



Drainage Reports

CAVASSON

LOCATED NEAR THE SOUTHWEST CORNER OF NORTH HAYDEN ROAD AND EAST
LEGACY BOULEVARD

FINAL DRAINAGE REPORT- CAVASSON HOTEL

Basis of Design

November 1, 2019
Revised April 1, 2020

Project No.: 18114-301

PREPARED FOR:

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Plan #	
Case #	5-DR-2020
Q-S #	
☒ Accepted	
☐ Corrections	
N. Baronas	5/20/2020
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H U B B A R D
E N G I N E E R I N G

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1. INTRODUCTION

1.1 Project Scope

This report presents the results of a *Final Drainage Study* conducted by Hubbard Engineering at the request of Nationwide Realty Investors (“client”), for The Cavasson Hotel of the Cavasson master development (“site”). The purpose of this report is to provide a hydrologic evaluation for the site as required for Design Review through the City of Scottsdale per the City of Scottsdale Ordinances 4346 and 4347. This report addresses off-site and on-site conditions as well as storm water runoff storage requirements for the Hayden Road improvements. Drainage calculations and methodologies conform to the City of Scottsdale requirements and standards and to Hubbard Engineering’s submitted *Master Drainage Report* for the Cavasson development.

This report is focused on providing practical design information, evaluation, and calculations for statistical flood events up to and including the 100-year frequency flood. The procedures used herein are derived from and performed with currently accepted engineering methodologies and practices. Additionally, the criteria for this evaluation are designed to conform to currently applicable ordinances, regulations and policies affected by the appropriate jurisdictional regulatory authorities for the site.

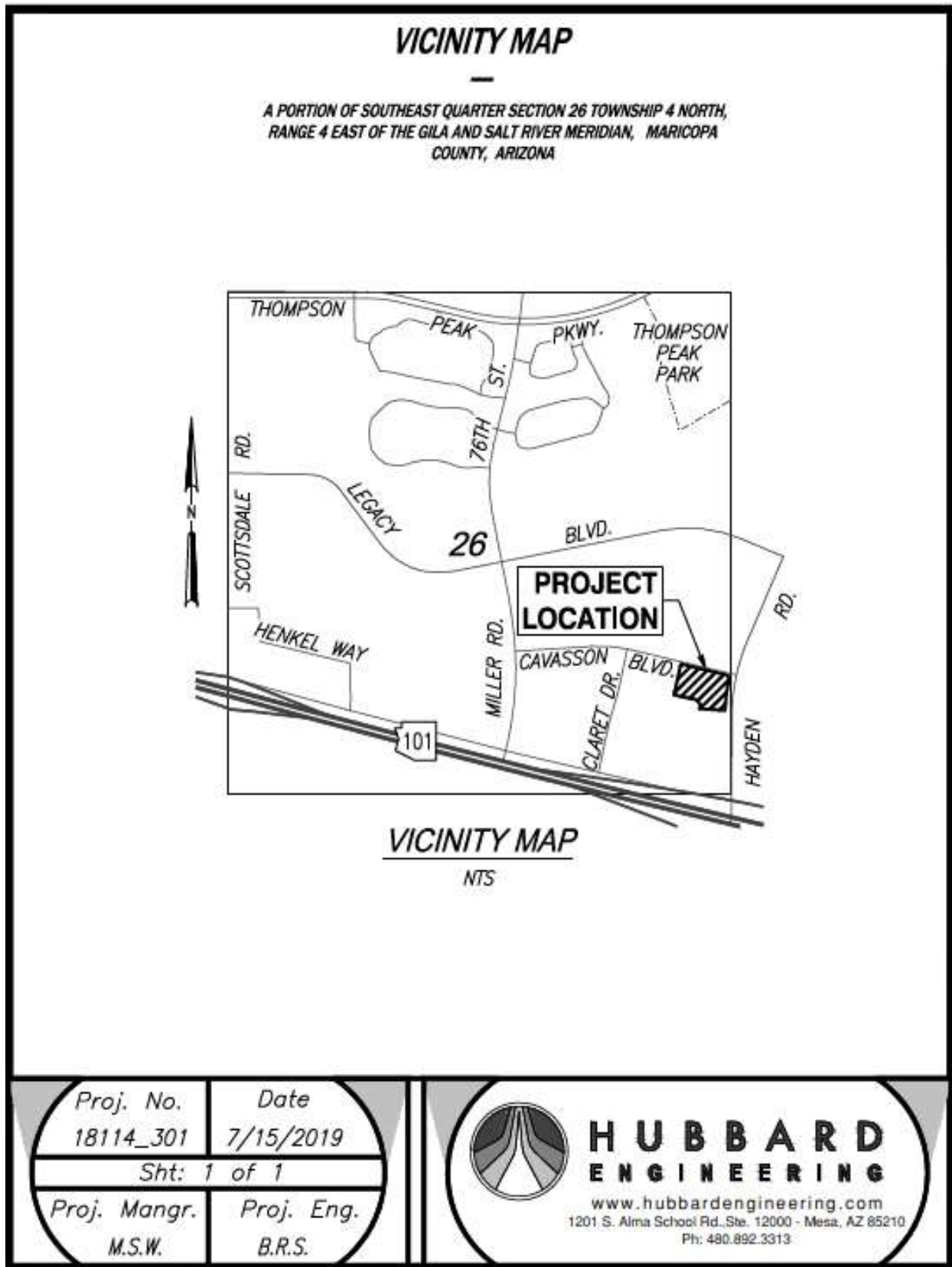
The analysis presented herein focuses on developing design estimates of storm water runoff resulting from a statistical evaluation of storm events of a particular duration and frequency, up to and including a 100-year frequency event. A storm event exceeding the 100-year frequency event may cause or create the risk of greater flood impact than is addressed and presented herein. The scope of this assessment does not include evaluation of storm water runoff resulting from storm events exceeding the 100-year frequency event. Hubbard assumes no responsibility for actual flood damage, increased risks of flood damage, or increased construction or development costs resulting from or related to any such events. Nor shall Hubbard be responsible for any changes in, or additions to, regulatory requirements which may result from, or be related to, any such events or changes in hydrologic or hydraulic conditions within the watershed.

1.2 Site Description

The site is located in the southeast quarter of Section 26, Township 4N, Range 4E of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. The site is currently undeveloped, and prior to Nationwide Realty Investor’s acquisition, was held in trust by the Arizona State Land Department (ASLD) as a portion of the overall Crossroads East development, which encompasses approximately 883 gross acres. The topography of the undeveloped land shows an alluvial fan, indicating a significant amount of surface water is conveyed over the land. Phase I of the Cavasson site development is in the southwest corner of the overall development, near the Hayden Road and Loop 101 frontage 101 intersection. The land naturally falls northeast to southwest. The site is located within the Zone AO (1’ Depth) flood zone.

Phase I of Cavasson is bounded by the Loop 101 Freeway to the south, North Hayden Road to the east, and undeveloped land to the west and north. The site location is shown in **Figure 1.1** on the *Vicinity Map*. The Hotel is specifically located in the northeast corner of the site.

Figure 1.1 – Vicinity Map



1.3 Project Type

The Cavasson development is being developed by Nationwide Reality Investors as a master planned mixed use development with office, retail, hotels, and multifamily residential parcels with public and private roadways that run adjacent and through the development. The Phase I Hotel of the improvements includes construction of a new hotel building with 237 rooms. Improvements will include surrounding access drives and utilities through the property to provide domestic water, fire, and sewer services to the proposed building and garage. The analyses of pre-development and post-development peak discharges were addressed in Hubbard's *Master Drainage Report* and will be referenced and further discussed as it applies to the Phase I improvements.

1.4 Special Conditions- 404 Washes

Located throughout the project site are waters of the United States 404 washes. The handling of the 404 washes will be coordinated with engineering consultants and the City of Scottsdale as the project develops. The Section 404 Certification form will be completed by consultants. As discussed in the *Master Drainage Report*, a Hubbard has met with the Army Corps of Engineer (USACE) and is currently working with consultants and the Corps to complete a mitigation plan. Approval of the 404 permit was granted on April 2, 2019. That permit number is SPL-2018-00704. ADEQ has issued the 401 permit.

1.5 Regulatory Criteria

The criterion used in the drainage design and analysis of the site was established using the guidelines as described in the following:

- City of Scottsdale, *Design Standards & Policies Manual*, January 18, 2018.
- City of Scottsdale, *Ordinance No. 4346*, June 17, 2018.
- *Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology*.
- *Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics*.

2. EXISTING DRAINAGE CONDITIONS

2.1 Existing Off-Site Conditions Characteristics

Development in the surrounding area has increased in the last decade and many of the surrounding properties which sit in the Reata Pass basin, part of the Pinnacle Peak South Area, have installed infrastructure to route the offsite flows through their developments. As-built plans for the developments show that channels and culverts have been constructed to divert and route off-site flows. Historical runoff for the areas on and surrounding the project site flow south towards collections points (i.e. existing culverts) where the off-site storm runoff is ultimately conveyed to the TPC golf course just north of the Central Arizona Project canal. Existing culverts located at the edges of Hayden Road are currently utilized to route off-site runoff. Off-site routing for the developed surrounding areas has been verified with their corresponding as-builts, including Hayden Road Improvement Plans, 76th Street & Infrastructure Design, Center Drive (now Legacy Boulevard) Improvements, and One Scottsdale Civic Center Improvement Plans.

Hubbard Engineering completed a *Master Drainage Report* which included an extensive analysis of the off-site flow conditions affecting the entire Crossroads East area, including Cavasson and Hayden Road, for the existing site and proposed development. Results from the study indicate that the storm event affecting Hayden Road is a 100-year, 6-hour storm event. Since the submittal of the *Master Drainage Report*, Hubbard has met with the City of Scottsdale and the developers south of the Cavasson development. It was determined in the meeting that the HEC-1 models be adjusted to reflect a time interval of 15 minutes rather than 3 minutes, as was originally modeled in TY Lin's report. The flows affecting Hayden Road will be discussed in section 3.1. Details on Hubbard's HEC-1 methodology and analyses, in addition to the modeling results, can be referenced in the approved *Cavasson Master Drainage Report* dated December 18, 2018.

2.2 On-site Drainage

As the Cavasson project site is currently undeveloped, there are no on-site drainage structures. The project site was included in two previous studies, Bob Ward's *Core North/ Core South Drainage Study* and TY Lin's *Pinnacle Peak South Area Drainage Master Study*. The TY Lin report analyzed the Crossroads East area and included FLO2d models combined with HEC-1 analyses on localized basins. The TY Lin report provided a basis on which Hubbard completed its hydrologic studies for the Cavasson project development.

The project site naturally falls from north to south at approximately 1.2% and approximately 0.7% east to west. There is currently no ultimate outfall.

2.2.1 HEC-1 Analysis

The TY-Lin *Pinnacle Peak South Area Drainage Master Study* report provides an analysis of the entire Pinnacle Peak South Area, which covers an approximate area of 40 square miles. According to the report, the project site is located within the Dobson Wash Watershed, which includes inflow from the southwestern flow split of the Reata Pass Wash. TY Lin's existing and proposed exhibits and results can be found in **Appendices A and B**, respectively. Hubbard replicated TY-Lin's model in application to the approximate nine square miles including and

surrounding the project site, shown in **Exhibit 1**, and included the inflow hydrographs from TY Lin's Master Drainage study to account for run-off affecting the project site from the 76th Street Channel and the Powerline for both the 100-year, 6-hour and 100-year, 24-hour storm events. Data collected for the model includes the precipitation, soil, and land use for the existing site conditions in application to the delineated sub-basins. All data Hubbard obtained and used in the model was compared to the existing TY Lin model for accuracy and adjusted accordingly based on current site conditions at maximum densities per approved zoning cases. Precipitation data was obtained from the NOAA Atlas 14 precipitation database. The map index used in DDMSW is 64, cells 687-689. Existing soil data was obtained from the United States Department of Agriculture's Natural Resources Conservation Service. Additionally, land use data was determined based on current zoning of the project site. Data for the HEC-1 analysis are in **Appendix C**. The results of the ultimate condition at full build out (after the powerline channel is constructed) are included in **Appendix D**.

Hubbard has met with the City of Scottsdale and the developers south of the Cavasson development in order to coordinate the analyses for the Crossroads East development. It was determined in the meeting that the HEC-1 models be adjusted to reflect a time interval of 15 minutes rather than 3 minutes, as was originally modeled in TY Lin's report. Thus, the inflow hydrographs provided by TY Lin were convoluted to accurately represent this change in time interval resulting in more accurate time to peak values. In addition, it was also decided in the meeting that Hubbard's analysis for the existing, proposed, and ultimate conditions will be used by developers south of Hayden Road. Hubbard's sub-basin delineation, shown in **Exhibit 1**, deviates from TY Lin's analysis in that Hubbard added collection points at existing culverts along Legacy Boulevard and Hayden road to model the peak flows coming through each infrastructure for utilization in routing design. Additionally, detailed analysis of the existing topography and as-builts along Hayden road and Legacy Boulevard revealed that the basins were not segmented by Hayden Road or Legacy Boulevard, in the TY Lin Report. These larger basins were subdivided in the Hubbard analysis and a similar naming convention was used to compare baseline flows.

Hubbard's analysis split the original TY Lin sub-basins 7 and 8 into east and west components to more accurately model the conveyance of the flows on either side of Hayden Road. An additional basin, SB09N was also added per the city's request as this was not included in the TY Lin analysis. In Hubbard's routing, flows from SB07E and SB08E are routed east, following the topography. Since the TY-Lin model does not delineate a SB-08W, the TY-Lin model shows the flow from SB08 flowing from the southwest corner of the basin east across Hayden Road. This analysis is not correct considering that the eastern elevation is approximately 20 feet higher than the western elevation (CP-08 in TY-Lin's exhibit). This routing also neglects the flow being conveyed across the Loop 101 from SB07W and SB08W. Hubbard therefore routed the flow from SB07W and SB08W to the existing ADOT culvert along Frontage road and across the Loop 101, thus affecting the developments south of the Loop 101, a condition not represented in the TY-Lin report.

In TY-Lin's analysis, the 100-year, 24-hour storm event controlled for the entire area, with the 100-year, 6-hour storm event controlling the localized flows. TY-Lin recommended the creation of the Powerline Channel to intercept and route the 100-year, 24-hour flows to Basin 53R. Since it was determined in meetings with the City of Scottsdale that the channel will be built during construction of the Cavasson development, Hubbard's existing model includes this channel and results for the 100-year, 24-hour, 100-year, 6-hour, and 10-year, 6-hour storm events are shown in **Appendix D**. The Existing 100-year, 6-hour flows prior to the offsite channel being constructed

were 196 cfs entering the site and an Existing condition 100-Year, 6-hour discharge exiting the site at the Loop 101 of 740 cfs. With the addition of the channel and routing to Basin 53R, a significant amount of flow is being diverted from the affected study area to Basin 53R. The addition of the channel results in higher peak flows for the Crossroads East development from the 100-year, 6-hour storm event rather than the 100-year, 24-hour storm.

In addition to the existing model post-channel and proposed model, Hubbard completed an ultimate condition model considering the surrounding lots will be developed. In the model, this was represented by increasing the imperviousness of SB01-B, SB01-C, and SB07W to reflect maximum assumed densities per the zoning stipulations pertinent to the Cavasson development and Cross Roads East approved zoning cases.

2.3 Flood Zone Information

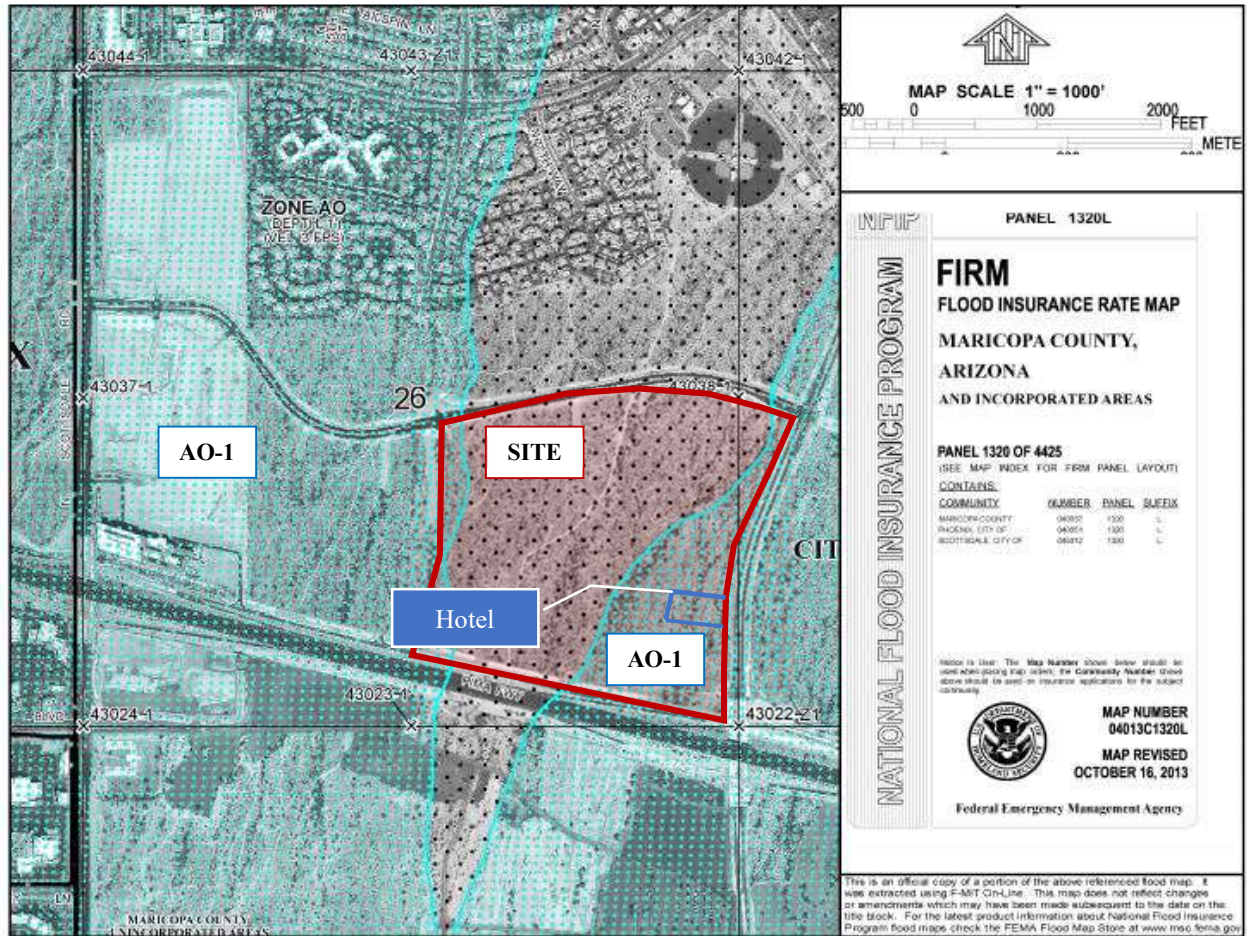
The Maricopa County, Arizona and Incorporated Areas Flood Insurance Rate Map (F.I.R.M.) number 04013C1320L, Panel number 1320 of 4425, dated October 16, 2013 indicates that Phase I falls within Zone AO (Depth 1 foot).

Zone AO is defined as:

“Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown in this zone. Mandatory flood insurance purchase requirements and floodplain management standards apply.”

Refer to FEMA Firmette in **Figure 2.1**.

Figure 2.1 – FIRM 04013C1320L



3. PROPOSED DRAINAGE PLAN

3.1 Off-Site Flows

Off-site flows for the site were analyzed and addressed in Hubbard's *Master Drainage Report*. The historical *existing conditions* discharge from the site at the Loop 101 were 740 cfs for the 100-Year, 6-hour event. Results from the analysis show that after the powerline Channel is constructed 62 cfs is currently being conveyed across Legacy from the existing box culvert located at the Legacy Boulevard and Hayden Road intersection. According to the original analysis results for the existing site conditions, an additional 54 cfs is shown to be crossing Hayden Road through two 30-inch pipe culverts, approximately 695 feet north of the Hayden Road and Loop 101 Frontage Road intersection. However, upon inspection of the culverts after major storm events, it was noted from the accumulated sediment at the culvert entrance and the sandy wash bottoms of the flow paths that the velocity of the flow is too great to exit through these culverts and that the flow instead conveys southeast via an existing channel toward Basin 53R. Hubbard thus proposes filling the existing 30" culverts with concrete. Therefore, the total flow exiting the Cavasson site pre-development, and post-Powerline Channel is 193 cfs. Since Hayden Road will be widening, the existing channel will be moved nine feet, at most, to the east to accommodate the new road. The channel capacity and overall routing will otherwise remain unchanged. Post development, the flow exiting the site is 82 cfs after the first flush detention is taken into account. Developers downstream of this collection point and the City of Scottsdale have been notified of the flow affecting their project developments and will coordinate their analyses and results based on Hubbard's results. Capacity calculations for the existing culverts were completed and addressed in Hubbard's *Master Drainage Report*.

A channel was designed on the west side of Hayden Road along the eastern edge of the Cavasson development to convey the flow originating from north of Legacy Boulevard (SB07W), through proposed culverts under each proposed driveway coming off Hayden Road, and to the existing culverts along the Loop 101. The proposed culverts are single barreled 36-inch pipes. Calculations for the proposed culverts can be found in the Hayden Rd. Final Drainage Report.

With the proposed Cavasson Blvd. and Claret Dr. alignments, all off-site water from the north will be collected into culverts and storm drain pipe in order to mitigate the 100-yr 6-hr impacts to Phase 1. A portion of the undeveloped property north of Cavasson Blvd, along with a portion of Cavasson Blvd and all of Claret Dr. will be collected in a 36" storm drain and directed to a first flush retention basin at the southwest of Phase 1 where it ultimately outfalls to an existing culvert crossing to the south of the US 101. As a part of the Phase 1 development, this roadway first flush retention has been provided on-site in 10' CMP retention.

3.2 On-Site Hydraulics

The storm event affecting the site was determined to be a 100-year, 6-hour storm, as discussed in Hubbard's *Master Drainage Report*. The Phase 1 Hotel will include the installation of the hotel building in the north-east corner of the site as well as the private road along the frontage. Additionally, the storm drain system constructed as part of Phase 1 will be extended onto the hotel site to capture storm runoff from the hotel development.

See **Exhibit 2** for the drainage map. The front courtyard and part of the hotel roof will drain into a 12" storm drain network. This network will connect to an existing 24" stub provided as part of Phase 1. In this way, the network will drain into the existing retention tanks at the south of Phase

1 which have been sized to accommodate this flow per the Phase 1 drainage report. Additionally, a majority of the hotel roof, DA-A, will drain through a 12" pipe to the existing storm drain network to the west of the site. This will ultimately drain to the existing retention tanks to the south of Phase 1 as well. The remainder of the site will drain through two separate storm drain networks into the existing Hayden road channel to the east of the site. This channel will convey the storm water run-off to the first flush retention at the south end of the site. The greater storm events will outfall into the existing culvert at the US 101. Details about the channel can be found in the Phase 1 Drainage Basis of Design Report.

3.3 Erosion Hazard Setback

The lateral erosion hazard setback was calculated for the adjacent channel which will be constructed under separate permit. The setback was calculated using a level 1 analysis per Maricopa County Flood Control District Design Manual Volume 3, Erosion. For straight reaches the setback can be calculated as:

$$setback = 1.0(Q_{100})^{0.5} = 1(57)^{0.5} = 7.5'$$

For curved reaches the setback can similarly be calculated as:

$$setback = 2.5(Q_{100})^{0.5} = 2.5(57)^{0.5} = 18.8'$$

The minimum allowable lateral erosion hazard setback for Maricopa County is 20 feet. Both calculated setbacks are less than 20 feet, therefore, a setback of 20 feet was used from the back of the wall. This setback can be seen in **Exhibit 5** and shows that the building is outside of the lateral erosion hazard setback.

3.4 Storm Water Storage

The project development is required to provide retention for the first flush storm event. The required first flush volume determined for each drainage area site will be designed per City of Scottsdale *Drainage Policies & Standards for Maricopa County, Arizona* (Reference 1). 750 lf of 10' CMP that was built with phase one will provide the required 4,997 cf of first flush retention. The tanks were initially designed to account for 5,492 cf of first flush retention from the site. The first flush calculations can be found in **Appendix F**. The calculations are based on the ultimate build-out of Phase 1.

3.4.1 Time to Drain

Each site will be required to dewater the required storm water retention through natural percolation and/or drywells. The City of Scottsdale requires all retention facilities be completely drained within a 36-hour time frame. Drywell calculations were conducted as part of the Phase 1 development and accounted for the retention required by the Phase 1 hotel. These drywell calculations have been attached in **Appendix F** for reference only.

4. SUMMARY AND CONCLUSION

- The site is located in Section 26 of Township 4N, Range 4E of the Gila and Salt River Base and Meridian, Maricopa County, Arizona.
- The site is located in the Flood Plain Zone AO-1.
- The Finish Floor Elevations of the proposed buildings meet the requirement of 2 feet higher than the natural grade (HAG).
- The storm event affecting the site was modeled as a 100-yr, 6-hour event in Hubbard's *Master Drainage Report*.
- All off-site drainage has been mitigated through the improvements of Hayden Rd., and the construction of Cavasson Blvd. and Claret Dr.
- The site will be required to provide retention for the first flush storm event.
- 750 lf of 10' CMP retention will provide 58,875 cf of retention, for the required retention of 58,336 cf that includes the roadway drainage.

5. REFERENCES

- 1) City of Scottsdale. *Drainage Policies & Standards for Maricopa County, Arizona*. January 18, 2018.
- 2) Flood Control District of Maricopa County. *Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology*. November 2003.
- 3) Flood Control District of Maricopa County. *Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics*. November 2003.
- 4) Flood Control District of Maricopa County. *Drainage Design Manual for Maricopa County, Arizona, Volume III, Erosion*. July 2018.
- 5) City of Scottsdale. *Ordinance No. 4346*. June 17, 2018.
- 6) TY Lin, *Pinnacle Peak South Area Drainage Master Study*, 2014.
- 7) City of Scottsdale, *Ordinance No. 4346*, June 17, 2018.

6. LIMITATIONS

This report is focused on providing practical design information, evaluation, and calculations for statistical flood events up to and including the 100-year frequency flood. The procedures used herein are derived from, and performed with, currently accepted engineering methodologies and practices. Additionally, the criteria for this evaluation is designed to conform to currently applicable ordinances, regulations and policies effected by the appropriate jurisdictional regulatory authorities for the site.

The analysis presented herein focuses on developing design estimates of storm water runoff resulting from a statistical evaluation of storm events of particular duration and frequency up to and including a 100-year frequency event. A storm event exceeding the 100-year frequency event may cause or create the risk of greater flood impact than is addressed and presented herein. However, the scope of this assessment does not include evaluation of storm water runoff resulting from storm events exceeding the 100-year frequency event. Hubbard Engineering assumes no responsibility for actual flood damage, increased risks of flood damage, or increased construction or development cost resulting from or related to any such events.

Nor shall Hubbard Engineering be responsible for any changes in, or additions to, regulatory requirements which may result from, or be related to, any such events or changes in hydrologic or hydraulic conditions within the watershed.

In performing the services contained herein, Hubbard Engineering has received or will receive information prepared or compiled by others. Hubbard Engineering, as engineering professionals, are not required to verify the information, but may rely on the information unless actual knowledge concerning the validity of the information is known or is obvious to the professional. Therefore, Hubbard Engineering is entitled to rely upon the accuracy and completeness of this information without independent evaluation or verification.

CITY OF SCOTTSDALE WARNING AND DISCLAIMER OF LIABILITY

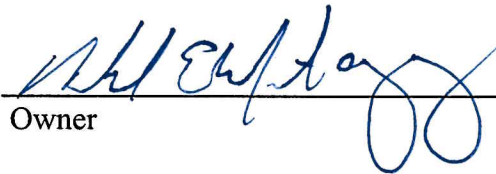
The flood protection provided by the Stormwater and Floodplain Management Ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Floods larger than the base flood can and will occur on rare occasions. Floodwater heights may be increased by constructed or natural causes. The Stormwater and Floodplain Management Ordinance does not create liability on the part of the city, any officer or employee thereof, or the federal, state or county government for any flood damages that result from reliance on the Ordinance or any administrative decision lawfully made thereunder.

Compliance with the Stormwater and Floodplain Management Ordinance does not ensure complete protection from flooding. Flood-related problems such as natural erosion, streambed meander, or constructed obstructions and diversions may occur and have an adverse effect in the event of a flood. You are advised to consult your own engineer or other expert regarding these considerations.

I have read and understand the above.

Plan Check #

Owner

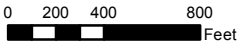


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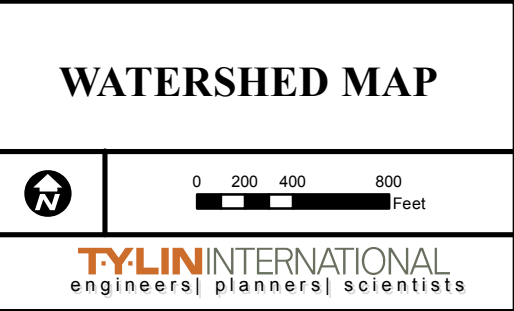
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Appendix A
TY Lin HEC-1 Existing
Cavasson-Hotel

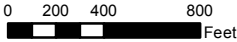
WATERSHED MAP

TYLIN INTERNATIONAL
engineers | planners | scientists



WATERSHED MAP

0 200 400 800 Feet

TYLIN INTERNATIONAL
engineers | planners | scientists

Legend

- Flow Path
- Sub-basins
- Proposed ROW

Legend

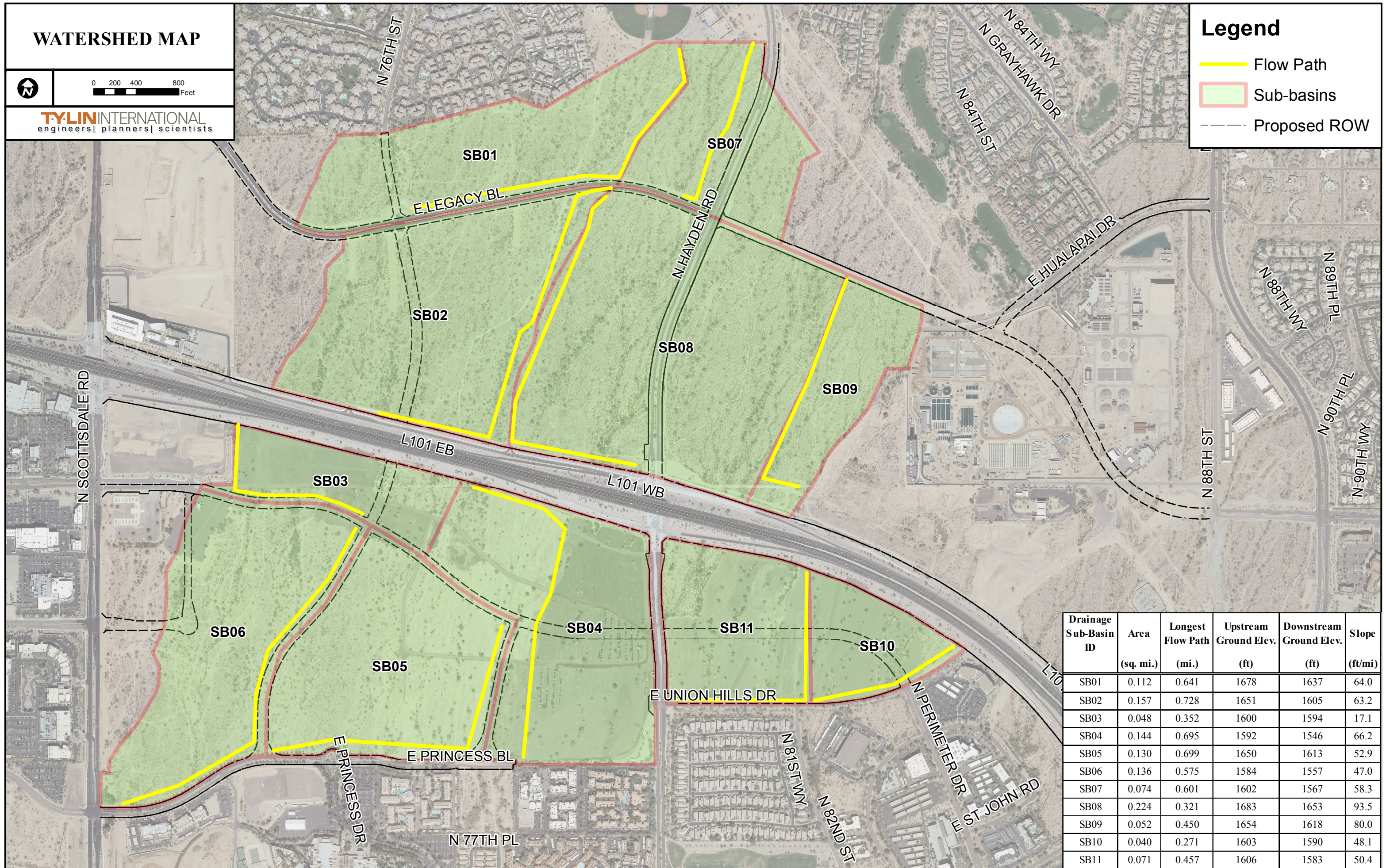
- Flow Path
- Sub-basins
- Proposed ROW

Legend

- Flow Path
- Sub-basins
- Proposed ROW

Legend

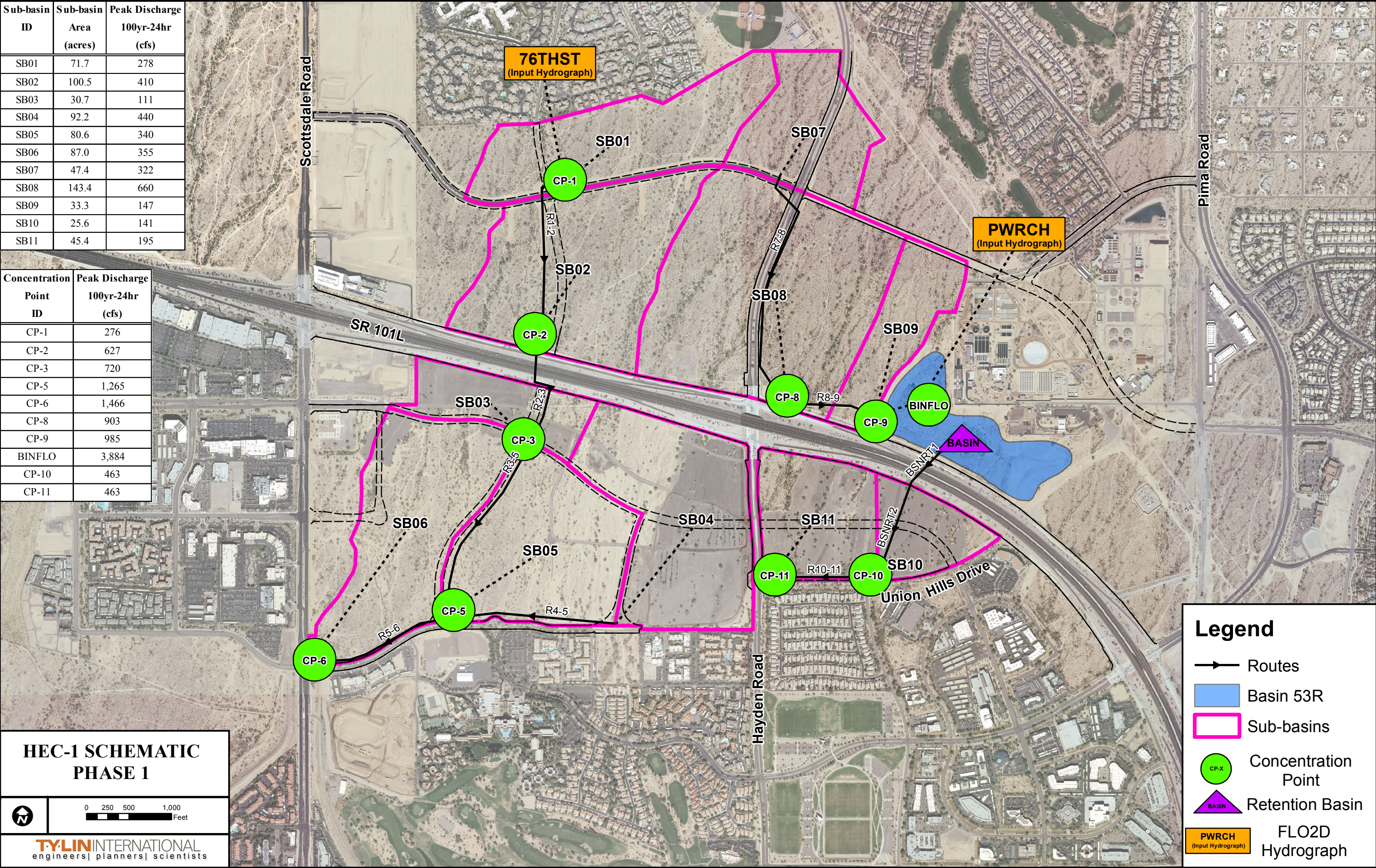
- Flow Path
- Sub-basins
- Proposed ROW



Drainage Sub-Basin ID	Area (sq. mi.)	Longest Flow Path (mi.)	Upstream Ground Elev. (ft)	Downstream Ground Elev. (ft)	Slope (ft/mi)
SB01	0.112	0.641	1678	1637	64.0
SB02	0.157	0.728	1651	1605	63.2
SB03	0.048	0.352	1600	1594	17.1
SB04	0.144	0.695	1592	1546	66.2
SB05	0.130	0.699	1650	1613	52.9
SB06	0.136	0.575	1584	1557	47.0
SB07	0.074	0.601	1602	1567	58.3
SB08	0.224	0.321	1683	1653	93.5
SB09	0.052	0.450	1654	1618	80.0
SB10	0.040	0.271	1603	1590	48.1
SB11	0.071	0.457	1606	1583	50.4

Sub-basin ID	Sub-basin Area (acres)	Peak Discharge 100yr-24hr (cfs)
SB01	71.7	278
SB02	100.5	410
SB03	30.7	111
SB04	92.2	440
SB05	80.6	340
SB06	87.0	355
SB07	47.4	322
SB08	143.4	660
SB09	33.3	147
SB10	25.6	141
SB11	45.4	195

Concentration Point ID	Peak Discharge 100yr-24hr (cfs)
CP-1	276
CP-2	627
CP-3	720
CP-5	1,265
CP-6	1,466
CP-8	903
CP-9	985
BINFLO	3,884
CP-10	463
CP-11	463



Legend

Routes

Basin 53R

Sub-basins

Concentration Point

Retention Basin

FLO2D Hydrograph


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1*****
*****
*
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*
* JUN 1998
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* VERSION 4.1
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* RUN DATE 12SEP14 TIME 11:45:27
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* U.S. ARMY CORPS OF ENGINEERS
*
* HYDROLOGIC ENGINEERING CENTER
*
* 609 SECOND STREET
*
* DAVIS, CALIFORNIA 95616
*
* (916) 756-1104
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

1

HEC-1 INPUT

PAGE 1

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1 ID CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
2 ID RESERVOIR ROUTING OF BASIN N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
3 ID INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
4 ID 100-YR, 24-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
5 ID PIMA ROAD FLOWS)
6 ID
7 ID PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
8 ID MODELERS: RK, MW
9 ID
10 IT 3 0 0 1000
11 IN 3
12 IO 5
*DIAGRAM
*
13 JD 3.849 0.0001
14 PC 0.000 0.002 0.005 0.008 0.011 0.014 0.017 0.020 0.023 0.026
15 PC 0.029 0.032 0.035 0.038 0.041 0.044 0.048 0.052 0.056 0.060
16 PC 0.064 0.068 0.072 0.076 0.080 0.085 0.090 0.095 0.100 0.105
17 PC 0.110 0.115 0.120 0.126 0.133 0.140 0.147 0.155 0.163 0.172
18 PC 0.181 0.191 0.203 0.218 0.236 0.257 0.283 0.387 0.663 0.707
19 PC 0.735 0.758 0.776 0.791 0.804 0.815 0.825 0.834 0.842 0.849
20 PC 0.856 0.863 0.869 0.875 0.881 0.887 0.893 0.898 0.903 0.908
21 PC 0.913 0.918 0.922 0.926 0.930 0.934 0.938 0.942 0.946 0.950
22 PC 0.953 0.956 0.959 0.962 0.965 0.968 0.971 0.974 0.977 0.980
23 PC 0.983 0.986 0.989 0.992 0.995 0.998 1.000
24 JD 3.657 10.0
25 JD 3.533 20.0
*
26 KK 76THST
27 KM 76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
28 KM 100-YR, 6-HR FLO-2D MODEL (XS 98)
29 BA 0.24
30 QI 0 0 0 0 0 0 0 0 0 0
31 QI 0 0 0 0 0 0 0 0 0 0
32 QI 0 0 0 0 0 0 0 0 0 0
33 QI 0 0 0 0 0 0 0 0 0 0
34 QI 0 0 0 0 0 0 0 0 0 0
35 QI 0 0 0 0 0 0 0 0 0 0
36 QI 0 0 0 0 0 0 0 0 0 0
37 QI 0 0 0 0 0 0 0 0 0 0
38 QI 0 0 0 0 0 0 0 0 0 0
39 QI 0 0 0 0 0 0 0 0 0 0
40 QI 0 0 0.01 0 0 0 0 0 0 0
41 QI 0 0 0 0 0 0 0 0 0 0
42 QI 0 0 0 0 0 0 0 0 0 0
43 QI 0 0 0 0 0 0 0 0 0 0

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PhaseI_Basin.out										
44	QI	0	0	0	0	0.01	0	0	0	0
45	QI	0	0	0	0	0	0	0	0	0
46	QI	0	0	0	0	0	0	0	0	0
47	QI	0.01	0	0	0.01	0	0	0	0.01	0.01
48	QI	0	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03
49	QI	0.03	0.04	0.04	0.05	0.05	0.05	0.06	0.07	0.08
50	QI	0.09	0.09	0.1	0.1	0.11	0.11	0.12	0.13	0.14
51	QI	0.14	0.15	0.16	0.18	0.19	0.21	0.23	0.25	0.3

HEC-1 INPUT

PAGE 2

LINE	ID	1	2	3	4	5	6	7	8	9	10
52	QI	0.34	0.36	0.4	0.44	0.47	0.51	0.56	0.6	0.66	0.71
53	QI	0.76	0.95	1.61	1.73	1.95	3.7	4.26	6.53	8.52	10.41
54	QI	17.69	31.39	35.75	41.23	44.49	47.79	51.13	56.33	62.34	66.18
55	QI	68.57	67.36	65.05	61.38	58.37	54.61	52.38	50.75	48.4	44.37
56	QI	42.75	40.4	38.91	37.61	36.75	35.61	34.75	34.25	33.52	32.65
57	QI	32.34	31.59	31.31	30.73	30.02	29.25	28.51	28.42	27.67	26.83
58	QI	26.13	25.37	24.53	23.95	23.37	22.83	22.17	21.48	20.81	20.94
59	QI	19.41	19.05	18.62	18.3	18.17	18.11	17.52	17.1	16.7	16.5
60	QI	16.15	15.74	15.37	15.07	14.74	14.54	14.51	14.24	14.07	13.65
61	QI	13.75	13.24	12.99	13.09	12.94	12.53	12.53	12.38	12.22	12.18
62	QI	12	11.59	11.89	11.53	11.85	11.44	11.16	11.22	11.21	10.82
63	QI	10.52	10.43	10.88	10.42	10.1	9.81	9.72	9.66	9.78	9.55
64	QI	9.34	9.36	9.33	9.23	9.1	9.09	9.48	9.3	9.02	9.07
65	QI	9.11	9.1	8.93	8.81	8.73	8.71	8.57	8.5	8.5	8.43
66	QI	8.37	8.31	8.26	8.17	8.14	8.05	7.98	7.97	7.83	7.62
67	QI	7.67	7.67	7.57	7.66	7.74	7.75	7.91	7.88	7.62	7.55
68	QI	7.47	7.3	7.22	7.25	7.2	7.08	7.02	7.01	6.99	6.96
69	QI	6.97	6.92	6.89	6.85	6.81	6.77	6.75	6.7	6.67	6.62
70	QI	6.59	6.56	6.51	6.48	6.47	6.44	6.44	6.47	6.43	6.37
71	QI	6.32	6.27	6.23	6.22	6.16	6.12	6.08	6.05	6.02	5.98
72	QI	5.95	5.95	5.95	5.93	5.9	5.87	5.84	5.76	5.72	5.64
73	QI	5.7	5.76	5.62	5.65	5.74	5.84	5.95	4.5	4.58	5.32
74	QI	5.41	5.43	4.49	5.32	5.36	5.44	5.48	5.6	5.67	4.68
75	QI	4.56	4.55	4.53	4.82	4.84	4.81	4.81	4.83	4.82	4.6
76	QI	4.75	4.82	4.66	4.85	4.81	4.78	4.77	4.75	4.73	4.72
77	QI	4.69	4.64	4.62	4.61	4.63	4.67	4.71	4.72	4.71	4.66
78	QI	4.61	4.53	4.43	4.39	4.37	4.36	4.33	4.33	4.28	4.26
79	QI	4.2	4.17	4.13	4.07	4.03	4	3.96	3.92	3.86	3.8
80	QI	3.75	3.71	3.65	3.6	3.56	3.51	3.45	3.42	3.39	2.43
81	QI	2.49	2.39	2.38	3.55	3.52	3.43	2.35	2.4	2.46	3.65
82	QI	3.61	3.3	2.37	2.4	2.46	3.65	3.59	3.59	3.61	3.67
83	QI	2.48	2.53	2.53	2.47	2.41	2.36	2.32	2.28	2.25	2.22
84	QI	2.19	2.16	2.14	2.12	2.09	2.07	2.04	2.02	2	1.97
85	QI	1.94	1.91	1.88	1.85	1.8	1.72	1.63	1.56	1.58	1.65
86	QI	1.71	1.72	1.67	1.57	1.49	1.36	1.49	1.56	1.58	1.57
87	QI	1.48	1.35	1.21	1.15	1.13	1.13	1.13	1.13	1.13	1.13
88	QI	1.13	1.13	1.12	1.14	1.17	1.2	1.23	1.22	1.18	1.09
89	QI	1.1	1.11	1.13	1.18	1.26	1.06	1.1	1.08	1.06	1.05
90	QI	1.06	1.05	1.04	1.02	1.01	1	0.98	0.97	0.96	0.95
91	QI	0.94	0.93	0.92	0.91	0.9	0.89	0.88	0.87	0.86	0.86
92	QI	0.85	0.84	0.84	0.83	0.82	0.81	0.8	0.8	0.79	0.78
93	QI	0.78	0.77	0.76	0.76	0.75	0.74	0.73	0.73	0.72	0.72
94	QI	0.72	0.71	0.71	0.71	0.7	0.7	0.69	0.69	0.68	0.67
95	QI	0.67	0.66	0.66	0.65	0.65	0.64	0.64	0.63	0.63	0.62
96	QI	0.62	0.61	0.61	0.6	0.6	0.59	0.59	0.59	0.58	0.58
97	QI	0.57	0.57	0.56	0.56	0.56	0.55	0.55	0.54	0.54	0.53
98	QI	0.53	0.53	0.52	0.52	0.52	0.51	0.51	0.5	0.5	0.5
99	QI	0.49	0.49	0.48	0.48	0.48	0.47	0.47	0.47	0.46	0.46
100	QI	0.45	0.45	0.45	0.44	0.44	0.44	0.43	0.43	0.43	0.42
101	QI	0.42	0.42	0.41	0.41	0.41	0.4	0.4	0.4	0.4	0.39
102	QI	0.39	0.39								

*

HEC-1 INPUT

PAGE 3

LINE	ID	1	2	3	4	5	6	7	8	9	10
103	KK	SB01	BASIN								
104	BA	0.112									
105	LG	0.25	0.25	4.10	0.55	45					
106	UC	0.318	0.253								
107	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
108	UA	100									
	*										
109	KK	CP-1 COMBINE									
110	KM	LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)									
111	HC	2									
	*										
112	KK	R1-2 ROUTE									
113	KM	MILLER RD CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY									
114	RK	2104 0.0015 0.03 TRAP 66 4									
	*										
115	KK	SB02	BASIN								
116	BA	0.157									
117	LG	0.15	0.25	4.15	0.58	56					
118	UC	0.328	0.240								
119	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
120	UA	100									
	*										

PhaseI_Basin.out

121 KK CP-2 COMBINE
 122 KM SR 101L FREEWAY AND 76TH ST (MILLER RD CHANNEL)
 123 HC 2
 *

124 KK R2-3 ROUTE
 125 KM MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
 126 RK 1260 0.0015 0.03 TRAP 92 4
 *

127 KK SB03 BASIN
 128 BA 0.048
 129 LG 0.15 0.25 4.50 0.47 55
 130 UC 0.364 0.294
 131 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
 132 UA 100
 *

133 KK CP-3 COMBINE
 134 KM MAYO BLVD AND 76TH ST (MILLER RD CHANNEL)
 135 HC 2
 *

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HEC-1 INPUT

PAGE 4

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

136 KK R3-5 ROUTE
 137 KM MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
 138 RK 2396 0.0015 0.03 TRAP 98 4
 *

139 KK SB04 BASIN
 140 BA 0.144
 141 LG 0.14 0.25 4.60 0.44 61
 142 UC 0.305 0.199
 143 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
 144 UA 100
 *

145 KK R4-5 ROUTE
 146 KM PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
 147 RK 2005 0.0013 0.03 TRAP 39 4
 *

148 KK SB05 BASIN
 149 BA 0.126
 150 LG 0.22 0.25 4.50 0.44 48
 151 UC 0.327 0.226
 152 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
 153 UA 100
 *

154 KK CP-5 COMBINE
 155 KM PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
 156 HC 3
 *

157 KK R5-6 ROUTE
 158 KM PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
 159 RK 1550 0.0015 0.03 TRAP 188 4
 *

160 KK SB06 BASIN
 161 BA 0.136
 162 LG 0.16 0.25 4.55 0.45 53
 163 UC 0.321 0.246
 164 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
 165 UA 100
 *

166 KK CP-6 COMBINE
 167 KM PRINCESS BLVD AND SCOTTSDALE RD (PRINCESS BLVD CHANNEL)
 168 HC 2
 *

1

HEC-1 INPUT

PAGE 5

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

169 KK SB07 BASIN
 170 BA 0.074
 171 LG 0.21 0.25 4.00 0.58 49
 172 UC 0.206 0.113
 173 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
 174 UA 100
 *

175 KK R7-8 ROUTE
 176 KM HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
 177 RK 2778 0.0014 0.03 TRAP 46 4
 *

PhaseI_Basin.out

178	KK	SB08	BASIN								
179	BA	0.224									
180	LG	0.14	0.25	4.10	0.59	59					
181	UC	0.338	0.195								
182	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
183	UA	100									
	*										
184	KK	CP-8 COMBINE									
185	KM	SR 101L FREEWAY AND HAYDEN ROAD (HAYDEN ROAD NORTH CHANNEL)									
186	HC	2									
	*										
187	KK	R8-9 ROUTE									
188	KM	HAYDEN ROAD NORTH CHANNEL FROM HAYDEN ROAD TO BASIN 53R									
189	RK	1250 0.0013 0.03 TRAP 67 4									
	*										
190	KK	SB09	BASIN								
191	BA	0.052									
192	LG	0.15	0.25	4.00	0.61	55					
193	UC	0.254	0.230								
194	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
195	UA	100									
	*										
196	KK	CP-9 COMBINE									
197	KM	SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)									
198	HC	2									
	*										
199	KK	PWRCH									
200	KM	POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS									
201	KM	FROM PINNACLE PEAK SOUTH ADMS 100-YR, 24-HR FLO-2D MODEL									
202	BA	7.0									
203	QI	0	0	0	0	0	0	0	0	0	0
204	QI	0	0	0	0	0	0	0	0	0	0
205	QI	0	0	0	0	0	0	0	0	0	0
206	QI	0	0	0	0	0	0	0	0	0	0
207	QI	0	0	0	0	0	0	0	0	0	0
208	QI	0	0	0	0	0	0	0	0	0	0

1

HEC-1 INPUT

PAGE 6

LINE	ID	1	2	3	4	5	6	7	8	9	10
209	QI	0	0	0	0	0	0	0	0	0	0
210	QI	0	0	0	0	0	0	0	0	0	0
211	QI	0	0	0	0	0	0	0	0	0	0
212	QI	0	0	0	0	0	0	0	0	0	0
213	QI	0	0	0	0	0	0	0	0	0	0
214	QI	0	0	0	0	0	0	0	0	0	0
215	QI	0	0	0	0	0	0	0	0	0	0
216	QI	0	0	0	0	0	0	0	0	0	0
217	QI	0	0	0	0	0	0	0	0	0	0
218	QI	0	0	0	0	0	0	0	0	0	0
219	QI	0	0	0	0	0	0	0	0	0	0
220	QI	0	0	0	0	0	0	0	0	0	0
221	QI	0	0	0	0	0	0	0	0	0	0
222	QI	0	0	0	0	0	0	0	0	0	0
223	QI	0	0	0	0	0	0	0	0	0	0
224	QI	0	0	0	0	0	0	0	0	0	0
225	QI	0	0	1	1	1	1	1	1	1	1
226	QI	1	2	2	2	3	3	5	9	18	28
227	QI	43	50	65	87	194	495	872	967	1051	1095
228	QI	1099	1091	1093	1100	1117	1198	1243	1370	1495	1777
229	QI	2055	2422	2906	3246	3546	3747	3874	3884	3837	3741
230	QI	3658	3562	3456	3370	3270	3175	3085	3024	2955	2888
231	QI	2822	2744	2640	2543	2461	2378	2309	2239	2183	2132
232	QI	2084	2045	2005	1973	1933	1898	1860	1821	1779	1740
233	QI	1699	1659	1619	1576	1544	1499	1461	1432	1397	1364
234	QI	1331	1298	1268	1237	1206	1179	1152	1126	1100	1074
235	QI	1047	1023	1000	979	959	940	918	901	882	867
236	QI	851	834	818	803	789	773	759	744	731	719
237	QI	705	693	683	670	657	645	635	627	617	608
238	QI	597	588	581	573	566	559	553	545	537	529
239	QI	521	514	507	501	495	488	482	476	471	465
240	QI	460	456	450	444	440	435	429	424	419	414
241	QI	410	404	400	396	393	387	385	381	377	375
242	QI	370	367	364	362	360	356	352	349	346	343
243	QI	339	338	334	333	330	328	326	322	318	315
244	QI	317	313	308	306	305	303	300	298	295	294
245	QI	293	291	288	285	286	281	278	276	275	276
246	QI	270	265	269	267	264	257	265	257	255	255
247	QI	258	251	251	253	245	248	247	242	246	239
248	QI	240	241	236	238	232	237	231	231	228	231
249	QI	223	227	223	223	221	220	219	215	219	215
250	QI	214	215	211	215	211	209	213	209	207	208
251	QI	205	201	207	200	200	201	201	199	197	193
252	QI	192	190	190	191	189	188	187	185	186	184
253	QI	180	179	180	173	173	179	169	172	164	169
254	QI	164	165	163	161	156	158	155	158	153	158
255	QI	149	153	146	144	146	142	149	139	136	138
256	QI	137	143	131	130	132	126	126	124	123	133
257	QI	120	119	124	117	116	117	114	111	113	109

					PhaseI_Basin.out						
258	QI	107	109	105	106	104	102	104	100	99	103
259	QI	97	96	100	94	93	99	91	90	97	88
260	QI	86	90	84	85	87	83	83	85	80	79
261	QI	82	78	75	82	74	74	82	72	71	76
262	QI	70	71	70	68	72	66	67	65	64	69
263	QI	62	65	61	61	63	59	65	58	58	60

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PAGE 7

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

264	QI	57	63	56	55	58	55	58	54	52	58
265	QI	52	52	53	50	57	50	50	55	48	48
266	QI	50	46	47	47	44	48	45	43	49	43
267	QI	42	48	42	41	45	41	40	44	40	38
268	QI	40	40	38	37	40	37	36	42	36	36
269	QI	35	41	35	34	34	40	34	33	33	33
270	QI	36	33	32	32	33	32	31	31	30	33
271	QI	31	30	29	29	31	30	28	29	28	29
272	QI	31	28	28	27	27	30	27	26	26	26
273	QI	31	26	25	25	25	30	26	25	25	24
274	QI	24	28	23	23	24	23	24	25	24	23
275	QI	23	22								

*

276 KK BINFLO
277 KM TOTAL INFLOW INTO BASIN 53R.
278 HC 2
*

279 KK BASIN
280 KM BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
281 KM ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
282 KM OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
283 KM THE OUTLET PIPES ARE INLET CONTROLLED.
284 RS 1 STOR 0
285 SV 0 44.9 76.8 108.7 140.6 171.5 202.5 233.5 264.5 295.5
286 SV 328.7 362.0 395.2 428.5 461.7 497.2 532.7 568.3 603.8 639.3
287 SE 1594 1597 1598 1599 1600 1601 1602 1603 1604 1605
288 SE 1606 1607 1608 1609 1610 1611 1612 1613 1614 1615
289 SQ 0 94.6 153.4 209.8 244.2 264.5 284.0 302.5 320.1 336.9
290 SQ 353.0 368.5 383.5 398.0 412.0 425.7 438.9 451.9 464.5 476.8
*

291 KK BSNRT1
292 KM 2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
293 KM DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
294 KM EXCESS CAPACITY.
295 RK 550 0.0052 0.024 CIRC 7.0
*

296 KK BSNRT2
297 KM 2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BASIN 53R OUTFAL
298 RK 1200 0.0077 0.013 CIRC 7.0
*

299 KK SB10 BASIN
300 BA 0.040
301 LG 0.15 0.25 4.25 0.55 55
302 UC 0.233 0.161
303 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
304 UA 100
*

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PAGE 8

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

305 KK CP-10 COMBINE
306 KM UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
307 HC 2
*

308 KK R10-11 ROUTE
309 KM UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
310 RK 1277 0.0014 0.03 TRAP 220 4
*

311 KK SB11 BASIN
312 BA 0.071
313 LG 0.15 0.25 4.15 0.58 55
314 UC 0.296 0.232
315 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
316 UA 100
*

317 KK CP-11 COMBINE
318 KM UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
319 HC 2
*

320 ZZ

SCHEMATIC DIAGRAM OF STREAM NETWORK

LINE	(V) ROUTING	(--->) DIVERSION OR PUMP FLOW
NO.	(.) CONNECTOR	(<---) RETURN OF DIVERTED OR PUMPED FLOW
26	76THST	
	.	
103	.	SB01
	.	.
109	CP-1.....	.
	V	
	V	
112	R1-2	
	.	
115	.	SB02
	.	.
121	CP-2.....	.
	V	
	V	
124	R2-3	
	.	
127	.	SB03
	.	.
133	CP-3.....	.
	V	
	V	
136	R3-5	
	.	
139	.	SB04
	.	V
	.	V
145	.	R4-5
	.	.
148	.	SB05
	.	.
154	CP-5.....	.
	V	
	V	
157	R5-6	
	.	
160	.	SB06
	.	.
166	CP-6.....	.
	.	
169	.	SB07
	.	V
	.	V
175	.	R7-8
	.	.
178	.	SB08
	.	.
184	CP-8.....	.
	V	
	V	
187	R8-9	
	.	
190	.	SB09
	.	.
196	CP-9.....	.
	.	
199	.	PWRCH
	.	.
276	BINFLO.....	.
	V	
	V	
279	BASIN	
	V	
	V	
291	BSNRT1	
	V	
	V	
296	BSNRT2	
	.	
299	.	SB10
	.	.
	.	.


```

305      .      CP-10.....
      .      V
      .      V
308      .      R10-11
      .      .
      .      .
311      .      .      SB11
      .      .
      .      .
317      .      CP-11.....

```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
 RESERVOIR ROUTING OF BASIN N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
 INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
 100-YR, 24-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
 PIMA ROAD FLOWS)

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
 MODELERS: RK, MW

12 IO OUTPUT CONTROL VARIABLES

```

      IPRNT      5 PRINT CONTROL
      IPLOT      0 PLOT CONTROL
      QSCAL      0. HYDROGRAPH PLOT SCALE

```

IT

HYDROGRAPH TIME DATA

```

      NMIN      3 MINUTES IN COMPUTATION INTERVAL
      IDATE      1 0 STARTING DATE
      ITIME      0000 STARTING TIME
      NQ      1000 NUMBER OF HYDROGRAPH ORDINATES
      NDDATE      3 0 ENDING DATE
      NDTIME      0157 ENDING TIME
      ICENT      19 CENTURY MARK

```

```

      COMPUTATION INTERVAL 0.05 HOURS
      TOTAL TIME BASE 49.95 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

```

13 JD

INDEX STORM NO. 1

```

      STRM      3.85 PRECIPITATION DEPTH
      TRDA      0.00 TRANSPOSITION DRAINAGE AREA

```

14 PI

PRECIPITATION PATTERN

```

      0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
      0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
      0.00 0.00 0.00 0.00 0.01 0.01 0.00 0.01 0.00 0.01
      0.01 0.00 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01
      0.01 0.01 0.02 0.02 0.02 0.03 0.10 0.28 0.04 0.03
      0.02 0.02 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01
      0.01 0.01 0.01 0.01 0.01 0.01 0.00 0.00 0.00 0.00
      0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
      0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
      0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

```

24 JD

INDEX STORM NO. 2

```

      STRM      3.66 PRECIPITATION DEPTH
      TRDA      10.00 TRANSPOSITION DRAINAGE AREA

```

0 PI

PRECIPITATION PATTERN

```

      0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
      0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

```

0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.01
0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.02	0.02	0.03	0.10	0.28	0.04	0.03
0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00				

[illegible]

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

+

+

+

Page 27

				PhaseI_Basin.out				
+		CP-1	276.	2.55	30.	15.	8.	0.35
+	ROUTED TO	R1-2	273.	2.70	30.	15.	8.	0.35
+	HYDROGRAPH AT	SB02	410.	2.55	46.	12.	6.	0.16
+	2 COMBINED AT	CP-2	627.	2.65	76.	26.	13.	0.51
+	ROUTED TO	R2-3	618.	2.70	76.	26.	13.	0.51
+	HYDROGRAPH AT	SB03	111.	2.60	14.	4.	2.	0.05
+	2 COMBINED AT	CP-3	720.	2.70	90.	30.	15.	0.56
+	ROUTED TO	R3-5	713.	2.80	90.	30.	15.	0.56
+	HYDROGRAPH AT	SB04	440.	2.55	45.	11.	5.	0.14
+	ROUTED TO	R4-5	432.	2.65	45.	11.	5.	0.14
+	HYDROGRAPH AT	SB05	340.	2.55	36.	9.	4.	0.13
+	3 COMBINED AT	CP-5	1265.	2.75	170.	50.	25.	0.83
+	ROUTED TO	R5-6	1242.	2.80	169.	50.	25.	0.83
+	HYDROGRAPH AT	SB06	355.	2.55	40.	10.	5.	0.14
+	2 COMBINED AT	CP-6	1466.	2.80	208.	60.	29.	0.96
+	HYDROGRAPH AT	SB07	322.	2.50	21.	5.	2.	0.07
+	ROUTED TO	R7-8	310.	2.65	21.	5.	3.	0.07
+	HYDROGRAPH AT	SB08	660.	2.55	68.	17.	8.	0.22
+	2 COMBINED AT	CP-8	903.	2.65	89.	22.	11.	0.30
+	ROUTED TO	R8-9	880.	2.70	89.	22.	11.	0.30
+	HYDROGRAPH AT	SB09	147.	2.55	15.	4.	2.	0.05
+	2 COMBINED AT	CP-9	985.	2.70	104.	26.	12.	0.35
+	HYDROGRAPH AT	PWRCH	3884.	13.35	1547.	503.	248.	7.00
+	2 COMBINED AT	BINFLO	3884.	13.35	1547.	503.	260.	7.35
+	ROUTED TO	BASIN	463.	18.45	458.	399.	251.	7.35
+	ROUTED TO	BSNRT1	463.	18.50	458.	399.	251.	7.35
+	ROUTED TO	BSNRT2	463.	18.50	458.	399.	251.	7.35
+	HYDROGRAPH AT	SB10	141.	2.50	12.	3.	1.	0.04
+	2 COMBINED AT	CP-10	463.	18.50	458.	399.	252.	7.39
+	ROUTED TO	R10-11	463.	18.55	458.	399.	252.	7.39
+	HYDROGRAPH AT	SB11	195.	2.55	21.	5.	3.	0.07
+	2 COMBINED AT	CP-11	463.	18.55	458.	399.	254.	7.46

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL			
						DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1-2	MANE	3.00	287.35	160.24	1.72	3.00	284.38	162.00	1.72
------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3222E+02 EXCESS=0.0000E+00 OUTFLOW=0.3226E+02 BASIN STORAGE=0.5145E-01 PERCENT ERROR=-0.3

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R1-2	MANE	3.00	270.30	162.31	1.67	3.00	267.71	162.00	1.67
------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3132E+02 EXCESS=0.0000E+00 OUTFLOW=0.3135E+02 BASIN STORAGE=0.5145E-01 PERCENT ERROR=-0.3

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R1-2	MANE	3.00	259.93	162.15	1.64	3.00	259.40	162.00	1.64
------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3073E+02 EXCESS=0.0000E+00 OUTFLOW=0.3080E+02 BASIN STORAGE=0.5496E-01 PERCENT ERROR=-0.4

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R2-3	MANE	1.51	651.07	161.96	2.07	3.00	651.05	162.00	2.07
------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5609E+02 EXCESS=0.0000E+00 OUTFLOW=0.5610E+02 BASIN STORAGE=0.3635E-01 PERCENT ERROR=-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R2-3	MANE	1.68	617.22	162.52	1.98	3.00	607.09	162.00	1.98
------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5389E+02 EXCESS=0.0000E+00 OUTFLOW=0.5385E+02 BASIN STORAGE=0.3635E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R2-3	MANE	1.57	606.67	162.84	1.93	3.00	594.12	162.00	1.94
------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5252E+02 EXCESS=0.0000E+00 OUTFLOW=0.5252E+02 BASIN STORAGE=0.3881E-01 PERCENT ERROR=-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
 R3-5 MANE 2.90 746.61 169.74 2.14 3.00 740.89 168.00 2.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6349E+02 EXCESS=0.0000E+00 OUTFLOW=0.6368E+02 BASIN STORAGE=0.7132E-01 PERCENT ERROR=-0.4

FOR STORM = 2 STORM AREA (SQ MI) = 10.00
 R3-5 MANE 2.99 705.69 168.12 2.05 3.00 703.45 168.00 2.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6077E+02 EXCESS=0.0000E+00 OUTFLOW=0.6099E+02 BASIN STORAGE=0.7609E-01 PERCENT ERROR=-0.5

FOR STORM = 3 STORM AREA (SQ MI) = 20.00
 R3-5 MANE 2.97 683.83 168.92 2.00 3.00 669.67 168.00 2.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5920E+02 EXCESS=0.0000E+00 OUTFLOW=0.5943E+02 BASIN STORAGE=0.7619E-01 PERCENT ERROR=-0.5

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
 R4-5 MANE 2.44 447.26 159.45 3.02 3.00 444.07 159.00 3.02

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2308E+02 EXCESS=0.0000E+00 OUTFLOW=0.2320E+02 BASIN STORAGE=0.4656E-04 PERCENT ERROR=-0.5

FOR STORM = 2 STORM AREA (SQ MI) = 10.00
 R4-5 MANE 2.59 429.78 158.16 2.87 3.00 425.33 159.00 2.86

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2182E+02 EXCESS=0.0000E+00 OUTFLOW=0.2203E+02 BASIN STORAGE=0.4483E-04 PERCENT ERROR=-1.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00
 R4-5 MANE 2.60 410.95 158.84 2.76 3.00 410.03 159.00 2.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2100E+02 EXCESS=0.0000E+00 OUTFLOW=0.2116E+02 BASIN STORAGE=0.3691E-04 PERCENT ERROR=-0.8

PhaseI_Basin.out
 FOR STORM = 1 STORM AREA (SQ MI) = 0.00
 R5-6 MANE 1.77 1321.25 168.17 2.39 3.00 1316.26 168.00 2.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1051E+03 EXCESS=0.0000E+00 OUTFLOW=0.1053E+03 BASIN STORAGE=0.6328E-01 PERCENT ERROR=-0.3

FOR STORM = 2 STORM AREA (SQ MI) = 10.00
 R5-6 MANE 1.94 1236.19 169.97 2.28 3.00 1225.73 171.00 2.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1002E+03 EXCESS=0.0000E+00 OUTFLOW=0.1004E+03 BASIN STORAGE=0.6753E-01 PERCENT ERROR=-0.2

FOR STORM = 3 STORM AREA (SQ MI) = 20.00
 R5-6 MANE 1.82 1180.28 168.70 2.20 3.00 1169.55 171.00 2.20

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9721E+02 EXCESS=0.0000E+00 OUTFLOW=0.9718E+02 BASIN STORAGE=0.6757E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
 R7-8 MANE 2.98 320.52 158.47 2.78 3.00 316.88 159.00 2.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1062E+02 EXCESS=0.0000E+00 OUTFLOW=0.1097E+02 BASIN STORAGE=0.1432E-03 PERCENT ERROR=-3.3

FOR STORM = 2 STORM AREA (SQ MI) = 10.00
 R7-8 MANE 2.87 305.35 159.01 2.61 3.00 304.85 159.00 2.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1001E+02 EXCESS=0.0000E+00 OUTFLOW=0.1032E+02 BASIN STORAGE=0.1568E-03 PERCENT ERROR=-3.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00
 R7-8 MANE 3.00 287.36 160.28 2.59 3.00 278.18 159.00 2.59

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9623E+01 EXCESS=0.0000E+00 OUTFLOW=0.1023E+02 BASIN STORAGE=0.1386E-03 PERCENT ERROR=-6.3

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
 R8-9 MANE 1.46 914.50 162.26 2.88 3.00 911.54 162.00 2.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4580E+02 EXCESS=0.0000E+00 OUTFLOW=0.4583E+02 BASIN STORAGE=0.2113E-03 PERCENT ERROR=-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R8-9	MANE	1.32	877.55	161.38	2.73	3.00	866.18	162.00	2.73
------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4326E+02 EXCESS=0.0000E+00 OUTFLOW=0.4337E+02 BASIN STORAGE=0.2285E-03 PERCENT ERROR=-0.3

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R8-9	MANE	1.49	824.02	161.14	2.64	3.00	818.74	162.00	2.64
------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4190E+02 EXCESS=0.0000E+00 OUTFLOW=0.4192E+02 BASIN STORAGE=0.2053E-03 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.33	462.77	1107.64	2.65	3.00	462.77	1110.00	2.65
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1038E+04 EXCESS=0.0000E+00 OUTFLOW=0.1037E+04 BASIN STORAGE=0.9252E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

BSNRT1	MANE	0.33	462.63	1107.74	2.64	3.00	462.63	1110.00	2.64
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1035E+04 EXCESS=0.0000E+00 OUTFLOW=0.1035E+04 BASIN STORAGE=0.9241E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

BSNRT1	MANE	0.34	462.54	1107.73	2.64	3.00	462.54	1110.00	2.64
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1033E+04 EXCESS=0.0000E+00 OUTFLOW=0.1033E+04 BASIN STORAGE=0.9237E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.48	462.77	1110.07	2.65	3.00	462.77	1110.00	2.65
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1038E+04 EXCESS=0.0000E+00 OUTFLOW=0.1037E+04 BASIN STORAGE=0.1054E+00 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

BSNRT2	MANE	0.37	462.63	1110.22	2.64	3.00	462.63	1110.00	2.64
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1035E+04 EXCESS=0.0000E+00 OUTFLOW=0.1035E+04 BASIN STORAGE=0.1056E+00 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

BSNRT2	MANE	0.33	462.54	1110.65	2.64	3.00	462.54	1110.00	2.63
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1033E+04 EXCESS=0.0000E+00 OUTFLOW=0.1033E+04 BASIN STORAGE=0.1056E+00 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	2.40	462.77	1113.47	2.64	3.00	462.77	1113.00	2.64
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1043E+04 EXCESS=0.0000E+00 OUTFLOW=0.1042E+04 BASIN STORAGE=0.1560E+01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R10-11	MANE	2.40	462.63	1113.70	2.64	3.00	462.62	1116.00	2.64
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1040E+04 EXCESS=0.0000E+00 OUTFLOW=0.1039E+04 BASIN STORAGE=0.1557E+01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R10-11	MANE	2.47	462.54	1114.58	2.63	3.00	462.54	1113.00	2.63
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1038E+04 EXCESS=0.0000E+00 OUTFLOW=0.1037E+04 BASIN STORAGE=0.1559E+01 PERCENT ERROR=0.0

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


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1*****
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*
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*
* JUN 1998
*
* VERSION 4.1
*
*
* RUN DATE 12SEP14 TIME 11:47:04
*
*
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*****

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

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X X X X X
X X XXXXXX XXXX XXX

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

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

1

HEC-1 INPUT

PAGE 1

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1 ID CROSS ROADS EAST DRAINAGE ALTERNATIVES
2 ID RESERVOIR ROUTING OF BASIN N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
3 ID INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
4 ID 100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
5 ID PIMA ROAD FLOWS)
6 ID PHASE 2 BASIN - SIDESLOPES STEEPENED FROM ~5:1 TO 3:1
7 ID
8 ID PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
9 ID MODELERS: RK, MW
10 ID
11 IT 3 0 0 1000
12 IO 3
*DIAGRAM
*
13 JD 2.755 0.0001
14 PC 0.000 0.008 0.016 0.025 0.033 0.041 0.050 0.058 0.066 0.074
15 PC 0.087 0.099 0.118 0.138 0.216 0.377 0.834 0.911 0.931 0.950
16 PC 0.962 0.972 0.983 0.991 1.000
17 JD 2.738 0.5000
18 PC 0.000 0.008 0.016 0.025 0.033 0.041 0.050 0.058 0.066 0.074
19 PC 0.087 0.099 0.118 0.138 0.216 0.377 0.834 0.911 0.931 0.950
20 PC 0.962 0.972 0.983 0.991 1.000
21 JD 2.686 2.8
22 PC 0.000 0.009 0.016 0.025 0.034 0.042 0.051 0.059 0.068 0.077
23 PC 0.088 0.101 0.121 0.164 0.253 0.451 0.694 0.836 0.900 0.938
24 PC 0.950 0.963 0.975 0.988 1.000
25 JD 2.540 16.0
26 PC 0.000 0.015 0.020 0.030 0.048 0.063 0.076 0.090 0.105 0.119
27 PC 0.135 0.152 0.175 0.222 0.304 0.472 0.670 0.796 0.868 0.912
28 PC 0.946 0.960 0.973 0.987 1.000
29 JD 2.232 90.0
30 PC 0.000 0.021 0.035 0.051 0.071 0.087 0.105 0.125 0.143 0.160
31 PC 0.179 0.201 0.232 0.281 0.364 0.500 0.658 0.773 0.841 0.888
32 PC 0.927 0.945 0.964 0.982 1.000
*
33 KK 76THST
34 KM 76TH STREET CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
35 KM 100-YR, 6-HR FLO-2D MODEL (XS 98)
36 BA 0.24
37 QI 0 0 0 0 0 0 0 0 0 0
38 QI 0 0 0 0 0 0 0 0 0 0
39 QI 0 0 0 0 0 0 0 0 0 0
40 QI 0 0 0 0 0 0 0 0 0 0
41 QI 0 0 0 0 0 0 0 0 0 0
42 QI 0 0 0.01 0 0 0 0 0 0 0
43 QI 0.01 0 0 0.01 0.01 0.01 0.02 0.03 0.05 0.07

```

		Onsite_6hr.out									
44	QI	0.09	0.16	0.27	0.42	0.63	0.9	2.34	3.89	7.48	10.26
45	QI	12.7	14.07	17.67	27.43	38.25	42.26	42.56	42.35	43.77	48.39
46	QI	49.92	51.19	50.98	50.52	49.38	48.6	44.64	42.62	39.72	36.96
47	QI	34.49	32.83	31.02	29.6	28.15	26.72	25.66	24.48	23.53	22.56
48	QI	21.55	20.83	19.46	20.34	18.32	17.51	16.55	16.22	15.59	15.15
49	QI	14.81	14.23	13.72	13.18	13.21	12.84	12.36	12.34	12.16	12
50	QI	11.63	11.31	11.37	11.23	11.13	10.56	10.63	10.27	9.98	9.86
51	QI	9.58	9.02	9.34	8.67	8.51	8.32	8.08	7.75	7.43	7.37

HEC-1 INPUT

PAGE 2

LINE	ID	1	2	3	4	5	6	7	8	9	10
52	QI	7.29	7.19	7.08	7	6.89	6.73	6.55	6.4	6.23	6.02
53	QI	5.83	5.66	5.06	4.57	4.75	4.76	4.65	4.55	4.44	4.32
54	QI	4.23	4.15	4.05	3.95	3.87	3.81	3.68	3.54	3.48	3.42
55	QI	3.4	2.42	2.38	3.4	3.61	3.55	3.49	2.89	2.36	2.36
56	QI	2.36	2.37	2.44	3.67	2.44	2.51	2.49	2.47	2.42	2.37
57	QI	2.32	2.29	2.26	2.23	2.19	2.16	2.13	2.1	2.07	2.05
58	QI	2.02	1.99	1.96	1.91	1.86	1.83	1.78	1.69	1.58	1.54
59	QI	1.58	1.65	1.69	1.67	1.59	1.5	1.36	1.41	1.51	1.54
60	QI	1.52	1.35	1.43	1.37	1.25	1.21	1.2	1.2	1.23	1.28
61	QI	1.31	1.34	1.35	1.35	1.34	1.34	1.33	1.33	1.26	1.09
62	QI	1.09	1.11	1.16	1.22	1.06	1.07	1.15	1.06	1.05	1.05
63	QI	1.04	1.02	1.01	1	0.98	0.97	0.96	0.95	0.94	0.92
64	QI	0.91	0.9	0.89	0.88	0.87	0.86	0.85	0.85	0.84	0.84
65	QI	0.83	0.82	0.81	0.8	0.79	0.79	0.78	0.77	0.77	0.76
66	QI	0.76	0.75	0.74	0.74	0.73	0.72	0.71	0.71	0.7	0.69
67	QI	0.69	0.68	0.68	0.67	0.67	0.67	0.66	0.66	0.65	0.65
68	QI	0.65	0.64	0.64	0.63	0.63	0.62	0.62	0.62	0.61	0.61
69	QI	0.6	0.6	0.59	0.59	0.58	0.58	0.57	0.57	0.56	0.56
70	QI	0.55	0.55	0.54	0.54	0.54	0.53	0.53	0.52	0.52	0.52
71	QI	0.51	0.51	0.5	0.5	0.5	0.49	0.49	0.48	0.48	0.48
72	QI	0.47	0.47	0.46	0.46	0.46	0.45	0.45	0.45	0.44	0.44
73	QI	0.44									

*

74	KK	SB01	BASIN								
75	BA	0.112									
76	LG	0.25	0.25	4.10	0.55	45					
77	UC	0.317	0.252								
78	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
79	UA	100									

*

80	KK	CP-1 COMBINE									
81	KM	LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)									
82	HC	2									

*

83	KK	R1-2	ROUTE								
84	KM	MILLER RD CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY									
85	RK	2104	0.0015	0.03		TRAP	66	101L	FREEWAY	4	

*

86	KK	SB02	BASIN								
87	BA	0.157									
88	LG	0.15	0.25	4.15	0.58	56					
89	UC	0.324	0.237								
90	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
91	UA	100									

*

HEC-1 INPUT

PAGE 3

LINE	ID	1	2	3	4	5	6	7	8	9	10
92	KK	CP-2 COMBINE									
93	KM	SR 101L FREEWAY AND 76TH ST (MILLER RD CHANNEL)									
94	HC	2									
	*										
95	KK	R2-3	ROUTE								
96	KM	MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD									
97	RK	1260	0.0015	0.03		TRAP	92		4		
	*										
98	KK	SB03	BASIN								
99	BA	0.048									
100	LG	0.15	0.25	4.50	0.47	55					
101	UC	0.360	0.290								
102	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
103	UA	100									
	*										
104	KK	CP-3 COMBINE									
105	KM	MAYO BLVD AND 76TH ST (MILLER RD CHANNEL)									
106	HC	2									
	*										
107	KK	R3-5	ROUTE								
108	KM	MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD									
109	RK	2396	0.0015	0.03		TRAP	98		4		
	*										

Onsite_6hr.out

110	KK	SB04	BASIN								
111	BA	0.144									
112	LG	0.14	0.25	4.60	0.44	61					
113	UC	0.301	0.196								
114	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
115	UA	100									
	*										

116	KK	R4-5	ROUTE								
117	KM	PRINCESS	BLVD CHANNEL FROM 77TH ST TO 76TH ST								
118	RK	2005	0.0013	0.03			TRAP	39	4		
	*										

119	KK	SB05	BASIN								
120	BA	0.126									
121	LG	0.22	0.25	4.50	0.44	48					
122	UC	0.326	0.224								
123	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
124	UA	100									
	*										

1

HEC-1 INPUT

PAGE 4

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

125	KK	CP-5 COMBINE									
126	KM	PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)									
127	HC	3									
	*										

128	KK	R5-6	ROUTE								
129	KM	PRINCESS	BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD								
130	RK	1550	0.0015	0.03			TRAP	188	4		
	*										

131	KK	SB06	BASIN								
132	BA	0.136									
133	LG	0.16	0.25	4.55	0.45	53					
134	UC	0.318	0.243								
135	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
136	UA	100									
	*										

137	KK	CP-6 COMBINE									
138	KM	PRINCESS BLVD AND SCOTTSDALE RD (PRINCESS BLVD CHANNEL)									
139	HC	2									
	*										

140	KK	SB07	BASIN								
141	BA	0.074									
142	LG	0.21	0.25	4.00	0.58	49					
143	UC	0.204	0.113								
144	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
145	UA	100									
	*										

146	KK	R7-8	ROUTE								
147	KM	HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY									
148	RK	2778	0.0014	0.03			TRAP	46	4		
	*										

149	KK	SB08	BASIN								
150	BA	0.224									
151	LG	0.14	0.25	4.10	0.59	59					
152	UC	0.333	0.193								
153	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
154	UA	100									
	*										

155	KK	CP-8 COMBINE									
156	KM	SR 101L FREEWAY AND HAYDEN ROAD (HAYDEN ROAD NORTH CHANNEL)									
157	HC	2									
	*										

1

HEC-1 INPUT

PAGE 5

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

158	KK	R8-9	ROUTE								
159	KM	HAYDEN ROAD NORTH CHANNEL FROM HAYDEN ROAD TO BASIN 53R									
160	RK	1250	0.0013	0.03			TRAP	67	4		
	*										

161	KK	SB09	BASIN								
162	BA	0.052									
163	LG	0.15	0.25	4.00	0.61	55					
164	UC	0.251	0.227								
165	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
166	UA	100									
	*										

167	KK	CP-9 COMBINE									
168	KM	SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)									
169	HC	2									
	*										

1

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

*

*

Page 4

					Onsite_6hr.out						
254	QI	24.31	24.43	24.27	23.35	23.93	23.1	22.66	22.71	22.57	22.79
255	QI	22.09	21.91	21.94	21.84	21.71	21.66	21.87	21.85	21.36	21.06
256	QI	20.95									

1

HEC-1 INPUT

PAGE 7

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

257	KK	BINFLO									
258	KM	TOTAL INFLOW INTO BASIN 53R.									
259	HC	3									
	*										
260	KK	BASIN									
261	KM	BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN									
262	KM	ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1									
263	KM	OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES									
264	KM	THE OUTLET PIPES ARE INLET CONTROLLED.									
265	RS	1 STOR 0									
266	SV	0 44.9 76.8 108.7 140.6 171.5 202.5 233.5 264.5 295.5									
267	SV	328.7 362.0 395.2 428.5 461.7 497.2 532.7 568.3 603.8 639.3									
268	SE	1594 1597 1598 1599 1600 1601 1602 1603 1604 1605									
269	SE	1606 1607 1608 1609 1610 1611 1612 1613 1614 1615									
270	SQ	0 94.6 153.4 209.8 244.2 264.5 284.0 302.5 320.1 336.9									
271	SQ	353.0 368.5 383.5 398.0 412.0 425.7 438.9 451.9 464.5 476.8									
	*										

272	KK	BSNRT1									
273	KM	2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.									
274	KM	DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE									
275	KM	EXCESS CAPACITY.									
276	RK	550 0.0052 0.024 CIRC 7.0									
	*										

277	KK	BSNRT2									
278	KM	2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BASIN 53R OUTFAL									
279	RK	1200 0.0077 0.013 CIRC 7.0									
	*										

280	KK	PIMABY									
281	KM	RETRIEVE PIMA BYPASS CHANNEL HYDROGRAPH									
282	DR	PIMABY									
	*										

283	KK	PMB-RT									
284	KM	UNION HILLS DR CHANNEL FROM SR 101L FREEWAY TO 82ND ST									
285	RK	3157 0.0082 0.013 0 TRAP 24 4									
	*										

286	KK	SB10 BASIN									
287	BA	0.040									
288	LG	0.15 0.25 4.25 0.55 55									
289	UC	0.230 0.159									
290	UA	0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0									
291	UA	100									
	*										

1

HEC-1 INPUT

PAGE 8

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

292	KK	CP-10 COMBINE									
293	KM	UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)									
294	HC	3									
	*										

295	KK	R10-11 ROUTE									
296	KM	UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD									
297	RK	1277 0.0014 0.03 TRAP 220 4									
	*										

298	KK	SB11 BASIN									
299	BA	0.071									
300	LG	0.15 0.25 4.15 0.58 55									
301	UC	0.292 0.229									
302	UA	0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0									
303	UA	100									
	*										

304	KK	CP-11 COMBINE									
305	KM	UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)									
306	HC	2									
	*										
307	ZZ										

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT	(V) ROUTING	(-->) DIVERSION OR PUMP FLOW
LINE		
NO.	(.) CONNECTOR	(<---) RETURN OF DIVERTED OR PUMPED FLOW
33	76THST	

```

74      .      SB01
      .
      .
80      CP-1.....
      V
      V
83      R1-2
      .
      .
86      .      SB02
      .
      .
92      CP-2.....
      V
      V
95      R2-3
      .
      .
98      .      SB03
      .
      .
104     CP-3.....
      V
      V
107     R3-5
      .
      .
110     .      SB04
      .      V
      .      V
116     .      R4-5
      .
      .
119     .      .      SB05
      .      .
      .      .
125     CP-5.....
      V
      V
128     R5-6
      .
      .
131     .      SB06
      .
      .
137     CP-6.....
      .
      .
140     .      SB07
      .      V
      .      V
146     .      R7-8
      .
      .
149     .      .      SB08
      .      .
      .      .
155     .      CP-8.....
      .      V
      .      V
158     .      R8-9
      .
      .
161     .      .      SB09
      .      .
      .      .
167     .      CP-9.....
      .
      .
170     .      .      PIMACH
      .      .
      .      .
213     .      .      .-----> PIMABY
211     .      .      PIMAIN
      .
      .
216     .      .      .      PWRCH
      .      .
      .      .
257     .      BINFLO.....
      .      V
      .      V
260     .      BASIN
      .      V
      .      V
272     .      BSNRT1
      .      V
      .      V
277     .      BSNRT2
      .
      .
282     .      .      .<----- PIMABY
280     .      .      PIMABY

```

```

1*****
2*****
3*
4*
5*      FLOOD HYDROGRAPH PACKAGE   (HEC-1)
6*
7*      JUN      1998
8*
9*      VERSION  4.1
10*
11*
12*      RUN DATE   12SEP14   TIME   11:47:04
13*
14*
15*****
16*****

```

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

CROSS ROADS EAST DRAINAGE ALTERNATIVES
RESERVOIR ROUTING OF BASIN N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
PIMA ROAD FLOWS)
PHASE 2 BASIN - SIDESLOPES STEEPENED FROM ~5:1 TO 3:1

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
MODELERS: RK, MW

Page 7

76TH STREET CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
100-YR, 6-HR FLO-2D MODEL (XS 98)

* * *

* * *

* * *

* * *

(INCHES) 0.582 0.664 Onsite_6hr.out 0.728
(AC-FT) 7. 9. 9. 9. 0.728

CUMULATIVE AREA = 0.24 SQ MI

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

HYDROGRAPH AT STATION 76THST
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
		(CFS)				
+	51.	4.55	15.	4.	2.	2.
		(INCHES)	0.582	0.664	0.728	0.728
		(AC-FT)	7.	9.	9.	9.
		CUMULATIVE AREA =	0.24	SQ MI		

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

HYDROGRAPH AT STATION 76THST
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
		(CFS)				
+	51.	4.55	15.	4.	2.	2.
		(INCHES)	0.582	0.664	0.728	0.728
		(AC-FT)	7.	9.	9.	9.
		CUMULATIVE AREA =	0.24	SQ MI		

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

INTERPOLATED HYDROGRAPH AT 76THST

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
		(CFS)				
+	51.	4.55	15.	4.	2.	2.
		(INCHES)	0.582	0.664	0.728	0.728
		(AC-FT)	7.	9.	9.	9.
		CUMULATIVE AREA =	0.24	SQ MI		

*** **

74 KK *****
* SB01 * BASIN
* *

SUBBASIN RUNOFF DATA

75 BA	SUBBASIN CHARACTERISTICS								
	TAREA	0.11	SUBBASIN AREA						
76 LG	GREEN AND AMPT LOSS RATE								
	STRTL	0.25	STARTING LOSS						
	DTH	0.25	MOISTURE DEFICIT						
	PSIF	4.10	WETTING FRONT SUCTION						
	XKSAT	0.55	HYDRAULIC CONDUCTIVITY						
	RTIMP	45.00	PERCENT IMPERVIOUS AREA						
77 UC	CLARK UNITGRAPH								
	TC	0.32	TIME OF CONCENTRATION						
	R	0.25	STORAGE COEFFICIENT						
78 UA	ACCUMULATED-AREA VS. TIME, 11 ORDINATES								
	0.0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0
	100.0								97.0

UNIT HYDROGRAPH PARAMETERS
CLARK TC= 0.32 HR, R= 0.25 HR
SNYDER TP= 0.19 HR, CP= 0.47

UNIT HYDROGRAPH
30 END-OF-PERIOD ORDINATES

				Onsite_6hr.out					
15.	58.	129.	172.	167.	153.	134.	112.	91.	75.
61.	50.	41.	34.	28.	23.	19.	15.	12.	10.
8.	7.	6.	5.	4.	3.	3.	2.	2.	1.

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

HYDROGRAPH AT STATION SB01
TRANSPPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.59, TOTAL EXCESS = 2.17

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW	
			6-HR	24-HR	72-HR
+	(CFS)	(HR)			49.95-HR
+	326.	0.95	(CFS)		
			26.	7.	3.
		(INCHES)	2.159	2.159	2.159
		(AC-FT)	13.	13.	13.

CUMULATIVE AREA = 0.11 SQ MI

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

HYDROGRAPH AT STATION SB01
TRANSPPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.59, TOTAL EXCESS = 2.15

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW	
			6-HR	24-HR	72-HR
+	(CFS)	(HR)			49.95-HR
+	323.	0.95	(CFS)		
			26.	6.	3.
		(INCHES)	2.143	2.143	2.143
		(AC-FT)	13.	13.	13.

CUMULATIVE AREA = 0.11 SQ MI

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

HYDROGRAPH AT STATION SB01
TRANSPPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.63, TOTAL EXCESS = 2.05

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW	
			6-HR	24-HR	72-HR
+	(CFS)	(HR)			49.95-HR
+	287.	1.00	(CFS)		
			25.	6.	3.
		(INCHES)	2.044	2.044	2.044
		(AC-FT)	12.	12.	12.

CUMULATIVE AREA = 0.11 SQ MI

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

HYDROGRAPH AT STATION SB01
TRANSPPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.68, TOTAL EXCESS = 1.86

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW	
			6-HR	24-HR	72-HR
+	(CFS)	(HR)			49.95-HR
+	241.	1.00	(CFS)		
			22.	6.	3.
		(INCHES)	1.850	1.850	1.850
		(AC-FT)	11.	11.	11.

CUMULATIVE AREA = 0.11 SQ MI

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

HYDROGRAPH AT STATION SB01
TRANSPPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.72, TOTAL EXCESS = 1.52

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW	
			6-HR	24-HR	72-HR
+	(CFS)	(HR)			49.95-HR
+	182.	1.00	(CFS)		
			18.	5.	2.
		(INCHES)	1.510	1.510	1.510
		(AC-FT)	9.	9.	9.

CUMULATIVE AREA = 0.11 SQ MI

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

INTERPOLATED HYDROGRAPH AT SB01

PEAK FLOW	TIME	6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
+ 324.	0.95	26.	6.	3.	3.	
		(INCHES)	2.146	2.146	2.146	2.146
		(AC-FT)	13.	13.	13.	13.
CUMULATIVE AREA =		0.11 SQ MI				

*** **

80 KK CP-1 COMBINE

LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)

82 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

*** **

HYDROGRAPH AT STATION CP-1
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME	6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
+ 326.	0.95	37.	11.	5.	5.	
		(INCHES)	0.987	1.133	1.183	1.183
		(AC-FT)	19.	21.	22.	22.
CUMULATIVE AREA =		0.35 SQ MI				

*** **

HYDROGRAPH AT STATION CP-1
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
+ 323.	0.95	37.	11.	5.	5.	
		(INCHES)	0.982	1.128	1.178	1.178
		(AC-FT)	18.	21.	22.	22.
CUMULATIVE AREA =		0.35 SQ MI				

*** **

HYDROGRAPH AT STATION CP-1
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
+ 287.	1.00	36.	10.	5.	5.	
		(INCHES)	0.951	1.096	1.147	1.147
		(AC-FT)	18.	21.	22.	22.
CUMULATIVE AREA =		0.35 SQ MI				

*** **

HYDROGRAPH AT STATION CP-1
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
+ 241.	1.00	34.	10.	5.	5.	
		(INCHES)	0.886	1.035	1.085	1.085
		(AC-FT)	17.	19.	20.	20.

CUMULATIVE AREA = 0.35 SQ MI

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

HYDROGRAPH AT STATION CP-1
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	182.	1.00	(CFS)			
			29.	9.	4.	4.
		(INCHES)	0.776	0.927	0.977	0.977
		(AC-FT)	15.	17.	18.	18.

CUMULATIVE AREA = 0.35 SQ MI

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

INTERPOLATED HYDROGRAPH AT CP-1

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	323.	0.95	(CFS)			
			37.	11.	5.	5.
		(INCHES)	0.982	1.128	1.178	1.178
		(AC-FT)	18.	21.	22.	22.

CUMULATIVE AREA = 0.35 SQ MI

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 * *
 83 KK * R1-2 * ROUTE
 * *

MILLER RD CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY

HYDROGRAPH ROUTING DATA

85 RK KINEMATIC WAVE STREAM ROUTING

L	2104.	CHANNEL LENGTH
S	0.0015	SLOPE
N	0.030	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	66.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
NDXMIN	2	MINIMUM NUMBER OF DX INTERVALS

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.17	1.56	3.00	701.33	324.42	63.63	1.19	3.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2221E+02 EXCESS=0.0000E+00 OUTFLOW=0.2234E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=-0.8

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.17	1.56	3.00	317.42	66.00	1.19
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HYDROGRAPH AT STATION R1-2
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	317.	1.10	(CFS)			
			38.	11.	5.	5.
		(INCHES)	0.995	1.140	1.189	1.189
		(AC-FT)	19.	21.	22.	22.

CUMULATIVE AREA = 0.35 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.17	1.56	3.00	701.33	321.94	63.70	1.18	3.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2212E+02 EXCESS=0.0000E+00 OUTFLOW=0.2223E+02 BASIN STORAGE=0.5936E-01 PERCENT ERROR=-0.8

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.17	1.56	3.00	314.95	66.00	1.18
------	------	------	------	--------	-------	------

HYDROGRAPH AT STATION R1-2
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR (CFS)	72-HR (CFS)	49.95-HR (CFS)
315.	1.10	37.	11.	5.	5.
		(INCHES)	0.988	1.134	1.184
		(AC-FT)	19.	21.	22.

CUMULATIVE AREA = 0.35 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.17	1.56	3.00	701.33	281.88	67.46	1.15	3.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2153E+02 EXCESS=0.0000E+00 OUTFLOW=0.2160E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=-0.6

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.17	1.56	3.00	280.31	66.00	1.15
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HYDROGRAPH AT STATION R1-2
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR (CFS)	72-HR (CFS)	49.95-HR (CFS)
280.	1.10	36.	10.	5.	5.
		(INCHES)	0.955	1.100	1.149
		(AC-FT)	18.	21.	22.

CUMULATIVE AREA = 0.35 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.17	1.56	3.00	701.33	239.43	66.99	1.09	3.49

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2036E+02 EXCESS=0.0000E+00 OUTFLOW=0.2044E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=-0.7

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.17	1.56	3.00	234.05	69.00	1.09
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HYDROGRAPH AT STATION R1-2
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
+	(CFS)				
+	234.	34.	10.	5.	5.
	(INCHES)	0.887	1.038	1.087	1.087
	(AC-FT)	17.	19.	20.	20.
CUMULATIVE AREA =		0.35 SQ MI			

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.17	1.56	2.91	526.00	179.26	70.19	0.98	3.16

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1834E+02 EXCESS=0.0000E+00 OUTFLOW=0.1842E+02 BASIN STORAGE=0.6416E-01 PERCENT ERROR=-0.8

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.17	1.56	3.00	178.38	69.00	0.98
***	***	***	***	***		

HYDROGRAPH AT STATION R1-2
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
+	(CFS)				
+	178.	30.	9.	4.	4.
	(INCHES)	0.780	0.932	0.981	0.981
	(AC-FT)	15.	17.	18.	18.
CUMULATIVE AREA =		0.35 SQ MI			
***	***	***	***	***	

INTERPOLATED HYDROGRAPH AT R1-2

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
+	(CFS)				
+	315.	37.	11.	5.	5.
	(INCHES)	0.989	1.134	1.184	1.184
	(AC-FT)	19.	21.	22.	22.
CUMULATIVE AREA =		0.35 SQ MI			

*** **

86 KK *****
* SB02 * BASIN
*

SUBBASIN RUNOFF DATA

87 BA SUBBASIN CHARACTERISTICS
TAREA 0.16 SUBBASIN AREA

88 LG GREEN AND AMPT LOSS RATE
STRTL 0.15 STARTING LOSS
DTH 0.25 MOISTURE DEFICIT
PSIF 4.15 WETTING FRONT SUCTION
XKSAT 0.58 HYDRAULIC CONDUCTIVITY
RTIMP 56.00 PERCENT IMPERVIOUS AREA

89 UC CLARK UNITGRAPH
TC 0.32 TIME OF CONCENTRATION
R 0.24 STORAGE COEFFICIENT

Onsite_6hr.out
 90 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES
 0.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
 100.0

UNIT HYDROGRAPH PARAMETERS
 CLARK TC= 0.32 HR, R= 0.24 HR
 SNYDER TP= 0.19 HR, CP= 0.49

UNIT HYDROGRAPH
 28 END-OF-PERIOD ORDINATES
 21. 81. 185. 250. 242. 220. 192. 160. 129. 104.
 85. 68. 55. 45. 36. 29. 24. 19. 16. 13.
 10. 8. 7. 5. 4. 4. 3. 2.

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

HYDROGRAPH AT STATION SB02
 TRANSPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.45, TOTAL EXCESS = 2.30

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)	(CFS)			
+	492.	0.95	39.	10.	5.	5.
		(INCHES)	2.292	2.292	2.292	2.292
		(AC-FT)	19.	19.	19.	19.

CUMULATIVE AREA = 0.16 SQ MI

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

HYDROGRAPH AT STATION SB02
 TRANSPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.45, TOTAL EXCESS = 2.29

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)	(CFS)			
+	488.	0.95	38.	10.	5.	5.
		(INCHES)	2.276	2.276	2.276	2.276
		(AC-FT)	19.	19.	19.	19.

CUMULATIVE AREA = 0.16 SQ MI

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

HYDROGRAPH AT STATION SB02
 TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.49, TOTAL EXCESS = 2.19

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)	(CFS)			
+	433.	1.00	37.	9.	4.	4.
		(INCHES)	2.183	2.183	2.183	2.183
		(AC-FT)	18.	18.	18.	18.

CUMULATIVE AREA = 0.16 SQ MI

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

HYDROGRAPH AT STATION SB02
 TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.54, TOTAL EXCESS = 2.00

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)	(CFS)			
+	365.	1.00	34.	8.	4.	4.
		(INCHES)	1.994	1.994	1.994	1.994
		(AC-FT)	17.	17.	17.	17.

CUMULATIVE AREA = 0.16 SQ MI

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

HYDROGRAPH AT STATION SB02
 TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.56, TOTAL EXCESS = 1.67

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	278.	1.00	(CFS)	28.	7.	3.
			(INCHES)	1.660	1.660	1.660
			(AC-FT)	14.	14.	14.
CUMULATIVE AREA =			0.16 SQ MI			
***	***	***	***	***	***	***

INTERPOLATED HYDROGRAPH AT SB02

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	489.	0.95	(CFS)	38.	10.	5.
			(INCHES)	2.278	2.278	2.278
			(AC-FT)	19.	19.	19.
CUMULATIVE AREA =			0.16 SQ MI			

*** **

92 KK *****
 * *
 * CP-2 * COMBINE
 * *

SR 101L FREEWAY AND 76TH ST (MILLER RD CHANNEL)

94 HC HYDROGRAPH COMBINATION
 ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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

HYDROGRAPH AT STATION CP-2
 TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	740.	1.05	(CFS)	75.	20.	10.
			(INCHES)	1.372	1.495	1.529
			(AC-FT)	37.	41.	42.
CUMULATIVE AREA =			0.51 SQ MI			
***	***	***	***	***	***	***

HYDROGRAPH AT STATION CP-2
 TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	732.	1.05	(CFS)	75.	20.	10.
			(INCHES)	1.363	1.486	1.521
			(AC-FT)	37.	40.	41.
CUMULATIVE AREA =			0.51 SQ MI			
***	***	***	***	***	***	***

HYDROGRAPH AT STATION CP-2
 TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	654.	1.05	(CFS)	72.	20.	10.
			(INCHES)	1.311	1.433	1.468
			(AC-FT)	36.	39.	40.
CUMULATIVE AREA =			0.51 SQ MI			

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

HYDROGRAPH AT STATION CP-2
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+ (CFS)	(HR)	(CFS)				
+ 556.	1.10	66.	18.	9.	9.	
		(INCHES) 1.207	1.332	1.367	1.367	
		(AC-FT) 33.	36.	37.	37.	
CUMULATIVE AREA =			0.51 SQ MI			

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

HYDROGRAPH AT STATION CP-2
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+ (CFS)	(HR)	(CFS)				
+ 422.	1.10	56.	16.	8.	8.	
		(INCHES) 1.028	1.156	1.190	1.190	
		(AC-FT) 28.	31.	32.	32.	
CUMULATIVE AREA =			0.51 SQ MI			

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

INTERPOLATED HYDROGRAPH AT CP-2

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+ (CFS)	(HR)	(CFS)				
+ 731.	1.05	75.	20.	10.	10.	
		(INCHES) 1.362	1.485	1.520	1.520	
		(AC-FT) 37.	40.	41.	41.	
CUMULATIVE AREA =			0.51 SQ MI			

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*
95 KK * R2-3 * ROUTE
*

MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD

HYDROGRAPH ROUTING DATA

97 RK KINEMATIC WAVE STREAM ROUTING

L	1260.	CHANNEL LENGTH
S	0.0015	SLOPE
N	0.030	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	92.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
NDXMIN	2	MINIMUM NUMBER OF DX INTERVALS

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.13	1.58	1.61	420.00	726.00	65.69	1.53	4.85

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4152E+02 EXCESS=0.0000E+00 OUTFLOW=0.4152E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=-0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.13	1.58	3.00	725.57	66.00	1.53
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HYDROGRAPH AT STATION R2-3
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)	(CFS)			
726.	1.10	75.	20.	10.	10.
		(INCHES)	1.373	1.495	1.529
		(AC-FT)	37.	41.	42.

CUMULATIVE AREA = 0.51 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.13	1.58	1.61	420.00	719.73	65.75	1.52	4.83

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4128E+02 EXCESS=0.0000E+00 OUTFLOW=0.4128E+02 BASIN STORAGE=0.4197E-01 PERCENT ERROR=-0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.13	1.58	3.00	719.25	66.00	1.52
------	------	------	------	--------	-------	------

HYDROGRAPH AT STATION R2-3
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)	(CFS)			
719.	1.10	75.	20.	10.	10.
		(INCHES)	1.364	1.486	1.521
		(AC-FT)	37.	40.	41.

CUMULATIVE AREA = 0.51 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.13	1.58	1.65	420.00	650.44	66.16	1.47	4.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3985E+02 EXCESS=0.0000E+00 OUTFLOW=0.3986E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=-0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.13	1.58	3.00	647.31	66.00	1.47
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HYDROGRAPH AT STATION R2-3
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)	(CFS)			
647.	1.10	72.	20.	10.	10.
		(INCHES)	1.313	1.435	1.469
		(AC-FT)	36.	39.	40.

CUMULATIVE AREA = 0.51 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.13	1.58	1.61	420.00	553.64	68.36	1.37	4.37

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3711E+02 EXCESS=0.0000E+00 OUTFLOW=0.3710E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=-0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.13	1.58	3.00	550.82	69.00	1.37
***	***	***	***	***		

HYDROGRAPH AT STATION R2-3
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)	(CFS)			
+	551.	1.15	66.	18.	9.	9.
			1.206	1.332	1.366	1.366
		(INCHES)				
		(AC-FT)	33.	36.	37.	37.

CUMULATIVE AREA = 0.51 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.13	1.58	1.77	420.00	421.93	69.46	1.19	3.95

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3232E+02 EXCESS=0.0000E+00 OUTFLOW=0.3234E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=-0.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.13	1.58	3.00	418.11	69.00	1.19
***	***	***	***	***		

HYDROGRAPH AT STATION R2-3
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)	(CFS)			
+	418.	1.15	56.	16.	8.	8.
			1.029	1.157	1.192	1.192
		(INCHES)				
		(AC-FT)	28.	31.	32.	32.

CUMULATIVE AREA = 0.51 SQ MI

INTERPOLATED HYDROGRAPH AT R2-3

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)	(CFS)			
+	719.	1.10	75.	20.	10.	10.
			1.363	1.486	1.520	1.520
		(INCHES)				
		(AC-FT)	37.	40.	41.	41.

CUMULATIVE AREA = 0.51 SQ MI

98 KK *****
* SB03 * BASIN
*

SUBBASIN RUNOFF DATA

99 BA SUBBASIN CHARACTERISTICS
TAREA 0.05 SUBBASIN AREA

100 LG GREEN AND AMPT LOSS RATE

STRTL	0.15	STARTING LOSS
DTH	0.25	MOISTURE DEFICIT
PSIF	4.50	WETTING FRONT SUCTION
XKSAT	0.47	HYDRAULIC CONDUCTIVITY
RTIMP	55.00	PERCENT IMPERVIOUS AREA

101 UC CLARK UNITGRAPH

TC	0.36	TIME OF CONCENTRATION
R	0.29	STORAGE COEFFICIENT

102 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

0.0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
100.0									

UNIT HYDROGRAPH PARAMETERS

CLARK	TC= 0.36 HR,	R= 0.29 HR
SNYDER	TP= 0.21 HR,	CP= 0.43

UNIT HYDROGRAPH

34 END-OF-PERIOD ORDINATES

5.	17.	43.	62.	64.	61.	56.	49.	42.	35.
30.	25.	21.	18.	15.	12.	10.	9.	7.	6.
5.	4.	4.	3.	3.	2.	2.	2.	1.	1.
1.	1.	1.	1.						

HYDROGRAPH AT STATION
TRANSPPOSITION AREASB03
0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.44, TOTAL EXCESS = 2.31

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)	(CFS)			
+	130.	1.00	12.	3.	1.	1.
			(INCHES)	2.302	2.302	2.302
			(AC-FT)	6.	6.	6.
			CUMULATIVE AREA =	0.05 SQ MI		

HYDROGRAPH AT STATION
TRANSPPOSITION AREASB03
0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.44, TOTAL EXCESS = 2.30

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)	(CFS)			
+	129.	1.00	12.	3.	1.	1.
			(INCHES)	2.286	2.286	2.286
			(AC-FT)	6.	6.	6.
			CUMULATIVE AREA =	0.05 SQ MI		

HYDROGRAPH AT STATION
TRANSPPOSITION AREASB03
2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.48, TOTAL EXCESS = 2.21

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)	(CFS)			
+	117.	1.00	11.	3.	1.	1.
			(INCHES)	2.198	2.198	2.198
			(AC-FT)	6.	6.	6.
			CUMULATIVE AREA =	0.05 SQ MI		

HYDROGRAPH AT STATION
TRANSPPOSITION AREASB03
16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.52, TOTAL EXCESS = 2.02

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)	(CFS)			

					Onsite_6hr.out	
+	99.	1.05	10.	3.	1.	1.
		(INCHES)	2.014	2.014	2.014	2.014
		(AC-FT)	5.	5.	5.	5.

CUMULATIVE AREA = 0.05 SQ MI

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

HYDROGRAPH AT STATION SB03
TRANSPPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.54, TOTAL EXCESS = 1.69

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW		
+	(CFS)	(HR)		24-HR	72-HR	49.95-HR
+	77.	1.05	(CFS)			
			9.	2.	1.	1.
		(INCHES)	1.679	1.679	1.679	1.679
		(AC-FT)	4.	4.	4.	4.

CUMULATIVE AREA = 0.05 SQ MI

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

INTERPOLATED HYDROGRAPH AT SB03

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW		
+	(CFS)	(HR)		24-HR	72-HR	49.95-HR
+	129.	1.00	(CFS)			
			12.	3.	1.	1.
		(INCHES)	2.290	2.290	2.290	2.290
		(AC-FT)	6.	6.	6.	6.

CUMULATIVE AREA = 0.05 SQ MI

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* *
104 KK * CP-3 * COMBINE
* *

MAYO BLVD AND 76TH ST (MILLER RD CHANNEL)

106 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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

HYDROGRAPH AT STATION CP-3
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW		
+	(CFS)	(HR)		24-HR	72-HR	49.95-HR
+	840.	1.10	(CFS)			
			87.	23.	11.	11.
		(INCHES)	1.449	1.564	1.596	1.596
		(AC-FT)	43.	46.	47.	47.

CUMULATIVE AREA = 0.56 SQ MI

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

HYDROGRAPH AT STATION CP-3
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW		
+	(CFS)	(HR)		24-HR	72-HR	49.95-HR
+	833.	1.10	(CFS)			
			86.	23.	11.	11.
		(INCHES)	1.439	1.555	1.587	1.587
		(AC-FT)	43.	46.	47.	47.

CUMULATIVE AREA = 0.56 SQ MI

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

HYDROGRAPH AT STATION CP-3

TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)			
+	755.	83.	22.	11.	11.
	1.10	1.385	1.500	1.532	1.532
		41.	45.	46.	46.
		(INCHES)			
		(AC-FT)			

CUMULATIVE AREA = 0.56 SQ MI

HYDROGRAPH AT STATION CP-3
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)			
+	638.	76.	21.	10.	10.
	1.15	1.271	1.390	1.422	1.422
		38.	41.	42.	42.
		(INCHES)			
		(AC-FT)			

CUMULATIVE AREA = 0.56 SQ MI

HYDROGRAPH AT STATION CP-3
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)			
+	487.	65.	18.	9.	9.
	1.15	1.080	1.202	1.234	1.234
		32.	36.	37.	37.
		(INCHES)			
		(AC-FT)			

CUMULATIVE AREA = 0.56 SQ MI

INTERPOLATED HYDROGRAPH AT CP-3

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)			
+	828.	86.	23.	11.	11.
	1.10	1.435	1.552	1.583	1.583
		43.	46.	47.	47.
		(INCHES)			
		(AC-FT)			

CUMULATIVE AREA = 0.56 SQ MI

107 KK * R3-5 * ROUTE

MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD

HYDROGRAPH ROUTING DATA

109 RK KINEMATIC WAVE STREAM ROUTING

L	2396.	CHANNEL LENGTH
S	0.0015	SLOPE
N	0.030	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	98.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
NDXMIN	2	MINIMUM NUMBER OF DX INTERVALS

COMPUTED KINEMATIC PARAMETERS

VARIABLE TIME STEP

(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

Page 23

(AC-FT) 41. 45. Onsite_6hr.out 46. 46.

CUMULATIVE AREA = 0.56 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.12	1.58	3.00	798.67	634.55	73.70	1.43	4.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4224E+02 EXCESS=0.0000E+00 OUTFLOW=0.4240E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR=-0.6

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.12	1.58	3.00	626.49	75.00	1.43
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HYDROGRAPH AT STATION R3-5
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)				
+	626.	1.25	76.	21.	10.	10.
		(INCHES)	1.271	1.396	1.427	1.427
		(AC-FT)	38.	41.	42.	42.

CUMULATIVE AREA = 0.56 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.12	1.58	3.00	798.67	478.66	74.64	1.24	4.10

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3665E+02 EXCESS=0.0000E+00 OUTFLOW=0.3688E+02 BASIN STORAGE=0.8233E-01 PERCENT ERROR=-0.8

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.12	1.58	3.00	478.05	75.00	1.24
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HYDROGRAPH AT STATION R3-5
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)				
+	478.	1.25	65.	18.	9.	9.
		(INCHES)	1.082	1.210	1.242	1.242
		(AC-FT)	32.	36.	37.	37.

CUMULATIVE AREA = 0.56 SQ MI

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

INTERPOLATED HYDROGRAPH AT R3-5

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)				
+	806.	1.20	86.	23.	11.	11.
		(INCHES)	1.437	1.558	1.589	1.589
		(AC-FT)	43.	46.	47.	47.

CUMULATIVE AREA = 0.56 SQ MI

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*           *
110 KK      SB04      BASIN
*           *
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SUBBASIN RUNOFF DATA

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111 BA      SUBBASIN CHARACTERISTICS
          TAREA      0.14  SUBBASIN AREA

112 LG      GREEN AND AMPT LOSS RATE
          STRTL      0.14  STARTING LOSS
          DTH        0.25  MOISTURE DEFICIT
          PSIF       4.60  WETTING FRONT SUCTION
          XKSAT      0.44  HYDRAULIC CONDUCTIVITY
          RTIMP      61.00  PERCENT IMPERVIOUS AREA

113 UC      CLARK UNITGRAPH
          TC         0.30  TIME OF CONCENTRATION
          R         0.20  STORAGE COEFFICIENT

114 UA      ACCUMULATED-AREA VS. TIME, 11 ORDINATES
          0.0      5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
          100.0

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UNIT HYDROGRAPH PARAMETERS
CLARK TC= 0.30 HR, R= 0.20 HR
SNYDER TP= 0.18 HR, CP= 0.54

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UNIT HYDROGRAPH
24 END-OF-PERIOD ORDINATES
26. 107. 218. 267. 245. 215. 177. 137. 106. 82.
63. 49. 38. 29. 23. 18. 14. 11. 8. 6.
5. 4. 3. 2.

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HYDROGRAPH AT STATION SB04
TRANSPPOSITION AREA 0.0 SQ MI

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TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.38, TOTAL EXCESS = 2.38

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR MAXIMUM AVERAGE FLOW	72-HR MAXIMUM AVERAGE FLOW	49.95-HR MAXIMUM AVERAGE FLOW
528.	0.95	37.	9.	4.	4.
		(INCHES) 2.369	2.369	2.369	2.369
		(AC-FT) 18.	18.	18.	18.

CUMULATIVE AREA = 0.14 SQ MI

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HYDROGRAPH AT STATION SB04
TRANSPPOSITION AREA 0.5 SQ MI

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TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.37, TOTAL EXCESS = 2.36

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR MAXIMUM AVERAGE FLOW	72-HR MAXIMUM AVERAGE FLOW	49.95-HR MAXIMUM AVERAGE FLOW
524.	0.95	36.	9.	4.	4.
		(INCHES) 2.353	2.353	2.353	2.353
		(AC-FT) 18.	18.	18.	18.

CUMULATIVE AREA = 0.14 SQ MI

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HYDROGRAPH AT STATION SB04
TRANSPPOSITION AREA 2.8 SQ MI

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TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.40, TOTAL EXCESS = 2.28

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR MAXIMUM AVERAGE FLOW	72-HR MAXIMUM AVERAGE FLOW	49.95-HR MAXIMUM AVERAGE FLOW
452.	0.95	35.	9.	4.	4.
		(INCHES) 2.272	2.272	2.272	2.272
		(AC-FT) 17.	17.	17.	17.

CUMULATIVE AREA = 0.14 SQ MI

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

HYDROGRAPH AT STATION SB04
TRANSPPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.44, TOTAL EXCESS = 2.10

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+ (CFS)	(HR)	(CFS)				
+ 382.	1.00	32.	8.	4.	4.	
		(INCHES)	2.095	2.095	2.095	2.095
		(AC-FT)	16.	16.	16.	16.
CUMULATIVE AREA =			0.14 SQ MI			

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

HYDROGRAPH AT STATION SB04
TRANSPPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.46, TOTAL EXCESS = 1.77

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+ (CFS)	(HR)	(CFS)				
+ 293.	1.00	27.	7.	3.	3.	
		(INCHES)	1.763	1.763	1.763	1.763
		(AC-FT)	14.	14.	14.	14.
CUMULATIVE AREA =			0.14 SQ MI			

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INTERPOLATED HYDROGRAPH AT SB04

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+ (CFS)	(HR)	(CFS)				
+ 525.	0.95	36.	9.	4.	4.	
		(INCHES)	2.356	2.356	2.356	2.356
		(AC-FT)	18.	18.	18.	18.
CUMULATIVE AREA =			0.14 SQ MI			

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*
116 KK * R4-5 * ROUTE
*

PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST

HYDROGRAPH ROUTING DATA

118 RK KINEMATIC WAVE STREAM ROUTING

L	2005.	CHANNEL LENGTH
S	0.0013	SLOPE
N	0.030	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	39.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
NDXMIN	2	MINIMUM NUMBER OF DX INTERVALS

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.23	1.51	2.41	668.33	520.58	62.34	2.39	4.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1819E+02 EXCESS=0.0000E+00 OUTFLOW=0.1838E+02 BASIN STORAGE=0.3179E-04 PERCENT ERROR=-1.0

Onsite_6hr.out
INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

	MAIN	0.23	1.51	3.00	513.38	63.00	2.40
***	***	***	***	***	***		
HYDROGRAPH AT STATION R4-5 TRANSPPOSITION AREA 0.0 SQ MI							
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR	
+ (CFS)	(HR)	(CFS)					
+ 513.	1.05	37.	9.	4.	4.		
		(INCHES)	2.401	2.402	2.402	2.402	
		(AC-FT)	18.	18.	18.	18.	
CUMULATIVE AREA = 0.14 SQ MI							
COMPUTED KINEMATIC PARAMETERS VARIABLE TIME STEP (DT SHOWN IS A MINIMUM)							
	ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)
	MAIN	0.23	1.51	2.42	668.33	516.56	62.40
							VOLUME (IN)
							2.38
							MAXIMUM CELERITY (FPS)
							4.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1807E+02 EXCESS=0.0000E+00 OUTFLOW=0.1825E+02 BASIN STORAGE=0.4744E-04 PERCENT ERROR=-1.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

	MAIN	0.23	1.51	3.00	510.06	63.00	2.39
***	***	***	***	***	***		
HYDROGRAPH AT STATION R4-5 TRANSPPOSITION AREA 0.5 SQ MI							
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR	
+ (CFS)	(HR)	(CFS)					
+ 510.	1.05	37.	9.	4.	4.		
		(INCHES)	2.386	2.386	2.386	2.386	
		(AC-FT)	18.	18.	18.	18.	
CUMULATIVE AREA = 0.14 SQ MI							
COMPUTED KINEMATIC PARAMETERS VARIABLE TIME STEP (DT SHOWN IS A MINIMUM)							
	ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)
	MAIN	0.23	1.51	2.55	668.33	451.64	62.77
							VOLUME (IN)
							2.29
							MAXIMUM CELERITY (FPS)
							4.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1745E+02 EXCESS=0.0000E+00 OUTFLOW=0.1762E+02 BASIN STORAGE=0.4583E-04 PERCENT ERROR=-1.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

	MAIN	0.23	1.51	3.00	451.16	63.00	2.30
***	***	***	***	***	***		
HYDROGRAPH AT STATION R4-5 TRANSPPOSITION AREA 2.8 SQ MI							
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR	
+ (CFS)	(HR)	(CFS)					
+ 451.	1.05	36.	9.	4.	4.		
		(INCHES)	2.301	2.302	2.302	2.302	
		(AC-FT)	18.	18.	18.	18.	
CUMULATIVE AREA = 0.14 SQ MI							
COMPUTED KINEMATIC PARAMETERS VARIABLE TIME STEP (DT SHOWN IS A MINIMUM)							

ELEMENT	ALPHA	M	Onsite_6hr.out		PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
			DT (MIN)	DX (FT)				
MAIN	0.23	1.51	2.73	668.33	379.50	64.90	2.12	4.31

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1609E+02 EXCESS=0.0000E+00 OUTFLOW=0.1629E+02 BASIN STORAGE=0.4132E-04 PERCENT ERROR=-1.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.23	1.51	3.00	374.76	63.00	2.12
***	***	***	***	***		

HYDROGRAPH AT STATION R4-5
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW + (CFS)	TIME (HR)	6-HR (CFS)	MAXIMUM 24-HR	AVERAGE FLOW 72-HR	49.95-HR
+ 375.	1.05	33.	8.	4.	4.
		(INCHES) 2.115	2.116	2.116	2.116
		(AC-FT) 16.	16.	16.	16.

CUMULATIVE AREA = 0.14 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.23	1.51	2.87	668.33	291.80	65.24	1.78	3.94

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1354E+02 EXCESS=0.0000E+00 OUTFLOW=0.1370E+02 BASIN STORAGE=0.4337E-04 PERCENT ERROR=-1.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.23	1.51	3.00	288.81	66.00	1.78
***	***	***	***	***		

HYDROGRAPH AT STATION R4-5
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW + (CFS)	TIME (HR)	6-HR (CFS)	MAXIMUM 24-HR	AVERAGE FLOW 72-HR	49.95-HR
+ 289.	1.10	28.	7.	3.	3.
		(INCHES) 1.782	1.782	1.782	1.782
		(AC-FT) 14.	14.	14.	14.

CUMULATIVE AREA = 0.14 SQ MI

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INTERPOLATED HYDROGRAPH AT R4-5

PEAK FLOW + (CFS)	TIME (HR)	6-HR (CFS)	MAXIMUM 24-HR	AVERAGE FLOW 72-HR	49.95-HR
+ 511.	1.05	37.	9.	4.	4.
		(INCHES) 2.388	2.388	2.388	2.388
		(AC-FT) 18.	18.	18.	18.

CUMULATIVE AREA = 0.14 SQ MI

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119 KK

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* SB05 *
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BASIN

SUBBASIN RUNOFF DATA

120 BA SUBBASIN CHARACTERISTICS
TAREA 0.13 SUBBASIN AREA

121 LG GREEN AND AMPT LOSS RATE
STRTL 0.22 STARTING LOSS
DTH 0.25 MOISTURE DEFICIT
PSIF 4.50 WETTING FRONT SUCTION
XKSAT 0.44 HYDRAULIC CONDUCTIVITY
RTIMP 48.00 PERCENT IMPERVIOUS AREA

122 UC CLARK UNITGRAPH
TC 0.33 TIME OF CONCENTRATION
R 0.22 STORAGE COEFFICIENT

123 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES
0.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
100.0

UNIT HYDROGRAPH PARAMETERS

CLARK TC= 0.33 HR, R= 0.22 HR
SNYDER TP= 0.19 HR, CP= 0.50

UNIT HYDROGRAPH

27 END-OF-PERIOD ORDINATES

18.	67.	154.	208.	200.	181.	156.	129.	103.	82.
66.	53.	42.	34.	27.	21.	17.	14.	11.	9.
7.	6.	4.	4.	3.	2.	2.			

HYDROGRAPH AT STATION SB05
TRANSPPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.52, TOTAL EXCESS = 2.23

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)	(CFS)			
402.	0.95	30.	8.	4.	4.
		(INCHES)	2.223	2.223	2.223
		(AC-FT)	15.	15.	15.

CUMULATIVE AREA = 0.13 SQ MI

HYDROGRAPH AT STATION SB05
TRANSPPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.52, TOTAL EXCESS = 2.22

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)	(CFS)			
399.	0.95	30.	7.	4.	4.
		(INCHES)	2.208	2.208	2.208
		(AC-FT)	15.	15.	15.

CUMULATIVE AREA = 0.13 SQ MI

HYDROGRAPH AT STATION SB05
TRANSPPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.56, TOTAL EXCESS = 2.13

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)	(CFS)			
352.	1.00	29.	7.	3.	3.
		(INCHES)	2.118	2.118	2.118
		(AC-FT)	14.	14.	14.

CUMULATIVE AREA = 0.13 SQ MI

HYDROGRAPH AT STATION SB05
TRANSPPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.60, TOTAL EXCESS = 1.94

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	Onsite_6hr.out 72-HR	49.95-HR
+	(CFS)	(HR)				
+	296.	1.00	(CFS)			
			26.	7.	3.	3.
		(INCHES)	1.930	1.930	1.930	1.930
		(AC-FT)	13.	13.	13.	13.
CUMULATIVE AREA =			0.13 SQ MI			

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HYDROGRAPH AT STATION SB05
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.63, TOTAL EXCESS = 1.60

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	225.	1.00	(CFS)			
			22.	5.	3.	3.
		(INCHES)	1.593	1.593	1.593	1.593
		(AC-FT)	11.	11.	11.	11.
CUMULATIVE AREA =			0.13 SQ MI			

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

INTERPOLATED HYDROGRAPH AT SB05

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	399.	0.95	(CFS)			
			30.	7.	4.	4.
		(INCHES)	2.210	2.210	2.210	2.210
		(AC-FT)	15.	15.	15.	15.
CUMULATIVE AREA =			0.13 SQ MI			

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* *
125 KK * CP-5 * COMBINE
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PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)

127 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

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

HYDROGRAPH AT STATION CP-5
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1452.	1.15	(CFS)			
			153.	40.	20.	20.
		(INCHES)	1.715	1.814	1.836	1.836
		(AC-FT)	76.	80.	81.	81.
CUMULATIVE AREA =			0.83 SQ MI			

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HYDROGRAPH AT STATION CP-5
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1440.	1.15	(CFS)			
			152.	40.	19.	19.
		(INCHES)	1.703	1.803	1.824	1.824
		(AC-FT)	75.	80.	80.	80.
CUMULATIVE AREA =			0.83 SQ MI			

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HYDROGRAPH AT STATION CP-5
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)					
+	1335.	1.15	(CFS)	146.	39.	19.	19.
			(INCHES)	1.638	1.737	1.759	1.759
			(AC-FT)	72.	77.	78.	78.
			CUMULATIVE AREA =	0.83 SQ MI			

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

HYDROGRAPH AT STATION CP-5
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)					
+	1121.	1.15	(CFS)	133.	36.	17.	17.
			(INCHES)	1.499	1.602	1.623	1.623
			(AC-FT)	66.	71.	72.	72.
			CUMULATIVE AREA =	0.83 SQ MI			

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HYDROGRAPH AT STATION CP-5
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)					
+	844.	1.20	(CFS)	112.	30.	15.	15.
			(INCHES)	1.262	1.368	1.389	1.389
			(AC-FT)	56.	60.	61.	61.
			CUMULATIVE AREA =	0.83 SQ MI			

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INTERPOLATED HYDROGRAPH AT CP-5

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)					
+	1410.	1.15	(CFS)	150.	40.	19.	19.
			(INCHES)	1.684	1.784	1.805	1.805
			(AC-FT)	74.	79.	80.	80.
			CUMULATIVE AREA =	0.83 SQ MI			

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128 KK R5-6 * ROUTE
* *

PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD

HYDROGRAPH ROUTING DATA

130 RK	KINEMATIC WAVE STREAM ROUTING
L	1550. CHANNEL LENGTH
S	0.0015 SLOPE
N	0.030 CHANNEL ROUGHNESS COEFFICIENT
CA	0.00 CONTRIBUTING AREA
SHAPE	TRAP CHANNEL SHAPE
WD	188.00 BOTTOM WIDTH OR DIAMETER
Z	4.00 SIDE SLOPE
NDXMIN	2 MINIMUM NUMBER OF DX INTERVALS

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

Onsite_6hr.out

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	1.71	516.67	1430.15	73.26	1.84	5.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8096E+02 EXCESS=0.0000E+00 OUTFLOW=0.8101E+02 BASIN STORAGE=0.7278E-01 PERCENT ERROR=-0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00	1428.13	72.00	1.84
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HYDROGRAPH AT STATION R5-6
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW + (CFS)	TIME (HR)	6-HR (CFS)	MAXIMUM 24-HR	AVERAGE FLOW 72-HR	49.95-HR
+ 1428.	1.20	153.	40.	20.	20.
		(INCHES) 1.715	1.815	1.836	1.836
		(AC-FT) 76.	80.	81.	81.

CUMULATIVE AREA = 0.83 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	1.72	516.67	1417.75	71.63	1.82	5.12

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8047E+02 EXCESS=0.0000E+00 OUTFLOW=0.8049E+02 BASIN STORAGE=0.7282E-01 PERCENT ERROR=-0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00	1417.68	72.00	1.82
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HYDROGRAPH AT STATION R5-6
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW + (CFS)	TIME (HR)	6-HR (CFS)	MAXIMUM 24-HR	AVERAGE FLOW 72-HR	49.95-HR
+ 1418.	1.20	151.	40.	19.	19.
		(INCHES) 1.703	1.803	1.824	1.824
		(AC-FT) 75.	80.	80.	80.

CUMULATIVE AREA = 0.83 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	1.83	516.67	1320.58	72.30	1.76	4.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7757E+02 EXCESS=0.0000E+00 OUTFLOW=0.7762E+02 BASIN STORAGE=0.6818E-01 PERCENT ERROR=-0.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00	1310.29	72.00	1.76
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HYDROGRAPH AT STATION R5-6
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	6-HR	MAXIMUM 24-HR	AVERAGE FLOW 72-HR	49.95-HR

Onsite_6hr.out

+	(CFS)	(HR)	(CFS)				
+	1310.	1.20	146.	39.	19.	19.	
			(INCHES)	1.639	1.739	1.760	1.760
			(AC-FT)	72.	77.	78.	78.

CUMULATIVE AREA = 0.83 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	1.92	516.67	1120.07	73.97	1.62	4.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7160E+02 EXCESS=0.0000E+00 OUTFLOW=0.7164E+02 BASIN STORAGE=0.7274E-01 PERCENT ERROR=-0.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00	1117.54	75.00	1.62
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HYDROGRAPH AT STATION R5-6
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1118.	1.25	133.	36.	17.	17.
			(INCHES)	1.500	1.603	1.624
			(AC-FT)	66.	71.	72.

CUMULATIVE AREA = 0.83 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	2.16	516.67	837.38	77.35	1.39	4.17

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6127E+02 EXCESS=0.0000E+00 OUTFLOW=0.6143E+02 BASIN STORAGE=0.6818E-01 PERCENT ERROR=-0.4

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00	834.70	75.00	1.39
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HYDROGRAPH AT STATION R5-6
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	835.	1.25	112.	30.	15.	15.
			(INCHES)	1.264	1.371	1.392
			(AC-FT)	56.	60.	61.

CUMULATIVE AREA = 0.83 SQ MI

INTERPOLATED HYDROGRAPH AT R5-6

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1386.	1.20	150.	40.	19.	19.
			(INCHES)	1.684	1.785	1.806
			(AC-FT)	74.	79.	80.

CUMULATIVE AREA = 0.83 SQ MI

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 131 KK * SB06 * BASIN
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SUBBASIN RUNOFF DATA

132 BA SUBBASIN CHARACTERISTICS
 TAREA 0.14 SUBBASIN AREA

133 LG GREEN AND AMPT LOSS RATE
 STRTL 0.16 STARTING LOSS
 DTH 0.25 MOISTURE DEFICIT
 PSIF 4.55 WETTING FRONT SUCTION
 XKSAT 0.45 HYDRAULIC CONDUCTIVITY
 RTIMP 53.00 PERCENT IMPERVIOUS AREA

134 UC CLARK UNITGRAPH
 TC 0.32 TIME OF CONCENTRATION
 R 0.24 STORAGE COEFFICIENT

135 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES
 0.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
 100.0

UNIT HYDROGRAPH PARAMETERS
 CLARK TC= 0.32 HR, R= 0.24 HR
 SNYDER TP= 0.19 HR, CP= 0.48

UNIT HYDROGRAPH
 29 END-OF-PERIOD ORDINATES
 18. 72. 161. 214. 206. 189. 164. 136. 111. 90.
 73. 60. 49. 39. 32. 26. 21. 17. 14. 11.
 9. 8. 6. 5. 4. 3. 3. 2. 2.

HYDROGRAPH AT STATION SB06
 TRANSPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.46, TOTAL EXCESS = 2.30

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)	(CFS)			
+	422.	0.95	33.	8.	4.
		(INCHES)	2.285	2.285	2.285
		(AC-FT)	17.	17.	17.

CUMULATIVE AREA = 0.14 SQ MI

HYDROGRAPH AT STATION SB06
 TRANSPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.46, TOTAL EXCESS = 2.28

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)	(CFS)			
+	419.	0.95	33.	8.	4.
		(INCHES)	2.269	2.269	2.269
		(AC-FT)	16.	16.	16.

CUMULATIVE AREA = 0.14 SQ MI

HYDROGRAPH AT STATION SB06
 TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.50, TOTAL EXCESS = 2.19

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)	(CFS)			
+	373.	1.00	32.	8.	4.
		(INCHES)	2.181	2.181	2.181

				Onsite_6hr.out	
	(AC-FT)	16.	16.	16.	16.
	CUMULATIVE AREA =	0.14 SQ MI			
***	***	***	***	***	***
	HYDROGRAPH AT STATION	SB06			
	TRANSPPOSITION AREA	16.0 SQ MI			
TOTAL RAINFALL =	2.54,	TOTAL LOSS =	0.53,	TOTAL EXCESS =	2.01
PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW		
+ (CFS)	(HR)	6-HR	24-HR	72-HR	49.95-HR
+ 316.	1.00	(CFS)			
		29.	7.	4.	4.
	(INCHES)	1.997	1.997	1.997	1.997
	(AC-FT)	14.	14.	14.	14.
	CUMULATIVE AREA =	0.14 SQ MI			
***	***	***	***	***	***
	HYDROGRAPH AT STATION	SB06			
	TRANSPPOSITION AREA	90.0 SQ MI			
TOTAL RAINFALL =	2.23,	TOTAL LOSS =	0.56,	TOTAL EXCESS =	1.67
PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW		
+ (CFS)	(HR)	6-HR	24-HR	72-HR	49.95-HR
+ 241.	1.00	(CFS)			
		24.	6.	3.	3.
	(INCHES)	1.661	1.661	1.661	1.661
	(AC-FT)	12.	12.	12.	12.
	CUMULATIVE AREA =	0.14 SQ MI			
***	***	***	***	***	***
	INTERPOLATED HYDROGRAPH AT	SB06			
PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW		
+ (CFS)	(HR)	6-HR	24-HR	72-HR	49.95-HR
+ 420.	0.95	(CFS)			
		33.	8.	4.	4.
	(INCHES)	2.272	2.272	2.272	2.272
	(AC-FT)	16.	16.	16.	16.
	CUMULATIVE AREA =	0.14 SQ MI			
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137 KK	*****				
	* *				
	* CP-6 *	COMBINE			
	* *				

	PRINCESS BLVD AND SCOTTSDALE RD (PRINCESS BLVD CHANNEL)				
139 HC	HYDROGRAPH COMBINATION				
	ICOMP	2	NUMBER OF HYDROGRAPHS TO COMBINE		

***	***	***	***	***	***
	HYDROGRAPH AT STATION	CP-6			
	TRANSPPOSITION AREA	0.0 SQ MI			
PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW		
+ (CFS)	(HR)	6-HR	24-HR	72-HR	49.95-HR
+ 1662.	1.20	(CFS)			
		185.	49.	24.	24.
	(INCHES)	1.782	1.881	1.900	1.900
	(AC-FT)	92.	97.	98.	98.
	CUMULATIVE AREA =	0.96 SQ MI			
***	***	***	***	***	***
	HYDROGRAPH AT STATION	CP-6			

TRANSPPOSITION AREA

0.5 SQ MI

PEAK FLOW	TIME	6-HR	MAXIMUM AVERAGE FLOW	49.95-HR
(CFS)	(HR)		24-HR 72-HR	
1650.	1.20	183.	48.	23.
		(INCHES) 1.769	1.869	1.887
		(AC-FT) 91.	96.	97.

CUMULATIVE AREA = 0.96 SQ MI

HYDROGRAPH AT STATION
TRANSPPOSITION AREACP-6
2.8 SQ MI

PEAK FLOW	TIME	6-HR	MAXIMUM AVERAGE FLOW	49.95-HR
(CFS)	(HR)		24-HR 72-HR	
1542.	1.20	176.	47.	23.
		(INCHES) 1.702	1.801	1.820
		(AC-FT) 87.	93.	93.

CUMULATIVE AREA = 0.96 SQ MI

HYDROGRAPH AT STATION
TRANSPPOSITION AREACP-6
16.0 SQ MI

PEAK FLOW	TIME	6-HR	MAXIMUM AVERAGE FLOW	49.95-HR
(CFS)	(HR)		24-HR 72-HR	
1308.	1.20	161.	43.	21.
		(INCHES) 1.555	1.659	1.677
		(AC-FT) 80.	85.	86.

CUMULATIVE AREA = 0.96 SQ MI

HYDROGRAPH AT STATION
TRANSPPOSITION AREACP-6
90.0 SQ MI

PEAK FLOW	TIME	6-HR	MAXIMUM AVERAGE FLOW	49.95-HR
(CFS)	(HR)		24-HR 72-HR	
982.	1.25	135.	37.	18.
		(INCHES) 1.305	1.412	1.430
		(AC-FT) 67.	73.	73.

CUMULATIVE AREA = 0.96 SQ MI

INTERPOLATED HYDROGRAPH AT

CP-6

PEAK FLOW	TIME	6-HR	MAXIMUM AVERAGE FLOW	49.95-HR
(CFS)	(HR)		24-HR 72-HR	
1609.	1.20	181.	48.	23.
		(INCHES) 1.743	1.843	1.862
		(AC-FT) 90.	95.	96.

CUMULATIVE AREA = 0.96 SQ MI

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140 KK

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* SB07 *
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BASIN

SUBBASIN RUNOFF DATA

141 BA

SUBBASIN CHARACTERISTICS
TAREA

0.07 SUBBASIN AREA

142 LG GREEN AND AMPT LOSS RATE
 STRTL 0.21 STARTING LOSS
 DTH 0.25 MOISTURE DEFICIT
 PSIF 4.00 WETTING FRONT SUCTION
 XKSAT 0.58 HYDRAULIC CONDUCTIVITY
 RTIMP 49.00 PERCENT IMPERVIOUS AREA

143 UC CLARK UNITGRAPH
 TC 0.20 TIME OF CONCENTRATION
 R 0.11 STORAGE COEFFICIENT

144 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES
 0.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
 100.0

UNIT HYDROGRAPH PARAMETERS
 CLARK TC= 0.20 HR, R= 0.11 HR
 SNYDER TP= 0.13 HR, CP= 0.62

UNIT HYDROGRAPH
 14 END-OF-PERIOD ORDINATES

39. 156. 219. 180. 130. 84. 53. 34. 22. 14.
 9. 6. 4. 2.

HYDROGRAPH AT STATION SB07
 TRANSPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.54, TOTAL EXCESS = 2.22

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)				
+	386.	0.90	18.	4.	2.	2.
		(INCHES)	2.209	2.209	2.209	2.209
		(AC-FT)	9.	9.	9.	9.
CUMULATIVE AREA =			0.07 SQ MI			

HYDROGRAPH AT STATION SB07
 TRANSPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.54, TOTAL EXCESS = 2.20

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)				
+	384.	0.90	17.	4.	2.	2.
		(INCHES)	2.193	2.193	2.193	2.193
		(AC-FT)	9.	9.	9.	9.
CUMULATIVE AREA =			0.07 SQ MI			

HYDROGRAPH AT STATION SB07
 TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.58, TOTAL EXCESS = 2.10

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)				
+	308.	0.90	17.	4.	2.	2.
		(INCHES)	2.095	2.095	2.095	2.095
		(AC-FT)	8.	8.	8.	8.
CUMULATIVE AREA =			0.07 SQ MI			

HYDROGRAPH AT STATION SB07
 TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.63, TOTAL EXCESS = 1.91

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)				
+	249.	0.90	15.	4.	2.	2.
		(INCHES)	1.901	1.901	1.901	1.901
		(AC-FT)	8.	8.	8.	8.

CUMULATIVE AREA = 0.07 SQ MI

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HYDROGRAPH AT STATION SB07
TRANSPPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.66, TOTAL EXCESS = 1.57

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	181.	0.90	(CFS)			
			12.	3.	1.	1.
		(INCHES)	1.563	1.563	1.563	1.563
		(AC-FT)	6.	6.	6.	6.

CUMULATIVE AREA = 0.07 SQ MI

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INTERPOLATED HYDROGRAPH AT SB07

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	384.	0.90	(CFS)			
			17.	4.	2.	2.
		(INCHES)	2.197	2.197	2.197	2.197
		(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

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146 KK * R7-8 * ROUTE
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HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY

HYDROGRAPH ROUTING DATA

148 RK KINEMATIC WAVE STREAM ROUTING
L 2778. CHANNEL LENGTH
S 0.0014 SLOPE
N 0.030 CHANNEL ROUGHNESS COEFFICIENT
CA 0.00 CONTRIBUTING AREA
SHAPE TRAP CHANNEL SHAPE
WD 46.00 BOTTOM WIDTH OR DIAMETER
Z 4.00 SIDE SLOPE
NDXMIN 2 MINIMUM NUMBER OF DX INTERVALS

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.21	1.53	2.79	694.50	374.54	61.97	2.32	4.32

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8717E+01 EXCESS=0.0000E+00 OUTFLOW=0.9160E+01 BASIN STORAGE=0.1297E-03 PERCENT ERROR=-5.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.21	1.53	3.00	360.59	63.00	2.31
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HYDROGRAPH AT STATION R7-8
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	361.	1.05	(CFS)			
			18.	5.	2.	2.

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(INCHES)	2.311	2.314	2.314	2.314
(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.21	1.53	2.80	694.50	373.06	62.02	2.31	4.31

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8655E+01 EXCESS=0.0000E+00 OUTFLOW=0.9098E+01 BASIN STORAGE=0.1282E-03 PERCENT ERROR=-5.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.21	1.53	3.00	359.23	63.00	2.30
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HYDROGRAPH AT STATION R7-8
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)					
+	359.	1.05	(CFS)			
			18.	5.	2.	2.
		(INCHES)	2.295	2.298	2.298	2.298
		(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.21	1.53	3.00	694.50	300.60	62.65	2.18	4.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8267E+01 EXCESS=0.0000E+00 OUTFLOW=0.8591E+01 BASIN STORAGE=0.1511E-03 PERCENT ERROR=-3.9

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.21	1.53	3.00	299.77	63.00	2.18
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HYDROGRAPH AT STATION R7-8
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)					
+	300.	1.05	(CFS)			
			17.	4.	2.	2.
		(INCHES)	2.176	2.178	2.179	2.179
		(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.21	1.53	3.00	694.50	243.19	65.55	1.99	3.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7502E+01 EXCESS=0.0000E+00 OUTFLOW=0.7866E+01 BASIN STORAGE=0.1118E-03 PERCENT ERROR=-4.8

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.21	1.53	3.00	238.95	66.00	2.00
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HYDROGRAPH AT STATION R7-8
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW + (CFS)	TIME (HR)	(CFS)	6-HR	MAXIMUM 24-HR	AVERAGE 72-HR	49.95-HR
+ 239.	1.10	16.	4.	2.	2.	
		(INCHES)	1.995	1.997	1.997	1.997
		(AC-FT)	8.	8.	8.	8.

CUMULATIVE AREA = 0.07 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.21	1.53	2.82	555.60	178.83	67.24	1.61	3.33

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6168E+01 EXCESS=0.0000E+00 OUTFLOW=0.6362E+01 BASIN STORAGE=0.1260E-03 PERCENT ERROR=-3.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.21	1.53	3.00	176.29	66.00	1.61
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HYDROGRAPH AT STATION R7-8
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW + (CFS)	TIME (HR)	(CFS)	6-HR	MAXIMUM 24-HR	AVERAGE 72-HR	49.95-HR
+ 176.	1.10	13.	3.	2.	2.	
		(INCHES)	1.609	1.611	1.611	1.611
		(AC-FT)	6.	6.	6.	6.

CUMULATIVE AREA = 0.07 SQ MI

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INTERPOLATED HYDROGRAPH AT R7-8

PEAK FLOW + (CFS)	TIME (HR)	(CFS)	6-HR	MAXIMUM 24-HR	AVERAGE 72-HR	49.95-HR
+ 360.	1.05	18.	5.	2.	2.	
		(INCHES)	2.299	2.301	2.301	2.301
		(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

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149 KK SB08 BASIN
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SUBBASIN RUNOFF DATA

150 BA	SUBBASIN CHARACTERISTICS	
	TAREA 0.22	SUBBASIN AREA
151 LG	GREEN AND AMPT LOSS RATE	
	STRTL 0.14	STARTING LOSS
	DTH 0.25	MOISTURE DEFICIT
	PSIF 4.10	WETTING FRONT SUCTION
	XKSAT 0.59	HYDRAULIC CONDUCTIVITY
	RTIMP 59.00	PERCENT IMPERVIOUS AREA
152 UC	CLARK UNITGRAPH	
	TC 0.33	TIME OF CONCENTRATION

R 0.19 STORAGE COEFFICIENT

153 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES
 0.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
 100.0

UNIT HYDROGRAPH PARAMETERS
 CLARK TC= 0.33 HR, R= 0.19 HR
 SNYDER TP= 0.19 HR, CP= 0.55

UNIT HYDROGRAPH
 24 END-OF-PERIOD ORDINATES
 35. 127. 298. 409. 385. 339. 288. 232. 179. 138.
 106. 82. 63. 49. 37. 29. 22. 17. 13. 10.
 8. 6. 5. 4.

HYDROGRAPH AT STATION SB08
 TRANSPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.42, TOTAL EXCESS = 2.34

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	796.	0.95	(CFS)			
			56.	14.	7.	7.
		(INCHES)	2.325	2.325	2.325	2.325
		(AC-FT)	28.	28.	28.	28.
CUMULATIVE AREA =			0.22 SQ MI			

HYDROGRAPH AT STATION SB08
 TRANSPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.42, TOTAL EXCESS = 2.32

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	791.	0.95	(CFS)			
			56.	14.	7.	7.
		(INCHES)	2.309	2.309	2.309	2.309
		(AC-FT)	28.	28.	28.	28.
CUMULATIVE AREA =			0.22 SQ MI			

HYDROGRAPH AT STATION SB08
 TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.46, TOTAL EXCESS = 2.23

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	686.	1.00	(CFS)			
			53.	13.	6.	6.
		(INCHES)	2.218	2.218	2.218	2.218
		(AC-FT)	26.	26.	26.	26.
CUMULATIVE AREA =			0.22 SQ MI			

HYDROGRAPH AT STATION SB08
 TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.50, TOTAL EXCESS = 2.04

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	577.	1.00	(CFS)			
			49.	12.	6.	6.
		(INCHES)	2.032	2.032	2.032	2.032
		(AC-FT)	24.	24.	24.	24.
CUMULATIVE AREA =			0.22 SQ MI			

HYDROGRAPH AT STATION SB08
 TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.53, TOTAL EXCESS = 1.71

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR MAXIMUM AVERAGE FLOW	72-HR MAXIMUM AVERAGE FLOW	49.95-HR MAXIMUM AVERAGE FLOW
439.	1.00	41.	10.	5.	5.
		1.699	1.699	1.699	1.699
		20.	20.	20.	20.
		CUMULATIVE AREA = 0.22 SQ MI			
***	***	***	***	***	***

INTERPOLATED HYDROGRAPH AT SB08

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR MAXIMUM AVERAGE FLOW	72-HR MAXIMUM AVERAGE FLOW	49.95-HR MAXIMUM AVERAGE FLOW
792.	0.95	56.	14.	7.	7.
		2.311	2.311	2.311	2.311
		28.	28.	28.	28.
		CUMULATIVE AREA = 0.22 SQ MI			

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 *
 155 KK * CP-8 * COMBINE
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SR 101L FREEWAY AND HAYDEN ROAD (HAYDEN ROAD NORTH CHANNEL)

157 HC HYDROGRAPH COMBINATION
 ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION CP-8
 TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR MAXIMUM AVERAGE FLOW	72-HR MAXIMUM AVERAGE FLOW	49.95-HR MAXIMUM AVERAGE FLOW
1041.	1.05	74.	19.	9.	9.
		2.322	2.322	2.322	2.322
		37.	37.	37.	37.
		CUMULATIVE AREA = 0.30 SQ MI			

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HYDROGRAPH AT STATION CP-8
 TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR MAXIMUM AVERAGE FLOW	72-HR MAXIMUM AVERAGE FLOW	49.95-HR MAXIMUM AVERAGE FLOW
1035.	1.05	74.	18.	9.	9.
		2.306	2.307	2.307	2.307
		37.	37.	37.	37.
		CUMULATIVE AREA = 0.30 SQ MI			

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HYDROGRAPH AT STATION CP-8
 TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR MAXIMUM AVERAGE FLOW	72-HR MAXIMUM AVERAGE FLOW	49.95-HR MAXIMUM AVERAGE FLOW
937.	1.05	71.	18.	9.	9.
		2.208	2.208	2.208	2.208
		35.	35.	35.	35.
		CUMULATIVE AREA = 0.30 SQ MI			

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HYDROGRAPH AT STATION CP-8
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)					
+	783.	1.05	(CFS)				
			65.	16.	8.	8.	
		(INCHES)	2.023	2.023	2.023	2.023	
		(AC-FT)	32.	32.	32.	32.	
CUMULATIVE AREA =			0.30 SQ MI				

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HYDROGRAPH AT STATION CP-8
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)					
+	561.	1.10	(CFS)				
			54.	13.	6.	6.	
		(INCHES)	1.676	1.677	1.677	1.677	
		(AC-FT)	27.	27.	27.	27.	
CUMULATIVE AREA =			0.30 SQ MI				

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INTERPOLATED HYDROGRAPH AT CP-8

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)					
+	1035.	1.05	(CFS)				
			74.	18.	9.	9.	
		(INCHES)	2.307	2.308	2.308	2.308	
		(AC-FT)	37.	37.	37.	37.	
CUMULATIVE AREA =			0.30 SQ MI				

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158 KK R8-9 ROUTE
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HAYDEN ROAD NORTH CHANNEL FROM HAYDEN ROAD TO BASIN 53R

HYDROGRAPH ROUTING DATA

160 RK	KINEMATIC WAVE STREAM ROUTING
	L 1250. CHANNEL LENGTH
	S 0.0013 SLOPE
	N 0.030 CHANNEL ROUGHNESS COEFFICIENT
	CA 0.00 CONTRIBUTING AREA
	SHAPE TRAP CHANNEL SHAPE
	WD 67.00 BOTTOM WIDTH OR DIAMETER
	Z 4.00 SIDE SLOPE
	NDXMIN 2 MINIMUM NUMBER OF DX INTERVALS

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.15	1.56	1.32	416.67	1031.83	65.57	2.33	5.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3691E+02 EXCESS=0.0000E+00 OUTFLOW=0.3702E+02 BASIN STORAGE=0.1702E-03 PERCENT ERROR=-0.3

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

Onsite_6hr.out

MAIN	0.15	1.56	3.00	1013.13	66.00	2.33
***	***	***	***	***		

HYDROGRAPH AT STATION R8-9
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1013.	1.10	(CFS)			
			75.	19.	9.	9.
		(INCHES)	2.329	2.330	2.330	2.330
		(AC-FT)	37.	37.	37.	37.

CUMULATIVE AREA = 0.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.15	1.56	1.33	416.67	1027.12	65.64	2.31	5.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3666E+02 EXCESS=0.0000E+00 OUTFLOW=0.3678E+02 BASIN STORAGE=0.2024E-03 PERCENT ERROR=-0.3

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.15	1.56	3.00	1010.29	66.00	2.32
***	***	***	***	***		

HYDROGRAPH AT STATION R8-9
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1010.	1.10	(CFS)			
			74.	19.	9.	9.
		(INCHES)	2.314	2.315	2.316	2.316
		(AC-FT)	37.	37.	37.	37.

CUMULATIVE AREA = 0.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.15	1.56	1.45	416.67	913.69	66.38	2.21	5.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3510E+02 EXCESS=0.0000E+00 OUTFLOW=0.3519E+02 BASIN STORAGE=0.1735E-03 PERCENT ERROR=-0.3

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.15	1.56	3.00	911.34	66.00	2.21
***	***	***	***	***		

HYDROGRAPH AT STATION R8-9
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	911.	1.10	(CFS)			
			71.	18.	9.	9.
		(INCHES)	2.212	2.214	2.214	2.214
		(AC-FT)	35.	35.	35.	35.

CUMULATIVE AREA = 0.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
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MAIN	0.15	1.56	1.48	416.67	772.14	65.64	2.03	5.07
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3216E+02 EXCESS=0.0000E+00 OUTFLOW=0.3228E+02 BASIN STORAGE=0.1954E-03 PERCENT ERROR=-0.4

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.15	1.56	3.00	769.23	66.00	2.03
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HYDROGRAPH AT STATION R8-9
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR MAXIMUM AVERAGE FLOW	72-HR MAXIMUM AVERAGE FLOW	49.95-HR MAXIMUM AVERAGE FLOW
769.	1.10	65.	16.	8.	8.
		(INCHES) 2.031	2.033	2.033	2.033
		(AC-FT) 32.	32.	32.	32.

CUMULATIVE AREA = 0.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.15	1.56	1.59	416.67	554.15	67.90	1.68	4.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2666E+02 EXCESS=0.0000E+00 OUTFLOW=0.2676E+02 BASIN STORAGE=0.1898E-03 PERCENT ERROR=-0.4

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.15	1.56	3.00	554.05	69.00	1.68
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HYDROGRAPH AT STATION R8-9
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR MAXIMUM AVERAGE FLOW	72-HR MAXIMUM AVERAGE FLOW	49.95-HR MAXIMUM AVERAGE FLOW
554.	1.15	54.	13.	6.	6.
		(INCHES) 1.682	1.684	1.684	1.684
		(AC-FT) 27.	27.	27.	27.

CUMULATIVE AREA = 0.30 SQ MI

INTERPOLATED HYDROGRAPH AT R8-9

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR MAXIMUM AVERAGE FLOW	72-HR MAXIMUM AVERAGE FLOW	49.95-HR MAXIMUM AVERAGE FLOW
1010.	1.10	74.	19.	9.	9.
		(INCHES) 2.315	2.316	2.316	2.316
		(AC-FT) 37.	37.	37.	37.

CUMULATIVE AREA = 0.30 SQ MI

161 KK

*
* SB09 *
*

BASIN

SUBBASIN RUNOFF DATA

162 BA SUBBASIN CHARACTERISTICS
TAREA 0.05 SUBBASIN AREA

163 LG GREEN AND AMPT LOSS RATE
STRTL 0.15 STARTING LOSS
DTH 0.25 MOISTURE DEFICIT
PSIF 4.00 WETTING FRONT SUCTION
XKSAT 0.61 HYDRAULIC CONDUCTIVITY
RTIMP 55.00 PERCENT IMPERVIOUS AREA

164 UC CLARK UNITGRAPH
TC 0.25 TIME OF CONCENTRATION
R 0.23 STORAGE COEFFICIENT

165 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES
0.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
100.0

UNIT HYDROGRAPH PARAMETERS
CLARK TC= 0.25 HR, R= 0.23 HR
SNYDER TP= 0.15 HR, CP= 0.42

UNIT HYDROGRAPH
27 END-OF-PERIOD ORDINATES
11. 51. 86. 89. 82. 70. 56. 45. 36. 29.
23. 19. 15. 12. 10. 8. 6. 5. 4. 3.
3. 2. 2. 1. 1. 1. 1.

HYDROGRAPH AT STATION SB09
TRANSPPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.47, TOTAL EXCESS = 2.29

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)	(CFS)			
174.	0.95	13.	3.	2.	2.
		(INCHES)	2.280	2.280	2.280
		(AC-FT)	6.	6.	6.

CUMULATIVE AREA = 0.05 SQ MI

HYDROGRAPH AT STATION SB09
TRANSPPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.46, TOTAL EXCESS = 2.27

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)	(CFS)			
173.	0.95	13.	3.	2.	2.
		(INCHES)	2.264	2.264	2.264
		(AC-FT)	6.	6.	6.

CUMULATIVE AREA = 0.05 SQ MI

HYDROGRAPH AT STATION SB09
TRANSPPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.51, TOTAL EXCESS = 2.18

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)	(CFS)			
153.	0.95	12.	3.	1.	1.
		(INCHES)	2.168	2.168	2.168
		(AC-FT)	6.	6.	6.

CUMULATIVE AREA = 0.05 SQ MI

HYDROGRAPH AT STATION SB09
TRANSPPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.55, TOTAL EXCESS = 1.99

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)				

Onsite_6hr.out

		(CFS)				
+	127.	0.95	11.	3.	1.	1.
		(INCHES)	1.978	1.978	1.978	1.978
		(AC-FT)	5.	5.	5.	5.
CUMULATIVE AREA =			0.05 SQ MI			

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		HYDROGRAPH AT STATION		SB09	
		TRANSPPOSITION AREA		90.0 SQ MI	
TOTAL RAINFALL =		2.23, TOTAL LOSS =		0.58, TOTAL EXCESS = 1.65	

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW		
			6-HR	24-HR	72-HR
+	(CFS)	(HR)			49.95-HR
		(CFS)			
+	96.	0.95	9.	2.	1.
		(INCHES)	1.642	1.642	1.642
		(AC-FT)	5.	5.	5.
CUMULATIVE AREA =			0.05 SQ MI		

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		INTERPOLATED HYDROGRAPH AT		SB09	
PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW		
			6-HR	24-HR	72-HR
+	(CFS)	(HR)			49.95-HR
		(CFS)			
+	173.	0.95	13.	3.	2.
		(INCHES)	2.269	2.269	2.269
		(AC-FT)	6.	6.	6.
CUMULATIVE AREA =			0.05 SQ MI		

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167 KK	CP-9	COMBINE
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SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)

169 HC	HYDROGRAPH COMBINATION
	ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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		HYDROGRAPH AT STATION		CP-9	
		TRANSPPOSITION AREA		0.0 SQ MI	
PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW		
			6-HR	24-HR	72-HR
+	(CFS)	(HR)			49.95-HR
		(CFS)			
+	1127.	1.10	87.	22.	11.
		(INCHES)	2.322	2.323	2.323
		(AC-FT)	43.	43.	43.
CUMULATIVE AREA =			0.35 SQ MI		

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		HYDROGRAPH AT STATION		CP-9	
		TRANSPPOSITION AREA		0.5 SQ MI	
PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW		
			6-HR	24-HR	72-HR
+	(CFS)	(HR)			49.95-HR
		(CFS)			
+	1124.	1.10	87.	22.	10.
		(INCHES)	2.307	2.308	2.308
		(AC-FT)	43.	43.	43.
CUMULATIVE AREA =			0.35 SQ MI		

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HYDROGRAPH AT STATION CP-9
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)			
+	1023.	1.10	83.	21.	10.
			(INCHES)	2.206	2.207
			(AC-FT)	41.	41.
		CUMULATIVE AREA = 0.35 SQ MI			

HYDROGRAPH AT STATION CP-9
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)			
+	869.	1.10	76.	19.	9.
			(INCHES)	2.023	2.025
			(AC-FT)	38.	38.
		CUMULATIVE AREA = 0.35 SQ MI			

HYDROGRAPH AT STATION CP-9
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)			
+	622.	1.15	63.	16.	8.
			(INCHES)	1.676	1.678
			(AC-FT)	31.	31.
		CUMULATIVE AREA = 0.35 SQ MI			

INTERPOLATED HYDROGRAPH AT CP-9

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)			
+	1124.	1.10	87.	22.	10.
			(INCHES)	2.307	2.309
			(AC-FT)	43.	43.
		CUMULATIVE AREA = 0.35 SQ MI			

170 KK

* PIMACH *
*

PIMA ROAD CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
100-YR, 6-HR FLO-2D MODEL (XS 183)

SUBBASIN RUNOFF DATA

173 BA

SUBBASIN CHARACTERISTICS
TAREA 12.30 SUBBASIN AREA

HYDROGRAPH AT STATION PIMACH
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(CFS)			
+	4017.	5.50	1092.	292.	146.
			(INCHES)	0.825	0.884
				0.919	0.919

(AC-FT) 541. 580. Onsite_6hr.out 603. 603.
CUMULATIVE AREA = 12.30 SQ MI

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HYDROGRAPH AT STATION PIMACH
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	49.95-HR
(CFS)	(HR)			24-HR	72-HR
+		(CFS)			
+	4017.	5.50	1092.	292.	146.
		(INCHES)	0.825	0.884	0.919
		(AC-FT)	541.	580.	603.
CUMULATIVE AREA = 12.30 SQ MI					

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HYDROGRAPH AT STATION PIMACH
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	49.95-HR
(CFS)	(HR)			24-HR	72-HR
+		(CFS)			
+	4017.	5.50	1092.	292.	146.
		(INCHES)	0.825	0.884	0.919
		(AC-FT)	541.	580.	603.
CUMULATIVE AREA = 12.30 SQ MI					

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HYDROGRAPH AT STATION PIMACH
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	49.95-HR
(CFS)	(HR)			24-HR	72-HR
+		(CFS)			
+	4017.	5.50	1092.	292.	146.
		(INCHES)	0.825	0.884	0.919
		(AC-FT)	541.	580.	603.
CUMULATIVE AREA = 12.30 SQ MI					

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HYDROGRAPH AT STATION PIMACH
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	49.95-HR
(CFS)	(HR)			24-HR	72-HR
+		(CFS)			
+	4017.	5.50	1092.	292.	146.
		(INCHES)	0.825	0.884	0.919
		(AC-FT)	541.	580.	603.
CUMULATIVE AREA = 12.30 SQ MI					

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INTERPOLATED HYDROGRAPH AT PIMACH

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	49.95-HR
(CFS)	(HR)			24-HR	72-HR
+		(CFS)			
+	4017.	5.50	1092.	292.	146.
		(INCHES)	0.825	0.884	0.919
		(AC-FT)	541.	580.	603.
CUMULATIVE AREA = 12.30 SQ MI					

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211 KK * PIMAIN *

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BYPASS ALONG SE SIDE OF BASIN 53R TO ADOT CULVERT NEAR UNION HILLS DR

DT	DIVERSION				
	ISTAD	PIMABY	DIVERSION	HYDROGRAPH	IDENTIFICATION
DI	INFLOW	0.00	1000.00	10000.00	
DQ	DIVERTED FLOW	0.00	1000.00	1000.00	

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

		DIVERSION HYDROGRAPH		PIMABY	
		TRANSPPOSITION AREA		0.0 SQ MI	
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	
				24-HR	72-HR
+	(CFS)	(CFS)			49.95-HR
+	1000.	4.95	605.	171.	88.
			0.458	0.516	0.551
			300.	338.	361.
					88.
					0.551
					361.
		CUMULATIVE AREA = 12.30 SQ MI			

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		HYDROGRAPH AT STATION		PIMAIN	
		TRANSPPOSITION AREA		0.0 SQ MI	
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	
				24-HR	72-HR
+	(CFS)	(CFS)			49.95-HR
+	3017.	5.50	486.	122.	58.
			0.368	0.368	0.368
			241.	241.	241.
					58.
					0.368
					241.
		CUMULATIVE AREA = 12.30 SQ MI			

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		DIVERSION HYDROGRAPH		PIMABY	
		TRANSPPOSITION AREA		0.5 SQ MI	
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	
				24-HR	72-HR
+	(CFS)	(CFS)			49.95-HR
+	1000.	4.95	605.	171.	88.
			0.458	0.516	0.551
			300.	338.	361.
					88.
					0.551
					361.
		CUMULATIVE AREA = 12.30 SQ MI			

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		HYDROGRAPH AT STATION		PIMAIN	
		TRANSPPOSITION AREA		0.5 SQ MI	
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	
				24-HR	72-HR
+	(CFS)	(CFS)			49.95-HR
+	3017.	5.50	486.	122.	58.
			0.368	0.368	0.368
			241.	241.	241.
					58.
					0.368
					241.
		CUMULATIVE AREA = 12.30 SQ MI			

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		DIVERSION HYDROGRAPH		PIMABY	
		TRANSPPOSITION AREA		2.8 SQ MI	
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	
				24-HR	72-HR
+	(CFS)	(CFS)			49.95-HR
+	1000.	4.95	605.	171.	88.
			0.458	0.516	0.551
			300.	338.	361.
					88.
					0.551
					361.
		CUMULATIVE AREA = 12.30 SQ MI			

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HYDROGRAPH AT STATION PIMAIN
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	3017.	5.50	(CFS)			
			486.	122.	58.	58.
		(INCHES)	0.368	0.368	0.368	0.368
		(AC-FT)	241.	241.	241.	241.
CUMULATIVE AREA =			12.30	SQ MI		

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DIVERSION HYDROGRAPH PIMABY
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1000.	4.95	(CFS)			
			605.	171.	88.	88.
		(INCHES)	0.458	0.516	0.551	0.551
		(AC-FT)	300.	338.	361.	361.
CUMULATIVE AREA =			12.30	SQ MI		

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HYDROGRAPH AT STATION PIMAIN
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	3017.	5.50	(CFS)			
			486.	122.	58.	58.
		(INCHES)	0.368	0.368	0.368	0.368
		(AC-FT)	241.	241.	241.	241.
CUMULATIVE AREA =			12.30	SQ MI		

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DIVERSION HYDROGRAPH PIMABY
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1000.	4.95	(CFS)			
			605.	171.	88.	88.
		(INCHES)	0.458	0.516	0.551	0.551
		(AC-FT)	300.	338.	361.	361.
CUMULATIVE AREA =			12.30	SQ MI		

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HYDROGRAPH AT STATION PIMAIN
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	3017.	5.50	(CFS)			
			486.	122.	58.	58.
		(INCHES)	0.368	0.368	0.368	0.368
		(AC-FT)	241.	241.	241.	241.
CUMULATIVE AREA =			12.30	SQ MI		

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INTERPOLATED DIVERSION HYDROGRAPH AT PIMABY

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1000.	4.95	(CFS)			
			605.	171.	88.	88.
		(INCHES)	0.458	0.516	0.551	0.551
		(AC-FT)	300.	338.	361.	361.
CUMULATIVE AREA =			12.30	SQ MI		

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INTERPOLATED HYDROGRAPH AT PIMAIN

PEAK FLOW (CFS)	TIME (HR)	6-HR	MAXIMUM 24-HR	AVERAGE FLOW 72-HR	49.95-HR
3017.	5.50	486.	122.	58.	58.
		0.368	0.368	0.368	0.368
		241.	241.	241.	241.
CUMULATIVE AREA = 12.30 SQ MI					

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216 KK

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PWRCH

POWERLINE CHANNEL HYDROGRAPH FROM FLO-2D
100-YR, 6-HR FLO-2D MODEL (XS 107)

SUBBASIN RUNOFF DATA

219 BA

SUBBASIN CHARACTERISTICS

TAREA 7.00 SUBBASIN AREA

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HYDROGRAPH AT STATION PWRCH
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR	MAXIMUM 24-HR	AVERAGE FLOW 72-HR	49.95-HR
740.	5.80	432.	136.	75.	75.
		0.574	0.724	0.826	0.826
		214.	270.	308.	308.
CUMULATIVE AREA = 7.00 SQ MI					

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HYDROGRAPH AT STATION PWRCH
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR	MAXIMUM 24-HR	AVERAGE FLOW 72-HR	49.95-HR
740.	5.80	432.	136.	75.	75.
		0.574	0.724	0.826	0.826
		214.	270.	308.	308.
CUMULATIVE AREA = 7.00 SQ MI					

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HYDROGRAPH AT STATION PWRCH
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR	MAXIMUM 24-HR	AVERAGE FLOW 72-HR	49.95-HR
740.	5.80	432.	136.	75.	75.
		0.574	0.724	0.826	0.826
		214.	270.	308.	308.
CUMULATIVE AREA = 7.00 SQ MI					

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HYDROGRAPH AT STATION PWRCH
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR	MAXIMUM 24-HR	AVERAGE FLOW 72-HR	49.95-HR
740.	5.80	432.	136.	75.	75.
		0.574	0.724	0.826	0.826
		214.	270.	308.	308.
CUMULATIVE AREA = 7.00 SQ MI					

Onsite_6hr.out

		(CFS)				
+	740.	5.80	432.	136.	75.	75.
		(INCHES)	0.574	0.724	0.826	0.826
		(AC-FT)	214.	270.	308.	308.
CUMULATIVE AREA =			7.00 SQ MI			

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HYDROGRAPH AT STATION			PWRCH			
TRANSPPOSITION AREA			90.0 SQ MI			
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	72-HR	49.95-HR
				24-HR		
+	(CFS)	(HR)				
+	740.	5.80	(CFS)			
			432.	136.	75.	75.
		(INCHES)	0.574	0.724	0.826	0.826
		(AC-FT)	214.	270.	308.	308.
CUMULATIVE AREA =			7.00 SQ MI			

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INTERPOLATED HYDROGRAPH AT			PWRCH			
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	72-HR	49.95-HR
				24-HR		
+	(CFS)	(HR)				
+	740.	5.80	(CFS)			
			432.	136.	75.	75.
		(INCHES)	0.574	0.724	0.826	0.826
		(AC-FT)	214.	270.	308.	308.
CUMULATIVE AREA =			7.00 SQ MI			

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 257 KK * BINFLO *
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TOTAL INFLOW INTO BASIN 53R.

259 HC HYDROGRAPH COMBINATION
 ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION			BINFLO			
TRANSPPOSITION AREA			0.0 SQ MI			
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	72-HR	49.95-HR
				24-HR		
+	(CFS)	(HR)				
+	3634.	5.50	(CFS)			
			919.	277.	144.	144.
		(INCHES)	0.435	0.523	0.566	0.566
		(AC-FT)	456.	549.	593.	593.
CUMULATIVE AREA =			19.65 SQ MI			

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HYDROGRAPH AT STATION			BINFLO			
TRANSPPOSITION AREA			0.5 SQ MI			
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	72-HR	49.95-HR
				24-HR		
+	(CFS)	(HR)				
+	3634.	5.50	(CFS)			
			919.	276.	144.	144.
		(INCHES)	0.435	0.523	0.565	0.565
		(AC-FT)	456.	548.	593.	593.
CUMULATIVE AREA =			19.65 SQ MI			

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HYDROGRAPH AT STATION BINFLO
 TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
+ 3634.	5.50	(CFS)	919.	275.	143.	143.
		(INCHES)	0.435	0.521	0.564	0.564
		(AC-FT)	456.	546.	591.	591.
		CUMULATIVE AREA =	19.65 SQ MI			

* * *

HYDROGRAPH AT STATION BINFLO
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
+ 3634.	5.50	(CFS)	919.	274.	142.	142.
		(INCHES)	0.435	0.518	0.560	0.560
		(AC-FT)	456.	543.	587.	587.
		CUMULATIVE AREA =	19.65	SQ MI		

HYDROGRAPH AT STATION BINFLO
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)	(CFS)				
+ 3634.	5.50		919.	270.	141.	141.
		(INCHES)	0.435	0.512	0.554	0.554
		(AC-FT)	456.	536.	581.	581.
		CUMULATIVE AREA =	19.65	SQ MI		

* * *

INTERPOLATED HYDROGRAPH AT BINFLO

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	72-HR	49.95-HR
+ (CFS)	(HR)			24-HR		
		(CFS)				
+ 3634.	5.50		919.	273.	142.	142.
		(INCHES)	0.435	0.517	0.560	0.560
		(AC-FT)	456.	542.	587.	587.
		CUMULATIVE AREA =		19.65 SQ MI		

260 KK

```
*****  
*                                     *  
*      BASIN                        *  
*                                     *  
*****
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BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
THE OUTLET PIPES ARE INLET CONTROLLED.

HYDROGRAPH ROUTING DATA

265 RS	STORAGE ROUTING NSTPS ITYP RSVRIC X	1 STOR 0.00 0.00	NUMBER OF SUBREACHES TYPE OF INITIAL CONDITION INITIAL CONDITION WORKING R AND D COEFFICIENT							
266 SV 295.5	STORAGE	0.0	44.9	76.8	108.7	140.6	171.5	202.5	233.5	264.5
639.3		328.7	362.0	395.2	428.5	461.7	497.2	532.7	568.3	603.8
268 SE 1605.00	ELEVATION	1594.00	1597.00	1598.00	1599.00	1600.00	1601.00	1602.00	1603.00	1604.00
1615.00		1606.00	1607.00	1608.00	1609.00	1610.00	1611.00	1612.00	1613.00	1614.00

270 SQ	DISCHARGE	0.	95.	153.	Onsite_6hr.out 210.	244.	265.	284.	303.	320.
337.		353.	369.	384.	398.	412.	426.	439.	452.	465.
477.										

HYDROGRAPH AT STATION BASIN
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	49.95-HR
+ (CFS)	(HR)			24-HR 72-HR	
+ 363.	8.30	(CFS)	355.	250.	141.
		(INCHES)	0.168	0.474	0.556
		(AC-FT)	176.	496.	582.
PEAK STORAGE	TIME		6-HR	MAXIMUM AVERAGE STORAGE	49.95-HR
+ (AC-FT)	(HR)			24-HR 72-HR	
+ 351.	8.30		332.	189.	101.
PEAK STAGE	TIME		6-HR	MAXIMUM AVERAGE STAGE	49.95-HR
+ (FEET)	(HR)			24-HR 72-HR	
+ 1606.68	8.30		1606.11	1601.55	1598.29

CUMULATIVE AREA = 19.65 SQ MI

HYDROGRAPH AT STATION BASIN
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	49.95-HR
+ (CFS)	(HR)			24-HR 72-HR	
+ 363.	8.30	(CFS)	355.	250.	141.
		(INCHES)	0.168	0.474	0.555
		(AC-FT)	176.	496.	582.
PEAK STORAGE	TIME		6-HR	MAXIMUM AVERAGE STORAGE	49.95-HR
+ (AC-FT)	(HR)			24-HR 72-HR	
+ 351.	8.30		332.	189.	100.
PEAK STAGE	TIME		6-HR	MAXIMUM AVERAGE STAGE	49.95-HR
+ (FEET)	(HR)			24-HR 72-HR	
+ 1606.67	8.30		1606.11	1601.55	1598.28

CUMULATIVE AREA = 19.65 SQ MI

HYDROGRAPH AT STATION BASIN
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	49.95-HR
+ (CFS)	(HR)			24-HR 72-HR	
+ 363.	8.30	(CFS)	354.	250.	141.
		(INCHES)	0.168	0.473	0.553
		(AC-FT)	176.	495.	580.
PEAK STORAGE	TIME		6-HR	MAXIMUM AVERAGE STORAGE	49.95-HR
+ (AC-FT)	(HR)			24-HR 72-HR	
+ 350.	8.30		331.	188.	100.
PEAK STAGE	TIME		6-HR	MAXIMUM AVERAGE STAGE	49.95-HR
+ (FEET)	(HR)			24-HR 72-HR	
+ 1606.65	8.30		1606.08	1601.53	1598.27

CUMULATIVE AREA = 19.65 SQ MI

HYDROGRAPH AT STATION BASIN
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	49.95-HR
+ (CFS)	(HR)			24-HR 72-HR	
		(CFS)			

					Onsite_6hr.out	
+	362.	8.30		353.	249.	140.
			(INCHES)	0.167	0.471	0.550
			(AC-FT)	175.	494.	577.
PEAK STORAGE	TIME			MAXIMUM AVERAGE STORAGE		
				6-HR	24-HR	72-HR
+	(AC-FT)	(HR)				49.95-HR
	349.	8.35		330.	187.	99.
						99.
PEAK STAGE	TIME			MAXIMUM AVERAGE STAGE		
				6-HR	24-HR	72-HR
+	(FEET)	(HR)				49.95-HR
	1606.61	8.30		1606.04	1601.50	1598.24
						1598.24
CUMULATIVE AREA =				19.65 SQ MI		

HYDROGRAPH AT STATION BASIN TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
				6-HR	24-HR	72-HR
+	(CFS)	(HR)				49.95-HR
			(CFS)			
+	361.	8.35		352.	247.	138.
			(INCHES)	0.167	0.468	0.544
			(AC-FT)	175.	491.	570.
PEAK STORAGE	TIME			MAXIMUM AVERAGE STORAGE		
				6-HR	24-HR	72-HR
+	(AC-FT)	(HR)				49.95-HR
	346.	8.35		327.	185.	98.
						98.
PEAK STAGE	TIME			MAXIMUM AVERAGE STAGE		
				6-HR	24-HR	72-HR
+	(FEET)	(HR)				49.95-HR
	1606.52	8.35		1605.96	1601.44	1598.18
						1598.18
CUMULATIVE AREA =				19.65 SQ MI		

INTERPOLATED HYDROGRAPH AT BASIN

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
				6-HR	24-HR	72-HR
+	(CFS)	(HR)				49.95-HR
			(CFS)			
+	362.	8.30		353.	249.	140.
			(INCHES)	0.167	0.471	0.550
			(AC-FT)	175.	493.	576.
CUMULATIVE AREA =				19.65 SQ MI		

272 KK *****
* BSNRT1 *

2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
EXCESS CAPACITY.

HYDROGRAPH ROUTING DATA

276 RK	KINEMATIC WAVE STREAM ROUTING
	L 550. CHANNEL LENGTH
	S 0.0052 SLOPE
	N 0.024 CHANNEL ROUGHNESS COEFFICIENT
	CA 0.00 CONTRIBUTING AREA
	SHAPE CIRC CHANNEL SHAPE
	WD 7.00 BOTTOM WIDTH OR DIAMETER
	Z 0.00 SIDE SLOPE
	NDXMIN 2 MINIMUM NUMBER OF DX INTERVALS

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

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*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.29	183.33	363.48	498.70	0.56	10.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5822E+03 EXCESS=0.0000E+00 OUTFLOW=0.5822E+03 BASIN STORAGE=0.3289E-01 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	363.48	501.00	0.56
***	***	***	***	***		

HYDROGRAPH AT STATION BSNRT1
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW + (CFS)	TIME (HR)	6-HR (CFS)	24-HR (CFS)	72-HR (CFS)	49.95-HR (CFS)	
+ 363.	8.35	355.	250.	141.	141.	
		(INCHES)	0.168	0.474	0.556	0.556
		(AC-FT)	176.	496.	582.	582.

CUMULATIVE AREA = 19.65 SQ MI

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

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*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSOIN FAILED FIXED POINT ITERATION USED - ITERATION= 1

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.29	183.33	363.42	498.84	0.56	10.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5819E+03 EXCESS=0.0000E+00 OUTFLOW=0.5819E+03 BASIN STORAGE=0.3289E-01 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	363.42	501.00	0.56
------	------	------	------	--------	--------	------

HYDROGRAPH AT STATION
TRANSPPOSITION AREABSNRT1
0.5 SQ MI

PEAK FLOW + (CFS)	TIME (HR)	6-HR (CFS)	24-HR MAXIMUM AVERAGE FLOW	72-HR	49.95-HR
+ 363.	8.35	355.	250.	141.	141.
		0.168	0.474	0.555	0.555
		(INCHES)	496.	582.	582.
		(AC-FT)			

CUMULATIVE AREA = 19.65 SQ MI

Onsite_6hr.out
COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.45	183.33	363.06	498.87	0.55	10.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5801E+03 EXCESS=0.0000E+00 OUTFLOW=0.5800E+03 BASIN STORAGE=0.3288E-01 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	363.06	501.00	0.55
***	***	***	***	***		

HYDROGRAPH AT STATION BSNRT1
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW + (CFS)	TIME (HR)	6-HR (CFS)	MAXIMUM 24-HR	AVERAGE 72-HR	49.95-HR
+ 363.	8.35	354.	250.	141.	141.
		(INCHES) 0.168	0.473	0.553	0.553
		(AC-FT) 176.	495.	580.	580.

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.38	183.33	362.38	500.88	0.55	10.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5767E+03 EXCESS=0.0000E+00 OUTFLOW=0.5766E+03 BASIN STORAGE=0.3287E-01 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	362.38	501.00	0.55
***	***	***	***	***		

HYDROGRAPH AT STATION BSNRT1
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW + (CFS)	TIME (HR)	6-HR (CFS)	MAXIMUM 24-HR	AVERAGE 72-HR	49.95-HR
+ 362.	8.35	353.	249.	140.	140.
		(INCHES) 0.167	0.471	0.550	0.550
		(AC-FT) 175.	494.	577.	577.

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.34	183.33	361.10	501.33	0.54	10.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5702E+03 EXCESS=0.0000E+00 OUTFLOW=0.5702E+03 BASIN STORAGE=0.3284E-01 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	361.10	501.00	0.54
***	***	***	***	***		

HYDROGRAPH AT STATION BSNRT1
TRANSPPOSITION AREA 90.0 SQ MI

Onsite_6hr.out

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	361.	8.35	(CFS)	352.	248.	138.
			(INCHES)	0.167	0.468	0.544
			(AC-FT)	175.	491.	570.
CUMULATIVE AREA =			19.65 SQ MI			
***	***	***	***	***	***	***

INTERPOLATED HYDROGRAPH AT BSNRT1

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	362.	8.35	(CFS)	353.	249.	140.
			(INCHES)	0.167	0.471	0.549
			(AC-FT)	175.	494.	576.
CUMULATIVE AREA =			19.65 SQ MI			

*** **

277 KK

* BSNRT2 *

2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BASIN 53R OUTFAL

HYDROGRAPH ROUTING DATA

279 RK

KINEMATIC WAVE STREAM ROUTING

L	1200.	CHANNEL LENGTH
S	0.0077	SLOPE
N	0.013	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	7.00	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE
NDXMIN	2	MINIMUM NUMBER OF DX INTERVALS

COMPUTED KINEMATIC PARAMETERS

VARIABLE TIME STEP

(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	7.51	1.25	0.44	400.00	363.48	501.11	0.56	20.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5822E+03 EXCESS=0.0000E+00 OUTFLOW=0.5821E+03 BASIN STORAGE=0.3756E-01 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.51	1.25	3.00	363.48	501.00	0.56
***	***	***	***	***	***	***

HYDROGRAPH AT STATION BSNRT2

TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	363.	8.35	(CFS)	355.	250.	141.
			(INCHES)	0.168	0.474	0.555
			(AC-FT)	176.	496.	582.
CUMULATIVE AREA =			19.65 SQ MI			

COMPUTED KINEMATIC PARAMETERS

VARIABLE TIME STEP

(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO	VOLUME	MAXIMUM
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			Onsite_6hr.out			PEAK		CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	7.51	1.25	0.44	400.00	363.42	501.35	0.56	20.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5819E+03 EXCESS=0.0000E+00 OUTFLOW=0.5818E+03 BASIN STORAGE=0.3756E-01 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.51	1.25	3.00	363.42	501.00	0.56		
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HYDROGRAPH AT STATION BSNRT2
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW					
(CFS)	(HR)		6-HR	24-HR	72-HR	49.95-HR		
+	363.	8.35	(CFS)					
			355.	250.	141.	141.		
		(INCHES)	0.168	0.474	0.555	0.555		
		(AC-FT)	176.	496.	582.	582.		

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	7.51	1.25	0.36	400.00	363.06	501.42	0.55	20.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5800E+03 EXCESS=0.0000E+00 OUTFLOW=0.5799E+03 BASIN STORAGE=0.3755E-01 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.51	1.25	3.00	363.06	501.00	0.55		
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HYDROGRAPH AT STATION BSNRT2
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW					
(CFS)	(HR)		6-HR	24-HR	72-HR	49.95-HR		
+	363.	8.35	(CFS)					
			354.	250.	140.	140.		
		(INCHES)	0.168	0.473	0.553	0.553		
		(AC-FT)	176.	495.	580.	580.		

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	7.51	1.25	0.48	400.00	362.38	501.44	0.55	20.37

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5766E+03 EXCESS=0.0000E+00 OUTFLOW=0.5766E+03 BASIN STORAGE=0.3753E-01 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.51	1.25	3.00	362.38	501.00	0.55		
------	------	------	------	--------	--------	------	--	--

HYDROGRAPH AT STATION BSNRT2
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW					
(CFS)	(HR)		6-HR	24-HR	72-HR	49.95-HR		
+			(CFS)					

				Onsite_6hr.out		
+	362.	8.35	353.	249.	140.	140.
		(INCHES)	0.167	0.471	0.550	0.550
		(AC-FT)	175.	494.	577.	577.

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	7.51	1.25	0.38	400.00	361.10	501.56	0.54	20.36

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5702E+03 EXCESS=0.0000E+00 OUTFLOW=0.5701E+03 BASIN STORAGE=0.3750E-01 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.51	1.25	3.00	361.09	501.00	0.54
***	***	***	***	***		

HYDROGRAPH AT STATION BSNRT2
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	361.	8.35	(CFS)			
			352.	248.	138.	138.
		(INCHES)	0.167	0.468	0.544	0.544
		(AC-FT)	175.	491.	570.	570.
		CUMULATIVE AREA =	19.65 SQ MI			
***	***	***	***	***	***	

INTERPOLATED HYDROGRAPH AT BSNRT2

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	362.	8.35	(CFS)			
			353.	249.	139.	139.
		(INCHES)	0.167	0.471	0.549	0.549
		(AC-FT)	175.	494.	576.	576.
		CUMULATIVE AREA =	19.65 SQ MI			

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280 KK PIMABY

RETRIEVE PIMA BYPASS CHANNEL HYDROGRAPH

282 DR RETRIEVE DIVERSION HYDROGRAPH
ISTAD PIMABY DIVERSION HYDROGRAPH IDENTIFICATION

HYDROGRAPH AT STATION PIMABY
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1000.	4.95	(CFS)			
			605.	171.	88.	88.
		(INCHES)	0.286	0.323	0.345	0.345
		(AC-FT)	300.	338.	361.	361.
		CUMULATIVE AREA =	12.30 SQ MI			
***	***	***	***	***	***	

HYDROGRAPH AT STATION PIMABY
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)					
+	1000.	4.95	(CFS)	605.	171.	88.	88.
			(INCHES)	0.286	0.323	0.345	0.345
			(AC-FT)	300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

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HYDROGRAPH AT STATION PIMABY
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1000.	4.95	605.	171.	88.	88.
	(INCHES)		0.286	0.323	0.345	0.345
	(AC-FT)		300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

HYDROGRAPH AT STATION PIMABY
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR
+	(CFS)				
+	1000.	605.	171.	88.	88.
	(INCHES)	0.286	0.323	0.345	0.345
	(AC-FT)	300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

HYDROGRAPH AT STATION PIMABY
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1000.	4.95	605.	171.	88.	88.
		(INCHES)	0.286	0.323	0.345	0.345
		(AC-FT)	300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

* * *

INTERPOLATED HYDROGRAPH AT PIMABY

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)					
+	1000.	4.95	(CFS)	605.	171.	88.	88.
			(INCHES)	0.458	0.516	0.551	0.551
			(AC-FT)	300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

283 KK

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*                                     *
*      PMB-RT                        *
*                                     *
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UNION HILLS DR CHANNEL FROM SR 101L FREEWAY TO 82ND ST

HYDROGRAPH ROUTING DATA

285 RK

KINEMATIC WAVE STREAM ROUTING

Onsite_6hr.out

L	3157.	CHANNEL LENGTH
S	0.0082	SLOPE
N	0.013	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	24.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
NDXMIN	2	MINIMUM NUMBER OF DX INTERVALS

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55	20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	1.87	1.47	3.00	1000.00	300.00	0.55
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*** *** *** *** ***

HYDROGRAPH AT STATION PMB-RT
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)					
+	1000.	5.00	605.	171.	87.	87.
		(INCHES)	0.457	0.516	0.551	0.551
		(AC-FT)	300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55	20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	1.87	1.47	3.00	1000.00	300.00	0.55
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HYDROGRAPH AT STATION PMB-RT
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME		6-HR	24-HR	72-HR	49.95-HR
+	(CFS)					
+	1000.	5.00	605.	171.	87.	87.
		(INCHES)	0.457	0.516	0.551	0.551
		(AC-FT)	300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55	20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

	MAIN	1.87	1.47	3.00	1000.00	300.00	0.55	
***	***	***	***	***	***			
	HYDROGRAPH AT STATION		PMB-RT					
	TRANSPPOSITION AREA		2.8 SQ MI					
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW				
+ (CFS)	(HR)			24-HR	72-HR	49.95-HR		
+ 1000.	5.00	(CFS)	605.	171.	87.	87.		
		(INCHES)	0.457	0.516	0.551	0.551		
		(AC-FT)	300.	338.	361.	361.		
	CUMULATIVE AREA =		12.30 SQ MI					
	COMPUTED KINEMATIC PARAMETERS							
	VARIABLE TIME STEP							
	(DT SHOWN IS A MINIMUM)							
	ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO	VOLUME
				(MIN)	(FT)	(CFS)	PEAK	MAXIMUM
							(MIN)	CELERITY
							(IN)	(FPS)
	MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55
								20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

	MAIN	1.87	1.47	3.00	1000.00	300.00	0.55	
***	***	***	***	***	***			
	HYDROGRAPH AT STATION		PMB-RT					
	TRANSPPOSITION AREA		16.0 SQ MI					
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW				
+ (CFS)	(HR)			24-HR	72-HR	49.95-HR		
+ 1000.	5.00	(CFS)	605.	171.	87.	87.		
		(INCHES)	0.457	0.516	0.551	0.551		
		(AC-FT)	300.	338.	361.	361.		
	CUMULATIVE AREA =		12.30 SQ MI					
	COMPUTED KINEMATIC PARAMETERS							
	VARIABLE TIME STEP							
	(DT SHOWN IS A MINIMUM)							
	ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO	VOLUME
				(MIN)	(FT)	(CFS)	PEAK	MAXIMUM
							(MIN)	CELERITY
							(IN)	(FPS)
	MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55
								20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

	MAIN	1.87	1.47	3.00	1000.00	300.00	0.55	
***	***	***	***	***	***			
	HYDROGRAPH AT STATION		PMB-RT					
	TRANSPPOSITION AREA		90.0 SQ MI					
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW				
+ (CFS)	(HR)			24-HR	72-HR	49.95-HR		
+ 1000.	5.00	(CFS)	605.	171.	87.	87.		
		(INCHES)	0.457	0.516	0.551	0.551		
		(AC-FT)	300.	338.	361.	361.		
	CUMULATIVE AREA =		12.30 SQ MI					
***	***	***	***	***	***			

INTERPOLATED HYDROGRAPH AT PMB-RT

PEAK FLOW + (CFS)	TIME (HR)		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
1000.	5.00	(CFS)	605.	171.	87.	87.
		(INCHES)	0.457	0.516	0.551	0.551
		(AC-FT)	300.	338.	361.	361.
CUMULATIVE AREA =			12.30 SQ MI			

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*
286 KK * SB10 * BASIN
*

SUBBASIN RUNOFF DATA

287 BA	SUBBASIN CHARACTERISTICS									
	TAREA	0.04	SUBBASIN AREA							
288 LG	GREEN AND AMPT LOSS RATE									
	STRTL	0.15	STARTING LOSS							
	DTH	0.25	MOISTURE DEFICIT							
	PSIF	4.25	WETTING FRONT SUCTION							
	XKSAT	0.55	HYDRAULIC CONDUCTIVITY							
	RTIMP	55.00	PERCENT IMPERVIOUS AREA							
289 UC	CLARK UNITGRAPH									
	TC	0.23	TIME OF CONCENTRATION							
	R	0.16	STORAGE COEFFICIENT							
290 UA	ACCUMULATED-AREA VS. TIME, 11 ORDINATES									
	0.0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
	100.0									

UNIT HYDROGRAPH PARAMETERS
CLARK TC= 0.23 HR, R= 0.16 HR
SNYDER TP= 0.14 HR, CP= 0.51

UNIT HYDROGRAPH 19 END-OF-PERIOD ORDINATES									
13.	58.	90.	85.	71.	54.	40.	29.	21.	15.
11.	8.	6.	4.	3.	2.	2.	1.	1.	

*** **

HYDROGRAPH AT STATION SB10
TRANSPPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.46, TOTAL EXCESS = 2.30

PEAK FLOW + (CFS)	TIME (HR)		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
170.	0.90	(CFS)	10.	2.	1.	1.
		(INCHES)	2.287	2.287	2.287	2.287
		(AC-FT)	5.	5.	5.	5.
CUMULATIVE AREA =			0.04 SQ MI			

*** **

HYDROGRAPH AT STATION SB10
TRANSPPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.46, TOTAL EXCESS = 2.28

PEAK FLOW + (CFS)	TIME (HR)		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
169.	0.90	(CFS)	10.	2.	1.	1.
		(INCHES)	2.272	2.272	2.272	2.272
		(AC-FT)	5.	5.	5.	5.
CUMULATIVE AREA =			0.04 SQ MI			

*** **

HYDROGRAPH AT STATION SB10
TRANSPPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.50, TOTAL EXCESS = 2.19

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	142.	0.95	(CFS)			
			9.	2.	1.	1.
		(INCHES)	2.179	2.179	2.179	2.179
		(AC-FT)	5.	5.	5.	5.
CUMULATIVE AREA =			0.04 SQ MI			

HYDROGRAPH AT STATION SB10
TRANSPPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.54, TOTAL EXCESS = 2.00

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	118.	0.95	(CFS)			
			9.	2.	1.	1.
		(INCHES)	1.990	1.990	1.990	1.990
		(AC-FT)	4.	4.	4.	4.
CUMULATIVE AREA =			0.04 SQ MI			

HYDROGRAPH AT STATION SB10
TRANSPPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.57, TOTAL EXCESS = 1.66

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	88.	0.95	(CFS)			
			7.	2.	1.	1.
		(INCHES)	1.655	1.655	1.655	1.655
		(AC-FT)	4.	4.	4.	4.
CUMULATIVE AREA =			0.04 SQ MI			

INTERPOLATED HYDROGRAPH AT SB10

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	169.	0.90	(CFS)			
			10.	2.	1.	1.
		(INCHES)	2.276	2.276	2.276	2.276
		(AC-FT)	5.	5.	5.	5.
CUMULATIVE AREA =			0.04 SQ MI			

*
292 KK * CP-10 * COMBINE
*

UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)

294 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

HYDROGRAPH AT STATION CP-10
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR

+	(CFS)	(HR)				
+	1355.	6.85	(CFS)	909.	420.	230.
			(INCHES)	0.429	0.794	0.903
			(AC-FT)	451.	834.	948.

CUMULATIVE AREA = 19.69 SQ MI

***	***	***	***	***
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HYDROGRAPH AT STATION	CP-10
TRANSPPOSITION AREA	0.5 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	
+	(CFS)	(HR)		24-HR	72-HR
+	1355.	6.85	(CFS)		49.95-HR
			(INCHES)	909.	420.
			(AC-FT)	0.429	0.794
				230.	230.
				0.903	0.903
				948.	948.

CUMULATIVE AREA = 19.69 SQ MI

***	***	***	***	***
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HYDROGRAPH AT STATION	CP-10
TRANSPPOSITION AREA	2.8 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	
+	(CFS)	(HR)		24-HR	72-HR
+	1355.	6.85	(CFS)		49.95-HR
			(INCHES)	909.	420.
			(AC-FT)	0.429	0.793
				229.	229.
				0.901	0.901
				946.	946.

CUMULATIVE AREA = 19.69 SQ MI

***	***	***	***	***
-----	-----	-----	-----	-----

HYDROGRAPH AT STATION	CP-10
TRANSPPOSITION AREA	16.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	
+	(CFS)	(HR)		24-HR	72-HR
+	1354.	6.85	(CFS)		49.95-HR
			(INCHES)	907.	419.
			(AC-FT)	0.429	0.791
				228.	228.
				0.897	0.897
				942.	942.

CUMULATIVE AREA = 19.69 SQ MI

***	***	***	***	***
-----	-----	-----	-----	-----

HYDROGRAPH AT STATION	CP-10
TRANSPPOSITION AREA	90.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	
+	(CFS)	(HR)		24-HR	72-HR
+	1353.	6.85	(CFS)		49.95-HR
			(INCHES)	905.	417.
			(AC-FT)	0.427	0.788
				226.	226.
				0.890	0.890
				935.	935.

CUMULATIVE AREA = 19.69 SQ MI

***	***	***	***	***
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INTERPOLATED HYDROGRAPH AT CP-10

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW	
+	(CFS)	(HR)		24-HR	72-HR
+	1354.	6.85	(CFS)		49.95-HR
			(INCHES)	907.	419.
			(AC-FT)	0.428	0.791
				228.	228.
				0.896	0.896
				941.	941.

CUMULATIVE AREA = 19.69 SQ MI

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295 KK      *      R10-11  *      ROUTE
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UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD

HYDROGRAPH ROUTING DATA

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297 RK      KINEMATIC WAVE STREAM ROUTING
              L      1277.  CHANNEL LENGTH
              S      0.0014 SLOPE
              N      0.030  CHANNEL ROUGHNESS COEFFICIENT
              CA      0.00  CONTRIBUTING AREA
              SHAPE  TRAP   CHANNEL SHAPE
              WD      220.00 BOTTOM WIDTH OR DIAMETER
              Z      4.00  SIDE SLOPE
              NDXMIN      2  MINIMUM NUMBER OF DX INTERVALS

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COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

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ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.62	425.67	1355.03	412.64	0.90	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9482E+03 EXCESS=0.0000E+00 OUTFLOW=0.9474E+03 BASIN STORAGE=0.9166E+00 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00	1354.77	411.00	0.90
------	------	------	------	---------	--------	------

HYDROGRAPH AT STATION R10-11
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR (CFS)	72-HR (CFS)	49.95-HR (CFS)
1355.	6.85	909.	420.	229.	229.
		(INCHES)	0.429	0.794	0.902
		(AC-FT)	451.	834.	947.

CUMULATIVE AREA = 19.69 SQ MI

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COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

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ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.56	425.67	1354.98	412.72	0.90	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9479E+03 EXCESS=0.0000E+00 OUTFLOW=0.9473E+03 BASIN STORAGE=0.9166E+00 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00	1354.72	411.00	0.90
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HYDROGRAPH AT STATION R10-11
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR (CFS)	72-HR (CFS)	49.95-HR (CFS)
1355.	6.85	909.	420.	229.	229.
		(INCHES)	0.429	0.794	0.902
		(AC-FT)	451.	834.	947.

CUMULATIVE AREA = 19.69 SQ MI

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COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

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ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.57	425.67	1354.58	412.38	0.90	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9458E+03 EXCESS=0.0000E+00 OUTFLOW=0.9450E+03 BASIN STORAGE=0.9164E+00 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00	1354.33	411.00	0.90
------	------	------	------	---------	--------	------

HYDROGRAPH AT STATION R10-11
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR MAXIMUM AVERAGE FLOW	72-HR MAXIMUM AVERAGE FLOW	49.95-HR MAXIMUM AVERAGE FLOW
1354.	6.85	908.	420.	229.	229.
		(INCHES) 0.429	0.793	0.900	0.900
		(AC-FT) 450.	833.	945.	945.

CUMULATIVE AREA = 19.69 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.67	425.67	1353.83	412.54	0.90	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9420E+03 EXCESS=0.0000E+00 OUTFLOW=0.9412E+03 BASIN STORAGE=0.9165E+00 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00	1353.59	411.00	0.90
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HYDROGRAPH AT STATION R10-11
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR MAXIMUM AVERAGE FLOW	72-HR MAXIMUM AVERAGE FLOW	49.95-HR MAXIMUM AVERAGE FLOW
1354.	6.85	907.	419.	228.	228.
		(INCHES) 0.428	0.791	0.896	0.896
		(AC-FT) 450.	831.	941.	941.

CUMULATIVE AREA = 19.69 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.66	425.67	1352.40	412.19	0.89	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9349E+03 EXCESS=0.0000E+00 OUTFLOW=0.9341E+03 BASIN STORAGE=0.9161E+00 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00	1352.18	411.00	0.89
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HYDROGRAPH AT STATION R10-11
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	6-HR	24-HR	72-HR	49.95-HR

Onsite_6hr.out

+	(CFS)	(HR)				
+	1352.	6.85	(CFS)	904.	417.	226.
			(INCHES)	0.427	0.788	0.889
			(AC-FT)	448.	828.	934.

CUMULATIVE AREA = 19.69 SQ MI

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

INTERPOLATED HYDROGRAPH AT R10-11

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1353.	6.85	(CFS)	906.	419.	228.
			(INCHES)	0.428	0.791	0.895
			(AC-FT)	449.	831.	940.

CUMULATIVE AREA = 19.69 SQ MI

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*          *
298 KK   * SB11 *   BASIN
*          *
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SUBBASIN RUNOFF DATA

299 BA	SUBBASIN CHARACTERISTICS	
	TAREA	0.07 SUBBASIN AREA
300 LG	GREEN AND AMPT LOSS RATE	
	STRTL	0.15 STARTING LOSS
	DTH	0.25 MOISTURE DEFICIT
	PSIF	4.15 WETTING FRONT SUCTION
	XKSAT	0.58 HYDRAULIC CONDUCTIVITY
	RTIMP	55.00 PERCENT IMPERVIOUS AREA
301 UC	CLARK UNITGRAPH	
	TC	0.29 TIME OF CONCENTRATION
	R	0.23 STORAGE COEFFICIENT
302 UA	ACCUMULATED-AREA VS. TIME, 11 ORDINATES	
	0.0	5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
	100.0	

UNIT HYDROGRAPH PARAMETERS

CLARK	TC=	0.29 HR,	R=	0.23 HR
SNYDER	TP=	0.19 HR,	CP=	0.50

UNIT HYDROGRAPH
27 END-OF-PERIOD ORDINATES

12.	50.	99.	119.	112.	100.	84.	67.	54.	43.
35.	28.	23.	18.	15.	12.	9.	8.	6.	5.
4.	3.	3.	2.	2.	1.	1.			

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

HYDROGRAPH AT STATION SB11
TRANSPPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.46, TOTAL EXCESS = 2.29

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	233.	0.95	(CFS)	17.	4.	2.
			(INCHES)	2.282	2.282	2.282
			(AC-FT)	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

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

HYDROGRAPH AT STATION SB11
TRANSPPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.46, TOTAL EXCESS = 2.28

		Onsite_6hr.out				
PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	231.	0.95	(CFS)	17.	4.	2.
			(INCHES)	2.267	2.267	2.267
			(AC-FT)	9.	9.	9.
CUMULATIVE AREA =			0.07 SQ MI			

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

HYDROGRAPH AT STATION SB11
TRANSPPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.50, TOTAL EXCESS = 2.18

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	201.	1.00	(CFS)	17.	4.	2.
			(INCHES)	2.172	2.172	2.172
			(AC-FT)	8.	8.	8.
CUMULATIVE AREA =			0.07 SQ MI			

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

HYDROGRAPH AT STATION SB11
TRANSPPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.55, TOTAL EXCESS = 1.99

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	169.	1.00	(CFS)	15.	4.	2.
			(INCHES)	1.982	1.982	1.982
			(AC-FT)	8.	8.	8.
CUMULATIVE AREA =			0.07 SQ MI			

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

HYDROGRAPH AT STATION SB11
TRANSPPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.58, TOTAL EXCESS = 1.65

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	129.	1.00	(CFS)	13.	3.	2.
			(INCHES)	1.647	1.647	1.647
			(AC-FT)	6.	6.	6.
CUMULATIVE AREA =			0.07 SQ MI			

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INTERPOLATED HYDROGRAPH AT SB11

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	231.	0.95	(CFS)	17.	4.	2.
			(INCHES)	2.270	2.270	2.270
			(AC-FT)	9.	9.	9.
CUMULATIVE AREA =			0.07 SQ MI			

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304 KK CP-11 COMBINE

UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)

306 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

HYDROGRAPH AT STATION CP-11
TRANSPPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1355.	6.85	(CFS)			
			909.	420.	232.	232.
		(INCHES)	0.428	0.791	0.907	0.907
		(AC-FT)	451.	834.	956.	956.
CUMULATIVE AREA =			19.76 SQ MI			

HYDROGRAPH AT STATION CP-11
TRANSPPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1355.	6.85	(CFS)			
			909.	420.	232.	232.
		(INCHES)	0.428	0.791	0.907	0.907
		(AC-FT)	451.	834.	956.	956.
CUMULATIVE AREA =			19.76 SQ MI			

HYDROGRAPH AT STATION CP-11
TRANSPPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1354.	6.85	(CFS)			
			908.	420.	231.	231.
		(INCHES)	0.427	0.790	0.904	0.904
		(AC-FT)	450.	833.	953.	953.
CUMULATIVE AREA =			19.76 SQ MI			

HYDROGRAPH AT STATION CP-11
TRANSPPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1354.	6.85	(CFS)			
			907.	419.	230.	230.
		(INCHES)	0.427	0.789	0.900	0.900
		(AC-FT)	450.	831.	949.	949.
CUMULATIVE AREA =			19.76 SQ MI			

HYDROGRAPH AT STATION CP-11
TRANSPPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
+	1352.	6.85	(CFS)			
			904.	417.	228.	228.
		(INCHES)	0.425	0.785	0.892	0.892
		(AC-FT)	448.	828.	940.	940.
CUMULATIVE AREA =			19.76 SQ MI			

INTERPOLATED HYDROGRAPH AT CP-11

PEAK FLOW	TIME		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
		(CFS)				

+	1353.	6.85		Onsite_6hr.out		
		(INCHES)	906.	419.	230.	230.
		(AC-FT)	0.426	0.788	0.899	0.899
			449.	831.	948.	948.

CUMULATIVE AREA = 19.76 SQ MI

1

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
					6-HOUR	24-HOUR	72-HOUR			
+	HYDROGRAPH AT									
+		76THST	51.	4.55	15.	4.	2.	0.24		
+	HYDROGRAPH AT									
+		SB01	324.	0.95	26.	6.	3.	0.11		
+	2 COMBINED AT									
+		CP-1	323.	0.95	37.	11.	5.	0.35		
+	ROUTED TO									
+		R1-2	315.	1.10	37.	11.	5.	0.35		
+	HYDROGRAPH AT									
+		SB02	489.	0.95	38.	10.	5.	0.16		
+	2 COMBINED AT									
+		CP-2	731.	1.05	75.	20.	10.	0.51		
+	ROUTED TO									
+		R2-3	719.	1.10	75.	20.	10.	0.51		
+	HYDROGRAPH AT									
+		SB03	129.	1.00	12.	3.	1.	0.05		
+	2 COMBINED AT									
+		CP-3	828.	1.10	86.	23.	11.	0.56		
+	ROUTED TO									
+		R3-5	806.	1.20	86.	23.	11.	0.56		
+	HYDROGRAPH AT									
+		SB04	525.	0.95	36.	9.	4.	0.14		
+	ROUTED TO									
+		R4-5	511.	1.05	37.	9.	4.	0.14		
+	HYDROGRAPH AT									
+		SB05	399.	0.95	30.	7.	4.	0.13		
+	3 COMBINED AT									
+		CP-5	1410.	1.15	150.	40.	19.	0.83		
+	ROUTED TO									
+		R5-6	1386.	1.20	150.	40.	19.	0.83		
+	HYDROGRAPH AT									
+		SB06	420.	0.95	33.	8.	4.	0.14		
+	2 COMBINED AT									
+		CP-6	1609.	1.20	181.	48.	23.	0.96		
+	HYDROGRAPH AT									
+		SB07	384.	0.90	17.	4.	2.	0.07		
+	ROUTED TO									
+		R7-8	360.	1.05	18.	5.	2.	0.07		
+	HYDROGRAPH AT									
+		SB08	792.	0.95	56.	14.	7.	0.22		
+	2 COMBINED AT									
+		CP-8	1035.	1.05	74.	18.	9.	0.30		
+	ROUTED TO									
+		R8-9	1010.	1.10	74.	19.	9.	0.30		
+	HYDROGRAPH AT									
+		SB09	173.	0.95	13.	3.	2.	0.05		
+	2 COMBINED AT									
+		CP-9	1124.	1.10	87.	22.	10.	0.35		
+	HYDROGRAPH AT									
+		PIMACH	4017.	5.50	1092.	292.	146.	12.30		
+	DIVERSION TO									
+		PIMABY	1000.	4.95	605.	171.	88.	12.30		
+	HYDROGRAPH AT									

					Onsite_6hr.out			
+		PIMAIN	3017.	5.50	486.	122.	58.	12.30
+	HYDROGRAPH AT	PWRCH	740.	5.80	432.	136.	75.	7.00
+	3 COMBINED AT	BINFLO	3634.	5.50	919.	273.	142.	19.65
+	ROUTED TO	BASIN	362.	8.30	353.	249.	140.	19.65
+	ROUTED TO	BSNRT1	362.	8.35	353.	249.	140.	19.65
+	ROUTED TO	BSNRT2	362.	8.35	353.	249.	139.	19.65
+	HYDROGRAPH AT	PIMABY	1000.	4.95	605.	171.	88.	12.30
+	ROUTED TO	PMB-RT	1000.	5.00	605.	171.	87.	12.30
+	HYDROGRAPH AT	SB10	169.	0.90	10.	2.	1.	0.04
+	3 COMBINED AT	CP-10	1354.	6.85	907.	419.	228.	19.69
+	ROUTED TO	R10-11	1353.	6.85	906.	419.	228.	19.69
+	HYDROGRAPH AT	SB11	231.	0.95	17.	4.	2.	0.07
+	2 COMBINED AT	CP-11	1353.	6.85	906.	419.	230.	19.76

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL			
						DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1-2	MANE	3.00	324.42	63.63	1.19	3.00	317.42	66.00	1.19
------	------	------	--------	-------	------	------	--------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2221E+02 EXCESS=0.0000E+00 OUTFLOW=0.2234E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=-0.8

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1-2	MANE	3.00	321.94	63.70	1.18	3.00	314.95	66.00	1.18
------	------	------	--------	-------	------	------	--------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2212E+02 EXCESS=0.0000E+00 OUTFLOW=0.2223E+02 BASIN STORAGE=0.5936E-01 PERCENT ERROR=-0.8

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1-2	MANE	3.00	281.88	67.46	1.15	3.00	280.31	66.00	1.15
------	------	------	--------	-------	------	------	--------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2153E+02 EXCESS=0.0000E+00 OUTFLOW=0.2160E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=-0.8

-0.6

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R1-2	MANE	3.00	239.43	66.99	1.09	3.00	234.05	69.00	1.09
------	------	------	--------	-------	------	------	--------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2036E+02 EXCESS=0.0000E+00 OUTFLOW=0.2044E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=-0.7

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R1-2	MANE	2.91	179.26	70.19	0.98	3.00	178.38	69.00	0.98
------	------	------	--------	-------	------	------	--------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1834E+02 EXCESS=0.0000E+00 OUTFLOW=0.1842E+02 BASIN STORAGE=0.6416E-01 PERCENT ERROR=-0.8

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R2-3	MANE	1.61	726.00	65.69	1.53	3.00	725.57	66.00	1.53
------	------	------	--------	-------	------	------	--------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4152E+02 EXCESS=0.0000E+00 OUTFLOW=0.4152E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R2-3	MANE	1.61	719.73	65.75	1.52	3.00	719.25	66.00	1.52
------	------	------	--------	-------	------	------	--------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4128E+02 EXCESS=0.0000E+00 OUTFLOW=0.4128E+02 BASIN STORAGE=0.4197E-01 PERCENT ERROR=-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R2-3	MANE	1.65	650.44	66.16	1.47	3.00	647.31	66.00	1.47
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3985E+02 EXCESS=0.0000E+00 OUTFLOW=0.3986E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=-0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R2-3	MANE	1.61	553.64	68.36	1.37	3.00	550.82	69.00	1.37
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3711E+02 EXCESS=0.0000E+00 OUTFLOW=0.3710E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=-0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R2-3	MANE	1.77	421.93	69.46	1.19	3.00	418.11	69.00	1.19
------	------	------	--------	-------	------	------	--------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3232E+02 EXCESS=0.0000E+00 OUTFLOW=0.3234E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
 R3-5 MANE 2.78 817.36 73.14 1.60 3.00 816.94 72.00 1.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4741E+02 EXCESS=0.0000E+00 OUTFLOW=0.4763E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR=-0.6

FOR STORM = 2 STORM AREA (SQ MI) = 0.50
 R3-5 MANE 2.79 810.60 70.45 1.59 3.00 810.54 72.00 1.59

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4713E+02 EXCESS=0.0000E+00 OUTFLOW=0.4736E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR=-0.7

FOR STORM = 3 STORM AREA (SQ MI) = 2.80
 R3-5 MANE 2.90 742.52 73.90 1.54 3.00 740.16 72.00 1.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4551E+02 EXCESS=0.0000E+00 OUTFLOW=0.4571E+02 BASIN STORAGE=0.8226E-01 PERCENT ERROR=-0.6

FOR STORM = 4 STORM AREA (SQ MI) = 16.00
 R3-5 MANE 3.00 634.55 73.70 1.43 3.00 626.49 75.00 1.43

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4224E+02 EXCESS=0.0000E+00 OUTFLOW=0.4240E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR=-0.6

FOR STORM = 5 STORM AREA (SQ MI) = 90.00
 R3-5 MANE 3.00 478.66 74.64 1.24 3.00 478.05 75.00 1.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3665E+02 EXCESS=0.0000E+00 OUTFLOW=0.3688E+02 BASIN STORAGE=0.8233E-01 PERCENT ERROR=-0.8

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
 R4-5 MANE 2.41 520.58 62.34 2.39 3.00 513.38 63.00 2.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1819E+02 EXCESS=0.0000E+00 OUTFLOW=0.1838E+02 BASIN STORAGE=0.3179E-04 PERCENT ERROR=-1.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

Onsite_6hr.out

R4-5	MANE	2.42	516.56	62.40	2.38	3.00	510.06	63.00	2.39
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1807E+02 EXCESS=0.0000E+00 OUTFLOW=0.1825E+02 BASIN STORAGE=0.4744E-04 PERCENT ERROR=-1.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R4-5	MANE	2.55	451.64	62.77	2.29	3.00	451.16	63.00	2.30
------	------	------	--------	-------	------	------	--------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1745E+02 EXCESS=0.0000E+00 OUTFLOW=0.1762E+02 BASIN STORAGE=0.4583E-04 PERCENT ERROR=-1.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R4-5	MANE	2.73	379.50	64.90	2.12	3.00	374.76	63.00	2.12
------	------	------	--------	-------	------	------	--------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1609E+02 EXCESS=0.0000E+00 OUTFLOW=0.1629E+02 BASIN STORAGE=0.4132E-04 PERCENT ERROR=-1.2

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R4-5	MANE	2.87	291.80	65.24	1.78	3.00	288.81	66.00	1.78
------	------	------	--------	-------	------	------	--------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1354E+02 EXCESS=0.0000E+00 OUTFLOW=0.1370E+02 BASIN STORAGE=0.4337E-04 PERCENT ERROR=-1.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6	MANE	1.71	1430.15	73.26	1.84	3.00	1428.13	72.00	1.84
------	------	------	---------	-------	------	------	---------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8096E+02 EXCESS=0.0000E+00 OUTFLOW=0.8101E+02 BASIN STORAGE=0.7278E-01 PERCENT ERROR=-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R5-6	MANE	1.72	1417.75	71.63	1.82	3.00	1417.68	72.00	1.82
------	------	------	---------	-------	------	------	---------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8047E+02 EXCESS=0.0000E+00 OUTFLOW=0.8049E+02 BASIN STORAGE=0.7282E-01 PERCENT ERROR=-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R5-6	MANE	1.83	1320.58	72.30	1.76	3.00	1310.29	72.00	1.76
------	------	------	---------	-------	------	------	---------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7757E+02 EXCESS=0.0000E+00 OUTFLOW=0.7762E+02 BASIN STORAGE=0.6818E-01 PERCENT ERROR=-0.2

FOR STORM = 4 STORM AREA (SQ MI) = 16.00
 R5-6 MANE 1.92 1120.07 73.97 1.62 3.00 1117.54 75.00 1.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7160E+02 EXCESS=0.0000E+00 OUTFLOW=0.7164E+02 BASIN STORAGE=0.7274E-01 PERCENT ERROR=-0.2

FOR STORM = 5 STORM AREA (SQ MI) = 90.00
 R5-6 MANE 2.16 837.38 77.35 1.39 3.00 834.70 75.00 1.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6127E+02 EXCESS=0.0000E+00 OUTFLOW=0.6143E+02 BASIN STORAGE=0.6818E-01 PERCENT ERROR=-0.4

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
 R7-8 MANE 2.79 374.54 61.97 2.32 3.00 360.59 63.00 2.31

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8717E+01 EXCESS=0.0000E+00 OUTFLOW=0.9160E+01 BASIN STORAGE=0.1297E-03 PERCENT ERROR=-5.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50
 R7-8 MANE 2.80 373.06 62.02 2.31 3.00 359.23 63.00 2.30

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8655E+01 EXCESS=0.0000E+00 OUTFLOW=0.9098E+01 BASIN STORAGE=0.1282E-03 PERCENT ERROR=-5.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80
 R7-8 MANE 3.00 300.60 62.65 2.18 3.00 299.77 63.00 2.18

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8267E+01 EXCESS=0.0000E+00 OUTFLOW=0.8591E+01 BASIN STORAGE=0.1511E-03 PERCENT ERROR=-3.9

FOR STORM = 4 STORM AREA (SQ MI) = 16.00
 R7-8 MANE 3.00 243.19 65.55 1.99 3.00 238.95 66.00 2.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7502E+01 EXCESS=0.0000E+00 OUTFLOW=0.7866E+01 BASIN STORAGE=0.1118E-03 PERCENT ERROR=-4.8

FOR STORM = 5 STORM AREA (SQ MI) = 90.00
 R7-8 MANE 2.82 178.83 67.24 1.61 3.00 176.29 66.00 1.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6168E+01 EXCESS=0.0000E+00 OUTFLOW=0.6362E+01 BASIN STORAGE=0.1260E-03 PERCENT ERROR=-3.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8-9	MANE	1.32	1031.83	65.57	2.33	3.00	1013.13	66.00	2.33
------	------	------	---------	-------	------	------	---------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3691E+02 EXCESS=0.0000E+00 OUTFLOW=0.3702E+02 BASIN STORAGE=0.1702E-03 PERCENT ERROR=-0.3

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R8-9	MANE	1.33	1027.12	65.64	2.31	3.00	1010.29	66.00	2.32
------	------	------	---------	-------	------	------	---------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3666E+02 EXCESS=0.0000E+00 OUTFLOW=0.3678E+02 BASIN STORAGE=0.2024E-03 PERCENT ERROR=-0.3

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R8-9	MANE	1.45	913.69	66.38	2.21	3.00	911.34	66.00	2.21
------	------	------	--------	-------	------	------	--------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3510E+02 EXCESS=0.0000E+00 OUTFLOW=0.3519E+02 BASIN STORAGE=0.1735E-03 PERCENT ERROR=-0.3

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R8-9	MANE	1.48	772.14	65.64	2.03	3.00	769.23	66.00	2.03
------	------	------	--------	-------	------	------	--------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3216E+02 EXCESS=0.0000E+00 OUTFLOW=0.3228E+02 BASIN STORAGE=0.1954E-03 PERCENT ERROR=-0.4

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R8-9	MANE	1.59	554.15	67.90	1.68	3.00	554.05	69.00	1.68
------	------	------	--------	-------	------	------	--------	-------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2666E+02 EXCESS=0.0000E+00 OUTFLOW=0.2676E+02 BASIN STORAGE=0.1898E-03 PERCENT ERROR=-0.4

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.29	363.48	498.70	0.56	3.00	363.48	501.00	0.56
--------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5822E+03 EXCESS=0.0000E+00 OUTFLOW=0.5822E+03 BASIN STORAGE=0.3289E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT1	MANE	0.29	363.42	498.84	0.56	3.00	363.42	501.00	0.56
--------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5819E+03 EXCESS=0.0000E+00 OUTFLOW=0.5819E+03 BASIN STORAGE=0.3289E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT1	MANE	0.45	363.06	498.87	0.55	3.00	363.06	501.00	0.55
--------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5801E+03 EXCESS=0.0000E+00 OUTFLOW=0.5800E+03 BASIN STORAGE=0.3288E-01 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

BSNRT1	MANE	0.38	362.38	500.88	0.55	3.00	362.38	501.00	0.55
--------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5767E+03 EXCESS=0.0000E+00 OUTFLOW=0.5766E+03 BASIN STORAGE=0.3287E-01 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

BSNRT1	MANE	0.34	361.10	501.33	0.54	3.00	361.10	501.00	0.54
--------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5702E+03 EXCESS=0.0000E+00 OUTFLOW=0.5702E+03 BASIN STORAGE=0.3284E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.44	363.48	501.11	0.56	3.00	363.48	501.00	0.56
--------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5822E+03 EXCESS=0.0000E+00 OUTFLOW=0.5821E+03 BASIN STORAGE=0.3756E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT2	MANE	0.44	363.42	501.35	0.56	3.00	363.42	501.00	0.56
--------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5819E+03 EXCESS=0.0000E+00 OUTFLOW=0.5818E+03 BASIN STORAGE=0.3756E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT2	MANE	0.36	363.06	501.42	0.55	3.00	363.06	501.00	0.55
--------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5800E+03 EXCESS=0.0000E+00 OUTFLOW=0.5799E+03 BASIN STORAGE=0.3755E-01 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

BSNRT2	MANE	0.48	362.38	501.44	0.55	3.00	362.38	501.00	0.55
--------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5766E+03 EXCESS=0.0000E+00 OUTFLOW=0.5766E+03 BASIN STORAGE=0.3753E-01 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

BSNRT2	MANE	0.38	361.10	501.56	0.54	3.00	361.09	501.00	0.54
--------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5702E+03 EXCESS=0.0000E+00 OUTFLOW=0.5701E+03 BASIN STORAGE=0.3750E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55
--------	------	------	---------	--------	------	------	---------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55
--------	------	------	---------	--------	------	------	---------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55
--------	------	------	---------	--------	------	------	---------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55
--------	------	------	---------	--------	------	------	---------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55
--------	------	------	---------	--------	------	------	---------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	1.62	1355.03	412.64	0.90	3.00	1354.77	411.00	0.90
--------	------	------	---------	--------	------	------	---------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9482E+03 EXCESS=0.0000E+00 OUTFLOW=0.9474E+03 BASIN STORAGE=0.9166E+00 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R10-11	MANE	1.56	1354.98	412.72	0.90	3.00	1354.72	411.00	0.90
--------	------	------	---------	--------	------	------	---------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9479E+03 EXCESS=0.0000E+00 OUTFLOW=0.9473E+03 BASIN STORAGE=0.9166E+00 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R10-11	MANE	1.57	1354.58	412.38	0.90	3.00	1354.33	411.00	0.90
--------	------	------	---------	--------	------	------	---------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9458E+03 EXCESS=0.0000E+00 OUTFLOW=0.9450E+03 BASIN STORAGE=0.9164E+00 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R10-11	MANE	1.67	1353.83	412.54	0.90	3.00	1353.59	411.00	0.90
--------	------	------	---------	--------	------	------	---------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9420E+03 EXCESS=0.0000E+00 OUTFLOW=0.9412E+03 BASIN STORAGE=0.9165E+00 PERCENT ERROR=0.0

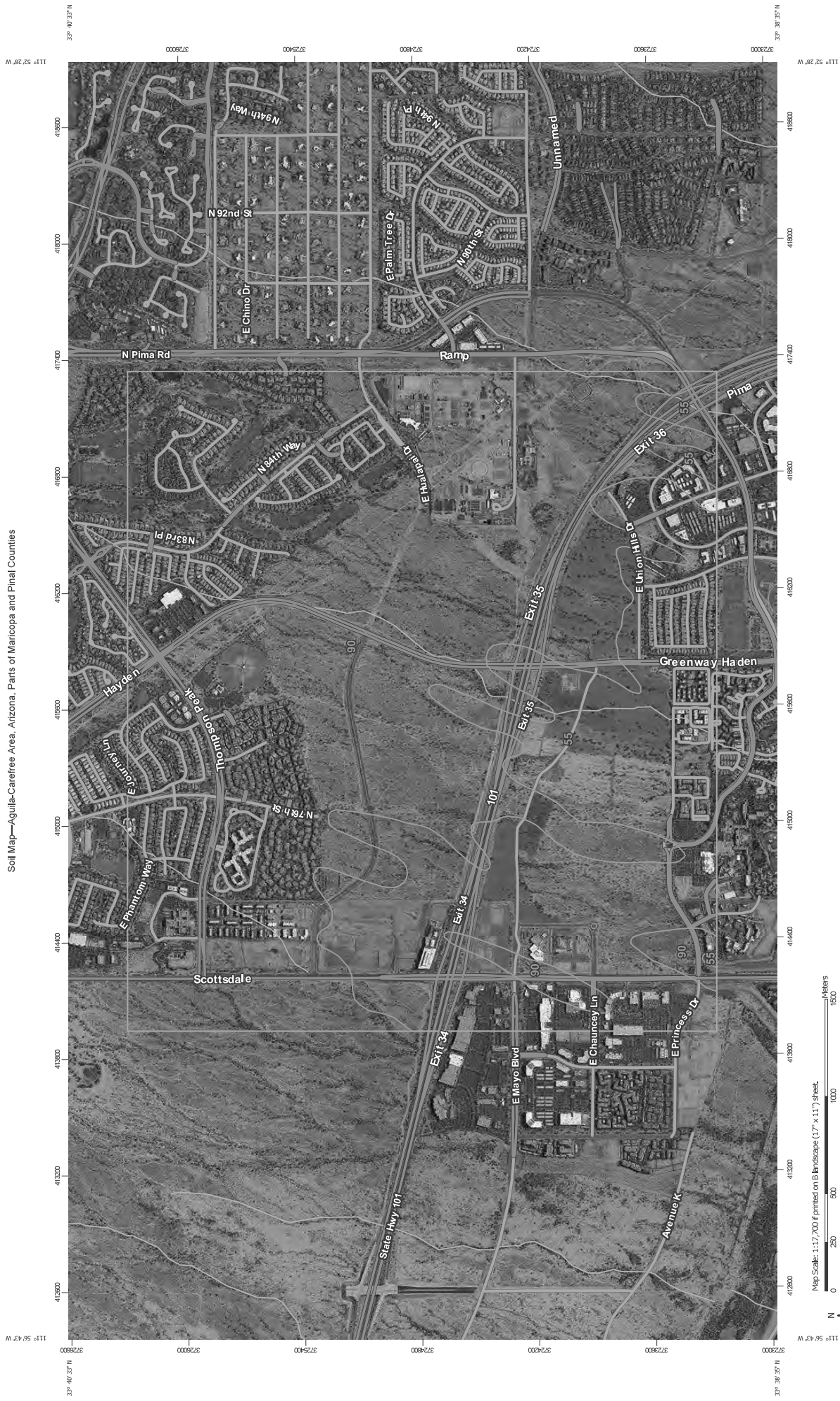
FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R10-11	MANE	1.66	1352.40	412.19	0.89	3.00	1352.18	411.00	0.89
--------	------	------	---------	--------	------	------	---------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9349E+03 EXCESS=0.0000E+00 OUTFLOW=0.9341E+03 BASIN STORAGE=0.9161E+00 PERCENT ERROR=0.0

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

Appendix C
Cavasson HEC-1 Data
Cavasson-Hotel



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL: <http://websoilsurvey.sc.egov.usda.gov>

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Agua-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

Survey Area Data: Version 11, Sep 11, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 31, 2014—Dec 7, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
55	Gilman loams	768.3	30.2%
90	Momoli gravelly sandy loam, 1 to 5 percent slopes	1,778.8	69.8%
Totals for Area of Interest		2,547.2	100.0%

Flood Control District of Maricopa County
 Drainage Design Management System
RAINFALL DATA
 Project Reference: 17114 - DATA

Page 1

9/27/2017

ID	Method	Duration	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr
DEFAULT	NOAA14	5 MIN	0.258	0.349	0.418	0.511	0.583	0.656
	NOAA14	10 MIN	0.393	0.530	0.636	0.778	0.887	0.998
	NOAA14	15 MIN	0.487	0.658	0.789	0.965	1.099	1.237
	NOAA14	30 MIN	0.656	0.886	1.063	1.299	1.480	1.666
	NOAA14	1 HOUR	0.812	1.096	1.315	1.608	1.832	2.062
	NOAA14	2 HOUR	0.939	1.251	1.490	1.814	2.060	2.315
	NOAA14	3 HOUR	1.024	1.339	1.588	1.936	2.212	2.498
	NOAA14	6 HOUR	1.215	1.549	1.817	2.182	2.465	2.760
	NOAA14	12 HOUR	1.374	1.734	2.016	2.399	2.690	2.993
	NOAA14	24 HOUR	1.622	2.097	2.476	3.005	3.425	3.865


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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 30OCT19 TIME 11:56:22
*
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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

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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 -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1

HEC-1 INPUT

PAGE 1

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1         ID      CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
2         ID      POWERLINE CORRIDOR
3         ID      RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
4         ID      INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
5         ID      10-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
6         ID      PIMA ROAD FLOWS.
7         ID
8         ID      PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
9         ID      MODELERS: RK, MW
10        ID
11        ID      REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
12        ID      MODELERS: MSW, ES
13        ID      REVISIONS NOTED WITH HE
14        ID      ULTIMATE CONDITION MODEL,WITH POWERLINE AND BASIN 53R AND
15        ID      THIS IS THE POST-DEVELOPMENT MODEL WITH DEVELOPMENT N OF LEGACY
16        ID      UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.
17        ID
18        ID      REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 10/25/19
19        ID      MODELERS: MSW
20        ID      XKSAT ADJUSTMENT
21        ID
22        IT      3      0      0      1000
23        IN      15
24        IO      5
25        *DIAGRAM
26        *
27        JD      1.817 0.0001
28        PC      0.000 0.008 0.016 0.025 0.033 0.041 0.050 0.058 0.066 0.074
29        PC      0.087 0.099 0.118 0.138 0.216 0.377 0.834 0.911 0.931 0.950
30        PC      0.962 0.972 0.983 0.991 1.000
31        JD      1.806 0.5000
32        PC      0.000 0.008 0.016 0.025 0.033 0.041 0.050 0.058 0.066 0.074
33        PC      0.087 0.099 0.118 0.138 0.216 0.377 0.834 0.911 0.931 0.950
34        PC      0.962 0.972 0.983 0.991 1.000
35        JD      1.772 2.8
36        PC      0.000 0.009 0.016 0.025 0.034 0.042 0.051 0.059 0.068 0.077
37        PC      0.088 0.101 0.121 0.164 0.253 0.451 0.694 0.836 0.900 0.938
38        PC      0.950 0.963 0.975 0.988 1.000
39        *
40        KK      76THST
41        KM      76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS

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*

PAGE 2

[illegible]

55 KK CP-1 COMBINE
56 KM LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
57 HC 2 0.295
*

58	KK	R1A-2	ROUTE				
59	RK	2139	0.0180	0.020	TRAP	2.000	0.00
	*						

[illegible]

67	KK	R1B-2	ROUTE				
68	RK	2636	0.0015	0.030	TRAP	2.000	0.00
	*						

69	KK	SB01C	BASIN									
70	KM	IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT										
71	BA	0.032										
72	LG	0.10	0.25	4.72	0.51	73						
73	UC	0.581	0.550									
74	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0	
75	UA	100										
	*											

76	KK	R1C-2	ROUTE				
77	RK	3046	0.0015	0.030	TRAP	2.000	0.00
	*						

[illegible]

PAGE 3

[illegible]

142	KK	SB04	BASIN								
143	BA	0.144									
144	LG	0.14	0.25	4.60	0.44	61					
145	UC	0.305	0.199								
146	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
147	UA	100									
	*										

148	KK	CP-4 COMBINE									
149	KM	PRINCESS BLVD AND EAST OF 77TH ST									
150	HC	2									
	*										

151	KK	R4-5 ROUTE									
152	KM	PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST									
153	RK	1992 0.0013 0.03				TRAP	39	4			
	*										

154	KK	CP-05 COMBINE									
155	KM	PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)									
156	KM	COMBINE CP-05A AND R4-5									
157	HC	2									
	*										

1

HEC-1 INPUT

PAGE 5

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

158	KK	R5-6 ROUTE									
159	KM	PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD									
160	RK	1694 0.0015 0.03				TRAP	188	4			
	*										

161	KK	SB06	BASIN								
162	BA	0.136									
163	LG	0.16	0.25	4.55	0.45	53					
164	UC	0.321	0.246								
165	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
166	UA	100									
	*										

167	KK	CP-06 COMBINE									
168	HC	2									
	*										
	*										
	*	END WEST RUN									
	*										
	*										
	*	BEGIN EAST SIDE OF HAYDEN									
	*										

169	KK	SB07E	BASIN								
170	BA	0.026									
171	LG	0.10	0.25	4.03	0.74	0					
172	UC	0.574	0.527								
173	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
174	UA	100									
	*										

175	KK	R7E-8E ROUTE									
176	RK	3662 0.0130 0.030				TRAP	2.000	0.00			
	*										

177	KK	SB08E	BASIN								
178	BA	0.078									
179	LG	0.10	0.25	4.08	0.72	0					
180	UC	0.798	0.652								
181	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
182	UA	100									
	*										

183	KK	SB09N	BASIN								
184	BA	0.028									
185	LG	0.10	0.25	4.79	0.49	0					
186	UC	0.740	1.111								
187	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
188	UA	100									
	*										

1

HEC-1 INPUT

PAGE 6

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

189	KK	R9N-R9	ROUTE								
190	RK	2586	0.0013	0.020		TRAP	2.000	0.00			
	*										
191	KK	CP-08E	COMBINE								
192	KM		SB07E, SB08E, SB09N								
193	HC	3									
	*										
194	KK	SB09	BASIN								
195	BA	0.086									
196	LG	0.10	0.25	4.79	0.49	0					
197	UC	0.683	0.518								
198	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
199	UA	100									
	*										
200	KK	8E-R9	ROUTE								
201	RK	501	0.0013	0.020		TRAP	2.000	0.00			
	*										
202	KK	CP-09	COMBINE								
203	KM		SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)								
204	HC	2									
	*										
205	KK	PWRCH									
206	KM		POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS								
207	KM		10-YR, 6-HR, DERIVED FROM 100-YR DATA HYDROGRAPHS								
208	BA	7.0									
209	QI	0	0	0	0	0	0	0	0	0	0
210	QI	0	0	0	0	0	0.07	11.70	33.57	285.55	257.89
211	QI	236.82	258.26	406.55	486.55	461.36	425.60	409.84	395.31	391.77	376.42
212	QI	346.76	376.76	276.32	247.65	220.91	197.44	178.64	155.41	139.22	129.78
213	QI	113.97	102.76	96.30	85.88	79.7	72.75	65.45	59.94	54.69	51.22
214	QI	52.3	44.56	41.87	42.77	36.93	34.05	32.15	29.01	27.72	27.03
215	QI	25.05	23.86	22.04	20.81	19.27	18.55	17.90	20.82	16.03	15.23
	*										
216	KK	BINFLO									
217	KM		TOTAL INFLOW INTO BASIN 53R.								
218	HC	2									
	*										
219	KK	BASIN									
220	KM		BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN								
221	KM		ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1								
222	KM		OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES								
223	KM		THE OUTLET PIPES ARE INLET CONTROLLED.								
224	RS	1	STOR	0							
225	SV	0	44.9	76.8	108.7	140.6	171.5	202.5	233.5	264.5	295.5
226	SV	328.7	362.0	395.2	428.5	461.7	497.2	532.7	568.3	603.8	639.3
227	SE	1594	1597	1598	1599	1600	1601	1602	1603	1604	1605
228	SE	1606	1607	1608	1609	1610	1611	1612	1613	1614	1615

HEC-1 INPUT

PAGE 7

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

229	SQ	0	94.6	153.4	209.8	244.2	264.5	284.0	302.5	320.1	336.9
230	SQ	353.0	368.5	383.5	398.0	412.0	425.7	438.9	451.9	464.5	476.8
	*										
231	KK	BSNRT1									
232	KM		2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.								
233	KM		DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE								
234	KM		EXCESS CAPACITY.								
235	RK	550	0.0052	0.024		CIRC	7.0				
	*										
236	KK	BSNRT2									
237	KM		2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BAS 53R OUTFALL)								
238	RK	1200	0.0077	0.013		CIRC	7.0				
	*										
239	KK	SB10	BASIN								
240	BA	0.040									

107	.	SB05	
	.	.	
	.	.	
113	CP-5A.....		
	.		
	.		
116	.	SB07W	
	.	V	
	.	V	
123	.	R7W-8W	
	.	.	
	.	.	
127	.	.	SB08W
	.	.	.
	.	.	.
135	.	CP-08W.....	
	.	V	
	.	V	
138	.	R8W-4	
	.	.	
	.	.	
142	.	.	SB04
	.	.	.
	.	.	.
148	.	CP-4.....	
	.	V	
	.	V	
151	.	R4-5	
	.	.	
	.	.	
154	CP-05.....		
	V		
	V		
158	R5-6		
	.		
	.		
161	.	SB06	
	.	.	
	.	.	
167	CP-06.....		
	.		
	.		
169	.	SB07E	
	.	V	
	.	V	
175	.	R7E-8E	
	.	.	
	.	.	
177	.	.	SB08E
	.	.	.
	.	.	.
183	.	.	SB09N
	.	.	V
	.	.	V
189	.	.	R9N-R9
	.	.	.
	.	.	.
191	.	CP-08E.....	
	.	.	
	.	.	
194	.	.	SB09
	.	.	V
	.	.	V
200	.	.	8E-R9
	.	.	.
	.	.	.
202	.	CP-09.....	
	.	.	
	.	.	
205	.	.	PWRCH
	.	.	.
	.	.	.
216	.	BINFLO.....	
	.	V	
	.	V	
219	.	BASIN	
	.	V	
	.	V	
231	.	BSNRT1	

```

      .      V
      .      V
236    .      BSNRT2
      .      .
      .      .
239    .      .      SB10
      .      .      .
      .      .      .
245    .      CP-10.....
      .      V
      .      V
248    .      R10-11
      .      .
      .      .
251    .      .      SB11
      .      .      .
      .      .      .
257    .      CP-11.....

```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*      JUN 1998                  *
*      VERSION 4.1              *
*
* RUN DATE 30OCT19 TIME 11:56:22 *
*
*****

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

```

CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
POWERLINE CORRIDOR
RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
10-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
PIMA ROAD FLOWS.

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
MODELERS: RK, MW

REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
MODELERS: MSW, ES
REVISIONS NOTED WITH HE
ULTIMATE CONDITION MODEL,WITH POWERLINE AND BASIN 53R AND
THIS IS THE POST-DEVELOPMENT MODEL WITH DEVELOPMENT N OF LEGACY
UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.

REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 10/25/19
MODELERS: MSW
XKSAT ADJUSTMENT

```

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

IT         HYDROGRAPH TIME DATA
          NMIN      3  MINUTES IN COMPUTATION INTERVAL
          IDATE      1  0  STARTING DATE
          ITIME      0000 STARTING TIME
          NQ         1000 NUMBER OF HYDROGRAPH ORDINATES
          NDDATE     3  0  ENDING DATE
          NDTIME     0157 ENDING TIME
          ICENT      19  CENTURY MARK

          COMPUTATION INTERVAL  0.05 HOURS
          TOTAL TIME BASE      49.95 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

25 JD INDEX STORM NO. 1
 STRM 1.82 PRECIPITATION DEPTH
 TRDA 0.00 TRANSPOSITION DRAINAGE AREA

26 PI PRECIPITATION PATTERN
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
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 0.00 0.00 0.00 0.00 0.00 0.02 0.02 0.02 0.02 0.02
 0.03 0.03 0.03 0.03 0.03 0.09 0.09 0.09 0.09 0.09
 0.02 0.02 0.02 0.02 0.02 0.00 0.00 0.00 0.00 0.00
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29 JD INDEX STORM NO. 2
 STRM 1.81 PRECIPITATION DEPTH
 TRDA 0.50 TRANSPOSITION DRAINAGE AREA

30 PI PRECIPITATION PATTERN
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
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 0.00 0.00 0.00 0.00 0.00 0.02 0.02 0.02 0.02 0.02
 0.03 0.03 0.03 0.03 0.03 0.09 0.09 0.09 0.09 0.09
 0.02 0.02 0.02 0.02 0.02 0.00 0.00 0.00 0.00 0.00
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 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

33 JD INDEX STORM NO. 3
 STRM 1.77 PRECIPITATION DEPTH
 TRDA 2.80 TRANSPOSITION DRAINAGE AREA

34 PI PRECIPITATION PATTERN
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 0.01 0.01 0.01 0.01 0.01 0.02 0.02 0.02 0.02 0.02
 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05
 0.03 0.03 0.03 0.03 0.03 0.01 0.01 0.01 0.01 0.01
 0.01 0.01 0.01 0.01 0.01 0.00 0.00 0.00 0.00 0.00
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSO N FAILEDFIXED POINT ITERATION USED - ITERATION= 1

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT									
+	76THST	32.	4.50	10.	3.	1.	0.24		

+	HYDROGRAPH AT	SB01A	38.	4.25	3.	1.	0.	0.05
+	2 COMBINED AT	CP-1	65.	4.30	13.	4.	2.	0.29
+	ROUTED TO	R1A-2	65.	4.30	13.	4.	2.	0.29
+	HYDROGRAPH AT	SB01B	19.	4.35	3.	1.	0.	0.02
+	ROUTED TO	R1B-2	19.	4.40	3.	1.	0.	0.02
+	HYDROGRAPH AT	SB01C	25.	4.40	5.	1.	1.	0.03
+	ROUTED TO	R1C-2	24.	4.50	5.	1.	1.	0.03
+	HYDROGRAPH AT	SB02E	70.	4.60	17.	4.	2.	0.10
+	HYDROGRAPH AT	SB02W	21.	4.50	3.	1.	0.	0.06
+	5 COMBINED AT	CP-02	179.	4.50	40.	11.	5.	0.51
+	ROUTED TO	R2-3	178.	4.60	40.	11.	5.	0.51
+	HYDROGRAPH AT	SB03	47.	4.15	6.	2.	1.	0.05
+	2 COMBINED AT	CP-03	193.	4.55	45.	12.	6.	0.56
+	ROUTED TO	R3-5	192.	4.70	45.	12.	6.	0.56
+	HYDROGRAPH AT	SB05	134.	4.10	15.	4.	2.	0.13
+	2 COMBINED AT	CP-5A	206.	4.65	58.	16.	8.	0.68
+	HYDROGRAPH AT	SB07W	37.	4.45	7.	2.	1.	0.05
+	ROUTED TO	R7W-8W	36.	5.00	7.	2.	1.	0.05
+	HYDROGRAPH AT	SB08W	90.	4.55	19.	5.	2.	0.11
+	2 COMBINED AT	CP-08W	96.	4.90	26.	7.	3.	0.16
+	ROUTED TO	R8W-4	95.	4.95	26.	7.	3.	0.16
+	HYDROGRAPH AT	SB04	178.	4.10	20.	5.	2.	0.14
+	2 COMBINED AT	CP-4	209.	4.10	46.	12.	6.	0.30
+	ROUTED TO	R4-5	206.	4.20	46.	12.	6.	0.30
+	2 COMBINED AT	CP-05	322.	4.60	100.	26.	13.	0.99
+	ROUTED TO	R5-6	320.	4.75	100.	26.	13.	0.99
+	HYDROGRAPH AT	SB06	145.	4.10	17.	4.	2.	0.14

+	2 COMBINED AT	CP-06	365.	4.30	114.	30.	15.	1.12
+	HYDROGRAPH AT	SB07E	9.	4.40	1.	0.	0.	0.03
+	ROUTED TO	R7E-8E	8.	4.50	1.	0.	0.	0.03
+	HYDROGRAPH AT	SB08E	21.	4.55	3.	1.	0.	0.08
+	HYDROGRAPH AT	SB09N	6.	4.55	2.	0.	0.	0.03
+	ROUTED TO	R9N-R9	6.	4.65	2.	0.	0.	0.03
+	3 COMBINED AT	CP-08E	34.	4.60	6.	2.	1.	0.13
+	HYDROGRAPH AT	SB09	34.	4.45	5.	1.	1.	0.09
+	ROUTED TO	8E-R9	34.	4.50	5.	1.	1.	0.09
+	2 COMBINED AT	CP-09	67.	4.55	11.	3.	1.	0.22
+	HYDROGRAPH AT	PWRCH	487.	5.75	285.	91.	50.	7.00
+	2 COMBINED AT	BINFLO	484.	5.75	283.	90.	50.	7.22
+	ROUTED TO	BASIN	171.	9.10	156.	85.	48.	7.22
+	ROUTED TO	BSNRT1	171.	9.10	156.	85.	48.	7.22
+	ROUTED TO	BSNRT2	171.	9.10	156.	85.	48.	7.22
+	HYDROGRAPH AT	SB10	52.	4.05	5.	1.	1.	0.04
+	2 COMBINED AT	CP-10	171.	9.10	156.	85.	49.	7.26
+	ROUTED TO	R10-11	171.	9.20	156.	85.	48.	7.26
+	HYDROGRAPH AT	SB11	77.	4.10	9.	2.	1.	0.07
+	2 COMBINED AT	CP-11	171.	9.20	156.	85.	49.	7.33
1								

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

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	INTERPOLATED TO COMPUTATION INTERVAL		
							PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1	STORM AREA (SQ MI) =			0.00					
R1A-2	MANE	0.50	65.38	258.45	0.48	3.00	65.32	258.00	0.48

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7488E+01 EXCESS=0.0000E+00 OUTFLOW=0.7484E+01 BASIN STORAGE=0.5127E-02 PERCENT ERROR= 0.0

FOR STORM = 2	STORM AREA (SQ MI) =			0.50					
R1A-2	MANE	0.50	64.94	258.50	0.47	3.00	64.88	258.00	0.47

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7471E+01 EXCESS=0.0000E+00 OUTFLOW=0.7467E+01 BASIN STORAGE=0.5127E-02 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80
R1A-2 MANE 0.69 37.56 259.80 0.41 3.00 37.53 261.00 0.41

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6395E+01 EXCESS=0.0000E+00 OUTFLOW=0.6391E+01 BASIN STORAGE=0.5127E-02 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
R1B-2 MANE 2.47 18.84 265.68 1.46 3.00 18.81 264.00 1.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1707E+01 EXCESS=0.0000E+00 OUTFLOW=0.1711E+01 BASIN STORAGE=0.2775E-04 PERCENT ERROR= -0.2

FOR STORM = 2 STORM AREA (SQ MI) = 0.50
R1B-2 MANE 2.47 18.72 265.88 1.45 3.00 18.69 264.00 1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1695E+01 EXCESS=0.0000E+00 OUTFLOW=0.1699E+01 BASIN STORAGE=0.2615E-04 PERCENT ERROR= -0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80
R1B-2 MANE 2.98 12.45 267.22 1.32 3.00 12.44 267.00 1.32

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1550E+01 EXCESS=0.0000E+00 OUTFLOW=0.1554E+01 BASIN STORAGE=0.2780E-04 PERCENT ERROR= -0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
R1C-2 MANE 2.55 24.54 270.32 1.46 3.00 24.54 270.00 1.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2483E+01 EXCESS=0.0000E+00 OUTFLOW=0.2487E+01 BASIN STORAGE=0.4444E-04 PERCENT ERROR= -0.2

FOR STORM = 2 STORM AREA (SQ MI) = 0.50
R1C-2 MANE 2.56 24.36 270.41 1.45 3.00 24.36 270.00 1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2466E+01 EXCESS=0.0000E+00 OUTFLOW=0.2470E+01 BASIN STORAGE=0.3654E-04 PERCENT ERROR= -0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80
R1C-2 MANE 2.94 16.79 271.68 1.32 3.00 16.77 273.00 1.32

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2255E+01 EXCESS=0.0000E+00 OUTFLOW=0.2260E+01 BASIN STORAGE=0.3993E-04 PERCENT ERROR= -0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
R2-3 MANE 2.58 179.94 275.62 0.80 3.00 179.70 273.00 0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2182E+02 EXCESS=0.0000E+00 OUTFLOW=0.2178E+02 BASIN STORAGE=0.2947E-01 PERCENT ERROR= 0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50
R2-3 MANE 2.58 178.58 273.24 0.80 3.00 178.37 276.00 0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2170E+02 EXCESS=0.0000E+00 OUTFLOW=0.2166E+02 BASIN STORAGE=0.2947E-01 PERCENT ERROR= 0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80
R2-3 MANE 2.81 121.16 278.40 0.69 3.00 121.10 279.00 0.69

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1872E+02 EXCESS=0.0000E+00 OUTFLOW=0.1870E+02 BASIN STORAGE=0.2947E-01 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
R3-5 MANE 2.80 197.78 283.26 0.84 3.00 197.07 282.00 0.83

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2491E+02 EXCESS=0.0000E+00 OUTFLOW=0.2481E+02 BASIN STORAGE=0.7187E-01 PERCENT ERROR= 0.1

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
R3-5 MANE	2.81 196.35	283.48	0.83	3.00	195.66	282.00	0.83		

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2477E+02 EXCESS=0.0000E+00 OUTFLOW=0.2467E+02 BASIN STORAGE=0.7187E-01 PERCENT ERROR= 0.1

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
R3-5 MANE	3.00 135.20	290.02	0.72	3.00	135.02	288.00	0.72		

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2136E+02 EXCESS=0.0000E+00 OUTFLOW=0.2126E+02 BASIN STORAGE=0.7187E-01 PERCENT ERROR= 0.1

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
R7W-8W MANE	3.00 36.80	297.88	1.49	3.00	36.57	300.00	1.49		

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3794E+01 EXCESS=0.0000E+00 OUTFLOW=0.3804E+01 BASIN STORAGE=0.3294E-03 PERCENT ERROR= -0.3

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
R7W-8W MANE	3.00 36.52	298.42	1.48	3.00	36.28	300.00	1.48		

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3769E+01 EXCESS=0.0000E+00 OUTFLOW=0.3801E+01 BASIN STORAGE=0.3628E-03 PERCENT ERROR= -0.9

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
R7W-8W MANE	3.00 26.31	304.26	1.38	3.00	26.27	306.00	1.38		

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3519E+01 EXCESS=0.0000E+00 OUTFLOW=0.3522E+01 BASIN STORAGE=0.3414E-03 PERCENT ERROR= -0.1

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
R8W-4 MANE	0.89 95.05	296.12	1.58	3.00	94.72	297.00	1.58		

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1351E+02 EXCESS=0.0000E+00 OUTFLOW=0.1352E+02 BASIN STORAGE=0.1400E-03 PERCENT ERROR= 0.0

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
R8W-4 MANE	0.89 95.77	295.40	1.58	3.00	94.87	297.00	1.58		

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1345E+02 EXCESS=0.0000E+00 OUTFLOW=0.1345E+02 BASIN STORAGE=0.1425E-03 PERCENT ERROR= 0.0

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
R8W-4 MANE	0.94 78.65	296.19	1.49	3.00	78.60	297.00	1.49		

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1275E+02 EXCESS=0.0000E+00 OUTFLOW=0.1275E+02 BASIN STORAGE=0.1452E-03 PERCENT ERROR= 0.0

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
R4-5 MANE	3.00 207.71	251.96	1.46	3.00	207.67	252.00	1.46		

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2359E+02 EXCESS=0.0000E+00 OUTFLOW=0.2360E+02 BASIN STORAGE=0.4040E-03 PERCENT ERROR= -0.1

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
R4-5 MANE	3.00 207.25	252.22	1.45	3.00	206.26	252.00	1.45		

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2346E+02 EXCESS=0.0000E+00 OUTFLOW=0.2348E+02 BASIN STORAGE=0.4490E-03 PERCENT ERROR= -0.1

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
R4-5 MANE	2.76 133.19	257.72	1.33	3.00	133.11	258.00	1.33		

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2157E+02 EXCESS=0.0000E+00 OUTFLOW=0.2157E+02 BASIN STORAGE=0.5078E-03 PERCENT ERROR= 0.0

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
R5-6 MANE	3.00 354.66	283.95	1.06	3.00	353.58	282.00	1.06		

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5606E+02 EXCESS=0.0000E+00 OUTFLOW=0.5598E+02 BASIN STORAGE=0.5643E-01 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50
R5-6 MANE 3.00 351.87 284.39 1.06 3.00 351.35 282.00 1.06

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5574E+02 EXCESS=0.0000E+00 OUTFLOW=0.5567E+02 BASIN STORAGE=0.5643E-01 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80
R5-6 MANE 3.00 273.24 285.59 0.93 3.00 272.84 285.00 0.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4910E+02 EXCESS=0.0000E+00 OUTFLOW=0.4906E+02 BASIN STORAGE=0.5643E-01 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
R7E-8E MANE 2.48 8.47 267.86 0.41 3.00 8.45 270.00 0.41

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5640E+00 EXCESS=0.0000E+00 OUTFLOW=0.5642E+00 BASIN STORAGE=0.1424E-04 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50
R7E-8E MANE 2.49 8.36 268.11 0.40 3.00 8.32 270.00 0.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5555E+00 EXCESS=0.0000E+00 OUTFLOW=0.5565E+00 BASIN STORAGE=0.1227E-04 PERCENT ERROR= -0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80
R7E-8E MANE 3.00 0.79 281.23 0.04 3.00 0.79 282.00 0.04

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5136E-01 EXCESS=0.0000E+00 OUTFLOW=0.5564E-01 BASIN STORAGE=0.1218E-04 PERCENT ERROR= -8.4

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
R9N-R9 MANE 3.00 6.31 281.03 0.51 3.00 6.30 279.00 0.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7576E+00 EXCESS=0.0000E+00 OUTFLOW=0.7564E+00 BASIN STORAGE=0.1663E-04 PERCENT ERROR= 0.2

FOR STORM = 2 STORM AREA (SQ MI) = 0.50
R9N-R9 MANE 3.00 6.24 281.18 0.50 3.00 6.22 279.00 0.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7487E+00 EXCESS=0.0000E+00 OUTFLOW=0.7475E+00 BASIN STORAGE=0.1891E-04 PERCENT ERROR= 0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80
R9N-R9 MANE 3.00 1.69 287.45 0.14 3.00 1.68 288.00 0.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2051E+00 EXCESS=0.0000E+00 OUTFLOW=0.2049E+00 BASIN STORAGE=0.1591E-04 PERCENT ERROR= 0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
8E-R9 MANE 0.35 34.25 268.03 0.51 3.00 34.25 270.00 0.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2328E+01 EXCESS=0.0000E+00 OUTFLOW=0.2328E+01 BASIN STORAGE=0.2472E-06 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50
8E-R9 MANE 0.35 33.85 267.79 0.50 3.00 33.85 270.00 0.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2300E+01 EXCESS=0.0000E+00 OUTFLOW=0.2301E+01 BASIN STORAGE=0.3157E-06 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80
8E-R9 MANE 0.52 9.15 270.59 0.14 3.00 9.14 270.00 0.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6300E+00 EXCESS=0.0000E+00 OUTFLOW=0.6303E+00 BASIN STORAGE=0.3069E-06 PERCENT ERROR= -0.1

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
BSNRT1	MANE	0.43	176.85	541.21	0.53	3.00	176.85	543.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2055E+03 EXCESS=0.0000E+00 OUTFLOW=0.2055E+03 BASIN STORAGE=0.2436E-01 PERCENT ERROR= 0.0

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
BSNRT1	MANE	0.43	176.79	540.88	0.53	3.00	176.79	543.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2054E+03 EXCESS=0.0000E+00 OUTFLOW=0.2054E+03 BASIN STORAGE=0.2436E-01 PERCENT ERROR= 0.0

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
BSNRT1	MANE	0.47	172.81	544.06	0.52	3.00	172.80	543.00	0.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2012E+03 EXCESS=0.0000E+00 OUTFLOW=0.2012E+03 BASIN STORAGE=0.2435E-01 PERCENT ERROR= 0.0

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
BSNRT2	MANE	0.44	176.85	543.46	0.53	3.00	176.85	543.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2055E+03 EXCESS=0.0000E+00 OUTFLOW=0.2054E+03 BASIN STORAGE=0.2781E-01 PERCENT ERROR= 0.0

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
BSNRT2	MANE	0.44	176.78	543.53	0.53	3.00	176.78	543.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2054E+03 EXCESS=0.0000E+00 OUTFLOW=0.2054E+03 BASIN STORAGE=0.2781E-01 PERCENT ERROR= 0.0

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
BSNRT2	MANE	0.42	172.80	543.94	0.52	3.00	172.80	546.00	0.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2012E+03 EXCESS=0.0000E+00 OUTFLOW=0.2011E+03 BASIN STORAGE=0.2781E-01 PERCENT ERROR= 0.0

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
R10-11	MANE	3.46	176.84	548.84	0.54	3.00	176.84	549.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2080E+03 EXCESS=0.0000E+00 OUTFLOW=0.2075E+03 BASIN STORAGE=0.5529E+00 PERCENT ERROR= 0.0

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
R10-11	MANE	3.45	176.78	548.94	0.54	3.00	176.78	549.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2079E+03 EXCESS=0.0000E+00 OUTFLOW=0.2074E+03 BASIN STORAGE=0.5529E+00 PERCENT ERROR= 0.0

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
R10-11	MANE	3.43	172.80	553.01	0.52	3.00	172.80	552.00	0.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2033E+03 EXCESS=0.0000E+00 OUTFLOW=0.2028E+03 BASIN STORAGE=0.5528E+00 PERCENT ERROR= 0.0

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

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 31OCT19 TIME 12:07:07
*
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*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
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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 -AMSK- 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
1	ID	CROSS ROADS EAST DRAINAGE INFRASTRUCTURE									
2	ID	POWERLINE CORRIDOR									
3	ID	RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ									
4	ID	INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:									
5	ID	100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND									
6	ID	PIMA ROAD FLOWS.									
7	ID										
8	ID	PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14									
9	ID	MODELERS: RK, MW									
10	ID										
11	ID	REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18									
12	ID	MODELERS: MSW, ES									
13	ID	REVISIONS NOTED WITH HE									
14	ID	ULTIMATE CONDITION MODEL,WITH POWERLINE AND BASIN 53R AND									
15	ID	THIS IS THE POST-DEVELOPMENT MODEL WITH DEVELOPMENT N OF LEGACY									
16	ID	UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.									
17	ID										
18	ID	REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 10/25/19									
19	ID	MODELERS: MSW									
20	ID	XKSAT ADJUSTMENT									
21	ID										
22	IT	3	0	0	1000						
23	IN	15									
24	IO	5									
	*DIAGRAM										
	*										
25	JD	2.755	0.0001								
26	PC	0.000	0.008	0.016	0.025	0.033	0.041	0.050	0.058	0.066	0.074
27	PC	0.087	0.099	0.118	0.138	0.216	0.377	0.834	0.911	0.931	0.950
28	PC	0.962	0.972	0.983	0.991	1.000					
29	JD	2.738	0.5000								
30	PC	0.000	0.008	0.016	0.025	0.033	0.041	0.050	0.058	0.066	0.074
31	PC	0.087	0.099	0.118	0.138	0.216	0.377	0.834	0.911	0.931	0.950
32	PC	0.962	0.972	0.983	0.991	1.000					
33	JD	2.686	2.8								
34	PC	0.000	0.009	0.016	0.025	0.034	0.042	0.051	0.059	0.068	0.077
35	PC	0.088	0.101	0.121	0.164	0.253	0.451	0.694	0.836	0.900	0.938
36	PC	0.950	0.963	0.975	0.988	1.000					
37	JD	2.540	16.0								
38	PC	0.000	0.015	0.020	0.030	0.048	0.063	0.076	0.090	0.105	0.119
39	PC	0.135	0.152	0.175	0.222	0.304	0.472	0.670	0.796	0.868	0.912
40	PC	0.946	0.960	0.973	0.987	1.000					

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PAGE 2

1

PAGE 3

89	UA	100
	*	

90	KK	R1C-2	ROUTE				
91	RK	3046	0.0015	0.030	TRAP	2.000	0.00
	*						

92 KK SB02E BASIN
93 KM IMPERVIOUSNESS INCREASED TO 85 TO REFLECT DEVELOPMENT

147	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
148	UA	100									
	*										
149	KK	CP-08W COMBINE									
150	KM	SR 101L FREEWAY AND HAYDEN ROAD (CULVERT UNDER LOOP 101 WEST OF HAYDEN)									
151	HC	2									
	*										
152	KK	R8W-4	ROUTE								
153	KM	SR 101L FREEWAY TO CP4									
154	KM	HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN									
155	RK	3137	0.0130	0.030		TRAP	2.000	0.00			
	*										

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HEC-1 INPUT

PAGE 5

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

156	KK	SB04	BASIN								
157	BA	0.144									
158	LG	0.14	0.25	4.60	0.44	61					
159	UC	0.305	0.199								
160	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
161	UA	100									
	*										
162	KK	CP-4 COMBINE									
163	KM	PRINCESS BLVD AND EAST OF 77TH ST									
164	HC	2									
	*										
165	KK	R4-5	ROUTE								
166	KM	PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST									
167	RK	1992	0.0013	0.03		TRAP	39	4			
	*										
168	KK	CP-05 COMBINE									
169	KM	PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)									
170	KM	COMBINE CP-05A AND R4-5									
171	HC	2									
	*										
172	KK	R5-6	ROUTE								
173	KM	PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD									
174	RK	1694	0.0015	0.03		TRAP	188	4			
	*										
175	KK	SB06	BASIN								
176	BA	0.136									
177	LG	0.16	0.25	4.55	0.45	53					
178	UC	0.321	0.246								
179	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
180	UA	100									
	*										
181	KK	CP-06 COMBINE									
182	HC	2									
	*										
	*										
	*	END WEST RUN									
	*										
	*										
	*	BEGIN EAST SIDE OF HAYDEN									
	*										
183	KK	SB07E	BASIN								
184	BA	0.026									
185	LG	0.10	0.25	4.03	0.74	0					
186	UC	0.574	0.527								
187	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
188	UA	100									
	*										

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HEC-1 INPUT

PAGE 6

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

189	KK	R7E-8E	ROUTE								
190	RK	3662	0.0130	0.030		TRAP	2.000	0.00			

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*
191      KK  SB08E  BASIN
192      BA    0.078
193      LG    0.10    0.25    4.08    0.72    0
194      UC    0.798    0.652
195      UA    0    3.0    5.0    8.0    12.0    20.0    43.0    75.0    90.0    96.0
196      UA    100
*

197      KK  SB09N  BASIN
198      BA    0.028
199      LG    0.10    0.25    4.79    0.49    0
200      UC    0.740    1.111
201      UA    0    3.0    5.0    8.0    12.0    20.0    43.0    75.0    90.0    96.0
202      UA    100
*

203      KK  R9N-R9  ROUTE
204      RK    2586  0.0013  0.020          TRAP    2.000    0.00
*

205      KK  CP-08E COMBINE
206      KM          SB07E, SB08E, SB09N
207      HC    3
*

208      KK  SB09  BASIN
209      BA    0.086
210      LG    0.10    0.25    4.79    0.49    0
211      UC    0.683    0.518
212      UA    0    3.0    5.0    8.0    12.0    20.0    43.0    75.0    90.0    96.0
213      UA    100
*

214      KK  8E-R9  ROUTE
215      RK    501  0.0013  0.020          TRAP    2.000    0.00
*

216      KK  CP-09 COMBINE
217      KM          SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
218      HC    2
*

219      KK  PWRCH
220      KM          POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS
221      KM          100-YR, 6-HR FLO-2D MODEL (XS 107)
222      BA    7.0
223      QI    0    0    0    0    0    0    0    0    0    0
224      QI    0    0    0    0    0    0.11  17.74  50.91  433.53  391.08
225      QI  359.13  391.64  616.52  737.85  699.64  645.41  621.52  599.48  594.12  570.84
226      QI  525.86  472.45  419.04  375.56  335    299.45  270.9  235.68  211.13  196.81
*
HEC-1 INPUT

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

227      QI  172.83  155.83  146.04  130.32  120.9  110.32  99.25  90.9  82.93  77.68
228      QI    79.3   67.58   63.5   64.86   56.01   51.64   48.75   43.99   42.04   40.99
229      QI    37.99   36.19   33.42   31.56   29.22   28.13   27.15   31.57   24.31   23.1
230      QI    22.09   21.66   20.95
*

231      KK  BINFLO
232      KM          TOTAL INFLOW INTO BASIN 53R.
233      HC    2
*

234      KK  BASIN
235      KM          BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
236      KM          ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
237      KM          OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
238      KM          THE OUTLET PIPES ARE INLET CONTROLLED.
239      RS    1    STOR    0
240      SV    0    44.9   76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
241      SV  328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
242      SE  1594   1597   1598   1599   1600   1601   1602   1603   1604   1605
243      SE  1606   1607   1608   1609   1610   1611   1612   1613   1614   1615
244      SQ    0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
245      SQ  353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
*

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246 KK BSNRT1
 247 KM 2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
 248 KM DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
 249 KM EXCESS CAPACITY.
 250 RK 550 0.0052 0.024 CIRC 7.0
 *
 251 KK BSNRT2
 252 KM 2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BAS 53R OUTFALL)
 253 RK 1200 0.0077 0.013 CIRC 7.0
 *
 254 KK SB10 BASIN
 255 BA 0.040
 256 LG 0.15 0.25 4.25 0.55 55
 257 UC 0.233 0.161
 258 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
 259 UA 100
 *
 260 KK CP-10 COMBINE
 261 KM UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
 262 HC 2
 *

1

HEC-1 INPUT

PAGE 8

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

263 KK R10-11 ROUTE
 264 KM UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
 265 RK 1277 0.0014 0.03 TRAP 220 4
 *
 266 KK SB11 BASIN
 267 BA 0.071
 268 LG 0.15 0.25 4.15 0.58 55
 269 UC 0.296 0.232
 270 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
 271 UA 100
 *
 272 KK CP-11 COMBINE
 273 KM UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
 274 HC 2
 *
 275 ZZ

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE (V) ROUTING (--->) DIVERSION OR PUMP FLOW
 NO. (.) CONNECTOR (<---) RETURN OF DIVERTED OR PUMPED FLOW
 47 76THST
 .
 59 . SB01A
 .
 69 CP-1.....
 V
 V
 72 R1A-2
 .
 74 . SB01B
 . V
 . V
 81 . R1B-2
 .
 83 . SB01C
 . V
 . V
 90 . R1C-2
 .
 .
 92 . SB02E

	.	.	.	.	
99	.	.	.	.	SB02W
	.	.	.	.	.
	.	.	.	.	.
105	CP-02.....				
	V				
	V				
107	R2-3				
	.				
110	.	SB03			
	.	.			
	.	.			
116	CP-03.....				
	V				
	V				
118	R3-5				
	.				
121	.	SB05			
	.	.			
	.	.			
127	CP-5A.....				
	.				
	.				
130	.	SB07W			
	.	V			
	.	V			
137	.	R7W-8W			
	.	.			
	.	.			
141	.	.	SB08W		
	.	.	.		
	.	.	.		
149	.	CP-08W.....			
	.	V			
	.	V			
152	.	R8W-4			
	.	.			
	.	.			
156	.	.	SB04		
	.	.	.		
	.	.	.		
162	.	CP-4.....			
	.	V			
	.	V			
165	.	R4-5			
	.	.			
	.	.			
168	CP-05.....				
	V				
	V				
172	R5-6				
	.				
	.				
175	.	SB06			
	.	.			
	.	.			
181	CP-06.....				
	.				
	.				
183	.	SB07E			
	.	V			
	.	V			
189	.	R7E-8E			
	.	.			
	.	.			
191	.	.	SB08E		
	.	.	.		
	.	.	.		
197	.	.	.	SB09N	
	.	.	.	V	
	.	.	.	V	
203	.	.	.	R9N-R9	
	.	.	.	.	
	.	.	.	.	
205	.	CP-08E.....			
	.				
	.				

```

208      .      .      SB09
      .      .      V
      .      .      V
214      .      .      8E-R9
      .      .      .
      .      .      .
216      .      CP-09.....
      .      .
      .      .
219      .      .      PWRCH
      .      .      .
      .      .      .
231      .      BINFLO.....
      .      V
      .      V
234      .      BASIN
      .      V
      .      V
246      .      BSNRT1
      .      V
      .      V
251      .      BSNRT2
      .      .
      .      .
254      .      .      SB10
      .      .      .
      .      .      .
260      .      CP-10.....
      .      V
      .      V
263      .      R10-11
      .      .
      .      .
266      .      .      SB11
      .      .      .
      .      .      .
272      .      CP-11.....

```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 31OCT19 TIME 12:07:07
*
*****

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

```

CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
POWERLINE CORRIDOR
RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
PIMA ROAD FLOWS.

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
MODELERS: RK, MW

REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
MODELERS: MSW, ES
REVISIONS NOTED WITH HE
ULTIMATE CONDITION MODEL, WITH POWERLINE AND BASIN 53R AND
THIS IS THE POST-DEVELOPMENT MODEL WITH DEVELOPMENT N OF LEGACY
UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.

REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 10/25/19
MODELERS: MSW
XKSAT ADJUSTMENT

```

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

```

IT	HYDROGRAPH TIME DATA									
	NMIN	3	MINUTES IN COMPUTATION INTERVAL							
	IDATE	1 0	STARTING DATE							
	ITIME	0000	STARTING TIME							
	NQ	1000	NUMBER OF HYDROGRAPH ORDINATES							
	NDDATE	3 0	ENDING DATE							
	NDTIME	0157	ENDING TIME							
	ICENT	19	CENTURY MARK							
	COMPUTATION INTERVAL		0.05 HOURS							
	TOTAL TIME BASE		49.95 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							
25 JD	INDEX STORM NO. 1									
	STRM	2.76	PRECIPITATION DEPTH							
	TRDA	0.00	TRANSPOSITION DRAINAGE AREA							
26 PI	PRECIPITATION PATTERN									
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02
	0.03	0.03	0.03	0.03	0.03	0.09	0.09	0.09	0.09	0.09
	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29 JD	INDEX STORM NO. 2									
	STRM	2.74	PRECIPITATION DEPTH							
	TRDA	0.50	TRANSPOSITION DRAINAGE AREA							
30 PI	PRECIPITATION PATTERN									
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02
	0.03	0.03	0.03	0.03	0.03	0.09	0.09	0.09	0.09	0.09
	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33 JD	INDEX STORM NO. 3									
	STRM	2.69	PRECIPITATION DEPTH							
	TRDA	2.80	TRANSPOSITION DRAINAGE AREA							
34 PI	PRECIPITATION PATTERN									
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05
	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01
	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37 JD	INDEX STORM NO. 4									
	STRM	2.54	PRECIPITATION DEPTH							
	TRDA	16.00	TRANSPOSITION DRAINAGE AREA							
38 PI	PRECIPITATION PATTERN									

41 JD	INDEX STORM NO. 5		
	STRM	2.23	PRECIPITATION DEPTH
	TRDA	90.00	TRANSPOSITION DRAINAGE AREA

45 JD	INDEX STORM NO. 6		
	STRM	3.66	PRECIPITATION DEPTH
	TRDA	10.00	TRANSPPOSITION DRAINAGE AREA

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46 JD          INDEX STORM NO. 7
              STRM      3.53 PRECIPITATION DEPTH
              TRDA     20.00 TRANSPOSITION DRAINAGE AREA

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*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

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*** EDKRIIT WARNING TIME STEP CALCULATION FAILED TO CONVERGE STABILITY PROBLEMS MAY RESULT

*** EDKRUN WARNING TIME STEP CALCULATION FAILED TO CONVERGE STABILITY PROBLEMS MAY RESULT

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*** EDKRUN WARNING TIME STEP CALCULATION FAILED TO CONVERGE STABILITY PROBLEMS MAY RESULT

*** EDKBIT WARNING TIME STEP CALCULATION FAILED TO CONVERGE STABILITY PROBLEMS MAY RESULT

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*** EDKOUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE STABILITY PROBLEMS MAY RESULT

*** EDKBIT WARNING TIME STEP CALCULATION FAILED TO CONVERGE STABILITY PROBLEMS MAY RESULT

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

+	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
					6-HOUR	24-HOUR	72-HOUR			
+	HYDROGRAPH AT	76THST	50.	4.50	15.	4.	2.	0.24		
+	HYDROGRAPH AT	SB01A	77.	4.25	6.	2.	1.	0.05		
+	2 COMBINED AT	CP-1	119.	4.25	21.	6.	3.	0.29		
+	ROUTED TO	R1A-2	119.	4.30	21.	6.	3.	0.29		
+	HYDROGRAPH AT	SB01B	30.	4.35	5.	1.	1.	0.02		
+	ROUTED TO	R1B-2	30.	4.40	5.	1.	1.	0.02		
+	HYDROGRAPH AT	SB01C	39.	4.40	8.	2.	1.	0.03		
+	ROUTED TO	R1C-2	39.	4.45	8.	2.	1.	0.03		
+	HYDROGRAPH AT	SB02E	61.	4.60	11.	3.	1.	0.10		
+	HYDROGRAPH AT	SB02W	45.	4.45	6.	2.	1.	0.06		
+	5 COMBINED AT	CP-02	254.	4.45	51.	14.	7.	0.51		
+	ROUTED TO	R2-3	253.	4.55	51.	14.	7.	0.51		
+	HYDROGRAPH AT	SB03	78.	4.15	10.	3.	1.	0.05		
+	2 COMBINED AT	CP-03	283.	4.50	60.	16.	8.	0.56		
+	ROUTED TO	R3-5	282.	4.65	60.	16.	8.	0.56		
+	HYDROGRAPH AT	SB05	229.	4.10	25.	6.	3.	0.13		
+	2 COMBINED AT	CP-5A	324.	4.55	82.	22.	11.	0.68		
+	HYDROGRAPH AT	SB07W	57.	4.45	11.	3.	1.	0.05		
+	ROUTED TO	R7W-8W	57.	4.90	11.	3.	1.	0.05		
+	HYDROGRAPH AT	SB08W	141.	4.55	30.	8.	4.	0.11		
+	2 COMBINED AT	CP-08W	159.	4.85	40.	10.	5.	0.16		
+	ROUTED TO	R8W-4	159.	4.85	40.	10.	5.	0.16		
+	HYDROGRAPH AT	SB04	292.	4.10	32.	8.	4.	0.14		

+	2 COMBINED AT	CP-4	340.	4.10	72.	19.	9.	0.30		
+	ROUTED TO	R4-5	334.	4.20	72.	19.	9.	0.30		
+	2 COMBINED AT	CP-05	530.	4.50	149.	39.	19.	0.99		
+	ROUTED TO	R5-6	528.	4.60	149.	39.	19.	0.99		
+	HYDROGRAPH AT	SB06	243.	4.10	29.	7.	3.	0.14		
+	2 COMBINED AT	CP-06	639.	4.25	173.	46.	22.	1.12		
+	HYDROGRAPH AT	SB07E	19.	4.40	3.	1.	0.	0.03		
+	ROUTED TO	R7E-8E	19.	4.45	3.	1.	0.	0.03		
+	HYDROGRAPH AT	SB08E	46.	4.55	8.	2.	1.	0.08		
+	HYDROGRAPH AT	SB09N	13.	4.55	3.	1.	0.	0.03		
+	ROUTED TO	R9N-R9	13.	4.65	3.	1.	0.	0.03		
+	3 COMBINED AT	CP-08E	76.	4.55	13.	3.	2.	0.13		
+	HYDROGRAPH AT	SB09	71.	4.45	10.	2.	1.	0.09		
+	ROUTED TO	8E-R9	70.	4.45	10.	2.	1.	0.09		
+	2 COMBINED AT	CP-09	145.	4.50	23.	6.	3.	0.22		
+	HYDROGRAPH AT	PWRCH	738.	5.75	429.	135.	74.	7.00		
+	2 COMBINED AT	BINFLO	749.	5.75	439.	138.	76.	7.22		
+	ROUTED TO	BASIN	241.	9.20	228.	130.	73.	7.22		
+	ROUTED TO	BSNRT1	241.	9.25	228.	130.	73.	7.22		
+	ROUTED TO	BSNRT2	241.	9.25	228.	130.	73.	7.22		
+	HYDROGRAPH AT	SB10	87.	4.05	8.	2.	1.	0.04		
+	2 COMBINED AT	CP-10	241.	9.25	228.	130.	74.	7.26		
+	ROUTED TO	R10-11	241.	9.35	228.	130.	74.	7.26		
+	HYDROGRAPH AT	SB11	130.	4.10	15.	4.	2.	0.07		
+	2 COMBINED AT	CP-11	241.	9.35	228.	132.	75.	7.33		
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 STORM = 1	STORM AREA (SQ MI) =	0.00							
R1A-2 MANE	0.48 119.91	256.11	0.80	3.00	119.46	258.00	0.80		
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1254E+02 EXCESS=0.0000E+00 OUTFLOW=0.1254E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0									
FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
R1A-2 MANE	0.42 119.22	255.86	0.79	3.00	118.75	258.00	0.79		
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1251E+02 EXCESS=0.0000E+00 OUTFLOW=0.1250E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0									
FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
R1A-2 MANE	0.58 81.25	258.88	0.73	3.00	81.04	258.00	0.73		
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1153E+02 EXCESS=0.0000E+00 OUTFLOW=0.1152E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0									
FOR STORM = 4	STORM AREA (SQ MI) =	16.00							
R1A-2 MANE	0.52 67.10	261.13	0.68	3.00	67.10	261.00	0.68		
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1070E+02 EXCESS=0.0000E+00 OUTFLOW=0.1070E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0									
FOR STORM = 5	STORM AREA (SQ MI) =	90.00							
R1A-2 MANE	0.48 54.97	271.02	0.62	3.00	54.71	270.00	0.62		
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9775E+01 EXCESS=0.0000E+00 OUTFLOW=0.9770E+01 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0									
FOR STORM = 6	STORM AREA (SQ MI) =	10.00							
R1A-2 MANE	0.42 83.01	261.73	0.76	3.00	82.95	261.00	0.76		
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1204E+02 EXCESS=0.0000E+00 OUTFLOW=0.1203E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0									
FOR STORM = 7	STORM AREA (SQ MI) =	20.00							
R1A-2 MANE	0.57 80.42	262.10	0.75	3.00	80.39	264.00	0.75		
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1180E+02 EXCESS=0.0000E+00 OUTFLOW=0.1180E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0									
FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
R1B-2 MANE	2.04 30.04	264.21	2.29	3.00	30.03	264.00	2.29		
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2685E+01 EXCESS=0.0000E+00 OUTFLOW=0.2690E+01 BASIN STORAGE=0.3333E-04 PERCENT ERROR= -0.2									
FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
R1B-2 MANE	2.05 29.84	264.42	2.28	3.00	29.83	264.00	2.28		
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2667E+01 EXCESS=0.0000E+00 OUTFLOW=0.2671E+01 BASIN STORAGE=0.3123E-04 PERCENT ERROR= -0.2									
FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
R1B-2 MANE	2.47 20.76	265.14	2.15	3.00	20.74	267.00	2.15		
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2516E+01 EXCESS=0.0000E+00 OUTFLOW=0.2521E+01 BASIN STORAGE=0.2485E-04 PERCENT ERROR= -0.2									
FOR STORM = 4	STORM AREA (SQ MI) =	16.00							
R1B-2 MANE	2.58 16.16	267.60	1.97	3.00	16.14	267.00	1.97		
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2303E+01 EXCESS=0.0000E+00 OUTFLOW=0.2309E+01 BASIN STORAGE=0.2779E-04 PERCENT ERROR= -0.3									

FOR STORM = 5	STORM AREA (SQ MI) =	90.00							
R1B-2	MANE	2.99	11.23	270.36	1.66	3.00	11.23	270.00	1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1940E+01 EXCESS=0.0000E+00 OUTFLOW=0.1945E+01 BASIN STORAGE=0.3280E-04 PERCENT ERROR= -0.2

FOR STORM = 6	STORM AREA (SQ MI) =	10.00							
R1B-2	MANE	2.38	20.70	269.45	2.90	3.00	20.68	270.00	2.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3399E+01 EXCESS=0.0000E+00 OUTFLOW=0.3405E+01 BASIN STORAGE=0.2805E-04 PERCENT ERROR= -0.2

FOR STORM = 7	STORM AREA (SQ MI) =	20.00							
R1B-2	MANE	2.51	19.87	269.28	2.79	3.00	19.86	270.00	2.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3268E+01 EXCESS=0.0000E+00 OUTFLOW=0.3273E+01 BASIN STORAGE=0.3321E-04 PERCENT ERROR= -0.2

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
R1C-2	MANE	2.23	39.13	269.34	2.29	3.00	39.04	267.00	2.29

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3906E+01 EXCESS=0.0000E+00 OUTFLOW=0.3910E+01 BASIN STORAGE=0.3482E-04 PERCENT ERROR= -0.1

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
R1C-2	MANE	2.23	38.85	267.30	2.28	3.00	38.74	267.00	2.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3880E+01 EXCESS=0.0000E+00 OUTFLOW=0.3884E+01 BASIN STORAGE=0.4813E-04 PERCENT ERROR= -0.1

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
R1C-2	MANE	2.53	28.06	272.03	2.15	3.00	28.01	273.00	2.15

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3661E+01 EXCESS=0.0000E+00 OUTFLOW=0.3664E+01 BASIN STORAGE=0.3982E-04 PERCENT ERROR= -0.1

FOR STORM = 4	STORM AREA (SQ MI) =	16.00							
R1C-2	MANE	2.64	21.97	272.96	1.97	3.00	21.97	273.00	1.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3351E+01 EXCESS=0.0000E+00 OUTFLOW=0.3356E+01 BASIN STORAGE=0.3522E-04 PERCENT ERROR= -0.2

FOR STORM = 5	STORM AREA (SQ MI) =	90.00							
R1C-2	MANE	3.00	15.44	275.05	1.66	3.00	15.43	276.00	1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2823E+01 EXCESS=0.0000E+00 OUTFLOW=0.2828E+01 BASIN STORAGE=0.4519E-04 PERCENT ERROR= -0.2

FOR STORM = 6	STORM AREA (SQ MI) =	10.00							
R1C-2	MANE	2.53	28.45	274.96	2.90	3.00	28.42	276.00	2.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4945E+01 EXCESS=0.0000E+00 OUTFLOW=0.4953E+01 BASIN STORAGE=0.4355E-04 PERCENT ERROR= -0.1

FOR STORM = 7	STORM AREA (SQ MI) =	20.00							
R1C-2	MANE	2.42	27.30	275.83	2.79	3.00	27.29	276.00	2.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4755E+01 EXCESS=0.0000E+00 OUTFLOW=0.4762E+01 BASIN STORAGE=0.4884E-04 PERCENT ERROR= -0.1

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
R2-3	MANE	2.23	256.61	271.16	1.03	3.00	255.52	273.00	1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2798E+02 EXCESS=0.0000E+00 OUTFLOW=0.2792E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR= 0.1

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
R2-3	MANE	2.23	254.83	271.34	1.02	3.00	253.67	273.00	1.02

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2781E+02 EXCESS=0.0000E+00 OUTFLOW=0.2775E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR= 0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80
R2-3 MANE 2.47 177.72 275.33 0.85 3.00 177.33 276.00 0.85

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2321E+02 EXCESS=0.0000E+00 OUTFLOW=0.2316E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR= 0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00
R2-3 MANE 2.72 132.74 274.62 0.72 3.00 132.65 276.00 0.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1956E+02 EXCESS=0.0000E+00 OUTFLOW=0.1950E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR= 0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00
R2-3 MANE 3.00 88.58 279.06 0.58 3.00 88.57 279.00 0.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1573E+02 EXCESS=0.0000E+00 OUTFLOW=0.1569E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR= 0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00
R2-3 MANE 2.47 188.88 276.72 1.00 3.00 188.78 276.00 1.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2727E+02 EXCESS=0.0000E+00 OUTFLOW=0.2723E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR= 0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00
R2-3 MANE 2.50 179.95 275.74 0.96 3.00 179.89 276.00 0.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2614E+02 EXCESS=0.0000E+00 OUTFLOW=0.2610E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
R3-5 MANE 3.00 289.94 278.07 1.11 3.00 288.96 279.00 1.11

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3305E+02 EXCESS=0.0000E+00 OUTFLOW=0.3292E+02 BASIN STORAGE=0.8862E-01 PERCENT ERROR= 0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50
R3-5 MANE 3.00 287.78 278.27 1.10 3.00 286.96 279.00 1.10

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3284E+02 EXCESS=0.0000E+00 OUTFLOW=0.3272E+02 BASIN STORAGE=0.9261E-01 PERCENT ERROR= 0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80
R3-5 MANE 3.00 206.72 280.90 0.93 3.00 206.41 282.00 0.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2780E+02 EXCESS=0.0000E+00 OUTFLOW=0.2769E+02 BASIN STORAGE=0.8862E-01 PERCENT ERROR= 0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00
R3-5 MANE 3.00 155.61 283.73 0.79 3.00 155.47 285.00 0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2363E+02 EXCESS=0.0000E+00 OUTFLOW=0.2351E+02 BASIN STORAGE=0.9562E-01 PERCENT ERROR= 0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00
R3-5 MANE 2.92 104.14 291.39 0.64 3.00 104.14 291.00 0.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1901E+02 EXCESS=0.0000E+00 OUTFLOW=0.1888E+02 BASIN STORAGE=0.1003E+00 PERCENT ERROR= 0.1

FOR STORM = 6 STORM AREA (SQ MI) = 10.00
R3-5 MANE 3.00 221.76 283.95 1.12 3.00 221.35 282.00 1.12

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3347E+02 EXCESS=0.0000E+00 OUTFLOW=0.3337E+02 BASIN STORAGE=0.8863E-01 PERCENT ERROR= 0.0

FOR STORM = 7	STORM AREA (SQ MI) =	20.00							
R3-5	MANE	3.00	211.29	283.83	1.08	3.00	210.69	282.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3209E+02 EXCESS=0.0000E+00 OUTFLOW=0.3198E+02 BASIN STORAGE=0.8863E-01 PERCENT ERROR= 0.0

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
R7W-8W	MANE	3.00	56.91	293.88	2.23	3.00	56.86	294.00	2.23

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5695E+01 EXCESS=0.0000E+00 OUTFLOW=0.5703E+01 BASIN STORAGE=0.3436E-03 PERCENT ERROR= -0.1

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
R7W-8W	MANE	3.00	56.50	294.11	2.21	3.00	56.47	294.00	2.21

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5655E+01 EXCESS=0.0000E+00 OUTFLOW=0.5662E+01 BASIN STORAGE=0.3606E-03 PERCENT ERROR= -0.1

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
R7W-8W	MANE	3.00	41.27	300.47	2.07	3.00	41.24	300.00	2.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5298E+01 EXCESS=0.0000E+00 OUTFLOW=0.5308E+01 BASIN STORAGE=0.3347E-03 PERCENT ERROR= -0.2

FOR STORM = 4	STORM AREA (SQ MI) =	16.00							
R7W-8W	MANE	3.00	32.43	301.81	1.88	3.00	32.43	303.00	1.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4812E+01 EXCESS=0.0000E+00 OUTFLOW=0.4818E+01 BASIN STORAGE=0.3283E-03 PERCENT ERROR= -0.1

FOR STORM = 5	STORM AREA (SQ MI) =	90.00							
R7W-8W	MANE	3.00	22.83	308.53	1.56	3.00	22.83	309.00	1.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3997E+01 EXCESS=0.0000E+00 OUTFLOW=0.4002E+01 BASIN STORAGE=0.3262E-03 PERCENT ERROR= -0.1

FOR STORM = 6	STORM AREA (SQ MI) =	10.00							
R7W-8W	MANE	3.00	42.22	304.04	2.80	3.00	42.21	303.00	2.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7158E+01 EXCESS=0.0000E+00 OUTFLOW=0.7170E+01 BASIN STORAGE=0.3782E-03 PERCENT ERROR= -0.2

FOR STORM = 7	STORM AREA (SQ MI) =	20.00							
R7W-8W	MANE	3.00	40.56	302.02	2.69	3.00	40.55	303.00	2.69

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6877E+01 EXCESS=0.0000E+00 OUTFLOW=0.6884E+01 BASIN STORAGE=0.3574E-03 PERCENT ERROR= -0.1

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
R8W-4	MANE	0.66	160.00	291.78	2.43	3.00	159.87	291.00	2.43

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2074E+02 EXCESS=0.0000E+00 OUTFLOW=0.2075E+02 BASIN STORAGE=0.1445E-03 PERCENT ERROR= 0.0

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
R8W-4	MANE	0.65	158.93	291.76	2.42	3.00	158.74	291.00	2.42

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2061E+02 EXCESS=0.0000E+00 OUTFLOW=0.2061E+02 BASIN STORAGE=0.1526E-03 PERCENT ERROR= 0.0

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
R8W-4	MANE	0.74	133.06	289.33	2.31	3.00	132.70	291.00	2.31

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1971E+02 EXCESS=0.0000E+00 OUTFLOW=0.1971E+02 BASIN STORAGE=0.1497E-03 PERCENT ERROR= 0.0

FOR STORM = 4	STORM AREA (SQ MI) =	16.00							
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R8W-4	MANE	0.84	105.05	293.28	2.14	3.00	105.00	294.00	2.14
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1824E+02 EXCESS=0.0000E+00 OUTFLOW=0.1824E+02 BASIN STORAGE=0.1482E-03 PERCENT ERROR= 0.0

FOR STORM = 5	STORM AREA (SQ MI) =	90.00							
R8W-4	MANE	1.00	75.17	296.46	1.82	3.00	75.15	297.00	1.82

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1557E+02 EXCESS=0.0000E+00 OUTFLOW=0.1557E+02 BASIN STORAGE=0.1411E-03 PERCENT ERROR= 0.0

FOR STORM = 6	STORM AREA (SQ MI) =	10.00							
R8W-4	MANE	0.79	140.78	289.66	3.13	3.00	140.46	291.00	3.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2672E+02 EXCESS=0.0000E+00 OUTFLOW=0.2673E+02 BASIN STORAGE=0.1451E-03 PERCENT ERROR= 0.0

FOR STORM = 7	STORM AREA (SQ MI) =	20.00							
R8W-4	MANE	0.85	134.32	289.88	3.02	3.00	134.23	291.00	3.02

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2574E+02 EXCESS=0.0000E+00 OUTFLOW=0.2574E+02 BASIN STORAGE=0.1474E-03 PERCENT ERROR= 0.0

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
R4-5	MANE	2.78	338.09	252.42	2.28	3.00	336.97	252.00	2.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3698E+02 EXCESS=0.0000E+00 OUTFLOW=0.3698E+02 BASIN STORAGE=0.4348E-03 PERCENT ERROR= 0.0

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
R4-5	MANE	2.78	335.04	252.62	2.26	3.00	333.78	252.00	2.26

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3672E+02 EXCESS=0.0000E+00 OUTFLOW=0.3672E+02 BASIN STORAGE=0.4267E-03 PERCENT ERROR= 0.0

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
R4-5	MANE	3.00	227.85	255.86	2.14	3.00	227.40	255.00	2.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3466E+02 EXCESS=0.0000E+00 OUTFLOW=0.3468E+02 BASIN STORAGE=0.4567E-03 PERCENT ERROR= -0.1

FOR STORM = 4	STORM AREA (SQ MI) =	16.00							
R4-5	MANE	3.00	179.07	256.20	1.95	3.00	178.81	258.00	1.95

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3166E+02 EXCESS=0.0000E+00 OUTFLOW=0.3169E+02 BASIN STORAGE=0.4410E-03 PERCENT ERROR= -0.1

FOR STORM = 5	STORM AREA (SQ MI) =	90.00							
R4-5	MANE	2.91	127.57	266.19	1.64	3.00	127.45	267.00	1.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2659E+02 EXCESS=0.0000E+00 OUTFLOW=0.2661E+02 BASIN STORAGE=0.5158E-03 PERCENT ERROR= -0.1

FOR STORM = 6	STORM AREA (SQ MI) =	10.00							
R4-5	MANE	3.00	239.01	263.36	2.89	3.00	238.86	264.00	2.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4686E+02 EXCESS=0.0000E+00 OUTFLOW=0.4690E+02 BASIN STORAGE=0.4139E-03 PERCENT ERROR= -0.1

FOR STORM = 7	STORM AREA (SQ MI) =	20.00							
R4-5	MANE	3.00	229.32	263.57	2.78	3.00	229.21	264.00	2.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4506E+02 EXCESS=0.0000E+00 OUTFLOW=0.4508E+02 BASIN STORAGE=0.4367E-03 PERCENT ERROR= -0.1

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
R5-6	MANE	2.60	575.92	255.85	1.57	3.00	573.74	258.00	1.57

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8258E+02 EXCESS=0.0000E+00 OUTFLOW=0.8248E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50
R5-6 MANE 2.77 570.75 256.38 1.56 3.00 567.44 258.00 1.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8201E+02 EXCESS=0.0000E+00 OUTFLOW=0.8191E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80
R5-6 MANE 2.97 470.14 276.84 1.40 3.00 469.31 276.00 1.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7373E+02 EXCESS=0.0000E+00 OUTFLOW=0.7366E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR= 0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00
R5-6 MANE 3.00 360.66 279.82 1.24 3.00 359.72 282.00 1.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6510E+02 EXCESS=0.0000E+00 OUTFLOW=0.6506E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR= 0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00
R5-6 MANE 2.79 248.15 288.70 1.01 3.00 247.96 288.00 1.01

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5331E+02 EXCESS=0.0000E+00 OUTFLOW=0.5323E+02 BASIN STORAGE=0.8566E-01 PERCENT ERROR= 0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00
R5-6 MANE 2.88 519.84 277.96 1.81 3.00 519.49 276.00 1.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9554E+02 EXCESS=0.0000E+00 OUTFLOW=0.9551E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR= 0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00
R5-6 MANE 2.82 495.65 275.78 1.74 3.00 495.64 276.00 1.74

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9166E+02 EXCESS=0.0000E+00 OUTFLOW=0.9159E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
R7E-8E MANE 1.76 19.03 266.67 0.91 3.00 19.02 267.00 0.91

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1268E+01 EXCESS=0.0000E+00 OUTFLOW=0.1268E+01 BASIN STORAGE=0.1101E-04 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50
R7E-8E MANE 1.77 18.85 266.81 0.90 3.00 18.84 267.00 0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1254E+01 EXCESS=0.0000E+00 OUTFLOW=0.1254E+01 BASIN STORAGE=0.1092E-04 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80
R7E-8E MANE 2.41 8.57 268.50 0.49 3.00 8.54 270.00 0.49

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6750E+00 EXCESS=0.0000E+00 OUTFLOW=0.6756E+00 BASIN STORAGE=0.1319E-04 PERCENT ERROR= -0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00
R7E-8E MANE 3.00 3.99 269.13 0.21 3.00 3.99 270.00 0.21

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2917E+00 EXCESS=0.0000E+00 OUTFLOW=0.2928E+00 BASIN STORAGE=0.1256E-04 PERCENT ERROR= -0.4

FOR STORM = 5 STORM AREA (SQ MI) = 90.00
R7E-8E MANE 3.00 0.26 292.33 0.01 3.00 0.25 294.00 0.01

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1646E-01 EXCESS=0.0000E+00 OUTFLOW=0.2054E-01 BASIN STORAGE=0.1096E-04 PERCENT ERROR= -24.8

FOR STORM = 6	STORM AREA (SQ MI) =	10.00							
R7E-8E	MANE	2.36	9.61	272.07	0.60	3.00	9.60	273.00	0.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8313E+00 EXCESS=0.0000E+00 OUTFLOW=0.8321E+00 BASIN STORAGE=0.1454E-04 PERCENT ERROR= -0.1

FOR STORM = 7	STORM AREA (SQ MI) =	20.00							
R7E-8E	MANE	2.43	8.70	271.22	0.54	3.00	8.69	273.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7492E+00 EXCESS=0.0000E+00 OUTFLOW=0.7500E+00 BASIN STORAGE=0.1049E-04 PERCENT ERROR= -0.1

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
R9N-R9	MANE	2.26	13.31	278.00	1.08	3.00	13.26	279.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1613E+01 EXCESS=0.0000E+00 OUTFLOW=0.1611E+01 BASIN STORAGE=0.2018E-04 PERCENT ERROR= 0.1

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
R9N-R9	MANE	2.27	13.16	278.20	1.07	3.00	13.12	279.00	1.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1595E+01 EXCESS=0.0000E+00 OUTFLOW=0.1593E+01 BASIN STORAGE=0.1743E-04 PERCENT ERROR= 0.1

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
R9N-R9	MANE	2.76	8.13	284.79	0.74	3.00	8.13	285.00	0.74

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1103E+01 EXCESS=0.0000E+00 OUTFLOW=0.1102E+01 BASIN STORAGE=0.2044E-04 PERCENT ERROR= 0.1

FOR STORM = 4	STORM AREA (SQ MI) =	16.00							
R9N-R9	MANE	3.00	5.05	284.63	0.46	3.00	5.05	285.00	0.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6843E+00 EXCESS=0.0000E+00 OUTFLOW=0.6838E+00 BASIN STORAGE=0.2050E-04 PERCENT ERROR= 0.1

FOR STORM = 5	STORM AREA (SQ MI) =	90.00							
R9N-R9	MANE	3.00	1.59	293.56	0.14	3.00	1.59	294.00	0.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2079E+00 EXCESS=0.0000E+00 OUTFLOW=0.2079E+00 BASIN STORAGE=0.1894E-04 PERCENT ERROR= 0.0

FOR STORM = 6	STORM AREA (SQ MI) =	10.00							
R9N-R9	MANE	2.65	9.46	288.90	0.92	3.00	9.46	288.00	0.92

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1380E+01 EXCESS=0.0000E+00 OUTFLOW=0.1379E+01 BASIN STORAGE=0.1805E-04 PERCENT ERROR= 0.1

FOR STORM = 7	STORM AREA (SQ MI) =	20.00							
R9N-R9	MANE	2.68	8.74	288.39	0.84	3.00	8.73	288.00	0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1261E+01 EXCESS=0.0000E+00 OUTFLOW=0.1260E+01 BASIN STORAGE=0.1932E-04 PERCENT ERROR= 0.1

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
8E-R9	MANE	0.36	71.32	267.92	1.08	3.00	70.88	267.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4954E+01 EXCESS=0.0000E+00 OUTFLOW=0.4955E+01 BASIN STORAGE=0.3084E-06 PERCENT ERROR= 0.0

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
8E-R9	MANE	0.23	70.66	267.60	1.07	3.00	70.16	267.00	1.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4899E+01 EXCESS=0.0000E+00 OUTFLOW=0.4900E+01 BASIN STORAGE=0.2753E-06 PERCENT ERROR= 0.0

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
8E-R9	MANE	0.41	40.20	270.51	0.74	3.00	40.14	270.00	0.74

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3390E+01 EXCESS=0.0000E+00 OUTFLOW=0.3390E+01 BASIN STORAGE=0.2408E-06 PERCENT ERROR= 0.0

FOR STORM = 4	STORM AREA (SQ MI) =	16.00							
8E-R9	MANE	0.40	25.09	270.68	0.46	3.00	25.04	270.00	0.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2102E+01 EXCESS=0.0000E+00 OUTFLOW=0.2103E+01 BASIN STORAGE=0.2729E-06 PERCENT ERROR= 0.0

FOR STORM = 5	STORM AREA (SQ MI) =	90.00							
8E-R9	MANE	0.63	8.15	271.55	0.14	3.00	8.13	273.00	0.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6388E+00 EXCESS=0.0000E+00 OUTFLOW=0.6390E+00 BASIN STORAGE=0.2619E-06 PERCENT ERROR= 0.0

FOR STORM = 6	STORM AREA (SQ MI) =	10.00							
8E-R9	MANE	0.44	44.57	273.86	0.92	3.00	44.54	273.00	0.92

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4240E+01 EXCESS=0.0000E+00 OUTFLOW=0.4241E+01 BASIN STORAGE=0.2577E-06 PERCENT ERROR= 0.0

FOR STORM = 7	STORM AREA (SQ MI) =	20.00							
8E-R9	MANE	0.40	41.30	273.54	0.84	3.00	41.26	273.00	0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3873E+01 EXCESS=0.0000E+00 OUTFLOW=0.3874E+01 BASIN STORAGE=0.2900E-06 PERCENT ERROR= 0.0

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
BSNRT1	MANE	0.39	244.41	552.32	0.80	3.00	244.41	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3084E+03 EXCESS=0.0000E+00 OUTFLOW=0.3084E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR= 0.0

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
BSNRT1	MANE	0.39	244.36	552.62	0.80	3.00	244.36	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3083E+03 EXCESS=0.0000E+00 OUTFLOW=0.3082E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR= 0.0

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
BSNRT1	MANE	0.37	241.71	552.79	0.79	3.00	241.71	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3040E+03 BASIN STORAGE=0.3152E-01 PERCENT ERROR= 0.0

FOR STORM = 4	STORM AREA (SQ MI) =	16.00							
BSNRT1	MANE	0.41	239.65	553.20	0.78	3.00	239.65	555.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3008E+03 EXCESS=0.0000E+00 OUTFLOW=0.3007E+03 BASIN STORAGE=0.3152E-01 PERCENT ERROR= 0.0

FOR STORM = 5	STORM AREA (SQ MI) =	90.00							
BSNRT1	MANE	0.44	237.69	555.44	0.77	3.00	237.69	555.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2977E+03 EXCESS=0.0000E+00 OUTFLOW=0.2976E+03 BASIN STORAGE=0.3151E-01 PERCENT ERROR= 0.0

FOR STORM = 6	STORM AREA (SQ MI) =	10.00							
BSNRT1	MANE	0.46	242.84	552.46	0.79	3.00	242.84	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3057E+03 EXCESS=0.0000E+00 OUTFLOW=0.3057E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR= 0.0

FOR STORM = 7	STORM AREA (SQ MI) =	20.00							
BSNRT1	MANE	0.36	242.32	552.59	0.79	3.00	242.32	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3049E+03 EXCESS=0.0000E+00 OUTFLOW=0.3049E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR= 0.0

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
BSNRT2	MANE	0.44	244.41	552.57	0.80	3.00	244.41	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3084E+03 EXCESS=0.0000E+00 OUTFLOW=0.3083E+03 BASIN STORAGE=0.3601E-01 PERCENT ERROR= 0.0

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
BSNRT2	MANE	0.44	244.36	552.69	0.80	3.00	244.36	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3082E+03 EXCESS=0.0000E+00 OUTFLOW=0.3082E+03 BASIN STORAGE=0.3601E-01 PERCENT ERROR= 0.0

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
BSNRT2	MANE	0.41	241.71	553.15	0.79	3.00	241.71	555.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3039E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR= 0.0

FOR STORM = 4	STORM AREA (SQ MI) =	16.00							
BSNRT2	MANE	0.43	239.64	555.63	0.78	3.00	239.64	555.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3007E+03 EXCESS=0.0000E+00 OUTFLOW=0.3007E+03 BASIN STORAGE=0.3599E-01 PERCENT ERROR= 0.0

FOR STORM = 5	STORM AREA (SQ MI) =	90.00							
BSNRT2	MANE	0.48	237.69	555.77	0.77	3.00	237.69	555.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2976E+03 EXCESS=0.0000E+00 OUTFLOW=0.2976E+03 BASIN STORAGE=0.3598E-01 PERCENT ERROR= 0.0

FOR STORM = 6	STORM AREA (SQ MI) =	10.00							
BSNRT2	MANE	0.36	242.84	552.83	0.79	3.00	242.83	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3057E+03 EXCESS=0.0000E+00 OUTFLOW=0.3057E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR= 0.0

FOR STORM = 7	STORM AREA (SQ MI) =	20.00							
BSNRT2	MANE	0.46	242.32	552.87	0.79	3.00	242.31	555.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3049E+03 EXCESS=0.0000E+00 OUTFLOW=0.3049E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR= 0.0

FOR STORM = 1	STORM AREA (SQ MI) =	0.00							
R10-11	MANE	3.07	244.41	558.64	0.81	3.00	244.41	558.00	0.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3125E+03 EXCESS=0.0000E+00 OUTFLOW=0.3119E+03 BASIN STORAGE=0.6746E+00 PERCENT ERROR= 0.0

FOR STORM = 2	STORM AREA (SQ MI) =	0.50							
R10-11	MANE	3.07	244.36	558.85	0.81	3.00	244.35	558.00	0.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3124E+03 EXCESS=0.0000E+00 OUTFLOW=0.3117E+03 BASIN STORAGE=0.6746E+00 PERCENT ERROR= 0.0

FOR STORM = 3	STORM AREA (SQ MI) =	2.80							
R10-11	MANE	3.00	241.71	559.89	0.79	3.00	241.70	561.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3077E+03 EXCESS=0.0000E+00 OUTFLOW=0.3071E+03 BASIN STORAGE=0.6744E+00 PERCENT ERROR= 0.0

FOR STORM = 4	STORM AREA (SQ MI) =	16.00							
R10-11	MANE	3.00	239.64	561.16	0.78	3.00	239.64	561.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3034E+03 BASIN STORAGE=0.6743E+00 PERCENT ERROR= 0.0

FOR STORM = 5	STORM AREA (SQ MI) =	90.00							
R10-11	MANE	3.07	237.69	560.84	0.77	3.00	237.69	561.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3003E+03 EXCESS=0.0000E+00 OUTFLOW=0.2996E+03 BASIN STORAGE=0.6743E+00 PERCENT ERROR= 0.0

FOR STORM = 6	STORM AREA (SQ MI) =	10.00							
R10-11 MANE	3.07 242.83	560.81	0.80	3.00	242.83	558.00	0.80		

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3108E+03 EXCESS=0.0000E+00 OUTFLOW=0.3102E+03 BASIN STORAGE=0.6744E+00 PERCENT ERROR= 0.0

FOR STORM = 7	STORM AREA (SQ MI) =	20.00							
R10-11 MANE	3.00 242.31	558.78	0.80	3.00	242.31	561.00	0.80		

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3097E+03 EXCESS=0.0000E+00 OUTFLOW=0.3090E+03 BASIN STORAGE=0.6745E+00 PERCENT ERROR= 0.0

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

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 26NOV18 TIME 12:12:06
*
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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

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

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

1

HEC-1 INPUT

PAGE 1

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1 ID CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
2 ID POWERLINE CORRIDOR
3 ID RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
4 ID INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
5 ID 100-YR, 24-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
6 ID PIMA ROAD FLOWS.
7 ID
8 ID PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
9 ID MODELERS: RK, MW
10 ID
11 ID REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 08/07/18
12 ID MODELERS: MSW, ES
13 ID REVISIONS NOTED WITH HE
14 ID NEW PROP CONDITION MODEL,WITH POWERLINE AND BASIN 53R
15 ID THIS IS THE ULTIMATE CONDITION MODEL
16 IT 3 0 0 1000
17 IN 15
18 IO 5
*DIAGRAM
*
19 JD 3.849 0.0001
20 PC 0.000 0.002 0.005 0.008 0.011 0.014 0.017 0.020 0.023 0.026
21 PC 0.029 0.032 0.035 0.038 0.041 0.044 0.048 0.052 0.056 0.060
22 PC 0.064 0.068 0.072 0.076 0.080 0.085 0.090 0.095 0.100 0.105
23 PC 0.110 0.115 0.120 0.126 0.133 0.140 0.147 0.155 0.163 0.172
24 PC 0.181 0.191 0.203 0.218 0.236 0.257 0.283 0.387 0.663 0.707
25 PC 0.735 0.758 0.776 0.791 0.804 0.815 0.825 0.834 0.842 0.849
26 PC 0.856 0.863 0.869 0.875 0.881 0.887 0.893 0.898 0.903 0.908
27 PC 0.913 0.918 0.922 0.926 0.930 0.934 0.938 0.942 0.946 0.950
28 PC 0.953 0.956 0.959 0.962 0.965 0.968 0.971 0.974 0.977 0.980
29 PC 0.983 0.986 0.989 0.992 0.995 0.998 1.000
30 JD 3.657 10.0
31 JD 3.533 20.0
*
32 KK 76THST
33 KM 76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
34 KM 100-YR, 24-HR FLO-2D MODEL (XS 98)
35 BA 0.24
36 QI 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
37 QI 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
38 QI 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01
39 QI 0.00 0.00 0.00 0.00 0.01 0.00 0.00 0.02 0.03 0.05
40 QI 0.09 0.11 0.14 0.21 0.34 0.51 0.76 3.70 17.69 47.79
41 QI 68.57 54.61 42.75 35.61 32.34 29.25 26.13 22.83 19.41 18.11
42 QI 16.15 14.54 13.75 12.53 12.00 11.44 10.52 9.81 9.34 9.09
43 QI 9.11 8.71 8.37 8.05 7.67 7.75 7.47 7.08 6.97 6.77
44 QI 6.59 6.44 6.32 6.12 5.95 5.87 5.70 5.84 5.41 5.44
45 QI 4.56 4.81 4.75 4.78 4.69 4.67 4.61 4.36 4.20 4.00
46 QI 3.75 3.51 2.49 3.43 3.61 3.65 2.48 2.36 2.19 2.07
47 QI 1.94 1.72 1.71 1.36 1.48 1.13 1.13 1.20 1.10 1.06
48 QI 1.06 1.00 0.94 0.89 0.85 0.81 0.78 0.74 0.72 0.70
49 QI 0.67 0.64 0.62 0.59 0.57 0.55 0.53 0.51 0.49 0.47
50 QI 0.45 0.44 0.42 0.40 0.39
*

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HEC-1 INPUT

PAGE 2

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

51	KK	SB01A	BASIN								
52	BA	0.055									
53	PB	2.721									
54	PC	0.000	0.008	0.016	0.025	0.033	0.041	0.050	0.058	0.066	0.075
55	PC	0.087	0.099	0.119	0.150	0.234	0.413	0.766	0.875	0.916	0.944
56	PC	0.956	0.968	0.979	0.990	1.000					
57	LG	0.10	0.25	4.72	0.51	0					
58	UC	0.439	0.231								
59	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
60	UA	100									
	*										

61	KK	CP-1 COMBINE									
62	KM	LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)									
63	HC	2	0.295								
	*										

64	KK	R1A-2	ROUTE								
65	RK	2139	0.0180	0.020		TRAP	2.000	0.00			
	*										

66	KK	SB01B	BASIN								
67	KM	IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT									
68	BA	0.022									
69	LG	0.10	0.25	4.72	0.51	73					
70	UC	0.490	0.471								
71	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
72	UA	100									
	*										

73	KK	R1B-2	ROUTE								
74	RK	2636	0.0015	0.030		TRAP	2.000	0.00			
	*										

75	KK	SB01C	BASIN								
76	KM	IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT									
77	BA	0.032									
78	LG	0.10	0.25	4.72	0.51	73					
79	UC	0.581	0.550								
80	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
81	UA	100									
	*										

82	KK	R1C-2	ROUTE								
83	RK	3046	0.0015	0.030		TRAP	2.000	0.00			
	*										

84	KK	SB02E	BASIN								
85	KM	IMPERVIOUSNESS INCREASED TO 85 TO REFLECT DEVELOPMENT									
86	BA	0.100									
87	LG	0.10	0.25	4.03	0.74	85					
88	UC	0.859	0.688								
89	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
90	UA	100									
	*										

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HEC-1 INPUT

PAGE 3

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

91	KK	SB02W	BASIN								
92	BA	0.060									
93	LG	0.10	0.25	4.33	0.61	0					
94	UC	0.686	0.535								
95	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
96	UA	100									
	*										

97	KK	CP-02 COMBINE									
98	HC	5									
	*										

99	KK	R2-3	ROUTE								
100	KM	MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD									
101	RK	1260	0.0015	0.03		TRAP	92	4			
	*										

102	KK	SB03	BASIN								
103	BA	0.048									
104	LG	0.15	0.25	4.50	0.47	55					
105	UC	0.364	0.294								
106	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
107	UA	100									
	*										

108	KK	CP-03 COMBINE									
109	HC	2									
	*										

110	KK	R3-5	ROUTE								
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111	KM	MILLER RD	CHANNEL	FROM MAYO	BLVD TO	PRINCESS BLVD					
112	RK	2396	0.0015	0.03	TRAP	98	4				
	*										
113	KK	SB05	BASIN								
114	BA	0.126									
115	LG	0.22	0.25	4.50	0.44	48					
116	UC	0.327	0.226								
117	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
118	UA	100									
	*										
119	KK	CP-5A	COMBINE								
120	HC	2									
	*										
121	KM										
	*										
122	KK	SB07W	BASIN								
123	KM		IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT								
124	BA	0.048									
125	LG	0.10	0.25	4.03	0.74	73					
126	UC	0.677	0.558								
127	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
					HEC-1	INPUT					

PAGE 4

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

128	UA	100									
	*										
129	KK	R7W-8W	ROUTE								
130	KM		HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY								
131	KM		HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN								
132	RK	3721	0.0013	0.03	TRAP	46	4				
	*										
133	KK	SB08W	BASIN								
134	KM		INCREASED IMPERVIOUSNESS TO 85 TO REFLECT DEVELOPMENT								
135	KM		HE MODIFIED BASIN 8 INTO 8W WEST 8E EAST OF HAYDEN								
136	BA	0.112									
137	LG	0.10	0.25	4.08	0.71	85					
138	UC	0.784	0.547								
139	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
140	UA	100									
	*										
141	KK	CP-08W	COMBINE								
142	KM		SR 101L FREEWAY AND HAYDEN ROAD (CULVERT UNDER LOOP 101 WEST OF HAYDEN)								
143	HC	2									
	*										
144	KK	R8W-4	ROUTE								
145	KM		SR 101L FREEWAY TO CP4								
146	KM		HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN								
147	RK	3137	0.0130	0.030	TRAP	2.000	0.00				
	*										
148	KK	SB04	BASIN								
149	BA	0.144									
150	LG	0.14	0.25	4.60	0.44	61					
151	UC	0.305	0.199								
152	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
153	UA	100									
	*										
154	KK	CP-4	COMBINE								
155	KM		PRINCESS BLVD AND EAST OF 77TH ST								
156	HC	2									
	*										
157	KK	R4-5	ROUTE								
158	KM		PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST								
159	RK	1992	0.0013	0.03	TRAP	39	4				
	*										
160	KK	CP-05	COMBINE								
161	KM		PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)								
162	KM		COMBINE CP-05A AND R4-5								
163	HC	2									
	*										

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HEC-1 INPUT

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

164	KK	R5-6	ROUTE								
165	KM		PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD								
166	RK	1694	0.0015	0.03	TRAP	188	4				
	*										
167	KK	SB06	BASIN								
168	BA	0.136									
169	LG	0.16	0.25	4.55	0.45	53					

18114-Ult.out											
170	UC	0.321	0.246								
171	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
172	UA	100									
	*										
173	KK	CP-06	COMBINE								
174	HC	2									
	*										
	*										
	*	END WEST RUN									
	*										
	*	BEGIN EAST SIDE OF HAYDEN									
	*										
175	KK	SB07E	BASIN								
176	BA	0.026									
177	LG	0.10	0.25	4.03	0.74	0					
178	UC	0.574	0.527								
179	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
180	UA	100									
	*										
181	KK	R7E-8E	ROUTE								
182	RK	3662	0.0130	0.030		TRAP	2.000	0.00			
	*										
183	KK	SB08E	BASIN								
184	BA	0.078									
185	LG	0.10	0.25	4.08	0.72	0					
186	UC	0.798	0.652								
187	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
188	UA	100									
	*										
189	KK	SB09N	BASIN								
190	BA	0.028									
191	LG	0.10	0.25	4.79	0.49	0					
192	UC	0.740	1.111								
193	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
194	UA	100									
	*										

1

HEC-1 INPUT

PAGE 6

LINE	ID	1	2	3	4	5	6	7	8	9	10
195	KK	R9N-R9	ROUTE								
196	RK	2586	0.0013	0.020		TRAP	2.000	0.00			
	*										
197	KK	CP-08E	COMBINE								
198	KM		SB07E, SB08E, SB09N								
199	HC	3									
	*										
200	KK	SB09	BASIN								
201	BA	0.086									
202	LG	0.10	0.25	4.79	0.49	0					
203	UC	0.683	0.518								
204	UA	0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
205	UA	100									
	*										
206	KK	8E-R9	ROUTE								
207	RK	501	0.0013	0.020		TRAP	2.000	0.00			
	*										
208	KK	CP-09	COMBINE								
209	KM		SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)								
210	HC	2									
	*										
211	KK	PWRCH									
212	KM		POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS								
213	KM		100-YR, 24-HR FLO-2D MODEL (XS 107)								
214	KM		FROM PINNACLE PEAK SOUTH ADMS 100-YR, 24-HR FLO-2D MODEL								
215	BA	7.0									
216	QI	0	0	0	0	0	0	0	0	0	0
217	QI	0	0	0	0	0	0	0	0	0	0
218	QI	0	0	0	0	0	0	0	0	0	0
219	QI	0	0	0	0	0	0	0	0	0	0
220	QI	0	0	0	0	0	1	1	3	43	495
221	QI	1099	1198	2055	3747	3658	3175	2822	2378	2084	1898
222	QI	1699	1499	1331	1179	1047	940	851	773	705	645
223	QI	597	559	521	488	460	435	410	387	370	356
224	QI	339	328	317	303	293	281	270	257	258	248
225	QI	240	237	223	220	214	209	205	201	192	188
226	QI	180	179	164	158	149	142	137	126	120	117
227	QI	107	102	97	99	86	83	82	74	70	66
228	QI	62	59	57	55	52	50	50	48	42	41
229	QI	40	37	35	40	36	32	31	30	31	30
230	QI	31	30	24	23	23					
	*										

231 KK BINFLO
 232 KM TOTAL INFLOW INTO BASIN 53R.
 233 HC 2
 *

1

HEC-1 INPUT

PAGE 7

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

234 KK BASIN
 235 KM BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
 236 KM ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
 237 KM OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
 238 KM THE OUTLET PIPES ARE INLET CONTROLLED.
 239 RS 1 STOR 0
 240 SV 0 44.9 76.8 108.7 140.6 171.5 202.5 233.5 264.5 295.5
 241 SV 328.7 362.0 395.2 428.5 461.7 497.2 532.7 568.3 603.8 639.3
 242 SE 1594 1597 1598 1599 1600 1601 1602 1603 1604 1605
 243 SE 1606 1607 1608 1609 1610 1611 1612 1613 1614 1615
 244 SQ 0 94.6 153.4 209.8 244.2 264.5 284.0 302.5 320.1 336.9
 245 SQ 353.0 368.5 383.5 398.0 412.0 425.7 438.9 451.9 464.5 476.8
 *

246 KK BSNRT1
 247 KM 2-60" CMP OUTFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
 248 KM DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
 249 KM EXCESS CAPACITY.
 250 RK 550 0.0052 0.024 CIRC 7.0
 *

251 KK BSNRT2
 252 KM 2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BAS 53R OUTFALL)
 253 RK 1200 0.0077 0.013 CIRC 7.0
 *

254 KK SB10 BASIN
 255 BA 0.040
 256 LG 0.15 0.25 4.25 0.55 55
 257 UC 0.233 0.161
 258 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
 259 UA 100
 *

260 KK CP-10 COMBINE
 261 KM UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
 262 HC 2
 *

263 KK R10-11 ROUTE
 264 KM UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
 265 RK 1277 0.0014 0.03 TRAP 220 4
 *

266 KK SB11 BASIN
 267 BA 0.071
 268 LG 0.15 0.25 4.15 0.58 55
 269 UC 0.296 0.232
 270 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
 271 UA 100
 *

1

HEC-1 INPUT

PAGE 8

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

272 KK CP-11 COMBINE
 273 KM UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
 274 HC 2
 *
 275 ZZ

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE (V) ROUTING (--->) DIVERSION OR PUMP FLOW
 NO. (.) CONNECTOR (<---) RETURN OF DIVERTED OR PUMPED FLOW

```

32 76THST
   .
   .
51  . SB01A
   .
   .
61  CP-1.....
   V
   V
64  R1A-2
   .
   .
66  . SB01B
   . V
   . V
73  . R1B-2
  
```


75	.	.	SB01C	.
	.	.	V	.
82	.	.	R1C-2	.
	.	.	.	.
84	.	.	SB02E	.
	.	.	.	.
91	.	.	.	SB02W
	.	.	.	.
97	CP-02.	.	.	.
	V	.	.	.
99	R2-3	.	.	.
	.	.	.	.
102	.	SB03	.	.
	.	.	.	.
108	CP-03.	.	.	.
	V	.	.	.
110	R3-5	.	.	.
	.	.	.	.
113	.	SB05	.	.
	.	.	.	.
119	CP-5A.	.	.	.
	.	.	.	.
122	.	SB07W	.	.
	.	V	.	.
129	.	R7W-8W	.	.
	.	.	.	.
133	.	.	SB08W	.
	.	.	.	.
141	.	CP-08W.	.	.
	.	V	.	.
144	.	R8W-4	.	.
	.	.	.	.
148	.	.	SB04	.
	.	.	.	.
154	.	CP-4.	.	.
	.	V	.	.
157	.	R4-5	.	.
	.	.	.	.
160	CP-05.	.	.	.
	V	.	.	.
164	R5-6	.	.	.
	.	.	.	.
167	.	SB06	.	.
	.	.	.	.
173	CP-06.	.	.	.
	.	.	.	.
175	.	SB07E	.	.
	.	V	.	.
181	.	R7E-8E	.	.
	.	.	.	.
183	.	SB08E	.	.
	.	.	.	.
189	.	.	SB09N	.
	.	.	V	.
195	.	.	R9N-R9	.
	.	.	.	.
197	CP-08E.	.	.	.
	.	.	.	.
200	.	SB09	.	.
	.	V	.	.
206	.	8E-R9	.	.
	.	.	.	.

```

*****
*
*
*
*   FLOOD HYDROGRAPH PACKAGE   (HEC-1)
*
*
*       JUN   1998
*
*
*   VERSION 4.1
*
*
*
*   RUN DATE   26NOV18   TIME   11:50:41
*
*
*
*****
*****
*****
*****

```

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

CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
POWERLINE CORRIDOR
RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
100-YR, 24-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
PIMA ROAD FLOWS.

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
MODELERS: RK, MW

REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 08/07/18
MODELERS: MSW, ES
REVISIONS NOTED WITH HE
NEW PROP CONDITION MODEL, WITH POWERLINE AND BASIN 53R
THIS IS THE ULTIMATE CONDITION MODEL

18	IO	OUTPUT CONTROL VARIABLES		
		IPRNT	5	PRINT CONTROL
		IPLOT	0	PLOT CONTROL
		QSCAL	0.	HYDROGRAPH PLOT SCALE
IT		HYDROGRAPH TIME DATA		
		NMIN	3	MINUTES IN COMPUTATION INTERVAL
		IDATE	1	STARTING DATE
		ITIME	0000	STARTING TIME
		NQ	1000	NUMBER OF HYDROGRAPH ORDINATES
		NDDATE	3	ENDING DATE
		NDTIME	0157	ENDING TIME
		ICENT	19	CENTURY MARK
		COMPUTATION INTERVAL		0.05 HOURS
		TOTAL TIME BASE		49.95 HOURS

ENGLISH UNITS	
DRAINAGE AREA	SQUARE MILES
PRECIPITATION DEPTH	INCHES
LENGTH, ELEVATION	FEET

[illegible][illegible]

```
*** FDKRUT - NEWTON RAPHSON FAILED FIXED POINT ITERATION USED - ITERATION= 1
```

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

Page 9

				18114-Ult.out				
				6-HOUR	24-HOUR	72-HOUR		
+								
+	HYDROGRAPH AT	76THST	69. 12.50	23.	8.	4.	0.24	
+	HYDROGRAPH AT	SB01A	65. 12.25	5.	1.	1.	0.05	
+	2 COMBINED AT	CP-1	114. 12.30	28.	9.	5.	0.29	
+	ROUTED TO	R1A-2	113. 12.30	28.	9.	5.	0.29	
+	HYDROGRAPH AT	SB01B	25. 12.35	5.	2.	1.	0.02	
+	ROUTED TO	R1B-2	25. 12.40	5.	2.	1.	0.02	
+	HYDROGRAPH AT	SB01C	33. 12.40	7.	3.	1.	0.03	
+	ROUTED TO	R1C-2	32. 12.45	7.	3.	1.	0.03	
+	HYDROGRAPH AT	SB02E	50. 12.60	10.	3.	1.	0.10	
+	HYDROGRAPH AT	SB02W	38. 12.45	5.	1.	1.	0.06	
+	5 COMBINED AT	CP-02	235. 12.50	55.	17.	9.	0.51	
+	ROUTED TO	R2-3	235. 12.55	55.	17.	9.	0.51	
+	HYDROGRAPH AT	SB03	65. 12.15	10.	3.	2.	0.05	
+	2 COMBINED AT	CP-03	261. 12.50	64.	20.	10.	0.56	
+	ROUTED TO	R3-5	260. 12.65	64.	20.	10.	0.56	
+	HYDROGRAPH AT	SB05	190. 12.10	24.	8.	4.	0.13	
+	2 COMBINED AT	CP-5A	300. 12.60	86.	28.	14.	0.68	
+	HYDROGRAPH AT	SB07W	29. 12.45	5.	1.	1.	0.05	
+	ROUTED TO	R7W-8W	28. 13.05	5.	1.	1.	0.05	
+	HYDROGRAPH AT	SB08W	67. 12.55	11.	3.	1.	0.11	
+	2 COMBINED AT	CP-08W	68. 12.55	16.	4.	2.	0.16	
+	ROUTED TO	R8W-4	67. 12.55	16.	4.	2.	0.16	
+	HYDROGRAPH AT	SB04	241. 12.10	31.	10.	5.	0.14	
+	2 COMBINED AT	CP-4	248. 12.10	46.	14.	7.	0.30	
+	ROUTED TO	R4-5	244. 12.20	46.	14.	7.	0.30	
+	2 COMBINED AT	CP-05	444. 12.20	131.	42.	21.	0.99	
+	ROUTED TO	R5-6	441. 12.30	131.	42.	21.	0.99	
+	HYDROGRAPH AT	SB06	202. 12.10	27.	9.	4.	0.14	
+	2 COMBINED AT	CP-06	587. 12.25	156.	50.	25.	1.12	
+	HYDROGRAPH AT	SB07E	16. 12.40	2.	1.	0.	0.03	
+	ROUTED TO	R7E-8E	16. 12.45	2.	1.	0.	0.03	

+	HYDROGRAPH AT	SB08E	39.	12.55	6.	2.	1.	0.08
+	HYDROGRAPH AT	SB09N	11.	12.55	3.	1.	0.	0.03
+	ROUTED TO	R9N-R9	11.	12.65	3.	1.	0.	0.03
+	3 COMBINED AT	CP-08E	63.	12.55	11.	3.	1.	0.13
+	HYDROGRAPH AT	SB09	60.	12.45	9.	2.	1.	0.09
+	ROUTED TO	8E-R9	60.	12.45	9.	2.	1.	0.09
+	2 COMBINED AT	CP-09	121.	12.50	20.	5.	2.	0.22
+	HYDROGRAPH AT	PWRCH	3747.	13.25	1540.	502.	248.	7.00
+	2 COMBINED AT	BINFLO	3788.	13.25	1558.	507.	250.	7.22
+	ROUTED TO	BASIN	462.	18.45	458.	399.	241.	7.22
+	ROUTED TO	BSNRT1	462.	18.50	458.	399.	241.	7.22
+	ROUTED TO	BSNRT2	462.	18.50	458.	399.	241.	7.22
+	HYDROGRAPH AT	SB10	72.	12.05	8.	3.	1.	0.04
+	2 COMBINED AT	CP-10	463.	18.50	459.	400.	242.	7.26
+	ROUTED TO	R10-11	463.	18.55	459.	400.	241.	7.26
+	HYDROGRAPH AT	SB11	107.	12.10	14.	5.	2.	0.07
+	2 COMBINED AT	CP-11	465.	18.55	460.	401.	244.	7.33

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

INTERPOLATED TO
COMPUTATION INTERVAL

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1A-2	MANE	0.36	117.01	738.51	1.23	3.00	116.71	738.00	1.23
-------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1943E+02 EXCESS=0.0000E+00 OUTFLOW=0.1943E+02 BASIN STORAGE=0.6254E-02 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R1A-2	MANE	0.42	112.05	738.79	1.22	3.00	111.68	738.00	1.22
-------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1919E+02 EXCESS=0.0000E+00 OUTFLOW=0.1918E+02 BASIN STORAGE=0.6254E-02 PERCENT ERROR=

0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R1A-2	MANE	0.38	108.92	738.78	1.21	3.00	108.42	738.00	1.21
-------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1903E+02 EXCESS=0.0000E+00 OUTFLOW=0.1903E+02 BASIN STORAGE=0.6254E-02 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1B-2	MANE	2.16	25.53	743.49	3.06	3.00	25.50	744.00	3.06
-------	------	------	-------	--------	------	------	-------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3584E+01 EXCESS=0.0000E+00 OUTFLOW=0.3586E+01 BASIN STORAGE=0.7197E-04 PERCENT ERROR=-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R1B-2	MANE	2.33	24.09	743.54	2.89	3.00	24.07	744.00	2.89
-------	------	------	-------	--------	------	------	-------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3394E+01 EXCESS=0.0000E+00 OUTFLOW=0.3396E+01 BASIN STORAGE=0.7377E-04 PERCENT ERROR=-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R1B-2	MANE	2.36	23.16	744.01	2.79	3.00	23.16	744.00	2.79
-------	------	------	-------	--------	------	------	-------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3271E+01 EXCESS=0.0000E+00 OUTFLOW=0.3273E+01 BASIN STORAGE=0.5643E-04 PERCENT ERROR=-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1C-2	MANE	2.36	33.42	748.15	3.06	3.00	33.21	747.00	3.06
-------	------	------	-------	--------	------	------	-------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5214E+01 EXCESS=0.0000E+00 OUTFLOW=0.5216E+01 BASIN STORAGE=0.8968E-04 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R1C-2	MANE	2.28	31.48	747.45	2.90	3.00	31.38	750.00	2.90
-------	------	------	-------	--------	------	------	-------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4938E+01 EXCESS=0.0000E+00 OUTFLOW=0.4942E+01 BASIN STORAGE=0.9677E-04 PERCENT ERROR=-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R1C-2	MANE	2.33	30.35	747.95	2.79	3.00	30.18	750.00	2.79
-------	------	------	-------	--------	------	------	-------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4759E+01 EXCESS=0.0000E+00 OUTFLOW=0.4762E+01 BASIN STORAGE=0.1043E-03 PERCENT ERROR=-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
 R2-3 MANE 2.17 244.84 753.17 1.35 3.00 244.77 753.00 1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3666E+02 EXCESS=0.0000E+00 OUTFLOW=0.3660E+02 BASIN STORAGE=0.3883E-01 PERCENT ERROR=0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00
 R2-3 MANE 2.23 230.94 753.03 1.29 3.00 230.92 753.00 1.29

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3519E+02 EXCESS=0.0000E+00 OUTFLOW=0.3513E+02 BASIN STORAGE=0.3884E-01 PERCENT ERROR=0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00
 R2-3 MANE 2.25 222.08 752.98 1.26 3.00 222.07 753.00 1.26

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3425E+02 EXCESS=0.0000E+00 OUTFLOW=0.3419E+02 BASIN STORAGE=0.3636E-01 PERCENT ERROR=0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
 R3-5 MANE 3.00 272.63 759.84 1.45 3.00 271.95 759.00 1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4314E+02 EXCESS=0.0000E+00 OUTFLOW=0.4299E+02 BASIN STORAGE=0.8214E-01 PERCENT ERROR=0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00
 R3-5 MANE 3.14 256.74 760.19 1.39 3.00 255.63 759.00 1.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4130E+02 EXCESS=0.0000E+00 OUTFLOW=0.4118E+02 BASIN STORAGE=0.8574E-01 PERCENT ERROR=0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00
 R3-5 MANE 3.00 246.54 761.16 1.35 3.00 245.67 762.00 1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4013E+02 EXCESS=0.0000E+00 OUTFLOW=0.3998E+02 BASIN STORAGE=0.8214E-01 PERCENT ERROR=0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

18114-Ult.out

R7W-8W	MANE	3.00	29.92	779.59	1.09	3.00	29.92	780.00	1.09
--------	------	------	-------	--------	------	------	-------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2597E+01 EXCESS=0.0000E+00 OUTFLOW=0.2797E+01 BASIN STORAGE=0.9009E-03 PERCENT ERROR=-7.7

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R7W-8W	MANE	3.00	27.11	783.50	1.01	3.00	27.07	783.00	1.01
--------	------	------	-------	--------	------	------	-------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2363E+01 EXCESS=0.0000E+00 OUTFLOW=0.2594E+01 BASIN STORAGE=0.8201E-03 PERCENT ERROR=-9.8

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R7W-8W	MANE	3.00	25.69	782.05	0.91	3.00	25.62	783.00	0.91
--------	------	------	-------	--------	------	------	-------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2218E+01 EXCESS=0.0000E+00 OUTFLOW=0.2327E+01 BASIN STORAGE=0.8770E-03 PERCENT ERROR=-4.9

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8W-4	MANE	0.94	71.37	754.38	1.07	3.00	71.03	753.00	1.07
-------	------	------	-------	--------	------	------	-------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9153E+01 EXCESS=0.0000E+00 OUTFLOW=0.9154E+01 BASIN STORAGE=0.3386E-03 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R8W-4	MANE	0.96	65.07	755.12	0.98	3.00	64.67	753.00	0.98
-------	------	------	-------	--------	------	------	-------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8396E+01 EXCESS=0.0000E+00 OUTFLOW=0.8399E+01 BASIN STORAGE=0.3250E-03 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R8W-4	MANE	0.98	60.99	754.42	0.91	3.00	60.59	756.00	0.91
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7777E+01 EXCESS=0.0000E+00 OUTFLOW=0.7777E+01 BASIN STORAGE=0.3204E-03 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	3.00	254.27	730.74	1.86	3.00	253.06	732.00	1.86
------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3016E+02 EXCESS=0.0000E+00 OUTFLOW=0.3017E+02 BASIN STORAGE=0.1003E-02 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R4-5	MANE	3.00	241.45	731.67	1.74	3.00	240.52	732.00	1.74
------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2826E+02 EXCESS=0.0000E+00 OUTFLOW=0.2827E+02 BASIN STORAGE=0.9962E-03 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R4-5	MANE	3.00	229.28	731.11	1.66	3.00	228.02	732.00	1.66
------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2690E+02 EXCESS=0.0000E+00 OUTFLOW=0.2690E+02 BASIN STORAGE=0.1146E-02 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6	MANE	2.83	464.53	735.59	1.69	3.00	464.14	738.00	1.69
------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8904E+02 EXCESS=0.0000E+00 OUTFLOW=0.8891E+02 BASIN STORAGE=0.6945E-01 PERCENT ERROR=0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R5-6	MANE	2.94	437.27	736.55	1.60	3.00	434.81	738.00	1.60
------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8442E+02 EXCESS=0.0000E+00 OUTFLOW=0.8425E+02 BASIN STORAGE=0.6945E-01 PERCENT ERROR=0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R5-6	MANE	3.02	413.93	736.72	1.54	3.00	411.70	738.00	1.54
------	------	------	--------	--------	------	------	--------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8125E+02 EXCESS=0.0000E+00 OUTFLOW=0.8113E+02 BASIN STORAGE=0.6945E-01 PERCENT ERROR=0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7E-8E	MANE	1.93	16.43	748.32	0.80	3.00	16.39	747.00	0.80
--------	------	------	-------	--------	------	------	-------	--------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1113E+01 EXCESS=0.0000E+00 OUTFLOW=0.1112E+01 BASIN STORAGE=0.1951E-04 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R7E-8E	MANE	1.94	14.90	748.28	0.72	3.00	14.82	747.00	0.72
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9964E+00 EXCESS=0.0000E+00 OUTFLOW=0.9968E+00 BASIN STORAGE=0.1628E-04 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00
 R7E-8E MANE 2.13 13.91 748.07 0.67 3.00 13.81 747.00 0.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9248E+00 EXCESS=0.0000E+00 OUTFLOW=0.9254E+00 BASIN STORAGE=0.1626E-04 PERCENT ERROR=-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
 R9N-R9 MANE 2.43 11.87 758.35 0.97 3.00 11.83 759.00 0.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1453E+01 EXCESS=0.0000E+00 OUTFLOW=0.1451E+01 BASIN STORAGE=0.2431E-04 PERCENT ERROR=0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00
 R9N-R9 MANE 2.57 10.88 757.62 0.89 3.00 10.84 759.00 0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1330E+01 EXCESS=0.0000E+00 OUTFLOW=0.1328E+01 BASIN STORAGE=0.2146E-04 PERCENT ERROR=0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00
 R9N-R9 MANE 2.61 10.25 758.60 0.84 3.00 10.23 759.00 0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1249E+01 EXCESS=0.0000E+00 OUTFLOW=0.1248E+01 BASIN STORAGE=0.2338E-04 PERCENT ERROR=0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00
 8E-R9 MANE 0.34 63.16 747.57 0.97 3.00 62.82 747.00 0.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4464E+01 EXCESS=0.0000E+00 OUTFLOW=0.4465E+01 BASIN STORAGE=0.3646E-06 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00
 8E-R9 MANE 0.34 58.05 747.58 0.89 3.00 57.70 747.00 0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4085E+01 EXCESS=0.0000E+00 OUTFLOW=0.4085E+01 BASIN STORAGE=0.3666E-06 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00
 8E-R9 MANE 0.34 54.72 747.84 0.84 3.00 54.37 747.00 0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3838E+01 EXCESS=0.0000E+00 OUTFLOW=0.3838E+01 BASIN STORAGE=0.3903E-06 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.38	462.76	1109.79	2.58	3.00	462.76	1110.00	2.58
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9944E+03 EXCESS=0.0000E+00 OUTFLOW=0.9942E+03 BASIN STORAGE=0.9347E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

BSNRT1	MANE	0.38	462.49	1109.94	2.58	3.00	462.49	1110.00	2.58
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9936E+03 EXCESS=0.0000E+00 OUTFLOW=0.9934E+03 BASIN STORAGE=0.9329E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

BSNRT1	MANE	0.43	462.32	1110.31	2.58	3.00	462.32	1110.00	2.58
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9930E+03 EXCESS=0.0000E+00 OUTFLOW=0.9928E+03 BASIN STORAGE=0.9109E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.37	462.76	1110.22	2.58	3.00	462.76	1110.00	2.58
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9941E+03 EXCESS=0.0000E+00 OUTFLOW=0.9941E+03 BASIN STORAGE=0.2126E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

BSNRT2	MANE	0.37	462.49	1110.43	2.58	3.00	462.49	1110.00	2.58
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9935E+03 EXCESS=0.0000E+00 OUTFLOW=0.9934E+03 BASIN STORAGE=0.1066E+00 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

BSNRT2	MANE	0.38	462.32	1110.42	2.58	3.00	462.32	1110.00	2.58
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9927E+03 EXCESS=0.0000E+00 OUTFLOW=0.9926E+03 BASIN STORAGE=0.3689E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	2.34	463.63	1114.77	2.58	3.00	463.63	1113.00	2.58
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9995E+03 EXCESS=0.0000E+00 OUTFLOW=0.9982E+03 BASIN STORAGE=0.1343E+01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R10-11	MANE	2.39	463.32	1113.19	2.58	3.00	463.32	1113.00	2.58
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9985E+03 EXCESS=0.0000E+00 OUTFLOW=0.9973E+03 BASIN STORAGE=0.1563E+01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R10-11	MANE	2.35	463.12	1115.44	2.57	3.00	463.12	1113.00	2.57
--------	------	------	--------	---------	------	------	--------	---------	------

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9975E+03 EXCESS=0.0000E+00 OUTFLOW=0.9959E+03 BASIN STORAGE=0.1570E+01 PERCENT ERROR=0.0

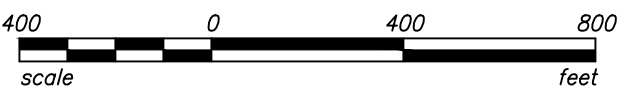
*** NORMAL END OF HEC-1 ***

MODIFIED-HEC -1 EXISTING CONDITION PRE-BASIN 53R



HEC-1 MODEL EXISTING CONDITIONS			
Sub-basin ID	Sub-basin area (mi²)	Peak Discharge 100 -year, 6-hour (cfs)	Peak Discharge 100 -year, 24-hour (cfs)
SB01-A	0.055	148	129
SB01-B	0.022	37	32
SB01-C	0.032	46	40
SB02E	0.100	105	90
SB02W	0.060	82	72
SB03	0.048	128	111
SB04	0.144	519	440
SB05	0.126	397	340
SB06	0.136	415	355
SB07E	0.026	37	31
SB07W	0.048	62	54
SB08E	0.085	95	82
SB08W	0.108	142	122
SB08	0.022	18	15
SB09	0.052	60	53
SB10	0.040	167	141
SB11	0.071	229	195

Collection Point ID	Peak Discharge 100 -year, 6-hour (cfs)	Peak Discharge 100 -year, 24-hour (cfs)
CP-01	148	128
CP-02	322	284
CP-03	370	331
CP-04	740	3881
CP-05	1195	3915
CP-06	984	3905
CP-08	740	3884
CP-08W	740	3883
CP-09	152	133
CP-10	167	139
CP-11	370	311



HEC-1 EXISTING CONDITION PRE-BASIN 53R

ASLD CORE NORTH

Project No. 18114	Date 10/22/18	EX-02
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Ph: 480.892.3313

Appendix E
Hydrology Calculations
Cavasson-Hotel

HYDROLOGIC CALCULATION SUMMARY SHEET
RATIONAL METHOD
Hubbard Engineering
Project No. 18114-301

Project Name: Cavasson Hotel
Project No.: 18114-301

Prepared by: TSW
Revised by: TSW

Date: 10/20/19
Date: 03/30/20

Complete calculations for each concentration point are presented in the attached hydrologic calculation sheets.

Sub-Basin & Concentration Point ID	C Runoff Coefficient Frequency			I Intensity Frequency			A Area	Q Peak Discharge Frequency		
	10-year	50-year	100-year	10-year	50-year	100-year		10-year	50-year	100-year
				[in/hr]			[acres]	[cfs]		
DA-A	0.90	0.90	0.90	3.52	5.13	5.78	0.81	2.6	3.8	4.2
DA-B	0.90	0.90	0.90	3.66	5.13	5.78	0.07	0.2	0.3	0.4
DA-C	0.90	0.90	0.90	3.66	5.13	5.78	0.05	0.2	0.2	0.2
DA-D	0.90	0.90	0.90	3.66	5.13	5.78	0.06	0.2	0.3	0.3
DA-E	0.90	0.90	0.90	3.66	5.13	5.78	0.04	0.1	0.2	0.2
DA-F	0.90	0.90	0.90	3.66	5.13	5.78	0.09	0.3	0.4	0.5
DA-G	0.90	0.90	0.90	3.66	5.13	5.78	0.09	0.3	0.4	0.5
DA-H	0.90	0.90	0.90	3.66	5.13	5.78	0.08	0.3	0.4	0.4
DA-I	0.90	0.90	0.90	3.66	5.13	5.78	0.25	0.8	1.1	1.3
DA-J	0.90	0.90	0.90	3.66	5.13	5.78	0.06	0.2	0.3	0.3
DA-K	0.90	0.90	0.90	3.66	5.13	5.78	0.05	0.2	0.2	0.2
DA-L	0.90	0.90	0.90	3.66	5.13	5.78	0.02	0.1	0.1	0.1
DA-M	0.90	0.90	0.90	3.66	5.13	5.78	0.07	0.2	0.3	0.4
DA-N	0.90	0.90	0.90	3.66	5.13	5.78	0.09	0.3	0.4	0.5
DA-O	0.90	0.90	0.90	3.66	5.13	5.78	0.10	0.3	0.4	0.5
DA-P	0.90	0.90	0.90	3.66	5.13	5.78	0.08	0.3	0.4	0.4
DA-Q	0.85	0.90	0.90	3.66	5.13	5.78	0.21	0.7	1.0	1.1
DA-R	0.85	0.90	0.90	3.66	5.13	5.78	0.16	0.5	0.8	0.9
DA-S	0.85	0.90	0.90	3.66	5.13	5.78	0.27	0.8	1.3	1.4
DA-T	0.85	0.90	0.90	3.66	5.13	5.78	0.07	0.2	0.3	0.4
DA-U	0.85	0.90	0.90	3.66	5.13	5.78	0.03	0.1	0.2	0.2
DA-V	0.85	0.90	0.90	3.66	5.13	5.78	0.04	0.1	0.2	0.2
DA-W	0.85	0.90	0.90	3.66	5.13	5.78	0.05	0.2	0.2	0.3
DA-X	0.85	0.90	0.90	3.66	5.13	5.78	0.03	0.1	0.2	0.2
DA-Y	0.85	0.90	0.90	3.66	5.13	5.78	0.15	0.5	0.7	0.8
DA-Z	0.85	0.90	0.90	3.66	5.13	5.78	0.04	0.1	0.2	0.2
DA-AA	0.85	0.90	0.90	3.66	5.13	5.78	0.03	0.1	0.1	0.2

INLETS SUMMARY SHEET
RATIONAL METHOD
Hubbard Engineering
Project No. 18114-301

Project Name: Cavasson Hotel
Project No.: 18114-301

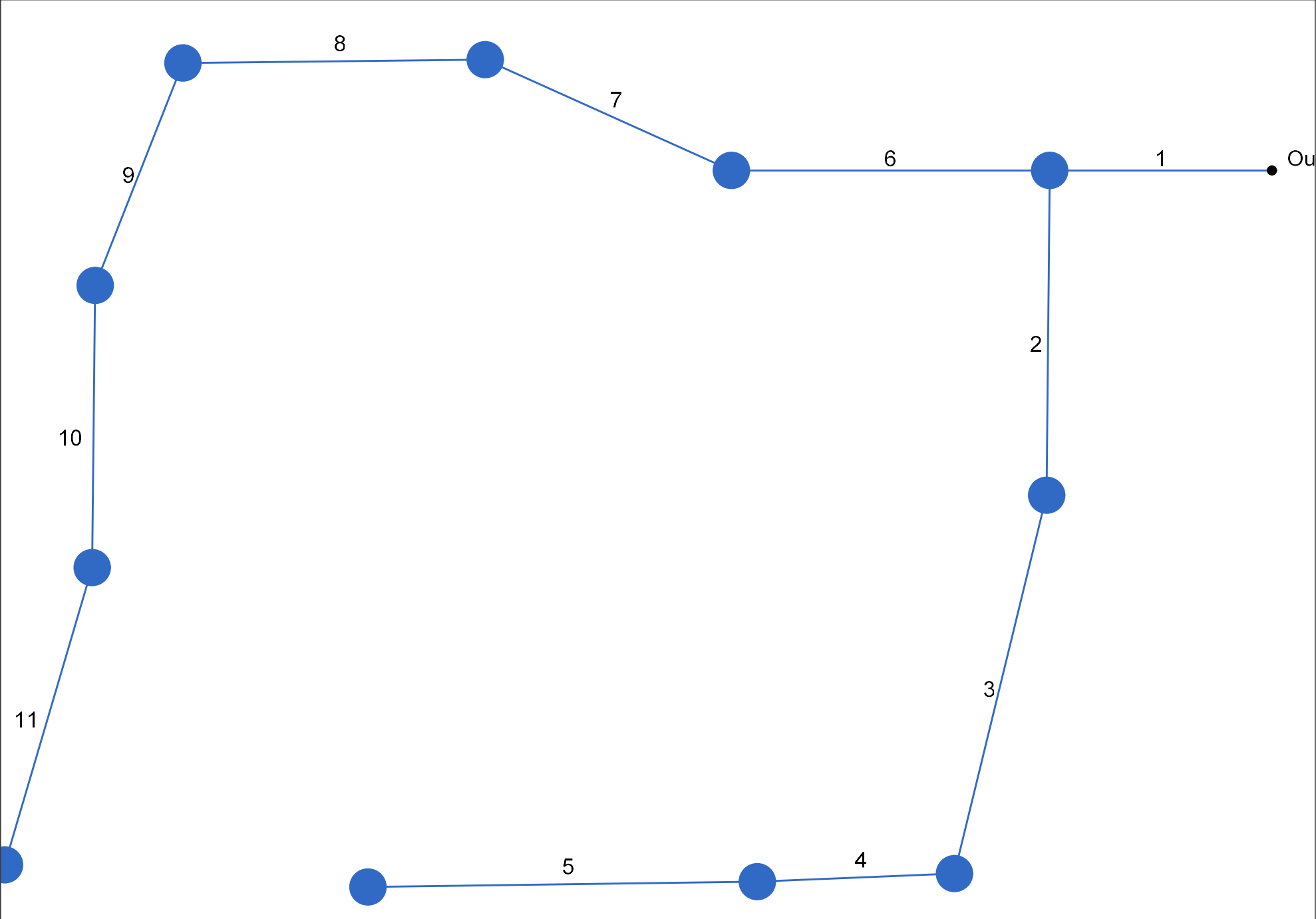
Prepared By: TSW
Revised By: TSW

Date: 10/20/19
Date: 03/30/20

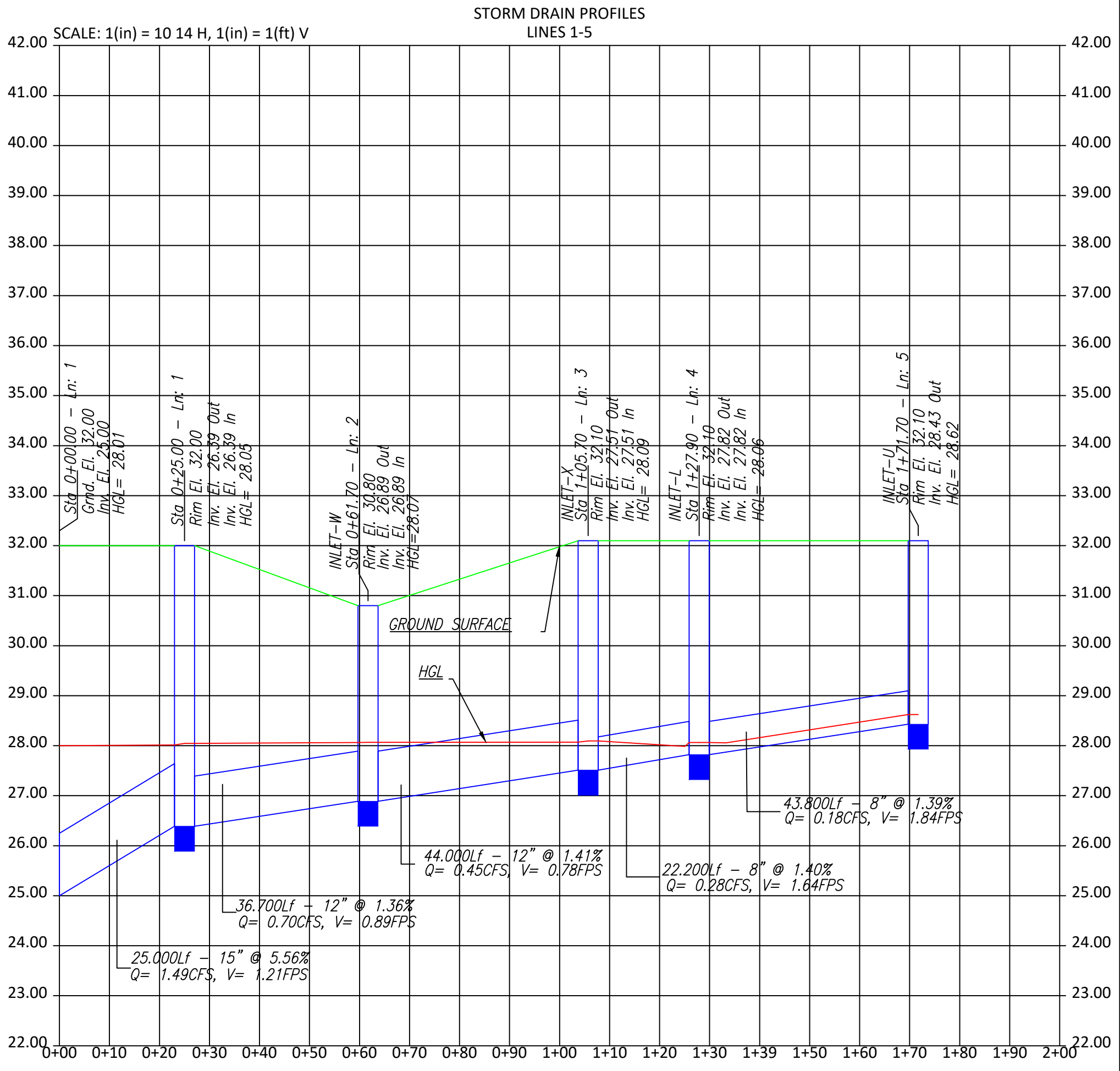
Complete calculations for each concentration point are presented in the attached hydrologic calculation sheets.

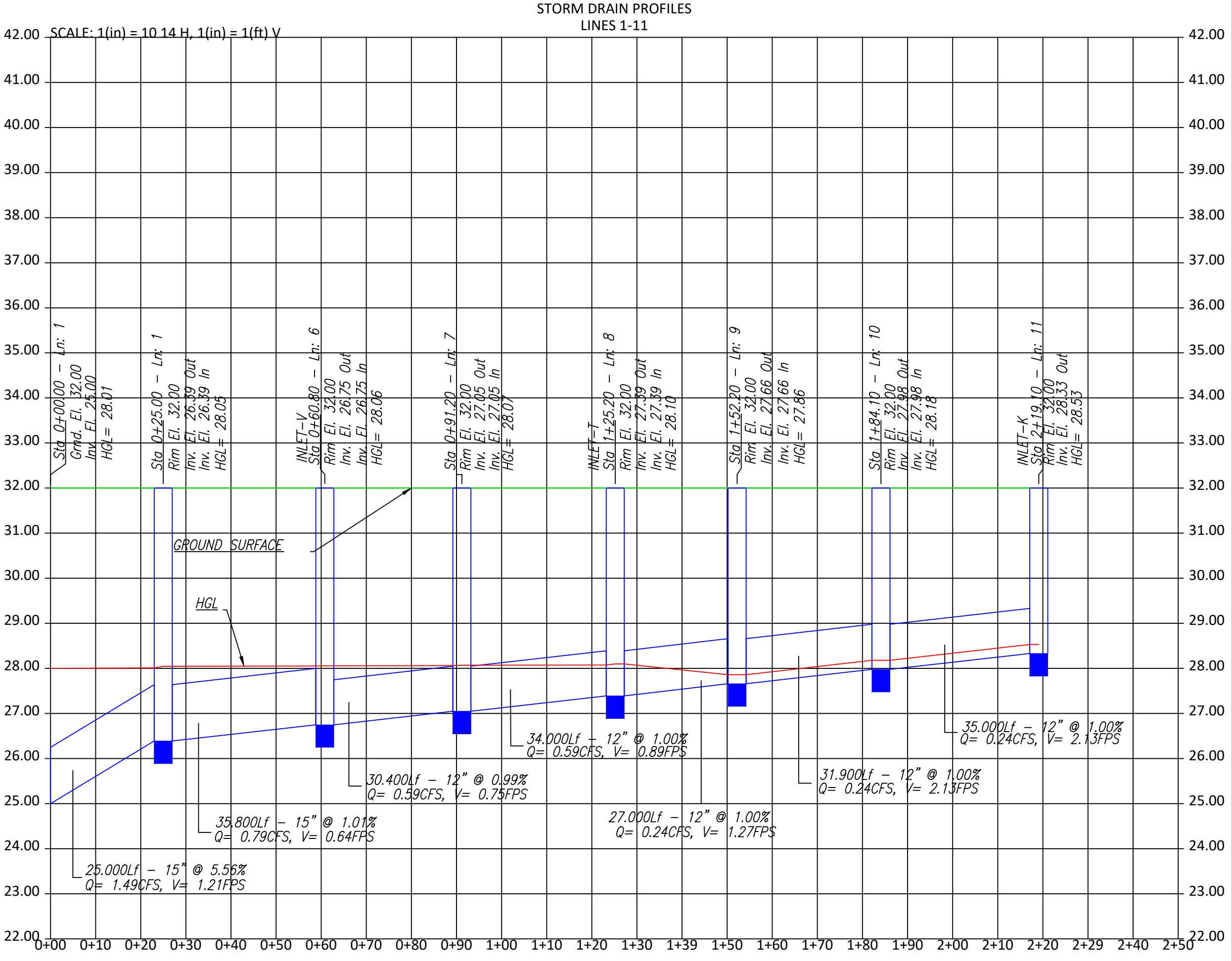
	C			I			A	Q			Inlet I.D.
	Runoff Coefficient			Intensity				Peak Discharge			
Concentration	Frequency			Frequency				Frequency			
Point	10-year	50-year	100-year	10-year	50-year	100-year		10-year	50-year	100-year	
ID				[in/hr]			[acres]	[cfs]			
DA-A	0.90	0.90	0.90	3.52	5.13	5.78	0.81	2.6	3.8	4.2	A
DA-B	0.90	0.90	0.90	3.66	5.13	5.78	0.07	0.2	0.3	0.4	B
DA-C	0.90	0.90	0.90	3.66	5.13	5.78	0.05	0.2	0.2	0.2	C
DA-D	0.90	0.90	0.90	3.66	5.13	5.78	0.06	0.2	0.3	0.3	D
DA-E	0.90	0.90	0.90	3.66	5.13	5.78	0.04	0.1	0.2	0.2	E
DA-F	0.90	0.90	0.90	3.66	5.13	5.78	0.09	0.3	0.4	0.5	F
DA-G	0.90	0.90	0.90	3.66	5.13	5.78	0.09	0.3	0.4	0.5	G
DA-H	0.90	0.90	0.90	3.66	5.13	5.78	0.08	0.3	0.4	0.4	H
DA-I	0.90	0.90	0.90	3.66	5.13	5.78	0.25	0.8	1.1	1.3	I
DA-J	0.90	0.90	0.90	3.66	5.13	5.78	0.06	0.2	0.3	0.3	J
DA-K	0.90	0.90	0.90	3.66	5.13	5.78	0.05	0.2	0.2	0.2	K
DA-L	0.90	0.90	0.90	3.66	5.13	5.78	0.02	0.1	0.1	0.1	L
DA-M	0.90	0.90	0.90	3.66	5.13	5.78	0.07	0.2	0.3	0.4	M
DA-N	0.90	0.90	0.90	3.66	5.13	5.78	0.09	0.3	0.4	0.5	N
DA-O	0.90	0.90	0.90	3.66	5.13	5.78	0.10	0.3	0.4	0.5	O
DA-P	0.90	0.90	0.90	3.66	5.13	5.78	0.08	0.3	0.4	0.4	P
DA-Q	0.85	0.90	0.90	3.66	5.13	5.78	0.21	0.7	1.0	1.1	
DA-R	0.85	0.90	0.90	3.66	5.13	5.78	0.16	0.5	0.8	0.9	
DA-S	0.85	0.90	0.90	3.66	5.13	5.78	0.27	0.8	1.3	1.4	S
DA-T	0.85	0.90	0.90	3.66	5.13	5.78	0.07	0.2	0.3	0.4	T
DA-U	0.85	0.90	0.90	3.66	5.13	5.78	0.03	0.1	0.2	0.2	U
DA-V	0.85	0.90	0.90	3.66	5.13	5.78	0.04	0.1	0.2	0.2	V
DA-W	0.85	0.90	0.90	3.66	5.13	5.78	0.05	0.2	0.2	0.3	W
DA-X	0.85	0.90	0.90	3.66	5.13	5.78	0.03	0.1	0.2	0.2	X
DA-Y	0.85	0.90	0.90	3.66	5.13	5.78	0.15	0.5	0.7	0.8	
DA-Z	0.85	0.90	0.90	3.66	5.13	5.78	0.04	0.1	0.2	0.2	Z
DA-AA	0.85	0.90	0.90	3.66	5.13	5.78	0.03	0.1	0.1	0.2	AA

Pool Area

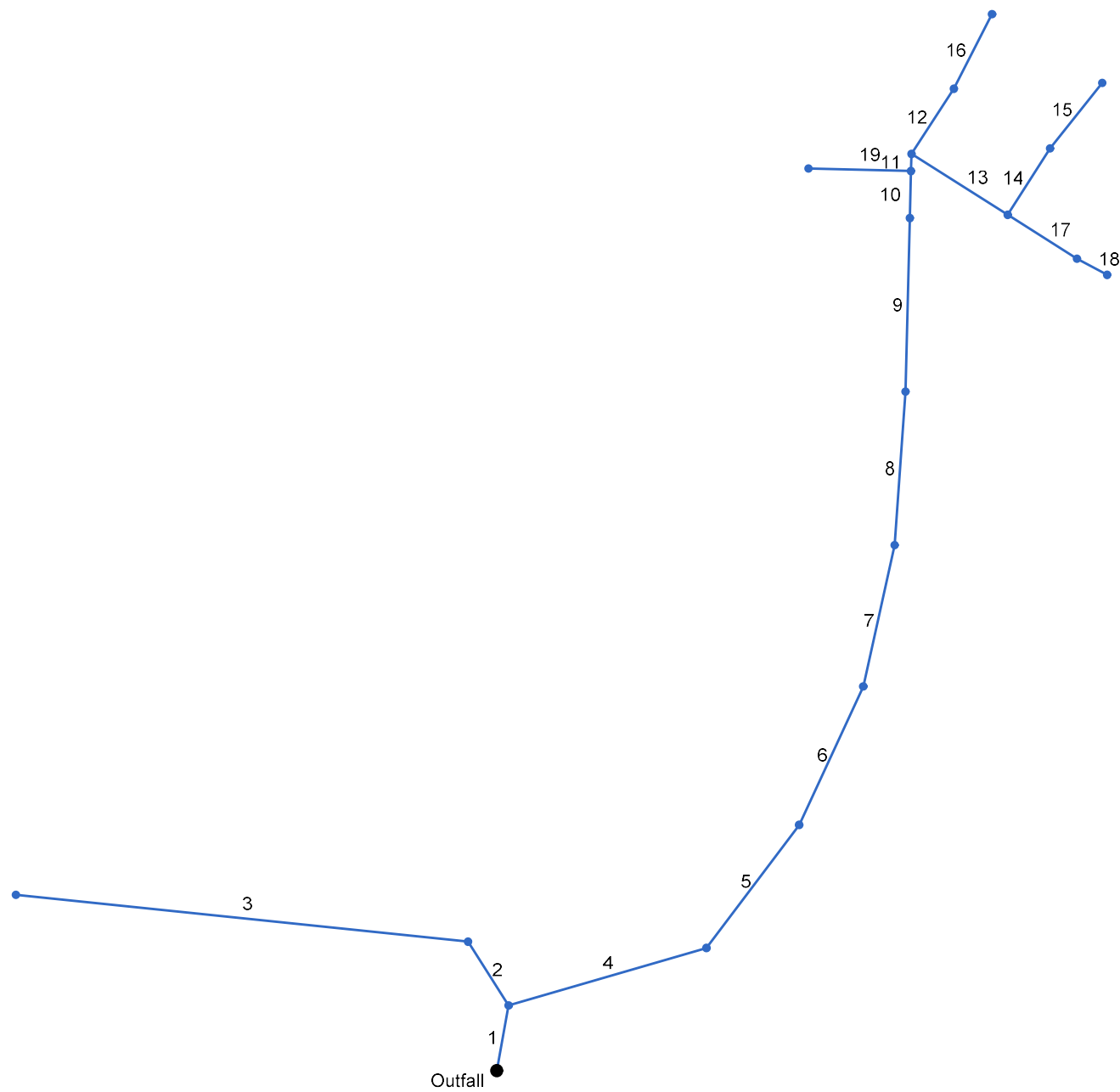


Project File: 20191030 Hydraflow Storm Design Pool.stm	Number of lines: 11	Date: 4/1/2020
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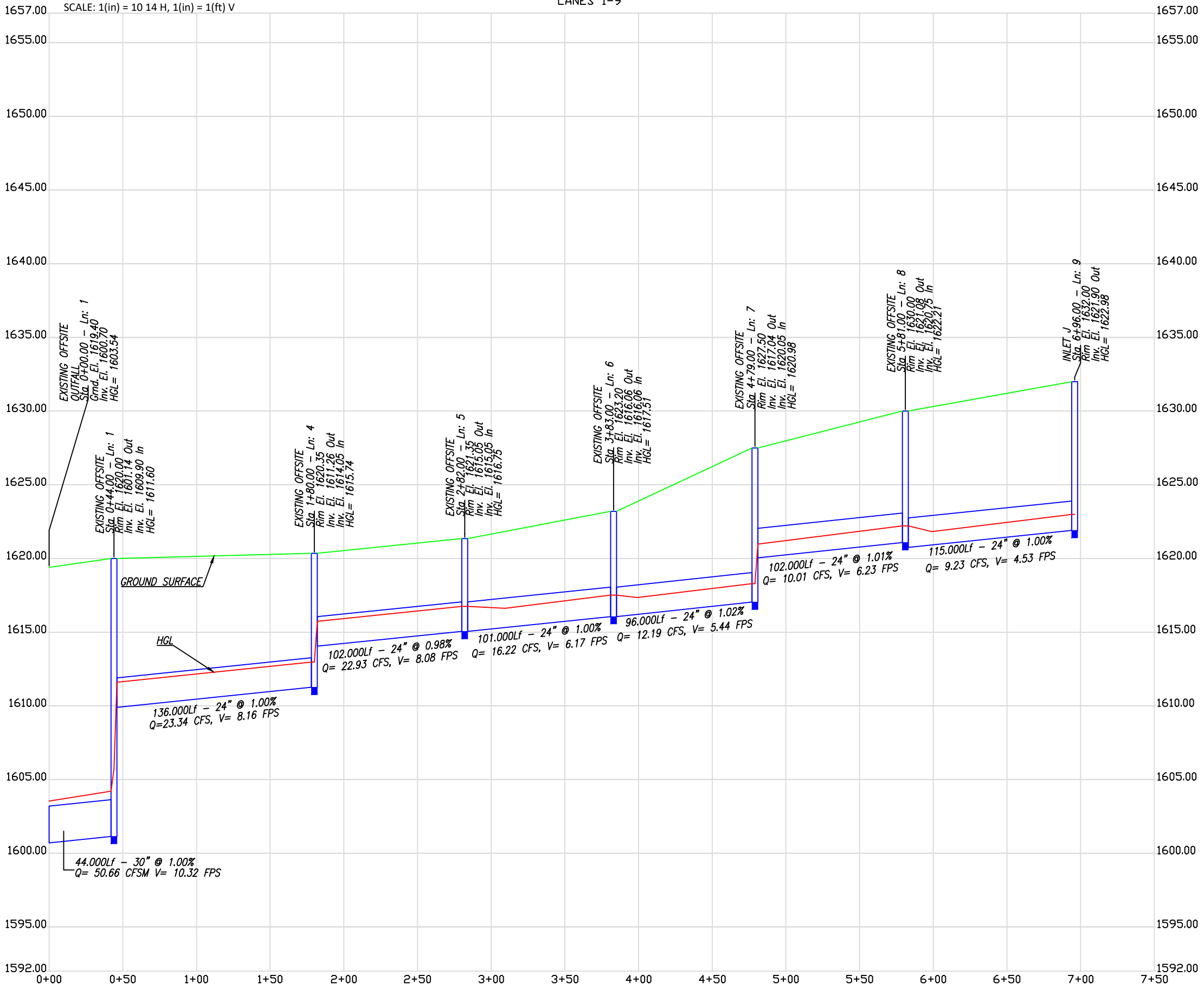


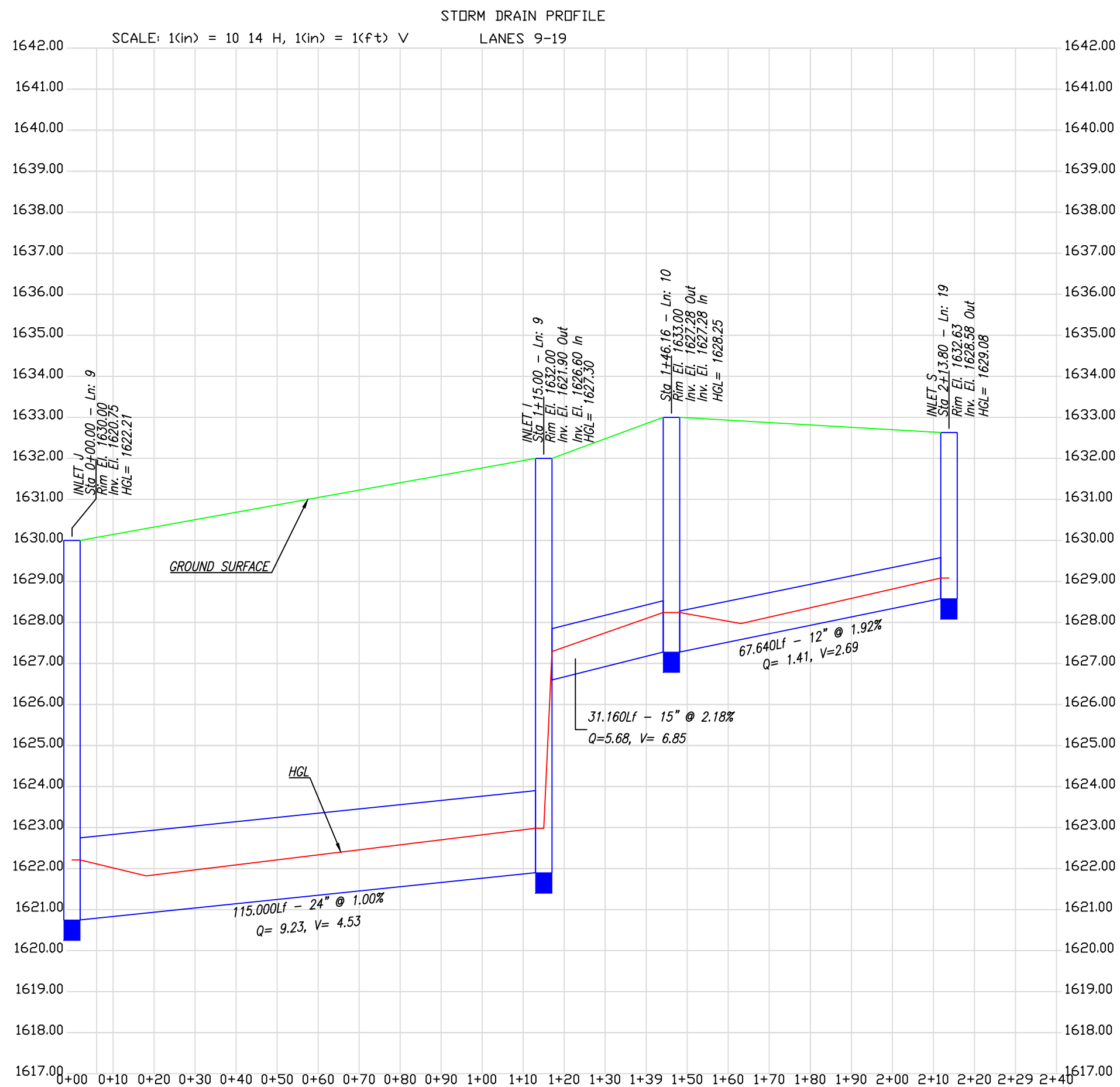
Hydraflow Storm Sewers Extension for Autodesk® AutoCAD® Civil 3D® Plan

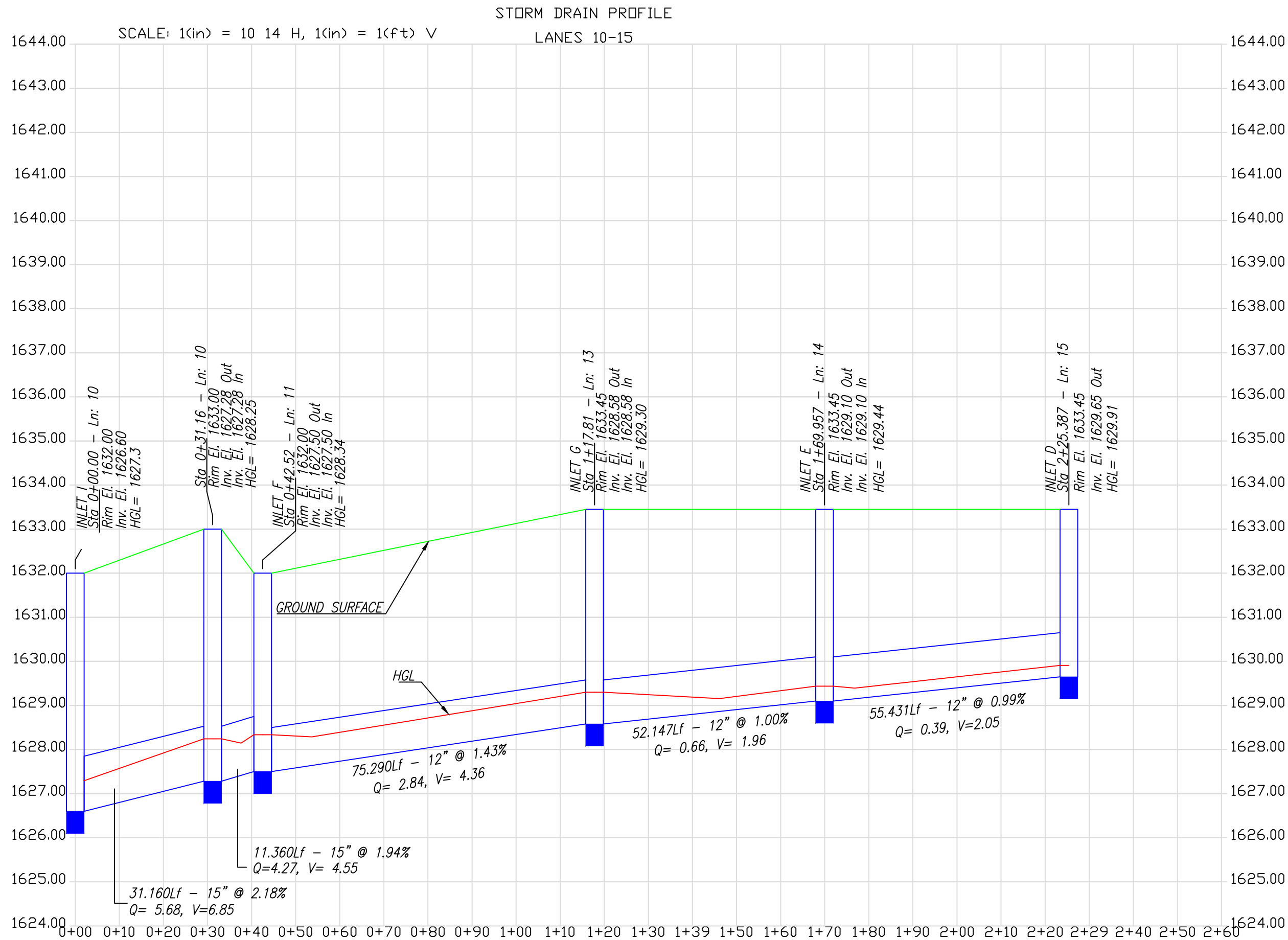


Project File: ONSITESTORMDRAIN.stm	Number of lines: 19	Date: 4/1/2020
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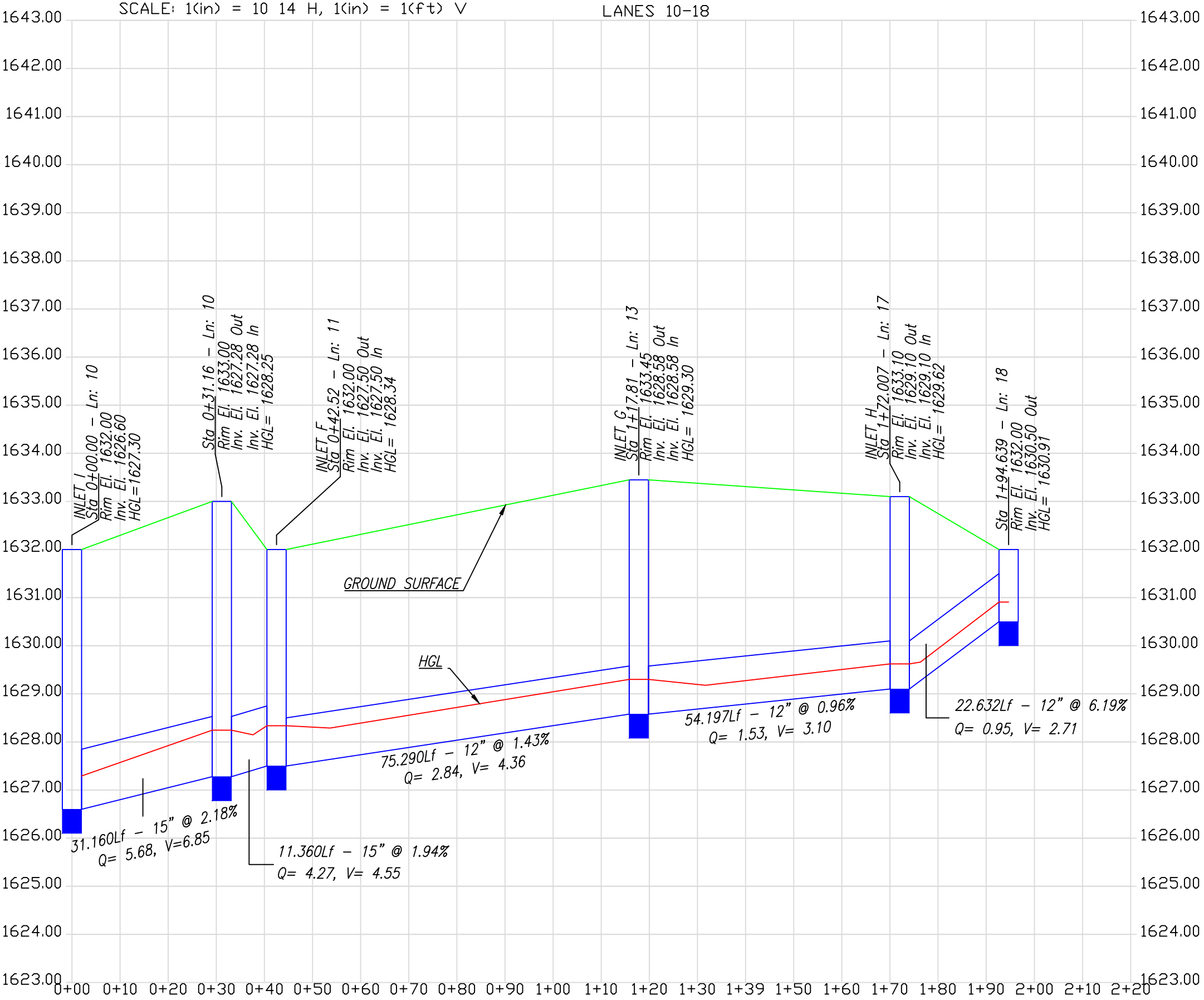
STORM DRAIN PROFILE
LANES 1-9





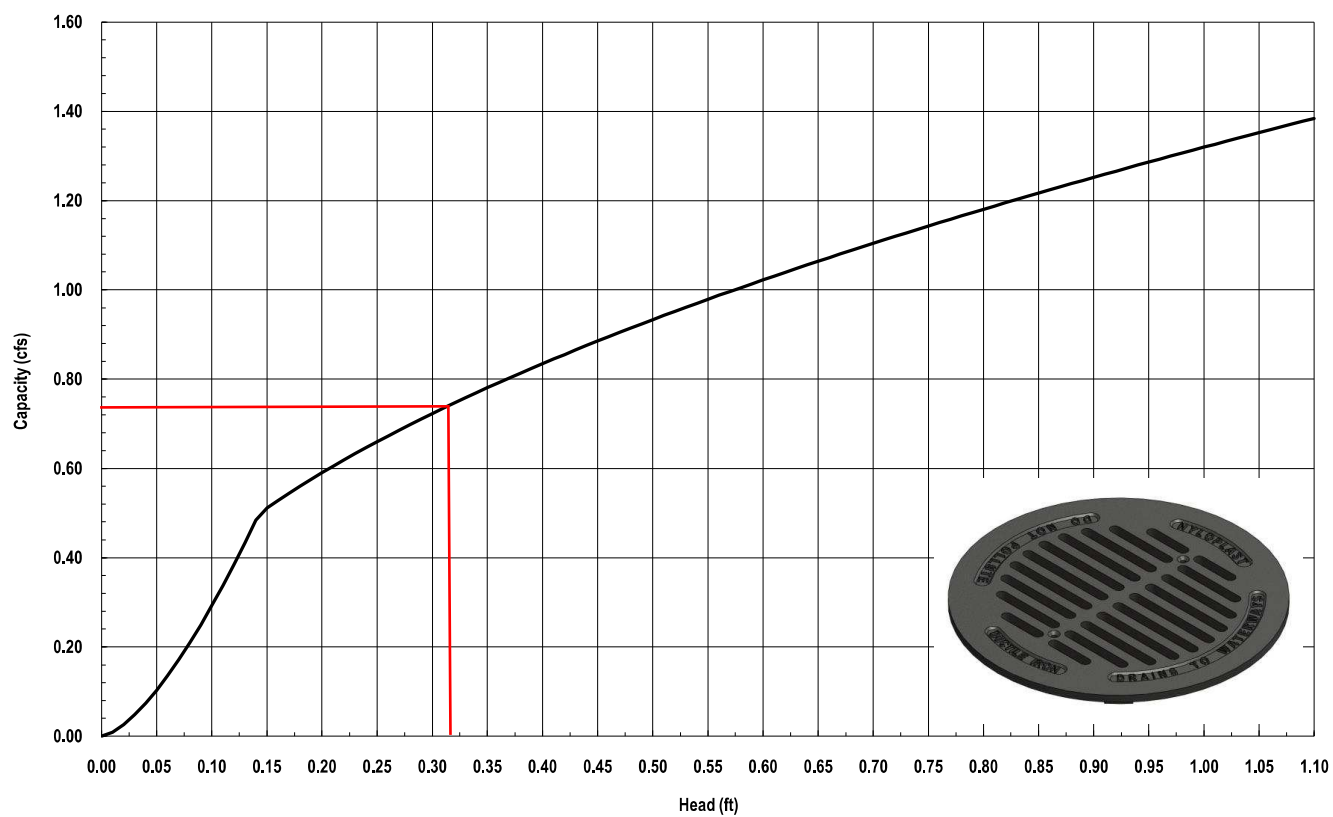


STORM DRAIN PROFILE



Inlet B

Nyloplast 12" Drop In Grate Inlet Capacity Chart

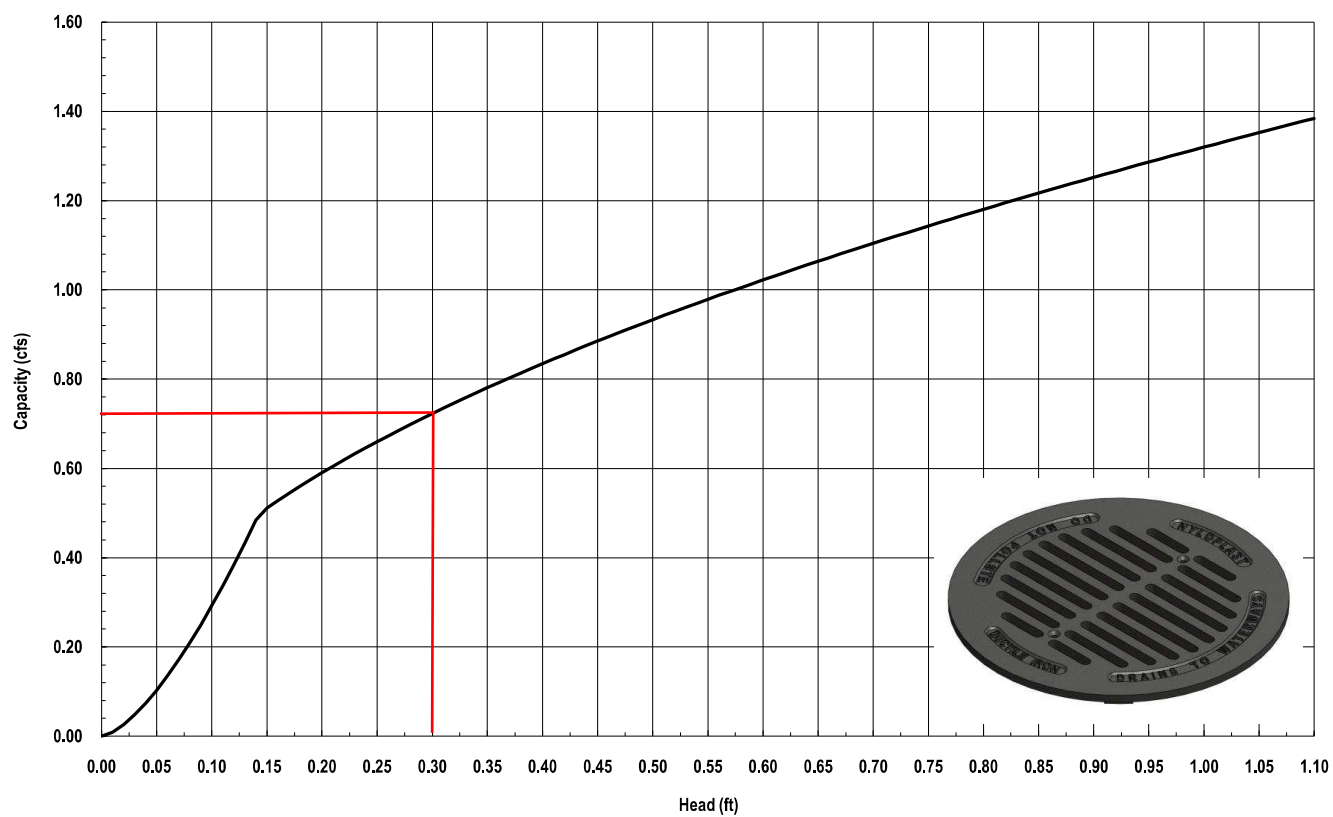


DA B Q100= 0.36cfs
Grate Cap.=0.75 cfs
50% clog= 0.375
Grate Passes


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© Nyloplast Inlet Capacity Charts June 2012

Inlet C

Nyloplast 12" Drop In Grate Inlet Capacity Chart

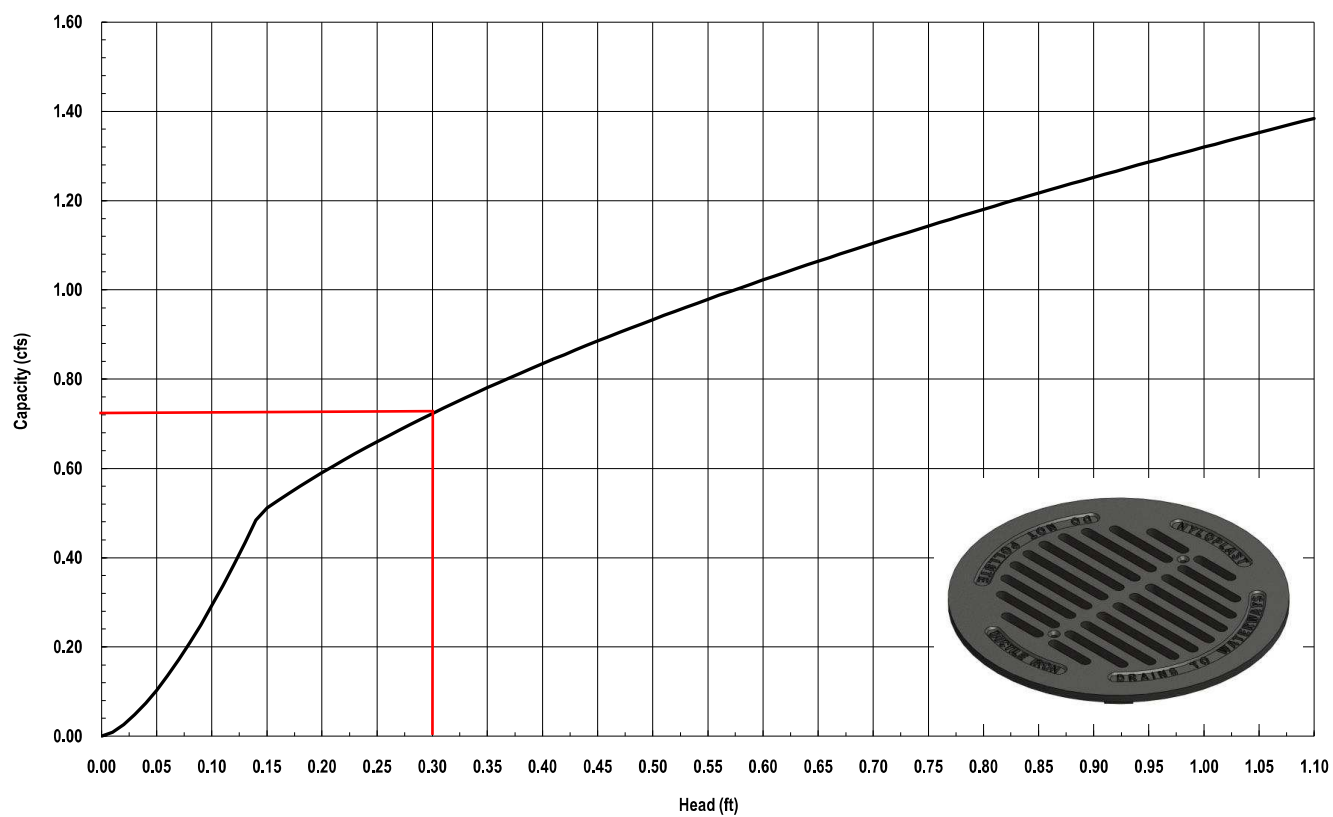


DA C Q100= 0.24 cfs
Grate Cap.=0.70 cfs
50% clog= 0.35 cfs
Grate Passes


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Inlet D

Nyloplast 12" Drop In Grate Inlet Capacity Chart

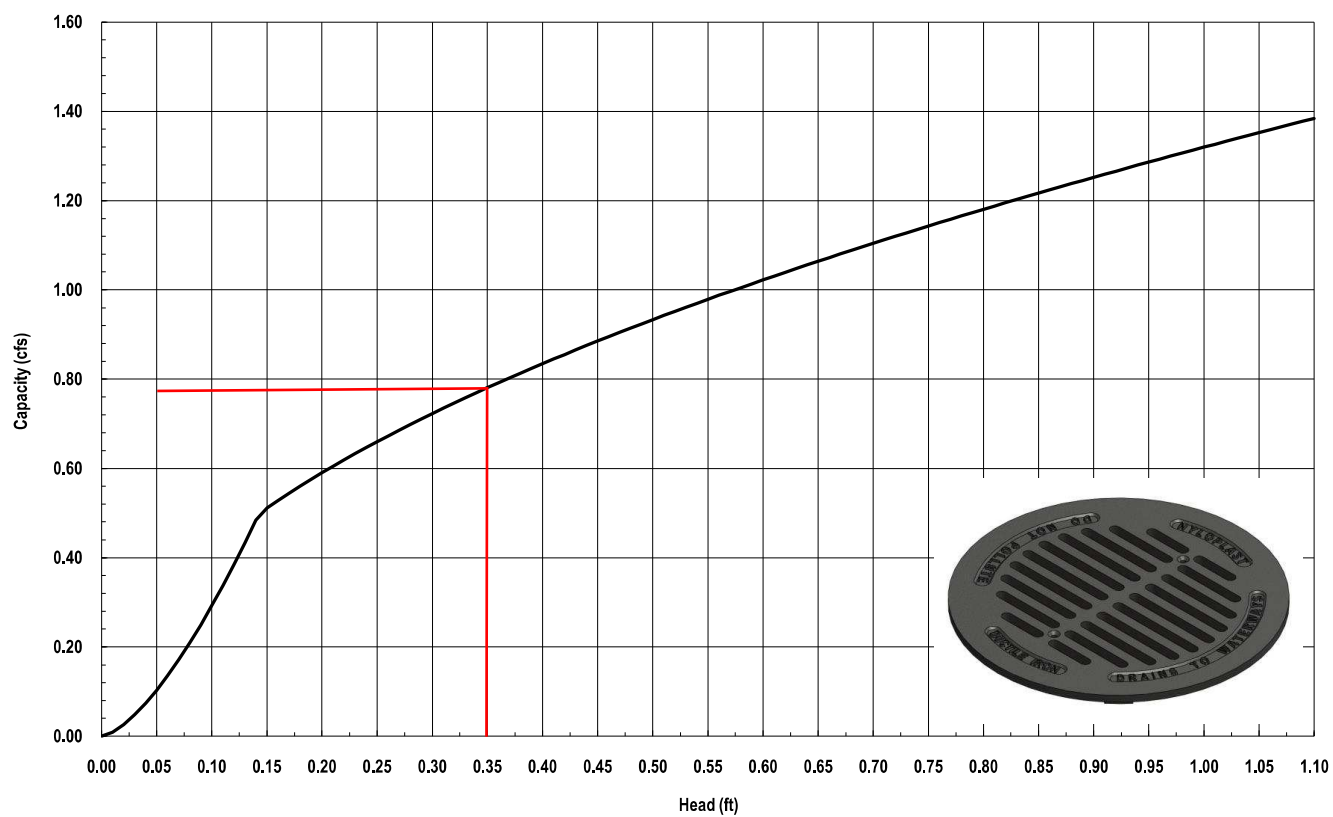


DA D Q100= 0.30 cfs
Grate Cap.=0.70 cfs
50% clog= 0.35 cfs
Grate Passes


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Inlet E

Nyloplast 12" Drop In Grate Inlet Capacity Chart

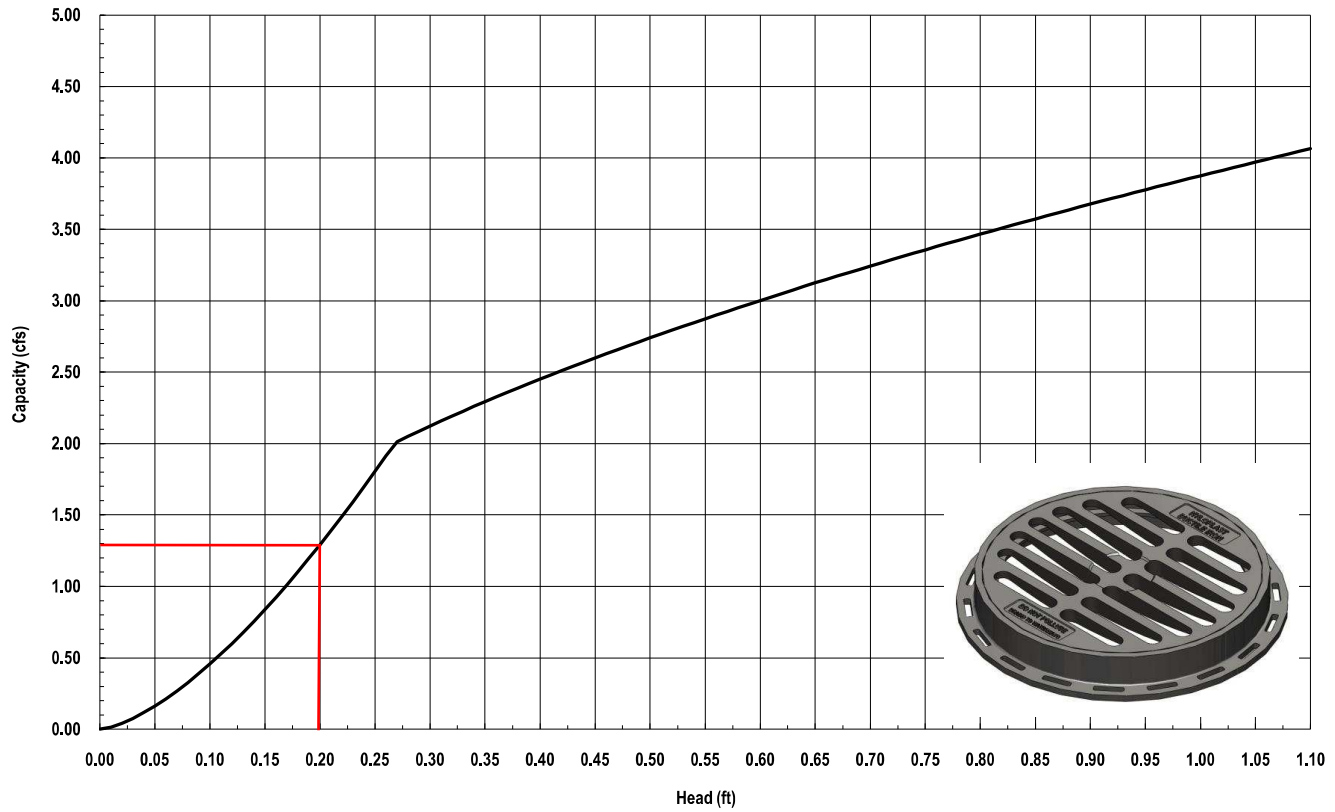


DA E Q100= 0.20 cfs
 Grate Cap.=0.78 cfs
 50% clog= 0.39 cfs
 Grate Passes


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Inlet F

Nyloplast 18" Standard Grate Inlet Capacity Chart

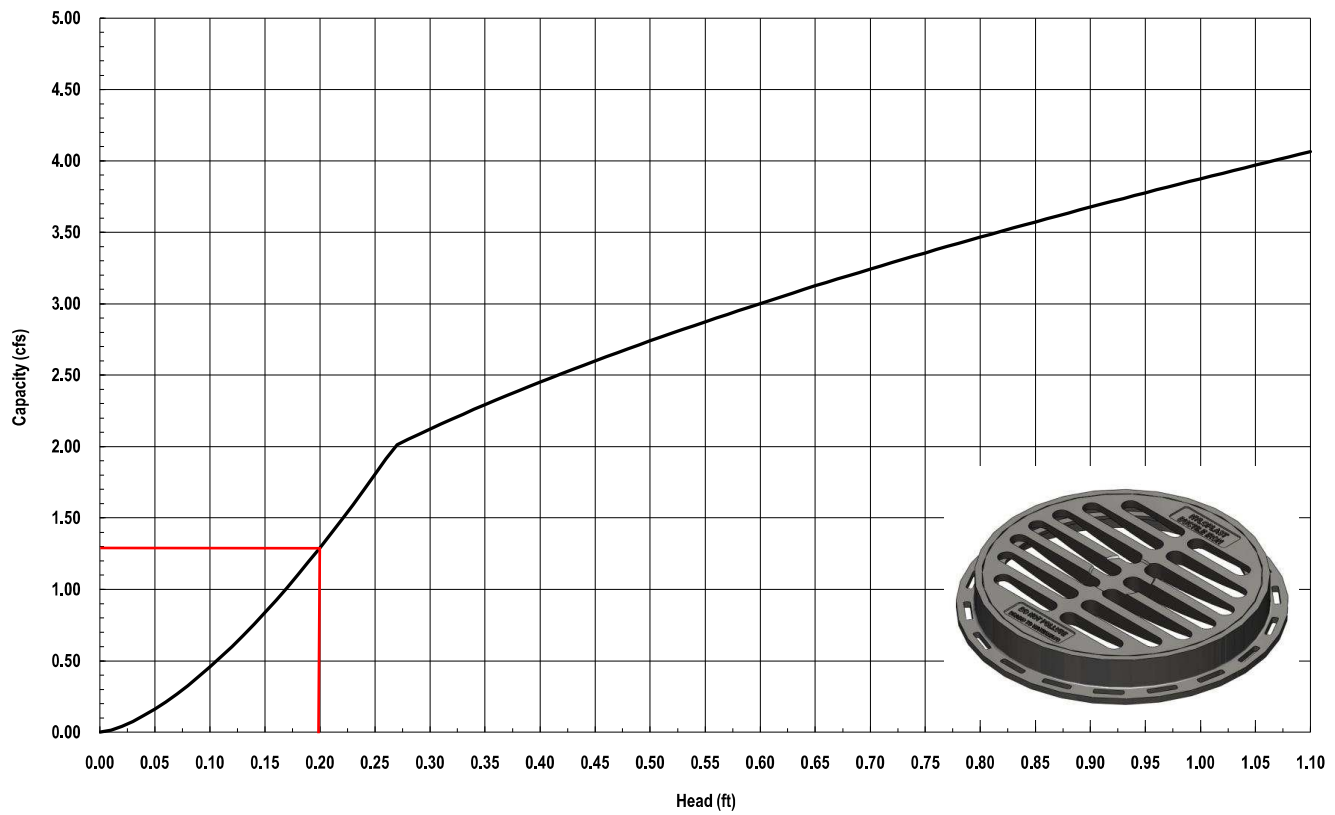


DA F Q100= 0.49 cfs
Grate Cap.=1.25 cfs
50% clog= 0.75 cfs
Grate Passes


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Inlet G

Nyloplast 18" Standard Grate Inlet Capacity Chart

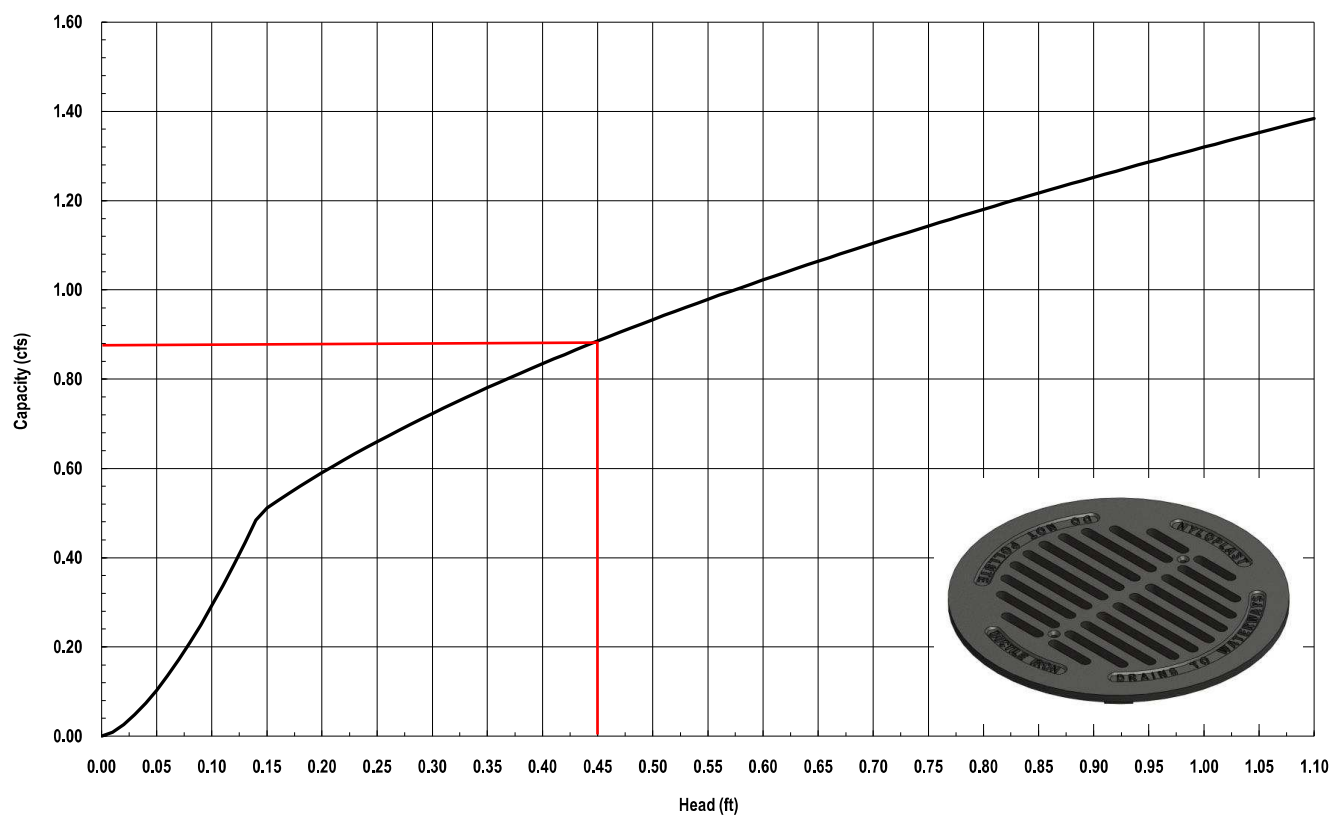


DA G Q100= 0.49 cfs
Grate Cap.=1.25 cfs
50% clog= 0.75 cfs
Grate Passes


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Inlet H

Nyloplast 12" Drop In Grate Inlet Capacity Chart

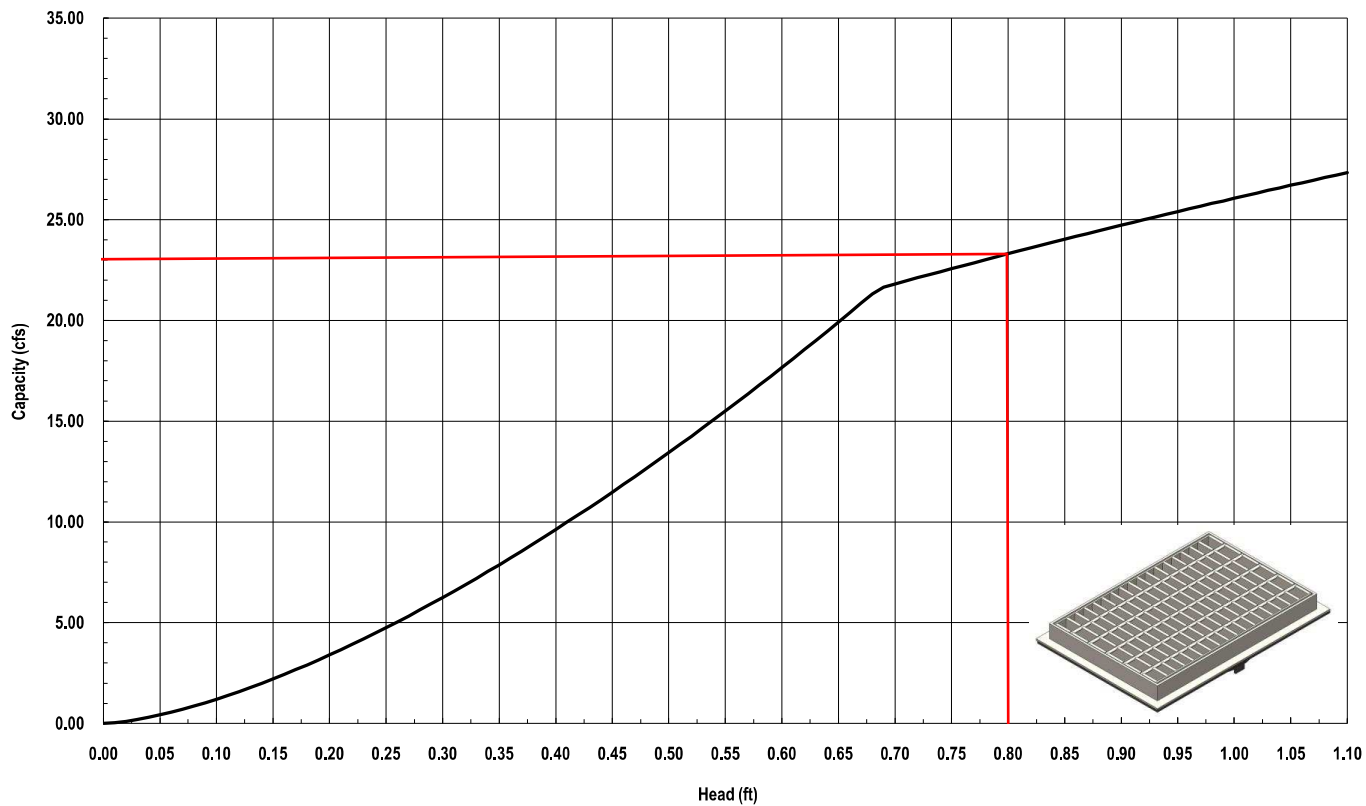


DA H Q100= 0.44 cfs
Grate Cap.=0.90 cfs
50% clog= 0.45 cfs
Grate Passes


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Inlet I

Nyloplast 2' x 3' Steel Bar / MAG Grate Inlet Capacity Chart

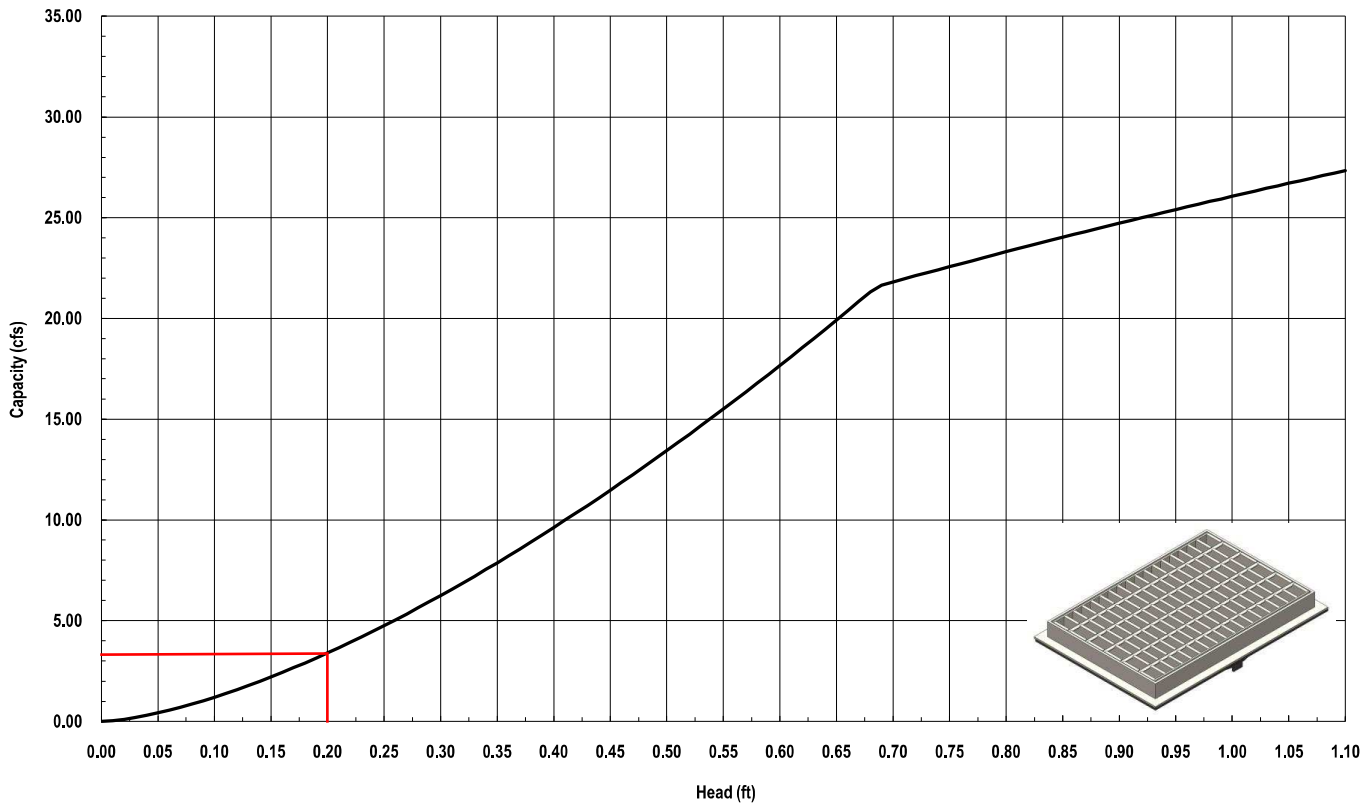


DA I Q100= 1.29 cfs
Grate Cap.=23.00 cfs
50% clog= 12.50
Grate Passes


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Inlet J

Nyloplast 2' x 3' Steel Bar / MAG Grate Inlet Capacity Chart

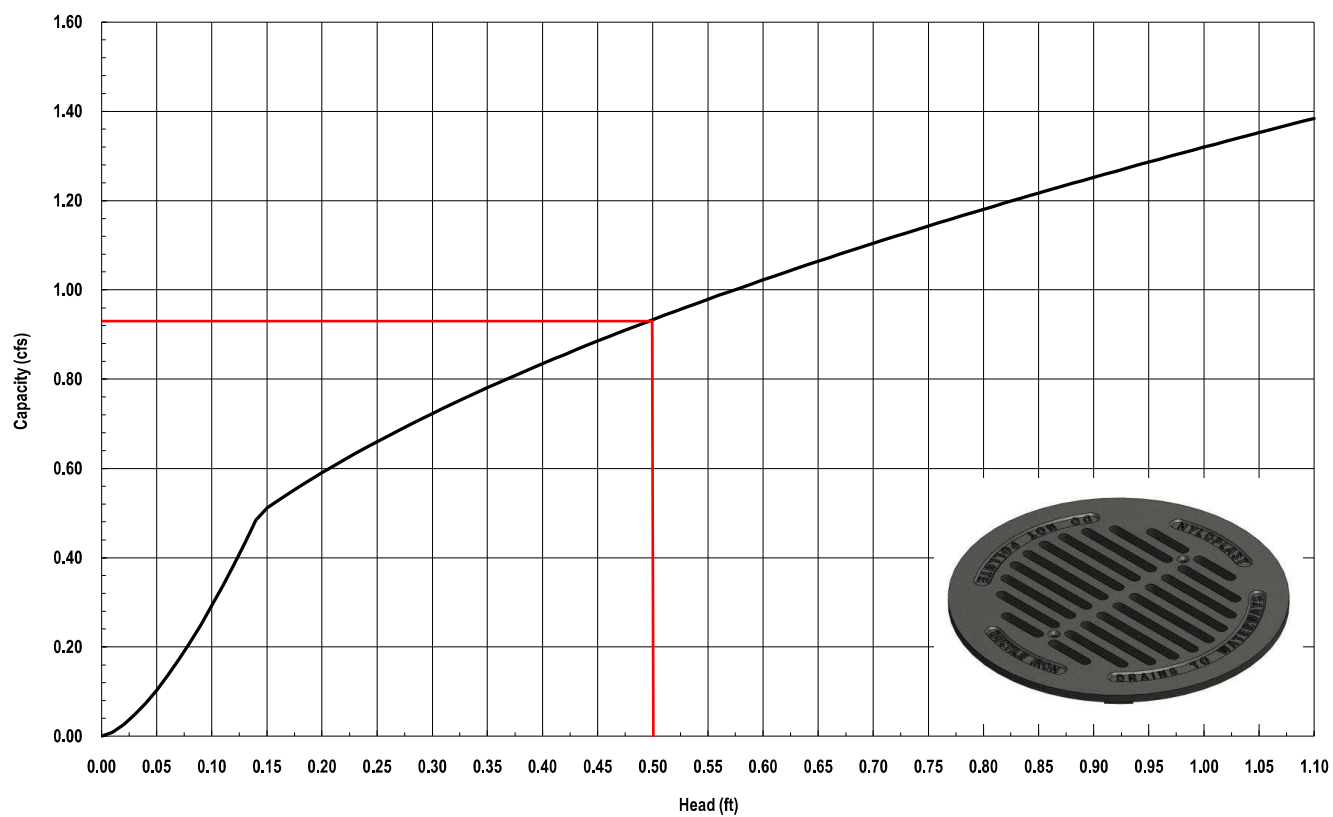


DA J Q100= 1.12 cfs
Grate Cap.=3.0 cfs
50% clog= 1.50
Grate Passes


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Inlet K

Nyloplast 12" Drop In Grate Inlet Capacity Chart

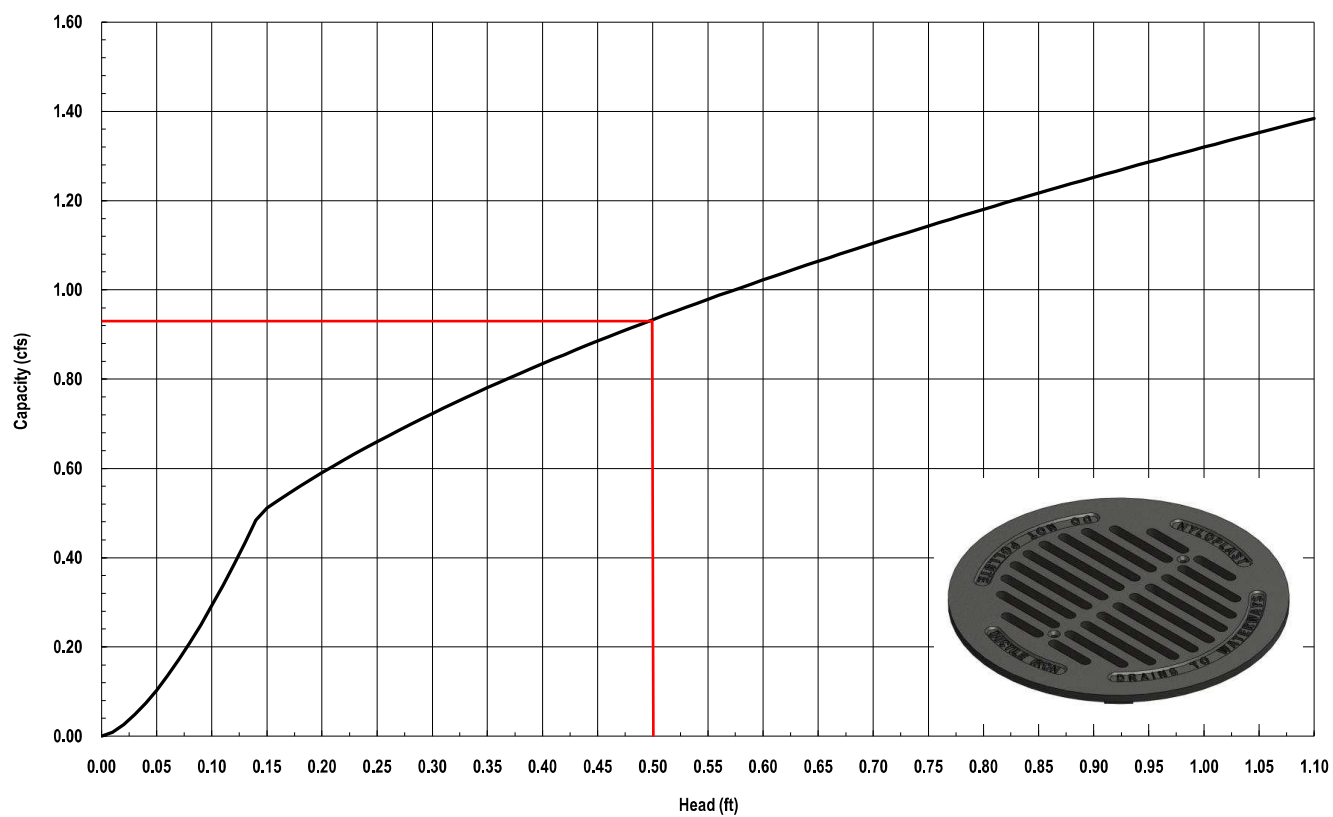


DA K Q100= 0.24 cfs
Grate Cap.=0.8 cfs
50% clog= 0.4 cfs
Grate Passes


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Inlet L

Nyloplast 12" Drop In Grate Inlet Capacity Chart

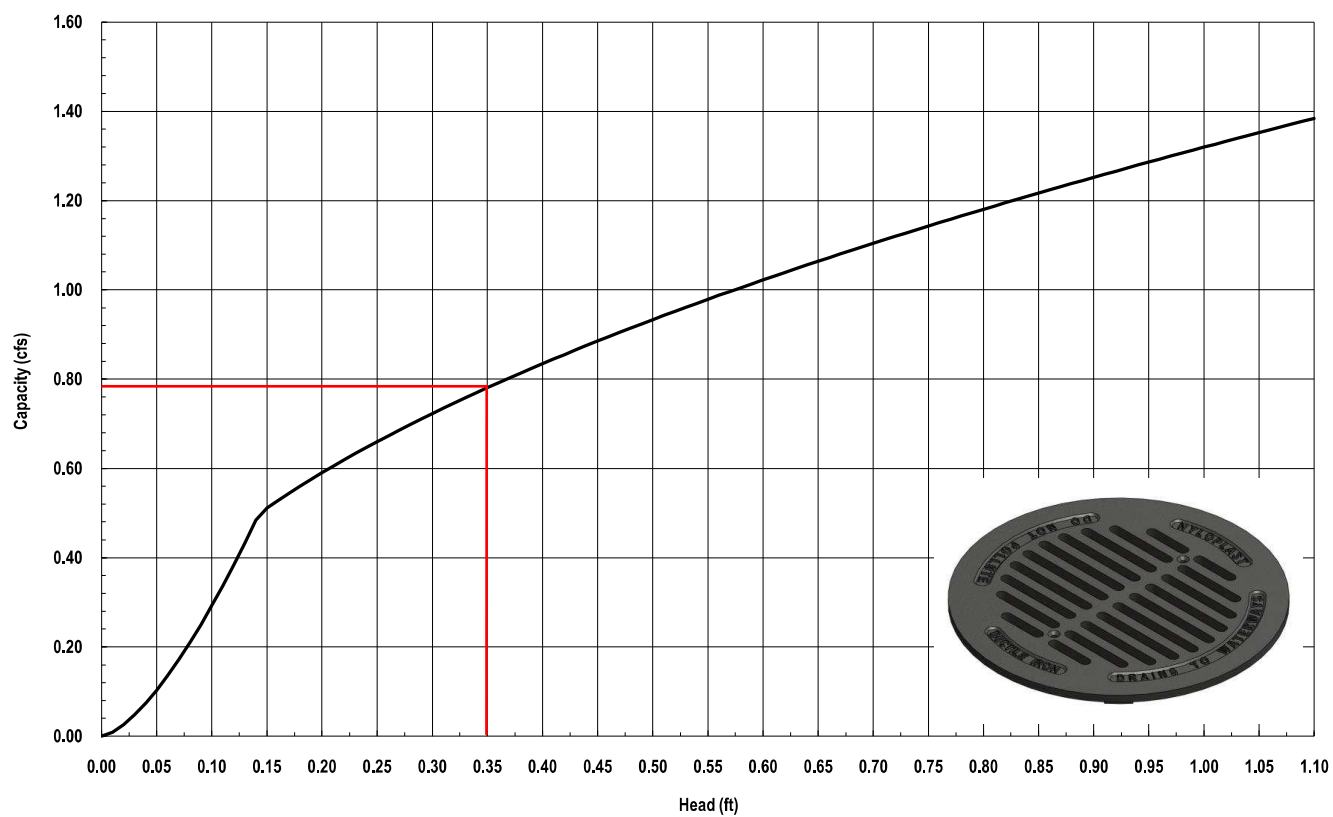


DA L Q100= 0.10 cfs
Grate Cap. (2 grates)=1.6 cfs
50% clog= 0.80 cfs
Grate Passes


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Inlet M

Nyloplast 12" Drop In Grate Inlet Capacity Chart

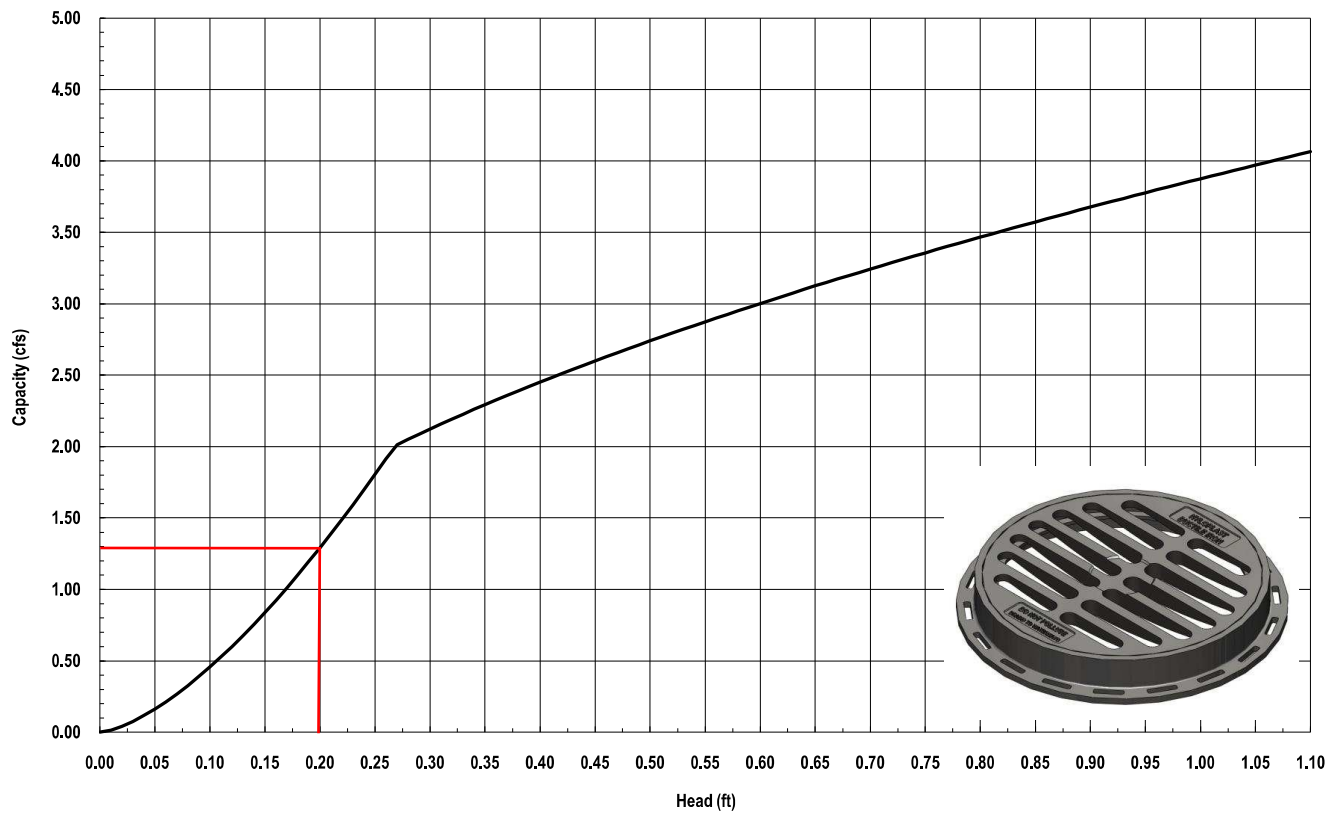


DA B Q100= 0.38 cfs
Grate Cap.=0.78 cfs
50% clog= 0.39 cfs
Grate Passes


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Inlet N

Nyloplast 18" Standard Grate Inlet Capacity Chart

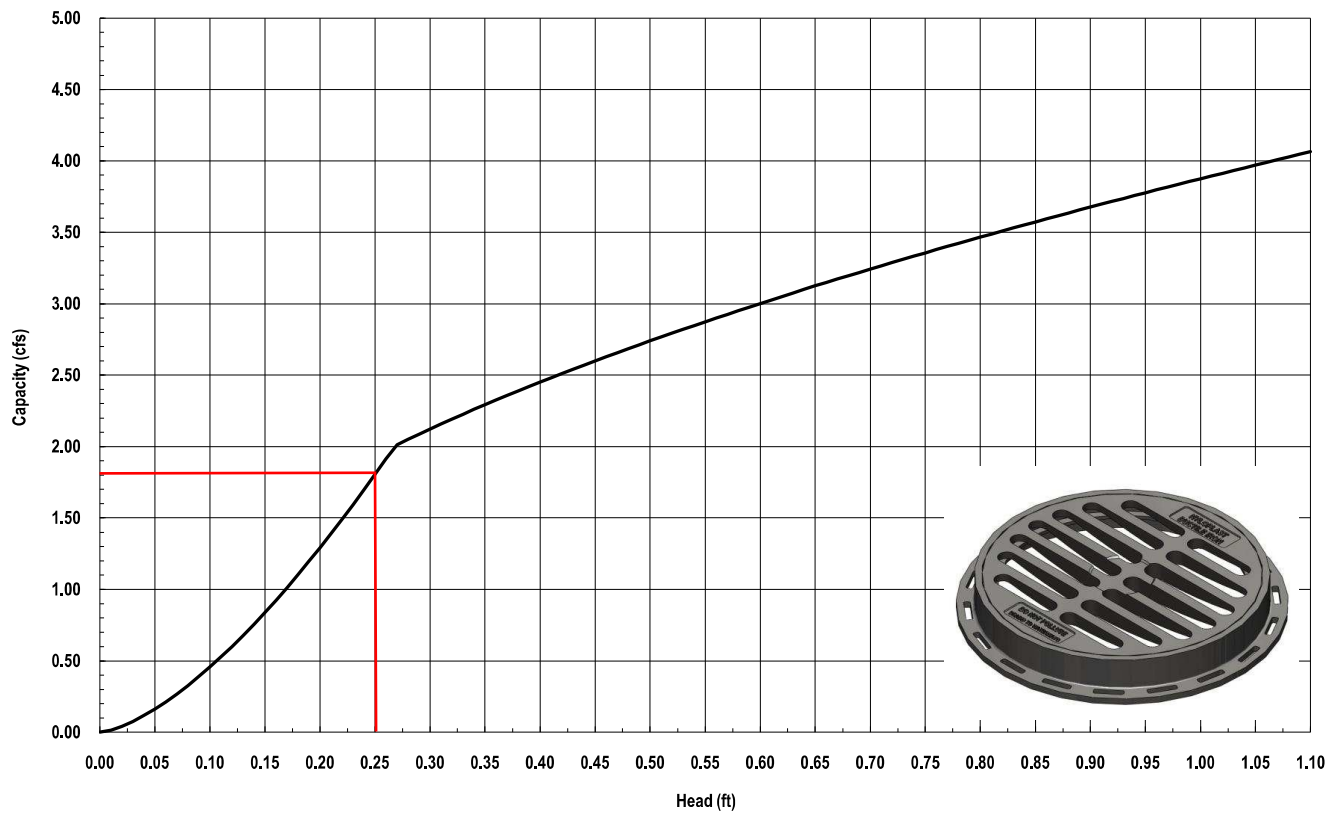


DA N Q100= 0.46 cfs
Grate Cap.=1.25 cfs
50% clog= 0.75 cfs
Grate Passes


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Inlet O

Nyloplast 18" Standard Grate Inlet Capacity Chart

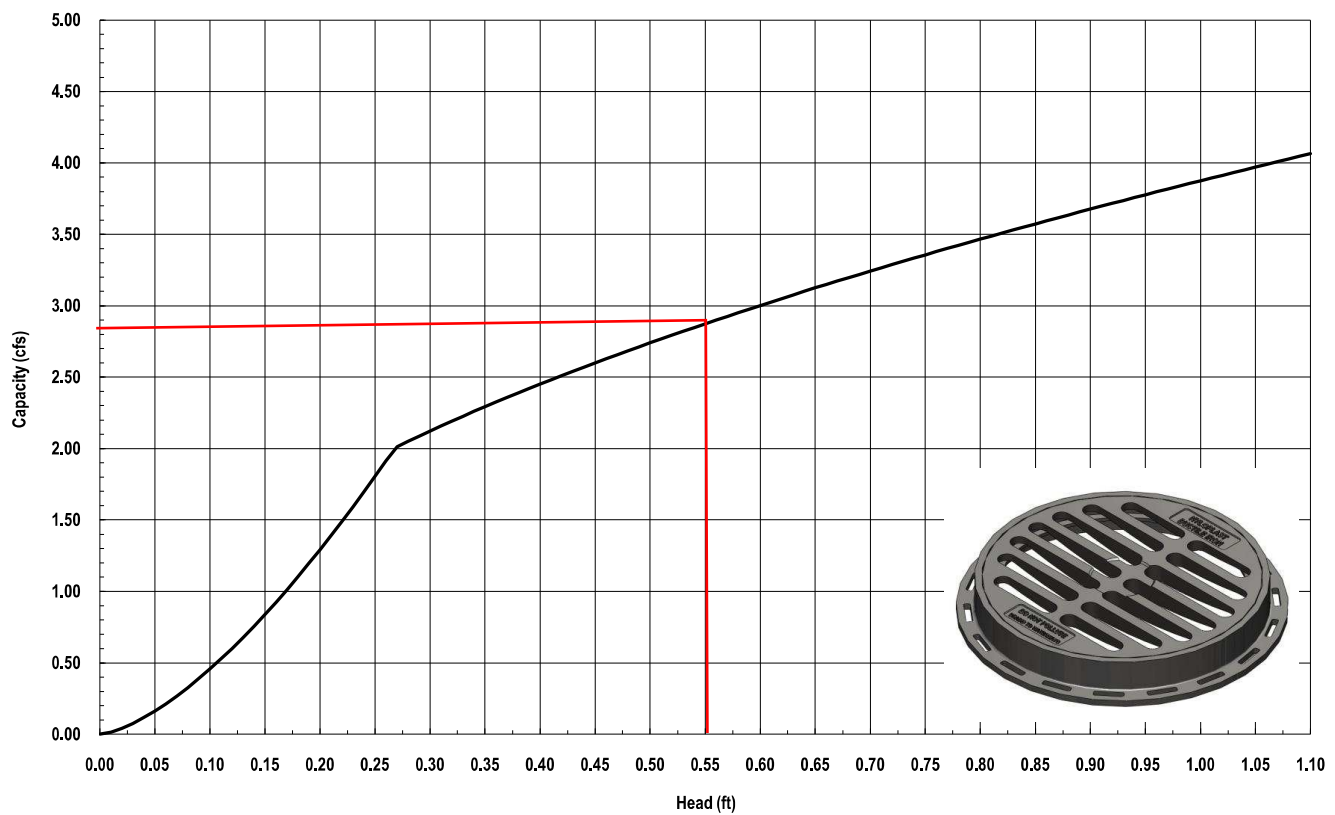


DA O Q100= 0.50 cfs
Grate Cap.=1.80 cfs
50% clog= 0.90 cfs
Grate Passes


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Inlet P

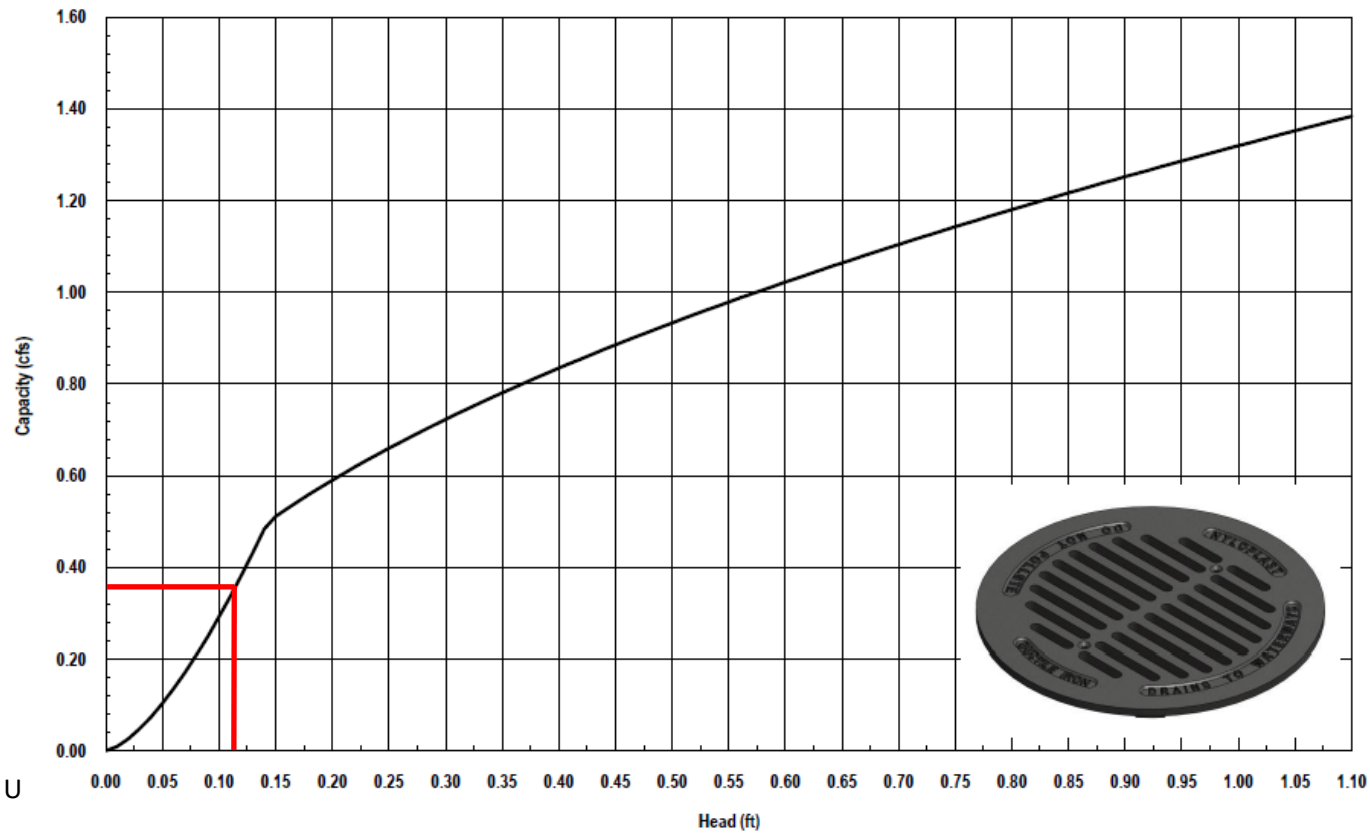
Nyloplast 18" Standard Grate Inlet Capacity Chart



DA P Q100= 0.57 cfs
Grate Cap.=2.85 cfs
50% clog= 1.42 cfs
Grate Passes


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Nyloplast 12" Drop In Grate Inlet Capacity Chart



INLET U

$Q_{100} = 0.18$ CFS

CAPACITY = 0.36 CFS

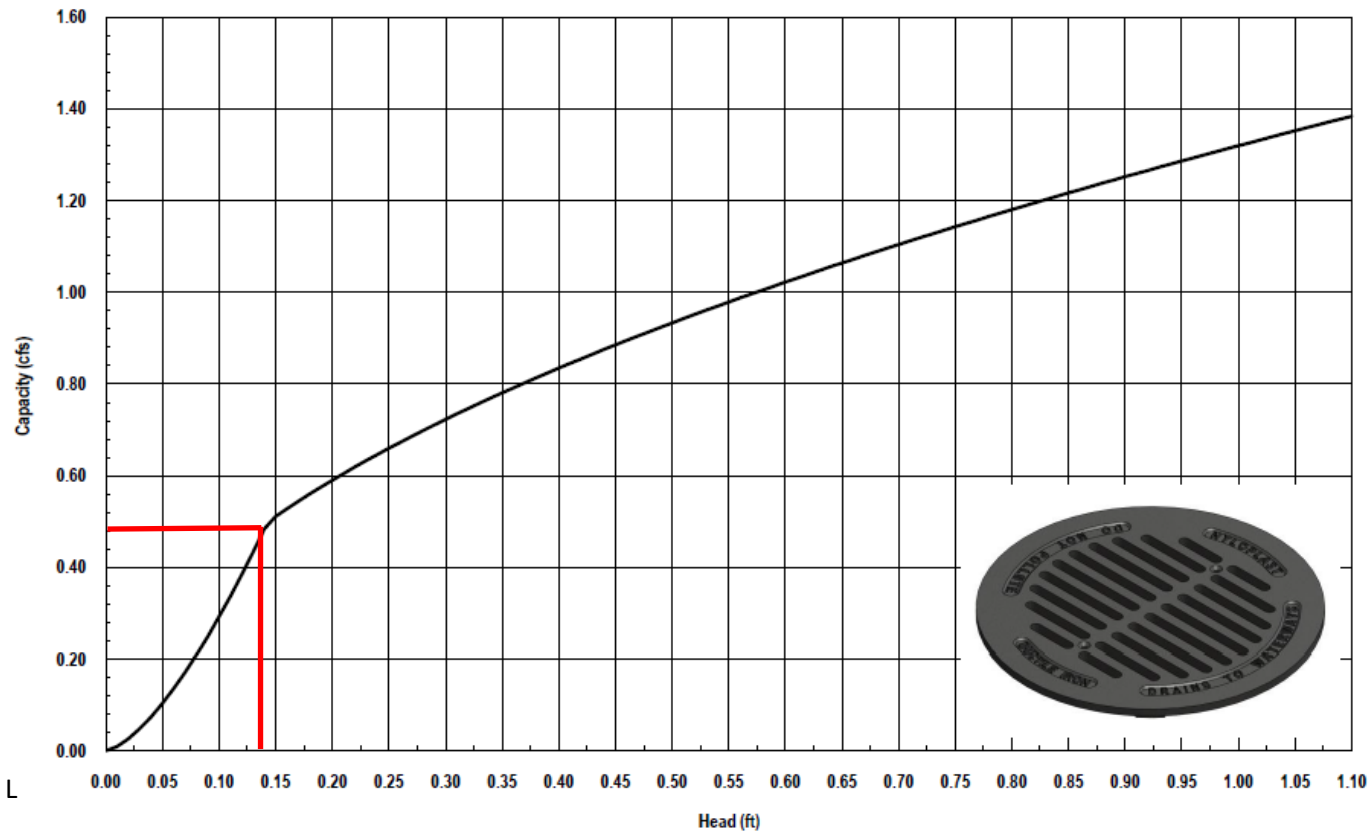
CLOGGING = 0.18 CFS

DRAIN PASSES



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Nyloplast 12" Drop In Grate Inlet Capacity Chart



INLET L

$Q_{100} = 0.10$ CFS

CAPACITY = 0.48 CFS

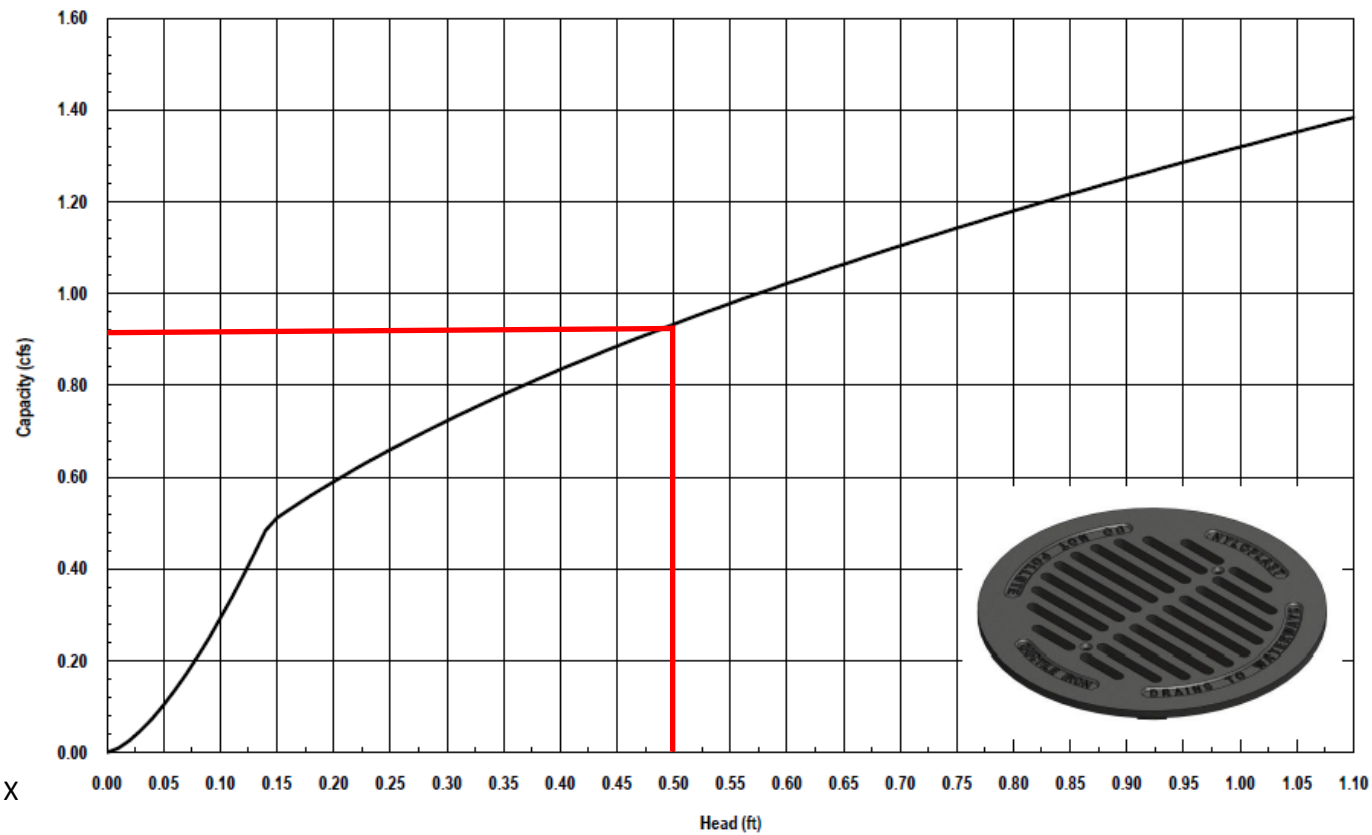
CLOGGING = 0.24 CFS

DRAIN PASSES



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Nyloplast 12" Drop In Grate Inlet Capacity Chart



INLET X

$Q_{100} = 0.17$ CFS

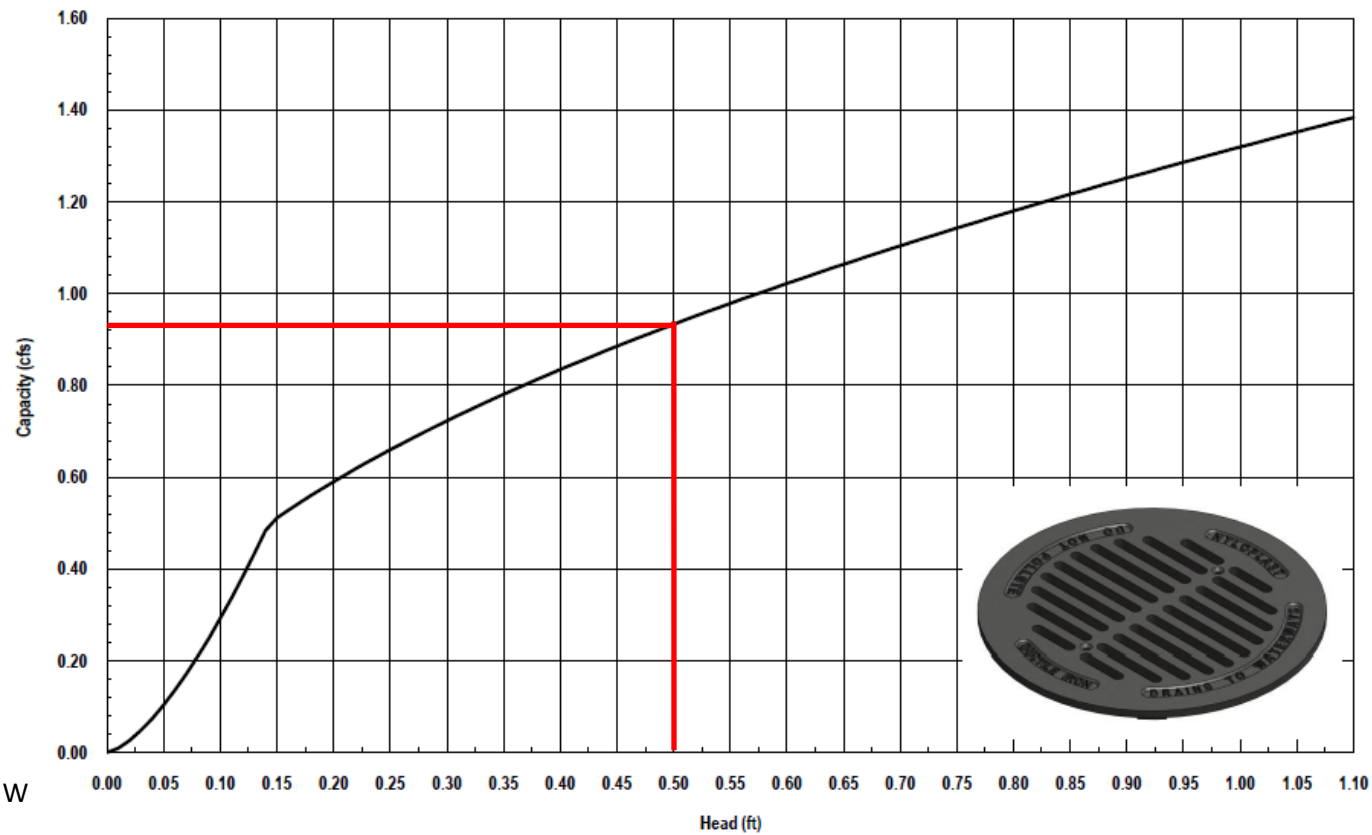
CAPACITY = 0.92 CFS

CLOGGING = 0.46 CFS

DRAIN PASSES


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Nyloplast 12" Drop In Grate Inlet Capacity Chart



INLET W

$Q_{100} = 0.25$ CFS

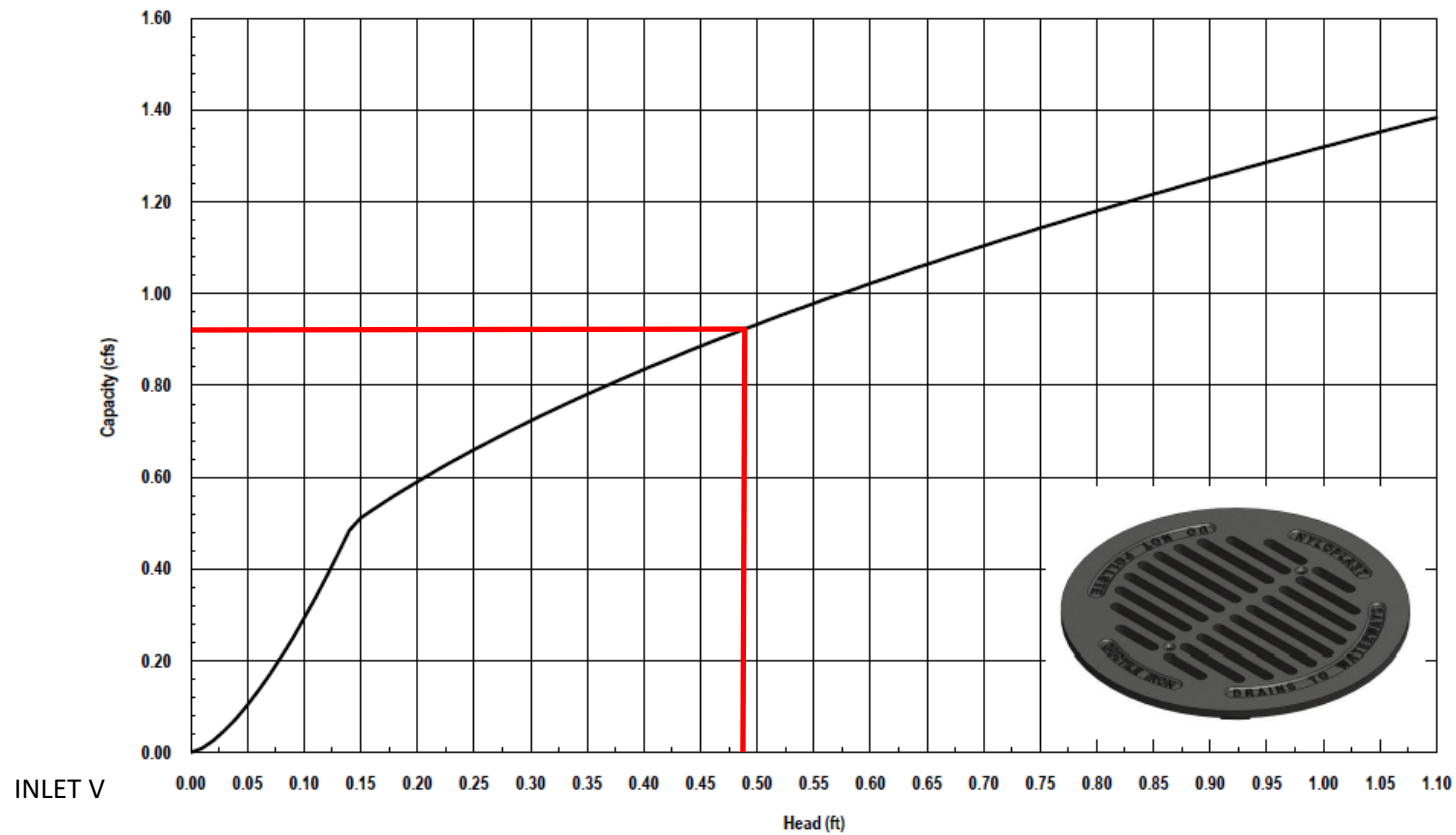
CAPACITY = 0.92 CFS

CLOGGING = 0.46 CFS

DRAIN PASSES


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Nyloplast 12" Drop In Grate Inlet Capacity Chart



$Q_{100} = 0.20$ CFS

CAPACITY = 0.92 CFS

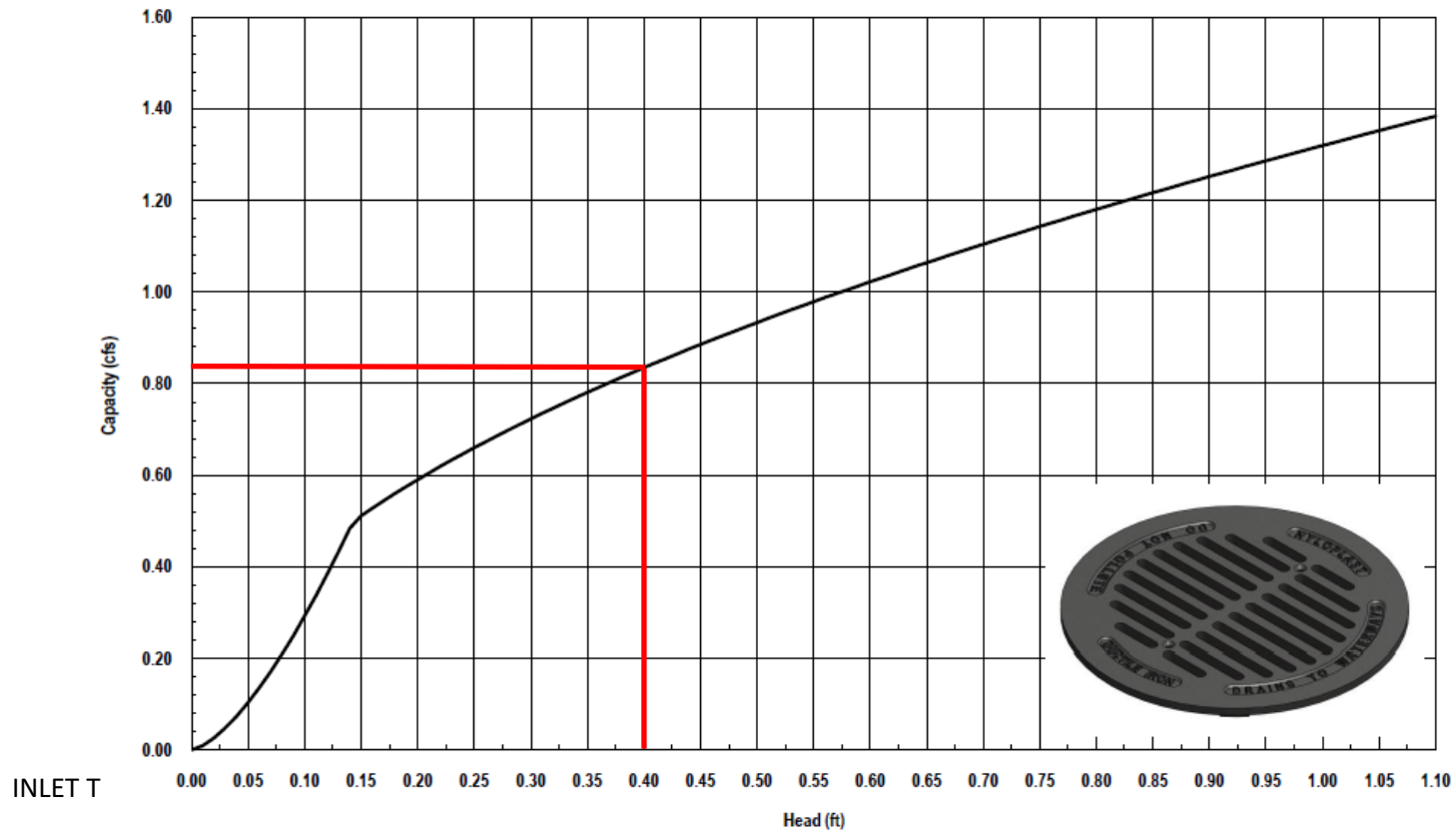
CLOGGING = 0.46 CFS

DRAIN PASSES



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Nyloplast 12" Drop In Grate Inlet Capacity Chart



$Q_{100} = 0.35$ CFS

CAPACITY = 0.84 CFS

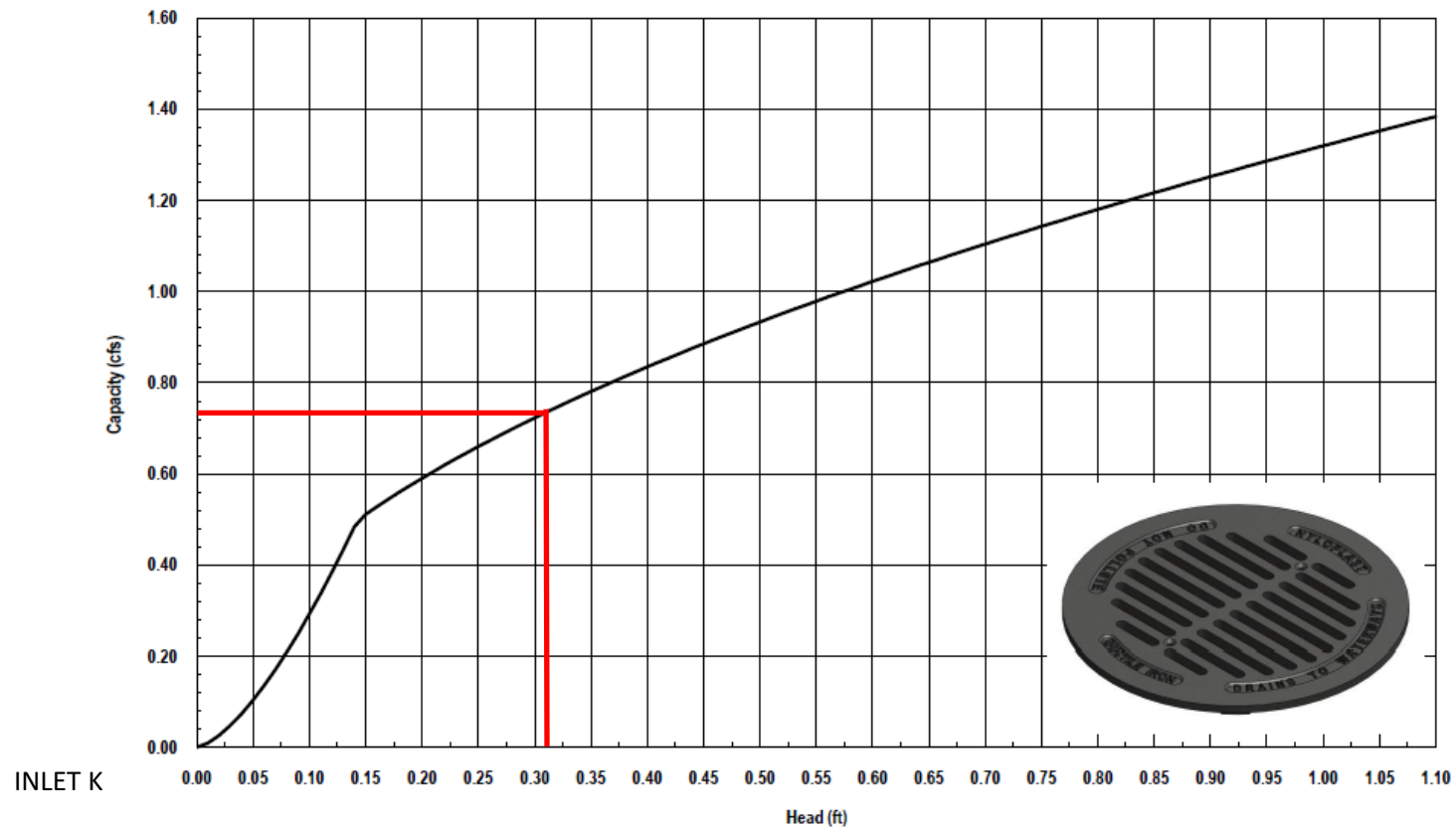
CLOGGING = 0.42 CFS

DRAIN PASSES



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Nyloplast 12" Drop In Grate Inlet Capacity Chart



INLET K

$Q_{100} = 0.24$ CFS

CAPACITY = 0.74 CFS

CLOGGING = 0.37 CFS

DRAIN PASSES

HYDRAULIC CALCULATION SHEET

Retention Calculations

Hubbard Engineering

Project No. 18114-301

Project Name: Cavasson Hotel
Project No.: 18114-301

Prepared by: TSW
Revised By: TSW

Date: 10/20/19
Date: 03/30/20

Purpose: Evaluate the required and provided retention volumes in order to assess conformance to project criteria.

Methodology: Calculate the volume of stormwater required to be retained using City of Scottsdale criteria. Calculate the estimated volume of stormwater retained using retention basin geometry.

Criteria: Retain the calculated stormwater run-off for the 100-YEAR 2-HOUR duration storm event.

References: 1. Town of Gilbert Public Works And Engineering Standards, September 21,2015

Calculations: Volume Required = $C_{Composite} * D / 12 * A$ [ft³] (Reference 1)

D = 0.5 [in] (Reference 1)
C = 0.90 (Paved Parking) (Reference 1)

$$\text{Composite C} = (C1 * A1 + C2 * A2 + \dots) / (A1 + A2 + \dots)$$

$$\text{Volume Required} = \text{Composite C} * P / 12 * A$$

Results:

Identifiers Contributory Area ID	CALCULATE RETENTION VOLUME REQUIRED		Volume Required		
	Area [acres]	C	[acre-ft]	[ft ³]	[yd ³]
DA-A	0.81	0.90	0.03	1,330	49
DA-B	0.07	0.90	0.00	112	4
DA-C	0.05	0.90	0.00	77	3
DA-D	0.06	0.90	0.00	93	3
DA-E	0.04	0.90	0.00	64	2
DA-F	0.09	0.90	0.00	153	6
DA-G	0.09	0.90	0.00	155	6
DA-H	0.08	0.90	0.00	138	5
DA-I	0.25	0.90	0.01	405	15
DA-J	0.22	0.90	0.01	353	13
DA-K	0.05	0.90	0.00	75	3
DA-L	0.02	0.90	0.00	31	1
DA-M	0.07	0.90	0.00	119	4
DA-N	0.09	0.90	0.00	143	5
DA-O	0.10	0.90	0.00	156	6
DA-P	0.11	0.90	0.00	179	7
DA-Q	0.21	0.90	0.01	343	13
DA-R	0.16	0.90	0.01	268	10
DA-S	0.27	0.90	0.01	442	16
DA-T	0.07	0.90	0.00	110	4
DA-U	0.03	0.90	0.00	57	2
DA-V	0.04	0.90	0.00	62	2
DA-W	0.05	0.90	0.00	80	3
DA-X	0.03	0.90	0.00	52	2
Total Area:	0.99	TOTAL VOLUME REQUIRED:	0.10	4,997.37	155.33

HYDRAULIC CALCULATION SHEET
RETENTION BASIN DRAIN TIME CALCULATIONS
HUBBARD ENGINEERING
PROJECT NO.18114-203

Project Name: Cavasson- Phase I

Prepared By: SDH
Revised By: SDH

Date: 5/20/2019
Date: 6/21/2019

Purpose: Calculate the number of drywells required to facilitate drainage of the required volume within 36 hours.

Methodology: Calculate the number of drywells necessary to drain the retention basin and underground storage tanks within 36 hours.

Criteria: 1. The combination of natural infiltration and drywell drainage capacity must discharge the retention volume provided within 36 hours.
2. Percolation rates obtained were by Speedie and Associates Double Ring Infiltrometer percolation Test, 08/18/17.

References: 1.Design Standards & Policies Manual, City of Scottsdale, January 2017

$$\text{Number of Drywells Required} = V_{DW} / (\text{Drywell Infiltration Rate} * 3600 * 36 \text{ hours})$$

$$\text{Drywell Infiltration Rate} = 0.21 \quad [\text{cfs}]$$

$$\text{Percolation Rate} = 0.062 \quad [\text{ft}^3/\text{hr}/\text{ft}^2] \quad (\text{Location to south of site})$$

$$\text{Percolation Rate} = 0.083 \quad [\text{ft}^3/\text{hr}/\text{ft}^2] \quad (\text{Location to west of site})$$

Results:

Infiltration Drainage Capacity Calculations								
Identifiers Retention Basin ID	Volume Required [ft ³]	Bottom Area [ft ²]	Percolation Rate		Infiltration Drain Capacity [ft ³]	V _{DW} [ft ³]	Drain Time	Drain Time
			Test Location	[ft ³ /hr/ft ²] ²			w/ Surface infiltration [hrs]	w/ No Surface infiltration [hrs]
RB-01	58690	0	na	0	0	58689.9	0.0	25.9

Identifiers Retention Basin ID	Number of Drywells Required
RB-01	3

Conclusions: The number of dual chamber dywells computed is sufficient to discharge the provided volume within 36 hours.

Local Drywell Percolation Test Results			
Address	Reference Job No.	Hole #	Perc Rate (cfs)
1800 N. Scottsdale Road, Scottsdale, AZ	1506-016	1	0.36
1800 N. Scottsdale Road, Scottsdale, AZ	1506-016	2	0.30
1800 N. Scottsdale Road, Scottsdale, AZ	1506-016	3	0.41
1800 N. Scottsdale Road, Scottsdale, AZ	1506-016	4	0.29
1800 N. Scottsdale Road, Scottsdale, AZ	1411-005	1	0.44
1800 N. Scottsdale Road, Scottsdale, AZ	1411-005	2	0.47
4725 E. Mayo Blvd., Phoenix, AZ	0805-034	1	0.55
4725 E. Mayo Blvd., Phoenix, AZ	0805-034	2	0.50
4725 E. Mayo Blvd., Phoenix, AZ	0805-034	3	0.37
4725 E. Mayo Blvd., Phoenix, AZ	0805-034	4	0.42
4725 E. Mayo Blvd., Phoenix, AZ	0805-034	5	0.54
Average Drywell Percolation Rate (cfs) =			0.42
Design Drywell Percolation Rate (Factor of Safety = 2) (cfs) =			0.21

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Phoenix, AZ 85040

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CA Lic. 528080 A, C-42, HAZ; NV Lic. 0035350 A

NM Lic. 90504 GF04

www.TorrentResources.com



DRILLING LOG

LOG NO. _____

JOB NO. 1506-016*An evolution of McGuckin Drilling*

Project Name: Penske Automotive Group		Project Address: <u>18000 N. Scottsdale Road, Scottsdale, AZ</u>					
Contractor:	HOLE	1	2	3	4	5	6
Well Type:	WELL TYPE	PLUS	PLUS	PLUS	PLUS		
Contractors Address: 15-4-9-1 DL	DATE	6-16-15	6-17-15	6-22-15	6-17-15		
	CREW	FJ/JN	FJ/JN	FJ/JN	FJ/JN		
	EQUIP #	R-9	R-9	R-9	R-9		
	CUT/FILL-DW	F 4 .44	F 1.41	F 1.40	F 1.30		
	CUT/FILL-PSC	F 5.57	F 1.01	F 3 .65	F 1.41		
SOIL DESCRIPTION							
Clay, Decomposed Gravel		0-18	15-23	0-12	0-23		
Clay Caliche		18-53	0-15	12-51	23-55		
Clay, Decomposed Gravel		53-68	23-32	51-62	55-70		
Clay, Caliche		68-72	32-41	62-79	70-85		
Decomposed Gravel, Clay		72-85	41-55	79-88	85-113		
Clay, Caliche		85-120	55-78	88-120			
Decomposed Gravel, Clay			78-89				
Clay, Caliche			89-110				
Clay, Decomposed Gravel			110-117				
Clay, Caliche			117-120				
Total Hours							
Total Carbide Teeth							
TOTAL DEPTH		120	120	120	113		
BACKFILLED 10' PER ADEQ REQUIREMENTS							
CEMENTATION	BELLED OUT				85-113		
	HARD	18-70	15-78	12-75	23-73		
	VERY HARD	70-120	89-120	75-120	73-85		
	REFUSAL						
SOIL MOISTURE	MOIST						
	SATURATED						
PERCOLATION TEST RESULTS		.36*	.30*	.41*	.29*		
LATITUDE							
LONGITUDE							
COMMENTS:							
FIELD CHANGES							
☐ ADD/DEDUCT DEPTH ☐ HARD ROCK @ TIME & MATERIALS							
APPROVED BY: _____							
TITLE: _____ DATE: _____							
COMPLETED BY: _____ DATE: _____							



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JOB NO. 1411-005

An evolution of McGuckin Drilling

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JOB NO. 0805-034
C/O # 2

An evolution of McGuckin Drilling

Project Name:		Project Address:					
Musical Instrument Museum		4725 E. Mayo Blvd., Phoenix, AZ					
Contractor:	HOLE	1	2	3	4	5	6
	WELL TYPE	IV	IV	IV	IV	IV	
Contractors Address:	DATE	2/1/10	2/2/10	2/9/10	2/3/10	2/5/10	
	CREW	AL DD	AL DD	AL DD	AL DD	AL DD	
	EQUIP #	R-8	R-8	R-8	R-8	R-8	
	CUT/FILL-DW						
	CUT/FILL-PSC						
SOIL DESCRIPTION							
Clay, Caliche		0-120	0-120	0-120	0-120	0-120	
TOTAL DEPTH		120'	120'	120'	120'	120'	
BACKFILLED 10' PER ADEQ REQUIREMENTS							
CEMENTATION	BELLED OUT						
	HARD						
	VERY HARD						
	REFUSAL						
SOIL MOISTURE	MOIST						
	GROUNDWATER						
PERCOLATION TEST RESULTS				.37	.42	.54	
LATITUDE							
LONGITUDE							
COMMENTS:		}					
FIELD CHANGES ☐ ADD/DEDUCT DEPTH ☐ HARD ROCK @ TIME & MATERIALS							
APPROVED BY: _____ TITLE:_____ DATE:_____							
COMPLETED BY _____ DATE _____							

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JOB NO. 0805-034

DRILLING LOG

An evolution of McGuckin Drilling

Project Name: Musical Instrument Museum		Project Address: 4725 E. Mayo Blvd., Phoenix, AZ					
Contractor:	HOLE	1	2	3	4	5	6
	WELL TYPE	IV	IV				
Contractors Address:	DATE	05-13-09	05-11-09				
	CREW	AL/JD	AL/JD				
	EQUIP #	R-8	R-8				
	CUT/FILL-DW	F-0.84	C-2.31				
	CUT/FILL-PSC						
SOIL DESCRIPTION							
Clay, Decomposed Granite		0-120	0-120				
TOTAL DEPTH		120'	120'				
BACKFILLED 10' PER ADEQ REQUIREMENTS							
CEMENTATION	BELLED OUT						
	HARD						
	VERY HARD						
	REFUSAL						
SOIL MOISTURE	MOIST						
	GROUNDWATER						
PERCOLATION TEST RESULTS		.55	.50				
LATITUDE							
LONGITUDE							
COMMENTS:							
FIELD CHANGES							
☐ ADD/DEDUCT DEPTH ☐ HARD ROCK @ TIME & MATERIALS							
APPROVED BY: _____							
TITLE: _____ DATE: _____							
COMPLETED BY _____ DATE _____							

HEC -1 ULTIMATE CONDITION



Proposed Development Increased Imperviousness	
Basin	Area (mi ²)
SB01B	0.02
SB01C	0.03
SB07W	0.05

Collection Point ID	Peak Discharge 100 -year, 6-hour (cfs)	Peak Discharge 10 -year, 6-hour (cfs)
CP-01	119	65
CP-02	254	179
CP-03	283	193
CP-04	340	209
CP-05	530	322
CP-06	639	365
CP-08W	159	96
CP-08E	76	34
CP-09	145	67
CP-10	241	171
CP-11	241	171

Route ID	Peak Discharge 100 -year, 6-hour (cfs)	Peak Discharge 10 -year, 6-hour (cfs)
R1A-2	119	65
R1B-2	30	19
R1C-2	39	24
R2-3	253	178
R3-5	282	192
R7W-8W	57	36
R7E-8E	19	8
R8W-4	159	96
R4-5	334	206
R5-6	528	320
R8E-R9	70	34
R9N-R9	13	6
R10-11	241	171



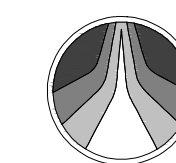
HEC-1 ULTIMATE CONDITIONS

ASLD CORE NORTH

Project No.
18114-001

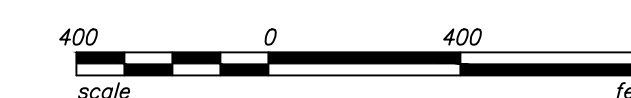
Date
rev. 10/31/2019

EX-04

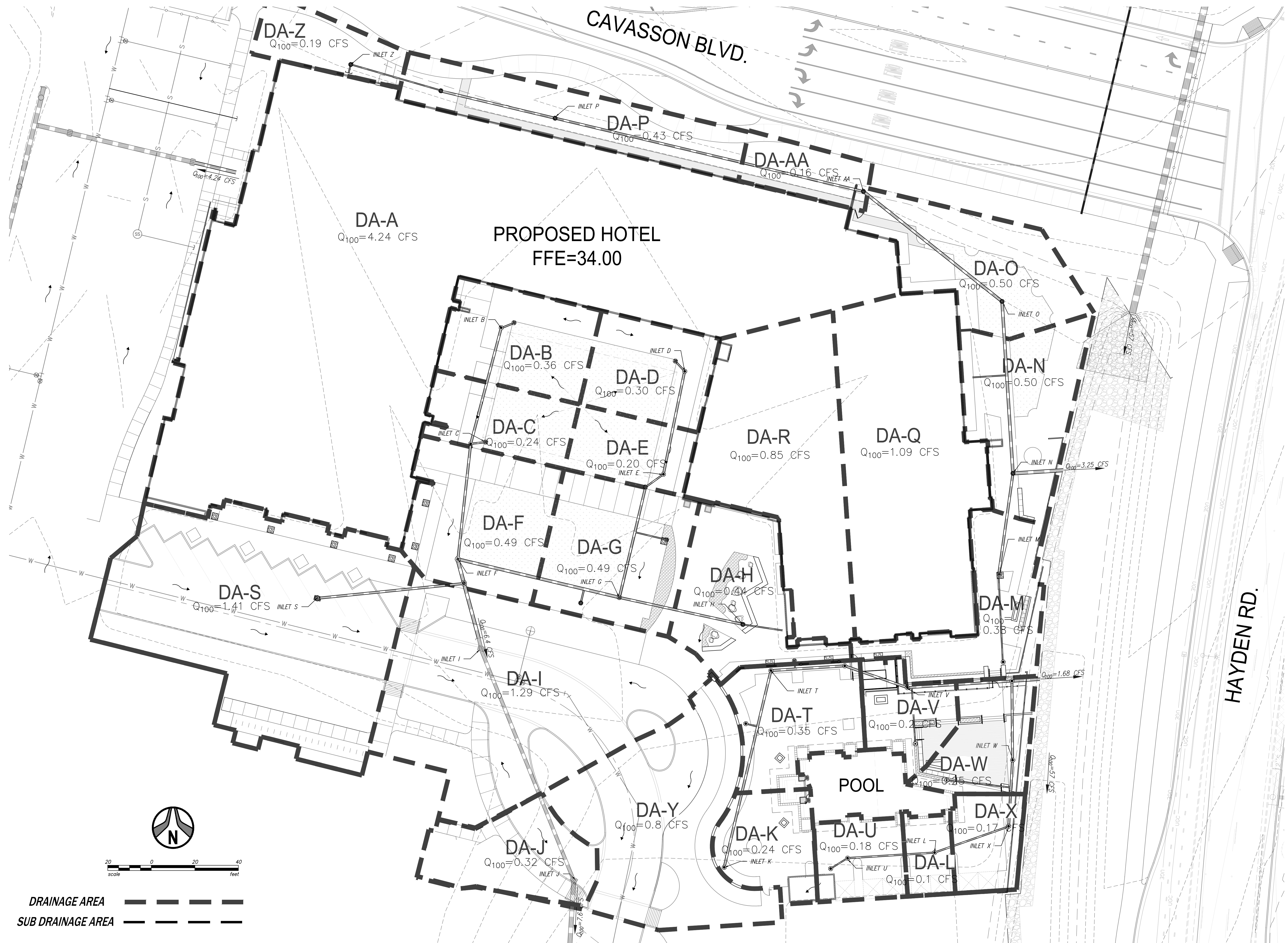


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CAVASSON HOTEL DRAINAGE EXHIBIT



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DRAINAGE AREA MAP
CAVASSON HOTEL
A PORTION OF THE SOUTHEAST QUARTER OF SECTION 26
TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER
MERIDIAN, MARICOPA COUNTY, ARIZONA

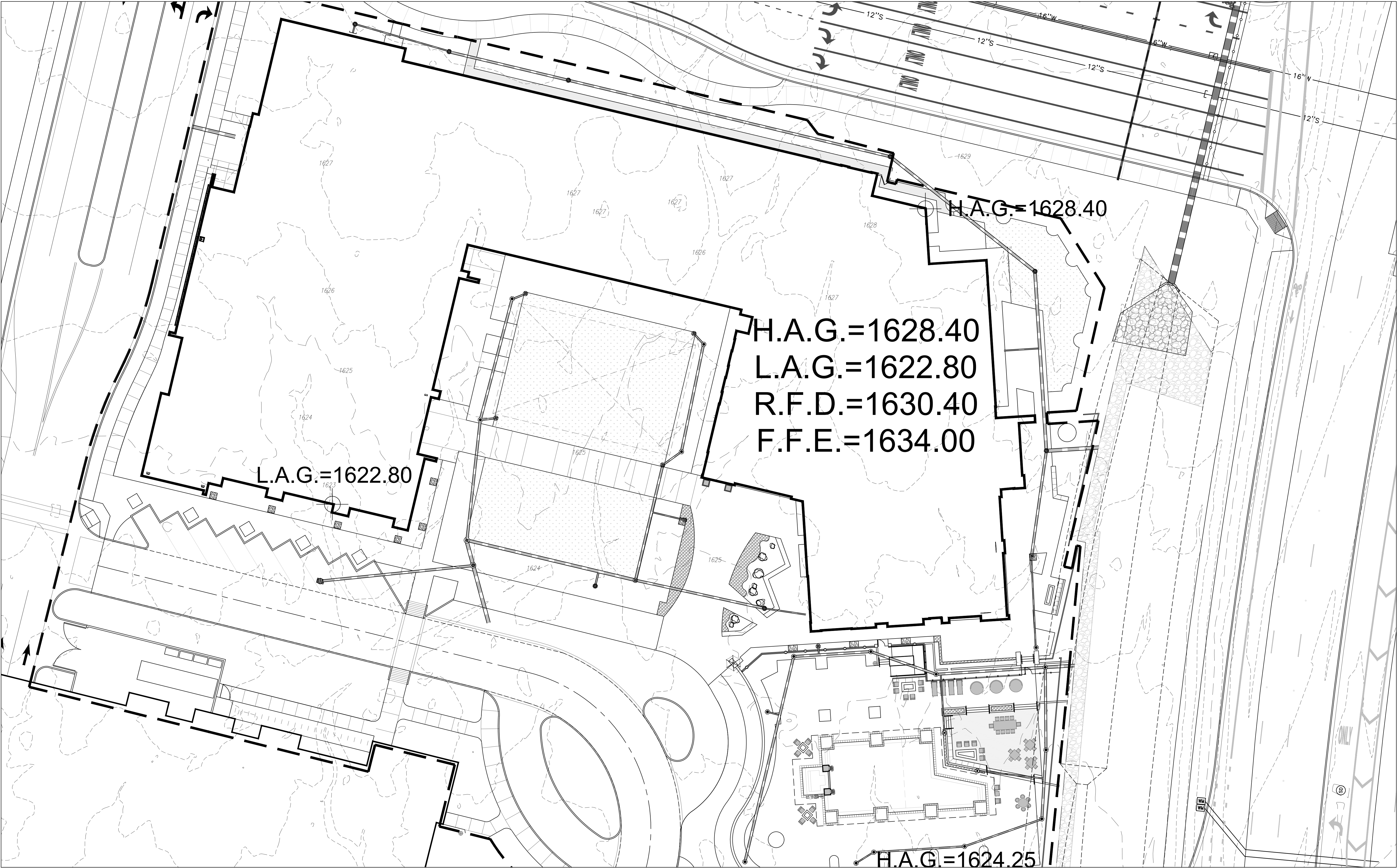
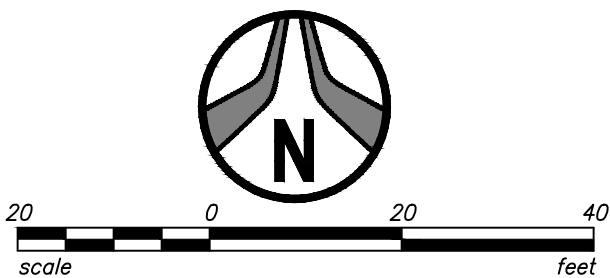
<i>Project No.</i> 18114-301	<i>Date</i> 4/01/2020
<i>Project Mgr.</i> M.S.W.	<i>Project Eng.</i> G. BROWN



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CAVASSON HOTEL HAG/LAG EXHIBIT

NOTE:
EXISTING CONTOURS SHOWN ON THIS EXHIBIT REPRESENT
PRE-DEVELOPMENT SURFACE CONDITIONS FOR THE PURPOSE OF
IDENTIFYING H.A.G. AND L.A.G. ELEVATIONS. CONTOUR INFORMATION HAS
BEEN OBTAINED FROM AERIAL TOPOGRAPHY PERFORMED BY COOPER
AERIAL SURVEYS CO. ON AUGUST 8, 2018.



P:\2020\18114\Design-Reports\18114-301\Drawings\Preliminary\Sub 2\Exhibits\18114-301-HAG/LAG exhibit.dwg Apr 01, 2020 - 9:19am TWW

HAG/LAG EXHIBIT
CAVASSON HOTEL
A PORTION OF THE NORTHWEST QUARTER OF SECTION 1
TOWNSHIP 1 SOUTH, RANGE 1 EAST OF THE GILA AND SAL RIVER
MERIDIAN, MARICOPA COUNTY, ARIZONA

Project No. 18114-301	Date 01/20/2020
Project Mgr. G. BROWN	Project Eng. M. WOLF

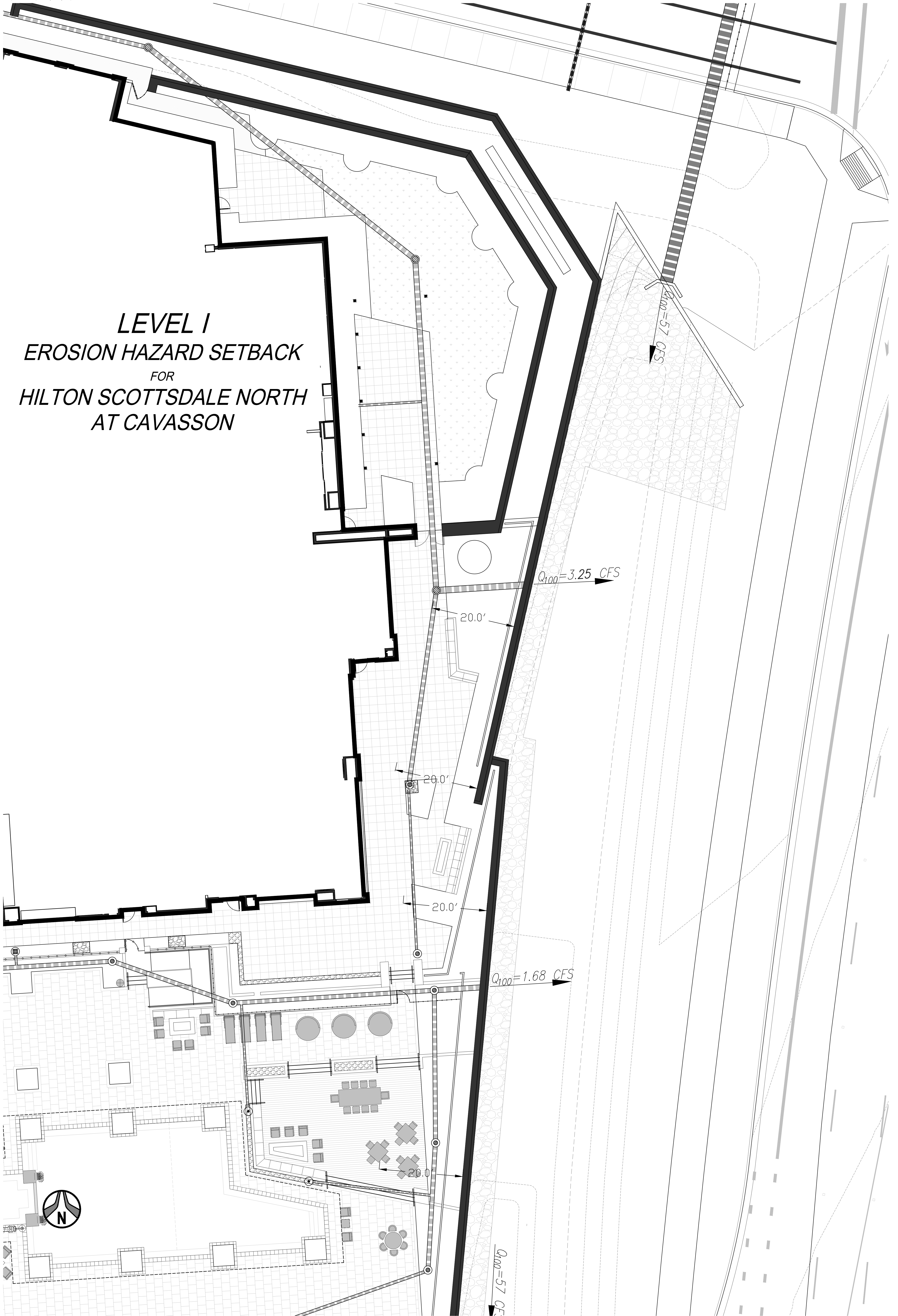
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EXHIBIT 2

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LEVEL I
EROSION HAZARD SETBACK
FOR
HILTON SCOTTSDALE NORTH
AT CAVASSON

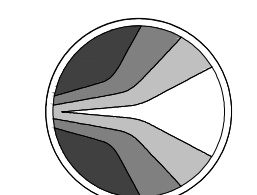


CAVASSON HOTEL INUNDATION EXHIBIT



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DRAINAGE INUNDATION MAP
CAIVASSON HOTEL
A PORTION OF THE SOUTHEAST QUARTER OF SECTION 26
TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER
MERIDIAN, MARICOPA COUNTY, ARIZONA

Date	11/01/2019
Project Eng.	G. BROWN

Project No. 18114-301	Project Mgr. M.S.W.
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