Appendix 5.15C
Preconstruction Hydrology Analysis

MEMORANDUM

Date: May 24th, 2011
To: Thomas Regenhard
From: Brian Ruiz
Subject: Hidden Hills Ranch SEGS - Existing Condition Hydrologic & Hydraulic Analysis
W.O.: 7302-H

The following is a summary of methodology and results for the Existing Condition hydrologic and hydraulic analysis for the Hidden Hills Ranch SEGS project.

I. HYDROLOGIC ANALYSIS

A. WATERSHED AREA DESCRIPTION

The tributary watershed for the Hidden Hills Ranch project includes areas that extend to the northeast, southeast, and south of the project site location. The northeast watershed basins are within the state of Nevada (Clark and Nye Counties). This area is within the mountainous zones of the Spring Mountains, and the flatter area lies within the Pahrump Valley. The area located to the southeast and south of the project is within Inyo County California. This area, for the most part, is within the Pahrump Valley with some areas extending into the mountainous areas of the San Bernardino Mountains to the south of the project. The entire watershed drains into the Pahrump Valley south of the project and is then routed to the northwest and eventually discharges into the dry lake bed northwest of the project. The entire watershed consists of approximately 352 square miles.

The vegetation within the offsite areas vary depending on the elevation and terrain. The higher mountain areas to the northeast contain dense vegetation cover of juniper bush, scrub oak, and small juniper and pinyon pine trees. As you proceed to the southwest towards the lower elevations, the vegetation thins out and gives way to desert shrub cover. The site itself is sparsely vegetated with desert shrub.

The offsite watershed has two main watercourses, Stump Springs and Lovell Wash. The Stump Springs watercourse is located northeast of the site and originates within the Spring Mountains. The Stump Springs watercourse is made up of numerous upstream springs

including: Trout Springs, Cool Springs, Yount Springs, and Lost Cabin Springs, with Trout Springs being the largest. All of these springs converge at Stump Springs approximately 1.9-miles upstream of the California and Nevada State Line. All area tributary to the Stump Springs upstream of Nevada State Route 160 (SR160) is delineated into one hydrologic basin labeled as TROUT. The remaining area downstream of SR160 is delineated into a hydrologic basin labeled OFF2. The two hydrologic basins are combined at hydrograph combination point CP2, located southeast of the site. Lovell Wash is located southeast of Stump Springs and also originates in the Spring Mountains. The Lovell wash is delineated into two hydrologic basins upstream of SR160 labeled as LOVEL and EAST1. Downstream of SR160 the Lovell Wash is delineated into a hydrologic basin labeled OFF4. Stump Springs (CP1) and Lovell Wash (CP2) are located southeast of the site. The two watercourses converge south of the site and are routed within the Pahrump Valley to the dry lake bed located northwest of the site.

The offsite watershed to the northeast is transected by Nevada State Route 160 (SR 160). A hydrologic study was completed by the Nevada Department of Transportation (NDOT) for the design of the numerous culvert crossings under SR 160. The location and size of the culvert crossings are shown on Figure 7302HYD100. The study was performed “in house” by NDOT, and was not contracted out to a consultant as is typically done with NDOT roadway infrastructure projects. Due to this, the study was not as coherent as most hydrologic studies, and detailed analysis information was not readily available. The NDOT study also based the culvert design on the 25-year storm event opposed to the 100-year storm event used as the design for this project. VTN conducted an evaluation of the information that was available from the NDOT study and determined that the drainage patterns and flow magnitudes determined in this study are in general conformance with the determinations of the NDOT study.

The watershed was delineated into 23 hydrologic basins. The delineation of the hydrologic basins were based on United States Geological Survey (USGS) Quadrangle (QUAD) Map topography with varying contour intervals ranging from 50-m to 5-m. The site itself is one hydrologic basin denoted as ON2. Two other potential extensions of the site have been delineated into hydrologic basin denoted as ON1 and ON3. For the site (ON2) aerial topography was flown with a contour interval of 1 foot.

B. LAYDOWN AREA

Downstream of basin ON2, basin STA1 has been delineated to denote the location of the proposed temporary construction Laydown area for the site. This area will not contain permanent improvements but will be used as a temporary construction staging area during construction of the site. In the temporary construction period the area will be graded. However, once the construction of the plant is complete, the area will be allowed to re-vegetate back to existing conditions. The peak flows and volumes for this area will be determined through the use of the HEC-1 analysis completed in this report. Since the

Laydown area is temporary and does not include any permanent structures, the FLO-2D analysis will not be extended into the Laydown area. Any flow increases due to the temporary grading of the Laydown area will be determined by comparison of the Existing Condition HEC-1 flows completed in this report, to the Developed Condition HEC-1 flows that will be completed in the Post-Construction Analysis for the site.

C. FLOOD ZONES

The site is impacted by two FEMA established Special Flood Hazard Zones. Each flood zone is classified as a Zone "A", which is defined as an area subject to flooding by the 1-percent annual chance flood with no base flood elevation determined. A new Flood Insurance Study is being conducted by AECOM/Baker that will re-analyze the flood zones through the site. Preliminary shape files for the proposed flood zones are available and Figure 7302HYD103 shows the proposed flood zones superimposed over the effective flood. The effective date for the new flood zones is currently set for September 2011.

D. HYDROLOGIC CRITERIA

The site is within Inyo County California. Inyo County contains its hydrologic criteria within two documents; *The Inyo County Code Title 14.29 – Flood Damage Prevention*, and the *County of Inyo Subdivision Ordinances*. Both documents provide guidelines for establishing flood protection for proposed improvements however, besides establishing the 100-year storm as the design flow requirements, neither document provides any information regarding appropriate hydrologic analysis methodology for the site. A meeting was held with Inyo County on November 5th, 2010 during which Inyo County stated that the hydrologic analysis methodologies incorporated for the site is left to the discretion of the engineer however, the result must be reasonable, and the methodology based on sound engineering practices.

Based on Inyo County's statements and the fact that the main reviewing agency for this project will be the California Energy Commission (CEC), it was decided that the hydrologic methodology established by San Bernardino County should be used for this project. The San Bernardino methodology was chosen for two main reasons. First, San Bernardino County is the closest California County to the site with the county border with Inyo County being approximately 13 miles south of the site. Second, San Bernardino County has an *Arid Region Addendum* to the *San Bernardino County Hydrology Manual,* dated April 6, 2010, that provides specification for desert climates similar to the one that the site is subject to.

On February 8, 2011 a follow up meeting was held between Inyo County staff, BrightSource Energy, and VTN. In the meeting a methodology summary and preliminary results of the hydrologic and hydraulic analysis for Hidden Hills was presented to Inyo County. A follow up letter to the meeting was completed and sent to Inyo County on February 14, 2011

summarizing the methodologies used in the Hidden Hills analysis. Inyo County sent a letter dated February 23, 2011, acknowledging that Inyo County has no current hydrologic criteria and stated that the use of San Bernardino County methodology was acceptable for the project. The letter also stated that Inyo County has no issue with the use of the 24 hour 100-year storm event as the design storm and that the use of HEC-1, HEC-RAS, and FLO-2D seemed to be appropriate hydrologic and hydraulic modeling software for the project. A copy of the Inyo County letter is attached to Appendix H of this report.

E. HYDROLOGIC CALCULATIONS

1. Storm Event

Per the *County of Inyo Subdivision Ordinances* the storm event with a 1% probability of occurring in any single year (100-year storm event) was utilized as the major storm and design event for the site. As explained above, Inyo County has no hydrologic criteria for establishing that storm. Based on the *San Bernardino County Hydrology Manual*, the storm event used is the 24-hour, 100-year storm. In addition to the 100-year design storm, the 25-year and 10-year storms have also been determined. Additional storms such as the 5-year storm and the 2-year have been also included to aid in the development of the storm water quality analysis at a later date.

2. Loss Parameters

Per the *San Bernardino County Hydrology Manual*, the SCS Curve Number methodology is incorporated in the analysis to determine precipitation losses (interception, depression storage, infiltration). The National Resource Conservation Service (NRCS) General Soil Survey for the states of California and Nevada were used to determine the soil types within the watershed (See Figures 7302HYD104 and -105). Information from the General Soil Survey includes the soil group composition and hydrologic type to which the soils belong to (A-D). The soil survey information was used to establish a composite Curve Number for each hydrologic basin. Actual Curve Numbers for specific hydrologic soil types were referenced from the NRCS's *TR-55 Publication (1986)*.

Per the Arid Region Addendum to the San Bernardino County Hydrology Manual, Antecedent Moisture Condition 1 (AMC 1) can be utilized for establishing curve numbers in the arid region environments. AMC 1 assumes that soils are completely dry prior to the storm event occurring, which creates maximum infiltration of rainfall into the soil. Much of the soils within the offsite basins

directly impacting the site are type A & B soils (high infiltration/low runoff soils). These soils combined with the AMC 1 condition, produced lower storm runoff values than would normally be predicted for an offsite area of the size observed (± 21 square miles). In order to determine a practical assessment of runoff potential for the site design purposes, the AMC 2 condition is used for the basin directly impacting the site. The flow values submitted within this report are based on the curve number conditions listed on the table below. Refer to Appendix D for complete curve number calculations and references.

Table 1: Drainage Basins Composite Curve Number Summary

BASIN LABEL	Land Cover Breakdown			
	Desert Brush	Mountain Brush	Composite CN (AMC II)	Composite CN (AMC I)
LOVEL	55%	45%	N/A	59.8
EAST1	100%	0%	N/A	74.1
TROUT	60%	40%	N/A	60.9
OFF1A	100%	0%	83.5	N/A
OFF1B	100%	0%	84.4	N/A
OFF1C	100%	0%	83.5	N/A
OFF1D	100%	0%	83.5	N/A
OFF1E	100%	0%	84.9	N/A
OFF1F	100%	0%	83.5	N/A
OFF1G	100%	0%	N/A	68.3
OFF1Z	100%	0%	83.5	N/A
OFF2	100%	0%	N/A	72.4
OFF3	100%	0%	N/A	70.2
OFF4	100%	0%	N/A	71.5
OFF5	100%	0%	N/A	56.1
OFF7	100%	0%	N/A	54.8
OFF8	100%	0%	N/A	54.0
OFF9	100%	0%	N/A	51.0
OFF11	100%	0%	N/A	59.5
OFF12	100%	0%	85.9	N/A
ON1	100%	0%	N/A	68.3
ON2	100%	0%	83.5	N/A
ON3	100%	0%	N/A	69.0
STA1	100%	0%	83.5	68.3

3. Precipitation Values

Per the *San Bernardino County Hydrology Manual*, NOAA Atlas 14 was used to determine all precipitation values for storm events evaluated for the site. All precipitation calculations, storm distributions (hyetographs), and reference material is included in Appendix B and C of this report.

F. HEC-1 ANALYSIS

The U.S. Army Corps of Engineers (USACE) HEC-1 software program was utilized to establish storm water runoff values for all offsite hydrologic basins within the watershed. The San *Bernardino County Hydrology Manual* was referenced in creating the hydrologic models for this project. Per the Manual, the Unit Hydrograph Method should be utilized for all hydrologic studies where the watershed exceeds 1 square mile. Based on that recommendation, the Unit Hydrograph Method was used for this project. The Unit Hydrograph Method requires the development of unit hydrographs for each hydrologic basin from an appropriate S-Graph and the computed lag time (based on physical basin properties such as slope, length of longest watercourse, centroid length and manning's roughness). The San Bernardino Mountain S-Graph was chosen to represent basins "TROUT" and "LOVEL," while the Valley-Undeveloped S-Graph was selected for the remaining (flat) basins. To aid in the development of the unit hydrographs, the Unit Hydrograph Method (UNITHx) software program from AES was utilized to compute the unit hydrographs ordinates. The unit hydrographs ordinates were then inserted into the HEC-1 program to determine the runoff hydrographs, routing of hydrologic basins, and combination of runoff hydrographs as required. Routing of hydrologic basins was based on the Muskingum-Cunge method. The representative channel cross-sections for routing were estimated based on Google Earth imagery. Due to the large scale of the USGS Quad maps, and the small amount of topographic detail, a representative channel width was measured in Google Earth and a trapezoidal shape (with 4:1 side slopes) was assumed based on field observations. Refer to Appendices A, E, and F for HEC-1 model input/output files, basin lag time calculations and unit hydrograph computations.

G. ONSITE FLO-2D ANALYSIS

FLO-2D is a 2-dimensional flood routing model with the ability to generate storm flow runoff (hydrographs) and determine flow depths and velocities. The FLO-2D program was utilized for the onsite areas where 1-foot contour topography is available. FLO-2D also has the capability to import hydrographs from external sources into the model. This was utilized to bring in all offsite hydrographs created by the HEC-1 model and FLO-2D model for the tributary areas northeast and southeast of the site. With all offsite hydrographs incorporated into the onsite FLO-2D model, the onsite FLO-2D model can determine the total peak discharges and runoff volumes impacting the site. Figures 7302HYD101, -102, and

-106 through -109 show the results of the FLO-2D analysis for the 100, 25, and 10-year storm events respectively.

1. Grid Size

The grid size used in the FLO-2D analysis was set to 100-ft x 100-ft. This grid size was determined from the recommendations of the FLO-2D user manual to set peak discharge divided by the surface area of an individual grid element to less than 1 cfs/ft^2.

2. Roughness Coefficients

Manning's roughness coefficients (n-values) were referenced from FLO-2D reference manuals and based on guidelines from *Open Channel Hydraulics by Chow, 1959*. Based on these sources and site visits, an n-value of 0.0650 was used for the natural desert areas of the site. Note that this value may seem higher than would normally be used in a 1-dimensional model like HEC-RAS. However, FLO-2D being a 2-dimensional model requires that the roughness coefficient account for flow in 8 directions which tends to increase the friction potential when compared to 1-dimensional modeling.

3. Loss Parameters

SCS Curve Number loss parameters were used with the FLO-2D program as discussed in the Hydrologic Calculations portion of this memorandum.

4. Precipitation Values

Precipitation values for the onsite FLO-2D model were computed as discussed in section I.D.3 of this report. All precipitation calculations and reference material is included in Appendix B of this report.

5. Channels

FLO-2D has the ability to include defined channels superimposed onto the grid system to give more accurate results where defined channels are present. Based on the 1-foot topography for the site, most of the washes within the site are shallow and wide enough that the FLO-2D grid system represents the terrain condition accurately enough to not require the use of channels. However, there is one defined wash located towards the center of the site that warranted the inclusion of a channel. Cross-sections for this wash were created in HEC-RAS and imported into FLO-2D using FLO-2D's import function. The wash begins at the northeast boundary of the site (California/Nevada State Line) and extends approximately 2600 feet to the southwest. At this point the defined channel spreads out into a series of small rills and no longer contains the flow in a single

location. From that point down, the FLO-2D grid system gives an accurate determination of the terrain conditions.

II. HYDRAULIC ANALYSIS

A. OFFSITE FLO-2D

For determination of water surface extent, flow depths, and velocities for the offsite area and flood zones impacting the site, it was determined that the FLO-2D model would be used based on the terrain conditions (Refer to Figure 7302HYD101). The offsite FLO-2D analysis differs from the onsite FLO-2D analysis described in Section I.F. of this technical memorandum in that it encompasses a much greater area, utilizes a different topography source for the grid elevation interpolation, and includes all flows tributary to both the surrounding FEMA Flood Zones and the site boundary. The offsite FLO-2D grid elevations were interpolated using topography purchased from a mapping service company called Map Mart. The topography itself is derived from a 5-m x 5-m Digital Elevation Model (DEM) and is significantly more accurate and contains more topographic detail for delineating floodplains when compared to the free 10-m x 10-m USGS DEM's available for public download.

1. Grid Size

The grid size used in the offsite FLO-2D analysis was set to 200-ft x 200-ft, based on the recommendations in the FLO-2D user's manual.

2. Roughness Coefficients

The roughness was set at 0.065 given that the area encompassed by the offsite FLO-2D analysis is characterized as arid desert.

3. Loss Parameters

No loss parameters were established in the offsite FLO-2D analysis since the input hydrographs were derived by HEC-1 for drainage areas already taking into account rainfall and infiltration.

4. Precipitation Values

Precipitation values for the onsite FLO-2D model were computed as discussed in section I.D.3 of this report. All precipitation calculations and reference material is included in Appendix B of this report.

5. Channels

No channels were superimposed in the grid for the offsite FLO-2D analysis.

B. DRY LAKE BED ANALYSIS

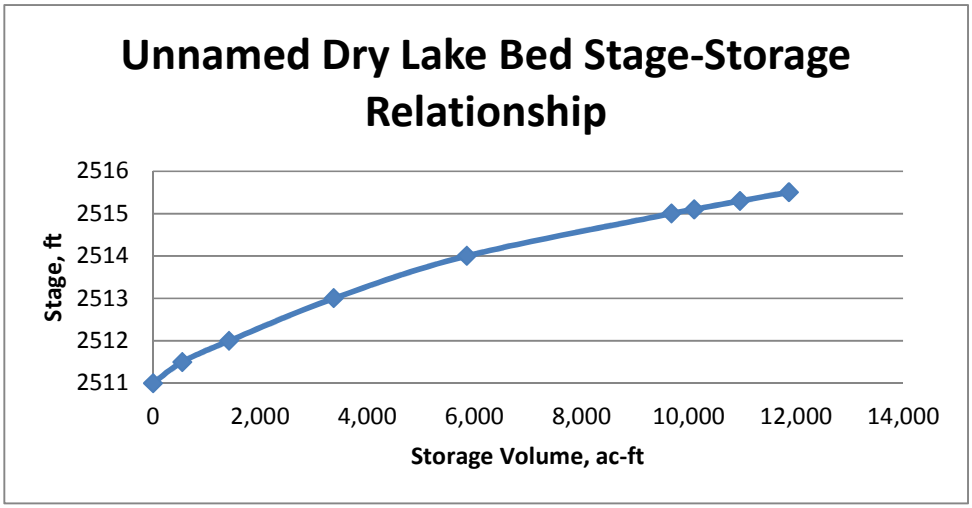
An unnamed dry lake bed (refer to Figure 7302HYD100A) is located north-west of the site (± 2.1-miles from the north-west corner of property line). The dry lake bed itself is designated as a Special Flood Hazard Zone "A" by FEMA. Three separate Zone "A" branches are tributary to the dry lake bed, and combine downstream of the site per the published FIRM's. A portion of the town of Pahrump also drains to the dry lake bed. This particular dry lake bed was analyzed to determine the storage volume and the corresponding flood stage elevation plus any associated impact on the project site during the 100-year, 24-hour storm condition.

USGS 10-m x 10-m DEM's were obtained for an area surrounding the dry lake bed and imported into Autodesk Civil 3D software. A 3-dimensional surface (topography) was subsequently constructed from the DEM's. According to the topography, the lowest elevation within the dry lake bed is ± 2511-ft. A review of the topography revealed that vertical storage within the dry lake bed exists up to an elevation of ± 2515-ft at the northern edge of its extent. Past elevation 2515-ft, the terrain elevation begins to drop in the north-west direction. A fill volume surface was created in the Civil 3D software to determine the storage of the dry lake bed with an associated stage elevation (DEM topography was the base comparison surface). Results of the calculated stage-storage analysis on the unnamed dry lake bed are summarized below:

Table 2: Dry Lake Bed Stage/Volume Summary

Stage (elevation)	**Volume**
(ft)	**(ac-ft)**
2511	0
2,511.50	549
2,512	1,423
2,513	3,377
2,514	5,857
2,515	9,676
2515.1	10,102
2,515.3	10,958
2,515.5	11,867
Note: Shaded elevation denotes the beginning of water weiring out towards north-west direction, from dry lake bed's northern edge.	

Figure 1: Stage/Storage Curve



According to the HEC-1 flood hydrograph analysis performed for the 100-year, 24-hour event, the entire delineated watershed area (including offsite and onsite basins) is 351.2 sq.mi. per the last hydrograph combination point CP10. The total runoff volume for this entire area is 15,754 ac-ft and the peak flow is 28,754-cfs per the HEC-1 results. It was noted that additional area is tributary to the unnamed dry lake bed that was not encompassed by the delineated watershed. The additional area was delineated by using USGS Quad map topography and was quantified as 131-sq.mi. Therefore, adding both areas results in a total of 482.2-sq.mi. projected to be tributary to the dry lake bed.

Since a hydrologic analysis was not performed for the additional area, a conservative peak flow and volume to area ratio was computed for the area represented by combination point CP10. The ratios were applied (extrapolated) to the additional tributary area under the assumption that all hydrologic parameters are the same (i.e. infiltration, rainfall, etc.). The ratio calculations are shown below:

Volume Ratio (from CP10):

$$\frac{15{,}754\ ac.ft}{351.2\ sq.mi.} = 44.9\frac{ac.ft}{sq.mi.}$$

Peak Flow Ratio (from CP10):

$$\frac{28{,}754\ cfs}{351.2\ sq.mi.} = 81.9\frac{cfs}{sq.mi.}$$

Volume from additional area:

$$44.9\frac{ac.ft}{sq.mi.} \times 131\ sq.mi. = 5{,}881.9\ ac.ft$$

Peak Flow from additional area:

$$81.9\frac{cfs}{sq.mi.} \times 131\ sq.mi. = 10{,}728.9\ cfs$$

The total volume tributary to the dry lake bed is estimated as 21,635.9 ac-ft (15,754 ac-ft + 5,881.9 ac-ft) and peak flow is estimated as 39,482.9-cfs (28,754-cfs + 10,728.9-cfs). Based on the stage-storage relationship computed, it is evident that under a worst case scenario (24-hour, 100-year storm occurring over entire 482.2-sq.mi.) the storage volume of the dry lake bed would not contain the total runoff volume from the tributary watershed. The stage in the dry lake bed would build up to an elevation of 2515-ft and then begin to weir over in a north-west direction where a second dry lake bed (by Stewart Valley, located 10-miles downstream) is located. A representative weir length of 3,400-ft was measured at the spill out point (along the northern portion of the dry lake bed) and the broad crested weir equation was utilized to solve for the weir height at the worst case peak flow of 39,482.9-cfs.

$$Q = CLH^{3/2}$$

$$H = (\frac{Q}{CL})^{2/3}$$

$$H = \left(\frac{39{,}482.9}{3 * 3400}\right)^{2/3} = 2.47\ ft$$

The estimated maximum water surface elevation would therefore be 2517.47-ft (2515-ft + 2.47-ft) at the dry lake bed under a worst case flooding condition. By comparison, the western edge of the site boundary is at an elevation of 2585-ft. Therefore, sufficient elevation difference exists (minimum of 67.5-ft) between the project boundary and the maximum water surface elevation in the dry lake bed to not cause an impact. Furthermore, it was determined that the second dry lake bed (by Stewart Valley) has a volume capacity in excess of 108,000 ac-ft and is substantially lower (low point elevation = 2,443-ft), than the sites western boundary.

III. SUMMARY OF ANALYSIS RESULTS

A. HYDROLOGIC ANALYSIS RESULTS

The following table shows the hydrologic analysis results for the 24-Hour 100, 25, 10, 5, and 2-year storm runoff values.

Table 3: Hydrologic Analysis Summary

Basin / Combination Pt. Label	Area (sq.mi.)	24-HR Q100-YR (cfs)	24-HR Q25-YR (cfs)	24-HR Q10-YR (cfs)	24-HR Q5-YR (cfs)	24-HR Q2-YR (cfs)
LOVEL	53.18	7,508	3,584	1,763	866	170
EAST1	2.70	691	383	218	123	36
TROUT	109.75	13,819	6,220	3,112	1,328	238
OFF1A	1.44	282	175	114	77	36
OFF1B	4.37	710	446	293	202	98
OFF1C	1.25	259	161	105	72	33
OFF1D	1.15	245	153	100	68	32
OFF1E	4.74	773	489	325	225	111
OFF1F	2.28	413	255	166	113	52
OFF1G	1.74	158	69	28	10	2
OFF1Z	0.64	171	109	72	49	23
OFF2	26.22	2,006	1,135	471	221	44
OFF3	6.13	537	266	109	44	8
OFF4	30.13	2,011	1,142	442	190	37
OFF5	50.58	1,076	335	126	2	0
OFF7	1.77	46	6	1	0	0
OFF8	10.42	177	26	1	0	0
OFF9	0.91	11	1	0	0	0
OFF11	11.66	311	74	25	4	0
OFF12	19.01	2,739	1,995	1,356	832	420
ON1	2.35	285	118	46	16	2
ON2	4.84	1,127	674	442	301	138
ON3	3.98	419	175	75	28	4
STA1	0.28	118	73	49	34	16
RT1	53.18	7,314	3,628	2,305	1,524	205
RT2	109.75	13,581	6,118	3,276	1,860	238
CP1	86.01	9,052	4,577	2,587	1,540	218
CP2	136.59	9,692	4,760	2,755	1,383	205
CP3	143.84	15,886	7,351	3,762	2,066	259

CP4	146.19	15,977	7,397	3,782	2,074	259
CP5	284.55	23,619	11,250	5,646	2,573	441
CP6	294.97	23,710	11,251	5,646	2,573	441
CP7	295.88	23,712	11,251	5,646	2,573	441
CP8	328.25	23,931	11,301	5,649	2,573	441
CP9	332.23	26,282	12,612	6,264	2,912	551
CP10	351.24	28,765	14,314	7,122	3,520	719
CPA	15.87	2,576	1,580	1,030	703	332
CPC	20.71	3,500	2,101	1,364	925	426
CPD	20.99	3,558	2,132	1,384	939	431

Denotes Basins Impacting the Site Boundary.
Basin hydrograph combination points are denoted as "CP"

The following table shows the peak flow and runoff volumes from the seven cross-sections cut from the onsite FLO-2D analysis. The cross-sections were cut at locations within the site upstream of the proposed power blocks and along the western boundary of the site. Cross-sections 4-7 represent the conditions leaving the site in the existing condition. These sections will be used to compare to post-development project conditions.

Table 4: Onsite FLO-2D Hydrologic Analysis Peak Flows & Volumes

24-Hour, 100-Year		
Cross Section	**Max Discharge (cfs)**	**Runoff Volume (ac-ft)**
CS 1	661.73	314.45
CS 2	357.77	176.49
CS 3	5,588.68	3,010.21
CS 4	778.07	324.78
CS 5	251.48	102.98
CS 6	5,590.32	3,249.95
CS 7	5,241.31	3,090.92
24-Hour, 25-Year		
CS 1	432.71	204.94
CS 2	232.84	113.52
CS 3	2,574.06	1,678.43
CS 4	515.58	217.00
CS 5	111.40	50.76
CS 6	2,578.25	1,747.00
CS 7	1,976.85	1,461.55
24-Hour, 10-Year		

CS 1	277.82	139.80
CS 2	158.72	76.15
CS 3	1,157.60	924.92
CS 4	313.93	133.61
CS 5	52.27	24.21
CS 6	1,227.28	919.00
CS 7	941.25	670.35

B. HYDRAULIC ANALYSIS RESULTS

The following table shows the maximum flow depths and velocities within the seven cross-sections cut from the onsite FLO-2D analysis for the onsite portion of the site. (Refer to Exhibits 7302HYD101, -102, and -106 through -109 for the location cross sections).

Table 5: FLO-2D Analysis Max Depths & Velocities

FLO-2D Hydraulic Analysis Flood Plain Cross Section Summary			
24-Hour, 100-Year			
Cross Section	**Max Discharge (cfs)**	**Max. Depth (ft.)**	**Max. Velocity (ft/s)**
CS 1	661.73	1.07	1.25
CS 2	357.77	0.61	0.99
CS 3	5,588.68	2.20	1.87
CS 4	778.07	1.06	1.27
CS 5	251.48	0.81	0.73
CS 6	5,590.32	2.36	1.63
CS 7	5,241.31	1.70	2.37
24-Hour, 25-Year			
CS 1	432.71	0.93	1.13
CS 2	232.84	0.52	0.83
CS 3	2,574.06	1.62	1.37
CS 4	515.58	0.89	1.11
CS 5	111.40	0.64	0.70
CS 6	2,578.25	1.87	1.17
CS 7	1,976.85	1.21	1.78
24-Hour, 10-Year			
CS 1	277.82	0.80	1.00
CS 2	158.72	0.44	0.75
CS 3	1,157.60	1.17	1.00
CS 4	313.93	0.72	0.94

CS 5	52.27	0.48	0.59
CS 6	1,227.28	1.54	0.94
CS 7	941.25	0.88	1.36

FIGURES:

List of Existing Condition Hydrologic and Hydraulic Analysis Figures:

1. 7302HYD100- Existing Condition Basin Map
2. 7302HYD100A- Dry Lake Bed Exhibit
3. 7302HYD101- FLO-2D Depth Map, 24-Hour, 100-Year
4. 7302HYD102- FLO-2D Velocity Map, 24-Hour, 100-Year
5. 7302HYD103- Flood Zone Comparison Exhibit
6. 7302HYD104- Onsite Soils Exhibit
7. 7302HYD105- Overall Soils Exhibit
8. 7302HYD106- FLO-2D Depth Map, 24-Hour, 25-Year
9. 7302HYD107- FLO-2D Velocity Map, 24-Hour, 25-Year
10. 7302HYD108- FLO-2D Depth Map, 24-Hour, 10-Year
11. 7302HYD109- FLO-2D Velocity Map, 24-Hour, 10-Year

Basin / Combination Pt. Label	Area (sq.mi.)	24-HR Q100-YR (cfs)	24-HR Q25-YR (cfs)	24-HR Q10-YR (cfs)	24-HR Q5-YR (cfs)	24-HR Q2-YR (cfs)
LOVEL	53.18	7,508	3,584	1,763	866	170
EAST1	2.70	691	383	218	123	36
TROUT	109.75	13,819	6,220	3,112	1,328	238
OFF1A	1.44	282	175	114	77	36
OFF1B	4.37	710	446	293	202	98
OFF1C	1.25	259	161	105	72	33
OFF1D	1.15	245	153	100	68	32
OFF1E	4.74	773	489	325	225	111
OFF1F	2.28	413	255	166	113	52
OFF1G	1.74	158	69	28	10	2
OFF1Z	0.64	171	109	72	49	23
OFF2	26.22	2,006	1,135	471	221	44
OFF3	6.13	537	266	109	44	8
OFF4	30.13	2,011	1,142	442	190	37
OFF5	50.58	1,076	335	126	2	0
OFF7	1.77	46	6	1	0	0
OFF8	10.42	177	26	1	0	0
OFF9	0.91	11	1	0	0	0
OFF11	11.66	311	74	25	4	0
OFF12	19.01	2,739	1,995	1,356	832	420
ON1	2.35	285	118	46	16	2
ON2	4.84	1,127	674	442	301	138
ON3	3.98	419	175	75	28	4
STA1	0.28	118	73	49	34	16
RT1	53.18	7,314	3,628	2,305	1,524	205
RT2	109.75	13,581	6,118	3,276	1,860	238
CP1	86.01	9,052	4,577	2,587	1,540	218
CP2	136.59	9,692	4,760	2,755	1,383	205
CP3	143.84	15,886	7,351	3,762	2,066	259
CP4	146.19	15,977	7,397	3,782	2,074	259
CP5	284.55	23,619	11,250	5,646	2,573	441
CP6	294.97	23,710	11,251	5,646	2,573	441
CP7	295.88	23,712	11,251	5,646	2,573	441
CP8	328.25	23,931	11,301	5,649	2,573	441
CP9	332.23	26,282	12,612	6,264	2,912	551
CP10	351.24	28,765	14,314	7,122	3,520	719
CPA	15.87	2,576	1,580	1,030	703	332
CPC	20.71	3,500	2,101	1,364	925	426
CPD	20.99	3,558	2,132	1,384	939	431

Denotes Basins Impacting Site Boundary

Basin hydrograph combination points are denoted as "CP"

SR 160 Station (m)	U.S. Cust. Units Structure List	GIS Label
"PEM" 58+68.40	(2) 48 in. CMP	CX1
"PEM" 54+04.20	(3) 54 in. CMP	CX2
"PEM" 44+92.20	(3) 60 in. CMP	CX3
"PEM" 36+65.00	(1) 48 in. CMP	CX4
"PEM" 34+95.50	(1) 72 in. CMP	CX5
"PEM" 31+47.50	(1) 36 in. CMP	CX6
"PEM" 30+50.00	(1) 54 in. CMP	CX7
"PEM" 27+09.50	(1) 36 in. CMP	CX8
"PEM" 26+25.20	(3) 54 in. CMP	CX9
"PEM" 20+76.00	(2) 54 in. CMP	CX10
"PEM" 3+57.50	(3) 8ft x 5ft RCB	CX11
"OEM" 175+57.70	(4) 10ft x 3ft RCB	CX12
"OEM" 160+43.20	(2) 8ft x 7ft RCB	CX13
"OEM" 152+23.40	(3) 10ft x 7ft RCB	CX14
"OEM" 131+74.40	(2) 8ft x 6ft RCB	CX15
"OEM" 128+12.70	(2) 8ft x 8ft RCB	CX16
"OEM" 116+87.50	(1) 48 in. CMP	CX17
"OEM" 111+85.50	(1) 36 in. CMP	CX18
"OEM" 108+28.00	(1) 30 in. CMP	CX19
"OEM" 105+13.90	(1) 24 in. CMP	CX20
"OEM" 102+76.50	(3) 48 in. CMP	CX21
"OEM" 98+27.30	(1) 30 in. CMP	CX22
"OEM" 94+96.90	(2) 36 in. CMP	CX23
"OEM" 90+39.20	(1) 30 in. CMP	CX24
"OEM" 87+23.60	(1) 30 in. CMP	CX25
"OEM" 84+60.10	(1) 36 in. CMP	CX26
"OEM" 80+24.10	(1) 30 in. CMP	CX27
"OEM" 77+65.90	(1) 36 in. CMP	CX28
"OEM" 73+22.90	(1) 30 in. CMP	CX29
"OEM" 71+16.20	(1) 36 in. CMP	CX30
"OEM" 66+72.90	(1) 30 in. CMP	CX31
"OEM" 62+27.60	(1) 24 in. CMP	CX32
"OEM" 60+50.25	(1) 24 in. CMP	CX33
"OEM" 59+06.90	(1) 30 in. CMP	CX34
"OEM" 57+71.90	(1) 30 in. CMP	CX35
"OEM" 54+24.90	(1) 36 in. CMP	CX36
"OEM" 49+01.16	(3) 12ft x 10ft RCB	CX37
"OEM" 38+25.82	(1) 42 in. CMP	CX38
"OEM" 24+31.32	(2) 48 in. CMP	CX39

REVISIONS

DATE:	REV. BY	DESCRIPTION
2/7/11	RV	Flow tables rev. per 2nd iteration SB County method
3/8/11	RV	Added NDOT culvert crossings with structure ID table. combination point, per BSE comments. Culverts shown.
4/5/11	RV	Added 2 & 5-yr storm flows to summary table.
5/16/11	RV	Updated flow table to reflect new basin "STA1" to reflect staging area.

BRIGHTSOURCE ENERGY

INYO COUNTY, CA

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EXISTING CONDITION BASIN MAP

HIDDEN HILLS RANCH SEGS

PROJECT NO: 7302

DRAWN BY: RV

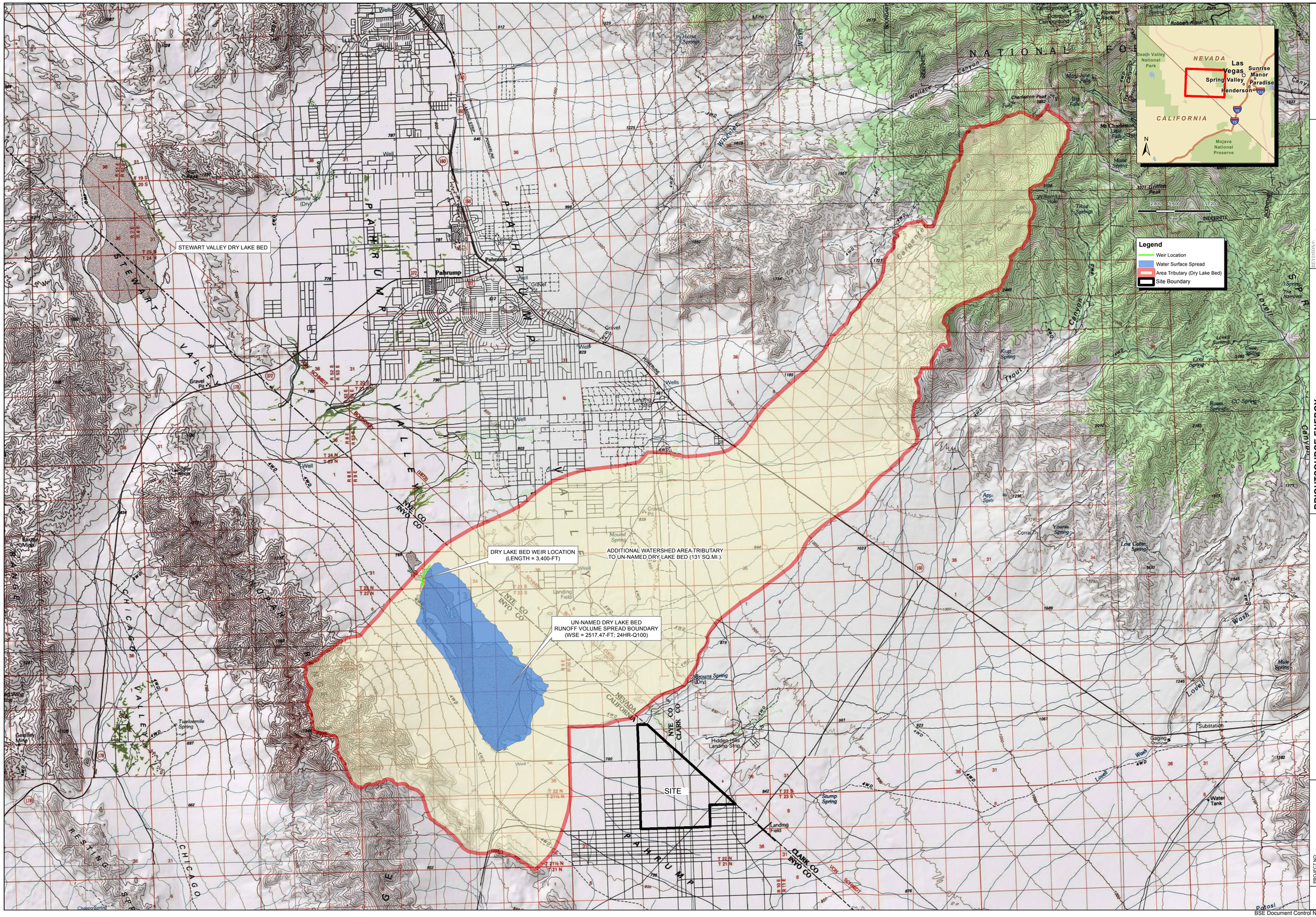
DATE: 05/16/2011

SCALE: 1" = 8,000 '

SHEET 7302HYD100

Path: J:\7302 - Hidden Hills\GIS\mxd\7302_BasinMap.mxd, Date: 5/16/2011

BSE Document Control Number: HYD200-R1



REVISIONS		
DATE	REV. BY	DESCRIPTION

INYO COUNTY, CA

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DRY LAKE BED EXHIBIT

HIDDEN HILLS RANCH SEGS

PROJECT NO:	7302
DRAWN BY:	RV
DATE	04/05/2011
SCALE:	1 " = 6,000 '
SHEET	7302HYD100A

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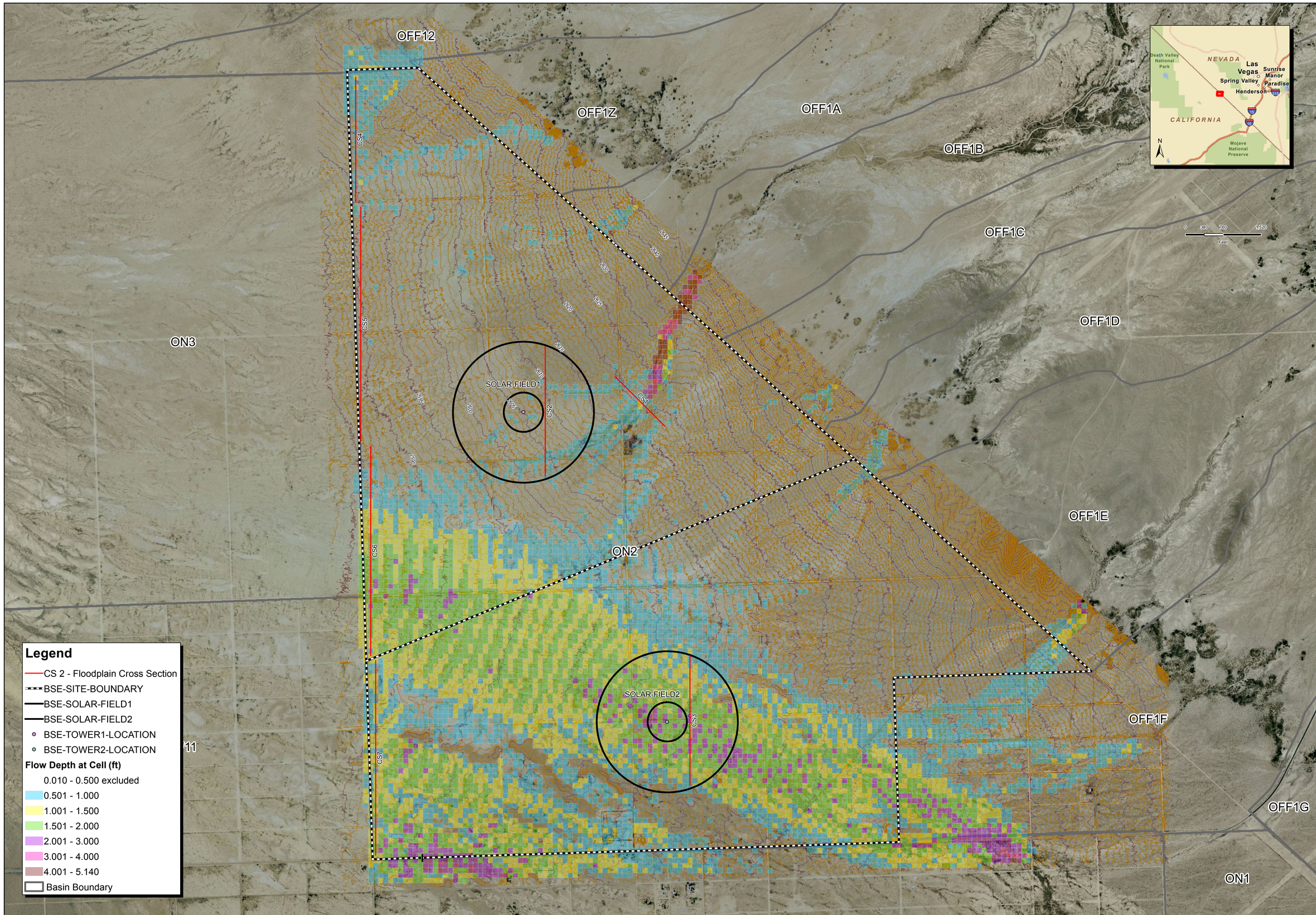
BSE Document Control Number: HYD200-R1



DATE	REV. BY	DESCRIPTION
2/7/11	SB	Revised FLO-2D per revised hydrology analysis; added channel/fp cross sections.
3/23/11	SB	Added offsite analysis hydrograph.
4/4/11	SB	Readjusted off hydrographs and FP cross sections.

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BRIGHTSOURCE ENERGY

FLO-2D DEPTH MAP
24HR-100YR

HIDDEN HILLS RANCH SEGS

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PROJECT NO: 7302
DRAWN BY: SDB
DATE: 4/4/2011
SCALE: 1 " = 800 '
SHEET: 7302HYD101

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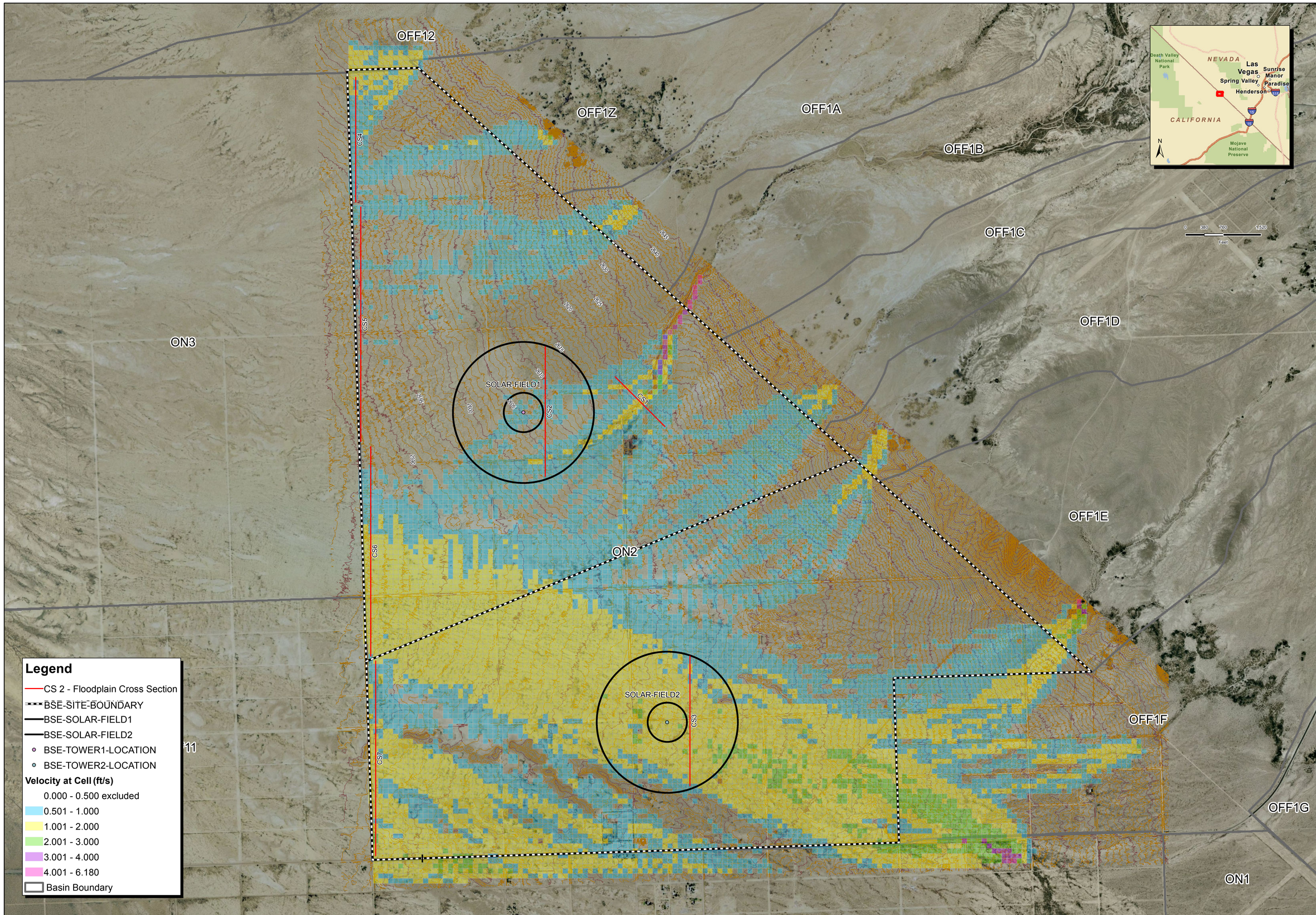

DATE	REV. BY	DESCRIPTION
2/7/11	SB	Revised FLO-2D per revised hydrology analysis; added channel/fp cross sections.
3/23/11	SB	Added offsite analysis hydrograph.
4/4/11	SB	Readjusted off hydrographs and FP cross sections.

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BRIGHTSOURCE ENERGY

FLO-2D VELOCITY MAP
24HR-100YR

HIDDEN HILLS RANCH SEGS

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PROJECT NO: 7302
DRAWN BY: SDB
DATE: 4/4/2011
SCALE: 1 " = 800 '
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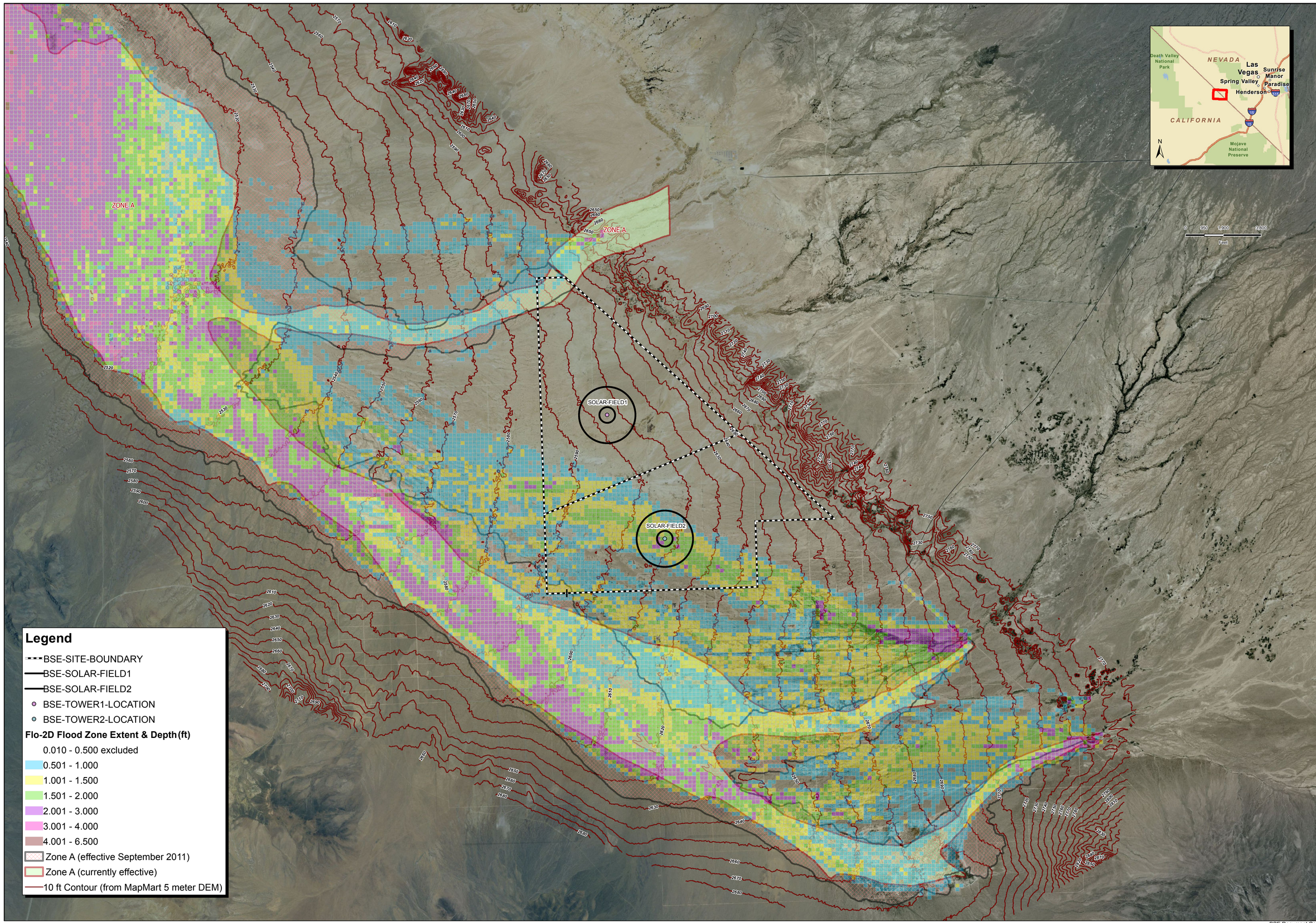
BSE Document Control Number: HYD200-R1



DATE	REV. BY	DESCRIPTION
2/7/11	WT	Rev. hydraulic analysis per new flows effective 2/7/11 & new surface based on 10m x 10m DEM.
3/8/11	SB	Replaced hec-ras surface with flo-2d surface.
3/17/11	SB	Rev. overall Flo-2d elevations utilizing Map Mart 4m
3/28/11	SB	Rev. overall Flo-2d utilizing ascii format, relocated hydrographs, included term

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BRIGHTSOURCE ENERGY

FLOOD ZONE COMPARISON EXHIBIT

HIDDEN HILLS RANCH SEGS

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PROJECT NO. 7302

DRAWN BY: SDB

DATE 3/28/2011

SCALE: 1 " = 2,000 '

SHEET 7302HYD103

BSE Document Control Number: HYD200-R1

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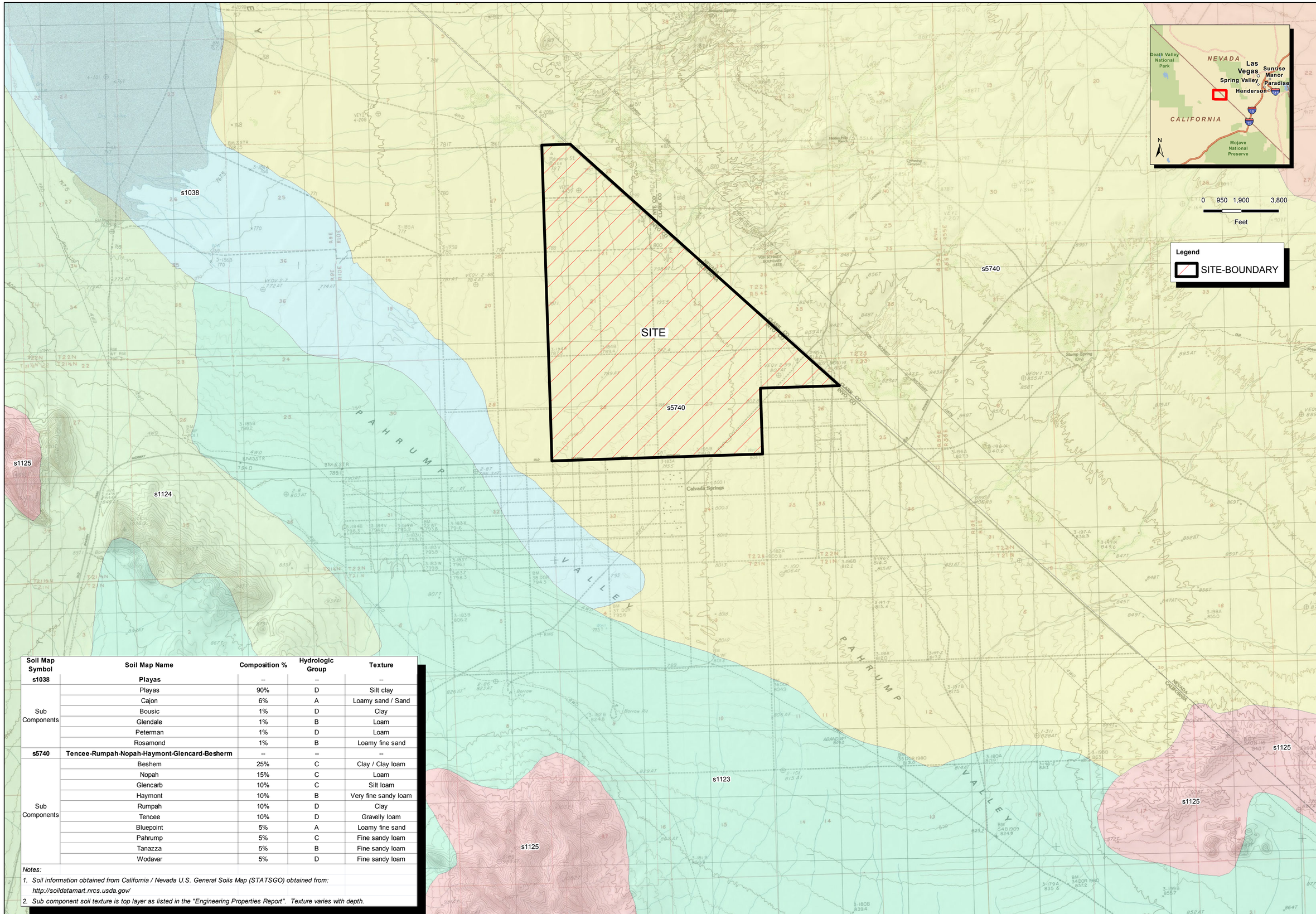

Soil Map Symbol	Soil Map Name	Composition %	Hydrologic Group	Texture
s1038	**Playas**	--	--	--
Sub Components	Playas	90%	D	Silt clay
	Cajon	6%	A	Loamy sand / Sand
	Bousic	1%	D	Clay
	Glendale	1%	B	Loam
	Peterman	1%	D	Loam
	Rosamond	1%	B	Loamy fine sand
s5740	**Tencee-Rumpah-Nopah-Haymont-Glencard-Besherm**	--	--	--
Sub Components	Beshem	25%	C	Clay / Clay loam
	Nopah	15%	C	Loam
	Glencarb	10%	C	Silt loam
	Haymont	10%	B	Very fine sandy loam
	Rumpah	10%	D	Clay
	Tencee	10%	D	Gravelly loam
	Bluepoint	5%	A	Loamy fine sand
	Pahrump	5%	C	Fine sandy loam
	Tanazza	5%	B	Fine sandy loam
	Wodavar	5%	D	Fine sandy loam

Notes:

1. *Soil information obtained from California / Nevada U.S. General Soils Map (STATSGO) obtained from: http://soildatamart.nrcs.usda.gov/*
2. *Sub component soil texture is top layer as listed in the "Engineering Properties Report". Texture varies with depth.*

DATE	REV. BY	DESCRIPTION
8/25/11	RV	Changed exhibit type from 7302HYD103 to 104
2/7/11	RV	Changed soil type colors to match exhibit 7302HYD105.

INYO COUNTY, CA

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ONSITE SOILS EXHIBIT

HIDDEN HILLS RANCH SEGS

PROJECT NO: 7302
DRAWN BY: RV
DATE: 04/05/2011
SCALE: 1 " = 2,000 '
SHEET 7302HYD104

BSE Document Control Number: HYD200-R1

Path: J:\7302 - Hidden Hills\GIS\mxd\7302_OnsiteSoils.mxd; Date: 4/5/2011

DATE	REV BY	DESCRIPTION
05/16/11	RV	Added basin STA1 for staging area.

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OVERALL SOILS EXHIBIT

HIDDEN HILLS RANCH SEGS

PROJECT NO: 7302

DRAWN BY: RV

DATE: 05/16/2011

SCALE: 1 " = 8,000 '

SHEET 7302HYD105

Path: J:\7302 - Hidden Hills\GIS\mxd\7302_Soils.mxd; Date: 5/16/2011

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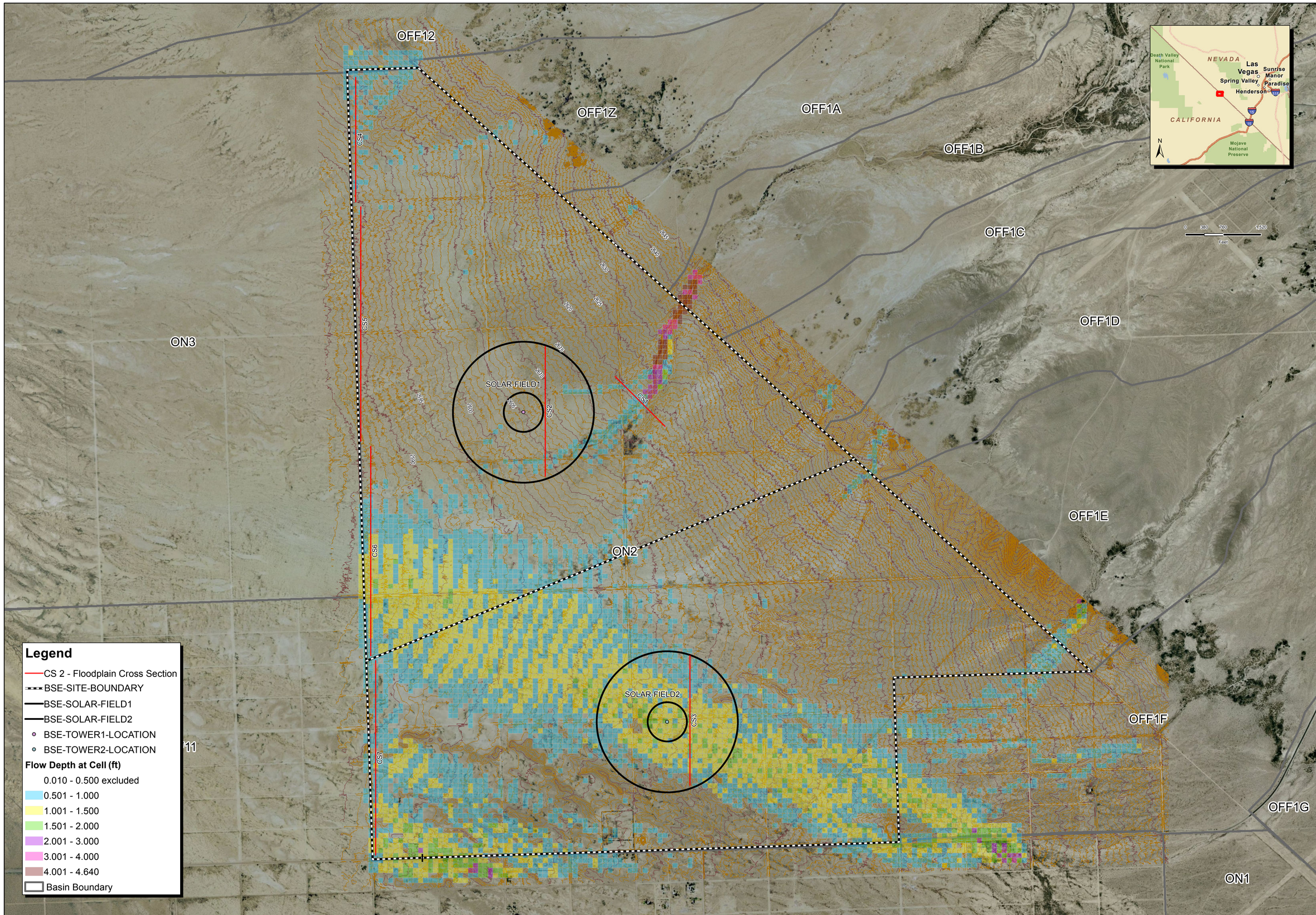

DATE	REV. BY	DESCRIPTION
2/7/11	SB	Revised FLO-2D per revised hydrology analysis; added channel/fp cross sections.
3/23/11	SB	Added offsite analysis hydrograph.
4/4/11	SB	Readjusted off hydrographs and FP cross sections.

INYO COUNTY, CA

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FLO-2D DEPTH MAP
24HR-25YR

HIDDEN HILLS RANCH SEGS

PROJECT NO: 7302
DRAWN BY: SDB
DATE: 4/4/2011
SCALE: 1 " = 800 '
SHEET: 7302HYD106

BSE Document Control Number: HYD200-R1

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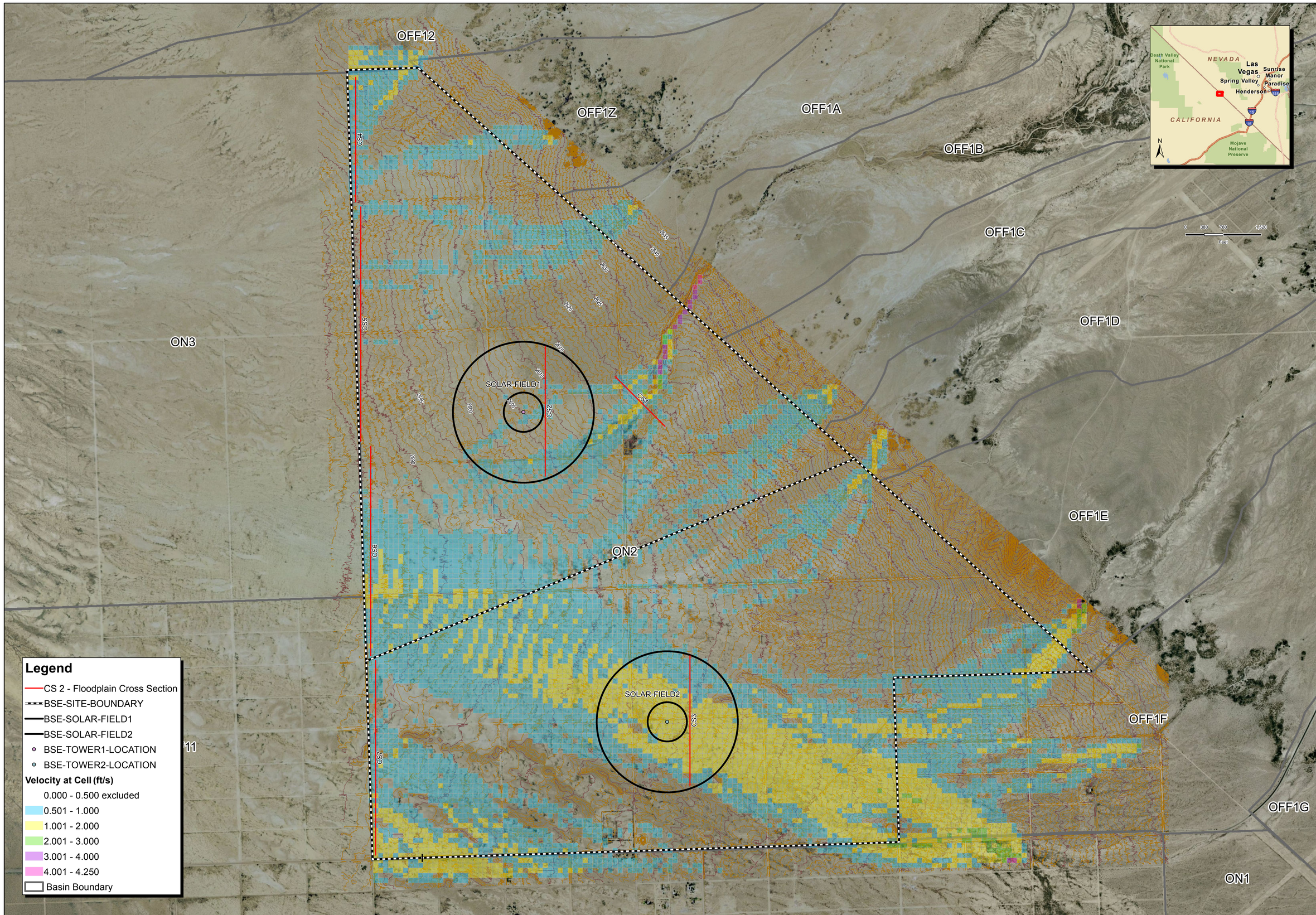

DATE	REV.	BY	DESCRIPTION
2/7/11		SB	Revised FLO-2D per revised hydrology analysis; added channel/fp cross sections.
3/23/11		SB	Added offsite analysis hydrograph.
4/4/11		SB	Readjusted off hydrographs and FP cross sections.

INYO COUNTY, CA

BRIGHTSOURCE ENERGY

FLO-2D VELOCITY MAP
24HR-25YR

HIDDEN HILLS RANCH SEGS

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PROJECT NO: 7302
DRAWN BY: SDB
DATE: 4/4/2011
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SHEET: 7302HYD107

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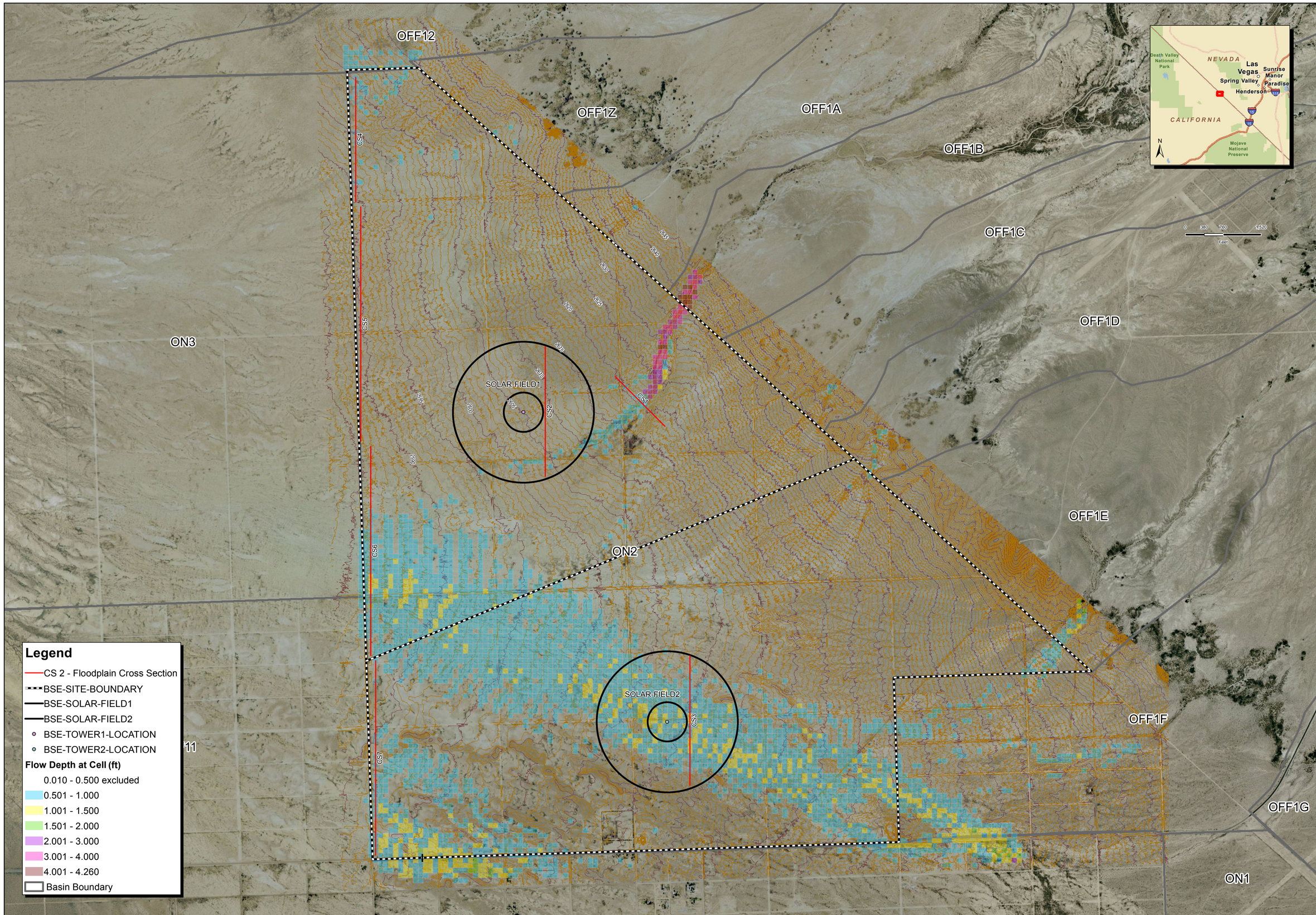

DATE	REV. BY	DESCRIPTION
2/7/11	SB	Revised FLO-2D per revised hydrology analysis; added channel/fp cross sections.
3/23/11	SB	Added offsite analysis hydrograph.
4/4/11	SB	Readjusted off hydrographs and FP cross sections.

INYO COUNTY, CA

BRIGHTSOURCE ENERGY

FLO-2D DEPTH MAP
24HR-10YR

HIDDEN HILLS RANCH SEGS

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PROJECT NO: 7302
DRAWN BY: SDB
DATE: 4/4/2011
SCALE: 1 " = 800 '
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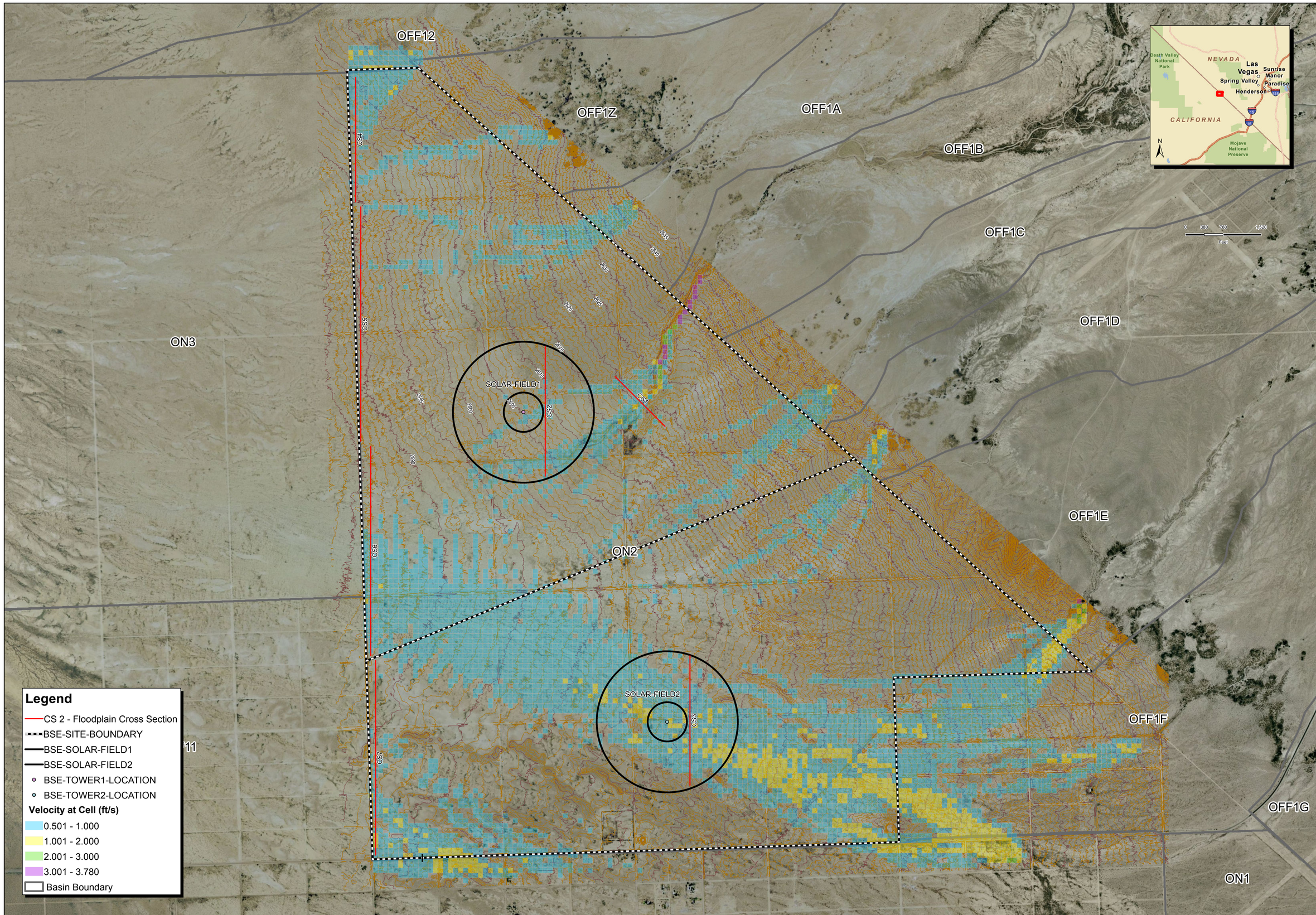

DATE	REV. BY	DESCRIPTION
2/7/11	SB	Revised FLO-2D per revised hydrology analysis; added channel/fp cross sections.
3/23/11	SB	Added offsite analysis hydrograph.
4/4/11	SB	Readjusted off hydrographs and FP cross sections.

INYO COUNTY, CA

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FLO-2D VELOCITY MAP
24HR-10YR

HIDDEN HILLS RANCH SEGS

PROJECT NO: 7302
DRAWN BY: SDB
DATE: 4/4/2011
SCALE: 1 " = 800 '
SHEET: 7302HYD109

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BSE Document Control Number: HYD200-R1

APPENDICES:

List of Existing Condition Hydrologic and Hydraulic Analysis Appendices:

A. HEC-1 Model Input/Output
   i. 24-Hour, 100-Year Storm
   ii. 24-Hour, 25-Year Storm
   iii. 24-Hour, 10-Year Storm
   iv. 24-Hour, 5-Year Storm
   v. 24-Hour, 2-Year Storm

B. Rainfall Information / References
   i. Rainfall Depths Summary Sheet
   ii. Point Precipitation frequency estimate tabulation sheet (from NOAA Atlas 14)
   iii. NOAA Atlas 14 Isopluvial Contour Maps
   iv. Referenced Figure E-4: SB County Design Storm Depth Area Curves

C. Storm Pattern (Hyetograph) / References
   i. 24-Hour, 100-Year Pattern Derivation
   ii. 24-Hour, 25-Year Pattern Derivation
   iii. 24-Hour, 10-Year Pattern Derivation
   iv. 24-Hour, 5-Year Pattern Derivation
   v. 24-Hour, 2-Year Pattern Derivation
   vi. Referenced Figures E-5a through E-5c: SB County Design Critical Storm Peaks

D. Curve Number Calculations / References
   i. Curve Number Calculation for Soils
   ii. Composite Curve Number Calculation for Basins
   iii. Referenced Table 2-2d from TR-55
   iv. Referenced Table C.1 from SB County Hydrology Manual
   v. Referenced Soil Type Component Legend from USDA NRCS General Soil Survey
   vi. Referenced Soil Water Feature Tables from USDA NRCS General Soil Survey

E. Basin Lag Time Calculations / References
   i. Lag Time Calculations for Drainage Basins
   ii. Referenced Equation E.2 from SB County Hydrology Manual
   iii. Referenced Figure E-2 from SB County Hydrology Manual

F. Unit Hydrograph Computations / References
   i. Unit Hydrograph Ordinates (derived by AES Software)
   ii. Referenced Figures E-3C and E-3D from SB County Hydrology Manual

G. FLO-2D Hydraulic Analysis

i. 24-Hour, 100-Year SUMMARY.OUT File
ii. 24-Hour, 25-Year SUMMARY.OUT File
iii. 24-Hour, 10-Year SUMMARY.OUT File
iv. HYCROSS.OUT Graph/Table
v. 24-Hour, 100-Year HYCROSS.OUT File
vi. 24-Hour, 25-Year HYCROSS.OUT File
vii. 24-Hour, 10-Year HYCROSS.OUT File

H. Inyo County California Public Works Letter

APPENDIX A:

HEC-1 Model Input / Output

APPENDIX A:

i. 24-Hour, 100-Year Storm

```
1****************************************                                                    ****************************************
 *                                      *                                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *             JUN   1998               *                                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *           VERSION 4.1                *                                                    *          609 SECOND STREET           *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   16MAY11  TIME  16:26:24  *                                                    *           (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                                                          PAGE  1

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

                        *DIAGRAM
            1           ID  ********************************************************************
            2           ID     TECHNICAL DRAINAGE STUDY
            3           ID     HIDDEN HILLS RANCH SEGS
            4           ID     FILE_________________________7302E100.DAT
            5           ID     CONDITION____________________100-YEAR - EXISTING CONDITION
            6           ID     STORM DURATION_______________24 HOURS (SB COUNTY STORM)
            7           ID     DATE_________________________01-2011
            8           ID     DISTRIBUTION_________________SAN BERNARDINO COUNTY METHODOLOGY
            9           ID     AMC CONDITION ______________AMC I& II CN'S USED
           10           ID     MODELED BY___________________VTN NEVADA
           11           ID
           12           ID   PLUGGING IN UNIT HYDROGRAPH ORDINATES (UI'S) FROM AES SOFTWARE
           13           ID  ********************************************************************
           14           ID   DEPTH-AREA REDUCTION FACTOR (DARF) REF. FROM SB COUNTY
           15           ID   DEPTH AREA CURVES (FIG. E-4).
           16           ID
           17           ID     BASIN AREA
           18           ID    RANGE(sq.mi.)          DARF
           19           ID
           20           ID       1 -  10             1.00
           21           ID       10 - 20             0.98
           22           ID       20 - 30             0.97
           23           ID       30 - 50             0.96
           24           ID       50 - 70             0.95
           25           ID       70 - 100            0.94
           26           ID       100 -350            0.93
           27           ID
           28           ID  ********************************************************************
           29           IT       5       0       0     600
           30           IN       5       0       0
           31           IO       5       0       0
           32           JR    PREC    1.00    0.98    0.97    0.96    0.95    0.94    0.93
                        *

           33           KK   LOVEL
           34           KM   EXISTING OFFSITE BASIN
           35           PB    5.81
           36           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           37           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           38           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           39           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           40           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           41           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           42           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           43           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           44           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           45           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           46           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           47           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           48           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           49           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           50           PI   0.011   0.011   0.011   0.010   0.009   0.009   0.009   0.009   0.009   0.009
           51           PI   0.009   0.009   0.009   0.009   0.009   0.009   0.009   0.009   0.009   0.009
           52           PI   0.009   0.009   0.009   0.009   0.009   0.009   0.063   0.068   0.068
1                                                   HEC-1 INPUT                                                          PAGE  2

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

           53           PI   0.068   0.068   0.068   0.068   0.068   0.068   0.068   0.068   0.068   0.068
           54           PI   0.068   0.068   0.068   0.042   0.044   0.044   0.044   0.114   0.115   0.115
           55           PI   0.115   0.314   0.115   0.045   0.044   0.069   0.068   0.068   0.068   0.068
           56           PI   0.068   0.068   0.068   0.013   0.009   0.009   0.009   0.009   0.009   0.009
           57           PI   0.009   0.009   0.009   0.009   0.009   0.011   0.011   0.011   0.011   0.011
           58           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           59           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           60           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
           61           PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
```

```
 62          PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
 63          PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.011
 64          PI   0.011   0.011   0.011   0.011   0.011   0.011   0.011   0.012
 65          BA   53.18
 66          LS            59.8
 67          KM   SB COUNTY MOUNTAIN S-GRAPH
 68          KM   UHG (DERIVED BY AES SOFTWARE)
 69          UI  1288.4  2576.8  2576.8  2555.9  2513.6  2865.2  3887.0  3865.3  3930.4  3876.7
 70          UI  4274.5  5615.1  4839.8  6685.1  6009.3  7581.6  7827.5  9181.4  8825.1  8271.9
 71          UI  11067.  11362.  8707.8  8152.0  7154.2  7729.8  7369.2  5119.4  5701.7  5798.0
 72          UI  5519.1  4997.1  4602.0  4303.9  4547.8  4540.0  3960.4  3826.6  3421.4  3312.6
 73          UI  2498.6  2711.6  3476.7  2683.4  2125.2  2479.4  2488.3  2342.8  2319.9  2318.5
 74          UI  2319.2  2319.9  2319.2  2287.8  2001.0  1933.3  1931.8  1931.1  1810.6  1739.2
 75          UI  1739.9  1738.5  1872.6  1727.8  1655.8  1656.5  1656.5  1623.7  1470.3  1450.3
 76          UI  1448.2  1451.0  1448.2  1449.6  1449.6  1449.6  1449.6  1449.6  1442.5  1254.1
 77          UI  1158.5  1160.0  1160.0  1158.5  1159.9  1160.0  1095.8  1054.4  1054.4  1054.4
 78          UI  1055.8  1053.0  1055.8  1048.7   988.7   967.4   965.9   965.9   967.4   965.9
 79          UI   965.9   965.9   924.6   833.2   827.5   829.0   829.0   827.5   827.5   830.4
 80          UI   827.5   827.6   807.5   776.1   773.3   770.5   776.1   770.5   773.3   776.2
 81          UI   770.4   773.3   770.5   676.3   624.9   627.8   627.8   627.8   624.9   624.9
 82          UI   630.6   624.9   627.8   624.9   627.8   627.8   565.0   516.5   513.7   516.5
 83          UI   513.7   516.5   513.7   516.5   516.5   513.6   516.5   516.5   513.7   516.5
             *

 84          KK     RT1
 85          KM   ROUTE BASIN LOVEL THROUGH BASIN OFF4
 86          RD   73022   .0216   0.040            TRAP     130       4
             *

 87          KK   EAST1
 88          KM   EXISTING OFFSITE BASIN
 89          PB    3.65
 90          BA    2.70
 91          LS            74.1
 92          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 93          KM   UHG (DERIVED BY AES SOFTWARE)
 94          UI   213.2   498.2   735.5   991.3  1388.3  1666.0  1872.1  1864.9  1711.8  1263.4
 95          UI   938.7   800.7   646.0   531.1   467.8   392.5   360.3   333.5   281.5   269.8
 96          UI   238.4   229.3   204.4   186.9   177.2   149.4   150.3   150.4   134.4   119.0
 97          UI   119.0   115.9    97.8    94.7    94.7    94.6    83.2    75.3    75.3    75.3
 98          UI    75.3    71.3    52.3    49.6    49.7    49.6    49.7    49.7    49.6    49.3
 99          UI    29.9    18.4    18.4    18.3    18.4    18.4    18.3    18.4    18.4    18.3
100          UI    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4
101          UI    18.4    18.4    18.4     1.8
             *
1                                        HEC-1 INPUT                                          PAGE  3

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

102          KK    OFF4
103          KM   EXISTING OFFSITE BASIN
104          PB    2.91
105          BA   30.13
106          LS            71.5
107          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
108          KM   UHG (DERIVED BY AES SOFTWARE)
109          UI   623.5  1246.9  1246.9  1255.3  1440.8  1688.6  1758.5  1864.9  2297.3  2493.8
110          UI  2646.2  3036.7  2750.9  3017.7  3549.3  4582.4  4064.0  4194.6  4974.1  4990.3
111          UI  5345.6  4626.8  5060.3  6287.9  5169.5  5665.2  5864.9  4987.7  5113.7  6300.2
112          UI  5103.9  4987.6  4495.2  3748.4  3740.8  3732.3  3264.5  2945.3  2743.5  2560.3
113          UI  2305.5  2371.2  2491.2  2638.2  1809.0  1648.9  2578.8  1480.9  1209.7  1495.8
114          UI  1496.5  2111.9  1461.4  1163.9  1364.5  1292.4  1156.4  1156.0  1111.7  1068.7
115          UI  1068.7  1069.1  1053.8  1001.2   998.4   997.0   997.7   879.8   748.4   747.7
116          UI   816.6   933.1   917.4   715.8   661.1   659.7   659.7   661.1   813.8   825.1
117          UI   611.4   605.7   605.7   605.0   605.7   604.3   574.5   545.4   535.4   534.0
118          UI   534.0   535.4   532.6   522.6   431.8   416.1   420.4   438.9   440.3   440.3
119          UI   440.3   438.9   441.7   438.8   440.3   440.3   440.3   387.7   348.0   348.0
120          UI   347.9   348.0   347.9   348.0   348.0   349.4   346.5   347.9   348.0   348.0
121          UI   333.7   281.2   275.5   278.4   275.5   278.4   276.9   276.9   276.9   276.9
122          UI   276.9   276.9   278.4   275.5   278.4   275.5   278.4   258.5   220.1   220.1
123          UI   218.7   221.5   218.7   221.6   218.7   221.6   218.7   220.1   221.6   218.7
             *

124          KK     CP1
125          KM   COMBINE EAST1, RT1, OFF4
126          HC       3
             *

127          KK    OFF5
128          KM   EXISTING OFFSITE BASIN
129          PB    3.14
130          BA   50.58
131          LS            56.1
132          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
133          KM   UHG (DERIVED BY AES SOFTWARE)
134          UI  1284.3  2568.6  2568.6  2810.4  3426.7  3652.9  4109.0  5058.2  5384.8  6093.4
135          UI  5847.4  6685.7  8762.2  8583.9  9060.6  10274.  10771.  9778.3  10806.  12345.
136          UI  10740.  12407.  10293.  11251.  11907.  10274.  9381.3  7741.5  7705.9  7230.7
137          UI  6125.6  5664.5  5077.3  4785.2  5081.2  5302.4  3574.0  4199.5  4229.1  2393.3
138          UI  3073.7  3409.8  3921.7  2397.2  2774.1  2570.1  2381.7  2331.2  2207.8  2202.0
139          UI  2199.5  2101.9  2054.3  2056.3  2016.5  1639.6  1541.5  1677.5  1921.3  1741.6
140          UI  1370.5  1358.9  1360.8  1427.8  1775.6  1343.4  1248.1  1247.2  1247.2  1247.2
141          UI  1189.9  1121.9  1101.5  1100.5  1100.5  1100.5  1025.7   862.5   860.6   901.4
142          UI   907.2   905.3   907.2   907.2   905.3   907.2   907.2   835.3   718.8   714.9
143          UI   718.8   716.8   716.8   716.8   716.8   714.9   718.8   716.8   652.7   569.2
144          UI   573.1   569.2   571.1   571.1   571.1   569.2   573.1   569.2   571.1   571.1
145          UI   571.2   567.2   487.6   456.5   450.7   454.6   452.6   452.6   454.6   452.6
146          UI   452.6   454.6   454.6   450.7   454.6   450.7   454.6   454.6   450.7   388.5
147          UI   295.3   303.0   295.3   303.0   295.3   303.0   299.2   299.2   299.2   299.2
148          UI   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2
             *
1                                        HEC-1 INPUT                                          PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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 149          KK     CP2
 150          KM   COMBINE CP1, OFF5
 151          HC       2
              *

 152          KK   TROUT
 153          KM   EXISTING OFFSITE BASIN
 154          PB    5.03
 155          BA  109.75
 156          LS            60.9
 157          KM   SB COUNTY MOUNTAIN S-GRAPH
 158          KM   UHG (DERIVED BY AES SOFTWARE)
 159          UI  3727.7  7455.5  7407.0  7367.6 10182.8 11217.8 11364.5 12217.2 15164.5 17361.9
 160          UI  18316.  22194.  25529.  24830. 28793.8 31828.5 24549.8 21291.4 22291.6 17378.1
 161          UI  16154.  16506.  14701.  13038. 12864.1 12900.8 11277.4 10147.9  9115.5  7130.6
 162          UI  9742.0  6808.1  6973.0  7077.5  6716.7  6711.0  6709.9  6709.9  6381.2  5620.8
 163          UI  5592.5  5444.4  5051.6  5032.8  5248.0  5018.0  4791.1  4793.3  4553.8  4197.7
 164          UI  4194.6  4192.6  4194.6  4194.6  4192.5  4192.6  3934.2  3371.3  3356.5  3356.6
 165          UI  3352.3  3274.7  3062.5  3049.9  3052.0  3043.6  3049.8  2886.1  2793.6  2797.8
 166          UI  2795.8  2795.7  2793.6  2566.7  2396.6  2394.5  2398.7  2394.5  2394.5  2398.7
 167          UI  2318.9  2234.9  2239.1  2234.9  2239.1  2234.9  2234.8  2209.7  1886.2  1814.8
 168          UI  1814.8  1810.6  1814.8  1814.8  1810.6  1819.0  1806.4  1651.0  1487.1  1491.3
 169          UI  1491.3  1491.3  1491.3  1491.3  1491.3  1491.3  1487.1  1495.5  1453.6  1331.7
 170          UI  1310.7  1319.1  1314.9  1314.9  1314.9  1314.9  1319.1  1310.7  1323.3  1310.7
 171          UI  1314.9  1285.4  1180.4  1176.3  1176.2  1176.3  1180.4  1176.2  1176.3  1176.2
 172          UI  1184.7  1176.2  1176.3  1176.2  1176.2  1176.3  1075.5  1033.4  1050.2  1033.4
 173          UI  1041.9  1041.8  1041.8  1033.4  1050.2  1033.5  1041.8  1033.4  1050.2  1033.5
              *

 174          KK     RT2
 175          KM   ROUTE BASIN TROUT THROUGH BASIN OFF2
 176          RD   54120   .0170   0.040            TRAP      50       4
              *

 177          KK    OFF2
 178          KM   EXISTING OFFSITE BASIN
 179          PB    2.91
 180          BA   26.22
 181          LS            72.4
 182          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 183          KM   UHG (DERIVED BY AES SOFTWARE)
 184          UI   594.1  1188.1  1188.1  1228.7  1468.6  1654.7  1725.4  2014.3  2372.2  2473.6
 185          UI  2883.7  2639.1  2930.3  3567.7  4429.5  3682.9  4497.4  4752.4  5038.2  4469.6
 186          UI  4807.6  5903.1  4896.3  5644.5  5213.0  4752.4  5467.4  5390.2  4752.5  4476.0
 187          UI  3624.3  3564.2  3539.1  3043.3  2759.2  2580.0  2297.6  2210.5  2346.0  2483.1
 188          UI  1921.6  1548.0  2397.1  1330.0  1239.7  1425.6  1568.8  1925.0  1108.9  1205.6
 189          UI  1300.1  1101.8  1101.5  1055.6  1018.6  1018.1  1018.1   980.3   949.8   950.9
 190          UI   950.4   873.7   718.0   712.4   794.7   891.2   830.2   642.4   629.4   628.9
 191          UI   628.9   721.4   810.5   591.1   577.0   577.0   577.0   577.6   565.7   531.3
 192          UI   511.6   509.9   508.7   509.3   508.8   489.6   403.8   396.0   408.4   419.6
 193          UI   419.6   419.6   418.5   419.6   419.6   419.6   418.5   414.0   348.6   331.6
 194          UI   331.7   331.6   331.6   331.6   331.6   330.5   332.8   331.6   330.5   331.6
 195          UI   289.9   264.0   264.0   264.0   264.0   264.0   264.0   264.0   264.0   264.0
 196          UI   264.0   265.1   262.8   264.0   265.1   248.2   210.9   209.8   208.7   210.9
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 197          UI   208.7   209.8   211.0   207.6   212.1   207.6   209.8   209.8   212.1   207.6
 198          UI   209.8   209.8   209.8   207.6   205.3   151.2   137.6   137.6   137.6   139.9
              *

 199          KK    OFF3
 200          KM   EXISTING OFFSITE BASIN
 201          PB    2.91
 202          BA    6.13
 203          LS            70.2
 204          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 205          KM   UHG (DERIVED BY AES SOFTWARE)
 206          UI   195.2   390.4   403.0   497.2   557.3   669.3   784.1   917.6   892.5  1094.2
 207          UI  1381.9  1318.5  1557.8  1609.2  1530.3  1846.2  1697.9  1757.9  1610.5  1828.4
 208          UI  1559.8  1321.1  1171.3  1115.3   928.6   835.5   735.1   763.8   772.1   535.8
 209          UI   702.1   394.6   464.5   577.5   439.4   407.4   387.5   360.8   341.3   334.7
 210          UI   332.4   315.5   312.4   305.3   247.2   239.0   282.1   267.0   208.8   206.7
 211          UI   211.4   259.7   201.6   189.6   189.6   189.2   178.6   168.6   167.4   167.3
 212          UI   166.6   142.3   130.6   136.3   137.8   137.8   138.0   137.8   137.6   134.8
 213          UI   112.6   109.2   108.8   108.8   109.2   108.8   109.0   109.0   102.2    87.6
 214          UI    86.6    86.8    86.6    86.8    86.6    87.0    86.6    86.6    86.8    80.6
 215          UI    69.4    68.8    69.2    68.6    69.0    69.0    68.8    69.2    68.8    68.8
 216          UI    68.8    69.2    68.4    56.4    45.9    45.5    45.1    45.9    45.5    45.5
 217          UI    45.1    45.9    45.5    45.1    45.9    45.5    45.5    45.5    45.5    45.1
 218          UI    45.9    45.5    45.5    44.7    27.1    16.9    16.9    16.5    17.3    16.2
 219          UI    17.3    16.5    17.3    16.2    17.3    16.5    16.9    16.9    16.5    17.3
 220          UI    16.2    17.3    16.5    17.3    16.2    17.3    16.5    16.9    16.9    16.9
              *

 221          KK   OFF1G
 222          KM   EXISTING OFFSITE BASIN
 223          PB    2.81
 224          BA    1.74
 225          LS            68.3
 226          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 227          KM   UHG (DERIVED BY AES SOFTWARE)
 228          UI    92.7   191.7   245.5   319.7   408.3   467.3   623.5   709.8   741.1   831.9
 229          UI   824.7   809.5   737.1   575.5   486.5   389.1   361.6   313.2   278.7   214.5
 230          UI   244.2   190.1   172.5   160.6   155.5   148.6   130.1   119.8   124.8    98.9
 231          UI   108.1   101.7    90.1    88.2    80.8    79.5    75.0    63.3    65.2    65.4
 232          UI    65.4    63.7    53.4    51.8    51.7    51.7    51.3    43.8    41.2    41.2
 233          UI    41.2    41.2    41.2    38.7    32.9    32.7    32.7    32.7    32.8    32.8
 234          UI    32.6    31.1    22.8    21.6    21.6    21.6    21.6    21.6    21.6    21.7
 235          UI    21.6    21.6    21.6    21.6    13.5     8.0     8.0     8.0     8.0     8.0
 236          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0
 237          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0
 238          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     1.5
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 239                KK     CP3
 240                KM   COMBINE RT2, OFF2, OFF3, OFF1G
 241                HC       4
                    *
1                                        HEC-1 INPUT                                                    PAGE  6

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

 242                KK     ON1
 243                KM   EXISTING ONSITE BASIN
 244                PB    2.90
 245                BA    2.35
 246                LS            68.3
 247                KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 248                KM   UHG (DERIVED BY AES SOFTWARE)
 249                UI   214.0   527.6   816.5  1143.9  1573.1  1805.0  1885.7  1688.7  1211.5   883.5
 250                UI   739.8   552.6   498.0   398.8   359.5   322.3   282.5   244.5   242.9   206.3
 251                UI   189.0   174.9   149.0   150.4   145.7   122.1   118.9   116.1    97.9    94.7
 252                UI    94.7    90.8    76.5    75.2    75.2    75.2    67.3    50.1    49.7    49.6
 253                UI    49.7    49.6    49.7    46.5    23.1    18.3    18.4    18.4    18.3    18.4
 254                UI    18.3    18.4    18.4    18.3    18.3    18.3    18.3    18.3    18.3    18.3
 255                UI    18.3    18.3    18.3    17.1
                    *

 256                KK     CP4
 257                KM   COMBINE CP3, ON1
 258                HC       2
                    *

 259                KK    OFF7
 260                KM   EXISTING OFFSITE BASIN
 261                PB    2.84
 262                BA    1.77
 263                LS            54.8
 264                KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 265                KM   UHG (DERIVED BY AES SOFTWARE)
 266                UI   175.4   449.3   703.8  1032.4  1358.0  1520.5  1497.1  1131.2   788.1   636.9
 267                UI   464.3   409.7   323.9   290.9   252.3   226.6   195.8   183.2   161.5   147.8
 268                UI   125.6   122.4   119.6   100.4    97.0    92.6    78.4    77.2    77.1    67.5
 269                UI    61.4    61.3    61.4    56.8    41.7    40.5    40.5    40.5    40.5    40.5
 270                UI    30.3    15.1    15.0    14.9    15.0    15.0    15.0    15.0    15.0    14.9
 271                UI    14.9    14.9    14.9    14.9    14.9    14.9    14.9    14.9    13.9
                    *

 272                KK     CP5
 273                KM   COMBINE CP2, CP4, OFF7
 274                HC       3
                    *

 275                KK    OFF8
 276                KM   EXISTING OFFSITE BASIN
 277                PB    2.96
 278                BA   10.42
 279                LS            54.0
 280                KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 281                KM   UHG (DERIVED BY AES SOFTWARE)
 282                UI   439.2   880.7  1036.2  1255.9  1605.2  1930.2  2058.0  2696.5  2985.6  3471.6
 283                UI  3506.9  3850.0  3930.4  3806.8  3927.7  3610.8  2887.9  2591.7  2162.0  1834.7
 284                UI  1671.2  1714.6  1345.1  1238.5   991.6  1255.4   916.1   897.4   805.3   759.4
 285                UI   748.8   711.7   701.6   597.3   548.9   634.9   505.7   465.0   517.3   506.6
 286                UI   426.8   426.6   412.2   380.9   376.5   376.0   326.5   297.6   309.1   310.1
 287                UI   309.9   310.1   301.2   252.7   244.8   245.3   245.0   245.3   244.8   223.1
1                                        HEC-1 INPUT                                                    PAGE  7

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

 288                UI   195.4   195.2   194.9   195.4   195.2   195.2   195.2   185.8   157.1   155.2
 289                UI   154.9   154.9   155.2   155.4   154.2   155.2   155.2   152.8   116.1   102.2
 290                UI   102.2   103.1   102.2   102.2   102.2   102.6   102.2   102.2   102.6   102.2
 291                UI   102.6   101.7   103.1    93.5    45.3    37.6    38.1    37.6    38.1    37.6
 292                UI    37.6    38.6    37.1    38.6    37.1    38.1    38.1    37.1    39.0    36.6
 293                UI    38.6    37.6    37.6    38.1    38.1    37.6    37.6    37.6    37.6    37.6
 294                UI    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6
 295                UI    37.6    37.6    37.6    37.6    37.6    37.6    28.0
                    *

 296                KK     CP6
 297                KM   COMBINE CP5, OFF8
 298                HC       2
                    *

 299                KK    OFF9
 300                KM   EXISTING OFFSITE BASIN
 301                PB    2.81
 302                BA    0.91
 303                LS            51.0
 304                KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 305                KM   UHG (DERIVED BY AES SOFTWARE)
 306                UI   136.1   412.2   730.3  1040.9  1103.2   793.3   506.8   352.2   271.1   216.1
 307                UI   178.1   150.4   131.1   112.0    93.7    89.6    76.0    70.7    60.1    57.0
 308                UI    52.4    45.4    45.3    40.7    30.3    29.9    29.9    29.9    19.3    11.0
 309                UI    11.0    11.1    11.0    11.0    11.1    11.0    11.0    11.0    11.0    11.0
 310                UI    11.0     2.0
                    *

 311                KK     CP7
 312                KM   COMBINE CP6, OFF9
 313                HC       2
                    *

 314                KK   OFF11
 315                KM   EXISTING OFFSITE BASIN
 316                PB    2.81
```

```
 317          BA   11.66
 318          LS            59.5
 319          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 320          KM   UHG (DERIVED BY AES SOFTWARE)
 321          UI   345.4   690.8   701.2   840.1   968.5  1078.1  1347.5  1503.6  1587.7  1668.7
 322          UI  2150.0  2376.1  2432.3  2765.9  2856.6  2674.6  3280.7  2929.6  3272.5  2767.5
 323          UI  3211.6  2917.1  2652.5  2137.4  2072.5  1884.3  1602.2  1457.2  1291.7  1351.8
 324          UI  1397.6   943.8  1266.5   783.4   783.5   890.7  1024.7   647.9   766.4   644.6
 325          UI   634.8   598.5   592.1   588.4   558.8   552.8   550.5   461.8   414.4   466.0
 326          UI   513.1   408.2   366.0   365.6   388.8   460.3   345.3   335.5   335.7   335.5
 327          UI   320.3   300.5   296.1   296.1   296.1   281.9   233.9   233.5   243.5   243.5
 328          UI   243.9   243.9   244.2   243.5   241.6   205.5   192.8   193.2   192.4   192.8
 329          UI   192.8   193.2   192.4   192.8   175.9   153.6   153.6   153.2   154.0   153.2
 330          UI   153.6   153.6   153.2   154.0   152.8   153.2   132.9   122.5   121.4   122.1
 331          UI   121.7   122.1   121.7   122.1   121.4   122.9   121.4   121.4   122.9   121.4
 332          UI   119.1    89.1    80.6    80.6    80.6    79.9    81.4    79.9    80.6    79.9
 333          UI    81.4    79.9    80.6    80.6    80.6    79.9    80.6    80.6    80.6    80.6
 334          UI    79.9    80.6    80.6    58.4    29.2    30.7    30.7    28.4    30.0    30.0
1                                            HEC-1 INPUT                                                PAGE  8

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

 335          UI    30.0    30.0    29.2    30.0    30.0    29.2    30.0    30.7    28.4    30.7
              *

 336          KK     CP8
 337          KM   COMBINE CP7, OFF11
 338          HC       2
              *

 339          KK   OFF1F
 340          KM   EXISTING OFFSITE BASIN
 341          KM   ***AMC II CN USED***
 342          PB    2.81
 343          BA    2.28
 344          LS            83.5
 345          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 346          KM   UHG (DERIVED BY AES SOFTWARE)
 347          UI    87.8   175.5   196.8   243.1   289.7   359.8   404.6   434.2   588.5   598.9
 348          UI   708.0   696.8   767.5   779.7   790.0   750.4   771.7   655.0   532.9   499.2
 349          UI   410.5   356.0   334.4   347.5   258.6   279.5   187.1   237.9   214.8   182.6
 350          UI   169.3   158.7   150.6   149.3   141.8   140.4   124.4   106.4   124.8   114.6
 351          UI    93.0    93.1   111.5    93.0    85.2    85.3    82.7    76.3    75.3    75.2
 352          UI    71.1    59.3    60.9    62.0    61.9    62.0    61.9    60.4    50.6    49.0
 353          UI    49.0    49.0    49.0    49.0    48.6    41.5    39.0    39.0    39.0    39.0
 354          UI    39.0    39.0    39.1    38.7    33.3    31.0    31.0    31.0    31.0    30.9
 355          UI    31.0    30.9    31.0    31.0    31.1    27.3    20.5    20.5    20.5    20.5
 356          UI    20.5    20.5    20.3    20.6    20.4    20.5    20.5    20.5    20.5    20.5
 357          UI    20.5    20.3    18.4     8.8     7.5     7.6     7.7     7.2     7.7     7.5
 358          UI     7.6     7.4     7.7     7.4     7.6     7.5     7.6     7.5     7.5     7.6
 359          UI     7.5     7.5     7.6     7.6     7.4     7.6     7.6     7.6     7.6     7.6
 360          UI     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6
 361          UI     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     3.3
              *

 362          KK   OFF1E
 363          KM   EXISTING OFFSITE BASIN
 364          KM   ***AMC II USED***
 365          PB    2.81
 366          BA    4.74
 367          LS            84.9
 368          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 369          KM   UHG (DERIVED BY AES SOFTWARE)
 370          UI   132.0   264.0   265.2   307.8   363.7   388.7   486.1   530.8   630.5   593.2
 371          UI   684.0   906.1   866.1   981.3  1062.8  1084.5  1021.7  1259.3  1108.4  1272.1
 372          UI  1071.4  1163.2  1193.2  1053.9   893.9   791.9   782.8   667.2   595.3   539.7
 373          UI   490.9   520.5   534.7   353.1   484.1   322.5   287.3   316.7   423.8   268.8
 374          UI   275.1   269.2   244.8   237.7   226.4   226.2   223.3   212.1   211.2   210.5
 375          UI   177.2   158.4   172.1   197.4   170.1   139.7   139.7   139.8   170.7   155.5
 376          UI   128.4   128.2   128.2   127.9   121.3   114.3   113.1   113.2   113.3   110.4
 377          UI    91.9    88.1    92.3    93.1    93.3    93.1    93.1    93.1    93.3    90.9
 378          UI    76.3    73.5    73.8    73.7    73.7    73.7    73.7    73.7    73.7    71.7
 379          UI    60.7    58.5    58.7    58.5    58.9    58.5    58.7    58.5    58.9    58.5
 380          UI    58.7    58.7    52.5    46.7    46.7    46.6    46.4    46.7    46.6    46.7
 381          UI    46.4    46.6    46.6    46.9    46.2    46.9    46.6    45.9    35.6    30.6
 382          UI    30.6    30.9    30.6    30.9    30.6    30.6    31.3    30.6    30.6    30.9
 383          UI    30.6    30.9    30.9    30.3    31.3    30.3    31.3    30.3    31.3    30.3
1                                            HEC-1 INPUT                                                PAGE  9

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

 384          UI    30.9    29.6    16.0    10.6    12.0    11.0    11.3    11.6    11.3    11.3
              *

 385          KK   OFF1D
 386          KM   EXISTING OFFSITE BASIN
 387          KM   ***AMC II CN USED***
 388          PB    2.81
 389          BA    1.15
 390          LS            83.5
 391          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 392          KM   UHG (DERIVED BY AES SOFTWARE)
 393          UI    64.7   135.4   175.3   234.0   293.0   357.5   446.1   516.1   542.1   581.7
 394          UI   561.2   555.9   432.5   363.0   285.0   250.1   229.3   196.4   150.3   168.0
 395          UI   132.7   118.6   111.5   107.0   102.2    84.0    89.3    76.7    69.7    78.0
 396          UI    63.3    62.4    57.7    55.4    53.6    44.7    45.3    45.7    45.7    43.9
 397          UI    36.8    36.1    36.1    36.1    34.4    29.2    28.7    28.7    28.7    28.7
 398          UI    28.1    23.7    22.8    22.8    22.8    22.8    22.8    22.8    21.2    15.5
 399          UI    15.0    15.1    15.0    15.1    15.0    15.1    15.1    15.1    15.1    15.1
 400          UI    11.8     5.7     5.5     5.6     5.6     5.6     5.5     5.6     5.6     5.5
 401          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 402          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 403          UI     5.6     5.6     3.9
              *

 404          KK   OFF1C
```

```
 405          KM   EXISTING OFFSITE BASIN
 406          KM   ***AMC II CN USED***
 407          PB    2.81
 408          BA    1.25
 409          LS            83.5
 410          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 411          KM   UHG (DERIVED BY AES SOFTWARE)
 412          UI    65.2   134.2   171.2   220.5   283.3   319.1   431.6   485.1   525.2   572.5
 413          UI   586.9   563.0   547.7   424.9   365.8   290.1   251.1   244.2   205.3   152.8
 414          UI   176.3   142.5   128.7   116.1   111.4   106.1   101.7    82.6    91.1    77.6
 415          UI    69.3    80.0    65.6    63.3    60.4    56.2    55.9    50.2    44.4    46.0
 416          UI    46.0    46.0    44.0    37.0    36.4    36.4    36.4    36.0    30.6    29.0
 417          UI    29.0    29.0    29.0    29.0    27.7    23.3    23.0    23.0    23.0    23.1
 418          UI    23.0    23.0    22.7    17.2    15.2    15.1    15.2    15.2    15.2    15.1
 419          UI    15.2    15.2    15.1    15.2    15.1    13.7     6.6     5.6     5.6     5.6
 420          UI     5.5     5.7     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 421          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 422          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 423          UI     2.4
              *

 424          KK   OFF1B
 425          KM   EXISTING OFFSITE BASIN
 426          KM   ***AMC II CN USED***
 427          PB    2.81
 428          BA    4.37
 429          LS            84.4
 430          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 431          KM   UHG (DERIVED BY AES SOFTWARE)
 432          UI   126.2   252.3   254.9   301.7   351.3   383.2   483.0   531.3   588.4   588.4
1                                          HEC-1 INPUT                                          PAGE 10

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

 433          UI   718.9   906.2   826.3   998.7  1047.0   971.5  1114.2  1129.8  1162.1  1081.9
 434          UI  1058.9  1185.1  1009.2   886.7   757.0   749.9   641.2   568.7   511.6   470.9
 435          UI   501.2   492.3   333.7   472.1   259.4   293.2   335.2   363.1   237.1   281.0
 436          UI   235.1   232.2   219.1   216.3   215.6   205.2   201.9   201.8   178.6   151.5
 437          UI   161.3   187.8   164.8   133.6   133.6   134.1   166.7   141.3   122.5   122.6
 438          UI   122.5   121.2   113.2   108.5   108.1   108.1   108.1    97.0    84.1    86.2
 439          UI    89.0    89.2    89.0    89.0    89.2    88.9    88.0    74.3    70.3    70.6
 440          UI    70.3    70.4    70.6    70.3    70.6    70.3    66.4    56.5    56.1    55.9
 441          UI    56.2    55.9    55.9    56.1    56.2    55.9    56.2    55.9    53.4    45.0
 442          UI    44.6    44.4    44.6    44.4    44.6    44.7    44.3    44.6    44.3    44.9
 443          UI    44.3    44.9    44.3    42.5    31.9    28.9    29.5    29.5    29.2    29.2
 444          UI    29.8    28.9    29.8    28.9    29.5    29.5    29.5    29.2    29.5    29.2
 445          UI    29.5    29.2    29.5    29.5    29.2    29.2    27.2    13.9    10.6    10.9
 446          UI    10.9    10.6    11.2    10.6    10.9    11.2    10.3    10.9    10.9    11.2
              *

 447          KK   OFF1A
 448          KM   EXISTING OFFSITE BASIN
 449          KM   ***AMC II CN USED***
 450          PB    2.81
 451          BA    1.44
 452          LS            83.5
 453          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 454          KM   UHG (DERIVED BY AES SOFTWARE)
 455          UI    65.5   132.2   160.7   196.7   255.3   300.0   334.6   444.7   482.4   532.1
 456          UI   553.1   588.5   571.9   583.6   529.9   418.5   375.3   304.6   257.3   259.8
 457          UI   213.4   210.2   143.9   180.4   144.9   134.2   119.9   113.1   110.9   105.4
 458          UI   101.8    82.2    89.6    85.9    69.5    73.1    79.5    63.7    63.6    61.3
 459          UI    56.7    56.2    55.1    45.8    45.3    46.2    46.3    46.2    45.8    38.9
 460          UI    36.6    36.6    36.6    36.6    36.4    31.5    29.1    29.2    29.1    29.1
 461          UI    29.1    29.1    28.3    23.7    23.2    23.1    23.2    23.2    23.1    23.2
 462          UI    23.2    23.2    19.9    15.5    15.2    15.2    15.3    15.3    15.2    15.3
 463          UI    15.3    15.2    15.3    15.2    15.3    15.3    14.9     8.2     5.8     5.6
 464          UI     5.6     5.8     5.6     5.7     5.6     5.6     5.6     5.7     5.6     5.7
 465          UI     5.6     5.6     5.6     5.7     5.6     5.7     5.6     5.6     5.6     5.6
 466          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 467          UI     5.6     5.6     5.6     5.6     5.6     5.6     4.7
              *

 468          KK   OFF1Z
 469          KM   EXISTING OFFSITE BASIN
 470          KM   ***AMC II CN USED***
 471          PB    2.81
 472          BA    0.64
 473          LS            83.5
 474          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 475          KM   UHG (DERIVED BY AES SOFTWARE)
 476          UI    62.7   159.5   249.3   362.8   480.8   544.5   538.3   421.2   292.8   232.6
 477          UI   173.8   152.2   118.3   105.6    94.1    82.3    71.1    68.4    59.1    54.0
 478          UI    47.4    43.5    43.8    38.0    34.7    34.4    29.4    27.6    27.6    26.3
 479          UI    22.2    22.0    22.0    21.8    17.1    14.5    14.5    14.5    14.5    14.5
 480          UI    14.1     7.5     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4
 481          UI     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4     4.0
              *
1                                          HEC-1 INPUT                                          PAGE 11

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

 482          KK     CPA
 483          KM   COMBINE OFF1F, OFF1E, OFF1D, OFF1C, OFF1B, OFF1A, OFF1Z
 484          HC       7
              *

 485          KK     ON2
 486          KM   EXISTING ONSITE BASIN
 487          KM   ***AMC II CN USED***
 488          PB    2.90
 489          BA    4.84
 490          LS            83.5
 491          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 492          KM   UHG (DERIVED BY AES SOFTWARE)
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 493          UI   301.4   649.4   867.9  1199.3  1430.8  1952.6  2298.9  2475.8  2703.6  2626.1
 494          UI  2535.2  1940.8  1574.6  1230.4  1154.3   950.4   725.9   800.5   617.6   551.3
 495          UI   516.7   490.9   449.7   388.0   397.6   321.0   360.9   300.2   289.8   265.9
 496          UI   258.3   233.4   207.0   212.7   212.7   207.7   174.2   168.3   168.1   168.3
 497          UI   150.2   133.9   133.9   133.9   134.0   131.3   110.8   106.4   106.4   106.2
 498          UI   106.4   106.5   103.5    77.0    70.3    70.2    70.3    70.3    70.0    70.5
 499          UI    70.0    70.5    70.0    58.8    27.6    25.9    25.9    26.1    25.9    26.1
 500          UI    25.8    26.2    26.1    25.8    25.8    26.2    25.8    26.2    25.8    25.8
 501          UI    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8
 502          UI    25.8    25.8    19.1
              *

 503          KK     CPC
 504          KM   COMBINE CPA, ON2
 505          HC       2
              *

 506          KK    STA1
 507          KM   EXISTING OFFSITE BASIN
 508          KM   (TEMPORARY STAGING AREA)
 509          KM   ***AMC II CN USED***
 510          PB    2.90
 511          BA    0.28
 512          LS            83.5
 513          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 514          KM   UHG (DERIVED BY AES SOFTWARE)
 515          UI    84.5   337.7   558.4   399.0   202.2   125.8    90.6    68.9    52.9    44.1
 516          UI    35.9    30.2    25.5    23.0    16.9    15.8    13.2     6.2     5.8     5.8
 517          UI     5.8     5.8     5.8     5.8     1.2
              *

 518          KK     CPD
 519          KM   COMBINE CPC, STA1
 520          HC       2
              *
1                                          HEC-1 INPUT                                          PAGE 12

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


 521          KK     ON3
 522          KM   EXISTING ONSITE BASIN
 523          PB    2.90
 524          BA    3.70
 525          LS            69.0
 526          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 527          KM   UHG (DERIVED BY AES SOFTWARE)
 528          UI   224.3   469.6   608.3   813.3  1016.2  1244.3  1549.1  1791.1  1883.2  2016.7
 529          UI  1946.0  1920.6  1490.4  1251.8   981.8   868.4   787.3   675.4   525.7   573.8
 530          UI   460.6   409.1   385.9   369.6   353.0   288.9   311.2   261.8   243.5   268.4
 531          UI   218.5   215.9   198.9   192.2   184.1   154.1   157.6   158.3   158.3   150.3
 532          UI   126.8   125.1   125.1   125.1   117.8   100.4    99.7    99.7    99.6    99.7
 533          UI    96.3    80.9    79.2    79.2    79.2    79.0    79.4    79.0    70.8    53.0
 534          UI    52.2    52.5    52.0    52.5    52.0    52.5    52.2    52.2    52.3    52.2
 535          UI    36.6    19.1    19.6    19.1    19.6    19.1    19.5    19.3    19.2    19.3
 536          UI    19.5    19.2    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3
 537          UI    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3
 538          UI    19.3    19.3     8.5
              *

 539          KK     CP9
 540          KM   COMBINE CP8, CPD, ON3
 541          HC       3
              *

 542          KK   OFF12
 543          KM   EXISTING OFFSITE BASIN
 544          KM   ***AMC II CN USED***
 545          PB    2.81
 546          BA   19.01
 547          LS            85.9
 548          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 549          KM   UHG (DERIVED BY AES SOFTWARE)
 550          UI   418.5   837.0   837.0   856.6  1012.7  1158.7  1201.8  1349.6  1651.8  1674.9
 551          UI  2044.7  1840.0  1988.6  2310.5  2982.8  2775.2  2837.2  3342.3  3398.6  3462.9
 552          UI  3182.9  3657.2  4020.1  3406.4  4184.0  3435.1  3349.5  4078.6  3597.4  3348.1
 553          UI  3068.9  2525.0  2511.1  2488.4  2131.7  1945.3  1821.6  1629.8  1552.2  1644.0
 554          UI  1726.5  1499.6  1025.5  1612.2  1201.4   770.9  1001.5  1004.3  1425.6   915.8
 555          UI   781.0   963.6   805.3   776.2   769.0   724.8   717.6   717.2   713.9   678.5
 556          UI   669.6   669.6   669.6   586.3   502.4   502.4   573.2   627.5   579.9   450.2
 557          UI   443.1   443.0   443.5   493.2   585.8   427.0   406.8   406.4   406.4   406.8
 558          UI   404.3   381.1   363.9   358.8   358.4   358.8   358.8   358.8   311.7   278.8
 559          UI   280.5   294.0   294.8   295.6   294.8   295.6   295.6   295.7   294.8   295.6
 560          UI   288.9   240.9   233.3   234.2   233.3   233.3   234.2   233.3   233.3   234.2
 561          UI   233.3   233.3   234.2   213.9   187.0   186.2   185.3   187.0   185.3   186.2
 562          UI   186.2   186.2   185.3   186.2   187.0   185.3   186.2   185.3   185.3   165.9
 563          UI   147.4   148.3   147.4   147.4   147.4   148.2   148.3   146.6   149.1   145.7
 564          UI   149.9   146.6   146.6   149.9   146.6   148.2   146.6   148.2   148.2   114.5
              *
1                                          HEC-1 INPUT                                          PAGE 13

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


 565          KK    CP10
 566          KM   COMBINE CP9, OFF12
 567          HC       2
              *
 568          ZZ
1
          SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW
```

```
 33       LOVEL
              V
              V
 84         RT1
              .
              .
 87           .       EAST1
              .           .
              .           .
102           .           .        OFF4
              .           .           .
              .           .           .
124         CP1.......................
              .
              .
127           .        OFF5
              .           .
              .           .
149         CP2............
              .
              .
152           .       TROUT
              .           V
              .           V
174           .         RT2
              .           .
              .           .
177           .           .        OFF2
              .           .           .
              .           .           .
199           .           .           .        OFF3
              .           .           .           .
              .           .           .           .
221           .           .           .           .       OFF1G
              .           .           .           .           .
              .           .           .           .           .
239           .         CP3..................................
              .           .
              .           .
242           .           .         ON1
              .           .           .
              .           .           .
256           .         CP4............
              .           .
              .           .
259           .           .        OFF7
              .           .           .
              .           .           .
272         CP5.......................
              .
              .
275           .        OFF8
              .           .
              .           .
296         CP6............
              .
              .
299           .        OFF9
              .           .
              .           .
311         CP7............
              .
              .
314           .       OFF11
              .           .
              .           .
336         CP8............
              .
              .
339           .       OFF1F
              .           .
              .           .
362           .           .       OFF1E
              .           .           .
              .           .           .
385           .           .           .       OFF1D
              .           .           .           .
              .           .           .           .
404           .           .           .           .       OFF1C
              .           .           .           .           .
              .           .           .           .           .
424           .           .           .           .           .       OFF1B
              .           .           .           .           .           .
              .           .           .           .           .           .
447           .           .           .           .           .           .       OFF1A
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
468           .           .           .           .           .           .           .       OFF1Z
              .           .           .           .           .           .           .           .
              .           .           .           .           .           .           .           .
482           .         CPA.......................................................................
              .           .
              .           .
485           .           .         ON2
              .           .           .
              .           .           .
503           .         CPC............
              .           .
              .           .
506           .           .        STA1
              .           .           .
              .           .           .
518           .         CPD............
              .           .
              .           .
521           .           .         ON3
```

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                .          .          .
                .          .          .
   539        CP9.......................
                .
                .
   542          .       OFF12
                .          .
                .          .
   565       CP10............
```

```
 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                                    ****************************************
 *                                      *                                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                                    *          609 SECOND STREET           *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   16MAY11  TIME  16:26:24  *                                                    *           (916) 756-1104             *
 *                                      *                                                    *                                      *
 ****************************************                                                    ****************************************


                            ********************************************************************
                               TECHNICAL DRAINAGE STUDY
                               HIDDEN HILLS RANCH SEGS
                               FILE_________________________7302E100.DAT
                               CONDITION____________________100-YEAR - EXISTING CONDITION
                               STORM DURATION_______________24 HOURS (SB COUNTY STORM)
                               DATE_________________________01-2011
                               DISTRIBUTION_________________SAN BERNARDINO COUNTY METHODOLOGY
                               AMC CONDITION ________________AMC I& II CN'S USED
                               MODELED BY___________________VTN NEVADA

                             PLUGGING IN UNIT HYDROGRAPH ORDINATES (UI'S) FROM AES SOFTWARE
                            ********************************************************************
                             DEPTH-AREA REDUCTION FACTOR (DARF) REF. FROM SB COUNTY
                             DEPTH AREA CURVES (FIG. E-4).

                               BASIN AREA
                              RANGE(sq.mi.)          DARF

                                 1 -  10             1.00
                                 10 - 20             0.98
                                 20 - 30             0.97
                                 30 - 50             0.96
                                 50 - 70             0.95
                                 70 - 100            0.94
                                 100 -350            0.93

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

   31 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         600  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      3    0  ENDING DATE
                       NDTIME        0155  ENDING TIME
                       ICENT          19  CENTURY MARK

                    COMPUTATION INTERVAL     .08 HOURS
                         TOTAL TIME BASE   49.92 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
                     1.00       .98       .97       .96       .95       .94       .93
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


                                                          RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN            RATIO 1  RATIO 2  RATIO 3  RATIO 4  RATIO 5  RATIO 6  RATIO 7
                                                        1.00      .98      .97      .96      .95      .94      .93

 HYDROGRAPH AT
+                 LOVEL     53.18     1   FLOW        8360.    8017.    7846.    7677.    7508.    7341.    7174.
                                           TIME        17.75    17.75    17.75    17.75    17.75    17.75    17.75

 ROUTED TO
+                   RT1     53.18     1   FLOW        8149.    7809.    7642.    7478.    7314.    7149.    6984.
                                           TIME        18.67    18.67    18.75    18.75    18.75    18.75    18.75

 HYDROGRAPH AT
```

+	EAST1	2.70	1	FLOW	691.	665.	653.	641.	628.	616.	603.
				TIME	16.50	16.50	16.50	16.50	16.50	16.50	16.50
HYDROGRAPH AT +	OFF4	30.13	1	FLOW	2211.	2111.	2061.	2011.	1962.	1913.	1865.
				TIME	18.17	18.17	18.17	18.17	18.17	18.17	18.17
3 COMBINED AT +	CP1	86.01	1	FLOW	10366.	9925.	9705.	9485.	9271.	9052.	8831.
				TIME	18.58	18.58	18.58	18.58	18.58	18.58	18.58
HYDROGRAPH AT +	OFF5	50.58	1	FLOW	1360.	1244.	1187.	1131.	1076.	1022.	969.
				TIME	18.00	18.00	18.00	18.00	18.00	18.00	18.00
2 COMBINED AT +	CP2	136.59	1	FLOW	11541.	11002.	10737.	10474.	10216.	9955.	9692.
				TIME	18.50	18.58	18.58	18.58	18.58	18.58	18.58
HYDROGRAPH AT +	TROUT	109.75	1	FLOW	16260.	15553.	15202.	14853.	14506.	14162.	13819.
				TIME	17.25	17.25	17.25	17.25	17.25	17.25	17.25
ROUTED TO +	RT2	109.75	1	FLOW	15949.	15265.	14939.	14599.	14259.	13920.	13581.
				TIME	17.75	17.75	17.75	17.75	17.75	17.75	17.75
HYDROGRAPH AT +	OFF2	26.22	1	FLOW	2148.	2053.	2006.	1959.	1912.	1866.	1820.
				TIME	17.92	17.92	17.92	17.92	17.92	17.92	17.92
HYDROGRAPH AT +	OFF3	6.13	1	FLOW	537.	512.	499.	487.	475.	463.	451.
				TIME	17.58	17.58	17.58	17.58	17.58	17.58	17.58
HYDROGRAPH AT +	OFF1G	1.74	1	FLOW	158.	149.	145.	141.	138.	134.	130.
				TIME	16.92	16.92	16.92	16.92	16.92	16.92	16.92
4 COMBINED AT +	CP3	143.84	1	FLOW	18679.	17872.	17485.	17084.	16684.	16285.	15886.
				TIME	17.75	17.75	17.75	17.75	17.75	17.75	17.75
HYDROGRAPH AT +	ON1	2.35	1	FLOW	285.	270.	263.	256.	249.	242.	235.
				TIME	16.50	16.50	16.50	16.50	16.50	16.50	16.50
2 COMBINED AT +	CP4	146.19	1	FLOW	18787.	17975.	17585.	17182.	16780.	16378.	15977.
				TIME	17.75	17.75	17.75	17.75	17.75	17.75	17.75
HYDROGRAPH AT +	OFF7	1.77	1	FLOW	46.	42.	39.	37.	35.	33.	31.
				TIME	17.08	17.08	17.08	17.08	17.08	17.17	17.17
3 COMBINED AT +	CP5	284.55	1	FLOW	28087.	26823.	26187.	25550.	24901.	24259.	23619.
				TIME	17.92	18.25	18.25	18.25	18.25	18.25	18.25
HYDROGRAPH AT +	OFF8	10.42	1	FLOW	199.	177.	167.	157.	147.	138.	129.
				TIME	17.50	17.50	17.58	17.58	17.58	17.58	17.58
2 COMBINED AT +	CP6	294.97	1	FLOW	28262.	26943.	26301.	25658.	25003.	24355.	23710.
				TIME	17.92	18.25	18.25	18.25	18.25	18.25	18.25
HYDROGRAPH AT +	OFF9	.91	1	FLOW	11.	10.	9.	8.	7.	6.	5.
				TIME	17.08	17.08	17.08	17.08	17.08	17.08	17.08
2 COMBINED AT +	CP7	295.88	1	FLOW	28266.	26946.	26304.	25661.	25006.	24358.	23712.
				TIME	17.92	18.25	18.25	18.25	18.25	18.25	18.25
HYDROGRAPH AT +	OFF11	11.66	1	FLOW	338.	311.	297.	284.	271.	258.	246.
				TIME	17.75	17.75	17.75	17.75	17.75	17.75	17.75
2 COMBINED AT +	CP8	307.54	1	FLOW	28590.	27218.	26565.	25912.	25246.	24587.	23931.
				TIME	17.92	18.25	18.25	18.25	18.25	18.25	18.25
HYDROGRAPH AT +	OFF1F	2.28	1	FLOW	413.	400.	394.	387.	381.	374.	368.
				TIME	17.17	17.17	17.17	17.17	17.17	17.17	17.17
HYDROGRAPH AT +	OFF1E	4.74	1	FLOW	773.	750.	738.	726.	714.	703.	691.
				TIME	17.58	17.58	17.58	17.58	17.58	17.58	17.58
HYDROGRAPH AT +	OFF1D	1.15	1	FLOW	245.	237.	233.	230.	226.	222.	218.
				TIME	16.75	16.75	16.75	16.75	16.75	16.75	16.75
HYDROGRAPH AT +	OFF1C	1.25	1	FLOW	259.	251.	247.	242.	238.	234.	230.
				TIME	16.83	16.83	16.83	16.83	16.83	16.83	16.83
HYDROGRAPH AT +	OFF1B	4.37	1	FLOW	710.	688.	677.	666.	655.	645.	634.
				TIME	17.50	17.50	17.50	17.50	17.50	17.50	17.50
HYDROGRAPH AT +	OFF1A	1.44	1	FLOW	282.	273.	269.	264.	260.	255.	251.
				TIME	16.92	16.92	16.92	16.92	16.92	16.92	16.92

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 HYDROGRAPH AT
+                  OFF1Z       .64     1   FLOW        171.    166.    163.    161.    158.    155.    153.
                                           TIME       16.42   16.42   16.42   16.42   16.42   16.42   16.42

  7 COMBINED AT
+                    CPA     15.87     1   FLOW       2660.   2576.   2535.   2493.   2452.   2411.   2370.
                                           TIME       17.08   17.08   17.08   17.08   17.17   17.17   17.17

 HYDROGRAPH AT
+                    ON2      4.84     1   FLOW       1127.   1092.   1074.   1057.   1039.   1022.   1004.
                                           TIME       16.67   16.67   16.67   16.67   16.67   16.67   16.67

  2 COMBINED AT
+                    CPC     20.71     1   FLOW       3673.   3558.   3500.   3443.   3386.   3328.   3271.
                                           TIME       16.92   16.92   16.92   16.92   16.92   16.92   16.92

 HYDROGRAPH AT
+                   STA1       .28     1   FLOW        118.    114.    112.    111.    109.    107.    105.
                                           TIME       16.17   16.17   16.17   16.17   16.17   16.17   16.17

  2 COMBINED AT
+                    CPD     20.99     1   FLOW       3734.   3617.   3558.   3500.   3442.   3384.   3326.
                                           TIME       16.92   16.92   16.92   16.92   16.92   16.92   16.92

 HYDROGRAPH AT
+                    ON3      3.70     1   FLOW        419.    399.    389.    379.    369.    359.    349.
                                           TIME       16.92   16.92   16.92   16.92   16.92   16.92   16.92

  3 COMBINED AT
+                    CP9    332.23     1   FLOW      31433.  29963.  29224.  28485.  27728.  26988.  26282.
                                           TIME       17.92   17.92   17.92   17.92   17.92   17.92   17.92

 HYDROGRAPH AT
+                  OFF12     19.01     1   FLOW       2823.   2739.   2697.   2656.   2614.   2572.   2530.
                                           TIME       18.00   18.00   18.00   18.00   18.00   18.00   18.00

  2 COMBINED AT
+                   CP10    351.24     1   FLOW      34204.  32651.  31871.  31092.  30293.  29512.  28765.
                                           TIME       17.92   17.92   17.92   17.92   17.92   17.92   17.92
1
                                           SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                               (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                   INTERPOLATED TO
                                                                                COMPUTATION INTERVAL
            ISTAQ    ELEMENT      DT       PEAK    TIME TO     VOLUME      DT       PEAK    TIME TO     VOLUME
                                                      PEAK                                     PEAK

                                (MIN)     (CFS)     (MIN)      (IN)    (MIN)     (CFS)     (MIN)       (IN)

           FOR PLAN = 1  RATIO=  .00
                RT1  MANE        5.00   8149.14   1120.00      1.53     5.00   8149.14   1120.00       1.53

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .4330E+04 EXCESS= .0000E+00 OUTFLOW= .4331E+04 BASIN STORAGE= .2441E+00 PERCENT ERROR=    .0

           FOR PLAN = 1  RATIO=  .00
                RT1  MANE        5.00   7809.33   1120.00      1.46     5.00   7809.33   1120.00       1.46

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .4150E+04 EXCESS= .0000E+00 OUTFLOW= .4152E+04 BASIN STORAGE= .3015E+00 PERCENT ERROR=    .0

           FOR PLAN = 1  RATIO=  .00
                RT1  MANE        5.00   7641.71   1125.00      1.43     5.00   7641.71   1125.00       1.43

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .4062E+04 EXCESS= .0000E+00 OUTFLOW= .4063E+04 BASIN STORAGE= .2989E+00 PERCENT ERROR=    .0

           FOR PLAN = 1  RATIO=  .00
                RT1  MANE        5.00   7477.92   1125.00      1.40     5.00   7477.92   1125.00       1.40

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3973E+04 EXCESS= .0000E+00 OUTFLOW= .3975E+04 BASIN STORAGE= .2978E+00 PERCENT ERROR=   -.1

           FOR PLAN = 1  RATIO=  .00
                RT1  MANE        5.00   7313.51   1125.00      1.37     5.00   7313.51   1125.00       1.37

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3886E+04 EXCESS= .0000E+00 OUTFLOW= .3888E+04 BASIN STORAGE= .2876E+00 PERCENT ERROR=   -.1

           FOR PLAN = 1  RATIO=  .00
                RT1  MANE        5.00   7149.05   1125.00      1.34     5.00   7149.05   1125.00       1.34

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3799E+04 EXCESS= .0000E+00 OUTFLOW= .3800E+04 BASIN STORAGE= .2866E+00 PERCENT ERROR=   -.1

           FOR PLAN = 1  RATIO=  .00
                RT1  MANE        5.00   6984.39   1125.00      1.31     5.00   6984.39   1125.00       1.31

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3712E+04 EXCESS= .0000E+00 OUTFLOW= .3714E+04 BASIN STORAGE= .2833E+00 PERCENT ERROR=   -.1

           FOR PLAN = 1  RATIO=  .00
                RT2  MANE        5.00  15948.64   1065.00      1.27     5.00  15948.64   1065.00       1.27

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .7404E+04 EXCESS= .0000E+00 OUTFLOW= .7405E+04 BASIN STORAGE= .9821E-01 PERCENT ERROR=    .0
```

```
          FOR PLAN = 1  RATIO=  .00
               RT2  MANE         5.00  15265.01   1065.00      1.21      5.00  15265.01   1065.00        1.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7081E+04 EXCESS= .0000E+00 OUTFLOW= .7083E+04 BASIN STORAGE= .9728E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
               RT2  MANE         5.00  14939.06   1065.00      1.18      5.00  14939.06   1065.00        1.18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6922E+04 EXCESS= .0000E+00 OUTFLOW= .6923E+04 BASIN STORAGE= .1381E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
               RT2  MANE         5.00  14598.93   1065.00      1.16      5.00  14598.93   1065.00        1.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6764E+04 EXCESS= .0000E+00 OUTFLOW= .6765E+04 BASIN STORAGE= .1369E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
               RT2  MANE         5.00  14259.23   1065.00      1.13      5.00  14259.23   1065.00        1.13

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6606E+04 EXCESS= .0000E+00 OUTFLOW= .6608E+04 BASIN STORAGE= .1362E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
               RT2  MANE         5.00  13919.92   1065.00      1.10      5.00  13919.92   1065.00        1.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6450E+04 EXCESS= .0000E+00 OUTFLOW= .6452E+04 BASIN STORAGE= .1356E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
               RT2  MANE         5.00  13580.89   1065.00      1.08      5.00  13580.89   1065.00        1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6295E+04 EXCESS= .0000E+00 OUTFLOW= .6297E+04 BASIN STORAGE= .1349E+00 PERCENT ERROR=    .0


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

APPENDIX A:

ii. 24-Hour, 25-Year Storm

```
1*****************************************                          ***************************************
 *                                       *                          *                                     *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                          *   U.S. ARMY CORPS OF ENGINEERS      *
 *              JUN   1998               *                          *   HYDROLOGIC ENGINEERING CENTER     *
 *             VERSION 4.1               *                          *         609 SECOND STREET           *
 *                                       *                          *      DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   16MAY11  TIME  16:32:23   *                          *          (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                                        PAGE  1

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

               *DIAGRAM
   1           ID  *********************************************************************
   2           ID     TECHNICAL DRAINAGE STUDY
   3           ID     HIDDEN HILLS RANCH SEGS
   4           ID     FILE_________________________7302E25.DAT
   5           ID     CONDITION____________________25-YEAR - EXISTING CONDITION
   6           ID     STORM DURATION_______________24 HOURS
   7           ID     DATE_________________________01-2011
   8           ID     DISTRIBUTION_________________SAN BERNARDINO COUNTY METHODOLOGY
   9           ID     AMC CONDITION _______________AMC I & II USED
  10           ID     MODELED BY___________________VTN NEVADA
  11           ID
  12           ID   PLUGGING IN UNIT HYDROGRAPH ORDINATES (UI'S) FROM AES SOFTWARE
  13           ID  *********************************************************************
  14           ID   DEPTH-AREA REDUCTION FACTOR (DARF) REF. FROM SB COUNTY
  15           ID   DEPTH AREA CURVES (FIG. E-4).
  16           ID
  17           ID     BASIN AREA
  18           ID    RANGE(sq.mi.)          DARF
  19           ID
  20           ID       1 -  10             1.00
  21           ID       10 - 20             0.98
  22           ID       20 - 30             0.97
  23           ID       30 - 50             0.96
  24           ID       50 - 70             0.95
  25           ID       70 - 100            0.94
  26           ID       100 -350            0.93
  27           ID
  28           ID  *********************************************************************
  29           IT       5       0       0     600
  30           IN       5       0       0
  31           IO       5       0       0
  32           JR    PREC    1.00    0.98    0.97    0.96    0.95    0.94    0.93
               *

  33           KK   LOVEL
  34           KM   EXISTING OFFSITE BASIN
  35           PB    4.34
  36           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  37           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  38           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  39           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  40           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  41           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  42           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  43           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  44           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  45           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  46           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  47           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  48           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  49           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  50           PI  0.0080  0.0080  0.0080  0.0100  0.0150  0.0150  0.0150  0.0150  0.0150  0.0150
  51           PI  0.0150  0.0150  0.0150  0.0150  0.0150  0.0150  0.0150  0.0150  0.0150  0.0150
  52           PI  0.0150  0.0150  0.0150  0.0150  0.0150  0.0150  0.0150  0.0325  0.0405  0.0405
1                                   HEC-1 INPUT                                        PAGE  2

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

  53           PI  0.0405  0.0405  0.0405  0.0405  0.0405  0.0405  0.0405  0.0405  0.0405  0.0405
  54           PI  0.0405  0.0405  0.0405  0.0313  0.0325  0.0325  0.0325  0.0853  0.0840  0.0840
  55           PI  0.0838  0.2322  0.0840  0.0331  0.0325  0.0432  0.0405  0.0405  0.0405  0.0405
  56           PI  0.0405  0.0405  0.0405  0.0234  0.0150  0.0150  0.0150  0.0150  0.0150  0.0150
  57           PI  0.0150  0.0150  0.0150  0.0150  0.0150  0.0150  0.0080  0.0080  0.0080  0.0080
  58           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  59           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  60           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
  61           PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
```

```
 62          PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
 63          PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080
 64          PI  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0080  0.0115
 65          BA   53.18
 66          LS            59.8
 67          KM   SB COUNTY MOUNTAIN S-GRAPH
 68          KM   UHG (DERIVED BY AES SOFTWARE)
 69          UI  1288.4  2576.8  2576.8  2555.9  2513.6  2865.2  3887.0  3865.3  3930.4  3876.7
 70          UI  4274.5  5615.1  4839.8  6685.1  6009.3  7581.6  7827.5  9181.4  8825.1  8271.9
 71          UI  11067.  11362.  8707.8  8152.0  7154.2  7729.8  7369.2  5119.4  5701.7  5798.0
 72          UI  5519.1  4997.1  4602.0  4303.9  4547.8  4540.0  3960.4  3826.6  3421.4  3312.6
 73          UI  2498.6  2711.6  3476.7  2683.4  2125.2  2479.4  2488.3  2342.8  2319.9  2318.5
 74          UI  2319.2  2319.9  2319.2  2287.8  2001.0  1933.3  1931.8  1931.1  1810.6  1739.2
 75          UI  1739.9  1738.5  1872.6  1727.8  1655.8  1656.5  1656.5  1623.7  1470.3  1450.3
 76          UI  1448.2  1451.0  1448.2  1449.6  1449.6  1449.6  1449.6  1449.6  1442.5  1254.1
 77          UI  1158.5  1160.0  1160.0  1158.5  1159.9  1160.0  1095.8  1054.4  1054.4  1054.4
 78          UI  1055.8  1053.0  1055.8  1048.7   988.7   967.4   965.9   965.9   967.4   965.9
 79          UI   965.9   965.9   924.6   833.2   827.5   829.0   829.0   827.5   827.5   830.4
 80          UI   827.5   827.6   807.5   776.1   773.3   770.5   776.1   770.5   773.3   776.2
 81          UI   770.4   773.3   770.5   676.3   624.9   627.8   627.8   627.8   624.9   624.9
 82          UI   630.6   624.9   627.8   624.9   627.8   627.8   565.0   516.5   513.7   516.5
 83          UI   513.7   516.5   513.7   516.5   516.5   513.6   516.5   516.5   513.7   516.5
             *

 84          KK     RT1
 85          KM   ROUTE BASIN LOVEL THROUGH BASIN OFF4
 86          RD   73022   .0216   0.040            TRAP     130       4
             *

 87          KK   EAST1
 88          KM   EXISTING OFFSITE BASIN
 89          PB    2.76
 90          BA    2.70
 91          LS            74.1
 92          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 93          KM   UHG (DERIVED BY AES SOFTWARE)
 94          UI   213.2   498.2   735.5   991.3  1388.3  1666.0  1872.1  1864.9  1711.8  1263.4
 95          UI   938.7   800.7   646.0   531.1   467.8   392.5   360.3   333.5   281.5   269.8
 96          UI   238.4   229.3   204.4   186.9   177.2   149.4   150.3   150.4   134.4   119.0
 97          UI   119.0   115.9    97.8    94.7    94.7    94.6    83.2    75.3    75.3    75.3
 98          UI    75.3    71.3    52.3    49.6    49.7    49.6    49.7    49.7    49.6    49.3
 99          UI    29.9    18.4    18.4    18.3    18.4    18.4    18.3    18.4    18.4    18.3
100          UI    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4
101          UI    18.4    18.4    18.4     1.8
             *
1                                          HEC-1 INPUT                                          PAGE  3

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

102          KK    OFF4
103          KM   EXISTING OFFSITE BASIN
104          PB    2.36
105          BA   30.13
106          LS            71.5
107          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
108          KM   UHG (DERIVED BY AES SOFTWARE)
109          UI   623.5  1246.9  1246.9  1255.3  1440.8  1688.6  1758.5  1864.9  2297.3  2493.8
110          UI  2646.2  3036.7  2750.9  3017.7  3549.3  4582.4  4064.0  4194.6  4974.1  4990.3
111          UI  5345.6  4626.8  5060.3  6287.9  5169.5  5665.2  5864.9  4987.7  5113.7  6300.2
112          UI  5103.9  4987.6  4495.2  3748.4  3740.8  3732.3  3264.5  2945.3  2743.5  2560.3
113          UI  2305.5  2371.2  2491.2  2638.2  1809.0  1648.9  2578.8  1480.9  1209.7  1495.8
114          UI  1496.5  2111.9  1461.4  1163.9  1364.5  1292.4  1156.4  1156.0  1111.7  1068.7
115          UI  1068.7  1069.1  1053.8  1001.2   998.4   997.0   997.7   879.8   748.4   747.7
116          UI   816.6   933.1   917.4   715.8   661.1   659.7   659.7   661.1   813.8   825.1
117          UI   611.4   605.7   605.7   605.0   605.7   604.3   574.5   545.4   535.4   534.0
118          UI   534.0   535.4   532.6   522.6   431.8   416.1   420.4   438.9   440.3   440.3
119          UI   440.3   438.9   441.7   438.8   440.3   440.3   440.3   387.7   348.0   348.0
120          UI   347.9   348.0   347.9   348.0   348.0   349.4   346.5   347.9   348.0   348.0
121          UI   333.7   281.2   275.5   278.4   275.5   278.4   276.9   276.9   276.9   276.9
122          UI   276.9   276.9   278.4   275.5   278.4   275.5   278.4   258.5   220.1   220.1
123          UI   218.7   221.5   218.7   221.6   218.7   221.6   218.7   220.1   221.6   218.7
             *

124          KK     CP1
125          KM   COMBINE EAST1, RT1, OFF4
126          HC       3
             *

127          KK    OFF5
128          KM   EXISTING OFFSITE BASIN
129          PB    2.59
130          BA   50.58
131          LS            56.1
132          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
133          KM   UHG (DERIVED BY AES SOFTWARE)
134          UI  1284.3  2568.6  2568.6  2810.4  3426.7  3652.9  4109.0  5058.2  5384.8  6093.4
135          UI  5847.4  6685.7  8762.2  8583.9  9060.6  10274.  10771.  9778.3  10806.  12345.
136          UI  10740.  12407.  10293.  11251.  11907.  10274.  9381.3  7741.5  7705.9  7230.7
137          UI  6125.6  5664.5  5077.3  4785.2  5081.2  5302.4  3574.0  4199.5  4229.1  2393.3
138          UI  3073.7  3409.8  3921.7  2397.2  2774.1  2570.1  2381.7  2331.2  2207.8  2202.0
139          UI  2199.5  2101.9  2054.3  2056.3  2016.5  1639.6  1541.5  1677.5  1921.3  1741.6
140          UI  1370.5  1358.9  1360.8  1427.8  1775.6  1343.4  1248.1  1247.2  1247.2  1247.2
141          UI  1189.9  1121.9  1101.5  1100.5  1100.5  1100.5  1025.7   862.5   860.6   901.4
142          UI   907.2   905.3   907.2   907.2   905.3   907.2   907.2   835.3   718.8   714.9
143          UI   718.8   716.8   716.8   716.8   716.8   714.9   718.8   716.8   652.7   569.2
144          UI   573.1   569.2   571.1   571.1   571.1   569.2   573.1   569.2   571.1   571.1
145          UI   571.2   567.2   487.6   456.5   450.7   454.6   452.6   452.6   454.6   452.6
146          UI   452.6   454.6   454.6   450.7   454.6   450.7   454.6   454.6   450.7   388.5
147          UI   295.3   303.0   295.3   303.0   295.3   303.0   299.2   299.2   299.2   299.2
148          UI   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2
             *
1                                          HEC-1 INPUT                                          PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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BSE Document Control Number: HYD200-R1

```
149          KK     CP2
150          KM   COMBINE CP1, OFF5
151          HC        2
             *

152          KK   TROUT
153          KM   EXISTING OFFSITE BASIN
154          PB    3.79
155          BA  109.75
156          LS            60.9
157          KM   SB COUNTY MOUNTAIN S-GRAPH
158          KM   UHG (DERIVED BY AES SOFTWARE)
159          UI  3727.7  7455.5  7407.0  7367.6 10182.8 11217.8 11364.5 12217.2 15164.5 17361.9
160          UI  18316.  22194.  25529.  24830. 28793.8 31828.5 24549.8 21291.4 22291.6 17378.1
161          UI  16154.  16506.  14701.  13038. 12864.1 12900.8 11277.4 10147.9  9115.5  7130.6
162          UI  9742.0  6808.1  6973.0  7077.5  6716.7  6711.0  6709.9  6709.9  6381.2  5620.8
163          UI  5592.5  5444.4  5051.6  5032.8  5248.0  5018.0  4791.1  4793.3  4553.8  4197.7
164          UI  4194.6  4192.6  4194.6  4194.6  4192.5  4192.6  3934.2  3371.3  3356.5  3356.6
165          UI  3352.3  3274.7  3062.5  3049.9  3052.0  3043.6  3049.8  2886.1  2793.6  2797.8
166          UI  2795.8  2795.7  2793.6  2566.7  2396.6  2394.5  2398.7  2394.5  2394.5  2398.7
167          UI  2318.9  2234.9  2239.1  2234.9  2239.1  2234.9  2234.8  2209.7  1886.2  1814.8
168          UI  1814.8  1810.6  1814.8  1814.8  1810.6  1819.0  1806.4  1651.0  1487.1  1491.3
169          UI  1491.3  1491.3  1491.3  1491.3  1491.3  1491.3  1487.1  1495.5  1453.6  1331.7
170          UI  1310.7  1319.1  1314.9  1314.9  1314.9  1314.9  1319.1  1310.7  1323.3  1310.7
171          UI  1314.9  1285.4  1180.4  1176.3  1176.2  1176.3  1180.4  1176.2  1176.3  1176.2
172          UI  1184.7  1176.2  1176.3  1176.2  1176.2  1176.3  1075.5  1033.4  1050.2  1033.4
173          UI  1041.9  1041.8  1041.8  1033.4  1050.2  1033.5  1041.8  1033.4  1050.2  1033.5
             *

174          KK     RT2
175          KM   ROUTE BASIN TROUT THROUGH BASIN OFF2
176          RD   54120   .0170   0.040            TRAP      50       4
             *

177          KK    OFF2
178          KM   EXISTING OFFSITE BASIN
179          PB    2.35
180          BA   26.22
181          LS            72.4
182          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
183          KM   UHG (DERIVED BY AES SOFTWARE)
184          UI   594.1  1188.1  1188.1  1228.7  1468.6  1654.7  1725.4  2014.3  2372.2  2473.6
185          UI  2883.7  2639.1  2930.3  3567.7  4429.5  3682.9  4497.4  4752.4  5038.2  4469.6
186          UI  4807.6  5903.1  4896.3  5644.5  5213.0  4752.4  5467.4  5390.2  4752.5  4476.0
187          UI  3624.3  3564.2  3539.1  3043.3  2759.2  2580.0  2297.6  2210.5  2346.0  2483.1
188          UI  1921.6  1548.0  2397.1  1330.0  1239.7  1425.6  1568.8  1925.0  1108.9  1205.6
189          UI  1300.1  1101.8  1101.5  1055.6  1018.6  1018.1  1018.1   980.3   949.8   950.9
190          UI   950.4   873.7   718.0   712.4   794.7   891.2   830.2   642.4   629.4   628.9
191          UI   628.9   721.4   810.5   591.1   577.0   577.0   577.0   577.6   565.7   531.3
192          UI   511.6   509.9   508.7   509.3   508.8   489.6   403.8   396.0   408.4   419.6
193          UI   419.6   419.6   418.5   419.6   419.6   419.6   418.5   414.0   348.6   331.6
194          UI   331.7   331.6   331.6   331.6   331.6   330.5   332.8   331.6   330.5   331.6
195          UI   289.9   264.0   264.0   264.0   264.0   264.0   264.0   264.0   264.0   264.0
196          UI   264.0   265.1   262.8   264.0   265.1   248.2   210.9   209.8   208.7   210.9
1                                          HEC-1 INPUT                                                PAGE  5
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

197          UI   208.7   209.8   211.0   207.6   212.1   207.6   209.8   209.8   212.1   207.6
198          UI   209.8   209.8   209.8   207.6   205.3   151.2   137.6   137.6   137.6   139.9
             *

199          KK    OFF3
200          KM   EXISTING OFFSITE BASIN
201          PB    2.28
202          BA    6.13
203          LS            70.2
204          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
205          KM   UHG (DERIVED BY AES SOFTWARE)
206          UI   195.2   390.4   403.0   497.2   557.3   669.3   784.1   917.6   892.5  1094.2
207          UI  1381.9  1318.5  1557.8  1609.2  1530.3  1846.2  1697.9  1757.9  1610.5  1828.4
208          UI  1559.8  1321.1  1171.3  1115.3   928.6   835.5   735.1   763.8   772.1   535.8
209          UI   702.1   394.6   464.5   577.5   439.4   407.4   387.5   360.8   341.3   334.7
210          UI   332.4   315.5   312.4   305.3   247.2   239.0   282.1   267.0   208.8   206.7
211          UI   211.4   259.7   201.6   189.6   189.6   189.2   178.6   168.6   167.4   167.3
212          UI   166.6   142.3   130.6   136.3   137.8   137.8   138.0   137.8   137.6   134.8
213          UI   112.6   109.2   108.8   108.8   109.2   108.8   109.0   109.0   102.2    87.6
214          UI    86.6    86.8    86.6    86.8    86.6    87.0    86.6    86.6    86.8    80.6
215          UI    69.4    68.8    69.2    68.6    69.0    69.0    68.8    69.2    68.8    68.8
216          UI    68.8    69.2    68.4    56.4    45.9    45.5    45.1    45.9    45.5    45.5
217          UI    45.1    45.9    45.5    45.1    45.9    45.5    45.5    45.5    45.5    45.1
218          UI    45.9    45.5    45.5    44.7    27.1    16.9    16.9    16.5    17.3    16.2
219          UI    17.3    16.5    17.3    16.2    17.3    16.5    16.9    16.9    16.5    17.3
220          UI    16.2    17.3    16.5    17.3    16.2    17.3    16.5    16.9    16.9    16.9
             *

221          KK   OFF1G
222          KM   EXISTING OFFSITE BASIN
223          PB    2.19
224          BA    1.74
225          LS            68.3
226          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
227          KM   UHG (DERIVED BY AES SOFTWARE)
228          UI    92.7   191.7   245.5   319.7   408.3   467.3   623.5   709.8   741.1   831.9
229          UI   824.7   809.5   737.1   575.5   486.5   389.1   361.6   313.2   278.7   214.5
230          UI   244.2   190.1   172.5   160.6   155.5   148.6   130.1   119.8   124.8    98.9
231          UI   108.1   101.7    90.1    88.2    80.8    79.5    75.0    63.3    65.2    65.4
232          UI    65.4    63.7    53.4    51.8    51.7    51.7    51.3    43.8    41.2    41.2
233          UI    41.2    41.2    41.2    38.7    32.9    32.7    32.7    32.7    32.8    32.8
234          UI    32.6    31.1    22.8    21.6    21.6    21.6    21.6    21.6    21.6    21.7
235          UI    21.6    21.6    21.6    21.6    13.5     8.0     8.0     8.0     8.0     8.0
236          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0
237          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0
238          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     1.5
             *
```

```
 239          KK     CP3
 240          KM   COMBINE RT2, OFF2, OFF3, OFF1G
 241          HC       4
              *
1                                   HEC-1 INPUT                                                    PAGE  6

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


 242          KK     ON1
 243          KM   EXISTING ONSITE BASIN
 244          PB    2.19
 245          BA    2.35
 246          LS           68.3
 247          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 248          KM   UHG (DERIVED BY AES SOFTWARE)
 249          UI   214.0   527.6   816.5  1143.9  1573.1  1805.0  1885.7  1688.7  1211.5   883.5
 250          UI   739.8   552.6   498.0   398.8   359.5   322.3   282.5   244.5   242.9   206.3
 251          UI   189.0   174.9   149.0   150.4   145.7   122.1   118.9   116.1    97.9    94.7
 252          UI    94.7    90.8    76.5    75.2    75.2    75.2    67.3    50.1    49.7    49.6
 253          UI    49.7    49.6    49.7    46.5    23.1    18.3    18.4    18.4    18.3    18.4
 254          UI    18.3    18.4    18.4    18.3    18.3    18.3    18.3    18.3    18.3    18.3
 255          UI    18.3    18.3    18.3    17.1
              *

 256          KK     CP4
 257          KM   COMBINE CP3, ON1
 258          HC       2
              *

 259          KK    OFF7
 260          KM   EXISTING OFFSITE BASIN
 261          PB    2.19
 262          BA    1.77
 263          LS           54.8
 264          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 265          KM   UHG (DERIVED BY AES SOFTWARE)
 266          UI   175.4   449.3   703.8  1032.4  1358.0  1520.5  1497.1  1131.2   788.1   636.9
 267          UI   464.3   409.7   323.9   290.9   252.3   226.6   195.8   183.2   161.5   147.8
 268          UI   125.6   122.4   119.6   100.4    97.0    92.6    78.4    77.2    77.1    67.5
 269          UI    61.4    61.3    61.4    56.8    41.7    40.5    40.5    40.5    40.5    40.5
 270          UI    30.3    15.1    15.0    14.9    15.0    15.0    15.0    15.0    15.0    14.9
 271          UI    14.9    14.9    14.9    14.9    14.9    14.9    14.9    14.9    13.9
              *

 272          KK     CP5
 273          KM   COMBINE CP2, CP4, OFF7
 274          HC       3
              *

 275          KK    OFF8
 276          KM   EXISTING OFFSITE BASIN
 277          PB    2.19
 278          BA   10.42
 279          LS           54.0
 280          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 281          KM   UHG (DERIVED BY AES SOFTWARE)
 282          UI   439.2   880.7  1036.2  1255.9  1605.2  1930.2  2058.0  2696.5  2985.6  3471.6
 283          UI  3506.9  3850.0  3930.4  3806.8  3927.7  3610.8  2887.9  2591.7  2162.0  1834.7
 284          UI  1671.2  1714.6  1345.1  1238.5   991.6  1255.4   916.1   897.4   805.3   759.4
 285          UI   748.8   711.7   701.6   597.3   548.9   634.9   505.7   465.0   517.3   506.6
 286          UI   426.8   426.6   412.2   380.9   376.5   376.0   326.5   297.6   309.1   310.1
 287          UI   309.9   310.1   301.2   252.7   244.8   245.3   245.0   245.3   244.8   223.1
1                                   HEC-1 INPUT                                                    PAGE  7

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

 288          UI   195.4   195.2   194.9   195.4   195.2   195.2   195.2   185.8   157.1   155.2
 289          UI   154.9   154.9   155.2   155.4   154.2   155.2   155.2   152.8   116.1   102.2
 290          UI   102.2   103.1   102.2   102.2   102.2   102.6   102.2   102.2   102.6   102.2
 291          UI   102.6   101.7   103.1    93.5    45.3    37.6    38.1    37.6    38.1    37.6
 292          UI    37.6    38.6    37.1    38.6    37.1    38.1    38.1    37.1    39.0    36.6
 293          UI    38.6    37.6    37.6    38.1    38.1    37.6    37.6    37.6    37.6    37.6
 294          UI    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6
 295          UI    37.6    37.6    37.6    37.6    37.6    37.6    28.0
              *

 296          KK     CP6
 297          KM   COMBINE CP5, OFF8
 298          HC       2
              *

 299          KK    OFF9
 300          KM   EXISTING OFFSITE BASIN
 301          PB    2.19
 302          BA    0.91
 303          LS           51.0
 304          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 305          KM   UHG (DERIVED BY AES SOFTWARE)
 306          UI   136.1   412.2   730.3  1040.9  1103.2   793.3   506.8   352.2   271.1   216.1
 307          UI   178.1   150.4   131.1   112.0    93.7    89.6    76.0    70.7    60.1    57.0
 308          UI    52.4    45.4    45.3    40.7    30.3    29.9    29.9    29.9    19.3    11.0
 309          UI    11.0    11.1    11.0    11.0    11.1    11.0    11.0    11.0    11.0    11.0
 310          UI    11.0     2.0
              *

 311          KK     CP7
 312          KM   COMBINE CP6, OFF9
 313          HC       2
              *

 314          KK   OFF11
 315          KM   EXISTING OFFSITE BASIN
 316          PB    2.19
 317          BA   11.66
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```
 318          LS            59.5
 319          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 320          KM   UHG (DERIVED BY AES SOFTWARE)
 321          UI   345.4   690.8   701.2   840.1   968.5  1078.1  1347.5  1503.6  1587.7  1668.7
 322          UI  2150.0  2376.1  2432.3  2765.9  2856.6  2674.6  3280.7  2929.6  3272.5  2767.5
 323          UI  3211.6  2917.1  2652.5  2137.4  2072.5  1884.3  1602.2  1457.2  1291.7  1351.8
 324          UI  1397.6   943.8  1266.5   783.4   783.5   890.7  1024.7   647.9   766.4   644.6
 325          UI   634.8   598.5   592.1   588.4   558.8   552.8   550.5   461.8   414.4   466.0
 326          UI   513.1   408.2   366.0   365.6   388.8   460.3   345.3   335.5   335.7   335.5
 327          UI   320.3   300.5   296.1   296.1   296.1   281.9   233.9   233.5   243.5   243.5
 328          UI   243.9   243.9   244.2   243.5   241.6   205.5   192.8   193.2   192.4   192.8
 329          UI   192.8   193.2   192.4   192.8   175.9   153.6   153.6   153.2   154.0   153.2
 330          UI   153.6   153.6   153.2   154.0   152.8   153.2   132.9   122.5   121.4   122.1
 331          UI   121.7   122.1   121.7   122.1   121.4   122.9   121.4   121.4   122.9   121.4
 332          UI   119.1    89.1    80.6    80.6    80.6    79.9    81.4    79.9    80.6    79.9
 333          UI    81.4    79.9    80.6    80.6    80.6    79.9    80.6    80.6    80.6    80.6
 334          UI    79.9    80.6    80.6    58.4    29.2    30.7    30.7    28.4    30.0    30.0
1                                            HEC-1 INPUT                                                PAGE  8

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

 335          UI    30.0    30.0    29.2    30.0    30.0    29.2    30.0    30.7    28.4    30.7
              *

 336          KK     CP8
 337          KM   COMBINE CP7, OFF11
 338          HC       2
              *

 339          KK   OFF1F
 340          KM   EXISTING OFFSITE BASIN
 341          KM   ***AMC II CN USED***
 342          PB    2.19
 343          BA    2.28
 344          LS            83.5
 345          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 346          KM   UHG (DERIVED BY AES SOFTWARE)
 347          UI    87.8   175.5   196.8   243.1   289.7   359.8   404.6   434.2   588.5   598.9
 348          UI   708.0   696.8   767.5   779.7   790.0   750.4   771.7   655.0   532.9   499.2
 349          UI   410.5   356.0   334.4   347.5   258.6   279.5   187.1   237.9   214.8   182.6
 350          UI   169.3   158.7   150.6   149.3   141.8   140.4   124.4   106.4   124.8   114.6
 351          UI    93.0    93.1   111.5    93.0    85.2    85.3    82.7    76.3    75.3    75.2
 352          UI    71.1    59.3    60.9    62.0    61.9    62.0    61.9    60.4    50.6    49.0
 353          UI    49.0    49.0    49.0    49.0    48.6    41.5    39.0    39.0    39.0    39.0
 354          UI    39.0    39.0    39.1    38.7    33.3    31.0    31.0    31.0    31.0    30.9
 355          UI    31.0    30.9    31.0    31.0    31.1    27.3    20.5    20.5    20.5    20.5
 356          UI    20.5    20.5    20.3    20.6    20.4    20.5    20.5    20.5    20.5    20.5
 357          UI    20.5    20.3    18.4     8.8     7.5     7.6     7.7     7.2     7.7     7.5
 358          UI     7.6     7.4     7.7     7.4     7.6     7.5     7.6     7.5     7.5     7.6
 359          UI     7.5     7.5     7.6     7.6     7.4     7.6     7.6     7.6     7.6     7.6
 360          UI     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6
 361          UI     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     3.3
              *

 362          KK   OFF1E
 363          KM   EXISTING OFFSITE BASIN
 364          KM   ***AMC II USED***
 365          PB    2.19
 366          BA    4.74
 367          LS            84.9
 368          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 369          KM   UHG (DERIVED BY AES SOFTWARE)
 370          UI   132.0   264.0   265.2   307.8   363.7   388.7   486.1   530.8   630.5   593.2
 371          UI   684.0   906.1   866.1   981.3  1062.8  1084.5  1021.7  1259.3  1108.4  1272.1
 372          UI  1071.4  1163.2  1193.2  1053.9   893.9   791.9   782.8   667.2   595.3   539.7
 373          UI   490.9   520.5   534.7   353.1   484.1   322.5   287.3   316.7   423.8   268.8
 374          UI   275.1   269.2   244.8   237.7   226.4   226.2   223.3   212.1   211.2   210.5
 375          UI   177.2   158.4   172.1   197.4   170.1   139.7   139.7   139.8   170.7   155.5
 376          UI   128.4   128.2   128.2   127.9   121.3   114.3   113.1   113.2   113.3   110.4
 377          UI    91.9    88.1    92.3    93.1    93.3    93.1    93.1    93.1    93.3    90.9
 378          UI    76.3    73.5    73.8    73.7    73.7    73.7    73.7    73.7    73.7    71.7
 379          UI    60.7    58.5    58.7    58.5    58.9    58.5    58.7    58.5    58.9    58.5
 380          UI    58.7    58.7    52.5    46.7    46.7    46.6    46.4    46.7    46.6    46.7
 381          UI    46.4    46.6    46.6    46.9    46.2    46.9    46.6    45.9    35.6    30.6
 382          UI    30.6    30.9    30.6    30.9    30.6    30.6    31.3    30.6    30.6    30.9
 383          UI    30.6    30.9    30.9    30.3    31.3    30.3    31.3    30.3    31.3    30.3
1                                            HEC-1 INPUT                                                PAGE  9

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

 384          UI    30.9    29.6    16.0    10.6    12.0    11.0    11.3    11.6    11.3    11.3
              *

 385          KK   OFF1D
 386          KM   EXISTING OFFSITE BASIN
 387          KM   ***AMC II CN USED***
 388          PB    2.19
 389          BA    1.15
 390          LS            83.5
 391          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 392          KM   UHG (DERIVED BY AES SOFTWARE)
 393          UI    64.7   135.4   175.3   234.0   293.0   357.5   446.1   516.1   542.1   581.7
 394          UI   561.2   555.9   432.5   363.0   285.0   250.1   229.3   196.4   150.3   168.0
 395          UI   132.7   118.6   111.5   107.0   102.2    84.0    89.3    76.7    69.7    78.0
 396          UI    63.3    62.4    57.7    55.4    53.6    44.7    45.3    45.7    45.7    43.9
 397          UI    36.8    36.1    36.1    36.1    34.4    29.2    28.7    28.7    28.7    28.7
 398          UI    28.1    23.7    22.8    22.8    22.8    22.8    22.8    22.8    21.2    15.5
 399          UI    15.0    15.1    15.0    15.1    15.0    15.1    15.1    15.1    15.1    15.1
 400          UI    11.8     5.7     5.5     5.6     5.6     5.6     5.5     5.6     5.6     5.5
 401          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 402          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 403          UI     5.6     5.6     3.9
              *

 404          KK   OFF1C
 405          KM   EXISTING OFFSITE BASIN
```

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 406          KM   ***AMC II CN USED***
 407          PB    2.19
 408          BA    1.25
 409          LS            83.5
 410          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 411          KM   UHG (DERIVED BY AES SOFTWARE)
 412          UI    65.2   134.2   171.2   220.5   283.3   319.1   431.6   485.1   525.2   572.5
 413          UI   586.9   563.0   547.7   424.9   365.8   290.1   251.1   244.2   205.3   152.8
 414          UI   176.3   142.5   128.7   116.1   111.4   106.1   101.7    82.6    91.1    77.6
 415          UI    69.3    80.0    65.6    63.3    60.4    56.2    55.9    50.2    44.4    46.0
 416          UI    46.0    46.0    44.0    37.0    36.4    36.4    36.4    36.0    30.6    29.0
 417          UI    29.0    29.0    29.0    29.0    27.7    23.3    23.0    23.0    23.0    23.1
 418          UI    23.0    23.0    22.7    17.2    15.2    15.1    15.2    15.2    15.2    15.1
 419          UI    15.2    15.2    15.1    15.2    15.1    13.7     6.6     5.6     5.6     5.6
 420          UI     5.5     5.7     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 421          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 422          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 423          UI     2.4
              *

 424          KK   OFF1B
 425          KM   EXISTING OFFSITE BASIN
 426          KM   ***AMC II CN USED***
 427          PB    2.19
 428          BA    4.37
 429          LS            84.4
 430          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 431          KM   UHG (DERIVED BY AES SOFTWARE)
 432          UI   126.2   252.3   254.9   301.7   351.3   383.2   483.0   531.3   588.4   588.4
1                                          HEC-1 INPUT                                          PAGE 10

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

 433          UI   718.9   906.2   826.3   998.7  1047.0   971.5  1114.2  1129.8  1162.1  1081.9
 434          UI  1058.9  1185.1  1009.2   886.7   757.0   749.9   641.2   568.7   511.6   470.9
 435          UI   501.2   492.3   333.7   472.1   259.4   293.2   335.2   363.1   237.1   281.0
 436          UI   235.1   232.2   219.1   216.3   215.6   205.2   201.9   201.8   178.6   151.5
 437          UI   161.3   187.8   164.8   133.6   133.6   134.1   166.7   141.3   122.5   122.6
 438          UI   122.5   121.2   113.2   108.5   108.1   108.1   108.1    97.0    84.1    86.2
 439          UI    89.0    89.2    89.0    89.0    89.2    88.9    88.0    74.3    70.3    70.6
 440          UI    70.3    70.4    70.6    70.3    70.6    70.3    66.4    56.5    56.1    55.9
 441          UI    56.2    55.9    55.9    56.1    56.2    55.9    56.2    55.9    53.4    45.0
 442          UI    44.6    44.4    44.6    44.4    44.6    44.7    44.3    44.6    44.3    44.9
 443          UI    44.3    44.9    44.3    42.5    31.9    28.9    29.5    29.5    29.2    29.2
 444          UI    29.8    28.9    29.8    28.9    29.5    29.5    29.5    29.2    29.5    29.2
 445          UI    29.5    29.2    29.5    29.5    29.2    29.2    27.2    13.9    10.6    10.9
 446          UI    10.9    10.6    11.2    10.6    10.9    11.2    10.3    10.9    10.9    11.2
              *

 447          KK   OFF1A
 448          KM   EXISTING OFFSITE BASIN
 449          KM   ***AMC II CN USED***
 450          PB    2.19
 451          BA    1.44
 452          LS            83.5
 453          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 454          KM   UHG (DERIVED BY AES SOFTWARE)
 455          UI    65.5   132.2   160.7   196.7   255.3   300.0   334.6   444.7   482.4   532.1
 456          UI   553.1   588.5   571.9   583.6   529.9   418.5   375.3   304.6   257.3   259.8
 457          UI   213.4   210.2   143.9   180.4   144.9   134.2   119.9   113.1   110.9   105.4
 458          UI   101.8    82.2    89.6    85.9    69.5    73.1    79.5    63.7    63.6    61.3
 459          UI    56.7    56.2    55.1    45.8    45.3    46.2    46.3    46.2    45.8    38.9
 460          UI    36.6    36.6    36.6    36.6    36.4    31.5    29.1    29.2    29.1    29.1
 461          UI    29.1    29.1    28.3    23.7    23.2    23.1    23.2    23.2    23.1    23.2
 462          UI    23.2    23.2    19.9    15.5    15.2    15.2    15.3    15.3    15.2    15.3
 463          UI    15.3    15.2    15.3    15.2    15.3    15.3    14.9     8.2     5.8     5.6
 464          UI     5.6     5.8     5.6     5.7     5.6     5.6     5.6     5.7     5.6     5.7
 465          UI     5.6     5.6     5.6     5.7     5.6     5.7     5.6     5.6     5.6     5.6
 466          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 467          UI     5.6     5.6     5.6     5.6     5.6     5.6     4.7
              *

 468          KK   OFF1Z
 469          KM   EXISTING OFFSITE BASIN
 470          KM   ***AMC II CN USED***
 471          PB    2.19
 472          BA    0.64
 473          LS            83.5
 474          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 475          KM   UHG (DERIVED BY AES SOFTWARE)
 476          UI    62.7   159.5   249.3   362.8   480.8   544.5   538.3   421.2   292.8   232.6
 477          UI   173.8   152.2   118.3   105.6    94.1    82.3    71.1    68.4    59.1    54.0
 478          UI    47.4    43.5    43.8    38.0    34.7    34.4    29.4    27.6    27.6    26.3
 479          UI    22.2    22.0    22.0    21.8    17.1    14.5    14.5    14.5    14.5    14.5
 480          UI    14.1     7.5     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4
 481          UI     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4     4.0
              *
1                                          HEC-1 INPUT                                          PAGE 11

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

 482          KK     CPA
 483          KM   COMBINE OFF1F, OFF1E, OFF1D, OFF1C, OFF1B, OFF1A, OFF1Z
 484          HC        7
              *

 485          KK     ON2
 486          KM   EXISTING ONSITE BASIN
 487          KM   ***AMC II CN USED***
 488          PB    2.19
 489          BA    4.84
 490          LS            83.5
 491          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 492          KM   UHG (DERIVED BY AES SOFTWARE)
 493          UI   301.4   649.4   867.9  1199.3  1430.8  1952.6  2298.9  2475.8  2703.6  2626.1
```

```
494          UI  2535.2  1940.8  1574.6  1230.4  1154.3   950.4   725.9   800.5   617.6   551.3
495          UI   516.7   490.9   449.7   388.0   397.6   321.0   360.9   300.2   289.8   265.9
496          UI   258.3   233.4   207.0   212.7   212.7   207.7   174.2   168.3   168.1   168.3
497          UI   150.2   133.9   133.9   133.9   134.0   131.3   110.8   106.4   106.4   106.2
498          UI   106.4   106.5   103.5    77.0    70.3    70.2    70.3    70.3    70.0    70.5
499          UI    70.0    70.5    70.0    58.8    27.6    25.9    25.9    26.1    25.9    26.1
500          UI    25.8    26.2    26.1    25.8    25.8    26.2    25.8    26.2    25.8    25.8
501          UI    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8
502          UI    25.8    25.8    19.1
             *

503          KK     CPC
504          KM   COMBINE CPA, ON2
505          HC       2
             *

506          KK    STA1
507          KM   EXISTING OFFSITE BASIN
508          KM   (TEMPORARY STAGING AREA)
509          KM   ***AMC II CN USED***
510          PB    2.19
511          BA    0.28
512          LS            83.5
513          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
514          KM   UHG (DERIVED BY AES SOFTWARE)
515          UI    84.5   337.7   558.4   399.0   202.2   125.8    90.6    68.9    52.9    44.1
516          UI    35.9    30.2    25.5    23.0    16.9    15.8    13.2     6.2     5.8     5.8
517          UI     5.8     5.8     5.8     5.8     1.2
             *

518          KK     CPD
519          KM   COMBINE CPC, STA1
520          HC       2
             *
1                                          HEC-1 INPUT                                          PAGE 12

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


521          KK     ON3
522          KM   EXISTING ONSITE BASIN
523          PB    2.19
524          BA    3.70
525          LS            69.0
526          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
527          KM   UHG (DERIVED BY AES SOFTWARE)
528          UI   224.3   469.6   608.3   813.3  1016.2  1244.3  1549.1  1791.1  1883.2  2016.7
529          UI  1946.0  1920.6  1490.4  1251.8   981.8   868.4   787.3   675.4   525.7   573.8
530          UI   460.6   409.1   385.9   369.6   353.0   288.9   311.2   261.8   243.5   268.4
531          UI   218.5   215.9   198.9   192.2   184.1   154.1   157.6   158.3   158.3   150.3
532          UI   126.8   125.1   125.1   125.1   117.8   100.4    99.7    99.7    99.6    99.7
533          UI    96.3    80.9    79.2    79.2    79.2    79.0    79.4    79.0    70.8    53.0
534          UI    52.2    52.5    52.0    52.5    52.0    52.5    52.2    52.2    52.3    52.2
535          UI    36.6    19.1    19.6    19.1    19.6    19.1    19.5    19.3    19.2    19.3
536          UI    19.5    19.2    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3
537          UI    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3
538          UI    19.3    19.3     8.5
             *

539          KK     CP9
540          KM   COMBINE CP8, CPD, ON3
541          HC       3
             *

542          KK   OFF12
543          KM   EXISTING OFFSITE BASIN
544          KM   ***AMC II CN USED***
545          PB    2.36
546          BA   19.01
547          LS            85.9
548          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
549          KM   UHG (DERIVED BY AES SOFTWARE)
550          UI   418.5   837.0   837.0   856.6  1012.7  1158.7  1201.8  1349.6  1651.8  1674.9
551          UI  2044.7  1840.0  1988.6  2310.5  2982.8  2775.2  2837.2  3342.3  3398.6  3462.9
552          UI  3182.9  3657.2  4020.1  3406.4  4184.0  3435.1  3349.5  4078.6  3597.4  3348.1
553          UI  3068.9  2525.0  2511.1  2488.4  2131.7  1945.3  1821.6  1629.8  1552.2  1644.0
554          UI  1726.5  1499.6  1025.5  1612.2  1201.4   770.9  1001.5  1004.3  1425.6   915.8
555          UI   781.0   963.6   805.3   776.2   769.0   724.8   717.6   717.2   713.9   678.5
556          UI   669.6   669.6   669.6   586.3   502.4   502.4   573.2   627.5   579.9   450.2
557          UI   443.1   443.0   443.5   493.2   585.8   427.0   406.8   406.4   406.4   406.8
558          UI   404.3   381.1   363.9   358.8   358.4   358.8   358.8   358.8   311.7   278.8
559          UI   280.5   294.0   294.8   295.6   294.8   295.6   295.6   295.7   294.8   295.6
560          UI   288.9   240.9   233.3   234.2   233.3   233.3   234.2   233.3   233.3   234.2
561          UI   233.3   233.3   234.2   213.9   187.0   186.2   185.3   187.0   185.3   186.2
562          UI   186.2   186.2   185.3   186.2   187.0   185.3   186.2   185.3   185.3   165.9
563          UI   147.4   148.3   147.4   147.4   147.4   148.2   148.3   146.6   149.1   145.7
564          UI   149.9   146.6   146.6   149.9   146.6   148.2   146.6   148.2   148.2   114.5
             *
1                                          HEC-1 INPUT                                          PAGE 13

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


565          KK    CP10
566          KM   COMBINE CP9, OFF12
567          HC       2
             *
568          ZZ
1
             SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    33      LOVEL
```

```
              V
              V
 84         RT1
              .
              .
 87           .       EAST1
              .           .
              .           .
102           .           .        OFF4
              .           .           .
              .           .           .
124         CP1.......................
              .
              .
127           .        OFF5
              .           .
              .           .
149         CP2............
              .
              .
152           .       TROUT
              .           V
              .           V
174           .         RT2
              .           .
              .           .
177           .           .        OFF2
              .           .           .
              .           .           .
199           .           .           .        OFF3
              .           .           .           .
              .           .           .           .
221           .           .           .           .       OFF1G
              .           .           .           .           .
              .           .           .           .           .
239           .         CP3...................................
              .           .
              .           .
242           .           .         ON1
              .           .           .
              .           .           .
256           .         CP4............
              .           .
              .           .
259           .           .        OFF7
              .           .           .
              .           .           .
272         CP5.......................
              .
              .
275           .        OFF8
              .           .
              .           .
296         CP6............
              .
              .
299           .        OFF9
              .           .
              .           .
311         CP7............
              .
              .
314           .       OFF11
              .           .
              .           .
336         CP8............
              .
              .
339           .       OFF1F
              .           .
              .           .
362           .           .       OFF1E
              .           .           .
              .           .           .
385           .           .           .       OFF1D
              .           .           .           .
              .           .           .           .
404           .           .           .           .       OFF1C
              .           .           .           .           .
              .           .           .           .           .
424           .           .           .           .           .       OFF1B
              .           .           .           .           .           .
              .           .           .           .           .           .
447           .           .           .           .           .           .       OFF1A
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
468           .           .           .           .           .           .           .       OFF1Z
              .           .           .           .           .           .           .           .
              .           .           .           .           .           .           .           .
482           .         CPA.......................................................................
              .           .
              .           .
485           .           .         ON2
              .           .           .
              .           .           .
503           .         CPC............
              .           .
              .           .
506           .           .        STA1
              .           .           .
              .           .           .
518           .         CPD............
              .           .
              .           .
521           .           .         ON3
              .           .           .
```

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                    .          .          .
   539         CP9.......................
                    .
                    .
   542             .       OFF12
                    .          .
                    .          .
   565        CP10............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************                                    ****************************************
 *                                      *                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *              JUN   1998              *                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                    *          609 SECOND STREET           *
 *                                      *                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   16MAY11  TIME  16:32:23  *                                    *          (916) 756-1104              *
 *                                      *                                    *                                      *
 ****************************************                                    ****************************************
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                    ********************************************************************
                       TECHNICAL DRAINAGE STUDY
                       HIDDEN HILLS RANCH SEGS
                       FILE_________________________7302E25.DAT
                       CONDITION____________________25-YEAR - EXISTING CONDITION
                       STORM DURATION_______________24 HOURS
                       DATE_________________________01-2011
                       DISTRIBUTION_________________SAN BERNARDINO COUNTY METHODOLOGY
                       AMC CONDITION ________________AMC I & II USED
                       MODELED BY___________________VTN NEVADA

                     PLUGGING IN UNIT HYDROGRAPH ORDINATES (UI'S) FROM AES SOFTWARE
                    ********************************************************************
                     DEPTH-AREA REDUCTION FACTOR (DARF) REF. FROM SB COUNTY
                     DEPTH AREA CURVES (FIG. E-4).

                       BASIN AREA
                      RANGE(sq.mi.)          DARF

                         1 -  10             1.00
                         10 - 20             0.98
                         20 - 30             0.97
                         30 - 50             0.96
                         50 - 70             0.95
                         70 - 100            0.94
                         100 -350            0.93

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

   31 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         600  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      3    0  ENDING DATE
                       NDTIME        0155  ENDING TIME
                       ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL     .08 HOURS
                       TOTAL TIME BASE   49.92 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
                     1.00       .98       .97       .96       .95       .94       .93
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 1.00	RATIO 2 .98	RATIO 3 .97	RATIO 4 .96	RATIO 5 .95	RATIO 6 .94	RATIO 7 .93
HYDROGRAPH AT											
+	LOVEL	53.18	1	FLOW	4094.	3888.	3786.	3684.	3584.	3484.	3385.
				TIME	17.75	17.75	17.75	17.75	17.75	17.75	17.75
ROUTED TO											
+	RT1	53.18	1	FLOW	4018.	3829.	3788.	3632.	3628.	3566.	3518.
				TIME	18.92	19.00	19.08	18.92	19.00	19.00	19.08
HYDROGRAPH AT											
+	EAST1	2.70	1	FLOW	383.	366.	358.	350.	342.	334.	326.

				TIME	16.50	16.50	16.50	16.50	16.50	16.50	16.50
HYDROGRAPH AT +	OFF4	30.13	1	FLOW	1275.	1208.	1174.	1142.	1109.	1077.	1045.
				TIME	18.42	18.42	18.42	18.42	18.42	18.42	18.42
3 COMBINED AT +	CP1	86.01	1	FLOW	5238.	4955.	4881.	4732.	4668.	4577.	4474.
				TIME	18.92	19.00	18.92	18.92	19.00	19.00	19.08
HYDROGRAPH AT +	OFF5	50.58	1	FLOW	468.	412.	386.	360.	335.	312.	289.
				TIME	18.42	18.50	18.50	18.50	18.50	18.67	18.67
2 COMBINED AT +	CP2	136.59	1	FLOW	5690.	5345.	5260.	5087.	4992.	4881.	4760.
				TIME	18.92	19.00	18.92	18.92	19.00	19.00	18.83
HYDROGRAPH AT +	TROUT	109.75	1	FLOW	7653.	7235.	7028.	6824.	6621.	6419.	6220.
				TIME	17.25	17.25	17.25	17.25	17.25	17.25	17.25
ROUTED TO +	RT2	109.75	1	FLOW	7524.	7092.	6896.	6710.	6514.	6317.	6118.
				TIME	17.92	17.92	18.00	18.00	18.00	18.00	18.00
HYDROGRAPH AT +	OFF2	26.22	1	FLOW	1229.	1166.	1135.	1104.	1074.	1044.	1014.
				TIME	18.17	18.17	18.17	18.17	18.17	18.17	18.25
HYDROGRAPH AT +	OFF3	6.13	1	FLOW	266.	251.	243.	236.	228.	221.	213.
				TIME	17.58	17.58	17.58	17.58	17.58	17.58	17.58
HYDROGRAPH AT +	OFF1G	1.74	1	FLOW	69.	64.	62.	60.	57.	55.	53.
				TIME	16.92	16.92	16.92	16.92	16.92	16.92	16.92
4 COMBINED AT +	CP3	143.84	1	FLOW	9033.	8521.	8283.	8058.	7824.	7589.	7351.
				TIME	17.92	17.92	18.00	18.00	18.00	18.00	18.00
HYDROGRAPH AT +	ON1	2.35	1	FLOW	118.	110.	106.	102.	98.	94.	90.
				TIME	16.50	16.50	16.50	16.50	16.50	16.50	16.50
2 COMBINED AT +	CP4	146.19	1	FLOW	9090.	8576.	8334.	8108.	7872.	7636.	7397.
				TIME	17.92	17.92	18.00	18.00	18.00	18.00	18.00
HYDROGRAPH AT +	OFF7	1.77	1	FLOW	6.	6.	6.	5.	5.	5.	4.
				TIME	24.08	24.08	24.08	24.08	24.08	24.08	24.08
3 COMBINED AT +	CP5	284.55	1	FLOW	13388.	12724.	12635.	12194.	11838.	11564.	11250.
				TIME	18.17	18.42	18.25	18.50	18.33	18.58	18.42
HYDROGRAPH AT +	OFF8	10.42	1	FLOW	29.	26.	24.	22.	21.	19.	18.
				TIME	24.08	24.08	24.08	24.08	24.08	24.17	24.17
2 COMBINED AT +	CP6	294.97	1	FLOW	13398.	12731.	12640.	12198.	11841.	11566.	11251.
				TIME	18.17	18.42	18.25	18.50	18.33	18.58	18.42
HYDROGRAPH AT +	OFF9	.91	1	FLOW	1.	1.	1.	1.	1.	1.	1.
				TIME	24.08	24.08	24.08	24.08	24.08	24.08	24.08
2 COMBINED AT +	CP7	295.88	1	FLOW	13398.	12731.	12640.	12198.	11841.	11566.	11251.
				TIME	18.17	18.42	18.25	18.50	18.33	18.58	18.42
HYDROGRAPH AT +	OFF11	11.66	1	FLOW	84.	74.	69.	64.	59.	55.	52.
				TIME	18.25	18.42	18.42	18.42	18.50	18.50	24.08
2 COMBINED AT +	CP8	307.54	1	FLOW	13482.	12805.	12708.	12262.	11900.	11621.	11301.
				TIME	18.17	18.42	18.25	18.50	18.33	18.58	18.42
HYDROGRAPH AT +	OFF1F	2.28	1	FLOW	255.	246.	242.	237.	233.	228.	224.
				TIME	17.17	17.17	17.17	17.17	17.17	17.17	17.17
HYDROGRAPH AT +	OFF1E	4.74	1	FLOW	489.	473.	465.	456.	448.	440.	432.
				TIME	17.58	17.58	17.58	17.58	17.58	17.58	17.58
HYDROGRAPH AT +	OFF1D	1.15	1	FLOW	153.	148.	145.	142.	140.	137.	134.
				TIME	16.75	16.75	16.75	16.75	16.75	16.75	16.75
HYDROGRAPH AT +	OFF1C	1.25	1	FLOW	161.	155.	152.	150.	147.	144.	141.
				TIME	16.83	16.83	16.83	16.83	16.83	16.83	16.83
HYDROGRAPH AT +	OFF1B	4.37	1	FLOW	446.	430.	423.	415.	407.	400.	392.
				TIME	17.50	17.50	17.50	17.50	17.50	17.50	17.50
HYDROGRAPH AT +	OFF1A	1.44	1	FLOW	175.	168.	165.	162.	159.	156.	153.
				TIME	16.92	16.92	16.92	16.92	16.92	16.92	16.92

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 HYDROGRAPH AT
+                  OFF1Z       .64     1   FLOW        109.    106.    104.    102.    100.     98.     96.
                                           TIME       16.42   16.42   16.42   16.42   16.42   16.42   16.42

  7 COMBINED AT
+                    CPA     15.87     1   FLOW       1637.   1580.   1551.   1523.   1495.   1467.   1438.
                                           TIME       17.17   17.17   17.17   17.17   17.17   17.17   17.17

 HYDROGRAPH AT
+                    ON2      4.84     1   FLOW        674.    650.    638.    626.    615.    603.    591.
                                           TIME       16.67   16.67   16.67   16.67   16.67   16.67   16.67

  2 COMBINED AT
+                    CPC     20.71     1   FLOW       2218.   2140.   2101.   2062.   2024.   1985.   1946.
                                           TIME       16.92   16.92   16.92   16.92   16.92   16.92   16.92

 HYDROGRAPH AT
+                   STA1       .28     1   FLOW         73.     70.     69.     68.     67.     65.     64.
                                           TIME       16.17   16.17   16.17   16.17   16.17   16.17   16.17

  2 COMBINED AT
+                    CPD     20.99     1   FLOW       2251.   2172.   2132.   2093.   2053.   2014.   1975.
                                           TIME       16.92   16.92   16.92   16.92   16.92   16.92   16.92

 HYDROGRAPH AT
+                    ON3      3.70     1   FLOW        175.    164.    158.    153.    147.    142.    136.
                                           TIME       16.92   16.92   16.92   16.92   16.92   16.92   16.92

  3 COMBINED AT
+                    CP9    332.23     1   FLOW      15143.  14243.  14226.  13602.  13311.  12869.  12612.
                                           TIME       18.17   18.42   18.25   18.50   18.33   18.58   18.42

 HYDROGRAPH AT
+                  OFF12     19.01     1   FLOW       2060.   1995.   1962.   1930.   1897.   1865.   1832.
                                           TIME       18.00   18.00   18.00   18.00   18.00   18.00   18.00

  2 COMBINED AT
+                   CP10    351.24     1   FLOW      17135.  16093.  16143.  15338.  15124.  14493.  14314.
                                           TIME       18.17   18.42   18.25   18.50   18.33   18.33   18.42
1
                                           SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                               (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                   INTERPOLATED TO
                                                                                COMPUTATION INTERVAL
            ISTAQ    ELEMENT      DT       PEAK    TIME TO     VOLUME      DT       PEAK    TIME TO     VOLUME
                                                      PEAK                                    PEAK

                                (MIN)     (CFS)      (MIN)      (IN)    (MIN)     (CFS)     (MIN)       (IN)

           FOR PLAN = 1  RATIO=  .00
                RT1  MANE         5.00   4017.67   1135.00       .79     5.00   4017.67   1135.00        .79

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2243E+04 EXCESS= .0000E+00 OUTFLOW= .2247E+04 BASIN STORAGE= .2779E+00 PERCENT ERROR=   -.2

           FOR PLAN = 1  RATIO=  .00
                RT1  MANE         5.00   3829.11   1140.00       .75     5.00   3829.11   1140.00        .75

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2134E+04 EXCESS= .0000E+00 OUTFLOW= .2138E+04 BASIN STORAGE= .2650E+00 PERCENT ERROR=   -.2

           FOR PLAN = 1  RATIO=  .00
                RT1  MANE         5.00   3787.99   1145.00       .74     5.00   3787.99   1145.00        .74

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2080E+04 EXCESS= .0000E+00 OUTFLOW= .2085E+04 BASIN STORAGE= .2516E+00 PERCENT ERROR=   -.3

           FOR PLAN = 1  RATIO=  .00
                RT1  MANE         5.00   3631.64   1135.00       .72     5.00   3631.64   1135.00        .72

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2027E+04 EXCESS= .0000E+00 OUTFLOW= .2032E+04 BASIN STORAGE= .2836E+00 PERCENT ERROR=   -.3

           FOR PLAN = 1  RATIO=  .00
                RT1  MANE         5.00   3627.86   1140.00       .70     5.00   3627.86   1140.00        .70

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1974E+04 EXCESS= .0000E+00 OUTFLOW= .1979E+04 BASIN STORAGE= .2826E+00 PERCENT ERROR=   -.3

           FOR PLAN = 1  RATIO=  .00
                RT1  MANE         5.00   3565.79   1140.00       .68     5.00   3565.79   1140.00        .68

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1922E+04 EXCESS= .0000E+00 OUTFLOW= .1927E+04 BASIN STORAGE= .2709E+00 PERCENT ERROR=   -.3

           FOR PLAN = 1  RATIO=  .00
                RT1  MANE         5.00   3518.15   1145.00       .66     5.00   3518.15   1145.00        .66

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1870E+04 EXCESS= .0000E+00 OUTFLOW= .1876E+04 BASIN STORAGE= .2700E+00 PERCENT ERROR=   -.3

           FOR PLAN = 1  RATIO=  .00
                RT2  MANE         5.00   7523.64   1075.00       .64     5.00   7523.64   1075.00        .64

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3774E+04 EXCESS= .0000E+00 OUTFLOW= .3775E+04 BASIN STORAGE= .1317E+00 PERCENT ERROR=    .0

           FOR PLAN = 1  RATIO=  .00
```

```
          RT2  MANE         5.00   7092.46   1075.00       .61      5.00   7092.46   1075.00         .61

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3579E+04 EXCESS= .0000E+00 OUTFLOW= .3581E+04 BASIN STORAGE= .1305E+00 PERCENT ERROR=   -.1

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00   6895.90   1080.00       .60      5.00   6895.90   1080.00         .60

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3483E+04 EXCESS= .0000E+00 OUTFLOW= .3485E+04 BASIN STORAGE= .1299E+00 PERCENT ERROR=    .0

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00   6709.52   1080.00       .58      5.00   6709.52   1080.00         .58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3388E+04 EXCESS= .0000E+00 OUTFLOW= .3390E+04 BASIN STORAGE= .1208E+00 PERCENT ERROR=   -.1

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00   6514.46   1080.00       .56      5.00   6514.46   1080.00         .56

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3294E+04 EXCESS= .0000E+00 OUTFLOW= .3296E+04 BASIN STORAGE= .1203E+00 PERCENT ERROR=   -.1

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00   6317.28   1080.00       .55      5.00   6317.28   1080.00         .55

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3201E+04 EXCESS= .0000E+00 OUTFLOW= .3203E+04 BASIN STORAGE= .1176E+00 PERCENT ERROR=   -.1

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00   6118.06   1080.00       .53      5.00   6118.06   1080.00         .53

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3109E+04 EXCESS= .0000E+00 OUTFLOW= .3111E+04 BASIN STORAGE= .1170E+00 PERCENT ERROR=   -.1


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

APPENDIX A:

iii. 24-Hour, 10-Year Storm

```
1*****************************************                                    ***************************************
 *                                       *                                    *                                     *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                    *   U.S. ARMY CORPS OF ENGINEERS      *
 *             JUN   1998                *                                    *   HYDROLOGIC ENGINEERING CENTER     *
 *           VERSION 4.1                 *                                    *        609 SECOND STREET            *
 *                                       *                                    *     DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   16MAY11  TIME  17:45:35   *                                    *        (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                                                PAGE  1

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

                       *DIAGRAM
           1           ID   ********************************************************************
           2           ID      TECHNICAL DRAINAGE STUDY
           3           ID      HIDDEN HILLS RANCH SEGS
           4           ID      FILE_________________________7302E10.DAT
           5           ID      CONDITION____________________10-YEAR - EXISTING CONDITION
           6           ID      STORM DURATION_______________24 HOURS
           7           ID      DATE_________________________01-2011
           8           ID      DISTRIBUTION_________________SAN BERNARDINO COUNTY METHODOLOGY
           9           ID      AMC CONDITION _______________AMC I & II CN'S USED
          10           ID      MODELED BY___________________VTN NEVADA
          11           ID
          12           ID    PLUGGING IN UNIT HYDROGRAPH ORDINATES (UI'S) FROM AES SOFTWARE
          13           ID   ********************************************************************
          14           ID    DEPTH-AREA REDUCTION FACTOR (DARF) REF. FROM SB COUNTY
          15           ID    DEPTH AREA CURVES (FIG. E-4).
          16           ID
          17           ID      BASIN AREA
          18           ID     RANGE(sq.mi.)           DARF
          19           ID
          20           ID        1 -  10              1.00
          21           ID        10 - 20              0.98
          22           ID        20 - 30              0.97
          23           ID        30 - 50              0.96
          24           ID        50 - 70              0.95
          25           ID        70 - 100             0.94
          26           ID        100 -350             0.93
          27           ID
          28           ID   ********************************************************************
          29           IT        5       0       0     600
          30           IN        5       0       0
          31           IO        5       0       0
          32           JR     PREC    1.00    0.98    0.97    0.96    0.95    0.94    0.93
                       *

          33           KK    LOVEL
          34           KM    EXISTING OFFSITE BASIN
          35           PB     3.48
          36           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          37           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          38           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          39           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          40           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          41           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          42           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          43           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          44           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          45           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          46           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          47           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          48           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          49           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          50           PI   0.0070  0.0070  0.0070  0.0100  0.0120  0.0120  0.0120  0.0120  0.0120  0.0120
          51           PI   0.0120  0.0120  0.0120  0.0120  0.0120  0.0120  0.0120  0.0120  0.0120  0.0120
          52           PI   0.0120  0.0120  0.0120  0.0120  0.0120  0.0120  0.0120  0.0322  0.0310  0.0310
1                                        HEC-1 INPUT                                                PAGE  2

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

          53           PI   0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310
          54           PI   0.0310  0.0310  0.0310  0.0238  0.0250  0.0250  0.0250  0.0660  0.0665  0.0665
          55           PI   0.0666  0.1849  0.0665  0.0256  0.0250  0.0306  0.0310  0.0310  0.0310  0.0310
          56           PI   0.0310  0.0310  0.0310  0.0152  0.0120  0.0120  0.0120  0.0120  0.0120  0.0120
          57           PI   0.0120  0.0120  0.0120  0.0120  0.0120  0.0223  0.0070  0.0070  0.0070  0.0070
          58           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          59           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          60           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
          61           PI   0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
```

```
 62          PI  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
 63          PI  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
 64          PI  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0115
 65          BA   53.18
 66          LS            59.8
 67          KM   SB COUNTY MOUNTAIN S-GRAPH
 68          KM   UHG  (DERIVED BY AES SOFTWARE)
 69          UI  1288.4  2576.8  2576.8  2555.9  2513.6  2865.2  3887.0  3865.3  3930.4  3876.7
 70          UI  4274.5  5615.1  4839.8  6685.1  6009.3  7581.6  7827.5  9181.4  8825.1  8271.9
 71          UI  11067.  11362.  8707.8  8152.0  7154.2  7729.8  7369.2  5119.4  5701.7  5798.0
 72          UI  5519.1  4997.1  4602.0  4303.9  4547.8  4540.0  3960.4  3826.6  3421.4  3312.6
 73          UI  2498.6  2711.6  3476.7  2683.4  2125.2  2479.4  2488.3  2342.8  2319.9  2318.5
 74          UI  2319.2  2319.9  2319.2  2287.8  2001.0  1933.3  1931.8  1931.1  1810.6  1739.2
 75          UI  1739.9  1738.5  1872.6  1727.8  1655.8  1656.5  1656.5  1623.7  1470.3  1450.3
 76          UI  1448.2  1451.0  1448.2  1449.6  1449.6  1449.6  1449.6  1449.6  1442.5  1254.1
 77          UI  1158.5  1160.0  1160.0  1158.5  1159.9  1160.0  1095.8  1054.4  1054.4  1054.4
 78          UI  1055.8  1053.0  1055.8  1048.7   988.7   967.4   965.9   965.9   967.4   965.9
 79          UI   965.9   965.9   924.6   833.2   827.5   829.0   829.0   827.5   827.5   830.4
 80          UI   827.5   827.6   807.5   776.1   773.3   770.5   776.1   770.5   773.3   776.2
 81          UI   770.4   773.3   770.5   676.3   624.9   627.8   627.8   627.8   624.9   624.9
 82          UI   630.6   624.9   627.8   624.9   627.8   627.8   565.0   516.5   513.7   516.5
 83          UI   513.7   516.5   513.7   516.5   516.5   513.6   516.5   516.5   513.7   516.5
             *

 84          KK     RT1
 85          KM   ROUTE BASIN LOVEL THROUGH BASIN OFF4
 86          RD   73022   .0216   0.040            TRAP     130       4
             *

 87          KK   EAST1
 88          KM   EXISTING OFFSITE BASIN
 89          PB    2.21
 90          BA    2.70
 91          LS            74.1
 92          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 93          KM   UHG (DERIVED BY AES SOFTWARE)
 94          UI   213.2   498.2   735.5   991.3  1388.3  1666.0  1872.1  1864.9  1711.8  1263.4
 95          UI   938.7   800.7   646.0   531.1   467.8   392.5   360.3   333.5   281.5   269.8
 96          UI   238.4   229.3   204.4   186.9   177.2   149.4   150.3   150.4   134.4   119.0
 97          UI   119.0   115.9    97.8    94.7    94.7    94.6    83.2    75.3    75.3    75.3
 98          UI    75.3    71.3    52.3    49.6    49.7    49.6    49.7    49.7    49.6    49.3
 99          UI    29.9    18.4    18.4    18.3    18.4    18.4    18.3    18.4    18.4    18.3
100          UI    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4
101          UI    18.4    18.4    18.4     1.8
             *
1                                          HEC-1 INPUT                                          PAGE  3

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


102          KK    OFF4
103          KM   EXISTING OFFSITE BASIN
104          PB    1.79
105          BA   30.13
106          LS            71.5
107          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
108          KM   UHG  (DERIVED BY AES SOFTWARE)
109          UI   623.5  1246.9  1246.9  1255.3  1440.8  1688.6  1758.5  1864.9  2297.3  2493.8
110          UI  2646.2  3036.7  2750.9  3017.7  3549.3  4582.4  4064.0  4194.6  4974.1  4990.3
111          UI  5345.6  4626.8  5060.3  6287.9  5169.5  5665.2  5864.9  4987.7  5113.7  6300.2
112          UI  5103.9  4987.6  4495.2  3748.4  3740.8  3732.3  3264.5  2945.3  2743.5  2560.3
113          UI  2305.5  2371.2  2491.2  2638.2  1809.0  1648.9  2578.8  1480.9  1209.7  1495.8
114          UI  1496.5  2111.9  1461.4  1163.9  1364.5  1292.4  1156.4  1156.0  1111.7  1068.7
115          UI  1068.7  1069.1  1053.8  1001.2   998.4   997.0   997.7   879.8   748.4   747.7
116          UI   816.6   933.1   917.4   715.8   661.1   659.7   659.7   661.1   813.8   825.1
117          UI   611.4   605.7   605.7   605.0   605.7   604.3   574.5   545.4   535.4   534.0
118          UI   534.0   535.4   532.6   522.6   431.8   416.1   420.4   438.9   440.3   440.3
119          UI   440.3   438.9   441.7   438.8   440.3   440.3   440.3   387.7   348.0   348.0
120          UI   347.9   348.0   347.9   348.0   348.0   349.4   346.5   347.9   348.0   348.0
121          UI   333.7   281.2   275.5   278.4   275.5   278.4   276.9   276.9   276.9   276.9
122          UI   276.9   276.9   278.4   275.5   278.4   275.5   278.4   258.5   220.1   220.1
123          UI   218.7   221.5   218.7   221.6   218.7   221.6   218.7   220.1   221.6   218.7
             *

124          KK     CP1
125          KM   COMBINE EAST1, RT1, OFF4
126          HC       3
             *

127          KK    OFF5
128          KM   EXISTING OFFSITE BASIN
129          PB    2.14
130          BA   50.58
131          LS            56.1
132          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
133          KM   UHG (DERIVED BY AES SOFTWARE)
134          UI  1284.3  2568.6  2568.6  2810.4  3426.7  3652.9  4109.0  5058.2  5384.8  6093.4
135          UI  5847.4  6685.7  8762.2  8583.9  9060.6  10274.  10771.  9778.3  10806.  12345.
136          UI  10740.  12407.  10293.  11251.  11907.  10274.  9381.3  7741.5  7705.9  7230.7
137          UI  6125.6  5664.5  5077.3  4785.2  5081.2  5302.4  3574.0  4199.5  4229.1  2393.3
138          UI  3073.7  3409.8  3921.7  2397.2  2774.1  2570.1  2381.7  2331.2  2207.8  2202.0
139          UI  2199.5  2101.9  2054.3  2056.3  2016.5  1639.6  1541.5  1677.5  1921.3  1741.6
140          UI  1370.5  1358.9  1360.8  1427.8  1775.6  1343.4  1248.1  1247.2  1247.2  1247.2
141          UI  1189.9  1121.9  1101.5  1100.5  1100.5  1100.5  1025.7   862.5   860.6   901.4
142          UI   907.2   905.3   907.2   907.2   905.3   907.2   907.2   835.3   718.8   714.9
143          UI   718.8   716.8   716.8   716.8   716.8   714.9   718.8   716.8   652.7   569.2
144          UI   573.1   569.2   571.1   571.1   571.1   569.2   573.1   569.2   571.1   571.1
145          UI   571.2   567.2   487.6   456.5   450.7   454.6   452.6   452.6   454.6   452.6
146          UI   452.6   454.6   454.6   450.7   454.6   450.7   454.6   454.6   450.7   388.5
147          UI   295.3   303.0   295.3   303.0   295.3   303.0   299.2   299.2   299.2   299.2
148          UI   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2
             *
1                                          HEC-1 INPUT                                          PAGE  4

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

```
149          KK     CP2
150          KM   COMBINE CP1, OFF5
151          HC        2
             *

152          KK   TROUT
153          KM   EXISTING OFFSITE BASIN
154          PB    3.13
155          BA  109.75
156          LS            60.9
157          KM   SB COUNTY MOUNTAIN S-GRAPH
158          KM   UHG (DERIVED BY AES SOFTWARE)
159          UI  3727.7  7455.5  7407.0  7367.6 10182.8 11217.8 11364.5 12217.2 15164.5 17361.9
160          UI  18316.  22194.  25529.  24830. 28793.8 31828.5 24549.8 21291.4 22291.6 17378.1
161          UI  16154.  16506.  14701.  13038. 12864.1 12900.8 11277.4 10147.9  9115.5  7130.6
162          UI  9742.0  6808.1  6973.0  7077.5  6716.7  6711.0  6709.9  6709.9  6381.2  5620.8
163          UI  5592.5  5444.4  5051.6  5032.8  5248.0  5018.0  4791.1  4793.3  4553.8  4197.7
164          UI  4194.6  4192.6  4194.6  4194.6  4192.5  4192.6  3934.2  3371.3  3356.5  3356.6
165          UI  3352.3  3274.7  3062.5  3049.9  3052.0  3043.6  3049.8  2886.1  2793.6  2797.8
166          UI  2795.8  2795.7  2793.6  2566.7  2396.6  2394.5  2398.7  2394.5  2394.5  2398.7
167          UI  2318.9  2234.9  2239.1  2234.9  2239.1  2234.9  2234.8  2209.7  1886.2  1814.8
168          UI  1814.8  1810.6  1814.8  1814.8  1810.6  1819.0  1806.4  1651.0  1487.1  1491.3
169          UI  1491.3  1491.3  1491.3  1491.3  1491.3  1491.3  1487.1  1495.5  1453.6  1331.7
170          UI  1310.7  1319.1  1314.9  1314.9  1314.9  1314.9  1319.1  1310.7  1323.3  1310.7
171          UI  1314.9  1285.4  1180.4  1176.3  1176.2  1176.3  1180.4  1176.2  1176.3  1176.2
172          UI  1184.7  1176.2  1176.3  1176.2  1176.2  1176.3  1075.5  1033.4  1050.2  1033.4
173          UI  1041.9  1041.8  1041.8  1033.4  1050.2  1033.5  1041.8  1033.4  1050.2  1033.5
             *

174          KK     RT2
175          KM   ROUTE BASIN TROUT THROUGH BASIN OFF2
176          RD   54120   .0170   0.040            TRAP      50       4
             *

177          KK    OFF2
178          KM   EXISTING OFFSITE BASIN
179          PB    1.79
180          BA   26.22
181          LS            72.4
182          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
183          KM   UHG (DERIVED BY AES SOFTWARE)
184          UI   594.1  1188.1  1188.1  1228.7  1468.6  1654.7  1725.4  2014.3  2372.2  2473.6
185          UI  2883.7  2639.1  2930.3  3567.7  4429.5  3682.9  4497.4  4752.4  5038.2  4469.6
186          UI  4807.6  5903.1  4896.3  5644.5  5213.0  4752.4  5467.4  5390.2  4752.5  4476.0
187          UI  3624.3  3564.2  3539.1  3043.3  2759.2  2580.0  2297.6  2210.5  2346.0  2483.1
188          UI  1921.6  1548.0  2397.1  1330.0  1239.7  1425.6  1568.8  1925.0  1108.9  1205.6
189          UI  1300.1  1101.8  1101.5  1055.6  1018.6  1018.1  1018.1   980.3   949.8   950.9
190          UI   950.4   873.7   718.0   712.4   794.7   891.2   830.2   642.4   629.4   628.9
191          UI   628.9   721.4   810.5   591.1   577.0   577.0   577.0   577.6   565.7   531.3
192          UI   511.6   509.9   508.7   509.3   508.8   489.6   403.8   396.0   408.4   419.6
193          UI   419.6   419.6   418.5   419.6   419.6   419.6   418.5   414.0   348.6   331.6
194          UI   331.7   331.6   331.6   331.6   331.6   330.5   332.8   331.6   330.5   331.6
195          UI   289.9   264.0   264.0   264.0   264.0   264.0   264.0   264.0   264.0   264.0
196          UI   264.0   265.1   262.8   264.0   265.1   248.2   210.9   209.8   208.7   210.9
1                                          HEC-1 INPUT                                                PAGE  5
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

197          UI   208.7   209.8   211.0   207.6   212.1   207.6   209.8   209.8   212.1   207.6
198          UI   209.8   209.8   209.8   207.6   205.3   151.2   137.6   137.6   137.6   139.9
             *

199          KK    OFF3
200          KM   EXISTING OFFSITE BASIN
201          PB    1.79
202          BA    6.13
203          LS            70.2
204          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
205          KM   UHG (DERIVED BY AES SOFTWARE)
206          UI   195.2   390.4   403.0   497.2   557.3   669.3   784.1   917.6   892.5  1094.2
207          UI  1381.9  1318.5  1557.8  1609.2  1530.3  1846.2  1697.9  1757.9  1610.5  1828.4
208          UI  1559.8  1321.1  1171.3  1115.3   928.6   835.5   735.1   763.8   772.1   535.8
209          UI   702.1   394.6   464.5   577.5   439.4   407.4   387.5   360.8   341.3   334.7
210          UI   332.4   315.5   312.4   305.3   247.2   239.0   282.1   267.0   208.8   206.7
211          UI   211.4   259.7   201.6   189.6   189.6   189.2   178.6   168.6   167.4   167.3
212          UI   166.6   142.3   130.6   136.3   137.8   137.8   138.0   137.8   137.6   134.8
213          UI   112.6   109.2   108.8   108.8   109.2   108.8   109.0   109.0   102.2    87.6
214          UI    86.6    86.8    86.6    86.8    86.6    87.0    86.6    86.6    86.8    80.6
215          UI    69.4    68.8    69.2    68.6    69.0    69.0    68.8    69.2    68.8    68.8
216          UI    68.8    69.2    68.4    56.4    45.9    45.5    45.1    45.9    45.5    45.5
217          UI    45.1    45.9    45.5    45.1    45.9    45.5    45.5    45.5    45.5    45.1
218          UI    45.9    45.5    45.5    44.7    27.1    16.9    16.9    16.5    17.3    16.2
219          UI    17.3    16.5    17.3    16.2    17.3    16.5    16.9    16.9    16.5    17.3
220          UI    16.2    17.3    16.5    17.3    16.2    17.3    16.5    16.9    16.9    16.9
             *

221          KK   OFF1G
222          KM   ***AMC II CN USED***
223          PB    1.79
224          BA    1.74
225          LS            68.3
226          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
227          KM   UHG (DERIVED BY AES SOFTWARE)
228          UI    92.7   191.7   245.5   319.7   408.3   467.3   623.5   709.8   741.1   831.9
229          UI   824.7   809.5   737.1   575.5   486.5   389.1   361.6   313.2   278.7   214.5
230          UI   244.2   190.1   172.5   160.6   155.5   148.6   130.1   119.8   124.8    98.9
231          UI   108.1   101.7    90.1    88.2    80.8    79.5    75.0    63.3    65.2    65.4
232          UI    65.4    63.7    53.4    51.8    51.7    51.7    51.3    43.8    41.2    41.2
233          UI    41.2    41.2    41.2    38.7    32.9    32.7    32.7    32.7    32.8    32.8
234          UI    32.6    31.1    22.8    21.6    21.6    21.6    21.6    21.6    21.6    21.7
235          UI    21.6    21.6    21.6    21.6    13.5     8.0     8.0     8.0     8.0     8.0
236          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0
237          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0
238          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     1.5
             *
```

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 239          KK     CP3
 240          KM   COMBINE RT2, OFF2, OFF3, OFF1G
 241          HC       4
              *
1                                   HEC-1 INPUT                                                    PAGE  6

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


 242          KK     ON1
 243          KM   EXISTING ONSITE BASIN
 244          PB    1.79
 245          BA    2.35
 246          LS           68.3
 247          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 248          KM   UHG (DERIVED BY AES SOFTWARE)
 249          UI   214.0   527.6   816.5  1143.9  1573.1  1805.0  1885.7  1688.7  1211.5   883.5
 250          UI   739.8   552.6   498.0   398.8   359.5   322.3   282.5   244.5   242.9   206.3
 251          UI   189.0   174.9   149.0   150.4   145.7   122.1   118.9   116.1    97.9    94.7
 252          UI    94.7    90.8    76.5    75.2    75.2    75.2    67.3    50.1    49.7    49.6
 253          UI    49.7    49.6    49.7    46.5    23.1    18.3    18.4    18.4    18.3    18.4
 254          UI    18.3    18.4    18.4    18.3    18.3    18.3    18.3    18.3    18.3    18.3
 255          UI    18.3    18.3    18.3    17.1
              *

 256          KK     CP4
 257          KM   COMBINE CP3, ON1
 258          HC       2
              *

 259          KK    OFF7
 260          KM   EXISTING OFFSITE BASIN
 261          PB    1.79
 262          BA    1.77
 263          LS           54.8
 264          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 265          KM   UHG (DERIVED BY AES SOFTWARE)
 266          UI   175.4   449.3   703.8  1032.4  1358.0  1520.5  1497.1  1131.2   788.1   636.9
 267          UI   464.3   409.7   323.9   290.9   252.3   226.6   195.8   183.2   161.5   147.8
 268          UI   125.6   122.4   119.6   100.4    97.0    92.6    78.4    77.2    77.1    67.5
 269          UI    61.4    61.3    61.4    56.8    41.7    40.5    40.5    40.5    40.5    40.5
 270          UI    30.3    15.1    15.0    14.9    15.0    15.0    15.0    15.0    15.0    14.9
 271          UI    14.9    14.9    14.9    14.9    14.9    14.9    14.9    14.9    13.9
              *

 272          KK     CP5
 273          KM   COMBINE CP2, CP4, OFF7
 274          HC       3
              *

 275          KK    OFF8
 276          KM   EXISTING OFFSITE BASIN
 277          PB    1.79
 278          BA   10.42
 279          LS           54.0
 280          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 281          KM   UHG (DERIVED BY AES SOFTWARE)
 282          UI   439.2   880.7  1036.2  1255.9  1605.2  1930.2  2058.0  2696.5  2985.6  3471.6
 283          UI  3506.9  3850.0  3930.4  3806.8  3927.7  3610.8  2887.9  2591.7  2162.0  1834.7
 284          UI  1671.2  1714.6  1345.1  1238.5   991.6  1255.4   916.1   897.4   805.3   759.4
 285          UI   748.8   711.7   701.6   597.3   548.9   634.9   505.7   465.0   517.3   506.6
 286          UI   426.8   426.6   412.2   380.9   376.5   376.0   326.5   297.6   309.1   310.1
 287          UI   309.9   310.1   301.2   252.7   244.8   245.3   245.0   245.3   244.8   223.1
1                                   HEC-1 INPUT                                                    PAGE  7

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

 288          UI   195.4   195.2   194.9   195.4   195.2   195.2   195.2   185.8   157.1   155.2
 289          UI   154.9   154.9   155.2   155.4   154.2   155.2   155.2   152.8   116.1   102.2
 290          UI   102.2   103.1   102.2   102.2   102.2   102.6   102.2   102.2   102.6   102.2
 291          UI   102.6   101.7   103.1    93.5    45.3    37.6    38.1    37.6    38.1    37.6
 292          UI    37.6    38.6    37.1    38.6    37.1    38.1    38.1    37.1    39.0    36.6
 293          UI    38.6    37.6    37.6    38.1    38.1    37.6    37.6    37.6    37.6    37.6
 294          UI    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6
 295          UI    37.6    37.6    37.6    37.6    37.6    37.6    28.0
              *

 296          KK     CP6
 297          KM   COMBINE CP5, OFF8
 298          HC       2
              *

 299          KK    OFF9
 300          KM   EXISTING OFFSITE BASIN
 301          PB    1.79
 302          BA    0.91
 303          LS           51.0
 304          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 305          KM   UHG (DERIVED BY AES SOFTWARE)
 306          UI   136.1   412.2   730.3  1040.9  1103.2   793.3   506.8   352.2   271.1   216.1
 307          UI   178.1   150.4   131.1   112.0    93.7    89.6    76.0    70.7    60.1    57.0
 308          UI    52.4    45.4    45.3    40.7    30.3    29.9    29.9    29.9    19.3    11.0
 309          UI    11.0    11.1    11.0    11.0    11.1    11.0    11.0    11.0    11.0    11.0
 310          UI    11.0     2.0
              *

 311          KK     CP7
 312          KM   COMBINE CP6, OFF9
 313          HC       2
              *

 314          KK   OFF11
 315          KM   EXISTING OFFSITE BASIN
 316          PB    1.79
 317          BA   11.66
```

```
 318          LS            59.5
 319          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 320          KM   UHG (DERIVED BY AES SOFTWARE)
 321          UI    345.4   690.8   701.2   840.1   968.5  1078.1  1347.5  1503.6  1587.7  1668.7
 322          UI   2150.0  2376.1  2432.3  2765.9  2856.6  2674.6  3280.7  2929.6  3272.5  2767.5
 323          UI   3211.6  2917.1  2652.5  2137.4  2072.5  1884.3  1602.2  1457.2  1291.7  1351.8
 324          UI   1397.6   943.8  1266.5   783.4   783.5   890.7  1024.7   647.9   766.4   644.6
 325          UI    634.8   598.5   592.1   588.4   558.8   552.8   550.5   461.8   414.4   466.0
 326          UI    513.1   408.2   366.0   365.6   388.8   460.3   345.3   335.5   335.7   335.5
 327          UI    320.3   300.5   296.1   296.1   296.1   281.9   233.9   233.5   243.5   243.5
 328          UI    243.9   243.9   244.2   243.5   241.6   205.5   192.8   193.2   192.4   192.8
 329          UI    192.8   193.2   192.4   192.8   175.9   153.6   153.6   153.2   154.0   153.2
 330          UI    153.6   153.6   153.2   154.0   152.8   153.2   132.9   122.5   121.4   122.1
 331          UI    121.7   122.1   121.7   122.1   121.4   122.9   121.4   121.4   122.9   121.4
 332          UI    119.1    89.1    80.6    80.6    80.6    79.9    81.4    79.9    80.6    79.9
 333          UI     81.4    79.9    80.6    80.6    80.6    79.9    80.6    80.6    80.6    80.6
 334          UI     79.9    80.6    80.6    58.4    29.2    30.7    30.7    28.4    30.0    30.0
1                                             HEC-1 INPUT                                                PAGE  8

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

 335          UI     30.0    30.0    29.2    30.0    30.0    29.2    30.0    30.7    28.4    30.7
              *

 336          KK      CP8
 337          KM   COMBINE CP7, OFF11
 338          HC       2
              *

 339          KK   OFF1F
 340          KM   EXISTING OFFSITE BASIN
 341          KM   ***AMC II CN USED***
 342          PB    1.79
 343          BA    2.28
 344          LS            83.5
 345          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 346          KM   UHG (DERIVED BY AES SOFTWARE)
 347          UI     87.8   175.5   196.8   243.1   289.7   359.8   404.6   434.2   588.5   598.9
 348          UI    708.0   696.8   767.5   779.7   790.0   750.4   771.7   655.0   532.9   499.2
 349          UI    410.5   356.0   334.4   347.5   258.6   279.5   187.1   237.9   214.8   182.6
 350          UI    169.3   158.7   150.6   149.3   141.8   140.4   124.4   106.4   124.8   114.6
 351          UI     93.0    93.1   111.5    93.0    85.2    85.3    82.7    76.3    75.3    75.2
 352          UI     71.1    59.3    60.9    62.0    61.9    62.0    61.9    60.4    50.6    49.0
 353          UI     49.0    49.0    49.0    49.0    48.6    41.5    39.0    39.0    39.0    39.0
 354          UI     39.0    39.0    39.1    38.7    33.3    31.0    31.0    31.0    31.0    30.9
 355          UI     31.0    30.9    31.0    31.0    31.1    27.3    20.5    20.5    20.5    20.5
 356          UI     20.5    20.5    20.3    20.6    20.4    20.5    20.5    20.5    20.5    20.5
 357          UI     20.5    20.3    18.4     8.8     7.5     7.6     7.7     7.2     7.7     7.5
 358          UI      7.6     7.4     7.7     7.4     7.6     7.5     7.6     7.5     7.5     7.6
 359          UI      7.5     7.5     7.6     7.6     7.4     7.6     7.6     7.6     7.6     7.6
 360          UI      7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6
 361          UI      7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     3.3
              *

 362          KK   OFF1E
 363          KM   EXISTING OFFSITE BASIN
 364          KM   ***AMC II USED***
 365          PB    1.79
 366          BA    4.74
 367          LS            84.9
 368          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 369          KM   UHG (DERIVED BY AES SOFTWARE)
 370          UI    132.0   264.0   265.2   307.8   363.7   388.7   486.1   530.8   630.5   593.2
 371          UI    684.0   906.1   866.1   981.3  1062.8  1084.5  1021.7  1259.3  1108.4  1272.1
 372          UI   1071.4  1163.2  1193.2  1053.9   893.9   791.9   782.8   667.2   595.3   539.7
 373          UI    490.9   520.5   534.7   353.1   484.1   322.5   287.3   316.7   423.8   268.8
 374          UI    275.1   269.2   244.8   237.7   226.4   226.2   223.3   212.1   211.2   210.5
 375          UI    177.2   158.4   172.1   197.4   170.1   139.7   139.7   139.8   170.7   155.5
 376          UI    128.4   128.2   128.2   127.9   121.3   114.3   113.1   113.2   113.3   110.4
 377          UI     91.9    88.1    92.3    93.1    93.3    93.1    93.1    93.1    93.3    90.9
 378          UI     76.3    73.5    73.8    73.7    73.7    73.7    73.7    73.7    73.7    71.7
 379          UI     60.7    58.5    58.7    58.5    58.9    58.5    58.7    58.5    58.9    58.5
 380          UI     58.7    58.7    52.5    46.7    46.7    46.6    46.4    46.7    46.6    46.7
 381          UI     46.4    46.6    46.6    46.9    46.2    46.9    46.6    45.9    35.6    30.6
 382          UI     30.6    30.9    30.6    30.9    30.6    30.6    31.3    30.6    30.6    30.9
 383          UI     30.6    30.9    30.9    30.3    31.3    30.3    31.3    30.3    31.3    30.3
1                                             HEC-1 INPUT                                                PAGE  9

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

 384          UI     30.9    29.6    16.0    10.6    12.0    11.0    11.3    11.6    11.3    11.3
              *

 385          KK   OFF1D
 386          KM   EXISTING OFFSITE BASIN
 387          KM   ***AMC II CN USED***
 388          PB    1.79
 389          BA    1.15
 390          LS            83.5
 391          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 392          KM   UHG (DERIVED BY AES SOFTWARE)
 393          UI     64.7   135.4   175.3   234.0   293.0   357.5   446.1   516.1   542.1   581.7
 394          UI    561.2   555.9   432.5   363.0   285.0   250.1   229.3   196.4   150.3   168.0
 395          UI    132.7   118.6   111.5   107.0   102.2    84.0    89.3    76.7    69.7    78.0
 396          UI     63.3    62.4    57.7    55.4    53.6    44.7    45.3    45.7    45.7    43.9
 397          UI     36.8    36.1    36.1    36.1    34.4    29.2    28.7    28.7    28.7    28.7
 398          UI     28.1    23.7    22.8    22.8    22.8    22.8    22.8    22.8    21.2    15.5
 399          UI     15.0    15.1    15.0    15.1    15.0    15.1    15.1    15.1    15.1    15.1
 400          UI     11.8     5.7     5.5     5.6     5.6     5.6     5.5     5.6     5.6     5.5
 401          UI      5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 402          UI      5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 403          UI      5.6     5.6     3.9
              *

 404          KK   OFF1C
 405          KM   EXISTING OFFSITE BASIN
```

```
 406          KM   ***AMC II CN USED***
 407          PB    1.79
 408          BA    1.25
 409          LS            83.5
 410          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 411          KM   UHG (DERIVED BY AES SOFTWARE)
 412          UI    65.2   134.2   171.2   220.5   283.3   319.1   431.6   485.1   525.2   572.5
 413          UI   586.9   563.0   547.7   424.9   365.8   290.1   251.1   244.2   205.3   152.8
 414          UI   176.3   142.5   128.7   116.1   111.4   106.1   101.7    82.6    91.1    77.6
 415          UI    69.3    80.0    65.6    63.3    60.4    56.2    55.9    50.2    44.4    46.0
 416          UI    46.0    46.0    44.0    37.0    36.4    36.4    36.4    36.0    30.6    29.0
 417          UI    29.0    29.0    29.0    29.0    27.7    23.3    23.0    23.0    23.0    23.1
 418          UI    23.0    23.0    22.7    17.2    15.2    15.1    15.2    15.2    15.2    15.1
 419          UI    15.2    15.2    15.1    15.2    15.1    13.7     6.6     5.6     5.6     5.6
 420          UI     5.5     5.7     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 421          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 422          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 423          UI     2.4
              *

 424          KK   OFF1B
 425          KM   EXISTING OFFSITE BASIN
 426          KM   ***AMC II CN USED***
 427          PB    1.79
 428          BA    4.37
 429          LS            84.4
 430          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 431          KM   UHG (DERIVED BY AES SOFTWARE)
 432          UI   126.2   252.3   254.9   301.7   351.3   383.2   483.0   531.3   588.4   588.4
1                                              HEC-1 INPUT                                          PAGE 10

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

 433          UI   718.9   906.2   826.3   998.7  1047.0   971.5  1114.2  1129.8  1162.1  1081.9
 434          UI  1058.9  1185.1  1009.2   886.7   757.0   749.9   641.2   568.7   511.6   470.9
 435          UI   501.2   492.3   333.7   472.1   259.4   293.2   335.2   363.1   237.1   281.0
 436          UI   235.1   232.2   219.1   216.3   215.6   205.2   201.9   201.8   178.6   151.5
 437          UI   161.3   187.8   164.8   133.6   133.6   134.1   166.7   141.3   122.5   122.6
 438          UI   122.5   121.2   113.2   108.5   108.1   108.1   108.1    97.0    84.1    86.2
 439          UI    89.0    89.2    89.0    89.0    89.2    88.9    88.0    74.3    70.3    70.6
 440          UI    70.3    70.4    70.6    70.3    70.6    70.3    66.4    56.5    56.1    55.9
 441          UI    56.2    55.9    55.9    56.1    56.2    55.9    56.2    55.9    53.4    45.0
 442          UI    44.6    44.4    44.6    44.4    44.6    44.7    44.3    44.6    44.3    44.9
 443          UI    44.3    44.9    44.3    42.5    31.9    28.9    29.5    29.5    29.2    29.2
 444          UI    29.8    28.9    29.8    28.9    29.5    29.5    29.5    29.2    29.5    29.2
 445          UI    29.5    29.2    29.5    29.5    29.2    29.2    27.2    13.9    10.6    10.9
 446          UI    10.9    10.6    11.2    10.6    10.9    11.2    10.3    10.9    10.9    11.2
              *

 447          KK   OFF1A
 448          KM   EXISTING OFFSITE BASIN
 449          KM   ***AMC II CN USED***
 450          PB    1.79
 451          BA    1.44
 452          LS            83.5
 453          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 454          KM   UHG (DERIVED BY AES SOFTWARE)
 455          UI    65.5   132.2   160.7   196.7   255.3   300.0   334.6   444.7   482.4   532.1
 456          UI   553.1   588.5   571.9   583.6   529.9   418.5   375.3   304.6   257.3   259.8
 457          UI   213.4   210.2   143.9   180.4   144.9   134.2   119.9   113.1   110.9   105.4
 458          UI   101.8    82.2    89.6    85.9    69.5    73.1    79.5    63.7    63.6    61.3
 459          UI    56.7    56.2    55.1    45.8    45.3    46.2    46.3    46.2    45.8    38.9
 460          UI    36.6    36.6    36.6    36.6    36.4    31.5    29.1    29.2    29.1    29.1
 461          UI    29.1    29.1    28.3    23.7    23.2    23.1    23.2    23.2    23.1    23.2
 462          UI    23.2    23.2    19.9    15.5    15.2    15.2    15.3    15.3    15.2    15.3
 463          UI    15.3    15.2    15.3    15.2    15.3    15.3    14.9     8.2     5.8     5.6
 464          UI     5.6     5.8     5.6     5.7     5.6     5.6     5.6     5.7     5.6     5.7
 465          UI     5.6     5.6     5.6     5.7     5.6     5.7     5.6     5.6     5.6     5.6
 466          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 467          UI     5.6     5.6     5.6     5.6     5.6     5.6     4.7
              *

 468          KK   OFF1Z
 469          KM   EXISTING OFFSITE BASIN
 470          KM   ***AMC II CN USED***
 471          PB    1.79
 472          BA    0.64
 473          LS            83.5
 474          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 475          KM   UHG (DERIVED BY AES SOFTWARE)
 476          UI    62.7   159.5   249.3   362.8   480.8   544.5   538.3   421.2   292.8   232.6
 477          UI   173.8   152.2   118.3   105.6    94.1    82.3    71.1    68.4    59.1    54.0
 478          UI    47.4    43.5    43.8    38.0    34.7    34.4    29.4    27.6    27.6    26.3
 479          UI    22.2    22.0    22.0    21.8    17.1    14.5    14.5    14.5    14.5    14.5
 480          UI    14.1     7.5     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4
 481          UI     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4     4.0
              *
1                                              HEC-1 INPUT                                          PAGE 11

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

 482          KK     CPA
 483          KM   COMBINE OFF1F, OFF1E, OFF1D, OFF1C, OFF1B, OFF1A, OFF1Z
 484          HC        7
              *

 485          KK     ON2
 486          KM   EXISTING ONSITE BASIN
 487          KM   ***AMC II CN USED***
 488          PB    1.79
 489          BA    4.84
 490          LS            83.5
 491          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 492          KM   UHG (DERIVED BY AES SOFTWARE)
 493          UI   301.4   649.4   867.9  1199.3  1430.8  1952.6  2298.9  2475.8  2703.6  2626.1
```

```
494          UI  2535.2  1940.8  1574.6  1230.4  1154.3   950.4   725.9   800.5   617.6   551.3
495          UI   516.7   490.9   449.7   388.0   397.6   321.0   360.9   300.2   289.8   265.9
496          UI   258.3   233.4   207.0   212.7   212.7   207.7   174.2   168.3   168.1   168.3
497          UI   150.2   133.9   133.9   133.9   134.0   131.3   110.8   106.4   106.4   106.2
498          UI   106.4   106.5   103.5    77.0    70.3    70.2    70.3    70.3    70.0    70.5
499          UI    70.0    70.5    70.0    58.8    27.6    25.9    25.9    26.1    25.9    26.1
500          UI    25.8    26.2    26.1    25.8    25.8    26.2    25.8    26.2    25.8    25.8
501          UI    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8
502          UI    25.8    25.8    19.1
             *

503          KK     CPC
504          KM   COMBINE CPA, ON2
505          HC       2
             *

506          KK    STA1
507          KM   EXISTING OFFSITE BASIN
508          KM   (TEMPORARY STAGING AREA)
509          KM   ***AMC II CN USED***
510          PB    1.79
511          BA    0.28
512          LS            83.5
513          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
514          KM   UHG (DERIVED BY AES SOFTWARE)
515          UI    84.5   337.7   558.4   399.0   202.2   125.8    90.6    68.9    52.9    44.1
516          UI    35.9    30.2    25.5    23.0    16.9    15.8    13.2     6.2     5.8     5.8
517          UI     5.8     5.8     5.8     5.8     1.2
             *

518          KK     CPD
519          KM   COMBINE CPC, STA1
520          HC       2
             *
1                                          HEC-1 INPUT                                          PAGE 12

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

521          KK     ON3
522          KM   EXISTING ONSITE BASIN
523          PB    1.79
524          BA    3.70
525          LS            69.0
526          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
527          KM   UHG (DERIVED BY AES SOFTWARE)
528          UI   224.3   469.6   608.3   813.3  1016.2  1244.3  1549.1  1791.1  1883.2  2016.7
529          UI  1946.0  1920.6  1490.4  1251.8   981.8   868.4   787.3   675.4   525.7   573.8
530          UI   460.6   409.1   385.9   369.6   353.0   288.9   311.2   261.8   243.5   268.4
531          UI   218.5   215.9   198.9   192.2   184.1   154.1   157.6   158.3   158.3   150.3
532          UI   126.8   125.1   125.1   125.1   117.8   100.4    99.7    99.7    99.6    99.7
533          UI    96.3    80.9    79.2    79.2    79.2    79.0    79.4    79.0    70.8    53.0
534          UI    52.2    52.5    52.0    52.5    52.0    52.5    52.2    52.2    52.3    52.2
535          UI    36.6    19.1    19.6    19.1    19.6    19.1    19.5    19.3    19.2    19.3
536          UI    19.5    19.2    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3
537          UI    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3
538          UI    19.3    19.3     8.5
             *

539          KK     CP9
540          KM   COMBINE CP8, CPD, ON3
541          HC       3
             *

542          KK   OFF12
543          KM   EXISTING OFFSITE BASIN
544          KM   ***AMC II CN USED***
545          PB    1.93
546          BA   19.01
547          LS            85.9
548          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
549          KM   UHG (DERIVED BY AES SOFTWARE)
550          UI   418.5   837.0   837.0   856.6  1012.7  1158.7  1201.8  1349.6  1651.8  1674.9
551          UI  2044.7  1840.0  1988.6  2310.5  2982.8  2775.2  2837.2  3342.3  3398.6  3462.9
552          UI  3182.9  3657.2  4020.1  3406.4  4184.0  3435.1  3349.5  4078.6  3597.4  3348.1
553          UI  3068.9  2525.0  2511.1  2488.4  2131.7  1945.3  1821.6  1629.8  1552.2  1644.0
554          UI  1726.5  1499.6  1025.5  1612.2  1201.4   770.9  1001.5  1004.3  1425.6   915.8
555          UI   781.0   963.6   805.3   776.2   769.0   724.8   717.6   717.2   713.9   678.5
556          UI   669.6   669.6   669.6   586.3   502.4   502.4   573.2   627.5   579.9   450.2
557          UI   443.1   443.0   443.5   493.2   585.8   427.0   406.8   406.4   406.4   406.8
558          UI   404.3   381.1   363.9   358.8   358.4   358.8   358.8   358.8   311.7   278.8
559          UI   280.5   294.0   294.8   295.6   294.8   295.6   295.6   295.7   294.8   295.6
560          UI   288.9   240.9   233.3   234.2   233.3   233.3   234.2   233.3   233.3   234.2
561          UI   233.3   233.3   234.2   213.9   187.0   186.2   185.3   187.0   185.3   186.2
562          UI   186.2   186.2   185.3   186.2   187.0   185.3   186.2   185.3   185.3   165.9
563          UI   147.4   148.3   147.4   147.4   147.4   148.2   148.3   146.6   149.1   145.7
564          UI   149.9   146.6   146.6   149.9   146.6   148.2   146.6   148.2   148.2   114.5
             *
1                                          HEC-1 INPUT                                          PAGE 13

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

565          KK    CP10
566          KM   COMBINE CP9, OFF12
567          HC       2
             *
568          ZZ
1
             SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    33      LOVEL
```

```
              V
              V
 84         RT1
              .
              .
 87           .       EAST1
              .           .
              .           .
102           .           .        OFF4
              .           .           .
              .           .           .
124         CP1.......................
              .
              .
127           .        OFF5
              .           .
              .           .
149         CP2............
              .
              .
152           .       TROUT
              .           V
              .           V
174           .         RT2
              .           .
              .           .
177           .           .        OFF2
              .           .           .
              .           .           .
199           .           .           .        OFF3
              .           .           .           .
              .           .           .           .
221           .           .           .           .       OFF1G
              .           .           .           .           .
              .           .           .           .           .
239           .         CP3...................................
              .           .
              .           .
242           .           .         ON1
              .           .           .
              .           .           .
256           .         CP4............
              .           .
              .           .
259           .           .        OFF7
              .           .           .
              .           .           .
272         CP5.......................
              .
              .
275           .        OFF8
              .           .
              .           .
296         CP6............
              .
              .
299           .        OFF9
              .           .
              .           .
311         CP7............
              .
              .
314           .       OFF11
              .           .
              .           .
336         CP8............
              .
              .
339           .       OFF1F
              .           .
              .           .
362           .           .       OFF1E
              .           .           .
              .           .           .
385           .           .           .       OFF1D
              .           .           .           .
              .           .           .           .
404           .           .           .           .       OFF1C
              .           .           .           .           .
              .           .           .           .           .
424           .           .           .           .           .       OFF1B
              .           .           .           .           .           .
              .           .           .           .           .           .
447           .           .           .           .           .           .       OFF1A
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
468           .           .           .           .           .           .           .       OFF1Z
              .           .           .           .           .           .           .           .
              .           .           .           .           .           .           .           .
482           .         CPA.......................................................................
              .           .
              .           .
485           .           .         ON2
              .           .           .
              .           .           .
503           .         CPC............
              .           .
              .           .
506           .           .        STA1
              .           .           .
              .           .           .
518           .         CPD............
              .           .
              .           .
521           .           .         ON3
              .           .           .
```

```
                    .          .          .
   539         CP9.......................
                    .
                    .
   542           .       OFF12
                    .          .
                    .          .
   565        CP10............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************                                                    ****************************************
 *                                      *                                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                                    *          609 SECOND STREET           *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   16MAY11  TIME  17:45:35  *                                                    *           (916) 756-1104             *
 *                                      *                                                    *                                      *
 ****************************************                                                    ****************************************
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                          ******************************************************************
                             TECHNICAL DRAINAGE STUDY
                             HIDDEN HILLS RANCH SEGS
                             FILE_________________________7302E10.DAT
                             CONDITION____________________10-YEAR - EXISTING CONDITION
                             STORM DURATION_______________24 HOURS
                             DATE_________________________01-2011
                             DISTRIBUTION_________________SAN BERNARDINO COUNTY METHODOLOGY
                             AMC CONDITION ________________AMC I & II CN'S USED
                             MODELED BY___________________VTN NEVADA

                           PLUGGING IN UNIT HYDROGRAPH ORDINATES (UI'S) FROM AES SOFTWARE
                          ******************************************************************
                           DEPTH-AREA REDUCTION FACTOR (DARF) REF. FROM SB COUNTY
                           DEPTH AREA CURVES (FIG. E-4).

                             BASIN AREA
                            RANGE(sq.mi.)          DARF

                               1 -  10             1.00
                               10 - 20             0.98
                               20 - 30             0.97
                               30 - 50             0.96
                               50 - 70             0.95
                               70 - 100            0.94
                               100 -350            0.93

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

   31 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         600  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      3    0  ENDING DATE
                       NDTIME        0155  ENDING TIME
                       ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL     .08 HOURS
                       TOTAL TIME BASE   49.92 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
                     1.00       .98       .97       .96       .95       .94       .93
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


                                                      RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN            RATIO 1  RATIO 2  RATIO 3  RATIO 4  RATIO 5  RATIO 6  RATIO 7
                                                        1.00      .98      .97      .96      .95      .94      .93

 HYDROGRAPH AT
+                 LOVEL     53.18     1   FLOW        2086.    1955.    1890.    1826.    1763.    1701.    1639.
                                             TIME       17.75    17.75    17.75    17.75    17.75    17.75    17.75

 ROUTED TO
+                   RT1     53.18     1   FLOW        2605.    2546.    2336.    2440.    2305.    2202.    2339.
                                             TIME       19.25    19.33    19.58    19.42    19.25    19.50    19.33

 HYDROGRAPH AT
+                 EAST1      2.70     1   FLOW         218.     207.     201.     196.     191.     185.     180.
```

				TIME	16.50	16.50	16.50	16.50	16.50	16.50	16.50
HYDROGRAPH AT +	OFF4	30.13	1	FLOW	515.	478.	460.	442.	424.	406.	389.
				TIME	18.42	18.42	18.42	18.42	18.42	18.42	18.42
3 COMBINED AT +	CP1	86.01	1	FLOW	3102.	3002.	2758.	2858.	2724.	2587.	2721.
				TIME	19.25	19.33	19.58	19.42	19.25	19.50	19.33
HYDROGRAPH AT +	OFF5	50.58	1	FLOW	169.	151.	142.	134.	126.	117.	109.
				TIME	24.33	24.33	24.33	24.33	24.33	24.33	24.33
2 COMBINED AT +	CP2	136.59	1	FLOW	3198.	3078.	2829.	2917.	2772.	2632.	2755.
				TIME	19.25	19.33	19.58	19.42	19.25	19.50	19.33
HYDROGRAPH AT +	TROUT	109.75	1	FLOW	4050.	3774.	3639.	3505.	3372.	3241.	3112.
				TIME	17.25	17.25	17.25	17.25	17.25	17.25	17.25
ROUTED TO +	RT2	109.75	1	FLOW	3969.	3724.	3583.	3520.	3442.	3305.	3276.
				TIME	18.08	18.17	18.25	18.08	18.08	18.17	18.17
HYDROGRAPH AT +	OFF2	26.22	1	FLOW	524.	488.	471.	454.	437.	420.	403.
				TIME	18.25	18.25	18.25	18.25	18.25	18.25	18.25
HYDROGRAPH AT +	OFF3	6.13	1	FLOW	109.	100.	96.	91.	87.	83.	79.
				TIME	17.58	17.58	17.58	17.58	17.58	17.58	17.58
HYDROGRAPH AT +	OFF1G	1.74	1	FLOW	28.	25.	24.	23.	21.	20.	19.
				TIME	17.00	17.00	17.00	17.00	17.00	17.00	17.42
4 COMBINED AT +	CP3	143.84	1	FLOW	4599.	4317.	4156.	4062.	3963.	3812.	3762.
				TIME	18.08	18.17	18.25	18.08	18.08	18.17	18.17
HYDROGRAPH AT +	ON1	2.35	1	FLOW	46.	41.	39.	37.	34.	32.	30.
				TIME	16.50	16.58	16.58	16.58	16.58	16.58	17.17
2 COMBINED AT +	CP4	146.19	1	FLOW	4626.	4342.	4180.	4086.	3985.	3833.	3782.
				TIME	18.08	18.17	18.25	18.08	18.08	18.17	18.17
HYDROGRAPH AT +	OFF7	1.77	1	FLOW	1.	1.	1.	0.	0.	0.	0.
				TIME	24.17	24.17	24.17	24.25	24.25	24.33	24.42
3 COMBINED AT +	CP5	284.55	1	FLOW	7145.	6659.	6120.	6186.	5936.	5592.	5646.
				TIME	19.00	19.08	19.17	19.17	19.25	19.25	19.33
HYDROGRAPH AT +	OFF8	10.42	1	FLOW	3.	1.	0.	0.	0.	0.	0.
				TIME	24.58	24.75	24.92	24.92	.00	.00	.00
2 COMBINED AT +	CP6	294.97	1	FLOW	7145.	6659.	6120.	6186.	5936.	5592.	5646.
				TIME	19.00	19.08	19.17	19.17	19.25	19.25	19.33
HYDROGRAPH AT +	OFF9	.91	1	FLOW	0.	0.	0.	0.	0.	0.	0.
				TIME	.00	.00	.00	.00	.00	.00	.00
2 COMBINED AT +	CP7	295.88	1	FLOW	7145.	6659.	6120.	6186.	5936.	5592.	5646.
				TIME	19.00	19.08	19.17	19.17	19.25	19.25	19.33
HYDROGRAPH AT +	OFF11	11.66	1	FLOW	28.	25.	24.	22.	20.	19.	17.
				TIME	24.25	24.25	24.33	24.33	24.33	24.33	24.42
2 COMBINED AT +	CP8	307.54	1	FLOW	7157.	6668.	6128.	6192.	5941.	5596.	5649.
				TIME	19.00	19.08	19.17	19.17	19.25	19.25	19.33
HYDROGRAPH AT +	OFF1F	2.28	1	FLOW	166.	160.	157.	153.	150.	147.	144.
				TIME	17.17	17.17	17.17	17.17	17.17	17.17	17.17
HYDROGRAPH AT +	OFF1E	4.74	1	FLOW	325.	312.	306.	300.	294.	288.	283.
				TIME	17.58	17.58	17.58	17.58	17.58	17.58	17.58
HYDROGRAPH AT +	OFF1D	1.15	1	FLOW	100.	96.	94.	92.	90.	89.	87.
				TIME	16.75	16.75	16.75	16.75	16.75	16.75	16.75
HYDROGRAPH AT +	OFF1C	1.25	1	FLOW	105.	101.	99.	97.	95.	93.	91.
				TIME	16.83	16.83	16.83	16.83	16.83	16.83	16.83
HYDROGRAPH AT +	OFF1B	4.37	1	FLOW	293.	282.	277.	271.	266.	260.	255.
				TIME	17.50	17.50	17.50	17.50	17.50	17.50	17.50
HYDROGRAPH AT +	OFF1A	1.44	1	FLOW	114.	109.	107.	105.	103.	101.	98.
				TIME	16.92	16.92	16.92	16.92	16.92	16.92	16.92

```
 HYDROGRAPH AT
+                  OFF1Z       .64     1   FLOW        72.     69.     68.     67.     65.     64.     62.
                                           TIME      16.42   16.42   16.42   16.42   16.42   16.42   16.42

  7 COMBINED AT
+                    CPA     15.87     1   FLOW      1072.   1030.   1010.    989.    969.    949.    928.
                                           TIME      17.17   17.17   17.17   17.17   17.17   17.17   17.17

 HYDROGRAPH AT
+                    ON2      4.84     1   FLOW       442.    424.    416.    407.    398.    390.    381.
                                           TIME      16.67   16.67   16.67   16.67   16.67   16.67   16.67

  2 COMBINED AT
+                    CPC     20.71     1   FLOW      1449.   1392.   1364.   1336.   1308.   1280.   1252.
                                           TIME      16.92   16.92   16.92   16.92   16.92   16.92   16.92

 HYDROGRAPH AT
+                   STA1       .28     1   FLOW        49.     47.     46.     45.     44.     43.     42.
                                           TIME      16.17   16.17   16.17   16.17   16.17   16.17   16.17

  2 COMBINED AT
+                    CPD     20.99     1   FLOW      1471.   1413.   1384.   1356.   1328.   1299.   1271.
                                           TIME      16.92   16.92   16.92   16.92   16.92   16.92   16.92

 HYDROGRAPH AT
+                    ON3      3.70     1   FLOW        75.     68.     64.     61.     58.     54.     51.
                                           TIME      16.92   16.92   16.92   16.92   16.92   16.92   16.92

  3 COMBINED AT
+                    CP9    332.23     1   FLOW      7947.   7409.   6836.   6887.   6600.   6242.   6264.
                                           TIME      19.00   19.08   19.17   19.17   19.25   19.25   19.33

 HYDROGRAPH AT
+                  OFF12     19.01     1   FLOW      1404.   1356.   1331.   1307.   1283.   1259.   1235.
                                           TIME      18.00   18.00   18.00   18.00   18.00   18.00   18.00

  2 COMBINED AT
+                   CP10    351.24     1   FLOW      9013.   8413.   7798.   7832.   7511.   7135.   7122.
                                           TIME      19.00   19.08   19.17   19.17   19.25   19.25   19.33
1
                                           SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                               (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                   INTERPOLATED TO
                                                                                COMPUTATION INTERVAL
            ISTAQ    ELEMENT      DT       PEAK    TIME TO     VOLUME      DT        PEAK    TIME TO     VOLUME
                                                      PEAK                                     PEAK

                                (MIN)     (CFS)      (MIN)     (IN)     (MIN)     (CFS)     (MIN)       (IN)

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00   2605.08   1155.00       .44      5.00   2605.08   1155.00         .44

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1251E+04 EXCESS= .0000E+00 OUTFLOW= .1260E+04 BASIN STORAGE= .2576E+00 PERCENT ERROR=   -.7

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00   2546.36   1160.00       .42      5.00   2546.36   1160.00         .42

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1180E+04 EXCESS= .0000E+00 OUTFLOW= .1189E+04 BASIN STORAGE= .2127E+00 PERCENT ERROR=   -.8

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00   2336.41   1175.00       .41      5.00   2336.41   1175.00         .41

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1145E+04 EXCESS= .0000E+00 OUTFLOW= .1154E+04 BASIN STORAGE= .2121E+00 PERCENT ERROR=   -.8

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00   2440.48   1165.00       .39      5.00   2440.48   1165.00         .39

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1110E+04 EXCESS= .0000E+00 OUTFLOW= .1120E+04 BASIN STORAGE= .2565E+00 PERCENT ERROR=   -.9

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00   2304.67   1155.00       .38      5.00   2304.67   1155.00         .38

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1076E+04 EXCESS= .0000E+00 OUTFLOW= .1086E+04 BASIN STORAGE= .2319E+00 PERCENT ERROR=   -.9

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00   2202.05   1170.00       .37      5.00   2202.05   1170.00         .37

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1043E+04 EXCESS= .0000E+00 OUTFLOW= .1052E+04 BASIN STORAGE= .2146E+00 PERCENT ERROR=   -.9

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00   2339.09   1160.00       .36      5.00   2339.09   1160.00         .36

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1009E+04 EXCESS= .0000E+00 OUTFLOW= .1019E+04 BASIN STORAGE= .2141E+00 PERCENT ERROR=  -1.0

          FOR PLAN = 1  RATIO=  .00
               RT2  MANE         5.00   3969.11   1085.00       .38      5.00   3969.11   1085.00         .38

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2211E+04 EXCESS= .0000E+00 OUTFLOW= .2213E+04 BASIN STORAGE= .1342E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
```

```
          RT2  MANE         5.00   3724.34   1090.00       .36      5.00   3724.34   1090.00         .36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2079E+04 EXCESS= .0000E+00 OUTFLOW= .2082E+04 BASIN STORAGE= .1330E+00 PERCENT ERROR=   -.1

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00   3583.25   1095.00       .34      5.00   3583.25   1095.00         .34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2015E+04 EXCESS= .0000E+00 OUTFLOW= .2018E+04 BASIN STORAGE= .1244E+00 PERCENT ERROR=   -.1

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00   3520.44   1085.00       .33      5.00   3520.44   1085.00         .33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1951E+04 EXCESS= .0000E+00 OUTFLOW= .1954E+04 BASIN STORAGE= .1239E+00 PERCENT ERROR=   -.1

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00   3442.14   1085.00       .32      5.00   3442.14   1085.00         .32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1888E+04 EXCESS= .0000E+00 OUTFLOW= .1891E+04 BASIN STORAGE= .1230E+00 PERCENT ERROR=   -.2

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00   3304.83   1090.00       .31      5.00   3304.83   1090.00         .31

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1826E+04 EXCESS= .0000E+00 OUTFLOW= .1829E+04 BASIN STORAGE= .1152E+00 PERCENT ERROR=   -.2

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00   3275.82   1090.00       .30      5.00   3275.82   1090.00         .30

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1764E+04 EXCESS= .0000E+00 OUTFLOW= .1768E+04 BASIN STORAGE= .1142E+00 PERCENT ERROR=   -.2


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

APPENDIX A:

iv. 24-Hour, 5-Year Storm

```
1****************************************                                                    ****************************************
 *                                      *                                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *             JUN   1998               *                                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *           VERSION 4.1                *                                                    *          609 SECOND STREET           *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   17MAY11  TIME  08:25:07  *                                                    *           (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                                                          PAGE  1

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

                         *DIAGRAM
            1            ID  ******************************************************************
            2            ID     TECHNICAL DRAINAGE STUDY
            3            ID     HIDDEN HILLS RANCH SEGS
            4            ID     FILE_________________________7302E5.DAT
            5            ID     CONDITION____________________5-YEAR - EXISTING CONDITION
            6            ID     STORM DURATION_______________24 HOURS
            7            ID     DATE_________________________02-2011
            8            ID     DISTRIBUTION_________________SAN BERNARDINO COUNTY METHODOLOGY
            9            ID     AMC CONDITION ______________AMC I & II CN'S USED
           10            ID     MODELED BY___________________VTN NEVADA
           11            ID
           12            ID   PLUGGING IN UNIT HYDROGRAPH ORDINATES (UI'S) FROM AES SOFTWARE
           13            ID  ******************************************************************
           14            ID   DEPTH-AREA REDUCTION FACTOR (DARF) REF. FROM SB COUNTY
           15            ID   DEPTH AREA CURVES (FIG. E-4).
           16            ID
           17            ID     BASIN AREA
           18            ID    RANGE(sq.mi.)          DARF
           19            ID
           20            ID       1 -  10             1.00
           21            ID       10 - 20             0.98
           22            ID       20 - 30             0.97
           23            ID       30 - 50             0.96
           24            ID       50 - 70             0.95
           25            ID       70 - 100            0.94
           26            ID       100 -350            0.93
           27            ID
           28            ID  ******************************************************************
           29            IT       5       0       0     600
           30            IN       5       0       0
           31            IO       5       0       0
           32            JR    PREC    1.00    0.98    0.97    0.96    0.95    0.94    0.93
                         *

           33            KK   LOVEL
           34            KM   EXISTING OFFSITE BASIN
           35            PB    2.91
           36            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           37            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           38            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           39            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           40            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           41            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           42            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           43            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           44            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           45            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           46            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           47            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           48            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           49            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           50            PI  0.0060  0.0060  0.0060  0.0100  0.0095  0.0095  0.0095  0.0095  0.0095  0.0095
           51            PI  0.0095  0.0095  0.0095  0.0095  0.0095  0.0095  0.0095  0.0095  0.0095  0.0095
           52            PI  0.0095  0.0095  0.0095  0.0095  0.0095  0.0095  0.0095  0.0304  0.0255  0.0255
1                                                   HEC-1 INPUT                                                          PAGE  2

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

           53            PI  0.0255  0.0255  0.0255  0.0255  0.0255  0.0255  0.0255  0.0255  0.0255  0.0255
           54            PI  0.0255  0.0255  0.0255  0.0202  0.0210  0.0210  0.0210  0.0510  0.0520  0.0520
           55            PI  0.0522  0.1591  0.0520  0.0214  0.0210  0.0239  0.0255  0.0255  0.0255  0.0255
           56            PI  0.0255  0.0255  0.0255  0.0111  0.0095  0.0095  0.0095  0.0095  0.0095  0.0095
           57            PI  0.0095  0.0095  0.0095  0.0095  0.0095  0.0164  0.0060  0.0060  0.0060  0.0060
           58            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           59            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           60            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
           61            PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
```

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 62          PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
 63          PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060
 64          PI  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0060  0.0115
 65          BA   53.18
 66          LS            59.8
 67          KM   SB COUNTY MOUNTAIN S-GRAPH
 68          KM   UHG  (DERIVED BY AES SOFTWARE)
 69          UI  1288.4  2576.8  2576.8  2555.9  2513.6  2865.2  3887.0  3865.3  3930.4  3876.7
 70          UI  4274.5  5615.1  4839.8  6685.1  6009.3  7581.6  7827.5  9181.4  8825.1  8271.9
 71          UI  11067.  11362.  8707.8  8152.0  7154.2  7729.8  7369.2  5119.4  5701.7  5798.0
 72          UI  5519.1  4997.1  4602.0  4303.9  4547.8  4540.0  3960.4  3826.6  3421.4  3312.6
 73          UI  2498.6  2711.6  3476.7  2683.4  2125.2  2479.4  2488.3  2342.8  2319.9  2318.5
 74          UI  2319.2  2319.9  2319.2  2287.8  2001.0  1933.3  1931.8  1931.1  1810.6  1739.2
 75          UI  1739.9  1738.5  1872.6  1727.8  1655.8  1656.5  1656.5  1623.7  1470.3  1450.3
 76          UI  1448.2  1451.0  1448.2  1449.6  1449.6  1449.6  1449.6  1449.6  1442.5  1254.1
 77          UI  1158.5  1160.0  1160.0  1158.5  1159.9  1160.0  1095.8  1054.4  1054.4  1054.4
 78          UI  1055.8  1053.0  1055.8  1048.7   988.7   967.4   965.9   965.9   967.4   965.9
 79          UI   965.9   965.9   924.6   833.2   827.5   829.0   829.0   827.5   827.5   830.4
 80          UI   827.5   827.6   807.5   776.1   773.3   770.5   776.1   770.5   773.3   776.2
 81          UI   770.4   773.3   770.5   676.3   624.9   627.8   627.8   627.8   624.9   624.9
 82          UI   630.6   624.9   627.8   624.9   627.8   627.8   565.0   516.5   513.7   516.5
 83          UI   513.7   516.5   513.7   516.5   516.5   513.6   516.5   516.5   513.7   516.5
             *

 84          KK     RT1
 85          KM   ROUTE BASIN LOVEL THROUGH BASIN OFF4
 86          RD   73022   .0216   0.040            TRAP     130       4
             *

 87          KK   EAST1
 88          KM   EXISTING OFFSITE BASIN
 89          PB    1.81
 90          BA    2.70
 91          LS            74.1
 92          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 93          KM   UHG (DERIVED BY AES SOFTWARE)
 94          UI   213.2   498.2   735.5   991.3  1388.3  1666.0  1872.1  1864.9  1711.8  1263.4
 95          UI   938.7   800.7   646.0   531.1   467.8   392.5   360.3   333.5   281.5   269.8
 96          UI   238.4   229.3   204.4   186.9   177.2   149.4   150.3   150.4   134.4   119.0
 97          UI   119.0   115.9    97.8    94.7    94.7    94.6    83.2    75.3    75.3    75.3
 98          UI    75.3    71.3    52.3    49.6    49.7    49.6    49.7    49.7    49.6    49.3
 99          UI    29.9    18.4    18.4    18.3    18.4    18.4    18.3    18.4    18.4    18.3
100          UI    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4
101          UI    18.4    18.4    18.4     1.8
             *
1                                          HEC-1 INPUT                                          PAGE  3

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

102          KK    OFF4
103          KM   EXISTING OFFSITE BASIN
104          PB    1.50
105          BA   30.13
106          LS            71.5
107          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
108          KM   UHG  (DERIVED BY AES SOFTWARE)
109          UI   623.5  1246.9  1246.9  1255.3  1440.8  1688.6  1758.5  1864.9  2297.3  2493.8
110          UI  2646.2  3036.7  2750.9  3017.7  3549.3  4582.4  4064.0  4194.6  4974.1  4990.3
111          UI  5345.6  4626.8  5060.3  6287.9  5169.5  5665.2  5864.9  4987.7  5113.7  6300.2
112          UI  5103.9  4987.6  4495.2  3748.4  3740.8  3732.3  3264.5  2945.3  2743.5  2560.3
113          UI  2305.5  2371.2  2491.2  2638.2  1809.0  1648.9  2578.8  1480.9  1209.7  1495.8
114          UI  1496.5  2111.9  1461.4  1163.9  1364.5  1292.4  1156.4  1156.0  1111.7  1068.7
115          UI  1068.7  1069.1  1053.8  1001.2   998.4   997.0   997.7   879.8   748.4   747.7
116          UI   816.6   933.1   917.4   715.8   661.1   659.7   659.7   661.1   813.8   825.1
117          UI   611.4   605.7   605.7   605.0   605.7   604.3   574.5   545.4   535.4   534.0
118          UI   534.0   535.4   532.6   522.6   431.8   416.1   420.4   438.9   440.3   440.3
119          UI   440.3   438.9   441.7   438.8   440.3   440.3   440.3   387.7   348.0   348.0
120          UI   347.9   348.0   347.9   348.0   348.0   349.4   346.5   347.9   348.0   348.0
121          UI   333.7   281.2   275.5   278.4   275.5   278.4   276.9   276.9   276.9   276.9
122          UI   276.9   276.9   278.4   275.5   278.4   275.5   278.4   258.5   220.1   220.1
123          UI   218.7   221.5   218.7   221.6   218.7   221.6   218.7   220.1   221.6   218.7
             *

124          KK     CP1
125          KM   COMBINE EAST1, RT1, OFF4
126          HC       3
             *

127          KK    OFF5
128          KM   EXISTING OFFSITE BASIN
129          PB    1.69
130          BA   50.58
131          LS            56.1
132          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
133          KM   UHG (DERIVED BY AES SOFTWARE)
134          UI  1284.3  2568.6  2568.6  2810.4  3426.7  3652.9  4109.0  5058.2  5384.8  6093.4
135          UI  5847.4  6685.7  8762.2  8583.9  9060.6  10274.  10771.  9778.3  10806.  12345.
136          UI  10740.  12407.  10293.  11251.  11907.  10274.  9381.3  7741.5  7705.9  7230.7
137          UI  6125.6  5664.5  5077.3  4785.2  5081.2  5302.4  3574.0  4199.5  4229.1  2393.3
138          UI  3073.7  3409.8  3921.7  2397.2  2774.1  2570.1  2381.7  2331.2  2207.8  2202.0
139          UI  2199.5  2101.9  2054.3  2056.3  2016.5  1639.6  1541.5  1677.5  1921.3  1741.6
140          UI  1370.5  1358.9  1360.8  1427.8  1775.6  1343.4  1248.1  1247.2  1247.2  1247.2
141          UI  1189.9  1121.9  1101.5  1100.5  1100.5  1100.5  1025.7   862.5   860.6   901.4
142          UI   907.2   905.3   907.2   907.2   905.3   907.2   907.2   835.3   718.8   714.9
143          UI   718.8   716.8   716.8   716.8   716.8   714.9   718.8   716.8   652.7   569.2
144          UI   573.1   569.2   571.1   571.1   571.1   569.2   573.1   569.2   571.1   571.1
145          UI   571.2   567.2   487.6   456.5   450.7   454.6   452.6   452.6   454.6   452.6
146          UI   452.6   454.6   454.6   450.7   454.6   450.7   454.6   454.6   450.7   388.5
147          UI   295.3   303.0   295.3   303.0   295.3   303.0   299.2   299.2   299.2   299.2
148          UI   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2
             *
1                                          HEC-1 INPUT                                          PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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BSE Document Control Number: HYD200-R1

```
149          KK     CP2
150          KM   COMBINE CP1, OFF5
151          HC       2
             *

152          KK   TROUT
153          KM   EXISTING OFFSITE BASIN
154          PB    2.60
155          BA  109.75
156          LS            60.9
157          KM   SB COUNTY MOUNTAIN S-GRAPH
158          KM   UHG (DERIVED BY AES SOFTWARE)
159          UI  3727.7  7455.5  7407.0  7367.6 10182.8 11217.8 11364.5 12217.2 15164.5 17361.9
160          UI  18316.  22194.  25529.  24830. 28793.8 31828.5 24549.8 21291.4 22291.6 17378.1
161          UI  16154.  16506.  14701.  13038. 12864.1 12900.8 11277.4 10147.9  9115.5  7130.6
162          UI  9742.0  6808.1  6973.0  7077.5  6716.7  6711.0  6709.9  6709.9  6381.2  5620.8
163          UI  5592.5  5444.4  5051.6  5032.8  5248.0  5018.0  4791.1  4793.3  4553.8  4197.7
164          UI  4194.6  4192.6  4194.6  4194.6  4192.5  4192.6  3934.2  3371.3  3356.5  3356.6
165          UI  3352.3  3274.7  3062.5  3049.9  3052.0  3043.6  3049.8  2886.1  2793.6  2797.8
166          UI  2795.8  2795.7  2793.6  2566.7  2396.6  2394.5  2398.7  2394.5  2394.5  2398.7
167          UI  2318.9  2234.9  2239.1  2234.9  2239.1  2234.9  2234.8  2209.7  1886.2  1814.8
168          UI  1814.8  1810.6  1814.8  1814.8  1810.6  1819.0  1806.4  1651.0  1487.1  1491.3
169          UI  1491.3  1491.3  1491.3  1491.3  1491.3  1491.3  1487.1  1495.5  1453.6  1331.7
170          UI  1310.7  1319.1  1314.9  1314.9  1314.9  1314.9  1319.1  1310.7  1323.3  1310.7
171          UI  1314.9  1285.4  1180.4  1176.3  1176.2  1176.3  1180.4  1176.2  1176.3  1176.2
172          UI  1184.7  1176.2  1176.3  1176.2  1176.2  1176.3  1075.5  1033.4  1050.2  1033.4
173          UI  1041.9  1041.8  1041.8  1033.4  1050.2  1033.5  1041.8  1033.4  1050.2  1033.5
             *

174          KK     RT2
175          KM   ROUTE BASIN TROUT THROUGH BASIN OFF2
176          RD   54120   .0170   0.040            TRAP      50       4
             *

177          KK    OFF2
178          KM   EXISTING OFFSITE BASIN
179          PB    1.50
180          BA   26.22
181          LS            72.4
182          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
183          KM   UHG (DERIVED BY AES SOFTWARE)
184          UI   594.1  1188.1  1188.1  1228.7  1468.6  1654.7  1725.4  2014.3  2372.2  2473.6
185          UI  2883.7  2639.1  2930.3  3567.7  4429.5  3682.9  4497.4  4752.4  5038.2  4469.6
186          UI  4807.6  5903.1  4896.3  5644.5  5213.0  4752.4  5467.4  5390.2  4752.5  4476.0
187          UI  3624.3  3564.2  3539.1  3043.3  2759.2  2580.0  2297.6  2210.5  2346.0  2483.1
188          UI  1921.6  1548.0  2397.1  1330.0  1239.7  1425.6  1568.8  1925.0  1108.9  1205.6
189          UI  1300.1  1101.8  1101.5  1055.6  1018.6  1018.1  1018.1   980.3   949.8   950.9
190          UI   950.4   873.7   718.0   712.4   794.7   891.2   830.2   642.4   629.4   628.9
191          UI   628.9   721.4   810.5   591.1   577.0   577.0   577.0   577.6   565.7   531.3
192          UI   511.6   509.9   508.7   509.3   508.8   489.6   403.8   396.0   408.4   419.6
193          UI   419.6   419.6   418.5   419.6   419.6   419.6   418.5   414.0   348.6   331.6
194          UI   331.7   331.6   331.6   331.6   331.6   330.5   332.8   331.6   330.5   331.6
195          UI   289.9   264.0   264.0   264.0   264.0   264.0   264.0   264.0   264.0   264.0
196          UI   264.0   265.1   262.8   264.0   265.1   248.2   210.9   209.8   208.7   210.9
1                                          HEC-1 INPUT                                                    PAGE  5

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197          UI   208.7   209.8   211.0   207.6   212.1   207.6   209.8   209.8   212.1   207.6
198          UI   209.8   209.8   209.8   207.6   205.3   151.2   137.6   137.6   137.6   139.9
             *

199          KK    OFF3
200          KM   EXISTING OFFSITE BASIN
201          PB    1.50
202          BA    6.13
203          LS            70.2
204          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
205          KM   UHG (DERIVED BY AES SOFTWARE)
206          UI   195.2   390.4   403.0   497.2   557.3   669.3   784.1   917.6   892.5  1094.2
207          UI  1381.9  1318.5  1557.8  1609.2  1530.3  1846.2  1697.9  1757.9  1610.5  1828.4
208          UI  1559.8  1321.1  1171.3  1115.3   928.6   835.5   735.1   763.8   772.1   535.8
209          UI   702.1   394.6   464.5   577.5   439.4   407.4   387.5   360.8   341.3   334.7
210          UI   332.4   315.5   312.4   305.3   247.2   239.0   282.1   267.0   208.8   206.7
211          UI   211.4   259.7   201.6   189.6   189.6   189.2   178.6   168.6   167.4   167.3
212          UI   166.6   142.3   130.6   136.3   137.8   137.8   138.0   137.8   137.6   134.8
213          UI   112.6   109.2   108.8   108.8   109.2   108.8   109.0   109.0   102.2    87.6
214          UI    86.6    86.8    86.6    86.8    86.6    87.0    86.6    86.6    86.8    80.6
215          UI    69.4    68.8    69.2    68.6    69.0    69.0    68.8    69.2    68.8    68.8
216          UI    68.8    69.2    68.4    56.4    45.9    45.5    45.1    45.9    45.5    45.5
217          UI    45.1    45.9    45.5    45.1    45.9    45.5    45.5    45.5    45.5    45.1
218          UI    45.9    45.5    45.5    44.7    27.1    16.9    16.9    16.5    17.3    16.2
219          UI    17.3    16.5    17.3    16.2    17.3    16.5    16.9    16.9    16.5    17.3
220          UI    16.2    17.3    16.5    17.3    16.2    17.3    16.5    16.9    16.9    16.9
             *

221          KK   OFF1G
222          KM   ***AMC II CN USED***
223          PB    1.50
224          BA    1.74
225          LS            68.3
226          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
227          KM   UHG (DERIVED BY AES SOFTWARE)
228          UI    92.7   191.7   245.5   319.7   408.3   467.3   623.5   709.8   741.1   831.9
229          UI   824.7   809.5   737.1   575.5   486.5   389.1   361.6   313.2   278.7   214.5
230          UI   244.2   190.1   172.5   160.6   155.5   148.6   130.1   119.8   124.8    98.9
231          UI   108.1   101.7    90.1    88.2    80.8    79.5    75.0    63.3    65.2    65.4
232          UI    65.4    63.7    53.4    51.8    51.7    51.7    51.3    43.8    41.2    41.2
233          UI    41.2    41.2    41.2    38.7    32.9    32.7    32.7    32.7    32.8    32.8
234          UI    32.6    31.1    22.8    21.6    21.6    21.6    21.6    21.6    21.6    21.7
235          UI    21.6    21.6    21.6    21.6    13.5     8.0     8.0     8.0     8.0     8.0
236          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0
237          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0
238          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     1.5
             *
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 239          KK     CP3
 240          KM   COMBINE RT2, OFF2, OFF3, OFF1G
 241          HC       4
              *
1                                   HEC-1 INPUT                                                    PAGE  6

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


 242          KK     ON1
 243          KM   EXISTING ONSITE BASIN
 244          PB    1.50
 245          BA    2.35
 246          LS           68.3
 247          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 248          KM   UHG (DERIVED BY AES SOFTWARE)
 249          UI   214.0   527.6   816.5  1143.9  1573.1  1805.0  1885.7  1688.7  1211.5   883.5
 250          UI   739.8   552.6   498.0   398.8   359.5   322.3   282.5   244.5   242.9   206.3
 251          UI   189.0   174.9   149.0   150.4   145.7   122.1   118.9   116.1    97.9    94.7
 252          UI    94.7    90.8    76.5    75.2    75.2    75.2    67.3    50.1    49.7    49.6
 253          UI    49.7    49.6    49.7    46.5    23.1    18.3    18.4    18.4    18.3    18.4
 254          UI    18.3    18.4    18.4    18.3    18.3    18.3    18.3    18.3    18.3    18.3
 255          UI    18.3    18.3    18.3    17.1
              *

 256          KK     CP4
 257          KM   COMBINE CP3, ON1
 258          HC       2
              *

 259          KK    OFF7
 260          KM   EXISTING OFFSITE BASIN
 261          PB    1.50
 262          BA    1.77
 263          LS           54.8
 264          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 265          KM   UHG (DERIVED BY AES SOFTWARE)
 266          UI   175.4   449.3   703.8  1032.4  1358.0  1520.5  1497.1  1131.2   788.1   636.9
 267          UI   464.3   409.7   323.9   290.9   252.3   226.6   195.8   183.2   161.5   147.8
 268          UI   125.6   122.4   119.6   100.4    97.0    92.6    78.4    77.2    77.1    67.5
 269          UI    61.4    61.3    61.4    56.8    41.7    40.5    40.5    40.5    40.5    40.5
 270          UI    30.3    15.1    15.0    14.9    15.0    15.0    15.0    15.0    15.0    14.9
 271          UI    14.9    14.9    14.9    14.9    14.9    14.9    14.9    14.9    13.9
              *

 272          KK     CP5
 273          KM   COMBINE CP2, CP4, OFF7
 274          HC       3
              *

 275          KK    OFF8
 276          KM   EXISTING OFFSITE BASIN
 277          PB    1.50
 278          BA   10.42
 279          LS           54.0
 280          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 281          KM   UHG (DERIVED BY AES SOFTWARE)
 282          UI   439.2   880.7  1036.2  1255.9  1605.2  1930.2  2058.0  2696.5  2985.6  3471.6
 283          UI  3506.9  3850.0  3930.4  3806.8  3927.7  3610.8  2887.9  2591.7  2162.0  1834.7
 284          UI  1671.2  1714.6  1345.1  1238.5   991.6  1255.4   916.1   897.4   805.3   759.4
 285          UI   748.8   711.7   701.6   597.3   548.9   634.9   505.7   465.0   517.3   506.6
 286          UI   426.8   426.6   412.2   380.9   376.5   376.0   326.5   297.6   309.1   310.1
 287          UI   309.9   310.1   301.2   252.7   244.8   245.3   245.0   245.3   244.8   223.1
1                                   HEC-1 INPUT                                                    PAGE  7

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

 288          UI   195.4   195.2   194.9   195.4   195.2   195.2   195.2   185.8   157.1   155.2
 289          UI   154.9   154.9   155.2   155.4   154.2   155.2   155.2   152.8   116.1   102.2
 290          UI   102.2   103.1   102.2   102.2   102.2   102.6   102.2   102.2   102.6   102.2
 291          UI   102.6   101.7   103.1    93.5    45.3    37.6    38.1    37.6    38.1    37.6
 292          UI    37.6    38.6    37.1    38.6    37.1    38.1    38.1    37.1    39.0    36.6
 293          UI    38.6    37.6    37.6    38.1    38.1    37.6    37.6    37.6    37.6    37.6
 294          UI    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6
 295          UI    37.6    37.6    37.6    37.6    37.6    37.6    28.0
              *

 296          KK     CP6
 297          KM   COMBINE CP5, OFF8
 298          HC       2
              *

 299          KK    OFF9
 300          KM   EXISTING OFFSITE BASIN
 301          PB    1.50
 302          BA    0.91
 303          LS           51.0
 304          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 305          KM   UHG (DERIVED BY AES SOFTWARE)
 306          UI   136.1   412.2   730.3  1040.9  1103.2   793.3   506.8   352.2   271.1   216.1
 307          UI   178.1   150.4   131.1   112.0    93.7    89.6    76.0    70.7    60.1    57.0
 308          UI    52.4    45.4    45.3    40.7    30.3    29.9    29.9    29.9    19.3    11.0
 309          UI    11.0    11.1    11.0    11.0    11.1    11.0    11.0    11.0    11.0    11.0
 310          UI    11.0     2.0
              *

 311          KK     CP7
 312          KM   COMBINE CP6, OFF9
 313          HC       2
              *

 314          KK   OFF11
 315          KM   EXISTING OFFSITE BASIN
 316          PB    1.50
 317          BA   11.66
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```
 318          LS            59.5
 319          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 320          KM   UHG (DERIVED BY AES SOFTWARE)
 321          UI   345.4   690.8   701.2   840.1   968.5  1078.1  1347.5  1503.6  1587.7  1668.7
 322          UI  2150.0  2376.1  2432.3  2765.9  2856.6  2674.6  3280.7  2929.6  3272.5  2767.5
 323          UI  3211.6  2917.1  2652.5  2137.4  2072.5  1884.3  1602.2  1457.2  1291.7  1351.8
 324          UI  1397.6   943.8  1266.5   783.4   783.5   890.7  1024.7   647.9   766.4   644.6
 325          UI   634.8   598.5   592.1   588.4   558.8   552.8   550.5   461.8   414.4   466.0
 326          UI   513.1   408.2   366.0   365.6   388.8   460.3   345.3   335.5   335.7   335.5
 327          UI   320.3   300.5   296.1   296.1   296.1   281.9   233.9   233.5   243.5   243.5
 328          UI   243.9   243.9   244.2   243.5   241.6   205.5   192.8   193.2   192.4   192.8
 329          UI   192.8   193.2   192.4   192.8   175.9   153.6   153.6   153.2   154.0   153.2
 330          UI   153.6   153.6   153.2   154.0   152.8   153.2   132.9   122.5   121.4   122.1
 331          UI   121.7   122.1   121.7   122.1   121.4   122.9   121.4   121.4   122.9   121.4
 332          UI   119.1    89.1    80.6    80.6    80.6    79.9    81.4    79.9    80.6    79.9
 333          UI    81.4    79.9    80.6    80.6    80.6    79.9    80.6    80.6    80.6    80.6
 334          UI    79.9    80.6    80.6    58.4    29.2    30.7    30.7    28.4    30.0    30.0
1                                            HEC-1 INPUT                                          PAGE  8

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

 335          UI    30.0    30.0    29.2    30.0    30.0    29.2    30.0    30.7    28.4    30.7
              *

 336          KK     CP8
 337          KM   COMBINE CP7, OFF11
 338          HC       2
              *

 339          KK   OFF1F
 340          KM   EXISTING OFFSITE BASIN
 341          KM   ***AMC II CN USED***
 342          PB    1.50
 343          BA    2.28
 344          LS            83.5
 345          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 346          KM   UHG (DERIVED BY AES SOFTWARE)
 347          UI    87.8   175.5   196.8   243.1   289.7   359.8   404.6   434.2   588.5   598.9
 348          UI   708.0   696.8   767.5   779.7   790.0   750.4   771.7   655.0   532.9   499.2
 349          UI   410.5   356.0   334.4   347.5   258.6   279.5   187.1   237.9   214.8   182.6
 350          UI   169.3   158.7   150.6   149.3   141.8   140.4   124.4   106.4   124.8   114.6
 351          UI    93.0    93.1   111.5    93.0    85.2    85.3    82.7    76.3    75.3    75.2
 352          UI    71.1    59.3    60.9    62.0    61.9    62.0    61.9    60.4    50.6    49.0
 353          UI    49.0    49.0    49.0    49.0    48.6    41.5    39.0    39.0    39.0    39.0
 354          UI    39.0    39.0    39.1    38.7    33.3    31.0    31.0    31.0    31.0    30.9
 355          UI    31.0    30.9    31.0    31.0    31.1    27.3    20.5    20.5    20.5    20.5
 356          UI    20.5    20.5    20.3    20.6    20.4    20.5    20.5    20.5    20.5    20.5
 357          UI    20.5    20.3    18.4     8.8     7.5     7.6     7.7     7.2     7.7     7.5
 358          UI     7.6     7.4     7.7     7.4     7.6     7.5     7.6     7.5     7.5     7.6
 359          UI     7.5     7.5     7.6     7.6     7.4     7.6     7.6     7.6     7.6     7.6
 360          UI     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6
 361          UI     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     3.3
              *

 362          KK   OFF1E
 363          KM   EXISTING OFFSITE BASIN
 364          KM   ***AMC II USED***
 365          PB    1.50
 366          BA    4.74
 367          LS            84.9
 368          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 369          KM   UHG (DERIVED BY AES SOFTWARE)
 370          UI   132.0   264.0   265.2   307.8   363.7   388.7   486.1   530.8   630.5   593.2
 371          UI   684.0   906.1   866.1   981.3  1062.8  1084.5  1021.7  1259.3  1108.4  1272.1
 372          UI  1071.4  1163.2  1193.2  1053.9   893.9   791.9   782.8   667.2   595.3   539.7
 373          UI   490.9   520.5   534.7   353.1   484.1   322.5   287.3   316.7   423.8   268.8
 374          UI   275.1   269.2   244.8   237.7   226.4   226.2   223.3   212.1   211.2   210.5
 375          UI   177.2   158.4   172.1   197.4   170.1   139.7   139.7   139.8   170.7   155.5
 376          UI   128.4   128.2   128.2   127.9   121.3   114.3   113.1   113.2   113.3   110.4
 377          UI    91.9    88.1    92.3    93.1    93.3    93.1    93.1    93.1    93.3    90.9
 378          UI    76.3    73.5    73.8    73.7    73.7    73.7    73.7    73.7    73.7    71.7
 379          UI    60.7    58.5    58.7    58.5    58.9    58.5    58.7    58.5    58.9    58.5
 380          UI    58.7    58.7    52.5    46.7    46.7    46.6    46.4    46.7    46.6    46.7
 381          UI    46.4    46.6    46.6    46.9    46.2    46.9    46.6    45.9    35.6    30.6
 382          UI    30.6    30.9    30.6    30.9    30.6    30.6    31.3    30.6    30.6    30.9
 383          UI    30.6    30.9    30.9    30.3    31.3    30.3    31.3    30.3    31.3    30.3
1                                            HEC-1 INPUT                                          PAGE  9

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

 384          UI    30.9    29.6    16.0    10.6    12.0    11.0    11.3    11.6    11.3    11.3
              *

 385          KK   OFF1D
 386          KM   EXISTING OFFSITE BASIN
 387          KM   ***AMC II CN USED***
 388          PB    1.50
 389          BA    1.15
 390          LS            83.5
 391          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 392          KM   UHG (DERIVED BY AES SOFTWARE)
 393          UI    64.7   135.4   175.3   234.0   293.0   357.5   446.1   516.1   542.1   581.7
 394          UI   561.2   555.9   432.5   363.0   285.0   250.1   229.3   196.4   150.3   168.0
 395          UI   132.7   118.6   111.5   107.0   102.2    84.0    89.3    76.7    69.7    78.0
 396          UI    63.3    62.4    57.7    55.4    53.6    44.7    45.3    45.7    45.7    43.9
 397          UI    36.8    36.1    36.1    36.1    34.4    29.2    28.7    28.7    28.7    28.7
 398          UI    28.1    23.7    22.8    22.8    22.8    22.8    22.8    22.8    21.2    15.5
 399          UI    15.0    15.1    15.0    15.1    15.0    15.1    15.1    15.1    15.1    15.1
 400          UI    11.8     5.7     5.5     5.6     5.6     5.6     5.5     5.6     5.6     5.5
 401          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 402          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 403          UI     5.6     5.6     3.9
              *

 404          KK   OFF1C
 405          KM   EXISTING OFFSITE BASIN
```

```
 406          KM   ***AMC II CN USED***
 407          PB    1.50
 408          BA    1.25
 409          LS            83.5
 410          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 411          KM   UHG (DERIVED BY AES SOFTWARE)
 412          UI    65.2   134.2   171.2   220.5   283.3   319.1   431.6   485.1   525.2   572.5
 413          UI   586.9   563.0   547.7   424.9   365.8   290.1   251.1   244.2   205.3   152.8
 414          UI   176.3   142.5   128.7   116.1   111.4   106.1   101.7    82.6    91.1    77.6
 415          UI    69.3    80.0    65.6    63.3    60.4    56.2    55.9    50.2    44.4    46.0
 416          UI    46.0    46.0    44.0    37.0    36.4    36.4    36.4    36.0    30.6    29.0
 417          UI    29.0    29.0    29.0    29.0    27.7    23.3    23.0    23.0    23.0    23.1
 418          UI    23.0    23.0    22.7    17.2    15.2    15.1    15.2    15.2    15.2    15.1
 419          UI    15.2    15.2    15.1    15.2    15.1    13.7     6.6     5.6     5.6     5.6
 420          UI     5.5     5.7     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 421          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 422          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 423          UI     2.4
              *

 424          KK   OFF1B
 425          KM   EXISTING OFFSITE BASIN
 426          KM   ***AMC II CN USED***
 427          PB    1.50
 428          BA    4.37
 429          LS            84.4
 430          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 431          KM   UHG (DERIVED BY AES SOFTWARE)
 432          UI   126.2   252.3   254.9   301.7   351.3   383.2   483.0   531.3   588.4   588.4
1                                          HEC-1 INPUT                                                PAGE 10

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

 433          UI   718.9   906.2   826.3   998.7  1047.0   971.5  1114.2  1129.8  1162.1  1081.9
 434          UI  1058.9  1185.1  1009.2   886.7   757.0   749.9   641.2   568.7   511.6   470.9
 435          UI   501.2   492.3   333.7   472.1   259.4   293.2   335.2   363.1   237.1   281.0
 436          UI   235.1   232.2   219.1   216.3   215.6   205.2   201.9   201.8   178.6   151.5
 437          UI   161.3   187.8   164.8   133.6   133.6   134.1   166.7   141.3   122.5   122.6
 438          UI   122.5   121.2   113.2   108.5   108.1   108.1   108.1    97.0    84.1    86.2
 439          UI    89.0    89.2    89.0    89.0    89.2    88.9    88.0    74.3    70.3    70.6
 440          UI    70.3    70.4    70.6    70.3    70.6    70.3    66.4    56.5    56.1    55.9
 441          UI    56.2    55.9    55.9    56.1    56.2    55.9    56.2    55.9    53.4    45.0
 442          UI    44.6    44.4    44.6    44.4    44.6    44.7    44.3    44.6    44.3    44.9
 443          UI    44.3    44.9    44.3    42.5    31.9    28.9    29.5    29.5    29.2    29.2
 444          UI    29.8    28.9    29.8    28.9    29.5    29.5    29.5    29.2    29.5    29.2
 445          UI    29.5    29.2    29.5    29.5    29.2    29.2    27.2    13.9    10.6    10.9
 446          UI    10.9    10.6    11.2    10.6    10.9    11.2    10.3    10.9    10.9    11.2
              *

 447          KK   OFF1A
 448          KM   EXISTING OFFSITE BASIN
 449          KM   ***AMC II CN USED***
 450          PB    1.50
 451          BA    1.44
 452          LS            83.5
 453          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 454          KM   UHG (DERIVED BY AES SOFTWARE)
 455          UI    65.5   132.2   160.7   196.7   255.3   300.0   334.6   444.7   482.4   532.1
 456          UI   553.1   588.5   571.9   583.6   529.9   418.5   375.3   304.6   257.3   259.8
 457          UI   213.4   210.2   143.9   180.4   144.9   134.2   119.9   113.1   110.9   105.4
 458          UI   101.8    82.2    89.6    85.9    69.5    73.1    79.5    63.7    63.6    61.3
 459          UI    56.7    56.2    55.1    45.8    45.3    46.2    46.3    46.2    45.8    38.9
 460          UI    36.6    36.6    36.6    36.6    36.4    31.5    29.1    29.2    29.1    29.1
 461          UI    29.1    29.1    28.3    23.7    23.2    23.1    23.2    23.2    23.1    23.2
 462          UI    23.2    23.2    19.9    15.5    15.2    15.2    15.3    15.3    15.2    15.3
 463          UI    15.3    15.2    15.3    15.2    15.3    15.3    14.9     8.2     5.8     5.6
 464          UI     5.6     5.8     5.6     5.7     5.6     5.6     5.6     5.7     5.6     5.7
 465          UI     5.6     5.6     5.6     5.7     5.6     5.7     5.6     5.6     5.6     5.6
 466          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 467          UI     5.6     5.6     5.6     5.6     5.6     5.6     4.7
              *

 468          KK   OFF1Z
 469          KM   EXISTING OFFSITE BASIN
 470          KM   ***AMC II CN USED***
 471          PB    1.50
 472          BA    0.64
 473          LS            83.5
 474          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 475          KM   UHG (DERIVED BY AES SOFTWARE)
 476          UI    62.7   159.5   249.3   362.8   480.8   544.5   538.3   421.2   292.8   232.6
 477          UI   173.8   152.2   118.3   105.6    94.1    82.3    71.1    68.4    59.1    54.0
 478          UI    47.4    43.5    43.8    38.0    34.7    34.4    29.4    27.6    27.6    26.3
 479          UI    22.2    22.0    22.0    21.8    17.1    14.5    14.5    14.5    14.5    14.5
 480          UI    14.1     7.5     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4
 481          UI     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4     4.0
              *
1                                          HEC-1 INPUT                                                PAGE 11

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

 482          KK     CPA
 483          KM   COMBINE OFF1F, OFF1E, OFF1D, OFF1C, OFF1B, OFF1A, OFF1Z
 484          HC       7
              *

 485          KK     ON2
 486          KM   EXISTING ONSITE BASIN
 487          KM   ***AMC II CN USED***
 488          PB    1.50
 489          BA    4.84
 490          LS            83.5
 491          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 492          KM   UHG (DERIVED BY AES SOFTWARE)
 493          UI   301.4   649.4   867.9  1199.3  1430.8  1952.6  2298.9  2475.8  2703.6  2626.1
```

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494          UI  2535.2  1940.8  1574.6  1230.4  1154.3   950.4   725.9   800.5   617.6   551.3
495          UI   516.7   490.9   449.7   388.0   397.6   321.0   360.9   300.2   289.8   265.9
496          UI   258.3   233.4   207.0   212.7   212.7   207.7   174.2   168.3   168.1   168.3
497          UI   150.2   133.9   133.9   133.9   134.0   131.3   110.8   106.4   106.4   106.2
498          UI   106.4   106.5   103.5    77.0    70.3    70.2    70.3    70.3    70.0    70.5
499          UI    70.0    70.5    70.0    58.8    27.6    25.9    25.9    26.1    25.9    26.1
500          UI    25.8    26.2    26.1    25.8    25.8    26.2    25.8    26.2    25.8    25.8
501          UI    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8
502          UI    25.8    25.8    19.1
             *

503          KK     CPC
504          KM   COMBINE CPA, ON2
505          HC       2
             *

506          KK    STA1
507          KM   EXISTING OFFSITE BASIN
508          KM   (TEMPORARY STAGING AREA)
509          KM   ***AMC II CN USED***
510          PB    1.50
511          BA    0.28
512          LS           83.5
513          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
514          KM   UHG (DERIVED BY AES SOFTWARE)
515          UI    84.5   337.7   558.4   399.0   202.2   125.8    90.6    68.9    52.9    44.1
516          UI    35.9    30.2    25.5    23.0    16.9    15.8    13.2     6.2     5.8     5.8
517          UI     5.8     5.8     5.8     5.8     1.2
             *

518          KK     CPD
519          KM   COMBINE CPC, STA1
520          HC       2
             *
1                                          HEC-1 INPUT                                          PAGE 12

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

521          KK     ON3
522          KM   EXISTING ONSITE BASIN
523          PB    1.50
524          BA    3.70
525          LS           69.0
526          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
527          KM   UHG (DERIVED BY AES SOFTWARE)
528          UI   224.3   469.6   608.3   813.3  1016.2  1244.3  1549.1  1791.1  1883.2  2016.7
529          UI  1946.0  1920.6  1490.4  1251.8   981.8   868.4   787.3   675.4   525.7   573.8
530          UI   460.6   409.1   385.9   369.6   353.0   288.9   311.2   261.8   243.5   268.4
531          UI   218.5   215.9   198.9   192.2   184.1   154.1   157.6   158.3   158.3   150.3
532          UI   126.8   125.1   125.1   125.1   117.8   100.4    99.7    99.7    99.6    99.7
533          UI    96.3    80.9    79.2    79.2    79.2    79.0    79.4    79.0    70.8    53.0
534          UI    52.2    52.5    52.0    52.5    52.0    52.5    52.2    52.2    52.3    52.2
535          UI    36.6    19.1    19.6    19.1    19.6    19.1    19.5    19.3    19.2    19.3
536          UI    19.5    19.2    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3
537          UI    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3
538          UI    19.3    19.3     8.5
             *

539          KK     CP9
540          KM   COMBINE CP8, CPD, ON3
541          HC       3
             *

542          KK   OFF12
543          KM   EXISTING OFFSITE BASIN
544          KM   ***AMC II CN USED***
545          PB    1.50
546          BA   19.01
547          LS           85.9
548          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
549          KM   UHG (DERIVED BY AES SOFTWARE)
550          UI   418.5   837.0   837.0   856.6  1012.7  1158.7  1201.8  1349.6  1651.8  1674.9
551          UI  2044.7  1840.0  1988.6  2310.5  2982.8  2775.2  2837.2  3342.3  3398.6  3462.9
552          UI  3182.9  3657.2  4020.1  3406.4  4184.0  3435.1  3349.5  4078.6  3597.4  3348.1
553          UI  3068.9  2525.0  2511.1  2488.4  2131.7  1945.3  1821.6  1629.8  1552.2  1644.0
554          UI  1726.5  1499.6  1025.5  1612.2  1201.4   770.9  1001.5  1004.3  1425.6   915.8
555          UI   781.0   963.6   805.3   776.2   769.0   724.8   717.6   717.2   713.9   678.5
556          UI   669.6   669.6   669.6   586.3   502.4   502.4   573.2   627.5   579.9   450.2
557          UI   443.1   443.0   443.5   493.2   585.8   427.0   406.8   406.4   406.4   406.8
558          UI   404.3   381.1   363.9   358.8   358.4   358.8   358.8   358.8   311.7   278.8
559          UI   280.5   294.0   294.8   295.6   294.8   295.6   295.6   295.7   294.8   295.6
560          UI   288.9   240.9   233.3   234.2   233.3   233.3   234.2   233.3   233.3   234.2
561          UI   233.3   233.3   234.2   213.9   187.0   186.2   185.3   187.0   185.3   186.2
562          UI   186.2   186.2   185.3   186.2   187.0   185.3   186.2   185.3   185.3   165.9
563          UI   147.4   148.3   147.4   147.4   147.4   148.2   148.3   146.6   149.1   145.7
564          UI   149.9   146.6   146.6   149.9   146.6   148.2   146.6   148.2   148.2   114.5
             *
1                                          HEC-1 INPUT                                          PAGE 13

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

565          KK    CP10
566          KM   COMBINE CP9, OFF12
567          HC       2
             *
568          ZZ
1
             SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    33      LOVEL
```

```
             V
             V
 84        RT1
             .
             .
 87          .       EAST1
             .           .
             .           .
102          .           .        OFF4
             .           .           .
             .           .           .
124        CP1.......................
             .
             .
127          .        OFF5
             .           .
             .           .
149        CP2............
             .
             .
152          .       TROUT
             .          V
             .          V
174          .         RT2
             .           .
             .           .
177          .           .        OFF2
             .           .           .
             .           .           .
199          .           .           .        OFF3
             .           .           .           .
             .           .           .           .
221          .           .           .           .       OFF1G
             .           .           .           .           .
             .           .           .           .           .
239          .         CP3..................................
             .           .
             .           .
242          .           .         ON1
             .           .           .
             .           .           .
256          .         CP4............
             .           .
             .           .
259          .           .        OFF7
             .           .           .
             .           .           .
272        CP5.......................
             .
             .
275          .        OFF8
             .           .
             .           .
296        CP6............
             .
             .
299          .        OFF9
             .           .
             .           .
311        CP7............
             .
             .
314          .       OFF11
             .           .
             .           .
336        CP8............
             .
             .
339          .       OFF1F
             .           .
             .           .
362          .           .       OFF1E
             .           .           .
             .           .           .
385          .           .           .       OFF1D
             .           .           .           .
             .           .           .           .
404          .           .           .           .       OFF1C
             .           .           .           .           .
             .           .           .           .           .
424          .           .           .           .           .       OFF1B
             .           .           .           .           .           .
             .           .           .           .           .           .
447          .           .           .           .           .           .       OFF1A
             .           .           .           .           .           .           .
             .           .           .           .           .           .           .
468          .           .           .           .           .           .           .       OFF1Z
             .           .           .           .           .           .           .           .
             .           .           .           .           .           .           .           .
482          .         CPA.......................................................................
             .           .
             .           .
485          .           .         ON2
             .           .           .
             .           .           .
503          .         CPC............
             .           .
             .           .
506          .           .        STA1
             .           .           .
             .           .           .
518          .         CPD............
             .           .
             .           .
521          .           .         ON3
             .           .           .
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                .          .          .
   539        CP9.......................
                .
                .
   542          .       OFF12
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                .          .
   565       CP10............

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                                    ****************************************
 *                                      *                                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                                    *          609 SECOND STREET           *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   17MAY11  TIME  08:25:07  *                                                    *           (916) 756-1104             *
 *                                      *                                                    *                                      *
 ****************************************                                                    ****************************************


                          ******************************************************************
                             TECHNICAL DRAINAGE STUDY
                             HIDDEN HILLS RANCH SEGS
                             FILE_________________________7302E5.DAT
                             CONDITION____________________5-YEAR - EXISTING CONDITION
                             STORM DURATION_______________24 HOURS
                             DATE_________________________02-2011
                             DISTRIBUTION_________________SAN BERNARDINO COUNTY METHODOLOGY
                             AMC CONDITION ________________AMC I & II CN'S USED
                             MODELED BY___________________VTN NEVADA

                           PLUGGING IN UNIT HYDROGRAPH ORDINATES (UI'S) FROM AES SOFTWARE
                          ******************************************************************
                           DEPTH-AREA REDUCTION FACTOR (DARF) REF. FROM SB COUNTY
                           DEPTH AREA CURVES (FIG. E-4).

                             BASIN AREA
                            RANGE(sq.mi.)          DARF

                               1 -  10             1.00
                               10 - 20             0.98
                               20 - 30             0.97
                               30 - 50             0.96
                               50 - 70             0.95
                               70 - 100            0.94
                               100 -350            0.93

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

   31 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         600  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      3    0  ENDING DATE
                       NDTIME        0155  ENDING TIME
                       ICENT           19  CENTURY MARK

                   COMPUTATION INTERVAL     .08 HOURS
                        TOTAL TIME BASE   49.92 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
                     1.00       .98       .97       .96       .95       .94       .93
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


                                                          RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN            RATIO 1  RATIO 2  RATIO 3  RATIO 4  RATIO 5  RATIO 6  RATIO 7
                                                        1.00      .98      .97      .96      .95      .94      .93

 HYDROGRAPH AT
+                 LOVEL     53.18     1   FLOW        1081.     993.     950.     908.     866.     825.     787.
                                           TIME        17.75    17.75    17.75    17.75    17.75    17.75    18.17

 ROUTED TO
+                   RT1     53.18     1   FLOW        1594.    1592.    1356.    1537.    1524.    1368.    1226.
                                           TIME        19.83    20.00    20.00    20.08    20.17    20.25    20.58

 HYDROGRAPH AT
+                 EAST1      2.70     1   FLOW         123.     115.     111.     108.     104.     100.      97.
```

				TIME	16.58	16.58	16.58	16.58	16.58	16.58	16.58
HYDROGRAPH AT +	OFF4	30.13	1	FLOW	237.	213.	201.	190.	179.	168.	159.
				TIME	18.42	18.42	18.42	18.42	18.42	18.58	18.92
3 COMBINED AT +	CP1	86.01	1	FLOW	1826.	1795.	1551.	1724.	1702.	1540.	1383.
				TIME	19.83	20.00	20.00	20.08	20.17	20.25	20.58
HYDROGRAPH AT +	OFF5	50.58	1	FLOW	17.	10.	7.	4.	2.	1.	0.
				TIME	25.00	25.00	25.25	25.33	25.58	25.58	25.58
2 COMBINED AT +	CP2	136.59	1	FLOW	1826.	1795.	1551.	1724.	1702.	1540.	1383.
				TIME	19.83	20.00	20.00	20.08	20.17	20.25	20.58
HYDROGRAPH AT +	TROUT	109.75	1	FLOW	1901.	1722.	1635.	1549.	1470.	1398.	1328.
				TIME	17.25	17.25	17.25	17.25	17.75	17.83	17.83
ROUTED TO +	RT2	109.75	1	FLOW	2274.	2199.	1951.	2069.	1880.	1897.	1860.
				TIME	18.17	18.25	18.33	18.33	18.42	18.42	18.50
HYDROGRAPH AT +	OFF2	26.22	1	FLOW	255.	232.	221.	210.	199.	188.	177.
				TIME	18.25	18.25	18.25	18.25	18.25	18.25	18.25
HYDROGRAPH AT +	OFF3	6.13	1	FLOW	44.	39.	37.	35.	33.	31.	29.
				TIME	17.92	17.92	17.92	17.92	18.00	18.08	18.08
HYDROGRAPH AT +	OFF1G	1.74	1	FLOW	10.	8.	8.	7.	7.	7.	6.
				TIME	17.50	17.50	17.50	17.50	24.08	24.08	24.08
4 COMBINED AT +	CP3	143.84	1	FLOW	2577.	2477.	2214.	2318.	2114.	2119.	2066.
				TIME	18.17	18.25	18.33	18.33	18.42	18.42	18.50
HYDROGRAPH AT +	ON1	2.35	1	FLOW	16.	14.	13.	12.	11.	10.	9.
				TIME	17.17	17.25	17.25	17.25	17.25	17.25	17.25
2 COMBINED AT +	CP4	146.19	1	FLOW	2588.	2488.	2224.	2328.	2123.	2127.	2074.
				TIME	18.17	18.25	18.33	18.33	18.42	18.42	18.50
HYDROGRAPH AT +	OFF7	1.77	1	FLOW	0.	0.	0.	0.	0.	0.	0.
				TIME	.00	.00	.00	.00	.00	.00	.00
3 COMBINED AT +	CP5	284.55	1	FLOW	3588.	3330.	3088.	3161.	3027.	2798.	2573.
				TIME	19.83	20.00	20.00	20.08	20.17	20.25	20.58
HYDROGRAPH AT +	OFF8	10.42	1	FLOW	0.	0.	0.	0.	0.	0.	0.
				TIME	.00	.00	.00	.00	.00	.00	.00
2 COMBINED AT +	CP6	294.97	1	FLOW	3588.	3330.	3088.	3161.	3027.	2798.	2573.
				TIME	19.83	20.00	20.00	20.08	20.17	20.25	20.58
HYDROGRAPH AT +	OFF9	.91	1	FLOW	0.	0.	0.	0.	0.	0.	0.
				TIME	.00	.00	.00	.00	.00	.00	.00
2 COMBINED AT +	CP7	295.88	1	FLOW	3588.	3330.	3088.	3161.	3027.	2798.	2573.
				TIME	19.83	20.00	20.00	20.08	20.17	20.25	20.58
HYDROGRAPH AT +	OFF11	11.66	1	FLOW	6.	4.	3.	2.	2.	1.	0.
				TIME	24.83	24.83	24.83	24.92	25.08	25.08	25.33
2 COMBINED AT +	CP8	307.54	1	FLOW	3588.	3330.	3088.	3161.	3027.	2798.	2573.
				TIME	19.83	20.00	20.00	20.08	20.17	20.25	20.58
HYDROGRAPH AT +	OFF1F	2.28	1	FLOW	113.	108.	106.	103.	101.	98.	96.
				TIME	17.17	17.17	17.17	17.17	17.17	17.17	17.17
HYDROGRAPH AT +	OFF1E	4.74	1	FLOW	225.	216.	211.	207.	202.	198.	193.
				TIME	17.58	17.58	17.58	17.58	17.58	17.58	17.58
HYDROGRAPH AT +	OFF1D	1.15	1	FLOW	68.	65.	64.	62.	61.	59.	58.
				TIME	16.75	16.75	16.75	16.75	16.75	16.75	16.75
HYDROGRAPH AT +	OFF1C	1.25	1	FLOW	72.	69.	67.	65.	64.	62.	61.
				TIME	16.83	16.83	16.83	16.83	16.83	16.83	16.83
HYDROGRAPH AT +	OFF1B	4.37	1	FLOW	202.	193.	189.	185.	181.	177.	172.
				TIME	17.50	17.50	17.50	17.50	17.50	17.50	17.50
HYDROGRAPH AT +	OFF1A	1.44	1	FLOW	77.	74.	72.	71.	69.	67.	66.
				TIME	17.00	17.00	17.00	17.00	17.00	17.00	17.00

```
 HYDROGRAPH AT
+                  OFF1Z       .64     1   FLOW         49.     47.     46.     45.     44.     43.     42.
                                           TIME        16.42   16.42   16.42   16.42   16.42   16.42   16.42

  7 COMBINED AT
+                    CPA     15.87     1   FLOW        735.    703.    688.    672.    657.    641.    626.
                                           TIME        17.17   17.17   17.17   17.17   17.17   17.17   17.17

 HYDROGRAPH AT
+                    ON2      4.84     1   FLOW        301.    287.    281.    274.    268.    261.    255.
                                           TIME        16.67   16.67   16.67   16.67   16.67   16.67   16.67

  2 COMBINED AT
+                    CPC     20.71     1   FLOW        990.    946.    925.    903.    882.    861.    840.
                                           TIME        16.92   16.92   16.92   16.92   16.92   16.92   16.92

 HYDROGRAPH AT
+                   STA1       .28     1   FLOW         34.     32.     32.     31.     30.     30.     29.
                                           TIME        16.17   16.17   16.17   16.17   16.17   16.17   16.17

  2 COMBINED AT
+                    CPD     20.99     1   FLOW       1005.    961.    939.    917.    896.    874.    853.
                                           TIME        16.92   16.92   16.92   16.92   16.92   16.92   16.92

 HYDROGRAPH AT
+                    ON3      3.70     1   FLOW         28.     24.     23.     21.     19.     18.     16.
                                           TIME        17.42   17.42   17.42   17.42   17.42   17.50   17.50

  3 COMBINED AT
+                    CP9    332.23     1   FLOW       4027.   3738.   3488.   3547.   3400.   3158.   2912.
                                           TIME        19.83   20.00   20.00   20.08   20.17   20.25   20.58

 HYDROGRAPH AT
+                  OFF12     19.01     1   FLOW        866.    832.    815.    798.    781.    764.    747.
                                           TIME        18.00   18.00   18.00   18.00   18.00   18.00   18.00

  2 COMBINED AT
+                   CP10    351.24     1   FLOW       4536.   4246.   3968.   3995.   3825.   3651.   3520.
                                           TIME        19.83   18.25   20.00   20.08   20.17   18.42   18.50
1
                                           SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                               (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                   INTERPOLATED TO
                                                                                COMPUTATION INTERVAL
            ISTAQ    ELEMENT      DT       PEAK    TIME TO     VOLUME      DT       PEAK    TIME TO     VOLUME
                                                      PEAK                                    PEAK

                                (MIN)     (CFS)     (MIN)      (IN)    (MIN)     (CFS)     (MIN)       (IN)

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00   1594.12   1190.00       .26      5.00   1594.12   1190.00         .26

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .7184E+03 EXCESS= .0000E+00 OUTFLOW= .7286E+03 BASIN STORAGE= .2169E+00 PERCENT ERROR=  -1.5

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00   1591.62   1200.00       .24      5.00   1591.62   1200.00         .24

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .6707E+03 EXCESS= .0000E+00 OUTFLOW= .6808E+03 BASIN STORAGE= .2220E+00 PERCENT ERROR=  -1.5

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00   1356.32   1200.00       .23      5.00   1356.32   1200.00         .23

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .6473E+03 EXCESS= .0000E+00 OUTFLOW= .6574E+03 BASIN STORAGE= .2463E+00 PERCENT ERROR=  -1.6

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00   1536.54   1205.00       .22      5.00   1536.54   1205.00         .22

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .6243E+03 EXCESS= .0000E+00 OUTFLOW= .6344E+03 BASIN STORAGE= .2209E+00 PERCENT ERROR=  -1.7

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00   1523.51   1210.00       .22      5.00   1523.51   1210.00         .22

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .6016E+03 EXCESS= .0000E+00 OUTFLOW= .6115E+03 BASIN STORAGE= .2598E+00 PERCENT ERROR=  -1.7

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00   1367.77   1215.00       .21      5.00   1367.77   1215.00         .21

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .5793E+03 EXCESS= .0000E+00 OUTFLOW= .5890E+03 BASIN STORAGE= .2279E+00 PERCENT ERROR=  -1.7

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00   1225.83   1235.00       .20      5.00   1225.83   1235.00         .20

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .5573E+03 EXCESS= .0000E+00 OUTFLOW= .5671E+03 BASIN STORAGE= .2308E+00 PERCENT ERROR=  -1.8

          FOR PLAN = 1  RATIO=  .00
               RT2  MANE         5.00   2274.07   1090.00       .21      5.00   2274.07   1090.00         .21

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1201E+04 EXCESS= .0000E+00 OUTFLOW= .1205E+04 BASIN STORAGE= .1069E+00 PERCENT ERROR=   -.4

          FOR PLAN = 1  RATIO=  .00
```

```
                                                                7302E5
              RT2  MANE         5.00   2199.28   1095.00       .19      5.00   2199.28   1095.00         .19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1115E+04 EXCESS= .0000E+00 OUTFLOW= .1120E+04 BASIN STORAGE= .9952E-01 PERCENT ERROR=   -.4

          FOR PLAN = 1  RATIO=  .00
              RT2  MANE         5.00   1951.18   1100.00       .18      5.00   1951.18   1100.00         .18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1073E+04 EXCESS= .0000E+00 OUTFLOW= .1078E+04 BASIN STORAGE= .1320E+00 PERCENT ERROR=   -.5

          FOR PLAN = 1  RATIO=  .00
              RT2  MANE         5.00   2069.09   1100.00       .18      5.00   2069.09   1100.00         .18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1032E+04 EXCESS= .0000E+00 OUTFLOW= .1037E+04 BASIN STORAGE= .1093E+00 PERCENT ERROR=   -.5

          FOR PLAN = 1  RATIO=  .00
              RT2  MANE         5.00   1879.60   1105.00       .17      5.00   1879.60   1105.00         .17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9918E+03 EXCESS= .0000E+00 OUTFLOW= .9968E+03 BASIN STORAGE= .1068E+00 PERCENT ERROR=   -.5

          FOR PLAN = 1  RATIO=  .00
              RT2  MANE         5.00   1897.37   1105.00       .16      5.00   1897.37   1105.00         .16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9521E+03 EXCESS= .0000E+00 OUTFLOW= .9573E+03 BASIN STORAGE= .9637E-01 PERCENT ERROR=   -.6

          FOR PLAN = 1  RATIO=  .00
              RT2  MANE         5.00   1859.98   1110.00       .16      5.00   1859.98   1110.00         .16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9130E+03 EXCESS= .0000E+00 OUTFLOW= .9181E+03 BASIN STORAGE= .1040E+00 PERCENT ERROR=   -.6


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

APPENDIX A:

v. 24-Hour, 2-Year Storm

```
1****************************************                          ***************************************
 *                                      *                          *                                     *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                          *    U.S. ARMY CORPS OF ENGINEERS     *
 *              JUN   1998              *                          *    HYDROLOGIC ENGINEERING CENTER    *
 *           VERSION 4.1                *                          *         609 SECOND STREET           *
 *                                      *                          *      DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   16MAY11  TIME  17:47:15  *                          *          (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                                           PAGE  1

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

               *DIAGRAM
   1           ID  *******************************************************************
   2           ID     TECHNICAL DRAINAGE STUDY
   3           ID     HIDDEN HILLS RANCH SEGS
   4           ID     FILE_______________________7302E2.DAT
   5           ID     CONDITION__________________2-YEAR - EXISTING CONDITION
   6           ID     STORM DURATION_____________24 HOURS
   7           ID     DATE_______________________02-2011
   8           ID     DISTRIBUTION_______________SAN BERNARDINO COUNTY METHODOLOGY
   9           ID     AMC CONDITION _____________AMC I & II CN'S USED
  10           ID     MODELED BY_________________VTN NEVADA
  11           ID
  12           ID   PLUGGING IN UNIT HYDROGRAPH ORDINATES (UI'S) FROM AES SOFTWARE
  13           ID  *******************************************************************
  14           ID   DEPTH-AREA REDUCTION FACTOR (DARF) REF. FROM SB COUNTY
  15           ID   DEPTH AREA CURVES (FIG. E-4).
  16           ID
  17           ID     BASIN AREA
  18           ID    RANGE(sq.mi.)         DARF
  19           ID
  20           ID       1 -  10            1.00
  21           ID      10 - 20             0.98
  22           ID      20 - 30             0.97
  23           ID      30 - 50             0.96
  24           ID      50 - 70             0.95
  25           ID      70 - 100            0.94
  26           ID      100 -350            0.93
  27           ID
  28           ID  *******************************************************************
  29           IT       5       0       0     600
  30           IN       5       0       0
  31           IO       5       0       0
  32           JR    PREC    1.00    0.98    0.97    0.96    0.95    0.94    0.93
               *

  33           KK   LOVEL
  34           KM   EXISTING OFFSITE BASIN
  35           PB    2.06
  36           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  37           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  38           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  39           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  40           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  41           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  42           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  43           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  44           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  45           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  46           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  47           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  48           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  49           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  50           PI  0.0040  0.0040  0.0040  0.0100  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
  51           PI  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
  52           PI  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070  0.0217  0.0190  0.0190
1                                    HEC-1 INPUT                                           PAGE  2

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

  53           PI  0.0190  0.0190  0.0190  0.0190  0.0190  0.0190  0.0190  0.0190  0.0190  0.0190
  54           PI  0.0190  0.0190  0.0190  0.0143  0.0135  0.0135  0.0135  0.0366  0.0370  0.0370
  55           PI  0.0371  0.1161  0.0370  0.0131  0.0135  0.0181  0.0190  0.0190  0.0190  0.0190
  56           PI  0.0190  0.0190  0.0190  0.0042  0.0070  0.0070  0.0070  0.0070  0.0070  0.0070
  57           PI  0.0070  0.0070  0.0070  0.0070  0.0070  0.0046  0.0040  0.0040  0.0040  0.0040
  58           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  59           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  60           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
  61           PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
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 62          PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
 63          PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040
 64          PI  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0040  0.0115
 65          BA   53.18
 66          LS            59.8
 67          KM   SB COUNTY MOUNTAIN S-GRAPH
 68          KM   UHG  (DERIVED BY AES SOFTWARE)
 69          UI  1288.4  2576.8  2576.8  2555.9  2513.6  2865.2  3887.0  3865.3  3930.4  3876.7
 70          UI  4274.5  5615.1  4839.8  6685.1  6009.3  7581.6  7827.5  9181.4  8825.1  8271.9
 71          UI  11067.  11362.  8707.8  8152.0  7154.2  7729.8  7369.2  5119.4  5701.7  5798.0
 72          UI  5519.1  4997.1  4602.0  4303.9  4547.8  4540.0  3960.4  3826.6  3421.4  3312.6
 73          UI  2498.6  2711.6  3476.7  2683.4  2125.2  2479.4  2488.3  2342.8  2319.9  2318.5
 74          UI  2319.2  2319.9  2319.2  2287.8  2001.0  1933.3  1931.8  1931.1  1810.6  1739.2
 75          UI  1739.9  1738.5  1872.6  1727.8  1655.8  1656.5  1656.5  1623.7  1470.3  1450.3
 76          UI  1448.2  1451.0  1448.2  1449.6  1449.6  1449.6  1449.6  1449.6  1442.5  1254.1
 77          UI  1158.5  1160.0  1160.0  1158.5  1159.9  1160.0  1095.8  1054.4  1054.4  1054.4
 78          UI  1055.8  1053.0  1055.8  1048.7   988.7   967.4   965.9   965.9   967.4   965.9
 79          UI   965.9   965.9   924.6   833.2   827.5   829.0   829.0   827.5   827.5   830.4
 80          UI   827.5   827.6   807.5   776.1   773.3   770.5   776.1   770.5   773.3   776.2
 81          UI   770.4   773.3   770.5   676.3   624.9   627.8   627.8   627.8   624.9   624.9
 82          UI   630.6   624.9   627.8   624.9   627.8   627.8   565.0   516.5   513.7   516.5
 83          UI   513.7   516.5   513.7   516.5   516.5   513.6   516.5   516.5   513.7   516.5
             *

 84          KK     RT1
 85          KM   ROUTE BASIN LOVEL THROUGH BASIN OFF4
 86          RD   73022   .0216   0.040            TRAP     130       4
             *

 87          KK   EAST1
 88          KM   EXISTING OFFSITE BASIN
 89          PB    1.33
 90          BA    2.70
 91          LS            74.1
 92          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 93          KM   UHG (DERIVED BY AES SOFTWARE)
 94          UI   213.2   498.2   735.5   991.3  1388.3  1666.0  1872.1  1864.9  1711.8  1263.4
 95          UI   938.7   800.7   646.0   531.1   467.8   392.5   360.3   333.5   281.5   269.8
 96          UI   238.4   229.3   204.4   186.9   177.2   149.4   150.3   150.4   134.4   119.0
 97          UI   119.0   115.9    97.8    94.7    94.7    94.6    83.2    75.3    75.3    75.3
 98          UI    75.3    71.3    52.3    49.6    49.7    49.6    49.7    49.7    49.6    49.3
 99          UI    29.9    18.4    18.4    18.3    18.4    18.4    18.3    18.4    18.4    18.3
100          UI    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4    18.4
101          UI    18.4    18.4    18.4     1.8
             *
1                                          HEC-1 INPUT                                          PAGE  3

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

102          KK    OFF4
103          KM   EXISTING OFFSITE BASIN
104          PB    1.09
105          BA   30.13
106          LS            71.5
107          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
108          KM   UHG  (DERIVED BY AES SOFTWARE)
109          UI   623.5  1246.9  1246.9  1255.3  1440.8  1688.6  1758.5  1864.9  2297.3  2493.8
110          UI  2646.2  3036.7  2750.9  3017.7  3549.3  4582.4  4064.0  4194.6  4974.1  4990.3
111          UI  5345.6  4626.8  5060.3  6287.9  5169.5  5665.2  5864.9  4987.7  5113.7  6300.2
112          UI  5103.9  4987.6  4495.2  3748.4  3740.8  3732.3  3264.5  2945.3  2743.5  2560.3
113          UI  2305.5  2371.2  2491.2  2638.2  1809.0  1648.9  2578.8  1480.9  1209.7  1495.8
114          UI  1496.5  2111.9  1461.4  1163.9  1364.5  1292.4  1156.4  1156.0  1111.7  1068.7
115          UI  1068.7  1069.1  1053.8  1001.2   998.4   997.0   997.7   879.8   748.4   747.7
116          UI   816.6   933.1   917.4   715.8   661.1   659.7   659.7   661.1   813.8   825.1
117          UI   611.4   605.7   605.7   605.0   605.7   604.3   574.5   545.4   535.4   534.0
118          UI   534.0   535.4   532.6   522.6   431.8   416.1   420.4   438.9   440.3   440.3
119          UI   440.3   438.9   441.7   438.8   440.3   440.3   440.3   387.7   348.0   348.0
120          UI   347.9   348.0   347.9   348.0   348.0   349.4   346.5   347.9   348.0   348.0
121          UI   333.7   281.2   275.5   278.4   275.5   278.4   276.9   276.9   276.9   276.9
122          UI   276.9   276.9   278.4   275.5   278.4   275.5   278.4   258.5   220.1   220.1
123          UI   218.7   221.5   218.7   221.6   218.7   221.6   218.7   220.1   221.6   218.7
             *

124          KK     CP1
125          KM   COMBINE EAST1, RT1, OFF4
126          HC       3
             *

127          KK    OFF5
128          KM   EXISTING OFFSITE BASIN
129          PB    1.24
130          BA   50.58
131          LS            56.1
132          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
133          KM   UHG (DERIVED BY AES SOFTWARE)
134          UI  1284.3  2568.6  2568.6  2810.4  3426.7  3652.9  4109.0  5058.2  5384.8  6093.4
135          UI  5847.4  6685.7  8762.2  8583.9  9060.6  10274.  10771.  9778.3  10806.  12345.
136          UI  10740.  12407.  10293.  11251.  11907.  10274.  9381.3  7741.5  7705.9  7230.7
137          UI  6125.6  5664.5  5077.3  4785.2  5081.2  5302.4  3574.0  4199.5  4229.1  2393.3
138          UI  3073.7  3409.8  3921.7  2397.2  2774.1  2570.1  2381.7  2331.2  2207.8  2202.0
139          UI  2199.5  2101.9  2054.3  2056.3  2016.5  1639.6  1541.5  1677.5  1921.3  1741.6
140          UI  1370.5  1358.9  1360.8  1427.8  1775.6  1343.4  1248.1  1247.2  1247.2  1247.2
141          UI  1189.9  1121.9  1101.5  1100.5  1100.5  1100.5  1025.7   862.5   860.6   901.4
142          UI   907.2   905.3   907.2   907.2   905.3   907.2   907.2   835.3   718.8   714.9
143          UI   718.8   716.8   716.8   716.8   716.8   714.9   718.8   716.8   652.7   569.2
144          UI   573.1   569.2   571.1   571.1   571.1   569.2   573.1   569.2   571.1   571.1
145          UI   571.2   567.2   487.6   456.5   450.7   454.6   452.6   452.6   454.6   452.6
146          UI   452.6   454.6   454.6   450.7   454.6   450.7   454.6   454.6   450.7   388.5
147          UI   295.3   303.0   295.3   303.0   295.3   303.0   299.2   299.2   299.2   299.2
148          UI   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2   299.2
             *
1                                          HEC-1 INPUT                                          PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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BSE Document Control Number: HYD200-R1

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149          KK     CP2
150          KM   COMBINE CP1, OFF5
151          HC        2
             *

152          KK   TROUT
153          KM   EXISTING OFFSITE BASIN
154          PB    1.84
155          BA  109.75
156          LS            60.9
157          KM   SB COUNTY MOUNTAIN S-GRAPH
158          KM   UHG (DERIVED BY AES SOFTWARE)
159          UI  3727.7  7455.5  7407.0  7367.6 10182.8 11217.8 11364.5 12217.2 15164.5 17361.9
160          UI  18316.  22194.  25529.  24830. 28793.8 31828.5 24549.8 21291.4 22291.6 17378.1
161          UI  16154.  16506.  14701.  13038. 12864.1 12900.8 11277.4 10147.9  9115.5  7130.6
162          UI  9742.0  6808.1  6973.0  7077.5  6716.7  6711.0  6709.9  6709.9  6381.2  5620.8
163          UI  5592.5  5444.4  5051.6  5032.8  5248.0  5018.0  4791.1  4793.3  4553.8  4197.7
164          UI  4194.6  4192.6  4194.6  4194.6  4192.5  4192.6  3934.2  3371.3  3356.5  3356.6
165          UI  3352.3  3274.7  3062.5  3049.9  3052.0  3043.6  3049.8  2886.1  2793.6  2797.8
166          UI  2795.8  2795.7  2793.6  2566.7  2396.6  2394.5  2398.7  2394.5  2394.5  2398.7
167          UI  2318.9  2234.9  2239.1  2234.9  2239.1  2234.9  2234.8  2209.7  1886.2  1814.8
168          UI  1814.8  1810.6  1814.8  1814.8  1810.6  1819.0  1806.4  1651.0  1487.1  1491.3
169          UI  1491.3  1491.3  1491.3  1491.3  1491.3  1491.3  1487.1  1495.5  1453.6  1331.7
170          UI  1310.7  1319.1  1314.9  1314.9  1314.9  1314.9  1319.1  1310.7  1323.3  1310.7
171          UI  1314.9  1285.4  1180.4  1176.3  1176.2  1176.3  1180.4  1176.2  1176.3  1176.2
172          UI  1184.7  1176.2  1176.3  1176.2  1176.2  1176.3  1075.5  1033.4  1050.2  1033.4
173          UI  1041.9  1041.8  1041.8  1033.4  1050.2  1033.5  1041.8  1033.4  1050.2  1033.5
             *

174          KK     RT2
175          KM   ROUTE BASIN TROUT THROUGH BASIN OFF2
176          RD   54120   .0170   0.040            TRAP      50       4
             *

177          KK    OFF2
178          KM   EXISTING OFFSITE BASIN
179          PB    1.09
180          BA   26.22
181          LS            72.4
182          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
183          KM   UHG (DERIVED BY AES SOFTWARE)
184          UI   594.1  1188.1  1188.1  1228.7  1468.6  1654.7  1725.4  2014.3  2372.2  2473.6
185          UI  2883.7  2639.1  2930.3  3567.7  4429.5  3682.9  4497.4  4752.4  5038.2  4469.6
186          UI  4807.6  5903.1  4896.3  5644.5  5213.0  4752.4  5467.4  5390.2  4752.5  4476.0
187          UI  3624.3  3564.2  3539.1  3043.3  2759.2  2580.0  2297.6  2210.5  2346.0  2483.1
188          UI  1921.6  1548.0  2397.1  1330.0  1239.7  1425.6  1568.8  1925.0  1108.9  1205.6
189          UI  1300.1  1101.8  1101.5  1055.6  1018.6  1018.1  1018.1   980.3   949.8   950.9
190          UI   950.4   873.7   718.0   712.4   794.7   891.2   830.2   642.4   629.4   628.9
191          UI   628.9   721.4   810.5   591.1   577.0   577.0   577.0   577.6   565.7   531.3
192          UI   511.6   509.9   508.7   509.3   508.8   489.6   403.8   396.0   408.4   419.6
193          UI   419.6   419.6   418.5   419.6   419.6   419.6   418.5   414.0   348.6   331.6
194          UI   331.7   331.6   331.6   331.6   331.6   330.5   332.8   331.6   330.5   331.6
195          UI   289.9   264.0   264.0   264.0   264.0   264.0   264.0   264.0   264.0   264.0
196          UI   264.0   265.1   262.8   264.0   265.1   248.2   210.9   209.8   208.7   210.9
1                                          HEC-1 INPUT                                                PAGE  5

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

197          UI   208.7   209.8   211.0   207.6   212.1   207.6   209.8   209.8   212.1   207.6
198          UI   209.8   209.8   209.8   207.6   205.3   151.2   137.6   137.6   137.6   139.9
             *

199          KK    OFF3
200          KM   EXISTING OFFSITE BASIN
201          PB    1.09
202          BA    6.13
203          LS            70.2
204          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
205          KM   UHG (DERIVED BY AES SOFTWARE)
206          UI   195.2   390.4   403.0   497.2   557.3   669.3   784.1   917.6   892.5  1094.2
207          UI  1381.9  1318.5  1557.8  1609.2  1530.3  1846.2  1697.9  1757.9  1610.5  1828.4
208          UI  1559.8  1321.1  1171.3  1115.3   928.6   835.5   735.1   763.8   772.1   535.8
209          UI   702.1   394.6   464.5   577.5   439.4   407.4   387.5   360.8   341.3   334.7
210          UI   332.4   315.5   312.4   305.3   247.2   239.0   282.1   267.0   208.8   206.7
211          UI   211.4   259.7   201.6   189.6   189.6   189.2   178.6   168.6   167.4   167.3
212          UI   166.6   142.3   130.6   136.3   137.8   137.8   138.0   137.8   137.6   134.8
213          UI   112.6   109.2   108.8   108.8   109.2   108.8   109.0   109.0   102.2    87.6
214          UI    86.6    86.8    86.6    86.8    86.6    87.0    86.6    86.6    86.8    80.6
215          UI    69.4    68.8    69.2    68.6    69.0    69.0    68.8    69.2    68.8    68.8
216          UI    68.8    69.2    68.4    56.4    45.9    45.5    45.1    45.9    45.5    45.5
217          UI    45.1    45.9    45.5    45.1    45.9    45.5    45.5    45.5    45.5    45.1
218          UI    45.9    45.5    45.5    44.7    27.1    16.9    16.9    16.5    17.3    16.2
219          UI    17.3    16.5    17.3    16.2    17.3    16.5    16.9    16.9    16.5    17.3
220          UI    16.2    17.3    16.5    17.3    16.2    17.3    16.5    16.9    16.9    16.9
             *

221          KK   OFF1G
222          KM   ***AMC II CN USED***
223          PB    1.09
224          BA    1.74
225          LS            68.3
226          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
227          KM   UHG (DERIVED BY AES SOFTWARE)
228          UI    92.7   191.7   245.5   319.7   408.3   467.3   623.5   709.8   741.1   831.9
229          UI   824.7   809.5   737.1   575.5   486.5   389.1   361.6   313.2   278.7   214.5
230          UI   244.2   190.1   172.5   160.6   155.5   148.6   130.1   119.8   124.8    98.9
231          UI   108.1   101.7    90.1    88.2    80.8    79.5    75.0    63.3    65.2    65.4
232          UI    65.4    63.7    53.4    51.8    51.7    51.7    51.3    43.8    41.2    41.2
233          UI    41.2    41.2    41.2    38.7    32.9    32.7    32.7    32.7    32.8    32.8
234          UI    32.6    31.1    22.8    21.6    21.6    21.6    21.6    21.6    21.6    21.7
235          UI    21.6    21.6    21.6    21.6    13.5     8.0     8.0     8.0     8.0     8.0
236          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0
237          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0
238          UI     8.0     8.0     8.0     8.0     8.0     8.0     8.0     8.0     1.5
             *
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 239          KK     CP3
 240          KM   COMBINE RT2, OFF2, OFF3, OFF1G
 241          HC       4
              *
1                                   HEC-1 INPUT                                                    PAGE  6

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


 242          KK     ON1
 243          KM   EXISTING ONSITE BASIN
 244          PB    1.09
 245          BA    2.35
 246          LS           68.3
 247          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 248          KM   UHG (DERIVED BY AES SOFTWARE)
 249          UI   214.0   527.6   816.5  1143.9  1573.1  1805.0  1885.7  1688.7  1211.5   883.5
 250          UI   739.8   552.6   498.0   398.8   359.5   322.3   282.5   244.5   242.9   206.3
 251          UI   189.0   174.9   149.0   150.4   145.7   122.1   118.9   116.1    97.9    94.7
 252          UI    94.7    90.8    76.5    75.2    75.2    75.2    67.3    50.1    49.7    49.6
 253          UI    49.7    49.6    49.7    46.5    23.1    18.3    18.4    18.4    18.3    18.4
 254          UI    18.3    18.4    18.4    18.3    18.3    18.3    18.3    18.3    18.3    18.3
 255          UI    18.3    18.3    18.3    17.1
              *

 256          KK     CP4
 257          KM   COMBINE CP3, ON1
 258          HC       2
              *

 259          KK    OFF7
 260          KM   EXISTING OFFSITE BASIN
 261          PB    1.09
 262          BA    1.77
 263          LS           54.8
 264          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 265          KM   UHG (DERIVED BY AES SOFTWARE)
 266          UI   175.4   449.3   703.8  1032.4  1358.0  1520.5  1497.1  1131.2   788.1   636.9
 267          UI   464.3   409.7   323.9   290.9   252.3   226.6   195.8   183.2   161.5   147.8
 268          UI   125.6   122.4   119.6   100.4    97.0    92.6    78.4    77.2    77.1    67.5
 269          UI    61.4    61.3    61.4    56.8    41.7    40.5    40.5    40.5    40.5    40.5
 270          UI    30.3    15.1    15.0    14.9    15.0    15.0    15.0    15.0    15.0    14.9
 271          UI    14.9    14.9    14.9    14.9    14.9    14.9    14.9    14.9    13.9
              *

 272          KK     CP5
 273          KM   COMBINE CP2, CP4, OFF7
 274          HC       3
              *

 275          KK    OFF8
 276          KM   EXISTING OFFSITE BASIN
 277          PB    1.09
 278          BA   10.42
 279          LS           54.0
 280          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 281          KM   UHG (DERIVED BY AES SOFTWARE)
 282          UI   439.2   880.7  1036.2  1255.9  1605.2  1930.2  2058.0  2696.5  2985.6  3471.6
 283          UI  3506.9  3850.0  3930.4  3806.8  3927.7  3610.8  2887.9  2591.7  2162.0  1834.7
 284          UI  1671.2  1714.6  1345.1  1238.5   991.6  1255.4   916.1   897.4   805.3   759.4
 285          UI   748.8   711.7   701.6   597.3   548.9   634.9   505.7   465.0   517.3   506.6
 286          UI   426.8   426.6   412.2   380.9   376.5   376.0   326.5   297.6   309.1   310.1
 287          UI   309.9   310.1   301.2   252.7   244.8   245.3   245.0   245.3   244.8   223.1
1                                   HEC-1 INPUT                                                    PAGE  7

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

 288          UI   195.4   195.2   194.9   195.4   195.2   195.2   195.2   185.8   157.1   155.2
 289          UI   154.9   154.9   155.2   155.4   154.2   155.2   155.2   152.8   116.1   102.2
 290          UI   102.2   103.1   102.2   102.2   102.2   102.6   102.2   102.2   102.6   102.2
 291          UI   102.6   101.7   103.1    93.5    45.3    37.6    38.1    37.6    38.1    37.6
 292          UI    37.6    38.6    37.1    38.6    37.1    38.1    38.1    37.1    39.0    36.6
 293          UI    38.6    37.6    37.6    38.1    38.1    37.6    37.6    37.6    37.6    37.6
 294          UI    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6    37.6
 295          UI    37.6    37.6    37.6    37.6    37.6    37.6    28.0
              *

 296          KK     CP6
 297          KM   COMBINE CP5, OFF8
 298          HC       2
              *

 299          KK    OFF9
 300          KM   EXISTING OFFSITE BASIN
 301          PB    1.09
 302          BA    0.91
 303          LS           51.0
 304          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 305          KM   UHG (DERIVED BY AES SOFTWARE)
 306          UI   136.1   412.2   730.3  1040.9  1103.2   793.3   506.8   352.2   271.1   216.1
 307          UI   178.1   150.4   131.1   112.0    93.7    89.6    76.0    70.7    60.1    57.0
 308          UI    52.4    45.4    45.3    40.7    30.3    29.9    29.9    29.9    19.3    11.0
 309          UI    11.0    11.1    11.0    11.0    11.1    11.0    11.0    11.0    11.0    11.0
 310          UI    11.0     2.0
              *

 311          KK     CP7
 312          KM   COMBINE CP6, OFF9
 313          HC       2
              *

 314          KK   OFF11
 315          KM   EXISTING OFFSITE BASIN
 316          PB    1.09
 317          BA   11.66
```

```
 318          LS            59.5
 319          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 320          KM   UHG (DERIVED BY AES SOFTWARE)
 321          UI    345.4   690.8   701.2   840.1   968.5  1078.1  1347.5  1503.6  1587.7  1668.7
 322          UI   2150.0  2376.1  2432.3  2765.9  2856.6  2674.6  3280.7  2929.6  3272.5  2767.5
 323          UI   3211.6  2917.1  2652.5  2137.4  2072.5  1884.3  1602.2  1457.2  1291.7  1351.8
 324          UI   1397.6   943.8  1266.5   783.4   783.5   890.7  1024.7   647.9   766.4   644.6
 325          UI    634.8   598.5   592.1   588.4   558.8   552.8   550.5   461.8   414.4   466.0
 326          UI    513.1   408.2   366.0   365.6   388.8   460.3   345.3   335.5   335.7   335.5
 327          UI    320.3   300.5   296.1   296.1   296.1   281.9   233.9   233.5   243.5   243.5
 328          UI    243.9   243.9   244.2   243.5   241.6   205.5   192.8   193.2   192.4   192.8
 329          UI    192.8   193.2   192.4   192.8   175.9   153.6   153.6   153.2   154.0   153.2
 330          UI    153.6   153.6   153.2   154.0   152.8   153.2   132.9   122.5   121.4   122.1
 331          UI    121.7   122.1   121.7   122.1   121.4   122.9   121.4   121.4   122.9   121.4
 332          UI    119.1    89.1    80.6    80.6    80.6    79.9    81.4    79.9    80.6    79.9
 333          UI     81.4    79.9    80.6    80.6    80.6    79.9    80.6    80.6    80.6    80.6
 334          UI     79.9    80.6    80.6    58.4    29.2    30.7    30.7    28.4    30.0    30.0
1                                             HEC-1 INPUT                                                PAGE  8

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

 335          UI     30.0    30.0    29.2    30.0    30.0    29.2    30.0    30.7    28.4    30.7
              *

 336          KK      CP8
 337          KM   COMBINE CP7, OFF11
 338          HC       2
              *

 339          KK   OFF1F
 340          KM   EXISTING OFFSITE BASIN
 341          KM   ***AMC II CN USED***
 342          PB    1.09
 343          BA    2.28
 344          LS            83.5
 345          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 346          KM   UHG (DERIVED BY AES SOFTWARE)
 347          UI     87.8   175.5   196.8   243.1   289.7   359.8   404.6   434.2   588.5   598.9
 348          UI    708.0   696.8   767.5   779.7   790.0   750.4   771.7   655.0   532.9   499.2
 349          UI    410.5   356.0   334.4   347.5   258.6   279.5   187.1   237.9   214.8   182.6
 350          UI    169.3   158.7   150.6   149.3   141.8   140.4   124.4   106.4   124.8   114.6
 351          UI     93.0    93.1   111.5    93.0    85.2    85.3    82.7    76.3    75.3    75.2
 352          UI     71.1    59.3    60.9    62.0    61.9    62.0    61.9    60.4    50.6    49.0
 353          UI     49.0    49.0    49.0    49.0    48.6    41.5    39.0    39.0    39.0    39.0
 354          UI     39.0    39.0    39.1    38.7    33.3    31.0    31.0    31.0    31.0    30.9
 355          UI     31.0    30.9    31.0    31.0    31.1    27.3    20.5    20.5    20.5    20.5
 356          UI     20.5    20.5    20.3    20.6    20.4    20.5    20.5    20.5    20.5    20.5
 357          UI     20.5    20.3    18.4     8.8     7.5     7.6     7.7     7.2     7.7     7.5
 358          UI      7.6     7.4     7.7     7.4     7.6     7.5     7.6     7.5     7.5     7.6
 359          UI      7.5     7.5     7.6     7.6     7.4     7.6     7.6     7.6     7.6     7.6
 360          UI      7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6
 361          UI      7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     7.6     3.3
              *

 362          KK   OFF1E
 363          KM   EXISTING OFFSITE BASIN
 364          KM   ***AMC II USED***
 365          PB    1.09
 366          BA    4.74
 367          LS            84.9
 368          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 369          KM   UHG (DERIVED BY AES SOFTWARE)
 370          UI    132.0   264.0   265.2   307.8   363.7   388.7   486.1   530.8   630.5   593.2
 371          UI    684.0   906.1   866.1   981.3  1062.8  1084.5  1021.7  1259.3  1108.4  1272.1
 372          UI   1071.4  1163.2  1193.2  1053.9   893.9   791.9   782.8   667.2   595.3   539.7
 373          UI    490.9   520.5   534.7   353.1   484.1   322.5   287.3   316.7   423.8   268.8
 374          UI    275.1   269.2   244.8   237.7   226.4   226.2   223.3   212.1   211.2   210.5
 375          UI    177.2   158.4   172.1   197.4   170.1   139.7   139.7   139.8   170.7   155.5
 376          UI    128.4   128.2   128.2   127.9   121.3   114.3   113.1   113.2   113.3   110.4
 377          UI     91.9    88.1    92.3    93.1    93.3    93.1    93.1    93.1    93.3    90.9
 378          UI     76.3    73.5    73.8    73.7    73.7    73.7    73.7    73.7    73.7    71.7
 379          UI     60.7    58.5    58.7    58.5    58.9    58.5    58.7    58.5    58.9    58.5
 380          UI     58.7    58.7    52.5    46.7    46.7    46.6    46.4    46.7    46.6    46.7
 381          UI     46.4    46.6    46.6    46.9    46.2    46.9    46.6    45.9    35.6    30.6
 382          UI     30.6    30.9    30.6    30.9    30.6    30.6    31.3    30.6    30.6    30.9
 383          UI     30.6    30.9    30.9    30.3    31.3    30.3    31.3    30.3    31.3    30.3
1                                             HEC-1 INPUT                                                PAGE  9

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

 384          UI     30.9    29.6    16.0    10.6    12.0    11.0    11.3    11.6    11.3    11.3
              *

 385          KK   OFF1D
 386          KM   EXISTING OFFSITE BASIN
 387          KM   ***AMC II CN USED***
 388          PB    1.09
 389          BA    1.15
 390          LS            83.5
 391          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 392          KM   UHG (DERIVED BY AES SOFTWARE)
 393          UI     64.7   135.4   175.3   234.0   293.0   357.5   446.1   516.1   542.1   581.7
 394          UI    561.2   555.9   432.5   363.0   285.0   250.1   229.3   196.4   150.3   168.0
 395          UI    132.7   118.6   111.5   107.0   102.2    84.0    89.3    76.7    69.7    78.0
 396          UI     63.3    62.4    57.7    55.4    53.6    44.7    45.3    45.7    45.7    43.9
 397          UI     36.8    36.1    36.1    36.1    34.4    29.2    28.7    28.7    28.7    28.7
 398          UI     28.1    23.7    22.8    22.8    22.8    22.8    22.8    22.8    21.2    15.5
 399          UI     15.0    15.1    15.0    15.1    15.0    15.1    15.1    15.1    15.1    15.1
 400          UI     11.8     5.7     5.5     5.6     5.6     5.6     5.5     5.6     5.6     5.5
 401          UI      5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 402          UI      5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 403          UI      5.6     5.6     3.9
              *

 404          KK   OFF1C
 405          KM   EXISTING OFFSITE BASIN
```

```
 406          KM   ***AMC II CN USED***
 407          PB    1.09
 408          BA    1.25
 409          LS            83.5
 410          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 411          KM   UHG (DERIVED BY AES SOFTWARE)
 412          UI    65.2   134.2   171.2   220.5   283.3   319.1   431.6   485.1   525.2   572.5
 413          UI   586.9   563.0   547.7   424.9   365.8   290.1   251.1   244.2   205.3   152.8
 414          UI   176.3   142.5   128.7   116.1   111.4   106.1   101.7    82.6    91.1    77.6
 415          UI    69.3    80.0    65.6    63.3    60.4    56.2    55.9    50.2    44.4    46.0
 416          UI    46.0    46.0    44.0    37.0    36.4    36.4    36.4    36.0    30.6    29.0
 417          UI    29.0    29.0    29.0    29.0    27.7    23.3    23.0    23.0    23.0    23.1
 418          UI    23.0    23.0    22.7    17.2    15.2    15.1    15.2    15.2    15.2    15.1
 419          UI    15.2    15.2    15.1    15.2    15.1    13.7     6.6     5.6     5.6     5.6
 420          UI     5.5     5.7     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 421          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 422          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 423          UI     2.4
              *

 424          KK   OFF1B
 425          KM   EXISTING OFFSITE BASIN
 426          KM   ***AMC II CN USED***
 427          PB    1.09
 428          BA    4.37
 429          LS            84.4
 430          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 431          KM   UHG (DERIVED BY AES SOFTWARE)
 432          UI   126.2   252.3   254.9   301.7   351.3   383.2   483.0   531.3   588.4   588.4
1                                          HEC-1 INPUT                                                PAGE 10

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

 433          UI   718.9   906.2   826.3   998.7  1047.0   971.5  1114.2  1129.8  1162.1  1081.9
 434          UI  1058.9  1185.1  1009.2   886.7   757.0   749.9   641.2   568.7   511.6   470.9
 435          UI   501.2   492.3   333.7   472.1   259.4   293.2   335.2   363.1   237.1   281.0
 436          UI   235.1   232.2   219.1   216.3   215.6   205.2   201.9   201.8   178.6   151.5
 437          UI   161.3   187.8   164.8   133.6   133.6   134.1   166.7   141.3   122.5   122.6
 438          UI   122.5   121.2   113.2   108.5   108.1   108.1   108.1    97.0    84.1    86.2
 439          UI    89.0    89.2    89.0    89.0    89.2    88.9    88.0    74.3    70.3    70.6
 440          UI    70.3    70.4    70.6    70.3    70.6    70.3    66.4    56.5    56.1    55.9
 441          UI    56.2    55.9    55.9    56.1    56.2    55.9    56.2    55.9    53.4    45.0
 442          UI    44.6    44.4    44.6    44.4    44.6    44.7    44.3    44.6    44.3    44.9
 443          UI    44.3    44.9    44.3    42.5    31.9    28.9    29.5    29.5    29.2    29.2
 444          UI    29.8    28.9    29.8    28.9    29.5    29.5    29.5    29.2    29.5    29.2
 445          UI    29.5    29.2    29.5    29.5    29.2    29.2    27.2    13.9    10.6    10.9
 446          UI    10.9    10.6    11.2    10.6    10.9    11.2    10.3    10.9    10.9    11.2
              *

 447          KK   OFF1A
 448          KM   EXISTING OFFSITE BASIN
 449          KM   ***AMC II CN USED***
 450          PB    1.09
 451          BA    1.44
 452          LS            83.5
 453          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 454          KM   UHG (DERIVED BY AES SOFTWARE)
 455          UI    65.5   132.2   160.7   196.7   255.3   300.0   334.6   444.7   482.4   532.1
 456          UI   553.1   588.5   571.9   583.6   529.9   418.5   375.3   304.6   257.3   259.8
 457          UI   213.4   210.2   143.9   180.4   144.9   134.2   119.9   113.1   110.9   105.4
 458          UI   101.8    82.2    89.6    85.9    69.5    73.1    79.5    63.7    63.6    61.3
 459          UI    56.7    56.2    55.1    45.8    45.3    46.2    46.3    46.2    45.8    38.9
 460          UI    36.6    36.6    36.6    36.6    36.4    31.5    29.1    29.2    29.1    29.1
 461          UI    29.1    29.1    28.3    23.7    23.2    23.1    23.2    23.2    23.1    23.2
 462          UI    23.2    23.2    19.9    15.5    15.2    15.2    15.3    15.3    15.2    15.3
 463          UI    15.3    15.2    15.3    15.2    15.3    15.3    14.9     8.2     5.8     5.6
 464          UI     5.6     5.8     5.6     5.7     5.6     5.6     5.6     5.7     5.6     5.7
 465          UI     5.6     5.6     5.6     5.7     5.6     5.7     5.6     5.6     5.6     5.6
 466          UI     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6     5.6
 467          UI     5.6     5.6     5.6     5.6     5.6     5.6     4.7
              *

 468          KK   OFF1Z
 469          KM   EXISTING OFFSITE BASIN
 470          KM   ***AMC II CN USED***
 471          PB    1.09
 472          BA    0.64
 473          LS            83.5
 474          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 475          KM   UHG (DERIVED BY AES SOFTWARE)
 476          UI    62.7   159.5   249.3   362.8   480.8   544.5   538.3   421.2   292.8   232.6
 477          UI   173.8   152.2   118.3   105.6    94.1    82.3    71.1    68.4    59.1    54.0
 478          UI    47.4    43.5    43.8    38.0    34.7    34.4    29.4    27.6    27.6    26.3
 479          UI    22.2    22.0    22.0    21.8    17.1    14.5    14.5    14.5    14.5    14.5
 480          UI    14.1     7.5     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4
 481          UI     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4     5.4     4.0
              *
1                                          HEC-1 INPUT                                                PAGE 11

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

 482          KK     CPA
 483          KM   COMBINE OFF1F, OFF1E, OFF1D, OFF1C, OFF1B, OFF1A, OFF1Z
 484          HC        7
              *

 485          KK     ON2
 486          KM   EXISTING ONSITE BASIN
 487          KM   ***AMC II CN USED***
 488          PB    1.09
 489          BA    4.84
 490          LS            83.5
 491          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
 492          KM   UHG (DERIVED BY AES SOFTWARE)
 493          UI   301.4   649.4   867.9  1199.3  1430.8  1952.6  2298.9  2475.8  2703.6  2626.1
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494          UI  2535.2  1940.8  1574.6  1230.4  1154.3   950.4   725.9   800.5   617.6   551.3
495          UI   516.7   490.9   449.7   388.0   397.6   321.0   360.9   300.2   289.8   265.9
496          UI   258.3   233.4   207.0   212.7   212.7   207.7   174.2   168.3   168.1   168.3
497          UI   150.2   133.9   133.9   133.9   134.0   131.3   110.8   106.4   106.4   106.2
498          UI   106.4   106.5   103.5    77.0    70.3    70.2    70.3    70.3    70.0    70.5
499          UI    70.0    70.5    70.0    58.8    27.6    25.9    25.9    26.1    25.9    26.1
500          UI    25.8    26.2    26.1    25.8    25.8    26.2    25.8    26.2    25.8    25.8
501          UI    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8    25.8
502          UI    25.8    25.8    19.1
             *

503          KK     CPC
504          KM   COMBINE CPA, ON2
505          HC       2
             *

506          KK    STA1
507          KM   EXISTING OFFSITE BASIN
508          KM   (TEMPORARY STAGING AREA)
509          KM   ***AMC II CN USED***
510          PB    1.09
511          BA    0.28
512          LS            83.5
513          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
514          KM   UHG (DERIVED BY AES SOFTWARE)
515          UI    84.5   337.7   558.4   399.0   202.2   125.8    90.6    68.9    52.9    44.1
516          UI    35.9    30.2    25.5    23.0    16.9    15.8    13.2     6.2     5.8     5.8
517          UI     5.8     5.8     5.8     5.8     1.2
             *

518          KK     CPD
519          KM   COMBINE CPC, STA1
520          HC       2
             *
1                                          HEC-1 INPUT                                          PAGE 12

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

521          KK     ON3
522          KM   EXISTING ONSITE BASIN
523          PB    1.09
524          BA    3.70
525          LS            69.0
526          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
527          KM   UHG (DERIVED BY AES SOFTWARE)
528          UI   224.3   469.6   608.3   813.3  1016.2  1244.3  1549.1  1791.1  1883.2  2016.7
529          UI  1946.0  1920.6  1490.4  1251.8   981.8   868.4   787.3   675.4   525.7   573.8
530          UI   460.6   409.1   385.9   369.6   353.0   288.9   311.2   261.8   243.5   268.4
531          UI   218.5   215.9   198.9   192.2   184.1   154.1   157.6   158.3   158.3   150.3
532          UI   126.8   125.1   125.1   125.1   117.8   100.4    99.7    99.7    99.6    99.7
533          UI    96.3    80.9    79.2    79.2    79.2    79.0    79.4    79.0    70.8    53.0
534          UI    52.2    52.5    52.0    52.5    52.0    52.5    52.2    52.2    52.3    52.2
535          UI    36.6    19.1    19.6    19.1    19.6    19.1    19.5    19.3    19.2    19.3
536          UI    19.5    19.2    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3
537          UI    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3    19.3
538          UI    19.3    19.3     8.5
             *

539          KK     CP9
540          KM   COMBINE CP8, CPD, ON3
541          HC       3
             *

542          KK   OFF12
543          KM   EXISTING OFFSITE BASIN
544          KM   ***AMC II CN USED***
545          PB    1.09
546          BA   19.01
547          LS            85.9
548          KM   SB COUNTY VALLEY:UNDEV S-GRAPH
549          KM   UHG (DERIVED BY AES SOFTWARE)
550          UI   418.5   837.0   837.0   856.6  1012.7  1158.7  1201.8  1349.6  1651.8  1674.9
551          UI  2044.7  1840.0  1988.6  2310.5  2982.8  2775.2  2837.2  3342.3  3398.6  3462.9
552          UI  3182.9  3657.2  4020.1  3406.4  4184.0  3435.1  3349.5  4078.6  3597.4  3348.1
553          UI  3068.9  2525.0  2511.1  2488.4  2131.7  1945.3  1821.6  1629.8  1552.2  1644.0
554          UI  1726.5  1499.6  1025.5  1612.2  1201.4   770.9  1001.5  1004.3  1425.6   915.8
555          UI   781.0   963.6   805.3   776.2   769.0   724.8   717.6   717.2   713.9   678.5
556          UI   669.6   669.6   669.6   586.3   502.4   502.4   573.2   627.5   579.9   450.2
557          UI   443.1   443.0   443.5   493.2   585.8   427.0   406.8   406.4   406.4   406.8
558          UI   404.3   381.1   363.9   358.8   358.4   358.8   358.8   358.8   311.7   278.8
559          UI   280.5   294.0   294.8   295.6   294.8   295.6   295.6   295.7   294.8   295.6
560          UI   288.9   240.9   233.3   234.2   233.3   233.3   234.2   233.3   233.3   234.2
561          UI   233.3   233.3   234.2   213.9   187.0   186.2   185.3   187.0   185.3   186.2
562          UI   186.2   186.2   185.3   186.2   187.0   185.3   186.2   185.3   185.3   165.9
563          UI   147.4   148.3   147.4   147.4   147.4   148.2   148.3   146.6   149.1   145.7
564          UI   149.9   146.6   146.6   149.9   146.6   148.2   146.6   148.2   148.2   114.5
             *
1                                          HEC-1 INPUT                                          PAGE 13

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

565          KK    CP10
566          KM   COMBINE CP9, OFF12
567          HC       2
             *
568          ZZ
1
             SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    33      LOVEL
```

```
              V
              V
 84         RT1
              .
              .
 87           .       EAST1
              .           .
              .           .
102           .           .        OFF4
              .           .           .
              .           .           .
124         CP1.......................
              .
              .
127           .        OFF5
              .           .
              .           .
149         CP2............
              .
              .
152           .       TROUT
              .           V
              .           V
174           .         RT2
              .           .
              .           .
177           .           .        OFF2
              .           .           .
              .           .           .
199           .           .           .        OFF3
              .           .           .           .
              .           .           .           .
221           .           .           .           .       OFF1G
              .           .           .           .           .
              .           .           .           .           .
239           .         CP3...................................
              .           .
              .           .
242           .           .         ON1
              .           .           .
              .           .           .
256           .         CP4............
              .           .
              .           .
259           .           .        OFF7
              .           .           .
              .           .           .
272         CP5.......................
              .
              .
275           .        OFF8
              .           .
              .           .
296         CP6............
              .
              .
299           .        OFF9
              .           .
              .           .
311         CP7............
              .
              .
314           .       OFF11
              .           .
              .           .
336         CP8............
              .
              .
339           .       OFF1F
              .           .
              .           .
362           .           .       OFF1E
              .           .           .
              .           .           .
385           .           .           .       OFF1D
              .           .           .           .
              .           .           .           .
404           .           .           .           .       OFF1C
              .           .           .           .           .
              .           .           .           .           .
424           .           .           .           .           .       OFF1B
              .           .           .           .           .           .
              .           .           .           .           .           .
447           .           .           .           .           .           .       OFF1A
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
468           .           .           .           .           .           .           .       OFF1Z
              .           .           .           .           .           .           .           .
              .           .           .           .           .           .           .           .
482           .         CPA.......................................................................
              .           .
              .           .
485           .           .         ON2
              .           .           .
              .           .           .
503           .         CPC............
              .           .
              .           .
506           .           .        STA1
              .           .           .
              .           .           .
518           .         CPD............
              .           .
              .           .
521           .           .         ON3
              .           .           .
```

```
                    .          .          .
   539         CP9.......................
                    .
                    .
   542           .       OFF12
                    .          .
                    .          .
   565        CP10............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************                                    ****************************************
 *                                      *                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                    *          609 SECOND STREET           *
 *                                      *                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   16MAY11  TIME  17:47:15  *                                    *           (916) 756-1104             *
 *                                      *                                    *                                      *
 ****************************************                                    ****************************************
```

```
                          ******************************************************************
                             TECHNICAL DRAINAGE STUDY
                             HIDDEN HILLS RANCH SEGS
                             FILE_________________________7302E2.DAT
                             CONDITION____________________2-YEAR - EXISTING CONDITION
                             STORM DURATION_______________24 HOURS
                             DATE_________________________02-2011
                             DISTRIBUTION_________________SAN BERNARDINO COUNTY METHODOLOGY
                             AMC CONDITION ________________AMC I & II CN'S USED
                             MODELED BY___________________VTN NEVADA

                           PLUGGING IN UNIT HYDROGRAPH ORDINATES (UI'S) FROM AES SOFTWARE
                          ******************************************************************
                           DEPTH-AREA REDUCTION FACTOR (DARF) REF. FROM SB COUNTY
                           DEPTH AREA CURVES (FIG. E-4).

                             BASIN AREA
                            RANGE(sq.mi.)          DARF

                               1 -  10             1.00
                               10 - 20             0.98
                               20 - 30             0.97
                               30 - 50             0.96
                               50 - 70             0.95
                               70 - 100            0.94
                               100 -350            0.93

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

   31 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         600  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      3    0  ENDING DATE
                       NDTIME        0155  ENDING TIME
                       ICENT          19  CENTURY MARK

                    COMPUTATION INTERVAL     .08 HOURS
                         TOTAL TIME BASE   49.92 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
                     1.00       .98       .97       .96       .95       .94       .93
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


                                                          RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN            RATIO 1  RATIO 2  RATIO 3  RATIO 4  RATIO 5  RATIO 6  RATIO 7
                                                        1.00      .98      .97      .96      .95      .94      .93

 HYDROGRAPH AT
+                 LOVEL     53.18     1   FLOW         216.     197.     188.     179.     170.     161.     153.
                                           TIME        24.08    24.08    24.08    24.08    24.08    24.50    24.50

 ROUTED TO
+                   RT1     53.18     1   FLOW         310.     264.     240.     221.     205.     179.     169.
                                           TIME        23.17    23.58    24.08    24.00    24.25    25.08    24.83

 HYDROGRAPH AT
+                 EAST1      2.70     1   FLOW          36.      32.      30.      29.      27.      26.      24.
```

				TIME	16.67	16.67	16.67	16.67	17.17	17.17	17.17
HYDROGRAPH AT +	OFF4	30.13	1	FLOW	47.	42.	40.	37.	35.	33.	30.
				TIME	24.67	24.67	24.67	24.67	24.67	24.67	24.67
3 COMBINED AT +	CP1	86.01	1	FLOW	366.	317.	294.	271.	253.	218.	205.
				TIME	23.17	23.58	24.08	24.00	24.25	24.50	24.83
HYDROGRAPH AT +	OFF5	50.58	1	FLOW	0.	0.	0.	0.	0.	0.	0.
				TIME	.00	.00	.00	.00	.00	.00	.00
2 COMBINED AT +	CP2	136.59	1	FLOW	366.	317.	294.	271.	253.	218.	205.
				TIME	23.17	23.58	24.08	24.00	24.25	24.50	24.83
HYDROGRAPH AT +	TROUT	109.75	1	FLOW	350.	317.	300.	284.	268.	253.	238.
				TIME	24.08	24.08	24.08	24.08	24.08	24.08	24.08
ROUTED TO +	RT2	109.75	1	FLOW	349.	316.	300.	284.	269.	253.	238.
				TIME	26.17	26.25	26.33	26.33	26.42	26.42	26.50
HYDROGRAPH AT +	OFF2	26.22	1	FLOW	51.	46.	44.	42.	39.	37.	35.
				TIME	24.42	24.42	24.42	24.42	24.67	24.67	24.67
HYDROGRAPH AT +	OFF3	6.13	1	FLOW	8.	7.	7.	6.	6.	5.	5.
				TIME	24.42	24.42	24.42	24.42	24.50	24.50	24.50
HYDROGRAPH AT +	OFF1G	1.74	1	FLOW	2.	1.	1.	1.	1.	1.	1.
				TIME	24.33	24.33	24.33	24.33	24.33	24.50	24.50
4 COMBINED AT +	CP3	143.84	1	FLOW	386.	348.	330.	311.	293.	276.	259.
				TIME	26.17	26.25	26.25	26.33	26.33	26.42	26.42
HYDROGRAPH AT +	ON1	2.35	1	FLOW	2.	2.	2.	2.	1.	1.	1.
				TIME	24.25	24.25	24.25	24.25	24.25	24.33	24.33
2 COMBINED AT +	CP4	146.19	1	FLOW	387.	348.	330.	311.	294.	276.	259.
				TIME	26.17	26.25	26.25	26.33	26.33	26.42	26.42
HYDROGRAPH AT +	OFF7	1.77	1	FLOW	0.	0.	0.	0.	0.	0.	0.
				TIME	.00	.00	.00	.00	.00	.00	.00
3 COMBINED AT +	CP5	284.55	1	FLOW	671.	596.	568.	536.	500.	467.	441.
				TIME	23.17	24.42	24.08	24.58	24.83	25.08	26.42
HYDROGRAPH AT +	OFF8	10.42	1	FLOW	0.	0.	0.	0.	0.	0.	0.
				TIME	.00	.00	.00	.00	.00	.00	.00
2 COMBINED AT +	CP6	294.97	1	FLOW	671.	596.	568.	536.	500.	467.	441.
				TIME	23.17	24.42	24.08	24.58	24.83	25.08	26.42
HYDROGRAPH AT +	OFF9	.91	1	FLOW	0.	0.	0.	0.	0.	0.	0.
				TIME	.00	.00	.00	.00	.00	.00	.00
2 COMBINED AT +	CP7	295.88	1	FLOW	671.	596.	568.	536.	500.	467.	441.
				TIME	23.17	24.42	24.08	24.58	24.83	25.08	26.42
HYDROGRAPH AT +	OFF11	11.66	1	FLOW	0.	0.	0.	0.	0.	0.	0.
				TIME	.00	.00	.00	.00	.00	.00	.00
2 COMBINED AT +	CP8	307.54	1	FLOW	671.	596.	568.	536.	500.	467.	441.
				TIME	23.17	24.42	24.08	24.58	24.83	25.08	26.42
HYDROGRAPH AT +	OFF1F	2.28	1	FLOW	52.	49.	48.	46.	45.	44.	42.
				TIME	17.33	17.33	17.33	17.33	17.33	17.33	17.33
HYDROGRAPH AT +	OFF1E	4.74	1	FLOW	111.	105.	102.	99.	97.	94.	91.
				TIME	17.58	17.58	17.83	17.83	17.83	17.83	17.83
HYDROGRAPH AT +	OFF1D	1.15	1	FLOW	32.	30.	29.	28.	27.	26.	25.
				TIME	16.92	16.92	16.92	16.92	16.92	16.92	16.92
HYDROGRAPH AT +	OFF1C	1.25	1	FLOW	33.	31.	30.	29.	28.	28.	27.
				TIME	16.92	16.92	16.92	16.92	16.92	16.92	16.92
HYDROGRAPH AT +	OFF1B	4.37	1	FLOW	98.	93.	90.	88.	85.	83.	80.
				TIME	17.75	17.75	17.75	17.75	17.75	17.75	17.75
HYDROGRAPH AT +	OFF1A	1.44	1	FLOW	36.	34.	33.	32.	31.	30.	29.
				TIME	17.08	17.08	17.08	17.08	17.08	17.08	17.08

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 HYDROGRAPH AT
+                  OFF1Z       .64     1   FLOW        23.      21.      21.      20.      20.      19.      18.
                                           TIME      16.42    16.42    16.42    16.42    16.42    16.42    16.42

  7 COMBINED AT
+                    CPA     15.87     1   FLOW       351.     332.     323.     313.     304.     295.     286.
                                           TIME      17.42    17.42    17.42    17.42    17.42    17.42    17.42

 HYDROGRAPH AT
+                    ON2      4.84     1   FLOW       138.     130.     126.     123.     119.     115.     111.
                                           TIME      16.75    16.75    16.75    16.75    16.75    16.75    16.75

  2 COMBINED AT
+                    CPC     20.71     1   FLOW       464.     438.     426.     413.     401.     388.     376.
                                           TIME      17.17    17.17    17.17    17.17    17.17    17.17    17.17

 HYDROGRAPH AT
+                   STA1       .28     1   FLOW        16.      15.      15.      14.      14.      13.      13.
                                           TIME      16.17    16.17    16.17    16.17    16.17    16.17    16.17

  2 COMBINED AT
+                    CPD     20.99     1   FLOW       469.     444.     431.     418.     406.     393.     381.
                                           TIME      17.17    17.17    17.17    17.17    17.17    17.17    17.17

 HYDROGRAPH AT
+                    ON3      3.70     1   FLOW         4.       4.       4.       3.       3.       3.       2.
                                           TIME      24.25    24.25    24.25    24.25    24.33    24.33    24.33

  3 COMBINED AT
+                    CP9    332.23     1   FLOW       847.     766.     736.     688.     653.     599.     551.
                                           TIME      23.17    24.17    24.08    24.00    24.25    24.50    24.83

 HYDROGRAPH AT
+                  OFF12     19.01     1   FLOW       441.     420.     409.     398.     388.     377.     367.
                                           TIME      18.00    18.00    18.00    18.00    18.00    18.00    18.00

  2 COMBINED AT
+                   CP10    351.24     1   FLOW      1033.     942.     911.     858.     818.     757.     719.
                                           TIME      23.17    24.17    24.08    24.00    24.25    24.50    17.58
1
                                           SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                               (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                   INTERPOLATED TO
                                                                                COMPUTATION INTERVAL
            ISTAQ    ELEMENT      DT       PEAK    TIME TO     VOLUME      DT        PEAK    TIME TO     VOLUME
                                                      PEAK                                     PEAK

                                (MIN)     (CFS)     (MIN)      (IN)     (MIN)     (CFS)     (MIN)       (IN)

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00    309.53   1390.00       .06      5.00    309.53   1390.00        .06

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1672E+03 EXCESS= .0000E+00 OUTFLOW= .1717E+03 BASIN STORAGE= .2796E+01 PERCENT ERROR=  -4.3

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00    263.93   1415.00       .05      5.00    263.93   1415.00        .05

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1493E+03 EXCESS= .0000E+00 OUTFLOW= .1533E+03 BASIN STORAGE= .3129E+01 PERCENT ERROR=  -4.7

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00    240.24   1445.00       .05      5.00    240.24   1445.00        .05

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1407E+03 EXCESS= .0000E+00 OUTFLOW= .1445E+03 BASIN STORAGE= .3282E+01 PERCENT ERROR=  -5.0

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00    220.95   1440.00       .05      5.00    220.95   1440.00        .05

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1324E+03 EXCESS= .0000E+00 OUTFLOW= .1359E+03 BASIN STORAGE= .3434E+01 PERCENT ERROR=  -5.2

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00    204.88   1455.00       .04      5.00    204.88   1455.00        .04

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1243E+03 EXCESS= .0000E+00 OUTFLOW= .1276E+03 BASIN STORAGE= .3701E+01 PERCENT ERROR=  -5.6

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00    179.24   1505.00       .04      5.00    179.24   1505.00        .04

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1164E+03 EXCESS= .0000E+00 OUTFLOW= .1194E+03 BASIN STORAGE= .3849E+01 PERCENT ERROR=  -5.9

          FOR PLAN = 1  RATIO=  .00
               RT1  MANE         5.00    168.74   1490.00       .04      5.00    168.74   1490.00        .04

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1087E+03 EXCESS= .0000E+00 OUTFLOW= .1115E+03 BASIN STORAGE= .4077E+01 PERCENT ERROR=  -6.4

          FOR PLAN = 1  RATIO=  .00
               RT2  MANE         5.00    349.19   1570.00       .04      5.00    349.19   1570.00        .04

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2376E+03 EXCESS= .0000E+00 OUTFLOW= .2397E+03 BASIN STORAGE= .9515E-01 PERCENT ERROR=   -.9

          FOR PLAN = 1  RATIO=  .00
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          RT2  MANE         5.00    316.32   1575.00       .04      5.00    316.32   1575.00         .04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2083E+03 EXCESS= .0000E+00 OUTFLOW= .2102E+03 BASIN STORAGE= .1224E+00 PERCENT ERROR=   -.9

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00    300.27   1580.00       .03      5.00    300.27   1580.00         .03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1943E+03 EXCESS= .0000E+00 OUTFLOW= .1960E+03 BASIN STORAGE= .9380E-01 PERCENT ERROR=   -.9

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00    284.35   1580.00       .03      5.00    284.35   1580.00         .03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1808E+03 EXCESS= .0000E+00 OUTFLOW= .1823E+03 BASIN STORAGE= .1026E+00 PERCENT ERROR=   -.9

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00    268.74   1585.00       .03      5.00    268.74   1585.00         .03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1677E+03 EXCESS= .0000E+00 OUTFLOW= .1691E+03 BASIN STORAGE= .1136E+00 PERCENT ERROR=   -.9

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00    253.33   1585.00       .03      5.00    253.33   1585.00         .03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1551E+03 EXCESS= .0000E+00 OUTFLOW= .1563E+03 BASIN STORAGE= .1017E+00 PERCENT ERROR=   -.9

      FOR PLAN = 1  RATIO=  .00
          RT2  MANE         5.00    238.38   1590.00       .02      5.00    238.38   1590.00         .02

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1429E+03 EXCESS= .0000E+00 OUTFLOW= .1440E+03 BASIN STORAGE= .1122E+00 PERCENT ERROR=   -.9


*** NORMAL END OF HEC-1 ***
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APPENDIX B:

Rainfall Information / References

APPENDIX B:

i. Rainfall Depths Summary Sheet

RAINFALL (POINT PRECIPITATION) DEPTHS
SUMMARY SHEET
Project: Hidden Hills Ranch SEGS
WO#: 7302

		24-Hr Storm Rainfall Depths (Un-Adjusted) in Inches - NOAA Atlas 14							6-Hr Storm Rainfall Depths (Un-Adjusted) in Inches - NOAA Atlas 14						
BASIN LABEL	**AREA (sq.mi.)**	**Aeral Adj. Factor (Ref. SB County Fig E-4)**	**100-Yr**	**50-Yr**	**25-Yr**	**10-Yr**	**5-Yr**	**2-Yr**	**Aeral Adj. Factor (Ref. SB County Fig E-4)**	**100-Yr**	**50-Yr**	**25-yr**	**10-Yr**	**5-Yr**	**2-Yr**
LOVEL	53.18	0.95	5.81	5.02	4.34	3.48	2.91	2.06	0.92	3.37	2.90	2.55	2.00	1.63	1.19
EAST1	2.70	1.00	3.65	3.13	2.76	2.21	1.81	1.33	1.00	2.70	2.40	1.94	1.51	1.24	0.90
TROUT	109.75	0.93	5.03	4.81	3.79	3.13	2.60	1.84	0.88	3.12	2.68	2.30	1.83	1.51	1.10
OFF1A	1.44	1.00	2.81	2.60	2.19	1.79	1.50	1.09	1.00	2.33	2.00	1.69	1.33	1.08	0.78
OFF1B	4.37	1.00	2.81	2.60	2.19	1.79	1.50	1.09	1.00	2.33	2.00	1.69	1.33	1.08	0.78
OFF1C	1.25	1.00	2.81	2.60	2.19	1.79	1.50	1.09	1.00	2.33	2.00	1.69	1.33	1.08	0.78
OFF1D	1.15	1.00	2.81	2.60	2.19	1.79	1.50	1.09	1.00	2.33	2.00	1.69	1.33	1.08	0.78
OFF1E	4.74	1.00	2.81	2.60	2.19	1.79	1.50	1.09	1.00	2.33	2.00	1.69	1.33	1.08	0.78
OFF1F	2.28	1.00	2.81	2.60	2.19	1.79	1.50	1.09	1.00	2.33	2.00	1.69	1.33	1.08	0.78
OFF1G	1.74	1.00	2.81	2.60	2.19	1.79	1.50	1.09	1.00	2.33	2.00	1.69	1.33	1.08	0.78
OFF1Z	0.64	1.00	2.81	2.60	2.19	1.79	1.50	1.09	1.00	2.33	2.00	1.69	1.33	1.08	0.78
OFF2	26.22	0.97	2.91	2.60	2.35	1.79	1.50	1.09	0.96	2.33	2.00	1.69	1.33	1.08	0.78
OFF3	6.13	1.00	2.91	2.60	2.28	1.79	1.50	1.09	1.00	2.33	2.00	1.69	1.33	1.08	0.78
OFF4	30.13	0.96	2.91	2.60	2.36	1.79	1.50	1.09	0.94	2.45	2.20	1.97	1.33	1.08	0.80
OFF5	50.58	0.95	3.14	2.76	2.59	2.14	1.69	1.24	0.92	2.58	2.00	1.69	1.56	1.22	0.88
OFF7	1.77	1.00	2.84	2.60	2.19	1.79	1.50	1.09	1.00	2.40	2.00	1.69	1.33	1.08	0.78
OFF8	10.42	0.98	2.96	2.60	2.19	1.79	1.50	1.09	0.97	2.40	2.00	1.69	1.33	1.08	0.78
OFF9	0.91	1.00	2.81	2.60	2.19	1.79	1.50	1.09	1.00	2.33	2.00	1.69	1.33	1.08	0.78
OFF11	11.66	0.98	2.81	2.60	2.19	1.79	1.50	1.09	0.97	2.33	2.00	1.69	1.33	1.08	0.78
OFF12	19.01	0.98	2.81	2.71	2.36	1.93	1.50	1.09	0.97	2.30	2.00	1.69	1.33	1.08	0.78
ON1	2.35	1.00	2.90	2.60	2.19	1.79	1.50	1.09	1.00	2.33	2.00	1.69	1.33	1.08	0.78
ON2	4.84	1.00	2.90	2.60	2.19	1.79	1.50	1.09	1.00	2.33	2.00	1.69	1.33	1.08	0.78
ON3	3.70	1.00	2.90	2.60	2.19	1.79	1.50	1.09	1.00	2.33	2.00	1.69	1.33	1.08	0.78
STA1	0.28	1.00	2.90	2.60	2.19	1.79	1.50	1.09	1.00	2.33	2.00	1.69	1.33	1.08	0.78

Notes:
1. Rainfall (point precipitation) depths obtained from NOAA Atlas 14.
2. Isopluvial contour maps (NOAA Atlas 14) used for area-average-weighting rainfall depths on large basins (i.e. LOVEL, TROUT, etc.).
3. Point precipitation frequency estimates (NOAA Atlas 14) tabulation worksheet was referenced for smaller basins at the centroid of the entire watershed

BSE Document Control Number: HYD200-R1

RAINFALL (POINT PRECIPITATION) DEPTHS
SUMMARY SHEET
Project: Hidden Hills Ranch SEGS
WO#: 7302

		3-Hr Storm Rainfall Depths (Un-Adjusted) in Inches - NOAA Atlas 14							1-Hr Storm Rainfall Depths (Un-Adjusted) in Inches - NOAA Atlas 14						
BASIN LABEL	**AREA (sq.mi.)**	**Aeral Adj. Factor (Ref. SB County Fig E-4)**	**100-Yr**	**50-Yr**	**25-yr**	**10-Yr**	**5-Yr**	**2-Yr**	**Aeral Adj. Factor (Ref. SB County Fig E-4)**	**100-Yr**	**50-Yr**	**25-yr**	**10-Yr**	**5-Yr**	**2-Yr**
LOVEL	53.18	0.84	3.31	2.58	2.16	1.68	1.38	1.00	0.49	2.35	2.03	1.73	1.36	1.11	0.78
EAST1	2.70	0.99	2.33	1.95	1.62	1.25	1.01	0.74	0.99	1.64	1.52	1.26	0.87	0.80	0.58
TROUT	109.75	0.73	2.75	2.31	1.93	1.51	1.25	0.89	0.40	2.17	1.84	1.59	1.27	1.00	0.70
OFF1A	1.44	1.00	1.97	1.66	1.40	1.08	0.87	0.62	1.00	1.64	1.38	1.15	0.87	0.69	0.48
OFF1B	4.37	0.98	1.97	1.66	1.40	1.08	0.87	0.62	0.85	1.64	1.38	1.15	0.87	0.69	0.48
OFF1C	1.25	1.00	1.97	1.66	1.40	1.08	0.87	0.62	1.00	1.64	1.38	1.15	0.87	0.69	0.48
OFF1D	1.15	1.00	1.97	1.66	1.40	1.08	0.87	0.62	1.00	1.64	1.38	1.15	0.87	0.69	0.48
OFF1E	4.74	0.98	1.97	1.66	1.40	1.08	0.87	0.62	0.85	1.64	1.38	1.15	0.87	0.69	0.48
OFF1F	2.28	0.99	1.97	1.66	1.40	1.08	0.87	0.62	0.95	1.64	1.38	1.15	0.87	0.69	0.48
OFF1G	1.74	1.00	1.97	1.66	1.40	1.08	0.87	0.62	1.00	1.64	1.38	1.15	0.87	0.69	0.48
OFF1Z	0.64	1.00	1.97	1.66	1.40	1.08	0.87	0.62	1.00	1.64	1.38	1.15	0.87	0.69	0.48
OFF2	26.22	0.91	2.02	1.74	1.40	1.08	0.87	0.62	0.61	1.64	1.38	1.15	0.87	0.69	0.48
OFF3	6.13	0.98	2.03	1.71	1.40	1.08	0.87	0.62	0.81	1.64	1.38	1.15	0.87	0.69	0.48
OFF4	30.13	0.90	2.07	1.75	1.40	1.08	0.87	0.62	0.58	1.64	1.42	1.15	0.87	0.69	0.48
OFF5	50.58	0.84	2.14	1.81	1.59	1.20	0.96	0.71	0.49	1.74	1.47	1.25	0.94	0.75	0.53
OFF7	1.77	1.00	2.00	1.66	1.40	1.08	0.87	0.62	1.00	1.64	1.38	1.15	0.87	0.69	0.48
OFF8	10.42	0.96	2.00	1.66	1.40	1.08	0.90	0.62	0.75	1.64	1.38	1.15	0.87	0.69	0.48
OFF9	0.91	1.00	1.97	1.66	1.40	1.08	0.87	0.62	1.00	1.64	1.38	1.15	0.87	0.69	0.48
OFF11	11.66	0.96	1.97	1.66	1.40	1.08	0.87	0.62	0.74	1.64	1.38	1.15	0.87	0.69	0.48
OFF12	19.01	0.93	1.97	1.73	1.44	1.08	0.90	0.62	0.64	1.73	1.42	1.15	0.87	0.70	0.48
ON1	2.35	0.99	1.97	1.66	1.40	1.08	0.87	0.62	0.99	1.64	1.38	1.15	0.87	0.69	0.48
ON2	4.84	0.98	1.97	1.66	1.40	1.08	0.87	0.62	0.85	1.64	1.38	1.15	0.87	0.69	0.48
ON3	3.70	0.98	1.97	1.66	1.40	1.08	0.87	0.62	0.86	1.64	1.38	1.15	0.87	0.69	0.48
STA1	0.28	1.00	1.97	1.66	1.40	1.08	0.87	0.62	1.00	1.64	1.38	1.15	0.87	0.69	0.48

Notes:
1. Rainfall (point precipitation) depths obtained from NOAA Atlas 14.
2. Isopluvial contour maps (NOAA Atlas 14) used for area-average-weighting rainfall depths on large basins (i.e. LOVEL, TROUT, etc.).
3. Point precipitation frequency estimates (NOAA Atlas 14) tabulation worksheet was referenced for smaller basins at the centroid of the entire watershed

BSE Document Control Number: HYD200-R1

RAINFALL (POINT PRECIPITATION) DEPTHS
SUMMARY SHEET
Project: Hidden Hills Ranch SEGS
WO#: 7302

		30-min Storm Rainfall Depths (Un-Adjusted) in Inches - NOAA Atlas 14							5-min Storm Rainfall Depths (Un-Adjusted) in Inches - NOAA Atlas 14						
BASIN LABEL	**AREA (sq.mi.)**	**Aeral Adj. Factor (Ref. SB County Fig E-4)**	**100-Yr**	**50-Yr**	**25-yr**	**10-Yr**	**5-Yr**	**2-Yr**	**Aeral Adj. Factor (Ref. SB County Fig E-4)**	**100-Yr**	**50-Yr**	**25-yr**	**10-Yr**	**5-Yr**	**2-Yr**
LOVEL	53.18	0.47	1.89	1.63	1.39	1.10	0.89	0.64	0.43	0.73	0.63	0.54	0.43	0.37	0.27
EAST1	2.70	0.99	1.33	1.22	1.50	0.71	0.64	0.45	0.99	0.63	0.44	0.36	0.28	0.22	0.15
TROUT	109.75	0.35	1.75	1.50	1.26	0.99	0.80	0.56	0.28	0.69	0.58	0.49	0.39	0.33	0.23
OFF1A	1.44	1.00	1.33	1.11	0.93	0.71	0.56	0.39	1.00	0.63	0.44	0.36	0.28	0.22	0.15
OFF1B	4.37	0.85	1.33	1.11	0.93	0.71	0.56	0.39	0.85	0.63	0.44	0.36	0.28	0.22	0.15
OFF1C	1.25	1.00	1.33	1.11	0.93	0.71	0.56	0.39	1.00	0.63	0.44	0.36	0.28	0.22	0.15
OFF1D	1.15	1.00	1.33	1.11	0.93	0.71	0.56	0.39	1.00	0.63	0.44	0.36	0.28	0.22	0.15
OFF1E	4.74	0.85	1.33	1.11	0.93	0.71	0.56	0.39	0.85	0.63	0.44	0.36	0.28	0.22	0.15
OFF1F	2.28	0.95	1.33	1.11	0.93	0.71	0.56	0.39	0.95	0.63	0.44	0.36	0.28	0.22	0.15
OFF1G	1.74	1.00	1.33	1.11	0.93	0.71	0.56	0.39	1.00	0.63	0.44	0.36	0.28	0.22	0.15
OFF1Z	0.64	1.00	1.33	1.11	0.93	0.71	0.56	0.39	1.00	0.63	0.44	0.36	0.28	0.22	0.15
OFF2	26.22	0.60	1.33	1.11	0.93	0.71	0.56	0.39	0.57	0.63	0.44	0.36	0.28	0.22	0.15
OFF3	6.13	0.81	1.33	1.11	0.93	0.71	0.56	0.39	0.81	0.63	0.44	0.36	0.28	0.22	0.15
OFF4	30.13	0.56	1.33	1.11	0.93	0.71	0.56	0.39	0.54	0.63	0.44	0.36	0.28	0.22	0.15
OFF5	50.58	0.47	1.42	1.21	1.02	0.71	0.62	0.42	0.44	0.63	0.44	0.36	0.28	0.22	0.15
OFF7	1.77	1.00	1.33	1.11	0.93	0.71	0.56	0.39	1.00	0.63	0.44	0.36	0.28	0.22	0.15
OFF8	10.42	0.75	1.33	1.11	0.93	0.71	0.56	0.39	0.75	0.63	0.44	0.36	0.28	0.22	0.15
OFF9	0.91	1.00	1.33	1.11	0.93	0.71	0.56	0.39	1.00	0.63	0.44	0.36	0.28	0.22	0.15
OFF11	11.66	0.74	1.33	1.11	0.93	0.71	0.56	0.39	0.74	0.63	0.44	0.36	0.28	0.22	0.15
OFF12	19.01	0.64	1.33	1.11	0.93	0.71	0.56	0.39	0.62	0.63	0.44	0.36	0.28	0.22	0.15
ON1	2.35	0.99	1.33	1.11	0.93	0.71	0.56	0.39	0.99	0.63	0.44	0.36	0.28	0.22	0.15
ON2	4.84	0.85	1.33	1.11	0.93	0.71	0.56	0.39	0.85	0.63	0.44	0.36	0.28	0.22	0.15
ON3	3.70	0.86	1.33	1.11	0.93	0.71	0.56	0.39	0.86	0.63	0.44	0.36	0.28	0.22	0.15
STA1	0.28	1.00	1.33	1.11	0.93	0.71	0.56	0.39	1.00	0.63	0.44	0.36	0.28	0.22	0.15

Notes:
1. Rainfall (point precipitation) depths obtained from NOAA Atlas 14.
2. Isopluvial contour maps (NOAA Atlas 14) used for area-average-weighting rainfall depths on large basins (i.e. LOVEL, TROUT, etc.).
3. Point precipitation frequency estimates (NOAA Atlas 14) tabulation worksheet was referenced for smaller basins at the centroid of the entire watershed

BSE Document Control Number: HYD200-R1

APPENDIX B:

ii. Point Precipitation Frequency Estimate Tabulation Sheet

POINT PRECIPITATION FREQUENCY ESTIMATES FROM NOAA ATLAS 14

Nevada 35.979 N 115.838 W 2778 feet

from "Precipitation-Frequency Atlas of the United States" NOAA Atlas 14, Volume 1, Version 4
G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley
NOAA, National Weather Service, Silver Spring, Maryland, 2006

Extracted: Fri May 21 2010

Confidence Limits | Seasonality | Location Maps | Other Info. | GIS data | Maps | Docs | Return to State Map

Precipitation Frequency Estimates (inches)

ARI* (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	0.12	0.17	0.22	0.29	0.36	0.42	0.48	0.59	0.72	0.83	0.90	0.98	1.10	1.18	1.36	1.55	1.72	1.90
2	0.15	0.23	0.29	0.39	0.48	0.56	0.62	0.78	0.94	1.09	1.18	1.30	1.46	1.57	1.82	2.10	2.33	2.59
5	0.22	0.34	0.42	0.56	0.69	0.80	0.87	1.08	1.31	1.50	1.62	1.78	2.00	2.15	2.54	2.97	3.35	3.79
10	0.28	0.42	0.52	0.71	0.87	1.00	1.08	1.33	1.60	1.79	1.94	2.13	2.38	2.55	3.03	3.58	4.08	4.66
25	0.36	0.55	0.69	0.93	1.15	1.31	1.40	1.69	2.01	2.19	2.37	2.59	2.87	3.06	3.65	4.37	5.03	5.81
50	0.44	0.67	0.83	1.11	1.38	1.58	1.66	1.98	2.33	2.50	2.69	2.94	3.23	3.43	4.10	4.94	5.74	6.69
100	0.52	0.80	0.98	1.33	1.64	1.89	1.97	2.33	2.68	2.81	3.02	3.29	3.59	3.79	4.55	5.51	6.46	7.59
200	0.62	0.94	1.16	1.57	1.94	2.25	2.32	2.70	3.05	3.14	3.36	3.63	3.94	4.14	4.98	6.07	7.18	8.49
500	0.76	1.16	1.44	1.94	2.40	2.80	2.87	3.28	3.59	3.62	3.81	4.10	4.41	4.60	5.54	6.80	8.13	9.71
1000	0.89	1.36	1.68	2.27	2.81	3.29	3.36	3.79	4.08	4.12	4.17	4.48	4.76	4.95	5.94	7.34	8.85	10.65

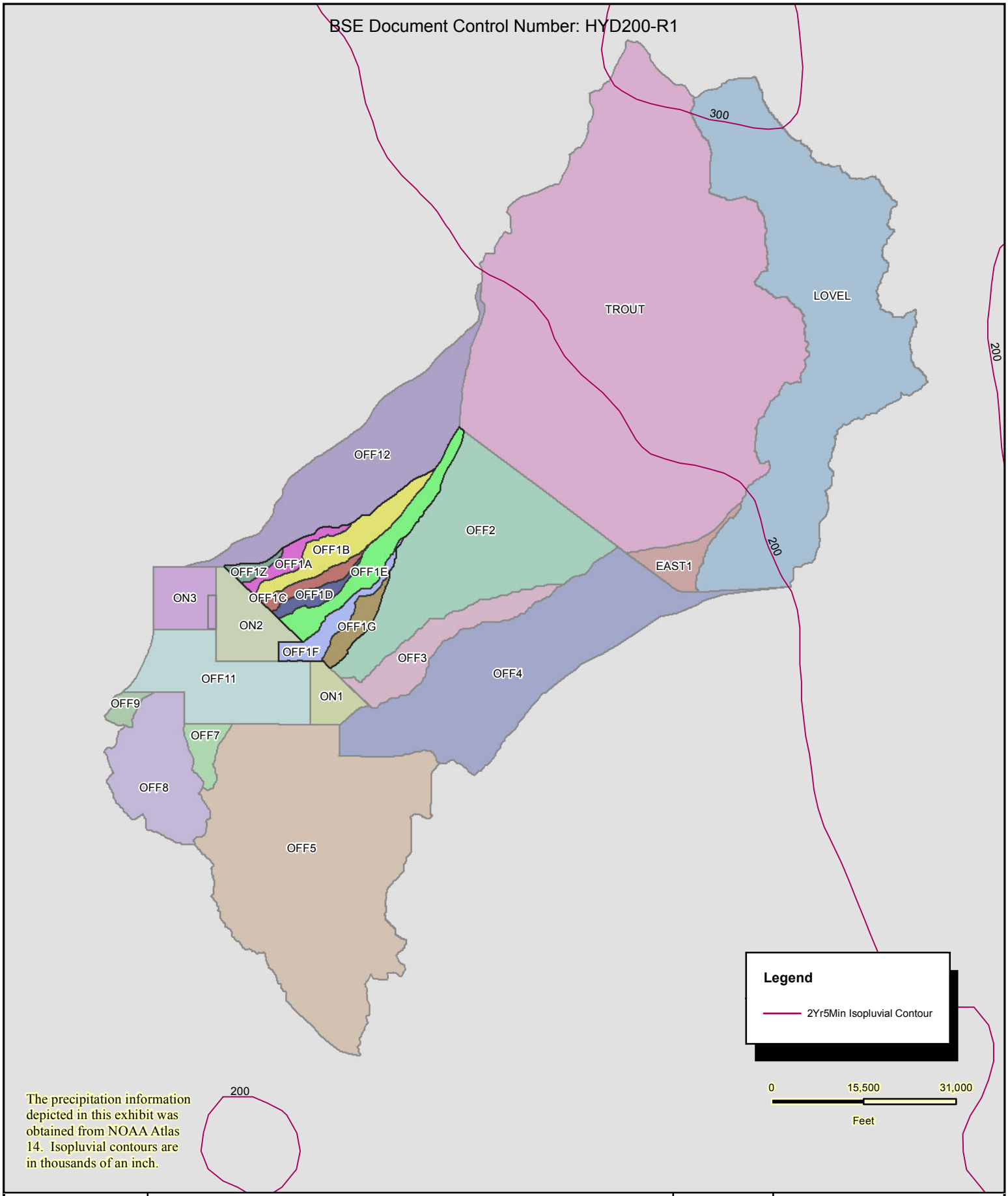
* These precipitation frequency estimates are based on a partial duration series. ARI is the Average Recurrence Interval.
Please refer to NOAA Atlas 14 Document for more information. NOTE: Formatting forces estimates near zero to appear as zero.

B&E Document Control Number: HYD200-R1

APPENDIX B:

iii. NOAA Atlas 14 Isopluvial Contour Maps

BSE Document Control Number: HYD200-R1



The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 5MIN, 2YR

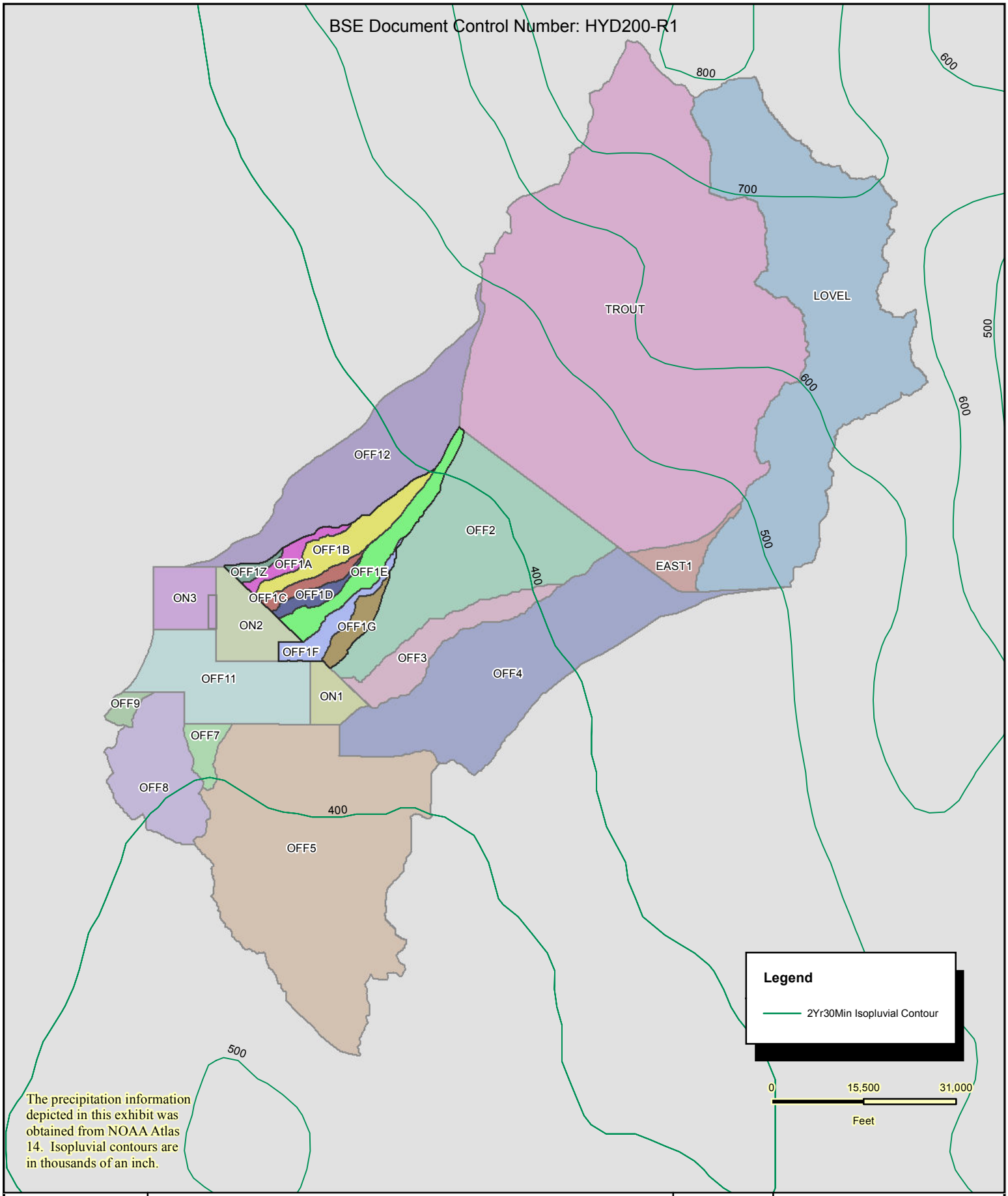
HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	**7302**
DATE	**2/23/2011**
BY:	**RV**
SCALE:	**1 " = 21,000 '**
SHEET:	**36**

Path: J:\7302 - Hidden Hills\GIS\mxd\7302_Rain_Basins.mxd; Date: 2/23/2011

BSE Document Control Number: HYD200-R1



The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

vtn
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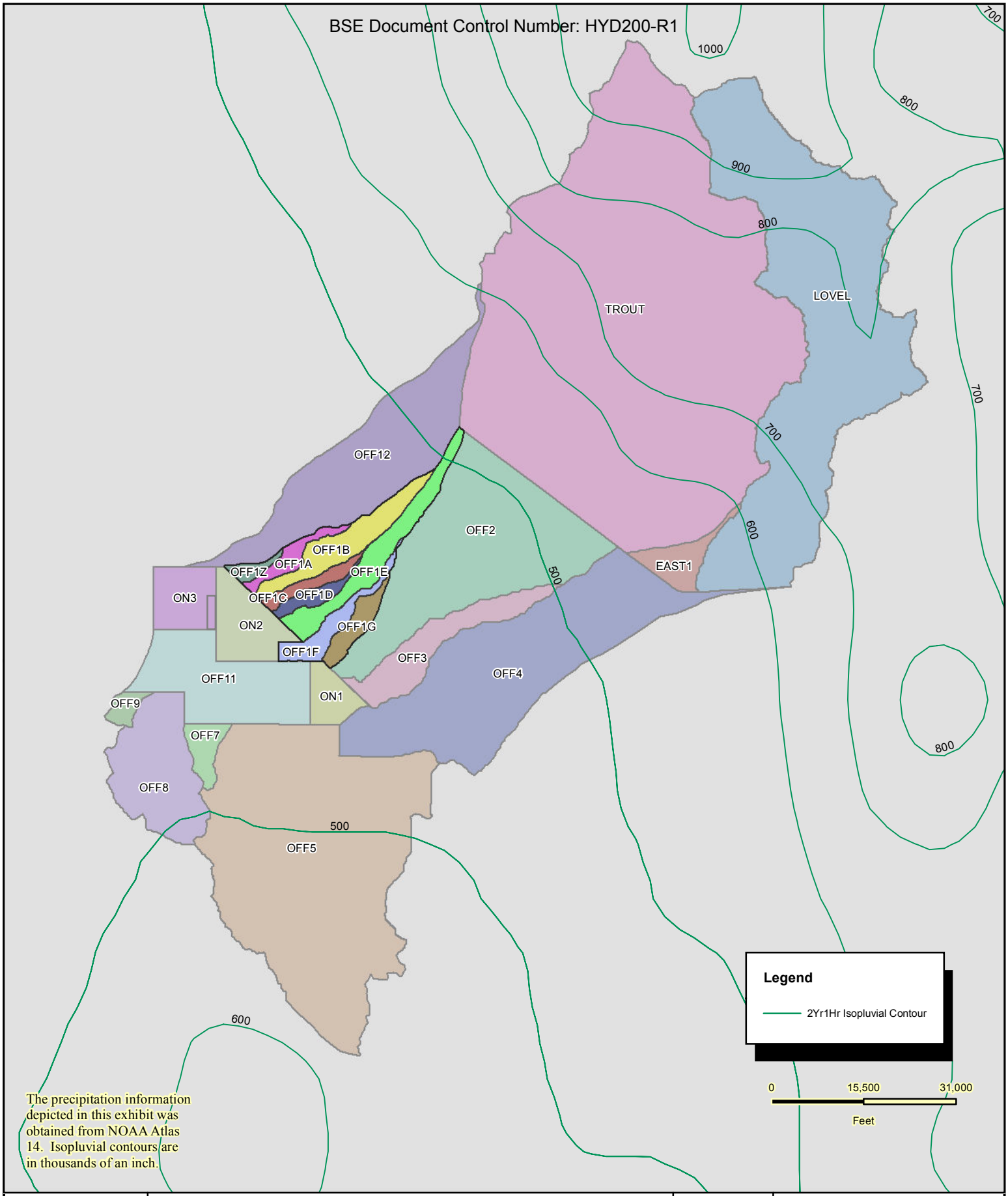
NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 30MIN, 2YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	**7302**
DATE	**2/23/2011**
BY:	**RV**
SCALE:	**1 " = 21,000 '**
SHEET:	**35**

Path: J:\7302 - Hidden Hills\GIS\mxd\7302_Rain_Basins.mxd; Date: 2/23/2011



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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 1HR, 2YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	**7302**
DATE	**2/23/2011**
BY:	**RV**
SCALE:	**1 " = 21,000 '**
SHEET:	**34**

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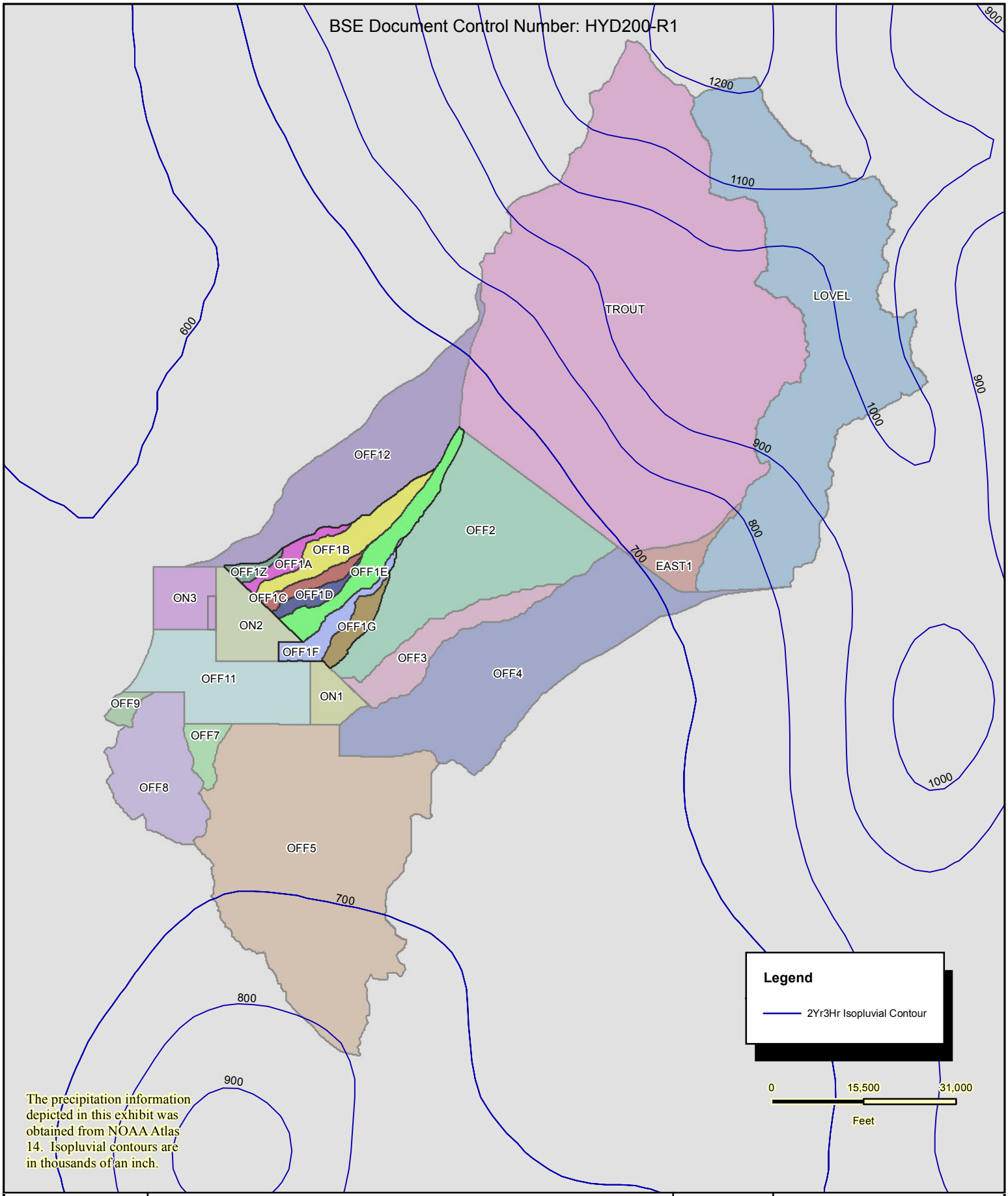

The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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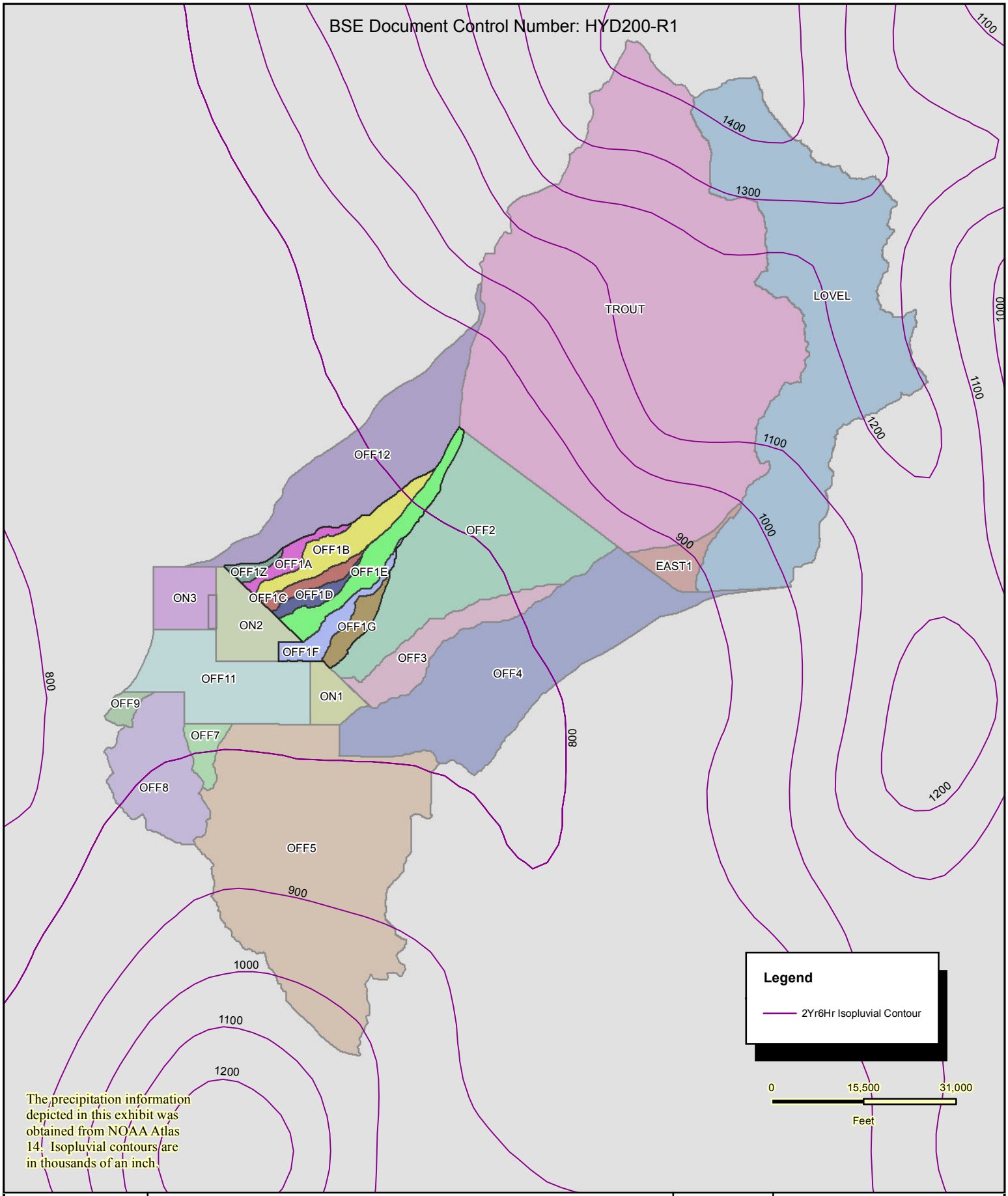
NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 3HR, 2YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	**7302**
DATE	**2/23/2011**
BY:	**RV**
SCALE:	**1 " = 21,000 '**
SHEET:	**33**

Path: J:\7302 - Hidden Hills\GIS\mxd\7302_Rain_Basins.mxd; Date: 2/23/2011



The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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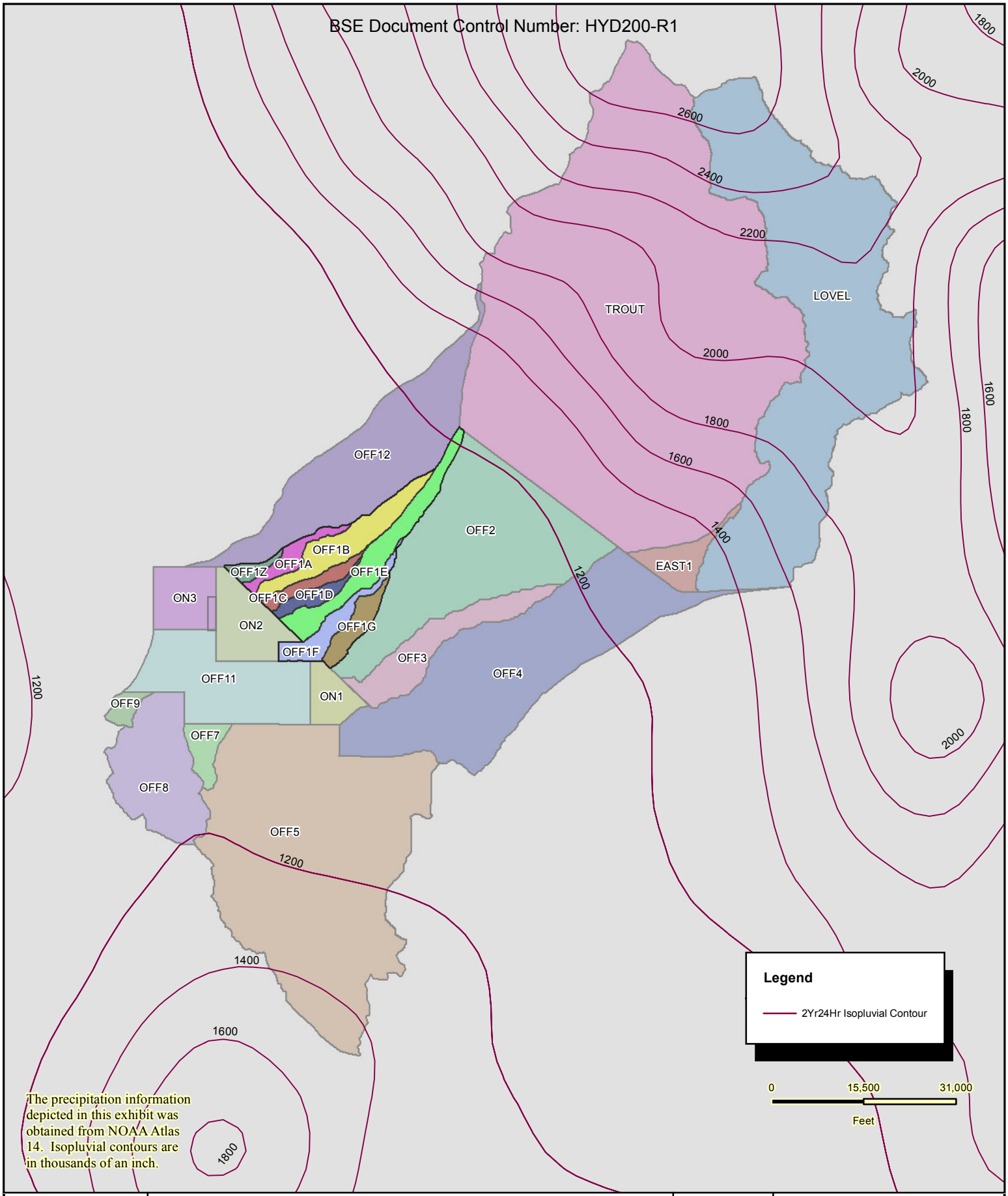
NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 6HR, 2YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	**7302**
DATE	**2/23/2011**
BY:	**RV**
SCALE:	**1 " = 21,000 '**
SHEET:	**32**



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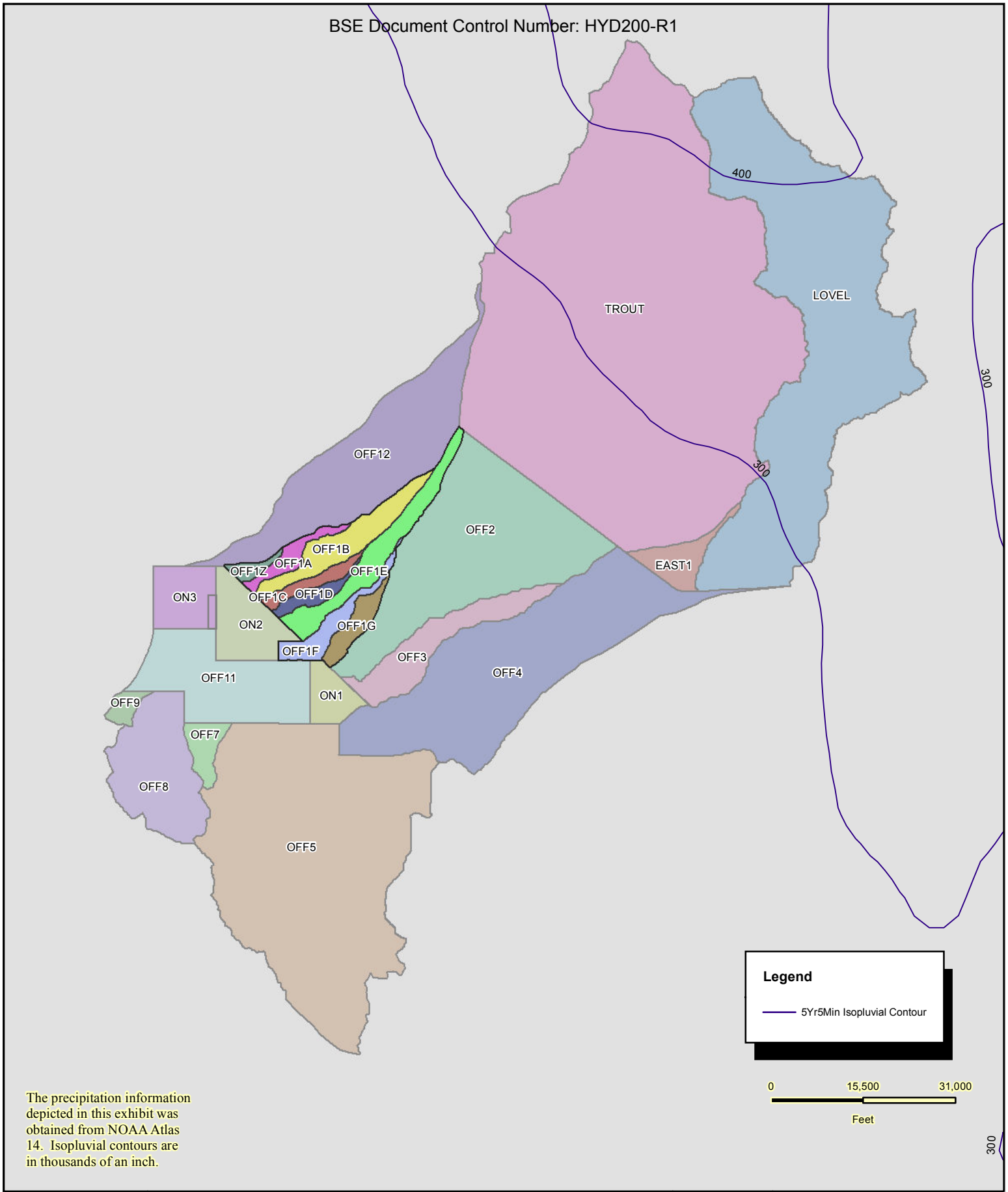
NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 24HR, 2YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	**7302**
DATE	**2/23/2011**
BY:	**RV**
SCALE:	**1 " = 21,000 '**
SHEET:	**31**

BSE Document Control Number: HYD200-R1



The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 5MIN, 5YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	**7302**
DATE	**2/23/2011**
BY:	**RV**
SCALE:	**1 " = 21,000 '**
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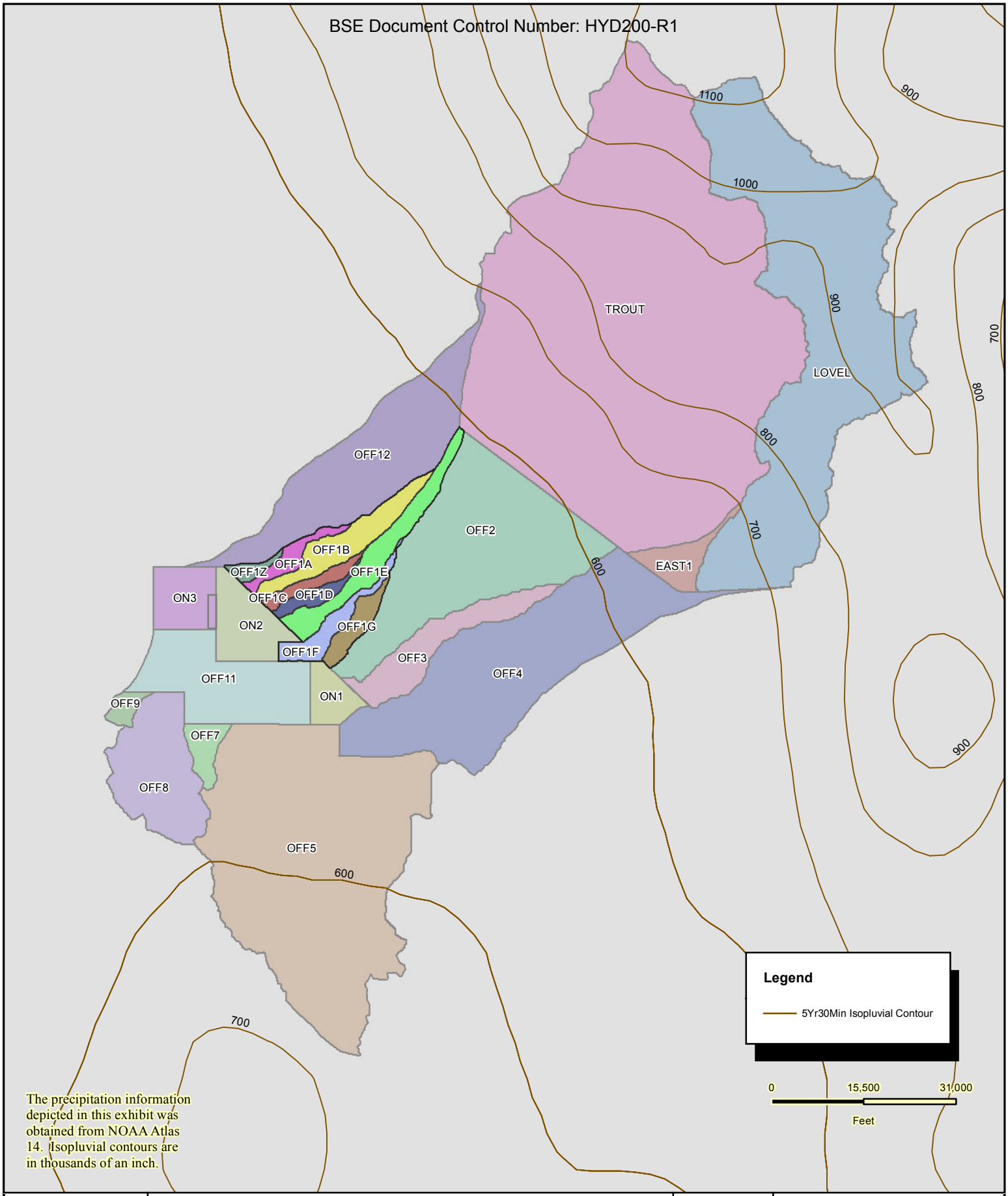

The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 30MIN, 5YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	**7302**
DATE	**2/23/2011**
BY:	**RV**
SCALE:	**1 " = 21,000 '**
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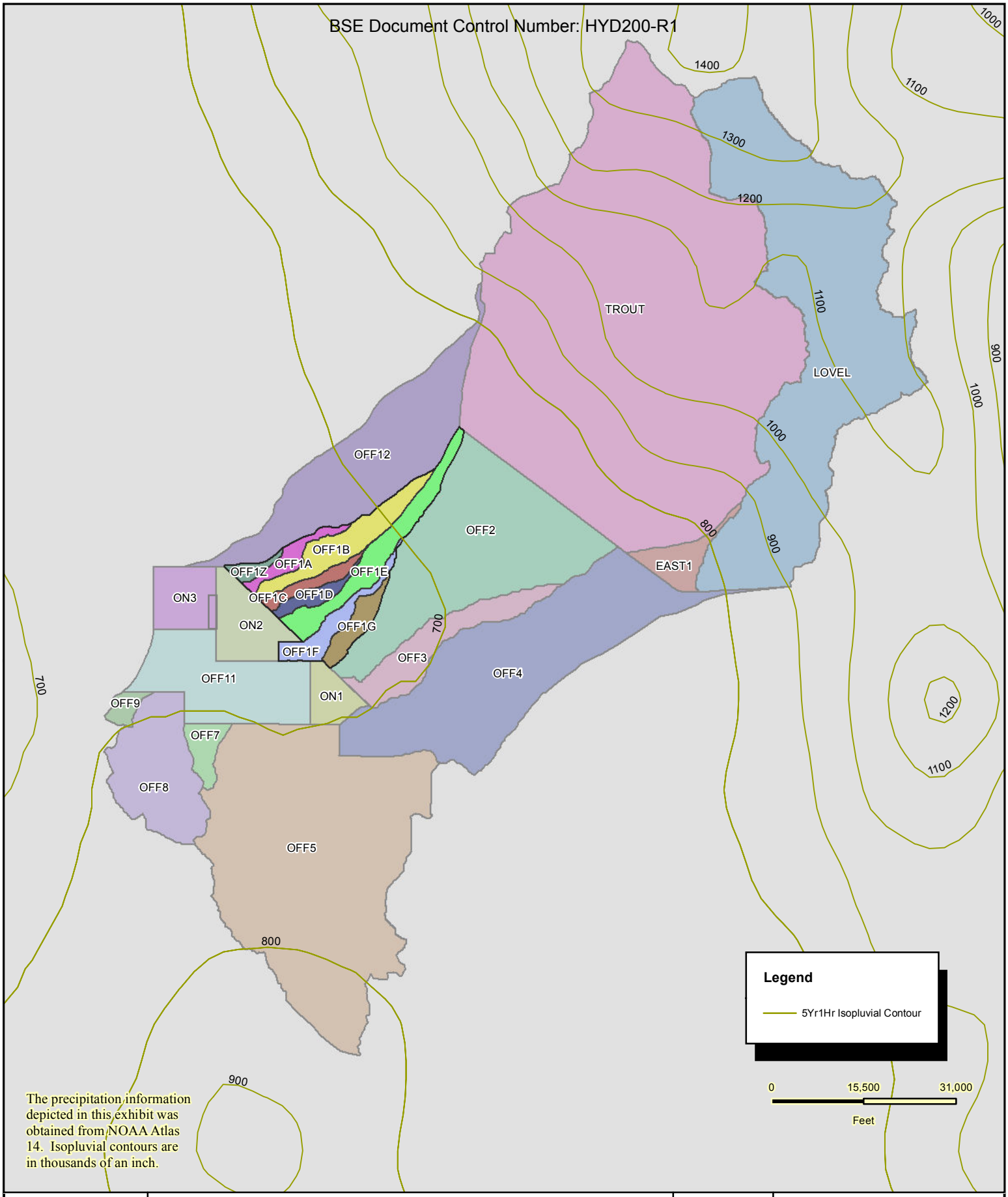

The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 1HR, 5YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	**7302**
DATE	**2/23/2011**
BY:	**RV**
SCALE:	**1 " = 21,000 '**
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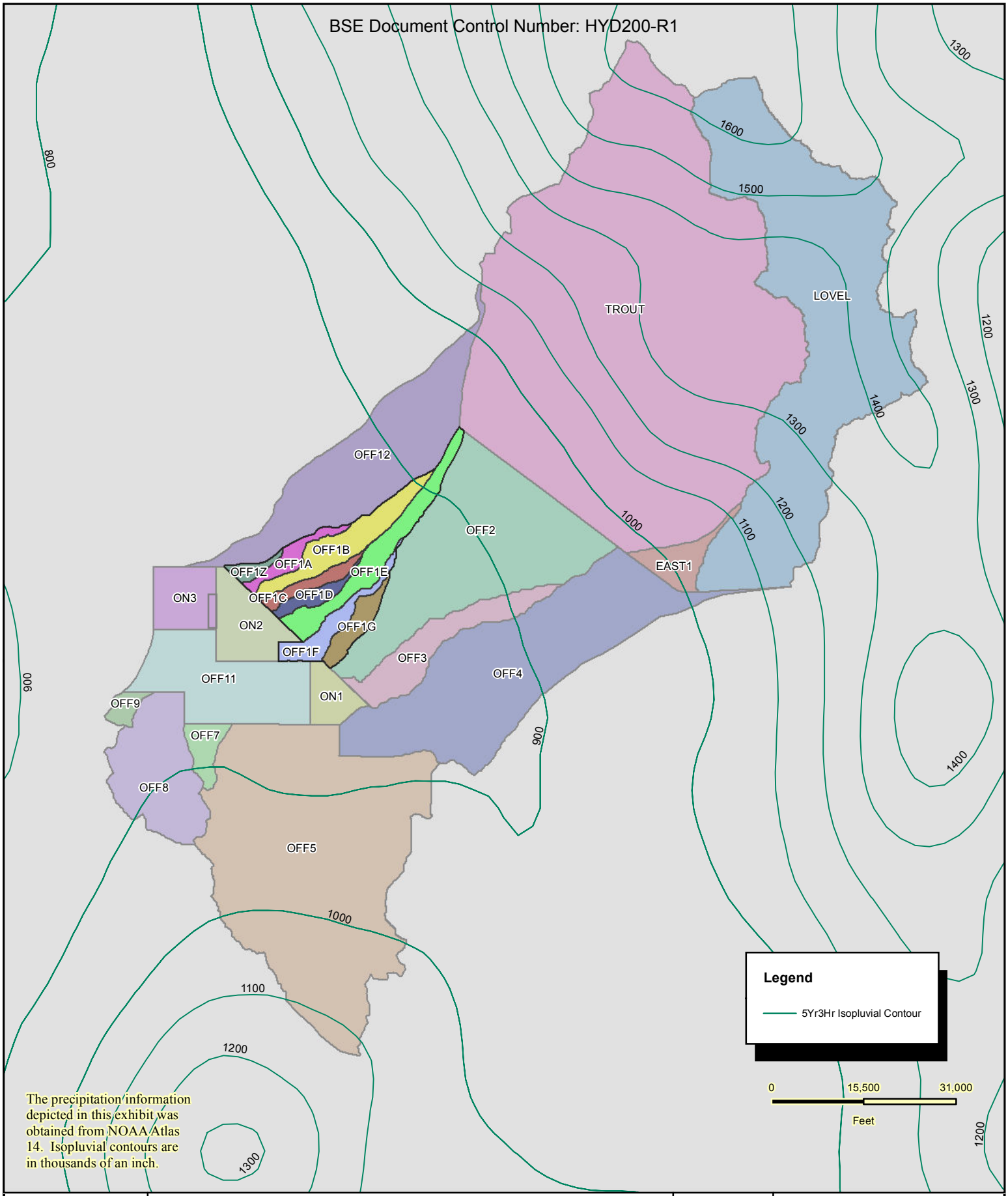

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 3HR, 5YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	**7302**
DATE	**2/23/2011**
BY:	**RV**
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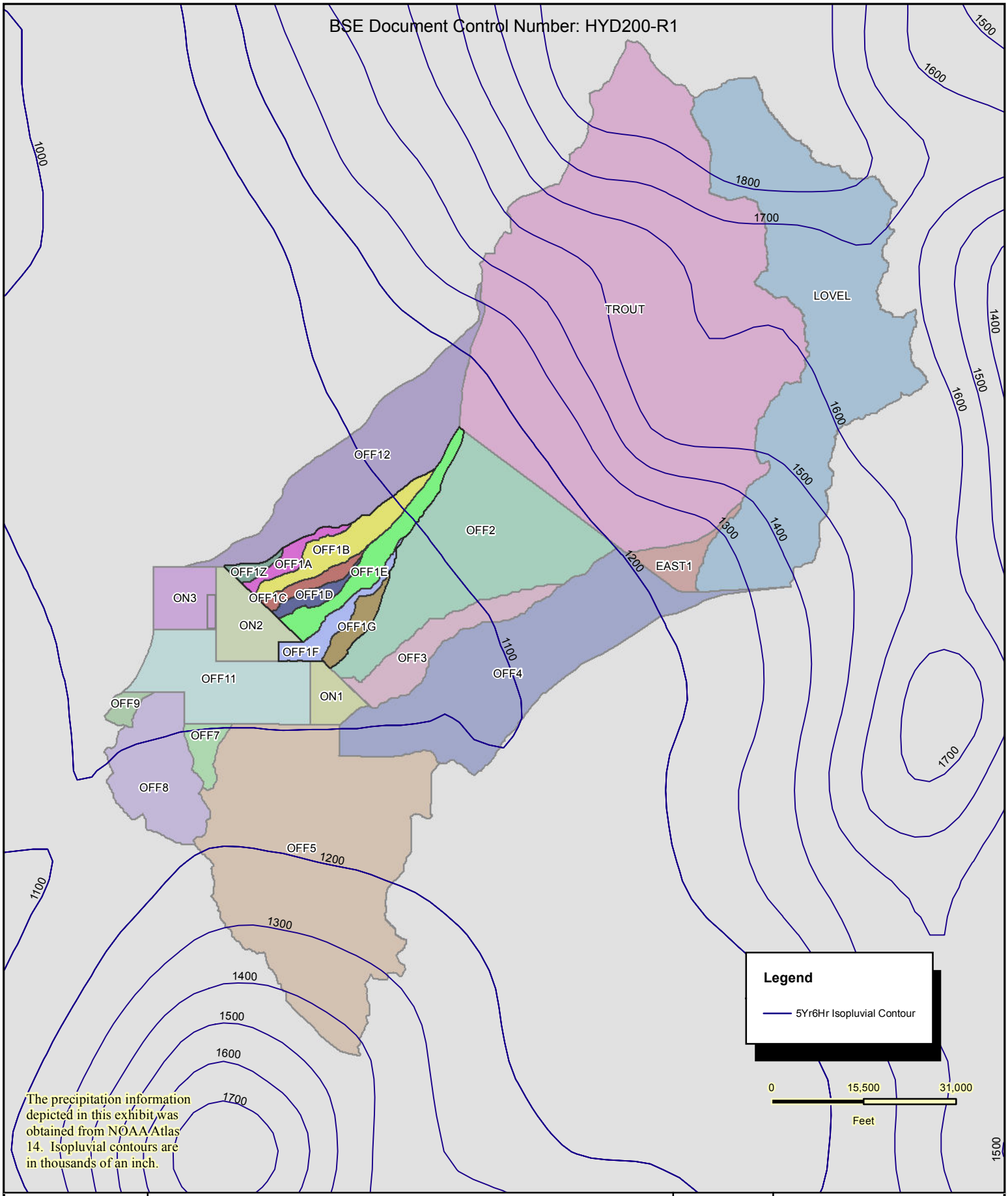

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 6HR, 5YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/23/2011
BY:	RV
SCALE:	1 " = 21,000 '
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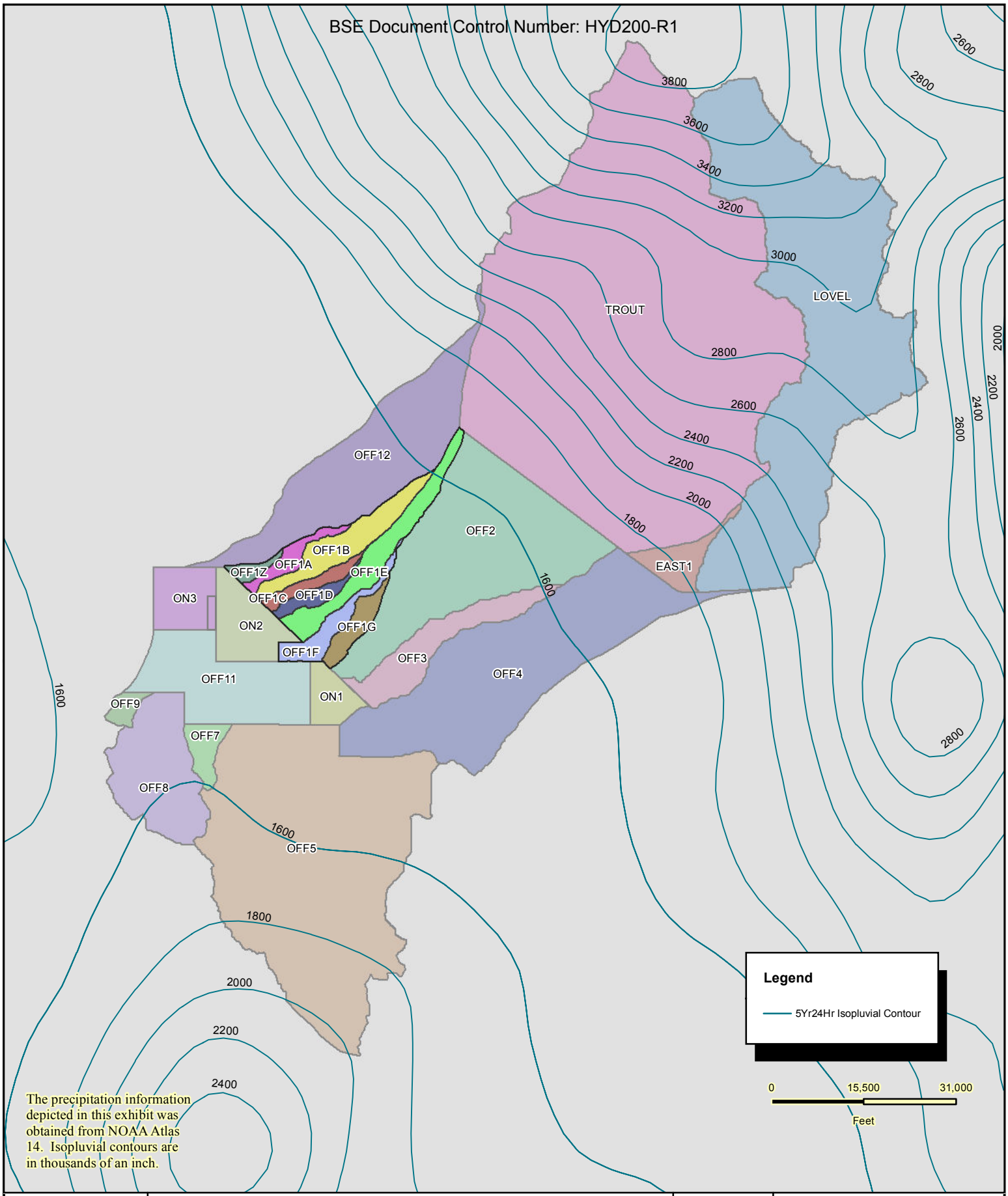

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 24HR, 5YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	**7302**
DATE	**2/23/2011**
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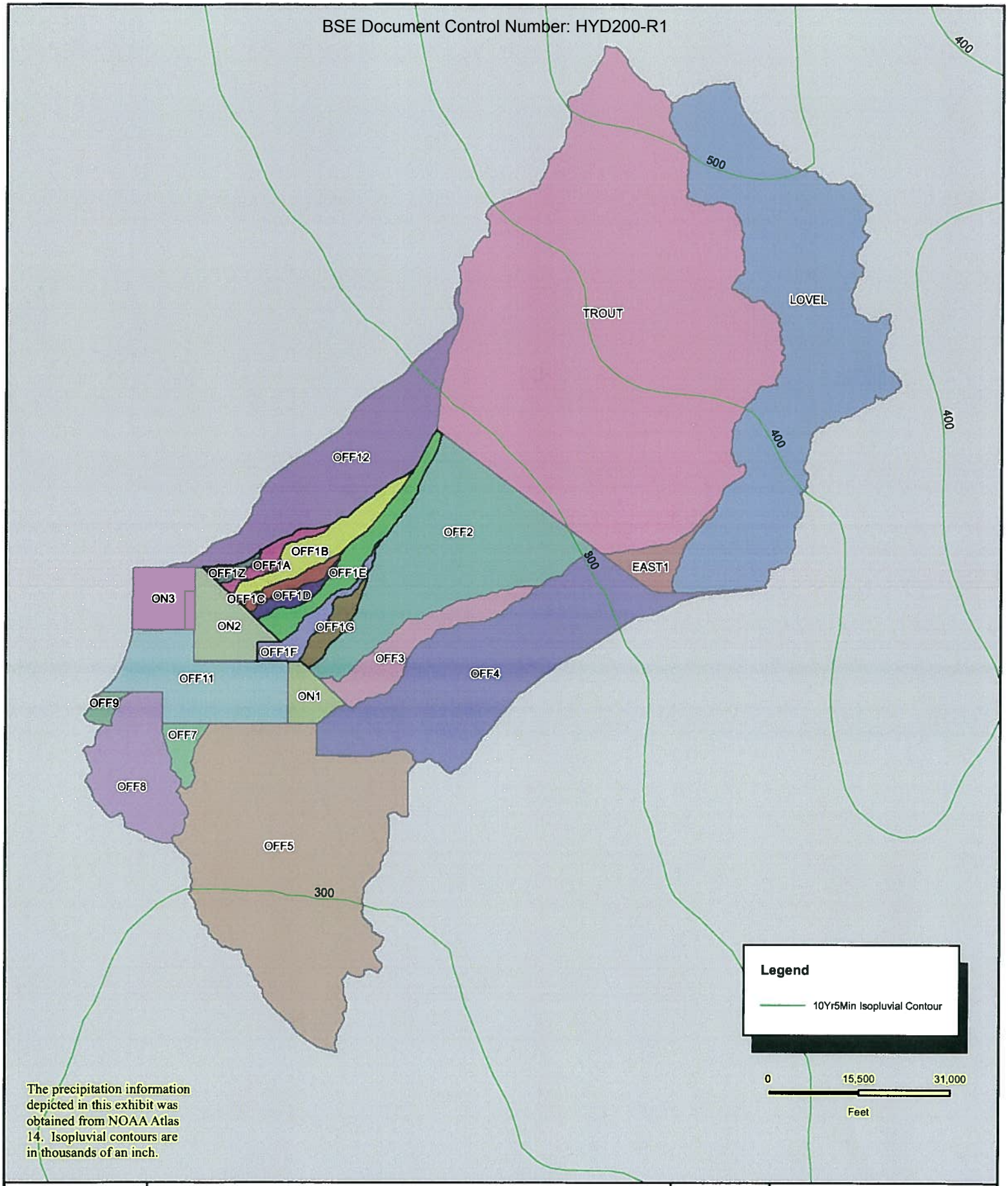

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 5MIN, 10YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/1/2011
BY:	RV
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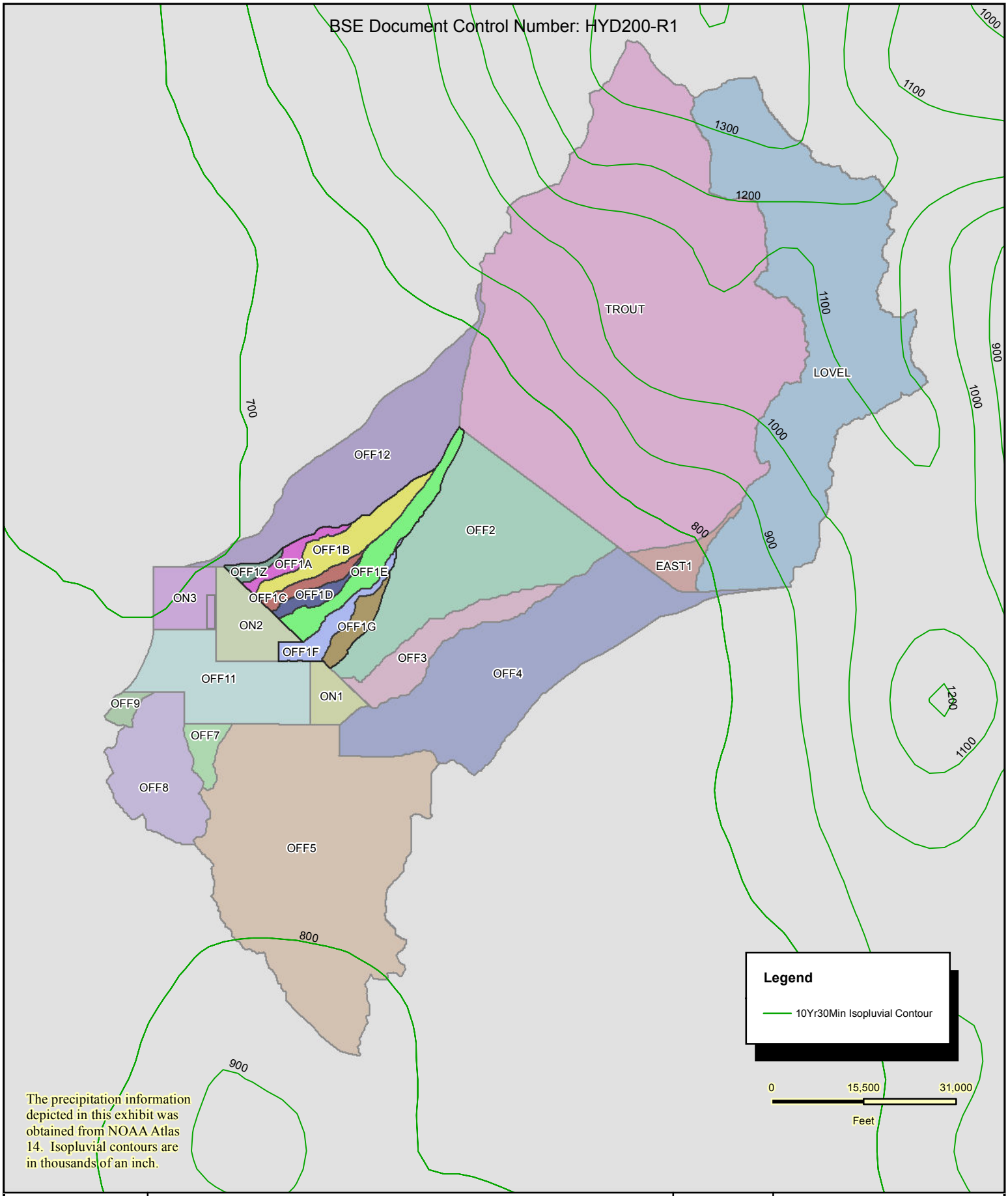

The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 30MIN, 10YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	**7302**
DATE	**2/23/2011**
BY:	**RV**
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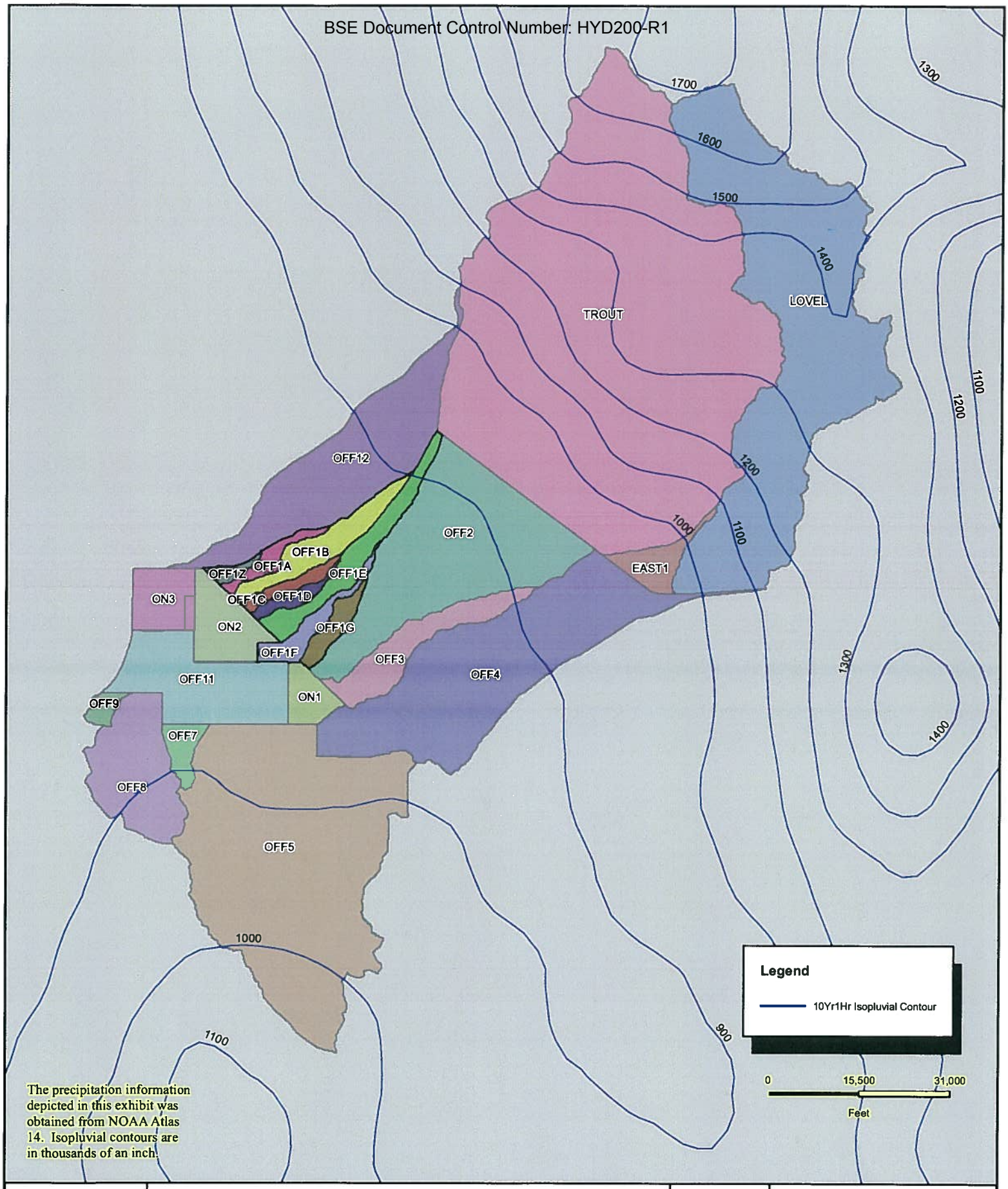

The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

vtn www.vtnnv.com	**NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 1HR, 10YR** **HIDDEN HILLS RANCH SEGS**	N W E S	W.O.#: 7302 DATE 2/1/2011 BY: RV SCALE: 1 " = 21,000 ' SHEET: 22

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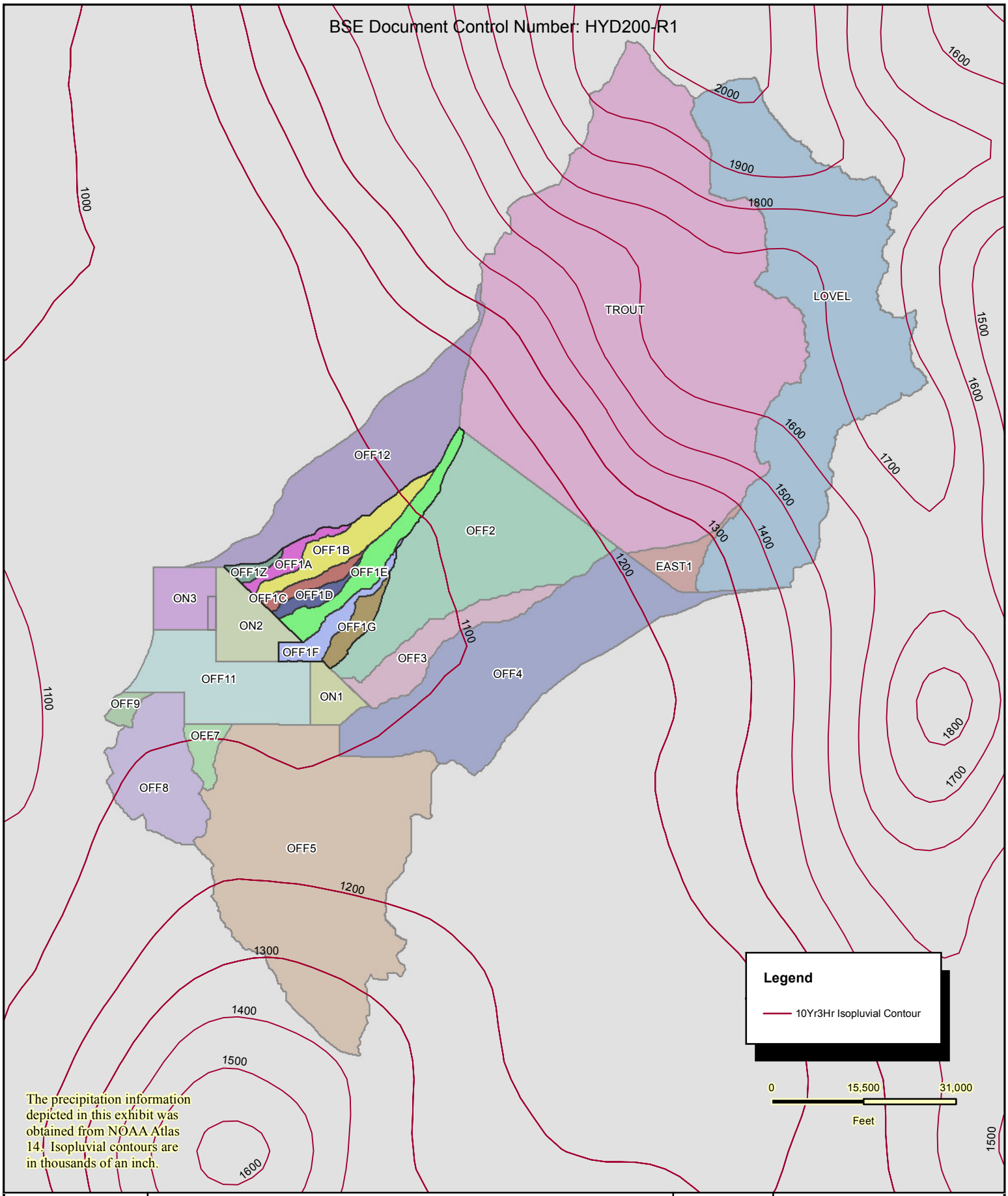

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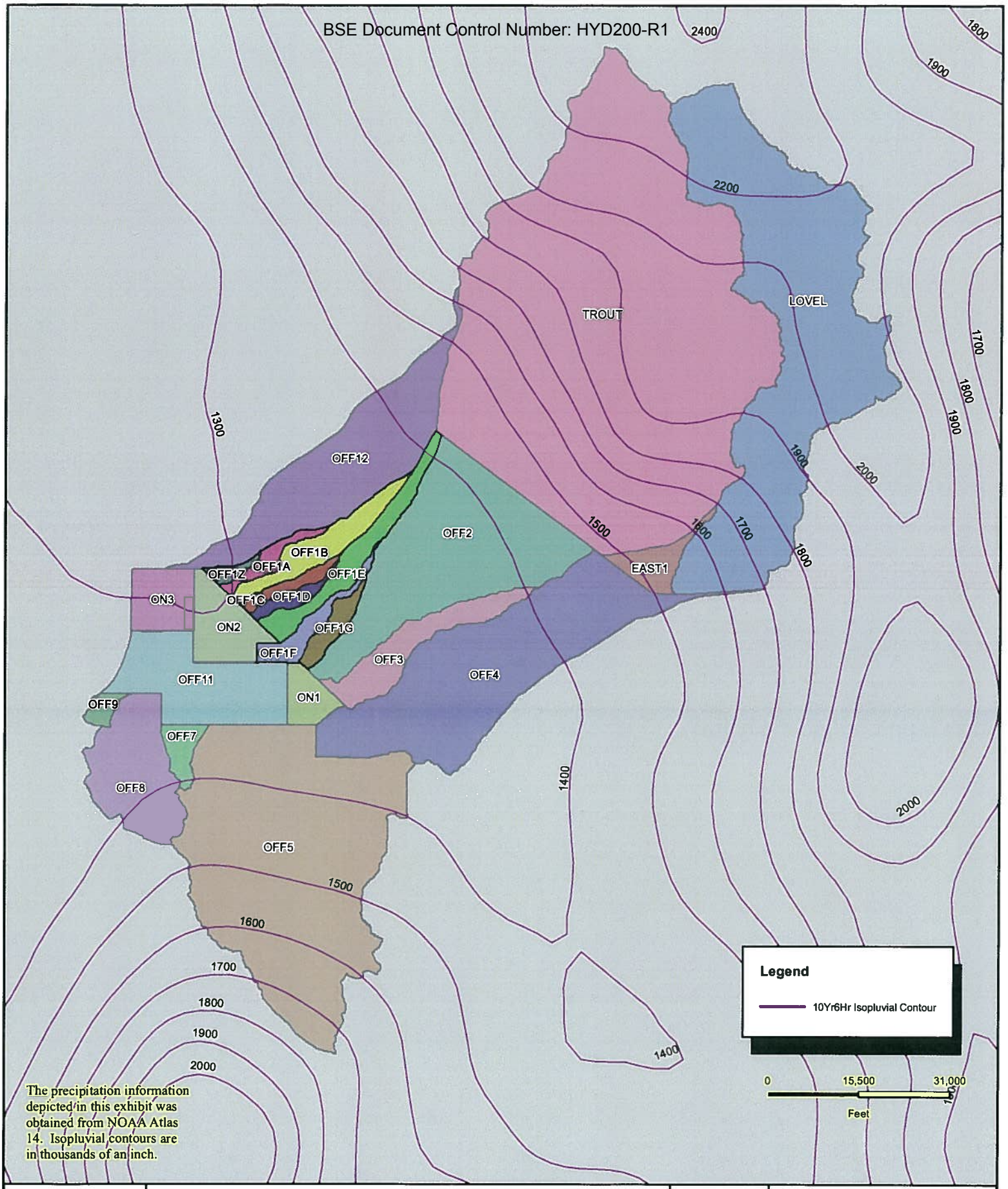
NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 3HR; 10YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/23/2011
BY:	RV
SCALE:	1 " = 21,000 '
SHEET:	21



The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 6HR, 10YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/1/2011
BY:	RV
SCALE:	1 " = 21,000 '
SHEET:	20

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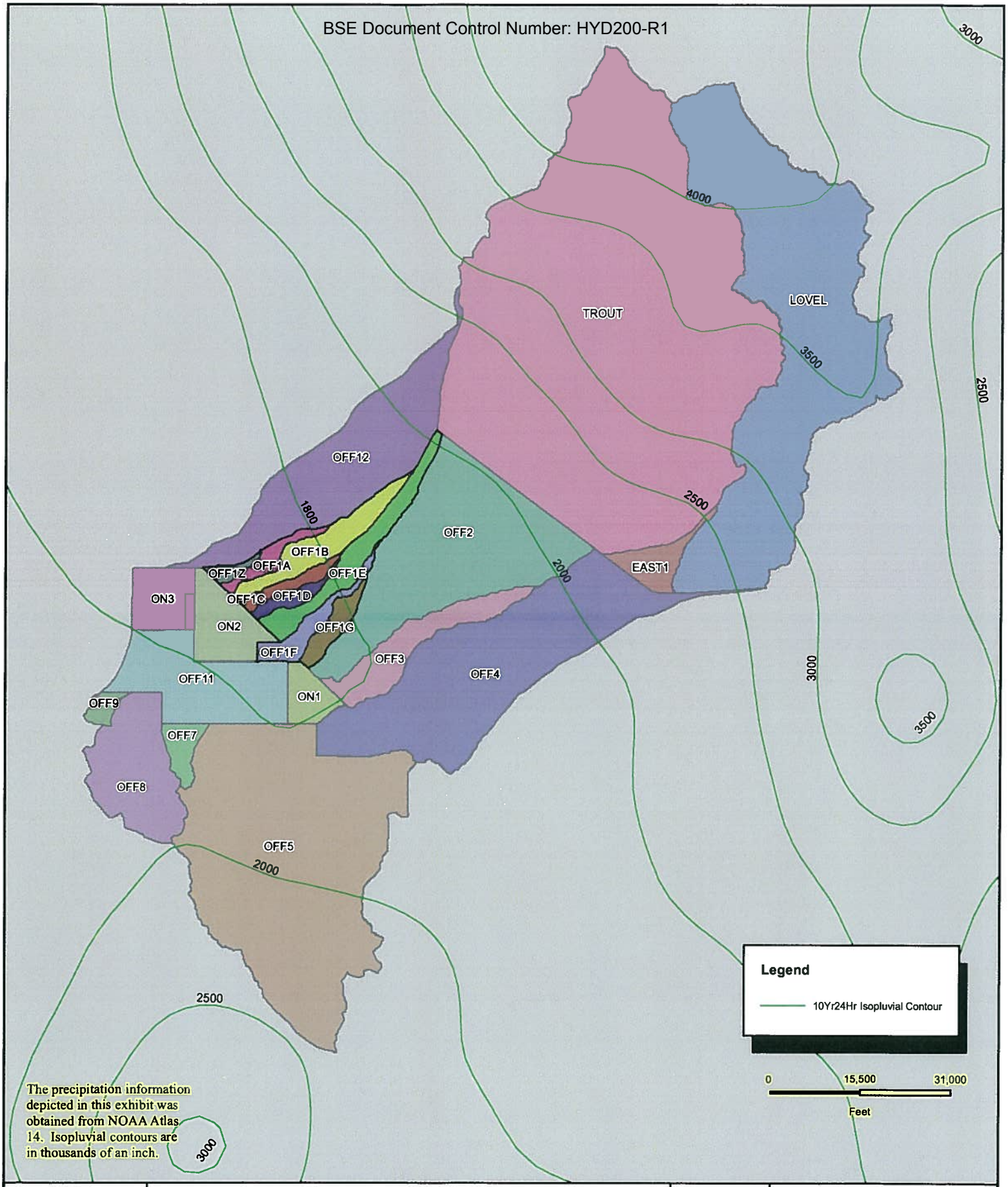

The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 24HR, 10YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/1/2011
BY:	RV
SCALE:	1 " = 21,000 '
SHEET:	19

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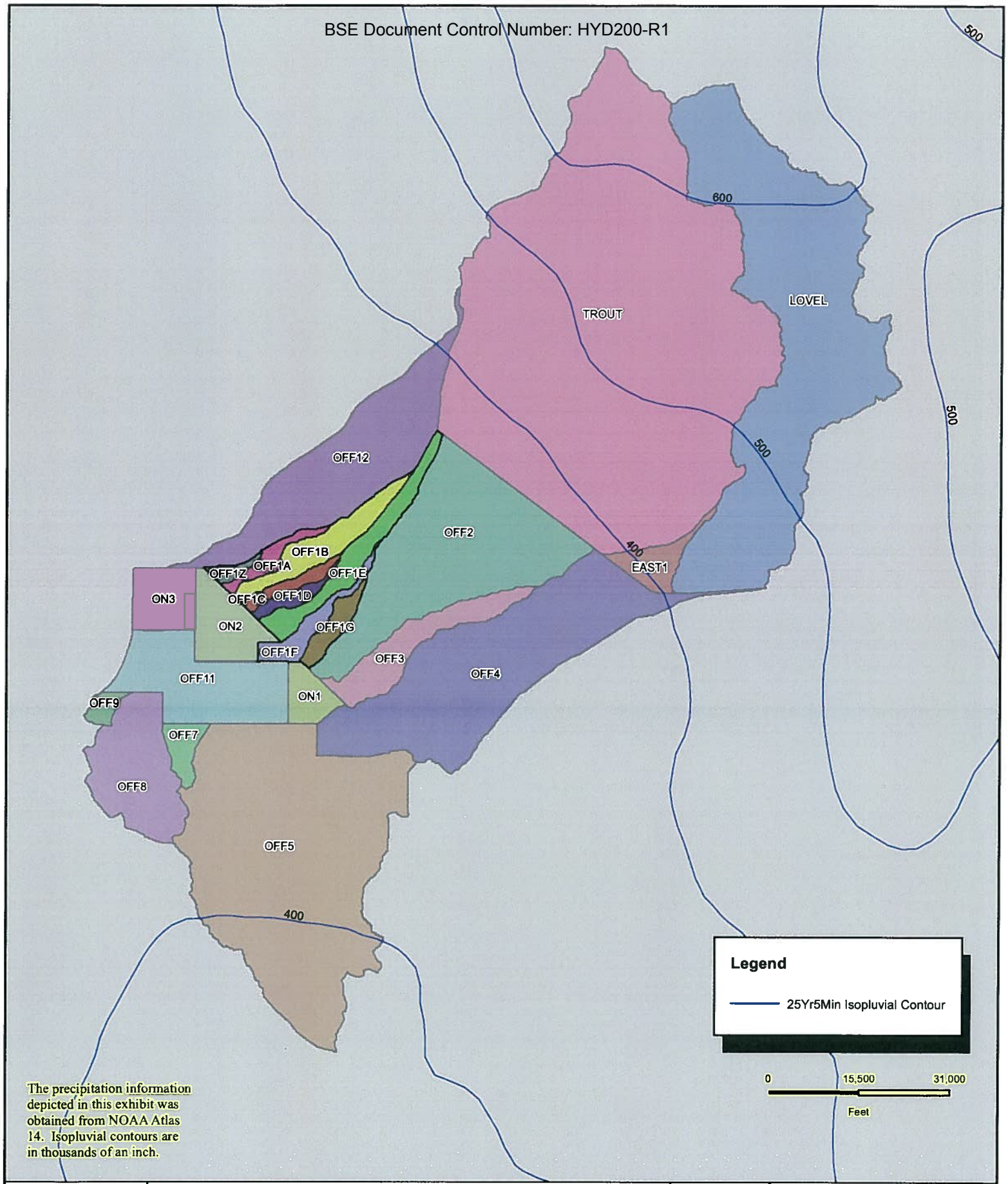

The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 5MIN, 25YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/1/2011
BY:	RV
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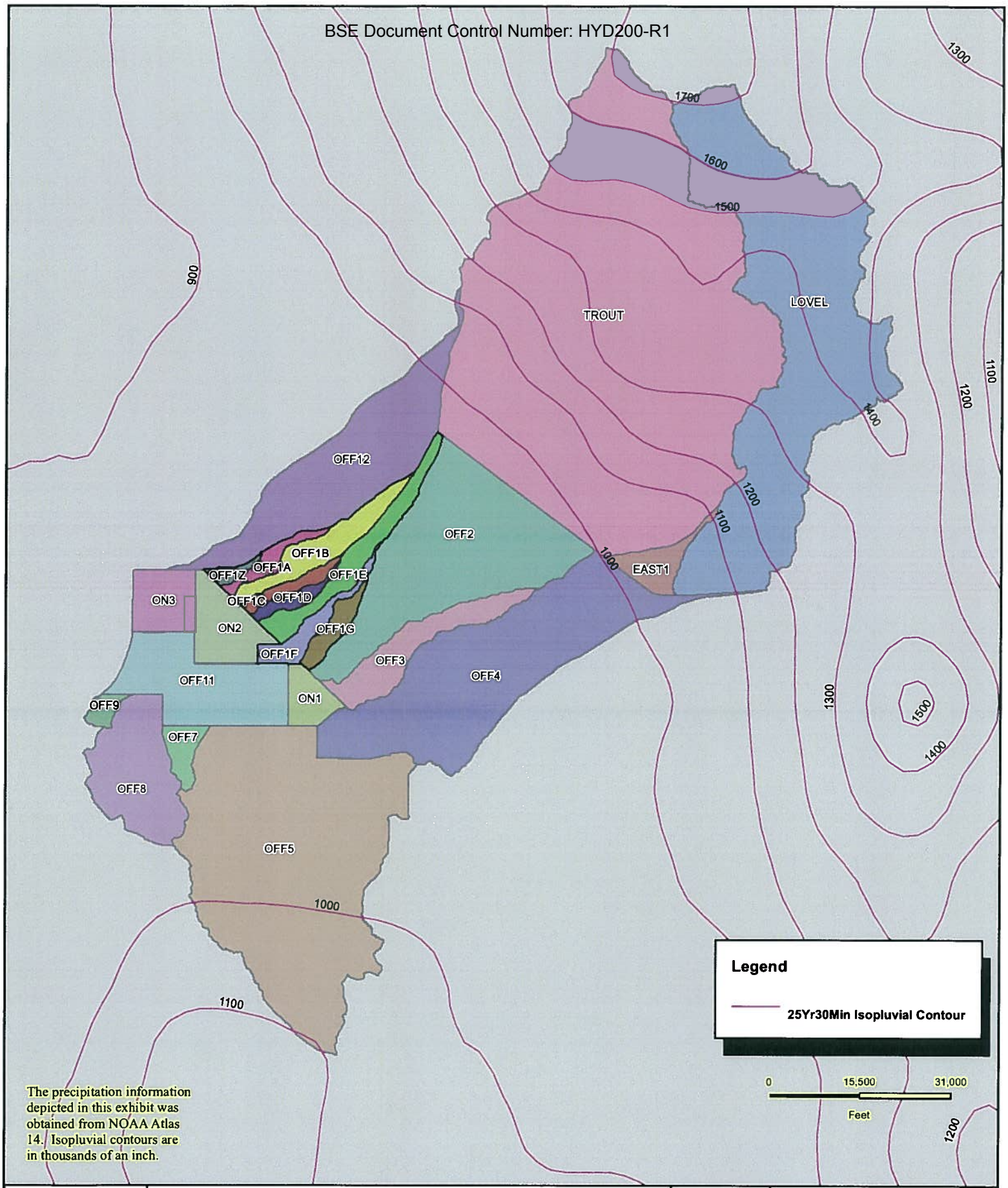

The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 30MIN, 25YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/1/2011
BY:	RV
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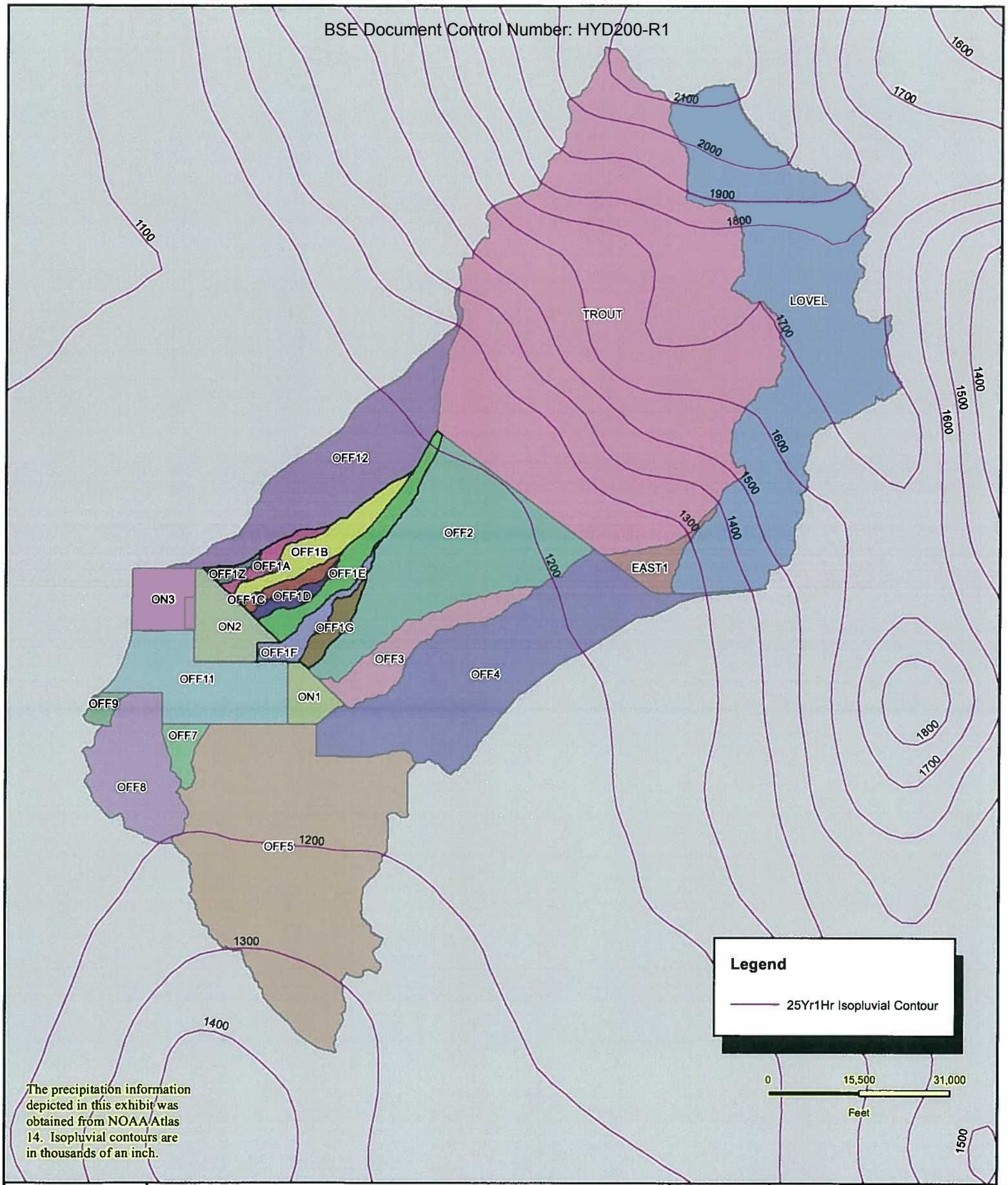

The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 1HR, 25YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/1/2011
BY:	RV
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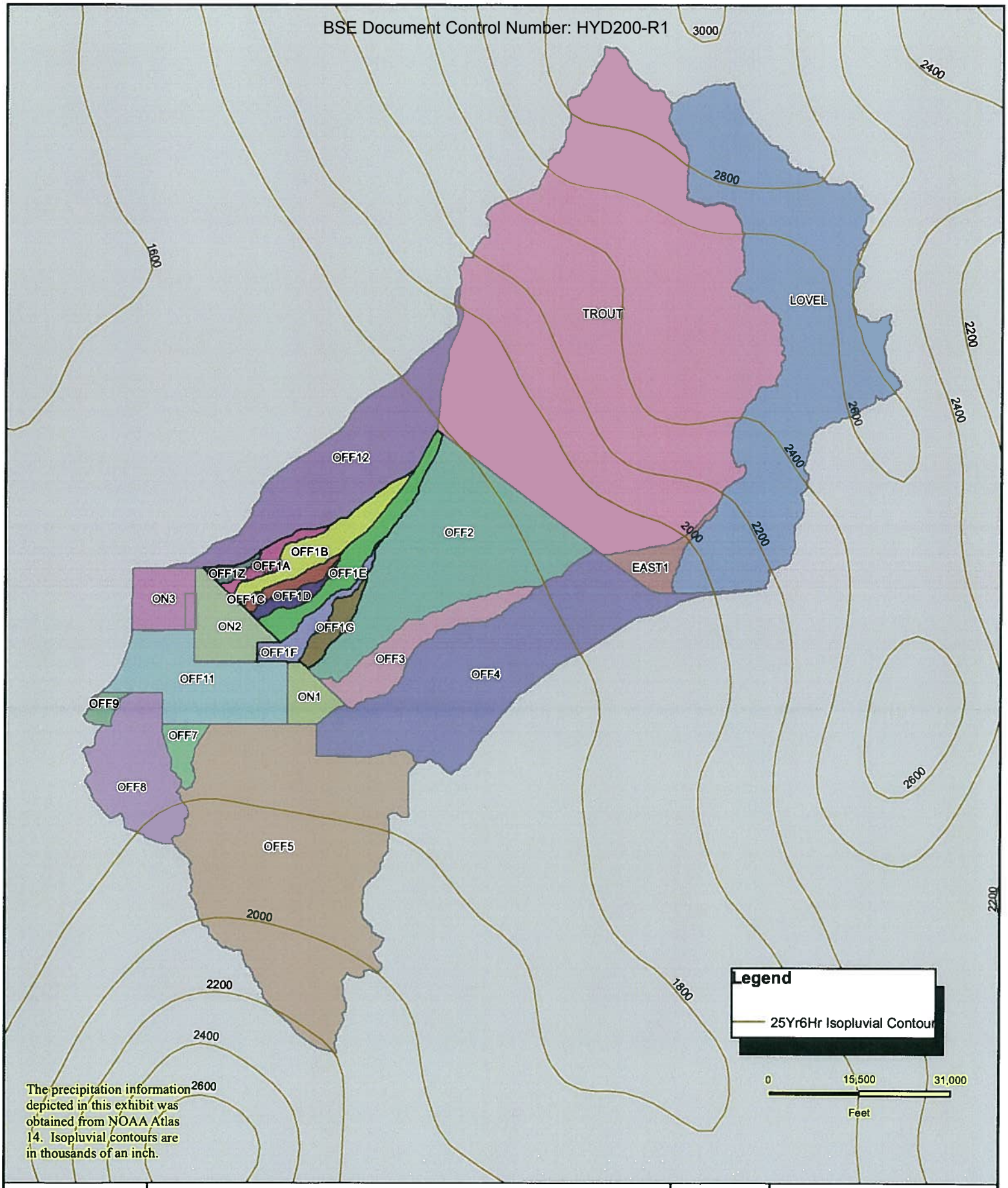

The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 6HR, 25YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/1/2011
BY:	RV
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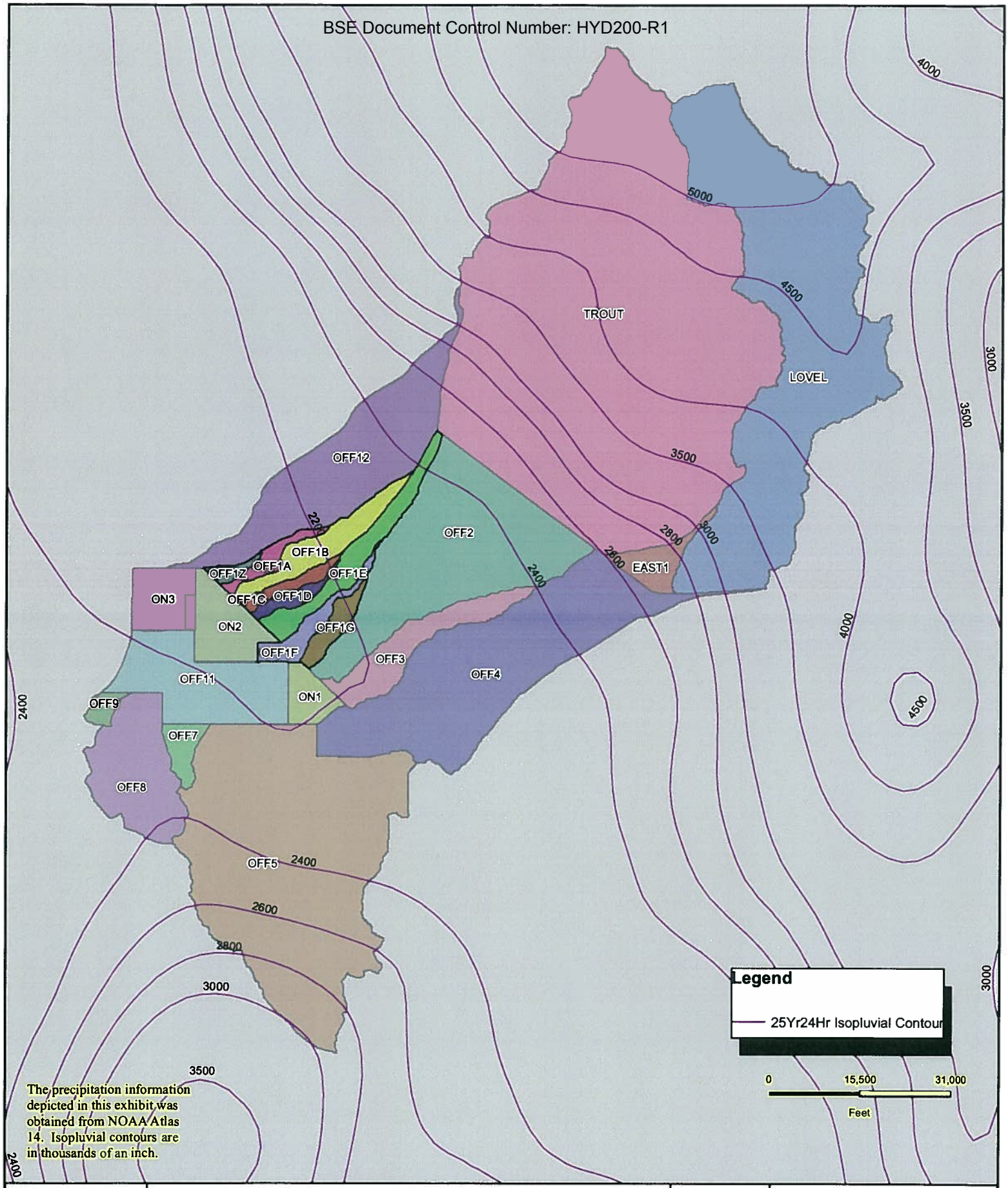

The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

vtn www.vtnnv.com	**NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 24HR, 25YR** **HIDDEN HILLS RANCH SEGS**	N W E S	W.O.#: 7302 DATE 2/1/2011 BY: RV SCALE: 1 " = 21,000 ' SHEET: 13

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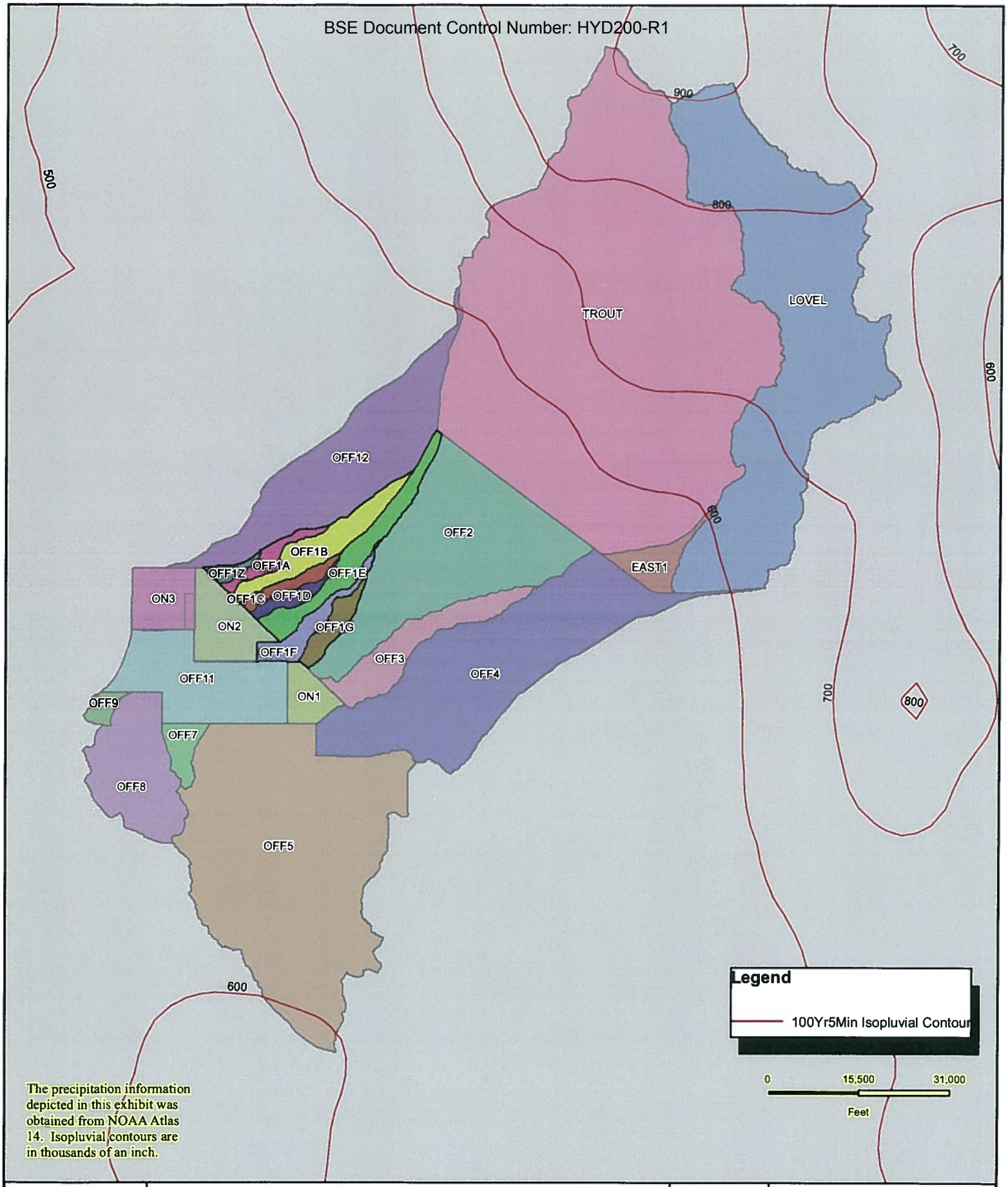

The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 5MIN, 100YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/1/2011
BY:	RV
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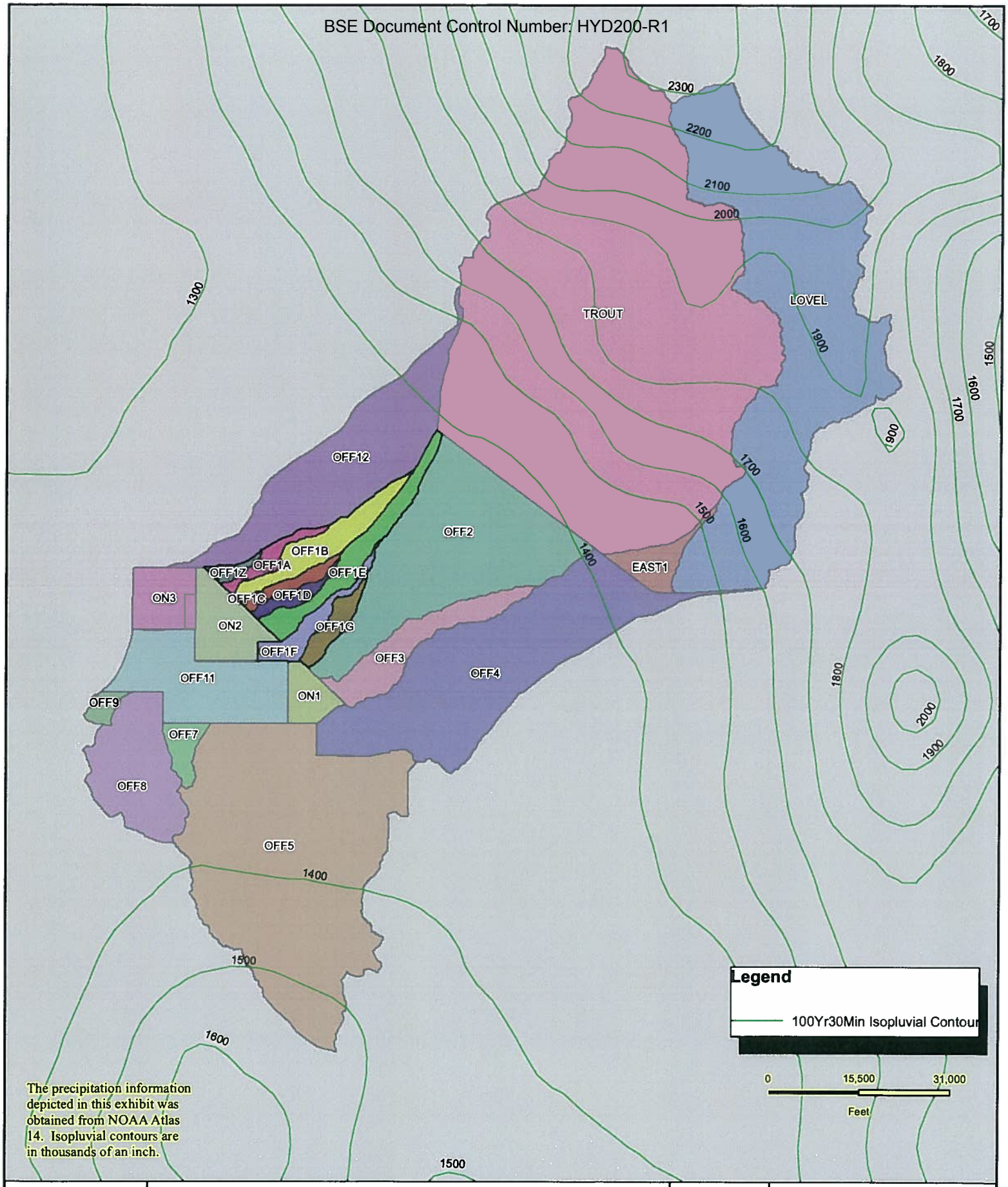

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 30MIN, 100YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/1/2011
BY:	RV
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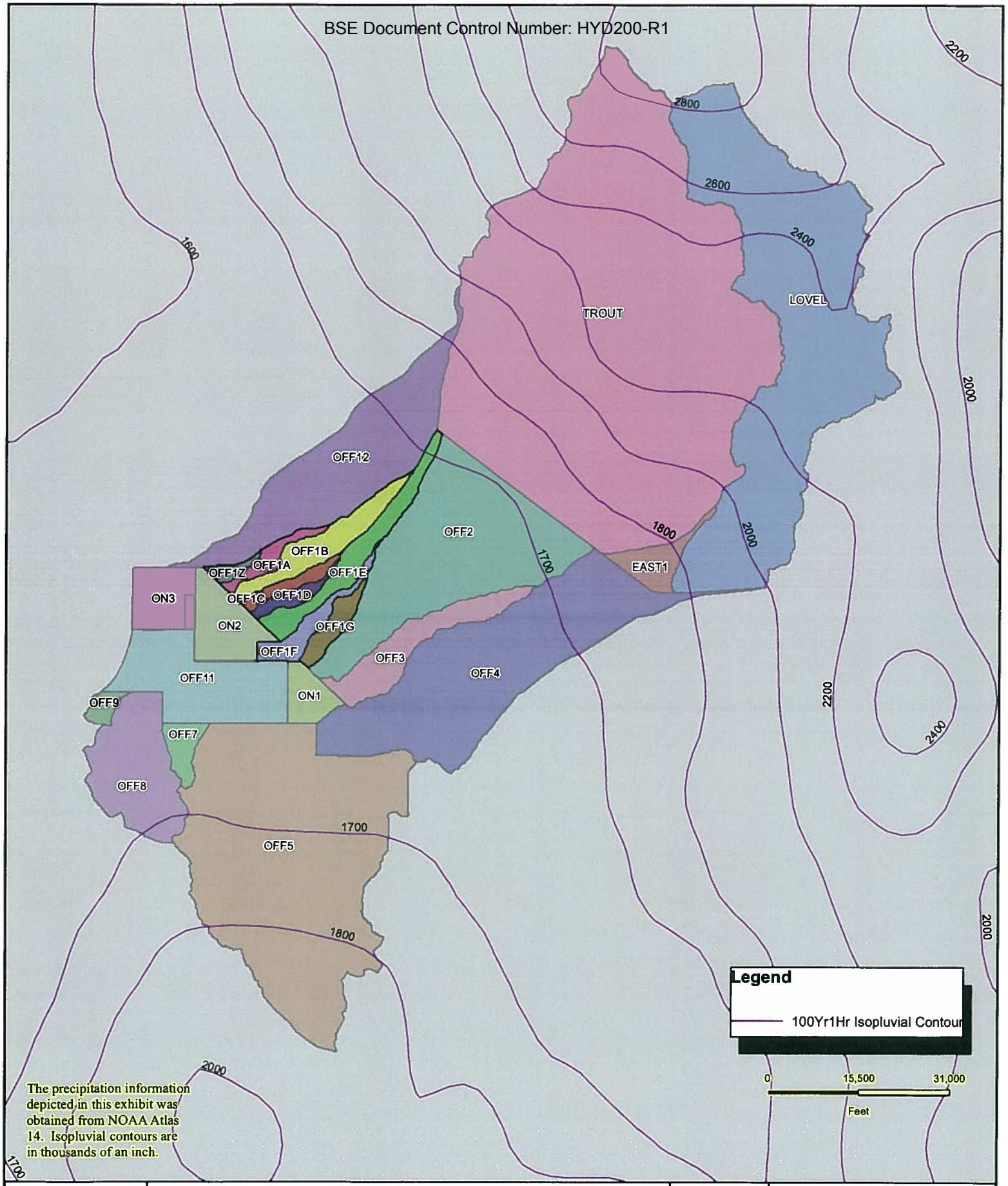

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 1HR, 100YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/1/2011
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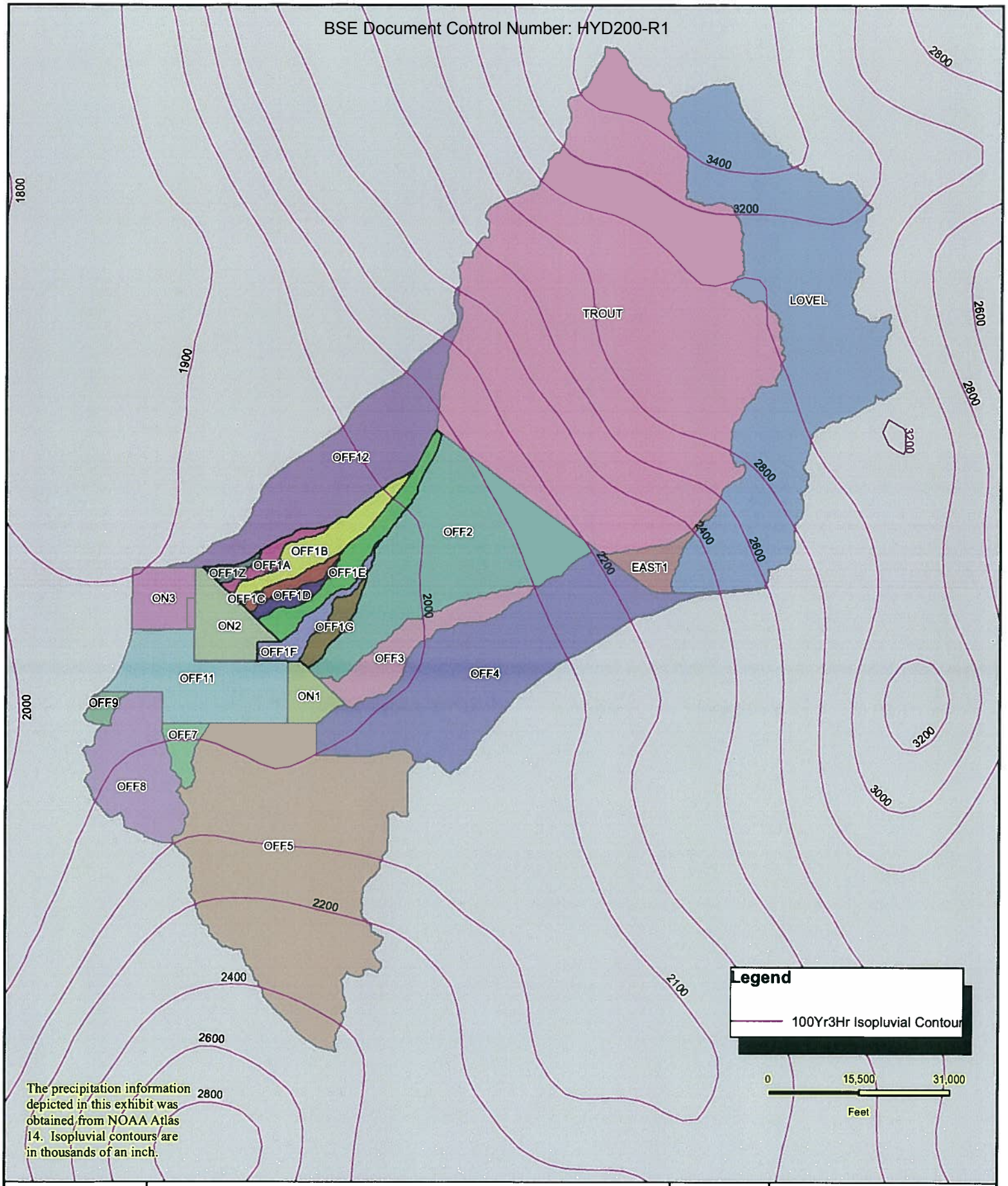

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 3HR, 100YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/1/2011
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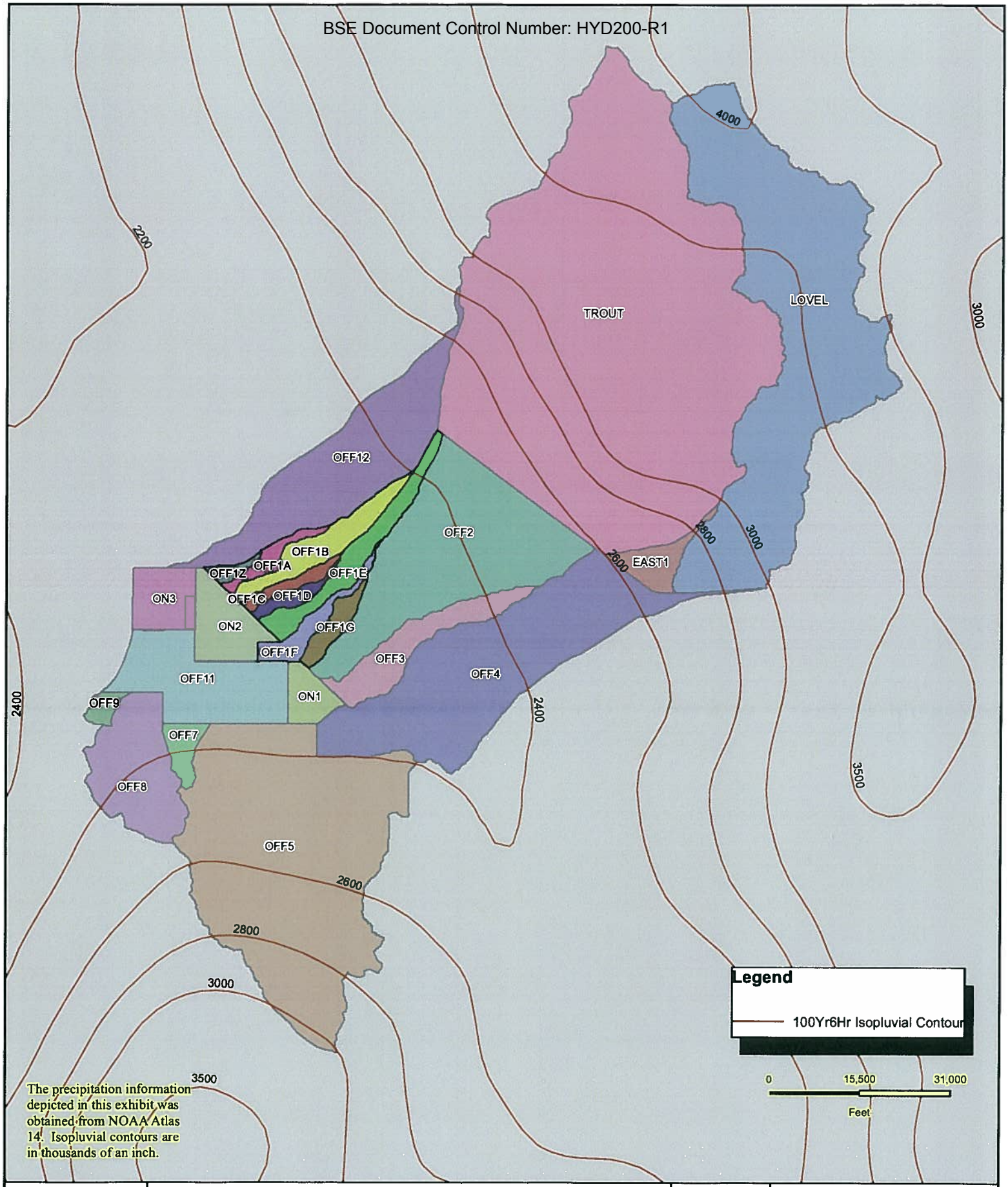

The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 6HR, 100YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/1/2011
BY:	RV
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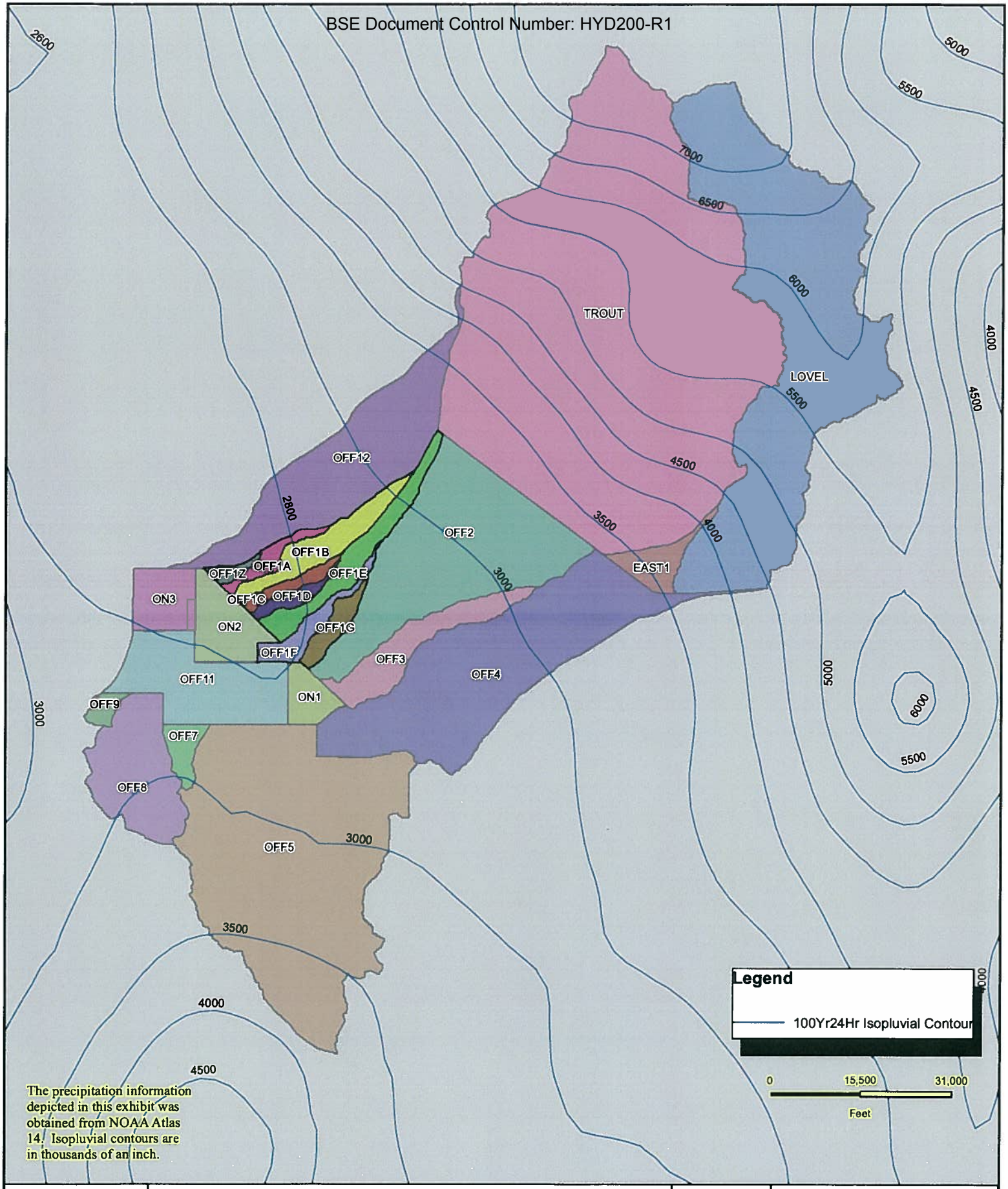

The precipitation information depicted in this exhibit was obtained from NOAA Atlas 14. Isopluvial contours are in thousands of an inch.

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NOAA ATLAS 14 ISOPLUVIAL CONTOUR MAP; 24HR, 100YR

HIDDEN HILLS RANCH SEGS

N W E S

W.O.#:	7302
DATE	2/1/2011
BY:	RV
SCALE:	1 " = 21,000 '
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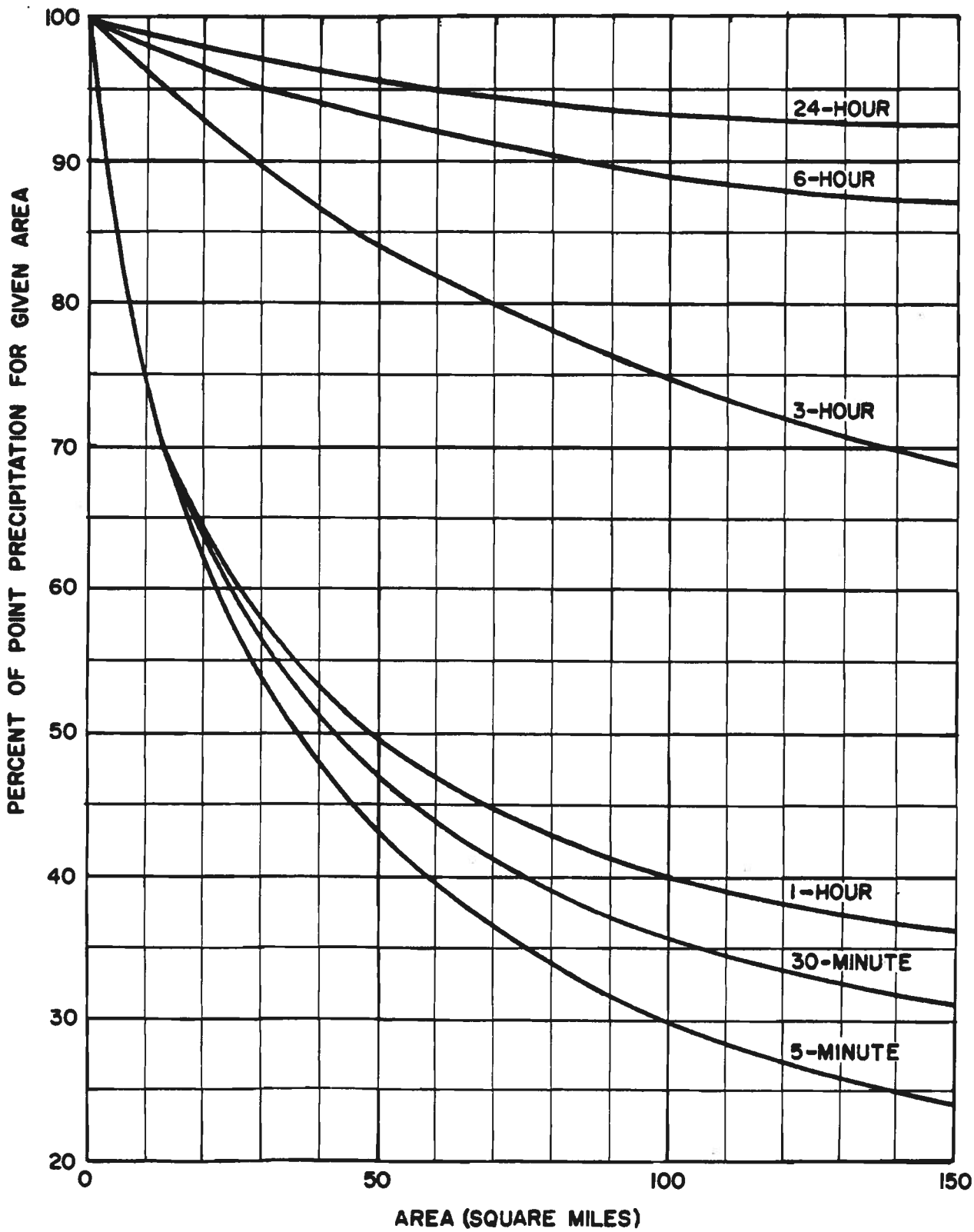
Path: J:\7302 - Hidden Hills\GIS\mxd\7302 Rain Basins.mxd: Date: 2/1/2011

APPENDIX B:

iv. Referenced Fig. E-4 SB County

Design Storm Depth Area Curves



SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

DESIGN STORM DEPTH AREA CURVES

BSE Document Control Number: HYD200-R1

Figure E-4

APPENDIX C:

Storm Pattern (Hyteograph) / References

APPENDIX C:

i. 24-Hour, 100-Year Pattern Derivation

SAN BERNARDINO STORM PEAK 24-HOUR PATTERN DERIVATION

Precipitation Frequency Data

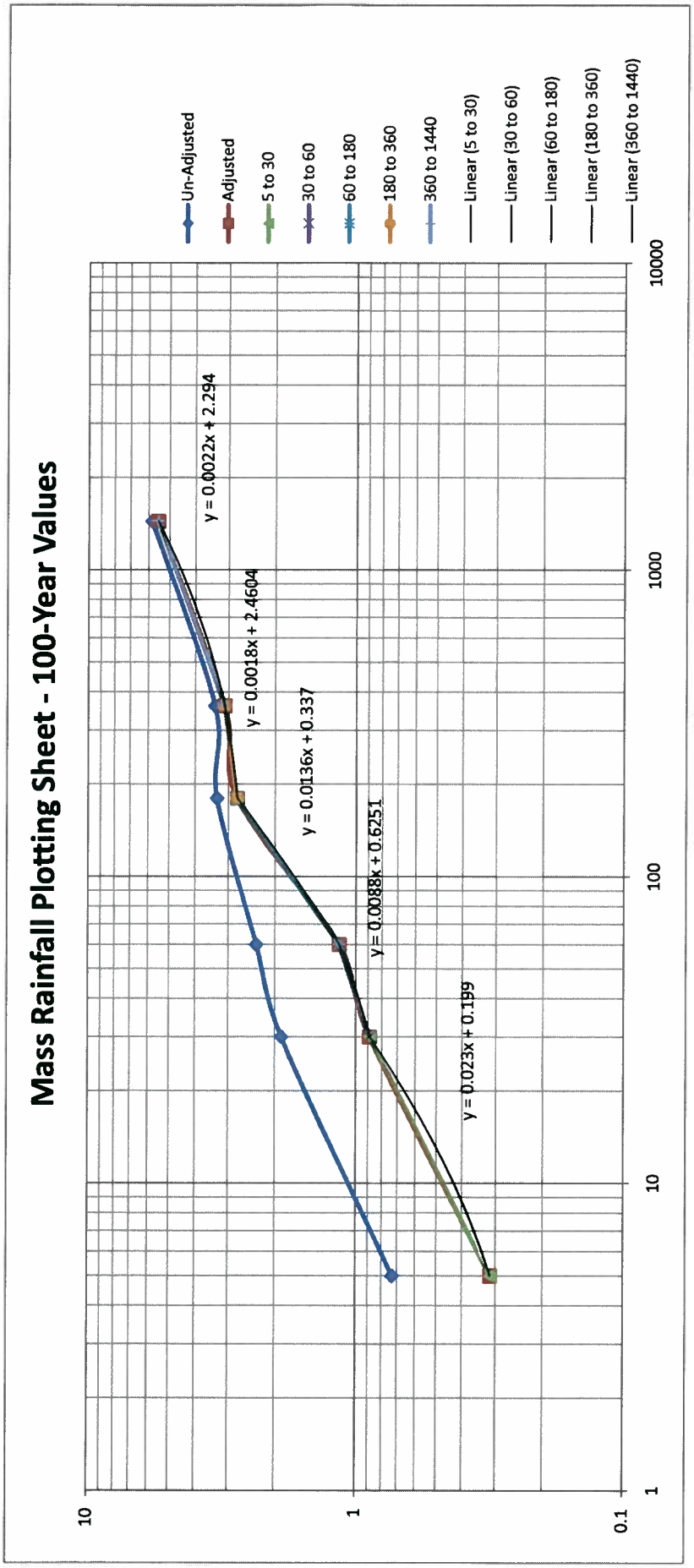
100-Year Rainfall Values

Basin: LOVEL

Area: 53.17 sq. mi.

Storm Duration		Un-Adjusted Depth (in.)	Aeral Factor (Ref. Fig. E-4)	Adjusted Depth (in.)
5	min	0.73	0.43	0.314
30	min	1.89	0.47	0.888
1	hr	2.35	0.49	1.152
3	hr	3.31	0.84	2.780
6	hr	3.37	0.92	3.100
24	hr	5.81	0.95	5.520

See Mass Rainfall Plotting Sheet for graph of Un-Adjusted Depths and Adjusted Depths
Same storm distribution (hyetograph) to be used for remaining basins to be used in analysis


Mass Rainfall Plotting Sheet - 100-Year Values
Un-Adjusted
Adjusted
5 to 30
30 to 60
60 to 180
180 to 360
360 to 1440
Linear (5 to 30)
Linear (30 to 60)
Linear (60 to 180)
Linear (180 to 360)
Linear (360 to 1440)
y = 0.0022x + 2.294
y = 0.0018x + 2.4604
y = 0.0136x + 0.337
y = 0.0088x + 0.6251
y = 0.023x + 0.199
10
1
0.1
1
10
100
1000
10000

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
1	5	0.314	0.314		0.0110
2	10	0.429	0.115		0.0110
3	15	0.544	0.115		0.0110
4	20	0.659	0.115		0.0110
5	25	0.774	0.115		0.0110
6	30	0.888	0.114		0.0110
7	35	0.933	0.045		0.0110
8	40	0.977	0.044		0.0110
9	45	1.021	0.044		0.0110
10	50	1.065	0.044		0.0110
11	55	1.109	0.044		0.0110
12	60	1.152	0.042		0.0110
13	65	1.221	0.069		0.0110
14	70	1.289	0.068		0.0110
15	75	1.357	0.068		0.0110
16	80	1.425	0.068		0.0110
17	85	1.493	0.068		0.0110
18	90	1.561	0.068		0.0110
19	95	1.629	0.068		0.0110
20	100	1.697	0.068		0.0110
21	105	1.765	0.068		0.0110
22	110	1.833	0.068		0.0110
23	115	1.901	0.068		0.0110
24	120	1.969	0.068		0.0110
25	125	2.037	0.068		0.0110
26	130	2.105	0.068		0.0110
27	135	2.173	0.068		0.0110
28	140	2.241	0.068		0.0110
29	145	2.309	0.068		0.0110
30	150	2.377	0.068		0.0110
31	155	2.445	0.068		0.0110
32	160	2.513	0.068		0.0110
33	165	2.581	0.068		0.0110
34	170	2.649	0.068		0.0110
35	175	2.717	0.068		0.0110
36	180	2.780	0.063		0.0110
37	185	2.793	0.013		0.0110
38	190	2.802	0.009		0.0110
39	195	2.811	0.009		0.0110
40	200	2.820	0.009		0.0110
41	205	2.829	0.009		0.0110
42	210	2.838	0.009		0.0110
43	215	2.847	0.009		0.0110
44	220	2.856	0.009		0.0110
45	225	2.865	0.009		0.0110
46	230	2.874	0.009		0.0110
47	235	2.883	0.009		0.0110
48	240	2.892	0.009		0.0110
49	245	2.901	0.009		0.0110
50	250	2.910	0.009		0.0110
51	255	2.919	0.009		0.0110
52	260	2.928	0.009		0.0110
53	265	2.937	0.009		0.0110
54	270	2.946	0.009		0.0110

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
55	275	2.955	0.009		0.0110
56	280	2.964	0.009		0.0110
57	285	2.973	0.009		0.0110
58	290	2.982	0.009		0.0110
59	295	2.991	0.009		0.0110
60	300	3.000	0.009		0.0110
61	305	3.009	0.009		0.0110
62	310	3.018	0.009		0.0110
63	315	3.027	0.009		0.0110
64	320	3.036	0.009		0.0110
65	325	3.045	0.009		0.0110
66	330	3.054	0.009		0.0110
67	335	3.063	0.009		0.0110
68	340	3.072	0.009		0.0110
69	345	3.081	0.009		0.0110
70	350	3.090	0.009		0.0110
71	355	3.099	0.009		0.0110
72	360	3.100	0.001		0.0110
73	365	3.097	-0.003		0.0110
74	370	3.108	0.011		0.0110
75	375	3.119	0.011		0.0110
76	380	3.130	0.011		0.0110
77	385	3.141	0.011		0.0110
78	390	3.152	0.011		0.0110
79	395	3.163	0.011		0.0110
80	400	3.174	0.011		0.0110
81	405	3.185	0.011		0.0110
82	410	3.196	0.011		0.0110
83	415	3.207	0.011		0.0110
84	420	3.218	0.011		0.0110
85	425	3.229	0.011		0.0110
86	430	3.240	0.011		0.0110
87	435	3.251	0.011		0.0110
88	440	3.262	0.011		0.0110
89	445	3.273	0.011		0.0110
90	450	3.284	0.011		0.0110
91	455	3.295	0.011		0.0110
92	460	3.306	0.011		0.0110
93	465	3.317	0.011		0.0110
94	470	3.328	0.011		0.0110
95	475	3.339	0.011		0.0110
96	480	3.350	0.011		0.0110
97	485	3.361	0.011		0.0110
98	490	3.372	0.011		0.0110
99	495	3.383	0.011		0.0110
100	500	3.394	0.011		0.0110
101	505	3.405	0.011		0.0110
102	510	3.416	0.011		0.0110
103	515	3.427	0.011		0.0110
104	520	3.438	0.011		0.0110
105	525	3.449	0.011		0.0110
106	530	3.460	0.011		0.0110
107	535	3.471	0.011		0.0110
108	540	3.482	0.011		0.0110

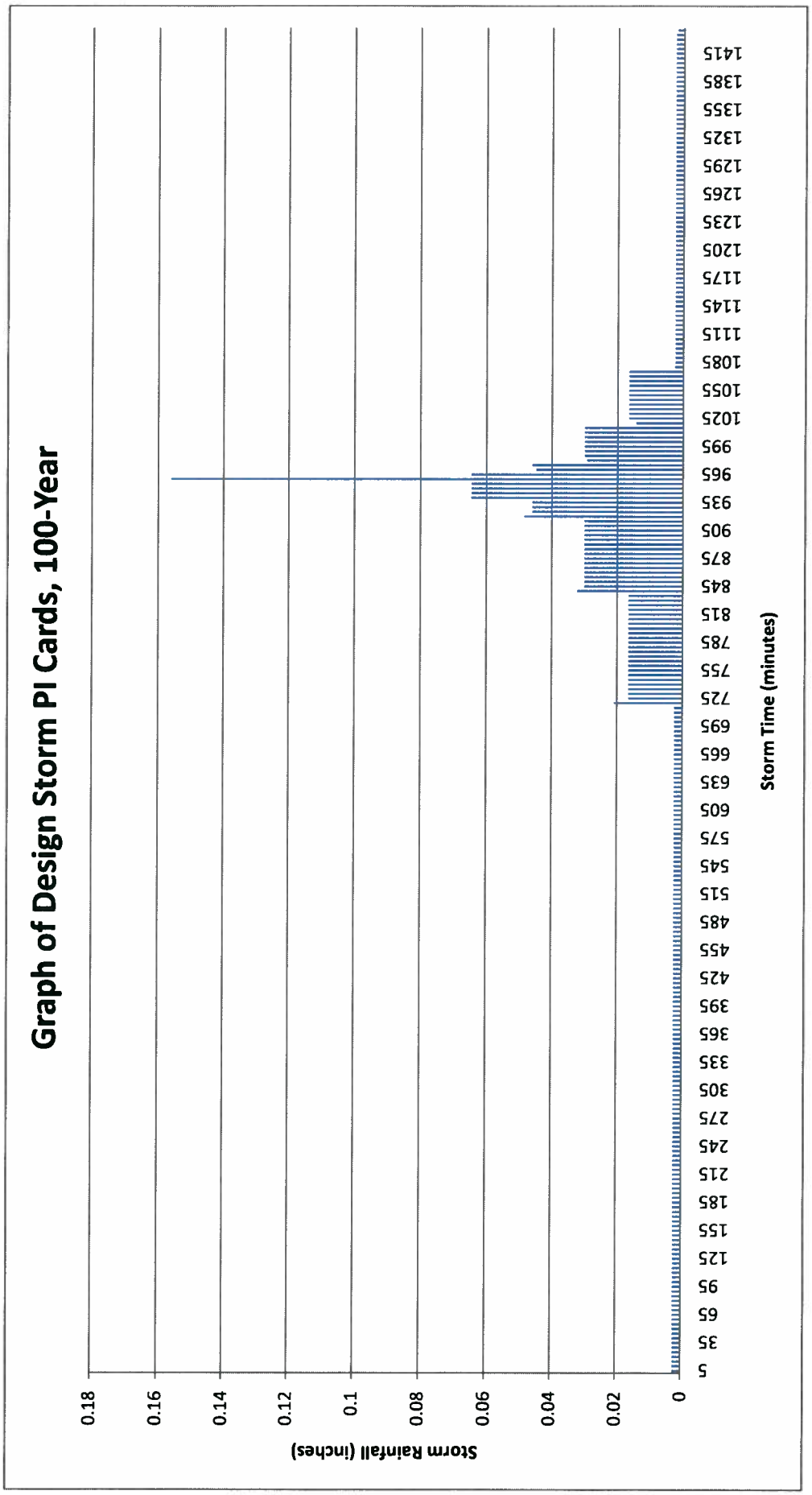
[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
109	545	3.493	0.011		0.0110
110	550	3.504	0.011		0.0110
111	555	3.515	0.011		0.0110
112	560	3.526	0.011		0.0110
113	565	3.537	0.011		0.0110
114	570	3.548	0.011		0.0110
115	575	3.559	0.011		0.0110
116	580	3.570	0.011		0.0110
117	585	3.581	0.011		0.0110
118	590	3.592	0.011		0.0110
119	595	3.603	0.011		0.0110
120	600	3.614	0.011		0.0110
121	605	3.625	0.011		0.0110
122	610	3.636	0.011		0.0110
123	615	3.647	0.011		0.0110
124	620	3.658	0.011		0.0110
125	625	3.669	0.011		0.0110
126	630	3.680	0.011		0.0110
127	635	3.691	0.011		0.0110
128	640	3.702	0.011		0.0110
129	645	3.713	0.011		0.0110
130	650	3.724	0.011		0.0110
131	655	3.735	0.011		0.0110
132	660	3.746	0.011		0.0110
133	665	3.757	0.011		0.0110
134	670	3.768	0.011		0.0110
135	675	3.779	0.011		0.0110
136	680	3.790	0.011		0.0110
137	685	3.801	0.011		0.0110
138	690	3.812	0.011		0.0110
139	695	3.823	0.011		0.0110
140	700	3.834	0.011		0.0110
141	705	3.845	0.011		0.0110
142	710	3.856	0.011		0.0110
143	715	3.867	0.011		0.0110
144	720	3.878	0.011		0.0100
145	725	3.889	0.011		0.0090
146	730	3.900	0.011		0.0090
147	735	3.911	0.011		0.0090
148	740	3.922	0.011		0.0090
149	745	3.933	0.011		0.0090
150	750	3.944	0.011		0.0090
151	755	3.955	0.011		0.0090
152	760	3.966	0.011		0.0090
153	765	3.977	0.011		0.0090
154	770	3.988	0.011		0.0090
155	775	3.999	0.011		0.0090
156	780	4.010	0.011		0.0090
157	785	4.021	0.011		0.0090
158	790	4.032	0.011		0.0090
159	795	4.043	0.011		0.0090
160	800	4.054	0.011		0.0090
161	805	4.065	0.011		0.0090
162	810	4.076	0.011		0.0090

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
163	815	4.087	0.011		0.0090
164	820	4.098	0.011		0.0090
165	825	4.109	0.011		0.0090
166	830	4.120	0.011		0.0090
167	835	4.131	0.011		0.0090
168	840	4.142	0.011		0.0634
169	845	4.153	0.011		0.0680
170	850	4.164	0.011		0.0680
171	855	4.175	0.011		0.0680
172	860	4.186	0.011		0.0680
173	865	4.197	0.011		0.0680
174	870	4.208	0.011		0.0680
175	875	4.219	0.011		0.0680
176	880	4.230	0.011		0.0680
177	885	4.241	0.011		0.0680
178	890	4.252	0.011		0.0680
179	895	4.263	0.011		0.0680
180	900	4.274	0.011		0.0680
181	905	4.285	0.011		0.0680
182	910	4.296	0.011		0.0680
183	915	4.307	0.011		0.0680
184	920	4.318	0.011		0.0424
185	925	4.329	0.011		0.0440
186	930	4.340	0.011		0.0440
187	935	4.351	0.011		0.0440
188	940	4.362	0.011		0.1143
189	945	4.373	0.011		0.1150
190	950	4.384	0.011		0.1150
191	955	4.395	0.011		0.1151
192	960	4.406	0.011		0.3139
193	965	4.417	0.011		0.1150
194	970	4.428	0.011		0.0448
195	975	4.439	0.011		0.0440
196	980	4.450	0.011		0.0695
197	985	4.461	0.011		0.0680
198	990	4.472	0.011		0.0680
199	995	4.483	0.011		0.0680
200	1000	4.494	0.011		0.0680
201	1005	4.505	0.011		0.0680
202	1010	4.516	0.011		0.0680
203	1015	4.527	0.011		0.0680
204	1020	4.538	0.011		0.0130
205	1025	4.549	0.011		0.0090
206	1030	4.560	0.011		0.0090
207	1035	4.571	0.011		0.0090
208	1040	4.582	0.011		0.0090
209	1045	4.593	0.011		0.0090
210	1050	4.604	0.011		0.0090
211	1055	4.615	0.011		0.0090
212	1060	4.626	0.011		0.0090
213	1065	4.637	0.011		0.0090
214	1070	4.648	0.011		0.0090
215	1075	4.659	0.011		0.0090
216	1080	4.670	0.011		-0.0034

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
217	1085	4.681	0.011		0.0110
218	1090	4.692	0.011		0.0110
219	1095	4.703	0.011		0.0110
220	1100	4.714	0.011		0.0110
221	1105	4.725	0.011		0.0110
222	1110	4.736	0.011		0.0110
223	1115	4.747	0.011		0.0110
224	1120	4.758	0.011		0.0110
225	1125	4.769	0.011		0.0110
226	1130	4.780	0.011		0.0110
227	1135	4.791	0.011		0.0110
228	1140	4.802	0.011		0.0110
229	1145	4.813	0.011		0.0110
230	1150	4.824	0.011		0.0110
231	1155	4.835	0.011		0.0110
232	1160	4.846	0.011		0.0110
233	1165	4.857	0.011		0.0110
234	1170	4.868	0.011		0.0110
235	1175	4.879	0.011		0.0110
236	1180	4.890	0.011		0.0110
237	1185	4.901	0.011		0.0110
238	1190	4.912	0.011		0.0110
239	1195	4.923	0.011		0.0110
240	1200	4.934	0.011		0.0110
241	1205	4.945	0.011		0.0110
242	1210	4.956	0.011		0.0110
243	1215	4.967	0.011		0.0110
244	1220	4.978	0.011		0.0110
245	1225	4.989	0.011		0.0110
246	1230	5.000	0.011		0.0110
247	1235	5.011	0.011		0.0110
248	1240	5.022	0.011		0.0110
249	1245	5.033	0.011		0.0110
250	1250	5.044	0.011		0.0110
251	1255	5.055	0.011		0.0110
252	1260	5.066	0.011		0.0110
253	1265	5.077	0.011		0.0110
254	1270	5.088	0.011		0.0110
255	1275	5.099	0.011		0.0110
256	1280	5.110	0.011		0.0110
257	1285	5.121	0.011		0.0110
258	1290	5.132	0.011		0.0110
259	1295	5.143	0.011		0.0110
260	1300	5.154	0.011		0.0110
261	1305	5.165	0.011		0.0110
262	1310	5.176	0.011		0.0110
263	1315	5.187	0.011		0.0110
264	1320	5.198	0.011		0.0110
265	1325	5.209	0.011		0.0110
266	1330	5.220	0.011		0.0110
267	1335	5.231	0.011		0.0110
268	1340	5.242	0.011		0.0110
269	1345	5.253	0.011		0.0110
270	1350	5.264	0.011		0.0110

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	**Time (min.)**	**Rainfall from Mass Rainfall Plotting Sheet (in.)**	**Unit (Incremental) Rainfall, Col 3 (in.)**	**Blank Column**	**Design Storm PI CARDS (in.)**
271	1355	5.275	0.011		0.0110
272	1360	5.286	0.011		0.0110
273	1365	5.297	0.011		0.0110
274	1370	5.308	0.011		0.0110
275	1375	5.319	0.011		0.0110
276	1380	5.330	0.011		0.0110
277	1385	5.341	0.011		0.0110
278	1390	5.352	0.011		0.0110
279	1395	5.363	0.011		0.0110
280	1400	5.374	0.011		0.0110
281	1405	5.385	0.011		0.0110
282	1410	5.396	0.011		0.0110
283	1415	5.407	0.011		0.0110
284	1420	5.418	0.011		0.0110
285	1425	5.429	0.011		0.0110
286	1430	5.440	0.011		0.0110
287	1435	5.451	0.011		0.0110
288	1440	5.520	0.068		0.0115

Notes:
Column [6] values arranged per referrenced SB County Figures E-5a through E-5c


Graph of Design Storm PI Cards, 100-Year
Storm Rainfall (inches)
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Storm Time (minutes)
5
35
65
95
125
155
185
215
245
275
305
335
365
395
425
455
485
515
545
575
605
635
665
695
725
755
785
815
845
875
905
935
965
995
1025
1055
1085
1115
1145
1175
1205
1235
1265
1295
1325
1355
1385
1415

APPENDIX C:

ii. 24-Hour, 25-Year Pattern Derivation

SAN BERNARDINO STORM PEAK 24-HOUR PATTERN DERIVATION

Precipitation Frequency Data

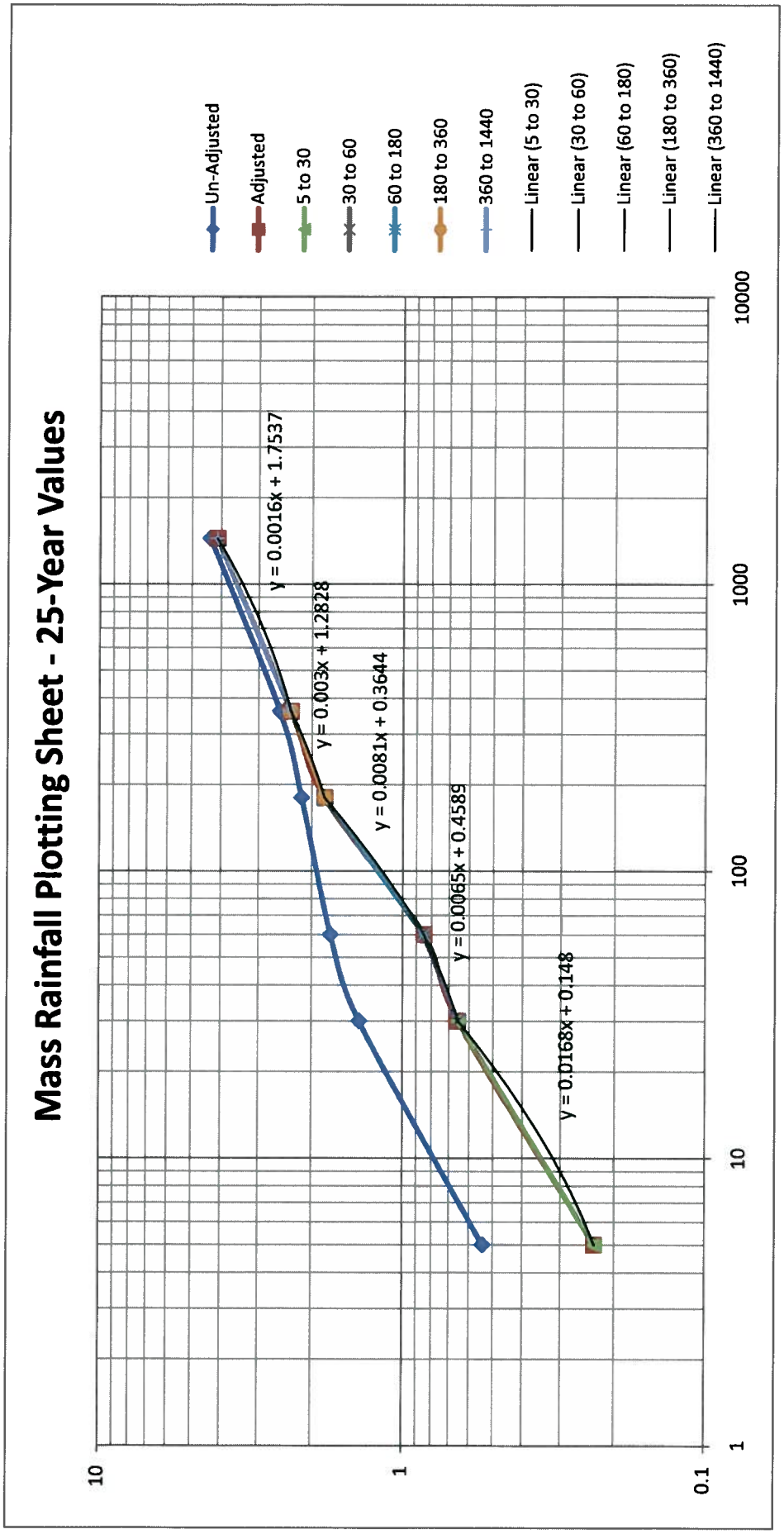
25-year Values

Basin: LOVEL

Area: 53.17 sq. mi.

Storm Duration		Un-Adjusted Depth (in.)	Aeral Factor (Ref. Fig. E-4)	Adjusted Depth (in.)
5	min	0.54	0.43	0.232
30	min	1.39	0.47	0.653
1	hr	1.73	0.49	0.848
3	hr	2.16	0.84	1.814
6	hr	2.55	0.92	2.346
24	hr	4.34	0.95	4.123

See Mass Rainfall Plotting Sheet for graph of Un-Adjusted Depths and Adjusted Depths
Same storm distribution (hyetograph) to be used for remaining basins to be used in analysis


Mass Rainfall Plotting Sheet - 25-Year Values
Un-Adjusted
Adjusted
5 to 30
30 to 60
60 to 180
180 to 360
360 to 1440
Linear (5 to 30)
Linear (30 to 60)
Linear (60 to 180)
Linear (180 to 360)
Linear (360 to 1440)
y = 0.0016x + 1.7537
y = 0.003x + 1.2828
y = 0.0081x + 0.3644
y = 0.0065x + 0.4589
y = 0.0168x + 0.148
10
1
0.1
1
10
100
1000
10000

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
1	5	0.2322	0.232		0.0080
2	10	0.3160	0.084		0.0080
3	15	0.4000	0.084		0.0080
4	20	0.4840	0.084		0.0080
5	25	0.5680	0.084		0.0080
6	30	0.6533	0.085		0.0080
7	35	0.6864	0.033		0.0080
8	40	0.7189	0.033		0.0080
9	45	0.7514	0.033		0.0080
10	50	0.7839	0.033		0.0080
11	55	0.8164	0.033		0.0080
12	60	0.8477	0.031		0.0080
13	65	0.8909	0.043		0.0080
14	70	0.9314	0.041		0.0080
15	75	0.9719	0.041		0.0080
16	80	1.0124	0.041		0.0080
17	85	1.0529	0.041		0.0080
18	90	1.0934	0.041		0.0080
19	95	1.1339	0.041		0.0080
20	100	1.1744	0.041		0.0080
21	105	1.2149	0.041		0.0080
22	110	1.2554	0.041		0.0080
23	115	1.2959	0.041		0.0080
24	120	1.3364	0.041		0.0080
25	125	1.3769	0.041		0.0080
26	130	1.4174	0.041		0.0080
27	135	1.4579	0.041		0.0080
28	140	1.4984	0.041		0.0080
29	145	1.5389	0.041		0.0080
30	150	1.5794	0.041		0.0080
31	155	1.6199	0.041		0.0080
32	160	1.6604	0.041		0.0080
33	165	1.7009	0.041		0.0080
34	170	1.7414	0.041		0.0080
35	175	1.7819	0.041		0.0080
36	180	1.8144	0.033		0.0080
37	185	1.8378	0.023		0.0080
38	190	1.8528	0.015		0.0080
39	195	1.8678	0.015		0.0080
40	200	1.8828	0.015		0.0080
41	205	1.8978	0.015		0.0080
42	210	1.9128	0.015		0.0080
43	215	1.9278	0.015		0.0080
44	220	1.9428	0.015		0.0080
45	225	1.9578	0.015		0.0080
46	230	1.9728	0.015		0.0080
47	235	1.9878	0.015		0.0080
48	240	2.0028	0.015		0.0080
49	245	2.0178	0.015		0.0080
50	250	2.0328	0.015		0.0080
51	255	2.0478	0.015		0.0080
52	260	2.0628	0.015		0.0080
53	265	2.0778	0.015		0.0080
54	270	2.0928	0.015		0.0080

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
55	275	2.1078	0.015		0.0080
56	280	2.1228	0.015		0.0080
57	285	2.1378	0.015		0.0080
58	290	2.1528	0.015		0.0080
59	295	2.1678	0.015		0.0080
60	300	2.1828	0.015		0.0080
61	305	2.1978	0.015		0.0080
62	310	2.2128	0.015		0.0080
63	315	2.2278	0.015		0.0080
64	320	2.2428	0.015		0.0080
65	325	2.2578	0.015		0.0080
66	330	2.2728	0.015		0.0080
67	335	2.2878	0.015		0.0080
68	340	2.3028	0.015		0.0080
69	345	2.3178	0.015		0.0080
70	350	2.3328	0.015		0.0080
71	355	2.3478	0.015		0.0080
72	360	2.3460	-0.002		0.0080
73	365	2.3377	-0.008		0.0080
74	370	2.3457	0.008		0.0080
75	375	2.3537	0.008		0.0080
76	380	2.3617	0.008		0.0080
77	385	2.3697	0.008		0.0080
78	390	2.3777	0.008		0.0080
79	395	2.3857	0.008		0.0080
80	400	2.3937	0.008		0.0080
81	405	2.4017	0.008		0.0080
82	410	2.4097	0.008		0.0080
83	415	2.4177	0.008		0.0080
84	420	2.4257	0.008		0.0080
85	425	2.4337	0.008		0.0080
86	430	2.4417	0.008		0.0080
87	435	2.4497	0.008		0.0080
88	440	2.4577	0.008		0.0080
89	445	2.4657	0.008		0.0080
90	450	2.4737	0.008		0.0080
91	455	2.4817	0.008		0.0080
92	460	2.4897	0.008		0.0080
93	465	2.4977	0.008		0.0080
94	470	2.5057	0.008		0.0080
95	475	2.5137	0.008		0.0080
96	480	2.5217	0.008		0.0080
97	485	2.5297	0.008		0.0080
98	490	2.5377	0.008		0.0080
99	495	2.5457	0.008		0.0080
100	500	2.5537	0.008		0.0080
101	505	2.5617	0.008		0.0080
102	510	2.5697	0.008		0.0080
103	515	2.5777	0.008		0.0080
104	520	2.5857	0.008		0.0080
105	525	2.5937	0.008		0.0080
106	530	2.6017	0.008		0.0080
107	535	2.6097	0.008		0.0080
108	540	2.6177	0.008		0.0080

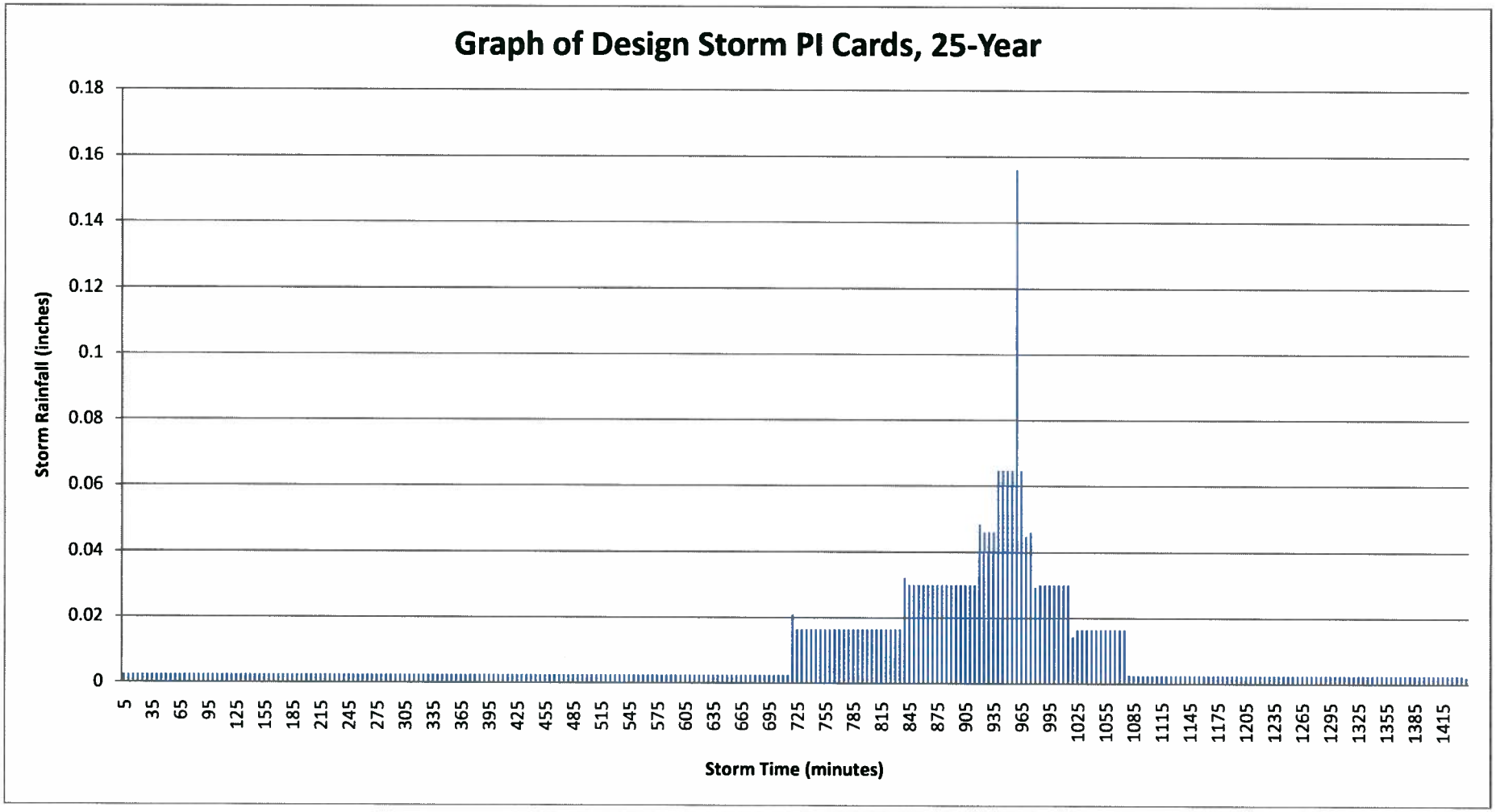
[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
109	545	2.6257	0.008		0.0080
110	550	2.6337	0.008		0.0080
111	555	2.6417	0.008		0.0080
112	560	2.6497	0.008		0.0080
113	565	2.6577	0.008		0.0080
114	570	2.6657	0.008		0.0080
115	575	2.6737	0.008		0.0080
116	580	2.6817	0.008		0.0080
117	585	2.6897	0.008		0.0080
118	590	2.6977	0.008		0.0080
119	595	2.7057	0.008		0.0080
120	600	2.7137	0.008		0.0080
121	605	2.7217	0.008		0.0080
122	610	2.7297	0.008		0.0080
123	615	2.7377	0.008		0.0080
124	620	2.7457	0.008		0.0080
125	625	2.7537	0.008		0.0080
126	630	2.7617	0.008		0.0080
127	635	2.7697	0.008		0.0080
128	640	2.7777	0.008		0.0080
129	645	2.7857	0.008		0.0080
130	650	2.7937	0.008		0.0080
131	655	2.8017	0.008		0.0080
132	660	2.8097	0.008		0.0080
133	665	2.8177	0.008		0.0080
134	670	2.8257	0.008		0.0080
135	675	2.8337	0.008		0.0080
136	680	2.8417	0.008		0.0080
137	685	2.8497	0.008		0.0080
138	690	2.8577	0.008		0.0080
139	695	2.8657	0.008		0.0080
140	700	2.8737	0.008		0.0080
141	705	2.8817	0.008		0.0080
142	710	2.8897	0.008		0.0080
143	715	2.8977	0.008		0.0080
144	720	2.9057	0.008		0.0100
145	725	2.9137	0.008		0.0150
146	730	2.9217	0.008		0.0150
147	735	2.9297	0.008		0.0150
148	740	2.9377	0.008		0.0150
149	745	2.9457	0.008		0.0150
150	750	2.9537	0.008		0.0150
151	755	2.9617	0.008		0.0150
152	760	2.9697	0.008		0.0150
153	765	2.9777	0.008		0.0150
154	770	2.9857	0.008		0.0150
155	775	2.9937	0.008		0.0150
156	780	3.0017	0.008		0.0150
157	785	3.0097	0.008		0.0150
158	790	3.0177	0.008		0.0150
159	795	3.0257	0.008		0.0150
160	800	3.0337	0.008		0.0150
161	805	3.0417	0.008		0.0150
162	810	3.0497	0.008		0.0150

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
163	815	3.0577	0.008		0.0150
164	820	3.0657	0.008		0.0150
165	825	3.0737	0.008		0.0150
166	830	3.0817	0.008		0.0150
167	835	3.0897	0.008		0.0150
168	840	3.0977	0.008		0.0325
169	845	3.1057	0.008		0.0405
170	850	3.1137	0.008		0.0405
171	855	3.1217	0.008		0.0405
172	860	3.1297	0.008		0.0405
173	865	3.1377	0.008		0.0405
174	870	3.1457	0.008		0.0405
175	875	3.1537	0.008		0.0405
176	880	3.1617	0.008		0.0405
177	885	3.1697	0.008		0.0405
178	890	3.1777	0.008		0.0405
179	895	3.1857	0.008		0.0405
180	900	3.1937	0.008		0.0405
181	905	3.2017	0.008		0.0405
182	910	3.2097	0.008		0.0405
183	915	3.2177	0.008		0.0405
184	920	3.2257	0.008		0.0313
185	925	3.2337	0.008		0.0325
186	930	3.2417	0.008		0.0325
187	935	3.2497	0.008		0.0325
188	940	3.2577	0.008		0.0853
189	945	3.2657	0.008		0.0840
190	950	3.2737	0.008		0.0840
191	955	3.2817	0.008		0.0838
192	960	3.2897	0.008		0.2322
193	965	3.2977	0.008		0.0840
194	970	3.3057	0.008		0.0331
195	975	3.3137	0.008		0.0325
196	980	3.3217	0.008		0.0432
197	985	3.3297	0.008		0.0405
198	990	3.3377	0.008		0.0405
199	995	3.3457	0.008		0.0405
200	1000	3.3537	0.008		0.0405
201	1005	3.3617	0.008		0.0405
202	1010	3.3697	0.008		0.0405
203	1015	3.3777	0.008		0.0405
204	1020	3.3857	0.008		0.0234
205	1025	3.3937	0.008		0.0150
206	1030	3.4017	0.008		0.0150
207	1035	3.4097	0.008		0.0150
208	1040	3.4177	0.008		0.0150
209	1045	3.4257	0.008		0.0150
210	1050	3.4337	0.008		0.0150
211	1055	3.4417	0.008		0.0150
212	1060	3.4497	0.008		0.0150
213	1065	3.4577	0.008		0.0150
214	1070	3.4657	0.008		0.0150
215	1075	3.4737	0.008		0.0150
216	1080	3.4817	0.008		-0.0083

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
217	1085	3.4897	0.008		0.0080
218	1090	3.4977	0.008		0.0080
219	1095	3.5057	0.008		0.0080
220	1100	3.5137	0.008		0.0080
221	1105	3.5217	0.008		0.0080
222	1110	3.5297	0.008		0.0080
223	1115	3.5377	0.008		0.0080
224	1120	3.5457	0.008		0.0080
225	1125	3.5537	0.008		0.0080
226	1130	3.5617	0.008		0.0080
227	1135	3.5697	0.008		0.0080
228	1140	3.5777	0.008		0.0080
229	1145	3.5857	0.008		0.0080
230	1150	3.5937	0.008		0.0080
231	1155	3.6017	0.008		0.0080
232	1160	3.6097	0.008		0.0080
233	1165	3.6177	0.008		0.0080
234	1170	3.6257	0.008		0.0080
235	1175	3.6337	0.008		0.0080
236	1180	3.6417	0.008		0.0080
237	1185	3.6497	0.008		0.0080
238	1190	3.6577	0.008		0.0080
239	1195	3.6657	0.008		0.0080
240	1200	3.6737	0.008		0.0080
241	1205	3.6817	0.008		0.0080
242	1210	3.6897	0.008		0.0080
243	1215	3.6977	0.008		0.0080
244	1220	3.7057	0.008		0.0080
245	1225	3.7137	0.008		0.0080
246	1230	3.7217	0.008		0.0080
247	1235	3.7297	0.008		0.0080
248	1240	3.7377	0.008		0.0080
249	1245	3.7457	0.008		0.0080
250	1250	3.7537	0.008		0.0080
251	1255	3.7617	0.008		0.0080
252	1260	3.7697	0.008		0.0080
253	1265	3.7777	0.008		0.0080
254	1270	3.7857	0.008		0.0080
255	1275	3.7937	0.008		0.0080
256	1280	3.8017	0.008		0.0080
257	1285	3.8097	0.008		0.0080
258	1290	3.8177	0.008		0.0080
259	1295	3.8257	0.008		0.0080
260	1300	3.8337	0.008		0.0080
261	1305	3.8417	0.008		0.0080
262	1310	3.8497	0.008		0.0080
263	1315	3.8577	0.008		0.0080
264	1320	3.8657	0.008		0.0080
265	1325	3.8737	0.008		0.0080
266	1330	3.8817	0.008		0.0080
267	1335	3.8897	0.008		0.0080
268	1340	3.8977	0.008		0.0080
269	1345	3.9057	0.008		0.0080
270	1350	3.9137	0.008		0.0080

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
271	1355	3.9217	0.008		0.0080
272	1360	3.9297	0.008		0.0080
273	1365	3.9377	0.008		0.0080
274	1370	3.9457	0.008		0.0080
275	1375	3.9537	0.008		0.0080
276	1380	3.9617	0.008		0.0080
277	1385	3.9697	0.008		0.0080
278	1390	3.9777	0.008		0.0080
279	1395	3.9857	0.008		0.0080
280	1400	3.9937	0.008		0.0080
281	1405	4.0017	0.008		0.0080
282	1410	4.0097	0.008		0.0080
283	1415	4.0177	0.008		0.0080
284	1420	4.0257	0.008		0.0080
285	1425	4.0337	0.008		0.0080
286	1430	4.0417	0.008		0.0080
287	1435	4.0497	0.008		0.0080
288	1440	4.12300	0.073		0.0115

Notes:
Column [6] values arranged per referrenced SB County Figures E-5a through E-5c


Graph of Design Storm PI Cards, 25-Year
Storm Rainfall (inches)
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
5 35 65 95 125 155 185 215 245 275 305 335 365 395 425 455 485 515 545 575 605 635 665 695 725 755 785 815 845 875 905 935 965 995 1025 1055 1085 1115 1145 1175 1205 1235 1265 1295 1325 1355 1385 1415
Storm Time (minutes)

APPENDIX C:

iii. 24-Hour, 10-Year Pattern Derivation

SAN BERNARDINO STORM PEAK 24-HOUR PATTERN DERIVATION

Precipitation Frequency Data

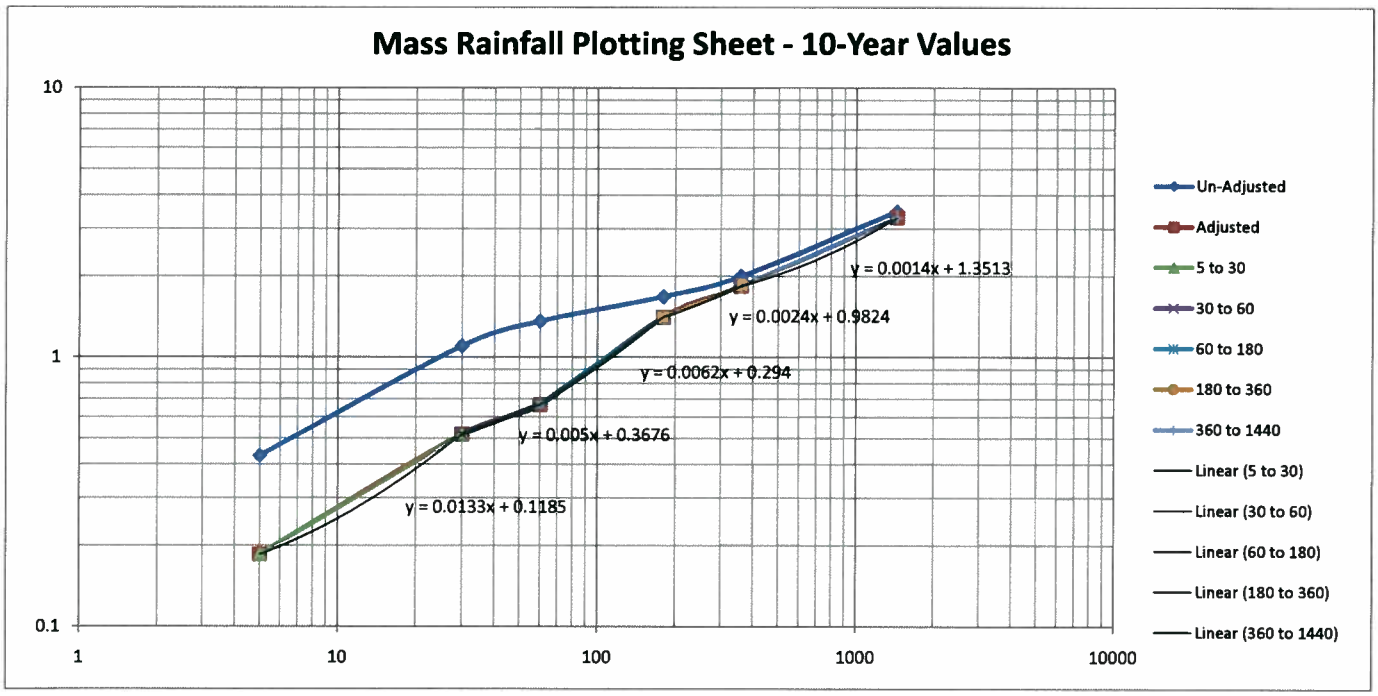
10-year Values

Basin: LOVEL

Area: 53.17 sq. mi.

Storm Duration		Un-Adjusted Depth (in.)	Aeral Factor (Ref. Fig. E-4)	Adjusted Depth (in.)
5	min	0.43	0.43	0.185
30	min	1.10	0.47	0.517
1	hr	1.36	0.49	0.666
3	hr	1.68	0.84	1.411
6	hr	2.00	0.92	1.840
24	hr	3.48	0.95	3.306

See Mass Rainfall Plotting Sheet for graph of Un-Adjusted Depths and Adjusted Depths
Same storm distribution (hyetograph) to be used for remaining basins to be used in analysis


Mass Rainfall Plotting Sheet - 10-Year Values
10
1
0.1
1
10
100
1000
10000
y = 0.0014x + 1.3513
y = 0.0024x + 0.9824
y = 0.0062x + 0.294
y = 0.005x + 0.3676
y = 0.0133x + 0.1185
Un-Adjusted
Adjusted
5 to 30
30 to 60
60 to 180
180 to 360
360 to 1440
Linear (5 to 30)
Linear (30 to 60)
Linear (60 to 180)
Linear (180 to 360)
Linear (360 to 1440)

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
1	5	0.1849	0.185		0.0070
2	10	0.2515	0.067		0.0070
3	15	0.3180	0.066		0.0070
4	20	0.3845	0.067		0.0070
5	25	0.4510	0.066		0.0070
6	30	0.5170	0.066		0.0070
7	35	0.5426	0.026		0.0070
8	40	0.5676	0.025		0.0070
9	45	0.5926	0.025		0.0070
10	50	0.6176	0.025		0.0070
11	55	0.6426	0.025		0.0070
12	60	0.6664	0.024		0.0070
13	65	0.6970	0.031		0.0070
14	70	0.7280	0.031		0.0070
15	75	0.7590	0.031		0.0070
16	80	0.7900	0.031		0.0070
17	85	0.8210	0.031		0.0070
18	90	0.8520	0.031		0.0070
19	95	0.8830	0.031		0.0070
20	100	0.9140	0.031		0.0070
21	105	0.9450	0.031		0.0070
22	110	0.9760	0.031		0.0070
23	115	1.0070	0.031		0.0070
24	120	1.0380	0.031		0.0070
25	125	1.0690	0.031		0.0070
26	130	1.1000	0.031		0.0070
27	135	1.1310	0.031		0.0070
28	140	1.1620	0.031		0.0070
29	145	1.1930	0.031		0.0070
30	150	1.2240	0.031		0.0070
31	155	1.2550	0.031		0.0070
32	160	1.2860	0.031		0.0070
33	165	1.3170	0.031		0.0070
34	170	1.3480	0.031		0.0070
35	175	1.3790	0.031		0.0070
36	180	1.4112	0.032		0.0070
37	185	1.4264	0.015		0.0070
38	190	1.4384	0.012		0.0070
39	195	1.4504	0.012		0.0070
40	200	1.4624	0.012		0.0070
41	205	1.4744	0.012		0.0070
42	210	1.4864	0.012		0.0070
43	215	1.4984	0.012		0.0070
44	220	1.5104	0.012		0.0070
45	225	1.5224	0.012		0.0070
46	230	1.5344	0.012		0.0070
47	235	1.5464	0.012		0.0070
48	240	1.5584	0.012		0.0070
49	245	1.5704	0.012		0.0070
50	250	1.5824	0.012		0.0070
51	255	1.5944	0.012		0.0070
52	260	1.6064	0.012		0.0070
53	265	1.6184	0.012		0.0070
54	270	1.6304	0.012		0.0070

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
55	275	1.6424	0.012		0.0070
56	280	1.6544	0.012		0.0070
57	285	1.6664	0.012		0.0070
58	290	1.6784	0.012		0.0070
59	295	1.6904	0.012		0.0070
60	300	1.7024	0.012		0.0070
61	305	1.7144	0.012		0.0070
62	310	1.7264	0.012		0.0070
63	315	1.7384	0.012		0.0070
64	320	1.7504	0.012		0.0070
65	325	1.7624	0.012		0.0070
66	330	1.7744	0.012		0.0070
67	335	1.7864	0.012		0.0070
68	340	1.7984	0.012		0.0070
69	345	1.8104	0.012		0.0070
70	350	1.8224	0.012		0.0070
71	355	1.8344	0.012		0.0070
72	360	1.8400	0.006		0.0070
73	365	1.8623	0.022		0.0070
74	370	1.8693	0.007		0.0070
75	375	1.8763	0.007		0.0070
76	380	1.8833	0.007		0.0070
77	385	1.8903	0.007		0.0070
78	390	1.8973	0.007		0.0070
79	395	1.9043	0.007		0.0070
80	400	1.9113	0.007		0.0070
81	405	1.9183	0.007		0.0070
82	410	1.9253	0.007		0.0070
83	415	1.9323	0.007		0.0070
84	420	1.9393	0.007		0.0070
85	425	1.9463	0.007		0.0070
86	430	1.9533	0.007		0.0070
87	435	1.9603	0.007		0.0070
88	440	1.9673	0.007		0.0070
89	445	1.9743	0.007		0.0070
90	450	1.9813	0.007		0.0070
91	455	1.9883	0.007		0.0070
92	460	1.9953	0.007		0.0070
93	465	2.0023	0.007		0.0070
94	470	2.0093	0.007		0.0070
95	475	2.0163	0.007		0.0070
96	480	2.0233	0.007		0.0070
97	485	2.0303	0.007		0.0070
98	490	2.0373	0.007		0.0070
99	495	2.0443	0.007		0.0070
100	500	2.0513	0.007		0.0070
101	505	2.0583	0.007		0.0070
102	510	2.0653	0.007		0.0070
103	515	2.0723	0.007		0.0070
104	520	2.0793	0.007		0.0070
105	525	2.0863	0.007		0.0070
106	530	2.0933	0.007		0.0070
107	535	2.1003	0.007		0.0070
108	540	2.1073	0.007		0.0070

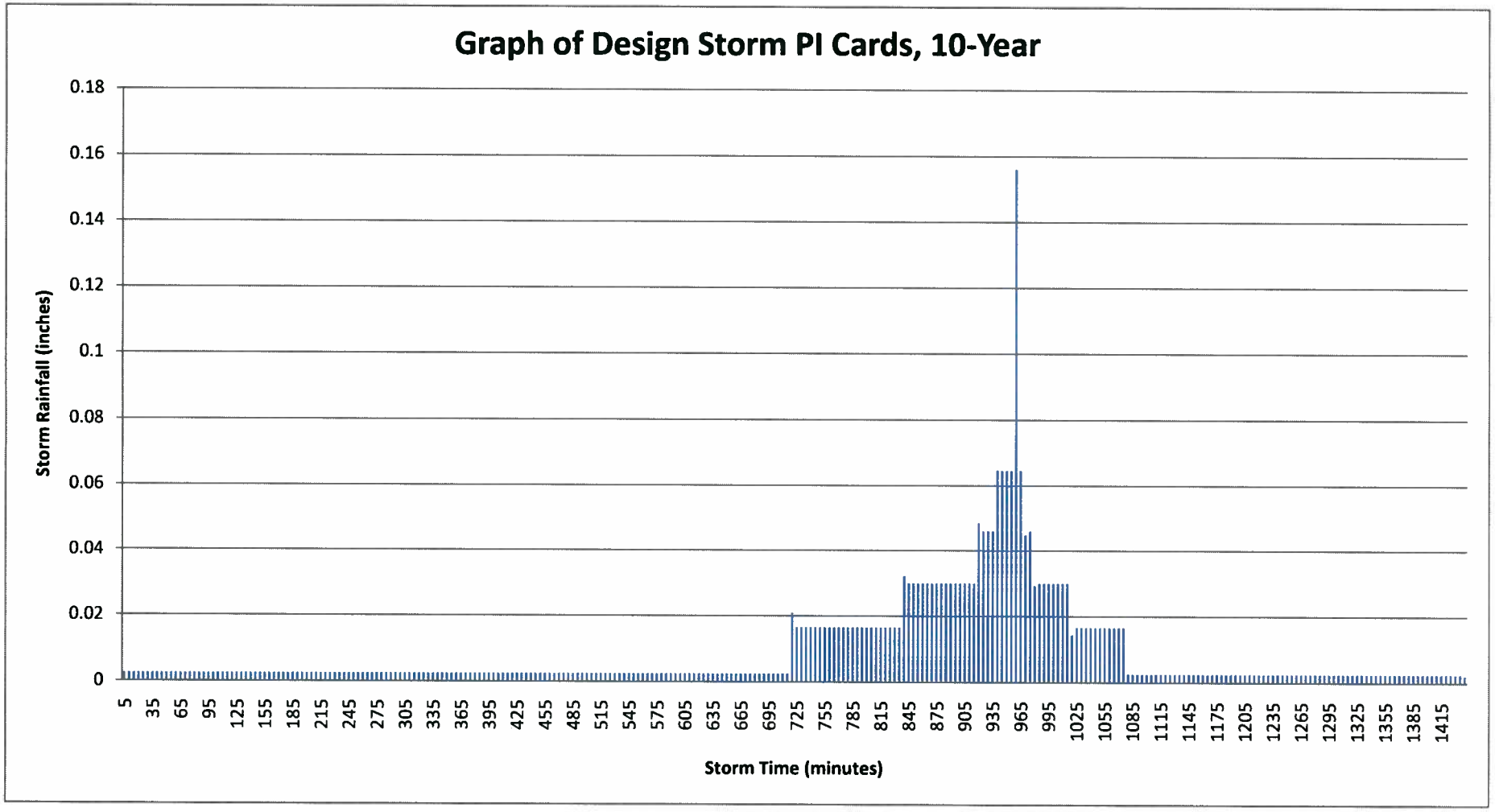
[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
109	545	2.1143	0.007		0.0070
110	550	2.1213	0.007		0.0070
111	555	2.1283	0.007		0.0070
112	560	2.1353	0.007		0.0070
113	565	2.1423	0.007		0.0070
114	570	2.1493	0.007		0.0070
115	575	2.1563	0.007		0.0070
116	580	2.1633	0.007		0.0070
117	585	2.1703	0.007		0.0070
118	590	2.1773	0.007		0.0070
119	595	2.1843	0.007		0.0070
120	600	2.1913	0.007		0.0070
121	605	2.1983	0.007		0.0070
122	610	2.2053	0.007		0.0070
123	615	2.2123	0.007		0.0070
124	620	2.2193	0.007		0.0070
125	625	2.2263	0.007		0.0070
126	630	2.2333	0.007		0.0070
127	635	2.2403	0.007		0.0070
128	640	2.2473	0.007		0.0070
129	645	2.2543	0.007		0.0070
130	650	2.2613	0.007		0.0070
131	655	2.2683	0.007		0.0070
132	660	2.2753	0.007		0.0070
133	665	2.2823	0.007		0.0070
134	670	2.2893	0.007		0.0070
135	675	2.2963	0.007		0.0070
136	680	2.3033	0.007		0.0070
137	685	2.3103	0.007		0.0070
138	690	2.3173	0.007		0.0070
139	695	2.3243	0.007		0.0070
140	700	2.3313	0.007		0.0070
141	705	2.3383	0.007		0.0070
142	710	2.3453	0.007		0.0070
143	715	2.3523	0.007		0.0070
144	720	2.3593	0.007		0.0100
145	725	2.3663	0.007		0.0120
146	730	2.3733	0.007		0.0120
147	735	2.3803	0.007		0.0120
148	740	2.3873	0.007		0.0120
149	745	2.3943	0.007		0.0120
150	750	2.4013	0.007		0.0120
151	755	2.4083	0.007		0.0120
152	760	2.4153	0.007		0.0120
153	765	2.4223	0.007		0.0120
154	770	2.4293	0.007		0.0120
155	775	2.4363	0.007		0.0120
156	780	2.4433	0.007		0.0120
157	785	2.4503	0.007		0.0120
158	790	2.4573	0.007		0.0120
159	795	2.4643	0.007		0.0120
160	800	2.4713	0.007		0.0120
161	805	2.4783	0.007		0.0120
162	810	2.4853	0.007		0.0120

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
163	815	2.4923	0.007		0.0120
164	820	2.4993	0.007		0.0120
165	825	2.5063	0.007		0.0120
166	830	2.5133	0.007		0.0120
167	835	2.5203	0.007		0.0120
168	840	2.5273	0.007		0.0322
169	845	2.5343	0.007		0.0310
170	850	2.5413	0.007		0.0310
171	855	2.5483	0.007		0.0310
172	860	2.5553	0.007		0.0310
173	865	2.5623	0.007		0.0310
174	870	2.5693	0.007		0.0310
175	875	2.5763	0.007		0.0310
176	880	2.5833	0.007		0.0310
177	885	2.5903	0.007		0.0310
178	890	2.5973	0.007		0.0310
179	895	2.6043	0.007		0.0310
180	900	2.6113	0.007		0.0310
181	905	2.6183	0.007		0.0310
182	910	2.6253	0.007		0.0310
183	915	2.6323	0.007		0.0310
184	920	2.6393	0.007		0.0238
185	925	2.6463	0.007		0.0250
186	930	2.6533	0.007		0.0250
187	935	2.6603	0.007		0.0250
188	940	2.6673	0.007		0.0660
189	945	2.6743	0.007		0.0665
190	950	2.6813	0.007		0.0665
191	955	2.6883	0.007		0.0666
192	960	2.6953	0.007		0.1849
193	965	2.7023	0.007		0.0665
194	970	2.7093	0.007		0.0256
195	975	2.7163	0.007		0.0250
196	980	2.7233	0.007		0.0306
197	985	2.7303	0.007		0.0310
198	990	2.7373	0.007		0.0310
199	995	2.7443	0.007		0.0310
200	1000	2.7513	0.007		0.0310
201	1005	2.7583	0.007		0.0310
202	1010	2.7653	0.007		0.0310
203	1015	2.7723	0.007		0.0310
204	1020	2.7793	0.007		0.0152
205	1025	2.7863	0.007		0.0120
206	1030	2.7933	0.007		0.0120
207	1035	2.8003	0.007		0.0120
208	1040	2.8073	0.007		0.0120
209	1045	2.8143	0.007		0.0120
210	1050	2.8213	0.007		0.0120
211	1055	2.8283	0.007		0.0120
212	1060	2.8353	0.007		0.0120
213	1065	2.8423	0.007		0.0120
214	1070	2.8493	0.007		0.0120
215	1075	2.8563	0.007		0.0120
216	1080	2.8633	0.007		0.0223

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	Time (min.)	Rainfall from Mass Rainfall Plotting Sheet (in.)	Unit (Incremental) Rainfall, Col 3 (in.)	Blank Column	Design Storm PI CARDS (in.)
217	1085	2.8703	0.007		0.0070
218	1090	2.8773	0.007		0.0070
219	1095	2.8843	0.007		0.0070
220	1100	2.8913	0.007		0.0070
221	1105	2.8983	0.007		0.0070
222	1110	2.9053	0.007		0.0070
223	1115	2.9123	0.007		0.0070
224	1120	2.9193	0.007		0.0070
225	1125	2.9263	0.007		0.0070
226	1130	2.9333	0.007		0.0070
227	1135	2.9403	0.007		0.0070
228	1140	2.9473	0.007		0.0070
229	1145	2.9543	0.007		0.0070
230	1150	2.9613	0.007		0.0070
231	1155	2.9683	0.007		0.0070
232	1160	2.9753	0.007		0.0070
233	1165	2.9823	0.007		0.0070
234	1170	2.9893	0.007		0.0070
235	1175	2.9963	0.007		0.0070
236	1180	3.0033	0.007		0.0070
237	1185	3.0103	0.007		0.0070
238	1190	3.0173	0.007		0.0070
239	1195	3.0243	0.007		0.0070
240	1200	3.0313	0.007		0.0070
241	1205	3.0383	0.007		0.0070
242	1210	3.0453	0.007		0.0070
243	1215	3.0523	0.007		0.0070
244	1220	3.0593	0.007		0.0070
245	1225	3.0663	0.007		0.0070
246	1230	3.0733	0.007		0.0070
247	1235	3.0803	0.007		0.0070
248	1240	3.0873	0.007		0.0070
249	1245	3.0943	0.007		0.0070
250	1250	3.1013	0.007		0.0070
251	1255	3.1083	0.007		0.0070
252	1260	3.1153	0.007		0.0070
253	1265	3.1223	0.007		0.0070
254	1270	3.1293	0.007		0.0070
255	1275	3.1363	0.007		0.0070
256	1280	3.1433	0.007		0.0070
257	1285	3.1503	0.007		0.0070
258	1290	3.1573	0.007		0.0070
259	1295	3.1643	0.007		0.0070
260	1300	3.1713	0.007		0.0070
261	1305	3.1783	0.007		0.0070
262	1310	3.1853	0.007		0.0070
263	1315	3.1923	0.007		0.0070
264	1320	3.1993	0.007		0.0070
265	1325	3.2063	0.007		0.0070
266	1330	3.2133	0.007		0.0070
267	1335	3.2203	0.007		0.0070
268	1340	3.2273	0.007		0.0070
269	1345	3.2343	0.007		0.0070
270	1350	3.2413	0.007		0.0070

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	**Time (min.)**	**Rainfall from Mass Rainfall Plotting Sheet (in.)**	**Unit (Incremental) Rainfall, Col 3 (in.)**	**Blank Column**	**Design Storm PI CARDS (in.)**
271	1355	3.2483	0.007		0.0070
272	1360	3.2553	0.007		0.0070
273	1365	3.2623	0.007		0.0070
274	1370	3.2693	0.007		0.0070
275	1375	3.2763	0.007		0.0070
276	1380	3.2833	0.007		0.0070
277	1385	3.2903	0.007		0.0070
278	1390	3.2973	0.007		0.0070
279	1395	3.3043	0.007		0.0070
280	1400	3.3113	0.007		0.0070
281	1405	3.3183	0.007		0.0070
282	1410	3.3253	0.007		0.0070
283	1415	3.3323	0.007		0.0070
284	1420	3.3393	0.007		0.0070
285	1425	3.3463	0.007		0.0070
286	1430	3.3533	0.007		0.0070
287	1435	3.3603	0.007		0.0070
288	1440	3.3060	-0.054		0.0115

Notes:
Column [6] values arranged per referrenced SB County Figures E-5a through E-5c


Graph of Design Storm PI Cards, 10-Year
Storm Rainfall (inches)
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
5 35 65 95 125 155 185 215 245 275 305 335 365 395 425 455 485 515 545 575 605 635 665 695 725 755 785 815 845 875 905 935 965 995 1025 1055 1085 1115 1145 1175 1205 1235 1265 1295 1325 1355 1385 1415
Storm Time (minutes)

APPENDIX C:

iv. 24-Hour, 5-Year Pattern Derivation

SAN BERNARDINO STORM PEAK 24-HOUR PATTERN DERIVATION

Precipitation Frequency Data

5-year Values

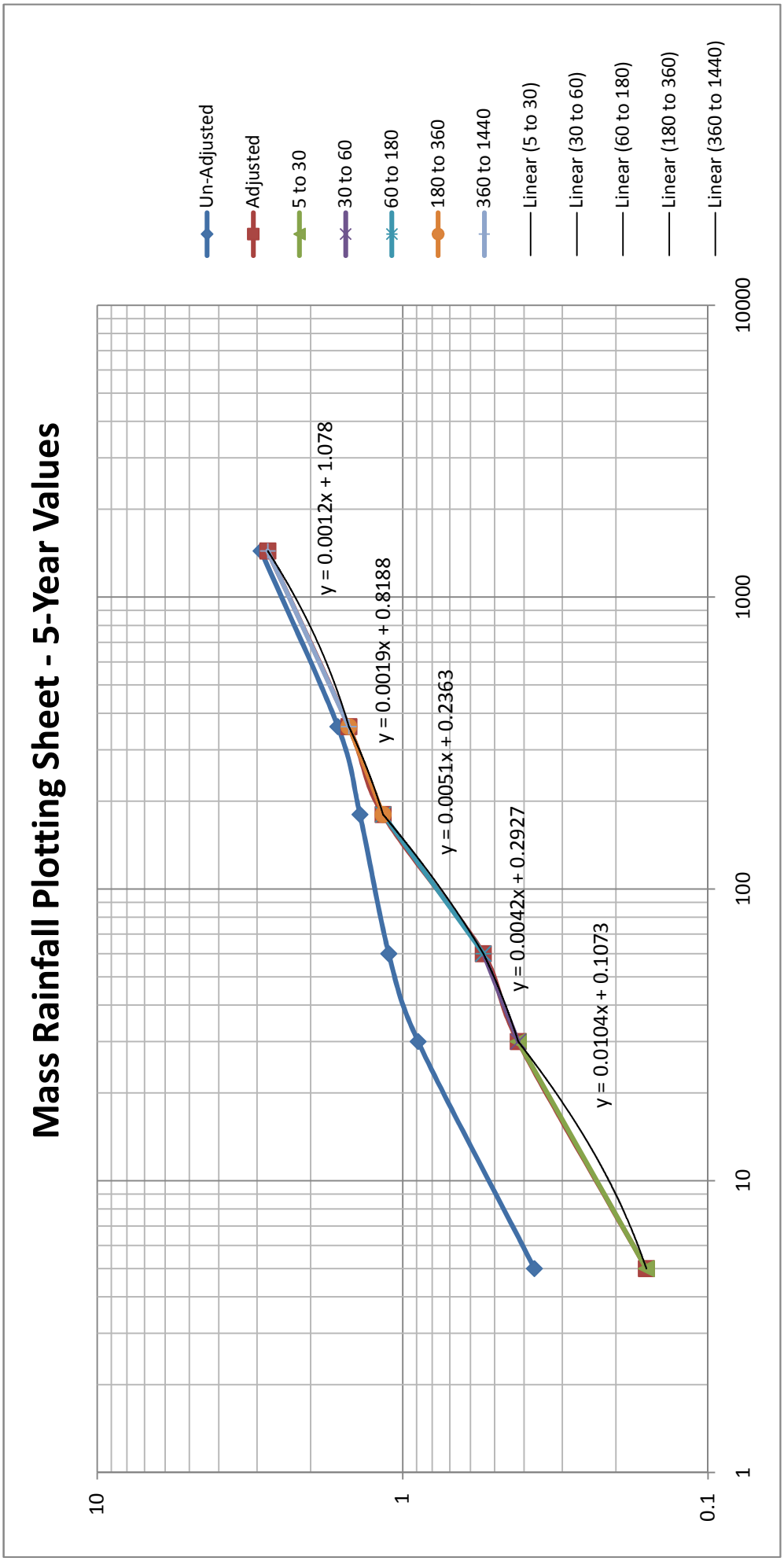
Basin: LOVEL

Area: 53.17 sq. mi.

Storm Duration		Un-Adjusted Depth (in.)	Aeral Factor (Ref. Fig. E-4)	Adjusted Depth (in.)
5	min	0.37	0.43	0.159
30	min	0.89	0.47	0.418
1	hr	1.11	0.49	0.544
3	hr	1.38	0.84	1.159
6	hr	1.63	0.92	1.500
24	hr	2.91	0.95	2.765

See Mass Rainfall Plotting Sheet for graph of Un-Adjusted Depths and Adjusted Depths
Same storm distribution (hyetograph) to be used for remaining basins to be used in analysis

BSE Document Control Number: HYD200-R1


Mass Rainfall Plotting Sheet - 5-Year Values
Un-Adjusted
Adjusted
5 to 30
30 to 60
60 to 180
180 to 360
360 to 1440
Linear (5 to 30)
Linear (30 to 60)
Linear (60 to 180)
Linear (180 to 360)
Linear (360 to 1440)
y = 0.0012x + 1.078
y = 0.0019x + 0.8188
y = 0.0051x + 0.2363
y = 0.0042x + 0.2927
y = 0.0104x + 0.1073
10
1
0.1
1
10
100
1000
10000

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	**Time (min.)**	**Rainfall from Mass Rainfall Plotting Sheet (in.)**	**Unit (Incremental) Rainfall, Col 3 (in.)**	**Blank Column**	**Design Storm PI CARDS (in.)**
1	5	0.1591	0.159		0.0060
2	10	0.2113	0.052		0.0060
3	15	0.2633	0.052		0.0060
4	20	0.3153	0.052		0.0060
5	25	0.3673	0.052		0.0060
6	30	0.4183	0.051		0.0060
7	35	0.4397	0.021		0.0060
8	40	0.4607	0.021		0.0060
9	45	0.4817	0.021		0.0060
10	50	0.5027	0.021		0.0060
11	55	0.5237	0.021		0.0060
12	60	0.5439	0.020		0.0060
13	65	0.5678	0.024		0.0060
14	70	0.5933	0.026		0.0060
15	75	0.6188	0.026		0.0060
16	80	0.6443	0.026		0.0060
17	85	0.6698	0.026		0.0060
18	90	0.6953	0.026		0.0060
19	95	0.7208	0.026		0.0060
20	100	0.7463	0.025		0.0060
21	105	0.7718	0.026		0.0060
22	110	0.7973	0.026		0.0060
23	115	0.8228	0.025		0.0060
24	120	0.8483	0.026		0.0060
25	125	0.8738	0.026		0.0060
26	130	0.8993	0.025		0.0060
27	135	0.9248	0.026		0.0060
28	140	0.9503	0.026		0.0060
29	145	0.9758	0.025		0.0060
30	150	1.0013	0.026		0.0060
31	155	1.0268	0.026		0.0060
32	160	1.0523	0.025		0.0060
33	165	1.0778	0.026		0.0060
34	170	1.1033	0.026		0.0060
35	175	1.1288	0.025		0.0060
36	180	1.1592	0.030		0.0060
37	185	1.1703	0.011		0.0060
38	190	1.1798	0.010		0.0060
39	195	1.1893	0.010		0.0060
40	200	1.1988	0.009		0.0060
41	205	1.2083	0.010		0.0060
42	210	1.2178	0.010		0.0060
43	215	1.2273	0.010		0.0060
44	220	1.2368	0.009		0.0060
45	225	1.2463	0.010		0.0060
46	230	1.2558	0.010		0.0060
47	235	1.2653	0.009		0.0060
48	240	1.2748	0.010		0.0060
49	245	1.2843	0.010		0.0060
50	250	1.2938	0.010		0.0060
51	255	1.3033	0.009		0.0060
52	260	1.3128	0.010		0.0060
53	265	1.3223	0.009		0.0060
54	270	1.3318	0.010		0.0060

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	**Time (min.)**	**Rainfall from Mass Rainfall Plotting Sheet (in.)**	**Unit (Incremental) Rainfall, Col 3 (in.)**	**Blank Column**	**Design Storm PI CARDS (in.)**
55	275	1.3413	0.010		0.0060
56	280	1.3508	0.010		0.0060
57	285	1.3603	0.010		0.0060
58	290	1.3698	0.010		0.0060
59	295	1.3793	0.009		0.0060
60	300	1.3888	0.009		0.0060
61	305	1.3983	0.010		0.0060
62	310	1.4078	0.010		0.0060
63	315	1.4173	0.010		0.0060
64	320	1.4268	0.010		0.0060
65	325	1.4363	0.010		0.0060
66	330	1.4458	0.009		0.0060
67	335	1.4553	0.009		0.0060
68	340	1.4648	0.010		0.0060
69	345	1.4743	0.010		0.0060
70	350	1.4838	0.010		0.0060
71	355	1.4933	0.010		0.0060
72	360	1.4996	0.006		0.0060
73	365	1.516	0.016		0.0060
74	370	1.522	0.006		0.0060
75	375	1.528	0.006		0.0060
76	380	1.534	0.006		0.0060
77	385	1.54	0.006		0.0060
78	390	1.546	0.006		0.0060
79	395	1.552	0.006		0.0060
80	400	1.558	0.006		0.0060
81	405	1.564	0.006		0.0060
82	410	1.57	0.006		0.0060
83	415	1.576	0.006		0.0060
84	420	1.582	0.006		0.0060
85	425	1.588	0.006		0.0060
86	430	1.594	0.006		0.0060
87	435	1.6	0.006		0.0060
88	440	1.606	0.006		0.0060
89	445	1.612	0.006		0.0060
90	450	1.618	0.006		0.0060
91	455	1.624	0.006		0.0060
92	460	1.63	0.006		0.0060
93	465	1.636	0.006		0.0060
94	470	1.642	0.006		0.0060
95	475	1.648	0.006		0.0060
96	480	1.654	0.006		0.0060
97	485	1.66	0.006		0.0060
98	490	1.666	0.006		0.0060
99	495	1.672	0.006		0.0060
100	500	1.678	0.006		0.0060
101	505	1.684	0.006		0.0060
102	510	1.69	0.006		0.0060
103	515	1.696	0.006		0.0060
104	520	1.702	0.006		0.0060
105	525	1.708	0.006		0.0060
106	530	1.714	0.006		0.0060
107	535	1.72	0.006		0.0060
108	540	1.726	0.006		0.0060

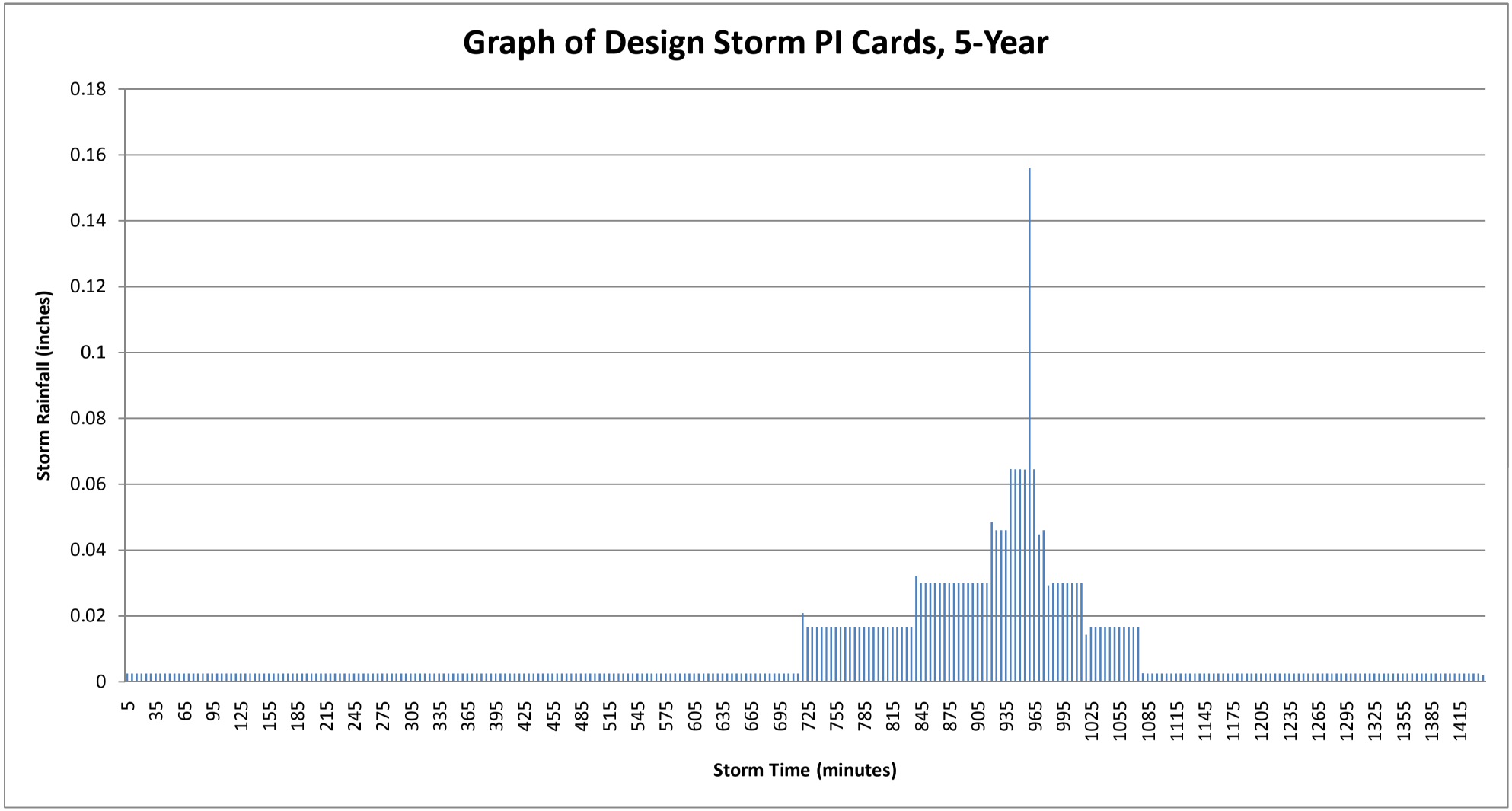
[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	**Time (min.)**	**Rainfall from Mass Rainfall Plotting Sheet (in.)**	**Unit (Incremental) Rainfall, Col 3 (in.)**	**Blank Column**	**Design Storm PI CARDS (in.)**
109	545	1.732	0.006		0.0060
110	550	1.738	0.006		0.0060
111	555	1.744	0.006		0.0060
112	560	1.75	0.006		0.0060
113	565	1.756	0.006		0.0060
114	570	1.762	0.006		0.0060
115	575	1.768	0.006		0.0060
116	580	1.774	0.006		0.0060
117	585	1.78	0.006		0.0060
118	590	1.786	0.006		0.0060
119	595	1.792	0.006		0.0060
120	600	1.798	0.006		0.0060
121	605	1.804	0.006		0.0060
122	610	1.81	0.006		0.0060
123	615	1.816	0.006		0.0060
124	620	1.822	0.006		0.0060
125	625	1.828	0.006		0.0060
126	630	1.834	0.006		0.0060
127	635	1.84	0.006		0.0060
128	640	1.846	0.006		0.0060
129	645	1.852	0.006		0.0060
130	650	1.858	0.006		0.0060
131	655	1.864	0.006		0.0060
132	660	1.87	0.006		0.0060
133	665	1.876	0.006		0.0060
134	670	1.882	0.006		0.0060
135	675	1.888	0.006		0.0060
136	680	1.894	0.006		0.0060
137	685	1.9	0.006		0.0060
138	690	1.906	0.006		0.0060
139	695	1.912	0.006		0.0060
140	700	1.918	0.006		0.0060
141	705	1.924	0.006		0.0060
142	710	1.93	0.006		0.0060
143	715	1.936	0.006		0.0060
144	720	1.942	0.006		0.0100
145	725	1.948	0.006		0.0095
146	730	1.954	0.006		0.0095
147	735	1.96	0.006		0.0095
148	740	1.966	0.006		0.0095
149	745	1.972	0.006		0.0095
150	750	1.978	0.006		0.0095
151	755	1.984	0.006		0.0095
152	760	1.99	0.006		0.0095
153	765	1.996	0.006		0.0095
154	770	2.002	0.006		0.0095
155	775	2.008	0.006		0.0095
156	780	2.014	0.006		0.0095
157	785	2.02	0.006		0.0095
158	790	2.026	0.006		0.0095
159	795	2.032	0.006		0.0095
160	800	2.038	0.006		0.0095
161	805	2.044	0.006		0.0095
162	810	2.05	0.006		0.0095

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	**Time (min.)**	**Rainfall from Mass Rainfall Plotting Sheet (in.)**	**Unit (Incremental) Rainfall, Col 3 (in.)**	**Blank Column**	**Design Storm PI CARDS (in.)**
163	815	2.056	0.006		0.0095
164	820	2.062	0.006		0.0095
165	825	2.068	0.006		0.0095
166	830	2.074	0.006		0.0095
167	835	2.08	0.006		0.0095
168	840	2.086	0.006		0.0304
169	845	2.092	0.006		0.0255
170	850	2.098	0.006		0.0255
171	855	2.104	0.006		0.0255
172	860	2.11	0.006		0.0255
173	865	2.116	0.006		0.0255
174	870	2.122	0.006		0.0255
175	875	2.128	0.006		0.0255
176	880	2.134	0.006		0.0255
177	885	2.14	0.006		0.0255
178	890	2.146	0.006		0.0255
179	895	2.152	0.006		0.0255
180	900	2.158	0.006		0.0255
181	905	2.164	0.006		0.0255
182	910	2.17	0.006		0.0255
183	915	2.176	0.006		0.0255
184	920	2.182	0.006		0.0202
185	925	2.188	0.006		0.0210
186	930	2.194	0.006		0.0210
187	935	2.2	0.006		0.0210
188	940	2.206	0.006		0.0510
189	945	2.212	0.006		0.0520
190	950	2.218	0.006		0.0520
191	955	2.224	0.006		0.0522
192	960	2.23	0.006		0.1591
193	965	2.236	0.006		0.0520
194	970	2.242	0.006		0.0214
195	975	2.248	0.006		0.0210
196	980	2.254	0.006		0.0239
197	985	2.26	0.006		0.0255
198	990	2.266	0.006		0.0255
199	995	2.272	0.006		0.0255
200	1000	2.278	0.006		0.0255
201	1005	2.284	0.006		0.0255
202	1010	2.29	0.006		0.0255
203	1015	2.296	0.006		0.0255
204	1020	2.302	0.006		0.0111
205	1025	2.308	0.006		0.0095
206	1030	2.314	0.006		0.0095
207	1035	2.32	0.006		0.0095
208	1040	2.326	0.006		0.0095
209	1045	2.332	0.006		0.0095
210	1050	2.338	0.006		0.0095
211	1055	2.344	0.006		0.0095
212	1060	2.35	0.006		0.0095
213	1065	2.356	0.006		0.0095
214	1070	2.362	0.006		0.0095
215	1075	2.368	0.006		0.0095
216	1080	2.374	0.006		0.0164

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	**Time (min.)**	**Rainfall from Mass Rainfall Plotting Sheet (in.)**	**Unit (Incremental) Rainfall, Col 3 (in.)**	**Blank Column**	**Design Storm PI CARDS (in.)**
217	1085	2.38	0.006		0.0060
218	1090	2.386	0.006		0.0060
219	1095	2.392	0.006		0.0060
220	1100	2.398	0.006		0.0060
221	1105	2.404	0.006		0.0060
222	1110	2.41	0.006		0.0060
223	1115	2.416	0.006		0.0060
224	1120	2.422	0.006		0.0060
225	1125	2.428	0.006		0.0060
226	1130	2.434	0.006		0.0060
227	1135	2.44	0.006		0.0060
228	1140	2.446	0.006		0.0060
229	1145	2.452	0.006		0.0060
230	1150	2.458	0.006		0.0060
231	1155	2.464	0.006		0.0060
232	1160	2.47	0.006		0.0060
233	1165	2.476	0.006		0.0060
234	1170	2.482	0.006		0.0060
235	1175	2.488	0.006		0.0060
236	1180	2.494	0.006		0.0060
237	1185	2.5	0.006		0.0060
238	1190	2.506	0.006		0.0060
239	1195	2.512	0.006		0.0060
240	1200	2.518	0.006		0.0060
241	1205	2.524	0.006		0.0060
242	1210	2.53	0.006		0.0060
243	1215	2.536	0.006		0.0060
244	1220	2.542	0.006		0.0060
245	1225	2.548	0.006		0.0060
246	1230	2.554	0.006		0.0060
247	1235	2.56	0.006		0.0060
248	1240	2.566	0.006		0.0060
249	1245	2.572	0.006		0.0060
250	1250	2.578	0.006		0.0060
251	1255	2.584	0.006		0.0060
252	1260	2.59	0.006		0.0060
253	1265	2.596	0.006		0.0060
254	1270	2.602	0.006		0.0060
255	1275	2.608	0.006		0.0060
256	1280	2.614	0.006		0.0060
257	1285	2.62	0.006		0.0060
258	1290	2.626	0.006		0.0060
259	1295	2.632	0.006		0.0060
260	1300	2.638	0.006		0.0060
261	1305	2.644	0.006		0.0060
262	1310	2.65	0.006		0.0060
263	1315	2.656	0.006		0.0060
264	1320	2.662	0.006		0.0060
265	1325	2.668	0.006		0.0060
266	1330	2.674	0.006		0.0060
267	1335	2.68	0.006		0.0060
268	1340	2.686	0.006		0.0060
269	1345	2.692	0.006		0.0060
270	1350	2.698	0.006		0.0060

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	**Time (min.)**	**Rainfall from Mass Rainfall Plotting Sheet (in.)**	**Unit (Incremental) Rainfall, Col 3 (in.)**	**Blank Column**	**Design Storm PI CARDS (in.)**
271	1355	2.704	0.006		0.0060
272	1360	2.71	0.006		0.0060
273	1365	2.716	0.006		0.0060
274	1370	2.722	0.006		0.0060
275	1375	2.728	0.006		0.0060
276	1380	2.734	0.006		0.0060
277	1385	2.74	0.006		0.0060
278	1390	2.746	0.006		0.0060
279	1395	2.752	0.006		0.0060
280	1400	2.758	0.006		0.0060
281	1405	2.764	0.006		0.0060
282	1410	2.770	0.006		0.0060
283	1415	2.776	0.006		0.0060
284	1420	2.782	0.006		0.0060
285	1425	2.788	0.006		0.0060
286	1430	2.794	0.006		0.0060
287	1435	2.800	0.006		0.0060
288	1440	2.7645	-0.035		0.0115

Notes:
Column [6] values arranged per referrenced SB County Figures E-5a through E-5c



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APPENDIX C:

v. 24-Hour, 2-Year Pattern Derivation

SAN BERNARDINO STORM PEAK 24-HOUR PATTERN DERIVATION

Precipitation Frequency Data

2-year Values

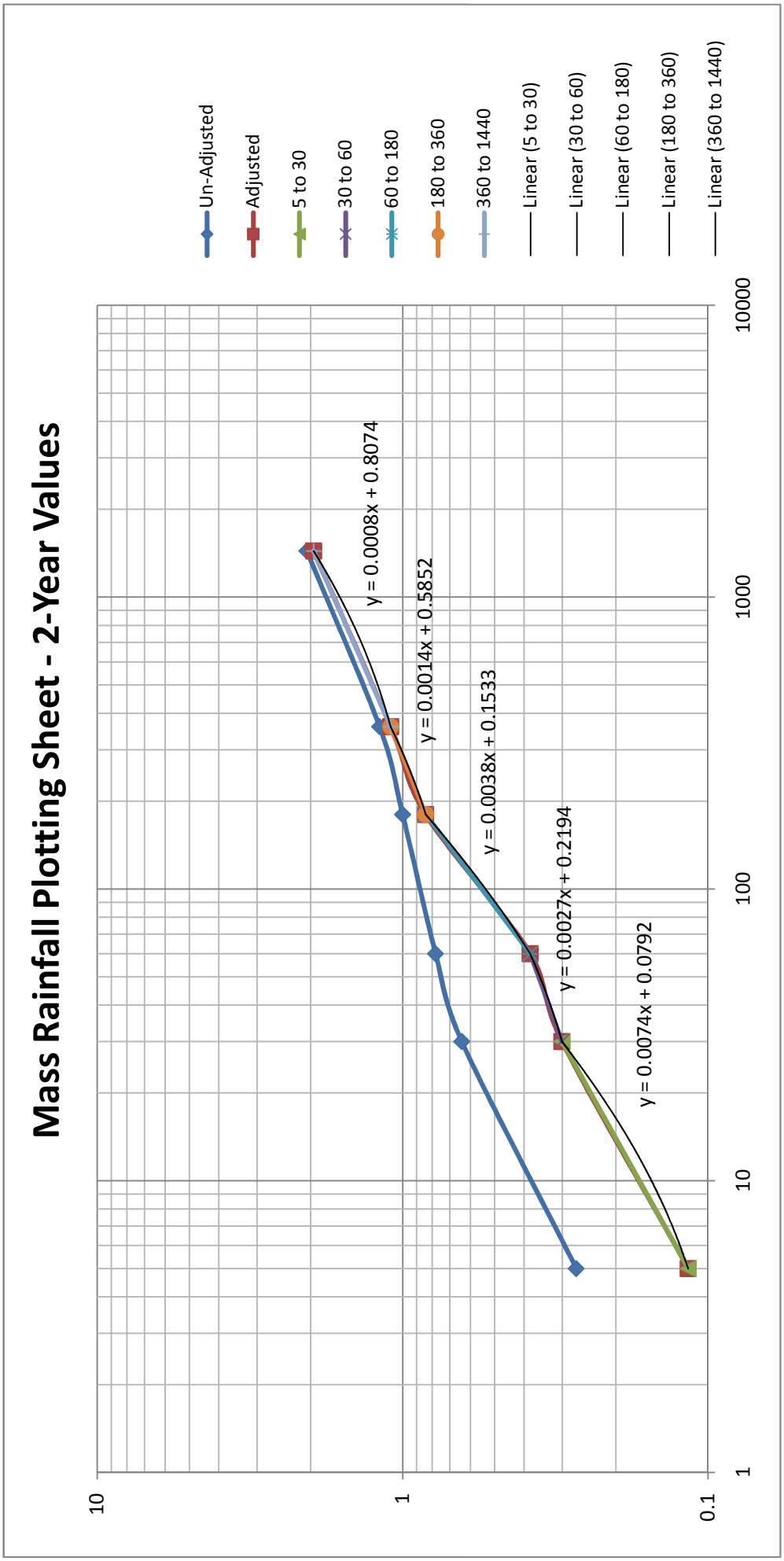
Basin: LOVEL

Area: 53.17 sq. mi.

Storm Duration		Un-Adjusted Depth (in.)	Aeral Factor (Ref. Fig. E-4)	Adjusted Depth (in.)
5	min	0.27	0.43	0.116
30	min	0.64	0.47	0.301
1	hr	0.78	0.49	0.382
3	hr	1.00	0.84	0.840
6	hr	1.19	0.92	1.095
24	hr	2.06	0.95	1.957

See Mass Rainfall Plotting Sheet for graph of Un-Adjusted Depths and Adjusted Depths
Same storm distribution (hyetograph) to be used for remaining basins to be used in analysis

BSE Document Control Number: HYD200-R1


Mass Rainfall Plotting Sheet - 2-Year Values
Un-Adjusted
Adjusted
5 to 30
30 to 60
60 to 180
180 to 360
360 to 1440
Linear (5 to 30)
Linear (30 to 60)
Linear (60 to 180)
Linear (180 to 360)
Linear (360 to 1440)
y = 0.0008x + 0.8074
y = 0.0014x + 0.5852
y = 0.0038x + 0.1533
y = 0.0027x + 0.2194
y = 0.0074x + 0.0792
10
1
0.1
1
10
100
1000
10000

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	**Time (min.)**	**Rainfall from Mass Rainfall Plotting Sheet (in.)**	**Unit (Incremental) Rainfall, Col 3 (in.)**	**Blank Column**	**Design Storm PI CARDS (in.)**
1	5	0.1161	0.116		0.0040
2	10	0.1532	0.037		0.0040
3	15	0.1902	0.037		0.0040
4	20	0.2272	0.037		0.0040
5	25	0.2642	0.037		0.0040
6	30	0.3008	0.037		0.0040
7	35	0.3139	0.013		0.0040
8	40	0.3274	0.014		0.0040
9	45	0.3409	0.014		0.0040
10	50	0.3544	0.014		0.0040
11	55	0.3679	0.014		0.0040
12	60	0.3822	0.014		0.0040
13	65	0.4003	0.018		0.0040
14	70	0.4193	0.019		0.0040
15	75	0.4383	0.019		0.0040
16	80	0.4573	0.019		0.0040
17	85	0.4763	0.019		0.0040
18	90	0.4953	0.019		0.0040
19	95	0.5143	0.019		0.0040
20	100	0.5333	0.019		0.0040
21	105	0.5523	0.019		0.0040
22	110	0.5713	0.019		0.0040
23	115	0.5903	0.019		0.0040
24	120	0.6093	0.019		0.0040
25	125	0.6283	0.019		0.0040
26	130	0.6473	0.019		0.0040
27	135	0.6663	0.019		0.0040
28	140	0.6853	0.019		0.0040
29	145	0.7043	0.019		0.0040
30	150	0.7233	0.019		0.0040
31	155	0.7423	0.019		0.0040
32	160	0.7613	0.019		0.0040
33	165	0.7803	0.019		0.0040
34	170	0.7993	0.019		0.0040
35	175	0.8183	0.019		0.0040
36	180	0.8400	0.022		0.0040
37	185	0.8442	0.004		0.0040
38	190	0.8512	0.007		0.0040
39	195	0.8582	0.007		0.0040
40	200	0.8652	0.007		0.0040
41	205	0.8722	0.007		0.0040
42	210	0.8792	0.007		0.0040
43	215	0.8862	0.007		0.0040
44	220	0.8932	0.007		0.0040
45	225	0.9002	0.007		0.0040
46	230	0.9072	0.007		0.0040
47	235	0.9142	0.007		0.0040
48	240	0.9212	0.007		0.0040
49	245	0.9282	0.007		0.0040
50	250	0.9352	0.007		0.0040
51	255	0.9422	0.007		0.0040
52	260	0.9492	0.007		0.0040
53	265	0.9562	0.007		0.0040
54	270	0.9632	0.007		0.0040

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	**Time (min.)**	**Rainfall from Mass Rainfall Plotting Sheet (in.)**	**Unit (Incremental) Rainfall, Col 3 (in.)**	**Blank Column**	**Design Storm PI CARDS (in.)**
55	275	0.9702	0.007		0.0040
56	280	0.9772	0.007		0.0040
57	285	0.9842	0.007		0.0040
58	290	0.9912	0.007		0.0040
59	295	0.9982	0.007		0.0040
60	300	1.0052	0.007		0.0040
61	305	1.0122	0.007		0.0040
62	310	1.0192	0.007		0.0040
63	315	1.0262	0.007		0.0040
64	320	1.0332	0.007		0.0040
65	325	1.0402	0.007		0.0040
66	330	1.0472	0.007		0.0040
67	335	1.0542	0.007		0.0040
68	340	1.0612	0.007		0.0040
69	345	1.0682	0.007		0.0040
70	350	1.0752	0.007		0.0040
71	355	1.0822	0.007		0.0040
72	360	1.0948	0.013		0.0040
73	365	1.0994	0.005		0.0040
74	370	1.1034	0.004		0.0040
75	375	1.1074	0.004		0.0040
76	380	1.1114	0.004		0.0040
77	385	1.1154	0.004		0.0040
78	390	1.1194	0.004		0.0040
79	395	1.1234	0.004		0.0040
80	400	1.1274	0.004		0.0040
81	405	1.1314	0.004		0.0040
82	410	1.1354	0.004		0.0040
83	415	1.1394	0.004		0.0040
84	420	1.1434	0.004		0.0040
85	425	1.1474	0.004		0.0040
86	430	1.1514	0.004		0.0040
87	435	1.1554	0.004		0.0040
88	440	1.1594	0.004		0.0040
89	445	1.1634	0.004		0.0040
90	450	1.1674	0.004		0.0040
91	455	1.1714	0.004		0.0040
92	460	1.1754	0.004		0.0040
93	465	1.1794	0.004		0.0040
94	470	1.1834	0.004		0.0040
95	475	1.1874	0.004		0.0040
96	480	1.1914	0.004		0.0040
97	485	1.1954	0.004		0.0040
98	490	1.1994	0.004		0.0040
99	495	1.2034	0.004		0.0040
100	500	1.2074	0.004		0.0040
101	505	1.2114	0.004		0.0040
102	510	1.2154	0.004		0.0040
103	515	1.2194	0.004		0.0040
104	520	1.2234	0.004		0.0040
105	525	1.2274	0.004		0.0040
106	530	1.2314	0.004		0.0040
107	535	1.2354	0.004		0.0040
108	540	1.2394	0.004		0.0040

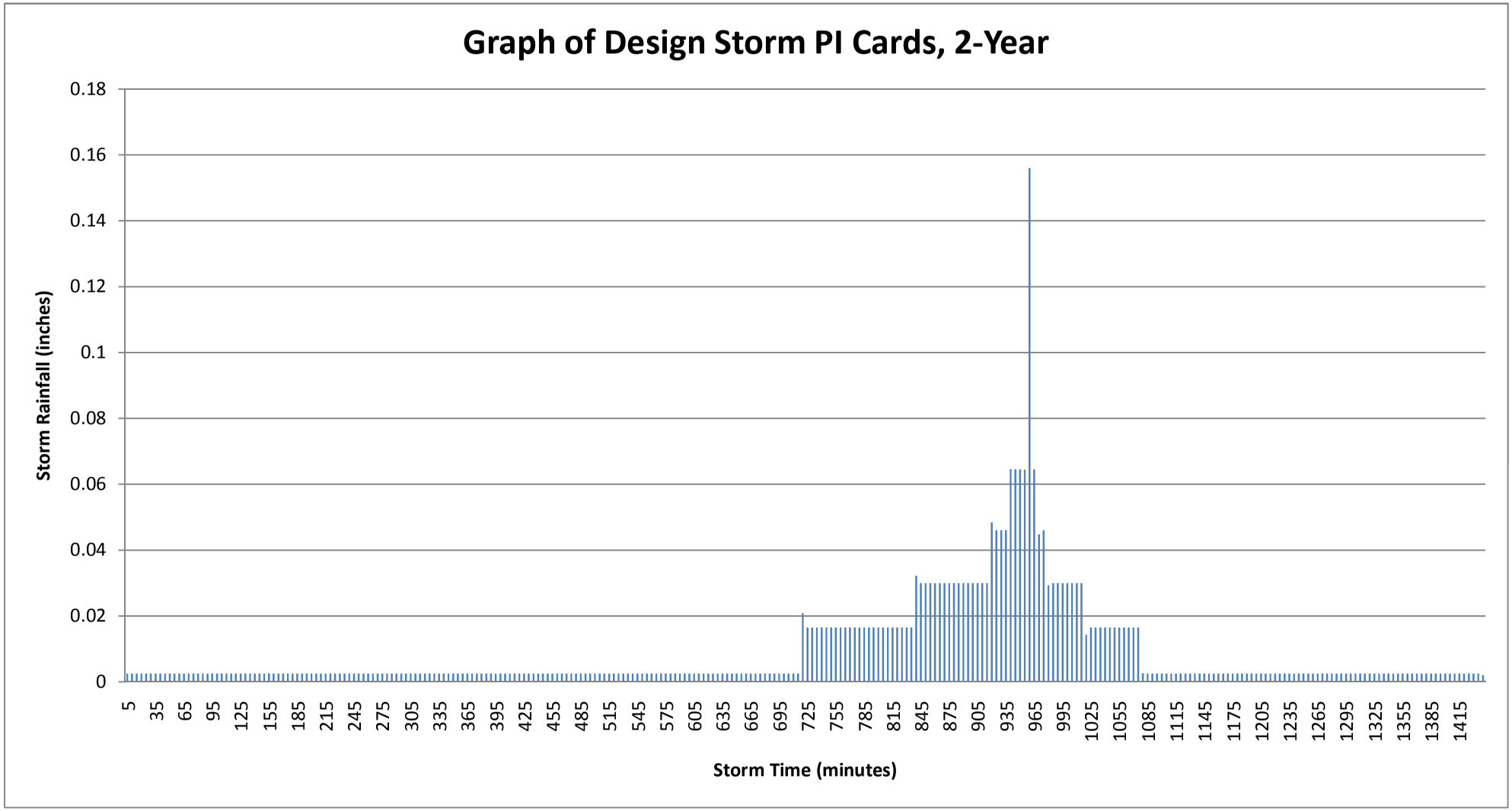
[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	**Time (min.)**	**Rainfall from Mass Rainfall Plotting Sheet (in.)**	**Unit (Incremental) Rainfall, Col 3 (in.)**	**Blank Column**	**Design Storm PI CARDS (in.)**
109	545	1.2434	0.004		0.0040
110	550	1.2474	0.004		0.0040
111	555	1.2514	0.004		0.0040
112	560	1.2554	0.004		0.0040
113	565	1.2594	0.004		0.0040
114	570	1.2634	0.004		0.0040
115	575	1.2674	0.004		0.0040
116	580	1.2714	0.004		0.0040
117	585	1.2754	0.004		0.0040
118	590	1.2794	0.004		0.0040
119	595	1.2834	0.004		0.0040
120	600	1.2874	0.004		0.0040
121	605	1.2914	0.004		0.0040
122	610	1.2954	0.004		0.0040
123	615	1.2994	0.004		0.0040
124	620	1.3034	0.004		0.0040
125	625	1.3074	0.004		0.0040
126	630	1.3114	0.004		0.0040
127	635	1.3154	0.004		0.0040
128	640	1.3194	0.004		0.0040
129	645	1.3234	0.004		0.0040
130	650	1.3274	0.004		0.0040
131	655	1.3314	0.004		0.0040
132	660	1.3354	0.004		0.0040
133	665	1.3394	0.004		0.0040
134	670	1.3434	0.004		0.0040
135	675	1.3474	0.004		0.0040
136	680	1.3514	0.004		0.0040
137	685	1.3554	0.004		0.0040
138	690	1.3594	0.004		0.0040
139	695	1.3634	0.004		0.0040
140	700	1.3674	0.004		0.0040
141	705	1.3714	0.004		0.0040
142	710	1.3754	0.004		0.0040
143	715	1.3794	0.004		0.0040
144	720	1.3834	0.004		0.0100
145	725	1.3874	0.004		0.0070
146	730	1.3914	0.004		0.0070
147	735	1.3954	0.004		0.0070
148	740	1.3994	0.004		0.0070
149	745	1.4034	0.004		0.0070
150	750	1.4074	0.004		0.0070
151	755	1.4114	0.004		0.0070
152	760	1.4154	0.004		0.0070
153	765	1.4194	0.004		0.0070
154	770	1.4234	0.004		0.0070
155	775	1.4274	0.004		0.0070
156	780	1.4314	0.004		0.0070
157	785	1.4354	0.004		0.0070
158	790	1.4394	0.004		0.0070
159	795	1.4434	0.004		0.0070
160	800	1.4474	0.004		0.0070
161	805	1.4514	0.004		0.0070
162	810	1.4554	0.004		0.0070

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	**Time (min.)**	**Rainfall from Mass Rainfall Plotting Sheet (in.)**	**Unit (Incremental) Rainfall, Col 3 (in.)**	**Blank Column**	**Design Storm PI CARDS (in.)**
163	815	1.4594	0.004		0.0070
164	820	1.4634	0.004		0.0070
165	825	1.4674	0.004		0.0070
166	830	1.4714	0.004		0.0070
167	835	1.4754	0.004		0.0070
168	840	1.4794	0.004		0.0217
169	845	1.4834	0.004		0.0190
170	850	1.4874	0.004		0.0190
171	855	1.4914	0.004		0.0190
172	860	1.4954	0.004		0.0190
173	865	1.4994	0.004		0.0190
174	870	1.5034	0.004		0.0190
175	875	1.5074	0.004		0.0190
176	880	1.5114	0.004		0.0190
177	885	1.5154	0.004		0.0190
178	890	1.5194	0.004		0.0190
179	895	1.5234	0.004		0.0190
180	900	1.5274	0.004		0.0190
181	905	1.5314	0.004		0.0190
182	910	1.5354	0.004		0.0190
183	915	1.5394	0.004		0.0190
184	920	1.5434	0.004		0.0143
185	925	1.5474	0.004		0.0135
186	930	1.5514	0.004		0.0135
187	935	1.5554	0.004		0.0135
188	940	1.5594	0.004		0.0366
189	945	1.5634	0.004		0.0370
190	950	1.5674	0.004		0.0370
191	955	1.5714	0.004		0.0371
192	960	1.5754	0.004		0.1161
193	965	1.5794	0.004		0.0370
194	970	1.5834	0.004		0.0131
195	975	1.5874	0.004		0.0135
196	980	1.5914	0.004		0.0181
197	985	1.5954	0.004		0.0190
198	990	1.5994	0.004		0.0190
199	995	1.6034	0.004		0.0190
200	1000	1.6074	0.004		0.0190
201	1005	1.6114	0.004		0.0190
202	1010	1.6154	0.004		0.0190
203	1015	1.6194	0.004		0.0190
204	1020	1.6234	0.004		0.0042
205	1025	1.6274	0.004		0.0070
206	1030	1.6314	0.004		0.0070
207	1035	1.6354	0.004		0.0070
208	1040	1.6394	0.004		0.0070
209	1045	1.6434	0.004		0.0070
210	1050	1.6474	0.004		0.0070
211	1055	1.6514	0.004		0.0070
212	1060	1.6554	0.004		0.0070
213	1065	1.6594	0.004		0.0070
214	1070	1.6634	0.004		0.0070
215	1075	1.6674	0.004		0.0070
216	1080	1.6714	0.004		0.0046

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	**Time (min.)**	**Rainfall from Mass Rainfall Plotting Sheet (in.)**	**Unit (Incremental) Rainfall, Col 3 (in.)**	**Blank Column**	**Design Storm PI CARDS (in.)**
217	1085	1.6754	0.004		0.0040
218	1090	1.6794	0.004		0.0040
219	1095	1.6834	0.004		0.0040
220	1100	1.6874	0.004		0.0040
221	1105	1.6914	0.004		0.0040
222	1110	1.6954	0.004		0.0040
223	1115	1.6994	0.004		0.0040
224	1120	1.7034	0.004		0.0040
225	1125	1.7074	0.004		0.0040
226	1130	1.7114	0.004		0.0040
227	1135	1.7154	0.004		0.0040
228	1140	1.7194	0.004		0.0040
229	1145	1.7234	0.004		0.0040
230	1150	1.7274	0.004		0.0040
231	1155	1.7314	0.004		0.0040
232	1160	1.7354	0.004		0.0040
233	1165	1.7394	0.004		0.0040
234	1170	1.7434	0.004		0.0040
235	1175	1.7474	0.004		0.0040
236	1180	1.7514	0.004		0.0040
237	1185	1.7554	0.004		0.0040
238	1190	1.7594	0.004		0.0040
239	1195	1.7634	0.004		0.0040
240	1200	1.7674	0.004		0.0040
241	1205	1.7714	0.004		0.0040
242	1210	1.7754	0.004		0.0040
243	1215	1.7794	0.004		0.0040
244	1220	1.7834	0.004		0.0040
245	1225	1.7874	0.004		0.0040
246	1230	1.7914	0.004		0.0040
247	1235	1.7954	0.004		0.0040
248	1240	1.7994	0.004		0.0040
249	1245	1.8034	0.004		0.0040
250	1250	1.8074	0.004		0.0040
251	1255	1.8114	0.004		0.0040
252	1260	1.8154	0.004		0.0040
253	1265	1.8194	0.004		0.0040
254	1270	1.8234	0.004		0.0040
255	1275	1.8274	0.004		0.0040
256	1280	1.8314	0.004		0.0040
257	1285	1.8354	0.004		0.0040
258	1290	1.8394	0.004		0.0040
259	1295	1.8434	0.004		0.0040
260	1300	1.8474	0.004		0.0040
261	1305	1.8514	0.004		0.0040
262	1310	1.8554	0.004		0.0040
263	1315	1.8594	0.004		0.0040
264	1320	1.8634	0.004		0.0040
265	1325	1.8674	0.004		0.0040
266	1330	1.8714	0.004		0.0040
267	1335	1.8754	0.004		0.0040
268	1340	1.8794	0.004		0.0040
269	1345	1.8834	0.004		0.0040
270	1350	1.8874	0.004		0.0040

[1]	[2]	[3]	[4]	[5]	[6]
24 Hour Storm (5 min. Increments) Time Periods	**Time (min.)**	**Rainfall from Mass Rainfall Plotting Sheet (in.)**	**Unit (Incremental) Rainfall, Col 3 (in.)**	**Blank Column**	**Design Storm PI CARDS (in.)**
271	1355	1.8914	0.004		0.0040
272	1360	1.8954	0.004		0.0040
273	1365	1.8994	0.004		0.0040
274	1370	1.9034	0.004		0.0040
275	1375	1.9074	0.004		0.0040
276	1380	1.9114	0.004		0.0040
277	1385	1.9154	0.004		0.0040
278	1390	1.9194	0.004		0.0040
279	1395	1.9234	0.004		0.0040
280	1400	1.9274	0.004		0.0040
281	1405	1.9314	0.004		0.0040
282	1410	1.9354	0.004		0.0040
283	1415	1.9394	0.004		0.0040
284	1420	1.9434	0.004		0.0040
285	1425	1.9474	0.004		0.0040
286	1430	1.9514	0.004		0.0040
287	1435	1.9554	0.004		0.0040
288	1440	1.9570	0.002		0.0115

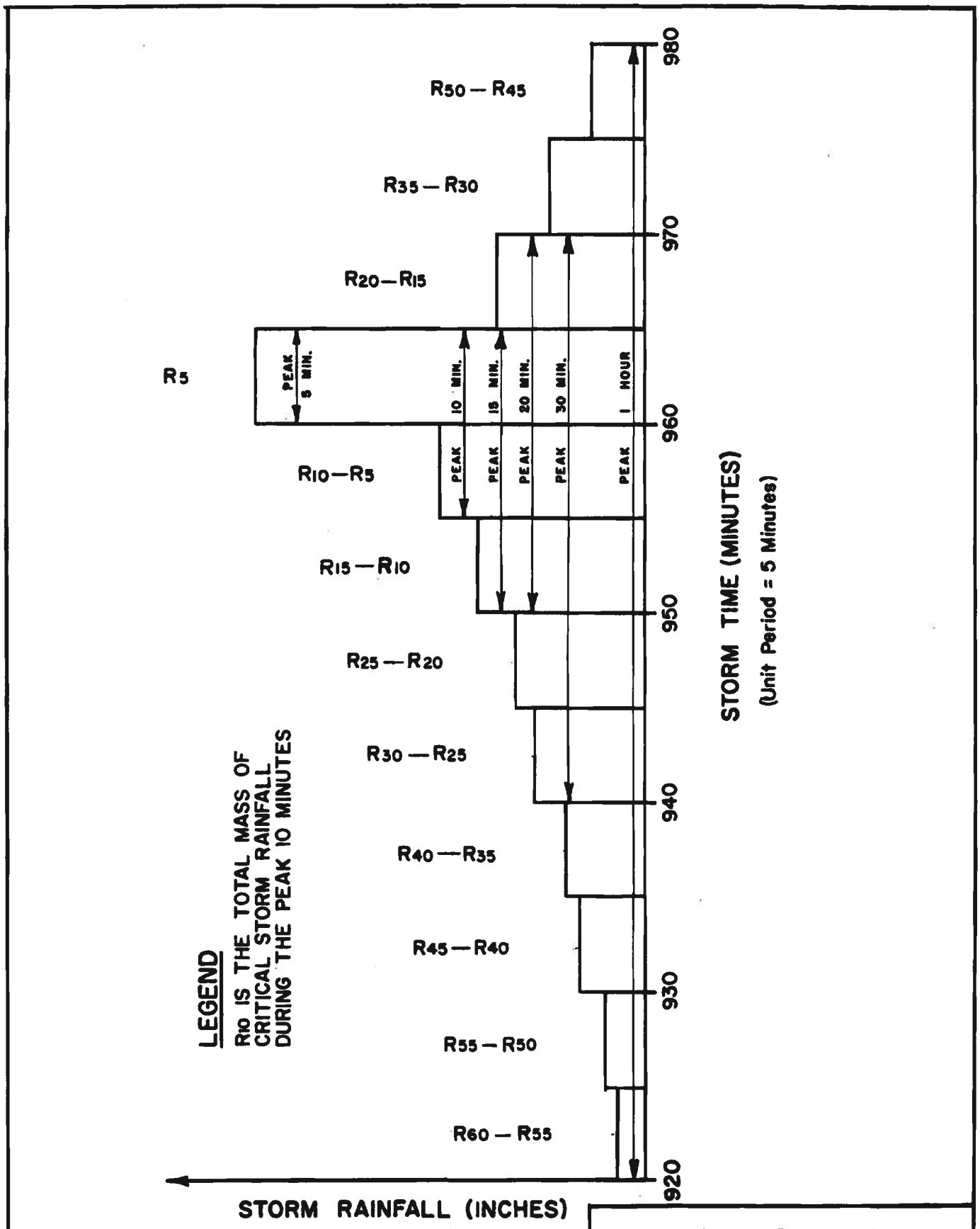
Notes:
Column [6] values arranged per referrenced SB County Figures E-5a through E-5c


Graph of Design Storm PI Cards, 2-Year
Storm Rainfall (inches)
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
5 35 65 95 125 155 185 215 245 275 305 335 365 395 425 455 485 515 545 575 605 635 665 695 725 755 785 815 845 875 905 935 965 995 1025 1055 1085 1115 1145 1175 1205 1235 1265 1295 1325 1355 1385 1415
Storm Time (minutes)

APPENDIX C:

vi. Referenced Figures E-5a through E-5c

SB County Design Critical Storm Peaks

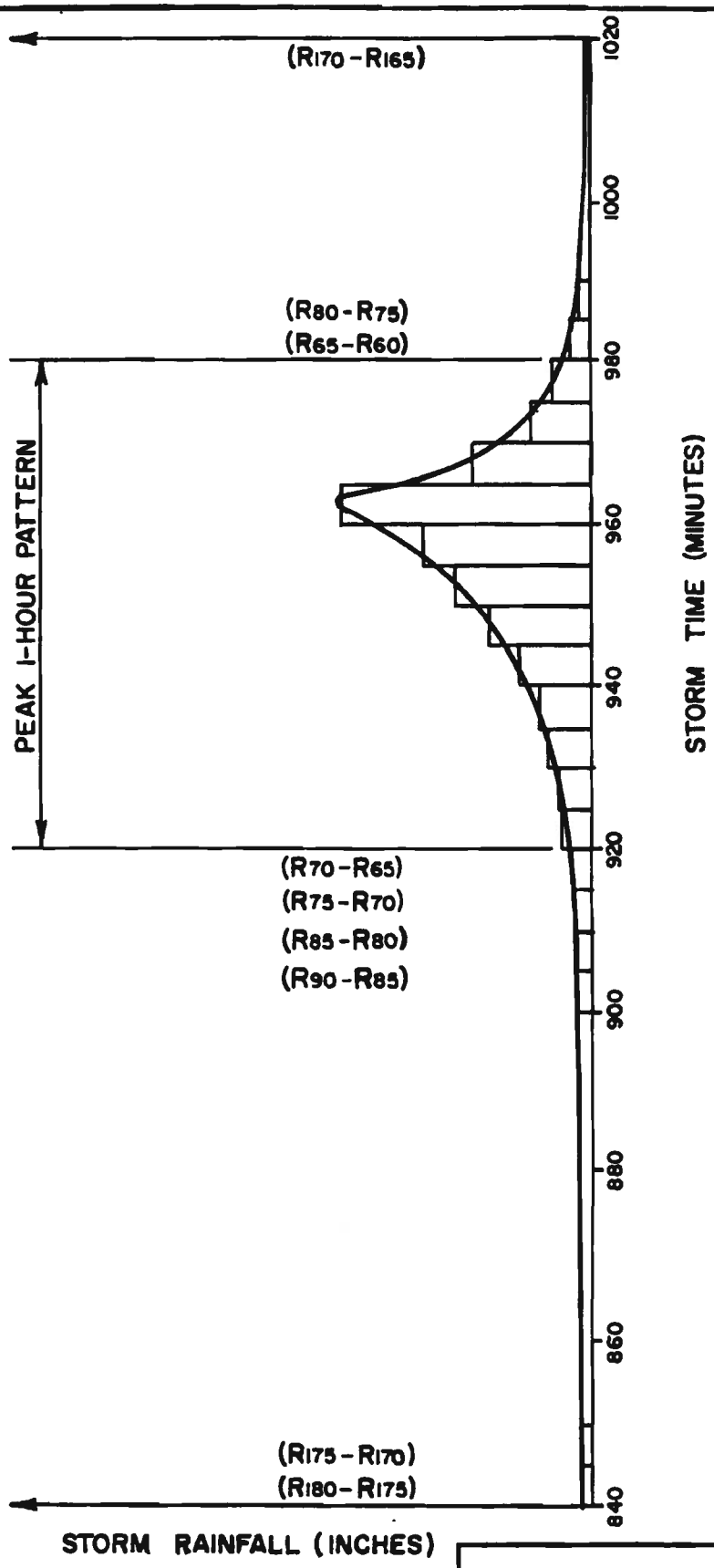


SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

DESIGN CRITICAL STORM PEAK 1-HOUR PATTERN

Figure E-5a

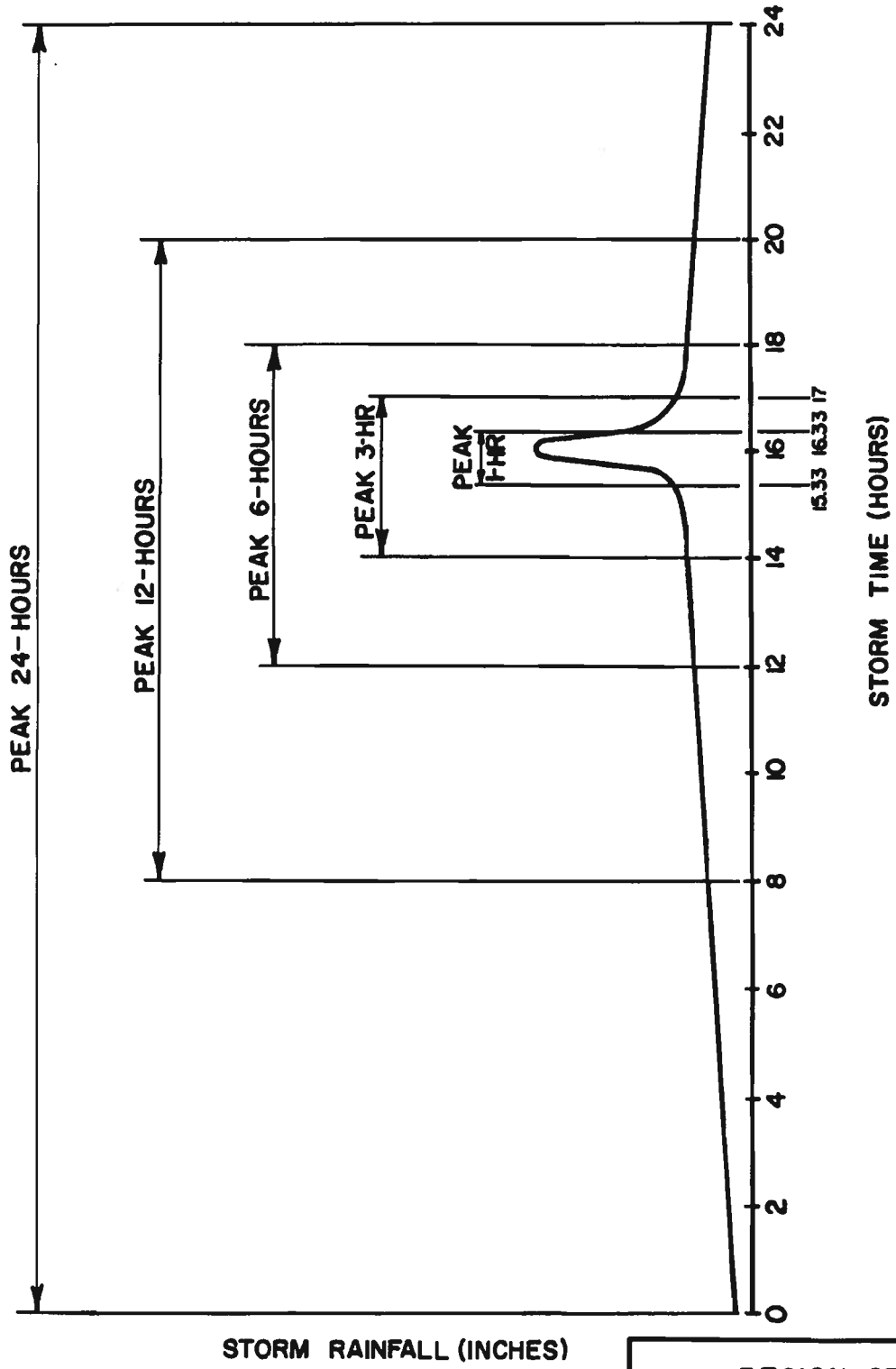


SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

DESIGN CRITICAL STORM PEAK 3-HOUR PATTERN

Figure E-5b



SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

DESIGN CRITICAL STORM PEAK 24-HOUR PATTERN

Figure E-5c

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APPENDIX D:

Curve Number Calculations / References

APPENDIX D:

i. Curve Number Calculations for Soils

Curve Number Calculations for Soils

Soil # s1038 Playas						
			AMC II	AMC I	AMC II	AMC I
Soil	Percent	Group	Desert Shrub[1]	Desert Shrub[2]	Mountain Brush[3]	Mountain Brush[2]
Playas	90%	D	88	74.8	63	43
Cajon	6%	A	63	43	48	29.4
Bousic	1%	D	88	74.8	63	43
Glendale	1%	B	77	59.4	48	29.4
Peterman	1%	D	88	74.8	63	43
Rosamond	1%	B	77	59.4	48	29.4
Total	**100%**		**86.3**	**72.6**	**61.8**	**41.9**

Soil # s1123 Arizo						
			AMC II	AMC I	AMC II	AMC I
Soil	Percent	Group	Desert Shrub[1]	Desert Shrub[2]	Mountain Brush[3]	Mountain Brush[2]
Arizo	69%	A	63	43	48	29.4
Bluepoint	13%	A	63	43	48	29.4
Nickel	6%	B	77	59.4	48	29.4
Cajon	6%	A	63	43	48	29.4
Grapevine	3%	B	77	59.4	48	29.4
Blackmount	2%	B	77	59.4	48	29.4
Gothard Variant	1%	D	88	74.8	63	43
Total	**100%**		**64.8**	**45.1**	**48.2**	**29.5**

Soil # s1124 Blackmount						
			AMC II	AMC I	AMC II	AMC I
Soil	Percent	Group	Desert Shrub[1]	Desert Shrub[2]	Mountain Brush[3]	Mountain Brush[2]
Blackmount	21%	B	77	59.4	48	29.4
Arizo	24%	A	63	43	48	29.4
Nickel	33%	B	77	59.4	48	29.4
Bitter	8%	B	77	59.4	48	29.4
Cave	6%	D	88	74.8	63	43
Mirage	3%	C	85	70	57	37
Cajon	2%	A	63	43	48	29.4
Grapevine	2%	B	77	59.4	48	29.4
Knobhill	1%	B	77	59.4	48	29.4
Total	**100%**		**74.3**	**56.4**	**49.2**	**30.4**

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Soil # s1125 Rock Outcrop						
			AMC II	AMC I	AMC II	AMC I
Soil	Percent	Group	Desert Shrub[1]	Desert Shrub[2]	Mountain Brush[3]	Mountain Brush[2]
Rock Outcrop	55%	D	88	74.8	63	43
St. Thomas	10%	D	88	74.8	63	43
Tecopa	8%	D	88	74.8	63	43
Rubble land	5%	A	63	43	48	29.4
Trigger	7%	D	88	74.8	63	43
Lithic Torriorthents	4%	D	88	74.8	63	43
Arizo	3%	A	63	43	48	29.4
Pookaloo	2%	D	88	74.8	63	43
Theriot	2%	D	88	74.8	63	43
Tonopah	2%	A	63	43	48	29.4
Cajon	1%	A	63	43	48	29.4
Skyhaven	1%	C	85	70	57	37
Total	**100%**		**85.2**	**71.3**	**61.3**	**41.4**

Soil # s5572 Zukan-Welring-Tortugas-Pookaloo						
			AMC II	AMC I	AMC II	AMC I
Soil	Percent	Group	Desert Shrub[1]	Desert Shrub[2]	Mountain Brush[3]	Mountain Brush[2]
Zukan	35%	D	88	74.8	63	43
Welring	25%	D	88	74.8	63	43
Pookaloo	15%	D	88	74.8	63	43
Tortugas	10%	D	88	74.8	63	43
Nupper	5%	D	88	74.8	63	43
Rock outcrop	5%	D	88	74.8	63	43
Sed	5%	C	85	70	57	37
Total	**100%**		**87.9**	**74.6**	**62.7**	**42.7**

Soil # s5576 St. Thomas-Rock outcrop-Kyler						
			AMC II	AMC I	AMC II	AMC I
Soil	Percent	Group	Desert Shrub[1]	Desert Shrub[2]	Mountain Brush[3]	Mountain Brush[2]
St. Thomas	60%	D	88	74.8	63	43
Rock outcrop	15%	D	88	74.8	63	43
Kyler	10%	D	88	74.8	63	43
Pookaloo	5%	D	88	74.8	63	43
Tonopah	5%	A	63	43	48	29.4
Weiser	5%	B	77	59.4	48	29.4
Total	**100%**		**86.2**	**72.4**	**61.5**	**41.6**

Soil # s5577 Cave family-Cave-Ajo						
			AMC II	AMC I	AMC II	AMC I
Soil	Percent	Group	Desert Shrub[1]	Desert Shrub[2]	Mountain Brush[3]	Mountain Brush[2]
Cave	43%	D	88	74.8	63	43
Ajo	13%	C	85	70	57	37
Cave family	13%	D	88	74.8	63	43
Dedas	9%	D	88	74.8	63	43
Pahroc	9%	D	88	74.8	63	43
Tencee	8%	D	88	74.8	63	43
Arizo	4%	A	63	43	48	29.4
Riverwash	1%	D	88	74.8	63	43
Total	**100%**		**86.6**	**72.9**	**61.6**	**41.7**

BSE Document Control Number: HYD200-R1

Soil # s5587 Zeheme-Virgin Peak-Rock outcrop-Hobog						
			AMC II	AMC I	AMC II	AMC I
Soil	Percent	Group	Desert Shrub[1]	Desert Shrub[2]	Mountain Brush[3]	Mountain Brush[2]
Rock outcrop	14%	D	88	74.8	63	43
Zeheme	14%	D	88	74.8	63	43
Virgin peak	18%	D	88	74.8	63	43
Hobog	13%	D	88	74.8	63	43
Boxspring	8%	D	88	74.8	63	43
Tsezhin	8%	B	77	59.4	48	29.4
Seralin	6%	D	88	74.8	63	43
St. Thomas	6%	D	88	74.8	63	43
Yumtheska	5%	D	88	74.8	63	43
Nipton	3%	D	88	74.8	63	43
Katzine	2%	B	77	59.4	48	29.4
Tidwell family	2%	D	88	74.8	63	43
Nickel family	1%	B	77	59.4	48	29.4
Total	**100%**		**86.8**	**73.1**	**61.4**	**41.5**

Soil # s5740 Besherm						
			AMC II	AMC I	AMC II	AMC I
Soil	Percent	Group	Desert Shrub[1]	Desert Shrub[2]	Mountain Brush[3]	Mountain Brush[2]
Besherm	25%	C	85	70	57	37
Nopah	15%	C	85	70	57	37
Glencarb	10%	C	85	70	57	37
Haymont	10%	B	77	59.4	48	29.4
Rumpah	10%	D	88	74.8	63	43
Tencee	10%	D	88	74.8	63	43
Bluepoint	5%	A	63	43	48	29.4
Pahrump	5%	C	85	70	57	37
Tanazza	5%	B	77	59.4	48	29.4
Wodavar	5%	D	88	74.8	63	43
Total	**100%**		**83.5**	**68.3**	**56.7**	**37.0**

Soil # s5742 Typic Torriothents-Gypill-Cave-Badland						
			AMC II	AMC I	AMC II	AMC I
Soil	Percent	Group	Desert Shrub[1]	Desert Shrub[2]	Mountain Brush[3]	Mountain Brush[2]
Badland	30%	D	88	74.8	63	43
Gypill	30%	D	88	74.8	63	43
Cave	20%	D	88	74.8	63	43
Typic torriorthents	13%	C	85	70	57	37
Rough broken land	5%	D	88	74.8	63	43
Cave	1%	D	88	74.8	63	43
Riverwash	1%	D	88	74.8	63	43
Total	**100%**		**87.6**	**74.2**	**62.2**	**42.2**

Notes:

1. Referenced from Table 2-2d "Runoff Curve Numbers for Semiarid Rangelands" TR-55 (1986) Cover Type: Desert shrub, poor condition.
2. AMC I CN computed by referencing Table C.1 from SB County Hydrology Manual and performing linear interpolation from AMC established AMC II CN.
3. Referenced from Table 2-2d "Runoff Curve Numbers for Semiarid Rangelands" TR-55 (1986) Cover Type: Oak-Aspen-mountain brush

BSE Document Control Number: HYD200-R1

APPENDIX D:

ii. Composite Curve Number Calculation for Basins

Composite Curve Number Calculations for Basins

Basin	Type	Soil s1038	Soil s1123	Soil s1124	Soil s1125	Soil s5572	Soil s5576	Soil s5577	Soil s5587	Soil s5740	Soil s5742	Soil Total	Land Cover Break Down Desert Shrub	Land Cover Break Down Mountain Brush	AMC II Composite CN	AMC I Composite CN
LOVEL	EXISTING					60%	5%	18%	7%		10%	100%	55%	45%	**76.1**	**59.8**
EAST1	EXISTING							8%			92%	100%	100%	0%	**87.5**	**74.1**
TROUT	EXISTING					32%	26%	22%	9%		11%	100%	60%	40%	**77.0**	**60.9**
OFF1A	EXISTING									100%		100%	100%	0%	**83.5**	**68.3**
OFF1B	EXISTING									77%	23%	100%	100%	0%	**84.4**	**69.6**
OFF1C	EXISTING									100%		100%	100%	0%	**83.5**	**68.3**
OFF1D	EXISTING									100%		100%	100%	0%	**83.5**	**68.3**
OFF1E	EXISTING									64%	36%	100%	100%	0%	**84.9**	**70.4**
OFF1F	EXISTING									100%		100%	100%	0%	**83.5**	**68.3**
OFF1G	EXISTING									100%		100%	100%	0%	**83.5**	**68.3**
OFF1Z	EXISTING									100%		100%	100%	0%	**83.5**	**68.3**
OFF2	EXISTING									30%	70%	100%	100%	0%	**86.4**	**72.4**
OFF3	EXISTING									67%	33%	100%	100%	0%	**84.8**	**70.2**
OFF4	EXISTING		1%		4%					39%	56%	100%	100%	0%	**85.7**	**71.5**
OFF5	EXISTING		51%	12%	34%					3%		100%	100%	0%	**73.4**	**56.1**
OFF7	EXISTING		63%		37%							100%	100%	0%	**72.3**	**54.8**
OFF8	EXISTING		42%	42%	16%							100%	100%	0%	**72.0**	**54.0**
OFF9	EXISTING		48%	52%								100%	100%	0%	**69.7**	**51.0**
OFF11	EXISTING	12%	39%	2%						47%		100%	100%	0%	**76.3**	**59.5**
OFF12	EXISTING						1%	7%		40%	52%	100%	100%	0%	**85.9**	**71.7**
ON1	EXISTING									100%		100%	100%	0%	**83.5**	**68.3**
ON2	EXISTING									100%		100%	100%	0%	**83.5**	**68.3**
ON3	EXISTING	18%								82%		100%	100%	0%	**84.0**	**69.0**
STA1	EXISTING									100%		100%	100%	0%	**83.5**	**68.3**

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APPENDIX D:

iii. Referenced Table 2-2d

From TR-55

United States
Department of
Agriculture

**Natural
Resources
Conservation
Service**

**Conservation
Engineering
Division**

Technical
Release 55

June 1986

Urban Hydrology for Small Watersheds

TR-55

To show bookmarks which navigate through the document. Click the show/hide navigation pane button , and then click the bookmarks tab. It will navigate you to the contents, chapters, rainfall maps, and printable forms.

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Table 2-2d Runoff curve numbers for arid and semiarid rangelands [1]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition [2]	A [3]	B	C	D
Herbaceous—mixture of grass, weeds, and low-growing brush, with brush the minor element.	Poor		80	87	93
	Fair		71	81	89
	Good		62	74	85
Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush.	Poor		66	74	79
	Fair		48	57	63
	Good		30	41	48
Pinyon-juniper—pinyon, juniper, or both; grass understory.	Poor		75	85	89
	Fair		58	73	80
	Good		41	61	71
Sagebrush with grass understory.	Poor		67	80	85
	Fair		51	63	70
	Good		35	47	55
Desert shrub—major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus.	Poor	63	77	85	88
	Fair	55	72	81	86
	Good	49	68	79	84

1 Average runoff condition, and I_a, = 0.2S. For range in humid regions, use table 2-2c.
2 Poor: <30% ground cover (litter, grass, and brush overstory).
Fair: 30 to 70% ground cover.
Good: > 70% ground cover.
3 Curve numbers for group A have been developed only for desert shrub.

BSE Document Control Number: HYD200-R1

APPENDIX D:

iv. Referenced Table C.1 from

SB County Hydrolog Manual

TABLE C.1. CURVE NUMBER RELATIONSHIPS

CN for AMC Condition II	Corresponding CN for AMC Condition I	III
100	100	100
95	87	99
90	78	98
85	70	97
80	63	94
75	57	91
70	51	87
65	45	83
60	40	79
55	35	75
50	31	70
45	27	65
40	23	60
35	19	55
30	15	50
25	12	45
20	9	39
15	7	33
10	4	26
5	2	17
0	0	0

C.6. ESTIMATION OF LOSS RATES

In estimating loss rates for design hydrology, a watershed curve number (CN) is determined for each soil-cover complex within the watershed using Figure C-3. The working range of CN values is between 0 and 98, where a low CN indicates low runoff potential (high infiltration), and a high CN indicates high runoff potential (low infiltration). Selection of a CN takes into account the major factors affecting loss rates on pervious surfaces including the hydrologic soil group, cover type and quality, and antecedent moisture condition (AMC).

Also included in the CN selection are the effects of "initial abstraction" (Ia) which represents the combined effects of other effective rainfall losses including depression storage, vegetation interception, evaporation, and transpiration, among other factors.

APPENDIX D:

v. Referenced Soil Type Component Legend

From USDA NRCS General Soil Survey

Component Legend

United States

[This report shows only the major soils in each map unit]

Map unit symbol and name	Pct. of map unit	Component name	Component kind	Pct. Slope		
				Low	RV	High
s1038:						
Playas (s1038)						
	90	Playas	Miscellaneous area	0	1	1
	3	Cajon	Series	0	1	2
	3	Cajon	Series	0	4	8
	1	Bousic	Series	0	1	1
	1	Glendale	Series	0	1	2
	1	Peterman	Series	0	1	2
	1	Rosamond	Series	0	1	2
s1123:						
Bluepoint-Arizo (s1123)						
	63	Arizo	Series	2	5	8
	8	Bluepoint	Series	2	5	8
	6	Nickel	Series	2	4	5
	5	Bluepoint	Series	0	1	2
	4	Arizo	Series	0	1	2
	3	Cajon	Series	0	1	2
	3	Grapevine	Series	2	4	5
	2	Arizo	Series	2	9	15
	2	Blackmount	Series	2	5	8
	2	Cajon	Series	2	5	8
	1	Cajon	Series	0	1	2
	1	Gothard variant	Variant	0	1	2
s1124:						
Nickel-Blackmount-Arizo (s1124)						
	21	Blackmount	Series	2	5	8
	19	Arizo	Series	2	5	8

BSE Document Control Number: HYD200-R1

Component Legend

United States

Map unit symbol and name	Pct. of map unit	Component name	Component kind	Pct. Slope		
				Low	RV	High
s1124:						
Nickel-Blackmount-Arizo (s1124)						
	19	Nickel	Series	2	5	8
	10	Nickel	Series	8	19	30
	8	Bitter	Series	2	5	8
	6	Cave	Series	2	4	5
	5	Arizo	Series	2	9	15
	4	Nickel	Series	2	9	15
	3	Mirage	Series	2	4	5
	2	Cajon	Series	2	5	8
	2	Grapevine	Series	2	4	5
	1	Knob Hill	Series	2	5	8
s1125:						
St. Thomas-Rock outcrop (s1125)						
	55	Rock outcrop	Miscellaneous area	15	45	75
	8	St. Thomas	Series	30	40	50
	6	Tecopa	Series	30	53	75
	5	Rubble land	Miscellaneous area	15	45	75
	5	Trigger	Series	30	40	50
	4	Lithic Torriorthents	Taxon above family	15	45	75
	3	Arizo	Series	2	4	5
	2	Pookaloo	Series	30	40	50
	2	St. Thomas	Series	15	23	30
	2	Tecopa	Series	15	23	30
	2	Theriot	Series	30	53	75
	2	Tonopah	Series	2	4	5

Component Legend

United States

Map unit symbol and name	Pct. of map unit	Component name	Component kind	Pct. Slope		
				Low	RV	High
s1125:						
St. Thomas-Rock outcrop (s1125)						
	2	Trigger	Series	15	23	30
	1	Cajon	Series	0	4	8
	1	Skyhaven	Series	0	2	4
s5740:						
Tencee-Rumpah-Nopah-Haymont-Glencarb-Besherm (s5740)						
	25	Besherm	Series	0	1	2
	15	Nopah	Series	0	1	2
	10	Glencarb	Series	0	1	2
	10	Haymont	Series	0	1	2
	10	Rumpah	Series	0	1	2
	10	Tencee	Series	0	4	8
	5	Bluepoint	Series	4	10	15
	5	Pahrump	Series	4	10	15
	5	Tanazza	Series	0	4	8
	5	Wodavar	Series	2	5	8

Component Legend

United States

[This report shows only the major soils in each map unit]

Map unit symbol and name	Pct. of map unit	Component name	Component kind	Pct. Slope		
				Low	RV	High
s5572: Zukan-Welring-Tortugas-Pookaloo (s5572)						
	35	Zukan	Series	2	5	8
	25	Welring	Series	30	40	50
	15	Pookaloo	Series	15	23	30
	10	Tortugas	Series	30	53	75
	5	Nupper	Series	15	33	50
	5	Rock outcrop	Miscellaneous area	1	26	50
	5	Sed	Series	30	40	50
s5576: St. Thomas-Rock outcrop-Kyler (s5576)						
	35	St. Thomas	Series	15	33	50
	20	St. Thomas	Series	30	40	50
	15	Rock outcrop	Miscellaneous area	1	26	50
	10	Kyler	Series	30	40	50
	5	Pookaloo	Series	15	23	30
	5	St. Thomas	Series	30	53	75
	5	Tonopah	Series	2	3	4
	5	Weiser	Series	2	5	8
s5577: Cave family-Cave-Ajo (s5577)						
	43	Cave	Series	4	6	8
	13	Ajo	Series	2	3	4
	10	Cave family	Family	2	5	7
	9	Dedas	Series	4	6	8
	9	Pahroc	Series	4	10	15

Component Legend

United States

Map unit symbol and name	Pct. of map unit	Component name	Component kind	Pct. Slope		
				Low	RV	High
s5577: Cave family-Cave-Ajo (s5577)						
	8	Tencee	Series	2	5	8
	4	Arizo	Series	2	3	4
	3	Cave family	Family	7	19	30
	1	Riverwash	Miscellaneous area	0	1	2
s5587: Zeheme-Virgin Peak-Rock outcrop-Hobog (s5587)						
	14	Rock outcrop	Miscellaneous area	10	40	70
	14	Zeheme	Series	15	33	50
	12	Virgin Peak	Series	10	40	70
	9	Hobog	Series	5	18	30
	8	Boxspring	Series	15	33	50
	8	Tsezhin	Series	5	10	15
	6	Seralin	Series	30	53	75
	6	St. Thomas	Series	15	30	50
	6	Virgin Peak	Series	30	53	75
	5	Yumtheska	Series	5	28	50
	4	Hobog	Series	8	22	35
	3	Nipton	Series	25	38	50
	2	Katzine	Series	5	28	50
	2	Tidwell family	Family	8	22	35
	1	Nickel family	Family	10	23	35
s5742: Typic Torriorthents-Gypill-Cave-Badland (s5742)						
	30	Badland	Miscellaneous area	10	40	70

Component Legend

United States

Map unit symbol and name	Pct. of map unit	Component name	Component kind	Pct. Slope		
				Low	RV	High
s5742: Typic Torriorthents-Gypill-Cave-Badland (s5742)						
	30	Gypill	Series	10	30	50
	20	Cave	Series	2	5	7
	13	Typic Torriorthents	Taxon above family	30	53	75
	5	Rough broken land	Miscellaneous area	---	---	---
	1	Cave	Series	7	19	30
	1	Riverwash	Miscellaneous area	---	---	---

APPENDIX D:

vi. Referenced Soil Water Feature Tables

From USDA NRCS General Soil Survey

Water Features

United States

[Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated. This report shows only the major soils in each map unit]

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s1038:										
Playas	D	---	February	0.0	>6.0	0.0-1.0	Long	---	---	None
			March	0.0	>6.0	0.0-1.0	Long	---	---	None
			April	0.0	>6.0	0.0-1.0	Long	---	---	None
			May	0.0	>6.0	0.0-1.0	Long	---	---	None
			June	0.0	>6.0	0.0-1.0	Long	---	---	None
			July	0.0	>6.0	0.0-1.0	Long	---	---	None
			August	0.0	>6.0	0.0-1.0	Long	---	---	None
			September	0.0	>6.0	0.0-1.0	Long	---	---	None
Cajon	A	---	Jan-Dec			---	---	None	---	None
Cajon	A	---	Jan-Dec			---	---	None	---	None
Bousic	D	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare

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Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s1038:										
Glendale	B	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Peterman	D	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare

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Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s1038:										
Rosamond	B	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
s1123:										
Arizo	A	---	March	---	---	---	---	None	Very brief	Occasional
			April	---	---	---	---	None	Very brief	Occasional
			May	---	---	---	---	None	Very brief	Occasional
			June	---	---	---	---	None	Very brief	Occasional
			July	---	---	---	---	None	Very brief	Occasional
			August	---	---	---	---	None	Very brief	Occasional
			September	---	---	---	---	None	Very brief	Occasional

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Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s1123:										
Bluepoint	A	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Nickel	B	---	Jan-Dec			---	---	None	---	None
Bluepoint	A	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare

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Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s1123:										
Arizo	A	---	March	---	---	---	---	None	Very brief	Occasional
			April	---	---	---	---	None	Very brief	Occasional
			May	---	---	---	---	None	Very brief	Occasional
			June	---	---	---	---	None	Very brief	Occasional
			July	---	---	---	---	None	Very brief	Occasional
			August	---	---	---	---	None	Very brief	Occasional
			September	---	---	---	---	None	Very brief	Occasional
Cajon	A	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare

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Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s1123:										
Grapevine	B	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Arizo	A	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Blackmount	B	---	Jan-Dec			---	---	None	---	None

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Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s1123:										
Cajon	A	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Cajon	A	---	Jan-Dec			---	---	None	---	None
Gothard variant	D	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
s1124:										
Blackmount	B	---	Jan-Dec			---	---	None	---	None

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Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s1124:										
Arizo	A	---	March	---	---	---	---	None	Very brief	Occasional
			April	---	---	---	---	None	Very brief	Occasional
			May	---	---	---	---	None	Very brief	Occasional
			June	---	---	---	---	None	Very brief	Occasional
			July	---	---	---	---	None	Very brief	Occasional
			August	---	---	---	---	None	Very brief	Occasional
			September	---	---	---	---	None	Very brief	Occasional
Nickel	B	---	Jan-Dec			---	---	None	---	None
Nickel	B	---	Jan-Dec			---	---	None	---	None
Bitter	B	---	Jan-Dec			---	---	None	---	None
Cave	D	---	Jan-Dec			---	---	None	---	None
Arizo	A	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Nickel	B	---	Jan-Dec			---	---	None	---	None

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Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s1124:										
Mirage	C	---	Jan-Dec			---	---	None	---	None
Cajon	A	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Grapevine	B	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Knob Hill	B	---	Jan-Dec			---	---	None	---	None

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Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s1125:										
Rock outcrop	D	---	Jan-Dec			---	---	None	---	None
St. Thomas	D	---	Jan-Dec			---	---	None	---	None
Tecopa	D	---	Jan-Dec			---	---	None	---	None
Rubble land	A	---	Jan-Dec			---	---	None	---	None
Trigger	D	---	Jan-Dec			---	---	None	---	None
Lithic Torriorthents	D	---	Jan-Dec			---	---	None	---	None
Arizo	A	---	March	---	---	---	---	None	Very brief	Occasional
			April	---	---	---	---	None	Very brief	Occasional
			May	---	---	---	---	None	Very brief	Occasional
			June	---	---	---	---	None	Very brief	Occasional
			July	---	---	---	---	None	Very brief	Occasional
			August	---	---	---	---	None	Very brief	Occasional
			September	---	---	---	---	None	Very brief	Occasional
Pookaloo	D	---	Jan-Dec			---	---	None	---	None
St. Thomas	D	---	Jan-Dec			---	---	None	---	None
Tecopa	D	---	Jan-Dec			---	---	None	---	None
Theriot	D	---	Jan-Dec			---	---	None	---	None

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Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s1125:										
Tonopah	A	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Trigger	D	---	Jan-Dec			---	---	None	---	None
Cajon	A	---	Jan-Dec			---	---	None	---	None
Skyhaven	C	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare

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Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s5740:										
Besherm	C	---	Jan-Dec			---	---	None	---	None
Nopah	C	---	Jan-Dec			---	---	None	---	None
Glencarb	C	---	January	3.0-5.0	>6.0	---	---	None	---	Rare
			February	3.0-5.0	>6.0	---	---	None	---	Rare
			March	3.0-5.0	>6.0	---	---	None	---	Rare
			April	3.0-5.0	>6.0	---	---	None	---	Rare
			May	3.0-5.0	>6.0	---	---	None	---	Rare
			June	3.0-5.0	>6.0	---	---	None	---	Rare
			July	3.0-5.0	>6.0	---	---	None	---	Rare
			August	3.0-5.0	>6.0	---	---	None	---	Rare
			September	3.0-5.0	>6.0	---	---	None	---	Rare
			October	3.0-5.0	>6.0	---	---	None	---	Rare
			November	3.0-5.0	>6.0	---	---	None	---	Rare
			December	3.0-5.0	>6.0	---	---	None	---	Rare
Haymont	B	---	Jan-Dec			---	---	None	---	None
Rumpah	D	---	Jan-Dec			---	---	None	---	None
Tencee	D	---	Jan-Dec			---	---	None	---	None
Bluepoint	A	---	Jan-Dec			---	---	None	---	None
Pahrump	C	---	Jan-Dec			---	---	None	---	None
Tanazza	B	---	Jan-Dec			---	---	None	---	None
Wodavar	D	---	Jan-Dec			---	---	None	---	None

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Water Features

United States

[Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated. This report shows only the major soils in each map unit]

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s5572:										
Zukan	D	---	Jan-Dec			---	---	None	---	None
Welring	D	---	Jan-Dec			---	---	None	---	None
Pookaloo	D	---	Jan-Dec			---	---	None	---	None
Tortugas	D	---	Jan-Dec			---	---	None	---	None
Nupper	D	---	Jan-Dec			---	---	None	---	None
Rock outcrop	D	---	Jan-Dec			---	---	None	---	None
Sed	C	---	Jan-Dec			---	---	None	---	None
s5576:										
St. Thomas	D	---	Jan-Dec			---	---	None	---	None
St. Thomas	D	---	Jan-Dec			---	---	None	---	None
Rock outcrop	D	---	Jan-Dec			---	---	None	---	None
Kyler	D	---	Jan-Dec			---	---	None	---	None
Pookaloo	D	---	Jan-Dec			---	---	None	---	None
St. Thomas	D	---	Jan-Dec			---	---	None	---	None

BSE Document Control Number: HYD200-R1

Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s5576:										
Tonopah	A	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Weiser	B	---	Jan-Dec			---	---	None	---	None
s5577:										
Cave	D	---	Jan-Dec			---	---	None	---	None
Ajo	C	---	Jan-Dec			---	---	None	---	None
Cave family	D	---	Jan-Dec			---	---	None	---	None
Dedas	D	---	Jan-Dec			---	---	None	---	None
Pahroc	D	---	Jan-Dec			---	---	None	---	None
Tencee	D	---	Jan-Dec			---	---	None	---	None

BSE Document Control Number: HYD200-R1

Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s5577:										
Arizo	A	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Cave family	D	---	Jan-Dec			---	---	None	---	None
Riverwash	D	---	January	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			February	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			March	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			April	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			May	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			June	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			July	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			August	0.0-2.0	>6.0	---	---	None	---	None
			September	0.0-2.0	>6.0	---	---	None	---	None
			October	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			November	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			December	0.0-2.0	>6.0	---	---	None	Very long	Frequent
s5587:										
Rock outcrop	D	---	Jan-Dec			---	---	None	---	None

BSE Document Control Number: HYD200-R1

Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s5587:										
Zeheme	D	Very high	Jan-Dec			---	---	None	---	None
Virgin Peak	D	---	Jan-Dec			---	---	None	---	None
Hobog	D	---	Jan-Dec			---	---	None	---	None
Boxspring	D	Very high	Jan-Dec			---	---	None	---	None
Tsezhin	B	---	Jan-Dec			---	---	None	---	None
Seralin	D	Very high	Jan-Dec			---	---	None	---	None
St. Thomas	D	Very high	Jan-Dec			---	---	None	---	None
Virgin Peak	D	Very high	Jan-Dec			---	---	None	---	None
Yumtheska	D	---	Jan-Dec			---	---	None	---	None
Hobog	D	---	Jan-Dec			---	---	None	---	None
Nipton	D	---	Jan-Dec			---	---	None	---	None
Katzine	B	---	Jan-Dec			---	---	None	---	None
Tidwell family	D	---	Jan-Dec			---	---	None	---	None
Nickel family	B	---	Jan-Dec			---	---	None	---	None
s5742:										
Badland	D	---	Jan-Dec			---	---	None	---	None

BSE Document Control Number: HYD200-R1

Water Features

United States

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
s5742:										
Gypill	D	---	Jan-Dec			---	---	None	---	None
Cave	D	---	Jan-Dec			---	---	None	---	None
Typic Torriorthents	C	Very high	Jan-Dec			---	---	None	---	None
Rough broken land	---	---	Jan-Dec			---	---	None	---	None
Cave	---	---	Jan-Dec			---	---	None	---	None
Riverwash	---	---	Jan-Dec			---	---	None	---	None

BSE Document Control Number: HYD200-R1

APPENDIX E:

Basin Lag Time Calculations / References

APPENDIX E:

i. Lag Time Calculations

For Drainage Basins

TLAG CALCULATIONS FOR DRAINAGE BASINS

EQUATION:

$TLAG = 24\ Kn\ ([L\ L_C]/\ S^{0.5})^{0.38}$

DEVELOPMENT HIDDEN HILLS RANCH SEGS

CALCULATED BY RV

SUB-BASIN DATA					LAG TIME						
LABEL	CN (AMC II)	CN (AMC I)	AREA (ac.)	AREA ($mi.^2$)	Kn	L (mi.)	Lc (mi.)	High Elev. (ft.)	Low Elev. (ft.)	S (ft/mile)	TLAG (hrs.)
LOVEL	76.1	59.8	34,034	53.18	0.050	18.83	10.17	9,840	3,854	317.90	2.958
EAST1	87.5	74.1	1,726	2.70	0.050	3.49	0.82	4,331	3,763	162.66	0.680
TROUT	77.0	60.9	70,241	109.75	0.050	14.90	6.90	11,476	3,396	542.28	2.110
OFF1A	83.5	68.3	923	1.44	0.050	4.23	2.00	2,961	2,635	77.07	1.183
OFF1B	84.4	69.6	2,797	4.37	0.050	7.52	3.69	3,214	2,640	76.33	1.862
OFF1C	83.5	68.3	799	1.25	0.050	3.58	1.71	2,952	2,650	84.36	1.029
OFF1D	83.5	68.3	737	1.15	0.050	3.47	1.47	2,952	2,655	85.59	0.957
OFF1E	84.9	70.4	3,036	4.74	0.050	8.55	3.80	3,411	2,675	86.08	1.932
OFF1F	83.5	68.3	1,460	2.28	0.050	5.76	2.11	3,018	2,635	66.49	1.397
OFF1G	83.5	68.3	1,113	1.74	0.050	3.55	1.49	2,952	2,703	70.14	1.008
OFF1Z	83.5	68.3	411	0.64	0.050	1.82	0.82	2,847	2,612	129.12	0.555
OFF2	86.4	72.4	16,778	26.22	0.050	10.25	5.55	3,641	2,722	89.66	2.372
OFF3	84.8	70.2	3,926	6.13	0.050	7.23	3.15	3,362	2,742	85.75	1.689
OFF4	85.7	71.5	19,286	30.13	0.050	13.83	5.89	4,264	2,690	113.81	2.598
OFF5	73.4	56.1	32,374	50.58	0.050	12.06	5.38	5,186	2,628	212.11	2.117
OFF7	72.3	54.8	1,132	1.77	0.050	2.36	1.05	3,549	2,640	385.17	0.547
OFF8	72.0	54.0	6,667	10.42	0.050	5.59	2.79	3,611	2,624	176.57	1.275
OFF9	69.7	51.0	582	0.91	0.050	1.47	0.64	3,250	2,706	370.07	0.381
OFF11	76.3	59.5	7,465	11.66	0.050	5.55	2.70	2,667	2,526	25.41	1.815
OFF12	85.9	71.7	12,169	19.01	0.050	13.94	6.74	5,483	2,562	209.54	2.442
ON1	83.5	68.3	1,507	2.35	0.050	1.70	0.59	2,742	2,673	40.59	0.594
ON2	83.5	68.3	3,097	4.84	0.050	2.62	0.95	2,677	2,585	35.11	0.863
ON3	84.0	69.0	2,371	3.70	0.050	2.30	1.11	2,582	2,532	21.74	0.955
STA1	83.5	68.3	180	0.28	0.050	0.29	0.14	2,584	2,580	11.72	0.222

Notes: Lag Time equation referenced from SB County Hydrology Manual (equation E.2)

L: Watercourse length, mi

L_C: Watercourse centroid length, from outlet to point on watercourse perpendicular to basin centroid, mi

S: Basin slope, ft/mile

Kn: Basin factor

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APPENDIX E:

ii. Referenced Equation E.2 from SB County Hydrology Manual

It it noted that the rational method time of concentration, used for the estimation of basin lag time, is a critical parameter in the unit hydrograph method. Extreme care must be taken in the evaluation of the catchment Tc in order to reduce uncertainty, and enable "reproducibility" of this parameter. Section D provides the procedure for estimating Tc using the rational method.

(E.1) is used in all unit hydrograph studies where sufficient topographic information is available to compute the time of concentration, Tc. It is noted that due to Tc being the sum of the rational method's initial subarea Tc and the subsequent downstream reach hydraulic traveltimes, Tc values will vary depending on the return frequency of rainfall used in the analysis. That is, a 2-year storm estimated Tc value typically is longer in duration than a 100-year storm estimated Tc value. Consequently, when computing the lag corresponding to a T-year design storm event, the Tc is estimated using the T-year intensity-duration rainfalls in the rational method. For certain large scale natural condition catchment studies, the Agency may consider the use of the lag relationship given by the empirical formula:

$$\text{lag (hours)} = C_t \; ((L \cdot L_{ca})/S^{0.5})^m \qquad \text{(E.2)}$$

where

C_t	=	a constant (determined by regional flood reconstitution studies)
L	=	length of longest watercourse (miles)
L_{ca}	=	length along longest watercourse, measured upstream to a point opposite center of area (miles)
S	=	overall slope of drainage area between the headwaters and the collection point (feet per mile)
m	=	a constant determined by regional flood reconstitution studies

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It is then assumed that there exists a relationship between watershed lag and the quotient $((L \cdot L_{ca})/(S^{0.5}))^m$. This relationship is given by the above empirical formula for lag when

C_t = 24 $\bar{n}$; ($\bar{n}$ is the visually estimated basin factor of all collection streams and watershed channels, see Figure E-2)

m = 0.38

3. S-graph - After lag factors are determined for several gauged watersheds the next step in determining synthetic distribution graphs is the development of S-graphs, which are summation hydrographs modified so that the percent of ultimate discharge is related to time expressed in percent of lag. The derivation of an S-graph is identical to the derivation of a summation hydrograph, except that the factor of lag has been introduced. Time in percent of lag has been used to determine S-graphs for five major groupings of watersheds.

Five S-graphs are used for unit hydrograph development in San Bernardino County. These S-graphs are entitled Valley:Developed, Valley:Undeveloped, Foothill, Mountain, and Desert (Figures E-3a, b, c, d and e). In conformity with the definition of lag, each S-graph reaches 50 percent of ultimate discharge at 100 percent of lag. The average of the several S-graphs determined for mountain watersheds is assumed to be applicable to the mountain drainage basins with unknown runoff characteristics. Similarly the average of the S-graphs determined for valley watersheds is assumed to be applicable to the valley drainage basins, and so forth. Use of the Foothill S-graph is only for watersheds characterized by natural channels that are sharply incised in canyon bottoms; i.e., overbank flows are confined near the defined channel. Use of the Mountain S-graph is only for watersheds characterized by natural channels with numerous plunging flow reaches and lodged boulders/debris. Use of the Valley:Undeveloped S-graph is for natural watersheds whose channels are not sharply incised, i.e., where overbank flows may spread widely from the defined channel. Use of the Valley:Developed S-

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APPENDIX E:

iii. Referenced Figure E-2 from

SB County Hydrolgy Manual

$\bar{n}$ = 0.015

1. Drainage area has fairly uniform, gentle slopes
2. Most watercourses either improved or along paved streets
3. Groundcover consists of some grasses - large % of area impervious
4. Main water course improved channel or conduit

$\bar{n}$ = 0.020

1. Drainage area has some graded and non-uniform, gentle slopes
2. Over half of the area watercourses are improved or paved streets
3. Groundcover consists of equal amount of grasses and impervious area
4. Main watercourse is partly improved channel or conduit and partly greenbelt (see n = 0.025)

$\bar{n}$ = 0.025

1. Drainage area is generally rolling with gentle side slopes
2. Some drainage improvements in the area - streets and canals
3. Groundcover consists mostly of scattered brush and grass and small % impervious
4. Main watercourse is straight channels which are turfed or with stony beds and weeds on earth bank (greenbelt type)

$\bar{n}$ = 0.030

1. Drainage area is generally rolling with rounded ridges and moderate side slopes
2. No drainage improvements exist in the area
3. Groundcover includes scattered brush and grasses
4. Watercourses meander in fairly straight, unimproved channels with some boulders and lodged debris

$\bar{n}$ = 0.040

1. Drainage area is composed of steep upper canyons with moderate slopes in lower canyons
2. No drainage improvements exist in the area
3. Groundcover is mixed brush and trees with grasses in lower canyons
4. Watercourses have moderate bends and are moderately impeded by boulders and debris with meandering courses

$\bar{n}$ = 0.050

1. Drainage area is quite rugged with sharp ridges and steep canyons
2. No drainage improvements exist in the area
3. Groundcover, excluding small areas of rock outcrops, includes many trees and considerable underbrush
4. Watercourses meander around sharp bends, over large boulders and considerable debris obstruction

$\bar{n}$ = 0.200

1. Drainage area has comparatively uniform slopes
2. No drainage improvements exist in the area
3. Groundcover consists of cultivated crops or substantial growths of grass and fairly dense small shrubs, cacti, or similar vegetation
4. Surface characteristics are such that channelization does not occur

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

BASIN FACTOR DESCRIPTIONS

Figure E-2

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APPENDIX F:

Unit Hydrograph Ordinates / References

APPENDIX F:

i. Unit Hydrograph Ordinates Derived by AES Software

```
****************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< LOVEL BASIN
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =   34034.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    2.958 HOURS
         MOUNTAIN S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.700
         LOW LOSS FRACTION = 0.718
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.73
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.89
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  2.35
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  3.31
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  3.37
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  5.81

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
          5-MINUTE FACTOR = 0.430
         30-MINUTE FACTOR = 0.470
          1-HOUR FACTOR = 0.490
          3-HOUR FACTOR = 0.840
          6-HOUR FACTOR = 0.920
         24-HOUR FACTOR = 0.950

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =   2.817


============================================================================
                      UNIT HYDROGRAPH DETERMINATION
----------------------------------------------------------------------------
```

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.313	1288.404
2	0.939	2576.808
3	1.565	2576.807
4	2.186	2555.916
5	2.797	2513.609
6	3.493	2865.234
7	4.437	3887.005
8	5.376	3865.332
9	6.331	3930.424
10	7.273	3876.714
11	8.312	4274.540
12	9.676	5615.138
13	10.852	4839.830
14	12.476	6685.079
15	13.936	6009.302
16	15.778	7581.581
17	17.680	7827.474
18	19.910	9181.428
19	22.054	8825.057
20	24.064	8271.862
21	26.753	11067.398
22	29.514	11362.339
23	31.629	8707.831
24	33.610	8152.015
25	35.348	7154.177
26	37.226	7729.785
27	39.016	7369.175
28	40.260	5119.422
29	41.645	5701.718
30	43.054	5798.030
31	44.395	5519.097
32	45.609	4997.078
33	46.727	4602.035
34	47.773	4303.852
35	48.878	4547.818
36	49.981	4539.983
37	50.943	3960.356
38	51.872	3826.597
39	52.704	3421.379
40	53.508	3312.601
41	54.116	2498.633
42	54.774	2711.573
43	55.619	3476.679
44	56.271	2683.390
45	56.787	2125.163
46	57.390	2479.368
47	57.994	2488.286
48	58.563	2342.751
49	59.127	2319.937
50	59.690	2318.493
51	60.254	2319.215
52	60.817	2319.922
53	61.381	2319.215
54	61.937	2287.812
55	62.423	2001.045
56	62.893	1933.278
57	63.362	1931.834
58	63.831	1931.143
59	64.271	1810.573
60	64.694	1739.227
61	65.116	1739.949
62	65.539	1738.505
63	65.994	1872.625
64	66.413	1727.828
65	66.816	1655.759
66	67.218	1656.481
67	67.621	1656.481
68	68.015	1623.666
69	68.372	1470.296
70	68.725	1450.292
71	69.076	1448.157
72	69.429	1451.046
73	69.781	1448.157
74	70.133	1449.602
75	70.485	1449.602
76	70.837	1449.602
77	71.190	1449.602
78	71.542	1449.570
79	71.892	1442.473
80	72.197	1254.121
81	72.478	1158.532
82	72.760	1159.976
83	73.042	1159.976
84	73.324	1158.532

85	73.605	1159.945
86	73.887	1159.976
87	74.153	1095.758
88	74.410	1054.370
89	74.666	1054.370
90	74.922	1054.401
91	75.178	1055.814
92	75.434	1052.957
93	75.691	1055.783
94	75.945	1048.686
95	76.186	988.739
96	76.421	967.354
97	76.655	965.940
98	76.890	965.909
99	77.125	967.354
100	77.360	965.909
101	77.594	965.940
102	77.829	965.909
103	78.054	924.552
104	78.256	833.234
105	78.457	827.518
106	78.659	828.963
107	78.860	828.963
108	79.061	827.518
109	79.262	827.518
110	79.464	830.376
111	79.665	827.518
112	79.866	827.550
113	80.062	807.546
114	80.251	776.144
115	80.439	773.318
116	80.626	770.460
117	80.814	776.144
118	81.002	770.460
119	81.189	773.318
120	81.378	776.175
121	81.565	770.429
122	81.753	773.318
123	81.940	770.460
124	82.105	676.284
125	82.256	624.941
126	82.409	627.767
127	82.561	627.767
128	82.714	627.799
129	82.866	624.909
130	83.018	624.941
131	83.171	630.625
132	83.323	624.909
133	83.475	627.799
134	83.627	624.909
135	83.780	627.767
136	83.932	627.799
137	84.069	564.994
138	84.195	516.477
139	84.320	513.651
140	84.445	516.477
141	84.570	513.651
142	84.695	516.477
143	84.820	513.651
144	84.946	516.477
145	85.071	516.508
146	85.196	513.619
147	85.321	516.508
148	85.447	516.477
149	85.572	513.651
150	85.697	516.477

```
****************************************************************************
  FLOW PROCESS FRDM NODE      2.00 TD NODE      3.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< EAST1 BASINS
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =    1726.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    0.680 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HDUR) =  0.465
         LOW LDSS FRACTION = 0.632
         *HYDRDGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.70
         SPECIFIED PEAK 24-HDUR RAINFALL(INCH) =  3.65

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.990
          30-MINUTE FACTOR = 0.990
           1-HOUR FACTOR = 0.990
           3-HOUR FACTOR = 0.990
           6-HDUR FACTOR = 1.000
          24-HDUR FACTOR = 1.000

         UNIT HYDRDGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  12.255


============================================================================
                        UNIT HYDROGRAPH DETERMINATION

----------------------------------------------------------------------------
     INTERVAL          "S" GRAPH          UNIT HYDRDGRAPH
      NUMBER          MEAN VALUES          DRDINATES(CFS)
----------------------------------------------------------------------------
        1                1.021                213.191
        2                3.408                498.156
        3                6.931                735.480
        4               11.680                991.331
        5               18.331               1388.312
        6               26.313               1665.969
        7               35.281               1872.058
        8               44.215               1864.921
        9               52.416               1711.795
       10               58.469               1263.416
       11               62.966                938.717
       12               66.802                800.715
       13               69.896                645.986
       14               72.441                531.093
       15               74.682                467.759
       16               76.562                392.542
       17               78.288                360.272
       18               79.886                333.458
```

19	81.234	281.511
20	82.527	269.799
21	83.669	238.445
22	84.768	229.298
23	85.747	204.413
24	86.642	186.898
25	87.491	177.233
26	88.207	149.373
27	88.927	150.303
28	89.648	150.437
29	90.292	134.401
30	90.861	118.965
31	91.431	118.965
32	91.987	115.937
33	92.455	97.774
34	92.909	94.713
35	93.363	94.745
36	93.816	94.647
37	94.215	83.203
38	94.575	75.251
39	94.936	75.251
40	95.296	75.253
41	95.657	75.251
42	95.999	71.325
43	96.249	52.298
44	96.487	49.635
45	96.725	49.702
46	96.963	49.635
47	97.201	49.702
48	97.439	49.703
49	97.677	49.635
50	97.913	49.302
51	98.056	29.941
52	98.144	18.364
53	98.232	18.364
54	98.320	18.297
55	98.408	18.364
56	98.496	18.431
57	98.584	18.297
58	98.672	18.364
59	98.760	18.431
60	98.848	18.298
61	98.936	18.364
62	99.024	18.364
63	99.112	18.364
64	99.200	18.364
65	99.288	18.364
66	99.376	18.364
67	99.464	18.364
68	99.552	18.364
69	99.640	18.364
70	99.728	18.364
71	99.816	18.364
72	99.904	18.364
73	99.992	18.364
74	100.000	1.763

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****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< OFF4 BASIN
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =   19286.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    2.598 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.512
         LOW LOSS FRACTION = 0.756
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  2.07
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.45
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.91

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.540
          30-MINUTE FACTOR = 0.560
           1-HOUR FACTOR = 0.580
           3-HOUR FACTOR = 0.900
           6-HOUR FACTOR = 0.940
          24-HOUR FACTOR = 0.960

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =   3.208


============================================================================
                      UNIT HYDROGRAPH DETERMINATION
----------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
----------------------------------------------------------------------------
```

1	0.267	623.450
2	0.802	1246.899
3	1.336	1246.901
4	1.875	1255.255
5	2.492	1440.847
6	3.216	1688.614
7	3.970	1758.458
8	4.770	1864.926
9	5.755	2297.278
10	6.824	2493.786
11	7.959	2646.234
12	9.261	3036.717
13	10.440	2750.892
14	11.734	3017.730
15	13.256	3549.325
16	15.220	4582.385
17	16.963	4064.031
18	18.761	4194.556
19	20.894	4974.142
20	23.033	4990.339
21	25.325	5345.639
22	27.309	4626.832
23	29.478	5060.309
24	32.174	6287.861
25	34.391	5169.489
26	36.820	5665.189
27	39.334	5864.945
28	41.473	4987.697

29	43.665	5113.657
30	46.366	6300.162
31	48.554	5103.888
32	50.693	4987.608
33	52.620	4495.154
34	54.227	3748.387
35	55.831	3740.842
36	57.431	3732.327
37	58.831	3264.537
38	60.094	2945.343
39	61.270	2743.496
40	62.368	2560.290
41	63.356	2305.539
42	64.373	2371.229
43	65.441	2491.219
44	66.572	2638.222
45	67.348	1809.002
46	68.055	1648.867
47	69.160	2578.752
48	69.795	1480.937
49	70.314	1209.655
50	70.955	1495.849
51	71.597	1496.543
52	72.502	2111.852
53	73.129	1461.416
54	73.628	1163.851
55	74.213	1364.470
56	74.767	1292.401
57	75.263	1156.413
58	75.758	1156.039
59	76.235	1111.677
60	76.693	1068.720
61	77.151	1068.703
62	77.610	1069.058
63	78.061	1053.808
64	78.491	1001.242
65	78.919	998.413
66	79.346	996.990
67	79.774	997.701
68	80.151	879.829
69	80.472	748.449
70	80.793	747.738
71	81.143	816.621
72	81.543	933.088
73	81.936	917.447
74	82.243	715.796
75	82.527	661.113
76	82.809	659.689
77	83.092	659.689
78	83.376	661.113
79	83.725	813.774
80	84.078	825.145
81	84.341	611.394
82	84.600	605.735
83	84.860	605.717
84	85.119	605.006
85	85.379	605.717
86	85.638	604.312
87	85.884	574.470
88	86.118	545.357
89	86.348	535.428
90	86.577	534.004
91	86.806	533.987
92	87.035	535.428
93	87.264	532.581
94	87.488	522.633
95	87.673	431.755
96	87.851	416.114
97	88.031	420.384
98	88.220	438.855
99	88.408	440.261
100	88.597	440.261
101	88.786	440.261
102	88.974	438.855
103	89.163	441.685
104	89.352	438.838
105	89.540	440.279
106	89.729	440.261
107	89.918	440.261
108	90.084	387.713
109	90.233	347.960
110	90.382	347.960
111	90.532	347.942
112	90.681	347.960
113	90.830	347.942
114	90.979	347.960
115	91.128	347.960
116	91.278	349.365
117	91.427	346.536
118	91.576	347.942
119	91.725	347.960
120	91.874	347.960
121	92.017	333.742
122	92.138	281.211
123	92.256	275.517
124	92.375	278.364
125	92.493	275.517
126	92.613	278.364
127	92.732	276.941
128	92.850	276.941
129	92.969	276.941
130	93.088	276.941
131	93.206	276.941
132	93.325	276.941
133	93.445	278.364
134	93.563	275.517
135	93.682	278.364
136	93.800	275.517
137	93.920	278.364
138	94.030	258.487
139	94.125	220.122
140	94.219	220.140
141	94.313	218.716
142	94.408	221.545
143	94.502	218.716
144	94.597	221.563
145	94.690	218.698
146	94.785	221.563
147	94.879	218.716
148	94.974	220.122
149	95.069	221.563
150	95.162	218.716
151	95.256	218.698
152	95.351	221.563
153	95.446	221.545
154	95.540	218.716
155	95.634	218.716
156	95.729	221.545
157	95.822	218.716

158	95.917	221.563
159	96.005	204.498
160	96.071	153.391
161	96.132	142.020
162	96.194	144.868
163	96.257	147.697
164	96.318	142.020
165	96.381	147.697
166	96.443	144.868
167	96.506	144.868
168	96.568	144.850
169	96.630	144.868
170	96.692	144.868
171	96.755	147.697
172	96.816	142.020
173	96.878	144.868
174	96.942	147.697
175	97.004	144.868
176	97.066	144.850
177	97.129	147.715
178	97.190	142.020
179	97.253	147.697
180	97.315	144.868
181	97.378	144.850
182	97.440	144.868
183	97.503	147.697
184	97.564	142.020
185	97.627	147.715
186	97.689	144.850
187	97.750	142.020
188	97.815	150.544
189	97.877	144.868
190	97.938	142.020
191	97.996	136.344
192	98.024	65.325
193	98.046	51.124
194	98.069	53.972
195	98.091	51.124
196	98.116	56.819
197	98.137	51.124
198	98.162	56.801
199	98.184	51.142
200	98.207	53.954
201	98.231	56.819
202	98.253	51.124
203	98.275	51.124
204	98.299	56.819
205	98.323	53.954
206	98.344	51.142
207	98.369	56.801
208	98.391	51.124
209	98.415	56.819
210	98.437	51.124
211	98.460	53.972
212	98.483	53.954
213	98.506	53.972
214	98.530	53.972
215	98.553	53.972
216	98.575	51.124
217	98.599	56.801
218	98.621	51.142
219	98.645	56.801
220	98.667	51.124
221	98.690	53.972
222	98.713	53.972
223	98.737	53.972
224	98.760	53.954
225	98.782	51.142
226	98.806	56.801
227	98.829	53.972
228	98.851	51.124
229	98.875	56.801
230	98.897	51.142
231	98.920	53.954
232	98.944	53.972
233	98.967	53.972
234	98.990	53.972
235	99.013	53.972
236	99.036	53.972
237	99.059	53.972
238	99.082	53.972
239	99.106	53.972
240	99.129	53.972
241	99.152	53.972
242	99.175	53.972
243	99.198	53.972
244	99.221	53.972
245	99.244	53.972
246	99.268	53.972
247	99.291	53.972
248	99.314	53.972
249	99.337	53.972
250	99.360	53.972
251	99.383	53.972
252	99.406	53.972
253	99.430	53.972
254	99.453	53.972
255	99.476	53.972
256	99.499	53.972
257	99.522	53.972
258	99.545	53.972
259	99.568	53.972
260	99.592	53.972
261	99.615	53.972
262	99.638	53.972
263	99.661	53.972
264	99.684	53.972
265	99.707	53.972
266	99.730	53.972
267	99.754	53.972
268	99.777	53.972
269	99.800	53.972
270	99.823	53.972
271	99.846	53.972
272	99.869	53.972
273	99.892	53.972
274	99.915	53.972
275	99.939	53.972
276	99.962	53.972
277	99.985	53.972
278	100.000	35.198

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****************************************************************************
  FLOW PROCESS FROM NODE       4.00 TO NODE       5.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< OFF5 BASIN
============================================================================
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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

```
WATERSHED AREA =   32374.000 ACRES
BASEFLOW =   0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME =    2.117 HOURS
VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.746
LOW LOSS FRACTION = 0.926
*HYDROGRAPH MODEL #1 SPECIFIED*

SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.42
SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.74
SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  2.14
SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.58
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.14

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
  5-MINUTE FACTOR = 0.440
 30-MINUTE FACTOR = 0.470
  1-HOUR FACTOR = 0.490
  3-HOUR FACTOR = 0.840
  6-HOUR FACTOR = 0.920
 24-HOUR FACTOR = 0.950

UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME =   3.936
```

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.328	1284.322
2	0.984	2568.644
3	1.640	2568.645
4	2.358	2810.417
5	3.233	3426.720
6	4.166	3652.929
7	5.216	4109.044
8	6.508	5058.181
9	7.883	5384.796
10	9.439	6093.438
11	10.933	5847.400
12	12.640	6685.736
13	14.878	8762.204
14	17.071	8583.894
15	19.385	9060.625
16	22.009	10274.620
17	24.760	10771.320
18	27.258	9778.339
19	30.018	10805.985
20	33.171	12345.521
21	35.915	10740.852
22	39.083	12407.018
23	41.712	10293.133
24	44.586	11251.568
25	47.628	11907.816
26	50.252	10274.688
27	52.648	9381.311
28	54.625	7741.491
29	56.593	7705.915
30	58.440	7230.700
31	60.005	6125.598
32	61.452	5664.452
33	62.748	5077.296
34	63.971	4785.189
35	65.268	5081.164
36	66.623	5302.403
37	67.536	3573.956
38	68.608	4199.481
39	69.688	4229.113
40	70.300	2393.312
41	71.085	3073.709
42	71.956	3409.786
43	72.957	3921.683
44	73.570	2397.225
45	74.278	2774.075
46	74.934	2570.087
47	75.543	2381.662
48	76.138	2331.150
49	76.702	2207.784
50	77.265	2201.989
51	77.826	2199.539
52	78.363	2101.921
53	78.888	2054.307
54	79.413	2056.279
55	79.928	2016.461
56	80.347	1639.581
57	80.741	1541.455
58	81.169	1677.457
59	81.660	1921.263
60	82.105	1741.560
61	82.455	1370.534
62	82.802	1358.884
63	83.149	1360.796
64	83.514	1427.826
65	83.967	1775.553
66	84.311	1343.351
67	84.629	1248.123
68	84.948	1247.167
69	85.266	1247.167
70	85.585	1247.167
71	85.889	1189.875
72	86.175	1121.859
73	86.457	1101.457
74	86.738	1100.501
75	87.019	1100.501
76	87.300	1100.501
77	87.562	1025.705
78	87.782	862.521
79	88.002	860.579
80	88.232	901.382
81	88.464	907.207
82	88.695	905.266
83	88.927	907.207
84	89.159	907.207
85	89.390	905.266
86	89.622	907.207
87	89.853	907.207
88	90.067	835.338
89	90.250	718.782
90	90.433	714.869
91	90.616	718.782
92	90.799	716.840

93	90.983	716.811
94	91.166	716.840
95	91.349	716.811
96	91.531	714.899
97	91.715	718.782
98	91.898	716.811
99	92.065	652.738
100	92.210	569.189
101	92.356	573.072
102	92.502	569.189
103	92.648	571.130
104	92.794	571.130
105	92.939	571.130
106	93.085	569.189
107	93.231	573.072
108	93.377	569.189
109	93.522	571.130
110	93.668	571.130
111	93.814	571.160
112	93.959	567.247
113	94.084	487.582
114	94.200	456.516
115	94.315	450.691
116	94.431	454.574
117	94.547	452.633
118	94.663	452.633
119	94.779	454.574
120	94.894	452.633
121	95.010	452.633
122	95.126	454.574
123	95.242	454.574
124	95.357	450.691
125	95.473	454.574
126	95.589	450.691
127	95.705	454.574
128	95.821	454.574
129	95.936	450.691
130	96.035	388.530
131	96.110	295.273
132	96.188	303.040
133	96.263	295.303
134	96.341	303.040
135	96.416	295.273
136	96.494	303.040
137	96.570	299.186
138	96.646	299.156
139	96.723	299.156
140	96.799	299.186
141	96.876	299.156
142	96.952	299.156
143	97.028	299.156
144	97.105	299.186
145	97.181	299.156
146	97.258	299.156
147	97.334	299.156
148	97.410	299.186
149	97.487	299.156
150	97.563	299.156
151	97.640	299.186
152	97.716	299.156
153	97.793	299.156
154	97.869	299.156
155	97.945	299.186
156	98.007	240.878
157	98.038	120.439
158	98.064	104.906
159	98.092	108.790
160	98.122	116.556
161	98.150	108.790
162	98.178	108.790
163	98.206	112.673
164	98.234	108.790
165	98.263	112.673
166	98.291	108.790
167	98.318	108.760
168	98.348	116.556
169	98.375	104.906
170	98.404	112.673
171	98.433	112.673
172	98.460	108.790
173	98.488	108.790
174	98.517	112.673
175	98.545	108.790
176	98.573	112.673
177	98.602	112.673
178	98.630	108.790
179	98.658	108.790
180	98.686	108.790
181	98.715	116.556
182	98.742	104.906
183	98.771	112.673
184	98.800	112.673
185	98.828	108.790
186	98.856	112.673
187	98.884	108.760
188	98.912	108.790
189	98.941	112.673
190	98.969	112.673
191	98.996	104.906
192	99.026	116.556
193	99.053	104.906
194	99.080	104.906
195	99.106	104.906
196	99.133	104.906
197	99.160	104.906
198	99.187	104.906
199	99.214	104.906
200	99.240	104.906
201	99.267	104.906
202	99.294	104.906
203	99.321	104.906
204	99.348	104.906
205	99.374	104.906
206	99.401	104.906
207	99.428	104.906
208	99.455	104.906
209	99.481	104.906
210	99.508	104.906
211	99.535	104.906
212	99.562	104.906
213	99.589	104.906
214	99.615	104.906
215	99.642	104.906
216	99.669	104.906
217	99.696	104.906
218	99.723	104.906
219	99.749	104.906
220	99.776	104.906
221	99.803	104.906

222	99.830	104.906
223	99.857	104.906
224	99.883	104.906
225	99.910	104.906
226	99.937	104.906
227	99.964	104.906
228	99.991	104.906
229	100.000	36.861

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*******************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      6.00 IS CODE =   1
-------------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< TRDUT BASIN
===============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =   70241.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    2.110 HOURS
         MOUNTAIN S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.684
         LOW LOSS FRACTION = 0.751
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.69
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.75
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  2.17
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  2.75
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  3.12
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  5.03

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.280
          30-MINUTE FACTOR = 0.350
           1-HOUR FACTOR = 0.400
           3-HOUR FACTOR = 0.730
           6-HOUR FACTOR = 0.880
          24-HOUR FACTOR = 0.930

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =   3.949


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                      UNIT HYDROGRAPH DETERMINATION
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    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
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INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.439	3727.739
2	1.316	7455.479
3	2.188	7407.002
4	3.056	7367.599
5	4.254	10182.806
6	5.575	11217.811
7	6.913	11364.508
8	8.351	12217.225
9	10.136	15164.470
10	12.180	17361.867
11	14.336	18316.648
12	16.949	22194.918
13	19.954	25529.908
14	22.877	24830.383
15	26.267	28793.770
16	30.014	31828.465
17	32.904	24549.836
18	35.410	21291.369
19	38.034	22291.582
20	40.080	17378.078
21	41.982	16154.661
22	43.925	16506.514
23	45.656	14701.136
24	47.190	13038.371
25	48.705	12864.064
26	50.223	12900.779
27	51.551	11277.388
28	52.746	10147.879
29	53.819	9115.489
30	54.658	7130.554
31	55.805	9741.975
32	56.606	6808.125
33	57.427	6973.001
34	58.260	7077.540
35	59.051	6716.743
36	59.841	6711.007
37	60.631	6709.905
38	61.421	6709.938
39	62.172	6381.221
40	62.834	5620.838
41	63.492	5592.484
42	64.133	5444.394
43	64.728	5051.613
44	65.320	5032.753
45	65.938	5247.987
46	66.529	5018.041
47	67.093	4791.141
48	67.657	4793.280
49	68.193	4553.807
50	68.687	4197.741
51	69.181	4194.630
52	69.675	4192.557
53	70.168	4194.630
54	70.662	4194.630
55	71.156	4192.492
56	71.649	4192.557
57	72.112	3934.159
58	72.509	3371.285
59	72.904	3356.508
60	73.299	3356.573
61	73.694	3352.295
62	74.080	3274.653
63	74.440	3062.465
64	74.799	3049.892
65	75.158	3051.966
66	75.517	3043.605
67	75.876	3049.827
68	76.215	2886.052
69	76.544	2793.634
70	76.874	2797.781
71	77.203	2795.772
72	77.532	2795.707
73	77.861	2793.634
74	78.163	2566.734
75	78.445	2396.608

76	78.727	2394.534
77	79.009	2398.746
78	79.291	2394.534
79	79.573	2394.534
80	79.855	2398.746
81	80.128	2318.900
82	80.391	2234.907
83	80.655	2239.055
84	80.918	2234.907
85	81.182	2239.119
86	81.445	2234.907
87	81.708	2234.842
88	81.968	2209.696
89	82.190	1886.229
90	82.404	1814.809
91	82.617	1814.809
92	82.831	1810.596
93	83.044	1814.809
94	83.258	1814.809
95	83.471	1810.596
96	83.685	1819.021
97	83.898	1806.383
98	84.092	1650.969
99	84.267	1487.129
100	84.443	1491.342
101	84.618	1491.277
102	84.794	1491.342
103	84.969	1491.342
104	85.145	1491.342
105	85.320	1491.342
106	85.496	1491.342
107	85.671	1487.129
108	85.847	1495.490
109	86.018	1453.558
110	86.175	1331.650
111	86.329	1310.717
112	86.485	1319.077
113	86.639	1314.929
114	86.794	1314.865
115	86.949	1314.865
116	87.104	1314.929
117	87.259	1319.077
118	87.413	1310.717
119	87.569	1323.290
120	87.723	1310.652
121	87.878	1314.929
122	88.030	1285.441
123	88.168	1180.449
124	88.307	1176.301
125	88.445	1176.236
126	88.584	1176.301
127	88.723	1180.449
128	88.861	1176.236
129	89.000	1176.301
130	89.138	1176.236
131	89.278	1184.661
132	89.416	1176.236
133	89.555	1176.301
134	89.693	1176.236
135	89.832	1176.236
136	89.970	1176.301
137	90.097	1075.457
138	90.218	1033.395
139	90.342	1050.245
140	90.464	1033.395
141	90.586	1041.885
142	90.709	1041.820
143	90.832	1041.820
144	90.953	1033.395
145	91.077	1050.245
146	91.198	1033.460
147	91.321	1041.820
148	91.443	1033.395
149	91.566	1050.245
150	91.688	1033.460
151	91.812	1050.245
152	91.933	1033.395
153	92.046	957.826
154	92.149	873.768
155	92.250	856.982
156	92.353	873.833
157	92.454	856.982
158	92.556	873.768
159	92.658	865.407
160	92.760	865.407
161	92.862	865.343
162	92.963	857.047
163	93.066	873.768
164	93.168	865.407
165	93.270	865.407
166	93.372	873.768
167	93.473	856.982
168	93.575	865.407
169	93.677	865.407
170	93.779	865.343
171	93.882	873.833
172	93.982	848.557
173	94.065	705.781
174	94.144	672.144
175	94.222	663.719
176	94.299	655.358
177	94.378	672.144
178	94.456	663.784
179	94.535	663.719
180	94.613	663.719
181	94.691	663.784
182	94.769	663.719
183	94.848	672.144
184	94.925	655.358
185	95.003	663.784
186	95.083	672.144
187	95.160	655.294
188	95.239	672.209
189	95.317	663.719
190	95.395	663.719
191	95.472	655.358
192	95.551	672.144
193	95.629	663.784
194	95.708	663.719
195	95.786	663.784
196	95.865	672.144
197	95.942	655.294
198	96.014	613.362
199	96.072	487.306
200	96.129	487.306
201	96.185	478.946
202	96.243	487.306
203	96.299	478.881
204	96.355	478.881

205	96.413	487.306
206	96.470	487.306
207	96.527	478.946
208	96.585	495.667
209	96.640	470.520
210	96.697	478.946
211	96.754	487.306
212	96.810	478.881
213	96.867	478.881
214	96.924	487.306
215	96.982	487.306
216	97.038	478.946
217	97.094	478.881
218	97.152	487.306
219	97.209	487.306
220	97.264	470.520
221	97.322	487.306
222	97.379	487.306
223	97.437	487.306
224	97.492	470.520
225	97.549	487.306
226	97.607	487.306
227	97.662	470.520
228	97.721	504.092
229	97.775	453.670
230	97.834	504.157
231	97.891	487.306
232	97.947	470.456
233	97.996	420.098
234	98.016	168.052
235	98.032	134.416
236	98.048	134.481
237	98.064	134.416
238	98.079	134.416
239	98.093	117.630
240	98.109	134.416
241	98.125	134.416
242	98.141	134.481
243	98.157	134.416
244	98.172	134.416
245	98.186	117.630
246	98.204	151.202
247	98.218	117.630
248	98.236	151.266
249	98.250	117.630
250	98.265	134.416
251	98.281	134.416
252	98.297	134.416
253	98.313	134.481
254	98.327	117.630
255	98.342	134.416
256	98.358	134.416
257	98.374	134.416
258	98.388	117.630
259	98.404	134.416
260	98.420	134.481
261	98.435	134.416
262	98.451	134.416
263	98.467	134.416
264	98.481	117.630
265	98.497	134.416
266	98.513	134.481
267	98.528	134.416
268	98.544	134.416
269	98.560	134.416
270	98.574	117.630
271	98.592	151.266
272	98.606	117.630
273	98.623	151.202
274	98.637	117.630
275	98.653	134.416
276	98.669	134.481
277	98.685	134.416
278	98.699	117.630
279	98.714	134.416
280	98.730	134.416
281	98.746	134.416
282	98.760	117.630
283	98.778	151.266
284	98.793	134.416
285	98.809	134.416
286	98.823	117.630
287	98.839	134.416
288	98.853	117.630
289	98.871	151.266
290	98.886	134.416
291	98.900	117.630
292	98.916	134.416
293	98.932	134.416
294	98.948	134.481
295	98.962	117.565
296	98.979	151.266
297	98.993	117.630
298	99.009	134.416
299	99.023	117.630
300	99.037	117.630
301	99.051	117.630
302	99.064	117.630
303	99.078	117.630
304	99.092	117.630
305	99.106	117.630
306	99.120	117.630
307	99.134	117.630
308	99.148	117.630
309	99.161	117.630
310	99.175	117.630
311	99.189	117.630
312	99.203	117.630
313	99.217	117.630
314	99.231	117.630
315	99.245	117.630
316	99.258	117.630
317	99.272	117.630
318	99.286	117.630
319	99.300	117.630
320	99.314	117.630
321	99.328	117.630
322	99.341	117.630
323	99.355	117.630
324	99.369	117.630
325	99.383	117.630
326	99.397	117.630
327	99.411	117.630
328	99.425	117.630
329	99.438	117.630
330	99.452	117.630
331	99.466	117.630
332	99.480	117.630
333	99.494	117.630

334	99.508	117.630
335	99.521	117.630
336	99.535	117.630
337	99.549	117.630
338	99.563	117.630
339	99.577	117.630
340	99.591	117.630
341	99.605	117.630
342	99.618	117.630
343	99.632	117.630
344	99.646	117.630
345	99.660	117.630
346	99.674	117.630
347	99.688	117.630
348	99.701	117.630
349	99.715	117.630
350	99.729	117.630
351	99.743	117.630
352	99.757	117.630
353	99.771	117.630
354	99.785	117.630
355	99.798	117.630
356	99.812	117.630
357	99.826	117.630
358	99.840	117.630
359	99.854	117.630
360	99.868	117.630
361	99.881	117.630
362	99.895	117.630
363	99.909	117.630
364	99.923	117.630
365	99.937	117.630
366	99.951	117.630
367	99.965	117.630
368	99.978	117.630
369	99.992	117.630
370	100.000	65.652

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  FLOW PROCESS FROM NODE      6.00 TO NODE      7.00 IS CODE =   1
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  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< DFF2 BASIN
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      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =   16778.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    2.372 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.494
         LOW LOSS FRACTION = 0.741
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  2.02
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.91

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.570
          30-MINUTE FACTOR = 0.600
           1-HOUR FACTOR = 0.610
           3-HOUR FACTOR = 0.910
           6-HOUR FACTOR = 0.960
          24-HOUR FACTOR = 0.970

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =   3.513


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                        UNIT HYDROGRAPH DETERMINATION
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INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.293	594.051
2	0.878	1188.103
3	1.464	1188.102
4	2.069	1228.669
5	2.793	1468.576
6	3.609	1654.739
7	4.459	1725.401
8	5.452	2014.269
9	6.621	2372.208
10	7.840	2473.644
11	9.261	2883.738
12	10.562	2639.057
13	12.006	2930.348
14	13.764	3567.740
15	15.947	4429.522
16	17.762	3682.916
17	19.979	4497.382
18	22.321	4752.389
19	24.804	5038.194
20	27.007	4469.602
21	29.376	4807.562
22	32.285	5903.071
23	34.698	4896.320
24	37.480	5644.496
25	40.049	5212.986
26	42.391	4752.396
27	45.086	5467.358
28	47.742	5390.164
29	50.084	4752.458
30	52.290	4476.019
31	54.076	3624.347
32	55.833	3564.204
33	57.577	3539.110
34	59.077	3043.324
35	60.437	2759.207
36	61.708	2579.979
37	62.841	2297.556
38	63.930	2210.547
39	65.086	2346.049
40	66.310	2483.124
41	67.257	1921.622
42	68.020	1547.964
43	69.201	2397.097
44	69.857	1329.964
45	70.468	1239.727
46	71.170	1425.573
47	71.943	1568.832

48	72.892	1925.012
49	73.439	1108.869
50	74.033	1205.592
51	74.674	1300.087
52	75.217	1101.810
53	75.759	1101.546
54	76.280	1055.569
55	76.782	1018.616
56	77.283	1018.074
57	77.785	1018.059
58	78.268	980.270
59	78.736	949.820
60	79.205	950.934
61	79.673	950.377
62	80.104	873.686
63	80.458	717.996
64	80.809	712.361
65	81.201	794.703
66	81.640	891.163
67	82.049	830.247
68	82.365	642.419
69	82.676	629.446
70	82.986	628.889
71	83.296	628.889
72	83.651	721.386
73	84.051	810.493
74	84.342	591.100
75	84.626	576.997
76	84.911	576.997
77	85.195	576.997
78	85.480	577.555
79	85.758	565.712
80	86.020	531.314
81	86.272	511.576
82	86.524	509.873
83	86.774	508.743
84	87.025	509.316
85	87.276	508.758
86	87.517	489.562
87	87.716	403.846
88	87.912	395.950
89	88.113	408.351
90	88.320	419.636
91	88.526	419.620
92	88.733	419.636
93	88.939	418.506
94	89.146	419.636
95	89.353	419.636
96	89.560	419.636
97	89.766	418.506
98	89.970	413.986
99	90.142	348.564
100	90.305	331.644
101	90.469	331.659
102	90.632	331.644
103	90.796	331.644
104	90.959	331.644
105	91.123	331.644
106	91.285	330.513
107	91.450	332.789
108	91.613	331.644
109	91.776	330.513
110	91.939	331.644
111	92.082	289.908
112	92.212	263.962
113	92.342	263.962
114	92.472	263.962
115	92.603	263.962
116	92.733	263.962
117	92.863	263.977
118	92.993	263.962
119	93.123	263.962
120	93.253	263.962
121	93.383	263.962
122	93.514	265.092
123	93.643	262.832
124	93.773	263.962
125	93.904	265.092
126	94.026	248.171
127	94.130	210.940
128	94.234	209.826
129	94.336	208.680
130	94.440	210.940
131	94.543	208.696
132	94.647	209.810
133	94.751	210.956
134	94.853	207.550
135	94.957	212.086
136	95.060	207.550
137	95.163	209.826
138	95.267	209.810
139	95.371	212.070
140	95.473	207.566
141	95.577	209.810
142	95.680	209.826
143	95.784	209.810
144	95.886	207.566
145	95.987	205.305
146	96.062	151.154
147	96.129	137.624
148	96.197	137.624
149	96.265	137.624
150	96.334	139.868
151	96.402	137.624
152	96.471	139.884
153	96.539	137.624
154	96.606	137.624
155	96.674	137.608
156	96.743	139.884
157	96.811	137.624
158	96.879	137.624
159	96.948	139.868
160	97.017	139.884
161	97.083	135.363
162	97.152	139.884
163	97.221	139.868
164	97.289	137.624
165	97.357	137.624
166	97.425	137.624
167	97.494	139.884
168	97.561	137.624
169	97.629	137.608
170	97.698	139.884
171	97.767	139.884
172	97.834	135.363
173	97.903	139.868
174	97.972	139.884
175	98.014	85.732
176	98.040	51.891

177	98.064	49.631
178	98.090	51.891
179	98.115	51.891
180	98.140	49.631
181	98.165	51.891
182	98.191	51.891
183	98.216	51.891
184	98.241	49.631
185	98.266	51.891
186	98.291	49.631
187	98.316	51.891
188	98.342	51.891
189	98.368	51.891
190	98.392	49.631
191	98.417	49.631
192	98.443	54.152
193	98.468	49.631
194	98.493	51.891
195	98.519	51.891
196	98.543	49.631
197	98.569	51.891
198	98.594	51.891
199	98.619	49.631
200	98.644	51.891
201	98.669	49.631
202	98.694	51.891
203	98.721	54.152
204	98.745	47.371
205	98.770	51.891
206	98.796	51.891
207	98.821	51.891
208	98.846	49.631
209	98.872	54.152
210	98.896	47.371
211	98.922	54.152
212	98.947	49.631
213	98.971	49.631
214	98.998	54.152
215	99.022	49.631
216	99.047	49.631
217	99.071	49.631
218	99.096	49.631
219	99.120	49.631
220	99.145	49.631
221	99.169	49.631
222	99.194	49.631
223	99.218	49.631
224	99.243	49.631
225	99.267	49.631
226	99.292	49.631
227	99.316	49.631
228	99.340	49.631
229	99.365	49.631
230	99.389	49.631
231	99.414	49.631
232	99.438	49.631
233	99.463	49.631
234	99.487	49.631
235	99.512	49.631
236	99.536	49.631
237	99.561	49.631
238	99.585	49.631
239	99.610	49.631
240	99.634	49.631
241	99.658	49.631
242	99.683	49.631
243	99.707	49.631
244	99.732	49.631
245	99.756	49.631
246	99.781	49.631
247	99.805	49.631
248	99.830	49.631
249	99.854	49.631
250	99.879	49.631
251	99.903	49.631
252	99.927	49.631
253	99.952	49.631
254	99.976	49.631
255	100.000	47.866

```
****************************************************************************
  FLOW PROCESS FROM NODE      7.00 TO NODE      8.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< DFF3 BASIN
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =    3926.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    1.689 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.534
         LOW LOSS FRACTION = 0.772
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  2.03
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.91

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.810
          30-MINUTE FACTOR = 0.810
           1-HOUR FACTOR = 0.810
           3-HOUR FACTOR = 0.980
           6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =   4.934


============================================================================
                      UNIT HYDROGRAPH DETERMINATION
----------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
----------------------------------------------------------------------------
        1                0.411                195.218
        2                1.233                390.435
        3                2.082                403.025
        4                3.129                497.197
        5                4.303                557.345
```

6	5.713	669.338
7	7.365	784.136
8	9.297	917.600
9	11.177	892.497
10	13.481	1094.176
11	16.392	1381.888
12	19.169	1318.473
13	22.450	1557.817
14	25.839	1609.213
15	29.062	1530.253
16	32.950	1846.181
17	36.526	1697.885
18	40.229	1757.906
19	43.621	1610.523
20	47.472	1828.442
21	50.757	1559.798
22	53.539	1321.119
23	56.006	1171.307
24	58.355	1115.250
25	60.311	928.564
26	62.070	835.503
27	63.619	735.066
28	65.227	763.824
29	66.854	772.116
30	67.982	535.810
31	69.461	702.102
32	70.292	394.611
33	71.270	464.531
34	72.487	577.490
35	73.412	439.388
36	74.270	407.391
37	75.086	387.471
38	75.846	360.824
39	76.565	341.325
40	77.270	334.652
41	77.970	332.352
42	78.634	315.482
43	79.292	312.378
44	79.935	305.332
45	80.456	247.159
46	80.959	238.983
47	81.553	282.119
48	82.115	266.992
49	82.555	208.816
50	82.991	206.657
51	83.436	211.449
52	83.983	259.657
53	84.407	201.582
54	84.807	189.646
55	85.206	189.646
56	85.605	189.178
57	85.981	178.554
58	86.336	168.596
59	86.688	167.375
60	87.041	167.277
61	87.391	166.621
62	87.691	142.282
63	87.966	130.629
64	88.253	136.265
65	88.543	137.772
66	88.834	137.769
67	89.124	137.961
68	89.414	137.769
69	89.704	137.584
70	89.988	134.762
71	90.225	112.585
72	90.455	109.202
73	90.684	108.825
74	90.913	108.825
75	91.143	109.202
76	91.373	108.825
77	91.602	109.010
78	91.832	109.014
79	92.047	102.247
80	92.232	87.587
81	92.414	86.649
82	92.597	86.834
83	92.780	86.649
84	92.962	86.834
85	93.145	86.649
86	93.328	87.022
87	93.511	86.645
88	93.693	86.649
89	93.876	86.834
90	94.046	80.632
91	94.192	69.355
92	94.337	68.794
93	94.483	69.167
94	94.627	68.602
95	94.772	68.979
96	94.918	68.979
97	95.062	68.794
98	95.208	69.167
99	95.353	68.790
100	95.498	68.790
101	95.643	68.794
102	95.788	69.167
103	95.933	68.413
104	96.051	56.387
105	96.148	45.860
106	96.244	45.487
107	96.339	45.107
108	96.435	45.864
109	96.531	45.483
110	96.627	45.483
111	96.722	45.110
112	96.818	45.860
113	96.914	45.487
114	97.009	45.107
115	97.106	45.864
116	97.202	45.483
117	97.297	45.487
118	97.393	45.483
119	97.489	45.483
120	97.584	45.110
121	97.681	45.860
122	97.776	45.487
123	97.872	45.483
124	97.966	44.734
125	98.023	27.067
126	98.059	16.913
127	98.095	16.917
128	98.130	16.540
129	98.166	17.294
130	98.200	16.163
131	98.236	17.290
132	98.271	16.540
133	98.308	17.294
134	98.342	16.163

135	98.378	17.294
136	98.413	16.536
137	98.449	16.917
138	98.484	16.917
139	98.519	16.540
140	98.556	17.290
141	98.590	16.167
142	98.626	17.290
143	98.661	16.540
144	98.697	17.294
145	98.731	16.163
146	98.768	17.290
147	98.803	16.540
148	98.838	16.917
149	98.874	16.917
150	98.909	16.917
151	98.944	16.540
152	98.980	16.913
153	99.015	16.540
154	99.050	16.540
155	99.084	16.540
156	99.119	16.540
157	99.154	16.540
158	99.189	16.540
159	99.224	16.540
160	99.259	16.540
161	99.293	16.540
162	99.328	16.540
163	99.363	16.540
164	99.398	16.540
165	99.433	16.540
166	99.468	16.540
167	99.502	16.540
168	99.537	16.540
169	99.572	16.540
170	99.607	16.540
171	99.642	16.540
172	99.677	16.540
173	99.711	16.540
174	99.746	16.540
175	99.781	16.540
176	99.816	16.540
177	99.851	16.540
178	99.886	16.540
179	99.920	16.540
180	99.955	16.540
181	99.990	16.540
182	100.000	4.691

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****************************************************************************
  FLOW PROCESS FROM NODE      8.00 TO NODE      9.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< OFFIG BASIN
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =    1113.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    1.008 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.560
         LOW LOSS FRACTION = 0.811
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.97
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.81

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
          5-MINUTE FACTOR = 1.000
          30-MINUTE FACTOR = 1.000
          1-HOUR FACTOR = 1.000
          3-HOUR FACTOR = 1.000
          6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =   8.267

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                      UNIT HYDROGRAPH DETERMINATION
----------------------------------------------------------------------------
```

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.689	92.733
2	2.113	191.684
3	3.937	245.530
4	6.312	319.660
5	9.345	408.253
6	12.817	467.296
7	17.449	623.548
8	22.722	709.795
9	28.228	741.097
10	34.408	831.858
11	40.535	824.681
12	46.549	809.521
13	52.025	737.079
14	56.300	575.476
15	59.914	486.477
16	62.805	389.126
17	65.492	361.642
18	67.819	313.184
19	69.889	278.711
20	71.483	214.460
21	73.297	244.161
22	74.709	190.061
23	75.990	172.451
24	77.183	160.582
25	78.338	155.503
26	79.442	148.570
27	80.408	130.078
28	81.298	119.807
29	82.226	124.831
30	82.960	98.882
31	83.764	108.121
32	84.519	101.713
33	85.188	90.090
34	85.844	88.182
35	86.444	80.819

36	87.035	79.484
37	87.592	75.016
38	88.062	63.250
39	88.546	65.222
40	89.032	65.445
41	89.519	65.444
42	89.992	63.695
43	90.388	53.361
44	90.773	51.802
45	91.158	51.739
46	91.542	51.738
47	91.923	51.262
48	92.248	43.757
49	92.554	41.180
50	92.860	41.213
51	93.166	41.244
52	93.473	41.213
53	93.778	41.181
54	94.066	38.669
55	94.311	32.945
56	94.554	32.721
57	94.797	32.723
58	95.040	32.723
59	95.283	32.786
60	95.527	32.753
61	95.769	32.627
62	96.000	31.101
63	96.169	22.768
64	96.330	21.561
65	96.490	21.624
66	96.651	21.623
67	96.811	21.561
68	96.972	21.624
69	97.132	21.561
70	97.293	21.687
71	97.454	21.624
72	97.614	21.561
73	97.774	21.624
74	97.935	21.623
75	98.035	13.484
76	98.095	8.013
77	98.154	7.951
78	98.213	8.013
79	98.273	8.013
80	98.332	7.951
81	98.392	8.013
82	98.451	7.951
83	98.510	8.013
84	98.570	8.013
85	98.629	7.951
86	98.688	7.950
87	98.747	8.014
88	98.807	8.013
89	98.866	8.013
90	98.925	7.951
91	98.984	7.950
92	99.044	8.014
93	99.103	7.950
94	99.162	7.950
95	99.221	7.950
96	99.280	7.950
97	99.339	7.950
98	99.398	7.950
99	99.457	7.950
100	99.517	7.950
101	99.576	7.950
102	99.635	7.950
103	99.694	7.950
104	99.753	7.950
105	99.812	7.950
106	99.871	7.950
107	99.930	7.950
108	99.989	7.950
109	100.000	1.483

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****************************************************************************
  FLOW PROCESS FROM NODE      9.00 TO NODE     10.00 IS CODE =   1
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  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< ON1 BASIN
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      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =    1507.000 ACRES
         BASEFLOW =    0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =     0.594 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.560
         LOW LOSS FRACTION = 0.801
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.97
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.90

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.990
          30-MINUTE FACTOR = 0.990
           1-HOUR FACTOR = 0.990
           3-HOUR FACTOR = 0.990
           6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  14.029


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                      UNIT HYDROGRAPH DETERMINATION
----------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
----------------------------------------------------------------------------
```

1	1.174	213.963
2	4.069	527.570
3	8.549	816.492
4	14.825	1143.901
5	23.457	1573.089
6	33.361	1805.037
7	43.707	1885.689
8	52.973	1688.704
9	59.620	1211.459
10	64.468	883.510

11	68.527	739.819
12	71.559	552.612
13	74.291	497.976
14	76.479	398.756
15	78.452	359.517
16	80.220	322.313
17	81.771	282.541
18	83.112	244.482
19	84.445	242.908
20	85.577	206.333
21	86.614	188.991
22	87.574	174.947
23	88.392	148.990
24	89.217	150.386
25	90.016	145.667
26	90.686	122.070
27	91.338	118.922
28	91.975	116.056
29	92.512	97.915
30	93.032	94.718
31	93.551	94.667
32	94.049	90.759
33	94.469	76.474
34	94.882	75.205
35	95.294	75.180
36	95.707	75.205
37	96.076	67.289
38	96.351	50.138
39	96.624	49.730
40	96.896	49.579
41	97.169	49.680
42	97.441	49.629
43	97.713	49.680
44	97.969	46.484
45	98.095	23.140
46	98.196	18.320
47	98.297	18.370
48	98.398	18.371
49	98.498	18.318
50	98.599	18.371
51	98.699	18.320
52	98.800	18.370
53	98.901	18.370
54	99.002	18.320
55	99.102	18.320
56	99.203	18.320
57	99.303	18.320
58	99.404	18.320
59	99.504	18.320
60	99.605	18.320
61	99.705	18.320
62	99.806	18.320
63	99.906	18.320
64	100.000	17.101

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****************************************************************************
  FLOW PROCESS FROM NODE      10.00 TO NODE      11.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< OFF7 BASIN
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =    1132.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    0.547 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.763
         LOW LOSS FRACTION = 0.953
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  2.00
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.40
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.84

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 1.000
          30-MINUTE FACTOR = 1.000
           1-HOUR FACTOR = 1.000
           3-HOUR FACTOR = 1.000
           6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  15.235


============================================================================
                      UNIT HYDROGRAPH DETERMINATION
----------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
----------------------------------------------------------------------------
```

1	1.281	175.378
2	4.563	449.298
3	9.704	703.846
4	17.245	1032.380
5	27.165	1358.031
6	38.272	1520.539
7	49.208	1497.128
8	57.470	1131.164
9	63.227	788.074
10	67.879	636.864
11	71.271	464.337
12	74.263	409.689
13	76.629	323.929
14	78.754	290.928
15	80.597	252.263
16	82.253	226.629
17	83.683	195.766
18	85.020	183.164
19	86.200	161.498
20	87.280	147.780
21	88.197	125.552
22	89.091	122.420
23	89.965	119.647
24	90.698	100.410
25	91.407	97.022
26	92.084	92.635
27	92.656	78.384
28	93.220	77.243
29	93.784	77.138
30	94.277	67.537

31	94.725	61.359
32	95.173	61.289
33	95.622	61.394
34	96.037	56.831
35	96.342	41.736
36	96.637	40.508
37	96.933	40.509
38	97.229	40.508
39	97.525	40.473
40	97.821	40.508
41	98.042	30.293
42	98.152	15.095
43	98.262	15.024
44	98.371	14.918
45	98.481	14.988
46	98.590	14.954
47	98.699	14.989
48	98.808	14.954
49	98.918	14.988
50	99.027	14.918
51	99.136	14.918
52	99.245	14.918
53	99.354	14.918
54	99.463	14.918
55	99.572	14.918
56	99.681	14.918
57	99.790	14.918
58	99.899	14.918
59	100.000	13.872

```
****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDRDGRAPH ANALYSIS)<<<<< OFF8 BASIN
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =    6667.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    1.275 HOURS
         VALLEY(UNDEVELDPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HDUR) =  0.768
         LOW LDSS FRACTION = 0.953
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  2.00
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.40
         SPECIFIED PEAK 24-HDUR RAINFALL(INCH) =  2.96

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.750
          30-MINUTE FACTOR = 0.750
           1-HDUR FACTOR = 0.750
           3-HOUR FACTOR = 0.960
           6-HOUR FACTOR = 0.970
          24-HOUR FACTOR = 0.980

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =   6.536


============================================================================
                      UNIT HYDROGRAPH DETERMINATION
----------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDRDGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
----------------------------------------------------------------------------
```

1	0.545	439.156
2	1.637	880.674
3	2.922	1036.243
4	4.480	1255.918
5	6.471	1605.183
6	8.864	1930.169
7	11.417	2058.027
8	14.761	2696.531
9	18.464	2985.594
10	22.770	3471.627
11	27.119	3506.903
12	31.894	3850.022
13	36.769	3930.370
14	41.490	3806.752
15	46.362	3927.672
16	50.840	3610.836
17	54.422	2887.936
18	57.636	2591.694
19	60.317	2162.002
20	62.593	1834.687
21	64.666	1671.232
22	66.792	1714.579
23	68.460	1345.089
24	69.996	1238.501
25	71.226	991.598
26	72.783	1255.369
27	73.919	916.125
28	75.032	897.388
29	76.031	805.288
30	76.973	759.391
31	77.902	748.786
32	78.784	711.748
33	79.655	701.622
34	80.395	597.293
35	81.076	548.868
36	81.864	634.885
37	82.491	505.734
38	83.067	465.023
39	83.709	517.299
40	84.337	506.583
41	84.867	426.828
42	85.396	426.589
43	85.907	412.249
44	86.380	380.932
45	86.846	376.472
46	87.313	375.992
47	87.718	326.473
48	88.087	297.567
49	88.470	309.126
50	88.855	310.097
51	89.239	309.851
52	89.624	310.091
53	89.997	301.178
54	90.311	252.747
55	90.614	244.799

56	90.918	245.279
57	91.222	245.039
58	91.527	245.279
59	91.830	244.793
60	92.107	223.115
61	92.349	195.403
62	92.591	195.163
63	92.833	194.923
64	93.075	195.403
65	93.317	195.169
66	93.560	195.163
67	93.802	195.163
68	94.032	185.763
69	94.227	157.097
70	94.419	155.166
71	94.611	154.926
72	94.804	154.926
73	94.996	155.166
74	95.189	155.412
75	95.380	154.200
76	95.572	155.166
77	95.765	155.166
78	95.954	152.760
79	96.098	116.134
80	96.225	102.158
81	96.352	102.158
82	96.480	103.124
83	96.606	102.164
84	96.733	102.158
85	96.860	102.158
86	96.987	102.644
87	97.114	102.158
88	97.240	102.158
89	97.368	102.644
90	97.494	102.158
91	97.622	102.638
92	97.748	101.678
93	97.876	103.124
94	97.992	93.484
95	98.048	45.300
96	98.095	37.586
97	98.142	38.072
98	98.188	37.586
99	98.236	38.066
100	98.282	37.592
101	98.329	37.586
102	98.377	38.551
103	98.423	37.106
104	98.470	38.551
105	98.516	37.100
106	98.564	38.072
107	98.611	38.066
108	98.657	37.106
109	98.705	39.037
110	98.751	36.620
111	98.799	38.551
112	98.845	37.586
113	98.892	37.586
114	98.939	38.072
115	98.986	38.066
116	99.033	37.592
117	99.079	37.592
118	99.126	37.592
119	99.173	37.592
120	99.219	37.592
121	99.266	37.592
122	99.313	37.592
123	99.359	37.592
124	99.406	37.592
125	99.452	37.592
126	99.499	37.592
127	99.546	37.592
128	99.592	37.592
129	99.639	37.592
130	99.686	37.592
131	99.732	37.592
132	99.779	37.592
133	99.825	37.592
134	99.872	37.592
135	99.919	37.592
136	99.965	37.592
137	100.000	27.977

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*****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =   1
-----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< OFF9 BASIN
=============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =     582.000 ACRES
         BASEFLOW =    0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =     0.381 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.804
         LOW LOSS FRACTION = 0.973
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.97
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.81

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 1.000
          30-MINUTE FACTOR = 1.000
           1-HOUR FACTOR = 1.000
           3-HOUR FACTOR = 1.000
           6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  21.872


=============================================================================
                        UNIT HYDROGRAPH DETERMINATION
-----------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
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NUMBER	MEAN VALUES	ORDINATES(CFS)
1	1.933	136.072
2	7.789	412.162
3	18.165	730.346
4	32.954	1040.934
5	48.628	1103.198
6	59.899	793.343
7	67.100	506.792
8	72.103	352.198
9	75.955	271.116
10	79.026	216.100
11	81.556	178.139
12	83.693	150.418
13	85.557	131.135
14	87.148	112.049
15	88.480	93.706
16	89.752	89.558
17	90.832	76.013
18	91.837	70.702
19	92.690	60.074
20	93.500	57.026
21	94.245	52.432
22	94.890	45.366
23	95.533	45.273
24	96.111	40.678
25	96.541	30.282
26	96.966	29.893
27	97.390	29.880
28	97.815	29.855
29	98.089	19.295
30	98.246	11.049
31	98.402	11.037
32	98.560	11.062
33	98.717	11.049
34	98.873	11.037
35	99.031	11.062
36	99.187	11.037
37	99.344	11.037
38	99.501	11.037
39	99.658	11.037
40	99.815	11.037
41	99.971	11.037
42	100.000	2.011

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FLOW PROCESS FROM NODE 13.00 TO NODE 14.00 IS CODE = 1

>>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< OFF11 BASIN

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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 7465.000 ACRES
BASEFLOW = 0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME = 1.815 HOURS
VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.697
LOW LOSS FRACTION = 0.914
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.63
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 1.33
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 1.64
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 1.97
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 2.33
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 2.81

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.740
30-MINUTE FACTOR = 0.740
1-HOUR FACTOR = 0.740
3-HOUR FACTOR = 0.960
6-HOUR FACTOR = 0.970
24-HOUR FACTOR = 0.980

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 4.591

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.383	345.423
2	1.148	690.847
3	1.924	701.161
4	2.855	840.123
5	3.928	968.535
6	5.122	1078.096
7	6.615	1347.492
8	8.280	1503.586
9	10.039	1587.650
10	11.887	1668.729
11	14.269	2150.020
12	16.901	2376.122
13	19.595	2432.318
14	22.658	2765.924
15	25.823	2856.619
16	28.785	2674.612
17	32.419	3280.726
18	35.664	2929.556
19	39.289	3272.483
20	42.354	2767.527
21	45.912	3211.553
22	49.143	2917.062
23	52.081	2652.532
24	54.449	2137.431
25	56.744	2072.534
26	58.831	1884.300
27	60.606	1602.224
28	62.220	1457.246
29	63.651	1291.677
30	65.148	1351.828
31	66.697	1397.625
32	67.742	943.781
33	69.145	1266.475
34	70.013	783.447
35	70.881	783.543
36	71.867	890.690
37	73.002	1024.719
38	73.720	647.881
39	74.569	766.447
40	75.283	644.616
41	75.986	634.821

42	76.649	598.530
43	77.305	592.096
44	77.956	588.356
45	78.575	558.780
46	79.188	552.829
47	79.798	550.522
48	80.309	461.814
49	80.768	414.377
50	81.284	466.036
51	81.853	513.080
52	82.305	408.240
53	82.710	365.990
54	83.115	365.605
55	83.546	388.844
56	84.056	460.278
57	84.438	345.251
58	84.810	335.464
59	85.181	335.650
60	85.553	335.464
61	85.908	320.290
62	86.241	300.508
63	86.569	296.100
64	86.897	296.093
65	87.225	296.100
66	87.537	281.883
67	87.796	233.882
68	88.055	233.497
69	88.324	243.484
70	88.594	243.484
71	88.864	243.870
72	89.134	243.863
73	89.405	244.248
74	89.674	243.484
75	89.942	241.562
76	90.170	205.463
77	90.383	192.790
78	90.597	193.175
79	90.810	192.404
80	91.024	192.790
81	91.237	192.790
82	91.451	193.169
83	91.664	192.411
84	91.878	192.790
85	92.073	175.887
86	92.243	153.619
87	92.413	153.619
88	92.583	153.233
89	92.753	153.998
90	92.923	153.233
91	93.093	153.619
92	93.263	153.612
93	93.433	153.233
94	93.604	154.004
95	93.773	152.847
96	93.943	153.233
97	94.090	132.880
98	94.226	122.507
99	94.360	121.356
100	94.495	122.128
101	94.630	121.742
102	94.766	122.128
103	94.900	121.742
104	95.036	122.121
105	95.170	121.356
106	95.306	122.899
107	95.441	121.356
108	95.575	121.356
109	95.711	122.892
110	95.846	121.356
111	95.977	119.056
112	96.076	89.094
113	96.166	80.649
114	96.255	80.649
115	96.344	80.649
116	96.433	79.885
117	96.523	81.414
118	96.611	79.878
119	96.701	80.649
120	96.789	79.885
121	96.879	81.414
122	96.968	79.885
123	97.057	80.649
124	97.146	80.642
125	97.236	80.649
126	97.324	79.885
127	97.414	80.649
128	97.503	80.649
129	97.592	80.649
130	97.682	80.649
131	97.770	79.878
132	97.859	80.649
133	97.949	80.649
134	98.013	58.374
135	98.046	29.184
136	98.080	30.727
137	98.114	30.720
138	98.145	28.419
139	98.178	29.955
140	98.212	29.962
141	98.245	29.955
142	98.278	29.955
143	98.310	29.184
144	98.344	29.955
145	98.377	29.955
146	98.409	29.191
147	98.442	29.955
148	98.476	30.720
149	98.508	28.419
150	98.542	30.727
151	98.574	29.184
152	98.607	29.955
153	98.640	29.191
154	98.673	29.955
155	98.707	30.720
156	98.739	29.191
157	98.771	29.184
158	98.805	29.962
159	98.838	29.955
160	98.871	29.955
161	98.903	29.184
162	98.937	30.727
163	98.970	29.184
164	99.002	29.191
165	99.034	29.184
166	99.067	29.184
167	99.099	29.184
168	99.131	29.184
169	99.164	29.184
170	99.196	29.184

171	99.228	29.184
172	99.261	29.184
173	99.293	29.184
174	99.325	29.184
175	99.358	29.184
176	99.390	29.184
177	99.422	29.184
178	99.455	29.184
179	99.487	29.184
180	99.519	29.184
181	99.552	29.184
182	99.584	29.184
183	99.616	29.184
184	99.649	29.184
185	99.681	29.184
186	99.713	29.184
187	99.746	29.184
188	99.778	29.184
189	99.810	29.184
190	99.842	29.184
191	99.875	29.184
192	99.907	29.184
193	99.939	29.184
194	99.972	29.184
195	100.000	25.471

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  FLOW PROCESS FROM NODE     14.00 TO NODE     15.00 IS CODE =   1
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  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< DFF1F BASIN
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =    1460.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    1.397 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.317
         LOW LOSS FRACTION = 0.527
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.97
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.81

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.950
          30-MINUTE FACTOR = 0.950
           1-HOUR FACTOR = 0.950
           3-HOUR FACTOR = 0.990
           6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =   5.965


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                      UNIT HYDROGRAPH DETERMINATION
----------------------------------------------------------------------------
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INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.497	87.772
2	1.491	175.544
3	2.606	196.826
4	3.983	243.129
5	5.623	289.660
6	7.661	359.830
7	9.953	404.554
8	12.412	434.181
9	15.745	588.538
10	19.137	598.929
11	23.147	707.998
12	27.093	696.814
13	31.439	767.451
14	35.855	779.734
15	40.330	790.044
16	44.580	750.373
17	48.950	771.691
18	52.660	654.997
19	55.678	532.894
20	58.505	499.218
21	60.830	410.454
22	62.846	356.031
23	64.740	334.394
24	66.708	347.540
25	68.173	258.609
26	69.756	279.452
27	70.815	187.125
28	72.162	237.854
29	73.379	214.803
30	74.413	182.644
31	75.372	169.274
32	76.271	158.682
33	77.124	150.644
34	77.970	149.345
35	78.773	141.843
36	79.568	140.426
37	80.273	124.355
38	80.875	106.404
39	81.582	124.817
40	82.231	114.584
41	82.758	92.993
42	83.285	93.107
43	83.917	111.519
44	84.444	93.049
45	84.927	85.245
46	85.409	85.272
47	85.878	82.672
48	86.310	76.342
49	86.736	75.271
50	87.162	75.213
51	87.565	71.052
52	87.900	59.258
53	88.245	60.876
54	88.596	61.975
55	88.947	61.917
56	89.298	62.032
57	89.648	61.859
58	89.991	60.414

59	90.277	50.587
60	90.554	48.968
61	90.832	49.024
62	91.109	48.968
63	91.387	48.968
64	91.664	49.024
65	91.939	48.563
66	92.174	41.509
67	92.396	39.023
68	92.617	39.023
69	92.837	38.967
70	93.058	39.023
71	93.279	39.023
72	93.500	38.965
73	93.721	39.082
74	93.941	38.734
75	94.129	33.301
76	94.305	30.988
77	94.480	30.986
78	94.656	30.988
79	94.831	30.988
80	95.006	30.930
81	95.182	31.046
82	95.357	30.872
83	95.533	30.988
84	95.708	30.988
85	95.884	31.103
86	96.039	27.287
87	96.155	20.465
88	96.271	20.465
89	96.386	20.465
90	96.502	20.467
91	96.618	20.465
92	96.734	20.465
93	96.849	20.349
94	96.966	20.581
95	97.081	20.351
96	97.197	20.465
97	97.313	20.465
98	97.429	20.465
99	97.545	20.467
100	97.661	20.465
101	97.777	20.465
102	97.892	20.349
103	97.996	18.385
104	98.046	8.787
105	98.088	7.516
106	98.132	7.631
107	98.175	7.747
108	98.216	7.168
109	98.260	7.747
110	98.303	7.516
111	98.346	7.631
112	98.388	7.400
113	98.432	7.747
114	98.473	7.400
115	98.517	7.631
116	98.559	7.516
117	98.602	7.631
118	98.645	7.516
119	98.688	7.516
120	98.731	7.631
121	98.773	7.516
122	98.816	7.516
123	98.859	7.631
124	98.902	7.631
125	98.944	7.400
126	98.987	7.631
127	99.031	7.631
128	99.074	7.631
129	99.117	7.631
130	99.160	7.631
131	99.204	7.631
132	99.247	7.631
133	99.290	7.631
134	99.333	7.631
135	99.376	7.631
136	99.420	7.631
137	99.463	7.631
138	99.506	7.631
139	99.549	7.631
140	99.593	7.631
141	99.636	7.631
142	99.679	7.631
143	99.722	7.631
144	99.765	7.631
145	99.809	7.631
146	99.852	7.631
147	99.895	7.631
148	99.938	7.631
149	99.982	7.631
150	100.000	3.256

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  FLOW PROCESS FROM NODE     15.00 TO NODE     16.00 IS CODE =   1
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  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< OFFIE BASIN
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      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =    3036.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    1.932 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.292
         LOW LOSS FRACTION = 0.494
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.97
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.81

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.850
          30-MINUTE FACTOR = 0.850
           1-HOUR FACTOR = 0.850
           3-HOUR FACTOR = 0.980
           6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =   4.313
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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.359	131.975
2	1.078	263.951
3	1.801	265.204
4	2.639	307.800
5	3.630	363.739
6	4.688	388.714
7	6.012	486.091
8	7.458	530.815
9	9.175	630.487
10	10.791	593.243
11	12.654	683.973
12	15.122	906.116
13	17.481	866.142
14	20.153	981.329
15	23.048	1062.755
16	26.001	1084.461
17	28.784	1021.694
18	32.214	1259.338
19	35.233	1108.423
20	38.697	1272.135
21	41.615	1071.364
22	44.783	1163.230
23	48.033	1193.157
24	50.903	1053.886
25	53.338	893.924
26	55.495	791.865
27	57.627	782.782
28	59.444	667.233
29	61.065	595.264
30	62.535	539.733
31	63.872	490.917
32	65.290	520.489
33	66.746	534.749
34	67.708	353.087
35	69.027	484.144
36	69.905	322.455
37	70.687	287.333
38	71.550	316.721
39	72.704	423.791
40	73.436	268.839
41	74.186	275.072
42	74.919	269.170
43	75.585	244.774
44	76.233	237.664
45	76.849	226.361
46	77.465	226.193
47	78.073	223.283
48	78.651	212.145
49	79.226	211.229
50	79.800	210.484
51	80.282	177.230
52	80.714	158.445
53	81.182	172.076
54	81.720	197.430
55	82.183	170.081
56	82.564	139.657
57	82.944	139.741
58	83.325	139.822
59	83.790	170.664
60	84.214	155.534
61	84.563	128.351
62	84.912	128.185
63	85.261	128.183
64	85.610	127.936
65	85.940	121.283
66	86.252	114.302
67	86.559	113.056
68	86.868	113.221
69	87.176	113.305
70	87.477	110.395
71	87.727	91.940
72	87.967	88.116
73	88.219	92.273
74	88.472	93.103
75	88.726	93.271
76	88.980	93.105
77	89.234	93.105
78	89.487	93.103
79	89.741	93.271
80	89.989	90.943
81	90.197	76.312
82	90.397	73.485
83	90.598	73.819
84	90.798	73.653
85	90.999	73.651
86	91.200	73.653
87	91.400	73.651
88	91.601	73.653
89	91.801	73.651
90	91.997	71.659
91	92.162	60.684
92	92.321	58.521
93	92.481	58.689
94	92.640	58.524
95	92.801	58.854
96	92.960	58.524
97	93.120	58.689
98	93.279	58.521
99	93.440	58.854
100	93.599	58.524
101	93.759	58.689
102	93.919	58.689
103	94.062	52.538
104	94.189	46.717
105	94.316	46.719
106	94.443	46.551
107	94.569	46.386
108	94.697	46.719
109	94.823	46.551
110	94.951	46.719
111	95.077	46.386
112	95.204	46.551
113	95.331	46.551
114	95.458	46.885
115	95.584	46.221
116	95.712	46.885
117	95.839	46.551
118	95.964	45.887
119	96.061	35.579

120	96.144	30.593
121	96.227	30.590
122	96.311	30.926
123	96.395	30.590
124	96.479	30.926
125	96.562	30.590
126	96.646	30.593
127	96.731	31.256
128	96.814	30.590
129	96.897	30.593
130	96.982	30.923
131	97.065	30.593
132	97.149	30.923
133	97.233	30.923
134	97.316	30.259
135	97.401	31.256
136	97.483	30.259
137	97.568	31.256
138	97.651	30.259
139	97.736	31.256
140	97.818	30.259
141	97.903	30.923
142	97.983	29.595
143	98.027	15.962
144	98.056	10.639
145	98.088	11.970
146	98.118	10.973
147	98.149	11.306
148	98.181	11.639
149	98.211	11.306
150	98.242	11.306
151	98.273	11.303
152	98.305	11.639
153	98.335	11.306
154	98.365	10.973
155	98.397	11.639
156	98.428	11.306
157	98.460	11.636
158	98.490	11.306
159	98.520	10.973
160	98.552	11.639
161	98.583	11.306
162	98.614	11.636
163	98.644	10.973
164	98.675	11.306
165	98.708	11.970
166	98.737	10.642
167	98.769	11.970
168	98.799	10.973
169	98.830	11.306
170	98.862	11.639
171	98.892	11.306
172	98.923	11.306
173	98.954	11.303
174	98.986	11.639
175	99.017	11.306
176	99.047	11.306
177	99.078	11.306
178	99.109	11.306
179	99.140	11.306
180	99.170	11.306
181	99.201	11.306
182	99.232	11.306
183	99.263	11.306
184	99.294	11.306
185	99.324	11.306
186	99.355	11.306
187	99.386	11.306
188	99.417	11.306
189	99.448	11.306
190	99.478	11.306
191	99.509	11.306
192	99.540	11.306
193	99.571	11.306
194	99.602	11.306
195	99.632	11.306
196	99.663	11.306
197	99.694	11.306
198	99.725	11.306
199	99.756	11.306
200	99.786	11.306
201	99.817	11.306
202	99.848	11.306
203	99.879	11.306
204	99.909	11.306
205	99.940	11.306
206	99.971	11.306
207	100.000	10.620

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  FLDW PROCESS FROM NDDE     16.00 TO NDDE     17.00 IS CODE =   1
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  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< OFF1D BASIN
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      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =     737.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    0.957 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.317
         LOW LOSS FRACTION = 0.527
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.97
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.81

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 1.000
          30-MINUTE FACTOR = 1.000
           1-HOUR FACTOR = 1.000
           3-HOUR FACTOR = 1.000
           6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =   8.708


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                        UNIT HYDROGRAPH DETERMINATION
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INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.726	64.678
2	2.244	135.354
3	4.211	175.271
4	6.836	234.024
5	10.123	292.988
6	14.134	357.463
7	19.140	446.148
8	24.930	516.072
9	31.012	542.121
10	37.538	581.671
11	43.834	561.199
12	50.072	555.933
13	54.923	432.460
14	58.996	362.963
15	62.193	284.991
16	65.000	250.142
17	67.572	229.264
18	69.775	196.364
19	71.462	150.344
20	73.347	168.045
21	74.836	132.736
22	76.167	118.627
23	77.418	111.454
24	78.618	106.951
25	79.765	102.248
26	80.708	84.035
27	81.710	89.344
28	82.570	76.678
29	83.352	69.681
30	84.228	78.028
31	84.938	63.313
32	85.638	62.425
33	86.286	57.726
34	86.908	55.427
35	87.509	53.608
36	88.011	44.701
37	88.519	45.341
38	89.032	45.662
39	89.544	45.661
40	90.036	43.882
41	90.450	36.825
42	90.855	36.105
43	91.259	36.085
44	91.665	36.105
45	92.051	34.426
46	92.378	29.168
47	92.700	28.728
48	93.023	28.748
49	93.345	28.748
50	93.668	28.748
51	93.983	28.088
52	94.248	23.650
53	94.505	22.831
54	94.761	22.831
55	95.017	22.830
56	95.273	22.811
57	95.529	22.831
58	95.785	22.830
59	96.022	21.151
60	96.196	15.514
61	96.365	15.034
62	96.535	15.114
63	96.703	15.034
64	96.873	15.114
65	97.042	15.034
66	97.211	15.074
67	97.380	15.073
68	97.549	15.074
69	97.718	15.074
70	97.887	15.074
71	98.019	11.755
72	98.083	5.718
73	98.145	5.518
74	98.208	5.598
75	98.271	5.597
76	98.334	5.598
77	98.395	5.518
78	98.458	5.598
79	98.521	5.598
80	98.583	5.518
81	98.646	5.598
82	98.708	5.557
83	98.771	5.598
84	98.833	5.558
85	98.896	5.558
86	98.958	5.558
87	99.021	5.598
88	99.083	5.558
89	99.146	5.558
90	99.208	5.558
91	99.270	5.558
92	99.333	5.558
93	99.395	5.558
94	99.457	5.558
95	99.520	5.558
96	99.582	5.558
97	99.644	5.558
98	99.707	5.558
99	99.769	5.558
100	99.831	5.558
101	99.894	5.558
102	99.956	5.558
103	100.000	3.911

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  FLOW PROCESS FROM NODE     17.00 TO NODE     18.00 IS CODE =   1
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  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< OFF1C BASIN
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      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =     799.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    1.029 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.317
         LOW LOSS FRACTION = 0.527
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.97
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.81
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*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 1.000
30-MINUTE FACTOR = 1.000
1-HOUR FACTOR = 1.000
3-HOUR FACTOR = 1.000
6-HOUR FACTOR = 1.000
24-HOUR FACTOR = 1.000

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 8.098

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.675	65.212
2	2.064	134.212
3	3.835	171.175
4	6.117	220.523
5	9.050	283.333
6	12.352	319.122
7	16.819	431.604
8	21.838	485.052
9	27.274	525.197
10	33.199	572.528
11	39.272	586.903
12	45.099	563.037
13	50.767	547.687
14	55.165	424.934
15	58.950	365.771
16	61.952	290.094
17	64.551	251.120
18	67.078	244.207
19	69.202	205.258
20	70.784	152.841
21	72.608	176.261
22	74.083	142.505
23	75.415	128.709
24	76.616	116.084
25	77.770	111.446
26	78.868	106.139
27	79.920	101.676
28	80.776	82.648
29	81.718	91.062
30	82.521	77.603
31	83.238	69.272
32	84.066	79.969
33	84.745	65.624
34	85.400	63.341
35	86.026	60.416
36	86.607	56.175
37	87.185	55.906
38	87.705	50.209
39	88.164	44.395
40	88.641	46.003
41	89.117	46.049
42	89.593	46.025
43	90.049	44.022
44	90.432	36.984
45	90.808	36.401
46	91.185	36.401
47	91.562	36.401
48	91.934	35.982
49	92.251	30.622
50	92.551	28.967
51	92.851	28.990
52	93.151	28.990
53	93.451	28.968
54	93.751	28.990
55	94.037	27.662
56	94.278	23.327
57	94.517	23.025
58	94.755	23.024
59	94.993	22.978
60	95.232	23.071
61	95.469	22.978
62	95.708	23.024
63	95.943	22.698
64	96.121	17.245
65	96.279	15.241
66	96.435	15.148
67	96.593	15.194
68	96.750	15.194
69	96.908	15.241
70	97.064	15.148
71	97.222	15.194
72	97.379	15.241
73	97.536	15.148
74	97.694	15.241
75	97.851	15.148
76	97.993	13.749
77	98.061	6.572
78	98.119	5.593
79	98.177	5.640
80	98.236	5.640
81	98.293	5.546
82	98.352	5.686
83	98.410	5.593
84	98.468	5.593
85	98.526	5.640
86	98.584	5.593
87	98.642	5.639
88	98.700	5.593
89	98.758	5.640
90	98.816	5.593
91	98.875	5.639
92	98.933	5.640
93	98.991	5.593
94	99.049	5.593
95	99.107	5.593
96	99.165	5.593
97	99.222	5.593
98	99.280	5.593
99	99.338	5.593
100	99.396	5.593
101	99.454	5.593
102	99.512	5.593
103	99.570	5.593
104	99.628	5.593
105	99.685	5.593
106	99.743	5.593
107	99.801	5.593
108	99.859	5.593

109	99.917	5.593
110	99.975	5.593
111	100.000	2.432

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  FLOW PROCESS FROM NODE     18.00 TO NODE     19.00 IS CODE =   1
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  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< OFF1B BASIN
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      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =    2797.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    1.862 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.301
         LOW LOSS FRACTION = 0.506
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.97
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.81

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.850
          30-MINUTE FACTOR = 0.850
           1-HOUR FACTOR = 0.850
           3-HOUR FACTOR = 0.980
           6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =   4.475


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                        UNIT HYDROGRAPH DETERMINATION
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INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.373	126.157
2	1.119	252.314
3	1.872	254.877
4	2.764	301.673
5	3.803	351.316
6	4.936	383.237
7	6.364	482.968
8	7.934	531.312
9	9.674	588.386
10	11.413	588.405
11	13.539	718.922
12	16.217	906.178
13	18.660	826.281
14	21.613	998.703
15	24.708	1047.048
16	27.580	971.458
17	30.874	1114.211
18	34.214	1129.799
19	37.649	1162.140
20	40.848	1081.887
21	43.978	1058.876
22	47.482	1185.138
23	50.465	1009.248
24	53.087	886.687
25	55.324	756.957
26	57.542	749.945
27	59.437	641.206
28	61.118	568.705
29	62.631	511.595
30	64.023	470.907
31	65.505	501.223
32	66.960	492.275
33	67.946	333.694
34	69.342	472.125
35	70.109	259.369
36	70.976	293.246
37	71.967	335.245
38	73.040	363.071
39	73.741	237.113
40	74.572	280.957
41	75.267	235.120
42	75.954	232.243
43	76.601	219.068
44	77.241	216.299
45	77.878	215.600
46	78.485	205.192
47	79.081	201.870
48	79.678	201.795
49	80.206	178.620
50	80.654	151.458
51	81.131	161.348
52	81.686	187.772
53	82.173	164.819
54	82.568	133.594
55	82.963	133.597
56	83.359	134.113
57	83.852	166.661
58	84.270	141.347
59	84.632	122.523
60	84.995	122.598
61	85.357	122.526
62	85.715	121.197
63	86.050	113.225
64	86.371	108.499
65	86.690	108.130
66	87.010	108.133
67	87.330	108.130
68	87.616	96.987
69	87.865	84.145
70	88.120	86.209
71	88.383	89.015
72	88.647	89.162
73	88.910	89.015
74	89.173	89.015
75	89.437	89.162
76	89.699	88.868
77	89.959	87.980
78	90.179	74.253
79	90.387	70.268

80	90.595	70.562
81	90.803	70.266
82	91.011	70.415
83	91.220	70.562
84	91.428	70.266
85	91.636	70.562
86	91.844	70.268
87	92.040	66.428
88	92.207	56.539
89	92.373	56.095
90	92.539	55.948
91	92.705	56.245
92	92.870	55.948
93	93.036	55.948
94	93.202	56.095
95	93.368	56.242
96	93.533	55.948
97	93.699	56.245
98	93.865	55.948
99	94.023	53.439
100	94.156	45.024
101	94.288	44.580
102	94.419	44.435
103	94.551	44.580
104	94.682	44.435
105	94.814	44.580
106	94.946	44.729
107	95.077	44.285
108	95.209	44.582
109	95.340	44.285
110	95.473	44.876
111	95.604	44.285
112	95.736	44.876
113	95.867	44.288
114	95.993	42.512
115	96.087	31.888
116	96.173	28.933
117	96.260	29.524
118	96.347	29.524
119	96.434	29.229
120	96.520	29.229
121	96.608	29.818
122	96.694	28.935
123	96.782	29.818
124	96.867	28.933
125	96.955	29.526
126	97.042	29.524
127	97.129	29.524
128	97.216	29.227
129	97.303	29.526
130	97.389	29.227
131	97.477	29.524
132	97.563	29.229
133	97.650	29.524
134	97.738	29.524
135	97.824	29.229
136	97.910	29.229
137	97.991	27.162
138	98.032	13.877
139	98.063	10.627
140	98.095	10.924
141	98.128	10.924
142	98.159	10.627
143	98.192	11.221
144	98.224	10.627
145	98.256	10.924
146	98.289	11.218
147	98.320	10.333
148	98.352	10.924
149	98.384	10.924
150	98.417	11.218
151	98.449	10.630
152	98.480	10.627
153	98.513	11.218
154	98.545	10.630
155	98.577	10.922
156	98.609	10.924
157	98.641	10.630
158	98.674	11.218
159	98.705	10.627
160	98.738	10.924
161	98.770	10.924
162	98.802	10.924
163	98.834	10.627
164	98.866	10.924
165	98.899	11.221
166	98.930	10.333
167	98.963	11.218
168	98.994	10.627
169	99.028	11.221
170	99.059	10.627
171	99.090	10.627
172	99.122	10.627
173	99.153	10.627
174	99.185	10.627
175	99.216	10.627
176	99.247	10.627
177	99.279	10.627
178	99.310	10.627
179	99.342	10.627
180	99.373	10.627
181	99.405	10.627
182	99.436	10.627
183	99.467	10.627
184	99.499	10.627
185	99.530	10.627
186	99.562	10.627
187	99.593	10.627
188	99.625	10.627
189	99.656	10.627
190	99.687	10.627
191	99.719	10.627
192	99.750	10.627
193	99.782	10.627
194	99.813	10.627
195	99.844	10.627
196	99.876	10.627
197	99.907	10.627
198	99.939	10.627
199	99.970	10.627
200	100.000	10.114

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****************************************************************************
  FLOW PROCESS FROM NODE     19.00 TO NODE     20.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< OFF1A BASIN
============================================================================
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(UNIT-HYDRDGRAPH ADDED TO STREAM #1)

```
WATERSHED AREA =     923.000 ACRES
BASEFLOW =   0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME =    1.183 HOURS
VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
MAXIMUM WATERSHED LOSS RATE(INCH/HDUR) =  0.317
LOW LOSS FRACTION = 0.527
*HYDROGRAPH MODEL #1 SPECIFIED*

SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
SPECIFIED PEAK  3-HDUR RAINFALL(INCH) =  1.97
SPECIFIED PEAK  6-HDUR RAINFALL(INCH) =  2.33
SPECIFIED PEAK 24-HDUR RAINFALL(INCH) =  2.81

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
  5-MINUTE FACTOR = 1.000
 30-MINUTE FACTOR = 1.000
  1-HOUR FACTOR = 1.000
  3-HOUR FACTOR = 1.000
  6-HOUR FACTDR = 1.000
 24-HOUR FACTDR = 1.000

UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME =   7.044
```

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.587	65.526
2	1.771	132.204
3	3.211	160.712
4	4.973	196.716
5	7.260	255.284
6	9.948	300.006
7	12.946	334.604
8	16.929	444.666
9	21.251	482.395
10	26.018	532.133
11	30.973	553.120
12	36.245	588.529
13	41.369	571.892
14	46.597	583.571
15	51.344	529.898
16	55.093	418.496
17	58.455	375.263
18	61.184	304.640
19	63.489	257.294
20	65.816	259.758
21	67.728	213.399
22	69.610	210.165
23	70.899	143.855
24	72.515	180.368
25	73.813	144.854
26	75.015	134.245
27	76.089	119.884
28	77.102	113.099
29	78.096	110.932
30	79.041	105.431
31	79.953	101.840
32	80.690	82.218
33	81.492	89.600
34	82.262	85.948
35	82.885	69.482
36	83.540	73.135
37	84.252	79.463
38	84.822	63.710
39	85.393	63.649
40	85.942	61.312
41	86.449	56.654
42	86.953	56.174
43	87.447	55.122
44	87.857	45.837
45	88.263	45.310
46	88.677	46.239
47	89.092	46.270
48	89.506	46.239
49	89.916	45.806
50	90.265	38.904
51	90.592	36.551
52	90.920	36.583
53	91.248	36.552
54	91.576	36.613
55	91.902	36.397
56	92.184	31.476
57	92.445	29.123
58	92.706	29.155
59	92.967	29.124
60	93.227	29.093
61	93.488	29.124
62	93.749	29.123
63	94.002	28.289
64	94.215	23.738
65	94.423	23.151
66	94.629	23.088
67	94.837	23.151
68	95.044	23.151
69	95.251	23.057
70	95.458	23.151
71	95.666	23.151
72	95.873	23.150
73	96.051	19.932
74	96.190	15.475
75	96.327	15.227
76	96.463	15.228
77	96.600	15.289
78	96.737	15.289
79	96.873	15.227
80	97.010	15.289
81	97.147	15.289
82	97.284	15.227
83	97.421	15.289
84	97.557	15.227
85	97.694	15.289
86	97.831	15.289
87	97.965	14.918
88	98.038	8.232
89	98.090	5.757
90	98.140	5.571
91	98.190	5.571

92	98.241	5.757
93	98.291	5.571
94	98.342	5.695
95	98.393	5.633
96	98.443	5.633
97	98.494	5.634
98	98.545	5.694
99	98.595	5.571
100	98.646	5.695
101	98.696	5.633
102	98.746	5.633
103	98.797	5.633
104	98.848	5.695
105	98.898	5.571
106	98.949	5.695
107	98.999	5.633
108	99.050	5.633
109	99.100	5.633
110	99.151	5.633
111	99.201	5.633
112	99.252	5.633
113	99.302	5.633
114	99.353	5.633
115	99.403	5.633
116	99.453	5.633
117	99.504	5.633
118	99.554	5.633
119	99.605	5.633
120	99.655	5.633
121	99.706	5.633
122	99.756	5.633
123	99.807	5.633
124	99.857	5.633
125	99.908	5.633
126	99.958	5.633
127	100.000	4.676

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****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< OFF1Z BASIN
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =     411.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    0.555 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.317
         LOW LOSS FRACTION = 0.527
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.97
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.81

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 1.000
          30-MINUTE FACTOR = 1.000
           1-HOUR FACTOR = 1.000
           3-HOUR FACTOR = 1.000
           6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  15.015


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                      UNIT HYDROGRAPH DETERMINATION
----------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
----------------------------------------------------------------------------
```

1	1.261	62.695
2	4.471	159.523
3	9.487	249.333
4	16.787	362.836
5	26.459	480.786
6	37.414	544.514
7	48.245	538.326
8	56.719	421.222
9	62.609	292.772
10	67.289	232.628
11	70.786	173.817
12	73.847	152.150
13	76.228	118.331
14	78.353	105.628
15	80.246	94.110
16	81.902	82.313
17	83.333	71.096
18	84.709	68.425
19	85.899	59.144
20	86.985	53.971
21	87.938	47.373
22	88.813	43.488
23	89.694	43.791
24	90.458	37.985
25	91.157	34.707
26	91.849	34.416
27	92.441	29.412
28	92.997	27.640
29	93.553	27.647
30	94.081	26.250
31	94.528	22.222
32	94.970	21.950
33	95.412	21.957
34	95.851	21.840
35	96.194	17.069
36	96.486	14.509
37	96.778	14.483
38	97.069	14.496
39	97.361	14.483
40	97.652	14.496
41	97.935	14.069
42	98.087	7.539
43	98.195	5.353
44	98.303	5.366
45	98.410	5.353
46	98.518	5.353
47	98.626	5.353
48	98.733	5.353

49	98.841	5.366
50	98.949	5.354
51	99.057	5.366
52	99.165	5.354
53	99.273	5.354
54	99.380	5.354
55	99.488	5.354
56	99.596	5.354
57	99.703	5.354
58	99.811	5.354
59	99.919	5.354
60	100.000	4.036

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****************************************************************************
  FLOW PROCESS FROM NODE     21.00 TO NODE     22.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< ON2 BASIN
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =    3097.000 ACRES
         BASEFLOW =    0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =     0.863 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.317
         LOW LOSS FRACTION = 0.517
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.97
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.90

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.850
          30-MINUTE FACTOR = 0.850
           1-HOUR FACTOR = 0.850
           3-HOUR FACTOR = 0.980
           6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =   9.656


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                      UNIT HYDROGRAPH DETERMINATION
----------------------------------------------------------------------------
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INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.805	301.390
2	2.538	649.370
3	4.856	867.862
4	8.058	1199.274
5	11.878	1430.753
6	17.091	1952.628
7	23.229	2298.926
8	29.839	2475.760
9	37.057	2703.637
10	44.069	2626.070
11	50.838	2535.212
12	56.019	1940.811
13	60.224	1574.643
14	63.509	1230.402
15	66.590	1154.286
16	69.128	950.363
17	71.066	725.927
18	73.203	800.525
19	74.852	617.574
20	76.324	551.305
21	77.704	516.700
22	79.014	490.928
23	80.215	449.731
24	81.251	387.991
25	82.313	397.612
26	83.170	321.022
27	84.133	360.907
28	84.935	300.150
29	85.709	289.809
30	86.419	265.945
31	87.108	258.296
32	87.731	233.447
33	88.284	207.043
34	88.852	212.652
35	89.420	212.724
36	89.975	207.729
37	90.440	174.164
38	90.889	168.332
39	91.338	168.106
40	91.787	168.258
41	92.188	150.227
42	92.546	133.939
43	92.903	133.939
44	93.261	133.939
45	93.619	134.016
46	93.969	131.287
47	94.265	110.833
48	94.549	106.363
49	94.833	106.438
50	95.117	106.212
51	95.401	106.363
52	95.685	106.515
53	95.962	103.486
54	96.167	76.968
55	96.355	70.304
56	96.542	70.150
57	96.730	70.304
58	96.918	70.301
59	97.104	70.001
60	97.293	70.453
61	97.479	70.001
62	97.668	70.455
63	97.854	69.998
64	98.011	58.788
65	98.085	27.575
66	98.154	25.909
67	98.223	25.909
68	98.293	26.061
69	98.362	25.909
70	98.432	26.058
71	98.501	25.758
72	98.571	26.212

73	98.640	26.061
74	98.709	25.758
75	98.778	25.758
76	98.848	26.212
77	98.916	25.758
78	98.986	26.212
79	99.055	25.755
80	99.124	25.755
81	99.193	25.755
82	99.261	25.755
83	99.330	25.755
84	99.399	25.755
85	99.468	25.755
86	99.536	25.755
87	99.605	25.755
88	99.674	25.755
89	99.743	25.755
90	99.812	25.755
91	99.880	25.755
92	99.949	25.755
93	100.000	19.080

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*******************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     23.00 IS CODE =   1
-------------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< ON3 BASIN
===============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =    2550.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    0.955 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.550
         LOW LOSS FRACTION = 0.787
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.97
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.90

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.860
          30-MINUTE FACTOR = 0.860
           1-HOUR FACTOR = 0.860
           3-HOUR FACTDR = 0.980
           6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =   8.726


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                        UNIT HYDROGRAPH DETERMINATION
-------------------------------------------------------------------------------
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INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH DRDINATES(CFS)
1	0.727	224.251
2	2.250	469.553
3	4.222	608.344
4	6.859	813.255
5	10.155	1016.225
6	14.190	1244.312
7	19.213	1549.104
8	25.021	1791.094
9	31.127	1883.168
10	37.667	2016.713
11	43.977	1946.028
12	50.205	1920.623
13	55.038	1490.394
14	59.097	1251.812
15	62.280	981.799
16	65.096	868.353
17	67.649	787.317
18	69.839	675.388
19	71.544	525.741
20	73.404	573.767
21	74.898	460.647
22	76.225	409.104
23	77.476	385.926
24	78.675	369.621
25	79.819	353.000
26	80.756	288.947
27	81.766	311.240
28	82.615	261.816
29	83.404	243.492
30	84.274	268.409
31	84.983	218.538
32	85.683	215.948
33	86.328	198.934
34	86.952	192.170
35	87.548	184.060
36	88.048	154.068
37	88.559	157.586
38	89.072	158.277
39	89.585	158.277
40	90.073	150.341
41	90.484	126.801
42	90.890	125.145
43	91.296	125.145
44	91.701	125.145
45	92.083	117.759
46	92.409	100.365
47	92.732	99.673
48	93.055	99.675
49	93.378	99.605
50	93.702	99.744
51	94.014	96.292
52	94.276	80.900
53	94.533	79.173
54	94.790	79.173
55	95.046	79.173
56	95.302	78.966
57	95.560	79.382
58	95.816	78.966
59	96.046	70.820
60	96.217	53.014
61	96.387	52.183
62	96.557	52.459
63	96.726	52.047

64	96.896	52.459
65	97.064	52.047
66	97.235	52.461
67	97.404	52.183
68	97.573	52.183
69	97.743	52.322
70	97.912	52.183
71	98.030	36.584
72	98.092	19.051
73	98.156	19.604
74	98.218	19.051
75	98.281	19.604
76	98.343	19.051
77	98.406	19.467
78	98.469	19.326
79	98.531	19.190
80	98.594	19.329
81	98.657	19.465
82	98.719	19.190
83	98.782	19.326
84	98.844	19.329
85	98.907	19.326
86	98.970	19.329
87	99.032	19.326
88	99.095	19.326
89	99.158	19.326
90	99.220	19.326
91	99.283	19.326
92	99.346	19.326
93	99.408	19.326
94	99.471	19.326
95	99.534	19.326
96	99.596	19.326
97	99.659	19.326
98	99.722	19.326
99	99.784	19.326
100	99.847	19.326
101	99.910	19.326
102	99.972	19.326
103	100.000	8.536

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*******************************************************************************
  FLOW PROCESS FROM NODE     23.00 TO NODE     24.00 IS CODE =   1
-------------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< OFF12 BASIN
===============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =   12169.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    2.442 HOURS
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.274
         LOW LOSS FRACTION = 0.468
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.73
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.97
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.30
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.81

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.620
          30-MINUTE FACTOR = 0.640
           1-HOUR FACTOR = 0.640
           3-HOUR FACTOR = 0.930
           6-HOUR FACTOR = 0.970
          24-HOUR FACTOR = 0.980

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =   3.413


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                        UNIT HYDROGRAPH DETERMINATION
-------------------------------------------------------------------------------
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INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.284	418.512
2	0.853	837.024
3	1.422	837.024
4	2.004	856.593
5	2.692	1012.675
6	3.479	1158.737
7	4.296	1201.798
8	5.213	1349.605
9	6.335	1651.811
10	7.474	1674.947
11	8.863	2044.712
12	10.113	1840.013
13	11.464	1988.638
14	13.034	2310.480
15	15.061	2982.771
16	16.947	2775.205
17	18.875	2837.235
18	21.146	3342.345
19	23.455	3398.558
20	25.808	3462.862
21	27.971	3182.911
22	30.456	3657.211
23	33.188	4020.089
24	35.502	3406.362
25	38.345	4184.025
26	40.679	3435.055
27	42.955	3349.452
28	45.727	4078.576
29	48.171	3597.408
30	50.446	3348.088
31	52.531	3068.907
32	54.247	2524.990
33	55.953	2511.140
34	57.644	2488.398
35	59.093	2131.681
36	60.414	1945.318
37	61.652	1821.606
38	62.760	1629.769
39	63.814	1552.166
40	64.931	1643.978
41	66.104	1726.532
42	67.123	1499.635
43	67.820	1025.507
44	68.916	1612.186
45	69.732	1201.350

46	70.256	770.932
47	70.936	1001.501
48	71.619	1004.252
49	72.587	1425.608
50	73.210	915.808
51	73.740	781.026
52	74.395	963.606
53	74.942	805.256
54	75.470	776.187
55	75.992	769.034
56	76.485	724.807
57	76.973	717.643
58	77.460	717.228
59	77.945	713.860
60	78.406	678.491
61	78.861	669.632
62	79.316	669.643
63	79.771	669.632
64	80.169	586.252
65	80.511	502.435
66	80.852	502.435
67	81.242	573.194
68	81.668	627.527
69	82.062	579.931
70	82.368	450.213
71	82.669	443.061
72	82.970	443.049
73	83.271	443.487
74	83.607	493.171
75	84.005	585.826
76	84.295	427.049
77	84.571	406.839
78	84.847	406.412
79	85.124	406.423
80	85.400	406.827
81	85.675	404.312
82	85.934	381.149
83	86.181	363.880
84	86.425	358.827
85	86.668	358.401
86	86.912	358.827
87	87.156	358.816
88	87.400	358.827
89	87.612	311.658
90	87.801	278.805
91	87.992	280.489
92	88.191	293.963
93	88.392	294.816
94	88.593	295.647
95	88.793	294.816
96	88.994	295.647
97	89.195	295.647
98	89.396	295.658
99	89.596	294.805
100	89.797	295.647
101	89.993	288.921
102	90.157	240.899
103	90.315	233.320
104	90.474	234.162
105	90.633	233.320
106	90.791	233.320
107	90.951	234.162
108	91.109	233.320
109	91.268	233.320
110	91.427	234.162
111	91.585	233.320
112	91.744	233.331
113	91.903	234.162
114	92.048	213.940
115	92.175	186.993
116	92.302	186.151
117	92.428	185.308
118	92.555	186.993
119	92.681	185.308
120	92.807	186.151
121	92.934	186.151
122	93.060	186.151
123	93.186	185.320
124	93.313	186.151
125	93.440	186.993
126	93.566	185.308
127	93.692	186.151
128	93.818	185.308
129	93.944	185.308
130	94.057	165.929
131	94.157	147.402
132	94.258	148.256
133	94.358	147.402
134	94.458	147.402
135	94.558	147.402
136	94.659	148.244
137	94.760	148.256
138	94.859	146.560
139	94.960	149.087
140	95.059	145.718
141	95.161	149.929
142	95.261	146.572
143	95.360	146.560
144	95.462	149.929
145	95.562	146.560
146	95.663	148.244
147	95.762	146.572
148	95.863	148.244
149	95.964	148.244
150	96.042	114.549
151	96.108	97.718
152	96.174	97.707
153	96.240	96.023
154	96.306	97.707
155	96.374	99.391
156	96.439	96.023
157	96.505	97.707
158	96.572	97.707
159	96.638	97.707
160	96.704	97.718
161	96.771	97.707
162	96.836	96.023
163	96.902	97.707
164	96.969	97.707
165	97.035	97.707
166	97.102	97.707
167	97.168	97.707
168	97.233	96.023
169	97.301	99.402
170	97.366	96.023
171	97.434	99.391
172	97.499	96.023
173	97.565	97.707
174	97.632	97.707

175	97.698	97.707
176	97.764	97.707
177	97.831	97.718
178	97.896	96.023
179	97.964	99.391
180	98.010	69.064
181	98.034	35.380
182	98.059	35.380
183	98.081	33.684
184	98.109	40.432
185	98.133	35.380
186	98.158	37.064
187	98.181	33.696
188	98.206	37.053
189	98.230	35.380
190	98.255	37.064
191	98.281	37.064
192	98.303	33.696
193	98.329	37.053
194	98.354	37.064
195	98.377	33.696
196	98.402	37.064
197	98.427	37.064
198	98.451	35.368
199	98.475	35.380
200	98.500	37.064
201	98.524	35.380
202	98.550	37.053
203	98.574	35.380
204	98.598	35.380
205	98.623	37.064
206	98.647	35.380
207	98.672	37.053
208	98.696	35.380
209	98.720	35.380
210	98.745	37.064
211	98.769	35.368
212	98.793	35.380
213	98.820	38.748
214	98.843	33.696
215	98.867	35.380
216	98.892	37.053
217	98.917	37.064
218	98.941	35.380
219	98.965	35.380
220	98.990	37.053
221	99.014	35.380
222	99.038	35.380
223	99.062	35.380
224	99.086	35.380
225	99.110	35.380
226	99.135	35.380
227	99.159	35.380
228	99.183	35.380
229	99.207	35.380
230	99.231	35.380
231	99.255	35.380
232	99.279	35.380
233	99.303	35.380
234	99.327	35.380
235	99.351	35.380
236	99.375	35.380
237	99.399	35.380
238	99.423	35.380
239	99.447	35.380
240	99.471	35.380
241	99.495	35.380
242	99.519	35.380
243	99.543	35.380
244	99.567	35.380
245	99.591	35.380
246	99.615	35.380
247	99.639	35.380
248	99.663	35.380
249	99.687	35.380
250	99.711	35.380
251	99.736	35.380
252	99.760	35.380
253	99.784	35.380
254	99.808	35.380
255	99.832	35.380
256	99.856	35.380
257	99.880	35.380
258	99.904	35.380
259	99.928	35.380
260	99.952	35.380
261	99.976	35.380
262	100.000	35.380
263	100.000	0.045

==========

END OF FLOODSCx ROUTING ANALYSIS

```
****************************************************************************
  FLOW PROCESS FROM NODE     25.00 TO NODE     26.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<< STA1 BASIN
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #2)

         WATERSHED AREA =     179.200 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    0.222 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY(UNDEVELOPED)/DESERT S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.317
         LOW LOSS FRACTION = 0.517
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.63
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.33
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.64
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.97
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.33
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  2.90

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 1.000
          30-MINUTE FACTOR = 1.000
           1-HOUR FACTOR = 1.000
           3-HOUR FACTOR = 1.000
           6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  37.538


============================================================================
                      UNIT HYDROGRAPH DETERMINATION

----------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
----------------------------------------------------------------------------
        1                 3.901                 84.552
        2                19.485                337.719
        3                45.249                558.375
        4                63.661                399.017
        5                72.989                202.156
        6                78.795                125.831
        7                82.975                 90.588
        8                86.156                 68.943
        9                88.596                 52.863
       10                90.629                 44.057
       11                92.287                 35.952
       12                93.681                 30.198
       13                94.859                 25.542
       14                95.923                 23.043
       15                96.705                 16.950
       16                97.434                 15.796
       17                98.042                 13.195
       18                98.329                  6.220
       19                98.599                  5.837
       20                98.868                  5.841
       21                99.138                  5.839
       22                99.407                  5.839
       23                99.677                  5.839
       24                99.946                  5.839
       25               100.000                  1.170


----------------------------------------------------------------------------
    TOTAL SOIL-LOSS VOLUME(ACRE-FEET) =      14.3328
    TOTAL STORM RUNOFF VOLUME(ACRE-FEET) =      28.9589
----------------------------------------------------------------------------
```

APPENDIX F:

ii. Referenced Figures E-3C and E-3D

From SB County Hydrology Manual

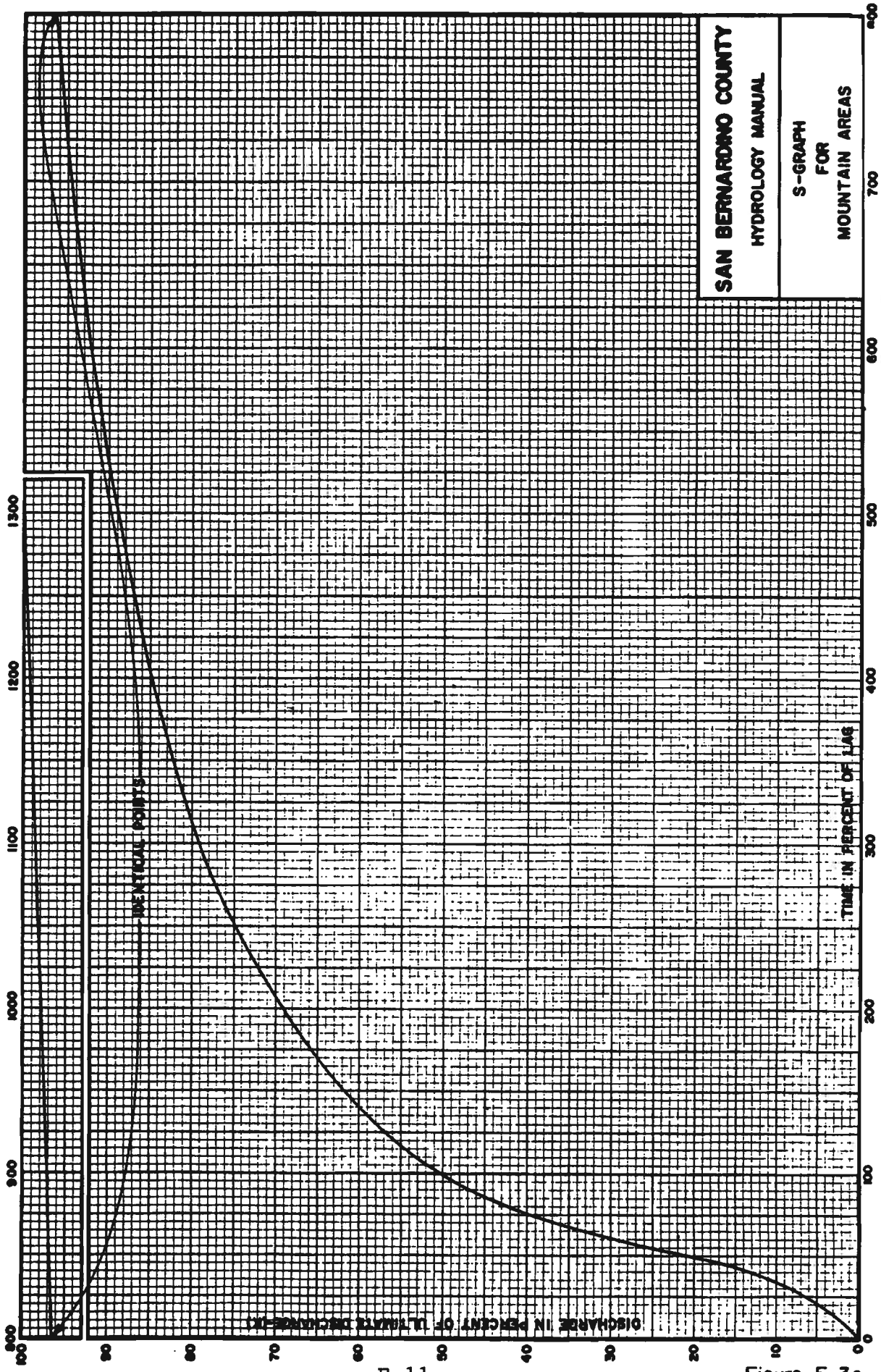
SAN BERNARDINO COUNTY
HYDROLOGY MANUAL
S-GRAPH
FOR
MOUNTAIN AREAS
TIME IN PERCENT OF LAG
DISCHARGE IN PERCENT OF ULTIMATE DISCHARGE-Q
IDENTICAL POINTS
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
10
20
30
40
50
60
70
80
90
100

Figure E-3c

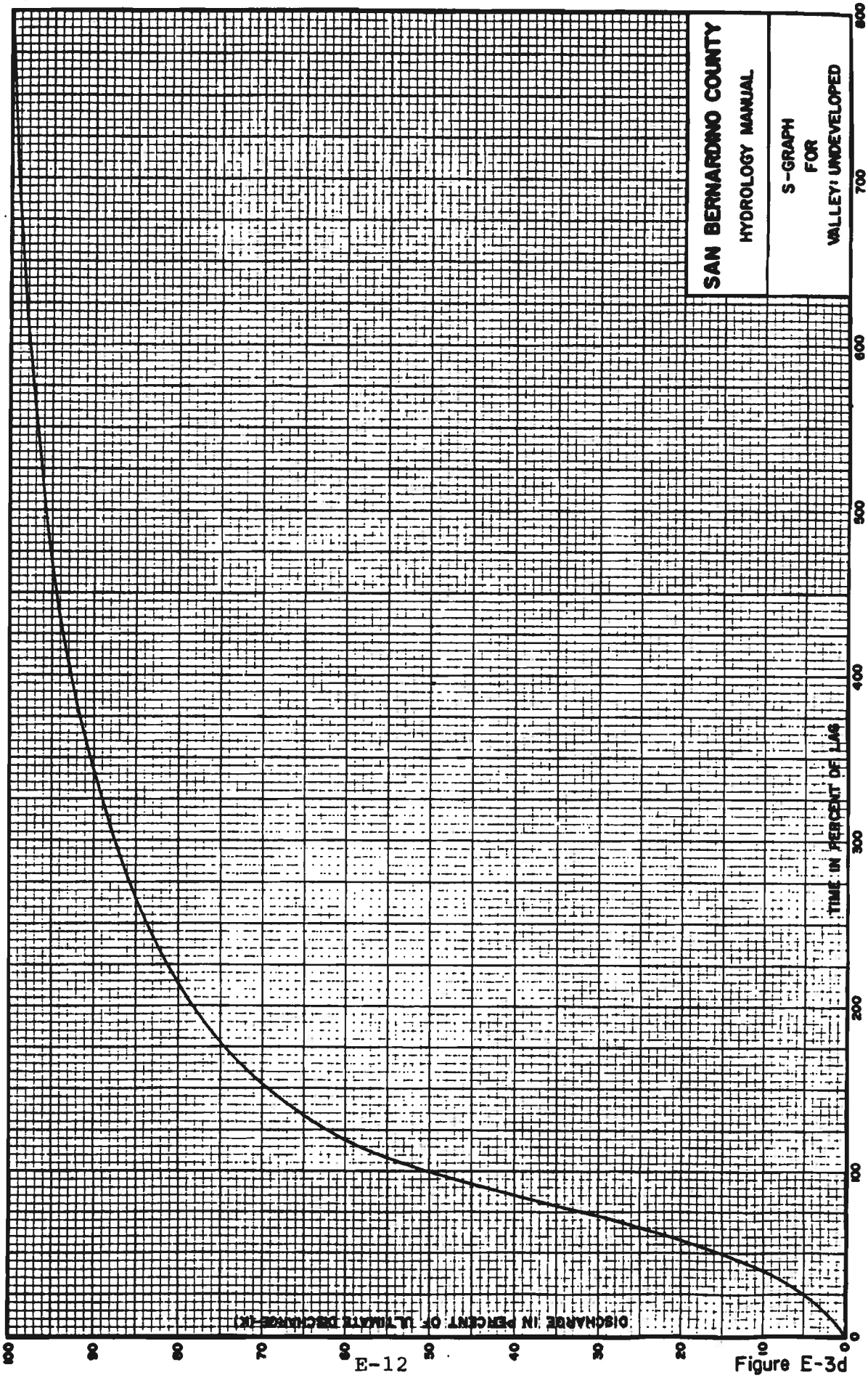

Figure E-3d

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APPENDIX G:

FLO-2D Hydraulic Analysis

APPENDIX G:

i. 24-Hour, 100-Year SUMMARY.OUT File

NEGATIVE VOLUME CONSERVATION (ACRE FEET)
INDICATES EXCESS VOLUME (OUTFLOW + STORAGE > INFLOW)

SUMMARY.OUT FILE
CREATED WITH VERSION: 2009.06 BUILD NO. 2009.18.03

SIMULATION TIME (HOURS)	AVERAGE TIMESTEP (SECONDS)	VOLUME CONSERVATION (ACRE FEET)	PERCENT OF INFLOW
0.253	13.568	0.000000	0.000004
0.503	13.064	0.000000	0.000003
0.752	11.806	0.000000	0.000001
1.003	10.609	0.000001	0.000003
1.250	9.279	0.000000	0.000002
1.502	9.364	0.000000	0.000001
1.750	9.598	-0.000002	0.000006
2.000	9.675	0.000000	0.000001
2.252	9.756	-0.000001	0.000002
2.502	9.663	0.000000	0.000001
2.751	9.321	0.000000	0.000000
3.002	8.951	-0.000001	0.000002
3.251	8.546	-0.000001	0.000002
3.502	8.074	-0.000003	0.000005
3.751	7.939	-0.000001	0.000001
4.000	7.793	-0.000003	0.000004
4.250	7.627	-0.000003	0.000003
4.500	7.372	-0.000002	0.000002
4.751	7.236	-0.000003	0.000004
5.001	7.079	-0.000002	0.000002
5.251	6.934	0.000003	0.000003
5.501	6.760	0.000003	0.000003
5.751	6.667	0.000003	0.000002
6.001	6.651	0.000009	0.000008
6.250	6.564	0.000002	0.000002
6.501	6.354	0.000002	0.000002
6.750	6.179	0.000002	0.000001
7.001	6.191	0.000004	0.000003
7.251	5.877	0.000000	0.000000
7.500	5.382	0.000003	0.000002
7.750	5.168	0.000001	0.000000
8.001	4.582	0.000008	0.000005
8.251	4.347	0.000011	0.000007
8.500	4.044	0.000010	0.000006
8.751	3.991	0.000010	0.000006
9.001	3.943	0.000001	0.000001
9.250	3.763	0.000000	0.000000
9.501	3.679	0.000011	0.000006
9.751	3.530	0.000009	0.000004
10.000	3.522	0.000005	0.000002
10.250	3.526	0.000008	0.000004
10.501	3.521	0.000000	0.000000
10.751	3.421	-0.000003	0.000001
11.000	3.378	0.000000	0.000000
11.251	3.291	0.000004	0.000002
11.500	3.290	0.000008	0.000003
11.751	3.304	0.000001	0.000000
12.001	3.286	0.000004	0.000001
12.251	3.212	0.000002	0.000001
12.500	3.174	0.000003	0.000001
12.750	3.125	0.000010	0.000003
13.000	3.042	0.000010	0.000003
13.250	3.116	0.000002	0.000001
13.500	3.504	-0.000007	0.000002
13.750	3.110	-0.000003	0.000001
14.000	3.632	-0.000001	0.000000
14.250	3.038	0.000007	0.000002
14.501	3.037	0.000002	0.000001
14.750	3.038	0.000010	0.000002
15.000	3.037	0.000011	0.000002
15.251	2.828	-0.000015	0.000003
15.500	2.828	0.000013	0.000002
15.750	2.828	0.000006	0.000001
16.000	2.487	-0.000017	0.000002
16.251	2.165	0.000018	0.000002
16.500	2.165	-0.000028	0.000003
16.750	2.165	0.000004	0.000000
17.000	2.165	-0.000025	0.000002
17.250	2.165	-0.000019	0.000002
17.500	2.165	-0.000008	0.000001
17.750	2.165	-0.000005	0.000000
18.001	2.165	0.000043	0.000003
18.250	2.165	-0.000057	0.000004
18.500	2.165	-0.000015	0.000001
18.750	2.165	-0.000078	0.000004
19.000	2.165	-0.000009	0.000000
19.250	2.165	-0.000031	0.000001
19.500	2.165	-0.000021	0.000001
19.751	2.165	0.000104	0.000004
20.000	2.165	0.000070	0.000003
20.250	2.165	-0.000146	0.000005
20.500	2.490	-0.000040	0.000001
20.751	2.828	0.000038	0.000001
21.000	2.828	-0.000106	0.000003
21.250	2.828	0.000095	0.000003
21.501	2.828	-0.000125	0.000003
21.750	2.828	-0.000046	0.000001
22.000	2.828	0.000128	0.000003
22.250	2.828	-0.000197	0.000004
22.501	2.828	-0.000015	0.000000
22.750	2.828	0.000078	0.000002
23.000	2.828	-0.000133	0.000003
23.251	2.828	-0.000239	0.000005
23.500	2.828	0.000207	0.000004
23.750	2.828	-0.000271	0.000005
24.001	2.828	0.000166	0.000003
24.251	2.828	-0.000279	0.000005
24.500	2.828	0.000144	0.000003
24.750	2.828	-0.000445	0.000008
25.001	2.828	0.000174	0.000003
25.250	2.828	-0.000511	0.000008
25.500	2.828	-0.000005	0.000000
25.751	2.828	0.000082	0.000001

26.000	2.981	0.000151	0.000002
26.251	3.037	-0.000015	0.000000
26.500	3.038	0.000087	0.000001
26.750	3.038	-0.000125	0.000002
27.001	3.039	0.000302	0.000004
27.251	3.038	-0.000530	0.000008
27.500	3.038	0.000435	0.000006
27.750	3.038	-0.000556	0.000008
28.001	3.038	-0.000353	0.000005
28.250	3.075	0.000163	0.000002
28.501	3.255	0.000416	0.000006
28.750	3.293	0.000201	0.000003
29.000	3.397	-0.000047	0.000001
29.250	3.525	0.000537	0.000007
29.501	3.525	0.000116	0.000002
29.750	3.524	-0.000635	0.000008
30.001	3.623	-0.000272	0.000003
30.251	3.715	-0.000054	0.000001
30.500	3.792	0.000000	0.000000
30.751	3.955	-0.000498	0.000006
31.000	3.992	0.000108	0.000001
31.251	3.991	-0.000147	0.000002
31.500	3.992	-0.000170	0.000002
31.751	3.990	-0.000066	0.000001
32.000	3.992	0.000010	0.000000
32.251	3.994	0.000433	0.000005
32.500	4.037	-0.000151	0.000002
32.751	4.160	-0.000061	0.000001
33.001	4.220	0.000353	0.000004
33.251	4.280	-0.000113	0.000001
33.501	4.284	-0.000302	0.000004
33.750	4.368	0.000571	0.000007
34.001	4.465	-0.000257	0.000003
34.251	4.461	-0.000255	0.000003
34.501	4.464	-0.000434	0.000005
34.750	4.461	-0.000054	0.000001
35.000	4.547	0.000593	0.000007
35.251	4.644	-0.000036	0.000000
35.501	4.698	-0.000594	0.000007
35.751	4.702	-0.000075	0.000001
36.001	4.813	0.000063	0.000001

MASS BALANCE INFLOW - OUTFLOW VOLUME

*** INFLOW (ACRE-FEET) ***

TOTAL POINT RAINFALL: 2.9000 INCHES

	WATER
RAINFALL VOLUME	789.55
INFLOW HYDROGRAPH	7833.27
INFLOW HYDROGRAPHS + RAINFALL	8622.82

*** OUTFLOW (ACRE-FT) ***

OVERLAND INFILTRATED AND INTERCEPTED WATER 1.20 INCHES

OVERLAND FLOW	WATER
WATER LOST TO INFILTRATION & INTERCEPTION	407.57
FLOODPLAIN STORAGE	663.80
FLOODPLAIN OUTFLOW HYDROGRAPH	7551.13
FLOODPLAIN OUTFLOW, INFILTRATION & STORAGE	8622.50

CHANNEL FLOW	
CHANNEL STORAGE	0.32
CHANNEL OUTFLOW	0.00
CHANNEL OUTFLOW AND STORAGE	0.32

*** TOTALS ***

TOTAL OUTFLOW FROM GRID SYSTEM	7551.13
TOTAL VOLUME OF OUTFLOW AND STORAGE	8622.82

SURFACE AREA OF INUNDATION REGARDLESS OF THE TIME OF OCCURRENCE:
(FOR FLOW DEPTHS GREATER THAN THE "TOL" VALUE TYPICALLY 0.1 FT OR 0.03 M)

THE MAXIMUM INUNDATED AREA IS:	3701.36 ACRES
THE MAXIMUM WETTED FLOODPLAIN AREA IS:	3700.68 ACRES
THE MAXIMUM WETTED CHANNEL AREA IS:	0.67 ACRES

BSE Document Control Number: HYD200-R1

```
COMPUTER RUN TIME IS :  0.30420 HRS
THIS OUTPUT FILE WAS TERMINATED ON:   4/ 4/2011  AT:  13:46:28
```

APPENDIX G:

ii. 24-Hour, 25-Year SUMMARY.OUT File

NEGATIVE VOLUME CONSERVATION (ACRE FEET)
INDICATES EXCESS VOLUME (OUTFLOW + STORAGE > INFLOW)

SUMMARY.OUT FILE
CREATED WITH VERSION: 2009.06 BUILD NO. 2009.18.03

SIMULATION TIME (HOURS)	AVERAGE TIMESTEP (SECONDS)	VOLUME CONSERVATION (ACRE FEET)	VOLUME CONSERVATION PERCENT OF INFLOW
0.251	14.315	0.000000	0.000001
0.500	13.040	0.000000	0.000000
0.751	13.257	0.000000	0.000002
1.002	12.199	0.000000	0.000001
1.251	10.941	0.000001	0.000003
1.501	9.893	0.000000	0.000001
1.752	9.230	0.000001	0.000003
2.003	10.369	-0.000001	0.000003
2.253	10.465	0.000000	0.000000
2.502	10.179	0.000000	0.000001
2.752	10.381	0.000001	0.000002
3.003	10.138	0.000001	0.000001
3.252	9.839	-0.000001	0.000001
3.500	9.515	0.000000	0.000000
3.751	9.109	0.000000	0.000001
4.001	8.843	-0.000002	0.000003
4.252	8.523	0.000001	0.000002
4.502	8.160	-0.000001	0.000001
4.750	7.995	0.000003	0.000005
5.001	7.978	-0.000003	0.000004
5.250	7.884	-0.000002	0.000003
5.500	7.749	0.000003	0.000003
5.751	7.526	0.000000	0.000001
6.001	7.694	0.000001	0.000002
6.251	7.253	0.000003	0.000003
6.501	7.102	0.000000	0.000000
6.751	7.064	0.000003	0.000003
7.000	6.963	-0.000002	0.000002
7.251	6.804	-0.000003	0.000003
7.501	6.702	0.000001	0.000001
7.751	6.667	0.000000	0.000000
8.000	6.653	-0.000001	0.000001
8.251	6.985	0.000004	0.000003
8.501	6.387	-0.000001	0.000001
8.751	6.390	0.000001	0.000001
9.001	6.295	0.000003	0.000002
9.250	5.971	-0.000002	0.000001
9.500	5.424	0.000007	0.000005
9.751	5.385	0.000003	0.000002
10.001	4.986	-0.000007	0.000005
10.251	4.663	-0.000005	0.000003
10.501	4.461	-0.000003	0.000002
10.750	4.309	0.000006	0.000004
11.001	4.069	-0.000001	0.000001
11.250	3.992	0.000006	0.000004
11.501	3.990	-0.000003	0.000002
11.750	3.992	0.000007	0.000004
12.000	3.896	-0.000006	0.000003
12.251	3.769	0.000000	0.000000
12.501	3.703	0.000006	0.000003
12.751	3.563	0.000001	0.000000
13.001	3.524	0.000011	0.000005
13.250	3.522	0.000001	0.000001
13.501	3.403	0.000008	0.000004
13.750	3.290	0.000009	0.000004
14.000	3.277	0.000009	0.000003
14.250	3.088	0.000000	0.000000
14.501	3.039	-0.000005	0.000002
14.751	3.038	-0.000002	0.000001
15.000	3.038	0.000006	0.000002
15.250	3.038	0.000006	0.000001
15.500	2.956	0.000018	0.000004
15.750	2.828	-0.000002	0.000000
16.001	2.828	0.000013	0.000002
16.251	2.828	0.000017	0.000003
16.500	2.828	0.000014	0.000002
16.750	2.606	0.000027	0.000004
17.000	2.165	0.000021	0.000003
17.250	2.165	0.000007	0.000001
17.500	2.165	0.000002	0.000000
17.750	2.165	-0.000011	0.000001
18.000	2.165	0.000021	0.000002
18.251	2.165	0.000009	0.000001
18.500	2.165	0.000023	0.000002
18.750	2.745	0.000013	0.000001
19.000	2.828	0.000002	0.000000
19.251	2.828	-0.000042	0.000003
19.500	2.828	-0.000025	0.000002
19.750	2.828	0.000000	0.000000
20.001	2.828	-0.000056	0.000004
20.250	2.828	-0.000003	0.000000
20.500	2.828	0.000036	0.000002
20.751	2.828	0.000013	0.000001
21.001	2.828	0.000048	0.000003
21.250	2.828	-0.000010	0.000001
21.500	2.828	0.000056	0.000003
21.750	2.841	0.000000	0.000000
22.000	2.828	0.000020	0.000001
22.250	2.833	0.000029	0.000001
22.500	2.838	-0.000043	0.000002
22.751	2.844	0.000040	0.000002
23.001	2.894	0.000003	0.000000
23.251	2.885	-0.000089	0.000004
23.500	2.828	0.000103	0.000004
23.751	2.926	-0.000022	0.000001
24.000	2.987	0.000031	0.000001
24.250	2.828	0.000068	0.000002

24.500	2.841	0.000110	0.000004
24.750	3.037	-0.000145	0.000005
25.001	3.037	0.000050	0.000002
25.250	3.038	-0.000091	0.000003
25.500	3.038	-0.000079	0.000002
25.751	3.037	0.000230	0.000007
26.001	3.038	-0.000106	0.000003
26.250	3.038	-0.000030	0.000001
26.500	3.038	-0.000062	0.000002
26.751	3.039	0.000073	0.000002
27.000	3.177	-0.000010	0.000000
27.250	3.293	0.000093	0.000002
27.501	3.291	-0.000064	0.000002
27.751	3.372	0.000176	0.000005
28.000	3.524	0.000088	0.000002
28.250	3.524	0.000061	0.000002
28.500	3.530	0.000248	0.000006
28.750	3.688	-0.000104	0.000003
29.001	3.805	-0.000095	0.000002
29.251	3.956	0.000061	0.000001
29.501	3.992	0.000125	0.000003
29.750	3.992	0.000155	0.000004
30.001	3.991	-0.000097	0.000002
30.250	3.992	0.000004	0.000000
30.501	3.990	-0.000159	0.000004
30.750	4.071	-0.000044	0.000001
31.000	4.178	0.000022	0.000000
31.251	4.267	-0.000232	0.000005
31.501	4.276	-0.000078	0.000002
31.750	4.363	0.000162	0.000004
32.001	4.465	-0.000004	0.000000
32.251	4.461	0.000252	0.000005
32.500	4.460	-0.000174	0.000004
32.751	4.465	-0.000045	0.000001
33.001	4.461	0.000152	0.000003
33.251	4.548	0.000085	0.000002
33.501	4.608	-0.000052	0.000001
33.751	4.688	0.000078	0.000002
34.001	4.695	0.000417	0.000009
34.251	4.699	0.000176	0.000004
34.501	4.749	0.000237	0.000005
34.751	4.832	0.000137	0.000003
35.000	4.855	0.000137	0.000003
35.251	4.930	0.000064	0.000001
35.501	4.973	-0.000217	0.000004
35.750	5.068	0.000104	0.000002
36.001	5.253	-0.000056	0.000001

MASS BALANCE INFLOW - OUTFLOW VOLUME

*** INFLOW (ACRE-FEET) ***

TOTAL POINT RAINFALL: 2.1900 INCHES

	WATER
RAINFALL VOLUME	596.57
INFLOW HYDROGRAPH	4299.26
INFLOW HYDROGRAPHS + RAINFALL	4895.84

*** OUTFLOW (ACRE-FT) ***

OVERLAND INFILTRATED AND INTERCEPTED WATER 1.07 INCHES

OVERLAND FLOW	WATER
WATER LOST TO INFILTRATION & INTERCEPTION	363.18
FLOODPLAIN STORAGE	610.80
FLOODPLAIN OUTFLOW HYDROGRAPH	3921.55
FLOODPLAIN OUTFLOW, INFILTRATION & STORAGE	4895.54

CHANNEL FLOW	
CHANNEL STORAGE	0.30
CHANNEL OUTFLOW	0.00
CHANNEL OUTFLOW AND STORAGE	0.30

*** TOTALS ***

TOTAL OUTFLOW FROM GRID SYSTEM	3921.55
TOTAL VOLUME OF OUTFLOW AND STORAGE	4895.84

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  SURFACE AREA OF INUNDATION REGARDLESS OF THE TIME OF OCCURRENCE:
  (FOR FLOW DEPTHS GREATER THAN THE "TOL" VALUE TYPICALLY 0.1 FT OR 0.03 M)

THE MAXIMUM INUNDATEO AREA IS:                    3258.69 ACRES

THE MAXIMUM WETTED FLOODPLAIN AREA IS:            3258.07 ACRES

THE MAXIMUM WETTED CHANNEL AREA IS:                  0.62 ACRES
==================================================================================================================


     COMPUTER RUN TIME IS :  0.25610 HRS

     THIS OUTPUT FILE WAS TERMINATED ON:   4/ 6/2011  AT:  16:35:53
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APPENDIX G:

iii. 24-Hour, 10-Year SUMMARY.OUT File

NEGATIVE VOLUME CONSERVATION (ACRE FEET)
INDICATES EXCESS VOLUME (OUTFLOW + STORAGE > INFLOW)

SUMMARY.OUT FILE
CREATED WITH VERSION: 2009.06 BUILD NO. 2009.18.03

SIMULATION TIME (HOURS)	AVERAGE TIMESTEP (SECONDS)	VOLUME CONSERVATION (ACRE FEET)	PERCENT OF INFLOW
0.251	14.793	0.000000	0.000002
0.503	13.538	0.000000	0.000000
0.753	13.269	0.000000	0.000004
1.003	12.470	0.000000	0.000002
1.251	12.061	0.000000	0.000000
1.501	10.607	-0.000001	0.000004
1.752	9.411	0.000000	0.000002
2.001	9.448	-0.000001	0.000003
2.250	10.549	0.000000	0.000000
2.502	10.919	0.000000	0.000000
2.753	10.735	0.000000	0.000001
3.001	10.540	0.000000	0.000000
3.253	10.402	0.000001	0.000001
3.502	10.204	-0.000001	0.000003
3.750	9.909	-0.000001	0.000003
4.001	9.494	-0.000001	0.000001
4.252	9.224	0.000000	0.000000
4.501	8.967	0.000000	0.000000
4.752	8.612	0.000001	0.000002
5.002	8.346	0.000001	0.000002
5.251	8.049	-0.000001	0.000002
5.501	7.987	-0.000004	0.000005
5.750	7.927	0.000001	0.000001
6.001	7.868	-0.000002	0.000003
6.250	7.864	-0.000003	0.000004
6.501	7.586	0.000000	0.000001
6.750	7.468	0.000002	0.000003
7.001	7.336	0.000001	0.000001
7.252	7.242	0.000002	0.000003
7.501	7.109	0.000001	0.000001
7.751	7.081	0.000001	0.000001
8.001	6.970	-0.000001	0.000001
8.251	6.883	0.000000	0.000000
8.500	6.691	-0.000003	0.000003
8.751	6.699	0.000003	0.000003
9.002	6.681	0.000002	0.000002
9.251	6.652	-0.000001	0.000001
9.502	6.625	-0.000003	0.000002
9.751	6.335	-0.000005	0.000005
10.000	6.444	-0.000005	0.000004
10.251	6.314	-0.000006	0.000005
10.501	6.003	-0.000002	0.000002
10.750	5.605	-0.000004	0.000003
11.000	5.388	-0.000009	0.000006
11.250	5.328	-0.000005	0.000004
11.500	4.891	-0.000004	0.000003
11.751	4.668	-0.000002	0.000002
12.001	4.466	0.000004	0.000003
12.250	4.348	0.000002	0.000001
12.501	4.138	-0.000005	0.000003
12.750	3.992	-0.000001	0.000000
13.001	3.990	-0.000007	0.000004
13.250	3.940	0.000005	0.000002
13.501	3.731	0.000003	0.000002
13.751	3.567	0.000000	0.000000
14.000	3.524	-0.000001	0.000000
14.250	3.512	0.000001	0.000000
14.501	3.358	-0.000002	0.000001
14.751	3.291	0.000004	0.000001
15.000	3.108	-0.000004	0.000002
15.251	3.038	0.000006	0.000002
15.500	3.038	0.000005	0.000002
15.750	3.038	-0.000006	0.000002
16.000	3.038	-0.000006	0.000002
16.250	2.841	0.000009	0.000002
16.501	2.828	0.000011	0.000002
16.751	2.828	0.000013	0.000003
17.000	2.828	0.000001	0.000000
17.250	2.828	0.000001	0.000000
17.501	2.828	-0.000026	0.000004
17.750	2.828	-0.000010	0.000001
18.000	2.828	0.000013	0.000002
18.251	2.828	-0.000008	0.000001
18.501	2.828	-0.000015	0.000002
18.750	2.828	0.000025	0.000003
19.000	2.828	-0.000006	0.000001
19.251	2.828	0.000016	0.000002
19.500	2.828	0.000017	0.000002
19.750	2.828	0.000012	0.000001
20.000	2.838	0.000010	0.000001
20.251	2.828	-0.000036	0.000004
20.500	2.828	-0.000015	0.000002
20.751	3.025	-0.000001	0.000000
21.001	3.038	-0.000002	0.000000
21.250	3.038	0.000035	0.000003
21.500	3.038	0.000010	0.000001
21.751	3.037	-0.000006	0.000001
22.000	3.038	0.000021	0.000002
22.250	3.038	0.000002	0.000000
22.501	3.039	0.000086	0.000007
22.751	3.038	0.000034	0.000003
23.000	3.306	-0.000002	0.000000
23.250	3.038	0.000001	0.000000
23.501	3.071	0.000044	0.000003
23.750	3.085	0.000019	0.000001
24.000	3.187	-0.000009	0.000001
24.250	3.138	-0.000039	0.000003

24.501	3.039	0.000006	0.000000
24.751	3.038	-0.000019	0.000001
25.000	3.038	-0.000008	0.000000
25.250	3.038	0.000045	0.000003
25.501	3.038	0.000029	0.000002
25.751	3.038	0.000025	0.000001
26.000	3.038	-0.000030	0.000002
26.251	3.045	0.000045	0.000002
26.500	3.240	-0.000024	0.000001
26.751	3.293	0.000052	0.000003
27.001	3.344	0.000104	0.000005
27.250	3.458	-0.000039	0.000002
27.500	3.526	0.000038	0.000002
27.751	3.525	0.000027	0.000001
28.001	3.590	0.000070	0.000003
28.251	3.712	0.000064	0.000003
28.500	3.812	0.000147	0.000007
28.750	3.983	-0.000052	0.000002
29.001	3.991	0.000066	0.000003
29.250	4.002	0.000128	0.000005
29.500	3.990	0.000063	0.000003
29.750	4.068	0.000060	0.000002
30.000	4.230	-0.000088	0.000004
30.250	4.279	0.000129	0.000005
30.501	4.339	0.000007	0.000000
30.750	4.427	-0.000021	0.000001
31.001	4.465	-0.000055	0.000002
31.251	4.461	-0.000051	0.000002
31.500	4.460	-0.000021	0.000001
31.751	4.468	0.000013	0.000000
32.000	4.576	0.000179	0.000007
32.251	4.660	-0.000094	0.000004
32.501	4.699	-0.000132	0.000005
32.751	4.693	0.000111	0.000004
33.001	4.786	-0.000032	0.000001
33.251	4.837	0.000014	0.000001
33.500	4.908	0.000134	0.000005
33.751	4.952	-0.000169	0.000006
34.002	5.020	-0.000149	0.000005
34.251	5.094	-0.000028	0.000001
34.500	5.290	-0.000080	0.000003
34.750	5.388	-0.000029	0.000001
35.002	5.385	-0.000010	0.000000
35.251	5.382	-0.000068	0.000002
35.501	5.388	0.000003	0.000000
35.751	5.382	0.000099	0.000003
36.001	5.388	0.000144	0.000005

MASS BALANCE INFLOW - OUTFLOW VOLUME

*** INFLOW (ACRE-FEET) ***

TOTAL POINT RAINFALL: 1.7899 INCHES

	WATER
RAINFALL VOLUME	487.67
INFLOW HYDROGRAPH	2391.47
INFLOW HYDROGRAPHS + RAINFALL	2879.14

*** OUTFLOW (ACRE-FT) ***

OVERLAND INFILTRATED AND INTERCEPTED WATER 0.97 INCHES

OVERLAND FLOW	WATER
WATER LOST TO INFILTRATION & INTERCEPTION	329.82
FLOODPLAIN STORAGE	551.74
FLOODPLAIN OUTFLOW HYDROGRAPH	1997.28
FLOODPLAIN OUTFLOW, INFILTRATION & STORAGE	2878.84

CHANNEL FLOW	
CHANNEL STORAGE	0.30
CHANNEL OUTFLOW	0.00
CHANNEL OUTFLOW AND STORAGE	0.30

*** TOTALS ***

TOTAL OUTFLOW FROM GRID SYSTEM	1997.28
TOTAL VOLUME OF OUTFLOW AND STORAGE	2879.14

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  SURFACE AREA OF INUNDATION REGARDLESS OF THE TIME OF OCCURRENCE:
  (FOR FLOW DEPTHS GREATER THAN THE "TOL" VALUE TYPICALLY 0.1 FT OR 0.03 M)

THE MAXIMUM INUNDATED AREA IS:                    3063.41 ACRES

THE MAXIMUM WETTED FLOODPLAIN AREA IS:            3062.68 ACRES

THE MAXIMUM WETTED CHANNEL AREA IS:                  0.73 ACRES
==================================================================================================================


     COMPUTER RUN TIME IS :  0.22437 HRS

     THIS OUTPUT FILE WAS TERMINATED ON:   4/ 6/2011  AT:  15:46:38
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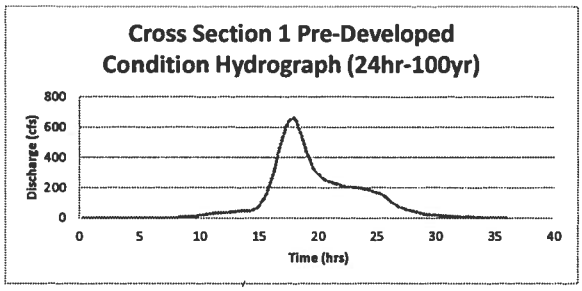
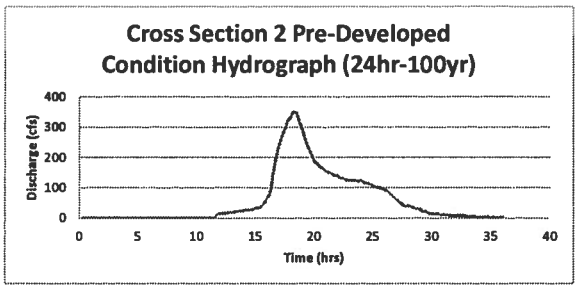
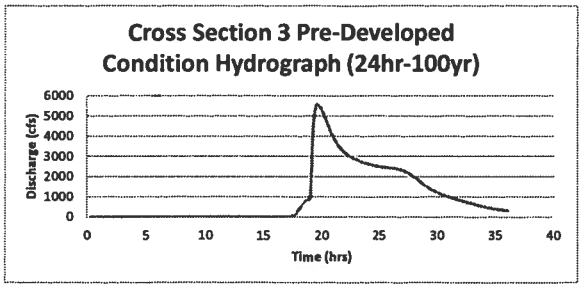
APPENDIX G:

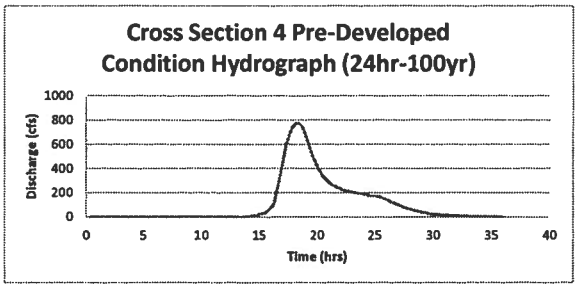
iv. HYCROSS.OUT Graph/Table

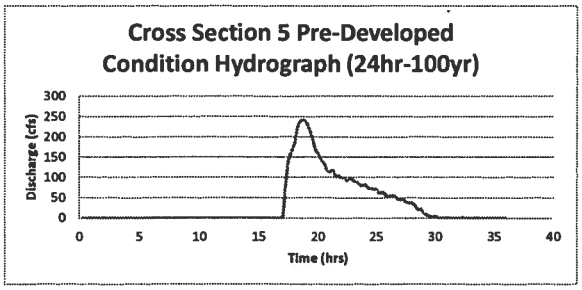
Onsite FLO-2D Hydrologic Analysis Flood Plain Cross Section Summary		
24-Hour, 100-Year		
Cross Section	Max Discharge (cfs)	Runoff Volume (ac-ft)
CS 1	661.73	314.45
CS 2	357.77	176.49
CS 3	5588.68	3010.21
CS 4	778.07	324.78
CS 5	251.48	102.98
CS 6	5590.32	3249.95
CS 7	5241.31	3090.92
24-Hour, 25-Year		
CS 1	432.71	204.94
CS 2	232.84	113.52
CS 3	2574.06	1678.43
CS 4	515.58	217.00
CS 5	111.40	50.76
CS 6	2578.25	1747.00
CS 7	1976.85	1461.55
24-Hour, 10-Year		
CS 1	277.82	139.80
CS 2	158.72	76.15
CS 3	1157.60	924.92
CS 4	313.93	133.61
CS 5	52.27	24.21
CS 6	1227.28	919.00
CS 7	941.25	670.35

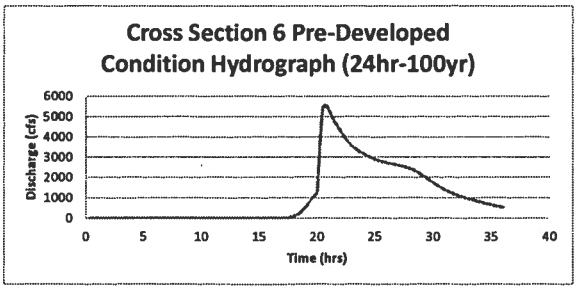


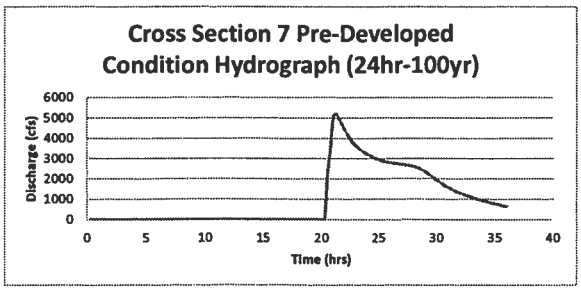


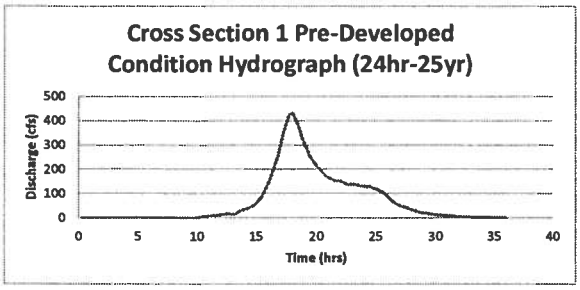


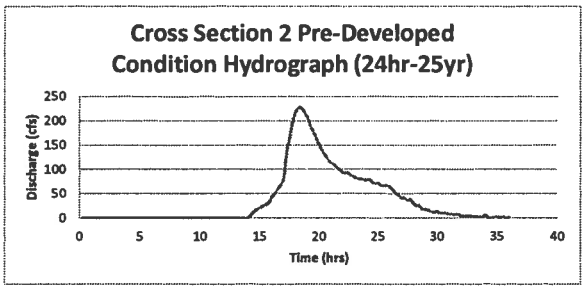


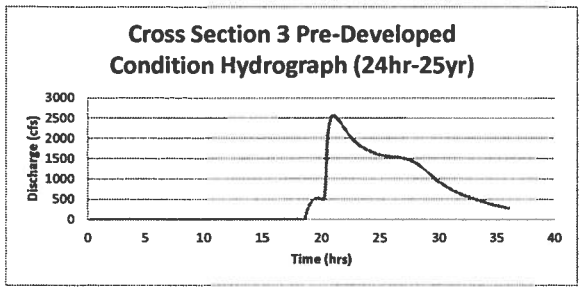


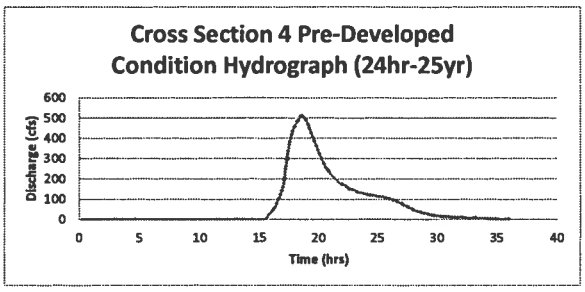





Cross Section 1 Pre-Developed Condition Hydrograph (24hr-25yr)
Discharge (cfs)
Time (hrs)


Cross Section 2 Pre-Developed Condition Hydrograph (24hr-25yr)
Discharge (cfs)
Time (hrs)


Cross Section 3 Pre-Developed Condition Hydrograph (24hr-25yr)
Discharge (cfs)
Time (hrs)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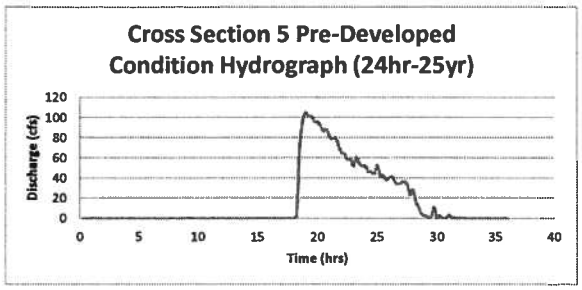
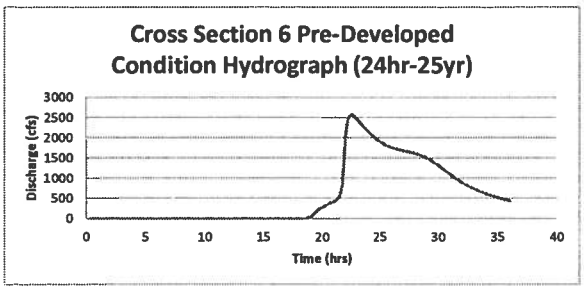
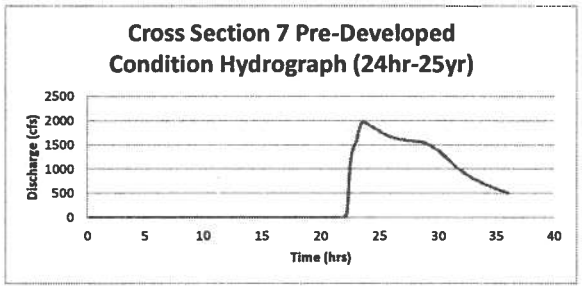
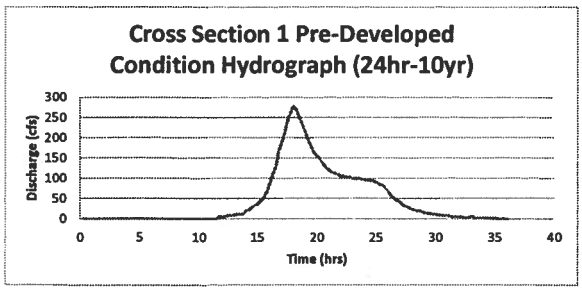
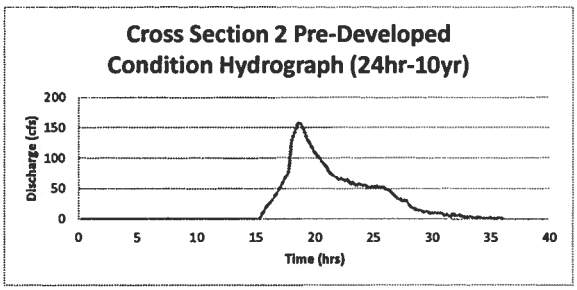
Discharge (cfs)
Time (hrs)

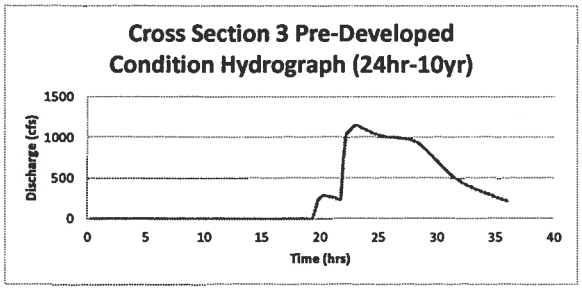

Cross Section 5 Pre-Developed Condition Hydrograph (24hr-25yr)
Discharge (cfs)
Time (hrs)

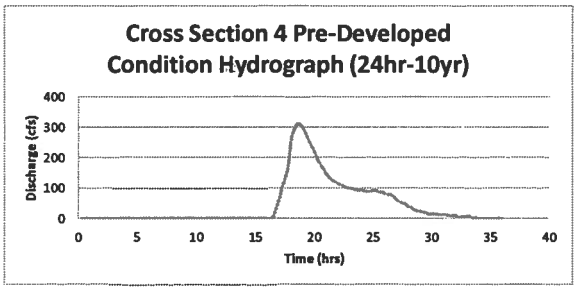

Cross Section 6 Pre-Developed Condition Hydrograph (24hr-25yr)
Discharge (cfs)
Time (hrs)

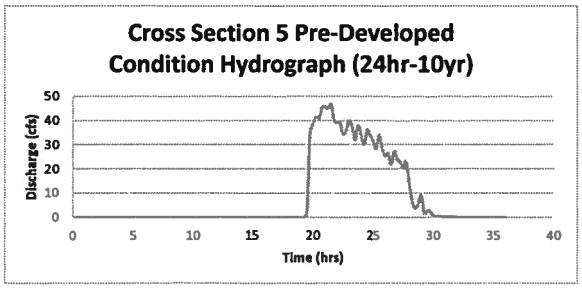

Cross Section 7 Pre-Developed Condition Hydrograph (24hr-25yr)
Discharge (cfs)
Time (hrs)

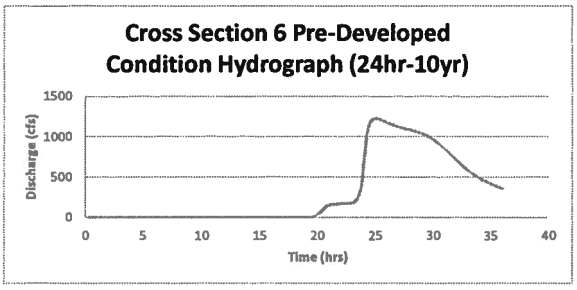

Cross Section 1 Pre-Developed Condition Hydrograph (24hr-10yr)
Discharge (cfs)
300
250
200
150
100
50
0
0 5 10 15 20 25 30 35 40
Time (hrs)

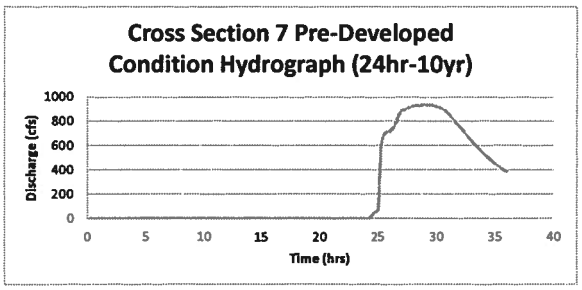

Cross Section 2 Pre-Developed Condition Hydrograph (24hr-10yr)
Discharge (cfs)
200
150
100
50
0
0 5 10 15 20 25 30 35 40
Time (hrs)


Cross Section 3 Pre-Developed Condition Hydrograph (24hr-10yr)
Discharge (cfs)
1500
1000
500
0
0 5 10 15 20 25 30 35 40
Time (hrs)


Cross Section 4 Pre-Developed Condition Hydrograph (24hr-10yr)
Discharge (cfs)
400
300
200
100
0
0 5 10 15 20 25 30 35 40
Time (hrs)


Cross Section 5 Pre-Developed Condition Hydrograph (24hr-10yr)
Discharge (cfs)
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40
Time (hrs)


Cross Section 6 Pre-Developed Condition Hydrograph (24hr-10yr)
Discharge (cfs)
1500
1000
500
0
0 5 10 15 20 25 30 35 40
Time (hrs)


Cross Section 7 Pre-Developed Condition Hydrograph (24hr-10yr)
Discharge (cfs)
1000
800
600
400
200
0
0 5 10 15 20 25 30 35 40
Time (hrs)

APPENDIX G:

v. 24-Hour, 100-Year HYCROSS.OUT File

THE MAXIMUM DISCHARGE FROM CROSS SECTION 1 IS: 661.73 CFS AT TIME: 17.92 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 314.45 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 1

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	100.00	0.02	0.66	1.15
8.25	200.00	0.06	0.69	7.70
8.50	300.00	0.06	0.46	8.62
8.75	300.00	0.07	0.52	10.57
9.00	300.00	0.07	0.55	12.01
9.25	300.00	0.08	0.54	12.25
9.50	300.00	0.08	0.53	11.98
9.75	300.00	0.09	0.60	15.42
10.00	300.00	0.09	0.77	20.48
10.25	300.00	0.10	0.74	22.06
10.50	300.00	0.11	0.79	25.86
10.75	300.00	0.11	0.87	29.31
11.00	300.00	0.12	0.91	31.27
11.25	300.00	0.12	0.93	32.80
11.50	300.00	0.12	0.93	33.45
11.75	300.00	0.12	0.99	35.94
12.00	300.00	0.12	1.02	36.46
12.25	300.00	0.12	1.04	38.23
12.50	300.00	0.13	1.06	40.42
12.75	400.00	0.12	0.91	42.31
13.00	400.00	0.12	0.91	43.30
13.25	400.00	0.12	0.99	46.19
13.50	400.00	0.12	1.04	48.51
13.75	400.00	0.12	1.01	47.69
14.00	500.00	0.12	0.83	48.86
14.25	400.00	0.12	1.02	50.76
14.50	400.00	0.13	1.10	57.92
14.75	500.00	0.16	0.84	65.69
15.00	500.00	0.18	0.96	86.95
15.25	500.00	0.19	1.22	114.70
15.50	600.00	0.23	1.06	146.38
15.75	600.00	0.27	1.24	197.86
16.00	800.00	0.30	1.09	257.12
16.25	1000.00	0.35	0.91	317.11
16.50	1100.00	0.43	0.86	406.83
16.75	1100.00	0.47	0.94	483.92
17.00	1100.00	0.50	0.99	541.97
17.25	1100.00	0.53	1.04	605.66
17.50	1100.00	0.54	1.08	641.01
17.75	1100.00	0.55	1.09	656.48
18.00	1100.00	0.55	1.09	657.80
18.25	1100.00	0.53	1.05	609.99
18.50	1100.00	0.51	1.00	559.07
18.75	1100.00	0.48	0.93	494.83
19.00	1100.00	0.45	0.87	430.11
19.25	1100.00	0.43	0.83	388.17
19.50	1100.00	0.40	0.77	336.10
19.75	1100.00	0.37	0.74	305.77
20.00	1100.00	0.36	0.74	289.92
20.25	1100.00	0.34	0.71	269.61
20.50	1100.00	0.33	0.69	254.95
20.75	1100.00	0.33	0.68	246.31
21.00	1100.00	0.32	0.68	240.21
21.25	1000.00	0.34	0.69	232.89
21.50	1000.00	0.34	0.67	227.73
21.75	1000.00	0.30	0.73	221.36
22.00	1100.00	0.31	0.63	211.87
22.25	900.00	0.31	0.75	210.67
22.50	1100.00	0.30	0.62	204.35
22.75	1000.00	0.29	0.71	207.20
23.00	1000.00	0.29	0.70	202.44
23.25	1000.00	0.29	0.70	202.54
23.50	800.00	0.30	0.84	199.94
23.75	1000.00	0.29	0.69	196.46
24.00	1100.00	0.29	0.60	192.82
24.25	1000.00	0.28	0.67	188.07
24.50	1100.00	0.29	0.58	182.80
24.75	1000.00	0.27	0.64	174.57
25.00	1100.00	0.28	0.55	167.50
25.25	800.00	0.25	0.83	163.29

25.50	800.00	0.26	0.73	153.14
25.75	900.00	0.26	0.60	141.76
26.00	700.00	0.23	0.79	125.22
26.25	700.00	0.21	0.73	106.62
26.50	700.00	0.19	0.70	93.01
26.75	600.00	0.17	0.81	80.04
27.00	400.00	0.15	1.18	72.67
27.25	600.00	0.15	0.74	66.28
27.50	500.00	0.15	0.78	59.56
27.75	500.00	0.14	0.74	53.55
28.00	500.00	0.12	0.78	47.61
28.25	400.00	0.12	0.90	43.67
28.50	400.00	0.11	0.89	39.94
28.75	500.00	0.12	0.57	32.69
29.00	500.00	0.10	0.57	27.83
29.25	300.00	0.11	0.78	24.90
29.50	400.00	0.09	0.63	22.78
29.75	400.00	0.09	0.64	22.05
30.00	300.00	0.10	0.68	20.12
30.25	300.00	0.10	0.62	18.41
30.50	300.00	0.10	0.57	16.45
30.75	300.00	0.09	0.55	14.77
31.00	300.00	0.08	0.57	13.96
31.25	300.00	0.08	0.54	12.75
31.50	300.00	0.08	0.52	12.01
31.75	300.00	0.07	0.52	11.56
32.00	300.00	0.07	0.47	9.99
32.25	300.00	0.06	0.41	7.75
32.50	300.00	0.06	0.40	7.43
32.75	300.00	0.07	0.53	10.42
33.00	300.00	0.06	0.40	7.37
33.25	300.00	0.06	0.31	5.66
33.50	300.00	0.06	0.26	4.60
33.75	300.00	0.06	0.25	4.30
34.00	200.00	0.05	0.31	2.77
34.25	200.00	0.04	0.45	3.34
34.50	300.00	0.05	0.14	2.18
34.75	300.00	0.05	0.21	3.19
35.00	200.00	0.04	0.36	3.06
35.25	200.00	0.04	0.26	2.10
35.50	200.00	0.04	0.26	2.00
35.75	200.00	0.03	0.22	1.32
36.00	100.00	0.02	0.95	1.60

THE MAXIMUM DISCHARGE FROM CROSS SECTION 2 IS: 357.77 CFS AT TIME: 18.36 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 176.49 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 2

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	300.00	0.12	0.35	12.56
12.00	500.00	0.16	0.19	15.46
12.25	500.00	0.18	0.18	16.28
12.50	600.00	0.17	0.17	17.32
12.75	400.00	0.16	0.28	18.28
13.00	600.00	0.17	0.19	19.08
13.25	700.00	0.16	0.19	21.31
13.50	600.00	0.14	0.26	22.66
13.75	700.00	0.16	0.21	23.26
14.00	700.00	0.16	0.23	25.71
14.25	700.00	0.16	0.23	26.06
14.50	700.00	0.17	0.23	27.42

14.75	700.00	0.17	0.24	28.19
15.00	700.00	0.17	0.27	33.40
15.25	700.00	0.18	0.27	33.72
15.50	700.00	0.19	0.29	38.45
15.75	700.00	0.21	0.33	48.89
16.00	800.00	0.23	0.36	66.50
16.25	800.00	0.25	0.41	84.02
16.50	1700.00	0.19	0.46	145.67
16.75	2100.00	0.24	0.39	196.95
17.00	2100.00	0.27	0.43	238.99
17.25	2100.00	0.28	0.46	268.33
17.50	2200.00	0.29	0.46	292.37
17.75	2200.00	0.30	0.49	319.25
18.00	2300.00	0.29	0.49	333.76
18.25	2200.00	0.31	0.51	350.06
18.50	2300.00	0.30	0.50	347.63
18.75	2200.00	0.29	0.51	319.69
19.00	2200.00	0.27	0.49	294.13
19.25	2100.00	0.28	0.45	261.57
19.50	2200.00	0.26	0.42	236.09
19.75	2200.00	0.23	0.42	213.74
20.00	2100.00	0.24	0.38	191.54
20.25	2100.00	0.23	0.37	180.65
20.50	2200.00	0.21	0.37	170.68
20.75	2300.00	0.21	0.34	164.53
21.00	2400.00	0.19	0.35	156.15
21.25	2400.00	0.19	0.34	151.71
21.50	2500.00	0.18	0.32	147.11
21.75	2300.00	0.17	0.35	140.35
22.00	2300.00	0.18	0.34	140.95
22.25	2300.00	0.17	0.34	132.88
22.50	2500.00	0.18	0.30	131.42
22.75	2500.00	0.17	0.29	126.74
23.00	2300.00	0.17	0.31	125.05
23.25	2400.00	0.17	0.30	124.54
23.50	2400.00	0.17	0.31	125.49
23.75	2400.00	0.17	0.30	121.96
24.00	2400.00	0.17	0.31	124.76
24.25	2000.00	0.19	0.30	117.13
24.50	2000.00	0.19	0.30	115.60
24.75	2000.00	0.19	0.30	113.04
25.00	2000.00	0.19	0.28	106.40
25.25	2100.00	0.19	0.26	103.88
25.50	2100.00	0.19	0.26	101.65
25.75	2000.00	0.18	0.28	98.63
26.00	2100.00	0.18	0.25	92.87
26.25	2000.00	0.17	0.27	89.89
26.50	2000.00	0.16	0.25	78.99
26.75	1800.00	0.14	0.28	70.72
27.00	1700.00	0.13	0.29	61.88
27.25	1500.00	0.11	0.32	52.27
27.50	1300.00	0.10	0.37	46.06
27.75	1400.00	0.10	0.29	39.33
28.00	1200.00	0.09	0.39	41.00
28.25	1000.00	0.10	0.37	38.38
28.50	1200.00	0.09	0.33	33.94
28.75	900.00	0.07	0.47	30.43
29.00	1200.00	0.08	0.32	30.19
29.25	700.00	0.16	0.20	22.53
29.50	800.00	0.08	0.37	22.50
29.75	700.00	0.15	0.14	15.36
30.00	600.00	0.14	0.18	14.92
30.25	600.00	0.13	0.16	12.90
30.50	600.00	0.10	0.24	14.57
30.75	600.00	0.14	0.12	10.83
31.00	600.00	0.12	0.16	11.48
31.25	500.00	0.10	0.21	10.80
31.50	500.00	0.10	0.17	8.37
31.75	500.00	0.10	0.16	7.97
32.00	700.00	0.12	0.09	7.74
32.25	600.00	0.11	0.13	8.30
32.50	600.00	0.03	0.42	7.92
32.75	600.00	0.10	0.13	8.00
33.00	500.00	0.08	0.10	4.28
33.25	400.00	0.09	0.16	5.92
33.50	400.00	0.08	0.23	7.08
33.75	400.00	0.09	0.07	2.54
34.00	300.00	0.07	0.17	3.50
34.25	400.00	0.09	0.10	3.31
34.50	600.00	0.09	0.06	3.17
34.75	200.00	0.04	0.54	4.53
35.00	400.00	0.06	0.06	1.50
35.25	300.00	0.06	0.23	4.28
35.50	400.00	0.08	0.04	1.41
35.75	100.00	0.10	0.31	3.16
36.00	100.00	0.10	0.42	4.21

THE MAXIMUM DISCHARGE FROM CROSS SECTION 3 IS: 5588.68 CFS AT TIME: 19.60 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 3010.21 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 3

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00

4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00
13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00	0.00
15.75	0.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00	0.00
16.50	0.00	0.00	0.00	0.00
16.75	0.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	0.00
17.25	1300.00	0.08	0.16	16.82
17.50	1700.00	0.14	0.33	79.51
17.75	2000.00	0.21	0.37	158.85
18.00	2100.00	0.34	0.53	383.13
18.25	2400.00	0.45	0.54	584.67
18.50	2400.00	0.51	0.61	748.35
18.75	2400.00	0.55	0.65	861.53
19.00	2400.00	0.60	0.69	992.37
19.25	2700.00	1.31	1.30	4597.08
19.50	2700.00	1.48	1.39	5554.69
19.75	2700.00	1.48	1.38	5530.72
20.00	2700.00	1.45	1.35	5280.72
20.25	2700.00	1.40	1.30	4934.38
20.50	2700.00	1.35	1.26	4564.82
20.75	2700.00	1.29	1.21	4218.87
21.00	2700.00	1.25	1.17	3924.81
21.25	2700.00	1.20	1.13	3676.40
21.50	2700.00	1.17	1.10	3473.50
21.75	2700.00	1.14	1.08	3306.55
22.00	2700.00	1.11	1.06	3174.51
22.25	2700.00	1.09	1.04	3071.06
22.50	2700.00	1.08	1.02	2981.82
22.75	2700.00	1.06	1.01	2910.16
23.00	2700.00	1.05	1.00	2847.40
23.25	2700.00	1.04	0.99	2790.21
23.50	2700.00	1.03	0.98	2735.15
23.75	2700.00	1.02	0.98	2689.32
24.00	2700.00	1.01	0.97	2650.50
24.25	2700.00	1.00	0.96	2609.14
24.50	2700.00	1.00	0.96	2572.77
24.75	2700.00	0.99	0.95	2541.59
25.00	2700.00	0.98	0.95	2516.64
25.25	2700.00	0.98	0.94	2495.69
25.50	2700.00	0.98	0.94	2478.61
25.75	2700.00	0.97	0.94	2462.50
26.00	2700.00	0.97	0.93	2445.74
26.25	2700.00	0.97	0.93	2424.72
26.50	2700.00	0.96	0.93	2400.69
26.75	2700.00	0.95	0.92	2366.48
27.00	2700.00	0.94	0.91	2318.82
27.25	2700.00	0.93	0.90	2254.48
27.50	2700.00	0.91	0.88	2178.00
27.75	2700.00	0.89	0.87	2091.06
28.00	2700.00	0.87	0.85	1991.13
28.25	2700.00	0.85	0.82	1881.99
28.50	2700.00	0.82	0.80	1767.41
28.75	2700.00	0.79	0.77	1657.56
29.00	2700.00	0.77	0.75	1554.31
29.25	2700.00	0.74	0.73	1458.50
29.50	2700.00	0.72	0.71	1374.18
29.75	2700.00	0.70	0.69	1297.75
30.00	2700.00	0.68	0.67	1228.39
30.25	2700.00	0.66	0.66	1168.96
30.50	2700.00	0.65	0.64	1112.56
30.75	2700.00	0.63	0.62	1062.77
31.00	2700.00	0.62	0.61	1011.59
31.25	2600.00	0.60	0.62	968.30
31.50	2500.00	0.58	0.63	923.70
31.75	2600.00	0.57	0.59	878.06

32.00	2700.00	0.56	0.55	837.14
32.25	2500.00	0.54	0.59	796.21
32.50	2600.00	0.53	0.55	750.60
32.75	2500.00	0.51	0.56	712.96
33.00	2500.00	0.50	0.54	669.42
33.25	2500.00	0.48	0.52	631.16
33.50	2500.00	0.47	0.51	593.57
33.75	2400.00	0.45	0.52	558.76
34.00	2400.00	0.44	0.50	526.35
34.25	2500.00	0.43	0.46	489.61
34.50	2400.00	0.41	0.47	460.89
34.75	2500.00	0.40	0.43	434.61
35.00	2400.00	0.39	0.44	411.37
35.25	2400.00	0.38	0.43	389.14
35.50	2500.00	0.37	0.40	371.90
35.75	2400.00	0.36	0.41	354.59
36.00	2400.00	0.35	0.40	337.58

THE MAXIMUM DISCHARGE FROM CROSS SECTION 4 IS: 778.07 CFS AT TIME: 18.28 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 324.78 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 4

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	-0.09
13.50	0.00	0.00	0.00	-0.27
13.75	100.00	0.01	3.81	4.81
14.00	200.00	0.02	1.83	5.92
14.25	400.00	0.03	0.63	8.28
14.50	500.00	0.04	0.61	12.15
14.75	700.00	0.05	0.42	15.53
15.00	1100.00	0.09	0.26	24.42
15.25	1300.00	0.10	0.23	31.19
15.50	1600.00	0.12	0.18	36.47
15.75	1700.00	0.14	0.22	51.90
16.00	1900.00	0.17	0.24	78.06
16.25	2200.00	0.22	0.24	117.42
16.50	2500.00	0.30	0.30	223.67
16.75	2500.00	0.36	0.37	333.45
17.00	2500.00	0.41	0.43	443.48
17.25	2600.00	0.47	0.47	569.98
17.50	2600.00	0.51	0.50	662.82
17.75	2600.00	0.53	0.52	723.75
18.00	2600.00	0.54	0.54	760.68
18.25	2600.00	0.55	0.54	777.43
18.50	2600.00	0.55	0.54	768.70
18.75	2600.00	0.54	0.53	732.37
19.00	2600.00	0.51	0.50	670.13
19.25	2600.00	0.49	0.47	599.87
19.50	2600.00	0.46	0.45	532.77
19.75	2600.00	0.43	0.42	470.93
20.00	2600.00	0.41	0.39	418.60
20.25	2600.00	0.39	0.37	375.82
20.50	2600.00	0.37	0.35	337.62
20.75	2500.00	0.35	0.35	312.99
21.00	2500.00	0.34	0.34	288.48

21.25	2500.00	0.33	0.33	270.72
21.50	2600.00	0.33	0.30	257.37
21.75	2500.00	0.32	0.31	245.85
22.00	2600.00	0.32	0.29	236.16
22.25	2500.00	0.31	0.29	225.00
22.50	2500.00	0.30	0.29	218.52
22.75	2500.00	0.30	0.29	214.72
23.00	2500.00	0.30	0.28	205.32
23.25	2500.00	0.29	0.28	204.19
23.50	2500.00	0.29	0.27	197.17
23.75	2500.00	0.29	0.27	195.85
24.00	2500.00	0.29	0.27	191.20
24.25	2500.00	0.28	0.26	183.62
24.50	2600.00	0.28	0.24	178.05
24.75	2600.00	0.28	0.24	175.27
25.00	2500.00	0.28	0.25	174.64
25.25	2500.00	0.27	0.25	172.01
25.50	2500.00	0.27	0.24	163.15
25.75	2500.00	0.26	0.24	155.16
26.00	2500.00	0.25	0.23	145.16
26.25	2600.00	0.25	0.21	132.79
26.50	2600.00	0.24	0.19	120.08
26.75	2600.00	0.23	0.18	109.85
27.00	2400.00	0.21	0.20	103.32
27.25	2400.00	0.20	0.19	91.08
27.50	2400.00	0.20	0.17	81.13
27.75	2400.00	0.19	0.16	73.18
28.00	2400.00	0.19	0.15	66.90
28.25	2400.00	0.18	0.14	60.07
28.50	2100.00	0.17	0.16	54.01
28.75	2200.00	0.16	0.13	47.93
29.00	2300.00	0.16	0.11	42.19
29.25	2100.00	0.15	0.13	38.80
29.50	2100.00	0.14	0.11	33.23
29.75	2000.00	0.13	0.10	25.84
30.00	1900.00	0.12	0.10	23.20
30.25	1800.00	0.11	0.11	21.48
30.50	1600.00	0.10	0.14	21.52
30.75	1600.00	0.10	0.12	18.21
31.00	1500.00	0.09	0.13	16.75
31.25	1700.00	0.10	0.11	18.02
31.50	1600.00	0.09	0.10	13.68
31.75	1700.00	0.09	0.07	10.98
32.00	1200.00	0.06	0.14	10.90
32.25	1300.00	0.06	0.12	10.43
32.50	1200.00	0.06	0.14	9.66
32.75	1400.00	0.06	0.10	8.58
33.00	1200.00	0.06	0.12	8.05
33.25	1400.00	0.06	0.08	7.23
33.50	1100.00	0.05	0.14	7.79
33.75	1300.00	0.06	0.08	6.46
34.00	1100.00	0.05	0.11	6.05
34.25	1200.00	0.05	0.09	6.12
34.50	900.00	0.04	0.16	6.31
34.75	1100.00	0.05	0.08	4.26
35.00	1100.00	0.05	0.10	4.98
35.25	800.00	0.03	0.12	3.31
35.50	800.00	0.03	0.09	2.27
35.75	700.00	0.03	0.06	1.24
36.00	700.00	0.03	0.10	2.03

THE MAXIMUM DISCHARGE FROM CROSS SECTION 5 IS: 251.48 CFS AT TIME: 18.76 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 102.98 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 5

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00

10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00
13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00	0.00
15.75	0.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00	0.00
16.50	0.00	0.00	0.00	0.00
16.75	0.00	0.00	0.00	0.00
17.00	200.00	0.01	2.04	2.79
17.25	1500.00	0.06	0.92	85.19
17.50	1600.00	0.08	1.11	145.32
17.75	2400.00	0.11	0.65	165.35
18.00	2800.00	0.12	0.54	185.99
18.25	3000.00	0.14	0.55	225.34
18.50	3200.00	0.15	0.51	238.75
18.75	3200.00	0.15	0.52	242.71
19.00	3400.00	0.15	0.47	236.93
19.25	3300.00	0.14	0.47	219.74
19.50	3100.00	0.13	0.48	197.65
19.75	3400.00	0.13	0.37	170.49
20.00	3600.00	0.13	0.33	158.95
20.25	3700.00	0.13	0.30	144.47
20.50	2900.00	0.11	0.42	136.12
20.75	3600.00	0.12	0.26	117.51
21.00	3600.00	0.12	0.26	114.11
21.25	3400.00	0.12	0.30	118.14
21.50	3500.00	0.12	0.25	102.69
21.75	3600.00	0.12	0.25	104.11
22.00	3200.00	0.11	0.29	99.80
22.25	3100.00	0.10	0.31	99.54
22.50	3400.00	0.11	0.25	92.10
22.75	3200.00	0.10	0.30	99.88
23.00	3200.00	0.10	0.28	92.74
23.25	3500.00	0.11	0.24	90.55
23.50	3400.00	0.11	0.23	83.35
23.75	3900.00	0.12	0.18	80.83
24.00	3600.00	0.11	0.21	82.51
24.25	3000.00	0.10	0.26	75.16
24.50	3000.00	0.10	0.26	73.95
24.75	3100.00	0.10	0.24	71.57
25.00	2300.00	0.08	0.40	71.78
25.25	2900.00	0.09	0.24	61.84
25.50	2700.00	0.08	0.28	64.42
25.75	2900.00	0.09	0.23	58.68
26.00	2400.00	0.08	0.30	54.21
26.25	2400.00	0.07	0.31	55.59
26.50	2500.00	0.08	0.29	54.89
26.75	2000.00	0.06	0.38	48.63
27.00	2400.00	0.07	0.27	45.61
27.25	2000.00	0.06	0.37	45.33
27.50	2000.00	0.06	0.34	40.99
27.75	2000.00	0.06	0.32	37.56
28.00	2000.00	0.06	0.33	37.75
28.25	1500.00	0.04	0.49	33.05
28.50	1600.00	0.04	0.31	21.28
28.75	1800.00	0.04	0.29	23.40
29.00	1000.00	0.03	0.47	12.23
29.25	800.00	0.02	0.54	8.78
29.50	300.00	0.01	2.02	5.73
29.75	100.00	0.01	7.08	3.69
30.00	400.00	0.01	1.18	5.23
30.25	500.00	0.01	0.15	0.98
30.50	700.00	0.02	0.07	0.83
30.75	600.00	0.01	0.09	0.73
31.00	500.00	0.01	0.38	2.28
31.25	200.00	0.01	0.49	0.53
31.50	100.00	0.00	1.48	0.44
31.75	200.00	0.01	0.39	0.40
32.00	100.00	0.00	1.28	0.36
32.25	200.00	0.00	2.56	2.50
32.50	100.00	0.00	3.40	0.91
32.75	100.00	0.00	1.20	0.32
33.00	200.00	0.00	0.33	0.31
33.25	100.00	0.00	0.95	0.23
33.50	100.00	0.00	0.49	0.11
33.75	100.00	0.00	0.00	0.00
34.00	100.00	0.00	0.00	0.00
34.25	100.00	0.00	0.00	0.00
34.50	100.00	0.00	0.00	0.00
34.75	100.00	0.00	0.00	0.00
35.00	100.00	0.00	0.00	0.00
35.25	100.00	0.00	0.00	0.00
35.50	100.00	0.00	0.00	0.00
35.75	100.00	0.00	0.00	0.00
36.00	100.00	0.00	0.00	0.00

THE MAXIMUM DISCHARGE FROM CROSS SECTION 6 IS: 5590.32 CFS AT TIME: 20.66 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 3249.95 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 6

TIME	TOPWID	DEPTH	VELOCITY	DISCHARGE

(HRS)	(FT)	(FT)	(FPS)	(CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00
13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00	0.00
15.75	0.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00	0.00
16.50	0.00	0.00	0.00	0.00
16.75	0.00	0.00	0.00	0.00
17.00	600.00	0.02	0.12	1.51
17.25	1300.00	0.07	0.19	16.95
17.50	1600.00	0.10	0.26	42.62
17.75	2200.00	0.14	0.24	72.25
18.00	2400.00	0.18	0.27	117.00
18.25	2600.00	0.23	0.31	183.46
18.50	2700.00	0.27	0.38	277.68
18.75	2900.00	0.32	0.43	394.89
19.00	3000.00	0.37	0.49	549.37
19.25	3200.00	0.45	0.52	750.67
19.50	3600.00	0.51	0.51	925.09
19.75	3800.00	0.55	0.52	1077.98
20.00	3800.00	0.62	0.55	1315.12
20.25	4200.00	1.05	0.85	3781.01
20.50	4100.00	1.31	1.02	5452.92
20.75	4100.00	1.32	1.03	5567.49
21.00	4300.00	1.24	1.00	5341.96
21.25	4100.00	1.26	0.97	5047.83
21.50	4200.00	1.17	0.97	4769.88
21.75	4200.00	1.17	0.92	4545.55
22.00	4200.00	1.14	0.90	4309.24
22.25	4200.00	1.08	0.90	4083.64
22.50	4200.00	1.06	0.87	3882.13
22.75	4100.00	1.08	0.84	3712.98
23.00	4100.00	1.06	0.82	3566.91
23.25	4200.00	1.02	0.81	3448.40
23.50	4100.00	1.03	0.79	3343.00
23.75	4200.00	0.99	0.78	3255.61
24.00	4200.00	0.98	0.77	3178.79
24.25	4200.00	0.95	0.78	3102.03
24.50	4200.00	0.93	0.77	3035.05
24.75	4200.00	0.95	0.75	2971.45
25.00	4100.00	0.96	0.74	2915.30
25.25	4100.00	0.95	0.74	2863.61
25.50	4200.00	0.90	0.74	2817.07
25.75	4100.00	0.93	0.72	2774.11
26.00	4100.00	0.93	0.72	2735.27
26.25	4000.00	0.92	0.74	2702.25
26.50	4000.00	0.91	0.73	2670.69
26.75	4100.00	0.89	0.73	2644.34
27.00	4000.00	0.90	0.72	2613.31
27.25	4000.00	0.90	0.72	2583.16
27.50	4000.00	0.89	0.71	2549.96

27.75	4000.00	0.88	0.71	2508.30
28.00	4000.00	0.88	0.70	2456.00
28.25	4000.00	0.86	0.69	2393.20
28.50	4000.00	0.85	0.68	2322.78
28.75	4000.00	0.84	0.67	2240.58
29.00	3900.00	0.86	0.64	2152.59
29.25	3900.00	0.84	0.63	2055.38
29.50	3900.00	0.82	0.61	1952.44
29.75	3900.00	0.80	0.60	1851.63
30.00	3900.00	0.77	0.58	1751.65
30.25	3900.00	0.75	0.56	1656.59
30.50	3900.00	0.73	0.55	1568.21
30.75	3900.00	0.71	0.53	1483.78
31.00	3800.00	0.69	0.53	1405.00
31.25	3800.00	0.68	0.52	1335.09
31.50	3800.00	0.66	0.51	1269.94
31.75	3800.00	0.65	0.49	1207.29
32.00	3900.00	0.63	0.47	1152.45
32.25	3800.00	0.62	0.47	1102.42
32.50	3800.00	0.60	0.46	1054.97
32.75	3800.00	0.59	0.45	1008.80
33.00	3600.00	0.59	0.45	967.58
33.25	3600.00	0.58	0.45	926.52
33.50	3700.00	0.55	0.43	886.41
33.75	3800.00	0.55	0.41	846.18
34.00	3500.00	0.59	0.39	809.56
34.25	3700.00	0.52	0.40	771.73
34.50	3600.00	0.53	0.38	734.45
34.75	3600.00	0.52	0.37	700.44
35.00	3500.00	0.54	0.35	666.72
35.25	3600.00	0.50	0.35	632.31
35.50	3600.00	0.49	0.34	602.12
35.75	3700.00	0.47	0.33	572.15
36.00	3500.00	0.49	0.32	545.26

THE MAXIMUM DISCHARGE FROM CROSS SECTION 7 IS: 5241.31 CFS AT TIME: 21.15 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 3090.92 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 7

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00
13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00	0.00
15.75	0.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00	0.00
16.50	0.00	0.00	0.00	0.00
16.75	0.00	0.00	0.00	0.00

17.00	0.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00	0.00
17.50	0.00	0.00	0.00	0.00
17.75	0.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00	0.00
18.50	0.00	0.00	0.00	0.00
18.75	0.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00	0.00
19.50	0.00	0.00	0.00	0.00
19.75	0.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	0.00
20.25	600.00	0.02	0.86	12.19
20.50	3400.00	0.53	1.19	2169.26
20.75	3800.00	0.81	1.13	3478.66
21.00	4000.00	1.16	1.09	5058.70
21.25	4000.00	1.19	1.09	5204.37
21.50	4000.00	1.16	1.06	4961.48
21.75	4000.00	1.13	1.04	4695.54
22.00	4000.00	1.10	1.01	4431.08
22.25	4000.00	1.07	0.98	4183.43
22.50	4000.00	1.04	0.95	3968.77
22.75	4000.00	1.01	0.93	3790.41
23.00	4000.00	0.99	0.92	3639.58
23.25	4000.00	0.97	0.90	3509.96
23.50	4000.00	0.96	0.89	3400.22
23.75	4000.00	0.94	0.88	3304.55
24.00	4000.00	0.93	0.87	3224.39
24.25	4000.00	0.92	0.86	3147.99
24.50	4000.00	0.91	0.85	3076.21
24.75	4000.00	0.90	0.84	3014.72
25.00	4000.00	0.89	0.83	2963.04
25.25	4000.00	0.88	0.83	2916.64
25.50	4000.00	0.87	0.82	2876.85
25.75	4000.00	0.87	0.82	2843.79
26.00	4000.00	0.86	0.81	2815.75
26.25	4000.00	0.86	0.81	2792.22
26.50	4000.00	0.86	0.81	2771.98
26.75	4000.00	0.85	0.81	2751.86
27.00	4000.00	0.85	0.80	2733.95
27.25	4000.00	0.85	0.80	2714.30
27.50	4000.00	0.84	0.80	2693.03
27.75	4000.00	0.84	0.79	2667.00
28.00	4000.00	0.83	0.79	2630.26
28.25	4000.00	0.83	0.78	2586.19
28.50	4000.00	0.82	0.77	2524.45
28.75	4000.00	0.81	0.76	2451.73
29.00	4000.00	0.79	0.75	2363.23
29.25	4000.00	0.78	0.73	2264.90
29.50	4000.00	0.76	0.71	2159.29
29.75	4000.00	0.74	0.70	2054.92
30.00	4000.00	0.72	0.68	1952.34
30.25	4000.00	0.70	0.66	1847.75
30.50	4000.00	0.68	0.64	1751.30
30.75	4000.00	0.66	0.62	1657.87
31.00	4000.00	0.65	0.61	1572.23
31.25	4000.00	0.63	0.60	1506.50
31.50	3900.00	0.61	0.60	1430.89
31.75	3900.00	0.60	0.59	1370.02
32.00	4000.00	0.59	0.56	1312.65
32.25	3900.00	0.57	0.56	1257.11
32.50	3900.00	0.56	0.55	1205.32
32.75	3900.00	0.55	0.54	1154.03
33.00	3900.00	0.54	0.53	1106.49
33.25	4000.00	0.53	0.51	1065.14
33.50	3900.00	0.51	0.51	1012.66
33.75	3900.00	0.50	0.50	974.09
34.00	3900.00	0.49	0.49	937.07
34.25	3900.00	0.48	0.48	900.96
34.50	3900.00	0.47	0.47	863.87
34.75	3900.00	0.46	0.46	824.36
35.00	3800.00	0.45	0.47	791.10
35.25	3900.00	0.44	0.44	755.32
35.50	3900.00	0.43	0.43	716.59
35.75	3900.00	0.42	0.42	684.91
36.00	3900.00	0.41	0.41	651.74

APPENDIX G:

vi. 24-Hour, 25-Year HYCROSS.OUT File

THE MAXIMUM DISCHARGE FROM CROSS SECTION 1 IS: 432.71 CFS AT TIME: 17.93 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 204.94 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 1

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.50
10.25	100.00	0.05	0.80	3.72
10.50	200.00	0.04	0.85	7.30
10.75	200.00	0.05	0.66	7.24
11.00	200.00	0.06	0.86	9.95
11.25	200.00	0.06	0.85	9.88
11.50	300.00	0.07	0.54	11.34
11.75	300.00	0.08	0.55	12.56
12.00	300.00	0.08	0.57	14.16
12.25	300.00	0.08	0.62	15.60
12.50	300.00	0.09	0.70	18.28
12.75	300.00	0.09	0.66	18.26
13.00	300.00	0.09	0.56	15.63
13.25	300.00	0.10	0.62	17.96
13.50	300.00	0.11	0.81	26.97
13.75	300.00	0.12	0.90	31.51
14.00	300.00	0.12	1.01	36.87
14.25	300.00	0.12	1.04	39.13
14.50	300.00	0.13	1.15	46.03
14.75	300.00	0.14	1.22	51.44
15.00	400.00	0.13	1.15	61.57
15.25	400.00	0.15	1.23	75.85
15.50	400.00	0.17	1.36	93.99
15.75	600.00	0.21	0.97	121.12
16.00	600.00	0.23	1.06	146.32
16.25	600.00	0.25	1.18	179.64
16.50	700.00	0.26	1.17	215.77
16.75	800.00	0.29	1.07	251.55
17.00	1000.00	0.34	0.89	303.39
17.25	1100.00	0.40	0.81	353.34
17.50	1100.00	0.42	0.85	395.27
17.75	1100.00	0.44	0.88	425.61
18.00	1100.00	0.44	0.88	429.54
18.25	1100.00	0.43	0.85	404.81
18.50	1100.00	0.42	0.82	377.75
18.75	1100.00	0.40	0.77	337.04
19.00	1100.00	0.37	0.75	305.19
19.25	1000.00	0.34	0.82	277.68
19.50	1100.00	0.33	0.68	250.12
19.75	1000.00	0.31	0.75	233.48
20.00	1100.00	0.31	0.63	214.22
20.25	1000.00	0.29	0.70	201.04
20.50	900.00	0.30	0.70	188.50
20.75	1000.00	0.27	0.63	174.49
21.00	1000.00	0.27	0.62	166.59
21.25	900.00	0.25	0.71	161.97
21.50	1000.00	0.26	0.60	154.77
21.75	900.00	0.25	0.69	152.58
22.00	800.00	0.26	0.74	152.33
22.25	900.00	0.27	0.61	146.67
22.50	1000.00	0.27	0.51	140.61
22.75	800.00	0.25	0.68	138.32
23.00	800.00	0.23	0.76	139.17
23.25	800.00	0.25	0.69	137.68
23.50	700.00	0.23	0.82	135.26
23.75	800.00	0.24	0.67	131.26

24.00	700.00	0.23	0.81	131.47
24.25	900.00	0.25	0.57	128.77
24.50	700.00	0.23	0.82	129.85
24.75	800.00	0.23	0.66	123.00
25.00	700.00	0.22	0.78	119.15
25.25	900.00	0.21	0.60	114.16
25.50	700.00	0.21	0.75	108.14
25.75	600.00	0.18	0.90	98.36
26.00	600.00	0.17	0.85	86.98
26.25	700.00	0.17	0.62	74.03
26.50	500.00	0.14	0.92	65.46
26.75	500.00	0.13	0.85	56.87
27.00	400.00	0.13	0.99	52.16
27.25	400.00	0.12	0.94	46.18
27.50	400.00	0.12	0.91	43.83
27.75	500.00	0.11	0.69	38.48
28.00	500.00	0.12	0.59	34.30
28.25	400.00	0.10	0.77	30.45
28.50	300.00	0.11	0.81	26.35
28.75	300.00	0.10	0.76	23.40
29.00	400.00	0.09	0.61	21.12
29.25	300.00	0.10	0.71	20.37
29.50	300.00	0.10	0.60	17.41
29.75	300.00	0.09	0.55	15.38
30.00	300.00	0.08	0.56	14.21
30.25	300.00	0.08	0.54	12.72
30.50	300.00	0.08	0.52	11.94
30.75	300.00	0.07	0.51	11.46
31.00	300.00	0.07	0.51	10.95
31.25	300.00	0.07	0.50	9.99
31.50	300.00	0.06	0.44	8.16
31.75	200.00	0.05	0.68	7.34
32.00	200.00	0.05	0.54	5.69
32.25	300.00	0.06	0.34	5.89
32.50	200.00	0.05	0.67	6.73
32.75	300.00	0.06	0.31	5.52
33.00	200.00	0.05	0.49	4.62
33.25	200.00	0.04	0.40	3.50
33.50	300.00	0.05	0.17	2.69
33.75	200.00	0.04	0.47	4.21
34.00	200.00	0.04	0.41	3.60
34.25	100.00	0.03	1.06	2.78
34.50	200.00	0.04	0.46	3.78
34.75	100.00	0.02	1.39	3.18
35.00	200.00	0.03	0.34	2.27
35.25	100.00	0.02	1.04	2.13
35.50	100.00	0.02	0.95	1.68
35.75	200.00	0.03	0.21	1.44
36.00	200.00	0.03	0.23	1.57

THE MAXIMUM DISCHARGE FROM CROSS SECTION 2 IS: 232.84 CFS AT TIME: 18.33 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 113.52 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 2

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00

11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00
13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	300.00	0.11	0.21	6.54
14.50	500.00	0.15	0.18	14.00
14.75	600.00	0.17	0.18	18.11
15.00	600.00	0.17	0.21	21.70
15.25	600.00	0.17	0.25	24.82
15.50	700.00	0.16	0.24	27.81
15.75	600.00	0.16	0.33	32.27
16.00	700.00	0.20	0.31	43.07
16.25	700.00	0.21	0.34	51.36
16.50	700.00	0.24	0.36	59.80
16.75	700.00	0.26	0.39	69.50
17.00	700.00	0.27	0.42	80.77
17.25	1500.00	0.18	0.50	135.22
17.50	1900.00	0.21	0.42	165.91
17.75	2100.00	0.24	0.39	199.29
18.00	2100.00	0.26	0.41	218.60
18.25	2100.00	0.26	0.42	227.54
18.50	2100.00	0.26	0.42	226.39
18.75	2100.00	0.26	0.41	217.64
19.00	2100.00	0.25	0.39	206.34
19.25	2100.00	0.24	0.38	189.77
19.50	2100.00	0.23	0.37	177.99
19.75	2100.00	0.22	0.35	163.99
20.00	2100.00	0.22	0.33	150.23
20.25	2100.00	0.21	0.31	138.47
20.50	2100.00	0.21	0.30	129.95
20.75	2100.00	0.20	0.28	120.50
21.00	2100.00	0.20	0.28	114.29
21.25	2000.00	0.19	0.29	110.27
21.50	2000.00	0.18	0.28	103.16
21.75	1900.00	0.18	0.30	100.08
22.00	2100.00	0.18	0.25	93.55
22.25	2000.00	0.17	0.27	93.09
22.50	1700.00	0.16	0.35	92.57
22.75	2100.00	0.17	0.24	87.06
23.00	1900.00	0.16	0.28	84.15
23.25	2100.00	0.15	0.25	81.22
23.50	1800.00	0.15	0.30	80.39
23.75	1800.00	0.15	0.30	79.76
24.00	1900.00	0.15	0.27	77.90
24.25	1600.00	0.13	0.37	79.62
24.50	1900.00	0.15	0.27	73.99
24.75	1800.00	0.14	0.29	71.76
25.00	1800.00	0.14	0.29	71.50
25.25	1800.00	0.14	0.28	68.08
25.50	1700.00	0.13	0.30	66.57
25.75	1600.00	0.12	0.34	66.91
26.00	1700.00	0.13	0.30	64.16
26.25	1500.00	0.11	0.34	58.53
26.50	1600.00	0.11	0.28	50.45
26.75	1500.00	0.10	0.31	48.28
27.00	1100.00	0.09	0.43	41.35
27.25	1200.00	0.09	0.39	41.66
27.50	1100.00	0.09	0.36	36.18
27.75	900.00	0.08	0.55	38.56
28.00	800.00	0.13	0.30	30.61
28.25	700.00	0.16	0.22	25.33
28.50	800.00	0.06	0.54	26.17
28.75	700.00	0.16	0.17	18.53
29.00	600.00	0.14	0.21	18.08
29.25	500.00	0.12	0.26	16.35
29.50	600.00	0.14	0.17	13.82
29.75	700.00	0.14	0.12	11.98
30.00	600.00	0.13	0.18	13.95
30.25	600.00	0.12	0.15	10.99
30.50	500.00	0.14	0.15	10.37
30.75	400.00	0.12	0.21	10.02
31.00	600.00	0.11	0.12	8.15
31.25	600.00	0.11	0.13	8.39
31.50	400.00	0.10	0.16	6.51
31.75	400.00	0.10	0.20	7.89
32.00	600.00	0.10	0.07	4.31
32.25	500.00	0.12	0.07	4.13
32.50	600.00	0.09	0.08	4.32
32.75	500.00	0.11	0.07	4.04
33.00	400.00	0.09	0.10	3.28
33.25	400.00	0.08	0.10	3.22
33.50	400.00	0.06	0.13	3.11
33.75	200.00	0.05	0.29	3.07
34.00	300.00	0.04	0.45	5.95
34.25	200.00	0.10	0.07	1.53
34.50	300.00	0.06	0.03	0.54
34.75	200.00	0.04	0.24	1.96
35.00	200.00	0.04	0.35	2.79
35.25	400.00	0.06	0.02	0.45
35.50	100.00	0.10	0.28	2.81
35.75	300.00	0.06	0.02	0.43
36.00	100.00	0.10	0.18	1.81

THE MAXIMUM DISCHARGE FROM CROSS SECTION 3 IS: 2574.06 CFS AT TIME: 20.94 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 1678.43 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 3

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00
13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00	0.00
15.75	0.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00	0.00
16.50	0.00	0.00	0.00	0.00
16.75	0.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00	0.00
17.50	0.00	0.00	0.00	0.00
17.75	0.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00	0.00
18.50	400.00	0.03	0.15	1.97
18.75	1600.00	0.22	0.58	208.28
19.00	2000.00	0.34	0.56	383.14
19.25	2200.00	0.40	0.55	481.14
19.50	2300.00	0.42	0.53	514.36
19.75	2400.00	0.44	0.50	520.63
20.00	2400.00	0.43	0.49	505.67
20.25	2400.00	0.44	0.50	530.53
20.50	2400.00	0.86	1.02	2094.11
20.75	2700.00	0.98	0.95	2499.87
21.00	2700.00	1.00	0.95	2570.43
21.25	2700.00	0.99	0.94	2514.99
21.50	2700.00	0.97	0.93	2423.56
21.75	2700.00	0.95	0.91	2324.82
22.00	2700.00	0.93	0.89	2220.92
22.25	2700.00	0.90	0.87	2121.15
22.50	2700.00	0.88	0.85	2032.99
22.75	2700.00	0.86	0.84	1950.30
23.00	2700.00	0.85	0.82	1884.20
23.25	2700.00	0.84	0.81	1827.36
23.50	2700.00	0.82	0.80	1781.65
23.75	2700.00	0.81	0.79	1739.00
24.00	2700.00	0.81	0.78	1704.16
24.25	2700.00	0.80	0.78	1672.92
24.50	2700.00	0.79	0.77	1642.46
24.75	2700.00	0.78	0.76	1618.72
25.00	2700.00	0.78	0.76	1598.35
25.25	2700.00	0.77	0.76	1582.12
25.50	2700.00	0.77	0.75	1571.59
25.75	2700.00	0.77	0.75	1560.86

26.00	2700.00	0.77	0.75	1554.19
26.25	2700.00	0.77	0.75	1546.32
26.50	2700.00	0.76	0.75	1537.99
26.75	2700.00	0.76	0.74	1526.32
27.00	2700.00	0.76	0.74	1511.49
27.25	2700.00	0.75	0.74	1492.09
27.50	2700.00	0.75	0.73	1469.42
27.75	2700.00	0.74	0.72	1435.42
28.00	2700.00	0.73	0.71	1394.01
28.25	2700.00	0.71	0.70	1346.37
28.50	2700.00	0.70	0.69	1290.88
28.75	2700.00	0.68	0.67	1232.16
29.00	2600.00	0.66	0.68	1169.73
29.25	2700.00	0.64	0.64	1104.08
29.50	2600.00	0.62	0.65	1043.57
29.75	2700.00	0.61	0.60	982.29
30.00	2700.00	0.59	0.58	928.38
30.25	2600.00	0.57	0.59	879.24
30.50	2600.00	0.56	0.58	832.47
30.75	2600.00	0.54	0.56	788.95
31.00	2600.00	0.53	0.54	749.74
31.25	2500.00	0.51	0.56	710.96
31.50	2500.00	0.50	0.54	679.81
31.75	2500.00	0.49	0.53	646.95
32.00	2700.00	0.48	0.47	613.96
32.25	2500.00	0.47	0.51	590.88
32.50	2500.00	0.46	0.50	564.16
32.75	2500.00	0.45	0.49	540.58
33.00	2500.00	0.44	0.47	517.99
33.25	2400.00	0.42	0.49	493.82
33.50	2500.00	0.42	0.45	468.72
33.75	2600.00	0.41	0.42	443.74
34.00	2400.00	0.39	0.45	423.85
34.25	2400.00	0.38	0.44	400.44
34.50	2500.00	0.38	0.40	379.52
34.75	2500.00	0.37	0.39	362.69
35.00	2500.00	0.36	0.38	344.37
35.25	2400.00	0.35	0.40	329.84
35.50	2300.00	0.35	0.39	313.76
35.75	2300.00	0.33	0.39	296.57
36.00	2300.00	0.32	0.38	282.60

THE MAXIMUM DISCHARGE FROM CROSS SECTION 4 IS: 515.58 CFS AT TIME: 18.53 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 217.00 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 4

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00

13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	-0.10
15.50	100.00	0.01	3.66	5.04
15.75	500.00	0.05	0.92	21.41
16.00	900.00	0.08	0.51	37.99
16.25	1400.00	0.13	0.33	59.60
16.50	1600.00	0.17	0.34	90.34
16.75	1800.00	0.20	0.35	124.01
17.00	2000.00	0.24	0.36	175.64
17.25	2400.00	0.33	0.36	283.31
17.50	2500.00	0.38	0.40	376.25
17.75	2500.00	0.41	0.43	434.29
18.00	2500.00	0.42	0.44	466.73
18.25	2500.00	0.44	0.45	493.25
18.50	2500.00	0.45	0.46	512.97
18.75	2600.00	0.45	0.43	506.39
19.00	2600.00	0.44	0.42	478.95
19.25	2500.00	0.42	0.42	439.65
19.50	2500.00	0.40	0.40	400.82
19.75	2500.00	0.38	0.39	368.15
20.00	2600.00	0.37	0.35	330.46
20.25	2500.00	0.35	0.35	297.87
20.50	2600.00	0.33	0.31	266.07
20.75	2500.00	0.32	0.31	245.10
21.00	2600.00	0.31	0.28	224.61
21.25	2500.00	0.30	0.28	210.14
21.50	2500.00	0.29	0.27	194.46
21.75	2500.00	0.28	0.26	180.41
22.00	2500.00	0.27	0.26	174.79
22.25	2500.00	0.27	0.25	166.83
22.50	2500.00	0.26	0.23	153.68
22.75	2600.00	0.26	0.22	149.35
23.00	2500.00	0.25	0.23	145.75
23.25	2400.00	0.24	0.23	137.30
23.50	2500.00	0.24	0.22	134.20
23.75	2500.00	0.24	0.22	130.35
24.00	2500.00	0.24	0.21	127.19
24.25	2600.00	0.24	0.19	121.56
24.50	2500.00	0.23	0.21	122.31
24.75	2600.00	0.24	0.19	118.78
25.00	2500.00	0.23	0.20	115.00
25.25	2500.00	0.23	0.20	114.27
25.50	2500.00	0.23	0.20	112.39
25.75	2500.00	0.22	0.19	107.43
26.00	2500.00	0.22	0.19	103.62
26.25	2500.00	0.22	0.18	97.79
26.50	2300.00	0.20	0.20	96.39
26.75	2500.00	0.21	0.17	87.81
27.00	2300.00	0.20	0.18	82.00
27.25	2500.00	0.20	0.14	70.45
27.50	2500.00	0.19	0.14	65.30
27.75	2300.00	0.18	0.14	57.59
28.00	2200.00	0.17	0.13	49.91
28.25	2300.00	0.17	0.11	42.79
28.50	2100.00	0.15	0.13	40.43
28.75	1900.00	0.14	0.14	35.50
29.00	2100.00	0.14	0.11	31.47
29.25	1900.00	0.12	0.12	28.61
29.50	2100.00	0.13	0.09	22.93
29.75	1900.00	0.11	0.10	22.26
30.00	1900.00	0.11	0.09	19.01
30.25	1600.00	0.10	0.11	17.75
30.50	1900.00	0.11	0.07	14.85
30.75	1600.00	0.09	0.10	14.59
31.00	1400.00	0.08	0.13	14.67
31.25	1700.00	0.09	0.08	12.57
31.50	1500.00	0.08	0.10	11.68
31.75	1600.00	0.08	0.09	11.69
32.00	1500.00	0.08	0.11	12.86
32.25	1200.00	0.06	0.15	11.35
32.50	1300.00	0.06	0.08	6.71
32.75	1400.00	0.07	0.07	6.34
33.00	1400.00	0.07	0.08	7.49
33.25	1000.00	0.05	0.20	10.05
33.50	1000.00	0.05	0.11	5.46
33.75	1200.00	0.05	0.08	4.94
34.00	1400.00	0.06	0.07	5.52
34.25	1000.00	0.04	0.13	5.34
34.50	1400.00	0.06	0.05	4.22
34.75	1100.00	0.05	0.05	2.62
35.00	900.00	0.04	0.08	2.96
35.25	600.00	0.02	0.10	1.37
35.50	400.00	0.02	0.08	0.48
35.75	800.00	0.03	0.05	1.28
36.00	800.00	0.03	0.15	3.84

THE MAXIMUM DISCHARGE FROM CROSS SECTION 5 IS: 111.40 CFS AT TIME: 19.00 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 50.76 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 5

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00

1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00
13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00	0.00
15.75	0.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00	0.00
16.50	0.00	0.00	0.00	0.00
16.75	0.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00	0.00
17.50	0.00	0.00	0.00	0.00
17.75	0.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	0.00
18.25	200.00	0.01	1.66	2.14
18.50	1000.00	0.05	1.41	70.02
18.75	1300.00	0.06	1.17	96.49
19.00	1700.00	0.07	0.83	105.24
19.25	1900.00	0.08	0.67	101.59
19.50	1700.00	0.07	0.80	101.24
19.75	2000.00	0.08	0.60	95.98
20.00	2500.00	0.09	0.41	95.33
20.25	2500.00	0.09	0.40	91.43
20.50	2600.00	0.09	0.36	86.46
20.75	2500.00	0.09	0.40	88.35
21.00	2300.00	0.08	0.43	81.09
21.25	2300.00	0.08	0.42	78.79
21.50	2400.00	0.08	0.40	80.23
21.75	2300.00	0.08	0.40	72.28
22.00	2200.00	0.08	0.39	65.23
22.25	2800.00	0.09	0.26	63.89
22.50	2400.00	0.08	0.32	58.45
22.75	2600.00	0.08	0.28	59.55
23.00	2300.00	0.07	0.31	52.12
23.25	2200.00	0.07	0.39	61.08
23.50	2300.00	0.07	0.33	54.43
23.75	2200.00	0.07	0.34	52.06
24.00	2200.00	0.07	0.34	52.12
24.25	2200.00	0.07	0.31	46.54
24.50	2100.00	0.06	0.34	46.81
24.75	2000.00	0.06	0.36	44.40
25.00	2100.00	0.06	0.40	52.47
25.25	1800.00	0.06	0.42	42.43
25.50	1700.00	0.05	0.47	42.44
25.75	2400.00	0.07	0.23	37.81
26.00	1900.00	0.06	0.38	40.21
26.25	2100.00	0.06	0.33	41.73
26.50	1900.00	0.05	0.34	35.79
26.75	2000.00	0.06	0.30	33.77
27.00	1800.00	0.05	0.39	35.63
27.25	1700.00	0.05	0.44	36.46
27.50	1800.00	0.05	0.38	33.59
27.75	1700.00	0.05	0.29	23.47

28.00	1700.00	0.05	0.37	28.38
28.25	1100.00	0.03	0.48	15.66
28.50	900.00	0.02	0.52	10.72
28.75	600.00	0.02	0.39	3.70
29.00	600.00	0.02	0.33	3.15
29.25	100.00	0.00	2.75	1.35
29.50	200.00	0.01	0.83	1.05
29.75	500.00	0.01	1.77	11.07
30.00	200.00	0.01	0.64	0.75
30.25	200.00	0.01	2.69	3.00
30.50	200.00	0.01	0.50	0.54
30.75	100.00	0.00	1.51	0.46
31.00	200.00	0.01	3.46	3.52
31.25	300.00	0.01	0.18	0.38
31.50	200.00	0.00	0.91	0.88
31.75	100.00	0.00	1.18	0.32
32.00	300.00	0.01	0.15	0.30
32.25	300.00	0.01	0.14	0.30
32.50	100.00	0.00	0.96	0.24
32.75	100.00	0.00	0.52	0.12
33.00	100.00	0.00	0.00	0.00
33.25	100.00	0.00	0.00	0.00
33.50	100.00	0.00	0.00	0.00
33.75	100.00	0.00	0.00	0.00
34.00	100.00	0.00	0.00	0.00
34.25	100.00	0.00	0.00	0.00
34.50	100.00	0.00	0.00	0.00
34.75	100.00	0.00	0.00	0.00
35.00	100.00	0.00	0.00	0.00
35.25	100.00	0.00	0.00	0.00
35.50	100.00	0.00	0.00	0.00
35.75	100.00	0.00	0.00	0.00
36.00	100.00	0.00	0.00	0.00

THE MAXIMUM DISCHARGE FROM CROSS SECTION 6 IS: 2578.25 CFS AT TIME: 22.49 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 1747.00 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 6

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00
13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00	0.00

15.75	0.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00	0.00
16.50	0.00	0.00	0.00	0.00
16.75	0.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00	0.00
17.50	0.00	0.00	0.00	0.00
17.75	0.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00	0.00
18.50	0.00	0.00	0.00	0.00
18.75	700.00	0.06	0.59	23.44
19.00	1300.00	0.11	0.43	60.66
19.25	1600.00	0.16	0.41	109.17
19.50	2200.00	0.21	0.41	191.59
19.75	2400.00	0.25	0.41	243.93
20.00	2600.00	0.28	0.39	281.02
20.25	2700.00	0.29	0.42	324.97
20.50	2800.00	0.31	0.42	364.27
20.75	3100.00	0.33	0.39	397.61
21.00	3000.00	0.34	0.41	421.14
21.25	3100.00	0.36	0.41	468.49
21.50	3200.00	0.40	0.45	573.26
21.75	3400.00	0.53	0.55	994.55
22.00	4000.00	0.80	0.65	2082.33
22.25	4000.00	0.89	0.71	2514.16
22.50	4100.00	0.90	0.70	2577.21
22.75	4000.00	0.89	0.71	2540.96
23.00	4000.00	0.88	0.70	2466.65
23.25	4000.00	0.87	0.69	2382.21
23.50	4000.00	0.85	0.67	2297.60
23.75	4000.00	0.84	0.66	2218.30
24.00	4000.00	0.82	0.65	2142.39
24.25	4000.00	0.81	0.64	2073.83
24.50	4000.00	0.80	0.63	2010.66
24.75	4000.00	0.79	0.62	1955.31
25.00	4000.00	0.78	0.61	1906.60
25.25	4100.00	0.77	0.59	1864.23
25.50	4000.00	0.76	0.60	1825.84
25.75	3900.00	0.79	0.58	1795.66
26.00	3900.00	0.79	0.58	1769.21
26.25	4000.00	0.75	0.59	1746.47
26.50	3900.00	0.78	0.57	1726.55
26.75	4000.00	0.74	0.58	1706.29
27.00	4000.00	0.73	0.58	1689.36
27.25	4000.00	0.70	0.60	1671.88
27.50	4000.00	0.73	0.57	1656.29
27.75	3900.00	0.76	0.56	1642.13
28.00	3900.00	0.75	0.55	1622.27
28.25	3900.00	0.75	0.55	1599.66
28.50	3900.00	0.74	0.55	1573.36
28.75	3900.00	0.73	0.54	1543.64
29.00	3900.00	0.72	0.54	1509.41
29.25	3800.00	0.71	0.54	1467.83
29.50	3900.00	0.70	0.52	1422.64
29.75	3800.00	0.69	0.52	1371.20
30.00	3900.00	0.68	0.50	1319.66
30.25	3900.00	0.66	0.49	1265.10
30.50	3800.00	0.65	0.49	1206.29
30.75	3800.00	0.63	0.48	1148.65
31.00	3800.00	0.62	0.47	1093.91
31.25	3700.00	0.61	0.46	1039.86
31.50	3800.00	0.59	0.44	988.62
31.75	3700.00	0.57	0.44	939.64
32.00	3800.00	0.56	0.42	895.20
32.25	3600.00	0.54	0.44	855.27
32.50	3700.00	0.54	0.41	815.90
32.75	3600.00	0.55	0.39	778.90
33.00	3500.00	0.57	0.38	747.18
33.25	3500.00	0.56	0.37	714.24
33.50	3800.00	0.50	0.36	680.48
33.75	3500.00	0.53	0.35	652.70
34.00	3600.00	0.47	0.37	624.21
34.25	3700.00	0.47	0.35	599.15
34.50	3600.00	0.48	0.33	574.87
34.75	3600.00	0.47	0.33	552.93
35.00	3600.00	0.44	0.34	531.73
35.25	3600.00	0.45	0.31	510.04
35.50	3500.00	0.47	0.30	489.84
35.75	3600.00	0.43	0.31	468.30
36.00	3600.00	0.43	0.29	450.02

THE MAXIMUM DISCHARGE FROM CROSS SECTION 7 IS: 1976.85 CFS AT TIME: 23.60 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 1461.55 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 7

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00

3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00
13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00	0.00
15.75	0.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00	0.00
16.50	0.00	0.00	0.00	0.00
16.75	0.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00	0.00
17.50	0.00	0.00	0.00	0.00
17.75	0.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00	0.00
18.50	0.00	0.00	0.00	0.00
18.75	0.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00	0.00
19.50	0.00	0.00	0.00	0.00
19.75	0.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	0.00
20.25	0.00	0.00	0.00	0.00
20.50	0.00	0.00	0.00	0.00
20.75	0.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00	0.00
21.25	0.00	0.00	0.00	0.00
21.50	0.00	0.00	0.00	0.00
21.75	0.00	0.00	0.00	0.00
22.00	100.00	0.01	7.69	7.85
22.25	700.00	0.08	2.52	140.68
22.50	2200.00	0.35	1.44	1110.82
22.75	2800.00	0.45	1.15	1445.71
23.00	3200.00	0.52	0.95	1571.94
23.25	3900.00	0.64	0.73	1836.14
23.50	4000.00	0.71	0.70	1966.38
23.75	4000.00	0.71	0.69	1962.20
24.00	4000.00	0.71	0.68	1928.39
24.25	4000.00	0.70	0.67	1890.81
24.50	4000.00	0.70	0.67	1854.31
24.75	4000.00	0.69	0.66	1817.10
25.00	4000.00	0.68	0.65	1780.70
25.25	4000.00	0.68	0.64	1744.55
25.50	4000.00	0.67	0.64	1711.05
25.75	4000.00	0.66	0.63	1684.51
26.00	4000.00	0.66	0.63	1662.24
26.25	4000.00	0.66	0.63	1643.97
26.50	4000.00	0.65	0.63	1631.76
26.75	4000.00	0.65	0.62	1615.78
27.00	4000.00	0.65	0.62	1604.66
27.25	4000.00	0.65	0.62	1595.21
27.50	4000.00	0.64	0.62	1589.79
27.75	4000.00	0.64	0.62	1584.65
28.00	4000.00	0.64	0.61	1574.67
28.25	4000.00	0.64	0.61	1563.84
28.50	4000.00	0.64	0.62	1566.34
28.75	4000.00	0.63	0.61	1552.51
29.00	4000.00	0.63	0.60	1523.47
29.25	4000.00	0.62	0.60	1494.05
29.50	4000.00	0.62	0.59	1459.85
29.75	4000.00	0.61	0.58	1419.88

30.00	4000.00	0.60	0.58	1387.24
30.25	3900.00	0.59	0.58	1330.21
30.50	3900.00	0.58	0.57	1275.83
30.75	3900.00	0.57	0.55	1219.85
31.00	4000.00	0.55	0.53	1169.02
31.25	4000.00	0.54	0.52	1113.18
31.50	4000.00	0.53	0.50	1059.07
31.75	3900.00	0.51	0.50	1002.60
32.00	3900.00	0.50	0.49	956.83
32.25	3900.00	0.49	0.48	918.76
32.50	3900.00	0.48	0.47	879.01
32.75	3900.00	0.47	0.46	837.20
33.00	3900.00	0.46	0.45	807.01
33.25	3900.00	0.45	0.45	777.40
33.50	3900.00	0.44	0.44	751.57
33.75	3900.00	0.43	0.43	717.73
34.00	3900.00	0.42	0.42	693.76
34.25	3900.00	0.42	0.41	665.60
34.50	4000.00	0.41	0.39	644.68
34.75	3900.00	0.40	0.40	618.80
35.00	3900.00	0.39	0.39	594.37
35.25	3900.00	0.38	0.38	571.48
35.50	3800.00	0.38	0.39	550.95
35.75	3900.00	0.37	0.36	529.13
36.00	3800.00	0.36	0.37	506.88

APPENDIX H:

vii. 24-Hour, 10-Year HYCROSS.OUT File

THE MAXIMUM DISCHARGE FROM CROSS SECTION 1 IS: 277.82 CFS AT TIME: 18.12 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 139.80 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 1

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.32
11.50	100.00	0.04	0.64	2.45
11.75	200.00	0.05	0.70	6.68
12.00	300.00	0.06	0.32	5.52
12.25	200.00	0.05	0.68	7.17
12.50	300.00	0.06	0.52	9.81
12.75	300.00	0.06	0.46	8.84
13.00	300.00	0.07	0.53	10.57
13.25	300.00	0.07	0.54	11.70
13.50	300.00	0.08	0.53	11.95
13.75	300.00	0.08	0.54	12.43
14.00	300.00	0.09	0.77	20.74
14.25	300.00	0.10	0.77	23.26
14.50	300.00	0.11	0.84	28.36
14.75	300.00	0.12	0.95	34.13
15.00	300.00	0.12	1.03	37.98
15.25	300.00	0.13	1.15	46.55
15.50	300.00	0.15	1.24	54.12
15.75	400.00	0.16	1.07	67.42
16.00	400.00	0.16	1.34	87.85
16.25	400.00	0.19	1.42	110.75
16.50	600.00	0.22	0.99	129.06
16.75	600.00	0.24	1.14	165.05
17.00	600.00	0.26	1.21	188.24
17.25	700.00	0.26	1.16	212.18
17.50	600.00	0.30	1.37	243.60
17.75	1000.00	0.31	0.83	262.14
18.00	1100.00	0.34	0.74	277.29
18.25	1000.00	0.37	0.73	269.15
18.50	1100.00	0.33	0.69	250.04
18.75	1000.00	0.31	0.75	233.41
19.00	900.00	0.32	0.75	214.48
19.25	900.00	0.28	0.78	193.27
19.50	1000.00	0.30	0.59	178.29
19.75	1000.00	0.27	0.61	163.19
20.00	900.00	0.27	0.63	154.72
20.25	800.00	0.25	0.72	146.26
20.50	800.00	0.25	0.69	136.60
20.75	900.00	0.25	0.56	126.17
21.00	800.00	0.23	0.65	120.88
21.25	800.00	0.21	0.70	115.87
21.50	900.00	0.21	0.60	113.49
21.75	700.00	0.21	0.76	110.62
22.00	700.00	0.20	0.74	106.17
22.25	700.00	0.20	0.76	106.74
22.50	700.00	0.20	0.74	103.80
22.75	800.00	0.21	0.62	103.61
23.00	800.00	0.21	0.61	101.09
23.25	700.00	0.19	0.73	99.73
23.50	600.00	0.18	0.92	100.82
23.75	800.00	0.20	0.61	98.44

24.00	1000.00	0.20	0.48	97.28
24.25	800.00	0.20	0.60	96.13
24.50	600.00	0.18	0.89	96.00
24.75	800.00	0.20	0.60	94.15
25.00	500.00	0.16	1.11	90.85
25.25	600.00	0.17	0.85	86.88
25.50	600.00	0.17	0.83	83.32
25.75	800.00	0.18	0.53	76.97
26.00	700.00	0.16	0.60	68.76
26.25	500.00	0.13	0.86	57.98
26.50	500.00	0.13	0.80	51.11
26.75	400.00	0.12	0.94	46.55
27.00	500.00	0.12	0.73	42.05
27.25	400.00	0.11	0.81	34.71
27.50	400.00	0.10	0.79	32.42
27.75	500.00	0.14	0.40	27.98
28.00	400.00	0.09	0.69	25.48
28.25	300.00	0.10	0.75	22.49
28.50	300.00	0.10	0.71	20.37
28.75	400.00	0.09	0.56	19.61
29.00	300.00	0.10	0.58	16.65
29.25	300.00	0.09	0.54	14.88
29.50	300.00	0.08	0.56	13.95
29.75	300.00	0.08	0.54	12.62
30.00	200.00	0.07	0.82	11.64
30.25	300.00	0.07	0.47	10.07
30.50	300.00	0.07	0.50	10.07
30.75	300.00	0.06	0.45	8.78
31.00	300.00	0.06	0.45	8.28
31.25	200.00	0.05	0.67	7.20
31.50	300.00	0.06	0.32	5.70
31.75	200.00	0.05	0.64	6.57
32.00	300.00	0.06	0.31	5.52
32.25	300.00	0.06	0.30	5.35
32.50	300.00	0.05	0.19	3.09
32.75	300.00	0.05	0.28	4.36
33.00	300.00	0.06	0.40	7.06
33.25	200.00	0.05	0.42	3.80
33.50	200.00	0.04	0.29	2.03
33.75	100.00	0.02	1.27	3.10
34.00	100.00	0.02	1.37	3.28
34.25	200.00	0.04	0.32	2.51
34.50	100.00	0.02	1.13	2.51
34.75	200.00	0.04	0.21	1.59
35.00	200.00	0.03	0.36	2.53
35.25	100.00	0.02	0.47	0.79
35.50	0.00	0.00	0.00	0.00
35.75	100.00	0.02	0.73	1.25
36.00	0.00	0.00	0.00	0.00

THE MAXIMUM DISCHARGE FROM CROSS SECTION 2 IS: 158.72 CFS AT TIME: 18.64 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 76.15 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 2

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00

11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00
13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	0.00
15.50	300.00	0.14	0.23	9.35
15.75	500.00	0.17	0.20	16.96
16.00	600.00	0.18	0.22	23.63
16.25	600.00	0.16	0.31	29.37
16.50	600.00	0.17	0.36	35.47
16.75	700.00	0.20	0.32	43.66
17.00	700.00	0.21	0.34	51.29
17.25	700.00	0.24	0.36	60.23
17.50	700.00	0.26	0.39	69.83
17.75	800.00	0.25	0.40	78.44
18.00	1600.00	0.18	0.44	127.86
18.25	1800.00	0.19	0.41	141.69
18.50	2100.00	0.22	0.34	155.51
18.75	2100.00	0.22	0.34	157.02
19.00	2100.00	0.22	0.33	148.64
19.25	2100.00	0.21	0.31	135.78
19.50	2100.00	0.21	0.29	125.94
19.75	2100.00	0.20	0.28	117.17
20.00	2100.00	0.19	0.27	109.22
20.25	2100.00	0.19	0.26	103.19
20.50	2000.00	0.18	0.27	96.76
20.75	1900.00	0.17	0.29	91.62
21.00	2000.00	0.16	0.26	84.82
21.25	1800.00	0.15	0.29	76.62
21.50	1800.00	0.14	0.29	72.74
21.75	1800.00	0.14	0.28	69.76
22.00	1800.00	0.14	0.27	65.52
22.25	1700.00	0.13	0.31	67.08
22.50	1700.00	0.13	0.30	63.39
22.75	1600.00	0.12	0.34	64.59
23.00	1800.00	0.13	0.25	58.08
23.25	1700.00	0.12	0.29	60.08
23.50	1900.00	0.13	0.22	55.68
23.75	1900.00	0.13	0.23	57.80
24.00	1500.00	0.11	0.33	55.76
24.25	1500.00	0.11	0.33	55.30
24.50	1500.00	0.12	0.30	51.70
24.75	1500.00	0.11	0.32	53.09
25.00	1200.00	0.10	0.45	53.00
25.25	1200.00	0.09	0.48	53.92
25.50	1500.00	0.11	0.31	52.79
25.75	1300.00	0.10	0.40	52.72
26.00	1500.00	0.10	0.32	49.35
26.25	1100.00	0.09	0.47	48.42
26.50	1200.00	0.09	0.43	44.38
26.75	1000.00	0.08	0.50	39.41
27.00	1000.00	0.08	0.43	34.68
27.25	1000.00	0.08	0.43	32.58
27.50	800.00	0.13	0.30	30.16
27.75	1000.00	0.08	0.41	30.63
28.00	800.00	0.09	0.32	23.94
28.25	700.00	0.16	0.18	19.27
28.50	700.00	0.07	0.36	16.92
28.75	700.00	0.07	0.32	15.00
29.00	500.00	0.12	0.24	14.07
29.25	500.00	0.16	0.15	11.61
29.50	500.00	0.11	0.24	12.96
29.75	600.00	0.12	0.13	9.48
30.00	500.00	0.12	0.18	10.20
30.25	500.00	0.11	0.17	9.83
30.50	400.00	0.11	0.22	9.87
30.75	400.00	0.11	0.23	9.79
31.00	400.00	0.10	0.15	6.35
31.25	400.00	0.10	0.19	7.52
31.50	500.00	0.12	0.07	4.18
31.75	500.00	0.08	0.21	8.40
32.00	400.00	0.06	0.22	5.72
32.25	300.00	0.07	0.34	6.88
32.50	300.00	0.07	0.27	5.33
32.75	400.00	0.08	0.11	3.64
33.00	500.00	0.07	0.08	3.01
33.25	200.00	0.04	0.54	4.53
33.50	400.00	0.08	0.05	1.59
33.75	400.00	0.06	0.13	3.01
34.00	400.00	0.08	0.09	2.95
34.25	200.00	0.03	0.34	2.29
34.50	400.00	0.08	0.06	1.89
34.75	200.00	0.05	0.18	1.81
35.00	0.00	0.00	0.00	2.89
35.25	300.00	0.04	0.11	1.47
35.50	300.00	0.06	0.07	1.28
35.75	200.00	0.10	0.14	2.71
36.00	0.00	0.00	0.00	0.42

THE MAXIMUM DISCHARGE FROM CROSS SECTION 3 IS: 1157.60 CFS AT TIME: 23.09 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 924.92 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 3

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00
13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00	0.00
15.75	0.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00	0.00
16.50	0.00	0.00	0.00	0.00
16.75	0.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00	0.00
17.50	0.00	0.00	0.00	0.00
17.75	0.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00	0.00
18.50	0.00	0.00	0.00	0.00
18.75	0.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00	0.00
19.50	1100.00	0.15	0.50	79.85
19.75	1700.00	0.23	0.53	208.59
20.00	2000.00	0.29	0.47	271.71
20.25	2000.00	0.30	0.48	290.58
20.50	2100.00	0.31	0.45	288.11
20.75	2300.00	0.31	0.39	280.97
21.00	2300.00	0.31	0.38	273.71
21.25	2400.00	0.31	0.35	264.22
21.50	2400.00	0.31	0.34	252.95
21.75	2400.00	0.30	0.34	247.79
22.00	2400.00	0.52	0.63	784.69
22.25	2400.00	0.61	0.72	1049.32
22.50	2400.00	0.63	0.73	1090.70
22.75	2400.00	0.64	0.74	1134.87
23.00	2600.00	0.65	0.68	1153.89
23.25	2700.00	0.66	0.65	1151.67
23.50	2600.00	0.65	0.67	1133.24
23.75	2600.00	0.64	0.67	1113.05
24.00	2600.00	0.64	0.66	1094.51
24.25	2600.00	0.63	0.65	1077.39
24.50	2700.00	0.63	0.62	1061.36
24.75	2700.00	0.63	0.62	1047.84
25.00	2700.00	0.62	0.61	1036.24
25.25	2500.00	0.61	0.67	1025.79
25.50	2600.00	0.61	0.64	1019.92
25.75	2700.00	0.62	0.61	1012.42

26.00	2600.00	0.61	0.64	1011.03
26.25	2600.00	0.61	0.64	1009.47
26.50	2600.00	0.61	0.64	1006.97
26.75	2700.00	0.61	0.61	1003.89
27.00	2600.00	0.61	0.63	1002.28
27.25	2700.00	0.61	0.61	996.80
27.50	2600.00	0.60	0.63	989.13
27.75	2700.00	0.61	0.60	980.17
28.00	2700.00	0.60	0.60	966.96
28.25	2500.00	0.59	0.65	951.19
28.50	2700.00	0.59	0.58	926.84
28.75	2600.00	0.58	0.60	900.22
29.00	2500.00	0.56	0.62	869.13
29.25	2600.00	0.56	0.57	831.12
29.50	2500.00	0.54	0.59	794.14
29.75	2600.00	0.53	0.55	755.18
30.00	2500.00	0.51	0.56	715.43
30.25	2600.00	0.50	0.52	674.55
30.50	2600.00	0.49	0.50	636.10
30.75	2400.00	0.47	0.54	602.35
31.00	2500.00	0.46	0.50	568.71
31.25	2600.00	0.45	0.46	539.62
31.50	2400.00	0.43	0.50	514.94
31.75	2500.00	0.42	0.46	485.04
32.00	2500.00	0.41	0.45	461.99
32.25	2600.00	0.41	0.42	440.89
32.50	2500.00	0.40	0.43	422.81
32.75	2500.00	0.39	0.42	406.56
33.00	2500.00	0.38	0.41	389.55
33.25	2400.00	0.37	0.42	373.17
33.50	2500.00	0.37	0.39	358.83
33.75	2400.00	0.36	0.40	345.99
34.00	2500.00	0.35	0.38	331.93
34.25	2400.00	0.34	0.39	317.72
34.50	2400.00	0.34	0.38	305.38
34.75	2300.00	0.32	0.39	290.91
35.00	2400.00	0.32	0.36	277.47
35.25	2500.00	0.32	0.33	262.77
35.50	2400.00	0.31	0.34	249.62
35.75	2400.00	0.30	0.33	238.73
36.00	2400.00	0.30	0.32	227.80

THE MAXIMUM DISCHARGE FROM CROSS SECTION 4 IS: 313.93 CFS AT TIME: 18.74 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 133.61 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 4

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00

13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00	0.00
15.75	0.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00	0.00
16.50	200.00	0.02	1.67	6.83
16.75	600.00	0.06	0.94	36.06
17.00	1200.00	0.12	0.45	65.43
17.25	1500.00	0.17	0.41	104.24
17.50	1600.00	0.20	0.43	133.13
17.75	1900.00	0.23	0.39	171.16
18.00	2400.00	0.32	0.34	258.27
18.25	2400.00	0.34	0.36	291.36
18.50	2400.00	0.34	0.38	309.62
18.75	2500.00	0.35	0.35	309.67
19.00	2500.00	0.35	0.35	299.36
19.25	2500.00	0.34	0.33	280.20
19.50	2500.00	0.32	0.32	256.67
19.75	2500.00	0.31	0.30	237.29
20.00	2500.00	0.30	0.29	219.37
20.25	2500.00	0.29	0.27	194.24
20.50	2600.00	0.28	0.24	178.12
20.75	2500.00	0.27	0.24	162.77
21.00	2600.00	0.26	0.22	146.90
21.25	2500.00	0.25	0.22	135.42
21.50	2500.00	0.24	0.21	125.50
21.75	2500.00	0.24	0.21	121.02
22.00	2600.00	0.23	0.19	114.21
22.25	2600.00	0.23	0.18	110.49
22.50	2500.00	0.22	0.19	105.35
22.75	2300.00	0.21	0.21	101.71
23.00	2400.00	0.21	0.19	99.87
23.25	2400.00	0.21	0.19	98.13
23.50	2400.00	0.21	0.19	94.80
23.75	2500.00	0.21	0.17	92.55
24.00	2500.00	0.21	0.18	93.61
24.25	2400.00	0.21	0.18	91.28
24.50	2500.00	0.21	0.17	88.74
24.75	2400.00	0.21	0.18	89.94
25.00	2500.00	0.21	0.17	92.01
25.25	2400.00	0.21	0.18	92.52
25.50	2600.00	0.21	0.16	87.85
25.75	2500.00	0.21	0.17	87.04
26.00	2400.00	0.20	0.17	82.60
26.25	2400.00	0.20	0.17	79.54
26.50	2300.00	0.19	0.18	77.58
26.75	2200.00	0.18	0.18	72.29
27.00	2300.00	0.18	0.15	61.96
27.25	2300.00	0.18	0.13	54.02
27.50	2400.00	0.17	0.12	51.04
27.75	2000.00	0.15	0.15	46.17
28.00	2300.00	0.16	0.11	39.01
28.25	2100.00	0.15	0.12	35.28
28.50	2300.00	0.14	0.08	28.21
28.75	2000.00	0.13	0.10	25.89
29.00	2000.00	0.12	0.10	23.45
29.25	1800.00	0.11	0.10	20.03
29.50	1800.00	0.10	0.10	18.92
29.75	1800.00	0.10	0.08	14.30
30.00	1900.00	0.10	0.08	15.09
30.25	1400.00	0.08	0.12	14.03
30.50	1600.00	0.09	0.10	13.91
30.75	1700.00	0.09	0.08	11.57
31.00	1600.00	0.08	0.09	12.80
31.25	1400.00	0.07	0.11	11.45
31.50	1400.00	0.07	0.09	8.63
31.75	1400.00	0.07	0.10	9.50
32.00	1100.00	0.05	0.17	9.83
32.25	1200.00	0.06	0.08	5.21
32.50	1200.00	0.05	0.08	5.42
32.75	1000.00	0.05	0.12	5.18
33.00	900.00	0.04	0.20	7.23
33.25	1000.00	0.04	0.15	6.30
33.50	600.00	0.04	0.07	1.75
33.75	500.00	0.02	0.27	2.61
34.00	100.00	0.02	0.00	0.00
34.25	200.00	0.01	0.43	0.66
34.50	100.00	0.02	0.10	0.20
34.75	100.00	0.00	0.00	0.00
35.00	100.00	0.00	0.00	0.00
35.25	100.00	0.00	0.00	0.00
35.50	100.00	0.00	0.00	0.00
35.75	500.00	0.02	0.11	1.26
36.00	200.00	0.02	0.08	0.30

THE MAXIMUM DISCHARGE FROM CROSS SECTION 5 IS: 52.27 CFS AT TIME: 21.04 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 24.21 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 5

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00

1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00
13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00	0.00
15.75	0.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00	0.00
16.50	0.00	0.00	0.00	0.00
16.75	0.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00	0.00
17.50	0.00	0.00	0.00	0.00
17.75	0.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00	0.00
18.50	0.00	0.00	0.00	0.00
18.75	0.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00	0.00
19.50	200.00	0.01	1.37	1.92
19.75	600.00	0.03	1.97	34.38
20.00	900.00	0.04	1.08	38.80
20.25	900.00	0.04	1.15	41.55
20.50	1300.00	0.05	0.65	40.97
20.75	1400.00	0.05	0.65	45.57
21.00	1700.00	0.06	0.48	45.70
21.25	1400.00	0.05	0.66	45.05
21.50	1400.00	0.05	0.70	46.66
21.75	1400.00	0.05	0.61	40.22
22.00	1400.00	0.05	0.60	39.03
22.25	1600.00	0.05	0.49	39.34
22.50	1200.00	0.04	0.71	34.56
22.75	1900.00	0.06	0.33	35.55
23.00	1500.00	0.05	0.55	40.05
23.25	1800.00	0.05	0.38	37.26
23.50	2400.00	0.07	0.20	31.90
23.75	1800.00	0.05	0.40	38.17
24.00	2000.00	0.06	0.30	33.86
24.25	1800.00	0.05	0.32	30.02
24.50	1900.00	0.05	0.35	36.16
24.75	1700.00	0.05	0.41	33.94
25.00	1400.00	0.04	0.53	31.69
25.25	1700.00	0.05	0.35	28.41
25.50	1800.00	0.05	0.38	34.13
25.75	1700.00	0.05	0.36	28.78
26.00	1200.00	0.04	0.58	25.49
26.25	1500.00	0.04	0.40	26.50
26.50	2100.00	0.06	0.19	21.82
26.75	1400.00	0.04	0.48	27.33
27.00	1500.00	0.04	0.39	24.08
27.25	1600.00	0.04	0.34	22.99
27.50	1200.00	0.03	0.51	20.40
27.75	1000.00	0.03	0.85	23.21

28.00	600.00	0.02	1.35	14.11
28.25	600.00	0.02	0.69	6.53
28.50	500.00	0.01	0.54	3.73
28.75	500.00	0.01	0.83	5.61
29.00	400.00	0.01	2.14	9.27
29.25	100.00	0.00	4.45	1.77
29.50	400.00	0.01	0.74	2.94
29.75	200.00	0.01	2.22	2.48
30.00	100.00	0.00	1.67	0.54
30.25	100.00	0.00	1.51	0.46
30.50	100.00	0.00	1.37	0.39
30.75	100.00	0.00	1.28	0.35
31.00	400.00	0.01	0.09	0.32
31.25	100.00	0.00	1.12	0.30
31.50	200.00	0.00	0.29	0.27
31.75	100.00	0.00	1.01	0.26
32.00	100.00	0.00	0.63	0.14
32.25	100.00	0.00	0.00	0.00
32.50	100.00	0.00	0.00	0.00
32.75	100.00	0.00	0.00	0.00
33.00	100.00	0.00	0.00	0.00
33.25	100.00	0.00	0.00	0.00
33.50	100.00	0.00	0.00	0.00
33.75	100.00	0.00	0.00	0.00
34.00	100.00	0.00	0.00	0.00
34.25	100.00	0.00	0.00	0.00
34.50	100.00	0.00	0.00	0.00
34.75	100.00	0.00	0.00	0.00
35.00	100.00	0.00	0.00	0.00
35.25	100.00	0.00	0.00	0.00
35.50	100.00	0.00	0.00	0.00
35.75	100.00	0.00	0.00	0.00
36.00	100.00	0.00	0.00	0.00

THE MAXIMUM DISCHARGE FROM CROSS SECTION 6 IS: 1227.28 CFS AT TIME: 24.98 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 919.00 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 6

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00
13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00	0.00

15.75	0.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00	0.00
16.50	0.00	0.00	0.00	0.00
16.75	0.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00	0.00
17.50	0.00	0.00	0.00	0.00
17.75	0.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00	0.00
18.50	0.00	0.00	0.00	0.00
18.75	0.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00	0.00
19.50	0.00	0.00	0.00	0.00
19.75	500.00	0.04	0.75	16.35
20.00	1000.00	0.09	0.50	46.68
20.25	1400.00	0.13	0.40	72.03
20.50	1600.00	0.17	0.40	105.38
20.75	2200.00	0.19	0.34	141.01
21.00	2300.00	0.20	0.33	155.09
21.25	2500.00	0.21	0.30	161.17
21.50	2600.00	0.22	0.29	163.32
21.75	2600.00	0.22	0.29	168.13
22.00	2600.00	0.23	0.29	169.31
22.25	2600.00	0.23	0.29	172.70
22.50	2700.00	0.23	0.28	176.65
22.75	2800.00	0.23	0.28	179.80
23.00	2900.00	0.24	0.26	184.01
23.25	2800.00	0.26	0.29	207.76
23.50	2900.00	0.29	0.32	269.01
23.75	2900.00	0.35	0.40	400.13
24.00	3400.00	0.49	0.44	745.08
24.25	3900.00	0.61	0.44	1053.15
24.50	3900.00	0.65	0.46	1175.67
24.75	3900.00	0.66	0.47	1217.52
25.00	3900.00	0.66	0.47	1225.94
25.25	3900.00	0.66	0.47	1219.94
25.50	3900.00	0.66	0.47	1206.69
25.75	3900.00	0.65	0.47	1190.24
26.00	3900.00	0.65	0.47	1175.31
26.25	3800.00	0.64	0.48	1160.90
26.50	3900.00	0.64	0.46	1146.88
26.75	3900.00	0.64	0.46	1134.34
27.00	3800.00	0.63	0.47	1122.72
27.25	3900.00	0.63	0.45	1111.28
27.50	3900.00	0.63	0.45	1102.04
27.75	3900.00	0.63	0.45	1093.05
28.00	3900.00	0.62	0.45	1085.31
28.25	3900.00	0.62	0.45	1077.39
28.50	3800.00	0.61	0.46	1066.80
28.75	3900.00	0.61	0.44	1054.35
29.00	3900.00	0.61	0.44	1040.65
29.25	3900.00	0.60	0.44	1025.01
29.50	3800.00	0.59	0.45	1007.14
29.75	3900.00	0.59	0.43	987.10
30.00	3900.00	0.58	0.42	961.99
30.25	3800.00	0.57	0.43	938.12
30.50	3800.00	0.57	0.42	909.48
30.75	3700.00	0.57	0.42	875.89
31.00	3800.00	0.55	0.41	845.48
31.25	3700.00	0.55	0.40	809.93
31.50	3600.00	0.55	0.39	776.71
31.75	3800.00	0.52	0.38	741.71
32.00	3700.00	0.50	0.38	706.96
32.25	3600.00	0.50	0.37	674.44
32.50	3800.00	0.48	0.35	640.33
32.75	3600.00	0.49	0.34	613.25
33.00	3700.00	0.46	0.34	582.32
33.25	3500.00	0.50	0.32	557.89
33.50	3800.00	0.45	0.31	531.68
33.75	3600.00	0.43	0.33	510.47
34.00	3700.00	0.43	0.31	487.34
34.25	3500.00	0.46	0.29	466.92
34.50	3600.00	0.44	0.28	448.77
34.75	3600.00	0.42	0.28	431.28
35.00	3500.00	0.44	0.27	416.17
35.25	3500.00	0.43	0.27	401.00
35.50	3500.00	0.42	0.26	386.78
35.75	3500.00	0.42	0.26	374.79
36.00	3500.00	0.41	0.25	361.47

THE MAXIMUM DISCHARGE FROM CROSS SECTION 7 IS: 941.25 CFS AT TIME: 29.24 HOURS
THE TOTAL VOLUME OF DISCHARGE IS: 670.35 AF

HYDROGRAPH AND AVERAGE FLOODPLAIN HYDRAULICS FOR CROSS SECTION NO: 7

TIME (HRS)	TOPWID (FT)	DEPTH (FT)	VELOCITY (FPS)	DISCHARGE (CFS)
0.25	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	0.00

3.50	0.00	0.00	0.00	0.00
3.75	0.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
4.75	0.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	0.00
5.75	0.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00
6.75	0.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	0.00
7.75	0.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	0.00
8.75	0.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	0.00
9.75	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	0.00
10.75	0.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	0.00
11.75	0.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00	0.00
12.50	0.00	0.00	0.00	0.00
12.75	0.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00	0.00
13.50	0.00	0.00	0.00	0.00
13.75	0.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00	0.00
14.75	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00	0.00
15.75	0.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00	0.00
16.50	0.00	0.00	0.00	0.00
16.75	0.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00	0.00
17.50	0.00	0.00	0.00	0.00
17.75	0.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00	0.00
18.50	0.00	0.00	0.00	0.00
18.75	0.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00	0.00
19.50	0.00	0.00	0.00	0.00
19.75	0.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	0.00
20.25	0.00	0.00	0.00	0.00
20.50	0.00	0.00	0.00	0.00
20.75	0.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00	0.00
21.25	0.00	0.00	0.00	0.00
21.50	0.00	0.00	0.00	0.00
21.75	0.00	0.00	0.00	0.00
22.00	0.00	0.00	0.00	0.00
22.25	0.00	0.00	0.00	0.00
22.50	0.00	0.00	0.00	0.00
22.75	0.00	0.00	0.00	0.00
23.00	0.00	0.00	0.00	0.00
23.25	0.00	0.00	0.00	0.00
23.50	0.00	0.00	0.00	0.00
23.75	0.00	0.00	0.00	0.00
24.00	0.00	0.00	0.00	0.00
24.25	100.00	0.01	0.88	0.44
24.50	500.00	0.04	1.96	34.48
24.75	600.00	0.05	1.89	56.18
25.00	800.00	0.06	1.37	65.70
25.25	2000.00	0.25	1.21	603.26
25.50	2400.00	0.29	0.99	691.72
25.75	2600.00	0.31	0.90	712.32
26.00	2700.00	0.32	0.84	718.36
26.25	3000.00	0.34	0.73	746.19
26.50	3000.00	0.36	0.72	786.54
26.75	3700.00	0.42	0.55	848.30
27.00	4000.00	0.45	0.49	891.14
27.25	3900.00	0.46	0.50	895.30
27.50	3900.00	0.47	0.49	912.68
27.75	3900.00	0.48	0.49	919.24
28.00	3900.00	0.48	0.50	930.47
28.25	4000.00	0.48	0.48	933.17
28.50	3900.00	0.48	0.50	929.09
28.75	3900.00	0.48	0.50	936.32
29.00	3900.00	0.48	0.50	938.47
29.25	3900.00	0.48	0.50	932.84
29.50	4000.00	0.48	0.48	936.84
29.75	4000.00	0.48	0.48	933.55

30.00	3900.00	0.48	0.49	922.51
30.25	3900.00	0.48	0.49	913.16
30.50	4000.00	0.48	0.47	904.27
30.75	4000.00	0.47	0.47	883.96
31.00	3900.00	0.46	0.48	860.77
31.25	3900.00	0.46	0.47	834.22
31.50	3900.00	0.45	0.46	808.12
31.75	4000.00	0.45	0.44	780.33
32.00	3900.00	0.44	0.44	753.58
32.25	4000.00	0.43	0.42	725.50
32.50	3900.00	0.42	0.42	692.07
32.75	3800.00	0.41	0.43	665.72
33.00	3900.00	0.40	0.40	639.05
33.25	3900.00	0.40	0.39	607.57
33.50	3900.00	0.39	0.39	584.56
33.75	3900.00	0.38	0.38	557.17
34.00	3900.00	0.37	0.37	533.59
34.25	3800.00	0.36	0.37	513.19
34.50	3800.00	0.36	0.36	489.84
34.75	3800.00	0.35	0.36	472.80
35.00	3900.00	0.34	0.34	452.06
35.25	4000.00	0.34	0.32	432.74
35.50	3900.00	0.33	0.32	415.19
35.75	3800.00	0.32	0.32	397.96
36.00	4000.00	0.32	0.30	386.82

APPENDIX H:

Inyo County California Public Works Letter

DEPARTMENT OF PUBLIC WORKS

P.O. DRAWER Q – 168 NORTH EDWARDS ST.
INDEPENDENCE, CA 93526
PHONE: (760) 878-0201
FAX: (760) 878-2001

COUNTY OF **INYO**

Doug Wilson, Interim Director

February 23, 2011

RECEIVED FEB 28 2011

Brian Ruiz
VTN Consulting Engineers
2727 S. Rainbow Blvd.
Las Vegas, NV 89146-5148

Re: Hydrology Methodologies for BriteSource Hidden Hills Project

Dear Mr. Ruiz,

Thank you for meeting with County Staff regarding methodologies used for the hydrology analysis for the proposed BriteSource solar energy generating systems planned for the Hidden Hills area in Southern Inyo County. At the meeting you presented information regarding the methods used in your hydrology analysis and results obtained for on and offsite sourced stormwater and how the potential flows could impact the site.

We noted that Inyo County has not yet developed a Hydrology Manual, which would guide developers in the study of stormwater impacts to proposed construction within the County. At this time, the County evaluates proposals on a case-by-case basis, relying on the developers' engineering staff to present an evaluation and proposal for dealing with stormwater impacts. This is the current situation with the submittal from BriteSource for the proposed Hidden Hills project.

At the meeting, which was held in County offices in Independence on February 9th, VTN engineers presented information on the methods used for analysis and results of the hydrology study preformed for the Hidden Hills site. VTN staff has requested that the County consider the use of the San Bernardino Hydrology Manual, including the 2010 Addendum to the Manual, which provides specific information for arid regions. The County feels that the use of the San Bernardino Hydrology Manual is appropriate for an evaluation of stormwater impacts for the Hidden Hills Project because portions of San Bernardino County lie within 15 miles of the proposed site.

VTN has also proposed the use of a 100 year, 24-hour duration storm for their hydrology modeling. The Inyo County Subdivision Ordinance specifies the use of the 100-year storm, but does not specify the duration for the storm. Therefore, the use of the 100 year 24 hour duration storm provides a conservative estimate for evaluating stormwater impacts. The County has no issues regarding the use of this frequency and duration for stormwater modeling.

VTN has also proposed the use of Army Corp of Engineers HEC-1 and HEC-RAS software for evaluating storm events and runoff as well as FLO-2D in the analysis of storm events. The County feels that the use of this software and modeling will provide a realistic analysis of stormwater impacts to the site, which will be used to develop site-specific plans for construction of the proposed facilities.

In summary, the County feels that the methods and models proposed by VTN for the Hidden Hills BriteSource Project are suitable for evaluating the stormwater impacts to the site.

BSE Document Control Number: HYD200-R1

If there are specific question regarding Inyo County's specific stormwater design standards or the response to VTN regarding the stormwater evaluation for the BriteSource Hidden Hills Project, please direct them to our office.

Sincerely,

Paul Hancock FOR

Doug Wilson
Interim Public Works Director

cc: Kevin Carunchio, CAO
Inyo County Supervisors
County Counsel
Planning Department
Environmental Health Department
Building and Safety
file