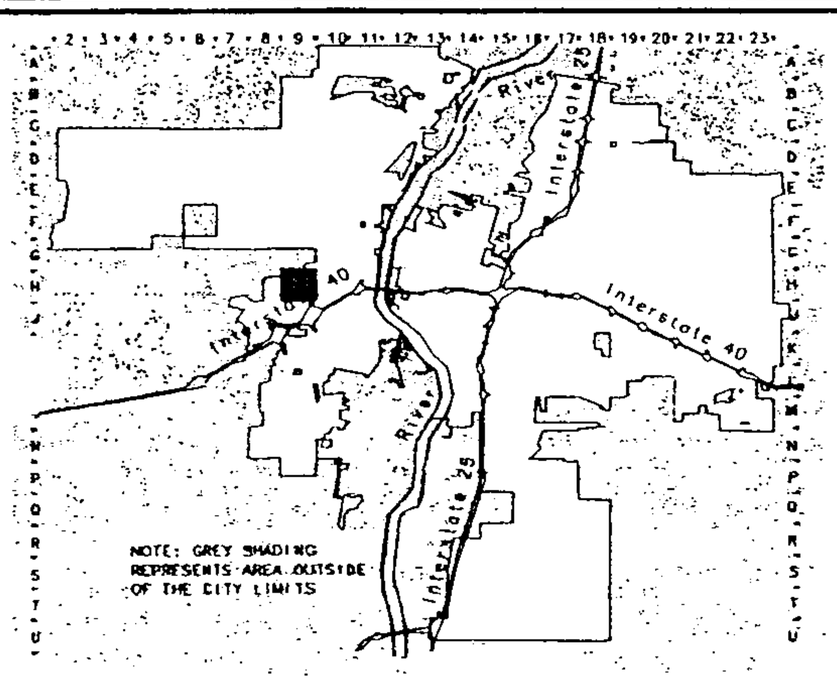
SU-1 FOR TRANSIT FACILITY

LADERA

EL RANCHO

R-D

SITE



CITY OF Albuquerque

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GRAPHIC SCALE IN FEET

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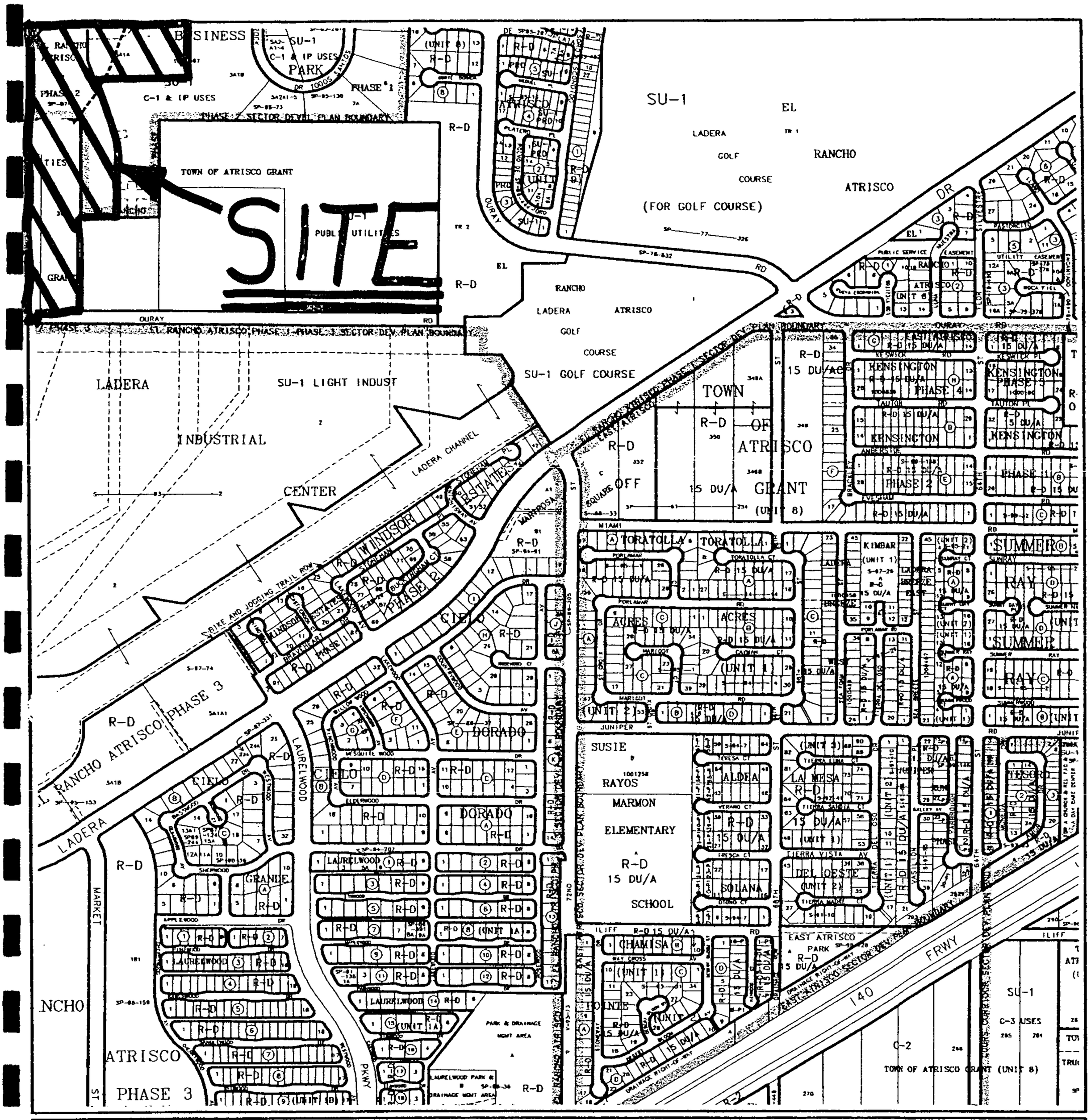
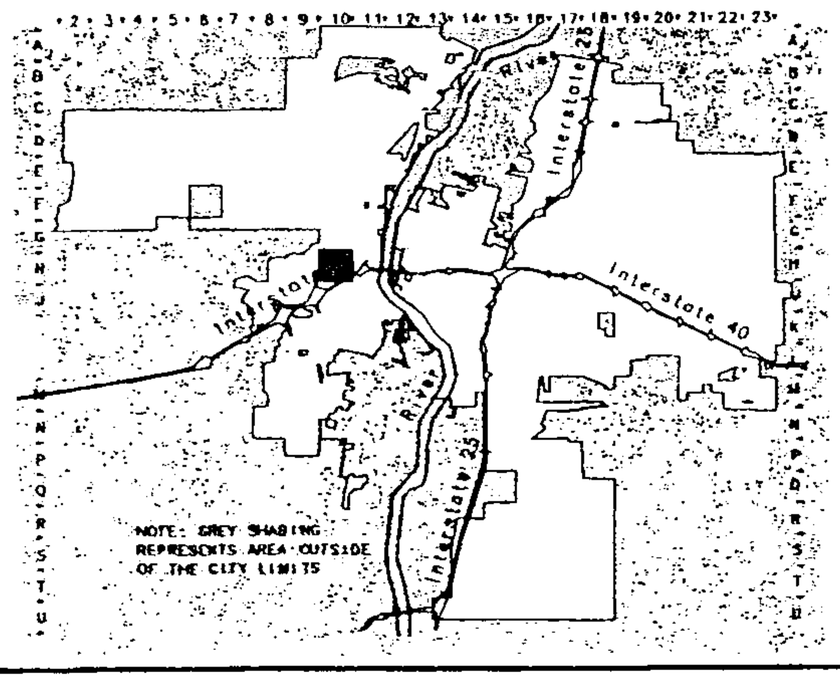
Zone Atlas Page

H-9-Z

Map Amended through April 03, 2002





CITY OF Albuquerque

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PLANNING DEPARTMENT

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GRAPHIC SCALE IN FEET

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Zone Atlas Page

H-10-Z

Map Amended through April 03, 2002

PURPOSE

The purpose of this report is to document the adequacy of the proposed drainage infrastructure as immediately proposed for the development of this 24 acre Residential Subdivision..

EXISTING CONDITIONS

This 24 acre site slopes from southwest to northeast at about 3%. Off-site drainage is prevented from entering the site on the west by Unser Blvd. and on the south by the Ladera Channel, an unlined AMAFCA facility and a private access driveway at the old Ouray Rd. location.

In 1985 both the residential portion of this site (24 acres) and the commercial parcels (11 acres) on the north side of this development were master planned to drain east through Volcano Business Park, by Easterling and Associates Inc. The 24 acres residential portion of this development was zoned for private commercial development until the recent zone change in 2002. The easements down stream of the residential portion of this development are private and the improvements in them do not meet public standards. In 1998 the commercial parcels (11 acres) on the north side of the development were master planned to drain north to New Ouray Rd. by Brasher & Lorenz Inc., in association with the development of Volcano Business Park Phase II, Tract 5A2-A1, Lots 1-6 as it exists today. In 2002 the grading and drainage plan for the "Expanded Area" of GE Capital Modular Space was approved but has not yet been constructed.

All of these Master plans propose limited discharge from ponds from all parts of this site. The 1998 Master plan refers to a separate report prepared by Community Sciences Corporation (CSC), and dated 8/17/95, for Rinconada Point Unit 3, and stated "that report identifies 42 cfs excess capacity in the Ouray Rd. 60" storm drain. However, "Rinconada Report only documented capacity for Rinconada Point, not for any portion of the 1998 Master Plan Drainage Area. While it appears from the 1995 CSC report that the 60" Storm drain has some excess capacity, the amount of the excess capacity has never been verified by any of these reports.

PROPOSED MANAGEMENT PLAN

The Appendix to this report verifies that the Ouray Rd. 60" Storm Sewer has capacity for both the 24 ac residential part and the commercial lots provided that the residential part is ponded onsite. This 24 acre residential development produces 87.06 cfs but will have limited discharge (12.61 cfs) through an on-site public detention pond into the existing 60" stormdrain in Ouray Rd. The remaining on-site commercial lots and public road (11.17acres) on the north side of this site will free discharge (47.48 cfs developed) also to the Ouray Road 60" storm sewer This project provides inlets and storm sewer to serve Twin Oaks Drive and peak flow from the commercial property west of Twin Oaks Drive. This report further demonstrates that the commercial property east of Twin Oaks Drive may free discharge developed drainage directly into the 60" Storm Sewer in Ouray Rd. without exceeding capacity there.

METHODOLOGY

On site drainage capacity of streets and inlets was determined in the 9-27-02 version of this report and remains essentially unchanged. Appendix A was added with the 01-02-03 revision to demonstrate capacity in the Ouray Rd. Storm sewer and to present the redesigned onsite pond and outfall pipe in Twin Oaks Drive. Both the hydrology (AHYMO) and the hydraulics (Storm Plus) from the May 1995 "LOMR Request for SAD-215 and Unser Blvd. " Case NO. 95-06-404P, were reproduced and then modified as follows.

1. *Basin, 114.02 and 116 in Rinconada Point developed at a lower density than planned in the May 95 report. Basin 116 does not drain to Ouray Rd. Instead it surface drains directly into the Rinconada Point Pond North of Ouray.*

2. *Basin 115 was developed at a lower density than planned in the May 95 report.*

3. *Onsite hydrology was inserted into the offsite hydrology and the pond grading and volume calculations were revised to accommodate a landscape buffer and flatter slopes in the pond.*

4. *The duplicated effective hydraulic model (Storm Plus) was modified with the new flows, and the segments in Twin Oaks Drive were added to the model.*

The new flows in Ouray Rd. Were nearly the same as they were in the May 1995 report because Rinconada Pointe (north of Ouray Rd.) Developed at much lower densities than planned. So the addition of the new flows from this development did not significantly change the HGL in Ouray Rd.

TABLE 1 - SUMMARY OF HYDROLOGY

(See Drainage Basin Map)

Description	Basin ID	Area Acres	Area Sq. Mi.	Land Treatment				Hr. T	100-YR Peak Flow	
				A	B	C	D		Inc. (cfs)	Cumm
On-site residential	1-12	24.00	0.03750	0	14	29	57	0.13	87.06	
On-site pond	33	0.72	0.00113	0	50	50	0	0.13	1.79	88.85 9.43(1)
Off-site Commercial	34	3.16	0.00494	0	0	10	90	0.13	13.44	17.14
On-site Commercial	20	5.12	0.00800	0	0	10	90	0.13	21.76	
On-site Commercial	21	1.57	0.00245	0	0	10	90	0.13	6.67	28.43
Twin Oaks	22	0.83	0.00130	0	0	10	90	0.13	3.55	31.98
On-site Commercial	23	3.65	0.00570	0	0	10	90	0.13	15.50	47.48

100 YEAR PRECIPITATION (From Figures D, E and F, and Eq. 28 of DPM 22.2)

P60=1.88", P_{360}= 2.22", P_{1440}=2.66", P_{10} days=10.0-[24.9/(2.665")$^{1.4}$] = 3.70"

(1) Peak flow after pond routing.

TABLE 2 - STREET DRAINAGE CAPACITIES

Basin No.	Area Ac.	% of Total	Flow		Curb Type/Slope	Flow Depth ft(1)	Velocity fps	Energy Depth ft (2)	Location
			Incr. (cfs)	Cumm. (cfs)					
100 Year Capacity in Local Streets									
1	3.68	15.33	13.35		roll 26' 2.38%	0.30	3.8	0.52	Kyle Rd. sta 14 +00
2	1.50	6.25	5.44		roll 26' 1.89%	0.23	2.7	0.34	Woodhill Dr. sta 12+50
3	0.77	3.21	2.79	21.58	std 26' 1.89%	0.43	4.0	0.68	Woodhill Dr. sta 15+00
4	2.15	8.96	7.80	29.38	std 28' 2.38%	0.62	3.9	0.86	Burkett Ave. sta 14+00
5	2.33	9.71	8.45		roll 26' 2.37%	0.26	3.3	0.43	Austin Ave. sta 17+00
6	3.38	14.08	12.26	20.71	std 28' 3.0%	0.40	4.4	0.70	Bixby St. sat 15+00
7	1.01	4.21	3.66	39.16(3)	std 28' 0.83%	0.68	4.2	0.95	Burkett Ave sta. 16+50
8	2.08	8.67	7.55		roll 28' 2.38%	0.26	3.3	0.43	Angel Dr. sta. 15+50
9	0.60	2.50	2.18	9.72	roll 28' 2.3%	0.27	3.3	0.44	Angel Dr. sta. 17+50
10	4.35	18.13	15.78	25.50	std 28' 2.48%	0.44	4.5	0.75	Brady Rd. sta. 12+15
11	1.24	5.17	4.50	27.46 (3)	std 28' 1.22%	0.50	3.9	0.74	Twin Oaks Dr. sta. 12+00
12	0.91	3.79	3.30	28.80	std 28 0.5%	0.25	1.6	0.29	Twin Oaks Dr. sta. 13+ 00
Total 1-12	24.00	100.00	87.06	56.26(3)					

Basin No.	Area Ac.	% of Total	Flow		Curb Type/Slope	Flow Depth ft(1)	Velocity fps	Energy Depth ft (2)	Location
			Incr. (cfs)	Cumm. (cfs)					
33	0.72	100.00	1.79	88.85					N/A
34	3.16	100.00	13.44	17.14					N/A
20	5.12	100.00	21.76						N/A
21	1.57	100.00	6.67	28.43					N/A
22	0.83	100.00	3.55	31.98	Std. 32' 2.02%	0.46	4.4	0.74	Twin Oaks Dr. sta 21+00
23	3.65	100.00	15.50	47.48					

(1) *Flow depths are taken from Plate 22.3 D-1 and 22.3 D-2 of the DPM and reduced by 3/4" for roll curb types to account for the differences in gutter depression. Allowable depths may not exceed curb heights which are 0.33' for roll curb and gutter, and 0.67' for standard curb and gutter.*

(2) *Energy depth is calculated as flow depth plus energy head. Allowable depths are 0.20' above top of curb.*

(3) *Flow reduced to account for inlet interception.*

Capacity of Inlets

Burkett Ave Station 14+00
Inlets # 1 & 2

Inlets #1 and # 2 are single grates on a 2.38% grade flowing at a depth of 0.46'. Each inlet intercepts 7.3 cfs where the approaching flow is 29.38 cfs leaving 14.78 cfs bypass flow which is joins by 24.38 cfs from basins 5, 6 and 7 for a total flow in Riley Ave. Just east of Sunset St. of 39.16 cfs.

Burkett Ave. Station 16 + 50
Inlets # 3 & 4

Inlets # 3 & 4 are single grates on a 0.83% grade flowing at a depth of 0.62'. Each inlet intercepts 8.1 cfs where the approaching flow is 39.16 cfs leaving 22.96 cfs. bypass flow which joins the 4.50 cfs from basin #11 for a total of 27.46 cfs flowing north in Sundance Drive, approaching the sump there.

Twin Oaks Drive Sump
Inlets # 5, 6 & 7

Capacity is measured by the weir equation at the lip of the gutter assuming an allowable ponding elevation equal to the lowest adjacent right-of-way elevations. The length of the double grate facing the street is 6.5'± and the depth is 0.745 at the lip of the gutter. The sides are each 2' long (4' total) and the average depth is 0.912". From the weir equation:

(Front) Q cap = 3.0 x 6.5 x 0.745'$^{1.5}$ = 12.54 cfs
(Sides) Q cap = 3.0 x 4.0' x 0.912$^{1.5}$ = 10.45 cfs
(Total) Q cap = 12.54 cfs + 10.45 cfs = 22.99 cfs

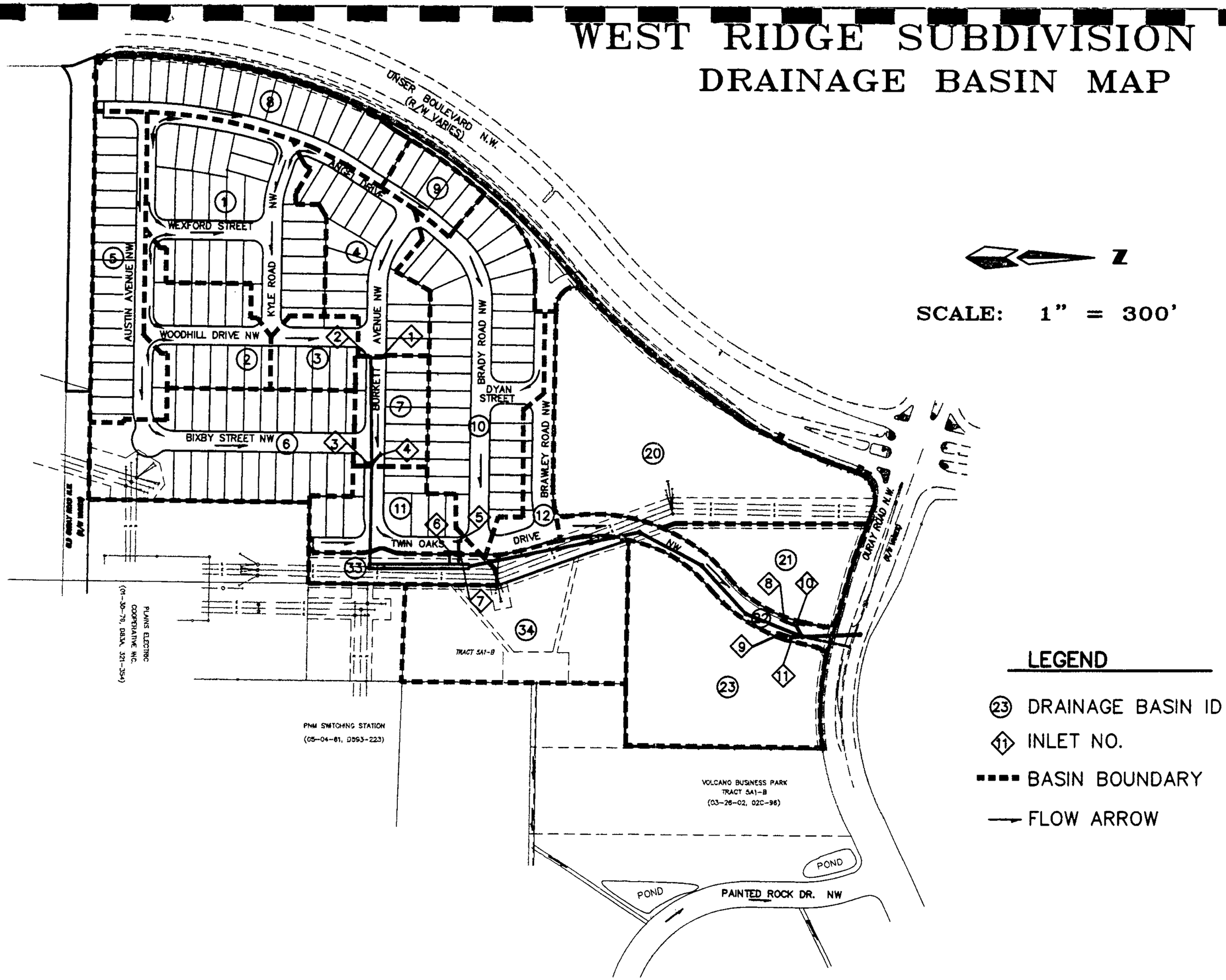
NOTE: these depths assume standard 8" curb with the right-of-way 9' behind the curb and 0.20 above the top of the curb.

The 100-year flow to the sump inlets 5, 6 , & 7 is 56.26 cfs. There are three sump inlets (inlets # 5, 6 & 7) with a combined capacity of 68.97 cfs thus providing a safety factor that would allow 18% of the inlets to clog without exceeding the normal design criteria. For HGL Calculations, each inlet is assumed to take one third of the 100-yr flow (18.75 cfs each). Emergency overflow goes into the pond.

Twin Oaks Drive at Ouray Road
Inlets #8, 9, 10 and 11

Inlets #8 and #9 are single grates on a 2.02% grade flowing at a depth of 0.46'. Each inlet intercepts 7.1 cfs where the approaching flow is 31.98 cfs, leaving 17.78 cfs bypass flow approaching the next pair of single grate inlets (#10 and #11) at 0.39' flow depth. Each inlet intercepts 5.0 cfs, leaving 7.78 cfs to flow into Ouray Rd. Additional inlets in OUray Rd. may be required in the future prior to any commercial development.

WEST RIDGE SUBDIVISION
DRAINAGE BASIN MAP



AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =09/13/2002
INPUT FILE = WR100.DAT USER NO.= M_GOODWN.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
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.220
COMPUTE NM HYD	1-12	-	1	.03750	87.06	3.024	1.51223	1.499	3.627	PER IMP= 57.00
COMPUTE NM HYD	33.00	-	2	.00113	1.79	.050	.82707	1.499	2.472	PER IMP= .00
ADD HYD	1-33	1& 2	3	.03863	88.85	3.074	1.49218	1.499	3.594	
ROUTE RESERVOIR	33POND	3	2	.03863	9.43	3.070	1.48986	2.164	.381	AC-FT= 2.319
COMPUTE NM HYD	34.00	-	1	.00494	13.44	.497	1.88719	1.499	4.251	PER IMP= 90.00
ADD HYD	1-34	1& 2	4	.04357	17.14	3.567	1.53490	1.532	.615	
COMPUTE NM HYD	20.00	-	1	.00800	21.76	.805	1.88719	1.499	4.249	PER IMP= 90.00
COMPUTE NM HYD	21.00	-	2	.00245	6.67	.247	1.88719	1.499	4.257	PER IMP= 90.00
ADD HYD	20-21	1& 2	3	.01045	28.43	1.052	1.88714	1.499	4.251	
COMPUTE NM HYD	22.00	-	1	.00130	3.55	.131	1.88719	1.499	4.266	PER IMP= 90.00
ADD HYD	20-22	1& 3	2	.01175	31.98	1.183	1.88712	1.499	4.252	
COMPUTE NM HYD	23.00	-	4	.00570	15.50	.574	1.88719	1.499	4.250	PER IMP= 90.00
ADD HYD	523.00	2& 4	1	.01745	47.48	1.756	1.88712	1.499	4.252	
FINISH										

AHYMO 100-YR SUMMARY

AHYMO 100-YR Input

```
START                   TIME=0.0
***** WEST RIDGE SUBDIVISION
***** 100-YEAR 6-HOUR STORM EVENT
***** SEPT 12, 2002
RAINFALL                TYPE=1 RAIN QUARTER=0.0 IN
                        RAIN ONE=1.88 IN RAIN SIX=2.22 IN
                        RAIN DAY=2.66 IN DT=0.0333 HR
COMPUTE NM HYD          ID=1 HYD NO=1-12 AREA=0.03750 SQ MI
                        PER A, B, C, & D 0 14 29 57
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=1 CODE=1
COMPUTE NM HYD          ID=2 HYD NO=33 AREA=0.00113 SQ MI
                        PER A, B, C, & D 0 50 50 0
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=2 CODE=1
ADD HYD                 ID=3 HYD NO=1-33 D=1 ID=2
PRINT HYD               ID=3 CODE=1
ROUTE RESERVOIR         ID=2 HYD NO=33POND INFLOW ID=3  CODE=3
                        OUTFLOW(CFS)    STORAGE(AC-FT)    ELEVATION(FT)
                        0               0                 63.6
                        .1              .02               64.0
                        1               .25               65.0
                        10              2.46              70.0
PRINT HYD               ID=2 CODE=1
COMPUTE NM HYD          ID=1 HYD NO=34 AREA=0.00494 SQ MI
                        PER A, B, C, & D 0 0 10 90
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=1 CODE=1
ADD HYD                 ID=4 HYD NO=1-34 ID=1 ID=2
PRINT HYD               ID=4 CODE=1
COMPUTE NM HYD          ID=1 HYD NO=20 AREA=0.00800 SQ MI
                        PER A, B, C, & D 0 0 10 90
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=1 CODE=1
COMPUTE NM HYD          ID=2 HYD NO=21 AREA=0.00245 SQ MI
                        PER A, B, C, & D 0 0 10 90
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=2 CODE=1
ADD HYD                 ID=3 HYD NO=20-21 ID=1 ID=2
PRINT HYD               ID=3 CODE=1
COMPUTE NM HYD          ID=1 HYD NO=22 AREA=0.00130 SQ MI
                        PER A, B, C, & D 0 0 10 90
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=1 CODE=1
ADD HYD                 ID=2 HYD NO=20-22 ID=1 ID=3
PRINT HYD               ID=2 CODE=1
COMPUTE NM HYD          ID=4 HYD NO=23 AREA=0.00570 SQ MI
                        PER A, B, C, & D 0 0 10 90
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=4 CODE=1
ADD HYD                 ID=1 HYD NO=523 ID=2 ID=4
PRINT HYD               ID=1 CODE=1
FINISH
```

```
AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
     RUN DATE (MON/DAY/YR) = 09/13/2002
     START TIME (HR:MIN:SEC) = 11:43:07     USER NO.= M_GOODWN.I01
     INPUT FILE = WR100.DAT

START                TIME=0.0
***** WEST RIDGE SUBDIVISION
***** 100-YEAR 6-HOUR STORM EVENT
***** SEPT 12, 2002
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.88 IN RAIN SIX=2.22 IN
                     RAIN DAY=2.66 IN DT=0.0333 HR

                COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                DT =     .033300 HOURS        END TIME =     5.994000 HOURS
                   .0000   .0017   .0035   .0053   .0071   .0089   .0109
                   .0128   .0148   .0169   .0190   .0211   .0233   .0256
                   .0280   .0304   .0329   .0354   .0381   .0408   .0437
                   .0466   .0497   .0529   .0562   .0596   .0633   .0670
                   .0710   .0753   .0797   .0849   .0904   .0963   .1086
                   .1367   .1800   .2423   .3274   .4394   .5824   .7604
                   .9779  1.1866  1.2723  1.3443  1.4084  1.4665  1.5201
                  1.5699  1.6163  1.6598  1.7008  1.7395  1.7760  1.8105
                  1.8433  1.8743  1.9038  1.9317  1.9583  1.9657  1.9715
                  1.9771  1.9824  1.9874  1.9923  1.9969  2.0014  2.0057
                  2.0099  2.0140  2.0179  2.0217  2.0254  2.0290  2.0325
                  2.0359  2.0392  2.0425  2.0456  2.0487  2.0518  2.0547
                  2.0576  2.0605  2.0633  2.0660  2.0687  2.0714  2.0740
                  2.0765  2.0790  2.0815  2.0839  2.0863  2.0887  2.0910
                  2.0933  2.0955  2.0978  2.1000  2.1021  2.1043  2.1064
                  2.1084  2.1105  2.1125  2.1145  2.1165  2.1185  2.1204
                  2.1223  2.1242  2.1261  2.1279  2.1297  2.1315  2.1333
                  2.1351  2.1369  2.1386  2.1403  2.1420  2.1437  2.1454
                  2.1470  2.1487  2.1503  2.1519  2.1535  2.1551  2.1566
                  2.1582  2.1597  2.1613  2.1628  2.1643  2.1658  2.1673
                  2.1687  2.1702  2.1716  2.1731  2.1745  2.1759  2.1773
                  2.1787  2.1801  2.1814  2.1828  2.1842  2.1855  2.1868
                  2.1882  2.1895  2.1908  2.1921  2.1934  2.1946  2.1959
                  2.1972  2.1984  2.1997  2.2009  2.2022  2.2034  2.2046
                  2.2058  2.2070  2.2082  2.2094  2.2106  2.2118  2.2129
                  2.2141  2.2152  2.2164  2.2175  2.2187  2.2198

COMPUTE NM HYD       ID=1 HYD NO=1-12 AREA=0.03750 SQ MI
                     PER A, B, C, & D 0 14 29 57
                     TP=0.1333 HR MASS RAINFALL=-1

    K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   84.390    CFS   UNIT VOLUME =    .9992       B =   526.28      P60 = 1.8800
    AREA =       .021375 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300


    K =    .114066HR    TP =    .133300HR    K/TP RATIO =    .855708     SHAPE CONSTANT, N =  4.157407
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```
    UNIT PEAK =   44.217    CFS   UNIT VOLUME =    1.000       B =   365.53      P60 = 1.8800
    AREA =       .016125 SQ MI    IA =    .39884 INCHES    INF =    .96674 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD           ID=1 CODE=1

                                        HYDROGRAPH FROM AREA 1-12


    RUNOFF VOLUME =     1.51223 INCHES     =       3.0244 ACRE-FEET
    PEAK DISCHARGE RATE =      87.06 CFS  AT   1.499 HOURS   BASIN AREA =   .0375 SQ. MI.


COMPUTE NM HYD      ID=2 HYD NO=33 AREA=0.00113 SQ MI
                    PER A, B, C, & D 0 50 50 0
                    TP=0.1333 HR MASS RAINFALL=-1

    K =   .118398HR    TP =   .133300HR    K/TP RATIO =   .888205     SHAPE CONSTANT, N =  3.993616
    UNIT PEAK =   3.0072    CFS   UNIT VOLUME =    .9962       B =   354.74      P60 = 1.8800
    AREA =       .001130 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD           ID=2 CODE=1

                                     OUTFLOW HYDROGRAPH REACH    33.00

    RUNOFF VOLUME =      .82707 INCHES     =        .0498 ACRE-FEET
    PEAK DISCHARGE RATE =       1.79 CFS  AT   1.499 HOURS   BASIN AREA =   .0011 SQ. MI.


ADD HYD             ID=3 HYD NO=1-33 D=1 ID=2
PRINT HYD           ID=3 CODE=1

                                        HYDROGRAPH FROM AREA 1-33


    RUNOFF VOLUME =     1.49218 INCHES     =       3.0743 ACRE-FEET
    PEAK DISCHARGE RATE =      88.85 CFS  AT   1.499 HOURS   BASIN AREA =   .0386 SQ. MI.


ROUTE RESERVOIR     ID=2 HYD NO=33POND INFLOW ID=3  CODE=3
                    OUTFLOW(CFS)   STORAGE(AC-FT)   ELEVATION(FT)
                    0              0                63.6
                    .1             .02              64.0
                    1              .25              65.0
                    10             2.46             70.0

  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *

    TIME      INFLOW    ELEV      VOLUME    OUTFLOW
```

(HRS)	(CFS)	(FEET)	(AC-FT)	(CFS)
.00	.00	63.60	.000	.00
.10	.00	63.60	.000	.00
.20	.00	63.60	.000	.00
.30	.00	63.60	.000	.00
.40	.00	63.60	.000	.00
.50	.00	63.60	.000	.00
.60	.00	63.60	.000	.00
.70	.00	63.60	.000	.00
.80	.00	63.60	.000	.00
.90	.00	63.60	.000	.00
1.00	.00	63.60	.000	.00
1.10	.00	63.60	.000	.00
1.20	1.28	63.65	.002	.01
1.30	12.46	64.13	.051	.22
1.40	45.46	65.03	.265	1.06
1.50	88.85	66.30	.827	3.35
1.60	63.62	67.70	1.442	5.85
1.70	40.32	68.52	1.805	7.33
1.80	29.36	69.01	2.024	8.22
1.90	22.74	69.34	2.167	8.81
2.00	17.98	69.55	2.260	9.18
2.10	12.93	69.67	2.313	9.40
2.20	6.98	69.67	2.315	9.41
2.30	4.59	69.60	2.284	9.28
2.40	3.40	69.50	2.241	9.11
2.50	2.57	69.39	2.191	8.90
2.60	1.99	69.27	2.137	8.68
2.70	1.57	69.14	2.081	8.46
2.80	1.27	69.01	2.024	8.22
2.90	1.04	68.88	1.966	7.99
3.00	.87	68.75	1.909	7.76
3.10	.73	68.63	1.853	7.53
3.20	.63	68.50	1.797	7.30
3.30	.57	68.38	1.743	7.08
3.40	.52	68.26	1.690	6.86
3.50	.48	68.14	1.638	6.65
3.60	.44	68.03	1.588	6.45
3.70	.42	67.92	1.539	6.25
3.80	.40	67.81	1.491	6.06
3.90	.39	67.70	1.445	5.87
4.00	.37	67.60	1.401	5.69
4.10	.37	67.51	1.358	5.51
4.20	.36	67.41	1.316	5.34
4.30	.36	67.32	1.275	5.18
4.40	.36	67.23	1.236	5.02
4.50	.35	67.15	1.198	4.86
4.60	.36	67.06	1.162	4.71
4.70	.36	66.98	1.126	4.57
4.80	.36	66.91	1.092	4.43
4.90	.37	66.83	1.059	4.30
5.00	.37	66.76	1.027	4.17
5.09	.38	66.69	.997	4.04

5.19	.38	66.62	.967	3.92
5.29	.39	66.56	.938	3.80
5.39	.39	66.49	.911	3.69
5.49	.40	66.43	.884	3.58

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
5.59	.41	66.38	.858	3.48
5.69	.42	66.32	.833	3.38
5.79	.43	66.27	.809	3.28
5.89	.44	66.21	.786	3.18
5.99	.45	66.16	.764	3.09
6.09	.35	66.11	.742	3.00
6.19	.13	66.06	.720	2.91
6.29	.06	66.01	.697	2.82
6.39	.04	65.96	.674	2.73
6.49	.02	65.91	.652	2.64
6.59	.01	65.86	.631	2.55
6.69	.01	65.82	.610	2.47
6.79	.01	65.77	.591	2.39
6.89	.00	65.73	.571	2.31
6.99	.00	65.68	.552	2.23
7.09	.00	65.64	.534	2.16
7.19	.00	65.60	.517	2.09
7.29	.00	65.57	.500	2.02
7.39	.00	65.53	.484	1.95
7.49	.00	65.49	.468	1.89
7.59	.00	65.46	.452	1.82
7.69	.00	65.42	.438	1.76
7.79	.00	65.39	.423	1.71
7.89	.00	65.36	.409	1.65
7.99	.00	65.33	.396	1.59
8.09	.00	65.30	.383	1.54
8.19	.00	65.27	.371	1.49
8.29	.00	65.25	.358	1.44
8.39	.00	65.22	.347	1.39
8.49	.00	65.19	.335	1.35
8.59	.00	65.17	.324	1.30
8.69	.00	65.14	.314	1.26
8.79	.00	65.12	.304	1.22
8.89	.00	65.10	.294	1.18
8.99	.00	65.08	.284	1.14
9.09	.00	65.06	.275	1.10
9.19	.00	65.04	.266	1.07
9.29	.00	65.02	.257	1.03
9.39	.00	65.00	.249	1.00
9.49	.00	64.96	.241	.96
9.59	.00	64.93	.233	.93
9.69	.00	64.89	.225	.90
9.79	.00	64.86	.218	.88
9.89	.00	64.83	.211	.85
9.99	.00	64.80	.204	.82
10.09	.00	64.77	.197	.79

10.19	.00	64.74	.191	.77
10.29	.00	64.72	.185	.74
10.39	.00	64.69	.179	.72
10.49	.00	64.66	.173	.70
10.59	.00	64.64	.167	.68
10.69	.00	64.62	.162	.65
10.79	.00	64.59	.156	.63
10.89	.00	64.57	.151	.61
10.99	.00	64.55	.146	.59
11.09	.00	64.53	.141	.58

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
11.19	.00	64.51	.137	.56
11.29	.00	64.49	.132	.54
11.39	.00	64.47	.128	.52
11.49	.00	64.45	.124	.51
11.59	.00	64.43	.119	.49
11.69	.00	64.42	.116	.47
11.79	.00	64.40	.112	.46
11.89	.00	64.38	.108	.44
11.99	.00	64.37	.104	.43
12.09	.00	64.35	.101	.42
12.19	.00	64.34	.097	.40
12.29	.00	64.32	.094	.39
12.39	.00	64.31	.091	.38
12.49	.00	64.30	.088	.37
12.59	.00	64.28	.085	.35
12.69	.00	64.27	.082	.34
12.79	.00	64.26	.079	.33
12.89	.00	64.25	.077	.32
12.99	.00	64.23	.074	.31
13.09	.00	64.22	.071	.30
13.19	.00	64.21	.069	.29
13.29	.00	64.20	.067	.28
13.39	.00	64.19	.064	.27
13.49	.00	64.18	.062	.26
13.59	.00	64.17	.060	.26
13.69	.00	64.16	.058	.25
13.79	.00	64.16	.056	.24
13.89	.00	64.15	.054	.23
13.99	.00	64.14	.052	.23
14.09	.00	64.13	.050	.22
14.19	.00	64.12	.048	.21
14.29	.00	64.12	.047	.20
14.39	.00	64.11	.045	.20
14.49	.00	64.10	.043	.19
14.59	.00	64.10	.042	.19
14.69	.00	64.09	.040	.18
14.79	.00	64.08	.039	.17
14.89	.00	64.08	.038	.17
14.99	.00	64.07	.036	.16
15.08	.00	64.06	.035	.16

15.18	.00	64.06	.034	.15
15.28	.00	64.05	.032	.15
15.38	.00	64.05	.031	.14
15.48	.00	64.04	.030	.14
15.58	.00	64.04	.029	.13
15.68	.00	64.03	.028	.13
15.78	.00	64.03	.027	.13
15.88	.00	64.02	.026	.12
15.98	.00	64.02	.025	.12
16.08	.00	64.02	.024	.11
16.18	.00	64.01	.023	.11
16.28	.00	64.01	.022	.11
16.38	.00	64.00	.021	.10
16.48	.00	64.00	.020	.10
16.58	.00	63.99	.019	.10
16.68	.00	63.97	.019	.09

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
16.78	.00	63.96	.018	.09
16.88	.00	63.94	.017	.09
16.98	.00	63.93	.016	.08
17.08	.00	63.91	.016	.08
17.18	.00	63.90	.015	.08
17.28	.00	63.89	.014	.07
17.38	.00	63.88	.014	.07
17.48	.00	63.87	.013	.07
17.58	.00	63.86	.013	.06
17.68	.00	63.85	.012	.06
17.78	.00	63.84	.012	.06
17.88	.00	63.83	.011	.06
17.98	.00	63.82	.011	.05
18.08	.00	63.81	.010	.05
18.18	.00	63.80	.010	.05
18.28	.00	63.79	.010	.05
18.38	.00	63.78	.009	.05
18.48	.00	63.78	.009	.04
18.58	.00	63.77	.008	.04
18.68	.00	63.76	.008	.04
18.78	.00	63.76	.008	.04
18.88	.00	63.75	.007	.04
18.98	.00	63.74	.007	.04
19.08	.00	63.74	.007	.03
19.18	.00	63.73	.007	.03
19.28	.00	63.73	.006	.03
19.38	.00	63.72	.006	.03
19.48	.00	63.72	.006	.03
19.58	.00	63.71	.006	.03
19.68	.00	63.71	.005	.03
19.78	.00	63.70	.005	.03
19.88	.00	63.70	.005	.02

PEAK DISCHARGE = 9.428 CFS - PEAK OCCURS AT HOUR 2.16
MAXIMUM WATER SURFACE ELEVATION = 69.682

```
MAXIMUM STORAGE =        2.3195 AC-FT      INCREMENTAL TIME=     .033300HRS

PRINT HYD            ID=2 CODE=1

                                    HYDROGRAPH FROM AREA 33POND

    RUNOFF VOLUME =     1.48986 INCHES     =       3.0695 ACRE-FEET
    PEAK DISCHARGE RATE =       9.43 CFS  AT   2.164 HOURS   BASIN AREA =   .0386 SQ. MI.


COMPUTE NM HYD       ID=1 HYD NO=34 AREA=0.00494 SQ MI
                     PER A, B, C, & D 0 0 10 90
                     TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   17.553    CFS   UNIT VOLUME =    .9987       B =   526.28      P60 = 1.8800
    AREA =      .004446 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


    K =   .105980HR    TP =   .133300HR    K/TP RATIO =   .795046     SHAPE CONSTANT, N =  4.509462
    UNIT PEAK =   1.4372    CFS   UNIT VOLUME =    .9917       B =   387.81      P60 = 1.8800
    AREA =      .000494 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD            ID=1 CODE=1

                                    OUTFLOW HYDROGRAPH REACH    34.00

    RUNOFF VOLUME =     1.88719 INCHES     =        .4972 ACRE-FEET
    PEAK DISCHARGE RATE =      13.44 CFS  AT   1.499 HOURS   BASIN AREA =   .0049 SQ. MI.


ADD HYD              ID=4 HYD NO=1-34 ID=1 ID=2
PRINT HYD            ID=4 CODE=1

                                    HYDROGRAPH FROM AREA 1-34

    RUNOFF VOLUME =     1.53490 INCHES     =       3.5667 ACRE-FEET
    PEAK DISCHARGE RATE =      17.14 CFS  AT   1.532 HOURS   BASIN AREA =   .0436 SQ. MI.


COMPUTE NM HYD       ID=1 HYD NO=20 AREA=0.00800 SQ MI
                     PER A, B, C, & D 0 0 10 90
                     TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   28.426    CFS   UNIT VOLUME =    .9990       B =   526.28      P60 = 1.8800
```

```
AREA =       .007200 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

K =   .105980HR    TP =   .133300HR    K/TP RATIO =   .795046     SHAPE CONSTANT, N =  4.509462
UNIT PEAK =   2.3274    CFS   UNIT VOLUME =    .9947       B =   387.81      P60 = 1.8800
AREA =       .000800 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD           ID=1 CODE=1

                                OUTFLOW HYDROGRAPH REACH    20.00

RUNOFF VOLUME =     1.88719 INCHES     =        .8052 ACRE-FEET
PEAK DISCHARGE RATE =      21.76 CFS  AT   1.499 HOURS   BASIN AREA =   .0080 SQ. MI.


COMPUTE NM HYD      ID=2 HYD NO=21 AREA=0.00245 SQ MI
                    PER A, B, C, & D 0 0 10 90
                    TP=0.1333 HR MASS RAINFALL=-1

K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
UNIT PEAK =   8.7055    CFS   UNIT VOLUME =    .9980       B =   526.28      P60 = 1.8800
AREA =       .002205 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

K =   .105980HR    TP =   .133300HR    K/TP RATIO =   .795046     SHAPE CONSTANT, N =  4.509462
UNIT PEAK =   .71278    CFS   UNIT VOLUME =    .9822       B =   387.81      P60 = 1.8800
AREA =       .000245 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD           ID=2 CODE=1

                                OUTFLOW HYDROGRAPH REACH    21.00

RUNOFF VOLUME =     1.88719 INCHES     =        .2466 ACRE-FEET
PEAK DISCHARGE RATE =       6.67 CFS  AT   1.499 HOURS   BASIN AREA =   .0025 SQ. MI.


ADD HYD             ID=3 HYD NO=20-21 ID=1 ID=2
PRINT HYD           ID=3 CODE=1

                                HYDROGRAPH FROM AREA 20-21

RUNOFF VOLUME =     1.88714 INCHES     =       1.0518 ACRE-FEET
PEAK DISCHARGE RATE =      28.43 CFS  AT   1.499 HOURS   BASIN AREA =   .0105 SQ. MI.
```

```
COMPUTE NM HYD       ID=1 HYD NO=22 AREA=0.00130 SQ MI
                     PER A, B, C, & D 0 0 10 90
                     TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   4.6192    CFS   UNIT VOLUME =    .9969       B =   526.28      P60 = 1.8800
    AREA =      .001170 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


    K =   .105980HR    TP =   .133300HR    K/TP RATIO =   .795046     SHAPE CONSTANT, N =  4.509462
    UNIT PEAK =   .37821    CFS   UNIT VOLUME =    .9662       B =   387.81      P60 = 1.8800
    AREA =      .000130 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD            ID=1 CODE=1

                                    OUTFLOW HYDROGRAPH REACH    22.00


    RUNOFF VOLUME =     1.88719 INCHES     =        .1308 ACRE-FEET
    PEAK DISCHARGE RATE =       3.55 CFS  AT   1.499 HOURS   BASIN AREA =   .0013 SQ. MI.


ADD HYD              ID=2 HYD NO=20-22 ID=1 ID=3
PRINT HYD            ID=2 CODE=1

                                    HYDROGRAPH FROM AREA 20-22


    RUNOFF VOLUME =     1.88712 INCHES     =       1.1826 ACRE-FEET
    PEAK DISCHARGE RATE =      31.98 CFS  AT   1.499 HOURS   BASIN AREA =   .0118 SQ. MI.


COMPUTE NM HYD       ID=4 HYD NO=23 AREA=0.00570 SQ MI
                     PER A, B, C, & D 0 0 10 90
                     TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   20.254    CFS   UNIT VOLUME =    .9988       B =   526.28      P60 = 1.8800
    AREA =      .005130 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


    K =   .105980HR    TP =   .133300HR    K/TP RATIO =   .795046     SHAPE CONSTANT, N =  4.509462
    UNIT PEAK =   1.6583    CFS   UNIT VOLUME =    .9925       B =   387.81      P60 = 1.8800
    AREA =      .000570 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD            ID=4 CODE=1

                                    OUTFLOW HYDROGRAPH REACH    23.00
```

```
    RUNOFF VOLUME =     1.88719 INCHES     =        .5737 ACRE-FEET
    PEAK DISCHARGE RATE =      15.50 CFS  AT   1.499 HOURS   BASIN AREA =   .0057 SQ. MI.


ADD HYD             ID=1 HYD NO=523 ID=2 ID=4
PRINT HYD           ID=1 CODE=1

                              OUTFLOW HYDROGRAPH RESERVOIR   523.00


    RUNOFF VOLUME =     1.88712 INCHES     =       1.7563 ACRE-FEET
    PEAK DISCHARGE RATE =      47.48 CFS  AT   1.499 HOURS   BASIN AREA =   .0175 SQ. MI.


FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 11:43:08
```

STREET CAPACITY

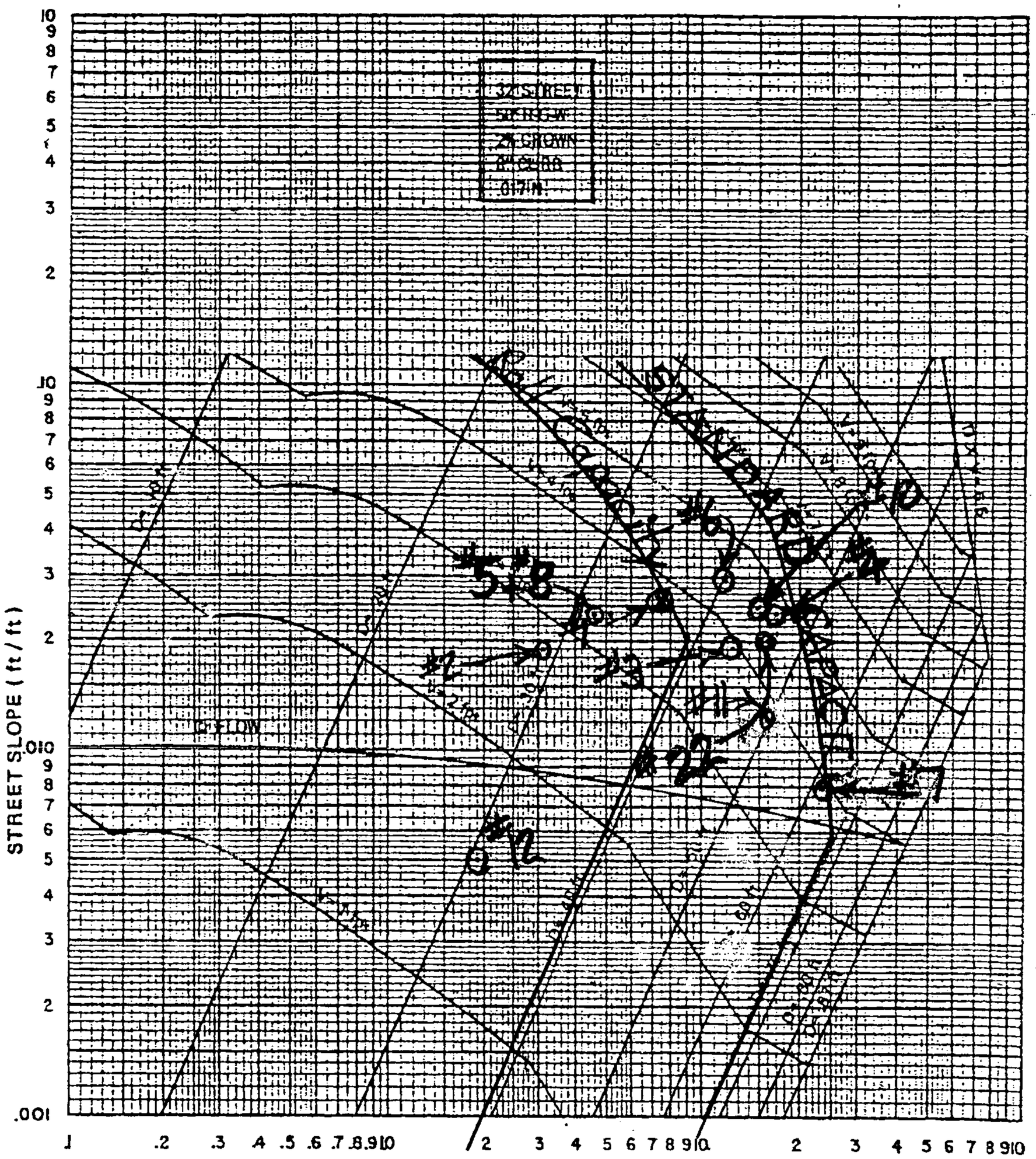
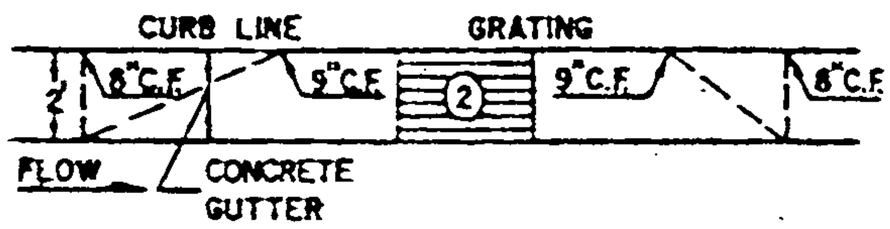


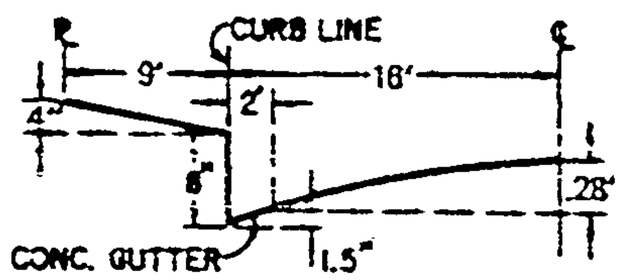
PLATE 22.3 D-1

Depths shown here are reduced by 3/4" for Roll Curb to account for different gutter Depression.

GRATING CAPACITIES FOR TYPE 'A', 'C' and 'D'



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

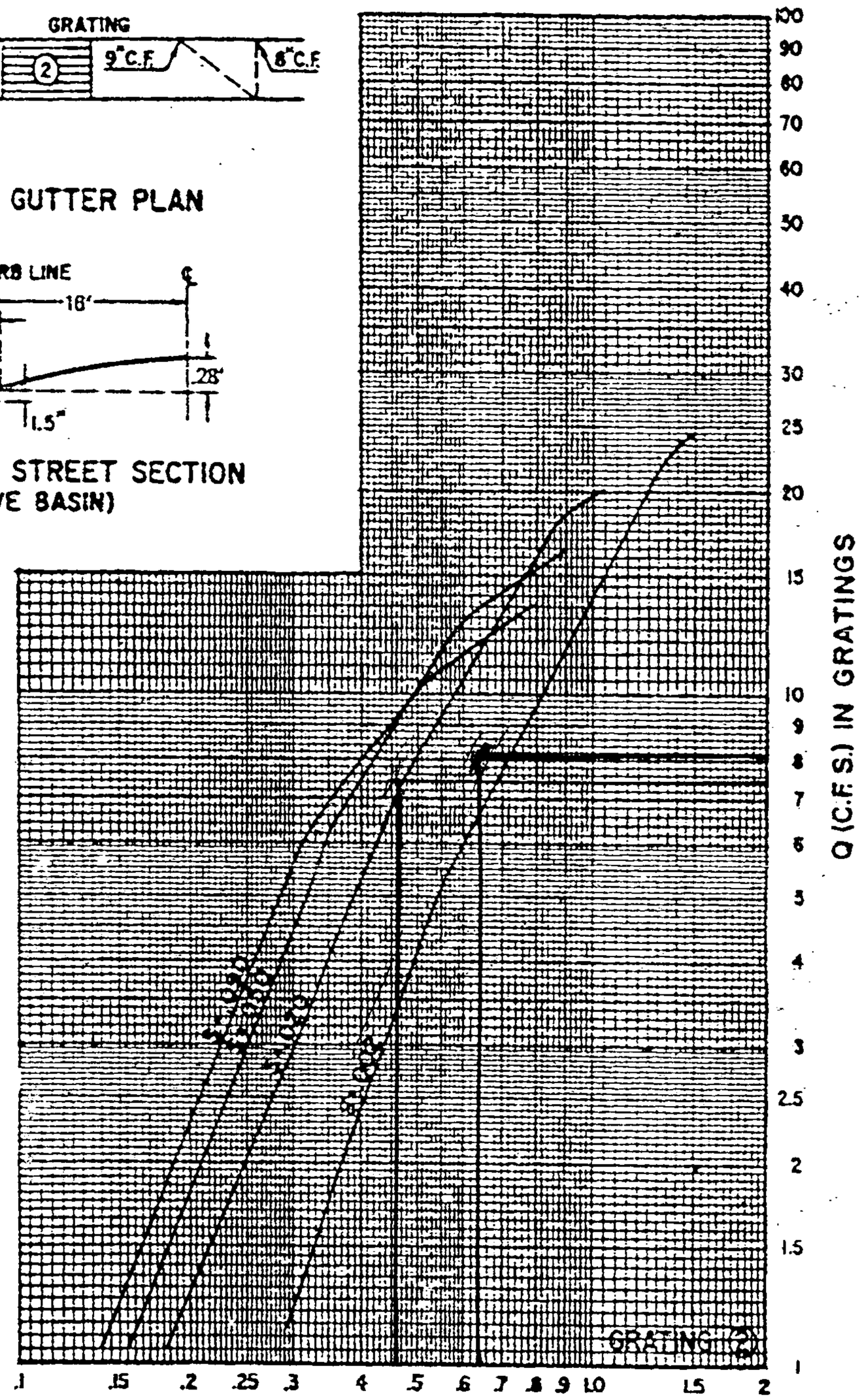
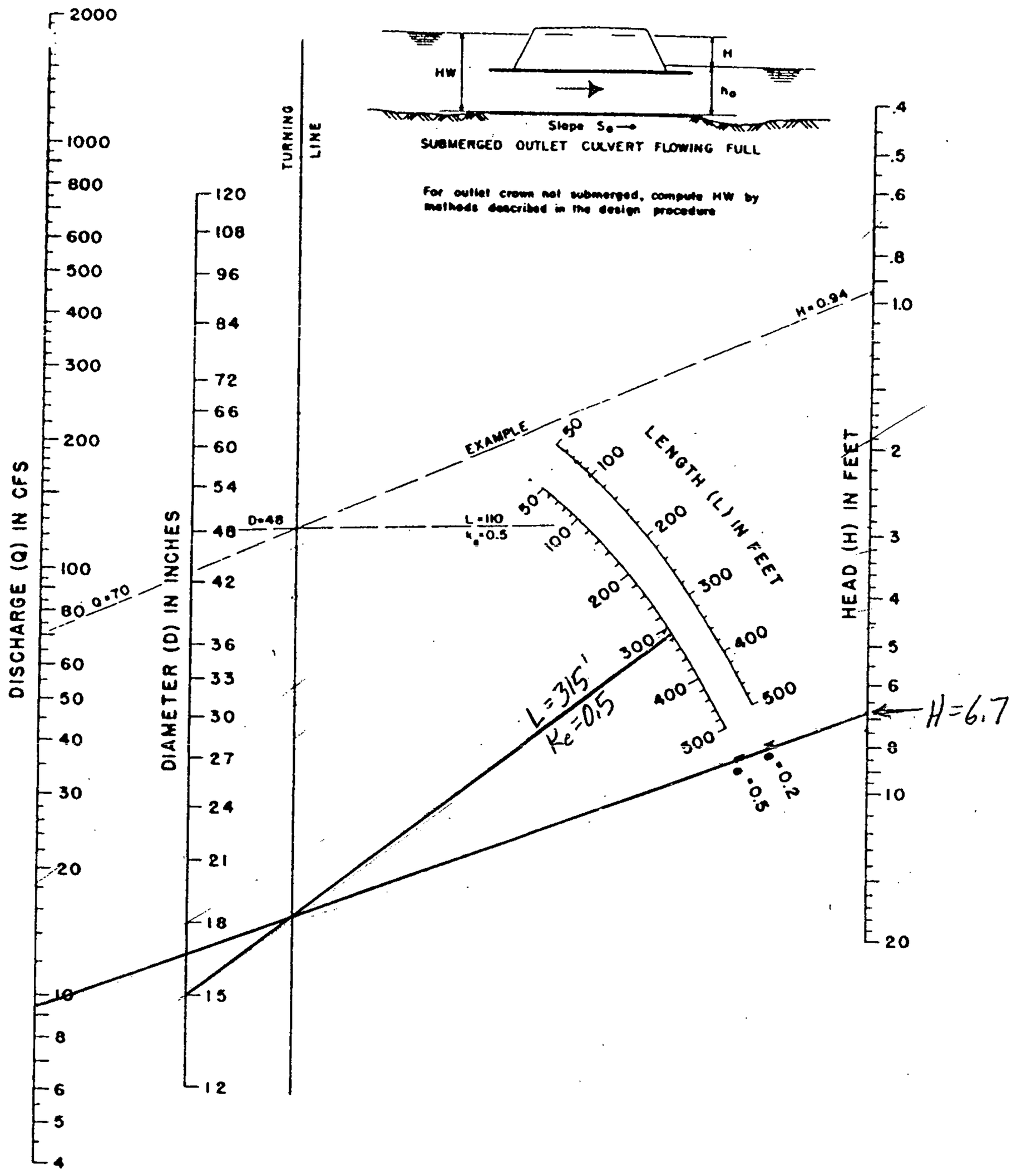


PLATE 22.3 D-5

CHART 5



BUREAU OF PUBLIC ROADS JAN. 1963

HEAD FOR
CONCRETE PIPE CULVERTS
FLOWING FULL
n = 0.012

May 1995

FORM 3 PART 4

REVIEW OF RESULTS
EXISTING CONDITIONS
FLOODPLAIN CONTRIBUTING BASINS

					LAND TREATMENT				INCREMENTAL	
Basin I.D.	Area (Sq.Mi.)	Contr. Basin	Sum Area (Sq.Mi.)	TC (Min.)	A	B	C	D	Q_{100} (CFS)	Q_{10} (CFS)
133.3	0.0370	---	0.0370	12	51.9	6.5	41.6	0	45.5	---
133.4	0.2550	---	0.2550	31.6	80	0	20	0	119.1	---

May 1995

FORM 3 PART 4

REVIEW OF RESULTS
FUTURE DEVELOPMENT CONDITIONS

					LAND TREATMENT				INCREMENTAL		FUTURE TOTAL	
Basin I.D.	Area (Sq.Mi.)	Contr. Basin	Sum Area (Sq.Mi.)	TC (Min.)	A	B	C	D	Q_{100} (CFS)	Q_{10} (CFS)	Q_{100} (CFS)	Q_{10} (CFS)
1.1002	.0045	---	---	12	0	21.5	21.5	57	10.21	6.14	10.21	6.14
101.01	.0028	101.02	.0073	12					6.36	3.82	16.56	9.96
102	.0025	101.01,02	.098	12	0	5	5	90	6.70	4.38	23.26	14.34
104	.0039	---	---	12	0	15	15	70	9.47	5.91	9.47	5.91
103	.006	104	.0099	12					14.57	9.09	24.04	15.01
104	.0039	---	---	12	0				9.47	5.91	9.47	5.91
105	.0088	104	.0127	12					21.36	13.33	30.84	19.25
106	.0023	104,5,6	.0150	12					5.60	3.49	36.43	22.74
102*	.0098	101,2,4,5,6	.0248	12	--	---	---	---	23.26	14.34	59.69	37.07
111.01	.0041	106*	.0289	12	0	15	15	70	9.96	6.22	69.65	43.29
112	.0076	---	---	12	0	5	5	90	20.33	13.30	20.33	13.30
111.02	.0053	112	.0129	12	0	15	15	70	12.87	8.03	33.20	21.33
111.01*	.0289	112,11.02,106*	.0148	12	--	---	---	---	69.65	43.29	102.85	64.62

113	.0086	---	---	12	0	21.5	21.5	57	19.49	11.72	19.49	11.72
111.01*	.0418	113	.0504	12	--	---	---	---	102.85	64.62	122.34	76.34
110	.0016	111.02*	.0537	12	0	21.5	21.5	57	3.94	2.46	126.29	78.80
109.01	.0035	111.02*,110	.0572	12	0	100	0	0	6.44	3.39	132.73	82.17
114.01	.0158	---	---	12	0	21.5	21.5	57	35.80	21.52	35.80	21.52
114.02	.0009	114.01	.0181	12	0	5	5	90	2.42	1.58	38.22	23.10
115	.0139	114.114.02	.032	12	0	5	5	90	37.17	24.31	75.39	47.42
116	.0080	---	---	12	0	93	0	7	11.15	4.70	11.15	4.70

AHYMO SUMMARY

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = WR100.DAT

RUN DATE (MON/DAY/YR) =12/23/2002
USER NO.= M_GOODWN.I01

PAGE = 1

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	NOTATION
										TIME= .00
START										RAIN6= 2.200
RAINFALL TYPE= 1										PER IMP= .00
COMPUTE NM HYD	133.30	-	7	.03700	45.50	1.263	.64008	1.532	1.921	AC-FT= .233
ROUTE RESERVOIR	POND.02	7	1	.03700	36.58	1.263	.64008	1.598	1.545	PER IMP= .00
COMPUTE NM HYD	133.40	-	8	.25500	119.11	7.104	.52233	1.732	.730	AC-FT= .697
ROUTE RESERVOIR	POND.01	8	2	.25500	112.49	7.104	.52233	1.832	.689	
ADD HYD	133.01	1& 2	9	.29200	130.70	8.367	.53725	1.765	.699	
COMPUTE NM HYD	132.11	-	10	.00930	11.54	.318	.64079	1.532	1.939	PER IMP= .00
SED WASH LOAD	132.11	10						WASH CONC.(PPM-w) =		42151
SEDIMENT TRANSP	132.11	10		SED ID = 3		PEAK CONC.(PPM-w) =	134621	TOTAL SED.(TONS) =		54.70
COMPUTE NM HYD	133.51	-	11	.06700	95.23	2.637	.73808	1.532	2.221	PER IMP= .00
SED WASH LOAD	133.51	11						WASH CONC.(PPM-w) =		32474
SEDIMENT TRANSP	133.51	11		SED ID = 4		PEAK CONC.(PPM-w) =	277285	TOTAL SED.(TONS) =		1033.94
ADD HYD	133.50	10&11	10	.07630	106.77	2.955	.72622	1.532	2.186	
COMPUTE NM HYD	133.52	-	11	.04850	68.88	1.909	.73808	1.532	2.219	PER IMP= .00
SED WASH LOAD	133.52	11						WASH CONC.(PPM-w) =		21674
SEDIMENT TRANSP	133.52	11		SED ID = 5		PEAK CONC.(PPM-w) =	264216	TOTAL SED.(TONS) =		692.68
ADD HYD	133.50	10&11	11	.12480	175.65	4.864	.73083	1.532	2.199	
COMPUTE NM HYD	115.00	-	15	.00190	4.10	.138	1.36302	1.499	3.370	PER IMP= 47.60
COMPUTE NM HYD	121.00	-	16	.00270	5.82	.196	1.36302	1.499	3.365	PER IMP= 47.60
ADD HYD	121.01	15&16	15	.00460	9.91	.334	1.36290	1.499	3.367	
COMPUTE NM HYD	122.00	-	16	.00090	2.42	.089	1.85049	1.499	4.204	PER IMP= 90.00
ADD HYD	121.01	15&16	15	.00550	12.33	.423	1.44263	1.499	3.504	
ADD HYD	122.01	11&15	11	.13030	187.62	5.288	.76088	1.499	2.250	
ROUTE RESERVOIR	133.50	11	12	.13030	4.46	4.807	.69177	2.498	.054	AC-FT= 4.772
ROUTE	133.51	12	5	.13030	4.46	4.802	.69094	2.498	.054	
COMPUTE NM HYD	123.00	-	15	.00220	5.90	.217	1.85049	1.499	4.189	PER IMP= 90.00
COMPUTE NM HYD	133.53	-	13	.00250	3.26	.089	.66738	1.532	2.036	PER IMP= .00
SED WASH LOAD	133.53	13						WASH CONC.(PPM-w) =		39613
ADD HYD	123.01	13&15	10	.00470	9.13	.306	1.22110	1.499	3.035	
COMPUTE NM HYD	133.54	-	14	.01730	22.38	.616	.66738	1.532	2.021	PER IMP= .00
SED WASH LOAD	133.54	14						WASH CONC.(PPM-w) =		8286
SEDIMENT TRANSP	133.54	14		SED ID = 5		PEAK CONC.(PPM-w) =	57448	TOTAL SED.(TONS) =		40.35
ADD HYD	123.02	10&14	15	.02200	31.32	.922	.78567	1.499	2.224	
COMPUTE NM HYD	124.00	-	16	.03110	66.82	2.261	1.36302	1.499	3.357	PER IMP= 47.60
ADD HYD	124.01	15&16	15	.05310	98.14	3.183	1.12381	1.499	2.888	
ADD HYD	124.02	5&15	12	.18340	100.29	7.984	.81627	1.499	.854	

A-3

COMPUTE NM HYD	133.20	-	15	.02100	56.15	2.073	1.85049	1.499	4.178	PER IMP=	90.00
ADD HYD	133.01	15& 9	14	.31300	156.08	10.439	.62536	1.598	.779		
ADD HYD	133.02	12&14	15	.49640	232.34	18.423	.69589	1.598	.731		
ROUTE	133.03	15	16	.49640	225.96	18.417	.69564	1.632	.711		
COMPUTE NM HYD	1-12	-	1	.03750	86.44	2.992	1.49599	1.499	3.602	PER IMP=	57.00
COMPUTE NM HYD	33.00	-	2	.00113	1.77	.049	.81578	1.499	2.446	PER IMP=	.00
ADD HYD	1-33	1& 2	3	.03863	88.21	3.041	1.47608	1.499	3.568		
ROUTE RESERVOIR	33POND	3	4	.03863	12.61	3.041	1.47608	2.098	.510	AC-FT=	2.015
COMPUTE NM HYD	34.00	-	1	.00494	13.36	.492	1.86834	1.499	4.226	PER IMP=	90.00
COMPUTE NM HYD	20.00	-	1	.00800	21.63	.797	1.86834	1.499	4.224	PER IMP=	90.00
COMPUTE NM HYD	21.00	-	2	.00245	6.63	.244	1.86834	1.499	4.231	PER IMP=	90.00
ADD HYD	20-21	1& 2	3	.01045	28.26	1.041	1.86828	1.499	4.226		

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	NOTATION
COMPUTE NM HYD	22.00	-	1	.00130	3.53	.130	1.86834	1.499	4.240	PER IMP= 90.00
ADD HYD	20-22	1& 3	2	.01175	31.79	1.171	1.86827	1.499	4.227	
ADD HYD	1-22	4& 2	5	.05038	40.51	4.212	1.56754	1.499	1.256	
ADD HYD	133.03	16& 5	14	.54678	256.92	22.629	.77598	1.598	.734	
COMPUTE NM HYD	23.00	-	4	.00570	15.41	.568	1.86834	1.499	4.225	PER IMP= 90.00
ADD HYD	523.00	14& 4	15	.55248	267.60	23.197	.78725	1.598	.757	
COMPUTE NM HYD	114.01	-	3	.01580	35.80	1.240	1.47109	1.499	3.540	PER IMP= 57.00
COMPUTE NM HYD	115.01	-	1	.00139	3.16	.109	1.47109	1.499	3.557	PER IMP= 57.00
ADD HYD	115.02	1& 3	2	.01719	38.96	1.349	1.47106	1.499	3.541	
ADD HYD	115.03	2&15	1	.56967	295.51	24.545	.80788	1.598	.811	
FINISH										

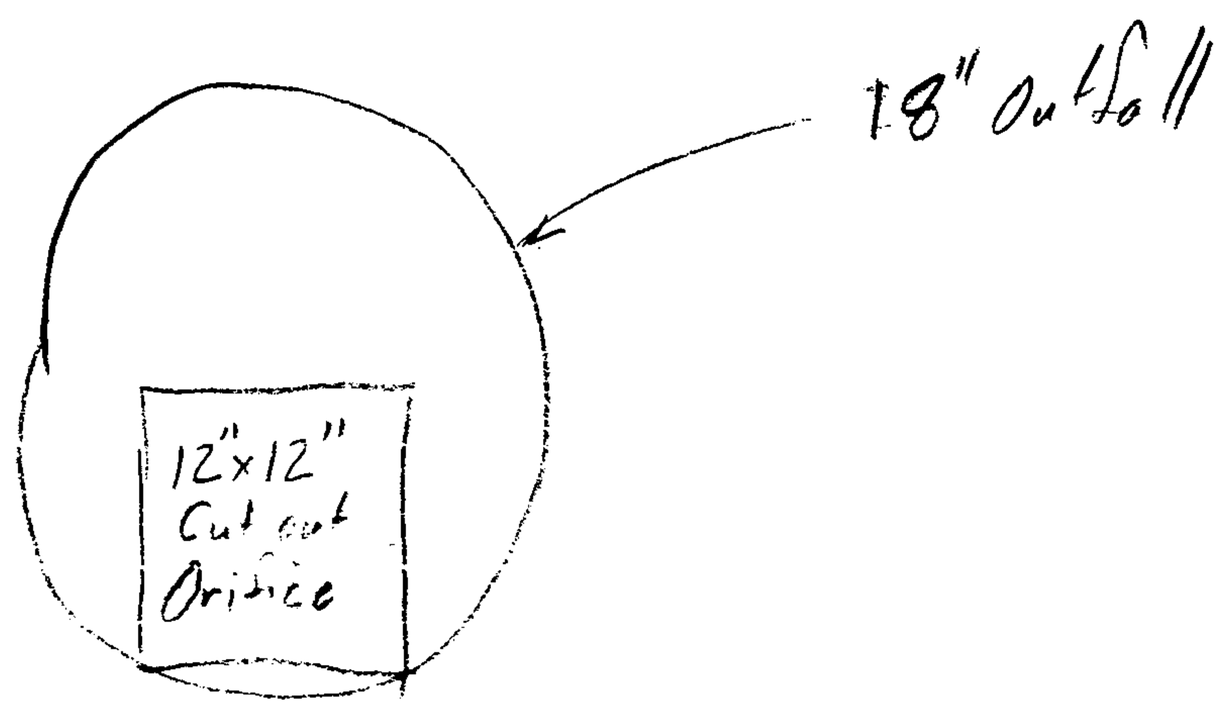
Outlet Structure File: WESTRIDG.STR

POND-2 Version: 4.01 S/N: 88020607
Date Executed: 12-23-2002 Time Executed: 13:38:22

Outflow Rating Table for Structure #01
ORIFICE Orifice - Based on Area and Datum Elevation

Elevation (ft)	Q (cfs)	Computation Messages
63.30	0.0	E < E1=63.8
63.80	0.0	H = 0.0
64.30	3.4	H = .5
64.50	4.0	H = .7
64.80	4.8	H = 1.0
65.00	5.3	H = 1.2
65.30	5.9	H = 1.5
65.80	6.8	H = 2.0
66.30	7.6	H = 2.5
66.50	7.9	H = 2.7
66.80	8.3	H = 3.0
67.30	9.0	H = 3.5
67.80	9.6	H = 4.0
68.30	10.2	H = 4.5
68.80	10.8	H = 5.0
69.30	11.3	H = 5.5
69.80	11.8	H = 6.0
70.30	12.3	H = 6.5
70.70	12.6	H = 6.9
70.80	12.7	H = 7.0
70.99	12.9	H = 7.19
71.00	0.0	E = or > E2=71.

C = .6 A = 1 sq.ft.
H (ft) = Table elev. - Datum elev. (63.8 ft)
Q (cfs) = C * A * sqr(2g * H)



Outlet Structure File: WESTRIDG.STR

POND-2 Version: 4.01 S/N: 88020607
Date Executed: 12-23-2002 Time Executed: 13:38:22

>>>>>> Structure No. 01 <<<<<<
(Input Data)

ORIFICE
Orifice - Based on Area and Datum Elevation

E1 elev.(ft)?	63.8
E2 elev.(ft)?	71.
Orifice coeff.?	.6
Invert elev.(ft)?	63.8
Datum elev.(ft) ?	63.8
Orifice area (sq ft)?	1.00

AHYMO DETAILED OUTPUT

```
AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
     RUN DATE (MON/DAY/YR) = 12/23/2002
     START TIME (HR:MIN:SEC) = 13:47:25     USER NO.= M_GOODWN.I01
     INPUT FILE = WR100.DAT

START                TIME=0.0
***** WEST RIDGE SUBDIVISION
***** 100-YEAR 6-HOUR STORM EVENT
***** SEPT 12, 2002
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                     RAIN DAY=2.66 IN DT=0.0333 HR

                COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                DT =     .033300 HOURS        END TIME =     5.994000 HOURS
                   .0000   .0016   .0033   .0050   .0067   .0085   .0103
                   .0121   .0140   .0160   .0180   .0200   .0221   .0243
                   .0265   .0288   .0312   .0336   .0361   .0387   .0414
                   .0442   .0471   .0501   .0533   .0566   .0600   .0636
                   .0674   .0714   .0757   .0808   .0863   .0922   .1044
                   .1323   .1754   .2374   .3221   .4335   .5756   .7527
                   .9690  1.1767  1.2619  1.3336  1.3972  1.4551  1.5084
                  1.5579  1.6041  1.6474  1.6881  1.7266  1.7629  1.7973
                  1.8298  1.8607  1.8900  1.9178  1.9442  1.9515  1.9573
                  1.9627  1.9680  1.9729  1.9777  1.9823  1.9867  1.9909
                  1.9950  1.9990  2.0029  2.0066  2.0102  2.0137  2.0172
                  2.0205  2.0238  2.0269  2.0300  2.0331  2.0360  2.0389
                  2.0418  2.0446  2.0473  2.0500  2.0526  2.0552  2.0578
                  2.0603  2.0627  2.0651  2.0675  2.0698  2.0721  2.0744
                  2.0766  2.0788  2.0810  2.0832  2.0853  2.0873  2.0894
                  2.0914  2.0934  2.0954  2.0974  2.0993  2.1012  2.1031
                  2.1050  2.1068  2.1086  2.1104  2.1122  2.1140  2.1157
                  2.1174  2.1191  2.1208  2.1225  2.1242  2.1258  2.1274
                  2.1290  2.1306  2.1322  2.1338  2.1353  2.1369  2.1384
                  2.1399  2.1414  2.1429  2.1444  2.1459  2.1473  2.1487
                  2.1502  2.1516  2.1530  2.1544  2.1558  2.1571  2.1585
                  2.1599  2.1612  2.1625  2.1639  2.1652  2.1665  2.1678
                  2.1691  2.1703  2.1716  2.1729  2.1741  2.1754  2.1766
                  2.1778  2.1791  2.1803  2.1815  2.1827  2.1839  2.1850
                  2.1862  2.1874  2.1886  2.1897  2.1909  2.1920  2.1931
                  2.1943  2.1954  2.1965  2.1976  2.1987  2.1998

COMPUTE NM HYD       ID=7 HYD NO=133.3 AREA=0.03700 SQ MI
```

```
                    PER A, B, C, & D 51.89 6.49 41.62 0.00
                    TP=0.1333 HR MASS RAINFALL=-1

    K =    .137499HR    TP =    .133300HR    K/TP RATIO =  1.031498     SHAPE CONSTANT, N =  3.422198
    UNIT PEAK =    87.325    CFS   UNIT VOLUME =    1.000       B =   314.61      P60 = 1.8700
    AREA =       .037000 SQ MI    IA =    .51540 INCHES    INF =   1.29313 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD           ID=7 CODE=1

                                  PARTIAL HYDROGRAPH   133.30


    RUNOFF VOLUME =       .64008 INCHES     =       1.2631 ACRE-FEET
    PEAK DISCHARGE RATE =      45.50 CFS  AT   1.532 HOURS   BASIN AREA =    .0370 SQ. MI.


ROUTE RESERVOIR     ID=1 HYD NO=POND.02 INFLOW ID=7  CODE=5
                    OUTFLOW(CFS)    STORAGE(AC-FT)    ELEVATION(FT)
                    0.0             0.0               77.4
                    0.8             0.01              77.9
                    1.9             0.01              78.4
                    2.9             0.01              78.9
                    3.8             0.03              79.4
                    4.5             0.03              79.6
                    5.7             0.05              79.9
                    13.8            0.07              80.4
                    18.6            0.11              80.9
                    29.             0.16              81.4
                    35.9            0.22              81.9
                    40.2            0.30              82.4
                    44.1            0.41              82.9
                    44.8            0.43              83.0

 *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *

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

     .00        .00      77.40       .000        .00
     .17        .00      77.40       .000        .00
     .33        .00      77.40       .000        .00
     .50        .00      77.40       .000        .00
```

.67	.00	77.40	.000	.00
.83	.00	77.40	.000	.00
1.00	.00	77.40	.000	.00
1.17	.00	77.40	.000	.00
1.33	.78	77.45	.001	.08
1.50	44.97	81.41	.161	29.12
1.67	26.03	81.80	.208	34.48
1.83	8.69	80.61	.087	15.78
2.00	4.17	79.83	.046	5.44
2.16	2.70	79.33	.027	3.67
2.33	1.80	78.95	.012	2.98
2.50	1.20	78.15	.010	1.34
2.66	.80	77.89	.010	.79
2.83	.54	77.83	.009	.69
3.00	.36	77.72	.006	.51
3.16	.24	77.63	.005	.36
3.33	.16	77.55	.003	.25
3.50	.11	77.50	.002	.17
3.66	.07	77.47	.001	.11
3.83	.05	77.45	.001	.08
4.00	.03	77.43	.001	.05
4.16	.02	77.42	.000	.03
4.33	.01	77.41	.000	.02
4.50	.01	77.41	.000	.01
4.66	.00	77.41	.000	.01
4.83	.00	77.40	.000	.00

```
PEAK DISCHARGE =        36.581 CFS - PEAK OCCURS AT HOUR    1.60
MAXIMUM WATER SURFACE ELEVATION =        81.979
MAXIMUM STORAGE =          .2327 AC-FT      INCREMENTAL TIME=     .033300HRS

PRINT HYD            ID=1 CODE=1

                                    HYDROGRAPH FROM AREA POND.02


   RUNOFF VOLUME =       .64008 INCHES      =       1.2631 ACRE-FEET
   PEAK DISCHARGE RATE =      36.58 CFS  AT   1.598 HOURS   BASIN AREA =   .0370 SQ. MI.


COMPUTE NM HYD       ID=8 HYD NO=133.4 AREA=0.2550 SQ MI
                     PER A, B, C, & D 80 0 20 0
                     TP=0.3518 HR MASS RAINFALL=-1
```

K = .352269HR TP = .351800HR K/TP RATIO = 1.001334 SHAPE CONSTANT, N = 3.525551
UNIT PEAK = 233.54 CFS UNIT VOLUME = 1.000 B = 322.19 P60 = 1.8700
AREA = .255000 SQ MI IA = .59000 INCHES INF = 1.50200 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=7 CODE=1

PARTIAL HYDROGRAPH 133.30

RUNOFF VOLUME = .64008 INCHES = 1.2631 ACRE-FEET
PEAK DISCHARGE RATE = 45.50 CFS AT 1.532 HOURS BASIN AREA = .0370 SQ. MI.

ROUTE RESERVOIR ID=2 HYD NO=POND.01 INFLOW ID=8 CODE=5

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0	0.0	63.00
1.2	0.01	63.50
3.2	0.01	64.00
5.3	0.02	64.50
7.4	0.04	65.00
9.4	0.07	65.50
10.9	0.12	66.00
12.0	0.17	66.50
12.6	0.24	67.00
13.4	0.27	67.50
14.3	0.28	68.00
15.2	0.32	68.50
79.9	0.41	69.00
87.2	0.52	69.50
104.1	0.65	70.00
129.2	0.79	70.50
159.8	0.96	71.00
188.3	1.14	71.50
202.1	1.33	72.00
214.9	1.55	72.50
226.7	1.78	73.00
237.9	2.04	73.50
248.6	2.32	74.00
258.7	2.65	74.50
268.4	2.95	75.00

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	63.00	.000	.00
.17	.00	63.00	.000	.00
.33	.00	63.00	.000	.00
.50	.00	63.00	.000	.00
.67	.00	63.00	.000	.00
.83	.00	63.00	.000	.00
1.00	.00	63.00	.000	.00
1.17	.00	63.00	.000	.00
1.33	.00	63.00	.000	.00
1.50	42.07	66.01	.121	10.91
1.67	111.70	69.51	.522	87.46
1.83	111.16	70.17	.697	112.49
2.00	76.41	69.66	.561	92.58
2.16	47.81	68.77	.369	50.21
2.33	29.80	68.62	.342	31.30
2.50	18.58	68.53	.326	19.51
2.66	11.96	68.34	.307	14.90
2.83	9.86	67.34	.260	13.14
3.00	8.42	66.80	.212	12.36
3.16	7.20	66.33	.153	11.62
3.33	6.15	65.74	.094	10.13
3.50	5.25	65.12	.047	7.86
3.66	4.49	64.56	.023	5.57
3.83	3.83	64.22	.014	4.11
4.00	3.27	64.06	.011	3.46
4.16	2.80	63.90	.010	2.79
4.33	2.39	63.80	.010	2.39
4.50	2.04	63.71	.010	2.04
4.66	1.74	63.64	.010	1.74
4.83	1.49	63.57	.010	1.49
5.00	1.27	63.52	.010	1.27
5.16	1.09	63.48	.010	1.16
5.33	.93	63.42	.008	1.02
5.49	.79	63.36	.007	.87
5.66	.68	63.31	.006	.75
5.83	.58	63.27	.005	.64
5.99	.49	63.23	.005	.55
6.16	.42	63.19	.004	.47
6.33	.36	63.17	.003	.40
6.49	.31	63.14	.003	.34
6.66	.26	63.12	.002	.29

6.83	.22	63.10	.002	.25
6.99	.19	63.09	.002	.21
7.16	.16	63.08	.002	.18
7.33	.14	63.06	.001	.15
7.49	.12	63.06	.001	.13
7.66	.10	63.05	.001	.11
7.83	.09	63.04	.001	.10
7.99	.07	63.03	.001	.08
8.16	.06	63.03	.001	.07
8.33	.05	63.03	.001	.06
8.49	.05	63.02	.000	.05
8.66	.04	63.02	.000	.04
8.82	.03	63.02	.000	.04
8.99	.03	63.01	.000	.03
9.16	.02	63.01	.000	.03

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
9.32	.02	63.01	.000	.02
9.49	.02	63.01	.000	.02
9.66	.02	63.01	.000	.02
9.82	.01	63.01	.000	.01
9.99	.01	63.01	.000	.01
10.16	.01	63.00	.000	.01
10.32	.01	63.00	.000	.01
10.49	.01	63.00	.000	.01
10.66	.01	63.00	.000	.01
10.82	.00	63.00	.000	.01
10.99	.00	63.00	.000	.00

PEAK DISCHARGE = 112.492 CFS - PEAK OCCURS AT HOUR 1.83
MAXIMUM WATER SURFACE ELEVATION = 70.167
MAXIMUM STORAGE = .6968 AC-FT INCREMENTAL TIME= .033300HRS

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA POND.01

RUNOFF VOLUME = .52233 INCHES = 7.1037 ACRE-FEET
PEAK DISCHARGE RATE = 112.49 CFS AT 1.832 HOURS BASIN AREA = .2550 SQ. MI.

```
ADD HYD              ID=9 HYD NO=133.01 ID=1 ID=2
PRINT HYD            ID=9 CODE=1

                                PARTIAL HYDROGRAPH   133.01


    RUNOFF VOLUME =       .53725 INCHES      =        8.3668 ACRE-FEET
    PEAK DISCHARGE RATE =     130.70 CFS  AT   1.765 HOURS   BASIN AREA =   .2920 SQ. MI.


COMPUTE NM HYD       ID=10 HYD NO=132.11 AREA=0.00930 SQ MI
                     PER A, B, C, & D 30 50 20 0
                     TP=0.1333 HR MASS RAINFALL=-1

    K =   .135774HR    TP =   .133300HR    K/TP RATIO =  1.018563     SHAPE CONSTANT, N =  3.465582
    UNIT PEAK =   22.173    CFS   UNIT VOLUME =    .9997       B =   317.81      P60 = 1.8700
    AREA =       .009300 SQ MI    IA =    .51500 INCHES    INF =   1.29200 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD            ID=10 CODE=1

                                PARTIAL HYDROGRAPH   132.11


    RUNOFF VOLUME =       .64079 INCHES      =         .3178 ACRE-FEET
    PEAK DISCHARGE RATE =      11.54 CFS  AT   1.532 HOURS   BASIN AREA =   .0093 SQ. MI.


SED WASH LOAD        ID=10 K=0.17 C=0.25
                     P=1.0 LS=0.758
                     IMPERVIOUS=0.0 FACTOR=3.0
         SEDIMENT YIELD (Wash Mat.) =       19.0 (TONS)   WASH LOAD CONCENTRATION =      42151 (ppm-w)
         PERCENTAGE IMPERVIOUS AREA =       .000          WASH LOAD FACTOR =    3.00000

SEDIMENT TRANS       ID=10 IDS=3 CODE=1
                     A=0.0002 B=4.19 C=0.19 D=-2.55
                     NUMB WASH=-1 NUMB SECTIONS=9
                     FLOW    VELOCITY     WIDTH
                     (CFS)     (FPS)       (FT)
                      1.0       2.06       4.06
                      2.0       2.46       5.26
                      3.0       2.73       6.11
```

4.0	2.93	6.82
6.0	3.25	7.92
8.0	3.48	8.85
10.0	3.67	9.62
12.0	3.84	10.30
14.0	3.99	10.92

Use wash load from SED WASH LOAD command - Concentration = 42151 (PPM-w)

* * * * * * * * * * * * * * * *

TIME (HRS)	WATER FLOW (CFS)	VELOCITY (FT/SEC)	HYD. DEPTH (FT)	WIDTH (FT)	WASHLOAD CONC. (PPM-w)	BED MAT. TRANSPORT (CFS)	BED CONC. (PPM-w)	TOTAL CONC. (PPM-w)	BULKING FACTOR	ACCUM. SEDIMENT (TONS)
.000	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.033	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.067	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.100	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.133	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.167	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.200	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.233	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.266	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.300	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.333	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.366	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.400	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.433	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.466	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.500	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.533	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.566	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.599	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.633	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.666	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.699	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.733	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.766	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.799	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.833	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.866	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.899	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.932	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
.966	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00

.999	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
1.032	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
1.066	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
1.099	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
1.132	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
1.166	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
1.199	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
1.232	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
1.265	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
1.299	.00	.000	.000	.00	42151.	.00	0.	42151.	1.0000	.00
1.332	.19	1.369	.065	2.20	42151.	.00	14574.	55531.	1.0222	.04
1.365	1.20	2.168	.129	4.30	42151.	.02	35445.	74719.	1.0305	.41
1.399	3.50	2.838	.191	6.46	42151.	.08	59335.	96726.	1.0404	1.81
1.432	6.79	3.350	.245	8.29	42151.	.22	80505.	116264.	1.0496	5.15
1.465	9.81	3.654	.281	9.55	42151.	.38	93509.	128282.	1.0555	10.55
1.499	11.41	3.793	.298	10.10	42151.	.48	99878.	134174.	1.0585	17.16
1.532	11.54	3.804	.299	10.14	42151.	.49	100362.	134622.	1.0587	23.88
1.565	10.66	3.730	.290	9.85	42151.	.43	96956.	131470.	1.0571	29.91
1.598	9.31	3.610	.276	9.36	42151.	.35	91591.	126509.	1.0547	34.96
1.632	7.87	3.468	.258	8.79	42151.	.28	85513.	120891.	1.0519	39.01
1.665	6.55	3.321	.241	8.18	42151.	.21	79284.	115136.	1.0491	42.20
1.698	5.37	3.164	.224	7.57	42151.	.16	72626.	108988.	1.0462	44.65
1.732	4.33	2.994	.207	7.00	42151.	.11	65544.	102453.	1.0431	46.50
1.765	3.45	2.829	.190	6.43	42151.	.08	58976.	96395.	1.0403	47.88
1.798	2.73	2.668	.174	5.88	42151.	.06	52870.	90766.	1.0377	48.90
1.832	2.17	2.514	.160	5.40	42151.	.04	47192.	85535.	1.0353	49.66

TIME (HRS)	WATER FLOW (CFS)	VELOCITY (FT/SEC)	HYD. DEPTH (FT)	WIDTH (FT)	WASHLOAD CONC. (PPM-w)	BED MAT. TRANSPORT (CFS)	BED CONC. (PPM-w)	TOTAL CONC. (PPM-w)	BULKING FACTOR	ACCUM. SEDIMENT (TONS)
1.865	1.76	2.390	.148	4.97	42151.	.03	42811.	81500.	1.0335	50.24
1.898	1.49	2.294	.140	4.65	42151.	.02	39563.	78509.	1.0322	50.72
1.931	1.30	2.217	.133	4.43	42151.	.02	37017.	76167.	1.0311	51.12
1.965	1.16	2.148	.127	4.25	42151.	.02	34798.	74124.	1.0302	51.47
1.998	1.04	2.085	.122	4.11	42151.	.01	32838.	72321.	1.0294	51.77
2.031	.95	2.035	.117	3.96	42151.	.01	31343.	70946.	1.0288	52.04
2.065	.86	1.994	.114	3.81	42151.	.01	30140.	69839.	1.0283	52.28
2.098	.79	1.954	.110	3.68	42151.	.01	28998.	68788.	1.0279	52.50
2.131	.73	1.915	.107	3.56	42151.	.01	27896.	67775.	1.0274	52.70
2.164	.67	1.876	.104	3.45	42151.	.01	26817.	66783.	1.0270	52.88
2.198	.62	1.837	.101	3.35	42151.	.01	25750.	65801.	1.0266	53.04
2.231	.57	1.798	.097	3.26	42151.	.01	24695.	64831.	1.0262	53.19
2.264	.53	1.758	.094	3.18	42151.	.00	23655.	63875.	1.0257	53.33

2.298	.49	1.720	.091	3.09	42151.	.00	22675.	62975.	1.0254	53.45
2.331	.45	1.685	.088	3.00	42151.	.00	21798.	62168.	1.0250	53.56
2.364	.41	1.651	.086	2.91	42151.	.00	20953.	61392.	1.0247	53.66
2.398	.38	1.617	.083	2.82	42151.	.00	20141.	60646.	1.0244	53.75
2.431	.35	1.585	.081	2.74	42151.	.00	19360.	59928.	1.0241	53.83
2.464	.32	1.553	.078	2.65	42151.	.00	18608.	59237.	1.0238	53.91
2.498	.30	1.521	.076	2.57	42151.	.00	17885.	58572.	1.0235	53.98
2.531	.27	1.491	.074	2.50	42151.	.00	17190.	57933.	1.0232	54.04
2.564	.25	1.460	.071	2.42	42151.	.00	16521.	57319.	1.0229	54.10
2.597	.23	1.431	.069	2.35	42151.	.00	15878.	56728.	1.0227	54.15
2.631	.21	1.402	.067	2.28	42151.	.00	15259.	56160.	1.0225	54.20
2.664	.20	1.374	.065	2.21	42151.	.00	14664.	55613.	1.0222	54.24
2.697	.18	1.346	.063	2.14	42151.	.00	14092.	55088.	1.0220	54.28
2.731	.17	1.318	.061	2.08	42151.	.00	13542.	54583.	1.0218	54.32
2.764	.15	1.292	.059	2.01	42151.	.00	13013.	54097.	1.0216	54.35
2.797	.14	1.266	.058	1.95	42151.	.00	12505.	53630.	1.0214	54.38
2.831	.13	1.240	.056	1.89	42151.	.00	12016.	53181.	1.0212	54.41
2.864	.12	1.215	.054	1.84	42151.	.00	11546.	52750.	1.0210	54.44
2.897	.11	1.190	.053	1.78	42151.	.00	11095.	52335.	1.0208	54.46
2.930	.10	1.166	.051	1.73	42151.	.00	10660.	51936.	1.0207	54.48
2.964	.09	1.143	.049	1.68	42151.	.00	10243.	51553.	1.0205	54.50
2.997	.09	1.120	.048	1.62	42151.	.00	9842.	51184.	1.0204	54.52
3.030	.08	1.097	.046	1.58	42151.	.00	9456.	50830.	1.0202	54.53
3.064	.07	1.075	.045	1.53	42151.	.00	9085.	50490.	1.0201	54.55
3.097	.07	1.053	.044	1.48	42151.	.00	8729.	50163.	1.0199	54.56
3.130	.06	1.032	.042	1.44	42151.	.00	8387.	49848.	1.0198	54.57
3.164	.06	1.011	.041	1.39	42151.	.00	8058.	49546.	1.0197	54.58
3.197	.05	.990	.040	1.35	42151.	.00	7741.	49256.	1.0195	54.59
3.230	.05	.970	.039	1.31	42151.	.00	7437.	48977.	1.0194	54.60
3.263	.05	.951	.037	1.27	42151.	.00	7145.	48708.	1.0193	54.61
3.297	.04	.932	.036	1.23	42151.	.00	6864.	48451.	1.0192	54.62
3.330	.04	.913	.035	1.20	42151.	.00	6595.	48203.	1.0191	54.63
3.363	.04	.894	.034	1.16	42151.	.00	6335.	47965.	1.0190	54.63
3.397	.03	.876	.033	1.12	42151.	.00	6086.	47736.	1.0189	54.64
3.430	.03	.858	.032	1.09	42151.	.00	5847.	47517.	1.0188	54.65
3.463	.03	.841	.031	1.06	42151.	.00	5617.	47306.	1.0187	54.65
3.497	.03	.824	.030	1.03	42151.	.00	5396.	47103.	1.0187	54.66
3.530	.02	.807	.029	.99	42151.	.00	5183.	46908.	1.0186	54.66
3.563	.02	.791	.028	.96	42151.	.00	4979.	46720.	1.0185	54.66
3.596	.02	.775	.028	.94	42151.	.00	4783.	46541.	1.0184	54.67
3.630	.02	.759	.027	.91	42151.	.00	4595.	46368.	1.0183	54.67
3.663	.02	.744	.026	.88	42151.	.00	4414.	46202.	1.0183	54.67
3.696	.02	.729	.025	.85	42151.	.00	4240.	46042.	1.0182	54.68

TIME (HRS)	WATER FLOW (CFS)	VELOCITY (FT/SEC)	HYD. DEPTH (FT)	WIDTH (FT)	WASHLOAD CONC. (PPM-w)	BED MAT. TRANSPORT (CFS)	BED CONC. (PPM-w)	TOTAL CONC. (PPM-w)	BULKING FACTOR	ACCUM. SEDIMENT (TONS)
3.730	.01	.714	.024	.83	42151.	.00	4073.	45889.	1.0181	54.68
3.763	.01	.700	.024	.80	42151.	.00	3913.	45741.	1.0181	54.68
3.796	.01	.686	.023	.78	42151.	.00	3758.	45600.	1.0180	54.68
3.830	.01	.672	.022	.76	42151.	.00	3610.	45464.	1.0180	54.69
3.863	.01	.658	.022	.73	42151.	.00	3468.	45333.	1.0179	54.69
3.896	.01	.645	.021	.71	42151.	.00	3331.	45208.	1.0179	54.69
3.929	.01	.632	.020	.69	42151.	.00	3200.	45087.	1.0178	54.69
3.963	.01	.619	.020	.67	42151.	.00	3074.	44971.	1.0178	54.69
3.996	.01	.606	.019	.65	42151.	.00	2952.	44860.	1.0177	54.69
4.029	.01	.586	.018	.62	42151.	.00	2762.	44685.	1.0177	54.70
4.063	.00	.545	.016	.55	42151.	.00	2390.	44344.	1.0175	54.70
4.096	.00	.483	.014	.46	42151.	.00	1884.	43879.	1.0173	54.70
4.129	.00	.396	.010	.34	42151.	.00	1274.	43320.	1.0171	54.70

AT PEAK FLOW OF 11.539 WITH TIME AT 1.53 HOURS: BEDMAT = 16.56 (TONS) = .0076 (AC-FT bulked)
TOTAL SED = 23.88 (TONS) = .0110 (AC-FT bulked)

PEAK BULKING FACTOR = 1.058703 = 134622. (PPM-w)

	WEIGHT (TONS)	UNBULKED VOLUME (AC-FT)	BULKED VOLUME (AC-FT)	CONCETRATION BY WEIGHT (PPM)	AVERAGE BULKING FACTOR
WASHMAT =	19.01	.0053	.0087	42150.	
BEDMAT =	35.69	.0099	.0164	76316.	
TOTAL SEDIMENT =	54.70	.0152	.0251	112394.	1.047783

SEDIMENT TRANSPORT CAPACITY: 2.70038 AC-FT/SQ MI (bulked) = 9.1897 TONS/ACRE (at Porosity=0.395)

PRINT HYD ID=10 CODE=1

PARTIAL HYDROGRAPH 132.11

RUNOFF VOLUME = .64079 INCHES = .3178 ACRE-FEET
PEAK DISCHARGE RATE = 11.54 CFS AT 1.532 HOURS BASIN AREA = .0093 SQ. MI.

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COMPUTE NM HYD       ID=11 HYD NO=133.51 AREA=0.06700 SQ MI
                     PER A, B, C, & D 5 65 30 00
                     TP=0.1333 HR MASS RAINFALL=-1

    K =    .124915HR    TP =    .133300HR    K/TP RATIO =    .937100     SHAPE CONSTANT, N =  3.773853
    UNIT PEAK =   170.79    CFS   UNIT VOLUME =    1.000       B =   339.80      P60 = 1.8700
    AREA =       .067000 SQ MI    IA =    .46250 INCHES    INF =   1.14500 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=11 CODE=1

                                  PARTIAL HYDROGRAPH   133.51


    RUNOFF VOLUME =       .73808 INCHES      =       2.6374 ACRE-FEET
    PEAK DISCHARGE RATE =      95.23 CFS  AT   1.532 HOURS   BASIN AREA =   .0670 SQ. MI.


SED WASH LOAD        ID=11 K=0.16 C=0.25
                     P=1.0 LS=0.478
                     IMPERVIOUS=0.0 FACTOR=3.0
          SEDIMENT YIELD (Wash Mat.) =      120.3 (TONS)   WASH LOAD CONCENTRATION =      32474 (ppm-w)
          PERCENTAGE IMPERVIOUS AREA =       .000          WASH LOAD FACTOR =    3.00000

SEDIMENT TRANS       ID=11 IDS=4 CODE=1
                     A=0.0002 B=4.19 C=0.19 D=-2.55
                     NUMB WASH=-1 NUMB SECTIONS=9
                     FLOW    VELOCITY     WIDTH
                     (CFS)     (FPS)       (FT)
                      5.0       2.91       8.75
                      10.       3.61       10.08
                      25.       4.77       12.68
                      40.       5.42       14.57
                      55.0      5.96       16.02
                      70.       6.36       17.31
                      85.0      6.65       18.49
                      100.      6.96       19.50
                      115.0     6.74       24.19
               Use wash load from SED WASH LOAD command - Concentration =      32474 (PPM-w)

  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *

               WATER                HYD.                WASHLOAD  BED MAT.  BED       TOTAL     BULKING   ACCUM.
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A-19

TIME (HRS)	FLOW (CFS)	VELOCITY (FT/SEC)	DEPTH (FT)	WIDTH (FT)	CONC. (PPM-w)	TRANSPORT (CFS)	CONC. (PPM-w)	CONC. (PPM-w)	FACTOR	SEDIMENT (TONS)
.000	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.033	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.067	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.100	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.133	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.167	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.200	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.233	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.266	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.300	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.333	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.366	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.400	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.433	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.466	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.500	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.533	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.566	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.599	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.633	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.666	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.699	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.733	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.766	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.799	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.833	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.866	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.899	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.932	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.966	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
.999	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
1.032	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
1.066	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
1.099	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
1.132	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
1.166	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
1.199	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
1.232	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
1.265	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
1.299	.00	.000	.000	.00	32474.	.00	0.	32474.	1.0000	.00
1.332	2.42	2.457	.152	6.45	32474.	.04	44490.	74181.	1.0302	.72

1.365	12.32	3.867	.304	10.48	32474.	.53	101643.	127938.	1.0554	7.48
1.399	31.80	5.103	.460	13.54	32474.	2.35	163723.	186555.	1.0865	34.76
1.432	58.23	6.055	.590	16.30	32474.	6.07	216479.	236556.	1.1169	102.24
1.465	82.55	6.607	.683	18.30	32474.	10.10	244796.	263466.	1.1350	212.69
1.499	95.10	6.864	.723	19.17	32474.	12.55	259166.	277140.	1.1447	349.05
1.532	95.23	6.867	.723	19.18	32474.	12.58	259319.	277285.	1.1448	485.71
1.565	87.20	6.699	.698	18.64	32474.	10.95	249650.	268083.	1.1382	605.17
1.598	75.68	6.477	.658	17.76	32474.	8.96	238724.	257691.	1.1310	703.44
1.632	63.91	6.210	.613	16.79	32474.	7.00	224964.	244614.	1.1222	780.84
1.665	53.37	5.909	.569	15.86	32474.	5.30	208314.	228806.	1.1120	840.07
1.698	44.18	5.589	.528	14.97	32474.	3.90	189718.	211171.	1.1010	884.31
1.732	36.18	5.282	.486	14.09	32474.	2.85	172899.	195240.	1.0915	917.14
1.765	29.26	4.988	.444	13.22	32474.	2.07	157866.	181015.	1.0834	941.33
1.798	23.50	4.691	.403	12.42	32474.	1.48	142792.	166765.	1.0755	958.92
1.832	18.96	4.416	.369	11.63	32474.	1.06	128605.	153367.	1.0684	971.77

TIME (HRS)	WATER FLOW (CFS)	VELOCITY (FT/SEC)	HYD. DEPTH (FT)	WIDTH (FT)	WASHLOAD CONC. (PPM-w)	BED MAT. TRANSPORT (CFS)	BED CONC. (PPM-w)	TOTAL CONC. (PPM-w)	BULKING FACTOR	ACCUM. SEDIMENT (TONS)
1.865	15.61	4.166	.339	11.05	32474.	.77	116120.	141586.	1.0622	981.39
1.898	13.23	3.956	.314	10.64	32474.	.59	105901.	131951.	1.0574	988.91
1.931	11.37	3.768	.293	10.32	32474.	.46	96979.	123544.	1.0532	994.91
1.965	9.92	3.602	.274	10.06	32474.	.37	89356.	116364.	1.0497	999.80
1.998	8.77	3.473	.259	9.75	32474.	.30	83811.	111144.	1.0472	1003.90
2.031	7.83	3.357	.245	9.50	32474.	.25	78892.	106515.	1.0450	1007.39
2.065	7.05	3.250	.233	9.30	32474.	.21	74485.	102369.	1.0430	1010.40
2.098	6.39	3.151	.222	9.12	32474.	.18	70487.	98609.	1.0413	1013.01
2.131	5.82	3.059	.212	8.97	32474.	.16	66805.	95146.	1.0397	1015.30
2.164	5.32	2.970	.203	8.83	32474.	.14	63362.	91909.	1.0382	1017.31
2.198	4.87	2.894	.195	8.63	32474.	.12	60471.	89193.	1.0370	1019.10
2.231	4.45	2.842	.190	8.26	32474.	.10	58467.	87309.	1.0361	1020.69
2.264	4.07	2.789	.184	7.93	32474.	.09	56442.	85407.	1.0352	1022.11
2.298	3.73	2.735	.179	7.62	32474.	.08	54404.	83492.	1.0344	1023.38
2.331	3.41	2.679	.173	7.34	32474.	.07	52360.	81572.	1.0335	1024.52
2.364	3.12	2.623	.168	7.08	32474.	.06	50315.	79652.	1.0327	1025.53
2.398	2.85	2.566	.163	6.85	32474.	.05	48279.	77739.	1.0318	1026.43
2.431	2.61	2.508	.157	6.63	32474.	.05	46256.	75840.	1.0310	1027.23
2.464	2.39	2.450	.152	6.43	32474.	.04	44254.	73960.	1.0301	1027.94
2.498	2.19	2.391	.146	6.25	32474.	.04	42279.	72106.	1.0293	1028.58
2.531	2.00	2.333	.141	6.09	32474.	.03	40337.	70283.	1.0285	1029.14
2.564	1.83	2.274	.136	5.94	32474.	.03	38433.	68496.	1.0277	1029.65
2.597	1.68	2.215	.130	5.80	32474.	.02	36571.	66749.	1.0270	1030.09
2.631	1.53	2.157	.125	5.67	32474.	.02	34757.	65047.	1.0263	1030.49

2.664	1.40	2.099	.120	5.56	32474.	.02	32993.	63392.	1.0255	1030.85
2.697	1.28	2.041	.115	5.45	32474.	.02	31283.	61788.	1.0249	1031.16
2.731	1.17	1.984	.111	5.35	32474.	.01	29629.	60236.	1.0242	1031.45
2.764	1.07	1.928	.106	5.26	32474.	.01	28033.	58740.	1.0235	1031.70
2.797	.98	1.875	.102	5.16	32474.	.01	26569.	57367.	1.0230	1031.92
2.831	.90	1.833	.098	4.99	32474.	.01	25458.	56325.	1.0225	1032.12
2.864	.82	1.793	.095	4.83	32474.	.01	24392.	55325.	1.0221	1032.30
2.897	.75	1.754	.092	4.67	32474.	.01	23369.	54367.	1.0217	1032.46
2.930	.69	1.715	.089	4.52	32474.	.01	22388.	53447.	1.0213	1032.61
2.964	.63	1.678	.086	4.37	32474.	.01	21448.	52566.	1.0209	1032.74
2.997	.58	1.641	.083	4.23	32474.	.00	20546.	51720.	1.0206	1032.86
3.030	.53	1.605	.080	4.09	32474.	.00	19682.	50910.	1.0202	1032.96
3.064	.48	1.569	.078	3.96	32474.	.00	18853.	50133.	1.0199	1033.06
3.097	.44	1.535	.075	3.83	32474.	.00	18058.	49388.	1.0196	1033.14
3.130	.40	1.501	.073	3.70	32474.	.00	17296.	48674.	1.0193	1033.22
3.164	.37	1.468	.070	3.58	32474.	.00	16566.	47990.	1.0190	1033.29
3.197	.34	1.436	.068	3.46	32474.	.00	15866.	47334.	1.0187	1033.35
3.230	.31	1.404	.066	3.35	32474.	.00	15196.	46706.	1.0185	1033.41
3.263	.28	1.374	.064	3.24	32474.	.00	14553.	46103.	1.0182	1033.46
3.297	.26	1.343	.062	3.13	32474.	.00	13937.	45526.	1.0180	1033.51
3.330	.24	1.314	.060	3.03	32474.	.00	13347.	44973.	1.0178	1033.55
3.363	.22	1.285	.058	2.93	32474.	.00	12781.	44443.	1.0176	1033.59
3.397	.20	1.257	.056	2.83	32474.	.00	12239.	43936.	1.0173	1033.62
3.430	.18	1.229	.054	2.74	32474.	.00	11720.	43449.	1.0171	1033.65
3.463	.17	1.202	.052	2.65	32474.	.00	11222.	42983.	1.0169	1033.68
3.497	.15	1.176	.050	2.57	32474.	.00	10746.	42537.	1.0168	1033.71
3.530	.14	1.150	.049	2.48	32474.	.00	10289.	42109.	1.0166	1033.73
3.563	.13	1.125	.047	2.40	32474.	.00	9852.	41699.	1.0164	1033.75
3.596	.12	1.100	.046	2.32	32474.	.00	9433.	41307.	1.0163	1033.77
3.630	.11	1.076	.044	2.24	32474.	.00	9032.	40931.	1.0161	1033.79
3.663	.10	1.052	.043	2.17	32474.	.00	8647.	40571.	1.0160	1033.80
3.696	.09	1.029	.041	2.10	32474.	.00	8279.	40226.	1.0158	1033.81

TIME (HRS)	WATER FLOW (CFS)	VELOCITY (FT/SEC)	HYD. DEPTH (FT)	WIDTH (FT)	WASHLOAD CONC. (PPM-w)	BED MAT. TRANSPORT (CFS)	BED CONC. (PPM-w)	TOTAL CONC. (PPM-w)	BULKING FACTOR	ACCUM. SEDIMENT (TONS)
3.730	.08	1.006	.040	2.03	32474.	.00	7927.	39896.	1.0157	1033.83
3.763	.07	.984	.039	1.96	32474.	.00	7589.	39580.	1.0156	1033.84
3.796	.07	.963	.037	1.90	32474.	.00	7266.	39277.	1.0154	1033.85
3.830	.06	.942	.036	1.84	32474.	.00	6956.	38987.	1.0153	1033.86
3.863	.06	.921	.035	1.78	32474.	.00	6659.	38709.	1.0152	1033.87
3.896	.05	.901	.034	1.72	32474.	.00	6375.	38443.	1.0151	1033.88
3.929	.05	.881	.033	1.66	32474.	.00	6103.	38188.	1.0150	1033.88

3.963	.04	.861	.032	1.61	32474.	.00	5843.	37945.	1.0149	1033.89
3.996	.04	.843	.031	1.56	32474.	.00	5593.	37711.	1.0148	1033.89
4.029	.04	.824	.030	1.51	32474.	.00	5355.	37487.	1.0147	1033.90
4.063	.03	.806	.029	1.46	32474.	.00	5126.	37273.	1.0146	1033.90
4.096	.03	.788	.028	1.41	32474.	.00	4907.	37068.	1.0145	1033.91
4.129	.03	.771	.027	1.36	32474.	.00	4697.	36872.	1.0144	1033.91
4.163	.03	.754	.026	1.32	32474.	.00	4497.	36684.	1.0144	1033.92
4.196	.02	.737	.025	1.27	32474.	.00	4304.	36504.	1.0143	1033.92
4.229	.02	.721	.024	1.23	32474.	.00	4120.	36332.	1.0142	1033.92
4.262	.02	.705	.023	1.19	32474.	.00	3944.	36167.	1.0142	1033.93
4.296	.02	.690	.023	1.15	32474.	.00	3776.	36009.	1.0141	1033.93
4.329	.02	.675	.022	1.12	32474.	.00	3614.	35858.	1.0140	1033.93
4.362	.02	.660	.021	1.08	32474.	.00	3459.	35713.	1.0140	1033.93
4.396	.01	.645	.021	1.04	32474.	.00	3311.	35574.	1.0139	1033.93
4.429	.01	.631	.020	1.01	32474.	.00	3170.	35442.	1.0139	1033.94
4.462	.01	.617	.019	.98	32474.	.00	3034.	35315.	1.0138	1033.94
4.496	.01	.604	.019	.94	32474.	.00	2904.	35193.	1.0138	1033.94
4.529	.01	.591	.018	.91	32474.	.00	2780.	35077.	1.0137	1033.94
4.562	.01	.578	.017	.88	32474.	.00	2661.	34965.	1.0137	1033.94
4.595	.01	.552	.016	.83	32474.	.00	2437.	34756.	1.0136	1033.94
4.629	.01	.515	.015	.74	32474.	.00	2126.	34464.	1.0135	1033.94
4.662	.00	.463	.012	.63	32474.	.00	1718.	34082.	1.0133	1033.94
4.695	.00	.394	.010	.50	32474.	.00	1250.	33645.	1.0131	1033.94
4.729	.00	.361	.009	.44	32474.	.00	1055.	33462.	1.0131	1033.94

AT PEAK FLOW OF 95.228 WITH TIME AT 1.53 HOURS: BEDMAT = 438.30 (TONS) = .2012 (AC-FT bulked)
TOTAL SED = 485.71 (TONS) = .2230 (AC-FT bulked)

PEAK BULKING FACTOR = 1.144782 = 277285. (PPM-w)

	WEIGHT (TONS)	UNBULKED VOLUME (AC-FT)	BULKED VOLUME (AC-FT)	CONCETRATION BY WEIGHT (PPM)	AVERAGE BULKING FACTOR
WASHMAT =	120.31	.0334	.0552	32474.	
BEDMAT =	913.64	.2537	.4195	203118.	
TOTAL SEDIMENT =	1033.94	.2871	.4747	223876.	1.108851

SEDIMENT TRANSPORT CAPACITY: 7.08540 AC-FT/SQ MI (bulked) = 24.1125 TONS/ACRE (at Porosity=0.395)

PRINT HYD ID=11 CODE=1

PARTIAL HYDROGRAPH 133.51

```
    RUNOFF VOLUME =       .73808 INCHES     =       2.6374 ACRE-FEET
    PEAK DISCHARGE RATE =      95.23 CFS  AT   1.532 HOURS   BASIN AREA =   .0670 SQ. MI.


ADD HYD              ID=10 HYD NO=133.50 ID=10 ID=11
PRINT HYD            ID=10 CODE=1

                                PARTIAL HYDROGRAPH   133.50


    RUNOFF VOLUME =       .72622 INCHES     =       2.9552 ACRE-FEET
    PEAK DISCHARGE RATE =     106.77 CFS  AT   1.532 HOURS   BASIN AREA =   .0763 SQ. MI.


COMPUTE NM HYD       ID=11 HYD NO=133.52 AREA=0.04850 SQ MI
                     PER A, B, C, & D 5 65 30 00
                     TP=0.1333 HR MASS RAINFALL=-1

    K =   .125089HR    TP =   .133300HR    K/TP RATIO =   .938402     SHAPE CONSTANT, N =  3.768399
    UNIT PEAK =   123.50    CFS   UNIT VOLUME =    1.000       B =   339.42      P60 = 1.8700
    AREA =       .048500 SQ MI    IA =    .46250 INCHES    INF =   1.14500 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD            ID=11 CODE=1

                                PARTIAL HYDROGRAPH   133.52


    RUNOFF VOLUME =       .73808 INCHES     =       1.9092 ACRE-FEET
    PEAK DISCHARGE RATE =      68.88 CFS  AT   1.532 HOURS   BASIN AREA =   .0485 SQ. MI.


SED WASH LOAD        ID=11 K=0.14 C=0.25
                     P=1.0 LS=0.375
                     IMPERVIOUS=0.0 FACTOR=3.0
        SEDIMENT YIELD (Wash Mat.) =       57.5 (TONS)   WASH LOAD CONCENTRATION =      21674 (ppm-w)
        PERCENTAGE IMPERVIOUS AREA =       .000          WASH LOAD FACTOR =    3.00000

SEDIMENT TRANS       ID=11 IDS=5 CODE=1
                     A=0.0002 B=4.19 C=0.19 D=-2.55
```

NUMB WASH=-1 NUMB SECTIONS=9

FLOW (CFS)	VELOCITY (FPS)	WIDTH (FT)
5.0	3.05	9.07
10.	3.73	10.90
25.	4.84	14.34
40.	5.50	16.71
55.0	5.99	18.61
65.	6.26	19.71
70.0	6.38	20.22
75.	6.50	20.71
85.	6.70	21.65

Use wash load from SED WASH LOAD command - Concentration = 21674 (PPM-w)

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TIME (HRS)	WATER FLOW (CFS)	VELOCITY (FT/SEC)	HYD. DEPTH (FT)	WIDTH (FT)	WASHLOAD CONC. (PPM-w)	BED MAT. TRANSPORT (CFS)	BED CONC. (PPM-w)	TOTAL CONC. (PPM-w)	BULKING FACTOR	ACCUM. SEDIMENT (TONS)
.000	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.033	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.067	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.100	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.133	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.167	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.200	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.233	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.266	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.300	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.333	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.366	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.400	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.433	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.466	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.500	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.533	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.566	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.599	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.633	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.666	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.699	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.733	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.766	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00

.799	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.833	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.866	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.899	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.932	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.966	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
.999	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
1.032	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
1.066	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
1.099	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
1.132	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
1.166	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
1.199	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
1.232	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
1.265	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
1.299	.00	.000	.000	.00	21674.	.00	0.	21674.	1.0000	.00
1.332	1.75	2.371	.124	5.96	21674.	.03	45612.	65373.	1.0264	.46
1.365	8.92	3.618	.235	10.51	21674.	.37	98781.	116422.	1.0497	4.86
1.399	23.02	4.742	.350	13.89	21674.	1.63	158403.	173807.	1.0794	22.97
1.432	42.14	5.581	.445	16.98	21674.	4.14	206586.	220291.	1.1066	67.50
1.465	59.71	6.123	.510	19.13	21674.	7.06	238593.	251224.	1.1266	142.43
1.499	68.78	6.352	.539	20.10	21674.	8.74	251889.	264086.	1.1354	234.75
1.532	68.88	6.354	.539	20.11	21674.	8.76	252024.	264217.	1.1355	327.26
1.565	63.09	6.212	.521	19.50	21674.	7.68	243820.	256279.	1.1300	408.57
1.598	54.77	5.984	.493	18.58	21674.	6.19	230359.	243262.	1.1213	474.42
1.632	46.26	5.725	.462	17.50	21674.	4.78	215079.	228495.	1.1118	525.67
1.665	38.64	5.452	.430	16.50	21674.	3.62	199070.	213034.	1.1022	564.79
1.698	31.99	5.188	.399	15.44	21674.	2.72	183792.	198289.	1.0933	594.39
1.732	26.21	4.907	.368	14.53	21674.	1.99	167700.	182769.	1.0844	616.31
1.765	21.20	4.644	.339	13.47	21674.	1.44	152875.	168480.	1.0765	632.37
1.798	17.02	4.377	.311	12.51	21674.	1.03	138195.	154341.	1.0689	643.99
1.832	13.73	4.115	.284	11.76	21674.	.73	124065.	140740.	1.0618	652.41

TIME (HRS)	WATER FLOW (CFS)	VELOCITY (FT/SEC)	HYD. DEPTH (FT)	WIDTH (FT)	WASHLOAD CONC. (PPM-w)	BED MAT. TRANSPORT (CFS)	BED CONC. (PPM-w)	TOTAL CONC. (PPM-w)	BULKING FACTOR	ACCUM. SEDIMENT (TONS)
1.865	11.30	3.877	.260	11.20	21674.	.54	111699.	128843.	1.0558	658.66
1.898	9.58	3.688	.242	10.75	21674.	.41	102155.	119666.	1.0513	663.53
1.931	8.24	3.539	.227	10.26	21674.	.33	95019.	112807.	1.0480	667.45
1.965	7.19	3.404	.214	9.87	21674.	.26	88703.	106737.	1.0451	670.66
1.998	6.35	3.283	.202	9.56	21674.	.22	83127.	101380.	1.0426	673.34
2.031	5.67	3.172	.192	9.32	21674.	.18	78178.	96627.	1.0404	675.61
2.065	5.11	3.071	.183	9.11	21674.	.15	73745.	92370.	1.0384	677.55

2.098	4.63	3.005	.177	8.72	21674.	.13	70904.	89642.	1.0372	679.26
2.131	4.22	2.949	.172	8.32	21674.	.12	68496.	87331.	1.0361	680.77
2.164	3.86	2.894	.167	7.98	21674.	.10	66136.	85065.	1.0351	682.11
2.198	3.53	2.838	.162	7.66	21674.	.09	63793.	82817.	1.0341	683.30
2.231	3.23	2.781	.157	7.38	21674.	.08	61445.	80563.	1.0331	684.36
2.264	2.95	2.723	.152	7.11	21674.	.07	59094.	78307.	1.0321	685.30
2.298	2.70	2.664	.148	6.87	21674.	.06	56747.	76055.	1.0311	686.13
2.331	2.47	2.605	.143	6.65	21674.	.05	54414.	73816.	1.0301	686.87
2.364	2.26	2.545	.138	6.45	21674.	.05	52100.	71596.	1.0291	687.52
2.398	2.07	2.485	.133	6.27	21674.	.04	49814.	69404.	1.0281	688.10
2.431	1.90	2.425	.128	6.10	21674.	.04	47562.	67244.	1.0272	688.61
2.464	1.73	2.364	.123	5.95	21674.	.03	45351.	65123.	1.0263	689.06
2.498	1.59	2.304	.119	5.81	21674.	.03	43187.	63047.	1.0254	689.46
2.531	1.45	2.243	.114	5.68	21674.	.02	41073.	61021.	1.0245	689.81
2.564	1.33	2.183	.109	5.56	21674.	.02	39016.	59049.	1.0237	690.12
2.597	1.22	2.124	.105	5.45	21674.	.02	37019.	57134.	1.0229	690.40
2.631	1.11	2.065	.101	5.35	21674.	.02	35085.	55280.	1.0221	690.64
2.664	1.02	2.006	.096	5.26	21674.	.01	33217.	53490.	1.0213	690.86
2.697	.93	1.960	.093	5.11	21674.	.01	31754.	52087.	1.0207	691.05
2.731	.85	1.917	.090	4.94	21674.	.01	30434.	50822.	1.0202	691.22
2.764	.78	1.875	.087	4.78	21674.	.01	29168.	49609.	1.0197	691.37
2.797	.71	1.834	.084	4.62	21674.	.01	27952.	48444.	1.0192	691.51
2.831	.65	1.793	.081	4.47	21674.	.01	26786.	47326.	1.0187	691.63
2.864	.60	1.754	.079	4.33	21674.	.01	25667.	46254.	1.0183	691.74
2.897	.55	1.715	.076	4.18	21674.	.01	24594.	45226.	1.0179	691.84
2.930	.50	1.678	.074	4.05	21674.	.00	23565.	44240.	1.0175	691.92
2.964	.46	1.641	.071	3.91	21674.	.00	22577.	43294.	1.0171	692.00
2.997	.42	1.605	.069	3.79	21674.	.00	21630.	42387.	1.0167	692.07
3.030	.38	1.570	.067	3.66	21674.	.00	20722.	41517.	1.0163	692.13
3.064	.35	1.535	.065	3.54	21674.	.00	19852.	40683.	1.0160	692.19
3.097	.32	1.502	.062	3.43	21674.	.00	19017.	39883.	1.0157	692.24
3.130	.29	1.469	.060	3.31	21674.	.00	18216.	39116.	1.0154	692.28
3.164	.27	1.436	.058	3.21	21674.	.00	17449.	38381.	1.0151	692.32
3.197	.25	1.405	.057	3.10	21674.	.00	16714.	37677.	1.0148	692.36
3.230	.23	1.374	.055	3.00	21674.	.00	16009.	37002.	1.0145	692.39
3.263	.21	1.344	.053	2.90	21674.	.00	15333.	36354.	1.0142	692.42
3.297	.19	1.315	.051	2.81	21674.	.00	14685.	35734.	1.0140	692.45
3.330	.17	1.286	.049	2.71	21674.	.00	14065.	35140.	1.0137	692.47
3.363	.16	1.257	.048	2.63	21674.	.00	13470.	34570.	1.0135	692.49
3.397	.14	1.230	.046	2.54	21674.	.00	12900.	34024.	1.0133	692.51
3.430	.13	1.203	.045	2.46	21674.	.00	12354.	33501.	1.0131	692.53
3.463	.12	1.177	.043	2.38	21674.	.00	11830.	33000.	1.0129	692.54
3.497	.11	1.151	.042	2.30	21674.	.00	11329.	32520.	1.0127	692.56
3.530	.10	1.125	.041	2.22	21674.	.00	10849.	32060.	1.0125	692.57

3.563	.09	1.101	.039	2.15	21674.	.00	10388.	31619.	1.0123	692.58
3.596	.08	1.077	.038	2.08	21674.	.00	9947.	31197.	1.0122	692.59
3.630	.08	1.053	.037	2.01	21674.	.00	9525.	30793.	1.0120	692.60
3.663	.07	1.030	.035	1.95	21674.	.00	9121.	30405.	1.0118	692.61
3.696	.07	1.007	.034	1.88	21674.	.00	8733.	30034.	1.0117	692.62

TIME (HRS)	WATER FLOW (CFS)	VELOCITY (FT/SEC)	HYD. DEPTH (FT)	WIDTH (FT)	WASHLOAD CONC. (PPM-w)	BED MAT. TRANSPORT (CFS)	BED CONC. (PPM-w)	TOTAL CONC. (PPM-w)	BULKING FACTOR	ACCUM. SEDIMENT (TONS)
3.730	.06	.985	.033	1.82	21674.	.00	8362.	29679.	1.0115	692.62
3.763	.05	.964	.032	1.76	21674.	.00	8006.	29338.	1.0114	692.63
3.796	.05	.942	.031	1.70	21674.	.00	7666.	29012.	1.0113	692.63
3.830	.05	.922	.030	1.65	21674.	.00	7339.	28700.	1.0112	692.64
3.863	.04	.902	.029	1.59	21674.	.00	7027.	28401.	1.0110	692.64
3.896	.04	.882	.028	1.54	21674.	.00	6728.	28114.	1.0109	692.65
3.929	.03	.862	.027	1.49	21674.	.00	6441.	27840.	1.0108	692.65
3.963	.03	.843	.026	1.44	21674.	.00	6167.	27577.	1.0107	692.66
3.996	.03	.825	.025	1.40	21674.	.00	5904.	27326.	1.0106	692.66
4.029	.03	.807	.025	1.35	21674.	.00	5652.	27085.	1.0105	692.66
4.063	.02	.789	.024	1.31	21674.	.00	5411.	26854.	1.0104	692.66
4.096	.02	.772	.023	1.26	21674.	.00	5181.	26633.	1.0103	692.67
4.129	.02	.755	.022	1.22	21674.	.00	4960.	26421.	1.0102	692.67
4.163	.02	.738	.022	1.18	21674.	.00	4748.	26219.	1.0102	692.67
4.196	.02	.722	.021	1.14	21674.	.00	4545.	26025.	1.0101	692.67
4.229	.02	.706	.020	1.11	21674.	.00	4351.	25839.	1.0100	692.67
4.262	.01	.691	.019	1.07	21674.	.00	4166.	25661.	1.0099	692.67
4.296	.01	.676	.019	1.03	21674.	.00	3988.	25491.	1.0099	692.68
4.329	.01	.661	.018	1.00	21674.	.00	3817.	25328.	1.0098	692.68
4.362	.01	.646	.018	.97	21674.	.00	3654.	25172.	1.0097	692.68
4.396	.01	.632	.017	.94	21674.	.00	3498.	25023.	1.0097	692.68
4.429	.01	.618	.016	.91	21674.	.00	3349.	24879.	1.0096	692.68
4.462	.01	.591	.015	.85	21674.	.00	3068.	24610.	1.0095	692.68
4.496	.01	.552	.014	.76	21674.	.00	2676.	24235.	1.0094	692.68
4.529	.00	.495	.012	.65	21674.	.00	2163.	23744.	1.0092	692.68
4.562	.00	.422	.009	.51	21674.	.00	1574.	23181.	1.0090	692.68
4.595	.00	.387	.008	.45	21674.	.00	1329.	22946.	1.0089	692.68
4.629	.00	.355	.007	.39	21674.	.00	1120.	22746.	1.0088	692.68

AT PEAK FLOW OF 68.881 WITH TIME AT 1.53 HOURS: BEDMAT = 304.62 (TONS) = .1399 (AC-FT bulked)
TOTAL SED = 327.26 (TONS) = .1503 (AC-FT bulked)

PEAK BULKING FACTOR = 1.135508 = 264217. (PPM-w)

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                                  UNBULKED  BULKED    CONCETRATION   AVERAGE
                        WEIGHT    VOLUME    VOLUME    BY WEIGHT      BULKING
                        (TONS)    (AC-FT)   (AC-FT)   (PPM)          FACTOR

     WASHMAT =            57.48    .0160     .0264      21674.
     BEDMAT  =           635.20    .1764     .2916     196662.
     TOTAL SEDIMENT =    692.68    .1923     .3180     210709.       1.100740

     SEDIMENT TRANSPORT CAPACITY:    6.55744 AC-FT/SQ MI (bulked) =    22.3158 TONS/ACRE (at Porosity=0.395)

PRINT HYD          ID=11 CODE=1

                              PARTIAL HYDROGRAPH   133.52


    RUNOFF VOLUME =      .73808 INCHES     =       1.9092 ACRE-FEET
    PEAK DISCHARGE RATE =      68.88 CFS  AT   1.532 HOURS   BASIN AREA =   .0485 SQ. MI.


ADD HYD            ID=11 HYD NO=133.50 ID=10 ID=11
PRINT HYD          ID=11 CODE=1

                              PARTIAL HYDROGRAPH   133.50


    RUNOFF VOLUME =      .73083 INCHES     =       4.8644 ACRE-FEET
    PEAK DISCHARGE RATE =     175.65 CFS  AT   1.532 HOURS   BASIN AREA =   .1248 SQ. MI.


COMPUTE NM HYD     ID=15 HYD NO=115.00 AREA=0.00190 SQ MI
                   PER A, B, C, & D 0 26.2 26.2 47.6
                   TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   3.5706    CFS   UNIT VOLUME =    .9960       B =   526.28      P60 = 1.8700
    AREA =      .000904 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


    K =   .118429HR    TP =   .133300HR    K/TP RATIO =   .888442     SHAPE CONSTANT, N =  3.992480
    UNIT PEAK =   2.6490    CFS   UNIT VOLUME =    .9953       B =   354.67      P60 = 1.8700
    AREA =      .000996 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
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    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD           ID=15 CODE=1

                                  PARTIAL HYDROGRAPH   115.00


    RUNOFF VOLUME =     1.36302 INCHES     =        .1381 ACRE-FEET
    PEAK DISCHARGE RATE =       4.10 CFS  AT   1.499 HOURS   BASIN AREA =   .0019 SQ. MI.


COMPUTE NM HYD      ID=16 HYD NO=121.00 AREA=0.0027 SQ MI
                    PER A, B, C, & D 0 26.2 26.2 47.6
                    TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   5.0740    CFS   UNIT VOLUME =    .9972       B =   526.28      P60 = 1.8700
    AREA =      .001285 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

    K =   .118429HR    TP =   .133300HR    K/TP RATIO =   .888442     SHAPE CONSTANT, N =  3.992480
    UNIT PEAK =   3.7643    CFS   UNIT VOLUME =    .9969       B =   354.67      P60 = 1.8700
    AREA =      .001415 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD           ID=16 CODE=1

                                  PARTIAL HYDROGRAPH   121.00


    RUNOFF VOLUME =     1.36302 INCHES     =        .1963 ACRE-FEET
    PEAK DISCHARGE RATE =       5.82 CFS  AT   1.499 HOURS   BASIN AREA =   .0027 SQ. MI.


ADD HYD             ID=15 HYD NO=121.01 ID=15 ID=16
PRINT HYD           ID=15 CODE=1

                                  PARTIAL HYDROGRAPH   121.01


    RUNOFF VOLUME =     1.36290 INCHES     =        .3344 ACRE-FEET
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A-30

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    PEAK DISCHARGE RATE =       9.91 CFS  AT   1.499 HOURS   BASIN AREA =   .0046 SQ. MI.


COMPUTE NM HYD       ID=16 HYD NO=122.00 AREA=0.0009 SQ MI
                     PER A, B, C, & D 0 5 5 90
                     TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   3.1979    CFS   UNIT VOLUME =    .9960       B =   526.28      P60 = 1.8700
    AREA =      .000810 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


    K =   .118429HR    TP =   .133300HR    K/TP RATIO =   .888442     SHAPE CONSTANT, N =  3.992480
    UNIT PEAK =   .23946    CFS   UNIT VOLUME =    .9469       B =   354.67      P60 = 1.8700
    AREA =      .000090 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD            ID=16 CODE=1

                                   PARTIAL HYDROGRAPH   122.00

    RUNOFF VOLUME =     1.85049 INCHES     =        .0888 ACRE-FEET
    PEAK DISCHARGE RATE =       2.42 CFS  AT   1.499 HOURS   BASIN AREA =   .0009 SQ. MI.


ADD HYD              ID=15 HYD NO=121.01 ID=15 ID=16
PRINT HYD            ID=15 CODE=1

                                   PARTIAL HYDROGRAPH   121.01

    RUNOFF VOLUME =     1.44263 INCHES     =        .4232 ACRE-FEET
    PEAK DISCHARGE RATE =      12.33 CFS  AT   1.499 HOURS   BASIN AREA =   .0055 SQ. MI.


ADD HYD              ID=11 HYD NO=122.01 ID=11 ID=15
PRINT HYD            ID=11 CODE=1

                                   PARTIAL HYDROGRAPH   122.01
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RUNOFF VOLUME = .76088 INCHES = 5.2875 ACRE-FEET
PEAK DISCHARGE RATE = 187.62 CFS AT 1.499 HOURS BASIN AREA = .1303 SQ. MI.

ROUTE RESERVOIR ID=12 HYD NO=133.50 POND INFLOW ID=11 CODE=5

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0	0	04.0
1.6	0.06	04.5
2.3	1.23	05.0
2.8	1.86	05.5
3.3	2.50	06.0
3.6	3.14	06.5
4.0	3.78	07.0
4.3	4.42	07.5
4.6	5.07	08.0

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TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	4.00	.000	.00
.17	.00	4.00	.000	.00
.33	.00	4.00	.000	.00
.50	.00	4.00	.000	.00
.67	.00	4.00	.000	.00
.83	.00	4.00	.000	.00
1.00	.00	4.00	.000	.00
1.17	.02	4.00	.000	.00
1.33	7.05	4.15	.017	.46
1.50	187.62	5.04	1.281	2.34
1.67	105.00	6.69	3.382	3.75
1.83	38.54	7.37	4.252	4.22
2.00	18.64	7.61	4.558	4.36
2.16	11.02	7.71	4.697	4.43
2.33	6.90	7.76	4.757	4.46
2.50	4.41	7.77	4.772	4.46
2.66	2.84	7.76	4.760	4.46
2.83	1.83	7.74	4.730	4.44
3.00	1.19	7.71	4.690	4.42
3.16	.77	7.67	4.642	4.40
3.33	.51	7.63	4.590	4.38

3.50	.35	7.59	4.536	4.35
3.66	.24	7.55	4.480	4.33
3.83	.17	7.50	4.424	4.30
4.00	.13	7.46	4.367	4.28
4.16	.09	7.41	4.310	4.25
4.33	.08	7.37	4.253	4.22
4.50	.06	7.32	4.196	4.19
4.66	.05	7.28	4.139	4.17
4.83	.05	7.24	4.082	4.14
5.00	.05	7.19	4.026	4.12
5.16	.05	7.15	3.971	4.09
5.33	.05	7.11	3.915	4.06
5.49	.06	7.06	3.860	4.04
5.66	.06	7.02	3.806	4.01
5.83	.06	6.98	3.751	3.98
5.99	.06	6.94	3.698	3.95
6.16	.02	6.89	3.644	3.92
6.33	.01	6.85	3.591	3.88
6.49	.00	6.81	3.538	3.85
6.66	.00	6.77	3.485	3.82
6.83	.00	6.73	3.433	3.78
6.99	.00	6.69	3.381	3.75
7.16	.00	6.65	3.329	3.72
7.33	.00	6.61	3.278	3.69
7.49	.00	6.57	3.228	3.65
7.66	.00	6.53	3.178	3.62
7.83	.00	6.49	3.128	3.59
7.99	.00	6.45	3.079	3.57
8.16	.00	6.41	3.030	3.55
8.33	.00	6.38	2.981	3.53
8.49	.00	6.34	2.933	3.50
8.66	.00	6.30	2.885	3.48
8.82	.00	6.26	2.837	3.46
8.99	.00	6.23	2.790	3.44
9.16	.00	6.19	2.743	3.41

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
9.32	.00	6.15	2.696	3.39
9.49	.00	6.12	2.649	3.37
9.66	.00	6.08	2.603	3.35
9.82	.00	6.04	2.557	3.33
9.99	.00	6.01	2.511	3.31

10.16	.00	5.97	2.466	3.27
10.32	.00	5.94	2.421	3.24
10.49	.00	5.90	2.377	3.20
10.66	.00	5.87	2.333	3.17
10.82	.00	5.84	2.290	3.14
10.99	.00	5.80	2.247	3.10
11.16	.00	5.77	2.204	3.07
11.32	.00	5.74	2.162	3.04
11.49	.00	5.70	2.121	3.00
11.66	.00	5.67	2.080	2.97
11.82	.00	5.64	2.039	2.94
11.99	.00	5.61	1.999	2.91
12.15	.00	5.58	1.959	2.88
12.32	.00	5.55	1.920	2.85
12.49	.00	5.52	1.881	2.82
12.65	.00	5.49	1.842	2.79
12.82	.00	5.46	1.804	2.76
12.99	.00	5.43	1.766	2.73
13.15	.00	5.40	1.729	2.70
13.32	.00	5.37	1.692	2.67
13.49	.00	5.34	1.656	2.64
13.65	.00	5.31	1.619	2.61
13.82	.00	5.28	1.584	2.58
13.99	.00	5.25	1.548	2.55
14.15	.00	5.23	1.514	2.53
14.32	.00	5.20	1.479	2.50
14.49	.00	5.17	1.445	2.47
14.65	.00	5.14	1.411	2.44
14.82	.00	5.12	1.378	2.42
14.99	.00	5.09	1.344	2.39
15.15	.00	5.06	1.312	2.36
15.32	.00	5.04	1.279	2.34
15.48	.00	5.01	1.247	2.31
15.65	.00	4.99	1.216	2.29
15.82	.00	4.98	1.184	2.27
15.98	.00	4.97	1.153	2.25
16.15	.00	4.95	1.122	2.24
16.32	.00	4.94	1.092	2.22
16.48	.00	4.93	1.061	2.20
16.65	.00	4.91	1.031	2.18
16.82	.00	4.90	1.001	2.16
16.98	.00	4.89	.972	2.15
17.15	.00	4.88	.942	2.13
17.32	.00	4.86	.913	2.11

17.48	.00	4.85	.884	2.09
17.65	.00	4.84	.855	2.08
17.82	.00	4.83	.827	2.06
17.98	.00	4.82	.799	2.04
18.15	.00	4.80	.771	2.03
18.32	.00	4.79	.743	2.01
18.48	.00	4.78	.715	1.99

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
18.65	.00	4.77	.688	1.98
18.81	.00	4.76	.661	1.96
18.98	.00	4.75	.634	1.94
19.15	.00	4.73	.608	1.93
19.31	.00	4.72	.581	1.91
19.48	.00	4.71	.555	1.90
19.65	.00	4.70	.529	1.88
19.81	.00	4.69	.503	1.87

PEAK DISCHARGE = 4.462 CFS - PEAK OCCURS AT HOUR 2.50
MAXIMUM WATER SURFACE ELEVATION = 7.771
MAXIMUM STORAGE = 4.7720 AC-FT INCREMENTAL TIME= .033300HRS

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA POND.01

RUNOFF VOLUME = .52233 INCHES = 7.1037 ACRE-FEET
PEAK DISCHARGE RATE = 112.49 CFS AT 1.832 HOURS BASIN AREA = .2550 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.0377
DIA=2.0 FT N=0.014

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.10	.06	.21	.89
.21	.17	.93	1.22
.31	.31	2.16	1.45

.42	.47	3.88	1.62
.52	.65	6.06	1.76
.63	.84	8.65	1.85
.73	1.04	11.59	1.93
.83	1.24	14.82	1.97
.94	1.45	18.27	2.00
1.04	1.66	21.86	2.00
1.15	1.86	25.52	2.00
1.25	2.07	29.16	2.00
1.35	2.27	32.69	2.00
1.46	2.46	35.99	2.00
1.56	2.63	38.94	2.00
1.67	2.80	41.39	2.00
1.77	2.94	43.15	2.00
1.88	3.06	43.88	2.00
2.00	3.14	43.88	2.00

COMPUTE TRAVEL TIME ID=5 REACH NO=1 NO VS=1 L=876 FT
SLP=0.0377

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.104	.062	.21	.0710
.208	.174	.93	.0455
.313	.314	2.16	.0354
.417	.475	3.88	.0297
.521	.651	6.06	.0261
.625	.839	8.65	.0236
.730	1.037	11.59	.0218
.834	1.240	14.82	.0204
.938	1.447	18.27	.0193
1.042	1.655	21.86	.0184
1.146	1.863	25.52	.0178
1.251	2.067	29.16	.0172
1.355	2.265	32.69	.0169
1.459	2.456	35.99	.0166
1.563	2.635	38.94	.0165
1.668	2.799	41.39	.0165
1.772	2.943	43.15	.0166
1.876	3.061	43.88	.0170
2.000	3.142	43.88	.0174

```
ROUTE                ID=5 HYD NO=133.51 ID=12 DT=0.0
PRINT HYD            ID=5 CODE=1

                                PARTIAL HYDROGRAPH   133.51


    RUNOFF VOLUME =       .69094 INCHES      =       4.8015 ACRE-FEET
    PEAK DISCHARGE RATE =       4.46 CFS  AT   2.498 HOURS   BASIN AREA =   .1303 SQ. MI.


COMPUTE NM HYD       ID=15 HYD NO=123.00 AREA=0.00220 SQ MI
                     PER A, B, C, & D 0 5 5 90
                     TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   7.8171    CFS   UNIT VOLUME =    .9978       B =   526.28      P60 = 1.8700
    AREA =       .001980 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


    K =   .118429HR    TP =   .133300HR    K/TP RATIO =   .888442     SHAPE CONSTANT, N =  3.992480
    UNIT PEAK =   .58535    CFS   UNIT VOLUME =    .9774       B =   354.67      P60 = 1.8700
    AREA =       .000220 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD            ID=15 CODE=1

                                PARTIAL HYDROGRAPH   123.00


    RUNOFF VOLUME =     1.85049 INCHES      =        .2171 ACRE-FEET
    PEAK DISCHARGE RATE =       5.90 CFS  AT   1.499 HOURS   BASIN AREA =   .0022 SQ. MI.


COMPUTE NM HYD       ID=13 HYD NO=133.53 AREA=0.0025 SQ MI
                     PER A, B, C, & D 0 100 0 0
                     TP=0.1333 HR MASS RAINFALL=-1

    K =   .130992HR    TP =   .133300HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =  3.593448
    UNIT PEAK =   6.1344    CFS   UNIT VOLUME =    .9981       B =   327.09      P60 = 1.8700
    AREA =       .002500 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300
```

```
PRINT HYD            ID=13 CODE=1

                                  PARTIAL HYDROGRAPH   133.53

    RUNOFF VOLUME =       .66738 INCHES     =        .0890 ACRE-FEET
    PEAK DISCHARGE RATE =       3.26 CFS  AT   1.532 HOURS   BASIN AREA =   .0025 SQ. MI.


SED WASH LOAD        ID=13 K=0.17 C=0.25
                     P=1.0 LS=0.824
                     IMPERVIOUS=0.0 FACTOR=3.0
         SEDIMENT YIELD (Wash Mat.) =        5.0 (TONS)   WASH LOAD CONCENTRATION =      39613 (ppm-w)
         PERCENTAGE IMPERVIOUS AREA =       .000          WASH LOAD FACTOR =    3.00000

PRINT HYD            ID=13 CODE=1

                                  PARTIAL HYDROGRAPH   133.53

    RUNOFF VOLUME =       .66738 INCHES     =        .0890 ACRE-FEET
    PEAK DISCHARGE RATE =       3.26 CFS  AT   1.532 HOURS   BASIN AREA =   .0025 SQ. MI.


ADD HYD              ID=10 HYD NO=123.01 ID=13 ID=15
PRINT HYD            ID=10 CODE=1

                                  PARTIAL HYDROGRAPH   123.01

    RUNOFF VOLUME =     1.22110 INCHES     =        .3061 ACRE-FEET
    PEAK DISCHARGE RATE =       9.13 CFS  AT   1.499 HOURS   BASIN AREA =   .0047 SQ. MI.


COMPUTE NM HYD       ID=14 HYD NO=133.54 AREA=0.01730 SQ MI
                     PER A, B, C, & D 15 70 15 0
                     TP=0.1333 HR MASS RAINFALL=-1

    K =   .132127HR    TP =   .133300HR    K/TP RATIO =   .991200     SHAPE CONSTANT, N =  3.562053
    UNIT PEAK =   42.157    CFS   UNIT VOLUME =    1.000       B =   324.83      P60 = 1.8700
    AREA =      .017300 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
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RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=14 CODE=1

PARTIAL HYDROGRAPH 133.54

RUNOFF VOLUME = .66738 INCHES = .6158 ACRE-FEET
PEAK DISCHARGE RATE = 22.38 CFS AT 1.532 HOURS BASIN AREA = .0173 SQ. MI.

SED WASH LOAD ID=14 K=0.09 C=0.25
P=1.0 LS=0.251
IMPERVIOUS=0.0 FACTOR=3.0
SEDIMENT YIELD (Wash Mat.) = 7.0 (TONS) WASH LOAD CONCENTRATION = 8286 (ppm-w)
PERCENTAGE IMPERVIOUS AREA = .000 WASH LOAD FACTOR = 3.00000

SEDIMENT TRANS ID=14 IDS=5 CODE=1
A=0.0002 B=4.19 C=0.19 D=-2.55
NUMB WASH=-1 NUMB SECTIONS=9

FLOW (CFS)	VELOCITY (FPS)	WIDTH (FT)
2.0	1.63	12.78
5.0	2.06	17.99
10.	2.41	24.53
14.	2.58	28.75
17.0	2.70	31.28
20.	2.79	33.67
23.0	2.88	35.74
27.	2.99	38.25
30.	3.06	39.98

Use wash load from SED WASH LOAD command - Concentration = 8286 (PPM-w)

* * * * * * * * * * * * * * * *

TIME (HRS)	WATER FLOW (CFS)	VELOCITY (FT/SEC)	HYD. DEPTH (FT)	WIDTH (FT)	WASHLOAD CONC. (PPM-w)	BED MAT. TRANSPORT (CFS)	BED CONC. (PPM-w)	TOTAL CONC. (PPM-w)	BULKING FACTOR	ACCUM. SEDIMENT (TONS)
.000	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.033	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.067	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.100	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00

.133	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.167	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.200	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.233	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.266	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.300	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.333	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.366	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.400	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.433	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.466	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.500	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.533	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.566	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.599	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.633	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.666	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.699	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.733	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.766	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.799	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.833	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.866	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.899	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.932	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.966	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
.999	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
1.032	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
1.066	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
1.099	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
1.132	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
1.166	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
1.199	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
1.232	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
1.265	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
1.299	.00	.000	.000	.00	8286.	.00	0.	8286.	1.0000	.00
1.332	.44	1.117	.054	7.25	8286.	.00	8072.	16226.	1.0062	.03
1.365	2.49	1.736	.105	13.63	8286.	.02	19124.	27097.	1.0105	.29
1.399	6.96	2.234	.152	20.56	8286.	.09	31393.	39169.	1.0154	1.35
1.432	13.29	2.555	.186	28.00	8286.	.21	40466.	48098.	1.0191	3.86
1.465	19.12	2.765	.210	32.97	8286.	.36	46919.	54449.	1.0217	7.98
1.499	22.19	2.857	.221	35.18	8286.	.44	49792.	57276.	1.0229	13.02
1.532	22.38	2.863	.221	35.31	8286.	.44	49967.	57449.	1.0230	18.12
1.565	20.62	2.810	.215	34.10	8286.	.39	48268.	55777.	1.0223	22.68

1.598	17.97	2.731	.205	32.05	8286.	.33	45917.	53462.	1.0213	26.47
1.632	15.18	2.631	.194	29.75	8286.	.26	42792.	50387.	1.0200	29.49
1.665	12.64	2.530	.183	27.31	8286.	.20	39754.	47397.	1.0188	31.84
1.698	10.39	2.430	.171	24.94	8286.	.15	36946.	44633.	1.0176	33.65
1.732	8.41	2.328	.161	22.45	8286.	.11	34027.	41761.	1.0164	35.02
1.765	6.71	2.215	.150	20.23	8286.	.08	30871.	38656.	1.0152	36.03
1.798	5.31	2.092	.138	18.39	8286.	.06	27592.	35429.	1.0139	36.76
1.832	4.23	1.985	.128	16.64	8286.	.04	24902.	32783.	1.0128	37.30

TIME (HRS)	WATER FLOW (CFS)	VELOCITY (FT/SEC)	HYD. DEPTH (FT)	WIDTH (FT)	WASHLOAD CONC. (PPM-w)	BED MAT. TRANSPORT (CFS)	BED CONC. (PPM-w)	TOTAL CONC. (PPM-w)	BULKING FACTOR	ACCUM. SEDIMENT (TONS)
1.865	3.45	1.892	.119	15.30	8286.	.03	22652.	30568.	1.0119	37.70
1.898	2.92	1.814	.112	14.39	8286.	.02	20846.	28791.	1.0112	38.03
1.931	2.55	1.748	.106	13.73	8286.	.02	19375.	27344.	1.0106	38.30
1.965	2.26	1.688	.101	13.22	8286.	.02	18096.	26086.	1.0101	38.52
1.998	2.02	1.635	.096	12.81	8286.	.01	16975.	24983.	1.0097	38.72
2.031	1.83	1.597	.093	12.27	8286.	.01	16228.	24248.	1.0094	38.89
2.065	1.66	1.563	.090	11.79	8286.	.01	15558.	23589.	1.0091	39.04
2.098	1.52	1.530	.087	11.37	8286.	.01	14926.	22968.	1.0089	39.17
2.131	1.39	1.498	.085	11.01	8286.	.01	14321.	22372.	1.0086	39.29
2.164	1.28	1.466	.082	10.68	8286.	.01	13732.	21793.	1.0084	39.40
2.198	1.18	1.434	.079	10.37	8286.	.01	13153.	21223.	1.0082	39.49
2.231	1.08	1.402	.077	10.10	8286.	.01	12583.	20663.	1.0080	39.58
2.264	1.00	1.370	.074	9.84	8286.	.00	12026.	20114.	1.0077	39.65
2.298	.92	1.341	.072	9.53	8286.	.00	11543.	19639.	1.0076	39.72
2.331	.84	1.313	.069	9.24	8286.	.00	11079.	19183.	1.0074	39.78
2.364	.77	1.286	.067	8.95	8286.	.00	10633.	18745.	1.0072	39.84
2.398	.71	1.259	.065	8.67	8286.	.00	10206.	18324.	1.0070	39.89
2.431	.65	1.233	.063	8.40	8286.	.00	9795.	17920.	1.0069	39.93
2.464	.60	1.207	.061	8.14	8286.	.00	9401.	17533.	1.0067	39.97
2.498	.55	1.182	.059	7.89	8286.	.00	9022.	17160.	1.0066	40.01
2.531	.51	1.158	.057	7.65	8286.	.00	8659.	16803.	1.0064	40.04
2.564	.47	1.134	.056	7.41	8286.	.00	8310.	16460.	1.0063	40.07
2.597	.43	1.110	.054	7.18	8286.	.00	7975.	16130.	1.0062	40.10
2.631	.40	1.087	.052	6.96	8286.	.00	7654.	15814.	1.0061	40.12
2.664	.36	1.064	.051	6.74	8286.	.00	7345.	15510.	1.0059	40.14
2.697	.33	1.042	.049	6.53	8286.	.00	7049.	15219.	1.0058	40.16
2.731	.31	1.021	.048	6.33	8286.	.00	6764.	14939.	1.0057	40.18
2.764	.28	.999	.046	6.13	8286.	.00	6491.	14670.	1.0056	40.20
2.797	.26	.979	.045	5.94	8286.	.00	6229.	14412.	1.0055	40.21
2.831	.24	.958	.043	5.76	8286.	.00	5977.	14165.	1.0054	40.22
2.864	.22	.938	.042	5.58	8286.	.00	5736.	13927.	1.0053	40.23

2.897	.20	.919	.041	5.41	8286.	.00	5504.	13700.	1.0052	40.24
2.930	.19	.900	.039	5.24	8286.	.00	5282.	13481.	1.0052	40.25
2.964	.17	.881	.038	5.08	8286.	.00	5068.	13271.	1.0051	40.26
2.997	.16	.863	.037	4.92	8286.	.00	4863.	13069.	1.0050	40.27
3.030	.14	.845	.036	4.77	8286.	.00	4667.	12876.	1.0049	40.28
3.064	.13	.827	.035	4.62	8286.	.00	4478.	12690.	1.0049	40.28
3.097	.12	.810	.034	4.48	8286.	.00	4297.	12512.	1.0048	40.29
3.130	.11	.793	.033	4.34	8286.	.00	4123.	12341.	1.0047	40.30
3.164	.10	.777	.032	4.20	8286.	.00	3956.	12177.	1.0047	40.30
3.197	.09	.761	.031	4.07	8286.	.00	3796.	12019.	1.0046	40.30
3.230	.09	.745	.030	3.95	8286.	.00	3642.	11868.	1.0045	40.31
3.263	.08	.729	.029	3.82	8286.	.00	3495.	11723.	1.0045	40.31
3.297	.07	.714	.028	3.70	8286.	.00	3353.	11584.	1.0044	40.31
3.330	.07	.699	.027	3.59	8286.	.00	3217.	11450.	1.0044	40.32
3.363	.06	.685	.026	3.48	8286.	.00	3087.	11322.	1.0043	40.32
3.397	.06	.671	.025	3.37	8286.	.00	2962.	11199.	1.0043	40.32
3.430	.05	.657	.025	3.27	8286.	.00	2842.	11081.	1.0042	40.33
3.463	.05	.643	.024	3.16	8286.	.00	2727.	10968.	1.0042	40.33
3.497	.04	.630	.023	3.07	8286.	.00	2616.	10859.	1.0041	40.33
3.530	.04	.617	.022	2.97	8286.	.00	2510.	10755.	1.0041	40.33
3.563	.04	.604	.022	2.88	8286.	.00	2408.	10655.	1.0041	40.33
3.596	.03	.591	.021	2.79	8286.	.00	2311.	10559.	1.0040	40.33
3.630	.03	.579	.020	2.70	8286.	.00	2217.	10467.	1.0040	40.33
3.663	.03	.567	.020	2.62	8286.	.00	2127.	10378.	1.0040	40.34
3.696	.03	.555	.019	2.54	8286.	.00	2041.	10293.	1.0039	40.34

TIME (HRS)	WATER FLOW (CFS)	VELOCITY (FT/SEC)	HYD. DEPTH (FT)	WIDTH (FT)	WASHLOAD CONC. (PPM-w)	BED MAT. TRANSPORT (CFS)	BED CONC. (PPM-w)	TOTAL CONC. (PPM-w)	BULKING FACTOR	ACCUM. SEDIMENT (TONS)
3.730	.02	.544	.018	2.46	8286.	.00	1958.	10212.	1.0039	40.34
3.763	.02	.532	.018	2.38	8286.	.00	1879.	10134.	1.0039	40.34
3.796	.02	.521	.017	2.31	8286.	.00	1803.	10059.	1.0038	40.34
3.830	.02	.510	.017	2.24	8286.	.00	1730.	9987.	1.0038	40.34
3.863	.02	.500	.016	2.17	8286.	.00	1659.	9918.	1.0038	40.34
3.896	.02	.489	.016	2.10	8286.	.00	1592.	9852.	1.0038	40.34
3.929	.01	.479	.015	2.04	8286.	.00	1527.	9788.	1.0037	40.34
3.963	.01	.469	.015	1.97	8286.	.00	1465.	9727.	1.0037	40.34
3.996	.01	.459	.014	1.91	8286.	.00	1406.	9669.	1.0037	40.34
4.029	.01	.450	.014	1.85	8286.	.00	1349.	9613.	1.0037	40.34
4.063	.01	.441	.013	1.79	8286.	.00	1294.	9559.	1.0036	40.34
4.096	.01	.431	.013	1.74	8286.	.00	1242.	9507.	1.0036	40.34
4.129	.01	.422	.013	1.69	8286.	.00	1191.	9458.	1.0036	40.34
4.163	.01	.414	.012	1.63	8286.	.00	1143.	9410.	1.0036	40.34

4.196	.01	.399	.012	1.54	8286.	.00	1062.	9330.	1.0036	40.34
4.229	.01	.371	.010	1.39	8286.	.00	921.	9192.	1.0035	40.35
4.262	.00	.330	.009	1.16	8286.	.00	731.	9005.	1.0034	40.35
4.296	.00	.274	.007	.88	8286.	.00	505.	8783.	1.0033	40.35
4.329	.00	.248	.006	.76	8286.	.00	415.	8695.	1.0033	40.35

```
AT PEAK FLOW OF      22.378 WITH TIME AT     1.53 HOURS:  BEDMAT =      15.41 (TONS) =      .0071 (AC-FT bulked)
                                                          TOTAL SED =   18.12 (TONS) =      .0083 (AC-FT bulked)
PEAK BULKING FACTOR =   1.023000 =     57449. (PPM-w)
```

	WEIGHT (TONS)	UNBULKED VOLUME (AC-FT)	BULKED VOLUME (AC-FT)	CONCETRATION BY WEIGHT (PPM)	AVERAGE BULKING FACTOR
WASHMAT =	6.99	.0019	.0032	8286.	
BEDMAT =	33.35	.0093	.0153	38327.	
TOTAL SEDIMENT =	40.35	.0112	.0185	45992.	1.018192

```
SEDIMENT TRANSPORT CAPACITY:     1.07075 AC-FT/SQ MI (bulked) =     3.6439 TONS/ACRE (at Porosity=0.395)

PRINT HYD            ID=14 CODE=1

                                   PARTIAL HYDROGRAPH   133.54

    RUNOFF VOLUME =       .66738 INCHES      =        .6158 ACRE-FEET
    PEAK DISCHARGE RATE =      22.38 CFS  AT   1.532 HOURS   BASIN AREA =   .0173 SQ. MI.


ADD HYD              ID=15 HYD NO=123.02 ID=10 ID=14
PRINT HYD            ID=15 CODE=1

                                   PARTIAL HYDROGRAPH   123.02

    RUNOFF VOLUME =       .78567 INCHES      =        .9218 ACRE-FEET
    PEAK DISCHARGE RATE =      31.32 CFS  AT   1.499 HOURS   BASIN AREA =   .0220 SQ. MI.


COMPUTE NM HYD       ID=16 HYD NO=124.00 AREA=0.03110 SQ MI
```

```
                    PER A, B, C, & D 0 26.20 26.20 47.60
                    TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   58.445    CFS   UNIT VOLUME =    .9992       B =   526.28      P60 = 1.8700
    AREA =      .014804 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


    K =   .118429HR    TP =   .133300HR    K/TP RATIO =   .888442     SHAPE CONSTANT, N =  3.992480
    UNIT PEAK =   43.359    CFS   UNIT VOLUME =    1.000       B =   354.67      P60 = 1.8700
    AREA =      .016296 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD           ID=16 CODE=1

                                PARTIAL HYDROGRAPH   124.00


    RUNOFF VOLUME =     1.36302 INCHES     =       2.2608 ACRE-FEET
    PEAK DISCHARGE RATE =      66.82 CFS  AT   1.499 HOURS   BASIN AREA =   .0311 SQ. MI.


ADD HYD             ID=15 HYD NO=124.01 ID=15 ID=16
PRINT HYD           ID=15 CODE=1

                                PARTIAL HYDROGRAPH   124.01


    RUNOFF VOLUME =     1.12381 INCHES     =       3.1826 ACRE-FEET
    PEAK DISCHARGE RATE =      98.14 CFS  AT   1.499 HOURS   BASIN AREA =   .0531 SQ. MI.


ADD HYD             ID=12 HYD NO=124.02 ID=5 ID=15
PRINT HYD           ID=12 CODE=1

                                PARTIAL HYDROGRAPH   124.02


    RUNOFF VOLUME =      .81627 INCHES     =       7.9841 ACRE-FEET
    PEAK DISCHARGE RATE =     100.29 CFS  AT   1.499 HOURS   BASIN AREA =   .1834 SQ. MI.
```

```
COMPUTE NM HYD       ID=15 HYD NO=133.2 AREA=0.02100 SQ MI
                     PER A, B, C, & D 0 5 5 90
                     TP=0.1333 HR MASS RAINFALL=-1

    K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   74.618    CFS   UNIT VOLUME =    .9992       B =   526.28      P60 = 1.8700
    AREA =       .018900 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300


    K =    .118429HR    TP =    .133300HR    K/TP RATIO =    .888442     SHAPE CONSTANT, N =  3.992480
    UNIT PEAK =   5.5874    CFS   UNIT VOLUME =    .9980       B =   354.67      P60 = 1.8700
    AREA =       .002100 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=15 CODE=1

                                  PARTIAL HYDROGRAPH   133.20


    RUNOFF VOLUME =      1.85049 INCHES      =       2.0725 ACRE-FEET
    PEAK DISCHARGE RATE =      56.15 CFS  AT   1.499 HOURS   BASIN AREA =    .0210 SQ. MI.


ADD HYD              ID=14 HYD NO=133.01 ID=15 ID=9
PRINT HYD            ID=14 CODE=1

                                  PARTIAL HYDROGRAPH   133.01


    RUNOFF VOLUME =       .62536 INCHES      =      10.4393 ACRE-FEET
    PEAK DISCHARGE RATE =     156.08 CFS  AT   1.598 HOURS   BASIN AREA =    .3130 SQ. MI.


ADD HYD              ID=15 HYD NO=133.02 ID=12 ID=14
PRINT HYD            ID=15 CODE=1

                                  PARTIAL HYDROGRAPH   133.02


    RUNOFF VOLUME =       .69589 INCHES      =      18.4234 ACRE-FEET
```

PEAK DISCHARGE RATE = 232.34 CFS AT 1.598 HOURS BASIN AREA = .4964 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.0278
DIA=5.0 FT N=0.014

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.26	.39	2.12	2.22
.52	1.09	9.18	3.06
.78	1.96	21.35	3.63
1.04	2.97	38.39	4.06
1.30	4.07	59.94	4.39
1.56	5.25	85.52	4.64
1.82	6.48	114.58	4.81
2.08	7.75	146.50	4.93
2.35	9.04	180.60	4.99
2.61	10.35	216.14	5.00
2.87	11.64	252.33	5.00
3.13	12.92	288.31	5.00
3.39	14.16	323.14	5.00
3.65	15.35	355.76	5.00
3.91	16.47	384.95	5.00
4.17	17.49	409.23	5.00
4.43	18.39	426.61	5.00
4.69	19.13	433.75	5.00
5.00	19.63	433.75	5.00

COMPUTE TRAVEL TIME ID=16 REACH NO=1 NO VS=1 L=836 FT
SLP=0.0278

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.261	.390	2.12	.0429
.521	1.086	9.18	.0275
.782	1.961	21.35	.0213
1.042	2.966	38.39	.0179

1.303	4.069	59.94	.0158
1.563	5.246	85.52	.0142
1.824	6.479	114.58	.0131
2.084	7.749	146.50	.0123
2.345	9.043	180.60	.0116
2.606	10.345	216.14	.0111
2.866	11.641	252.33	.0107
3.127	12.918	288.31	.0104
3.387	14.159	323.14	.0102
3.648	15.348	355.76	.0100
3.908	16.467	384.95	.0099
4.169	17.492	409.23	.0099
4.429	18.395	426.61	.0100
4.690	19.130	433.75	.0102
5.000	19.635	433.75	.0105

```
ROUTE              ID=16 HYD NO=133.03 ID=15 DT=0.0
PRINT HYD          ID=16 CODE=1

                        PARTIAL HYDROGRAPH   133.03

    RUNOFF VOLUME =      .69564 INCHES      =      18.4168 ACRE-FEET
    PEAK DISCHARGE RATE =     225.96 CFS  AT   1.632 HOURS   BASIN AREA =   .4964 SQ. MI.


COMPUTE NM HYD     ID=1 HYD NO=1-12 AREA=0.03750 SQ MI
                   PER A, B, C, & D 0 14 29 57
                   TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   84.390    CFS   UNIT VOLUME =    .9992       B =   526.28      P60 = 1.8700
    AREA =      .021375 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


    K =   .114047HR    TP =   .133300HR    K/TP RATIO =   .855567     SHAPE CONSTANT, N =  4.158150
    UNIT PEAK =   44.223    CFS   UNIT VOLUME =    1.000       B =   365.58      P60 = 1.8700
    AREA =      .016125 SQ MI    IA =    .39884 INCHES    INF =    .96674 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD          ID=1 CODE=1

                        HYDROGRAPH FROM AREA 1-12
```

```
    RUNOFF VOLUME =      1.49599 INCHES      =        2.9920 ACRE-FEET
    PEAK DISCHARGE RATE =       86.44 CFS  AT   1.499 HOURS   BASIN AREA =   .0375 SQ. MI.


COMPUTE NM HYD       ID=2 HYD NO=33 AREA=0.00113 SQ MI
                     PER A, B, C, & D 0 50 50 0
                     TP=0.1333 HR MASS RAINFALL=-1

    K =   .118429HR    TP =   .133300HR    K/TP RATIO =   .888442     SHAPE CONSTANT, N =  3.992480
    UNIT PEAK =   3.0066    CFS   UNIT VOLUME =    .9962       B =   354.67      P60 = 1.8700
    AREA =      .001130 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD            ID=2 CODE=1

                                    OUTFLOW HYDROGRAPH REACH    33.00


    RUNOFF VOLUME =       .81578 INCHES      =         .0492 ACRE-FEET
    PEAK DISCHARGE RATE =        1.77 CFS  AT   1.499 HOURS   BASIN AREA =   .0011 SQ. MI.


ADD HYD              ID=3 HYD NO=1-33 D=1 ID=2
PRINT HYD            ID=3 CODE=1

                                    HYDROGRAPH FROM AREA 1-33


    RUNOFF VOLUME =      1.47608 INCHES      =        3.0411 ACRE-FEET
    PEAK DISCHARGE RATE =       88.21 CFS  AT   1.499 HOURS   BASIN AREA =   .0386 SQ. MI.


ROUTE RESERVOIR      ID=4 HYD NO=33POND INFLOW ID=3  CODE=3
                     OUTFLOW(CFS)   STORAGE(AC-FT)   ELEVATION(FT)
                     0              0                63.3
                     5.3            .14              65.0
                     7.9            .47              66.5
                     12.6           2.01             70.7
                     12.9           2.16             71.0
```

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	63.30	.000	.00
.10	.00	63.30	.000	.00
.20	.00	63.30	.000	.00
.30	.00	63.30	.000	.00
.40	.00	63.30	.000	.00
.50	.00	63.30	.000	.00
.60	.00	63.30	.000	.00
.70	.00	63.30	.000	.00
.80	.00	63.30	.000	.00
.90	.00	63.30	.000	.00
1.00	.00	63.30	.000	.00
1.10	.00	63.30	.000	.00
1.20	1.02	63.32	.002	.07
1.30	12.19	63.82	.043	1.63
1.40	44.96	65.39	.226	5.98
1.50	88.21	67.23	.738	8.72
1.60	63.17	68.78	1.308	10.46
1.70	40.02	69.67	1.632	11.45
1.80	29.13	70.17	1.816	12.01
1.90	22.55	70.47	1.927	12.35
2.00	17.83	70.65	1.990	12.54
2.10	12.83	70.71	2.015	12.61
2.20	6.91	70.65	1.990	12.54
2.30	4.53	70.49	1.934	12.37
2.40	3.35	70.30	1.865	12.16
2.50	2.53	70.10	1.789	11.93
2.60	1.95	69.88	1.710	11.68
2.70	1.53	69.66	1.629	11.44
2.80	1.23	69.44	1.547	11.19
2.90	1.01	69.21	1.465	10.94
3.00	.84	68.99	1.383	10.69
3.10	.71	68.77	1.302	10.44
3.20	.61	68.55	1.223	10.20
3.30	.54	68.34	1.144	9.96
3.40	.49	68.13	1.067	9.72
3.50	.45	67.92	.992	9.49
3.60	.42	67.72	.918	9.27
3.70	.40	67.52	.846	9.05
3.80	.38	67.33	.775	8.83

3.90	.36	67.14	.706	8.62
4.00	.35	66.96	.639	8.42
4.10	.34	66.78	.573	8.21
4.20	.34	66.61	.509	8.02
4.30	.34	66.39	.446	7.71
4.40	.34	66.13	.388	7.25
4.50	.34	65.87	.332	6.81
4.60	.34	65.64	.281	6.41
4.70	.34	65.42	.232	6.03
4.80	.35	65.21	.187	5.67
4.90	.35	65.02	.144	5.33
5.00	.36	64.61	.108	4.09
5.09	.36	64.29	.082	3.09
5.19	.37	64.06	.062	2.36
5.29	.37	63.88	.048	1.82
5.39	.38	63.76	.038	1.43
5.49	.39	63.67	.030	1.15

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
5.59	.40	63.60	.025	.95
5.69	.41	63.56	.021	.80
5.79	.42	63.52	.018	.70
5.89	.43	63.50	.016	.62
5.99	.43	63.48	.015	.57
6.09	.34	63.47	.014	.53
6.19	.12	63.44	.012	.44
6.29	.06	63.41	.009	.35
6.39	.04	63.39	.007	.27
6.49	.02	63.36	.005	.20
6.59	.01	63.35	.004	.15
6.69	.01	63.34	.003	.11
6.79	.01	63.33	.002	.09
6.89	.00	63.32	.002	.06
6.99	.00	63.32	.001	.05
7.09	.00	63.31	.001	.04
7.19	.00	63.31	.001	.03
7.29	.00	63.31	.001	.02
7.39	.00	63.30	.000	.01
7.49	.00	63.30	.000	.01
7.59	.00	63.30	.000	.01
7.69	.00	63.30	.000	.01
7.79	.00	63.30	.000	.00

```
PEAK DISCHARGE =        12.611 CFS - PEAK OCCURS AT HOUR    2.10
MAXIMUM WATER SURFACE ELEVATION =        70.711
MAXIMUM STORAGE =        2.0155 AC-FT       INCREMENTAL TIME=     .033300HRS

PRINT HYD            ID=4 CODE=1

                                    HYDROGRAPH FROM AREA 33POND


   RUNOFF VOLUME =      1.47608 INCHES      =        3.0411 ACRE-FEET
   PEAK DISCHARGE RATE =       12.61 CFS  AT   2.098 HOURS   BASIN AREA =   .0386 SQ. MI.


COMPUTE NM HYD       ID=1 HYD NO=34 AREA=0.00494 SQ MI
                     PER A, B, C, & D 0 0 10 90
                     TP=0.1333 HR MASS RAINFALL=-1

   K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
   UNIT PEAK =    17.553    CFS   UNIT VOLUME =     .9987       B =   526.28      P60 = 1.8700
   AREA =       .004446 SQ MI    IA =     .10000 INCHES    INF =     .04000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

   K =    .105867HR    TP =    .133300HR    K/TP RATIO =    .794199     SHAPE CONSTANT, N =  4.514851
   UNIT PEAK =    1.4384    CFS   UNIT VOLUME =     .9917       B =   388.14      P60 = 1.8700
   AREA =       .000494 SQ MI    IA =     .35000 INCHES    INF =     .83000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=1 CODE=1

                                    OUTFLOW HYDROGRAPH REACH    34.00


   RUNOFF VOLUME =      1.86834 INCHES      =         .4922 ACRE-FEET
   PEAK DISCHARGE RATE =       13.36 CFS  AT   1.499 HOURS   BASIN AREA =   .0049 SQ. MI.


COMPUTE NM HYD       ID=1 HYD NO=20 AREA=0.00800 SQ MI
                     PER A, B, C, & D 0 0 10 90
                     TP=0.1333 HR MASS RAINFALL=-1

   K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
```

```
    UNIT PEAK =   28.426    CFS   UNIT VOLUME =    .9990       B =   526.28      P60 = 1.8700
    AREA =      .007200 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

    K =   .105867HR    TP =   .133300HR    K/TP RATIO =   .794199     SHAPE CONSTANT, N =  4.514851
    UNIT PEAK =   2.3294    CFS   UNIT VOLUME =    .9947       B =   388.14      P60 = 1.8700
    AREA =      .000800 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD           ID=1 CODE=1

                                OUTFLOW HYDROGRAPH REACH    20.00

    RUNOFF VOLUME =     1.86834 INCHES     =        .7972 ACRE-FEET
    PEAK DISCHARGE RATE =      21.63 CFS  AT   1.499 HOURS   BASIN AREA =   .0080 SQ. MI.


COMPUTE NM HYD      ID=2 HYD NO=21 AREA=0.00245 SQ MI
                    PER A, B, C, & D 0 0 10 90
                    TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   8.7055    CFS   UNIT VOLUME =    .9980       B =   526.28      P60 = 1.8700
    AREA =      .002205 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

    K =   .105867HR    TP =   .133300HR    K/TP RATIO =   .794199     SHAPE CONSTANT, N =  4.514851
    UNIT PEAK =   .71339    CFS   UNIT VOLUME =    .9822       B =   388.14      P60 = 1.8700
    AREA =      .000245 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD           ID=2 CODE=1

                                OUTFLOW HYDROGRAPH REACH    21.00

    RUNOFF VOLUME =     1.86834 INCHES     =        .2441 ACRE-FEET
    PEAK DISCHARGE RATE =       6.63 CFS  AT   1.499 HOURS   BASIN AREA =   .0025 SQ. MI.
```

```
ADD HYD              ID=3 HYD NO=20-21 ID=1 ID=2
PRINT HYD            ID=3 CODE=1

                                   HYDROGRAPH FROM AREA 20-21


    RUNOFF VOLUME =     1.86828 INCHES     =       1.0412 ACRE-FEET
    PEAK DISCHARGE RATE =      28.26 CFS  AT   1.499 HOURS   BASIN AREA =   .0105 SQ. MI.


COMPUTE NM HYD       ID=1 HYD NO=22 AREA=0.00130 SQ MI
                     PER A, B, C, & D 0 0 10 90
                     TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   4.6192    CFS   UNIT VOLUME =    .9969       B =   526.28      P60 = 1.8700
    AREA =      .001170 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


    K =   .105867HR    TP =   .133300HR    K/TP RATIO =   .794199     SHAPE CONSTANT, N =  4.514851
    UNIT PEAK =   .37853    CFS   UNIT VOLUME =    .9663       B =   388.14      P60 = 1.8700
    AREA =      .000130 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD            ID=1 CODE=1

                                 OUTFLOW HYDROGRAPH REACH    22.00


    RUNOFF VOLUME =     1.86834 INCHES     =        .1295 ACRE-FEET
    PEAK DISCHARGE RATE =       3.53 CFS  AT   1.499 HOURS   BASIN AREA =   .0013 SQ. MI.


ADD HYD              ID=2 HYD NO=20-22 ID=1 ID=3
PRINT HYD            ID=2 CODE=1

                                   HYDROGRAPH FROM AREA 20-22


    RUNOFF VOLUME =     1.86827 INCHES     =       1.1708 ACRE-FEET
    PEAK DISCHARGE RATE =      31.79 CFS  AT   1.499 HOURS   BASIN AREA =   .0118 SQ. MI.
```

```
ADD HYD              ID=5 HYD NO=1-22 ID=4 ID=2
PRINT HYD            ID=5 CODE=1

                                   HYDROGRAPH FROM AREA 1-22

    RUNOFF VOLUME =      1.56754 INCHES      =        4.2118 ACRE-FEET
    PEAK DISCHARGE RATE =      40.51 CFS  AT   1.499 HOURS   BASIN AREA =   .0504 SQ. MI.


ADD HYD              ID=14 HYD NO=133.03 ID=16 ID=5
PRINT HYD            ID=14 CODE=1

                                 PARTIAL HYDROGRAPH   133.03

    RUNOFF VOLUME =       .77598 INCHES      =       22.6286 ACRE-FEET
    PEAK DISCHARGE RATE =     256.92 CFS  AT   1.598 HOURS   BASIN AREA =   .5468 SQ. MI.


COMPUTE NM HYD       ID=4 HYD NO=23 AREA=0.00570 SQ MI
                     PER A, B, C, & D 0 0 10 90
                     TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   20.254    CFS   UNIT VOLUME =    .9988       B =   526.28      P60 = 1.8700
    AREA =       .005130 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


    K =   .105867HR    TP =   .133300HR    K/TP RATIO =   .794199     SHAPE CONSTANT, N =  4.514851
    UNIT PEAK =   1.6597    CFS   UNIT VOLUME =    .9926       B =   388.14      P60 = 1.8700
    AREA =       .000570 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD            ID=4 CODE=1

                                 OUTFLOW HYDROGRAPH REACH    23.00
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```
    RUNOFF VOLUME =      1.86834 INCHES      =         .5680 ACRE-FEET
    PEAK DISCHARGE RATE =       15.41 CFS  AT   1.499 HOURS   BASIN AREA =   .0057 SQ. MI.


ADD HYD              ID=15 HYD NO=523 ID=14 ID=4
PRINT HYD            ID=15 CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   523.00


    RUNOFF VOLUME =       .78725 INCHES      =      23.1966 ACRE-FEET
    PEAK DISCHARGE RATE =      267.60 CFS  AT   1.598 HOURS   BASIN AREA =   .5525 SQ. MI.


COMPUTE NM HYD       ID=3 HYD NO=114.01 AREA=0.01580 SQ MI
                     PER A, B, C, & D 0 21.5 21.5 57
                     TP=0.1333 HR MASS RAINFALL=-1

    K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   35.556    CFS   UNIT VOLUME =     .9990       B =   526.28      P60 = 1.8700
    AREA =       .009006 SQ MI    IA =     .10000 INCHES    INF =     .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300


    K =    .118429HR    TP =    .133300HR    K/TP RATIO =    .888442     SHAPE CONSTANT, N =  3.992480
    UNIT PEAK =   18.077    CFS   UNIT VOLUME =     .9997       B =   354.67      P60 = 1.8700
    AREA =       .006794 SQ MI    IA =     .42500 INCHES    INF =   1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=3 CODE=1

                                PARTIAL HYDROGRAPH   114.01


    RUNOFF VOLUME =      1.47109 INCHES      =       1.2396 ACRE-FEET
    PEAK DISCHARGE RATE =       35.80 CFS  AT   1.499 HOURS   BASIN AREA =   .0158 SQ. MI.


COMPUTE NM HYD       ID=1 HYD NO=115.01 AREA=0.00139 SQ MI
                     PER A, B, C, & D 0 21.5 21.5 57
                     TP=0.1333 HR MASS RAINFALL=-1
```

```
K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
UNIT PEAK =   3.1280    CFS   UNIT VOLUME =    .9955       B =   526.28      P60 = 1.8700
AREA =       .000792 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

K =    .118429HR    TP =    .133300HR    K/TP RATIO =    .888442     SHAPE CONSTANT, N =  3.992480
UNIT PEAK =   1.5903    CFS   UNIT VOLUME =    .9922       B =   354.67      P60 = 1.8700
AREA =       .000598 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD           ID=1 CODE=1

                                PARTIAL HYDROGRAPH   115.01

RUNOFF VOLUME =     1.47109 INCHES     =        .1091 ACRE-FEET
PEAK DISCHARGE RATE =       3.16 CFS  AT   1.499 HOURS   BASIN AREA =    .0014 SQ. MI.


ADD HYD             ID=2 HYD NO=115.02 ID=1 ID=3
PRINT HYD           ID=2 CODE=1

                                PARTIAL HYDROGRAPH   115.02

RUNOFF VOLUME =     1.47106 INCHES     =       1.3487 ACRE-FEET
PEAK DISCHARGE RATE =      38.96 CFS  AT   1.499 HOURS   BASIN AREA =    .0172 SQ. MI.


ADD HYD             ID=1 HYD NO=115.03 ID=2 ID=15
PRINT HYD           ID=1 CODE=1

                                PARTIAL HYDROGRAPH   115.03

RUNOFF VOLUME =      .80788 INCHES     =      24.5453 ACRE-FEET
PEAK DISCHARGE RATE =     295.51 CFS  AT   1.598 HOURS   BASIN AREA =    .5697 SQ. MI.


FINISH
```

A-56

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NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 13:47:26
```

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539
e-mail: dmg@swcp.com

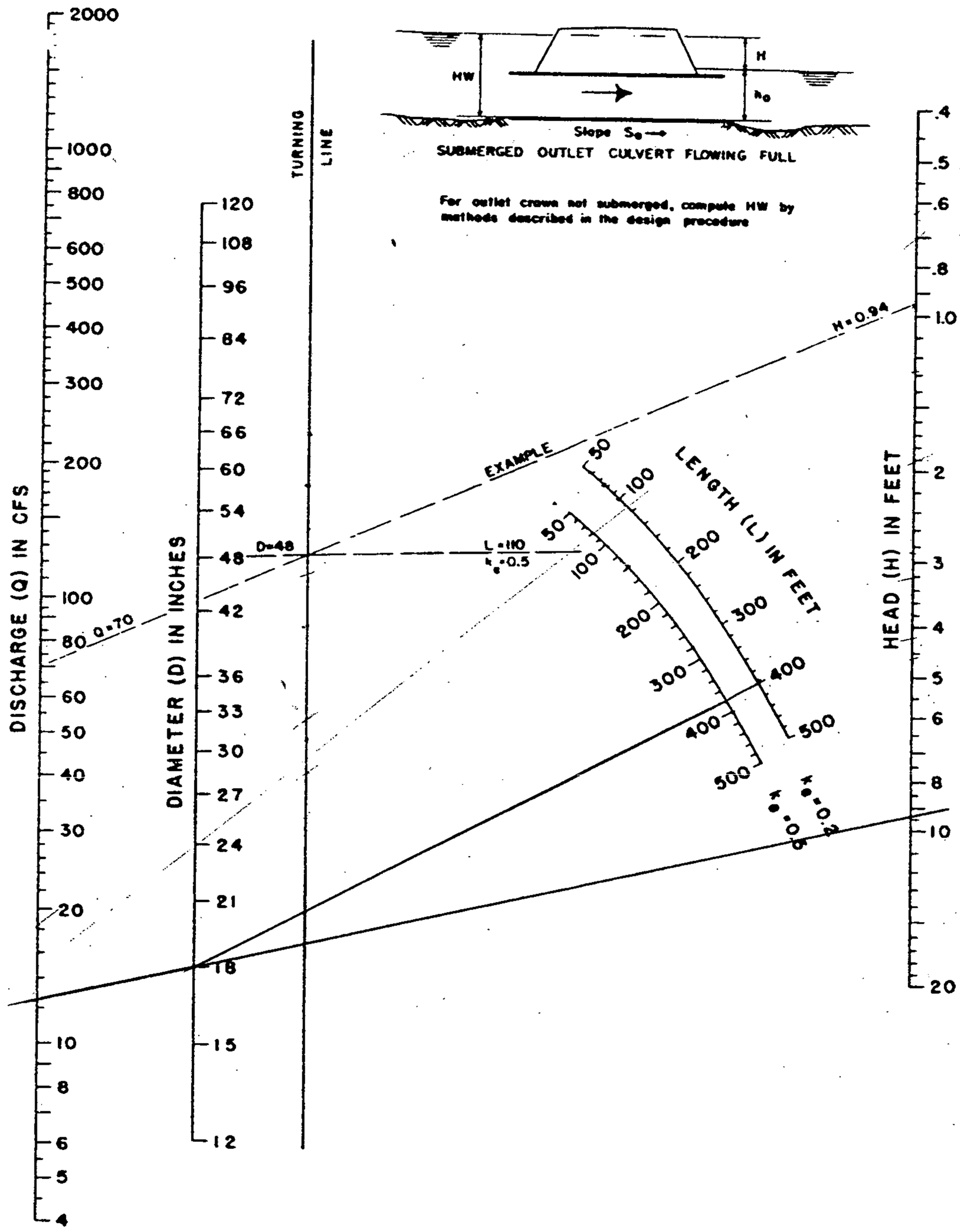
PROJECT West Ridge
SUBJECT Pond Outlet Control Str.
BY Doug Hughes DATE 08-02-03
CHECKED _____ DATE _____
SHEET ___ OF ___

Problem:
After sizing an orifice and routing the hydrograph thru the pond using AHYMO then preforming hydraulic grade line calculations using Storm Plus it was discovered that the 400' long 18" RCP has significant backwater effects ~~thus nulify~~ contrary to the original orifice assumptions.

Solution:
So, set the 18" RCP at a flat enough slope to control the pond discharge without using an orifice plat. From Chart 5 the head that matches the peak pond discharge rate of 12.61cfs is 9.5' and the 100 yr. peak pond elevation from the AHYMO is 70.71. So set the downstream sofit 9.5' below the pond elevation and the invert 18" below that at elevation 59.71.

Check with HGL Calculations:
Revised calculations indicate that the pipe may have more capacity than Chart 5 indicates but chart 5 accounts for entrance losses not reflected in the HGL calcs. The downstream pipes have capacity for slightly higher peak flow rates than those indicated by AHYMO and the pond will simply have more freeboard if the flow rate is higher.

CHART 5



BUREAU OF PUBLIC ROADS JAN. 1963

HEAD FOR
CONCRETE PIPE CULVERTS
FLOWING FULL
n = 0.012

A-59

STORM DRAIN ANALYSIS PLUS

Original version by Los Angeles County Public Works
Portions Copyrighted by CIVILSOFT, 1986, 1987, 1989

Version
Serial Number

Jan 2, 2003 13:56:27

Input file : WR2.DAT
Output file: WR2.OUT

INPUT FILE LISTING

```
T1 OURAY RD. & TWIN OAKS DRIVE FOR WEST RIDGE SUBDIVISION
T2 BY JAMES D. HUGHES 01-02-03
T3 MAIN LINE ANALYSIS
SO   1000.00  16.17  6                          19.3
R    1363.50  17.83  6      .013
R    1371.50  18.13  6      .013                                      1
R    1788.70  25.95  6      .013
R    1796.70  26.27  6      .013                                      1
R    1873.70  27.77  6      .013
JX   1873.70  27.77  6  5   .013   27.91          28.35        90.
R    1881.70  27.85  6      .013                                      1
R    2244.50  35.04  6      .013
R    2252.50  35.36  6      .013                                      1
R    2452.50  37.34  6      .013
JX   2460.50  37.50  6  7   .013   10.68          40.0         90.        1
R    2675.90  43.77  6      .013
JX   2679.90  43.89  6  6   .013   216.4          43.89        01.        1
TS   2683.90  47.00  2      .013
R    2810.00  50.27  2      .013                                  90.
JX   2812.50  50.28  2  7  7.013   14.0   13.9   52.50 52.50   1.    60.   1
TS   2815.00  52.27  7      .013
R    2954.00  54.36  7      .013                                  30.   1
R    3108.00  56.71  7      .013                                  30.   1
R    3272.00  59.21  7      .013                                  30.   1
R    3276.00  59.71  7      .013
R    3672.00  63.30  7      .013
```

A-10

SH 7
1 SP

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

PAGE 1

0 CARD CODE	SECT NO	CHN TYPE	NO OF PIERS	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4			3.00														
CD	2	4			2.50														
CD	3	4			2.00														
CD	4	4			3.50														
CD	5	4			4.50														
CD	6	4			5.00														
CD	7	4			1.50														

PAGE NO 1

1
0 WATER SURFACE PROFILE - TITLE CARD LISTING

0HEADING LINE NO 1 IS -
0 OURAY RD. & TWIN OAKS DRIVE FOR WEST RIDGE SUBDIVISION

0HEADING LINE NO 2 IS -
0 BY JAMES D. HUGHES 01-02-03

0HEADING LINE NO 3 IS -
0 MAIN LINE ANALYSIS

PAGE NO 2

1
0 WATER SURFACE PROFILE - ELEMENT CARD LISTING

0 ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.00	16.17	6	19.30

0 ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1363.50	17.83	6	.013	.00	.00	.00	0

0 ELEMENT NO 3 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1371.50	18.13	6	.013	.00	.00	.00	1

0 ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1788.70	25.95	6	.013	.00	.00	.00	0

0 ELEMENT NO 5 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1796.70	26.27	6	.013	.00	.00	.00	1

0 ELEMENT NO 6 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1873.70	27.77	6	.013	.00	.00	.00	0

0 ELEMENT NO 7 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1873.70	27.77	6	5	0	.013	27.9	.0	28.35	.00	90.00	.00

A 61

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 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
0 ELEMENT NO   8 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                 1881.70   27.85    6               .013                                    .00    .00     .00      1
0 ELEMENT NO   9 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                 2244.50   35.04    6               .013                                    .00    .00     .00      0
0 ELEMENT NO  10 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                 2252.50   35.36    6               .013                                    .00    .00     .00      1
0 ELEMENT NO  11 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                 2452.50   37.34    6               .013                                    .00    .00     .00      0
0 ELEMENT NO  12 IS A JUNCTION           *         *     *     *                 *                   *                 *
                     U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                                 2460.50   37.50    6     7     0   .013     10.7       .0    40.00      .00   90.00     .00
                                                                                                                PAGE NO    3
1
0                          WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO  13 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                 2675.90   43.77    6               .013                                    .00    .00     .00      0
0 ELEMENT NO  14 IS A JUNCTION           *         *     *     *                 *                   *                 *
                     U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                                 2679.90   43.89    6     6     0   .013    216.4       .0    43.89      .00    1.00     .00
0 ELEMENT NO  15 IS A TRANSITION         *         *     *
                     U/S DATA   STATION    INVERT  SECT              N
                                 2683.90   47.00    2               .013
0 ELEMENT NO  16 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                 2810.00   50.27    2               .013                                    .00    .00   90.00      0
0 ELEMENT NO  17 IS A JUNCTION           *         *     *     *                 *                   *                 *
                     U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                                 2812.50   50.28    2     7     7   .013     14.0     13.9    52.50    52.50    1.00   60.00
0 ELEMENT NO  18 IS A TRANSITION         *         *     *
                     U/S DATA   STATION    INVERT  SECT              N
                                 2815.00   52.27    7               .013
0 ELEMENT NO  19 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                 2954.00   54.36    7               .013                                    .00    .00   30.00      1
0 ELEMENT NO  20 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                 3108.00   56.71    7               .013                                    .00    .00   30.00      1
0 ELEMENT NO  21 IS A REACH              *         *     *
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A 62

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                    U/S DATA   STATION    INVERT  SECT          N                                  RADIUS  ANGLE  ANG PT  MAN H
                               3272.00    59.21    7           .013                                   .00    .00   30.00      1
0 ELEMENT NO  22 IS A REACH          *         *     *
                    U/S DATA   STATION    INVERT  SECT          N                                  RADIUS  ANGLE  ANG PT  MAN H
                               3276.00    59.71    7           .013                                   .00    .00     .00      0
0 ELEMENT NO  23 IS A REACH          *         *     *
                    U/S DATA   STATION    INVERT  SECT          N                                  RADIUS  ANGLE  ANG PT  MAN H
                               3672.00    63.30    7           .013                                   .00    .00     .00      0
0 ELEMENT NO  24 IS A SYSTEM HEADWORKS                *                   *
                    U/S DATA   STATION    INVERT  SECT                                W S ELEV
                               3672.00    63.30    7                                     .00
                                                                                                                PAGE NO    4
1
0                          WATER SURFACE PROFILE - ELEMENT CARD LISTING
 NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING

 ** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC
                                                                                                                PAGE     1
1
                                        WATER SURFACE PROFILE LISTING
                     OURAY RD. & TWIN OAKS DRIVE FOR WEST RIDGE SUBDIVISION
                     BY JAMES D. HUGHES 01-02-03
                                   MAIN LINE ANALYSIS
0 STATION     INVERT   DEPTH     W.S.      Q       VEL     VEL     ENERGY   SUPER  CRITICAL                HGT/    BASE/    ZL    NO   AVBPR
                ELEV   OF FLOW   ELEV                        HEAD   GRD.EL.   ELEV   DEPTH                  DIA     ID NO.          PIER
0 L/ELEM        SO                                        SF AVE    HF                     NORM DEPTH                      ZR
*****************************************************************************************************************************************
0  1000.00    16.17     4.65    20.82    295.5   15.52    3.74    24.57    .00    4.65                   5.00      .00    .00    0    .00
0    16.71   .00457                                      .01193     .20                      5.00                            .00
0  1016.71    16.25     5.00    21.25    295.5   15.05    3.52    24.77    .00    4.65                   5.00      .00    .00    0    .00
0   346.79   .00457                                      .01280     4.44                     5.00                            .00
0  1363.50    17.83     7.88    25.71    295.5   15.05    3.52    29.23    .00    4.65                   5.00      .00    .00    0    .00
0     8.00   .03750                                      .01287     .10                      2.75                            .00
0  1371.50    18.13     7.86    25.99    295.5   15.05    3.52    29.51    .00    4.65                   5.00      .00    .00    0    .00
0   392.70   .01874                                      .01287     5.06                     3.47                            .00
0  1764.20    25.49     5.55    31.04    295.5   15.05    3.52    34.56    .00    4.65                   5.00      .00    .00    0    .00
0HYDRAULIC JUMP                                                                                                                  .00
0  1764.20    25.49     3.75    29.24    295.5   18.69    5.43    34.67    .00    4.65                   5.00      .00    .00    0    .00
0    24.50   .01874                                      .01528     .37                      3.47                            .00
0  1788.70    25.95     3.79    29.74    295.5   18.51    5.33    35.06    .00    4.65                   5.00      .00    .00    0    .00
0     8.00   .04000                                      .01462     .12                      2.70                            .00
0  1796.70    26.27     3.91    30.18    295.5   17.94    5.00    35.18    .00    4.65                   5.00      .00    .00    0    .00
0  1796.70    26.27     5.37    31.64    295.5   15.05    3.52    35.16    .00    4.65                   5.00      .00    .00    0    .00
0    25.17   .01948                                      .01287     .32                      3.42                            .00
0  1821.87    26.76     5.20    31.96    295.5   15.05    3.52    35.48    .00    4.65                   5.00      .00    .00    0    .00
0HYDRAULIC JUMP                                                                                                                  .00
```

A63

0	1821.87	26.76	4.02	30.78	295.5	17.46	4.74	35.52	.00	4.65		5.00	.00	.00	0	.00
0	17.88	.01948					.01304	.23			3.42			.00		
0	1839.75	27.11	4.12	31.23	295.5	17.08	4.53	35.76	.00	4.65		5.00	.00	.00	0	.00
1															PAGE	2

WATER SURFACE PROFILE LISTING
OURAY RD. & TWIN OAKS DRIVE FOR WEST RIDGE SUBDIVISION
BY JAMES D. HUGHES 01-02-03
MAIN LINE ANALYSIS

0	STATION / L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0	24.44	.01948					.01224	.30			3.42			.00		
0	1864.19	27.58	4.35	31.94	295.5	16.28	4.12	36.06	.00	4.65		5.00	.00	.00	0	.00
0	9.51	.01948					.01143	.11			3.42			.00		
0	1873.70	27.77	4.65	32.42	295.5	15.52	3.74	36.17	.00	4.65		5.00	.00	.00	0	.00
0	JUNCT STR	.00000					.01085	.00						.00		
0	1873.70	27.77	6.16	33.93	267.6	13.63	2.89	36.82	.00	4.53		5.00	.00	.00	0	.00
0	8.00	.01000					.01056	.08			4.23			.00		
0	1881.70	27.85	6.31	34.16	267.6	13.63	2.89	37.05	.00	4.53		5.00	.00	.00	0	.00
0	17.66	.01982					.01056	.19			3.17			.00		
0	1899.36	28.20	6.15	34.35	267.6	13.63	2.89	37.23	.00	4.53		5.00	.00	.00	0	.00
0	HYDRAULIC JUMP													.00		
0	1899.36	28.20	3.23	31.43	267.6	19.98	6.20	37.63	.00	4.53		5.00	.00	.00	0	.00
0	131.41	.01982					.01841	2.42			3.17			.00		
0	2030.78	30.80	3.28	34.08	267.6	19.60	5.97	40.05	.00	4.53		5.00	.00	.00	0	.00
0	141.10	.01982					.01698	2.40			3.17			.00		
0	2171.88	33.60	3.42	37.02	267.6	18.69	5.43	42.45	.00	4.53		5.00	.00	.00	0	.00
0	72.62	.01982					.01513	1.10			3.17			.00		
0	2244.50	35.04	3.57	38.61	267.6	17.82	4.93	43.55	.00	4.53		5.00	.00	.00	0	.00
0	8.00	.04000					.01371	.11			2.54			.00		
0	2252.50	35.36	3.69	39.05	267.6	17.21	4.60	43.66	.00	4.53		5.00	.00	.00	0	.00
0	13.70	.00990					.01329	.18			4.26			.00		
0	2266.20	35.50	3.66	39.16	267.6	17.35	4.68	43.84	.00	4.53		5.00	.00	.00	0	.00
1															PAGE	3

WATER SURFACE PROFILE LISTING
OURAY RD. & TWIN OAKS DRIVE FOR WEST RIDGE SUBDIVISION
BY JAMES D. HUGHES 01-02-03
MAIN LINE ANALYSIS

0	STATION / L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0	71.71	.00990					.01421	1.02			4.26			.00		

A 64

0	2337.91	36.21	3.51	39.71	267.6	18.20	5.15	44.86	.00	4.53		5.00	.00	.00	0	.00
0	60.91	.00990					.01592	.97			4.26			.00		
0	2398.81	36.81	3.36	40.17	267.6	19.09	5.66	45.83	.00	4.53		5.00	.00	.00	0	.00
0	53.69	.00990					.01789	.96			4.26			.00		
0	2452.50	37.34	3.22	40.56	267.6	20.02	6.23	46.79	.00	4.53		5.00	.00	.00	0	.00
0	JUNCT STR	.02000					.02080	.17						.00		
0	2460.50	37.50	2.95	40.45	256.9	21.29	7.04	47.50	.00	4.47		5.00	.00	.00	0	.00
0	JUNCT STR	.02000					.02264	.00						.00		
0	2460.50	37.50	2.95	40.45	256.9	21.29	7.04	47.50	.00	4.47		5.00	.00	.00	0	.00
0	65.56	.02911					.02138	1.40			2.73			.00		
0	2526.06	39.41	3.07	42.48	256.9	20.33	6.42	48.90	.00	4.47		5.00	.00	.00	0	.00
0	45.08	.02911					.01898	.86			2.73			.00		
0	2571.14	40.72	3.20	43.92	256.9	19.38	5.84	49.75	.00	4.47		5.00	.00	.00	0	.00
0	32.17	.02911					.01684	.54			2.73			.00		
0	2603.30	41.66	3.33	44.99	256.9	18.48	5.31	50.30	.00	4.47		5.00	.00	.00	0	.00
0	23.81	.02911					.01498	.36			2.73			.00		
0	2627.11	42.35	3.48	45.83	256.9	17.62	4.82	50.65	.00	4.47		5.00	.00	.00	0	.00
0	17.88	.02911					.01336	.24			2.73			.00		
0	2644.99	42.87	3.64	46.51	256.9	16.80	4.39	50.89	.00	4.47		5.00	.00	.00	0	.00
0	13.28	.02911					.01196	.16			2.73			.00		
0	2658.26	43.26	3.81	47.06	256.9	16.02	3.99	51.05	.00	4.47		5.00	.00	.00	0	.00

1

WATER SURFACE PROFILE LISTING

OURAY RD. & TWIN OAKS DRIVE FOR WEST RIDGE SUBDIVISION

BY JAMES D. HUGHES 01-02-03

MAIN LINE ANALYSIS

0	STATION / 0 L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0	9.45	.02911					.01076	.10			2.73			.00		
0	2667.72	43.53	4.00	47.53	256.9	15.27	3.62	51.15	.00	4.47		5.00	.00	.00	0	.00
0	5.97	.02911					.00975	.06			2.73			.00		
0	2673.68	43.71	4.21	47.91	256.9	14.56	3.30	51.21	.00	4.47		5.00	.00	.00	0	.00
0	2.22	.02911					.00896	.02			2.73			.00		
0	2675.90	43.77	4.47	48.24	256.9	13.88	2.99	51.23	.00	4.47		5.00	.00	.00	0	.00
0	JUNCT STR	.03000					.00443	.02						.00		
0	2679.90	43.89	7.29	51.18	40.5	2.06	.07	51.25	.00	1.78		5.00	.00	.00	0	.00
0	TRANS STR	.77750					.00500	.02						.00		
0	2683.90	47.00	3.41	50.41	40.5	8.25	1.06	51.47	.00	2.14		2.50	.00	.00	0	.00
0	42.79	.02593					.00975	.42			1.41			.00		
0	2726.69	48.11	2.89	51.00	40.5	8.25	1.06	52.06	.00	2.14		2.50	.00	.00	0	.00
0	HYDRAULIC JUMP													.00		
0	2726.69	48.11	1.51	49.62	40.5	13.07	2.66	52.27	.00	2.14		2.50	.00	.00	0	.00

465

0	22.63	.02593					.02034	.46			1.41			.00			
0	2749.32	48.70	1.55	50.25	40.5	12.65	2.49	52.73	.00	2.14		2.50	.00	.00	0	.00	
0	21.45	.02593					.01838	.39			1.41			.00			
0	2770.77	49.25	1.62	50.87	40.5	12.06	2.26	53.13	.00	2.14		2.50	.00	.00	0	.00	
0	14.09	.02593					.01632	.23			1.41			.00			
0	2784.86	49.62	1.69	51.30	40.5	11.50	2.05	53.36	.00	2.14		2.50	.00	.00	0	.00	
0	9.89	.02593					.01453	.14			1.41			.00			
0	2794.75	49.87	1.76	51.63	40.5	10.96	1.87	53.50	.00	2.14		2.50	.00	.00	0	.00	
1															PAGE	5	

WATER SURFACE PROFILE LISTING
OURAY RD. & TWIN OAKS DRIVE FOR WEST RIDGE SUBDIVISION
BY JAMES D. HUGHES 01-02-03
MAIN LINE ANALYSIS

0 STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH		HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
0 L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
0	6.92	.02593				.01296	.09			1.41			.00		
0	2801.67	50.05	1.84	51.89	40.5	10.45	1.70	53.59	.00	2.14		2.50	.00	.00	0	.00
0	4.64	.02593					.01162	.05			1.41			.00		
0	2806.31	50.17	1.93	52.10	40.5	9.97	1.54	53.65	.00	2.14		2.50	.00	.00	0	.00
0	2.74	.02593					.01047	.03			1.41			.00		
0	2809.04	50.25	2.03	52.27	40.5	9.50	1.40	53.67	.00	2.14		2.50	.00	.00	0	.00
0	.96	.02593					.00952	.01			1.41			.00		
0	2810.00	50.27	2.14	52.41	40.5	9.06	1.27	53.68	.00	2.14		2.50	.00	.00	0	.00
0	JUNCT STR	.00400					.00502	.01						.00		
0	2812.50	50.28	3.31	53.59	12.6	2.57	.10	53.70	.00	1.19		2.50	.00	.00	0	.00
0	TRANS STR	.79600												.00		
0	2815.00	52.27	1.20	53.47	12.6	8.31	1.07	54.54	.00	1.34		1.50	.00	.00	0	.00
0	90.04	.01504					.01506	1.36			1.20			.00		
0	2905.04	53.62	1.20	54.82	12.6	8.31	1.07	55.90	.00	1.34		1.50	.00	.00	0	.00
0	48.96	.01504					.01519	.74			1.20			.00		
0	2954.00	54.36	1.19	55.55	12.6	8.38	1.09	56.64	.00	1.34		1.50	.00	.00	0	.00
0	154.00	.01526					.01531	2.36			1.19			.00		
0	3108.00	56.71	1.19	57.90	12.6	8.38	1.09	58.99	.00	1.34		1.50	.00	.00	0	.00
0	27.90	.01524					.01531	.43			1.19			.00		
0	3135.90	57.14	1.19	58.33	12.6	8.38	1.09	59.42	.00	1.34		1.50	.00	.00	0	.00
0	52.54	.01524					.01571	.83			1.19			.00		
0	3188.43	57.94	1.16	59.10	12.6	8.58	1.15	60.24	.00	1.34		1.50	.00	.00	0	.00
1															PAGE	6

WATER SURFACE PROFILE LISTING
OURAY RD. & TWIN OAKS DRIVE FOR WEST RIDGE SUBDIVISION
BY JAMES D. HUGHES 01-02-03
MAIN LINE ANALYSIS

A66

0	STATION / L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0	34.54	.01524					.01702	.59			1.19			.00		
0	3222.98	58.46	1.11	59.57	12.6	9.00	1.26	60.83	.00	1.34		1.50	.00	.00	0	.00
0	20.57	.01524					.01899	.39			1.19			.00		
0	3243.55	58.78	1.06	59.84	12.6	9.44	1.39	61.22	.00	1.34		1.50	.00	.00	0	.00
0	15.56	.01524					.02126	.33			1.19			.00		
0	3259.11	59.01	1.01	60.03	12.6	9.90	1.52	61.55	.00	1.34		1.50	.00	.00	0	.00
0	12.89	.01524					.02388	.31			1.19			.00		
0	3272.00	59.21	.97	60.18	12.6	10.39	1.68	61.86	.00	1.34		1.50	.00	.00	0	.00
0	.00	.01524					.02529	.00			1.19			.00		
0	3272.00	59.21	.97	60.18	12.6	10.39	1.68	61.86	.00	1.34		1.50	.00	.00	0	.00
0	.69	.12500					.02441	.02			.60			.00		
0	3272.69	59.30	1.00	60.29	12.6	10.09	1.58	61.88	.00	1.34		1.50	.00	.00	0	.00
0	.98	.12500					.02224	.02			.60			.00		
0	3273.67	59.42	1.04	60.46	12.6	9.62	1.44	61.90	.00	1.34		1.50	.00	.00	0	.00
0	.80	.12500					.01983	.02			.60			.00		
0	3274.47	59.52	1.09	60.61	12.6	9.17	1.31	61.91	.00	1.34		1.50	.00	.00	0	.00
0	.63	.12500					.01774	.01			.60			.00		
0	3275.10	59.60	1.14	60.74	12.6	8.74	1.19	61.93	.00	1.34		1.50	.00	.00	0	.00
0	.47	.12500					.01596	.01			.60			.00		
0	3275.57	59.66	1.20	60.85	12.6	8.34	1.08	61.93	.00	1.34		1.50	.00	.00	0	.00
0	.31	.12500					.01447	.00			.60			.00		
0	3275.88	59.70	1.26	60.96	12.6	7.95	.98	61.94	.00	1.34		1.50	.00	.00	0	.00
1															PAGE	7

WATER SURFACE PROFILE LISTING

OURAY RD. & TWIN OAKS DRIVE FOR WEST RIDGE SUBDIVISION

BY JAMES D. HUGHES 01-02-03

MAIN LINE ANALYSIS

0	STATION / L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0	.12	.12500					.01328	.00			.60			.00		
0	3276.00	59.71	1.34	61.05	12.6	7.58	.89	61.94	.00	1.34		1.50	.00	.00	0	.00
0	6.42	.00907					.01265	.08			1.50			.00		
0	3282.42	59.77	1.44	61.21	12.6	7.22	.81	62.02	.00	1.34		1.50	.00	.00	0	.00
0	9.01	.00907					.01330	.12			1.50			.00		
0	3291.43	59.85	1.50	61.35	12.6	7.13	.79	62.14	.00	1.34		1.50	.00	.00	0	.00
0	380.57	.00907					.01423	5.42			1.50			.00		
0	3672.00	63.30	3.53	66.83	12.6	7.13	.79	67.62	.00	1.34		1.50	.00	.00	0	.00
1																

A47

STORM DRAIN ANALYSIS PLUS

Original version by Los Angeles County Public Works
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Version
Serial Number

Dec 17, 2002 17: 7: 7

Input file :
Output file: WR.OUT

Duplicate of Effective
(See Corrected HGL)

INPUT FILE LISTING

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T1 OURAY RD. PROFILE FOR WEST RIDGE SUBDIVISION
T2 BY JAMES D. HUGHES 12-17-02
T3 MAIN LINE ANALYSIS
SO    1000.00  16.17  6                          19.3
R     1363.50  17.83  6       .013
R     1371.50  18.13  6       .013                                        1
R     1788.70  25.95  6       .013
R     1796.70  26.27  6       .013                                        1
R     1873.70  27.77  6       .013   27.91
JX    1873.70  27.77  6   5   .013   ~~38.7~~          28.35        90.
R     1881.70  27.85  6       .013   10.68                               1
R     2244.50  35.04  6       .013
R     2252.50  35.36  6       .013   ~~57.9~~          53.32        ~~90.~~   1
R     2675.90  43.77  6       .013
JX    2683.90  43.89  6       .013   ~~51.8~~          60.36        ~~90.~~   1
R     2968.60  51.07  6       .013
JX    2968.60  51.07  6   4   .013   100.3             52.67         1.
TS    2976.60  51.12  5       .013
R     3151.60  54.20  5       .013                                        38.
JX    3155.60  54.25  5   3  2.013     4.8   4.8     60.49 62.12   37.0  65.
R     3159.60  54.07  5       .013                                        1
R     3282.60  56.08  5       .013
JX    3282.60  56.08  5   3   .013     4.8             62.76         60.
R     3290.60  56.08  5       .013                                        1
R     3471.60  58.29  5   5   .013
JX    3471.60  58.29  5       .013    94.1             59.21         60.
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A68

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 TS   3479.60  59.21  1  8   .013
 R    3830.60  63.27  1      .013
 JX   3830.60  63.27  1  3   .013    4.8           65.77        90.
 TS   3836.60  64.62  2      .013
 R    4123.60  67.15  2      .013
 R    4127.60  69.29  2      .013
 R    4129.60  77.40  2      .013                                      1
 SH                   2
1                                                   SP
                                WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING                          PAGE    1
0 CARD  SECT  CHN   NO OF  AVE PIER  HEIGHT 1  BASE    ZL    ZR   INV   Y(1)  Y(2)  Y(3)  Y(4)  Y(5)  Y(6)  Y(7)  Y(8)  Y(9)  Y(10)
  CODE   NO   TYPE  PIERS   WIDTH    DIAMETER  WIDTH              DROP

  CD      1    4                      3.00
  CD      2    4                      2.50
  CD      3    4                      2.00
  CD      4    4                      3.50
  CD      5    4                      4.50
  CD      6    4                      5.00
1                                                                                                   PAGE NO    1
0                          WATER SURFACE PROFILE - TITLE CARD LISTING
0HEADING LINE NO 1 IS -
0                            OURAY RD. PROFILE FOR WEST RIDGE SUBDIVISION
0HEADING LINE NO 2 IS -
0                            BY JAMES D. HUGHES 12-17-02
0HEADING LINE NO 3 IS -
0                            MAIN LINE ANALYSIS
1                                                                                                   PAGE NO    2
0                          WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO   1 IS A SYSTEM OUTLET     *         *     *
                     U/S DATA   STATION    INVERT  SECT                                   W S ELEV
                                  1000.00   16.17    6                                      19.30
0 ELEMENT NO   2 IS A REACH             *         *     *
                     U/S DATA   STATION    INVERT  SECT              N                    RADIUS  ANGLE  ANG PT  MAN H
                                  1363.50   17.83    6             .013                      .00    .00     .00      0
0 ELEMENT NO   3 IS A REACH             *         *     *
                     U/S DATA   STATION    INVERT  SECT              N                    RADIUS  ANGLE  ANG PT  MAN H
                                  1371.50   18.13    6             .013                      .00    .00     .00      1
0 ELEMENT NO   4 IS A REACH             *         *     *
                     U/S DATA   STATION    INVERT  SECT              N                    RADIUS  ANGLE  ANG PT  MAN H
                                  1788.70   25.95    6             .013                      .00    .00     .00      0
0 ELEMENT NO   5 IS A REACH             *         *     *
                     U/S DATA   STATION    INVERT  SECT              N                    RADIUS  ANGLE  ANG PT  MAN H
                                  1796.70   26.27    6             .013                      .00    .00     .00      1
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A69

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0 ELEMENT NO   6 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
                                 1873.70   27.77    6                .013                                   .00    .00     .00      0
0 ELEMENT NO   7 IS A JUNCTION           *         *     *     *                  *                  *                 *
                     U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                                 1873.70   27.77    6     5     0   .013     38.7       .0    28.35      .00  90.00     .00
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
0 ELEMENT NO   8 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
                                 1881.70   27.85    6                .013                                   .00    .00     .00      1
0 ELEMENT NO   9 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
                                 2244.50   35.04    6                .013                                   .00    .00     .00      0
0 ELEMENT NO  10 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
                                 2252.50   35.36    6                .013                                   .00  90.00     .00      1
0 ELEMENT NO  11 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
                                 2675.90   43.77    6                .013                                   .00    .00     .00      0
0 ELEMENT NO  12 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
                                 2683.90   43.89    6                .013                                   .00  90.00     .00      1
1                                                                                                                        PAGE NO    3
0                                WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO  13 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
                                 2968.60   51.07    6                .013                                   .00    .00     .00      0
0 ELEMENT NO  14 IS A JUNCTION           *         *     *     *                  *                  *                 *
                     U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                                 2968.60   51.07    6     4     0   .013    100.3       .0    52.67      .00   1.00     .00
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
0 ELEMENT NO  15 IS A TRANSITION         *         *     *
                     U/S DATA   STATION    INVERT  SECT                N
                                 2976.60   51.12    5                .013
0 ELEMENT NO  16 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
                                 3151.60   54.20    5                .013                                   .00    .00   38.00      0
0 ELEMENT NO  17 IS A JUNCTION           *         *     *     *                  *                  *                 *
                     U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                                 3155.60   54.25    5     3     2   .013      4.8      4.8    60.49    62.12  37.00   65.00
0 ELEMENT NO  18 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
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                                3159.60   54.07    5                .013                                        .00     .00      .00      1
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
0 ELEMENT NO  19 IS A REACH             *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
                                3282.60   56.08    5                .013                                   .00     .00      .00      0
0 ELEMENT NO  20 IS A JUNCTION          *         *     *     *                  *                    *                *
                     U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                                3282.60   56.08    5     3     0   .013      4.8       .0    62.76      .00  60.00     .00
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
0 ELEMENT NO  21 IS A REACH             *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
                                3290.60   56.08    5                .013                                   .00     .00      .00      1
                                                                                                                          PAGE NO    4
1
0                          WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO  22 IS A REACH             *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
                                3471.60   58.29    5                .013                                   .00     .00      .00      0
0 ELEMENT NO  23 IS A JUNCTION          *         *     *     *                  *                    *                *
                     U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                                3471.60   58.29    5     0     0   .013     94.1       .0    59.21      .00  60.00     .00
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
0 ELEMENT NO  24 IS A TRANSITION        *         *     *
                     U/S DATA   STATION    INVERT  SECT                N
                                3479.60   59.21    1                .013
0 ELEMENT NO  25 IS A REACH             *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
                                3830.60   63.27    1                .013                                   .00     .00      .00      0
0 ELEMENT NO  26 IS A JUNCTION          *         *     *     *                  *                    *                *
                     U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                                3830.60   63.27    1     3     0   .013      4.8       .0    65.77      .00  90.00     .00
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
0 ELEMENT NO  27 IS A TRANSITION        *         *     *
                     U/S DATA   STATION    INVERT  SECT                N
                                3836.60   64.62    2                .013
0 ELEMENT NO  28 IS A REACH             *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
                                4123.60   67.15    2                .013                                   .00     .00      .00      0
0 ELEMENT NO  29 IS A REACH             *         *     *
                     U/S DATA   STATION    INVERT  SECT                N                                RADIUS  ANGLE  ANG PT  MAN H
                                4127.60   69.29    2                .013                                   .00     .00      .00      0
0 ELEMENT NO  30 IS A REACH             *         *     *
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A71

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                    U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                               4129.60    77.40    2              .013                                    .00    .00     .00      1
0 ELEMENT NO  31 IS A SYSTEM HEADWORKS                  *                    *
                    U/S DATA   STATION    INVERT  SECT                                     W S ELEV
                               4129.60    77.40    2                                          .00
 NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING

 ** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC
                                                                                                                          PAGE     1
1
                                                WATER SURFACE PROFILE LISTING
                          OURAY RD. PROFILE FOR WEST RIDGE SUBDIVISION
                          BY JAMES D. HUGHES 12-17-02
                          MAIN LINE ANALYSIS
0 STATION     INVERT   DEPTH     W.S.        Q       VEL     VEL     ENERGY   SUPER  CRITICAL            HGT/    BASE/    ZL    NO  AVBPR
               ELEV   OF FLOW    ELEV                          HEAD   GRD.EL.   ELEV    DEPTH                DIA    ID NO.         PIER
0 L/ELEM       SO                                            SF AVE    HF                      NORM DEPTH                ZR
*****************************************************************************************************************************************
0  1000.00    16.17     4.63     20.80     288.9   15.23     3.60    24.40     .00     4.63                5.00      .00    .00    0    .00
0    19.51   .00457                                        .01141     .22                          5.00                      .00
0  1019.51    16.26     5.00     21.26     288.9   14.71     3.36    24.62     .00     4.63                5.00      .00    .00    0    .00
0   343.99   .00457                                        .01223     4.21                         5.00                      .00
0  1363.50    17.83     7.66     25.49     288.9   14.71     3.36    28.86     .00     4.63                5.00      .00    .00    0    .00
0     8.00   .03750                                        .01230     .10                          2.71                      .00
0  1371.50    18.13     7.63     25.76     288.9   14.71     3.36    29.12     .00     4.63                5.00      .00    .00    0    .00
0   284.42   .01874                                        .01230     3.50                         3.41                      .00
0  1655.92    23.46     5.80     29.26     288.9   14.71     3.36    32.62     .00     4.63                5.00      .00    .00    0    .00
0HYDRAULIC JUMP                                                                                                                  .00
0  1655.92    23.46     3.56     27.03     288.9   19.29     5.78    32.81     .00     4.63                5.00      .00    .00    0    .00
0    11.58   .01874                                        .01670     .19                          3.41                      .00
0  1667.49    23.68     3.57     27.25     288.9   19.25     5.76    33.01     .00     4.63                5.00      .00    .00    0    .00
0   121.21   .01874                                        .01579     1.91                         3.41                      .00
0  1788.70    25.95     3.74     29.69     288.9   18.36     5.24    34.92     .00     4.63                5.00      .00    .00    0    .00
0     8.00   .04000                                        .01441     .12                          2.66                      .00
0  1796.70    26.27     3.86     30.13     288.9   17.78     4.91    35.04     .00     4.63                5.00      .00    .00    0    .00
0    11.63   .01948                                        .01372     .16                          3.37                      .00
0  1808.33    26.50     3.90     30.40     288.9   17.57     4.80    35.20     .00     4.63                5.00      .00    .00    0    .00
0    35.82   .01948                                        .01291     .46                          3.37                      .00
0  1844.15    27.19     4.10     31.30     288.9   16.76     4.36    35.66     .00     4.63                5.00      .00    .00    0    .00
0    21.37   .01948                                        .01178     .25                          3.37                      .00
                                                                                                                          PAGE     2
1
                                                WATER SURFACE PROFILE LISTING
                          OURAY RD. PROFILE FOR WEST RIDGE SUBDIVISION
                          BY JAMES D. HUGHES 12-17-02
                          MAIN LINE ANALYSIS
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0 STATION / 0 L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0 1865.52	27.61	4.33	31.94	288.9	15.98	3.97	35.91	.00	4.63		5.00	.00	.00	0	.00
0 8.18	.01948					.01097	.09			3.37			.00		
0 1873.70	27.77	4.63	32.40	288.9	15.23	3.60	36.00	.00	4.63		5.00	.00	.00	0	.00
0JUNCT STR	.00000					.00994	.00						.00		
0 1873.70	27.77	6.58	34.35	250.2	12.74	2.52	36.87	.00	4.42		5.00	.00	.00	0	.00
0 8.00	.01000					.00923	.07			3.93			.00		
0 1881.70	27.85	6.70	34.55	250.2	12.74	2.52	37.07	.00	4.42		5.00	.00	.00	0	.00
0 41.45	.01982					.00923	.38			3.03			.00		
0 1923.15	28.67	6.26	34.93	250.2	12.74	2.52	37.45	.00	4.42		5.00	.00	.00	0	.00
0HYDRAULIC JUMP													.00		
0 1923.15	28.67	3.02	31.69	250.2	20.17	6.32	38.01	.00	4.42		5.00	.00	.00	0	.00
0 321.35	.01982					.02034	6.54			3.03			.00		
0 2244.50	35.04	2.99	38.03	250.2	20.43	6.48	44.51	.00	4.42		5.00	.00	.00	0	.00
0 8.00	.04000					.02027	.16			2.44			.00		
0 2252.50	35.36	3.03	38.39	250.2	20.12	6.29	44.68	.00	4.42		5.00	.00	.00	0	.00
0 .00	.04000					.01988	.00			2.44			.00		
0 2252.50	35.36	3.03	38.39	250.2	20.12	6.29	44.68	.00	4.42		5.00	.00	.00	0	.00
0 34.76	.01986					.01988	.69			3.03			.00		
0 2287.26	36.05	3.03	39.08	250.2	20.12	6.29	45:37	.00	4.42		5.00	.00	.00	0	.00
0 388.64	.01986					.02062	8.02			3.03			.00		
0 2675.90	43.77	2.96	46.73	250.2	20.69	6.66	53.38	.00	4.42		5.00	.00	.00	0	.00
0 8.00	.01500					.02151	.17			3.34			.00		

1

WATER SURFACE PROFILE LISTING

OURAY RD. PROFILE FOR WEST RIDGE SUBDIVISION

BY JAMES D. HUGHES 12-17-02

MAIN LINE ANALYSIS

0 STATION / 0 L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0 2683.90	43.89	2.95	46.84	250.2	20.79	6.72	53.55	.00	4.42		5.00	.00	.00	0	.00
0 .00	.01500					.02164	.00			3.34			.00		
0 2683.90	43.89	2.95	46.84	250.2	20.79	6.72	53.55	.00	4.42		5.00	.00	.00	0	.00
0 92.68	.02522					.02053	1.90			2.81			.00		
0 2776.58	46.23	3.05	49.28	250.2	19.94	6.18	55.45	.00	4.42		5.00	.00	.00	0	.00
0 62.95	.02522					.01832	1.15			2.81			.00		
0 2839.53	47.81	3.18	50.99	250.2	19.01	5.62	56.61	.00	4.42		5.00	.00	.00	0	.00
0 41.87	.02522					.01625	.68			2.81			.00		
0 2881.41	48.87	3.31	52.18	250.2	18.12	5.10	57.29	.00	4.42		5.00	.00	.00	0	.00

0	29.72	.02522					.01445	.43			2.81			.00		
0	2911.13	49.62	3.46	53.08	250.2	17.28	4.64	57.72	.00	4.42		5.00	.00	.00	0	.00
0	21.63	.02522					.01288	.28			2.81			.00		
0	2932.76	50.17	3.61	53.78	250.2	16.48	4.22	58.00	.00	4.42		5.00	.00	.00	0	.00
0	15.66	.02522					.01152	.18			2.81			.00		
0	2948.42	50.56	3.78	54.34	250.2	15.71	3.84	58.18	.00	4.42		5.00	.00	.00	0	.00
0	10.94	.02522					.01036	.11			2.81			.00		
0	2959.37	50.84	3.97	54.80	250.2	14.98	3.49	58.29	.00	4.42		5.00	.00	.00	0	.00
0	6.75	.02522					.00938	.06			2.81			.00		
0	2966.12	51.01	4.18	55.18	250.2	14.28	3.17	58.35	.00	4.42		5.00	.00	.00	0	.00
0	2.48	.02522					.00859	.02			2.81			.00		
0	2968.60	51.07	4.42	55.49	250.2	13.61	2.88	58.37	.00	4.42		5.00	.00	.00	0	.00
0JUNCT STR		.00000					.00578	.00						.00		

1

WATER SURFACE PROFILE LISTING

OURAY RD. PROFILE FOR WEST RIDGE SUBDIVISION

BY JAMES D. HUGHES 12-17-02

MAIN LINE ANALYSIS

0 STATION 0 L/ELEM	INVERT ELEV SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD SF AVE	ENERGY GRD.EL. HF	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL ZR	NO PIER	AVBPR
0 2968.60	51.07	6.41	57.48	149.9	7.63	.91	58.39	.00	3.51		5.00	.00	.00	0	.00
0TRANS STR		.00625				.00456	.04						.00		
0 2976.60	51.12	6.02	57.14	149.9	9.43	1.38	58.52	.00	3.59		4.50	.00	.00	0	.00
0 143.61		.01760				.00577	.83			2.45			.00		
0 3120.21	53.65	4.50	58.15	149.9	9.43	1.38	59.53	.00	3.59		4.50	.00	.00	0	.00
0 22.87		.01760				.00541	.12			2.45			.00		
0 3143.09	54.05	4.08	58.13	149.9	9.89	1.52	59.65	.00	3.59		4.50	.00	.00	0	.00
0 7.31		.01760				.00526	.04			2.45			.00		
0 3150.39	54.18	3.84	58.02	149.9	10.37	1.67	59.69	.00	3.59		4.50	.00	.00	0	.00
0 1.21		.01760				.00551	.01			2.45			.00		
0 3151.60	54.20	3.78	57.98	149.9	10.52	1.72	59.70	.00	3.59		4.50	.00	.00	0	.00
0JUNCT STR		.01250				.00511	.02						.00		
0 3155.60	54.25	4.44	58.69	140.3	8.84	1.22	59.91	.00	3.48		4.50	.00	.00	0	.00
0 1.07		-.04500				.00483	.01			.00			.00		
0 3156.67	54.20	4.50	58.70	140.3	8.82	1.21	59.91	.00	3.48		4.50	.00	.00	0	.00
0 2.93		-.04500				.00506	.01			.00			.00		
0 3159.60	54.07	4.69	58.76	140.3	8.82	1.21	59.97	.00	3.48		4.50	.00	.00	0	.00
0 12.60		.01634				.00509	.06			2.40			.00		
0 3172.20	54.28	4.55	58.82	140.3	8.82	1.21	60.03	.00	3.48		4.50	.00	.00	0	.00
0HYDRAULIC JUMP													.00		
0 3172.20	54.28	2.59	56.87	140.3	14.78	3.40	60.27	.00	3.48		4.50	.00	.00	0	.00
0 47.32		.01634				.01204	.57			2.40			.00		

A 73

WATER SURFACE PROFILE LISTING

OURAY RD. PROFILE FOR WEST RIDGE SUBDIVISION
BY JAMES D. HUGHES 12-17-02
MAIN LINE ANALYSIS

0 STATION / 0 L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0 3219.52	55.05	2.70	57.75	140.3	14.10	3.09	60.83	.00	3.48		4.50	.00	.00	0	.00
0 29.85	.01634					.01066	.32			2.40			.00		
0 3249.37	55.54	2.81	58.35	140.3	13.44	2.81	61.15	.00	3.48		4.50	.00	.00	0	.00
0 19.90	.01634					.00945	.19			2.40			.00		
0 3269.27	55.86	2.93	58.79	140.3	12.81	2.55	61.34	.00	3.48		4.50	.00	.00	0	.00
0 13.33	.01634					.00839	.11			2.40			.00		
0 3282.60	56.08	3.05	59.13	140.3	12.22	2.32	61.45	.00	3.48		4.50	.00	.00	0	.00
0JUNCT STR	.00000					.00912	.00						.00		
0 3282.60	56.08	2.71	58.79	135.5	13.51	2.84	61.63	.00	3.42		4.50	.00	.00	0	.00
0 8.00	.00000					.01068	.09			.00			.00		
0 3290.60	56.08	2.66	58.74	135.5	13.84	2.98	61.72	.00	3.42		4.50	.00	.00	0	.00
0 84.07	.01221					.01042	.88			2.57			.00		
0 3374.67	57.11	2.76	59.87	135.5	13.25	2.73	62.59	.00	3.42		4.50	.00	.00	0	.00
0 45.67	.01221					.00928	.42			2.57			.00		
0 3420.34	57.66	2.87	60.54	135.5	12.63	2.48	63.02	.00	3.42		4.50	.00	.00	0	.00
0 25.74	.01221					.00823	.21			2.57			.00		
0 3446.08	57.98	3.00	60.98	135.5	12.04	2.25	63.23	.00	3.42		4.50	.00	.00	0	.00
0 15.12	.01221					.00732	.11			2.57			.00		
0 3461.20	58.16	3.13	61.29	135.5	11.48	2.05	63.34	.00	3.42		4.50	.00	.00	0	.00
0 7.97	.01221					.00653	.05			2.57			.00		
0 3469.18	58.26	3.27	61.53	135.5	10.95	1.86	63.39	.00	3.42		4.50	.00	.00	0	.00
0 2.43	.01221					.00584	.01			2.57			.00		

WATER SURFACE PROFILE LISTING

OURAY RD. PROFILE FOR WEST RIDGE SUBDIVISION
BY JAMES D. HUGHES 12-17-02
MAIN LINE ANALYSIS

0 STATION / 0 L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0 3471.60	58.29	3.42	61.71	135.5	10.44	1.69	63.41	.00	3.42		4.50	.00	.00	0	.00
0JUNCT STR	.00000					.00298	.00						.00		
0 3471.60	58.29	6.23	64.52	41.4	2.60	.11	64.63	.00	1.85		4.50	.00	.00	0	.00
0TRANS STR	.11500					.00215	.02						.00		

0	3479.60	59.21	4.99	64.20	41.4	5.86	.53	64.73	.00	2.10		3.00	.00	.00	0	.00
0	257.92	.01157					.00382	.99			1.63			.00		
0	3737.52	62.19	3.00	65.19	41.4	5.86	.53	65.73	.00	2.10		3.00	.00	.00	0	.00
0	24.59	.01157					.00357	.09			1.63			.00		
0	3762.11	62.48	2.76	65.24	41.4	6.08	.58	65.81	.00	2.10		3.00	.00	.00	0	.00
0HYDRAULIC JUMP														.00		
0	3762.11	62.48	1.56	64.04	41.4	11.15	1.93	65.97	.00	2.10		3.00	.00	.00	0	.00
0	25.27	.01157					.01369	.35			1.63			.00		
0	3787.38	62.77	1.55	64.32	41.4	11.26	1.97	66.29	.00	2.10		3.00	.00	.00	0	.00
0	43.22	.01157					.01481	.64			1.63			.00		
0	3830.60	63.27	1.49	64.76	41.4	11.81	2.17	66.93	.00	2.10		3.00	.00	.00	0	.00
0JUNCT STR		.00000					.02202	.00						.00		
0	3830.60	63.27	1.18	64.45	36.6	14.19	3.13	67.58	.00	1.97		3.00	.00	.00	0	.00
0TRANS STR		.22500					.01933	.12						.00		
0	3836.60	64.62	1.81	66.43	36.6	9.60	1.43	67.87	.00	2.05		2.50	.00	.00	0	.00
0TRANS STR		.22500					.01039	.00						.00		
0	3836.60	64.62	1.81	66.43	36.6	9.60	1.43	67.87	.00	2.05		2.50	.00	.00	0	.00
0	5.97	.00881					.01049	.06			1.94			.00		

WATER SURFACE PROFILE LISTING

OURAY RD. PROFILE FOR WEST RIDGE SUBDIVISION

BY JAMES D. HUGHES 12-17-02

MAIN LINE ANALYSIS

0 STATION 0 L/ELEM	INVERT ELEV SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD SF AVE	ENERGY GRD.EL. HF	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL ZR	NO PIER	AVBPR
0 3842.57	64.67	1.80	66.47	36.6	9.68	1.46	67.93	.00	2.05		2.50	.00	.00	0	.00
0 28.03	.00881					.01123	.31			1.94			.00		
0 3870.60	64.92	1.72	66.64	36.6	10.16	1.60	68.24	.00	2.05		2.50	.00	.00	0	.00
0 23.59	.00881					.01260	.30			1.94			.00		
0 3894.19	65.13	1.65	66.78	36.6	10.65	1.76	68.54	.00	2.05		2.50	.00	.00	0	.00
0 20.39	.00881					.01418	.29			1.94			.00		
0 3914.57	65.31	1.58	66.89	36.6	11.17	1.94	68.83	.00	2.05		2.50	.00	.00	0	.00
0 18.27	.00881					.01598	.29			1.94			.00		
0 3932.84	65.47	1.52	66.99	36.6	11.72	2.13	69.12	.00	2.05		2.50	.00	.00	0	.00
0 16.72	.00881					.01805	.30			1.94			.00		
0 3949.56	65.62	1.46	67.08	36.6	12.29	2.35	69.42	.00	2.05		2.50	.00	.00	0	.00
0 15.41	.00881					.02042	.31			1.94			.00		
0 3964.97	65.75	1.40	67.16	36.6	12.89	2.58	69.74	.00	2.05		2.50	.00	.00	0	.00
0 14.35	.00881					.02312	.33			1.94			.00		
0 3979.31	65.88	1.35	67.23	36.6	13.52	2.84	70.07	.00	2.05		2.50	.00	.00	0	.00
0 13.40	.00881					.02620	.35			1.94			.00		
0 3992.71	66.00	1.30	67.30	36.6	14.18	3.12	70.42	.00	2.05		2.50	.00	.00	0	.00

0	12.65	.00881					.02972	.38			1.94			.00		
0	4005.36	66.11	1.25	67.36	36.6	14.87	3.44	70.80	.00	2.05		2.50	.00	.00	0	.00
0	11.94	.00881					.03375	.40			1.94			.00		
0	4017.30	66.21	1.21	67.42	36.6	15.60	3.78	71.20	.00	2.05		2.50	.00	.00	0	.00
0	11.34	.00881					.03836	.44			1.94			.00		

1

WATER SURFACE PROFILE LISTING

OURAY RD. PROFILE FOR WEST RIDGE SUBDIVISION

BY JAMES D. HUGHES 12-17-02

MAIN LINE ANALYSIS

0 STATION 0 L/ELEM	INVERT ELEV SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD SF AVE	ENERGY GRD.EL. HF	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL ZR	NO PIER	AVBPR
0	4028.64	66.31	1.16	67.48	36.6	16.36	4.16	71.63	.00	2.05		2.50	.00	.00	0	.00
0	10.74	.00881					.04362	.47			1.94			.00		
0	4039.38	66.41	1.12	67.53	36.6	17.16	4.57	72.10	.00	2.05		2.50	.00	.00	0	.00
0	10.23	.00881					.04962	.51			1.94			.00		
0	4049.61	66.50	1.08	67.58	36.6	17.99	5.03	72.61	.00	2.05		2.50	.00	.00	0	.00
0	9.76	.00881					.05649	.55			1.94			.00		
0	4059.37	66.58	1.04	67.63	36.6	18.87	5.54	73.16	.00	2.05		2.50	.00	.00	0	.00
0	9.30	.00881					.06433	.60			1.94			.00		
0	4068.67	66.67	1.01	67.67	36.6	19.79	6.09	73.76	.00	2.05		2.50	.00	.00	0	.00
0	8.90	.00881					.07329	.65			1.94			.00		
0	4077.58	66.74	.97	67.72	36.6	20.76	6.70	74.41	.00	2.05		2.50	.00	.00	0	.00
0	8.51	.00881					.08353	.71			1.94			.00		
0	4086.08	66.82	.94	67.76	36.6	21.77	7.37	75.12	.00	2.05		2.50	.00	.00	0	.00
0	8.15	.00881					.09521	.78			1.94			.00		
0	4094.23	66.89	.90	67.80	36.6	22.84	8.10	75.90	.00	2.05		2.50	.00	.00	0	.00
0	7.81	.00881					.10858	.85			1.94			.00		
0	4102.04	66.96	.87	67.83	36.6	23.95	8.91	76.75	.00	2.05		2.50	.00	.00	0	.00
0	7.49	.00881					.12388	.93			1.94			.00		
0	4109.53	67.03	.84	67.87	36.6	25.12	9.81	77.68	.00	2.05		2.50	.00	.00	0	.00
0	7.18	.00881					.14136	1.01			1.94			.00		
0	4116.71	67.09	.81	67.90	36.6	26.35	10.79	78.69	.00	2.05		2.50	.00	.00	0	.00
0	6.89	.00881					.16143	1.11			1.94			.00		

1

WATER SURFACE PROFILE LISTING

OURAY RD. PROFILE FOR WEST RIDGE SUBDIVISION

BY JAMES D. HUGHES 12-17-02

MAIN LINE ANALYSIS

0 STATION 0 L/ELEM	INVERT ELEV SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD SF AVE	ENERGY GRD.EL. HF	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL ZR	NO PIER	AVBPR

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**********************************************************************************************************************************
0  4123.60    67.15      .79     67.94      36.6    27.63    11.87     79.80     .00     2.05              2.50     .00    .00   0    .00
0     1.39   .53500                                         .16672       .23                        .59                      .00
0  4124.99    67.89      .80     68.69      36.6    26.99    11.32     80.02     .00     2.05              2.50     .00    .00   0    .00
0     2.61   .53500                                         .15131       .39                        .59                      .00
0  4127.60    69.29      .83     70.12      36.6    25.74    10.29     80.41     .00     2.05              2.50     .00    .00   0    .00
0      .06  4.05500                                         .13906       .01                        .36                      .00
0  4127.66    69.55      .84     70.38      36.6    25.43    10.05     80.44     .00     2.05              2.50     .00    .00   0    .00
0      .23  4.05500                                         .12827       .03                        .36                      .00
0  4127.89    70.46      .87     71.33      36.6    24.25     9.14     80.47     .00     2.05              2.50     .00    .00   0    .00
0      .20  4.05500                                         .11239       .02                        .36                      .00
0  4128.09    71.28      .90     72.18      36.6    23.12     8.31     80.49     .00     2.05              2.50     .00    .00   0    .00
0      .18  4.05500                                         .09854       .02                        .36                      .00
0  4128.27    72.02      .93     72.95      36.6    22.05     7.55     80.51     .00     2.05              2.50     .00    .00   0    .00
0      .16  4.05500                                         .08643       .01                        .36                      .00
0  4128.44    72.69      .96     73.65      36.6    21.02     6.87     80.52     .00     2.05              2.50     .00    .00   0    .00
0      .15  4.05500                                         .07582       .01                        .36                      .00
0  4128.59    73.29     1.00     74.29      36.6    20.04     6.24     80.53     .00     2.05              2.50     .00    .00   0    .00
0      .13  4.05500                                         .06654       .01                        .36                      .00
0  4128.72    73.83     1.03     74.87      36.6    19.11     5.67     80.54     .00     2.05              2.50     .00    .00   0    .00
0      .12  4.05500                                         .05844       .01                        .36                      .00
0  4128.84    74.32     1.07     75.39      36.6    18.22     5.16     80.55     .00     2.05              2.50     .00    .00   0    .00
0      .11  4.05500                                         .05133       .01                        .36                      .00
1                                                                                                                   PAGE   10
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WATER SURFACE PROFILE LISTING

OURAY RD. PROFILE FOR WEST RIDGE SUBDIVISION

BY JAMES D. HUGHES 12-17-02

MAIN LINE ANALYSIS

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0 STATION     INVERT   DEPTH     W.S.        Q       VEL     VEL     ENERGY   SUPER  CRITICAL          HGT/    BASE/    ZL   NO  AVBPR
                ELEV  OF FLOW    ELEV                          HEAD   GRD.EL.   ELEV    DEPTH                DIA     ID NO.        PIER
0 L/ELEM        SO                                          SF AVE     HF                     NORM DEPTH                ZR
**********************************************************************************************************************************
0  4128.95    74.75     1.11     75.86      36.6    17.37     4.69     80.55     .00     2.05              2.50     .00    .00   0    .00
0      .10  4.05500                                         .04511       .00                        .36                      .00
0  4129.04    75.14     1.15     76.29      36.6    16.56     4.26     80.56     .00     2.05              2.50     .00    .00   0    .00
0      .09  4.05500                                         .03967       .00                        .36                      .00
0  4129.13    75.49     1.20     76.68      36.6    15.79     3.88     80.56     .00     2.05              2.50     .00    .00   0    .00
0      .08  4.05500                                         .03490       .00                        .36                      .00
0  4129.21    75.80     1.24     77.04      36.6    15.06     3.52     80.56     .00     2.05              2.50     .00    .00   0    .00
0      .07  4.05500                                         .03073       .00                        .36                      .00
0  4129.27    76.07     1.29     77.36      36.6    14.36     3.20     80.57     .00     2.05              2.50     .00    .00   0    .00
0      .06  4.05500                                         .02707       .00                        .36                      .00
0  4129.33    76.32     1.34     77.65      36.6    13.69     2.91     80.57     .00     2.05              2.50     .00    .00   0    .00
0      .05  4.05500                                         .02388       .00                        .36                      .00
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A 77

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0  4129.39    76.53    1.39    77.92    36.6    13.05    2.65    80.57    .00    2.05          2.50    .00    .00    0    .00
0      .05  4.05500                                     .02109     .00                .36                    .00
0  4129.43    76.72    1.45    78.16    36.6    12.44    2.41    80.57    .00    2.05          2.50    .00    .00    0    .00
0      .04  4.05500                                     .01864     .00                .36                    .00
0  4129.47    76.88    1.50    78.38    36.6    11.87    2.19    80.57    .00    2.05          2.50    .00    .00    0    .00
0      .03  4.05500                                     .01650     .00                .36                    .00
0  4129.51    77.02    1.57    78.58    36.6    11.31    1.99    80.57    .00    2.05          2.50    .00    .00    0    .00
0      .03  4.05500                                     .01463     .00                .36                    .00
0  4129.53    77.13    1.63    78.76    36.6    10.79    1.81    80.57    .00    2.05          2.50    .00    .00    0    .00
0      .02  4.05500                                     .01299     .00                .36                    .00
1
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WATER SURFACE PROFILE LISTING

OURAY RD. PROFILE FOR WEST RIDGE SUBDIVISION

BY JAMES D. HUGHES 12-17-02

MAIN LINE ANALYSIS

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0 STATION     INVERT   DEPTH     W.S.       Q       VEL     VEL     ENERGY   SUPER   CRITICAL                HGT/    BASE/    ZL    NO   AVBPR
            ELEV     OF FLOW    ELEV                       HEAD    GRD.EL.  ELEV    DEPTH                   DIA     ID NO.         PIER
0 L/ELEM      SO                                         SF AVE     HF                      NORM DEPTH                     ZR
*****************************************************************************************************************************************
0  4129.56    77.23    1.70    78.93    36.6    10.28    1.64    80.57    .00    2.05          2.50    .00    .00    0    .00
0      .02  4.05500                                     .01157     .00                .36                    .00
0  4129.58    77.30    1.78    79.08    36.6     9.81    1.49    80.57    .00    2.05          2.50    .00    .00    0    .00
0      .01  4.05500                                     .01034     .00                .36                    .00
0  4129.59    77.35    1.86    79.21    36.6     9.35    1.36    80.57    .00    2.05          2.50    .00    .00    0    .00
0      .01  4.05500                                     .00928     .00                .36                    .00
0  4129.60    77.39    1.95    79.34    36.6     8.91    1.24    80.57    .00    2.05          2.50    .00    .00    0    .00
0      .00  4.05500                                     .00837     .00                .36                    .00
0  4129.60    77.40    2.05    79.45    36.6     8.50    1.12    80.57    .00    2.05          2.50    .00    .00    0    .00
1
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478

100-YR AHYMO Summary
Post-development

:\AHYMO94\AHYMO.SUM
Friday April 21, 1995 08:45:12 am

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =04/20/1995
INPUT FILE = ouray.dat USER NO.= DAGGETTK.S94

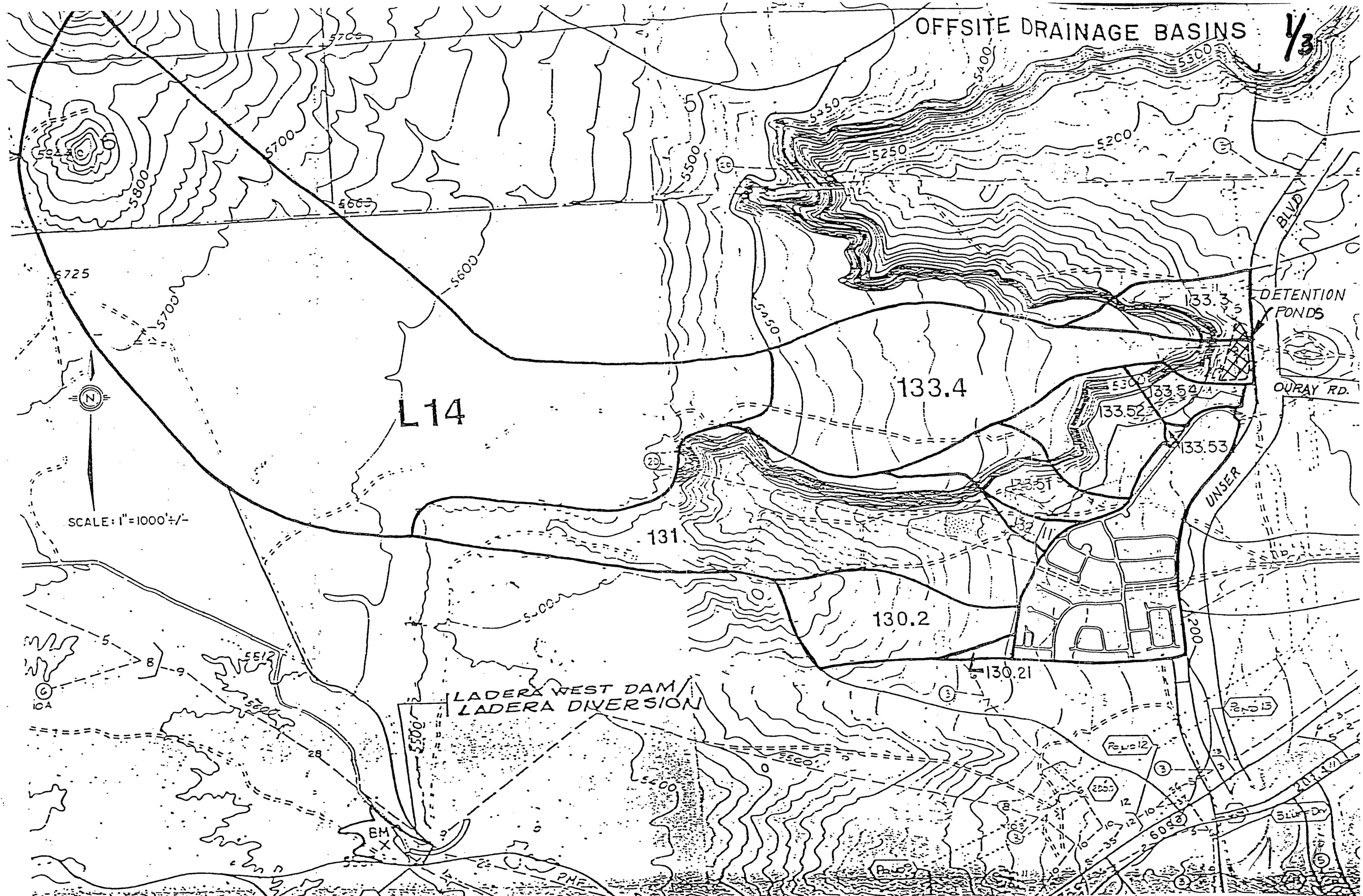
COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	PAGE = 1
*S	PARKWEST-100 YEAR POST DEVELOPMENT										
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.200
COMPUTE NM HYD	133.30	-	7	.03700	45.50	1.263	.64008	1.532	1.921	PER IMP=	.00
*S ROUTE BASIN 133.3 HYDOGRAPH THRU NORTHERLY POND WEST SIDE OF UNSER 30'RCP											
*S OUTLET STRUCTURE											
ROUTE RESERVOIR	POND.02	7	1	.03700	36.58	1.263	.64008	1.598	1.545	AC-FT=	.233
COMPUTE NM HYD	133.40	-	8	.25500	119.11	7.104	.52233	1.732	.730	PER IMP=	.00
*S ROUTE BASIN 133.4 HYDOGRAPH THRU SOUTHERLY POND WEST SIDE OF UNSER 54'RCP											
*S OUTLET STRUCTURE											
ROUTE RESERVOIR	POND.01	8	2	.25500	112.49	7.104	.52233	1.832	.689	AC-FT=	.697
*S FLOW ENTERING OURAY STORM DRAIN FROM BASINS 133.3 AND 133.4											
ADD HYD	133.01	1& 2	9	.29200	130.70	8.367	.53725	1.765	.699		
COMPUTE NM HYD	132.11	-	10	.00930	11.54	.318	.64079	1.532	1.939	PER IMP=	.00
SED WASH LOAD	132.11	10						WASH CONC.(PPM-w) =			42151
SEDIMENT TRANSP	132.11	10	SED ID = 3		PEAK CONC.(PPM-w) =	134621		TOTAL SED.(TONS) =			54.70
COMPUTE NM HYD	133.51	-	11	.06700	95.23	2.637	.73808	1.532	2.221	PER IMP=	.00
SED WASH LOAD	133.51	11						WASH CONC.(PPM-w) =			31948
SEDIMENT TRANSP	133.51	11	SED ID = 4		PEAK CONC.(PPM-w) =	276738		TOTAL SED.(TONS) =			1030.67
ADD HYD	133.50	10&11	10	.07630	106.77	2.955	.72622	1.532	2.186		
COMPUTE NM HYD	133.52	-	11	.04850	68.88	1.909	.73808	1.532	2.219	PER IMP=	.00
SED WASH LOAD	133.52	11						WASH CONC.(PPM-w) =			21674
SEDIMENT TRANSP	133.52	11	SED ID = 5		PEAK CONC.(PPM-w) =	264216		TOTAL SED.(TONS) =			692.68
S UNDEVELOPED, OFF-SITE FLOW ENTERING POND											
ADD HYD	133.50	10&11	11	.12480	175.65	4.864	.73083	1.532	2.199		
COMPUTE NM HYD	115.00	-	15	.00190	4.10	.138	1.36302	1.499	3.370	PER IMP=	47.60
COMPUTE NM HYD	121.00	-	16	.00270	5.82	.196	1.36302	1.499	3.365	PER IMP=	47.60
ADD HYD	121.01	15&16	15	.00460	9.91	.334	1.36290	1.499	3.367		
COMPUTE NM HYD	122.00	-	16	.00090	2.42	.089	1.85049	1.499	4.204	PER IMP=	90.00
*S ON-SITE FLOW TO POND											
ADD HYD	122.01	15&16	15	.00550	12.33	.423	1.44263	1.499	3.504		
*S TOTAL FLOW TO POND											
ADD HYD	122.02	11&15	11	.13030	187.62	5.288	.76088	1.499	2.250		
*S ROUTE HYDOGRAPH THRU PARKWEST POND											
ROUTE RESERVOIR	133.50	11	12	.13030	4.46	4.807	.69177	2.498	.054	AC-FT=	4.772
*S ROUTE RESERVOIR OUTFALL THRU 24" PIPE											
ROUTE	.13	12	5	.13030	4.46	4.802	.69094	2.498	.054		
COMPUTE NM HYD	123.00	-	15	.00220	5.90	.217	1.85049	1.499	4.189	PER IMP=	90.00
*S FLOW ENTERING STREET AT NW CORNER OF SITE											
COMPUTE NM HYD	133.53	-	13	.00250	3.26	.089	.66738	1.532	2.036	PER IMP=	.00
SED WASH LOAD	133.53	13						WASH CONC.(PPM-w) =			39613
ADD HYD	123.01	13&15	10	.00470	9.13	.306	1.22110	1.499	3.035		
COMPUTE NM HYD	133.54	-	14	.01730	22.38	.616	.66738	1.532	2.021	PER IMP=	.00
SED WASH LOAD	133.54	14						WASH CONC.(PPM-w) =			8286
SEDIMENT TRANSP	133.54	14	SED ID = 6		PEAK CONC.(PPM-w) =	57448		TOTAL SED.(TONS) =			40.35
*S FLOW FROM LAVA BLUFF TO OURAY SD INCLUDINC OFFSITE SHEET FLOW											
ADD HYD	123.02	10&14	15	.02200	31.32	.922	.78567	1.499	2.224		
COMPUTE NM HYD	124.00	-	16	.03110	66.82	2.261	1.36302	1.499	3.357	PER IMP=	47.60

*S UNPONDED FLOW TO INLETS AT OURAY

A80

PAGE = 2

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	NOTATION
ADD HYD	124.01	15&16	15	.05310	98.14	3.183	1.12381	1.499	2.888	
*S TOTAL ONSITE FLOW TO OURAY SD										
ADD HYD	124.02	5&15	12	.18340	100.29	7.984	.81627	1.499	.854	
COMPUTE NM HYD	133.20	-	15	.02100	56.15	2.073	1.85049	1.499	4.178	PER IMP= 90.00
*S EXISTING FLOW TO OURAY SD										
ADD HYD	133.01	15& 9	14	.31300	156.08	10.439	.62536	1.598	.779	
*S TOTAL FLOW TO OURAY STORM DRAIN										
ADD HYD	133.02	12&14	15	.49640	232.34	18.423	.69589	1.598	.731	
*S ROUTE FLOW THRU OURAY STORM DRAIN										
ROUTE	.13	15	16	.49640	225.96	18.417	.69564	1.632	.711	
*S START NEW SUB-BASIN NETWORK										
*S SUB-BASIN 114.01 (SINGLE FAMILY RESIDENTIAL)										
COMPUTE NM HYD	114.01	-	3	.01580	35.80	1.240	1.47109	1.499	3.540	PER IMP= 57.00
*S SUB-BASIN 114.02 (PAVED PARKING AREA)										
COMPUTE NM HYD	114.02	-	4	.00230	6.16	.227	1.85049	1.499	4.187	PER IMP= 90.00
*S STREET FLOW IN PAINTED ROCK DRIVE AT SUMP NEAR OURAY ROAD										
ADD HYD	114.03	3& 4	1	.01810	41.96	1.467	1.51927	1.499	3.622	
*S SUB-BASIN 115.00 (COMMERCIAL SITE)										
COMPUTE NM HYD	115.01	-	3	.01390	37.17	1.372	1.85048	1.499	4.179	PER IMP= 90.00
*S SUB-BASIN 116.00 (MULTIPLE UNIT RESIDENTIAL ATTACHED)										
COMPUTE NM HYD	116.00	-	4	.00490	11.90	.424	1.62055	1.499	3.795	PER IMP= 70.00
ADD HYD	116.10	3& 4	2	.01880	49.08	1.795	1.79053	1.499	4.079	
*S TOTAL DISCHARGE TO OURAY STORM DRAIN										
ADD HYD	116.20	1& 2	5	.03690	91.04	3.262	1.65747	1.499	3.855	
S TOTAL COMBINED FLOW IN OURAY STORM DRAIN										
ADD HYD	116.30	5&16	1	.53330	288.56	21.679	.76219	1.598	.845	
FINISH										


OFFSITE DRAINAGE BASINS
1/3
L14
SCALE: 1"=1000'+/-
133.4
131
130.2
130.21
133.3
133.54
133.52
133.53
133.51
DETENTION PONDS
OURAY RD.
UNSER
BLVD
LADERA WEST DAM
LADERA DIVERSION
BM
5800
5700
5600
5500
5450
5400
5350
5300
5250
5200
5725
5612
Pond 15
Pond 12
Pond 9
Bluff Dr

POND-2 Version: 4.01
S/N: 88020607

CALCULATED 01-06-2003 13:36:51
DISK FILE : G:WESTRIDG.VOL

Planimeter scale: 1 inch = 1 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	* Volume (acre-ft)	Volume Sum (acre-ft)
63.30	0.00	0.00	0.00	0.00	0.00
64.50	6,120.00	0.14	0.14	0.06	0.06
65.00	8,262.00	0.19	0.49	0.08	0.14
66.50	11,086.00	0.25	0.66	0.33	0.47
71.00	22,365.00	0.51	1.13	1.69	2.16
Elevations With Areas Interpolated From The Closest Two Planimeter Readings					
70.70	-----	0.49	1.10	1.54	2.01

$$IA = (sq.rt(Area1) + ((Ei-E1)/(E2-E1))*(sq.rt(Area2)-sq.rt(Area1)))^2$$

where: E1, E2 = Closest two elevations with planimeter data
Ei = Elevation at which to interpolate area
Area1,Area2 = Areas computed for E1, E2, respectively
IA = Interpolated area for Ei

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2