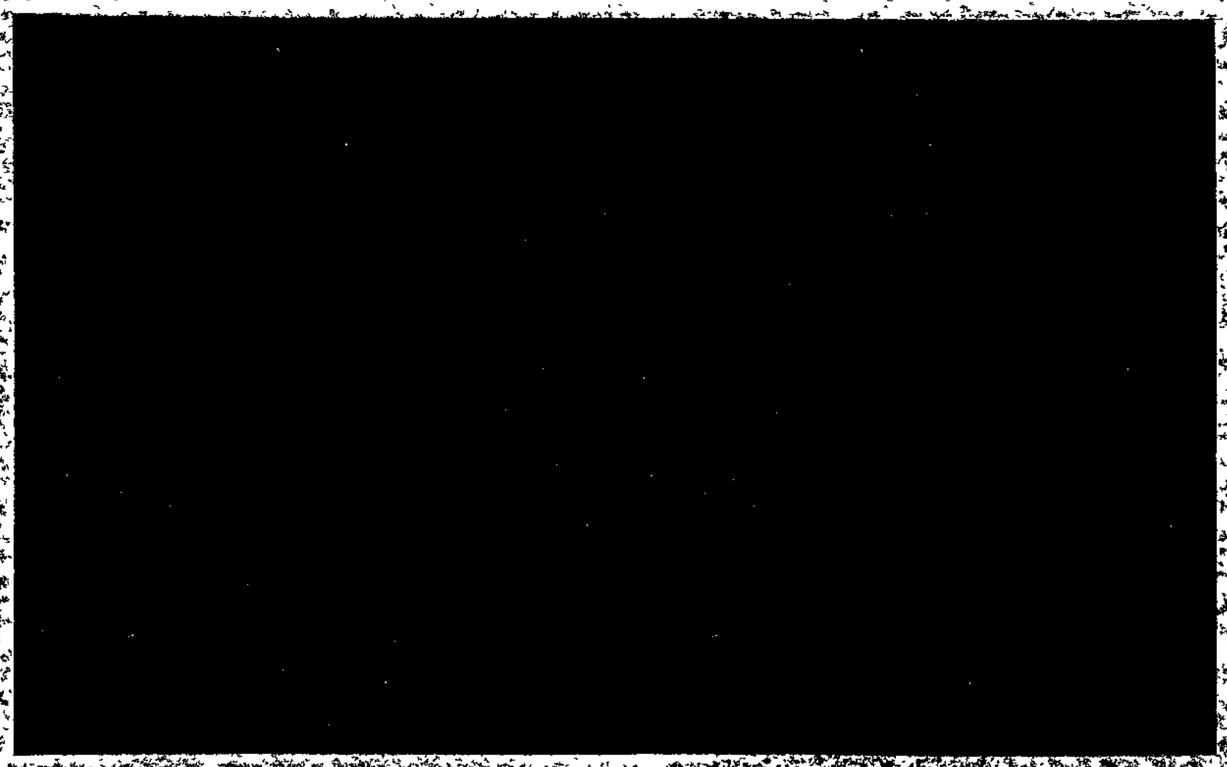

MOLZEN-CORBIN & Associates

ENGINEERS/ARCHITECTS/PLANNERS

CITY OF ALBUQUERQUE
NEW MEXICO

ALBUQUERQUE INTERNATIONAL SUNPORT
RENT-A-CAR FACILITY

DRAINAGE REPORT

This project includes the remodel for the rental car administration, maintenance.

May 2000

BPL91-11.D03

2701 Miles Rd. SE
Albuquerque, NM 87111
505-242-5700
Fax 242-0673

MOLZEN-CORBIN & Associates

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Car Rental Facility ZONE ATLAS/DRNG. FILE #: N15

DRB #: 99-11 EPC #: C9961 WORK ORDER #: 6101

AL DESCRIPTION: Section 33 T 10 N R 3E

CITY ADDRESS: University & Clark Carr, SE

ENGINEERING FIRM: Molzen-Corbin & Associates CONTACT: Kent Freier

ADDRESS: 2710 Miles Road, SE, Albuquerque, NM PHONE: 242-5700

OWNER: City of Albuquerque Aviation Department CONTACT: Dennis Parker

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ARCHITECT: BPLW CONTACT: Mike DeLilla

ADDRESS: 6200 Uptown NE Suite 400, ABQ 87110 PHONE: 881-2759

SURVEYOR: URSGWC CONTACT: Karen Griffen

ADDRESS: 5971 Jefferson NE Suite 101 ABQ 8711[illegible] PHONE: 345-3999

CONTRACTOR: SEMA Construction CONTACT: Brad Christianson

ADDRESS: 5160 San Francisco NE PHONE: 822-9955

E OF SUBMITTAL:

____ DRAINAGE REPORT
____ DRAINAGE PLAN
____ CONCEPTUAL GRADING & DRAINAGE PLAN
____ GRADING PLAN
____ EROSION CONTROL PLAN
____ ENGINEER'S CERTIFICATION
____ OTHER _____

PRE-DESIGN MEETING:

____ YES
____ NO
____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAT APPROVAL
____ PRELIMINARY PLAT APPROVAL
____ S. DEV. PLAN FOR SUB'D. APPROVAL
____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
____ SECTOR PLAN APPROVAL
____ FINAL PLAT APPROVAL
____ FOUNDATION PERMIT APPROVAL
____ BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY APPROVAL
____ GRADING PERMIT APPROVAL
____ PAVING PERMIT APPROVAL
____ S.A.D. DRAINAGE REPORT
____ DRAINAGE REQUIREMENTS
____ SUBDIVISION CERTIFICATION
____ OTHER _____ (SPECIFY)

DATE SUBMITTED: _____

BY: _____

ALBUQUERQUE INTERNATIONAL AIRPORT
Drainage Masterplan Update
September 1999

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I. Purpose

The purpose of this report is to evaluate the surface water runoff from the proposed airport Rental Car Facility, to define the drainage outfall requirements for this facility, to address the impacts on downstream facilities, and to revise the Albuquerque International Airport Drainage Master Plan published in May, 1995.

This work was generated by the proposed Consolidated Rental Car Facility (RAC) to be located on the east side of University Blvd. between George Road and Clark Carr Blvd. The eastern boundary of the project is Access Road B. This entire 60 acre site is to be graded and paved for the purpose of locating all the rental car companies doing business at the airport. The center of the site is the Customer Service Building and ready-return lots. On the perimeter of the site will be the individual rental car company parking and maintenance areas. A bus will transport passengers to and from the airport terminal to this Customer Service Building. This bus will transport all rental car customers, regardless of their preferred rental car company. The passengers will be dropped off at the Customer Service Building where they can then access their rental cars. [illegible] later section.

In order to expedite the construction of this facility, a detailed phasing plan was developed. It is important to understand the nature of the specific phases in order to fully understand how the drainage improvements are being made. Below is description of the project phases.

A. Site Preparation Grading and Drainage

This contract was for the grading of the entire 60 acre site. The project includes mass grading and installation of the entire site storm drain system. Temporary drop inlets were designed since the later phases may adjust final surface elevations. This allowed for some flexibility in design of the final surfaces. This contract was awarded on May 21, 1999 and completion is expected on September 2, 1999.

B. University Blvd and Spirit Drive

This project included the widening and reconstruction of University Blvd. from Sunport to the UNM Championship Golf Course. This completes the four lane configuration of University all the way to I-25/Rio Bravo. This contract also included the paving of Access Road B which will be relocated to near Spirit Drive on Clark Carr. Also of significance, this project includes the storm drain outfall from University to I-25 near the George Road alignment. This area now conveys runoff through a natural arroyo. This contract was awarded on July 15, 1999 and is expected to complete on April 14, 2000.

C. Customer Service Building

This project includes only the building in the heart of the RAC site. Anticipated bid date is July 28, 1999, bid opening August 24, 1999, award September 15, 1999 and completion on May 29, 1999. Approximate cost is $7.3 million.

D. Paving and Site Utilities

This project includes all on-site paving (the parking lots), interior roads, water, sewer, power and other utilities. The storm drain lines will be completed with this phase by placing permanent drop inlets. Anticipated schedule is bidding August 11, 1999, bid opening September 7, 1999, award September 17, 1999 and completion December 17, 1999. Approximate cost is $8 million.

E. Service Center Buildings

This project includes the buildings for the rental car administration, maintenance, fueling, cars washes and other support facilities located throughout the site. Anticipated schedule is bidding September 29, 1999, bid opening October 26, 1999, award November 12, 1999 and completion July 14, 2000. Approximate cost is $15.5 million.

F. Fueling Services

This project includes all underground fuel storage fuel islands, and related facilities for eight rental car locations. Anticipated schedule is bidding October 13, 1999, bid opening November 2, 1999, award November 22, 1999 and completion April 10, 2000. Approximate cost is $2 million.

G. Fiber Optics Package

This includes a fiber optic connection to the existing terminal building and fiber optic backbone distribution to all of the rental car administration, security cameras, and other rental car facilities. The approximate cost is $0.5 million. The schedule has not yet been determined, but final completion is expected no later than May of 2000.

H. Landscaping

This includes all on-site and University landscaping. The approximate cost is $2.5 million. The schedule has not yet been determined but award will be no later than February 15, 2000 and completion no later than July 15, 2000.

I. Signage

This package includes all roadway signage and directory signage as required. The schedule has not yet been finalized but completion is no later than June 15, 2000.

J Busing Plan

This project is for the purchase of the shuttle buses for taking passengers between the airport terminal and the RAC. Bidding began on June 1, 1999, bid opening was July 12, 1999 and award is still under evaluation. Bus delivery is expected by June 1, 2000.

K. Rental Car Bids

Bids were received by nine rental car agencies. Final documentation for award is being prepared. Bidding was May 10, 1999, bid opening on July 14, 1999, and award is scheduled by September 20, 1999 newly enlarged detention pond and

L. Counter Space and Ready Return Area Leases

This involves the final lease agreements for the rental car companies.

II. Scope

The scope of revisions to the Albuquerque International Airport Drainage Master Plan will be limited to those watersheds in the AIA DMP that are affected by the proposed Rental Car Facility, namely the GA (General Aviation) and WE (West End) Basins. In order to understand the logic behind the analysis, it is necessary to review the file management used in the AHYMO runs that were originally used in preparing the AIA DMP. There are basically three files for each storm in each basin. File GA100EX is the 100 year storm in the GA basin, modeling the existing conditions. File GA100FUT is the 100 year storm in the GA basin, modeling the anticipated future conditions. Of particular note here, is the removal of many of the GA sub-basins that were diverted to the south, out of Basin GA, in the Runway 3-21 project. This will be discussed in detail later in this report. File GA100CAR is the 100 year storm in the GA basin, modeling the anticipated changes in the construction of the Rental Car Facility. This file was made by taking file GA100FUT and changing some of the basin characteristics to illustrate the effects of the RAC.

File WE100EX is the 100 year storm in the WE basin, modeling the existing conditions. File WE100FUT is the 100 year storm in the WE basin, modeling the anticipated future conditions. File WE100CAR is the 100 year storm in the WE basin, modeling the anticipated changes in the construction of the Rental Car Facility. This file was made by taking file WE100FUT and changing some of the basin characteristics to illustrate the effects of the RAC.

Flow charts for these systems are contained in the appendix.

III. Criteria

To be consistent with methodology used in the AIA DMP, this report will utilize the criteria outlined in Section 22.2 of the City of Albuquerque's DPM. Additionally, AHYMO_ 97 will be used for the hydrologic modeling revisions of the GA and WE Basins. AHYMO194 was used in the original AIA DMP.

IV. Related Studies

There are several studies and reports that are directly related to the drainage study of the airport Rental Car Facility. The first, and most notably, is the AIA DMP prepared by Molzen-Corbin & Associates in May, 1999. This report evaluated the storm water runoff for the entire airport under existing and proposed conditions, and masterplanned facilities to control storm water runoff in the future. The second report is the drainage report for Sunport Park Development prepared by Brasher-Lorenz. This report addressed the drainage issues associated with the development of Sunport Park as a long-term airport parking facility. The Sunport Park Development is located in the WE Basin between Interstate 25 (I-25) and University Boulevard, downstream of the proposed Rental Car Facility. The third report is the Sunport Boulevard/I-25 drainage report prepared by Molzen-Corbin and Associates. This report not only addresses the WE Basin out-fall under I-25, but also contains a modeling report prepared by Dr. Richard Heggen of UNM for the Sunport Boulevard Basin/WE Basin out-falls, downstream confluence and 10-foot x 6-foot CBC to the South Diversion Channel.

V. Albuquerque International Airport DMP

A. Existing Conditions

This section of the report addresses what was considered existing conditions in the GA and WE Basins at the time of the Albuquerque International Airport DMP publication.

1. *GA Basin:* This 0.7446 square mile basin encompasses the general aviation area located south and west of the intersection of Runways 17-35 and 3-21. This watershed also includes areas around Clark Carr, Spirit Drive, and the UNM Golf Course.

Flows are mostly conveyed by storm sewers, which discharge into natural channels before crossing University Boulevard. Storm water flows are then carried through the golf course in a 60-inch diameter storm sewer pipe before discharging into a natural arroyo and under I-25 through a 3-36-inch diameter culvert crossing. Storm water runoff flows from the GA basin eventually discharging in AMAFCA's South Diversion Channel. The actual pipe

includes a 72-inch diameter CMP under University Blvd. The discharge end of this pipe was closed in a later project with a manhole and 60 inch diameter pipe which goes under the golf course.

Under existing conditions, the 100-year peak discharge at University is 320 cfs. The existing 60" dia. RCP culvert is under capacity due to an inlet control condition. The capacity of this crossing is 225 cfs.

2. *WE Basin:* This 0.38 square mile basin includes the southern portion of the airport terminal area, the west ends of Runway 8-26 and Taxiway's E & A, and the undeveloped escarpment area between the airport and University Boulevard.

Flows from the WE Basin are mostly carried by storm sewer systems before discharging from the escarpment into a rip-rap lined channel. Flows from the rip-rap lined channel discharge into 2-60-inch diameter culverts under University Boulevard before discharging into a natural arroyo downstream. Flows are then conveyed through the natural arroyo to a 8-foot x 6-foot CBC under I-25. Flows from the WE Basin eventually discharge to AMAFCA's South Diversion Channel.

The existing 100-year peak discharge at University Boulevard is 340 cfs, while the existing 2-60" diameter culverts under University have a capacity of 304 cfs. With the reservoir routing upstream of the University culvert crossing, the peak discharge is cut to 256 cfs.

B. Proposed Conditions

The AIA DMP proposed development in the GA and WE Basins considered in May, 1995 was based on the recommendations contained in the Albuquerque International Airport Master Plan, December 1993, prepared by Coffman & Associates, Inc.

1. *GA Basin:* The proposed conditions AHYMO models prepared for the AIA DMP considered the GA Basin fully developed with an average land treatment D of 80%. Although the land treatments for the GA Basin were increased to reflect fully developed conditions with existing culvert capacity constraints under University, the Runway 3-21 project alleviated a great deal of pressure on downstream facilities in the GA Basin. The Runway 3-21 project diverted several sub-basins including 701, 702, 703, 704, 707, 709, 711, 713, & 729. The diversion of these sub-basins alleviated additional potential drainage problems downstream in the GA Basin, even under fully developed conditions.

   Under fully developed conditions, the 100-year peak discharge at University Boulevard is 299 cfs. This peak discharge is cut to 216 cfs by

the undersized culvert crossing under University Boulevard. This represents the results of the "Future Condition" analysis from the AIA DMP. This does not represent the results of the RAC facility. This is discussed in a later section.

2. *WE Basin:* The proposed conditions AHYMO models prepared for the AIA DMP considered the WE Basin fully developed with an average land treatment D of 80%. This percentage is not much of a change from existing conditions as the WE Basin was essentially fully developed under existing conditions.

   Under fully developed conditions, the 100-year peak discharge at University Boulevard is 498 cfs. This peak discharge is cut to 408 cfs by the reservoir routing at the upstream end of the existing 2-60-inch diameter culverts. This was the condition for the "Future Condition" analysis and does not reflect the results from the RAC facility which will be further discussed in a later section.

VI. Proposed Rental Car Facility

A. Proposed Conditions

1. *GA Basin:* The proposed rental car facility improvements within the GA Basin include a paved parking area with a landscape buffer adjacent to University Boulevard. A 3:1 cut slope is planned at the upper end of the parking area with the re-aligned Spirit Drive at the top. The 60-foot cut slope will be benched at 30 feet to minimize slope stability problems. There are also improvements planned to Clark Carr Drive to the south and University Boulevard to the west of the parking lot area.

   With the proposed site plan and subsequent rough grading plan for the site, it was determined that the GA Basin would decrease in size by 6 acres improving the downstream drainage contribution from that of the Runway 3-21 Project. Sub-basin 720 will decrease by 6 acres in size, while Sub-basin 513 in the WE Basin will increase by the same 6 acres.

2. *WE Basin:* The proposed rental car facility improvements within the WE Basin includes a paved parking area with a landscape buffer adjacent to University Boulevard. A 3:1 cut slope is planned at the upper end of the parking area with the re-aligned Spirit Drive at the top. The 60-foot cut slope will be benched at 30 feet to minimize slope stability problems. There are also improvements planned to University Boulevard west of the parking lot area.

   With the proposed site plan and subsequent rough grading plan for the site, it was determined that the WE Basin would decrease in size by 6

acres. Sub-basin 513 in the WE Basin will increase in size by 6 acres. However, the increased runoff from this area will be detained by a new retention facility located north of Spirit Drive and east of University Boulevard.

B. Proposed Drainage Improvements

1. *GA Basin:* The proposed drainage improvements within the GA Basin will include a series of drop inlets and a storm sewer collection system to collect runoff from the paved parking lot area, and improved roadway sections. This runoff will be collected and routed to an improved drainage crossing under University Boulevard. The existing 60-inch diameter RCP (which is actually a 72" CMP) will be removed and replaced by a new 60-inch diameter RCP with adequate slope (4 to 5 percent). There will no longer be an inlet constraint on this culvert crossing as the new 60-inch pipe will be connected to the collection system with a junction box and will act as a "closed system".

2. *WE Basin:* The proposed drainage improvements within the WE Basin will include a series of drop inlets and a storm sewer collection system to collect runoff from the paved parking lot area and improved roadway sections. This runoff will be collected and routed to a new storm water detention facility with approximately 8.5 acre-feet of capacity. The two existing 60" diameter culverts under University Boulevard will be replaced by a single 60" pipe to limit the outfall flow rate. The maximum storm water storage in the detention facility is 6.9 acre - feet.

VII. Downstream Impacts

The drainage impacts of the proposed Rental Car Facility on downstream properties will be mitigated by the use of drainage improvements and measures to mitigate these potential impacts.

Runoff from the GA Basin discharges under University Boulevard into a 60-inch storm sewer system, which routes flows through the University Golf Course. This existing 60-inch storm sewer has an estimated slope of 7 percent and has ample capacity (estimated at 650 cfs). With the use of this storm sewer system, the impacts to the downstream golf course area will be negligible. The three 36-inch diameter culverts under I-25 appear to have ample capacity, which is estimated at 710 cfs with an available head water of 14-feet. Improvements to the natural arroyo sections between the 60-inch storm sewer and the South Diversion Channel will include remedial channel treatments to alleviate channel degradation, bank sloughing and sediment transport.

A new 48-inch diameter storm sewer pipe will be constructed downstream of the WE Basin out-fall under University Boulevard to prevent adverse geomorphologic impacts to

the natural arroyo between University and I-25. The 48-inch storm sewer will be designed for peak discharge of 225 cfs from the new detention facility, which is reduced from a peak discharge of 250 cfs under existing conditions. The new 48-inch storm sewer will route runoff to an existing 8-foot x 6-foot CBC crossing under I-25, which has an estimated capacity of 511 cfs. This is ample capacity for the reduced flows from the University out-fall and the future fully developed paved parking lot in Phase II of the Sunport Park Development. A new inlet works will be constructed at the inlet of the 8-foot x 6-foot CBC to ensure that the energy in the runoff is dissipated and can easily enter the culvert entrance. Runoff from I-25 to the South Diversion Channel will be carried in a 10-foot x 6-foot CBC, which has been modeled along with the upstream confluence by Dr. Heggen at UNM, and appears to have ample capacity for the peak discharged released from the University Outfall.

A. Interim Drainage Analysis for the North Outfall

As stated, the northernmost outfall for the RAC facility will be comprised of a storm drain pipe conveying flows from the newly enlarged detention pond just east of University to I-25. Currently, the flows are conveyed through a natural arroyo through private property. The 100 year flood plain in this area is in a dedicated easement. The new storm drain will be located south of the arroyo in a 100-foot wide drainage easement.

The preliminary plans for this new storm sewer called for a 48-inch storm drain from University to I-25. A hydraulic grade line analysis was performed for this storm sewer at the specified limit of 256 cfs. The pipe size was adjusted somewhat in order to maintain a hydraulic grade line within 1 to 4 feet above the top of pipe. The attached spreadsheet illustrates the results of this analysis, along with the chart which plots the profiles.

The proposed hydraulic grade line falls approximately 3-feet above the top of pipe at the University crossing. This indicates that the pipe has limited the capacity of 256 cfs. In addition, the inlet structure, accepting flows from the detention pond and conveying them into this storm drain system, was checked for capacity limitations. In particular, the crossing structure is proposed to be a 60-inch diameter pipe which ties into the pond with a side-sloped mitered pipe entrance. Under inlet control conditions, the inlet would accept up to 255 cfs at the maximum ponding depth. Therefore, no more than 255 cfs will get into this downstream system.

The hydraulic grade line for the outfall pipe was analyzed to check at which point the HGL breaks seal and becomes open pipe. This occurs at 250 cfs. This means that all flows of 250 cfs and less will cause the "culvert" entrance to operate at inlet controlled conditions. Once flow increases to above this point, the pipe surcharges and the entrance works operate under outlet controlled conditions. Outlet control has less capacity than inlet control. As a result, the entire system

operates at a 255 cfs limitation, as long as the water surface in the pond remains at the design condition, slightly less than 10-feet above the invert.

There is one small side drainage area which enters the outfall pipe from the UNM Golf Course. This drainage area is on the north side of the Golf Course and slopes generally north, entering the Chavez property at approximately the old railroad grade. This side drainage must either be passed through the Chavez property or must be picked up in the RAC outfall pipe. The outfall pipe design will be modified to enable this small drainage area to drain into a type D inlet and entered into the pipe. The peak rate of flow from this area is quite small and should pass well before the peak from the RAC site hits. The anticipated delay between peaks is at least 30 minutes.

B. Interim Drainage Analysis for the South Outfall

The 1995 Albuquerque International Airport Drainage Master Plan (DMP) shows an existing condition peak flow rate of 320 cfs entering the culvert pipe at University. The computer models run at that time showed this crossing to be a 60-inch diameter RCP with a capacity of only 223 cfs when the water surface reached the top of the roadway. With the large arroyo upstream, and the inflow exceeding the outflow, this was modeled as a detention basin, which allowed some shaving of the peak flow. As a result, the model shows 320 cfs coming into the pipe but only 264 cfs coming out, with the detention pond absorbing the difference via storage. Since the pipe only carries 223 cfs, the model assumes that some water overtopped the roadway.

Next, the DMP modeled the future conditions. This removed several sub-basins from the model. In particular, basins 701, 702, 703, 704, 705, 706, 707, 708, 709, 711, 713, and 729 were removed from the model. These areas are on the airfield, east of the GA area and were to be diverted to discharge to the Runway 3-21 storm drain system, which flows south into Tijeras Arroyo. Runway 3-21 has been reconstructed and these flows were diverted. Furthermore, the future condition model assumed that Basin 720 and 724 would be improved from a natural desert terrain to light industrial use. This raised the runoff coefficients on these basins. Basin 720 is the Rental Car Facility, and Basin 724 is south of Clark Carr. Basin 720 was modeled in the existing condition as 85% A cover, 10% C cover, and 5% D cover. This was changed to 5% A cover, 30% B cover, 10% C cover, and 55% D cover for the future conditions. This resulted in a reduction in total drainage area but an increase in impervious area for Basin 720, the Rental Car Facility. This indicates that the Rental Car Facility development was accommodated in the DMP. The net results of these changes were a peak discharge of 299 cfs entering the University culvert and 216 cfs exiting the culvert.

Finally, the DMP computer models were modified for the current development of the Rental Car Facility. The results are 313 cfs entering the University culvert

and 313 cfs exiting the culvert. In this scenario, the reduction in flow due to the ponding upstream of University is removed since the arroyo will be filled and the culvert will be extended upstream in the form of a storm sewer.

Upon reviewing the original DMP and visiting the actual culvert crossing site, it was discovered that the original DMP assumed the University culvert crossing was a 60-inch diameter RCP. In actuality, this crossing is a 72-inch CMP. The capacity of this culvert was recalculated using the new pipe size, and was found that the culvert has a capacity of approximately 320 cfs, not the 223 cfs as modeled. This indicates that the DMP model for the existing condition should have shown 320 cfs entering into the culvert and approximately 320 cfs exiting the culvert, since the pipe capacity does equal the inflow. This being the case, the current model, which shows 313 cfs crossing University, is essentially the same flow rate as the existing condition and the DMP's analysis of the future condition. Furthermore, it should be noted that the total volume of water passed at University was estimated to be 32.544 acre-feet for the DMP existing condition, 28.096 acre-feet for the DMP future condition, and 24.986 acre-feet for the Rental Car modifications. This is a total reduction in storm volume of 7.558 acre-feet caused by the Runway 3-21 project and other improvements.

It can be seen from this analysis, that the impacts of the Rental Car Facility on the crossing at University, and hence the UNM Golf Course, are negligible. The peak flow rate from the existing condition is somewhat less, and the total volume of stormwater passing through the Golf Course is reduced by approximately 20%. All of the above figures are based upon the 100 year storm, modeled and designed to the City of Albuquerque DPM standards.

A hydraulic grade line was run for this pipe, from the point at which it discharges to the arroyo in the golf course, all the way up to University. The HGL is contained well within the pipe during the 100 year flow. As modeled, Basin 726.2 enters this system on the west side of University. There is an area drop inlet located in the middle of this basin, two hundred feet west of University. This basin was modeled in an undeveloped condition and generates a runoff of 33 cfs. This flow can be adequately accepted by the south outfall pipe. Furthermore, if this basin is modeled in a fully developed condition, a runoff of 72 cfs can be expected. This fully developed flow can also be handled in the southern outfall pipe without an excessively high HGL.

VIII. Sediment.

The proposed RAC facility will impact the issue of sediment transport. In particular, there have been problems in the past with the southern outfall pipe which goes through the UNM Golf Course. As a result of these problems, the 72" CMP culvert pipe that used to cross University pipe was closed with a manhole and 60" RCP through the golf course. The eliminated erosion problems upstream of the golf course. However, the pipe now discharges midway through the

golf course in natural arroyo. At this discharge, erosion and deposition have both caused problems.

In the post-development condition, the flows seen at the discharge on the UNM Golf Course will change. While the peak flow rate will remain the same, and the overall storm volume will lessen significantly, the discharge flows should now be clean since the area upstream is paved. These clean flows have the potential to pick up sediment and cause erosion. The AHYMO models were used to model this condition. A worst case scenario was taken by assuming that no sediment was entering into the flows coming from upstream. Therefore a total loading could be determined in the arroyo between the pipe discharge and I-25. The total vertical distance in this channel reach is 35 feet. The total vertical distance is 938.7 feet. The average slope is 3.72%. The profile is shown in Plate 8.

The sediment transport loading was determined for the 100, 50, 25, 10, 5, and 2-year storm in accordance with the AMAFCA "Sediment and Erosion Design Guide". The average annual event for sediment was determined from Equation 1.1 of this publication. The resulting sediment transport loading was 3,100 tons. Converting this tonnage to a wedge shaped erosive shape results in a total cut just downstream of the pipe of 5.6 feet. This is not very severe and should be controlled by rather simple measures.

There are three basic alternatives for controlling the erosion potential. First, the 60" storm drain could be extended down the arroyo to the I-25 box culvert. This eliminates the potential for further degradation of the channel. Second, a concrete lined channel could be installed between the 60" discharge and the I-25 box. Third, the channel could be fitted with grade control structures such as gabions or concrete cutoff walls. This would create a stairstep effect for the flows and should control the channel movement.

Considering that the total expected erosion at the pipe is less than six feet a fourth alternative was considered. Since the expected cut in this vicinity is so mild, such extensive corrective measures as extending the pipe are probably not warranted. Instead, riprap could be placed in the channel just downstream of the pipe outlet. This riprap would extend for approximately one hundred feet. This riprap will assist in reducing the headcut by the pipe. This also will slow the water velocity as it exits the pipe and hits the sandy arroyo bottom. Not only will be riprap reduce potential of pipe exit scour, but the arroyo shape also helps to further reduce erosion potential. Downstream of the pipe, the arroyo widens to approximately 100 feet by the time it gets to I-25. The wider arroyo also lowers flow depth and reduces velocity.

After analysis and much discussion, it was recommended that the arroyo be improved by regrading and placing gabion structures to control channel movement. Plates _____and _____ Show the arroyo plan and profile and details of the structures. The work was added by Change Order to the other RAC construction contracts.

IX. Conclusion.

The proposed Rental Car Facility can be developed with minimal impact on downstream conditions. As stated above, the two main outfalls will discharge flow rates that are less than or

equal to the historic condition. In both cases, the outfall volumes will be less than historic conditions. This can be achieved primarily due to the diversion of some of the upstream basins, on the airfield, to the Tijeras Arroyo. By reducing the upstream drainage area, the flow rates were reduced and offset by the paving of the Rental Car Site.
While it appears that the on-site storm drainage system will properly collect and convey runoff, it is recommended that the final grading package includes details for concrete lined rundowns on the west end of the property to convey any excess runoff from the parking lot down to the University Boulevard grade. Should catch basins clog or runoff pass by all of the drop inlets from the site, any overflow would cause serious damage, since the west end of the site has very deep fill areas.

The following recommendations and conclusions summarize this report.

The flow rates at critical points are summarized in the appendix.

The initial project phase for mass site grading will install the basic storm sewer throughout the RAC. Only temporary drop inlets will be installed since the finish surface will be fill dirt.

The final site grading and site paving will remove the temporary drop inlets and install the permanent City of Albuquerque standard catch basins so that they can properly match the pavement surface.

There will be some difference between the grading shown in the original mass site grading (Plate 6) and the final grades (Plate 7). This is because of the need to phase the project to fast track the construction. There are no significant differences in the flow in the pipes between the two different grading plans. Pipes installed in the first phase are adequate to accept minor changes in flows due to finish grading.

The south outfall pipe will remain in place. The existing 72" storm drain under University will be replaced with a new 60" RCP. The south outfall pipe is adequately sized to carry flows from the RAC and accept the flows from the drainage areas adjacent to but west of University.

The north outfall will replace the two existing 60" RCP's under University with a single 54" RCP in order to control the detention pond outlows. Only 256 cfs will be discharged at this point. The box culvert at I-25 has been estimated at a 511 capacity. This leaves half of the box capacity for the adjacent land developers.

The north outfall will be modified to pick up side flows that exit the UNM Golf Course.

Downstream erosion protection on the south outfall will be needed. This protection will be in the form of a pipe extension or grade control structures. Cost analysis on these options will be required and the final design presented to the City for approval.

Line A at the RAC will need to be supplemented with an additional pipe or replaced with a larger pipe. The 30 inch diameter storm drain between manholes M2 and M3, where Line G enters, needs to be sized to a 42" equivalent in order to keep the HGL in the pipe.

The Aviation Division will be responsible for filing the CLOMR with FEMA for the purpose of removing the 100 year flood plain from the Chavez property. The new north outfall storm drain pipe effectively removes flows from the natural arroyo between University and I-25. Since the airport construction is the action that caused the flood plain to be removed, the airport will be responsible for the removal of the easement.

The south outfall will be designed to include riprap lining the channel where the 60 inch storm drain discharges to the arroyo on the UNM Golf Course. The arroyo will need to be visually checked in the next few years to ensure that erosion does not persist. If erosion persists, the airport will need to install more permanent solutions in the future.

A drainage easement will be required for the south outfall channel between I-25 and the AMAFCA South Diversion. Negotiations with the landowner on this matter have begun and final plats are still needed for filing.

X. Construction.

The previous sections of this report represent the drainage conditions and design of the facility at it's earliest stages. The drainage report was submitted before the site was designed. The project was phased for the purpose of expediting construction. Since the original report was submitted, design changes followed. This section of the drainage report is for the purpose of documenting the differences between the original drainage report and the final construction.

Before the entire RAC project was designed, the drainage report was prepared and submitted. The project at that time only included a generalized grading plan showing the site could be essentially flattened, leaving a platform upon which buildings could be constructed. A storm drainage system was designed to drain this flattened site. At that time, plans were not developed regarding the size or location of buildings, the size or location of roadways, or the locations of other facilities. Once a site plan was developed showing the building locations, it changed frequently. The reason for the numerous changes was due to the difficulty of securing consensus among the rental car companies regarding their individual site sizes and layouts. Nevertheless, in order to meet the overall project schedule, the grading and storm drain project had to be contracted for construction. The original construction package included the site grading and the storm drain installation as described on page one of this report. When the later phases (building construction) were put under contract, it was recognized that some changes to the grading and the storm drain would be necessary. However, the bulk of the grading and storm drain installation would be in place, ready to receive the buildings.

The original nine sections of this report reflect the original drainage conditions and document the calculations of the original storm drain system. These sections are being left in place in order to document the evolution of the project.

The original phase of construction was successfully completed. Later phases are now under construction. Plates 1 through 8 show the original site plan concept and the original grading and drainage. Now that all of the individual sites have been designed and are now under construction, the changes can be shown and evaluated. As each individual rental car site was

designed, changes to the grading and drainage were necessary. These changes have been captured and shown on a new overall, composite site grading and drainage plan. See Plates 9 and 10. Plate 9 shows the new drainage system and drainage areas. The storm drain system is annotated showing the pipe sizes, capacity and actual flow rates. Drainage sub-basins are also shown with their areas and peak flows. This single drawing contains the necessary drainage information for review. Previously, drainage area calculations were shown in tabular form in Appendix E. Appendix E is still contained in this report and is be left in place to document the original computations. However, refer to Plate 9 for the updated information. Storm drain hydraulic computations were previously shown in Appendix F. Appendix F is still contained in this report and is be left in place to document the original computations. However, refer to Plate 9 for the updated pipe hydraulic information.

Plate 10 shows the grading plan and the site plan which shows the final location of structures on the site. The storm drain system is also shown on this sheet for reference.

To summarize, the original site was "leveled" and a storm drain system installed to drain this site. This original project was completed without knowing exactly how the building locations would fall. As the building locations were finalized and designed, changes to the drainage system and the grading were necessary. After the site plan was finalized, the storm drain mapping was updated and re-analyzed to ensure that the system still worked even though changes were made.

The final computations show that the overall systems still function as originally planned. That is to say, the major basins, Basins 720, 721, and 513 will still discharge the same amount of flow as originally planned. Even though the minor sub-basins changed in size between the original grading project and the final site plan development, the major basin flows remain the same.

APPENDIX A
SUMMARY OF FLOWS AT KNOWN LOCATIONS

ALBUQUERQUE INTERNATIONAL AIRPORT
CONSOLIDATED RENTAL CAR FACILITY
SUMMARY OF FLOWS AT KNOWN LOCATIONS

LOCATION	DESC	AHYMO FILE NAME					
		WEEX100	WEFUT100	WECAR100	GAEX100	GAFUT100	GACAR100
Detention Pond-Inflow	Hyd ID	111.00	111.00	513.10			
Located at NE Cor University	Q	345.52	498.03	395.61			
and Access Road B	V	28.51	29.857	31.408			
	Tp	1.6	1.567	1.567			
Detention Pond-Outflow	Hyd ID	111.10	111.10	513.11			
Located at NE Cor University	Q	256.34	408.13	234.02			
and Access Road B	V	28.51	29.857	31.408			
(was 2-60" Culverts)	Tp	1.8	1.7	1.933			
6' X 8' Box on I-25 (Chavez)	Hyd ID		111.40				
	Q		427.94				
	V		32.666				
	Tp		1.766				
GA into Line I	Hyd ID				716.1	716.1	716.1
	Q				144.56	41.2	41.2
	V				13.074	6.348	6.348
	Tp				1.766	1.8	1.8
GA into Line K	Hyd ID				718.20	718.20	718.20
	Q				139.16	75.54	64.07
	V				11.129	8.115	5.506
	Tp				1.6	1.567	1.533
Routed down to Spirit	Hyd ID				518.00	518.00	518.00
	Q				68.05	57.1	42.74
	V				11.129	8.115	5.506
	Tp				2.2	2.2	2.1
Add 716.1 & 718.2	Hyd ID				721.1	721.10	721.10
	Q				208.63	96.14	82.65
	V				24.203	14.463	11.855
	Tp				1.8	2.1	2
From Spirit	Hyd ID				723.2	723.20	723.2
	Q				43.37	68.46	68.46
	V				2.962	4.934	4.934
	Tp				1.7	1.7	1.7
After Spirit Added	Hyd ID				723.4	723.40	723.40
	Q				249.91	146.86	143.79

LOCATION	DESC	AHYMO FILE NAME					
		WEEX100	WEFUT100	WECAR100	GAEX100	GAFUT100	GACAR100
	V				27.166	19.398	16.789
	Tp				1.766	1.866	1.733
RAC	Hyd ID				721.00	721.00	721.00
	Q				42.85	84.81	101.12
	V				1.249	2.919	3.628
	Tp				1.5	1.5	1.5
Basin 717	Hyd ID				717.00	717.00	
	Q				34.27	34.27	
	V				1.158	1.158	
	Tp				1.5	1.5	
Basin 720	Hyd ID				720.00	720.00	720.00
	Q				42.37	83.87	77.18
	V				1.235	2.886	2.833
	Tp				1.5	1.5	1.5
Add 717 & 720 to Total	Hyd ID				720.20	720.20	720.20
	Q				294.79	239.58	253.45
	V				30.809	26.36	23.25
	Tp				1.733	1.533	1.533
Area 724	Hyd ID				724.00	724.00	724.00
	Q				59.72	59.72	59.72
	V				1.736	1.736	1.736
	Tp				1.5	1.5	1.5
Total in to S Crossing	Hyd ID				721.30	721.30	721.30
	Q				320.18	299.04	312.91
	V				32.544	28.096	24.986
	Tp				1.7	1.533	1.533
Route as Detention Pond	Hyd ID				521.00	521.00	N/A
Outflow	Q				264.29	215.95	
	V				32.544	28.096	
	Tp				1.933	1.866	
Area 726.1	Hyd ID				726.1	726.10	726.10
	Q				32.57	32.57	32.57
	V				0.965	0.965	0.965
	Tp				1..5	1.5	.1.5
After Basin 726.1 is added	Hyd ID				726.11	726.11	726.11
Into Pond east of Golf C.	Q				268.81	226.91	345.9
	V				33.509	29.061	25.951
	Tp				1.933	1.633	1.533
8' X 6' Box Under I-25 @ UNM	Hyd ID				726.10	726.10	726.10

LOCATION	DESC	AHYMO FILE NAME					
		WEEX100	WEFUT100	WECAR100	GAEX100	GAFUT100	GACAR100
	Q				384.64	405.14	505.76
	V				42.149	37.701	34.591
	Tp				1.567	1.567	1.6

Calculated By	Date
Checked By	Date
Sheet No.	Of

Client	Project No.
Project	
Subject	

FROM GA Area to Line I

	EX	FUT	CAR	
716.1	144.56 cfs	91.20 cfs	91.20 cfs	GA to Line I
718.2	189.16	75.5	64	GA to Line K
518	68	57	43	Route
721.1	209	96	83	add 716.1 & 718.2.
722.2	43	68	68	From Spirit.
724	60	60	60	area 724
726.1	33	33	33	Area 726.1. @ 1.5 hrs

Calculated By	Date	Client	Project No.
Checked By	Date	Project	
Sheet No.	Of	Subject	

From DMP

Fut / Flow into Univ King — Hyd 721.3 — 299 cfs
Flow out of Univ King — 521 — 216 cfs

Exist / Flow into Univ King — Hyd 721.3 — 320. cfs
Flow out of Univ King — 521 — 264 cfs

DA's Removed ~~701, 702, 708, 707, 711, 709, 713,~~ 701, 702, 703, 704, 705, 706, 707, 708, 709, 711, 713, 729

Existing

701
702
708
707
711
709
713
730 ——— 730
714 ——— 714
712 ——— 712
716 ——— 716
704 — 710
703 — 705
729 — 706
710 — 715
705 — 718
706 — 719
715 — 722
718 — 723
719 — 721
722 — 717
723 — 720
721
717
720

□ =.25 inch²

Calculated By	Date	Client	Project No.
Checked By	Date	Project	
Sheet No.	Of	Subject	

Exist. Cond brought 320 cfs to Unw.
Fut Cond. " 299 cfs. to Unw.
The HYMO model shows 60"ϕ RCP. Q@ 5198 = 223 cfs.
↳ shows invert = 5191

Actual Inv = 5187.75. @ 5198 Q = 265± cfs

Actual Pipe is 72" CMP Q@5198 = 300 cfs.

MOLZEN-CORBIN & Associates
ENGINEERS/ARCHITECTS/PLANNERS
ALBUQUERQUE 505-242-5700 ▪ LAS CRUCES 505-522-0049 ▪ LOS ALAMOS 505-662-0700

APPENDIX B
CULVERT FLOW CALCULATIONS

Culvert Calculator Report
RAC North Outfall

Comments: 60" Inlet Control

DS Inv. 5171.70

Solve For: Discharge

Culvert Summary					
Allowable HW Elevation	5,190.00	ft	Headwater Depth/ Height	2.00	
Computed Headwater Elevation	5,190.00	ft	Discharge	255.56	cfs
Inlet Control HW Elev	5,190.00	ft	Tailwater Elevation	5,175.00	ft
Outlet Control HW Elev	5,188.91	ft	Control Type	Inlet Control	

Grades					
Upstream Invert	5,180.00	ft	Downstream Invert	5,171.70	ft
Length	224.95	ft	Constructed Slope	0.036897	ft/ft

Hydraulic Profile					
Profile	S2		Depth, Downstream	2.74	ft
Slope Type	Steep		Normal Depth	2.53	ft
Flow Regime	Supercritical		Critical Depth	4.46	ft
Velocity Downstream	23.19	ft/s	Critical Slope	0.008549	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.013	
Section Material	Concrete		Span	5.00	ft
ction Size	60 inch		Rise	5.00	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev	5,188.91	ft	Upstream Velocity Head	2.97	ft
Ke	0.50		Entrance Loss	1.49	ft

Inlet Control Properties					
Inlet Control HW Elev	5,190.00	ft	Flow Control	Submerged	
Inlet Type	End-Section Conforming to fill slope		Area Full	19.6	ft²
K	0.00980		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	1	
C	0.03980		Equation Form	1	
Y	0.67000				

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Rating Table Report
RAC North Outfall

.ange Data:

	Minimum	Maximum	Increment	
Discharge	0.00	500.00	50.00	cfs

Discharge (cfs)	HW Elev (ft)
0.00	5,175.00
50.00	5,183.09
100.00	5,184.60
150.00	5,185.93
200.00	5,187.39
250.00	5,189.71
300.00	5,192.55
350.00	5,195.90
400.00	5,199.78
450.00	5,204.16
500.00	5,209.07

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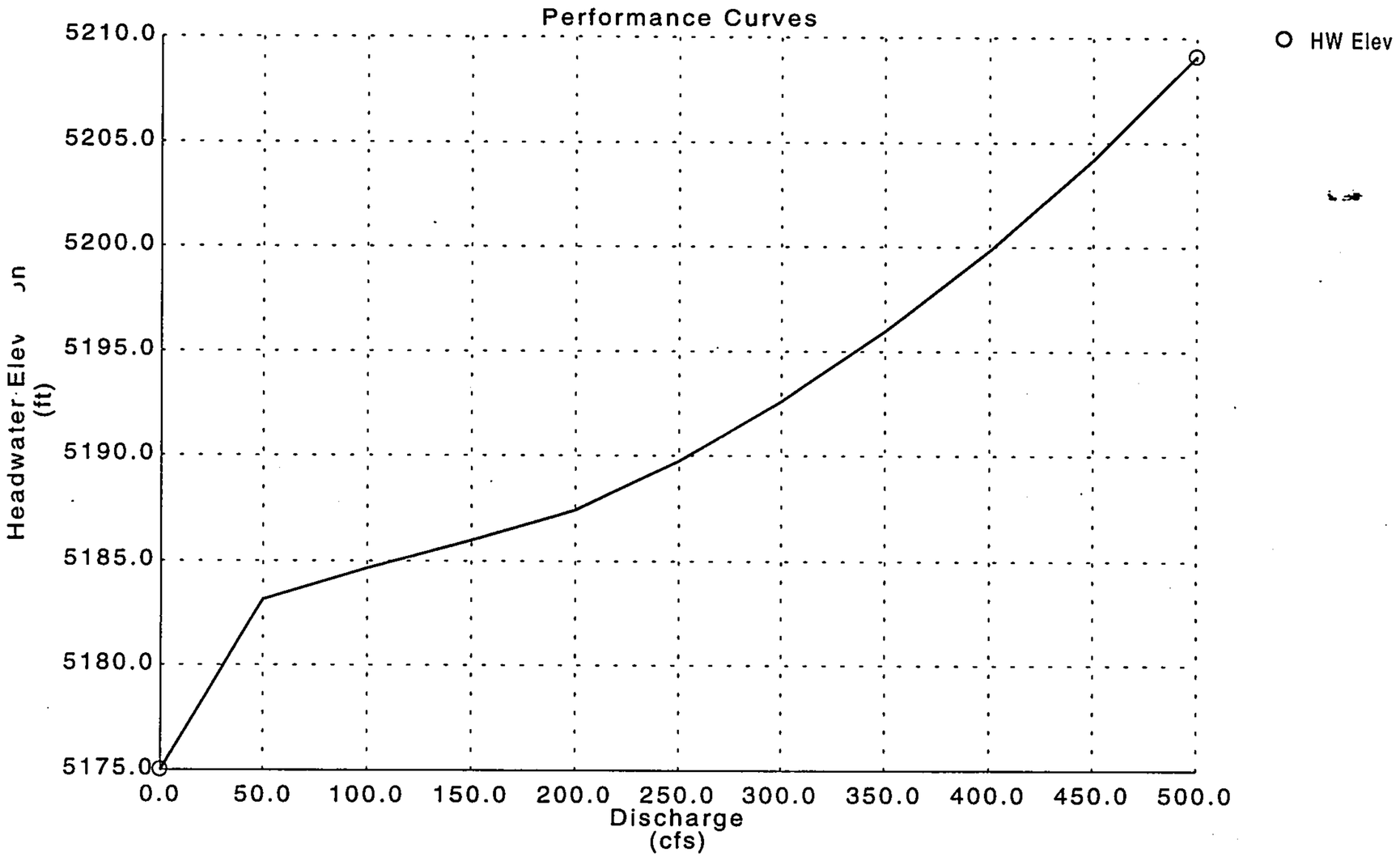
Performance Curves Report
RAC North Outfall

.ange Data:

	Minimum	Maximum	Increment
Discharge	0.00	500.00	50.00 cfs



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Culvert Calculator Report
RAC North Outfall

Comments: 60" Beginning of Outlet Control

Solve For: Discharge

Culvert Summary					
Allowable HW Elevation	5,190.00	ft	Headwater Depth/ Height	2.00	
Computed Headwater Elevation	5,190.00	ft	Discharge	253.14	cfs
Inlet Control HW Elev	5,189.87	ft	Tailwater Elevation	5,184.00	ft
Outlet Control HW Elev	5,190.00	ft	Control Type	Outlet Control	

Grades					
Upstream Invert	5,180.00	ft	Downstream Invert	5,171.70	ft
Length	224.95	ft	Constructed Slope	0.036897	ft/ft

Hydraulic Profile					
Profile	Pressure		Depth, Downstream	12.30	ft
Slope Type	N/A		Normal Depth	2.52	ft
Flow Regime	N/A		Critical Depth	4.44	ft
Velocity Downstream	12.89	ft/s	Critical Slope	0.008415	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.013	
Section Material	Concrete		Span	5.00	ft
Section Size	60 inch		Rise	5.00	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev	5,190.00	ft	Upstream Velocity Head	2.58	ft
Ke	0.50		Entrance Loss	1.29	ft

Inlet Control Properties					
Inlet Control HW Elev	5,189.87	ft	Flow Control	Submerged	
Inlet Type	End-Section Conforming to fill slope		Area Full	19.6	ft²
K	0.00980		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	1	
C	0.03980		Equation Form	1	
Y	0.67000				

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Rating Table Report
RAC North Outfall

ange Data:

	Minimum	Maximum	Increment
Discharge	0.00	500.00	50.00 cfs

Discharge (cfs)	HW Elev (ft)
0.00	5,180.00
50.00	5,184.25
100.00	5,184.98
150.00	5,186.13
200.00	5,187.75
250.00	5,189.85
300.00	5,192.55
350.00	5,195.90
400.00	5,199.78
450.00	5,204.16
500.00	5,209.07

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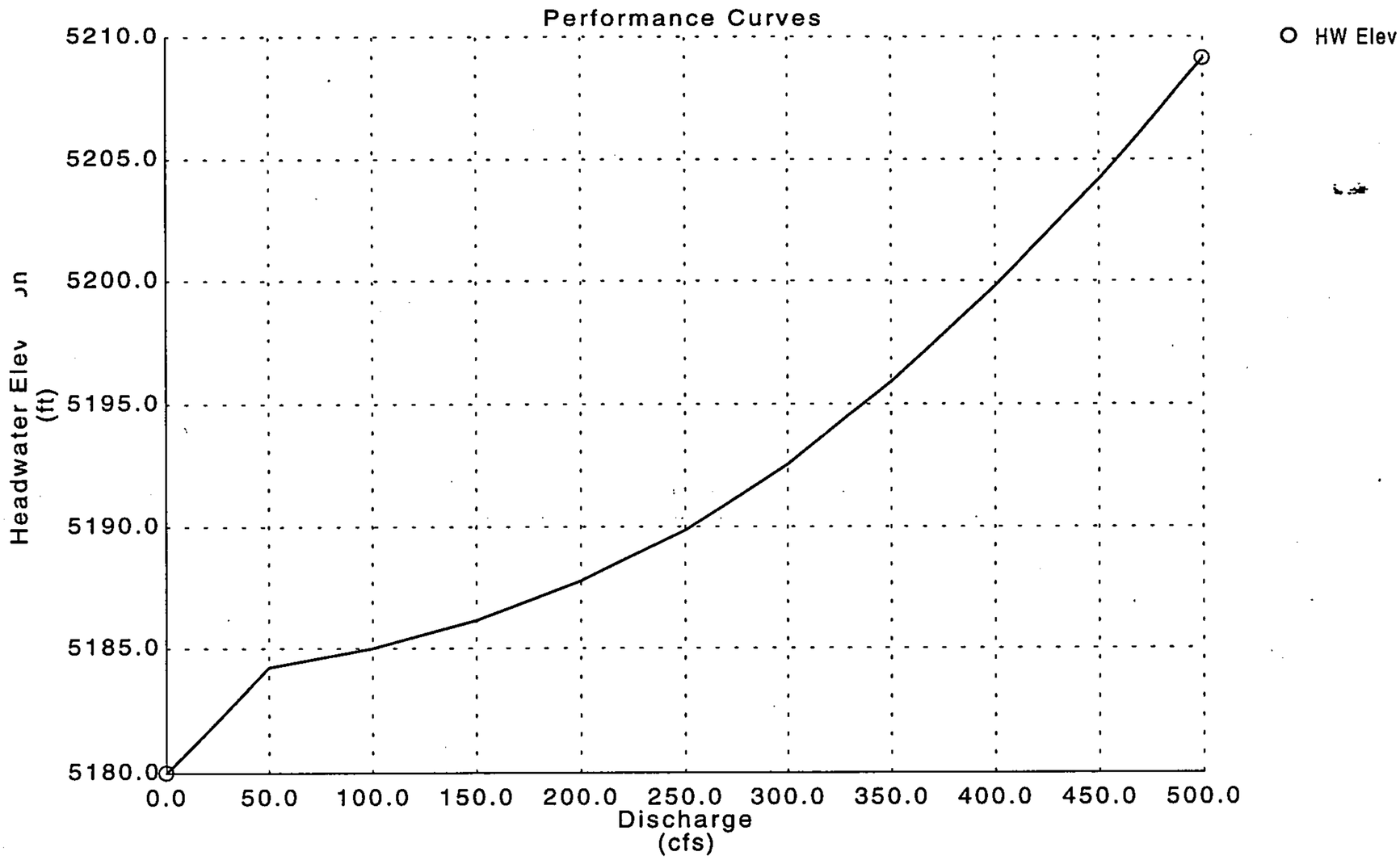
Performance Curves Report
RAC North Outfall

.ange Data:

	Minimum	Maximum	Increment
Discharge	0.00	500.00	50.00 cfs



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Culvert Calculator Report
RAC North Outfall

Comments: 54" Inlet Control

Solve For: Discharge

Culvert Summary					
Allowable HW Elevation	5,190.00	ft	Headwater Depth/ Height	2.22	
Computed Headwater Elevation	5,190.00	ft	Discharge	211.94	cfs
Inlet Control HW Elev	5,190.00	ft	Tailwater Elevation	5,175.00	ft
Outlet Control HW Elev	5,188.62	ft	Control Type	Inlet Control	

Grades					
Upstream Invert	5,180.00	ft	Downstream Invert	5,171.70	ft
Length	224.95	ft	Constructed Slope	0.036897	ft/ft

Hydraulic Profile					
Profile	S2		Depth, Downstream	2.58	ft
Slope Type	Steep		Normal Depth	2.41	ft
Flow Regime	Supercritical		Critical Depth	4.11	ft
Velocity Downstream	22.50	ft/s	Critical Slope	0.010122	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.013	
Section Material	Concrete		Span	4.50	ft
Section Size	54 inch		Rise	4.50	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev	5,188.62	ft	Upstream Velocity Head	3.01	ft
Ke	0.50		Entrance Loss	1.50	ft

Inlet Control Properties					
Inlet Control HW Elev	5,190.00	ft	Flow Control	Submerged	
Inlet Type	End-Section Conforming to fill slope		Area Full	15.9	ft²
K	0.00980		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	1	
C	0.03980		Equation Form	1	
Y	0.67000				

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Rating Table Report
RAC North Outfall

ange Data:

	Minimum	Maximum	Increment
Discharge	0.00	400.00	40.00 cfs

Discharge (cfs)	HW Elev (ft)
0.00	5,175.00
40:00	5,182.85
80.00	5,184.24
120.00	5,185.48
160.00	5,186.96
200.00	5,189.23
240.00	5,192.00
280.00	5,195.27
320.00	5,199.04
360.00	5,203.32
400.00	5,208.11

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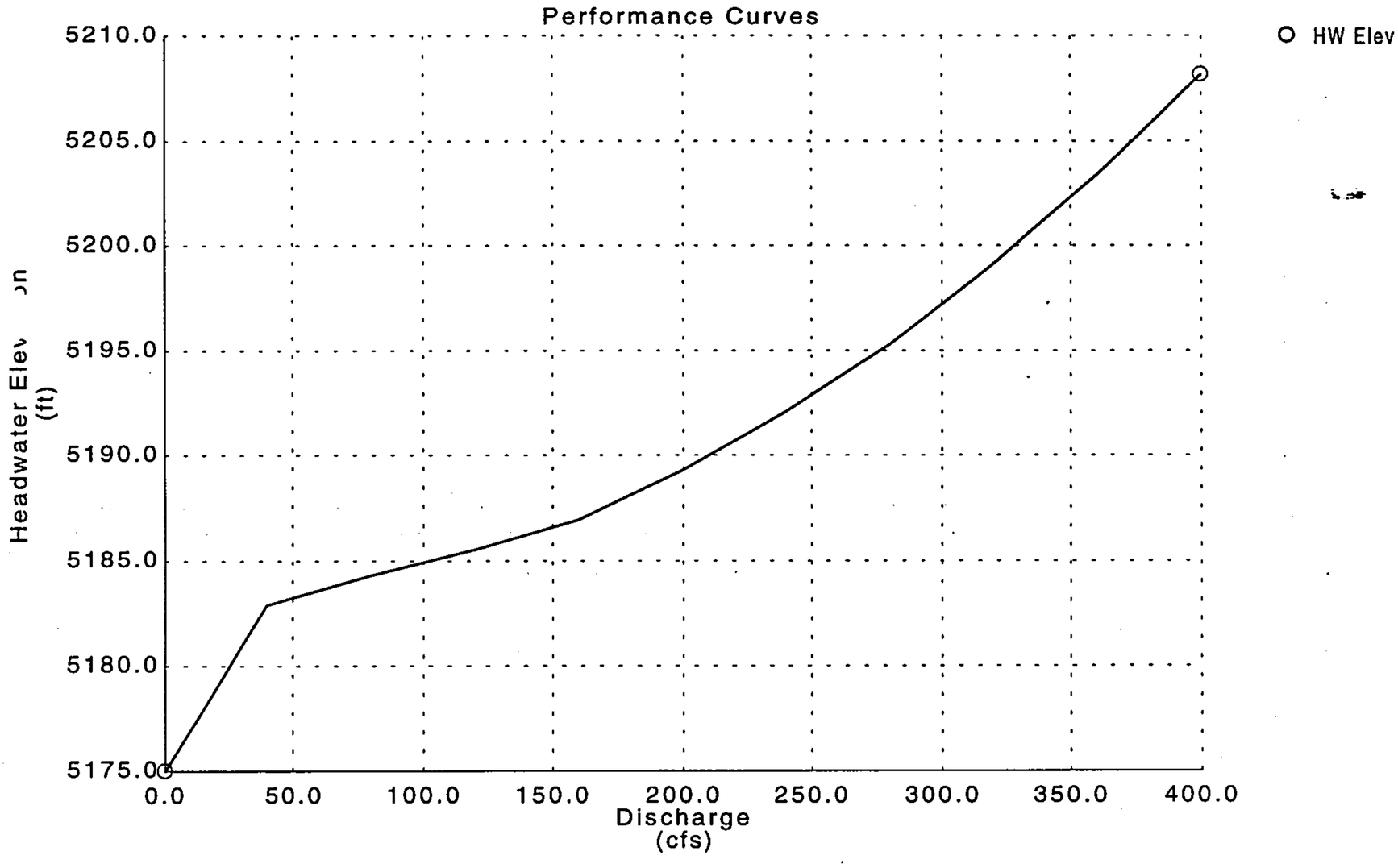
Performance Curves Report
RAC North Outfall

ange Data:

	Minimum	Maximum	Increment	
Discharge	0.00	400.00	40.00	cfs



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Culvert Calculator Report
RAC North Outfall

Comments: 54" Beginning of Outlet Control

Solve For: Discharge

Culvert Summary					
Allowable HW Elevation	5,190.00	ft	Headwater Depth/ Height	2.22	
Computed Headwater Elevation	5,190.00	ft	Discharge	199.78	cfs
Inlet Control HW Elev	5,189.21	ft	Tailwater Elevation	5,184.00	ft
Outlet Control HW Elev	5,190.00	ft	Control Type	Outlet Control	

Grades					
Upstream Invert	5,180.00	ft	Downstream Invert	5,171.70	ft
Length	224.95	ft	Constructed Slope	0.036897	ft/ft

Hydraulic Profile					
Profile	Pressure		Depth, Downstream	12.30	ft
Slope Type	N/A		Normal Depth	2.33	ft
Flow Regime	N/A		Critical Depth	4.03	ft
Velocity Downstream	12.56	ft/s	Critical Slope	0.009116	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.013	
Section Material	Concrete		Span	4.50	ft
Section Size	54 inch		Rise	4.50	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev	5,190.00	ft	Upstream Velocity Head	2.45	ft
Ke	0.50		Entrance Loss	1.23	ft

Inlet Control Properties					
Inlet Control HW Elev	5,189.21	ft	Flow Control	Submerged	
Inlet Type	End-Section Conforming to fill slope		Area Full	15.9	ft²
K	0.00980		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	1	
C	0.03980		Equation Form	1	
Y	0.67000				

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Rating Table Report
RAC North Outfall

..ange Data:

	Minimum	Maximum	Increment
Discharge	0.00	400.00	40.00 cfs

Discharge (cfs)	HW Elev (ft)
0.00	5,180.00
40.00	5,184.25
80.00	5,184.97
120.00	5,186.16
160.00	5,187.85
200.00	5,190.01
240.00	5,192.66
280.00	5,195.79
320.00	5,199.39
360.00	5,203.48
400.00	5,208.11

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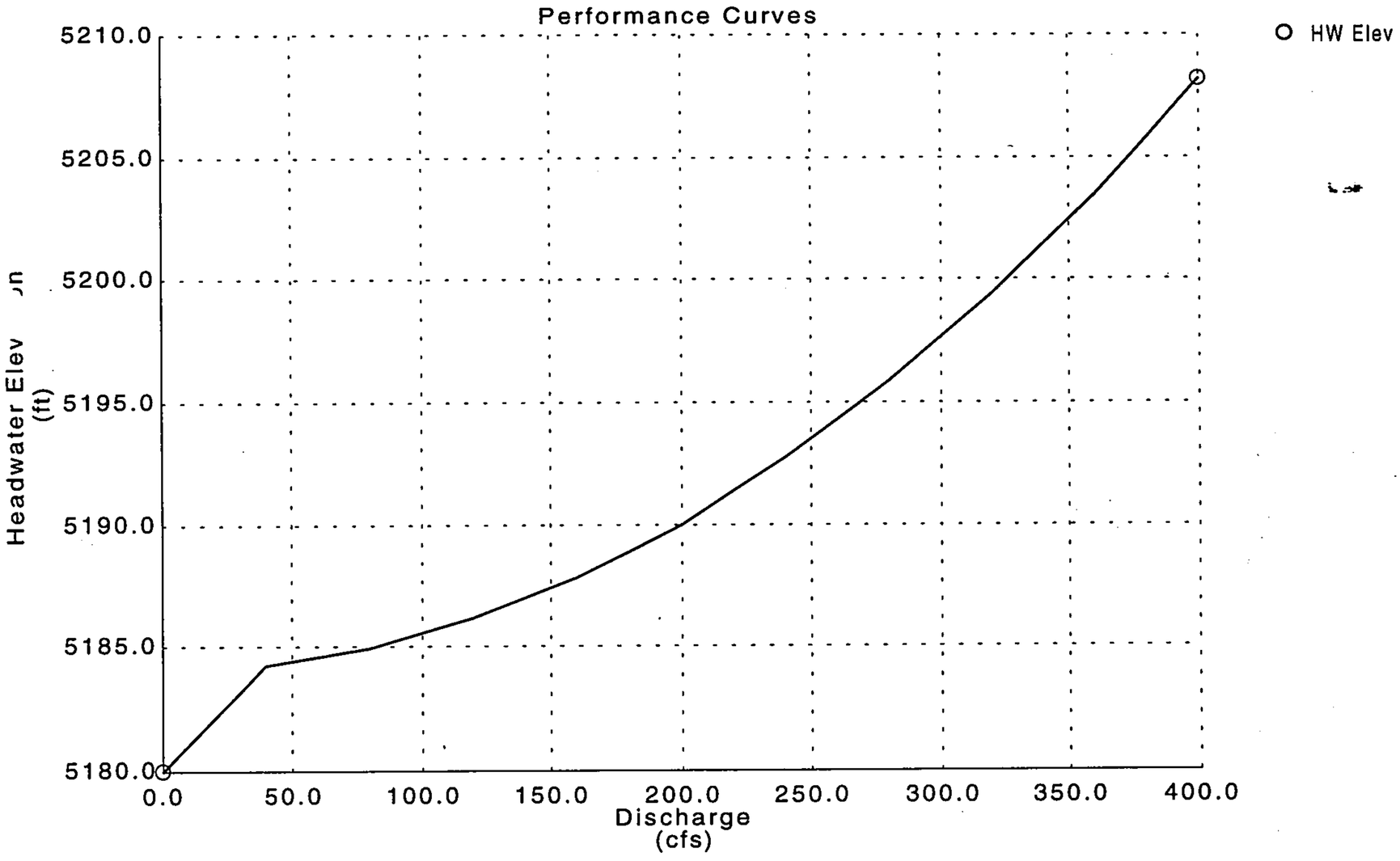
Performance Curves Report
RAC North Outfall

..ange Data:

	Minimum	Maximum	Increment
Discharge	0.00	400.00	40.00 cfs



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Culvert Calculator Report
Unversity South 72" Crossing

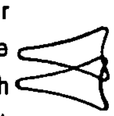
ve For: Discharge

Culvert Summary					
Allowable HW Elevation	5,199.00	ft	Headwater Depth/ Height	2.25	
Computed Headwater Elevation	5,199.00	ft	Discharge	278.27	cfs
Inlet Control HW Elev	5,199.00	ft	Tailwater Elevation	5,190.00	ft
Outlet Control HW Elev	5,197.41	ft	Control Type	Inlet Control	

Grades					
Upstream Invert	5,187.75	ft	Downstream Invert	5,184.00	ft
Length	100.00	ft	Constructed Slope	0.037500	ft/ft

Hydraulic Profile					
Profile	CompositePressureS1S2		Depth, Downstream	3.19	ft
Slope Type	N/A		Normal Depth	2.65	ft
Flow Regime	N/A		Critical Depth	4.58	ft
Velocity Downstream	21.08	ft/s	Critical Slope	0.009934	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.013	
Section Material	Concrete		Span	5.00	ft
Section Size	60 inch		Rise	5.00	ft
Number Sections	1				



Outlet Control Properties					
Outlet Control HW Elev	5,197.41	ft	Upstream Velocity Head	3.39	ft
Ke	0.50		Entrance Loss	1.70	ft

Inlet Control Properties					
Inlet Control HW Elev	5,199.00	ft	Flow Control	Submerged	
Inlet Type	End-Section Conforming to fill slope		Area Full	19.6	ft²
K	0.00980		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	1	
C	0.03980		Equation Form	1	
Y	0.67000				

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Rating Table Report
Unversity South 72" Crossing

.nge Data:

	Minimum	Maximum	Increment	
Discharge	0.00	600.00	60.00	cfs

Discharge (cfs)	HW Elev (ft)
0.00	5,187.75
60.00	5,191.17
120.00	5,192.89
180.00	5,194.47
240.00	5,196.95
300.00	5,200.30
360.00	5,204.39
420.00	5,209.22
480.00	5,214.79
540.00	5,221.11
600.00	5,228.17

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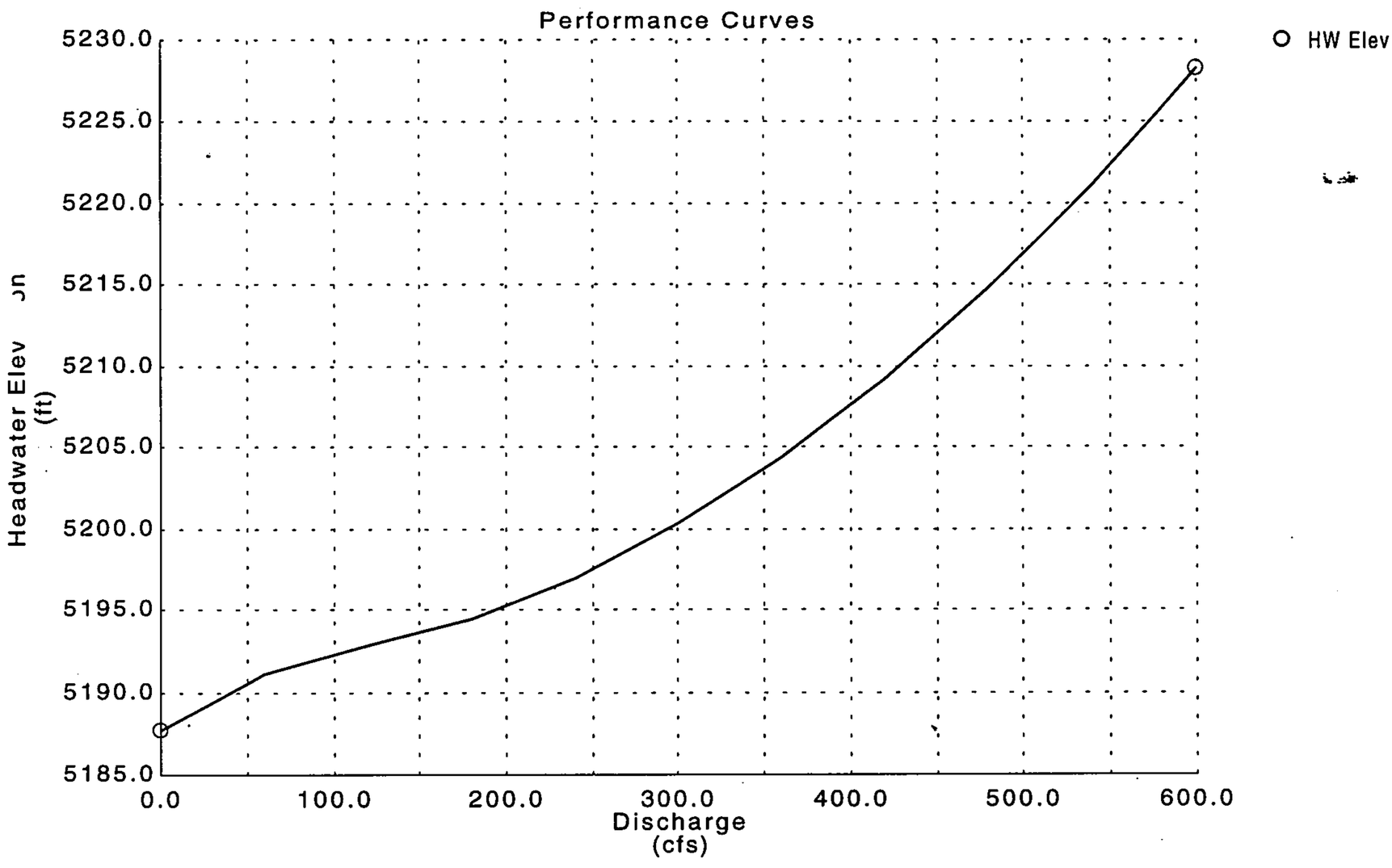
Performance Curves Report
Unversity South 72" Crossing

ange Data:

	Minimum	Maximum	Increment
Discharge	0.00	600.00	60.00 cfs



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Culvert Calculator Report
University South 72" Crossing

/e For: Discharge

Culvert Summary					
Allowable HW Elevation	5,199.00	ft	Headwater Depth/ Height	1.88	
Computed Headwater Elevation	5,199.00	ft	Discharge	337.39	cfs
Inlet Control HW Elev	5,199.00	ft	Tailwater Elevation	5,184.00	ft
Outlet Control HW Elev	5,197.50	ft	Control Type	Inlet Control	

Grades					
Upstream Invert	5,187.75	ft	Downstream Invert	5,184.00	ft
Length	100.00	ft	Constructed Slope	0.037500	ft/ft

Hydraulic Profile					
Profile	S2		Depth, Downstream	3.99	ft
Slope Type	Steep		Normal Depth	3.91	ft
Flow Regime	Supercritical		Critical Depth	4.99	ft
Velocity Downstream	16.89	ft/s	Critical Slope	0.021086	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	6.00	ft
Section Size	72 inch		Rise	6.00	ft
Number Sections	1				

.tlet Control Properties

Outlet Control HW Elev	5,197.50	ft	Upstream Velocity Head	2.80	ft
Ke	0.70		Entrance Loss	1.96	ft

Inlet Control Properties					
Inlet Control HW Elev	5,199.00	ft	Flow Control	Submerged	
Inlet Type	Mitered to slope		Area Full	28.3	ft^2
K	0.02100		HDS 5 Chart	2	
M	1.33000		HDS 5 Scale	2	
C	0.04630		Equation Form	1	
Y	0.75000				

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Rating Table Report
University South 72" Crossing

.nge Data:

	Minimum	Maximum	Increment	
Discharge	0.00	700.00	70.00	cfs

Discharge (cfs)	HW Elev (ft)
0.00	5,184.00
70.00	5,191.39
140.00	5,193.15
210.00	5,194.68
280.00	5,196.95
350.00	5,199.50
420.00	5,202.62
490.00	5,206.31
560.00	5,210.57
630.00	5,215.39
700.00	5,220.79

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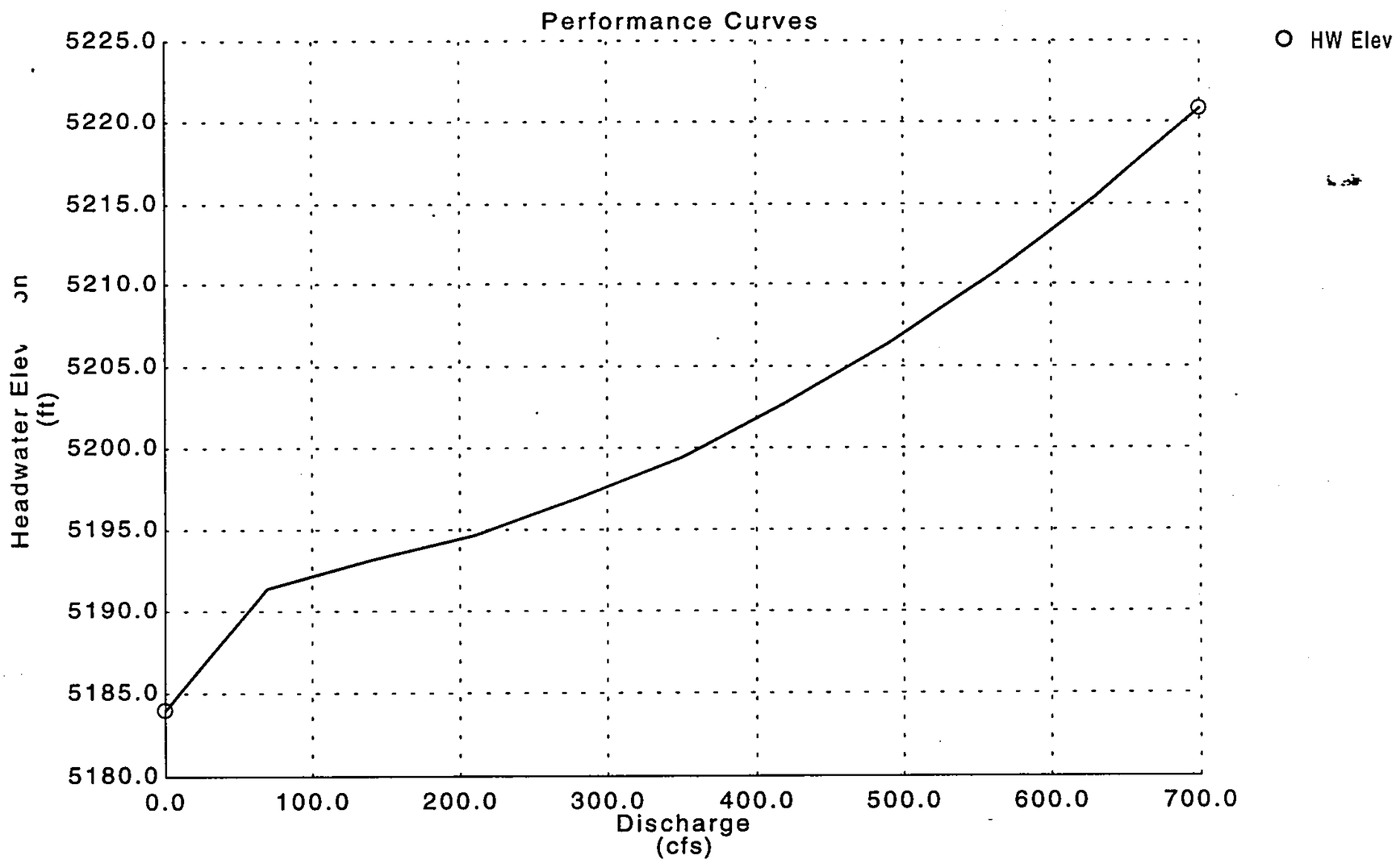
Performance Curves Report
University South 72" Crossing

.nge Data:

	Minimum	Maximum	Increment
Discharge	0.00	700.00	70.00 cfs



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Culvert Calculator Report
Worksheet-1

/e For: Discharge

Culvert Summary					
Allowable HW Elevation	1,020.00	ft	Headwater Depth/ Height	3.33	
Computed Headwater Elevation	1,020.00	ft	Discharge	938.77	cfs
Inlet Control HW Elev	1,020.00	ft	Tailwater Elevation	995.00	ft
Outlet Control HW Elev	1,014.92	ft	Control Type	Inlet Control	

Grades					
Upstream Invert	1,000.00	ft	Downstream Invert	990.00	ft
Length	300.00	ft	Constructed Slope	0.033333	ft/ft

Hydraulic Profile					
Profile	S2		Depth, Downstream	4.14	ft
Slope Type	Steep		Normal Depth	3.65	ft
Flow Regime	Supercritical		Critical Depth	6.00	ft
Velocity Downstream	28.33	ft/s	Critical Slope	0.014270	ft/ft

Section					
Section Shape	Box		Mannings Coefficient	0.013	
Section Material	Concrete		Span	8.00	ft
Section Size	8 x 6 ft		Rise	6.00	ft
Number Sections	1				

tlet Control Properties					
Outlet Control HW Elev	1,014.92	ft	Upstream Velocity Head	5.94	ft
Ke	0.50		Entrance Loss	2.97	ft

Inlet Control Properties					
Inlet Control HW Elev	1,020.00	ft	Flow Control	Submerged	
Inlet Type	90 and 15 ° wingwall flares		Area Full	48.0	ft²
K	0.06100		HDS 5 Chart	8	
M	0.75000		HDS 5 Scale	2	
C	0.04000		Equation Form	1	
Y	0.80000				

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Rating Table Report
Worksheet-1

.nge Data:

	Minimum	Maximum	Increment	
Discharge	0.00	1,900.00	190.00	cfs

Discharge (cfs)	HW Elev (ft)
0.00	995.00
190.00	1,004.55
380.00	1,007.22
570.00	1,010.34
760.00	1,014.73
950.00	1,020.37
1,140.00	1,027.26
1,330.00	1,035.41
1,520.00	1,044.81
1,710.00	1,055.47
1,900.00	1,067.37

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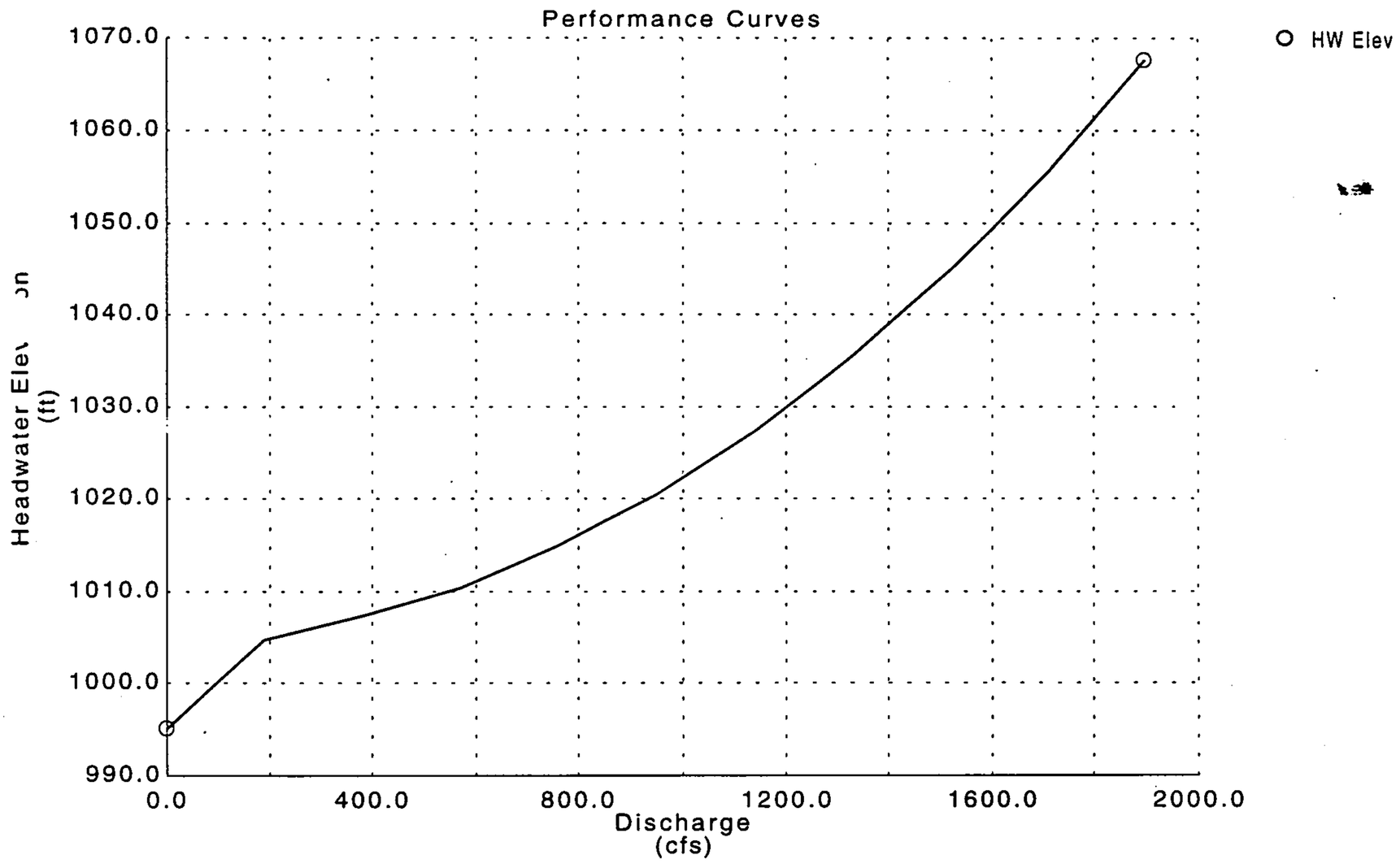
Performance Curves Report
Worksheet-1

.nge Data:

	Minimum	Maximum	Increment
Discharge	0.00	1,900.00	190.00 cfs



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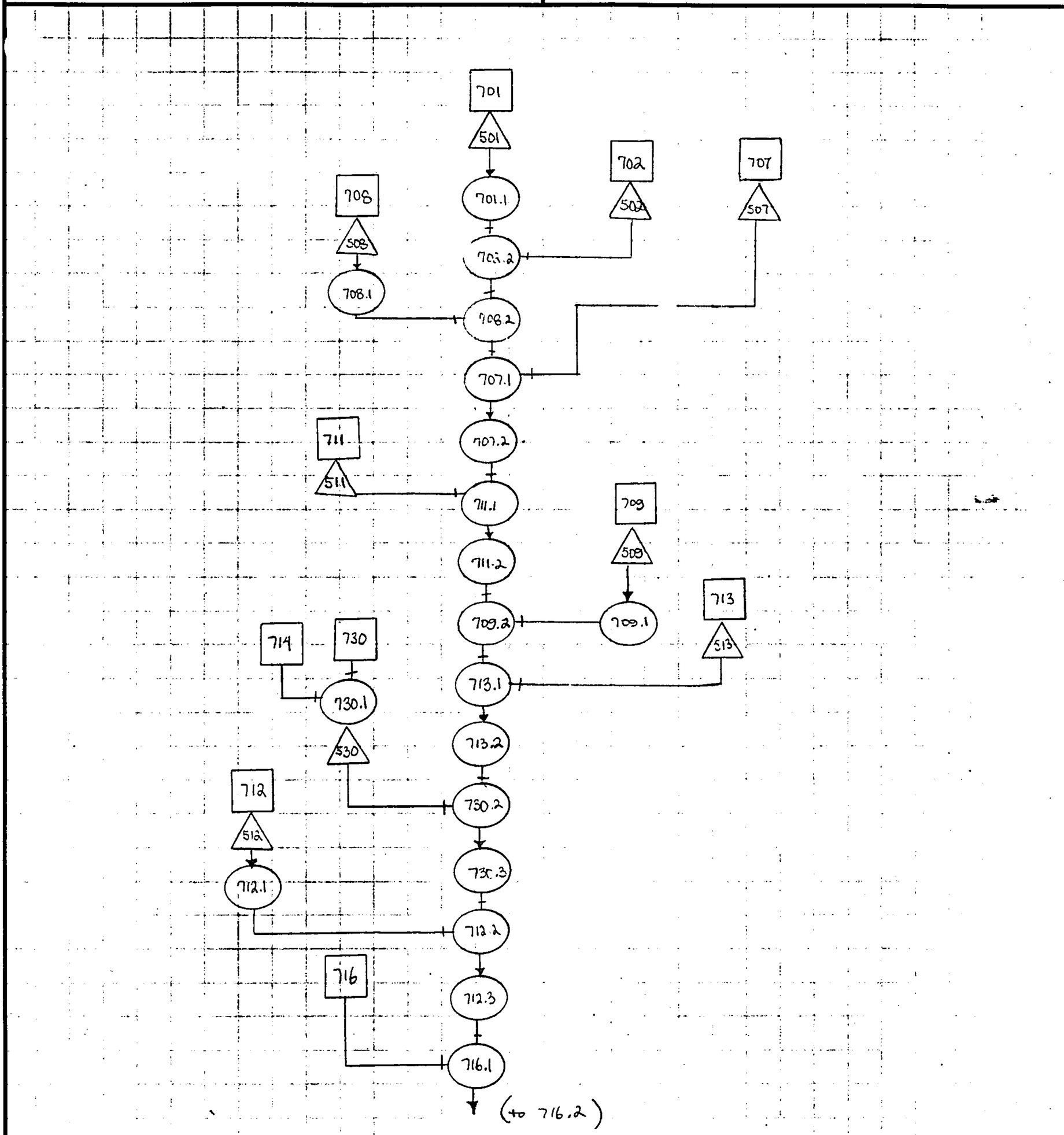
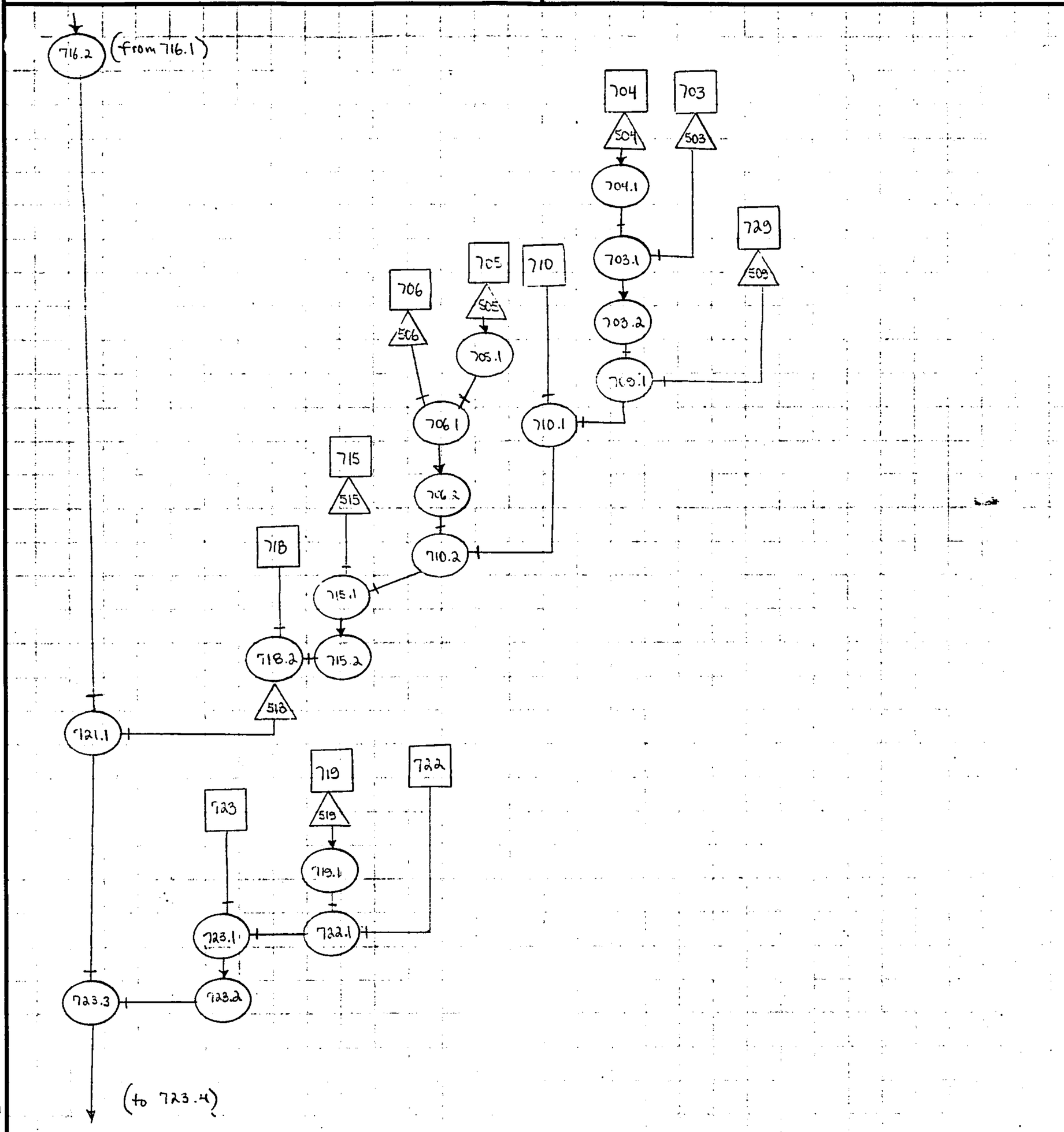
APPENDIX C
AHYMO FLOW CHARTS AND SUMMARY TABLES

Calculated By	S. Flores	Date	
Checked By		Date	
Sheet No.	1	Of	3

Client	ABQ	Project No.	ABQ71-11.D03
Project	Rent A Car Facility		
Subject	...\ABQ71-11.D03\DRAINAGE\GAEX100.SUM		

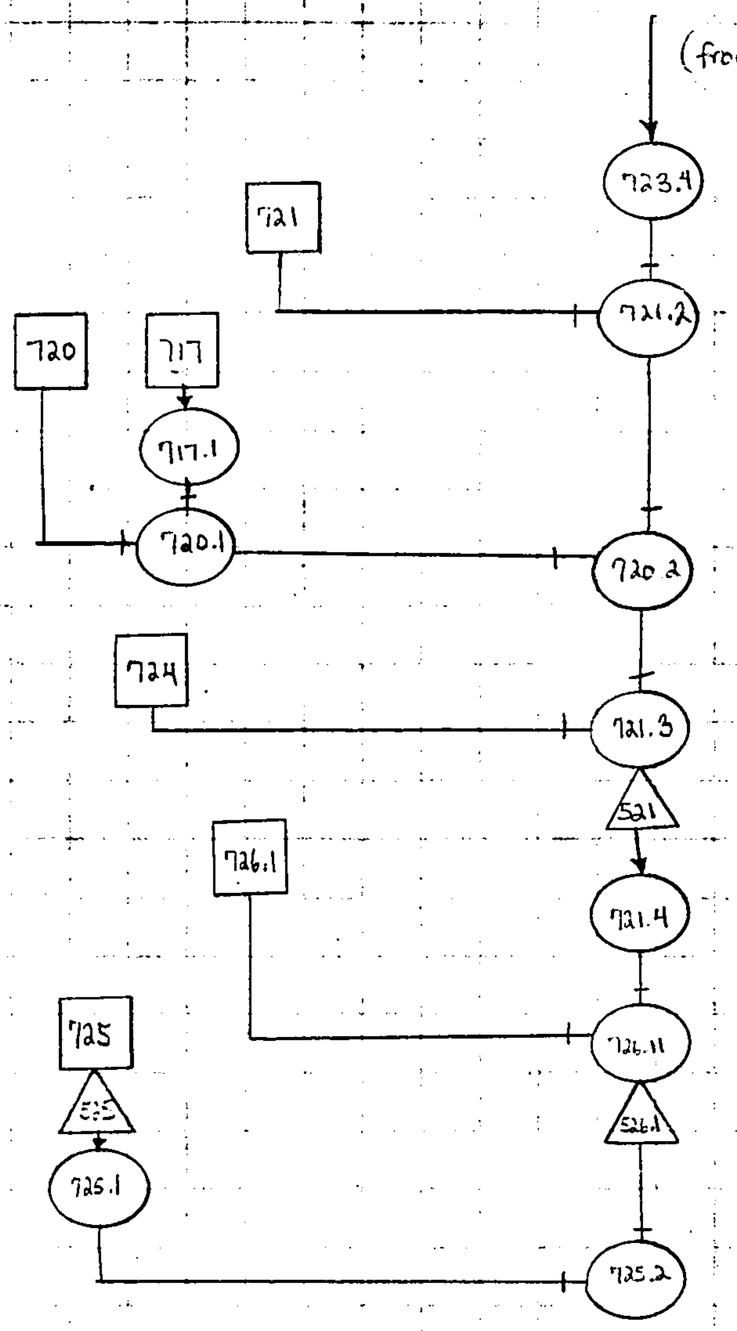


Calculated By S. Flores	Date 9/7	Client ABQ	Project No. ABQ71-11 D03
Checked By	Date	Project Rent A Car Facility	
Sheet No. 2	Of 3	Subject ...\ABQ71-11 D03\DRAINAGE\GAEX100.SUM	



Calculated By	S. Flores	Date	9/7
Checked By		Date	
Sheet No.	3	Of	3

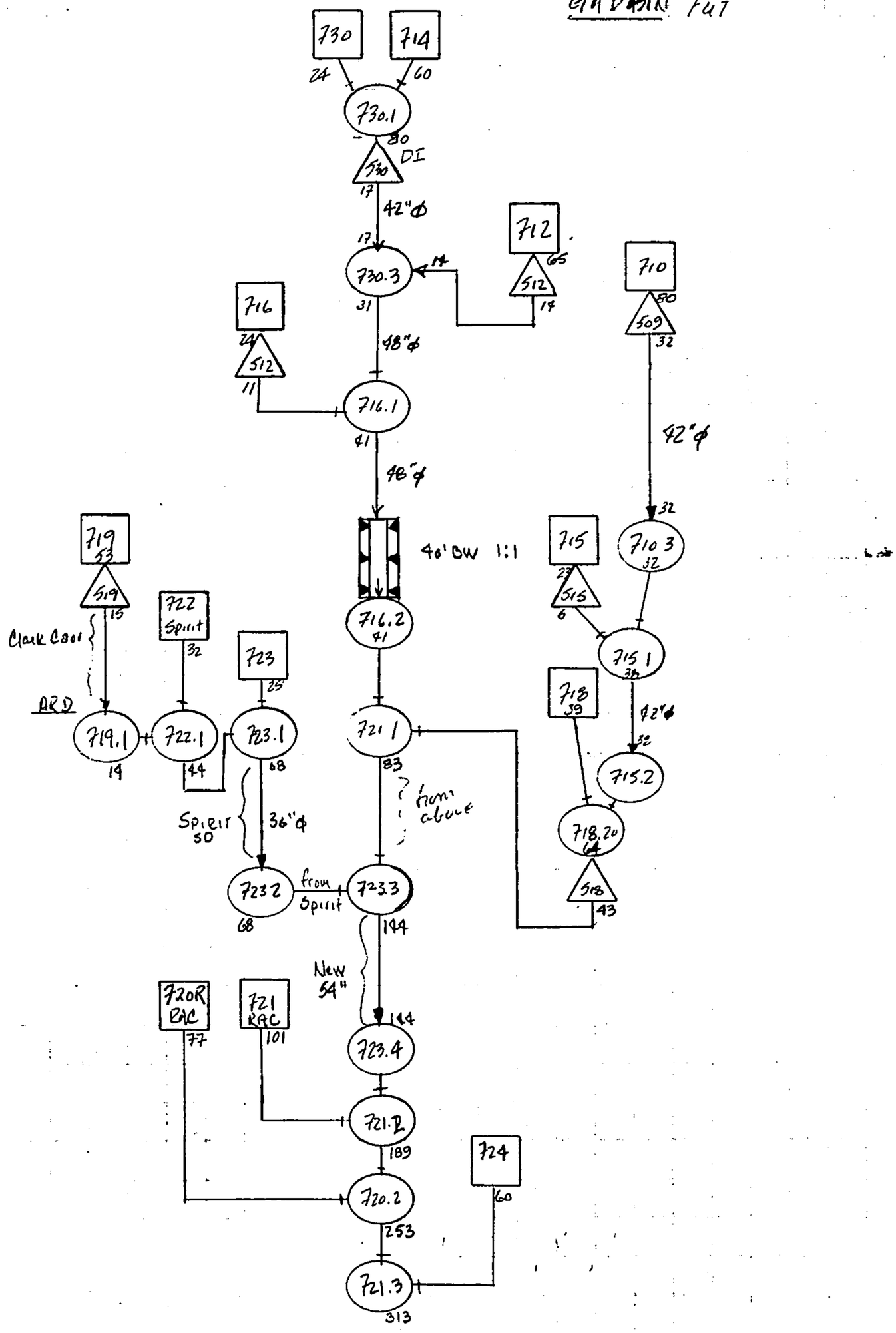
Client	ABQ	Project No.	ABQ71-11.003
Project	Rent A Car Facility		
Subject	... ABQ71-11.003\DRAINAGE\GAEXICO.SUM		



.25 inch²

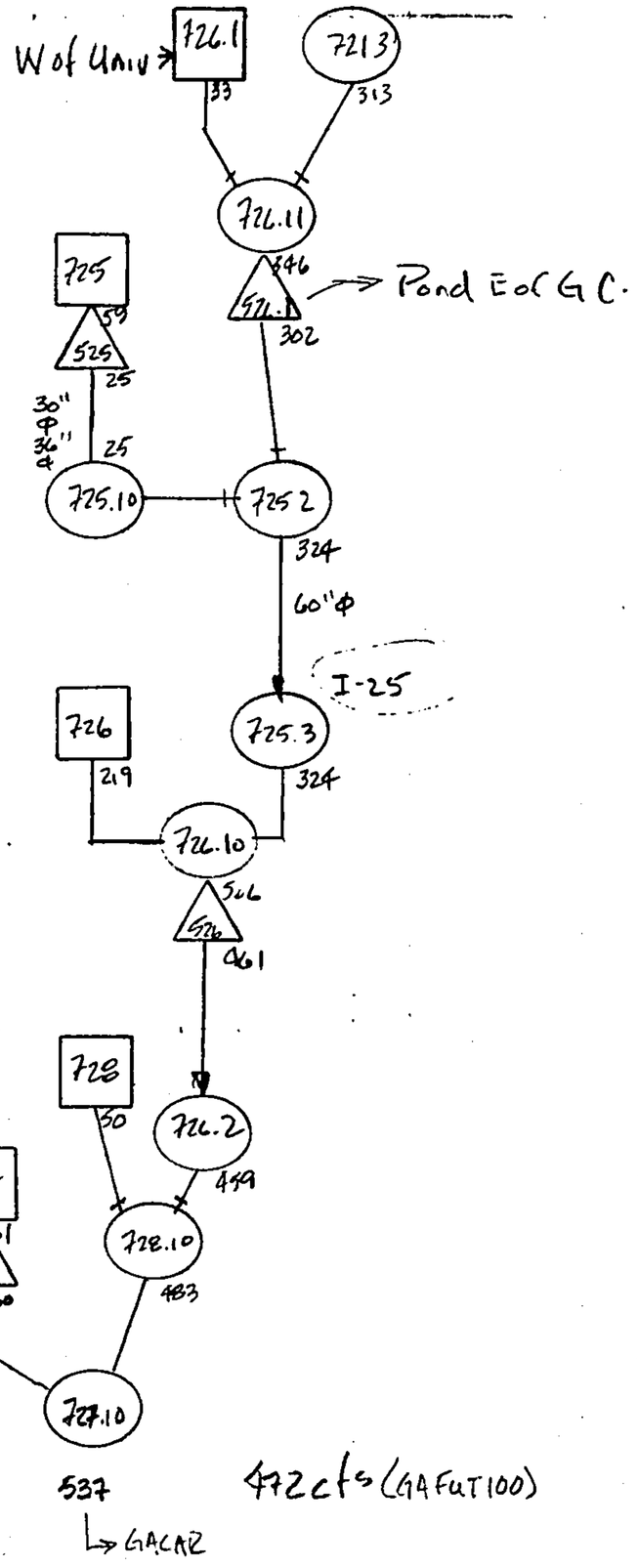
Calculated By	Date	Client	Project No.
Checked By	Date	Project	
Sheet No. 1	Of 2	Subject	

GA BASIN FUT



□ =.25 inch²

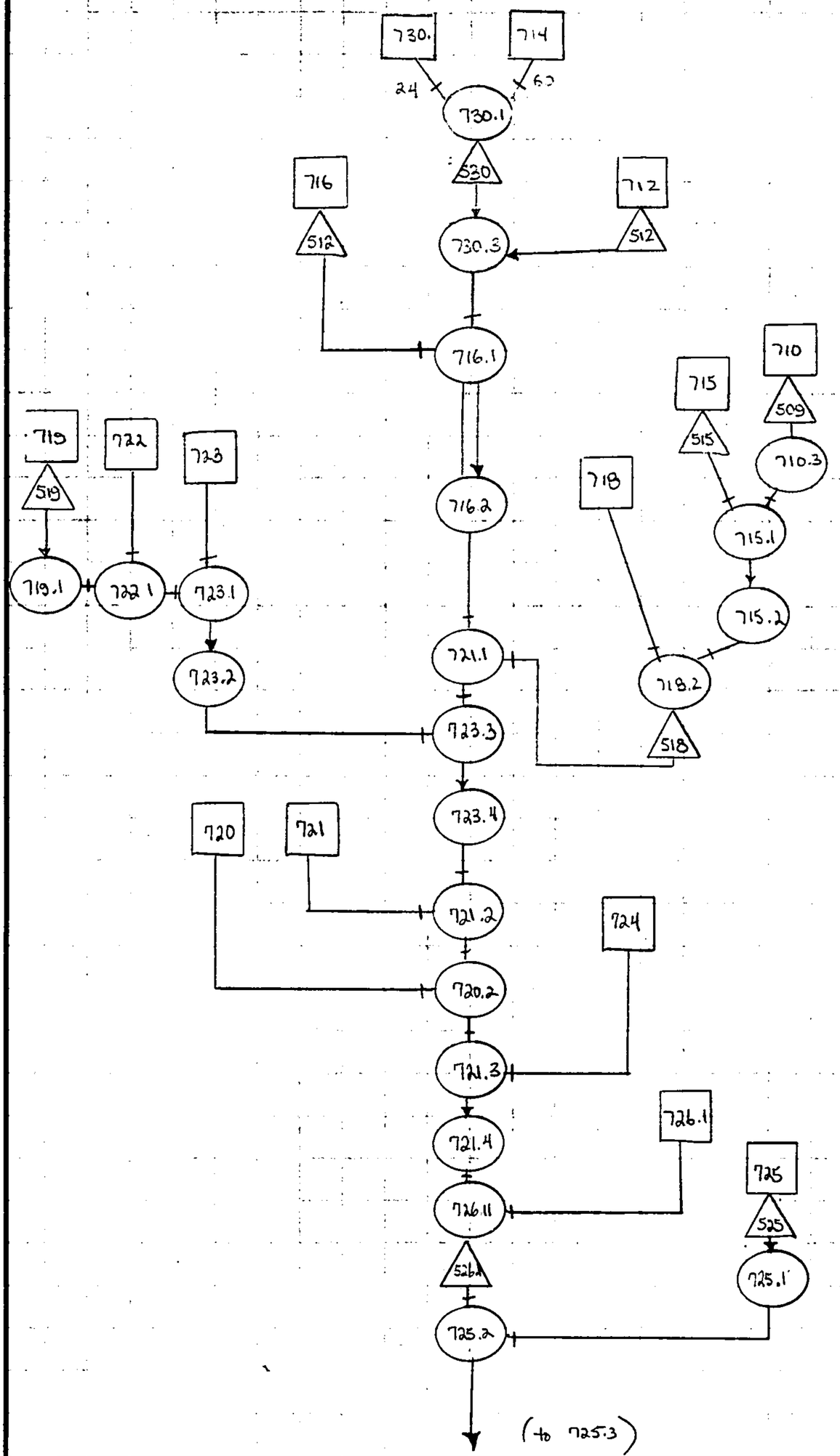
Calculated By	Date	Client	Project No.
Checked By	Date	Project	
Sheet No. 2	Of 2	Subject	



□ =.25 inch²

Calculated By S.Flores	Date	Client ABQ	Project No. ABQ71-11.D03
Checked By	Date	Project Rent A Car Facility	
Sheet No. 1	Of 2	Subject ···· \ABQ 71-11.D03\DRAINAGE\gacar100.sum	

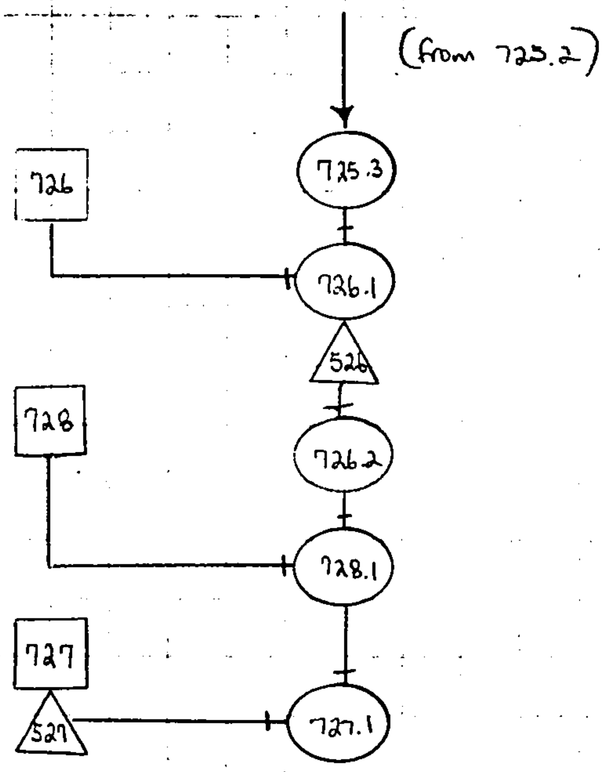
GA BASIN CAR



└ =.25 inch²

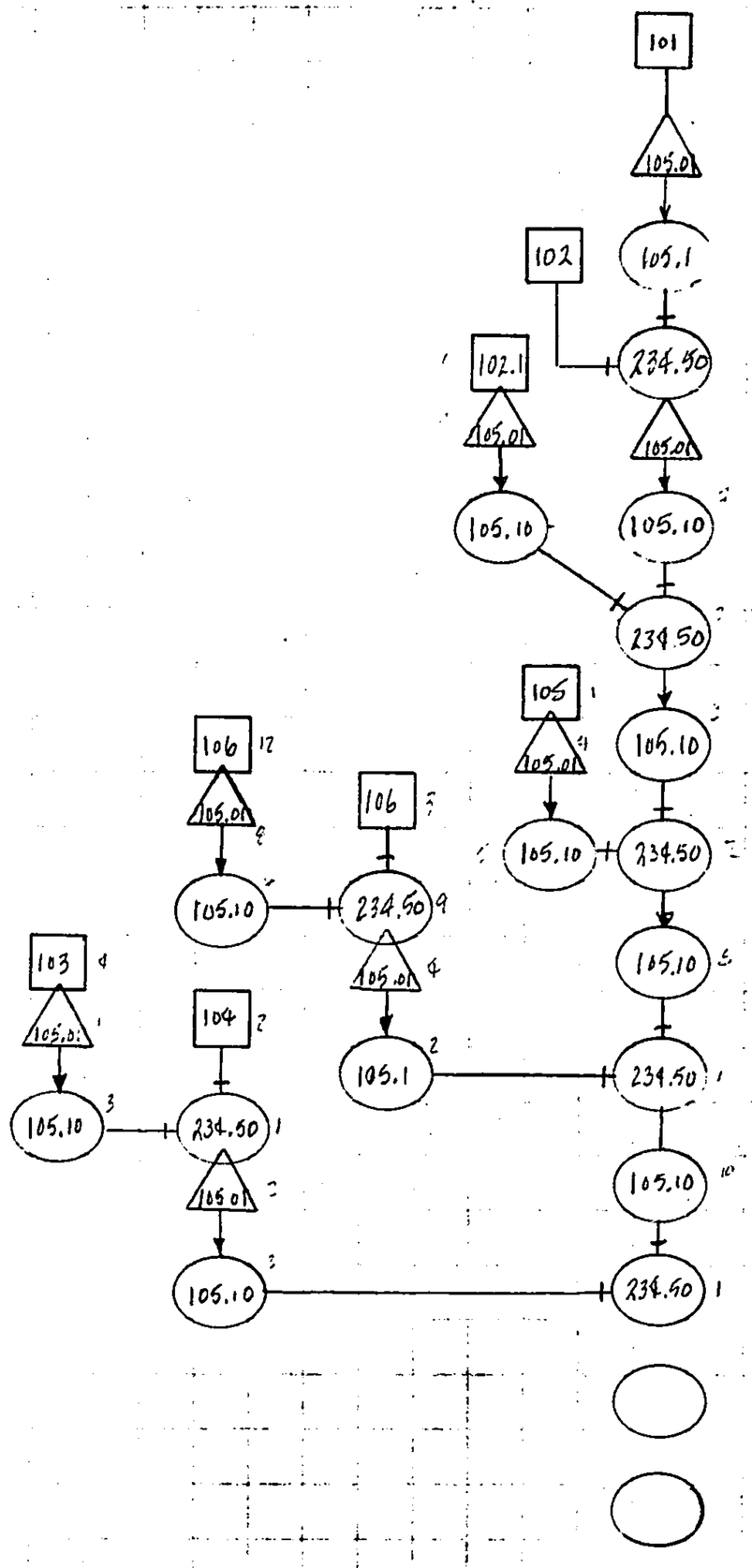
Calculated By	S. Flores	Date	
Checked By		Date	
Sheet No.	2	Of	2

Client	ABQ	Project No.	ABQ71-11.D03
Project	Rent-A-Car Facility		
Subject	..\ABQ71-11.D03\DRAINAGE\garar100.sum		



Calculated By	Date
Checked By	Date
Sheet No.	Of

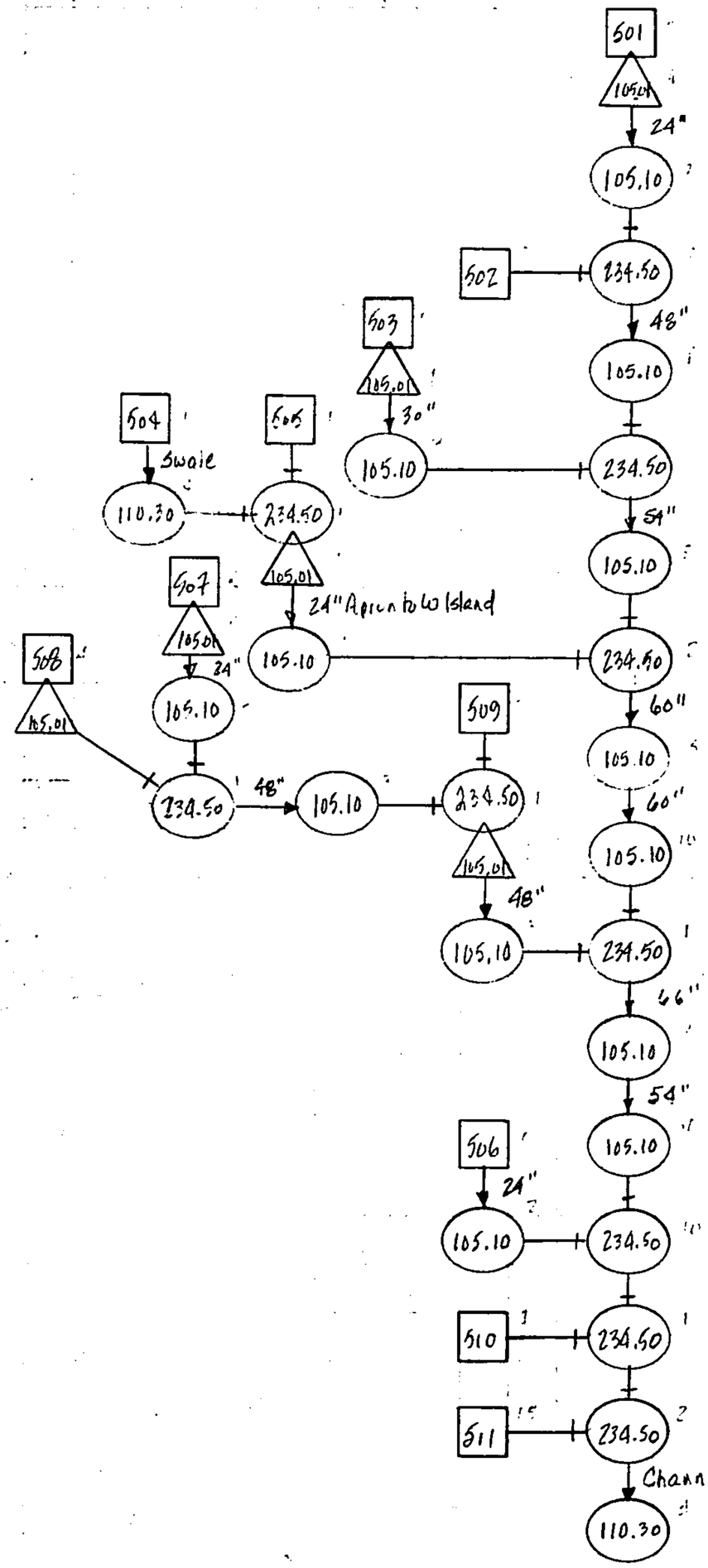
Client	Project No.
Project	
Subject	WEFUT100.DAT

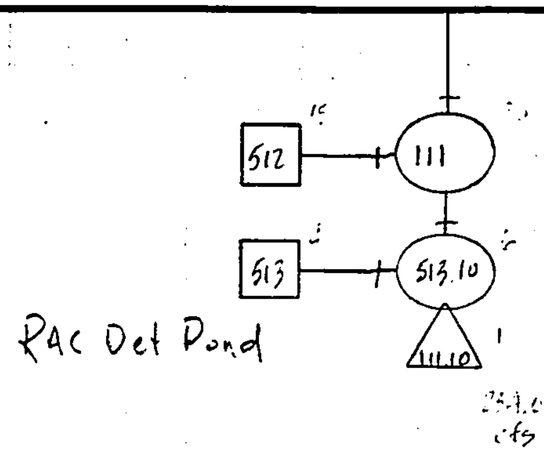


□ =.25 inch²

Calculated By	Date
Checked By	Date
Sheet No.	Of

Client	Project No.
Project	
Subject	WECAR100.DAT



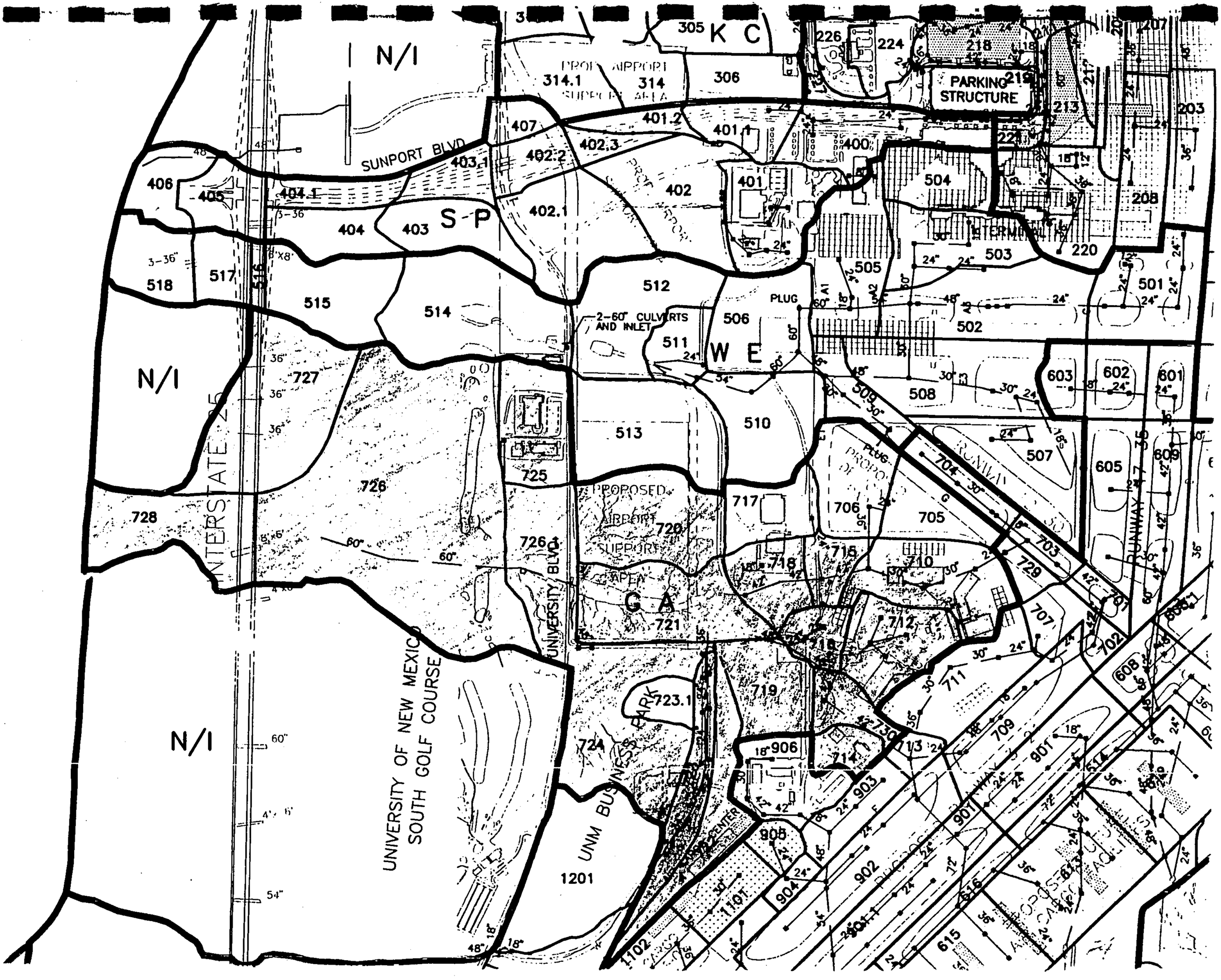


RAC Det Pond

234.cfs

31.41 af tp 1.93 hr.

☐ =.25 inch²


N/I
SUNPORT BLVD
S-P
PROP. AIRPORT SUPPORT AREA
314.1
314
305
K C
306
PARKING STRUCTURE
219
213
203
224
226
218
207
407
401.2
401
402.3
402.2
403.1
400
406
405
404.1
404
403
402.1
402
504
208
220
503
505
501
518
517
516
515
514
512
PLUG
2-60" CULVERTS AND INLET
506
502
511
W E
508
603
602
601
727
513
510
509
507
605
609
725
726
728
717
706
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720
PROPOSED AIRPORT SUPPORT
718
715
710
707
712
721
G A
711
702
608
719
723.1
PARK
724
906
714
709
901
903
905
902
904
1101
1102
615
1201
UNIVERSITY OF NEW MEXICO SOUTH GOLF COURSE
UNIVERSITY BLVD.
INTERSTATE
UNM BUSINESS
RUNWAY 7-25
TERMINAL
PARKING
CARGO
ACCESS ROAD

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =02/19/1999
INPUT FILE = gaex100.dat USER NO.= MOLZCONM.STE

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.350
COMPUTE NM HYD	701.00	-	3	.00420	11.00	.379	1.69076	1.500	4.090	PER IMP=	57.00
ROUTE RESERVOIR	501.00	3	4	.00420	8.99	.379	1.69069	1.567	3.343	AC-FT=	.056
ROUTE	701.10	4	7	.00420	8.78	.379	1.69079	1.600	3.265		
COMPUTE NM HYD	702.00	-	3	.00450	12.14	.425	1.76975	1.500	4.214	PER IMP=	65.00
ROUTE RESERVOIR	502.00	3	4	.00450	6.86	.425	1.76969	1.633	2.381	AC-FT=	.087
ADD HYD	702.10	4& 7	2	.00870	15.58	.803	1.73154	1.600	2.797		
ROUTE	702.20	2	7	.00870	15.33	.803	1.73160	1.600	2.754		
COMPUTE NM HYD	708.00	-	3	.00540	13.76	.467	1.62163	1.500	3.981	PER IMP=	50.00
ROUTE RESERVOIR	508.00	3	4	.00540	6.33	.467	1.62158	1.700	1.832	AC-FT=	.170
ADD HYD	708.10	4& 7	2	.01410	21.53	1.270	1.68941	1.633	2.385		
ROUTE	708.20	2	7	.01410	21.51	1.270	1.68944	1.633	2.384		
COMPUTE NM HYD	707.00	-	3	.00850	19.96	.646	1.42414	1.500	3.669	PER IMP=	30.00
ROUTE RESERVOIR	507.00	3	4	.00850	6.93	.646	1.42411	1.766	1.274	AC-FT=	.299
ADD HYD	707.10	4& 7	2	.02260	28.03	1.916	1.58960	1.667	1.938		
ROUTE	707.20	2	7	.02260	27.48	1.916	1.58962	1.700	1.900		
COMPUTE NM HYD	711.00	-	3	.02870	87.26	3.238	2.11537	1.500	4.751	PER IMP=	100.00
ROUTE RESERVOIR	511.00	3	4	.02870	27.35	3.238	2.11536	1.866	1.489	AC-FT=	1.466
ADD HYD	711.10	4& 7	2	.05130	54.20	5.154	1.88372	1.733	1.651		
ROUTE	711.20	2	7	.05130	53.71	5.154	1.88373	1.800	1.636		
COMPUTE NM HYD	709.00	-	3	.01400	20.33	1.211	1.62164	1.733	2.269	PER IMP=	50.00
ROUTE RESERVOIR	509.00	3	4	.01400	14.88	1.211	1.62159	1.933	1.661	AC-FT=	.248
ROUTE	709.10	4	6	.01400	14.85	1.211	1.62162	1.966	1.658		
ADD HYD	709.20	6& 7	2	.06530	67.42	6.365	1.82752	1.833	1.613		
COMPUTE NM HYD	713.00	-	3	.00460	11.04	.362	1.47351	1.500	3.749	PER IMP=	35.00
ROUTE RESERVOIR	513.00	3	4	.00460	8.37	.361	1.47345	1.600	2.843	AC-FT=	.052
ADD HYD	713.10	2& 4	5	.06990	72.42	6.726	1.80422	1.800	1.619		
ROUTE	713.20	5	7	.06990	72.01	6.726	1.80423	1.866	1.610		
COMPUTE NM HYD	730.00	-	3	.01120	23.92	1.052	1.76175	1.567	3.338	PER IMP=	70.00
COMPUTE NM HYD	714.00	-	6	.02320	60.20	2.068	1.67101	1.500	4.054	PER IMP=	55.00
ADD HYD	730.10	3& 6	4	.03440	80.05	3.120	1.70053	1.500	3.636		
ROUTE RESERVOIR	530.00	4	2	.03440	31.44	3.120	1.70053	1.800	1.428	AC-FT=	2.648
ADD HYD	730.20	2& 7	5	.10430	103.38	9.846	1.77002	1.833	1.549		
ROUTE	730.30	5	7	.10430	103.31	9.846	1.77002	1.866	1.548		
COMPUTE NM HYD	712.00	-	3	.02160	64.68	2.391	2.07525	1.500	4.679	PER IMP=	97.00
ROUTE RESERVOIR	512.00	3	4	.02160	47.23	2.391	2.07524	1.600	3.417	AC-FT=	.432
ROUTE	712.10	4	6	.02160	47.19	2.391	2.07526	1.600	3.413		
ADD HYD	712.20	6& 7	2	.12590	136.09	12.237	1.82238	1.766	1.689		
ROUTE	712.30	2	7	.12590	135.84	12.237	1.82239	1.800	1.686		
COMPUTE NM HYD	716.00	-	3	.00940	24.40	.838	1.67101	1.500	4.056	PER IMP=	55.00
ADD HYD	716.10	3& 7	6	.13530	144.56	13.074	1.81187	1.766	1.669		
ROUTE	716.20	6	8	.13530	144.17	13.074	1.81187	1.800	1.665		
COMPUTE NM HYD	704.00	-	3	.01070	25.02	.954	1.67101	1.533	3.654	PER IMP=	55.00
ROUTE RESERVOIR	504.00	3	4	.01070	14.09	.954	1.67098	1.700	2.058	AC-FT=	.291
ROUTE	704.10	4	7	.01070	13.88	.954	1.67102	1.733	2.026		
COMPUTE NM HYD	703.00	-	3	.00790	20.51	.704	1.67101	1.500	4.056	PER IMP=	55.00
ROUTE RESERVOIR	503.00	3	4	.00790	6.65	.704	1.67097	1.800	1.314	AC-FT=	.333
ADD HYD	703.10	4& 7	2	.01860	20.48	1.658	1.67093	1.766	1.720		

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
COMPUTE NM HYD	720.00	-	3	.03540	83.87	2.886	1.52862	1.500	3.702	PER IMP=	55.00
ADD HYD	720.10	3& 4	2	.05130	109.64	4.044	1.47808	1.533	3.340		
ADD HYD	720.20	2& 6	5	.30290	239.58	26.360	1.63174	1.533	1.236		
COMPUTE NM HYD	724.00	-	3	.04650	59.72	1.736	.69990	1.500	2.007	PER IMP=	5.00
ADD HYD	721.30	3& 5	2	.34940	299.04	28.096	1.50772	1.533	1.337		
ROUTE RESERVOIR	521.00	2	4	.34940	215.95	28.096	1.50772	1.866	.966	AC-FT=	2.566
ROUTE	721.40	4	7	.34940	215.96	28.096	1.50772	1.866	.966		
COMPUTE NM HYD	726.10	-	3	.02420	32.57	.965	.74754	1.500	2.103	PER IMP=	8.00
ADD HYD	726.11	3& 7	2	.37360	226.91	29.061	1.45848	1.633	.949		
ROUTE RESERVOIR	526.10	2	6	.37360	222.29	29.061	1.45848	1.866	.930	AC-FT=	1.027
COMPUTE NM HYD	725.00	-	3	.02380	58.73	2.073	1.63305	1.500	3.856	PER IMP=	65.00
ROUTE RESERVOIR	525.00	3	4	.02380	25.30	2.073	1.63303	1.700	1.661	AC-FT=	.702
ROUTE	725.10	4	7	.02380	24.82	2.073	1.63305	1.800	1.629		
ADD HYD	725.20	6& 7	2	.39740	246.98	31.134	1.46893	1.833	.971		
ROUTE	725.30	2	7	.39740	246.90	31.134	1.46893	1.866	.971		
COMPUTE NM HYD	726.00	-	3	.15530	219.67	6.567	.79289	1.533	2.210	PER IMP=	.00
ADD HYD	726.10	3& 7	2	.55270	405.14	37.701	1.27897	1.567	1.145		
ROUTE RESERVOIR	526.00	2	4	.55270	393.81	37.701	1.27898	1.633	1.113	AC-FT=	1.041
ROUTE	726.20	4	5	.55270	388.32	37.701	1.27898	1.667	1.098		
COMPUTE NM HYD	728.00	-	3	.03440	49.65	1.533	.83561	1.500	2.255	PER IMP=	15.00
ADD HYD	728.10	3& 5	6	.58710	415.58	39.234	1.25300	1.633	1.106		
COMPUTE NM HYD	727.00	-	3	.05270	60.94	2.349	.83561	1.567	1.807	PER IMP=	15.00
ROUTE RESERVOIR	527.00	3	4	.05270	59.57	2.349	.83560	1.600	1.766	AC-FT=	.127
ADD HYD	727.10	4& 6	2	.63980	472.57	41.582	1.21862	1.633	1.154		
FINISH											

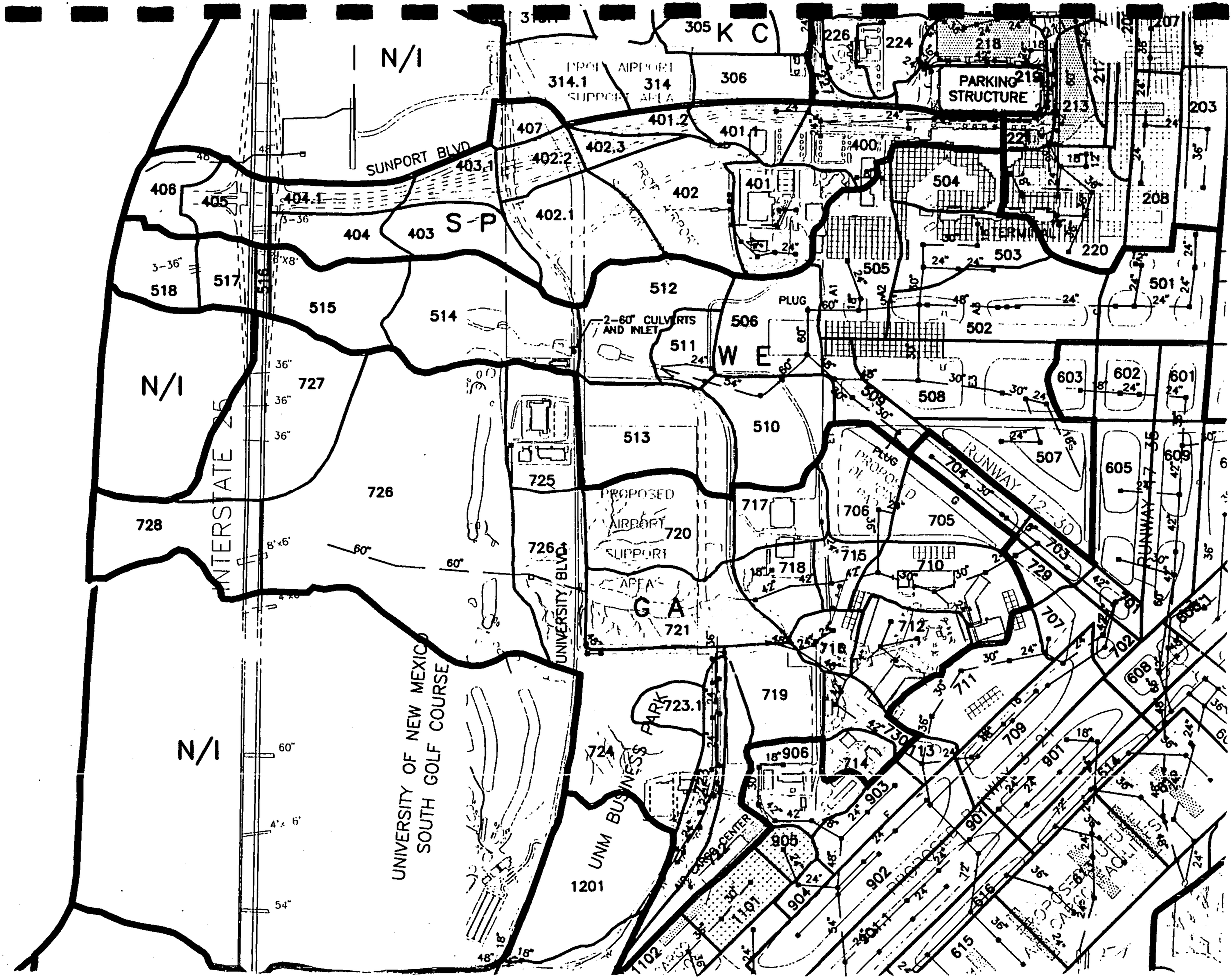
AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =03/09/1999
INPUT FILE = i:\albuquer\abq71-11.d03\drainage\gacar100.dat 'USER NO.= AHYMO-I-9702a01000F11-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.350
S BASIN B730 ***											
COMPUTE NM HYD	730.00	-	3	.01120	23.92	1.052	1.76175	1.567	3.338	PER IMP=	70.00
S BASIN B714 ***											
COMPUTE NM HYD	714.00	-	6	.02320	60.20	2.068	1.67101	1.500	4.054	PER IMP=	55.00
*S** ADD B730 AND B714****											
ADD HYD	730.10	3& 6	4	.03440	80.05	3.120	1.70053	1.500	3.636		
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******											
ROUTE RESERVOIR	530.00	4	2	.03440	16.76	3.120	1.70053	2.066	.761	AC-FT=	1.758
*S***ROUTE SUBTOTAL TO NORTH EDGE (JUNCTION PT.) OF B730****											
ROUTE	730.30	2	7	.03440	16.76	3.120	1.70054	2.100	.761		
S BASIN B712 ***											
COMPUTE NM HYD	712.00	-	3	.02160	64.68	2.391	2.07525	1.500	4.679	PER IMP=	97.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (4) INLETS ******											
ROUTE RESERVOIR	512.00	3	4	.02160	14.25	2.391	2.07524	2.033	1.031	AC-FT=	1.309
*S***ROUTE B712 TO NORTH EDGE (JUNCTION PT.) OF B730****											
ROUTE	712.10	4	6	.02160	14.25	2.391	2.07522	2.066	1.031		
*S** ADD B712 AND SUBTOTAL FROM 714/730***											
ADD HYD	712.20	6& 7	2	.05600	31.00	5.511	1.84504	2.066	.865		
*S***ROUTE SOUTH BRANCH SUBTOTAL INTO B716***											
ROUTE	712.30	2	7	.05600	31.00	5.511	1.84505	2.100	.865		
S BASIN B716 ***											
COMPUTE NM HYD	716.00	-	3	.00940	24.40	.838	1.67101	1.500	4.056	PER IMP=	55.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******											
ROUTE RESERVOIR	512.00	3	4	.00940	11.36	.838	1.67098	1.700	1.888	AC-FT=	.288
*S** ADD B716 AND SUBTOTAL***											
ADD HYD	716.10	4& 7	6	.06540	41.20	6.348	1.82002	1.800	.984		
*S*ROUTE S.BRANCH SUBTOTAL INTO B721 thru pipe and channel to middle ofb721*****											
ROUTE	716.20	6	8	.06540	41.15	6.348	1.82002	1.833	.983		
S BASIN B710 ***											
COMPUTE NM HYD	710.00	-	3	.03120	79.94	3.453	2.07525	1.533	4.003	PER IMP=	97.00
*S** OUTFLOW IS APPROXIMATE CAPACITY OF (2) INLETS WITH ADDITIONAL CONTRIBUTION											
*S**** FROM 2 INLETS WITH NO STORAGE....STORAGE BASED ON 2 PONDING AREAS*******											
ROUTE RESERVOIR	509.00	3	2	.03120	31.82	3.453	2.07524	1.866	1.594	AC-FT=	1.199
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B715*****											
ROUTE	710.30	2	7	.03120	31.82	3.453	2.07524	1.900	1.593		
S BASIN B715 ***											
COMPUTE NM HYD	715.00	-	3	.00940	22.54	.739	1.47352	1.500	3.746	PER IMP=	35.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******											
ROUTE RESERVOIR	515.00	3	4	.00940	6.23	.739	1.47349	1.866	1.035	AC-FT=	.382
*S** ADD B715 AND SUBTOTAL FROM N. BRANCH***											
ADD HYD	715.10	4& 7	2	.04060	38.05	4.192	1.93591	1.866	1.464		
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B718 POND AT ACCESS RD *B******											
ROUTE	715.20	2	7	.04060	38.03	4.192	1.93592	1.900	1.464		
S BASIN B718 ***											
COMPUTE NM HYD	718.00	-	3	.01520	38.69	1.315	1.62163	1.500	3.977	PER IMP=	50.00
*S** ADD B718 AND SUBTOTAL FROM N. BRANCH FOR TOTAL FLOW INTO POND***											
ADD HYD	718.20	3& 7	2	.05580	64.07	5.506	1.85030	1.533	1.794		
*S**** RISER, OUTFLOW IS APPROXIMATE CAPACITY OF RISER CURVE ******											

Use Corrected Inflow

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
ROUTE RESERVOIR	518.00	2	4	.05580	42.74	5.506	1.85029	2.100	1.197	AC-FT=	1.240
*S** ADD N. AND S. BRANCH FLOWS AT CHANNEL "Y"*****											
ADD HYD	721.10	4& 8	9	.12120	82.65	11.855	1.83395	2.000	1.065		
S BASIN B719 ***											
COMPUTE NM HYD	719.00	-	3	.02090	53.20	1.808	1.62163	1.500	3.977	PER IMP=	50.00
*S**** OUTFLOW IS OVERFLOW FROM PONDING AREA*******											
ROUTE RESERVOIR	519.00	3	4	.02090	14.66	1.808	1.62162	1.866	1.096	AC-FT=	.884
*S******* ROUTE THROUGH SIDE DITCH ALONG CLARK CARR TO ACCESS ROAD "D"*****											
ROUTE	719.10	4	7	.02090	14.30	1.808	1.62162	2.033	1.069		
S BASIN B722 ***											
COMPUTE NM HYD	722.00	-	3	.02100	32.11	1.785	1.59370	1.667	2.389	PER IMP=	55.00
*S** ADD B719 AND B722****											
ADD HYD	722.10	3& 7	2	.04190	43.85	3.592	1.60759	1.700	1.635		
S BASIN B723 ***											
COMPUTE NM HYD	723.00	-	3	.01630	24.87	1.342	1.54357	1.667	2.384	PER IMP=	50.00
*S** ADD B719/722 AND B723****											
ADD HYD	723.10	2& 3	5	.05820	68.44	4.934	1.58965	1.700	1.837		
*S*ROUTE THIS SPIRIT DRIVE SUBTOTAL THRU 36" PIPE TO "Y" IN CHANNEL***											
ROUTE	723.20	5	7	.05820	68.46	4.934	1.58966	1.700	1.838		
*S** ADD SPIRIT DRIVE FLOWS TO N. AND S. BRANCH FLOWS****											
ADD HYD	723.30	9& 7	2	.17940	143.88	16.789	1.75470	1.733	1.253		
S ROUTE TOTAL THRU NEW SD PIPE TO UNIVERSITY @ W. END OF B721**											
ROUTE	723.40	2	6	.17940	143.79	16.789	1.75470	1.733	1.252		
*S**BASIN 721R (REVISED TO REFLECT RENTAL CAR FACILTY IMPROVEMENTS)***											
COMPUTE NM HYD	721.00	-	3	.03580	101.12	3.628	1.90010	1.500	4.413	PER IMP=	78.20
*S**ADD B721 TO SUBTOTAL***											
ADD HYD	721.20	3& 6	6	.21520	188.82	20.417	1.77889	1.633	1.371		
S BASIN B720R (REVISED TO REFLECT RENTAL CAR FACILITY)***											
COMPUTE NM HYD	720.00	-	3	.02600	77.18	2.833	2.04328	1.500	4.638	PER IMP=	92.70
*S** ADD B720B AND SUBTOTAL AT NEW SD AT UNIV. CROSSING***											
ADD HYD	720.20	3& 6	5	.24120	253.45	23.250	1.80739	1.533	1.642		
S BASIN B724 ***											
COMPUTE NM HYD	724.00	-	3	.04650	59.72	1.736	.69990	1.500	2.007	PER IMP=	5.00
*S** ADD B724 AND CHANNEL SUBTOTAL FOR TOTAL AT UNIV. CROSSING***											
ADD HYD	721.30	3& 5	2	.28770	312.91	24.986	1.62839	1.533	1.699		
*S*ROUTE THIS SUBTOTAL THRU 60" RCP TO POND AT EAST SIDE OF G.C.**											
ROUTE	721.40	2	7	.28770	313.62	24.986	1.62839	1.533	1.703		
S BASIN B726.1 ***											
COMPUTE NM HYD	726.10	-	3	.02420	32.57	.965	.74754	1.500	2.103	PER IMP=	8.00
*S** ADD B726.1 AND SUBTOTAL FOR TOTAL INTO POND*****											
ADD HYD	726.11	3& 7	2	.31190	345.90	25.951	1.56004	1.533	1.733		
*S**** OUTFLOW IS 60" RCP***POND EAST SIDE OF G.C.**											
ROUTE RESERVOIR	526.10	2	6	.31190	302.00	25.951	1.56004	1.633	1.513	AC-FT=	1.629
S BASIN B725 ***											
COMPUTE NM HYD	725.00	-	3	.02380	58.73	2.073	1.63305	1.500	3.856	PER IMP=	65.00
*S**** OUTFLOW IS 30" RCP***											
ROUTE RESERVOIR	525.00	3	4	.02380	25.30	2.073	1.63303	1.700	1.661	AC-FT=	.702
*S*ROUTE B725 THRU 30" & 36" RCP TO 60" RCP***											
ROUTE	725.10	4	7	.02380	24.82	2.073	1.63305	1.800	1.629		
*S** ADD B725 AND SUBTOTAL FOR TOTAL DISCHARGE DOWN 60" RCP TOWARDS I-25**											
ADD HYD	725.20	6& 7	2	.33570	323.91	28.024	1.56522	1.633	1.508		
*S*ROUTE THIS SUBTOTAL THRU REST OF 60" RCP TO I-25***											

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	725.30	2	7	.33570	323.81	28.024	1.56522	1.633	1.507	
S BASIN B726 ***										
COMPUTE NM HYD	726.00	-	3	.15530	219.67	6.567	.79289	1.533	2.210	PER IMP= .00
*S** ADD B726 AND 60" RCP DISCHARGE AT I-25***										
ADD HYD	726.10	3& 7	2	.49100	505.76	34.591	1.32093	1.600	1.609	
*S**** ROUTE THRU POND ON EAST SIDE OF I-25 OUTFLOW IS ???? RCP***										
ROUTE RESERVOIR	526.00	2	4	.49100	460.79	34.591	1.32093	1.667	1.466	AC-FT= 1.592
S ROUTE SUBTOTAL THROUGH B728 TO SDC***										
ROUTE	726.20	4	5	.49100	459.02	34.591	1.32094	1.700	1.461	
S BASIN B728 ***										
COMPUTE NM HYD	728.00	-	3	.03440	49.65	1.533	.83561	1.500	2.255	PER IMP= 15.00
*S** ADD B728 AND SUBTOTAL***										
ADD HYD	728.10	3& 5	6	.52540	483.21	36.124	1.28916	1.667	1.437	
S BASIN B727 ***										
COMPUTE NM HYD	727.00	-	3	.05270	60.94	2.349	.83561	1.567	1.807	PER IMP= 15.00
*S**** OUTFLOW IS (3) 36" CMP***										
ROUTE RESERVOIR	527.00	3	4	.05270	59.57	2.349	.83560	1.600	1.766	AC-FT= .127
*S** ADD B727 AND SUBTOTAL FOR TOTAL ENTERING SOUTH DIVERSION CHANNEL***										
ADD HYD	727.10	4& 6	2	.57810	537.46	38.473	1.24781	1.633	1.453	
*S*** TOTAL INTO SDC FROM GENERAL AVIATION AREA****										
FINISH										


N/I
SUNPORT BLVD
406
405
404
403
S P
402.3
402.2
402.1
402
401.2
401.1
401
400
407
314.1
314
306
305
K C
PROP AIRPORT SUPPORT AREA
226
224
218
216
PARKING STRUCTURE
213
203
208
504
503
220
505
501
502
512
515
514
506
511
W E
2-60" CULVERTS AND INLET
PLUG
603
602
601
508
510
513
725
726
727
728
517
518
516
STATE 25
INTERSTATE 25
507
605
609
RUNWAY 12-30
704
705
706
717
720
PROPOSED AIRPORT SUPPORT AREA
G A
721
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715
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723.1
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1101
1102
1201
615
616
UNIVERSITY BLVD
UNIVERSITY OF NEW MEXICO SOUTH GOLF COURSE
UNM BUSINESS PARK
CARGO CENTER
ACROSS-THE-AMERICAS AIRLINE

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =02/19/1999
INPUT FILE = weex100.dat USER NO.= MOLZCONM.STE

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.350
COMPUTE NM HYD	501.00	-	3	.04300	121.58	4.384	1.91155	1.500	4.418	PER IMP=	81.00
ROUTE RESERVOIR	105.01	3	4	.04300	13.22	4.384	1.91154	2.166	.480	AC-FT=	3.081
ROUTE	105.10	4	7	.04300	13.21	4.384	1.91153	2.933	.480		
COMPUTE NM HYD	502.00	-	3	.03800	82.37	3.617	1.78487	1.567	3.387	PER IMP=	69.00
ADD HYD	234.50	3& 7	2	.08100	94.09	8.001	1.85210	1.567	1.815		
ROUTE	105.10	2	7	.08100	93.44	8.001	1.85210	1.600	1.802		
COMPUTE NM HYD	503.00	-	5	.02100	63.45	2.347	2.09562	1.500	4.721	PER IMP=	98.00
ROUTE RESERVOIR	105.01	5	4	.02100	24.11	2.347	2.09560	1.766	1.794	AC-FT=	.926
ROUTE	105.10	4	3	.02100	24.09	2.347	2.09560	1.766	1.792		
ADD HYD	234.50	3& 7	2	.10200	115.51	10.348	1.90222	1.600	1.769		
ROUTE	105.10	2	3	.10200	115.46	10.348	1.90223	1.600	1.769		
COMPUTE NM HYD	504.00	-	1	.02200	66.47	2.459	2.09562	1.500	4.721	PER IMP=	98.00
ROUTE	110.30	1	4	.02200	51.28	2.459	2.09563	1.633	3.642		
COMPUTE NM HYD	505.00	-	1	.02400	70.31	2.571	2.00850	1.500	4.577	PER IMP=	90.00
ADD HYD	234.50	1& 4	1	.04600	107.77	5.030	2.05014	1.533	3.661		
ROUTE RESERVOIR	105.01	1	4	.04600	29.76	5.030	2.05014	2.100	1.011	AC-FT=	22.225
ROUTE	105.10	4	5	.04600	29.76	5.030	2.05014	2.100	1.011		
ADD HYD	234.50	3& 5	2	.14800	139.43	15.378	1.94819	1.600	1.472		
ROUTE	105.10	2	5	.14800	138.33	15.378	1.94820	1.600	1.460		
ROUTE	105.10	5	10	.14800	138.47	15.378	1.94820	1.633	1.462		
COMPUTE NM HYD	507.00	-	4	.02500	49.86	1.892	1.41895	1.533	3.116	PER IMP=	32.00
ROUTE RESERVOIR	105.01	4	1	.02500	10.01	1.892	1.41893	2.066	.625	AC-FT=	1.176
ROUTE	105.10	1	3	.02500	10.00	1.892	1.41889	2.233	.625		
COMPUTE NM HYD	508.00	-	4	.05200	80.74	4.221	1.52184	1.667	2.426	PER IMP=	42.00
ROUTE RESERVOIR	105.01	4	1	.05200	59.36	4.221	1.52183	1.833	1.784	AC-FT=	.907
*S ADD BASIN 507 AND 508 TO GET TOTAL**											
ADD HYD	234.50	3& 1	1	.07700	69.07	6.112	1.48840	1.833	1.402		
ROUTE	105.10	1	3	.07700	68.64	6.112	1.48840	1.866	1.393		
COMPUTE NM HYD	509.00	-	2	.01220	34.17	1.223	1.87993	1.500	4.376	PER IMP=	77.00
ADD HYD	234.50	2& 3	1	.08920	78.76	7.336	1.54194	1.866	1.380		
ROUTE RESERVOIR	105.01	1	2	.08920	78.77	7.336	1.54194	1.866	1.380	AC-FT=	.005
ROUTE	105.10	2	3	.08920	78.79	7.336	1.54195	1.866	1.380		
ADD HYD	234.50	10& 3	1	.23720	202.20	22.713	1.79542	1.667	1.332		
ROUTE	105.10	1	2	.23720	202.31	22.713	1.79542	1.667	1.333		
ROUTE	105.10	2	11	.23720	202.29	22.713	1.79542	1.667	1.333		
COMPUTE NM HYD	506.00	-	5	.03200	53.36	2.008	1.17637	1.567	2.605	PER IMP=	15.00
ROUTE	105.10	5	2	.03200	53.36	2.008	1.17637	1.567	2.606		
ADD HYD	234.50	11& 2	10	.26920	246.62	24.721	1.72183	1.633	1.431		
COMPUTE NM HYD	510.00	-	4	.02400	39.89	1.147	.89572	1.500	2.597	PER IMP=	4.00
ADD HYD	234.50	10& 4	1	.29320	272.61	25.867	1.65421	1.600	1.453		
COMPUTE NM HYD	511.00	-	15	.01000	15.42	.437	.81964	1.500	2.410	PER IMP=	2.00
ADD HYD	234.50	15& 1	2	.30320	284.60	26.305	1.62668	1.600	1.467		
ROUTE	110.30	2	4	.30320	284.81	26.305	1.62669	1.600	1.468		
COMPUTE NM HYD	513.00	-	2	.02700	35.38	1.011	.70235	1.500	2.047	PER IMP=	3.00
ADD HYD	234.50	4& 2	6	.33020	312.85	27.316	1.55110	1.600	1.480		
COMPUTE NM HYD	512.00	-	15	.03000	41.55	1.194	.74599	1.500	2.164	PER IMP=	4.00
ADD HYD	111.00	15& 6	20	.36020	345.52	28.510	1.48405	1.600	1.499		

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE RESERVOIR	111.10	20	1	.36020	256.34	28.510	1.48405	1.800	1.112	AC-FT= 3.817
FINISH										

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =02/19/1999
INPUT FILE = wefut100.dat USER NO.= MOLZCONM.STE

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.350
COMPUTE NM HYD	101.00	-	3	.04300	121.58	4.384	1.91155	1.500	4.418	PER IMP=	81.00
ROUTE RESERVOIR	105.01	3	4	.04300	81.73	4.384	1.91155	1.600	2.970	AC-FT=	.368
ROUTE	105.10	4	7	.04300	81.13	4.384	1.91156	1.766	2.948		
COMPUTE NM HYD	102.00	-	3	.03800	82.37	3.617	1.78487	1.567	3.387	PER IMP=	69.00
ADD HYD	234.50	3& 7	2	.08100	161.69	8.001	1.85211	1.567	3.119		
ROUTE RESERVOIR	105.01	2	4	.08100	119.64	8.002	1.85224	1.766	2.308	AC-FT=	.721
ROUTE	105.10	4	7	.08100	119.79	8.002	1.85225	1.700	2.311		
COMPUTE NM HYD	102.10	-	5	.02100	63.45	2.347	2.09562	1.500	4.721	PER IMP=	98.00
ROUTE RESERVOIR	105.01	5	4	.02100	27.88	2.347	2.09560	1.700	2.075	AC-FT=	.498
ROUTE	105.10	4	3	.02100	27.89	2.347	2.09563	1.800	2.075		
ADD HYD	234.50	3& 7	2	.10200	147.65	10.349	1.90235	1.700	2.262		
ROUTE	105.10	2	3	.10200	147.59	10.349	1.90235	1.733	2.261		
COMPUTE NM HYD	105.00	-	1	.02400	70.31	2.571	2.00850	1.500	4.577	PER IMP=	90.00
ROUTE RESERVOIR	105.01	1	4	.02400	24.29	2.571	2.00849	1.800	1.581	AC-FT=	.765
ROUTE	105.10	4	5	.02400	24.30	2.571	2.00851	1.467	1.582		
ADD HYD	234.50	3& 5	2	.12600	171.88	12.920	1.92256	1.733	2.131		
ROUTE	105.10	2	5	.12600	171.83	12.920	1.92257	1.833	2.131		
COMPUTE NM HYD	106.00	-	12	.02200	66.47	2.459	2.09562	1.500	4.721	PER IMP=	98.00
ROUTE RESERVOIR	105.01	12	8	.02200	43.48	2.459	2.09560	1.600	3.088	AC-FT=	.223
ROUTE	105.10	8	7	.02200	43.43	2.459	2.09563	1.800	3.084		
COMPUTE NM HYD	106.00	-	3	.01500	32.50	1.521	1.90164	1.600	3.385	PER IMP=	80.00
ADD HYD	234.50	7& 3	9	.03700	75.41	3.980	2.01696	1.600	3.185		
ROUTE RESERVOIR	105.01	9	4	.03700	58.97	3.980	2.01696	1.800	2.490	AC-FT=	.299
ROUTE	105.10	4	2	.03700	58.97	3.980	2.01698	1.833	2.490		
ADD HYD	234.50	2& 5	1	.16300	230.80	16.900	1.94399	1.833	2.212		
ROUTE	105.10	1	10	.16300	230.79	16.900	1.94399	1.866	2.212		
COMPUTE NM HYD	103.00	-	4	.07700	112.71	5.923	1.44222	1.667	2.287	PER IMP=	42.00
ROUTE RESERVOIR	105.01	4	1	.07700	69.09	5.938	1.44588	1.900	1.402	AC-FT=	.856
ROUTE	105.10	1	3	.07700	69.40	5.938	1.44589	1.900	1.408		
COMPUTE NM HYD	104.00	-	2	.01220	34.17	1.223	1.87993	1.500	4.376	PER IMP=	77.00
ADD HYD	234.50	2& 3	1	.08920	94.65	7.161	1.50524	1.533	1.658		
ROUTE RESERVOIR	105.01	1	2	.08920	94.50	7.161	1.50524	1.533	1.655	AC-FT=	.006
ROUTE	105.10	2	3	.08920	95.23	7.161	1.50525	1.567	1.668		
ADD HYD	234.50	10& 3	1	.25220	322.47	24.061	1.78881	1.567	1.998		
ROUTE	105.10	1	2	.25220	323.33	24.061	1.78881	1.567	2.003		
ROUTE	105.10	2	11	.25220	323.57	24.061	1.78881	1.567	2.005		
COMPUTE NM HYD	107.00	-	5	.03200	53.36	2.008	1.17637	1.567	2.605	PER IMP=	15.00
ROUTE	105.10	5	2	.03200	53.36	2.008	1.17637	1.567	2.606		
ADD HYD	234.50	11& 2	10	.28420	376.94	26.068	1.71985	1.567	2.072		
COMPUTE NM HYD	108.00	-	4	.02400	39.89	1.147	.89572	1.500	2.597	PER IMP=	4.00
ADD HYD	234.50	10& 4	1	.30820	412.31	27.215	1.65567	1.567	2.090		
COMPUTE NM HYD	110.10	-	15	.01000	15.42	.437	.81964	1.500	2.410	PER IMP=	2.00
ADD HYD	234.50	15& 1	2	.31820	426.15 Chan	27.652	1.62940	1.567	2.093		
ROUTE	110.30	2	4	.31820	428.15	27.652	1.62940	1.567	2.102		
COMPUTE NM HYD	109.00	-	2	.02700	35.38	1.011	.70235	1.500	2.047	PER IMP=	3.00
ADD HYD	234.50	4& 2	6	.34520	460.40	28.663	1.55689	1.567	2.084		
COMPUTE NM HYD	110.00	-	15	.03000	41.55	1.194	.74599	1.500	2.164	PER IMP=	4.00

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
ADD HYD	111.00	15& 6	20	.37520	498.03	29.857	1.49205	1.567	2.074		
ROUTE RESERVOIR	111.10	20	1	.37520	408.13	29.857	1.49205	1.700	1.700	AC-FT=	3.662
ROUTE	111.10	1	4	.37520	400.87	29.857	1.49205	1.766	1.669		
COMPUTE NM HYD	111.00	-	5	.04700	58.22	1.653	.65929	1.500	1.936	PER IMP=	2.00
ADD HYD	111.20	4& 5	1	.42220	418.30	31.510	1.39935	1.766	1.548		
ROUTE	111.10	1	4	.42220	416.72	31.510	1.39935	1.800	1.542		
COMPUTE NM HYD	111.30	-	5	.03000	39.62	1.157	.72303	1.500	2.064	PER IMP=	6.00
ADD HYD	111.40	4& 5	1	.45220	427.94	32.666	1.35448	1.766	1.479		
ROUTE	112.00	1	4	.45220	428.00	32.666	1.35448	1.766	1.479		
COMPUTE NM HYD	112.10	-	5	.00300	6.70	.209	1.30565	1.500	3.489	PER IMP=	18.00
ADD HYD	112.20	4& 5	1	.45520	430.28	32.875	1.35416	1.766	1.477		
ROUTE	113.00	1	4	.45520	430.01	32.875	1.35416	1.766	1.476		
COMPUTE NM HYD	113.10	-	5	.00700	9.98	.298	.79911	1.500	2.229	PER IMP=	10.00
ADD HYD	113.30	4& 5	1	.46220	433.15	33.174	1.34575	1.766	1.464		
ROUTE	113.00	1	4	.46220	432.97	33.174	1.34575	1.766	1.464		
ROUTE	114.00	4	2	.46220	433.41	33.174	1.34575	1.800	1.465		
COMPUTE NM HYD	114.10	-	5	.01200	15.98	.460	.71830	1.500	2.080	PER IMP=	4.00
ADD HYD	113.30	2& 5	1	.47420	437.35	33.633	1.32987	1.800	1.441		

FINISH

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =09/16/1999
INPUT FILE = I:\ALBUQUER\ABQ71-11.D03\DRAINAGE\WECAR100.DAT USER NO.= AHYMO-I-9702a01000F11-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.350
*S**CALCULATE FLOW FROM BASIN 501****											
S BASIN B501 - A= .043 SQ MI											
COMPUTE NM HYD	501.00	-	3	.04300	121.58	4.384	1.91155	1.500	4.418	PER IMP=	81.00
*S*** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****											
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF 24" PIPE ******************											
ROUTE RESERVOIR	105.01	3	4	.04300	13.22	4.384	1.91154	2.166	.480	AC-FT=	3.081
*S***ROUTE CAP. THROUGH 24" RCP******											
ROUTE	105.10	4	7	.04300	13.21	4.384	1.91153	2.933	.480		
*S**CALCULATE FLOW FROM BASIN 502*********											
*S***BASIN B502 - A=.038 SQ MI ****											
COMPUTE NM HYD	502.00	-	3	.03800	82.37	3.617	1.78487	1.567	3.387	PER IMP=	69.00
*S** ADD B502 TO B501 ROUTE ***											
ADD HYD	234.50	3& 7	2	.08100	94.09	8.001	1.85210	1.567	1.815		
*S***ROUTE CAP. THROUGH 48" RCP******											
ROUTE	105.10	2	7	.08100	93.44	8.001	1.85210	1.600	1.802		
*S***CALC BASIN 503 ***											
*S*B503 A=.021 SQ MI ****											
COMPUTE NM HYD	503.00	-	5	.02100	63.45	2.347	2.09562	1.500	4.721	PER IMP=	98.00
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****											
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************											
ROUTE RESERVOIR	105.01	5	4	.02100	24.11	2.347	2.09560	1.766	1.794	AC-FT=	.926
*S***ROUTE CAP. THROUGH 30" RCP******											
ROUTE	105.10	4	3	.02100	24.09	2.347	2.09560	1.766	1.792		
*S** ADD B503 ROUTE TO B501/B502 AT MIDDLE ISLAND**********											
ADD HYD	234.50	3& 7	2	.10200	115.51	10.348	1.90222	1.600	1.769		
*S** ROUTE THRU NEW 54" TO NEXT ISLAND**********											
ROUTE	105.10	2	3	.10200	115.46	10.348	1.90223	1.600	1.769		
*S**BASIN B504 A=.022 SQ MI ***											
COMPUTE NM HYD	504.00	-	1	.02200	66.47	2.459	2.09562	1.500	4.721	PER IMP=	98.00
*S******* ROUTE THROUGH SWALE TO INLET NEAR WEST ISLAND ******											
ROUTE	110.30	1	4	.02200	51.28	2.459	2.09563	1.633	3.642		
*S** CHANNEL DISCHARGE TO INLET NEAR MUELLER*****											
*S**BASIN B505 A=.024 SQ MI ***											
COMPUTE NM HYD	505.00	-	1	.02400	70.31	2.571	2.00850	1.500	4.577	PER IMP=	90.00
*S** ADD B504 ROUTE TO B505 **********											
ADD HYD	234.50	1& 4	1	.04600	107.77	5.030	2.05014	1.533	3.661		
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****											
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************											
ROUTE RESERVOIR	105.01	1	4	.04600	29.76	5.030	2.05014	2.100	1.011	AC-FT=	22.225
*S** ROUTE THRU 24" FROM APRON TO WEST ISLAND**********											
ROUTE	105.10	4	5	.04600	29.76	5.030	2.05014	2.100	1.011		
*S** ADD BASIN 505 RT TO B501/B502 AT WEST ISLAND**********											
ADD HYD	234.50	3& 5	2	.14800	139.43	15.378	1.94819	1.600	1.472		
*S** ROUTE THRU 60" TO TEE AT END OF RUNWAY**********											
ROUTE	105.10	2	5	.14800	138.33	15.378	1.94820	1.600	1.460		
*S** ROUTE THRU 60" TO JUNCTION AT SW CORNER @ END RUNWAY**********											
ROUTE	105.10	5	10	.14800	138.47	15.378	1.94820	1.633	1.462		
*S******* HYDROGRAPH ENTERING JUNCTION FROM NORTH BRANCH******											

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
*S** B507 A=.025 SQMI***										
COMPUTE NM HYD	507.00	-	4	.02500	49.86	1.892	1.41895	1.533	3.116	PER IMP= 32.00
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****										
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************										
ROUTE RESERVOIR	105.01	4	1	.02500	10.01	1.892	1.41893	2.066	.625	AC-FT= 1.176
*S** ROUTE THRU 24" INTO BASIN 3***										
ROUTE	105.10	1	3	.02500	10.00	1.892	1.41889	2.233	.625	
*S** B508 A=.052 SQMI***										
COMPUTE NM HYD	508.00	-	4	.05200	80.74	4.221	1.52184	1.667	2.426	PER IMP= 42.00
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****										
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************										
ROUTE RESERVOIR	105.01	4	1	.05200	59.36	4.221	1.52183	1.833	1.784	AC-FT= .907
*S** ADD BASIN 507 AND 508 TO GET TOTAL**										
ADD HYD	234.50	3& 1	1	.07700	69.07	6.112	1.48840	1.833	1.402	
*S** ROUTE THRU LAST 48" SECTION IN WEST BASIN 508										
*S** TO BRANCH AT BASIN 509*********										
ROUTE	105.10	1	3	.07700	68.64	6.112	1.48840	1.866	1.393	
*S** CALCULATE B509 ***										
S BASIN B509 A=0.0122 SQMI ***										
COMPUTE NM HYD	509.00	-	2	.01220	34.17	1.223	1.87993	1.500	4.376	PER IMP= 77.00
*S** ADD BASIN 508/507 RT TO B509 AT NW ISLAND BASIN 509**********										
ADD HYD	234.50	2& 3	1	.08920	78.76	7.336	1.54194	1.866	1.380	
*S**** ROUTE RES SO ALL WATER IS DISCHARGED FR B509 AND PONDING IS KNOWN ****										
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************										
ROUTE RESERVOIR	105.01	1	2	.08920	78.77	7.336	1.54194	1.866	1.380	AC-FT= .005
*S** ROUTE THRU LAST 48" SECTION TO JUNCTION AT SW CORNER OF RUNWAY******										
ROUTE	105.10	2	3	.08920	78.79	7.336	1.54195	1.866	1.380	
*S****** HYDROGRAPH FROM SOUTH BRANCH AT JUNCTION**********										
*S** ADD SOUTH AND NORTH BRANCH HYDROGRAPHS AT JUNCTION**********										
ADD HYD	234.50 10& 3		1	.23720	202.20	22.713	1.79542	1.667	1.332	
*S** ROUTE THRU 66" SECTION TO ACCESS RD B AREA******										
ROUTE	105.10	1	2	.23720	202.31	22.713	1.79542	1.667	1.333	
*S** ROUTE THRU LAST 54" SECTION CHANNEL AT BASE******										
ROUTE	105.10	2	11	.23720	202.29	22.713	1.79542	1.667	1.333	
*S*B506 A=.032 SQ MI ****										
COMPUTE NM HYD	506.00	-	5	.03200	53.36	2.008	1.17637	1.567	2.605	PER IMP= 15.00
*S** ROUTE THRU 24" SECTION TO CHANNEL******										
ROUTE	105.10	5	2	.03200	53.36	2.008	1.17637	1.567	2.606	
*S** ADD BASIN 506 AND WESTEND FLOWS AT TOP OF CHANNEL FOR SUBTOTAL**********										
ADD HYD	234.50 11& 2		10	.26920	246.62	24.721	1.72183	1.633	1.431	
*S** CALC FLOW FROM BASIN B510 ****										
COMPUTE NM HYD	510.00	-	4	.02400	39.89	1.147	.89572	1.500	2.597	PER IMP= 4.00
*S** ADD BASIN 510 AND SUBTOTAL TO CHANNEL FROM ABOVE**********										
ADD HYD	234.50 10& 4		1	.29320	272.61	25.867	1.65421	1.600	1.453	
*S**BASIN 511 A=.01 SQ MI ***										
COMPUTE NM HYD	511.00	-	15	.01000	15.42	.437	.81964	1.500	2.410	PER IMP= 2.00
*S** ADD BASIN 511 AND SUBTOTAL TO CHANNEL FROM ABOVE**********										
ADD HYD	234.50 15& 1		2	.30320	284.60	26.305	1.62668	1.600	1.467	
*S******** HYDROGRAPH INTO CHANNEL**********										
*S******* ROUTE THROUGH CHANNEL TO UNIVERSITY ******										
ROUTE	110.30	2	4	.30320	284.81	26.305	1.62669	1.600	1.468	
*S** CHANNEL DISCHARGE*****										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
*S**BASIN 512 A=.03 SQ MI ***										
COMPUTE NM HYD	512.00	-	15	.03000	41.55	1.194	.74599	1.500	2.164	PER IMP= 4.00
*S** ADD B512 AND SUBTOTAL TO CHANNEL *****										
ADD HYD	111.00	15& 4	20	.33320	317.47	27.498	1.54739	1.600	1.489	
*S** CALCULATE B513 (REVISED TO REFLECT RENTAL CAR FACILITY) ***										
COMPUTE NM HYD	513.00	-	4	.03600	106.61	3.910	2.03637	1.500	4.627	PER IMP= 92.00
*S** ADD REVISED B513O TO SUBTOTAL FROM CHANNEL FOR TOTAL *****										
*S**IN NEW DETENTION POND ON WEST SIDE OF UNIVERSITY**********										
ADD HYD	513.10	20& 4	6	.36920	395.61	31.408	1.59507	1.567	1.674	
*S**** ROUTE THROUGH NEW DETENTION POND**********										
*S**** OUTFLOW IS APPROXIMATE PEAK UNDER EXISTING CONDITIONS**********										
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF ONE-60" CULVERT **********										
ROUTE RESERVOIR	111.10	6	1	.36920	211.60	31.407	1.59502	2.033	.896	AC-FT= 8.335
*S****DISCHARGE TO UNPLATTED ARROYO*********										
FINISH										

APPENDIX D
AHYMO DATA FILES

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********** MOLZEN-CORBIN AND ASSOCIATES **********
****************************** MAY 1993 ******************************
******** ALBUQUERQUE INTERNATIONAL AIRPORT DRAINAGE MASTER PLAN ********
***************************** 100 YEAR STORM *****************************
**************DISCHARGE FLOWS BASED ON EXISTING CONDTIONS***************
**************** GENERAL AVIATION (GA) BASIN  - 700'S ******************
*****FLOW FROM GA AREA UNDER UNIVERSITY BLVD. THROUGH G.C. TO SDC*******
************************************************************************
START               0.00
************************************************************************
RAINFALL             TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.01
                     RAIN SIX=2.35   RAIN DAY=0.0  DT=0.03333
************************************************************************
** BASIN B701 ***
COMPUTE NM HYD       ID=3 HYD NO=701 DA=.0042  SQ MI
                     PER A=0   PER B=0  PER C=43  PER D=57
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=501  INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5308.2
                          4       .017   5308.6
                          8       .048   5309.0
PRINT HYD            ID=4 CODE=10
****ROUTE T0 B702******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.003
                     DIA=2.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=300    SLP=.003
ROUTE                ID=7 HYD=701.1 INFLOW ID=4   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
** BASIN B702 ***
COMPUTE NM HYD       ID=3 HYD NO=702    DA=.0045       SQ MI
                     PER A=0    PER B=0   PER C=35    PER D=65
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=502    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5307.5
                          5       .0143  5308.0
                         11         .25  5308.3
PRINT HYD            ID=4 CODE=10
*** ADD B701R AND B702**********
ADD HYD              ID=2 HYD=702.1    ID I=4 II=7
PRINT HYD            ID=2 CODE=10
****ROUTE T0 B708******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.006
                     DIA=2.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=450    SLP=.006
ROUTE                ID=7 HYD=702.2      INFLOW ID=2   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
** BASIN B708 ***
COMPUTE NM HYD       ID=3 HYD NO=708    DA=.0054       SQ MI
                     PER A=0    PER B=0   PER C=50    PER D=50
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=508    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5306.5
                          4       .0918  5307.0
                         12         .36  5307.5
PRINT HYD            ID=4 CODE=10
*** ADD B701/702R AND B708**********
ADD HYD              ID=2 HYD=708.1    ID I=4 II=7
PRINT HYD            ID=2 CODE=10
****ROUTE T0 B707******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.006
                     DIA=2.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=200    SLP=.006
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ROUTE                 ID=7 HYD=708.2       INFLOW ID=2   DT=0.03333 HR
PRINT HYD             ID=7 CODE=10
** BASIN B707 ***
COMPUTE NM HYD        ID=3 HYD NO=707     DA=.0085        SQ MI
                      PER A=0     PER B=0    PER C=70     PER D=30
                      TP= -.13    RAIN=-1
PRINT HYD             ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR       ID=4 HYD=507     INFLOW ID=3 CODE=20
                      OUTFLOW     STORAGE  DEPTH
                           0           0   5306
                           4        .136   5306.5
                          12        .580   5307.0
                          14        1.35   5307.5
PRINT HYD             ID=4 CODE=10
*** ADD B1/2/8 AND B707**********
ADD HYD               ID=2 HYD=707.1     ID I=4 II=7
PRINT HYD             ID=2 CODE=10
****ROUTE T0 B711 (MIDDLE OF BASIN FOR APPROXIMATE LENGTH)******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0033
                      DIA=2.25    FT N=0.015
COMPUTE TRAVEL TIME   ID=7 REACH=1 VS NO=1 L=750     SLP=.0033
ROUTE                 ID=7 HYD=707.2       INFLOW ID=2   DT=0.03333 HR
PRINT HYD             ID=7 CODE=10
** BASIN B711 ***
COMPUTE NM HYD        ID=3 HYD NO=711     DA=.0287        SQ MI
                      PER A=0     PER B=0    PER C=0     PER D=100
                      TP= -.13    RAIN=-1
PRINT HYD             ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (3) INLETS ******************
ROUTE RESERVOIR       ID=4 HYD=511     INFLOW ID=3 CODE=20
                      OUTFLOW     STORAGE  DEPTH
                           0           0   5305
                          14        0.44   5306
                          30        1.67   5307
                          34        2.52   5307.5
PRINT HYD             ID=4 CODE=10
*** ADD SUBTOTAL AND B711**********
ADD HYD               ID=2 HYD=711.1     ID I=4 II=7
PRINT HYD             ID=2 CODE=10
****ROUTE T0 B713 ****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0036
                      DIA=2.75    FT N=0.015
COMPUTE TRAVEL TIME   ID=7 REACH=1 VS NO=1 L=850     SLP=.0036
ROUTE                 ID=7 HYD=711.2       INFLOW ID=2   DT=0.03333 HR
PRINT HYD             ID=7 CODE=10
*** HOLD ID****
** BASIN B709 ***
COMPUTE NM HYD        ID=3 HYD NO=709     DA=.0140        SQ MI
                      PER A=0     PER B=0    PER C=50     PER D=50
                      TP= -.34    RAIN=-1
PRINT HYD             ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (2) INLETS ******************
ROUTE RESERVOIR       ID=4 HYD=509     INFLOW ID=3 CODE=20
                      OUTFLOW     STORAGE  DEPTH
                           0           0   5304.5
                           8         .08   5305
                          24        .471   5305.5
PRINT HYD             ID=4 CODE=10
****ROUTE B709 T0 B713 ****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.010
                      DIA=2.0     FT N=0.015
COMPUTE TRAVEL TIME   ID=6 REACH=1 VS NO=1 L=450     SLP=.010
ROUTE                 ID=6 HYD=709.1       INFLOW ID=4   DT=0.03333 HR
PRINT HYD             ID=6 CODE=10
*** ADD B709R AND SUBTOTAL FROM 701,711 ETC***
ADD HYD               ID=2 HYD=709.2     ID I=6 II=7
PRINT HYD             ID=2 CODE=10
** BASIN B713 ***
COMPUTE NM HYD        ID=3 HYD NO=713     DA=.0046        SQ MI
                      PER A=0     PER B=0    PER C=65     PER D=35
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                    TP= -.13   RAIN=-1
PRINT HYD           ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR     ID=4 HYD=513    INFLOW ID=3 CODE=20
                    OUTFLOW    STORAGE  DEPTH
                         0          0   5303.5
                         4       .008   5304.0
                        12       .089   5304.5
                        14       .346   5305.0
                        16       .819   5305.5
PRINT HYD           ID=4 CODE=10
*** ADD B713 AND SUBTOTAL FROM 701,711.709 ETC***
ADD HYD             ID=5 HYD=713.1    ID I=2 II=4
PRINT HYD           ID=5 CODE=10
****ROUTE SUBTOTAL INTO B730****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0033
                    DIA=3.5   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=880    SLP=.0033
ROUTE               ID=7 HYD=713.2      INFLOW ID=5   DT=0.03333 HR
PRINT HYD           ID=7 CODE=10
** BASIN B730 ***
COMPUTE NM HYD      ID=3 HYD NO=730    DA=.0112       SQ MI
                    PER A=0    PER B=15   PER C=15    PER D=70
                    TP= -.20   RAIN=-1
PRINT HYD           ID=3 CODE=10
** BASIN B714 ***
COMPUTE NM HYD      ID=6 HYD NO=714    DA=.0232       SQ MI
                    PER A=0    PER B=0   PER C=45    PER D=55
                    TP= -.13   RAIN=-1
PRINT HYD           ID=6 CODE=10
*** ADD B730 AND B714****
ADD HYD             ID=4 HYD=730.1    ID I=3 II=6
PRINT HYD           ID=4 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR     ID=2 HYD=530    INFLOW ID=4 CODE=20
                    OUTFLOW    STORAGE  DEPTH
                         0          0   5304.5
                        12       .146   5305.5
                        16       .661   5306.5
PRINT HYD           ID=2 CODE=10
*** ADD B730 AND SUBTOTAL FROM 701,711.709 ETC***
ADD HYD             ID=5 HYD=730.2    ID I=2 II=7
PRINT HYD           ID=5 CODE=10
****ROUTE SUBTOTAL TO NORTH EDGE (JUNCTION PT.) OF B730****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.002
                    DIA=3.5   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=250    SLP=.002
ROUTE               ID=7 HYD=730.3      INFLOW ID=5   DT=0.03333 HR
PRINT HYD           ID=7 CODE=10
**** HOLD ID*****
** BASIN B712 ***
COMPUTE NM HYD      ID=3 HYD NO=712    DA=.0216       SQ MI
                    PER A=0    PER B=3   PER C=0     PER D=97
                    TP= -.13   RAIN=-1
PRINT HYD           ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (4) INLETS ******************
ROUTE RESERVOIR     ID=4 HYD=512    INFLOW ID=3 CODE=20
                    OUTFLOW    STORAGE  DEPTH
                         0          0   5306
                        16       .053   5306.5
                        40       .344   5307.0
PRINT HYD           ID=4 CODE=10
****ROUTE B712 TO NORTH EDGE (JUNCTION PT.) OF B730****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0102
                    DIA=2.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=6 REACH=1 VS NO=1 L=430    SLP=.0102
ROUTE               ID=6 HYD=712.1      INFLOW ID=4   DT=0.03333 HR
PRINT HYD           ID=6 CODE=10
*** ADD B712 AND SUBTOTAL FROM 701,711.709 ETC***
ADD HYD             ID=2 HYD=712.2    ID I=6 II=7
PRINT HYD           ID=2 CODE=10
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****ROUTE SOUTH BRANCH SUBTOTAL INTO B716***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0046
                     DIA=4.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=500    SLP=.0046
ROUTE                ID=7 HYD=712.3      INFLOW ID=2   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
** BASIN B716 ***
COMPUTE NM HYD       ID=3 HYD NO=716    DA=.0094       SQ MI
                     PER A=0    PER B=0   PER C=45    PER D=55
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
*** ADD B716 AND SUBTOTAL***
ADD HYD              ID=6 HYD=716.1    ID I=3 II=7
PRINT HYD            ID=6 CODE=10
**WT. SLOPE FOR TRAVEL TIME**
**ROUTE S.BRANCH SUBTOTAL INTO B721 thru pipe and channel to middle ofb721*****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0094
                     DIA=4.0   FT N=0.015
COMPUTE RATING CURVE CID=2 VS NO=2 SEG=1 MIN EL=0 MAX EL=5
                     CH SLP=.08     FP SLP=.08   N=.033 DIST=60
                     DIST ELEV  DIST ELEV  DIST ELEV
                      0    5     10    0     50   0
                      60   5
COMPUTE TRAVEL TIME  ID=8 REACH=1 VS NO=2 L=900    SLP=.045
ROUTE                ID=8 HYD NO=716.2    INFLOW ID=6 DT=.03333 HR
PRINT HYD            ID=8 CODE=10
**** hold ID FROM S. BRANCH***
** BASIN B704 ***
COMPUTE NM HYD       ID=3 HYD NO=704    DA=.0107       SQ MI
                     PER A=0    PER B=0   PER C=45    PER D=55
                     TP= -.16   RAIN=-1
PRINT HYD            ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=504    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5308
                          4       .032   5308.5
                         12       .237   5309
PRINT HYD            ID=4 CODE=10
****ROUTE B704 INTO B703****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.002
                     DIA=1.5   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=400    SLP=.002
ROUTE                ID=7 HYD=704.1      INFLOW ID=4   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
** BASIN B703 ***
COMPUTE NM HYD       ID=3 HYD NO=703    DA=.0079       SQ MI
                     PER A=0    PER B=0   PER C=45    PER D=55
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=503    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5307.5
                          5       .222   5308.0
                         12       .692   5308.5
PRINT HYD            ID=4 CODE=10
*** ADD B703 AND B704R****
ADD HYD              ID=2 HYD=703.1    ID I=4 II=7
PRINT HYD            ID=2 CODE=10
**ROUTE  SUBTOTAL INTO B729****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0043
                     DIA=2.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=200    SLP=.0043
ROUTE                ID=7 HYD=703.2      INFLOW ID=2   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
** BASIN B729 ***
COMPUTE NM HYD       ID=3 HYD NO=729    DA=.0140       SQ MI
                     PER A=0    PER B=0   PER C=50    PER D=50
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
```

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***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR       ID=4 HYD=509    INFLOW ID=3 CODE=20
                      OUTFLOW    STORAGE  DEPTH
                           0          0   5304.8
                           3        .08   5305.0
                           6       .471   5305.5
PRINT HYD             ID=4 CODE=10
*** ADD B729 AND SUBTOTAL****
ADD HYD               ID=2 HYD=709.1    ID I=4 II=7
PRINT HYD             ID=2 CODE=10
**ROUTE  SUBTOTAL INTO MIDDLE OF B710***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.001
                      DIA=2.5   FT N=0.015
COMPUTE TRAVEL TIME   ID=7 REACH=1 VS NO=1 L=500    SLP=.001
ROUTE                 ID=7 HYD=709.2      INFLOW ID=2   DT=0.03333 HR
PRINT HYD             ID=7 CODE=10
** BASIN B710 ***
COMPUTE NM HYD        ID=3 HYD NO=710    DA=.0312       SQ MI
                      PER A=0    PER B=3   PER C=0    PER D=97
                      TP= -.18   RAIN=-1
PRINT HYD             ID=3 CODE=10
*** THERE IS NO PONDING SO ASSUME THAT ALL FLOW ENTERS LINE FOR NOW****
*** ADD B710 AND SUBTOTAL****
ADD HYD               ID=2 HYD=710.1    ID I=3 II=7
PRINT HYD             ID=2 CODE=10
**** HOLD ID***
** BASIN B705 ***
COMPUTE NM HYD        ID=3 HYD NO=705    DA=.0162       SQ MI
                      PER A=0    PER B=0   PER C=82    PER D=18
                      TP= -.13   RAIN=-1
PRINT HYD             ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR       ID=4 HYD=505    INFLOW ID=3 CODE=20
                      OUTFLOW    STORAGE  DEPTH
                           0          0   5303.7
                           3       .047   5304.0
                          13       .797   5305.0
                          17        2.9   5306.0
                          21        6.5   5307.0
PRINT HYD             ID=4 CODE=10
**ROUTE  B705 INTO B706****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.008
                      DIA=2.0   FT N=0.015
COMPUTE TRAVEL TIME   ID=7 REACH=1 VS NO=1 L=125    SLP=.008
ROUTE                 ID=7 HYD=705.1      INFLOW ID=4   DT=0.03333 HR
PRINT HYD             ID=7 CODE=10
** BASIN B706 ***
COMPUTE NM HYD        ID=3 HYD NO=706    DA=.0225       SQ MI
                      PER A=0    PER B=0   PER C=77    PER D=23
                      TP= -.13   RAIN=-1
PRINT HYD             ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR       ID=4 HYD=506    INFLOW ID=3 CODE=20
                      OUTFLOW    STORAGE  DEPTH
                           0          0   5300.5
                           4        .09   5301
                          14       1.75   5302
                          18       5.1    5303
                          21       9.7    5304
                          24       23.0   5306
PRINT HYD             ID=4 CODE=10
*** ADD B705 AND B706***
ADD HYD               ID=5 HYD=706.1    ID I=4 II=7
PRINT HYD             ID=5 CODE=10
**ROUTE  705/706 SUBTOTAL INTO MIDDLE OF B710***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0036
                      DIA=3.0   FT N=0.015
COMPUTE TRAVEL TIME   ID=7 REACH=1 VS NO=1 L=550    SLP=.0036
ROUTE                 ID=7 HYD=706.2      INFLOW ID=5   DT=0.03333 HR
PRINT HYD             ID=7 CODE=10
*** ADD B705/706 AND SUBTOTAL FROM 710, 709 ETC.****
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ADD HYD              ID=6 HYD=710.2    ID I=2 II=7
PRINT HYD            ID=6 CODE=10
**ROUTE  NORTH BRANCH SUBTOTAL INTO B715*****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.006
                     DIA=3.5   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=500    SLP=.006
ROUTE                ID=7 HYD=710.3      INFLOW ID=6   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
** HOLD ID***
** BASIN B715 ***
COMPUTE NM HYD       ID=3 HYD NO=715    DA=.0094       SQ MI
                     PER A=0    PER B=0   PER C=65    PER D=35
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=515    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5303.9
                          1      .0041   5304.0
                         13       .872   5305.0
PRINT HYD            ID=4 CODE=10
*** ADD B715 AND SUBTOTAL FROM N. BRANCH***
ADD HYD              ID=2 HYD=715.1    ID I=4 II=7
PRINT HYD            ID=2 CODE=10
**ROUTE NORTH BRANCH SUBTOTAL INTO B718 POND AT ACCESS RD "B"*****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.004
                     DIA=3.5   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=540    SLP=.004
ROUTE                ID=7 HYD=715.2      INFLOW ID=2   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
** BASIN B718 ***
COMPUTE NM HYD       ID=3 HYD NO=718    DA=.0152       SQ MI
                     PER A=0    PER B=0   PER C=50    PER D=50
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
*** ADD B718 AND SUBTOTAL FROM N. BRANCH FOR TOTAL FLOW INTO POND***
ADD HYD              ID=2 HYD=718.2    ID I=3 II=7
PRINT HYD            ID=2 CODE=10
*****  RISER, OUTFLOW IS APPROXIMATE CAPACITY OF RISER CURVE ******************
ROUTE RESERVOIR      ID=4 HYD=518    INFLOW ID=2 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5274
                        8.2       .183   5276
                      26.44       .727   5278
                      60.50       1.80   5280
                      70.20       3.64   5281
PRINT HYD            ID=4 CODE=10
*** ADD N. AND S. BRANCH FLOWS AT CHANNEL "Y"****
ADD HYD              ID=9 HYD=721.1    ID I=4 II=8
PRINT HYD            ID=9 CODE=10
**** HOLD ID****
** BASIN B719 ***
COMPUTE NM HYD       ID=3 HYD NO=719    DA=.0209       SQ MI
                     PER A=25    PER B=0   PER C=70    PER D=5
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
***** OUTFLOW IS OVERFLOW FROM PONDING AREA*******
ROUTE RESERVOIR      ID=4 HYD=519    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5302
                         10       .258   5303.0
                         20        1.6   5303.5
PRINT HYD            ID=4 CODE=10
******** ROUTE THROUGH SIDE DITCH ALONG CLARK CARR TO ACCESS ROAD "D"****
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=1.5
                     CH SLP=.0037     FP SLP=.0037   N=.065 DIST=20
                     DIST ELEV  DIST ELEV  DIST ELEV
                      0    1.5     5    0   15   0
                      20   1.5
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=600    SLP=.0037
ROUTE                ID=7 HYD NO=719.1    INFLOW ID=4 DT=.03333 HR
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PRINT HYD              ID=7 CODE=10
** BASIN B722 ***
COMPUTE NM HYD         ID=3 HYD NO=722    DA=.0210        SQ MI
                       PER A=50    PER B=0   PER C=35    PER D=15
                       TP= -.30   RAIN=-1
PRINT HYD              ID=3 CODE=10
*** ADD B719 AND B722****
ADD HYD                ID=2 HYD=722.1    ID I=3 II=7
PRINT HYD              ID=2 CODE=10
** BASIN B723 ***
COMPUTE NM HYD         ID=3 HYD NO=723    DA=.0163        SQ MI
                       PER A=50    PER B=0   PER C=35    PER D=15
                       TP= -.29   RAIN=-1
PRINT HYD              ID=3 CODE=10
*** ADD B719/722 AND B723****
ADD HYD                ID=5 HYD=723.1    ID I=2 II=3
PRINT HYD              ID=5 CODE=10
**ROUTE THIS ACCESS RD "D"  SUBTOTAL THRU 36" PIPE TO "Y" IN CHANNEL***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.07
                       DIA=3.0   FT N=0.015
COMPUTE TRAVEL TIME    ID=7 REACH=1 VS NO=1 L=60    SLP=.07
ROUTE                  ID=7 HYD=723.2      INFLOW ID=5   DT=0.03333 HR
PRINT HYD              ID=7 CODE=10
*** ADD ACCESS ROAD "D" FLOWS TO N. AND S. BRANCH FLOWS****
ADD HYD                ID=2 HYD=723.3    ID I=9 II=7
PRINT HYD              ID=2 CODE=10
** ROUTE TOTAL THRU ARROYO TO POND AT UNIVERSITY CROSSING W. END OF B721**
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                       CH SLP=.05     FP SLP=.05   N=.033 DIST=125
                       DIST ELEV  DIST ELEV  DIST ELEV
                        0    4     10    0    115   0
                        125  4
COMPUTE TRAVEL TIME    ID=6 REACH=1 VS NO=1 L=1300    SLP=.05
ROUTE                  ID=6 HYD NO=723.4  INFLOW ID=2 DT=.03333 HR
PRINT HYD              ID=6 CODE=10
***BASIN 721***
COMPUTE NM HYD         ID=3 HYD NO=721   DA=.0358 SQ MI
                       PER A=85  PER B=0  PER C=10  PER D=5
                       TP=-.13     RAIN=-1
                       ID=3        CODE=10
***ADD B721 TO SUBTOTAL***
ADD HYD                ID=6        HYD=721.2     ID I=3  II=6
PRINT HYD              ID=6        CODE=10
**** HOLD ID***
** BASIN B717 ***
COMPUTE NM HYD         ID=3 HYD NO=717    DA=.0159        SQ MI
                       PER A=30    PER B=0   PER C=25    PER D=45
                       TP= -.13   RAIN=-1
PRINT HYD              ID=3 CODE=10
** ROUTE B717 THRU B720 TO UNIV.***
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=3
                       CH SLP=.0607     FP SLP=.0607   N=.033 DIST=30
                       DIST ELEV  DIST ELEV  DIST ELEV
                        0    3     8    0     22   0
                        30   3
COMPUTE TRAVEL TIME    ID=4 REACH=1 VS NO=1 L=1400    SLP=.0607
ROUTE                  ID=4 HYD NO=717.1    INFLOW ID=3 DT=.03333 HR
PRINT HYD              ID=4 CODE=10
** BASIN B720 ***
COMPUTE NM HYD         ID=3 HYD NO=720    DA=.0354        SQ MI
                       PER A=85    PER B=0   PER C=10    PER D=5
                       TP= -.13   RAIN=-1
PRINT HYD              ID=3 CODE=10
*** ADD B717R AND 720***
ADD HYD                ID=2 HYD=720.1    ID I=3 II=4
PRINT HYD              ID=2 CODE=10
*** ADD B717R/720 AND CHANNEL SUBTOTAL AT UNIV. POND***
ADD HYD                ID=5 HYD=720.2    ID I=2 II=6
PRINT HYD              ID=5 CODE=10
** BASIN B724 ***
COMPUTE NM HYD         ID=3 HYD NO=724    DA=.0465        SQ MI
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                    PER A=75    PER B=0    PER C=20    PER D=5
                    TP= -.13   RAIN=-1
PRINT HYD           ID=3 CODE=10
*** ADD B724 AND CHANNEL SUBTOTAL FOR TOTAL  AT UNIV. CROSSING POND***
ADD HYD             ID=2 HYD=721.3    ID I=3 II=5
PRINT HYD           ID=2 CODE=10
***** OUTFLOW IS CULVERT CAPACITIES UNDER UNIV.***36" AND 60" CMP**
ROUTE RESERVOIR     ID=4 HYD=521    INFLOW ID=2 CODE=20
                    OUTFLOW    STORAGE  DEPTH
                         0          0   5191
                        48       .036   5193
                       122       .435   5195
                       200       1.81   5197
                       223        2.9   5198
PRINT HYD           ID=4 CODE=10
**ROUTE THIS SUBTOTAL THRU 60" RCP TO POND AT EAST SIDE OF G.C.**
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0721
                    DIA=5.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=460    SLP=.0721
ROUTE               ID=7 HYD=721.4      INFLOW ID=4   DT=0.03333 HR
PRINT HYD           ID=7 CODE=10
** BASIN B726.1 ***
COMPUTE NM HYD      ID=3 HYD NO=726.10    DA=.0242       SQ MI
                    PER A=72    PER B=0    PER C=20    PER D=8
                    TP= -.13   RAIN=-1
PRINT HYD           ID=3 CODE=10
*** ADD B726.1 AND SUBTOTAL FOR TOTAL INTO POND*****
ADD HYD             ID=2 HYD=726.11    ID I=3 II=7
PRINT HYD           ID=2 CODE=10
***** OUTFLOW IS 60" RCP***POND EAST SIDE OF G.C.**
ROUTE RESERVOIR     ID=6 HYD=526.1    INFLOW ID=2 CODE=20
                    OUTFLOW    STORAGE  DEPTH
                         0          0   5150
                        90       .312   5154
                       170       .643   5156
                       239       1.15   5158
                       285       1.50   5160
PRINT HYD           ID=6 CODE=10
**HOLD ID**
** BASIN B725 ***
COMPUTE NM HYD      ID=3 HYD NO=725    DA=.0238       SQ MI
                    PER A=20    PER B=0    PER C=15    PER D=65
                    TP= -.13   RAIN=-1
PRINT HYD           ID=3 CODE=10
***** OUTFLOW IS 30" RCP***
ROUTE RESERVOIR     ID=4 HYD=525    INFLOW ID=3 CODE=20
                    OUTFLOW    STORAGE  DEPTH
                         0          0   5179.5
                        10       .053   5180
                        18       .406   5182
                        40        1.3   5184.5
PRINT HYD           ID=4 CODE=10
**ROUTE B725 THRU 30" & 36" RCP TO 60" RCP***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.005
                    DIA=2.75   FT N=0.022
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=1050    SLP=.005
ROUTE               ID=7 HYD=725.1      INFLOW ID=4   DT=0.03333 HR
PRINT HYD           ID=7 CODE=10
*** ADD B725 AND SUBTOTAL FOR TOTAL DISCHARGE DOWN 60" RCP TOWARDS I-25**
ADD HYD             ID=2 HYD=725.2    ID I=6 II=7
PRINT HYD           ID=2 CODE=10
**ROUTE THIS SUBTOTAL THRU REST OF 60" RCP TO I-25***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.05
                    DIA=5.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=1650    SLP=.05
ROUTE               ID=7 HYD=725.3      INFLOW ID=2   DT=0.03333 HR
PRINT HYD           ID=7 CODE=10
**HOLD ID**
** BASIN B726 ***
COMPUTE NM HYD      ID=3 HYD NO=726    DA=.1553       SQ MI
                    PER A=20    PER B=55   PER C=25    PER D=0
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← S Univ King

Thru G.C.

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                    TP= -.15   RAIN=-1
PRINT HYD           ID=3 CODE=10
*** ADD B726 AND 60" RCP DISCHARGE AT I-25***
ADD HYD             ID=2 HYD=726.1    ID I=3 II=7
PRINT HYD           ID=2 CODE=10
***** ROUTE THRU POND ON EAST SIDE OF I-25 OUTFLOW IS ???? RCP***
ROUTE RESERVOIR     ID=4 HYD=526    INFLOW ID=2 CODE=20
                    OUTFLOW    STORAGE  DEPTH
                         0          0   5048
                       160       .338   5052
                       440       1.18   5056
                       620       4.75   5060
                       710       7.83   5062
PRINT HYD           ID=4 CODE=10
** ROUTE SUBTOTAL THROUGH B728 TO SDC***
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                    CH SLP=.0313     FP SLP=.0313   N=.033 DIST=50
                    DIST ELEV  DIST ELEV  DIST ELEV
                     0    4     5    2     8    0
                     42   0    45    2    50    4
COMPUTE TRAVEL TIME ID=5 REACH=1 VS NO=1 L=1600  SLP=.0313
ROUTE               ID=5 HYD NO=726.2    INFLOW ID=4 DT=.03333 HR
PRINT HYD           ID=5 CODE=10
** BASIN B728 ***
COMPUTE NM HYD      ID=3 HYD NO=728    DA=.0344       SQ MI
                    PER A=70    PER B=0   PER C=15    PER D=15
                    TP= -.13   RAIN=-1
PRINT HYD           ID=3 CODE=10
*** ADD B728 AND SUBTOTAL***
ADD HYD             ID=6 HYD=728.1    ID I=3 II=5
PRINT HYD           ID=6 CODE=10
** BASIN B727 ***
COMPUTE NM HYD      ID=3 HYD NO=727    DA=.0527       SQ MI
                    PER A=70    PER B=0   PER C=15    PER D=15
                    TP= -.18   RAIN=-1
PRINT HYD           ID=3 CODE=10
***** OUTFLOW IS (3) 36" CMP***
ROUTE RESERVOIR     ID=4 HYD=527    INFLOW ID=3 CODE=20
                    OUTFLOW    STORAGE  DEPTH
                         0          0   5048
                       160        .34   5052
                       440       1.18   5056
                       620       4.75   5060
                       710       7.83   5062
PRINT HYD           ID=4 CODE=10
*** ADD B727 AND SUBTOTAL FOR TOTAL ENTERING SOUTH DIVERSION CHANNEL***
ADD HYD             ID=2 HYD=727.1    ID I=4 II=6
**** TOTAL INTO SDC FROM GENERAL AVIATION AREA****
PRINT HYD           ID=2 CODE=10
FINISH
```

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********** MOLZEN-CORBIN AND ASSOCIATES **********
****************************** MAY 1993 ******************************
******** ALBUQUERQUE INTERNATIONAL AIRPORT DRAINAGE MASTER PLAN ********
***************************** 100 YEAR STORM *****************************
**************DISCHARGE FLOWS BASED ON FUTURE CONDTIONS*****************
*************** GENERAL AVIATION (GA) BASIN  - 700'S ******************
*****FLOW FROM GA AREA UNDER UNIVERSITY BLVD. THROUGH G.C. TO SDC*******
********BASINS 701,702,709,707,711,&713 ARE DIVERTED OUT OF GA AREA*****
************************************************************************
START               0.00
************************************************************************
RAINFALL             TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.01
                     RAIN SIX=2.35   RAIN DAY=0.0  DT=0.03333
************************************************************************
** BASIN B730 ***
COMPUTE NM HYD       ID=3 HYD NO=730    DA=.0112       SQ MI
                     PER A=0    PER B=15   PER C=15    PER D=70
                     TP= -.20   RAIN=-1
PRINT HYD            ID=3 CODE=10
** BASIN B714 ***
COMPUTE NM HYD       ID=6 HYD NO=714    DA=.0232       SQ MI
                     PER A=0    PER B=0   PER C=45    PER D=55
                     TP= -.13   RAIN=-1
PRINT HYD            ID=6 CODE=10
*** ADD B730 AND B714****
ADD HYD              ID=4 HYD=730.1    ID I=3 II=6
PRINT HYD            ID=4 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=2 HYD=530    INFLOW ID=4 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                         0          0   5304.7
                         2       .026   5305.0
                        13       .30    5306.0
                        17      1.85    5307.0
                        19      3.65    5307.5
PRINT HYD            ID=2 CODE=10
****ROUTE SUBTOTAL TO NORTH EDGE (JUNCTION PT.) OF B730****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.002
                     DIA=3.5   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=250    SLP=.002
ROUTE                ID=7 HYD=730.3      INFLOW ID=2   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
**** HOLD ID*****
** BASIN B712 ***
COMPUTE NM HYD       ID=3 HYD NO=712    DA=.0216       SQ MI
                     PER A=0    PER B=3   PER C=0    PER D=97
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (4) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=512    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                         0          0   5305.7
                        13        .66    5307.0
                        17       2.74    5308.0
                        31       4.40    5308.5
PRINT HYD            ID=4 CODE=10
****ROUTE B712 TO NORTH EDGE (JUNCTION PT.) OF B730****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0102
                     DIA=2.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=6 REACH=1 VS NO=1 L=430    SLP=.0102
ROUTE                ID=6 HYD=712.1      INFLOW ID=4   DT=0.03333 HR
PRINT HYD            ID=6 CODE=10
*** ADD B712 AND SUBTOTAL FROM 714/730***
ADD HYD              ID=2 HYD=712.2    ID I=6 II=7
PRINT HYD            ID=2 CODE=10
****ROUTE SOUTH BRANCH SUBTOTAL INTO B716***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0046
                     DIA=4.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=500    SLP=.0046
ROUTE                ID=7 HYD=712.3      INFLOW ID=2   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
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** BASIN B716 ***
COMPUTE NM HYD       ID=3 HYD NO=716    DA=.0094       SQ MI
                     PER A=0    PER B=0   PER C=45    PER D=55
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=512    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                         0        0     5307.0
                         6        0.10  5307.5
                         12       0.31  5308.0
PRINT HYD            ID=4 CODE=10
*** ADD B716 AND SUBTOTAL***
ADD HYD              ID=6 HYD=716.1    ID I=4 II=7
PRINT HYD            ID=6 CODE=10
**WT. SLOPE FOR TRAVEL TIME**
**ROUTE S.BRANCH SUBTOTAL INTO B721 thru pipe and channel to middle ofb721*****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0094
                     DIA=4.0   FT N=0.015
COMPUTE RATING CURVE CID=2 VS NO=2 SEG=1 MIN EL=0 MAX EL=5
                     CH SLP=.08     FP SLP=.08   N=.033 DIST=60
                     DIST ELEV  DIST ELEV  DIST ELEV
                      0    5     10    0     50   0
                      60   5
COMPUTE TRAVEL TIME  ID=8 REACH=1 VS NO=2 L=900    SLP=.045
ROUTE                ID=8 HYD NO=716.2    INFLOW ID=6 DT=.03333 HR
PRINT HYD            ID=8 CODE=10
**** hold ID FROM S. BRANCH (ID=8)***
** BASIN B710 ***
COMPUTE NM HYD       ID=3 HYD NO=710    DA=.0312       SQ MI
                     PER A=0    PER B=3   PER C=0    PER D=97
                     TP= -.18   RAIN=-1
PRINT HYD            ID=3 CODE=10
*** OUTFLOW IS APPROXIMATE CAPACITY OF (2) INLETS WITH ADDITIONAL CONTRIBUTION ****
***** FROM 2 INLETS WITH NO STORAGE....STORAGE BASED ON 2 PONDING AREAS*******
ROUTE RESERVOIR      ID=2 HYD=509    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5306.5
                          15      .165   5307.0
                          30      .621   5307.5
                          34      1.89   5308.0
PRINT HYD            ID=2 CODE=10
**HOLD ID=2**
** BASIN B705 ***
COMPUTE NM HYD       ID=3 HYD NO=705    DA=.0139       SQ MI
                     PER A=0    PER B=0   PER C=80    PER D=20
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=505    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5303.7
                          3       .047   5304.0
                         13       .797   5305.0
                         17        2.9   5306.0
                         21        6.5   5307.0
PRINT HYD            ID=4 CODE=10
**ROUTE  B705 INTO B706****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.008
                     DIA=2.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=125    SLP=.008
ROUTE                ID=7 HYD=705.1      INFLOW ID=4   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
** BASIN B706 ***
COMPUTE NM HYD       ID=3 HYD NO=706    DA=.0225       SQ MI
                     PER A=0    PER B=0   PER C=77    PER D=23
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=506    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
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                          0          0   5300.5
                          4        .09   5301
                         14       1.75   5302
                         18        5.1   5303
                         21        9.7   5304
                         24       23.0   5306
PRINT HYD            ID=4 CODE=10
*** ADD B705 AND B706***
ADD HYD              ID=5 HYD=706.1    ID I=4 II=7
PRINT HYD            ID=5 CODE=10
**ROUTE  705/706 SUBTOTAL INTO MIDDLE OF B710***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0036
                     DIA=3.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=550    SLP=.0036
ROUTE                ID=7 HYD=706.2      INFLOW ID=5   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
*** ADD B705/706 AND SUBTOTAL FROM 710****
ADD HYD              ID=6 HYD=710.2    ID I=2 II=7
PRINT HYD            ID=6 CODE=10
**ROUTE  NORTH BRANCH SUBTOTAL INTO B715*****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.006
                     DIA=3.5   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=500    SLP=.006
ROUTE                ID=7 HYD=710.3      INFLOW ID=6   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
** HOLD ID***
** BASIN B715 ***
COMPUTE NM HYD       ID=3 HYD NO=715    DA=.0094       SQ MI
                     PER A=0    PER B=0   PER C=65    PER D=35
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
***** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=515    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5303.9
                          1      .0041   5304.0
                         13       .872   5305.0
PRINT HYD            ID=4 CODE=10
*** ADD B715 AND SUBTOTAL FROM N. BRANCH***
ADD HYD              ID=2 HYD=715.1    ID I=4 II=7
PRINT HYD            ID=2 CODE=10
**ROUTE NORTH BRANCH SUBTOTAL INTO B718 POND AT ACCESS RD "B"*****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.004
                     DIA=3.5   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=540    SLP=.004
ROUTE                ID=7 HYD=715.2      INFLOW ID=2   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
** BASIN B718 ***
COMPUTE NM HYD       ID=3 HYD NO=718    DA=.0152       SQ MI
                     PER A=0    PER B=0   PER C=50    PER D=50
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
*** ADD B718 AND SUBTOTAL FROM N. BRANCH FOR TOTAL FLOW INTO POND***
ADD HYD              ID=2 HYD=718.2    ID I=3 II=7
PRINT HYD            ID=2 CODE=10
*****  RISER, OUTFLOW IS APPROXIMATE CAPACITY OF RISER CURVE ******************
ROUTE RESERVOIR      ID=4 HYD=518    INFLOW ID=2 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5274
                        8.2       .183   5276
                      26.44       .727   5278
                      60.50       1.80   5280
                      70.20       3.64   5281
PRINT HYD            ID=4 CODE=10
*** ADD N. AND S. BRANCH FLOWS AT CHANNEL "Y"****
ADD HYD              ID=9 HYD=721.1    ID I=4 II=8
PRINT HYD            ID=9 CODE=10
**** HOLD ID****
** BASIN B719 ***
COMPUTE NM HYD       ID=3 HYD NO=719    DA=.0209       SQ MI
                     PER A=0    PER B=0   PER C=50    PER D=50
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                    TP= -.13   RAIN=-1
PRINT HYD           ID=3 CODE=10
***** OUTFLOW IS OVERFLOW FROM PONDING AREA*******
ROUTE RESERVOIR     ID=4 HYD=519    INFLOW ID=3 CODE=20
                    OUTFLOW    STORAGE  DEPTH
                         0          0   5302
                        10       .258   5303.0
                        20        1.6   5303.5
PRINT HYD           ID=4 CODE=10
******** ROUTE THROUGH SIDE DITCH ALONG CLARK CARR TO ACCESS ROAD "D"****
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=1.5
                    CH SLP=.0037     FP SLP=.0037   N=.065 DIST=20
                    DIST ELEV  DIST ELEV  DIST ELEV
                     0    1.5     5    0   15   0
                     20   1.5
COMPUTE TRAVEL TIME ID=7 REACH=1 VS NO=1 L=600    SLP=.0037
ROUTE               ID=7 HYD NO=719.1    INFLOW ID=4 DT=.03333 HR
PRINT HYD           ID=7 CODE=10
** BASIN B722 ***
COMPUTE NM HYD      ID=3 HYD NO=722    DA=.0210       SQ MI
                    PER A=10    PER B=0   PER C=35    PER D=55
                    TP= -.30   RAIN=-1
PRINT HYD           ID=3 CODE=10
*** ADD B719 AND B722****
ADD HYD             ID=2 HYD=722.1    ID I=3 II=7
PRINT HYD           ID=2 CODE=10
** BASIN B723 ***
COMPUTE NM HYD      ID=3 HYD NO=723    DA=.0163       SQ MI
                    PER A=0    PER B=20   PER C=30    PER D=50
                    TP= -.29   RAIN=-1
PRINT HYD           ID=3 CODE=10
*** ADD B719/722 AND B723****
ADD HYD             ID=5 HYD=723.1    ID I=2 II=3
PRINT HYD           ID=5 CODE=10
**ROUTE THIS SPIRIT DRIVE SUBTOTAL THRU 36" PIPE TO "Y" IN CHANNEL***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.07
                    DIA=3.0   FT N=0.015
COMPUTE TRAVEL TIME ID=7 REACH=1 VS NO=1 L=60    SLP=.07
ROUTE               ID=7 HYD=723.2      INFLOW ID=5   DT=0.03333 HR
PRINT HYD           ID=7 CODE=10
*** ADD SPIRIT DRIVE FLOWS TO N. AND S. BRANCH FLOWS****
ADD HYD             ID=2 HYD=723.3    ID I=9 II=7
PRINT HYD           ID=2 CODE=10
** ROUTE TOTAL THRU ARROYO TO POND AT UNIVERSITY CROSSING W. END OF B721**
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                    CH SLP=.05     FP SLP=.05   N=.033 DIST=125
                    DIST ELEV  DIST ELEV  DIST ELEV
                     0    4     10    0    115   0
                     125  4
COMPUTE TRAVEL TIME ID=6 REACH=1 VS NO=1 L=1300    SLP=.05
ROUTE               ID=6 HYD NO=723.4  INFLOW ID=2 DT=.03333 HR
PRINT HYD           ID=6 CODE=10
***BASIN 721***
COMPUTE NM HYD      ID=3 HYD NO=721   DA=.0358 SQ MI
                    PER A=5  PER B=30  PER C=10  PER D=55
                    TP=-.13     RAIN=-1
                    ID=3        CODE=10
***ADD B721 TO SUBTOTAL***
ADD HYD             ID=6        HYD=721.2     ID I=3  II=6
PRINT HYD           ID=6        CODE=10
**** HOLD ID***
** BASIN B717 ***
COMPUTE NM HYD      ID=3 HYD NO=717    DA=.0159       SQ MI
                    PER A=30    PER B=0   PER C=25    PER D=45
                    TP= -.13   RAIN=-1
PRINT HYD           ID=3 CODE=10
** ROUTE B717 THRU B720 TO UNIV.***
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=3
                    CH SLP=.0607     FP SLP=.0607   N=.033 DIST=30
                    DIST ELEV  DIST ELEV  DIST ELEV
                     0    3     8    0     22   0
```

```
                      30   3
COMPUTE TRAVEL TIME  ID=4 REACH=1 VS NO=1 L=1400    SLP=.0607
ROUTE                ID=4 HYD NO=717.1    INFLOW ID=3 DT=.03333 HR
PRINT HYD            ID=4 CODE=10
** BASIN B720 ***
COMPUTE NM HYD       ID=3 HYD NO=720    DA=.0354       SQ MI
                     PER A=5    PER B=30   PER C=10    PER D=55
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
*** ADD B717R AND 720***
ADD HYD              ID=2 HYD=720.1    ID I=3 II=4
PRINT HYD            ID=2 CODE=10
*** ADD B717R/720 AND CHANNEL SUBTOTAL AT UNIV. POND***
ADD HYD              ID=5 HYD=720.2    ID I=2 II=6
PRINT HYD            ID=5 CODE=10
** BASIN B724 ***
COMPUTE NM HYD       ID=3 HYD NO=724    DA=.0465       SQ MI
                     PER A=75    PER B=0   PER C=20    PER D=5
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
*** ADD B724 AND CHANNEL SUBTOTAL FOR TOTAL  AT UNIV. CROSSING POND***
ADD HYD              ID=2 HYD=721.3    ID I=3 II=5
PRINT HYD            ID=2 CODE=10
***** OUTFLOW IS CULVERT CAPACITIES UNDER UNIV.***36" AND 60" CMP**
ROUTE RESERVOIR      ID=4 HYD=521    INFLOW ID=2 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5191
                         48       .036   5193
                        122       .435   5195
                        200       1.81   5197
                        223        2.9   5198
PRINT HYD            ID=4 CODE=10
**ROUTE THIS SUBTOTAL THRU 60" RCP TO POND AT EAST SIDE OF G.C.**
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0721
                     DIA=5.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=460    SLP=.0721
ROUTE                ID=7 HYD=721.4      INFLOW ID=4   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
** BASIN B726.1 ***
COMPUTE NM HYD       ID=3 HYD NO=726.10    DA=.0242       SQ MI
                     PER A=72    PER B=0   PER C=20    PER D=8
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
*** ADD B726.1 AND SUBTOTAL FOR TOTAL INTO POND*****
ADD HYD              ID=2 HYD=726.11    ID I=3 II=7
PRINT HYD            ID=2 CODE=10
***** OUTFLOW IS 60" RCP***POND EAST SIDE OF G.C.**
ROUTE RESERVOIR      ID=6 HYD=526.1    INFLOW ID=2 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5150
                         90       .312   5154
                        170       .643   5156
                        239       1.15   5158
                        285       1.50   5160
PRINT HYD            ID=6 CODE=10
**HOLD ID**
** BASIN B725 ***
COMPUTE NM HYD       ID=3 HYD NO=725    DA=.0238       SQ MI
                     PER A=20    PER B=0   PER C=15    PER D=65
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
***** OUTFLOW IS 30" RCP***
ROUTE RESERVOIR      ID=4 HYD=525    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5179.5
                         10       .053   5180
                         18       .406   5182
                         40        1.3   5184.5
PRINT HYD            ID=4 CODE=10
**ROUTE B725 THRU 30" & 36" RCP TO 60" RCP***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.005
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                    DIA=2.75   FT N=0.022
COMPUTE TRAVEL TIME ID=7 REACH=1 VS NO=1 L=1050    SLP=.005
ROUTE               ID=7 HYD=725.1      INFLOW ID=4   DT=0.03333 HR
PRINT HYD           ID=7 CODE=10
*** ADD B725 AND SUBTOTAL FOR TOTAL DISCHARGE DOWN 60" RCP TOWARDS I-25**
ADD HYD             ID=2 HYD=725.2    ID I=6 II=7
PRINT HYD           ID=2 CODE=10
**ROUTE THIS SUBTOTAL THRU REST OF 60" RCP TO I-25***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.05
                    DIA=5.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=1650    SLP=.05
ROUTE               ID=7 HYD=725.3      INFLOW ID=2   DT=0.03333 HR
PRINT HYD           ID=7 CODE=10
**HOLD ID**
** BASIN B726 ***
COMPUTE NM HYD      ID=3 HYD NO=726    DA=.1553       SQ MI
                    PER A=20    PER B=55   PER C=25    PER D=0
                    TP= -.15   RAIN=-1
PRINT HYD           ID=3 CODE=10
*** ADD B726 AND 60" RCP DISCHARGE AT I-25***
ADD HYD             ID=2 HYD=726.1    ID I=3 II=7
PRINT HYD           ID=2 CODE=10
***** ROUTE THRU POND ON EAST SIDE OF I-25 OUTFLOW IS ???? RCP***
ROUTE RESERVOIR     ID=4 HYD=526    INFLOW ID=2 CODE=20
                    OUTFLOW    STORAGE  DEPTH
                         0          0   5048
                       160       .338   5052
                       440       1.18   5056
                       620       4.75   5060
                       710       7.83   5062
PRINT HYD           ID=4 CODE=10
** ROUTE SUBTOTAL THROUGH B728 TO SDC***
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                    CH SLP=.0313     FP SLP=.0313   N=.033 DIST=50
                    DIST ELEV  DIST ELEV  DIST ELEV
                     0    4     5    2     8   0
                     42   0     45    2    50   4
COMPUTE TRAVEL TIME  ID=5 REACH=1 VS NO=1 L=1600  SLP=.0313
ROUTE               ID=5 HYD NO=726.2    INFLOW ID=4 DT=.03333 HR
PRINT HYD           ID=5 CODE=10
** BASIN B728 ***
COMPUTE NM HYD      ID=3 HYD NO=728    DA=.0344       SQ MI
                    PER A=70    PER B=0   PER C=15    PER D=15
                    TP= -.13   RAIN=-1
PRINT HYD           ID=3 CODE=10
*** ADD B728 AND SUBTOTAL***
ADD HYD             ID=6 HYD=728.1    ID I=3 II=5
PRINT HYD           ID=6 CODE=10
** BASIN B727 ***
COMPUTE NM HYD      ID=3 HYD NO=727    DA=.0527       SQ MI
                    PER A=70    PER B=0   PER C=15    PER D=15
                    TP= -.18   RAIN=-1
PRINT HYD           ID=3 CODE=10
***** OUTFLOW IS (3) 36" CMP***
ROUTE RESERVOIR     ID=4 HYD=527    INFLOW ID=3 CODE=20
                    OUTFLOW    STORAGE  DEPTH
                         0          0   5048
                       160        .34   5052
                       440       1.18   5056
                       620       4.75   5060
                       710       7.83   5062
PRINT HYD           ID=4 CODE=10
*** ADD B727 AND SUBTOTAL FOR TOTAL ENTERING SOUTH DIVERSION CHANNEL***
ADD HYD             ID=2 HYD=727.1    ID I=4 II=6
**** TOTAL INTO SDC FROM GENERAL AVIATION AREA****
PRINT HYD           ID=2 CODE=10
FINISH
```

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********** MOLZEN-CORBIN AND ASSOCIATES **********
  ********** MAY 1993 **********
   ***** ALBUQUERQUE INTERNATIONAL AIRPORT DRAINAGE MASTER PLAN ********
 ********** 100 YEAR STORM **********
**********DISCHARGE FLOWS BASED ON FUTURE CONDTIONS**********
********** GENERAL AVIATION (GA) BASIN  - 700'S **********
*****FLOW FROM GA AREA UNDER UNIVERSITY BLVD. THROUGH G.C. TO SDC*******
********BASINS 701,702,709,707,711,713, 706 & 705 ARE DIVERTED OUT OF **
********THE GA AREA INTO THE 3-21 RUNWAY SYSTEM BY URS GRIENER DESIGN***
**********************************************************************
START                0.00
**********************************************************************
RAINFALL             TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.01
                     RAIN SIX=2.35   RAIN DAY=0.0  DT=0.03333
**********************************************************************
*S* BASIN B730 ***
COMPUTE NM HYD       ID=3 HYD NO=730    DA=.0112       SQ MI
                     PER A=0    PER B=15   PER C=15    PER D=70
                     TP= -.20   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S* BASIN B714 ***
COMPUTE NM HYD       ID=6 HYD NO=714    DA=.0232       SQ MI
                     PER A=0    PER B=0   PER C=45    PER D=55
                     TP= -.13   RAIN=-1
PRINT HYD            ID=6 CODE=10
*S** ADD B730 AND B714****
ADD HYD              ID=4 HYD=730.1    ID I=3 II=6
PRINT HYD            ID=4 CODE=10
  **** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS **********
  JTE RESERVOIR      ID=2 HYD=530    INFLOW ID=4 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                         0          0   5304.7
                         2       .026   5305.0
                         13      .30    5306.0
                         17      1.85   5307.0
                         19      3.65   5307.5
PRINT HYD            ID=2 CODE=10
*S***ROUTE SUBTOTAL TO NORTH EDGE (JUNCTION PT.) OF B730****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.002
                     DIA=3.5   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=250    SLP=.002
ROUTE                ID=7 HYD=730.3      INFLOW ID=2   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
**** HOLD ID*****
*S* BASIN B712 ***
COMPUTE NM HYD       ID=3 HYD NO=712    DA=.0216       SQ MI
                     PER A=0    PER B=3   PER C=0    PER D=97
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (4) INLETS **********
ROUTE RESERVOIR      ID=4 HYD=512    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                         0          0    5305.7
                         13        .66    5307.0
                         17       2.74    5308.0
                         31       4.40    5308.5
  .INT HYD           ID=4 CODE=10
```

```
*S***ROUTE B712 TO NORTH EDGE (JUNCTION PT.) OF B730****
 ~MPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0102
                     DIA=2.0   FT N=0.015
-OMPUTE TRAVEL TIME  ID=6 REACH=1 VS NO=1 L=430    SLP=.0102
ROUTE                ID=6 HYD=712.1      INFLOW ID=4   DT=0.03333 HR
PRINT HYD            ID=6 CODE=10
*S** ADD B712 AND SUBTOTAL FROM 714/730***
ADD HYD              ID=2 HYD=712.2    ID I=6 II=7
PRINT HYD            ID=2 CODE=10
*S***ROUTE SOUTH BRANCH SUBTOTAL INTO B716***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0046
                     DIA=4.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=500    SLP=.0046
ROUTE                ID=7 HYD=712.3      INFLOW ID=2   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
*S* BASIN B716 ***
COMPUTE NM HYD       ID=3 HYD NO=716    DA=.0094       SQ MI
                     PER A=0    PER B=0   PER C=45    PER D=55
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=512    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                         0        0     5307.0
                         6        0.10  5307.5
                         12       0.31  5308.0
PRINT HYD            ID=4 CODE=10
*S** ADD B716 AND SUBTOTAL***
  'D HYD             ID=6 HYD=716.1    ID I=4 II=7
  INT HYD            ID=6 CODE=10
  *WT. SLOPE FOR TRAVEL TIME**
*S*ROUTE S.BRANCH SUBTOTAL INTO B721 thru pipe and channel to middle ofb721*****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0094
                     DIA=4.0   FT N=0.015
COMPUTE RATING CURVE CID=2 VS NO=2 SEG=1 MIN EL=0 MAX EL=5
                     CH SLP=.08     FP SLP=.08   N=.033 DIST=60
                     DIST ELEV  DIST ELEV  DIST ELEV
                      0    5     10    0     50   0
                      60   5
COMPUTE TRAVEL TIME  ID=8 REACH=1 VS NO=2 L=900    SLP=.045
ROUTE                ID=8 HYD NO=716.2    INFLOW ID=6 DT=.03333 HR
PRINT HYD            ID=8 CODE=10
**** hold ID FROM S. BRANCH (ID=8)***
*S* BASIN B710 ***
COMPUTE NM HYD       ID=3 HYD NO=710    DA=.0312       SQ MI
                     PER A=0    PER B=3   PER C=0    PER D=97
                     TP= -.18   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S** OUTFLOW IS APPROXIMATE CAPACITY OF (2) INLETS WITH ADDITIONAL CONTRIBUTION ****
*S**** FROM 2 INLETS WITH NO STORAGE....STORAGE BASED ON 2 PONDING AREAS*******
ROUTE RESERVOIR      ID=2 HYD=509    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5306.5
                          15       .165   5307.0
                          30       .621   5307.5
                          34       1.89   5308.0
  .INT HYD           ID=2 CODE=10
```

```
**HOLD ID=2**
 **ROUTE NORTH BRANCH SUBTOTAL INTO B715*****
  PUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.006
                    DIA=3.5   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=500    SLP=.006
ROUTE                ID=7 HYD=710.3      INFLOW ID=2   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
** HOLD ID***
*S* BASIN B715 ***
COMPUTE NM HYD       ID=3 HYD NO=715    DA=.0094        SQ MI
                     PER A=0    PER B=0   PER C=65    PER D=35
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=515    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5303.9
                          1      .0041   5304.0
                         13       .872   5305.0
PRINT HYD            ID=4 CODE=10
*S** ADD B715 AND SUBTOTAL FROM N. BRANCH***
ADD HYD              ID=2 HYD=715.1    ID I=4 II=7
PRINT HYD            ID=2 CODE=10
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B718 POND AT ACCESS RD "B"*****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.004
                     DIA=3.5   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=540    SLP=.004
ROUTE                ID=7 HYD=715.2      INFLOW ID=2   DT=0.03333 HR
  INT HYD            ID=7 CODE=10
  * BASIN B718 ***
```

```
OMPUTE NM HYD        ID=3 HYD NO=718    DA=.0152        SQ MI
                     PER A=0    PER B=0   PER C=50    PER D=50
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S** ADD B718 AND SUBTOTAL FROM N. BRANCH FOR TOTAL FLOW INTO POND***
ADD HYD              ID=2 HYD=718.2    ID I=3 II=7
PRINT HYD            ID=2 CODE=10
*S****  RISER, OUTFLOW IS APPROXIMATE CAPACITY OF RISER CURVE ******************
ROUTE RESERVOIR      ID=4 HYD=518    INFLOW ID=2 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                          0          0   5274
                        8.2       .183   5276
                      26.44       .727   5278
                      60.50       1.80   5280
                      70.20       3.64   5281
PRINT HYD            ID=4 CODE=10
*S** ADD N. AND S. BRANCH FLOWS AT CHANNEL "Y"****
ADD HYD              ID=9 HYD=721.1    ID I=4 II=8
PRINT HYD            ID=9 CODE=10
**** HOLD ID****
*S* BASIN B719 ***
COMPUTE NM HYD       ID=3 HYD NO=719    DA=.0209        SQ MI
                     PER A=0    PER B=0   PER C=50    PER D=50
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
 '**** OUTFLOW IS OVERFLOW FROM PONDING AREA*******
 OUTE RESERVOIR      ID=4 HYD=519    INFLOW ID=3 CODE=20
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                    OUTFLOW    STORAGE  DEPTH
                         0          0   5302
                        10       .258   5303.0
                        20        1.6   5303.5
PRINT HYD           ID=4 CODE=10
*S******* ROUTE THROUGH SIDE DITCH ALONG CLARK CARR TO ACCESS ROAD "D"****
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=1.5
                    CH SLP=.0037     FP SLP=.0037   N=.065 DIST=20
                    DIST ELEV  DIST ELEV  DIST ELEV
                     0    1.5     5    0   15   0
                     20   1.5
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=600    SLP=.0037
ROUTE                ID=7 HYD NO=719.1    INFLOW ID=4 DT=.03333 HR
PRINT HYD            ID=7 CODE=10
*S* BASIN B722 ***
COMPUTE NM HYD       ID=3 HYD NO=722    DA=.0210        SQ MI
                     PER A=10    PER B=0   PER C=35    PER D=55
                     TP= -.30   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S** ADD B719 AND B722****
ADD HYD              ID=2 HYD=722.1    ID I=3 II=7
PRINT HYD            ID=2 CODE=10
*S* BASIN B723 ***
COMPUTE NM HYD       ID=3 HYD NO=723    DA=.0163        SQ MI
                     PER A=0    PER B=20   PER C=30    PER D=50
                     TP= -.29   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S** ADD B719/722 AND B723****
 'D HYD              ID=5 HYD=723.1    ID I=2 II=3
 INT HYD             ID=5 CODE=10
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-S*ROUTE THIS SPIRIT DRIVE SUBTOTAL THRU 36" PIPE TO "Y" IN CHANNEL***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.07
                     DIA=3.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=60    SLP=.07
ROUTE                ID=7 HYD=723.2      INFLOW ID=5   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
*S** ADD SPIRIT DRIVE FLOWS TO N. AND S. BRANCH FLOWS****
ADD HYD              ID=2 HYD=723.3    ID I=9 II=7
PRINT HYD            ID=2 CODE=10
*S* ROUTE TOTAL THRU NEW SD PIPE TO UNIVERSITY @ W. END OF B721**
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.05
                     DIA=4.5   FT N=0.015
COMPUTE TRAVEL TIME  ID=6 REACH=1 VS NO=1 L=1300    SLP=.05
ROUTE                ID=6 HYD NO=723.4  INFLOW ID=2 DT=.03333 HR
PRINT HYD            ID=6 CODE=10
*S**BASIN 721R (REVISED TO REFLECT RENTAL CAR FACILTY IMPROVEMENTS)***
COMPUTE NM HYD       ID=3 HYD NO=721   DA=.0358 SQ MI
                     PER A=0  PER B=0  PER C=21.8 PER D=78.2
                     TP=-.13     RAIN=-1
PRINT HYD            ID=3        CODE=10
*S**ADD B721 TO SUBTOTAL***
ADD HYD              ID=6        HYD=721.2     ID I=3  II=6
PRINT HYD            ID=6        CODE=10
**** HOLD ID*** \
*S* BASIN B720R (REVISED TO REFLECT RENTAL CAR FACILITY)***
 'MPUTE NM HYD       ID=3 HYD NO=720    DA=.026  SQ MI
                     PER A=0    PER B=0   PER C=7.3    PER D=92.7
```

```
                    TP= -.13    RAIN=-1
  INT HYD           ID=3 CODE=10
   * ADD B720B AND SUBTOTAL AT NEW SD AT UNIV. CROSSING***
ADD HYD             ID=5 HYD=720.2     ID I=3 II=6
PRINT HYD           ID=5 CODE=10
*S* BASIN B724 ***
COMPUTE NM HYD      ID=3 HYD NO=724     DA=.0465        SQ MI
                    PER A=75     PER B=0    PER C=20     PER D=5
                    TP= -.13    RAIN=-1
PRINT HYD           ID=3 CODE=10
*S** ADD B724 AND CHANNEL SUBTOTAL FOR TOTAL  AT UNIV. CROSSING***
ADD HYD             ID=2 HYD=721.3     ID I=3 II=5
PRINT HYD           ID=2 CODE=10
*S*ROUTE THIS SUBTOTAL THRU 60" RCP TO POND AT EAST SIDE OF G.C.**
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0721
                    DIA=5.0    FT N=0.015
COMPUTE TRAVEL TIME ID=7 REACH=1 VS NO=1 L=460     SLP=.0721
ROUTE               ID=7 HYD=721.4       INFLOW ID=4   DT=0.03333 HR
PRINT HYD           ID=7 CODE=10                  2
*S* BASIN B726.1 ***
COMPUTE NM HYD      ID=3 HYD NO=726.10     DA=.0242        SQ MI
                    PER A=72     PER B=0    PER C=20     PER D=8
                    TP= -.13    RAIN=-1
PRINT HYD           ID=3 CODE=10
*S** ADD B726.1 AND SUBTOTAL FOR TOTAL INTO POND*****
ADD HYD             ID=2 HYD=726.11     ID I=3 II=7
PRINT HYD           ID=2 CODE=10
*S**** OUTFLOW IS 60" RCP***POND EAST SIDE OF G.C.**
  UTE RESERVOIR     ID=6 HYD=526.1     INFLOW ID=2 CODE=20
                    OUTFLOW     STORAGE   DEPTH
                       0           0    5150
                      90        .312    5154
                     170        .643    5156
                     239        1.15    5158
                     285        1.50    5160
PRINT HYD           ID=6 CODE=10
**HOLD ID**
*S* BASIN B725 ***
COMPUTE NM HYD      ID=3 HYD NO=725     DA=.0238        SQ MI
                    PER A=20     PER B=0    PER C=15     PER D=65
                    TP= -.13    RAIN=-1
PRINT HYD           ID=3 CODE=10
*S**** OUTFLOW IS 30" RCP***
ROUTE RESERVOIR     ID=4 HYD=525     INFLOW ID=3 CODE=20
                    OUTFLOW     STORAGE   DEPTH
                       0           0    5179.5
                      10        .053    5180
                      18        .406    5182
                      40         1.3    5184.5
PRINT HYD           ID=4 CODE=10
*S*ROUTE B725 THRU 30" & 36" RCP TO 60" RCP***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.005
                    DIA=2.75    FT N=0.022
COMPUTE TRAVEL TIME ID=7 REACH=1 VS NO=1 L=1050     SLP=.005
ROUTE               ID=7 HYD=725.1       INFLOW ID=4    DT=0.03333 HR
  INT HYD           ID=7 CODE=10
 ,** ADD B725 AND SUBTOTAL FOR TOTAL DISCHARGE DOWN 60" RCP TOWARDS I-25**
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```
ADD HYD                ID=2 HYD=725.2     ID I=6 II=7
 INT HYD               ID=2 CODE=10
  ROUTE THIS SUBTOTAL THRU REST OF 60" RCP TO I-25***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.05
                       DIA=5.0   FT N=0.015
COMPUTE TRAVEL TIME   ID=7 REACH=1 VS NO=1 L=1650     SLP=.05
ROUTE                  ID=7 HYD=725.3       INFLOW ID=2   DT=0.03333 HR
PRINT HYD              ID=7 CODE=10
**HOLD ID**
*S* BASIN B726 ***
COMPUTE NM HYD         ID=3 HYD NO=726     DA=.1553         SQ MI
                       PER A=20     PER B=55    PER C=25     PER D=0
                       TP= -.15    RAIN=-1
PRINT HYD              ID=3 CODE=10
*S** ADD B726 AND 60" RCP DISCHARGE AT I-25***
ADD HYD                ID=2 HYD=726.1     ID I=3 II=7
PRINT HYD              ID=2 CODE=10
*S**** ROUTE THRU POND ON EAST SIDE OF I-25 OUTFLOW IS ???? RCP***
ROUTE RESERVOIR        ID=4 HYD=526     INFLOW ID=2 CODE=20
                       OUTFLOW     STORAGE   DEPTH
                            0           0    5048
                          160        .338    5052
                          440        1.18    5056
                          620        4.75    5060
                          710        7.83    5062
PRINT HYD              ID=4 CODE=10
*S* ROUTE SUBTOTAL THROUGH B728 TO SDC***
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                       CH SLP=.0313      FP SLP=.0313    N=.033 DIST=50
                       DIST ELEV  DIST ELEV  DIST ELEV
                        0    4     5    2      8   0
                        42   0     45   2      50  4
COMPUTE TRAVEL TIME   ID=5 REACH=1 VS NO=1 L=1600   SLP=.0313
ROUTE                  ID=5 HYD NO=726.2     INFLOW ID=4 DT=.03333 HR
PRINT HYD              ID=5 CODE=10
*S* BASIN B728 ***
COMPUTE NM HYD         ID=3 HYD NO=728     DA=.0344         SQ MI
                       PER A=70     PER B=0    PER C=15     PER D=15
                       TP= -.13    RAIN=-1
PRINT HYD              ID=3 CODE=10
*S** ADD B728 AND SUBTOTAL***
ADD HYD                ID=6 HYD=728.1     ID I=3 II=5
PRINT HYD              ID=6 CODE=10
*S* BASIN B727 ***
COMPUTE NM HYD         ID=3 HYD NO=727     DA=.0527         SQ MI
                       PER A=70     PER B=0    PER C=15     PER D=15
                       TP= -.18    RAIN=-1
PRINT HYD              ID=3 CODE=10
*S**** OUTFLOW IS (3) 36" CMP***
ROUTE RESERVOIR        ID=4 HYD=527     INFLOW ID=3 CODE=20
                       OUTFLOW     STORAGE   DEPTH
                            0           0    5048
                          160         .34    5052
                          440        1.18    5056
                          620        4.75    5060
                          710        7.83    5062
  INT HYD              ID=4 CODE=10
```

```
*S** ADD B727 AND SUBTOTAL FOR TOTAL ENTERING SOUTH DIVERSION CHANNEL***
  ?D HYD                ID=2 HYD=727.1     ID I=4 II=6
   ** TOTAL INTO SDC FROM GENERAL AVIATION AREA****
PRINT HYD               ID=2 CODE=10
FINISH
```

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******************** MOLZEN-CORBIN AND ASSOCIATES ********************
 ***************************** MAY 1993  ******************************
 **** ALBUQUERQUE INTERNATIONAL AIRPORT DRAINAGE MASTER PLAN**********
*************************** 100 YEAR STORM ***************************
************************ WEST END BASIN - 500'S ************************
********************** SUB-BASIN 6 NOT INCLUDED**************************
**FLOW TO BASIN WEST OF 8 RUNWAY; ARROYO TO SOUTH DIVERSION CHANNEL***
*****************************************************************************
START               0.00
*****************************************************************************
RAINFALL             TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.01
                     RAIN SIX=2.35   RAIN DAY=0.0  DT=0.03333
*****************************************************************************
***CALCULATE FLOW FROM BASIN 501****
** BASIN B501  -  A= .043 SQ MI
COMPUTE NM HYD       ID=3 HYD NO=501 DA= .043 SQ MI
                     PER A=2  PER B=0  PER C=17.0 PER D=81.0
                     TP=-.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
***** OUTFLOW IS APPROXIMATE CAPACITY OF 24" PIPE ******************
ROUTE RESERVOIR      ID=4 HYD=105.01 INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       9         .5       .5
                       13.21      1.1     .75
                       13.22      5.0     1.0
PRINT HYD            ID=4 CODE=10
****ROUTE CAP. THROUGH 24" RCP******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.003
                     DIA=2.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=7 REACH=15 VS NO=1 L=1270 SLP=0.003
ROUTE                ID=7 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
***CALCULATE FLOW FROM BASIN 502*********
****BASIN B502  -  A=.038  SQ MI ****
COMPUTE NM HYD       ID=3 HYD NO=502 DA=.038 SQ MI
                     PER A=3.0    PER B=0.0   PER C=28.0  PER D=69.0
                     TP=-.20   RAIN=-1
 RINT HYD            ID=3 CODE=10
 ** ADD B502 TO B501 ROUTE ***
ADD HYD              ID=2 HYD=234.5 ID I=3 II=7
PRINT HYD            ID=2 CODE=10
****ROUTE CAP. THROUGH 48" RCP******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.0066
                     DIA=4.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=7 REACH=15 VS NO=1 L=550 SLP=0.0066
ROUTE                ID=7 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
******************
****CALC BASIN 503 ***
**B503   A=.021 SQ MI ****
COMPUTE NM HYD       ID=5 HYD NO=503 DA=.021 SQ MI
                     PER A=0.0 PER B=0.0 PER C =2.0 PER D=98.0
                     TP=-.13 RAIN=-1
PRINT HYD            ID=5 CODE =10
***** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
***** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=4 HYD=105.01 INFLOW ID=5 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       17         .5      .5
                       27         1.1      .75
                       27.90        2.2     1.0
PRINT HYD            ID=4 CODE=10
****ROUTE CAP. THROUGH 30" RCP******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.004
                     DIA=2.5 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=320 SLP=0.004
ROUTE                ID=3 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD            ID=3 CODE=10
*** ADD B503 ROUTE TO B501/B502 AT MIDDLE ISLAND**********
ADD HYD              ID=2 HYD=234.5 ID I=3 II=7
PRINT HYD            ID=2 CODE=10
*** ROUTE THRU NEW 54" TO NEXT ISLAND**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.008
                     DIA=4.5 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=500 SLP=0.008
 OUTE                ID=3 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
RINT HYD             ID=3 CODE=10
** NOW COMPUTE BASIN B504 ***
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***BASIN B504  A=.022  SQ MI ***
'OMPUTE NM HYD       ID=1 HYD NO=504.0 DA=.022 SQ MI
                     PER A=0.0 PER B=0.0 PER C=2.0 PER D=98.0
                     TP=-.13   RAIN=-1
PRINT HYD            ID=1 CODE=10
******** ROUTE THROUGH SWALE TO INLET NEAR WEST ISLAND ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=1.0
                     CH SLP=.004 FP SLP=.004 N=.017 DIST=20
                     DIST ELEV  DIST ELEV  DIST ELEV
                      0    1     8    0     12   0
                      20   1
COMPUTE TRAVEL TIME  ID=4 REACH=1 VS NO=1 L=1700 SLP=.004
ROUTE                ID=4 HYD NO=110.3 INFLOW ID=1 DT=.03333 HR
*** CHANNEL DISCHARGE TO INLET NEAR MUELLER*****
PRINT HYD            ID=4 CODE=10
** NOW COMPUTE BASIN B505  ***
***BASIN B505   A=.024  SQ MI ***
COMPUTE NM HYD       ID=1 HYD NO=505.0 DA=.024 SQ MI
                     PER A=1.0 PER B=0.0 PER C=9.0 PER D=90.0
                     TP=-.13   RAIN=-1
PRINT HYD            ID=1 CODE=10
*** ADD B504 ROUTE TO B505 **********
ADD HYD              ID=1 HYD=234.5 ID I=1 II=4
PRINT HYD            ID=1 CODE=10
***** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
***** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=4 HYD=105.01 INFLOW ID=1 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       14         .5      .4
                       24        1.1      .7
                       24.30        2.2      1.0
PRINT HYD            ID=4 CODE=10
*** ROUTE THRU  24" FROM APRON TO WEST ISLAND**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.010
                     DIA=2.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=5 REACH=15 VS NO=1 L=346 SLP=0.010
ROUTE                ID=5 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD            ID=5 CODE=10
 ** ADD BASIN 505 RT TO B501/B502 AT WEST ISLAND**********
.DD HYD              ID=2 HYD=234.5 ID I=3 II=5
PRINT HYD            ID=2 CODE=10
*** ROUTE THRU 60" TO TEE AT END OF RUNWAY**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.004
                     DIA=5.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=5 REACH=15 VS NO=1 L=440 SLP=0.004
ROUTE                ID=5 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD            ID=5 CODE=10
*** ROUTE THRU 60" TO JUNCTION AT SW CORNER  @ END RUNWAY**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.008
                     DIA=5.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=10 REACH=15 VS NO=1 L=400 SLP=0.008
ROUTE                ID=10 HYD=105.1 INFLOW ID=5 DT=0.03333 HR
******** HYDROGRAPH ENTERING JUNCTION FROM NORTH BRANCH******
PRINT HYD            ID=10 CODE=10
*** CALC FLOW FROM BASIN B507****
*** B507  A=.025 SQMI***
COMPUTE NM HYD       ID=4 HYD NO=507 DA=0.025  SQ MI
                     PER A=3.0 PER B=0.0 PER C=65.0 PER D=32.0
                     TP=-.17   RAIN=-1
PRINT HYD            ID=4 CODE=10
***** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
***** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=1 HYD=105.01 INFLOW ID=4 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       6          .5      .5
                       10        1.1       1
                       10.1      2.2       2
PRINT HYD            ID=1 CODE=10
*** ROUTE THRU 24" INTO BASIN 3***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.002
                     DIA=2.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=550 SLP=0.002
ROUTE                ID=3 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
PRINT HYD            ID=3 CODE=10
*** B508 A=.052 SQMI***
COMPUTE NM HYD       ID=4 HYD NO=508 DA=0.052  SQ MI
                     PER A=0.0 PER B=5.0 PER C=53.0 PER D=42.0
                     TP=-.28   RAIN=-1
PRINT HYD            ID=4 CODE=10
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***** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
 **** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR       ID=1 HYD=105.01 INFLOW ID=4 CODE=20
                      OUTFLOW    STORAGE  DEPTH
                        0          0      0
                        39         .5     .4
                        69.       1.1     .75
                        69.10      2.2     1.0
PRINT HYD             ID=1 CODE=10
*S ADD BASIN 507 AND 508 TO GET TOTAL**
ADD HYD               ID=1 HYD=234.5 ID I=3 II=1
PRINT HYD             ID=1 CODE=10
*** ROUTE THRU LAST 48" SECTION IN WEST BASIN 508
*** TO BRANCH AT BASIN 509*********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.002
                      DIA=4.0 FT N=0.013
COMPUTE TRAVEL TIME   ID=3 REACH=15 VS NO=1 L=700 SLP=0.002
ROUTE                 ID=3 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
PRINT HYD             ID=3 CODE=10
*** CALCULATE B509  ***
** BASIN B509  A=0.0122 SQMI ***
COMPUTE NM HYD         ID=2 HYD NO=509 DA=0.0122 SQ MI
                       PER A=1.0 PER B=0.0 PER C=22.0 PER D=77.0
                       TP=-.13  RAIN=-1
PRINT HYD              ID=2 CODE=10
*** ADD BASIN 508/507 RT TO B509 AT NW ISLAND BASIN 509**********
ADD HYD               ID=1 HYD=234.5 ID I=2 II=3
PRINT HYD             ID=1 CODE=10
***** ROUTE RES SO ALL WATER IS DISCHARGED FR B509 AND PONDING IS KNOWN ****
***** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR       ID=2 HYD=105.01 INFLOW ID=1 CODE=20
                      OUTFLOW    STORAGE  DEPTH
                        0          0       0
                        146.57     .01     .01
                        146.58     1.1     .5
                        146.59      2.2     1.0
PRINT HYD             ID=2 CODE=10
*** ROUTE THRU LAST 48" SECTION TO JUNCTION AT SW CORNER OF RUNWAY******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.009
                      DIA=4.0 FT N=0.013
COMPUTE TRAVEL TIME   ID=3 REACH=15 VS NO=1 L=350 SLP=0.009
ROUTE                 ID=3 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
******* HYDROGRAPH FROM SOUTH BRANCH AT JUNCTION**********
PRINT HYD             ID=3 CODE=10
*** ADD SOUTH AND NORTH BRANCH HYDROGRAPHS AT JUNCTION**********
ADD HYD               ID=1 HYD=234.5 ID I=10 II=3
PRINT HYD             ID=1 CODE=10
*** ROUTE THRU 66" SECTION TO ACCESS RD B AREA******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.01
                      DIA=5.5 FT N=0.013
COMPUTE TRAVEL TIME   ID=2 REACH=15 VS NO=1 L=1000 SLP=0.01
ROUTE                 ID=2 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
PRINT HYD             ID=2 CODE=10
*** ROUTE THRU LAST 54" SECTION CHANNEL AT BASE******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.07
                      DIA=4.5 FT N=0.013
COMPUTE TRAVEL TIME   ID=11 REACH=15 VS NO=1 L=600 SLP=0.07
ROUTE                 ID=11 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD             ID=11 CODE=10
****CALC BASIN 506 ***
**B506   A=.032 SQ MI ****
COMPUTE NM HYD        ID=5 HYD NO=506 DA=.032 SQ MI
                      PER A=10.0 PER B=5.0 PER C =70.0 PER D=15.0
                      TP=-.18 RAIN=-1
PRINT HYD             ID=5 CODE =10
*** ROUTE THRU 24" SECTION TO CHANNEL******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.168
                      DIA=2.0 FT N=0.024
COMPUTE TRAVEL TIME   ID=2 REACH=15 VS NO=1 L=220 SLP=0.168
ROUTE                 ID=2 HYD=105.1 INFLOW ID=5 DT=0.03333 HR
PRINT HYD             ID=2 CODE=10
*** ADD BASIN 506 AND WESTEND FLOWS AT TOP OF CHANNEL FOR SUBTOTAL**********
ADD HYD               ID=10 HYD=234.5 ID I=11 II=2
PRINT HYD             ID=10 CODE=10
*** CALC FLOW FROM BASIN B510 ****
COMPUTE NM HYD        ID=4 HYD NO=510 DA=0.024 SQ MI
                      PER A=25.0 PER B=25.0 PER C=46.0 PER D=4.0
                      TP=-.13   RAIN=-1
PRINT HYD             ID=4 CODE=10
*** ADD BASIN 510 AND SUBTOTAL TO CHANNEL FROM ABOVE**********
ADD HYD               ID=1 HYD=234.5 ID I=10 II=4
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PRINT HYD             ID=1 CODE=10
 **BASIN 511   A=.01  SQ MI ***
COMPUTE NM HYD        ID=15 HYD NO=511 DA=.010  SQ MI
                      PER A=30 PER B=33 PER C=35 PER D=2
                      TP=-.13 RAIN=-1
PRINT HYD             ID=15 CODE=10
*** ADD BASIN 511 AND SUBTOTAL TO CHANNEL FROM ABOVE**********
ADD HYD               ID=2 HYD=234.5 ID I=15 II=1
********* HYDROGRAPH INTO CHANNEL**********
PRINT HYD             ID=2 CODE=10
******** ROUTE THROUGH CHANNEL TO UNIVERSITY ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=8
                      CH SLP=.0632 FP SLP=.0632 N=.033 DIST=36
                      DIST ELEV  DIST ELEV  DIST ELEV
                       0    8     8    0     28   0
                       36   8
COMPUTE TRAVEL TIME   ID=4 REACH=1 VS NO=1 L=475 SLP=.0632
ROUTE                 ID=4 HYD NO=110.3 INFLOW ID=2 DT=.03333 HR
*** CHANNEL DISCHARGE*****
PRINT HYD             ID=4 CODE=10
**********************
*** CALCULATE B513 ***
COMPUTE NM HYD         ID=2 HYD NO=513 DA=0.027 SQ MI
                       PER A=60.0 PER B=20.0 PER C=17.0 PER D=3.0
                       TP=-.13  RAIN=-1
PRINT HYD              ID=2 CODE=10
*** ADD B513 AND CHANNEL DISCHARGE*****
ADD HYD               ID=6 HYD=234.5 ID I=4 II=2
PRINT HYD             ID=6 CODE=10
** NOW COMPUTE BASIN B512 ***
***BASIN 512   A=.03  SQ MI ***
COMPUTE NM HYD        ID=15 HYD NO=512 DA=.030  SQ MI
                      PER A=47 PER B=33 PER C=16 PER D=4
                      TP=-.13 RAIN=-1
PRINT HYD             ID=15 CODE=10
*** ADD B512 AND SUBTOTAL TO CHANNEL *****
ADD HYD               ID=20 HYD=111.0 ID I=15 II=6
PRINT HYD             ID=20 CODE=10
**** ROUTE INTO POND AT HEADS OF CULVERTS****
 **** OUTFLOW IS APPROXIMATE CAPACITY OF 60" CULVERTS ******************
ROUTE RESERVOIR       ID=1 HYD=111.1 INFLOW ID=20 CODE=20
                      OUTFLOW    STORAGE  DEPTH
                      0           0       0
                      30         .30      1.0
                      60         .90      2.0
                      110         1.7    3.0
                      180        2.602     4.0
                      250        3.69     5.0
                      304        4.77     6.0
***** DISCHARGE TO UNPLATTED ARROYO *********
PRINT HYD             ID=1 CODE=10
FINISH
```

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***************** MOLZEN-CORBIN AND ASSOCIATES *********
 ****DRAINAGE PORTION FOR ABQ INTERNATIONAL AIRPORT **********
 *** 100 YEAR STORM ********************************************
*******WEST END*********************
***B1/B2 ENTIRE 10 YEAR FLOWS ARE DISCHARGED TO NEW SYSTEM******
****B2.1, B5 FLOWS BASED ON PIPING IN PLACE, NOT RESIZED FOR 10 YR STORM**
**** B5A & B6 OLD TERMINAL AREA AND NW APRON AREA NEW LINE INCLUDED HERE**
****** ESTIMATE NEW PIPING AT EAST END OF BASIN TO SIMULATE 10 YR FLOWS****

**** NOW INCLUDES BASINS TO S. DIV. CHANNEL AND GEORGE ROAD BASINS OR
**** PROJECTED SUNPORT CORRIDOR*******

START               0.00
*************************
RAINFALL             TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.01
                     RAIN SIX=2.35   RAIN DAY=0.0  DT=0.03333
***CALCULATE FLOW FROM BASIN ONE****
** BASIN B1  -  A= .043 SQ MI
COMPUTE NM HYD       ID=3 HYD NO=101 DA= .043 SQ MI
                     PER A=2  PER B=0  PER C=17.0 PER D=81.0
                     TP=-.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
***** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
***** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=4 HYD=105.01 INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       81.73       .01     .01
                       81.74      1.1      .5
                       81.75       2.2      1.0
PRINT HYD            ID=4 CODE=10
****ROUTE CAP. THROUGH 48" RCP******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.0028
                     DIA=4.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=7 REACH=15 VS NO=1 L=1270 SLP=0.0028
ROUTE                ID=7 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
***CALCULATE FLOW FROM BASIN 2*********
****BASIN B2  -  A=.038  SQ MI ****
 OMPUTE NM HYD       ID=3 HYD NO=102 DA=.038 SQ MI
                     PER A=3.0    PER B=0.0   PER C=28.0  PER D=69.0
                     TP=-.20   RAIN=-1
PRINT HYD            ID=3 CODE=10
*** ADD B2 TO B1 ROUTE ***
ADD HYD              ID=2 HYD=234.5 ID I=3 II=7
PRINT HYD            ID=2 CODE=10
***** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
***** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=4 HYD=105.01 INFLOW ID=2 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       119.63      .01     .01
                       119.64     1.1      .5
                       119.65      2.2      1.0
PRINT HYD            ID=4 CODE=10
****ROUTE CAP. THROUGH 54" RCP******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.0032
                     DIA=4.5 FT N=0.013
COMPUTE TRAVEL TIME  ID=7 REACH=15 VS NO=1 L=550 SLP=0.0032
ROUTE                ID=7 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
******************
****CALC BASIN 2.1 ***
**B4   A=.021 SQ MI ****
COMPUTE NM HYD       ID=5 HYD NO=102.1 DA=.021 SQ MI
                     PER A=0.0 PER B=0.0 PER C =2.0 PER D=98.0
                     TP=-.13 RAIN=-1
PRINT HYD            ID=5 CODE =10
***** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
***** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=4 HYD=105.01 INFLOW ID=5 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       27.88       .01     .01
                       27.89      1.1      .5
                       27.90       2.2      1.0
PRINT HYD            ID=4 CODE=10
****ROUTE CAP. THROUGH 30" RCP******
 OMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.004
                     DIA=2.5 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=320 SLP=0.004
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COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
ROUTE	703.20	2	7	.01860	20.49	1.658	1.67096	1.766	1.721		
COMPUTE NM HYD	729.00	-	3	.01400	35.64	1.211	1.62163	1.500	3.978	PER IMP=	50.00
ROUTE RESERVOIR	509.00	3	4	.01400	8.58	1.211	1.62162	1.933	.957	AC-FT=	.807
ADD HYD	709.10	4& 7	2	.03260	28.73	2.868	1.64974	1.800	1.377		
ROUTE	709.20	2	7	.03260	28.53	2.868	1.64975	1.833	1.367		
COMPUTE NM HYD	710.00	-	3	.03120	79.94	3.453	2.07525	1.533	4.003	PER IMP=	97.00
ADD HYD	710.10	3& 7	2	.06380	96.42	6.322	1.85782	1.567	2.361		
COMPUTE NM HYD	705.00	-	3	.01620	36.10	1.128	1.30565	1.500	3.482	PER IMP=	18.00
ROUTE RESERVOIR	505.00	3	4	.01620	10.19	1.128	1.30563	1.833	.983	AC-FT=	.586
ROUTE	705.10	4	7	.01620	10.19	1.128	1.30564	1.833	.983		
COMPUTE NM HYD	706.00	-	3	.02250	51.24	1.626	1.35502	1.500	3.558	PER IMP=	23.00
ROUTE RESERVOIR	506.00	3	4	.02250	9.53	1.626	1.35501	1.966	.662	AC-FT=	1.009
ADD HYD	706.10	4& 7	5	.03870	19.61	2.754	1.33432	1.866	.792		
ROUTE	706.20	5	7	.03870	19.59	2.754	1.33433	1.900	.791		
ADD HYD	710.20	2& 7	6	.10250	110.19	9.076	1.66017	1.567	1.680		
ROUTE	710.30	6	7	.10250	109.34	9.076	1.66017	1.600	1.667		
COMPUTE NM HYD	715.00	-	3	.00940	22.54	.739	1.47352	1.500	3.746	PER IMP=	35.00
ROUTE RESERVOIR	515.00	3	4	.00940	6.23	.739	1.47349	1.866	1.035	AC-FT=	.382
ADD HYD	715.10	4& 7	2	.11190	114.48	9.814	1.64448	1.600	1.599		
ROUTE	715.20	2	7	.11190	113.06	9.814	1.64449	1.633	1.579		
COMPUTE NM HYD	718.00	-	3	.01520	38.69	1.315	1.62163	1.500	3.977	PER IMP=	50.00
ADD HYD	718.20	3& 7	2	.12710	139.16	11.129	1.64175	1.600	1.711		
ROUTE RESERVOIR	518.00	2	4	.12710	68.05	11.129	1.64175	2.200	.837	AC-FT=	3.233
ADD HYD	721.10	4& 8	9	.26240	208.63	24.203	1.72946	1.800	1.242		
COMPUTE NM HYD	719.00	-	3	.02090	37.68	1.100	.98697	1.500	2.817	PER IMP=	5.00
ROUTE RESERVOIR	519.00	3	4	.02090	12.11	1.100	.98696	1.766	.905	AC-FT=	.541
ROUTE	719.10	4	7	.02090	11.44	1.100	.98696	1.966	.855		
COMPUTE NM HYD	722.00	-	3	.02100	18.95	1.049	.93619	1.700	1.410	PER IMP=	15.00
ADD HYD	722.10	3& 7	2	.04190	28.51	2.149	.96148	1.733	1.063		
COMPUTE NM HYD	723.00	-	3	.01630	15.09	.814	.93619	1.667	1.447	PER IMP=	15.00
ADD HYD	723.10	2& 3	5	.05820	43.36	2.962	.95439	1.700	1.164		
ROUTE	723.20	5	7	.05820	43.37	2.962	.95439	1.700	1.164		
ADD HYD	723.30	9& 7	2	.32060	249.91	27.166	1.58876	1.766	1.218		
ROUTE	723.40	2	6	.32060	251.06	27.166	1.58876	1.800	1.224		
COMPUTE NM HYD	721.00	-	3	.03580	42.85	1.249	.65439	1.500	1.870	PER IMP=	5.00
ADD HYD	721.20	3& 6	6	.35640	264.06	28.415	1.49490	1.766	1.158		
COMPUTE NM HYD	717.00	-	3	.01590	34.27	1.158	1.36558	1.500	3.368	PER IMP=	45.00
ROUTE	717.10	3	4	.01590	30.11	1.158	1.36559	1.567	2.959		
COMPUTE NM HYD	720.00	-	3	.03540	42.37	1.235	.65439	1.500	1.870	PER IMP=	5.00
ADD HYD	720.10	3& 4	2	.05130	72.07	2.393	.87480	1.533	2.195		
ADD HYD	720.20	2& 6	5	.40770	294.79	30.809	1.41688	1.733	1.130		
COMPUTE NM HYD	724.00	-	3	.04650	59.72	1.736	.69990	1.500	2.007	PER IMP=	5.00
ADD HYD	721.30	3& 5	2	.45420	320.18	32.544	1.34347	1.700	1.101		
ROUTE RESERVOIR	521.00	2	4	.45420	264.29	32.544	1.34347	1.933	.909	AC-FT=	4.857
ROUTE	721.40	4	7	.45420	264.26	32.544	1.34347	1.966	.909		
COMPUTE NM HYD	726.10	-	3	.02420	32.57	.965	.74754	1.500	2.103	PER IMP=	8.00
ADD HYD	726.11	3& 7	2	.47840	268.81	33.509	1.31333	1.933	.878		
ROUTE RESERVOIR	526.10	2	6	.47840	263.32	33.509	1.31333	2.033	.860	AC-FT=	1.335
COMPUTE NM HYD	725.00	-	3	.02380	58.73	2.073	1.63305	1.500	3.856	PER IMP=	65.00
ROUTE RESERVOIR	525.00	3	4	.02380	25.30	2.073	1.63303	1.700	1.661	AC-FT=	.702
ROUTE	725.10	4	7	.02380	24.82	2.073	1.63305	1.800	1.629		
ADD HYD	725.20	6& 7	2	.50220	285.40	35.582	1.32848	2.033	.888		

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	725.30	2	7	.50220	285.30	35.582	1.32848	2.033	.888	
COMPUTE NM HYD	726.00	-	3	.15530	219.67	6.567	.79289	1.533	2.210	PER IMP= .00
ADD HYD	726.10	3& 7	2	.65750	384.64	42.149	1.20197	1.567	.914	
ROUTE RESERVOIR	526.00	2	4	.65750	375.82	42.149	1.20197	1.633	.893	AC-FT= .987
ROUTE	726.20	4	5	.65750	369.11	42.149	1.20197	1.667	.877	
COMPUTE NM HYD	728.00	-	3	.03440	49.65	1.533	.83561	1.500	2.255	PER IMP= 15.00
ADD HYD	728.10	3& 5	6	.69190	395.97	43.682	1.18376	1.667	.894	
COMPUTE NM HYD	727.00	-	3	.05270	60.94	2.349	.83561	1.567	1.807	PER IMP= 15.00
ROUTE RESERVOIR	527.00	3	4	.05270	59.57	2.349	.83560	1.600	1.766	AC-FT= .127
ADD HYD	727.10	4& 6	2	.74460	449.84	46.031	1.15912	1.633	.944	

FINISH

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =02/17/1999
INPUT FILE = GAFUT100.DAT USER NO.= MOLZCONM.STE

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.350
COMPUTE NM HYD	730.00	-	3	.01120	23.92	1.052	1.76175	1.567	3.338	PER IMP=	70.00
COMPUTE NM HYD	714.00	-	6	.02320	60.20	2.068	1.67101	1.500	4.054	PER IMP=	55.00
ADD HYD	730.10	3& 6	4	.03440	80.05	3.120	1.70053	1.500	3.636		
ROUTE RESERVOIR	530.00	4	2	.03440	16.76	3.120	1.70053	2.066	.761	AC-FT=	1.758
ROUTE	730.30	2	7	.03440	16.76	3.120	1.70054	2.100	.761		
COMPUTE NM HYD	712.00	-	3	.02160	64.68	2.391	2.07525	1.500	4.679	PER IMP=	97.00
ROUTE RESERVOIR	512.00	3	4	.02160	14.25	2.391	2.07524	2.033	1.031	AC-FT=	1.309
ROUTE	712.10	4	6	.02160	14.25	2.391	2.07522	2.066	1.031		
ADD HYD	712.20	6& 7	2	.05600	31.00	5.511	1.84504	2.066	.865		
ROUTE	712.30	2	7	.05600	31.00	5.511	1.84505	2.100	.865		
COMPUTE NM HYD	716.00	-	3	.00940	24.40	.838	1.67101	1.500	4.056	PER IMP=	55.00
ROUTE RESERVOIR	512.00	3	4	.00940	11.36	.838	1.67098	1.700	1.888	AC-FT=	.288
ADD HYD	716.10	4& 7	6	.06540	41.20	6.348	1.82002	1.800	.984		
ROUTE	716.20	6	8	.06540	41.15	6.348	1.82002	1.833	.983		
COMPUTE NM HYD	710.00	-	3	.03120	79.94	3.453	2.07525	1.533	4.003	PER IMP=	97.00
ROUTE RESERVOIR	509.00	3	2	.03120	31.82	3.453	2.07524	1.866	1.594	AC-FT=	1.199
COMPUTE NM HYD	705.00	-	3	.01390	31.25	.983	1.32539	1.500	3.513	PER IMP=	20.00
ROUTE RESERVOIR	505.00	3	4	.01390	9.03	.983	1.32538	1.833	1.015	AC-FT=	.499
ROUTE	705.10	4	7	.01390	9.03	.983	1.32539	1.833	1.015		
COMPUTE NM HYD	706.00	-	3	.02250	51.24	1.626	1.35502	1.500	3.558	PER IMP=	23.00
ROUTE RESERVOIR	506.00	3	4	.02250	9.53	1.626	1.35501	1.966	.662	AC-FT=	1.009
ADD HYD	706.10	4& 7	5	.03640	18.45	2.609	1.34367	1.866	.792		
ROUTE	706.20	5	7	.03640	18.44	2.609	1.34369	1.900	.791		
ADD HYD	710.20	2& 7	6	.06760	50.25	6.062	1.68132	1.900	1.161		
ROUTE	710.30	6	7	.06760	50.24	6.062	1.68132	1.900	1.161		
COMPUTE NM HYD	715.00	-	3	.00940	22.54	.739	1.47352	1.500	3.746	PER IMP=	35.00
ROUTE RESERVOIR	515.00	3	4	.00940	6.23	.739	1.47349	1.866	1.035	AC-FT=	.382
ADD HYD	715.10	4& 7	2	.07700	56.45	6.800	1.65594	1.900	1.145		
ROUTE	715.20	2	7	.07700	56.37	6.800	1.65595	1.933	1.144		
COMPUTE NM HYD	718.00	-	3	.01520	38.69	1.315	1.62163	1.500	3.977	PER IMP=	50.00
ADD HYD	718.20	3& 7	2	.09220	75.54	8.115	1.65029	1.567	1.280		
ROUTE RESERVOIR	518.00	2	4	.09220	57.10	8.115	1.65028	2.200	.968	AC-FT=	1.693
ADD HYD	721.10	4& 8	9	.15760	96.14	14.463	1.72072	2.100	.953		
COMPUTE NM HYD	719.00	-	3	.02090	53.20	1.808	1.62163	1.500	3.977	PER IMP=	50.00
ROUTE RESERVOIR	519.00	3	4	.02090	14.66	1.808	1.62162	1.866	1.096	AC-FT=	.884
ROUTE	719.10	4	7	.02090	14.30	1.808	1.62162	2.033	1.069		
COMPUTE NM HYD	722.00	-	3	.02100	32.11	1.785	1.59370	1.667	2.389	PER IMP=	55.00
ADD HYD	722.10	3& 7	2	.04190	43.85	3.592	1.60759	1.700	1.635		
COMPUTE NM HYD	723.00	-	3	.01630	24.87	1.342	1.54357	1.667	2.384	PER IMP=	50.00
ADD HYD	723.10	2& 3	5	.05820	68.44	4.934	1.58965	1.700	1.837		
ROUTE	723.20	5	7	.05820	68.46	4.934	1.58966	1.700	1.838		
ADD HYD	723.30	9& 7	2	.21580	150.94	19.397	1.68537	1.766	1.093		
ROUTE	723.40	2	6	.21580	146.86	19.398	1.68537	1.866	1.063		
COMPUTE NM HYD	721.00	-	3	.03580	84.81	2.919	1.52862	1.500	3.702	PER IMP=	55.00
ADD HYD	721.20	3& 6	6	.25160	172.85	22.316	1.66307	1.800	1.073		
COMPUTE NM HYD	717.00	-	3	.01590	34.27	1.158	1.36558	1.500	3.368	PER IMP=	45.00
ROUTE	717.10	3	4	.01590	30.11	1.158	1.36559	1.567	2.959		

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ROUTE                ID=3 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
 RINT HYD            ID=3 CODE=10
 ** ADD B2.1 ROUTE TO B1/B2 AT MIDDLE ISLAND**********
ADD HYD              ID=2 HYD=234.5 ID I=3 II=7
PRINT HYD            ID=2 CODE=10
*** ROUTE THRU NEW 54" TO NEXT ISLAND**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.0047
                     DIA=4.5 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=500 SLP=0.0047
ROUTE                ID=3 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD            ID=3 CODE=10
** NOW COMPUTE BASIN B5 (PARTS B & C) ***
***BASIN B5   A=.024  SQ MI ***
COMPUTE NM HYD       ID=1 HYD NO=105.0 DA=.024 SQ MI
                     PER A=1.0 PER B=0.0 PER C=9.0 PER D=90.0
                     TP=-.13   RAIN=-1
PRINT HYD            ID=1 CODE=10
***** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
***** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=4 HYD=105.01 INFLOW ID=1 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       24.28       .01     .01
                       24.29      1.1      .5
                       24.30       2.2      1.0
PRINT HYD            ID=4 CODE=10
*** ROUTE THRU  24" FROM APRON TO WEST ISLAND**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.010
                     DIA=2.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=5 REACH=15 VS NO=1 L=346 SLP=0.010
ROUTE                ID=5 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD            ID=5 CODE=10
*** ADD BASIN 5 RT TO B1/B2 AT WEST ISLAND**********
ADD HYD              ID=2 HYD=234.5 ID I=3 II=5
PRINT HYD            ID=2 CODE=10
*** ROUTE THRU 60" TO TEE AT END OF RUNWAY**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.004
                     DIA=5.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=5 REACH=15 VS NO=1 L=440 SLP=0.004
 OUTE                ID=5 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
 RINT HYD            ID=5 CODE=10
***CALCULATE FLOW FROM BASIN 5A*********
****BASIN 5A  -  A=.022  SQ MI ****
COMPUTE NM HYD       ID=12 HYD NO=106 DA=.022 SQ MI
                     PER A=0.0    PER B=0.0   PER C=2.0  PER D=98.0
                     TP=-.13   RAIN=-1
PRINT HYD            ID=12 CODE=10
***** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
***** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=8 HYD=105.01 INFLOW ID=12 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       43.48       .01     .01
                       43.49      1.1      .5
                       43.50       2.2      1.0
PRINT HYD            ID=8 CODE=10
*** ROUTE THRU 36" TO MIDDLE BASIN 6**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.004
                     DIA=3.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=7 REACH=15 VS NO=1 L=1300 SLP=0.004
ROUTE                ID=7 HYD=105.1 INFLOW ID=8 DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
***CALCULATE FLOW FROM BASIN 6*********
****BASIN B6  -  A=.015  SQ MI ****
COMPUTE NM HYD       ID=3 HYD NO=106 DA=.015 SQ MI
                     PER A=2.0    PER B=0.0   PER C=18.0  PER D=80.0
                     TP=-.22   RAIN=-1
PRINT HYD            ID=3 CODE=10
*** ADD BASIN 6 TO B5A ROUTE IN MIDDLE OF BASIN 6**********
ADD HYD              ID=9 HYD=234.5 ID I=7 II=3
PRINT HYD            ID=9 CODE=10
***** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
***** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=4 HYD=105.01 INFLOW ID=9 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                      0          0       0
                       58.97       .01     .01
                       58.98      1.1      .5
                       58.99      2.2      1.0
.RINT HYD            ID=4 CODE=10
*** ROUTE THRU 42" TO TEE @ END RUNWAY**********
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COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.005
                     DIA=3.5 FT N=0.013
COMPUTE TRAVEL TIME  ID=2 REACH=15 VS NO=1 L=675 SLP=0.005
ROUTE                ID=2 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD            ID=2 CODE=10
*** ADD BASIN 6 RT TO B1/B2/B5 AT TEE AT END RUNWAY**********
ADD HYD              ID=1 HYD=234.5 ID I=2 II=5
PRINT HYD            ID=1 CODE=10
*** ROUTE THRU 60" TO JUNCTION AT SW CORNER  @ END RUNWAY**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.0064
                     DIA=5.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=10 REACH=15 VS NO=1 L=400 SLP=0.0064
ROUTE                ID=10 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
******** HYDROGRAPH ENTERING JUNCTION FROM NORTH BRANCH******
PRINT HYD            ID=10 CODE=10
*** CALC FLOW FROM BASIN B3 ****
*** B3  A=.077 SQMI***
COMPUTE NM HYD       ID=4 HYD NO=103 DA=0.077  SQ MI
                     PER A=13.0 PER B=0.0 PER C=45.0 PER D=42.0
                     TP=-.28   RAIN=-1
PRINT HYD            ID=4 CODE=10
***** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
***** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE *****************
ROUTE RESERVOIR      ID=1 HYD=105.01 INFLOW ID=4 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       69.08       .01     .01
                       69.09      1.1      .5
                       69.10       2.2      1.0
PRINT HYD            ID=1 CODE=10
*** ROUTE THRU LAST 48" SECTION IN WEST BASIN 3-
*** TO BRANCH AT BASIN 4**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.002
                     DIA=4.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=700 SLP=0.002
ROUTE                ID=3 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
PRINT HYD            ID=3 CODE=10
*** CALCULATE B4  ***
** BASIN B4  A=0.0122 SQMI ***
COMPUTE NM HYD       ID=2 HYD NO=104 DA=0.0122 SQ MI
                     PER A=1.0 PER B=0.0 PER C=22.0 PER D=77.0
                     TP=-.13  RAIN=-1
PRINT HYD            ID=2 CODE=10
*** ADD BASIN 3 RT TO B4 AT NW ISLAND BASIN 4**********
ADD HYD              ID=1 HYD=234.5 ID I=2 II=3
PRINT HYD            ID=1 CODE=10
***** ROUTE RES SO ALL WATER IS DISCHARGED FR B4 AND PONDING IS KNOWN ****
***** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE *****************
ROUTE RESERVOIR      ID=2 HYD=105.01 INFLOW ID=1 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       146.57       .01     .01
                       146.58      1.1      .5
                       146.59       2.2      1.0
PRINT HYD            ID=2 CODE=10
*** ROUTE THRU LAST 48" SECTION TO JUNCTION AT SW CORNER OF RUNWAY******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.009
                     DIA=4.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=350 SLP=0.009
ROUTE                ID=3 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
******* HYDROGRAPH FROM SOUTH BRANCH AT JUNCTION***********
PRINT HYD            ID=3 CODE=10
*** ADD SOUTH AND NORTH BRANCH HYDROGRAPHS AT JUNCTION**********
ADD HYD              ID=1 HYD=234.5 ID I=10 II=3
PRINT HYD            ID=1 CODE=10
*** ROUTE THRU 48" SECTION TO ACCESS RD B AREA (PERIMETER ROAD)******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.06
                     DIA=4.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=2 REACH=15 VS NO=1 L=1000 SLP=0.06
ROUTE                ID=2 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
PRINT HYD            ID=2 CODE=10
*** ROUTE THRU LAST 48" SECTION CHANNEL AT BASE******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.065
                     DIA=4.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=11 REACH=15 VS NO=1 L=600 SLP=0.065
ROUTE                ID=11 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD            ID=11 CODE=10
******************
 ***CALC BASIN 7 ***
 *B7   A=.032 SQ MI ****
COMPUTE NM HYD       ID=5 HYD NO=107 DA=.032 SQ MI
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                    PER A=10.0 PER B=5.0 PER C =70.0 PER D=15.0
                    TP=-.18 RAIN=-1
PRINT HYD           ID=5 CODE =10
*** ROUTE THRU 24" SECTION TO CHANNEL******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.168
                    DIA=2.0 FT N=0.024
COMPUTE TRAVEL TIME  ID=2 REACH=15 VS NO=1 L=220 SLP=0.168
ROUTE               ID=2 HYD=105.1 INFLOW ID=5 DT=0.03333 HR
PRINT HYD           ID=2 CODE=10
*** ADD BASIN 7 AND WESTEND FLOWS AT TOP OF CHANNEL FOR SUBTOTAL**********
ADD HYD             ID=10 HYD=234.5 ID I=11 II=2
PRINT HYD           ID=10 CODE=10
*** CALC FLOW FROM BASIN B8 ****
COMPUTE NM HYD      ID=4 HYD NO=108 DA=0.024  SQ MI
                    PER A=25.0 PER B=25.0 PER C=46.0 PER D=4.0
                    TP=-.13   RAIN=-1
PRINT HYD           ID=4 CODE=10
*** ADD BASIN 8 AND SUBTOTAL TO CHANNEL FROM ABOVE**********
ADD HYD             ID=1 HYD=234.5 ID I=10 II=4
PRINT HYD           ID=1 CODE=10
***BASIN 10B   A=.01  SQ MI ***
COMPUTE NM HYD      ID=15 HYD NO=110.1 DA=.010  SQ MI
                    PER A=30 PER B=33 PER C=35 PER D=2
                    TP=-.13 RAIN=-1
PRINT HYD           ID=15 CODE=10
*** ADD BASIN 10B AND SUBTOTAL TO CHANNEL FROM ABOVE**********
ADD HYD             ID=2 HYD=234.5 ID I=15 II=1
********* HYDROGRAPH INTO CHANNEL**********
PRINT HYD           ID=2 CODE=10
******** ROUTE THROUGH CHANNEL TO UNIVERSITY ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=8
                    CH SLP=.0632 FP SLP=.0632 N=.033 DIST=36
                    DIST ELEV  DIST ELEV  DIST ELEV
                     0    8     8    0     28   0
                     36   8
COMPUTE TRAVEL TIME  ID=4 REACH=1 VS NO=1 L=475 SLP=.0632
ROUTE               ID=4 HYD NO=110.3 INFLOW ID=2 DT=.03333 HR
*** CHANNEL DISCHARGE*****
PRINT HYD           ID=4 CODE=10
 *********************
 ** CALCULATE B9  ***
COMPUTE NM HYD      ID=2 HYD NO=109 DA=0.027 SQ MI
                    PER A=60.0 PER B=20.0 PER C=17.0 PER D=3.0
                    TP=-.13  RAIN=-1
PRINT HYD           ID=2 CODE=10
*** ADD B9 AND CHANNEL DISCHARGE*****
ADD HYD             ID=6 HYD=234.5 ID I=4 II=2
PRINT HYD           ID=6 CODE=10
** NOW COMPUTE BASIN B10A ***
***BASIN 10A   A=.03  SQ MI ***
COMPUTE NM HYD      ID=15 HYD NO=110.0 DA=.030  SQ MI
                    PER A=47 PER B=33 PER C=16 PER D=4
                    TP=-.13 RAIN=-1
PRINT HYD           ID=15 CODE=10
*** ADD B10A AND SUBTOTAL TO CHANNEL *****
ADD HYD             ID=20 HYD=111.0 ID I=15 II=6
PRINT HYD           ID=20 CODE=10
**** ROUTE INTO POND AT HEADS OF CULVERTS****
***** OUTFLOW IS APPROXIMATE CAPACITY OF 60" CULVERTS ******************
ROUTE RESERVOIR     ID=1 HYD=111.1 INFLOW ID=20 CODE=20
                    OUTFLOW    STORAGE  DEPTH
                      0          0       0
                      50       .51    2.0
                      184      1.3     4.0
                      300       2.4    6.0
                      420       3.8     8.0
                      460       5.74   10.0
***** DISCHARGE TO UNPLATTED ARROYO *********
PRINT HYD           ID=1 CODE=10
******** ROUTE DOWN ARROYO THRU 11A TO SPUR ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                    CH SLP=.039 FP SLP=.039 N=.033 DIST=100
                    DIST ELEV  DIST ELEV  DIST ELEV
                     0    4     15    0     85   0
                     100   4
COMPUTE TRAVEL TIME  ID=4 REACH=1 VS NO=1 L=1900 SLP=.039
ROUTE               ID=4 HYD NO=111.1 INFLOW ID=1 DT=.03333 HR
PRINT HYD           ID=4 CODE=10
 **BASIN 11A   A=.047  SQ MI ***
COMPUTE NM HYD      ID=5 HYD NO=111.0 DA=.047  SQ MI
                    PER A=65 PER B=23 PER C=10 PER D=2
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                      TP=-.13 RAIN=-1
 RINT HYD             ID=5 CODE=10
 ** ADD B11A AND ARROYO DISCHARGE *****
ADD HYD               ID=1 HYD=111.2 ID I=4 II=5
PRINT HYD             ID=1 CODE=10
******* ROUTE DOWN ARROYO THRU 11B TO I-25 BOX ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                      CH SLP=.030 FP SLP=.030 N=.033 DIST=100
                      DIST ELEV  DIST ELEV  DIST ELEV
                       0    4     15    0     85   0
                       100   4
COMPUTE TRAVEL TIME   ID=4 REACH=1 VS NO=1 L=1300 SLP=.030
ROUTE                 ID=4 HYD NO=111.1 INFLOW ID=1 DT=.03333 HR
PRINT HYD             ID=4 CODE=10
***BASIN 11B   A=.030  SQ MI ***
COMPUTE NM HYD        ID=5 HYD NO=111.3 DA=.030  SQ MI
                      PER A=61 PER B=23 PER C=10 PER D=6
                      TP=-.13 RAIN=-1
PRINT HYD             ID=5 CODE=10
*** ADD B11B AND ARROYO DISCHARGE *****
ADD HYD               ID=1 HYD=111.4 ID I=4 II=5
**** DISCHARGE INTO BOX UNDER I-25****
PRINT HYD             ID=1 CODE=10
******** ROUTE THRU 6'X8' BOX ******USE AVERAGE SLOPE**BOX SLOPE CHANGES 3 TIMES***
***** AS CHANNEL*****
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=6
                      CH SLP=.059 FP SLP=.059 N=.015 DIST=8.1
                      DIST ELEV  DIST ELEV  DIST ELEV
                       0    6     .1    0     8   0
                       8.1   6
COMPUTE TRAVEL TIME   ID=4 REACH=1 VS NO=1 L=220 SLP=.059
ROUTE                 ID=4 HYD NO=112.0 INFLOW ID=1 DT=.03333 HR
PRINT HYD             ID=4 CODE=10
***BASIN 12   A=.003  SQ MI ***
COMPUTE NM HYD        ID=5 HYD NO=112.1 DA=.003  SQ MI
                      PER A=0 PER B=0 PER C=82 PER D=18
                      TP=-.13 RAIN=-1
PRINT HYD             ID=5 CODE=10
*** ADD BOX DISCHARGE AND BASIN 12 *****
 DD HYD               ID=1 HYD=112.2 ID I=4 II=5
 RINT HYD             ID=1 CODE=10
***** ROUTE THIS SUBTOTAL THRU BASIN 13 ARROYO ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                      CH SLP=.080 FP SLP=.080 N=.033 DIST=60
                      DIST ELEV  DIST ELEV  DIST ELEV
                       0    4     10    0     50   0
                       60   4
COMPUTE TRAVEL TIME   ID=4 REACH=1 VS NO=1 L=450 SLP=.080
ROUTE                 ID=4 HYD NO=113.0 INFLOW ID=1 DT=.03333 HR
PRINT HYD             ID=4 CODE=10
***BASIN 13   A=.007  SQ MI ***
COMPUTE NM HYD        ID=5 HYD NO=113.1 DA=.007  SQ MI
                      PER A=60 PER B=12 PER C=18 PER D=10
                      TP=-.13 RAIN=-1
PRINT HYD             ID=5 CODE=10
*** ADD ARROYO DISCHARGE AND BASIN 13 *****
ADD HYD               ID=1 HYD=113.3 ID I=4 II=5
PRINT HYD             ID=1 CODE=10
***** ROUTE THIS SUBTOTAL THRU 3 CULVERTS UNDER WOODWARD SIDE ROAD ******
***** 3 - 36" DIA CULVERTS CONVERTED TO ONE 5.2' DIA PIPE FOR HYMO*****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLOPE=.0667
                      DIA=5.2 FT N=.022
COMPUTE TRAVEL TIME   ID=4 REACH=1 VS NO=1 L=60 SLP=.0667
ROUTE                 ID=4 HYD NO=113.0 INFLOW ID=1 DT=.03333 HR
PRINT HYD             ID=4 CODE=10
**** ROUTE THIS FLOW DOWN ARROYO THRU BASIN 14 TO AIA OUTLET IN S. DIV. CHANNEL***
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                      CH SLP=.0386 FP SLP=.0386 N=.033 DIST=60
                      DIST ELEV  DIST ELEV  DIST ELEV
                       0    4     10    0     50   0
                       60   4
COMPUTE TRAVEL TIME   ID=2 REACH=1 VS NO=1 L=700 SLP=.0386
ROUTE                 ID=2 HYD NO=114.0 INFLOW ID=4 DT=.03333 HR
PRINT HYD             ID=2 CODE=10
***BASIN 14   A=.012  SQ MI ***
COMPUTE NM HYD        ID=5 HYD NO=114.1 DA=.012  SQ MI
                      PER A=60 PER B=18 PER C=18 PER D=4
                      TP=-.13 RAIN=-1
 RINT HYD             ID=5 CODE=10
 ** ADD ARROYO DISCHARGE AND BASIN 14 *****
ADD HYD               ID=1 HYD=113.3 ID I=2 II=5
```

```
**** TOTAL DISCHARGE TO CHUTE (AIRPORT OUTLET) AT SOUTH DIVERSION CHANNEL*****
 RINT HYD             ID=1 CODE=10
'INISH
```

```
********** MOLZEN-CORBIN AND ASSOCIATES **********
****************************** MAY 1993  ******************************
***** ALBUQUERQUE INTERNATIONAL AIRPORT DRAINAGE MASTER PLAN**********
************************** 100 YEAR STORM **************************
*********************** WEST END BASIN - 500'S ***********************
********************** SUB-BASIN 6 NOT INCLUDED************************
**FLOW TO BASIN WEST OF 8 RUNWAY; ARROYO TO SOUTH DIVERSION CHANNEL***
*********************************************************************
START                0.00
*********************************************************************
RAINFALL             TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.01
                     RAIN SIX=2.35   RAIN DAY=0.0  DT=0.03333
*********************************************************************
*S**CALCULATE FLOW FROM BASIN 501****
*S* BASIN B501 -  A= .043 SQ MI
COMPUTE NM HYD       ID=3 HYD NO=501 DA= .043 SQ MI
                     PER A=2  PER B=0  PER C=17.0 PER D=81.0
                     TP=-.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S*** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF 24" PIPE ******************
ROUTE RESERVOIR      ID=4 HYD=105.01 INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       9         .5       .5
                       13.21      1.1     .75
                       13.22      5.0     1.0
PRINT HYD            ID=4 CODE=10
*S***ROUTE CAP. THROUGH 24" RCP******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.003
                     DIA=2.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=7 REACH=15 VS NO=1 L=1270 SLP=0.003
ROUTE                ID=7 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
*S**CALCULATE FLOW FROM BASIN 502*********
*S***BASIN B502  -  A=.038  SQ MI ****
COMPUTE NM HYD       ID=3 HYD NO=502 DA=.038 SQ MI
                     PER A=3.0    PER B=0.0   PER C=28.0  PER D=69.0
                     TP=-.20   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S** ADD B502 TO B501 ROUTE ***
ADD HYD              ID=2 HYD=234.5 ID I=3 II=7
PRINT HYD            ID=2 CODE=10
*S***ROUTE CAP. THROUGH 48" RCP******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.0066
                     DIA=4.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=7 REACH=15 VS NO=1 L=550 SLP=0.0066
ROUTE                ID=7 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
******************
*S***CALC BASIN 503 ***
*S*B503   A=.021 SQ MI ****
COMPUTE NM HYD       ID=5 HYD NO=503 DA=.021 SQ MI
                     PER A=0.0 PER B=0.0 PER C =2.0 PER D=98.0
                     TP=-.13 RAIN=-1
PRINT HYD            ID=5 CODE =10
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
```

```
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR       ID=4 HYD=105.01 INFLOW ID=5 CODE=20
                      OUTFLOW    STORAGE  DEPTH
                        0          0       0
                        17         .5      .5
                        27         1.1      .75
                        27.90        2.2      1.0
PRINT HYD             ID=4 CODE=10
*S***ROUTE CAP. THROUGH 30" RCP******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.004
                      DIA=2.5 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=320 SLP=0.004
ROUTE                 ID=3 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD             ID=3 CODE=10
*S** ADD B503 ROUTE TO B501/B502 AT MIDDLE ISLAND**********
ADD HYD               ID=2 HYD=234.5 ID I=3 II=7
PRINT HYD             ID=2 CODE=10
*S** ROUTE THRU NEW 54" TO NEXT ISLAND**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.008
                      DIA=4.5 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=500 SLP=0.008
ROUTE                 ID=3 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD             ID=3 CODE=10
** NOW COMPUTE BASIN B504 ***
*S**BASIN B504  A=.022  SQ MI ***
COMPUTE NM HYD        ID=1 HYD NO=504.0 DA=.022 SQ MI
                      PER A=0.0 PER B=0.0 PER C=2.0 PER D=98.0
                      TP=-.13   RAIN=-1
PRINT HYD             ID=1 CODE=10
*S******* ROUTE THROUGH SWALE TO INLET NEAR WEST ISLAND ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=1.0
                      CH SLP=.004 FP SLP=.004 N=.017 DIST=20
                      DIST ELEV  DIST ELEV  DIST ELEV
                       0    1     8    0     12   0
                       20   1
COMPUTE TRAVEL TIME  ID=4 REACH=1 VS NO=1 L=1700 SLP=.004
ROUTE                 ID=4 HYD NO=110.3 INFLOW ID=1 DT=.03333 HR
*S** CHANNEL DISCHARGE TO INLET NEAR MUELLER*****
PRINT HYD             ID=4 CODE=10
** NOW COMPUTE BASIN B505  ***
*S**BASIN B505   A=.024  SQ MI ***
COMPUTE NM HYD        ID=1 HYD NO=505.0 DA=.024 SQ MI
                      PER A=1.0 PER B=0.0 PER C=9.0 PER D=90.0
                      TP=-.13   RAIN=-1
PRINT HYD             ID=1 CODE=10
*S** ADD B504 ROUTE TO B505 **********
ADD HYD               ID=1 HYD=234.5 ID I=1 II=4
PRINT HYD             ID=1 CODE=10
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR       ID=4 HYD=105.01 INFLOW ID=1 CODE=20
                      OUTFLOW    STORAGE  DEPTH
                        0          0       0
                        14         .5      .4
                        24         1.1      .7
                        24.30        2.2      1.0
PRINT HYD             ID=4 CODE=10
```

```
*S** ROUTE THRU  24" FROM APRON TO WEST ISLAND**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.010
                     DIA=2.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=5 REACH=15 VS NO=1 L=346 SLP=0.010
ROUTE                ID=5 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD            ID=5 CODE=10
*S** ADD BASIN 505 RT TO B501/B502 AT WEST ISLAND**********
ADD HYD              ID=2 HYD=234.5 ID I=3 II=5
PRINT HYD            ID=2 CODE=10
*S** ROUTE THRU 60" TO TEE AT END OF RUNWAY**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.004
                     DIA=5.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=5 REACH=15 VS NO=1 L=440 SLP=0.004
ROUTE                ID=5 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD            ID=5 CODE=10
*S** ROUTE THRU 60" TO JUNCTION AT SW CORNER  @ END RUNWAY**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.008
                     DIA=5.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=10 REACH=15 VS NO=1 L=400 SLP=0.008
ROUTE                ID=10 HYD=105.1 INFLOW ID=5 DT=0.03333 HR
*S******* HYDROGRAPH ENTERING JUNCTION FROM NORTH BRANCH******
PRINT HYD            ID=10 CODE=10
*** CALC FLOW FROM BASIN B507****
*S** B507  A=.025 SQMI***
COMPUTE NM HYD       ID=4 HYD NO=507 DA=0.025  SQ MI
                     PER A=3.0 PER B=0.0 PER C=65.0 PER D=32.0
                     TP=-.17   RAIN=-1
PRINT HYD            ID=4 CODE=10
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=1 HYD=105.01 INFLOW ID=4 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       6          .5      .5
                       10        1.1      1
                       10.1      2.2      2
PRINT HYD            ID=1 CODE=10
*S** ROUTE THRU 24" INTO BASIN 3***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.002
                     DIA=2.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=550 SLP=0.002
ROUTE                ID=3 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
PRINT HYD            ID=3 CODE=10
*S** B508 A=.052 SQMI***
COMPUTE NM HYD       ID=4 HYD NO=508 DA=0.052  SQ MI
                     PER A=0.0 PER B=5.0 PER C=53.0 PER D=42.0
                     TP=-.28   RAIN=-1
PRINT HYD            ID=4 CODE=10
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=1 HYD=105.01 INFLOW ID=4 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       39         .5      .4
                       69.       1.1      .75
                       69.10      2.2      1.0
PRINT HYD            ID=1 CODE=10
```

```
*S** ADD BASIN 507 AND 508 TO GET TOTAL**
ADD HYD                ID=1 HYD=234.5 ID I=3 II=1
PRINT HYD              ID=1 CODE=10
*S** ROUTE THRU LAST 48" SECTION IN WEST BASIN 508
*S** TO BRANCH AT BASIN 509*********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.002
                       DIA=4.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=700 SLP=0.002
ROUTE                  ID=3 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
PRINT HYD              ID=3 CODE=10
*S** CALCULATE B509  ***
*S* BASIN B509  A=0.0122 SQMI ***
COMPUTE NM HYD          ID=2 HYD NO=509 DA=0.0122 SQ MI
                        PER A=1.0 PER B=0.0 PER C=22.0 PER D=77.0
                        TP=-.13  RAIN=-1
PRINT HYD               ID=2 CODE=10
*S** ADD BASIN 508/507 RT TO B509 AT NW ISLAND BASIN 509**********
ADD HYD                ID=1 HYD=234.5 ID I=2 II=3
PRINT HYD              ID=1 CODE=10
*S**** ROUTE RES SO ALL WATER IS DISCHARGED FR B509 AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR        ID=2 HYD=105.01 INFLOW ID=1 CODE=20
                       OUTFLOW    STORAGE  DEPTH
                         0           0       0
                        146.57       .01     .01
                        146.58      1.1      .5
                        146.59       2.2      1.0
PRINT HYD              ID=2 CODE=10
*S** ROUTE THRU LAST 48" SECTION TO JUNCTION AT SW CORNER OF RUNWAY******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.009
                       DIA=4.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=350 SLP=0.009
ROUTE                  ID=3 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
*S****** HYDROGRAPH FROM SOUTH BRANCH AT JUNCTION**********
PRINT HYD              ID=3 CODE=10
*S** ADD SOUTH AND NORTH BRANCH HYDROGRAPHS AT JUNCTION**********
ADD HYD                ID=1 HYD=234.5 ID I=10 II=3
PRINT HYD              ID=1 CODE=10
*S** ROUTE THRU 66" SECTION TO ACCESS RD B AREA******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.01
                       DIA=5.5 FT N=0.013
COMPUTE TRAVEL TIME  ID=2 REACH=15 VS NO=1 L=1000 SLP=0.01
ROUTE                  ID=2 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
PRINT HYD              ID=2 CODE=10
*S** ROUTE THRU LAST 54" SECTION CHANNEL AT BASE******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.07
                       DIA=4.5 FT N=0.013
COMPUTE TRAVEL TIME  ID=11 REACH=15 VS NO=1 L=600 SLP=0.07
ROUTE                  ID=11 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD              ID=11 CODE=10
****CALC BASIN 506 ***
*S*B506   A=.032 SQ MI ****
COMPUTE NM HYD         ID=5 HYD NO=506 DA=.032 SQ MI
                       PER A=10.0 PER B=5.0 PER C =70.0 PER D=15.0
                       TP=-.18 RAIN=-1
PRINT HYD              ID=5 CODE =10
*S** ROUTE THRU 24" SECTION TO CHANNEL******
```

```
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.168
                     DIA=2.0 FT N=0.024
COMPUTE TRAVEL TIME  ID=2 REACH=15 VS NO=1 L=220 SLP=0.168
ROUTE                ID=2 HYD=105.1 INFLOW ID=5 DT=0.03333 HR
PRINT HYD            ID=2 CODE=10
*S** ADD BASIN 506 AND WESTEND FLOWS AT TOP OF CHANNEL FOR SUBTOTAL**********
ADD HYD              ID=10 HYD=234.5 ID I=11 II=2
PRINT HYD            ID=10 CODE=10
*S** CALC FLOW FROM BASIN B510 ****
COMPUTE NM HYD       ID=4 HYD NO=510 DA=0.024 SQ MI
                     PER A=25.0 PER B=25.0 PER C=46.0 PER D=4.0
                     TP=-.13   RAIN=-1
PRINT HYD            ID=4 CODE=10
*S** ADD BASIN 510 AND SUBTOTAL TO CHANNEL FROM ABOVE**********
ADD HYD              ID=1 HYD=234.5 ID I=10 II=4
PRINT HYD            ID=1 CODE=10
*S**BASIN 511   A=.01  SQ MI ***
COMPUTE NM HYD       ID=15 HYD NO=511 DA=.010  SQ MI
                     PER A=30 PER B=33 PER C=35 PER D=2
                     TP=-.13 RAIN=-1
PRINT HYD            ID=15 CODE=10
*S** ADD BASIN 511 AND SUBTOTAL TO CHANNEL FROM ABOVE**********
ADD HYD              ID=2 HYD=234.5 ID I=15 II=1
*S******** HYDROGRAPH INTO CHANNEL**********
PRINT HYD            ID=2 CODE=10
*S******* ROUTE THROUGH CHANNEL TO UNIVERSITY ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=8
                     CH SLP=.0632 FP SLP=.0632 N=.033 DIST=36
                     DIST ELEV  DIST ELEV  DIST ELEV
                      0    8     8    0     28   0
                      36   8
COMPUTE TRAVEL TIME  ID=4 REACH=1 VS NO=1 L=475 SLP=.0632
ROUTE                ID=4 HYD NO=110.3 INFLOW ID=2 DT=.03333 HR
*S** CHANNEL DISCHARGE*****
PRINT HYD            ID=4 CODE=10
**********************
** NOW COMPUTE BASIN B512 ***
*S**BASIN 512   A=.03  SQ MI ***
COMPUTE NM HYD       ID=15 HYD NO=512 DA=.030  SQ MI
                     PER A=47 PER B=33 PER C=16 PER D=4
                     TP=-.13 RAIN=-1
PRINT HYD            ID=15 CODE=10
*S** ADD B512 AND SUBTOTAL TO CHANNEL *****
ADD HYD              ID=20 HYD=111.0 ID I=15 II=4
PRINT HYD            ID=20 CODE=10
**** ROUTE TO NEW POND AT HEADS OF CULVERTS AND HOLD ID=20****
*S** CALCULATE B513 (REVISED TO REFLECT RENTAL CAR FACILITY) ***
COMPUTE NM HYD        ID=4 HYD NO=513 DA=0.036 SQ MI
                      PER A=0.0 PER B=0.0 PER C=8.0 PER D=92.0
                      TP=-.13  RAIN=-1
PRINT HYD             ID=4 CODE=10
*S** ADD REVISED B5130 TO SUBTOTAL FROM CHANNEL FOR TOTAL *****
*S**IN NEW DETENTION POND ON WEST SIDE OF UNIVERSITY**********************
ADD HYD              ID=6 HYD=513.1 ID I=20 II=4
PRINT HYD            ID=6 CODE=10
*S**** ROUTE THROUGH NEW DETENTION POND**********************************
*S**** OUTFLOW IS APPROXIMATE PEAK UNDER EXISTING CONDITIONS*************
```

```
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF ONE-60" CULVERT ***************
ROUTE RESERVOIR       ID=1 HYD=111.1 INFLOW ID=6 CODE=20
                      OUTFLOW (CFS)    STORAGE (AC FT)    ELEVATION (FT)
                       0                 0                  5180.0
                       5.86              0.8870             5181.0
                       22.26             1.8215             5182.0
                       47.33             2.8080             5183.0
                       78.97             3.8449             5184.0
                       114.90            4.9271             5185.0
                       152.75            6.0556             5186.0
                       190.23            7.2378             5187.0
                       214.33            8.4748             5188.0
                       235.85            9.7681             5189.0
                       255.56           11.1190             5190.0
                       273.86           13.0000             5191.0
*S****DISCHARGE TO UNPLATTED ARROYO*********
PRINT HYD             ID=1 CODE=10
FINISH
```

APPENDIX E
DRAINAGE SUBBASIN ANALYSIS

Note: Plate 6 illustrates the sub-basin boundaries. There are not sub-basin numbers, per se, the drop inlet number is also the sub-basin number.

Consolidated Rental Car Facility
Drainage Subbasin Analysis

	Basin		Area acres	Unit Q cfs/ac	Q100 cfs
	721		22.91	4.4134	101.12
	720R		16.61	4.6466	77.18
	513		23.04	4.6272	106.61
	Total		62.56		

Inlet	Basin	Subbasin	Area Acres	Unit Q cfs/ac	Q cfs	Line Design.	Inlet Type	Capacity cfs
A1a	513		0.1100	4.6272	0.51	C	A	14
A1b	513		0.3600	4.6272	1.67	C	A	14
A2-1	513		2.4400	4.6272	11.29	A	A	15
A3-1	513		0.4200	4.6272	1.94	A	Med Curb	8
A3-2	513		2.4500	4.6272	11.34	A	A	14
B1-1	720R		0.5400	4.6466	2.51	B	Med Curb	8
B1-2	720R		1.2200	4.6466	5.67	B	A	13.5
B2-1	720R		1.9000	4.6466	8.83	B	A	13.5
B2-2	720R		0.3000	4.6466	1.39	B	A	13.5
B2-3	720R		0.2500	4.6466	1.16	B	D	12
B3-1	721		3.1500	4.6272	14.58	B	A	15
C1-1	513		5.0000	4.6272	23.14	C	A	14
C1-2	513		0.1837	4.6272	0.85	C	A	14
C2-1	513		0.2296	4.6272	1.06	C	A	14
C2-2	513		-	4.6272	-	C		
C3-1	513		0.2066	4.6272	0.96	C	A	14
C3-2	513		3.4435	4.6272	15.93	C	D	14
C4-1	513		0.1492	4.6272	0.69	C	A	14
C5-1	513		0.1435	4.6272	0.66	C	A	14
C6-1	720R		0.2152	4.6466	1.00	C	A	7
C6-2	720R		0.2152	4.6466	1.00	C	D	7
C7-1	720R		0.1492	4.6466	0.69	C	A	7
C7-2	720R		0.1492	4.6466	0.69	C	D	7
D1-1	513		2.8700	4.6272	13.28	D	Dbl D	20
D2-1	513		1.6700	4.6272	7.73	D	A	12
D3-1	513		1.4200	4.6272	6.57	D	A	12
D3-2	513		2.1700	4.6272	10.04	D	D	10
D4-1	513		3.4900	4.6272	16.15	D	D	10
E1-1a	720R		1.7800	4.6466	8.27	E	D	10
E1-1b	720R		1.1800	4.6466	5.48	E	A	14
E2-1	720R		0.6200	4.6466	2.88	E	A	14
E2-2	720R		0.6200	4.6466	2.88	E	A	14

Inlet	Basin	Subbasin	Area	Unit Q	Q	Line	Inlet	Capacity
E3-1	720R		0.4600	4.6466	2.14	E	A	14
E3-2	720R		0.4600	4.6466	2.14	E	A	14
E4-1	720R		0.0700	4.6466	0.33	E	A	14
E4-2	720R		0.0700	4.6466	0.33	E	A	10
E4-3	720R		0.8900	4.6466	4.14	E	D	10
F1-1	720R		0.7100	4.6466	3.30	F	A	12
F2-1	720R		0.3600	4.6466	1.67	F	A	12
F2-1	720R		0.5200	4.6466	2.42	F	A	14
F3-1	720R		1.7100	4.6466	7.95	F	Dbl C	28
F4-1	720R		0.4100	4.6466	1.91	F	A	14
F4-2	720R		0.4100	4.6466	1.91	F	A	14
F5-1	720R		0.2100	4.6466	0.98	F	A	14
G1	720R		1.0000	4.6466	4.65	G	A	10
G2-1	720R		1.0000	4.6466	4.65	G	A	14
G2-2	720R		1.0000	4.6466	4.65	G	A	14
G3-1	720R		1.2500	4.6466	5.81	G	A	15
G3-2	720R		1.2500	4.6466	5.81	G	A	15
G4-1	720R		1.1300	4.6466	5.25	G	A	10
G4-2	720R		0.9400	4.6466	4.37	G	A	10
G5-1	720R		0.4300	4.6466	2.00	G	A	10
G5-2	720R		0.4000	4.6466	1.86	G	A	10
H-1	721		2.6800	4.6272	12.40	H	Dbl D	25
H-2	721		0.3600	4.6272	1.67	H	D	14
H1-1	721		0.9700	4.6272	4.49	H	A	14
H2-1	721		0.6700	4.6272	3.10	H	A	14
H3-1	721		0.5400	4.6272	2.50	H	A	14
H4-1	721		1.7500	4.6272	8.10	H	A	14
H5-1	721		0.3600	4.6272	1.67	H	A	14
H5-2	721		0.3600	4.6272	1.67	H	A	14
H6	721		0.2000	4.6272	0.93	H	A	14
I1-1	721		-	4.6272	-	I		15
I1-2	721		3.5700	4.6272	16.52	I	Dbl D	25
I2	721		1.9100	4.6272	8.84	I	A	14
I3-1	721		1.0600	4.6272	4.90	I	A	14
I3-2	721		3.2400	4.6272	14.99	I	Dbl D	25
I4-1	721		6.3400	4.6272	29.34	I	Dbl D	25
I4-2	721		0.7600	4.6272	3.52	I	A	14
I5-1	721		-	4.6272	-	I		
J1-1	721		1.9000	4.6272	8.79	J	D	14
J2	721		0.7600	4.6272	3.52	J	A	15
J3-1	721		1.0000	4.6272	4.63	J	A	14
J3-2	721		0.4700	4.6272	2.17	J	A	14
J4-1	721		1.0000	4.6272	4.63	J	A	14
J4-2	721		0.4400	4.6272	2.04	J	A	14
J5-1	721		0.0700	4.6272	0.32	J	A	14
J5-2	721		0.0700	4.6272	0.32	J	A	14

Inlet	Basin	Subbasin	Area	Unit Q	Q	Line	Inlet	Capacity
J5-3	721		0.9200	4.6272	4.26	J	D	10
K1-1	721		0.2800	4.6272	1.30	K		
Cl Cr	721		1.0000	4.6272	4.63	K	A	14
UNM GC	---		2.2957	1.1450	2.63	N outfall	D	14

86.2091

NORTHRAC OUTFALL

385 000 E

386 000 E

5090

5080

5100

5110

5120

5130

5140

5150

5160

5170

5180

5190

X15.6

02.7 X

X41.9

X65.2

5176.73

01.4 X

X86.2

APPENDIX F

STORM DRAIN PIPE ANALYSIS

Consolidated Rental Car Facility

Storm Drain Pipe Analysis

Reach/ Node Sta.	Node	Node Elevations Invert	Rim	Length	Flow Rate, Q, cfs Actual cfs	Capacity cfs	Slope ft/ft	Pipe Size in.	
810.20	MH A3	5194.40	5210.37						to MH A3 Line A 20+13.9
Line G				263.55	32.29	47.9	0.01366	30	
1,073.75	MH G1	5198.00	5205.80						from Lat G1
Line G				48.76	23.04	101.8	0.06154	30	
1.122.51	MH G2	5201.00	5207.80						from Lat G2
Line G				263.78	18.40	94.9	0.05357	30	
1,386.29	MH G3	5215.13	5222.91						from Lat G3
Line G				185.16	13.48	98.4	0.05757	30	
1.571.45	MH G4/G	5225.79	5234.02						from Lat G4, G5
1,000.00	MH A3	5194.40	5210.37						to MH A3 Line A 20+13.8
Line F				66.93	32.78	181.5	0.19573	30	
1,066.93	MH F1	5207.50	5219.38						DI F1
Line F				214.43	20.14	88.6	0.04664	30	
1,281.36	MH F2	5217.50	5227.97						DI F2
Line F				288.98	18.47	74.4	0.03287	30	
1,570.34	MH F3	5227.00	5236.22						from Lat F1
Line F				132.00	15.17	59.2	0.02083	30	
1,702.34	MH F4	5229.75	5238.82						from Lat F2
Line F				166.50	12.75	59.5	0.02102	30	
1,868.84	MH F5	5233.25	5240.35						from Lat F3
Line F				78.00	4.80	33.9	0.02244	24	
1,946.84	MH F6	5235.00	5241.13						from Lat F4
Line F				199.92	0.98	33.0	0.02126	24	
2,146.76	MH F7	5239.25	5245.40						from Lat F5
1,000.00	MH D2	5221.00	5231.24						to MH D2 Line D 13+52.4
Line E				148.99	30.07	86.4	0.01678	36	
1,148.99	DI E1-1	5223.50	5228.73						DI E1-1a
Line E				214.09	21.80	85.3	0.01635	36	
1,363.08	MH E1	5227.00	5237.60						MH E1, from Lat E1
Line E				80.30	16.32	91.2	0.01868	36	
1,443.38	MH E2	5228.50	5238.68						MH E2, from Lat E2
Line E				276.00	10.56	52.4	0.01630	30	
1,719.38	MH E3	5233.00	5240.92						MH E3, from Lat E3
Line E				300.24	4.80	33.5	0.00666	30	
2,019.62	MH E4	5235.00	5243.33						MH E4
Line E				101.42	4.80	38.9	0.02958	24	

Reach/ Node	Node	Node Elevations		Length	Flow Rate, Q, cfs		Slope	Pipe Size	
		Invert	Rim		Actual	Capacity			
Sta.					cfs	cfs	ft/ft	in.	
2,121.09	MH E5	5238.00	5244.24						MH E5, from Lat E4
1,000.00	MH A2	5186.95	5202.43						to MH A2 Line A 14+23.7
Line D				76.78	83.84	381.0	0.32625	36	
1,076.78	MH D1	5212.00	5224.37						MH D1, from Lat D1
Line D				275.67	70.56	120.5	0.03265	36	
1,352.45	MH D2	5221.00	5231.24						MH D2, fr Lat D2. & Ln E
Line D				304.00	32.76	62.2	0.02303	30	
1,656.45	MH D3	5228.00	5238.30						MH D3, from Lat D3
Line D				304.00	16.15	36.7	0.02632	24	
1,960.45	MH D4	5236.00	5242.38						MH D4, from Lat D4
1,030.35	Pond	5180.00							to Pond
Line A				19.65	186.21	159.5	0.01233	48	
1,050.00	Wye	5180.24	5186.00						48X18, from Lat A1a
Line A				50.00	185.76	159.5	0.01233	48	
1,100.00	Wye	5180.86	5190.00						48X18, from Lat A1b
Line A				133.10	185.53	159.5	0.01233	48	
1,233.10	MH A1	5182.50	5199.25						from Lat A2
Line A				53.01	174.24	62.7	0.02335	30	
1,286.11	Wye	5183.74	5199.50						30X18, from Lat A3
Line A				137.60	148.91	62.7	0.02335	30	
1,423.71	MH A2	5186.95	5202.43						from Line D
Line A				590.21	65.07	46.1	0.01262	30	
2,013.92	MH A3	5194.40	5210.37						from Line F&G
1,000.00		5198.00							to MH G1 Line G 10+73.7
Lat G1				47.48	9.25	65.3	0.38606	18	
1,047.48		5216.33							DI G1
958.99		5204.36							DI G2-1
Lat G2				41.01	2.32	24.1	0.05243	18	
1,000.00		5202.21			4.64				to MH G2 Line G 11+22.5
Lat G2				41.01	2.32	24.1	0.05243	18	
1,041.01		5204.36							DI G2-2
958.99	DI G3-1	5219.50							DI G3-1
Lat G3				41.01	2.46	30.1	0.08218	18	
1,000.00	MH G3	5216.13			4.92				to MH G3 Line G 13+86.2
Lat G3				41.01	2.46	30.1	0.08218	18	
1,041.01	DI G3-2	5219.50							DI G3-1
900.76	DI G4-1	5230.50							DI G4-1

Reach/ Node	Node	Node Elevations		Length	Flow Rate, Q, cfs		Slope	Pipe Size	
Sta.		Invert	Rim		Actual cfs	Capacity cfs	ft/ft	in.	
Lat G4				99.24	5.25	20.3	0.03738	18	
1,000.00	MH G5	5226.79			9.62				to MH G4 Line G 15+71.4
Lat G4				102.51	4.37	20.0	0.03619	18	
1,102.51	DI G4-2	5230.50							DI G4-2
876.94	DI G5-1	5233.00							DI G5-1
Lat G5				123.06	2.00	23.6	0.05046	18	
1,000.00	MH G5	5226.79			3.86				to MH G4 Line G 15+71.4
Lat G5				123.86	1.86	23.5	0.05014	18	
1,123.86	DI G5-2	5233.00							DI G5-2
1,000.00		5230.31							To MH F3 Line F 15+70.3
Lat F1				30.00	3.30	26.0	0.06133	18	
1,030.00		5232.15							DI F1-1
1,000.00		5233.80							to MH F4 Line F 1702.34
Lat F2				42.43	2.42	19.9	0.03582	18	
1,042.43		5235.32							DI F2-1
1,000.00		5233.25							to MH F5 Line F 18+68.8
Lat F3				86.38	7.95	21.6	0.04214	18	
1,086.38		5236.89							DI F3-1
983.03	DI F4-1	5237.11							DI F4-1
Lat F4				16.97	1.91	24.1	0.05245	18	
1,000.00	MH F6	5236.22			3.82				to MH F6 Line F 19+46.8
Lat F4				16.97	1.91	22.9	0.04773	18	
1,016.97	DI F4-2	5237.03							DI F4-2
982.21	DI F5-1	5242.00							DI F5-1
Lat F5				17.79	0.98	40.3	0.14727	18	
1,000.00	MH F7	5239.38							to MH F7 Line F 19+46.8
1,110.29	DI E1-1	5234.62							
Lat E1				110.29	5.48	21.2	0.04089	18	
1,000.00	MH E1	5230.11							
983.03	DI E2-1	5235.20							
Lat E2				16.97	2.88	41.5	0.15616	18	
1,000.00	MH E2	5232.55			5.76				
Lat E2				16.97	2.88	41.5	0.15616	18	
1,016.97	DI E2-2	5235.20							
983.03	DI E3-1	5237.25							
Lat E3				16.97	2.88	34.5	0.10784	18	

Reach/ Node Sta.	Node	Node Elevations Invert	Rim	Length	Flow Rate, Q, cfs Actual cfs	Capacity cfs	Slope ft/ft	Pipe Size in.	
1,000.00	MH E3	5235.42			5.76				
Lat E3				16.97	2.88	34.5	0.10784	18	
1,016.97	DI E3-2	5237.25							
983.03	DI E4-1	5240.69							
Lat E4				16 97	0.33	39.9	0.14437	18	
1,000.00	MH E5	5238.24			4.80				
Lat E4				16.97	4.47	24.6	0.05480	18	
1,016.97	DI E4-2	5239.17							
Lat E4				8.83	4.14	24.7	0.05549	18	
1,025.80	DI E4-3	5239.66							
1,000.00	MH D1	5212.00							to MH D1 LD 10+76.78
Lat D1				147.58	13.28	20.3	0.03740	18	
1.147.58	DI D1-1	5217.52							DI D1-1
849.24	DI D2-1	5225.65							DI D2-1
Lat D2				150.76	7.73	18.4	0.03084	18	
1,000.00	MH D2	5221.00							to MH D2 Line D 13+52.4
849.24	DI D3-1	5232.40							
Lat D3				150.76	6.57	17.9	0.02919	18	
1,000.00	MH D3	5228.00			16.61				
Lat D3				198.99	10.04	14.5	0.01910	18	
1,198.99	DI D3-1	5231.80							
1.000.00	MH D4	5236.00							MH
Lat D4				148.99	16.15	7.8	0.00550	18	
1,148.99	DI D4	5236.82							CB
1.000.00		5181.49							To Line A 10+50
Lat A1a				48.17	0.45	34.0	0.10484	18	
1,048.17		5186.54							DI A1a-1
1.000.00		5182.11							To Line A 11+00
Lat A1b				14.52	0.23	65.9	0.39325	18	
1,014.52		5187.82							DI A1b-1
1.000.00		5191.47							To Line A 12+33.1
Lat A2				90.10	11.29	57.2	0.29667	18	
1,090.10		5218.20							DI A2-1
1.000.00		5184.25			25.33				To Line A 12+86.11
Lat A3				66.72	13.70	16.5	0.02473	18	

Reach/ Node	Node	Node Elevations		Length	Flow Rate, Q, cfs		Slope	Pipe Size	
Sta.		Invert	Rim		Actual cfs	Capacity cfs	ft/ft	in.	
1,066.72		5185.90							DI A3-1
Lat A3				47.17	11.63	16.5	0.02480	18	
1,113.89		5187.07							DI A3-2
1,253.53	Pond	5180.00	5180.00						out to pond
Line C				56.43	46.67	108.9	0.07053	30	
1,253.53	MH C1	5183.98	5198.00						
Line C				39.07	46.67	60.0	0.07039	24	
1,281.15	MH C2	5186.73	5198.00						
Line C				323.07	22.68	59.0	0.06800	24	
1,607.07	MH C3	5208.70	5219.00						
Line C				387.01	21.62	56.1	0.06150	24	
1,992.14	MH C4	5232.50	5241.00						
Line C				360.46	4.73	54.6	0.05826	24	
2.352.56	MH C5	5253.50	5262.00						
Line C				249.49	4.04	55.5	0.06012	24	
2,599.25	MH C6	5268.50	5276.00						
Line C				247.09	3.38	56.7	0.06273	24	
2.843.22	MH C7	5284.00	5291.00						
Line C				364.41	1.38	38.4	0.02881	24	
3,207.57	MH C8	5294.50	5301.00						
966.12	DI C1-1	5198.00							DI C1-1
Lat C1				33.88	4.14	18.0	0.02952	18	
1,000.00	MH C2	5197.00							To MH C2 LC 12+81.15
Lat C1				18.04	2.07	17.8	0.02882	18	
1,018.04	DI C1-2	5197.52							DI C1-2
1,000.00	MH C3	5215.00							To MH C3 LC 16+07.07
Lat C2				27.60	1.06	24.1	0.05254	18	
972.40	DI C2-1	5216.45							DI C2-1
1,000.00	MH C4	5238.00							MH C4 LC 19+92.14
Lat C3				19.09	16.89	23.7	0.05081	18	
1.019.09	DI C3-1	5238.97							DI C3-1
Lat C3				12.02	15.93	0.0	0.00000	18	
1,031.11	DI C3-2	5238.97							DI C3-2
1.000.00	MH C5	5259.00							MH C5 LC 23+52.56
Lat C4				18.76	0.69	24.3	0.05330	18	
981.24	DI C4-1	5260.00							DI C4-1
1,000.00	MH C5	5273.37							MH C5 LC 25+99.25
Lat C5				17.79	0.69	24.9	0.05621	18	
982.21	DI C5-1	5274.37							DI C5-1

Reach/ Node Sta.	Node	Node Elevations Invert	Rim	Length	Flow Rate, Q, cfs Actual cfs	Capacity cfs	Slope ft/ft	Pipe Size in.	
1,000.00	MH C6	5288.00							MH C6 LC 28+43.22
Lat C6				17.68	1.00	20.1	0.03676	18	
982.32	DI C6-1	5288.65							DI C6-1
Lat C6				9.50	1.00	0.0	0.00000	18	
972.82	DI C6-2	5288.65							DI C6-2
1,000.00	MH C7	5297.00							to MH C7 LC 32+07.57
Lat C7				27.14	0.69	24.0	0.05232	18	
972.86	DI C7-1	5298.42							DI C7-2
Lat C7				30.03	0.69	0.0	0.00000	18	
942.83	DI C7-2	5298.42							DI C7-1
1,000.00	MH B1	5192.00	5204.08						to MH B1 Line B 5+56.3
Line H				62.99	41.16	186.3	0.20638	30	
1,062.99	MH H1	5205.00	5219.32						MH H1 from Lat H1 & 2-D
Line H				214.78	27.09	99.9	0.05936	30	
1,277.77	MH H2	5217.75	5228.41						MH H2 & 1-D
Line H				287.80	17.97	64.0	0.02432	30	
1,565.57	MH H3	5224.75	5236.23						MH H3 from Lat H2
Line H				131.98	14.87	61.8	0.02273	30	
1,697.55	MH H4	5227.75	5238.86						MH H4 from Lat H3
Line H				159.33	12.37	36.9	0.02667	24	
1,856.88	MH H5	5232.00	5240.40						MH H5 from Lat H4
Line H				85.17	4.27	34.7	0.02348	24	
1,942.05	MH H6	5234.00	5241.16						MH H6 from Lat H5
Line H				200.50	0.93	38.3	0.02868	24	
2,142.55	MH H7	5239.75	5245.41						MH H 7 from Lat H6
1,000.00	MH I2	5218.00	5230.38						to MH I2 Line I 13+49.63
Line J				108.99	34.94	70.0	0.02909	30	
1,108.99	Wye	5221.17	5230.00						30X18 Wye, from Lat J1
Line J				201.63	26.15	69.9	0.02906	30	
1,310.62	MH J1	5227.03	5235.96						MH J1 from Lat J2
Line J				136.42	22.63	70.0	0.02910	30	
1,447.04	MH J2	5231.00	5238.67						MH J2 from Lat J3
Line J				276.00	15.83	23.1	0.01040	24	
1,723.04	MH J3	5233.87	5240.92						MH J3 from Lat J4
Line J				300.24	9.16	23.1	0.01042	24	
2,023.28	MH J4	5237.00	5243.33						MH J4
Line J				101.48	9.16	23.1	0.01045	24	
2,124.76	MH J5	5238.06	5244.24						MH J5 from Lat J5

Reach/ Node	Node	Node Elevations		Length	Flow Rate, Q, cfs		Slope	Pipe Size	
Sta.		Invert	Rim		Actual cfs	Capacity cfs	ft/ft	in.	
4,012.50	MH K3	5288.50	5295.00						MH K3 from 4"
Line K				152.7	1.30	16.4	0.00524	24	
4,164.78	MH K2	5287.70	5294.00						MH K2 from Beehive
Line K									
4,164.78	MH K2	5273.11	5294.00						MH K2 from Beehive
Line K				293.91	39.99	119.6	0.01412	42	
4,458.69	MH I7	5268.96	5290.04						to MH I7 from GA
1,000.00	JB	5188.00	5204.46						to S Outfall
Line I				87.76	262.70	1227.7	0.22220	60	
1,087.76	MH I1	5207.50	5221.68						MH I1 Line B
Line I				261.87	246.18	393.8	0.04010	54	
1,349.63	MH I2	5218.00	5230.28						MH I2 From I2& J
Line I				326.24	202.40	392.6	0.03985	54	
1,675.87	MH I3	5231.00	5241.10						MH I3 from Lat I3
Line I				337.71	182.51	168.4	0.01374	48	
2,013.58	MH I4	5235.64	5245.08						MH I4 from Lat I4
Line I				164.89	149.65	168.2	0.01371	48	
2,178.47	MH I5	5237.90	5247.98						MH I5 from Lat I5 (Spirit)
Line I				152.57	81.19	168.5	0.01376	48	
2,331.04	MH I6	5240.00	5251.45						MH I6
Line I				185.04	81.19	585.4	0.16607	48	
2.516.08	MH I7	5270.73	5290.04						MH I7 from K
Line I				109.09	41.20	587.0	0.16702	48	
2,625.17	Connect	5288.95	5295.00						Connect to GA outlet
									Null
				0.00	0.00	#DIV/0!	#DIV/0!	30	
									Null
1.490.02	MH B4	5220.00	5224.69						MH B4
Line B Nor				208.78	0.00	57.5	0.06466	24	
1,281.24	MH B3	5206.50	5216.58						DI B1
Line B Nor				281.24	14.58	105.2	0.06578	30	
1.000.00	JB	5188.00	5204.46		338.17				University JB
Line B Sou				121.84	60.89	95.5	0.00901	42	
878.16	DI	5189.10	5200.00						DI B1
Line B Sou				133.41	60.89	95.5	0.00901	42	
744.75	MH B2	5190.30	5200.72						MH B2, Lat B2
Line B Sou				188.45	49.42	95.6	0.00902	42	
556.30	MH B1	5192.00	5204.08						MH B1, Lat B1
759.97	DI H1-1	5220.20							DI H1-1

Reach/ Node	Node	Node Elevations		Length	Flow Rate, Q, cfs		Slope	Pipe Size	
Sta.		Invert	Rim		Actual cfs	Capacity cfs	ft/ft	in.	
Lat H1				240.03	9.12	18.2	0.03000	18	
1,000.00	MH H2	5213.00							to MH H1 Line H 10+62.9
970.00	DI H2-1	5232.00							DI H2-1
Lat H2				30.00	3.10	27.1	0.06667	18	
1,000.00	MH H3	5230.00							to MH H3 Line H 15+65.5
957.57	DI H3-1	5235.30							DI H3-1
Lat H3				42.43	2.50	23.1	0.04831	18	
1,000.00	MH H4	5233.25							to MH H4 Line H 16+97.5
910.88	DI H4-1	5236.89							DI H4-1
Lat H4				89.12	8.10	23.3	0.04926	18	
1,000.00	MH H5	5232.50							to MH H5 Line H 18+56.8
983.03	DI H5-1	5237.30							DI H5-1
Lat H5				16.97	1.67	31.2	0.08839	18	
1,000.00	MH H6	5235.80			3.34				to MH H6 Line H 19+42.0
Lat H5				16.99	1.67	31.2	0.08829	18	
1,016.99	DI H5-2	5237.30							DI H5-2
1,000.00	MH H7	5241.14							to MH H7 Line H 21+42.5
Lat H6				16.97	0.93	26.3	0.06246	18	
1,016.97	DI H6-1	5242.20							DI H6-1
1,000.00	Wye	5221.17							to 30X18 Y Line J 11+08
Lat J1				18.52	8.79	50.9	0.23434	18	
1,018.52	DI J1-1	5225.51							DI J1-1
857.16	DI J2-1	5234.56							DI J2-1
Lat J2				142.84	3.52	24.1	0.05272	18	
1,000.00	MH J1	5227.03							to MH J1 Line J 13+10.6
983.03	DI J3-1	5235.00							DI J3-1
Lat J3				16.97	4.63	41.6	0.15675	18	
1,000.00	MH J2	5232.34			6.80				to MH J2 Line J 14+47.0
Lat J3				16.97	2.17	41.6	0.15675	18	
1,016.97	DI J3-2	5235.00							DI J3-2
983.03	DI J4-1	5237.33							DI J4-1
Lat J4				16.97	4.63	36.7	0.12198	18	
1,000.00	MH J3	5235.26			6.67				to MH J3 Line J 17+23.0
Lat J4				16.97	2.04	36.7	0.12198	18	
1,016.97	DI J4-2	5237.33							DI J4-2

Reach/ Node	Node	Node Elevations		Length	Flow Rate, Q, cfs		Slope	Pipe Size	
Sta.		Invert	Rim		Actual cfs	Capacity cfs	ft/ft	in.	
983.03	DI J5-1	5240.00							DI J5-1
Lat J5				16.97	0.32	33.8	0.10371	18	
1,000.00	MH J5	5238.24			4.90				to MH J5 Line J 21+24.76
Lat J5				16.97	4.58	17.7	0.02829	18	
1,016.97	DI J5-2	5238.72							DI J5-2
Lat J5				9.64	4.26	17.9	0.02905	18	
1,026.61	DI J5-3	5239.00							DI J5-3
1,000.00		5289.00							to MH K1 Line K 14+44.5
Lat K1				17.68	5.00	48.3	0.21154	18	
1,017.68		5292.74							DI K1-1
967.74	DI I1-2	5217.00							DI I1-1
Lat I1				32.26	16.52	31.8	0.09144	18	
1,000.00	MH I1	5214.05							to MH I1 Line I 10+87.76
1,000.00	MH I2	5223.25							to MH I2 Line I 13+49.63
Lat I2				246.59	8.84	13.0	0.01521	18	
1,246.59	DI I2	5227.00							DI I2-1
812.50	DI I3-1	5232.50							DI I3-1
Lat I3				187.50	4.90	9.4	0.00800	18	
1,000.00	MH I3	5231.00							
Drop MH					19.89				to MH I3 Line I 16+75.87
1,000.00	MH I3	5233.87							
Lat I3				165.26	14.99	11.9	0.01289	18	
1,165.26	DI I3-2	5236.00							to MH I3 Line I 16+75.87
729.79	DI I4-1	5237.00							DI I4-1
Lat I4				270.21	29.34	7.5	0.00503	18	
1,000.00	MH I4	5235.64							
Drop MH					32.86				to MH I4 Line I 20+13.58
1,000.00	MH I4	5239.58							
Lat I4				75.83	3.52	18.8	0.03191	18	
1,075.83	DI I4-2	5242.00							DI I4-2
1,000.00	MH I5	5238.90							to MH I5 Line I 21+78.47
Lat I5				125.24	68.46	150.8	0.05110	36	
1,125.24	MH I5-1	5245.30							MH I5-1
Lat I5				71.76	68.46	150.8	0.05114	36	
1,197.00	45 Bend	5248.97							45 Bend
Lat I5				12.00	68.46	667.0	1.00000	36	
1,209.00	Connect	5260.97							Connect to Spirit Drive

Reach/ Node	Node	Node Elevations		Length	Flow Rate, Q, cfs		Slope	Pipe Size	
Sta.		Invert	Rim		Actual cfs	Capacity cfs	ft/ft	in.	
821.00	DI B1-1	5195.00							DI B1-1
Lat B1				39.31	2.63	11.7	0.01247	18	
860.31	DI B1-2	5194.51							DI B1-2
Lat B1				139.69	8.26	13.9	0.01740	18	
1,000.00	MH B1	5192.08							to MH B1 Line B 5+56.3
887.92	DI B2-3	5192.67							DI B2-3
Lat B2				49.80	1.44	10.7	0.01044	18	
887.92	DI B2-2	5192.15							DI B2-2
Lat B2				91.33	3.15	10.7	0.01040	18	
979.25	DI B2-1	5191.20							DI B2-1
Lat B2				20.75	11.47	16.0	0.02313	18	
1,000.00	MH B2	5190.72							to MH B2 Line B 7+44.75
1,000.00	MH B3	5206.50							to MH B3 Line B 12+81.2
Lat B3				104.94	14.58	37.7	0.12864	18	
1,104.94	DI B3-1	5220.00							DI B3-1

APPENDIX G
HGL ANALYSIS

100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line A

TITLE Line A

STORM DRAIN LINE No: A & G
BRANCH No:
BASIN No:

ELEV. OF WATER SURFACE AT FIRST NODE: 5185.0
ROUGHNESS COEFFICIENT FOR PIPE: 0.013
STATION AT START OF BRANCH: 1030.4

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
0	END	1030.35								0											5180.00	5190.00	10.00
																		5188.4	3.40958	5185.0			
				186.2	0.013	48	0.01233	14.82	19.65		0.0168	0.33											
																	0.33	5188.7	3.40958	5185.3			
1	Wye	1050								45			0.48	0.03	0.00	0.00					5180.24	5186.00	5.76
																	0.51	5189.3	3.40958	5185.8			
				185.8	0.013	48	0.0123	14.78	50		0.0167	0.84											
																	0.84	5190.1	3.39312	5186.7			
2	Wye	1100	0.0							45			0.48	0.02	0.00	0.00					5180.86	5190.00	9.14
																	0.50	5190.6	3.39312	5187.2			
				185.5	0.013	48	0.0123	14.76	133.1		0.0167	2.22											
																	2.22	5192.8	3.38472	5189.4			
3	MH	1233.1	0.0							45			2.77	-10.93	0.98	0.73					5182.50	5199.25	16.75
																	-6.46	5186.3	3.38472	5183.0			
				174.2	0.013	30	0.0234	35.50	53.01		0.1803	9.56											
																	9.56	5195.9	19.5646	5176.3			
4	Wye	1286.11	0.0							45			2.02	8.93	0.00	0.00					5183.74	5199.50	15.76
																	10.95	5206.9	19.5646	5187.3			
				148.9	0.013	30	0.0234	30.34	137.6		0.1317	18.12											
																	18.12	5225.0	14.2897	5210.7			
5	MH	1423.71	0.0							45			0.39	18.67	0.14	0.00					5186.95	5202.43	15.48
																	19.20	5244.2	14.2897	5229.9			
				65.1	0.013	30	0.0126	13.26	590.21		0.0252	14.84											
																	14.84	5259.0	2.72858	5256.3			
6	MH	2013.92	0.0							90			0.13	4.11	0.03	0.00					5194.90	5210.37	15.47
																	4.28	5263.3	2.72858	5260.6			
				32.3	0.013	30	0.0137	6.58	263.55		0.0062	1.63											
		10+73.76G															1.63	5264.9	0.67191	5264.3			
7	MH	2277.47	0.0							45			0.05	0.44	0.02	0.00					5198.50	5205.80	7.30
																	0.51	5265.4	0.67191	5264.8			
				23.0	0.013	30	0.0615	4.69	48.76		0.0032	0.15											
		11+22.51G															0.15	5265.6	0.34209	5265.3			
8	MH	2326.23	0.0							45			0.03	0.19	0.01	0.00					5201.50	5207.80	6.30
																	0.24	5265.8	0.34209	5265.5			
				18.4	0.013	30	0.0536	3.75	263.78		0.0020	0.53											

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
		13+86.29Q															0.53	5266.4	0.21818	5266.1			
9	MH	2590.01	0.0							45			0.02	0.14	0.01	0.00					5215.63	5222.91	7.28
																	0.16	5266.5	0.21818	5266.3			
				13.5	0.013	30	0.0576	2.75	185.16		0.0011	0.20											
		15+71.45Q															0.20	5266.7	0.1171	5266.6			
10	MH	2775.17	0.0							45			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!					5226.29	5234.02	7.73
																	#DIV/0!	#DIV/0!	0.1171	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
11		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	0.00	-5226.29
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
12		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	0.00	-5226.29
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
13		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	5190.02	-36.27
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
14		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	5190..02	#VALUE!
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
15		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	5184.35	-41.94
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
16		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	5184.35	-41.94
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
17		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	5184.35	-41.94
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
18		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	5184.35	-41.94
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
19		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	5184.35	-41.94
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			

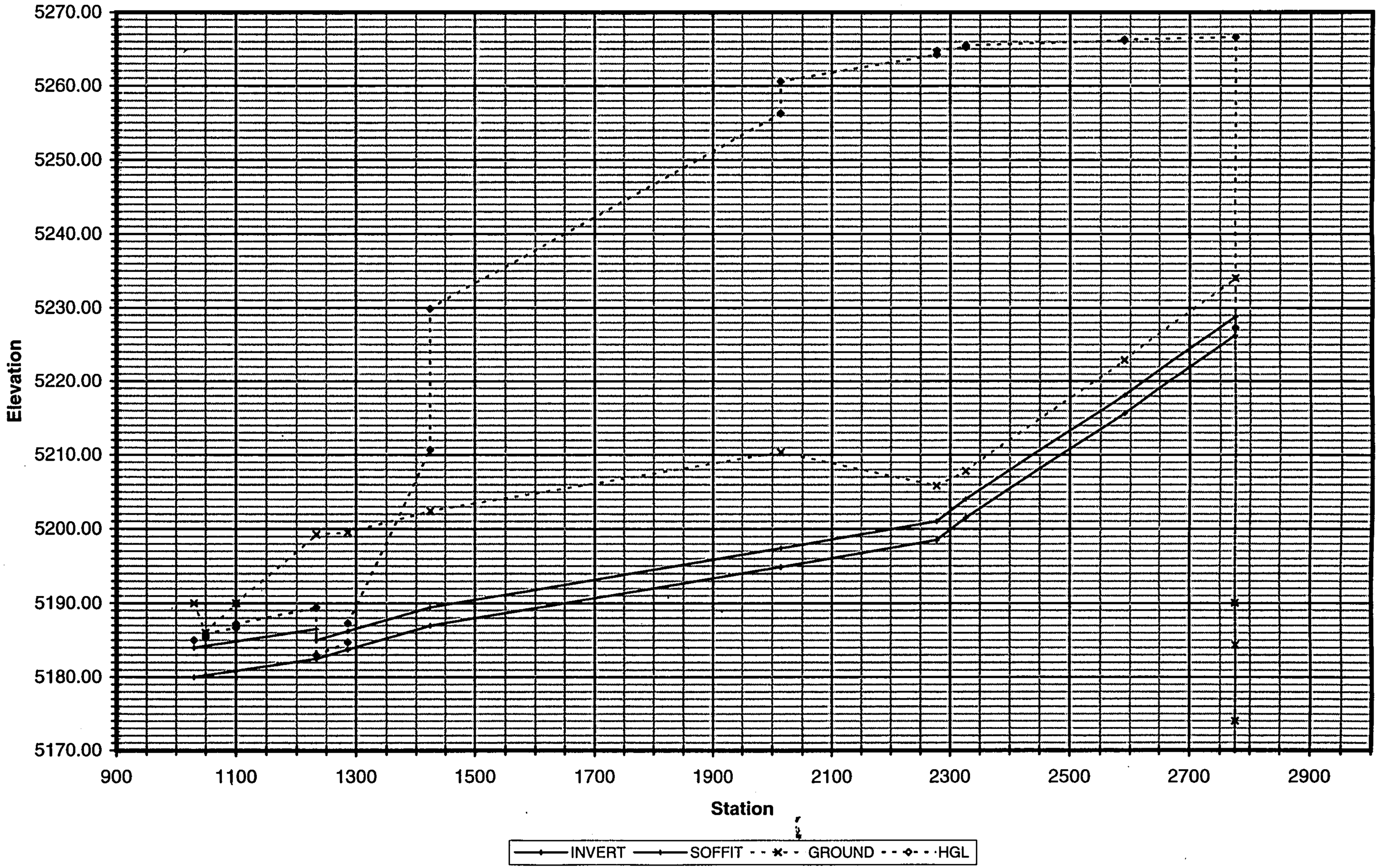
100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line A

Junction Loss Summary

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	
1050.00	185.76	12.57	48.00	4.00		186.21	12.57	48.00	4.00		0.45	1.77	18.00	1.50	45.00	0.03
1100.00	185.53	12.57	48.00	4.00		185.76	12.57	48.00	4.00		0.23	1.77	18.00	1.50	45.00	0.02
1233.10	174.24	4.91	30.00	2.50		185.53	12.57	48.00	4.00		11.29	1.77	18.00	1.50	45.00	-10.93
1286.11	148.91	4.91	30.00	2.50		174.24	4.91	30.00	2.50		25.33	1.77	18.00	1.50	45.00	8.93
1423.71	65.07	4.91	30.00	2.50		148.91	4.91	30.00	2.50		83.84	7.07	36.00	3.00	45.00	18.67
2013.92	32.29	4.91	30.00	2.50		65.07	4.91	30.00	2.50		32.78	4.91	30.00	2.50	90.00	4.11
2277.47	23.04	4.91	30.00	2.50		32.29	4.91	30.00	2.50		9.25	1.77	18.00	1.50	45.00	0.44
2326.23	18.40	4.91	30.00	2.50		23.04	4.91	30.00	2.50		4.64	1.77	18.00	1.50	45.00	0.19
2590.01	13.48	4.91	30.00	2.50		18.40	4.91	30.00	2.50		4.92	1.77	18.00	1.50	45.00	0.14
2775.17	0.00	0.00	0.00	0.00		13.48	4.91	30.00	2.50		13.48	1.77	18.00	1.50	45.00	#DIV/0!
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	12.57	48.00	4.00	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00

HYDRAULIC GRADE LINE



100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line A

TITLE Line A

STORM DRAIN LINE No:	A & G	ELEV. OF WATER SURFACE AT FIRST NODE:	5185.0
BRANCH No:		ROUGHNESS COEFFICIENT FOR PIPE:	0.013
BASIN No:		STATION AT START OF BRANCH:	1030.4

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
0	END	1030.35								0											5180.00	5190.00	10.00
																		5188.4	3.40958	5185.0			
				186.2	0.013	48	0.01233	14.82	19.65		0.0168	0.33											
																	0.33	5188.7	3.40958	5185.3			
1	Wye	1050								45			0.48	0.03	0.00	0.00					5180.24	5186.00	5.76
																	0.51	5189.3	3.40958	5185.8			
				185.8	0.013	48	0.0123	14.78	50		0.0167	0.84											
																	0.84	5190.1	3.39312	5186.7			
2	Wye	1100	0.0							45			0.48	0.02	0.00	0.00					5180.86	5190.00	9.14
																	0.50	5190.6	3.39312	5187.2			
				185.5	0.013	48	0.0123	14.76	133.1		0.0167	2.22											
																	2.22	5192.8	3.38472	5189.4			
3	MH	1233.1	0.0							45			0.72	-0.81	0.25	0.03					5182.50	5199.25	16.75
																	0.19	5193.0	3.38472	5189.6			
				174.2	0.013	42	0.0234	18.11	53.01		0.0300	1.59											
				30													1.59	5194.6	5.09282	5189.5			
4	Wye	1286.11	0.0							45			0.53	1.92	0.00	0.00					5183.74	5199.50	15.76
																	2.44	5197.0	5.09282	5191.9			
				148.9	0.013	42	0.0234	15.48	137.6		0.0219	3.01											
				30													3.01	5200.0	3.71972	5196.3			
5	MH	1423.71	0.0							45			0.10	3.75	0.04	0.00					5186.95	5202.43	15.48
																	3.89	5203.9	3.71972	5200.2			
				65.1	0.013	42	0.0126	6.76	590.21		0.0042	2.47											
	8+10.28 G			30													2.47	5206.4	0.71027	5205.7			
6	MH	2013.92	0.0							90			0.13	1.97	0.03	0.02					5194.90	5210.37	15.47
																	2.16	5208.6	0.71027	5207.8			
				32.3	0.013	30	0.0137	6.58	263.55		0.0062	1.63											
	10+73.10 G																1.63	5210.2	0.67191	5209.5			
7	MH	2277.47	0.0							45			0.05	0.44	0.02	0.00					5198.50	5205.80	7.30
																	0.51	5210.7	0.67191	5210.0			
				23.0	0.013	30	0.0615	4.69	48.76		0.0032	0.15											
	11+25.51 G																0.15	5210.9	0.34209	5210.5			
8	MH	2326.23	0.0							45			0.03	0.19	0.01	0.00					5201.50	5207.80	6.30
																	0.24	5211.1	0.34209	5210.7			
				18.4	0.013	30	0.0536	3.75	263.78		0.0020	0.53											

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
	13+86.29G																0.53	5211.6	0.21818	5211.4			
9	MH	2590.01	0.0							45			0.02	0.14	0.01	0.00					5215.63	5222.91	7.28
				13.5	0.013	30	0.0576	2.75	185.16		0.0011	0.20					0.16	5211.8	0.21818	5211.6			
	15+71.45G																0.20	5212.0	0.1171	5211.9			
10	MH	2775.17	0.0							45			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!					5226.29	5234.02	7.73
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	0.1171	#DIV/0!			
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
11		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	0.00	-5226.29
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
12		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	0.00	-5226.29
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
13		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	5190.02	-36.27
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
14		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	5190..02	#VALUE!
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
15		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	5184.35	-41.94
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
16		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	5184.35	-41.94
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
17		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	5184.35	-41.94
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
18		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	5184.35	-41.94
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
19		2775.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5226.29	5184.35	-41.94
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			

100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line A

Junction Loss Summary

	P1					P2					P3					
Station	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	Hj
1050.00	185.76	12.57	48.00	4.00		186.21	12.57	48.00	4.00		0.45	1.77	18.00	1.50	45.00	0.03
1100.00	185.53	12.57	48.00	4.00		185.76	12.57	48.00	4.00		0.23	1.77	18.00	1.50	45.00	0.02
1233.10	174.24	9.62	42.00	3.50		185.53	12.57	48.00	4.00		11.29	1.77	18.00	1.50	45.00	-0.81
1286.11	148.91	9.62	42.00	3.50		174.24	9.62	42.00	3.50		25.33	1.77	18.00	1.50	45.00	1.92
1423.71	65.07	9.62	42.00	3.50		148.91	9.62	42.00	3.50		83.84	7.07	36.00	3.00	45.00	3.75
2013.92	32.29	4.91	30.00	2.50		65.07	9.62	42.00	3.50		32.78	4.91	30.00	2.50	90.00	1.97
2277.47	23.04	4.91	30.00	2.50		32.29	4.91	30.00	2.50		9.25	1.77	18.00	1.50	45.00	0.44
2326.23	18.40	4.91	30.00	2.50		23.04	4.91	30.00	2.50		4.64	1.77	18.00	1.50	45.00	0.19
2590.01	13.48	4.91	30.00	2.50		18.40	4.91	30.00	2.50		4.92	1.77	18.00	1.50	45.00	0.14
2775.17	0.00	0.00	0.00	0.00		13.48	4.91	30.00	2.50		13.48	1.77	18.00	1.50	45.00	#DIV/0!
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	12.57	48.00	4.00	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2775.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	

Instructions:

Station should be already set to pull the station number from sheet hgl.

q1, d1 should be already set to pull the value from sheet hgl, 2 rows below station.

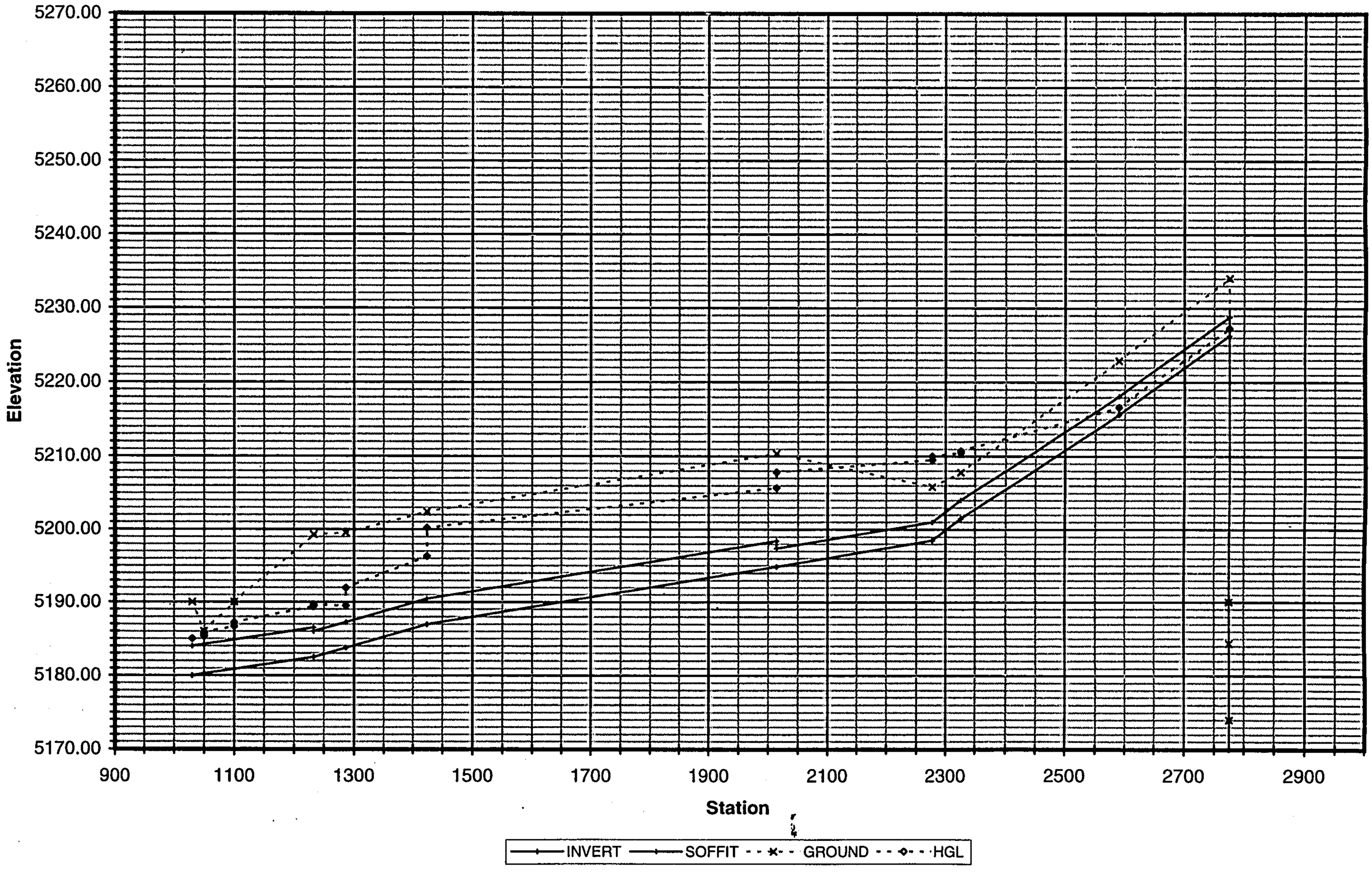
q2, d2 should be already set to pull the value from sheet hgl, 2 rows above station.

D1, D2, A1, A2, and Q3 are automatically computed from d1, d2 or Q2-Q1.

Manually input the values for d3 and the angle.

Hj is then computed from these values. For stations where there is not junction, make sure that the value for Hj is zero.

HYDRAULIC GRADE LINE



100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line B & H

TITLE Line B & H

STORM DRAIN LINE No: B & H

BRANCH No:

BASIN No:

ELEV. OF WATER SURFACE AT FIRST NODE: 5191.5

ROUGHNESS COEFFICIENT FOR PIPE: 0.013

STATION AT START OF BRANCH: 1000

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
0	END	1000								0											5188.00	5204.46	16.46
																		5192.1	0.62195	5191.5		
			60.9	0.013	42	0.00901	6.33	255.25		0.0037	0.93												
																	0.93	5193.1	0.62195	5192.4			
1	MH	1255.25								45			0.06	0.25	0.02	0.00					5190.30	5200.72	10.42
	B1	7+44.25															0.33	5193.4	0.62195	5192.8			
			49.4	0.013	42	0.0090	5.14	188.45		0.0024	0.45												
		5+56.3															0.45	5193.8	0.4097	5193.4			
2	MH	1443.7	0.0							90			0.22	0.61	0.05	0.03					5192.00	5204.08	12.08
	B2	10+00															0.91	5194.8	0.4097	5194.3			
			41.2	0.013	30	0.2064	8.39	62.99		0.0101	0.63												
																	0.63	5195.4	1.09175	5194.3			
3	MH	1506.69	0.0							90			0.09	1.24	0.02	0.00					5205.00	5230.38	25.38
	H1	10+62.99															1.36	5196.7	1.09175	5195.7			
			27.1	0.013	30	0.0594	5.52	214.78		0.0044	0.94												
																	0.94	5197.7	0.47293	5197.2			
4	MH	1721.47	0.0							45			0.03	0.32	0.01	0.00					5217.75	5230.00	12.25
	H2	12+77.77															0.36	5198.0	0.47293	5197.6			
			18.0	0.013	30	0.0243	3.66	287.8		0.0019	0.55												
																	0.55	5198.6	0.2081	5198.4			
5	MH	2009.27	0.0							90			0.03	0.13	0.01	0.00					5224.75	5235.96	11.21
	H3	15+66.67															0.17	5198.8	0.2081	5198.5			
			14.9	0.013	30	0.0227	3.03	138.98		0.0013	0.18												
																	0.18	5198.9	0.14249	5198.8			
6	MH	2148.25	0.0							45			0.03	0.45	0.01	0.00					5227.91	5238.67	10.76
	H4	16+97.05															0.50	5199.4	0.14249	5199.3			
			12.4	0.013	24	0.0267	3.94	159.33		0.0030	0.48												
																	0.48	5199.9	0.24074	5199.7			
7	MH	2307.58	0.0							45			0.00	0.16	0.00	0.00					5232.16	5240.92	8.76
	H5	18+56.85															0.17	5200.1	0.24074	5199.8			
			4.3	0.013	24	0.0235	1.36	85.17		0.0004	0.03												
																	0.03	5200.1	0.02869	5200.1			
8	MH	2392.75	0.0							45			0.00	0.03	0.00	0.00					5234.16	5243.33	9.17
	H6	19+42.05															0.03	5200.1	0.02869	5200.1			
			0.9	0.013	24	0.0287	0.30	200.5		0.0000	0.00												

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
																	0.00	5200.2	0.00136	5200.1			
9	MH	2593.25	0.0							45		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!					5239.91	5244.24	4.33
	H7	21+42.55															#DIV/0!	#DIV/0!	0.00136	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!		0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
10	MH	2593.25	0.0							45		#DIV/0!	0.00		#DIV/0!	#DIV/0!					5239.91	0.00	-5239.91
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!		0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
11	MH	2593.25	0.0							45		#DIV/0!	0.00		#DIV/0!	#DIV/0!					5239.91	0.00	-5239.91
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!		0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
12	MH	2593.25	0.0							0		#DIV/0!	0.00		#DIV/0!	#DIV/0!					5239.91	0.00	-5239.91
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!		0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
13	Pond	2593.25	0.0							0		#DIV/0!	0.00		0.00	#DIV/0!					5239.91	0.00	-5239.91
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!		0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
14		2593.25	0.0							0		#DIV/0!	0.00		0.00	#DIV/0!					5239.91	0.00	-5239.91
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!		0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
15		2593.25	0.0							0		#DIV/0!	0.00		0.00	#DIV/0!					5239.91	0.00	-5239.91
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!		0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
16		2593.25	0.0							0		#DIV/0!	0.00		0.00	#DIV/0!					5239.91	0.00	-5239.91
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!		0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
17		2593.25	0.0							0		#DIV/0!	0.00		0.00	#DIV/0!					5239.91	0.00	-5239.91
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!		0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
18		2593.25	0.0							0		#DIV/0!	0.00		0.00	#DIV/0!					5239.91	0.00	-5239.91
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!		0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
19		2593.25	0.0							0		#DIV/0!	0.00		0.00	#DIV/0!					5239.91	0.00	-5239.91
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			

100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line B & H

Junction Loss Summary

	P1					P2					P3					
Station	**Q1**	**A1**	**d1**	**D1**	**Angle**	**Q2**	**A2**	**d2**	**D2**	**Angle**	**Q3**	**A3**	**d3**	**D3**	**Angle**	**Hj**
1255.25	49.42	9.62	42.00	3.50		60.89	9.62	42.00	3.50		11.47	1.77	18.00	1.50	45.00	0.25
1443.70	41.16	4.91	30.00	2.50		49.42	9.62	42.00	3.50		8.26	1.77	18.00	1.50	90.00	0.61
1506.69	27.09	4.91	30.00	2.50		41.16	4.91	30.00	2.50		14.07	1.77	18.00	1.50	90.00	1.24
1721.47	17.97	4.91	30.00	2.50		27.09	4.91	30.00	2.50		9.12	1.77	18.00	1.50	45.00	0.32
2009.27	14.87	4.91	30.00	2.50		17.97	4.91	30.00	2.50		3.10	1.77	18.00	1.50	90.00	0.13
2148.25	12.37	3.14	24.00	2.00		14.87	4.91	30.00	2.50		2.50	1.77	18.00	1.50	45.00	0.45
2307.58	4.27	3.14	24.00	2.00		12.37	3.14	24.00	2.00		8.10	1.77	18.00	1.50	45.00	0.16
2392.75	0.93	3.14	24.00	2.00		4.27	3.14	24.00	2.00		3.34	3.14	24.00	2.00	45.00	0.03
2593.25	0.00	0.00	0.00	0.00		0.93	3.14	24.00	2.00		0.93	1.77	18.00	1.50	45.00	#DIV/0!
2593.25	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	45.00	0.00
2593.25	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	45.00	0.00
2593.25	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2593.25	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2593.25	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2593.25	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	12.57	48.00	4.00	0.00	0.00
2593.25	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2593.25	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2593.25	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2593.25	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2593.25	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2593.25	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2593.25	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2593.25	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	

Instructions:

Station should be already set to pull the station number from sheet hgl.

q1, d1 should be already set to pull the value from sheet hgl, 2 rows below station.

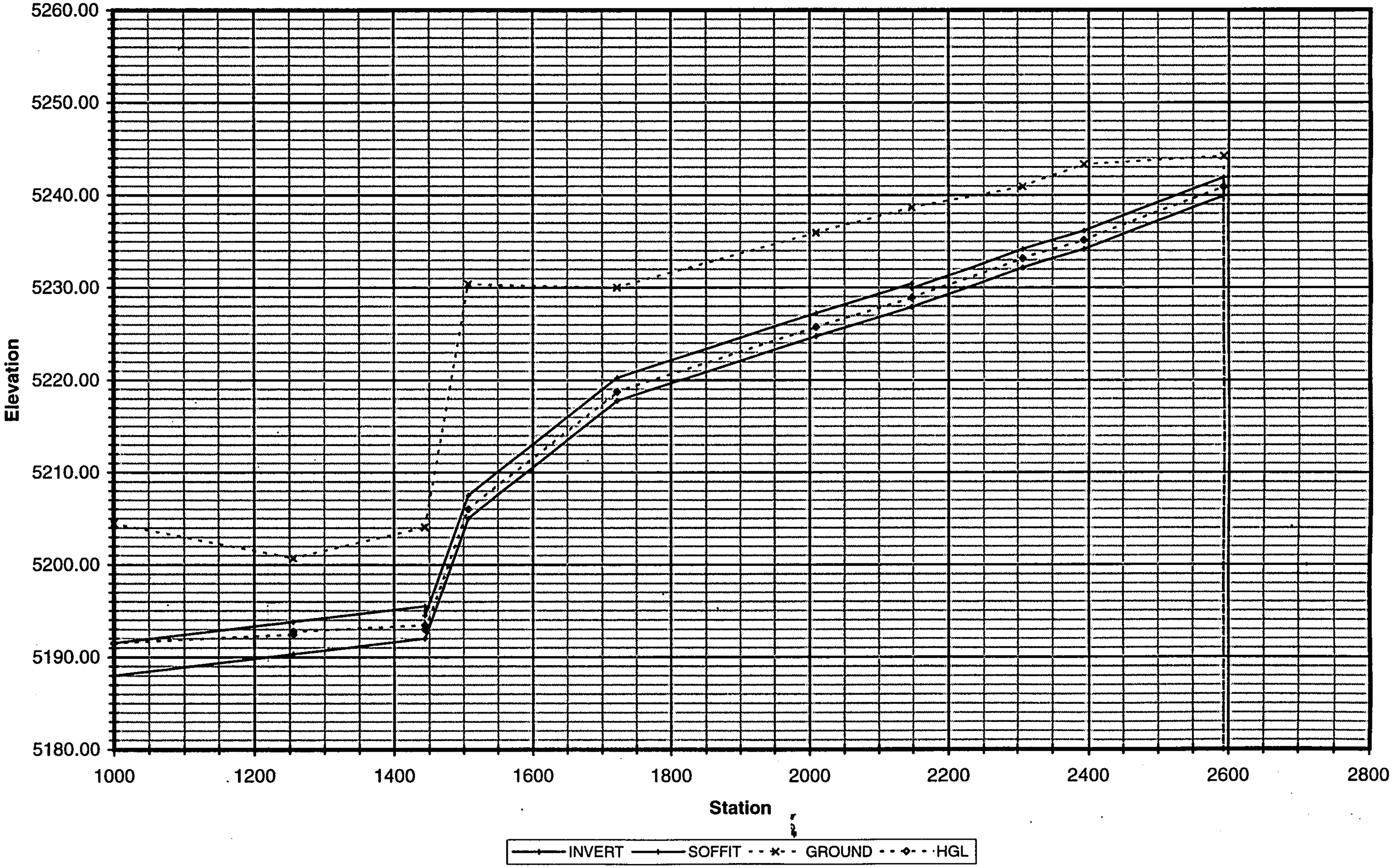
q2, d2 should be already set to pull the value from sheet hgl, 2 rows above station.

D1, D2, A1, A2, and Q3 are automatically computed from d1, d2 or Q2-Q1.

Manually input the values for d3 and the angle.

Hj is then computed from these values. For stations where there is not junction, make sure that the value for Hj is zero.

HYDRAULIC GRADE LINE



100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line C

TITLE Line C

STORM DRAIN LINE No: C
BRANCH No:
BASIN No:

ELEV. OF WATER SURFACE AT FIRST NODE: 5190.0
ROUGHNESS COEFFICIENT FOR PIPE: 0.013
STATION AT START OF BRANCH: 1253.53

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
0	END	1253.53								0											5180.00	5180.00	0.00
	12+53.53, 84.05 Lt																	5191.4	1.40362	5190.0			
				46.7	0.013	30	0.07053	9.51	56.43		0.0129	0.73											
																	0.73	5192.1	1.40362	5190.7			
1	MH	1309.96								45			0.48	0.00	0.17	0.04					5183.98	5198.00	14.02
	Q1	12+53.53, 27.52 Lt															0.70	5192.8	1.40362	5191.4			
				46.7	0.013	24	0.0704	14.86	39.07		0.0425	1.66											
																	1.66	5194.5	3.42681	5191.1			
2	MH	1349.03	0.0							45			0.11	2.96	0.04	0.00					5186.73	5198.00	11.27
	Q2	12+81.15															3.11	5197.6	3.42681	5194.2			
				22.7	0.013	24	0.0680	7.22	323.07		0.0100	3.24											
																	3.24	5200.9	0.80928	5200.0			
3	MH	1672.1	0.0							45			0.10	0.14	0.04	0.00					5208.70	5219.00	10.30
	Q3	18+07.07															0.28	5201.1	0.80928	5200.3			
				21.6	0.013	24	0.0615	6.88	387.01		0.0091	3.53											
																	3.53	5204.7	0.7354	5203.9			
4	MH	2059.11	0.0							45			0.00	0.27	0.00	0.00					5232.50	5241.00	8.50
	Q4	19+92.14															0.28	5204.9	0.7354	5204.2			
				4.7	0.013	24	0.0583	1.51	360.46		0.0004	0.16											
																	0.16	5205.1	0.0352	5205.1			
5	MH	2419.57	0.0							45			0.00	0.02	0.00	0.00					5253.50	5262.00	8.50
	Q5	23+62.56															0.02	5205.1	0.0352	5205.1			
				4.0	0.013	24	0.0614	1.29	249.49		0.0003	0.08											
																	0.08	5205.2	0.02568	5205.2			
6	MH	2669.06	0.0							45			0.00	0.01	0.00	0.00					5268.82	5276.00	7.18
	Q6	25+89.25															0.02	5205.2	0.02568	5205.2			
				3.4	0.013	24	0.0614	1.08	247.09		0.0002	0.06											
																	0.06	5205.3	0.01797	5205.3			
7	MH	2916.15	0.0							45			0.00	0.01	0.00	0.00					5283.99	5291.00	7.01
	Q7	28+43.22															0.01	5205.3	0.01797	5205.3			
				1.4	0.013	24	0.0288	0.44	364.41		0.0000	0.01											
																	0.01	5205.3	0.003	5205.3			
8	MH	3280.56	0.0							45			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!					5294.49	5301.00	6.51
	Q8	32+07.57															#DIV/0!	#DIV/0!	0.003	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											

100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line C

Junction Loss Summary

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	
1309.96	46.67	3.14	24.00	2.00		46.67	4.91	30.00	2.50		0.00	1.77	18.00	1.50	45.00	0.00
1349.03	22.68	3.14	24.00	2.00		46.67	3.14	24.00	2.00		23.99	1.77	18.00	1.50	45.00	2.96
1672.10	21.62	3.14	24.00	2.00		22.68	3.14	24.00	2.00		1.06	1.77	18.00	1.50	45.00	0.14
2059.11	4.73	3.14	24.00	2.00		21.62	3.14	24.00	2.00		16.89	1.77	18.00	1.50	45.00	0.27
2419.57	4.04	3.14	24.00	2.00		4.73	3.14	24.00	2.00		0.69	1.77	18.00	1.50	45.00	0.02
2669.06	3.38	3.14	24.00	2.00		4.04	3.14	24.00	2.00		0.66	1.77	18.00	1.50	45.00	0.01
2916.15	1.38	3.14	24.00	2.00		3.38	3.14	24.00	2.00		2.00	1.77	18.00	1.50	45.00	0.01
3280.56	0.00	0.00	0.00	0.00		1.38	3.14	24.00	2.00		1.38	1.77	18.00	1.50	45.00	#DIV/0!
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	12.57	48.00	4.00	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
3280.56	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	

Instructions:

Station should be already set to pull the station number from sheet hgl.

q1, d1 should be already set to pull the value from sheet hgl, 2 rows below station.

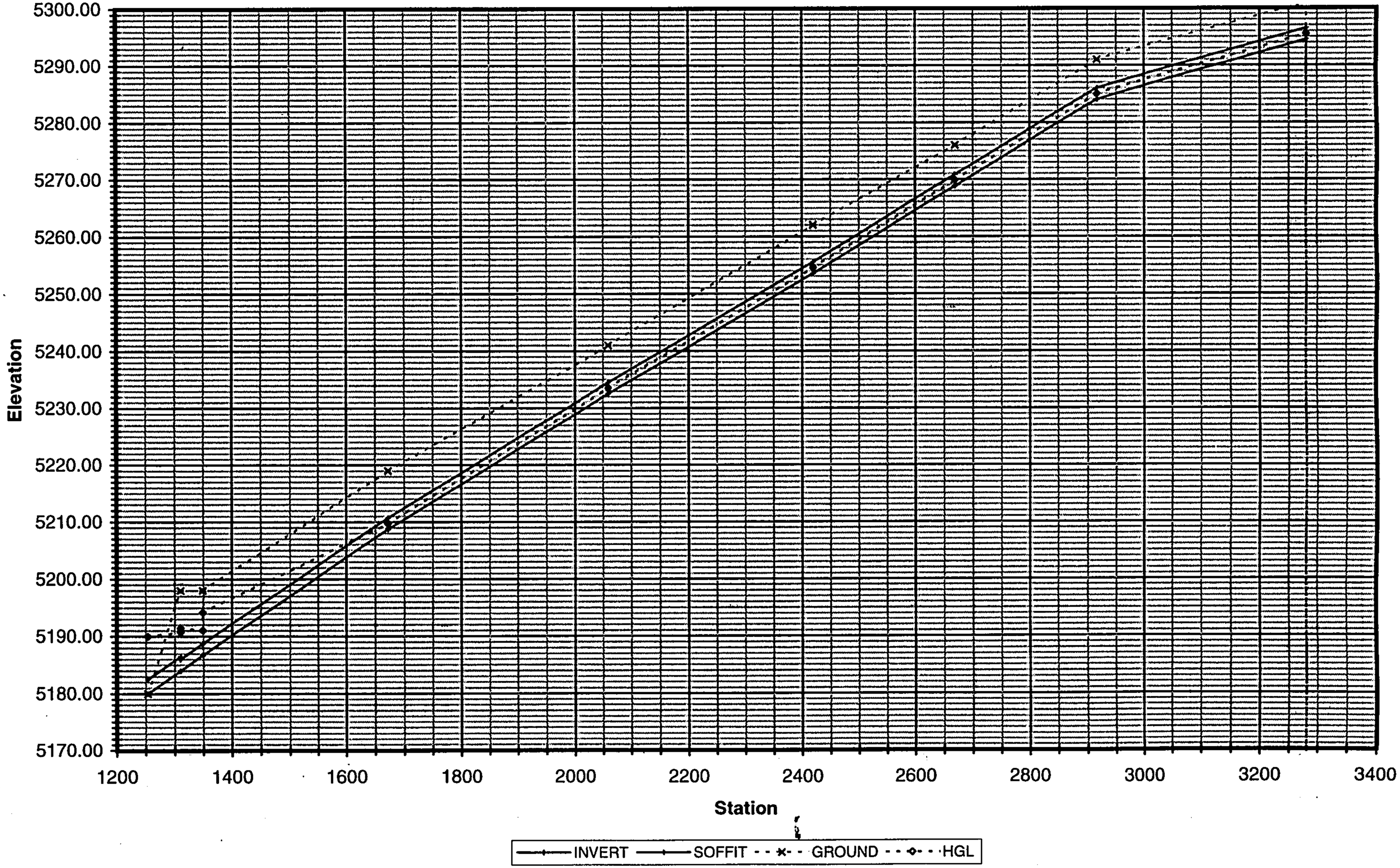
q2, d2 should be already set to pull the value from sheet hgl, 2 rows above station.

D1, D2, A1, A2, and Q3 are automatically computed from d1, d2 or Q2-Q1.

Manually input the values for d3 and the angle.

Hj is then computed from these values. For stations where there is not junction, make sure that the value for Hj is zero.

HYDRAULIC GRADE LINE



100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line D

TITLE Line D

STORM DRAIN LINE No: D
BRANCH No:
BASIN No:

ELEV. OF WATER SURFACE AT FIRST NODE: 5190.0
ROUGHNESS COEFFICIENT FOR PIPE: 0.013
STATION AT START OF BRANCH: 1000

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
0	END	1000								0											5186.95	5202.43	15.48
																		5192.1	2.1845	5190.0			
				83.8	0.013	36	0.32625	11.86	76.78		0.0158	1.21											
																	1.21	5193.3	2.1845	5191.2			
1	MH	1076.78								90			0.31	1.27	0.08	0.00					5212.00	5224.37	12.37
	D1																1.66	5195.0	2.1845	5192.8			
				70.6	0.013	36	0.0327	9.98	275.67		0.0112	3.08											
																	3.08	5198.1	1.54727	5196.5			
2	MH	1352.45	0.0							80			0.13	2.84	0.03	0.01					5221.00	5231.24	10.24
	D2																3.01	5201.1	1.54727	5199.6			
				32.8	0.013	30	0.0230	6.67	304		0.0064	1.94											
																	1.94	5203.0	0.69161	5202.3			
3	MH	1656.45	0.0							80			0.08	1.43	0.02	0.01					5228.00	5238.30	10.30
	D3																1.53	5204.6	0.69161	5203.9			
				16.2	0.013	24	0.0263	5.14	304		0.0051	1.55											
																	1.55	5206.1	0.41035	5205.7			
4	MH	1960.45	0.0							80			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!					5236.00	5242.38	6.38
	D4																#DIV/0!	#DIV/0!	0.41035	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
5	MH	1960.45	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5236.00	0.00	-5236.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
6	MH	1960.45	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5236.00	0.00	-5236.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
7	MH	1960.45	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5236.00	0.00	-5236.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
8	MH	1960.45	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5236.00	0.00	-5236.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											

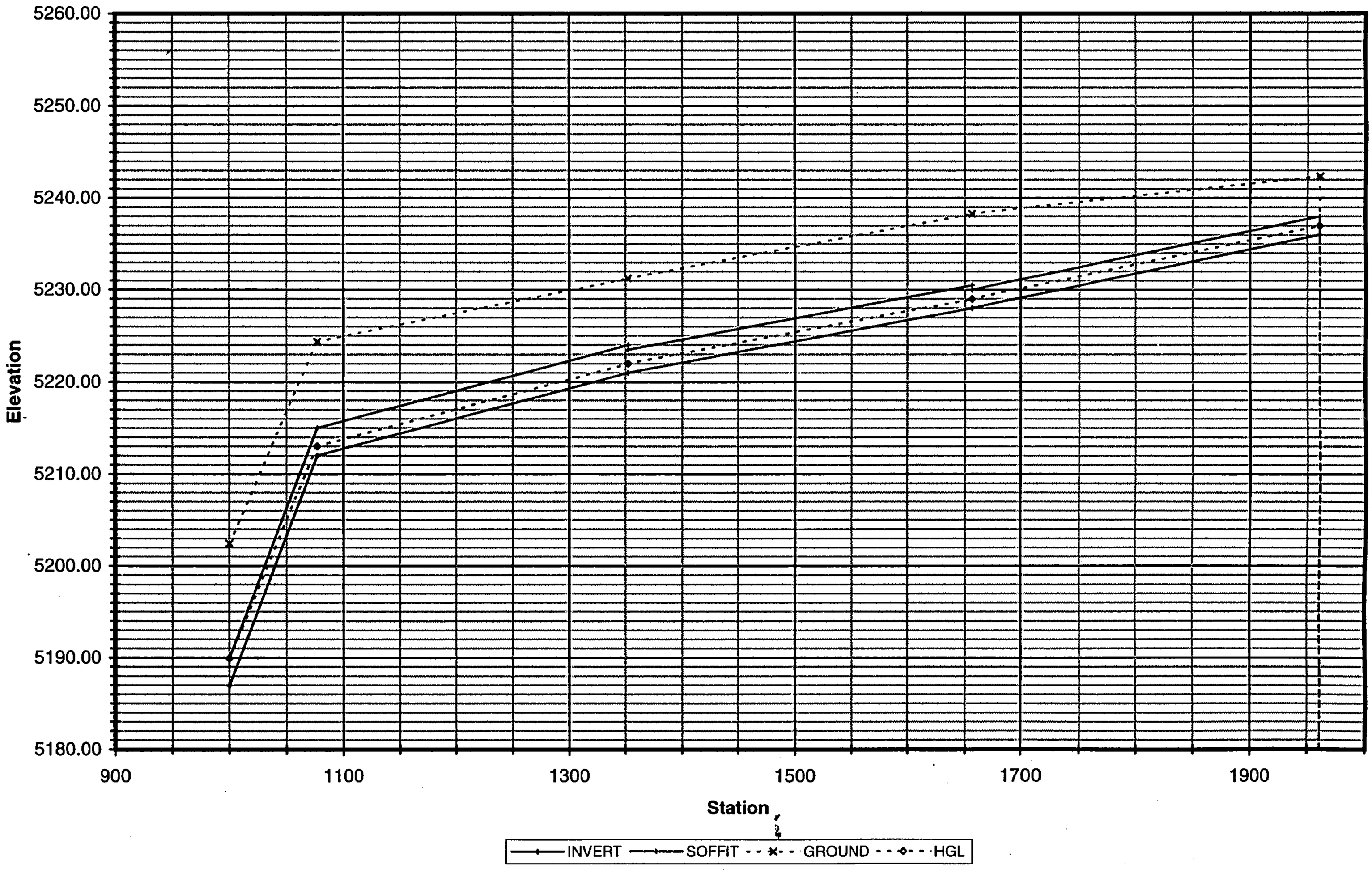
100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line D

Junction Loss Summary

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	
1076.78	70.56	7.07	36.00	3.00		83.84	7.07	36.00	3.00		13.28	1.77	18.00	1.50	90.00	1.27
1352.45	32.76	4.91	30.00	2.50		70.56	7.07	36.00	3.00		37.80	7.07	36.00	3.00	80.00	2.84
1656.45	16.15	3.14	24.00	2.00		32.76	4.91	30.00	2.50		16.61	3.14	24.00	2.00	80.00	1.43
1960.45	0.00	0.00	0.00	0.00		16.15	3.14	24.00	2.00		16.15	3.14	24.00	2.00	80.00	#DIV/0!
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	12.57	48.00	4.00	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
1960.45	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00

HYDRAULIC GRADE LINE



100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line E

TITLE Line E

STORM DRAIN LINE No: E

BRANCH No:

BASIN No:

ELEV. OF WATER SURFACE AT FIRST NODE: 5190.0

ROUGHNESS COEFFICIENT FOR PIPE: 0.013

STATION AT START OF BRANCH: 1000

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
0	END	1000								0											5186.95	5202.43	15.48
																		5192.1	2.1845	5190.0			
				83.8	0.013	36	0.32625	11.86	76.78		0.0158	1.21											
																	1.21	5193.3	2.1845	5191.2			
1	MH	1076.78								90			0.31	1.27	0.08	0.00					5212.00	5224.37	12.37
	D1																1.66	5195.0	2.1845	5192.8			
				70.6	0.013	36	0.0327	9.98	275.67		0.0112	3.08											
																	3.08	5198.1	1.54727	5196.5			
2	MH	1352.45	0.0							80			0.05	2.36	0.01	0.00					5221.00	5231.24	10.24
	D2																2.42	5200.5	1.54727	5199.0			
				30.1	0.013	36	0.0168	4.25	148.99		0.0020	0.30											
																	0.30	5200.8	0.28101	5200.5			
3	MH	1501.44	0.0							80			0.03	0.24	0.01	0.00					5223.50	5228.73	5.23
	DI E1-1	11+48.99															0.27	5201.1	0.28101	5200.8			
				21.8	0.013	36	0.0143	3.08	153.6		0.0011	0.16											
																	0.16	5201.3	0.14769	5201.1			
4	MH	1655.04	0.0							45			0.02	0.00	0.01	0.00					5225.70	5233.86	8.16
	MH E1-1	13+02.58															0.03	5201.3	0.14769	5201.1			
				21.8	0.013	36	0.0143	3.08	113.38		0.0011	0.12											
																	0.12	5201.4	0.14769	5201.3			
5	MH	1768.42	0.0							90			0.02	0.13	0.00	0.00					5227.32	5238.12	10.80
	MH E1-2	14+15.97 BK 13+															0.15	5201.6	0.14769	5201.4			
				16.3	0.013	36	0.0187	2.31	62.74		0.0006	0.04											
																	0.04	5201.6	0.08277	5201.5			
6	MH	1831.16	0.0							45			0.01	0.54	0.00	0.00					5228.49	5238.68	10.19
	E2	16+31.36															0.55	5202.1	0.08277	5202.1			
				10.6	0.013	30	0.0163	2.15	279.98		0.0007	0.19											
																	0.19	5202.3	0.07186	5202.3			
7	MH	2111.14	0.0							45			0.00	0.07	0.00	0.00					5233.05	5240.92	7.87
	E3	17+19.38															0.07	5202.4	0.07186	5202.3			
				4.8	0.013	30	0.0067	0.98	300.29		0.0001	0.04											
																	0.04	5202.4	0.01485	5202.4			
8	MH	2411.43	0.0							45			0.01	0.00	0.00	0.00					5235.05	5243.33	8.28
	E4	20+19.62															0.01	5202.4	0.01485	5202.4			
				4.8	0.013	24	0.0296	1.53	101.42		0.0004	0.05											

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
																	0.05	5202.5	0.03625	5202.5			
9	MH	2512.85	0.0							45			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!					5238.06	5244.24	6.18
	E5	20+21.09															#DIV/0!	#DIV/0!	0.03625	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
10	MH	2512.85	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
11	MH	2512.85	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
12	MH	2512.85	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
13	Pond	2512.85	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
14		2512.85	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
15		2512.85	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
16		2512.85	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
17		2512.85	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
18		2512.85	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
19		2512.85	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			

100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line E

Junction Loss Summary

	P1					P2					P3					
Station	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	Hj
1076.78	70.56	7.07	36.00	3.00		83.84	7.07	36.00	3.00		13.28	1.77	18.00	1.50	90.00	1.27
1352.45	30.07	7.07	36.00	3.00		70.56	7.07	36.00	3.00		40.49	7.07	36.00	3.00	80.00	2.36
1501.44	21.80	7.07	36.00	3.00		30.07	7.07	36.00	3.00		8.27	1.77	18.00	1.50	80.00	0.24
1655.04	21.80	7.07	36.00	3.00		21.80	7.07	36.00	3.00		0.00	1.77	18.00	1.50	45.00	0.00
1768.42	16.32	7.07	36.00	3.00		21.80	7.07	36.00	3.00		5.48	1.77	18.00	1.50	90.00	0.13
1831.16	10.56	4.91	30.00	2.50		16.32	7.07	36.00	3.00		5.76	3.14	24.00	2.00	45.00	0.54
2111.14	4.80	4.91	30.00	2.50		10.56	4.91	30.00	2.50		5.76	3.14	24.00	2.00	45.00	0.07
2411.43	4.80	3.14	24.00	2.00		4.80	4.91	30.00	2.50		0.00	3.14	24.00	2.00	45.00	0.00
2512.85	0.00	0.00	0.00	0.00		4.80	3.14	24.00	2.00		4.80	3.14	24.00	2.00	45.00	#DIV/0!
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	12.57	48.00	4.00	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2512.85	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	

Instructions:

Station should be already set to pull the station number from sheet hgl.

q1, d1 should be already set to pull the value from sheet hgl, 2 rows below station.

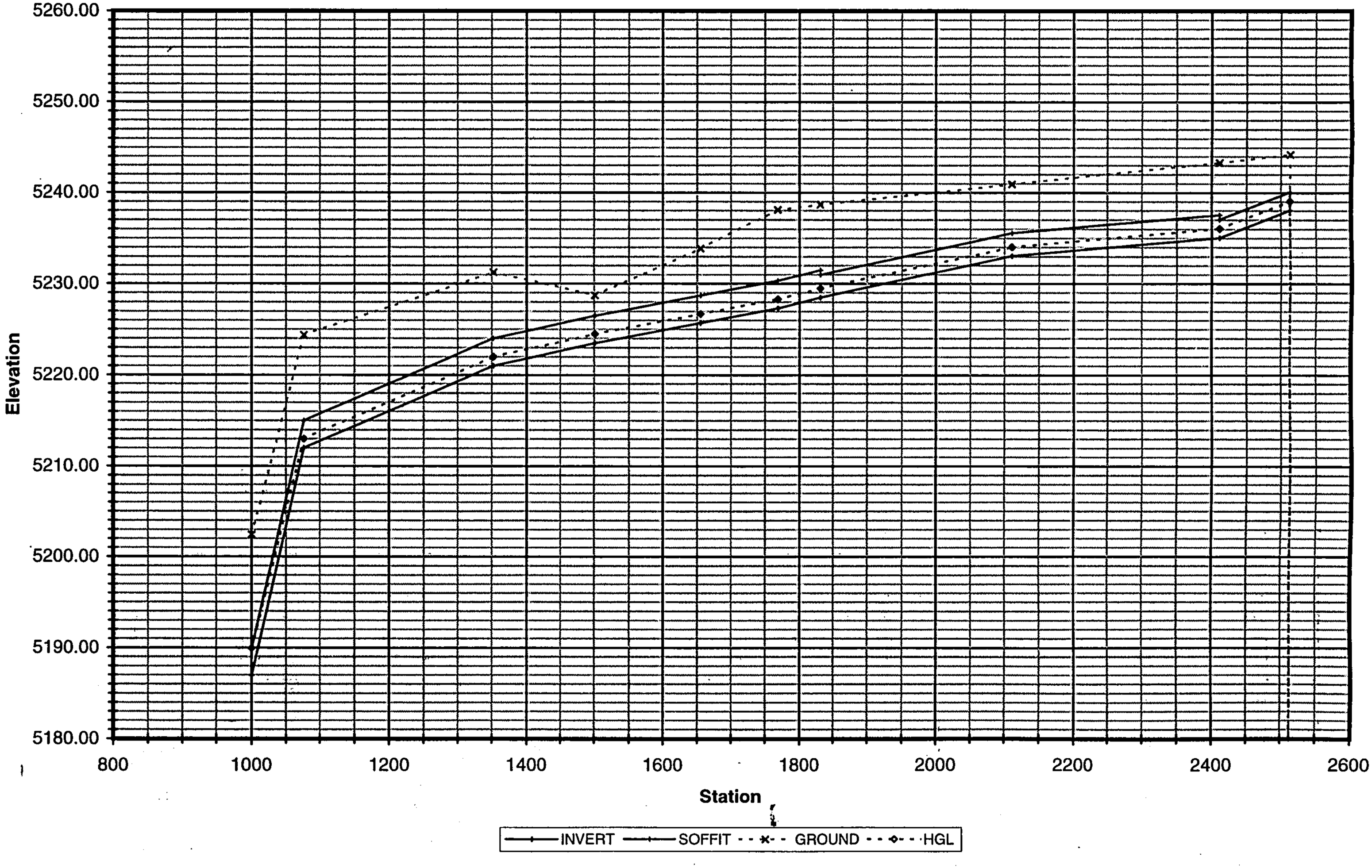
q2, d2 should be already set to pull the value from sheet hgl, 2 rows above station.

D1, D2, A1, A2, and Q3 are automatically computed from d1, d2 or Q2-Q1.

Manually input the values for d3 and the angle.

Hj is then computed from these values. For stations where there is not junction, make sure that the value for Hj is zero.

HYDRAULIC GRADE LINE



100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line F

TITLE Line F

STORM DRAIN LINE No: F

BRANCH No:

BASIN No:

ELEV. OF WATER SURFACE AT FIRST NODE: 5196.9

ROUGHNESS COEFFICIENT FOR PIPE: 0.013

STATION AT START OF BRANCH: 1000

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
0	END	1000								0		0									5194.40	5210.37	15.97
	MH A3																	5197.6	0.69246	5196.9			
				32.8	0.013	30	0.19573	6.68	66.93		0.0064	0.43					0.43	5198.0	0.69246	5197.3			
1	MH	1066.93								45			0.04	0.46	0.01	0.00					5207.50	5219.38	11.88
	F1																0.51	5198.5	0.69246	5197.8			
				20.1	0.013	30	0.0466	4.10	214.43		0.0024	0.52					0.52	5199.0	0.26139	5198.8			
2	MH	1281.36	0.0							45			0.03	0.08	0.01	0.00					5217.50	5227.97	10.47
	F2																0.12	5199.2	0.26139	5198.9			
				18.5	0.013	30	0.0329	3.76	288.98		0.0020	0.59					0.59	5199.7	0.21984	5199.5			
3	MH	1570.34	0.0							90			0.03	0.14	0.01	0.00					5227.00	5236.22	9.22
	F3																0.18	5199.9	0.21984	5199.7			
				15.2	0.013	30	0.0208	3.09	132		0.0014	0.18					0.18	5200.1	0.1483	5200.0			
4	MH	1702.34	0.0							45			0.01	0.07	0.01	0.00					5229.75	5238.82	9.07
	F4																0.09	5200.2	0.1483	5200.1			
				12.8	0.013	30	0.0210	2.60	166.5		0.0010	0.16					0.16	5200.4	0.10476	5200.3			
5	MH	1868.84	0.0							45			0.01	0.50	0.00	0.00					5233.25	5240.35	7.10
	F5																0.51	5200.9	0.10476	5200.8			
				4.8	0.013	24	0.0224	1.53	78		0.0004	0.04					0.04	5200.9	0.03625	5200.9			
6	MH	1946.84	0.0							45			0.00	0.01	0.00	0.00					5235.00	5241.13	6.13
	F6																0.01	5200.9	0.03625	5200.9			
				1.0	0.013	24	0.0213	0.31	199.92		0.0000	0.00					0.00	5200.9	0.00151	5200.9			
7	MH	2146.76	0.0							45			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!					5239.25	5245.40	6.15
	F7																#DIV/0!	#DIV/0!	0.00151	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
8	MH	2146.76	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5239.25	0.00	-5239.25
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			

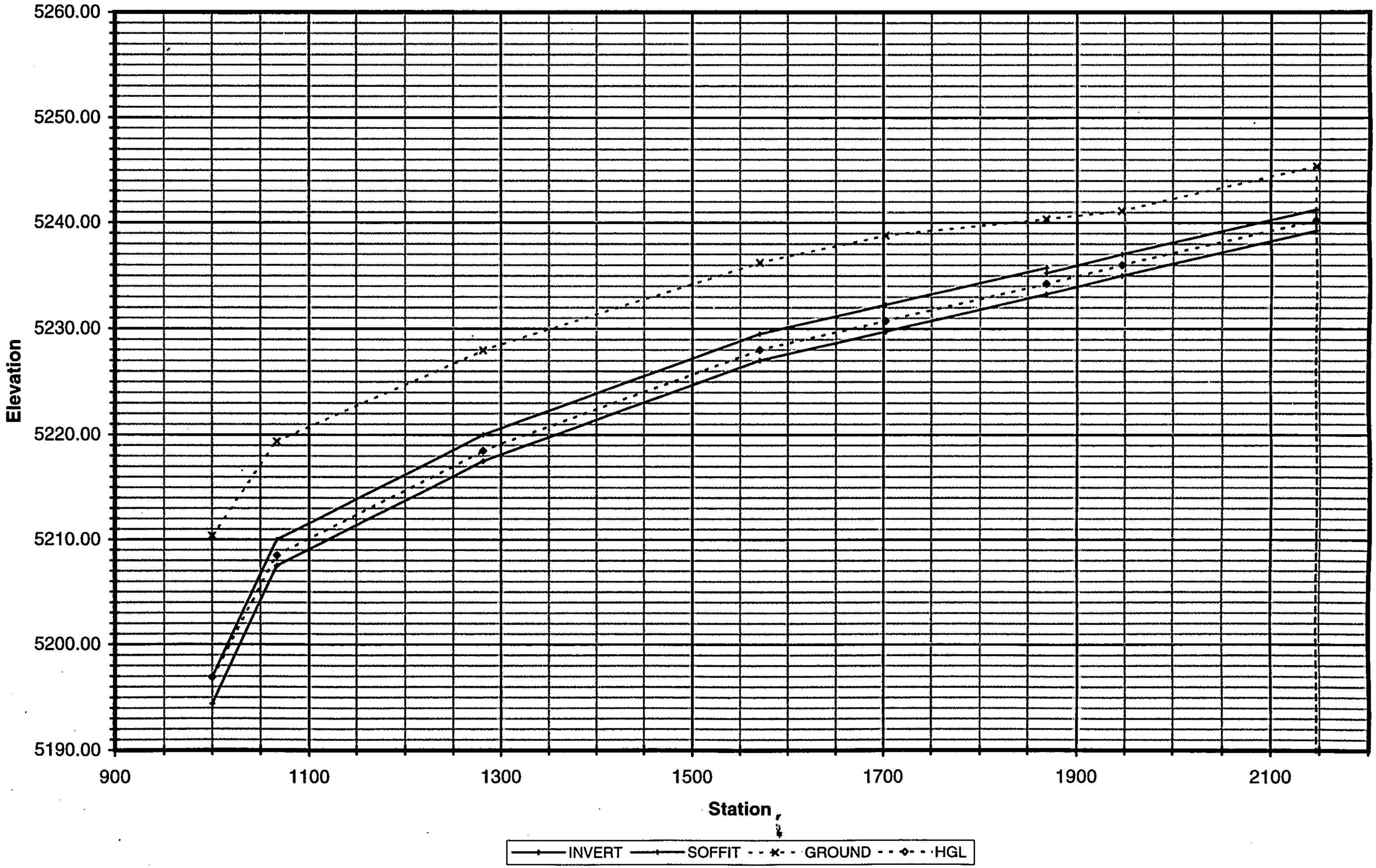
100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line F

Junction Loss Summary

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	
1066.93	20.14	4.91	30.00	2.50		32.78	4.91	30.00	2.50		12.64	1.77	18.00	1.50	45.00	0.46
1281.36	18.47	4.91	30.00	2.50		20.14	4.91	30.00	2.50		1.67	1.77	18.00	1.50	45.00	0.08
1570.34	15.17	4.91	30.00	2.50		18.47	4.91	30.00	2.50		3.30	1.77	18.00	1.50	90.00	0.14
1702.34	12.75	4.91	30.00	2.50		15.17	4.91	30.00	2.50		2.42	1.77	18.00	1.50	45.00	0.07
1868.84	4.80	3.14	24.00	2.00		12.75	4.91	30.00	2.50		7.95	1.77	18.00	1.50	45.00	0.50
1946.84	0.98	3.14	24.00	2.00		4.80	3.14	24.00	2.00		3.82	1.77	18.00	1.50	45.00	0.01
2146.76	0.00	0.00	0.00	0.00		0.98	3.14	24.00	2.00		0.98	1.77	18.00	1.50	45.00	#DIV/0!
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	12.57	48.00	4.00	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2146.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00

HYDRAULIC GRADE LINE



100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line I

TITLE Line I

STORM DRAIN LINE No: I

BRANCH No:

BASIN No:

ELEV. OF WATER SURFACE AT FIRST NODE: 5193.0

ROUGHNESS COEFFICIENT FOR PIPE: 0.013

STATION AT START OF BRANCH: 1000

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
0	END	1000								0											5188.00	5204.46	16.46
																		5195.8	2.77955	5193.0			
				262.7	0.013	60	0.2222	13.38	87.76		0.0102	0.89											
																	0.89	5196.7	2.77955	5193.9			
1	MH	1087.76								45			0.53	-0.21	0.19	0.01					5207.50	5221.68	14.18
																	0.52	5197.2	2.77955	5194.4			
				246.2	0.013	54	0.0401	15.48	261.87		0.0157	4.10											
																	4.10	5201.3	3.7204	5197.6			
2	MH	1349.63	0.0							45			0.36	1.87	0.13	0.00					5218.00	5230.28	12.28
																	2.35	5203.6	3.7204	5199.9			
				202.4	0.013	54	0.0399	12.73	326.24		0.0106	3.46											
																	3.46	5207.1	2.51481	5204.6			
3	MH	1675.87	0.0							45			0.46	0.14	0.16	0.01					5231.00	5241.10	10.10
																	0.78	5207.9	2.51481	5205.4			
				182.5	0.013	48	0.0137	14.52	337.71		0.0161	5.45											
																	5.45	5213.3	3.27543	5210.1			
4	MH	2013.58	0.0							45			0.31	1.55	0.11	0.00					5235.64	5245.08	9.44
																	1.97	5215.3	3.27543	5212.0			
				149.7	0.013	48	0.0137	11.91	164.89		0.0109	1.79											
																	1.79	5217.1	2.20215	5214.9			
5	MH	2178.47	0.0							45			0.09	1.95	0.03	0.00					5237.90	5247.98	10.08
																	2.07	5219.2	2.20215	5217.0			
				81.2	0.013	48	0.0138	6.46	152.57		0.0032	0.49											
																	0.49	5219.7	0.64819	5219.0			
6	MH	2331.04	0.0							0			0.00	0.00	0.03	0.00					5240.00	5251.45	11.45
																	0.03	5219.7	0.64819	5219.0			
				81.2	0.013	48	0.1661	6.46	185.04		0.0032	0.59											
																	0.59	5220.3	0.64819	5219.6			
7	MH	2516.08	0.0							45			0.02	0.57	0.01	0.00					5270.73	5290.04	19.31
																	0.60	5220.9	0.64819	5220.2			
				41.2	0.013	48	0.1670	3.28	109.09		0.0008	0.09											
																	0.09	5221.0	0.16691	5220.8			
8	MH	2625.17	0.0							0			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!					5288.95	5295.00	6.05
																	#DIV/0!	#DIV/0!	0.16691	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
9	MH	2625.17	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5288.95	0.00	-5288.95
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!	0			#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
10	MH	2625.17	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5288.95	0.00	-5288.95
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!	0			#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
11	MH	2625.17	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5288.95	0.00	-5288.95
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!	0			#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
12	MH	2625.17	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5288.95	0.00	-5288.95
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!	0			#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
13	Pond	2625.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5288.95	0.00	-5288.95
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!	0			#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
14		2625.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5288.95	0.00	-5288.95
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!	0			#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
15		2625.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5288.95	0.00	-5288.95
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!	0			#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
16		2625.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5288.95	0.00	-5288.95
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!	0			#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
17		2625.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5288.95	0.00	-5288.95
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!	0			#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
18		2625.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5288.95	0.00	-5288.95
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
			0.0	0.013	0	0.0000	#DIV/0!	0			#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
19		2625.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5288.95	0.00	-5288.95
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
20		2625.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5288.95	0.00	-5288.95
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
21		2625.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5288.95	0.00	-5288.95
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
22		2625.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5288.95	0.00	-5288.95
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
23*		2625.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5288.95	0.00	-5288.95
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
24		2625.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5288.95	0.00	-5288.95
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
25		2625.17	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5288.95	0.00	-5288.95
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
26		2625.17	0.0							0			0.00	0.00	0.00	#DIV/0!					5288.95	0.00	-5288.95

100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line I

Junction Loss Summary

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	
1087.76	246.18	15.90	54.00	4.50		262.70	19.63	60.00	5.00		16.52	1.77	18.00	1.50	45.00	-0.21
1349.63	202.40	15.90	54.00	4.50		246.18	15.90	54.00	4.50		43.78	4.91	30.00	2.50	45.00	1.87
1675.87	182.51	12.57	48.00	4.00		202.40	15.90	54.00	4.50		19.89	3.14	24.00	2.00	45.00	0.14
2013.58	149.65	12.57	48.00	4.00		182.51	12.57	48.00	4.00		32.86	3.14	24.00	2.00	45.00	1.55
2178.47	81.19	12.57	48.00	4.00		149.65	12.57	48.00	4.00		68.46	7.07	36.00	3.00	45.00	1.95
2331.04	81.19	12.57	48.00	4.00		81.19	12.57	48.00	4.00		0.00	0.00	0.01	0.00	45.00	0.00
2516.08	41.20	12.57	48.00	4.00		81.19	12.57	48.00	4.00		39.99	7.07	36.00	3.00	0.00	0.40
2625.17	0.00	0.00	0.00	0.00		41.20	12.57	48.00	4.00		41.20	0.00	0.01	0.00	0.00	#DIV/0!
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	45.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	45.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	12.57	48.00	4.00	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2625.17	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	

Instructions:

Station should be already set to pull the station number from sheet hgl.

q1, d1 should be already set to pull the value from sheet hgl, 2 rows below station.

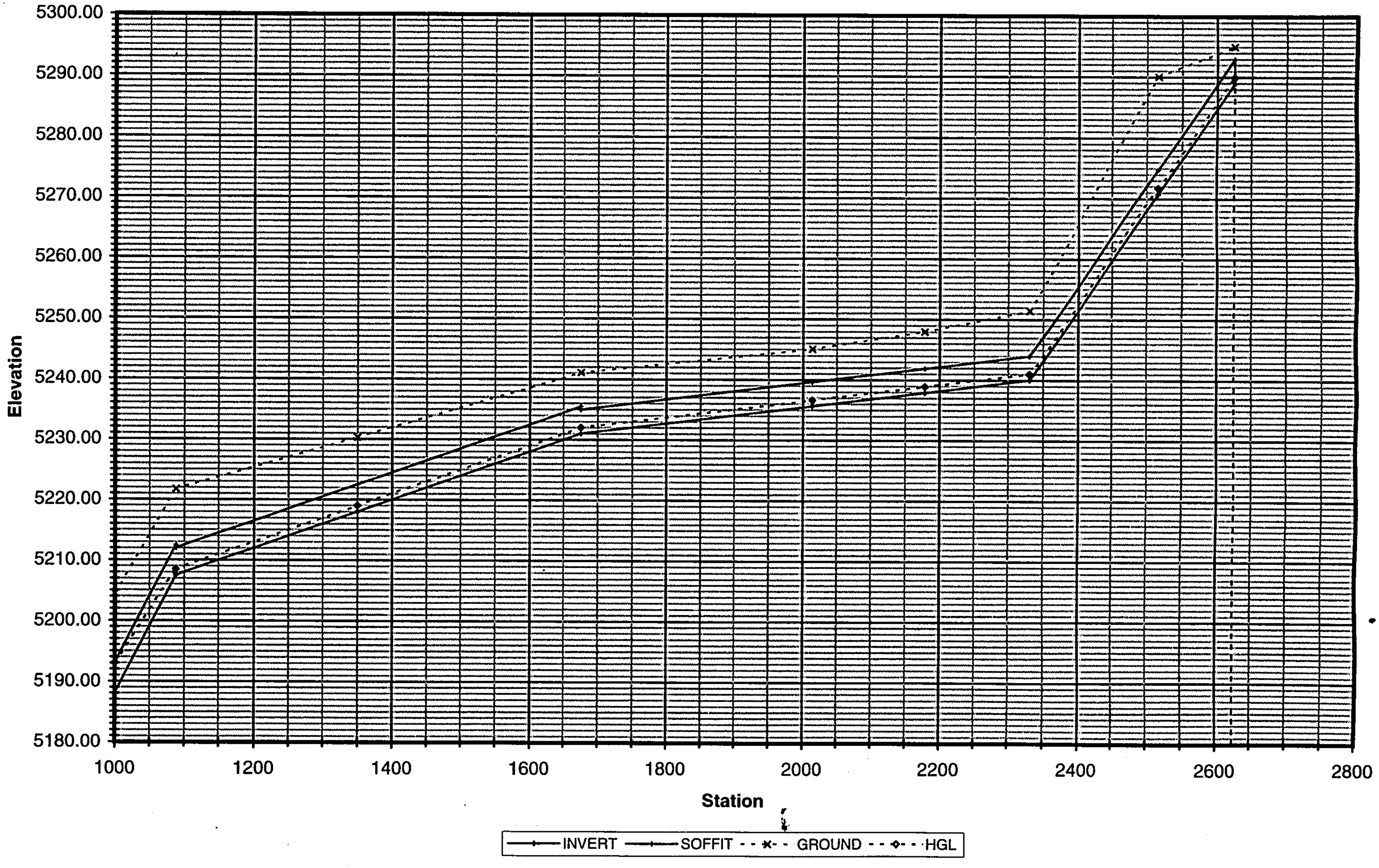
q2, d2 should be already set to pull the value from sheet hgl, 2 rows above station.

D1, D2, A1, A2, and Q3 are automatically computed from d1, d2 or Q2-Q1.

Manually input the values for d3 and the angle.

Hj is then computed from these values. For stations where there is not junction, make sure that the value for Hj is zero.

HYDRAULIC GRADE LINE



100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line J

TITLE Line J

STORM DRAIN LINE No: J

BRANCH No:

BASIN No:

ELEV. OF WATER SURFACE AT FIRST NODE: 5220.5

ROUGHNESS COEFFICIENT FOR PIPE: 0.013

STATION AT START OF BRANCH: 1000

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
0	END	1000								0											5218.00	5230.38	12.38
																		5220.5	0.04917	5220.5			
				34.9	0.013	60	0.02909	1.78	108.99		0.0002	0.02											
																	0.02	5220.6	0.04917	5220.5			
1	MH	1108.99								35			0.01	0.48	0.00	0.00					5221.17	5230.00	8.83
																	0.49	5221.1	0.04917	5221.0			
				26.2	0.013	54	0.0291	1.64	201.63		0.0002	0.04											
																	0.04	5221.1	0.04198	5221.0			
2	MH	1310.62	0.0							35			0.00	0.01	0.00	0.00					5227.03	5235.96	8.93
																	0.02	5221.1	0.04198	5221.1			
				22.6	0.013	54	0.0291	1.42	136.42		0.0001	0.02											
																	0.02	5221.1	0.03144	5221.1			
3	MH	1447.04	0.0							45			0.00	0.49	0.00	0.00					5231.00	5238.67	7.67
																	0.49	5221.6	0.03144	5221.6			
				15.8	0.013	48	0.0104	1.26	276		0.0001	0.03											
																	0.03	5221.7	0.02464	5221.6			
4	MH	1723.04	0.0							45			0.00	-0.01	0.00	0.00					5233.87	5240.92	7.05
																	-0.01	5221.6	0.02464	5221.6			
				9.2	0.013	48	0.0104	0.73	300.24		0.0000	0.01											
																	0.01	5221.7	0.00825	5221.6			
5	MH	2023.28	0.0							0			0.00	0.00	0.00	0.00					5237.00	5243.33	6.33
																	0.00	5221.7	0.00825	5221.6			
				9.2	0.013	48	0.0105	0.73	101.48		0.0000	0.00											
																	0.00	5221.7	0.00825	5221.6			
6	MH	2124.76	0.0							0			0.00	#######	0.00	0.00					5238.06	5244.24	6.18
																	#######	-263611.5	0.00825	-263611.5			
				0.0	0.013	48	0.1661	0.00	0		0.0000	0.00											
																	0.00	-263611.5	0	-263611.5			
7	MH	2124.76	0.0							0			0.00	0.00	0.00	0.00					5238.06	0.00	-5238.06
																	0.00	-263611.5	0	-263611.5			
				0.0	0.013	48	0.1670	0.00	0		0.0000	0.00											
																	0.00	-263611.5	0	-263611.5			
8	MH	2124.76	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	0	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
9	MH	2124.76	0.0							0		#DIV/0!	0.00	#DIV/0!	#DIV/0!						5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
10	MH	2124.76	0.0							45		#DIV/0!	0.00	#DIV/0!	#DIV/0!						5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
11	MH	2124.76	0.0							45		#DIV/0!	0.00	#DIV/0!	#DIV/0!						5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
12	MH	2124.76	0.0							0		#DIV/0!	0.00	#DIV/0!	#DIV/0!						5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
13	Pond	2124.76	0.0							0		#DIV/0!	0.00	0.00	#DIV/0!						5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
14		2124.76	0.0							0		#DIV/0!	0.00	0.00	#DIV/0!						5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
15		2124.76	0.0							0		#DIV/0!	0.00	0.00	#DIV/0!						5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
16		2124.76	0.0							0		#DIV/0!	0.00	0.00	#DIV/0!						5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
17		2124.76	0.0							0		#DIV/0!	0.00	0.00	#DIV/0!						5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
18		2124.76	0.0							0		#DIV/0!	0.00	0.00	#DIV/0!						5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
19		2124.76	0.0							0		#DIV/0!	0.00	0.00	#DIV/0!						5238.06	0.00	-5238.06
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
20		2124.76	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5238.06	0.00	-5238.06
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
21		2124.76	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5238.06	0.00	-5238.06
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
22		2124.76	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5238.06	0.00	-5238.06
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
23*		2124.76	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5238.06	0.00	-5238.06
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
24		2124.76	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5238.06	0.00	-5238.06
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
25		2124.76	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5238.06	0.00	-5238.06
				0.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
26		2124.76	0.0							0			0.00	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5238.06	0.00	-5238.06

100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, Line J

Junction Loss Summary

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	
1108.99	26.15	15.90	54.00	4.50		34.94	19.63	60.00	5.00		8.79	1.77	18.00	1.50	45.00	0.48
1310.62	22.63	15.90	54.00	4.50		26.15	15.90	54.00	4.50		3.52	1.77	18.00	1.50	45.00	0.01
1447.04	15.83	12.57	48.00	4.00		22.63	15.90	54.00	4.50		6.80	1.77	18.00	1.50	45.00	0.49
1723.04	9.16	12.57	48.00	4.00		15.83	12.57	48.00	4.00		6.67	1.77	18.00	1.50	45.00	-0.01
2023.28	9.16	12.57	48.00	4.00		9.16	12.57	48.00	4.00		0.00	1.77	18.00	1.50	45.00	0.00
2124.76	0.00	12.57	48.00	4.00		9.16	12.57	48.00	4.00		9.16	0.00	0.01	0.00	45.00	########
2124.76	0.00	12.57	48.00	4.00		0.00	12.57	48.00	4.00		0.00	0.00	0.00	0.00	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	12.57	48.00	4.00		0.00	0.00	0.01	0.00	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	45.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	45.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	12.57	48.00	4.00	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2124.76	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	

Instructions:

Station should be already set to pull the station number from sheet hgl.

q1, d1 should be already set to pull the value from sheet hgl, 2 rows below station.

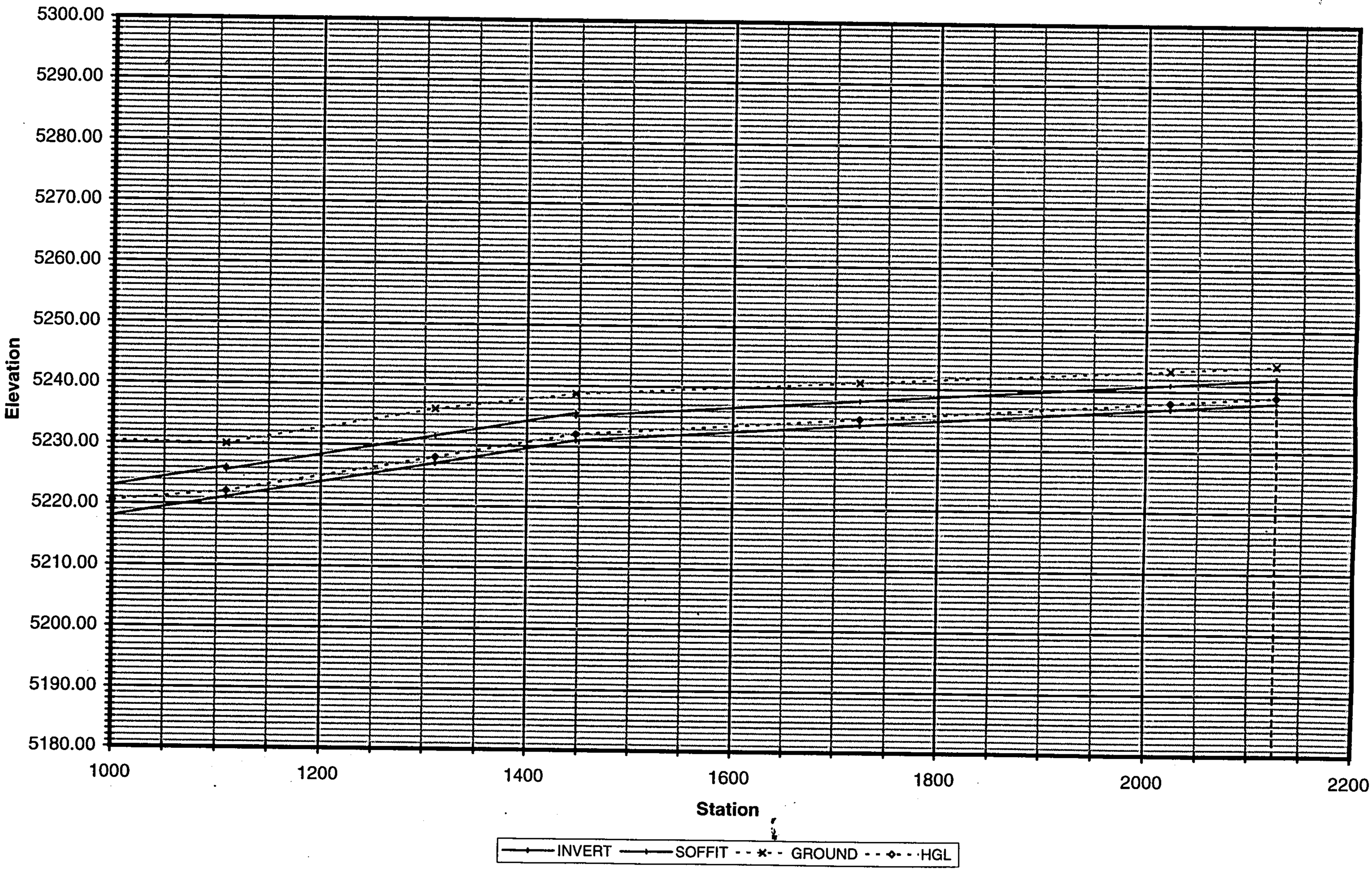
q2, d2 should be already set to pull the value from sheet hgl, 2 rows above station.

D1, D2, A1, A2, and Q3 are automatically computed from d1, d2 or Q2-Q1.

Manually input the values for d3 and the angle.

Hj is then computed from these values. For stations where there is not junction, make sure that the value for Hj is zero.

HYDRAULIC GRADE LINE



File: LineJ.xls

100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, North Outfall, Line L

TITLE North Outfall, RAC Facility, Line L

STORM DRAIN LINE No: L

BRANCH No:

BASIN No:

ELEV. OF WATER SURFACE AT FIRST NODE: 5056.1

ROUGHNESS COEFFICIENT FOR PIPE: 0.013

STATION AT START OF BRANCH: 1000.07

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
0	END	1000.07								0								5051.60	5061.60	10.00
																		5060.1	4.02313	5056.1			
				256.0	0.013	54	0.0146	16.10	96.53		0.0169	1.64											
																	1.64	5061.8	4.02313	5057.7			
1	MH	1096.6								35			0.50	0.00	0.20	0.00					5053.01	5062.00	8.99
	L1																0.70	5062.5	4.02313	5058.4			
				256.0	0.013	54	0.0146	16.10	146.48		0.0169	2.48											
																	2.48	5064.9	4.02313	5060.9			
2	MH	1243.08	0.0							35			0.50	0.00	0.20	0.00					5055.15	5064.50	9.35
	L2																0.70	5065.6	4.02313	5061.6			
				256.0	0.013	54	0.0146	16.10	395.43		0.0169	6.70											
																	6.70	5072.4	4.02313	5068.3			
3	MH	1638.51	0.0							45			0.57	0.00	0.20	0.00					5060.92	5070.50	9.58
	L3																0.77	5073.1	4.02313	5069.1			
				256.0	0.013	54	0.0146	16.10	111.37		0.0169	1.89											
																	1.89	5075.0	4.02313	5071.0			
4	MH	1749.88	0.0							45			0.57	0.00	0.20	0.00					5062.55	5072.00	9.45
	L4																0.77	5075.8	4.02313	5071.8			
				256.0	0.013	54	0.0146	16.10	250.12		0.0169	4.24											
																	4.24	5080.0	4.02313	5076.0			
5	MH	2000	0.0							0			0.00	0.00	0.32	0.03					5066.20	5076.00	9.80
	L5																0.35	5080.4	4.02313	5076.3			
				256.0	0.013	48	0.0410	20.37	250		0.0318	7.94											
																	7.94	5088.3	6.44428	5081.9			
6	MH	2250	0.0							0			0.00	0.00	0.32	0.00					5076.95	5086.00	9.05
	L6																0.32	5088.6	6.44428	5082.2			
				256.0	0.013	48	0.0410	20.37	250		0.0318	7.94											
																	7.94	5096.6	6.44428	5090.1			
7	MH	2500	0.0							0			0.00	0.00	0.55	0.06					5087.20	5087.02	-0.18
	L7																0.61	5097.2	6.44428	5090.7			
				256.0	0.013	42	0.0499	26.61	343.52		0.0647	22.24											
																	22.24	5119.4	10.9937	5108.4			
8	MH	2843.52	0.0							0			0.00	0.00	0.55	0.00					5104.34	5113.00	8.66
	L8																0.55	5120.0	10.9937	5109.0			
				256.0	0.013	42	0.0499	26.61	343.48		0.0647	22.23											

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
9	MH	3187	0.0							0			0.00	0.00	0.55	0.00	22.23	5142.2	10.9937	5131.2			
	L9			256.0	0.013	42	0.0499	26.61	343.55		0.0647	22.24					0.55	5142.8	10.9937	5131.8	5121.48	5133.00	11.52
10	MH	3530.55	0.0							45			0.91	0.00	0.32	0.06	22.24	5165.0	10.9937	5154.0			
	L10			256.0	0.013	48	0.0499	20.37	187.16		0.0318	5.94					1.29	5166.3	10.9937	5155.3	5138.62	5148.00	9.38
11	MH	3717.71	0.0							45			0.91	0.00	0.32	0.00	5.94	5172.2	6.44428	5165.8			
	L11			256.0	0.013	48	0.0622	20.37	382.29		0.0318	12.14					1.23	5173.5	6.44428	5167.0	5147.96	5157.00	9.04
12	MH	4100	0.0							0			0.00	0.00	0.13	0.08	12.14	5185.6	6.44428	5179.2			
	L12			256.0	0.013	60	0.0369	13.04	224.94		0.0097	2.17					0.22	5185.8	6.44428	5179.4	5171.74	5181.00	9.26
13	Pond	4324.94	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	2.17	5188.0	2.63958	5185.4			
				256.0	0.013	0	0.0000	#DIV/0!	-4324		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	2.63958	#DIV/0!	5180.04	5190.02	9.98
14		0.94	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				256.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5180.04	0.00	-5180.04
15		0.94	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				256.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5180.04	0.00	-5180.04
16		0.94	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				256.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5180.04	0.00	-5180.04
17		0.94	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				256.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5180.04	0.00	-5180.04
18		0.94	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				256.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5180.04	0.00	-5180.04
19		0.94	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5180.04	0.00	-5180.04

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
				256.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
20		0.94	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5180.04	0.00	-5180.04
				256.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
21		0.94	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5180.04	0.00	-5180.04
				256.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
22		0.94	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5180.04	0.00	-5180.04
				256.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
23*		0.94	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5180.04	0.00	-5180.04
				256.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
24		0.94	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5180.04	0.00	-5180.04
				256.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
25		0.94	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5180.04	0.00	-5180.04
				256.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
26		0.94	0.0							0			0.00	0.00	0.00	#DIV/0!					5180.04	0.00	-5180.04

100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, North Outfall, Line L

Junction Loss Summary

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	
1096.60	256.00	15.90	54.00	4.50		256.00	15.90	54.00	4.50		0.00	0.00	0.01	0.00	35.00	0.00
1243.08	256.00	15.90	54.00	4.50		256.00	15.90	54.00	4.50		0.00	0.00	0.01	0.00	35.00	0.00
1638.51	256.00	15.90	54.00	4.50		256.00	15.90	54.00	4.50		0.00	0.00	0.01	0.00	45.00	0.00
1749.88	256.00	15.90	54.00	4.50		256.00	15.90	54.00	4.50		0.00	0.00	0.01	0.00	45.00	0.00
2000.00	256.00	12.57	48.00	4.00		256.00	15.90	54.00	4.50		0.00	0.00	0.01	0.00	0.00	0.00
2250.00	256.00	12.57	48.00	4.00		256.00	12.57	48.00	4.00		0.00	0.00	0.01	0.00	0.00	0.00
2500.00	256.00	9.62	42.00	3.50		256.00	12.57	48.00	4.00		0.00	0.00	0.01	0.00	0.00	0.00
2843.52	256.00	9.62	42.00	3.50		256.00	9.62	42.00	3.50		0.00	0.00	0.01	0.00	0.00	0.00
3187.00	256.00	9.62	42.00	3.50		256.00	9.62	42.00	3.50		0.00	0.00	0.01	0.00	0.00	0.00
3530.55	256.00	12.57	48.00	4.00		256.00	9.62	42.00	3.50		0.00	0.00	0.01	0.00	0.00	0.00
3717.71	256.00	12.57	48.00	4.00		256.00	12.57	48.00	4.00		0.00	0.00	0.01	0.00	45.00	0.00
4100.00	256.00	19.63	60.00	5.00		256.00	12.57	48.00	4.00		0.00	0.00	0.01	0.00	45.00	0.00
4324.94	256.00	0.00	0.00	0.00		256.00	19.63	60.00	5.00		0.00	0.00	0.01	0.00	0.00	0.00
0.94	256.00	0.00	0.00	0.00		256.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
0.94	256.00	0.00	0.00	0.00		256.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
0.94	256.00	0.00	0.00	0.00		256.00	0.00	0.00	0.00		0.00	12.57	48.00	4.00	0.00	0.00
0.94	256.00	0.00	0.00	0.00		256.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
0.94	256.00	0.00	0.00	0.00		256.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
0.94	256.00	0.00	0.00	0.00		256.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
0.94	256.00	0.00	0.00	0.00		256.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
0.94	256.00	0.00	0.00	0.00		256.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
0.94	256.00	0.00	0.00	0.00		256.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
0.94	256.00	0.00	0.00	0.00		256.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
0.94	256.00	0.00	0.00	0.00		256.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
0.94	256.00	0.00	0.00	0.00		256.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
0.94	256.00	0.00	0.00	0.00		256.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
0.94	0.00	0.00	0.00	0.00		256.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	

Instructions:

Station should be already set to pull the station number from sheet hgl.

q1, d1 should be already set to pull the value from sheet hgl, 2 rows below station.

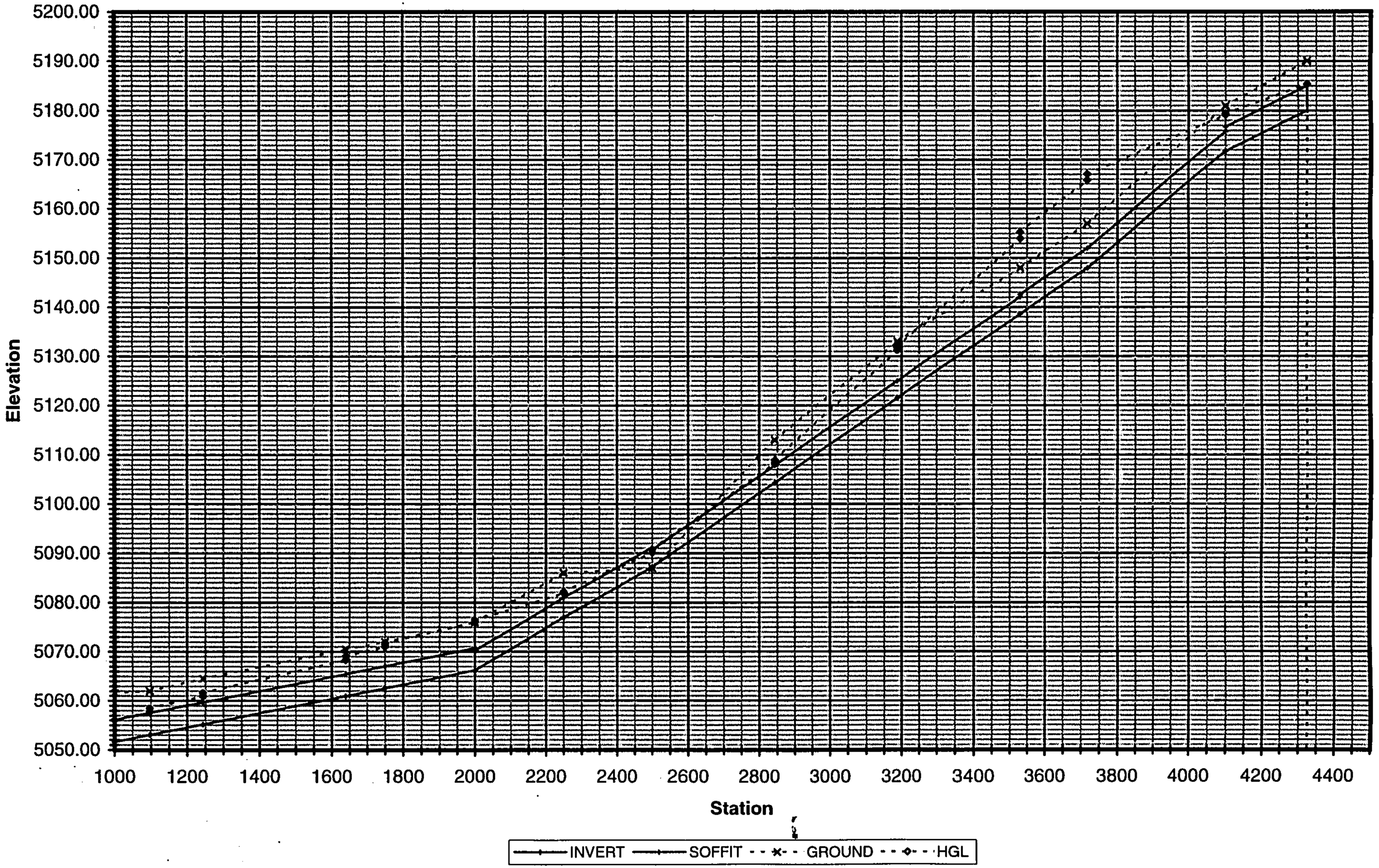
q2, d2 should be already set to pull the value from sheet hgl, 2 rows above station.

D1, D2, A1, A2, and Q3 are automatically computed from d1, d2 or Q2-Q1.

Manually input the values for d3 and the angle.

Hj is then computed from these values. For stations where there is not junction, make sure that the value for Hj is zero.

HYDRAULIC GRADE LINE



100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, South Outfall, Line N

TITLE South Outfall, RAC Facility, Line N

STORM DRAIN LINE No: N
BRANCH No:
BASIN No:

ELEV. OF WATER SURFACE AT FIRST NODE: 5089.0
ROUGHNESS COEFFICIENT FOR PIPE: 0.013
STATION AT START OF BRANCH: 150

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
0	END	150								0											5084.00	5094.00	10.00
																		5092.6	3.62491	5089.0			
				300.0	0.013	60	0.0485	15.28	444		0.0133	5.89											
																	5.89	5098.5	3.62491	5094.9			
1	MH	594								0			0.00	0.00	0.18	0.00					5105.53	5119.90	14.37
																	0.18	5098.7	3.62491	5095.1			
				300.0	0.013	60	0.0485	15.28	326		0.0133	4.33											
																	4.33	5103.0	3.62491	5099.4			
2	MH	920	0.0							0			0.00	0.00	0.18	0.00					5121.35	5131.80	10.46
																	0.18	5103.2	3.62491	5099.6			
				300.0	0.013	60	0.0490	15.28	362.4		0.0133	4.81											
																	4.81	5108.0	3.62491	5104.4			
3	MH	1282.4	0.0							0			0.00	0.00	0.18	0.00					5139.11	5151.00	11.89
																	0.18	5108.2	3.62491	5104.6			
				300.0	0.013	60	0.0485	15.28	95.2		0.0133	1.26											
																	1.26	5109.5	3.62491	5105.8			
4	MH	1377.6	0.0							0			0.00	0.00	0.18	0.00					5143.73	5154.00	10.27
																	0.18	5109.6	3.62491	5106.0			
				300.0	0.013	60	0.0688	15.28	92		0.0133	1.22											
																	1.22	5110.9	3.62491	5107.2			
5	MH	1469.6	0.0							30			0.42	0.00	0.18	0.00					5150.06	5158.74	8.68
DI		0+47.94															0.60	5111.5	3.62491	5107.8	50.20		
				300.0	0.013	60	0.0721	15.28	472		0.0133	6.26											
																	6.26	5117.7	3.62491	5114.1			
6	MH	1941.6	0.0							0			0.00	0.00	0.18	0.00					5184.09	5192.11	8.02
		5+02.94															0.18	5117.9	3.62491	5114.3	84.24		
				300.0	0.013	60	0.0374	15.28	131.12		0.0133	1.74											
																	1.74	5119.6	3.62491	5116.0			
7	MH	2072.72	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5189.00	5204.46	15.46
JB, Line I & Line S																	#DIV/0!	#DIV/0!	3.62491	#DIV/0!	Actual 5188		
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
8	MH	2072.72	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5189.00	0.00	-5189.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
9	MH	2072.72	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5189.00	0.00	-5189.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
10	MH	2072.72	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5189.00	0.00	-5189.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
11	MH	2072.72	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5189.00	0.00	-5189.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
12	MH	2072.72	0.0							0			#DIV/0!	0.00	#DIV/0!	#DIV/0!					5189.00	0.00	-5189.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
13	Pond	2072.72	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5189.00	0.00	-5189.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
14		2072.72	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5189.00	0.00	-5189.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
15		2072.72	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5189.00	0.00	-5189.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
16		2072.72	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5189.00	0.00	-5189.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
17		2072.72	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5189.00	0.00	-5189.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
18		2072.72	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5189.00	0.00	-5189.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
19		2072.72	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!					5189.00	0.00	-5189.00
																	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			

NODE	STRUCT DESC.	STA.	Qin (cfs)	Qt (cfs)	n	PIPE SIZE (IN)	PIPE SLOPE (FT/FT)	VEL. FPS	PIPE LENGTH (FT)	BEND ANGLE (DEG)	Sf (FT/FT)	Hf (FT)	Hb (FT)	Hj (FT)	Hm (FT)	Ht (FT)	TOTAL HEAD LOSS	ENERGY GRADE LINE	hv (FT)	HYD. GRADE ELEV.	INV. ELEV	GRATE ELEV	STRUC DEPTH (FT)
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!											
20		2072.72	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5189.00	0.00	-5189.00
21		2072.72	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5189.00	0.00	-5189.00
22		2072.72	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5189.00	0.00	-5189.00
23*		2072.72	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5189.00	0.00	-5189.00
24		2072.72	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5189.00	0.00	-5189.00
25		2072.72	0.0							0			#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
				300.0	0.013	0	0.0000	#DIV/0!	0		#DIV/0!	#DIV/0!					#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5189.00	0.00	-5189.00
26		2072.72	0.0							0			0.00	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5189.00	0.00	-5189.00

100 YEAR FLOW HGL ANALYSIS

ABQ RAC Facility, South Outfall, Line N

Junction Loss Summary

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	
594.00	300.00	19.63	60.00	5.00		300.00	19.63	60.00	5.00		0.00	0.00	0.01	0.00	0.00	0.00
920.00	300.00	19.63	60.00	5.00		300.00	19.63	60.00	5.00		0.00	0.00	0.01	0.00	0.00	0.00
1282.40	300.00	19.63	60.00	5.00		300.00	19.63	60.00	5.00		0.00	0.00	0.01	0.00	0.00	0.00
1377.60	300.00	19.63	60.00	5.00		300.00	19.63	60.00	5.00		0.00	0.00	0.01	0.00	0.00	0.00
1469.60	300.00	19.63	60.00	5.00		300.00	19.63	60.00	5.00		0.00	0.00	0.01	0.00	30.00	0.00
1941.60	300.00	19.63	60.00	5.00		300.00	19.63	60.00	5.00		0.00	0.00	0.01	0.00	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	19.63	60.00	5.00		0.00	0.00	0.01	0.00	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	12.57	48.00	4.00	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00
2072.72	300.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	1.77	18.00	1.50	0.00	0.00
2072.72	0.00	0.00	0.00	0.00		300.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00

Station	P1					P2					P3					Hj
	Q1	A1	d1	D1	Angle	Q2	A2	d2	D2	Angle	Q3	A3	d3	D3	Angle	

Instructions:

Station should be already set to pull the station number from sheet hgl.

q1, d1 should be already set to pull the value from sheet hgl, 2 rows below station.

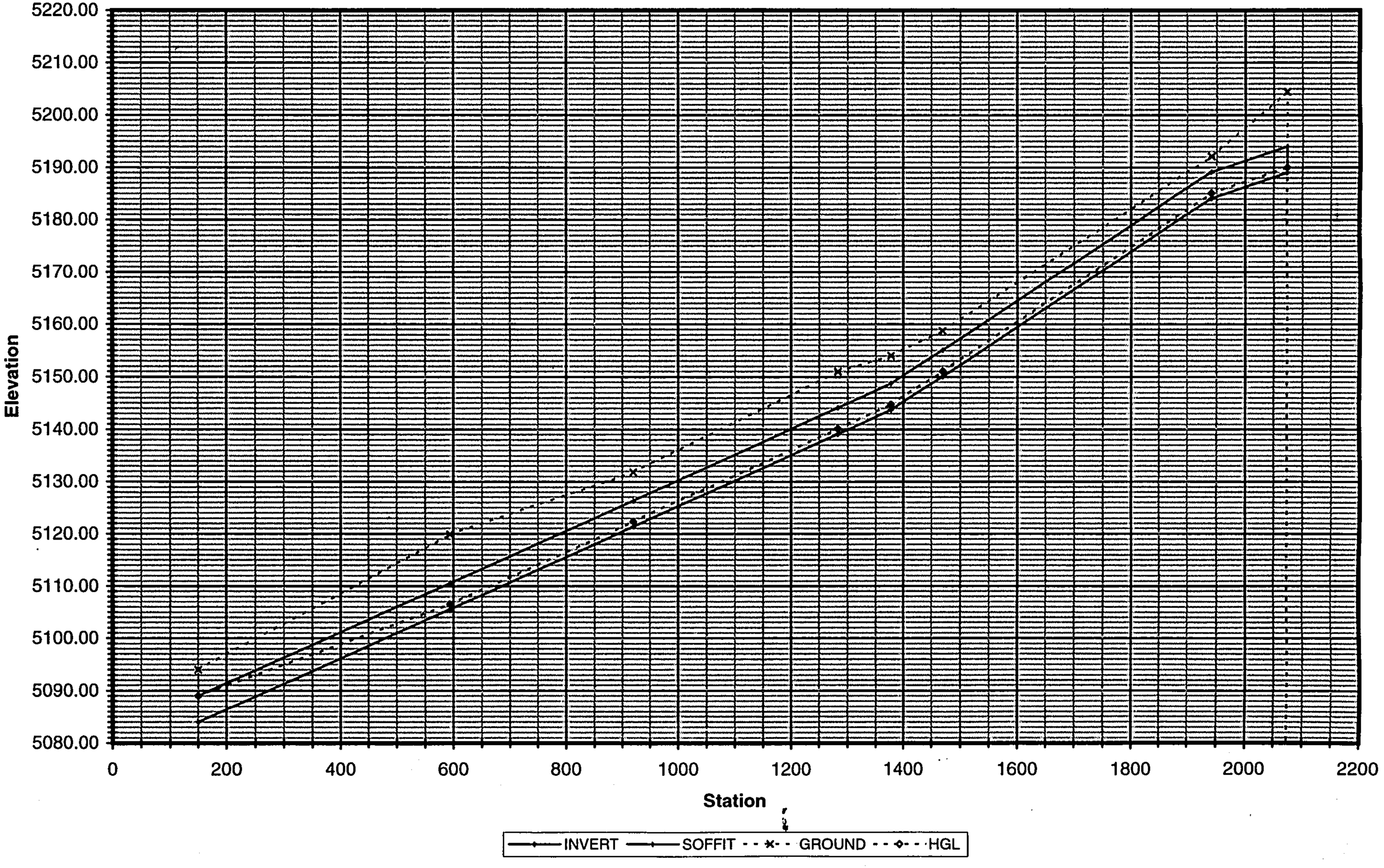
q2, d2 should be already set to pull the value from sheet hgl, 2 rows above station.

D1, D2, A1, A2, and Q3 are automatically computed from d1, d2 or Q2-Q1.

Manually input the values for d3 and the angle.

Hj is then computed from these values. For stations where there is not junction, make sure that the value for Hj is zero.

HYDRAULIC GRADE LINE



APPENDIX H

SEDIMENT ANALYSIS

Calculated By	KSF	Date	
Checked By		Date	
Sheet No.		Of	

Client	Project No.
Project	RAC
Subject	Sediment

Sediment Analysis.

Use file GACAR100.DAT.
new file name SOGAC100.DAT

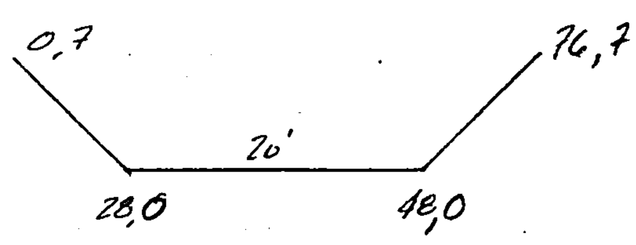
Rainfall (from DPM)

	6hr	1hr
100yr	2.35"	2.01"
50	2.12"	1.81"
25	1.88"	1.61"
10	1.57"	1.34"
5	1.33"	1.14"
2	1.02"	0.87"

For AHYMO

$D_{50} \approx .50$ mm ≈ #40 Sieve. from RAC Geot. Rept.
Fig 3-10 Sediment & Erosion Design Guide
$a = 0.0004$
$b = 3.8$
$C = 0.3$
$d = -0.3$
Channel Slope = 0.0375. (Plate 6)

Typical Section



Change AHYMO. Original input file routed 48in 60" ϕ pipe to E-25.
Change to channel Route. Necessary for SED TRANS

☐ =.25 inch²

Calculated By	Date
Checked By	Date
Sheet No.	Of

Client	Project No.
Project	
Subject	

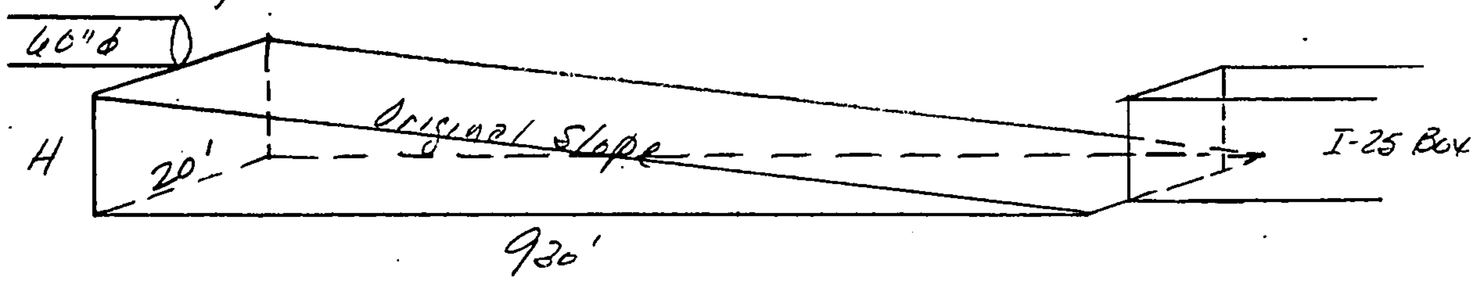
Sediment loads from AHYMO

100yr	13895 ton
50yr	11402 ton
25yr	9047 ton
10yr	6273 ton
5yr	4419 ton
2yr.	2452 ton

Page 1-3 of the SEDG

$Y_M = .015Y_{100} + .015Y_{50} + .04Y_{25} + .08Y_{10} + .2Y_5 + .4Y_2$

How to model the arroyo



For the 100yr

13895 ton. assume 120 pcf.

$V = 1/2(930)(H)(20)$

$13895 \times 2000/120 \times 2/930/20 = 25'$ for H.

$Y_M = 0.015(13895) + 0.015(11402) + .04(9047) + .08(6273) + .2(4419) + .4(2452)$

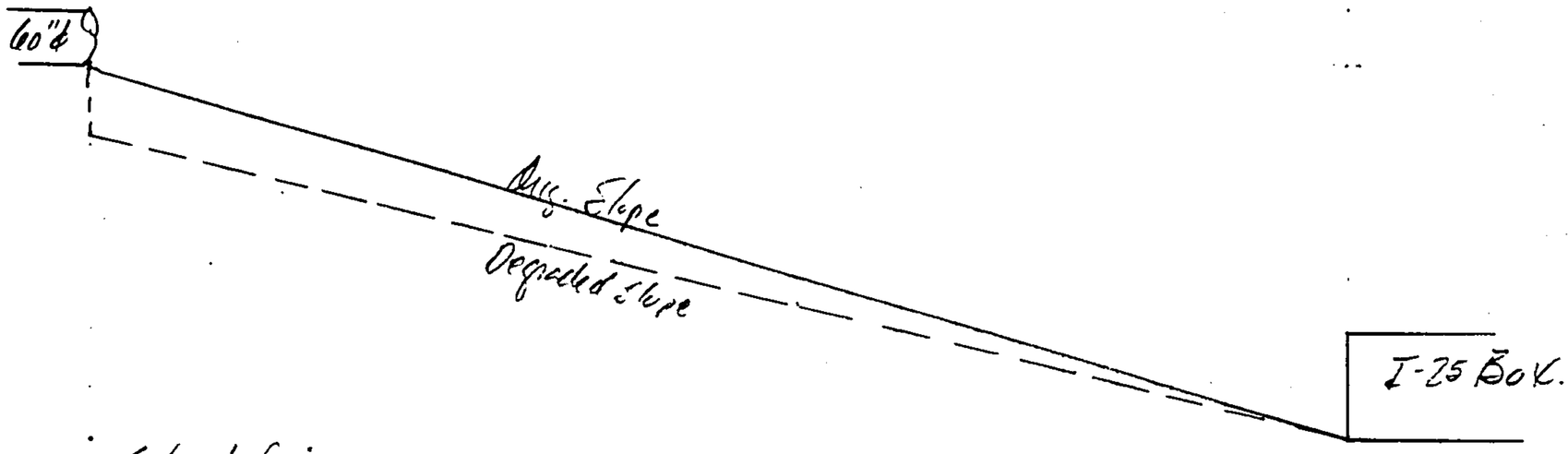
$= 3107$ tons.

$3107 \times 2000/120 \times 2/930/20 = 5.57'$ for H.

long term erosion potential = <6'

Calculated By	Date
Checked By	Date
Sheet No.	Of

Client	Project No.
Project	
Subject	



- Extend Pipe
- Concrete Low Channel
- Grade Control Str.
- Riprap 1st 100' to transition Roughness from Pipe to riprap to Sand.

□ =.25 inch²

Calculated By	Date
Checked By	Date
Sheet No.	Of

Client	Project No.
Project	
Subject	

12,000 tons = 24,000,000 ~~cf.~~ lb.

233,333 cy.

If 5cd moves @ 20 cfs, then 3hrs needed to get them back.

Sag Box @ 3%

□ =.25 inch²

```
********** MOLZEN-CORBIN AND ASSOCIATES **********
****************************** SEPTEMBER 1999 ************************
******** ALBUQUERQUE INTERNATIONAL AIRPORT DRAINAGE MASTER PLAN ********
*********SEDIMENT ANALYSIS ON UNM GC   100 YEAR STORM ******************
**************DISCHARGE FLOWS BASED ON FUTURE CONDTIONS*****************
**************** GENERAL AVIATION (GA) BASIN  - 700'S ******************
*****FLOW FROM GA AREA UNDER UNIVERSITY BLVD. THROUGH G.C. TO SDC*******
********BASINS 701,702,709,707,711,713, 706 & 705 ARE DIVERTED OUT OF **
********THE GA AREA INTO THE 3-21 RUNWAY SYSTEM BY URS GRIENER DESIGN***
*************************************************************************
START                0.00
*************************************************************************
RAINFALL             TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.01
                     RAIN SIX=2.35   RAIN DAY=0.0  DT=0.03333
*************************************************************************
*S* BASIN B730 ***
COMPUTE NM HYD       ID=3 HYD NO=730    DA=.0112        SQ MI
                     PER A=0    PER B=15   PER C=15    PER D=70
                     TP= -.20   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S* BASIN B714 ***
COMPUTE NM HYD       ID=6 HYD NO=714    DA=.0232        SQ MI
                     PER A=0    PER B=0   PER C=45    PER D=55
                     TP= -.13   RAIN=-1
PRINT HYD            ID=6 CODE=10
*S** ADD B730 AND B714****
ADD HYD              ID=4 HYD=730.1    ID I=3 II=6
PRINT HYD            ID=4 CODE=10
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=2 HYD=530    INFLOW ID=4 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                         0          0   5304.7
                         2       .026   5305.0
                        13       .30    5306.0
                        17      1.85    5307.0
                        19      3.65    5307.5
PRINT HYD            ID=2 CODE=10
*S***ROUTE SUBTOTAL TO NORTH EDGE (JUNCTION PT.) OF B730****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.002
                     DIA=3.5   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=250    SLP=.002
ROUTE                ID=7 HYD=730.3      INFLOW ID=2   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
**** HOLD ID*****
*S* BASIN B712 ***
COMPUTE NM HYD       ID=3 HYD NO=712    DA=.0216        SQ MI
                     PER A=0    PER B=3   PER C=0    PER D=97
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (4) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=512    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                         0          0    5305.7
                        13        .66    5307.0
                        17       2.74    5308.0
                        31       4.40    5308.5
PRINT HYD            ID=4 CODE=10
```

```
*S***ROUTE B712 TO NORTH EDGE (JUNCTION PT.) OF B730****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0102
                     DIA=2.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=6 REACH=1 VS NO=1 L=430    SLP=.0102
ROUTE                ID=6 HYD=712.1      INFLOW ID=4   DT=0.03333 HR
PRINT HYD            ID=6 CODE=10
*S** ADD B712 AND SUBTOTAL FROM 714/730***
ADD HYD              ID=2 HYD=712.2    ID I=6 II=7
PRINT HYD            ID=2 CODE=10
*S***ROUTE SOUTH BRANCH SUBTOTAL INTO B716***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0046
                     DIA=4.0   FT N=0.015
COMPUTE TRAVEL TIME  ID=7 REACH=1 VS NO=1 L=500    SLP=.0046
ROUTE                ID=7 HYD=712.3      INFLOW ID=2   DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
*S* BASIN B716 ***
COMPUTE NM HYD       ID=3 HYD NO=716    DA=.0094       SQ MI
                     PER A=0    PER B=0   PER C=45    PER D=55
                     TP= -.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR      ID=4 HYD=512    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                         0        0     5307.0
                         6        0.10  5307.5
                         12       0.31  5308.0
PRINT HYD            ID=4 CODE=10
*S** ADD B716 AND SUBTOTAL***
ADD HYD              ID=6 HYD=716.1    ID I=4 II=7
PRINT HYD            ID=6 CODE=10
**WT. SLOPE FOR TRAVEL TIME**
*S*ROUTE S.BRANCH SUBTOTAL INTO B721 thru pipe and channel to middle ofb721*****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0094
                     DIA=4.0   FT N=0.015
COMPUTE RATING CURVE CID=2 VS NO=2 SEG=1 MIN EL=0 MAX EL=5
                     CH SLP=.08     FP SLP=.08  N=.033 DIST=60
                     DIST ELEV  DIST ELEV  DIST ELEV
                      0    5     10    0     50   0
                      60   5
COMPUTE TRAVEL TIME  ID=8 REACH=1 VS NO=2 L=900    SLP=.045
ROUTE                ID=8 HYD NO=716.2    INFLOW ID=6 DT=.03333 HR
PRINT HYD            ID=8 CODE=10
**** hold ID FROM S. BRANCH (ID=8)***
*S* BASIN B710 ***
COMPUTE NM HYD       ID=3 HYD NO=710    DA=.0312       SQ MI
                     PER A=0    PER B=3   PER C=0    PER D=97
                     TP= -.18   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S** OUTFLOW IS APPROXIMATE CAPACITY OF (2) INLETS WITH ADDITIONAL CONTRIBUTION
****
*S**** FROM 2 INLETS WITH NO STORAGE....STORAGE BASED ON 2 PONDING AREAS*******
ROUTE RESERVOIR      ID=2 HYD=509    INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                         0          0   5306.5
                         15       .165   5307.0
                         30       .621   5307.5
                         34       1.89   5308.0
```

```
PRINT HYD             ID=2 CODE=10
**HOLD ID=2**
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B715*****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.006
                      DIA=3.5    FT N=0.015
COMPUTE TRAVEL TIME   ID=7 REACH=1 VS NO=1 L=500     SLP=.006
ROUTE                 ID=7 HYD=710.3       INFLOW ID=2    DT=0.03333 HR
PRINT HYD             ID=7 CODE=10
** HOLD ID***
*S* BASIN B715 ***
COMPUTE NM HYD        ID=3 HYD NO=715     DA=.0094         SQ MI
                      PER A=0     PER B=0    PER C=65     PER D=35
                      TP= -.13    RAIN=-1
PRINT HYD             ID=3 CODE=10
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************
ROUTE RESERVOIR       ID=4 HYD=515     INFLOW ID=3 CODE=20
                      OUTFLOW     STORAGE   DEPTH
                           0           0    5303.9
                           1       .0041    5304.0
                          13        .872    5305.0
PRINT HYD             ID=4 CODE=10
*S** ADD B715 AND SUBTOTAL FROM N. BRANCH***
ADD HYD               ID=2 HYD=715.1     ID I=4 II=7
PRINT HYD             ID=2 CODE=10
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B718 POND AT ACCESS RD "B"*****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.004
                      DIA=3.5    FT N=0.015
COMPUTE TRAVEL TIME   ID=7 REACH=1 VS NO=1 L=540     SLP=.004
ROUTE                 ID=7 HYD=715.2       INFLOW ID=2    DT=0.03333 HR
PRINT HYD             ID=7 CODE=10
*S* BASIN B718 ***
COMPUTE NM HYD        ID=3 HYD NO=718     DA=.0152         SQ MI
                      PER A=0     PER B=0    PER C=50     PER D=50
                      TP= -.13    RAIN=-1
PRINT HYD             ID=3 CODE=10
*S** ADD B718 AND SUBTOTAL FROM N. BRANCH FOR TOTAL FLOW INTO POND***
ADD HYD               ID=2 HYD=718.2     ID I=3 II=7
PRINT HYD             ID=2 CODE=10
*S****  RISER, OUTFLOW IS APPROXIMATE CAPACITY OF RISER CURVE ******************
ROUTE RESERVOIR       ID=4 HYD=518     INFLOW ID=2 CODE=20
                      OUTFLOW     STORAGE   DEPTH
                           0           0    5274
                         8.2        .183    5276
                       26.44        .727    5278
                       60.50        1.80    5280
                       70.20        3.64    5281
PRINT HYD             ID=4 CODE=10
*S** ADD N. AND S. BRANCH FLOWS AT CHANNEL "Y"****
ADD HYD               ID=9 HYD=721.1     ID I=4 II=8
PRINT HYD             ID=9 CODE=10
**** HOLD ID****
*S* BASIN B719 ***
COMPUTE NM HYD        ID=3 HYD NO=719     DA=.0209         SQ MI
                      PER A=0     PER B=0    PER C=50     PER D=50
                      TP= -.13    RAIN=-1
PRINT HYD             ID=3 CODE=10
*S**** OUTFLOW IS OVERFLOW FROM PONDING AREA*******
```

```
ROUTE RESERVOIR       ID=4 HYD=519    INFLOW ID=3 CODE=20
                      OUTFLOW    STORAGE  DEPTH
                          0          0   5302
                         10       .258   5303.0
                         20        1.6   5303.5
PRINT HYD             ID=4 CODE=10
*S******* ROUTE THROUGH SIDE DITCH ALONG CLARK CARR TO ACCESS ROAD "D"****
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=1.5
                      CH SLP=.0037     FP SLP=.0037   N=.065 DIST=20
                      DIST ELEV  DIST ELEV  DIST ELEV
                       0    1.5     5    0   15   0
                       20   1.5
COMPUTE TRAVEL TIME   ID=7 REACH=1 VS NO=1 L=600    SLP=.0037
ROUTE                 ID=7 HYD NO=719.1    INFLOW ID=4 DT=.03333 HR
PRINT HYD             ID=7 CODE=10
*S* BASIN B722 ***
COMPUTE NM HYD        ID=3 HYD NO=722    DA=.0210        SQ MI
                      PER A=10    PER B=0   PER C=35    PER D=55
                      TP= -.30   RAIN=-1
PRINT HYD             ID=3 CODE=10
*S** ADD B719 AND B722****
ADD HYD               ID=2 HYD=722.1    ID I=3 II=7
PRINT HYD             ID=2 CODE=10
*S* BASIN B723 ***
COMPUTE NM HYD        ID=3 HYD NO=723    DA=.0163        SQ MI
                      PER A=0    PER B=20   PER C=30    PER D=50
                      TP= -.29   RAIN=-1
PRINT HYD             ID=3 CODE=10
*S** ADD B719/722 AND B723****
ADD HYD               ID=5 HYD=723.1    ID I=2 II=3
PRINT HYD             ID=5 CODE=10
*S*ROUTE THIS SPIRIT DRIVE SUBTOTAL THRU 36" PIPE TO "Y" IN CHANNEL***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.07
                      DIA=3.0   FT N=0.015
COMPUTE TRAVEL TIME   ID=7 REACH=1 VS NO=1 L=60    SLP=.07
ROUTE                 ID=7 HYD=723.2      INFLOW ID=5   DT=0.03333 HR
PRINT HYD             ID=7 CODE=10
*S** ADD SPIRIT DRIVE FLOWS TO N. AND S. BRANCH FLOWS****
ADD HYD               ID=2 HYD=723.3    ID I=9 II=7
PRINT HYD             ID=2 CODE=10
*S* ROUTE TOTAL THRU NEW SD PIPE TO UNIVERSITY @ W. END OF B721**
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.05
                      DIA=4.5   FT N=0.015
COMPUTE TRAVEL TIME   ID=6 REACH=1 VS NO=1 L=1300    SLP=.05
ROUTE                 ID=6 HYD NO=723.4  INFLOW ID=2 DT=.03333 HR
PRINT HYD             ID=6 CODE=10
*S**BASIN 721R (REVISED TO REFLECT RENTAL CAR FACILTY IMPROVEMENTS)***
COMPUTE NM HYD        ID=3 HYD NO=721   DA=.0358 SQ MI
                      PER A=0  PER B=0  PER C=21.8 PER D=78.2
                      TP=-.13     RAIN=-1
PRINT HYD             ID=3        CODE=10
*S**ADD B721 TO SUBTOTAL***
ADD HYD               ID=6        HYD=721.2     ID I=3  II=6
PRINT HYD             ID=6        CODE=10
**** HOLD ID***
*S* BASIN B720R (REVISED TO REFLECT RENTAL CAR FACILITY)***
COMPUTE NM HYD        ID=3 HYD NO=720    DA=.026  SQ MI
```

```
                      PER A=0    PER B=0   PER C=7.3    PER D=92.7
                      TP= -.13   RAIN=-1
PRINT HYD             ID=3 CODE=10
*S** ADD B720B AND SUBTOTAL AT NEW SD AT UNIV. CROSSING***
ADD HYD               ID=5 HYD=720.2    ID I=3 II=6
PRINT HYD             ID=5 CODE=10
*S* BASIN B724 ***
COMPUTE NM HYD        ID=3 HYD NO=724    DA=.0465        SQ MI
                      PER A=75    PER B=0   PER C=20    PER D=5
                      TP= -.13   RAIN=-1
PRINT HYD             ID=3 CODE=10
*S** ADD B724 AND CHANNEL SUBTOTAL FOR TOTAL  AT UNIV. CROSSING***
ADD HYD               ID=2 HYD=721.3    ID I=3 II=5
PRINT HYD             ID=2 CODE=10
*S*ROUTE THIS SUBTOTAL THRU 60" RCP TO POND AT EAST SIDE OF G.C.**
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0721
                      DIA=5.0   FT N=0.015
COMPUTE TRAVEL TIME   ID=7 REACH=1 VS NO=1 L=460    SLP=.0721
ROUTE                 ID=7 HYD=721.4      INFLOW ID=2   DT=0.03333 HR
PRINT HYD             ID=7 CODE=10
*S* BASIN B726.1 ***
COMPUTE NM HYD        ID=3 HYD NO=726.10    DA=.0242       SQ MI
                      PER A=72    PER B=0   PER C=20    PER D=8
                      TP= -.13   RAIN=-1
PRINT HYD             ID=3 CODE=10
*S** ADD B726.1 AND SUBTOTAL FOR TOTAL INTO POND*****
ADD HYD               ID=2 HYD=726.11    ID I=3 II=7
PRINT HYD             ID=2 CODE=10
*S**** OUTFLOW IS 60" RCP***POND EAST SIDE OF G.C.**
ROUTE RESERVOIR       ID=6 HYD=526.1    INFLOW ID=2 CODE=20
                      OUTFLOW    STORAGE  DEPTH
                           0          0   5150
                          90       .312   5154
                         170       .643   5156
                         239       1.15   5158
                         285       1.50   5160
PRINT HYD             ID=6 CODE=10
**HOLD ID**
*S* BASIN B725 ***
COMPUTE NM HYD        ID=3 HYD NO=725    DA=.0238        SQ MI
                      PER A=20    PER B=0   PER C=15    PER D=65
                      TP= -.13   RAIN=-1
PRINT HYD             ID=3 CODE=10
*S**** OUTFLOW IS 30" RCP***
ROUTE RESERVOIR       ID=4 HYD=525    INFLOW ID=3 CODE=20
                      OUTFLOW    STORAGE  DEPTH
                           0          0   5179.5
                          10       .053   5180
                          18       .406   5182
                          40        1.3   5184.5
PRINT HYD             ID=4 CODE=10
*S*ROUTE B725 THRU 30" & 36" RCP TO 60" RCP***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.005
                      DIA=2.75   FT N=0.022
COMPUTE TRAVEL TIME   ID=7 REACH=1 VS NO=1 L=1050    SLP=.005
ROUTE                 ID=7 HYD=725.1      INFLOW ID=4   DT=0.03333 HR
PRINT HYD             ID=7 CODE=10
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*S** ADD B725 AND SUBTOTAL FOR TOTAL DISCHARGE DOWN 60" RCP TOWARDS I-25**
ADD HYD                ID=2 HYD=725.2     ID I=6 II=7
PRINT HYD              ID=2 CODE=10
*S*ROUTE THIS SUBTOTAL THRU REST OF 60" RCP TO I-25***
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=7
                       CH SLP=0.0375    FP SLP=0.0375    N=0.033 DIST=72
                       DIST ELEV  DIST ELEV  DIST ELEV
                       0    7     28   0     48   0
                       72   7
COMPUTE TRAVEL TIME    ID=7 REACH=1 VS NO=1 L=930     SLP=.0375
ROUTE                  ID=7 HYD=725.3       INFLOW ID=2    DT=0.03333 HR
PRINT HYD              ID=7 CODE=10
**HOLD ID**
*S*DO SEDIMENT TRANSPORT ANALYSIS ON ARROYO THROUGH UNM GOLF COURSE
SEDIMENT TRANS         ID=7 IDS=1 CODE=1
                       A FACT=0.0004   B EXP=3.8
                       C EXP=0.32   D EXP=-2.5   NUMBER WASH=4
                                    CONC=10000 at ZERO cfs
                       AT Q=1000 cfs CONC=20000 PPM
                       AT Q=3000 cfs CONC=30000 PPM
                       AT Q=10000 cfs CONC=40000 CID=-1
*S* BASIN B726 ***
COMPUTE NM HYD         ID=3 HYD NO=726     DA=.1553         SQ MI
                       PER A=20     PER B=55    PER C=25     PER D=0
                       TP= -.15    RAIN=-1
PRINT HYD              ID=3 CODE=10
*S** ADD B726 AND 60" RCP DISCHARGE AT I-25***
ADD HYD                ID=2 HYD=726.1     ID I=3 II=7
PRINT HYD              ID=2 CODE=10
*S**** ROUTE THRU POND ON EAST SIDE OF I-25 OUTFLOW IS ???? RCP***
ROUTE RESERVOIR        ID=4 HYD=526     INFLOW ID=2 CODE=20
                       OUTFLOW     STORAGE   DEPTH
                            0           0    5048
                          160        .338    5052
                          440        1.18    5056
                          620        4.75    5060
                          710        7.83    5062
PRINT HYD              ID=4 CODE=10
*S* ROUTE SUBTOTAL THROUGH B728 TO SDC***
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                       CH SLP=.0313      FP SLP=.0313    N=.033 DIST=50
                       DIST ELEV  DIST ELEV  DIST ELEV
                        0    4     5    2     8    0
                        42   0     45   2     50   4
COMPUTE TRAVEL TIME    ID=5 REACH=1 VS NO=1 L=1600   SLP=.0313
ROUTE                  ID=5 HYD NO=726.2     INFLOW ID=4 DT=.03333 HR
PRINT HYD              ID=5 CODE=10
*S* BASIN B728 ***
COMPUTE NM HYD         ID=3 HYD NO=728     DA=.0344         SQ MI
                       PER A=70     PER B=0    PER C=15     PER D=15
                       TP= -.13    RAIN=-1
PRINT HYD              ID=3 CODE=10
*S** ADD B728 AND SUBTOTAL***
ADD HYD                ID=6 HYD=728.1     ID I=3 II=5
PRINT HYD              ID=6 CODE=10
*S* BASIN B727 ***
COMPUTE NM HYD         ID=3 HYD NO=727     DA=.0527         SQ MI
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                      PER A=70     PER B=0    PER C=15     PER D=15
                      TP= -.18    RAIN=-1
PRINT HYD             ID=3 CODE=10
*S**** OUTFLOW IS (3) 36" CMP***
ROUTE RESERVOIR       ID=4 HYD=527     INFLOW ID=3 CODE=20
                      OUTFLOW     STORAGE  DEPTH
                           0           0   5048
                         160         .34   5052
                         440        1.18   5056
                         620        4.75   5060
                         710        7.83   5062
PRINT HYD             ID=4 CODE=10
*S** ADD B727 AND SUBTOTAL FOR TOTAL ENTERING SOUTH DIVERSION CHANNEL***
ADD HYD               ID=2 HYD=727.1     ID I=4 II=6
*S*** TOTAL INTO SDC FROM GENERAL AVIATION AREA****
PRINT HYD             ID=2 CODE=10
FINISH
```

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =09/13/1999
INPUT FILE = c:\progra~1\ahymo_97\sdgac100.dat USER NO.= AHYMO-I-9702a01000F11-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.350
S BASIN B730 ***										
COMPUTE NM HYD	730.00	-	3	.01120	23.92	1.052	1.76175	1.567	3.338	PER IMP= 70.00
S BASIN B714 ***										
COMPUTE NM HYD	714.00	-	6	.02320	60.20	2.068	1.67101	1.500	4.054	PER IMP= 55.00
*S** ADD B730 AND B714****										
ADD HYD	730.10	3& 6	4	.03440	80.05	3.120	1.70053	1.500	3.636	
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************										
ROUTE RESERVOIR	530.00	4	2	.03440	16.76	3.120	1.70053	2.066	.761	AC-FT= 1.758
*S***ROUTE SUBTOTAL TO NORTH EDGE (JUNCTION PT.) OF B730****										
ROUTE	730.30	2	7	.03440	16.76	3.120	1.70054	2.100	.761	
S BASIN B712 ***										
COMPUTE NM HYD	712.00	-	3	.02160	64.68	2.391	2.07525	1.500	4.679	PER IMP= 97.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (4) INLETS ******************										
ROUTE RESERVOIR	512.00	3	4	.02160	14.25	2.391	2.07524	2.033	1.031	AC-FT= 1.309
*S***ROUTE B712 TO NORTH EDGE (JUNCTION PT.) OF B730****										
ROUTE	712.10	4	6	.02160	14.25	2.391	2.07522	2.066	1.031	
*S** ADD B712 AND SUBTOTAL FROM 714/730***										
ADD HYD	712.20	6& 7	2	.05600	31.00	5.511	1.84504	2.066	.865	
*S***ROUTE SOUTH BRANCH SUBTOTAL INTO B716***										
ROUTE	712.30	2	7	.05600	31.00	5.511	1.84505	2.100	.865	
S BASIN B716 ***										
COMPUTE NM HYD	716.00	-	3	.00940	24.40	.838	1.67101	1.500	4.056	PER IMP= 55.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************										
ROUTE RESERVOIR	512.00	3	4	.00940	11.36	.838	1.67098	1.700	1.888	AC-FT= .288
*S** ADD B716 AND SUBTOTAL***										
ADD HYD	716.10	4& 7	6	.06540	41.20	6.348	1.82002	1.800	.984	
*S*ROUTE S.BRANCH SUBTOTAL INTO B721 thru pipe and channel to middle ofb721*****										
ROUTE	716.20	6	8	.06540	41.15	6.348	1.82002	1.833	.983	
S BASIN B710 ***										
COMPUTE NM HYD	710.00	-	3	.03120	79.94	3.453	2.07525	1.533	4.003	PER IMP= 97.00
*S** OUTFLOW IS APPROXIMATE CAPACITY OF (2) INLETS WITH ADDITIONAL CONTRIBUTION										
*S**** FROM 2 INLETS WITH NO STORAGE....STORAGE BASED ON 2 PONDING AREAS*******										
ROUTE RESERVOIR	509.00	3	2	.03120	31.82	3.453	2.07524	1.866	1.594	AC-FT= 1.199
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B715*****										
ROUTE	710.30	2	7	.03120	31.82	3.453	2.07524	1.900	1.593	
S BASIN B715 ***										
COMPUTE NM HYD	715.00	-	3	.00940	22.54	.739	1.47352	1.500	3.746	PER IMP= 35.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************										
ROUTE RESERVOIR	515.00	3	4	.00940	6.23	.739	1.47349	1.866	1.035	AC-FT= .382
*S** ADD B715 AND SUBTOTAL FROM N. BRANCH***										
ADD HYD	715.10	4& 7	2	.04060	38.05	4.192	1.93591	1.866	1.464	
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B718 POND AT ACCESS RD *B******										
ROUTE	715.20	2	7	.04060	38.03	4.192	1.93592	1.900	1.464	
S BASIN B718 ***										
COMPUTE NM HYD	718.00	-	3	.01520	38.69	1.315	1.62163	1.500	3.977	PER IMP= 50.00
*S** ADD B718 AND SUBTOTAL FROM N. BRANCH FOR TOTAL FLOW INTO POND***										
ADD HYD	718.20	3& 7	2	.05580	64.07	5.506	1.85030	1.533	1.794	
*S**** RISER, OUTFLOW IS APPROXIMATE CAPACITY OF RISER CURVE ******************										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE RESERVOIR	518.00	2	4	.05580	42.74	5.506	1.85029	2.100	1.197	AC-FT= 1.240
*S** ADD N. AND S. BRANCH FLOWS AT CHANNEL "Y"*****										
ADD HYD	721.10	4& 8	9	.12120	82.65	11.855	1.83395	2.000	1.065	
S BASIN B719 ***										
COMPUTE NM HYD	719.00	-	3	.02090	53.20	1.808	1.62163	1.500	3.977	PER IMP= 50.00
*S**** OUTFLOW IS OVERFLOW FROM PONDING AREA*******										
ROUTE RESERVOIR	519.00	3	4	.02090	14.66	1.808	1.62162	1.866	1.096	AC-FT= .884
*S******* ROUTE THROUGH SIDE DITCH ALONG CLARK CARR TO ACCESS ROAD "D*****										
ROUTE	719.10	4	7	.02090	14.30	1.808	1.62162	2.033	1.069	
S BASIN B722 ***										
COMPUTE NM HYD	722.00	-	3	.02100	32.11	1.785	1.59370	1.667	2.389	PER IMP= 55.00
*S** ADD B719 AND B722****										
ADD HYD	722.10	3& 7	2	.04190	43.85	3.592	1.60759	1.700	1.635	
S BASIN B723 ***										
COMPUTE NM HYD	723.00	-	3	.01630	24.87	1.342	1.54357	1.667	2.384	PER IMP= 50.00
*S** ADD B719/722 AND B723****										
ADD HYD	723.10	2& 3	5	.05820	68.44	4.934	1.58965	1.700	1.837	
*S*ROUTE THIS SPIRIT DRIVE SUBTOTAL THRU 36" PIPE TO "Y" IN CHANNEL***										
ROUTE	723.20	5	7	.05820	68.46	4.934	1.58966	1.700	1.838	
*S** ADD SPIRIT DRIVE FLOWS TO N. AND S. BRANCH FLOWS****										
ADD HYD	723.30	9& 7	2	.17940	143.88	16.789	1.75470	1.733	1.253	
S ROUTE TOTAL THRU NEW SD PIPE TO UNIVERSITY @ W. END OF B721**										
ROUTE	723.40	2	6	.17940	143.79	16.789	1.75470	1.733	1.252	
*S**BASIN 721R (REVISED TO REFLECT RENTAL CAR FACILTY IMPROVEMENTS)***										
COMPUTE NM HYD	721.00	-	3	.03580	101.12	3.628	1.90010	1.500	4.413	PER IMP= 78.20
*S**ADD B721 TO SUBTOTAL***										
ADD HYD	721.20	3& 6	6	.21520	188.82	20.417	1.77889	1.633	1.371	
S BASIN B720R (REVISED TO REFLECT RENTAL CAR FACILITY)***										
COMPUTE NM HYD	720.00	-	3	.02600	77.18	2.833	2.04328	1.500	4.638	PER IMP= 92.70
*S** ADD B720B AND SUBTOTAL AT NEW SD AT UNIV. CROSSING***										
ADD HYD	720.20	3& 6	5	.24120	253.45	23.250	1.80739	1.533	1.642	
S BASIN B724 ***										
COMPUTE NM HYD	724.00	-	3	.04650	59.72	1.736	.69990	1.500	2.007	PER IMP= 5.00
*S** ADD B724 AND CHANNEL SUBTOTAL FOR TOTAL AT UNIV. CROSSING***										
ADD HYD	721.30	3& 5	2	.28770	312.91	24.986	1.62839	1.533	1.699	
*S*ROUTE THIS SUBTOTAL THRU 60" RCP TO POND AT EAST SIDE OF G.C.**										
ROUTE	721.40	2	7	.28770	313.62	24.986	1.62839	1.533	1.703	
S BASIN B726.1 ***										
COMPUTE NM HYD	726.10	-	3	.02420	32.57	.965	.74754	1.500	2.103	PER IMP= 8.00
*S** ADD B726.1 AND SUBTOTAL FOR TOTAL INTO POND*****										
ADD HYD	726.11	3& 7	2	.31190	345.90	25.951	1.56004	1.533	1.733	
*S**** OUTFLOW IS 60" RCP***POND EAST SIDE OF G.C.**										
ROUTE RESERVOIR	526.10	2	6	.31190	302.00	25.951	1.56004	1.633	1.513	AC-FT= 1.629
S BASIN B725 ***										
COMPUTE NM HYD	725.00	-	3	.02380	58.73	2.073	1.63305	1.500	3.856	PER IMP= 65.00
*S**** OUTFLOW IS 30" RCP***										
ROUTE RESERVOIR	525.00	3	4	.02380	25.30	2.073	1.63303	1.700	1.661	AC-FT= .702
*S*ROUTE B725 THRU 30" & 36" RCP TO 60" RCP***										
ROUTE	725.10	4	7	.02380	24.82	2.073	1.63305	1.800	1.629	
*S** ADD B725 AND SUBTOTAL FOR TOTAL DISCHARGE DOWN 60" RCP TOWARDS I-25**										
ADD HYD	725.20	6& 7	2	.33570	323.91	28.024	1.56522	1.633	1.508	
*S*ROUTE THIS SUBTOTAL THRU REST OF 60" RCP TO I-25***										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	725.30	2	7	.33570	322.41	28.024	1.56522	1.633	1.501	
*S*DO SEDIMENT TRANSPORT ANALYSIS ON ARROYO THROUGH UNM GOLF COURSE										
SEDIMENT TRANSP	725.30	7	SED ID = 1		PEAK CONC.(PPM-w) =	347504	TOTAL SED.(TONS) =		13895.56	
S BASIN B726 ***										
COMPUTE NM HYD	726.00	-	3	.15530	219.67	6.567	.79289	1.533	2.210	PER IMP= .00
*S** ADD B726 AND 60" RCP DISCHARGE AT I-25***										
ADD HYD	726.10	3& 7	2	.49100	501.55	34.591	1.32093	1.600	1.596	
*S**** ROUTE THRU POND ON EAST SIDE OF I-25 OUTFLOW IS ???? RCP***										
ROUTE RESERVOIR	526.00	2	4	.49100	458.73	34.591	1.32093	1.667	1.460	AC-FT= 1.552
S ROUTE SUBTOTAL THROUGH B728 TO SDC***										
ROUTE	726.20	4	5	.49100	457.00	34.591	1.32094	1.700	1.454	
S BASIN B728 ***										
COMPUTE NM HYD	728.00	-	3	.03440	49.65	1.533	.83561	1.500	2.255	PER IMP= 15.00
*S** ADD B728 AND SUBTOTAL***										
ADD HYD	728.10	3& 5	6	.52540	480.83	36.124	1.28916	1.667	1.430	
S BASIN B727 ***										
COMPUTE NM HYD	727.00	-	3	.05270	60.94	2.349	.83561	1.567	1.807	PER IMP= 15.00
*S**** OUTFLOW IS (3) 36" CMP***										
ROUTE RESERVOIR	527.00	3	4	.05270	59.57	2.349	.83560	1.600	1.766	AC-FT= .127
*S** ADD B727 AND SUBTOTAL FOR TOTAL ENTERING SOUTH DIVERSION CHANNEL***										
ADD HYD	727.10	4& 6	2	.57810	534.58	38.473	1.24781	1.633	1.445	
*S*** TOTAL INTO SDC FROM GENERAL AVIATION AREA****										
FINISH										

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =09/13/1999
INPUT FILE = c:\progra~1\ahymo_97\sdgac50.dat USER NO.= AHYMO-I-9702a01000F11-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.120
S BASIN B730 ***											
COMPUTE NM HYD	730.00	-	3	.01120	21.28	.925	1.54837	1.567	2.969	PER IMP=	70.00
S BASIN B714 ***											
COMPUTE NM HYD	714.00	-	6	.02320	53.60	1.803	1.45738	1.500	3.610	PER IMP=	55.00
*S** ADD B730 AND B714****											
ADD HYD	730.10	3& 6	4	.03440	71.19	2.728	1.48698	1.500	3.234		
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************											
ROUTE RESERVOIR	530.00	4	2	.03440	16.03	2.728	1.48698	2.033	.728	AC-FT=	1.474
*S***ROUTE SUBTOTAL TO NORTH EDGE (JUNCTION PT.) OF B730****											
ROUTE	730.30	2	7	.03440	16.02	2.728	1.48699	2.033	.728		
S BASIN B712 ***											
COMPUTE NM HYD	712.00	-	3	.02160	58.09	2.129	1.84804	1.500	4.202	PER IMP=	97.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (4) INLETS ******************											
ROUTE RESERVOIR	512.00	3	4	.02160	13.89	2.129	1.84802	2.000	1.005	AC-FT=	1.121
*S***ROUTE B712 TO NORTH EDGE (JUNCTION PT.) OF B730****											
ROUTE	712.10	4	6	.02160	13.89	2.129	1.84800	2.033	1.004		
*S** ADD B712 AND SUBTOTAL FROM 714/730***											
ADD HYD	712.20	6& 7	2	.05600	29.91	4.857	1.62622	2.033	.835		
*S***ROUTE SOUTH BRANCH SUBTOTAL INTO B716***											
ROUTE	712.30	2	7	.05600	29.91	4.857	1.62623	2.066	.834		
S BASIN B716 ***											
COMPUTE NM HYD	716.00	-	3	.00940	21.73	.731	1.45738	1.500	3.612	PER IMP=	55.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************											
ROUTE RESERVOIR	512.00	3	4	.00940	10.24	.731	1.45735	1.667	1.703	AC-FT=	.248
*S** ADD B716 AND SUBTOTAL***											
ADD HYD	716.10	4& 7	6	.06540	39.22	5.588	1.60194	1.766	.937		
*S*ROUTE S.BRANCH SUBTOTAL INTO B721 thru pipe and channel to middle ofb721*****											
ROUTE	716.20	6	8	.06540	39.16	5.588	1.60195	1.800	.936		
S BASIN B710 ***											
COMPUTE NM HYD	710.00	-	3	.03120	71.75	3.075	1.84804	1.533	3.593	PER IMP=	97.00
*S** OUTFLOW IS APPROXIMATE CAPACITY OF (2) INLETS WITH ADDITIONAL CONTRIBUTION											
*S**** FROM 2 INLETS WITH NO STORAGE....STORAGE BASED ON 2 PONDING AREAS*******											
ROUTE RESERVOIR	509.00	3	2	.03120	31.18	3.075	1.84802	1.833	1.562	AC-FT=	.996
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B715*****											
ROUTE	710.30	2	7	.03120	31.18	3.075	1.84803	1.833	1.561		
S BASIN B715 ***											
COMPUTE NM HYD	715.00	-	3	.00940	19.96	.635	1.26682	1.500	3.317	PER IMP=	35.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************											
ROUTE RESERVOIR	515.00	3	4	.00940	5.48	.635	1.26679	1.833	.911	AC-FT=	.328
*S** ADD B715 AND SUBTOTAL FROM N. BRANCH***											
ADD HYD	715.10	4& 7	2	.04060	36.66	3.710	1.71345	1.833	1.411		
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B718 POND AT ACCESS RD *B******											
ROUTE	715.20	2	7	.04060	36.65	3.710	1.71346	1.866	1.410		
S BASIN B718 ***											
COMPUTE NM HYD	718.00	-	3	.01520	34.41	1.143	1.40974	1.500	3.537	PER IMP=	50.00
*S** ADD B718 AND SUBTOTAL FROM N. BRANCH FOR TOTAL FLOW INTO POND***											
ADD HYD	718.20	3& 7	2	.05580	58.01	4.853	1.63071	1.567	1.624		
*S**** RISER, OUTFLOW IS APPROXIMATE CAPACITY OF RISER CURVE ******************											

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
ROUTE RESERVOIR	518.00	2	4	.05580	39.94	4.853	1.63071	2.100	1.118	AC-FT=	1.152
*S** ADD N. AND S. BRANCH FLOWS AT CHANNEL "Y"*****											
ADD HYD	721.10	4& 8	9	.12120	77.70	10.441	1.61518	2.033	1.002		
S BASIN B719 ***											
COMPUTE NM HYD	719.00	-	3	.02090	47.31	1.571	1.40974	1.500	3.537	PER IMP=	50.00
*S**** OUTFLOW IS OVERFLOW FROM PONDING AREA*******											
ROUTE RESERVOIR	519.00	3	4	.02090	13.64	1.571	1.40973	1.833	1.019	AC-FT=	.746
*S******* ROUTE THROUGH SIDE DITCH ALONG CLARK CARR TO ACCESS ROAD "D"*****											
ROUTE	719.10	4	7	.02090	13.23	1.571	1.40973	2.033	.989		
S BASIN B722 ***											
COMPUTE NM HYD	722.00	-	3	.02100	28.32	1.554	1.38746	1.667	2.107	PER IMP=	55.00
*S** ADD B719 AND B722****											
ADD HYD	722.10	3& 7	2	.04190	39.29	3.125	1.39853	1.700	1.465		
S BASIN B723 ***											
COMPUTE NM HYD	723.00	-	3	.01630	21.92	1.164	1.33904	1.667	2.102	PER IMP=	50.00
*S** ADD B719/722 AND B723****											
ADD HYD	723.10	2& 3	5	.05820	60.96	4.289	1.38186	1.700	1.636		
*S*ROUTE THIS SPIRIT DRIVE SUBTOTAL THRU 36" PIPE TO "Y" IN CHANNEL***											
ROUTE	723.20	5	7	.05820	60.96	4.289	1.38187	1.700	1.637		
*S** ADD SPIRIT DRIVE FLOWS TO N. AND S. BRANCH FLOWS****											
ADD HYD	723.30	9& 7	2	.17940	131.80	14.730	1.53949	1.733	1.148		
S ROUTE TOTAL THRU NEW SD PIPE TO UNIVERSITY @ W. END OF B721**											
ROUTE	723.40	2	6	.17940	131.73	14.730	1.53949	1.733	1.147		
*S**BASIN 721R (REVISED TO REFLECT RENTAL CAR FACILTY IMPROVEMENTS)***											
COMPUTE NM HYD	721.00	-	3	.03580	90.53	3.205	1.67842	1.500	3.951	PER IMP=	78.20
*S**ADD B721 TO SUBTOTAL***											
ADD HYD	721.20	3& 6	6	.21520	171.00	17.935	1.56260	1.633	1.242		
S BASIN B720R (REVISED TO REFLECT RENTAL CAR FACILITY)***											
COMPUTE NM HYD	720.00	-	3	.02600	69.30	2.519	1.81658	1.500	4.165	PER IMP=	92.70
*S** ADD B720B AND SUBTOTAL AT NEW SD AT UNIV. CROSSING***											
ADD HYD	720.20	3& 6	5	.24120	226.52	20.453	1.58998	1.533	1.467		
S BASIN B724 ***											
COMPUTE NM HYD	724.00	-	3	.04650	47.80	1.368	.55147	1.500	1.606	PER IMP=	5.00
*S** ADD B724 AND CHANNEL SUBTOTAL FOR TOTAL AT UNIV. CROSSING***											
ADD HYD	721.30	3& 5	2	.28770	274.28	21.821	1.42213	1.533	1.490		
*S*ROUTE THIS SUBTOTAL THRU 60" RCP TO POND AT EAST SIDE OF G.C.**											
ROUTE	721.40	2	7	.28770	274.85	21.821	1.42213	1.533	1.493		
S BASIN B726.1 ***											
COMPUTE NM HYD	726.10	-	3	.02420	26.33	.770	.59635	1.500	1.700	PER IMP=	8.00
*S** ADD B726.1 AND SUBTOTAL FOR TOTAL INTO POND*****											
ADD HYD	726.11	3& 7	2	.31190	301.03	22.591	1.35805	1.533	1.508		
*S**** OUTFLOW IS 60" RCP***POND EAST SIDE OF G.C.**											
ROUTE RESERVOIR	526.10	2	6	.31190	262.33	22.591	1.35805	1.633	1.314	AC-FT=	1.328
S BASIN B725 ***											
COMPUTE NM HYD	725.00	-	3	.02380	51.83	1.814	1.42924	1.500	3.403	PER IMP=	65.00
*S**** OUTFLOW IS 30" RCP***											
ROUTE RESERVOIR	525.00	3	4	.02380	22.68	1.814	1.42923	1.700	1.489	AC-FT=	.596
*S*ROUTE B725 THRU 30" & 36" RCP TO 60" RCP***											
ROUTE	725.10	4	7	.02380	22.08	1.814	1.42925	1.800	1.450		
*S** ADD B725 AND SUBTOTAL FOR TOTAL DISCHARGE DOWN 60" RCP TOWARDS I-25**											
ADD HYD	725.20	6& 7	2	.33570	282.29	24.405	1.36310	1.633	1.314		
*S*ROUTE THIS SUBTOTAL THRU REST OF 60" RCP TO I-25***											

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	725.30	2	7	.33570	281.48	24.405	1.36310	1.667	1.310	
*S*DO SEDIMENT TRANSPORT ANALYSIS ON ARROYO THROUGH UNM GOLF COURSE										
SEDIMENT TRANSP	725.30	7		SED ID = 1		PEAK CONC.(PPM-w) =	330386	TOTAL SED.(TONS) =		11402.47
S BASIN B726 ***										
COMPUTE NM HYD	726.00	-	3	.15530	180.34	5.216	.62969	1.533	1.814	PER IMP= .00
*S** ADD B726 AND 60" RCP DISCHARGE AT I-25***										
ADD HYD	726.10	3& 7	2	.49100	428.26	29.620	1.13113	1.600	1.363	
*S**** ROUTE THRU POND ON EAST SIDE OF I-25 OUTFLOW IS ???? RCP***										
ROUTE RESERVOIR	526.00	2	4	.49100	418.78	29.620	1.13113	1.633	1.333	AC-FT= 1.116
S ROUTE SUBTOTAL THROUGH B728 TO SDC***										
ROUTE	726.20	4	5	.49100	412.14	29.620	1.13113	1.667	1.312	
S BASIN B728 ***										
COMPUTE NM HYD	728.00	-	3	.03440	40.63	1.247	.67947	1.500	1.845	PER IMP= 15.00
*S** ADD B728 AND SUBTOTAL***										
ADD HYD	728.10	3& 5	6	.52540	433.60	30.867	1.10156	1.667	1.289	
S BASIN B727 ***										
COMPUTE NM HYD	727.00	-	3	.05270	49.76	1.910	.67947	1.567	1.475	PER IMP= 15.00
*S**** OUTFLOW IS (3) 36" CMP***										
ROUTE RESERVOIR	527.00	3	4	.05270	48.58	1.910	.67946	1.600	1.440	AC-FT= .103
*S** ADD B727 AND SUBTOTAL FOR TOTAL ENTERING SOUTH DIVERSION CHANNEL***										
ADD HYD	727.10	4& 6	2	.57810	475.95	32.777	1.06308	1.667	1.286	
*S*** TOTAL INTO SDC FROM GENERAL AVIATION AREA****										
FINISH										

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =09/13/1999
INPUT FILE = c:\progra~1\ahymo_97\sdgac25.dat USER NO.= AHYMO-I-9702a01000F11-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.880
S BASIN B730 ***										
COMPUTE NM HYD	730.00	-	3	.01120	18.54	.794	1.32937	1.567	2.586	PER IMP= 70.00
S BASIN B714 ***										
COMPUTE NM HYD	714.00	-	6	.02320	46.79	1.535	1.24076	1.500	3.151	PER IMP= 55.00
*S** ADD B730 AND B714****										
ADD HYD	730.10	3& 6	4	.03440	62.03	2.329	1.26959	1.500	2.817	
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS *****										
ROUTE RESERVOIR	530.00	4	2	.03440	15.30	2.329	1.26959	2.000	.695	AC-FT= 1.192
*S***ROUTE SUBTOTAL TO NORTH EDGE (JUNCTION PT.) OF B730****										
ROUTE	730.30	2	7	.03440	15.30	2.329	1.26960	2.000	.695	
S BASIN B712 ***										
COMPUTE NM HYD	712.00	-	3	.02160	51.44	1.856	1.61136	1.500	3.721	PER IMP= 97.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (4) INLETS *****										
ROUTE RESERVOIR	512.00	3	4	.02160	13.53	1.856	1.61135	1.966	.979	AC-FT= .938
*S***ROUTE B712 TO NORTH EDGE (JUNCTION PT.) OF B730****										
ROUTE	712.10	4	6	.02160	13.53	1.856	1.61133	1.966	.979	
*S** ADD B712 AND SUBTOTAL FROM 714/730***										
ADD HYD	712.20	6& 7	2	.05600	28.83	4.185	1.40139	2.000	.804	
*S***ROUTE SOUTH BRANCH SUBTOTAL INTO B716***										
ROUTE	712.30	2	7	.05600	28.83	4.186	1.40140	2.000	.804	
S BASIN B716 ***										
COMPUTE NM HYD	716.00	-	3	.00940	18.96	.622	1.24076	1.500	3.152	PER IMP= 55.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS *****										
ROUTE RESERVOIR	512.00	3	4	.00940	9.12	.622	1.24073	1.667	1.515	AC-FT= .209
*S** ADD B716 AND SUBTOTAL***										
ADD HYD	716.10	4& 7	6	.06540	37.22	4.807	1.37829	1.766	.889	
*S*ROUTE S.BRANCH SUBTOTAL INTO B721 thru pipe and channel to middle ofb721*****										
ROUTE	716.20	6	8	.06540	37.17	4.808	1.37830	1.800	.888	
S BASIN B710 ***										
COMPUTE NM HYD	710.00	-	3	.03120	63.47	2.681	1.61136	1.533	3.179	PER IMP= 97.00
*S** OUTFLOW IS APPROXIMATE CAPACITY OF (2) INLETS WITH ADDITIONAL CONTRIBUTION										
*S**** FROM 2 INLETS WITH NO STORAGE....STORAGE BASED ON 2 PONDING AREAS*******										
ROUTE RESERVOIR	509.00	3	2	.03120	30.59	2.681	1.61135	1.766	1.532	AC-FT= .807
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B715*****										
ROUTE	710.30	2	7	.03120	30.59	2.681	1.61136	1.800	1.532	
S BASIN B715 ***										
COMPUTE NM HYD	715.00	-	3	.00940	17.26	.532	1.06028	1.500	2.868	PER IMP= 35.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS *****										
ROUTE RESERVOIR	515.00	3	4	.00940	4.73	.532	1.06024	1.833	.786	AC-FT= .274
*S** ADD B715 AND SUBTOTAL FROM N. BRANCH***										
ADD HYD	715.10	4& 7	2	.04060	35.31	3.213	1.48375	1.800	1.359	
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B718 POND AT ACCESS RD *B******										
ROUTE	715.20	2	7	.04060	35.30	3.213	1.48376	1.833	1.358	
S BASIN B718 ***										
COMPUTE NM HYD	718.00	-	3	.01520	29.97	.969	1.19564	1.500	3.080	PER IMP= 50.00
*S** ADD B718 AND SUBTOTAL FROM N. BRANCH FOR TOTAL FLOW INTO POND***										
ADD HYD	718.20	3& 7	2	.05580	51.41	4.182	1.40526	1.567	1.440	
*S**** RISER, OUTFLOW IS APPROXIMATE CAPACITY OF RISER CURVE *****										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
ROUTE RESERVOIR	518.00	2	4	.05580	37.12	4.182	1.40526	2.133	1.039	AC-FT=	1.063
*S** ADD N. AND S. BRANCH FLOWS AT CHANNEL "Y"*****											
ADD HYD	721.10	4& 8	9	.12120	72.66	8.990	1.39071	2.033	.937		
S BASIN B719 ***											
COMPUTE NM HYD	719.00	-	3	.02090	41.20	1.333	1.19564	1.500	3.080	PER IMP=	50.00
*S**** OUTFLOW IS OVERFLOW FROM PONDING AREA*******											
ROUTE RESERVOIR	519.00	3	4	.02090	12.63	1.333	1.19563	1.800	.944	AC-FT=	.611
*S******* ROUTE THROUGH SIDE DITCH ALONG CLARK CARR TO ACCESS ROAD "D"*****											
ROUTE	719.10	4	7	.02090	12.18	1.333	1.19563	2.000	.911		
S BASIN B722 ***											
COMPUTE NM HYD	722.00	-	3	.02100	24.40	1.319	1.17773	1.667	1.815	PER IMP=	55.00
*S** ADD B719 AND B722****											
ADD HYD	722.10	3& 7	2	.04190	34.54	2.652	1.18662	1.700	1.288		
S BASIN B723 ***											
COMPUTE NM HYD	723.00	-	3	.01630	18.81	.984	1.13197	1.667	1.803	PER IMP=	50.00
*S** ADD B719/722 AND B723****											
ADD HYD	723.10	2& 3	5	.05820	53.13	3.636	1.17131	1.700	1.426		
*S*ROUTE THIS SPIRIT DRIVE SUBTOTAL THRU 36" PIPE TO "Y" IN CHANNEL***											
ROUTE	723.20	5	7	.05820	53.13	3.636	1.17131	1.700	1.426		
*S** ADD SPIRIT DRIVE FLOWS TO N. AND S. BRANCH FLOWS****											
ADD HYD	723.30	9& 7	2	.17940	119.12	12.625	1.31953	1.733	1.038		
S ROUTE TOTAL THRU NEW SD PIPE TO UNIVERSITY @ W. END OF B721**											
ROUTE	723.40	2	6	.17940	118.98	12.625	1.31954	1.766	1.036		
*S**BASIN 721R (REVISED TO REFLECT RENTAL CAR FACILTY IMPROVEMENTS)***											
COMPUTE NM HYD	721.00	-	3	.03580	79.73	2.769	1.45013	1.500	3.480	PER IMP=	78.20
*S**ADD B721 TO SUBTOTAL***											
ADD HYD	721.20	3& 6	6	.21520	152.69	15.394	1.34126	1.667	1.109		
S BASIN B720R (REVISED TO REFLECT RENTAL CAR FACILITY)***											
COMPUTE NM HYD	720.00	-	3	.02600	61.34	2.192	1.58099	1.500	3.686	PER IMP=	92.70
*S** ADD B720B AND SUBTOTAL AT NEW SD AT UNIV. CROSSING***											
ADD HYD	720.20	3& 6	5	.24120	198.39	17.586	1.36710	1.533	1.285		
S BASIN B724 ***											
COMPUTE NM HYD	724.00	-	3	.04650	35.94	1.014	.40870	1.533	1.208	PER IMP=	5.00
*S** ADD B724 AND CHANNEL SUBTOTAL FOR TOTAL AT UNIV. CROSSING***											
ADD HYD	721.30	3& 5	2	.28770	234.33	18.600	1.21219	1.533	1.273		
*S*ROUTE THIS SUBTOTAL THRU 60" RCP TO POND AT EAST SIDE OF G.C.**											
ROUTE	721.40	2	7	.28770	234.69	18.600	1.21220	1.533	1.275		
S BASIN B726.1 ***											
COMPUTE NM HYD	726.10	-	3	.02420	20.03	.581	.45016	1.500	1.293	PER IMP=	8.00
*S** ADD B726.1 AND SUBTOTAL FOR TOTAL INTO POND*****											
ADD HYD	726.11	3& 7	2	.31190	254.68	19.181	1.15307	1.533	1.276		
*S**** OUTFLOW IS 60" RCP***POND EAST SIDE OF G.C.**											
ROUTE RESERVOIR	526.10	2	6	.31190	225.37	19.181	1.15307	1.633	1.129	AC-FT=	1.050
S BASIN B725 ***											
COMPUTE NM HYD	725.00	-	3	.02380	44.85	1.550	1.22146	1.500	2.944	PER IMP=	65.00
*S**** OUTFLOW IS 30" RCP***											
ROUTE RESERVOIR	525.00	3	4	.02380	20.06	1.550	1.22144	1.700	1.317	AC-FT=	.490
*S*ROUTE B725 THRU 30" & 36" RCP TO 60" RCP***											
ROUTE	725.10	4	7	.02380	19.60	1.550	1.22146	1.766	1.287		
*S** ADD B725 AND SUBTOTAL FOR TOTAL DISCHARGE DOWN 60" RCP TOWARDS I-25**											
ADD HYD	725.20	6& 7	2	.33570	243.27	20.731	1.15792	1.633	1.132		
*S*ROUTE THIS SUBTOTAL THRU REST OF 60" RCP TO I-25***											

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	725.30	2	7	.33570	242.50	20.731	1.15792	1.667	1.129	
*S*DO SEDIMENT TRANSPORT ANALYSIS ON ARROYO THROUGH UNM GOLF COURSE										
SEDIMENT TRANSP	725.30	7	SED ID = 1		PEAK CONC.(PPM-w) =	311678	TOTAL SED.(TONS) =		9047.51	
S BASIN B726 ***										
COMPUTE NM HYD	726.00	-	3	.15530	140.27	3.936	.47517	1.533	1.411	PER IMP= .00
*S** ADD B726 AND 60* RCP DISCHARGE AT I-25***										
ADD HYD	726.10	3& 7	2	.49100	358.39	24.667	.94197	1.600	1.141	
*S**** ROUTE THRU POND ON EAST SIDE OF I-25 OUTFLOW IS ???? RCP***										
ROUTE RESERVOIR	526.00	2	4	.49100	349.32	24.667	.94197	1.633	1.112	AC-FT= .907
S ROUTE SUBTOTAL THROUGH B728 TO SDC***										
ROUTE	726.20	4	5	.49100	340.96	24.667	.94197	1.667	1.085	
S BASIN B728 ***										
COMPUTE NM HYD	728.00	-	3	.03440	31.68	.970	.52884	1.500	1.439	PER IMP= 15.00
*S** ADD B728 AND SUBTOTAL***										
ADD HYD	728.10	3& 5	6	.52540	357.41	25.637	.91492	1.667	1.063	
S BASIN B727 ***										
COMPUTE NM HYD	727.00	-	3	.05270	38.76	1.486	.52884	1.567	1.149	PER IMP= 15.00
*S**** OUTFLOW IS (3) 36* CMP***										
ROUTE RESERVOIR	527.00	3	4	.05270	37.79	1.486	.52883	1.600	1.120	AC-FT= .080
*S** ADD B727 AND SUBTOTAL FOR TOTAL ENTERING SOUTH DIVERSION CHANNEL***										
ADD HYD	727.10	4& 6	2	.57810	390.15	27.124	.87972	1.667	1.054	
*S*** TOTAL INTO SDC FROM GENERAL AVIATION AREA****										
FINISH										

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =09/13/1999
INPUT FILE = c:\progra~1\ahymo_97\sdgac10.dat USER NO.= AHYMO-I-9702a01000F11-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
START										
RAINFALL TYPE= 1										TIME= .00
S BASIN B730 ***										RAIN6= 1.570
COMPUTE NM HYD	730.00	-	3	.01120	14.88	.628	1.05068	1.567	2.076	PER IMP= 70.00
S BASIN B714 ***										
COMPUTE NM HYD	714.00	-	6	.02320	37.25	1.194	.96479	1.500	2.508	PER IMP= 55.00
*S** ADD B730 AND B714****										
ADD HYD	730.10	3& 6	4	.03440	49.51	1.821	.99273	1.533	2.249	
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS **********										
ROUTE RESERVOIR	530.00	4	2	.03440	14.40	1.821	.99273	1.900	.654	AC-FT= .841
*S***ROUTE SUBTOTAL TO NORTH EDGE (JUNCTION PT.) OF B730****										
ROUTE	730.30	2	7	.03440	14.39	1.821	.99274	1.933	.654	
S BASIN B712 ***										
COMPUTE NM HYD	712.00	-	3	.02160	42.50	1.504	1.30587	1.500	3.075	PER IMP= 97.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (4) INLETS **********										
ROUTE RESERVOIR	512.00	3	4	.02160	13.11	1.504	1.30586	1.866	.948	AC-FT= .717
*S***ROUTE B712 TO NORTH EDGE (JUNCTION PT.) OF B730****										
ROUTE	712.10	4	6	.02160	13.11	1.504	1.30583	1.866	.948	
*S** ADD B712 AND SUBTOTAL FROM 714/730***										
ADD HYD	712.20	6& 7	2	.05600	27.50	3.326	1.11349	1.900	.767	
*S***ROUTE SOUTH BRANCH SUBTOTAL INTO B716***										
ROUTE	712.30	2	7	.05600	27.50	3.326	1.11350	1.933	.767	
S BASIN B716 ***										
COMPUTE NM HYD	716.00	-	3	.00940	15.10	.484	.96479	1.500	2.509	PER IMP= 55.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS **********										
ROUTE RESERVOIR	512.00	3	4	.00940	7.62	.484	.96476	1.667	1.267	AC-FT= .157
*S** ADD B716 AND SUBTOTAL***										
ADD HYD	716.10	4& 7	6	.06540	34.67	3.809	1.09210	1.733	.828	
*S*ROUTE S.BRANCH SUBTOTAL INTO B721 thru pipe and channel to middle ofb721*****										
ROUTE	716.20	6	8	.06540	34.54	3.809	1.09211	1.800	.825	
S BASIN B710 ***										
COMPUTE NM HYD	710.00	-	3	.03120	52.35	2.173	1.30587	1.533	2.622	PER IMP= 97.00
*S** OUTFLOW IS APPROXIMATE CAPACITY OF (2) INLETS WITH ADDITIONAL CONTRIBUTION										
*S**** FROM 2 INLETS WITH NO STORAGE....STORAGE BASED ON 2 PONDING AREAS*******										
ROUTE RESERVOIR	509.00	3	2	.03120	29.34	2.173	1.30586	1.733	1.469	AC-FT= .601
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B715*****										
ROUTE	710.30	2	7	.03120	29.28	2.173	1.30587	1.733	1.466	
S BASIN B715 ***										
COMPUTE NM HYD	715.00	-	3	.00940	13.41	.401	.79907	1.500	2.228	PER IMP= 35.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS **********										
ROUTE RESERVOIR	515.00	3	4	.00940	3.73	.401	.79904	1.800	.619	AC-FT= .201
*S** ADD B715 AND SUBTOTAL FROM N. BRANCH***										
ADD HYD	715.10	4& 7	2	.04060	33.00	2.574	1.18851	1.766	1.270	
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B718 POND AT ACCESS RD *B******										
ROUTE	715.20	2	7	.04060	32.93	2.574	1.18852	1.766	1.267	
S BASIN B718 ***										
COMPUTE NM HYD	718.00	-	3	.01520	23.72	.749	.92336	1.500	2.439	PER IMP= 50.00
*S** ADD B718 AND SUBTOTAL FROM N. BRANCH FOR TOTAL FLOW INTO POND***										
ADD HYD	718.20	3& 7	2	.05580	42.60	3.322	1.11628	1.567	1.193	
*S**** RISER, OUTFLOW IS APPROXIMATE CAPACITY OF RISER CURVE **********										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
ROUTE RESERVOIR	518.00	2	4	.05580	31.51	3.322	1.11628	2.066	.882	AC-FT=	.887
*S** ADD N. AND S. BRANCH FLOWS AT CHANNEL "Y"*****											
ADD HYD	721.10	4& 8	9	.12120	64.79	7.131	1.10323	1.966	.835		
S BASIN B719 ***											
COMPUTE NM HYD	719.00	-	3	.02090	32.61	1.029	.92336	1.500	2.438	PER IMP=	50.00
*S**** OUTFLOW IS OVERFLOW FROM PONDING AREA*******											
ROUTE RESERVOIR	519.00	3	4	.02090	11.35	1.029	.92335	1.733	.849	AC-FT=	.439
*S******* ROUTE THROUGH SIDE DITCH ALONG CLARK CARR TO ACCESS ROAD "D*****											
ROUTE	719.10	4	7	.02090	10.79	1.029	.92335	2.000	.807		
S BASIN B722 ***											
COMPUTE NM HYD	722.00	-	3	.02100	19.16	1.023	.91306	1.667	1.426	PER IMP=	55.00
*S** ADD B719 AND B722****											
ADD HYD	722.10	3& 7	2	.04190	28.16	2.052	.91815	1.700	1.050		
S BASIN B723 ***											
COMPUTE NM HYD	723.00	-	3	.01630	14.67	.757	.87103	1.667	1.406	PER IMP=	50.00
*S** ADD B719/722 AND B723****											
ADD HYD	723.10	2& 3	5	.05820	42.64	2.809	.90494	1.700	1.145		
*S*ROUTE THIS SPIRIT DRIVE SUBTOTAL THRU 36" PIPE TO "Y" IN CHANNEL***											
ROUTE	723.20	5	7	.05820	42.66	2.809	.90495	1.700	1.145		
*S** ADD SPIRIT DRIVE FLOWS TO N. AND S. BRANCH FLOWS****											
ADD HYD	723.30	9& 7	2	.17940	101.62	9.940	1.03890	1.766	.885		
S ROUTE TOTAL THRU NEW SD PIPE TO UNIVERSITY @ W. END OF B721**											
ROUTE	723.40	2	6	.17940	101.72	9.940	1.03891	1.766	.886		
*S**BASIN 721R (REVISED TO REFLECT RENTAL CAR FACILTY IMPROVEMENTS)***											
COMPUTE NM HYD	721.00	-	3	.03580	64.94	2.209	1.15702	1.500	2.834	PER IMP=	78.20
*S**ADD B721 TO SUBTOTAL***											
ADD HYD	721.20	3& 6	6	.21520	127.06	12.149	1.05855	1.700	.923		
S BASIN B720R (REVISED TO REFLECT RENTAL CAR FACILITY)***											
COMPUTE NM HYD	720.00	-	3	.02600	50.56	1.771	1.27717	1.500	3.038	PER IMP=	92.70
*S** ADD B720B AND SUBTOTAL AT NEW SD AT UNIV. CROSSING***											
ADD HYD	720.20	3& 6	5	.24120	159.85	13.920	1.08212	1.533	1.035		
S BASIN B724 ***											
COMPUTE NM HYD	724.00	-	3	.04650	20.99	.597	.24087	1.533	.705	PER IMP=	5.00
*S** ADD B724 AND CHANNEL SUBTOTAL FOR TOTAL AT UNIV. CROSSING***											
ADD HYD	721.30	3& 5	2	.28770	180.83	14.518	.94615	1.533	.982		
*S*ROUTE THIS SUBTOTAL THRU 60" RCP TO POND AT EAST SIDE OF G.C.**											
ROUTE	721.40	2	7	.28770	180.95	14.518	.94615	1.533	.983		
S BASIN B726.1 ***											
COMPUTE NM HYD	726.10	-	3	.02420	12.19	.358	.27745	1.500	.787	PER IMP=	8.00
*S** ADD B726.1 AND SUBTOTAL FOR TOTAL INTO POND*****											
ADD HYD	726.11	3& 7	2	.31190	193.08	14.876	.89426	1.533	.967		
*S**** OUTFLOW IS 60" RCP***POND EAST SIDE OF G.C.**											
ROUTE RESERVOIR	526.10	2	6	.31190	178.21	14.876	.89426	1.633	.893	AC-FT=	.703
S BASIN B725 ***											
COMPUTE NM HYD	725.00	-	3	.02380	35.54	1.216	.95820	1.500	2.334	PER IMP=	65.00
*S**** OUTFLOW IS 30" RCP***											
ROUTE RESERVOIR	525.00	3	4	.02380	16.74	1.216	.95819	1.667	1.099	AC-FT=	.350
*S*ROUTE B725 THRU 30" & 36" RCP TO 60" RCP***											
ROUTE	725.10	4	7	.02380	16.38	1.216	.95821	1.766	1.076		
*S** ADD B725 AND SUBTOTAL FOR TOTAL DISCHARGE DOWN 60" RCP TOWARDS I-25**											
ADD HYD	725.20	6& 7	2	.33570	193.50	16.092	.89879	1.633	.901		
*S*ROUTE THIS SUBTOTAL THRU REST OF 60" RCP TO I-25***											

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	725.30	2	7	.33570	193.23	16.092	.89880	1.667	.899	
*S*DO SEDIMENT TRANSPORT ANALYSIS ON ARROYO THROUGH UNM GOLF COURSE										
SEDIMENT TRANSP	725.30	7	SED ID = 1		PEAK CONC.(PPM-w) =	284435	TOTAL SED.(TONS) =		6273.10	
S BASIN B726 ***										
COMPUTE NM HYD	726.00	-	3	.15530	86.68	2.382	.28755	1.533	.872	PER IMP= .00
*S** ADD B726 AND 60" RCP DISCHARGE AT I-25***										
ADD HYD	726.10	3& 7	2	.49100	264.67	18.474	.70546	1.600	.842	
*S**** ROUTE THRU POND ON EAST SIDE OF I-25 OUTFLOW IS ???? RCP***										
ROUTE RESERVOIR	526.00	2	4	.49100	257.10	18.474	.70546	1.633	.818	AC-FT= .630
S ROUTE SUBTOTAL THROUGH B728 TO SDC***										
ROUTE	726.20	4	5	.49100	248.18	18.474	.70546	1.700	.790	
S BASIN B728 ***										
COMPUTE NM HYD	728.00	-	3	.03440	20.43	.637	.34745	1.500	.928	PER IMP= 15.00
*S** ADD B728 AND SUBTOTAL***										
ADD HYD	728.10	3& 5	6	.52540	257.51	19.111	.68202	1.667	.766	
S BASIN B727 ***										
COMPUTE NM HYD	727.00	-	3	.05270	25.13	.977	.34745	1.567	.745	PER IMP= 15.00
*S**** OUTFLOW IS (3) 36" CMP***										
ROUTE RESERVOIR	527.00	3	4	.05270	24.46	.977	.34744	1.600	.725	AC-FT= .052
*S** ADD B727 AND SUBTOTAL FOR TOTAL ENTERING SOUTH DIVERSION CHANNEL***										
ADD HYD	727.10	4& 6	2	.57810	278.55	20.088	.65152	1.667	.753	
*S*** TOTAL INTO SDC FROM GENERAL AVIATION AREA****										
FINISH										

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -
INPUT FILE = c:\progra-1\ahymo_97\sdgac5.dat - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =09/13/1999
USER NO.= AHYMO-I-9702a01000F11-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.330
S BASIN B730 ***										
COMPUTE NM HYD	730.00	-	3	.01120	12.15	.502	.84099	1.567	1.695	PER IMP= 70.00
S BASIN B714 ***										
COMPUTE NM HYD	714.00	-	6	.02320	30.18	.941	.76069	1.500	2.032	PER IMP= 55.00
*S** ADD B730 AND B714****										
ADD HYD	730.10	3& 6	4	.03440	40.26	1.444	.78681	1.533	1.829	
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS **********										
ROUTE RESERVOIR	530.00	4	2	.03440	13.78	1.444	.78681	1.833	.626	AC-FT= .602
*S***ROUTE SUBTOTAL TO NORTH EDGE (JUNCTION PT.) OF B730****										
ROUTE	730.30	2	7	.03440	13.78	1.444	.78682	1.833	.626	
S BASIN B712 ***										
COMPUTE NM HYD	712.00	-	3	.02160	35.86	1.233	1.07026	1.500	2.594	PER IMP= 97.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (4) INLETS **********										
ROUTE RESERVOIR	512.00	3	4	.02160	11.62	1.233	1.07024	1.833	.840	AC-FT= .590
*S***ROUTE B712 TO NORTH EDGE (JUNCTION PT.) OF B730****										
ROUTE	712.10	4	6	.02160	11.61	1.233	1.07022	1.866	.840	
*S** ADD B712 AND SUBTOTAL FROM 714/730***										
ADD HYD	712.20	6& 7	2	.05600	25.39	2.676	.89611	1.866	.708	
*S***ROUTE SOUTH BRANCH SUBTOTAL INTO B716***										
ROUTE	712.30	2	7	.05600	25.38	2.676	.89612	1.866	.708	
S BASIN B716 ***										
COMPUTE NM HYD	716.00	-	3	.00940	12.23	.381	.76068	1.500	2.033	PER IMP= 55.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS **********										
ROUTE RESERVOIR	512.00	3	4	.00940	6.57	.381	.76065	1.633	1.091	AC-FT= .120
*S** ADD B716 AND SUBTOTAL***										
ADD HYD	716.10	4& 7	6	.06540	31.28	3.058	.87664	1.766	.747	
*S*ROUTE S.BRANCH SUBTOTAL INTO B721 thru pipe and channel to middle ofb721*****										
ROUTE	716.20	6	8	.06540	31.19	3.058	.87664	1.800	.745	
S BASIN B710 ***										
COMPUTE NM HYD	710.00	-	3	.03120	44.08	1.781	1.07026	1.567	2.208	PER IMP= 97.00
*S** OUTFLOW IS APPROXIMATE CAPACITY OF (2) INLETS WITH ADDITIONAL CONTRIBUTION										
*S**** FROM 2 INLETS WITH NO STORAGE...STORAGE BASED ON 2 PONDING AREAS*******										
ROUTE RESERVOIR	509.00	3	2	.03120	25.30	1.781	1.07025	1.733	1.267	AC-FT= .478
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B715*****										
ROUTE	710.30	2	7	.03120	25.27	1.781	1.07026	1.733	1.265	
S BASIN B715 ***										
COMPUTE NM HYD	715.00	-	3	.00940	10.56	.306	.61053	1.500	1.755	PER IMP= 35.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS **********										
ROUTE RESERVOIR	515.00	3	4	.00940	3.00	.306	.61050	1.766	.499	AC-FT= .149
*S** ADD B715 AND SUBTOTAL FROM N. BRANCH***										
ADD HYD	715.10	4& 7	2	.04060	28.26	2.087	.96380	1.733	1.087	
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B718 POND AT ACCESS RD *B******										
ROUTE	715.20	2	7	.04060	28.20	2.087	.96381	1.766	1.085	
S BASIN B718 ***										
COMPUTE NM HYD	718.00	-	3	.01520	19.10	.586	.72315	1.500	1.963	PER IMP= 50.00
*S** ADD B718 AND SUBTOTAL FROM N. BRANCH FOR TOTAL FLOW INTO POND***										
ADD HYD	718.20	3& 7	2	.05580	36.03	2.673	.89824	1.567	1.009	
*S**** RISER, OUTFLOW IS APPROXIMATE CAPACITY OF RISER CURVE **********										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE RESERVOIR	518.00	2	4	.05580	26.62	2.673	.89824	2.066	.745	AC-FT= .733
*S** ADD N. AND S. BRANCH FLOWS AT CHANNEL 'Y'*****										
ADD HYD	721.10	4& 8	9	.12120	56.18	5.731	.88658	1.933	.724	
S BASIN B719 ***										
COMPUTE NM HYD	719.00	-	3	.02090	26.25	.806	.72315	1.500	1.963	PER IMP= 50.00
*S**** OUTFLOW IS OVERFLOW FROM PONDING AREA*******										
ROUTE RESERVOIR	519.00	3	4	.02090	10.49	.806	.72313	1.700	.784	AC-FT= .323
*S******* ROUTE THROUGH SIDE DITCH ALONG CLARK CARR TO ACCESS ROAD 'D'*****										
ROUTE	719.10	4	7	.02090	9.78	.806	.72313	1.966	.731	
S BASIN B722 ***										
COMPUTE NM HYD	722.00	-	3	.02100	15.28	.803	.71701	1.667	1.137	PER IMP= 55.00
*S** ADD B719 AND B722****										
ADD HYD	722.10	3& 7	2	.04190	23.36	1.609	.72002	1.733	.871	
S BASIN B723 ***										
COMPUTE NM HYD	723.00	-	3	.01630	11.60	.590	.67892	1.667	1.112	PER IMP= 50.00
*S** ADD B719/722 AND B723****										
ADD HYD	723.10	2& 3	5	.05820	34.81	2.199	.70850	1.700	.934	
*S*ROUTE THIS SPIRIT DRIVE SUBTOTAL THRU 36" PIPE TO 'Y' IN CHANNEL***										
ROUTE	723.20	5	7	.05820	34.81	2.199	.70851	1.700	.935	
*S** ADD SPIRIT DRIVE FLOWS TO N. AND S. BRANCH FLOWS****										
ADD HYD	723.30	9& 7	2	.17940	86.57	7.930	.82881	1.766	.754	
S ROUTE TOTAL THRU NEW SD PIPE TO UNIVERSITY @ W. END OF B721**										
ROUTE	723.40	2	6	.17940	86.48	7.930	.82881	1.766	.753	
*S**BASIN 721R (REVISED TO REFLECT RENTAL CAR FACILTY IMPROVEMENTS)***										
COMPUTE NM HYD	721.00	-	3	.03580	53.95	1.785	.93486	1.500	2.355	PER IMP= 78.20
*S**ADD B721 TO SUBTOTAL***										
ADD HYD	721.20	3& 6	6	.21520	106.82	9.715	.84645	1.700	.776	
S BASIN B720R (REVISED TO REFLECT RENTAL CAR FACILITY)***										
COMPUTE NM HYD	720.00	-	3	.02600	42.54	1.447	1.04372	1.500	2.556	PER IMP= 92.70
*S** ADD B720B AND SUBTOTAL AT NEW SD AT UNIV. CROSSING***										
ADD HYD	720.20	3& 6	5	.24120	130.71	11.162	.86771	1.567	.847	
S BASIN B724 ***										
COMPUTE NM HYD	724.00	-	3	.04650	10.91	.320	.12923	1.533	.367	PER IMP= 5.00
*S** ADD B724 AND CHANNEL SUBTOTAL FOR TOTAL AT UNIV. CROSSING***										
ADD HYD	721.30	3& 5	2	.28770	140.94	11.483	.74836	1.533	.765	
*S*ROUTE THIS SUBTOTAL THRU 60" RCP TO POND AT EAST SIDE OF G.C.**										
ROUTE	721.40	2	7	.28770	140.97	11.483	.74836	1.567	.766	
S BASIN B726.1 ***										
COMPUTE NM HYD	726.10	-	3	.02420	6.80	.208	.16139	1.533	.439	PER IMP= 8.00
*S** ADD B726.1 AND SUBTOTAL FOR TOTAL INTO POND*****										
ADD HYD	726.11	3& 7	2	.31190	147.75	11.691	.70281	1.533	.740	
*S**** OUTFLOW IS 60" RCP***POND EAST SIDE OF G.C.**										
ROUTE RESERVOIR	526.10	2	6	.31190	141.03	11.691	.70281	1.633	.707	AC-FT= .523
S BASIN B725 ***										
COMPUTE NM HYD	725.00	-	3	.02380	28.70	.966	.76114	1.500	1.884	PER IMP= 65.00
*S**** OUTFLOW IS 30" RCP***										
ROUTE RESERVOIR	525.00	3	4	.02380	14.52	.966	.76113	1.667	.953	AC-FT= .253
*S*ROUTE B725 THRU 30" & 36" RCP TO 60" RCP***										
ROUTE	725.10	4	7	.02380	14.18	.966	.76115	1.733	.931	
*S** ADD B725 AND SUBTOTAL FOR TOTAL DISCHARGE DOWN 60" RCP TOWARDS I-25**										
ADD HYD	725.20	6& 7	2	.33570	154.48	12.657	.70695	1.633	.719	
*S*ROUTE THIS SUBTOTAL THRU REST OF 60" RCP TO I-25***										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
ROUTE	725.30	2	7	.33570	153.89	12.657	.70695	1.667	.716	
*S*DO SEDIMENT TRANSPORT ANALYSIS ON ARROYO THROUGH UNM GOLF COURSE										
SEDIMENT TRANSP	725.30	7	SED ID = 1		PEAK CONC.(PPM-w) =	258272	TOTAL SED.(TONS) =		4419.58	
S BASIN B726 ***										
COMPUTE NM HYD	726.00	-	3	.15530	49.38	1.358	.16393	1.533	.497	PER IMP= .00
*S** ADD B726 AND 60" RCP DISCHARGE AT I-25***										
ADD HYD	726.10	3& 7	2	.49100	191.31	14.015	.53519	1.600	.609	
*S**** ROUTE THRU POND ON EAST SIDE OF I-25 OUTFLOW IS ???? RCP***										
ROUTE RESERVOIR	526.00	2	4	.49100	187.01	14.015	.53519	1.667	.595	AC-FT= .419
S ROUTE SUBTOTAL THROUGH B728 TO SDC***										
ROUTE	726.20	4	5	.49100	180.47	14.015	.53519	1.700	.574	
S BASIN B728 ***										
COMPUTE NM HYD	728.00	-	3	.03440	12.77	.412	.22439	1.500	.580	PER IMP= 15.00
*S** ADD B728 AND SUBTOTAL***										
ADD HYD	728.10	3& 5	6	.52540	186.24	14.427	.51484	1.700	.554	
S BASIN B727 ***										
COMPUTE NM HYD	727.00	-	3	.05270	16.12	.631	.22439	1.567	.478	PER IMP= 15.00
*S**** OUTFLOW IS (3) 36" CMP***										
ROUTE RESERVOIR	527.00	3	4	.05270	15.67	.631	.22438	1.600	.464	AC-FT= .033
*S** ADD B727 AND SUBTOTAL FOR TOTAL ENTERING SOUTH DIVERSION CHANNEL***										
ADD HYD	727.10	4& 6	2	.57810	198.11	15.057	.48836	1.700	.535	
*S*** TOTAL INTO SDC FROM GENERAL AVIATION AREA****										
FINISH										

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =09/13/1999
INPUT FILE = c:\progra~1\ahymo_97\sdgac2.dat USER NO.= AHYMO-I-9702a01000F11-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.020
S BASIN B730 ***										
COMPUTE NM HYD	730.00	-	3	.01120	8.57	.348	.58224	1.567	1.196	PER IMP= 70.00
S BASIN B714 ***										
COMPUTE NM HYD	714.00	-	6	.02320	20.60	.631	.51023	1.500	1.388	PER IMP= 55.00
*S** ADD B730 AND B714****										
ADD HYD	730.10	3& 6	4	.03440	27.83	.979	.53365	1.533	1.264	
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************										
ROUTE RESERVOIR	530.00	4	2	.03440	13.10	.979	.53366	1.733	.595	AC-FT= .338
*S***ROUTE SUBTOTAL TO NORTH EDGE (JUNCTION PT.) OF B730****										
ROUTE	730.30	2	7	.03440	13.09	.979	.53366	1.766	.595	
S BASIN B712 ***										
COMPUTE NM HYD	712.00	-	3	.02160	26.90	.891	.77314	1.500	1.946	PER IMP= 97.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (4) INLETS ******************										
ROUTE RESERVOIR	512.00	3	4	.02160	8.55	.891	.77312	1.833	.619	AC-FT= .434
*S***ROUTE B712 TO NORTH EDGE (JUNCTION PT.) OF B730****										
ROUTE	712.10	4	6	.02160	8.55	.891	.77310	1.866	.618	
*S** ADD B712 AND SUBTOTAL FROM 714/730***										
ADD HYD	712.20	6& 7	2	.05600	21.61	1.870	.62600	1.833	.603	
*S***ROUTE SOUTH BRANCH SUBTOTAL INTO B716***										
ROUTE	712.30	2	7	.05600	21.60	1.870	.62601	1.866	.603	
S BASIN B716 ***										
COMPUTE NM HYD	716.00	-	3	.00940	8.35	.256	.51023	1.500	1.388	PER IMP= 55.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************										
ROUTE RESERVOIR	512.00	3	4	.00940	4.74	.256	.51020	1.633	.787	AC-FT= .079
*S** ADD B716 AND SUBTOTAL***										
ADD HYD	716.10	4& 7	6	.06540	25.57	2.125	.60935	1.733	.611	
*S*ROUTE S.BRANCH SUBTOTAL INTO B721 thru pipe and channel to middle ofb721*****										
ROUTE	716.20	6	8	.06540	25.46	2.125	.60936	1.800	.608	
S BASIN B710 ***										
COMPUTE NM HYD	710.00	-	3	.03120	32.97	1.287	.77314	1.567	1.651	PER IMP= 97.00
*S** OUTFLOW IS APPROXIMATE CAPACITY OF (2) INLETS WITH ADDITIONAL CONTRIBUTION										
*S**** FROM 2 INLETS WITH NO STORAGE....STORAGE BASED ON 2 PONDING AREAS*******										
ROUTE RESERVOIR	509.00	3	2	.03120	20.08	1.286	.77312	1.700	1.006	AC-FT= .319
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B715*****										
ROUTE	710.30	2	7	.03120	20.06	1.286	.77314	1.733	1.004	
S BASIN B715 ***										
COMPUTE NM HYD	715.00	-	3	.00940	6.70	.192	.38312	1.500	1.114	PER IMP= 35.00
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF (1) INLETS ******************										
ROUTE RESERVOIR	515.00	3	4	.00940	2.10	.192	.38309	1.766	.349	AC-FT= .084
*S** ADD B715 AND SUBTOTAL FROM N. BRANCH***										
ADD HYD	715.10	4& 7	2	.04060	22.16	1.479	.68282	1.733	.853	
*S*ROUTE NORTH BRANCH SUBTOTAL INTO B718 POND AT ACCESS RD "B******										
ROUTE	715.20	2	7	.04060	22.07	1.479	.68283	1.766	.849	
S BASIN B718 ***										
COMPUTE NM HYD	718.00	-	3	.01520	12.83	.388	.47846	1.500	1.319	PER IMP= 50.00
*S** ADD B718 AND SUBTOTAL FROM N. BRANCH FOR TOTAL FLOW INTO POND***										
ADD HYD	718.20	3& 7	2	.05580	27.30	1.866	.62714	1.600	.764	
*S**** RISER, OUTFLOW IS APPROXIMATE CAPACITY OF RISER CURVE ******************										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE RESERVOIR	518.00	2	4	.05580	20.16	1.866	.62714	2.066	.564	AC-FT= .540
*S** ADD N. AND S. BRANCH FLOWS AT CHANNEL "Y"*****										
ADD HYD	721.10	4& 8	9	.12120	44.34	3.992	.61754	1.933	.572	
S BASIN B719 ***										
COMPUTE NM HYD	719.00	-	3	.02090	17.65	.533	.47846	1.500	1.319	PER IMP= 50.00
*S**** OUTFLOW IS OVERFLOW FROM PONDING AREA*******										
ROUTE RESERVOIR	519.00	3	4	.02090	7.95	.533	.47844	1.667	.594	AC-FT= .205
*S******* ROUTE THROUGH SIDE DITCH ALONG CLARK CARR TO ACCESS ROAD "D"*****										
ROUTE	719.10	4	7	.02090	6.61	.533	.47844	1.866	.494	
S BASIN B722 ***										
COMPUTE NM HYD	722.00	-	3	.02100	10.37	.536	.47854	1.700	.772	PER IMP= 55.00
*S** ADD B719 AND B722****										
ADD HYD	722.10	3& 7	2	.04190	16.05	1.069	.47845	1.733	.598	
S BASIN B723 ***										
COMPUTE NM HYD	723.00	-	3	.01630	7.72	.388	.44622	1.667	.740	PER IMP= 50.00
*S** ADD B719/722 AND B723****										
ADD HYD	723.10	2& 3	5	.05820	23.57	1.457	.46941	1.700	.633	
*S*ROUTE THIS SPIRIT DRIVE SUBTOTAL THRU 36" PIPE TO "Y" IN CHANNEL***										
ROUTE	723.20	5	7	.05820	23.56	1.457	.46942	1.700	.633	
*S** ADD SPIRIT DRIVE FLOWS TO N. AND S. BRANCH FLOWS****										
ADD HYD	723.30	9& 7	2	.17940	64.77	5.449	.56948	1.766	.564	
S ROUTE TOTAL THRU NEW SD PIPE TO UNIVERSITY @ W. END OF B721**										
ROUTE	723.40	2	6	.17940	64.75	5.449	.56949	1.800	.564	
*S**BASIN 721R (REVISED TO REFLECT RENTAL CAR FACILTY IMPROVEMENTS)***										
COMPUTE NM HYD	721.00	-	3	.03580	39.07	1.256	.65768	1.500	1.705	PER IMP= 78.20
*S**ADD B721 TO SUBTOTAL***										
ADD HYD	721.20	3& 6	6	.21520	78.80	6.705	.58416	1.733	.572	
S BASIN B720R (REVISED TO REFLECT RENTAL CAR FACILITY)***										
COMPUTE NM HYD	720.00	-	3	.02600	31.68	1.040	.74983	1.500	1.904	PER IMP= 92.70
*S** ADD B720B AND SUBTOTAL AT NEW SD AT UNIV. CROSSING***										
ADD HYD	720.20	3& 6	5	.24120	92.27	7.744	.60201	1.667	.598	
S BASIN B724 ***										
COMPUTE NM HYD	724.00	-	3	.04650	2.98	.099	.03981	1.500	.100	PER IMP= 5.00
*S** ADD B724 AND CHANNEL SUBTOTAL FOR TOTAL AT UNIV. CROSSING***										
ADD HYD	721.30	3& 5	2	.28770	93.72	7.843	.51115	1.667	.509	
*S*ROUTE THIS SUBTOTAL THRU 60" RCP TO POND AT EAST SIDE OF G.C.**										
ROUTE	721.40	2	7	.28770	93.81	7.843	.51115	1.567	.510	
S BASIN B726.1 ***										
COMPUTE NM HYD	726.10	-	3	.02420	2.49	.082	.06370	1.500	.161	PER IMP= 8.00
*S** ADD B726.1 AND SUBTOTAL FOR TOTAL INTO POND*****										
ADD HYD	726.11	3& 7	2	.31190	95.80	7.925	.47643	1.567	.480	
*S**** OUTFLOW IS 60" RCP***POND-EAST SIDE OF G.C.**										
ROUTE RESERVOIR	526.10	2	6	.31190	94.47	7.925	.47643	1.700	.473	AC-FT= .330
S BASIN B725 ***										
COMPUTE NM HYD	725.00	-	3	.02380	20.08	.663	.52246	1.500	1.319	PER IMP= 65.00
*S**** OUTFLOW IS 30" RCP***										
ROUTE RESERVOIR	525.00	3	4	.02380	11.91	.663	.52245	1.633	.782	AC-FT= .137
*S*ROUTE B725 THRU 30" & 36" RCP TO 60" RCP***										
ROUTE	725.10	4	7	.02380	11.54	.663	.52247	1.700	.758	
*S** ADD B725 AND SUBTOTAL FOR TOTAL DISCHARGE DOWN 60" RCP TOWARDS I-25**										
ADD HYD	725.20	6& 7	2	.33570	106.01	8.588	.47969	1.700	.493	
*S*ROUTE THIS SUBTOTAL THRU REST OF 60" RCP TO I-25***										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	725.30	2	7	.33570	106.26	8.588	.47969	1.700	.495	
*S*DO SEDIMENT TRANSPORT ANALYSIS ON ARROYO THROUGH UNM GOLF COURSE										
SEDIMENT TRANSP	725.30	7	SED ID = 1		PEAK CONC.(PPM-w) =	218115	TOTAL SED.(TONS) =		2452.48	
S BASIN B726 ***										
COMPUTE NM HYD	726.00	-	3	.15530	9.14	.258	.03111	1.567	.092	PER IMP= .00
*S** ADD B726 AND 60" RCP DISCHARGE AT I-25***										
ADD HYD	726.10	3& 7	2	.49100	112.29	8.846	.33781	1.633	.357	
*S**** ROUTE THRU POND ON EAST SIDE OF I-25 OUTFLOW IS ???? RCP***										
ROUTE RESERVOIR	526.00	2	4	.49100	111.68	8.846	.33781	1.700	.355	AC-FT= .236
S ROUTE SUBTOTAL THROUGH B728 TO SDC***										
ROUTE	726.20	4	5	.49100	108.01	8.846	.33781	1.800	.344	
S BASIN B728 ***										
COMPUTE NM HYD	728.00	-	3	.03440	6.62	.219	.11943	1.500	.301	PER IMP= 15.00
*S** ADD B728 AND SUBTOTAL***										
ADD HYD	728.10	3& 5	6	.52540	110.31	9.065	.32351	1.800	.328	
S BASIN B727 ***										
COMPUTE NM HYD	727.00	-	3	.05270	8.60	.336	.11943	1.567	.255	PER IMP= 15.00
*S**** OUTFLOW IS (3) 36" CMP***										
ROUTE RESERVOIR	527.00	3	4	.05270	8.41	.336	.11943	1.567	.249	AC-FT= .018
*S** ADD B727 AND SUBTOTAL FOR TOTAL ENTERING SOUTH DIVERSION CHANNEL***										
ADD HYD	727.10	4& 6	2	.57810	114.58	9.401	.30490	1.766	.310	
*S*** TOTAL INTO SDC FROM GENERAL AVIATION AREA****										
FINISH										

APPENDIX I
DENTENTION POND
CALCULATIONS

Remote Car Rental Facility Dentention Pond Routing

North Outfall at Access Road B and University

Elevation	Area	Area	Depth	Incremental Volume	Total Volume	60" Dia Outflow	54" Dia Outflow
[ft]	[ft^2]	[acres]	[ft]	[acre-ft]	[acre-ft]	[cfs]	[cfs]
5180	37,750.00	0.8666	0	-	-	-	-
5181	39,525.00	0.9074	1	0.8870	0.8870	5.86	5.53
5182	41,890.50	0.9617	2	0.9345	1.8215	22.26	20.87
5183	44,055.00	1.0114	3	0.9865	2.8080	47.33	43.99
5184	46,273.50	1.0623	4	1.0368	3.8449	78.97	72.66
5185	48,008.52	1.1021	5	1.0822	4.9271	114.90	104.39
5186	50,311.91	1.1550	6	1.1286	6.0556	152.75	136.71
5187	52,674.54	1.2092	7	1.1821	7.2378	190.23	160.79
5188	55,096.44	1.2648	8	1.2370	8.4748	235.85	179.47
5189	57,577.62	1.3218	9	1.2933	9.7681	255.56	196.38
5190	60,113.19	1.3800	10	1.3509	11.1190	273.86	211.94
5191						291.00	226.44
5192						307.20	240.07
5193						322.58	252.96
5194						337.26	265.22
5195						351.33	276.94
5196						364.85	
5197						377.89	
5198						390.50	
5199						402.71	
			Sum	11.1190			
	Average for 10'			11.2331			

Culvert Calculator Report
Worksheet-1

Solve For: Discharge

Culvert Summary					
Allowable HW Elevation	5,190.00	ft	Headwater Depth/ Height	2.00	
Computed Headwater Elevation	5,190.00	ft	Discharge	255.56	cfs
Inlet Control HW Elev	5,190.00	ft	Tailwater Elevation	5,180.00	ft
Outlet Control HW Elev	5,188.91	ft	Control Type	Inlet Control	

Grades					
Upstream Invert	5,180.00	ft	Downstream Invert	5,171.70	ft
Length	224.95	ft	Constructed Slope	0.036897	ft/ft

Hydraulic Profile					
Profile	CompositePressureS1S2		Depth, Downstream	2.74	ft
Slope Type	N/A		Normal Depth	2.53	ft
Flow Regime	N/A		Critical Depth	4.46	ft
Velocity Downstream	23.19	ft/s	Critical Slope	0.008549	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.013	
Section Material	Concrete		Span	5.00	ft
Section Size	60 inch		Rise	5.00	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev	5,188.91	ft	Upstream Velocity Head	2.97	ft
Ke	0.50		Entrance Loss	1.49	ft

Inlet Control Properties					
Inlet Control HW Elev	5,190.00	ft	Flow Control	Submerged	
Inlet Type	End-Section Conforming to fill slope		Area Full	19.6	ft²
K	0.00980		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	1	
C	0.03980		Equation Form	1	
Y	0.67000				

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Rating Table Report
Worksheet-1

Range Data:

	Minimum	Maximum	Increment
Allowable HW Eleva	5,180.00	5,200.00	1.00 ft

HW Elev (ft)	Discharge (cfs)
5,180.00	0.00
5,181.00	5.86
5,182.00	22.26
5,183.00	47.33
5,184.00	78.97
5,185.00	114.90
5,186.00	152.75
5,187.00	190.23
5,188.00	214.33
5,189.00	235.85
5,190.00	255.56
5,191.00	273.86
5,192.00	291.00
5,193.00	307.20
5,194.00	322.58
5,195.00	337.26
5,196.00	351.33
5,197.00	364.85
5,198.00	377.89
5,199.00	390.50
5,200.00	402.71

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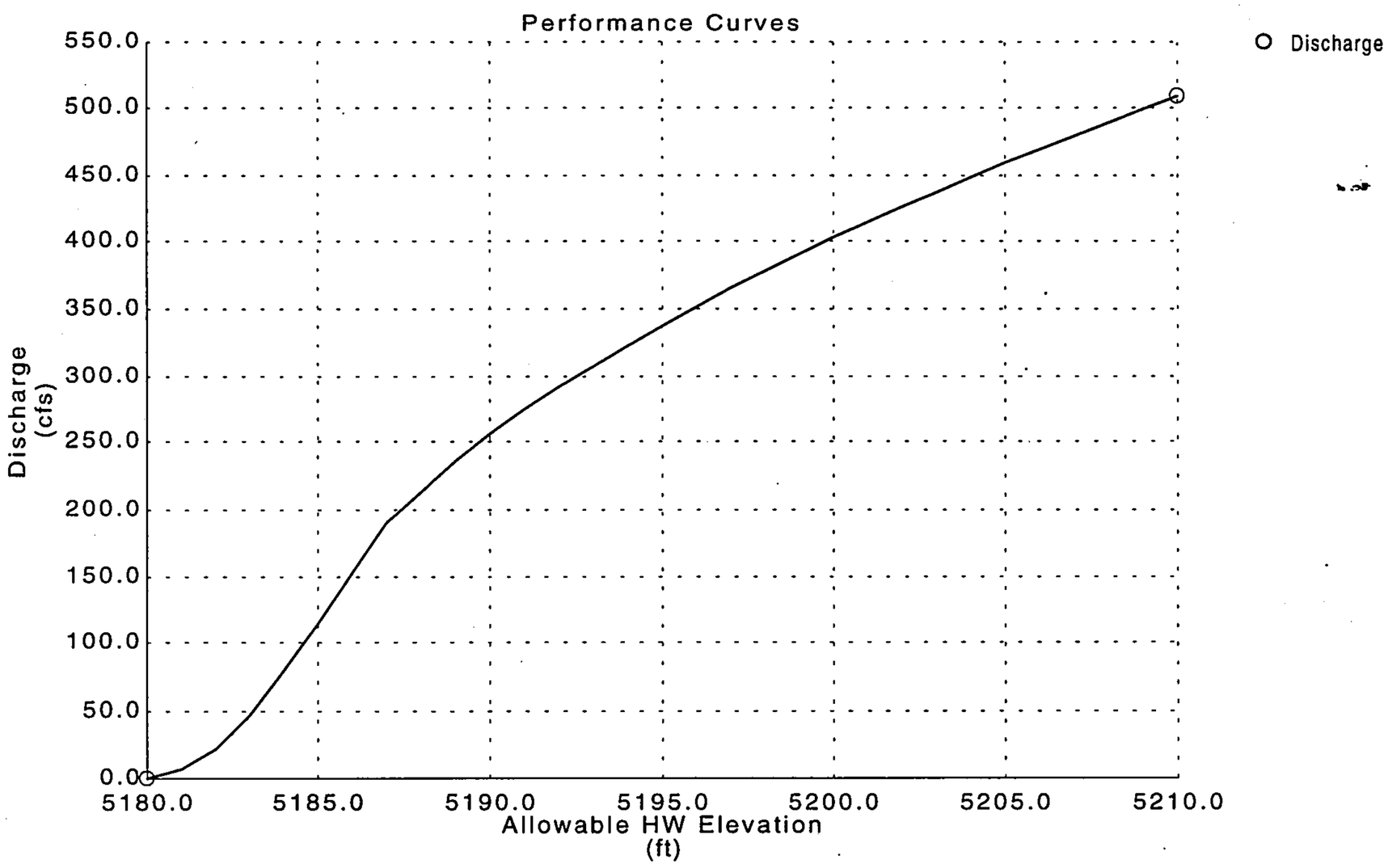
Performance Curves Report
Worksheet-1

Range Data:

	Minimum	Maximum	Increment
Allowable HW Eleva	5,180.00	5,210.00	1.00 ft



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Culvert Calculator Report
Pond Outlet

'e For: Discharge

Culvert Summary					
Allowable HW Elevation	5,190.00	ft	Headwater Depth/ Height	2.22	
Computed Headwater Elevation	5,190.00	ft	Discharge	211.94	cfs
Inlet Control HW Elev	5,190.00	ft	Tailwater Elevation	5,172.00	ft
Outlet Control HW Elev	5,188.62	ft	Control Type	Inlet Control	

Grades					
Upstream Invert	5,180.00	ft	Downstream Invert	5,171.70	ft
Length	224.95	ft	Constructed Slope	0.036897	ft/ft

Hydraulic Profile					
Profile	S2		Depth, Downstream	2.58	ft
Slope Type	Steep		Normal Depth	2.41	ft
Flow Regime	Supercritical		Critical Depth	4.11	ft
Velocity Downstream	22.50	ft/s	Critical Slope	0.010122	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.013	
Section Material	Concrete		Span	4.50	ft
Section Size	54 inch		Rise	4.50	ft
Number Sections	1				

ılet Control Properties					
Outlet Control HW Elev	5,188.62	ft	Upstream Velocity Head	3.01	ft
Ke	0.50		Entrance Loss	1.50	ft

Inlet Control Properties					
Inlet Control HW Elev	5,190.00	ft	Flow Control	Submerged	
Inlet Type	End-Section Conforming to fill slope		Area Full	15.9	ft²
K	0.00980		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	1	
C	0.03980		Equation Form	1	
Y	0.67000				

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Rating Table Report
Pond Outlet

nge Data:

	Minimum	Maximum	Increment
Allowable HW Eleva	5,180.00	5,195.00	1.00 ft

HW Elev (ft)	Discharge (cfs)
5,180.00	0.00
5,181.00	5.53
5,182.00	20.87
5,183.00	43.99
5,184.00	72.66
5,185.00	104.39
5,186.00	136.71
5,187.00	160.79
5,188.00	179.47
5,189.00	196.38
5,190.00	211.94
5,191.00	226.44
5,192.00	240.07
5,193.00	252.96
5,194.00	265.22
5,195.00	276.94

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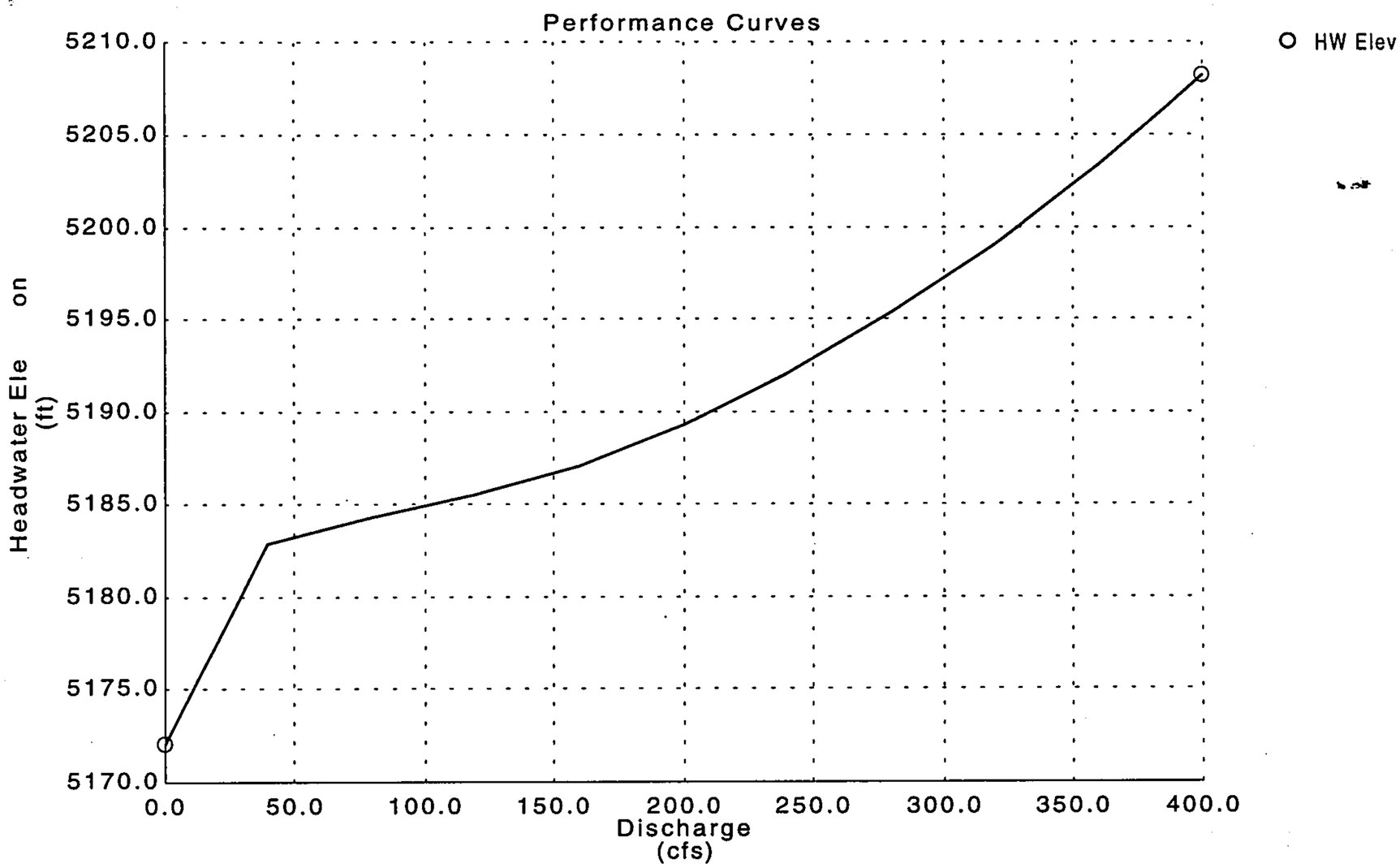
Performance Curves Report
Pond Outlet

nge Data:

	Minimum	Maximum	Increment	
Discharge	0.00	400.00	40.00	cfs



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********** MOLZEN-CORBIN AND ASSOCIATES **********
****************************** MAY 1993  ******************************
***** ALBUQUERQUE INTERNATIONAL AIRPORT DRAINAGE MASTER PLAN**********
*************************** 100 YEAR STORM ***************************
************************ WEST END BASIN - 500'S ************************
********************** SUB-BASIN 6 NOT INCLUDED************************
**FLOW TO BASIN WEST OF 8 RUNWAY; ARROYO TO SOUTH DIVERSION CHANNEL***
***********************************************************************
START                0.00
***********************************************************************
RAINFALL             TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.01
                     RAIN SIX=2.35   RAIN DAY=0.0  DT=0.03333
***********************************************************************
*S**CALCULATE FLOW FROM BASIN 501****
*S* BASIN B501  -  A= .043 SQ MI
COMPUTE NM HYD       ID=3 HYD NO=501 DA= .043 SQ MI
                     PER A=2  PER B=0  PER C=17.0 PER D=81.0
                     TP=-.13   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S*** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF 24" PIPE ******************
ROUTE RESERVOIR      ID=4 HYD=105.01 INFLOW ID=3 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       9         .5       .5
                      13.21       1.1     .75
                       13.22      5.0     1.0
PRINT HYD            ID=4 CODE=10
*S***ROUTE CAP. THROUGH 24" RCP******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.003
                     DIA=2.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=7 REACH=15 VS NO=1 L=1270 SLP=0.003
ROUTE                ID=7 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
*S**CALCULATE FLOW FROM BASIN 502*********
*S***BASIN B502  -  A=.038  SQ MI ****
COMPUTE NM HYD       ID=3 HYD NO=502 DA=.038 SQ MI
                     PER A=3.0    PER B=0.0   PER C=28.0  PER D=69.0
                     TP=-.20   RAIN=-1
PRINT HYD            ID=3 CODE=10
*S** ADD B502 TO B501 ROUTE ***
ADD HYD              ID=2 HYD=234.5 ID I=3 II=7
PRINT HYD            ID=2 CODE=10
*S***ROUTE CAP. THROUGH 48" RCP******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.0066
                     DIA=4.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=7 REACH=15 VS NO=1 L=550 SLP=0.0066
ROUTE                ID=7 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD            ID=7 CODE=10
******************
*S***CALC BASIN 503 ***
*S*B503   A=.021 SQ MI ****
COMPUTE NM HYD       ID=5 HYD NO=503 DA=.021 SQ MI
                     PER A=0.0 PER B=0.0 PER C =2.0 PER D=98.0
                     TP=-.13 RAIN=-1
PRINT HYD            ID=5 CODE =10
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
```

```
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR       ID=4 HYD=105.01 INFLOW ID=5 CODE=20
                      OUTFLOW    STORAGE  DEPTH
                        0          0       0
                        17         .5      .5
                        27         1.1      .75
                        27.90        2.2      1.0
PRINT HYD             ID=4 CODE=10
*S***ROUTE CAP. THROUGH 30" RCP******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.004
                      DIA=2.5 FT N=0.013
COMPUTE TRAVEL TIME   ID=3 REACH=15 VS NO=1 L=320 SLP=0.004
ROUTE                 ID=3 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD             ID=3 CODE=10
*S** ADD B503 ROUTE TO B501/B502 AT MIDDLE ISLAND**********
ADD HYD               ID=2 HYD=234.5 ID I=3 II=7
PRINT HYD             ID=2 CODE=10
*S** ROUTE THRU NEW 54" TO NEXT ISLAND**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.008
                      DIA=4.5 FT N=0.013
COMPUTE TRAVEL TIME   ID=3 REACH=15 VS NO=1 L=500 SLP=0.008
ROUTE                 ID=3 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD             ID=3 CODE=10
** NOW COMPUTE BASIN B504 ***
*S**BASIN B504  A=.022  SQ MI ***
COMPUTE NM HYD        ID=1 HYD NO=504.0 DA=.022 SQ MI
                      PER A=0.0 PER B=0.0 PER C=2.0 PER D=98.0
                      TP=-.13   RAIN=-1
PRINT HYD             ID=1 CODE=10
*S******* ROUTE THROUGH SWALE TO INLET NEAR WEST ISLAND ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=1.0
                      CH SLP=.004 FP SLP=.004 N=.017 DIST=20
                      DIST ELEV  DIST ELEV  DIST ELEV
                       0    1     8    0     12   0
                       20   1
COMPUTE TRAVEL TIME   ID=4 REACH=1 VS NO=1 L=1700 SLP=.004
ROUTE                 ID=4 HYD NO=110.3 INFLOW ID=1 DT=.03333 HR
*S** CHANNEL DISCHARGE TO INLET NEAR MUELLER*****
PRINT HYD             ID=4 CODE=10
** NOW COMPUTE BASIN B505  ***
*S**BASIN B505   A=.024  SQ MI ***
COMPUTE NM HYD        ID=1 HYD NO=505.0 DA=.024 SQ MI
                      PER A=1.0 PER B=0.0 PER C=9.0 PER D=90.0
                      TP=-.13   RAIN=-1
PRINT HYD             ID=1 CODE=10
*S** ADD B504 ROUTE TO B505 **********
ADD HYD               ID=1 HYD=234.5 ID I=1 II=4
PRINT HYD             ID=1 CODE=10
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR       ID=4 HYD=105.01 INFLOW ID=1 CODE=20
                      OUTFLOW    STORAGE  DEPTH
                        0          0       0
                        14         .5      .4
                        24         1.1      .7
                        24.30        2.2      1.0
PRINT HYD             ID=4 CODE=10
```

```
*S** ROUTE THRU  24" FROM APRON TO WEST ISLAND**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.010
                     DIA=2.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=5 REACH=15 VS NO=1 L=346 SLP=0.010
ROUTE                ID=5 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD            ID=5 CODE=10
*S** ADD BASIN 505 RT TO B501/B502 AT WEST ISLAND**********
ADD HYD              ID=2 HYD=234.5 ID I=3 II=5
PRINT HYD            ID=2 CODE=10
*S** ROUTE THRU 60" TO TEE AT END OF RUNWAY**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.004
                     DIA=5.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=5 REACH=15 VS NO=1 L=440 SLP=0.004
ROUTE                ID=5 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD            ID=5 CODE=10
*S** ROUTE THRU 60" TO JUNCTION AT SW CORNER  @ END RUNWAY**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.008
                     DIA=5.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=10 REACH=15 VS NO=1 L=400 SLP=0.008
ROUTE                ID=10 HYD=105.1 INFLOW ID=5 DT=0.03333 HR
*S******* HYDROGRAPH ENTERING JUNCTION FROM NORTH BRANCH******
PRINT HYD            ID=10 CODE=10
*** CALC FLOW FROM BASIN B507****
*S** B507  A=.025 SQMI***
COMPUTE NM HYD       ID=4 HYD NO=507 DA=0.025  SQ MI
                     PER A=3.0 PER B=0.0 PER C=65.0 PER D=32.0
                     TP=-.17   RAIN=-1
PRINT HYD            ID=4 CODE=10
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=1 HYD=105.01 INFLOW ID=4 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       6          .5      .5
                       10        1.1       1
                       10.1      2.2       2
PRINT HYD            ID=1 CODE=10
*S** ROUTE THRU 24" INTO BASIN 3***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.002
                     DIA=2.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=550 SLP=0.002
ROUTE                ID=3 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
PRINT HYD            ID=3 CODE=10
*S** B508 A=.052 SQMI***
COMPUTE NM HYD       ID=4 HYD NO=508 DA=0.052  SQ MI
                     PER A=0.0 PER B=5.0 PER C=53.0 PER D=42.0
                     TP=-.28   RAIN=-1
PRINT HYD            ID=4 CODE=10
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=1 HYD=105.01 INFLOW ID=4 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       39         .5      .4
                       69.       1.1      .75
                       69.10      2.2      1.0
PRINT HYD            ID=1 CODE=10
```

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*S** ADD BASIN 507 AND 508 TO GET TOTAL**
ADD HYD                ID=1 HYD=234.5 ID I=3 II=1
PRINT HYD              ID=1 CODE=10
*S** ROUTE THRU LAST 48" SECTION IN WEST BASIN 508
*S** TO BRANCH AT BASIN 509*********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.002
                       DIA=4.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=700 SLP=0.002
ROUTE                  ID=3 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
PRINT HYD              ID=3 CODE=10
*S** CALCULATE B509  ***
*S* BASIN B509  A=0.0122 SQMI ***
COMPUTE NM HYD          ID=2 HYD NO=509 DA=0.0122 SQ MI
                        PER A=1.0 PER B=0.0 PER C=22.0 PER D=77.0
                        TP=-.13  RAIN=-1
PRINT HYD               ID=2 CODE=10
*S** ADD BASIN 508/507 RT TO B509 AT NW ISLAND BASIN 509**********
ADD HYD                ID=1 HYD=234.5 ID I=2 II=3
PRINT HYD              ID=1 CODE=10
*S**** ROUTE RES SO ALL WATER IS DISCHARGED FR B509 AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR        ID=2 HYD=105.01 INFLOW ID=1 CODE=20
                       OUTFLOW    STORAGE  DEPTH
                         0           0       0
                         146.57      .01     .01
                         146.58      1.1     .5
                         146.59       2.2     1.0
PRINT HYD              ID=2 CODE=10
*S** ROUTE THRU LAST 48" SECTION TO JUNCTION AT SW CORNER OF RUNWAY******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.009
                       DIA=4.0 FT N=0.013
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=350 SLP=0.009
ROUTE                  ID=3 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
*S****** HYDROGRAPH FROM SOUTH BRANCH AT JUNCTION***********
PRINT HYD              ID=3 CODE=10
*S** ADD SOUTH AND NORTH BRANCH HYDROGRAPHS AT JUNCTION**********
ADD HYD                ID=1 HYD=234.5 ID I=10 II=3
PRINT HYD              ID=1 CODE=10
*S** ROUTE THRU 66" SECTION TO ACCESS RD B AREA******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.01
                       DIA=5.5 FT N=0.013
COMPUTE TRAVEL TIME  ID=2 REACH=15 VS NO=1 L=1000 SLP=0.01
ROUTE                  ID=2 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
PRINT HYD              ID=2 CODE=10
*S** ROUTE THRU LAST 54" SECTION CHANNEL AT BASE******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.07
                       DIA=4.5 FT N=0.013
COMPUTE TRAVEL TIME  ID=11 REACH=15 VS NO=1 L=600 SLP=0.07
ROUTE                  ID=11 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD              ID=11 CODE=10
****CALC BASIN 506 ***
*S*B506   A=.032 SQ MI ****
COMPUTE NM HYD         ID=5 HYD NO=506 DA=.032 SQ MI
                       PER A=10.0 PER B=5.0 PER C =70.0 PER D=15.0
                       TP=-.18 RAIN=-1
PRINT HYD              ID=5 CODE =10
*S** ROUTE THRU 24" SECTION TO CHANNEL******
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COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.168
                     DIA=2.0 FT N=0.024
COMPUTE TRAVEL TIME  ID=2 REACH=15 VS NO=1 L=220 SLP=0.168
ROUTE                ID=2 HYD=105.1 INFLOW ID=5 DT=0.03333 HR
PRINT HYD            ID=2 CODE=10
*S** ADD BASIN 506 AND WESTEND FLOWS AT TOP OF CHANNEL FOR SUBTOTAL**********
ADD HYD              ID=10 HYD=234.5 ID I=11 II=2
PRINT HYD            ID=10 CODE=10
*S** CALC FLOW FROM BASIN B510 ****
COMPUTE NM HYD       ID=4 HYD NO=510 DA=0.024 SQ MI
                     PER A=25.0 PER B=25.0 PER C=46.0 PER D=4.0
                     TP=-.13   RAIN=-1
PRINT HYD            ID=4 CODE=10
*S** ADD BASIN 510 AND SUBTOTAL TO CHANNEL FROM ABOVE**********
ADD HYD              ID=1 HYD=234.5 ID I=10 II=4
PRINT HYD            ID=1 CODE=10
*S**BASIN 511   A=.01  SQ MI ***
COMPUTE NM HYD       ID=15 HYD NO=511 DA=.010  SQ MI
                     PER A=30 PER B=33 PER C=35 PER D=2
                     TP=-.13 RAIN=-1
PRINT HYD            ID=15 CODE=10
*S** ADD BASIN 511 AND SUBTOTAL TO CHANNEL FROM ABOVE**********
ADD HYD              ID=2 HYD=234.5 ID I=15 II=1
*S******** HYDROGRAPH INTO CHANNEL**********
PRINT HYD            ID=2 CODE=10
*S******* ROUTE THROUGH CHANNEL TO UNIVERSITY ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=8
                     CH SLP=.0632 FP SLP=.0632 N=.033 DIST=36
                     DIST ELEV  DIST ELEV  DIST ELEV
                      0    8     8    0     28   0
                      36   8
COMPUTE TRAVEL TIME  ID=4 REACH=1 VS NO=1 L=475 SLP=.0632
ROUTE                ID=4 HYD NO=110.3 INFLOW ID=2 DT=.03333 HR
*S** CHANNEL DISCHARGE*****
PRINT HYD            ID=4 CODE=10
**********************
** NOW COMPUTE BASIN B512 ***
*S**BASIN 512   A=.03  SQ MI ***
COMPUTE NM HYD       ID=15 HYD NO=512 DA=.030  SQ MI
                     PER A=47 PER B=33 PER C=16 PER D=4
                     TP=-.13 RAIN=-1
PRINT HYD            ID=15 CODE=10
*S** ADD B512 AND SUBTOTAL TO CHANNEL *****
ADD HYD              ID=20 HYD=111.0 ID I=15 II=4
PRINT HYD            ID=20 CODE=10
**** ROUTE TO NEW POND AT HEADS OF CULVERTS AND HOLD ID=20****
*S** CALCULATE B513 (REVISED TO REFLECT RENTAL CAR FACILITY) ***
COMPUTE NM HYD        ID=4 HYD NO=513 DA=0.036 SQ MI
                      PER A=0.0 PER B=0.0 PER C=8.0 PER D=92.0
                      TP=-.13  RAIN=-1
PRINT HYD             ID=4 CODE=10
*S** ADD REVISED B513O TO SUBTOTAL FROM CHANNEL FOR TOTAL *****
*S**IN NEW DETENTION POND ON WEST SIDE OF UNIVERSITY**********************
ADD HYD              ID=6 HYD=513.1 ID I=20 II=4
PRINT HYD            ID=6 CODE=10
*S**** ROUTE THROUGH NEW DETENTION POND**********************************
*S**** OUTFLOW IS APPROXIMATE PEAK UNDER EXISTING CONDITIONS*************
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*S**** OUTFLOW IS APPROXIMATE CAPACITY OF ONE-54" CULVERT ***************
ROUTE RESERVOIR       ID=1 HYD=111.1 INFLOW ID=6 CODE=20
                      OUTFLOW (CFS)    STORAGE (AC FT)    ELEVATION (FT)
                       0                0                  5180.0
                       5.53             0.8870             5181.0
                       20.87            1.8215             5182.0
                       43.99            2.8080             5183.0
                       72.66            3.8449             5184.0
                       104.39           4.9271             5185.0
                       136.71           6.0556             5186.0
                       160.79           7.2378             5187.0
                       179.47           8.4748             5188.0
                       196.38           9.7681             5189.0
                       211.94          11.1190             5190.0
                       226.44          13.0000             5191.0
*S****DISCHARGE TO UNPLATTED ARROYO*********
PRINT HYD             ID=1 CODE=10
******** ROUTE DOWN ARROYO THRU 11A TO SPUR ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                      CH SLP=.039 FP SLP=.039 N=.033 DIST=100
                      DIST ELEV  DIST ELEV  DIST ELEV
                       0    4     15    0     85   0
                       100   4
COMPUTE TRAVEL TIME   ID=4 REACH=1 VS NO=1 L=1900 SLP=.039
ROUTE                 ID=4 HYD NO=111.1 INFLOW ID=1 DT=.03333 HR
PRINT HYD             ID=4 CODE=10
***BASIN 11A    A=.047  SQ MI ***
COMPUTE NM HYD        ID=5 HYD NO=111.0 DA=.047  SQ MI
                      PER A=65 PER B=23 PER C=10 PER D=2
                      TP=-.13 RAIN=-1
PRINT HYD             ID=5 CODE=10
*** ADD B11A AND ARROYO DISCHARGE *****
ADD HYD               ID=1 HYD=111.2 ID I=4 II=5
PRINT HYD             ID=1 CODE=10
******* ROUTE DOWN ARROYO THRU 11B TO I-25 BOX ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                      CH SLP=.030 FP SLP=.030 N=.033 DIST=100
                      DIST ELEV  DIST ELEV  DIST ELEV
                       0    4     15    0     85   0
                       100   4
COMPUTE TRAVEL TIME   ID=4 REACH=1 VS NO=1 L=1300 SLP=.030
ROUTE                 ID=4 HYD NO=111.1 INFLOW ID=1 DT=.03333 HR
PRINT HYD             ID=4 CODE=10
***BASIN 11B    A=.030  SQ MI ***
COMPUTE NM HYD        ID=5 HYD NO=111.3 DA=.030  SQ MI
                      PER A=61 PER B=23 PER C=10 PER D=6
                      TP=-.13 RAIN=-1
PRINT HYD             ID=5 CODE=10
*** ADD B11B AND ARROYO DISCHARGE *****
ADD HYD               ID=1 HYD=111.4 ID I=4 II=5
**** DISCHARGE INTO BOX UNDER I-25****
PRINT HYD             ID=1 CODE=10
******** ROUTE THRU 6'X8' BOX ******USE AVERAGE SLOPE**BOX SLOPE CHANGES 3
TIMES***
***** AS CHANNEL*****
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=6
                      CH SLP=.059 FP SLP=.059 N=.015 DIST=8.1
```

RAC POND

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                        DIST ELEV  DIST ELEV  DIST ELEV
                         0    6     .1    0     8   0
                         8.1   6
COMPUTE TRAVEL TIME     ID=4 REACH=1 VS NO=1 L=220 SLP=.059
ROUTE                   ID=4 HYD NO=112.0 INFLOW ID=1 DT=.03333 HR
PRINT HYD               ID=4 CODE=10
***BASIN 12    A=.003   SQ MI ***
COMPUTE NM HYD          ID=5 HYD NO=112.1 DA=.003  SQ MI
                        PER A=0 PER B=0 PER C=82 PER D=18
                        TP=-.13 RAIN=-1
PRINT HYD               ID=5 CODE=10
*** ADD BOX DISCHARGE AND BASIN 12 *****
ADD HYD                 ID=1 HYD=112.2 ID I=4 II=5
PRINT HYD               ID=1 CODE=10
***** ROUTE THIS SUBTOTAL THRU BASIN 13 ARROYO ******
COMPUTE RATING CURVE    CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                        CH SLP=.080 FP SLP=.080 N=.033 DIST=60
                        DIST ELEV  DIST ELEV  DIST ELEV
                         0    4     10    0     50   0
                         60   4
COMPUTE TRAVEL TIME     ID=4 REACH=1 VS NO=1 L=450 SLP=.080
ROUTE                   ID=4 HYD NO=113.0 INFLOW ID=1 DT=.03333 HR
PRINT HYD               ID=4 CODE=10
***BASIN 13    A=.007   SQ MI ***
COMPUTE NM HYD          ID=5 HYD NO=113.1 DA=.007  SQ MI
                        PER A=60 PER B=12 PER C=18 PER D=10
                        TP=-.13 RAIN=-1
PRINT HYD               ID=5 CODE=10
*** ADD ARROYO DISCHARGE AND BASIN 13 *****
ADD HYD                 ID=1 HYD=113.3 ID I=4 II=5
PRINT HYD               ID=1 CODE=10
***** ROUTE THIS SUBTOTAL THRU 3 CULVERTS UNDER WOODWARD SIDE ROAD ******
***** 3 - 36" DIA CULVERTS CONVERTED TO ONE 5.2' DIA PIPE FOR HYMO*****
COMPUTE RATING CURVE    CID=1 VS NO=1 CODE=-1 SLOPE=.0667
                        DIA=5.2 FT N=.022
COMPUTE TRAVEL TIME     ID=4 REACH=1 VS NO=1 L=60 SLP=.0667
ROUTE                   ID=4 HYD NO=113.0 INFLOW ID=1 DT=.03333 HR
PRINT HYD               ID=4 CODE=10
**** ROUTE THIS FLOW DOWN ARROYO THRU BASIN 14 TO AIA OUTLET IN S. DIV.
CHANNEL***
COMPUTE RATING CURVE    CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                        CH SLP=.0386 FP SLP=.0386 N=.033 DIST=60
                        DIST ELEV  DIST ELEV  DIST ELEV
                         0    4     10    0     50   0
                         60   4
COMPUTE TRAVEL TIME     ID=2 REACH=1 VS NO=1 L=700 SLP=.0386
ROUTE                   ID=2 HYD NO=114.0 INFLOW ID=4 DT=.03333 HR
PRINT HYD               ID=2 CODE=10
***BASIN 14    A=.012   SQ MI ***
COMPUTE NM HYD          ID=5 HYD NO=114.1 DA=.012  SQ MI
                        PER A=60 PER B=18 PER C=18 PER D=4
                        TP=-.13 RAIN=-1
PRINT HYD               ID=5 CODE=10
*** ADD ARROYO DISCHARGE AND BASIN 14 *****
ADD HYD                 ID=1 HYD=113.3 ID I=2 II=5
**** TOTAL DISCHARGE TO CHUTE (AIRPORT OUTLET) AT SOUTH DIVERSION CHANNEL*****
PRINT HYD               ID=1 CODE=10
```

FINISH

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =09/16/1999
INPUT FILE = I:\ALBUQUER\ABQ71-11.D03\DRAINAGE\WECAR100.DAT USER NO.= AHYMO-I-9702a01000F11-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.350
*S**CALCULATE FLOW FROM BASIN 501****											
S BASIN B501 - A= .043 SQ MI											
COMPUTE NM HYD	501.00	-	3	.04300	121.58	4.384	1.91155	1.500	4.418	PER IMP=	81.00
*S*** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****											
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF 24" PIPE ******************											
ROUTE RESERVOIR	105.01	3	4	.04300	13.22	4.384	1.91154	2.166	.480	AC-FT=	3.081
*S***ROUTE CAP. THROUGH 24" RCP******											
ROUTE	105.10	4	7	.04300	13.21	4.384	1.91153	2.933	.480		
*S**CALCULATE FLOW FROM BASIN 502*********											
*S***BASIN B502 - A=.038 SQ MI ****											
COMPUTE NM HYD	502.00	-	3	.03800	82.37	3.617	1.78487	1.567	3.387	PER IMP=	69.00
*S** ADD B502 TO B501 ROUTE ***											
ADD HYD	234.50	3& 7	2	.08100	94.09	8.001	1.85210	1.567	1.815		
*S***ROUTE CAP. THROUGH 48" RCP******											
ROUTE	105.10	2	7	.08100	93.44	8.001	1.85210	1.600	1.802		
*S***CALC BASIN 503 ***											
*S*B503 A=.021 SQ MI ****											
COMPUTE NM HYD	503.00	-	5	.02100	63.45	2.347	2.09562	1.500	4.721	PER IMP=	98.00
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****											
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************											
ROUTE RESERVOIR	105.01	5	4	.02100	24.11	2.347	2.09560	1.766	1.794	AC-FT=	.926
*S***ROUTE CAP. THROUGH 30" RCP******											
ROUTE	105.10	4	3	.02100	24.09	2.347	2.09560	1.766	1.792		
*S** ADD B503 ROUTE TO B501/B502 AT MIDDLE ISLAND**********											
ADD HYD	234.50	3& 7	2	.10200	115.51	10.348	1.90222	1.600	1.769		
*S** ROUTE THRU NEW 54" TO NEXT ISLAND**********											
ROUTE	105.10	2	3	.10200	115.46	10.348	1.90223	1.600	1.769		
*S**BASIN B504 A=.022 SQ MI ***											
COMPUTE NM HYD	504.00	-	1	.02200	66.47	2.459	2.09562	1.500	4.721	PER IMP=	98.00
*S******* ROUTE THROUGH SWALE TO INLET NEAR WEST ISLAND ******											
ROUTE	110.30	1	4	.02200	51.28	2.459	2.09563	1.633	3.642		
*S** CHANNEL DISCHARGE TO INLET NEAR MUELLER*****											
*S**BASIN B505 A=.024 SQ MI ***											
COMPUTE NM HYD	505.00	-	1	.02400	70.31	2.571	2.00850	1.500	4.577	PER IMP=	90.00
*S** ADD B504 ROUTE TO B505 **********											
ADD HYD	234.50	1& 4	1	.04600	107.77	5.030	2.05014	1.533	3.661		
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****											
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************											
ROUTE RESERVOIR	105.01	1	4	.04600	29.76	5.030	2.05014	2.100	1.011	AC-FT=	22.225
*S** ROUTE THRU 24" FROM APRON TO WEST ISLAND**********											
ROUTE	105.10	4	5	.04600	29.76	5.030	2.05014	2.100	1.011		
*S** ADD BASIN 505 RT TO B501/B502 AT WEST ISLAND**********											
ADD HYD	234.50	3& 5	2	.14800	139.43	15.378	1.94819	1.600	1.472		
*S** ROUTE THRU 60" TO TEE AT END OF RUNWAY**********											
ROUTE	105.10	2	5	.14800	138.33	15.378	1.94820	1.600	1.460		
*S** ROUTE THRU 60" TO JUNCTION AT SW CORNER @ END RUNWAY**********											
ROUTE	105.10	5	10	.14800	138.47	15.378	1.94820	1.633	1.462		
*S******* HYDROGRAPH ENTERING JUNCTION FROM NORTH BRANCH******											

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2 NOTATION
*S** B507 A=.025 SQMI***										
COMPUTE NM HYD	507.00	-	4	.02500	49.86	1.892	1.41895	1.533	3.116	PER IMP= 32.00
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****										
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************										
ROUTE RESERVOIR	105.01	4	1	.02500	10.01	1.892	1.41893	2.066	.625	AC-FT= 1.176
*S** ROUTE THRU 24" INTO BASIN 3***										
ROUTE	105.10	1	3	.02500	10.00	1.892	1.41889	2.233	.625	
*S** B508 A=.052 SQMI***										
COMPUTE NM HYD	508.00	-	4	.05200	80.74	4.221	1.52184	1.667	2.426	PER IMP= 42.00
*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****										
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************										
ROUTE RESERVOIR	105.01	4	1	.05200	59.36	4.221	1.52183	1.833	1.784	AC-FT= .907
*S** ADD BASIN 507 AND 508 TO GET TOTAL**										
ADD HYD	234.50	3& 1	1	.07700	69.07	6.112	1.48840	1.833	1.402	
*S** ROUTE THRU LAST 48" SECTION IN WEST BASIN 508										
*S** TO BRANCH AT BASIN 509*********										
ROUTE	105.10	1	3	.07700	68.64	6.112	1.48840	1.866	1.393	
*S** CALCULATE B509 ***										
S BASIN B509 A=0.0122 SQMI ***										
COMPUTE NM HYD	509.00	-	2	.01220	34.17	1.223	1.87993	1.500	4.376	PER IMP= 77.00
*S** ADD BASIN 508/507 RT TO B509 AT NW ISLAND BASIN 509**********										
ADD HYD	234.50	2& 3	1	.08920	78.76	7.336	1.54194	1.866	1.380	
*S**** ROUTE RES SO ALL WATER IS DISCHARGED FR B509 AND PONDING IS KNOWN ****										
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************										
ROUTE RESERVOIR	105.01	1	2	.08920	78.77	7.336	1.54194	1.866	1.380	AC-FT= .005
*S** ROUTE THRU LAST 48" SECTION TO JUNCTION AT SW CORNER OF RUNWAY******										
ROUTE	105.10	2	3	.08920	78.79	7.336	1.54195	1.866	1.380	
*S****** HYDROGRAPH FROM SOUTH BRANCH AT JUNCTION**********										
*S** ADD SOUTH AND NORTH BRANCH HYDROGRAPHS AT JUNCTION**********										
ADD HYD	234.50	10& 3	1	.23720	202.20	22.713	1.79542	1.667	1.332	
*S** ROUTE THRU 66" SECTION TO ACCESS RD B AREA******										
ROUTE	105.10	1	2	.23720	202.31	22.713	1.79542	1.667	1.333	
*S** ROUTE THRU LAST 54" SECTION CHANNEL AT BASE******										
ROUTE	105.10	2	11	.23720	202.29	22.713	1.79542	1.667	1.333	
*S*B506 A=.032 SQ MI ****										
COMPUTE NM HYD	506.00	-	5	.03200	53.36	2.008	1.17637	1.567	2.605	PER IMP= 15.00
*S** ROUTE THRU 24" SECTION TO CHANNEL******										
ROUTE	105.10	5	2	.03200	53.36	2.008	1.17637	1.567	2.606	
*S** ADD BASIN 506 AND WESTEND FLOWS AT TOP OF CHANNEL FOR SUBTOTAL**********										
ADD HYD	234.50	11& 2	10	.26920	246.62	24.721	1.72183	1.633	1.431	
*S** CALC FLOW FROM BASIN B510 ****										
COMPUTE NM HYD	510.00	-	4	.02400	39.89	1.147	.89572	1.500	2.597	PER IMP= 4.00
*S** ADD BASIN 510 AND SUBTOTAL TO CHANNEL FROM ABOVE**********										
ADD HYD	234.50	10& 4	1	.29320	272.61	25.867	1.65421	1.600	1.453	
*S**BASIN 511 A=.01 SQ MI ***										
COMPUTE NM HYD	511.00	-	15	.01000	15.42	.437	.81964	1.500	2.410	PER IMP= 2.00
*S** ADD BASIN 511 AND SUBTOTAL TO CHANNEL FROM ABOVE**********										
ADD HYD	234.50	15& 1	2	.30320	284.60	26.305	1.62668	1.600	1.467	
*S******** HYDROGRAPH INTO CHANNEL**********										
*S******* ROUTE THROUGH CHANNEL TO UNIVERSITY ******										
ROUTE	110.30	2	4	.30320	284.81	26.305	1.62669	1.600	1.468	
*S** CHANNEL DISCHARGE*****										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
*S**BASIN 512 A=.03 SQ MI ***											
COMPUTE NM HYD	512.00	-	15	.03000	41.55	1.194	.74599	1.500	2.164	PER IMP=	4.00
*S** ADD B512 AND SUBTOTAL TO CHANNEL *****											
ADD HYD	111.00	15& 4	20	.33320	317.47	27.498	1.54739	1.600	1.489		
*S** CALCULATE B513 (REVISED TO REFLECT RENTAL CAR FACILITY) ***											
COMPUTE NM HYD	513.00	-	4	.03600	106.61	3.910	2.03637	1.500	4.627	PER IMP=	92.00
*S** ADD REVISED B513O TO SUBTOTAL FROM CHANNEL FOR TOTAL *****											
*S**IN NEW DETENTION POND ON WEST SIDE OF UNIVERSITY**********											
ADD HYD	513.10	20& 4	6	.36920	395.61	31.408	1.59507	1.567	1.674		
*S**** ROUTE THROUGH NEW DETENTION POND**********											
*S**** OUTFLOW IS APPROXIMATE PEAK UNDER EXISTING CONDITIONS**********											
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF ONE-54" CULVERT **********											
ROUTE RESERVOIR	111.10	6	1	.36920	189.63	31.407	1.59500	2.100	.803	AC-FT=	9.252
*S****DISCHARGE TO UNPLATTED ARROYO*********											
ROUTE	111.10	1	4	.36920	188.52	31.406	1.59499	2.166	.798		
COMPUTE NM HYD	111.00	-	5	.04700	58.22	1.653	.65929	1.500	1.936	PER IMP=	2.00
ADD HYD	111.20	4& 5	1	.41620	192.21	33.059	1.48932	2.166	.722		
ROUTE	111.10	1	4	.41620	191.81	33.059	1.48932	2.200	.720		
COMPUTE NM HYD	111.30	-	5	.03000	39.62	1.157	.72303	1.500	2.064	PER IMP=	6.00
ADD HYD	111.40	4& 5	1	.44620	194.30	34.216	1.43780	2.166	.680		
ROUTE	112.00	1	4	.44620	194.30	34.216	1.43780	2.166	.680		
COMPUTE NM HYD	112.10	-	5	.00300	6.70	.209	1.30565	1.500	3.489	PER IMP=	18.00
ADD HYD	112.20	4& 5	1	.44920	194.79	34.425	1.43692	2.166	.678		
ROUTE	113.00	1	4	.44920	194.79	34.425	1.43691	2.166	.678		
COMPUTE NM HYD	113.10	-	5	.00700	9.98	.298	.79911	1.500	2.229	PER IMP=	10.00
ADD HYD	113.30	4& 5	1	.45620	195.50	34.723	1.42713	2.166	.670		
ROUTE	113.00	1	4	.45620	195.51	34.723	1.42713	2.166	.670		
ROUTE	114.00	4	2	.45620	195.45	34.723	1.42712	2.200	.669		
COMPUTE NM HYD	114.10	-	5	.01200	15.98	.460	.71830	1.500	2.080	PER IMP=	4.00
ADD HYD	113.30	2& 5	1	.46820	196.45	35.183	1.40896	2.166	.656		
FINISH											

R&C POND

```
    AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02c
          RUN DATE (MON/DAY/YR) = 09/16/1999
          START TIME (HR:MIN:SEC) = 08:22:13      USER NO.= AHYMO-I-9702a01000F11-AH
          INPUT FILE = I:\ALBUQUER\ABQ71-11.D03\DRAINAGE\WECAR100.DAT

 ******************** MOLZEN-CORBIN AND ASSOCIATES ********************
 ****************************** MAY 1993  ******************************
 ***** ALBUQUERQUE INTERNATIONAL AIRPORT DRAINAGE MASTER PLAN**********
 ***************************** 100 YEAR STORM ******************************
 ********************** WEST END BASIN - 500'S ***********************
 ********************* SUB-BASIN 6 NOT INCLUDED***********************
 **FLOW TO BASIN WEST OF 8 RUNWAY; ARROYO TO SOUTH DIVERSION CHANNEL***
 ************************************************************************
 START                 0.00
 ************************************************************************
 RAINFALL                TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.01
                         RAIN SIX=2.35   RAIN DAY=0.0  DT=0.03333

                 COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                 DT =     .033330 HOURS          END TIME =     5.999400 HOURS
                    .0000   .0016   .0033   .0049   .0066   .0084   .0102
                    .0120   .0139   .0158   .0178   .0199   .0219   .0241
                    .0263   .0286   .0309   .0333   .0358   .0384   .0411
                    .0439   .0467   .0497   .0529   .0561   .0596   .0631
                    .0669   .0709   .0751   .0807   .0866   .0930   .1066
                    .1371   .1840   .2514   .3434   .4644   .6186   .8106
                   1.0449  1.2624  1.3533  1.4300  1.4982  1.5602  1.6174
                   1.6704  1.7200  1.7664  1.8102  1.8514  1.8904  1.9273
                   1.9622  1.9953  2.0268  2.0566  2.0850  2.0915  2.0976
                   2.1033  2.1088  2.1140  2.1191  2.1239  2.1285  2.1329
                   2.1373  2.1414  2.1454  2.1494  2.1531  2.1568  2.1604
                   2.1639  2.1673  2.1706  2.1739  2.1771  2.1802  2.1832
                   2.1862  2.1891  2.1919  2.1947  2.1975  2.2002  2.2028
                   2.2054  2.2080  2.2105  2.2130  2.2154  2.2178  2.2202
                   2.2225  2.2248  2.2270  2.2293  2.2315  2.2336  2.2358
                   2.2379  2.2399  2.2420  2.2440  2.2460  2.2480  2.2500
                   2.2519  2.2538  2.2557  2.2576  2.2594  2.2612  2.2631
                   2.2648  2.2666  2.2684  2.2701  2.2718  2.2735  2.2752
                   2.2769  2.2785  2.2802  2.2818  2.2834  2.2850  2.2866
                   2.2881  2.2897  2.2912  2.2928  2.2943  2.2958  2.2973
                   2.2987  2.3002  2.3017  2.3031  2.3045  2.3060  2.3074
                   2.3088  2.3102  2.3115  2.3129  2.3143  2.3156  2.3169
                   2.3183  2.3196  2.3209  2.3222  2.3235  2.3248  2.3261
                   2.3273  2.3286  2.3298  2.3311  2.3323  2.3335  2.3348
                   2.3360  2.3372  2.3384  2.3396  2.3408  2.3419  2.3431
                   2.3443  2.3454  2.3466  2.3477  2.3488  2.3500
 ************************************************************************
 *S**CALCULATE FLOW FROM BASIN 501****
 *S* BASIN B501  -  A= .043 SQ MI
 COMPUTE NM HYD          ID=3 HYD NO=501 DA= .043 SQ MI
                         PER A=2  PER B=0  PER C=17.0 PER D=81.0
                         TP=-.13   RAIN=-1

     K =   .070850HR    TP =   .130000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   141.00    CFS   UNIT VOLUME =    1.000      B =   526.28      P60 = 2.0100.
     AREA =      .034830 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


     K =   .110197HR    TP =   .130000HR    K/TP RATIO =   .847669     SHAPE CONSTANT, N =  4.200377
     UNIT PEAK =   23.147    CFS   UNIT VOLUME =    .9999      B =   368.32      P60 = 2.0100
     AREA =      .008170 SQ MI    IA =    .38158 INCHES    INF =    .91842 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

 PRINT HYD               ID=3 CODE=10

                                OUTFLOW HYDROGRAPH RESERVOIR   501.00

      TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
       HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
      .000        .0         1.666      60.4         3.333        .9         5.000        .6         6.666        .0
      .333        .0         2.000      27.8         3.666        .7         5.333        .6         6.999        .0
      .667        .0         2.333       5.8         4.000        .6         5.666        .7
     1.000        .0         2.666       2.4         4.333        .6         5.999        .7
     1.333      34.8         3.000       1.3         4.666        .6         6.333        .1

     RUNOFF VOLUME =      1.91155 INCHES      =       4.3838 ACRE-FEET
     PEAK DISCHARGE RATE =      121.58 CFS  AT    1.500 HOURS    BASIN AREA =    .0430 SQ. MI.


 *S*** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
 *S**** OUTFLOW IS APPROXIMATE CAPACITY OF 24" PIPE ******************
 ROUTE RESERVOIR         ID=4 HYD=105.01 INFLOW ID=3 CODE=20
                         OUTFLOW    STORAGE  DEPTH
                           0          0       0
                           9          .5      .5
                          13.21       1.1     .75
                          13.22       5.0     1.0

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

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

      .00        .00       .00       .000        .00
      .67        .00       .00       .000        .00
     1.33      34.81       .16       .161       2.91
     2.00      27.76       .87      2.975      13.21
     2.67       2.39       .86      2.752      13.21
     3.33        .86       .81      2.101      13.21
     4.00        .62       .77      1.412      13.21
     4.67        .60       .61       .755      10.79
     5.33        .64       .32       .318       5.72
     6.00        .73       .14       .142       2.56
     6.67        .02       .06       .058       1.04
```

7.33	.00	.02	.022	.39
8.00	.00	.01	.008	.14
8.67	.00	.00	.003	.05
9.33	.00	.00	.001	.02
10.00	.00	.00	.000	.01
10.67	.00	.00	.000	.00

PEAK DISCHARGE = 13.215 CFS - PEAK OCCURS AT HOUR 2.17
MAXIMUM WATER SURFACE ELEVATION = .877
MAXIMUM STORAGE = 3.0809 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=4 CODE=10

PARTIAL HYDROGRAPH 105.01

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.333	13.2	4.666	10.8	6.999	.6	9.332	.0
.333	.0	2.666	13.2	5.000	9.0	7.333	.4	9.666	.0
.667	.0	3.000	13.2	5.333	5.7	7.666	.2	9.999	.0
1.000	.0	3.333	13.2	5.666	3.7	7.999	.1	10.332	.0
1.333	2.9	3.666	13.2	5.999	2.6	8.333	.1	10.666	.0
1.666	13.2	4.000	13.2	6.333	1.7	8.666	.1	10.999	.0
2.000	13.2	4.333	13.0	6.666	1.0	8.999	.0	11.332	.0

RUNOFF VOLUME = 1.91154 INCHES = 4.3838 ACRE-FEET
PEAK DISCHARGE RATE = 13.22 CFS AT 2.166 HOURS BASIN AREA = .0430 SQ. MI.

*S***ROUTE CAP. THROUGH 24" RCP******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.003
DIA=2.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.10	.06	.06	.89
.21	.17	.28	1.22
.31	.31	.66	1.45
.42	.47	1.18	1.62
.52	.65	1.84	1.76
.63	.84	2.63	1.85
.73	1.04	3.52	1.93
.83	1.24	4.50	1.97
.94	1.45	5.55	2.00
1.04	1.66	6.64	2.00
1.15	1.86	7.75	2.00
1.25	2.07	8.86	2.00
1.35	2.27	9.93	2.00
1.46	2.46	10.93	2.00
1.56	2.63	11.83	2.00
1.67	2.80	12.58	2.00
1.77	2.94	13.11	2.00
1.88	3.06	13.33	2.00
2.00	3.14	13.33	2.00

COMPUTE TRAVEL TIME ID=7 REACH=15 VS NO=1 L=1270 SLP=0.003

TRAVEL TIME TABLE
REACH= 15.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.104	.062	.06	.3389
.208	.174	.28	.2172
.313	.314	.66	.1687
.417	.475	1.18	.1419
.521	.651	1.84	.1247
.625	.839	2.63	.1127
.730	1.037	3.52	.1039
.834	1.240	4.50	.0972
.938	1.447	5.55	.0920
1.042	1.655	6.64	.0879
1.146	1.863	7.75	.0847
1.251	2.067	8.86	.0823
1.355	2.265	9.93	.0805
1.459	2.456	10.93	.0792
1.563	2.635	11.83	.0786
1.668	2.799	12.58	.0785
1.772	2.943	13.11	.0792
1.876	3.061	13.33	.0810
2.000	3.142	13.33	.0831

ROUTE ID=7 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD ID=7 CODE=10

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	13.2	5.333	6.3	7.999	.2	10.666	.0
.333	.0	3.000	13.2	5.666	4.1	8.333	.1	10.999	.0
.667	.0	3.333	13.2	5.999	2.8	8.666	.1	11.332	.0
1.000	.0	3.666	13.2	6.333	1.9	8.999	.1	11.665	.0
1.333	.7	4.000	13.2	6.666	1.2	9.332	.0		
1.666	12.7	4.333	13.2	6.999	.8	9.666	.0		
2.000	13.2	4.666	11.3	7.333	.5	9.999	.0		
2.333	13.2	5.000	9.3	7.666	.3	10.332	.0		

RUNOFF VOLUME = 1.91153 INCHES = 4.3837 ACRE-FEET
PEAK DISCHARGE RATE = 13.21 CFS AT 2.933 HOURS BASIN AREA = .0430 SQ. MI.

*S**CALCULATE FLOW FROM BASIN 502*********
*S***BASIN B502 - A=.038 SQ MI ****
COMPUTE NM HYD ID=3 HYD NO=502 DA=.038 SQ MI

PER A=3.0 PER B=0.0 PER C=28.0 PER D=69.0
TP=-.20 RAIN=-1

K = .109000HR TP = .200000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 68.995 CFS UNIT VOLUME = .9997 B = 526.28 P60 = 2.0100
AREA = .026220 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .168862HR TP = .200000HR K/TP RATIO = .844312 SHAPE CONSTANT, N = 4.218638
UNIT PEAK = 21.763 CFS UNIT VOLUME = .9995 B = 369.49 P60 = 2.0100
AREA = .011780 SQ MI IA = .37903 INCHES INF = .91129 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=3 CODE=10

OUTFLOW HYDROGRAPH RESERVOIR 502.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.666	67.2	3.333	1.1	5.000	.5	6.666	.0
.333	.0	2.000	26.8	3.666	.7	5.333	.5	6.999	.0
.667	.0	2.333	8.3	4.000	.6	5.666	.5	7.333	.0
1.000	.0	2.666	3.6	4.333	.5	5.999	.5	7.666	.0
1.333	11.2	3.000	1.8	4.666	.5	6.333	.1		

RUNOFF VOLUME = 1.78487 INCHES = 3.6173 ACRE-FEET
PEAK DISCHARGE RATE = 82.37 CFS AT 1.567 HOURS BASIN AREA = .0380 SQ. MI.

*S** ADD B502 TO B501 ROUTE ***
ADD HYD ID=2 HYD=234.5 ID I=3 II=7
PRINT HYD ID=2 CODE=10

PARTIAL HYDROGRAPH 234.50

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	16.8	5.333	6.8	7.999	.2	10.666	.0
.333	.0	3.000	15.1	5.666	4.6	8.333	.1	10.999	.0
.667	.0	3.333	14.3	5.999	3.3	8.666	.1	11.332	.0
1.000	.0	3.666	13.9	6.333	2.0	8.999	.1	11.665	.0
1.333	11.9	4.000	13.8	6.666	1.2	9.332	.0		
1.666	79.9	4.333	13.7	6.999	.8	9.666	.0		
2.000	39.9	4.666	11.7	7.333	.5	9.999	.0		
2.333	21.5	5.000	9.8	7.666	.3	10.332	.0		

RUNOFF VOLUME = 1.85210 INCHES = 8.0010 ACRE-FEET
PEAK DISCHARGE RATE = 94.09 CFS AT 1.567 HOURS BASIN AREA = .0810 SQ. MI.

*S***ROUTE CAP. THROUGH 48" RCP******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.0066
DIA=4.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.21	.25	.61	1.78
.42	.69	2.66	2.44
.63	1.25	6.18	2.91
.83	1.90	11.11	3.25
1.04	2.60	17.35	3.51
1.25	3.36	24.75	3.71
1.46	4.15	33.16	3.85
1.67	4.96	42.40	3.94
1.88	5.79	52.27	3.99
2.08	6.62	62.55	4.00
2.29	7.45	73.03	4.00
2.50	8.27	83.44	4.00
2.71	9.06	93.52	4.00
2.92	9.82	102.96	4.00
3.13	10.54	111.41	4.00
3.34	11.20	118.44	4.00
3.54	11.77	123.46	4.00
3.75	12.24	125.53	4.00
4.00	12.57	125.53	4.00

COMPUTE TRAVEL TIME ID=7 REACH=15 VS NO=1 L=550 SLP=0.0066

TRAVEL TIME TABLE
REACH= 15.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.208	.250	.61	.0623
.417	.695	2.66	.0400
.625	1.255	6.18	.0310
.834	1.898	11.11	.0261
1.042	2.604	17.35	.0229
1.251	3.358	24.75	.0207
1.459	4.146	33.16	.0191
1.668	4.960	42.40	.0179
1.876	5.788	52.27	.0169
2.084	6.621	62.55	.0162
2.293	7.451	73.03	.0156
2.501	8.267	83.44	.0151
2.710	9.062	93.52	.0148
2.918	9.823	102.96	.0146
3.127	10.539	111.41	.0145
3.335	11.195	118.44	.0144
3.544	11.773	123.46	.0146
3.752	12.243	125.53	.0149
4.000	12.566	125.53	.0153

```
ROUTE                ID=7 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD            ID=7 CODE=10

                              PARTIAL HYDROGRAPH   105.10

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
      .000       .0          2.666      16.9         5.333       6.9         7.999       .2        10.666       .0
      .333       .0          3.000      15.1         5.666       4.7         8.333       .1        10.999       .0
      .667       .0          3.333      14.3         5.999       3.4         8.666       .1        11.332       .0
     1.000       .0          3.666      13.9         6.333       2.1         8.999       .1        11.665       .0
     1.333       8.3         4.000      13.8         6.666       1.3         9.332       .0
     1.666      82.6         4.333      13.7         6.999        .8         9.666       .0
     2.000      40.6         4.666      11.8         7.333        .5         9.999       .0
     2.333      21.9         5.000       9.9         7.666        .3        10.332       .0

    RUNOFF VOLUME =      1.85210 INCHES      =       8.0010 ACRE-FEET
    PEAK DISCHARGE RATE =       93.44 CFS  AT   1.600 HOURS   BASIN AREA =    .0810 SQ. MI.


******************
*S***CALC BASIN 503 ***
*S*B503   A=.021 SQ MI ****
COMPUTE NM HYD       ID=5 HYD NO=503 DA=.021 SQ MI
                     PER A=0.0 PER B=0.0 PER C =2.0 PER D=98.0
                     TP=-.13 RAIN=-1

     K =    .070850HR    TP =    .130000HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =    83.313    CFS   UNIT VOLUME =     .9999       B =    526.28      P60 = 2.0100
     AREA =       .020580 SQ MI    IA =     .10000 INCHES    INF =     .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


     K =    .104786HR    TP =    .130000HR    K/TP RATIO =    .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =    1.2392    CFS   UNIT VOLUME =     .9901       B =    383.55      P60 = 2.0100
     AREA =       .000420 SQ MI    IA =     .35000 INCHES    INF =     .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD            ID=5 CODE =10

                              OUTFLOW HYDROGRAPH RESERVOIR   503.00

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
      .000       .0          1.666      31.2         3.333        .5         5.000       .4         6.666       .0
      .333       .0          2.000      15.4         3.666        .4         5.333       .4         6.999       .0
      .667       .0          2.333       3.2         4.000        .4         5.666       .4
     1.000       .0          2.666       1.3         4.333        .4         5.999       .4
     1.333      19.9         3.000        .7         4.666        .4         6.333       .0

    RUNOFF VOLUME =      2.09562 INCHES      =       2.3471 ACRE-FEET
    PEAK DISCHARGE RATE =       63.45 CFS  AT   1.500 HOURS   BASIN AREA =    .0210 SQ. MI.


*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=4 HYD=105.01 INFLOW ID=5 CODE=20
                     OUTFLOW    STORAGE  DEPTH
                       0          0       0
                       17         .5      .5
                       27         1.1     .75
                       27.90        2.2     1.0

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

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

      .00         .00        .00        .000        .00
      .67         .00        .00        .000        .00
     1.33       19.94        .09        .089       3.02
     2.00       15.40        .64        .842      22.71
     2.67        1.30        .23        .233       7.92
     3.33         .49        .05        .052       1.78
     4.00         .36        .02        .018        .61
     4.67         .35        .01        .011        .39
     5.33         .38        .01        .011        .37
     6.00         .43        .01        .012        .41
     6.67         .01        .00        .003        .12
     7.33         .00        .00        .001        .02
     8.00         .00        .00        .000        .00
 PEAK DISCHARGE =       24.108 CFS - PEAK OCCURS AT HOUR    1.77
 MAXIMUM WATER SURFACE ELEVATION =          .678
 MAXIMUM STORAGE =          .9265 AC-FT      INCREMENTAL TIME=     .033330HRS

PRINT HYD            ID=4 CODE=10

                              PARTIAL HYDROGRAPH   105.01

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
      .000       .0          2.000      22.7         4.000        .6         5.999       .4         7.999       .0
      .333       .0          2.333      17.1         4.333        .5         6.333       .3         8.333       .0
      .667       .0          2.666       7.9         4.666        .4         6.666       .1
     1.000       .0          3.000       3.7         5.000        .4         6.999       .0
     1.333       3.0         3.333       1.8         5.333        .4         7.333       .0
     1.666      23.7         3.666       1.0         5.666        .4         7.666       .0

    RUNOFF VOLUME =      2.09560 INCHES      =       2.3471 ACRE-FEET
    PEAK DISCHARGE RATE =       24.11 CFS  AT   1.766 HOURS   BASIN AREA =    .0210 SQ. MI.


*S***ROUTE CAP. THROUGH 30" RCP******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.004
                     DIA=2.5 FT N=0.013
```

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.13	.10	.14	1.11
.26	.27	.59	1.53
.39	.49	1.37	1.82
.52	.74	2.47	2.03
.65	1.02	3.86	2.19
.78	1.31	5.50	2.32
.91	1.62	7.37	2.41
1.04	1.94	9.42	2.47
1.17	2.26	11.62	2.50
1.30	2.59	13.91	2.50
1.43	2.91	16.23	2.50
1.56	3.23	18.55	2.50
1.69	3.54	20.79	2.50
1.82	3.84	22.89	2.50
1.95	4.12	24.77	2.50
2.08	4.37	26.33	2.50
2.21	4.60	27.45	2.50
2.35	4.78	27.91	2.50
2.50	4.91	27.91	2.50

COMPUTE TRAVEL TIME ID=3 REACH=15 VS NO=1 L=320 SLP=0.004

TRAVEL TIME TABLE

REACH= 15.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.130	.098	.14	.0637
.261	.271	.59	.0408
.391	.490	1.37	.0317
.521	.741	2.47	.0267
.651	1.017	3.86	.0234
.782	1.312	5.50	.0212
.912	1.620	7.37	.0195
1.042	1.937	9.42	.0183
1.173	2.261	11.62	.0173
1.303	2.586	13.91	.0165
1.433	2.910	16.23	.0159
1.563	3.229	18.55	.0155
1.694	3.540	20.79	.0151
1.824	3.837	22.89	.0149
1.954	4.117	24.77	.0148
2.084	4.373	26.33	.0148
2.215	4.599	27.45	.0149
2.345	4.783	27.91	.0152
2.500	4.909	27.91	.0156

ROUTE ID=3 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
PRINT HYD ID=3 CODE=10

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	22.8	4.000	.6	5.999	.4	7.999	.0
.333	.0	2.333	17.4	4.333	.5	6.333	.3	8.333	.0
.667	.0	2.666	8.2	4.666	.4	6.666	.1		
1.000	.0	3.000	3.8	5.000	.4	6.999	.1		
1.333	2.2	3.333	1.9	5.333	.4	7.333	.0		
1.666	23.5	3.666	1.0	5.666	.4	7.666	.0		

RUNOFF VOLUME = 2.09560 INCHES = 2.3471 ACRE-FEET
PEAK DISCHARGE RATE = 24.09 CFS AT 1.766 HOURS BASIN AREA = .0210 SQ. MI.

*S** ADD B503 ROUTE TO B501/B502 AT MIDDLE ISLAND**********
ADD HYD ID=2 HYD=234.5 ID I=3 II=7
PRINT HYD ID=2 CODE=10

PARTIAL HYDROGRAPH 234.50

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	25.1	5.333	7.3	7.999	.2	10.666	.0
.333	.0	3.000	18.9	5.666	5.1	8.333	.1	10.999	.0
.667	.0	3.333	16.2	5.999	3.8	8.666	.1	11.332	.0
1.000	.0	3.666	14.9	6.333	2.4	8.999	.1	11.665	.0
1.333	10.5	4.000	14.4	6.666	1.5	9.332	.0		
1.666	106.1	4.333	14.1	6.999	.9	9.666	.0		
2.000	63.5	4.666	12.2	7.333	.5	9.999	.0		
2.333	39.3	5.000	10.3	7.666	.3	10.332	.0		

RUNOFF VOLUME = 1.90222 INCHES = 10.3480 ACRE-FEET
PEAK DISCHARGE RATE = 115.51 CFS AT 1.600 HOURS BASIN AREA = .1020 SQ. MI.

*S** ROUTE THRU NEW 54" TO NEXT ISLAND**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.008
DIA=4.5 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.23	.32	.92	2.00
.47	.88	4.01	2.75
.70	1.59	9.31	3.27
.94	2.40	16.75	3.66
1.17	3.30	26.15	3.95
1.41	4.25	37.31	4.17

1.64	5.25	49.98	4.33
1.88	6.28	63.90	4.44
2.11	7.32	78.78	4.49
2.35	8.38	94.28	4.50
2.58	9.43	110.07	4.50
2.81	10.46	125.76	4.50
3.05	11.47	140.95	4.50
3.28	12.43	155.18	4.50
3.52	13.34	167.92	4.50
3.75	14.17	178.51	4.50
3.99	14.90	186.09	4.50
4.22	15.50	189.20	4.50
4.50	15.90	189.20	4.50

COMPUTE TRAVEL TIME ID=3 REACH=15 VS NO=1 L=500 SLP=0.008

TRAVEL TIME TABLE

REACH= 15.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.235	.316	.92	.0476
.469	.880	4.01	.0305
.704	1.588	9.31	.0237
.938	2.402	16.75	.0199
1.173	3.296	26.15	.0175
1.407	4.249	37.31	.0158
1.641	5.248	49.98	.0146
1.876	6.277	63.90	.0136
2.111	7.325	78.78	.0129
2.345	8.380	94.28	.0123
2.579	9.430	110.07	.0119
2.814	10.463	125.76	.0116
3.049	11.468	140.95	.0113
3.283	12.432	155.18	.0111
3.518	13.338	167.92	.0110
3.752	14.169	178.51	.0110
3.987	14.900	186.09	.0111
4.221	15.495	189.20	.0114
4.500	15.904	189.20	.0117

ROUTE ID=3 HYD=105.1 INFLOW ID=2 DT=0.03333 HR

PRINT HYD ID=3 CODE=10

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	25.5	5.333	7.5	7.999	.2	10.666	.0
.333	.0	3.000	19.1	5.666	5.2	8.333	.1	10.999	.0
.667	.0	3.333	16.2	5.999	3.9	8.666	.1	11.332	.0
1.000	.0	3.666	15.0	6.333	2.5	8.999	.1	11.665	.0
1.333	6.5	4.000	14.4	6.666	1.5	9.332	.0		
1.666	108.0	4.333	14.2	6.999	1.0	9.666	.0		
2.000	64.2	4.666	12.3	7.333	.6	9.999	.0		
2.333	39.9	5.000	10.3	7.666	.4	10.332	.0		

RUNOFF VOLUME = 1.90223 INCHES = 10.3481 ACRE-FEET
PEAK DISCHARGE RATE = 115.46 CFS AT 1.600 HOURS BASIN AREA = .1020 SQ. MI.

** NOW COMPUTE BASIN B504 ***
*S**BASIN B504 A=.022 SQ MI ***
COMPUTE NM HYD ID=1 HYD NO=504.0 DA=.022 SQ MI
PER A=0.0 PER B=0.0 PER C=2.0 PER D=98.0
TP=-.13 RAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 87.281 CFS UNIT VOLUME = .9999 B = 526.28 P60 = 2.0100
AREA = .021560 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .104786HR TP = .130000HR K/TP RATIO = .806046 SHAPE CONSTANT, N = 4.440701
UNIT PEAK = 1.2982 CFS UNIT VOLUME = .9901 B = 383.55 P60 = 2.0100
AREA = .000440 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=1 CODE=10

OUTFLOW HYDROGRAPH RESERVOIR 504.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.666	32.7	3.333	.5	5.000	.4	6.666	.0
.333	.0	2.000	16.1	3.666	.4	5.333	.4	6.999	.0
.667	.0	2.333	3.3	4.000	.4	5.666	.4		
1.000	.0	2.666	1.4	4.333	.4	5.999	.5		
1.333	20.9	3.000	.8	4.666	.4	6.333	.0		

RUNOFF VOLUME = 2.09562 INCHES = 2.4588 ACRE-FEET
PEAK DISCHARGE RATE = 66.47 CFS AT 1.500 HOURS BASIN AREA = .0220 SQ. MI.

*S******* ROUTE THROUGH SWALE TO INLET NEAR WEST ISLAND ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=1.0
CH SLP=.004 FP SLP=.004 N=.017 DIST=20
DIST ELEV DIST ELEV DIST ELEV
0 1 8 0 12 0
20 1

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	4.00
.05	.23	.17	4.84

.11	.51	.56	5.68
.16	.83	1.16	6.53
.21	1.20	1.96	7.37
.26	1.61	2.99	8.21
.32	2.06	4.24	9.05
.37	2.56	5.73	9.89
.42	3.10	7.47	10.74
.47	3.69	9.48	11.58
.53	4.32	11.78	12.42
.58	5.00	14.36	13.26
.63	5.72	17.25	14.11
.68	6.48	20.45	14.95
.74	7.29	23.99	15.79
.79	8.14	27.86	16.63
.84	9.04	32.09	17.47
.89	9.98	36.68	18.32
.95	10.97	41.65	19.16
1.00	12.00	47.00	20.00

COMPUTE TRAVEL TIME ID=4 REACH=1 VS NO=1 L=1700 SLP=.004

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.053	.233	.17	.6468
.105	.510	.56	.4270
.158	.831	1.16	.3382
.211	1.197	1.96	.2876
.263	1.607	2.99	.2541
.316	2.061	4.24	.2298
.368	2.560	5.73	.2110
.421	3.102	7.47	.1961
.474	3.690	9.48	.1837
.526	4.321	11.78	.1733
.579	4.997	14.36	.1643
.632	5.717	17.25	.1565
.684	6.482	20.45	.1497
.737	7.291	23.99	.1435
.789	8.144	27.86	.1380
.842	9.042	32.09	.1331
.895	9.983	36.68	.1285
.947	10.970	41.65	.1244
1.000	12.000	47.00	.1206

ROUTE ID=4 HYD NO=110.3 INFLOW ID=1 DT=.03333 HR
TRAVEL TIME TABLE EXCEEDED
*S** CHANNEL DISCHARGE TO INLET NEAR MUELLER*****
PRINT HYD ID=4 CODE=10

PARTIAL HYDROGRAPH 110.30

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	20.7	4.000	.5	5.999	.4	7.999	.0
.333	.0	2.333	6.9	4.333	.4	6.333	.3	8.333	.0
.667	.0	2.666	2.7	4.666	.4	6.666	.2	8.666	.0
1.000	.0	3.000	1.4	5.000	.4	6.999	.1	8.999	.0
1.333	5.5	3.333	.8	5.333	.4	7.333	.1	9.332	.0
1.666	46.4	3.666	.6	5.666	.4	7.666	.0	9.666	.0

RUNOFF VOLUME = 2.09563 INCHES = 2.4589 ACRE-FEET
PEAK DISCHARGE RATE = 51.28 CFS AT 1.633 HOURS BASIN AREA = .0220 SQ. MI.

** NOW COMPUTE BASIN B505 ***
*S**BASIN B505 A=.024 SQ MI ***
COMPUTE NM HYD ID=1 HYD NO=505.0 DA=.024 SQ MI
PER A=1.0 PER B=0.0 PER C=9.0 PER D=90.0
TP=-.13 RAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 87.443 CFS UNIT VOLUME = .9999 B = 526.28 P60 = 2.0100
AREA = .021600 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .109926HR TP = .130000HR K/TP RATIO = .845587 SHAPE CONSTANT, N = 4.211669
UNIT PEAK = 6.8131 CFS UNIT VOLUME = .9985 B = 369.04 P60 = 2.0100
AREA = .002400 SQ MI IA = .38000 INCHES INF = .91400 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=1 CODE=10

OUTFLOW HYDROGRAPH RESERVOIR 505.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.666	34.8	3.333	.5	5.000	.4	6.666	.0
.333	.0	2.000	16.6	3.666	.4	5.333	.4	6.999	.0
.667	.0	2.333	3.4	4.000	.4	5.666	.4		
1.000	.0	2.666	1.4	4.333	.4	5.999	.5		
1.333	21.2	3.000	.8	4.666	.4	6.333	.0		

RUNOFF VOLUME = 2.00850 INCHES = 2.5709 ACRE-FEET
PEAK DISCHARGE RATE = 70.31 CFS AT 1.500 HOURS BASIN AREA = .0240 SQ. MI.

*S** ADD B504 ROUTE TO B505 **********
ADD HYD ID=1 HYD=234.5 ID I=1 II=4
PRINT HYD ID=1 CODE=10

PARTIAL HYDROGRAPH 234.50

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS

.000	.0	2.000	37.3	4.000	.8	5.999	.9	7.999	.0
.333	.0	2.333	10.4	4.333	.8	6.333	.3	8.333	.0
.667	.0	2.666	4.1	4.666	.8	6.666	.2	8.666	.0
1.000	.0	3.000	2.1	5.000	.8	6.999	.1	8.999	.0
1.333	26.7	3.333	1.3	5.333	.8	7.333	.1	9.332	.0
1.666	81.2	3.666	1.0	5.666	.8	7.666	.0	9.666	.0

RUNOFF VOLUME = 2.05014 INCHES = 5.0297 ACRE-FEET
PEAK DISCHARGE RATE = 107.77 CFS AT 1.533 HOURS BASIN AREA = .0460 SQ. MI.

*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR ID=4 HYD=105.01 INFLOW ID=1 CODE=20

OUTFLOW	STORAGE	DEPTH
0	0	0
14	.5	.4
24	1.1	.7
24.30	2.2	1.0

STORAGE-DISCHARGE TABLE EXCEEDED.

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.67	.00	.00	.000	.00
1.33	26.67	.09	.112	3.14

WARNING - OUTFLOW EXCEEDS RESERVOIR CAPACITY

2.00	37.26	6.13	20.993	29.43
2.67	4.13	.94	1.962	24.24
3.33	1.33	.55	.802	19.04
4.00	.84	.17	.207	5.80
4.67	.75	.05	.066	1.84
5.33	.78	.03	.036	1.00
6.00	.89	.03	.031	.88
6.67	.17	.01	.016	.44
7.33	.06	.00	.006	.17
8.00	.02	.00	.002	.06
8.67	.01	.00	.001	.02
9.33	.00	.00	.000	.01
10.00	.00	.00	.000	.00

WARNING - OUTFLOW EXCEEDS RESERVOIR CAPACITY
PEAK DISCHARGE = 29.761 CFS - PEAK OCCURS AT HOUR 2.10
MAXIMUM WATER SURFACE ELEVATION = 6.461
MAXIMUM STORAGE = 22.2250 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=4 CODE=10

PARTIAL HYDROGRAPH 105.01

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.333	27.3	4.666	1.8	6.999	.3	9.332	.0
.333	.0	2.666	24.2	5.000	1.3	7.333	.2	9.666	.0
.667	.0	3.000	24.1	5.333	1.0	7.666	.1	9.999	.0
1.000	.0	3.333	19.0	5.666	.9	7.999	.1	10.332	.0
1.333	3.1	3.666	11.5	5.999	.9	8.333	.0		
1.666	24.2	4.000	5.8	6.333	.7	8.666	.0		
2.000	29.4	4.333	3.1	6.666	.4	8.999	.0		

RUNOFF VOLUME = 2.05014 INCHES = 5.0296 ACRE-FEET
PEAK DISCHARGE RATE = 29.76 CFS AT 2.100 HOURS BASIN AREA = .0460 SQ. MI.

*S** ROUTE THRU 24" FROM APRON TO WEST ISLAND**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.010
DIA=2.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.10	.06	.12	.89
.21	.17	.52	1.22
.31	.31	1.20	1.45
.42	.47	2.15	1.62
.52	.65	3.36	1.76
.63	.84	4.80	1.85
.73	1.04	6.43	1.93
.83	1.24	8.22	1.97
.94	1.45	10.13	2.00
1.04	1.66	12.13	2.00
1.15	1.86	14.16	2.00
1.25	2.07	16.18	2.00
1.35	2.27	18.13	2.00
1.46	2.46	19.96	2.00
1.56	2.63	21.60	2.00
1.67	2.80	22.96	2.00
1.77	2.94	23.93	2.00
1.88	3.06	24.34	2.00
2.00	3.14	24.34	2.00

COMPUTE TRAVEL TIME ID=5 REACH=15 VS NO=1 L=346 SLP=0.010

TRAVEL TIME TABLE
REACH= 15.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.104	.062	.12	.0506
.208	.174	.52	.0324
.313	.314	1.20	.0252
.417	.475	2.15	.0212

.521	.651	3.36	.0186
.625	.839	4.80	.0168
.730	1.037	6.43	.0155
.834	1.240	8.22	.0145
.938	1.447	10.13	.0137
1.042	1.655	12.13	.0131
1.146	1.863	14.16	.0126
1.251	2.067	16.18	.0123
1.355	2.265	18.13	.0120
1.459	2.456	19.96	.0118
1.563	2.635	21.60	.0117
1.668	2.799	22.96	.0117
1.772	2.943	23.93	.0118
1.876	3.061	24.34	.0121
2.000	3.142	24.34	.0124

```
    ROUTE              ID=5 HYD=105.1 INFLOW ID=4 DT=0.03333 HR
TRAVEL TIME TABLE EXCEEDED
    PRINT HYD          ID=5 CODE=10
```

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.333	27.5	4.666	1.9	6.999	.3	9.332	.0
.333	.0	2.666	24.3	5.000	1.3	7.333	.2	9.666	.0
.667	.0	3.000	24.1	5.333	1.0	7.666	.1	9.999	.0
1.000	.0	3.333	19.3	5.666	.9	7.999	.1	10.332	.0
1.333	2.4	3.666	11.7	5.999	.9	8.333	.0		
1.666	24.1	4.000	5.9	6.333	.7	8.666	.0		
2.000	29.3	4.333	3.2	6.666	.5	8.999	.0		

RUNOFF VOLUME = 2.05014 INCHES = 5.0296 ACRE-FEET
PEAK DISCHARGE RATE = 29.76 CFS AT 2.100 HOURS BASIN AREA = .0460 SQ. MI.

```
*S** ADD BASIN 505 RT TO B501/B502 AT WEST ISLAND**********
ADD HYD            ID=2 HYD=234.5 ID I=3 II=5
PRINT HYD          ID=2 CODE=10
```

PARTIAL HYDROGRAPH 234.50

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	49.7	5.333	8.5	7.999	.3	10.666	.0
.333	.0	3.000	43.2	5.666	6.1	8.333	.2	10.999	.0
.667	.0	3.333	35.5	5.999	4.8	8.666	.1	11.332	.0
1.000	.0	3.666	26.7	6.333	3.2	8.999	.1	11.665	.0
1.333	8.9	4.000	20.3	6.666	2.0	9.332	.1		
1.666	132.1	4.333	17.3	6.999	1.2	9.666	.0		
2.000	93.5	4.666	14.2	7.333	.8	9.999	.0		
2.333	67.4	5.000	11.6	7.666	.5	10.332	.0		

RUNOFF VOLUME = 1.94819 INCHES = 15.3776 ACRE-FEET
PEAK DISCHARGE RATE = 139.43 CFS AT 1.600 HOURS BASIN AREA = .1480 SQ. MI.

```
*S** ROUTE THRU 60" TO TEE AT END OF RUNWAY**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.004
                     DIA=5.0 FT N=0.013
```

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.26	.39	.86	2.22
.52	1.09	3.75	3.06
.78	1.96	8.72	3.63
1.04	2.97	15.68	4.06
1.30	4.07	24.49	4.39
1.56	5.25	34.94	4.64
1.82	6.48	46.81	4.81
2.08	7.75	59.84	4.93
2.35	9.04	73.77	4.99
2.61	10.35	88.29	5.00
2.87	11.64	103.08	5.00
3.13	12.92	117.78	5.00
3.39	14.16	132.00	5.00
3.65	15.35	145.33	5.00
3.91	16.47	157.25	5.00
4.17	17.49	167.17	5.00
4.43	18.39	174.27	5.00
4.69	19.13	177.19	5.00
5.00	19.63	177.19	5.00

```
COMPUTE TRAVEL TIME  ID=5 REACH=15 VS NO=1 L=440 SLP=0.004
```

TRAVEL TIME TABLE

REACH= 15.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.261	.390	.86	.0552
.521	1.086	3.75	.0354
.782	1.961	8.72	.0275
1.042	2.966	15.68	.0231
1.303	4.069	24.49	.0203
1.563	5.246	34.94	.0184
1.824	6.479	46.81	.0169
2.084	7.749	59.84	.0158
2.345	9.043	73.77	.0150
2.606	10.345	88.29	.0143
2.866	11.641	103.08	.0138
3.127	12.918	117.78	.0134
3.387	14.159	132.00	.0131
3.648	15.348	145.33	.0129

3.908	16.467	157.25	.0128
4.169	17.492	167.17	.0128
4.429	18.395	174.27	.0129
4.690	19.130	177.19	.0132
5.000	19.635	177.19	.0135

```
ROUTE               ID=5 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
PRINT HYD           ID=5 CODE=10
```

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	50.1	5.333	8.6	7.999	.3	10.666	.0
.333	.0	3.000	43.4	5.666	6.2	8.333	.2	10.999	.0
.667	.0	3.333	35.9	5.999	4.9	8.666	.1	11.332	.0
1.000	.0	3.666	27.1	6.333	3.3	8.999	.1	11.665	.0
1.333	4.5	4.000	20.5	6.666	2.1	9.332	.1		
1.666	133.8	4.333	17.4	6.999	1.3	9.666	.0		
2.000	94.1	4.666	14.4	7.333	.8	9.999	.0		
2.333	68.2	5.000	11.7	7.666	.5	10.332	.0		

RUNOFF VOLUME = 1.94820 INCHES = 15.3777 ACRE-FEET
PEAK DISCHARGE RATE = 138.33 CFS AT 1.600 HOURS BASIN AREA = .1480 SQ. MI.

```
*S** ROUTE THRU 60° TO JUNCTION AT SW CORNER  @ END RUNWAY**********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.008
                    DIA=5.0 FT N=0.013
```

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.26	.39	1.22	2.22
.52	1.09	5.30	3.06
.78	1.96	12.33	3.63
1.04	2.97	22.18	4.06
1.30	4.07	34.63	4.39
1.56	5.25	49.41	4.64
1.82	6.48	66.20	4.81
2.08	7.75	84.63	4.93
2.35	9.04	104.33	4.99
2.61	10.35	124.86	5.00
2.87	11.64	145.77	5.00
3.13	12.92	166.56	5.00
3.39	14.16	186.68	5.00
3.65	15.35	205.52	5.00
3.91	16.47	222.39	5.00
4.17	17.49	236.42	5.00
4.43	18.39	246.46	5.00
4.69	19.13	250.58	5.00
5.00	19.63	250.58	5.00

```
COMPUTE TRAVEL TIME  ID=10 REACH=15 VS NO=1 L=400 SLP=0.008
```

TRAVEL TIME TABLE
REACH= 15.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.261	.390	1.22	.0355
.521	1.086	5.30	.0227
.782	1.961	12.33	.0177
1.042	2.966	22.18	.0149
1.303	4.069	34.63	.0131
1.563	5.246	49.41	.0118
1.824	6.479	66.20	.0109
2.084	7.749	84.63	.0102
2.345	9.043	104.33	.0096
2.606	10.345	124.86	.0092
2.866	11.641	145.77	.0089
3.127	12.918	166.56	.0086
3.387	14.159	186.68	.0084
3.648	15.348	205.52	.0083
3.908	16.467	222.39	.0082
4.169	17.492	236.42	.0082
4.429	18.395	246.46	.0083
4.690	19.130	250.58	.0085
5.000	19.635	250.58	.0087

```
ROUTE               ID=10 HYD=105.1 INFLOW ID=5 DT=0.03333 HR
*S******* HYDROGRAPH ENTERING JUNCTION FROM NORTH BRANCH******
PRINT HYD           ID=10 CODE=10
```

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	50.4	5.333	8.8	7.999	.3	10.666	.0
.333	.0	3.000	43.5	5.666	6.3	8.333	.2	10.999	.0
.667	.0	3.333	36.2	5.999	4.9	8.666	.1	11.332	.0
1.000	.0	3.666	27.4	6.333	3.4	8.999	.1	11.665	.0
1.333	2.2	4.000	20.7	6.666	2.2	9.332	.1		
1.666	135.0	4.333	17.5	6.999	1.4	9.666	.0		
2.000	94.6	4.666	14.5	7.333	.9	9.999	.0		
2.333	68.8	5.000	11.8	7.666	.5	10.332	.0		

RUNOFF VOLUME = 1.94820 INCHES = 15.3777 ACRE-FEET
PEAK DISCHARGE RATE = 138.47 CFS AT 1.633 HOURS BASIN AREA = .1480 SQ. MI.

```
*** CALC FLOW FROM BASIN B507****
*S** B507  A=.025 SQMI***
COMPUTE NM HYD      ID=4 HYD NO=507 DA=0.025  SQ MI
                    PER A=3.0 PER B=0.0 PER C=65.0 PER D=32.0
                    TP=-.17   RAIN=-1
```

K = .092650HR TP = .170000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 24.766 CFS UNIT VOLUME = .9997 B = 526.28 P60 = 2.0100
AREA = .008000 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .139993HR TP = .170000HR K/TP RATIO = .823491 SHAPE CONSTANT, N = 4.336063
UNIT PEAK = 37.699 CFS UNIT VOLUME = .9998 B = 376.99 P60 = 2.0100
AREA = .017000 SQ MI IA = .36324 INCHES INF = .86706 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=4 CODE=10

OUTFLOW HYDROGRAPH RESERVOIR 507.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.666	35.5	3.333	.4	5.000	.1	6.666	.0
.333	.0	2.000	12.0	3.666	.2	5.333	.1	6.999	.0
.667	.0	2.333	3.4	4.000	.2	5.666	.2		
1.000	.0	2.666	1.5	4.333	.2	5.999	.2		
1.333	6.1	3.000	.7	4.666	.1	6.333	.0		

RUNOFF VOLUME = 1.41895 INCHES = 1.8919 ACRE-FEET
PEAK DISCHARGE RATE = 49.86 CFS AT 1.533 HOURS BASIN AREA = .0250 SQ. MI.

*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR ID=1 HYD=105.01 INFLOW ID=4 CODE=20

OUTFLOW	STORAGE	DEPTH
0	0	0
6	.5	.5
10	1.1	1
10.1	2.2	2

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.67	.00	.00	.000	.00
1.33	6.06	.02	.023	.27
2.00	12.04	1.06	1.170	10.01
2.67	1.46	.83	.895	8.63
3.33	.37	.53	.531	6.21
4.00	.18	.28	.284	3.41
4.67	.14	.15	.153	1.83
5.33	.15	.08	.084	1.01
6.00	.17	.05	.050	.60
6.67	.01	.03	.028	.33
7.33	.00	.01	.014	.17
8.00	.00	.01	.007	.09
8.67	.00	.00	.004	.05
9.33	.00	.00	.002	.02
10.00	.00	.00	.001	.01
10.67	.00	.00	.001	.01
11.33	.00	.00	.000	.00

PEAK DISCHARGE = 10.007 CFS - PEAK OCCURS AT HOUR 2.07
MAXIMUM WATER SURFACE ELEVATION = 1.069
MAXIMUM STORAGE = 1.1756 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=1 CODE=10

PARTIAL HYDROGRAPH 105.01

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	8.6	5.333	1.0	7.999	.1	10.666	.0
.333	.0	3.000	7.4	5.666	.8	8.333	.1	10.999	.0
.667	.0	3.333	6.2	5.999	.6	8.666	.0	11.332	.0
1.000	.0	3.666	4.7	6.333	.5	8.999	.0	11.665	.0
1.333	.3	4.000	3.4	6.666	.3	9.332	.0	11.999	.0
1.666	8.4	4.333	2.5	6.999	.2	9.666	.0	12.332	.0
2.000	10.0	4.666	1.8	7.333	.2	9.999	.0		
2.333	9.9	5.000	1.4	7.666	.1	10.332	.0		

RUNOFF VOLUME = 1.41893 INCHES = 1.8919 ACRE-FEET
PEAK DISCHARGE RATE = 10.01 CFS AT 2.066 HOURS BASIN AREA = .0250 SQ. MI.

*S** ROUTE THRU 24" INTO BASIN 3***
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.002
DIA=2.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.10	.06	.05	.89
.21	.17	.23	1.22
.31	.31	.54	1.45
.42	.47	.96	1.62
.52	.65	1.50	1.76
.63	.84	2.15	1.85
.73	1.04	2.87	1.93
.83	1.24	3.68	1.97
.94	1.45	4.53	2.00
1.04	1.66	5.42	2.00
1.15	1.86	6.33	2.00
1.25	2.07	7.23	2.00
1.35	2.27	8.11	2.00
1.46	2.46	8.93	2.00

1.56	2.63	9.66	2.00
1.67	2.80	10.27	2.00
1.77	2.94	10.70	2.00
1.88	3.06	10.88	2.00
2.00	3.14	10.88	2.00

```
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=550 SLP=0.002
```

TRAVEL TIME TABLE

REACH= 15.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.104	.062	.05	.1798
.208	.174	.23	.1152
.313	.314	.54	.0895
.417	.475	.96	.0753
.521	.651	1.50	.0661
.625	.839	2.15	.0598
.730	1.037	2.87	.0551
.834	1.240	3.68	.0515
.938	1.447	4.53	.0488
1.042	1.655	5.42	.0466
1.146	1.863	6.33	.0449
1.251	2.067	7.23	.0437
1.355	2.265	8.11	.0427
1.459	2.456	8.93	.0420
1.563	2.635	9.66	.0417
1.668	2.799	10.27	.0416
1.772	2.943	10.70	.0420
1.876	3.061	10.88	.0430
2.000	3.142	10.88	.0441

```
ROUTE                ID=3 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
PRINT HYD            ID=3 CODE=10
```

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	8.8	5.333	1.1	7.999	.1	10.666	.0
.333	.0	3.000	7.5	5.666	.8	8.333	.1	10.999	.0
.667	.0	3.333	6.3	5.999	.6	8.666	.1	11.332	.0
1.000	.0	3.666	4.8	6.333	.5	8.999	.0	11.665	.0
1.333	.1	4.000	3.5	6.666	.4	9.332	.0	11.999	.0
1.666	7.8	4.333	2.6	6.999	.3	9.666	.0	12.332	.0
2.000	10.0	4.666	1.9	7.333	.2	9.999	.0		
2.333	10.0	5.000	1.4	7.666	.1	10.332	.0		

```
    RUNOFF VOLUME =      1.41889 INCHES      =        1.8918 ACRE-FEET
    PEAK DISCHARGE RATE =       10.00 CFS  AT    2.233 HOURS    BASIN AREA =    .0250 SQ. MI.


*S** B508 A=.052 SQMI***
COMPUTE NM HYD       ID=4 HYD NO=508 DA=0.052  SQ MI
                     PER A=0.0 PER B=5.0 PER C=53.0 PER D=42.0
                     TP=-.28   RAIN=-1

     K =   .152600HR     TP =   .280000HR     K/TP RATIO =   .545000      SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   41.049     CFS    UNIT VOLUME =     .9996        B =   526.28        P60 = 2.0100
     AREA =       .021840 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


     K =   .230155HR     TP =   .280000HR     K/TP RATIO =   .821982      SHAPE CONSTANT, N =  4.344866
     UNIT PEAK =   40.667     CFS    UNIT VOLUME =     .9997        B =   377.54        P60 = 2.0100
     AREA =       .030160 SQ MI     IA =     .36293 INCHES     INF =     .86621 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD            ID=4 CODE=10
```

OUTFLOW HYDROGRAPH RESERVOIR 508.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	38.7	4.000	.9	5.999	.5	7.999	.0
.333	.0	2.333	14.2	4.333	.7	6.333	.2	8.333	.0
.667	.0	2.666	6.2	4.666	.5	6.666	.1		
1.000	.0	3.000	3.6	5.000	.5	6.999	.0		
1.333	3.6	3.333	2.2	5.333	.4	7.333	.0		
1.666	80.7	3.666	1.4	5.666	.4	7.666	.0		

```
    RUNOFF VOLUME =      1.52184 INCHES      =        4.2205 ACRE-FEET
    PEAK DISCHARGE RATE =       80.74 CFS  AT    1.667 HOURS    BASIN AREA =    .0520 SQ. MI.


*S**** ROUTE RES SO ALL WATER IS DISCHARGED AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR      ID=1 HYD=105.01 INFLOW ID=4 CODE=20
```

OUTFLOW	STORAGE	DEPTH
0	0	0
39	.5	.4
69.	1.1	.75
69.10	2.2	1.0

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.67	.00	.00	.000	.00
1.33	3.59	.01	.010	.76
2.00	38.66	.57	.787	53.37
2.67	6.22	.11	.131	10.25
3.33	2.16	.03	.037	2.87
4.00	.93	.01	.015	1.14

4.67	.55	.01	.008	.61
5.33	.45	.00	.006	.46
6.00	.46	.00	.006	.45
6.67	.06	.00	.002	.12
7.33	.01	.00	.000	.02
8.00	.00	.00	.000	.00

PEAK DISCHARGE = 59.364 CFS - PEAK OCCURS AT HOUR 1.83
MAXIMUM WATER SURFACE ELEVATION = .638
MAXIMUM STORAGE = .9073 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=1 CODE=10

PARTIAL HYDROGRAPH 105.01

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	53.4	4.000	1.1	5.999	.5	7.999	.0
.333	.0	2.333	27.1	4.333	.8	6.333	.4	8.333	.0
.667	.0	2.666	10.3	4.666	.6	6.666	.1		
1.000	.0	3.000	5.0	5.000	.5	6.999	.0		
1.333	.8	3.333	2.9	5.333	.5	7.333	.0		
1.666	48.0	3.666	1.7	5.666	.4	7.666	.0		

RUNOFF VOLUME = 1.52183 INCHES = 4.2205 ACRE-FEET
PEAK DISCHARGE RATE = 59.36 CFS AT 1.833 HOURS BASIN AREA = .0520 SQ. MI.

*S** ADD BASIN 507 AND 508 TO GET TOTAL**
ADD HYD ID=1 HYD=234.5 ID I=3 II=1
PRINT HYD ID=1 CODE=10

PARTIAL HYDROGRAPH 234.50

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	19.0	5.333	1.5	7.999	.1	10.666	.0
.333	.0	3.000	12.5	5.666	1.3	8.333	.1	10.999	.0
.667	.0	3.333	9.2	5.999	1.1	8.666	.1	11.332	.0
1.000	.0	3.666	6.6	6.333	.8	8.999	.0	11.665	.0
1.333	.8	4.000	4.7	6.666	.5	9.332	.0	11.999	.0
1.666	55.8	4.333	3.4	6.999	.3	9.666	.0	12.332	.0
2.000	63.3	4.666	2.5	7.333	.2	9.999	.0		
2.333	37.1	5.000	1.9	7.666	.1	10.332	.0		

RUNOFF VOLUME = 1.48840 INCHES = 6.1123 ACRE-FEET
PEAK DISCHARGE RATE = 69.07 CFS AT 1.833 HOURS BASIN AREA = .0770 SQ. MI.

*S** ROUTE THRU LAST 48" SECTION IN WEST BASIN 508
*S** TO BRANCH AT BASIN 509*********
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.002
DIA=4.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.21	.25	.34	1.78
.42	.69	1.46	2.44
.63	1.25	3.40	2.91
.83	1.90	6.12	3.25
1.04	2.60	9.55	3.51
1.25	3.36	13.63	3.71
1.46	4.15	18.25	3.85
1.67	4.96	23.34	3.94
1.88	5.79	28.77	3.99
2.08	6.62	34.43	4.00
2.29	7.45	40.20	4.00
2.50	8.27	45.93	4.00
2.71	9.06	51.48	4.00
2.92	9.82	56.68	4.00
3.13	10.54	61.33	4.00
3.34	11.20	65.20	4.00
3.54	11.77	67.96	4.00
3.75	12.24	69.10	4.00
4.00	12.57	69.10	4.00

COMPUTE TRAVEL TIME ID=3 REACH=15 VS NO=1 L=700 SLP=0.002

TRAVEL TIME TABLE
REACH= 15.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.208	.250	.34	.1441
.417	.695	1.46	.0924
.625	1.255	3.40	.0718
.834	1.898	6.12	.0603
1.042	2.604	9.55	.0530
1.251	3.358	13.63	.0479
1.459	4.146	18.25	.0442
1.668	4.960	23.34	.0413
1.876	5.788	28.77	.0391
2.084	6.621	34.43	.0374
2.293	7.451	40.20	.0360
2.501	8.267	45.93	.0350
2.710	9.062	51.48	.0342
2.918	9.823	56.68	.0337
3.127	10.539	61.33	.0334
3.335	11.195	65.20	.0334
3.544	11.773	67.96	.0337
3.752	12.243	69.10	.0345
4.000	12.566	69.10	.0354

ROUTE ID=3 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 57 RATE = 68.64

```
PRINT HYD             ID=3 CODE=10
```

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	20.1	5.333	1.6	7.999	.1	10.666	.0
.333	.0	3.000	13.0	5.666	1.3	8.333	.1	10.999	.0
.667	.0	3.333	9.5	5.999	1.1	8.666	.1	11.332	.0
1.000	.0	3.666	6.9	6.333	.9	8.999	.0	11.665	.0
1.333	.2	4.000	4.9	6.666	.6	9.332	.0	11.999	.0
1.666	51.0	4.333	3.6	6.999	.4	9.666	.0	12.332	.0
2.000	64.6	4.666	2.6	7.333	.2	9.999	.0	12.665	.0
2.333	39.7	5.000	2.0	7.666	.2	10.332	.0		

RUNOFF VOLUME = 1.48840 INCHES = 6.1123 ACRE-FEET
PEAK DISCHARGE RATE = 68.64 CFS AT 1.866 HOURS BASIN AREA = .0770 SQ. MI.

```
*S** CALCULATE B509  ***
*S* BASIN B509  A=0.0122 SQMI ***
COMPUTE NM HYD        ID=2 HYD NO=509 DA=0.0122 SQ MI
                      PER A=1.0 PER B=0.0 PER C=22.0 PER D=77.0
                      TP=-.13  RAIN=-1
```

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 38.029 CFS UNIT VOLUME = .9998 B = 526.28 P60 = 2.0100
AREA = .009394 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .107021HR TP = .130000HR K/TP RATIO = .823238 SHAPE CONSTANT, N = 4.337543
UNIT PEAK = 8.1391 CFS UNIT VOLUME = .9989 B = 377.08 P60 = 2.0100
AREA = .002806 SQ MI IA = .36304 INCHES INF = .86652 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

```
PRINT HYD             ID=2 CODE=10
```

OUTFLOW HYDROGRAPH RESERVOIR 509.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.666	17.0	3.333	.2	5.000	.2	6.666	.0
.333	.0	2.000	7.7	3.666	.2	5.333	.2		
.667	.0	2.333	1.6	4.000	.2	5.666	.2		
1.000	.0	2.666	.7	4.333	.2	5.999	.2		
1.333	9.5	3.000	.3	4.666	.2	6.333	.0		

RUNOFF VOLUME = 1.87993 INCHES = 1.2232 ACRE-FEET
PEAK DISCHARGE RATE = 34.17 CFS AT 1.500 HOURS BASIN AREA = .0122 SQ. MI.

```
*S** ADD BASIN 508/507 RT TO B509 AT NW ISLAND BASIN 509**********
ADD HYD               ID=1 HYD=234.5 ID I=2 II=3
PRINT HYD             ID=1 CODE=10
```

PARTIAL HYDROGRAPH 234.50

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	20.8	5.333	1.8	7.999	.1	10.666	.0
.333	.0	3.000	13.4	5.666	1.5	8.333	.1	10.999	.0
.667	.0	3.333	9.7	5.999	1.3	8.666	.1	11.332	.0
1.000	.0	3.666	7.1	6.333	.9	8.999	.0	11.665	.0
1.333	9.7	4.000	5.1	6.666	.6	9.332	.0	11.999	.0
1.666	68.0	4.333	3.7	6.999	.4	9.666	.0	12.332	.0
2.000	72.3	4.666	2.8	7.333	.2	9.999	.0	12.665	.0
2.333	41.3	5.000	2.2	7.666	.2	10.332	.0		

RUNOFF VOLUME = 1.54194 INCHES = 7.3355 ACRE-FEET
PEAK DISCHARGE RATE = 78.76 CFS AT 1.866 HOURS BASIN AREA = .0892 SQ. MI.

```
*S**** ROUTE RES SO ALL WATER IS DISCHARGED FR B509 AND PONDING IS KNOWN ****
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF PIPE ******************
ROUTE RESERVOIR       ID=2 HYD=105.01 INFLOW ID=1 CODE=20
                      OUTFLOW   STORAGE  DEPTH
                        0         0       0
                      146.57      .01     .01
                      146.58      1.1     .5
                      146.59       2.2     1.0
```

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.67	.00	.00	.000	.00
1.33	9.72	.00	.001	9.62
2.00	72.33	.00	.005	72.16
2.67	20.79	.00	.001	20.78
3.33	9.73	.00	.001	9.74
4.00	5.05	.00	.000	5.06
4.67	2.79	.00	.000	2.80
5.33	1.77	.00	.000	1.77
6.00	1.30	.00	.000	1.30
6.67	.57	.00	.000	.58
7.33	.25	.00	.000	.25
8.00	.12	.00	.000	.12
8.67	.06	.00	.000	.06
9.33	.03	.00	.000	.03
10.00	.02	.00	.000	.02
10.67	.01	.00	.000	.01
11.33	.00	.00	.000	.00

```
 PEAK DISCHARGE =       78.770 CFS - PEAK OCCURS AT HOUR    1.87
 MAXIMUM WATER SURFACE ELEVATION =          .005
 MAXIMUM STORAGE =          .0054 AC-FT      INCREMENTAL TIME=      .033330HRS

PRINT HYD            ID=2 CODE=10

                                PARTIAL HYDROGRAPH   105.01

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
     .000        .0         2.666      20.8         5.333       1.8         7.999        .1        10.666        .0
     .333        .0         3.000      13.4         5.666       1.5         8.333        .1        10.999        .0
     .667        .0         3.333       9.7         5.999       1.3         8.666        .1        11.332        .0
    1.000        .0         3.666       7.1         6.333        .9         8.999        .0        11.665        .0
    1.333       9.6         4.000       5.1         6.666        .6         9.332        .0        11.999        .0
    1.666      67.9         4.333       3.7         6.999        .4         9.666        .0        12.332        .0
    2.000      72.2         4.666       2.8         7.333        .2         9.999        .0        12.665        .0
    2.333      41.3         5.000       2.2         7.666        .2        10.332        .0

    RUNOFF VOLUME =      1.54194 INCHES      =       7.3355 ACRE-FEET
    PEAK DISCHARGE RATE =       78.77 CFS  AT   1.866 HOURS   BASIN AREA =    .0892 SQ. MI.


*S** ROUTE THRU LAST 48" SECTION TO JUNCTION AT SW CORNER OF RUNWAY******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.009
                     DIA=4.0 FT N=0.013

                                RATING CURVE PIPE SECTION  1.0
                                   WATER       FLOW        FLOW        MAX
                                  SURFACE      AREA        RATE       WIDTH
                                   ELEV       SQ FT        CFS         FT
                                     .00         .00         .00         .00
                                     .21         .25         .71        1.78
                                     .42         .69        3.10        2.44
                                     .63        1.25        7.21        2.91
                                     .83        1.90       12.97        3.25
                                    1.04        2.60       20.26        3.51
                                    1.25        3.36       28.90        3.71
                                    1.46        4.15       38.72        3.85
                                    1.67        4.96       49.51        3.94
                                    1.88        5.79       61.03        3.99
                                    2.08        6.62       73.04        4.00
                                    2.29        7.45       85.28        4.00
                                    2.50        8.27       97.44        4.00
                                    2.71        9.06      109.21        4.00
                                    2.92        9.82      120.23        4.00
                                    3.13       10.54      130.10        4.00
                                    3.34       11.20      138.30        4.00
                                    3.54       11.77      144.18        4.00
                                    3.75       12.24      146.59        4.00
                                    4.00       12.57      146.59        4.00
COMPUTE TRAVEL TIME  ID=3 REACH=15 VS NO=1 L=350 SLP=0.009

                                TRAVEL TIME TABLE
                                              REACH= 15.0
                                   WATER       AVERAGE     FLOW        TRAVEL
                                   DEPTH       AREA        RATE        TIME
                                   FEET        SQ.FT.      CFS         HRS
                                     .208         .250         .71        .0340
                                     .417         .695        3.10        .0218
                                     .625        1.255        7.21        .0169
                                     .834        1.898       12.97        .0142
                                    1.042        2.604       20.26        .0125
                                    1.251        3.358       28.90        .0113
                                    1.459        4.146       38.72        .0104
                                    1.668        4.960       49.51        .0097
                                    1.876        5.788       61.03        .0092
                                    2.084        6.621       73.04        .0088
                                    2.293        7.451       85.28        .0085
                                    2.501        8.267       97.44        .0082
                                    2.710        9.062      109.21        .0081
                                    2.918        9.823      120.23        .0079
                                    3.127       10.539      130.10        .0079
                                    3.335       11.195      138.30        .0079
                                    3.544       11.773      144.18        .0079
                                    3.752       12.243      146.59        .0081
                                    4.000       12.566      146.59        .0083
ROUTE                ID=3 HYD=105.1 INFLOW ID=2 DT=0.03333 HR
*S****** HYDROGRAPH FROM SOUTH BRANCH AT JUNCTION**********
PRINT HYD            ID=3 CODE=10

                                PARTIAL HYDROGRAPH   105.10

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
     .000        .0         2.666      21.1         5.333       1.8         7.999        .1        10.666        .0
     .333        .0         3.000      13.5         5.666       1.5         8.333        .1        10.999        .0
     .667        .0         3.333       9.8         5.999       1.3         8.666        .1        11.332        .0
    1.000        .0         3.666       7.2         6.333       1.0         8.999        .0        11.665        .0
    1.333       8.3         4.000       5.1         6.666        .6         9.332        .0        11.999        .0
    1.666      67.2         4.333       3.8         6.999        .4         9.666        .0        12.332        .0
    2.000      72.3         4.666       2.8         7.333        .3         9.999        .0        12.665        .0
    2.333      42.1         5.000       2.2         7.666        .2        10.332        .0

    RUNOFF VOLUME =      1.54195 INCHES      =       7.3355 ACRE-FEET
    PEAK DISCHARGE RATE =       78.79 CFS  AT   1.866 HOURS   BASIN AREA =    .0892 SQ. MI.


*S** ADD SOUTH AND NORTH BRANCH HYDROGRAPHS AT JUNCTION**********
ADD HYD              ID=1 HYD=234.5 ID I=10 II=3
PRINT HYD            ID=1 CODE=10

                                PARTIAL HYDROGRAPH   234.50

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
```

HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	2.666	71.5	5.333	10.6	7.999	.5	10.666	.0
.333	.0	3.000	57.0	5.666	7.8	8.333	.3	10.999	.0
.667	.0	3.333	46.1	5.999	6.2	8.666	.2	11.332	.0
1.000	.0	3.666	34.6	6.333	4.4	8.999	.1	11.665	.0
1.333	10.6	4.000	25.8	6.666	2.8	9.332	.1	11.999	.0
1.666	202.2	4.333	21.3	6.999	1.8	9.666	.1	12.332	.0
2.000	166.9	4.666	17.3	7.333	1.1	9.999	.0	12.665	.0
2.333	110.9	5.000	14.0	7.666	.7	10.332	.0		

RUNOFF VOLUME = 1.79542 INCHES = 22.7131 ACRE-FEET
PEAK DISCHARGE RATE = 202.20 CFS AT 1.667 HOURS BASIN AREA = .2372 SQ. MI.

*S** ROUTE THRU 66" SECTION TO ACCESS RD B AREA******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.01
DIA=5.5 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.29	.47	1.76	2.44
.57	1.31	7.65	3.36
.86	2.37	17.78	3.99
1.15	3.59	31.97	4.47
1.43	4.92	49.92	4.83
1.72	6.35	71.23	5.10
2.01	7.84	95.43	5.30
2.29	9.38	122.00	5.42
2.58	10.94	150.40	5.49
2.87	12.52	180.00	5.50
3.15	14.09	210.14	5.50
3.44	15.63	240.11	5.50
3.73	17.13	269.11	5.50
4.01	18.57	296.28	5.50
4.30	19.92	320.59	5.50
4.59	21.17	340.81	5.50
4.87	22.26	355.29	5.50
5.16	23.15	361.23	5.50
5.50	23.76	361.23	5.50

COMPUTE TRAVEL TIME ID=2 REACH=15 VS NO=1 L=1000 SLP=0.01

TRAVEL TIME TABLE
REACH= 15.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.287	.472	1.76	.0745
.573	1.314	7.65	.0477
.860	2.373	17.78	.0371
1.146	3.589	31.97	.0312
1.433	4.923	49.92	.0274
1.720	6.348	71.23	.0248
2.006	7.839	95.43	.0228
2.293	9.377	122.00	.0213
2.579	10.942	150.40	.0202
2.866	12.518	180.00	.0193
3.153	14.086	210.14	.0186
3.439	15.630	240.11	.0181
3.726	17.132	269.11	.0177
4.013	18.571	296.28	.0174
4.299	19.925	320.59	.0173
4.586	21.166	340.81	.0173
4.872	22.258	355.29	.0174
5.159	23.147	361.23	.0178
5.500	23.758	361.23	.0183

ROUTE ID=2 HYD=105.1 INFLOW ID=1 DT=0.03333 HR
PRINT HYD ID=2 CODE=10

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	72.8	5.333	10.9	7.999	.5	10.666	.0
.333	.0	3.000	57.6	5.666	8.0	8.333	.3	10.999	.0
.667	.0	3.333	46.8	5.999	6.3	8.666	.2	11.332	.0
1.000	.0	3.666	35.4	6.333	4.7	8.999	.1	11.665	.0
1.333	5.0	4.000	26.2	6.666	3.0	9.332	.1	11.999	.0
1.666	202.3	4.333	21.6	6.999	1.9	9.666	.1	12.332	.0
2.000	168.9	4.666	17.6	7.333	1.3	9.999	.0	12.665	.0
2.333	113.6	5.000	14.2	7.666	.8	10.332	.0		

RUNOFF VOLUME = 1.79542 INCHES = 22.7132 ACRE-FEET
PEAK DISCHARGE RATE = 202.31 CFS AT 1.667 HOURS BASIN AREA = .2372 SQ. MI.

*S** ROUTE THRU LAST 54" SECTION CHANNEL AT BASE******
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.07
DIA=4.5 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.23	.32	2.73	2.00
.47	.88	11.85	2.75
.70	1.59	27.54	3.27
.94	2.40	49.54	3.66
1.17	3.30	77.34	3.95
1.41	4.25	110.35	4.17
1.64	5.25	147.85	4.33
1.88	6.28	189.03	4.44

2.11	7.32	233.02	4.49
2.35	8.38	278.88	4.50
2.58	9.43	325.58	4.50
2.81	10.46	372.01	4.50
3.05	11.47	416.95	4.50
3.28	12.43	459.04	4.50
3.52	13.34	496.70	4.50
3.75	14.17	528.04	4.50
3.99	14.90	550.46	4.50
4.22	15.50	559.67	4.50
4.50	15.90	559.67	4.50

COMPUTE TRAVEL TIME ID=11 REACH=15 VS NO=1 L=600 SLP=0.07

TRAVEL TIME TABLE

REACH= 15.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.235	.316	2.73	.0193
.469	.880	11.85	.0124
.704	1.588	27.54	.0096
.938	2.402	49.54	.0081
1.173	3.296	77.34	.0071
1.407	4.249	110.35	.0064
1.641	5.248	147.85	.0059
1.876	6.277	189.03	.0055
2.111	7.325	233.02	.0052
2.345	8.380	278.88	.0050
2.579	9.430	325.58	.0048
2.814	10.463	372.01	.0047
3.049	11.468	416.95	.0046
3.283	12.432	459.04	.0045
3.518	13.338	496.70	.0045
3.752	14.169	528.04	.0045
3.987	14.900	550.46	.0045
4.221	15.495	559.67	.0046
4.500	15.904	559.67	.0047

ROUTE ID=11 HYD=105.1 INFLOW ID=2 DT=0.03333 HR

PRINT HYD ID=11 CODE=10

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	73.1	5.333	10.9	7.999	.5	10.666	.0
.333	.0	3.000	57.7	5.666	8.1	8.333	.3	10.999	.0
.667	.0	3.333	47.0	5.999	6.3	8.666	.2	11.332	.0
1.000	.0	3.666	35.6	6.333	4.8	8.999	.2	11.665	.0
1.333	3.5	4.000	26.3	6.666	3.0	9.332	.1	11.999	.0
1.666	202.3	4.333	21.6	6.999	2.0	9.666	.1	12.332	.0
2.000	169.4	4.666	17.7	7.333	1.3	9.999	.0	12.665	.0
2.333	114.4	5.000	14.3	7.666	.8	10.332	.0		

RUNOFF VOLUME = 1.79542 INCHES = 22.7132 ACRE-FEET

PEAK DISCHARGE RATE = 202.29 CFS AT 1.667 HOURS BASIN AREA = .2372 SQ. MI.

****CALC BASIN 506 ***

*S*B506 A=.032 SQ MI ****

COMPUTE NM HYD ID=5 HYD NO=506 DA=.032 SQ MI
PER A=10.0 PER B=5.0 PER C =70.0 PER D=15.0
TP=-.18 RAIN=-1

K = .098100HR TP = .180000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 14.034 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 2.0100
AREA = .004800 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .155419HR TP = .180000HR K/TP RATIO = .863439 SHAPE CONSTANT, N = 4.117025
UNIT PEAK = 54.838 CFS UNIT VOLUME = .9999 B = 362.90 P60 = 2.0100
AREA = .027200 SQ MI IA = .39412 INCHES INF = .95353 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=5 CODE =10

OUTFLOW HYDROGRAPH RESERVOIR 506.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.666	41.6	3.333	.4	5.000	.1	6.666	.0
.333	.0	2.000	11.9	3.666	.3	5.333	.1	6.999	.0
.667	.0	2.333	3.7	4.000	.2	5.666	.1		
1.000	.0	2.666	1.7	4.333	.1	5.999	.1		
1.333	3.9	3.000	.9	4.666	.1	6.333	.0		

RUNOFF VOLUME = 1.17637 INCHES = 2.0077 ACRE-FEET

PEAK DISCHARGE RATE = 53.36 CFS AT 1.567 HOURS BASIN AREA = .0320 SQ. MI.

*S** ROUTE THRU 24" SECTION TO CHANNEL******

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.168
DIA=2.0 FT N=0.024

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.10	.06	.26	.89
.21	.17	1.14	1.22
.31	.31	2.66	1.45
.42	.47	4.78	1.62
.52	.65	7.47	1.76
.63	.84	10.65	1.85

.73	1.04	14.27	1.93
.83	1.24	18.25	1.97
.94	1.45	22.49	2.00
1.04	1.66	26.92	2.00
1.15	1.86	31.43	2.00
1.25	2.07	35.91	2.00
1.35	2.27	40.25	2.00
1.46	2.46	44.31	2.00
1.56	2.63	47.95	2.00
1.67	2.80	50.97	2.00
1.77	2.94	53.14	2.00
1.88	3.06	54.03	2.00
2.00	3.14	54.03	2.00

COMPUTE TRAVEL TIME ID=2 REACH=15 VS NO=1 L=220 SLP=0.168

TRAVEL TIME TABLE

REACH= 15.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.104	.062	.26	.0145
.208	.174	1.14	.0093
.313	.314	2.66	.0072
.417	.475	4.78	.0061
.521	.651	7.47	.0053
.625	.839	10.65	.0048
.730	1.037	14.27	.0044
.834	1.240	18.25	.0042
.938	1.447	22.49	.0039
1.042	1.655	26.92	.0038
1.146	1.863	31.43	.0036
1.251	2.067	35.91	.0035
1.355	2.265	40.25	.0034
1.459	2.456	44.31	.0034
1.563	2.635	47.95	.0034
1.668	2.799	50.97	.0034
1.772	2.943	53.14	.0034
1.876	3.061	54.03	.0035
2.000	3.142	54.03	.0036

ROUTE ID=2 HYD=105.1 INFLOW ID=5 DT=0.03333 HR
PRINT HYD ID=2 CODE=10

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.666	42.1	3.333	.5	5.000	.1	6.666	.0
.333	.0	2.000	12.0	3.666	.3	5.333	.1	6.999	.0
.667	.0	2.333	3.8	4.000	.2	5.666	.1		
1.000	.0	2.666	1.8	4.333	.1	5.999	.1		
1.333	3.5	3.000	.9	4.666	.1	6.333	.0		

RUNOFF VOLUME = 1.17637 INCHES = 2.0077 ACRE-FEET
PEAK DISCHARGE RATE = 53.36 CFS AT 1.567 HOURS BASIN AREA = .0320 SQ. MI.

*S** ADD BASIN 506 AND WESTEND FLOWS AT TOP OF CHANNEL FOR SUBTOTAL**********
ADD HYD ID=10 HYD=234.5 ID I=11 II=2
PRINT HYD ID=10 CODE=10

PARTIAL HYDROGRAPH 234.50

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	74.8	5.333	11.0	7.999	.5	10.666	.0
.333	.0	3.000	58.6	5.666	8.2	8.333	.3	10.999	.0
.667	.0	3.333	47.5	5.999	6.4	8.666	.2	11.332	.0
1.000	.0	3.666	35.9	6.333	4.8	8.999	.2	11.665	.0
1.333	6.9	4.000	26.5	6.666	3.1	9.332	.1	11.999	.0
1.666	244.4	4.333	21.8	6.999	2.0	9.666	.1	12.332	.0
2.000	181.4	4.666	17.8	7.333	1.3	9.999	.0	12.665	.0
2.333	118.2	5.000	14.4	7.666	.8	10.332	.0		

RUNOFF VOLUME = 1.72183 INCHES = 24.7208 ACRE-FEET
PEAK DISCHARGE RATE = 246.62 CFS AT 1.633 HOURS BASIN AREA = .2692 SQ. MI.

*S** CALC FLOW FROM BASIN B510 ****
COMPUTE NM HYD ID=4 HYD NO=510 DA=0.024 SQ MI
PER A=25.0 PER B=25.0 PER C=46.0 PER D=4.0
TP=-.13 RAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.8863 CFS UNIT VOLUME = .9971 B = 526.28 P60 = 2.0100
AREA = .000960 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .124431HR TP = .130000HR K/TP RATIO = .957159 SHAPE CONSTANT, N = 3.691808
UNIT PEAK = 59.208 CFS UNIT VOLUME = 1.000 B = 334.07 P60 = 2.0100
AREA = .023040 SQ MI IA = .46719 INCHES INF = 1.15812 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=4 CODE=10

OUTFLOW HYDROGRAPH RESERVOIR 510.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	2.2	2.666	.6	4.000	.0	5.333	.0
.333	.0	1.666	21.8	3.000	.3	4.333	.0	5.666	.0
.667	.0	2.000	4.3	3.333	.1	4.666	.0	5.999	.0
1.000	.0	2.333	1.5	3.666	.1	5.000	.0	6.333	.0

RUNOFF VOLUME = .89572 INCHES = 1.1465 ACRE-FEET

PEAK DISCHARGE RATE = 39.89 CFS AT 1.500 HOURS BASIN AREA = .0240 SQ. MI.

```
*S** ADD BASIN 510 AND SUBTOTAL TO CHANNEL FROM ABOVE**********
ADD HYD              ID=1 HYD=234.5 ID I=10 II=4
PRINT HYD            ID=1 CODE=10
```

PARTIAL HYDROGRAPH 234.50

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	75.4	5.333	11.0	7.999	.5	10.666	.0
.333	.0	3.000	58.9	5.666	8.2	8.333	.3	10.999	.0
.667	.0	3.333	47.6	5.999	6.5	8.666	.2	11.332	.0
1.000	.0	3.666	36.0	6.333	4.8	8.999	.2	11.665	.0
1.333	9.1	4.000	26.5	6.666	3.1	9.332	.1	11.999	.0
1.666	266.1	4.333	21.8	6.999	2.0	9.666	.1	12.332	.0
2.000	185.7	4.666	17.8	7.333	1.3	9.999	.0	12.665	.0
2.333	119.7	5.000	14.4	7.666	.8	10.332	.0		

RUNOFF VOLUME = 1.65421 INCHES = 25.8673 ACRE-FEET
PEAK DISCHARGE RATE = 272.61 CFS AT 1.600 HOURS BASIN AREA = .2932 SQ. MI.

```
*S**BASIN 511   A=.01  SQ MI ***
COMPUTE NM HYD       ID=15 HYD NO=511 DA=.010  SQ MI
                     PER A=30 PER B=33 PER C=35 PER D=2
                     TP=-.13 RAIN=-1
```

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = .80965 CFS UNIT VOLUME = .9860 B = 526.28 P60 = 2.0100
AREA = .000200 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .128614HR TP = .130000HR K/TP RATIO = .989339 SHAPE CONSTANT, N = 3.568858
UNIT PEAK = 24.524 CFS UNIT VOLUME = .9997 B = 325.32 P60 = 2.0100
AREA = .009800 SQ MI IA = .49235 INCHES INF = 1.22857 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

```
PRINT HYD            ID=15 CODE=10
```

OUTFLOW HYDROGRAPH RESERVOIR 511.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.7	2.666	.2	4.000	.0	5.333	.0
.333	.0	1.666	8.5	3.000	.1	4.333	.0	5.666	.0
.667	.0	2.000	1.5	3.333	.0	4.666	.0	5.999	.0
1.000	.0	2.333	.6	3.666	.0	5.000	.0		

RUNOFF VOLUME = .81964 INCHES = .4371 ACRE-FEET
PEAK DISCHARGE RATE = 15.42 CFS AT 1.500 HOURS BASIN AREA = .0100 SQ. MI.

```
*S** ADD BASIN 511 AND SUBTOTAL TO CHANNEL FROM ABOVE**********
ADD HYD              ID=2 HYD=234.5 ID I=15 II=1
*S******** HYDROGRAPH INTO CHANNEL**********
PRINT HYD            ID=2 CODE=10
```

PARTIAL HYDROGRAPH 234.50

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	75.7	5.333	11.0	7.999	.5	10.666	.0
.333	.0	3.000	59.0	5.666	8.2	8.333	.3	10.999	.0
.667	.0	3.333	47.6	5.999	6.5	8.666	.2	11.332	.0
1.000	.0	3.666	36.0	6.333	4.8	8.999	.2	11.665	.0
1.333	9.8	4.000	26.5	6.666	3.1	9.332	.1	11.999	.0
1.666	274.7	4.333	21.8	6.999	2.0	9.666	.1	12.332	.0
2.000	187.2	4.666	17.8	7.333	1.3	9.999	.0	12.665	.0
2.333	120.3	5.000	14.4	7.666	.8	10.332	.0		

RUNOFF VOLUME = 1.62668 INCHES = 26.3044 ACRE-FEET
PEAK DISCHARGE RATE = 284.60 CFS AT 1.600 HOURS BASIN AREA = .3032 SQ. MI.

```
*S******* ROUTE THROUGH CHANNEL TO UNIVERSITY ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=8
                     CH SLP=.0632 FP SLP=.0632 N=.033 DIST=36
                     DIST ELEV  DIST ELEV  DIST ELEV
                      0    8     8    0     28   0
                      36   8
```

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.42	8.60	53.35	20.84
.84	17.55	168.96	21.68
1.26	26.86	331.69	22.53
1.68	36.52	535.66	23.37
2.11	46.54	777.54	24.21
2.53	56.91	1055.27	25.05
2.95	67.63	1367.46	25.89
3.37	78.71	1713.20	26.74
3.79	90.15	2091.90	27.58
4.21	101.94	2503.16	28.42
4.63	114.08	2946.78	29.26
5.05	126.58	3422.66	30.11
5.47	139.43	3930.79	30.95
5.89	152.64	4471.25	31.79
6.32	166.20	5044.17	32.63

6.74	180.12	5649.73	33.47
7.16	194.39	6288.14	34.32
7.58	209.02	6959.66	35.16
8.00	224.00	7664.54	36.00

COMPUTE TRAVEL TIME ID=4 REACH=1 VS NO=1 L=475 SLP=.0632

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.421	8.598	53.35	.0213
.842	17.551	168.96	.0137
1.263	26.859	331.69	.0107
1.684	36.521	535.66	.0090
2.105	46.537	777.54	.0079
2.526	56.909	1055.27	.0071
2.947	67.634	1367.46	.0065
3.368	78.715	1713.20	.0061
3.789	90.150	2091.90	.0057
4.211	101.939	2503.16	.0054
4.632	114.083	2946.78	.0051
5.053	126.582	3422.66	.0049
5.474	139.435	3930.79	.0047
5.895	152.643	4471.25	.0045
6.316	166.205	5044.17	.0043
6.737	180.122	5649.73	.0042
7.158	194.393	6288.14	.0041
7.579	209.019	6959.66	.0040
8.000	224.000	7664.54	.0039

ROUTE ID=4 HYD NO=110.3 INFLOW ID=2 DT=.03333 HR
*S** CHANNEL DISCHARGE*****
PRINT HYD ID=4 CODE=10

PARTIAL HYDROGRAPH 110.30

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	76.8	5.333	11.3	7.999	.5	10.666	.0
.333	.0	3.000	59.5	5.666	8.4	8.333	.3	10.999	.0
.667	.0	3.333	48.6	5.999	6.5	8.666	.2	11.332	.0
1.000	.0	3.666	36.7	6.333	4.9	8.999	.2	11.665	.0
1.333	6.2	4.000	27.0	6.666	3.1	9.332	.1	11.999	.0
1.666	276.8	4.333	22.0	6.999	2.0	9.666	.1	12.332	.0
2.000	188.9	4.666	18.1	7.333	1.3	9.999	.0	12.665	.0
2.333	121.9	5.000	14.6	7.666	.8	10.332	.0		

RUNOFF VOLUME = 1.62669 INCHES = 26.3044 ACRE-FEET
PEAK DISCHARGE RATE = 284.81 CFS AT 1.600 HOURS BASIN AREA = .3032 SQ. MI.

****
** NOW COMPUTE BASIN B512 ***
*S**BASIN 512 A=.03 SQ MI ***
COMPUTE NM HYD ID=15 HYD NO=512 DA=.030 SQ MI
PER A=47 PER B=33 PER C=16 PER D=4
TP=-.13 RAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 4.8579 CFS UNIT VOLUME = .9975 B = 526.28 P60 = 2.0100
AREA = .001200 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .138213HR TP = .130000HR K/TP RATIO = 1.063179 SHAPE CONSTANT, N = 3.321495
UNIT PEAK = 68.026 CFS UNIT VOLUME = 1.000 B = 307.06 P60 = 2.0100
AREA = .028800 SQ MI IA = .54844 INCHES INF = 1.38563 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=15 CODE=10

OUTFLOW HYDROGRAPH RESERVOIR 512.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	2.0	2.666	.7	4.000	.0	5.333	.0
.333	.0	1.666	23.1	3.000	.3	4.333	.0	5.666	.0
.667	.0	2.000	4.4	3.333	.2	4.666	.0	5.999	.0
1.000	.0	2.333	1.7	3.666	.1	5.000	.0	6.333	.0

RUNOFF VOLUME = .74599 INCHES = 1.1936 ACRE-FEET
PEAK DISCHARGE RATE = 41.55 CFS AT 1.500 HOURS BASIN AREA = .0300 SQ. MI.

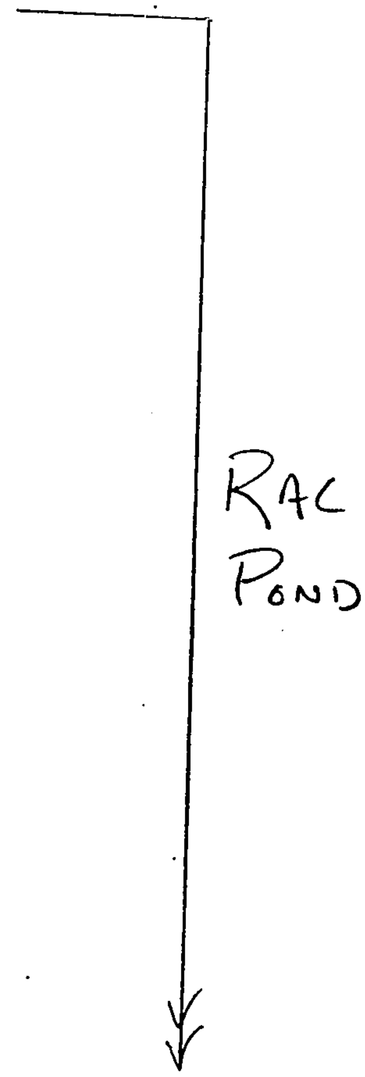
*S** ADD B512 AND SUBTOTAL TO CHANNEL *****
ADD HYD ID=20 HYD=111.0 ID I=15 II=4
PRINT HYD ID=20 CODE=10

PARTIAL HYDROGRAPH 111.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	77.5	5.333	11.3	7.999	.5	10.666	.0
.333	.0	3.000	59.9	5.666	8.4	8.333	.3	10.999	.0
.667	.0	3.333	48.8	5.999	6.6	8.666	.2	11.332	.0
1.000	.0	3.666	36.8	6.333	4.9	8.999	.2	11.665	.0
1.333	8.1	4.000	27.0	6.666	3.1	9.332	.1	11.999	.0
1.666	299.9	4.333	22.0	6.999	2.0	9.666	.1	12.332	.0
2.000	193.2	4.666	18.1	7.333	1.3	9.999	.0	12.665	.0
2.333	123.6	5.000	14.6	7.666	.8	10.332	.0		

RUNOFF VOLUME = 1.54739 INCHES = 27.4980 ACRE-FEET
PEAK DISCHARGE RATE = 317.47 CFS AT 1.600 HOURS BASIN AREA = .3332 SQ. MI.

```
**** ROUTE TO NEW POND AT HEADS OF CULVERTS AND HOLD ID=20****
*S** CALCULATE B513 (REVISED TO REFLECT RENTAL CAR FACILITY) ***
COMPUTE NM HYD          ID=4 HYD NO=513 DA=0.036 SQ MI
                        PER A=0.0 PER B=0.0 PER C=8.0 PER D=92.0
                        TP=-.13  RAIN=-1

     K =   .070850HR    TP =   .130000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   134.08    CFS   UNIT VOLUME =    1.000       B =   526.28      P60 = 2.0100
     AREA =      .033120 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


     K =   .104786HR    TP =   .130000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   8.4970    CFS   UNIT VOLUME =    .9989       B =   383.55      P60 = 2.0100
     AREA =      .002880 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD               ID=4 CODE=10

                                OUTFLOW HYDROGRAPH RESERVOIR   513.00

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
     .000        .0          1.666      52.6         3.333        .8         5.000        .6         6.666        .0
     .333        .0          2.000      25.4         3.666        .6         5.333        .6         6.999        .0
     .667        .0          2.333       5.2         4.000        .6         5.666        .7
    1.000        .0          2.666       2.2         4.333        .6         5.999        .7
    1.333       32.5         3.000       1.2         4.666        .6         6.333        .1

    RUNOFF VOLUME =     2.03637 INCHES      =       3.9098 ACRE-FEET
    PEAK DISCHARGE RATE =     106.61 CFS  AT   1.500 HOURS   BASIN AREA =   .0360 SQ. MI.


*S** ADD REVISED B513O TO SUBTOTAL FROM CHANNEL FOR TOTAL *****
*S**IN NEW DETENTION POND ON WEST SIDE OF UNIVERSITY**********************
ADD HYD                 ID=6 HYD=513.1 ID I=20 II=4
PRINT HYD               ID=6 CODE=10

                                OUTFLOW HYDROGRAPH RESERVOIR   513.10

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
     .000        .0          2.666      79.7         5.333       11.9         7.999        .5        10.666        .0
     .333        .0          3.000      61.0         5.666        9.0         8.333        .3        10.999        .0
     .667        .0          3.333      49.6         5.999        7.3         8.666        .2        11.332        .0
    1.000        .0          3.666      37.4         6.333        5.0         8.999        .2        11.665        .0
    1.333       40.6         4.000      27.6         6.666        3.2         9.332        .1        11.999        .0
    1.666      352.5         4.333      22.6         6.999        2.0         9.666        .1        12.332        .0
    2.000      218.6         4.666      18.7         7.333        1.3         9.999        .0        12.665        .0
    2.333      128.9         5.000      15.2         7.666         .8        10.332        .0

    RUNOFF VOLUME =     1.59507 INCHES      =      31.4078 ACRE-FEET
    PEAK DISCHARGE RATE =     395.61 CFS  AT   1.567 HOURS   BASIN AREA =   .3692 SQ. MI.


*S**** ROUTE THROUGH NEW DETENTION POND*********************************
*S**** OUTFLOW IS APPROXIMATE PEAK UNDER EXISTING CONDITIONS************
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF ONE-54" CULVERT ***************
ROUTE RESERVOIR         ID=1 HYD=111.1 INFLOW ID=6 CODE=20
                        OUTFLOW (CFS)   STORAGE (AC FT)   ELEVATION (FT)
                        0               0                 5180.0
                        5.53            0.8870            5181.0
                        20.87           1.8215            5182.0
                        43.99           2.8080            5183.0
                        72.66           3.8449            5184.0
                        104.39          4.9271            5185.0
                        136.71          6.0556            5186.0
                        160.79          7.2378            5187.0
                        179.47          8.4748            5188.0
                        196.38          9.7681            5189.0
                        211.94         11.1190            5190.0
                        226.44         13.0000            5191.0

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

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

   .00        .00    5180.00        .000        .00
   .67        .00    5180.00        .000        .00
  1.33      40.61    5180.21        .185       1.15
  2.00     218.61    5188.49       9.108     187.75
  2.67      79.70    5186.64       6.812     152.11
  3.33      49.60    5184.21       4.073      79.36
  4.00      27.59    5183.02       2.827      44.51
  4.67      18.70    5182.31       2.131      28.12
  5.33      11.90    5181.88       1.706      18.97
  6.00       7.26    5181.48       1.340      12.96
  6.67       3.16    5181.17       1.042       8.08
  7.33       1.32    5180.92        .814       5.08
  8.00        .54    5180.70        .618       3.85
  8.67        .23    5180.51        .454       2.83
  9.33        .11    5180.37        .330       2.06
 10.00        .05    5180.27        .237       1.48
 10.67        .02    5180.19        .170       1.06
 11.33        .01    5180.14        .121        .75
 12.00        .00    5180.10        .086        .54
 12.67        .00    5180.07        .061        .38
 13.33        .00    5180.05        .043        .27
 14.00        .00    5180.03        .031        .19
 14.67        .00    5180.02        .022        .14
 15.33        .00    5180.02        .015        .10
 16.00        .00    5180.01        .011        .07
 16.67        .00    5180.01        .008        .05
 17.33        .00    5180.01        .006        .03
```



18.00	.00	5180.00	.004	.02
18.66	.00	5180.00	.003	.02
19.33	.00	5180.00	.002	.01

PEAK DISCHARGE = 189.631 CFS - PEAK OCCURS AT HOUR 2.10
MAXIMUM WATER SURFACE ELEVATION = 5188.601
MAXIMUM STORAGE = 9.2519 AC-FT INCREMENTAL TIME= .033330HRS } RAC POND

*S****DISCHARGE TO UNPLATTED ARROYO*********
PRINT HYD ID=1 CODE=10

PARTIAL HYDROGRAPH 111.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	44.5	7.999	3.8	11.999	.5	15.998	.1
.333	.0	4.333	35.0	8.333	3.3	12.332	.5	16.332	.1
.667	.0	4.666	28.1	8.666	2.8	12.665	.4	16.665	.0
1.000	.0	5.000	22.7	8.999	2.4	12.999	.3	16.998	.0
1.333	1.2	5.333	19.0	9.332	2.1	13.332	.3	17.332	.0
1.666	142.7	5.666	15.8	9.666	1.7	13.665	.2	17.665	.0
2.000	187.7	5.999	13.0	9.999	1.5	13.999	.2	17.998	.0
2.333	182.3	6.333	10.5	10.332	1.3	14.332	.2	18.331	.0
2.666	152.1	6.666	8.1	10.666	1.1	14.665	.1	18.665	.0
3.000	109.4	6.999	6.1	10.999	.9	14.998	.1	18.998	.0
3.333	79.4	7.333	5.1	11.332	.8	15.332	.1	19.331	.0
3.666	59.4	7.666	4.4	11.665	.6	15.665	.1	19.665	.0

RUNOFF VOLUME = 1.59500 INCHES = 31.4064 ACRE-FEET
PEAK DISCHARGE RATE = 189.63 CFS AT 2.100 HOURS BASIN AREA = .3692 SQ. MI.

******** ROUTE DOWN ARROYO THRU 11A TO SPUR ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
CH SLP=.039 FP SLP=.039 N=.033 DIST=100
DIST ELEV DIST ELEV DIST ELEV
0 4 15 0 85 0
100 4

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	70.00
.21	14.90	46.53	71.58
.42	30.14	148.24	73.16
.63	45.71	292.42	74.74
.84	61.61	474.06	76.32
1.05	77.84	690.25	77.89
1.26	94.40	939.01	79.47
1.47	111.30	1218.95	81.05
1.68	128.53	1529.03	82.63
1.89	146.09	1868.44	84.21
2.11	163.99	2236.58	85.79
2.32	182.22	2632.95	87.37
2.53	200.78	3057.18	88.95
2.74	219.67	3508.97	90.53
2.95	238.89	3988.11	92.11
3.16	258.45	4494.40	93.68
3.37	278.34	5027.73	95.26
3.58	298.56	5588.00	96.84
3.79	319.11	6175.16	98.42
4.00	340.00	6789.18	100.00

COMPUTE TRAVEL TIME ID=4 REACH=1 VS NO=1 L=1900 SLP=.039

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.211	14.903	46.53	.1690
.421	30.139	148.24	.1073
.632	45.706	292.42	.0825
.842	61.607	474.06	.0686
1.053	77.839	690.25	.0595
1.263	94.404	939.01	.0531
1.474	111.302	1218.95	.0482
1.684	128.532	1529.03	.0444
1.895	146.094	1868.44	.0413
2.105	163.989	2236.58	.0387
2.316	182.216	2632.95	.0365
2.526	200.776	3057.18	.0347
2.737	219.668	3508.97	.0330
2.947	238.892	3988.11	.0316
3.158	258.449	4494.40	.0303
3.368	278.338	5027.73	.0292
3.579	298.559	5588.00	.0282
3.789	319.114	6175.16	.0273
4.000	340.000	6789.18	.0264

ROUTE ID=4 HYD NO=111.1 INFLOW ID=1 DT=.03333 HR
PRINT HYD ID=4 CODE=10

PARTIAL HYDROGRAPH 111.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	50.3	7.999	4.2	11.999	.6	15.998	.1
.333	.0	4.333	39.6	8.333	3.6	12.332	.5	16.332	.1
.667	.0	4.666	31.6	8.666	3.1	12.665	.4	16.665	.1
1.000	.0	5.000	25.4	8.999	2.6	12.999	.4	16.998	.0
1.333	.3	5.333	20.8	9.332	2.2	13.332	.3	17.332	.0
1.666	78.5	5.666	17.4	9.666	1.9	13.665	.2	17.665	.0
2.000	182.5	5.999	14.4	9.999	1.6	13.999	.2	17.998	.0
2.333	185.1	6.333	11.8	10.332	1.4	14.332	.2	18.331	.0
2.666	160.3	6.666	9.3	10.666	1.2	14.665	.1	18.665	.0
3.000	115.3	6.999	7.1	10.999	1.0	14.998	.1	18.998	.0
3.333	86.0	7.333	5.6	11.332	.8	15.332	.1	19.331	.0

3.666	65.6	7.666	4.8	11.665	.7	15.665	.1	19.665	.0

RUNOFF VOLUME = 1.59499 INCHES = 31.4062 ACRE-FEET
PEAK DISCHARGE RATE = 188.52 CFS AT 2.166 HOURS BASIN AREA = .3692 SQ. MI.

***BASIN 11A A=.047 SQ MI ***
COMPUTE NM HYD ID=5 HYD NO=111.0 DA=.047 SQ MI
PER A=65 PER B=23 PER C=10 PER D=2
TP=-.13 RAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.8054 CFS UNIT VOLUME = .9971 B = 526.28 P60 = 2.0100
AREA = .000940 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .144520HR TP = .130000HR K/TP RATIO = 1.111695 SHAPE CONSTANT, N = 3.181054
UNIT PEAK = 104.97 CFS UNIT VOLUME = .9999 B = 296.27 P60 = 2.0100
AREA = .046060 SQ MI IA = .58418 INCHES INF = 1.48571 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=5 CODE=10

PARTIAL HYDROGRAPH 111.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.5	2.666	1.1	4.000	.1	5.333	.0
.333	.0	1.666	32.6	3.000	.5	4.333	.0	5.666	.0
.667	.0	2.000	5.8	3.333	.3	4.666	.0	5.999	.0
1.000	.0	2.333	2.4	3.666	.1	5.000	.0	6.333	.0

RUNOFF VOLUME = .65929 INCHES = 1.6526 ACRE-FEET
PEAK DISCHARGE RATE = 58.22 CFS AT 1.500 HOURS BASIN AREA = .0470 SQ. MI.

*** ADD B11A AND ARROYO DISCHARGE *****
ADD HYD ID=1 HYD=111.2 ID I=4 II=5
PRINT HYD ID=1 CODE=10

PARTIAL HYDROGRAPH 111.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	50.4	7.999	4.2	11.999	.6	15.998	.1
.333	.0	4.333	39.7	8.333	3.6	12.332	.5	16.332	.1
.667	.0	4.666	31.7	8.666	3.1	12.665	.4	16.665	.1
1.000	.0	5.000	25.5	8.999	2.6	12.999	.4	16.998	.0
1.333	1.8	5.333	20.9	9.332	2.2	13.332	.3	17.332	.0
1.666	111.1	5.666	17.5	9.666	1.9	13.665	.2	17.665	.0
2.000	188.2	5.999	14.4	9.999	1.6	13.999	.2	17.998	.0
2.333	187.5	6.333	11.8	10.332	1.4	14.332	.2	18.331	.0
2.666	161.4	6.666	9.3	10.666	1.2	14.665	.1	18.665	.0
3.000	115.8	6.999	7.1	10.999	1.0	14.998	.1	18.998	.0
3.333	86.3	7.333	5.6	11.332	.8	15.332	.1	19.331	.0
3.666	65.8	7.666	4.8	11.665	.7	15.665	.1	19.665	.0

RUNOFF VOLUME = 1.48932 INCHES = 33.0588 ACRE-FEET
PEAK DISCHARGE RATE = 192.21 CFS AT 2.166 HOURS BASIN AREA = .4162 SQ. MI.

******* ROUTE DOWN ARROYO THRU 11B TO I-25 BOX ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
CH SLP=.030 FP SLP=.030 N=.033 DIST=100
DIST ELEV DIST ELEV DIST ELEV
0 4 15 0 85 0
100 4

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	70.00
.21	14.90	40.81	71.58
.42	30.14	130.01	73.16
.63	45.71	256.47	74.74
.84	61.61	415.78	76.32
1.05	77.84	605.39	77.89
1.26	94.40	823.57	79.47
1.47	111.30	1069.09	81.05
1.68	128.53	1341.05	82.63
1.89	146.09	1638.73	84.21
2.11	163.99	1961.61	85.79
2.32	182.22	2309.25	87.37
2.53	200.78	2681.32	88.95
2.74	219.67	3077.57	90.53
2.95	238.89	3497.80	92.11
3.16	258.45	3941.85	93.68
3.37	278.34	4409.61	95.26
3.58	298.56	4901.00	96.84
3.79	319.11	5415.98	98.42
4.00	340.00	5954.51	100.00

COMPUTE TRAVEL TIME ID=4 REACH=1 VS NO=1 L=1300 SLP=.030

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.211	14.903	40.81	.1319
.421	30.139	130.01	.0837
.632	45.706	256.47	.0644
.842	61.607	415.78	.0535

1.053	77.839	605.39	.0464
1.263	94.404	823.57	.0414
1.474	111.302	1069.09	.0376
1.684	128.532	1341.05	.0346
1.895	146.094	1638.73	.0322
2.105	163.989	1961.61	.0302
2.316	182.216	2309.25	.0285
2.526	200.776	2681.32	.0270
2.737	219.668	3077.57	.0258
2.947	238.892	3497.80	.0247
3.158	258.449	3941.85	.0237
3.368	278.338	4409.61	.0228
3.579	298.559	4901.00	.0220
3.789	319.114	5415.98	.0213
4.000	340.000	5954.51	.0206

```
ROUTE                ID=4 HYD NO=111.1 INFLOW ID=1 DT=.03333 HR
PRINT HYD            ID=4 CODE=10
```

PARTIAL HYDROGRAPH 111.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	54.3	7.999	4.4	11.999	.6	15.998	.1
.333	.0	4.333	42.9	8.333	3.8	12.332	.5	16.332	.1
.667	.0	4.666	34.7	8.666	3.3	12.665	.4	16.665	.1
1.000	.0	5.000	27.9	8.999	2.8	12.999	.4	16.998	.0
1.333	.4	5.333	22.6	9.332	2.4	13.332	.3	17.332	.0
1.666	82.6	5.666	18.8	9.666	2.0	13.665	.3	17.665	.0
2.000	184.0	5.999	15.6	9.999	1.7	13.999	.2	17.998	.0
2.333	189.2	6.333	12.8	10.332	1.5	14.332	.2	18.331	.0
2.666	166.4	6.666	10.3	10.666	1.2	14.665	.2	18.665	.0
3.000	120.1	6.999	7.9	10.999	1.0	14.998	.1	18.998	.0
3.333	90.2	7.333	6.1	11.332	.9	15.332	.1	19.331	.0
3.666	69.9	7.666	5.1	11.665	.7	15.665	.1	19.665	.0

```
RUNOFF VOLUME =      1.48932 INCHES      =      33.0587 ACRE-FEET
PEAK DISCHARGE RATE =      191.81 CFS  AT    2.200 HOURS    BASIN AREA =    .4162 SQ. MI.


***BASIN 11B    A=.030  SQ MI ***
COMPUTE NM HYD       ID=5 HYD NO=111.3 DA=.030  SQ MI
                     PER A=61 PER B=23 PER C=10 PER D=6
                     TP=-.13 RAIN=-1

     K =   .070850HR     TP =   .130000HR     K/TP RATIO =   .545000      SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   7.2869     CFS   UNIT VOLUME =    .9985       B =   526.28       P60 = 2.0100
     AREA =      .001800 SQ MI     IA =    .10000 INCHES     INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


     K =   .144024HR     TP =   .130000HR     K/TP RATIO =  1.107875      SHAPE CONSTANT, N =  3.191563
     UNIT PEAK =   64.445     CFS   UNIT VOLUME =    .9998       B =   297.09       P60 = 2.0100
     AREA =      .028200 SQ MI     IA =    .58138 INCHES     INF =   1.47787 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD            ID=5 CODE=10
```

PARTIAL HYDROGRAPH 111.30

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	2.2	2.666	.8	4.000	.1	5.333	.0
.333	.0	1.666	21.9	3.000	.4	4.333	.0	5.666	.0
.667	.0	2.000	4.5	3.333	.2	4.666	.0	5.999	.0
1.000	.0	2.333	1.7	3.666	.1	5.000	.0	6.333	.0

```
RUNOFF VOLUME =       .72303 INCHES      =       1.1568 ACRE-FEET
PEAK DISCHARGE RATE =      39.62 CFS  AT   1.500 HOURS    BASIN AREA =    .0300 SQ. MI.


*** ADD B11B AND ARROYO DISCHARGE *****
ADD HYD              ID=1 HYD=111.4 ID I=4 II=5
**** DISCHARGE INTO BOX UNDER I-25****
PRINT HYD            ID=1 CODE=10
```

PARTIAL HYDROGRAPH 111.40

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	54.4	7.999	4.4	11.999	.6	15.998	.1
.333	.0	4.333	42.9	8.333	3.8	12.332	.5	16.332	.1
.667	.0	4.666	34.7	8.666	3.3	12.665	.4	16.665	.1
1.000	.0	5.000	27.9	8.999	2.8	12.999	.4	16.998	.0
1.333	2.6	5.333	22.6	9.332	2.4	13.332	.3	17.332	.0
1.666	104.5	5.666	18.8	9.666	2.0	13.665	.3	17.665	.0
2.000	188.4	5.999	15.6	9.999	1.7	13.999	.2	17.998	.0
2.333	190.9	6.333	12.8	10.332	1.5	14.332	.2	18.331	.0
2.666	167.1	6.666	10.3	10.666	1.2	14.665	.2	18.665	.0
3.000	120.5	6.999	7.9	10.999	1.0	14.998	.1	18.998	.0
3.333	90.3	7.333	6.1	11.332	.9	15.332	.1	19.331	.0
3.666	70.0	7.666	5.1	11.665	.7	15.665	.1	19.665	.0

```
RUNOFF VOLUME =      1.43780 INCHES      =      34.2155 ACRE-FEET
PEAK DISCHARGE RATE =      194.30 CFS  AT   2.166 HOURS    BASIN AREA =    .4462 SQ. MI.


******** ROUTE THRU 6'X8' BOX ******USE AVERAGE SLOPE**BOX SLOPE CHANGES 3 TIMES
***** AS CHANNEL*****
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=6
                     CH SLP=.059 FP SLP=.059 N=.015 DIST=8.1
                     DIST ELEV  DIST ELEV  DIST ELEV
                      0    6     .1    0     8    0
                      8.1   6
```

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	7.90
.32	2.50	26.48	7.91
.63	5.00	80.24	7.92
.95	7.50	151.02	7.93
1.26	10.01	234.24	7.94
1.58	12.52	327.06	7.95
1.89	15.03	427.55	7.96
2.21	17.54	534.33	7.97
2.53	20.06	646.36	7.98
2.84	22.59	762.82	7.99
3.16	25.11	883.09	8.01
3.47	27.64	1006.66	8.02
3.79	30.18	1133.13	8.03
4.11	32.71	1262.17	8.04
4.42	35.25	1393.48	8.05
4.74	37.80	1526.85	8.06
5.05	40.34	1662.07	8.07
5.37	42.89	1798.97	8.08
5.68	45.44	1937.42	8.09
6.00	48.00	2077.29	8.10

COMPUTE TRAVEL TIME ID=4 REACH=1 VS NO=1 L=220 SLP=.059

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.316	2.496	26.48	.0058
.632	4.996	80.24	.0038
.947	7.499	151.02	.0030
1.263	10.006	234.24	.0026
1.579	12.515	327.06	.0023
1.895	15.028	427.55	.0021
2.211	17.545	534.33	.0020
2.526	20.064	646.36	.0019
2.842	22.587	762.82	.0018
3.158	25.114	883.09	.0017
3.474	27.643	1006.66	.0017
3.789	30.176	1133.13	.0016
4.105	32.712	1262.17	.0016
4.421	35.252	1393.48	.0015
4.737	37.795	1526.85	.0015
5.053	40.341	1662.07	.0015
5.368	42.891	1798.97	.0015
5.684	45.444	1937.42	.0014
6.000	48.000	2077.29	.0014

ROUTE ID=4 HYD NO=112.0 INFLOW ID=1 DT=.03333 HR

PRINT HYD ID=4 CODE=10

PARTIAL HYDROGRAPH 112.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	54.5	7.999	4.4	11.999	.6	15.998	.1
.333	.0	4.333	43.0	8.333	3.8	12.332	.5	16.332	.1
.667	.0	4.666	34.8	8.666	3.3	12.665	.4	16.665	.1
1.000	.0	5.000	28.0	8.999	2.8	12.999	.4	16.998	.0
1.333	2.3	5.333	22.7	9.332	2.4	13.332	.3	17.332	.0
1.666	103.7	5.666	18.9	9.666	2.0	13.665	.3	17.665	.0
2.000	188.3	5.999	15.7	9.999	1.7	13.999	.2	17.998	.0
2.333	190.9	6.333	12.8	10.332	1.5	14.332	.2	18.331	.0
2.666	167.3	6.666	10.3	10.666	1.2	14.665	.2	18.665	.0
3.000	120.8	6.999	8.0	10.999	1.1	14.998	.1	18.998	.0
3.333	90.5	7.333	6.1	11.332	.9	15.332	.1	19.331	.0
3.666	70.1	7.666	5.1	11.665	.7	15.665	.1	19.665	.0

RUNOFF VOLUME = 1.43780 INCHES = 34.2156 ACRE-FEET
PEAK DISCHARGE RATE = 194.30 CFS AT 2.166 HOURS BASIN AREA = .4462 SQ. MI.

***BASIN 12 A=.003 SQ MI ***
COMPUTE NM HYD ID=5 HYD NO=112.1 DA=.003 SQ MI
PER A=0 PER B=0 PER C=82 PER D=18
TP=-.13 RAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 2.1861 CFS UNIT VOLUME = .9946 B = 526.28 P60 = 2.0100
AREA = .000540 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .104786HR TP = .130000HR K/TP RATIO = .806046 SHAPE CONSTANT, N = 4.440701
UNIT PEAK = 7.2579 CFS UNIT VOLUME = .9987 B = 383.55 P60 = 2.0100
AREA = .002460 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=5 CODE=10

PARTIAL HYDROGRAPH 112.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.0	2.666	.1	4.000	.0	5.333	.0
.333	.0	1.666	3.4	3.000	.0	4.333	.0	5.666	.0
.667	.0	2.000	1.1	3.333	.0	4.666	.0	5.999	.0
1.000	.0	2.333	.2	3.666	.0	5.000	.0	6.333	.0

RUNOFF VOLUME = 1.30565 INCHES = .2089 ACRE-FEET
PEAK DISCHARGE RATE = 6.70 CFS AT 1.500 HOURS BASIN AREA = .0030 SQ. MI.

*** ADD BOX DISCHARGE AND BASIN 12 *****

```
ADD HYD              ID=1 HYD=112.2 ID I=4 II=5
PRINT HYD            ID=1 CODE=10
```

PARTIAL HYDROGRAPH 112.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	54.5	7.999	4.4	11.999	.6	15.998	.1
.333	.0	4.333	43.1	8.333	3.8	12.332	.5	16.332	.1
.667	.0	4.666	34.8	8.666	3.3	12.665	.4	16.665	.1
1.000	.0	5.000	28.0	8.999	2.8	12.999	.4	16.998	.0
1.333	3.3	5.333	22.7	9.332	2.4	13.332	.3	17.332	.0
1.666	107.1	5.666	18.9	9.666	2.0	13.665	.3	17.665	.0
2.000	189.4	5.999	15.7	9.999	1.7	13.999	.2	17.998	.0
2.333	191.2	6.333	12.8	10.332	1.5	14.332	.2	18.331	.0
2.666	167.4	6.666	10.3	10.666	1.2	14.665	.2	18.665	.0
3.000	120.8	6.999	8.0	10.999	1.1	14.998	.1	18.998	.0
3.333	90.5	7.333	6.1	11.332	.9	15.332	.1	19.331	.0
3.666	70.1	7.666	5.1	11.665	.7	15.665	.1	19.665	.0

RUNOFF VOLUME = 1.43692 INCHES = 34.4244 ACRE-FEET
PEAK DISCHARGE RATE = 194.79 CFS AT 2.166 HOURS BASIN AREA = .4492 SQ. MI.

```
***** ROUTE THIS SUBTOTAL THRU BASIN 13 ARROYO ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                     CH SLP=.080 FP SLP=.080 N=.033 DIST=60
                     DIST ELEV  DIST ELEV  DIST ELEV
                      0    4     10    0     50   0
                      60   4
```

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	40.00
.21	8.53	38.08	41.05
.42	17.29	121.29	42.11
.63	26.26	239.27	43.16
.84	35.46	387.93	44.21
1.05	44.88	564.92	45.26
1.26	54.52	768.66	46.32
1.47	64.38	998.06	47.37
1.68	74.46	1252.31	48.42
1.89	84.76	1530.80	49.47
2.11	95.29	1833.08	50.53
2.32	106.04	2158.80	51.58
2.53	117.01	2507.71	52.63
2.74	128.20	2879.61	53.68
2.95	139.61	3274.36	54.74
3.16	151.25	3691.88	55.79
3.37	163.10	4132.10	56.84
3.58	175.18	4595.01	57.89
3.79	187.48	5080.60	58.95
4.00	200.00	5588.90	60.00

```
COMPUTE TRAVEL TIME  ID=4 REACH=1 VS NO=1 L=450 SLP=.080
```

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.211	8.532	38.08	.0280
.421	17.285	121.29	.0178
.632	26.260	239.27	.0137
.842	35.457	387.93	.0114
1.053	44.875	564.92	.0099
1.263	54.515	768.66	.0089
1.474	64.377	998.06	.0081
1.684	74.460	1252.31	.0074
1.895	84.765	1530.80	.0069
2.105	95.291	1833.08	.0065
2.316	106.039	2158.80	.0061
2.526	117.008	2507.71	.0058
2.737	128.199	2879.61	.0056
2.947	139.612	3274.36	.0053
3.158	151.247	3691.88	.0051
3.368	163.102	4132.10	.0049
3.579	175.180	4595.01	.0048
3.789	187.479	5080.60	.0046
4.000	200.000	5588.90	.0045

```
ROUTE                ID=4 HYD NO=113.0 INFLOW ID=1 DT=.03333 HR
PRINT HYD            ID=4 CODE=10
```

PARTIAL HYDROGRAPH 113.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	55.3	7.999	4.5	11.999	.6	15.998	.1
.333	.0	4.333	43.7	8.333	3.9	12.332	.5	16.332	.1
.667	.0	4.666	35.4	8.666	3.3	12.665	.5	16.665	.1
1.000	.0	5.000	28.5	8.999	2.8	12.999	.4	16.998	.0
1.333	2.1	5.333	23.1	9.332	2.4	13.332	.3	17.332	.0
1.666	104.6	5.666	19.2	9.666	2.1	13.665	.3	17.665	.0
2.000	188.7	5.999	16.0	9.999	1.8	13.999	.2	17.998	.0
2.333	191.5	6.333	13.1	10.332	1.5	14.332	.2	18.331	.0
2.666	168.4	6.666	10.5	10.666	1.3	14.665	.2	18.665	.0
3.000	122.9	6.999	8.2	10.999	1.1	14.998	.1	18.998	.0
3.333	91.2	7.333	6.2	11.332	.9	15.332	.1	19.331	.0
3.666	70.9	7.666	5.2	11.665	.8	15.665	.1	19.665	.0

RUNOFF VOLUME = 1.43691 INCHES = 34.4244 ACRE-FEET
PEAK DISCHARGE RATE = 194.79 CFS AT 2.166 HOURS BASIN AREA = .4492 SQ. MI.

```
***BASIN 13    A=.007  SQ MI ***
COMPUTE NM HYD        ID=5 HYD NO=113.1 DA=.007  SQ MI
                      PER A=60 PER B=12 PER C=18 PER D=10
                      TP=-.13 RAIN=-1

     K =   .070850HR     TP =   .130000HR     K/TP RATIO =   .545000      SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   2.8338    CFS   UNIT VOLUME =    .9960        B =   526.28       P60 = 2.0100
     AREA =       .000700 SQ MI    IA =    .10000 INCHES     INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


     K =   .142259HR     TP =   .130000HR     K/TP RATIO =  1.094302      SHAPE CONSTANT, N =  3.229616
     UNIT PEAK =   14.540    CFS   UNIT VOLUME =    .9990        B =   300.04       P60 = 2.0100
     AREA =       .006300 SQ MI    IA =    .57000 INCHES     INF =   1.44600 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD             ID=5 CODE=10

                                  PARTIAL HYDROGRAPH   113.10

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
     .000        .0          1.333        .8         2.666        .2         4.000        .0         5.333        .0
     .333        .0          1.666       5.5         3.000        .1         4.333        .0         5.666        .0
     .667        .0          2.000       1.2         3.333        .0         4.666        .0         5.999        .0
    1.000        .0          2.333        .4         3.666        .0         5.000        .0         6.333        .0

    RUNOFF VOLUME =       .79911 INCHES      =         .2983 ACRE-FEET
    PEAK DISCHARGE RATE =       9.98 CFS  AT   1.500 HOURS   BASIN AREA =    .0070 SQ. MI.


*** ADD ARROYO DISCHARGE AND BASIN 13 *****
ADD HYD               ID=1 HYD=113.3 ID I=4 II=5
PRINT HYD             ID=1 CODE=10

                                  PARTIAL HYDROGRAPH   113.30

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
     .000        .0          4.000      55.3         7.999       4.5        11.999        .6        15.998        .1
     .333        .0          4.333      43.7         8.333       3.9        12.332        .5        16.332        .1
     .667        .0          4.666      35.5         8.666       3.3        12.665        .5        16.665        .1
    1.000        .0          5.000      28.5         8.999       2.8        12.999        .4        16.998        .0
    1.333        2.9         5.333      23.1         9.332       2.4        13.332        .3        17.332        .0
    1.666      110.1         5.666      19.2         9.666       2.1        13.665        .3        17.665        .0
    2.000      190.0         5.999      16.0         9.999       1.8        13.999        .2        17.998        .0
    2.333      192.0         6.333      13.1        10.332       1.5        14.332        .2        18.331        .0
    2.666      168.6         6.666      10.5        10.666       1.3        14.665        .2        18.665        .0
    3.000      123.0         6.999       8.2        10.999       1.1        14.998        .1        18.998        .0
    3.333       91.3         7.333       6.2        11.332        .9        15.332        .1        19.331        .0
    3.666       70.9         7.666       5.2        11.665        .8        15.665        .1        19.665        .0

    RUNOFF VOLUME =     1.42713 INCHES      =      34.7227 ACRE-FEET
    PEAK DISCHARGE RATE =     195.50 CFS  AT   2.166 HOURS   BASIN AREA =    .4562 SQ. MI.


***** ROUTE THIS SUBTOTAL THRU 3 CULVERTS UNDER WOODWARD SIDE ROAD ******
***** 3 - 36" DIA CULVERTS CONVERTED TO ONE 5.2' DIA PIPE FOR HYMO*****
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLOPE=.0667
                     DIA=5.2 FT N=.022

                                RATING CURVE PIPE SECTION  1.0
                                   WATER        FLOW         FLOW         MAX
                                  SURFACE       AREA         RATE        WIDTH
                                   ELEV        SQ FT         CFS          FT
                                     .00          .00          .00          .00
                                     .27          .42         2.31         2.31
                                     .54         1.17        10.05         3.18
                                     .81         2.12        23.36         3.78
                                    1.08         3.21        42.01         4.22
                                    1.35         4.40        65.60         4.56
                                    1.63         5.67        93.60         4.82
                                    1.90         7.01       125.40         5.01
                                    2.17         8.38       160.33         5.13
                                    2.44         9.78       197.64         5.19
                                    2.71        11.19       236.54         5.20
                                    2.98        12.59       276.15         5.20
                                    3.25        13.97       315.52         5.20
                                    3.52        15.31       353.64         5.20
                                    3.79        16.60       389.33         5.20
                                    4.06        17.81       421.28         5.20
                                    4.34        18.92       447.86         5.20
                                    4.61        19.90       466.88         5.20
                                    4.88        20.69       474.69         5.20
                                    5.20        21.24       474.69         5.20
COMPUTE TRAVEL TIME  ID=4 REACH=1 VS NO=1 L=60 SLP=.0667

                          TRAVEL TIME TABLE
                                  REACH=  1.0

                          WATER       AVERAGE       FLOW        TRAVEL
                          DEPTH       AREA          RATE        TIME
                          FEET        SQ.FT.        CFS         HRS
                             .271         .422         2.31        .0030
                             .542        1.174        10.05        .0019
                             .813        2.121        23.36        .0015
                            1.084        3.208        42.01        .0013
                            1.355        4.401        65.60        .0011
                            1.626        5.674        93.60        .0010
                            1.897        7.007       125.40        .0009
                            2.168        8.382       160.33        .0009
                            2.439        9.781       197.64        .0008
                            2.710       11.189       236.54        .0008
                            2.981       12.591       276.15        .0008
                            3.252       13.972       315.52        .0007
                            3.523       15.314       353.64        .0007
```

3.794	16.600	389.33	.0007
4.065	17.810	421.28	.0007
4.336	18.920	447.86	.0007
4.607	19.896	466.88	.0007
4.878	20.691	474.69	.0007
5.200	21.237	474.69	.0007

ROUTE ID=4 HYD NO=113.0 INFLOW ID=1 DT=.03333 HR
PRINT HYD ID=4 CODE=10

PARTIAL HYDROGRAPH 113.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	55.3	7.999	4.5	11.999	.6	15.998	.1
.333	.0	4.333	43.7	8.333	3.9	12.332	.5	16.332	.1
.667	.0	4.666	35.5	8.666	3.3	12.665	.5	16.665	.1
1.000	.0	5.000	28.5	8.999	2.9	12.999	.4	16.998	.0
1.333	2.8	5.333	23.1	9.332	2.4	13.332	.3	17.332	.0
1.666	109.9	5.666	19.2	9.666	2.1	13.665	.3	17.665	.0
2.000	189.9	5.999	16.0	9.999	1.8	13.999	.2	17.998	.0
2.333	192.0	6.333	13.1	10.332	1.5	14.332	.2	18.331	.0
2.666	168.7	6.666	10.5	10.666	1.3	14.665	.2	18.665	.0
3.000	123.1	6.999	8.2	10.999	1.1	14.998	.1	18.998	.0
3.333	91.3	7.333	6.2	11.332	.9	15.332	.1	19.331	.0
3.666	70.9	7.666	5.2	11.665	.8	15.665	.1	19.665	.0

RUNOFF VOLUME = 1.42713 INCHES = 34.7227 ACRE-FEET
PEAK DISCHARGE RATE = 195.51 CFS AT 2.166 HOURS BASIN AREA = .4562 SQ. MI.

**** ROUTE THIS FLOW DOWN ARROYO THRU BASIN 14 TO AIA OUTLET IN S. DIV. CHANNEL*
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
CH SLP=.0386 FP SLP=.0386 N=.033 DIST=60
DIST ELEV DIST ELEV DIST ELEV
0 4 10 0 50 0
60 4

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	40.00
.21	8.53	26.45	41.05
.42	17.29	84.25	42.11
.63	26.26	166.20	43.16
.84	35.46	269.47	44.21
1.05	44.88	392.40	45.26
1.26	54.52	533.93	46.32
1.47	64.38	693.28	47.37
1.68	74.46	869.88	48.42
1.89	84.76	1063.33	49.47
2.11	95.29	1273.30	50.53
2.32	106.04	1499.55	51.58
2.53	117.01	1741.91	52.63
2.74	128.20	2000.24	53.68
2.95	139.61	2274.45	54.74
3.16	151.25	2564.46	55.79
3.37	163.10	2870.25	56.84
3.58	175.18	3191.80	57.89
3.79	187.48	3529.10	58.95
4.00	200.00	3882.18	60.00

COMPUTE TRAVEL TIME ID=2 REACH=1 VS NO=1 L=700 SLP=.0386

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.211	8.532	26.45	.0627
.421	17.285	84.25	.0399
.632	26.260	166.20	.0307
.842	35.457	269.47	.0256
1.053	44.875	392.40	.0222
1.263	54.515	533.93	.0199
1.474	64.377	693.28	.0181
1.684	74.460	869.88	.0166
1.895	84.765	1063.33	.0155
2.105	95.291	1273.30	.0146
2.316	106.039	1499.55	.0137
2.526	117.008	1741.91	.0131
2.737	128.199	2000.24	.0125
2.947	139.612	2274.45	.0119
3.158	151.247	2564.46	.0115
3.368	163.102	2870.25	.0110
3.579	175.180	3191.80	.0107
3.789	187.479	3529.10	.0103
4.000	200.000	3882.18	.0100

ROUTE ID=2 HYD NO=114.0 INFLOW ID=4 DT=.03333 HR
PRINT HYD ID=2 CODE=10

PARTIAL HYDROGRAPH 114.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	56.5	7.999	4.6	11.999	.7	15.998	.1
.333	.0	4.333	44.8	8.333	4.0	12.332	.6	16.332	.1
.667	.0	4.666	36.5	8.666	3.4	12.665	.5	16.665	.1
1.000	.0	5.000	29.5	8.999	2.9	12.999	.4	16.998	.1
1.333	1.3	5.333	24.0	9.332	2.5	13.332	.3	17.332	.0
1.666	105.9	5.666	19.9	9.666	2.1	13.665	.3	17.665	.0
2.000	188.1	5.999	16.6	9.999	1.8	13.999	.2	17.998	.0
2.333	192.7	6.333	13.6	10.332	1.5	14.332	.2	18.331	.0
2.666	170.7	6.666	11.0	10.666	1.3	14.665	.2	18.665	.0
3.000	126.4	6.999	8.6	10.999	1.1	14.998	.1	18.998	.0
3.333	93.3	7.333	6.6	11.332	.9	15.332	.1	19.331	.0
3.666	71.7	7.666	5.3	11.665	.8	15.665	.1	19.665	.0

RUNOFF VOLUME = 1.42712 INCHES = 34.7227 ACRE-FEET
PEAK DISCHARGE RATE = 195.45 CFS AT 2.200 HOURS BASIN AREA = .4562 SQ. MI.

***BASIN 14 A=.012 SQ MI ***
COMPUTE NM HYD ID=5 HYD NO=114.1 DA=.012 SQ MI
PER A=60 PER B=18 PER C=18 PER D=4
TP=-.13 RAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.9432 CFS UNIT VOLUME = .9946 B = 526.28 P60 = 2.0100
AREA = .000480 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .141419HR TP = .130000HR K/TP RATIO = 1.087840 SHAPE CONSTANT, N = 3.248158
UNIT PEAK = 26.715 CFS UNIT VOLUME = .9994 B = 301.47 P60 = 2.0100
AREA = .011520 SQ MI IA = .56563 INCHES INF = 1.43375 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=5 CODE=10

PARTIAL HYDROGRAPH 114.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.7	2.666	.3	4.000	.0	5.333	.0
.333	.0	1.666	8.9	3.000	.1	4.333	.0	5.666	.0

.667	.0	2.000	1.7	3.333	.1	4.666	.0	5.999	.0
1.000	.0	2.333	.7	3.666	.0	5.000	.0	6.333	.0

RUNOFF VOLUME = .71830 INCHES = .4597 ACRE-FEET
PEAK DISCHARGE RATE = 15.98 CFS AT 1.500 HOURS BASIN AREA = .0120 SQ. MI.

```
*** ADD ARROYO DISCHARGE AND BASIN 14 *****
ADD HYD              ID=1 HYD=113.3 ID I=2 II=5
**** TOTAL DISCHARGE TO CHUTE (AIRPORT OUTLET) AT SOUTH DIVERSION CHANNEL*****
PRINT HYD            ID=1 CODE=10
```

PARTIAL HYDROGRAPH 113.30

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	56.5	7.999	4.6	11.999	.7	15.998	.1
.333	.0	4.333	44.8	8.333	4.0	12.332	.6	16.332	.1
.667	.0	4.666	36.5	8.666	3.4	12.665	.5	16.665	.1
1.000	.0	5.000	29.5	8.999	2.9	12.999	.4	16.998	.1
1.333	2.0	5.333	24.0	9.332	2.5	13.332	.3	17.332	.0
1.666	114.7	5.666	19.9	9.666	2.1	13.665	.3	17.665	.0
2.000	189.8	5.999	16.6	9.999	1.8	13.999	.2	17.998	.0
2.333	193.4	6.333	13.6	10.332	1.5	14.332	.2	18.331	.0
2.666	170.9	6.666	11.0	10.666	1.3	14.665	.2	18.665	.0
3.000	126.5	6.999	8.6	10.999	1.1	14.998	.1	18.998	.0
3.333	93.4	7.333	6.6	11.332	.9	15.332	.1	19.331	.0
3.666	71.8	7.666	5.3	11.665	.8	15.665	.1	19.665	.0

RUNOFF VOLUME = 1.40896 INCHES = 35.1824 ACRE-FEET
PEAK DISCHARGE RATE = 196.45 CFS AT 2.166 HOURS BASIN AREA = .4682 SQ. MI.

```
FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 08:22:24
```

.73	1.04	14.27	1.93
.83	1.24	18.25	1.97
.94	1.45	22.49	2.00
1.04	1.66	26.92	2.00
1.15	1.86	31.43	2.00
1.25	2.07	35.91	2.00
1.35	2.27	40.25	2.00
1.46	2.46	44.31	2.00
1.56	2.63	47.95	2.00
1.67	2.80	50.97	2.00
1.77	2.94	53.14	2.00
1.88	3.06	54.03	2.00
2.00	3.14	54.03	2.00

```
COMPUTE TRAVEL TIME  ID=2 REACH=15 VS NO=1 L=220 SLP=0.168
```

TRAVEL TIME TABLE

REACH= 15.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.104	.062	.26	.0145
.208	.174	1.14	.0093
.313	.314	2.66	.0072
.417	.475	4.78	.0061
.521	.651	7.47	.0053
.625	.839	10.65	.0048
.730	1.037	14.27	.0044
.834	1.240	18.25	.0042
.938	1.447	22.49	.0039
1.042	1.655	26.92	.0038
1.146	1.863	31.43	.0036
1.251	2.067	35.91	.0035
1.355	2.265	40.25	.0034
1.459	2.456	44.31	.0034
1.563	2.635	47.95	.0034
1.668	2.799	50.97	.0034
1.772	2.943	53.14	.0034
1.876	3.061	54.03	.0035
2.000	3.142	54.03	.0036

```
ROUTE                ID=2 HYD=105.1 INFLOW ID=5 DT=0.03333 HR
PRINT HYD            ID=2 CODE=10
```

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.666	42.1	3.333	.5	5.000	.1	6.666	.0
.333	.0	2.000	12.0	3.666	.3	5.333	.1	6.999	.0
.667	.0	2.333	3.8	4.000	.2	5.666	.1		
1.000	.0	2.666	1.8	4.333	.1	5.999	.1		
1.333	3.5	3.000	.9	4.666	.1	6.333	.0		

```
RUNOFF VOLUME =     1.17637 INCHES     =       2.0077 ACRE-FEET
PEAK DISCHARGE RATE =     53.36 CFS  AT   1.567 HOURS   BASIN AREA =    .0320 SQ. MI.
```

```
*S** ADD BASIN 506 AND WESTEND FLOWS AT TOP OF CHANNEL FOR SUBTOTAL**********
ADD HYD              ID=10 HYD=234.5 ID I=11 II=2
PRINT HYD            ID=10 CODE=10
```

PARTIAL HYDROGRAPH 234.50

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	74.8	5.333	11.0	7.999	.5	10.666	.0
.333	.0	3.000	58.6	5.666	8.2	8.333	.3	10.999	.0
.667	.0	3.333	47.5	5.999	6.4	8.666	.2	11.332	.0
1.000	.0	3.666	35.9	6.333	4.8	8.999	.2	11.665	.0
1.333	6.9	4.000	26.5	6.666	3.1	9.332	.1	11.999	.0
1.666	244.4	4.333	21.8	6.999	2.0	9.666	.1	12.332	.0
2.000	181.4	4.666	17.8	7.333	1.3	9.999	.0	12.665	.0
2.333	118.2	5.000	14.4	7.666	.8	10.332	.0		

```
RUNOFF VOLUME =     1.72183 INCHES     =      24.7208 ACRE-FEET
PEAK DISCHARGE RATE =     246.62 CFS  AT   1.633 HOURS   BASIN AREA =    .2692 SQ. MI.


*S** CALC FLOW FROM BASIN B510 ****
COMPUTE NM HYD       ID=4 HYD NO=510 DA=0.024 SQ MI
                     PER A=25.0 PER B=25.0 PER C=46.0 PER D=4.0
                     TP=-.13   RAIN=-1

     K =   .070850HR    TP =   .130000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   3.8863    CFS   UNIT VOLUME =    .9971       B =   526.28      P60 = 2.0100
     AREA =      .000960 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


     K =   .124431HR    TP =   .130000HR    K/TP RATIO =   .957159     SHAPE CONSTANT, N =  3.691808
     UNIT PEAK =   59.208    CFS   UNIT VOLUME =   1.000       B =   334.07      P60 = 2.0100
     AREA =      .023040 SQ MI    IA =    .46719 INCHES    INF =   1.15812 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD            ID=4 CODE=10
```

OUTFLOW HYDROGRAPH RESERVOIR 510.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	2.2	2.666	.6	4.000	.0	5.333	.0
.333	.0	1.666	21.8	3.000	.3	4.333	.0	5.666	.0
.667	.0	2.000	4.3	3.333	.1	4.666	.0	5.999	.0
1.000	.0	2.333	1.5	3.666	.1	5.000	.0	6.333	.0

```
RUNOFF VOLUME =      .89572 INCHES     =       1.1465 ACRE-FEET
```

```
    PEAK DISCHARGE RATE =      39.89 CFS  AT   1.500 HOURS   BASIN AREA =    .0240 SQ. MI.


*S** ADD BASIN 510 AND SUBTOTAL TO CHANNEL FROM ABOVE**********
ADD HYD             ID=1 HYD=234.5 ID I=10 II=4
PRINT HYD           ID=1 CODE=10

                                PARTIAL HYDROGRAPH   234.50

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
      .000       .0          2.666      75.4         5.333      11.0         7.999       .5         10.666       .0
      .333       .0          3.000      58.9         5.666       8.2         8.333       .3         10.999       .0
      .667       .0          3.333      47.6         5.999       6.5         8.666       .2         11.332       .0
     1.000       .0          3.666      36.0         6.333       4.8         8.999       .2         11.665       .0
     1.333       9.1         4.000      26.5         6.666       3.1         9.332       .1         11.999       .0
     1.666     266.1         4.333      21.8         6.999       2.0         9.666       .1         12.332       .0
     2.000     185.7         4.666      17.8         7.333       1.3         9.999       .0         12.665       .0
     2.333     119.7         5.000      14.4         7.666        .8        10.332       .0

    RUNOFF VOLUME =     1.65421 INCHES      =      25.8673 ACRE-FEET
    PEAK DISCHARGE RATE =     272.61 CFS  AT   1.600 HOURS   BASIN AREA =    .2932 SQ. MI.


*S**BASIN 511   A=.01  SQ MI ***
COMPUTE NM HYD      ID=15 HYD NO=511 DA=.010  SQ MI
                    PER A=30 PER B=33 PER C=35 PER D=2
                    TP=-.13 RAIN=-1

    K =   .070850HR    TP =   .130000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   .80965    CFS   UNIT VOLUME =     .9860      B =   526.28      P60 = 2.0100
    AREA =      .000200 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .128614HR    TP =   .130000HR    K/TP RATIO =   .989339     SHAPE CONSTANT, N =  3.568858
    UNIT PEAK =   24.524    CFS   UNIT VOLUME =     .9997      B =   325.32      P60 = 2.0100
    AREA =      .009800 SQ MI    IA =    .49235 INCHES    INF =   1.22857 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=15 CODE=10

                              OUTFLOW HYDROGRAPH RESERVOIR   511.00

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
      .000       .0          1.333       .7         2.666       .2         4.000       .0         5.333       .0
      .333       .0          1.666      8.5         3.000       .1         4.333       .0         5.666       .0
      .667       .0          2.000      1.5         3.333       .0         4.666       .0         5.999       .0
     1.000       .0          2.333       .6         3.666       .0         5.000       .0

    RUNOFF VOLUME =      .81964 INCHES      =       .4371 ACRE-FEET
    PEAK DISCHARGE RATE =      15.42 CFS  AT   1.500 HOURS   BASIN AREA =    .0100 SQ. MI.


*S** ADD BASIN 511 AND SUBTOTAL TO CHANNEL FROM ABOVE**********
ADD HYD             ID=2 HYD=234.5 ID I=15 II=1
*S******** HYDROGRAPH INTO CHANNEL**********
PRINT HYD           ID=2 CODE=10

                                PARTIAL HYDROGRAPH   234.50

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
      .000       .0          2.666      75.7         5.333      11.0         7.999       .5         10.666       .0
      .333       .0          3.000      59.0         5.666       8.2         8.333       .3         10.999       .0
      .667       .0          3.333      47.6         5.999       6.5         8.666       .2         11.332       .0
     1.000       .0          3.666      36.0         6.333       4.8         8.999       .2         11.665       .0
     1.333       9.8         4.000      26.5         6.666       3.1         9.332       .1         11.999       .0
     1.666     274.7         4.333      21.8         6.999       2.0         9.666       .1         12.332       .0
     2.000     187.2         4.666      17.8         7.333       1.3         9.999       .0         12.665       .0
     2.333     120.3         5.000      14.4         7.666        .8        10.332       .0

    RUNOFF VOLUME =     1.62668 INCHES      =      26.3044 ACRE-FEET
    PEAK DISCHARGE RATE =     284.60 CFS  AT   1.600 HOURS   BASIN AREA =    .3032 SQ. MI.


*S******* ROUTE THROUGH CHANNEL TO UNIVERSITY ******
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=8
                    CH SLP=.0632 FP SLP=.0632 N=.033 DIST=36
                    DIST ELEV  DIST ELEV  DIST ELEV
                     0    8     8    0     28   0
                     36   8

                          RATING CURVE VALLEY SECTION  1.0
                             WATER       FLOW        FLOW        TOP
                            SURFACE      AREA        RATE       WIDTH
                             ELEV        SQ FT       CFS        FT
                               .00         .00         .00      20.00
                               .42        8.60       53.35      20.84
                               .84       17.55      168.96      21.68
                              1.26       26.86      331.69      22.53
                              1.68       36.52      535.66      23.37
                              2.11       46.54      777.54      24.21
                              2.53       56.91     1055.27      25.05
                              2.95       67.63     1367.46      25.89
                              3.37       78.71     1713.20      26.74
                              3.79       90.15     2091.90      27.58
                              4.21      101.94     2503.16      28.42
                              4.63      114.08     2946.78      29.26
                              5.05      126.58     3422.66      30.11
                              5.47      139.43     3930.79      30.95
                              5.89      152.64     4471.25      31.79
                              6.32      166.20     5044.17      32.63
```

6.74	180.12	5649.73	33.47
7.16	194.39	6288.14	34.32
7.58	209.02	6959.66	35.16
8.00	224.00	7664.54	36.00

```
COMPUTE TRAVEL TIME  ID=4 REACH=1 VS NO=1 L=475 SLP=.0632
```

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.421	8.598	53.35	.0213
.842	17.551	168.96	.0137
1.263	26.859	331.69	.0107
1.684	36.521	535.66	.0090
2.105	46.537	777.54	.0079
2.526	56.909	1055.27	.0071
2.947	67.634	1367.46	.0065
3.368	78.715	1713.20	.0061
3.789	90.150	2091.90	.0057
4.211	101.939	2503.16	.0054
4.632	114.083	2946.78	.0051
5.053	126.582	3422.66	.0049
5.474	139.435	3930.79	.0047
5.895	152.643	4471.25	.0045
6.316	166.205	5044.17	.0043
6.737	180.122	5649.73	.0042
7.158	194.393	6288.14	.0041
7.579	209.019	6959.66	.0040
8.000	224.000	7664.54	.0039

```
ROUTE                ID=4 HYD NO=110.3 INFLOW ID=2 DT=.03333 HR
*S** CHANNEL DISCHARGE*****
PRINT HYD            ID=4 CODE=10
```

PARTIAL HYDROGRAPH 110.30

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	76.8	5.333	11.3	7.999	.5	10.666	.0
.333	.0	3.000	59.5	5.666	8.4	8.333	.3	10.999	.0
.667	.0	3.333	48.6	5.999	6.5	8.666	.2	11.332	.0
1.000	.0	3.666	36.7	6.333	4.9	8.999	.2	11.665	.0
1.333	6.2	4.000	27.0	6.666	3.1	9.332	.1	11.999	.0
1.666	276.8	4.333	22.0	6.999	2.0	9.666	.1	12.332	.0
2.000	188.9	4.666	18.1	7.333	1.3	9.999	.0	12.665	.0
2.333	121.9	5.000	14.6	7.666	.8	10.332	.0		

```
RUNOFF VOLUME =     1.62669 INCHES      =      26.3044 ACRE-FEET
PEAK DISCHARGE RATE =     284.81 CFS  AT   1.600 HOURS   BASIN AREA =   .3032 SQ. MI.


**********************
** NOW COMPUTE BASIN B512 ***
*S**BASIN 512   A=.03   SQ MI ***
COMPUTE NM HYD       ID=15 HYD NO=512 DA=.030  SQ MI
                     PER A=47 PER B=33 PER C=16 PER D=4
                     TP=-.13 RAIN=-1

     K =   .070850HR    TP =   .130000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   4.8579    CFS   UNIT VOLUME =    .9975       B =   526.28      P60 = 2.0100
     AREA =      .001200 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


     K =   .138213HR    TP =   .130000HR    K/TP RATIO =  1.063179     SHAPE CONSTANT, N =  3.321495
     UNIT PEAK =   68.026    CFS   UNIT VOLUME =    1.000       B =   307.06      P60 = 2.0100
     AREA =      .028800 SQ MI    IA =    .54844 INCHES    INF =   1.38563 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD            ID=15 CODE=10
```

OUTFLOW HYDROGRAPH RESERVOIR 512.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	2.0	2.666	.7	4.000	.0	5.333	.0
.333	.0	1.666	23.1	3.000	.3	4.333	.0	5.666	.0
.667	.0	2.000	4.4	3.333	.2	4.666	.0	5.999	.0
1.000	.0	2.333	1.7	3.666	.1	5.000	.0	6.333	.0

```
RUNOFF VOLUME =      .74599 INCHES      =       1.1936 ACRE-FEET
PEAK DISCHARGE RATE =      41.55 CFS  AT   1.500 HOURS   BASIN AREA =   .0300 SQ. MI.


*S** ADD B512 AND SUBTOTAL TO CHANNEL *****
ADD HYD              ID=20 HYD=111.0 ID I=15 II=4
PRINT HYD            ID=20 CODE=10
```

PARTIAL HYDROGRAPH 111.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.666	77.5	5.333	11.3	7.999	.5	10.666	.0
.333	.0	3.000	59.9	5.666	8.4	8.333	.3	10.999	.0
.667	.0	3.333	48.8	5.999	6.6	8.666	.2	11.332	.0
1.000	.0	3.666	36.8	6.333	4.9	8.999	.2	11.665	.0
1.333	8.1	4.000	27.0	6.666	3.1	9.332	.1	11.999	.0
1.666	299.9	4.333	22.0	6.999	2.0	9.666	.1	12.332	.0
2.000	193.2	4.666	18.1	7.333	1.3	9.999	.0	12.665	.0
2.333	123.6	5.000	14.6	7.666	.8	10.332	.0		

```
RUNOFF VOLUME =     1.54739 INCHES      =      27.4980 ACRE-FEET
PEAK DISCHARGE RATE =     317.47 CFS  AT   1.600 HOURS   BASIN AREA =   .3332 SQ. MI.
```

```
**** ROUTE TO NEW POND AT HEADS OF CULVERTS AND HOLD ID=20****
*S** CALCULATE B513 (REVISED TO REFLECT RENTAL CAR FACILITY) ***
COMPUTE NM HYD          ID=4 HYD NO=513 DA=0.036 SQ MI
                        PER A=0.0 PER B=0.0 PER C=8.0 PER D=92.0
                        TP=-.13  RAIN=-1

     K =   .070850HR    TP =   .130000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   134.08    CFS   UNIT VOLUME =    1.000       B =   526.28      P60 = 2.0100
     AREA =      .033120 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


     K =   .104786HR    TP =   .130000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   8.4970    CFS   UNIT VOLUME =    .9989       B =   383.55      P60 = 2.0100
     AREA =      .002880 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD               ID=4 CODE=10

                                OUTFLOW HYDROGRAPH RESERVOIR   513.00

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
      .000       .0          1.666      52.6         3.333       .8          5.000       .6         6.666       .0
      .333       .0          2.000      25.4         3.666       .6          5.333       .6         6.999       .0
      .667       .0          2.333       5.2         4.000       .6          5.666       .7
     1.000       .0          2.666       2.2         4.333       .6          5.999       .7
     1.333      32.5         3.000       1.2         4.666       .6          6.333       .1

    RUNOFF VOLUME =      2.03637 INCHES      =       3.9098 ACRE-FEET
    PEAK DISCHARGE RATE =      106.61 CFS  AT    1.500 HOURS    BASIN AREA =    .0360 SQ. MI.


*S** ADD REVISED B513O TO SUBTOTAL FROM CHANNEL FOR TOTAL *****
*S**IN NEW DETENTION POND ON WEST SIDE OF UNIVERSITY**********************
ADD HYD                 ID=6 HYD=513.1 ID I=20 II=4
PRINT HYD               ID=6 CODE=10

                                OUTFLOW HYDROGRAPH RESERVOIR   513.10

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
      .000       .0          2.666      79.7         5.333      11.9          7.999       .5         10.666       .0
      .333       .0          3.000      61.0         5.666       9.0          8.333       .3         10.999       .0
      .667       .0          3.333      49.6         5.999       7.3          8.666       .2         11.332       .0
     1.000       .0          3.666      37.4         6.333       5.0          8.999       .2         11.665       .0
     1.333      40.6         4.000      27.6         6.666       3.2          9.332       .1         11.999       .0
     1.666     352.5         4.333      22.6         6.999       2.0          9.666       .1         12.332       .0
     2.000     218.6         4.666      18.7         7.333       1.3          9.999       .0         12.665       .0
     2.333     128.9         5.000      15.2         7.666        .8         10.332       .0

    RUNOFF VOLUME =      1.59507 INCHES      =      31.4078 ACRE-FEET
    PEAK DISCHARGE RATE =      395.61 CFS  AT    1.567 HOURS    BASIN AREA =    .3692 SQ. MI.


*S**** ROUTE THROUGH NEW DETENTION POND**********************************
*S**** OUTFLOW IS APPROXIMATE PEAK UNDER EXISTING CONDITIONS*************
*S**** OUTFLOW IS APPROXIMATE CAPACITY OF ONE-60" CULVERT ***************
ROUTE RESERVOIR         ID=1 HYD=111.1 INFLOW ID=6 CODE=20
                        OUTFLOW (CFS)    STORAGE (AC FT)    ELEVATION (FT)
                         0                 0                  5180.0
                         5.86              0.8870             5181.0
                         22.26             1.8215             5182.0
                         47.33             2.8080             5183.0
                         78.97             3.8449             5184.0
                         114.90            4.9271             5185.0
                         152.75            6.0556             5186.0
                         190.23            7.2378             5187.0
                         214.33            8.4748             5188.0
                         235.85            9.7681             5189.0
                         255.56           11.1190             5190.0
                         273.86           13.0000             5191.0

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

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

      .00        .00    5180.00        .000        .00
      .67        .00    5180.00        .000        .00
     1.33      40.61    5180.21        .184       1.22
     2.00     218.61    5187.88       8.326     211.43
     2.67      79.70    5185.60       5.604     137.60
     3.33      49.60    5183.77       3.609      71.76
     4.00      27.59    5182.80       2.614      42.39
     4.67      18.70    5182.19       2.005      26.92
     5.33      11.90    5181.78       1.618      18.69
     6.00       7.26    5181.41       1.271      12.59
     6.67       3.16    5181.11        .993       7.73
     7.33       1.32    5180.87        .774       5.12
     8.00        .54    5180.65        .578       3.82
     8.67        .23    5180.47        .418       2.76
     9.33        .11    5180.34        .297       1.97
    10.00        .05    5180.24        .210       1.39
    10.67        .02    5180.17        .147        .97
    11.33        .01    5180.12        .103        .68
    12.00        .00    5180.08        .072        .47
    12.67        .00    5180.06        .050        .33
    13.33        .00    5180.04        .035        .23
    14.00        .00    5180.03        .024        .16
    14.67        .00    5180.02        .017        .11
    15.33        .00    5180.01        .012        .08
    16.00        .00    5180.01        .008        .05
    16.67        .00    5180.01        .006        .04
    17.33        .00    5180.00        .004        .03
```

RAC POND 60" ϕ

```
   18.00        .00   5180.00        .003        .02
   18.66        .00   5180.00        .002        .01
   19.33        .00   5180.00        .001        .01
 PEAK DISCHARGE =      211.603 CFS - PEAK OCCURS AT HOUR    2.03
 MAXIMUM WATER SURFACE ELEVATION =     5187.887
 MAXIMUM STORAGE =        8.3348 AC-FT      INCREMENTAL TIME=     .033330HRS

*S****DISCHARGE TO UNPLATTED ARROYO*********
PRINT HYD            ID=1 CODE=10
```

RAC POND 60"

PARTIAL HYDROGRAPH 111.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	42.4	7.999	3.8	11.999	.5	15.998	.1
.333	.0	4.333	33.4	8.333	3.3	12.332	.4	16.332	.0
.667	.0	4.666	26.9	8.666	2.8	12.665	.3	16.665	.0
1.000	.0	5.000	21.9	8.999	2.3	12.999	.3	16.998	.0
1.333	1.2	5.333	18.7	9.332	2.0	13.332	.2	17.332	.0
1.666	158.2	5.666	15.5	9.666	1.7	13.665	.2	17.665	.0
2.000	211.4	5.999	12.6	9.999	1.4	13.999	.2	17.998	.0
2.333	193.6	6.333	10.1	10.332	1.2	14.332	.1	18.331	.0
2.666	137.6	6.666	7.7	10.666	1.0	14.665	.1	18.665	.0
3.000	95.6	6.999	5.8	10.999	.8	14.998	.1	18.998	.0
3.333	71.8	7.333	5.1	11.332	.7	15.332	.1	19.331	.0
3.666	55.0	7.666	4.4	11.665	.6	15.665	.1	19.665	.0

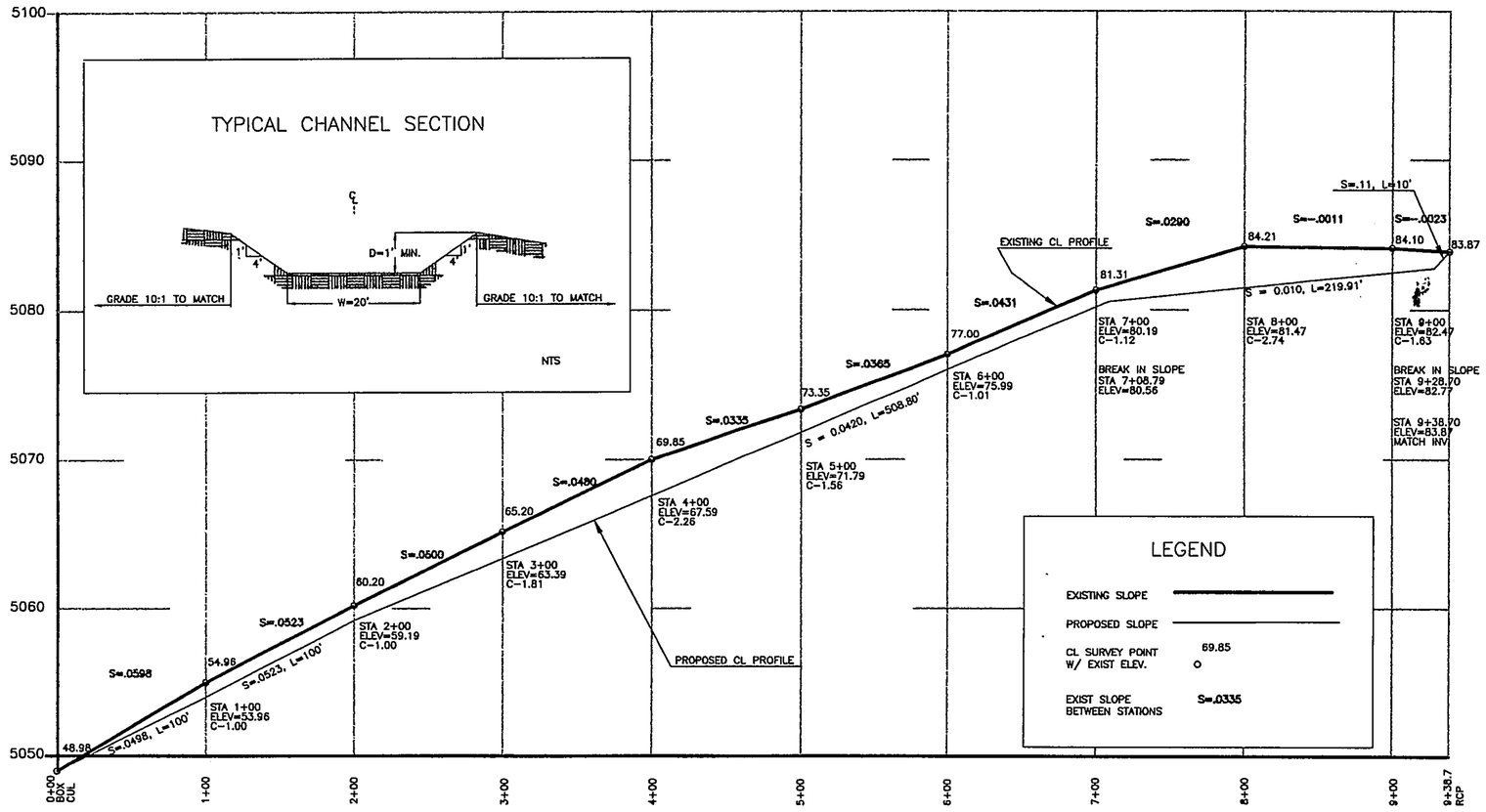
```
   RUNOFF VOLUME =     1.59502 INCHES     =      31.4069 ACRE-FEET
   PEAK DISCHARGE RATE =     211.60 CFS  AT   2.033 HOURS   BASIN AREA =   .3692 SQ. MI.
```

RAC POND

```
FINISH

   NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 07:37:33
```

Horiz. Scale 1"=50'
Vert. Scale 1"=5'

GOLFCOURSE ARROYO PROFILE



CL PROFILE: EXIST & PROPOSED

MFB 11/25/1993

abpCCAP 1" = 50' 09/13/99

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CITY OF ALBUQUERQUE — NEW MEXICO

GOLFCOURSE ARROYO PROFILE (PLATE 8)

REMOTE CAR RENTAL FACILITY

MOLZEN-CORBIN & Associates

ENGINEERS/ARCHITECTS/PLANNERS Albuquerque • Las Cruces • Los Alamos

Designed	Drawn	Checked	Sheet of
KSF	RDG	XXX	1-1
File BPL91-11.D03	Date XXXXX		

LOS ALAMOS
505-662-0707

LAS CRUCES
505-522-0049

ALBUQUERQUE
505-242-5700

2701 MILES RD SE
ALBUQUERQUE, NM 87106
TEL: 505.242.5700
FAX: 505.242.0673

MOLZEN-CORBIN & Associates
ENGINEERS/ARCHITECTS/PLANNERS

October 17, 2000

Mr. Carlos Montoya
City of Albuquerque
Public Works Department
Hydrology Division
P.O. Box 1293
Albuquerque, New Mexico 87103

RE: Airport Car Rental Expansion Drainage Report Dated May 2000 BPL91-11.D03

Dear Mr. Montoya:

This letter responds to your comments expressed in a letter dated July 13, 2000.

1. Landfill. By now, I believe that you have received the necessary correspondence from the airport and environmental health regarding the pond in the landfill. This should eliminate this issue from the list.

2. Easements. The detention pond is now in a described easement. That was put on the plat for the entire site. I worked with Greiner's surveyor to ensure that the easement he described was large enough to include the entire pond and it's access road.

3. Detention Pond offsite flows. To date, there is no evidence of erosion from offsite flows into the east side of the pond. This is due to the pervious nature of the undeveloped soil that is present. However, I will work with BPLW and their contractor to develop conservation measures to prevent any future problems. Our desire is to grade ditches and dikes perpendicular to the flow to retain any runoff on the site before it can enter the pond. The storm sewers that are in place are some twenty feet deep in this area, and installing new drop inlets or pipes will be a very costly remedy to a problem that may not even exist.

4. The easements through the UNM property and Schwartzmann property are prepared and are now in the hands of Mr. Jim Fitzgerald, the Aviation Department Attorney. He is in the process of meeting with the parties involved, drafting the easement agreements and conditions, and negotiating the easement details. The easements were on the infrastructure list and should not be holding up building permits or certificates of occupancy. That was our agreement with Mr. Fred Aguirre made earlier this year.

5. Low flow channel. We had discussed this issue earlier and I believed that we agreed that we could not put a low flow channel in the pond. You indicated that the low flow channel will assist in finding the bottom of the pond during sediment removal operations in the future. The inlet pipe is some two feet higher than the outlet pipe, but the bottom is not sloped accordingly. Each pipe has a wire enclosed riprap splash pad that can be used for determining the bottom of the pond when sediment is being removed. Installing a low flow channel will not work, as there will be erosion along the channel due to this unique condition. Furthermore, we cannot fill the bottom of the pond to conform to the pipe in/pipe out slope as it will block other pipes coming into the pond, and it will reduce pond storage, which we cannot afford.

6. Easement and gate. Access to the pond is through a driveway along University. The pond easement that Greiner and I developed, includes sufficient room for access from this driveway to get into the pond. The entire RAC plat is on the DRB agenda for October 18, 2000. The pond easement is supposed to be on that plat. There is no gate in between the driveway and the pond. This driveway also serves as access to the FAA ILS facilities.

7. The inflow hydrograph and outflow hydrographs do closely resemble each other. However, there is a significant amount of routing that takes place at the pond. In fact, enough routing that 8 acre feet of storage is required. Because the outlet pipe is a 60 inch diameter, it "catches up" to the inflow rather quickly once the water reaches the top of the pipe. This is one of the results of the fast-track nature of this project. The original design for the pond was done with the first bid package, i.e. the site grading. At that time, it was assumed that a 48" outlet pipe would be installed. Obviously, a 48" outfall would have resulted in a lesser peak discharge. However, the second phase of work, the University Blvd widening included the outfall pipe through the Chaves property. The pond was being constructed while this outfall was still being designed. Through negotiations with the Chaves property owners over the outfall line location, possible combination of flows, the continuing changes to Chaves' grading plans, and other issues, the outfall was finally settled well after the pond was complete. When the HGL was finally computed for the outfall line, a 60" pipe crossing of University was needed in order to control the HGL to the Chaves final grades. As a result of all of this, we have ended up with a pond that does not dramatically cut the peak rate of flow. However, nothing could be done about this due to the sensitive scheduling of the entire project.

8. We received two (2) memos from the Highway Department regarding the connection to their box culvert. Copies of these memos have already been transmitted to you.

9. I have attached a draft of the matrix regarding maintenance issues on the site. I still need to meet with Aviation Department personnel to obtain their concurrence with these issues.

10. As-Builts. Record drawings for the first and second phases of work (site grading and University Blvd.) are now being prepared by BPLW and Greiner. We printed up new sets of each project for the surveyor to complete an as-built survey. We are now marking up the mylars of the record drawings.

11. The flood plain revision through the Chaves property has not yet begun but is on the infrastructure list. The Aviation Department has put their commitment in writing to complete this effort.

If you have any questions regarding this matter, please feel free to call me at (505) 242-5700.

Sincerely,

MOLZEN-CORBIN & ASSOCIATES

Kent S. Freier, P.E.
Project Engineer

KSF:sr

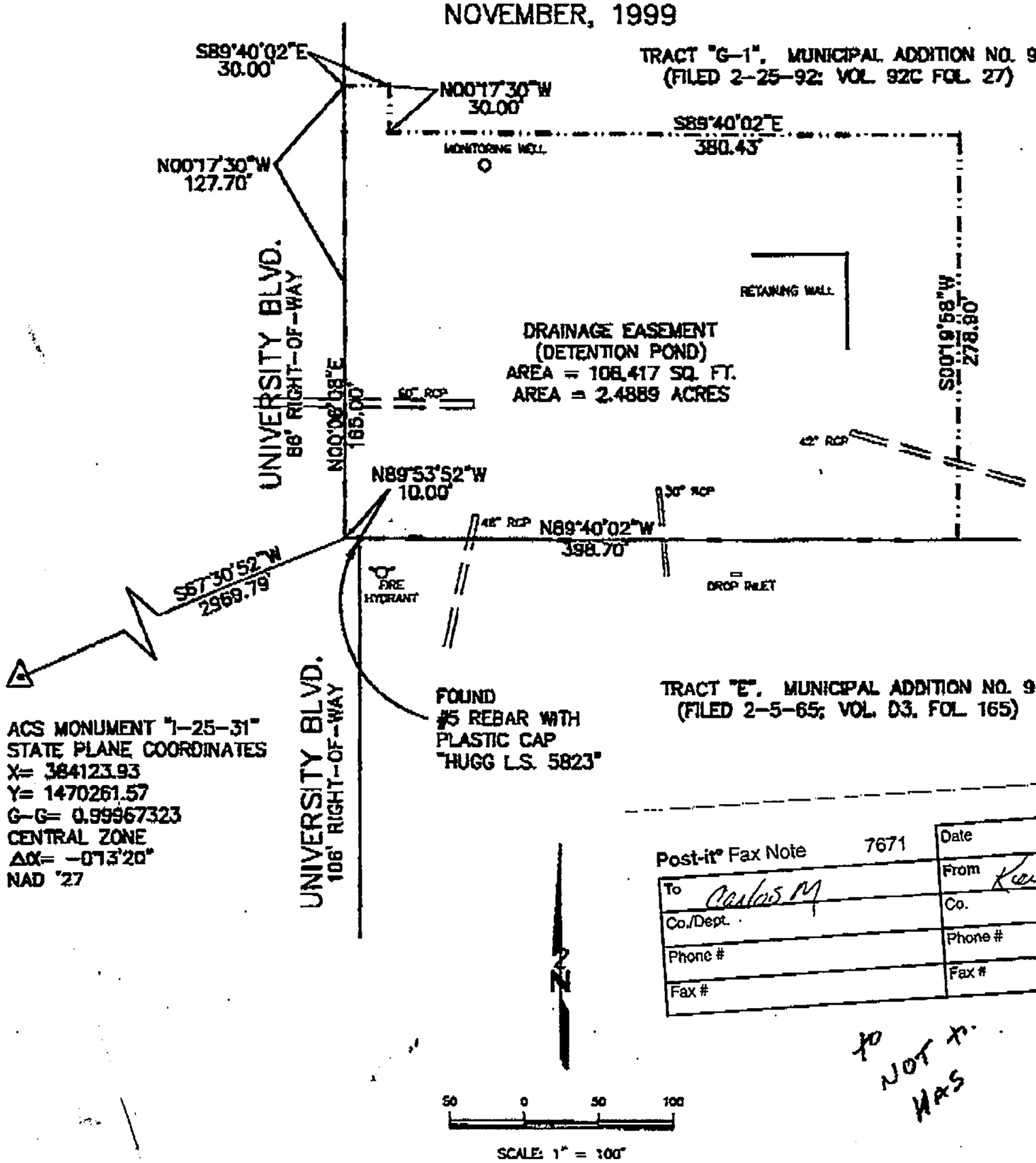
ALBUQUERQUE INTERNATIONAL AIRPORT
REMOTE RENTAL CAR FACILITY
Maintenance Responsibility Matrix

		Maintenance Department/Responsibility					
			City	City	City	City	
Facility	Element	Aviation	Strt Maint	S.D. Maint	Prks & Rec	Utilities	Other
University Blvd							
	Pavement		X				
	Storm Drain			X			
	Landscaping	X					
	Water & Sewer					X	
	Lighting						PNM
	Traffic Signals						City PWD
Access Road B							
	Pavement	X					
	Storm Drain	X					
	Landscaping	X					
	Water & Sewer					X	
Clark Carr							
	Pavement	X					
	Storm Drain	X					
	Landscaping	X					
	Water & Sewer					X	
Detention Pond							
	Sedimentation			X			
	Erosion			X			
	Liner	X					
RAC Site							
	Pavements	X					
	Landscaping	X					
	Storm Drains	X					
	Water & Sewer					X	
UNM Arroyo	Channel/Gabions			X			
Storm Drains							
	Line A	X					
	Line B	X					
	Line C	X					
	Line D	X					
	Line E	X					
	Line F	X					
	Line G	X					
	Line H	X					

		Maintenance Department/Responsibility					
			City	City	City	City	
Facility	Element	Aviation	Strt Maint	S.D. Maint	Prks & Rec	Utilities	Other
	Line I	X					
	Line J	X					
	Line K	X					
	Line L			X			
	Line M	X					
	Line AA	X					
	All Laterals in University Blvd			X			

Line L is the outfall from theh pond through Chaves property.

EXHIBIT "A"
SKETCH AND DESCRIPTION SHOWING
DRAINAGE EASEMENT
(DETENTION POND)
LOCATED WITHIN SECTION 4, TOWNSHIP 9 NORTH, RANGE 3 WEST OF THE MUNICIPAL ADDTION No. 9, TRACT "G-1" ALBUQUERQUE, NEW MEXICO
NOVEMBER, 1999



Post-it® Fax Note 7671 | Date | # of pages ▶
To Carlos M | From Kent
Co./Dept. | Co.
Phone # | Phone #
Fax # | Fax #

to NOT to. HAS Sauna

URS Greiner Woodward Clyde

M-16/D024G

CITY OF ALBUQUERQUE
NEW MEXICO

ALBUQUERQUE INTERNATIONAL SUNPORT
RENT-A–CAR FACILITY

DRAINAGE REPORT

September, 1999

N-15/D011

MOLZEN–CORBIN & Associates

BPL91-11.D03

ALBUQUERQUE INTERNATIONAL AIRPORT
Drainage Masterplan Update
September 1999

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Appendix B Culvert Flow Calculations

Appendix C AHYMO Flow Charts and Summary Tables

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Appendix E Drainage Sub-Basin Analysis

Appendix F Storm Drain Pipe Analysis

Appendix G HGL Analysis

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Plate 1 AIA DMP Existing Basin Map

Plate 2 AIA DMP Existing Conditions

Plate 3 AIA DMP Proposed Future Conditions

Plate 4 AIA DMP Proposed Future Development

Plate 5 RAC Drainage Plan (as related to the AIA DMP)

Plate 6 RAC Site Drainage and Grading (initial phase)

Plate 7 RAC Site Drainage and Grading (modified for final)

Plate 8 UNM Golf Course Arroyo Profile

I. Purpose

The purpose of this report is to evaluate the surface water runoff from the proposed airport Rental Car Facility, to define the drainage outfall requirements for this facility, to address the impacts on downstream facilities, and to revise the Albuquerque International Airport Drainage Master Plan published in May, 1995.

This work was generated by the proposed Consolidated Rental Car Facility (RAC) to be located on the east side of University Blvd. between George Road and Clark Carr Blvd. The eastern boundary of the project is Access Road B. This entire 60 acre site is to be graded and paved for the purpose of locating all the rental car companies doing business at the airport. The center of the site is the Customer Service Building and ready-return lots. On the perimeter of the site will be the individual rental car company parking and maintenance areas. A bus will transport passengers to and from the airport terminal to this Customer Service Building. This bus will transport all rental car customers, regardless of their preferred rental car company. The passengers will be dropped off at the Customer Service Building where they can then access their rental cars.

In order to expedite the construction of this facility, a detailed phasing plan was developed. It is important to understand the nature of the specific phases in order to fully understand how the drainage improvements are being made. Below is description of the project phases.

A. Site Preparation Grading and Drainage

This contract was for the grading of the entire 60 acre site. The project includes mass grading and installation of the entire site storm drain system. Temporary drop inlets were designed since the later phases may adjust final surface elevations. This allowed for some flexibility in design of the final surfaces. This contract was awarded on May 21, 1999 and completion is expected on September 2, 1999.

B. University Blvd and Spirit Drive

This project included the widening and reconstruction of University Blvd. from Sunport to the UNM Championship Golf Course. This completes the four lane configuration of University all the way to I-25/Rio Bravo. This contract also included the paving of Access Road B which will be relocated to near Spirit Drive on Clark Carr. Also of significance, this project includes the storm drain outfall from University to I-25 near the George Road alignment. This area now conveys runoff through a natural arroyo. This contract was awarded on July 15, 1999 and is expected to complete on April 14, 2000.

C. Customer Service Building

This project includes only the building in the heart of the RAC site. Anticipated bid date is July 28, 1999, bid opening August 24, 1999, award September 15, 1999 and completion on May 29, 1999. Approximate cost is $7.3 million.

D. Paving and Site Utilities

This project includes all on-site paving (the parking lots), interior roads, water, sewer, power and other utilities. The storm drain lines will be completed with this phase by placing permanent drop inlets. Anticipated schedule is bidding August 11, 1999, bid opening September 7, 1999, award September 17, 1999 and completion December 17, 1999. Approximate cost is $8 million.

E. Service Center Buildings

This project includes the buildings for the rental car administration, maintenance, fueling, cars washes and other support facilities located throughout the site. Anticipated schedule is bidding September 29, 1999, bid opening October 26, 1999, award November 12, 1999 and completion July 14, 2000. Approximate cost is $15.5 million.

F. Fueling Services

This project includes all underground fuel storage fuel islands, and related facilities for eight rental car locations. Anticipated schedule is bidding October 13, 1999, bid opening November 2, 1999, award November 22, 1999 and completion April 10, 2000. Approximate cost is $2 million.

G. Fiber Optics Package

This includes a fiber optic connection to the existing terminal building and fiber optic backbone distribution to all of the rental car administration, security cameras, and other rental car facilities. The approximate cost is $0.5 million. The schedule has not yet been determined, but final completion is expected no later than May of 2000.

H. Landscaping

This includes all on-site and University landscaping. The approximate cost is $2.5 million. The schedule has not yet been determined but award will be no later than February 15, 2000 and completion no later than July 15, 2000.

I. Signage

This package includes all roadway signage and directory signage as required. The schedule has not yet been finalized but completion is no later than June 15, 2000.

J Busing Plan

This project is for the purchase of the shuttle buses for taking passengers between the airport terminal and the RAC. Bidding began on June 1, 1999, bid opening was July 12, 1999 and award is still under evaluation. Bus delivery is expected by June 1, 2000.

K. Rental Car Bids

Bids were received by nine rental car agencies. Final documentation for award is being prepared. Bidding was May 10, 1999, bid opening on July 14, 1999, and award is scheduled by September 20, 1999

L. Counter Space and Ready Return Area Leases

This involves the final lease agreements for the rental car companies.

II. Scope

The scope of revisions to the Albuquerque International Airport Drainage Master Plan will be limited to those watersheds in the AIA DMP that are affected by the proposed Rental Car Facility, namely the GA (General Aviation) and WE (West End) Basins. In order to understand the logic behind the analysis, it is necessary to review the file management used in the AHYMO runs that were originally used in preparing the AIA DMP. There are basically three files for each storm in each basin. File GA100EX is the 100 year storm in the GA basin, modeling the existing conditions. File GA100FUT is the 100 year storm in the GA basin, modeling the anticipated future conditions. Of particular note here, is the removal of many of the GA sub-basins that were diverted to the south, out of Basin GA, in the Runway 3-21 project. This will be discussed in detail later in this report. File GA100CAR is the 100 year storm in the GA basin, modeling the anticipated changes in the construction of the Rental Car Facility. This file was made by taking file GA100FUT and changing some of the basin characteristics to illustrate the effects of the RAC.

File WE100EX is the 100 year storm in the WE basin, modeling the existing conditions. File WE100FUT is the 100 year storm in the WE basin, modeling the anticipated future conditions. File WE100CAR is the 100 year storm in the WE basin, modeling the anticipated changes in the construction of the Rental Car Facility. This file was made by taking file WE100FUT and changing some of the basin characteristics to illustrate the effects of the RAC.

Flow charts for these systems are contained in the appendix.

III. Criteria

To be consistent with methodology used in the AIA DMP, this report will utilize the criteria outlined in Section 22.2 of the City of Albuquerque's DPM. Additionally, AHYMO_ 97 will be used for the hydrologic modeling revisions of the GA and WE Basins. AHYMO194 was used in the original AIA DMP.

IV. Related Studies

There are several studies and reports that are directly related to the drainage study of the airport Rental Car Facility. The first, and most notably, is the AIA DMP prepared by Molzen-Corbin & Associates in May, 1999. This report evaluated the storm water runoff for the entire airport under existing and proposed conditions, and masterplanned facilities to control storm water runoff in the future. The second report is the drainage report for Sunport Park Development prepared by Brasher-Lorenz. This report addressed the drainage issues associated with the development of Sunport Park as a long-term airport parking facility. The Sunport Park Development is located in the WE Basin between Interstate 25 (I-25) and University Boulevard, downstream of the proposed Rental Car Facility. The third report is the Sunport Boulevard/I-25 drainage report prepared by Molzen-Corbin and Associates. This report not only addresses the WE Basin out-fall under I-25, but also contains a modeling report prepared by Dr. Richard Heggen of UNM for the Sunport Boulevard Basin/WE Basin out-falls, downstream confluence and 10-foot x 6-foot CBC to the South Diversion Channel.

V. Albuquerque International Airport DMP

A. Existing Conditions

This section of the report addresses what was considered existing conditions in the GA and WE Basins at the time of the Albuquerque International Airport DMP publication.

1. *GA Basin:* This 0.7446 square mile basin encompasses the general aviation area located south and west of the intersection of Runways 17-35 and 3-21. This watershed also includes areas around Clark Carr, Spirit Drive, and the UNM Golf Course.

Flows are mostly conveyed by storm sewers, which discharge into natural channels before crossing University Boulevard. Storm water flows are then carried through the golf course in a 60-inch diameter storm sewer pipe before discharging into a natural arroyo and under I-25 through a 3-36-inch diameter culvert crossing. Storm water runoff flows from the GA basin eventually discharging in AMAFCA's South Diversion Channel. The actual pipe

includes a 72-inch diameter CMP under University Blvd. The discharge end of this pipe was closed in a later project with a manhole and 60 inch diameter pipe which goes under the golf course.

Under existing conditions, the 100-year peak discharge at University is 320 cfs. The existing 60" dia. RCP culvert is under capacity due to an inlet control condition. The capacity of this crossing is 225 cfs.

2. *WE Basin:* This 0.38 square mile basin includes the southern portion of the airport terminal area, the west ends of Runway 8-26 and Taxiway's E & A, and the undeveloped escarpment area between the airport and University Boulevard.

Flows from the WE Basin are mostly carried by storm sewer systems before discharging from the escarpment into a rip-rap lined channel. Flows from the rip-rap lined channel discharge into 2-60-inch diameter culverts under University Boulevard before discharging into a natural arroyo downstream. Flows are then conveyed through the natural arroyo to a 8-foot x 6-foot CBC under I-25. Flows from the WE Basin eventually discharge to AMAFCA's South Diversion Channel.

The existing 100-year peak discharge at University Boulevard is 340 cfs, while the existing 2-60" diameter culverts under University have a capacity of 304 cfs. With the reservoir routing upstream of the University culvert crossing, the peak discharge is cut to 256 cfs.

B. Proposed Conditions

The AIA DMP proposed development in the GA and WE Basins considered in May, 1995 was based on the recommendations contained in the Albuquerque International Airport Master Plan, December 1993, prepared by Coffman & Associates, Inc.

1. *GA Basin:* The proposed conditions AHYMO models prepared for the AIA DMP considered the GA Basin fully developed with an average land treatment D of 80%. Although the land treatments for the GA Basin were increased to reflect fully developed conditions with existing culvert capacity constraints under University, the Runway 3-21 project alleviated a great deal of pressure on downstream facilities in the GA Basin. The Runway 3-21 project diverted several sub-basins including 701, 702, 703, 704, 707, 709, 711, 713, & 729. The diversion of these sub-basins alleviated additional potential drainage problems downstream in the GA Basin, even under fully developed conditions.

Under fully developed conditions, the 100-year peak discharge at University Boulevard is 299 cfs. This peak discharge is cut to 216 cfs by

the undersized culvert crossing under University Boulevard. This represents the results of the "Future Condition" analysis from the AIA DMP. This does not represent the results of the RAC facility. This is discussed in a later section.

2. *WE Basin:* The proposed conditions AHYMO models prepared for the AIA DMP considered the WE Basin fully developed with an average land treatment D of 80%. This percentage is not much of a change from existing conditions as the WE Basin was essentially fully developed under existing conditions.

   Under fully developed conditions, the 100-year peak discharge at University Boulevard is 498 cfs. This peak discharge is cut to 408 cfs by the reservoir routing at the upstream end of the existing 2-60-inch diameter culverts. This was the condition for the "Future Condition" analysis and does not reflect the results from the RAC facility which will be further discussed in a later section.

VI. Proposed Rental Car Facility

A. Proposed Conditions

1. *GA Basin:* The proposed rental car facility improvements within the GA Basin include a paved parking area with a landscape buffer adjacent to University Boulevard. A 3:1 cut slope is planned at the upper end of the parking area with the re-aligned Spirit Drive at the top. The 60-foot cut slope will be benched at 30 feet to minimize slope stability problems. There are also improvements planned to Clark Carr Drive to the south and University Boulevard to the west of the parking lot area.

   With the proposed site plan and subsequent rough grading plan for the site, it was determined that the GA Basin would decrease in size by 6 acres improving the downstream drainage contribution from that of the Runway 3-21 Project. Sub-basin 720 will decrease by 6 acres in size, while Sub-basin 513 in the WE Basin will increase by the same 6 acres.

2. *WE Basin:* The proposed rental car facility improvements within the WE Basin includes a paved parking area with a landscape buffer adjacent to University Boulevard. A 3:1 cut slope is planned at the upper end of the parking area with the re-aligned Spirit Drive at the top. The 60-foot cut slope will be benched at 30 feet to minimize slope stability problems. There are also improvements planned to University Boulevard west of the parking lot area.

   With the proposed site plan and subsequent rough grading plan for the site, it was determined that the WE Basin would decrease in size by 6

acres. Sub-basin 513 in the WE Basin will increase in size by 6 acres. However, the increased runoff from this area will be detained by a new retention facility located north of Spirit Drive and east of University Boulevard.

B. Proposed Drainage Improvements

1. *GA Basin:* The proposed drainage improvements within the GA Basin will include a series of drop inlets and a storm sewer collection system to collect runoff from the paved parking lot area, and improved roadway sections. This runoff will be collected and routed to an improved drainage crossing under University Boulevard. The existing 60-inch diameter RCP (which is actually a 72" CMP) will be removed and replaced by a new 60-inch diameter RCP with adequate slope (4 to 5 percent). There will no longer be an inlet constraint on this culvert crossing as the new 60-inch pipe will be connected to the collection system with a junction box and will act as a "closed system".

2. *WE Basin:* The proposed drainage improvements within the WE Basin will include a series of drop inlets and a storm sewer collection system to collect runoff from the paved parking lot area and improved roadway sections. This runoff will be collected and routed to a new storm water detention facility with approximately 8.5 acre-feet of capacity. The two existing 60" diameter culverts under University Boulevard will be replaced by a single 60" pipe to limit the outfall flow rate. The maximum storm water storage in the detention facility is 6.9 acre - feet.

VII. Downstream Impacts

The drainage impacts of the proposed Rental Car Facility on downstream properties will be mitigated by the use of drainage improvements and measures to mitigate these potential impacts.

Runoff from the GA Basin discharges under University Boulevard into a 60-inch storm sewer system, which routes flows through the University Golf Course. This existing 60-inch storm sewer has an estimated slope of 7 percent and has ample capacity (estimated at 650 cfs). With the use of this storm sewer system, the impacts to the downstream golf course area will be negligible. The three 36-inch diameter culverts under I-25 appear to have ample capacity, which is estimated at 710 cfs with an available head water of 14-feet. Improvements to the natural arroyo sections between the 60-inch storm sewer and the South Diversion Channel will include remedial channel treatments to alleviate channel degradation, bank sloughing and sediment transport.

A new 48-inch diameter storm sewer pipe will be constructed downstream of the WE Basin out-fall under University Boulevard to prevent adverse geomorphologic impacts to

the natural arroyo between University and I-25. The 48-inch storm sewer will be designed for peak discharge of 225 cfs from the new detention facility, which is reduced from a peak discharge of 250 cfs under existing conditions. The new 48-inch storm sewer will route runoff to an existing 8-foot x 6-foot CBC crossing under I-25, which has an estimated capacity of 511 cfs. This is ample capacity for the reduced flows from the University out-fall and the future fully developed paved parking lot in Phase II of the Sunport Park Development. A new inlet works will be constructed at the inlet of the 8-foot x 6-foot CBC to ensure that the energy in the runoff is dissipated and can easily enter the culvert entrance. Runoff from I-25 to the South Diversion Channel will be carried in a 10-foot x 6-foot CBC, which has been modeled along with the upstream confluence by Dr. Heggen at UNM, and appears to have ample capacity for the peak discharged released from the University Outfall.

A. Interim Drainage Analysis for the North Outfall

As stated, the northernmost outfall for the RAC facility will be comprised of a storm drain pipe conveying flows from the newly enlarged detention pond just east of University to I-25. Currently, the flows are conveyed through a natural arroyo through private property. The 100 year flood plain in this area is in a dedicated easement. The new storm drain will be located south of the arroyo in a 100-foot wide drainage easement.

The preliminary plans for this new storm sewer called for a 48-inch storm drain from University to I-25. A hydraulic grade line analysis was performed for this storm sewer at the specified limit of 256 cfs. The pipe size was adjusted somewhat in order to maintain a hydraulic grade line within 1 to 4 feet above the top of pipe. The attached spreadsheet illustrates the results of this analysis, along with the chart which plots the profiles.

The proposed hydraulic grade line falls approximately 3-feet above the top of pipe at the University crossing. This indicates that the pipe has limited the capacity of 256 cfs. In addition, the inlet structure, accepting flows from the detention pond and conveying them into this storm drain system, was checked for capacity limitations. In particular, the crossing structure is proposed to be a 60-inch diameter pipe which ties into the pond with a side-sloped mitered pipe entrance. Under inlet control conditions, the inlet would accept up to 255 cfs at the maximum ponding depth. Therefore, no more than 255 cfs will get into this downstream system.

The hydraulic grade line for the outfall pipe was analyzed to check at which point the HGL breaks seal and becomes open pipe. This occurs at 250 cfs. This means that all flows of 250 cfs and less will cause the "culvert" entrance to operate at inlet controlled conditions. Once flow increases to above this point, the pipe surcharges and the entrance works operate under outlet controlled conditions. Outlet control has less capacity than inlet control. As a result, the entire system

operates at a 255 cfs limitation, as long as the water surface in the pond remains at the design condition, approximately 10-feet above the invert.

There is one small side drainage area which enters the outfall pipe from the UNM Golf Course. This drainage area is on the north side of the Golf Course and slopes generally north, entering the Chavez property at approximately the old railroad grade. This side drainage must either be passed through the Chavez property or must be picked up in the RAC outfall pipe. The outfall pipe design will be modified to enable this small drainage area to drain into a type D inlet and entered into the pipe. The peak rate of flow from this area is quite small and should pass well before the peak from the RAC site hits. The anticipated delay between peaks is at least 30 minutes.

B. Interim Drainage Analysis for the South Outfall

The 1995 Albuquerque International Airport Drainage Master Plan (DMP) shows an existing condition peak flow rate of 320 cfs entering the culvert pipe at University. The computer models run at that time showed this crossing to be a 60-inch diameter RCP with a capacity of only 223 cfs when the water surface reached the top of the roadway. With the large arroyo upstream, and the inflow exceeding the outflow, this was modeled as a detention basin, which allowed some shaving of the peak flow. As a result, the model shows 320 cfs coming into the pipe but only 264 cfs coming out, with the detention pond absorbing the difference via storage. Since the pipe only carries 223 cfs, the model assumes that some water overtopped the roadway.

Next, the DMP modeled the future conditions. This removed several sub-basins from the model. In particular, basins 701, 702, 703, 704, 705, 706, 707, 708, 709, 711, 713, and 729 were removed from the model. These areas are on the airfield, east of the GA area and were to be diverted to discharge to the Runway 3-21 storm drain system, which flows south into Tijeras Arroyo. Runway 3-21 has been reconstructed and these flows were diverted. Furthermore, the future condition model assumed that Basin 720 and 724 would be improved from a natural desert terrain to light industrial use. This raised the runoff coefficients on these basins. Basin 720 is the Rental Car Facility, and Basin 724 is south of Clark Carr. Basin 720 was modeled in the existing condition as 85% A cover, 10% C cover, and 5% D cover. This was changed to 5% A cover, 30% B cover, 10% C cover, and 55% D cover for the future conditions. This resulted in a reduction in total drainage area but an increase in impervious area for Basin 720, the Rental Car Facility. This indicates that the Rental Car Facility development was accommodated in the DMP. The net results of these changes were a peak discharge of 299 cfs entering the University culvert and 216 cfs exiting the culvert.

Finally, the DMP computer models were modified for the current development of the Rental Car Facility. The results are 313 cfs entering the University culvert

and 313 cfs exiting the culvert. In this scenario, the reduction in flow due to the ponding upstream of University is removed since the arroyo will be filled and the culvert will be extended upstream in the form of a storm sewer.

Upon reviewing the original DMP and visiting the actual culvert crossing site, it was discovered that the original DMP assumed the University culvert crossing was a 60-inch diameter RCP. In actuality, this crossing is a 72-inch CMP. The capacity of this culvert was recalculated using the new pipe size, and was found that the culvert has a capacity of approximately 320 cfs, not the 223 cfs as modeled. This indicates that the DMP model for the existing condition should have shown 320 cfs entering into the culvert and approximately 320 cfs exiting the culvert, since the pipe capacity does equal the inflow. This being the case, the current model, which shows 313 cfs crossing University, is essentially the same flow rate as the existing condition and the DMP's analysis of the future condition. Furthermore, it should be noted that the total volume of water passed at University was estimated to be 32.544 acre-feet for the DMP existing condition, 28.096 acre-feet for the DMP future condition, and 24.986 acre-feet for the Rental Car modifications. This is a total reduction in storm volume of 7.558 acre-feet caused by the Runway 3-21 project and other improvements.

It can be seen from this analysis, that the impacts of the Rental Car Facility on the crossing at University, and hence the UNM Golf Course, are negligible. The peak flow rate from the existing condition is somewhat less, and the total volume of stormwater passing through the Golf Course is reduced by approximately 20%. All of the above figures are based upon the 100 year storm, modeled and designed to the City of Albuquerque DPM standards.

A hydraulic grade line was run for this pipe, from the point at which it discharges to the arroyo in the golf course, all the way up to University. The HGL is contained well within the pipe during the 100 year flow. As modeled, Basin 726.2 enters this system on the west side of University. There is an area drop inlet located in the middle of this basin, two hundred feet west of University. This basin was modeled in an undeveloped condition and generates a runoff of 33 cfs. This flow can be adequately accepted by the south outfall pipe. Furthermore, if this basin is modeled in a fully developed condition, a runoff of 72 cfs can be expected. This fully developed flow can also be handled in the southern outfall pipe without an excessively high HGL.

VIII. Sediment.

The proposed RAC facility will impact the issue of sediment transport. In particular, there have been problems in the past with the southern outfall pipe which goes through the UNM Golf Course. As a result of these problems, the 72" CMP culvert pipe that used to cross University pipe was closed with a manhole and 60" RCP through the golf course. The eliminated erosion problems upstream of the golf course. However, the pipe now discharges midway through the

golf course in natural arroyo. At this discharge, erosion and deposition have both caused problems.

In the post-development condition, the flows seen at the discharge on the UNM Golf Course will change. While the peak flow rate will remain the same, and the overall storm volume will lessen significantly, the discharge flows should now be clean since the area upstream is paved. These clean flows have the potential to pick up sediment and cause erosion. The AHYMO models were used to model this condition. A worst case scenario was taken by assuming that no sediment was entering into the flows coming from upstream. Therefore a total loading could be determined in the arroyo between the pipe discharge and I-25. The total vertical distance in this channel reach is 35 feet. The total vertical distance is 938.7 feet. The average slope is 3.72%. The profile is shown in Plate 8.

The sediment transport loading was determined for the 100, 50, 25, 10, 5 and 2 year storm in accordance with the AMAFCA "Sediment and Erosion Design Guide". The average annual event for sediment was determined from Equation 1.1 of this publication. The resulting sediment transport loading was 3,100 tons. Converting this tonnage to a wedge shaped erosive shape results in a total cut just downstream of the pipe of 5.6 feet. This is not very severe and should be controlled by rather simple measures.

There are three basic alternatives for controlling the erosion potential. First, the 60" storm drain could be extended down the arroyo to the I-25 box culvert. This eliminates the potential for further degradation of the channel. Second, a concrete lined channel could be installed between the 60" discharge and the I-25 box. Third, the channel could be fitted with grade control structures such as gabions or concrete cutoff walls. This would create a stairstep effect for the flows and should control the channel movement.

Considering that the total expected erosion at the pipe is less than six feet, a fourth alternative was considered. Since the expected cut in this vicinity is so mild, such extensive corrective measures as extending the pipe are probably not warranted. Instead, riprap could be placed in the channel just downstream of the pipe outlet. This riprap would extend for approximately one hundred feet. This riprap will assist in reducing the headcut by the pipe. This also will slow the water velocity as it exits the pipe and hits the sandy arroyo bottom. Not only will the riprap reduce potential of pipe exit scour, but the arroyo shape also helps to further reduce erosion potential. Downstream of the pipe, the arroyo widens to approximately 100 feet by the time it gets to I-25. The wider arroyo also lowers flow depth and reduces velocity.

It is recommended that riprap be placed in the first one hundred feet downstream of the pipe. The arroyo should be monitored over the next five years. If erosion does persist, and the riprap solution appears to be ineffective, other alternatives should be implemented at that time.

IX. Conclusion.

The proposed Rental Car Facility can be developed with minimal impact on downstream conditions. As stated above, the two main outfalls will discharge flow rates that are less than or

equal to the historic condition. In both cases, the outfall volumes will be less than historic conditions. This can be achieved primarily due to the diversion of some of the upstream basins, on the airfield, to the Tijeras Arroyo. By reducing the upstream drainage area, the flow rates were reduced and offset by the paving of the Rental Car Site.

While it appears that the on-site storm drainage system will properly collect and convey runoff, it is recommended that the final grading package includes details for concrete lined rundowns on the west end of the property to convey any excess runoff from the parking lot down to the University Boulevard grade. Should catch basins clog or runoff pass by all of the drop inlets from the site, any overflow would cause serious damage, since the west end of the site has very deep fill areas.

The following recommendations and conclusions summarize this report.

The flow rates at critical points are summarized in the appendix.

The initial project phase for mass site grading will install the basic storm sewer throughout the RAC. Only temporary drop inlets will be installed since the finish surface will be fill dirt.

The final site grading and site paving will remove the temporary drop inlets and install the permanent City of Albuquerque standard catch basins so that they can properly match the pavement surface.

There will be some difference between the grading shown in the original mass site grading (Plate 6) and the final grades (Plate 7). This is because of the need to phase the project to fast track the construction. There are no significant differences in the flow in the pipes between the two different grading plans. Pipes installed in the first phase are adequate to accept minor changes in flows due to finish grading.

The south outfall pipe will remain in place. The existing 72" storm drain under University will be replaced with a new 60" RCP. The south outfall pipe is adequately sized to carry flows from the RAC and accept the flows from the drainage areas adjacent to but west of University.

The north outfall will replace the two existing 60" RCP's under University with a single 54" RCP in order to control the detention pond outlows. Only 256 cfs will be discharged at this point. The box culvert at I-25 has been estiamted at a 511 capacity. This leaves half of the box capacity for the adjacent land developers.

The north outfall will be modified to pick up side flows that exit the UNM Golf Course.

Downstream erosion protection on the south outfall will be needed. This protection will be in the form of a pipe extension or grade control structures. Cost analysis on these options will be required and the final design presented to the City for approval.

Line A at the RAC will need to be supplemented with an additional pipe or replaced with a larger pipe. The 30 inch diameter storm drain between manholes M2 and M3, where Line G enters, needs to be sized to a 42" equivalent in order to keep the HGL in the pipe.

The Aviation Division will be responsible for filing the CLOMR with FEMA for the purpose of removing the 100 year flood plain from the Chavez property. The new north outfall storm drain pipe effectively removes flows from the natural arroyo between University and I-25. Since the airport construction is the action that caused the flood plain to be removed, the airport will be responsible for the removal of the easement.

The south outfall will be designed to include riprap lining the channel where the 60 inch storm drain discharges to the arroyo on the UNM Golf Course. The arroyo will need to be visually checked in the next few years to ensure that erosion does not persist. If erosion persists, the airport will need to install more permanent solutions in the future.

A drainage easement will be required for the south outfall channel between I-25 and the AMAFCA South Diversion. Negotiations with the landowner on this matter have begun and final plats are still needed for filing.

ALBUQUERQUE INTERNATIONAL AIRPORT
CONSOLIDATED RENTAL CAR FACILITY
SUMMARY OF FLOWS AT KNOWN LOCATIONS

LOCATION	DESC	AHYMO FILE NAME					
		WEEX100	WEFUT100	WECAR100	GAEX100	GAFUT100	GACAR100
Detention Pond-Inflow	Hyd ID	111.00	111.00	513.10			
Located at NE Cor University	Q	345.52	498.03	395.61			
and Access Road B	V	28.51	29.857	31.408			
	Tp	1.6	1.567	1.567			
Detention Pond-Outflow	Hyd ID	111.10	111.10	513.11			
Located at NE Cor University	Q	256.34	408.13	234.02			
and Access Road B	V	28.51	29.857	31.408			
(was 2-60" Culverts)	Tp	1.8	1.7	1.933			
6' X 8' Box on I-25 (Chavez)	Hyd ID		111.40				
	Q		427.94				
	V		32.666				
	Tp		1.766				
GA into Line I	Hyd ID				716.1	716.1	716.1
	Q				144.56	41.2	41.2
	V				13.074	6.348	6.348
	Tp				1.766	1.8	1.8
GA into Line K	Hyd ID				718.20	718.20	718.20
	Q				139.16	75.54	64.07
	V				11.129	8.115	5.506
	Tp				1.6	1.567	1.533
Routed down to Spirit	Hyd ID				518.00	518.00	518.00
	Q				68.05	57.1	42.74
	V				11.129	8.115	5.506
	Tp				2.2	2.2	2.1
Add 716.1 & 718.2	Hyd ID				721.1	721.10	721.10
	Q				208.63	96.14	82.65
	V				24.203	14.463	11.855
	Tp				1.8	2.1	2
From Spirit	Hyd ID				723.2	723.20	723.2
	Q				43.37	68.46	68.46
	V				2.962	4.934	4.934
	Tp				1.7	1.7	1.7
After Spirit Added	Hyd ID				723.4	723.40	723.40
	Q				249.91	146.86	143.79

LOCATION	DESC	AHYMO FILE NAME					
		WEEX100	WEFUT100	WECAR100	GAEX100	GAFUT100	GACAR100
	V				27.166	19.398	16.789
	Tp				1.766	1.866	1.733
RAC	Hyd ID				721.00	721.00	721.00
	Q				42.85	84.81	101.12
	V				1.249	2.919	3.628
	Tp				1.5	1.5	1.5
Basin 717	Hyd ID				717.00	717.00	
	Q				34.27	34.27	
	V				1.158	1.158	
	Tp				1.5	1.5	
Basin 720	Hyd ID				720.00	720.00	720.00
	Q				42.37	83.87	77.18
	V				1.235	2.886	2.833
	Tp				1.5	1.5	1.5
Add 717 & 720 to Total	Hyd ID				720.20	720.20	720.20
	Q				294.79	239.58	253.45
	V				30.809	26.36	23.25
	Tp				1.733	1.533	1.533
Area 724	Hyd ID				724.00	724.00	724.00
	Q				59.72	59.72	59.72
	V				1.736	1.736	1.736
	Tp				1.5	1.5	1.5
Total in to S Crossing	Hyd ID				721.30	721.30	721.30
	Q				320.18	299.04	312.91
	V				32.544	28.096	24.986
	Tp				1.7	1.533	1.533
Route as Detention Pond	Hyd ID				521.00	521.00	N/A
Outflow	Q				264.29	215.95	
	V				32.544	28.096	
	Tp				1.933	1.866	
Area 726.1	Hyd ID				726.1	726.10	726.10
	Q				32.57	32.57	32.57
	V				0.965	0.965	0.965
	Tp				1..5	1.5	1.5
After Basin 726.1 is added	Hyd ID				726.11	726.11	726.11
Into Pond east of Golf C.	Q				268.81	226.91	345.9
	V				33.509	29.061	25.951
	Tp				1.933	1.633	1.533
8' X 6' Box Under I-25 @ UNM	Hyd ID				726.10	726.10	726.10

Consolidated Rental Car Facility

Drainage Subbasin Analysis

	Basin		Area acres	Unit Q cfs/ac	Q100 cfs
	721		22.91	4.4134	101.12
	720R		16.61	4.6466	77.18
	513		23.04	4.6272	106.61
	Total		62.56		

Inlet	Basin	Subbasin	Area Acres	Unit Q cfs/ac	Q cfs	Line Design.	Inlet Type	Capacity cfs
A1a	513		0.1100	4.6272	0.51	C	A	14
A1b	513		0.3600	4.6272	1.67	C	A	14
A2-1	513		2.4400	4.6272	11.29	A	A	15
A3-1	513		0.4200	4.6272	1.94	A	Med Curb	8
A3-2	513		2.4500	4.6272	11.34	A	A	14
B1-1	720R		0.5400	4.6466	2.51	B	Med Curb	8
B1-2	720R		1.2200	4.6466	5.67	B	A	13.5
B2-1	720R		1.9000	4.6466	8.83	B	A	13.5
B2-2	720R		0.3000	4.6466	1.39	B	A	13.5
B2-3	720R		0.2500	4.6466	1.16	B	D	12
B3-1	721		3.1500	4.6272	14.58	B	A	15
C1-1	513		5.0000	4.6272	23.14	C	A	14
C1-2	513		0.1837	4.6272	0.85	C	A	14
C2-1	513		0.2296	4.6272	1.06	C	A	14
C2-2	513		-	4.6272	-	C		
C3-1	513		0.2066	4.6272	0.96	C	A	14
C3-2	513		3.4435	4.6272	15.93	C	D	14
C4-1	513		0.1492	4.6272	0.69	C	A	14
C5-1	513		0.1435	4.6272	0.66	C	A	14
C6-1	720R		0.2152	4.6466	1.00	C	A	7
C6-2	720R		0.2152	4.6466	1.00	C	D	7
C7-1	720R		0.1492	4.6466	0.69	C	A	7
C7-2	720R		0.1492	4.6466	0.69	C	D	7
D1-1	513		2.8700	4.6272	13.28	D	Dbl D	20
D2-1	513		1.6700	4.6272	7.73	D	A	12
D3-1	513		1.4200	4.6272	6.57	D	A	12
D3-2	513		2.1700	4.6272	10.04	D	D	10
D4-1	513		3.4900	4.6272	16.15	D	D	10
E1-1a	720R		1.7800	4.6466	8.27	E	D	10
E1-1b	720R		1.1800	4.6466	5.48	E	A	14
E2-1	720R		0.6200	4.6466	2.88	E	A	14
E2-2	720R		0.6200	4.6466	2.88	E	A	14

Inlet	Basin	Subbasin	Area	Unit Q	Q	Line	Inlet	Capacity
E3-1	720R		0.4600	4.6466	2.14	E	A	14
E3-2	720R		0.4600	4.6466	2.14	E	A	14
E4-1	720R		0.0700	4.6466	0.33	E	A	14
E4-2	720R		0.0700	4.6466	0.33	E	A	10
E4-3	720R		0.8900	4.6466	4.14	E	D	10
F1-1	720R		0.7100	4.6466	3.30	F	A	12
F2-1	720R		0.3600	4.6466	1.67	F	A	12
F2-1	720R		0.5200	4.6466	2.42	F	A	14
F3-1	720R		1.7100	4.6466	7.95	F	Dbl C	28
F4-1	720R		0.4100	4.6466	1.91	F	A	14
F4-2	720R		0.4100	4.6466	1.91	F	A	14
F5-1	720R		0.2100	4.6466	0.98	F	A	14
G1	720R		1.0000	4.6466	4.65	G	A	10
G2-1	720R		1.0000	4.6466	4.65	G	A	14
G2-2	720R		1.0000	4.6466	4.65	G	A	14
G3-1	720R		1.2500	4.6466	5.81	G	A	15
G3-2	720R		1.2500	4.6466	5.81	G	A	15
G4-1	720R		1.1300	4.6466	5.25	G	A	10
G4-2	720R		0.9400	4.6466	4.37	G	A	10
G5-1	720R		0.4300	4.6466	2.00	G	A	10
G5-2	720R		0.4000	4.6466	1.86	G	A	10
H-1	721		2.6800	4.6272	12.40	H	Dbl D	25
H-2	721		0.3600	4.6272	1.67	H	D	14
H1-1	721		0.9700	4.6272	4.49	H	A	14
H2-1	721		0.6700	4.6272	3.10	H	A	14
H3-1	721		0.5400	4.6272	2.50	H	A	14
H4-1	721		1.7500	4.6272	8.10	H	A	14
H5-1	721		0.3600	4.6272	1.67	H	A	14
H5-2	721		0.3600	4.6272	1.67	H	A	14
H6	721		0.2000	4.6272	0.93	H	A	14
I1-1	721		-	4.6272	-	I		15
I1-2	721		3.5700	4.6272	16.52	I	Dbl D	25
I2	721		1.9100	4.6272	8.84	I	A	14
I3-1	721		1.0600	4.6272	4.90	I	A	14
I3-2	721		3.2400	4.6272	14.99	I	Dbl D	25
I4-1	721		6.3400	4.6272	29.34	I	Dbl D	25
I4-2	721		0.7600	4.6272	3.52	I	A	14
I5-1	721		-	4.6272	-	I		
J1-1	721		1.9000	4.6272	8.79	J	D	14
J2	721		0.7600	4.6272	3.52	J	A	15
J3-1	721		1.0000	4.6272	4.63	J	A	14
J3-2	721		0.4700	4.6272	2.17	J	A	14
J4-1	721		1.0000	4.6272	4.63	J	A	14
J4-2	721		0.4400	4.6272	2.04	J	A	14
J5-1	721		0.0700	4.6272	0.32	J	A	14
J5-2	721		0.0700	4.6272	0.32	J	A	14

Inlet	Basin	Subbasin	Area	Unit Q	Q	Line	Inlet	Capacity
J5-3	721		0.9200	4.6272	4.26	J	D	10
K1-1	721		0.2800	4.6272	1.30	K		
Cl Cr	721		1.0000	4.6272	4.63	K	A	14
UNM GC	---		2.2957	1.1450	2.63	N outfall	D	14

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Consolidated Rental Car Facility

Storm Drain Pipe Analysis

Reach/ Node	Node	Node Elevations		Length	Flow Rate, Q, cfs		Slope	Pipe Size	
Sta.		Invert	Rim		Actual	Capacity			
					cfs	cfs	ft/ft	in.	
810.20	MH A3	5194.40	5210.37						to MH A3 Line A 20+13.9
Line G				263.55	32.29	47.9	0.01366	30	
1,073.75	MH G1	5198.00	5205.80						from Lat G1
Line G				48.76	23.04	101.8	0.06154	30	
1,122.51	MH G2	5201.00	5207.80						from Lat G2
Line G				263.78	18.40	94.9	0.05357	30	
1,386.29	MH G3	5215.13	5222.91						from Lat G3
Line G				185.16	13.48	98.4	0.05757	30	
1,571.45	MH G4/G	5225.79	5234.02						from Lat G4, G5
1,000.00	MH A3	5194.40	5210.37						to MH A3 Line A 20+13.8
Line F				66.93	32.78	181.5	0.19573	30	
1,066.93	MH F1	5207.50	5219.38						DI F1
Line F				214.43	20.14	88.6	0.04664	30	
1,281.36	MH F2	5217.50	5227.97						DI F2
Line F				288.98	18.47	74.4	0.03287	30	
1,570.34	MH F3	5227.00	5236.22						from Lat F1
Line F				132.00	15.17	59.2	0.02083	30	
1,702.34	MH F4	5229.75	5238.82						from Lat F2
Line F				166.50	12.75	59.5	0.02102	30	
1,868.84	MH F5	5233.25	5240.35						from Lat F3
Line F				78.00	4.80	33.9	0.02244	24	
1,946.84	MH F6	5235.00	5241.13						from Lat F4
Line F				199.92	0.98	33.0	0.02126	24	
2,146.76	MH F7	5239.25	5245.40						from Lat F5
1,000.00	MH D2	5221.00	5231.24						to MH D2 Line D 13+52.4
Line E				148.99	30.07	86.4	0.01678	36	
1,148.99	DI E1-1	5223.50	5228.73						DI E1-1a
Line E				214.09	21.80	85.3	0.01635	36	
1,363.08	MH E1	5227.00	5237.60						MH E1, from Lat E1
Line E				80.30	16.32	91.2	0.01868	36	
1,443.38	MH E2	5228.50	5238.68						MH E2, from Lat E2
Line E				276.00	10.56	52.4	0.01630	30	
1,719.38	MH E3	5233.00	5240.92						MH E3, from Lat E3
Line E				300.24	4.80	33.5	0.00666	30	
2,019.62	MH E4	5235.00	5243.33						MH E4
Line E				101.42	4.80	38.9	0.02958	24	

Reach/ Node Sta.	Node	Node Elevations Invert	Rim	Length	Flow Rate, Q, cfs Actual cfs	Capacity cfs	Slope ft/ft	Pipe Size in.	
2,121.09	MH E5	5238.00	5244.24						MH E5, from Lat E4
1,000.00	MH A2	5186.95	5202.43						to MH A2 Line A 14+23.7
Line D				76.78	83.84	381.0	0.32625	36	
1,076.78	MH D1	5212.00	5224.37						MH D1, from Lat D1
Line D				275.67	70.56	120.5	0.03265	36	
1,352.45	MH D2	5221.00	5231.24						MH D2, fr Lat D2, & Ln E
Line D				304.00	32.76	62.2	0.02303	30	
1,656.45	MH D3	5228.00	5238.30						MH D3, from Lat D3
Line D				304.00	16.15	36.7	0.02632	24	
1,960.45	MH D4	5236.00	5242.38						MH D4, from Lat D4
1,030.35	Pond	5180.00							to Pond
Line A				19.65	186.21	159.5	0.01233	48	
1,050.00	Wye	5180.24	5186.00						48X18, from Lat A1a
Line A				50.00	185.76	159.5	0.01233	48	
1,100.00	Wye	5180.86	5190.00						48X18, from Lat A1b
Line A				133.10	185.53	159.5	0.01233	48	
1,233.10	MH A1	5182.50	5199.25						from Lat A2
Line A				53.01	174.24	62.7	0.02335	30	
1,286.11	Wye	5183.74	5199.50						30X18, from Lat A3
Line A				137.60	148.91	62.7	0.02335	30	
1,423.71	MH A2	5186.95	5202.43						from Line D
Line A				590.21	65.07	46.1	0.01262	30	
2,013.92	MH A3	5194.40	5210.37						from Line F&G
1,000.00		5198.00							to MH G1 Line G 10+73.7
Lat G1				47.48	9.25	65.3	0.38606	18	
1,047.48		5216.33							DI G1
958.99		5204.36							DI G2-1
Lat G2				41.01	2.32	24.1	0.05243	18	
1,000.00		5202.21			4.64				to MH G2 Line G 11+22.5
Lat G2				41.01	2.32	24.1	0.05243	18	
1,041.01		5204.36							DI G2-2
958.99	DI G3-1	5219.50							DI G3-1
Lat G3				41.01	2.46	30.1	0.08218	18	
1,000.00	MH G3	5216.13			4.92				to MH G3 Line G 13+86.2
Lat G3				41.01	2.46	30.1	0.08218	18	
1,041.01	DI G3-2	5219.50							DI G3-1
900.76	DI G4-1	5230.50							DI G4-1

Reach/ Node Sta.	Node	Node Elevations Invert	Rim	Length	Flow Rate, Q, cfs Actual cfs	Capacity cfs	Slope ft/ft	Pipe Size in.	
Lat G4				99.24	5.25	20.3	0.03738	18	
1,000.00	MH G5	5226.79			9.62				to MH G4 Line G 15+71.4
Lat G4				102.51	4.37	20.0	0.03619	18	
1,102.51	DI G4-2	5230.50							DI G4-2
876.94	DI G5-1	5233.00							DI G5-1
Lat G5				123.06	2.00	23.6	0.05046	18	
1,000.00	MH G5	5226.79			3.86				to MH G4 Line G 15+71.4
Lat G5				123.86	1.86	23.5	0.05014	18	
1,123.86	DI G5-2	5233.00							DI G5-2
1,000.00		5230.31							To MH F3 Line F 15+70.3
Lat F1				30.00	3.30	26.0	0.06133	18	
1,030.00		5232.15							DI F1-1
1,000.00		5233.80							to MH F4 Line F 1702.34
Lat F2				42.43	2.42	19.9	0.03582	18	
1,042.43		5235.32							DI F2-1
1,000.00		5233.25							to MH F5 Line F 18+68.8
Lat F3				86.38	7.95	21.6	0.04214	18	
1,086.38		5236.89							DI F3-1
983.03	DI F4-1	5237.11							DI F4-1
Lat F4				16.97	1.91	24.1	0.05245	18	
1,000.00	MH F6	5236.22			3.82				to MH F6 Line F 19+46.8
Lat F4				16.97	1.91	22.9	0.04773	18	
1,016.97	DI F4-2	5237.03							DI F4-2
982.21	DI F5-1	5242.00							DI F5-1
Lat F5				17.79	0.98	40.3	0.14727	18	
1,000.00	MH F7	5239.38							to MH F7 Line F 19+46.8
1,110.29	DI E1-1	5234.62							
Lat E1				110.29	5.48	21.2	0.04089	18	
1,000.00	MH E1	5230.11							
983.03	DI E2-1	5235.20							
Lat E2				16.97	2.88	41.5	0.15616	18	
1,000.00	MH E2	5232.55			5.76				
Lat E2				16.97	2.88	41.5	0.15616	18	
1,016.97	DI E2-2	5235.20							
983.03	DI E3-1	5237.25							
Lat E3				16.97	2.88	34.5	0.10784	18	

Reach/ Node	Node	Node Elevations		Length	Flow Rate, Q, cfs		Slope	Pipe Size	
Sta.		Invert	Rim		Actual cfs	Capacity cfs	ft/ft	in.	
1,000.00	MH E3	5235.42			5.76				
Lat E3				16.97	2.88	34.5	0.10784	18	
1,016.97	DI E3-2	5237.25							
983.03	DI E4-1	5240.69							
Lat E4				16.97	0.33	39.9	0.14437	18	
1,000.00	MH E5	5238.24			4.80				
Lat E4				16.97	4.47	24.6	0.05480	18	
1,016.97	DI E4-2	5239.17							
Lat E4				8.83	4.14	24.7	0.05549	18	
1,025.80	DI E4-3	5239.66							
1,000.00	MH D1	5212.00							to MH D1 LD 10+76.78
Lat D1				147.58	13.28	20.3	0.03740	18	
1,147.58	DI D1-1	5217.52							DI D1-1
849.24	DI D2-1	5225.65							DI D2-1
Lat D2				150.76	7.73	18.4	0.03084	18	
1,000.00	MH D2	5221.00							to MH D2 Line D 13+52.4
849.24	DI D3-1	5232.40							
Lat D3				150.76	6.57	17.9	0.02919	18	
1,000.00	MH D3	5228.00			16.61				
Lat D3				198.99	10.04	14.5	0.01910	18	
1,198.99	DI D3-1	5231.80							
1,000.00	MH D4	5236.00							MH
Lat D4				148.99	16.15	7.8	0.00550	18	
1,148.99	DI D4	5236.82							CB
1,000.00		5181.49							To Line A 10+50
Lat A1a				48.17	0.45	34.0	0.10484	18	
1,048.17		5186.54							DI A1a-1
1,000.00		5182.11							To Line A 11+00
Lat A1b				14.52	0.23	65.9	0.39325	18	
1,014.52		5187.82							DI A1b-1
1,000.00		5191.47							To Line A 12+33.1
Lat A2				90.10	11.29	57.2	0.29667	18	
1,090.10		5218.20							DI A2-1
1,000.00		5184.25			25.33				To Line A 12+86.11
Lat A3				66.72	13.70	16.5	0.02473	18	

Reach/ Node Sta.	Node	Node Elevations Invert	Rim	Length	Flow Rate, Q, cfs Actual cfs	Capacity cfs	Slope ft/ft	Pipe Size in.	
1,066.72		5185.90							DI A3-1
Lat A3				47.17	11.63	16.5	0.02480	18	
1,113.89		5187.07							DI A3-2
1,253.53	Pond	5180.00	5180.00						out to pond
Line C				56.43	46.67	108.9	0.07053	30	
1,253.53	MH C1	5183.98	5198.00						
Line C				39.07	46.67	60.0	0.07039	24	
1,281.15	MH C2	5186.73	5198.00						
Line C				323.07	22.68	59.0	0.06800	24	
1,607.07	MH C3	5208.70	5219.00						
Line C				387.01	21.62	56.1	0.06150	24	
1,992.14	MH C4	5232.50	5241.00						
Line C				360.46	4.73	54.6	0.05826	24	
2,352.56	MH C5	5253.50	5262.00						
Line C				249.49	4.04	55.5	0.06012	24	
2,599.25	MH C6	5268.50	5276.00						
Line C				247.09	3.38	56.7	0.06273	24	
2,843.22	MH C7	5284.00	5291.00						
Line C				364.41	1.38	38.4	0.02881	24	
3,207.57	MH C8	5294.50	5301.00						
966.12	DI C1-1	5198.00							DI C1-1
Lat C1				33.88	4.14	18.0	0.02952	18	
1,000.00	MH C2	5197.00							To MH C2 LC 12+81.15
Lat C1				18.04	2.07	17.8	0.02882	18	
1,018.04	DI C1-2	5197.52							DI C1-2
1,000.00	MH C3	5215.00							To MH C3 LC 16+07.07
Lat C2				27.60	1.06	24.1	0.05254	18	
972.40	DI C2-1	5216.45							DI C2-1
1,000.00	MH C4	5238.00							MH C4 LC 19+92.14
Lat C3				19.09	16.89	23.7	0.05081	18	
1,019.09	DI C3-1	5238.97							DI C3-1
Lat C3				12.02	15.93	0.0	0.00000	18	
1,031.11	DI C3-2	5238.97							DI C3-2
1,000.00	MH C5	5259.00							MH C5 LC 23+52.56
Lat C4				18.76	0.69	24.3	0.05330	18	
981.24	DI C4-1	5260.00							DI C4-1
1,000.00	MH C5	5273.37							MH C5 LC 25+99.25
Lat C5				17.79	0.69	24.9	0.05621	18	
982.21	DI C5-1	5274.37							DI C5-1

Reach/ Node Sta.	Node	Node Elevations Invert	Rim	Length	Flow Rate, Q, cfs Actual cfs	Capacity cfs	Slope ft/ft	Pipe Size in.	
1,000.00	MH C6	5288.00							MH C6 LC 28+43.22
Lat C6				17.68	1.00	20.1	0.03676	18	
982.32	DI C6-1	5288.65							DI C6-1
Lat C6				9.50	1.00	0.0	0.00000	18	
972.82	DI C6-2	5288.65							DI C6-2
1,000.00	MH C7	5297.00							to MH C7 LC 32+07.57
Lat C7				27.14	0.69	24.0	0.05232	18	
972.86	DI C7-1	5298.42							DI C7-2
Lat C7				30.03	0.69	0.0	0.00000	18	
942.83	DI C7-2	5298.42							DI C7-1
1,000.00	MH B1	5192.00	5204.08						to MH B1 Line B 5+56.3
Line H				62.99	41.16	186.3	0.20638	30	
1,062.99	MH H1	5205.00	5219.32						MH H1 from Lat H1 & 2-D
Line H				214.78	27.09	99.9	0.05936	30	
1,277.77	MH H2	5217.75	5228.41						MH H2 & 1-D
Line H				287.80	17.97	64.0	0.02432	30	
1,565.57	MH H3	5224.75	5236.23						MH H3 from Lat H2
Line H				131.98	14.87	61.8	0.02273	30	
1,697.55	MH H4	5227.75	5238.86						MH H4 from Lat H3
Line H				159.33	12.37	36.9	0.02667	24	
1,856.88	MH H5	5232.00	5240.40						MH H5 from Lat H4
Line H				85.17	4.27	34.7	0.02348	24	
1,942.05	MH H6	5234.00	5241.16						MH H6 from Lat H5
Line H				200.50	0.93	38.3	0.02868	24	
2,142.55	MH H7	5239.75	5245.41						MH H 7 from Lat H6
1,000.00	MH I2	5218.00	5230.38						to MH I2 Line I 13+49.63
Line J				108.99	34.94	70.0	0.02909	30	
1,108.99	Wye	5221.17	5230.00						30X18 Wye, from Lat J1
Line J				201.63	26.15	69.9	0.02906	30	
1,310.62	MH J1	5227.03	5235.96						MH J1 from Lat J2
Line J				136.42	22.63	70.0	0.02910	30	
1,447.04	MH J2	5231.00	5238.67						MH J2 from Lat J3
Line J				276.00	15.83	23.1	0.01040	24	
1,723.04	MH J3	5233.87	5240.92						MH J3 from Lat J4
Line J				300.24	9.16	23.1	0.01042	24	
2,023.28	MH J4	5237.00	5243.33						MH J4
Line J				101.48	9.16	23.1	0.01045	24	
2,124.76	MH J5	5238.06	5244.24						MH J5 from Lat J5

Reach/ Node	Node	Node Elevations		Length	Flow Rate, Q, cfs		Slope	Pipe Size	
Sta.		Invert	Rim		Actual cfs	Capacity cfs	ft/ft	in.	
4,012.50	MH K3	5288.50	5295.00						MH K3 from 4"
Line K				152.7	1.30	16.4	0.00524	24	
4,164.78	MH K2	5287.70	5294.00						MH K2 from Beehive
Line K									
4,164.78	MH K2	5273.11	5294.00						MH K2 from Beehive
Line K				293.91	39.99	119.6	0.01412	42	
4,458.69	MH I7	5268.96	5290.04						to MH I7 from GA
1,000.00	JB	5188.00	5204.46						to S Outfall
Line I				87.76	262.70	1227.7	0.22220	60	
1,087.76	MH I1	5207.50	5221.68						MH I1 Line B
Line I				261.87	246.18	393.8	0.04010	54	
1,349.63	MH I2	5218.00	5230.28						MH I2 From I2& J
Line I				326.24	202.40	392.6	0.03985	54	
1,675.87	MH I3	5231.00	5241.10						MH I3 from Lat I3
Line I				337.71	182.51	168.4	0.01374	48	
2,013.58	MH I4	5235.64	5245.08						MH I4 from Lat I4
Line I				164.89	149.65	168.2	0.01371	48	
2,178.47	MH I5	5237.90	5247.98						MH I5 from Lat I5 (Spirit)
Line I				152.57	81.19	168.5	0.01376	48	
2,331.04	MH I6	5240.00	5251.45						MH I6
Line I				185.04	81.19	585.4	0.16607	48	
2,516.08	MH I7	5270.73	5290.04						MH I7 from K
Line I				109.09	41.20	587.0	0.16702	48	
2,625.17	Connect	5288.95	5295.00						Connect to GA outlet
									Null
				0.00	0.00	#DIV/0!	#DIV/0!	30	
									Null
1.490.02	MH B4	5220.00	5224.69						MH B4
Line B Nor				208.78	0.00	57.5	0.06466	24	
1,281.24	MH B3	5206.50	5216.58						DI B1
Line B Nor				281.24	14.58	105.2	0.06578	30	
1,000.00	JB	5188.00	5204.46		338.17				University JB
Line B Sou				121.84	60.89	95.5	0.00901	42	
878.16	DI	5189.10	5200.00						DI B1
Line B Sou				133.41	60.89	95.5	0.00901	42	
744.75	MH B2	5190.30	5200.72						MH B2, Lat B2
Line B Sou				188.45	49.42	95.6	0.00902	42	
556.30	MH B1	5192.00	5204.08						MH B1, Lat B1
759.97	DI H1-1	5220.20							DI H1-1

Reach/ Node Sta.	Node	Node Elevations Invert	Rim	Length	Flow Rate, Q, cfs Actual cfs	Capacity cfs	Slope ft/ft	Pipe Size in.	
Lat H1				240.03	9.12	18.2	0.03000	18	
1,000.00	MH H2	5213.00							to MH H1 Line H 10+62.9
970.00	DI H2-1	5232.00							DI H2-1
Lat H2				30.00	3.10	27.1	0.06667	18	
1,000.00	MH H3	5230.00							to MH H3 Line H 15+65.5
957.57	DI H3-1	5235.30							DI H3-1
Lat H3				42.43	2.50	23.1	0.04831	18	
1,000.00	MH H4	5233.25							to MH H4 Line H 16+97.5
910.88	DI H4-1	5236.89							DI H4-1
Lat H4				89.12	8.10	23.3	0.04926	18	
1,000.00	MH H5	5232.50							to MH H5 Line H 18+56.8
983.03	DI H5-1	5237.30							DI H5-1
Lat H5				16.97	1.67	31.2	0.08839	18	
1,000.00	MH H6	5235.80			3.34				to MH H6 Line H 19+42.0
Lat H5				16.99	1.67	31.2	0.08829	18	
1,016.99	DI H5-2	5237.30							DI H5-2
1,000.00	MH H7	5241.14							to MH H7 Line H 21+42.5
Lat H6				16.97	0.93	26.3	0.06246	18	
1,016.97	DI H6-1	5242.20							DI H6-1
1,000.00	Wye	5221.17							to 30X18 Y Line J 11+08
Lat J1				18.52	8.79	50.9	0.23434	18	
1,018.52	DI J1-1	5225.51							DI J1-1
857.16	DI J2-1	5234.56							DI J2-1
Lat J2				142.84	3.52	24.1	0.05272	18	
1,000.00	MH J1	5227.03							to MH J1 Line J 13+10.6
983.03	DI J3-1	5235.00							DI J3-1
Lat J3				16.97	4.63	41.6	0.15675	18	
1,000.00	MH J2	5232.34			6.80				to MH J2 Line J 14+47.0
Lat J3				16.97	2.17	41.6	0.15675	18	
1,016.97	DI J3-2	5235.00							DI J3-2
983.03	DI J4-1	5237.33							DI J4-1
Lat J4				16.97	4.63	36.7	0.12198	18	
1,000.00	MH J3	5235.26			6.67				to MH J3 Line J 17+23.0
Lat J4				16.97	2.04	36.7	0.12198	18	
1,016.97	DI J4-2	5237.33							DI J4-2

Reach/ Node Sta.	Node	Node Elevations Invert	Rim	Length	Flow Rate, Q, cfs Actual cfs	Capacity cfs	Slope ft/ft	Pipe Size in.	
983.03	DI J5-1	5240.00							DI J5-1
Lat J5				16.97	0.32	33.8	0.10371	18	
1,000.00	MH J5	5238.24			4.90				to MH J5 Line J 21+24.76
Lat J5				16.97	4.58	17.7	0.02829	18	
1,016.97	DI J5-2	5238.72							DI J5-2
Lat J5				9.64	4.26	17.9	0.02905	18	
1,026.61	DI J5-3	5239.00							DI J5-3
1,000.00		5289.00							to MH K1 Line K 14+44.5
Lat K1				17.68	5.00	48.3	0.21154	18	
1,017.68		5292.74							DI K1-1
967.74	DI I1-2	5217.00							DI I1-1
Lat I1				32.26	16.52	31.8	0.09144	18	
1,000.00	MH I1	5214.05							to MH I1 Line I 10+87.76
1,000.00	MH I2	5223.25							to MH I2 Line I 13+49.63
Lat I2				246.59	8.84	13.0	0.01521	18	
1,246.59	DI I2	5227.00							DI I2-1
812.50	DI I3-1	5232.50							DI I3-1
Lat I3				187.50	4.90	9.4	0.00800	18	
1,000.00	MH I3	5231.00							
Drop MH					19.89				to MH I3 Line I 16+75.87
1,000.00	MH I3	5233.87							
Lat I3				165.26	14.99	11.9	0.01289	18	
1,165.26	DI I3-2	5236.00							to MH I3 Line I 16+75.87
729.79	DI I4-1	5237.00							DI I4-1
Lat I4				270.21	29.34	7.5	0.00503	18	
1,000.00	MH I4	5235.64							
Drop MH					32.86				to MH I4 Line I 20+13.58
1,000.00	MH I4	5239.58							
Lat I4				75.83	3.52	18.8	0.03191	18	
1,075.83	DI I4-2	5242.00							DI I4-2
1,000.00	MH I5	5238.90							to MH I5 Line I 21+78.47
Lat I5				125.24	68.46	150.8	0.05110	36	
1,125.24	MH I5-1	5245.30							MH I5-1
Lat I5				71.76	68.46	150.8	0.05114	36	
1,197.00	45 Bend	5248.97							45 Bend
Lat I5				12.00	68.46	667.0	1.00000	36	
1,209.00	Connect	5260.97							Connect to Spirit Drive

Reach/ Node	Node	Node Elevations		Length	Flow Rate, Q, cfs		Slope	Pipe Size	
Sta.		Invert	Rim		Actual cfs	Capacity cfs	ft/ft	in.	
821.00	DI B1-1	5195.00							DI B1-1
Lat B1				39.31	2.63	11.7	0.01247	18	
860.31	DI B1-2	5194.51							DI B1-2
Lat B1				139.69	8.26	13.9	0.01740	18	
1,000.00	MH B1	5192.08							to MH B1 Line B 5+56.3
887.92	DI B2-3	5192.67							DI B2-3
Lat B2				49.80	1.44	10.7	0.01044	18	
887.92	DI B2-2	5192.15							DI B2-2
Lat B2				91.33	3.15	10.7	0.01040	18	
979.25	DI B2-1	5191.20							DI B2-1
Lat B2				20.75	11.47	16.0	0.02313	18	
1,000.00	MH B2	5190.72							to MH B2 Line B 7+44.75
1,000.00	MH B3	5206.50							to MH B3 Line B 12+81.2
Lat B3				104.94	14.58	37.7	0.12864	18	
1,104.94	DI B3-1	5220.00							DI B3-1