DS #: 4577 B

APN: 124-07-499-001 & More

PROJECT: Park Highlands (Project in CNLV) - Grand Teton Regional Flood Control Facility

SUBMITTAL: 2nd

SCANNED BY/DATE:

CHECKED BY/DATE:

CITY OF LAS VEGAS NEVADA

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: March 4, 2014
TO: **Land Development Services** Department of Public Works				FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: **Park Highlands (Project in CNLV)** **– Grand Teton Regional Flood Control Facility**			**COPIES TO:** Slater Hanifan Group
Cross Streets:	Grand Teton Blvd. & Decatur Blvd.			Crescent Bay Holdings
File Number:	F:\Depot\DSMemos\DS4577B.doc			Bart Anderson, P.E., DevCo
Parcel Number:	124-07-499-001 & More			CCRFCD
Zoning Action:	N/A			CNLV
FEMA Flood Zone	YES	NO **X**		
Proposed Storm Drain	YES **X**	NO		

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	11/15/2012; 3/12/2013 & 7/11/2013	7/22/2013	Approved	$400.00	302060: $400
2nd Submittal	2/18/2014	3/4/2014	See Comments Below	$400.00	348090: $400
			TOTAL FEES (LDDRS):	**$800.00**	**$800.00**

REMARKS:

2nd Submittal: Response to CCRFCD Comments

The Drainage Study for the subject project has been reviewed and:

X	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

***City of Las Vegas Flood Control* staff has reviewed the Technical Drainage Study, Addendum #1 and Addendum #2 of the subject development in the *City of North Las Vegas. City of Las Vegas* concurs with the acceptance of the drainage study by the *City of North Las Vegas Department of Public Works*. The review of this project was limited to issues of flood control significance to the *City of Las Vegas*.**

1. As indicated on **Sheet SD-01**: The engineer/developer will add the regional facilities in *Grand Teton Boulevard* west of *Decatur* as Category A Facilities when the *Clark County Regional Flood Control District Master Plan Amendment* (CCRFCD MPA) is processed.

2. Add a note in all pertinent sheets for the construction of all storm drain drop inlets per a newly adopted USDCCA Drawing No. 421 (*Stormwater Quality Management Stamp and Sign Detail*).

NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Amendment and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see http://ndep.nv.gov/bwpc/storm01.htm or call (775) 687-9429.

END OF REMARKS

ays

T/R/S: T19S/R61E/18

AREA H-18

REGIONAL FLOOD CONTROL DISTRICT

Gale Wm. Fraser, II, P.E.
General Manager/Chief Engineer

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Dr. Lois Tarkanian
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City of Boulder City

Mayor Mark Wier
City of Mesquite

May 19, 2014

Mr. Dan Le, P.E.
City of North Las Vegas Public Works
2250 Las Vegas Blvd. North
North Las Vegas, NV 89030

DISTRICT CONCURRENCE: MASTER DRAINAGE STUDY FOR PARK HIGHLANDS WEST (AKA NORTH LAS VEGAS 600 ACRE SITE) (CNLV # 46257) (RFCD No. 14-9310)

Dear Mr. Le:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated May 29, 2013, Addendum No. 1 dated October 28, 2013, and Addendum No. 2 dated February 11, 2014 for above-mentioned project as submitted by SLATER HANIFAN GROUP. In addition, District is in receipt of the Conditional Letter of Acceptance from City of North Las Vegas Public Works dated April 22, 2014.

District concurs with acceptance of this Technical Drainage Study by City of North Las Vegas Public Works with the following conditions:

1. It is noted that the Engineer will update the "Park Highlands - Grand Teton Regional Flood Control Facility" drainage study to reflect the removal of the park facility. Revisions in that study may impact this Master Drainage Study. All affected studies must be updated to reflect the current design of the Park Highlands development.

2. Per table revise color and linetype of E2 – E 4 to match legend for facilities to be removed/abandoned.

3. Based on the current design, low/nuisance flow is conveyed along the existing golf course. Consider a low/nuisance flow facility from the existing 10'x5' RCA (facility E50) to the existing storm drain system on Elkhorn Road (E83-E88).

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage.*

Please be aware that as additional information becomes available and/or restudies of Flood Insurance Studies are performed, information submitted by SLATER HANIFAN GROUP may be superseded. Compliance with regulatory elements and design standards specified in *Uniform Regulations for the Control of Drainage* does not imply a guarantee that properties will be free from flooding or flood damage. The District, its officials, or employees assume no liability for information, data, or conclusions presented by consulting engineers. We, therefore, make no warranties, either expressed or implied, in conducting this review.

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(702) 685-0000 • FAX: (702) 685-0001
Website: *http://www.regionalflood.org*

REGIONAL FLOOD
CONTROL DISTRICT

GALE WM. FRASER, II, P.E.
General Manager/Chief Engineer

BY: _____
Abigail Mayrena, P.E., CFM
Senior Engineer

AM:sa

c: Mark J. Failla, P.E., Slater Hanifan Group

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Mayor
John J. Lee

Council Members
Anita G. Wood
Pamela A. Goynes-Brown
Wade W. Wagner
Isaac E. Barron

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NORTH LAS VEGAS

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Interim City Manager
Jeff L. Buchanan

Deputy City Manager
Dr. Qiong X. Liu, PE, PTOE

PUBLIC WORKS – DEVELOPMENT AND FLOOD CONTROL
2250 N Las Vegas Blvd., Suite 200 • North Las Vegas, Nevada 89030-6307
Telephone: (702) 633-1200 • Fax: (702) 649-4696 • TDD: (800) 326-6868
www.cityofnorthlasvegas.com

April 23, 2014

Mailed via: E-mail

Mark Failla, PE, CFM
Kellin Collins, PE

Slater Hanifan Group, Inc.
5740 S. Arville Street. Suite #216
Las Vegas, Nevada 89118

Re: Master Drainage Study Addendum#2 - Park Highlands West (AKA North Las Vegas 600-Acre Site)
CNLV No. 46257

Dear Mr. Failla and Mrs. Collins:

This letter supersedes the letter dated April 22, 2014. The CNLV staff has reviewed the above referenced study, dated May 29, 2013, Addendum #1, dated October 28, and Addendum #2, dated February 11, 2014 and found it to meet the minimum accepted standards for the technical drainage study. This acceptance is contingent upon the following conditions:

1. Concurrence must be obtained by the Clark County Regional Flood Control District (CCRFCD) due to the proposed improvement's proximity to a Regional Flood Control Facilities. Please submit a copy of this drainage study and all addenda to CCRFCD upon acceptance from CNLV.

2. Since this study is proposing to add, remove, and revise various regional flood control facilities, a CCRFCD Master Plan Amendment must be submitted and completely processed by the Engineer once this study, the Technical Drainage Study for Park Highlands Grand Teton Regional Flood Control Facility (DB Study), and the Master Drainage Study for Park Highlands East have been reviewed and approved by CNLV, CLV, and CCRFCD.

   Also, please note that the proposed detention must be fully constructed and maintained by the developer until the Master Plan Amendment has been approved and that CNLV receives maintenance funding from the Regional Flood Control District for the maintenance operation of the detention basin

3. Approval from the City of Las Vegas (CLV) will be required since the project is adjacent to the jurisdictional boundary and will construct storm drain improvements within CLV's public ROW.

4. Please note that no onsite development will be allowed until either a required interim or a permanent regional flood control facility are fully constructed along Grand Teton.

5. Please note that prior to approving the Improvement Drawings for the Park Highlands Grand Teton Regional Flood Control Facility (DB Study) , all previously approved Improvement Drawings on CNLV files in this master plan must be revised to reflect the changes from the approved DB Study.

6. Please note that any changes to the proposed land-use or drainage patterns as shown in this study will require the Engineer to provide a drainage study update to this master drainage study.

7. Please coordinate with Duane McNelly, Development and Flood Control Project Leader, when submitting Improvement Drawings for this project. Mr. McNelly can be reached at 633-2312.

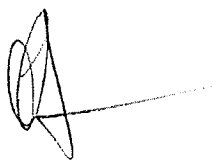
Please be advised that all land surface area disturbances over 1 acre and/or adjacent to a water way must submit a "Notice of Intent" to discharge to the Nevada Division of Environmental Protection, which certifies that a stormwater pollution prevention plan has been developed and is maintained on site. For more information, including forms and applications, see http://ndep.nv.gov/bwpc/storm01.htm.

Acceptance of this drainage study update does not imply approval of the Improvement Drawings and calculations associated with the drainage for this site. A detailed review of the drawings will be performed by staff during the improvement plan review process.

Any future changes in the proposed design (or design assumptions) as outlined in the approved drainage study and the attached preliminary plans which affect drainage must be addressed in a Drainage Study Amendment and accepted by the CNLV Development and Flood Control Section. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, CNLV reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

CNLV, its officials, or employees assume no liability for information, data, calculations and conclusions presented by the consulting engineers. We, therefore, make no warranties, either expressed or implied, in conducting this review. If you have any questions concerning this matter, please contact me at 633-1932.

Sincerely,



Dan Le, P.E., CFM
Senior Engineer
Development and Flood Control Division

****
*** FAX TX REPORT ***
****

TRANSMISSION OK

JOB NO.	3141
DESTINATION ADDRESS	2845399
PSWD/SUBADDRESS	
DESTINATION ID	
ST. TIME	03/04 15:22
USAGE T	00'49
PGS.	2
RESULT	OK

CITY OF LAS VEGAS
INTER-OFFICE MEMORANDUM

DATE: March 4, 2014

TO:
Land Development Services
Department of Public Works

FROM:
Albert Sung, P.E.
Flood Control Project Engineer
Department of Public Works

SUBJECT: Drainage Study for:
Park Highlands (Project in CNLV)
– Grand Teton Regional Flood Control Facility

COPIES TO:
Slater Hanifan Group
Crescent Bay Holdings
Bart Anderson, P.E., DevCo
CCRFCD
CNLV

Cross Streets:	Grand Teton Blvd. & Decatur Blvd.		
File Number:	F:\Depot\DSMemos\DS4577B.doc		
Parcel Number:	124-07-499-001 & More		
Zoning Action:	N/A		
FEMA Flood Zone	YES	NO **X**	
Proposed Storm Drain	YES **X**	NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	11/15/2012; 3/12/2013 & 7/11/2013	7/22/2013	Approved	$400.00	302060: $400
2nd Submittal	2/18/2014	3/4/2014	See Comments Below	$400.00	348090: $400
			TOTAL FEES (LDDRS):	**$800.00**	**$800.00**

REMARKS:

2nd Submittal: Response to CCRFCD Comments

The Drainage Study for the subject project has been reviewed and:

X	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

City of Las Vegas Flood Control **staff has reviewed the Technical Drainage Study, Addendum #1 and Addendum #2 of the subject development in the *City of North Las Vegas*. *City of Las Vegas* concurs with the acceptance of the drainage study by the *City of North Las Vegas Department of Public Works*. The review of this project was limited to issues of flood control significance to the**

Rec'd: 3/24/14

REGIONAL FLOOD CONTROL DISTRICT

Gale Wm. Fraser, II, P.E.
General Manager/Chief Engineer

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Dr. Lois Tarkanian
City of Las Vegas

Mayor Roger Tobler
City of Boulder City

Mayor Mark Wier
City of Mesquite

March 20, 2014

Ms. Jennifer E. Doody, P.E.
City of North Las Vegas Public Works
2250 Las Vegas Blvd. North
North Las Vegas, NV 89030

DISTRICT COMMENT(S):

PARK HIGHLANDS - GRAND TETON REGIONAL FLOOD CONTROL FACILITY (CNLV #45326) (DS4577B) (RFCD No. 13-9177)

Dear Ms. Doody:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated November 15, 2012, Addendum No. 1 dated March 7, 2013, Addendum No. 2 dated November 13, 2013, Supplement No. 1 dated May 9, 2013, and Supplement No. 2 dated July 11, 2013 for above-mentioned project as submitted by SLATER HANIFAN GROUP. In addition, District is in receipt of the Conditional Letter of Acceptance from City of North Las Vegas Public Works dated February 13, 2014.

District has the following comment(s):

1. The Engineer states that a Master Plan Amendment (MPA) will be submitted to address impacts to the District's Master Plan Update (MPU). The MPA is subject to District's Board of Directors' approval and must be adopted by City of North Las Vegas and City of Las Vegas. In the event that the MPA is not adopted and the facilities proposed in this Technical Drainage Study (TDS) are constructed, District funding shall not be allocated for maintenance of non-District facilities.

2. The MPA concept and financial impact must be discussed and identified in this TDS to demonstrate that the MPU can be fully implemented with the associated changes.

3. Revise the MPU exhibit to include information of all associated facilities (sizes, description, flow, length, etc.). Provide a discussion demonstrating that all existing facilities that will be incorporated to the MPU meet District's criteria to be added as District regional facilities (capacity, maintenance access, etc.). Please note that the "Northern CC-215 Bruce Woodbury Beltway from Decatur Blvd. to North 5th St." project is currently being advertised for construction. Coordinate connection location accordingly.

4. It is noted that City of North Las Vegas and Crescent Bay are currently in the process of obtaining the necessary easements/rights from Bureau of Land Management to discharge flow thru the Conservation Transfer Area. If the permission is not granted, this study must be updated accordingly.

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Website: http://www.regionalflood.org

5. This study references Park Highlands West and East Master Drainage Studies. District has not reviewed these Master studies. Any impacts of the Master studies to the facilities proposed in this study may result in an update to this study.

6. Comment #5f: For clarity, provide a discussion why there is additional sediment storage capacity of the detention basin (1.56 ac-ft required/23 ac-ft provided). Note that the response has 1 ac-ft required storage while it is 1.56 ac-ft on Sheet G-03, address discrepancy accordingly.

7. SD-07:
   a. Due to the minimal volume of the roller compacted concrete (RCC), consider constructing the spillway with Portland cement concrete. If the Engineer decides to continue with the RCC material, provide RCC construction specifications and requirements on the plan (# of lifts, plating, shoring, etc.). Identify who is responsible for the testing of the in-place RCC. If it will be by the Engineer, identify which discipline.

   b. Provide driveway entrances from perimeter streets to allow maintenance vehicles to easily access the detention basin maintenance road. Coordinate with City of North Las Vegas for their preferred entrance locations.

   c. There are two "2305" contour labels near the 12'x7' RCA headwall. Revise appropriate label from "2305" to "2310".

8. SD-08:
   a. SD-08/S1.5: Combine the 5-foot and 7-foot u-channel flow lines at the trash rack to go thru the single opening at the weir wall. Revise appropriate civil and structural plans accordingly.

   b. Provide sediment and detention basin depth gauges. Provide details accordingly.

9. DT-04:
   a. The 4" PVC drain pipe from the monitoring station is not required to drain to the outlet structure. Consider daylighting the floor drain near the monitoring station structure. If the current design is maintained, offset the 4" drain pipe from the 2" pull wire conduit.

   b. To minimize incorrect sensor results due to possible turbulent conditions, relocate the 2" PVC coated rigid steel at the most downstream end of the outlet structure (south of the manway). Revise accordingly.

   c. Provide a sensor protection lock box at the outlet structure. The front face of the box should include a cut-out section to easily access the lock.

REGIONAL FLOOD CONTROL DISTRICT

d. Increase the 2" antenna mast pipe length to 8 feet.

10. S2.8: Detail 2, Construction Note #8: Height of manway opening is not specified on Civil Sheet DT-02. Revise accordingly.

11. Provide sign(s) with the name of the detention basin.

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage*.

The consultant must be advised to submit any revisions to the Technical Drainage Study and Improvement Plans to City of North Las Vegas Public Works for review/re-approval. District review of any such revisions will commence upon City of North Las Vegas Public Works' acceptance.

Please be aware that as additional information becomes available and/or restudies of Flood Insurance Studies are performed, information submitted by SLATER HANIFAN GROUP may be superseded. Compliance with regulatory elements and design standards specified in *Uniform Regulations for the Control of Drainage* does not imply a guarantee that properties will be free from flooding or flood damage. The District, its officials, or employees assume no liability for information, data, or conclusions presented by consulting engineers. We, therefore, make no warranties, either expressed or implied, in conducting this review.

GALE WM. FRASER, II, P.E.
General Manager/Chief Engineer

BY: _____
Abigail Mayrena, P.E., CFM
Senior Engineer

AM:sa

c: Mark J. Failla, P.E., Slater Hanifan Group
Oh-Sang Kwon, P.E., City of Las Vegas

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Mayor
John J. Lee

Council Members
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Pamela A. Goynes-Brown
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Telephone: (702) 633-1200 • Fax: (702) 649-4696 • TDD: (800) 326-6868
www.cityofnorthlasvegas.com

April 22, 2014

Mailed via: E-mail

Mark Failla, PE, CFM
Kellin Collins, PE

Slater Hanifan Group, Inc.
5740 S. Arville Street. Suite #216
Las Vegas, Nevada 89118

Re: Master Drainage Study Addendum#2 - Park Highlands West (AKA North Las Vegas 600-Acre Site)
CNLV No. 46257

Dear Mr. Failla and Mrs. Collins:

CNLV staff has reviewed the above referenced study, dated May 29, 2013, Addendum #1, dated October 28, and Addendum #2, dated February 11, 2014 and found it to meet the minimum accepted standards for the technical drainage study. This acceptance is contingent upon the following conditions:

1. Concurrence must be obtained by the Clark County Regional Flood Control District (CCRFCD) due to the proposed improvement's proximity to a Regional Flood Control Facilities. Please submit a copy of this drainage study and all addenda to CCRFCD upon acceptance from CNLV.

2. Please note that since the Technical Drainage Study for Park Highlands Grand Teton Regional Flood Control Facility (DB Study) has not been approved by CCRFCD, any changes to the DB Study as the result of the review comments from CCRFCD must be addressed and reflected in this study.

3. Since this study is proposing to add, remove, and revise various regional flood control facilities, a CCRFCD Master Plan Amendment must be submitted and processed by the Engineer once this study and the currently submitted Park Highlands Grand Teton Regional Flood Control Facility (DB Study) and Master Drainage Study for Park Highland West have been reviewed and approved by CNLV, CLV, and CCRFCD.

   Also, please note that the proposed detention must be fully constructed and maintained by the developer until the Master Plan Amendment has been approved and that CNLV receives maintenance funding from the Regional Flood Control District for the maintenance operation of the detention basin.

4. Approval from the City of Las Vegas (CLV) will be required since the project is adjacent to the jurisdictional boundary and will construct storm drain improvements within CLV's public ROW.

5. Please note that no onsite development will be allowed until either a required interim or a permanent regional flood control facility are fully constructed along Grand Teton.

6. Please note that prior to approving the Improvement Drawings fro this project, all previously approved Improvement Drawings on CNLV files must be revised to reflect the changes from this approved drainage study.

7. Please note that any changes to the proposed land-use or drainage patterns as shown in this study will require the Engineer to provide a drainage study update to this master drainage study.

8. Please coordinate with Duane McNelly, Development and Flood Control Project Leader, when submitting Improvement Drawings for this project. Mr. McNelly can be reached at 633-2312.

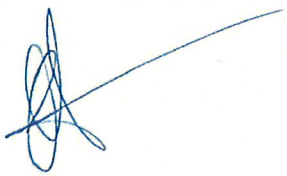
Please be advised that all land surface area disturbances over 1 acre and/or adjacent to a water way must submit a "Notice of Intent" to discharge to the Nevada Division of Environmental Protection, which certifies that a stormwater pollution prevention plan has been developed and is maintained on site. For more information, including forms and applications, see http://ndep.nv.gov/bwpc/storm01.htm.

Acceptance of this drainage study update does not imply approval of the Improvement Drawings and calculations associated with the drainage for this site. A detailed review of the drawings will be performed by staff during the improvement plan review process.

Any future changes in the proposed design (or design assumptions) as outlined in the approved drainage study and the attached preliminary plans which affect drainage must be addressed in a Drainage Study Amendment and accepted by the CNLV Development and Flood Control Section. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, CNLV reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

CNLV, its officials, or employees assume no liability for information, data, calculations and conclusions presented by the consulting engineers. We, therefore, make no warranties, either expressed or implied, in conducting this review. If you have any questions concerning this matter, please contact me at 633-1932.

Sincerely,



Dan Le, P.E., CFM
Senior Engineer
Development and Flood Control Division

TECHNICAL DRAINAGE STUDY
ADDENDUM No. 2
(Response to RFCD Comments)
Park Highlands Grand Teton
Regional Flood Control Facility
City of North Las Vegas, Nevada

Job No.: CBH1201.000
Date: November 2013

Prepared By:
Slater Hanifan Group, Inc.
5740 S. Arville Street, Suite 216
Las Vegas, Nevada 89118
Phone: 702-284-5300 ▪ Fax: 702-284-5399

Prepared For:
Crescent Bay Holdings
7144 East Stetson Drive, Suite 410
Scottsdale, AZ 85251
Phone: 404-584-6997

Mark J. Failla, P.E., CFM
NV Professional Engineer No. 14566

Assisted by: Kellin Collins, P.E.

DEPARTMENT OF PUBLIC WORKS

CITY OF NORTH LAS VEGAS
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Drainage Study Submittal Application

- City of North Las Vegas Use Only - Project #:_____ Received :____/____/____ ☐ Fee paid $_____ ☐ Engineer's seal ☐ Drainage Study Checklist	Project name: Park Highlands-Grand Teton Regional Flood Control Facility-Add No. 2 ☐ Initial drainage study ☐ Concurrence ☐ CLOMR/LOMR ☑ Addendum #2 ☐ Amendment ☐ Supplement ☐ Update to *(original study name)*:_____ Study review process desired: ☑ In-house ☐ Outsourced
Project location (incl. cross streets): Grand Teton and Decatur	
Assessor parcel number(s): 124-07-499-001 thru 004; 124-18-110-003, 005; 124-18-199-001; 124-18-510-001, 005, 008;124-18-610-002, 006; 124-18-699-001; 125-12-899-002; 125-13-599-010	
Acreage: +/- 25 acres	Number of lots: n/a Section/Township/Range: 18/19S/61E
Type of development: ☐ Residential subdivision ☐ Commercial subdivision ☐ Commercial ☐ Multi-family ☑ Other (please specify): Storm Drain & Detention Basin	

Drainage Study Review Fee Schedule

A pre-submittal meeting must be arranged prior to Initial and Update Study submittals (702/633-1932)

Initial drainage studies:		**Other submittals:**	
☐ ≤6 gross acres	$ 500	☐ Addendum	$ 0
☐ >6 to 41 gross acres	$1000	☑ Addendum 2 or greater	(see DFC Fee Schedule)
☐ >41 to 321 gross acres	$ 2000	☐ Update	$400
☐ >321 to 2,561 gross acres	$ 4000	☐ Amendment	$400
☐ >2,561 gross acres	$ 6000	☐ CLOMR/LOMR	$0
☐ Concurrence	$250		

Additional outsourced review fees: Drainage study $4,200 Update $2,500

3 copies of the study must be supplied for outsourced review.

Engineering firm: Slater Hanifan Group	Contact person: Mark J. Failla, PE, CFM
Address: 5740 S. Arville Street, Suite 216	Phone: 702-284-5300
	Fax: 702-284-5399
City: Las Vegas State./Zip NV/89118	E-mail: mfailla@shg-inc.com
Owner/developer: Crescent Bay Holdings	Contact person: Philip Miller
Address: 7144 East Stetson Drive, Suite 410	Phone: 480-584-6997
	Fax: n/a
City: Scottsdale State/Zip AZ/85251	E-Mail: developaz@gmail.com
Owner/developer wishes to be copied on all review correspondence:	☑ Yes ☐ No

Projects on the North Las Vegas municipal boundaries must be submitted to the adjacent jurisdiction for their review and/or approval. Projects that will impact the State's highway system must be submitted to the Nevada Department of Transportation District Office for review and approval.

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Park Highlands - Grand Teton Regional Flood Control Facility (Addendum No. 2) Date: Nov. 2013

Location of Development: a) Descriptive (Cross Streets): North/South: Decatur Blvd.
East/West: Grand Teton

b) Section: 18 Township: 19S Range: 61E

c) APN: 124-07-499-001 thru 004; 124-18-110-003, 005; 124-18-199-001; 124-18-510-001, 005, 008; 124-18-610-002, 006; 124-18-699-001; 125-12-899-002; 125-13-599-010

Name of Owner: Crescent Bay Holdings

Telephone No.: 480-584-6997 Fax No.: n/a E-mail Address: developaz@gmail.com

Address: 7144 East Stetson Drive, Suite 410, Scottsdale AZ 85251

Contact Person – Name: Mark J. Failla, PE, CFM Telephone No.: 702-284-5300

*E-mail Address: mfallia@shg-inc.com Fax No.: 702-284-5399

Firm: Slater Hanifan Group

Address: 5740 Arville St. #216

Type of Land Development/Land Disturbance Process:

☐	Rezoning	☐	Subdivison Map	☐	Clearing and grading Only
☐	Parcel Map	☐	Planned Unit Development	☒	Other (Please specify below)
☐	Large Parcel Map	☐	Building Permit		Storm drain and detention basin improvements

1. Total Owned Land Area: At Site: ±600 Acres Being Developed/Disturbed: +/-25 acres

2. Is a portion or all of the subject property located in a FEMA Flood Hazard Area? ☐ Yes** ☒ No

3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☒ Yes** ☐ No

4. Proposed type of development (Residential, Commercial, Etc.): Flood Control Facilities

5. Approximate upstream land area which drains to the subject site: 3.04 square miles

6. Has the site drainage been evaluated in the past? ☒ Yes** ☐ No If yes, please identify documentation: North Las Vegas 600-Arce Site Area 3 (Update No. 1)(CNLV 41331); North Las Vegas 600 Acre Site (CNLV 24576); TDS for North Las Vegas 600-Acre Site Area 4 (CNLV 27769), Grand Teton Storm Drain & Area1 Road Improvement (CNLV 4189)

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Flood channel within the Club Alliante

8. Briefly describe your proposed schedule for the subject project: ASAP

Engineer's Seal

Submit this form as part of the required drainage study to the local entity which has jurisdiction over The subject property. This form may provide sufficient information to serve as the Conceptual Drainage Study.

*Newly Required Field

**Review and concurrence of the Clark County Regional Flood Control District is required

Local Entity File No.

Revision	Date

REFERENCE:

STANDARD FORM 1

Updated 05/01/2008

CBH1201.000

November 13, 2013

Abigail Mayrena, P.E., CFM – Senior Engineer
Clark County Regional Flood Control District
600 S. Grand Central Parkway, Suite 300
Las Vegas, Nevada 89106-4511

Subject: Addendum No. 2 to the Technical Drainage Study (Response to RFCD Comments) for Park Highlands Grand Teton Regional Flood Control Facility (CNLV No. 45326, RFCD No. 13-9177)

Dear Ms. Mayrena:

This letter is submitted in response to comments contained in the August 27, 2013 review memorandum regarding the above referenced project by Regional Flood Control District (RFCD). Note that a meeting was held among Slater Hanifan Group, City of North Las Vegas (CNLV), City of Las Vegas (CLV), and RFCD on September 16, 2013 to discuss the RFCD comments on this project. A follow-up meeting was held among Slater Hanifan Group, CNLV, and RFCD on October 7, 2013 to discuss regional connectivity and specifically, RFCD Comment No. 5b.

Subsequent to the CNLV approval and submittal to RFCD for concurrence, minor changes to the land plan for the Park Highlands West development have occurred. Therefore, the hydrologic analysis has been revised to reflect the land plan change. The changes in land use and impacts to hydrology and hydraulics are as follows:

- Parcel 1.3 (also known as drainage Basin 2-4) was initially analyzed as high density residential. The parcel is now proposed as mix use which utilizes a commercial curve number. Since high density residential already uses a commercial land use curve number, there was no impact to the hydrologic results of this drainage basin. Therefore, there were no hydraulic analysis impacts. However, the CN computation has been revised to call out 'commercial' land use instead of 'Residential (<6,000sf) (C)' for the drainage basin.
- Parcel 3.2 (also known as drainage Basin 2-9) was initially analyzed as a park. The parcel is now proposed as medium density residential. With a higher curve number associated with medium density residential verses park, the runoff from this drainage basin has increased. The higher flow rate impacts the hydraulic analysis for 'Existing Farm Storm Drain - Farm Rd to Aliante Flood Channel'.
- Parcel 3.3 was previously analyzed as drainage Basin 2-10 in which half the basin was routed north towards Farm Road while the other half was routed south. The limits of drainage Basin 2-10 has been revised to only cover the area that drains north towards Farm Road. With the revised drainage basin limit and change in lag time, the runoff to Farm Road west of Aviary has decreased. The lower flow rate impacts the hydraulic analysis for 'Existing Farm Storm Drain - Farm Rd to Aliante Flood Channel'.
- Parcels 4.3 and 4.2 (also known as drainage Basins 2-11 and 2-12, respectively) have reduced in size. The land use and drainage pattern for these two drainage basins remain the same but the hydrologic parameters (area and lag time) have changed. The

resulting flow rates from these two drainage basins have reduced which impacts the flow rate in the hydraulic analysis for 'Existing Farm Storm Drain - Farm Rd to Aliante Flood Channel'. The new limits of the drainage basins also alter the location of the lateral stub provided for these two drainage basins.

- Parcels 4.4 and 4.5 have increased in size. The limits of drainage Basin 2-13 has been revised to only cover the area of Parcels 4.4 and 4.5 that drains east towards the Aliante Flood Channel. Associated with the revised limits of the drainage basin is the change to area and lag time. The resulting flow rate increase from this drainage basin impacts the hydraulic analysis for 'Existing Farm Storm Drain - Farm Rd to Aliante Flood Channel'.
- With the revisions to the hydraulic analysis for 'Existing Farm Storm Drain - Farm Rd to Aliante Flood Channel', the starting water surface elevation has changed to the hydraulic analysis for 'Virage Park East Storm Drain - Detention Basin Outlet Structure to Farm Rd.' Note that the revised hydraulic analyses are provided only to assess the functionality of the proposed detention basin, the mainline systems, and the discharge to the Aliante Flood Channel. The revised hydraulic analysis for 'Virage Park East Storm Drain - Detention Basin Outlet Structure to Farm Rd' shows no impact on the detention basin design. Therefore, no changes to the detention basin design are warranted in association with the outlet discharge.
- Prior to the land use changes, the project was discharging 463 cfs (Concentration Point PT2) to the Aliante Flood Channel. With the land use changes and revision the hydrologic analysis, the discharge to the Aliante Flood Channel has increased to 464 cfs. Note that the proposed discharge is still less than the design flow rate (allowable) of 512 cfs for the Aliante Flood Channel. Therefore, there are no adverse impacts to downstream properties with the flow rate associated with the current land use.

Please refer to Appendix E and F for the revised hydrologic and hydraulic analyses, respectively. Note that the hydrology and hydraulics presented with this study is identical to the hydrology provided in Addendum No. 1 to the Master Drainage Study for Park Highlands West; this includes drainage basin names, drainage basin limits, hydrologic parameters, lateral locations/sizes, and hydraulic analyses. Please note that the hydrologic and hydraulic revisions associated with the changes to land use do not impact the response to RFCD comments.

A copy of the RFCD drainage study comment letter is included in Appendix A. The comments have been individually addressed as follows:

1. **Comment:** *It appears that the 6' X 6' RCB facility in Decatur Boulevard between Horse Drive and Grand Teton Drive (GTEA0360) will be removed from the Master Plan Update (MPU). Provide a discussion justifying that the MPU can be fully implemented with the removal of GTEA0360. The Engineer must coordinate the removal of this facility with City of Las Vegas and obtain another concurrence, as necessary;*

   Response: An MPU Amendment will be submitted addressing impacts to regional facilities. As discussed in response to Comment No.2, an MPU Amendment Connectivity Exhibit has been prepared to depict the changes to the MPU that will be proposed and supported by the amendment. The following provides justification for removing the regional facility in Decatur Boulevard between Horse Drive and Drainage Teton Drive and how the MPU will be implemented:

- The regional facility (GTEA0360) is classified as a Category B which means the facility is currently programmed to be constructed by private funds. Decatur Boulevard is nearly completely improved from curb to curb; only roughly 630-ft of the east half of Decatur Boulevard (just north of Grand Teton Drive) is not constructed. With the roadway nearly complete and the facility programmed for private funding, it is unlikely that a private entity would ever fund/construct the facility. It is acknowledged that the facility could be re-programmed for public funding at the discretion of CNLV, however this likely would be more expensive than the proposed alignment.
- The existing intersection is constructed with a highpoint in Decatur south of Horse and a highpoint in Horse east of Decatur. Drop inlets and storm drain insufficient of intercepting and conveying the 100-year storm event exist within the sumped intersection. The highpoint in Decatur is higher than the highpoint in Horse; therefore overflow perpetuates to the east in Horse Drive and not south to the Decatur/Grand Teton intersection. The existing developments along Horse Drive anticipated and designed drainage infrastructure along Horse Drive for the interception and conveyance of flows from the Horse Drive and Decatur Boulevard intersection. Since the flows from the intersection currently drain east in Horse Drive and there are existing drainage facilities to intercept and convey the flows east, it was not logical to plan for the flows to drain south on Decatur Boulevard from Horse Drive. Additionally, utilization of existing infrastructure will decrease the cost for the ultimate regional facility.
- Per the September 16, 2013 and October 7, 2013 coordination meetings, it was agreed that CNLV would support revising the MPU to perpetuate drainage from the Decatur/Horse intersection east along Horse and continuing east past Aliante Parkway (thru the CTA) to an existing wash that extends to the Las Vegas Wash. All facilities along this alignment will be designated as either existing or proposed regional facilities. CNLV and Crescent Bay will work together to obtain the necessary easement/rights from BLM to enable the future facility thru the CTA. Refer to additional discussion provided in Response to Comment No.2.

2. **Comment:** *Provide a Master Plan Amendment exhibit identifying regional facilities and show connectivity to an existing regional facility. Address accordingly;*

   Response: An exhibit entitled, *Master Plan Amendment Connectivity* has been provided in Appendix B. The exhibit depicts the proposed routing and changes of regional facilities that will be included on the Master Plan Amendment that will be submitted subsequent to CNLV, CLV and CCRFCD conditional approvals of Park Highlands Grand Teton Regional Flood Control Facility TDS, Park Highlands West Master Drainage Study, and Park Highlands East Master Drainage Study. The intention of the exhibit is to provide intended facility alignments only, and not an inventory of facility sizes, naming etc. that will be required for the Master Plan Amendment. The exhibit as well as the proposed routing and changes to regional facilities have been coordinated per the September 16, 2013 and October 7, 2013 meetings with both CNLV and CLV.

3. **Comment:** *The proposed detention basin reduces the flow to the east in Grand Teton. Discuss if any downstream facility can be downsized due to the removal of the current MPU facilities between the proposed detention basin and the North Las Vegas Wash Detention Basin;*

Response: Determination as to the ability to downsize or remove downstream MPU facilities is beyond the scope of this project. Any regional storm drain facility that can be downsized or removed due to the proposed Grand Teton infrastructure and detention basin has been/will be addressed in the Park Highlands West Master Drainage Study, Park Highlands East Master Drainage Study, and ultimately the Master Plan Amendment. The Park Highlands West Master Drainage Study is currently under review by CNLV and the Park Highlands East Master Drainage Study is anticipated to be submitted in December.

4. **Comment:** *With the proposed detention basin outfall, there will be a much longer drain time through the golf course. Discuss coordination efforts with the golf course owner regarding the impacts of the proposed outfall system. Clarify if easements have been obtained through the golf course for the outfall system;*

Response: The golf course is owned by CNLV. The drain time subsequent to a 100-year storm event is 13 hours, 40 minutes and 14 hours, 24 minutes for a water quality storm event. Drain time data subsequent to a 100-year event and other supporting computations were previously submitted to CNLV for review and coordination. Water quality drain time computations are included with this report (see response to Comment No. 5g). The CNLV is in acceptance of the drain time through the golf course. The golf course is currently utilized as a storm conveyance corridor and the proposed design does not increase design peak storm flows along the alignment. No additional easements or revised limits are assumed to be necessary.

5. **Comment:** *Detention Basin:*

   a. *Sheet G-03: The "Overflow Spillway Stage - Discharge" graph labels Q= 1,700 cfs as a design discharge. This may be confusing therefore, District recommends deleting this graph. Verify that the Q = 1,975 cfs is the corresponding discharge at WSE = 2,310.50 ft in the "54-inch Orifice and Overflow Spillway Stage - Discharge". Revise accordingly.*

   b. *A multi-use facility is proposed at the upstream end of the detention basin and near the discharge location of the inflow structure of the detention basin. To maximize the time for the public to exit the detention basin, relocate the multi-use facility to the south end of the detention basin or extend the inflow structure to discharge away from the multi-use facility. Debris from the inflow structure may also collect along the bench and interfere with the maintenance of the detention basin. Revise accordingly.*

   c. *Provide flood warning signs along the east side of the detention basin. Review sign requirements per the HCDDM (Section 304.8). Revise accordingly.*

   d. *Provide a flood threat recognition station. Contact the District for specifications and requirements of the station prior to next submittal.*

   e. *Specify dust palliative surface treatment for the detention basin.*

f. *Label contour lines within the detention basin. Add basin capacity information on Sheets SD-7 and SD-8. Ensure that the sediment volume is included in the total volume calculation.*

g. *Revision to District's Hydrologic Criteria and Drainage Design Manual (HCDDM) Sections 1200 and 1500 were recently finalized and will be incorporated to the HCDDM. Review updated sections and provide appropriate calculations for detention basin water quality requirements.*

h. *Based on the structural detail, the trash rack bars are not removable. Provide removable trash rack bars and provide maintenance access to the trash rack. Provide bearing pad for the trash rack base column to absorb shocks during opening/closing the trash rack. Revise Civil and Structural details accordingly.*

Response:

a. The "Overflow Spillway Stage - Discharge" graph has been removed as requested. The flow rate of 1,975 cfs corresponding to the WSE of 2310.50 ft is correct for the "54-inch Orifice and Overflow Spillway Stage - Discharge" graph. At WSE 2310.50 ft, the 54-inch orifice discharges 278 cfs and the spillway discharges 1697 cfs which totals 1,975 cfs.

b. Per the September 16, 2013 and October 7, 2013 coordination meetings, a flood wall is proposed along the northern limit of the multi-use bench. The flood wall will maintain flows in an easterly direction along the flow line and will provide early warning time to allow for the public to exit the detention basin at the onset of a storm event. Refer to the revised civil drawing Sheet SD-07 and structural drawing Sheet S3.1, detail 3.

c. The improvement plans have been revised to add flood warning signs along the east side of the basin. The flood warning sign detail has been revised to be in compliance with in compliance with Section 304.8 of the HCDDM. Refer to revised civil drawing Sheets SD-07, SD-08 and DT-01.

d. A flood recognition system has been incorporated into the detention basin design. Refer to civil drawing Sheets DT-04, DT-05 and DT-06.

e. Acknowledged. A note has been added to civil drawing Sheet DT-03 specifying the use of dust palliative surface treatment for the detention basin in accordance with CCUSD Section 637.

f. The contours within the detention basin have been labeled. Additionally, detention basin capacity information has provided on Sheets SD-07 and SD-08. The total volume provided includes the sediment volume. The sediment volume is provided between the 100-year water surface elevation 2307.02 (103 ac-ft) and the Overflow Spillway Crest elevation 2308.50 (123 ac-ft). Note that 23 ac-ft of sediment storage is provided; although per previously submitted computations only 1 ac-ft of sediment storage is required.

g. The design of the water quality component to the detention basin has been revised to meet current HCDDM criteria. Based on the methodology and requirements presented in the Technical Memorandum IV.11 from the Las Vegas Valley Municipal Separate Storm Sewer System Permit, the required Water Quality Capture Volume (WQCV) for the proposed detention basin is 3.1acre-foot. In support of the WQVC computation, an exhibit has been provided to show the overall contributing watershed and the developable area within the contributing watershed. Based on the ultimate land use and developable area, a composite percentage of impervious area was computed to be utilized in calculating the WQCV.

   Based on the necessary WQCV, the water quality weir wall has increased to a height of 2.2-ft. The weir wall openings have reduced to a single wall opening at 0.5-ft in width to accommodate a drain time of approximately 14-hrs. The sizing of the weir wall opening as well as the number of openings was iterative to obtain the necessary dewatering time. Only the final computation has been provided with this addendum. The WQCV computation and associated exhibit has been provided in Appendix D.

h. Acknowledged. Structural drawing Sheets S2.8 and S2.9 have been revised to incorporate maintenance access via a hinge at the top of the trash rack. Additionally a bearing pad at the trash rack base column has been added.

6. **Comment:** *SD-04:*

   a. Show new location of existing utilities that are to be relocated.

   b. Provide fall protection at 12' X 5' RCA headwall.

   Response: SD-04:

   a. Utility relocation designs will be provided with improvement plans to be prepared and submitted subsequent to drainage study approval.

   b. Fall protection fencing has been added to the 12'x7' RCA headwall. Refer to Structural drawing Sheet S2.6.

7. **Comment:** *DT-03: Show water line location on section view.*

   Response: Utility locations and relocation designs will be provided with improvement plans to be prepared and submitted subsequent to drainage study approval.

8. **Comment:** *Sheet S1.1: Detail 3 on Sheet S2.5 for a minimum opening of 2.5 feet is not adequate for the 36-inch RCPs. Revise accordingly.*

   Response: Per phone conversation with Abigail Mayrana on October 28, 2013, this comment is removed/deleted. Detail 3 on Sheet S2.5 is for an 18-inch lateral; therefore, a 2.5-ft opening is adequate.

9. **Comment:** *Sheet S1.2: Provide a RCP section at the end of the existing HDPE which connects to the RCA.*

Response: Per phone conversation with Abigail Mayrena on October 23, 2013, it was requested that a RCP be provided from the RCA and then a collar to connect the HDPE to the RCP. Refer to Structural drawing Sheet S1.2 for the revised design.

10. **Comment:** *Sheet S2.6: Provide fall protection at the headwall of the 12' X 7' RCA.*

    Response: Fall protection fencing has been added to the 12'x7' RCA headwall. Refer to Structural drawing Sheet S2.6.

11. **Comment:** *Sheet S2.13:*

    a. *Provide fall protection at the headwall of the 66" RCP.*

    b. *District prefers the 66" RCP safety grate to be removed to minimize clogging the system. Coordinate with City of North Las Vegas maintenance and consider an alternative design to prevent public access to the opening. If the safety grate remains as proposed, provide grate opening with clogging factor calculation.*

    Response:

    a. Acknowledged. Fall protection fencing has been added to the headwall of the 66" RCP. Refer to Structural drawing Sheet S2.13.

    b. Acknowledged. Per the September 16, 2013 and October 7, 2013 coordination meetings, the safety grate has been revised to be hinged at the top allowing the grate to swing open during storm events. This alternative design was considered preferable to CNLV in lieu of other alternatives discussed at the meeting. Since the safety grate will open during storm events, it is considered unnecessary to provide clogging factor accommodations in the design. Refer to Structural drawing Sheet S2.13 for the revised safety grate design.

12. **Comment:** *WSPG (GT100UWSW in Supplement #1 to Addendum #1): A trapezoidal channel (type 1) in card CD 11 is used for the 12' X 5' RCB. Revise model and use a box (type 3) to model the appropriate facility type. Revise accordingly;*

    Response: The WSPG model for the main line system in Grand Teton Drive has been revised to reflect a box instead of a channel. The HGL in the mainline system changed slightly towards the upstream segment of the system. The revised mainline hydraulic analysis is provided in Appendix E.

    The change in mainline HGL impacts three laterals, Lateral No. 2, 3, and 4. For Lateral No. 3 and 4, the revised mainline hydraulic analysis shows a lower HGL; therefore, the previous lateral analysis is conservative and remains valid. No revised hydraulic analysis is provided for Lateral No. 3 and 4. However, the revised mainline hydraulic analysis shows a higher HGL for Lateral No. 2. Therefore, Lateral No. 2 was reassessed with the higher starting WSE. Note that Lateral No. 2 still meets CCRFCD Manual criteria for HGL a minimum of 1-ft below grade and velocity not exceeding 25 fps. The revised Lateral No. 2 hydraulic analysis is provided in Appendix E.

13. **Comment:** *Based on the storm drain plan, there will be three sets drop inlets on Grand Teton Boulevard west of Decatur Boulevard. The study states that City of Las Vegas (CLV) is responsible for constructing a set of future drop inlets. Provide a discussion for the funding of the drop inlets. Consider combining or constructing the drop inlets to minimize impact to the intersection. Also, response to Comment #1 in Supplement #1 to Addendum #1 states that the 10-year dry lane criteria is not met when the ultimate condition flow rates are assumed and the CLV future facilities west of Decatur Boulevard are not constructed, which may occur. Street criteria must be met per the HCDDM. Revise as necessary.*

    Response: Per prior coordination with CLV, the MPU Amendment will be revised to extend Category A Regional Facility west along Grand Teton to accommodate the funding of the future drop inlets and storm drain thru CCRFCD funds. This was considered acceptable to both CLV and CNLV.

    As for the 10-yr dry lane criteria during the Future Condition (defined as ultimate condition flow rates without future CLV storm drain facilities), Supplement No. 2 to Addendum No. 1 addressed how the 10-yr dry lane criteria during the Future Condition is met. Please refer to Supplement No. 2 previously submitted.

The revised plan, profile and detail sheets for Park Highlands Grand Teton Regional Flood Control Facility adopting the revisions addressed in this letter and the comments from the Regional Flood control district have been included in Appendix G. If you have any questions or require additional information, please do not hesitate to contact us at 284-5300.

Respectfully Submitted,
SLATER HANIFAN GROUP

Kellin Collins, P.E.
Flood Control Division

pc: Jerry Slater, SHG
Mark Failla, SHG

LIST OF APPENDICIES

Appendix A - RFCD Comment Letter

Appendix B - Repsonse to Comment No. 2

1. Regionally Significant Storm Drain Facilities Map

Appendix C - Response to Comment No. 5g

1. WQCV Percent of Impervious Area Map
2. WQCV Computations

Appendix D - Response to Comment No. 12

1. Mainline WSPGW Analysis: Grand Teton Storm Drain - Decatur Blvd to Detention Basin Inflow (Ultimate Condition)
2. Lateral WSPGW Computations

Appendix E - Revised Hydrologic Analysis

1. Drainage Exhibit: Exhibit M – Future/Interim & Ultimate Condition Onsite Drainage Map
2. Hydrologic Parameters
   - Land Use Map
   - Soils Map
   - Onsite CN Computations
   - Standard Form 4
3. HEC-1 Model: 10-Year Interim Condition
4. HEC-1 Model: 100-Year Interim Condition
5. HEC-1 Model: 10-Year Ultimate Condition
6. HEC-1 Model: 100-Year Ultimate Condition

Appendix F - Revised Hydraulic Analysis

1. Drainage Exhibit: Exhibit N – Facilities Map
2. Mainline WSPG Analysis: Existing Farm Storm Drain - Farm Rd to Aliante Flood Channel
3. Mainline WSPG Analysis: Virage Park East Storm Drain - Detention Basin Outlet Structure to Farm Rd

Appendix G - Revised Plan, Profile and Detail Sheets

Appendix H – Electronic Files

1. PDF of Study

APPENDIX A

RFCD Comment Letter

REGIONAL FLOOD CONTROL DISTRICT

Gale Wm. Fraser, II, P.E.
General Manager/Chief Engineer

BOARD OF DIRECTORS

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City of Mesquite

August 27, 2013

Ms. Jennifer E. Doody, P.E.
City of North Las Vegas Public Works
2250 Las Vegas Blvd. North
North Las Vegas, NV 89030

DISTRICT COMMENT(S): **PARK HIGHLANDS - GRAND TETON REGIONAL FLOOD CONTROL FACILITY (CNLV #45326) (RFCD No. 13-9177)**

Dear Ms. Doody:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated November 15, 2012, Addendum No. 1 dated March 7, 2013, Supplement No. 1 dated May 9, 2013, and Supplement No. 2 dated July 11, 2013 for above-mentioned project as submitted by SLATER HANIFAN GROUP. In addition, District is in receipt of the Conditional Letter of Acceptance from City of North Las Vegas Public Works dated July 22, 2013.

District has the following comment(s):

1. It appears that the 6' X 6' RCB facility in Decatur Boulevard between Horse Drive and Grand Teton Drive (GTEA0360) will be removed from the Master Plan Update (MPU). Provide a discussion justifying that the MPU can be fully implemented with the removal of GTEA0360. The Engineer must coordinate the removal of this facility with City of Las Vegas and obtain another concurrence, as necessary.

2. Provide a Master Plan Amendment exhibit identifying regional facilities and show connectivity to an existing regional facility. Address accordingly.

3. The proposed detention basin reduces the flow to the east in Grand Teton. Discuss if any downstream facility can be downsized due to the removal of the current MPU facilities between the proposed detention basin and the North Las Vegas Wash Detention Basin.

4. With the proposed detention basin outfall, there will be a much longer drain time through the golf course. Discuss coordination efforts with the golf course owner regarding the impacts of the proposed outfall system. Clarify if easements have been obtained through the golf course for the outfall system.

5. Detention Basin:
   a. Sheet G-03: The "Overflow Spillway Stage – Discharge" graph labels Q=1,700 cfs as a design discharge. This may be confusing therefore, District recommends deleting this graph. Verify that the Q

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(702) 685-0000 • FAX: (702) 685-0001
Website: http://www.regionalflood.org

= 1,975 cfs is the corresponding discharge at WSE = 2,310.50 ft in the "54-inch Orifice and Overflow Spillway Stage – Discharge". Revise accordingly.

b. A multi-use facility is proposed at the upstream end of the detention basin and near the discharge location of the inflow structure of the detention basin. To maximize the time for the public to exit the detention basin, relocate the multi-use facility to the south end of the detention basin or extend the inflow structure to discharge away from the multi-use facility. Debris from the inflow structure may also collect along the bench and interfere with the maintenance of the detention basin. Revise accordingly.

c. Provide flood warning signs along the east side of the detention basin. Review sign requirements per the HCDDM (Section 304.8). Revise accordingly.

d. Provide a flood threat recognition station. Contact the District for specifications and requirements of the station prior to next submittal.

e. Specify dust palliative surface treatment for the detention basin.

f. Label contour lines within the detention basin. Add basin capacity information on Sheets SD-7 and SD-8. Ensure that the sediment volume is included in the total volume calculation.

g. Revision to District's Hydrologic Criteria and Drainage Design Manual (HCDDM) Sections 1200 and 1500 were recently finalized and will be incorporated to the HCDDM. Review updated sections and provide appropriate calculations for detention basin water quality requirements.

h. Based on the structural detail, the trash rack bars are not removable. Provide removable trash rack bars and provide maintenance access to the trash rack. Provide bearing pad for the trash rack base column to absorb shocks during opening/closing the trash rack. Revise Civil and Structural details accordingly.

6. 6.SD-04:
   a. Show new location of existing utilities that are to be relocated.
   b. Provide fall protection at 12' X 5' RCA headwall.

7. DT-03: Show water line location on section view.

8. Sheet S1.1:

   Detail 3 on Sheet S2.5 for a minimum opening of 2.5 feet is not adequate for the 36-inch RCPs. Revise accordingly.

9. Sheet S1.2:

   Provide a RCP section at the end of the existing HDPE which connects to the RCA.

10. Sheet S2.6:

    Provide fall protection at the headwall of the 12' X 7' RCA.

11. Sheet S2.13:

    a. Provide fall protection at the headwall of the 66" RCP.

    b. District prefers the 66" RCP safety grate to be removed to minimize clogging the system. Coordinate with City of North Las Vegas maintenance and consider an alternative design to prevent public access to the opening. If the safety grate remains as proposed, provide grate opening with clogging factor calculation.

12. WSPG (GT100U.WSW in Supplement #1 to Addendum #1): A trapezoidal channel (type 1) in card CD 11 is used for the 12' X 5' RCB. Revise model and use a box (type 3) to model the appropriate facility type. Revise accordingly.

13. Based on the storm drain plan, there will be three sets drop inlets on Grand Teton Boulevard west of Decatur Boulevard. The study states that City of Las Vegas (CLV) is responsible for constructing a set of future drop inlets. Provide a discussion for the funding of the drop inlets. Consider combining or constructing the drop inlets to minimize impact to the intersection. Also, response to Comment #1 in Supplement #1 to Addendum #1 states that the 10-year dry lane criteria is not met when the ultimate condition flow rates are assumed and the CLV future facilities west of Decatur Boulevard are not constructed, which may occur. Street criteria must be met per the HCDDM. Revise as necessary.

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage.*

The consultant must be advised to submit any revisions to the Technical Drainage Study and Improvement Plans to City of North Las Vegas Public Works for review/re-approval. District review of any such revisions will commence upon City of North Las Vegas Public Works' acceptance.

REGIONAL FLOOD
CONTROL DISTRICT

Please be aware that as additional information becomes available and/or restudies of Flood Insurance Studies are performed, information submitted by SLATER HANIFAN GROUP may be superseded. Compliance with regulatory elements and design standards specified in *Uniform Regulations for the Control of Drainage* does not imply a guarantee that properties will be free from flooding or flood damage. The District, its officials, or employees assume no liability for information, data, or conclusions presented by consulting engineers. We, therefore, make no warranties, either expressed or implied, in conducting this review.

GALE WM. FRASER, II, P.E.
General Manager/Chief Engineer

BY: _____
Abigail Mayrena, P.E., CFM
Senior Engineer

AM:sa

c: Mark J. Failla, P.E., Slater Hanifan Group

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APPENDIX B

Response to Comment No. 2

Regionally Significant Storm Drain Facilities Map

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REGIONAL FLOOD CONTROL DISTRICT

2013
LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE

FIGURE F- 14

FLOOD CONTROL FACILITIES

LEGEND

- Ultimate Development Boundary
- Existing Facilities
- Category A Proposed Facilities
- Category B Proposed Facilities
- Local Existing Facilities
- Local Proposed Facilities
- Detention Basin

- Stormdrain
- Lined Channel
- Unlined Channel
- Levee/Dike
- Natural Wash/Floodway
- ID-Mile Separator

Remove & Replace/Parallel Facilities

Category A	Category B
Channel	Channel
Stormdrain	Stormdrain

PROPOSED CHANGES:

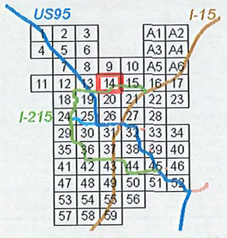
- REMOVE FROM PROPOSED MASTER PLAN
- PROPOSED FACILITIES
- EXISTING FACILITIES

N

0 500 1,000 2,000 3,000
Feet

Scale: 1 inch = 2,000 feet

Refer to Figure G-2 for Aerial Source(s)



SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CRESCENT BAY HOLDINGS

PARK HIGHLANDS
GRAND TETON REGIONAL FLOOD CONTROL FACILITY
MASTER PLAN AMENDMENT CONNECTIVITY EXHIBIT

DATE:	NOV 2013
DRAFTER:	AH
DESIGNER:	AH
CHECKED:	MF
PROJECT NO.	CBH1201.000

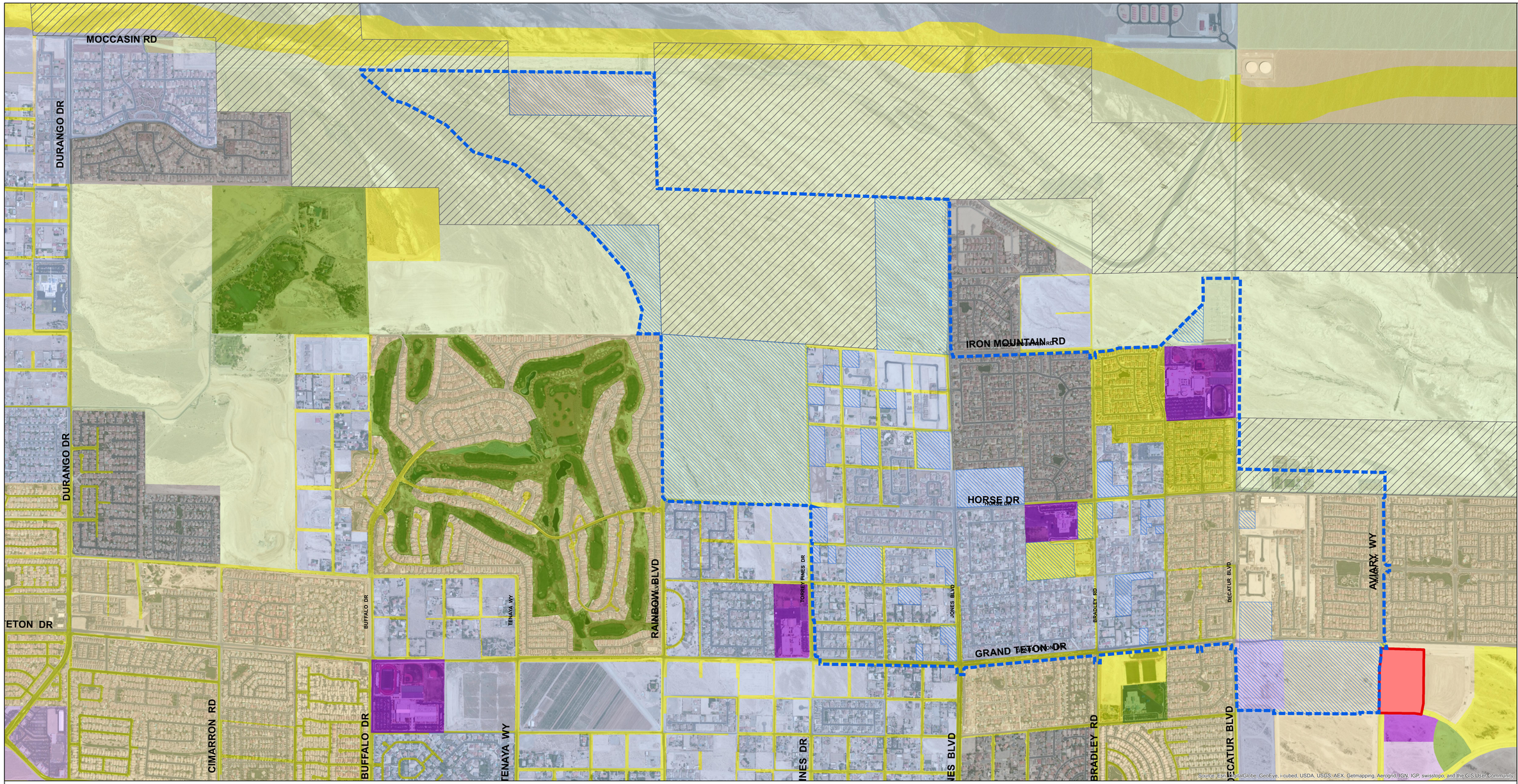
EXHIBIT

SHEET 1 OF 1

APPENDIX C

Response to Comment No. 5g

WQCV Percent Impervious Area Map



Legend

- CONTRIBUTING WATERSHED
- DEVELOPABLE AREA
- PROPOSED DETENTION BASIN
- CONSERVATION TRANSFER AREA (CTA)

TYPICAL LAND USE

1		UNDEVELOPED LAND, OPEN DESERT
2		PARKS, GOLF COURSES
3		RURAL
4 / 14*		LOW DENSITY RESIDENTIAL
5 / 15*		MEDIUM DENSITY RESIDENTIAL
6 / 16*		HIGH DENSITY RESIDENTIAL
7 / 17*		PUBLIC FACILITY, RESIDENTIAL
8 / 18*		VERY HIGH DENSITY RESIDENTIAL
9 / 19*		COMMERCIAL, RETAIL, CASINO, HIGH RISE CONDOMINIUMS
10 / 20*		LIGHT INDUSTRIAL
11 / 21*		HEAVY INDUSTRIAL
12 / 22*		SCHOOLS
13		LAKES

* DROUGHT ORDINANCE

DEVELOPABLE AREA = 546.21 ACRES
PERCENT OF IMPERVIOUS AREA = 24.15%

N

700 350 0 700

1" = 700'

SLATER HANIFAN GROUP
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CRESCENT BAY HOLDINGS

PARK HIGHLANDS - GRAND TETON
REGIONAL FLOOD CONTROL FACILITY

WQCV PERCENT OF IMPERVIOUS AREA MAP

DATE: NOV 2013
DRAFTED BY: KC
CHECKED BY: MJF
PROJECT NO.: CBH1201-000

Path: J:\CBH1201-000 Park Highlands DB\GIS\Addendum2\CBH1201_WQCV_Map.mxd

WQCV Computations

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Water Quality Capture Volume (WQCV) Computation

Project Name: Park Highlands Grand Teton Regional Flood Control Facility
File Name: CBH1201 TDS ADD2 DB WQCV.xlsx
By: KC/AH
Date: November 2013

Reference:

From the Las Vegas Valley Municipal Separate Storm Sewer System Permit, Technical Memorandum IV.II

$C = 0.858i^3 - 0.78i^2 + 0.774i + 0.04$ — Runoff Coefficient — Equation 1

$i = 0.2415$ — Percentage of Impervious Area

C = 0.19

$P_o = (a \times C) \times P_6$ — Maximized Detention Volume (Watershed Inches) — Equation 2

$a = 1.109$ — Constant, for Event Maximization:
- a = 1.109 for 12 hour drain time
- a = 1.299 for 24 hour drain time
- a = 1.545 for 48 hour drain time

$P_6 = 0.37$ — Event Average Rainfall Depth (use 0.37 inches for Las Vegas)

P_o = 0.08

$WQCV = (P_o / 12) \times (A) \times F$ — Water Quality Capture Volume (acre feet) — Equation 3

$A = 546.21$ — Tributary Area (acres)

$F = 0.85$ — Tributary Area Adjustment Factor:
- F = 1.00 for tributary areas less than 1 square mile
- F = 0.85 for tributary areas between 1 and 10 square miles
- F = 0.75 for tributary areas between 10 and 40 square miles
- F = 0.65 for tributary areas larger than 40 square miles

WQCV = 3.1

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SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Dewatering Time Computation

Project Name: Park Highlands Grand Teton Regional Flood Control Facility
Date: November 2013
File Name: CBH1201 TDS ADD2 DB Dewatering Time.xls
By: KC

(1) Elevation (Feet)	(2) Storage Volume (Cu. Ft.)	(3) Difference in Storage Volumes (Cu. Ft.)	(4) Discharge (cfs)	(5) Average Discharge (cfs)	(6) Time (Hrs.)	(7) Accumulated Time (Hrs.)
2299.2	148500	0	4.89	0.00	0.0	0.0
2299.0	105300	43200	4.24	4.57	2.6	2.6
2298.8	70200	35100	3.62	3.93	2.5	5.1
2298.6	36720	33480	3.04	3.33	2.8	7.9
2298.4	25650	11070	2.48	2.76	1.1	9.0
2298.2	13500	12150	1.81	2.15	1.6	10.6
2298.0	5400	8100	1.50	1.66	1.4	11.9
2297.8	2025	3375	1.07	1.29	0.7	12.7
2297.6	1080	945	0.70	0.89	0.3	13.0
2297.4	540	540	0.38	0.54	0.3	13.3
2297.2	189	351	0.13	0.26	0.4	13.6
2297.0	0	189	0.00	0.07	0.8	14.4

THE LESSOR OF DISCHARGE BETWEEN THE WEIR & ORIFICE EQN'S WAS USED.

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Water Quality - Weir Rating Table
Rating Table for Generic Weir

Project Description	
Worksheet	Water Quality - Weir Rating Table
Type	Generic Weir
Solve For	Discharge

Input Data		
Crest Elevation	2,297.00	ft
Discharge Coefficient	3.00	US
Crest Length	0.50	ft

Attribute	Minimum	Maximum	Increment
Headwater Elevation (ft)	2,297.00	2,299.20	0.20

Headwater Elevation (ft)	Discharge (cfs)	Velocity (ft/s)
2,297.00	N/A	N/A
2,297.20	0.13	1.34
2,297.40	0.38	1.90
2,297.60	0.70	2.32
2,297.80	1.07	2.68
2,298.00	1.50	3.00
2,298.20	1.97	3.29
2,298.40	2.48	3.55
2,298.60	3.04	3.79
2,298.80	3.62	4.02
2,299.00	4.24	4.24
2,299.20	4.89	4.45

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Water Quality - Orifice Rating Table
Rating Table for Rectangular Orifice

Project Description	
Worksheet	Water Quality - Orifice Rating Table
Type	Rectangular Orifice
Solve For	Discharge

Input Data	
Centroid Elevation	2,298.10 ft
Tailwater Elevation	0.00 ft
Discharge Coefficient	0.65
Opening Width	0.50 ft
Opening Height	2.20 ft

Attribute	Minimum	Maximum	Increment
Headwater Elevation (ft)	2,298.00	2,299.20	0.20

Headwater Elevation (ft)	Discharge (cfs)	Velocity (ft/s)
2,298.00	N/A	N/A
2,298.20	1.81	1.65
2,298.40	3.14	2.86
2,298.60	4.06	3.69
2,298.80	4.80	4.36
2,299.00	5.44	4.95
2,299.20	6.02	5.47

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APPENDIX D

Response to Comment No. 12

Mainline WSPG Analysis

Grand Teton Storm Drain – Decatur Blvd to Detention Basin Inflow (Ultimate Condition)

```
T1 PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
T2 GRAND TETON STORM DRAIN - DECATUR BLVD TO DETENTION BASIN INFLOW
T3 ULTIMATE CONDITION 100-YR NOVEMBER 2013
SO  -3978.6502300.790 12       .013                    2307.02
R   -3963.6502300.840 12       .013                          50.000  58.780    .000
R   -3912.3552300.990 12       .013                          25.000 -58.780    .000
R   -3841.7562301.200 12       .013                          50.000  45.000    .000
R   -3816.1092301.280 12       .013                          50.000  -4.000    .000
R   -3764.0282301.430 12       .013                          50.000 -12.000    .000
R   -3724.7582301.550 12       .013                          50.000 -28.670    .000
R   -3655.1602301.760 12       .013                          45.0
R   -3651.9102301.770 12       .013
R   -3640.9202301.800 12       .013
JX  -3640.9202301.800 12       .013   18.000          2301.770
R   -3615.8942301.880 12       .013
R   -3601.1502301.980 12       .013
JX  -3601.1502301.980 12   1   .013    8.000          2304.270          -45.0
R   -2930.6702305.000 12       .013
JX  -2930.6702305.000 12   4   .013   11.000          2305.100           45.0
R   -2421.4902307.290 12       .013
JX  -2421.4902307.290 12   4   .013   51.000          2307.700           45.0
R   -1906.0002309.620 12       .013
JX  -1906.0002309.620 12   4   .013   54.000          2310.280           45.0
R   -1803.0002310.070 12       .013
JX  -1803.0002310.070 12   2   .013    7.000          2311.820          -45.0
R   -1770.5002310.220 12       .013
JX  -1770.5002310.220 12   2   .013   10.000          2311.970          -45.0
R   -1738.0002310.370 12       .013
JX  -1738.0002310.370 12   2   .013   13.000          2312.120          -45.0
R   -1708.0002310.500 12       .013
JX  -1708.0002310.500 12   2   .013   25.500          2312.250          -45.0
R   -1701.6302310.530 12       .013
JX  -1701.6302310.530 12   2   .013   25.500          2312.280          -45.0
R   -1700.0002310.540 12       .013
JX  -1660.0002311.310 11   2   .013   24.000          2312.920           45.0
R   -1630.0002311.890 11       .013
R   -1300.0002318.270 11       .013
R   -1172.0002319.720 11       .013
JX  -1172.0002319.720 11   3   .013   61.000          2320.930          -45.0
R   -1164.0002319.810 11       .013
JX  -1164.0002319.810 11   3   .013   61.000          2321.020          -45.0
R   -1134.0002320.160 11       .013
JX  -1134.0002320.160 11   3   .013   61.000          2321.360           45.0
R   -1126.0002320.250 11       .013
JX  -1126.0002320.250 11   3   .013   61.000          2321.450           45.0
R    -991.5002321.770 11       .013
JX   -991.5002321.770 11   4   .013   30.000          2321.770           45.0
SH   -991.5002321.770 11       .013
CD   1  4   1    .000   1.500     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
CD   3  4   1    .000   2.500     .000  .000  .000   .00
CD   4  4   1    .000   3.000     .000  .000  .000   .00
CD   5  4   1    .000   3.500     .000  .000  .000   .00
CD   6  4   1    .000   4.000     .000  .000  .000   .00
CD   7  4   1    .000   4.500     .000  .000  .000   .00
CD   8  4   1    .000   5.000     .000  .000  .000   .00
CD   9  4   1    .000   5.500     .000  .000  .000   .00
CD  10  4   1    .000   6.000     .000  .000  .000   .00
CD  11  3   0    .000   5.000   12.000  .000  .000   .00
CD  12  6   0      0.0      0.0      0.0    0.0    0.0    0.0    0.0
PTS 1221    .000    .000 12.000    .000 12.000  3.990 11.790  5.000 11.480  5.530
PTS       11.000  6.000 10.480  6.300 10.000  6.460  9.000  6.700  8.000  6.870
PTS        7.000  6.970  6.000  7.000  5.000  6.970  4.000  6.870  3.000  6.700
PTS        2.000  6.460  1.520  6.300  1.000  6.000   .520  5.530   .210  5.000
PTS         .000  4.010
Q          505.000   .0
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Date:10-25-2013 Time: 2:38:12

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
GRAND TETON STORM DRAIN - DECATUR BLVD TO DETENTION BASIN INFLOW
ULTIMATE CONDITION 100-YR NOVEMBER 2013

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-3978.650	2300.790	6.230	2307.020	1026.00	14.07	3.08	2310.10	.00	5.88	9.20		12		0 .0
15.000	.0033					.0037	.06	6.23	.88	6.460	.013			IR-COV
-3963.650	2300.840	6.256	2307.096	1026.00	14.03	3.06	2310.15	.64	5.88	9.11		12		0 .0
51.295	.0029					.0037	.19	6.90	.87	6.460	.013			IR-COV
-3912.355	2300.990	6.396	2307.386	1026.00	13.80	2.96	2310.34	.00	5.88	8.39		12		0 .0
33.568	.0030					.0036	.12	6.40	.82	6.460	.013			IR-COV
-3878.787	2301.090	6.460	2307.550	1026.00	13.70	2.91	2310.46	.00	5.88	8.00		12		0 .0
37.031	.0030					.0036	.13	6.46	.79	6.460	.013			IR-COV
-3841.756	2301.200	6.460	2307.660	1026.00	13.70	2.91	2310.57	7.00	5.88	8.00		12		0 .0
25.647	.0031					.0037	.09	7.00	.79	6.460	.013			IR-COV
-3816.109	2301.280	6.460	2307.740	1026.00	13.70	2.91	2310.65	.00	5.88	8.00		12		0 .0
52.081	.0029					.0037	.19	6.46	.79	6.460	.013			IR-COV
-3764.028	2301.430	6.460	2307.890	1026.00	13.70	2.91	2310.80	.54	5.88	8.00		12		0 .0
39.270	.0031					.0037	.14	7.00	.79	6.460	.013			IR-COV
-3724.758	2301.550	6.460	2308.010	1026.00	13.70	2.91	2310.92	.00	5.88	8.00		12		0 .0
69.598	.0030					.0037	.25	6.46	.79	6.460	.013			IR-COV
-3655.160	2301.760	6.460	2308.220	1026.00	13.70	2.91	2311.13	7.00	5.88	8.00		12		0 .0
3.250	.0031					.0037	.01	7.00	.79	6.460	.013			IR-COV

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PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
GRAND TETON STORM DRAIN - DECATUR BLVD TO DETENTION BASIN INFLOW
ULTIMATE CONDITION 100-YR NOVEMBER 2013

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-3651.910	2301.770	6.460	2308.230	1026.00	13.70	2.91	2311.14	.51	5.88	8.00		12		0 .0
10.990	.0027					.0037	.04	6.97	.79	6.460	.013			IR-COV
-3640.920	2301.800	6.460	2308.260	1026.00	13.70	2.91	2311.17	.00	5.88	8.00		12		0 .0
JUNCT STR	.0000					.0038	.00	7.00	.79		.013			IR-COV

---------- WARNING - Junction Analysis - Irregular Channel----------

-3640.920	2301.800	6.828	2308.628	1008.00	13.05	2.64	2311.27	7.00	5.82	4.49		12		0 .0
25.026	.0032					.0038	.09	7.00	.55	6.460	.013			IR-COV
-3615.894	2301.880	6.828	2308.708	1008.00	13.05	2.64	2311.35	.00	5.82	4.49		12		0 .0
14.744	.0068					.0038	.06	6.83	.55	4.695	.013			IR-COV
-3601.150	2301.980	6.760	2308.740	1008.00	13.11	2.67	2311.41	.00	5.82	5.29		12		0 .0
JUNCT STR	.0000					.0038	.00	6.76	.61		.013			IR-COV

---------- WARNING - Junction Analysis - Irregular Channel----------

-3601.150	2301.980	6.868	2308.848	1000.00	12.92	2.59	2311.44	.00	5.80	4.03		12		0 .0
315.482	.0045					.0038	1.18	6.87	.52	5.491	.013			IR-COV

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-3285.668	2303.401	6.331	2309.732	1000.00	13.55	2.85	2312.58	.00	5.80	8.77			12	0 .0
65.039	.0045					.0035	.23	6.33	.82	5.491	.013			IR-COV

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PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY

GRAND TETON STORM DRAIN - DECATUR BLVD TO DETENTION BASIN INFLOW

ULTIMATE CONDITION 100-YR NOVEMBER 2013

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-3220.629	2303.694	6.117	2309.811	1000.00	13.92	3.01	2312.82	.00	5.80	9.59			12	0 .0
HYDRAULIC JUMP														
-3220.629	2303.694	5.491	2309.184	1000.00	15.31	3.64	2312.82	.00	5.80	11.01			12	0 .0
164.218	.0045					.0045	.74	5.49	1.11	5.491	.013			IR-COV
-3056.411	2304.434	5.499	2309.933	1000.00	15.28	3.63	2313.56	.00	5.80	11.00			12	0 .0
125.741	.0045					.0043	.53	5.50	1.10	5.491	.013			IR-COV
-2930.670	2305.000	5.798	2310.798	1000.00	14.57	3.30	2314.09	.00	5.80	10.41			12	0 .0
JUNCT STR	.0000					.0034	.00	5.80	1.00		.013			IR-COV

---------- WARNING - Junction Analysis - Irregular Channel----------

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-2930.670	2305.000	6.428	2311.428	989.00	13.25	2.73	2314.16	.00	5.76	8.19			12	0 .0
99.905	.0045					.0034	.34	6.43	.77	5.443	.013			IR-COV
-2830.765	2305.449	6.101	2311.550	989.00	13.80	2.96	2314.51	.00	5.76	9.65			12	0 .0
HYDRAULIC JUMP														
-2830.765	2305.449	5.443	2310.892	989.00	15.26	3.62	2314.51	.00	5.76	11.06			12	0 .0
60.870	.0045					.0045	.27	5.44	1.11	5.443	.013			IR-COV
-2769.895	2305.723	5.443	2311.166	989.00	15.26	3.62	2314.78	.00	5.76	11.06			12	0 .0
240.260	.0045					.0045	1.07	5.44	1.11	5.443	.013			IR-COV

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WATER SURFACE PROFILE LISTING

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY

GRAND TETON STORM DRAIN - DECATUR BLVD TO DETENTION BASIN INFLOW

ULTIMATE CONDITION 100-YR NOVEMBER 2013

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-2529.634	2306.804	5.468	2312.272	989.00	15.20	3.59	2315.86	.00	5.76	11.03			12	0 .0
108.144	.0045					.0042	.46	5.47	1.10	5.443	.013			IR-COV
-2421.490	2307.290	5.764	2313.054	989.00	14.49	3.26	2316.31	.00	5.76	10.48			12	0 .0
JUNCT STR	.0000					.0034	.00	5.76	1.00		.013			IR-COV

---------- WARNING - Junction Analysis - Irregular Channel----------

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-2421.490	2307.290	6.926	2314.217	938.00	12.09	2.27	2316.48	.00	5.61	2.87			12	0 .0
273.825	.0045					.0034	.94	6.93	.41	5.198	.013			IR-COV
-2147.665	2308.528	6.353	2314.881	938.00	12.68	2.49	2317.38	.00	5.61	8.64			12	0 .0
88.582	.0045					.0031	.27	6.35	.76	5.198	.013			IR-COV
-2059.083	2308.928	5.986	2314.914	938.00	13.29	2.74	2317.66	.00	5.61	10.03			12	0 .0
8.029	.0045					.0033	.03	5.99	.88	5.198	.013			IR-COV
-2051.053	2308.965	5.945	2314.910	938.00	13.37	2.78	2317.69	.00	5.61	10.11			12	0 .0
HYDRAULIC JUMP														

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-2051.053	2308.965	5.271	2314.236	938.00	14.92	3.45	2317.69	.00	5.61	11.26			12	0 .0
90.905	.0045					.0043	.39	5.27	1.11	5.198	.013			IR-COV
-1960.149	2309.375	5.324	2314.699	938.00	14.78	3.39	2318.09	.00	5.61	11.20			12	0 .0
54.149	.0045					.0040	.22	5.32	1.09	5.198	.013			IR-COV

♀ FILE: GT100U.WSW

W S P G W - CIVILDESIGN Version 14.06
Program Package Serial Number: 1704
WATER SURFACE PROFILE LISTING
Date:10-25-2013 Time: 2:38:12
PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
GRAND TETON STORM DRAIN - DECATUR BLVD TO DETENTION BASIN INFLOW
ULTIMATE CONDITION 100-YR NOVEMBER 2013

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1906.000	2309.620	5.606	2315.227	938.00	14.09	3.08	2318.31	.00	5.61	10.80			12	0 .0
JUNCT STR	.0000					.0029	.00	5.61	1.00		.013			IR-COV
---------- WARNING - Junction Analysis - Irregular Channel----------														
-1906.000	2309.620	6.814	2316.434	884.00	11.45	2.04	2318.47	.00	5.42	4.66			12	0 .0
25.274	.0044					.0029	.07	6.81	.50	5.025	.013			IR-COV
-1880.726	2309.730	6.759	2316.490	884.00	11.49	2.05	2318.54	.00	5.42	5.30			12	0 .0
HYDRAULIC JUMP														
-1880.726	2309.730	4.203	2313.933	884.00	17.53	4.77	2318.71	.00	5.42	11.91			12	0 .0
77.726	.0044					.0075	.58	4.20	1.50	5.025	.013			IR-COV
-1803.000	2310.070	4.037	2314.107	884.00	18.25	5.17	2319.28	.00	5.42	11.98			12	0 .0
JUNCT STR	.0000					.0081	.00	4.04	1.60		.013			IR-COV
---------- WARNING - Junction Analysis - Irregular Channel----------														
-1803.000	2310.070	3.939	2314.009	877.00	18.55	5.35	2319.35	.00	5.40	12.00			12	0 .0
32.500	.0046					.0085	.28	3.94	1.65	4.891	.013			IR-COV
-1770.500	2310.220	3.868	2314.088	877.00	18.89	5.54	2319.63	.00	5.40	12.00			12	0 .0
JUNCT STR	.0000					.0090	.00	3.87	1.69		.013			IR-COV
---------- WARNING - Junction Analysis - Irregular Channel----------														

♀ FILE: GT100U.WSW

W S P G W - CIVILDESIGN Version 14.06
Program Package Serial Number: 1704
WATER SURFACE PROFILE LISTING
Date:10-25-2013 Time: 2:38:12
PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
GRAND TETON STORM DRAIN - DECATUR BLVD TO DETENTION BASIN INFLOW
ULTIMATE CONDITION 100-YR NOVEMBER 2013

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1770.500	2310.220	3.745	2313.965	867.00	19.29	5.78	2319.75	.00	5.36	12.00			12	0 .0
32.500	.0046					.0096	.31	3.74	1.76	4.845	.013			IR-COV
-1738.000	2310.370	3.670	2314.040	867.00	19.69	6.02	2320.06	.00	5.36	12.00			12	0 .0
JUNCT STR	.0000					.0103	.00	3.67	1.81		.013			IR-COV
---------- WARNING - Junction Analysis - Irregular Channel----------														
-1738.000	2310.370	3.528	2313.898	854.00	20.17	6.32	2320.22	.00	5.31	12.00			12	0 .0
30.000	.0043					.0111	.33	3.53	1.89	4.910	.013			IR-COV
-1708.000	2310.500	3.453	2313.953	854.00	20.61	6.60	2320.55	.00	5.31	12.00			12	0 .0
JUNCT STR	.0000					.0122	.00	3.45	1.95		.013			IR-COV
---------- WARNING - Junction Analysis - Irregular Channel----------														
-1708.000	2310.500	3.228	2313.728	828.50	21.39	7.10	2320.83	.00	5.22	12.00			12	0 .0
6.370	.0047					.0131	.08	3.23	2.10	4.647	.013			IR-COV

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL		No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR		Type Ch
-1701.630	2310.530	3.213	2313.743	828.50	21.49	7.17	2320.91	.00	5.22	12.00		12		0	.0
						.0141	.00	3.21	2.11		.013			IR-COV	
JUNCT STR	.0000														

---------- WARNING - Junction Analysis - Irregular Channel----------

W S P G W - CIVILDESIGN Version 14.06

♀ FILE: GT100U.WSW

Program Package Serial Number: 1704

WATER SURFACE PROFILE LISTING

Date:10-25-2013 Time: 2:38:12

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY

GRAND TETON STORM DRAIN - DECATUR BLVD TO DETENTION BASIN INFLOW

ULTIMATE CONDITION 100-YR NOVEMBER 2013

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL		No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR		Type Ch
-1701.630	2310.530	3.011	2313.541	803.00	22.22	7.67	2321.21	.00	5.12	12.00		12		0	.0
						.0150	.02	3.01	2.26	4.120	.013			IR-COV	
1.630	.0061														
-1700.000	2310.540	3.008	2313.548	803.00	22.25	7.69	2321.23	.00	5.12	12.00		12		0	.0
						.0155	.62	3.01	2.26		.013			IR-COV	
JUNCT STR	.0193														

---------- WARNING - Junction Analysis - Irregular Channel----------

---------- WARNING - Junction Analysis - Change in Channel Type ----------

-1660.000	2311.310	2.879	2314.189	779.00	22.54	7.89	2322.08	.00	5.00	12.00	5.000	12.000	.00	0	.0
						.0158	.47	2.88	2.34	2.70	.013	.00	.00	BOX	
30.000	.0193														
-1630.000	2311.890	2.903	2314.793	779.00	22.36	7.76	2322.56	.00	5.00	12.00	5.000	12.000	.00	0	.0
						.0149	1.34	2.90	2.31	2.70	.013	.00	.00	BOX	
89.562	.0193														
-1540.438	2313.622	2.999	2316.621	779.00	21.64	7.27	2323.90	.00	5.00	12.00	5.000	12.000	.00	0	.0
						.0133	1.14	3.00	2.20	2.70	.013	.00	.00	BOX	
85.609	.0193														
-1454.829	2315.277	3.146	2318.422	779.00	20.64	6.61	2325.04	.00	5.00	12.00	5.000	12.000	.00	0	.0
						.0116	.67	3.15	2.05	2.70	.013	.00	.00	BOX	
57.985	.0193														

W S P G W - CIVILDESIGN Version 14.06

♀ FILE: GT100U.WSW

Program Package Serial Number: 1704

WATER SURFACE PROFILE LISTING

Date:10-25-2013 Time: 2:38:12

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY

GRAND TETON STORM DRAIN - DECATUR BLVD TO DETENTION BASIN INFLOW

ULTIMATE CONDITION 100-YR NOVEMBER 2013

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL		No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR		Type Ch
-1396.844	2316.398	3.299	2319.697	779.00	19.68	6.01	2325.71	.00	5.00	12.00	5.000	12.000	.00	0	.0
						.0101	.42	3.30	1.91	2.70	.013	.00	.00	BOX	
41.902	.0193														
-1354.942	2317.208	3.460	2320.668	779.00	18.76	5.47	2326.13	.00	5.00	12.00	5.000	12.000	.00	0	.0
						.0088	.28	3.46	1.78	2.70	.013	.00	.00	BOX	
31.278	.0193														
-1323.664	2317.813	3.629	2321.442	779.00	17.89	4.97	2326.41	.00	5.00	12.00	5.000	12.000	.00	0	.0
						.0077	.18	3.63	1.65	2.70	.013	.00	.00	BOX	
23.664	.0193														
-1300.000	2318.270	3.806	2322.076	779.00	17.06	4.52	2326.59	.00	5.00	12.00	5.000	12.000	.00	0	.0
						.0069	.26	3.81	1.54	3.25	.013	.00	.00	BOX	
37.570	.0113														
-1262.430	2318.696	3.939	2322.635	779.00	16.48	4.22	2326.85	.00	5.00	12.00	5.000	12.000	.00	0	.0
						.0061	.23	3.94	1.46	3.25	.013	.00	.00	BOX	
36.841	.0113														
-1225.589	2319.113	4.131	2323.244	779.00	15.71	3.83	2327.08	.00	5.00	12.00	5.000	12.000	.00	0	.0
						.0054	.13	4.13	1.36	3.25	.013	.00	.00	BOX	
24.677	.0113														
-1200.912	2319.392	4.333	2323.725	779.00	14.98	3.49	2327.21	.00	5.00	12.00	5.000	12.000	.00	0	.0
						.0047	.07	4.33	1.27	3.25	.013	.00	.00	BOX	
15.919	.0113														
-1184.993	2319.573	4.545	2324.117	779.00	14.28	3.17	2327.29	.00	5.00	12.00	5.000	12.000	.00	0	.0
						.0041	.04	4.54	1.18	3.25	.013	.00	.00	BOX	
9.201	.0113														

WARNING - Flow depth near top of box conduit

♀ FILE: GT100U.WSW

W S P G W - CIVILDESIGN Version 14.06
Program Package Serial Number: 1704
WATER SURFACE PROFILE LISTING
Date:10-25-2013 Time: 2:38:12

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
GRAND TETON STORM DRAIN - DECATUR BLVD TO DETENTION BASIN INFLOW
ULTIMATE CONDITION 100-YR NOVEMBER 2013

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1175.792	2319.677	4.766	2324.443	779.00	13.62	2.88	2327.32	.00	5.00	12.00	5.000	12.000	.00	0 .0
3.792	.0113					.0036	.01	4.77	1.10	3.25	.013	.00	.00	BOX
-1172.000	2319.720	5.000	2324.720	779.00	12.98	2.62	2327.34	.00	5.00	12.00	5.000	12.000	.00	0 .0
JUNCT STR	.0000					.0051	.00	5.00	1.02		.013	.00	.00	BOX

WARNING - Flow depth near top of box conduit

-1172.000	2319.720	5.510	2325.230	718.00	11.97	2.22	2327.45	.00	4.81	12.00	5.000	12.000	.00	0 .0
8.000	.0113					.0051	.04	5.51	.94	3.07	.013	.00	.00	BOX
-1164.000	2319.810	5.461	2325.271	718.00	11.97	2.22	2327.49	.00	4.81	12.00	5.000	12.000	.00	0 .0
JUNCT STR	.0000					.0043	.00	5.46	.94		.013	.00	.00	BOX
-1164.000	2319.810	5.907	2325.718	657.00	10.95	1.86	2327.58	.00	4.53	12.00	5.000	12.000	.00	0 .0
30.000	.0117					.0043	.13	5.91	.86	2.86	.013	.00	.00	BOX
-1134.000	2320.160	5.687	2325.847	657.00	10.95	1.86	2327.71	.00	4.53	12.00	5.000	12.000	.00	0 .0
JUNCT STR	.0000					.0035	.00	5.69	.86		.013	.00	.00	BOX
-1134.000	2320.160	6.069	2326.229	596.00	9.93	1.53	2327.76	.00	4.25	12.00	5.000	12.000	.00	0 .0
8.000	.0113					.0035	.03	6.07	.78	2.70	.013	.00	.00	BOX

♀ FILE: GT100U.WSW

W S P G W - CIVILDESIGN Version 14.06
Program Package Serial Number: 1704
WATER SURFACE PROFILE LISTING
Date:10-25-2013 Time: 2:38:12

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
GRAND TETON STORM DRAIN - DECATUR BLVD TO DETENTION BASIN INFLOW
ULTIMATE CONDITION 100-YR NOVEMBER 2013

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1126.000	2320.250	6.007	2326.257	596.00	9.93	1.53	2327.79	.00	4.25	12.00	5.000	12.000	.00	0 .0
JUNCT STR	.0000					.0029	.00	6.01	.78		.013	.00	.00	BOX
-1126.000	2320.250	6.325	2326.574	535.00	8.92	1.23	2327.81	.00	3.95	12.00	5.000	12.000	.00	0 .0
134.500	.0113					.0029	.38	6.32	.70	2.51	.013	.00	.00	BOX
-991.500	2321.770	5.188	2326.958	535.00	8.92	1.23	2328.19	.00	3.95	12.00	5.000	12.000	.00	0 .0
JUNCT STR	.0000					.0025	.00	5.19	.70		.013	.00	.00	BOX
-991.500	2321.770	5.411	2327.181	505.00	8.42	1.10	2328.28	.00	3.80	12.00	5.000	12.000	.00	0 .0

♀

Lateral WSPG Computations

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T1 PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
T2 GRAND TETON STORM DRAIN LATERAL 2 (STA 9+91.50)
T3 ULTIMATE CONDITION 100-YR NOVEMBER 2013
SO    1000.0002321.770  4       .013                    2327.2
R     1031.0002321.960  4       .013
SH    1031.0002321.960  4       .013
CD    1  4    1     .000    1.500      .000  .000  .000   .00
CD    2  4    1     .000    2.000      .000  .000  .000   .00
CD    3  4    1     .000    2.500      .000  .000  .000   .00
CD    4  4    1     .000    3.000      .000  .000  .000   .00
CD    5  4    1     .000    3.500      .000  .000  .000   .00
CD    6  4    1     .000    4.000      .000  .000  .000   .00
CD    7  4    1     .000    4.500      .000  .000  .000   .00
CD    8  4    1     .000    5.000      .000  .000  .000   .00
CD    9  4    1     .000    5.500      .000  .000  .000   .00
CD   10  4    1     .000    6.000      .000  .000  .000   .00
Q              30.000    .0
```

♀ FILE: LAT2.WSW

W S P G W - CIVILDESIGN Version 14.06
Program Package Serial Number: 1704
WATER SURFACE PROFILE LISTING

Date:10-25-2013 Time: 2:41:24

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
GRAND TETON STORM DRAIN LATERAL 2 (STA 9+91.50)
ULTIMATE CONDITION 100-YR NOVEMBER 2013

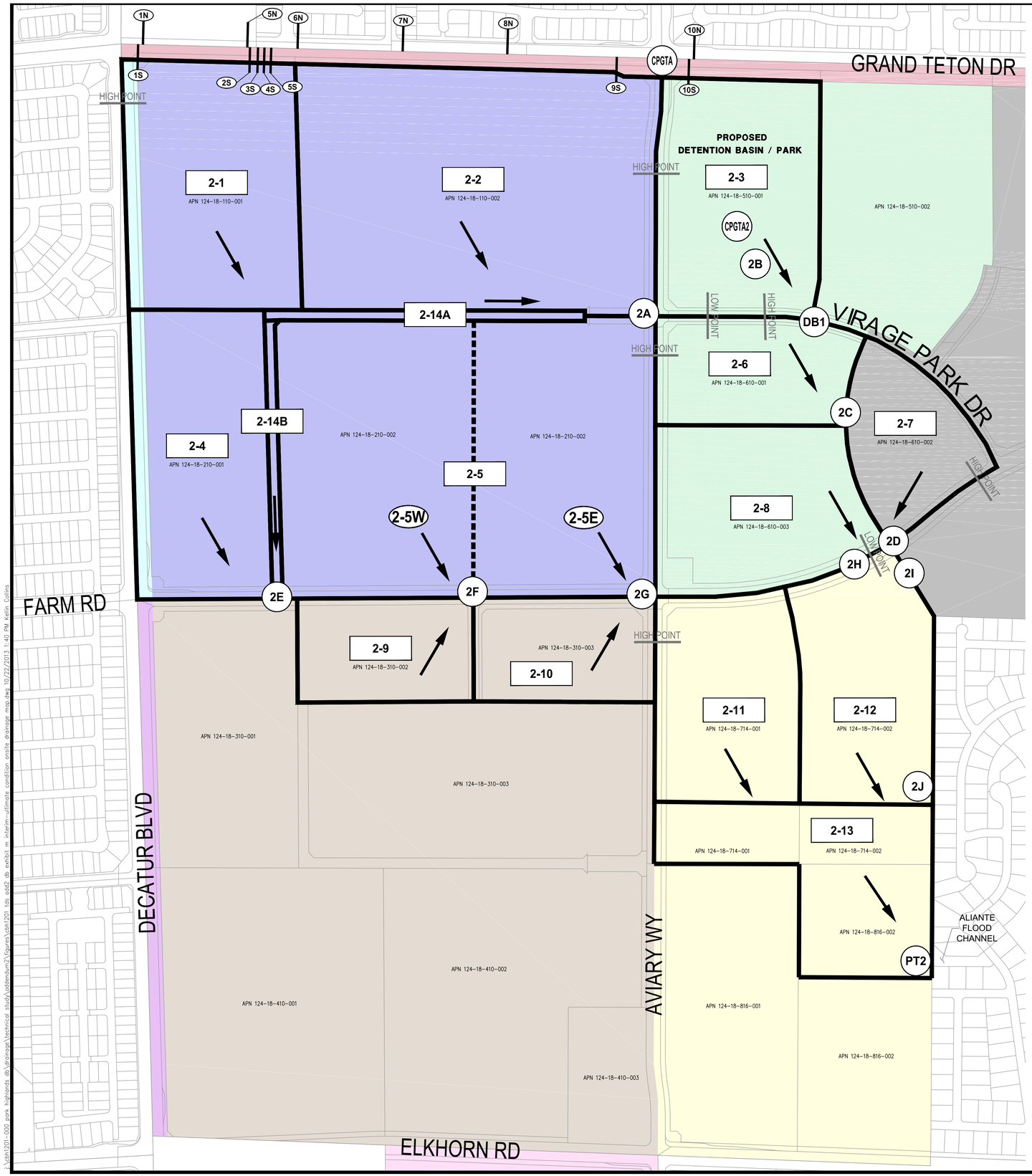
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	2321.770	5.430	2327.200	30.00	4.24	.28	2327.48	.00	1.77	.00	3.000	.000	.00	1 .0
31.000	.0061					.0020	.06	5.43	.00	1.63	.013	.00	.00	PIPE
1031.000	2321.960	5.303	2327.263	30.00	4.24	.28	2327.54	.00	1.77	.00	3.000	.000	.00	1 .0

♀

Drainage Exhibit

Exhibit M

Future/Interim & Ultimate Condition Onsite Drainage Map



Onsite Basin Flow Summary
Ultimate Condition

Basin ID	Area (ac)	Q_{100} (cfs)	Q_{10} (cfs)
2-3	20.9	37	13
2-1	23.5	56	28
2-2	47.5	96	44
2-14A	1.7	3	1
2-6	11.5	29	15
2-7	10.0	19	7
2-4	21.4	56	28
2-14B	1.6	3	1
2-5	57.0	115	53
2-5E	27.5	55	25
2-5W	29.5	60	28
2-9	10.0	24	11
2-10	10.4	25	12
2-8	18.3	48	24
2-11	16.3	43	22
2-12	17.4	39	17
2-13	17.5	39	18

LEGEND
- BASIN BOUNDARY
- ID — BASIN ID
- FLOW DIRECTION
- (ID) — CONCENTRATION POINT
- CROSS SECTION
- (ID) — CROSS SECTION ID

AREA LEGEND
- AREA 1
- AREA 2
- AREA 3
- AREA 4
- AREA 5
- AREA 6
- AREA 7
- AREA 8
- AREA 9

N

SCALE – 1" = 250' FEET (0, 250, 500)

Onsite Concentration Point Flow Summary
Future/Interim Condition

Concentration Point ID	Area (sq mi)	DARF	Q_{100} (cfs)	Q_{10} (cfs)
CPGTA CP22 + CP23 + E760	3.62	0.915	943	329
CPGTA2 CPGTA + 2-3	3.65	0.915	951	331
2A 2-1 + 2-2 + 2-14A	0.11	0.990	155	72
2B CPGTA2 + 2A	3.77	0.915	994	344
DB1 DB1 outlet	3.77	0.915	231	142
2C DB1 + 2-6	3.78	0.915	231	142
2D 2C + 2-7	3.80	0.915	232	142
2E 2-4 + 2-14B	0.04	0.990	59	29
2F 2E + 2-5W + 2-9	0.14	0.990	142	67
2G 2F + 2-5E + 2-10	0.16	0.990	222	103
2H 2G + 2-8	0.19	0.990	269	127
2I 2D + 2H	3.99	0.915	356	189
2J 2-11 + 2-12	0.05	0.990	82	39
PT2 2I + 2J + 2-13	4.07	0.908	461	246

Onsite Concentration Point Flow Summary
Ultimate Condition

Concentration Point ID	Area (sq mi)	DARF	Q_{100} (cfs)	Q_{10} (cfs)
CPGTA CP20 + CP21 + U760	3.04	0.915	1,026	358
CPGTA2 CPGTA + 2-3	3.07	0.915	1,032	360
2A 2-1 + 2-2 + 2-14A	0.11	0.990	155	72
2B CPGTA2 + 2A	3.19	0.915	1,066	370
DB1 DB1 outlet	3.19	0.915	231	141
2C DB1 + 2-6	3.21	0.915	232	141
2D 2C + 2-7	3.22	0.915	232	142
2E 2-4 + 2-14B	0.04	0.990	59	29
2F 2E + 2-5W + 2-9	0.14	0.990	142	67
2G 2F + 2-5E + 2-10	0.16	0.990	222	103
2H 2G + 2-8	0.19	0.990	269	127
2I 2D + 2H	3.41	0.915	355	188
2J 2-11 + 2-12	0.05	0.990	82	39
PT2 2I + 2J + 2-13	3.49	0.915	464	245

10-Yr Event Cross Section Summary
Future/Interim Condition (Proposed Facilities w/ Interim Flows)

Cross Section ID	Slope (%)	Q_{10} (cfs)	Depth (ft)	Velocity (fps)	DxV	Dry Lane (ft)
1N	0.50	12	0.54	2.34	1.3	≥19.0
1S	0.50	12	0.54	2.34	1.3	≥19.0
2S	0.50	1	0.24	2.52	0.6	≥19.0
3S	0.50	-	-	-	-	≥19.0
4S	0.50	-	-	-	-	≥19.0
5N	2.47	-	-	-	-	≥19.0
5S	0.50	-	-	-	-	≥19.0
6N	0.50	10	0.51	2.24	1.1	≥19.0
7N	0.50	8	0.48	2.19	1.1	≥19.0
8N	0.50	-	-	-	-	≥19.0
9S	0.50	-	-	-	-	≥19.0
10N	0.50	-	-	-	-	≥19.0
10S	0.50	-	-	-	-	≥19.0

100-Yr Event Cross Section Summary
Future/Interim Condition (Proposed Facilities w/ Interim Flows)

Cross Section ID	Slope (%)	Q_{100} (cfs)	Depth (ft)	Velocity (fps)	DxV
1N	0.50	211	1.33	5.92	7.9
1S	0.50	211	1.33	5.92	7.9
2S	0.50	89	0.97	4.22	4.1
3S	0.50	38	0.76	3.07	2.3
4S	0.50	25	0.67	2.78	1.9
5N	2.47	93	0.78	7.01	5.5
5S	0.50	15	0.58	2.46	1.4
6N	0.50	98	1.01	4.38	4.4
7N	0.50	63	0.88	3.69	3.2
8N	0.50	12	0.54	2.34	1.3
9S	0.50	8	0.48	2.19	1.1
10N	0.50	-	-	-	-
10S	0.50	-	-	-	-

10-Yr Event Cross Section Summary
Future Condition (Proposed Facilities w/ Ultimate Flows)

Cross Section ID	Slope (%)	Q_{10} (cfs)	Depth (ft)	Velocity (fps)	DxV	Dry Lane (ft)
1N	0.50	33.5	0.73	2.98	2.2	10.2
1S	0.50	33.5	0.73	2.98	2.2	10.2
2S	0.50	3.5	0.38	1.88	0.7	32.6
3S	0.50	0.5	0.24	1.15	0.3	41.5
4S	0.50	-	-	-	-	≥19.0
5N	2.47	4.5	0.34	3.53	1.2	35.1
5S	0.50	-	-	-	-	≥19.0
6N	0.50	7.5	0.47	2.16	1.0	26.8
7N	0.50	5.5	0.43	2.04	0.9	29.4
8N	0.50	-	-	-	-	≥19.0
9S	0.50	-	-	-	-	≥19.0
10N	0.50	-	-	-	-	≥19.0
10S	0.50	-	-	-	-	≥19.0

100-Yr Event Cross Section Summary
Future Condition (Proposed Facilities w/ Ultimate Flows)

Cross Section ID	Slope (%)	Q_{100} (cfs)	Depth (ft)	Velocity (fps)	DxV
1N	0.50	275	1.47	6.47	9.5
1S	0.50	275	1.47	6.47	9.5
2S	0.50	153	1.18	5.21	6.1
3S	0.50	102	1.02	4.45	4.5
4S	0.50	89	0.97	4.22	4.1
5N	2.47	155	0.90	8.53	7.7
5S	0.50	79	0.94	4.03	3.8
6N	0.50	161	1.20	5.32	6.4
7N	0.50	126	1.10	4.83	5.3
8N	0.50	75	0.92	3.95	3.6
9S	0.50	72	0.91	3.88	3.5
10N	0.50	64	0.88	3.71	3.3
10S	0.50	64	0.88	3.71	3.3

10-Yr Event Cross Section Summary
Ultimate Condition (Ultimate Facilities w/ Ultimate Flows)

Cross Section ID	Slope (%)	Q_{10} (cfs)	Depth (ft)	Velocity (fps)	DxV	Dry Lane (ft)
1N	0.50	-	-	-	-	≥19.0
1S	0.50	-	-	-	-	≥19.0
2S	0.50	-	-	-	-	≥19.0
3S	0.50	-	-	-	-	≥19.0
4S	0.50	-	-	-	-	≥19.0
5N	2.47	1	0.24	2.52	0.6	≥19.0
5S	0.50	-	-	-	-	≥19.0
6N	0.50	7	0.46	2.13	1.0	≥19.0
7N	0.50	5	0.42	2.00	0.8	≥19.0
8N	0.50	-	-	-	-	≥19.0
9S	0.50	-	-	-	-	≥19.0
10N	0.50	-	-	-	-	≥19.0
10S	0.50	-	-	-	-	≥19.0

100-Yr Event Cross Section Summary
Ultimate Condition (Ultimate Facilities w/ Ultimate Flows)

Cross Section ID	Slope (%)	Q_{100} (cfs)	Depth (ft)	Velocity (fps)	DxV
1N	0.50	211	1.33	5.92	7.9
1S	0.50	211	1.33	5.92	7.9
2S	0.50	89	0.97	4.22	4.1
3S	0.50	38	0.76	3.07	2.3
4S	0.50	25	0.67	2.78	1.9
5N	2.47	91	0.78	6.95	5.4
5S	0.50	15	0.58	2.46	1.4
6N	0.50	97	1.00	4.36	4.4
7N	0.50	62	0.87	3.67	3.2
8N	0.50	11	0.53	2.29	1.2
9S	0.50	8	0.48	2.19	1.1
10N	0.50	-	-	-	-
10S	0.50	-	-	-	-

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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CRESCENT BAY HOLDINGS

PARK HIGHLANDS REGIONAL FLOOD CONTROL FACILITY
GRAND TETON REGIONAL FLOOD CONTROL FACILITY
FUTURE/INTERIM & ULTIMATE CONDITION ONSITE DRAINAGE MAP

DATE: OCT 2013
DRAFTER: KC
DESIGNER: KC
CHECKED: MJF
PROJECT NO.
CBH1201-000

EXHIBIT M
SHEET 1 OF 1

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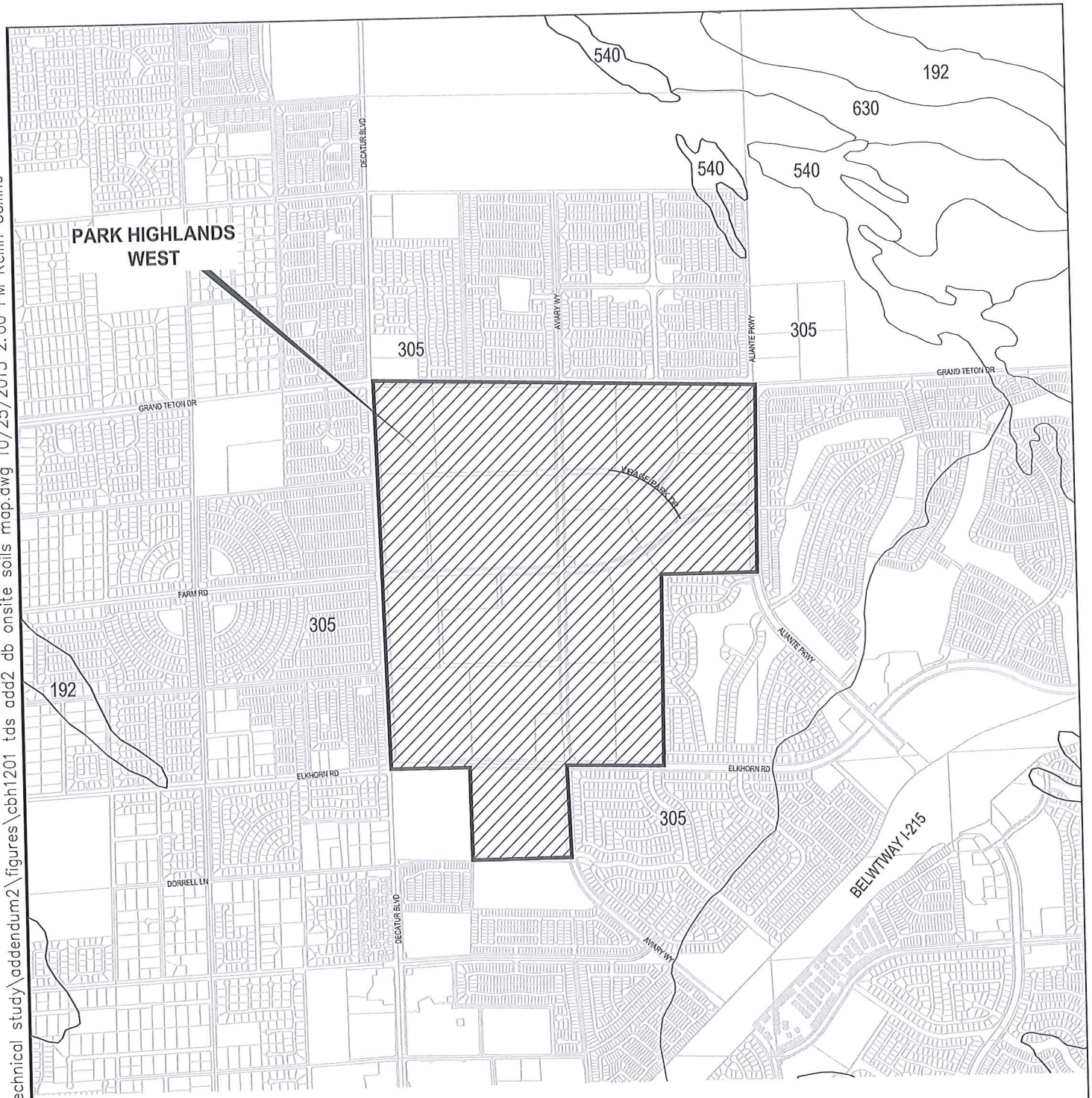
Hydrologic Parameters

APPENDIX E

Revised Hydrologic Analysis

Aviary Way
Grand Teton Drive
Farm Road
Elkhorn Road
Parcel 1.0
TRAIL
Parcel 1.2
RES
45.60 Ac.
HIGHLANDS PARK
HOLDINGS
Parcel 1.3
MU
18.06 Ac.
SUNCAL
Parcel 1.5
TRAIL
Parcel 1.4
RES
52.47 Ac.
SUNCAL
Parcel 2.1
COM PARK
3.00 Ac.
Parcel 2.1
PF-Detention
15.63 Ac.
Parcel 2.0
TRAIL
Parcel 2.2
RES
22.76 Ac.
SUNCAL
Parcel 2.3
RES
20.30 Ac.
HIGHLANDS PARK
HOLDINGS
Parcel 2.4
RES
18.96 Ac.
HIGHLANDS PARK
HOLDINGS
Parcel 2.5
ES
9.85 Ac.
Parcel 2.6
COM PARK
9.00 Ac.
Parcel 2.7
MU
15.27 Ac.
CBH
Parcel 4.1
RES
22.85 Ac.
STANDARD PACIFIC
Parcel 3.2
RES
9.03 Ac.
SUNCAL
Parcel 3.1
MU
19.76 Ac.
SUNCAL
Parcel 3.3
RES
36.49 Ac.
SUNCAL
Parcel 3.7
TRAIL
Parcel 4.3
RES
14.03 Ac.
SUNCAL
Parcel 4.2
RES
16.46 Ac.
SUNCAL
Parcel 3.4
RES
32.09 Ac.
STANDARD PACIFIC
Parcel 3.5
RES
28.09 Ac.
AGRW
Parcel 3.6
COM PARK
10.00 Ac.
Parcel 4.4
RES
24.52 Ac.
AGRW
Parcel 4.5
RES
25.25 Ac.
AGRW
Parcel 5.1
RES
36.07 Ac.
STANDARD PACIFIC

Planning District	Dev Area	Parcel	Acres	USE	DUA	Units
West	W	1.1	21.33	COM	-	-
West	W	1.2	45.60	RES	6.10	278
West	W	1.3	18.06	MU	20.43	369
West	W	1.4	52.47	RES	6.12	321
West	W	2.2	22.76	RES	6.15	140
West	W	2.3	20.30	RES	6.11	124
West	W	2.4	18.96	RES	6.12	116
West	W	2.7	15.27	MU	20.96	320
West	W	3.1	19.76	MU	20.45	404
West	W	3.2	9.03	RES	5.98	54
West	W	3.3	36.49	RES	6.11	223
West	W	3.4	32.09	RES	7.01	225
West	W	3.5	28.09	RES	6.02	169
West	W	4.1	22.85	RES	7.00	160
West	W	4.2	16.46	RES	6.14	101
West	W	4.3	14.03	RES	6.13	86
West	W	4.4	24.52	RES	6.00	147
West	W	4.5	25.25	RES	5.98	151
West	W	5.1	36.07	RES	6.99	252



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CRESCENT BAY HOLDINGS

PARK HIGHLANDS
GRAND TETON REGIONAL FLOOD CONTROL FACILITY
SOILS MAP

DATE: NOV 2013	PROJECT NO. CBH1201-000
DRAFTER: KC	
DESIGNER: KC	
CHECKED: MJF	SHEET 1 OF 1

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SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Soil & Curve Number Computation

Project Name: Park Highlands Grand Teton Regional Flood Control Facility
Date: November 2013
File Name: CBH1201 TDS ADD2 Onsite Composite CN.xlsx
By: KC

Reference: SCS Soil Data

Data:

Soil Type & Description		A	B	C	D
305	Las Vegas-Destazo complex, 0 to 2 percent slopes	5%	30%	5%	60%

Land Use (per Land Plan)	Land Use (per Design Manual)	A	B	C	D
Roadway	Roadway	98	98	98	98
Park or Trail	Open Space (poor)	68	79	86	89
Commercial, Mix Use or School	Commercial	89	92	94	95
Medium Low Density Residential	Residential (6,000 sf)	80	87	90	92
Medium Density Residential	Residential (<6,000 sf) (I)	81	88	91	93
Medium High or High Density Residential	Residential (<6,000 sf) (C)	89	92	94	95

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP A	B	C	D	LAND USE CN A	B	C	D	SUBAREA ACRES	CALCULATED CN
2-1	305	100.0%	Residential (<6,000 sf) (C)	5%	30%	5%	60%	89	92	94	95	23.5	94
TOTAL PERCENT		100.0%									TOTAL AREA	23.5	**94**

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP A	B	C	D	LAND USE CN A	B	C	D	SUBAREA ACRES	CALCULATED CN
2-2	305	100.0%	Residential (<6,000 sf) (I)	5%	30%	5%	60%	81	88	91	93	47.5	91
TOTAL PERCENT		100.0%									TOTAL AREA	47.5	**91**

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP A	B	C	D	LAND USE CN A	B	C	D	SUBAREA ACRES	CALCULATED CN
2-3	305	100.0%	Open Space (poor)	5%	30%	5%	60%	68	79	86	89	20.9	85
TOTAL PERCENT		100.0%									TOTAL AREA	20.9	**85**

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP A	B	C	D	LAND USE CN A	B	C	D	SUBAREA ACRES	CALCULATED CN
2-4	305	100.0%	Commercial	5%	30%	5%	60%	89	92	94	95	21.4	94
TOTAL PERCENT		100.0%									TOTAL AREA	21.4	**94**

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP A	B	C	D	LAND USE CN A	B	C	D	SUBAREA ACRES	CALCULATED CN
2-5	305	100.0%	Residential (<6,000 sf) (I)	5%	30%	5%	60%	81	88	91	93	57.0	91
TOTAL PERCENT		100.0%									TOTAL AREA	57.0	**91**

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP A	B	C	D	LAND USE CN A	B	C	D	SUBAREA ACRES	CALCULATED CN
2-6	305	100.0%	Residential (<6,000 sf) (C)	5%	30%	5%	60%	89	92	94	95	11.5	94
TOTAL PERCENT		100.0%									TOTAL AREA	11.5	**94**

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP A	B	C	D	LAND USE CN A	B	C	D	SUBAREA ACRES	CALCULATED CN
2-7	305	100.0%	Open Space (poor)	5%	30%	5%	60%	68	79	86	89	10.0	85
TOTAL PERCENT		100.0%									TOTAL AREA	10.0	**85**

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP A	B	C	D	LAND USE CN A	B	C	D	SUBAREA ACRES	CALCULATED CN
2-8	305	100.0%	Commercial	5%	30%	5%	60%	89	92	94	95	18.3	94
TOTAL PERCENT		100.0%									TOTAL AREA	18.3	**94**

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP A	B	C	D	LAND USE CN A	B	C	D	SUBAREA ACRES	CALCULATED CN
2-9	305	100.0%	Residential (<6,000 sf) (I)	5%	30%	5%	60%	81	88	91	93	10.0	91
TOTAL PERCENT		100.0%									TOTAL AREA	10.0	**91**

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP A	B	C	D	LAND USE CN A	B	C	D	SUBAREA ACRES	CALCULATED CN
2-10	305	100.0%	Residential (<6,000 sf) (I)	5%	30%	5%	60%	81	88	91	93	10.4	91
TOTAL PERCENT		100.0%									TOTAL AREA	10.4	**91**

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP				LAND USE CN				SUBAREA ACRES	CALCULATED CN
				A	B	C	D	A	B	C	D		
2-11	305	100.0%	Residential (<6,000 sf) (C)	5%	30%	5%	60%	89	92	94	95	16.3	94
TOTAL PERCENT		100.0%									TOTAL AREA	16.3	**94**

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP				LAND USE CN				SUBAREA ACRES	CALCULATED CN
				A	B	C	D	A	B	C	D		
2-12	305	100.0%	Residential (6,000 sf)	5%	30%	5%	60%	80	87	90	92	17.4	90
TOTAL PERCENT		100.0%									TOTAL AREA	17.4	**90**

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP				LAND USE CN				SUBAREA ACRES	CALCULATED CN
				A	B	C	D	A	B	C	D		
2-13	305	72.0%	Residential (6,000 sf)	5%	30%	5%	60%	80	87	90	92	12.6	65
	305	28.0%	Residential (<6,000 sf) (C)	5%	30%	5%	60%	89	92	94	95	4.9	26
TOTAL PERCENT		100.0%									TOTAL AREA	17.5	**91**

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP				LAND USE CN				SUBAREA ACRES	CALCULATED CN
				A	B	C	D	A	B	C	D		
2-14A	305	100.0%	Open Space (poor)	5%	30%	5%	60%	68	79	86	89	1.7	85
TOTAL PERCENT		100.0%									TOTAL AREA	1.7	**85**

BASIN ID	SOIL TYPE	SUBAREA PERCENT	LAND USE	HYDROLOGIC SOIL GROUP				LAND USE CN				SUBAREA ACRES	CALCULATED CN
				A	B	C	D	A	B	C	D		
2-14B	305	100.0%	Open Space (poor)	5%	30%	5%	60%	68	79	86	89	1.6	85
TOTAL PERCENT		100.0%									TOTAL AREA	1.6	**85**

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RUNOFF CURVE NUMBERS - RESIDENTIAL DISTRICTS

Average Lot Size or Usage[1]	Percent Impervious[2]	Curve Number for Hydrologic Soil Groups			
		A	B	C	D
Apartments/Condos	72	81	88	91	93
Townhouses/6,000 sq ft lots or less	69	80	87	90	92
7,000 sq ft lots	63	76	84	89	91
8,000 sq ft lots	58	73	82	88	90
10,000 sq ft lots	38	61	75	83	87
14,000 sq ft lots	30	57	72	81	86
20,000 sq ft lots	25	54	70	80	85
40,000 sq ft lots	20	51	68	79	84
80,000 sq ft lots	12	46	65	77	82

1 Lot size should represent the size of the average lot and not the gross acreage divided by the number of lots.

2 Actual percent impervious value should be compared to selected land use type.

3 In cases where average residential lots are smaller than 6,000 sq ft, commercial/business/industrial land use should be used.

Revision	Date

REFERENCE:

TABLE 602A

RUNOFF CURVE NUMBERS
(URBAN AREAS[1])

Cover description		Curve numbers for hydrologic soil group—			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.)[3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved: curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved: open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only)[4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
See Table 602A					
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)[5]		77	86	91	94

1 Average runoff condition, and $I_a = 0.2S$.

2 The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system. Impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using Figure 603.

3 CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4 Composite CN's for natural desert landscaping should be computed using Figure 603 based on the impervious area percentage (CN #98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5 Composite CN's to use for the design of temporary measures during grading and construction should be computed using Figure 603 based on the degree of development impervious area percentage) and the CN's for the newly graded pervious areas.

Revision	Date

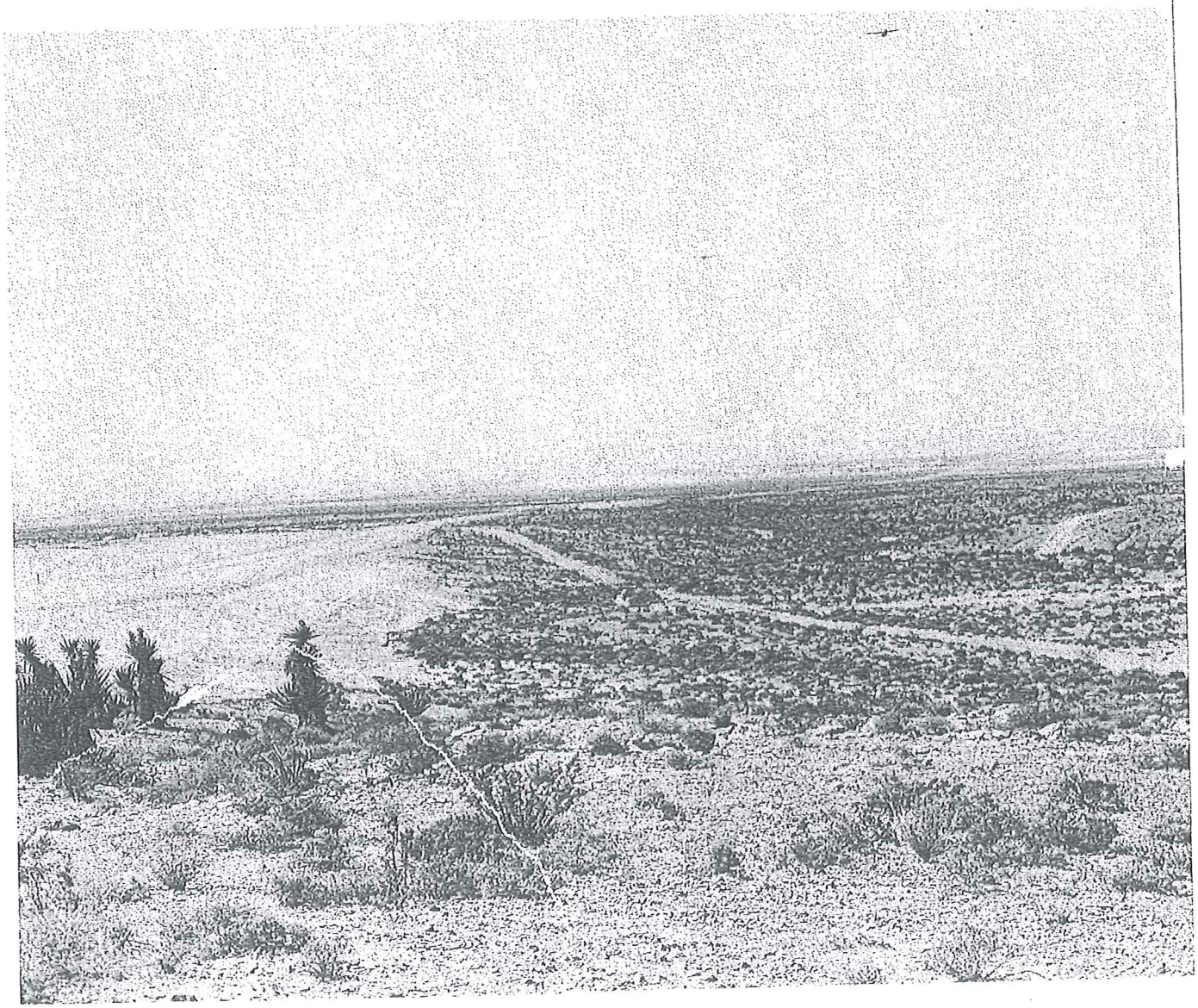
United States Department of Agriculture

Soil Conservation Service

In cooperation with United States Department of the Interior, Bureau of Land Management, and University of Nevada Agricultural Experiment Station

Soil Survey of Las Vegas Valley Area Nevada

Part of Clark County



plants. Because of the content of gypsum and other salts in the soil, salt-tolerant plants should be selected. Excessive irrigation can dissolve gypsum in the soil and cause subsidence. Lawn grasses, shrubs, and trees that are not sensitive to lime-induced chlorosis are well suited to use in landscaping. Annual applications of iron chelates reduce the effects of chlorosis.

This map unit is in capability subclass VIIs, nonirrigated. The Las Vegas soil is in horticultural group 6, the McCarran soil is in horticultural group 4, and the Grapevine soil is in horticultural group 2.

305—Las Vegas-Destazo complex, 0 to 2 percent slopes. This map unit is on relict alluvial flats.

This unit is 60 percent Las Vegas gravelly fine sandy loam, 0 to 2 percent slopes, and 25 percent Destazo fine sandy loam, 0 to 2 percent slopes. These soils are in a random pattern on a relict surface and are topographically indistinguishable. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Bluepoint soils on small sand sheets, 5 percent Glencarb soils on recent alluvial flats, and 5 percent Skyhaven soils on the relict alluvial flats. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Las Vegas soil is shallow and well drained. It formed in alluvium derived dominantly from limestone, dolomite, and some lacustrine sediment that has a high content of lime. Typically, about 25 percent of the surface is covered with a desert pavement of hardpan fragments and pebbles. The surface layer is very pale brown gravelly fine sandy loam about 2 inches thick. The upper 6 inches of the underlying material is very pale brown fine sandy loam, and the next 4 inches is very pale brown gravelly sandy clay loam and gravelly loam. An indurated, lime-cemented hardpan is at a depth of about 12 inches. Depth to the hardpan ranges from 3 to 14 inches.

Permeability of the Las Vegas soil is moderately slow above the hardpan. Available water capacity is very low. Effective rooting depth is 3 to 14 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high. This soil is subject to rare periods of flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The Destazo soil is very deep and well drained. It formed in alluvium derived dominantly from limestone, dolomite, and sediment that has a high content of lime. Typically, about 25 percent of the surface is covered with a desert pavement of pebbles and lime nodules. The surface layer is very pale brown fine sandy loam about 11 inches thick. The upper 40 inches of the underlying material is stratified very pale brown to white very gravelly to extremely gravelly sandy clay loam, averaging very gravelly sandy clay loam, and the lower part to a depth of 62 inches is light brown sandy loam.

Permeability of the Destazo soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high. This soil is subject to rare periods of flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly as habitat for desert wildlife and for recreation. It is also used for urban development.

The main limitations for construction of dwellings are the hazard of flooding and the limited depth to the hardpan in the Las Vegas soil. Dikes and channels that have outlets for floodwater can be used to protect buildings from flooding. Excavation for building sites is limited by the hardpan. Heavy equipment is needed for excavation.

The main limitations for septic tank absorption fields are the limited depth to the hardpan in the Las Vegas soil and the restricted permeability of the Destazo soil. Special design of septic tank absorption fields is needed. Heavy equipment is needed for excavation. Using long absorption lines and backfilling the trench with sandy material help to compensate for the restricted permeability.

This unit is limited for roads because of the limited depth to the hardpan in the Las Vegas soil. Roads should be designed to minimize cuts. Heavy equipment is needed for excavation.

The main limitations for lawns and landscaping are the limited depth to the hardpan in the Las Vegas soil and the moderate available water capacity of the Destazo soil. It is difficult to establish plants in areas where the pan is exposed. Mulching and fertilizing cut areas help to establish plants. Frequent irrigation of lawns, gardens, and most other plantings is needed because of the limited available water capacity of the soil. Lawn grasses, shrubs, and trees that are not sensitive to lime-induced chlorosis are well suited to use in landscaping. Annual applications of iron chelates reduce the effects of chlorosis.

This map unit is in capability subclass VIIs, nonirrigated. The Las Vegas soil is in horticultural group 6, and the Destazo soil is in horticultural group 2.

307—Las Vegas-Skyhaven complex, 0 to 4 percent slopes. This map unit is on relict alluvial flats.

This unit is 60 percent Las Vegas gravelly fine sandy loam, 0 to 4 percent slopes, and 30 percent Skyhaven very fine sandy loam, 0 to 4 percent slopes. The Las Vegas and Skyhaven soils are in a random pattern on relict alluvial flats and are topographically indistinguishable. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL
STANDARD FORM 4

Project Name: Park Highlands Grand Teton Regional Flood Control Facility
Description: Developed Onsite
File Name: CBH1201 TDS ADD2 Onsite Standard Form 4.xlsx
By: K. Collins
Date: November 2013

BASIN DATA						INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc	Tc Check Urbanized Basins		Tlag
BASIN ID	DEV./EX. (D or E)	CN	K [1]	AREA Ac	AREA Mi^2 [2]	INITIAL LENGTH Feet	SLOPE %	Ti Min [3]	TRAVEL LENGTH Feet	SLOPE %	V1 VELOCITY FPS [4]	V2 VELOCITY FPS [5]	Tt Min [6]	Tc Calc. [7]	Total Length Feet [8]	Tc Check [9]	Tlag Hours [10]
2-1	D	94	0.851	23.5	0.0367	330	1.00	8.15	1240	0.60	1.56	2.37	10.53	18.68	1570	18.722	0.187
2-2	D	91	0.811	47.5	0.0742	100	1.00	5.20	2060	0.60	1.56	2.37	16.30	21.49	2160	22.000	0.215
2-3	D	85	0.732	20.9	0.0327	100	1.00	6.62	1240	0.60	1.56	2.37	10.53	17.15	1340	17.444	0.172
2-4	D	94	0.851	21.4	0.0334	50	1.00	3.17	1240	0.60	1.56	2.37	10.53	13.70	1290	17.167	0.137
2-5	D	91	0.811	57.0	0.0891	100	1.00	5.20	2060	0.60	1.56	2.37	16.30	21.49	2160	22.000	0.215
2-6	D	94	0.851	11.5	0.0180	330	1.00	8.15	825	0.60	1.56	2.37	7.61	15.76	1155	16.417	0.158
2-7	D	85	0.732	10.0	0.0156	75	0.50	7.23	940	1.00	2.02	3.06	6.52	13.75	1015	15.639	0.137
2-8	D	94	0.851	18.3	0.0286	100	1.00	4.49	1155	0.60	1.56	2.37	9.93	14.42	1255	16.972	0.144
2-9	D	91	0.811	10.0	0.0156	100	1.00	5.20	925	0.60	1.56	2.37	8.31	13.51	1025	15.694	0.135
2-10	D	91	0.811	10.4	0.0163	100	1.00	5.20	885	0.60	1.56	2.37	8.03	13.23	985	15.472	0.132
2-11	D	94	0.851	16.3	0.0255	100	1.00	4.49	1030	0.60	1.56	2.37	9.05	13.54	1130	16.278	0.135
2-12	D	90	0.798	17.4	0.0272	100	1.00	5.44	1100	0.60	1.56	2.37	9.54	14.98	1200	16.667	0.150
2-13	D	91	0.811	17.5	0.0273	100	1.00	5.20	1500	0.60	1.56	2.37	12.36	17.56	1600	18.889	0.176
2-14A	D	85	0.732	1.7	0.0027	33	25.00	1.30	1490	0.60	1.56	2.37	12.29	13.59	1523	18.461	0.136
2-14B	D	85	0.732	1.6	0.0025	33	25.00	1.30	1350	0.60	1.56	2.37	11.30	12.60	1383	17.683	0.126

[1] K = 0.0132 (CN) - 0.39

[2] A = Area/640

[3] Ti = (1.8 (1.1-K) L^0.5)/S^0.33

[4] For Existing Conditions: V1 = 14.8 * (S/100)^0.5
For Developed Conditions: V1 = 20.2 * (S/100)^0.5

[5] For Existing Conditions: V2 = 29.4 * (S/100)^0.5
For Developed Conditions: V2 = 30.6 * (S/100)^0.5

[6] Tt = L/(60*V)

[7] Tc = Ti + Tt

[8] Total L = Initial L + Travel L

[9] Tc = (L/180) + 10

[10] Tlag = (0.6*Tc)/60

[11] Min Tlag =0.05

Note: For Travel Time Calcs: V1 applies to first 500 feet and V2 applies to remaining distance.

STANDARD FORM 4

REFERENCE :

HEC-1 Model

10-Year Interim Condition

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUN  1998                 *
*           VERSION 4.1                 *
*                                       *
*  RUN DATE   25OCT13  TIME  14:20:53   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X       XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

1

HEC-1 INPUT

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

              *DIAGRAM
    1         ID     SLATER HANIFAN GROUP, INC.
    2         ID     PARK HIGHLANDS - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
    3         ID     ADDENDUM NO. 2 TO THE TECHNICAL DRAINAGE STUDY
    4         ID     INTERIM CONDITION
    5         ID
    6         ID     RETURN PERIOD ------- 10-YEAR
    7         ID     DISTRIBUTION -------- 6-HOUR SDN3
    8         ID     PROJECT NO. --------- CBH1201.000
    9         ID     FILENAME ------------ INT10.H1
   10         ID     DATE ---------------- NOVEMBER 2013
   11         ID     MODELED BY ---------- KC
   12         ID
   13         ID        SIX HOUR DEPTH-AREA REDUCTION FACTORS
   14         ID        DRAINAGE AREA (MI^2)       DARF
   15         ID        10-YR EVENT               0.570
   16         ID
   17         IT       5       0       0     300
   18         IO       5       0       0
   19         IN       5       0       0
   20         JR    PREC   0.570
              *

   21         KK    E140
   22         BA   .0675
   23         PB    2.77
   24         PC       0   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
   25         PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
   26         PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
   27         PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
   28         PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
   29         PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
   30         PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
   31         PC   0.998   0.999   1.000
   32         LS       0    81.9
   33         UD   0.599
              *

   34         KK    E360
   35         BA   .0095
   36         LS       0    85.6
   37         UD   0.159
              *

   38         KK     CP1
   39         KM   COMBINE E140 AND E360 AT MAGGIE AND MUSTANG
   40         HC       2
              *

   41         KK    CP1S
   42         KM   CP1E IS THE FLOW DRAINING EAST IN MAGGIE
   43         KM   CP1S IS THE FLOW DRAINING SOUTH IN MUSTANG
   44         DT    CP1E
   45         DI      12
   46         DQ       5
              *
```


1

HEC-1 INPUT

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

   47         KK    E160
   48         BA   .0641
   49         LS       0    83.1
   50         UD   0.445
              *

   51         KK    E160E
   52         KM   E160E IS THE FLOW DRAINING EAST IN MAGGIE
   53         KM   E160S IS THE FLOW DRAINING SOUTH IN TORREY PINES
   54         KM   FLOW IN TORREY PINES IS BASED ON 1/2 STREET CAPACITY, 10 CFS
   55         DT    E160S
   56         DI      14
   57         DQ      10
```

```
*
58          KK    E340
59          BA   .0168
60          LS      0     85.8
61          UD   0.172
*
62          KK     CP2
63          KM   COMBINE CP1S E160E AND E340 AT BRENT AND MUSTANG
64          HC       3
*
65          KK    CP2S
66          KM   CP2E IS THE FLOW DRAINING EAST IN BRENT
67          KM   CP2S IS THE FLOW DRAINING SOUTH IN MUSTANG
68          DT    CP2E
69          DI      15
70          DQ       8
*
71          KK    E180
72          BA   .2142
73          LS      0     80.7
74          UD   0.715
*
75          KK   E160S
76          KM   RETRIEVE E160S
77          DR   E160S
*
78          KK    E320
79          BA   .0169
80          LS      0     85.7
81          UD   0.168
*
```


1 HEC-1 INPUT

```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
*
82          KK     CP3
83          KM   COMBINE CP2S E180 E160S AND E320 AT GUY AND MUSTANG
84          HC       4
*
85          KK    CP3S
86          KM   CP3E IS THE FLOW DRAINING EAST IN GUY
87          KM   CP3S IS THE FLOW DRAINING SOUTH IN MUSTANG
88          DT    CP3E
89          DI      43
90          DQ      20
*
91          KK    E200
92          BA   .0059
93          LS      0     83.7
94          UD   0.183
*
95          KK    E300
96          BA   .0132
97          LS      0     85.8
98          UD   0.168
*
99          KK     CP4
100         KM   COMBINE CP3S E200 AND E300 AT HORSE AND MUSTANG
101         HC       3
*
102         KK   SOUTH
103         KM   CP4E IS THE FLOW DRAINING EAST IN HORSE
104         KM   SOUTH IS THE FLOW DRAINING SOUTH IN MUSTANG
105         KM   EXISTING SD IN HORSE IS FOR NUISANCE FLOW
106         DT    CP4E
107         DI      26
108         DQ       7
*
109         KK    NONE
110         KM   NONE IS ZERO FLOW
111         KM   CP4S IS THE FLOW DRAINING SOUTH IN MUSTANG
112         DT    CP4S
113         DI      10     100
114         DQ      10     100
*
115         KK    E080
116         BA   .0108
117         LS      0     83.5
118         UD   0.219
*
```


1 HEC-1 INPUT

```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
*
119         KK    CP1E
120         KM   RETRIEVE CP1E
121         DR    CP1E
*
122         KK    E380
123         BA   .0195
124         LS      0     85.7
125         UD   0.203
*
126         KK     CP5
127         KM   COMBINE E080 CP1E AND E380 AT BRENT AND MAVERICK
```

```
128         HC        3
            *

129         KK     CP5S
130         KM    CP5S IS THE FLOW DRAINING SOUTH IN MAVERICK
131         KM    CP5E IS THE FLOW DRAINING EAST IN BRENT
132         DT     CP5E
133         DI       15
134         DQ        8
            *

135         KK     E060
136         BA    .2588
137         LS        0     82.5
138         UD    0.679
            *

139         KK    E060S
140         KM    E060S IS THE FLOW DRAINING SOUTH IN JONES
141         KM    E060E IS THE FLOW DRAINING EAST IN SHELEHEDA
142         KM    EXISTING SD IN  JONES IS FOR NUISANCE FLOW
143         DT    E060E
144         DI       42
145         DQ       19
            *

146         KK   RE060S
147         KM    ROUTE TO CP6
148         RD     1345    .0066    0.016        0     TRAP        0       50
            *

149         KK     E100
150         BA    .4698
151         LS        0     81.2
152         UD    0.956
            *
```



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1                                    HEC-1 INPUT

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

153         KK      CP6
154         KM    COMBINE E060S AND E100 AT IRON MOUNTAIN AND JONES
155         HC        2
            *

156         KK     CP6S
157         KM    CP6S IS THE FLOW DRAINING SOUTH IN JONES
158         KM    CP6E IS THE FLOW DRAINING EAST IN IRON MOUNTAIN
159         KM    EXISTING SD IN IRON MOUNTAIN CONVEYS 46 CFS EAST
160         DT     CP6E
161         DI       74
162         DQ       60
            *

163         KK    RCP6S
164         KM    ROUTE TO CP7
165         RD     2000    .0050    0.016        0     TRAP        0       50
            *

166         KK     E420
167         BA    .0957
168         LS        0     85.4
169         UD    0.251
            *

170         KK     CP5E
171         KM    RETRIEVE CP5E
172         DR     CP5E
            *

173         KK    RCP5E
174         KM    ROUTE TO CP7
175         RD     2010    .0058    0.016        0     TRAP        0       50
            *

176         KK      CP7
177         KM    COMBINE CP6S E420 AND CP5E AT GUY AND JONES
178         HC        3
            *

179         KK     CP7S
180         KM    CP7S IS THE FLOW DRAINING SOUTH IN JONES
181         KM    CP7E IS THE FLOW DRAINING EAST ONTO UNDEVELOPED LAND
182         KM    EXISTING SD IN JONES IS FOR NUISANCCE FLOW
183         KM    FLOW IN JONES IS BASED ON 1/2 STREET CAPACITY, 45 CFS
184         DT     CP7E
185         DI       40
186         DQ        0
            *
```



```
1                                    HEC-1 INPUT

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

187         KK     CP2E
188         KM    RETRIEVE CP2E
189         DR     CP2E
            *

190         KK    RCP2E
191         KM    ROUTE TO CP8
192         RD     3370    .0055    0.016        0     TRAP        0       50
            *

193         KK     CP3E
194         KM    RETRIEVE CP3E
195         DR     CP3E
            *

196         KK    RCP3E
197         KM    ROUTE TO CP8
```

```
198          RD    2680   .0055   0.016       0    TRAP       0      50
             *

199          KK     CP4E
200          KM    RETRIEVE CP4E
201          DR     CP4E
             *

202          KK    RCP4E
203          KM    ROUTE TO CP8
204          RD     1955   .0048   0.016       0    TRAP       0      50
             *

205          KK    DUMMY
206          KM    COMBINE CP5S CP7S CP2E CP3E AND CP4E
207          HC       5
             *

208          KK     E400
209          BA    .0846
210          LS        0    85.2
211          UD    0.259
             *

212          KK      CP8
213          KM    COMBINE DUMMMY AND E400 AT HORSE AND JONES
214          HC        2
             *

215          KK     CP8E
216          KM    CP8S IS THE FLOW DRAINING SOUTH IN JONES
217          KM    CP8E IS THE FLOW DRAINING EAST IN HORSE
218          KM    EXISTING SD IN JONES CONVEYS 23 CFS SOUTH
219          DT     CP8S
220          DI       85
221          DQ       56
             *
```


1 HEC-1 INPUT

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```
222          KK    RCP8E
223          KM    ROUTE TO CP10
224          RD     2530   .0080   0.016       0    TRAP       0      50
             *

225          KK     E440
226          BA    .0523
227          LS        0    80.8
228          UD    0.290
             *

229          KK    E440S
230          KM    E440S IS THE FLOW DRAINING SOUTH IN BRADLEY
231          KM    E440E IS THE FLOW DRAINING EAST IN BRENT
232          DT    E440E
233          DI       12
234          DQ        7
             *

235          KK     E460
236          BA    .1140
237          LS        0    80.3
238          UD    0.355
             *

239          KK      CP9
240          KM    COMBINE E440S AND E460 IN BRADLEY BETWEEN BRENT AND HORSE
241          HC        2
             *

242          KK     CP9S
243          KM    CP9S IS THE FLOW DRAINING SOUTH IN BRADLEY
244          KM    CP9E IS THE FLOW DRAINING EAST ONTO UNDEVELOPED LAND
245          KM    FLOW IN BRADELY IS BASED ON 1/2 STREET CAPACITY, 41 CFS
246          DT     CP9E
247          DI       26
248          DQ        0
             *

249          KK     CP7E
250          KM    RETRIEVE CP7E
251          DR     CP7E
             *

252          KK    RCP7E
253          KM    ROUTE TO CP10
254          RD     2690   .0080   0.016       0    TRAP       0      50
             *
```


1 HEC-1 INPUT

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```
255          KK     E480
256          BA    .0873
257          LS        0    81.5
258          UD    0.278
             *

259          KK     CP10
260          KM    COMBINE CP8E CP9S CP7E AND E480 AT HORSE AND BRADLEY
261          HC        4
             *

262          KK    CP10E
263          KM    CP10S IS THE FLOW DRAINING SOUTH IN BRADLEY
264          KM    CP10E IS THE FLOW DRAINING EAST IN HORSE
265          KM    EXISTING SD IN HORSE CONVEYS 6 CFS EAST
266          DT    CP10S
267          DI       72
```

```
268          DQ       33
             *

269          KK     CP9E
270          KM    RETRIEVE CP9E
271          DR     CP9E
             *

272          KK     E520
273          BA    .0143
274          LS        0     85.0
275          UD    0.162
             *

276          KK     CP11
277          KM    COMBINE CP10E CP9E AND E520 AT HORSE AND UNICORN
278          HC        3
             *

279          KK    CP11E
280          KM    CP11S IS THE FLOW DRAINING SOUTH IN UNICORN
281          KM    CP11E IS THE FLOW DRAINING EAST IN HORSE
282          KM    EXISTING SD IN HORSE CONVEYS 6 CFS EAST
283          DT    CP11S
284          DI       43
285          DQ       19
             *

286          KK   RCP11E
287          KM    ROUTE TO CP14
288          RD     1825   .0080   0.016       0    TRAP        0       50
             *
```



```
1                                    HEC-1 INPUT

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

289          KK    E060E
290          KM    RETRIEVE E060E
291          DR    E060E
             *

292          KK   RE060E
293          KM    ROUTE TO CP12
294          RD     5370   .0050   0.016       0    TRAP        0       50
             *

295          KK     CP6E
296          KM    RETRIEVE CP6E
297          DR     CP6E
             *

298          KK    RCP6E
299          KM    ROUTE TO CP12
300          RD     5145   .0050   0.016       0    TRAP        0       50
             *

301          KK     E040
302          BA    .3615
303          LS        0     82.1
304          UD    0.511
             *

305          KK     CP12
306          KM    COMBINE E060E CP6E AND E040 AT IRON MOUNTAIN AND DECATUR
307          HC        3
             *

308          KK    CP12S
309          KM    CP12S IS THE FLOW DRAINING SOUTH IN DECATUR
310          KM    CP12E IS THE FLOW DRAINING EAST ONTO UNDEVELOPED LAND
311          KM    FLOW IN DECATUR IS BASED ON 1/2 STREET CAPACITY, 139 CFS
312          DT    CP12E
313          DI      110
314          DQ        0
             *

315          KK   RCP12S
316          KM    ROUTE TO CP13
317          RD     1270   .0040   0.016       0    TRAP        0       50
             *

318          KK     E540
319          BA    .0506
320          LS        0     85.5
321          UD    0.171
             *
```



```
1                                    HEC-1 INPUT

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

322          KK     CP13
323          KM    COMBINE CP12S AND E540 AT BRENT AND DECATUR
324          HC        2
             *

325          KK    CP13S
326          KM    S9 IS THE FLOW DRAINING SOUTH IN DECATUR
327          KM    E9 IS THE FLOW DRAINING EAST ONTO UNDEVELOPED LAND
328          KM    FLOW IN DECATUR IS BASED ON 1/2 STREET CAPACITY, 139 CFS
329          DT    CP13E
330          DI      116
331          DQ        0
             *

332          KK   RCP13S
333          KM    ROUTE TO CP14
334          RD     1290   .0040   0.016       0    TRAP        0       50
             *

335          KK    E440E
```

```
336          KM   RETRIEVE E440E
337          DR   E440E
             *

338          KK  RE440E
339          KM   ROUTE TO CP14
340          RD    3850   .0040   0.016       0    TRAP       0       50
             *

341          KK    E560
342          BA   .1763
343          LS      0    89.1
344          UD   0.370
             *

345          KK    CP14
346          KM   COMBINE CP11E CP13S E440E AND E560 AT HORSE AND DECATUR
347          HC       4
             *

348          KK   CP14E
349          KM   CP14S IS THE FLOW DRAINING SOUTH IN DECATUR
350          KM   CP14E IS THE FLOW DRAINING EAST IN HORSE
351          KM   EXISTING SD IN DECATUR CONVEYS 30 CFS SOUTH
352          KM   HIGH POINT IN DECATUR, ALL SURFACE FLOWS DRIAN EAST
353          DT   CP14S
354          DI     154
355          DQ      30
             *
```



```
1                                    HEC-1 INPUT

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

356          KK  RCP14E
357          KM   ROUTE TO CP15
358          RD    2645   .0050   0.016       0    TRAP       0       50
             *

359          KK    E600
360          BA   .0862
361          LS      0    83.7
362          UD   0.285
             *

363          KK    CP15
364          KM   COMBINE CP14E AND E600 AT HORSE AND AVIARY
365          HC       2
             *

366          KK   CP15E
367          KM   CP15S IS THE FLOW DRAINING SOUTH IN AVIARY
368          KM   CP15E IS THE FLOW DRAINING EAST IN HORSE
369          KM   EXISTING SD IN HORSE CONVEYS 206 CFS EAST
370          DT   CP15S
371          DI     113
372          DQ       0
             *

373          KK    E240
374          BA   .1327
375          LS      0    83.1
376          UD   0.472
             *

377          KK   E240S
378          KM   E240S IS THE FLOW DRAINING SOUTH IN TORREY PINES
379          KM   E240E IS THE FLOW DRAINING EAST IN MEISENHEIMER
380          DT   E240E
381          DI      29
382          DQ      15
             *

383          KK    E260
384          BA   .1379
385          LS      0    83.3
386          UD   0.441
             *

387          KK    CP16
388          KM   COMBINE E240S AND E260 AT RACEL AND TORREY PINES
389          HC       2
             *
```



```
1                                    HEC-1 INPUT

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

390          KK   CP16S
391          KM   S9 IS THE FLOW DRAINING SOUTH IN TORREY PINES
392          KM   E9 IS THE FLOW DRAINING EAST IN RACEL
393          DT   CP16E
394          DI      45
395          DQ      23
             *

396          KK   DUMMY
397          HC       3
             *

398          KK   CP14S
399          KM   RETRIEVE CP14S
400          DR   CP14S
             *

401          KK  RCP14S
402          KM   ROUTE TO CP17
403          RD    2565   .0050   0.013       0    CIRC     2.5       0
             *

404          KK    E580
405          BA   .0980
```

```
406          LS       0    88.1
407          UD    0.296
             *

408          KK     CP17
409          KM    COMBINE CP14S AND E580 IN DECATUR BETWEEN HORSE AND GRAND TETON
410          HC        2
             *

411          KK    CP17S
412          KM    CP17S IS THE FLOW DRAINING SOUTH IN DECATUR
413          KM    CP17E IS THE FLOW DRAINING EAST ONTO UNDEVELOPED LAND
414          KM    EXISTING SD IN DECATUR CONVEYS 30 CFS SOUTH
415          KM    FLOW IN DECATUR IS BASED ON 1/2 STREET CAPACITY, 139 CFS
416          DT    CP17E
417          DI       62
418          DQ        0
             *

419          KK     E220
420          BA    .0445
421          LS        0    83.5
422          UD    0.284
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

423          KK    RE220
424          KM    ROUTE TO CP18
425          RD     5085   .0050   0.016       0    TRAP       0       50
             *

426          KK    E240E
427          KM    RETRIEVE E240E
428          DR    E240E
             *

429          KK   RE240E
430          KM    ROUTE TO CP18
431          RD     4710   .0050   0.016       0    TRAP       0       50
             *

432          KK    CP16E
433          KM    RETRIEVE CP16E
434          DR    CP16E
             *

435          KK   RCP16E
436          KM    ROUTE TO CP18
437          RD     4030   .0050   0.016       0    TRAP       0       50
             *

438          KK     CP4S
439          KM    RETRIEVE CP4S
440          DR     CP4S
             *

441          KK    RCP4S
442          KM    ROUTE TO CP18
443          RD     4770   .0050   0.016       0    TRAP       0       50
             *

444          KK     CP8S
445          KM    RETRIEVE CP8S
446          DR     CP8S
             *

447          KK    RCP8S
448          KM    ROUTE TO CP18
449          RD     2755   .0050   0.016       0    TRAP       0       50
             *

450          KK    DUMMY
451          KM    COMBINE E220 E240E CP16E CP4S AND CP8S
452          HC        5
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

453          KK     E280
454          BA    .2782
455          LS        0    83.5
456          UD    0.399
             *

457          KK     CP18
458          KM    COMBINE DUMMY AND E280 AT GRAND TETON AND JONES
459          HC        2
             *

460          KK    RCP18
461          KM    ROUTE TO CP19
462          RD     4935   .0050   0.016       0    TRAP       0       50
             *

463          KK    CP10S
464          KM    RETRIEVE CP10S
465          DR    CP10S
             *

466          KK   RCP10S
467          KM    ROUTE TO CP19
468          RD     5215   .0050   0.016       0    TRAP       0       50
             *

469          KK    CP11S
470          KM    RETRIEVE CP11S
471          DR    CP11S
```

```
                *
472             KK  RCP11S
473             KM   ROUTE TO CP19
474             RD    4550   .0050   0.016       0    TRAP       0      50
                *
475             KK    E500
476             BA   .3881
477             LS      0    83.3
478             UD   0.510
                *
479             KK   CP18A
480             KM   COMBINE CP18 CP10S CP11S AND E500 IN GRAND TETON WEST OF DECATUR
481             HC       4
                *
482             KK    CP19
483             KM   COMBINE CP17S AND CP18A AT GRAND TETON AND DECATUR
484             HC       2
                *                                                                    PAGE 15
1                                        HEC-1 INPUT
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

485             KK   CP17E
486             KM   RETRIEVE CP17E
487             DR   CP17E
                *
488             KK   E660
489             BA   .0140
490             LS      0    84.5
491             UD   0.165
                *
492             KK    CP20
493             KM   COMBINE CP19 CP17E AND E660 IN GRAND TETON BETWEEN DECATUR AND SAN MATEO
494             HC       3
                *
495             KK    E640
496             BA   .0700
497             LS      0    87.8
498             UD   0.263
                *
499             KK    CP21
500             KM   COMBINE CP20 AND E640 IN GRAND TETON BETWEEN DECATUR AND SAN MATEO
501             HC       2
                *
502             KK    E620
503             BA   .0472
504             LS      0    88.1
505             UD   0.246
                *
506             KK    CP22
507             KM   COMBINE CP21 AND E620 AT GRAND TETON AND SAN MATEO
508             HC       2
                *
509             KK   RCP22
510             KM   ROUTE TO CP24
511             RD    1230   .0050   0.016       0    TRAP       0      50
                *
512             KK   CP15S
513             KM   RETRIEVE CP15S
514             DR   CP15S
                *
515             KK  RCP15S
516             KM   ROUTE TO CP23
517             RD    2555   .0050   0.016       0    TRAP       0      50
                *                                                                    PAGE 16
1                                        HEC-1 INPUT
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

518             KK    E680
519             BA   .1122
520             LS      0    88.0
521             UD   0.303
                *
522             KK    CP23
523             KM   COMBINE CP15S AND E680 IN AVIARY JUST NORTH OF GRAND TETON
524             HC       2
                *
525             KK    E760
526             BA   .0076
527             LS      0    88.3
528             UD   0.171
                *
529             KK   CPGTA
530             KM   COMBINE CP22 CP23 AND E760 AT GRAND TETON AND AVIARY
531             HC       3
                *
532             KK     2-3
533             BA  0.0327
534             LS      0    85.0
535             UD   0.172
                *
```

```
536          KK  CPGTA2
537          HC        2
             *

538          KK      2-1
539          BA   0.0367
540          LS        0     94.0
541          UD    0.187
             *

542          KK      2-2
543          BA   0.0742
544          LS        0     91.0
545          UD    0.215
             *

546          KK     2-14A
547          BA   0.0027
548          LS        0     85.0
549          UD    0.135
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

550          KK       2A
551          HC        3
             *

552          KK       2B
553          HC        2
             *

554          KK      DB1
555          KM    DETENTION BASIN 1
556          KO        2
557          RS        1    ELEV       -1
558          SV        0   0.339    3.015    9.712   18.977   29.349   42.004  102.301  126.116  159.117
559          SE   2297.0  2298.0   2299.0   2300.0   2301.0   2302.0   2303.0   2307.0   2308.5   2310.5
560          SQ        0      72      110      138      161      199      215      231      252     1975
561          SE   2297.0  2300.0   2301.0   2302.0   2303.0   2305.0   2306.0   2307.0   2308.5   2310.5
562          KO        1
             *

563          KK      2-6
564          BA   0.0180
565          LS        0     94.0
566          UD    0.158
             *

567          KK       2C
568          HC        2
             *

569          KK      2-7
570          BA   0.0156
571          LS        0     85.0
572          UD    0.137
             *

573          KK       2D
574          HC        2
             *

575          KK      2-4
576          BA   0.0334
577          LS        0     94.0
578          UD    0.137
             *

579          KK     2-14B
580          BA   0.0025
581          LS        0     85.0
582          UD    0.126
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

583          KK       2E
584          HC        2
             *

585          KK      2-5
586          BA   0.0891
587          LS        0     91.0
588          UD    0.215
             *

589          KK     2-5W
590          DT     2-5E
591          DI        0      100
592          DQ        0       48
             *

593          KK      2-9
594          BA   0.0156
595          LS        0     91.0
596          UD    0.135
             *

597          KK       2F
598          HC        3
             *

599          KK     2-5E
600          DR     2-5E
             *

601          KK     2-10
```

```
602             BA  0.0163
603             LS       0     91.0
604             UD   0.132
                *

605             KK       2G
606             HC        3
                *

607             KK      2-8
608             BA  0.0286
609             LS       0     94.0
610             UD   0.144
                *

611             KK       2H
612             HC        2
                *
```


1 HEC-1 INPUT

```
LINE            ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

613             KK       2I
614             HC        2
                *

615             KK     2-11
616             BA  0.0255
617             LS       0     94.0
618             UD   0.135
                *

619             KK     2-12
620             BA  0.0272
621             LS       0     90.0
622             UD   0.150
                *

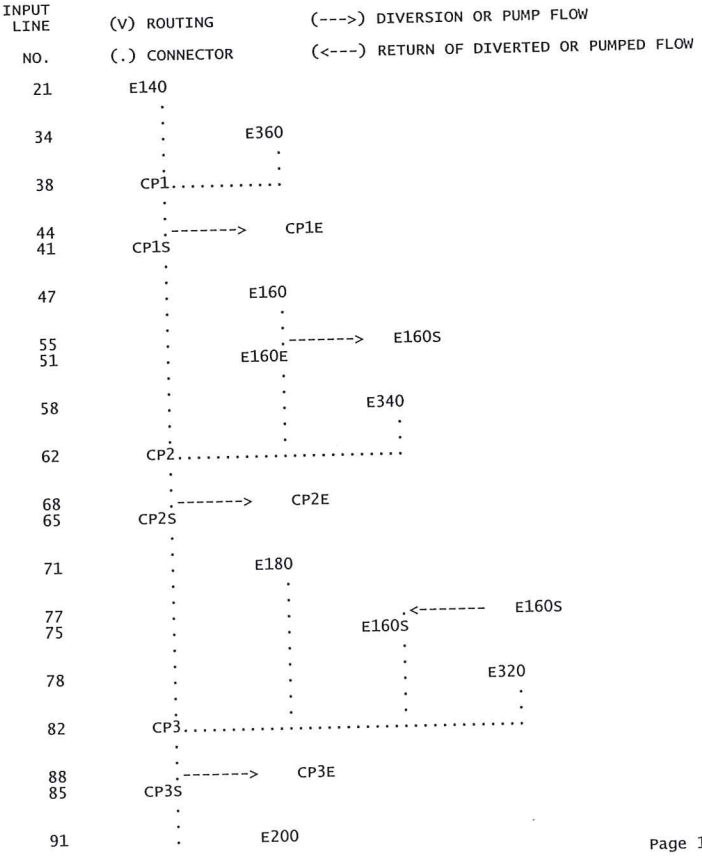
623             KK       2J
624             HC        2
                *

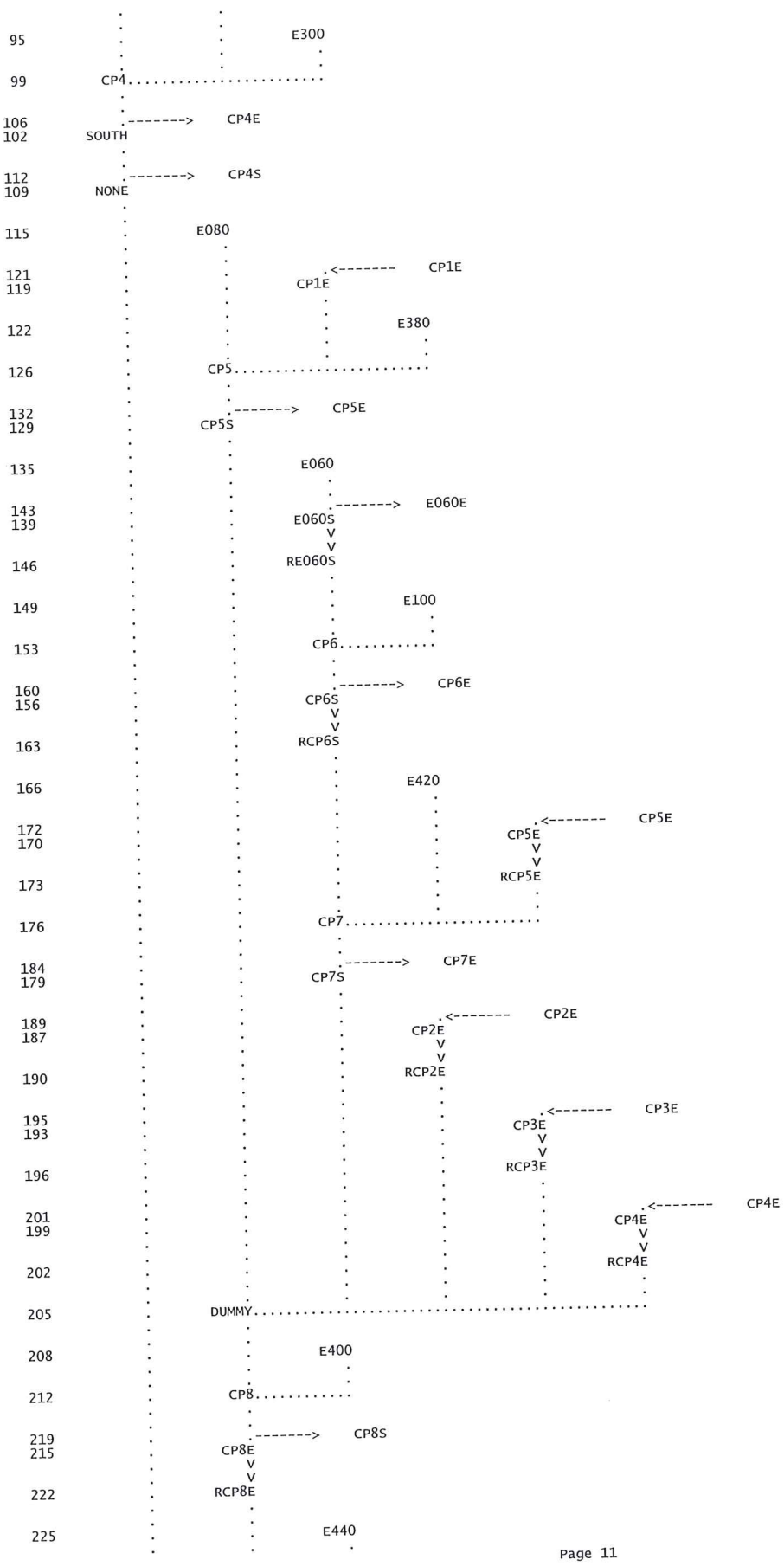
625             KK    DUMMY
626             HC        2
                *

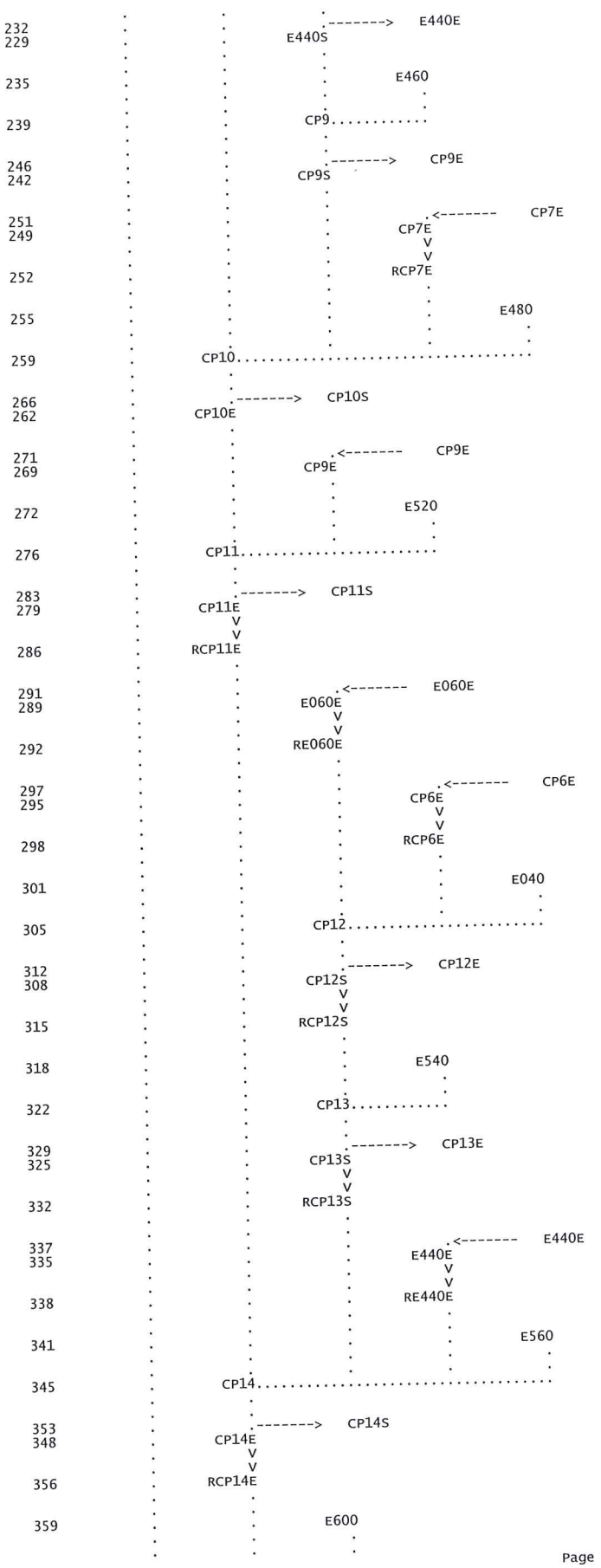
627             KK     2-13
628             BA  0.0273
629             LS       0     91.0
630             UD   0.176
                *

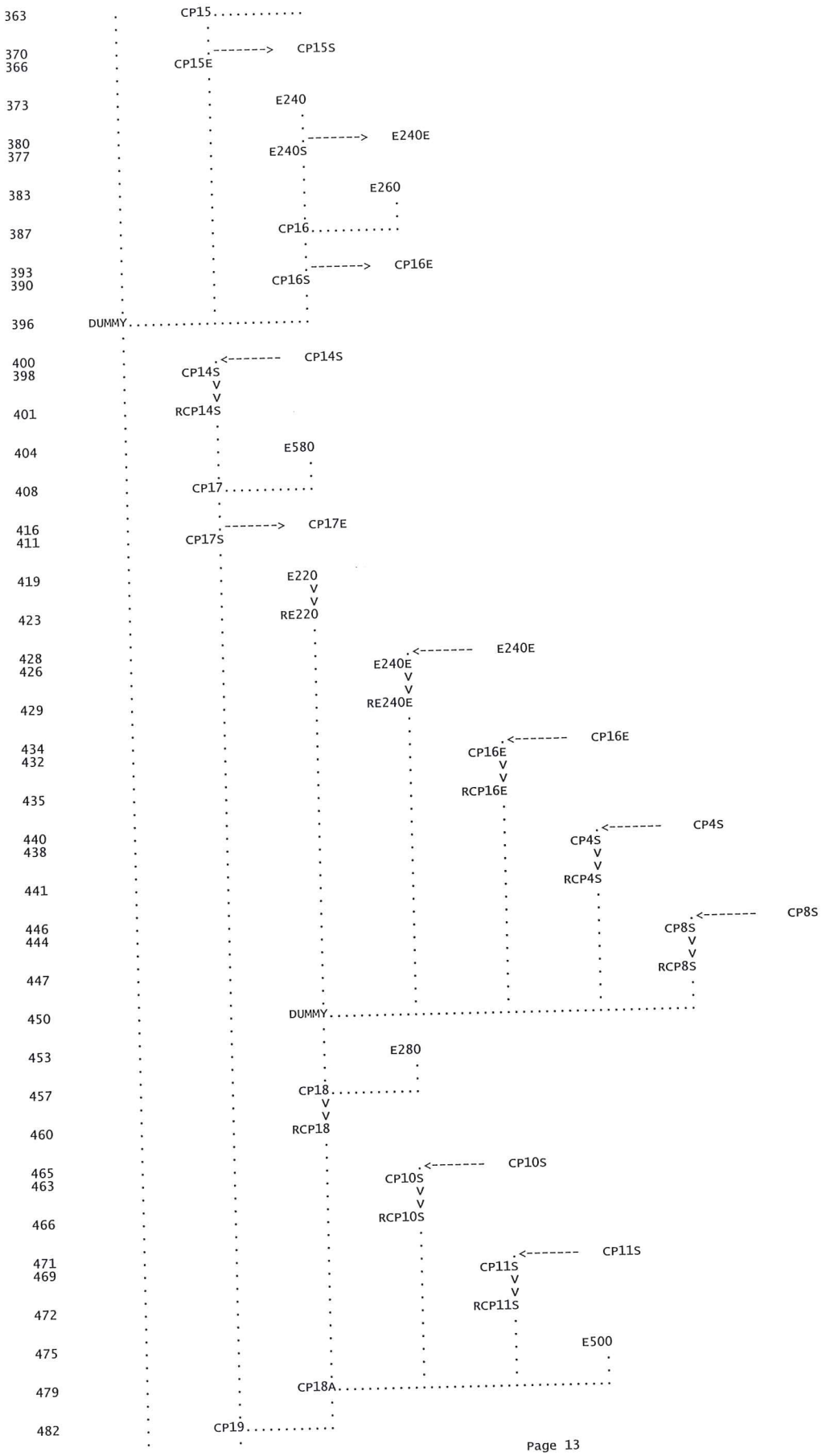
631             KK      PT2
632             HC        2
                *
633             ZZ
```

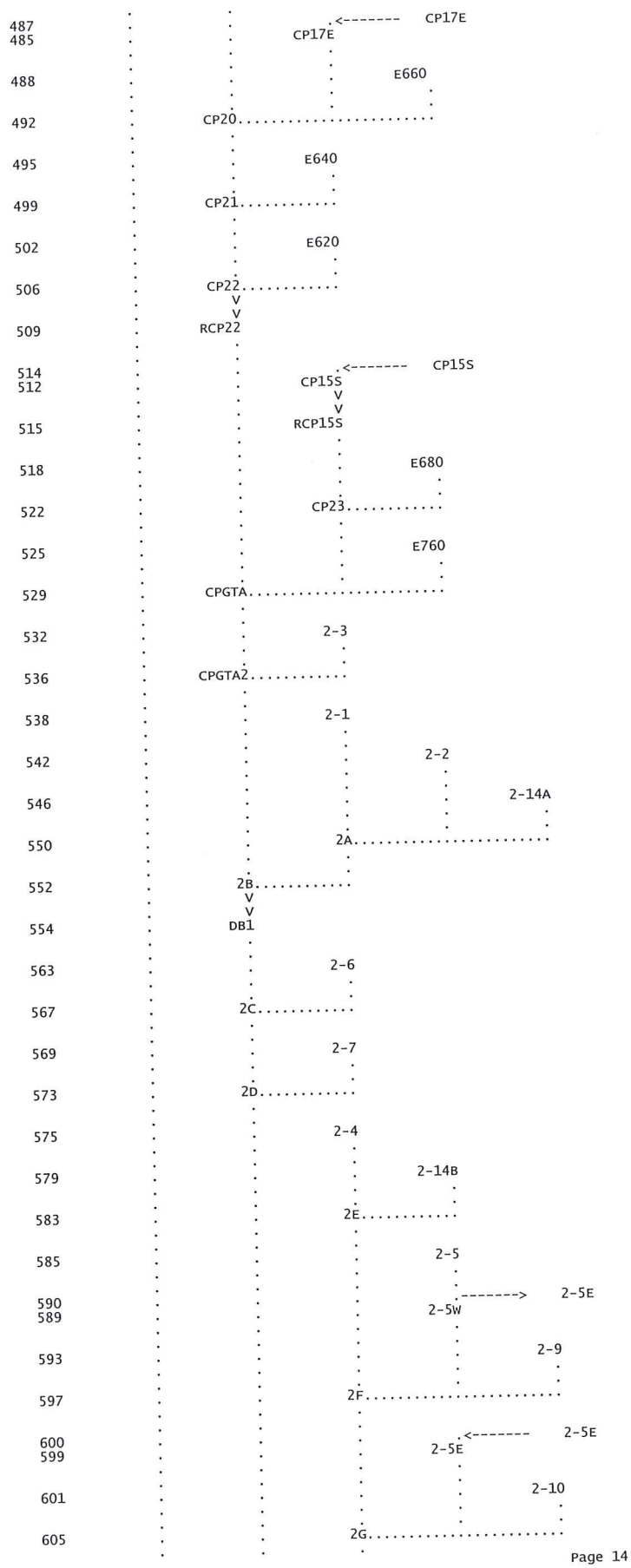
1 SCHEMATIC DIAGRAM OF STREAM NETWORK

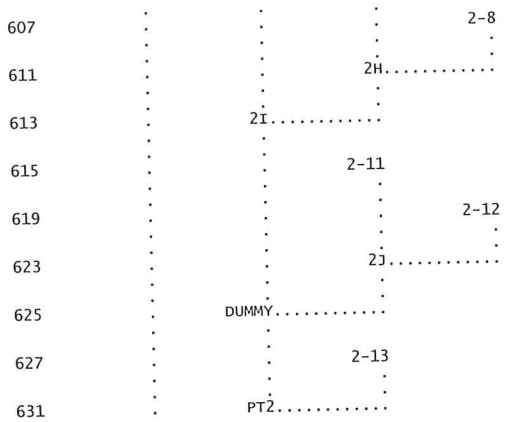



95
E300
99
CP4
106
CP4E
102
SOUTH
112
CP4S
109
NONE
115
E080
121
CP1E
119
CP1E
122
E380
126
CP5
132
CP5E
129
CP5S
135
E060
143
E060E
139
E060S
146
RE060S
149
E100
153
CP6
160
CP6E
156
CP6S
163
RCP6S
166
E420
172
CP5E
170
CP5E
173
RCP5E
176
CP7
184
CP7E
179
CP7S
189
CP2E
187
CP2E
190
RCP2E
195
CP3E
193
CP3E
196
RCP3E
201
CP4E
199
CP4E
202
RCP4E
205
DUMMY
208
E400
212
CP8
219
CP8S
215
CP8E
222
RCP8E
225
E440


232
229
E440E
E440S
235
E460
239
CP9
246
242
CP9E
CP9S
251
249
CP7E
CP7E
252
RCP7E
255
E480
259
CP10
266
262
CP10S
CP10E
271
269
CP9E
CP9E
272
E520
276
CP11
283
279
CP11S
CP11E
286
RCP11E
291
289
E060E
E060E
292
RE060E
297
295
CP6E
CP6E
298
RCP6E
301
E040
305
CP12
312
308
CP12E
CP12S
315
RCP12S
318
E540
322
CP13
329
325
CP13E
CP13S
332
RCP13S
337
335
E440E
E440E
338
RE440E
341
E560
345
CP14
353
348
CP14S
CP14E
356
RCP14E
359
E600


363
CP15
370
366
CP15S
CP15E
373
E240
380
377
E240E
E240S
383
E260
387
CP16
393
390
CP16E
CP16S
396
DUMMY
400
398
CP14S
CP14S
401
RCP14S
404
E580
408
CP17
416
411
CP17E
CP17S
419
E220
423
RE220
428
426
E240E
E240E
429
RE240E
434
432
CP16E
CP16E
435
RCP16E
440
438
CP4S
CP4S
441
RCP4S
446
444
CP8S
CP8S
447
RCP8S
450
DUMMY
453
E280
457
CP18
460
RCP18
465
463
CP10S
CP10S
466
RCP10S
471
469
CP11S
CP11S
472
RCP11S
475
E500
479
CP18A
482
CP19


487
485
CP17E
<-------
CP17E
488
E660
492
CP20
495
E640
499
CP21
502
E620
506
CP22
509
RCP22
514
512
CP15S
<-------
CP15S
515
RCP15S
518
E680
522
CP23
525
E760
529
CPGTA
532
2-3
536
CPGTA2
538
2-1
542
2-2
546
2-14A
550
2A
552
2B
554
DB1
563
2-6
567
2C
569
2-7
573
2D
575
2-4
579
2-14B
583
2E
585
2-5
590
589
2-5W
------->
2-5E
593
2-9
597
2F
600
599
2-5E
<-------
2-5E
601
2-10
605
2G



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUN  1998                 *
*          VERSION 4.1                  *
*                                       *
*  RUN DATE   22OCT13  TIME  10:43:28   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

SLATER HANIFAN GROUP, INC.
PARK HIGHLANDS - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
ADDENDUM NO. 2 TO THE TECHNICAL DRAINAGE STUDY
INTERIM CONDITION

RETURN PERIOD ------- 10-YEAR
DISTRIBUTION -------- 6-HOUR SDN3
PROJECT NO. --------- CBH1201.000
FILENAME ------------ INT10.H1
DATE ---------------- OCTOBER 2013
MODELED BY ---------- KC

SIX HOUR DEPTH-AREA REDUCTION FACTORS
DRAINAGE AREA (MI^2) DARF
10-YR EVENT 0.570

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

    IT          HYDROGRAPH TIME DATA
                      NMIN          5  MINUTES IN COMPUTATION INTERVAL
                     IDATE      1   0  STARTING DATE
                     ITIME       0000  STARTING TIME
                        NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE      2   0  ENDING DATE
                    NDTIME       0055  ENDING TIME
                     ICENT         19  CENTURY MARK

                  COMPUTATION INTERVAL      .08 HOURS
                     TOTAL TIME BASE    24.92 HOURS

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

    JP            MULTI-PLAN OPTION
                     NPLAN          1  NUMBER OF PLANS

    JR            MULTI-RATIO OPTION
                      RATIOS OF PRECIPITATION
                      .57


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


              ***************
              *             *
 554 KK       *       DB1   *
              *             *
              ***************

 556 KO           OUTPUT CONTROL VARIABLES
                     IPRNT          2  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

 562 KO           OUTPUT CONTROL VARIABLES
                     IPRNT          1  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
```

HYDROGRAPH ROUTING DATA

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557 RS      STORAGE ROUTING
                NSTPS        1  NUMBER OF SUBREACHES
                ITYP      ELEV  TYPE OF INITIAL CONDITION
                RSVRIC   -1.00  INITIAL CONDITION
                X          .00 WORKING R AND D COEFFICIENT

558 SV        STORAGE        .0      .3     3.0     9.7    19.0    29.3    42.0   102.3   126.1   159.1

559 SE        ELEVATION  2297.00 2298.00 2299.00 2300.00 2301.00 2302.00 2303.00 2307.00 2308.50 2310.50

560 SQ        DISCHARGE      0.     72.    110.    138.    161.    199.    215.    231.    252.   1975.

561 SE        ELEVATION  2297.00 2300.00 2301.00 2302.00 2303.00 2305.00 2306.00 2307.00 2308.50 2310.50
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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.34	3.02	9.71	18.98	29.35	42.00	72.15	87.23	102.30
OUTFLOW	.00	24.00	48.00	72.00	110.00	138.00	161.00	199.00	215.00	231.00
ELEVATION	2297.00	2298.00	2299.00	2300.00	2301.00	2302.00	2303.00	2305.00	2306.00	2307.00

STORAGE	126.12	159.12
OUTFLOW	252.00	1975.00
ELEVATION	2308.50	2310.50

****

HYDROGRAPH AT STATION DB1
PLAN 1, RATIO = .57

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.0	2297.0
1		0005	2	0.	.0	2297.0
1		0010	3	0.	.0	2297.0
1		0015	4	0.	.0	2297.0
1		0020	5	0.	.0	2297.0
1		0025	6	0.	.0	2297.0
1		0030	7	0.	.0	2297.0
1		0035	8	0.	.0	2297.0
1		0040	9	0.	.0	2297.0
1		0045	10	0.	.0	2297.0
1		0050	11	0.	.0	2297.0
1		0055	12	0.	.0	2297.0
1		0100	13	0.	.0	2297.0
1		0105	14	0.	.0	2297.0
1		0110	15	0.	.0	2297.0
1		0115	16	0.	.0	2297.0
1		0120	17	0.	.0	2297.0
1		0125	18	0.	.0	2297.0
1		0130	19	1.	.0	2297.0
1		0135	20	1.	.0	2297.0
1		0140	21	1.	.0	2297.1
1		0145	22	2.	.0	2297.1
1		0150	23	2.	.0	2297.1
1		0155	24	2.	.0	2297.1
1		0200	25	2.	.0	2297.1
1		0205	26	2.	.0	2297.1
1		0210	27	2.	.0	2297.1
1		0215	28	2.	.0	2297.1
1		0220	29	3.	.0	2297.1
1		0225	30	4.	.1	2297.2
1		0230	31	5.	.1	2297.2
1		0235	32	6.	.1	2297.2
1		0240	33	6.	.1	2297.3
1		0245	34	7.	.1	2297.3
1		0250	35	8.	.1	2297.3
1		0255	36	8.	.1	2297.3
1		0300	37	9.	.1	2297.4
1		0305	38	9.	.1	2297.4
1		0310	39	11.	.2	2297.5
1		0315	40	15.	.2	2297.6
1		0320	41	23.	.3	2298.0
1		0325	42	26.	.6	2298.1
1		0330	43	32.	1.2	2298.3
1		0335	44	40.	2.1	2298.7
1		0340	45	49.	3.4	2299.1
1		0345	46	55.	4.9	2299.3
1		0350	47	60.	6.4	2299.5
1		0355	48	65.	7.9	2299.7
1		0400	49	70.	9.3	2299.9
1		0405	50	76.	10.7	2300.1
1		0410	51	83.	12.3	2300.3
1		0415	52	90.	14.0	2300.5
1		0420	53	97.	15.7	2300.6
1		0425	54	103.	17.3	2300.8
1		0430	55	109.	18.8	2301.0
1		0435	56	113.	20.2	2301.1
1		0440	57	117.	21.6	2301.3
1		0445	58	121.	22.9	2301.4
1		0450	59	124.	24.1	2301.5
1		0455	60	127.	25.3	2301.6
1		0500	61	130.	26.3	2301.7
1		0505	62	132.	27.3	2301.8
1		0510	63	135.	28.2	2301.9
1		0515	64	137.	28.9	2302.0
1		0520	65	138.	29.6	2302.0
1		0525	66	139.	30.1	2302.1
1		0530	67	140.	30.6	2302.1
1		0535	68	141.	30.9	2302.1
1		0540	69	141.	31.1	2302.1
1		0545	70	141.	31.3	2302.2
1		0820	101	95.	15.3	2300.6
1		0825	102	93.	14.7	2300.5
1		0830	103	90.	14.2	2300.5
1		0835	104	88.	13.6	2300.4
1		0840	105	86.	13.0	2300.4
1		0845	106	83.	12.5	2300.3
1		0850	107	81.	11.9	2300.2
1		0855	108	79.	11.4	2300.2
1		0900	109	77.	10.9	2300.1
1		0905	110	75.	10.4	2300.1
1		0910	111	73.	9.9	2300.0
1		0915	112	71.	9.4	2300.0
1		0920	113	69.	8.9	2299.9
1		0925	114	68.	8.5	2299.8
1		0930	115	66.	8.0	2299.7
1		0935	116	64.	7.6	2299.7
1		0940	117	63.	7.2	2299.6
1		0945	118	61.	6.7	2299.6
1		0950	119	60.	6.3	2299.5
1		0955	120	58.	5.9	2299.4
1		1000	121	57.	5.5	2299.4
1		1005	122	56.	5.1	2299.3
1		1010	123	54.	4.8	2299.3
1		1015	124	53.	4.4	2299.2
1		1020	125	52.	4.0	2299.2
1		1025	126	50.	3.7	2299.1
1		1030	127	49.	3.3	2299.1
1		1035	128	48.	3.0	2299.0
1		1040	129	45.	2.7	2298.9
1		1045	130	42.	2.4	2298.8
1		1050	131	40.	2.1	2298.7
1		1055	132	38.	1.8	2298.6
1		1100	133	35.	1.6	2298.5
1		1105	134	33.	1.4	2298.4
1		1110	135	31.	1.1	2298.3
1		1115	136	29.	.9	2298.2
1		1120	137	28.	.7	2298.1
1		1125	138	26.	.6	2298.1
1		1130	139	24.	.4	2298.0
1		1135	140	17.	.2	2297.7
1		1140	141	10.	.1	2297.4
1		1145	142	6.	.1	2297.3
1		1150	143	4.	.1	2297.2
1		1155	144	2.	.0	2297.1
1		1200	145	1.	.0	2297.1
1		1205	146	1.	.0	2297.0
1		1210	147	1.	.0	2297.0
1		1215	148	0.	.0	2297.0
1		1220	149	0.	.0	2297.0
1		1225	150	0.	.0	2297.0
1		1230	151	0.	.0	2297.0
1		1235	152	0.	.0	2297.0
1		1240	153	0.	.0	2297.0
1		1245	154	0.	.0	2297.0
1		1250	155	0.	.0	2297.0
1		1255	156	0.	.0	2297.0
1		1300	157	0.	.0	2297.0
1		1305	158	0.	.0	2297.0
1		1310	159	0.	.0	2297.0
1		1315	160	0.	.0	2297.0
1		1320	161	0.	.0	2297.0
1		1325	162	0.	.0	2297.0
1		1330	163	0.	.0	2297.0
1		1335	164	0.	.0	2297.0
1		1340	165	0.	.0	2297.0
1		1345	166	0.	.0	2297.0
1		1350	167	0.	.0	2297.0
1		1355	168	0.	.0	2297.0
1		1400	169	0.	.0	2297.0
1		1405	170	0.	.0	2297.0
1		1640	201	0.	.0	2297.0
1		1645	202	0.	.0	2297.0
1		1650	203	0.	.0	2297.0
1		1655	204	0.	.0	2297.0
1		1700	205	0.	.0	2297.0
1		1705	206	0.	.0	2297.0
1		1710	207	0.	.0	2297.0
1		1715	208	0.	.0	2297.0
1		1720	209	0.	.0	2297.0
1		1725	210	0.	.0	2297.0
1		1730	211	0.	.0	2297.0
1		1735	212	0.	.0	2297.0
1		1740	213	0.	.0	2297.0
1		1745	214	0.	.0	2297.0
1		1750	215	0.	.0	2297.0
1		1755	216	0.	.0	2297.0
1		1800	217	0.	.0	2297.0
1		1805	218	0.	.0	2297.0
1		1810	219	0.	.0	2297.0
1		1815	220	0.	.0	2297.0
1		1820	221	0.	.0	2297.0
1		1825	222	0.	.0	2297.0
1		1830	223	0.	.0	2297.0
1		1835	224	0.	.0	2297.0
1		1840	225	0.	.0	2297.0
1		1845	226	0.	.0	2297.0
1		1850	227	0.	.0	2297.0
1		1855	228	0.	.0	2297.0
1		1900	229	0.	.0	2297.0
1		1905	230	0.	.0	2297.0
1		1910	231	0.	.0	2297.0
1		1915	232	0.	.0	2297.0
1		1920	233	0.	.0	2297.0
1		1925	234	0.	.0	2297.0
1		1930	235	0.	.0	2297.0
1		1935	236	0.	.0	2297.0
1		1940	237	0.	.0	2297.0
1		1945	238	0.	.0	2297.0
1		1950	239	0.	.0	2297.0
1		1955	240	0.	.0	2297.0
1		2000	241	0.	.0	2297.0
1		2005	242	0.	.0	2297.0
1		2010	243	0.	.0	2297.0
1		2015	244	0.	.0	2297.0
1		2020	245	0.	.0	2297.0
1		2025	246	0.	.0	2297.0
1		2030	247	0.	.0	2297.0
1		2035	248	0.	.0	2297.0
1		2040	249	0.	.0	2297.0
1		2045	250	0.	.0	2297.0
1		2050	251	0.	.0	2297.0
1		2055	252	0.	.0	2297.0
1		2100	253	0.	.0	2297.0
1		2105	254	0.	.0	2297.0
1		2110	255	0.	.0	2297.0
1		2115	256	0.	.0	2297.0
1		2120	257	0.	.0	2297.0
1		2125	258	0.	.0	2297.0
1		2130	259	0.	.0	2297.0
1		2135	260	0.	.0	2297.0
1		2140	261	0.	.0	2297.0
1		2145	262	0.	.0	2297.0
1		2150	263	0.	.0	2297.0
1		2155	264	0.	.0	2297.0
1		2200	265	0.	.0	2297.0
1		2205	266	0.	.0	2297.0
1		2210	267	0.	.0	2297.0
1		2215	268	0.	.0	2297.0
1		2220	269	0.	.0	2297.0
1		2225	270	0.	.0	2297.0

1	0550	71	142.	31.3	2302.2	*	1	1410	171	0.	.0	2297.0	*	1	2230	271	0.	.0	2297.0
1	0555	72	141.	31.3	2302.2	*	1	1415	172	0.	.0	2297.0	*	1	2235	272	0.	.0	2297.0
1	0600	73	141.	31.2	2302.1	*	1	1420	173	0.	.0	2297.0	*	1	2240	273	0.	.0	2297.0
1	0605	74	141.	31.0	2302.1	*	1	1425	174	0.	.0	2297.0	*	1	2245	274	0.	.0	2297.0
1	0610	75	141.	30.7	2302.1	*	1	1430	175	0.	.0	2297.0	*	1	2250	275	0.	.0	2297.0
1	0615	76	140.	30.4	2302.1	*	1	1435	176	0.	.0	2297.0	*	1	2255	276	0.	.0	2297.0
1	0620	77	139.	30.1	2302.1	*	1	1440	177	0.	.0	2297.0	*	1	2300	277	0.	.0	2297.0
1	0625	78	139.	29.6	2302.0	*	1	1445	178	0.	.0	2297.0	*	1	2305	278	0.	.0	2297.0
1	0630	79	138.	29.2	2302.0	*	1	1450	179	0.	.0	2297.0	*	1	2310	279	0.	.0	2297.0
1	0635	80	136.	28.7	2301.9	*	1	1455	180	0.	.0	2297.0	*	1	2315	280	0.	.0	2297.0
1	0640	81	135.	28.2	2301.9	*	1	1500	181	0.	.0	2297.0	*	1	2320	281	0.	.0	2297.0
1	0645	82	133.	27.6	2301.8	*	1	1505	182	0.	.0	2297.0	*	1	2325	282	0.	.0	2297.0
1	0650	83	132.	27.0	2301.8	*	1	1510	183	0.	.0	2297.0	*	1	2330	283	0.	.0	2297.0
1	0655	84	130.	26.4	2301.7	*	1	1515	184	0.	.0	2297.0	*	1	2335	284	0.	.0	2297.0
1	0700	85	128.	25.8	2301.7	*	1	1520	185	0.	.0	2297.0	*	1	2340	285	0.	.0	2297.0
1	0705	86	127.	25.2	2301.6	*	1	1525	186	0.	.0	2297.0	*	1	2345	286	0.	.0	2297.0
1	0710	87	125.	24.5	2301.5	*	1	1530	187	0.	.0	2297.0	*	1	2350	287	0.	.0	2297.0
1	0715	88	123.	23.8	2301.5	*	1	1535	188	0.	.0	2297.0	*	1	2355	288	0.	.0	2297.0
1	0720	89	121.	23.2	2301.4	*	1	1540	189	0.	.0	2297.0	*	2	0000	289	0.	.0	2297.0
1	0725	90	120.	22.5	2301.3	*	1	1545	190	0.	.0	2297.0	*	2	0005	290	0.	.0	2297.0
1	0730	91	118.	21.8	2301.3	*	1	1550	191	0.	.0	2297.0	*	2	0010	291	0.	.0	2297.0
1	0735	92	116.	21.2	2301.2	*	1	1555	192	0.	.0	2297.0	*	2	0015	292	0.	.0	2297.0
1	0740	93	114.	20.5	2301.1	*	1	1600	193	0.	.0	2297.0	*	2	0020	293	0.	.0	2297.0
1	0745	94	112.	19.8	2301.1	*	1	1605	194	0.	.0	2297.0	*	2	0025	294	0.	.0	2297.0
1	0750	95	110.	19.2	2301.0	*	1	1610	195	0.	.0	2297.0	*	2	0030	295	0.	.0	2297.0
1	0755	96	108.	18.5	2300.9	*	1	1615	196	0.	.0	2297.0	*	2	0035	296	0.	.0	2297.0
1	0800	97	105.	17.8	2300.9	*	1	1620	197	0.	.0	2297.0	*	2	0040	297	0.	.0	2297.0
1	0805	98	103.	17.2	2300.8	*	1	1625	198	0.	.0	2297.0	*	2	0045	298	0.	.0	2297.0
1	0810	99	100.	16.6	2300.7	*	1	1630	199	0.	.0	2297.0	*	2	0050	299	0.	.0	2297.0
1	0815	100	98.	15.9	2300.7	*	1	1635	200	0.	.0	2297.0	*	2	0055	300	0.	.0	2297.0
						*							*						

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)	(CFS)				
+ 142.	5.83		109.	32.	31.	31.
		(INCHES)	.842	.980	.980	.980
		(AC-FT)	54.	63.	63.	63.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
31.	5.83	20.	5.	5.	5.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
2302.15	5.83	2301.08	2298.21	2298.16	2298.16

CUMULATIVE AREA = 1.21 SQ MI

1

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

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1 .57
+ HYDROGRAPH AT	E140	.07	1	FLOW	11.
				TIME	4.08
+ HYDROGRAPH AT	E360	.01	1	FLOW	4.
				TIME	3.58
+ 2 COMBINED AT	CP1	.08	1	FLOW	12.
				TIME	4.08
+ DIVERSION TO	CP1E	.08	1	FLOW	5.
				TIME	4.08
+ HYDROGRAPH AT	CP1S	.08	1	FLOW	7.
				TIME	4.08
+ HYDROGRAPH AT	E160	.06	1	FLOW	14.
				TIME	3.92
+ DIVERSION TO	E160S	.06	1	FLOW	10.
				TIME	3.92
+ HYDROGRAPH AT	E160E	.06	1	FLOW	4.
				TIME	3.92
+ HYDROGRAPH AT	E340	.02	1	FLOW	7.
				TIME	3.58
+ 3 COMBINED AT	CP2	.16	1	FLOW	15.
				TIME	3.83
+ DIVERSION TO	CP2E	.16	1	FLOW	8.
				TIME	3.83
+ HYDROGRAPH AT	CP2S	.16	1	FLOW	7.
				TIME	3.83

HYDROGRAPH AT	E180	.21	1	FLOW	28.
+				TIME	4.25
HYDROGRAPH AT	E160S	.00	1	FLOW	10.
+				TIME	3.92
HYDROGRAPH AT	E320	.02	1	FLOW	7.
+				TIME	3.58
4 COMBINED AT	CP3	.39	1	FLOW	43.
+				TIME	4.08
DIVERSION TO	CP3E	.39	1	FLOW	20.
+				TIME	4.08
HYDROGRAPH AT	CP3S	.39	1	FLOW	23.
+				TIME	4.08
HYDROGRAPH AT	E200	.01	1	FLOW	2.
+				TIME	3.67
HYDROGRAPH AT	E300	.01	1	FLOW	6.
+				TIME	3.58
3 COMBINED AT	CP4	.41	1	FLOW	26.
+				TIME	4.08
DIVERSION TO	CP4E	.41	1	FLOW	7.
+				TIME	4.08
HYDROGRAPH AT	SOUTH	.41	1	FLOW	19.
+				TIME	4.08
DIVERSION TO	CP4S	.41	1	FLOW	19.
+				TIME	4.08
HYDROGRAPH AT	NONE	.41	1	FLOW	0.
+				TIME	.00
HYDROGRAPH AT	E080	.01	1	FLOW	4.
+				TIME	3.67
HYDROGRAPH AT	CP1E	.00	1	FLOW	5.
+				TIME	4.08
HYDROGRAPH AT	E380	.02	1	FLOW	8.
+				TIME	3.67
3 COMBINED AT	CP5	.03	1	FLOW	15.
+				TIME	3.67
DIVERSION TO	CP5E	.03	1	FLOW	8.
+				TIME	3.67
HYDROGRAPH AT	CP5S	.03	1	FLOW	7.
+				TIME	3.67
HYDROGRAPH AT	E060	.26	1	FLOW	42.
+				TIME	4.17
DIVERSION TO	E060E	.26	1	FLOW	19.
+				TIME	4.17
HYDROGRAPH AT	E060S	.26	1	FLOW	23.
+				TIME	4.17
ROUTED TO	RE060S	.26	1	FLOW	23.
+				TIME	4.33
HYDROGRAPH AT	E100	.47	1	FLOW	53.
+				TIME	4.58
2 COMBINED AT	CP6	.73	1	FLOW	74.
+				TIME	4.50
DIVERSION TO	CP6E	.73	1	FLOW	60.
+				TIME	4.50
HYDROGRAPH AT	CP6S	.73	1	FLOW	14.
+				TIME	4.50
ROUTED TO	RCP6S	.73	1	FLOW	14.
+				TIME	4.67

HYDROGRAPH AT	E420	.10	1	FLOW	35.
+				TIME	3.67
HYDROGRAPH AT	CP5E	.00	1	FLOW	8.
+				TIME	3.67
ROUTED TO	RCP5E	.00	1	FLOW	8.
+				TIME	3.92
3 COMBINED AT	CP7	.82	1	FLOW	40.
+				TIME	3.75
DIVERSION TO	CP7E	.82	1	FLOW	0.
+				TIME	.00
HYDROGRAPH AT	CP7S	.82	1	FLOW	40.
+				TIME	3.75
HYDROGRAPH AT	CP2E	.00	1	FLOW	8.
+				TIME	3.83
ROUTED TO	RCP2E	.00	1	FLOW	8.
+				TIME	4.08
HYDROGRAPH AT	CP3E	.00	1	FLOW	20.
+				TIME	4.08
ROUTED TO	RCP3E	.00	1	FLOW	20.
+				TIME	4.33
HYDROGRAPH AT	CP4E	.00	1	FLOW	7.
+				TIME	4.08
ROUTED TO	RCP4E	.00	1	FLOW	7.
+				TIME	4.25
5 COMBINED AT	DUMMY	.85	1	FLOW	64.
+				TIME	4.00
HYDROGRAPH AT	E400	.08	1	FLOW	30.
+				TIME	3.75
2 COMBINED AT	CP8	.94	1	FLOW	85.
+				TIME	3.83
DIVERSION TO	CP8S	.94	1	FLOW	56.
+				TIME	3.83
HYDROGRAPH AT	CP8E	.94	1	FLOW	29.
+				TIME	3.83
ROUTED TO	RCP8E	.94	1	FLOW	29.
+				TIME	4.08
HYDROGRAPH AT	E440	.05	1	FLOW	12.
+				TIME	3.75
DIVERSION TO	E440E	.05	1	FLOW	7.
+				TIME	3.75
HYDROGRAPH AT	E440S	.05	1	FLOW	5.
+				TIME	3.75
HYDROGRAPH AT	E460	.11	1	FLOW	22.
+				TIME	3.83
2 COMBINED AT	CP9	.17	1	FLOW	26.
+				TIME	3.83
DIVERSION TO	CP9E	.17	1	FLOW	0.
+				TIME	.00
HYDROGRAPH AT	CP9S	.17	1	FLOW	26.
+				TIME	3.83
HYDROGRAPH AT	CP7E	.00	1	FLOW	0.
+				TIME	.00
ROUTED TO	RCP7E	.00	1	FLOW	0.
+				TIME	.00
HYDROGRAPH AT	E480	.09	1	FLOW	21.
+				TIME	3.75

+ 4 COMBINED AT	CP10	1.19	1	FLOW	72.
				TIME	3.83
+ DIVERSION TO	CP10S	1.19	1	FLOW	33.
				TIME	3.83
+ HYDROGRAPH AT	CP10E	1.19	1	FLOW	39.
				TIME	3.83
+ HYDROGRAPH AT	CP9E	.00	1	FLOW	0.
				TIME	.00
+ HYDROGRAPH AT	E520	.01	1	FLOW	6.
				TIME	3.58
+ 3 COMBINED AT	CP11	1.21	1	FLOW	43.
				TIME	3.83
+ DIVERSION TO	CP11S	1.21	1	FLOW	19.
				TIME	3.83
+ HYDROGRAPH AT	CP11E	1.21	1	FLOW	24.
				TIME	3.83
+ ROUTED TO	RCP11E	1.21	1	FLOW	24.
				TIME	4.00
+ HYDROGRAPH AT	E060E	.00	1	FLOW	19.
				TIME	4.17
+ ROUTED TO	RE060E	.00	1	FLOW	19.
				TIME	4.67
+ HYDROGRAPH AT	CP6E	.00	1	FLOW	60.
				TIME	4.50
+ ROUTED TO	RCP6E	.00	1	FLOW	60.
				TIME	4.83
+ HYDROGRAPH AT	E040	.36	1	FLOW	68.
				TIME	4.00
+ 3 COMBINED AT	CP12	.36	1	FLOW	110.
				TIME	4.83
+ DIVERSION TO	CP12E	.36	1	FLOW	0.
				TIME	.00
+ HYDROGRAPH AT	CP12S	.36	1	FLOW	110.
				TIME	4.83
+ ROUTED TO	RCP12S	.36	1	FLOW	110.
				TIME	4.83
+ HYDROGRAPH AT	E540	.05	1	FLOW	22.
				TIME	3.58
+ 2 COMBINED AT	CP13	.41	1	FLOW	116.
				TIME	4.83
+ DIVERSION TO	CP13E	.41	1	FLOW	0.
				TIME	.00
+ HYDROGRAPH AT	CP13S	.41	1	FLOW	116.
				TIME	4.83
+ ROUTED TO	RCP13S	.41	1	FLOW	116.
				TIME	4.83
+ HYDROGRAPH AT	E440E	.00	1	FLOW	7.
				TIME	3.75
+ ROUTED TO	RE440E	.00	1	FLOW	7.
				TIME	4.33
+ HYDROGRAPH AT	E560	.18	1	FLOW	72.
				TIME	3.83
+ 4 COMBINED AT	CP14	1.80	1	FLOW	154.
				TIME	4.92
+ DIVERSION TO	CP14S	1.80	1	FLOW	30.
				TIME	4.92

HYDROGRAPH AT	CP14E	1.80	1	FLOW	124.
+				TIME	4.92
ROUTED TO	RCP14E	1.80	1	FLOW	125.
+				TIME	5.08
HYDROGRAPH AT	E600	.09	1	FLOW	26.
+				TIME	3.75
2 COMBINED AT	CP15	1.88	1	FLOW	133.
+				TIME	4.08
DIVERSION TO	CP15S	1.88	1	FLOW	0.
+				TIME	.00
HYDROGRAPH AT	CP15E	1.88	1	FLOW	133.
+				TIME	4.08
HYDROGRAPH AT	E240	.13	1	FLOW	29.
+				TIME	4.00
DIVERSION TO	E240E	.13	1	FLOW	15.
+				TIME	4.00
HYDROGRAPH AT	E240S	.13	1	FLOW	14.
+				TIME	4.00
HYDROGRAPH AT	E260	.14	1	FLOW	32.
+				TIME	3.92
2 COMBINED AT	CP16	.27	1	FLOW	45.
+				TIME	3.92
DIVERSION TO	CP16E	.27	1	FLOW	23.
+				TIME	3.92
HYDROGRAPH AT	CP16S	.27	1	FLOW	22.
+				TIME	3.92
3 COMBINED AT	DUMMY	2.56	1	FLOW	153.
+				TIME	4.08
HYDROGRAPH AT	CP14S	.00	1	FLOW	30.
+				TIME	4.92
ROUTED TO	RCP14S	.00	1	FLOW	30.
+				TIME	5.00
HYDROGRAPH AT	E580	.10	1	FLOW	41.
+				TIME	3.75
2 COMBINED AT	CP17	.10	1	FLOW	62.
+				TIME	3.83
DIVERSION TO	CP17E	.10	1	FLOW	0.
+				TIME	.00
HYDROGRAPH AT	CP17S	.10	1	FLOW	62.
+				TIME	3.83
HYDROGRAPH AT	E220	.04	1	FLOW	13.
+				TIME	3.75
ROUTED TO	RE220	.04	1	FLOW	15.
+				TIME	4.25
HYDROGRAPH AT	E240E	.00	1	FLOW	15.
+				TIME	4.00
ROUTED TO	RE240E	.00	1	FLOW	15.
+				TIME	4.50
HYDROGRAPH AT	CP16E	.00	1	FLOW	23.
+				TIME	3.92
ROUTED TO	RCP16E	.00	1	FLOW	23.
+				TIME	4.25
HYDROGRAPH AT	CP4S	.00	1	FLOW	19.
+				TIME	4.08
ROUTED TO	RCP4S	.00	1	FLOW	19.
+				TIME	4.17

HYDROGRAPH AT	CP8S	.00	1	FLOW	56.
+				TIME	3.83
ROUTED TO	RCP8S	.00	1	FLOW	56.
+				TIME	4.08
5 COMBINED AT	DUMMY	.04	1	FLOW	120.
+				TIME	4.25
HYDROGRAPH AT	E280	.28	1	FLOW	68.
+				TIME	3.92
2 COMBINED AT	CP18	.32	1	FLOW	162.
+				TIME	4.25
ROUTED TO	RCP18	.32	1	FLOW	160.
+				TIME	4.50
HYDROGRAPH AT	CP10S	.00	1	FLOW	33.
+				TIME	3.83
ROUTED TO	RCP10S	.00	1	FLOW	36.
+				TIME	4.25
HYDROGRAPH AT	CP11S	.00	1	FLOW	19.
+				TIME	3.83
ROUTED TO	RCP11S	.00	1	FLOW	19.
+				TIME	4.17
HYDROGRAPH AT	E500	.39	1	FLOW	82.
+				TIME	4.00
4 COMBINED AT	CP18A	.71	1	FLOW	252.
+				TIME	4.42
2 COMBINED AT	CP19	.81	1	FLOW	293.
+				TIME	4.25
HYDROGRAPH AT	CP17E	.00	1	FLOW	0.
+				TIME	.00
HYDROGRAPH AT	E660	.01	1	FLOW	6.
+				TIME	3.58
3 COMBINED AT	CP20	.82	1	FLOW	294.
+				TIME	4.25
HYDROGRAPH AT	E640	.07	1	FLOW	30.
+				TIME	3.67
2 COMBINED AT	CP21	.89	1	FLOW	304.
+				TIME	4.17
HYDROGRAPH AT	E620	.05	1	FLOW	22.
+				TIME	3.67
2 COMBINED AT	CP22	.94	1	FLOW	311.
+				TIME	4.17
ROUTED TO	RCP22	.94	1	FLOW	311.
+				TIME	4.25
HYDROGRAPH AT	CP15S	.00	1	FLOW	0.
+				TIME	.00
ROUTED TO	RCP15S	.00	1	FLOW	0.
+				TIME	.00
HYDROGRAPH AT	E680	.11	1	FLOW	46.
+				TIME	3.75
2 COMBINED AT	CP23	.11	1	FLOW	46.
+				TIME	3.75
HYDROGRAPH AT	E760	.01	1	FLOW	4.
+				TIME	3.58
3 COMBINED AT	CPGTA	1.06	1	FLOW	329.
+				TIME	4.25
HYDROGRAPH AT	2-3	.03	1	FLOW	13.
+				TIME	3.58

+ 2 COMBINED AT	CPGTA2	1.09	1	FLOW	331.
				TIME	4.25
+ HYDROGRAPH AT	2-1	.04	1	FLOW	28.
				TIME	3.58
+ HYDROGRAPH AT	2-2	.07	1	FLOW	44.
				TIME	3.67
+ HYDROGRAPH AT	2-14A	.00	1	FLOW	1.
				TIME	3.58
+ 3 COMBINED AT	2A	.11	1	FLOW	72.
				TIME	3.58
+ 2 COMBINED AT	2B	1.21	1	FLOW	344.
				TIME	4.25
+ ROUTED TO	DB1	1.21	1	FLOW	142.
				TIME	5.83
			** PEAK STAGES IN FEET **		
			1	STAGE	2302.15
				TIME	5.83
+ HYDROGRAPH AT	2-6	.02	1	FLOW	15.
				TIME	3.58
+ 2 COMBINED AT	2C	1.22	1	FLOW	142.
				TIME	5.83
+ HYDROGRAPH AT	2-7	.02	1	FLOW	7.
				TIME	3.58
+ 2 COMBINED AT	2D	1.24	1	FLOW	142.
				TIME	5.83
+ HYDROGRAPH AT	2-4	.03	1	FLOW	28.
				TIME	3.58
+ HYDROGRAPH AT	2-14B	.00	1	FLOW	1.
				TIME	3.58
+ 2 COMBINED AT	2E	.04	1	FLOW	29.
				TIME	3.58
+ HYDROGRAPH AT	2-5	.09	1	FLOW	53.
				TIME	3.67
+ DIVERSION TO	2-5E	.09	1	FLOW	25.
				TIME	3.67
+ HYDROGRAPH AT	2-5W	.09	1	FLOW	28.
				TIME	3.67
+ HYDROGRAPH AT	2-9	.02	1	FLOW	11.
				TIME	3.58
+ 3 COMBINED AT	2F	.14	1	FLOW	67.
				TIME	3.58
+ HYDROGRAPH AT	2-5E	.00	1	FLOW	25.
				TIME	3.67
+ HYDROGRAPH AT	2-10	.02	1	FLOW	12.
				TIME	3.58
+ 3 COMBINED AT	2G	.16	1	FLOW	103.
				TIME	3.58
+ HYDROGRAPH AT	2-8	.03	1	FLOW	24.
				TIME	3.58
+ 2 COMBINED AT	2H	.19	1	FLOW	127.
				TIME	3.58
+ 2 COMBINED AT	2I	1.43	1	FLOW	189.
				TIME	3.58
+ HYDROGRAPH AT	2-11	.03	1	FLOW	22.
				TIME	3.58
+ HYDROGRAPH AT	2-12	.03	1	FLOW	17.
				TIME	3.58

+	2 COMBINED AT	2J	.05	1	FLOW	39.
					TIME	3.58
+	2 COMBINED AT	DUMMY	1.48	1	FLOW	228.
					TIME	3.58
+	HYDROGRAPH AT	2-13	.03	1	FLOW	18.
					TIME	3.58
+	2 COMBINED AT	PT2	1.51	1	FLOW	246.
					TIME	3.58

1 SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR PLAN = 1 RATIO= .00	RE060S MANE	4.75	22.80	256.50	.22	5.00	22.79	260.00	.22

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3074E+01 EXCESS= .0000E+00 OUTFLOW= .3076E+01 BASIN STORAGE= .8120E-03 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00	RCP6S MANE	5.00	14.02	280.00	.06	5.00	14.02	280.00	.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2302E+01 EXCESS= .0000E+00 OUTFLOW= .2303E+01 BASIN STORAGE= .1545E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00	RCP5E MANE	4.25	7.96	233.75	-1.00	5.00	7.89	235.00	-1.00
FOR PLAN = 1 RATIO= .00	RCP2E MANE	4.50	7.94	243.00	-1.00	5.00	7.94	245.00	-1.00
FOR PLAN = 1 RATIO= .00	RCP3E MANE	5.00	20.08	260.00	-1.00	5.00	20.08	260.00	-1.00
FOR PLAN = 1 RATIO= .00	RCP4E MANE	5.00	6.85	255.00	-1.00	5.00	6.85	255.00	-1.00
FOR PLAN = 1 RATIO= .00	RCP8E MANE	5.00	29.00	245.00	.09	5.00	29.00	245.00	.09

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4699E+01 EXCESS= .0000E+00 OUTFLOW= .4702E+01 BASIN STORAGE= .1574E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00	RCP7E MANE	5.00	.00	.00	-1.00	5.00	.00	245.00	-1.00
FOR PLAN = 1 RATIO= .00	RCP11E MANE	5.00	23.78	240.00	.05	5.00	23.78	240.00	.05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2898E+01 EXCESS= .0000E+00 OUTFLOW= .2900E+01 BASIN STORAGE= .1148E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00	RE060E MANE	4.75	19.28	280.25	-1.00	5.00	19.22	280.00	-1.00
FOR PLAN = 1 RATIO= .00	RCP6E MANE	5.00	60.03	290.00	-1.00	5.00	60.03	290.00	-1.00
FOR PLAN = 1 RATIO= .00	RCP12S MANE	5.00	110.34	290.00	1.04	5.00	110.34	290.00	1.04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2001E+02 EXCESS= .0000E+00 OUTFLOW= .2001E+02 BASIN STORAGE= .9991E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00	RCP13S MANE	5.00	116.05	290.00	.97	5.00	116.05	290.00	.97

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2143E+02 EXCESS= .0000E+00 OUTFLOW= .2143E+02 BASIN STORAGE= .9746E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00	RE440E MANE	2.25	7.47	252.00	-1.00	5.00	6.69	260.00	-1.00
FOR PLAN = 1 RATIO= .00	RCP14E MANE	5.00	124.91	305.00	.26	5.00	124.91	305.00	.26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2532E+02 EXCESS= .0000E+00 OUTFLOW= .2532E+02 BASIN STORAGE= .1872E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00								
RCP14S MANE	5.00	30.13	300.00	-1.00	5.00	30.13	300.00	-1.00
FOR PLAN = 1 RATIO= .00								
RE220 MANE	4.00	15.34	256.00	.45	5.00	14.63	255.00	.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1053E+01 EXCESS= .0000E+00 OUTFLOW= .1063E+01 BASIN STORAGE= .3922E-02 PERCENT ERROR= -1.4

FOR PLAN = 1 RATIO= .00								
RE240E MANE	4.25	15.35	267.75	-1.00	5.00	14.53	270.00	-1.00
FOR PLAN = 1 RATIO= .00								
RCP16E MANE	4.25	23.18	255.00	-1.00	5.00	23.18	255.00	-1.00
FOR PLAN = 1 RATIO= .00								
RCP4S MANE	5.00	19.44	250.00	-1.00	5.00	19.44	250.00	-1.00
FOR PLAN = 1 RATIO= .00								
RCP8S MANE	5.00	56.03	245.00	-1.00	5.00	56.03	245.00	-1.00
FOR PLAN = 1 RATIO= .00								
RCP18 MANE	5.00	159.66	270.00	1.37	5.00	159.66	270.00	1.37

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2357E+02 EXCESS= .0000E+00 OUTFLOW= .2360E+02 BASIN STORAGE= .4241E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00								
RCP10S MANE	5.00	35.87	255.00	-1.00	5.00	35.87	255.00	-1.00
FOR PLAN = 1 RATIO= .00								
RCP11S MANE	5.00	19.11	250.00	-1.00	5.00	19.11	250.00	-1.00
FOR PLAN = 1 RATIO= .00								
RCP22 MANE	3.98	310.69	254.65	1.05	5.00	310.66	255.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5284E+02 EXCESS= .0000E+00 OUTFLOW= .5284E+02 BASIN STORAGE= .8757E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00								
RCP15S MANE	5.00	.00	.00	-1.00	5.00	.00	255.00	-1.00

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

HEC-1 Model

100-Year Interim Condition

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1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUN  1998                 *
*           VERSION 4.1                 *
*                                       *
*  RUN DATE   25OCT13  TIME  14:21:01   *
*                                       *
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*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

1 HEC-1 INPUT

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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

              *DIAGRAM
    1         ID     SLATER HANIFAN GROUP, INC.
    2         ID     PARK HIGHLANDS - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
    3         ID     ADDENDUM NO. 2 TO THE TECHNICAL DRAINAGE STUDY
    4         ID     INTERIM CONDITION
    5         ID
    6         ID     RETURN PERIOD ------- 100-YEAR
    7         ID     DISTRIBUTION -------- 6-HOUR SDN3
    8         ID     PROJECT NO. --------- CBH1201.000
    9         ID     FILENAME ------------ INT100.H1
   10         ID     DATE ---------------- NOVEMBER 2013
   11         ID     MODELED BY ---------- KC
   12         ID
   13         ID        SIX HOUR DEPTH-AREA REDUCTION FACTORS
   14         ID        DRAINAGE AREA (MI^2)       DARF
   15         ID        0.00-0.49                  0.990
   16         ID        0.50-0.99                  0.975
   17         ID        1.00-1.99                  0.950
   18         ID        2.00-2.99                  0.925
   19         ID        3.00-3.99                  0.915
   20         ID        4.00-4.99                  0.908
   21         ID
   22         IT      5       0       0     300
   23         IO      5       0       0
   24         IN      5       0       0
   25         JR    PREC   0.990   0.975   0.950   0.925   0.915   0.908
              *
   26         KK    E140
   27         BA   .0675
   28         PB    2.77
   29         PC       0   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
   30         PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
   31         PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
   32         PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
   33         PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
   34         PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
   35         PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
   36         PC   0.998   0.999   1.000
   37         LS       0    81.9
   38         UD   0.599
              *
   39         KK    E360
   40         BA   .0095
   41         LS       0    85.6
   42         UD   0.159
              *
   43         KK     CP1
   44         KM   COMBINE E140 AND E360 AT MAGGIE AND MUSTANG
   45         HC       2
              *
```


1 HEC-1 INPUT

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

   46         KK    CP1S
   47         KM   CP1E IS THE FLOW DRAINING EAST IN MAGGIE
   48         KM   CP1S IS THE FLOW DRAINING SOUTH IN MUSTANG
   49         DT    CP1E
   50         DI      33      33      34      35      37      38
   51         DQ      15      15      15      16      17      17
              *
   52         KK    E160
   53         BA   .0641
   54         LS       0    83.1
   55         UD   0.445
              *
   56         KK   E160E
   57         KM   E160E IS THE FLOW DRAINING EAST IN MAGGIE
```

```
58          KM   E160S IS THE FLOW DRAINING SOUTH IN TORREY PINES
59          KM   FLOW IN TORREY PINES IS BASED ON 1/2 STREET CAPACITY, 10 CFS
60          DT   E160S
61          DI     37      37      38      40      41      42
62          DQ     10      10      10      10      10      10
            *

63          KK    E340
64          BA   .0168
65          LS      0    85.8
66          UD   0.172
            *

67          KK     CP2
68          KM   COMBINE CP1S E160E AND E340 AT BRENT AND MUSTANG
69          HC       3
            *

70          KK    CP2S
71          KM   CP2E IS THE FLOW DRAINING EAST IN BRENT
72          KM   CP2S IS THE FLOW DRAINING SOUTH IN MUSTANG
73          DT    CP2E
74          DI     50      51      53      57      60      62
75          DQ     25      26      27      29      30      31
            *

76          KK    E180
77          BA   .2142
78          LS      0    80.7
79          UD   0.715
            *

80          KK   E160S
81          KM   RETRIEVE E160S
82          DR   E160S
            *
```


1 HEC-1 INPUT

```
LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

83          KK    E320
84          BA   .0169
85          LS      0    85.7
86          UD   0.168
            *

87          KK     CP3
88          KM   COMBINE CP2S E180 E160S AND E320 AT GUY AND MUSTANG
89          HC       4
            *

90          KK    CP3S
91          KM   CP3E IS THE FLOW DRAINING EAST IN GUY
92          KM   CP3S IS THE FLOW DRAINING SOUTH IN MUSTANG
93          DT    CP3E
94          DI    110     112     115     122     128     131
95          DQ     53      53      54      58      61      62
            *

96          KK    E200
97          BA   .0059
98          LS      0    83.7
99          UD   0.183
            *

100         KK    E300
101         BA   .0132
102         LS      0    85.8
103         UD   0.168
            *

104         KK     CP4
105         KM   COMBINE CP3S E200 AND E300 AT HORSE AND MUSTANG
106         HC       3
            *

107         KK   SOUTH
108         KM   CP4E IS THE FLOW DRAINING EAST IN HORSE
109         KM   SOUTH IS THE FLOW DRAINING SOUTH IN MUSTANG
110         KM   EXISTING SD IN HORSE IS FOR NUISANCE FLOW
111         DT    CP4E
112         DI     63      65      67      69      72      75
113         DQ     20      20      21      22      22      23
            *

114         KK    NONE
115         KM   NONE IS ZERO FLOW
116         KM   CP4S IS THE FLOW DRAINING SOUTH IN MUSTANG
117         DT    CP4S
118         DI     10     100
119         DQ     10     100
            *
```


1 HEC-1 INPUT

```
LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

120         KK    E080
121         BA   .0108
122         LS      0    83.5
123         UD   0.219
            *

124         KK    CP1E
125         KM   RETRIEVE CP1E
126         DR    CP1E
            *

127         KK    E380
128         BA   .0195
129         LS      0    85.7
```

```
130          UD   0.203
             *

131          KK     CP5
132          KM   COMBINE E080 CP1E AND E380 AT BRENT AND MAVERICK
133          HC       3
             *

134          KK    CP5S
135          KM   CP5S IS THE FLOW DRAINING SOUTH IN MAVERICK
136          KM   CP5E IS THE FLOW DRAINING EAST IN BRENT
137          DT    CP5E
138          DI      42       42       43       44       45       46
139          DQ      22       22       23       24       24       25
             *

140          KK    E060
141          BA   .2588
142          LS       0     82.5
143          UD   0.679
             *

144          KK   E060S
145          KM   E060S IS THE FLOW DRAINING SOUTH IN JONES
146          KM   E060E IS THE FLOW DRAINING EAST IN SHELEHEDA
147          KM   EXISTING SD IN  JONES IS FOR NUISANCE FLOW
148          DT   E060E
149          DI     110      112      114      119      125      128
150          DQ      54       55       56       58       61       63
             *

151          KK  RE060S
152          KM   ROUTE TO CP6
153          RD   1345   .0066   0.016        0    TRAP        0       50
             *
```



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1                                    HEC-1 INPUT

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

154          KK    E100
155          BA   .4698
156          LS       0     81.2
157          UD   0.956
             *

158          KK     CP6
159          KM   COMBINE E060S AND E100 AT IRON MOUNTAIN AND JONES
160          HC       2
             *

161          KK    CP6S
162          KM   CP6S IS THE FLOW DRAINING SOUTH IN JONES
163          KM   CP6E IS THE FLOW DRAINING EAST IN IRON MOUNTAIN
164          KM   EXISTING SD IN IRON MOUNTAIN CONVEYS 46 CFS EAST
165          DT    CP6E
166          DI     196      200      204      215      226      232
167          DQ     121      123      125      131      136      139
             *

168          KK   RCP6S
169          KM   ROUTE TO CP7
170          RD    2000   .0050   0.016        0    TRAP        0       50
             *

171          KK    E420
172          BA   .0957
173          LS       0     85.4
174          UD   0.251
             *

175          KK    CP5E
176          KM   RETRIEVE CP5E
177          DR    CP5E
             *

178          KK   RCP5E
179          KM   ROUTE TO CP7
180          RD    2010   .0058   0.016        0    TRAP        0       50
             *

181          KK     CP7
182          KM   COMBINE CP6S E420 AND CP5E AT GUY AND JONES
183          HC       3
             *

184          KK    CP7S
185          KM   CP7S IS THE FLOW DRAINING SOUTH IN JONES
186          KM   CP7E IS THE FLOW DRAINING EAST ONTO UNDEVELOPED LAND
187          KM   EXISTING SD IN JONES IS FOR NUISANCCE FLOW
188          KM   FLOW IN JONES IS BASED ON 1/2 STREET CAPACITY, 45 CFS
189          DT    CP7E
190          DI     109      111      114      120      126      130
191          DQ      64       66       69       75       81       85
             *
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1                                    HEC-1 INPUT

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

192          KK    CP2E
193          KM   RETRIEVE CP2E
194          DR    CP2E
             *

195          KK   RCP2E
196          KM   ROUTE TO CP8
197          RD    3370   .0055   0.016        0    TRAP        0       50
             *

198          KK    CP3E
199          KM   RETRIEVE CP3E
```

```
200          DR    CP3E
             *
201          KK    RCP3E
202          KM    ROUTE TO CP8
203          RD     2680   .0055   0.016       0    TRAP       0      50
             *
204          KK     CP4E
205          KM    RETRIEVE CP4E
206          DR     CP4E
             *
207          KK    RCP4E
208          KM    ROUTE TO CP8
209          RD     1955   .0048   0.016       0    TRAP       0      50
             *
210          KK    DUMMY
211          KM    COMBINE CP5S CP7S CP2E CP3E AND CP4E
212          HC        5
             *
213          KK     E400
214          BA    .0846
215          LS        0    85.2
216          UD    0.259
             *
217          KK      CP8
218          KM    COMBINE DUMMMY AND E400 AT HORSE AND JONES
219          HC        2
             *
220          KK     CP8E
221          KM    CP8S IS THE FLOW DRAINING SOUTH IN JONES
222          KM    CP8E IS THE FLOW DRAINING EAST IN HORSE
223          KM    EXISTING SD IN JONES CONVEYS 23 CFS SOUTH
224          DT     CP8S
225          DI      195      198      202      213      222      226
226          DQ      117      117      120      125      130      133
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
227          KK    RCP8E
228          KM    ROUTE TO CP10
229          RD     2530   .0080   0.016       0    TRAP       0      50
             *
230          KK     E440
231          BA    .0523
232          LS        0    80.8
233          UD    0.290
             *
234          KK    E440S
235          KM    E440S IS THE FLOW DRAINING SOUTH IN BRADLEY
236          KM    E440E IS THE FLOW DRAINING EAST IN BRENT
237          DT    E440E
238          DI       33       33       34       35       37       38
239          DQ       18       18       18       19       20       20
             *
240          KK     E460
241          BA    .1140
242          LS        0    80.3
243          UD    0.355
             *
244          KK      CP9
245          KM    COMBINE E440S AND E460 IN BRADLEY BETWEEN BRENT AND HORSE
246          HC        2
             *
247          KK     CP9S
248          KM    CP9S IS THE FLOW DRAINING SOUTH IN BRADLEY
249          KM    CP9E IS THE FLOW DRAINING EAST ONTO UNDEVELOPED LAND
250          KM    FLOW IN BRADELY IS BASED ON 1/2 STREET CAPACITY, 41 CFS
251          DT     CP9E
252          DI       75       77       79       83       87       90
253          DQ       34       36       38       42       46       49
             *
254          KK     CP7E
255          KM    RETRIEVE CP7E
256          DR     CP7E
             *
257          KK    RCP7E
258          KM    ROUTE TO CP10
259          RD     2690   .0080   0.016       0    TRAP       0      50
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
260          KK     E480
261          BA    .0873
262          LS        0    81.5
263          UD    0.278
             *
264          KK     CP10
265          KM    COMBINE CP8E CP9S CP7E AND E480 AT HORSE AND BRADLEY
266          HC        4
             *
267          KK    CP10E
```

```
268          KM   CP10S IS THE FLOW DRAINING SOUTH IN BRADLEY
269          KM   CP10E IS THE FLOW DRAINING EAST IN HORSE
270          KM   EXISTING SD IN HORSE CONVEYS 6 CFS EAST
271          DT   CP10S
272          DI     222     226     230     242     253     257
273          DQ     116     117     119     127     133     135
             *

274          KK    CP9E
275          KM   RETRIEVE CP9E
276          DR    CP9E
             *

277          KK    E520
278          BA   .0143
279          LS      0    85.0
280          UD   0.162
             *

281          KK    CP11
282          KM   COMBINE CP10E CP9E AND E520 AT HORSE AND UNICORN
283          HC       3
             *

284          KK   CP11E
285          KM   CP11S IS THE FLOW DRAINING SOUTH IN UNICORN
286          KM   CP11E IS THE FLOW DRAINING EAST IN HORSE
287          KM   EXISTING SD IN HORSE CONVEYS 6 CFS EAST
288          DT   CP11S
289          DI     148     152     157     166     175     180
290          DQ      68      70      72      75      79      83
             *

291          KK  RCP11E
292          KM   ROUTE TO CP14
293          RD    1825   .0080   0.016       0    TRAP       0      50
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

294          KK   E060E
295          KM   RETRIEVE E060E
296          DR   E060E
             *

297          KK  RE060E
298          KM   ROUTE TO CP12
299          RD    5370   .0050   0.016       0    TRAP       0      50
             *

300          KK    CP6E
301          KM   RETRIEVE CP6E
302          DR    CP6E
             *

303          KK   RCP6E
304          KM   ROUTE TO CP12
305          RD    5145   .0050   0.016       0    TRAP       0      50
             *

306          KK    E040
307          BA   .3615
308          LS      0    82.1
309          UD   0.511
             *

310          KK    CP12
311          KM   COMBINE E060E CP6E AND E040 AT IRON MOUNTAIN AND DECATUR
312          HC       3
             *

313          KK   CP12S
314          KM   CP12S IS THE FLOW DRAINING SOUTH IN DECATUR
315          KM   CP12E IS THE FLOW DRAINING EAST ONTO UNDEVELOPED LAND
316          KM   FLOW IN DECATUR IS BASED ON 1/2 STREET CAPACITY, 139 CFS
317          DT   CP12E
318          DI     301     304     308     319     331     338
319          DQ     162     165     169     180     192     199
             *

320          KK  RCP12S
321          KM   ROUTE TO CP13
322          RD    1270   .0040   0.016       0    TRAP       0      50
             *

323          KK    E540
324          BA   .0506
325          LS      0    85.5
326          UD   0.171
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

327          KK    CP13
328          KM   COMBINE CP12S AND E540 AT BRENT AND DECATUR
329          HC       2
             *

330          KK   CP13S
331          KM   S9 IS THE FLOW DRAINING SOUTH IN DECATUR
332          KM   E9 IS THE FLOW DRAINING EAST ONTO UNDEVELOPED LAND
333          KM   FLOW IN DECATUR IS BASED ON 1/2 STREET CAPACITY, 139 CFS
334          DT   CP13E
335          DI     143     143     145     146     149     149
336          DQ       4       4       6       7      10      10
             *

337          KK  RCP13S
```

```
338          KM   ROUTE TO CP14
339          RD    1290   .0040   0.016       0    TRAP       0      50
             *

340          KK   E440E
341          KM   RETRIEVE E440E
342          DR   E440E
             *

343          KK  RE440E
344          KM   ROUTE TO CP14
345          RD    3850   .0040   0.016       0    TRAP       0      50
             *

346          KK    E560
347          BA   .1763
348          LS      0    89.1
349          UD   0.370
             *

350          KK    CP14
351          KM   COMBINE CP11E CP13S E440E AND E560 AT HORSE AND DECATUR
352          HC       4
             *

353          KK   CP14E
354          KM   CP14S IS THE FLOW DRAINING SOUTH IN DECATUR
355          KM   CP14E IS THE FLOW DRAINING EAST IN HORSE
356          KM   EXISTING SD IN DECATUR CONVEYS 30 CFS SOUTH
357          KM   HIGH POINT IN DECATUR, ALL SURFACE FLOWS DRIAN EAST
358          DT   CP14S
359          DI     250      256      262      277      298      310
360          DQ      30       30       30       30       30       30
             *
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1                                    HEC-1 INPUT

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

361          KK  RCP14E
362          KM   ROUTE TO CP15
363          RD    2645   .0050   0.016       0    TRAP       0      50
             *

364          KK    E600
365          BA   .0862
366          LS      0    83.7
367          UD   0.285
             *

368          KK    CP15
369          KM   COMBINE CP14E AND E600 AT HORSE AND AVIARY
370          HC       2
             *

371          KK   CP15E
372          KM   CP15S IS THE FLOW DRAINING SOUTH IN AVIARY
373          KM   CP15E IS THE FLOW DRAINING EAST IN HORSE
374          KM   EXISTING SD IN HORSE CONVEYS 206 CFS EAST
375          DT   CP15S
376          DI     250      256      262      278      312      324
377          DQ      19       21       24       32       49       54
             *

378          KK    E240
379          BA   .1327
380          LS      0    83.1
381          UD   0.472
             *

382          KK   E240S
383          KM   E240S IS THE FLOW DRAINING SOUTH IN TORREY PINES
384          KM   E240E IS THE FLOW DRAINING EAST IN MEISENHEIMER
385          DT   E240E
386          DI      73       74       76       79       83       85
387          DQ      38       39       40       42       43       45
             *

388          KK    E260
389          BA   .1379
390          LS      0    83.3
391          UD   0.441
             *

392          KK    CP16
393          KM   COMBINE E240S AND E260 AT RACEL AND TORREY PINES
394          HC       2
             *
```



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1                                    HEC-1 INPUT

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

395          KK   CP16S
396          KM   S9 IS THE FLOW DRAINING SOUTH IN TORREY PINES
397          KM   E9 IS THE FLOW DRAINING EAST IN RACEL
398          DT   CP16E
399          DI     115      116      118      123      130      133
400          DQ      57       58       59       61       65       66
             *

401          KK   DUMMY
402          HC       3
             *

403          KK   CP14S
404          KM   RETRIEVE CP14S
405          DR   CP14S
             *

406          KK  RCP14S
407          KM   ROUTE TO CP17
```

```
408          RD    2565   .0050   0.013       0    CIRC     2.5       0
             *

409          KK    E580
410          BA   .0980
411          LS      0     88.1
412          UD   0.296
             *

413          KK    CP17
414          KM   COMBINE CP14S AND E580 IN DECATUR BETWEEN HORSE AND GRAND TETON
415          HC       2
             *

416          KK   CP17S
417          KM   CP17S IS THE FLOW DRAINING SOUTH IN DECATUR
418          KM   CP17E IS THE FLOW DRAINING EAST ONTO UNDEVELOPED LAND
419          KM   EXISTING SD IN DECATUR CONVEYS 30 CFS SOUTH
420          KM   FLOW IN DECATUR IS BASED ON 1/2 STREET CAPACITY, 139 CFS
421          DT   CP17E
422          DI     118      119      121      124      128      130
423          DQ       0        0        0        0        0        0
             *

424          KK    E220
425          BA   .0445
426          LS      0     83.5
427          UD   0.284
             *
```



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1                                    HEC-1 INPUT

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

428          KK   RE220
429          KM   ROUTE TO CP18
430          RD    5085   .0050   0.016       0    TRAP       0       50
             *

431          KK   E240E
432          KM   RETRIEVE E240E
433          DR   E240E
             *

434          KK  RE240E
435          KM   ROUTE TO CP18
436          RD    4710   .0050   0.016       0    TRAP       0       50
             *

437          KK   CP16E
438          KM   RETRIEVE CP16E
439          DR   CP16E
             *

440          KK  RCP16E
441          KM   ROUTE TO CP18
442          RD    4030   .0050   0.016       0    TRAP       0       50
             *

443          KK    CP4S
444          KM   RETRIEVE CP4S
445          DR    CP4S
             *

446          KK   RCP4S
447          KM   ROUTE TO CP18
448          RD    4770   .0050   0.016       0    TRAP       0       50
             *

449          KK    CP8S
450          KM   RETRIEVE CP8S
451          DR    CP8S
             *

452          KK   RCP8S
453          KM   ROUTE TO CP18
454          RD    2755   .0050   0.016       0    TRAP       0       50
             *

455          KK   DUMMY
456          KM   COMBINE E220 E240E CP16E CP4S AND CP8S
457          HC       5
             *
```



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1                                    HEC-1 INPUT

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

458          KK    E280
459          BA   .2782
460          LS      0     83.5
461          UD   0.399
             *

462          KK    CP18
463          KM   COMBINE DUMMY AND E280 AT GRAND TETON AND JONES
464          HC       2
             *

465          KK   RCP18
466          KM   ROUTE TO CP19
467          RD    4935   .0050   0.016       0    TRAP       0       50
             *

468          KK   CP10S
469          KM   RETRIEVE CP10S
470          DR   CP10S
             *

471          KK  RCP10S
472          KM   ROUTE TO CP19
473          RD    5215   .0050   0.016       0    TRAP       0       50
```

```
                *
474             KK   CP11S
475             KM   RETRIEVE CP11S
476             DR   CP11S
                *
477             KK  RCP11S
478             KM   ROUTE TO CP19
479             RD    4550   .0050   0.016       0    TRAP       0      50
                *
480             KK    E500
481             BA   .3881
482             LS      0    83.3
483             UD   0.510
                *
484             KK   CP18A
485             KM   COMBINE CP18 CP10S CP11S AND E500 IN GRAND TETON WEST OF DECATUR
486             HC       4
                *
487             KK    CP19
488             KM   COMBINE CP17S AND CP18A AT GRAND TETON AND DECATUR
489             HC       2
                *
```



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1                                       HEC-1 INPUT
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
490             KK   CP17E
491             KM   RETRIEVE CP17E
492             DR   CP17E
                *
493             KK   E660
494             BA   .0140
495             LS      0    84.5
496             UD   0.165
                *
497             KK    CP20
498             KM   COMBINE CP19 CP17E AND E660 IN GRAND TETON BETWEEN DECATUR AND SAN MATEO
499             HC       3
                *
500             KK    E640
501             BA   .0700
502             LS      0    87.8
503             UD   0.263
                *
504             KK    CP21
505             KM   COMBINE CP20 AND E640 IN GRAND TETON BETWEEN DECATUR AND SAN MATEO
506             HC       2
                *
507             KK    E620
508             BA   .0472
509             LS      0    88.1
510             UD   0.246
                *
511             KK    CP22
512             KM   COMBINE CP21 AND E620 AT GRAND TETON AND SAN MATEO
513             HC       2
                *
514             KK   RCP22
515             KM   ROUTE TO CP24
516             RD    1230   .0050   0.016       0    TRAP       0      50
                *
517             KK   CP15S
518             KM   RETRIEVE CP15S
519             DR   CP15S
                *
520             KK  RCP15S
521             KM   ROUTE TO CP23
522             RD    2555   .0050   0.016       0    TRAP       0      50
                *
```



```
1                                       HEC-1 INPUT
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
523             KK    E680
524             BA   .1122
525             LS      0    88.0
526             UD   0.303
                *
527             KK    CP23
528             KM   COMBINE CP15S AND E680 IN AVIARY JUST NORTH OF GRAND TETON
529             HC       2
                *
530             KK    E760
531             BA   .0076
532             LS      0    88.3
533             UD   0.171
                *
534             KK   CPGTA
535             KM   COMBINE CP22 CP23 AND E760 AT GRAND TETON AND AVIARY
536             HC       3
                *
537             KK     2-3
```

```
538          BA  0.0327
539          LS       0    85.0
540          UD   0.172
             *

541          KK  CPGTA2
542          HC       2
             *

543          KK     2-1
544          BA  0.0367
545          LS       0    94.0
546          UD   0.187
             *

547          KK     2-2
548          BA  0.0742
549          LS       0    91.0
550          UD   0.215
             *

551          KK   2-14A
552          BA  0.0027
553          LS       0    85.0
554          UD   0.135
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

555          KK      2A
556          HC       3
             *

557          KK      2B
558          HC       2
             *

559          KK     DB1
560          KM    DETENTION BASIN 1
561          KO       2
562          RS       1    ELEV      -1
563          SV       0   0.339   3.015   9.712  18.977  29.349  42.004 102.301 126.116 159.117
564          SE  2297.0  2298.0  2299.0  2300.0  2301.0  2302.0  2303.0  2307.0  2308.5  2310.5
565          SQ       0      72     110     138     161     199     215     231     252    1975
566          SE  2297.0  2300.0  2301.0  2302.0  2303.0  2305.0  2306.0  2307.0  2308.5  2310.5
567          KO       1
             *

568          KK     2-6
569          BA  0.0180
570          LS       0    94.0
571          UD   0.158
             *

572          KK      2C
573          HC       2
             *

574          KK     2-7
575          BA  0.0156
576          LS       0    85.0
577          UD   0.137
             *

578          KK      2D
579          HC       2
             *

580          KK     2-4
581          BA  0.0334
582          LS       0    94.0
583          UD   0.137
             *

584          KK   2-14B
585          BA  0.0025
586          LS       0    85.0
587          UD   0.126
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

588          KK      2E
589          HC       2
             *

590          KK     2-5
591          BA  0.0891
592          LS       0    91.0
593          UD   0.215
             *

594          KK    2-5W
595          DT    2-5E
596          DI       0     100
597          DQ       0      48
             *

598          KK     2-9
599          BA  0.0156
600          LS       0    91.0
601          UD   0.135
             *

602          KK      2F
603          HC       3
             *
```

```
604            KK     2-5E
605            DR     2-5E
               *

606            KK     2-10
607            BA   0.0163
608            LS         0     91.0
609            UD     0.132
               *

610            KK       2G
611            HC        3
               *

612            KK      2-8
613            BA   0.0286
614            LS         0     94.0
615            UD     0.144
               *

616            KK       2H
617            HC        2
               *
```


1 HEC-1 INPUT

```
LINE           ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

618            KK       2I
619            HC        2
               *

620            KK     2-11
621            BA   0.0255
622            LS         0     94.0
623            UD     0.135
               *

624            KK     2-12
625            BA   0.0272
626            LS         0     90.0
627            UD     0.150
               *

628            KK       2J
629            HC        2
               *

630            KK    DUMMY
631            HC        2
               *

632            KK     2-13
633            BA   0.0273
634            LS         0     91.0
635            UD     0.176
               *

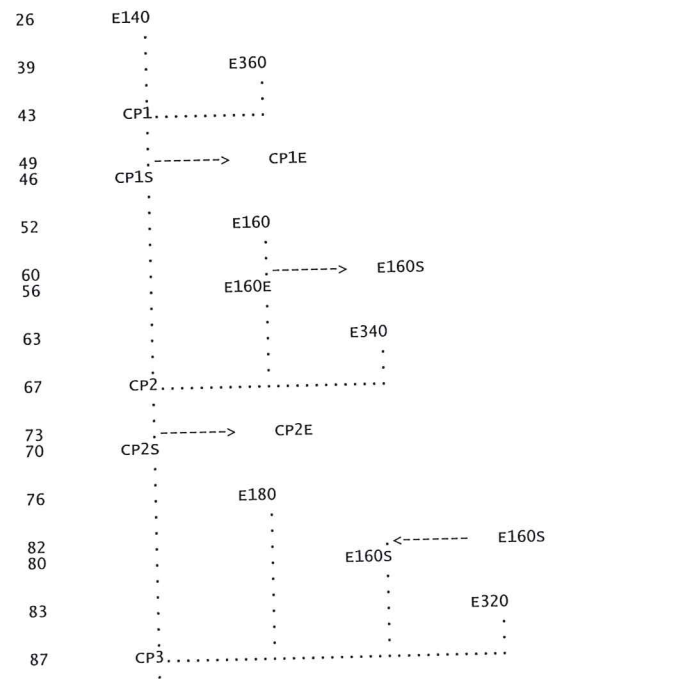
636            KK      PT2
637            HC        2
               *
638            ZZ
```

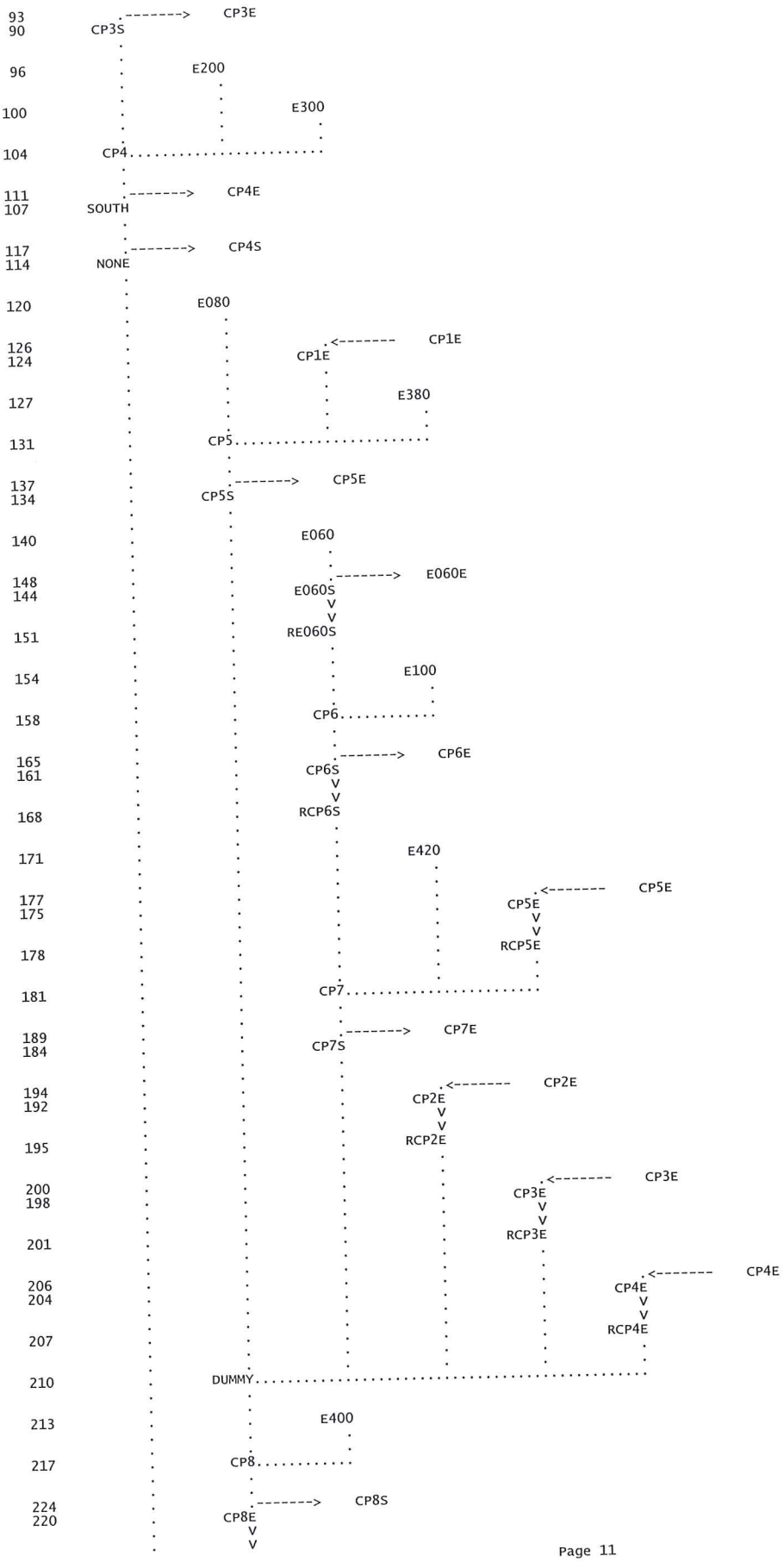
1 SCHEMATIC DIAGRAM OF STREAM NETWORK

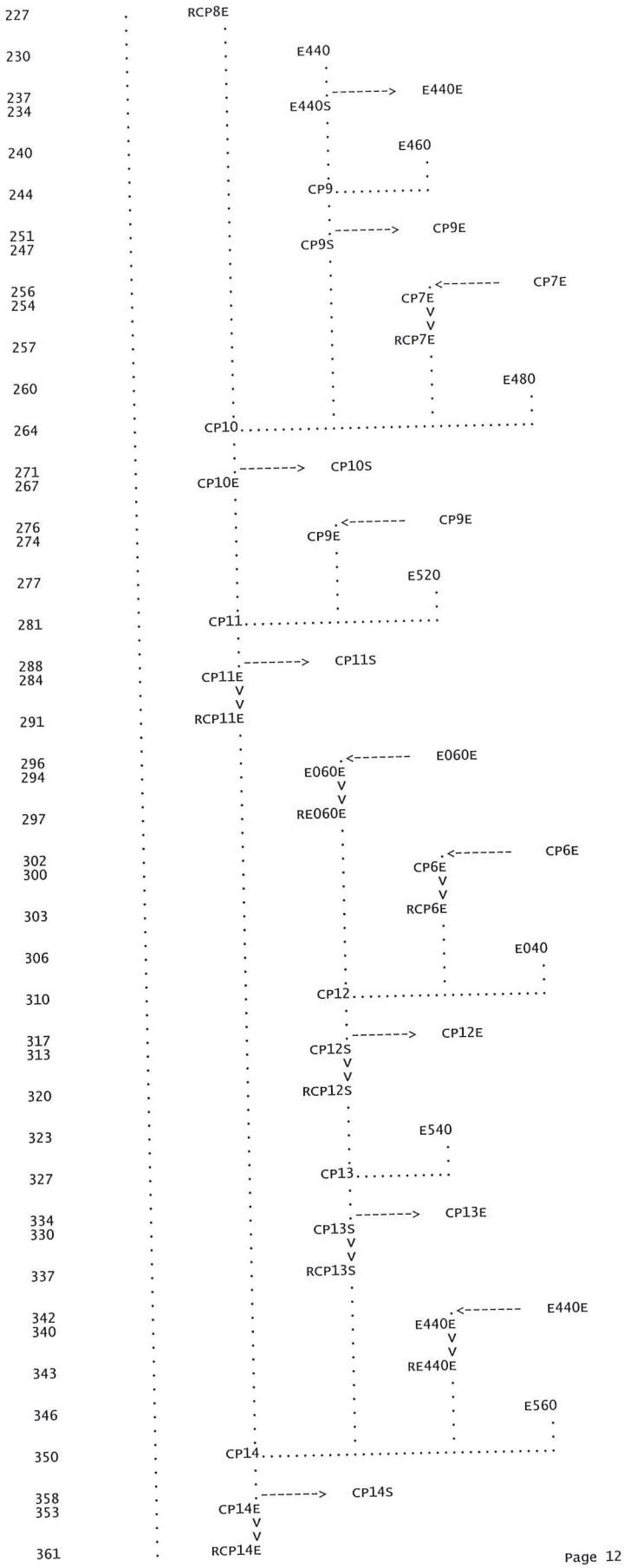
INPUT LINE NO.

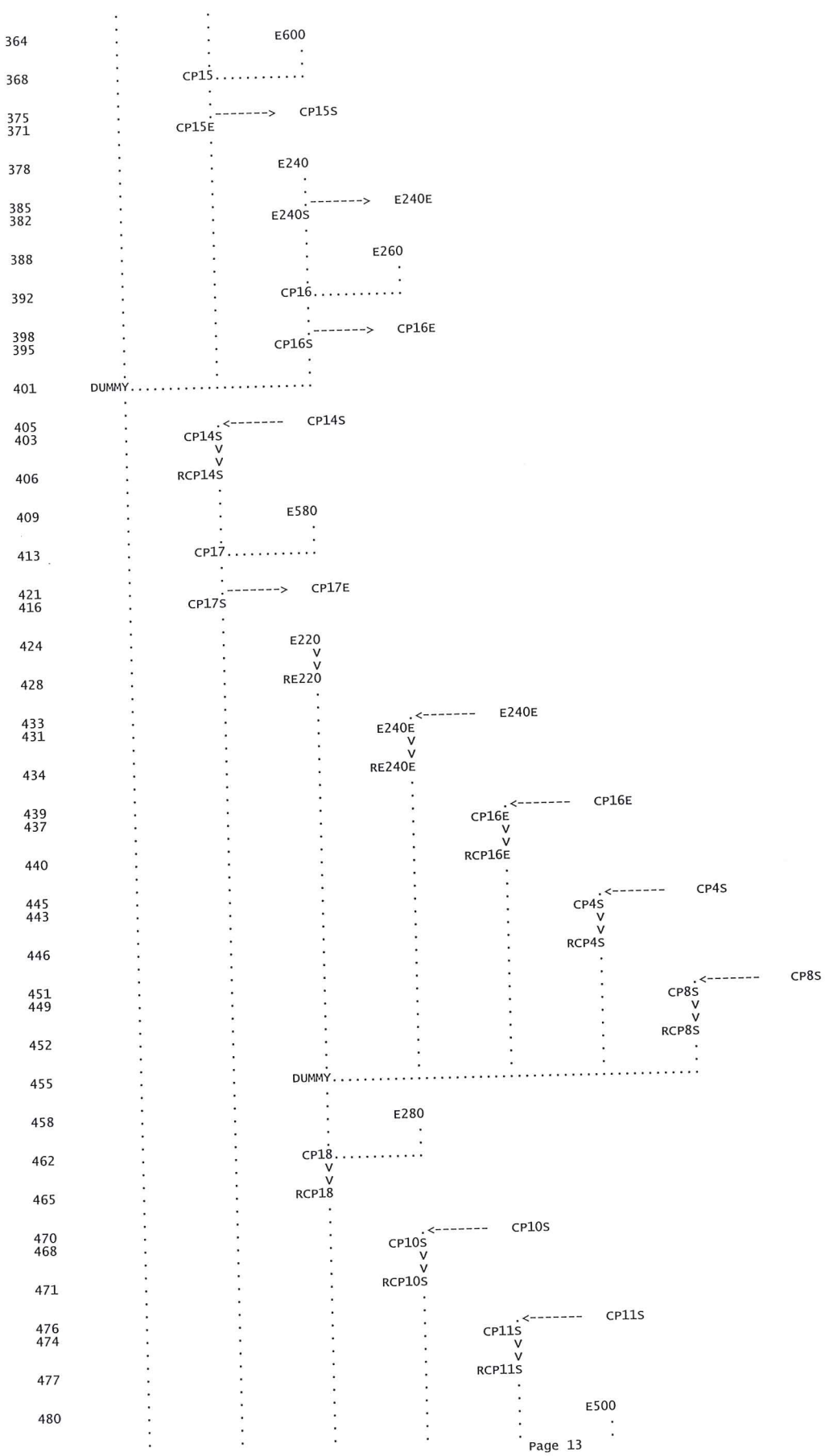
(V) ROUTING (---->) DIVERSION OR PUMP FLOW

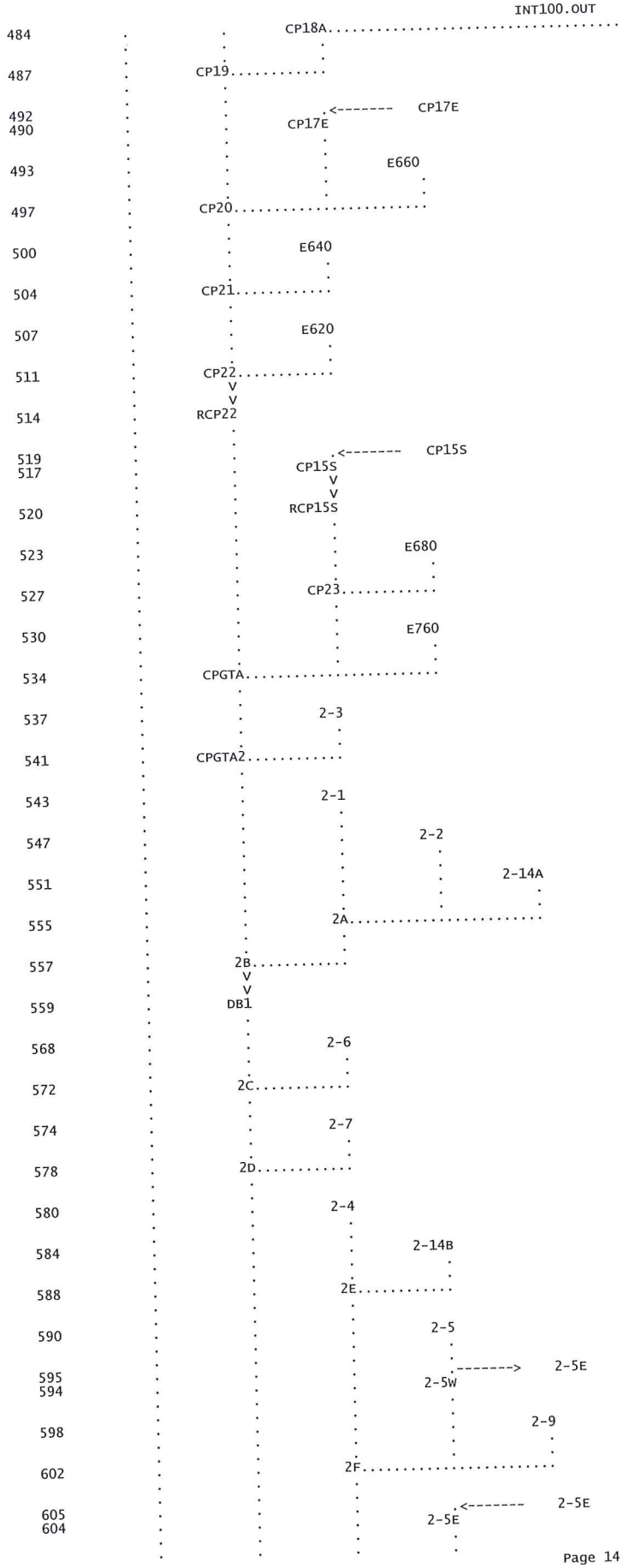
(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW

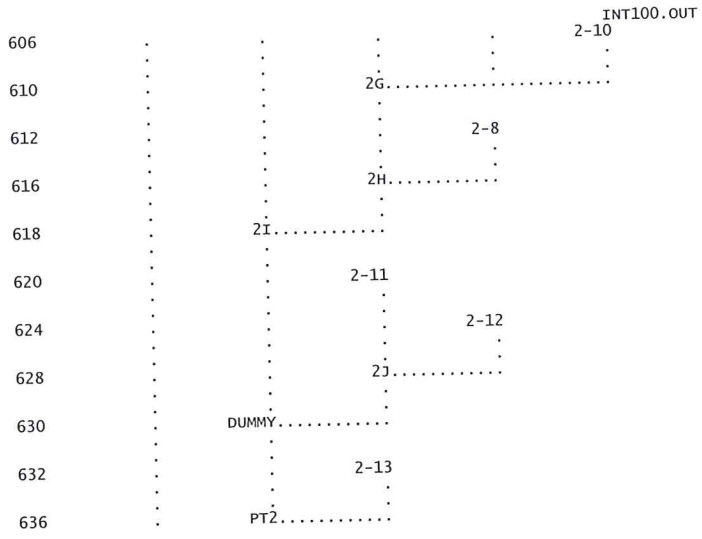



93
90
CP3S
CP3E
96
E200
100
E300
104
CP4
111
107
SOUTH
CP4E
117
114
NONE
CP4S
120
E080
126
124
CP1E
CP1E
127
E380
131
CP5
137
134
CP5S
CP5E
140
E060
148
144
E060S
E060E
151
RE060S
154
E100
158
CP6
165
161
CP6S
CP6E
168
RCP6S
171
E420
177
175
CP5E
CP5E
178
RCP5E
181
CP7
189
184
CP7S
CP7E
194
192
CP2E
CP2E
195
RCP2E
200
198
CP3E
CP3E
201
RCP3E
206
204
CP4E
CP4E
207
RCP4E
210
DUMMY
213
E400
217
CP8
224
220
CP8S
CP8E


227
RCP8E
230
E440
237
234
E440E
E440S
240
E460
244
CP9
251
247
CP9E
CP9S
256
254
CP7E
CP7E
257
RCP7E
260
E480
264
CP10
271
267
CP10S
CP10E
276
274
CP9E
CP9E
277
E520
281
CP11
288
284
CP11S
CP11E
291
RCP11E
296
294
E060E
E060E
297
RE060E
302
300
CP6E
CP6E
303
RCP6E
306
E040
310
CP12
317
313
CP12E
CP12S
320
RCP12S
323
E540
327
CP13
334
330
CP13E
CP13S
337
RCP13S
342
340
E440E
E440E
343
RE440E
346
E560
350
CP14
358
353
CP14S
CP14E
361
RCP14E


364
E600
368
CP15
375
CP15S
371
CP15E
378
E240
385
E240E
382
E240S
388
E260
392
CP16
398
CP16E
395
CP16S
401
DUMMY
405
CP14S
403
CP14S
406
RCP14S
409
E580
413
CP17
421
CP17E
416
CP17S
424
E220
428
RE220
433
E240E
431
E240E
434
RE240E
439
CP16E
437
CP16E
440
RCP16E
445
CP4S
443
CP4S
446
RCP4S
451
CP8S
449
CP8S
452
RCP8S
455
DUMMY
458
E280
462
CP18
465
RCP18
470
CP10S
468
CP10S
471
RCP10S
476
CP11S
474
CP11S
477
RCP11S
480
E500


484
CP18A
487
CP19
492
490
CP17E
<-------
CP17E
493
E660
497
CP20
500
E640
504
CP21
507
E620
511
CP22
514
RCP22
519
517
CP15S
<-------
CP15S
520
RCP15S
523
E680
527
CP23
530
E760
534
CPGTA
537
2-3
541
CPGTA2
543
2-1
547
2-2
551
2-14A
555
2A
557
2B
559
DB1
568
2-6
572
2C
574
2-7
578
2D
580
2-4
584
2-14B
588
2E
590
2-5
595
594
2-5W
------->
2-5E
598
2-9
602
2F
605
604
<-------
2-5E
2-5E



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*    FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN  1998                *
*           VERSION 4.1                 *
*                                       *
*  RUN DATE   22OCT13  TIME  10:43:39   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*            (916) 756-1104             *
*                                       *
*****************************************
```

SLATER HANIFAN GROUP, INC.
PARK HIGHLANDS - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
ADDENDUM NO. 2 TO THE TECHNICAL DRAINAGE STUDY
INTERIM CONDITION

RETURN PERIOD ------- 100-YEAR
DISTRIBUTION -------- 6-HOUR SDN3
PROJECT NO. --------- CBH1201.000
FILENAME ------------ INT100.H1
DATE ---------------- OCTOBER 2013
MODELED BY ---------- KC

SIX HOUR DEPTH-AREA REDUCTION FACTORS

DRAINAGE AREA (MI^2)	DARF
0.00-0.49	0.990
0.50-0.99	0.975
1.00-1.99	0.950
2.00-2.99	0.925
3.00-3.99	0.915
4.00-4.99	0.908

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

   IT          HYDROGRAPH TIME DATA
                    NMIN           5  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1   0  STARTING DATE
                    ITIME         0000  STARTING TIME
                       NQ          300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      2   0  ENDING DATE
                   NDTIME         0055  ENDING TIME
                   ICENT            19  CENTURY MARK

                 COMPUTATION INTERVAL      .08 HOURS
                     TOTAL TIME BASE    24.92 HOURS

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

     JP          MULTI-PLAN OPTION
                    NPLAN           1  NUMBER OF PLANS

     JR          MULTI-RATIO OPTION
                 RATIOS OF PRECIPITATION
                 .99       .98       .95       .93       .92       .91

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

            ***************
            *             *
559 KK      *       DB1   *
            *             *
            ***************
```

```
561 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          2  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

567 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          1  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

562 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                     ITYP       ELEV  TYPE OF INITIAL CONDITION
                    RSVRIC     -1.00  INITIAL CONDITION
                         X       .00 WORKING R AND D COEFFICIENT

563 SV            STORAGE         .0       .3      3.0      9.7     19.0     29.3     42.0    102.3    126.1    159.1

564 SE          ELEVATION     2297.00  2298.00  2299.00  2300.00  2301.00  2302.00  2303.00  2307.00  2308.50  2310.50

565 SQ          DISCHARGE         0.       72.     110.     138.     161.     199.     215.     231.     252.    1975.

566 SE          ELEVATION     2297.00  2300.00  2301.00  2302.00  2303.00  2305.00  2306.00  2307.00  2308.50  2310.50

                                                    ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

                  STORAGE          .00      .34     3.02     9.71    18.98    29.35    42.00    72.15    87.23   102.30
                  OUTFLOW          .00    24.00    48.00    72.00   110.00   138.00   161.00   199.00   215.00   231.00
                ELEVATION      2297.00  2298.00  2299.00  2300.00  2301.00  2302.00  2303.00  2305.00  2306.00  2307.00

                  STORAGE       126.12   159.12
                  OUTFLOW       252.00  1975.00
                ELEVATION      2308.50  2310.50
```

****

HYDROGRAPH AT STATION DB1
PLAN 1, RATIO = .99

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.0	2297.0	1		0820	101	217.	88.9	2306.1	1		1640	201	30.	1.0	2298.2
1		0005	2	0.	.0	2297.0	1		0825	102	215.	87.5	2306.0	1		1645	202	28.	.8	2298.2
1		0010	3	0.	.0	2297.0	1		0830	103	214.	86.1	2305.9	1		1650	203	26.	.6	2298.1
1		0015	4	0.	.0	2297.0	1		0835	104	212.	84.6	2305.8	1		1655	204	25.	.4	2298.0
1		0020	5	0.	.0	2297.0	1		0840	105	211.	83.2	2305.7	1		1700	205	19.	.3	2297.8
1		0025	6	1.	.0	2297.0	1		0845	106	209.	81.8	2305.6	1		1705	206	12.	.2	2297.5
1		0030	7	2.	.0	2297.1	1		0850	107	208.	80.3	2305.5	1		1710	207	7.	.1	2297.3
1		0035	8	3.	.0	2297.1	1		0855	108	206.	78.9	2305.4	1		1715	208	4.	.1	2297.2
1		0040	9	4.	.1	2297.2	1		0900	109	205.	77.5	2305.4	1		1720	209	3.	.0	2297.1
1		0045	10	5.	.1	2297.2	1		0905	110	203.	76.1	2305.3	1		1725	210	2.	.0	2297.1
1		0050	11	6.	.1	2297.2	1		0910	111	202.	74.7	2305.2	1		1730	211	1.	.0	2297.0
1		0055	12	5.	.1	2297.2	1		0915	112	200.	73.4	2305.1	1		1735	212	1.	.0	2297.0
1		0100	13	5.	.1	2297.2	1		0920	113	199.	72.0	2305.0	1		1740	213	0.	.0	2297.0
1		0105	14	5.	.1	2297.2	1		0925	114	197.	70.6	2304.9	1		1745	214	0.	.0	2297.0
1		0110	15	4.	.1	2297.2	1		0930	115	195.	69.3	2304.8	1		1750	215	0.	.0	2297.0
1		0115	16	4.	.1	2297.2	1		0935	116	194.	68.0	2304.7	1		1755	216	0.	.0	2297.0
1		0120	17	5.	.1	2297.2	1		0940	117	192.	66.6	2304.6	1		1800	217	0.	.0	2297.0
1		0125	18	5.	.1	2297.2	1		0945	118	190.	65.3	2304.5	1		1805	218	0.	.0	2297.0
1		0130	19	7.	.1	2297.3	1		0950	119	189.	64.0	2304.5	1		1810	219	0.	.0	2297.0
1		0135	20	9.	.1	2297.4	1		0955	120	187.	62.7	2304.4	1		1815	220	0.	.0	2297.0
1		0140	21	12.	.2	2297.5	1		1000	121	185.	61.4	2304.3	1		1820	221	0.	.0	2297.0
1		0145	22	16.	.2	2297.7	1		1005	122	184.	60.2	2304.2	1		1825	222	0.	.0	2297.0
1		0150	23	20.	.3	2297.8	1		1010	123	182.	58.9	2304.1	1		1830	223	0.	.0	2297.0
1		0155	24	23.	.3	2298.0	1		1015	124	181.	57.7	2304.0	1		1835	224	0.	.0	2297.0
1		0200	25	24.	.4	2298.0	1		1020	125	179.	56.4	2304.0	1		1840	225	0.	.0	2297.0
1		0205	26	24.	.4	2298.0	1		1025	126	178.	55.2	2303.9	1		1845	226	0.	.0	2297.0
1		0210	27	24.	.4	2298.0	1		1030	127	176.	54.0	2303.8	1		1850	227	0.	.0	2297.0
1		0215	28	25.	.4	2298.0	1		1035	128	175.	52.8	2303.7	1		1855	228	0.	.0	2297.0
1		0220	29	25.	.4	2298.0	1		1040	129	173.	51.6	2303.6	1		1900	229	0.	.0	2297.0
1		0225	30	26.	.5	2298.1	1		1045	130	172.	50.4	2303.6	1		1905	230	0.	.0	2297.0
1		0230	31	27.	.7	2298.1	1		1050	131	170.	49.2	2303.5	1		1910	231	0.	.0	2297.0
1		0235	32	28.	.8	2298.2	1		1055	132	169.	48.0	2303.4	1		1915	232	0.	.0	2297.0
1		0240	33	30.	1.0	2298.2	1		1100	133	167.	46.9	2303.3	1		1920	233	0.	.0	2297.0
1		0245	34	32.	1.2	2298.3	1		1105	134	166.	45.7	2303.2	1		1925	234	0.	.0	2297.0
1		0250	35	34.	1.4	2298.4	1		1110	135	164.	44.6	2303.2	1		1930	235	0.	.0	2297.0
1		0255	36	36.	1.7	2298.5	1		1115	136	163.	43.5	2303.1	1		1935	236	0.	.0	2297.0
1		0300	37	38.	1.9	2298.6	1		1120	137	161.	42.4	2303.0	1		1940	237	0.	.0	2297.0
1		0305	38	40.	2.1	2298.7	1		1125	138	160.	41.3	2302.9	1		1945	238	0.	.0	2297.0
1		0310	39	43.	2.5	2298.8	1		1130	139	158.	40.2	2302.9	1		1950	239	0.	.0	2297.0
1		0315	40	48.	3.0	2299.0	1		1135	140	156.	39.1	2302.8	1		1955	240	0.	.0	2297.0
1		0320	41	51.	3.8	2299.1	1		1140	141	154.	38.0	2302.7	1		2000	241	0.	.0	2297.0
1		0325	42	56.	5.2	2299.3	1		1145	142	152.	37.0	2302.6	1		2005	242	0.	.0	2297.0
1		0330	43	64.	7.6	2299.7	1		1150	143	150.	35.9	2302.5	1		2010	243	0.	.0	2297.0
1		0335	44	77.	10.9	2300.1	1		1155	144	148.	34.9	2302.4	1		2015	244	0.	.0	2297.0
1		0340	45	94.	15.1	2300.6	1		1200	145	146.	33.9	2302.4	1		2020	245	0.	.0	2297.0
1		0345	46	112.	19.8	2301.1	1		1205	146	144.	32.9	2302.3	1		2025	246	0.	.0	2297.0
1		0350	47	126.	24.8	2301.6	1		1210	147	143.	31.9	2302.2	1		2030	247	0.	.0	2297.0
1		0355	48	140.	30.4	2302.1	1		1215	148	141.	30.9	2302.1	1		2035	248	0.	.0	2297.0
1		0400	49	151.	36.5	2302.6	1		1220	149	139.	30.0	2302.0	1		2040	249	0.	.0	2297.0
1		0405	50	162.	43.1	2303.1	1		1225	150	137.	29.0	2302.0	1		2045	250	0.	.0	2297.0
1		0410	51	171.	49.6	2303.5	1		1230	151	135.	28.1	2301.9	1		2050	251	0.	.0	2297.0
1		0415	52	179.	55.9	2303.9	1		1235	152	132.	27.1	2301.8	1		2055	252	0.	.0	2297.0
1		0420	53	186.	62.0	2304.3	1		1240	153	130.	26.2	2301.7	1		2100	253	0.	.0	2297.0
1		0425	54	193.	67.4	2304.7	1		1245	154	127.	25.4	2301.6	1		2105	254	0.	.0	2297.0
1		0430	55	199.	72.4	2305.0	1		1250	155	125.	24.5	2301.5	1		2110	255	0.	.0	2297.0
1		0435	56	204.	77.0	2305.3	1		1255	156	123.	23.6	2301.4	1		2115	256	0.	.0	2297.0
1		0440	57	209.	81.3	2305.6	1		1300	157	120.	22.8	2301.4	1		2120	257	0.	.0	2297.0
1		0445	58	213.	85.5	2305.9	1		1305	158	118.	22.0	2301.3	1		2125	258	0.	.0	2297.0
1		0450	59	217.	89.5	2306.1	1		1310	159	116.	21.2	2301.2	1		2130	259	0.	.0	2297.0
1		0455	60	221.	93.3	2306.4	1		1315	160	114.	20.4	2301.1	1		2135	260	0.	.0	2297.0

1	0500	61	225.	97.0	2306.6	*	1	1320	161	112.	19.6	2301.1	*	1	2140	261	0.	.0	2297.0
1	0505	62	229.	100.4	2306.9	*	1	1325	162	109.	18.8	2301.0	*	1	2145	262	0.	.0	2297.0
1	0510	63	232.	103.7	2307.1	*	1	1330	163	106.	18.1	2300.9	*	1	2150	263	0.	.0	2297.0
1	0515	64	235.	106.6	2307.3	*	1	1335	164	103.	17.4	2300.8	*	1	2155	264	0.	.0	2297.0
1	0520	65	237.	109.3	2307.4	*	1	1340	165	101.	16.7	2300.8	*	1	2200	265	0.	.0	2297.0
1	0525	66	239.	111.7	2307.6	*	1	1345	166	98.	16.0	2300.7	*	1	2205	266	0.	.0	2297.0
1	0530	67	241.	113.9	2307.7	*	1	1350	167	95.	15.3	2300.6	*	1	2210	267	0.	.0	2297.0
1	0535	68	243.	115.6	2307.8	*	1	1355	168	92.	14.7	2300.5	*	1	2215	268	0.	.0	2297.0
1	0540	69	244.	117.1	2307.9	*	1	1400	169	90.	14.1	2300.5	*	1	2220	269	0.	.0	2297.0
1	0545	70	245.	118.2	2308.0	*	1	1405	170	87.	13.5	2300.4	*	1	2225	270	0.	.0	2297.0
1	0550	71	246.	119.1	2308.1	*	1	1410	171	85.	12.9	2300.3	*	1	2230	271	0.	.0	2297.0
1	0555	72	246.	119.7	2308.1	*	1	1415	172	83.	12.3	2300.3	*	1	2235	272	0.	.0	2297.0
1	0600	73	247.	120.1	2308.1	*	1	1420	173	80.	11.7	2300.2	*	1	2240	273	0.	.0	2297.0
1	0605	74	247.	120.2	2308.1	*	1	1425	174	78.	11.2	2300.2	*	1	2245	274	0.	.0	2297.0
1	0610	75	247.	120.2	2308.1	*	1	1430	175	76.	10.6	2300.1	*	1	2250	275	0.	.0	2297.0
1	0615	76	247.	120.0	2308.1	*	1	1435	176	74.	10.1	2300.0	*	1	2255	276	0.	.0	2297.0
1	0620	77	246.	119.6	2308.1	*	1	1440	177	72.	9.6	2300.0	*	1	2300	277	0.	.0	2297.0
1	0625	78	246.	119.0	2308.1	*	1	1445	178	70.	9.1	2299.9	*	1	2305	278	0.	.0	2297.0
1	0630	79	245.	118.3	2308.0	*	1	1450	179	68.	8.7	2299.8	*	1	2310	279	0.	.0	2297.0
1	0635	80	244.	117.4	2307.9	*	1	1455	180	67.	8.2	2299.8	*	1	2315	280	0.	.0	2297.0
1	0640	81	243.	116.4	2307.9	*	1	1500	181	65.	7.7	2299.7	*	1	2320	281	0.	.0	2297.0
1	0645	82	242.	115.3	2307.8	*	1	1505	182	63.	7.3	2299.6	*	1	2325	282	0.	.0	2297.0
1	0650	83	241.	114.1	2307.7	*	1	1510	183	62.	6.9	2299.6	*	1	2330	283	0.	.0	2297.0
1	0655	84	240.	112.9	2307.7	*	1	1515	184	60.	6.5	2299.5	*	1	2335	284	0.	.0	2297.0
1	0700	85	239.	111.6	2307.6	*	1	1520	185	59.	6.0	2299.5	*	1	2340	285	0.	.0	2297.0
1	0705	86	238.	110.3	2307.5	*	1	1525	186	57.	5.6	2299.4	*	1	2345	286	0.	.0	2297.0
1	0710	87	237.	109.0	2307.4	*	1	1530	187	56.	5.3	2299.3	*	1	2350	287	0.	.0	2297.0
1	0715	88	236.	107.7	2307.3	*	1	1535	188	55.	4.9	2299.3	*	1	2355	288	0.	.0	2297.0
1	0720	89	235.	106.3	2307.3	*	1	1540	189	53.	4.5	2299.2	*	2	0000	289	0.	.0	2297.0
1	0725	90	233.	104.9	2307.2	*	1	1545	190	52.	4.1	2299.2	*	2	0005	290	0.	.0	2297.0
1	0730	91	232.	103.5	2307.1	*	1	1550	191	51.	3.8	2299.1	*	2	0010	291	0.	.0	2297.0
1	0735	92	231.	102.0	2307.0	*	1	1555	192	50.	3.4	2299.1	*	2	0015	292	0.	.0	2297.0
1	0740	93	229.	100.6	2306.9	*	1	1600	193	48.	3.1	2299.0	*	2	0020	293	0.	.0	2297.0
1	0745	94	228.	99.1	2306.8	*	1	1605	194	46.	2.8	2298.9	*	2	0025	294	0.	.0	2297.0
1	0750	95	226.	97.7	2306.7	*	1	1610	195	43.	2.5	2298.8	*	2	0030	295	0.	.0	2297.0
1	0755	96	225.	96.2	2306.6	*	1	1615	196	41.	2.2	2298.7	*	2	0035	296	0.	.0	2297.0
1	0800	97	223.	94.8	2306.5	*	1	1620	197	38.	1.9	2298.6	*	2	0040	297	0.	.0	2297.0
1	0805	98	221.	93.3	2306.4	*	1	1625	198	36.	1.7	2298.5	*	2	0045	298	0.	.0	2297.0
1	0810	99	220.	91.9	2306.3	*	1	1630	199	34.	1.4	2298.4	*	2	0050	299	0.	.0	2297.0
1	0815	100	218.	90.4	2306.2	*	1	1635	200	32.	1.2	2298.3	*	2	0055	300	0.	.0	2297.0

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)	(CFS)				
247.	6.08		221.	91.	88.	88.
		(INCHES)	1.701	2.805	2.805	2.805
		(AC-FT)	109.	180.	180.	180.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
(AC-FT)	(HR)				
120.	6.08	94.	30.	29.	29.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
(FEET)	(HR)				
2308.13	6.08	2306.41	2300.73	2300.59	2300.59

CUMULATIVE AREA = 1.21 SQ MI

HYDROGRAPH AT STATION DB1
PLAN 1, RATIO = .98

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE		DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE		DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	0000		1	0.	.0	2297.0	* 1	0820		101	213.	85.5	2305.9	* 1		1640		201	26.	.5	2298.1	
1	0005		2	0.	.0	2297.0	* 1	0825		102	212.	84.1	2305.8	* 1		1645		202	24.	.4	2298.0	
1	0010		3	0.	.0	2297.0	* 1	0830		103	210.	82.7	2305.7	* 1		1650		203	16.	.2	2297.7	
1	0015		4	0.	.0	2297.0	* 1	0835		104	209.	81.3	2305.6	* 1		1655		204	10.	.1	2297.4	
1	0020		5	0.	.0	2297.0	* 1	0840		105	207.	79.9	2305.5	* 1		1700		205	6.	.1	2297.3	
1	0025		6	1.	.0	2297.0	* 1	0845		106	206.	78.5	2305.4	* 1		1705		206	4.	.1	2297.2	
1	0030		7	1.	.0	2297.1	* 1	0850		107	204.	77.1	2305.3	* 1		1710		207	2.	.0	2297.1	
1	0035		8	3.	.0	2297.1	* 1	0855		108	203.	75.7	2305.2	* 1		1715		208	1.	.0	2297.1	
1	0040		9	4.	.1	2297.2	* 1	0900		109	201.	74.3	2305.1	* 1		1720		209	1.	.0	2297.0	
1	0045		10	5.	.1	2297.2	* 1	0905		110	200.	72.9	2305.1	* 1		1725		210	0.	.0	2297.0	
1	0050		11	5.	.1	2297.2	* 1	0910		111	198.	71.6	2305.0	* 1		1730		211	0.	.0	2297.0	
1	0055		12	5.	.1	2297.2	* 1	0915		112	197.	70.2	2304.9	* 1		1735		212	0.	.0	2297.0	
1	0100		13	5.	.1	2297.2	* 1	0920		113	195.	68.9	2304.8	* 1		1740		213	0.	.0	2297.0	
1	0105		14	4.	.1	2297.2	* 1	0925		114	193.	67.5	2304.7	* 1		1745		214	0.	.0	2297.0	
1	0110		15	4.	.1	2297.2	* 1	0930		115	192.	66.2	2304.6	* 1		1750		215	0.	.0	2297.0	
1	0115		16	4.	.1	2297.2	* 1	0935		116	190.	64.9	2304.5	* 1		1755		216	0.	.0	2297.0	
1	0120		17	4.	.1	2297.2	* 1	0940		117	188.	63.6	2304.4	* 1		1800		217	0.	.0	2297.0	
1	0125		18	5.	.1	2297.2	* 1	0945		118	187.	62.3	2304.3	* 1		1805		218	0.	.0	2297.0	
1	0130		19	6.	.1	2297.3	* 1	0950		119	185.	61.0	2304.3	* 1		1810		219	0.	.0	2297.0	
1	0135		20	9.	.1	2297.4	* 1	0955		120	183.	59.8	2304.2	* 1		1815		220	0.	.0	2297.0	
1	0140		21	12.	.2	2297.5	* 1	1000		121	182.	58.5	2304.1	* 1		1820		221	0.	.0	2297.0	
1	0145		22	16.	.2	2297.6	* 1	1005		122	180.	57.3	2304.0	* 1		1825		222	0.	.0	2297.0	
1	0150		23	19.	.3	2297.8	* 1	1010		123	179.	56.0	2303.9	* 1		1830		223	0.	.0	2297.0	
1	0155		24	22.	.3	2297.9	* 1	1015		124	177.	54.8	2303.9	* 1		1835		224	0.	.0	2297.0	
1	0200		25	24.	.3	2298.0	* 1	1020		125	176.	53.6	2303.8	* 1		1840		225	0.	.0	2297.0	
1	0205		26	24.	.4	2298.0	* 1	1025		126	174.	52.4	2303.7	* 1		1845		226	0.	.0	2297.0	
1	0210		27	24.	.4	2298.0	* 1	1030		127	173.	51.2	2303.6	* 1		1850		227	0.	.0	2297.0	
1	0215		28	24.	.4	2298.0	* 1	1035		128	171.	50.0	2303.5	* 1		1855		228	0.	.0	2297.0	
1	0220		29	25.	.4	2298.0	* 1	1040		129	170.	48.9	2303.5	* 1		1900		229	0.	.0	2297.0	
1	0225		30	25.	.5	2298.1	* 1	1045		130	168.	47.7	2303.4	* 1		1905		230	0.	.0	2297.0	
1	0230		31	26.	.6	2298.1	* 1	1050		131	167.	46.5	2303.3	* 1		1910		231	0.	.0	2297.0	
1	0235		32	28.	.7	2298.1	* 1	1055		132	165.	45.4	2303.2	* 1		1915		232	0.	.0	2297.0	
1	0240		33	29.	.9	2298.2	* 1	1100		133	164.	44.3	2303.1	* 1		1920		233	0.	.0	2297.0	
1	0245		34	31.	1.1	2298.3	* 1	1105		134	162.	43.1	2303.1	* 1		1925		234	0.	.0	2297.0	
1	0250		35	33.	1.3	2298.4	* 1	1110		135	161.	42.0	2303.0	* 1		1930		235	0.	.0	2297.0	
1	0255		36	35.	1.5	2298.4	* 1	1115		136	159.	40.9	2302.9	* 1		1935		236	0.	.0	2297.0	
1	0300		37	37.	1.8	2298.5	* 1	1120		137	157.	39.8	2302.8	* 1		1940		237	0.	.0	2297.0	
1	0305		38	39.	2.0	2298.6	* 1	1125		138	155.	38.8	2302.7	* 1		1945		238	0.	.0	2297.0	
1	0310		39	42.	2.3	2298.7	* 1	1130		139	153.	37.7	2302.7	* 1		1950		239	0.	.0	2297.0	

1	0315	40	46.	2.8	2298.9 *	1	1135	140	151.	36.6	2302.6 *	1	1955	240	0.	.0	2297.0		
1	0320	41	50.	3.6	2299.1 *	1	1140	141	149.	35.6	2302.5 *	1	2000	241	0.	.0	2297.0		
1	0325	42	55.	5.0	2299.3 *	1	1145	142	148.	34.6	2302.4 *	1	2005	242	0.	.0	2297.0		
1	0330	43	63.	7.2	2299.6 *	1	1150	143	146.	33.6	2302.3 *	1	2010	243	0.	.0	2297.0		
1	0335	44	75.	10.5	2300.1 *	1	1155	144	144.	32.6	2302.3 *	1	2015	244	0.	.0	2297.0		
1	0340	45	92.	14.5	2300.5 *	1	1200	145	142.	31.6	2302.2 *	1	2020	245	0.	.0	2297.0		
1	0345	46	110.	19.1	2301.0 *	1	1205	146	140.	30.6	2302.1 *	1	2025	246	0.	.0	2297.0		
1	0350	47	124.	24.0	2301.5 *	1	1210	147	139.	29.7	2302.0 *	1	2030	247	0.	.0	2297.0		
1	0355	48	138.	29.4	2302.0 *	1	1215	148	136.	28.7	2301.9 *	1	2035	248	0.	.0	2297.0		
1	0400	49	149.	35.3	2302.5 *	1	1220	149	134.	27.8	2301.8 *	1	2040	249	0.	.0	2297.0		
1	0405	50	160.	41.7	2303.0 *	1	1225	150	131.	26.9	2301.8 *	1	2045	250	0.	.0	2297.0		
1	0410	51	169.	48.0	2303.4 *	1	1230	151	129.	26.0	2301.7 *	1	2050	251	0.	.0	2297.0		
1	0415	52	176.	54.1	2303.8 *	1	1235	152	127.	25.1	2301.6 *	1	2055	252	0.	.0	2297.0		
1	0420	53	184.	59.9	2304.2 *	1	1240	153	124.	24.2	2301.5 *	1	2100	253	0.	.0	2297.0		
1	0425	54	190.	65.2	2304.5 *	1	1245	154	122.	23.4	2301.4 *	1	2105	254	0.	.0	2297.0		
1	0430	55	196.	70.0	2304.9 *	1	1250	155	120.	22.6	2301.3 *	1	2110	255	0.	.0	2297.0		
1	0435	56	201.	74.5	2305.2 *	1	1255	156	117.	21.7	2301.3 *	1	2115	256	0.	.0	2297.0		
1	0440	57	206.	78.7	2305.4 *	1	1300	157	115.	20.9	2301.2 *	1	2120	257	0.	.0	2297.0		
1	0445	58	210.	82.7	2305.7 *	1	1305	158	113.	20.2	2301.1 *	1	2125	258	0.	.0	2297.0		
1	0450	59	214.	86.6	2306.0 *	1	1310	159	111.	19.4	2301.0 *	1	2130	259	0.	.0	2297.0		
1	0455	60	218.	90.4	2306.2 *	1	1315	160	109.	18.6	2301.0 *	1	2135	260	0.	.0	2297.0		
1	0500	61	222.	94.0	2306.4 *	1	1320	161	106.	17.9	2300.9 *	1	2140	261	0.	.0	2297.0		
1	0505	62	226.	97.3	2306.7 *	1	1325	162	103.	17.2	2300.8 *	1	2145	262	0.	.0	2297.0		
1	0510	63	229.	100.5	2306.9 *	1	1330	163	100.	16.5	2300.7 *	1	2150	263	0.	.0	2297.0		
1	0515	64	232.	103.4	2307.1 *	1	1335	164	97.	15.8	2300.7 *	1	2155	264	0.	.0	2297.0		
1	0520	65	234.	106.0	2307.2 *	1	1340	165	94.	15.1	2300.6 *	1	2200	265	0.	.0	2297.0		
1	0525	66	236.	108.3	2307.4 *	1	1345	166	92.	14.5	2300.5 *	1	2205	266	0.	.0	2297.0		
1	0530	67	238.	110.4	2307.5 *	1	1350	167	89.	13.9	2300.4 *	1	2210	267	0.	.0	2297.0		
1	0535	68	240.	112.1	2307.6 *	1	1355	168	87.	13.3	2300.4 *	1	2215	268	0.	.0	2297.0		
1	0540	69	241.	113.5	2307.7 *	1	1400	169	84.	12.7	2300.3 *	1	2220	269	0.	.0	2297.0		
1	0545	70	242.	114.6	2307.8 *	1	1405	170	82.	12.1	2300.3 *	1	2225	270	0.	.0	2297.0		
1	0550	71	243.	115.4	2307.8 *	1	1410	171	80.	11.6	2300.2 *	1	2230	271	0.	.0	2297.0		
1	0555	72	243.	115.9	2307.9 *	1	1415	172	77.	11.0	2300.1 *	1	2235	272	0.	.0	2297.0		
1	0600	73	243.	116.3	2307.9 *	1	1420	173	75.	10.5	2300.1 *	1	2240	273	0.	.0	2297.0		
1	0605	74	243.	116.5	2307.9 *	1	1425	174	73.	10.0	2300.0 *	1	2245	274	0.	.0	2297.0		
1	0610	75	243.	116.4	2307.9 *	1	1430	175	71.	9.5	2300.0 *	1	2250	275	0.	.0	2297.0		
1	0615	76	243.	116.2	2307.9 *	1	1435	176	69.	9.0	2299.9 *	1	2255	276	0.	.0	2297.0		
1	0620	77	243.	115.8	2307.8 *	1	1440	177	68.	8.5	2299.8 *	1	2300	277	0.	.0	2297.0		
1	0625	78	242.	115.2	2307.8 *	1	1445	178	66.	8.1	2299.8 *	1	2305	278	0.	.0	2297.0		
1	0630	79	242.	114.4	2307.8 *	1	1450	179	64.	7.6	2299.7 *	1	2310	279	0.	.0	2297.0		
1	0635	80	241.	113.5	2307.7 *	1	1455	180	63.	7.2	2299.6 *	1	2315	280	0.	.0	2297.0		
1	0640	81	240.	112.5	2307.6 *	1	1500	181	61.	6.7	2299.6 *	1	2320	281	0.	.0	2297.0		
1	0645	82	239.	111.5	2307.6 *	1	1505	182	60.	6.3	2299.5 *	1	2325	282	0.	.0	2297.0		
1	0650	83	238.	110.3	2307.5 *	1	1510	183	58.	5.9	2299.4 *	1	2330	283	0.	.0	2297.0		
1	0655	84	237.	109.1	2307.4 *	1	1515	184	57.	5.5	2299.4 *	1	2335	284	0.	.0	2297.0		
1	0700	85	236.	107.9	2307.4 *	1	1520	185	56.	5.1	2299.3 *	1	2340	285	0.	.0	2297.0		
1	0705	86	235.	106.6	2307.3 *	1	1525	186	54.	4.8	2299.3 *	1	2345	286	0.	.0	2297.0		
1	0710	87	234.	105.3	2307.2 *	1	1530	187	53.	4.4	2299.2 *	1	2350	287	0.	.0	2297.0		
1	0715	88	232.	103.9	2307.1 *	1	1535	188	52.	4.0	2299.2 *	1	2355	288	0.	.0	2297.0		
1	0720	89	231.	102.6	2307.0 *	1	1540	189	50.	3.7	2299.1 *	2	0000	289	0.	.0	2297.0		
1	0725	90	230.	101.2	2306.9 *	1	1545	190	49.	3.3	2299.0 *	2	0005	290	0.	.0	2297.0		
1	0730	91	228.	99.8	2306.8 *	1	1550	191	48.	3.0	2299.0 *	2	0010	291	0.	.0	2297.0		
1	0735	92	227.	98.4	2306.7 *	1	1555	192	45.	2.7	2298.9 *	2	0015	292	0.	.0	2297.0		
1	0740	93	225.	97.0	2306.6 *	1	1600	193	42.	2.4	2298.8 *	2	0020	293	0.	.0	2297.0		
1	0745	94	224.	95.6	2306.6 *	1	1605	194	40.	2.1	2298.7 *	2	0025	294	0.	.0	2297.0		
1	0750	95	222.	94.1	2306.5 *	1	1610	195	37.	1.8	2298.6 *	2	0030	295	0.	.0	2297.0		
1	0755	96	221.	92.7	2306.4 *	1	1615	196	35.	1.6	2298.5 *	2	0035	296	0.	.0	2297.0		
1	0800	97	219.	91.3	2306.3 *	1	1620	197	33.	1.3	2298.4 *	2	0040	297	0.	.0	2297.0		
1	0805	98	218.	89.8	2306.2 *	1	1625	198	31.	1.1	2298.3 *	2	0045	298	0.	.0	2297.0		
1	0810	99	216.	88.4	2306.1 *	1	1630	199	29.	.9	2298.2 *	2	0050	299	0.	.0	2297.0		
1	0815	100	215.	87.0	2306.0 *	1	1635	200	27.	.7	2298.1 *	2	0055	300	0.	.0	2297.0		

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)	(CFS)				
+ 243.	6.08		217.	89.	85.	85.
		(INCHES)	1.675	2.730	2.730	2.730
		(AC-FT)	108.	176.	176.	176.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
116.	6.08	90.	29.	28.	28.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
2307.89	6.08	2306.19	2300.61	2300.48	2300.48

CUMULATIVE AREA = 1.21 SQ MI

HYDROGRAPH AT STATION DB1
PLAN 1, RATIO = .95

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.0	2297.0 * 1			0820	101	207.	80.0	2305.5 * 1			1640	201	7.	.1	2297.3
1		0005	2	0.	.0	2297.0 * 1			0825	102	206.	78.6	2305.4 * 1			1645	202	4.	.1	2297.2
1		0010	3	0.	.0	2297.0 * 1			0830	103	204.	77.2	2305.3 * 1			1650	203	2.	.0	2297.1
1		0015	4	0.	.0	2297.0 * 1			0835	104	203.	75.9	2305.2 * 1			1655	204	1.	.0	2297.1
1		0020	5	0.	.0	2297.0 * 1			0840	105	201.	74.5	2305.2 * 1			1700	205	1.	.0	2297.0
1		0025	6	1.	.0	2297.0 * 1			0845	106	200.	73.1	2305.1 * 1			1705	206	1.	.0	2297.0
1		0030	7	1.	.0	2297.1 * 1			0850	107	199.	71.8	2305.0 * 1			1710	207	0.	.0	2297.0
1		0035	8	3.	.0	2297.1 * 1			0855	108	197.	70.4	2304.9 * 1			1715	208	0.	.0	2297.0
1		0040	9	4.	.1	2297.2 * 1			0900	109	195.	69.1	2304.8 * 1			1720	209	0.	.0	2297.0
1		0045	10	4.	.1	2297.2 * 1			0905	110	193.	67.8	2304.7 * 1			1725	210	0.	.0	2297.0
1		0050	11	5.	.1	2297.2 * 1			0910	111	192.	66.4	2304.6 * 1			1730	211	0.	.0	2297.0
1		0055	12	4.	.1	2297.2 * 1			0915	112	190.	65.1	2304.5 * 1			1735	212	0.	.0	2297.0
1		0100	13	4.	.1	2297.2 * 1			0920	113	189.	63.8	2304.4 * 1			1740	213	0.	.0	2297.0
1		0105	14	4.	.1	2297.1 * 1			0925	114	187.	62.5	2304.4 * 1			1745	214	0.	.0	2297.0
1		0110	15	3.	.0	2297.1 * 1			0930	115	185.	61.3	2304.3 * 1			1750	215	0.	.0	2297.0
1		0115	16	3.	.0	2297.1 * 1			0935	116	184.	60.0	2304.2 * 1			1755	216	0.	.0	2297.0
1		0120	17	4.	.1	2297.2 * 1			0940	117	182.	58.7	2304.1 * 1			1800	217	0.	.0	2297.0
1		0125	18	4.	.1	2297.2 * 1			0945	118	181.	57.5	2304.0 * 1			1805	218	0.	.0	2297.0

1	0130	19	6.	.1	2297.2	*	1	0950	119	179.	56.3	2303.9	*	1	1810	219	0.	.0	2297.0
1	0135	20	8.	.1	2297.3	*	1	0955	120	177.	55.0	2303.9	*	1	1815	220	0.	.0	2297.0
1	0140	21	11.	.2	2297.4	*	1	1000	121	176.	53.8	2303.8	*	1	1820	221	0.	.0	2297.0
1	0145	22	14.	.2	2297.6	*	1	1005	122	174.	52.6	2303.7	*	1	1825	222	0.	.0	2297.0
1	0150	23	18.	.2	2297.7	*	1	1010	123	173.	51.4	2303.6	*	1	1830	223	0.	.0	2297.0
1	0155	24	20.	.3	2297.9	*	1	1015	124	171.	50.2	2303.5	*	1	1835	224	0.	.0	2297.0
1	0200	25	22.	.3	2297.9	*	1	1020	125	170.	49.1	2303.5	*	1	1840	225	0.	.0	2297.0
1	0205	26	23.	.3	2297.9	*	1	1025	126	168.	47.9	2303.4	*	1	1845	226	0.	.0	2297.0
1	0210	27	22.	.3	2297.9	*	1	1030	127	167.	46.7	2303.3	*	1	1850	227	0.	.0	2297.0
1	0215	28	23.	.3	2297.9	*	1	1035	128	166.	45.6	2303.2	*	1	1855	228	0.	.0	2297.0
1	0220	29	24.	.3	2298.0	*	1	1040	129	164.	44.5	2303.2	*	1	1900	229	0.	.0	2297.0
1	0225	30	25.	.4	2298.0	*	1	1045	130	163.	43.3	2303.1	*	1	1905	230	0.	.0	2297.0
1	0230	31	26.	.5	2298.1	*	1	1050	131	161.	42.2	2303.0	*	1	1910	231	0.	.0	2297.0
1	0235	32	27.	.6	2298.1	*	1	1055	132	159.	41.1	2302.9	*	1	1915	232	0.	.0	2297.0
1	0240	33	28.	.8	2298.2	*	1	1100	133	157.	40.0	2302.8	*	1	1920	233	0.	.0	2297.0
1	0245	34	29.	.9	2298.2	*	1	1105	134	155.	38.9	2302.8	*	1	1925	234	0.	.0	2297.0
1	0250	35	31.	1.1	2298.3	*	1	1110	135	154.	37.9	2302.7	*	1	1930	235	0.	.0	2297.0
1	0255	36	33.	1.3	2298.4	*	1	1115	136	152.	36.8	2302.6	*	1	1935	236	0.	.0	2297.0
1	0300	37	35.	1.5	2298.4	*	1	1120	137	150.	35.8	2302.5	*	1	1940	237	0.	.0	2297.0
1	0305	38	37.	1.7	2298.5	*	1	1125	138	148.	34.8	2302.4	*	1	1945	238	0.	.0	2297.0
1	0310	39	39.	2.0	2298.6	*	1	1130	139	146.	33.8	2302.3	*	1	1950	239	0.	.0	2297.0
1	0315	40	43.	2.5	2298.8	*	1	1135	140	144.	32.8	2302.3	*	1	1955	240	0.	.0	2297.0
1	0320	41	49.	3.2	2299.0	*	1	1140	141	142.	31.8	2302.2	*	1	2000	241	0.	.0	2297.0
1	0325	42	53.	4.5	2299.2	*	1	1145	142	141.	30.8	2302.1	*	1	2005	242	0.	.0	2297.0
1	0330	43	61.	6.6	2299.5	*	1	1150	143	139.	29.8	2302.0	*	1	2010	243	0.	.0	2297.0
1	0335	44	72.	9.7	2300.0	*	1	1155	144	137.	28.9	2302.0	*	1	2015	244	0.	.0	2297.0
1	0340	45	88.	13.6	2300.4	*	1	1200	145	134.	28.0	2301.9	*	1	2020	245	0.	.0	2297.0
1	0345	46	106.	18.0	2300.9	*	1	1205	146	132.	27.0	2301.8	*	1	2025	246	0.	.0	2297.0
1	0350	47	120.	22.6	2301.4	*	1	1210	147	129.	26.1	2301.7	*	1	2030	247	0.	.0	2297.0
1	0355	48	134.	27.7	2301.8	*	1	1215	148	127.	25.3	2301.6	*	1	2035	248	0.	.0	2297.0
1	0400	49	145.	33.4	2302.3	*	1	1220	149	125.	24.4	2301.5	*	1	2040	249	0.	.0	2297.0
1	0405	50	156.	39.4	2302.8	*	1	1225	150	122.	23.5	2301.4	*	1	2045	250	0.	.0	2297.0
1	0410	51	165.	45.4	2303.2	*	1	1230	151	120.	22.7	2301.4	*	1	2050	251	0.	.0	2297.0
1	0415	52	173.	51.1	2303.6	*	1	1235	152	118.	21.9	2301.3	*	1	2055	252	0.	.0	2297.0
1	0420	53	179.	56.6	2304.0	*	1	1240	153	116.	21.1	2301.2	*	1	2100	253	0.	.0	2297.0
1	0425	54	186.	61.6	2304.3	*	1	1245	154	114.	20.3	2301.1	*	1	2105	254	0.	.0	2297.0
1	0430	55	191.	66.2	2304.6	*	1	1250	155	111.	19.5	2301.1	*	1	2110	255	0.	.0	2297.0
1	0435	56	197.	70.4	2304.9	*	1	1255	156	109.	18.8	2301.0	*	1	2115	256	0.	.0	2297.0
1	0440	57	201.	74.5	2305.2	*	1	1300	157	106.	18.0	2300.9	*	1	2120	257	0.	.0	2297.0
1	0445	58	205.	78.3	2305.4	*	1	1305	158	103.	17.3	2300.8	*	1	2125	258	0.	.0	2297.0
1	0450	59	209.	81.9	2305.6	*	1	1310	159	100.	16.6	2300.7	*	1	2130	259	0.	.0	2297.0
1	0455	60	213.	85.5	2305.9	*	1	1315	160	97.	15.9	2300.7	*	1	2135	260	0.	.0	2297.0
1	0500	61	217.	89.0	2306.1	*	1	1320	161	95.	15.3	2300.6	*	1	2140	261	0.	.0	2297.0
1	0505	62	220.	92.3	2306.3	*	1	1325	162	92.	14.6	2300.5	*	1	2145	262	0.	.0	2297.0
1	0510	63	224.	95.3	2306.5	*	1	1330	163	90.	14.0	2300.5	*	1	2150	263	0.	.0	2297.0
1	0515	64	226.	98.0	2306.7	*	1	1335	164	87.	13.4	2300.4	*	1	2155	264	0.	.0	2297.0
1	0520	65	229.	100.6	2306.9	*	1	1340	165	85.	12.8	2300.3	*	1	2200	265	0.	.0	2297.0
1	0525	66	231.	102.8	2307.0	*	1	1345	166	82.	12.2	2300.3	*	1	2205	266	0.	.0	2297.0
1	0530	67	233.	104.7	2307.2	*	1	1350	167	80.	11.7	2300.2	*	1	2210	267	0.	.0	2297.0
1	0535	68	235.	106.3	2307.3	*	1	1355	168	78.	11.1	2300.2	*	1	2215	268	0.	.0	2297.0
1	0540	69	236.	107.6	2307.3	*	1	1400	169	76.	10.6	2300.1	*	1	2220	269	0.	.0	2297.0
1	0545	70	237.	108.6	2307.4	*	1	1405	170	73.	10.1	2300.0	*	1	2225	270	0.	.0	2297.0
1	0550	71	237.	109.3	2307.4	*	1	1410	171	71.	9.6	2300.0	*	1	2230	271	0.	.0	2297.0
1	0555	72	238.	109.8	2307.5	*	1	1415	172	70.	9.1	2299.9	*	1	2235	272	0.	.0	2297.0
1	0600	73	238.	110.2	2307.5	*	1	1420	173	68.	8.6	2299.8	*	1	2240	273	0.	.0	2297.0
1	0605	74	238.	110.3	2307.5	*	1	1425	174	66.	8.1	2299.8	*	1	2245	274	0.	.0	2297.0
1	0610	75	238.	110.2	2307.5	*	1	1430	175	65.	7.7	2299.7	*	1	2250	275	0.	.0	2297.0
1	0615	76	238.	110.0	2307.5	*	1	1435	176	63.	7.3	2299.6	*	1	2255	276	0.	.0	2297.0
1	0620	77	237.	109.5	2307.5	*	1	1440	177	62.	6.8	2299.6	*	1	2300	277	0.	.0	2297.0
1	0625	78	237.	108.9	2307.4	*	1	1445	178	60.	6.4	2299.5	*	1	2305	278	0.	.0	2297.0
1	0630	79	236.	108.1	2307.4	*	1	1450	179	59.	6.0	2299.4	*	1	2310	279	0.	.0	2297.0
1	0635	80	235.	107.3	2307.3	*	1	1455	180	57.	5.6	2299.4	*	1	2315	280	0.	.0	2297.0
1	0640	81	235.	106.3	2307.3	*	1	1500	181	56.	5.2	2299.3	*	1	2320	281	0.	.0	2297.0
1	0645	82	234.	105.2	2307.2	*	1	1505	182	54.	4.8	2299.3	*	1	2325	282	0.	.0	2297.0
1	0650	83	233.	104.1	2307.1	*	1	1510	183	53.	4.5	2299.2	*	1	2330	283	0.	.0	2297.0
1	0655	84	232.	102.9	2307.0	*	1	1515	184	52.	4.1	2299.2	*	1	2335	284	0.	.0	2297.0
1	0700	85	230.	101.7	2307.0	*	1	1520	185	51.	3.7	2299.1	*	1	2340	285	0.	.0	2297.0
1	0705	86	229.	100.5	2306.9	*	1	1525	186	49.	3.4	2299.1	*	1	2345	286	0.	.0	2297.0
1	0710	87	228.	99.2	2306.8	*	1	1530	187	48.	3.1	2299.0	*	1	2350	287	0.	.0	2297.0
1	0715	88	226.	97.9	2306.7	*	1	1535	188	46.	2.7	2298.9	*	1	2355	288	0.	.0	2297.0
1	0720	89	225.	96.6	2306.6	*	1	1540	189	43.	2.4	2298.8	*	2	0000	289	0.	.0	2297.0
1	0725	90	223.	95.2	2306.5	*	1	1545	190	40.	2.1	2298.7	*	2	0005	290	0.	.0	2297.0
1	0730	91	222.	93.9	2306.4	*	1	1550	191	38.	1.9	2298.6	*	2	0010	291	0.	.0	2297.0
1	0735	92	221.	92.5	2306.3	*	1	1555	192	36.	1.6	2298.5	*	2	0015	292	0.	.0	2297.0
1	0740	93	219.	91.1	2306.3	*	1	1600	193	33.	1.4	2298.4	*	2	0020	293	0.	.0	2297.0
1	0745	94	218.	89.7	2306.2	*	1	1605	194	31.	1.2	2298.3	*	2	0025	294	0.	.0	2297.0
1	0750	95	216.	88.4	2306.1	*	1	1610	195	30.	1.0	2298.2	*	2	0030	295	0.	.0	2297.0
1	0755	96	215.	87.0	2306.0	*	1	1615	196	28.	.8	2298.2	*	2	0035	296	0.	.0	2297.0
1	0800	97	213.	85.6	2305.9	*	1	1620	197	26.	.6	2298.1	*	2	0040	297	0.	.0	2297.0
1	0805	98	212.	84.2	2305.8	*	1	1625	198	25.	.4	2298.0	*	2	0045	298	0.	.0	2297.0
1	0810	99	210.	82.8	2305.7	*	1	1630	199	18.	.3	2297.7	*	2	0050	299	0.	.0	2297.0
1	0815	100	209.	81.4	2305.6	*	1	1635	200	11.	.2	2297.5	*	2	0055	300	0.	.0	2297.0
						*							*						

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)	(CFS)				
+ 238.	6.08		212.	85.	81.	81.
		(INCHES)	1.631	2.607	2.607	2.607
		(AC-FT)	105.	168.	168.	168.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
+ 110.	6.08	85.	27.	26.	26.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
+ 2307.50	6.08	2305.84	2300.42	2300.30	2300.30

CUMULATIVE AREA = 1.21 SQ MI

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HYDROGRAPH AT STATION DB1
PLAN 1, RATIO = .93

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.0	2297.0
1		0005	2	0.	.0	2297.0
1		0010	3	0.	.0	2297.0
1		0015	4	0.	.0	2297.0
1		0020	5	0.	.0	2297.0
1		0025	6	0.	.0	2297.0
1		0030	7	1.	.0	2297.0
1		0035	8	2.	.0	2297.1
1		0040	9	3.	.0	2297.1
1		0045	10	4.	.1	2297.2
1		0050	11	4.	.1	2297.2
1		0055	12	4.	.1	2297.2
1		0100	13	3.	.0	2297.1
1		0105	14	3.	.0	2297.1
1		0110	15	3.	.0	2297.1
1		0115	16	3.	.0	2297.1
1		0120	17	3.	.0	2297.1
1		0125	18	4.	.1	2297.2
1		0130	19	5.	.1	2297.2
1		0135	20	7.	.1	2297.3
1		0140	21	10.	.1	2297.4
1		0145	22	13.	.2	2297.5
1		0150	23	16.	.2	2297.7
1		0155	24	19.	.3	2297.8
1		0200	25	20.	.3	2297.8
1		0205	26	21.	.3	2297.9
1		0210	27	21.	.3	2297.9
1		0215	28	21.	.3	2297.9
1		0220	29	22.	.3	2297.9
1		0225	30	24.	.4	2298.0
1		0230	31	25.	.4	2298.0
1		0235	32	26.	.6	2298.1
1		0240	33	27.	.7	2298.1
1		0245	34	28.	.8	2298.2
1		0250	35	30.	1.0	2298.2
1		0255	36	31.	1.2	2298.3
1		0300	37	33.	1.3	2298.4
1		0305	38	35.	1.5	2298.4
1		0310	39	37.	1.8	2298.5
1		0315	40	41.	2.2	2298.7
1		0320	41	47.	2.9	2299.0
1		0325	42	52.	4.1	2299.2
1		0330	43	59.	6.1	2299.5
1		0335	44	70.	9.1	2299.9
1		0340	45	85.	12.8	2300.3
1		0345	46	102.	16.9	2300.8
1		0350	47	116.	21.3	2301.2
1		0355	48	129.	26.1	2301.7
1		0400	49	142.	31.5	2302.2
1		0405	50	152.	37.2	2302.6
1		0410	51	162.	43.0	2303.1
1		0415	52	169.	48.5	2303.4
1		0420	53	176.	53.6	2303.8
1		0425	54	182.	58.4	2304.1
1		0430	55	187.	62.9	2304.4
1		0435	56	193.	67.0	2304.7
1		0440	57	197.	70.9	2304.9
1		0445	58	201.	74.5	2305.2
1		0450	59	205.	77.9	2305.4
1		0455	60	209.	81.3	2305.6
1		0500	61	212.	84.6	2305.8
1		0505	62	216.	87.8	2306.0
1		0510	63	219.	90.6	2306.2
1		0515	64	221.	93.3	2306.4
1		0520	65	224.	95.7	2306.6
1		0525	66	226.	97.7	2306.7
1		0530	67	228.	99.5	2306.8
1		0535	68	230.	101.0	2306.9
1		0540	69	231.	102.2	2307.0
1		0545	70	232.	103.1	2307.0
1		0550	71	232.	103.8	2307.1
1		0555	72	233.	104.3	2307.1
1		0600	73	233.	104.5	2307.1
1		0605	74	233.	104.6	2307.1
1		0610	75	233.	104.5	2307.1
1		0615	76	233.	104.2	2307.1
1		0620	77	232.	103.8	2307.1
1		0625	78	232.	103.2	2307.1
1		0630	79	231.	102.4	2307.0
1		0635	80	230.	101.5	2306.9
1		0640	81	229.	100.5	2306.9
1		0645	82	228.	99.5	2306.8
1		0650	83	227.	98.4	2306.7
1		0655	84	226.	97.3	2306.7
1		0700	85	224.	96.1	2306.6
1		0705	86	223.	94.9	2306.5
1		0710	87	222.	93.6	2306.4
1		0715	88	220.	92.3	2306.3
1		0720	89	219.	91.0	2306.3
1		0725	90	218.	89.7	2306.2
1		0730	91	216.	88.4	2306.1
1		0735	92	215.	87.1	2306.0
1		0740	93	213.	85.8	2305.9
1		0745	94	212.	84.4	2305.8
1		0750	95	211.	83.1	2305.7
1		0755	96	209.	81.7	2305.6
1		0800	97	208.	80.3	2305.5
1		0805	98	206.	79.0	2305.5
1		0810	99	205.	77.6	2305.4
1		0815	100	203.	76.3	2305.3
1		0820	101	202.	74.9	2305.2
1		0825	102	201.	73.6	2305.1
1		0830	103	199.	72.2	2305.0
1		0835	104	197.	70.9	2304.9
1		0840	105	196.	69.6	2304.8
1		0845	106	194.	68.2	2304.7
1		0850	107	192.	66.9	2304.7
1		0855	108	191.	65.6	2304.6
1		0900	109	189.	64.3	2304.5
1		0905	110	187.	63.0	2304.4
1		0910	111	186.	61.7	2304.3
1		0915	112	184.	60.5	2304.2
1		0920	113	183.	59.2	2304.1
1		0925	114	181.	58.0	2304.1
1		0930	115	180.	56.7	2304.0
1		0935	116	178.	55.5	2303.9
1		0940	117	176.	54.3	2303.8
1		0945	118	175.	53.1	2303.7
1		0950	119	173.	51.9	2303.7
1		0955	120	172.	50.7	2303.6
1		1000	121	170.	49.5	2303.5
1		1005	122	169.	48.4	2303.4
1		1010	123	168.	47.2	2303.3
1		1015	124	166.	46.0	2303.3
1		1020	125	165.	44.9	2303.2
1		1025	126	163.	43.8	2303.1
1		1030	127	162.	42.7	2303.0
1		1035	128	160.	41.6	2303.0
1		1040	129	158.	40.5	2302.9
1		1045	130	156.	39.4	2302.8
1		1050	131	154.	38.3	2302.7
1		1055	132	152.	37.2	2302.6
1		1100	133	150.	36.2	2302.5
1		1105	134	149.	35.2	2302.5
1		1110	135	147.	34.2	2302.4
1		1115	136	145.	33.2	2302.3
1		1120	137	143.	32.2	2302.2
1		1125	138	141.	31.2	2302.1
1		1130	139	140.	30.2	2302.1
1		1135	140	138.	29.3	2302.0
1		1140	141	135.	28.3	2301.9
1		1145	142	133.	27.4	2301.8
1		1150	143	130.	26.5	2301.7
1		1155	144	128.	25.6	2301.6
1		1200	145	126.	24.7	2301.6
1		1205	146	123.	23.9	2301.5
1		1210	147	121.	23.0	2301.4
1		1215	148	119.	22.2	2301.3
1		1220	149	117.	21.4	2301.2
1		1225	150	114.	20.6	2301.2
1		1230	151	112.	19.8	2301.1
1		1235	152	110.	19.1	2301.0
1		1240	153	107.	18.3	2300.9
1		1245	154	104.	17.6	2300.8
1		1250	155	101.	16.9	2300.8
1		1255	156	99.	16.2	2300.7
1		1300	157	96.	15.5	2300.6
1		1305	158	93.	14.9	2300.6
1		1310	159	91.	14.2	2300.5
1		1315	160	88.	13.6	2300.4
1		1320	161	86.	13.0	2300.4
1		1325	162	83.	12.4	2300.3
1		1330	163	81.	11.9	2300.2
1		1335	164	79.	11.3	2300.2
1		1340	165	76.	10.8	2300.1
1		1345	166	74.	10.3	2300.1
1		1350	167	72.	9.8	2300.0
1		1355	168	70.	9.3	2299.9
1		1400	169	69.	8.8	2299.9
1		1405	170	67.	8.3	2299.8
1		1410	171	65.	7.9	2299.7
1		1415	172	64.	7.4	2299.7
1		1420	173	62.	7.0	2299.6
1		1425	174	61.	6.6	2299.5
1		1430	175	59.	6.2	2299.5
1		1435	176	58.	5.8	2299.4
1		1440	177	56.	5.4	2299.4
1		1445	178	55.	5.0	2299.3
1		1450	179	54.	4.6	2299.2
1		1455	180	52.	4.2	2299.2
1		1500	181	51.	3.9	2299.1
1		1505	182	50.	3.5	2299.1
1		1510	183	49.	3.2	2299.0
1		1515	184	47.	2.9	2298.9
1		1520	185	44.	2.6	2298.8
1		1525	186	41.	2.3	2298.7
1		1530	187	39.	2.0	2298.6
1		1535	188	36.	1.7	2298.5
1		1540	189	34.	1.5	2298.4
1		1545	190	32.	1.3	2298.3
1		1550	191	30.	1.0	2298.3
1		1555	192	28.	.8	2298.2
1		1600	193	27.	.6	2298.1
1		1605	194	25.	.5	2298.0
1		1610	195	22.	.3	2297.9
1		1615	196	13.	.2	2297.5
1		1620	197	8.	.1	2297.3
1		1625	198	5.	.1	2297.2
1		1630	199	3.	.0	2297.1
1		1635	200	2.	.0	2297.1
1		1640	201	1.	.0	2297.0
1		1645	202	1.	.0	2297.0
1		1650	203	0.	.0	2297.0
1		1655	204	0.	.0	2297.0
1		1700	205	0.	.0	2297.0
1		1705	206	0.	.0	2297.0
1		1710	207	0.	.0	2297.0
1		1715	208	0.	.0	2297.0
1		1720	209	0.	.0	2297.0
1		1725	210	0.	.0	2297.0
1		1730	211	0.	.0	2297.0
1		1735	212	0.	.0	2297.0
1		1740	213	0.	.0	2297.0
1		1745	214	0.	.0	2297.0
1		1750	215	0.	.0	2297.0
1		1755	216	0.	.0	2297.0
1		1800	217	0.	.0	2297.0
1		1805	218	0.	.0	2297.0
1		1810	219	0.	.0	2297.0
1		1815	220	0.	.0	2297.0
1		1820	221	0.	.0	2297.0
1		1825	222	0.	.0	2297.0
1		1830	223	0.	.0	2297.0
1		1835	224	0.	.0	2297.0
1		1840	225	0.	.0	2297.0
1		1845	226	0.	.0	2297.0
1		1850	227	0.	.0	2297.0
1		1855	228	0.	.0	2297.0
1		1900	229	0.	.0	2297.0
1		1905	230	0.	.0	2297.0
1		1910	231	0.	.0	2297.0
1		1915	232	0.	.0	2297.0
1		1920	233	0.	.0	2297.0
1		1925	234	0.	.0	2297.0
1		1930	235	0.	.0	2297.0
1		1935	236	0.	.0	2297.0
1		1940	237	0.	.0	2297.0
1		1945	238	0.	.0	2297.0
1		1950	239	0.	.0	2297.0
1		1955	240	0.	.0	2297.0
1		2000	241	0.	.0	2297.0
1		2005	242	0.	.0	2297.0
1		2010	243	0.	.0	2297.0
1		2015	244	0.	.0	2297.0
1		2020	245	0.	.0	2297.0
1		2025	246	0.	.0	2297.0
1		2030	247	0.	.0	2297.0
1		2035	248	0.	.0	2297.0
1		2040	249	0.	.0	2297.0
1		2045	250	0.	.0	2297.0
1		2050	251	0.	.0	2297.0
1		2055	252	0.	.0	2297.0
1		2100	253	0.	.0	2297.0
1		2105	254	0.	.0	2297.0
1		2110	255	0.	.0	2297.0
1		2115	256	0.	.0	2297.0
1		2120	257	0.	.0	2297.0
1		2125	258	0.	.0	2297.0
1		2130	259	0.	.0	2297.0
1		2135	260	0.	.0	2297.0
1		2140	261	0.	.0	2297.0
1		2145	262	0.	.0	2297.0
1		2150	263	0.	.0	2297.0
1		2155	264	0.	.0	2297.0
1		2200	265	0.	.0	2297.0
1		2205	266	0.	.0	2297.0
1		2210	267	0.	.0	2297.0
1		2215	268	0.	.0	2297.0
1		2220	269	0.	.0	2297.0
1		2225	270	0.	.0	2297.0
1		2230	271	0.	.0	2297.0
1		2235	272	0.	.0	2297.0
1		2240	273	0.	.0	2297.0
1		2245	274	0.	.0	2297.0
1		2250	275	0.	.0	2297.0
1		2255	276	0.	.0	2297.0
1		2300	277	0.	.0	2297.0
1		2305	278	0.	.0	2297.0
1		2310	279	0.	.0	2297.0
1		2315	280	0.	.0	2297.0
1		2320	281	0.	.0	2297.0
1		2325	282	0.	.0	2297.0
1		2330	283	0.	.0	2297.0
1		2335	284	0.	.0	2297.0
1		2340	285	0.	.0	2297.0
1		2345	286	0.	.0	2297.0
1		2350	287	0.	.0	2297.0
1		2355	288	0.	.0	2297.0
2		0000	289	0.	.0	2297.0
2		0005	290	0.	.0	2297.0
2		0010	291	0.	.0	2297.0
2		0015	292	0.	.0	2297.0
2		0020	293	0.	.0	2297.0
2		0025	294	0.	.0	2297.0
2		0030	295	0.	.0	2297.0
2		0035	296	0.	.0	2297.0
2		0040	297	0.	.0	2297.0
2		0045	298	0.	.0	2297.0
2		0050	299	0.	.0	2297.0
2		0055	300	0.	.0	2297.0

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+	(CFS)	(HR)	(CFS)			
+	233.	6.08	206.	81.	78.	78.
			(INCHES) 1.591	2.494	2.494	2.494

	(AC-FT)	102.	160.	160.	160.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
105.	6.08	80.	25.	24.	24.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
2307.15	6.08	2305.52	2300.25	2300.13	2300.13

CUMULATIVE AREA = 1.21 SQ MI

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HYDROGRAPH AT STATION DB1
PLAN 1, RATIO = .92

****

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.0	2297.0
1		0005	2	0.	.0	2297.0
1		0010	3	0.	.0	2297.0
1		0015	4	0.	.0	2297.0
1		0020	5	0.	.0	2297.0
1		0025	6	0.	.0	2297.0
1		0030	7	1.	.0	2297.0
1		0035	8	2.	.0	2297.1
1		0040	9	3.	.0	2297.1
1		0045	10	4.	.1	2297.2
1		0050	11	4.	.1	2297.2
1		0055	12	4.	.1	2297.1
1		0100	13	3.	.0	2297.1
1		0105	14	3.	.0	2297.1
1		0110	15	3.	.0	2297.1
1		0115	16	3.	.0	2297.1
1		0120	17	3.	.0	2297.1
1		0125	18	4.	.1	2297.2
1		0130	19	5.	.1	2297.2
1		0135	20	7.	.1	2297.3
1		0140	21	9.	.1	2297.4
1		0145	22	13.	.2	2297.5
1		0150	23	16.	.2	2297.6
1		0155	24	18.	.3	2297.8
1		0200	25	20.	.3	2297.8
1		0205	26	20.	.3	2297.8
1		0210	27	20.	.3	2297.8
1		0215	28	20.	.3	2297.8
1		0220	29	21.	.3	2297.9
1		0225	30	24.	.3	2298.0
1		0230	31	25.	.4	2298.0
1		0235	32	26.	.5	2298.1
1		0240	33	27.	.6	2298.1
1		0245	34	28.	.8	2298.2
1		0250	35	29.	.9	2298.2
1		0255	36	31.	1.1	2298.3
1		0300	37	32.	1.3	2298.3
1		0305	38	34.	1.5	2298.4
1		0310	39	36.	1.7	2298.5
1		0315	40	40.	2.1	2298.7
1		0320	41	46.	2.8	2298.9
1		0325	42	51.	3.9	2299.1
1		0330	43	58.	5.9	2299.4
1		0335	44	69.	8.8	2299.9
1		0340	45	83.	12.4	2300.3
1		0345	46	100.	16.5	2300.7
1		0350	47	115.	20.8	2301.2
1		0355	48	128.	25.5	2301.6
1		0400	49	140.	30.7	2302.1
1		0405	50	151.	36.4	2302.6
1		0410	51	161.	42.1	2303.0
1		0415	52	168.	47.4	2303.4
1		0420	53	174.	52.5	2303.7
1		0425	54	180.	57.2	2304.0
1		0430	55	186.	61.6	2304.3
1		0435	56	191.	65.6	2304.6
1		0440	57	196.	69.4	2304.8
1		0445	58	200.	72.9	2305.1
1		0450	59	203.	76.3	2305.3
1		0455	60	207.	79.6	2305.5
1		0500	61	210.	82.9	2305.7
1		0505	62	214.	85.9	2305.9
1		0510	63	217.	88.8	2306.1
1		0515	64	219.	91.4	2306.3
1		0520	65	222.	93.7	2306.4
1		0525	66	224.	95.7	2306.6
1		0530	67	226.	97.4	2306.7
1		0535	68	227.	98.8	2306.8
1		0540	69	229.	100.0	2306.8
1		0545	70	229.	100.9	2306.9
1		0550	71	230.	101.6	2307.0
1		0555	72	231.	102.0	2307.0
1		0600	73	231.	102.3	2307.0
1		0605	74	231.	102.4	2307.0
1		0610	75	231.	102.2	2307.0
1		0615	76	231.	101.9	2307.0
1		0620	77	230.	101.5	2306.9
1		0625	78	229.	100.8	2306.9
1		0630	79	229.	100.1	2306.9
1		0635	80	228.	99.2	2306.8
1		0640	81	227.	98.2	2306.7
1		0645	82	226.	97.2	2306.7
1		0650	83	224.	96.1	2306.6
1		0655	84	223.	95.0	2306.5
1		0700	85	222.	93.8	2306.4
1		0705	86	221.	92.6	2306.4
1		0710	87	219.	91.4	2306.3
1		0715	88	218.	90.1	2306.2
1		0820	101	200.	72.9	2305.0
1		0825	102	198.	71.6	2305.0
1		0830	103	197.	70.2	2304.9
1		0835	104	195.	68.9	2304.8
1		0840	105	193.	67.6	2304.7
1		0845	106	192.	66.3	2304.6
1		0850	107	190.	65.0	2304.5
1		0855	108	188.	63.7	2304.4
1		0900	109	187.	62.4	2304.4
1		0905	110	185.	61.1	2304.3
1		0910	111	184.	59.9	2304.2
1		0915	112	182.	58.6	2304.1
1		0920	113	180.	57.4	2304.0
1		0925	114	179.	56.2	2303.9
1		0930	115	177.	54.9	2303.9
1		0935	116	176.	53.7	2303.8
1		0940	117	174.	52.5	2303.7
1		0945	118	173.	51.3	2303.6
1		0950	119	171.	50.1	2303.5
1		0955	120	170.	49.0	2303.5
1		1000	121	168.	47.8	2303.4
1		1005	122	167.	46.7	2303.3
1		1010	123	165.	45.5	2303.2
1		1015	124	164.	44.4	2303.2
1		1020	125	163.	43.3	2303.1
1		1025	126	161.	42.1	2303.0
1		1030	127	159.	41.0	2302.9
1		1035	128	157.	40.0	2302.8
1		1040	129	155.	38.9	2302.8
1		1045	130	153.	37.8	2302.7
1		1050	131	151.	36.8	2302.6
1		1055	132	150.	35.7	2302.5
1		1100	133	148.	34.7	2302.4
1		1105	134	146.	33.7	2302.3
1		1110	135	144.	32.7	2302.3
1		1115	136	142.	31.7	2302.2
1		1120	137	141.	30.7	2302.1
1		1125	138	139.	29.8	2302.0
1		1130	139	137.	28.8	2301.9
1		1135	140	134.	27.9	2301.9
1		1140	141	132.	27.0	2301.8
1		1145	142	129.	26.1	2301.7
1		1150	143	127.	25.2	2301.6
1		1155	144	124.	24.3	2301.5
1		1200	145	122.	23.5	2301.4
1		1205	146	120.	22.7	2301.4
1		1210	147	118.	21.8	2301.3
1		1215	148	116.	21.0	2301.2
1		1220	149	113.	20.2	2301.1
1		1225	150	111.	19.5	2301.0
1		1230	151	109.	18.7	2301.0
1		1235	152	106.	18.0	2300.9
1		1240	153	103.	17.2	2300.8
1		1245	154	100.	16.6	2300.7
1		1250	155	97.	15.9	2300.7
1		1255	156	95.	15.2	2300.6
1		1300	157	92.	14.6	2300.5
1		1305	158	89.	13.9	2300.5
1		1310	159	87.	13.3	2300.4
1		1315	160	84.	12.7	2300.3
1		1320	161	82.	12.2	2300.3
1		1325	162	80.	11.6	2300.2
1		1330	163	78.	11.1	2300.1
1		1335	164	75.	10.5	2300.1
1		1340	165	73.	10.0	2300.0
1		1345	166	71.	9.5	2300.0
1		1350	167	70.	9.1	2299.9
1		1355	168	68.	8.6	2299.8
1		1400	169	66.	8.1	2299.8
1		1405	170	65.	7.7	2299.7
1		1410	171	63.	7.2	2299.6
1		1415	172	62.	6.8	2299.6
1		1420	173	60.	6.4	2299.5
1		1425	174	59.	6.0	2299.4
1		1430	175	57.	5.6	2299.4
1		1435	176	56.	5.2	2299.3
1		1440	177	54.	4.8	2299.3
1		1445	178	53.	4.4	2299.2
1		1450	179	52.	4.1	2299.2
1		1455	180	51.	3.7	2299.1
1		1500	181	49.	3.4	2299.1
1		1505	182	48.	3.0	2299.0
1		1510	183	45.	2.7	2298.9
1		1515	184	43.	2.4	2298.8
1		1520	185	40.	2.1	2298.7
1		1525	186	38.	1.9	2298.6
1		1530	187	35.	1.6	2298.5
1		1535	188	33.	1.4	2298.4
1		1640	201	1.	.0	2297.0
1		1645	202	0.	.0	2297.0
1		1650	203	0.	.0	2297.0
1		1655	204	0.	.0	2297.0
1		1700	205	0.	.0	2297.0
1		1705	206	0.	.0	2297.0
1		1710	207	0.	.0	2297.0
1		1715	208	0.	.0	2297.0
1		1720	209	0.	.0	2297.0
1		1725	210	0.	.0	2297.0
1		1730	211	0.	.0	2297.0
1		1735	212	0.	.0	2297.0
1		1740	213	0.	.0	2297.0
1		1745	214	0.	.0	2297.0
1		1750	215	0.	.0	2297.0
1		1755	216	0.	.0	2297.0
1		1800	217	0.	.0	2297.0
1		1805	218	0.	.0	2297.0
1		1810	219	0.	.0	2297.0
1		1815	220	0.	.0	2297.0
1		1820	221	0.	.0	2297.0
1		1825	222	0.	.0	2297.0
1		1830	223	0.	.0	2297.0
1		1835	224	0.	.0	2297.0
1		1840	225	0.	.0	2297.0
1		1845	226	0.	.0	2297.0
1		1850	227	0.	.0	2297.0
1		1855	228	0.	.0	2297.0
1		1900	229	0.	.0	2297.0
1		1905	230	0.	.0	2297.0
1		1910	231	0.	.0	2297.0
1		1915	232	0.	.0	2297.0
1		1920	233	0.	.0	2297.0
1		1925	234	0.	.0	2297.0
1		1930	235	0.	.0	2297.0
1		1935	236	0.	.0	2297.0
1		1940	237	0.	.0	2297.0
1		1945	238	0.	.0	2297.0
1		1950	239	0.	.0	2297.0
1		1955	240	0.	.0	2297.0
1		2000	241	0.	.0	2297.0
1		2005	242	0.	.0	2297.0
1		2010	243	0.	.0	2297.0
1		2015	244	0.	.0	2297.0
1		2020	245	0.	.0	2297.0
1		2025	246	0.	.0	2297.0
1		2030	247	0.	.0	2297.0
1		2035	248	0.	.0	2297.0
1		2040	249	0.	.0	2297.0
1		2045	250	0.	.0	2297.0
1		2050	251	0.	.0	2297.0
1		2055	252	0.	.0	2297.0
1		2100	253	0.	.0	2297.0
1		2105	254	0.	.0	2297.0
1		2110	255	0.	.0	2297.0
1		2115	256	0.	.0	2297.0
1		2120	257	0.	.0	2297.0
1		2125	258	0.	.0	2297.0
1		2130	259	0.	.0	2297.0
1		2135	260	0.	.0	2297.0
1		2140	261	0.	.0	2297.0
1		2145	262	0.	.0	2297.0
1		2150	263	0.	.0	2297.0
1		2155	264	0.	.0	2297.0
1		2200	265	0.	.0	2297.0
1		2205	266	0.	.0	2297.0
1		2210	267	0.	.0	2297.0
1		2215	268	0.	.0	2297.0
1		2220	269	0.	.0	2297.0
1		2225	270	0.	.0	2297.0
1		2230	271	0.	.0	2297.0
1		2235	272	0.	.0	2297.0
1		2240	273	0.	.0	2297.0
1		2245	274	0.	.0	2297.0
1		2250	275	0.	.0	2297.0
1		2255	276	0.	.0	2297.0
1		2300	277	0.	.0	2297.0
1		2305	278	0.	.0	2297.0
1		2310	279	0.	.0	2297.0
1		2315	280	0.	.0	2297.0
1		2320	281	0.	.0	2297.0
1		2325	282	0.	.0	2297.0
1		2330	283	0.	.0	2297.0
1		2335	284	0.	.0	2297.0
1		2340	285	0.	.0	2297.0
1		2345	286	0.	.0	2297.0
1		2350	287	0.	.0	2297.0
1		2355	288	0.	.0	2297.0

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0720	89	217.	88.8	2306.1	1		1540	189	31.	1.2	2298.3	2		0000	289	0.	.0	2297.0
1		0725	90	215.	87.6	2306.0	1		1545	190	29.	.9	2298.2	2		0005	290	0.	.0	2297.0
1		0730	91	214.	86.3	2305.9	1		1550	191	28.	.7	2298.2	2		0010	291	0.	.0	2297.0
1		0735	92	213.	84.9	2305.8	1		1555	192	26.	.6	2298.1	2		0015	292	0.	.0	2297.0
1		0740	93	211.	83.6	2305.8	1		1600	193	24.	.4	2298.0	2		0020	293	0.	.0	2297.0
1		0745	94	210.	82.3	2305.7	1		1605	194	17.	.2	2297.7	2		0025	294	0.	.0	2297.0
1		0750	95	208.	80.9	2305.6	1		1610	195	11.	.1	2297.4	2		0030	295	0.	.0	2297.0
1		0755	96	207.	79.6	2305.5	1		1615	196	6.	.1	2297.3	2		0035	296	0.	.0	2297.0
1		0800	97	205.	78.3	2305.4	1		1620	197	4.	.1	2297.2	2		0040	297	0.	.0	2297.0
1		0805	98	204.	76.9	2305.3	1		1625	198	2.	.0	2297.1	2		0045	298	0.	.0	2297.0
1		0810	99	203.	75.6	2305.2	1		1630	199	1.	.0	2297.1	2		0050	299	0.	.0	2297.0
1		0815	100	201.	74.2	2305.1	1		1635	200	1.	.0	2297.0	2		0055	300	0.	.0	2297.0

PEAK FLOW (CFS)	TIME (HR)		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	24.92-HR
231.	6.08	(CFS)	204.	79.	76.	76.
		(INCHES)	1.574	2.448	2.448	2.448
		(AC-FT)	101.	157.	157.	157.

PEAK STORAGE (AC-FT)	TIME (HR)	6-HR	MAXIMUM AVERAGE STORAGE 24-HR	72-HR	24.92-HR
102.	6.08	78.	24.	23.	23.

PEAK STAGE (FEET)	TIME (HR)	6-HR	MAXIMUM AVERAGE STAGE 24-HR	72-HR	24.92-HR
2307.00	6.08	2305.39	2300.19	2300.07	2300.07

CUMULATIVE AREA = 1.21 SQ MI

HYDROGRAPH AT STATION DB1
PLAN 1, RATIO = .91

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.0	2297.0	1		0820	101	198.	71.5	2305.0	1		1640	201	0.	.0	2297.0
1		0005	2	0.	.0	2297.0	1		0825	102	197.	70.2	2304.9	1		1645	202	0.	.0	2297.0
1		0010	3	0.	.0	2297.0	1		0830	103	195.	68.9	2304.8	1		1650	203	0.	.0	2297.0
1		0015	4	0.	.0	2297.0	1		0835	104	193.	67.6	2304.7	1		1655	204	0.	.0	2297.0
1		0020	5	0.	.0	2297.0	1		0840	105	192.	66.3	2304.6	1		1700	205	0.	.0	2297.0
1		0025	6	0.	.0	2297.0	1		0845	106	190.	65.0	2304.5	1		1705	206	0.	.0	2297.0
1		0030	7	1.	.0	2297.0	1		0850	107	188.	63.7	2304.4	1		1710	207	0.	.0	2297.0
1		0035	8	2.	.0	2297.1	1		0855	108	187.	62.4	2304.4	1		1715	208	0.	.0	2297.0
1		0040	9	3.	.0	2297.1	1		0900	109	185.	61.1	2304.3	1		1720	209	0.	.0	2297.0
1		0045	10	4.	.1	2297.2	1		0905	110	184.	59.9	2304.2	1		1725	210	0.	.0	2297.0
1		0050	11	4.	.1	2297.2	1		0910	111	182.	58.6	2304.1	1		1730	211	0.	.0	2297.0
1		0055	12	3.	.0	2297.1	1		0915	112	180.	57.4	2304.0	1		1735	212	0.	.0	2297.0
1		0100	13	3.	.0	2297.1	1		0920	113	179.	56.1	2303.9	1		1740	213	0.	.0	2297.0
1		0105	14	3.	.0	2297.1	1		0925	114	177.	54.9	2303.9	1		1745	214	0.	.0	2297.0
1		0110	15	2.	.0	2297.1	1		0930	115	176.	53.7	2303.8	1		1750	215	0.	.0	2297.0
1		0115	16	3.	.0	2297.1	1		0935	116	174.	52.5	2303.7	1		1755	216	0.	.0	2297.0
1		0120	17	3.	.0	2297.1	1		0940	117	173.	51.3	2303.6	1		1800	217	0.	.0	2297.0
1		0125	18	4.	.1	2297.1	1		0945	118	171.	50.1	2303.5	1		1805	218	0.	.0	2297.0
1		0130	19	5.	.1	2297.2	1		0950	119	170.	49.0	2303.5	1		1810	219	0.	.0	2297.0
1		0135	20	7.	.1	2297.3	1		0955	120	168.	47.8	2303.4	1		1815	220	0.	.0	2297.0
1		0140	21	9.	.1	2297.4	1		1000	121	167.	46.6	2303.3	1		1820	221	0.	.0	2297.0
1		0145	22	12.	.2	2297.5	1		1005	122	165.	45.5	2303.2	1		1825	222	0.	.0	2297.0
1		0150	23	15.	.2	2297.6	1		1010	123	164.	44.4	2303.2	1		1830	223	0.	.0	2297.0
1		0155	24	18.	.2	2297.7	1		1015	124	163.	43.2	2303.1	1		1835	224	0.	.0	2297.0
1		0200	25	19.	.3	2297.8	1		1020	125	161.	42.1	2303.0	1		1840	225	0.	.0	2297.0
1		0205	26	19.	.3	2297.8	1		1025	126	159.	41.0	2302.9	1		1845	226	0.	.0	2297.0
1		0210	27	19.	.3	2297.8	1		1030	127	157.	39.9	2302.8	1		1850	227	0.	.0	2297.0
1		0215	28	19.	.3	2297.8	1		1035	128	155.	38.9	2302.8	1		1855	228	0.	.0	2297.0
1		0220	29	21.	.3	2297.9	1		1040	129	153.	37.8	2302.7	1		1900	229	0.	.0	2297.0
1		0225	30	24.	.3	2298.0	1		1045	130	151.	36.8	2302.6	1		1905	230	0.	.0	2297.0
1		0230	31	25.	.4	2298.0	1		1050	131	150.	35.7	2302.5	1		1910	231	0.	.0	2297.0
1		0235	32	25.	.5	2298.1	1		1055	132	148.	34.7	2302.4	1		1915	232	0.	.0	2297.0
1		0240	33	26.	.6	2298.1	1		1100	133	146.	33.7	2302.3	1		1920	233	0.	.0	2297.0
1		0245	34	28.	.7	2298.1	1		1105	134	144.	32.7	2302.3	1		1925	234	0.	.0	2297.0
1		0250	35	29.	.9	2298.2	1		1110	135	142.	31.7	2302.2	1		1930	235	0.	.0	2297.0
1		0255	36	30.	1.1	2298.3	1		1115	136	140.	30.7	2302.1	1		1935	236	0.	.0	2297.0
1		0300	37	32.	1.2	2298.3	1		1120	137	139.	29.8	2302.0	1		1940	237	0.	.0	2297.0
1		0305	38	33.	1.4	2298.4	1		1125	138	137.	28.8	2301.9	1		1945	238	0.	.0	2297.0
1		0310	39	36.	1.6	2298.5	1		1130	139	134.	27.9	2301.9	1		1950	239	0.	.0	2297.0
1		0315	40	39.	2.0	2298.6	1		1135	140	132.	27.0	2301.8	1		1955	240	0.	.0	2297.0
1		0320	41	45.	2.7	2298.9	1		1140	141	129.	26.1	2301.7	1		2000	241	0.	.0	2297.0
1		0325	42	51.	3.8	2299.1	1		1145	142	127.	25.2	2301.6	1		2005	242	0.	.0	2297.0
1		0330	43	58.	5.8	2299.4	1		1150	143	124.	24.3	2301.5	1		2010	243	0.	.0	2297.0
1		0335	44	68.	8.6	2299.8	1		1155	144	122.	23.5	2301.4	1		2015	244	0.	.0	2297.0
1		0340	45	82.	12.2	2300.3	1		1200	145	120.	22.6	2301.4	1		2020	245	0.	.0	2297.0
1		0345	46	99.	16.2	2300.7	1		1205	146	118.	21.8	2301.3	1		2025	246	0.	.0	2297.0
1		0350	47	114.	20.5	2301.1	1		1210	147	116.	21.0	2301.2	1		2030	247	0.	.0	2297.0
1		0355	48	126.	25.1	2301.6	1		1215	148	113.	20.2	2301.1	1		2035	248	0.	.0	2297.0
1		0400	49	140.	30.2	2302.1	1		1220	149	111.	19.5	2301.0	1		2040	249	0.	.0	2297.0
1		0405	50	150.	35.8	2302.5	1		1225	150	109.	18.7	2301.0	1		2045	250	0.	.0	2297.0
1		0410	51	160.	41.4	2303.0	1		1230	151	106.	18.0	2300.9	1		2050	251	0.	.0	2297.0
1		0415	52	167.	46.7	2303.3	1		1235	152	103.	17.2	2300.8	1		2055	252	0.	.0	2297.0
1		0420	53	173.	51.7	2303.6	1		1240	153	100.	16.5	2300.7	1		2100	253	0.	.0	2297.0
1		0425	54	179.	56.4	2304.0	1		1245	154	97.	15.9	2300.7	1		2105	254	0.	.0	2297.0
1		0430	55	185.	60.7	2304.2	1		1250	155	95.	15.2	2300.6	1		2110	255	0.	.0	2297.0
1		0435	56	190.	64.6	2304.5	1		1255	156	92.	14.6	2300.5	1		2115	256	0.	.0	2297.0
1		0440	57	194.	68.4	2304.8	1		1300	157	89.	13.9	2300.5	1		2120	257	0.	.0	2297.0
1		0445	58	199.	71.9	2305.0	1		1305	158	87.	13.3	2300.4	1		2125	258	0.	.0	2297.0
1		0450	59	202.	75.2	2305.2	1		1310	159	84.	12.7	2300.3	1		2130	259	0.	.0	2297.0
1		0455	60	206.	78.5	2305.4	1		1315	160	82.	12.2	2300.3	1		2135	260	0.	.0	2297.0
1		0500	61	209.	81.7	2305.6	1		1320	161	80.	11.6	2300.2	1		2140	261	0.	.0	2297.0
1		0505	62	212.	84.7	2305.8	1		1325	162	78.	11.1	2300.1	1		2145	262	0.	.0	2297.0
1		0510	63	215.	87.5	2306.0	1		1330	163	75.	10.5	2300.1	1		2150	263	0.	.0	2297.0
1		0515	64	218.	90.0	2306.2	1		1335	164	73.	10.0	2300.0	1		2155	264	0.	.0	2297.0
1		0520	65	220.	92.3	2306.3	1		1340	165	71.	9.5	2300.0	1		2200	265	0.	.0	2297.0
1		0525	66	222.	94.3	2306.5	1		1345	166	70.	9.0	2299.9	1		2205	266	0.	.0	2297.0
1		0530	67	224.	95.9	2306.6	1		1350	167	68.	8.6	2299.8	1		2210	267	0.	.0	2297.0

| | | |

+	CP2S	.16	1	FLOW TIME	31. 3.83	30. 3.83	28. 3.83	26. 3.83	25. 3.83	25. 3.83
HYDROGRAPH AT +	E180	.21	1	FLOW TIME	93. 4.17	91. 4.17	86. 4.17	82. 4.17	80. 4.25	79. 4.25
HYDROGRAPH AT +	E160S	.00	1	FLOW TIME	10. 3.50	10. 3.50	10. 3.50	10. 3.50	10. 3.50	10. 3.50
HYDROGRAPH AT +	E320	.02	1	FLOW TIME	20. 3.58	19. 3.58	19. 3.58	18. 3.58	17. 3.58	17. 3.58
4 COMBINED AT +	CP3	.39	1	FLOW TIME	131. 4.08	128. 4.08	122. 4.08	115. 4.08	112. 4.08	110. 4.08
DIVERSION TO +	CP3E	.39	1	FLOW TIME	62. 4.08	61. 4.08	58. 4.08	54. 4.08	53. 4.08	53. 3.58
HYDROGRAPH AT +	CP3S	.39	1	FLOW TIME	69. 4.08	67. 4.08	64. 4.08	61. 4.08	59. 4.08	57. 4.08
HYDROGRAPH AT +	E200	.01	1	FLOW TIME	6. 3.58	6. 3.58	6. 3.58	5. 3.58	5. 3.58	5. 3.58
HYDROGRAPH AT +	E300	.01	1	FLOW TIME	15. 3.58	15. 3.58	15. 3.58	14. 3.58	14. 3.58	14. 3.58
3 COMBINED AT +	CP4	.41	1	FLOW TIME	75. 4.08	72. 4.08	69. 4.00	67. 4.00	65. 4.00	63. 4.00
DIVERSION TO +	CP4E	.41	1	FLOW TIME	23. 4.08	22. 4.08	22. 4.00	21. 4.00	20. 3.58	20. 3.67
HYDROGRAPH AT +	SOUTH	.41	1	FLOW TIME	52. 4.08	50. 4.08	47. 4.00	46. 4.00	45. 4.00	43. 4.00
DIVERSION TO +	CP4S	.41	1	FLOW TIME	52. 4.08	50. 4.08	47. 4.00	46. 4.00	45. 4.00	43. 4.00
HYDROGRAPH AT +	NONE	.41	1	FLOW TIME	0. .00	0. .00	0. .00	0. .00	0. .00	0. .00
HYDROGRAPH AT +	E080	.01	1	FLOW TIME	10. 3.67	10. 3.67	9. 3.67	9. 3.67	9. 3.67	9. 3.67
HYDROGRAPH AT +	CP1E	.00	1	FLOW TIME	17. 4.00	17. 4.00	16. 4.00	15. 3.50	15. 3.50	15. 3.50
HYDROGRAPH AT +	E380	.02	1	FLOW TIME	21. 3.67	20. 3.67	19. 3.67	19. 3.67	18. 3.67	18. 3.67
3 COMBINED AT +	CP5	.03	1	FLOW TIME	46. 3.67	45. 3.67	44. 3.67	43. 3.67	42. 3.67	42. 3.67
DIVERSION TO +	CP5E	.03	1	FLOW TIME	25. 3.67	24. 3.67	24. 3.67	23. 3.67	22. 3.67	22. 3.42
HYDROGRAPH AT +	CP5S	.03	1	FLOW TIME	21. 3.58	21. 3.67	20. 3.58	20. 3.67	20. 3.67	20. 3.67
HYDROGRAPH AT +	E060	.26	1	FLOW TIME	128. 4.17	125. 4.17	119. 4.17	114. 4.17	112. 4.17	110. 4.17
DIVERSION TO +	E060E	.26	1	FLOW TIME	63. 4.17	61. 4.17	58. 4.17	56. 4.17	55. 4.17	54. 4.17
HYDROGRAPH AT +	E060S	.26	1	FLOW TIME	65. 4.17	64. 4.17	61. 4.17	58. 4.17	57. 4.17	56. 4.17
ROUTED TO +	RE060S	.26	1	FLOW TIME	65. 4.25	64. 4.25	61. 4.25	58. 4.25	57. 4.25	56. 4.25
HYDROGRAPH AT +	E100	.47	1	FLOW TIME	172. 4.50	167. 4.50	159. 4.50	152. 4.50	149. 4.50	146. 4.50
2 COMBINED AT +	CP6	.73	1	FLOW TIME	232. 4.42	226. 4.42	215. 4.42	204. 4.33	200. 4.33	196. 4.33
DIVERSION TO +	CP6E	.73	1	FLOW TIME	139. 4.42	136. 4.42	131. 4.42	125. 4.33	123. 4.33	121. 4.33
HYDROGRAPH AT +	CP6S	.73	1	FLOW TIME	93. 4.42	90. 4.42	84. 4.42	79. 4.33	77. 4.33	75. 4.33

ROUTED TO

+	RCP6S	.73	1	FLOW	93.	90.	84.	79.	77.	75.
				TIME	4.50	4.50	4.50	4.50	4.50	4.50
HYDROGRAPH AT										
+	E420	.10	1	FLOW	94.	92.	88.	84.	83.	82.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT										
+	CP5E	.00	1	FLOW	25.	24.	24.	23.	22.	22.
				TIME	3.67	3.67	3.67	3.67	3.67	3.42
ROUTED TO										
+	RCP5E	.00	1	FLOW	24.	24.	24.	24.	24.	24.
				TIME	3.83	3.67	3.67	3.67	3.67	3.67
3 COMBINED AT										
+	CP7	.82	1	FLOW	130.	126.	120.	114.	111.	109.
				TIME	4.58	4.58	4.58	4.42	4.50	4.50
DIVERSION TO										
+	CP7E	.82	1	FLOW	85.	81.	75.	69.	66.	64.
				TIME	4.58	4.58	4.58	4.42	4.50	3.50
HYDROGRAPH AT										
+	CP7S	.82	1	FLOW	45.	45.	45.	45.	45.	45.
				TIME	3.67	3.67	3.67	4.33	4.42	4.50
HYDROGRAPH AT										
+	CP2E	.00	1	FLOW	31.	30.	29.	27.	26.	25.
				TIME	3.83	3.83	3.83	3.83	3.83	3.92
ROUTED TO										
+	RCP2E	.00	1	FLOW	32.	32.	29.	27.	27.	27.
				TIME	4.17	4.17	4.17	4.25	4.00	4.00
HYDROGRAPH AT										
+	CP3E	.00	1	FLOW	62.	61.	58.	54.	53.	53.
				TIME	4.08	4.08	4.08	4.08	4.08	3.58
ROUTED TO										
+	RCP3E	.00	1	FLOW	62.	60.	57.	55.	56.	56.
				TIME	4.25	4.25	4.33	3.83	3.83	3.83
HYDROGRAPH AT										
+	CP4E	.00	1	FLOW	23.	22.	22.	21.	20.	20.
				TIME	4.08	4.08	4.00	4.00	3.58	3.67
ROUTED TO										
+	RCP4E	.00	1	FLOW	23.	22.	22.	21.	21.	21.
				TIME	4.08	4.08	4.17	3.83	3.83	3.83
5 COMBINED AT										
+	DUMMY	.85	1	FLOW	164.	156.	152.	145.	144.	143.
				TIME	4.17	4.25	4.25	4.33	4.50	4.50
HYDROGRAPH AT										
+	E400	.08	1	FLOW	81.	79.	76.	72.	71.	70.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT										
+	CP8	.94	1	FLOW	226.	222.	213.	202.	198.	195.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
DIVERSION TO										
+	CP8S	.94	1	FLOW	133.	130.	125.	120.	117.	117.
				TIME	3.75	3.75	3.75	3.75	3.58	3.58
HYDROGRAPH AT										
+	CP8E	.94	1	FLOW	93.	92.	88.	82.	81.	78.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO										
+	RCP8E	.94	1	FLOW	93.	91.	87.	82.	80.	77.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT										
+	E440	.05	1	FLOW	38.	37.	35.	34.	33.	33.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
DIVERSION TO										
+	E440E	.05	1	FLOW	20.	20.	19.	18.	18.	18.
				TIME	3.75	3.75	3.75	3.50	3.58	3.58
HYDROGRAPH AT										
+	E440S	.05	1	FLOW	18.	17.	16.	16.	15.	15.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT										
+	E460	.11	1	FLOW	73.	71.	68.	65.	63.	62.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT										
+	CP9	.17	1	FLOW	90.	87.	83.	79.	77.	75.
				TIME	3.75	3.83	3.83	3.75	3.75	3.75
DIVERSION TO										
+	CP9E	.17	1	FLOW	49.	46.	42.	38.	36.	34.
				TIME	3.75	3.83	3.83	3.75	3.75	3.75
HYDROGRAPH AT										
+	CP9S	.17	1	FLOW	41.	41.	41.	41.	41.	41.
				TIME	3.67	3.67	3.75	3.75	3.75	3.75
HYDROGRAPH AT										
+	CP7E	.00	1	FLOW	85.	81.	75.	69.	66.	64.
				TIME	4.58	4.58	4.58	4.42	4.50	3.50
ROUTED TO										
+	RCP7E	.00	1	FLOW	87.	83.	75.	70.	70.	70.
				TIME	4.50	4.50	4.67	4.50	3.75	3.75
HYDROGRAPH AT										

+	E480	.09	1	FLOW TIME	67. 3.75	65. 3.75	62. 3.75	59. 3.75	58. 3.75	57. 3.75
+ 4 COMBINED AT	CP10	1.19	1	FLOW TIME	257. 3.83	253. 3.83	242. 3.83	230. 3.83	226. 3.83	222. 3.83
+ DIVERSION TO	CP10S	1.19	1	FLOW TIME	135. 3.83	133. 3.83	127. 3.83	119. 3.83	117. 3.83	116. 3.67
+ HYDROGRAPH AT	CP10E	1.19	1	FLOW TIME	122. 3.83	120. 3.83	115. 3.83	111. 3.83	109. 3.83	106. 3.83
+ HYDROGRAPH AT	CP9E	.00	1	FLOW TIME	49. 3.75	46. 3.83	42. 3.83	38. 3.75	36. 3.75	34. 3.75
+ HYDROGRAPH AT	E520	.01	1	FLOW TIME	16. 3.58	16. 3.58	15. 3.58	15. 3.58	14. 3.58	14. 3.58
+ 3 COMBINED AT	CP11	1.21	1	FLOW TIME	180. 3.83	175. 3.83	166. 3.83	157. 3.83	152. 3.83	148. 3.83
+ DIVERSION TO	CP11S	1.21	1	FLOW TIME	83. 3.83	81. 3.83	76. 3.83	72. 3.83	70. 3.83	68. 3.67
+ HYDROGRAPH AT	CP11E	1.21	1	FLOW TIME	97. 3.83	95. 3.83	90. 3.83	85. 3.83	82. 3.83	80. 3.83
+ ROUTED TO	RCP11E	1.21	1	FLOW TIME	97. 3.92	93. 3.92	84. 4.00	81. 4.00	79. 4.00	75. 4.00
+ HYDROGRAPH AT	E060E	.00	1	FLOW TIME	63. 4.17	61. 4.17	58. 4.17	56. 4.17	55. 4.17	54. 4.17
+ ROUTED TO	RE060E	.00	1	FLOW TIME	63. 4.50	61. 4.50	58. 4.50	57. 4.17	57. 4.17	57. 4.17
+ HYDROGRAPH AT	CP6E	.00	1	FLOW TIME	139. 4.42	136. 4.42	131. 4.42	125. 4.33	123. 4.33	121. 4.33
+ ROUTED TO	RCP6E	.00	1	FLOW TIME	141. 4.67	138. 4.67	134. 4.67	128. 4.33	128. 4.42	128. 4.42
+ HYDROGRAPH AT	E040	.36	1	FLOW TIME	210. 4.00	204. 4.00	195. 4.00	186. 4.00	182. 4.00	180. 4.00
+ 3 COMBINED AT	CP12	.36	1	FLOW TIME	338. 4.25	331. 4.25	319. 4.25	308. 4.33	304. 4.33	301. 4.33
+ DIVERSION TO	CP12E	.36	1	FLOW TIME	199. 4.25	192. 4.25	180. 4.25	169. 4.33	165. 4.33	162. 4.33
+ HYDROGRAPH AT	CP12S	.36	1	FLOW TIME	139. 4.08	139. 4.08	139. 4.17	139. 4.25	139. 4.33	139. 4.33
+ ROUTED TO	RCP12S	.36	1	FLOW TIME	139. 4.33	139. 4.33	139. 4.33	138. 4.33	137. 4.42	136. 4.42
+ HYDROGRAPH AT	E540	.05	1	FLOW TIME	58. 3.58	57. 3.58	54. 3.58	52. 3.58	51. 3.58	51. 3.58
+ 2 COMBINED AT	CP13	.41	1	FLOW TIME	149. 4.17	149. 4.17	146. 4.25	145. 4.33	143. 4.42	143. 4.42
+ DIVERSION TO	CP13E	.41	1	FLOW TIME	10. 4.17	10. 4.17	7. 4.25	6. 4.33	4. 4.42	4. 3.17
+ HYDROGRAPH AT	CP13S	.41	1	FLOW TIME	139. 4.17	139. 4.17	139. 4.25	139. 4.33	139. 4.42	139. 4.42
+ ROUTED TO	RCP13S	.41	1	FLOW TIME	139. 4.33	139. 4.42	139. 4.42	138. 4.42	137. 4.50	136. 4.50
+ HYDROGRAPH AT	E440E	.00	1	FLOW TIME	20. 3.75	20. 3.75	19. 3.75	18. 3.50	18. 3.58	18. 3.58
+ ROUTED TO	RE440E	.00	1	FLOW TIME	21. 4.00	21. 4.00	21. 4.00	21. 4.00	21. 4.00	21. 4.00
+ HYDROGRAPH AT	E560	.18	1	FLOW TIME	168. 3.83	165. 3.83	159. 3.83	153. 3.83	151. 3.83	149. 3.83
+ 4 COMBINED AT	CP14	1.80	1	FLOW TIME	310. 4.08	298. 3.92	277. 3.92	262. 3.92	256. 3.92	250. 3.92

DIVERSION TO

+	CP14S	1.80	1	FLOW TIME	30. 3.33	30. 3.33	30. 3.33	30. 3.33	30. 3.33	30. 3.42
HYDROGRAPH AT +	CP14E	1.80	1	FLOW TIME	280. 4.08	268. 3.92	247. 3.92	232. 3.92	226. 3.92	220. 3.92
ROUTED TO +	RCP14E	1.80	1	FLOW TIME	278. 4.00	267. 4.00	242. 4.08	228. 4.08	222. 4.08	218. 4.08
HYDROGRAPH AT +	E600	.09	1	FLOW TIME	73. 3.75	71. 3.75	68. 3.75	65. 3.75	64. 3.75	63. 3.75
2 COMBINED AT +	CP15	1.88	1	FLOW TIME	324. 4.00	312. 4.00	278. 4.08	262. 4.08	256. 4.08	250. 4.08
DIVERSION TO +	CP15S	1.88	1	FLOW TIME	54. 4.00	49. 4.00	32. 4.08	24. 4.08	21. 4.08	19. 4.08
HYDROGRAPH AT +	CP15E	1.88	1	FLOW TIME	270. 4.00	263. 4.00	246. 4.08	238. 4.08	235. 4.08	231. 4.08
HYDROGRAPH AT +	E240	.13	1	FLOW TIME	85. 3.92	83. 3.92	79. 3.92	76. 3.92	74. 3.92	73. 3.92
DIVERSION TO +	E240E	.13	1	FLOW TIME	45. 3.92	43. 3.92	42. 3.92	40. 3.92	39. 3.92	38. 3.92
HYDROGRAPH AT +	E240S	.13	1	FLOW TIME	40. 3.92	40. 3.92	37. 3.92	36. 3.92	35. 3.92	35. 3.92
HYDROGRAPH AT +	E260	.14	1	FLOW TIME	93. 3.92	90. 3.92	86. 3.92	82. 3.92	81. 3.92	80. 3.92
2 COMBINED AT +	CP16	.27	1	FLOW TIME	133. 3.92	130. 3.92	123. 3.92	118. 3.92	116. 3.92	115. 3.92
DIVERSION TO +	CP16E	.27	1	FLOW TIME	66. 3.92	65. 3.92	61. 3.92	59. 3.92	58. 3.92	57. 3.67
HYDROGRAPH AT +	CP16S	.27	1	FLOW TIME	67. 3.92	65. 3.92	62. 3.92	59. 3.92	58. 3.92	58. 3.92
3 COMBINED AT +	DUMMY	2.56	1	FLOW TIME	334. 4.00	326. 4.00	302. 4.00	286. 4.00	278. 4.08	272. 4.08
HYDROGRAPH AT +	CP14S	.00	1	FLOW TIME	30. 3.33	30. 3.33	30. 3.33	30. 3.33	30. 3.33	30. 3.42
ROUTED TO +	RCP14S	.00	1	FLOW TIME	31. 3.50	31. 3.50	31. 3.50	32. 3.50	32. 3.50	32. 3.50
HYDROGRAPH AT +	E580	.10	1	FLOW TIME	100. 3.75	98. 3.75	94. 3.75	91. 3.75	89. 3.75	88. 3.75
2 COMBINED AT +	CP17	.10	1	FLOW TIME	130. 3.75	128. 3.75	124. 3.75	121. 3.75	119. 3.75	118. 3.75
DIVERSION TO +	CP17E	.10	1	FLOW TIME	0. .00	0. .00	0. .00	0. .00	0. .00	0. .00
HYDROGRAPH AT +	CP17S	.10	1	FLOW TIME	130. 3.75	128. 3.75	124. 3.75	121. 3.75	119. 3.75	118. 3.75
HYDROGRAPH AT +	E220	.04	1	FLOW TIME	37. 3.75	37. 3.75	35. 3.75	33. 3.75	33. 3.75	32. 3.75
ROUTED TO +	RE220	.04	1	FLOW TIME	38. 4.08	37. 4.08	36. 4.08	34. 4.08	33. 4.08	33. 4.08
HYDROGRAPH AT +	E240E	.00	1	FLOW TIME	45. 3.92	43. 3.92	42. 3.92	40. 3.92	39. 3.92	38. 3.92
ROUTED TO +	RE240E	.00	1	FLOW TIME	45. 4.33	44. 4.33	42. 4.33	42. 4.08	42. 4.08	42. 4.08
HYDROGRAPH AT +	CP16E	.00	1	FLOW TIME	66. 3.92	65. 3.92	61. 3.92	59. 3.92	58. 3.92	57. 3.67
ROUTED TO +	RCP16E	.00	1	FLOW TIME	67. 4.25	65. 4.25	61. 4.00	60. 4.00	60. 4.00	60. 4.08
HYDROGRAPH AT +	CP4S	.00	1	FLOW TIME	52. 4.08	50. 4.08	47. 4.00	46. 4.00	45. 4.00	43. 4.00
ROUTED TO										

+	RCP4S	.00	1	FLOW	52.	50.	47.	45.	44.	42.
				TIME	4.33	4.33	4.33	4.33	4.42	4.42
HYDROGRAPH AT										
+	CP8S	.00	1	FLOW	133.	130.	125.	120.	117.	117.
				TIME	3.75	3.75	3.75	3.75	3.58	3.58
ROUTED TO										
+	RCP8S	.00	1	FLOW	134.	130.	126.	127.	128.	129.
				TIME	4.00	4.00	3.83	3.83	3.83	3.83
5 COMBINED AT										
+	DUMMY	.04	1	FLOW	313.	308.	296.	288.	283.	280.
				TIME	4.25	4.25	4.25	4.25	4.33	4.33
HYDROGRAPH AT										
+	E280	.28	1	FLOW	199.	194.	186.	178.	174.	172.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT										
+	CP18	.32	1	FLOW	464.	441.	417.	398.	391.	389.
				TIME	4.08	4.08	4.00	4.17	4.00	4.08
ROUTED TO										
+	RCP18	.32	1	FLOW	457.	440.	414.	401.	393.	386.
				TIME	4.33	4.33	4.33	4.33	4.33	4.33
HYDROGRAPH AT										
+	CP10S	.00	1	FLOW	135.	133.	127.	119.	117.	116.
				TIME	3.83	3.83	3.83	3.83	3.83	3.67
ROUTED TO										
+	RCP10S	.00	1	FLOW	136.	134.	132.	128.	126.	125.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT										
+	CP11S	.00	1	FLOW	83.	81.	76.	72.	70.	68.
				TIME	3.83	3.83	3.83	3.83	3.83	3.67
ROUTED TO										
+	RCP11S	.00	1	FLOW	82.	79.	75.	72.	71.	71.
				TIME	4.17	4.17	4.17	4.08	4.08	4.08
HYDROGRAPH AT										
+	E500	.39	1	FLOW	239.	233.	223.	213.	209.	206.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00
4 COMBINED AT										
+	CP18A	.71	1	FLOW	849.	824.	788.	763.	753.	746.
				TIME	4.25	4.25	4.08	4.08	4.08	4.08
2 COMBINED AT										
+	CP19	.81	1	FLOW	922.	897.	867.	840.	829.	822.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT										
+	CP17E	.00	1	FLOW	0.	0.	0.	0.	0.	0.
				TIME	.00	.00	.00	.00	.00	.00
HYDROGRAPH AT										
+	E660	.01	1	FLOW	16.	15.	15.	14.	14.	14.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
3 COMBINED AT										
+	CP20	.82	1	FLOW	926.	901.	870.	843.	833.	826.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT										
+	E640	.07	1	FLOW	75.	73.	70.	67.	66.	66.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT										
+	CP21	.89	1	FLOW	959.	933.	901.	873.	862.	855.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT										
+	E620	.05	1	FLOW	53.	51.	50.	48.	47.	46.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT										
+	CP22	.94	1	FLOW	980.	953.	921.	892.	881.	874.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08
ROUTED TO										
+	RCP22	.94	1	FLOW	978.	949.	915.	880.	868.	858.
				TIME	4.08	4.08	4.08	4.08	4.08	4.17
HYDROGRAPH AT										
+	CP15S	.00	1	FLOW	54.	49.	32.	24.	21.	19.
				TIME	4.00	4.00	4.08	4.08	4.08	4.08
ROUTED TO										
+	RCP15S	.00	1	FLOW	57.	49.	30.	21.	21.	21.
				TIME	4.25	4.25	4.33	4.42	3.75	3.75
HYDROGRAPH AT										
+	E680	.11	1	FLOW	113.	111.	107.	102.	101.	100.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT										
+	CP23	.11	1	FLOW	133.	131.	127.	123.	122.	120.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT										
+	E760	.01	1	FLOW	10.	10.	9.	9.	9.	9.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
3 COMBINED AT										
+	CPGTA	1.06	1	FLOW	1066.	1034.	993.	956.	943.	933.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08

HYDROGRAPH AT

+	2-3	.03	1	FLOW	37.	36.	34.	33.	32.	32.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT										
+	CPGTA2	1.09	1	FLOW	1075.	1043.	1003.	965.	951.	941.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT										
+	2-1	.04	1	FLOW	56.	55.	54.	52.	51.	51.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT										
+	2-2	.07	1	FLOW	96.	94.	91.	88.	87.	86.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT										
+	2-14A	.00	1	FLOW	3.	3.	3.	3.	3.	3.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
3 COMBINED AT										
+	2A	.11	1	FLOW	155.	152.	147.	142.	140.	138.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT										
+	2B	1.21	1	FLOW	1122.	1089.	1047.	1008.	994.	983.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08
ROUTED TO										
+	DB1	1.21	1	FLOW	247.	243.	238.	233.	231.	229.
				TIME	6.08	6.08	6.08	6.08	6.08	6.08
			**	PEAK STAGES IN FEET **						
			1	STAGE	2308.13	2307.89	2307.50	2307.15	2307.00	2306.90
				TIME	6.08	6.08	6.08	6.08	6.08	6.08
HYDROGRAPH AT										
+	2-6	.02	1	FLOW	29.	29.	28.	27.	27.	27.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT										
+	2C	1.22	1	FLOW	247.	244.	238.	233.	231.	230.
				TIME	6.08	6.08	6.08	6.08	6.08	6.08
HYDROGRAPH AT										
+	2-7	.02	1	FLOW	19.	18.	18.	17.	17.	16.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT										
+	2D	1.24	1	FLOW	247.	244.	239.	234.	232.	230.
				TIME	6.08	6.08	6.08	6.08	6.00	6.00
HYDROGRAPH AT										
+	2-4	.03	1	FLOW	56.	55.	53.	52.	51.	51.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT										
+	2-14B	.00	1	FLOW	3.	3.	3.	3.	3.	3.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT										
+	2E	.04	1	FLOW	59.	58.	56.	54.	54.	53.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT										
+	2-5	.09	1	FLOW	115.	113.	109.	106.	104.	103.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
DIVERSION TO										
+	2-5E	.09	1	FLOW	55.	54.	52.	51.	50.	49.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT										
+	2-5W	.09	1	FLOW	60.	59.	57.	55.	54.	54.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT										
+	2-9	.02	1	FLOW	24.	23.	23.	22.	22.	21.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
3 COMBINED AT										
+	2F	.14	1	FLOW	142.	139.	135.	130.	129.	127.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT										
+	2-5E	.00	1	FLOW	55.	54.	52.	51.	50.	49.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT										
+	2-10	.02	1	FLOW	25.	24.	24.	23.	23.	22.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
3 COMBINED AT										
+	2G	.16	1	FLOW	222.	218.	210.	203.	200.	198.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT										
+	2-8	.03	1	FLOW	48.	47.	45.	44.	43.	43.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT										
+	2H	.19	1	FLOW	269.	264.	256.	247.	244.	241.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT										
+	2I	1.43	1	FLOW	394.	387.	373.	361.	356.	352.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT										
+	2-11	.03	1	FLOW	43.	42.	41.	40.	39.	39.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT										

+	2-12	.03	1	FLOW	39.	39.	37.	36.	35.	35.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ 2 COMBINED AT	2J	.05	1	FLOW	82.	81.	78.	75.	74.	74.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ 2 COMBINED AT	DUMMY	1.48	1	FLOW	477.	467.	451.	436.	430.	426.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ HYDROGRAPH AT	2-13	.03	1	FLOW	39.	38.	37.	36.	35.	35.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ 2 COMBINED AT	PT2	1.51	1	FLOW	515.	505.	488.	472.	465.	461.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58

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SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR PLAN = 1 RATIO=		.00 1.75							
RE060S	MANE		65.04	252.00	.34	5.00	64.93	255.00	.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4711E+01 EXCESS= .0000E+00 OUTFLOW= .4714E+01 BASIN STORAGE= .1155E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO=		.00 1.75							
RE060S	MANE		63.79	253.75	.32	5.00	63.73	255.00	.32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4446E+01 EXCESS= .0000E+00 OUTFLOW= .4450E+01 BASIN STORAGE= .1002E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO=		.00 1.50							
RE060S	MANE		60.97	255.00	.29	5.00	60.97	255.00	.29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4023E+01 EXCESS= .0000E+00 OUTFLOW= .4025E+01 BASIN STORAGE= .1131E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO=		.00 1.50							
RE060S	MANE		57.71	255.00	.26	5.00	57.71	255.00	.26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3585E+01 EXCESS= .0000E+00 OUTFLOW= .3587E+01 BASIN STORAGE= .8472E-03 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO=		.00 1.50							
RE060S	MANE		56.59	252.00	.25	5.00	56.58	255.00	.25

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3411E+01 EXCESS= .0000E+00 OUTFLOW= .3413E+01 BASIN STORAGE= .1237E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO=		.00 1.50							
RE060S	MANE		55.68	255.00	.24	5.00	55.68	255.00	.24

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3285E+01 EXCESS= .0000E+00 OUTFLOW= .3287E+01 BASIN STORAGE= .1298E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO=		.00 1.75							
RCP6S	MANE		93.03	271.25	.17	5.00	93.00	270.00	.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6722E+01 EXCESS= .0000E+00 OUTFLOW= .6729E+01 BASIN STORAGE= .2051E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO=		.00 1.75							
RCP6S	MANE		89.76	269.50	.16	5.00	89.76	270.00	.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6194E+01 EXCESS= .0000E+00 OUTFLOW= .6202E+01 BASIN STORAGE= .1583E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO=		.00 1.50							
RCP6S	MANE		84.01	270.00	.14	5.00	84.01	270.00	.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5349E+01 EXCESS= .0000E+00 OUTFLOW= .5357E+01 BASIN STORAGE= .1646E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO=		.00 1.25							
RCP6S	MANE		78.89	268.75	.12	5.00	78.87	270.00	.12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4536E+01 EXCESS= .0000E+00 OUTFLOW= .4539E+01 BASIN STORAGE= .1666E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO=		.00 1.25							
RCP6S	MANE		76.60	268.75	.11	5.00	76.56	270.00	.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4203E+01 EXCESS= .0000E+00 OUTFLOW= .4207E+01 BASIN STORAGE= .1480E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO=		.00 1.25							
RCP6S	MANE		74.66	268.75	.10	5.00	74.53	270.00	.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3952E+01 EXCESS= .0000E+00 OUTFLOW= .3955E+01 BASIN STORAGE= .1894E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00 RCP5E MANE	5.00	24.19	230.00	-1.00	5.00	24.19	230.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP5E MANE	5.00	24.00	220.00	-1.00	5.00	24.00	220.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP5E MANE	5.00	24.04	220.00	-1.00	5.00	24.04	220.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP5E MANE	5.00	24.01	220.00	-1.00	5.00	24.01	220.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP5E MANE	5.00	24.07	220.00	-1.00	5.00	24.07	220.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP5E MANE	5.00	24.11	220.00	-1.00	5.00	24.11	220.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP2E MANE	5.00	32.48	250.00	-1.00	5.00	32.48	250.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP2E MANE	5.00	31.62	250.00	-1.00	5.00	31.62	250.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP2E MANE	5.00	29.45	250.00	-1.00	5.00	29.45	250.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP2E MANE	5.00	27.31	255.00	-1.00	5.00	27.31	255.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP2E MANE	5.00	27.01	240.00	-1.00	5.00	27.01	240.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP2E MANE	5.00	27.09	240.00	-1.00	5.00	27.09	240.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP3E MANE	5.00	62.08	255.00	-1.00	5.00	62.08	255.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP3E MANE	5.00	60.36	255.00	-1.00	5.00	60.36	255.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP3E MANE	5.00	57.37	260.00	-1.00	5.00	57.37	260.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP3E MANE	5.00	55.47	230.00	-1.00	5.00	55.47	230.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP3E MANE	5.00	55.58	230.00	-1.00	5.00	55.58	230.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP3E MANE	5.00	55.66	230.00	-1.00	5.00	55.66	230.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP4E MANE	5.00	23.01	245.00	-1.00	5.00	23.01	245.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP4E MANE	5.00	22.41	245.00	-1.00	5.00	22.41	245.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP4E MANE	5.00	22.20	250.00	-1.00	5.00	22.20	250.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP4E MANE	5.00	20.84	230.00	-1.00	5.00	20.84	230.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP4E MANE	5.00	20.88	230.00	-1.00	5.00	20.88	230.00	-1.00

FOR PLAN = 1 RATIO= .00
RCP4E MANE 5.00 20.73 230.00 -1.00 5.00 20.73 230.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP8E MANE .75 92.98 234.00 .14 5.00 92.79 235.00 .14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6768E+01 EXCESS= .0000E+00 OUTFLOW= .6777E+01 BASIN STORAGE= .1844E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00
RCP8E MANE .75 91.60 234.00 .13 5.00 91.09 235.00 .13

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6313E+01 EXCESS= .0000E+00 OUTFLOW= .6322E+01 BASIN STORAGE= .1614E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00
RCP8E MANE .75 87.59 234.00 .11 5.00 87.06 235.00 .11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5412E+01 EXCESS= .0000E+00 OUTFLOW= .5419E+01 BASIN STORAGE= .1807E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00
RCP8E MANE .75 81.98 234.75 .09 5.00 81.87 235.00 .09

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4534E+01 EXCESS= .0000E+00 OUTFLOW= .4539E+01 BASIN STORAGE= .1663E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00
RCP8E MANE .75 80.36 234.00 .08 5.00 80.11 235.00 .08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4185E+01 EXCESS= .0000E+00 OUTFLOW= .4190E+01 BASIN STORAGE= .2048E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00
RCP8E MANE .75 77.50 234.75 .08 5.00 77.33 235.00 .08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3902E+01 EXCESS= .0000E+00 OUTFLOW= .3907E+01 BASIN STORAGE= .1911E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00
RCP7E MANE 5.00 86.53 270.00 -1.00 5.00 86.53 270.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP7E MANE 5.00 82.62 270.00 -1.00 5.00 82.62 270.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP7E MANE 5.00 75.47 280.00 -1.00 5.00 75.47 280.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP7E MANE 5.00 69.74 270.00 -1.00 5.00 69.74 270.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP7E MANE 5.00 69.67 225.00 -1.00 5.00 69.67 225.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP7E MANE 5.00 69.90 225.00 -1.00 5.00 69.90 225.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP11E MANE .75 96.78 235.50 .05 5.00 96.74 235.00 .05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3078E+01 EXCESS= .0000E+00 OUTFLOW= .3085E+01 BASIN STORAGE= .1111E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00
RCP11E MANE .75 93.70 236.25 .04 5.00 93.09 235.00 .04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2819E+01 EXCESS= .0000E+00 OUTFLOW= .2823E+01 BASIN STORAGE= .1122E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00
RCP11E MANE .75 88.79 237.00 .04 5.00 84.26 240.00 .04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2279E+01 EXCESS= .0000E+00 OUTFLOW= .2282E+01 BASIN STORAGE= .1020E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00
RCP11E MANE .75 84.45 237.00 .03 5.00 81.01 240.00 .03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1960E+01 EXCESS= .0000E+00 OUTFLOW= .1962E+01 BASIN STORAGE= .1339E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00
RCP11E MANE .75 82.11 237.00 .03 5.00 78.59 240.00 .03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1823E+01 EXCESS= .0000E+00 OUTFLOW= .1824E+01 BASIN STORAGE= .1183E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00 RCP11E MANE	.75	79.02	237.00	.03	5.00	74.50	240.00	.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1701E+01 EXCESS= .0000E+00 OUTFLOW= .1701E+01 BASIN STORAGE= .1064E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00 RE060E MANE	5.00	63.49	270.00	-1.00	5.00	63.49	270.00	-1.00
FOR PLAN = 1 RATIO= .00 RE060E MANE	5.00	61.34	270.00	-1.00	5.00	61.34	270.00	-1.00
FOR PLAN = 1 RATIO= .00 RE060E MANE	5.00	58.07	270.00	-1.00	5.00	58.07	270.00	-1.00
FOR PLAN = 1 RATIO= .00 RE060E MANE	5.00	57.30	250.00	-1.00	5.00	57.30	250.00	-1.00
FOR PLAN = 1 RATIO= .00 RE060E MANE	5.00	57.01	250.00	-1.00	5.00	57.01	250.00	-1.00
FOR PLAN = 1 RATIO= .00 RE060E MANE	5.00	56.79	250.00	-1.00	5.00	56.79	250.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP6E MANE	5.00	140.60	280.00	-1.00	5.00	140.60	280.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP6E MANE	5.00	138.20	280.00	-1.00	5.00	138.20	280.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP6E MANE	5.00	133.58	280.00	-1.00	5.00	133.58	280.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP6E MANE	5.00	127.65	260.00	-1.00	5.00	127.65	260.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP6E MANE	5.00	127.50	265.00	-1.00	5.00	127.50	265.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP6E MANE	5.00	128.05	265.00	-1.00	5.00	128.05	265.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP12S MANE	1.25	139.18	251.25	.86	5.00	139.00	265.00	.86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1657E+02 EXCESS= .0000E+00 OUTFLOW= .1658E+02 BASIN STORAGE= .1277E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00 RCP12S MANE	1.25	139.26	251.25	.82	5.00	139.00	265.00	.82

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1589E+02 EXCESS= .0000E+00 OUTFLOW= .1589E+02 BASIN STORAGE= .1183E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00 RCP12S MANE	1.50	139.17	256.50	.76	5.00	138.97	260.00	.76

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1463E+02 EXCESS= .0000E+00 OUTFLOW= .1463E+02 BASIN STORAGE= .1367E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00 RCP12S MANE	1.50	139.08	261.00	.69	5.00	138.34	260.00	.69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1337E+02 EXCESS= .0000E+00 OUTFLOW= .1337E+02 BASIN STORAGE= .9497E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00 RCP12S MANE	1.75	138.27	262.50	.67	5.00	136.76	265.00	.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1287E+02 EXCESS= .0000E+00 OUTFLOW= .1287E+02 BASIN STORAGE= .1223E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00 RCP12S MANE	1.75	136.93	264.25	.65	5.00	136.24	265.00	.65

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1252E+02 EXCESS= .0000E+00 OUTFLOW= .1252E+02 BASIN STORAGE= .1090E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP13S MANE 2.50 139.44 257.50 .86 5.00 139.30 260.00 .86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1891E+02 EXCESS= .0000E+00 OUTFLOW= .1891E+02 BASIN STORAGE= .1162E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP13S MANE 2.50 139.98 257.50 .83 5.00 139.30 265.00 .83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1825E+02 EXCESS= .0000E+00 OUTFLOW= .1825E+02 BASIN STORAGE= .1064E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP13S MANE 2.50 139.27 265.00 .77 5.00 139.27 265.00 .77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1692E+02 EXCESS= .0000E+00 OUTFLOW= .1693E+02 BASIN STORAGE= .1389E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP13S MANE 2.75 138.98 266.75 .71 5.00 138.37 265.00 .71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1558E+02 EXCESS= .0000E+00 OUTFLOW= .1558E+02 BASIN STORAGE= .1479E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP13S MANE 2.75 138.81 266.75 .69 5.00 137.10 270.00 .68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1506E+02 EXCESS= .0000E+00 OUTFLOW= .1506E+02 BASIN STORAGE= .1307E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP13S MANE 2.75 136.76 269.50 .67 5.00 136.16 270.00 .67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1467E+02 EXCESS= .0000E+00 OUTFLOW= .1467E+02 BASIN STORAGE= .1140E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RE440E MANE 5.00 20.89 240.00 -1.00 5.00 20.89 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RE440E MANE 5.00 20.90 240.00 -1.00 5.00 20.90 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RE440E MANE 5.00 20.74 240.00 -1.00 5.00 20.74 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RE440E MANE 5.00 21.04 240.00 -1.00 5.00 21.04 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RE440E MANE 5.00 20.96 240.00 -1.00 5.00 20.96 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RE440E MANE 5.00 20.86 240.00 -1.00 5.00 20.86 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP14E MANE 2.25 280.78 240.75 .33 5.00 278.01 240.00 .33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3129E+02 EXCESS= .0000E+00 OUTFLOW= .3130E+02 BASIN STORAGE= .2248E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP14E MANE 2.00 267.06 240.00 .31 5.00 267.06 240.00 .31

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3011E+02 EXCESS= .0000E+00 OUTFLOW= .3012E+02 BASIN STORAGE= .2310E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP14E MANE 2.00 243.41 244.00 .29 5.00 242.44 245.00 .29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2779E+02 EXCESS= .0000E+00 OUTFLOW= .2780E+02 BASIN STORAGE= .2823E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP14E MANE 2.00 228.66 244.00 .27 5.00 227.99 245.00 .27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2567E+02 EXCESS= .0000E+00 OUTFLOW= .2569E+02 BASIN STORAGE= .2845E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP14E MANE 2.00 222.75 244.00 .26 5.00 222.36 245.00 .26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2485E+02 EXCESS= .0000E+00 OUTFLOW= .2486E+02 BASIN STORAGE= .2671E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP14E MANE 1.75 217.52 245.00 .25 5.00 217.52 245.00 .25

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2422E+02 EXCESS= .0000E+00 OUTFLOW= .2423E+02 BASIN STORAGE= .2572E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP14S MANE 5.00 31.04 210.00 -1.00 5.00 31.04 210.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP14S MANE 5.00 31.19 210.00 -1.00 5.00 31.19 210.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP14S MANE 5.00 31.43 210.00 -1.00 5.00 31.43 210.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP14S MANE 5.00 31.73 210.00 -1.00 5.00 31.73 210.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP14S MANE 5.00 31.82 210.00 -1.00 5.00 31.82 210.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP14S MANE 5.00 31.86 210.00 -1.00 5.00 31.86 210.00 -1.00

FOR PLAN = 1 RATIO= .00
RE220 MANE 5.00 38.46 245.00 1.28 5.00 38.46 245.00 1.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3024E+01 EXCESS= .0000E+00 OUTFLOW= .3032E+01 BASIN STORAGE= .4469E-02 PERCENT ERROR= -.4

FOR PLAN = 1 RATIO= .00
RE220 MANE 5.00 37.49 245.00 1.24 5.00 37.49 245.00 1.24

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2946E+01 EXCESS= .0000E+00 OUTFLOW= .2954E+01 BASIN STORAGE= .4423E-02 PERCENT ERROR= -.4

FOR PLAN = 1 RATIO= .00
RE220 MANE 5.00 35.83 245.00 1.19 5.00 35.83 245.00 1.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2818E+01 EXCESS= .0000E+00 OUTFLOW= .2826E+01 BASIN STORAGE= .4266E-02 PERCENT ERROR= -.4

FOR PLAN = 1 RATIO= .00
RE220 MANE 5.00 34.15 245.00 1.14 5.00 34.15 245.00 1.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2690E+01 EXCESS= .0000E+00 OUTFLOW= .2698E+01 BASIN STORAGE= .4159E-02 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00
RE220 MANE 5.00 33.46 245.00 1.12 5.00 33.46 245.00 1.12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2639E+01 EXCESS= .0000E+00 OUTFLOW= .2648E+01 BASIN STORAGE= .4128E-02 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00
RE220 MANE 5.00 32.97 245.00 1.10 5.00 32.97 245.00 1.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2604E+01 EXCESS= .0000E+00 OUTFLOW= .2612E+01 BASIN STORAGE= .4106E-02 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00
RE240E MANE 5.00 45.30 260.00 -1.00 5.00 45.30 260.00 -1.00

FOR PLAN = 1 RATIO= .00
RE240E MANE 5.00 43.80 260.00 -1.00 5.00 43.80 260.00 -1.00

FOR PLAN = 1 RATIO= .00
RE240E MANE 5.00 42.08 260.00 -1.00 5.00 42.08 260.00 -1.00

FOR PLAN = 1 RATIO= .00
RE240E MANE 5.00 41.67 245.00 -1.00 5.00 41.67 245.00 -1.00

FOR PLAN = 1 RATIO= .00
RE240E MANE 5.00 41.59 245.00 -1.00 5.00 41.59 245.00 -1.00

FOR PLAN = 1 RATIO= .00
RE240E MANE 5.00 41.52 245.00 -1.00 5.00 41.52 245.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP16E MANE 5.00 67.04 255.00 -1.00 5.00 67.04 255.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP16E MANE 5.00 65.26 255.00 -1.00 5.00 65.26 255.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP16E MANE 5.00 60.95 240.00 -1.00 5.00 60.95 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP16E MANE 5.00 59.90 240.00 -1.00 5.00 59.90 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP16E MANE 5.00 59.72 240.00 -1.00 5.00 59.72 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP16E MANE 5.00 59.64 245.00 -1.00 5.00 59.64 245.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP4S MANE 1.75 51.83 255.50 -1.00 5.00 51.54 260.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP4S MANE 1.75 52.65 246.75 -1.00 5.00 50.05 260.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP4S MANE 1.50 47.45 261.00 -1.00 5.00 47.26 260.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP4S MANE 1.50 45.64 262.50 -1.00 5.00 45.35 260.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP4S MANE 1.50 44.33 264.00 -1.00 5.00 43.91 265.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP4S MANE 1.25 42.21 262.50 -1.00 5.00 41.81 265.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP8S MANE 5.00 133.83 240.00 -1.00 5.00 133.83 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP8S MANE 5.00 130.15 240.00 -1.00 5.00 130.15 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP8S MANE 5.00 126.15 230.00 -1.00 5.00 126.15 230.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP8S MANE 5.00 127.45 230.00 -1.00 5.00 127.45 230.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP8S MANE 5.00 127.85 230.00 -1.00 5.00 127.85 230.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP8S MANE 5.00 128.51 230.00 -1.00 5.00 128.51 230.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP18 MANE 5.00 456.52 260.00 3.78 5.00 456.52 260.00 3.78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6497E+02 EXCESS= .0000E+00 OUTFLOW= .6499E+02 BASIN STORAGE= .3437E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP18 MANE 5.00 439.85 260.00 3.68 5.00 439.85 260.00 3.68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6339E+02 EXCESS= .0000E+00 OUTFLOW= .6340E+02 BASIN STORAGE= .3397E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP18 MANE 5.00 414.22 260.00 3.54 5.00 414.22 260.00 3.54

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6086E+02 EXCESS= .0000E+00 OUTFLOW= .6088E+02 BASIN STORAGE= .3292E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP18 MANE 5.00 400.90 260.00 3.40 5.00 400.90 260.00 3.40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5848E+02 EXCESS= .0000E+00 OUTFLOW= .5850E+02 BASIN STORAGE= .4234E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP18 MANE 5.00 393.21 260.00 3.34 5.00 393.21 260.00 3.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5743E+02 EXCESS= .0000E+00 OUTFLOW= .5744E+02 BASIN STORAGE= .4197E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCP18 MANE	5.00	386.21	260.00	3.29	5.00	386.21	260.00	3.29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5665E+02 EXCESS= .0000E+00 OUTFLOW= .5667E+02 BASIN STORAGE= .4134E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCP10S MANE	5.00	135.63	240.00	-1.00	5.00	135.63	240.00	-1.00
FOR PLAN = 1 RATIO= .00									
RCP10S MANE	5.00	133.58	240.00	-1.00	5.00	133.58	240.00	-1.00
FOR PLAN = 1 RATIO= .00									
RCP10S MANE	5.00	132.14	240.00	-1.00	5.00	132.14	240.00	-1.00
FOR PLAN = 1 RATIO= .00									
RCP10S MANE	5.00	127.99	240.00	-1.00	5.00	127.99	240.00	-1.00
FOR PLAN = 1 RATIO= .00									
RCP10S MANE	5.00	126.33	240.00	-1.00	5.00	126.33	240.00	-1.00
FOR PLAN = 1 RATIO= .00									
RCP10S MANE	5.00	125.17	240.00	-1.00	5.00	125.17	240.00	-1.00
FOR PLAN = 1 RATIO= .00									
RCP11S MANE	5.00	82.01	250.00	-1.00	5.00	82.01	250.00	-1.00
FOR PLAN = 1 RATIO= .00									
RCP11S MANE	5.00	78.64	250.00	-1.00	5.00	78.64	250.00	-1.00
FOR PLAN = 1 RATIO= .00									
RCP11S MANE	5.00	74.52	250.00	-1.00	5.00	74.52	250.00	-1.00
FOR PLAN = 1 RATIO= .00									
RCP11S MANE	5.00	71.75	245.00	-1.00	5.00	71.75	245.00	-1.00
FOR PLAN = 1 RATIO= .00									
RCP11S MANE	5.00	71.46	245.00	-1.00	5.00	71.46	245.00	-1.00
FOR PLAN = 1 RATIO= .00									
RCP11S MANE	5.00	71.14	245.00	-1.00	5.00	71.14	245.00	-1.00
FOR PLAN = 1 RATIO= .00									
RCP22 MANE	2.99	978.25	244.90	3.00	5.00	978.25	245.00	3.00

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1503E+03 EXCESS= .0000E+00 OUTFLOW= .1503E+03 BASIN STORAGE= .8292E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCP22 MANE	3.01	954.96	246.62	2.92	5.00	949.42	245.00	2.92

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1464E+03 EXCESS= .0000E+00 OUTFLOW= .1464E+03 BASIN STORAGE= .9349E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCP22 MANE	3.03	919.72	245.70	2.79	5.00	914.95	245.00	2.79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1400E+03 EXCESS= .0000E+00 OUTFLOW= .1399E+03 BASIN STORAGE= .9374E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCP22 MANE	3.06	888.77	247.66	2.67	5.00	880.30	245.00	2.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1338E+03 EXCESS= .0000E+00 OUTFLOW= .1338E+03 BASIN STORAGE= .8739E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCP22 MANE	3.07	873.58	248.45	2.62	5.00	867.62	245.00	2.62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1312E+03 EXCESS= .0000E+00 OUTFLOW= .1312E+03 BASIN STORAGE= .9542E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCP22 MANE	3.07	866.57	245.90	2.58	5.00	858.17	250.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1295E+03 EXCESS= .0000E+00 OUTFLOW= .1295E+03 BASIN STORAGE= .8315E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00 RCP15S MANE 5.00	56.61	255.00	-1.00	5.00	56.61	255.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP15S MANE 5.00	49.12	255.00	-1.00	5.00	49.12	255.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP15S MANE 5.00	30.49	260.00	-1.00	5.00	30.49	260.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP15S MANE 5.00	21.31	265.00	-1.00	5.00	21.31	265.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP15S MANE 5.00	20.72	225.00	-1.00	5.00	20.72	225.00	-1.00
FOR PLAN = 1 RATIO= .00 RCP15S MANE 5.00	20.78	225.00	-1.00	5.00	20.78	225.00	-1.00

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

HEC-1 Model

10-Year Ultimate Condition

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1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUN  1998                 *
*           VERSION 4.1                 *
*                                       *
*  RUN DATE   25OCT13  TIME  14:21:17   *
*                                       *
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*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

1 HEC-1 INPUT PAGE 1

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

              *DIAGRAM
    1         ID     SLATER HANIFAN GROUP, INC.
    2         ID     PARK HIGHLANDS - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
    3         ID     ADDENDUM NO. 2 TO THE TECHNICAL DRAINAGE STUDY
    4         ID     ULTIMATE CONDITION
    5         ID
    6         ID     RETURN PERIOD ------- 10-YEAR
    7         ID     DISTRIBUTION -------- 6-HOUR SDN3
    8         ID     PROJECT NO. --------- CBH1201.000
    9         ID     FILENAME ------------ ULT10.H1
   10         ID     DATE ---------------- NOVEMBER 2013
   11         ID     MODELED BY ---------- KC
   12         ID
   13         ID        SIX HOUR DEPTH-AREA REDUCTION FACTORS
   14         ID        DRAINAGE AREA (MI^2)       DARF
   15         ID        10-YR EVENT               0.570
   16         ID
   17         IT       5       0       0     300
   18         IO       5       0       0
   19         IN       5       0       0
   20         JR    PREC   0.570
              *
   21         KK    U190
   22         BA   .3684
   23         PB    2.77
   24         PC       0   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
   25         PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
   26         PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
   27         PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
   28         PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
   29         PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
   30         PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
   31         PC   0.998   0.999   1.000
   32         LS       0    80.7
   33         UD   0.522
              *
   34         KK    U170
   35         BA   .2521
   36         LS       0    83.0
   37         UD   0.521
              *
   38         KK     CP1
   39         KM   COMBINE U190 AND U120 AT IRON MOUNTAIN AND TORREY PINES
   40         HC       2
              *
   41         KK    CP1E
   42         KM   CP1E IS THE FLOW DRAINING EAST IN IRON MOUNTAIN
   43         KM   CP1S IS THE FLOW DRAINING SOUTH IN TORREY PINES
   44         DT    CP1S
   45         DI     109
   46         DQ      49
              *
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

   47         KK   RCP1E
   48         KM   ROUTE TO CP2
   49         RD    2480   .0050   0.016       0    TRAP       0      50
              *
   50         KK    U150
   51         BA   .1336
   52         LS       0    83.0
   53         UD   0.322
              *
   54         KK   U150S
   55         KM   U150S IS THE FLOW DRAINING SOUTH IN JONES
```

```
56          KM   U150E IS THE FLOW DRAINING EAST IN SHELEHEDA
57          KM   EXISTING SD IN JONES IS FOR NUISANCE FLOW
58          DT   U150E
59          DI      35
60          DQ      20
            *

61          KK   RU150S
62          KM   ROUTE TO CP2
63          RD    1345   .0050   0.016       0    TRAP       0      50
            *

64          KK   U155
65          BA   .1294
66          LS      0    83.4
67          UD   0.314
            *

68          KK     CP2
69          KM   COMBINE CP1 U150S AND U155 AT IRON MOUNTAIN AND JONES
70          HC       3
            *

71          KK    CP2S
72          KM   CP2S IS THE FLOW DRAINING SOUTH IN JONES
73          KM   CP2E IS THE FLOW DRAINING EAST IN IRON MOUNTAIN
74          KM   EXISTING SD IN IRON MOUNTAIN CONVEYS 46 CFS EAST
75          DT    CP2E
76          DI      92
77          DQ      69
            *

78          KK   RCP2S
79          KM   ROUTE TO CP10
80          RD    2695   .0050   0.016       0    TRAP       0      50
            *
```


1 HEC-1 INPUT

```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

81          KK    CP1S
82          KM   RETRIEVE CP1S
83          DR    CP1S
            *

84          KK    U210
85          BA   .0727
86          LS      0    83.1
87          UD   0.289
            *

88          KK     CP3
89          KM   COMBINE CP1S AND U210 AT MAGGIE AND TORREY PINES
90          HC       2
            *

91          KK    CP3S
92          KM   CP3S IS THE FLOW DRAINING SOUTH IN TORREY PINES
93          KM   CP3E IS THE FLOW DRAINING EAST IN MAGGIE
94          DT    CP3E
95          DI      64
96          DQ      29
            *

97          KK    U250
98          BA   .0698
99          LS      0    83.1
100         UD   0.289
            *

101         KK     CP4
102         KM   COMBINE CP3S AND U250 AT BRENT AND TORREY PINES
103         HC       2
            *

104         KK    CP4S
105         KM   CP4S IS THE FLOW DRAINING SOUTH IN TORREY PINES
106         KM   CP4E IS THE FLOW DRAINING EAST IN BRENT
107         DT    CP4E
108         DI      52
109         DQ      25
            *

110         KK   RCP4S
111         KM   ROUTE TO CP5
112         RD    1380   .0050   0.016       0    TRAP       0      50
            *

113         KK    U230
114         BA   .1390
115         LS      0    83.4
116         UD   0.328
            *
```


1 HEC-1 INPUT

```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

117         KK    U330
118         BA   .0142
119         LS      0    85.0
120         UD   0.188
            *

121         KK     CP5
122         KM   COMBINE CP4S U230 AND U330 AT HORSE AND TORREY PINES
123         HC       3
            *

124         KK    CP3E
125         KM   RETRIEVE CP3E
```

```
126          DR    CP3E
             *

127          KK    U370
128          BA   .0159
129          LS      0    86.2
130          UD   0.185
             *

131          KK     CP6
132          KM   COMBINE CP3E AND U370 AT MAGGIE AND MUSTANG
133          HC       2
             *

134          KK    CP6S
135          KM   CP6S IS THE FLOW DRAINING SOUTH IN MUSTANG
136          KM   CP6E IS THE FLOW DRAINING EAST IN MAGGIE
137          DT    CP6E
138          DI      32
139          DQ      14
             *

140          KK    CP4E
141          KM   RETRIEVE CP4E
142          DR    CP4E
             *

143          KK    U350
144          BA   .0163
145          LS      0    86.3
146          UD   0.186
             *

147          KK     CP7
148          KM   COMBINE CP6S CP4E AND U350 AT BRENT AND MUSTANG
149          HC       3
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

150          KK    CP7S
151          KM   CP7S IS THE FLOW DRAINING SOUTH IN MUSTANG
152          KM   CP7E IS THE FLOW DRAINING EAST IN BRENT
153          DT    CP7E
154          DI      48
155          DQ      24
             *

156          KK    U305
157          BA   .0093
158          LS      0    86.7
159          UD   0.171
             *

160          KK     CP8
161          KM   COMBINE CP7S AND U305 AT GUY AND MUSTANG
162          HC       2
             *

163          KK    CP8S
164          KM   CP8S IS THE FLOW DRAINING SOUTH IN MUSTANG
165          KM   CP8E IS THE FLOW DRAINING EAST IN GUY
166          DT    CP8E
167          DI      27
168          DQ      13
             *

169          KK    U310
170          BA   .0102
171          LS      0    87.1
172          UD   0.171
             *

173          KK     CP9
174          KM   COMBINE CP5 CP8S AND U310 AT HORSE AND MUSTANG
175          HC       3
             *

176          KK    CP9E
177          KM   CP9S IS THE FLOW DRAINING SOUTH IN MUSTANG
178          KM   CP9E IS THE FLOW DRAINING EAST IN HORSE
179          KM   EXISTING SD IN HORSE IS FOR NUISANCE FLOW
180          DT    CP9S
181          DI      82
182          DQ      56
             *

183          KK   RCP9E
184          KM   ROUTE TO CP10
185          RD    1950   .0050   0.016       0    TRAP       0      50
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

186          KK    CP6E
187          KM   RETRIEVE CP6E
188          DR    CP6E
             *

189          KK   RCP6E
190          KM   ROUTE TO CP10
191          RD    4010   .0050   0.016       0    TRAP       0      50
             *

192          KK    CP7E
193          KM   RETRIEVE CP7E
194          DR    CP7E
             *
```

```
195          KK   RCP7E
196          KM   ROUTE TO CP10
197          RD    3370   .0050   0.016       0    TRAP       0      50
             *

198          KK    CP8E
199          KM   RETRIEVE CP8E
200          DR    CP8E
             *

201          KK   RCP8E
202          KM   ROUTE TO CP10
203          RD    2680    0050   0.016       0    TRAP       0      50
             *

204          KK   DUMMY
205          KM   COMBINE CP2S CP9E CP6E CP7E AND CP8E
206          HC       5
             *

207          KK    U410
208          BA   .2013
209          LS       0    85.7
210          UD   0.354
             *

211          KK    CP10
212          KM   COMBINE DUMMY AND U410 AT HORSE AND JONES
213          HC       2
             *

214          KK   CP10E
215          KM   CP10S IS THE FLOW DRAINING SOUTH IN JONES
216          KM   CP10E IS THE FLOW DRAINING EAST IN HORSE
217          KM   EXISTING SD IN JONES CONVEYS 23 CFS SOUTH
218          DT   CP10S
219          DI     134
220          DQ      83
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

221          KK  RCP10E
222          KM   ROUTE TO CP11
223          RD    2530   .0050   0.016       0    TRAP       0      50
             *

224          KK    U440
225          BA   .0523
226          LS       0    80.9
227          UD   0.290
             *

228          KK   U440S
229          KM   U440S IS THE FLOW DRAINING SOUTH IN BRADLEY
230          KM   U440E IS THE FLOW DRAINING EAST IN BRENT
231          DT   U440E
232          DI      12
233          DQ       7
             *

234          KK  RU440S
235          KM   ROUTE TO CP11
236          RD    1345   .0050   0.016       0    TRAP       0      50
             *

237          KK    U470
238          BA   .2012
239          LS       0    80.7
240          UD   0.356
             *

241          KK    CP11
242          KM   COMBINE CP10E U440S AND U470 AT HORSE AND BRADLEY
243          HC       3
             *

244          KK   CP11E
245          KM   CP11S IS THE FLOW DRAINING SOUTH IN BRADLEY
246          KM   CP11E IS THE FLOW DRAINING EAST IN HORSE
247          KM   EXISTING SD IN HORSE CONVEYS 6 CFS EAST
248          DT   CP11S
249          DI      79
250          DQ      33
             *

251          KK    U530
252          BA   .0131
253          LS       0    84.0
254          UD   0.148
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

255          KK    CP12
256          KM   COMBINE CP11E AND U530 AT HORSE AND UNICORN
257          HC       2
             *

258          KK   CP12E
259          KM   CP12S IS THE FLOW DRAINING SOUTH IN UNICORN
260          KM   CP12E IS THE FLOW DRAINING EAST IN HORSE
261          KM   EXISTING SD IN HORSE CONVEYS 6 CFS EAST
262          DT   CP12S
263          DI      48
264          DQ      21
             *
```

```
265          KK  RCP12E
266          KM   ROUTE TO CP14
267          RD    1825   .0050   0.016       0    TRAP       0      50
             *

268          KK    U130
269          BA   .0556
270          LS      0    83.9
271          UD   0.203
             *

272          KK   U130S
273          KM   U130S IS THE FLOW DRAINING SOUTH IN DECATUR
274          KM   U130E IS THE FLOW DRAINING EAST IN IRON MOUNTAIN
275          DT   U130E
276          DI      19
277          DQ      10
             *

278          KK  RU130S
279          KM   ROUTE TO CP13
280          RD    1270   .0050   0.016       0    TRAP       0      50
             *

281          KK    U550
282          BA   .0534
283          LS      0    85.4
284          UD   0.225
             *

285          KK    CP13
286          KM   COMBINE U130S AND U550 AT BRENT AND DECATUR
287          HC       2
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

288          KK   CP13S
289          KM   CP13S IS THE FLOW DRAINING SOUTH IN DECATUR
290          KM   CP13E IS THE FLOW DRAINING EAST IN BRENT
291          DT   CP13E
292          DI      28
293          DQ      17
             *

294          KK  RCP13S
295          KM   ROUTE TO CP14
296          RD    1290   .0040   0.016       0    TRAP       0      50
             *

297          KK   U440E
298          KM   RETRIEVE U440E
299          DR   U440E
             *

300          KK  RU440E
301          KM   ROUTE TO CP14
302          RD    3850   .0040   0.016       0    TRAP       0      50
             *

303          KK    U570
304          BA   .1791
305          LS      0    89.0
306          UD   0.370
             *

307          KK    CP14
308          KM   COMBINE CP12E CP13S U440E AND U570 AT HORSE AND DECATUR
309          HC       4
             *

310          KK   CP14E
311          KM   CP14S IS THE FLOW DRAINING SOUTH IN DECATUR
312          KM   CP14E IS THE FLOW DRAINING EAST IN HORSE
313          KM   EXISTING SD IN DECATUR CONVEYS 30 CFS SOUTH
314          DT   CP14S
315          DI      98
316          DQ      30
             *

317          KK  RCP14E
318          KM   ROUTE TO CP15
319          RD    2645   .0050   0.016       0    TRAP       0      50
             *

320          KK    U610
321          BA   .0479
322          LS      0    84.2
323          UD   0.311
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

324          KK    CP15
325          KM   COMBINE CP14E AND U610 AT HORSE AND AVIARY
326          HC       2
             *

327          KK   CP15E
328          KM   CP15S IS THE FLOW DRAINING SOUTH IN AVIARY
329          KM   CP15E IS THE FLOW DRAINING EAST IN HORSE
330          KM   ULTIMATE SD IN HORSE CONVEYS 321 CFS EAST
331          DT   CP15S
332          DI      77
333          DQ       0
             *
```

```
334          KK    CP9S
335          KM   RETRIEVE CP9S
336          DR    CP9S
             *

337          KK   RCP9S
338          KM   ROUTE TO CP16
339          RD    4770   .0050   0.016       0    TRAP       0       50
             *

340          KK   CP10S
341          KM   RETRIEVE CP10S
342          DR   CP10S
             *

343          KK  RCP10S
344          KM   ROUTE TO CP16
345          RD    2755   .0050   0.016       0    TRAP       0       50
             *

346          KK    U280
347          BA   .2688
348          LS      0    83.3
349          UD   0.375
             *

350          KK    CP16
351          KM   COMBINE CP9S CP10S AND U280 AT GRAND TETON AND JONES
352          HC       3
             *

353          KK   RCP16
354          KM   ROUTE TO CP17
355          RD    4900   .0050   0.016       0    TRAP       0       50
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

356          KK   CP11S
357          KM   RETRIEVE CP11S
358          DR   CP11S
             *

359          KK  RCP11S
360          KM   ROUTE TO CP17
361          RD    5215   .0050   0.016       0    TRAP       0       50
             *

362          KK   CP12S
363          KM   RETRIEVE CP12S
364          DR   CP12S
             *

365          KK  RCP12S
366          KM   ROUTE TO CP17
367          RD    4550   .0050   0.016       0    TRAP       0       50
             *

368          KK   CP14S
369          KM   RETRIEVE CP14S
370          DR   CP14S
             *

371          KK  RCP14S
372          KM   ROUTE TO CP17
373          RD    2565   .0050   0.013       0    CIRC     2.5       0
             *

374          KK    U510
375          BA   .4885
376          LS      0    84.8
377          UD   0.510
             *

378          KK    CP17
379          KM   COMBINE CP16 CP11S CP12S CP14S AND U510 AT GRAND TETON AND DECATUR
380          HC       5
             *

381          KK    U650
382          BA   .0085
383          LS      0    89.3
384          UD   0.106
             *

385          KK    CP18
386          KM   COMBINE CP17 AND U650 IN GRAND TETON BETWEEN DECATUR AND SAN MATEO
387          HC       2
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

388          KK    U630
389          BA   .0735
390          LS      0    88.0
391          UD   0.246
             *

392          KK    CP19
393          KM   COMBINE CP18 AND U630 IN GRAND TETON BETWEEN DECATUR AND SAN MATEO
394          HC       2
             *

395          KK    U620
396          BA   .0472
397          LS      0    88.1
398          UD   0.246
             *
```

```
399          KK    CP20
400          KM   COMBINE CP19 AND U620 AT GRAND TETON AND SAN MATEO
401          HC       2
             *

402          KK   RCP20
403          KM   ROUTE TO CP22
404          RD    1230   .0050   0.016       0    TRAP       0      50
             *

405          KK   CP15S
406          KM   RETRIEVE CP15S
407          DR   CP15S
             *

408          KK  RCP15S
409          KM   ROUTE TO CP20
410          RD    2555   .0050   0.016       0    TRAP       0      50
             *

411          KK    U680
412          BA   .1122
413          LS       0    88.0
414          UD   0.303
             *

415          KK    CP21
416          KM   COMBINE CP15S AND U680 IN AVIARY JUST NORTH OF GRAND TETON
417          HC       2
             *

418          KK    U760
419          BA   .0076
420          LS       0    88.3
421          UD   0.147
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

422          KK   CPGTA
423          KM   COMBINE CP20 CP21 AND U760 AT GRAND TETON AND AVIARY
424          HC       3
             *

425          KK     2-3
426          BA  0.0327
427          LS       0    85.0
428          UD   0.172
             *

429          KK  CPGTA2
430          HC       2
             *

431          KK     2-1
432          BA  0.0367
433          LS       0    94.0
434          UD   0.187
             *

435          KK     2-2
436          BA  0.0742
437          LS       0    91.0
438          UD   0.215
             *

439          KK   2-14A
440          BA  0.0027
441          LS       0    85.0
442          UD   0.135
             *

443          KK      2A
444          HC       3
             *

445          KK      2B
446          KO       2
447          HC       2
             *

448          KK     DB1
449          KM   DETENTION BASIN 1
450          KO       2
451          RS       1    ELEV      -1
452          SV       0   0.339   3.015   9.712  18.977  29.349  42.004 102.301 126.116 159.117
453          SE  2297.0  2298.0  2299.0  2300.0  2301.0  2302.0  2303.0  2307.0  2308.5  2310.5
454          SQ       0      72     110     138     161     199     215     231     252    1975
455          SE  2297.0  2300.0  2301.0  2302.0  2303.0  2305.0  2306.0  2307.0  2308.5  2310.5
456          KO       1
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

457          KK     2-6
458          BA  0.0180
459          LS       0    94.0
460          UD   0.158
             *

461          KK      2C
462          HC       2
             *

463          KK     2-7
464          BA  0.0156
465          LS       0    85.0
```

```
466          UD    0.137
             *

467          KK       2D
468          HC        2
             *

469          KK      2-4
470          BA   0.0334
471          LS        0     94.0
472          UD    0.137
             *

473          KK    2-14B
474          BA   0.0025
475          LS        0     85.0
476          UD    0.126
             *

477          KK       2E
478          HC        2
             *

479          KK      2-5
480          BA   0.0891
481          LS        0     91.0
482          UD    0.215
             *

483          KK     2-5W
484          DT     2-5E
485          DI        0      100
486          DQ        0       48
             *

487          KK      2-9
488          BA   0.0156
489          LS        0     91.0
490          UD    0.135
             *
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

491          KK       2F
492          HC        3
             *

493          KK     2-5E
494          DR     2-5E
             *

495          KK     2-10
496          BA   0.0163
497          LS        0     91.0
498          UD    0.132
             *

499          KK       2G
500          HC        3
             *

501          KK      2-8
502          BA   0.0286
503          LS        0     94.0
504          UD    0.144
             *

505          KK       2H
506          HC        2
             *

507          KK       2I
508          HC        2
             *

509          KK     2-11
510          BA   0.0255
511          LS        0     94.0
512          UD    0.135
             *

513          KK     2-12
514          BA   0.0272
515          LS        0     90.0
516          UD    0.150
             *

517          KK       2J
518          HC        2
             *

519          KK    DUMMY
520          HC        2
             *
```



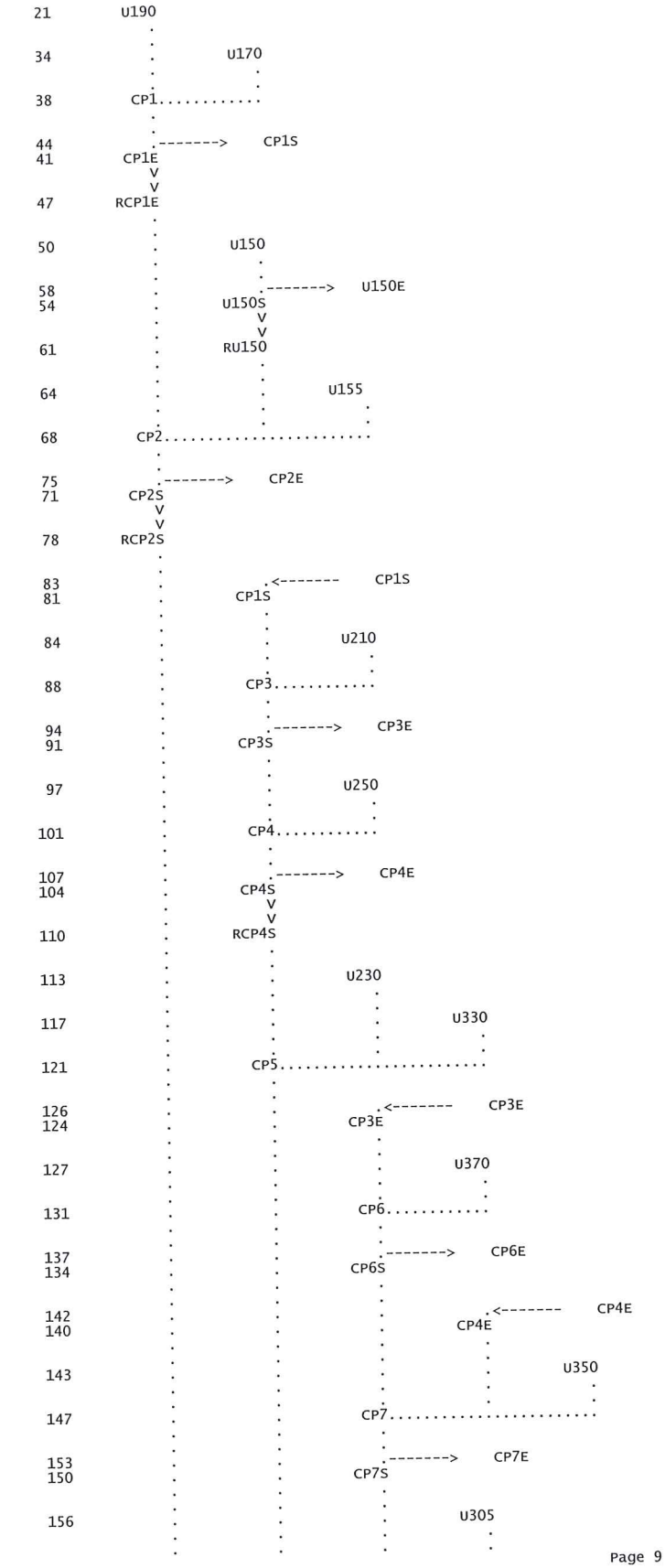
```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

521          KK     2-13
522          BA   0.0273
523          LS        0     91.0
524          UD    0.176
             *

525          KK      PT2
526          HC        2
             *
527          ZZ
```

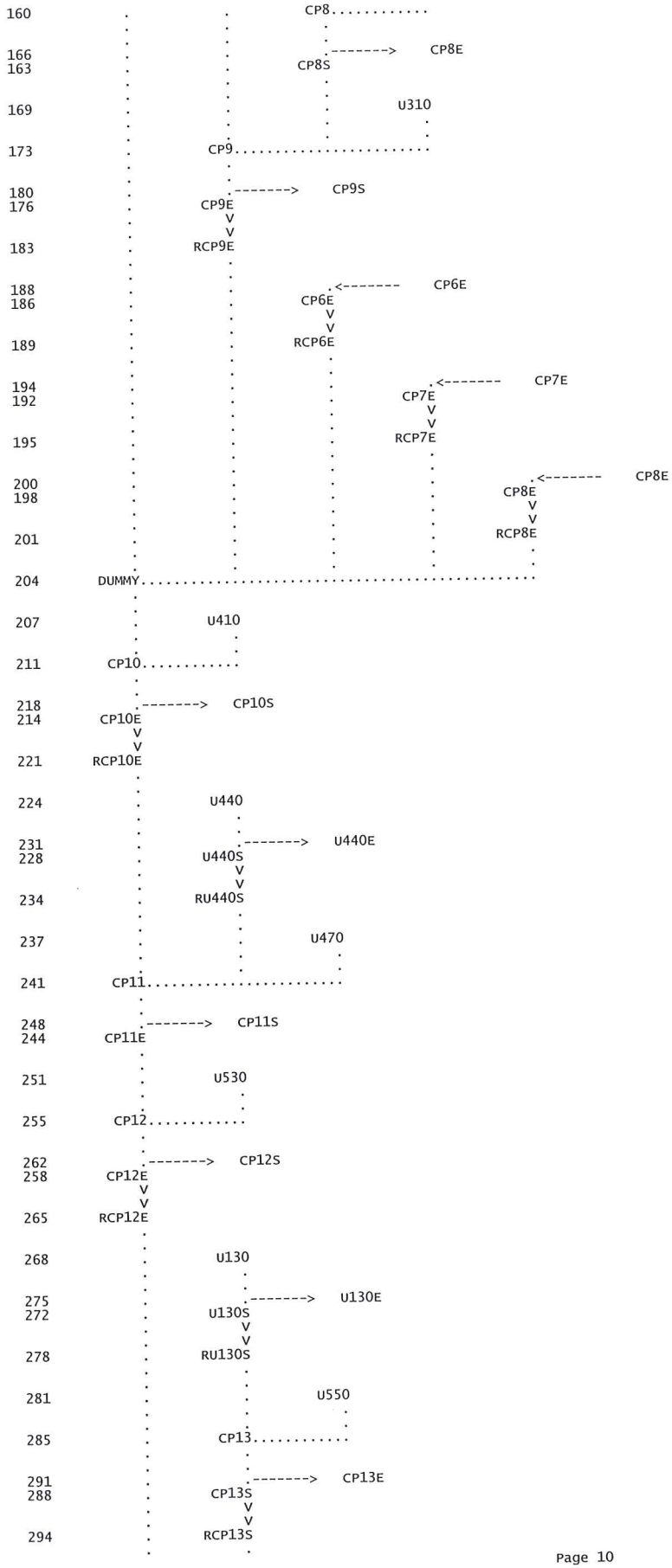
SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

(V) ROUTING (---->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW




160
CP8
166
CP8E
163
CP8S
169
U310
173
CP9
180
CP9S
176
CP9E
183
RCP9E
188
CP6E
186
CP6E
189
RCP6E
194
CP7E
192
CP7E
195
RCP7E
200
CP8E
198
CP8E
201
RCP8E
204
DUMMY
207
U410
211
CP10
218
CP10S
214
CP10E
221
RCP10E
224
U440
231
U440E
228
U440S
234
RU440S
237
U470
241
CP11
248
CP11S
244
CP11E
251
U530
255
CP12
262
CP12S
258
CP12E
265
RCP12E
268
U130
275
U130E
272
U130S
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RU130S
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U550
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CP13
291
CP13E
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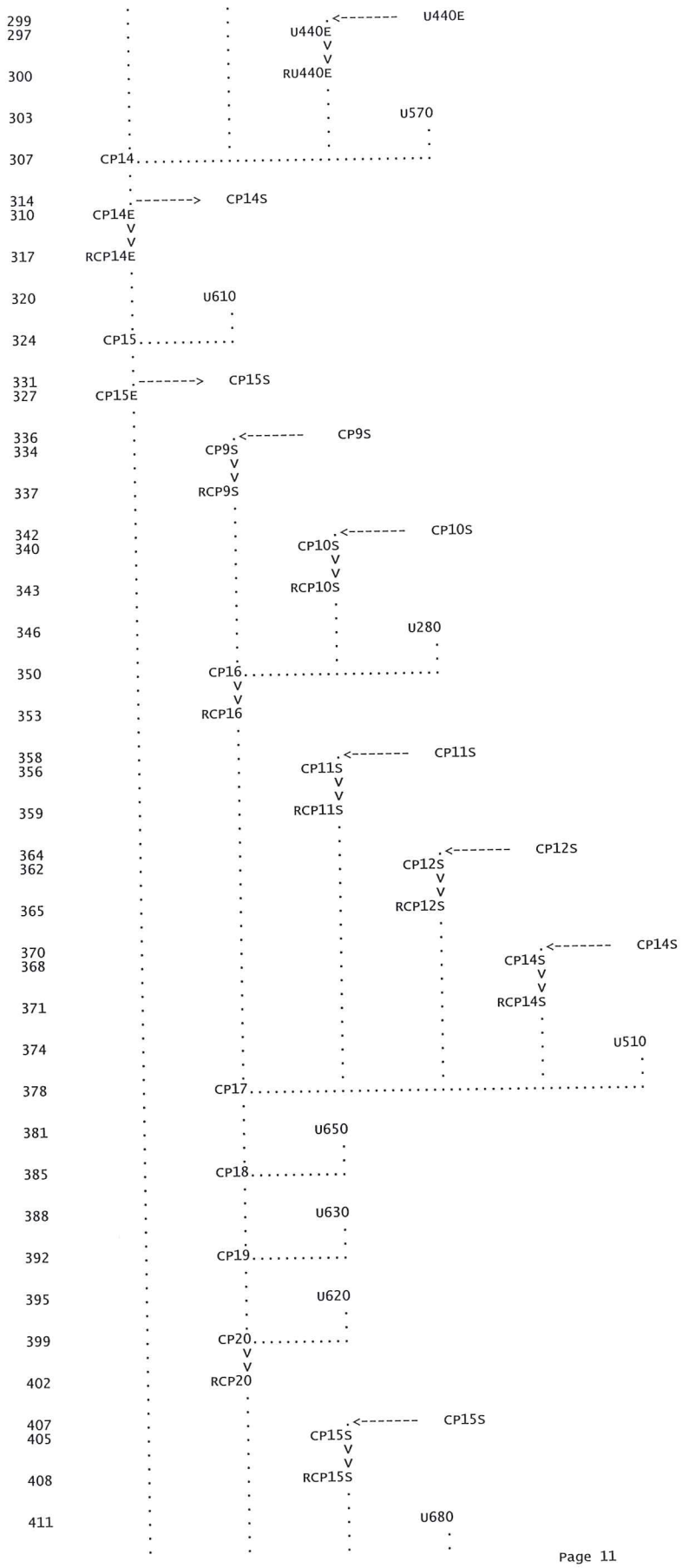
CP13S
294
RCP13S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U440E
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CP14S
CP14E
RCP14E
U610
CP15
CP15S
CP15E
CP9S
CP9S
RCP9S
CP10S
CP10S
RCP10S
U280
CP16
RCP16
CP11S
CP11S
RCP11S
CP12S
CP12S
RCP12S
CP14S
CP14S
RCP14S
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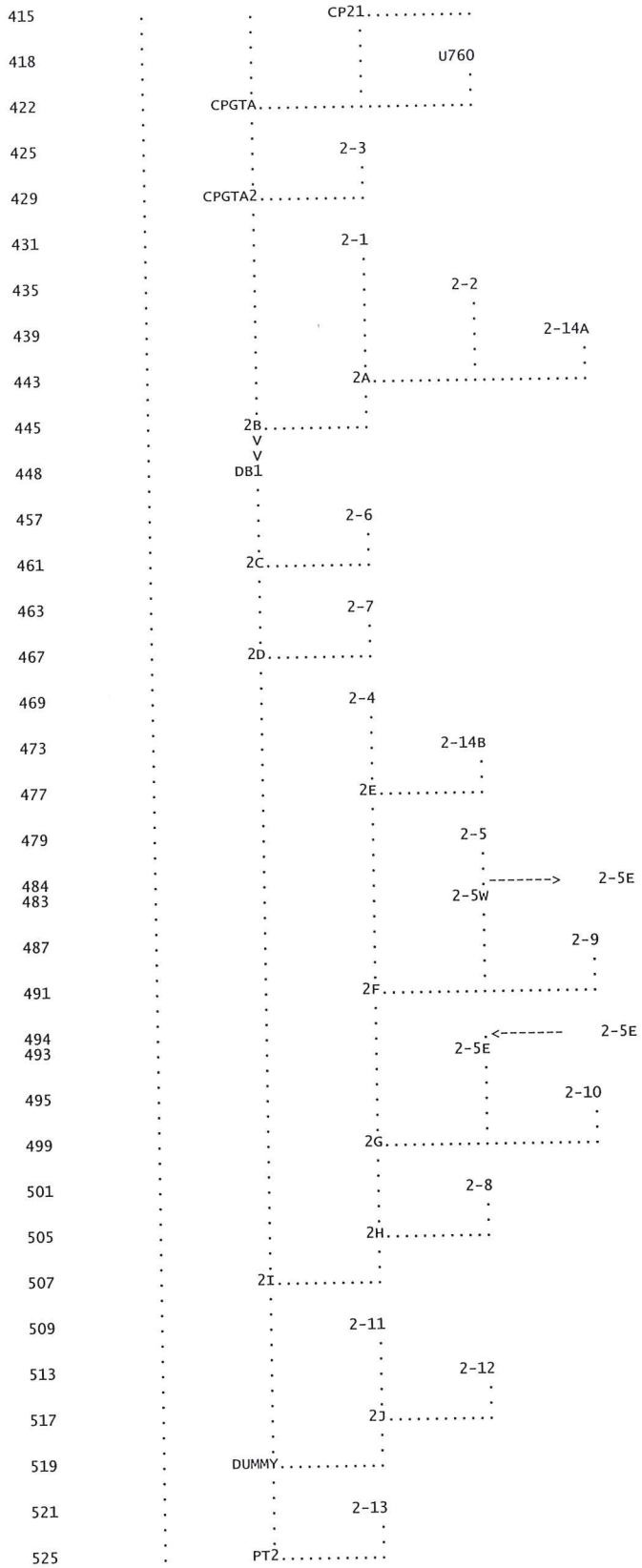
CP17
U650
CP18
U630
CP19
U620
CP20
RCP20
CP15S
CP15S
RCP15S
U680



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*    FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN  1998                *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   22OCT13  TIME  10:44:34   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

SLATER HANIFAN GROUP, INC.
PARK HIGHLANDS - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
ADDENDUM NO. 2 TO THE TECHNICAL DRAINAGE STUDY
ULTIMATE CONDITION

RETURN PERIOD ------- 10-YEAR
DISTRIBUTION -------- 6-HOUR SDN3
PROJECT NO. --------- CBH1201.000
FILENAME ------------ ULT10.H1
DATE ---------------- OCTOBER 2013
MODELED BY ---------- KC

SIX HOUR DEPTH-AREA REDUCTION FACTORS
DRAINAGE AREA (MI^2) DARF
10-YR EVENT 0.570

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

   IT          HYDROGRAPH TIME DATA
                    NMIN           5  MINUTES IN COMPUTATION INTERVAL
                   IDATE      1    0  STARTING DATE
                   ITIME         0000  STARTING TIME
                      NQ          300  NUMBER OF HYDROGRAPH ORDINATES
                  NDDATE      2    0  ENDING DATE
                  NDTIME         0055  ENDING TIME
                   ICENT           19  CENTURY MARK

                COMPUTATION INTERVAL      .08 HOURS
                    TOTAL TIME BASE    24.92 HOURS

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

    JP          MULTI-PLAN OPTION
                    NPLAN          1  NUMBER OF PLANS

    JR          MULTI-RATIO OPTION
                RATIOS OF PRECIPITATION
                .57

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

          ***************
          *             *
445 KK    *      2B     *
          *             *
          ***************

446 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          2  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

447 HC          HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                    ***
```

HYDROGRAPH AT STATION 2B
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .57

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	78.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	69.	1		1235	152	0.	1		1850	227	0.
1		0010	3	0.	1		0625	78	62.	1		1240	153	0.	1		1855	228	0.
1		0015	4	0.	1		0630	79	55.	1		1245	154	0.	1		1900	229	0.
1		0020	5	0.	1		0635	80	49.	1		1250	155	0.	1		1905	230	0.
1		0025	6	0.	1		0640	81	44.	1		1255	156	0.	1		1910	231	0.
1		0030	7	0.	1		0645	82	39.	1		1300	157	0.	1		1915	232	0.
1		0035	8	0.	1		0650	83	34.	1		1305	158	0.	1		1920	233	0.
1		0040	9	1.	1		0655	84	31.	1		1310	159	0.	1		1925	234	0.
1		0045	10	0.	1		0700	85	27.	1		1315	160	0.	1		1930	235	0.
1		0050	11	0.	1		0705	86	24.	1		1320	161	0.	1		1935	236	0.
1		0055	12	0.	1		0710	87	22.	1		1325	162	0.	1		1940	237	0.
1		0100	13	0.	1		0715	88	19.	1		1330	163	0.	1		1945	238	0.
1		0105	14	0.	1		0720	89	17.	1		1335	164	0.	1		1950	239	0.
1		0110	15	0.	1		0725	90	16.	1		1340	165	0.	1		1955	240	0.
1		0115	16	0.	1		0730	91	14.	1		1345	166	0.	1		2000	241	0.
1		0120	17	0.	1		0735	92	13.	1		1350	167	0.	1		2005	242	0.
1		0125	18	1.	1		0740	93	11.	1		1355	168	0.	1		2010	243	0.
1		0130	19	1.	1		0745	94	10.	1		1400	169	0.	1		2015	244	0.
1		0135	20	2.	1		0750	95	9.	1		1405	170	0.	1		2020	245	0.
1		0140	21	2.	1		0755	96	8.	1		1410	171	0.	1		2025	246	0.
1		0145	22	3.	1		0800	97	7.	1		1415	172	0.	1		2030	247	0.
1		0150	23	3.	1		0805	98	6.	1		1420	173	0.	1		2035	248	0.
1		0155	24	2.	1		0810	99	6.	1		1425	174	0.	1		2040	249	0.
1		0200	25	2.	1		0815	100	5.	1		1430	175	0.	1		2045	250	0.

1	0205	26	2.	*	1	0820	101	4.	*	1	1435	176	0.	*	1	2050	251	0.
1	0210	27	2.	*	1	0825	102	4.	*	1	1440	177	0.	*	1	2055	252	0.
1	0215	28	3.	*	1	0830	103	3.	*	1	1445	178	0.	*	1	2100	253	0.
1	0220	29	4.	*	1	0835	104	3.	*	1	1450	179	0.	*	1	2105	254	0.
1	0225	30	6.	*	1	0840	105	2.	*	1	1455	180	0.	*	1	2110	255	0.
1	0230	31	7.	*	1	0845	106	2.	*	1	1500	181	0.	*	1	2115	256	0.
1	0235	32	7.	*	1	0850	107	2.	*	1	1505	182	0.	*	1	2120	257	0.
1	0240	33	7.	*	1	0855	108	1.	*	1	1510	183	0.	*	1	2125	258	0.
1	0245	34	8.	*	1	0900	109	1.	*	1	1515	184	0.	*	1	2130	259	0.
1	0250	35	9.	*	1	0905	110	1.	*	1	1520	185	0.	*	1	2135	260	0.
1	0255	36	9.	*	1	0910	111	1.	*	1	1525	186	0.	*	1	2140	261	0.
1	0300	37	9.	*	1	0915	112	1.	*	1	1530	187	0.	*	1	2145	262	0.
1	0305	38	11.	*	1	0920	113	1.	*	1	1535	188	0.	*	1	2150	263	0.
1	0310	39	16.	*	1	0925	114	1.	*	1	1540	189	0.	*	1	2155	264	0.
1	0315	40	27.	*	1	0930	115	0.	*	1	1545	190	0.	*	1	2200	265	0.
1	0320	41	47.	*	1	0935	116	0.	*	1	1550	191	0.	*	1	2205	266	0.
1	0325	42	83.	*	1	0940	117	0.	*	1	1555	192	0.	*	1	2210	267	0.
1	0330	43	138.	*	1	0945	118	0.	*	1	1600	193	0.	*	1	2215	268	0.
1	0335	44	199.	*	1	0950	119	0.	*	1	1605	194	0.	*	1	2220	269	0.
1	0340	45	244.	*	1	0955	120	0.	*	1	1610	195	0.	*	1	2225	270	0.
1	0345	46	267.	*	1	1000	121	0.	*	1	1615	196	0.	*	1	2230	271	0.
1	0350	47	274.	*	1	1005	122	0.	*	1	1620	197	0.	*	1	2235	272	0.
1	0355	48	272.	*	1	1010	123	0.	*	1	1625	198	0.	*	1	2240	273	0.
1	0400	49	278.	*	1	1015	124	0.	*	1	1630	199	0.	*	1	2245	274	0.
1	0405	50	298.	*	1	1020	125	0.	*	1	1635	200	0.	*	1	2250	275	0.
1	0410	51	316.	*	1	1025	126	0.	*	1	1640	201	0.	*	1	2255	276	0.
1	0415	52	342.	*	1	1030	127	0.	*	1	1645	202	0.	*	1	2300	277	0.
1	0420	53	366.	*	1	1035	128	0.	*	1	1650	203	0.	*	1	2305	278	0.
1	0425	54	370.	*	1	1040	129	0.	*	1	1655	204	0.	*	1	2310	279	0.
1	0430	55	361.	*	1	1045	130	0.	*	1	1700	205	0.	*	1	2315	280	0.
1	0435	56	346.	*	1	1050	131	0.	*	1	1705	206	0.	*	1	2320	281	0.
1	0440	57	332.	*	1	1055	132	0.	*	1	1710	207	0.	*	1	2325	282	0.
1	0445	58	315.	*	1	1100	133	0.	*	1	1715	208	0.	*	1	2330	283	0.
1	0450	59	297.	*	1	1105	134	0.	*	1	1720	209	0.	*	1	2335	284	0.
1	0455	60	283.	*	1	1110	135	0.	*	1	1725	210	0.	*	1	2340	285	0.
1	0500	61	268.	*	1	1115	136	0.	*	1	1730	211	0.	*	1	2345	286	0.
1	0505	62	252.	*	1	1120	137	0.	*	1	1735	212	0.	*	1	2350	287	0.
1	0510	63	236.	*	1	1125	138	0.	*	1	1740	213	0.	*	1	2355	288	0.
1	0515	64	220.	*	1	1130	139	0.	*	1	1745	214	0.	*	2	0000	289	0.
1	0520	65	205.	*	1	1135	140	0.	*	1	1750	215	0.	*	2	0005	290	0.
1	0525	66	192.	*	1	1140	141	0.	*	1	1755	216	0.	*	2	0010	291	0.
1	0530	67	179.	*	1	1145	142	0.	*	1	1800	217	0.	*	2	0015	292	0.
1	0535	68	167.	*	1	1150	143	0.	*	1	1805	218	0.	*	2	0020	293	0.
1	0540	69	155.	*	1	1155	144	0.	*	1	1810	219	0.	*	2	0025	294	0.
1	0545	70	143.	*	1	1200	145	0.	*	1	1815	220	0.	*	2	0030	295	0.
1	0550	71	131.	*	1	1205	146	0.	*	1	1820	221	0.	*	2	0035	296	0.
1	0555	72	120.	*	1	1210	147	0.	*	1	1825	222	0.	*	2	0040	297	0.
1	0600	73	108.	*	1	1215	148	0.	*	1	1830	223	0.	*	2	0045	298	0.
1	0605	74	98.	*	1	1220	149	0.	*	1	1835	224	0.	*	2	0050	299	0.
1	0610	75	88.	*	1	1225	150	0.	*	1	1840	225	0.	*	2	0055	300	0.
				*					*					*						

****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)	(CFS)				
+ 370.	4.42		122.	31.	30.	30.
		(INCHES)	.984	.990	.990	.990
		(AC-FT)	60.	61.	61.	61.

CUMULATIVE AREA = 1.15 SQ MI

*** ***

```
          ***************
          *             *
448 KK    *      DB1    *
          *             *
          ***************

450 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          2  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

456 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          1  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

              HYDROGRAPH ROUTING DATA

451 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       ELEV  TYPE OF INITIAL CONDITION
                    RSVRIC      -1.00  INITIAL CONDITION
                         X        .00 WORKING R AND D COEFFICIENT

452 SV            STORAGE         .0       .3      3.0      9.7     19.0     29.3     42.0    102.3    126.1    159.1

453 SE            ELEVATION   2297.00  2298.00  2299.00  2300.00  2301.00  2302.00  2303.00  2307.00  2308.50  2310.50

454 SQ            DISCHARGE         0.      72.     110.     138.     161.     199.     215.     231.     252.    1975.

455 SE            ELEVATION   2297.00  2300.00  2301.00  2302.00  2303.00  2305.00  2306.00  2307.00  2308.50  2310.50

                                                    ***

                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

                 STORAGE        .00      .34     3.02     9.71    18.98    29.35    42.00    72.15    87.23   102.30
                 OUTFLOW        .00    24.00    48.00    72.00   110.00   138.00   161.00   199.00   215.00   231.00
               ELEVATION    2297.00  2298.00  2299.00  2300.00  2301.00  2302.00  2303.00  2305.00  2306.00  2307.00
```

STORAGE	126.12	159.12
OUTFLOW	252.00	1975.00
ELEVATION	2308.50	2310.50

HYDROGRAPH AT STATION DB1
PLAN 1, RATIO = .57

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.0	2297.0
1		0005	2	0.	.0	2297.0
1		0010	3	0.	.0	2297.0
1		0015	4	0.	.0	2297.0
1		0020	5	0.	.0	2297.0
1		0025	6	0.	.0	2297.0
1		0030	7	0.	.0	2297.0
1		0035	8	0.	.0	2297.0
1		0040	9	0.	.0	2297.0
1		0045	10	0.	.0	2297.0
1		0050	11	0.	.0	2297.0
1		0055	12	0.	.0	2297.0
1		0100	13	0.	.0	2297.0
1		0105	14	0.	.0	2297.0
1		0110	15	0.	.0	2297.0
1		0115	16	0.	.0	2297.0
1		0120	17	0.	.0	2297.0
1		0125	18	0.	.0	2297.0
1		0130	19	1.	.0	2297.0
1		0135	20	1.	.0	2297.0
1		0140	21	1.	.0	2297.1
1		0145	22	2.	.0	2297.1
1		0150	23	2.	.0	2297.1
1		0155	24	2.	.0	2297.1
1		0200	25	2.	.0	2297.1
1		0205	26	2.	.0	2297.1
1		0210	27	2.	.0	2297.1
1		0215	28	2.	.0	2297.1
1		0220	29	3.	.0	2297.1
1		0225	30	4.	.1	2297.1
1		0230	31	5.	.1	2297.2
1		0235	32	5.	.1	2297.2
1		0240	33	6.	.1	2297.3
1		0245	34	7.	.1	2297.3
1		0250	35	7.	.1	2297.3
1		0255	36	8.	.1	2297.3
1		0300	37	8.	.1	2297.3
1		0305	38	9.	.1	2297.4
1		0310	39	11.	.2	2297.5
1		0315	40	15.	.2	2297.6
1		0320	41	24.	.3	2298.0
1		0325	42	26.	.6	2298.1
1		0330	43	31.	1.2	2298.3
1		0335	44	40.	2.1	2298.7
1		0340	45	49.	3.3	2299.0
1		0345	46	54.	4.7	2299.3
1		0350	47	59.	6.2	2299.5
1		0355	48	65.	7.6	2299.7
1		0400	49	70.	9.1	2299.9
1		0405	50	75.	10.5	2300.1
1		0410	51	82.	12.1	2300.3
1		0415	52	89.	13.8	2300.4
1		0420	53	96.	15.6	2300.6
1		0425	54	104.	17.4	2300.8
1		0430	55	111.	19.2	2301.0
1		0435	56	115.	20.9	2301.2
1		0440	57	119.	22.4	2301.3
1		0445	58	123.	23.8	2301.5
1		0450	59	126.	25.0	2301.6
1		0455	60	129.	26.2	2301.7
1		0500	61	132.	27.2	2301.8
1		0505	62	134.	28.0	2301.9
1		0510	63	136.	28.8	2301.9
1		0515	64	138.	29.4	2302.0
1		0520	65	139.	29.9	2302.0
1		0525	66	140.	30.3	2302.1
1		0530	67	140.	30.6	2302.1
1		0535	68	141.	30.9	2302.1
1		0540	69	141.	31.0	2302.1
1		0545	70	141.	31.0	2302.1
1		0550	71	141.	31.0	2302.1
1		0555	72	141.	30.9	2302.1
1		0600	73	141.	30.7	2302.1
1		0605	74	140.	30.5	2302.1
1		0610	75	139.	30.1	2302.1
1		0615	76	139.	29.8	2302.0
1		0620	77	138.	29.3	2302.0
1		0625	78	137.	28.8	2301.9
1		0630	79	135.	28.3	2301.9
1		0635	80	134.	27.7	2301.8
1		0640	81	132.	27.1	2301.8
1		0645	82	130.	26.5	2301.7
1		0650	83	129.	25.9	2301.7
1		0655	84	127.	25.2	2301.6
1		0700	85	125.	24.5	2301.5
1		0705	86	123.	23.9	2301.5
1		0710	87	121.	23.2	2301.4
1		0715	88	119.	22.5	2301.3
1		0720	89	118.	21.8	2301.3
1		0725	90	116.	21.1	2301.2
1		0730	91	114.	20.4	2301.1
1		0735	92	112.	19.7	2301.1
1		0740	93	110.	19.1	2301.0
1		0745	94	108.	18.4	2300.9
1		0750	95	105.	17.7	2300.9
1		0755	96	102.	17.1	2300.8
1		0800	97	99.	16.4	2300.7
1		0805	98	97.	15.8	2300.7
1		0820	101	89.	14.0	2300.5
1		0825	102	87.	13.4	2300.4
1		0830	103	85.	12.8	2300.3
1		0835	104	82.	12.3	2300.3
1		0840	105	80.	11.7	2300.2
1		0845	106	78.	11.2	2300.2
1		0850	107	76.	10.7	2300.1
1		0855	108	74.	10.2	2300.0
1		0900	109	72.	9.7	2300.0
1		0905	110	70.	9.2	2299.9
1		0910	111	68.	8.7	2299.9
1		0915	112	67.	8.3	2299.8
1		0920	113	65.	7.8	2299.7
1		0925	114	64.	7.4	2299.7
1		0930	115	62.	6.9	2299.6
1		0935	116	61.	6.5	2299.5
1		0940	117	59.	6.1	2299.5
1		0945	118	58.	5.7	2299.4
1		0950	119	56.	5.3	2299.3
1		0955	120	55.	4.9	2299.3
1		1000	121	54.	4.6	2299.2
1		1005	122	52.	4.2	2299.2
1		1010	123	51.	3.9	2299.1
1		1015	124	50.	3.5	2299.1
1		1020	125	49.	3.2	2299.0
1		1025	126	46.	2.8	2298.9
1		1030	127	44.	2.5	2298.8
1		1035	128	41.	2.2	2298.7
1		1040	129	39.	2.0	2298.6
1		1045	130	36.	1.7	2298.5
1		1050	131	34.	1.5	2298.4
1		1055	132	32.	1.2	2298.3
1		1100	133	30.	1.0	2298.3
1		1105	134	28.	.8	2298.2
1		1110	135	27.	.6	2298.1
1		1115	136	25.	.5	2298.0
1		1120	137	21.	.3	2297.9
1		1125	138	13.	.2	2297.5
1		1130	139	8.	.1	2297.3
1		1135	140	5.	.1	2297.2
1		1140	141	3.	.0	2297.1
1		1145	142	2.	.0	2297.1
1		1150	143	1.	.0	2297.0
1		1155	144	1.	.0	2297.0
1		1200	145	0.	.0	2297.0
1		1205	146	0.	.0	2297.0
1		1210	147	0.	.0	2297.0
1		1215	148	0.	.0	2297.0
1		1220	149	0.	.0	2297.0
1		1225	150	0.	.0	2297.0
1		1230	151	0.	.0	2297.0
1		1235	152	0.	.0	2297.0
1		1240	153	0.	.0	2297.0
1		1245	154	0.	.0	2297.0
1		1250	155	0.	.0	2297.0
1		1255	156	0.	.0	2297.0
1		1300	157	0.	.0	2297.0
1		1305	158	0.	.0	2297.0
1		1310	159	0.	.0	2297.0
1		1315	160	0.	.0	2297.0
1		1320	161	0.	.0	2297.0
1		1325	162	0.	.0	2297.0
1		1330	163	0.	.0	2297.0
1		1335	164	0.	.0	2297.0
1		1340	165	0.	.0	2297.0
1		1345	166	0.	.0	2297.0
1		1350	167	0.	.0	2297.0
1		1355	168	0.	.0	2297.0
1		1400	169	0.	.0	2297.0
1		1405	170	0.	.0	2297.0
1		1410	171	0.	.0	2297.0
1		1415	172	0.	.0	2297.0
1		1420	173	0.	.0	2297.0
1		1425	174	0.	.0	2297.0
1		1430	175	0.	.0	2297.0
1		1435	176	0.	.0	2297.0
1		1440	177	0.	.0	2297.0
1		1445	178	0.	.0	2297.0
1		1450	179	0.	.0	2297.0
1		1455	180	0.	.0	2297.0
1		1500	181	0.	.0	2297.0
1		1505	182	0.	.0	2297.0
1		1510	183	0.	.0	2297.0
1		1515	184	0.	.0	2297.0
1		1520	185	0.	.0	2297.0
1		1525	186	0.	.0	2297.0
1		1530	187	0.	.0	2297.0
1		1535	188	0.	.0	2297.0
1		1540	189	0.	.0	2297.0
1		1545	190	0.	.0	2297.0
1		1550	191	0.	.0	2297.0
1		1555	192	0.	.0	2297.0
1		1600	193	0.	.0	2297.0
1		1605	194	0.	.0	2297.0
1		1610	195	0.	.0	2297.0
1		1615	196	0.	.0	2297.0
1		1620	197	0.	.0	2297.0
1		1625	198	0.	.0	2297.0
1		1640	201	0.	.0	2297.0
1		1645	202	0.	.0	2297.0
1		1650	203	0.	.0	2297.0
1		1655	204	0.	.0	2297.0
1		1700	205	0.	.0	2297.0
1		1705	206	0.	.0	2297.0
1		1710	207	0.	.0	2297.0
1		1715	208	0.	.0	2297.0
1		1720	209	0.	.0	2297.0
1		1725	210	0.	.0	2297.0
1		1730	211	0.	.0	2297.0
1		1735	212	0.	.0	2297.0
1		1740	213	0.	.0	2297.0
1		1745	214	0.	.0	2297.0
1		1750	215	0.	.0	2297.0
1		1755	216	0.	.0	2297.0
1		1800	217	0.	.0	2297.0
1		1805	218	0.	.0	2297.0
1		1810	219	0.	.0	2297.0
1		1815	220	0.	.0	2297.0
1		1820	221	0.	.0	2297.0
1		1825	222	0.	.0	2297.0
1		1830	223	0.	.0	2297.0
1		1835	224	0.	.0	2297.0
1		1840	225	0.	.0	2297.0
1		1845	226	0.	.0	2297.0
1		1850	227	0.	.0	2297.0
1		1855	228	0.	.0	2297.0
1		1900	229	0.	.0	2297.0
1		1905	230	0.	.0	2297.0
1		1910	231	0.	.0	2297.0
1		1915	232	0.	.0	2297.0
1		1920	233	0.	.0	2297.0
1		1925	234	0.	.0	2297.0
1		1930	235	0.	.0	2297.0
1		1935	236	0.	.0	2297.0
1		1940	237	0.	.0	2297.0
1		1945	238	0.	.0	2297.0
1		1950	239	0.	.0	2297.0
1		1955	240	0.	.0	2297.0
1		2000	241	0.	.0	2297.0
1		2005	242	0.	.0	2297.0
1		2010	243	0.	.0	2297.0
1		2015	244	0.	.0	2297.0
1		2020	245	0.	.0	2297.0
1		2025	246	0.	.0	2297.0
1		2030	247	0.	.0	2297.0
1		2035	248	0.	.0	2297.0
1		2040	249	0.	.0	2297.0
1		2045	250	0.	.0	2297.0
1		2050	251	0.	.0	2297.0
1		2055	252	0.	.0	2297.0
1		2100	253	0.	.0	2297.0
1		2105	254	0.	.0	2297.0
1		2110	255	0.	.0	2297.0
1		2115	256	0.	.0	2297.0
1		2120	257	0.	.0	2297.0
1		2125	258	0.	.0	2297.0
1		2130	259	0.	.0	2297.0
1		2135	260	0.	.0	2297.0
1		2140	261	0.	.0	2297.0
1		2145	262	0.	.0	2297.0
1		2150	263	0.	.0	2297.0
1		2155	264	0.	.0	2297.0
1		2200	265	0.	.0	2297.0
1		2205	266	0.	.0	2297.0
1		2210	267	0.	.0	2297.0
1		2215	268	0.	.0	2297.0
1		2220	269	0.	.0	2297.0
1		2225	270	0.	.0	2297.0
1		2230	271	0.	.0	2297.0
1		2235	272	0.	.0	2297.0
1		2240	273	0.	.0	2297.0
1		2245	274	0.	.0	2297.0
1		2250	275	0.	.0	2297.0
1		2255	276	0.	.0	2297.0
1		2300	277	0.	.0	2297.0
1		2305	278	0.	.0	2297.0
1		2310	279	0.	.0	2297.0
1		2315	280	0.	.0	2297.0
1		2320	281	0.	.0	2297.0
1		2325	282	0.	.0	2297.0
1		2330	283	0.	.0	2297.0
1		2335	284	0.	.0	2297.0
1		2340	285	0.	.0	2297.0
1		2345	286	0.	.0	2297.0
1		2350	287	0.	.0	2297.0
1		2355	288	0.	.0	2297.0
1		0000	289	0.	.0	2297.0
1		0005	290	0.	.0	2297.0
1		0010	291	0.	.0	2297.0
1		0015	292	0.	.0	2297.0
1		0020	293	0.	.0	2297.0
1		0025	294	0.	.0	2297.0
1		0030	295	0.	.0	2297.0
1		0035	296	0.	.0	2297.0
1		0040	297	0.	.0	2297.0
1		0045	298	0.	.0	2297.0

1	0810	99	94.	15.2	2300.6	*	1	1630	199	0.	.0	2297.0	*	2	0050	299	0.	.0	2297.0
1	0815	100	92.	14.6	2300.5	*	1	1635	200	0.	.0	2297.0	*	2	0055	300	0.	.0	2297.0
						*							*						

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)	(CFS)				
+ 141.	5.75		107.	31.	30.	30.
		(INCHES)	.863	.990	.990	.990
		(AC-FT)	53.	61.	61.	61.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
31.	5.75	20.	5.	5.	5.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
2302.13	5.75	2301.00	2298.16	2298.12	2298.12

CUMULATIVE AREA = 1.15 SQ MI

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

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1 .57
HYDROGRAPH AT	U190	.37	1	FLOW	59.
+				TIME	4.08
HYDROGRAPH AT	U170	.25	1	FLOW	51.
+				TIME	4.00
2 COMBINED AT	CP1	.62	1	FLOW	109.
+				TIME	4.00
DIVERSION TO	CP1S	.62	1	FLOW	49.
+				TIME	4.00
HYDROGRAPH AT	CP1E	.62	1	FLOW	60.
+				TIME	4.00
ROUTED TO	RCP1E	.62	1	FLOW	60.
+				TIME	4.25
HYDROGRAPH AT	U150	.13	1	FLOW	35.
+				TIME	3.83
DIVERSION TO	U150E	.13	1	FLOW	20.
+				TIME	3.83
HYDROGRAPH AT	U150S	.13	1	FLOW	15.
+				TIME	3.83
ROUTED TO	RU150	.13	1	FLOW	15.
+				TIME	3.92
HYDROGRAPH AT	U155	.13	1	FLOW	35.
+				TIME	3.75
3 COMBINED AT	CP2	.88	1	FLOW	92.
+				TIME	4.08
DIVERSION TO	CP2E	.88	1	FLOW	69.
+				TIME	4.08
HYDROGRAPH AT	CP2S	.88	1	FLOW	23.
+				TIME	4.08
ROUTED TO	RCP2S	.88	1	FLOW	23.
+				TIME	4.33
HYDROGRAPH AT	CP1S	.00	1	FLOW	49.
+				TIME	4.00
HYDROGRAPH AT	U210	.07	1	FLOW	20.
+				TIME	3.75
2 COMBINED AT	CP3	.07	1	FLOW	64.
+				TIME	3.92
DIVERSION TO	CP3E	.07	1	FLOW	29.
+				TIME	3.92

+ HYDROGRAPH AT	CP3S	.07	1	FLOW	35.
				TIME	3.92
+ HYDROGRAPH AT	U250	.07	1	FLOW	19.
				TIME	3.75
+ 2 COMBINED AT	CP4	.14	1	FLOW	52.
				TIME	3.83
+ DIVERSION TO	CP4E	.14	1	FLOW	25.
				TIME	3.83
+ HYDROGRAPH AT	CP4S	.14	1	FLOW	27.
				TIME	3.83
+ ROUTED TO	RCP4S	.14	1	FLOW	27.
				TIME	4.00
+ HYDROGRAPH AT	U230	.14	1	FLOW	37.
				TIME	3.83
+ HYDROGRAPH AT	U330	.01	1	FLOW	6.
				TIME	3.67
+ 3 COMBINED AT	CP5	.30	1	FLOW	65.
				TIME	3.83
+ HYDROGRAPH AT	CP3E	.00	1	FLOW	29.
				TIME	3.92
+ HYDROGRAPH AT	U370	.02	1	FLOW	7.
				TIME	3.58
+ 2 COMBINED AT	CP6	.02	1	FLOW	32.
				TIME	3.92
+ DIVERSION TO	CP6E	.02	1	FLOW	14.
				TIME	3.92
+ HYDROGRAPH AT	CP6S	.02	1	FLOW	18.
				TIME	3.92
+ HYDROGRAPH AT	CP4E	.00	1	FLOW	25.
				TIME	3.83
+ HYDROGRAPH AT	U350	.02	1	FLOW	7.
				TIME	3.58
+ 3 COMBINED AT	CP7	.03	1	FLOW	48.
				TIME	3.83
+ DIVERSION TO	CP7E	.03	1	FLOW	24.
				TIME	3.83
+ HYDROGRAPH AT	CP7S	.03	1	FLOW	24.
				TIME	3.83
+ HYDROGRAPH AT	U305	.01	1	FLOW	4.
				TIME	3.58
+ 2 COMBINED AT	CP8	.04	1	FLOW	27.
				TIME	3.75
+ DIVERSION TO	CP8E	.04	1	FLOW	13.
				TIME	3.75
+ HYDROGRAPH AT	CP8S	.04	1	FLOW	14.
				TIME	3.75
+ HYDROGRAPH AT	U310	.01	1	FLOW	5.
				TIME	3.58
+ 3 COMBINED AT	CP9	.35	1	FLOW	82.
				TIME	3.83
+ DIVERSION TO	CP9S	.35	1	FLOW	56.
				TIME	3.83
+ HYDROGRAPH AT	CP9E	.35	1	FLOW	26.
				TIME	3.83
+ ROUTED TO	RCP9E	.35	1	FLOW	26.
				TIME	4.00

HYDROGRAPH AT	CP6E	.00	1	FLOW	14.
+				TIME	3.92
ROUTED TO	RCP6E	.00	1	FLOW	14.
+				TIME	4.33
HYDROGRAPH AT	CP7E	.00	1	FLOW	24.
+				TIME	3.83
ROUTED TO	RCP7E	.00	1	FLOW	24.
+				TIME	4.08
HYDROGRAPH AT	CP8E	.00	1	FLOW	13.
+				TIME	3.75
ROUTED TO	RCP8E	.00	1	FLOW	13.
+				TIME	3.83
5 COMBINED AT	DUMMY	1.23	1	FLOW	91.
+				TIME	4.17
HYDROGRAPH AT	U410	.20	1	FLOW	64.
+				TIME	3.83
2 COMBINED AT	CP10	1.43	1	FLOW	134.
+				TIME	4.08
DIVERSION TO	CP10S	1.43	1	FLOW	83.
+				TIME	4.08
HYDROGRAPH AT	CP10E	1.43	1	FLOW	51.
+				TIME	4.08
ROUTED TO	RCP10E	1.43	1	FLOW	51.
+				TIME	4.25
HYDROGRAPH AT	U440	.05	1	FLOW	12.
+				TIME	3.75
DIVERSION TO	U440E	.05	1	FLOW	7.
+				TIME	3.75
HYDROGRAPH AT	U440S	.05	1	FLOW	5.
+				TIME	3.75
ROUTED TO	RU440S	.05	1	FLOW	5.
+				TIME	3.92
HYDROGRAPH AT	U470	.20	1	FLOW	40.
+				TIME	3.83
3 COMBINED AT	CP11	1.69	1	FLOW	79.
+				TIME	4.08
DIVERSION TO	CP11S	1.69	1	FLOW	33.
+				TIME	4.08
HYDROGRAPH AT	CP11E	1.69	1	FLOW	46.
+				TIME	4.08
HYDROGRAPH AT	U530	.01	1	FLOW	5.
+				TIME	3.58
2 COMBINED AT	CP12	1.70	1	FLOW	48.
+				TIME	4.08
DIVERSION TO	CP12S	1.70	1	FLOW	21.
+				TIME	4.08
HYDROGRAPH AT	CP12E	1.70	1	FLOW	27.
+				TIME	4.08
ROUTED TO	RCP12E	1.70	1	FLOW	27.
+				TIME	4.25
HYDROGRAPH AT	U130	.06	1	FLOW	19.
+				TIME	3.67
DIVERSION TO	U130E	.06	1	FLOW	10.
+				TIME	3.67
HYDROGRAPH AT	U130S	.06	1	FLOW	9.
+				TIME	3.67

+ ROUTED TO	RU130S	.06	1	FLOW	9.
				TIME	3.83
+ HYDROGRAPH AT	U550	.05	1	FLOW	20.
				TIME	3.67
+ 2 COMBINED AT	CP13	.11	1	FLOW	28.
				TIME	3.75
+ DIVERSION TO	CP13E	.11	1	FLOW	17.
				TIME	3.75
+ HYDROGRAPH AT	CP13S	.11	1	FLOW	11.
				TIME	3.75
+ ROUTED TO	RCP13S	.11	1	FLOW	11.
				TIME	3.92
+ HYDROGRAPH AT	U440E	.00	1	FLOW	7.
				TIME	3.75
+ ROUTED TO	RU440E	.00	1	FLOW	7.
				TIME	4.33
+ HYDROGRAPH AT	U570	.18	1	FLOW	73.
				TIME	3.83
+ 4 COMBINED AT	CP14	1.99	1	FLOW	98.
				TIME	3.92
+ DIVERSION TO	CP14S	1.99	1	FLOW	30.
				TIME	3.92
+ HYDROGRAPH AT	CP14E	1.99	1	FLOW	68.
				TIME	3.92
+ ROUTED TO	RCP14E	1.99	1	FLOW	69.
				TIME	4.08
+ HYDROGRAPH AT	U610	.05	1	FLOW	14.
				TIME	3.75
+ 2 COMBINED AT	CP15	2.03	1	FLOW	77.
				TIME	4.08
+ DIVERSION TO	CP15S	2.03	1	FLOW	0.
				TIME	.00
+ HYDROGRAPH AT	CP15E	2.03	1	FLOW	77.
				TIME	4.08
+ HYDROGRAPH AT	CP9S	.00	1	FLOW	56.
				TIME	3.83
+ ROUTED TO	RCP9S	.00	1	FLOW	56.
				TIME	4.17
+ HYDROGRAPH AT	CP10S	.00	1	FLOW	83.
				TIME	4.08
+ ROUTED TO	RCP10S	.00	1	FLOW	83.
				TIME	4.25
+ HYDROGRAPH AT	U280	.27	1	FLOW	67.
				TIME	3.83
+ 3 COMBINED AT	CP16	.27	1	FLOW	181.
				TIME	4.17
+ ROUTED TO	RCP16	.27	1	FLOW	185.
				TIME	4.42
+ HYDROGRAPH AT	CP11S	.00	1	FLOW	33.
				TIME	4.08
+ ROUTED TO	RCP11S	.00	1	FLOW	34.
				TIME	4.50
+ HYDROGRAPH AT	CP12S	.00	1	FLOW	21.
				TIME	4.08
+ ROUTED TO	RCP12S	.00	1	FLOW	22.
				TIME	4.42

HYDROGRAPH AT	CP14S	.00	1	FLOW	30.
+				TIME	3.92
ROUTED TO	RCP14S	.00	1	FLOW	30.
+				TIME	4.00
HYDROGRAPH AT	U510	.49	1	FLOW	118.
+				TIME	4.00
5 COMBINED AT	CP17	.76	1	FLOW	336.
+				TIME	4.33
HYDROGRAPH AT	U650	.01	1	FLOW	5.
+				TIME	3.58
2 COMBINED AT	CP18	.77	1	FLOW	337.
+				TIME	4.33
HYDROGRAPH AT	U630	.07	1	FLOW	33.
+				TIME	3.67
2 COMBINED AT	CP19	.84	1	FLOW	344.
+				TIME	4.33
HYDROGRAPH AT	U620	.05	1	FLOW	22.
+				TIME	3.67
2 COMBINED AT	CP20	.89	1	FLOW	349.
+				TIME	4.33
ROUTED TO	RCP20	.89	1	FLOW	346.
+				TIME	4.42
HYDROGRAPH AT	CP15S	.00	1	FLOW	0.
+				TIME	.00
ROUTED TO	RCP15S	.00	1	FLOW	0.
+				TIME	.00
HYDROGRAPH AT	U680	.11	1	FLOW	46.
+				TIME	3.75
2 COMBINED AT	CP21	.11	1	FLOW	46.
+				TIME	3.75
HYDROGRAPH AT	U760	.01	1	FLOW	4.
+				TIME	3.58
3 COMBINED AT	CPGTA	1.01	1	FLOW	358.
+				TIME	4.42
HYDROGRAPH AT	2-3	.03	1	FLOW	13.
+				TIME	3.58
2 COMBINED AT	CPGTA2	1.04	1	FLOW	360.
+				TIME	4.42
HYDROGRAPH AT	2-1	.04	1	FLOW	28.
+				TIME	3.58
HYDROGRAPH AT	2-2	.07	1	FLOW	44.
+				TIME	3.67
HYDROGRAPH AT	2-14A	.00	1	FLOW	1.
+				TIME	3.58
3 COMBINED AT	2A	.11	1	FLOW	72.
+				TIME	3.58
2 COMBINED AT	2B	1.15	1	FLOW	370.
+				TIME	4.42
ROUTED TO	DB1	1.15	1	FLOW	141.
+				TIME	5.75
			** PEAK STAGES IN FEET **		
			1	STAGE	2302.13
				TIME	5.75
HYDROGRAPH AT	2-6	.02	1	FLOW	15.
+				TIME	3.58
2 COMBINED AT	2C	1.17	1	FLOW	141.
+				TIME	5.75

+ HYDROGRAPH AT	2-7	.02	1	FLOW	7.
				TIME	3.58
+ 2 COMBINED AT	2D	1.19	1	FLOW	142.
				TIME	5.83
+ HYDROGRAPH AT	2-4	.03	1	FLOW	28.
				TIME	3.58
+ HYDROGRAPH AT	2-14B	.00	1	FLOW	1.
				TIME	3.58
+ 2 COMBINED AT	2E	.04	1	FLOW	29.
				TIME	3.58
+ HYDROGRAPH AT	2-5	.09	1	FLOW	53.
				TIME	3.67
+ DIVERSION TO	2-5E	.09	1	FLOW	25.
				TIME	3.67
+ HYDROGRAPH AT	2-5W	.09	1	FLOW	28.
				TIME	3.67
+ HYDROGRAPH AT	2-9	.02	1	FLOW	11.
				TIME	3.58
+ 3 COMBINED AT	2F	.14	1	FLOW	67.
				TIME	3.58
+ HYDROGRAPH AT	2-5E	.00	1	FLOW	25.
				TIME	3.67
+ HYDROGRAPH AT	2-10	.02	1	FLOW	12.
				TIME	3.58
+ 3 COMBINED AT	2G	.16	1	FLOW	103.
				TIME	3.58
+ HYDROGRAPH AT	2-8	.03	1	FLOW	24.
				TIME	3.58
+ 2 COMBINED AT	2H	.19	1	FLOW	127.
				TIME	3.58
+ 2 COMBINED AT	2I	1.37	1	FLOW	188.
				TIME	3.58
+ HYDROGRAPH AT	2-11	.03	1	FLOW	22.
				TIME	3.58
+ HYDROGRAPH AT	2-12	.03	1	FLOW	17.
				TIME	3.58
+ 2 COMBINED AT	2J	.05	1	FLOW	39.
				TIME	3.58
+ 2 COMBINED AT	DUMMY	1.42	1	FLOW	228.
				TIME	3.58
+ HYDROGRAPH AT	2-13	.03	1	FLOW	18.
				TIME	3.58
+ 2 COMBINED AT	PT2	1.45	1	FLOW	245.
				TIME	3.58

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR PLAN = 1 RATIO=		.00							
RCP1E	MANE	4.25	59.77	250.75	.21	5.00	59.69	255.00	.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6897E+01 EXCESS= .0000E+00 OUTFLOW= .6901E+01 BASIN STORAGE= .1911E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO=		.00							
RU150	MANE	3.75	15.01	236.25	.18	5.00	14.88	235.00	.18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1298E+01 EXCESS= .0000E+00 OUTFLOW= .1298E+01 BASIN STORAGE= .9878E-03 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCP2S	MANE	4.75	22.74	256.50	.06	5.00	22.69	260.00	.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2805E+01 EXCESS= .0000E+00 OUTFLOW= .2808E+01 BASIN STORAGE= .2198E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

RCP4S	MANE	3.75	26.75	236.25	.38	5.00	26.72	240.00	.38

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2899E+01 EXCESS= .0000E+00 OUTFLOW= .2900E+01 BASIN STORAGE= .1067E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCP9E	MANE	5.00	25.88	240.00	.14	5.00	25.88	240.00	.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2658E+01 EXCESS= .0000E+00 OUTFLOW= .2661E+01 BASIN STORAGE= .1455E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCP6E	MANE	5.00	14.47	260.00	-1.00	5.00	14.47	260.00	-1.00

FOR PLAN = 1 RATIO= .00

RCP7E	MANE	5.00	23.86	245.00	-1.00	5.00	23.86	245.00	-1.00

FOR PLAN = 1 RATIO= .00

RCP8E	MANE	.61	12.86	226.23	-1.00	5.00	12.85	230.00	-1.00

FOR PLAN = 1 RATIO= .00

RCP10E	MANE	5.00	50.74	255.00	.08	5.00	50.74	255.00	.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6434E+01 EXCESS= .0000E+00 OUTFLOW= .6437E+01 BASIN STORAGE= .2038E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RU440S	MANE	2.25	4.85	236.25	.15	5.00	4.80	235.00	.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4105E+00 EXCESS= .0000E+00 OUTFLOW= .4107E+00 BASIN STORAGE= .9404E-03 PERCENT ERROR= -.3

FOR PLAN = 1 RATIO= .00

RCP12E	MANE	5.00	26.82	255.00	.04	5.00	26.82	255.00	.04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3644E+01 EXCESS= .0000E+00 OUTFLOW= .3646E+01 BASIN STORAGE= .1454E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RU130S	MANE	4.00	9.18	228.00	.22	5.00	8.97	230.00	.22

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6444E+00 EXCESS= .0000E+00 OUTFLOW= .6449E+00 BASIN STORAGE= .9329E-03 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

RCP13S	MANE	4.50	10.95	234.00	.14	5.00	10.76	235.00	.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8358E+00 EXCESS= .0000E+00 OUTFLOW= .8364E+00 BASIN STORAGE= .1028E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

RU440E	MANE	2.25	7.71	252.00	-1.00	5.00	6.74	260.00	-1.00

FOR PLAN = 1 RATIO= .00

RCP14E	MANE	5.00	68.52	245.00	.08	5.00	68.52	245.00	.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8089E+01 EXCESS= .0000E+00 OUTFLOW= .8092E+01 BASIN STORAGE= .1759E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCP9S	MANE	5.00	55.85	250.00	-1.00	5.00	55.85	250.00	-1.00

FOR PLAN = 1 RATIO= .00

RCP10S	MANE	5.00	82.51	255.00	-1.00	5.00	82.51	255.00	-1.00

FOR PLAN = 1 RATIO= .00

RCP16	MANE	5.00	184.88	265.00	1.57	5.00	184.88	265.00	1.57

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2247E+02 EXCESS= .0000E+00 OUTFLOW= .2249E+02 BASIN STORAGE= .4033E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCP11S	MANE	5.00	33.98	270.00	-1.00	5.00	33.98	270.00	-1.00

FOR PLAN = 1 RATIO= .00

RCP12S	MANE	5.00	21.81	265.00	-1.00	5.00	21.81	265.00	-1.00

FOR PLAN = 1 RATIO= .00

RCP14S	MANE	5.00	29.98	240.00	-1.00	5.00	29.98	240.00	-1.00

FOR PLAN = 1 RATIO= .00									
RCP20 MANE	3.87	347.89	262.96	1.07	5.00	345.75	265.00	1.07	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5066E+02 EXCESS= .0000E+00 OUTFLOW= .5066E+02 BASIN STORAGE= .1005E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCP15S MANE	5.00	.00	.00	-1.00	5.00	.00	265.00	-1.00	

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

HEC-1 Model

100-Year Ultimate Condition

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUN  1998                 *
*           VERSION 4.1                 *
*                                       *
*  RUN DATE   25OCT13  TIME  14:21:25   *
*                                       *
*****************************************
```

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*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

1 HEC-1 INPUT PAGE 1

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
              *DIAGRAM
    1         ID     SLATER HANIFAN GROUP, INC.
    2         ID     PARK HIGHLANDS - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
    3         ID     ADDENDUM NO. 2 TO THE TECHNICAL DRAINAGE STUDY
    4         ID     ULTIMATE CONDITION
    5         ID
    6         ID     RETURN PERIOD ------- 100-YEAR
    7         ID     DISTRIBUTION -------- 6-HOUR SDN3
    8         ID     PROJECT NO. --------- CBH1201.000
    9         ID     FILENAME ------------ ULT100.H1
   10         ID     DATE ---------------- NOVEMBER 2013
   11         ID     MODELED BY ---------- KC
   12         ID
   13         ID        SIX HOUR DEPTH-AREA REDUCTION FACTORS
   14         ID        DRAINAGE AREA (MI^2)       DARF
   15         ID        0.00-0.49                  0.990
   16         ID        0.50-0.99                  0.975
   17         ID        1.00-1.99                  0.950
   18         ID        2.00-2.99                  0.925
   19         ID        3.00-3.99                  0.915
   20         ID        4.00-4.99                  0.908
   21         ID
   22         IT      5       0       0     300
   23         IO      5       0       0
   24         IN      5       0       0
   25         JR   PREC   0.990   0.975   0.950   0.925   0.915   0.908
              *
   26         KK   U190
   27         BA   .3684
   28         PB   2.77
   29         PC      0   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
   30         PC  0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
   31         PC  0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
   32         PC  0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
   33         PC  0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
   34         PC  0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
   35         PC  0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
   36         PC  0.998   0.999   1.000
   37         LS      0    80.7
   38         UD  0.522
              *
   39         KK   U170
   40         BA   .2521
   41         LS      0    83.0
   42         UD  0.521
              *
   43         KK    CP1
   44         KM   COMBINE U190 AND U120 AT IRON MOUNTAIN AND TORREY PINES
   45         HC      2
              *
```

1 HEC-1 INPUT PAGE 2

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
   46         KK    CP1E
   47         KM   CP1E IS THE FLOW DRAINING EAST IN IRON MOUNTAIN
   48         KM   CP1S IS THE FLOW DRAINING SOUTH IN TORREY PINES
   49         DT    CP1S
   50         DI     297     302     308     323     339     348
   51         DQ     125     127     129     136     143     148
              *
   52         KK   RCP1E
   53         KM   ROUTE TO CP2
   54         RD    2480   .0050   0.016       0    TRAP       0      50
              *
   55         KK    U150
   56         BA   .1336
   57         LS       0    83.0
```

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58          UD   0.322
            *

59          KK   U150S
60          KM   U150S IS THE FLOW DRAINING SOUTH IN JONES
61          KM   U150E IS THE FLOW DRAINING EAST IN SHELEHEDA
62          KM   EXISTING SD IN JONES IS FOR NUISANCE FLOW
63          DT   U150E
64          DI      90       91       93       97      102      104
65          DQ      52       52       53       56       59       60
            *

66          KK   RU150S
67          KM   ROUTE TO CP2
68          RD    1345   .0050   0.016       0    TRAP       0      50
            *

69          KK   U155
70          BA   .1294
71          LS      0    83.4
72          UD   0.314
            *

73          KK     CP2
74          KM   COMBINE CP1 U150S AND U155 AT IRON MOUNTAIN AND JONES
75          HC       3
            *

76          KK    CP2S
77          KM   CP2S IS THE FLOW DRAINING SOUTH IN JONES
78          KM   CP2E IS THE FLOW DRAINING EAST IN IRON MOUNTAIN
79          KM   EXISTING SD IN IRON MOUNTAIN CONVEYS 46 CFS EAST
80          DT    CP2E
81          DI     244      250      258      277      294      302
82          DQ     145      148      152      161      170      174
            *
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1                                   HEC-1 INPUT

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

83          KK   RCP2S
84          KM   ROUTE TO CP10
85          RD    2695   .0050   0.016       0    TRAP       0      50
            *

86          KK    CP1S
87          KM   RETRIEVE CP1S
88          DR    CP1S
            *

89          KK    U210
90          BA   .0727
91          LS      0    83.1
92          UD   0.289
            *

93          KK     CP3
94          KM   COMBINE CP1S AND U210 AT MAGGIE AND TORREY PINES
95          HC       2
            *

96          KK    CP3S
97          KM   CP3S IS THE FLOW DRAINING SOUTH IN TORREY PINES
98          KM   CP3E IS THE FLOW DRAINING EAST IN MAGGIE
99          DT    CP3E
100         DI     177      177      178      181      186      192
101         DQ      81       81       82       83       85       89
            *

102         KK    U250
103         BA   .0698
104         LS      0    83.1
105         UD   0.289
            *

106         KK     CP4
107         KM   COMBINE CP3S AND U250 AT BRENT AND TORREY PINES
108         HC       2
            *

109         KK    CP4S
110         KM   CP4S IS THE FLOW DRAINING SOUTH IN TORREY PINES
111         KM   CP4E IS THE FLOW DRAINING EAST IN BRENT
112         DT    CP4E
113         DI     145      146      147      151      155      158
114         DQ      72       73       73       75       77       79
            *

115         KK   RCP4S
116         KM   ROUTE TO CP5
117         RD    1380   .0050   0.016       0    TRAP       0      50
            *
```



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1                                   HEC-1 INPUT

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

118         KK    U230
119         BA   .1390
120         LS      0    83.4
121         UD   0.328
            *

122         KK    U330
123         BA   .0142
124         LS      0    85.0
125         UD   0.188
            *

126         KK     CP5
127         KM   COMBINE CP4S U230 AND U330 AT HORSE AND TORREY PINES
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```
128          HC        3
             *

129          KK     CP3E
130          KM    RETRIEVE CP3E
131          DR     CP3E
             *

132          KK     U370
133          BA    .0159
134          LS        0     86.2
135          UD    0.185
             *

136          KK      CP6
137          KM    COMBINE CP3E AND U370 AT MAGGIE AND MUSTANG
138          HC        2
             *

139          KK     CP6S
140          KM    CP6S IS THE FLOW DRAINING SOUTH IN MUSTANG
141          KM    CP6E IS THE FLOW DRAINING EAST IN MAGGIE
142          DT     CP6E
143          DI       97       97       97       99      100      101
144          DQ       44       44       44       45       45       46
             *

145          KK     CP4E
146          KM    RETRIEVE CP4E
147          DR     CP4E
             *

148          KK     U350
149          BA    .0163
150          LS        0     86.3
151          UD    0.186
             *
```


1 HEC-1 INPUT

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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

152          KK      CP7
153          KM    COMBINE CP6S CP4E AND U350 AT BRENT AND MUSTANG
154          HC        3
             *

155          KK     CP7S
156          KM    CP7S IS THE FLOW DRAINING SOUTH IN MUSTANG
157          KM    CP7E IS THE FLOW DRAINING EAST IN BRENT
158          DT     CP7E
159          DI      141      141      142      144      148      150
160          DQ       70       70       71       72       74       75
             *

161          KK     U305
162          BA    .0093
163          LS        0     86.7
164          UD    0.171
             *

165          KK      CP8
166          KM    COMBINE CP7S AND U305 AT GUY AND MUSTANG
167          HC        2
             *

168          KK     CP8S
169          KM    CP8S IS THE FLOW DRAINING SOUTH IN MUSTANG
170          KM    CP8E IS THE FLOW DRAINING EAST IN GUY
171          DT     CP8E
172          DI       81       81       81       82       84       85
173          DQ       38       38       38       39       39       40
             *

174          KK     U310
175          BA    .0102
176          LS        0     87.1
177          UD    0.171
             *

178          KK      CP9
179          KM    COMBINE CP5 CP8S AND U310 AT HORSE AND MUSTANG
180          HC        3
             *

181          KK     CP9E
182          KM    CP9S IS THE FLOW DRAINING SOUTH IN MUSTANG
183          KM    CP9E IS THE FLOW DRAINING EAST IN HORSE
184          KM    EXISTING SD IN HORSE IS FOR NUISANCE FLOW
185          DT     CP9S
186          DI      215      219      225      236      246      251
187          DQ      139      141      145      152      157      160
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

188          KK    RCP9E
189          KM    ROUTE TO CP10
190          RD     1950    .0050   0.016       0    TRAP       0      50
             *

191          KK     CP6E
192          KM    RETRIEVE CP6E
193          DR     CP6E
             *

194          KK    RCP6E
195          KM    ROUTE TO CP10
196          RD     4010    .0050   0.016       0    TRAP       0      50
             *
```

```
197          KK    CP7E
198          KM   RETRIEVE CP7E
199          DR    CP7E
             *

200          KK   RCP7E
201          KM   ROUTE TO CP10
202          RD    3370   .0050   0.016       0    TRAP       0      50
             *

203          KK    CP8E
204          KM   RETRIEVE CP8E
205          DR    CP8E
             *

206          KK   RCP8E
207          KM   ROUTE TO CP10
208          RD    2680    0050   0.016       0    TRAP       0      50
             *

209          KK   DUMMY
210          KM   COMBINE CP2S CP9E CP6E CP7E AND CP8E
211          HC       5
             *

212          KK    U410
213          BA   .2013
214          LS       0    85.7
215          UD   0.354
             *

216          KK    CP10
217          KM   COMBINE DUMMY AND U410 AT HORSE AND JONES
218          HC       2
             *
```



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1                                    HEC-1 INPUT

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

219          KK   CP10E
220          KM   CP10S IS THE FLOW DRAINING SOUTH IN JONES
221          KM   CP10E IS THE FLOW DRAINING EAST IN HORSE
222          KM   EXISTING SD IN JONES CONVEYS 23 CFS SOUTH
223          DT   CP10S
224          DI     351     359     365     410     437     452
225          DQ     202     206     209     234     248     257
             *

226          KK  RCP10E
227          KM   ROUTE TO CP11
228          RD    2530   .0050   0.016       0    TRAP       0      50
             *

229          KK    U440
230          BA   .0523
231          LS       0    80.9
232          UD   0.290
             *

233          KK   U440S
234          KM   U440S IS THE FLOW DRAINING SOUTH IN BRADLEY
235          KM   U440E IS THE FLOW DRAINING EAST IN BRENT
236          DT   U440E
237          DI      33      33      34      36      37      38
238          DQ      18      18      18      19      20      21
             *

239          KK  RU440S
240          KM   ROUTE TO CP11
241          RD    1345   .0050   0.016       0    TRAP       0      50
             *

242          KK    U470
243          BA   .2012
244          LS       0    80.7
245          UD   0.356
             *

246          KK    CP11
247          KM   COMBINE CP10E U440S AND U470 AT HORSE AND BRADLEY
248          HC       3
             *

249          KK   CP11E
250          KM   CP11S IS THE FLOW DRAINING SOUTH IN BRADLEY
251          KM   CP11E IS THE FLOW DRAINING EAST IN HORSE
252          KM   EXISTING SD IN HORSE CONVEYS 6 CFS EAST
253          DT   CP11S
254          DI     252     259     265     278     292     298
255          DQ     108     112     114     118     125     127
             *
```



```
1                                    HEC-1 INPUT

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

256          KK    U530
257          BA   .0131
258          LS       0    84.0
259          UD   0.148
             *

260          KK    CP12
261          KM   COMBINE CP11E AND U530 AT HORSE AND UNICORN
262          HC       2
             *

263          KK   CP12E
264          KM   CP12S IS THE FLOW DRAINING SOUTH IN UNICORN
265          KM   CP12E IS THE FLOW DRAINING EAST IN HORSE
```

```
266          KM   EXISTING SD IN HORSE CONVEYS 6 CFS EAST
267          DT   CP12S
268          DI     148      151      154      164      171      175
269          DQ      68       70       71       75       78       80
             *

270          KK  RCP12E
271          KM   ROUTE TO CP14
272          RD    1825   .0050   0.016        0    TRAP        0       50
             *

273          KK    U130
274          BA   .0556
275          LS       0    83.9
276          UD   0.203
             *

277          KK   U130S
278          KM   U130S IS THE FLOW DRAINING SOUTH IN DECATUR
279          KM   U130E IS THE FLOW DRAINING EAST IN IRON MOUNTAIN
280          DT   U130E
281          DI      47       48       49       51       53       54
282          DQ      26       26       26       27       28       29
             *

283          KK  RU130S
284          KM   ROUTE TO CP13
285          RD    1270   .0050   0.016        0    TRAP        0       50
             *

286          KK    U550
287          BA   .0534
288          LS       0    85.4
289          UD   0.225
             *
```



```
1                                    HEC-1 INPUT

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

290          KK    CP13
291          KM   COMBINE U130S AND U550 AT BRENT AND DECATUR
292          HC       2
             *

293          KK   CP13S
294          KM   CP13S IS THE FLOW DRAINING SOUTH IN DECATUR
295          KM   CP13E IS THE FLOW DRAINING EAST IN BRENT
296          DT   CP13E
297          DI      64       65       67       70       74       76
298          DQ      37       37       38       41       43       44
             *

299          KK  RCP13S
300          KM   ROUTE TO CP14
301          RD    1290   .0040   0.016        0    TRAP        0       50
             *

302          KK   U440E
303          KM   RETRIEVE U440E
304          DR   U440E
             *

305          KK  RU440E
306          KM   ROUTE TO CP14
307          RD    3850   .0040   0.016        0    TRAP        0       50
             *

308          KK    U570
309          BA   .1791
310          LS       0    89.0
311          UD   0.370
             *

312          KK    CP14
313          KM   COMBINE CP12E CP13S U440E AND U570 AT HORSE AND DECATUR
314          HC       4
             *

315          KK   CP14E
316          KM   CP14S IS THE FLOW DRAINING SOUTH IN DECATUR
317          KM   CP14E IS THE FLOW DRAINING EAST IN HORSE
318          KM   EXISTING SD IN DECATUR CONVEYS 30 CFS SOUTH
319          DT   CP14S
320          DI     202      207      213      224      250      269
321          DQ      30       30       30       30       30       30
             *

322          KK  RCP14E
323          KM   ROUTE TO CP15
324          RD    2645   .0050   0.016        0    TRAP        0       50
             *
```



```
1                                    HEC-1 INPUT

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

325          KK    U610
326          BA   .0479
327          LS       0    84.2
328          UD   0.311
             *

329          KK    CP15
330          KM   COMBINE CP14E AND U610 AT HORSE AND AVIARY
331          HC       2
             *

332          KK   CP15E
333          KM   CP15S IS THE FLOW DRAINING SOUTH IN AVIARY
334          KM   CP15E IS THE FLOW DRAINING EAST IN HORSE
335          KM   ULTIMATE SD IN HORSE CONVEYS 321 CFS EAST
```

```
336          DT   CP15S
337          DI     177      181      186      198      235      250
338          DQ       0        0        0        0        0        0
             *

339          KK    CP9S
340          KM   RETRIEVE CP9S
341          DR    CP9S
             *

342          KK   RCP9S
343          KM   ROUTE TO CP16
344          RD    4770   .0050   0.016        0    TRAP        0       50
             *

345          KK   CP10S
346          KM   RETRIEVE CP10S
347          DR   CP10S
             *

348          KK  RCP10S
349          KM   ROUTE TO CP16
350          RD    2755   .0050   0.016        0    TRAP        0       50
             *

351          KK    U280
352          BA   .2688
353          LS       0    83.3
354          UD   0.375
             *

355          KK    CP16
356          KM   COMBINE CP9S CP10S AND U280 AT GRAND TETON AND JONES
357          HC       3
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

358          KK   RCP16
359          KM   ROUTE TO CP17
360          RD    4900   .0050   0.016        0    TRAP        0       50
             *

361          KK   CP11S
362          KM   RETRIEVE CP11S
363          DR   CP11S
             *

364          KK  RCP11S
365          KM   ROUTE TO CP17
366          RD    5215   .0050   0.016        0    TRAP        0       50
             *

367          KK   CP12S
368          KM   RETRIEVE CP12S
369          DR   CP12S
             *

370          KK  RCP12S
371          KM   ROUTE TO CP17
372          RD    4550   .0050   0.016        0    TRAP        0       50
             *

373          KK   CP14S
374          KM   RETRIEVE CP14S
375          DR   CP14S
             *

376          KK  RCP14S
377          KM   ROUTE TO CP17
378          RD    2565   .0050   0.013        0    CIRC      2.5        0
             *

379          KK    U510
380          BA   .4885
381          LS       0    84.8
382          UD   0.510
             *

383          KK    CP17
384          KM   COMBINE CP16 CP11S CP12S CP14S AND U510 AT GRAND TETON AND DECATUR
385          HC       5
             *

386          KK    U650
387          BA   .0085
388          LS       0    89.3
389          UD   0.106
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

390          KK    CP18
391          KM   COMBINE CP17 AND U650 IN GRAND TETON BETWEEN DECATUR AND SAN MATEO
392          HC       2
             *

393          KK    U630
394          BA   .0735
395          LS       0    88.0
396          UD   0.246
             *

397          KK    CP19
398          KM   COMBINE CP18 AND U630 IN GRAND TETON BETWEEN DECATUR AND SAN MATEO
399          HC       2
             *
```

```
400          KK    U620
401          BA   .0472
402          LS      0    88.1
403          UD   0.246
             *

404          KK    CP20
405          KM   COMBINE CP19 AND U620 AT GRAND TETON AND SAN MATEO
406          HC      2
             *

407          KK   RCP20
408          KM   ROUTE TO CP22
409          RD    1230   .0050   0.016       0    TRAP       0      50
             *

410          KK   CP15S
411          KM   RETRIEVE CP15S
412          DR   CP15S
             *

413          KK  RCP15S
414          KM   ROUTE TO CP20
415          RD    2555   .0050   0.016       0    TRAP       0      50
             *

416          KK    U680
417          BA   .1122
418          LS      0    88.0
419          UD   0.303
             *

420          KK    CP21
421          KM   COMBINE CP15S AND U680 IN AVIARY JUST NORTH OF GRAND TETON
422          HC      2
             *
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

423          KK    U760
424          BA   .0076
425          LS      0    88.3
426          UD   0.147
             *

427          KK   CPGTA
428          KM   COMBINE CP20 CP21 AND U760 AT GRAND TETON AND AVIARY
429          HC      3
             *

430          KK     2-3
431          BA  0.0327
432          LS      0    85.0
433          UD   0.172
             *

434          KK  CPGTA2
435          HC      2
             *

436          KK     2-1
437          BA  0.0367
438          LS      0    94.0
439          UD   0.187
             *

440          KK     2-2
441          BA  0.0742
442          LS      0    91.0
443          UD   0.215
             *

444          KK   2-14A
445          BA  0.0027
446          LS      0    85.0
447          UD   0.135
             *

448          KK      2A
449          HC      3
             *

450          KK      2B
451          KO      2
452          HC      2
             *

453          KK     DB1
454          KM   DETENTION BASIN 1
455          KO      2
456          RS      1   ELEV      -1
457          SV      0  0.339   3.015   9.712  18.977  29.349  42.004 102.301 126.116 159.117
458          SE 2297.0 2298.0  2299.0  2300.0  2301.0  2302.0  2303.0  2307.0  2308.5  2310.5
```


1 HEC-1 INPUT

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

459          SQ      0     72    110    138    161    199    215    231    252   1975
460          SE 2297.0 2300.0 2301.0 2302.0 2303.0 2305.0 2306.0 2307.0 2308.5 2310.5
461          KO      1
             *

462          KK     2-6
463          BA  0.0180
464          LS      0    94.0
465          UD   0.158
             *

466          KK      2C
467          HC      2
```

```
                *
468             KK      2-7
469             BA   0.0156
470             LS         0     85.0
471             UD    0.137
                *
472             KK       2D
473             HC        2
                *
474             KK      2-4
475             BA   0.0334
476             LS         0     94.0
477             UD    0.137
                *
478             KK    2-14B
479             BA   0.0025
480             LS         0     85.0
481             UD    0.126
                *
482             KK       2E
483             HC        2
                *
484             KK      2-5
485             BA   0.0891
486             LS         0     91.0
487             UD    0.215
                *
488             KK     2-5W
489             DT     2-5E
490             DI         0    100
491             DQ         0     48
                *
```



```
LINE            ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
492             KK      2-9
493             BA   0.0156
494             LS         0     91.0
495             UD    0.135
                *
496             KK       2F
497             HC        3
                *
498             KK     2-5E
499             DR     2-5E
                *
500             KK     2-10
501             BA   0.0163
502             LS         0     91.0
503             UD    0.132
                *
504             KK       2G
505             HC        3
                *
506             KK      2-8
507             BA   0.0286
508             LS         0     94.0
509             UD    0.144
                *
510             KK       2H
511             HC        2
                *
512             KK       2I
513             HC        2
                *
514             KK     2-11
515             BA   0.0255
516             LS         0     94.0
517             UD    0.135
                *
518             KK     2-12
519             BA   0.0272
520             LS         0     90.0
521             UD    0.150
                *
```



```
LINE            ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
522             KK       2J
523             HC        2
                *
524             KK    DUMMY
525             HC        2
                *
526             KK     2-13
527             BA   0.0273
528             LS         0     91.0
529             UD    0.176
                *
```

```
530          KK      PT2
531          HC        2
             *
532          ZZ
```

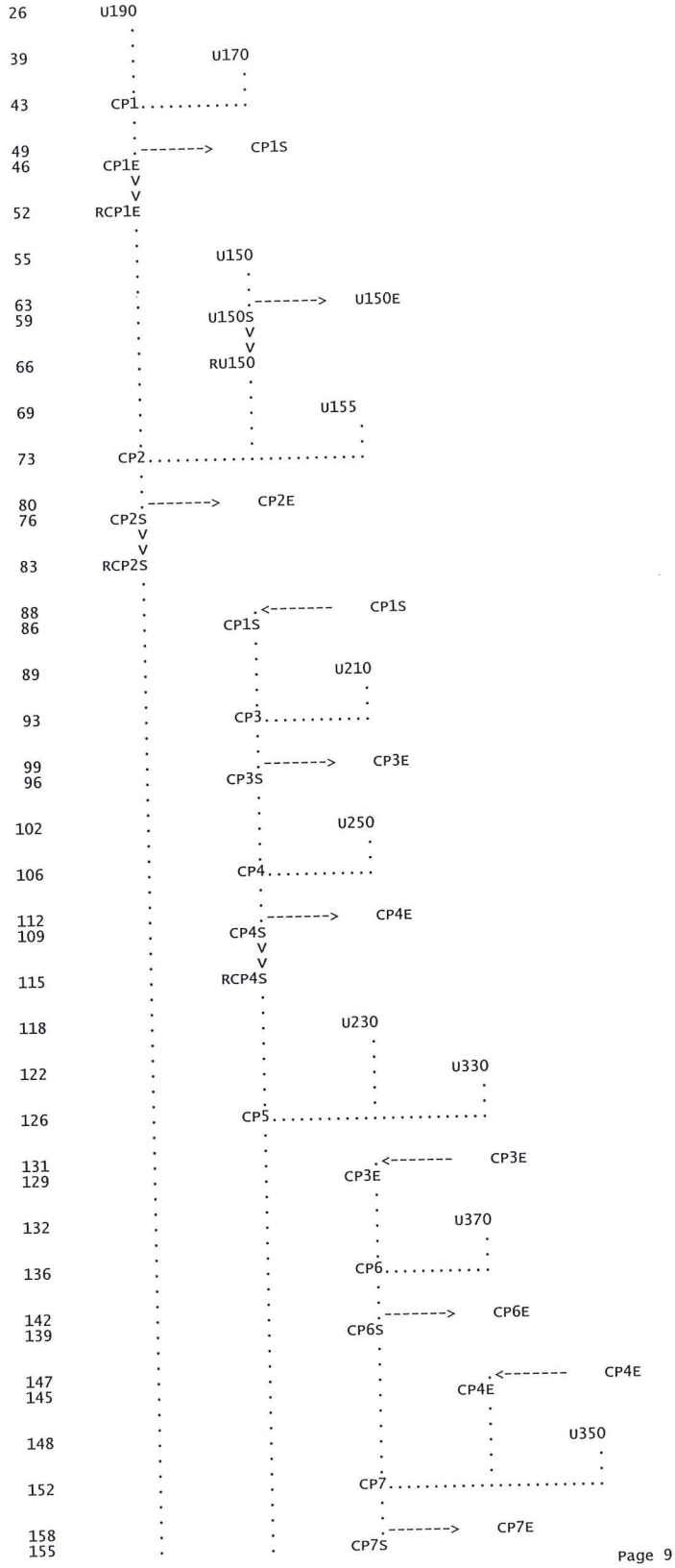
1

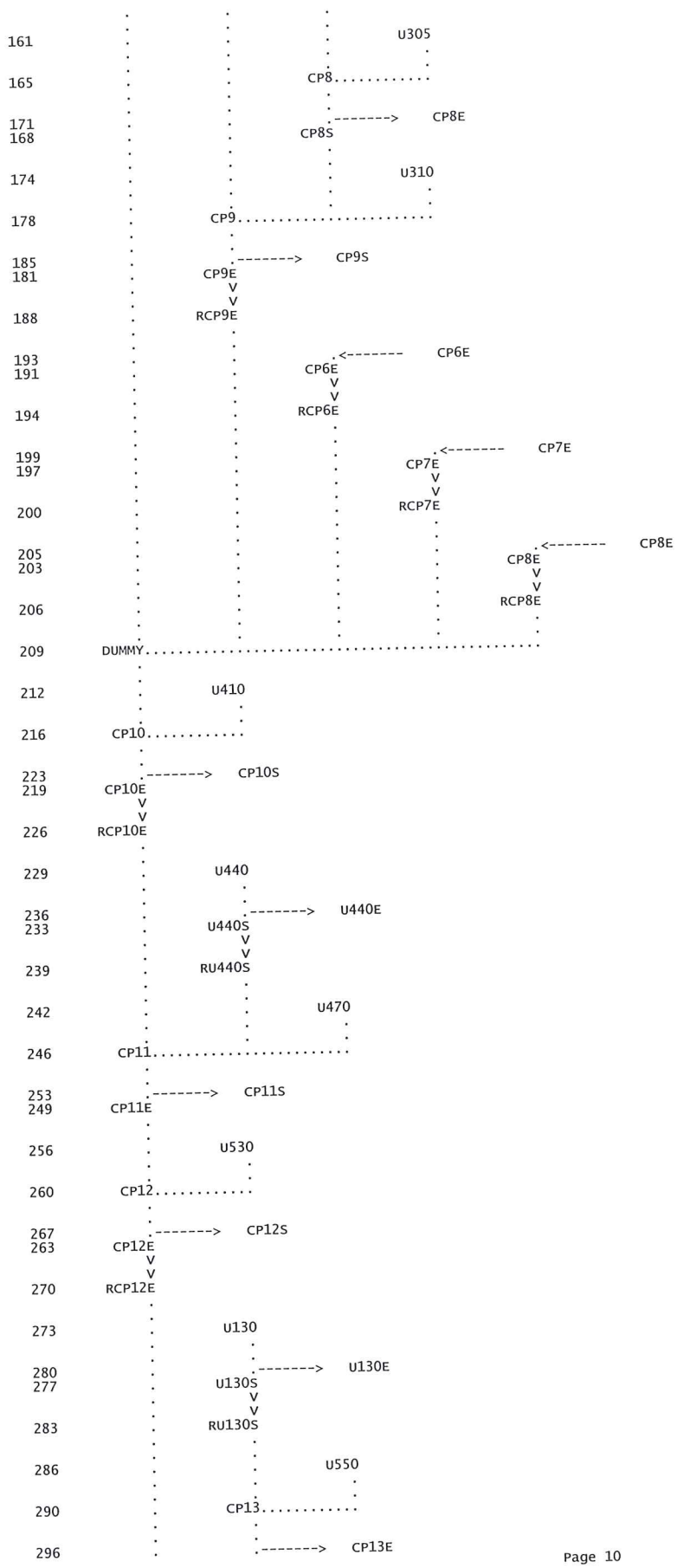
SCHEMATIC DIAGRAM OF STREAM NETWORK

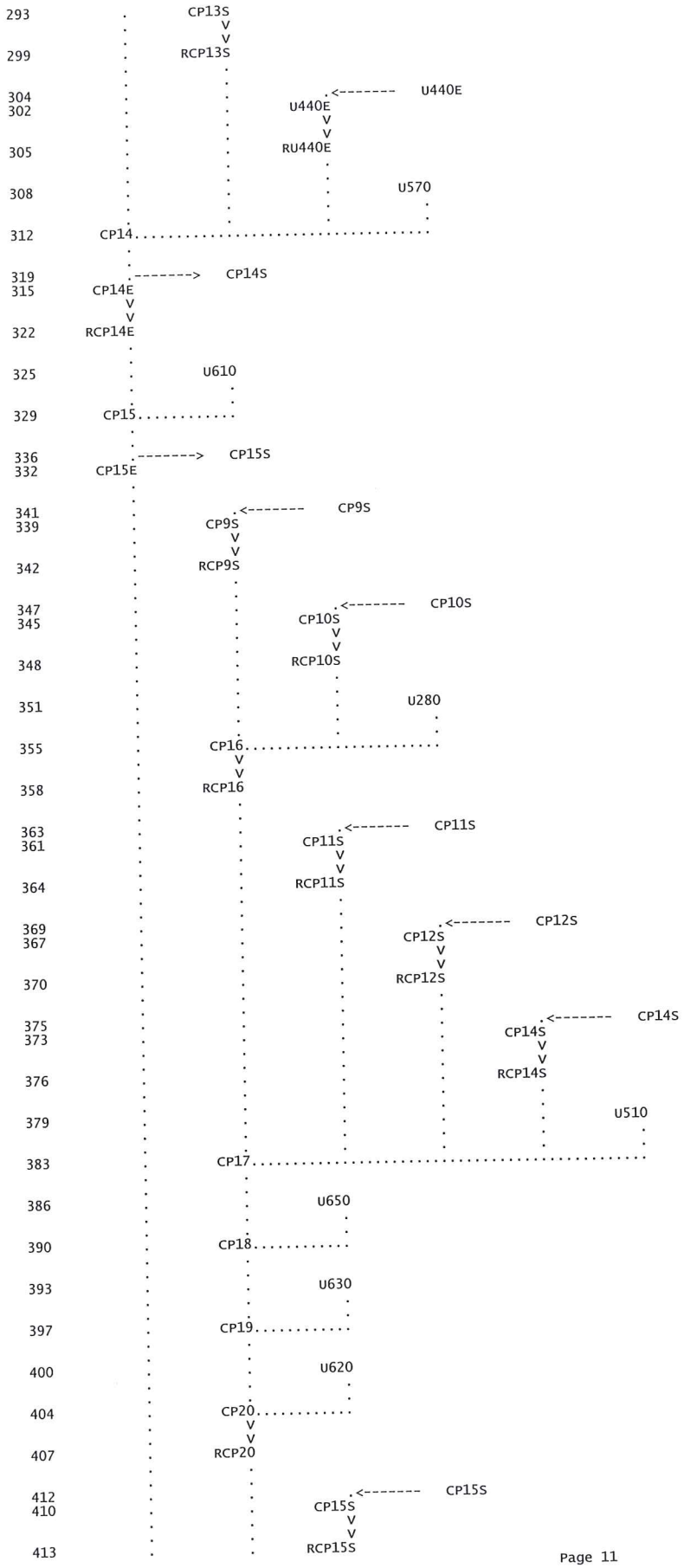
INPUT LINE NO.

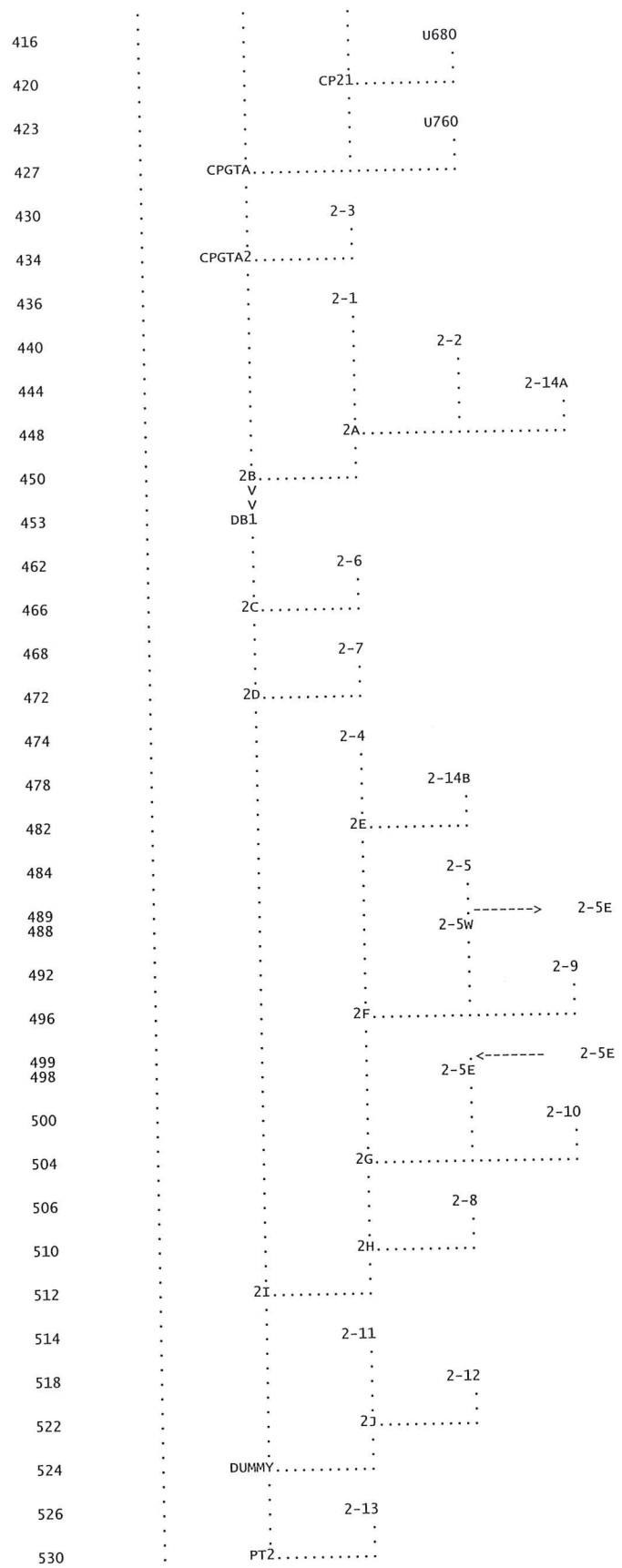
(V) ROUTING (---->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW




161
U305
165
CP8
171
168
CP8S
CP8E
174
U310
178
CP9
185
181
CP9S
CP9E
188
RCP9E
193
191
CP6E
CP6E
194
RCP6E
199
197
CP7E
CP7E
200
RCP7E
205
203
CP8E
CP8E
206
RCP8E
209
DUMMY
212
U410
216
CP10
223
219
CP10S
CP10E
226
RCP10E
229
U440
236
233
U440E
U440S
239
RU440S
242
U470
246
CP11
253
249
CP11S
CP11E
256
U530
260
CP12
267
263
CP12S
CP12E
270
RCP12E
273
U130
280
277
U130E
U130S
283
RU130S
286
U550
290
CP13
296
CP13E


CP13S
RCP13S
U440E
U440E
RU440E
U570
CP14
CP14S
CP14E
RCP14E
U610
CP15
CP15S
CP15E
CP9S
CP9S
RCP9S
CP10S
CP10S
RCP10S
U280
CP16
RCP16
CP11S
CP11S
RCP11S
CP12S
CP12S
RCP12S
CP14S
CP14S
RCP14S
U510
CP17
U650
CP18
U630
CP19
U620
CP20
RCP20
CP15S
CP15S
RCP15S



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1**********
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *

****
*
* U.S. ARMY CORPS OF ENGINEERS *

```
*                JUN   1998                *
*             VERSION 4.1                  *
*                                          *
*  RUN DATE   22OCT13  TIME  10:46:18      *
*                                          *
********************************************

*     HYDROLOGIC ENGINEERING CENTER        *
*          609 SECOND STREET               *
*        DAVIS, CALIFORNIA 95616           *
*            (916) 756-1104                *
*                                          *
********************************************
```

SLATER HANIFAN GROUP, INC.
PARK HIGHLANDS - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
ADDENDUM NO. 2 TO THE TECHNICAL DRAINAGE STUDY
ULTIMATE CONDITION

RETURN PERIOD ------- 100-YEAR
DISTRIBUTION -------- 6-HOUR SDN3
PROJECT NO. --------- CBH1201.000
FILENAME ------------ ULT100.H1
DATE ---------------- OCTOBER 2013
MODELED BY ---------- KC

SIX HOUR DEPTH-AREA REDUCTION FACTORS

DRAINAGE AREA (MI^2)	DARF
0.00-0.49	0.990
0.50-0.99	0.975
1.00-1.99	0.950
2.00-2.99	0.925
3.00-3.99	0.915
4.00-4.99	0.908

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

   IT          HYDROGRAPH TIME DATA
                    NMIN           5  MINUTES IN COMPUTATION INTERVAL
                   IDATE      1    0  STARTING DATE
                   ITIME         0000  STARTING TIME
                      NQ          300  NUMBER OF HYDROGRAPH ORDINATES
                  NDDATE      2    0  ENDING DATE
                  NDTIME         0055  ENDING TIME
                   ICENT          19  CENTURY MARK

                COMPUTATION INTERVAL      .08 HOURS
                    TOTAL TIME BASE    24.92 HOURS

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

   JP          MULTI-PLAN OPTION
                  NPLAN            1  NUMBER OF PLANS

   JR          MULTI-RATIO OPTION
                  RATIOS OF PRECIPITATION
                  .99       .98       .95       .93       .92       .91

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

          ***************
          *             *
450 KK    *      2B     *
          *             *
          ***************

451 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          2  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

452 HC          HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***
```

HYDROGRAPH AT STATION 2B
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .99

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	175.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	153.	1		1235	152	0.	1		1850	227	0.
1		0010	3	0.	1		0625	78	133.	1		1240	153	0.	1		1855	228	0.
1		0015	4	0.	1		0630	79	117.	1		1245	154	0.	1		1900	229	0.
1		0020	5	1.	1		0635	80	103.	1		1250	155	0.	1		1905	230	0.
1		0025	6	2.	1		0640	81	92.	1		1255	156	0.	1		1910	231	0.
1		0030	7	4.	1		0645	82	81.	1		1300	157	0.	1		1915	232	0.
1		0035	8	6.	1		0650	83	71.	1		1305	158	0.	1		1920	233	0.
1		0040	9	7.	1		0655	84	62.	1		1310	159	0.	1		1925	234	0.
1		0045	10	6.	1		0700	85	54.	1		1315	160	0.	1		1930	235	0.
1		0050	11	5.	1		0705	86	46.	1		1320	161	0.	1		1935	236	0.
1		0055	12	4.	1		0710	87	40.	1		1325	162	0.	1		1940	237	0.
1		0100	13	4.	1		0715	88	36.	1		1330	163	0.	1		1945	238	0.
1		0105	14	3.	1		0720	89	31.	1		1335	164	0.	1		1950	239	0.
1		0110	15	4.	1		0725	90	27.	1		1340	165	0.	1		1955	240	0.

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0115	16	4.	1		0730	91	23.	1		1345	166	0.	1		2000	241	0.
1		0120	17	5.	1		0735	92	20.	1		1350	167	0.	1		2005	242	0.
1		0125	18	7.	1		0740	93	17.	1		1355	168	0.	1		2010	243	0.
1		0130	19	10.	1		0745	94	14.	1		1400	169	0.	1		2015	244	0.
1		0135	20	15.	1		0750	95	12.	1		1405	170	0.	1		2020	245	0.
1		0140	21	20.	1		0755	96	10.	1		1410	171	0.	1		2025	246	0.
1		0145	22	24.	1		0800	97	9.	1		1415	172	0.	1		2030	247	0.
1		0150	23	27.	1		0805	98	8.	1		1420	173	0.	1		2035	248	0.
1		0155	24	28.	1		0810	99	6.	1		1425	174	0.	1		2040	249	0.
1		0200	25	27.	1		0815	100	5.	1		1430	175	0.	1		2045	250	0.
1		0205	26	26.	1		0820	101	5.	1		1435	176	0.	1		2050	251	0.
1		0210	27	26.	1		0825	102	4.	1		1440	177	0.	1		2055	252	0.
1		0215	28	29.	1		0830	103	3.	1		1445	178	0.	1		2100	253	0.
1		0220	29	35.	1		0835	104	3.	1		1450	179	0.	1		2105	254	0.
1		0225	30	43.	1		0840	105	2.	1		1455	180	0.	1		2110	255	0.
1		0230	31	49.	1		0845	106	2.	1		1500	181	0.	1		2115	256	0.
1		0235	32	53.	1		0850	107	2.	1		1505	182	0.	1		2120	257	0.
1		0240	33	57.	1		0855	108	1.	1		1510	183	0.	1		2125	258	0.
1		0245	34	63.	1		0900	109	1.	1		1515	184	0.	1		2130	259	0.
1		0250	35	68.	1		0905	110	1.	1		1520	185	0.	1		2135	260	0.
1		0255	36	71.	1		0910	111	1.	1		1525	186	0.	1		2140	261	0.
1		0300	37	72.	1		0915	112	1.	1		1530	187	0.	1		2145	262	0.
1		0305	38	79.	1		0920	113	1.	1		1535	188	0.	1		2150	263	0.
1		0310	39	99.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	136.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	203.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	311.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	456.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	604.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	708.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	782.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	871.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	1001.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	1135.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	1201.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	1190.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	1146.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	1083.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	1008.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	943.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	894.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	850.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	805.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	765.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	733.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	693.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	648.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	608.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	569.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	537.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	509.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	478.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	442.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	401.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	356.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	310.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	271.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	240.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	218.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	197.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)	(CFS)				
1201.	4.08		354.	89.	86.	86.
		(INCHES)	2.853	2.875	2.875	2.875
		(AC-FT)	175.	177.	177.	177.

CUMULATIVE AREA = 1.15 SQ MI

HYDROGRAPH AT STATION 2B
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .98

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	172.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	150.	1		1235	152	0.	1		1850	227	0.
1		0010	3	0.	1		0625	78	131.	1		1240	153	0.	1		1855	228	0.
1		0015	4	0.	1		0630	79	115.	1		1245	154	0.	1		1900	229	0.
1		0020	5	1.	1		0635	80	102.	1		1250	155	0.	1		1905	230	0.
1		0025	6	2.	1		0640	81	91.	1		1255	156	0.	1		1910	231	0.
1		0030	7	4.	1		0645	82	80.	1		1300	157	0.	1		1915	232	0.
1		0035	8	6.	1		0650	83	70.	1		1305	158	0.	1		1920	233	0.
1		0040	9	7.	1		0655	84	61.	1		1310	159	0.	1		1925	234	0.
1		0045	10	6.	1		0700	85	53.	1		1315	160	0.	1		1930	235	0.
1		0050	11	5.	1		0705	86	46.	1		1320	161	0.	1		1935	236	0.
1		0055	12	4.	1		0710	87	40.	1		1325	162	0.	1		1940	237	0.
1		0100	13	3.	1		0715	88	35.	1		1330	163	0.	1		1945	238	0.
1		0105	14	3.	1		0720	89	31.	1		1335	164	0.	1		1950	239	0.
1		0110	15	3.	1		0725	90	27.	1		1340	165	0.	1		1955	240	0.
1		0115	16	4.	1		0730	91	23.	1		1345	166	0.	1		2000	241	0.
1		0120	17	5.	1		0735	92	20.	1		1350	167	0.	1		2005	242	0.
1		0125	18	7.	1		0740	93	17.	1		1355	168	0.	1		2010	243	0.
1		0130	19	9.	1		0745	94	14.	1		1400	169	0.	1		2015	244	0.
1		0135	20	14.	1		0750	95	12.	1		1405	170	0.	1		2020	245	0.
1		0140	21	19.	1		0755	96	10.	1		1410	171	0.	1		2025	246	0.
1		0145	22	23.	1		0800	97	9.	1		1415	172	0.	1		2030	247	0.
1		0150	23	26.	1		0805	98	7.	1		1420	173	0.	1		2035	248	0.
1		0155	24	27.	1		0810	99	6.	1		1425	174	0.	1		2040	249	0.
1		0200	25	26.	1		0815	100	5.	1		1430	175	0.	1		2045	250	0.
1		0205	26	25.	1		0820	101	5.	1		1435	176	0.	1		2050	251	0.
1		0210	27	24.	1		0825	102	4.	1		1440	177	0.	1		2055	252	0.
1		0215	28	27.	1		0830	103	3.	1		1445	178	0.	1		2100	253	0.

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0220	29	34.	1		0835	104	3.	1		1450	179	0.	1		2105	254	0.
1		0225	30	41.	1		0840	105	2.	1		1455	180	0.	1		2110	255	0.
1		0230	31	47.	1		0845	106	2.	1		1500	181	0.	1		2115	256	0.
1		0235	32	50.	1		0850	107	2.	1		1505	182	0.	1		2120	257	0.
1		0240	33	54.	1		0855	108	1.	1		1510	183	0.	1		2125	258	0.
1		0245	34	60.	1		0900	109	1.	1		1515	184	0.	1		2130	259	0.
1		0250	35	65.	1		0905	110	1.	1		1520	185	0.	1		2135	260	0.
1		0255	36	68.	1		0910	111	1.	1		1525	186	0.	1		2140	261	0.
1		0300	37	69.	1		0915	112	1.	1		1530	187	0.	1		2145	262	0.
1		0305	38	76.	1		0920	113	1.	1		1535	188	0.	1		2150	263	0.
1		0310	39	95.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	130.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	196.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	303.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	443.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	587.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	689.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	760.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	841.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	968.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	1106.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	1180.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	1169.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	1119.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	1055.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	979.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	917.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	877.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	839.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	795.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	754.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	720.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	680.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	635.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	596.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	559.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	528.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	501.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	469.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	435.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	394.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	349.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	305.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	266.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	237.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	216.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	195.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)					
1180.	4.08	(CFS)	346.	87.	84.	84.
		(INCHES)	2.789	2.810	2.810	2.810
		(AC-FT)	171.	173.	173.	173.

CUMULATIVE AREA = 1.15 SQ MI

HYDROGRAPH AT STATION 2B
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .95

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	168.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	146.	1		1235	152	0.	1		1850	227	0.
1		0010	3	0.	1		0625	78	128.	1		1240	153	0.	1		1855	228	0.
1		0015	4	0.	1		0630	79	113.	1		1245	154	0.	1		1900	229	0.
1		0020	5	1.	1		0635	80	100.	1		1250	155	0.	1		1905	230	0.
1		0025	6	2.	1		0640	81	88.	1		1255	156	0.	1		1910	231	0.
1		0030	7	3.	1		0645	82	78.	1		1300	157	0.	1		1915	232	0.
1		0035	8	5.	1		0650	83	68.	1		1305	158	0.	1		1920	233	0.
1		0040	9	6.	1		0655	84	59.	1		1310	159	0.	1		1925	234	0.
1		0045	10	5.	1		0700	85	51.	1		1315	160	0.	1		1930	235	0.
1		0050	11	4.	1		0705	86	44.	1		1320	161	0.	1		1935	236	0.
1		0055	12	3.	1		0710	87	39.	1		1325	162	0.	1		1940	237	0.
1		0100	13	3.	1		0715	88	34.	1		1330	163	0.	1		1945	238	0.
1		0105	14	2.	1		0720	89	30.	1		1335	164	0.	1		1950	239	0.
1		0110	15	3.	1		0725	90	26.	1		1340	165	0.	1		1955	240	0.
1		0115	16	4.	1		0730	91	23.	1		1345	166	0.	1		2000	241	0.
1		0120	17	5.	1		0735	92	19.	1		1350	167	0.	1		2005	242	0.
1		0125	18	6.	1		0740	93	16.	1		1355	168	0.	1		2010	243	0.
1		0130	19	9.	1		0745	94	14.	1		1400	169	0.	1		2015	244	0.
1		0135	20	13.	1		0750	95	12.	1		1405	170	0.	1		2020	245	0.
1		0140	21	17.	1		0755	96	10.	1		1410	171	0.	1		2025	246	0.
1		0145	22	21.	1		0800	97	9.	1		1415	172	0.	1		2030	247	0.
1		0150	23	23.	1		0805	98	7.	1		1420	173	0.	1		2035	248	0.
1		0155	24	24.	1		0810	99	6.	1		1425	174	0.	1		2040	249	0.
1		0200	25	24.	1		0815	100	5.	1		1430	175	0.	1		2045	250	0.
1		0205	26	22.	1		0820	101	4.	1		1435	176	0.	1		2050	251	0.
1		0210	27	22.	1		0825	102	4.	1		1440	177	0.	1		2055	252	0.
1		0215	28	25.	1		0830	103	3.	1		1445	178	0.	1		2100	253	0.
1		0220	29	31.	1		0835	104	3.	1		1450	179	0.	1		2105	254	0.
1		0225	30	38.	1		0840	105	2.	1		1455	180	0.	1		2110	255	0.
1		0230	31	43.	1		0845	106	2.	1		1500	181	0.	1		2115	256	0.
1		0235	32	46.	1		0850	107	2.	1		1505	182	0.	1		2120	257	0.
1		0240	33	50.	1		0855	108	1.	1		1510	183	0.	1		2125	258	0.
1		0245	34	56.	1		0900	109	1.	1		1515	184	0.	1		2130	259	0.
1		0250	35	61.	1		0905	110	1.	1		1520	185	0.	1		2135	260	0.
1		0255	36	63.	1		0910	111	1.	1		1525	186	0.	1		2140	261	0.
1		0300	37	64.	1		0915	112	1.	1		1530	187	0.	1		2145	262	0.
1		0305	38	70.	1		0920	113	1.	1		1535	188	0.	1		2150	263	0.
1		0310	39	88.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	122.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	185.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.

DA	MON	HRMN	ORD	FLOW		DA	MON	HRMN	ORD	FLOW		DA	MON	HRMN	ORD	FLOW		DA	MON	HRMN	ORD	FLOW
1	0325	42	286.	*	1	0940	117	0.	*	1	1555	192	0.	*	1	2210	267	0.				
1	0330	43	422.	*	1	0945	118	0.	*	1	1600	193	0.	*	1	2215	268	0.				
1	0335	44	561.	*	1	0950	119	0.	*	1	1605	194	0.	*	1	2220	269	0.				
1	0340	45	658.	*	1	0955	120	0.	*	1	1610	195	0.	*	1	2225	270	0.				
1	0345	46	723.	*	1	1000	121	0.	*	1	1615	196	0.	*	1	2230	271	0.				
1	0350	47	799.	*	1	1005	122	0.	*	1	1620	197	0.	*	1	2235	272	0.				
1	0355	48	917.	*	1	1010	123	0.	*	1	1625	198	0.	*	1	2240	273	0.				
1	0400	49	1055.	*	1	1015	124	0.	*	1	1630	199	0.	*	1	2245	274	0.				
1	0405	50	1135.	*	1	1020	125	0.	*	1	1635	200	0.	*	1	2250	275	0.				
1	0410	51	1128.	*	1	1025	126	0.	*	1	1640	201	0.	*	1	2255	276	0.				
1	0415	52	1081.	*	1	1030	127	0.	*	1	1645	202	0.	*	1	2300	277	0.				
1	0420	53	1017.	*	1	1035	128	0.	*	1	1650	203	0.	*	1	2305	278	0.				
1	0425	54	941.	*	1	1040	129	0.	*	1	1655	204	0.	*	1	2310	279	0.				
1	0430	55	888.	*	1	1045	130	0.	*	1	1700	205	0.	*	1	2315	280	0.				
1	0435	56	857.	*	1	1050	131	0.	*	1	1705	206	0.	*	1	2320	281	0.				
1	0440	57	821.	*	1	1055	132	0.	*	1	1710	207	0.	*	1	2325	282	0.				
1	0445	58	777.	*	1	1100	133	0.	*	1	1715	208	0.	*	1	2330	283	0.				
1	0450	59	735.	*	1	1105	134	0.	*	1	1720	209	0.	*	1	2335	284	0.				
1	0455	60	699.	*	1	1110	135	0.	*	1	1725	210	0.	*	1	2340	285	0.				
1	0500	61	660.	*	1	1115	136	0.	*	1	1730	211	0.	*	1	2345	286	0.				
1	0505	62	614.	*	1	1120	137	0.	*	1	1735	212	0.	*	1	2350	287	0.				
1	0510	63	574.	*	1	1125	138	0.	*	1	1740	213	0.	*	1	2355	288	0.				
1	0515	64	539.	*	1	1130	139	0.	*	1	1745	214	0.	*	2	0000	289	0.				
1	0520	65	512.	*	1	1135	140	0.	*	1	1750	215	0.	*	2	0005	290	0.				
1	0525	66	489.	*	1	1140	141	0.	*	1	1755	216	0.	*	2	0010	291	0.				
1	0530	67	457.	*	1	1145	142	0.	*	1	1800	217	0.	*	2	0015	292	0.				
1	0535	68	423.	*	1	1150	143	0.	*	1	1805	218	0.	*	2	0020	293	0.				
1	0540	69	383.	*	1	1155	144	0.	*	1	1810	219	0.	*	2	0025	294	0.				
1	0545	70	337.	*	1	1200	145	0.	*	1	1815	220	0.	*	2	0030	295	0.				
1	0550	71	296.	*	1	1205	146	0.	*	1	1820	221	0.	*	2	0035	296	0.				
1	0555	72	259.	*	1	1210	147	0.	*	1	1825	222	0.	*	2	0040	297	0.				
1	0600	73	233.	*	1	1215	148	0.	*	1	1830	223	0.	*	2	0045	298	0.				
1	0605	74	212.	*	1	1220	149	0.	*	1	1835	224	0.	*	2	0050	299	0.				
1	0610	75	190.	*	1	1225	150	0.	*	1	1840	225	0.	*	2	0055	300	0.				

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)					
1135.	4.08	(CFS)	333.	84.	81.	81.
		(INCHES)	2.687	2.708	2.708	2.708
		(AC-FT)	165.	166.	166.	166.

CUMULATIVE AREA = 1.15 SQ MI

HYDROGRAPH AT STATION 2B
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .93

DA	MON	HRMN	ORD	FLOW		DA	MON	HRMN	ORD	FLOW		DA	MON	HRMN	ORD	FLOW		DA	MON	HRMN	ORD	FLOW
1	0000	1	0.	*	1	0615	76	163.	*	1	1230	151	0.	*	1	1845	226	0.				
1	0005	2	0.	*	1	0620	77	142.	*	1	1235	152	0.	*	1	1850	227	0.				
1	0010	3	0.	*	1	0625	78	124.	*	1	1240	153	0.	*	1	1855	228	0.				
1	0015	4	0.	*	1	0630	79	110.	*	1	1245	154	0.	*	1	1900	229	0.				
1	0020	5	0.	*	1	0635	80	98.	*	1	1250	155	0.	*	1	1905	230	0.				
1	0025	6	1.	*	1	0640	81	86.	*	1	1255	156	0.	*	1	1910	231	0.				
1	0030	7	3.	*	1	0645	82	76.	*	1	1300	157	0.	*	1	1915	232	0.				
1	0035	8	5.	*	1	0650	83	66.	*	1	1305	158	0.	*	1	1920	233	0.				
1	0040	9	5.	*	1	0655	84	58.	*	1	1310	159	0.	*	1	1925	234	0.				
1	0045	10	5.	*	1	0700	85	50.	*	1	1315	160	0.	*	1	1930	235	0.				
1	0050	11	3.	*	1	0705	86	43.	*	1	1320	161	0.	*	1	1935	236	0.				
1	0055	12	3.	*	1	0710	87	38.	*	1	1325	162	0.	*	1	1940	237	0.				
1	0100	13	2.	*	1	0715	88	34.	*	1	1330	163	0.	*	1	1945	238	0.				
1	0105	14	2.	*	1	0720	89	29.	*	1	1335	164	0.	*	1	1950	239	0.				
1	0110	15	2.	*	1	0725	90	26.	*	1	1340	165	0.	*	1	1955	240	0.				
1	0115	16	3.	*	1	0730	91	22.	*	1	1345	166	0.	*	1	2000	241	0.				
1	0120	17	4.	*	1	0735	92	19.	*	1	1350	167	0.	*	1	2005	242	0.				
1	0125	18	5.	*	1	0740	93	16.	*	1	1355	168	0.	*	1	2010	243	0.				
1	0130	19	8.	*	1	0745	94	14.	*	1	1400	169	0.	*	1	2015	244	0.				
1	0135	20	12.	*	1	0750	95	12.	*	1	1405	170	0.	*	1	2020	245	0.				
1	0140	21	16.	*	1	0755	96	10.	*	1	1410	171	0.	*	1	2025	246	0.				
1	0145	22	19.	*	1	0800	97	8.	*	1	1415	172	0.	*	1	2030	247	0.				
1	0150	23	21.	*	1	0805	98	7.	*	1	1420	173	0.	*	1	2035	248	0.				
1	0155	24	22.	*	1	0810	99	6.	*	1	1425	174	0.	*	1	2040	249	0.				
1	0200	25	21.	*	1	0815	100	5.	*	1	1430	175	0.	*	1	2045	250	0.				
1	0205	26	20.	*	1	0820	101	4.	*	1	1435	176	0.	*	1	2050	251	0.				
1	0210	27	20.	*	1	0825	102	4.	*	1	1440	177	0.	*	1	2055	252	0.				
1	0215	28	23.	*	1	0830	103	3.	*	1	1445	178	0.	*	1	2100	253	0.				
1	0220	29	28.	*	1	0835	104	3.	*	1	1450	179	0.	*	1	2105	254	0.				
1	0225	30	35.	*	1	0840	105	2.	*	1	1455	180	0.	*	1	2110	255	0.				
1	0230	31	40.	*	1	0845	106	2.	*	1	1500	181	0.	*	1	2115	256	0.				
1	0235	32	43.	*	1	0850	107	2.	*	1	1505	182	0.	*	1	2120	257	0.				
1	0240	33	46.	*	1	0855	108	1.	*	1	1510	183	0.	*	1	2125	258	0.				
1	0245	34	51.	*	1	0900	109	1.	*	1	1515	184	0.	*	1	2130	259	0.				
1	0250	35	56.	*	1	0905	110	1.	*	1	1520	185	0.	*	1	2135	260	0.				
1	0255	36	58.	*	1	0910	111	1.	*	1	1525	186	0.	*	1	2140	261	0.				
1	0300	37	59.	*	1	0915	112	1.	*	1	1530	187	0.	*	1	2145	262	0.				
1	0305	38	65.	*	1	0920	113	0.	*	1	1535	188	0.	*	1	2150	263	0.				
1	0310	39	82.	*	1	0925	114	0.	*	1	1540	189	0.	*	1	2155	264	0.				
1	0315	40	113.	*	1	0930	115	0.	*	1	1545	190	0.	*	1	2200	265	0.				
1	0320	41	174.	*	1	0935	116	0.	*	1	1550	191	0.	*	1	2205	266	0.				
1	0325	42	271.	*	1	0940	117	0.	*	1	1555	192	0.	*	1	2210	267	0.				
1	0330	43	402.	*	1	0945	118	0.	*	1	1600	193	0.	*	1	2215	268	0.				
1	0335	44	535.	*	1	0950	119	0.	*	1	1605	194	0.	*	1	2220	269	0.				
1	0340	45	626.	*	1	0955	120	0.	*	1	1610	195	0.	*	1	2225	270	0.				
1	0345	46	687.	*	1	1000	121	0.	*	1	1615	196	0.	*	1	2230	271	0.				
1	0350	47	755.	*	1	1005	122	0.	*	1	1620	197	0.	*	1	2235	272	0.				
1	0355	48	866.	*	1	1010	123	0.	*	1	1625	198	0.	*	1	2240	273	0.				
1	0400	49	1002.	*	1	1015	124	0.	*	1	1630	199	0.	*	1	2245	274	0.				
1	0405	50	1087.	*	1	1020	125	0.	*	1	1635	200	0.	*	1	2250	275	0.				
1	0410	51	1081.	*	1	1025	126	0.	*	1	1640	201	0.	*	1	2255	276	0.				
1	0415	52	1029.	*	1	1030	127	0.	*	1	1645	202	0.	*	1	2300	277	0.				
1	0420	53	974.	*	1	1035	128	0.	*	1	1650	203	0.	*	1	2305	278	0.				
1	0425	54	913.	*	1	1040	129	0.	*	1	1655	204	0.	*	1	2310	279	0.				

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0430	55	860.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	827.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	797.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	758.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	713.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	675.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	638.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	593.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	553.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	522.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	497.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	474.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	446.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	410.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	369.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	325.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	285.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	252.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	229.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	208.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	186.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
1087.	4.08	(CFS)	320.	81.	78.	78.
		(INCHES)	2.581	2.600	2.600	2.600
		(AC-FT)	159.	160.	160.	160.

CUMULATIVE AREA = 1.15 SQ MI

HYDROGRAPH AT STATION 2B
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .92

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	161.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	140.	1		1235	152	0.	1		1850	227	0.
1		0010	3	0.	1		0625	78	123.	1		1240	153	0.	1		1855	228	0.
1		0015	4	0.	1		0630	79	108.	1		1245	154	0.	1		1900	229	0.
1		0020	5	0.	1		0635	80	97.	1		1250	155	0.	1		1905	230	0.
1		0025	6	1.	1		0640	81	85.	1		1255	156	0.	1		1910	231	0.
1		0030	7	3.	1		0645	82	75.	1		1300	157	0.	1		1915	232	0.
1		0035	8	5.	1		0650	83	65.	1		1305	158	0.	1		1920	233	0.
1		0040	9	5.	1		0655	84	57.	1		1310	159	0.	1		1925	234	0.
1		0045	10	4.	1		0700	85	49.	1		1315	160	0.	1		1930	235	0.
1		0050	11	3.	1		0705	86	43.	1		1320	161	0.	1		1935	236	0.
1		0055	12	2.	1		0710	87	38.	1		1325	162	0.	1		1940	237	0.
1		0100	13	2.	1		0715	88	33.	1		1330	163	0.	1		1945	238	0.
1		0105	14	2.	1		0720	89	29.	1		1335	164	0.	1		1950	239	0.
1		0110	15	2.	1		0725	90	25.	1		1340	165	0.	1		1955	240	0.
1		0115	16	3.	1		0730	91	22.	1		1345	166	0.	1		2000	241	0.
1		0120	17	4.	1		0735	92	19.	1		1350	167	0.	1		2005	242	0.
1		0125	18	5.	1		0740	93	16.	1		1355	168	0.	1		2010	243	0.
1		0130	19	8.	1		0745	94	13.	1		1400	169	0.	1		2015	244	0.
1		0135	20	11.	1		0750	95	11.	1		1405	170	0.	1		2020	245	0.
1		0140	21	15.	1		0755	96	10.	1		1410	171	0.	1		2025	246	0.
1		0145	22	18.	1		0800	97	8.	1		1415	172	0.	1		2030	247	0.
1		0150	23	21.	1		0805	98	7.	1		1420	173	0.	1		2035	248	0.
1		0155	24	21.	1		0810	99	6.	1		1425	174	0.	1		2040	249	0.
1		0200	25	21.	1		0815	100	5.	1		1430	175	0.	1		2045	250	0.
1		0205	26	20.	1		0820	101	4.	1		1435	176	0.	1		2050	251	0.
1		0210	27	19.	1		0825	102	4.	1		1440	177	0.	1		2055	252	0.
1		0215	28	22.	1		0830	103	3.	1		1445	178	0.	1		2100	253	0.
1		0220	29	27.	1		0835	104	3.	1		1450	179	0.	1		2105	254	0.
1		0225	30	34.	1		0840	105	2.	1		1455	180	0.	1		2110	255	0.
1		0230	31	38.	1		0845	106	2.	1		1500	181	0.	1		2115	256	0.
1		0235	32	41.	1		0850	107	2.	1		1505	182	0.	1		2120	257	0.
1		0240	33	44.	1		0855	108	1.	1		1510	183	0.	1		2125	258	0.
1		0245	34	50.	1		0900	109	1.	1		1515	184	0.	1		2130	259	0.
1		0250	35	54.	1		0905	110	1.	1		1520	185	0.	1		2135	260	0.
1		0255	36	56.	1		0910	111	1.	1		1525	186	0.	1		2140	261	0.
1		0300	37	57.	1		0915	112	1.	1		1530	187	0.	1		2145	262	0.
1		0305	38	63.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	79.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	111.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	169.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	264.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	394.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	525.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	614.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	674.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	738.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	844.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	978.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	1066.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	1065.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	1012.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	958.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	905.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	853.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	816.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	784.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	747.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	705.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	667.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	627.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	582.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	545.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	515.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	491.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	468.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	441.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1	0535	68	405.	*	1	1150	143	0.	*	1	1805	218	0.	*	2	0020	293	0.	
1	0540	69	362.	*	1	1155	144	0.	*	1	1810	219	0.	*	2	0025	294	0.	
1	0545	70	319.	*	1	1200	145	0.	*	1	1815	220	0.	*	2	0030	295	0.	
1	0550	71	280.	*	1	1205	146	0.	*	1	1820	221	0.	*	2	0035	296	0.	
1	0555	72	250.	*	1	1210	147	0.	*	1	1825	222	0.	*	2	0040	297	0.	
1	0600	73	227.	*	1	1215	148	0.	*	1	1830	223	0.	*	2	0045	298	0.	
1	0605	74	206.	*	1	1220	149	0.	*	1	1835	224	0.	*	2	0050	299	0.	
1	0610	75	184.	*	1	1225	150	0.	*	1	1840	225	0.	*	2	0055	300	0.	

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
+ 1066.	4.08	(CFS)	315.	79.	76.	76.
		(INCHES)	2.539	2.557	2.557	2.557
		(AC-FT)	156.	157.	157.	157.

CUMULATIVE AREA = 1.15 SQ MI

HYDROGRAPH AT STATION 2B
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .91

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1	0000	1	0.	*	1	0615	76	159.	*	1	1230	151	0.	*	1	1845	226	0.	
1	0005	2	0.	*	1	0620	77	139.	*	1	1235	152	0.	*	1	1850	227	0.	
1	0010	3	0.	*	1	0625	78	122.	*	1	1240	153	0.	*	1	1855	228	0.	
1	0015	4	0.	*	1	0630	79	108.	*	1	1245	154	0.	*	1	1900	229	0.	
1	0020	5	0.	*	1	0635	80	96.	*	1	1250	155	0.	*	1	1905	230	0.	
1	0025	6	1.	*	1	0640	81	85.	*	1	1255	156	0.	*	1	1910	231	0.	
1	0030	7	3.	*	1	0645	82	74.	*	1	1300	157	0.	*	1	1915	232	0.	
1	0035	8	4.	*	1	0650	83	65.	*	1	1305	158	0.	*	1	1920	233	0.	
1	0040	9	5.	*	1	0655	84	56.	*	1	1310	159	0.	*	1	1925	234	0.	
1	0045	10	4.	*	1	0700	85	49.	*	1	1315	160	0.	*	1	1930	235	0.	
1	0050	11	3.	*	1	0705	86	42.	*	1	1320	161	0.	*	1	1935	236	0.	
1	0055	12	2.	*	1	0710	87	37.	*	1	1325	162	0.	*	1	1940	237	0.	
1	0100	13	2.	*	1	0715	88	33.	*	1	1330	163	0.	*	1	1945	238	0.	
1	0105	14	2.	*	1	0720	89	29.	*	1	1335	164	0.	*	1	1950	239	0.	
1	0110	15	2.	*	1	0725	90	25.	*	1	1340	165	0.	*	1	1955	240	0.	
1	0115	16	3.	*	1	0730	91	22.	*	1	1345	166	0.	*	1	2000	241	0.	
1	0120	17	4.	*	1	0735	92	19.	*	1	1350	167	0.	*	1	2005	242	0.	
1	0125	18	5.	*	1	0740	93	16.	*	1	1355	168	0.	*	1	2010	243	0.	
1	0130	19	7.	*	1	0745	94	13.	*	1	1400	169	0.	*	1	2015	244	0.	
1	0135	20	11.	*	1	0750	95	11.	*	1	1405	170	0.	*	1	2020	245	0.	
1	0140	21	15.	*	1	0755	96	10.	*	1	1410	171	0.	*	1	2025	246	0.	
1	0145	22	18.	*	1	0800	97	8.	*	1	1415	172	0.	*	1	2030	247	0.	
1	0150	23	20.	*	1	0805	98	7.	*	1	1420	173	0.	*	1	2035	248	0.	
1	0155	24	21.	*	1	0810	99	6.	*	1	1425	174	0.	*	1	2040	249	0.	
1	0200	25	20.	*	1	0815	100	5.	*	1	1430	175	0.	*	1	2045	250	0.	
1	0205	26	19.	*	1	0820	101	4.	*	1	1435	176	0.	*	1	2050	251	0.	
1	0210	27	19.	*	1	0825	102	4.	*	1	1440	177	0.	*	1	2055	252	0.	
1	0215	28	21.	*	1	0830	103	3.	*	1	1445	178	0.	*	1	2100	253	0.	
1	0220	29	27.	*	1	0835	104	3.	*	1	1450	179	0.	*	1	2105	254	0.	
1	0225	30	33.	*	1	0840	105	2.	*	1	1455	180	0.	*	1	2110	255	0.	
1	0230	31	37.	*	1	0845	106	2.	*	1	1500	181	0.	*	1	2115	256	0.	
1	0235	32	40.	*	1	0850	107	2.	*	1	1505	182	0.	*	1	2120	257	0.	
1	0240	33	43.	*	1	0855	108	1.	*	1	1510	183	0.	*	1	2125	258	0.	
1	0245	34	49.	*	1	0900	109	1.	*	1	1515	184	0.	*	1	2130	259	0.	
1	0250	35	53.	*	1	0905	110	1.	*	1	1520	185	0.	*	1	2135	260	0.	
1	0255	36	55.	*	1	0910	111	1.	*	1	1525	186	0.	*	1	2140	261	0.	
1	0300	37	56.	*	1	0915	112	1.	*	1	1530	187	0.	*	1	2145	262	0.	
1	0305	38	62.	*	1	0920	113	0.	*	1	1535	188	0.	*	1	2150	263	0.	
1	0310	39	78.	*	1	0925	114	0.	*	1	1540	189	0.	*	1	2155	264	0.	
1	0315	40	109.	*	1	0930	115	0.	*	1	1545	190	0.	*	1	2200	265	0.	
1	0320	41	165.	*	1	0935	116	0.	*	1	1550	191	0.	*	1	2205	266	0.	
1	0325	42	260.	*	1	0940	117	0.	*	1	1555	192	0.	*	1	2210	267	0.	
1	0330	43	389.	*	1	0945	118	0.	*	1	1600	193	0.	*	1	2215	268	0.	
1	0335	44	517.	*	1	0950	119	0.	*	1	1605	194	0.	*	1	2220	269	0.	
1	0340	45	605.	*	1	0955	120	0.	*	1	1610	195	0.	*	1	2225	270	0.	
1	0345	46	664.	*	1	1000	121	0.	*	1	1615	196	0.	*	1	2230	271	0.	
1	0350	47	725.	*	1	1005	122	0.	*	1	1620	197	0.	*	1	2235	272	0.	
1	0355	48	829.	*	1	1010	123	0.	*	1	1625	198	0.	*	1	2240	273	0.	
1	0400	49	963.	*	1	1015	124	0.	*	1	1630	199	0.	*	1	2245	274	0.	
1	0405	50	1056.	*	1	1020	125	0.	*	1	1635	200	0.	*	1	2250	275	0.	
1	0410	51	1054.	*	1	1025	126	0.	*	1	1640	201	0.	*	1	2255	276	0.	
1	0415	52	1000.	*	1	1030	127	0.	*	1	1645	202	0.	*	1	2300	277	0.	
1	0420	53	947.	*	1	1035	128	0.	*	1	1650	203	0.	*	1	2305	278	0.	
1	0425	54	898.	*	1	1040	129	0.	*	1	1655	204	0.	*	1	2310	279	0.	
1	0430	55	848.	*	1	1045	130	0.	*	1	1700	205	0.	*	1	2315	280	0.	
1	0435	56	810.	*	1	1050	131	0.	*	1	1705	206	0.	*	1	2320	281	0.	
1	0440	57	776.	*	1	1055	132	0.	*	1	1710	207	0.	*	1	2325	282	0.	
1	0445	58	739.	*	1	1100	133	0.	*	1	1715	208	0.	*	1	2330	283	0.	
1	0450	59	699.	*	1	1105	134	0.	*	1	1720	209	0.	*	1	2335	284	0.	
1	0455	60	662.	*	1	1110	135	0.	*	1	1725	210	0.	*	1	2340	285	0.	
1	0500	61	620.	*	1	1115	136	0.	*	1	1730	211	0.	*	1	2345	286	0.	
1	0505	62	574.	*	1	1120	137	0.	*	1	1735	212	0.	*	1	2350	287	0.	
1	0510	63	539.	*	1	1125	138	0.	*	1	1740	213	0.	*	1	2355	288	0.	
1	0515	64	510.	*	1	1130	139	0.	*	1	1745	214	0.	*	2	0000	289	0.	
1	0520	65	487.	*	1	1135	140	0.	*	1	1750	215	0.	*	2	0005	290	0.	
1	0525	66	464.	*	1	1140	141	0.	*	1	1755	216	0.	*	2	0010	291	0.	
1	0530	67	436.	*	1	1145	142	0.	*	1	1800	217	0.	*	2	0015	292	0.	
1	0535	68	400.	*	1	1150	143	0.	*	1	1805	218	0.	*	2	0020	293	0.	
1	0540	69	357.	*	1	1155	144	0.	*	1	1810	219	0.	*	2	0025	294	0.	
1	0545	70	315.	*	1	1200	145	0.	*	1	1815	220	0.	*	2	0030	295	0.	
1	0550	71	278.	*	1	1205	146	0.	*	1	1820	221	0.	*	2	0035	296	0.	
1	0555	72	248.	*	1	1210	147	0.	*	1	1825	222	0.	*	2	0040	297	0.	
1	0600	73	225.	*	1	1215	148	0.	*	1	1830	223	0.	*	2	0045	298	0.	
1	0605	74	205.	*	1	1220	149	0.	*	1	1835	224	0.	*	2	0050	299	0.	
1	0610	75	183.	*	1	1225	150	0.	*	1	1840	225	0.	*	2	0055	300	0.	

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR

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+   (CFS)        (HR)
                          (CFS)
+    1056.        4.08                311.          78.          75.          75.
                 (INCHES)               2.510        2.528        2.528        2.528
                 (AC-FT)                154.         155.         155.         155.

                 CUMULATIVE AREA =     1.15 SQ MI


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


          ***************
          *             *
453 KK    *      DB1    *
          *             *
          ***************

455 KO          OUTPUT CONTROL VARIABLES
                     IPRNT        2  PRINT CONTROL
                     IPLOT        0  PLOT CONTROL
                     QSCAL       0.  HYDROGRAPH PLOT SCALE

461 KO          OUTPUT CONTROL VARIABLES
                     IPRNT        1  PRINT CONTROL
                     IPLOT        0  PLOT CONTROL
                     QSCAL       0.  HYDROGRAPH PLOT SCALE

          HYDROGRAPH ROUTING DATA

456 RS          STORAGE ROUTING
                     NSTPS        1  NUMBER OF SUBREACHES
                      ITYP     ELEV  TYPE OF INITIAL CONDITION
                     RSVRIC   -1.00  INITIAL CONDITION
                         X      .00 WORKING R AND D COEFFICIENT

457 SV          STORAGE          .0        .3       3.0       9.7      19.0      29.3      42.0     102.3     126.1     159.1

458 SE          ELEVATION    2297.00   2298.00   2299.00   2300.00   2301.00   2302.00   2303.00   2307.00   2308.50   2310.50

459 SQ          DISCHARGE         0.       72.      110.      138.      161.      199.      215.      231.      252.     1975.

460 SE          ELEVATION    2297.00   2300.00   2301.00   2302.00   2303.00   2305.00   2306.00   2307.00   2308.50   2310.50

                                                        ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

                 STORAGE          .00       .34      3.02      9.71     18.98     29.35     42.00     72.15     87.23    102.30
                 OUTFLOW          .00     24.00     48.00     72.00    110.00    138.00    161.00    199.00    215.00    231.00
                ELEVATION     2297.00   2298.00   2299.00   2300.00   2301.00   2302.00   2303.00   2305.00   2306.00   2307.00

                 STORAGE       126.12    159.12
                 OUTFLOW       252.00   1975.00
                ELEVATION     2308.50   2310.50

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                                                HYDROGRAPH AT STATION      DB1
                                                   PLAN 1,    RATIO =    .99

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 DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
  1   0000   1       0.        .0  2297.0   1   0820 101      214.      85.9  2305.9   1   1640 201       26.        .6  2298.1
  1   0005   2       0.        .0  2297.0   1   0825 102      212.      84.5  2305.8   1   1645 202       25.        .4  2298.0
  1   0010   3       0.        .0  2297.0   1   0830 103      211.      83.0  2305.7   1   1650 203       18.        .3  2297.8
  1   0015   4       0.        .0  2297.0   1   0835 104      209.      81.6  2305.6   1   1655 204       11.        .2  2297.5
  1   0020   5       0.        .0  2297.0   1   0840 105      208.      80.2  2305.5   1   1700 205        7.        .1  2297.3
  1   0025   6       1.        .0  2297.0   1   0845 106      206.      78.8  2305.4   1   1705 206        4.        .1  2297.2
  1   0030   7       2.        .0  2297.1   1   0850 107      205.      77.4  2305.3   1   1710 207        2.        .0  2297.1
  1   0035   8       3.        .0  2297.1   1   0855 108      203.      76.0  2305.3   1   1715 208        2.        .0  2297.1
  1   0040   9       4.        .1  2297.2   1   0900 109      202.      74.6  2305.2   1   1720 209        1.        .0  2297.0
  1   0045  10       5.        .1  2297.2   1   0905 110      200.      73.2  2305.1   1   1725 210        1.        .0  2297.0
  1   0050  11       6.        .1  2297.2   1   0910 111      199.      71.9  2305.0   1   1730 211        0.        .0  2297.0
  1   0055  12       5.        .1  2297.2   1   0915 112      197.      70.5  2304.9   1   1735 212        0.        .0  2297.0
  1   0100  13       5.        .1  2297.2   1   0920 113      195.      69.2  2304.8   1   1740 213        0.        .0  2297.0
  1   0105  14       4.        .1  2297.2   1   0925 114      194.      67.8  2304.7   1   1745 214        0.        .0  2297.0
  1   0110  15       4.        .1  2297.2   1   0930 115      192.      66.5  2304.6   1   1750 215        0.        .0  2297.0
  1   0115  16       4.        .1  2297.2   1   0935 116      190.      65.2  2304.5   1   1755 216        0.        .0  2297.0
  1   0120  17       4.        .1  2297.2   1   0940 117      189.      63.9  2304.5   1   1800 217        0.        .0  2297.0
  1   0125  18       5.        .1  2297.2   1   0945 118      187.      62.6  2304.4   1   1805 218        0.        .0  2297.0
  1   0130  19       6.        .1  2297.3   1   0950 119      185.      61.3  2304.3   1   1810 219        0.        .0  2297.0
  1   0135  20       9.        .1  2297.4   1   0955 120      184.      60.0  2304.2   1   1815 220        0.        .0  2297.0
  1   0140  21      12.        .2  2297.5   1   1000 121      182.      58.8  2304.1   1   1820 221        0.        .0  2297.0
  1   0145  22      16.        .2  2297.7   1   1005 122      181.      57.5  2304.0   1   1825 222        0.        .0  2297.0
  1   0150  23      20.        .3  2297.8   1   1010 123      179.      56.3  2303.9   1   1830 223        0.        .0  2297.0
  1   0155  24      23.        .3  2297.9   1   1015 124      177.      55.1  2303.9   1   1835 224        0.        .0  2297.0
  1   0200  25      24.        .4  2298.0   1   1020 125      176.      53.8  2303.8   1   1840 225        0.        .0  2297.0
  1   0205  26      24.        .4  2298.0   1   1025 126      174.      52.6  2303.7   1   1845 226        0.        .0  2297.0
  1   0210  27      24.        .4  2298.0   1   1030 127      173.      51.4  2303.6   1   1850 227        0.        .0  2297.0
  1   0215  28      25.        .4  2298.0   1   1035 128      171.      50.3  2303.5   1   1855 228        0.        .0  2297.0
  1   0220  29      25.        .4  2298.0   1   1040 129      170.      49.1  2303.5   1   1900 229        0.        .0  2297.0
  1   0225  30      26.        .5  2298.1   1   1045 130      168.      47.9  2303.4   1   1905 230        0.        .0  2297.0
  1   0230  31      27.        .7  2298.1   1   1050 131      167.      46.8  2303.3   1   1910 231        0.        .0  2297.0
  1   0235  32      28.        .8  2298.2   1   1055 132      166.      45.6  2303.2   1   1915 232        0.        .0  2297.0
  1   0240  33      30.       1.0  2298.3   1   1100 133      164.      44.5  2303.2   1   1920 233        0.        .0  2297.0
  1   0245  34      32.       1.2  2298.3   1   1105 134      163.      43.4  2303.1   1   1925 234        0.        .0  2297.0
  1   0250  35      34.       1.4  2298.4   1   1110 135      161.      42.2  2303.0   1   1930 235        0.        .0  2297.0
  1   0255  36      36.       1.7  2298.5   1   1115 136      159.      41.1  2302.9   1   1935 236        0.        .0  2297.0
  1   0300  37      38.       1.9  2298.6   1   1120 137      157.      40.0  2302.8   1   1940 237        0.        .0  2297.0
  1   0305  38      40.       2.2  2298.7   1   1125 138      155.      39.0  2302.8   1   1945 238        0.        .0  2297.0
  1   0310  39      43.       2.5  2298.8   1   1130 139      154.      37.9  2302.7   1   1950 239        0.        .0  2297.0
  1   0315  40      48.       3.0  2299.0   1   1135 140      152.      36.9  2302.6   1   1955 240        0.        .0  2297.0
  1   0320  41      51.       3.8  2299.1   1   1140 141      150.      35.8  2302.5   1   2000 241        0.        .0  2297.0
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1	0325	42	56.	5.2	2299.3	*	1	1145	142	148.	34.8	2302.4	*	1	2005	242	0.	.0	2297.0
1	0330	43	64.	7.4	2299.7	*	1	1150	143	146.	33.8	2302.4	*	1	2010	243	0.	.0	2297.0
1	0335	44	76.	10.6	2300.1	*	1	1155	144	144.	32.8	2302.3	*	1	2015	244	0.	.0	2297.0
1	0340	45	92.	14.6	2300.5	*	1	1200	145	142.	31.8	2302.2	*	1	2020	245	0.	.0	2297.0
1	0345	46	110.	19.0	2301.0	*	1	1205	146	141.	30.8	2302.1	*	1	2025	246	0.	.0	2297.0
1	0350	47	123.	23.9	2301.5	*	1	1210	147	139.	29.9	2302.0	*	1	2030	247	0.	.0	2297.0
1	0355	48	138.	29.4	2302.0	*	1	1215	148	137.	28.9	2302.0	*	1	2035	248	0.	.0	2297.0
1	0400	49	150.	35.8	2302.5	*	1	1220	149	134.	28.0	2301.9	*	1	2040	249	0.	.0	2297.0
1	0405	50	162.	42.8	2303.1	*	1	1225	150	132.	27.1	2301.8	*	1	2045	250	0.	.0	2297.0
1	0410	51	171.	49.9	2303.5	*	1	1230	151	129.	26.2	2301.7	*	1	2050	251	0.	.0	2297.0
1	0415	52	180.	56.7	2304.0	*	1	1235	152	127.	25.3	2301.6	*	1	2055	252	0.	.0	2297.0
1	0420	53	188.	63.1	2304.4	*	1	1240	153	125.	24.4	2301.5	*	1	2100	253	0.	.0	2297.0
1	0425	54	195.	69.0	2304.8	*	1	1245	154	122.	23.6	2301.4	*	1	2105	254	0.	.0	2297.0
1	0430	55	201.	74.3	2305.1	*	1	1250	155	120.	22.7	2301.4	*	1	2110	255	0.	.0	2297.0
1	0435	56	207.	79.3	2305.5	*	1	1255	156	118.	21.9	2301.3	*	1	2115	256	0.	.0	2297.0
1	0440	57	211.	83.8	2305.8	*	1	1300	157	116.	21.1	2301.2	*	1	2120	257	0.	.0	2297.0
1	0445	58	216.	88.1	2306.1	*	1	1305	158	114.	20.3	2301.1	*	1	2125	258	0.	.0	2297.0
1	0450	59	220.	92.0	2306.3	*	1	1310	159	111.	19.5	2301.1	*	1	2130	259	0.	.0	2297.0
1	0455	60	224.	95.6	2306.6	*	1	1315	160	109.	18.8	2301.0	*	1	2135	260	0.	.0	2297.0
1	0500	61	227.	99.0	2306.8	*	1	1320	161	106.	18.0	2300.9	*	1	2140	261	0.	.0	2297.0
1	0505	62	231.	102.0	2307.0	*	1	1325	162	103.	17.3	2300.8	*	1	2145	262	0.	.0	2297.0
1	0510	63	233.	104.7	2307.2	*	1	1330	163	100.	16.6	2300.7	*	1	2150	263	0.	.0	2297.0
1	0515	64	235.	107.2	2307.3	*	1	1335	164	97.	15.9	2300.7	*	1	2155	264	0.	.0	2297.0
1	0520	65	237.	109.3	2307.4	*	1	1340	165	95.	15.3	2300.6	*	1	2200	265	0.	.0	2297.0
1	0525	66	239.	111.3	2307.6	*	1	1345	166	92.	14.6	2300.5	*	1	2205	266	0.	.0	2297.0
1	0530	67	240.	113.1	2307.7	*	1	1350	167	90.	14.0	2300.5	*	1	2210	267	0.	.0	2297.0
1	0535	68	242.	114.6	2307.8	*	1	1355	168	87.	13.4	2300.4	*	1	2215	268	0.	.0	2297.0
1	0540	69	243.	115.8	2307.8	*	1	1400	169	85.	12.8	2300.3	*	1	2220	269	0.	.0	2297.0
1	0545	70	244.	116.7	2307.9	*	1	1405	170	82.	12.2	2300.3	*	1	2225	270	0.	.0	2297.0
1	0550	71	244.	117.3	2307.9	*	1	1410	171	80.	11.7	2300.2	*	1	2230	271	0.	.0	2297.0
1	0555	72	245.	117.7	2308.0	*	1	1415	172	78.	11.1	2300.2	*	1	2235	272	0.	.0	2297.0
1	0600	73	245.	117.7	2308.0	*	1	1420	173	76.	10.6	2300.1	*	1	2240	273	0.	.0	2297.0
1	0605	74	245.	117.6	2308.0	*	1	1425	174	74.	10.1	2300.0	*	1	2245	274	0.	.0	2297.0
1	0610	75	244.	117.4	2307.9	*	1	1430	175	72.	9.6	2300.0	*	1	2250	275	0.	.0	2297.0
1	0615	76	244.	117.0	2307.9	*	1	1435	176	70.	9.1	2299.9	*	1	2255	276	0.	.0	2297.0
1	0620	77	243.	116.4	2307.9	*	1	1440	177	68.	8.6	2299.8	*	1	2300	277	0.	.0	2297.0
1	0625	78	243.	115.7	2307.8	*	1	1445	178	66.	8.2	2299.8	*	1	2305	278	0.	.0	2297.0
1	0630	79	242.	114.9	2307.8	*	1	1450	179	65.	7.7	2299.7	*	1	2310	279	0.	.0	2297.0
1	0635	80	241.	114.0	2307.7	*	1	1455	180	63.	7.3	2299.6	*	1	2315	280	0.	.0	2297.0
1	0640	81	240.	113.0	2307.7	*	1	1500	181	62.	6.8	2299.6	*	1	2320	281	0.	.0	2297.0
1	0645	82	240.	112.0	2307.6	*	1	1505	182	60.	6.4	2299.5	*	1	2325	282	0.	.0	2297.0
1	0650	83	239.	110.9	2307.5	*	1	1510	183	59.	6.0	2299.4	*	1	2330	283	0.	.0	2297.0
1	0655	84	237.	109.7	2307.5	*	1	1515	184	57.	5.6	2299.4	*	1	2335	284	0.	.0	2297.0
1	0700	85	236.	108.4	2307.4	*	1	1520	185	56.	5.2	2299.3	*	1	2340	285	0.	.0	2297.0
1	0705	86	235.	107.2	2307.3	*	1	1525	186	55.	4.8	2299.3	*	1	2345	286	0.	.0	2297.0
1	0710	87	234.	105.8	2307.2	*	1	1530	187	53.	4.5	2299.2	*	1	2350	287	0.	.0	2297.0
1	0715	88	233.	104.5	2307.1	*	1	1535	188	52.	4.1	2299.2	*	1	2355	288	0.	.0	2297.0
1	0720	89	232.	103.1	2307.1	*	1	1540	189	51.	3.7	2299.1	*	2	0000	289	0.	.0	2297.0
1	0725	90	230.	101.7	2307.0	*	1	1545	190	49.	3.4	2299.1	*	2	0005	290	0.	.0	2297.0
1	0730	91	229.	100.3	2306.9	*	1	1550	191	48.	3.1	2299.0	*	2	0010	291	0.	.0	2297.0
1	0735	92	227.	98.9	2306.8	*	1	1555	192	46.	2.7	2298.9	*	2	0015	292	0.	.0	2297.0
1	0740	93	226.	97.5	2306.7	*	1	1600	193	43.	2.4	2298.8	*	2	0020	293	0.	.0	2297.0
1	0745	94	224.	96.0	2306.6	*	1	1605	194	40.	2.2	2298.7	*	2	0025	294	0.	.0	2297.0
1	0750	95	223.	94.6	2306.5	*	1	1610	195	38.	1.9	2298.6	*	2	0030	295	0.	.0	2297.0
1	0755	96	221.	93.1	2306.4	*	1	1615	196	36.	1.6	2298.5	*	2	0035	296	0.	.0	2297.0
1	0800	97	220.	91.7	2306.3	*	1	1620	197	33.	1.4	2298.4	*	2	0040	297	0.	.0	2297.0
1	0805	98	218.	90.2	2306.2	*	1	1625	198	31.	1.2	2298.3	*	2	0045	298	0.	.0	2297.0
1	0810	99	217.	88.8	2306.1	*	1	1630	199	30.	1.0	2298.2	*	2	0050	299	0.	.0	2297.0
1	0815	100	215.	87.3	2306.0	*	1	1635	200	28.	.8	2298.2	*	2	0055	300	0.	.0	2297.0
						*							*						

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)	(CFS)				
+ 245.	6.00		219.	89.	86.	86.
		(INCHES)	1.764	2.875	2.875	2.875
		(AC-FT)	108.	177.	177.	177.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
118.	6.00	92.	29.	28.	28.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
2307.97	6.00	2306.28	2300.64	2300.51	2300.51

CUMULATIVE AREA = 1.15 SQ MI

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HYDROGRAPH AT STATION DB1
PLAN 1, RATIO = .98

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.0	2297.0 *	1		0820	101	211.	83.1	2305.7 *	1		1640	201	19.	.3	2297.8
1		0005	2	0.	.0	2297.0 *	1		0825	102	209.	81.7	2305.6 *	1		1645	202	12.	.2	2297.5
1		0010	3	0.	.0	2297.0 *	1		0830	103	208.	80.3	2305.5 *	1		1650	203	7.	.1	2297.3
1		0015	4	0.	.0	2297.0 *	1		0835	104	206.	78.9	2305.4 *	1		1655	204	4.	.1	2297.2
1		0020	5	0.	.0	2297.0 *	1		0840	105	205.	77.5	2305.4 *	1		1700	205	3.	.0	2297.1
1		0025	6	1.	.0	2297.0 *	1		0845	106	203.	76.1	2305.3 *	1		1705	206	2.	.0	2297.1
1		0030	7	1.	.0	2297.1 *	1		0850	107	202.	74.7	2305.2 *	1		1710	207	1.	.0	2297.0
1		0035	8	3.	.0	2297.1 *	1		0855	108	200.	73.4	2305.1 *	1		1715	208	1.	.0	2297.0
1		0040	9	4.	.1	2297.2 *	1		0900	109	199.	72.0	2305.0 *	1		1720	209	0.	.0	2297.0
1		0045	10	5.	.1	2297.2 *	1		0905	110	197.	70.6	2304.9 *	1		1725	210	0.	.0	2297.0
1		0050	11	5.	.1	2297.2 *	1		0910	111	195.	69.3	2304.8 *	1		1730	211	0.	.0	2297.0
1		0055	12	5.	.1	2297.2 *	1		0915	112	194.	68.0	2304.7 *	1		1735	212	0.	.0	2297.0
1		0100	13	4.	.1	2297.2 *	1		0920	113	192.	66.6	2304.6 *	1		1740	213	0.	.0	2297.0
1		0105	14	4.	.1	2297.2 *	1		0925	114	190.	65.3	2304.5 *	1		1745	214	0.	.0	2297.0
1		0110	15	4.	.0	2297.1 *	1		0930	115	189.	64.0	2304.5 *	1		1750	215	0.	.0	2297.0
1		0115	16	4.	.1	2297.1 *	1		0935	116	187.	62.7	2304.4 *	1		1755	216	0.	.0	2297.0
1		0120	17	4.	.1	2297.2 *	1		0940	117	186.	61.4	2304.3 *	1		1800	217	0.	.0	2297.0
1		0125	18	5.	.1	2297.2 *	1		0945	118	184.	60.2	2304.2 *	1		1805	218	0.	.0	2297.0
1		0130	19	6.	.1	2297.3 *	1		0950	119	182.	58.9	2304.1 *	1		1810	219	0.	.0	2297.0
1		0135	20	8.	.1	2297.3 *	1		0955	120	181.	57.7	2304.0 *	1		1815	220	0.	.0	2297.0

1	0140	21	11.	.2	2297.5	*	1	1000	121	179.	56.4	2304.0	*	1	1820	221	0.	.0	2297.0
1	0145	22	15.	.2	2297.6	*	1	1005	122	178.	55.2	2303.9	*	1	1825	222	0.	.0	2297.0
1	0150	23	19.	.3	2297.8	*	1	1010	123	176.	54.0	2303.8	*	1	1830	223	0.	.0	2297.0
1	0155	24	22.	.3	2297.9	*	1	1015	124	175.	52.8	2303.7	*	1	1835	224	0.	.0	2297.0
1	0200	25	23.	.3	2298.0	*	1	1020	125	173.	51.6	2303.6	*	1	1840	225	0.	.0	2297.0
1	0205	26	24.	.3	2298.0	*	1	1025	126	172.	50.4	2303.6	*	1	1845	226	0.	.0	2297.0
1	0210	27	24.	.3	2298.0	*	1	1030	127	170.	49.2	2303.5	*	1	1850	227	0.	.0	2297.0
1	0215	28	24.	.4	2298.0	*	1	1035	128	169.	48.1	2303.4	*	1	1855	228	0.	.0	2297.0
1	0220	29	25.	.4	2298.0	*	1	1040	129	167.	46.9	2303.3	*	1	1900	229	0.	.0	2297.0
1	0225	30	25.	.5	2298.1	*	1	1045	130	166.	45.7	2303.2	*	1	1905	230	0.	.0	2297.0
1	0230	31	26.	.6	2298.1	*	1	1050	131	164.	44.6	2303.2	*	1	1910	231	0.	.0	2297.0
1	0235	32	28.	.8	2298.2	*	1	1055	132	163.	43.5	2303.1	*	1	1915	232	0.	.0	2297.0
1	0240	33	29.	.9	2298.2	*	1	1100	133	161.	42.4	2303.0	*	1	1920	233	0.	.0	2297.0
1	0245	34	31.	1.1	2298.3	*	1	1105	134	160.	41.3	2302.9	*	1	1925	234	0.	.0	2297.0
1	0250	35	33.	1.3	2298.4	*	1	1110	135	158.	40.2	2302.9	*	1	1930	235	0.	.0	2297.0
1	0255	36	35.	1.5	2298.5	*	1	1115	136	156.	39.1	2302.8	*	1	1935	236	0.	.0	2297.0
1	0300	37	37.	1.8	2298.5	*	1	1120	137	154.	38.0	2302.7	*	1	1940	237	0.	.0	2297.0
1	0305	38	39.	2.0	2298.6	*	1	1125	138	152.	37.0	2302.6	*	1	1945	238	0.	.0	2297.0
1	0310	39	42.	2.3	2298.7	*	1	1130	139	150.	35.9	2302.5	*	1	1950	239	0.	.0	2297.0
1	0315	40	46.	2.8	2298.9	*	1	1135	140	148.	34.9	2302.4	*	1	1955	240	0.	.0	2297.0
1	0320	41	50.	3.6	2299.1	*	1	1140	141	146.	33.9	2302.4	*	1	2000	241	0.	.0	2297.0
1	0325	42	55.	4.9	2299.3	*	1	1145	142	144.	32.9	2302.3	*	1	2005	242	0.	.0	2297.0
1	0330	43	63.	7.1	2299.6	*	1	1150	143	143.	31.9	2302.2	*	1	2010	243	0.	.0	2297.0
1	0335	44	74.	10.2	2300.1	*	1	1155	144	141.	30.9	2302.1	*	1	2015	244	0.	.0	2297.0
1	0340	45	90.	14.0	2300.5	*	1	1200	145	139.	30.0	2302.0	*	1	2020	245	0.	.0	2297.0
1	0345	46	107.	18.3	2300.9	*	1	1205	146	137.	29.0	2302.0	*	1	2025	246	0.	.0	2297.0
1	0350	47	121.	23.0	2301.4	*	1	1210	147	135.	28.1	2301.9	*	1	2030	247	0.	.0	2297.0
1	0355	48	135.	28.4	2301.9	*	1	1215	148	132.	27.2	2301.8	*	1	2035	248	0.	.0	2297.0
1	0400	49	147.	34.6	2302.4	*	1	1220	149	130.	26.3	2301.7	*	1	2040	249	0.	.0	2297.0
1	0405	50	160.	41.4	2303.0	*	1	1225	150	127.	25.4	2301.6	*	1	2045	250	0.	.0	2297.0
1	0410	51	169.	48.3	2303.4	*	1	1230	151	125.	24.5	2301.5	*	1	2050	251	0.	.0	2297.0
1	0415	52	177.	55.0	2303.9	*	1	1235	152	123.	23.7	2301.5	*	1	2055	252	0.	.0	2297.0
1	0420	53	185.	61.3	2304.3	*	1	1240	153	120.	22.8	2301.4	*	1	2100	253	0.	.0	2297.0
1	0425	54	192.	67.0	2304.7	*	1	1245	154	118.	22.0	2301.3	*	1	2105	254	0.	.0	2297.0
1	0430	55	199.	72.1	2305.0	*	1	1250	155	116.	21.2	2301.2	*	1	2110	255	0.	.0	2297.0
1	0435	56	204.	76.9	2305.3	*	1	1255	156	114.	20.4	2301.1	*	1	2115	256	0.	.0	2297.0
1	0440	57	209.	81.4	2305.6	*	1	1300	157	112.	19.6	2301.1	*	1	2120	257	0.	.0	2297.0
1	0445	58	213.	85.6	2305.9	*	1	1305	158	110.	18.9	2301.0	*	1	2125	258	0.	.0	2297.0
1	0450	59	217.	89.4	2306.1	*	1	1310	159	106.	18.1	2300.9	*	1	2130	259	0.	.0	2297.0
1	0455	60	221.	93.0	2306.4	*	1	1315	160	103.	17.4	2300.8	*	1	2135	260	0.	.0	2297.0
1	0500	61	225.	96.3	2306.6	*	1	1320	161	101.	16.7	2300.8	*	1	2140	261	0.	.0	2297.0
1	0505	62	228.	99.3	2306.8	*	1	1325	162	98.	16.0	2300.7	*	1	2145	262	0.	.0	2297.0
1	0510	63	231.	101.9	2307.0	*	1	1330	163	95.	15.3	2300.6	*	1	2150	263	0.	.0	2297.0
1	0515	64	233.	104.3	2307.1	*	1	1335	164	92.	14.7	2300.5	*	1	2155	264	0.	.0	2297.0
1	0520	65	235.	106.4	2307.3	*	1	1340	165	90.	14.1	2300.5	*	1	2200	265	0.	.0	2297.0
1	0525	66	236.	108.4	2307.4	*	1	1345	166	87.	13.5	2300.4	*	1	2205	266	0.	.0	2297.0
1	0530	67	238.	110.1	2307.5	*	1	1350	167	85.	12.9	2300.3	*	1	2210	267	0.	.0	2297.0
1	0535	68	239.	111.5	2307.6	*	1	1355	168	83.	12.3	2300.3	*	1	2215	268	0.	.0	2297.0
1	0540	69	240.	112.7	2307.7	*	1	1400	169	80.	11.7	2300.2	*	1	2220	269	0.	.0	2297.0
1	0545	70	241.	113.7	2307.7	*	1	1405	170	78.	11.2	2300.2	*	1	2225	270	0.	.0	2297.0
1	0550	71	242.	114.2	2307.8	*	1	1410	171	76.	10.7	2300.1	*	1	2230	271	0.	.0	2297.0
1	0555	72	242.	114.5	2307.8	*	1	1415	172	74.	10.1	2300.0	*	1	2235	272	0.	.0	2297.0
1	0600	73	242.	114.6	2307.8	*	1	1420	173	72.	9.6	2300.0	*	1	2240	273	0.	.0	2297.0
1	0605	74	242.	114.5	2307.8	*	1	1425	174	70.	9.1	2299.9	*	1	2245	274	0.	.0	2297.0
1	0610	75	242.	114.3	2307.8	*	1	1430	175	68.	8.7	2299.8	*	1	2250	275	0.	.0	2297.0
1	0615	76	241.	113.9	2307.7	*	1	1435	176	67.	8.2	2299.8	*	1	2255	276	0.	.0	2297.0
1	0620	77	241.	113.3	2307.7	*	1	1440	177	65.	7.8	2299.7	*	1	2300	277	0.	.0	2297.0
1	0625	78	240.	112.6	2307.6	*	1	1445	178	63.	7.3	2299.6	*	1	2305	278	0.	.0	2297.0
1	0630	79	239.	111.8	2307.6	*	1	1450	179	62.	6.9	2299.6	*	1	2310	279	0.	.0	2297.0
1	0635	80	239.	110.9	2307.5	*	1	1455	180	60.	6.5	2299.5	*	1	2315	280	0.	.0	2297.0
1	0640	81	238.	109.9	2307.5	*	1	1500	181	59.	6.0	2299.5	*	1	2320	281	0.	.0	2297.0
1	0645	82	237.	108.9	2307.4	*	1	1505	182	57.	5.6	2299.4	*	1	2325	282	0.	.0	2297.0
1	0650	83	236.	107.8	2307.3	*	1	1510	183	56.	5.3	2299.3	*	1	2330	283	0.	.0	2297.0
1	0655	84	235.	106.6	2307.3	*	1	1515	184	55.	4.9	2299.3	*	1	2335	284	0.	.0	2297.0
1	0700	85	234.	105.4	2307.2	*	1	1520	185	53.	4.5	2299.2	*	1	2340	285	0.	.0	2297.0
1	0705	86	233.	104.1	2307.1	*	1	1525	186	52.	4.1	2299.2	*	1	2345	286	0.	.0	2297.0
1	0710	87	231.	102.8	2307.0	*	1	1530	187	51.	3.8	2299.1	*	1	2350	287	0.	.0	2297.0
1	0715	88	230.	101.5	2306.9	*	1	1535	188	50.	3.4	2299.1	*	1	2355	288	0.	.0	2297.0
1	0720	89	229.	100.1	2306.9	*	1	1540	189	48.	3.1	2299.0	*	2	0000	289	0.	.0	2297.0
1	0725	90	227.	98.8	2306.8	*	1	1545	190	46.	2.8	2298.9	*	2	0005	290	0.	.0	2297.0
1	0730	91	226.	97.4	2306.7	*	1	1550	191	43.	2.5	2298.8	*	2	0010	291	0.	.0	2297.0
1	0735	92	224.	96.0	2306.6	*	1	1555	192	41.	2.2	2298.7	*	2	0015	292	0.	.0	2297.0
1	0740	93	223.	94.6	2306.5	*	1	1600	193	38.	1.9	2298.6	*	2	0020	293	0.	.0	2297.0
1	0745	94	221.	93.1	2306.4	*	1	1605	194	36.	1.7	2298.5	*	2	0025	294	0.	.0	2297.0
1	0750	95	220.	91.7	2306.3	*	1	1610	195	34.	1.4	2298.4	*	2	0030	295	0.	.0	2297.0
1	0755	96	218.	90.3	2306.2	*	1	1615	196	32.	1.2	2298.3	*	2	0035	296	0.	.0	2297.0
1	0800	97	217.	88.8	2306.1	*	1	1620	197	30.	1.0	2298.2	*	2	0040	297	0.	.0	2297.0
1	0805	98	215.	87.4	2306.0	*	1	1625	198	28.	.8	2298.2	*	2	0045	298	0.	.0	2297.0
1	0810	99	214.	86.0	2305.9	*	1	1630	199	26.	.6	2298.1	*	2	0050	299	0.	.0	2297.0
1	0815	100	212.	84.6	2305.8	*	1	1635	200	25.	.4	2298.0	*	2	0055	300	0.	.0	2297.0
						*							*						

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)	(CFS)				
+ 242.	6.00		216.	87.	84.	84.
		(INCHES)	1.741	2.810	2.810	2.810
		(AC-FT)	107.	173.	173.	173.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
115.	6.00	89.	28.	27.	27.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
2307.78	6.00	2306.11	2300.55	2300.42	2300.42

CUMULATIVE AREA = 1.15 SQ MI

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HYDROGRAPH AT STATION DB1
PLAN 1, RATIO = .95

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
							*								*							

1	0000	1	0.	.0	2297.0	1	0820	101	206.	78.8	2305.4	1	1640	201	4.	.1	2297.2
1	0005	2	0.	.0	2297.0	1	0825	102	205.	77.4	2305.3	1	1645	202	3.	.0	2297.1
1	0010	3	0.	.0	2297.0	1	0830	103	203.	76.0	2305.3	1	1650	203	2.	.0	2297.1
1	0015	4	0.	.0	2297.0	1	0835	104	202.	74.7	2305.2	1	1655	204	1.	.0	2297.0
1	0020	5	0.	.0	2297.0	1	0840	105	200.	73.3	2305.1	1	1700	205	1.	.0	2297.0
1	0025	6	1.	.0	2297.0	1	0845	106	199.	71.9	2305.0	1	1705	206	0.	.0	2297.0
1	0030	7	1.	.0	2297.1	1	0850	107	197.	70.6	2304.9	1	1710	207	0.	.0	2297.0
1	0035	8	3.	.0	2297.1	1	0855	108	195.	69.3	2304.8	1	1715	208	0.	.0	2297.0
1	0040	9	4.	.1	2297.2	1	0900	109	194.	67.9	2304.7	1	1720	209	0.	.0	2297.0
1	0045	10	5.	.1	2297.2	1	0905	110	192.	66.6	2304.6	1	1725	210	0.	.0	2297.0
1	0050	11	5.	.1	2297.2	1	0910	111	190.	65.3	2304.5	1	1730	211	0.	.0	2297.0
1	0055	12	4.	.1	2297.2	1	0915	112	189.	64.0	2304.5	1	1735	212	0.	.0	2297.0
1	0100	13	4.	.1	2297.2	1	0920	113	187.	62.7	2304.4	1	1740	213	0.	.0	2297.0
1	0105	14	3.	.0	2297.1	1	0925	114	185.	61.4	2304.3	1	1745	214	0.	.0	2297.0
1	0110	15	3.	.0	2297.1	1	0930	115	184.	60.2	2304.2	1	1750	215	0.	.0	2297.0
1	0115	16	3.	.0	2297.1	1	0935	116	182.	58.9	2304.1	1	1755	216	0.	.0	2297.0
1	0120	17	4.	.0	2297.1	1	0940	117	181.	57.6	2304.0	1	1800	217	0.	.0	2297.0
1	0125	18	4.	.1	2297.2	1	0945	118	179.	56.4	2304.0	1	1805	218	0.	.0	2297.0
1	0130	19	5.	.1	2297.2	1	0950	119	178.	55.2	2303.9	1	1810	219	0.	.0	2297.0
1	0135	20	8.	.1	2297.3	1	0955	120	176.	54.0	2303.8	1	1815	220	0.	.0	2297.0
1	0140	21	10.	.1	2297.4	1	1000	121	175.	52.8	2303.7	1	1820	221	0.	.0	2297.0
1	0145	22	14.	.2	2297.6	1	1005	122	173.	51.6	2303.6	1	1825	222	0.	.0	2297.0
1	0150	23	17.	.2	2297.7	1	1010	123	172.	50.4	2303.6	1	1830	223	0.	.0	2297.0
1	0155	24	20.	.3	2297.8	1	1015	124	170.	49.2	2303.5	1	1835	224	0.	.0	2297.0
1	0200	25	21.	.3	2297.9	1	1020	125	169.	48.0	2303.4	1	1840	225	0.	.0	2297.0
1	0205	26	22.	.3	2297.9	1	1025	126	167.	46.9	2303.3	1	1845	226	0.	.0	2297.0
1	0210	27	22.	.3	2297.9	1	1030	127	166.	45.7	2303.2	1	1850	227	0.	.0	2297.0
1	0215	28	23.	.3	2297.9	1	1035	128	164.	44.6	2303.2	1	1855	228	0.	.0	2297.0
1	0220	29	24.	.4	2298.0	1	1040	129	163.	43.5	2303.1	1	1900	229	0.	.0	2297.0
1	0225	30	25.	.4	2298.0	1	1045	130	161.	42.4	2303.0	1	1905	230	0.	.0	2297.0
1	0230	31	26.	.5	2298.1	1	1050	131	160.	41.2	2302.9	1	1910	231	0.	.0	2297.0
1	0235	32	27.	.7	2298.1	1	1055	132	158.	40.2	2302.9	1	1915	232	0.	.0	2297.0
1	0240	33	28.	.8	2298.2	1	1100	133	156.	39.1	2302.8	1	1920	233	0.	.0	2297.0
1	0245	34	30.	1.0	2298.2	1	1105	134	154.	38.0	2302.7	1	1925	234	0.	.0	2297.0
1	0250	35	31.	1.2	2298.3	1	1110	135	152.	37.0	2302.6	1	1930	235	0.	.0	2297.0
1	0255	36	33.	1.4	2298.4	1	1115	136	150.	35.9	2302.5	1	1935	236	0.	.0	2297.0
1	0300	37	35.	1.6	2298.5	1	1120	137	148.	34.9	2302.4	1	1940	237	0.	.0	2297.0
1	0305	38	37.	1.8	2298.5	1	1125	138	146.	33.9	2302.4	1	1945	238	0.	.0	2297.0
1	0310	39	39.	2.1	2298.6	1	1130	139	144.	32.9	2302.3	1	1950	239	0.	.0	2297.0
1	0315	40	43.	2.5	2298.8	1	1135	140	143.	31.9	2302.2	1	1955	240	0.	.0	2297.0
1	0320	41	49.	3.2	2299.0	1	1140	141	141.	30.9	2302.1	1	2000	241	0.	.0	2297.0
1	0325	42	53.	4.5	2299.2	1	1145	142	139.	29.9	2302.0	1	2005	242	0.	.0	2297.0
1	0330	43	61.	6.5	2299.5	1	1150	143	137.	29.0	2302.0	1	2010	243	0.	.0	2297.0
1	0335	44	71.	9.5	2300.0	1	1155	144	135.	28.1	2301.9	1	2015	244	0.	.0	2297.0
1	0340	45	86.	13.1	2300.4	1	1200	145	132.	27.1	2301.8	1	2020	245	0.	.0	2297.0
1	0345	46	103.	17.2	2300.8	1	1205	146	130.	26.2	2301.7	1	2025	246	0.	.0	2297.0
1	0350	47	117.	21.7	2301.3	1	1210	147	127.	25.4	2301.6	1	2030	247	0.	.0	2297.0
1	0355	48	131.	26.8	2301.8	1	1215	148	125.	24.5	2301.5	1	2035	248	0.	.0	2297.0
1	0400	49	144.	32.6	2302.3	1	1220	149	123.	23.6	2301.4	1	2040	249	0.	.0	2297.0
1	0405	50	156.	39.1	2302.8	1	1225	150	120.	22.8	2301.4	1	2045	250	0.	.0	2297.0
1	0410	51	166.	45.8	2303.3	1	1230	151	118.	22.0	2301.3	1	2050	251	0.	.0	2297.0
1	0415	52	174.	52.3	2303.7	1	1235	152	116.	21.2	2301.2	1	2055	252	0.	.0	2297.0
1	0420	53	181.	58.3	2304.1	1	1240	153	114.	20.4	2301.1	1	2100	253	0.	.0	2297.0
1	0425	54	188.	63.7	2304.4	1	1245	154	112.	19.6	2301.1	1	2105	254	0.	.0	2297.0
1	0430	55	195.	68.7	2304.8	1	1250	155	109.	18.8	2301.0	1	2110	255	0.	.0	2297.0
1	0435	56	200.	73.4	2305.1	1	1255	156	106.	18.1	2300.9	1	2115	256	0.	.0	2297.0
1	0440	57	205.	77.7	2305.4	1	1300	157	103.	17.4	2300.8	1	2120	257	0.	.0	2297.0
1	0445	58	209.	81.8	2305.6	1	1305	158	101.	16.7	2300.8	1	2125	258	0.	.0	2297.0
1	0450	59	213.	85.6	2305.9	1	1310	159	98.	16.0	2300.7	1	2130	259	0.	.0	2297.0
1	0455	60	217.	89.0	2306.1	1	1315	160	95.	15.3	2300.6	1	2135	260	0.	.0	2297.0
1	0500	61	220.	92.2	2306.3	1	1320	161	92.	14.7	2300.5	1	2140	261	0.	.0	2297.0
1	0505	62	223.	95.1	2306.5	1	1325	162	90.	14.1	2300.5	1	2145	262	0.	.0	2297.0
1	0510	63	226.	97.6	2306.7	1	1330	163	87.	13.4	2300.4	1	2150	263	0.	.0	2297.0
1	0515	64	228.	99.9	2306.8	1	1335	164	85.	12.9	2300.3	1	2155	264	0.	.0	2297.0
1	0520	65	231.	101.9	2307.0	1	1340	165	83.	12.3	2300.3	1	2200	265	0.	.0	2297.0
1	0525	66	232.	103.8	2307.1	1	1345	166	80.	11.7	2300.2	1	2205	266	0.	.0	2297.0
1	0530	67	234.	105.4	2307.2	1	1350	167	78.	11.2	2300.2	1	2210	267	0.	.0	2297.0
1	0535	68	235.	106.8	2307.3	1	1355	168	76.	10.6	2300.1	1	2215	268	0.	.0	2297.0
1	0540	69	236.	108.0	2307.4	1	1400	169	74.	10.1	2300.0	1	2220	269	0.	.0	2297.0
1	0545	70	237.	108.8	2307.4	1	1405	170	72.	9.6	2300.0	1	2225	270	0.	.0	2297.0
1	0550	71	237.	109.4	2307.4	1	1410	171	70.	9.1	2299.9	1	2230	271	0.	.0	2297.0
1	0555	72	237.	109.6	2307.5	1	1415	172	68.	8.7	2299.8	1	2235	272	0.	.0	2297.0
1	0600	73	238.	109.7	2307.5	1	1420	173	67.	8.2	2299.8	1	2240	273	0.	.0	2297.0
1	0605	74	237.	109.6	2307.5	1	1425	174	65.	7.7	2299.7	1	2245	274	0.	.0	2297.0
1	0610	75	237.	109.3	2307.4	1	1430	175	63.	7.3	2299.6	1	2250	275	0.	.0	2297.0
1	0615	76	237.	108.9	2307.4	1	1435	176	62.	6.9	2299.6	1	2255	276	0.	.0	2297.0
1	0620	77	236.	108.4	2307.4	1	1440	177	60.	6.5	2299.5	1	2300	277	0.	.0	2297.0
1	0625	78	236.	107.7	2307.3	1	1445	178	59.	6.0	2299.5	1	2305	278	0.	.0	2297.0
1	0630	79	235.	106.9	2307.3	1	1450	179	57.	5.6	2299.4	1	2310	279	0.	.0	2297.0
1	0635	80	234.	106.0	2307.2	1	1455	180	56.	5.3	2299.3	1	2315	280	0.	.0	2297.0
1	0640	81	233.	105.1	2307.2	1	1500	181	55.	4.9	2299.3	1	2320	281	0.	.0	2297.0
1	0645	82	233.	104.0	2307.1	1	1505	182	53.	4.5	2299.2	1	2325	282	0.	.0	2297.0
1	0650	83	232.	102.9	2307.0	1	1510	183	52.	4.1	2299.2	1	2330	283	0.	.0	2297.0
1	0655	84	230.	101.8	2307.0	1	1515	184	51.	3.8	2299.1	1	2335	284	0.	.0	2297.0
1	0700	85	229.	100.6	2306.9	1	1520	185	50.	3.4	2299.1	1	2340	285	0.	.0	2297.0
1	0705	86	228.	99.3	2306.8	1	1525	186	48.	3.1	2299.0	1	2345	286	0.	.0	2297.0
1	0710	87	227.	98.1	2306.7	1	1530	187	46.	2.8	2298.9	1	2350	287	0.	.0	2297.0
1	0715	88	225.	96.8	2306.6	1	1535	188	43.	2.5	2298.8	1	2355	288	0.	.0	2297.0
1	0720	89	224.	95.4	2306.5	1	1540	189	41.	2.2	2298.7	2	0000	289	0.	.0	2297.0
1	0725	90	222.	94.1	2306.5	1	1545	190	38.	1.9	2298.6	2	0005	290	0.	.0	2297.0
1	0730	91	221.	92.7	2306.4	1	1550	191	36.	1.7	2298.5	2	0010	291	0.	.0	2297.0
1	0735	92	219.	91.4	2306.3	1	1555	192	34.	1.4	2298.4	2	0015	292	0.	.0	2297.0
1	0740	93	218.	90.0	2306.2	1	1600	193	32.	1.2	2298.3	2	0020	293	0.	.0	2297.0
1	0745	94	216.	88.6	2306.1	1	1605	194	30.	1.0	2298.2	2	0025	294	0.	.0	2297.0
1	0750	95	215.	87.2	2306.0	1	1610	195	28.	.8	2298.2	2	0030	295	0.	.0	2297.0
1	0755	96	213.	85.8	2305.9	1	1615	196	26.	.6	2298.1	2	0035	296	0.	.0	2297.0
1	0800	97	212.	84.4	2305.8	1	1620	197	25.	.4	2298.0	2	0040	297	0.	.0	2297.0
1	0805	98	211.	83.0	2305.7	1	1625	198	19.	.3	2297.8	2	0045	298	0.	.0	2297.0
1	0810	99	209.	81.6	2305.6	1	1630	199	12.	.2	2297.5	2	0050	299	0.	.0	2297.0
1	0815	100	208.	80.2	2305.5	1	1635	200	7.	.1	2297.3	2	0055	300	0.	.0	2297.0

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)	(CFS)				
238.	6.00		211.	84.	81.	81.
		(INCHES)	1.705	2.708	2.708	2.708
		(AC-FT)	105.	166.	166.	166.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT) 110.	(HR) 6.00	85.	27.	26.	26.
PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.92-HR
+ (FEET) 2307.47	(HR) 6.00	2305.82	2300.40	2300.27	2300.27

CUMULATIVE AREA = 1.15 SQ MI

HYDROGRAPH AT STATION DB1
PLAN 1, RATIO = .93

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.0	2297.0
1		0005	2	0.	.0	2297.0
1		0010	3	0.	.0	2297.0
1		0015	4	0.	.0	2297.0
1		0020	5	0.	.0	2297.0
1		0025	6	0.	.0	2297.0
1		0030	7	1.	.0	2297.0
1		0035	8	2.	.0	2297.1
1		0040	9	3.	.0	2297.1
1		0045	10	4.	.1	2297.2
1		0050	11	4.	.1	2297.2
1		0055	12	4.	.1	2297.2
1		0100	13	3.	.0	2297.1
1		0105	14	3.	.0	2297.1
1		0110	15	3.	.0	2297.1
1		0115	16	3.	.0	2297.1
1		0120	17	3.	.0	2297.1
1		0125	18	4.	.1	2297.2
1		0130	19	5.	.1	2297.2
1		0135	20	7.	.1	2297.3
1		0140	21	9.	.1	2297.4
1		0145	22	13.	.2	2297.5
1		0150	23	16.	.2	2297.6
1		0155	24	18.	.3	2297.8
1		0200	25	20.	.3	2297.8
1		0205	26	20.	.3	2297.8
1		0210	27	20.	.3	2297.8
1		0215	28	21.	.3	2297.9
1		0220	29	23.	.3	2297.9
1		0225	30	24.	.4	2298.0
1		0230	31	25.	.5	2298.0
1		0235	32	26.	.6	2298.1
1		0240	33	27.	.7	2298.1
1		0245	34	28.	.8	2298.2
1		0250	35	30.	1.0	2298.2
1		0255	36	32.	1.2	2298.3
1		0300	37	33.	1.4	2298.4
1		0305	38	35.	1.6	2298.5
1		0310	39	37.	1.8	2298.6
1		0315	40	41.	2.2	2298.7
1		0320	41	47.	2.9	2299.0
1		0325	42	52.	4.1	2299.2
1		0330	43	59.	6.0	2299.5
1		0335	44	69.	8.8	2299.9
1		0340	45	83.	12.3	2300.3
1		0345	46	99.	16.2	2300.7
1		0350	47	114.	20.4	2301.1
1		0355	48	127.	25.2	2301.6
1		0400	49	140.	30.7	2302.1
1		0405	50	152.	36.9	2302.6
1		0410	51	163.	43.3	2303.1
1		0415	52	170.	49.4	2303.5
1		0420	53	177.	55.1	2303.9
1		0425	54	184.	60.3	2304.2
1		0430	55	190.	65.2	2304.5
1		0435	56	196.	69.6	2304.8
1		0440	57	201.	73.9	2305.1
1		0445	58	205.	77.8	2305.4
1		0450	59	209.	81.5	2305.6
1		0455	60	212.	84.8	2305.8
1		0500	61	216.	87.8	2306.0
1		0505	62	219.	90.6	2306.2
1		0510	63	221.	93.0	2306.4
1		0515	64	223.	95.2	2306.5
1		0520	65	226.	97.1	2306.7
1		0525	66	227.	98.9	2306.8
1		0530	67	229.	100.5	2306.9
1		0535	68	231.	101.9	2307.0
1		0540	69	232.	103.0	2307.0
1		0545	70	232.	103.8	2307.1
1		0550	71	233.	104.3	2307.1
1		0555	72	233.	104.5	2307.1
1		0600	73	233.	104.6	2307.1
1		0605	74	233.	104.5	2307.1
1		0610	75	233.	104.2	2307.1
1		0615	76	232.	103.8	2307.1
1		0620	77	232.	103.3	2307.1
1		0625	78	231.	102.6	2307.0
1		0630	79	230.	101.8	2307.0
1		0635	80	230.	100.9	2306.9
1		0640	81	229.	100.0	2306.8
1		0645	82	227.	99.0	2306.8
1		0650	83	226.	97.9	2306.7
1		0655	84	225.	96.8	2306.6
1		0700	85	224.	95.6	2306.6
1		0705	86	223.	94.4	2306.5
1		0710	87	221.	93.1	2306.4
1		0715	88	220.	91.8	2306.3
1		0720	89	219.	90.6	2306.2
1		0725	90	217.	89.2	2306.1
1		0820	101	201.	74.3	2305.1
1		0825	102	200.	73.0	2305.1
1		0830	103	198.	71.6	2305.0
1		0835	104	197.	70.3	2304.9
1		0840	105	195.	68.9	2304.8
1		0845	106	193.	67.6	2304.7
1		0850	107	192.	66.3	2304.6
1		0855	108	190.	65.0	2304.5
1		0900	109	188.	63.7	2304.4
1		0905	110	187.	62.4	2304.4
1		0910	111	185.	61.1	2304.3
1		0915	112	184.	59.9	2304.2
1		0920	113	182.	58.6	2304.1
1		0925	114	180.	57.4	2304.0
1		0930	115	179.	56.1	2303.9
1		0935	116	177.	54.9	2303.9
1		0940	117	176.	53.7	2303.8
1		0945	118	174.	52.5	2303.7
1		0950	119	173.	51.3	2303.6
1		0955	120	171.	50.1	2303.5
1		1000	121	170.	49.0	2303.5
1		1005	122	168.	47.8	2303.4
1		1010	123	167.	46.6	2303.3
1		1015	124	165.	45.5	2303.2
1		1020	125	164.	44.4	2303.2
1		1025	126	163.	43.2	2303.1
1		1030	127	161.	42.1	2303.0
1		1035	128	159.	41.0	2302.9
1		1040	129	157.	39.9	2302.8
1		1045	130	155.	38.9	2302.8
1		1050	131	153.	37.8	2302.7
1		1055	132	151.	36.7	2302.6
1		1100	133	150.	35.7	2302.5
1		1105	134	148.	34.7	2302.4
1		1110	135	146.	33.7	2302.3
1		1115	136	144.	32.7	2302.3
1		1120	137	142.	31.7	2302.2
1		1125	138	140.	30.7	2302.1
1		1130	139	139.	29.8	2302.0
1		1135	140	137.	28.8	2301.9
1		1140	141	134.	27.9	2301.9
1		1145	142	132.	27.0	2301.8
1		1150	143	129.	26.1	2301.7
1		1155	144	127.	25.2	2301.6
1		1200	145	124.	24.3	2301.5
1		1205	146	122.	23.5	2301.4
1		1210	147	120.	22.6	2301.4
1		1215	148	118.	21.8	2301.3
1		1220	149	115.	21.0	2301.2
1		1225	150	113.	20.2	2301.1
1		1230	151	111.	19.4	2301.0
1		1235	152	109.	18.7	2301.0
1		1240	153	106.	18.0	2300.9
1		1245	154	103.	17.2	2300.8
1		1250	155	100.	16.5	2300.7
1		1255	156	97.	15.9	2300.7
1		1300	157	94.	15.2	2300.6
1		1305	158	92.	14.6	2300.5
1		1310	159	89.	13.9	2300.5
1		1315	160	87.	13.3	2300.4
1		1320	161	84.	12.7	2300.3
1		1325	162	82.	12.2	2300.3
1		1330	163	80.	11.6	2300.2
1		1335	164	78.	11.1	2300.1
1		1340	165	75.	10.5	2300.1
1		1345	166	73.	10.0	2300.0
1		1350	167	71.	9.5	2300.0
1		1355	168	70.	9.0	2299.9
1		1400	169	68.	8.6	2299.8
1		1405	170	66.	8.1	2299.8
1		1410	171	65.	7.7	2299.7
1		1415	172	63.	7.2	2299.6
1		1420	173	62.	6.8	2299.6
1		1425	174	60.	6.4	2299.5
1		1430	175	59.	6.0	2299.4
1		1435	176	57.	5.6	2299.4
1		1440	177	56.	5.2	2299.3
1		1445	178	54.	4.8	2299.3
1		1450	179	53.	4.4	2299.2
1		1455	180	52.	4.1	2299.2
1		1500	181	50.	3.7	2299.1
1		1505	182	49.	3.4	2299.1
1		1510	183	48.	3.0	2299.0
1		1515	184	45.	2.7	2298.9
1		1520	185	43.	2.4	2298.8
1		1525	186	40.	2.1	2298.7
1		1530	187	38.	1.9	2298.6
1		1535	188	35.	1.6	2298.5
1		1540	189	33.	1.4	2298.4
1		1545	190	31.	1.1	2298.3
1		1640	201	1.	.0	2297.0
1		1645	202	1.	.0	2297.0
1		1650	203	0.	.0	2297.0
1		1655	204	0.	.0	2297.0
1		1700	205	0.	.0	2297.0
1		1705	206	0.	.0	2297.0
1		1710	207	0.	.0	2297.0
1		1715	208	0.	.0	2297.0
1		1720	209	0.	.0	2297.0
1		1725	210	0.	.0	2297.0
1		1730	211	0.	.0	2297.0
1		1735	212	0.	.0	2297.0
1		1740	213	0.	.0	2297.0
1		1745	214	0.	.0	2297.0
1		1750	215	0.	.0	2297.0
1		1755	216	0.	.0	2297.0
1		1800	217	0.	.0	2297.0
1		1805	218	0.	.0	2297.0
1		1810	219	0.	.0	2297.0
1		1815	220	0.	.0	2297.0
1		1820	221	0.	.0	2297.0
1		1825	222	0.	.0	2297.0
1		1830	223	0.	.0	2297.0
1		1835	224	0.	.0	2297.0
1		1840	225	0.	.0	2297.0
1		1845	226	0.	.0	2297.0
1		1850	227	0.	.0	2297.0
1		1855	228	0.	.0	2297.0
1		1900	229	0.	.0	2297.0
1		1905	230	0.	.0	2297.0
1		1910	231	0.	.0	2297.0
1		1915	232	0.	.0	2297.0
1		1920	233	0.	.0	2297.0
1		1925	234	0.	.0	2297.0
1		1930	235	0.	.0	2297.0
1		1935	236	0.	.0	2297.0
1		1940	237	0.	.0	2297.0
1		1945	238	0.	.0	2297.0
1		1950	239	0.	.0	2297.0
1		1955	240	0.	.0	2297.0
1		2000	241	0.	.0	2297.0
1		2005	242	0.	.0	2297.0
1		2010	243	0.	.0	2297.0
1		2015	244	0.	.0	2297.0
1		2020	245	0.	.0	2297.0
1		2025	246	0.	.0	2297.0
1		2030	247	0.	.0	2297.0
1		2035	248	0.	.0	2297.0
1		2040	249	0.	.0	2297.0
1		2045	250	0.	.0	2297.0
1		2050	251	0.	.0	2297.0
1		2055	252	0.	.0	2297.0
1		2100	253	0.	.0	2297.0
1		2105	254	0.	.0	2297.0
1		2110	255	0.	.0	2297.0
1		2115	256	0.	.0	2297.0
1		2120	257	0.	.0	2297.0
1		2125	258	0.	.0	2297.0
1		2130	259	0.	.0	2297.0
1		2135	260	0.	.0	2297.0
1		2140	261	0.	.0	2297.0
1		2145	262	0.	.0	2297.0
1		2150	263	0.	.0	2297.0
1		2155	264	0.	.0	2297.0
1		2200	265	0.	.0	2297.0
1		2205	266	0.	.0	2297.0
1		2210	267	0.	.0	2297.0
1		2215	268	0.	.0	2297.0
1		2220	269	0.	.0	2297.0
1		2225	270	0.	.0	2297.0
1		2230	271	0.	.0	2297.0
1		2235	272	0.	.0	2297.0
1		2240	273	0.	.0	2297.0
1		2245	274	0.	.0	2297.0
1		2250	275	0.	.0	2297.0
1		2255	276	0.	.0	2297.0
1		2300	277	0.	.0	2297.0
1		2305	278	0.	.0	2297.0
1		2310	279	0.	.0	2297.0
1		2315	280	0.	.0	2297.0
1		2320	281	0.	.0	2297.0
1		2325	282	0.	.0	2297.0
1		2330	283	0.	.0	2297.0
1		2335	284	0.	.0	2297.0
1		2340	285	0.	.0	2297.0
1		2345	286	0.	.0	2297.0
1		2350	287	0.	.0	2297.0
1		2355	288	0.	.0	2297.0
1		0000	289	0.	.0	2297.0
1		0005	290	0.	.0	2297.0

1	0730	91	216.	87.9	2306.0	*	1	1550	191	29.	.9	2298.2	*	2	0010	291	0.	.0	2297.0
1	0735	92	214.	86.6	2306.0	*	1	1555	192	28.	.7	2298.2	*	2	0015	292	0.	.0	2297.0
1	0740	93	213.	85.2	2305.9	*	1	1600	193	26.	.6	2298.1	*	2	0020	293	0.	.0	2297.0
1	0745	94	211.	83.9	2305.8	*	1	1605	194	24.	.4	2298.0	*	2	0025	294	0.	.0	2297.0
1	0750	95	210.	82.5	2305.7	*	1	1610	195	17.	.2	2297.7	*	2	0030	295	0.	.0	2297.0
1	0755	96	209.	81.1	2305.6	*	1	1615	196	10.	.1	2297.4	*	2	0035	296	0.	.0	2297.0
1	0800	97	207.	79.8	2305.5	*	1	1620	197	6.	.1	2297.3	*	2	0040	297	0.	.0	2297.0
1	0805	98	206.	78.4	2305.4	*	1	1625	198	4.	.1	2297.2	*	2	0045	298	0.	.0	2297.0
1	0810	99	204.	77.0	2305.3	*	1	1630	199	2.	.0	2297.1	*	2	0050	299	0.	.0	2297.0
1	0815	100	203.	75.7	2305.2	*	1	1635	200	1.	.0	2297.1	*	2	0055	300	0.	.0	2297.0
						*							*						

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)	(CFS)				
+ 233.	6.00		206.	81.	78.	78.
		(INCHES)	1.666	2.600	2.600	2.600
		(AC-FT)	102.	160.	160.	160.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
+ 105.	6.00	80.	25.	24.	24.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
+ 2307.14	6.00	2305.53	2300.24	2300.12	2300.12

CUMULATIVE AREA = 1.15 SQ MI

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HYDROGRAPH AT STATION DB1
PLAN 1, RATIO = .92

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.0	2297.0	*	1		0820	101	199.	72.5	2305.0	*	1		1640	201	0.	.0	2297.0
1		0005	2	0.	.0	2297.0	*	1		0825	102	198.	71.2	2304.9	*	1		1645	202	0.	.0	2297.0
1		0010	3	0.	.0	2297.0	*	1		0830	103	196.	69.9	2304.8	*	1		1650	203	0.	.0	2297.0
1		0015	4	0.	.0	2297.0	*	1		0835	104	194.	68.5	2304.8	*	1		1655	204	0.	.0	2297.0
1		0020	5	0.	.0	2297.0	*	1		0840	105	193.	67.2	2304.7	*	1		1700	205	0.	.0	2297.0
1		0025	6	0.	.0	2297.0	*	1		0845	106	191.	65.9	2304.6	*	1		1705	206	0.	.0	2297.0
1		0030	7	1.	.0	2297.0	*	1		0850	107	189.	64.6	2304.5	*	1		1710	207	0.	.0	2297.0
1		0035	8	2.	.0	2297.1	*	1		0855	108	188.	63.3	2304.4	*	1		1715	208	0.	.0	2297.0
1		0040	9	3.	.0	2297.1	*	1		0900	109	186.	62.0	2304.3	*	1		1720	209	0.	.0	2297.0
1		0045	10	4.	.1	2297.2	*	1		0905	110	185.	60.8	2304.2	*	1		1725	210	0.	.0	2297.0
1		0050	11	4.	.1	2297.2	*	1		0910	111	183.	59.5	2304.2	*	1		1730	211	0.	.0	2297.0
1		0055	12	3.	.0	2297.1	*	1		0915	112	181.	58.3	2304.1	*	1		1735	212	0.	.0	2297.0
1		0100	13	3.	.0	2297.1	*	1		0920	113	180.	57.0	2304.0	*	1		1740	213	0.	.0	2297.0
1		0105	14	3.	.0	2297.1	*	1		0925	114	178.	55.8	2303.9	*	1		1745	214	0.	.0	2297.0
1		0110	15	2.	.0	2297.1	*	1		0930	115	177.	54.6	2303.8	*	1		1750	215	0.	.0	2297.0
1		0115	16	3.	.0	2297.1	*	1		0935	116	175.	53.4	2303.8	*	1		1755	216	0.	.0	2297.0
1		0120	17	3.	.0	2297.1	*	1		0940	117	174.	52.2	2303.7	*	1		1800	217	0.	.0	2297.0
1		0125	18	4.	.1	2297.1	*	1		0945	118	172.	51.0	2303.6	*	1		1805	218	0.	.0	2297.0
1		0130	19	5.	.1	2297.2	*	1		0950	119	171.	49.8	2303.5	*	1		1810	219	0.	.0	2297.0
1		0135	20	7.	.1	2297.3	*	1		0955	120	169.	48.6	2303.4	*	1		1815	220	0.	.0	2297.0
1		0140	21	9.	.1	2297.4	*	1		1000	121	168.	47.5	2303.4	*	1		1820	221	0.	.0	2297.0
1		0145	22	12.	.2	2297.5	*	1		1005	122	166.	46.3	2303.3	*	1		1825	222	0.	.0	2297.0
1		0150	23	15.	.2	2297.6	*	1		1010	123	165.	45.2	2303.2	*	1		1830	223	0.	.0	2297.0
1		0155	24	17.	.2	2297.7	*	1		1015	124	164.	44.0	2303.1	*	1		1835	224	0.	.0	2297.0
1		0200	25	19.	.3	2297.8	*	1		1020	125	162.	42.9	2303.1	*	1		1840	225	0.	.0	2297.0
1		0205	26	19.	.3	2297.8	*	1		1025	126	161.	41.8	2303.0	*	1		1845	226	0.	.0	2297.0
1		0210	27	19.	.3	2297.8	*	1		1030	127	159.	40.7	2302.9	*	1		1850	227	0.	.0	2297.0
1		0215	28	20.	.3	2297.8	*	1		1035	128	157.	39.6	2302.8	*	1		1855	228	0.	.0	2297.0
1		0220	29	22.	.3	2297.9	*	1		1040	129	155.	38.5	2302.7	*	1		1900	229	0.	.0	2297.0
1		0225	30	24.	.4	2298.0	*	1		1045	130	153.	37.5	2302.6	*	1		1905	230	0.	.0	2297.0
1		0230	31	25.	.4	2298.0	*	1		1050	131	151.	36.4	2302.6	*	1		1910	231	0.	.0	2297.0
1		0235	32	26.	.5	2298.1	*	1		1055	132	149.	35.4	2302.5	*	1		1915	232	0.	.0	2297.0
1		0240	33	27.	.6	2298.1	*	1		1100	133	147.	34.4	2302.4	*	1		1920	233	0.	.0	2297.0
1		0245	34	28.	.8	2298.2	*	1		1105	134	145.	33.4	2302.3	*	1		1925	234	0.	.0	2297.0
1		0250	35	29.	.9	2298.2	*	1		1110	135	144.	32.4	2302.2	*	1		1930	235	0.	.0	2297.0
1		0255	36	31.	1.1	2298.3	*	1		1115	136	142.	31.4	2302.2	*	1		1935	236	0.	.0	2297.0
1		0300	37	33.	1.3	2298.4	*	1		1120	137	140.	30.4	2302.1	*	1		1940	237	0.	.0	2297.0
1		0305	38	34.	1.5	2298.4	*	1		1125	138	138.	29.5	2302.0	*	1		1945	238	0.	.0	2297.0
1		0310	39	36.	1.7	2298.5	*	1		1130	139	136.	28.5	2301.9	*	1		1950	239	0.	.0	2297.0
1		0315	40	40.	2.1	2298.7	*	1		1135	140	133.	27.6	2301.8	*	1		1955	240	0.	.0	2297.0
1		0320	41	46.	2.8	2298.9	*	1		1140	141	131.	26.7	2301.7	*	1		2000	241	0.	.0	2297.0
1		0325	42	51.	3.9	2299.1	*	1		1145	142	128.	25.8	2301.7	*	1		2005	242	0.	.0	2297.0
1		0330	43	58.	5.8	2299.4	*	1		1150	143	126.	24.9	2301.6	*	1		2010	243	0.	.0	2297.0
1		0335	44	68.	8.6	2299.8	*	1		1155	144	124.	24.1	2301.5	*	1		2015	244	0.	.0	2297.0
1		0340	45	81.	12.0	2300.2	*	1		1200	145	121.	23.2	2301.4	*	1		2020	245	0.	.0	2297.0
1		0345	46	97.	15.8	2300.7	*	1		1205	146	119.	22.4	2301.3	*	1		2025	246	0.	.0	2297.0
1		0350	47	113.	19.9	2301.1	*	1		1210	147	117.	21.6	2301.3	*	1		2030	247	0.	.0	2297.0
1		0355	48	125.	24.6	2301.5	*	1		1215	148	115.	20.8	2301.2	*	1		2035	248	0.	.0	2297.0
1		0400	49	139.	29.9	2302.0	*	1		1220	149	113.	20.0	2301.1	*	1		2040	249	0.	.0	2297.0
1		0405	50	150.	36.0	2302.5	*	1		1225	150	111.	19.2	2301.0	*	1		2045	250	0.	.0	2297.0
1		0410	51	161.	42.2	2303.0	*	1		1230	151	108.	18.5	2300.9	*	1		2050	251	0.	.0	2297.0
1		0415	52	169.	48.2	2303.4	*	1		1235	152	105.	17.7	2300.9	*	1		2055	252	0.	.0	2297.0
1		0420	53	176.	53.8	2303.8	*	1		1240	153	102.	17.0	2300.8	*	1		2100	253	0.	.0	2297.0
1		0425	54	182.	59.0	2304.1	*	1		1245	154	99.	16.3	2300.7	*	1		2105	254	0.	.0	2297.0
1		0430	55	188.	63.8	2304.4	*	1		1250	155	96.	15.7	2300.6	*	1		2110	255	0.	.0	2297.0
1		0435	56	194.	68.2	2304.7	*	1		1255	156	94.	15.0	2300.6	*	1		2115	256	0.	.0	2297.0
1		0440	57	199.	72.4	2305.0	*	1		1300	157	91.	14.4	2300.5	*	1		2120	257	0.	.0	2297.0
1		0445	58	203.	76.3	2305.3	*	1		1305	158	89.	13.8	2300.4	*	1		2125	258	0.	.0	2297.0
1		0450	59	207.	79.9	2305.5	*	1		1310	159	86.	13.2	2300.4	*	1		2130	259	0.	.0	2297.0
1		0455	60	211.	83.1	2305.7	*	1		1315	160	84.	12.6	2300.3	*	1		2135	260	0.	.0	2297.0
1		0500	61	214.	86.1	2305.9	*	1		1320	161	81.	12.0	2300.2	*	1		2140	261	0.	.0	2297.0
1		0505	62	217.	88.8	2306.1	*	1		1325	162	79.	11.4	2300.2	*	1		2145	262	0.	.0	2297.0
1		0510	63	219.	91.2	2306.3	*	1		1330	163	77.	10.9	2300.1	*	1		2150	263	0.	.0	2297.0
1		0515	64	221.	93.3	2306.4	*	1		1335	164	75.	10.4	2300.1	*	1		2155	264	0.	.0	2297.0
1		0520	65	224.	95.3	2306.5	*	1		1340	165	73.	9.9	2300.0	*	1		2200	265	0.	.0	2297.0
1		0525	66	225.	97.0	2306.7	*	1		1345	166	71.	9.4	2300.0	*	1		2205	266	0.	.0	2297.0
1		0530	67	227.	98.6	2306.8	*	1		1350	167	69.	8.9	2299.9	*	1		2210	267	0.	.0	2297.0
1		0535	68	228.	99.9	2306.8	*	1		1355	168	67.	8.4	2299.8	*	1		2215	268	0.	.0	2297.0
1		0540	69	230.	101.0	2306.9	*	1		1400	169	66.	8.0	2299.7	*	1		2220	269	0.	.0	2297.0

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0545	70	230.	101.8	2307.0	1		1405	170	64.	7.5	2299.7	1		2225	270	0.	.0	2297.0
1		0550	71	231.	102.2	2307.0	1		1410	171	63.	7.1	2299.6	1		2230	271	0.	.0	2297.0
1		0555	72	231.	102.5	2307.0	1		1415	172	61.	6.7	2299.5	1		2235	272	0.	.0	2297.0
1		0600	73	231.	102.5	2307.0	1		1420	173	60.	6.2	2299.5	1		2240	273	0.	.0	2297.0
1		0605	74	231.	102.4	2307.0	1		1425	174	58.	5.8	2299.4	1		2245	274	0.	.0	2297.0
1		0610	75	231.	102.2	2307.0	1		1430	175	57.	5.4	2299.4	1		2250	275	0.	.0	2297.0
1		0615	76	230.	101.8	2307.0	1		1435	176	55.	5.1	2299.3	1		2255	276	0.	.0	2297.0
1		0620	77	230.	101.2	2306.9	1		1440	177	54.	4.7	2299.2	1		2300	277	0.	.0	2297.0
1		0625	78	229.	100.5	2306.9	1		1445	178	53.	4.3	2299.2	1		2305	278	0.	.0	2297.0
1		0630	79	228.	99.8	2306.8	1		1450	179	51.	4.0	2299.1	1		2310	279	0.	.0	2297.0
1		0635	80	227.	98.9	2306.8	1		1455	180	50.	3.6	2299.1	1		2315	280	0.	.0	2297.0
1		0640	81	226.	98.0	2306.7	1		1500	181	49.	3.3	2299.0	1		2320	281	0.	.0	2297.0
1		0645	82	225.	97.0	2306.6	1		1505	182	47.	2.9	2299.0	1		2325	282	0.	.0	2297.0
1		0650	83	224.	95.9	2306.6	1		1510	183	44.	2.6	2298.9	1		2330	283	0.	.0	2297.0
1		0655	84	223.	94.8	2306.5	1		1515	184	42.	2.3	2298.7	1		2335	284	0.	.0	2297.0
1		0700	85	222.	93.6	2306.4	1		1520	185	39.	2.0	2298.6	1		2340	285	0.	.0	2297.0
1		0705	86	220.	92.4	2306.3	1		1525	186	37.	1.8	2298.5	1		2345	286	0.	.0	2297.0
1		0710	87	219.	91.2	2306.3	1		1530	187	35.	1.5	2298.4	1		2350	287	0.	.0	2297.0
1		0715	88	218.	89.9	2306.2	1		1535	188	33.	1.3	2298.4	1		2355	288	0.	.0	2297.0
1		0720	89	216.	88.6	2306.1	1		1540	189	31.	1.1	2298.3	2		0000	289	0.	.0	2297.0
1		0725	90	215.	87.3	2306.0	1		1545	190	29.	.9	2298.2	2		0005	290	0.	.0	2297.0
1		0730	91	214.	86.0	2305.9	1		1550	191	27.	.7	2298.1	2		0010	291	0.	.0	2297.0
1		0735	92	212.	84.7	2305.8	1		1555	192	26.	.5	2298.1	2		0015	292	0.	.0	2297.0
1		0740	93	211.	83.3	2305.7	1		1600	193	24.	.3	2298.0	2		0020	293	0.	.0	2297.0
1		0745	94	209.	82.0	2305.7	1		1605	194	14.	.2	2297.6	2		0025	294	0.	.0	2297.0
1		0750	95	208.	80.6	2305.6	1		1610	195	9.	.1	2297.4	2		0030	295	0.	.0	2297.0
1		0755	96	207.	79.3	2305.5	1		1615	196	5.	.1	2297.2	2		0035	296	0.	.0	2297.0
1		0800	97	205.	77.9	2305.4	1		1620	197	3.	.0	2297.1	2		0040	297	0.	.0	2297.0
1		0805	98	204.	76.6	2305.3	1		1625	198	2.	.0	2297.1	2		0045	298	0.	.0	2297.0
1		0810	99	202.	75.2	2305.2	1		1630	199	1.	.0	2297.1	2		0050	299	0.	.0	2297.0
1		0815	100	201.	73.9	2305.1	1		1635	200	1.	.0	2297.0	2		0055	300	0.	.0	2297.0

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)	(CFS)	205.	79.	76.	76.
231.	6.00	(INCHES)	1.650	2.557	2.557	2.557
		(AC-FT)	101.	157.	157.	157.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.92-HR
(AC-FT)	(HR)	78.	24.	23.	23.
103.	6.00				

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.92-HR
(FEET)	(HR)	2305.41	2300.18	2300.06	2300.06
2307.01	6.00				

CUMULATIVE AREA = 1.15 SQ MI

HYDROGRAPH AT STATION DB1
PLAN 1, RATIO = .91

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.0	2297.0	1		0820	101	198.	71.3	2304.9	1		1640	201	0.	.0	2297.0
1		0005	2	0.	.0	2297.0	1		0825	102	196.	70.0	2304.9	1		1645	202	0.	.0	2297.0
1		0010	3	0.	.0	2297.0	1		0830	103	195.	68.7	2304.8	1		1650	203	0.	.0	2297.0
1		0015	4	0.	.0	2297.0	1		0835	104	193.	67.4	2304.7	1		1655	204	0.	.0	2297.0
1		0020	5	0.	.0	2297.0	1		0840	105	191.	66.0	2304.6	1		1700	205	0.	.0	2297.0
1		0025	6	0.	.0	2297.0	1		0845	106	190.	64.7	2304.5	1		1705	206	0.	.0	2297.0
1		0030	7	1.	.0	2297.0	1		0850	107	188.	63.5	2304.4	1		1710	207	0.	.0	2297.0
1		0035	8	2.	.0	2297.1	1		0855	108	186.	62.2	2304.3	1		1715	208	0.	.0	2297.0
1		0040	9	3.	.0	2297.1	1		0900	109	185.	60.9	2304.3	1		1720	209	0.	.0	2297.0
1		0045	10	4.	.1	2297.2	1		0905	110	183.	59.6	2304.2	1		1725	210	0.	.0	2297.0
1		0050	11	4.	.1	2297.2	1		0910	111	182.	58.4	2304.1	1		1730	211	0.	.0	2297.0
1		0055	12	3.	.0	2297.1	1		0915	112	180.	57.2	2304.0	1		1735	212	0.	.0	2297.0
1		0100	13	3.	.0	2297.1	1		0920	113	179.	55.9	2303.9	1		1740	213	0.	.0	2297.0
1		0105	14	2.	.0	2297.1	1		0925	114	177.	54.7	2303.8	1		1745	214	0.	.0	2297.0
1		0110	15	2.	.0	2297.1	1		0930	115	175.	53.5	2303.8	1		1750	215	0.	.0	2297.0
1		0115	16	2.	.0	2297.1	1		0935	116	174.	52.3	2303.7	1		1755	216	0.	.0	2297.0
1		0120	17	3.	.0	2297.1	1		0940	117	172.	51.1	2303.6	1		1800	217	0.	.0	2297.0
1		0125	18	3.	.0	2297.1	1		0945	118	171.	49.9	2303.5	1		1805	218	0.	.0	2297.0
1		0130	19	4.	.1	2297.2	1		0950	119	170.	48.7	2303.4	1		1810	219	0.	.0	2297.0
1		0135	20	6.	.1	2297.3	1		0955	120	168.	47.6	2303.4	1		1815	220	0.	.0	2297.0
1		0140	21	9.	.1	2297.4	1		1000	121	167.	46.4	2303.3	1		1820	221	0.	.0	2297.0
1		0145	22	12.	.2	2297.5	1		1005	122	165.	45.3	2303.2	1		1825	222	0.	.0	2297.0
1		0150	23	15.	.2	2297.6	1		1010	123	164.	44.2	2303.1	1		1830	223	0.	.0	2297.0
1		0155	24	17.	.2	2297.7	1		1015	124	162.	43.0	2303.1	1		1835	224	0.	.0	2297.0
1		0200	25	18.	.3	2297.8	1		1020	125	161.	41.9	2303.0	1		1840	225	0.	.0	2297.0
1		0205	26	19.	.3	2297.8	1		1025	126	159.	40.8	2302.9	1		1845	226	0.	.0	2297.0
1		0210	27	19.	.3	2297.8	1		1030	127	157.	39.7	2302.8	1		1850	227	0.	.0	2297.0
1		0215	28	19.	.3	2297.8	1		1035	128	155.	38.7	2302.7	1		1855	228	0.	.0	2297.0
1		0220	29	21.	.3	2297.9	1		1040	129	153.	37.6	2302.7	1		1900	229	0.	.0	2297.0
1		0225	30	24.	.3	2298.0	1		1045	130	151.	36.6	2302.6	1		1905	230	0.	.0	2297.0
1		0230	31	25.	.4	2298.0	1		1050	131	149.	35.5	2302.5	1		1910	231	0.	.0	2297.0
1		0235	32	26.	.5	2298.1	1		1055	132	147.	34.5	2302.4	1		1915	232	0.	.0	2297.0
1		0240	33	27.	.6	2298.1	1		1100	133	146.	33.5	2302.3	1		1920	233	0.	.0	2297.0
1		0245	34	28.	.8	2298.2	1		1105	134	144.	32.5	2302.2	1		1925	234	0.	.0	2297.0
1		0250	35	29.	.9	2298.2	1		1110	135	142.	31.5	2302.2	1		1930	235	0.	.0	2297.0
1		0255	36	31.	1.1	2298.3	1		1115	136	140.	30.5	2302.1	1		1935	236	0.	.0	2297.0
1		0300	37	32.	1.2	2298.3	1		1120	137	138.	29.6	2302.0	1		1940	237	0.	.0	2297.0
1		0305	38	34.	1.4	2298.4	1		1125	138	136.	28.6	2301.9	1		1945	238	0.	.0	2297.0
1		0310	39	36.	1.7	2298.5	1		1130	139	134.	27.7	2301.8	1		1950	239	0.	.0	2297.0
1		0315	40	39.	2.0	2298.6	1		1135	140	131.	26.8	2301.8	1		1955	240	0.	.0	2297.0
1		0320	41	45.	2.7	2298.9	1		1140	141	129.	25.9	2301.7	1		2000	241	0.	.0	2297.0
1		0325	42	51.	3.8	2299.1	1		1145	142	126.	25.0	2301.6	1		2005	242	0.	.0	2297.0
1		0330	43	58.	5.7	2299.4	1		1150	143	124.	24.2	2301.5	1		2010	243	0.	.0	2297.0
1		0335	44	67.	8.4	2299.8	1		1155	144	122.	23.3	2301.4	1		2015	244	0.	.0	2297.0
1		0340	45	80.	11.7	2300.2	1		1200	145	119.	22.5	2301.3	1		2020	245	0.	.0	2297.0
1		0345	46	96.	15.5	2300.6	1		1205	146	117.	21.7	2301.3	1		2025	246	0.	.0	2297.0
1		0350	47	112.	19.6	2301.1	1		1210	147	115.	20.9	2301.2	1		2030	247	0.	.0	2297.0
1		0355	48	124.	24.1	2301.5	1		1215	148	113.	20.1	2301.1	1		2035	248	0.	.0	2297.0

1	0400	49	138.	29.4	2302.0	*	1	1220	149	111.	19.3	2301.0	*	1	2040	249	0.	.0	2297.0
1	0405	50	149.	35.3	2302.5	*	1	1225	150	108.	18.6	2301.0	*	1	2045	250	0.	.0	2297.0
1	0410	51	160.	41.5	2303.0	*	1	1230	151	105.	17.8	2300.9	*	1	2050	251	0.	.0	2297.0
1	0415	52	168.	47.5	2303.4	*	1	1235	152	102.	17.1	2300.8	*	1	2055	252	0.	.0	2297.0
1	0420	53	175.	53.0	2303.7	*	1	1240	153	99.	16.4	2300.7	*	1	2100	253	0.	.0	2297.0
1	0425	54	181.	58.1	2304.1	*	1	1245	154	97.	15.7	2300.7	*	1	2105	254	0.	.0	2297.0
1	0430	55	187.	62.9	2304.4	*	1	1250	155	94.	15.1	2300.6	*	1	2110	255	0.	.0	2297.0
1	0435	56	193.	67.3	2304.7	*	1	1255	156	91.	14.4	2300.5	*	1	2115	256	0.	.0	2297.0
1	0440	57	198.	71.4	2305.0	*	1	1300	157	89.	13.8	2300.4	*	1	2120	257	0.	.0	2297.0
1	0445	58	202.	75.2	2305.2	*	1	1305	158	86.	13.2	2300.4	*	1	2125	258	0.	.0	2297.0
1	0450	59	206.	78.8	2305.4	*	1	1310	159	84.	12.6	2300.3	*	1	2130	259	0.	.0	2297.0
1	0455	60	210.	82.0	2305.7	*	1	1315	160	82.	12.1	2300.3	*	1	2135	260	0.	.0	2297.0
1	0500	61	213.	85.0	2305.9	*	1	1320	161	79.	11.5	2300.2	*	1	2140	261	0.	.0	2297.0
1	0505	62	215.	87.6	2306.0	*	1	1325	162	77.	11.0	2300.1	*	1	2145	262	0.	.0	2297.0
1	0510	63	218.	90.0	2306.2	*	1	1330	163	75.	10.4	2300.1	*	1	2150	263	0.	.0	2297.0
1	0515	64	220.	92.1	2306.3	*	1	1335	164	73.	9.9	2300.0	*	1	2155	264	0.	.0	2297.0
1	0520	65	222.	94.0	2306.4	*	1	1340	165	71.	9.4	2300.0	*	1	2200	265	0.	.0	2297.0
1	0525	66	224.	95.7	2306.6	*	1	1345	166	69.	9.0	2299.9	*	1	2205	266	0.	.0	2297.0
1	0530	67	226.	97.3	2306.7	*	1	1350	167	68.	8.5	2299.8	*	1	2210	267	0.	.0	2297.0
1	0535	68	227.	98.6	2306.8	*	1	1355	168	66.	8.0	2299.7	*	1	2215	268	0.	.0	2297.0
1	0540	69	228.	99.6	2306.8	*	1	1400	169	64.	7.6	2299.7	*	1	2220	269	0.	.0	2297.0
1	0545	70	229.	100.4	2306.9	*	1	1405	170	63.	7.1	2299.6	*	1	2225	270	0.	.0	2297.0
1	0550	71	229.	100.8	2306.9	*	1	1410	171	61.	6.7	2299.6	*	1	2230	271	0.	.0	2297.0
1	0555	72	230.	101.1	2306.9	*	1	1415	172	60.	6.3	2299.5	*	1	2235	272	0.	.0	2297.0
1	0600	73	230.	101.1	2306.9	*	1	1420	173	58.	5.9	2299.4	*	1	2240	273	0.	.0	2297.0
1	0605	74	230.	101.0	2306.9	*	1	1425	174	57.	5.5	2299.4	*	1	2245	274	0.	.0	2297.0
1	0610	75	229.	100.8	2306.9	*	1	1430	175	55.	5.1	2299.3	*	1	2250	275	0.	.0	2297.0
1	0615	76	229.	100.4	2306.9	*	1	1435	176	54.	4.7	2299.3	*	1	2255	276	0.	.0	2297.0
1	0620	77	228.	99.8	2306.8	*	1	1440	177	53.	4.4	2299.2	*	1	2300	277	0.	.0	2297.0
1	0625	78	228.	99.2	2306.8	*	1	1445	178	52.	4.0	2299.1	*	1	2305	278	0.	.0	2297.0
1	0630	79	227.	98.4	2306.7	*	1	1450	179	50.	3.6	2299.1	*	1	2310	279	0.	.0	2297.0
1	0635	80	226.	97.5	2306.7	*	1	1455	180	49.	3.3	2299.0	*	1	2315	280	0.	.0	2297.0
1	0640	81	225.	96.6	2306.6	*	1	1500	181	48.	3.0	2299.0	*	1	2320	281	0.	.0	2297.0
1	0645	82	224.	95.6	2306.6	*	1	1505	182	45.	2.7	2298.9	*	1	2325	282	0.	.0	2297.0
1	0650	83	223.	94.5	2306.5	*	1	1510	183	42.	2.4	2298.8	*	1	2330	283	0.	.0	2297.0
1	0655	84	222.	93.4	2306.4	*	1	1515	184	40.	2.1	2298.6	*	1	2335	284	0.	.0	2297.0
1	0700	85	220.	92.3	2306.3	*	1	1520	185	37.	1.8	2298.6	*	1	2340	285	0.	.0	2297.0
1	0705	86	219.	91.1	2306.3	*	1	1525	186	35.	1.6	2298.5	*	1	2345	286	0.	.0	2297.0
1	0710	87	218.	89.8	2306.2	*	1	1530	187	33.	1.3	2298.4	*	1	2350	287	0.	.0	2297.0
1	0715	88	216.	88.6	2306.1	*	1	1535	188	31.	1.1	2298.3	*	1	2355	288	0.	.0	2297.0
1	0720	89	215.	87.3	2306.0	*	1	1540	189	29.	.9	2298.2	*	2	0000	289	0.	.0	2297.0
1	0725	90	214.	86.0	2305.9	*	1	1545	190	27.	.7	2298.1	*	2	0005	290	0.	.0	2297.0
1	0730	91	212.	84.7	2305.8	*	1	1550	191	26.	.5	2298.1	*	2	0010	291	0.	.0	2297.0
1	0735	92	211.	83.4	2305.7	*	1	1555	192	24.	.4	2298.0	*	2	0015	292	0.	.0	2297.0
1	0740	93	210.	82.1	2305.7	*	1	1600	193	15.	.2	2297.6	*	2	0020	293	0.	.0	2297.0
1	0745	94	208.	80.7	2305.6	*	1	1605	194	9.	.1	2297.4	*	2	0025	294	0.	.0	2297.0
1	0750	95	207.	79.4	2305.5	*	1	1610	195	6.	.1	2297.2	*	2	0030	295	0.	.0	2297.0
1	0755	96	205.	78.0	2305.4	*	1	1615	196	3.	.0	2297.1	*	2	0035	296	0.	.0	2297.0
1	0800	97	204.	76.7	2305.3	*	1	1620	197	2.	.0	2297.1	*	2	0040	297	0.	.0	2297.0
1	0805	98	202.	75.3	2305.2	*	1	1625	198	1.	.0	2297.1	*	2	0045	298	0.	.0	2297.0
1	0810	99	201.	74.0	2305.1	*	1	1630	199	1.	.0	2297.0	*	2	0050	299	0.	.0	2297.0
1	0815	100	200.	72.7	2305.0	*	1	1635	200	0.	.0	2297.0	*	2	0055	300	0.	.0	2297.0
						*							*						

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PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	24.92-HR
+ (CFS)	(HR)	(CFS)				
+ 230.	6.00		203.	78.	75.	75.
		(INCHES)	1.639	2.528	2.528	2.528
		(AC-FT)	101.	155.	155.	155.

PEAK STORAGE	TIME	6-HR	MAXIMUM AVERAGE STORAGE 24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
101.	6.00	77.	24.	23.	23.

PEAK STAGE	TIME	6-HR	MAXIMUM AVERAGE STAGE 24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
2306.92	6.00	2305.33	2300.14	2300.03	2300.03

CUMULATIVE AREA = 1.15 SQ MI

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

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1 .99	RATIO 2 .98	RATIO 3 .95	RATIO 4 .93	RATIO 5 .92	RATIO 6 .91
HYDROGRAPH AT										
+	U190	.37	1	FLOW	196.	191.	182.	173.	170.	167.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT										
+	U170	.25	1	FLOW	152.	148.	141.	135.	132.	130.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00
2 COMBINED AT										
+	CP1	.62	1	FLOW	348.	339.	323.	308.	302.	297.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00
DIVERSION TO										
+	CP1S	.62	1	FLOW	148.	143.	136.	129.	127.	125.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT										
+	CP1E	.62	1	FLOW	200.	196.	187.	179.	175.	172.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00
ROUTED TO										
+	RCP1E	.62	1	FLOW	199.	194.	185.	177.	172.	169.
				TIME	4.08	4.08	4.08	4.08	4.08	4.17
HYDROGRAPH AT										
+	U150	.13	1	FLOW	104.	102.	97.	93.	91.	90.

				TIME	3.75	3.75	3.75	3.75	3.75	3.75
DIVERSION TO +	U150E	.13	1	FLOW	60.	59.	56.	53.	52.	52.
				TIME	3.75	3.75	3.75	3.75	3.58	3.58
HYDROGRAPH AT +	U150S	.13	1	FLOW	44.	43.	41.	40.	39.	38.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO +	RU150	.13	1	FLOW	43.	42.	40.	38.	37.	36.
				TIME	3.83	3.83	3.92	3.92	3.83	3.92
HYDROGRAPH AT +	U155	.13	1	FLOW	104.	102.	97.	93.	91.	90.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
3 COMBINED AT +	CP2	.88	1	FLOW	302.	294.	277.	258.	250.	244.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00
DIVERSION TO +	CP2E	.88	1	FLOW	174.	170.	161.	152.	148.	145.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT +	CP2S	.88	1	FLOW	128.	124.	116.	106.	102.	99.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00
ROUTED TO +	RCP2S	.88	1	FLOW	126.	122.	115.	105.	100.	97.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17
HYDROGRAPH AT +	CP1S	.00	1	FLOW	148.	143.	136.	129.	127.	125.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT +	U210	.07	1	FLOW	60.	58.	56.	53.	52.	52.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT +	CP3	.07	1	FLOW	192.	186.	181.	178.	177.	177.
				TIME	3.92	3.92	3.75	3.75	3.75	3.75
DIVERSION TO +	CP3E	.07	1	FLOW	89.	85.	83.	82.	81.	81.
				TIME	3.92	3.92	3.75	3.75	3.75	3.50
HYDROGRAPH AT +	CP3S	.07	1	FLOW	103.	101.	98.	96.	96.	96.
				TIME	3.92	3.92	3.75	3.75	3.75	3.75
HYDROGRAPH AT +	U250	.07	1	FLOW	57.	56.	53.	51.	50.	49.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT +	CP4	.14	1	FLOW	158.	155.	151.	147.	146.	145.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
DIVERSION TO +	CP4E	.14	1	FLOW	79.	77.	75.	73.	73.	72.
				TIME	3.75	3.75	3.75	3.75	3.75	3.58
HYDROGRAPH AT +	CP4S	.14	1	FLOW	79.	78.	76.	74.	73.	73.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO +	RCP4S	.14	1	FLOW	79.	78.	76.	74.	73.	72.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT +	U230	.14	1	FLOW	110.	107.	102.	98.	96.	94.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT +	U330	.01	1	FLOW	15.	15.	14.	14.	13.	13.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
3 COMBINED AT +	CP5	.30	1	FLOW	199.	194.	187.	179.	175.	173.
				TIME	3.75	3.75	3.75	3.75	3.75	3.83
HYDROGRAPH AT +	CP3E	.00	1	FLOW	89.	85.	83.	82.	81.	81.
				TIME	3.92	3.92	3.75	3.75	3.75	3.50
HYDROGRAPH AT +	U370	.02	1	FLOW	18.	18.	17.	16.	16.	16.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT +	CP6	.02	1	FLOW	101.	100.	99.	97.	97.	97.
				TIME	3.67	3.67	3.67	3.58	3.58	3.58
DIVERSION TO +	CP6E	.02	1	FLOW	46.	45.	45.	44.	44.	44.
				TIME	3.67	3.67	3.67	3.58	3.58	3.33
HYDROGRAPH AT +	CP6S	.02	1	FLOW	55.	55.	54.	53.	53.	53.
				TIME	3.67	3.67	3.67	3.58	3.58	3.58
HYDROGRAPH AT +	CP4E	.00	1	FLOW	79.	77.	75.	73.	73.	72.
				TIME	3.75	3.75	3.75	3.75	3.75	3.58
HYDROGRAPH AT +	U350	.02	1	FLOW	19.	18.	17.	17.	16.	16.

				TIME	3.58	3.58	3.58	3.58	3.58	3.58
3 COMBINED AT +	CP7	.03	1	FLOW	150.	148.	144.	142.	141.	141.
				TIME	3.67	3.67	3.67	3.58	3.58	3.58
DIVERSION TO +	CP7E	.03	1	FLOW	75.	74.	72.	71.	70.	70.
				TIME	3.67	3.67	3.67	3.58	3.58	3.58
HYDROGRAPH AT +	CP7S	.03	1	FLOW	75.	74.	72.	71.	71.	71.
				TIME	3.67	3.67	3.67	3.58	3.58	3.58
HYDROGRAPH AT +	U305	.01	1	FLOW	11.	11.	11.	10.	10.	10.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT +	CP8	.04	1	FLOW	85.	84.	82.	81.	81.	81.
				TIME	3.67	3.67	3.58	3.58	3.58	3.58
DIVERSION TO +	CP8E	.04	1	FLOW	40.	39.	39.	38.	38.	38.
				TIME	3.67	3.67	3.58	3.58	3.50	3.50
HYDROGRAPH AT +	CP8S	.04	1	FLOW	45.	45.	43.	43.	43.	43.
				TIME	3.67	3.67	3.58	3.58	3.58	3.58
HYDROGRAPH AT +	U310	.01	1	FLOW	13.	12.	12.	11.	11.	11.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
3 COMBINED AT +	CP9	.35	1	FLOW	251.	246.	236.	225.	219.	215.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
DIVERSION TO +	CP9S	.35	1	FLOW	160.	157.	152.	145.	141.	139.
				TIME	3.75	3.75	3.75	3.75	3.75	3.67
HYDROGRAPH AT +	CP9E	.35	1	FLOW	91.	89.	84.	80.	78.	76.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO +	RCP9E	.35	1	FLOW	89.	86.	81.	76.	74.	72.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT +	CP6E	.00	1	FLOW	46.	45.	45.	44.	44.	44.
				TIME	3.67	3.67	3.67	3.58	3.58	3.33
ROUTED TO +	RCP6E	.00	1	FLOW	47.	47.	48.	48.	49.	49.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT +	CP7E	.00	1	FLOW	75.	74.	72.	71.	70.	70.
				TIME	3.67	3.67	3.67	3.58	3.58	3.58
ROUTED TO +	RCP7E	.00	1	FLOW	85.	85.	85.	81.	80.	78.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT +	CP8E	.00	1	FLOW	40.	39.	39.	38.	38.	38.
				TIME	3.67	3.67	3.58	3.58	3.50	3.50
ROUTED TO +	RCP8E	.00	1	FLOW	40.	39.	39.	38.	38.	38.
				TIME	3.67	3.67	3.58	3.58	3.58	3.58
5 COMBINED AT +	DUMMY	1.23	1	FLOW	340.	326.	304.	275.	267.	262.
				TIME	4.08	4.08	4.08	4.17	4.17	4.17
HYDROGRAPH AT +	U410	.20	1	FLOW	169.	165.	158.	152.	149.	147.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT +	CP10	1.43	1	FLOW	452.	437.	410.	366.	359.	351.
				TIME	4.08	4.08	4.08	3.83	3.83	3.92
DIVERSION TO +	CP10S	1.43	1	FLOW	257.	248.	234.	210.	206.	202.
				TIME	4.08	4.08	4.08	3.83	3.83	3.92
HYDROGRAPH AT +	CP10E	1.43	1	FLOW	195.	189.	176.	157.	153.	149.
				TIME	4.08	4.08	4.08	3.83	3.83	3.92
ROUTED TO +	RCP10E	1.43	1	FLOW	188.	182.	171.	155.	152.	147.
				TIME	4.25	4.25	4.25	4.00	4.00	4.00
HYDROGRAPH AT +	U440	.05	1	FLOW	38.	37.	36.	34.	33.	33.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
DIVERSION TO +	U440E	.05	1	FLOW	21.	20.	19.	18.	18.	18.
				TIME	3.75	3.75	3.75	3.50	3.58	3.58
HYDROGRAPH AT +	U440S	.05	1	FLOW	17.	17.	17.	16.	15.	15.
				TIME	3.67	3.75	3.75	3.75	3.75	3.75
ROUTED TO +	RU440S	.05	1	FLOW	17.	17.	17.	15.	14.	14.

				TIME	3.83	3.83	3.83	3.83	3.83	3.92
HYDROGRAPH AT	U470	.20	1	FLOW	132.	129.	123.	117.	114.	113.
+				TIME	3.83	3.83	3.83	3.83	3.83	3.83
3 COMBINED AT	CP11	1.69	1	FLOW	298.	292.	278.	265.	259.	252.
+				TIME	4.00	4.00	4.00	4.00	4.00	4.00
DIVERSION TO	CP11S	1.69	1	FLOW	127.	125.	118.	114.	112.	108.
+				TIME	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT	CP11E	1.69	1	FLOW	171.	167.	160.	151.	147.	144.
+				TIME	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT	U530	.01	1	FLOW	15.	14.	14.	13.	13.	13.
+				TIME	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT	CP12	1.70	1	FLOW	175.	171.	164.	154.	151.	148.
+				TIME	4.00	4.00	4.00	4.00	4.00	4.00
DIVERSION TO	CP12S	1.70	1	FLOW	80.	78.	75.	71.	70.	68.
+				TIME	4.00	4.00	4.00	4.00	4.00	3.92
HYDROGRAPH AT	CP12E	1.70	1	FLOW	95.	93.	89.	83.	81.	80.
+				TIME	4.00	4.00	4.00	4.00	4.00	4.00
ROUTED TO	RCP12E	1.70	1	FLOW	95.	92.	88.	82.	78.	74.
+				TIME	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT	U130	.06	1	FLOW	54.	53.	51.	49.	48.	47.
+				TIME	3.67	3.67	3.67	3.67	3.67	3.67
DIVERSION TO	U130E	.06	1	FLOW	29.	28.	27.	26.	26.	26.
+				TIME	3.67	3.67	3.67	3.50	3.50	3.50
HYDROGRAPH AT	U130S	.06	1	FLOW	25.	25.	24.	23.	22.	21.
+				TIME	3.58	3.67	3.67	3.67	3.67	3.67
ROUTED TO	RU130S	.06	1	FLOW	25.	25.	24.	22.	21.	21.
+				TIME	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT	U550	.05	1	FLOW	55.	53.	51.	49.	48.	48.
+				TIME	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT	CP13	.11	1	FLOW	76.	74.	70.	67.	65.	64.
+				TIME	3.67	3.67	3.75	3.75	3.75	3.75
DIVERSION TO	CP13E	.11	1	FLOW	44.	43.	41.	38.	37.	37.
+				TIME	3.67	3.67	3.75	3.75	3.75	3.58
HYDROGRAPH AT	CP13S	.11	1	FLOW	32.	31.	29.	29.	28.	27.
+				TIME	3.67	3.67	3.75	3.75	3.75	3.75
ROUTED TO	RCP13S	.11	1	FLOW	32.	31.	29.	29.	28.	26.
+				TIME	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT	U440E	.00	1	FLOW	21.	20.	19.	18.	18.	18.
+				TIME	3.75	3.75	3.75	3.50	3.58	3.58
ROUTED TO	RU440E	.00	1	FLOW	21.	21.	21.	21.	21.	21.
+				TIME	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT	U570	.18	1	FLOW	170.	167.	161.	155.	152.	151.
+				TIME	3.83	3.83	3.83	3.83	3.83	3.83
4 COMBINED AT	CP14	1.99	1	FLOW	269.	250.	224.	213.	207.	202.
+				TIME	4.00	4.00	4.08	4.08	4.08	4.08
DIVERSION TO	CP14S	1.99	1	FLOW	30.	30.	30.	30.	30.	30.
+				TIME	3.33	3.33	3.33	3.33	3.42	3.42
HYDROGRAPH AT	CP14E	1.99	1	FLOW	239.	220.	194.	183.	177.	172.
+				TIME	4.00	4.00	4.08	4.08	4.08	4.08
ROUTED TO	RCP14E	1.99	1	FLOW	232.	217.	184.	172.	168.	164.
+				TIME	4.17	4.17	4.25	4.25	4.25	4.25
HYDROGRAPH AT	U610	.05	1	FLOW	40.	39.	38.	36.	35.	35.
+				TIME	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT	CP15	2.03	1	FLOW	250.	235.	198.	186.	181.	177.
+				TIME	4.17	4.17	4.25	4.25	4.25	4.25
DIVERSION TO	CP15S	2.03	1	FLOW	0.	0.	0.	0.	0.	0.
+										

				TIME	.00	.00	.00	.00	.00	.00
HYDROGRAPH AT										
+	CP15E	2.03	1	FLOW	250.	235.	198.	186.	181.	177.
				TIME	4.17	4.17	4.25	4.25	4.25	4.25
HYDROGRAPH AT										
+	CP9S	.00	1	FLOW	160.	157.	152.	145.	141.	139.
				TIME	3.75	3.75	3.75	3.75	3.75	3.67
ROUTED TO										
+	RCP9S	.00	1	FLOW	164.	162.	159.	155.	152.	150.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT										
+	CP10S	.00	1	FLOW	257.	248.	234.	210.	206.	202.
				TIME	4.08	4.08	4.08	3.83	3.83	3.92
ROUTED TO										
+	RCP10S	.00	1	FLOW	248.	236.	223.	209.	208.	207.
				TIME	4.25	4.25	4.33	4.00	3.83	3.83
HYDROGRAPH AT										
+	U280	.27	1	FLOW	197.	192.	184.	176.	173.	170.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83
3 COMBINED AT										
+	CP16	.27	1	FLOW	558.	549.	536.	525.	519.	514.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO										
+	RCP16	.27	1	FLOW	563.	555.	541.	522.	514.	510.
				TIME	4.08	4.08	4.08	4.08	4.17	4.17
HYDROGRAPH AT										
+	CP11S	.00	1	FLOW	127.	125.	118.	114.	112.	108.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00
ROUTED TO										
+	RCP11S	.00	1	FLOW	127.	123.	116.	112.	111.	111.
				TIME	4.33	4.33	4.33	4.08	4.08	4.17
HYDROGRAPH AT										
+	CP12S	.00	1	FLOW	80.	78.	75.	71.	70.	68.
				TIME	4.00	4.00	4.00	4.00	4.00	3.92
ROUTED TO										
+	RCP12S	.00	1	FLOW	89.	88.	86.	79.	80.	80.
				TIME	4.25	4.25	4.25	4.33	4.33	4.33
HYDROGRAPH AT										
+	CP14S	.00	1	FLOW	30.	30.	30.	30.	30.	30.
				TIME	3.33	3.33	3.33	3.33	3.42	3.42
ROUTED TO										
+	RCP14S	.00	1	FLOW	31.	31.	31.	32.	32.	32.
				TIME	3.50	3.50	3.50	3.50	3.50	3.50
HYDROGRAPH AT										
+	U510	.49	1	FLOW	324.	316.	303.	290.	285.	281.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00
5 COMBINED AT										
+	CP17	.76	1	FLOW	1049.	1030.	997.	957.	942.	931.
				TIME	4.17	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT										
+	U650	.01	1	FLOW	13.	12.	12.	11.	11.	11.
				TIME	3.50	3.50	3.50	3.50	3.50	3.50
2 COMBINED AT										
+	CP18	.77	1	FLOW	1051.	1032.	999.	959.	943.	933.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT										
+	U630	.07	1	FLOW	82.	80.	77.	74.	73.	72.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT										
+	CP19	.84	1	FLOW	1083.	1064.	1030.	989.	973.	961.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT										
+	U620	.05	1	FLOW	53.	51.	50.	48.	47.	46.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT										
+	CP20	.89	1	FLOW	1104.	1084.	1050.	1008.	991.	980.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08
ROUTED TO										
+	RCP20	.89	1	FLOW	1097.	1077.	1039.	995.	980.	971.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17
HYDROGRAPH AT										
+	CP15S	.00	1	FLOW	0.	0.	0.	0.	0.	0.
				TIME	.00	.00	.00	.00	.00	.00
ROUTED TO										
+	RCP15S	.00	1	FLOW	0.	0.	0.	0.	0.	0.
				TIME	.00	.00	.00	.00	.00	.00
HYDROGRAPH AT										
+	U680	.11	1	FLOW	113.	111.	107.	102.	101.	100.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT										
+	CP21	.11	1	FLOW	113.	111.	107.	102.	101.	100.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT										
+	U760	.01	1	FLOW	10.	10.	10.	9.	9.	9.

				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ 3 COMBINED AT	CPGTA	1.01	1	FLOW	1147.	1126.	1087.	1041.	1026.	1015.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17
+ HYDROGRAPH AT	2-3	.03	1	FLOW	37.	36.	34.	33.	32.	32.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ 2 COMBINED AT	CPGTA2	1.04	1	FLOW	1155.	1134.	1094.	1047.	1032.	1022.
				TIME	4.08	4.08	4.17	4.17	4.17	4.17
+ HYDROGRAPH AT	2-1	.04	1	FLOW	56.	55.	54.	52.	51.	51.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ HYDROGRAPH AT	2-2	.07	1	FLOW	96.	94.	91.	88.	87.	86.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
+ HYDROGRAPH AT	2-14A	.00	1	FLOW	3.	3.	3.	3.	3.	3.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ 3 COMBINED AT	2A	.11	1	FLOW	155.	152.	147.	142.	140.	138.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ 2 COMBINED AT	2B	1.15	1	FLOW	1201.	1180.	1135.	1087.	1066.	1056.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08
+ ROUTED TO	DB1	1.15	1	FLOW	245.	242.	238.	233.	231.	230.
				TIME	6.00	6.00	6.00	6.00	6.00	6.00
			**	PEAK STAGES IN FEET **						
			1	STAGE	2307.97	2307.78	2307.47	2307.14	2307.01	2306.92
				TIME	6.00	6.00	6.00	6.00	6.00	6.00
+ HYDROGRAPH AT	2-6	.02	1	FLOW	29.	29.	28.	27.	27.	27.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ 2 COMBINED AT	2C	1.17	1	FLOW	245.	242.	238.	233.	232.	230.
				TIME	5.92	5.92	5.92	5.92	5.92	5.92
+ HYDROGRAPH AT	2-7	.02	1	FLOW	19.	18.	18.	17.	17.	16.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ 2 COMBINED AT	2D	1.19	1	FLOW	245.	243.	238.	234.	232.	230.
				TIME	5.92	5.92	5.92	5.92	5.92	5.92
+ HYDROGRAPH AT	2-4	.03	1	FLOW	56.	55.	53.	52.	51.	51.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ HYDROGRAPH AT	2-14B	.00	1	FLOW	3.	3.	3.	3.	3.	3.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ 2 COMBINED AT	2E	.04	1	FLOW	59.	58.	56.	54.	54.	53.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ HYDROGRAPH AT	2-5	.09	1	FLOW	115.	113.	109.	106.	104.	103.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
+ DIVERSION TO	2-5E	.09	1	FLOW	55.	54.	52.	51.	50.	49.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
+ HYDROGRAPH AT	2-5W	.09	1	FLOW	60.	59.	57.	55.	54.	54.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
+ HYDROGRAPH AT	2-9	.02	1	FLOW	24.	23.	23.	22.	22.	21.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ 3 COMBINED AT	2F	.14	1	FLOW	142.	139.	135.	130.	129.	127.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ HYDROGRAPH AT	2-5E	.00	1	FLOW	55.	54.	52.	51.	50.	49.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67
+ HYDROGRAPH AT	2-10	.02	1	FLOW	25.	24.	24.	23.	23.	22.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ 3 COMBINED AT	2G	.16	1	FLOW	222.	218.	210.	203.	200.	198.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ HYDROGRAPH AT	2-8	.03	1	FLOW	48.	47.	45.	44.	43.	43.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ 2 COMBINED AT	2H	.19	1	FLOW	269.	264.	256.	247.	244.	241.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58
+ 2 COMBINED AT	2I	1.37	1	FLOW	393.	385.	372.	360.	355.	352.

				TIME	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT	2-11	.03	1	FLOW	43.	42.	41.	40.	39.	39.
+				TIME	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT	2-12	.03	1	FLOW	39.	39.	37.	36.	35.	35.
+				TIME	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT	2J	.05	1	FLOW	82.	81.	78.	75.	74.	74.
+				TIME	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT	DUMMY	1.42	1	FLOW	475.	466.	450.	435.	429.	425.
+				TIME	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT	2-13	.03	1	FLOW	39.	38.	37.	36.	35.	35.
+				TIME	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT	PT2	1.45	1	FLOW	514.	504.	487.	471.	464.	460.
+				TIME	3.58	3.58	3.58	3.58	3.58	3.58

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SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR PLAN = 1 RATIO= .00									
RCP1E	MANE	1.50	199.16	246.00	.37	5.00	198.58	245.00	.37

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1218E+02 EXCESS= .0000E+00 OUTFLOW= .1219E+02 BASIN STORAGE= .2040E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00									
RCP1E	MANE	1.50	194.72	247.50	.35	5.00	193.91	245.00	.35

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1154E+02 EXCESS= .0000E+00 OUTFLOW= .1155E+02 BASIN STORAGE= .2543E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00									
RCP1E	MANE	1.50	186.12	247.50	.32	5.00	185.27	245.00	.32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1044E+02 EXCESS= .0000E+00 OUTFLOW= .1045E+02 BASIN STORAGE= .2185E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00									
RCP1E	MANE	1.50	177.74	247.50	.28	5.00	176.54	245.00	.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9349E+01 EXCESS= .0000E+00 OUTFLOW= .9357E+01 BASIN STORAGE= .1968E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00									
RCP1E	MANE	1.50	173.54	247.50	.27	5.00	172.20	245.00	.27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8932E+01 EXCESS= .0000E+00 OUTFLOW= .8942E+01 BASIN STORAGE= .2479E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00									
RCP1E	MANE	1.25	170.56	247.50	.26	5.00	168.89	250.00	.26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8647E+01 EXCESS= .0000E+00 OUTFLOW= .8653E+01 BASIN STORAGE= .1793E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00									
RU150	MANE	1.00	43.78	232.00	.22	5.00	43.29	230.00	.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1563E+01 EXCESS= .0000E+00 OUTFLOW= .1564E+01 BASIN STORAGE= .1132E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00									
RU150	MANE	1.00	42.55	232.00	.21	5.00	42.13	230.00	.20

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1479E+01 EXCESS= .0000E+00 OUTFLOW= .1481E+01 BASIN STORAGE= .1107E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00									
RU150	MANE	.75	40.81	232.50	.19	5.00	40.27	235.00	.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1351E+01 EXCESS= .0000E+00 OUTFLOW= .1351E+01 BASIN STORAGE= .9748E-03 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00									
RU150	MANE	.75	39.33	231.75	.17	5.00	38.25	235.00	.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1210E+01 EXCESS= .0000E+00 OUTFLOW= .1210E+01 BASIN STORAGE= .1274E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00									
RU150	MANE	.75	38.23	231.75	.16	5.00	36.88	230.00	.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1145E+01 EXCESS= .0000E+00 OUTFLOW= .1146E+01 BASIN STORAGE= .1158E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RU150 MANE .75 37.00 231.75 .15 5.00 35.66 235.00 .15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1096E+01 EXCESS= .0000E+00 OUTFLOW= .1097E+01 BASIN STORAGE= .1046E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP2S MANE .75 126.72 249.00 .11 5.00 126.37 250.00 .11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5163E+01 EXCESS= .0000E+00 OUTFLOW= .5166E+01 BASIN STORAGE= .2604E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP2S MANE .75 122.35 249.00 .10 5.00 122.19 250.00 .10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4816E+01 EXCESS= .0000E+00 OUTFLOW= .4818E+01 BASIN STORAGE= .2263E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP2S MANE .75 114.62 249.75 .09 5.00 114.57 250.00 .09

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4149E+01 EXCESS= .0000E+00 OUTFLOW= .4149E+01 BASIN STORAGE= .2452E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP2S MANE .75 105.06 250.50 .07 5.00 104.78 250.00 .07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3365E+01 EXCESS= .0000E+00 OUTFLOW= .3367E+01 BASIN STORAGE= .2223E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP2S MANE .50 101.08 251.50 .07 5.00 100.31 250.00 .06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3070E+01 EXCESS= .0000E+00 OUTFLOW= .3063E+01 BASIN STORAGE= .2389E-02 PERCENT ERROR= .2

FOR PLAN = 1 RATIO= .00
RCP2S MANE .50 97.74 251.50 .06 5.00 96.82 250.00 .06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2903E+01 EXCESS= .0000E+00 OUTFLOW= .2896E+01 BASIN STORAGE= .2400E-02 PERCENT ERROR= .1

FOR PLAN = 1 RATIO= .00
RCP4S MANE 1.00 78.69 231.00 .51 5.00 78.69 230.00 .52

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3886E+01 EXCESS= .0000E+00 OUTFLOW= .3887E+01 BASIN STORAGE= .1135E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP4S MANE 1.00 77.77 230.00 .48 5.00 77.77 230.00 .49

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3656E+01 EXCESS= .0000E+00 OUTFLOW= .3659E+01 BASIN STORAGE= .9282E-03 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP4S MANE .75 75.79 230.25 .43 5.00 75.79 230.00 .44

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3286E+01 EXCESS= .0000E+00 OUTFLOW= .3287E+01 BASIN STORAGE= .1029E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP4S MANE .75 73.73 229.50 .39 5.00 73.66 230.00 .39

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2941E+01 EXCESS= .0000E+00 OUTFLOW= .2942E+01 BASIN STORAGE= .1030E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP4S MANE .75 72.53 229.50 .37 5.00 72.51 230.00 .37

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2810E+01 EXCESS= .0000E+00 OUTFLOW= .2810E+01 BASIN STORAGE= .1298E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP4S MANE .75 72.16 230.25 .36 5.00 72.14 230.00 .36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2735E+01 EXCESS= .0000E+00 OUTFLOW= .2736E+01 BASIN STORAGE= .1137E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP9E MANE .75 89.87 233.25 .15 5.00 88.74 235.00 .15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2859E+01 EXCESS= .0000E+00 OUTFLOW= .2858E+01 BASIN STORAGE= .1397E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP9E MANE .75 87.47 232.50 .14 5.00 85.80 235.00 .14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2635E+01 EXCESS= .0000E+00 OUTFLOW= .2634E+01 BASIN STORAGE= .1815E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP9E MANE .75 82.19 234.00 .12 5.00 81.18 235.00 .12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2149E+01 EXCESS= .0000E+00 OUTFLOW= .2148E+01 BASIN STORAGE= .1680E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP9E MANE .50 77.41 234.00 .10 5.00 76.47 235.00 .10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1810E+01 EXCESS= .0000E+00 OUTFLOW= .1804E+01 BASIN STORAGE= .1918E-02 PERCENT ERROR= .2

FOR PLAN = 1 RATIO= .00
RCP9E MANE .50 75.00 233.50 .09 5.00 73.86 235.00 .09

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1678E+01 EXCESS= .0000E+00 OUTFLOW= .1674E+01 BASIN STORAGE= .1712E-02 PERCENT ERROR= .1

FOR PLAN = 1 RATIO= .00
RCP9E MANE .50 72.58 234.00 .08 5.00 71.65 235.00 .09

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1571E+01 EXCESS= .0000E+00 OUTFLOW= .1566E+01 BASIN STORAGE= .1511E-02 PERCENT ERROR= .2

FOR PLAN = 1 RATIO= .00
RCP6E MANE 5.00 46.73 225.00 -1.00 5.00 46.73 225.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP6E MANE 5.00 47.09 225.00 -1.00 5.00 47.09 225.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP6E MANE 5.00 47.71 225.00 -1.00 5.00 47.71 225.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP6E MANE 5.00 48.32 225.00 -1.00 5.00 48.32 225.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP6E MANE 5.00 48.57 225.00 -1.00 5.00 48.57 225.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP6E MANE 5.00 48.75 225.00 -1.00 5.00 48.75 225.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP7E MANE 5.00 84.98 225.00 -1.00 5.00 84.98 225.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP7E MANE 5.00 85.39 225.00 -1.00 5.00 85.39 225.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP7E MANE 5.00 84.52 225.00 -1.00 5.00 84.52 225.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP7E MANE 5.00 81.15 225.00 -1.00 5.00 81.15 225.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP7E MANE 5.00 79.59 225.00 -1.00 5.00 79.59 225.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP7E MANE 5.00 78.39 225.00 -1.00 5.00 78.39 225.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP8E MANE .46 40.20 220.35 -1.00 5.00 40.14 220.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP8E MANE .46 39.19 220.39 -1.00 5.00 39.19 220.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP8E MANE .46 39.00 215.63 -1.00 5.00 38.92 215.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP8E MANE .46 38.32 210.80 -1.00 5.00 38.14 215.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP8E MANE .46 38.31 211.00 -1.00 5.00 38.00 215.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP8E MANE .46 38.31 211.00 -1.00 5.00 38.00 215.00 -1.00

FOR PLAN = 1 RATIO= .00

RCP10E	MANE	1.25	190.67	253.75	.15	5.00	187.65	255.00	.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1124E+02 EXCESS= .0000E+00 OUTFLOW= .1125E+02 BASIN STORAGE= .1720E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCP10E	MANE	1.25	184.52	253.75	.14	5.00	182.13	255.00	.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1064E+02 EXCESS= .0000E+00 OUTFLOW= .1065E+02 BASIN STORAGE= .2096E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCP10E	MANE	1.00	172.26	254.00	.13	5.00	170.77	255.00	.13

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9735E+01 EXCESS= .0000E+00 OUTFLOW= .9740E+01 BASIN STORAGE= .1706E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCP10E	MANE	.75	155.36	240.00	.11	5.00	155.36	240.00	.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8705E+01 EXCESS= .0000E+00 OUTFLOW= .8704E+01 BASIN STORAGE= .2380E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCP10E	MANE	.75	152.00	240.75	.10	5.00	151.98	240.00	.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7939E+01 EXCESS= .0000E+00 OUTFLOW= .7937E+01 BASIN STORAGE= .2259E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCP10E	MANE	1.00	148.02	241.00	.10	5.00	147.39	240.00	.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7606E+01 EXCESS= .0000E+00 OUTFLOW= .7610E+01 BASIN STORAGE= .1871E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RU440S	MANE	.75	17.02	229.50	.22	5.00	17.02	230.00	.22

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6137E+00 EXCESS= .0000E+00 OUTFLOW= .6138E+00 BASIN STORAGE= .1134E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

RU440S	MANE	1.00	17.06	230.00	.21	5.00	17.06	230.00	.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5859E+00 EXCESS= .0000E+00 OUTFLOW= .5864E+00 BASIN STORAGE= .1110E-02 PERCENT ERROR= -.3

FOR PLAN = 1 RATIO= .00

RU440S	MANE	1.00	16.60	232.00	.19	5.00	16.52	230.00	.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5308E+00 EXCESS= .0000E+00 OUTFLOW= .5315E+00 BASIN STORAGE= .9713E-03 PERCENT ERROR= -.3

FOR PLAN = 1 RATIO= .00

RU440S	MANE	1.00	15.58	233.00	.17	5.00	15.18	230.00	.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4626E+00 EXCESS= .0000E+00 OUTFLOW= .4636E+00 BASIN STORAGE= .1004E-02 PERCENT ERROR= -.4

FOR PLAN = 1 RATIO= .00

RU440S	MANE	.75	14.92	232.50	.16	5.00	14.39	230.00	.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4343E+00 EXCESS= .0000E+00 OUTFLOW= .4348E+00 BASIN STORAGE= .1191E-02 PERCENT ERROR= -.4

FOR PLAN = 1 RATIO= .00

RU440S	MANE	.75	14.44	232.50	.15	5.00	13.95	235.00	.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4166E+00 EXCESS= .0000E+00 OUTFLOW= .4172E+00 BASIN STORAGE= .9607E-03 PERCENT ERROR= -.4

FOR PLAN = 1 RATIO= .00

RCP12E	MANE	.75	94.54	245.25	.04	5.00	94.50	245.00	.04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4033E+01 EXCESS= .0000E+00 OUTFLOW= .4035E+01 BASIN STORAGE= .1251E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCP12E	MANE	.75	92.32	245.25	.04	5.00	92.30	245.00	.04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3624E+01 EXCESS= .0000E+00 OUTFLOW= .3624E+01 BASIN STORAGE= .1717E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCP12E	MANE	.75	87.83	246.00	.03	5.00	87.67	245.00	.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2866E+01 EXCESS= .0000E+00 OUTFLOW= .2866E+01 BASIN STORAGE= .1779E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCP12E	MANE	.50	82.11	245.50	.02	5.00	81.96	245.00	.02

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2245E+01 EXCESS= .0000E+00 OUTFLOW= .2241E+01 BASIN STORAGE= .1754E-02 PERCENT ERROR= .1

FOR PLAN = 1 RATIO= .00

RCP12E MANE .50 78.60 246.50 .02 5.00 77.57 245.00 .02

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1699E+01 EXCESS= .0000E+00 OUTFLOW= .1694E+01 BASIN STORAGE= .1478E-02 PERCENT ERROR= .2

FOR PLAN = 1 RATIO= .00
RCP12E MANE .50 76.61 246.50 .02 5.00 74.23 245.00 .02

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1560E+01 EXCESS= .0000E+00 OUTFLOW= .1556E+01 BASIN STORAGE= .1816E-02 PERCENT ERROR= .1

FOR PLAN = 1 RATIO= .00
RU130S MANE .75 25.04 223.50 .24 5.00 24.95 225.00 .24

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7186E+00 EXCESS= .0000E+00 OUTFLOW= .7188E+00 BASIN STORAGE= .1182E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00
RU130S MANE 1.00 24.91 224.00 .23 5.00 24.81 225.00 .23

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6842E+00 EXCESS= .0000E+00 OUTFLOW= .6852E+00 BASIN STORAGE= .9951E-03 PERCENT ERROR= -.3

FOR PLAN = 1 RATIO= .00
RU130S MANE .75 23.72 224.25 .21 5.00 23.71 225.00 .21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6210E+00 EXCESS= .0000E+00 OUTFLOW= .6214E+00 BASIN STORAGE= .9174E-03 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00
RU130S MANE .75 22.25 225.00 .19 5.00 22.25 225.00 .19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5565E+00 EXCESS= .0000E+00 OUTFLOW= .5568E+00 BASIN STORAGE= .1173E-02 PERCENT ERROR= -.3

FOR PLAN = 1 RATIO= .00
RU130S MANE .75 21.36 225.75 .18 5.00 21.36 225.00 .18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5270E+00 EXCESS= .0000E+00 OUTFLOW= .5274E+00 BASIN STORAGE= .9167E-03 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00
RU130S MANE .75 20.75 225.75 .17 5.00 20.74 225.00 .17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5080E+00 EXCESS= .0000E+00 OUTFLOW= .5084E+00 BASIN STORAGE= .1166E-02 PERCENT ERROR= -.3

FOR PLAN = 1 RATIO= .00
RCP13S MANE .75 31.70 228.75 .14 5.00 31.56 230.00 .14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8183E+00 EXCESS= .0000E+00 OUTFLOW= .8170E+00 BASIN STORAGE= .1035E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP13S MANE .75 30.84 229.50 .13 5.00 30.77 230.00 .13

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7689E+00 EXCESS= .0000E+00 OUTFLOW= .7675E+00 BASIN STORAGE= .9829E-03 PERCENT ERROR= .1

FOR PLAN = 1 RATIO= .00
RCP13S MANE .75 29.14 229.50 .12 5.00 29.10 230.00 .12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6835E+00 EXCESS= .0000E+00 OUTFLOW= .6824E+00 BASIN STORAGE= .1407E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP13S MANE .75 28.68 229.50 .11 5.00 28.68 230.00 .11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6247E+00 EXCESS= .0000E+00 OUTFLOW= .6230E+00 BASIN STORAGE= .1239E-02 PERCENT ERROR= .1

FOR PLAN = 1 RATIO= .00
RCP13S MANE .75 27.60 230.25 .10 5.00 27.56 230.00 .10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5867E+00 EXCESS= .0000E+00 OUTFLOW= .5853E+00 BASIN STORAGE= .1141E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP13S MANE .75 26.49 231.00 .10 5.00 26.42 230.00 .10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5556E+00 EXCESS= .0000E+00 OUTFLOW= .5546E+00 BASIN STORAGE= .1065E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RU440E MANE 5.00 20.99 240.00 -1.00 5.00 20.99 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RU440E MANE 5.00 20.79 240.00 -1.00 5.00 20.79 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RU440E MANE 5.00 20.69 240.00 -1.00 5.00 20.69 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RU440E MANE 5.00 21.00 240.00 -1.00 5.00 21.00 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RU440E MANE 5.00 20.99 240.00 -1.00 5.00 20.99 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RU440E MANE 5.00 20.90 240.00 -1.00 5.00 20.90 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP14E MANE 2.00 231.61 250.00 .14 5.00 231.61 250.00 .14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1506E+02 EXCESS= .0000E+00 OUTFLOW= .1507E+02 BASIN STORAGE= .2454E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP14E MANE 2.00 217.18 250.00 .14 5.00 217.18 250.00 .14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1438E+02 EXCESS= .0000E+00 OUTFLOW= .1439E+02 BASIN STORAGE= .2351E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP14E MANE 2.00 185.35 254.00 .12 5.00 184.14 255.00 .12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1283E+02 EXCESS= .0000E+00 OUTFLOW= .1283E+02 BASIN STORAGE= .2146E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP14E MANE 2.00 173.53 254.00 .11 5.00 172.33 255.00 .11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1168E+02 EXCESS= .0000E+00 OUTFLOW= .1169E+02 BASIN STORAGE= .1766E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP14E MANE 1.75 168.78 253.75 .10 5.00 167.96 255.00 .10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1091E+02 EXCESS= .0000E+00 OUTFLOW= .1091E+02 BASIN STORAGE= .1839E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP14E MANE 1.75 164.28 253.75 .10 5.00 163.75 255.00 .10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1063E+02 EXCESS= .0000E+00 OUTFLOW= .1063E+02 BASIN STORAGE= .2540E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCP9S MANE 5.00 164.07 235.00 -1.00 5.00 164.07 235.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP9S MANE 5.00 161.57 235.00 -1.00 5.00 161.57 235.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP9S MANE 5.00 158.96 235.00 -1.00 5.00 158.96 235.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP9S MANE 5.00 154.89 235.00 -1.00 5.00 154.89 235.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP9S MANE 5.00 151.97 235.00 -1.00 5.00 151.97 235.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP9S MANE 5.00 149.83 235.00 -1.00 5.00 149.83 235.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP10S MANE 5.00 248.04 255.00 -1.00 5.00 248.04 255.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP10S MANE 5.00 235.83 255.00 -1.00 5.00 235.83 255.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP10S MANE 5.00 223.19 260.00 -1.00 5.00 223.19 260.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP10S MANE 5.00 208.91 240.00 -1.00 5.00 208.91 240.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP10S MANE 5.00 207.70 230.00 -1.00 5.00 207.70 230.00 -1.00

FOR PLAN = 1 RATIO= .00									
RCP10S MANE	5.00	207.03	230.00	-1.00	5.00	207.03	230.00	-1.00	
FOR PLAN = 1 RATIO= .00									
RCP16 MANE	5.00	562.50	245.00	5.39	5.00	562.50	245.00	5.39	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7727E+02 EXCESS= .0000E+00 OUTFLOW= .7729E+02 BASIN STORAGE= .3886E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCP16 MANE	5.00	555.42	245.00	5.28	5.00	555.42	245.00	5.28	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7567E+02 EXCESS= .0000E+00 OUTFLOW= .7569E+02 BASIN STORAGE= .3825E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCP16 MANE	5.00	541.32	245.00	5.10	5.00	541.32	245.00	5.10	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7315E+02 EXCESS= .0000E+00 OUTFLOW= .7317E+02 BASIN STORAGE= .3760E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCP16 MANE	5.00	522.35	245.00	4.92	5.00	522.35	245.00	4.92	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7050E+02 EXCESS= .0000E+00 OUTFLOW= .7052E+02 BASIN STORAGE= .3694E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCP16 MANE	5.00	514.24	250.00	4.85	5.00	514.24	250.00	4.85	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6951E+02 EXCESS= .0000E+00 OUTFLOW= .6952E+02 BASIN STORAGE= .3668E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCP16 MANE	5.00	509.94	250.00	4.80	5.00	509.94	250.00	4.80	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6883E+02 EXCESS= .0000E+00 OUTFLOW= .6885E+02 BASIN STORAGE= .3635E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCP11S MANE	5.00	127.19	260.00	-1.00	5.00	127.19	260.00	-1.00	
FOR PLAN = 1 RATIO= .00									
RCP11S MANE	5.00	123.34	260.00	-1.00	5.00	123.34	260.00	-1.00	
FOR PLAN = 1 RATIO= .00									
RCP11S MANE	5.00	115.97	260.00	-1.00	5.00	115.97	260.00	-1.00	
FOR PLAN = 1 RATIO= .00									
RCP11S MANE	5.00	111.56	245.00	-1.00	5.00	111.56	245.00	-1.00	
FOR PLAN = 1 RATIO= .00									
RCP11S MANE	5.00	110.87	245.00	-1.00	5.00	110.87	245.00	-1.00	
FOR PLAN = 1 RATIO= .00									
RCP11S MANE	5.00	110.53	250.00	-1.00	5.00	110.53	250.00	-1.00	
FOR PLAN = 1 RATIO= .00									
RCP12S MANE	5.00	88.78	255.00	-1.00	5.00	88.78	255.00	-1.00	
FOR PLAN = 1 RATIO= .00									
RCP12S MANE	5.00	88.19	255.00	-1.00	5.00	88.19	255.00	-1.00	
FOR PLAN = 1 RATIO= .00									
RCP12S MANE	5.00	86.17	255.00	-1.00	5.00	86.17	255.00	-1.00	
FOR PLAN = 1 RATIO= .00									
RCP12S MANE	5.00	79.16	260.00	-1.00	5.00	79.16	260.00	-1.00	
FOR PLAN = 1 RATIO= .00									
RCP12S MANE	5.00	79.61	260.00	-1.00	5.00	79.61	260.00	-1.00	
FOR PLAN = 1 RATIO= .00									
RCP12S MANE	5.00	79.53	260.00	-1.00	5.00	79.53	260.00	-1.00	
FOR PLAN = 1 RATIO= .00									
RCP14S MANE	5.00	30.99	210.00	-1.00	5.00	30.99	210.00	-1.00	

FOR PLAN = 1 RATIO= .00
RCP14S MANE 5.00 31.14 210.00 -1.00 5.00 31.14 210.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP14S MANE 5.00 31.40 210.00 -1.00 5.00 31.40 210.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP14S MANE 5.00 31.69 210.00 -1.00 5.00 31.69 210.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP14S MANE 5.00 31.75 210.00 -1.00 5.00 31.75 210.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP14S MANE 5.00 31.64 210.00 -1.00 5.00 31.64 210.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP20 MANE 2.90 1097.83 249.30 3.23 5.00 1096.67 250.00 3.23

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1526E+03 EXCESS= .0000E+00 OUTFLOW= .1526E+03 BASIN STORAGE= .8746E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP20 MANE 2.91 1079.36 247.54 3.15 5.00 1076.73 250.00 3.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1492E+03 EXCESS= .0000E+00 OUTFLOW= .1492E+03 BASIN STORAGE= .8611E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP20 MANE 2.94 1041.01 249.54 3.04 5.00 1039.50 250.00 3.04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1437E+03 EXCESS= .0000E+00 OUTFLOW= .1437E+03 BASIN STORAGE= .8985E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP20 MANE 2.97 997.46 249.12 2.92 5.00 994.80 250.00 2.92

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1380E+03 EXCESS= .0000E+00 OUTFLOW= .1380E+03 BASIN STORAGE= .8491E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP20 MANE 2.98 982.29 247.18 2.87 5.00 980.39 250.00 2.87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1357E+03 EXCESS= .0000E+00 OUTFLOW= .1357E+03 BASIN STORAGE= .8654E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP20 MANE 2.99 974.62 247.89 2.84 5.00 970.69 250.00 2.84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1341E+03 EXCESS= .0000E+00 OUTFLOW= .1341E+03 BASIN STORAGE= .9700E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP15S MANE 5.00 .00 .00 -1.00 5.00 .00 250.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP15S MANE 5.00 .00 .00 -1.00 5.00 .00 250.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP15S MANE 5.00 .00 .00 -1.00 5.00 .00 250.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP15S MANE 5.00 .00 .00 -1.00 5.00 .00 250.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP15S MANE 5.00 .00 .00 -1.00 5.00 .00 250.00 -1.00

FOR PLAN = 1 RATIO= .00
RCP15S MANE 5.00 .00 .00 -1.00 5.00 .00 250.00 -1.00

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

APPENDIX F

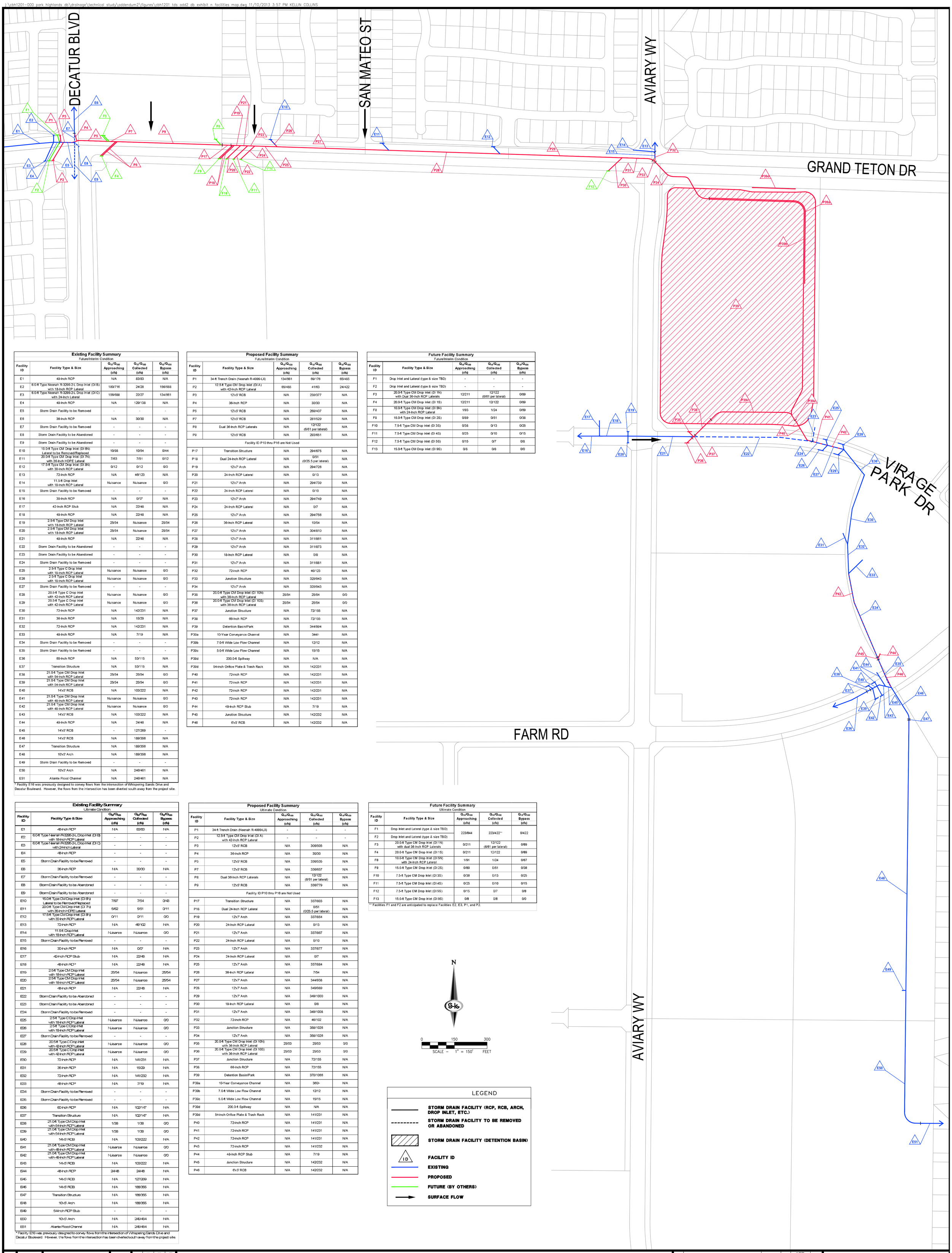
Revised Hydraulic Analysis

Drainage Exhibit

Exhibit N

Facilities Map

J:\cbh1201-000 park highlands db\drainage\technical study\addendum2\figures\cbh1201 tds add2 db exhibit n facilities map.dwg 11/10/2013 3:57 PM KELLIN COLLINS



Existing Facility Summary
Future/Interim Condition

Facility ID	Facility Type & Size	Q_{10}/Q_{100} Approaching (cfs)	Q_{10}/Q_{100} Collected (cfs)	Q_{10}/Q_{100} Bypass (cfs)
E1	48-Inch RCP	N/A	83/83	N/A
E2	6.0-ft Type Neenah R-3295-2-L Drop Inlet (DI B) with 18-Inch RCP Lateral	180/716	24/28	156/688
E3	6.0-ft Type Neenah R-3295-2-L Drop Inlet (DI C) with 24-Inch Lateral	156/688	22/27	134/661
E4	48-Inch RCP	N/A	129/138	N/A
E5	Storm Drain Facility to be Removed	-	-	-
E6	36-Inch RCP	N/A	30/30	N/A
E7	Storm Drain Facility to be Removed	-	-	-
E8	Storm Drain Facility to be Abandoned	-	-	-
E9	Storm Drain Facility to be Abandoned	-	-	-
E10	15.0-ft Type CM Drop Inlet (DI 8N) Lateral to be Removed/Replaced	10/98	10/54	0/44
E11	20.0-ft Type CM Drop Inlet (DI 7N) with 36-Inch HDPE Lateral	7/63	7/51	0/12
E12	17.5-ft Type CM Drop Inlet (DI 8N) with 30-Inch RCP Lateral	0/12	0/12	0/0
E13	72-Inch RCP	N/A	46/123	N/A
E14	11.5-ft Drop Inlet with 18-Inch RCP Lateral	Nuisance	Nuisance	0/0
E15	Storm Drain Facility to be Removed	-	-	-
E16	30-Inch RCP	N/A	0/0*	N/A
E17	42-Inch RCP Stub	N/A	22/48	N/A
E18	48-Inch RCP	N/A	22/48	N/A
E19	2.5-ft Type CM Drop Inlet with 18-Inch RCP Lateral	25/54	Nuisance	25/54
E20	2.5-ft Type CM Drop Inlet with 18-Inch RCP Lateral	25/54	Nuisance	25/54
E21	48-Inch RCP	N/A	22/48	N/A
E22	Storm Drain Facility to be Abandoned	-	-	-
E23	Storm Drain Facility to be Abandoned	-	-	-
E24	Storm Drain Facility to be Removed	-	-	-
E25	2.5-ft Type C Drop Inlet with 18-Inch RCP Lateral	Nuisance	Nuisance	0/0
E26	2.5-ft Type C Drop Inlet with 18-Inch RCP Lateral	Nuisance	Nuisance	0/0
E27	Storm Drain Facility to be Removed	-	-	-
E28	20.5-ft Type C Drop Inlet with 42-Inch RCP Lateral	Nuisance	Nuisance	0/0
E29	20.5-ft Type C Drop Inlet with 42-Inch RCP Lateral	Nuisance	Nuisance	0/0
E30	72-Inch RCP	N/A	142/231	N/A
E31	36-Inch RCP	N/A	15/29	N/A
E32	72-Inch RCP	N/A	142/231	N/A
E33	48-Inch RCP	N/A	7/19	N/A
E34	Storm Drain Facility to be Removed	-	-	-
E35	Storm Drain Facility to be Removed	-	-	-
E36	60-Inch RCP	N/A	53/115	N/A
E37	Transition Structure	N/A	53/115	N/A
E38	21.0-ft Type CM Drop Inlet with 54-Inch RCP Lateral	25/54	25/54	0/0
E39	21.0-ft Type CM Drop Inlet with 54-Inch RCP Lateral	25/54	25/54	0/0
E40	14'x5' RCB	N/A	103/222	N/A
E41	21.0-ft Type CM Drop Inlet with 48-Inch RCP Lateral	Nuisance	Nuisance	0/0
E42	21.0-ft Type CM Drop Inlet with 48-Inch RCP Lateral	Nuisance	Nuisance	0/0
E43	14'x5' RCB	N/A	103/222	N/A
E44	48-Inch RCP	N/A	24/48	N/A
E45	14'x5' RCB	-	127/269	-
E46	14'x5' RCB	N/A	189/356	N/A
E47	Transition Structure	N/A	189/356	N/A
E48	10'x5' Arch	N/A	189/356	N/A
E49	Storm Drain Facility to be Removed	-	-	-
E50	10'x5' Arch	N/A	246/461	N/A
E51	Aliante Flood Channel	N/A	246/461	N/A

* Facility E16 was previously designed to convey flows from the intersection of Whispering Sands Drive and Decatur Boulevard. However, the flows from the intersection has been diverted south away from the project site.

Proposed Facility Summary
Future/Interim Condition

Facility ID	Facility Type & Size	Q_{10}/Q_{100} Approaching (cfs)	Q_{10}/Q_{100} Collected (cfs)	Q_{10}/Q_{100} Bypass (cfs)
P1	34-ft Trench Drain (Neenah R-4999-LX)	134/861	89/176	65/485
P2	12.5-ft Type CM Drop Inlet (DI A) with 42-Inch RCP Lateral	65/485	41/63	24/422
P3	12'x5' RCB	N/A	239/377	N/A
P4	36-Inch RCP	N/A	30/30	N/A
P5	12'x5' RCB	N/A	269/407	N/A
P7	12'x6' RCB	N/A	281/529	N/A
P8	Dual 36-Inch RCP Laterals	N/A	12/122 (6/61 per lateral)	N/A
P9	12'x6' RCB	N/A	293/651	N/A
Facility ID P10 thru P16 are Not Used				
P17	Transition Structure	N/A	294/675	N/A
P18	Dual 24-Inch RCP Lateral	N/A	0/51 (0/25.5 per lateral)	N/A
P19	12'x7' Arch	N/A	294/726	N/A
P20	24-Inch RCP Lateral	N/A	0/13	N/A
P21	12'x7' Arch	N/A	294/739	N/A
P22	24-Inch RCP Lateral	N/A	0/10	N/A
P23	12'x7' Arch	N/A	294/749	N/A
P24	24-Inch RCP Lateral	N/A	0/7	N/A
P25	12'x7' Arch	N/A	294/756	N/A
P26	36-Inch RCP Lateral	N/A	10/54	N/A
P27	12'x7' Arch	N/A	304/810	N/A
P28	12'x7' Arch	N/A	311/861	N/A
P29	12'x7' Arch	N/A	311/873	N/A
P30	18-Inch RCP Lateral	N/A	0/8	N/A
P31	12'x7' Arch	N/A	311/881	N/A
P32	72-Inch RCP	N/A	46/123	N/A
P33	Junction Structure	N/A	329/943	N/A
P34	12'x7' Arch	N/A	329/943	N/A
P35	20.0-ft Type CM Drop Inlet (DI 10N) with 36-Inch RCP Lateral	25/54	25/54	0/0
P36	20.0-ft Type CM Drop Inlet (DI 10S) with 36-Inch RCP Lateral	25/54	25/54	0/0
P37	Junction Structure	N/A	72/155	N/A
P38	66-Inch RCP	N/A	72/155	N/A
P39	Detention Basin/Park	N/A	344/994	N/A
P39a	10-Year Conveyance Channel	N/A	344/-	N/A
P39b	7.0-ft Wide Low Flow Channel	N/A	12/12	N/A
P39c	5.0-ft Wide Low Flow Channel	N/A	15/15	N/A
P39d	200.0-ft Spillway	N/A	N/A	N/A
P39d	54-Inch Orifice Plate & Trash Rack	N/A	142/231	N/A
P40	72-Inch RCP	N/A	142/231	N/A
P41	72-Inch RCP	N/A	142/231	N/A
P42	72-Inch RCP	N/A	142/231	N/A
P43	72-Inch RCP	N/A	142/231	N/A
P44	48-Inch RCP Stub	N/A	7/19	N/A
P45	Junction Structure	N/A	142/232	N/A
P46	6'x5' RCB	N/A	142/232	N/A

Future Facility Summary
Future/Interim Condition

Facility ID	Facility Type & Size	Q_{10}/Q_{100} Approaching (cfs)	Q_{10}/Q_{100} Collected (cfs)	Q_{10}/Q_{100} Bypass (cfs)
F1	Drop Inlet and Lateral (type & size TBD)	-	-	-
F2	Drop Inlet and Lateral (type & size TBD)	-	-	-
F3	20.0-ft Type CM Drop Inlet (DI 1N) with Dual 36-Inch RCP Laterals	12/211	12/122 (6/61 per lateral)	0/89
F4	20.0-ft Type CM Drop Inlet (DI 1S)	12/211	12/122	0/89
F8	10.0-ft Type CM Drop Inlet (DI 9N) with 24-Inch RCP Lateral	1/93	1/24	0/69
F9	15.0-ft Type CM Drop Inlet (DI 2S)	0/89	0/51	0/38
F10	7.5-ft Type CM Drop Inlet (DI 3S)	0/38	0/13	0/25
F11	7.5-ft Type CM Drop Inlet (DI 4S)	0/25	0/10	0/15
F12	7.5-ft Type CM Drop Inlet (DI 5S)	0/15	0/7	0/8
F13	15.0-ft Type CM Drop Inlet (DI 9S)	0/8	0/8	0/0

Existing Facility Summary
Ultimate Condition

Facility ID	Facility Type & Size	Q_{10}/Q_{100} Approaching (cfs)	Q_{10}/Q_{100} Collected (cfs)	Q_{10}/Q_{100} Bypass (cfs)
E1	48-Inch RCP	N/A	83/83	N/A
E2	6.0-ft Type Neenah R-3295-2-L Drop Inlet (DI B) with 18-Inch RCP Lateral	-	-	-
E3	6.0-ft Type Neenah R-3295-2-L Drop Inlet (DI C) with 24-Inch Lateral	-	-	-
E4	48-Inch RCP	-	-	-
E5	Storm Drain Facility to be Removed	-	-	-
E6	36-Inch RCP	N/A	30/30	N/A
E7	Storm Drain Facility to be Removed	-	-	-
E8	Storm Drain Facility to be Abandoned	-	-	-
E9	Storm Drain Facility to be Abandoned	-	-	-
E10	15.0-ft Type CM Drop Inlet (DI 8N) Lateral to be Removed/Replaced	7/97	7/54	0/43
E11	20.0-ft Type CM Drop Inlet (DI 7N) with 36-Inch HDPE Lateral	5/62	5/51	0/11
E12	17.5-ft Type CM Drop Inlet (DI 8N) with 30-Inch RCP Lateral	0/11	0/11	0/0
E13	72-Inch RCP	N/A	46/102	N/A
E14	11.5-ft Drop Inlet with 18-Inch RCP Lateral	Nuisance	Nuisance	0/0
E15	Storm Drain Facility to be Removed	-	-	-
E16	30-Inch RCP	N/A	0/0*	N/A
E17	42-Inch RCP Stub	N/A	22/48	N/A
E18	48-Inch RCP	N/A	22/48	N/A
E19	2.5-ft Type CM Drop Inlet with 18-Inch RCP Lateral	25/54	Nuisance	25/54
E20	2.5-ft Type CM Drop Inlet with 18-Inch RCP Lateral	25/54	Nuisance	25/54
E21	48-Inch RCP	N/A	22/48	N/A
E22	Storm Drain Facility to be Abandoned	-	-	-
E23	Storm Drain Facility to be Abandoned	-	-	-
E24	Storm Drain Facility to be Removed	-	-	-
E25	2.5-ft Type C Drop Inlet with 18-Inch RCP Lateral	Nuisance	Nuisance	0/0
E26	2.5-ft Type C Drop Inlet with 18-Inch RCP Lateral	Nuisance	Nuisance	0/0
E27	Storm Drain Facility to be Removed	-	-	-
E28	20.5-ft Type C Drop Inlet with 42-Inch RCP Lateral	Nuisance	Nuisance	0/0
E29	20.5-ft Type C Drop Inlet with 42-Inch RCP Lateral	Nuisance	Nuisance	0/0
E30	72-Inch RCP	N/A	141/231	N/A
E31	36-Inch RCP	N/A	15/29	N/A
E32	72-Inch RCP	N/A	141/232	N/A
E33	48-Inch RCP	N/A	7/19	N/A
E34	Storm Drain Facility to be Removed	-	-	-
E35	Storm Drain Facility to be Removed	-	-	-
E36	60-Inch RCP	N/A	102/147	N/A
E37	Transition Structure	N/A	102/147	N/A
E38	21.0-ft Type CM Drop Inlet with 54-Inch RCP Lateral	1/38	1/38	0/0
E39	21.0-ft Type CM Drop Inlet with 54-Inch RCP Lateral	1/38	1/38	0/0
E40	14'x5' RCB	N/A	103/222	N/A
E41	21.0-ft Type CM Drop Inlet with 48-Inch RCP Lateral	Nuisance	Nuisance	0/0
E42	21.0-ft Type CM Drop Inlet with 48-Inch RCP Lateral	Nuisance	Nuisance	0/0
E43	14'x5' RCB	N/A	103/222	N/A
E44	48-Inch RCP	24/48	24/48	N/A
E45	14'x5' RCB	N/A	127/269	N/A
E46	14'x5' RCB	N/A	189/355	N/A
E47	Transition Structure	N/A	189/355	N/A
E48	10'x5' Arch	N/A	189/355	N/A
E49	54-Inch RCP Stub	-	-	-
E50	10'x5' Arch	N/A	245/454	N/A
E51	Aliante Flood Channel	N/A	245/454	N/A

* Facility E16 was previously designed to convey flows from the intersection of Whispering Sands Drive and Decatur Boulevard. However, the flows from the intersection has been diverted south away from the project site.

Proposed Facility Summary
Ultimate Condition

Facility ID	Facility Type & Size	Q_{10}/Q_{100} Approaching (cfs)	Q_{10}/Q_{100} Collected (cfs)	Q_{10}/Q_{100} Bypass (cfs)
P1	34-ft Trench Drain (Neenah R-4999-LX)	-	-	-
P2	12.5-ft Type CM Drop Inlet (DI A) with 42-Inch RCP Lateral	-	-	-
P3	12'x5' RCB	N/A	308/505	N/A
P4	36-Inch RCP	N/A	30/30	N/A
P5	12'x5' RCB	N/A	336/535	N/A
P7	12'x5' RCB	N/A	336/657	N/A
P8	Dual 36-Inch RCP Laterals	N/A	12/122 (6/61 per lateral)	N/A
P9	12'x5' RCB	N/A	336/779	N/A
Facility ID P10 thru P16 are Not Used				
P17	Transition Structure	N/A	337/803	N/A
P18	Dual 24-Inch RCP Lateral	N/A	0/51 (0/25.5 per lateral)	N/A
P19	12'x7' Arch	N/A	337/854	N/A
P20	24-Inch RCP Lateral	N/A	0/13	N/A
P21	12'x7' Arch	N/A	337/867	N/A
P22	24-Inch RCP Lateral	N/A	0/10	N/A
P23	12'x7' Arch	N/A	337/877	N/A
P24	24-Inch RCP Lateral	N/A	0/7	N/A
P25	12'x7' Arch	N/A	337/884	N/A
P26	36-Inch RCP Lateral	N/A	7/54	N/A
P27	12'x7' Arch	N/A	344/938	N/A
P28	12'x7' Arch	N/A	349/989	N/A
P29	12'x7' Arch	N/A	349/1000	N/A
P30	18-Inch RCP Lateral	N/A	0/8	N/A
P31	12'x7' Arch	N/A	349/1008	N/A
P32	72-Inch RCP	N/A	46/102	N/A
P33	Junction Structure	N/A	358/1026	N/A
P34	12'x7' Arch	N/A	358/1026	N/A
P35	20.0-ft Type CM Drop Inlet (DI 10N) with 36-Inch RCP Lateral	25/53	25/53	0/0
P36	20.0-ft Type CM Drop Inlet (DI 10S) with 36-Inch RCP Lateral	25/53	25/53	0/0
P37	Junction Structure	N/A	72/155	N/A
P38	66-Inch RCP	N/A	72/155	N/A
P39	Detention Basin/Park	N/A	370/1068	N/A
P39a	10-Year Conveyance Channel	N/A	360/-	N/A
P39b	7.0-ft Wide Low Flow Channel	N/A	12/12	N/A
P39c	5.0-ft Wide Low Flow Channel	N/A	15/15	N/A
P39d	200.0-ft Spillway	N/A	N/A	N/A
P39d	54-Inch Orifice Plate & Trash Rack	N/A	141/231	N/A
P40	72-Inch RCP	N/A	141/231	N/A
P41	72-Inch RCP	N/A	141/231	N/A
P42	72-Inch RCP	N/A	141/231	N/A
P43	72-Inch RCP	N/A	141/232	N/A
P44	48-Inch RCP Stub	N/A	7/19	N/A
P45	Junction Structure	N/A	142/232	N/A
P46	6'x5' RCB	N/A	142/232	N/A

Future Facility Summary
Ultimate Condition

Facility ID	Facility Type & Size	Q_{10}/Q_{100} Approaching (cfs)	Q_{10}/Q_{100} Collected (cfs)	Q_{10}/Q_{100} Bypass (cfs)
F1	Drop Inlet and Lateral (type & size TBD)	223/844	223/422**	0/422
F2	Drop Inlet and Lateral (type & size TBD)			
F3	20.0-ft Type CM Drop Inlet (DI 1N) with dual 36-Inch RCP Laterals	0/211	12/122 (6/61 per lateral)	0/89
F4	20.0-ft Type CM Drop Inlet (DI 1S)	0/211	12/122	0/89
F8	10.0-ft Type CM Drop Inlet (DI 5N) with 24-Inch RCP Lateral	1/91	1/24	0/67
F9	15.0-ft Type CM Drop Inlet (DI 2S)	0/89	0/51	0/38
F10	7.5-ft Type CM Drop Inlet (DI 3S)	0/38	0/13	0/25
F11	7.5-ft Type CM Drop Inlet (DI 4S)	0/25	0/10	0/15
F12	7.5-ft Type CM Drop Inlet (DI 5S)	0/15	0/7	0/8
F13	15.0-ft Type CM Drop Inlet (DI 9S)	0/8	0/8	0/0

** Facilities F1 and F2 are anticipated to replace Facilities E2, E3, P1, and P2.

0 150 300
SCALE – 1" = 150' FEET

LEGEND

- STORM DRAIN FACILITY (RCP, RCB, ARCH, DROP INLET, ETC.)
- STORM DRAIN FACILITY TO BE REMOVED OR ABANDONED
- STORM DRAIN FACILITY (DETENTION BASIN)
- ID — FACILITY ID
- EXISTING
- PROPOSED
- FUTURE (BY OTHERS)
- SURFACE FLOW

EXHIBIT N
SHEET 1 OF 1

PROJECT NO. CBH1201-000
CHECKED: MJF
DESIGNER: KC
DRAFTER: KC
DATE: NOV 2013

CRESCENT BAY HOLDINGS

PARK HIGHLANDS
GRAND TETON REGIONAL FLOOD CONTROL FACILITY
FACILITIES MAP

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

Mainline WSPG Analysis

Existing Farm Storm Drain – Farm Rd to Aliante Flood Channel

```
0
T1 PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
T2 EXISTING STORM DRAIN - FARM RD TO ALAINTE FLOOD CHANNEL
T3 ULTIMATE CONDITION 100-YEAR NOVEMBER 2013
SO      0.012284.21  1                          2287.34
R      24.012284.28  1      .013                          50.00 90.00
R     102.542284.52  1      .013                                45.00
JX    202.542284.82  1  7   .013    35.0          2284.82
JX    780.592286.55  1  5   .013    74.0          2286.03        45.00
R    1909.042289.94  1      .013                          50.00 33.00
R    1937.582290.02  1      .013
TS   1943.532290.04  2      .013                                      45.00
R    1950.202290.06  2      .013
R    2074.472290.68  2      .013
JX   2074.482290.68  2  5   .013    86.0          2290.68        45.00
JX   2103.182290.79  2  5   .013    47.0          2291.24                42.00
R    2132.182290.86  2      .013
JX   2144.082290.89  2  5  5.013      .1     0.12291.342291.34 90.00 90.00
JX   2166.582290.96  2  4  4.013    37.5    37.52291.162291.16 60.00 60.00
R    2179.282291.00  2      .013
TS   2197.282291.14  3      .013                                      10.00 1
R    2275.512291.78  3      .013
R    2280.512292.28  3      .013                                      10.00 1
R    2508.822294.04  4      .013                                      10.00 1
R    2734.822295.74  4      .013                                       4.00 1
R    2918.122297.11  4      .013                                      10.00 1
R    3155.022298.89  4      .013                                      10.00 1
R    3258.622299.67  4      .013                          90.00
JX   3417.622300.24  4  6   .013    55.0          2301.25
JX   3508.702301.54  4     7.013                25.0        2303.04  90.00
R    3780.302302.63  4      .013                                             1
R    4051.802303.72  4      .013                                             1
JX   4320.802304.81  4  7  8.013    28.0    11.02306.322307.31 90.00 90.00
R    4325.802306.31  4      .013                                             1
R    4608.302307.44  7      .013                                             1
R    4890.802308.56  7      .013                                      90.00  1
R    5173.302309.70  7      .013
R    5238.502310.03  7      .013
SH   5238.502310.03  7
CD   1  3              5.00    9.10
CD   2  3              5.00   14.00
CD   3  4              5.00
CD   4  4              4.50
CD   5  4              4.00
CD   6  4              3.50
CD   7  4              3.00
CD   8  4              2.00
```

```
0
Q               28.0
```

DATE: 10/25/2013
TIME: 14:30

F0515P

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

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	3	0	0.00	5.00	9.10	0.00	0.00	0.00										
CD	2	3	0	0.00	5.00	14.00	0.00	0.00	0.00										
CD	3	4			5.00														
CD	4	4			4.50														
CD	5	4			4.00														
CD	6	4			3.50														
CD	7	4			3.00														
CD	8	4			2.00														

F 0 5 1 5 P

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY

HEADING LINE NO 2 IS -

EXISTING STORM DRAIN - FARM RD TO ALAINTE FLOOD CHANNEL

HEADING LINE NO 3 IS -

ULTIMATE CONDITION 100-YEAR NOVEMBER 2013

F 0 5 1 5 P

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET														W S ELEV					
	U/S DATA	STATION	INVERT	SECT										2287.34					
		0.01	2284.21	1															
ELEMENT NO 2 IS A REACH																	RADIUS	ANGLE	ANG PT	MAN H
	U/S DATA	STATION	INVERT	SECT			N										0.00	0.00	0.00	0
		24.01	2284.28	1			0.013													
ELEMENT NO 3 IS A REACH																	RADIUS	ANGLE	ANG PT	MAN H
	U/S DATA	STATION	INVERT	SECT			N										50.00	90.00	0.00	0
		102.54	2284.52	1			0.013													
ELEMENT NO 4 IS A JUNCTION																				
	U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4							
		202.54	2284.82	1	7	0	0.013	35.0	0.0	2284.82	0.00	45.00	0.00							
ELEMENT NO 5 IS A JUNCTION																				
	U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4							
		780.59	2286.55	1	5	0	0.013	74.0	0.0	2286.03	0.00	45.00	0.00							
ELEMENT NO 6 IS A REACH																	RADIUS	ANGLE	ANG PT	MAN H
	U/S DATA	STATION	INVERT	SECT			N										0.00	0.00	0.00	0
		1909.04	2289.94	1			0.013													
ELEMENT NO 7 IS A REACH																	RADIUS	ANGLE	ANG PT	MAN H
	U/S DATA	STATION	INVERT	SECT			N										50.00	33.00	0.00	0
		1937.58	2290.02	1			0.013													
ELEMENT NO 8 IS A TRANSITION																				
	U/S DATA	STATION	INVERT	SECT			N													
		1943.53	2290.04	2			0.013													
ELEMENT NO 9 IS A REACH																	RADIUS	ANGLE	ANG PT	MAN H
	U/S DATA	STATION	INVERT	SECT			N										0.00	0.00	0.00	0
		1950.20	2290.06	2			0.013													
ELEMENT NO 10 IS A REACH																	RADIUS	ANGLE	ANG PT	MAN H
	U/S DATA	STATION	INVERT	SECT			N										0.00	0.00	45.00	0
		2074.47	2290.68	2			0.013													
ELEMENT NO 11 IS A JUNCTION																				
	U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4							
		2074.48	2290.68	2	5	0	0.013	86.0	0.0	2290.68	0.00	45.00	0.00							

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

F 0 5 1 5 P

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 12 IS A JUNCTION

		STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	U/S DATA	2103.18	2290.79	2	5	0	0.013	47.0	0.0	2291.24	0.00	45.00	0.00

		STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 13 IS A REACH	U/S DATA	2132.18	2290.86	2	0.013	0.00	0.00	42.00	0

		STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
ELEMENT NO 14 IS A JUNCTION	U/S DATA	2144.08	2290.89	2	5	5	0.013	0.1	0.1	2291.34	2291.34	90.00	90.00

		STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
ELEMENT NO 15 IS A JUNCTION	U/S DATA	2166.58	2290.96	2	4	4	0.013	37.5	37.5	2291.16	2291.16	60.00	60.00

		STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 16 IS A REACH	U/S DATA	2179.28	2291.00	2	0.013	0.00	0.00	0.00	0

		STATION	INVERT	SECT	N
ELEMENT NO 17 IS A TRANSITION	U/S DATA	2197.28	2291.14	3	0.013

		STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 18 IS A REACH	U/S DATA	2275.51	2291.78	3	0.013	0.00	0.00	10.00	1

		STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 19 IS A REACH	U/S DATA	2280.51	2292.28	3	0.013	0.00	0.00	0.00	0

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

		STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 20 IS A REACH	U/S DATA	2508.82	2294.04	4	0.013	0.00	0.00	10.00	1

		STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 21 IS A REACH	U/S DATA	2734.82	2295.74	4	0.013	0.00	0.00	10.00	1♀

F 0 5 1 5 P

WATER SURFACE PROFILE - ELEMENT CARD LISTING

		STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 22 IS A REACH	U/S DATA	2918.12	2297.11	4	0.013	0.00	0.00	4.00	1

		STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 23 IS A REACH	U/S DATA	3155.02	2298.89	4	0.013	0.00	0.00	10.00	1

		STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 24 IS A REACH	U/S DATA	3258.62	2299.67	4	0.013	0.00	0.00	10.00	1

		STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
ELEMENT NO 25 IS A JUNCTION	U/S DATA	3417.62	2300.24	4	6	0	0.013	55.0	0.0	2301.25	0.00	90.00	0.00

		STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
ELEMENT NO 26 IS A JUNCTION	U/S DATA	3508.70	2301.54	4	0	7	0.013	0.0	25.0	0.00	2303.04	0.00	90.00

		STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 27 IS A REACH	U/S DATA	3780.30	2302.63	4	0.013	0.00	0.00	0.00	1

		STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 28 IS A REACH	U/S DATA	4051.80	2303.72	4	0.013	0.00	0.00	0.00	1

		STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
ELEMENT NO 29 IS A JUNCTION	U/S DATA	4320.80	2304.81	4	7	8	0.013	28.0	11.0	2306.32	2307.31	90.00	90.00

		STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 30 IS A REACH	U/S DATA	4325.80	2306.31	4	0.013	0.00	0.00	0.00	0

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

		STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 31 IS A REACH	U/S DATA	4608.30	2307.44	7	0.013	0.00	0.00	0.00	1♀

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WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 32 IS A REACH		*	*	*			RADIUS	ANGLE	ANG PT	MAN H
	U/S DATA	STATION	INVERT	SECT	N		0.00	0.00	0.00	1
		4890.80	2308.56	7	0.013					
ELEMENT NO 33 IS A REACH		*	*	*			RADIUS	ANGLE	ANG PT	MAN H
	U/S DATA	STATION	INVERT	SECT	N		0.00	0.00	90.00	1
		5173.30	2309.70	7	0.013					
ELEMENT NO 34 IS A REACH		*	*	*			RADIUS	ANGLE	ANG PT	MAN H
	U/S DATA	STATION	INVERT	SECT	N		0.00	0.00	0.00	0
		5238.50	2310.03	7	0.013					
ELEMENT NO 35 IS A SYSTEM HEADWORKS				*	*	W S ELEV				
	U/S DATA	STATION	INVERT	SECT		0.00				
		5238.50	2310.03	7						

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
LICENSEE: SLATER HANIFAN GROUP

F0515P
WATER SURFACE PROFILE LISTING
PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
EXISTING STORM DRAIN - FARM RD TO ALAINTE FLOOD CHANNEL
ULTIMATE CONDITION 100-YEAR NOVEMBER 2013

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
L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
0.01	2284.21	4.325	2288.535	464.2	11.79	2.160	2290.695	0.00	4.325		5.00	9.10	0.00	0	0.00
24.00	0.00292					.003472	0.08			4.719			0.00		
24.01	2284.28	4.526	2288.806	464.2	11.27	1.973	2290.779	0.00	4.325		5.00	9.10	0.00	0	0.00
78.53	0.00306					.003194	0.25			4.637			0.00		
102.54	2284.52	4.598	2289.118	464.2	11.09	1.911	2291.029	0.00	4.325		5.00	9.10	0.00	0	0.00
JUNCT STR	0.00300					.003396	0.34						0.00		
202.54	2284.82	5.320	2290.140	429.2	9.49	1.397	2291.537	0.00	4.104		5.00	9.10	0.00	0	0.00
JUNCT STR	0.00299					.003087	1.78						0.00		
780.59	2286.55	6.043	2292.593	355.2	7.85	0.957	2293.550	0.00	3.618		5.00	9.10	0.00	0	0.00
1128.45	0.00300					.002510	2.83			3.825			0.00		
1909.04	2289.94	5.486	2295.426	355.2	7.85	0.957	2296.383	0.00	3.618		5.00	9.10	0.00	0	0.00
28.54	0.00280					.002510	0.07			3.924			0.00		
1937.58	2290.02	5.594	2295.614	355.2	7.85	0.957	2296.571	0.00	3.618		5.00	9.10	0.00	0	0.00
TRANS STR	0.00336					.001697	0.01						0.00		
1943.53	2290.04	6.193	2296.233	355.2	5.09	0.403	2296.636	0.00	2.715		5.00	14.00	0.00	0	0.00
6.67	0.00300					.000883	0.01			2.631			0.00		
1950.20	2290.06	6.179	2296.239	355.2	5.09	0.403	2296.642	0.00	2.715		5.00	14.00	0.00	0	0.00
124.27	0.00499					.000883	0.11			2.219			0.00		
2074.47	2290.68	5.729	2296.409	355.2	5.09	0.403	2296.812	0.00	2.715		5.00	14.00	0.00	0	0.00
JUNCT STR	0.00000					.000695	0.00						0.00		
2074.48	2290.68	5.886	2296.566	269.2	3.86	0.231	2296.797	0.00	2.257		5.00	14.00	0.00	0	0.00
JUNCT STR	0.00383					.000427	0.01						0.00		

LICENSEE: SLATER HANIFAN GROUP

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WATER SURFACE PROFILE LISTING
PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
EXISTING STORM DRAIN - FARM RD TO ALAINTE FLOOD CHANNEL
ULTIMATE CONDITION 100-YEAR NOVEMBER 2013

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
L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
2103.18	2290.79	5.881	2296.671	222.2	3.19	0.158	2296.829	0.00	1.986		5.00	14.00	0.00	0	0.00

29.00	0.00241					.000346	0.01			2.069			0.00		
2132.18	2290.86	5.843	2296.703	222.2	3.19	0.158	2296.861	0.00	1.986		5.00	14.00	0.00	0	0.00
JUNCT STR	0.00252					.000345	0.00						0.00		
2144.08	2290.89	5.817	2296.707	222.0	3.18	0.157	2296.864	0.00	1.984		5.00	14.00	0.00	0	0.00
JUNCT STR	0.00311					.000248	0.01						0.00		
2166.58	2290.96	5.890	2296.850	147.0	2.11	0.069	2296.919	0.00	1.508		5.00	14.00	0.00	0	0.00
12.70	0.00315					.000151	0.00			1.449			0.00		
2179.28	2291.00	5.852	2296.852	147.0	2.11	0.069	2296.921	0.00	1.508		5.00	14.00	0.00	0	0.00
TRANS STR	0.00778					.001669	0.03						0.00		
2197.28	2291.14	5.101	2296.241	147.0	7.49	0.870	2297.111	0.00	3.476		5.00	0.00	0.00	0	0.00
29.21	0.00818					.003167	0.09			2.861			0.00		
2226.49	2291.38	5.000	2296.379	147.0	7.49	0.870	2297.249	0.00	3.476		5.00	0.00	0.00	0	0.00
49.02	0.00818					.002950	0.14			2.861			0.00		
2275.51	2291.78	4.698	2296.478	147.0	7.68	0.915	2297.393	0.00	3.476		5.00	0.00	0.00	0	0.00
2.27	0.10000					.002814	0.01			1.430			0.00		
2277.78	2292.01	4.386	2296.393	147.0	8.05	1.007	2297.400	0.00	3.476		5.00	0.00	0.00	0	0.00
1.43	0.10000					.002998	0.00			1.430			0.00		
2279.21	2292.15	4.146	2296.296	147.0	8.44	1.107	2297.403	0.00	3.476		5.00	0.00	0.00	0	0.00
0.99	0.10000					.003279	0.00			1.430			0.00		
2280.20	2292.25	3.940	2296.189	147.0	8.86	1.218	2297.407	0.00	3.476		5.00	0.00	0.00	0	0.00
0.31	0.10000					.003513	0.00			1.430			0.00		

LICENSEE: SLATER HANIFAN GROUP

F0515P

WATER SURFACE PROFILE LISTING

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
EXISTING STORM DRAIN - FARM RD TO ALAINTE FLOOD CHANNEL
ULTIMATE CONDITION 100-YEAR NOVEMBER 2013

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
L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
2280.51	2292.28	3.860	2296.140	147.0	9.04	1.268	2297.408	0.00	3.476		5.00	0.00	0.00	0	0.00
2280.51	2292.28	3.191	2295.471	147.0	12.19	2.307	2297.778	0.00	3.560		4.50	0.00	0.00	0	0.00
51.32	0.00771					.007709	0.40			3.191			0.00		
2331.83	2292.68	3.191	2295.867	147.0	12.19	2.307	2298.174	0.00	3.560		4.50	0.00	0.00	0	0.00
176.99	0.00771					.007615	1.35			3.191			0.00		
2508.82	2294.04	3.222	2297.262	147.0	12.06	2.260	2299.522	0.00	3.560		4.50	0.00	0.00	0	0.00
58.55	0.00752					.007522	0.44			3.222			0.00		
2567.37	2294.48	3.222	2297.702	147.0	12.06	2.260	2299.962	0.00	3.560		4.50	0.00	0.00	0	0.00
167.45	0.00752					.007498	1.26			3.222			0.00		
2734.82	2295.74	3.230	2298.970	147.0	12.03	2.248	2301.218	0.00	3.560		4.50	0.00	0.00	0	0.00
19.88	0.00747					.007475	0.15			3.230			0.00		
2754.70	2295.89	3.230	2299.119	147.0	12.03	2.248	2301.367	0.00	3.560		4.50	0.00	0.00	0	0.00
163.42	0.00747					.007496	1.22			3.230			0.00		
2918.12	2297.11	3.223	2300.333	147.0	12.06	2.258	2302.591	0.00	3.560		4.50	0.00	0.00	0	0.00
67.34	0.00751					.007516	0.51			3.223			0.00		
2985.46	2297.62	3.223	2300.839	147.0	12.06	2.258	2303.097	0.00	3.560		4.50	0.00	0.00	0	0.00

169.56	0.00751					.007436	1.26			3.223			0.00			
3155.02	2298.89	3.251	2302.141	147.0	11.95	2.217	2304.358	0.00	3.560		4.50	0.00	0.00	0	0.00	
89.26	0.00753					.006998	0.62			3.220			0.00			
3244.28	2299.56	3.392	2302.954	147.0	11.43	2.028	2304.982	0.00	3.560		4.50	0.00	0.00	0	0.00	
14.34	0.00753					.006310	0.09			3.220			0.00			
3258.62	2299.67	3.560	2303.230	147.0	10.89	1.842	2305.072	0.00	3.560		4.50	0.00	0.00	0	0.00	

WATER SURFACE PROFILE LISTING

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
EXISTING STORM DRAIN - FARM RD TO ALAINTE FLOOD CHANNEL
ULTIMATE CONDITION 100-YEAR NOVEMBER 2013

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
L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
JUNCT STR	0.00359					.004085	0.65						0.00		
3417.62	2300.24	5.898	2306.138	92.0	5.78	0.520	2306.658	0.00	2.814		4.50	0.00	0.00	0	0.00
JUNCT STR	0.01427					.001675	0.15						0.00		
3508.70	2301.54	5.239	2306.779	67.0	4.21	0.276	2307.055	0.00	2.385		4.50	0.00	0.00	0	0.00
263.71	0.00401					.001154	0.30			2.350			0.00		
3772.41	2302.60	4.500	2307.098	67.0	4.21	0.276	2307.374	0.00	2.385		4.50	0.00	0.00	0	0.00
7.89	0.00401					.001119	0.01			2.350			0.00		
3780.30	2302.63	4.476	2307.106	67.0	4.22	0.276	2307.382	0.00	2.385		4.50	0.00	0.00	0	0.00
124.71	0.00402					.001054	0.13			2.350			0.00		
3905.01	2303.13	4.079	2307.210	67.0	4.42	0.304	2307.514	0.00	2.385		4.50	0.00	0.00	0	0.00
71.43	0.00402					.001052	0.08			2.350			0.00		
3976.44	2303.42	3.837	2307.255	67.0	4.64	0.334	2307.589	0.00	2.385		4.50	0.00	0.00	0	0.00
57.59	0.00402					.001139	0.07			2.350			0.00		
4034.03	2303.65	3.638	2307.287	67.0	4.86	0.367	2307.654	0.00	2.385		4.50	0.00	0.00	0	0.00
17.77	0.00402					.001211	0.02			2.350			0.00		
4051.80	2303.72	3.576	2307.296	67.0	4.94	0.379	2307.675	0.00	2.385		4.50	0.00	0.00	0	0.00
JUNCT STR	0.00405					.000742	0.20						0.00		
4320.80	2304.81	3.324	2308.134	28.0	2.22	0.077	2308.211	0.00	1.513		4.50	0.00	0.00	0	0.00
0.46	0.30000					.000268	0.00			0.500			0.00		
4321.26	2304.95	3.178	2308.127	28.0	2.33	0.084	2308.211	0.00	1.513		4.50	0.00	0.00	0	0.00
0.42	0.30000					.000300	0.00			0.500			0.00		
4321.68	2305.07	3.044	2308.118	28.0	2.45	0.093	2308.211	0.00	1.513		4.50	0.00	0.00	0	0.00

WATER SURFACE PROFILE LISTING

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
EXISTING STORM DRAIN - FARM RD TO ALAINTE FLOOD CHANNEL
ULTIMATE CONDITION 100-YEAR NOVEMBER 2013

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
L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
0.39	0.30000					.000336	0.00			0.500			0.00		
4322.07	2305.19	2.919	2308.109	28.0	2.56	0.102	2308.211	0.00	1.513		4.50	0.00	0.00	0	0.00
0.36	0.30000					.000379	0.00			0.500			0.00		
4322.43	2305.30	2.801	2308.099	28.0	2.69	0.112	2308.211	0.00	1.513		4.50	0.00	0.00	0	0.00

0.33	0.30000					.000428	0.00		0.500			0.00			
4322.76	2305.40	2.691	2308.088	28.0	2.82	0.124	2308.212	0.00	1.513		4.50	0.00	0.00	0	0.00
0.30	0.30000					.000483	0.00		0.500			0.00			
4323.06	2305.49	2.587	2308.076	28.0	2.96	0.136	2308.212	0.00	1.513		4.50	0.00	0.00	0	0.00
0.29	0.30000					.000547	0.00		0.500			0.00			
4323.35	2305.57	2.488	2308.062	28.0	3.10	0.150	2308.212	0.00	1.513		4.50	0.00	0.00	0	0.00
0.26	0.30000					.000620	0.00		0.500			0.00			
4323.61	2305.65	2.394	2308.048	28.0	3.25	0.164	2308.212	0.00	1.513		4.50	0.00	0.00	0	0.00
0.24	0.30000					.000702	0.00		0.500			0.00			
4323.85	2305.73	2.305	2308.031	28.0	3.41	0.181	2308.212	0.00	1.513		4.50	0.00	0.00	0	0.00
0.23	0.30000					.000797	0.00		0.500			0.00			
4324.08	2305.79	2.220	2308.013	28.0	3.58	0.199	2308.212	0.00	1.513		4.50	0.00	0.00	0	0.00
0.20	0.30000					.000905	0.00		0.500			0.00			
4324.28	2305.86	2.139	2307.994	28.0	3.75	0.219	2308.213	0.00	1.513		4.50	0.00	0.00	0	0.00
0.19	0.30000					.001029	0.00		0.500			0.00			
4324.47	2305.91	2.062	2307.972	28.0	3.94	0.241	2308.213	0.00	1.513		4.50	0.00	0.00	0	0.00
0.10	0.30000					.001139	0.00		0.500			0.00			
4324.57	2305.94	2.018	2307.958	28.0	4.05	0.255	2308.213	0.00	1.513		4.50	0.00	0.00	0	0.00‡

LICENSEE: SLATER HANIFAN GROUP

F0515P

WATER SURFACE PROFILE LISTING

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
EXISTING STORM DRAIN - FARM RD TO ALAINTE FLOOD CHANNEL
ULTIMATE CONDITION 100-YEAR NOVEMBER 2013

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
L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
HYDRAULIC JUMP													0.00		
4324.57	2305.94	1.111	2307.051	28.0	9.17	1.304	2308.355	0.00	1.513		4.50	0.00	0.00	0	0.00
0.03	0.30000					.011353	0.00			0.500			0.00		
4324.60	2305.95	1.111	2307.061	28.0	9.17	1.304	2308.365	0.00	1.513		4.50	0.00	0.00	0	0.00
0.28	0.30000					.010638	0.00			0.500			0.00		
4324.88	2306.03	1.149	2307.183	28.0	8.74	1.186	2308.369	0.00	1.513		4.50	0.00	0.00	0	0.00
0.24	0.30000					.009302	0.00			0.500			0.00		
4325.12	2306.11	1.188	2307.293	28.0	8.33	1.078	2308.371	0.00	1.513		4.50	0.00	0.00	0	0.00
0.19	0.30000					.008138	0.00			0.500			0.00		
4325.31	2306.16	1.230	2307.392	28.0	7.94	0.980	2308.372	0.00	1.513		4.50	0.00	0.00	0	0.00
0.16	0.30000					.007121	0.00			0.500			0.00		
4325.47	2306.21	1.272	2307.482	28.0	7.57	0.891	2308.373	0.00	1.513		4.50	0.00	0.00	0	0.00
0.12	0.30000					.006232	0.00			0.500			0.00		
4325.59	2306.25	1.317	2307.564	28.0	7.22	0.810	2308.374	0.00	1.513		4.50	0.00	0.00	0	0.00
0.09	0.30000					.005456	0.00			0.500			0.00		
4325.68	2306.28	1.363	2307.638	28.0	6.88	0.736	2308.374	0.00	1.513		4.50	0.00	0.00	0	0.00
0.07	0.30000					.004776	0.00			0.500			0.00		
4325.75	2306.30	1.410	2307.706	28.0	6.57	0.669	2308.375	0.00	1.513		4.50	0.00	0.00	0	0.00
0.04	0.30000					.004183	0.00			0.500			0.00		
4325.79	2306.31	1.460	2307.767	28.0	6.26	0.608	2308.375	0.00	1.513		4.50	0.00	0.00	0	0.00

0.01	0.30000					.003660	0.00			0.500			0.00		
4325.80	2306.31	1.513	2307.823	28.0	5.96	0.552	2308.375	0.00	1.513		4.50	0.00	0.00	0	0.00‡

WATER SURFACE PROFILE LISTING

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
EXISTING STORM DRAIN - FARM RD TO ALAINTE FLOOD CHANNEL
ULTIMATE CONDITION 100-YEAR NOVEMBER 2013

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
L/ELEM	SO					SF AVE	HF						ZR		
4325.80	2306.31	1.712	2308.022	28.0	6.72	0.701	2308.723	0.00	1.712		3.00	0.00	0.00	0	0.00
14.70	0.00400					.004299	0.06			1.785			0.00		
4340.50	2306.37	1.780	2308.149	28.0	6.40	0.637	2308.786	0.00	1.712		3.00	0.00	0.00	0	0.00
66.58	0.00400					.004019	0.27			1.785			0.00		
4407.08	2306.64	1.785	2308.420	28.0	6.39	0.633	2309.053	0.00	1.712		3.00	0.00	0.00	0	0.00
201.22	0.00400					.004004	0.81			1.785			0.00		
4608.30	2307.44	1.785	2309.225	28.0	6.39	0.633	2309.858	0.00	1.712		3.00	0.00	0.00	0	0.00
33.60	0.00396					.003988	0.13			1.790			0.00		
4641.90	2307.57	1.790	2309.363	28.0	6.37	0.629	2309.992	0.00	1.712		3.00	0.00	0.00	0	0.00
248.90	0.00396					.003970	0.99			1.790			0.00		
4890.80	2308.56	1.790	2310.350	28.0	6.37	0.629	2310.979	0.00	1.712		3.00	0.00	0.00	0	0.00
50.02	0.00404					.004006	0.20			1.780			0.00		
4940.82	2308.76	1.780	2310.542	28.0	6.41	0.638	2311.180	0.00	1.712		3.00	0.00	0.00	0	0.00
232.48	0.00404					.004039	0.94			1.780			0.00		
5173.30	2309.70	1.780	2311.480	28.0	6.41	0.638	2312.118	0.00	1.712		3.00	0.00	0.00	0	0.00
2.17	0.00506					.004303	0.01			1.657			0.00		
5175.47	2309.71	1.712	2311.423	28.0	6.72	0.701	2312.124	0.00	1.712		3.00	0.00	0.00	0	0.00
HYDRAULIC JUMP													0.00		
5175.47	2309.71	1.657	2311.368	28.0	6.99	0.759	2312.127	0.00	1.712		3.00	0.00	0.00	0	0.00
48.61	0.00506					.005067	0.25			1.657			0.00		
5224.08	2309.96	1.657	2311.614	28.0	6.99	0.759	2312.373	0.00	1.712		3.00	0.00	0.00	0	0.00
14.42	0.00506					.004816	0.07			1.657			0.00		

WATER SURFACE PROFILE LISTING

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
EXISTING STORM DRAIN - FARM RD TO ALAINTE FLOOD CHANNEL
ULTIMATE CONDITION 100-YEAR NOVEMBER 2013

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
L/ELEM	SO					SF AVE	HF						ZR		
5238.50	2310.03	1.712	2311.742	28.0	6.72	0.701	2312.443	0.00	1.712		3.00	0.00	0.00	0	0.00‡

PARK HIGHLANDS WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
EXISTING STORM DRAIN - FARM RD TO ALAINTE FLOOD CHANNEL
ULTIMATE CONDITION 100-YEAR NOVEMBER 2013

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      0.01    .I          X H    E                                                                          .    R
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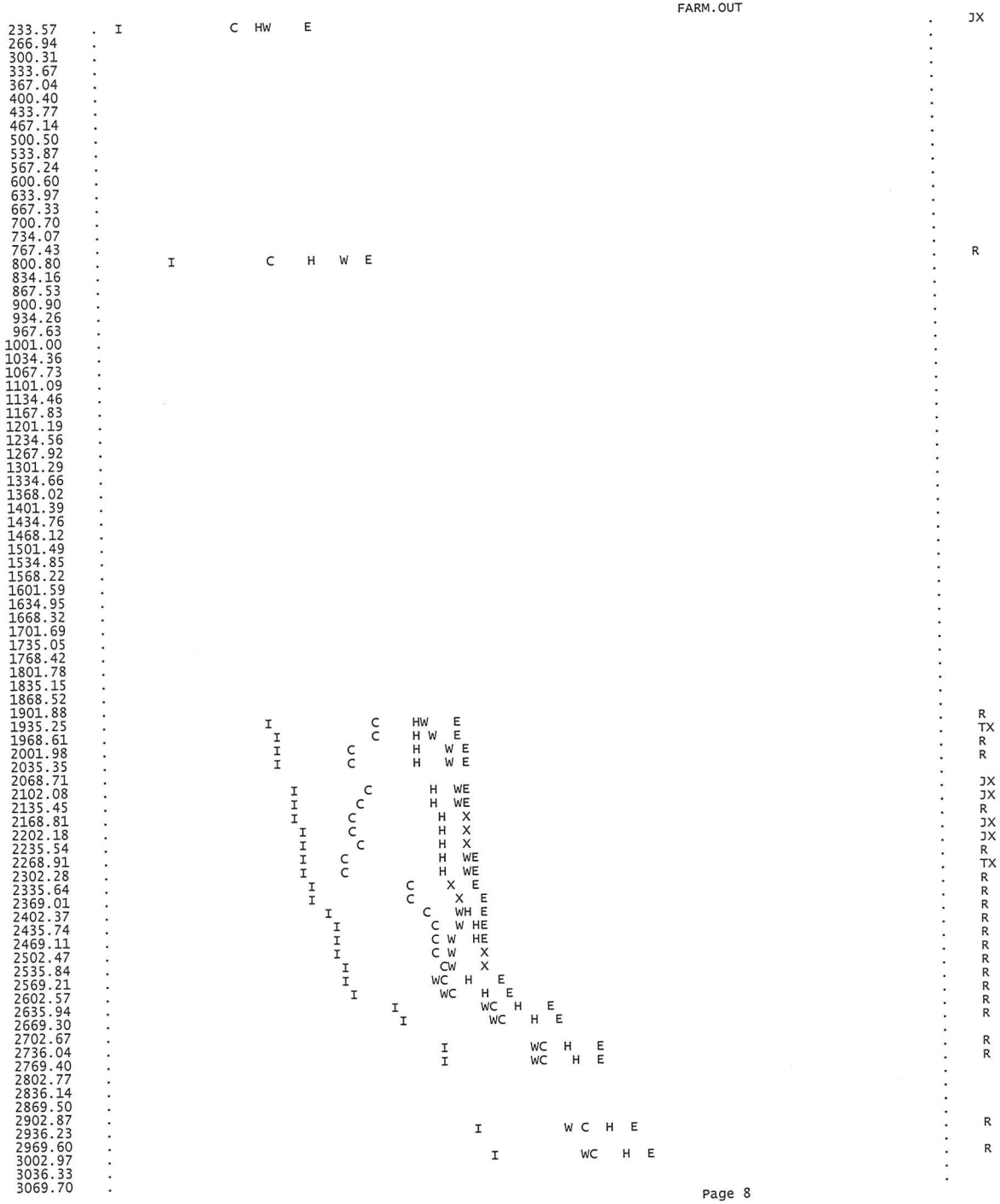
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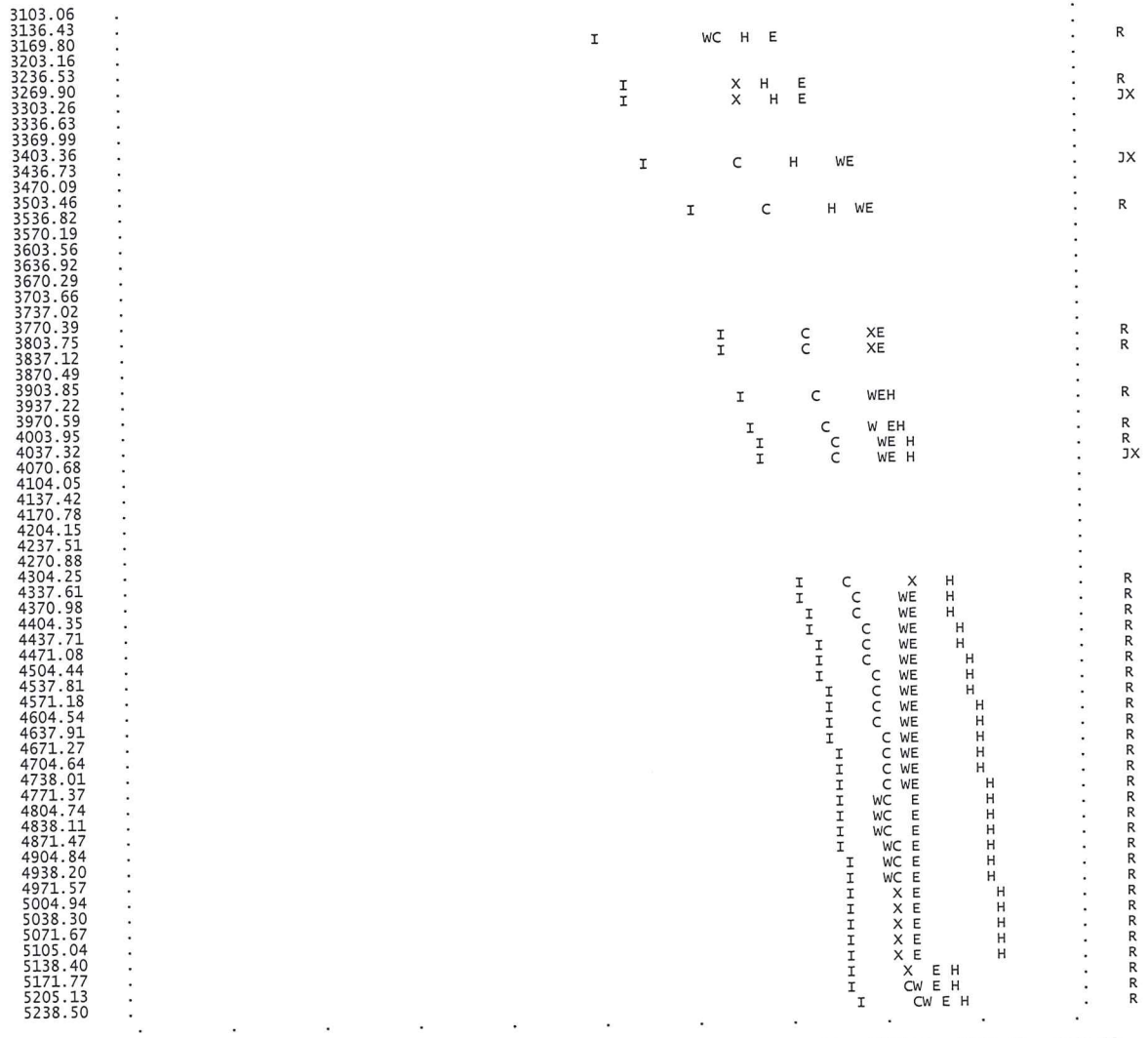

N O T E S
1. GLOSSARY
   I = INVERT ELEVATION
   C = CRITICAL DEPTH
   W = WATER SURFACE ELEVATION
   H = HEIGHT OF CHANNEL
   E = ENERGY GRADE LINE
   X = CURVES CROSSING OVER
   B = BRIDGE ENTRANCE OR EXIT
   Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

Mainline WSPG Analysis

Virage Park East Storm Drain –Detention Basin Outlet Structure to Farm Rd

```
T1  PARK HIGHLAND WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY          0
T2  VIRAGE PARK STORM DRAIN - DETENTION BASIN OUTLET STRUCTURE TO FARM RD
T3  ULTIMATE CONDITION 100-YEAR NOVEMBER 2013
SO  -6970.3302290.680 11      .013                2296.566
R   -6950.8222290.742 11      .013                      400.000   9.000    .000
R   -6887.3362290.946 11      .013
R   -6833.8112291.117 11      .013
JX  -6821.6252291.156 10  6   .013    0.001         2292.020         45.0
R   -6547.9702292.020 10      .013                                          12.000
R   -6413.4402292.450 10      .013                                           9.000
JX  -6413.4402292.450 10  6   .013    0.001         2292.600         57.0
R   -6278.9102292.900 10      .013                                          10.000
JX  -6278.9102292.900 10  4   .013    1.000         2295.900        -20.0
R   -6114.1302293.400 10      .013                                          12.000
R   -5949.7102294.000 10      .013                                         -59.000
R   -5799.3002294.610 10      .013                                         -37.000
JX  -5799.3002294.610 10  5  5.013    0.001  0.001  2297.1002297.100 27.0-90.0
R   -5721.6002294.840 10      .013
JX  -5721.6002294.840 10  1  1.013    0.001  0.001  2299.4002299.400 45.0-45.0
R   -5625.0002295.130 10      .013                                          52.000
R   -5518.0002295.500 10      .013
SH  -5518.0002295.500 10      .013                2307.020
CD   1  4   1    .000   1.500     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
CD   3  4   1    .000   2.500     .000  .000  .000   .00
CD   4  4   1    .000   3.000     .000  .000  .000   .00
CD   5  4   1    .000   3.500     .000  .000  .000   .00
CD   6  4   1    .000   4.000     .000  .000  .000   .00
CD   7  4   1    .000   4.500     .000  .000  .000   .00
CD   8  4   1    .000   5.000     .000  .000  .000   .00
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♀ FILE: VPDE.WSW

W S P G W - CIVILDESIGN Version 14.06

Program Package Serial Number: 1704

WATER SURFACE PROFILE LISTING

Date:10-25-2013 Time: 2:33:36

PARK HIGHLAND WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY

VIRAGE PARK STORM DRAIN - DETENTION BASIN OUTLET STRUCTURE TO FARM RD

ULTIMATE CONDITION 100-YEAR NOVEMBER 2013

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
-6970.330	2290.680	5.886	2296.566	232.01	7.73	.93	2297.49	.00	3.59	6.00	5.000	6.000	.00	0 .0
19.508	.0032					.0030	.06	5.89	.61	4.15	.013	.00	.00	BOX
-6950.822	2290.742	5.883	2296.625	232.01	7.73	.93	2297.55	.00	3.59	6.00	5.000	6.000	.00	0 .0
63.486	.0032					.0030	.19	.00	.61	4.13	.013	.00	.00	BOX
-6887.336	2290.946	5.930	2296.876	232.01	7.73	.93	2297.80	.00	3.59	6.00	5.000	6.000	.00	0 .0
53.525	.0032					.0030	.16	5.93	.61	4.14	.013	.00	.00	BOX
-6833.811	2291.117	5.921	2297.038	232.01	7.73	.93	2297.97	.00	3.59	6.00	5.000	6.000	.00	0 .0
JUNCT STR	.0032					.0028	.03	5.92	.61		.013	.00	.00	BOX

---------- WARNING - Junction Analysis - Change in Channel Type ----------

-6821.625	2291.156	5.773	2296.929	232.01	8.31	1.07	2298.00	.00	4.17	2.29	6.000	.000	.00	1 .0
273.655	.0032					.0026	.71	5.77	.42	4.79	.013	.00	.00	PIPE
-6547.970	2292.020	5.583	2297.603	232.01	8.46	1.11	2298.72	.00	4.17	3.05	6.000	.000	.00	1 .0
134.530	.0032					.0026	.35	5.58	.50	4.76	.013	.00	.00	PIPE
JUNCT STR	.0000					.0026	.00	5.48	.53		.013	.00	.00	PIPE
-6413.440	2292.450	5.475	2297.925	232.00	8.57	1.14	2299.07	.00	4.17	3.39	6.000	.000	.00	1 .0
134.530	.0033					.0026	.36	5.48	.53	4.66	.013	.00	.00	PIPE

♀ FILE: VPDE.WSW

W S P G W - CIVILDESIGN Version 14.06

Program Package Serial Number: 1704

WATER SURFACE PROFILE LISTING

Date:10-25-2013 Time: 2:33:36

PARK HIGHLAND WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY

VIRAGE PARK STORM DRAIN - DETENTION BASIN OUTLET STRUCTURE TO FARM RD

ULTIMATE CONDITION 100-YEAR NOVEMBER 2013

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
-6278.910	2292.900	5.338	2298.238	232.00	8.73	1.18	2299.42	.00	4.17	3.76	6.000	.000	.00	1 .0
JUNCT STR	.0000					.0027	.00	5.34	.58		.013	.00	.00	PIPE
-6278.910	2292.900	5.368	2298.268	231.00	8.66	1.16	2299.43	.00	4.16	3.68	6.000	.000	.00	1 .0
164.780	.0030					.0027	.44	5.37	.57	4.87	.013	.00	.00	PIPE
-6114.130	2293.400	5.274	2298.674	231.00	8.77	1.20	2299.87	.00	4.16	3.91	6.000	.000	.00	1 .0
164.420	.0036					.0028	.46	5.27	.60	4.46	.013	.00	.00	PIPE
-5949.710	2294.000	5.033	2299.033	231.00	9.12	1.29	2300.32	.00	4.16	4.41	6.000	.000	.00	1 .0
118.934	.0041					.0030	.36	5.03	.67	4.27	.013	.00	.00	PIPE
-5830.776	2294.482	4.778	2299.260	231.00	9.57	1.42	2300.68	.00	4.16	4.83	6.000	.000	.00	1 .0
31.476	.0041					.0032	.10	4.78	.75	4.27	.013	.00	.00	PIPE
JUNCT STR	.0000					.0032	.00	4.71	.78		.013	.00	.00	PIPE
-5799.300	2294.610	4.712	2299.322	231.00	9.70	1.46	2300.78	.00	4.16	4.93	6.000	.000	.00	1 .0
77.700	.0030					.0032	.25	4.71	.78	4.93	.013	.00	.00	PIPE
JUNCT STR	.0000					.0032	.00	4.76	.76		.013	.00	.00	PIPE
-5721.600	2294.840	4.758	2299.598	231.00	9.61	1.43	2301.03	.00	4.16	4.86	6.000	.000	.00	1 .0
96.600	.0030					.0031	.30	4.76	.76	4.90	.013	.00	.00	PIPE

♀ FILE: VPDE.WSW

W S P G W - CIVILDESIGN Version 14.06

Program Package Serial Number: 1704

WATER SURFACE PROFILE LISTING Date:10-25-2013 Time: 2:33:36

PARK HIGHLAND WEST - GRAND TETON REGIONAL FLOOD CONTROL FACILITY
VIRAGE PARK STORM DRAIN - DETENTION BASIN OUTLET STRUCTURE TO FARM RD
ULTIMATE CONDITION 100-YEAR NOVEMBER 2013

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
-5625.000	2295.130	4.791	2299.921	231.00	9.54	1.41	2301.34	.00	4.16	4.81	6.000	.000	.00	1 .0
107.000	.0035					.0032	.34	4.79	.75	4.57	.013	.00	.00	PIPE
-5518.000	2295.500	4.719	2300.219	231.00	9.68	1.46	2301.67	.00	4.16	4.92	6.000	.000	.00	1 .0

APPENDIX G

Revised Plan, Profile and Detail Sheets

APPENDIX H

Electronic Files

TECHNICAL DRAINAGE STUDY
SUPPLEMENT No.1 to ADDENDUM No. 2
Park Highlands Grand Teton
Regional Flood Control Facility

City of North Las Vegas, Nevada

Job No.: CBH1201.000
Date: April 2013

Prepared By:
Slater Hanifan Group, Inc.
5740 S. Arville Street, Suite 216
Las Vegas, Nevada 89118
Phone: 702-284-5300 ▪ Fax: 702-284-5399

Prepared For:
Crescent Bay Holdings
7144 East Stetson Drive, Suite 410
Scottsdale, AZ 85251
Phone: 404-584-6997

4/9/14

Mark J. Failla, P.E., CFM
NV Professional Engineer No. 14566

Assisted by: Kellin Collins, P.E.

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Park Highlands - Grand Teton Regional Flood Control Facility (Supplement No.1 to Addendum No. 2) Date: April 2014

Location of Development: a) Descriptive (Cross Streets): North/South: Decatur Boulevard
East/West: Grand Teton Drive

b) Section: 18 Township: 19S Range: 61E

c) APN: 124-07-499-001 thru 004; 124-18-110-003, 005; 124-18-199-001; 124-18-510-001, 005, 008; 124-18-610-002, 006; 124-18-699-001; 125-12-899-002; 125-13-599-010

Name of Owner: Crescent Bay Holdings

Telephone No.: 480-584-6997 Fax No.: n/a E-mail Address: developaz@gmail.com

Address: 7144 East Stetson Drive, Suite 410, Scottsdale AZ 85251

Contact Person – Name: Mark J. Failla, PE, CFM Telephone No.: 702-284-5300

*E-mail Address: mfallia@shg-inc.com Fax No.: 702-284-5399

Firm: Slater Hanifan Group

Address: 5740 Arville St. #216

Type of Land Development/Land Disturbance Process:

☐	Rezoning	☐	Subdivison Map	☐	Clearing and grading Only
☐	Parcel Map	☐	Planned Unit Development	☒	Other (Please specify below)
☐	Large Parcel Map	☐	Building Permit		Storm drain and detention basin improvements

1. Total Owned Land Area: At Site: ±600 Acres Being Developed/Disturbed: +/-25 acres

2. Is a portion or all of the subject property located in a FEMA Flood Hazard Area? ☐ Yes** ☒ No

3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☒ Yes** ☐ No

4. Proposed type of development (Residential, Commercial, Etc.): Flood Control Facilities

5. Approximate upstream land area which drains to the subject site: 3.04 square miles

6. Has the site drainage been evaluated in the past? ☒ Yes** ☐ No If yes, please identify documentation: North Las Vegas 600-Arce Site Area 3 (Update No. 1)(CNLV 41331); North Las Vegas 600 Acre Site (CNLV 24576); TDS for North Las Vegas 600-Acre Site Area 4 (CNLV 27769), Grand Teton Storm Drain & Area1 Road Improvement (CNLV 4189)

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Flood channel within the Club Alliante

8. Briefly describe your proposed schedule for the subject project: ASAP

Engineer's Seal

Submit this form as part of the required drainage study to the local entity which has jurisdiction over The subject property. This form may provide sufficient information to serve as the Conceptual Drainage Study.

*Newly Required Field

**Review and concurrence of the Clark County Regional Flood Control District is required

Revision	Date

Local Entity File No.

REFERENCE: STANDARD FORM 1

Updated 05/01/2008

DEPARTMENT OF PUBLIC WORKS

CITY OF NORTH LAS VEGAS
Your Community of Choice

Drainage Study Submittal Application

- City of North Las Vegas Use Only - Project #:_____ Received :____/____/____ ☐ Fee paid $_____ ☐ Engineer's seal ☐ Drainage Study Checklist	Project name: Park Highlands-Grand Teton Regional Flood Control Facility ☐ Initial drainage study ☐ Concurrence ☐ CLOMR/LOMR ☑ Addendum #2 ☐ Amendment ☑ Supplement ☐ Update to *(original study name)*:_____ Study review process desired: ☑ In-house ☐ Outsourced

Project location (incl. cross streets): Grand Teton Drive and Decatur Boulevard

Assessor parcel number(s): 124-07-499-001 thru 004; 124-18-110-003, 005; 124-18-199-001; 124-18-510-001, 005, 008;124-18-610-002, 006; 124-18-699-001; 125-12-899-002; 125-13-599-010

Acreage: +/- 25 acres	Number of lots: n/a	Section/Township/Range: 18/19S/61E

Type of development:
☐ Residential subdivision ☐ Commercial subdivision ☐ Commercial
☐ Multi-family ☑ Other (please specify): Storm Drain & Detention Basin

Drainage Study Review Fee Schedule

A pre-submittal meeting must be arranged prior to Initial and Update Study submittals (702/633-1932)

Initial drainage studies:		**Other submittals:**	
☐ ≤6 gross acres	$ 500	☐ Addendum	$ 0
☐ >6 to 41 gross acres	$1000	☐ Addendum 2 or greater	(see DFC Fee Schedule)
☐ >41 to 321 gross acres	$ 2000	☐ Update	$400
☐ >321 to 2,561 gross acres	$ 4000	☐ Amendment	$400
☐ >2,561 gross acres	$ 6000	☐ CLOMR/LOMR	$0
☐ Concurrence	$250		

Additional outsourced review fees: Drainage study $4,200 Update $2,500

3 copies of the study must be supplied for outsourced review.

Engineering firm: Slater Hanifan Group	Contact person: Mark J. Failla, PE, CFM
Address: 5740 S. Arville Street, Suite 216	Phone: 702-284-5300
	Fax: 702-284-5399
City: Las Vegas State./Zip NV/89118	E-mail: mfailla@shg-inc.com
Owner/developer: Crescent Bay Holdings	Contact person: Philip Miller
Address: 7144 East Stetson Drive, Suite 410	Phone: 480-584-6997
	Fax: n/a
City: Scottsdale State/Zip AZ/85251	E-Mail: developaz@gmail.com

Owner/developer wishes to be copied on all review correspondence: ☑ Yes ☐ No

Projects on the North Las Vegas municipal boundaries must be submitted to the adjacent jurisdiction for their review and/or approval. Projects that will impact the State's highway system must be submitted to the Nevada Department of Transportation District Office for review and approval.

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

CBH1201.000

April 9, 2014

Abigail Mayrena, P.E., CFM – Senior Engineer
Clark County Regional Flood Control district
600 S. Grand central Parkway, Suite 300
Las Vegas, Nevada 106-4511

Subject: Supplement No.1 to Addendum No. 2 to the Technical Drainage Study for Park Highlands Grand Teton Regional Flood Control Facility (CNLV No. 45326, CLV No. DS4577B, RFCD No. 13-9177)

Dear Ms. Mayrena:

This letter is submitted in response to comments contained in the March 20, 2014 review memorandum regarding the above referenced project by Clark County Regional Flood Control District (CCRFCD). Note that a meeting was held between Slater Hanifan Group and CCRFCD April 2, 2014 to discuss the CCRFCD comments on this project. Per the meeting, note the following:

- It was agreed that Comments No. 1, 2, 4 and 5 can be conditions of approval since the information will be presented in a Master Plan Amendment (MPA).
- For Comment No.3, it was agreed that some of the requested information is preferred with this supplement and the remaining requested information is sufficient to be provided with the MPA. Refer to response to Comment No. 3 for detailed discussion on the information requested by CCRFCD.
- Comments No. 6 through No. 11 are addressed with this supplement which will be submitted concurrently to CCRFCD, the City of North Las Vegas (CNLV) and the City of Las Vegas (CLV). The concurrent review was considered acceptable because Comment No. 6 does not change the project design but provides clarification. Comments No. 7 thru 11 are improvement plan corrections and the addition of details associated with the proposed detention basin that do not alter the overall design the facility.

A copy of the CCRFCD drainage study comment letter is included in Appendix A and the comments have been individually addressed below.

1. **Comment:** *The Engineer states that a Master Plan Amendment (MPA) will be submitted to address impacts to the District's Master Plan Update (MPU). The MPA is subject to District's Board of Directors' approval and must be adopted by City of North Las Vegas and City of Las Vegas. In the event that the MPA is not adopted and the facilities proposed in this Technical Drainage Study (TDS) are constructed, District funding shall not be allocated for maintenance of non-District facilities;*

   Response: Noted.

5740 S. Arville Street #216, Las Vegas, NV 89118 ph (702) 284-5300 fax (702) 284-5399

2. **Comment:** *The MPA concept and financial impact must be discussed and identified in this TDS to demonstrate that the MPU can be fully implemented with the associated changes;*

   Response: The MPA concept and financial impacts of the proposed MPA will be provided in the MPA.

3. **Comment:** *Revise the MPU exhibit to include information of all associated facilities (sizes, description, flow, length, etc.). Provide a discussion demonstrating that all existing facilities that will be incorporated to the MPU meet District's criteria to be added as District regional facilities (capacity, maintenance access, etc.). Please note that the "Northern CC-215 Bruce Woodbury Beltway from Decatur Blvd. to North 5th St." project is currently being advertised for construction. Coordinate connection location accordingly;*

   Response: Per meeting held with CCRFCD on April 2, 2014, the MPU exhibit will be updated with facility description, flow rate, slope and length for storm drain infrastructure being added to the MPU. Specifically, information is provided on the storm drain facilities along the Horse Drive alignment and thru the Park Highlands West and Aliante developments. All other information like existing facilities meeting District's criteria and maintenance access will be addressed in detail with the MPA. The revised MPU Exhibit is provided in Appendix B. Note that per the April 2, 2014, CCRFCD requested the proposed storm drain facilities traversing the Park Highlands West development be classified as a 'Category B Proposed Facilities.' CCRFCD confirmed that the change in category does not change the ability for CCRFCD funding of the facility in Grand Teton Drive to be extended west of the Grand Teton Drive and Decatur Blvd intersection.

   It is noted that the "Northern CC-215 Bruce Woodbury Beltway from Decatur Blvd. to North 5th St." project is currently being advertise for construction and will be addressed in detail with the MPA.

4. **Comment:** *It is noted that City of North Las Vegas and Crescent Bay are currently in the process of obtaining the necessary easements/rights from Bureau of Land Management to discharge flow thru the Conservation Transfer Area. If the permission is not granted, this study must be updated accordingly;*

   Response: Noted.

5. **Comment:** This study references Park Highlands West and East Master Drainage Studies. District has not reviewed these Master studies. Any impacts of the Master studies to the facilities proposed in this study may result in an update to this study;

   Response: Noted.

6. **Comment:** Comment #5f: For clarity, provide a discussion why there is additional sediment storage capacity of the detention basin (1.56 ac-ft required/23 ac-ft provided). Note that the response has 1 ac-ft required storage while it is 1.56 ac-ft on Sheet G-03, address discrepancy accordingly.

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Response: The 23 ac-ft provided for sediment is based on the difference in storage volume between the 100-year water surface elevation (WSE) and the spillway elevation. The 100-year WSE in detention basin is 2307.02-ft with a storage volume of 103 ac-ft. Per the CCRFCD Manual Section 1202.1, the emergency spillway must be a minimum of 1-ft above the design WSE for freeboard. With that design criteria, the spillway elevation has been set to 2308.50-ft with an associated storage volume of 126 ac-ft. The 23 ac-ft provided is the difference between 103 ac-ft and 126 ac-ft.

The required sediment volume is 1.56 ac-ft. The 1 ac-ft reported in the response to previous Comment No. 5f was a mistype.

7. **Comment:** *SD-07:*
   a. *Due to the minimal volume of the roller compacted concrete (RCC), consider constructing the spillway with Portland cement concrete. If the Engineer decides to continue with the RCC material, provide RCC construction specifications and requirements on the plan (# of lifts, plating, shoring, etc.). Identify who is responsible for the testing of the in-place RCC. If it will be by the Engineer, identify which discipline.*
   b. *Provide driveway entrances from perimeter streets to allow maintenance vehicles to easily access the detention basin maintenance road. Coordinate with City of North Las Vegas for their preferred entrance locations.*
   c. *There are two "2305" contour labels near the 12'x7' RCA headwall. Revise appropriate label from "2305" to "2310".*

   Response: In response to this comment, Sheets SD-07 and DT-03 have been revised.
   a. Roller compacted concrete (RCC) is no longer proposed for the spillway. Instead, Portland cement concrete has been specified.
   b. Perimeter roadways are not constructed with this set of improvement plans. The future improvement plans that construct the perimeter roadways will address the driveway entrances to the detention basin maintenance road. Per the April 2, 2014 meeting discussion, this was considered acceptable.
   c. The contour labels near the 12'x7' RCA headwall have been corrected.

8. **Comment:** SD-08:
   a. *SD-08/S1.5: Combine the 5-foot and 7-foot u-channel flow lines at the trash rack to go thru the single opening at the weir wall. Revise appropriate civil and structural plans accordingly.*
   b. *Provide sediment and detention basin depth gauges. Provide details accordingly.*

   Response: In response to this comment, Sheets SD-08, DT-01, S1.5 and S2.8 have been revised.
   a. The flow lines of the 5-ft and 7-ft u-channels have been revised to go through the single opening in the weir wall.
   b. The sediment and detention basin depth gauges have been included with the detention basin and the details have been provided with the revised improvement plans.

5740 S. Arville Street #216, Las Vegas, NV 89118 ph (702) 284-5300 fax (702) 284-5399

9. **Comment:** DT-04
   a. *The 4" PVC drain pipe from the monitoring station is not required to drain to the outlet structure. Consider daylighting the floor drain near the monitoring station structure. If the current design is maintained, offset the 4" drain pipe from the 2" pull wire conduit*
   b. *To minimize incorrect sensor results due to possible turbulent conditions, relocate the 2" PVC coated rigid steel at the most downstream end of the outlet structure (south of the manway). Revise accordingly.*
   c. *Provide a sensor protection lock box at the outlet structure. The front face of the box should include a cut-out section to easily access the lock.*
   d. *Increase the 2" antenna mast pipe length to 8 feet.*

   Response: In response to this comment, Sheets DT-01 and DT-04 have been revised.
   a. The 4" PVS drain pipe from the monitoring station has been revised to daylight out to the detention basin side slope.
   b. Per the meeting held with CCRFCD on April 2, 2014, the 2" PVC has been relocated as close to the manway structure as the design permits.
   c. A sensor protection lock box has been provided as requested.
   d. The 2" antenna mast pipe length has been revised to 8-ft.

10. **Comment:** *S2.8: Detail 2, Construction Note #8: Height of manway opening is not specified on Civil Sheet DT-02. Revise accordingly.*

    Response: The improvement plans have been revised to specific the elevation of the grate at the manway opening. Refer to revised Sheet DT-02 for the manway grate elevation.

11. **Comment:** *Provide sign(s) with the name of the detention basin.*

    Response: Detention basins name signage has been provided with the detention basin. Refer to revised Sheets SD-07 and SD-08 for signage location. Additionally, the signage detail is provided on Sheet DT-01.

The revised plan, profile and detail sheets inclusive of the structural plans adopting the revisions addressed in this supplement have been included in Appendix C. The electronic copy of this supplement and the associated appendix material has been provided in Appendix D. If you have any questions or require additional information, please do not hesitate to contact us at 284-5300.

Respectfully Submitted,
SLATER HANIFAN GROUP

Kellin Collins

Kellin Collins, P.E.
Flood Control Division

pc: Mark Failla, SHG
Jerry Slater, SHG
Phillip Miller, CBH

5740 S. Arville Street #216, Las Vegas, NV 89118 ph (702) 284-5300 fax (702) 284-5399

LIST OF APPENDICIES

1. Appendix A – CCRFCD Drainage Study Comment Letter
2. Appendix B – Response to Comment No. 3
3. Appendix C – Revised Plan, Profile and Detail Sheets
4. Appendix D – Electronic File

5740 S. Arville Street #216, Las Vegas, NV 89118 ph (702) 284-5300 fax (702) 284-5399

APPENDIX A

CCRFCD Drainage Study Comment Letter

REGIONAL FLOOD CONTROL DISTRICT

Gale Wm. Fraser, II, P.E.
General Manager/Chief Engineer

BOARD OF DIRECTORS

Lawrence L. Brown, III
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Clark County

Debra March
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Clark County

Mayor John J. Lee
City of North Las Vegas

Steven D. Ross
City of Las Vegas

Dr. Lois Tarkanian
City of Las Vegas

Mayor Roger Tobler
City of Boulder City

Mayor Mark Wier
City of Mesquite

March 20, 2014

Ms. Jennifer E. Doody, P.E.
City of North Las Vegas Public Works
2250 Las Vegas Blvd. North
North Las Vegas, NV 89030

DISTRICT COMMENT(S): **PARK HIGHLANDS - GRAND TETON REGIONAL FLOOD CONTROL FACILITY (CNLV #45326) (DS4577B) (RFCD No. 13-9177)**

Dear Ms. Doody:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated November 15, 2012, Addendum No. 1 dated March 7, 2013, Addendum No. 2 dated November 13, 2013, Supplement No. 1 dated May 9, 2013, and Supplement No. 2 dated July 11, 2013 for above-mentioned project as submitted by SLATER HANIFAN GROUP. In addition, District is in receipt of the Conditional Letter of Acceptance from City of North Las Vegas Public Works dated February 13, 2014.

District has the following comment(s):

1. The Engineer states that a Master Plan Amendment (MPA) will be submitted to address impacts to the District's Master Plan Update (MPU). The MPA is subject to District's Board of Directors' approval and must be adopted by City of North Las Vegas and City of Las Vegas. In the event that the MPA is not adopted and the facilities proposed in this Technical Drainage Study (TDS) are constructed, District funding shall not be allocated for maintenance of non-District facilities.

2. The MPA concept and financial impact must be discussed and identified in this TDS to demonstrate that the MPU can be fully implemented with the associated changes.

3. Revise the MPU exhibit to include information of all associated facilities (sizes, description, flow, length, etc.). Provide a discussion demonstrating that all existing facilities that will be incorporated to the MPU meet District's criteria to be added as District regional facilities (capacity, maintenance access, etc.). Please note that the "Northern CC-215 Bruce Woodbury Beltway from Decatur Blvd. to North 5th St." project is currently being advertised for construction. Coordinate connection location accordingly.

4. It is noted that City of North Las Vegas and Crescent Bay are currently in the process of obtaining the necessary easements/rights from Bureau of Land Management to discharge flow thru the Conservation Transfer Area. If the permission is not granted, this study must be updated accordingly.

5. This study references Park Highlands West and East Master Drainage Studies. District has not reviewed these Master studies. Any impacts of the Master studies to the facilities proposed in this study may result in an update to this study.

6. Comment #5f: For clarity, provide a discussion why there is additional sediment storage capacity of the detention basin (1.56 ac-ft required/23 ac-ft provided). Note that the response has 1 ac-ft required storage while it is 1.56 ac-ft on Sheet G-03, address discrepancy accordingly.

7. SD-07:
   a. Due to the minimal volume of the roller compacted concrete (RCC), consider constructing the spillway with Portland cement concrete. If the Engineer decides to continue with the RCC material, provide RCC construction specifications and requirements on the plan (# of lifts, plating, shoring, etc.). Identify who is responsible for the testing of the in-place RCC. If it will be by the Engineer, identify which discipline.

   b. Provide driveway entrances from perimeter streets to allow maintenance vehicles to easily access the detention basin maintenance road. Coordinate with City of North Las Vegas for their preferred entrance locations.

   c. There are two "2305" contour labels near the 12'x7' RCA headwall. Revise appropriate label from "2305" to "2310".

8. SD-08:
   a. SD-08/S1.5: Combine the 5-foot and 7-foot u-channel flow lines at the trash rack to go thru the single opening at the weir wall. Revise appropriate civil and structural plans accordingly.

   b. Provide sediment and detention basin depth gauges. Provide details accordingly.

9. DT-04:
   a. The 4" PVC drain pipe from the monitoring station is not required to drain to the outlet structure. Consider daylighting the floor drain near the monitoring station structure. If the current design is maintained, offset the 4" drain pipe from the 2" pull wire conduit.

   b. To minimize incorrect sensor results due to possible turbulent conditions, relocate the 2" PVC coated rigid steel at the most downstream end of the outlet structure (south of the manway). Revise accordingly.

   c. Provide a sensor protection lock box at the outlet structure. The front face of the box should include a cut-out section to easily access the lock.

d. Increase the 2" antenna mast pipe length to 8 feet.

10. S2.8: Detail 2, Construction Note #8: Height of manway opening is not specified on Civil Sheet DT-02. Revise accordingly.

11. Provide sign(s) with the name of the detention basin.

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage*.

The consultant must be advised to submit any revisions to the Technical Drainage Study and Improvement Plans to City of North Las Vegas Public Works for review/re-approval. District review of any such revisions will commence upon City of North Las Vegas Public Works' acceptance.

Please be aware that as additional information becomes available and/or restudies of Flood Insurance Studies are performed, information submitted by SLATER HANIFAN GROUP may be superseded. Compliance with regulatory elements and design standards specified in *Uniform Regulations for the Control of Drainage* does not imply a guarantee that properties will be free from flooding or flood damage. The District, its officials, or employees assume no liability for information, data, or conclusions presented by consulting engineers. We, therefore, make no warranties, either expressed or implied, in conducting this review.

GALE WM. FRASER, II, P.E.
General Manager/Chief Engineer

BY: _____
Abigail Mayrena, P.E., CFM
Senior Engineer

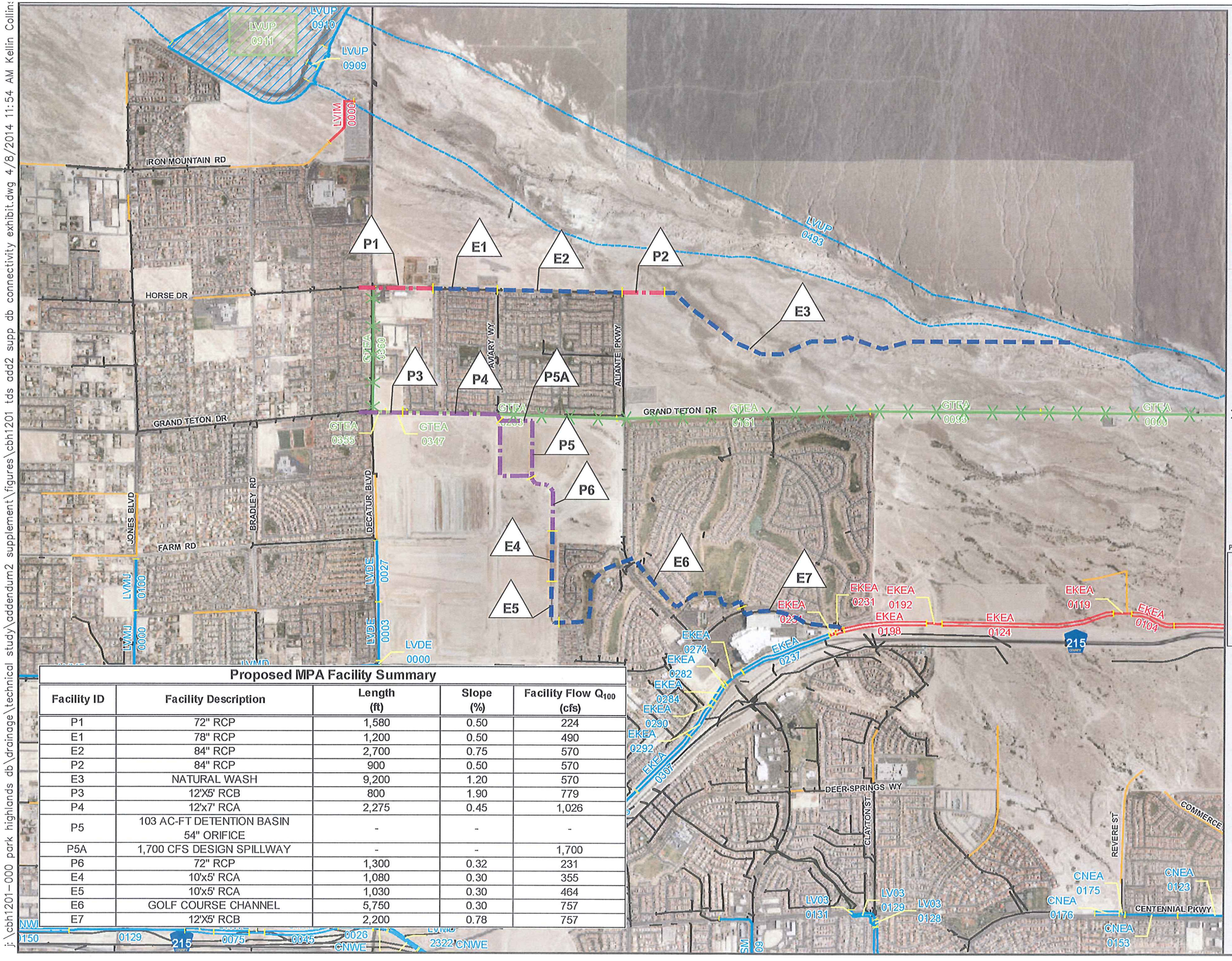
AM:sa

c: Mark J. Failla, P.E., Slater Hanifan Group
Oh-Sang Kwon, P.E., City of Las Vegas

P:\Letters and Memos\Local Drainage\Land Development & Drainage\2014\L-13-9177.comment-2nd.doc

APPENDIX B

Response to Comment No. 3



Proposed MPA Facility Summary

Facility ID	Facility Description	Length (ft)	Slope (%)	Facility Flow Q_{100} (cfs)
P1	72" RCP	1,580	0.50	224
E1	78" RCP	1,200	0.50	490
E2	84" RCP	2,700	0.75	570
P2	84" RCP	900	0.50	570
E3	NATURAL WASH	9,200	1.20	570
P3	12'X5' RCB	800	1.90	779
P4	12'x7' RCA	2,275	0.45	1,026
P5	103 AC-FT DETENTION BASIN 54" ORIFICE	-	-	-
P5A	1,700 CFS DESIGN SPILLWAY	-	-	1,700
P6	72" RCP	1,300	0.32	231
E4	10'x5' RCA	1,080	0.30	355
E5	10'x5' RCA	1,030	0.30	464
E6	GOLF COURSE CHANNEL	5,750	0.30	757
E7	12'X5' RCB	2,200	0.78	757

REGIONAL FLOOD CONTROL DISTRICT

2013
LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE

FIGURE F- 14
FLOOD CONTROL FACILITIES

LEGEND

- Ultimate Development Boundary
- Existing Facilities
- Category A Proposed Facilities
- Category B Proposed Facilities
- Local Existing Facilities
- Local Proposed Facilities
- Detention Basin
- Stormdrain
- Lined Channel
- Unlined Channel
- Levee/Dike
- Natural Wash/Floodway
- ID-Mile Separator

Remove & Replace/Parallel Facilities

Category A	Category B
Channel	Channel
Stormdrain	Stormdrain

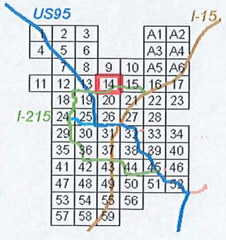
PROPOSED CHANGES:

- REMOVE FROM PROPOSED MASTER PLAN
- CATEGORY A PROPOSED FACILITIES
- CATEGORY B PROPOSED FACILITIES
- EXISTING FACILITIES

N

0 500 1,000 2,000 3,000
Feet
Scale: 1 inch = 2,000 feet

Refer to Figure G-2 for Aerial Source(s)



SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CRESCENT BAY HOLDINGS

PARK HIGHLANDS
GRAND TETON REGIONAL FLOOD CONTROL FACILITY
MASTER PLAN AMENDMENT CONNECTIVITY EXHIBIT

DATE: APR 2014
DRAFTER: AH/KC
DESIGNER: AH/KC
CHECKED: MF
PROJECT NO. CBH1201.000

EXHIBIT
SHEET 1 OF 1

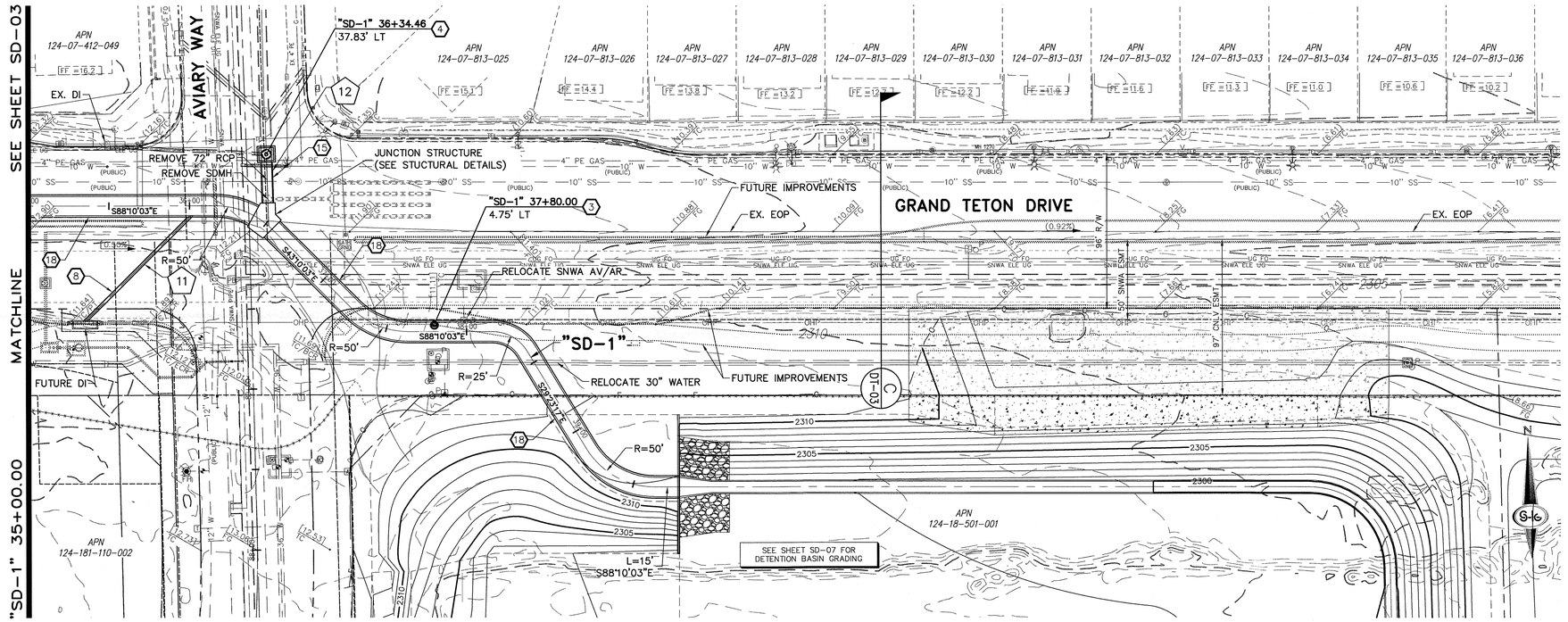
j:\cbh1201-000 park highlands db\drainage\technical study\addendum2 supplement\figures\cbh1201 tds add2 supp db connectivity exhibit.dwg 4/8/2014 11:54 AM Kellin Collins

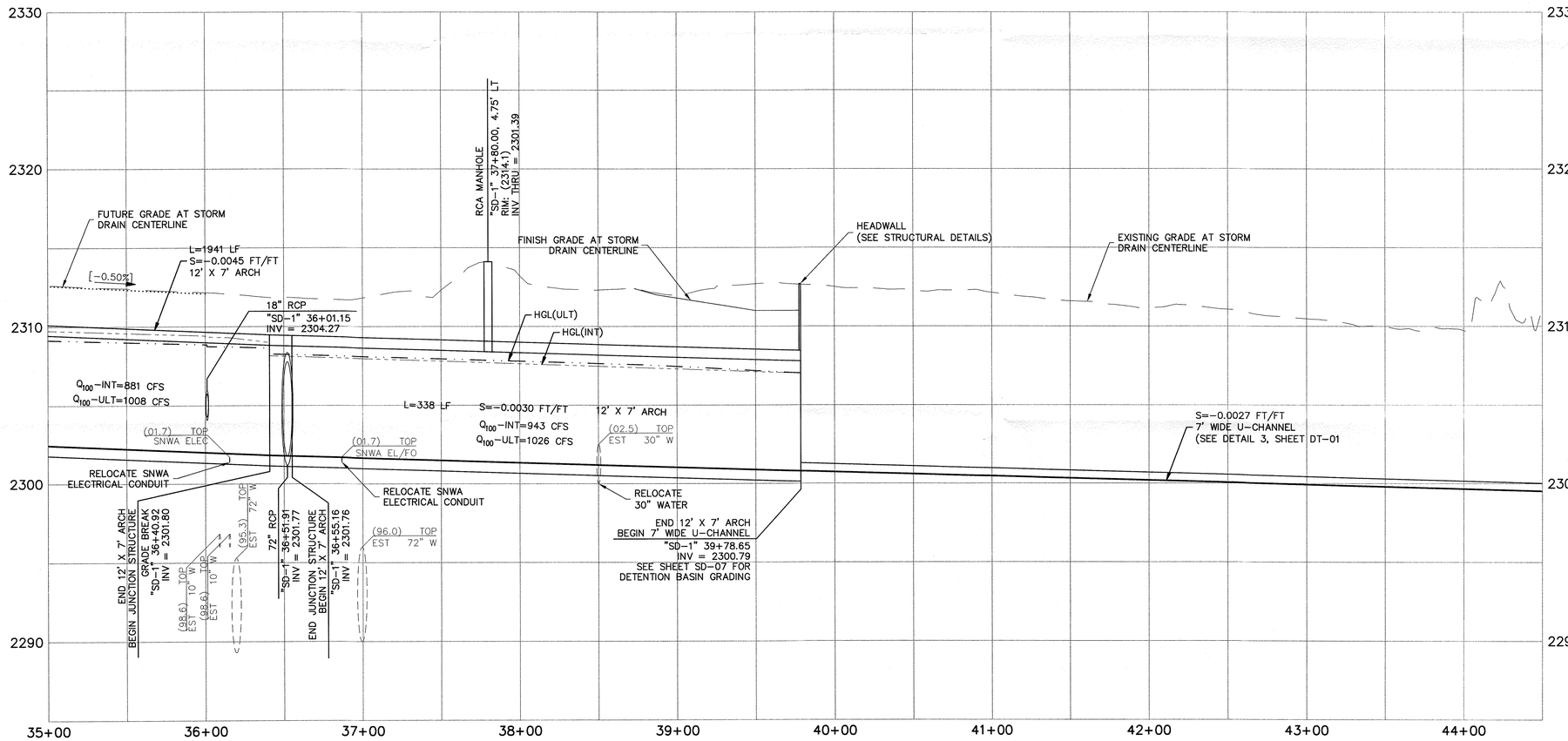
APPENDIX C

Revised Plan, Profile and Detail Sheets

APPENDIX D

Electronic File





STORM DRAIN NOTES

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LATERAL RUN PROFILE INDEX

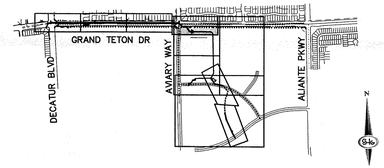
LATERAL RUN NO	SEE SHEET
1 THRU 8	SD-09
9 THRU 14	SD-10

FLOOD ZONE:

THIS SITE LIES WITHIN ZONE "X" DETERMINED TO BE OUTSIDE OF THE 500 YEAR FLOODPLAIN AS DEPICTED ON FIRM MAP PANEL NUMBER 32003C1765F, REVISED NOVEMBER 16, 2011.

"I CERTIFY THAT THIS PLAN CONFORMS TO THE APPROVED TECHNICAL DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF NORTH LAS VEGAS CNLV #45326."

JERRY SLATER, P.E. 14167 DATE



KEY MAP

SCALE 40 0 40 80 FEET

FAST. Call before you UnderGround. 1-702-432-5300 FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig Avoid cutting underground utility lines. It's costly. Call 811 or 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

NORTH LAS VEGAS, NV

CRESCENT BAY HOLDINGS

SECTION 18
TOWNSHIP 19S
RANGE 61E

GRAND TETON REGIONAL FLOOD CONTROL FACILITY
STORM DRAIN PLAN AND PROFILE
"SD-1" 35+00.00 TO "SD-1" 39+78.65

DATE: 11/08/2013
DRAFTER: JAS
DESIGNER: JSR
CHECKED: JJS

PROJECT NO.
CBH1201-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JERRY SLATER - Exp. 06/30/2014 - CIVIL - No. 14167

SD-04
SHEET 7 OF 21

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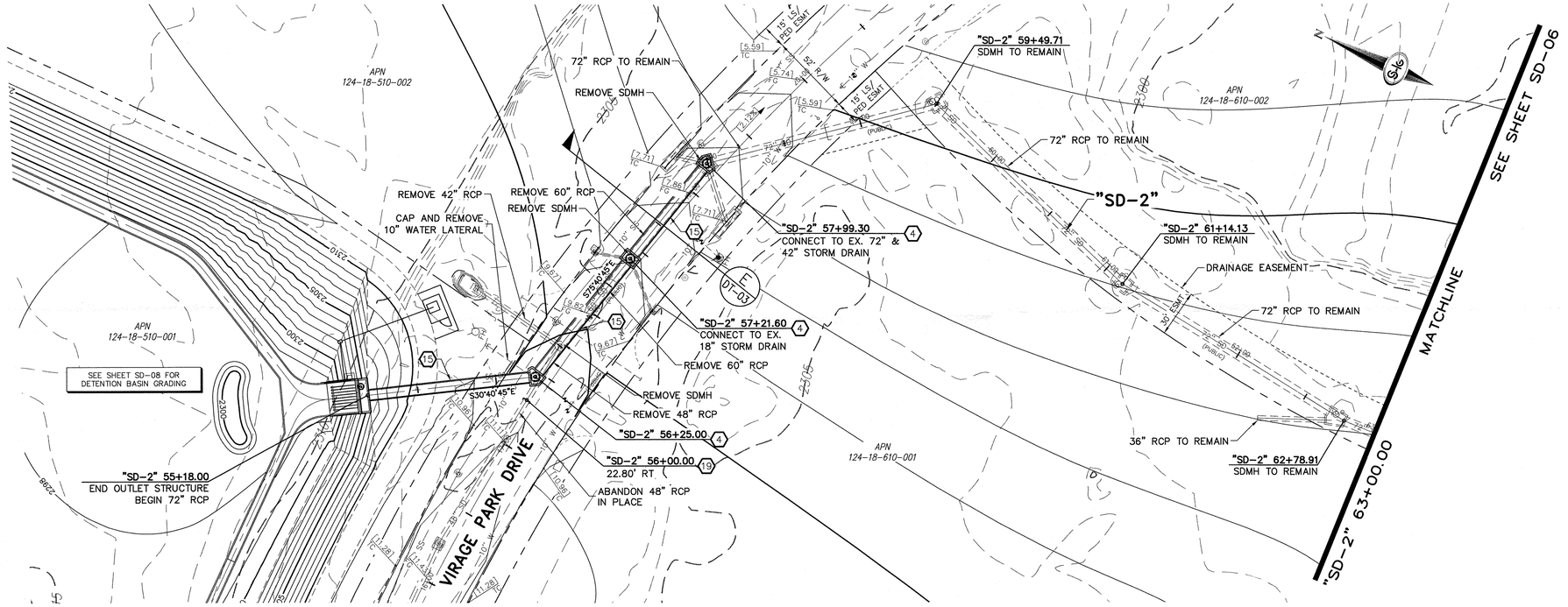

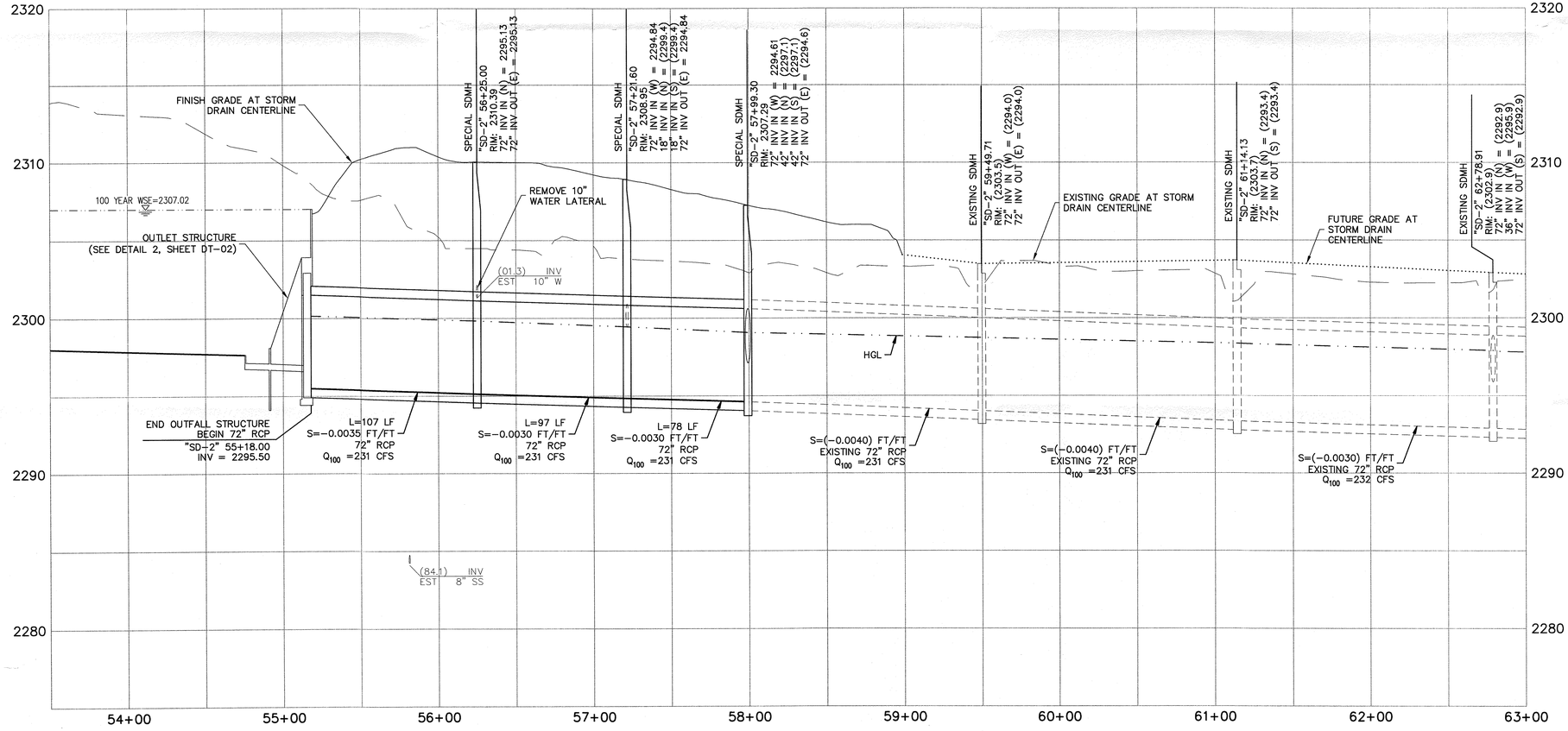

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LATERAL RUN PROFILE INDEX	
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1 THRU 8	SD-09
9 THRU 14	SD-10

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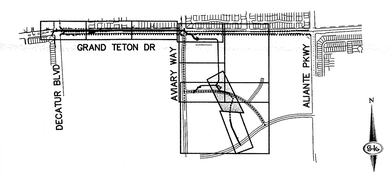
JERRY SLATER, P.E. 14167 DATE



KEY MAP

40 0 40 80
SCALE FEET

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PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

NORTH LAS VEGAS, NV

CRESCENT BAY HOLDINGS

GRAND TETON REGIONAL FLOOD CONTROL FACILITY
STORM DRAIN PLAN AND PROFILE
"SD-2" 55+18.00 TO "SD-2" 63+00.00

SECTION 18
TOWNSHIP 19S
RANGE 61E

DATE: 11/08/2013
DRAFTER: JAS
DESIGNER: JSR
CHECKED: JJS

PROJECT NO.
CBH1201-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JERRY J. SLATER
Exp. 06/30/2014
CIVIL
No. 14167
4-8-14

SD-05
SHEET 8 OF 21

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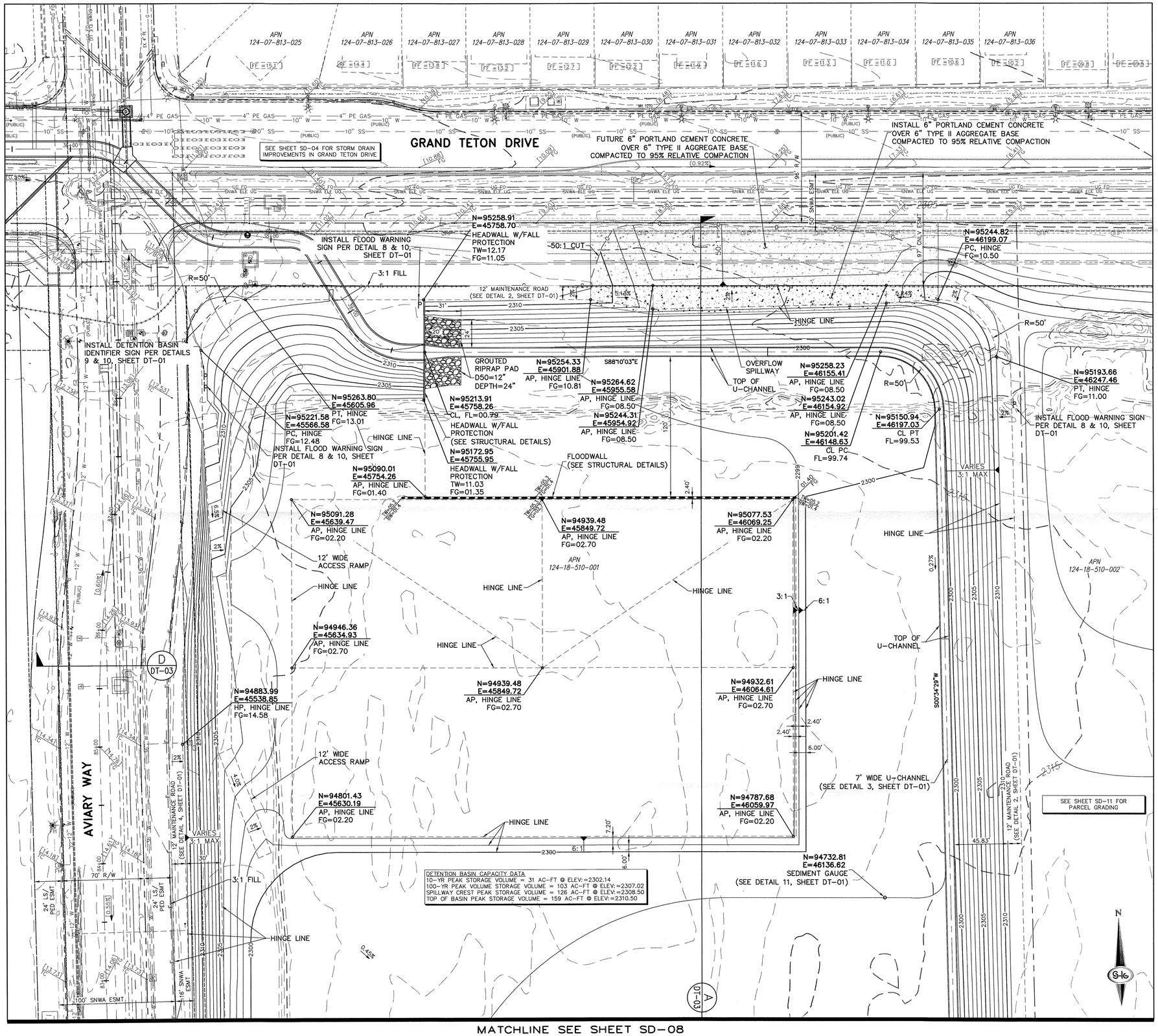

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9 THRU 14	SD-10

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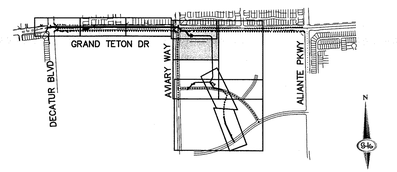

KEY MAP

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PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP DATE	APP

NORTH LAS VEGAS, NV

CRESCENT BAY HOLDINGS

GRAND TETON REGIONAL FLOOD CONTROL FACILITY
DETENTION BASIN GRADING PLAN - 1

SECTION 18 TOWNSHIP 19S RANGE 61E

DATE: 11/08/2013
DRAFTER: JAS
DESIGNER: JSR
CHECKED: JJS

PROJECT NO. CBH1201-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JERRY SLATER - Exp. 06/30/2014 - CIVIL - No. 14167

SD-07
SHEET 10 OF 21

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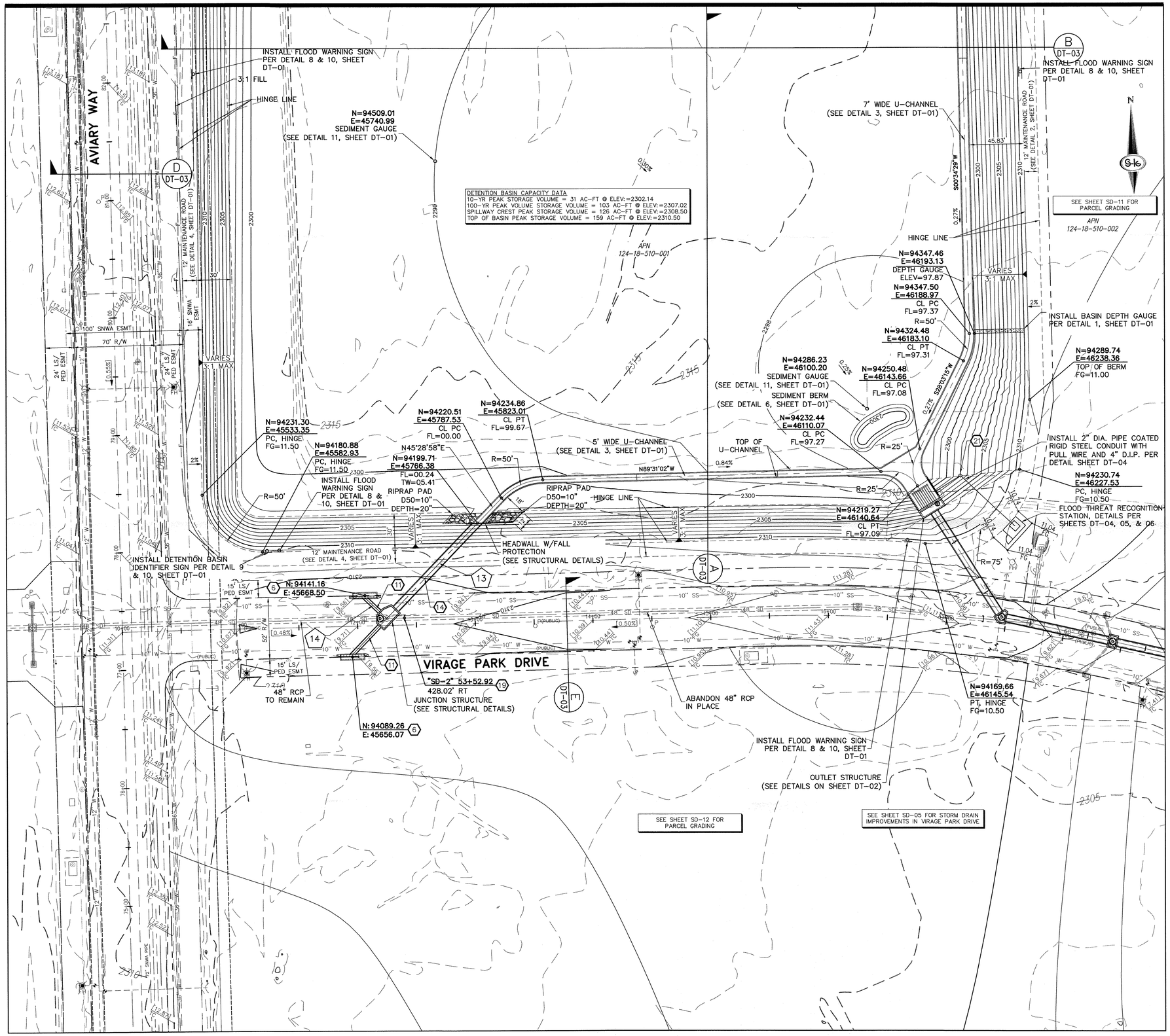
MATCHLINE SEE SHEET SD-07



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9 THRU 14	SD-10

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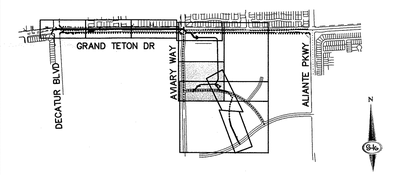
JERRY SLATER, P.E. 14167 DATE



KEY MAP

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PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

NORTH LAS VEGAS, NV

CRESCENT BAY HOLDINGS

GRAND TETON REGIONAL FLOOD CONTROL FACILITY

DETENTION BASIN GRADING PLAN - 2

SECTION 18 TOWNSHIP 19S RANGE 61E

DATE: 11/08/2013
DRAFTER: JAS
DESIGNER: JSR
CHECKED: JJS

PROJECT NO.
CBH1201-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JERRY J. SLATER - Exp. 06/30/2014 - CIVIL - No. 14167

SD-08
SHEET 11 OF 21

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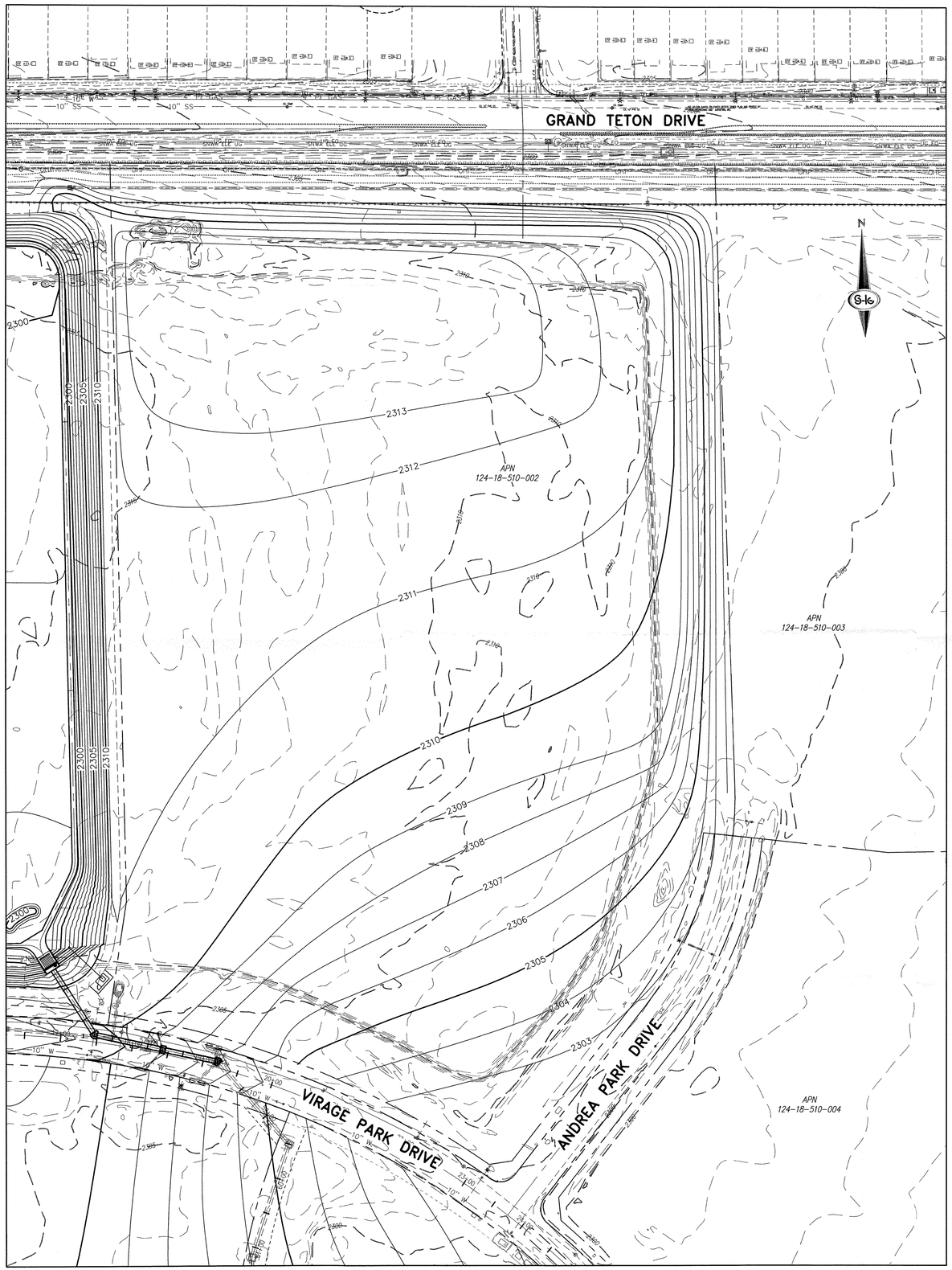

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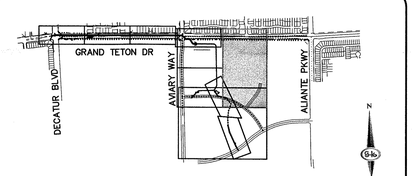

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NO.	DESCRIPTION	DATE	BY	APP'D DATE	APP.

NORTH LAS VEGAS, NV

CRESCENT BAY HOLDINGS

GRAND TETON REGIONAL FLOOD CONTROL FACILITY

PARCEL GRADING PLAN - 1

SECTION 18
TOWNSHIP 19S
RANGE 61E

DATE: 11/08/2013
DRAFTER: JAS
DESIGNER: JSR
CHECKED: JJS

PROJECT NO.
CBH1201-000

PROFESSIONAL ENGINEER STATE OF NEVADA
JERRY J. SLATER
Exp. 06/30/2014
CIVIL
No. 14167

4.84

SD-11
SHEET 14 OF 21

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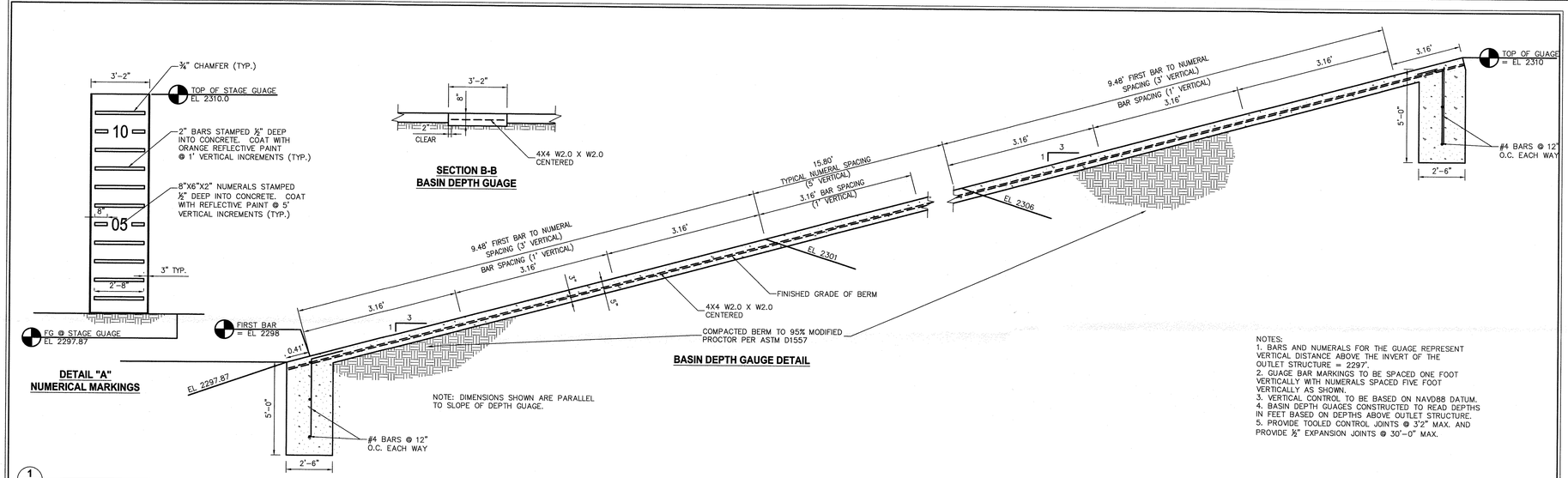
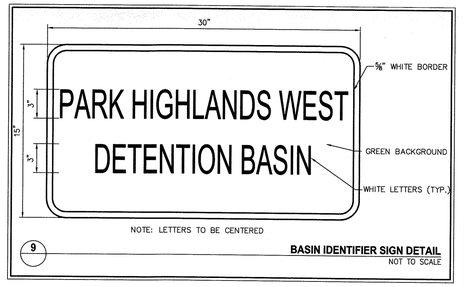
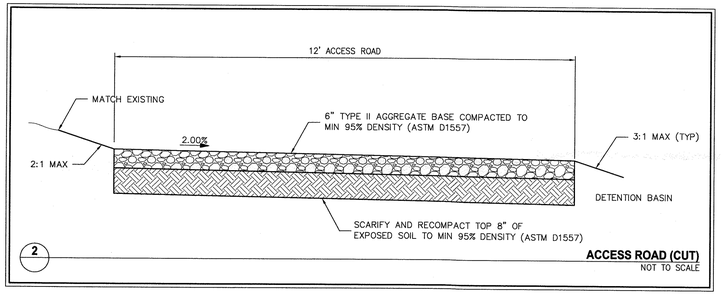
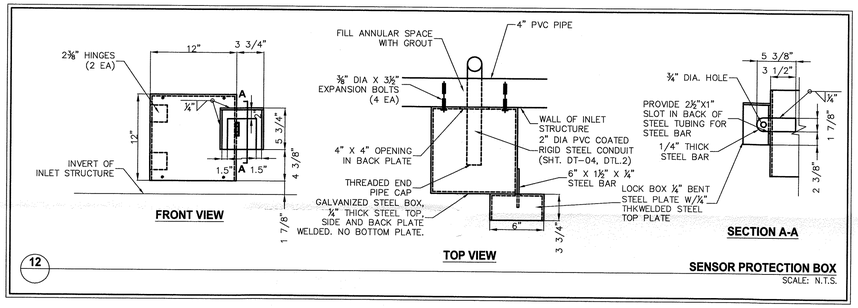
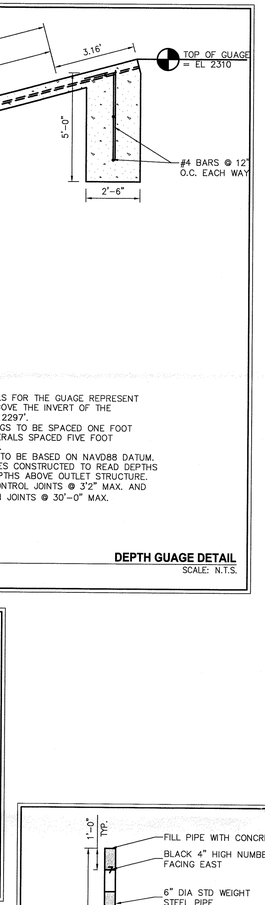
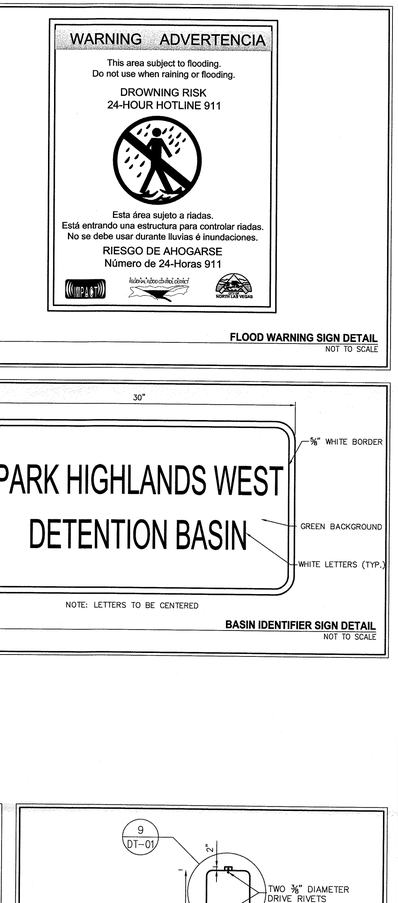


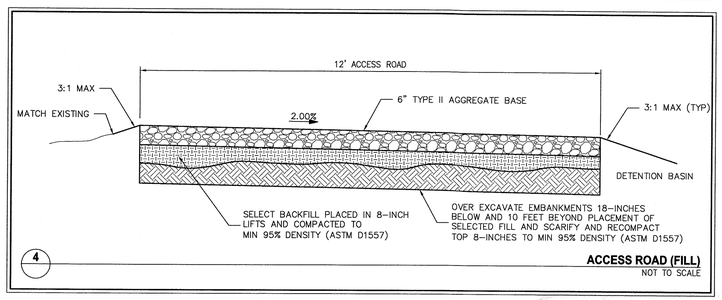


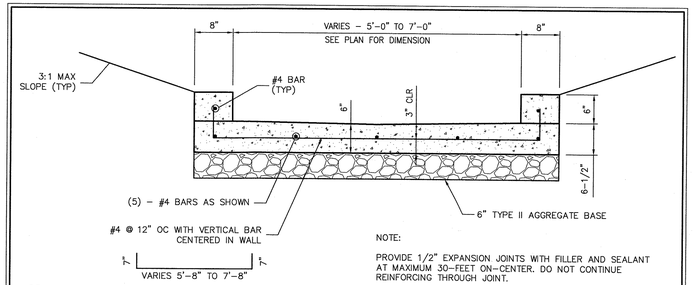


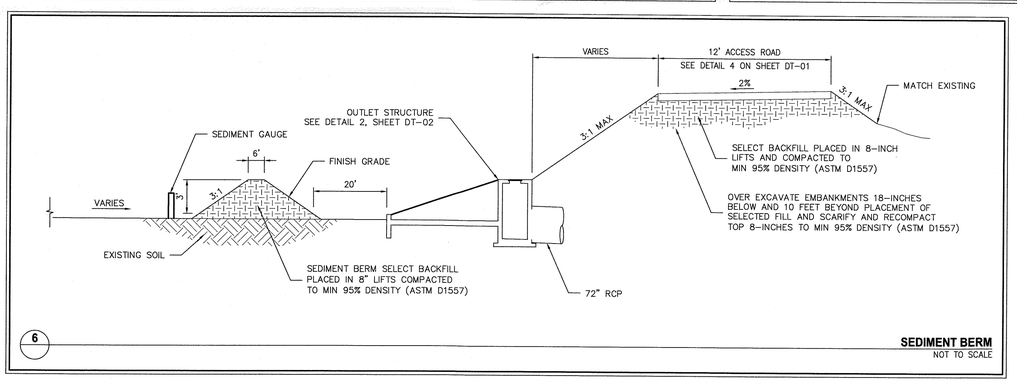


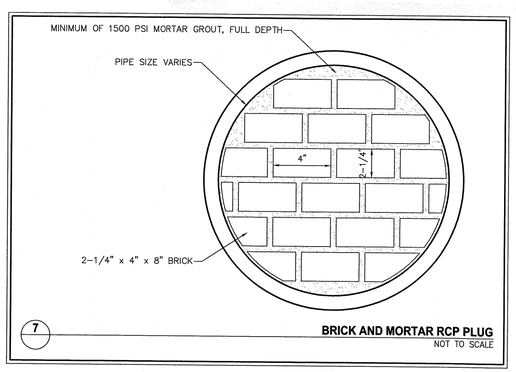












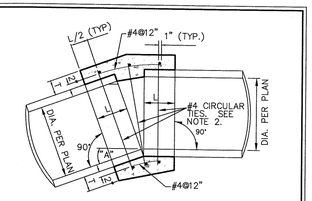
NOTES:

1. WHERE THE SLOPE OF THE UPSTREAM PIPE IS GREATER THAN THE SLOPE OF THE DOWNSTREAM PIPE, JOIN SOFFITS. WHERE THE SLOPE OF THE UPSTREAM PIPE IS LESS THAN THE SLOPE OF THE DOWNSTREAM PIPE, JOIN INVERTS.

2. WHERE THE SPACE BETWEEN THE PIPE EXTREMITIES EXCEEDS 2 1/2 INCHES, THE NUMBER OF CIRCULAR TIES SHALL BE INCREASED TO MAINTAIN A MAXIMUM SPACING OF 6 INCHES CENTER TO CENTER. CIRCULAR TIES SHALL HAVE A DIAMETER 5 INCHES GREATER THAN THE OUTSIDE DIAMETER OF THE LARGER PIPE.

CIRCULAR TIES:

PIPE DIAMETER	SPACE BETWEEN PIPE EXTREMITIES	NO. OF CIRCULAR TIES	L	T
18"	2 1/2"	3	12"	5"
24"	2 1/2"	3	12"	6"
30"	2 1/2"	3	12"	7"
36"	2 1/2" or less	4	18"	9"
60"	2 1/2" or less	5	21"	11"



5
PIPE COLLAR DETAIL
NOT TO SCALE

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 264-5300 FAX (702) 264-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

NORTH LAS VEGAS, NV

CRESCENT BAY HOLDINGS

GRAND TETON REGIONAL FLOOD CONTROL FACILITY

DETAILS

SECTION 18
TOWNSHIP 19S
RANGE 61E

DATE: 11/08/2013
DRAFTER: JAS
DESIGNER: JSR
CHECKED: JJS

PROJECT NO.
CBH1201-000

PROFESSIONAL ENGINEER – STATE OF NEVADA – JERRY J. SLATER – Exp. 06/30/2014 – CIVIL – No. 14167

DT-01
SHEET 16 OF 21

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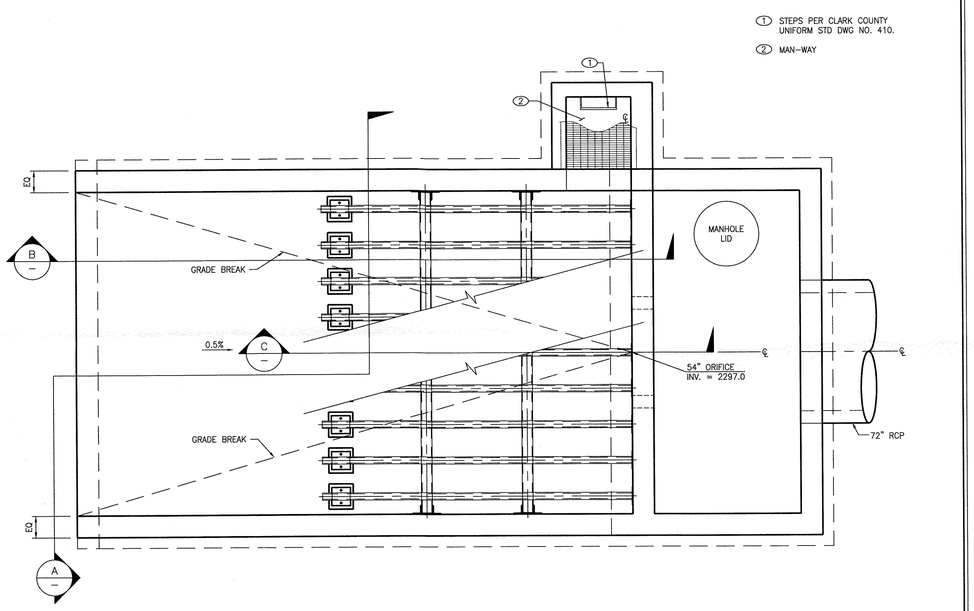
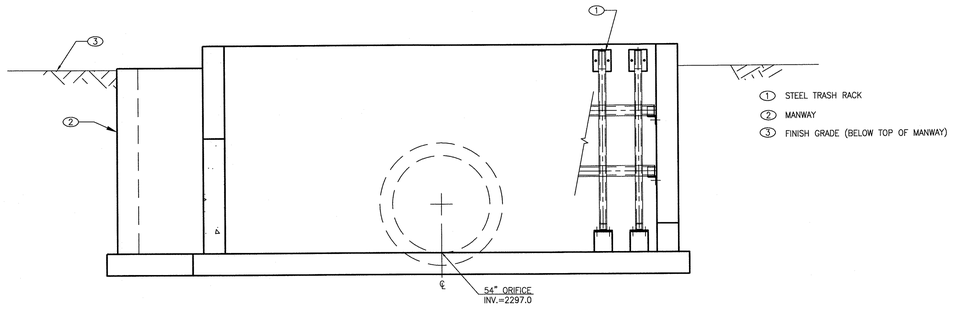
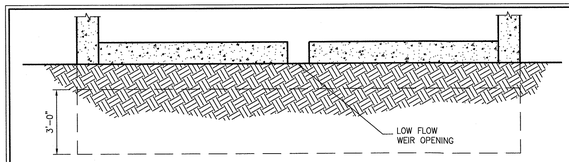


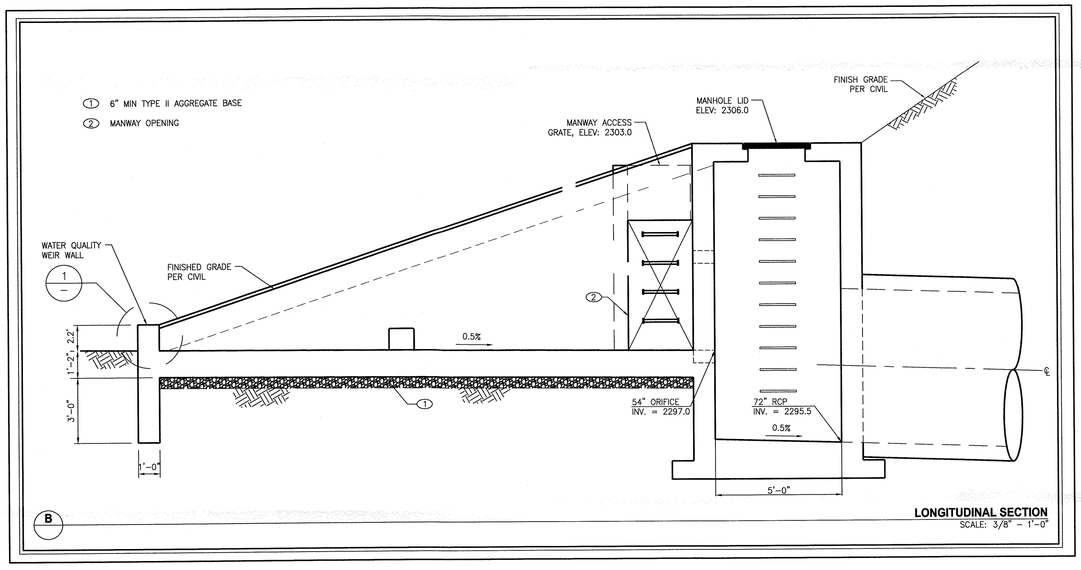
2 **OUTLET PLAN**
SCALE: 3/8" = 1'-0"



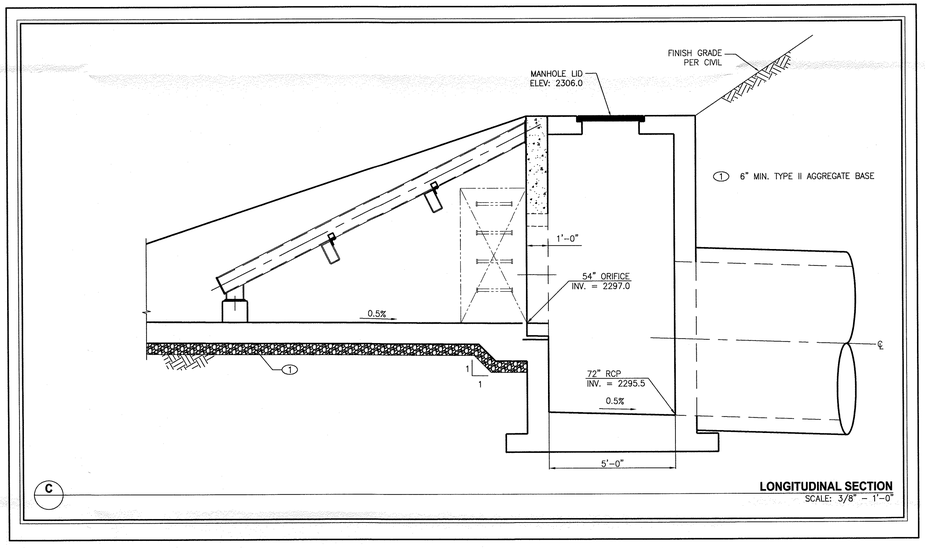
A **TRANSVERSE SECTION**
SCALE: 3/8" = 1'-0"



1 **WATER QUALITY WEIR WALL**
NOT TO SCALE



B **LONGITUDINAL SECTION**
SCALE: 3/8" = 1'-0"



C **LONGITUDINAL SECTION**
SCALE: 3/8" = 1'-0"

NOTE:

SEE STRUCTURAL DRAWINGS FOR OUTLET STRUCTURE STRUCTURAL DESIGN AND DIMENSIONS.

SLATER HANIFAN GROUP
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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

NORTH LAS VEGAS, NV

CRESCENT BAY HOLDINGS

SECTION 18
TOWNSHIP 19S
RANGE 61E

GRAND TETON REGIONAL FLOOD CONTROL FACILITY
DETENTION BASIN OUTLET STRUCTURE DETAILS

DATE: 11/08/2013
DRAFTER: JAS
DESIGNER: JSR
CHECKED: JJS
PROJECT NO.
CBH1201-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JERRY SLATER
Exp. 06/30/2014
CIVIL
No. 14167
1-7-14

DT-02
SHEET 17 OF 21

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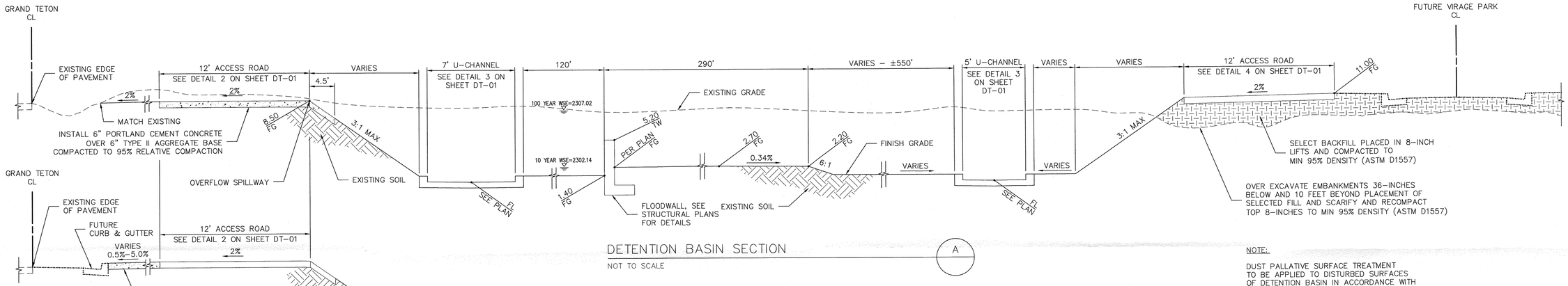
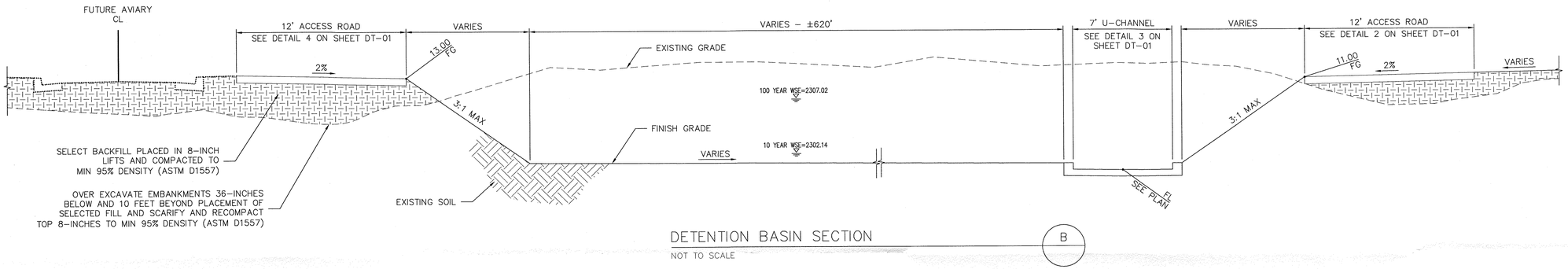


DETENTION BASIN SECTION (A)

NOT TO SCALE

NOTE:

DUST PALLATIVE SURFACE TREATMENT TO BE APPLIED TO DISTURBED SURFACES OF DETENTION BASIN IN ACCORDANCE WITH CCAUSD SPECIFICATIONS, SECTION 637.



DETENTION BASIN SECTION (B)

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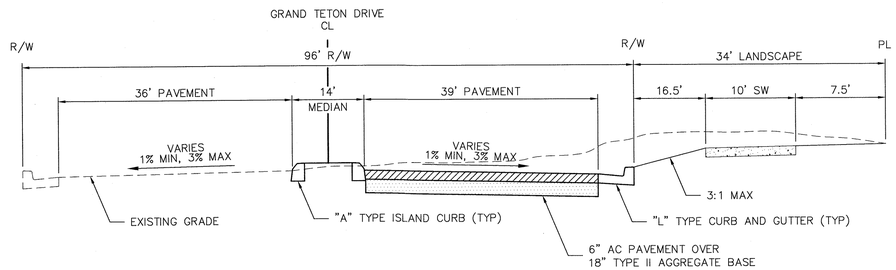
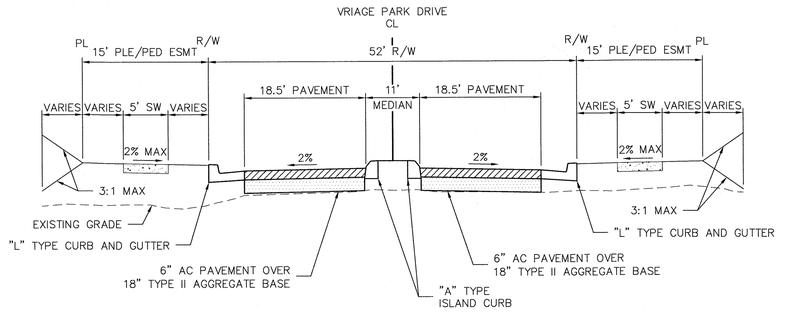


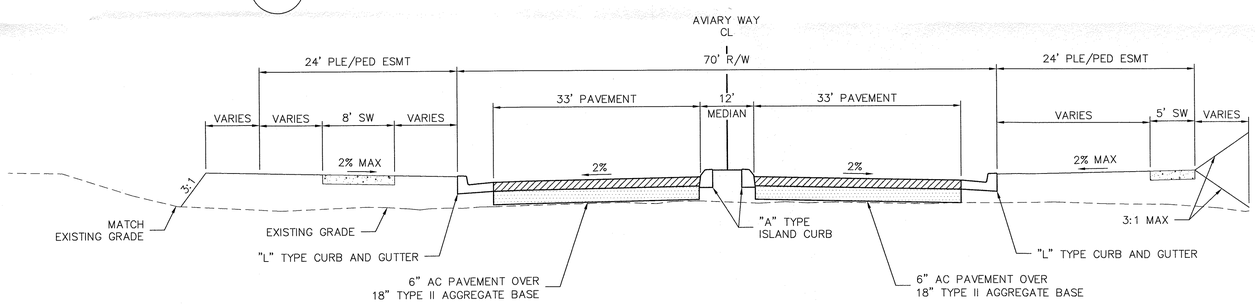
GRAND TETON (ULTIMATE) (C)

NOT TO SCALE



VIRAGE PARK (ULTIMATE) (E)

NOT TO SCALE



AVIARY (ULTIMATE) (D)

NOT TO SCALE

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

NORTH LAS VEGAS, NV

CRESCENT BAY HOLDINGS

GRAND TETON REGIONAL FLOOD CONTROL FACILITY

SECTIONS

SECTION 18
TOWNSHIP 19S
RANGE 61E

DATE: 11/08/2013
DRAFTER: JAS
DESIGNER: JSR
CHECKED: JJS

PROJECT NO.
CBH1201-000

PROFESSIONAL ENGINEER STATE OF NEVADA
JERRY J. SLATER
Exp. 06/30/2014
CIVIL
No. 14167
4-8-14

DT-03
SHEET 18 OF 21

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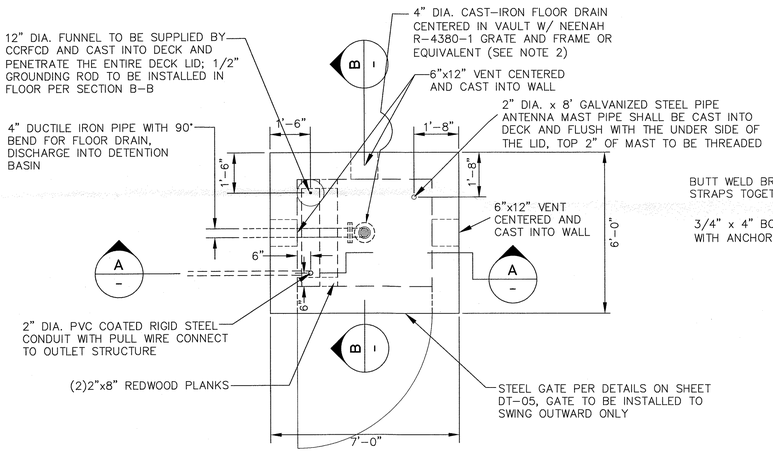
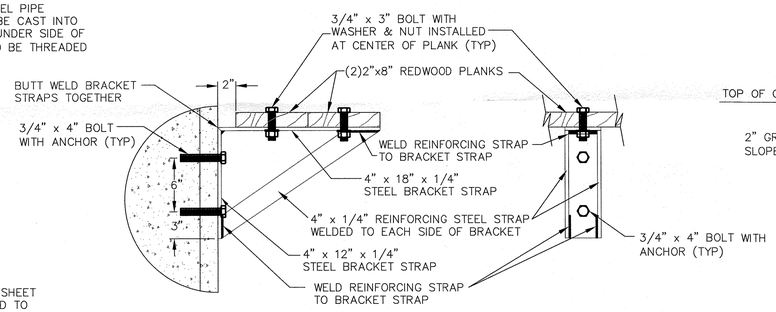
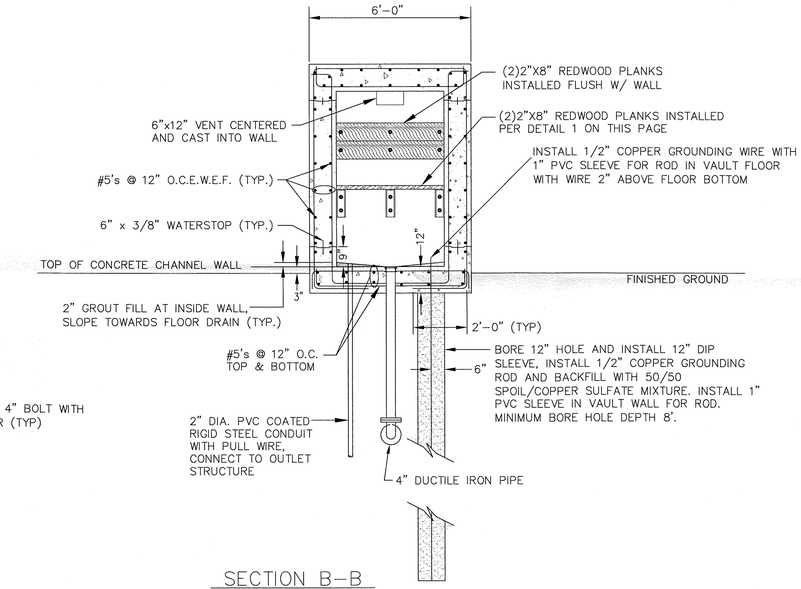
FOR FENCING PLAN AND DETAILS REFER TO SHEET DT-06



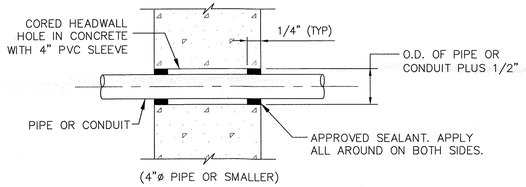
PLAN VIEW
SCALE: 3/8" = 1'-0"



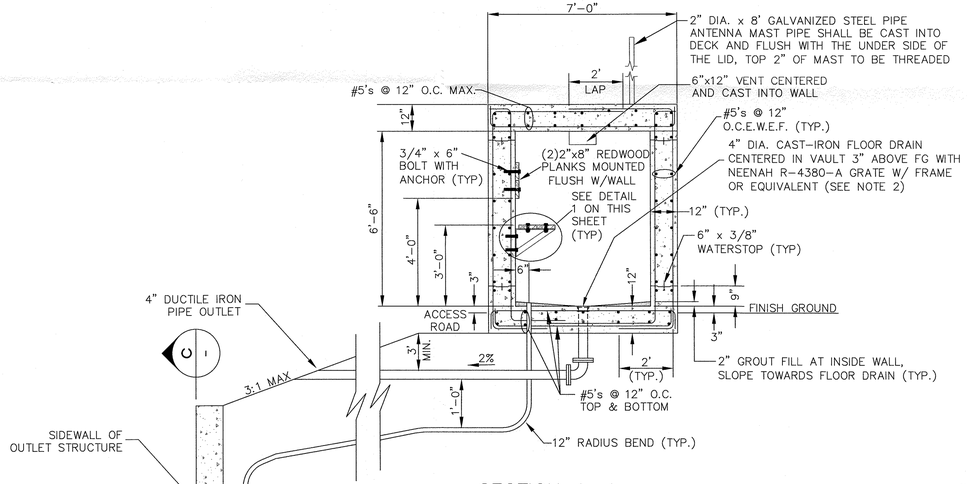
DETAIL 1
SCALE: 1-1/2" = 1'-0"
INSTALL BRACKETS AT EACH END AND IN MIDDLE



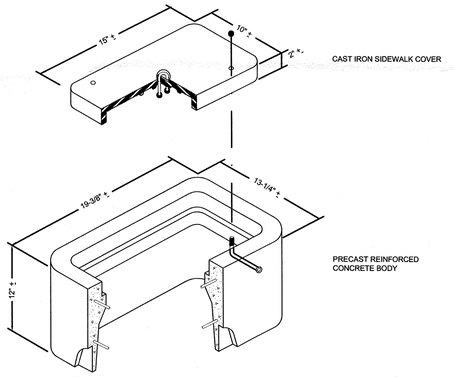
SECTION B-B
SCALE: 3/8" = 1'-0"

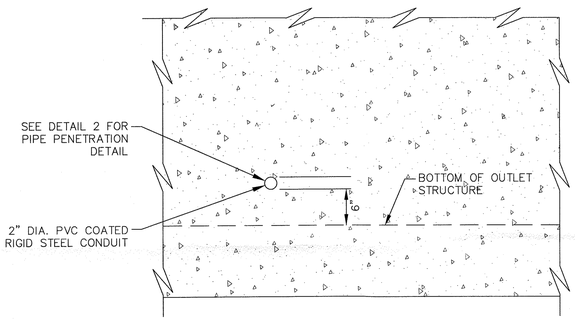


DETAIL 2
NOT TO SCALE

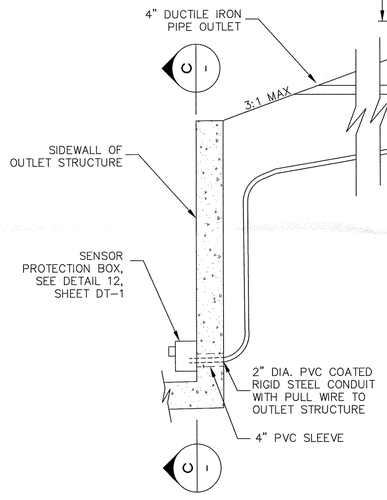


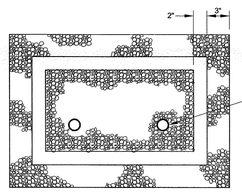
SECTION A-A
SCALE: 3/8" = 1'-0"



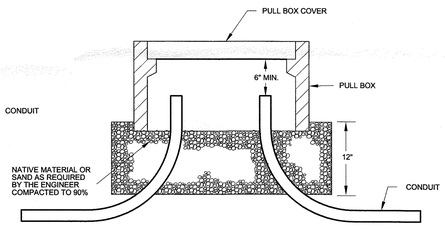


SECTION C-C
NOT TO SCALE





TOP VIEW



CROSS SECTION

PULL BOX DETAIL

NOTES:

1.) BEDDING REQUIREMENTS FOR MONITORING STATION 6" MIN TYPE II COMPACTED TO MIN 95%

2.) FLOOR DRAIN TO BE INSTALLED AND CONNECTED TO DRAIN PIPE PER MANUFACTURER'S RECOMMENDATIONS

NOTES:

1. THIS PULL BOX SHALL NOT BE USED IN TRAFFIC OR PARKING LANES.
2. ALL DIMENSIONS ARE NOMINAL.

1

FLOOD THREAT RECOGNITION STATION
NOT TO SCALE

SLATER HANFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

NORTH LAS VEGAS, NV

CRESCENT BAY HOLDINGS

SECTION 19
TOWNSHIP 19S
RANGE 61E

GRAND TETON REGIONAL FLOOD CONTROL FACILITY
FLOOD THREAT RECOGNITION STATION

DATE: 11/08/2013
DRAFTER: JAS
DESIGNER: JSR
CHECKED: JJS

PROJECT NO.
CBH1201-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JERRY J. SLATER
Exp. 06/30/2014
CIVIL
No. 14167
4.8.14

DT-04
SHEET 19 OF 21

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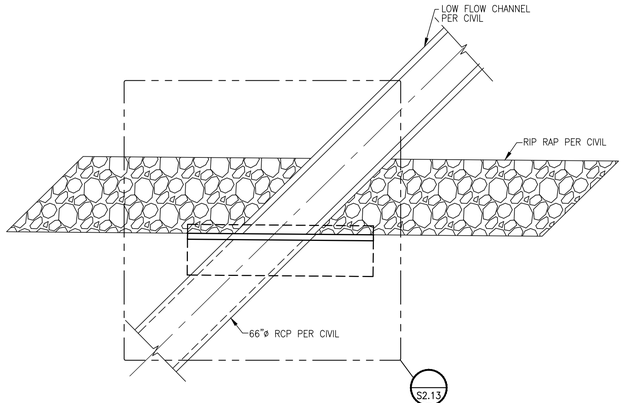
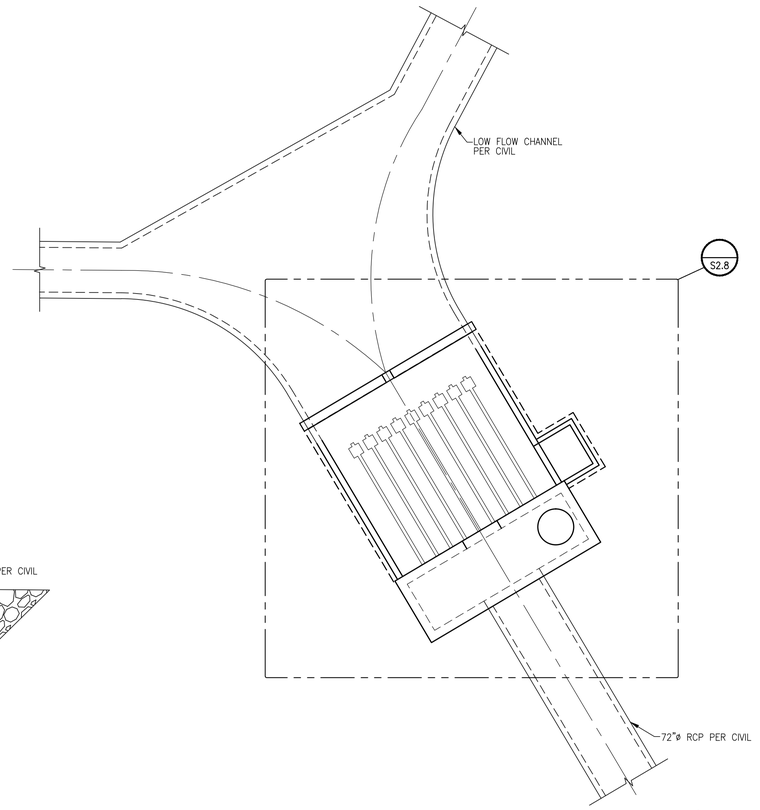
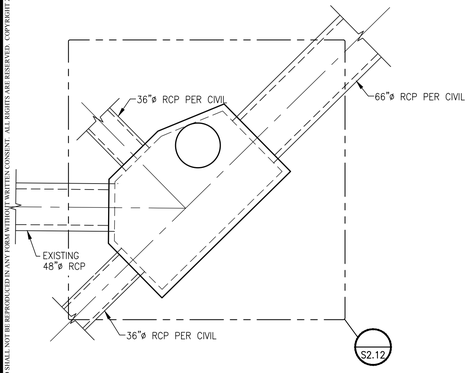
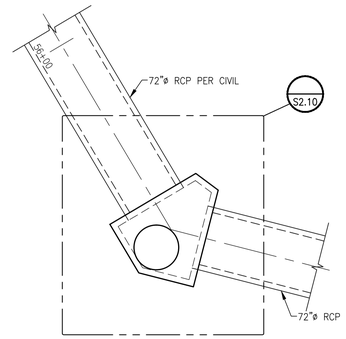
NOTES:

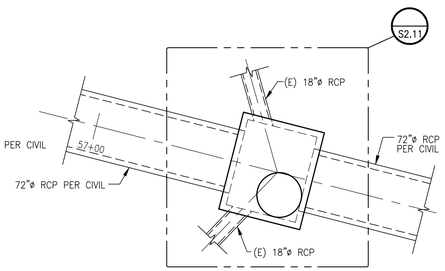
A. DIMENSIONS AND STATIONS SHOWN ARE BASED UPON THE CIVIL DRAWINGS. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION



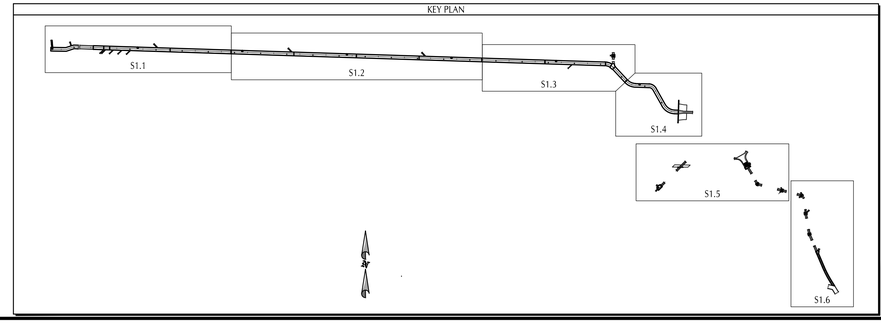








PLAN VIEW AT DRAINAGE STRUCTURES SCALE: 1/8"=1'-0"



SEAL:
REGISTERED PROFESSIONAL ENGINEER STATE OF NEVADA
GREG A. MEYER
Exp. 12/31/15
STRUCTURAL
No. 15251

ENGINEERING SYSTEM SOLUTIONS
7312 W CHEYENNE AVE, STE 1
LAS VEGAS, NV 89129
PHONE: (702) 616-3107
FAX: (702) 616-3725
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STRUCTURAL • MEP • BUILDING COMMISSIONING

PROJECT:
GRAND TETON REGIONAL FLOOD CONTROL FACILITY
DRAINAGE STRUCTURES
NORTH LAS VEGAS, NV

SHEET TITLE:
PLAN VIEW

REV.	DESCRIPTION	DATE
	DESIGN REVISIONS	4/8/14
	CC/REC'D COMMENTS	11/11/2013

DRAWN: GTC | CHECKED: SG/GAM

DATE: JULY 22, 2013
PROJECT NUMBER: STR13.6007
SHEET NUMBER:
S1.5

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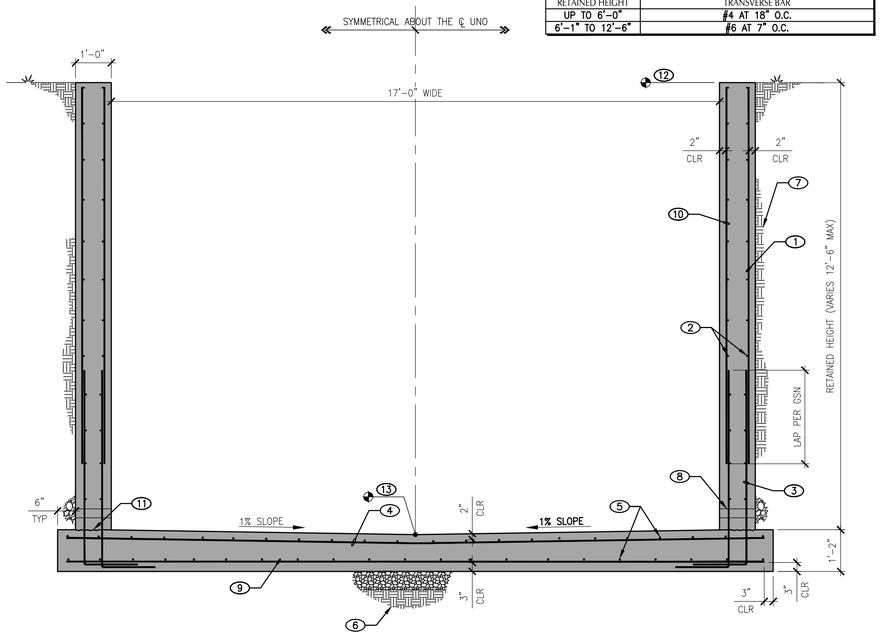
Drawing: M:\Structural\2013\STR13.6000 Civil Structures\STR13.6007_Park Highlands Grand Teton Drainage\ACAD_REVIT\S1.5_STR13.6007.dwg Last Saved: Tue Apr 08, 2014 - 11:16am Last Plotted: Tue Apr 08, 2014 - 11:20am By: gapurge

REBAR SCHEDULE #1 (SEE KEYNOTE 3)	
RETAINED HEIGHT	HOOKED VERTICAL DOWEL
UP TO 6'-0"	#4 DOWEL x42" MIN VERT AT 12" O.C. W/ STD HOOK
6'-1" TO 12'-6"	#6 DOWEL x68" MIN VERT AT 7" O.C. W/ STD HOOK

REBAR SCHEDULE #2 (SEE KEYNOTE 9)	
RETAINED HEIGHT	TRANSVERSE BAR
UP TO 6'-0"	#4 AT 18" O.C.
6'-1" TO 12'-6"	#6 AT 7" O.C.



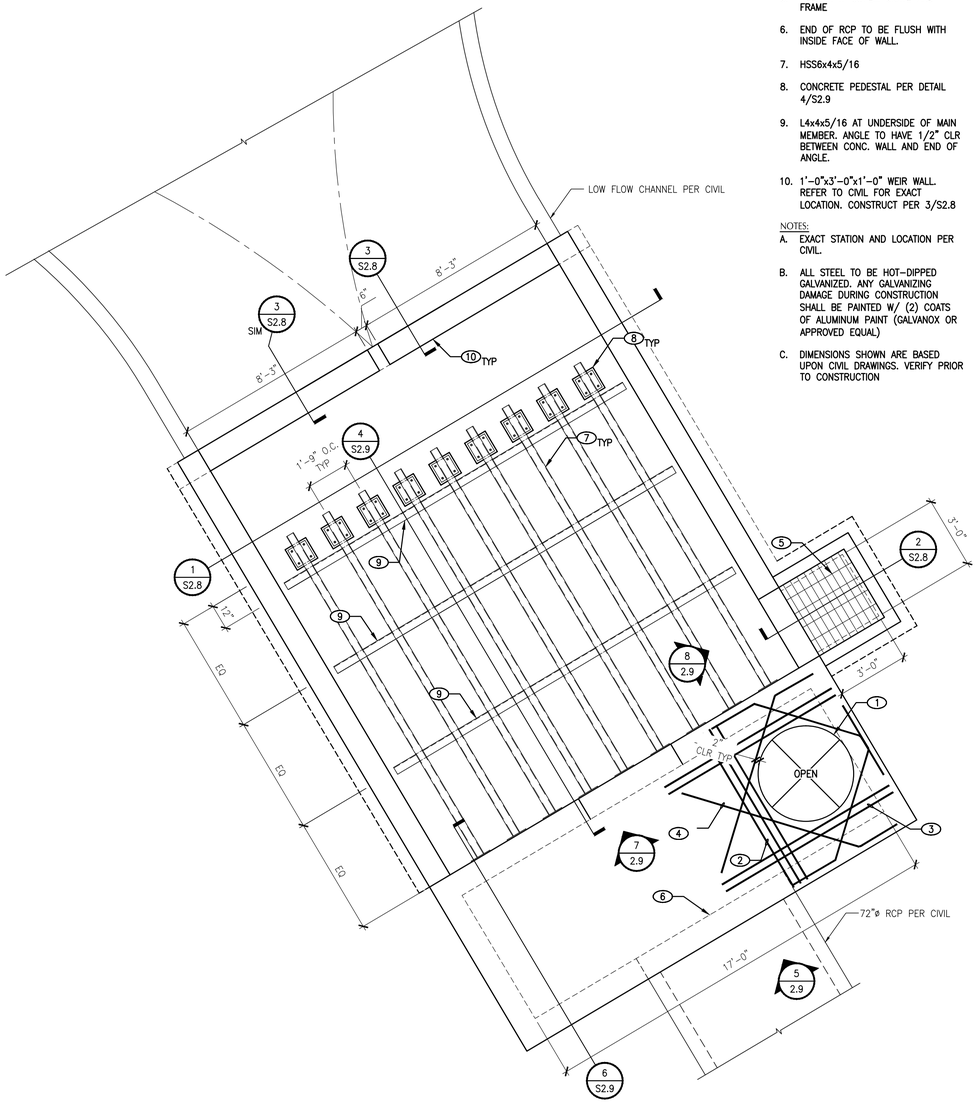
KEYNOTES:

1. #4 VERT AT 12" O.C. AT SOIL FACE. LAP LOWER BAR PER GSN
2. #4 HORIZ AT 16" O.C. EA FACE
3. VERT DOWEL PER REBAR SCHEDULE #1
4. #4 TRANS AT 12" O.C. AT TOP OF INVERT SLAB
5. #5 LONG AT 12" O.C.
6. COMPACTED SUBGRADE PER GSN
7. BACKFILL MATERIAL AND PROCEDURE PER GSN. PROVIDE 12" MIN FREE DRAIN GRANULAR BACKFILL FULL HEIGHT OF WALL
8. WEEP HOLE, ROCK POCKET, AND FILTER FABRIC PER TYP DETAIL 4/S0.2. PROVIDE (1) WEEP HOLE PER SIDE. LOCATE APPROX 36" FROM DROP STRUCTURE
9. TRANS BAR AT BOTTOM OF INVERT SLAB PER REBAR SCHEDULE #2
10. #4 VERT AT 18" O.C. AT NON SOIL FACE. PROVIDE DOWEL TO MATCH AND LAP W/ STD HOOK INTO FTG
11. CONSTRUCTION JOINT AT CONTRACTORS OPTION. ROUGHEN INTERFACE 1/4" AMPLITUDE
12. TOP OF WALL ELEVATION PER CIVIL
13. INVERT ELEVATION PER CIVIL

NOTES:

A. AT CONTRACTOR'S OPTION, VERT REINF PER KEYNOTE 3 MAY BE EXTENDED FULL WALL HEIGHT AND VERT REINF PER KEYNOTE 1 MAY BE ELIMINATED
B. CHAMFER ALL EXTERIOR CONCRETE EDGES
C. TRASH RACK FRAME NOT SHOWN FOR CLARITY, SEE SECTION 4/S2.9

1 S2.8 RECTANGULAR CHANNEL SECTION AT OUTLET STRUCTURE
NO SCALE



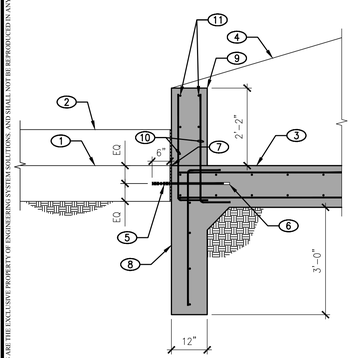
KEYNOTES:

1. 48"ø MANHOLE OPENING PER 7/S0.2
2. PLACE (3) ADD. TRANS BARS ADJACENT TO OPENING
3. PLACE (2) ADD. LONG. BARS ADJACENT TO OPENING. EXTEND 24" MIN PAST OPENING
4. #4x8'-0" DIAGONAL BARS EACH SIDE OF OPENING. BEND AS REQ'D.
5. NEENAH R-6672M GRATE AND FRAME
6. END OF RCP TO BE FLUSH WITH INSIDE FACE OF WALL.
7. HSS6x4x5/16
8. CONCRETE PEDESTAL PER DETAIL 4/S2.9
9. L4x4x5/16 AT UNDERSIDE OF MAIN MEMBER. ANGLE TO HAVE 1/2" CLR BETWEEN CONC. WALL AND END OF ANGLE.
10. 1'-0"x3'-0"x1'-0" WEIR WALL. REFER TO CIVIL FOR EXACT LOCATION. CONSTRUCT PER 3/S2.8

NOTES:

A. EXACT STATION AND LOCATION PER CIVIL.
B. ALL STEEL TO BE HOT-DIPPED GALVANIZED. ANY GALVANIZING DAMAGE DURING CONSTRUCTION SHALL BE PAINTED W/ (2) COATS OF ALUMINUM PAINT (GALVANOX OR APPROVED EQUAL)
C. DIMENSIONS SHOWN ARE BASED UPON CIVIL DRAWINGS. VERIFY PRIOR TO CONSTRUCTION

PLAN VIEW AT OUTLET STRUCTURE — SCALE: 3/8"=1'-0"



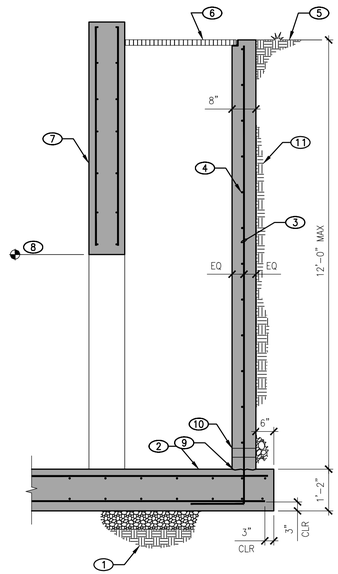
KEYNOTES:

1. LOW FLOW CHANNEL PER CIVIL
2. TOP OF LOW FLOW CHANNEL BEYOND
3. INVERT AND REINF PER 1/S2.8
4. TOP OF CHANNEL WALL BEYOND
5. DRILL AND EPOXY 5/8"ø x24" SMOOTH EPOXY COATED DOWELS AT 12" O.C. W/ 6" EMBED INTO LOW FLOW CHANNEL
6. 5/8"ø ID PLASTIC SLEEVE AS MFR BY SPEED DOWEL OR APPROVED EQUAL. LENGTH AS REQ'D FOR 2" SLIP AT END OF DOWEL
7. EXPANSION JOINT MATERIAL PER 10/S0.2
8. CUTOFF WALL AND REINF PER 10/S0.2
9. WEIR WALL PER PLAN, COORDINATE LOCATION W/ CIVIL
10. #4x21" DOWEL AT 12" O.C. EF, HOOK INTO INVERT AS SHOWN
11. #4 HORIZ EF, AT TOP OF WEIR WALL, AND AT MID-HEIGHT

NOTES:

A. AT SIM NO WEIR WALL PRESENT, SEE PLAN AND CIVIL DRAWINGS FOR LOCATION.
B. VERIFY WEIR HEIGHT W/ CIVIL PLANS

3 S2.8 SECTION AT CONNECTION TO LOW FLOW CHANNEL
NO SCALE



KEYNOTES:

1. PROPERLY PREPARED SUBGRADE PER GEOTECHNICAL REPORT
2. INVERT AND REINF PER 1/S2.8
3. #4 VERT AT 12" O.C. W/ STD HOOK INTO INVERT
4. #4 HORIZ AT 12" O.C. W/ STD HOOK INTO EACH END WALL
5. TOP OF FINISHED GRADE PER CIVIL
6. NEENAH R-6672-M GRATE & FRAME PER CIVIL
7. CHANNEL WALL AND REINF PER 1/S2.8
8. TOP OF ACCESS OPENING PER CIVIL
9. CONSTRUCTION JOINT AT CONTRACTORS OPTION, ROUGHEN INTERFACE 1/4" AMPLITUDE.
10. WEEP HOLE, ROCK POCKET, AND FILTER FABRIC PER TYP DETAIL 4/S0.2. PROVIDE (1) WEEP HOLE PER SIDE
11. BACKFILL MATERIAL AND PROCEDURES PER GEOTECHNICAL REPORT. PROVIDE 12" MIN FREE DRAIN GRANULAR BACKFILL FULL HEIGHT OF WALL

NOTES:

A. ALL WALLS AT MAN ACCESS STRUCTURE TO BE CONSTRUCTED AS SHOWN
B. LADDER PER CIVIL, NOT SHOWN FOR CLARITY

2 S2.8 SECTION AT MAN-ACCESS STRUCTURE
NO SCALE

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SEAL: STATE OF NEVADA — REGISTERED PROFESSIONAL ENGINEER — GREG A. MEYER — No. 12731 — STRUCTURAL — DATE SIGNED 12/31/15

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PROJECT: GRAND TETON REGIONAL FLOOD CONTROL FACILITY
DRAINAGE STRUCTURES
NORTH LAS VEGAS, NV

SHEET TITLE: OUTLET STRUCTURE PLAN VIEW & SECTIONS

REV.	DESCRIPTION	DATE
	DESIGN REVISIONS	4/8/14
	CC/RFCD COMMENTS	11/11/2013

DRAWN: GTC | CHECKED: SG/GAM

DATE: JULY 22, 2013
PROJECT NUMBER: STR13.6007
SHEET NUMBER: S2.8